
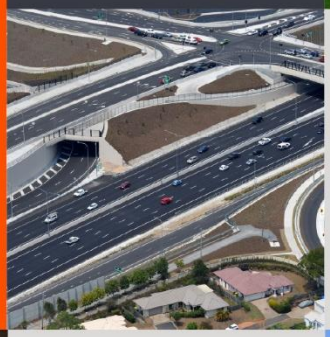


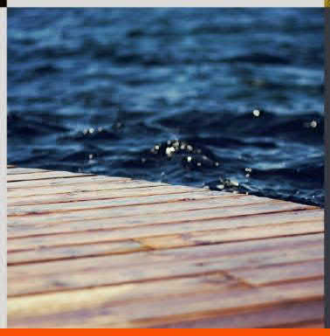

Civil ENGINEERING
ASSESSMENT REPORT

Solar Farm
1 Dingo Lane, Myocum, NSW 2481 | Lot 15 on DP1178892

Client: Byron Shire Council
By Planit Consulting Pty Ltd

December 2021
J6558 | EA01



This report has been written by

Planit Consulting Pty Ltd
ABN 20 099 261 711

Suite 9A, 80-84 Ballina Street
Lennox Head NSW 2478

PO Box 161
Lennox Head NSW 2478

Telephone: (02) 6687 4666

Email: administration@planitconsulting.com.au
Web: www.planitconsulting.com.au

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Project Name	**Dingo Lane Solar Farm**
Client	**Byron Shire Council**
Client Project Manager	**Josh Townsend**
Authors	**Jake Bentley**
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Disclaimer

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1 Executive Summary

This Engineering Assessment (EA) has been prepared in support of Byron Shire Council's proposed solar farm at 1 Dingo Lane, Myocum, NSW 2481 which falls within the Byron Shire Council (BSC) Local Government Area. Planit was engaged by Byron Shire Council (BSC) to assess and report on the civil engineering matters associated with this development.

Acid Sulfate Soils (ASS) were found onsite and accordingly appropriate management of soils during the construction is required.

The area is subject to flooding and accordingly flood mapping of the site has been carried out to identify flood levels. These flood levels have been considered as part of the design.

Minor bulk earthworks are proposed to accommodate proposed turn around areas, passing bays and the inverter and storage areas. It is proposed to keep topography generally consistent between the existing and proposed scenarios.

A Stormwater quantity assessment determined that no detention is required. Stormwater treatment devices are not proposed during the operation phase given that the site achieves full re-establishment of vegetation post construction. To achieve appropriate revegetation during the construction phase and minimise scour and sedimentation, sediment and erosion controls are proposed.

No water or sewer infrastructure is proposed as part of the project and therefore no new connections are required.

Relocation of a telecommunications cable is required.

All power components are to be located above the 1% AEP flood level. Augmentation of the power network is anticipated.

Based on the assessment undertaken, it is believed that the proposed development can readily serviced in a sustainable way.

2 Introduction

2.1 Project Background

This Engineering Assessment (EA) has been prepared in support of Byron Shire Council's proposed solar farm at 1 Dingo Lane, Myocum, NSW 2481 which falls within the Byron Shire Council (BSC) Local Government Area. Planit was engaged by Byron Shire Council (BSC) to assess and report on the civil engineering matters associated with this development.

The proposed development involves construction of approximately 11Ha of solar panels and associated infrastructure including solar inverter, viewing platform, access roads and parking. Refer to Table 1 below for additional development detail. The proposed project site is presented in Figure 1. Additionally, refer to Appendix C for the sites concept civil plans, and the Plan of Subdivision provided in Appendix A.

Table 1 – Site Details Summary

Component	Details
Applicant	Byron Shire Council (BSC)
Street Address	1 Dingo Lane, Myocum, NSW 2481
Local Government Area	Byron Shire Council (BSC)
Climatic Region	Subtropical
Zoning	RU2 – Rural Landscape
Proposed development type	Solar Farm
Total Site Area	40Ha
Map Reference	Lot 15 on DP1178892

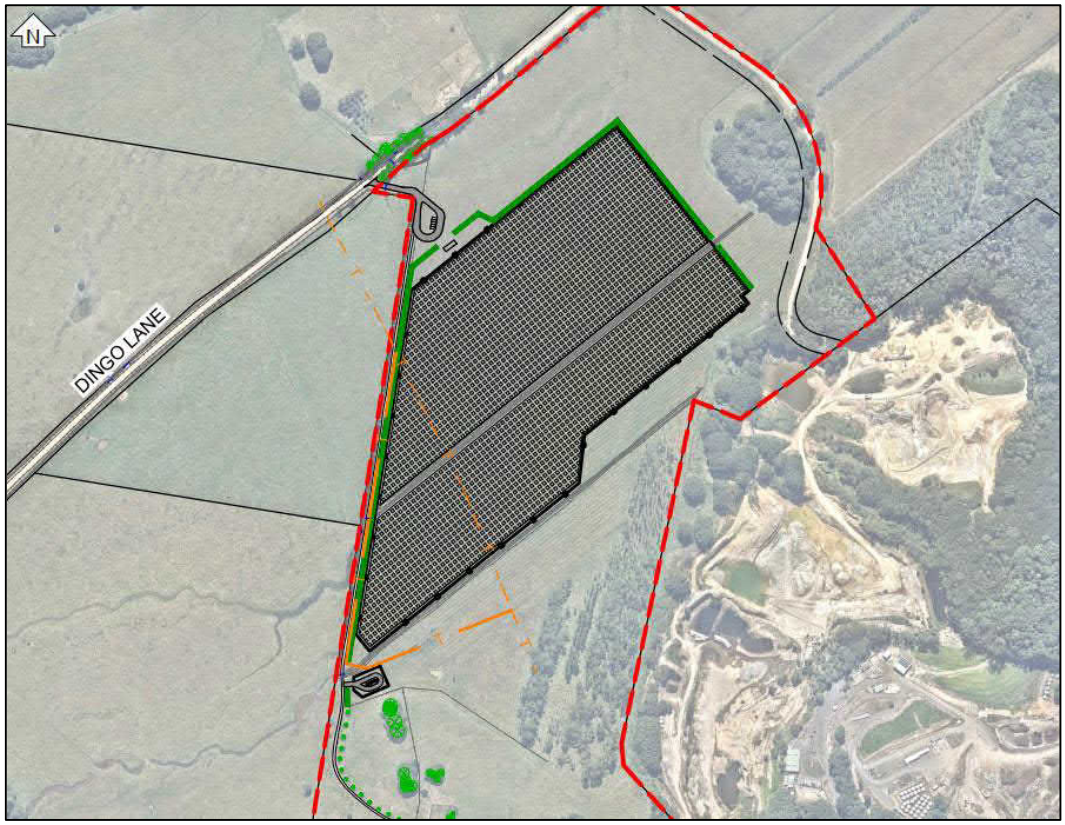


Figure 1- Proposed Solar Farm

2.2 Project Scope

This report presents the results of an assessment of:

- The subject site including:
  - Locality.
  - Existing Services.
  - Legislation.
  - Topography.
  - Soil characteristics.
- Preliminary earthworks design including:
  - Bulk earthworks.
  - Service trenching requirements.
  - Preliminary driveway and crossover design.
- Stormwater management including:
  - Analyses of the existing site and proposed project.
  - Hydraulic calculations and modelling to determine the required detention storage.
  - Provide recommendations for stormwater conveyance.
  - Provide stormwater quality comments.
- Services assessment including:
  - Potable water.
  - Sewer.
  - Power.
  - Telecommunication.

To accompany and further detail the proposed design civil plans are presented in Appendix C.

3 Civil Site Assessment

3.1 Site Description

The subject site (Figure 2) currently contains:

- General grazing farmland.
- Scattered vegetation.
- Access road.
- Residence at the southern end of the site.

The proposed development includes the following:

- Approximately 11 Ha of solar panel arrays.
- Solar inverter.
- Access road and 5 x formalised and 5 x unformalised carparks, and 1 coach bus.
- Viewing platform.
- Landscape screening.
- Security fencing.
- Retained residence and associated access.

The surrounding areas of the site include:

- Dingo Lane (BSC owned road) bounds the site to the north.
- General grazing farmland to the west.
- Macadamia plantation to the south.
- Resource recovery to the south east.
- Quarry to the east.
- General grazing famrland to the north east.

It should be noted that the speed limit in the surrounding area is 80km/h.

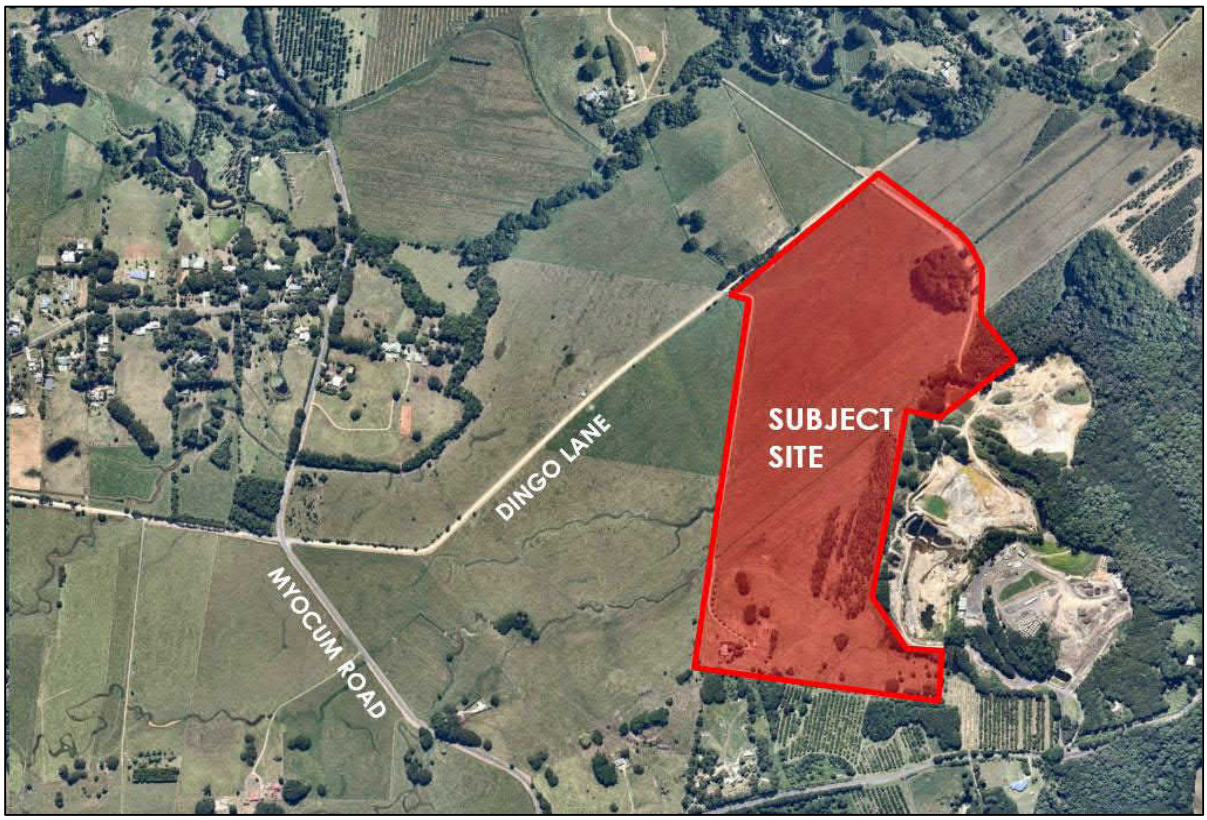


Figure 2- Subject Site

3.2 Existing Services

To confirm the locations of existing services, a 'Dial Before You Dig' (DBYD) search has been requested within the vicinity of the development area, the results of which are included in Appendix B. In addition, a site survey has been completed and is avaliable in Appendix A.

Survey Information and dial before you dig records indicate the following services within the proximity to the subject site:

- Stormwater:
  - There is stormwater infrastructure located on the development site. Currently there is a driveway present with culvert crossings in 4 locations to convey water from upstream.
- Water:
  - There is no council owned potable water infrastructure within vicintity of the subject site with the current residence been serviced via an onsite rain water tank.
- Sewer:
  - There is no council owned sewer infrastructure within vicintity of the subject site with the current residence been serviced via an onsite system.
- Power:
  - Overhead power is located within the vicinity of the subject site with the existing onsite residence serviced via this service.
- Telecommunications:
  - Records indicate that telecommunication serives are located within the subject site. It is assumed that the cable is live and servicing the existing onsite residence, however, this is to be confirmed.

For locations of services, refer to Appendix A for the site specific survey and Appenidx B for the DBYD records.

3.3 Engineering Constraints

All civil works shall be in accordance with the BSC Engineering Specifications including the Subdivision Specifications and Standard Drawings as well as all codes and standards referenced in these documents.

3.3.1 Acid Sulfate Soils

The site is mapped as having presence of Acid Sulfate Soils (Class 4) below the natural surface (Figure 3). Accordingly, Australian Soil Concrete Testing (A.S.C.T.) were engaged to carry out an ASS investigation to determine the presence of ASS below the surface.

The ASS investigation concluded that the soils consist of Potential Acid Sulfate Soils (PASS) and Actual Acid Sulftae Soils (AASS) and require management via liming application upon excavation. Refer to Appendix D for the ASS investigation.

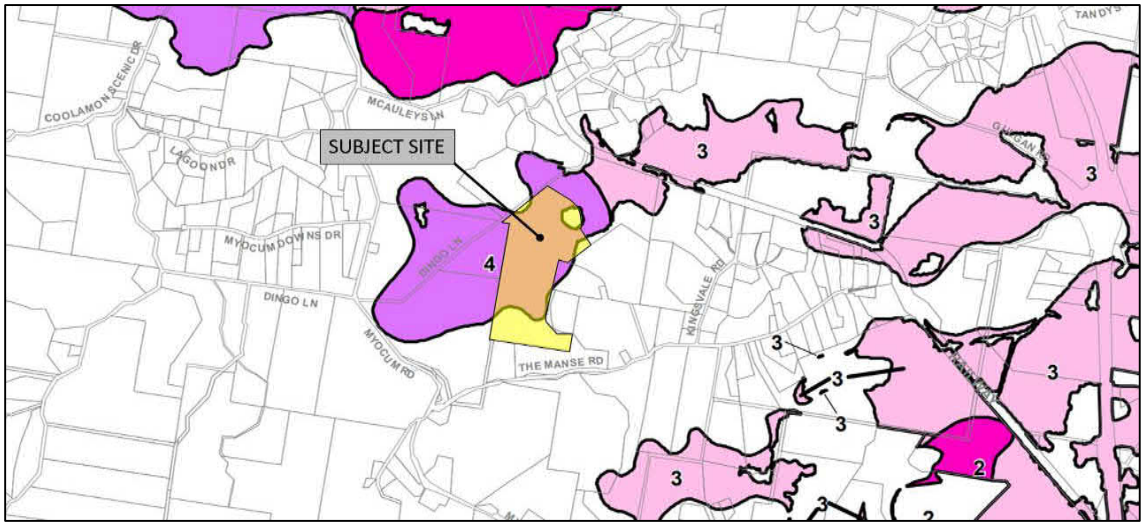


Figure 3- Subject Site Presence of Acid Sulphate Soils

3.3.2 Flood

The subject site is located in an area that is subject to flood inundation. Accordingly, BMT was engaged to complete flood mapping for the subject site. Refer to the extract from the BMT flood study report shown in Figure 4.

Furthermore, Planit is aware that since the completion of this flood study, Myocum road has undergone major upgrades to improve safety and efficiency, the upgrades have resulted in changes of road levels and culverts within the mapped flood affected area. Planit understands a flood study has been carried out as part of the Myocum upgrades. It is therefore, assumed no adverse flood impacts will occur to the subject site based on the new road design levels.

Refer to Appendix E for BMT's flood mapping 1% AEP water levels, depths, and velocities.

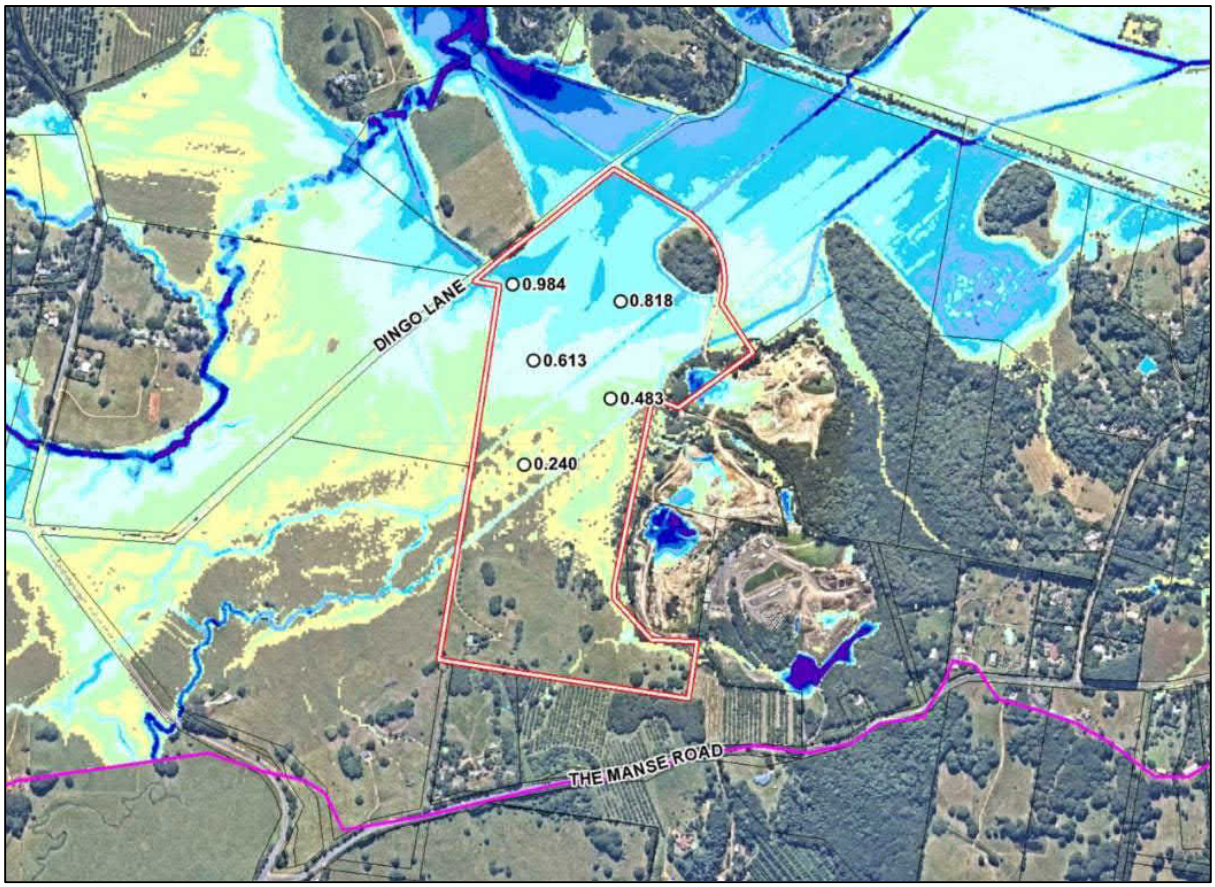


Figure 4- BMT Flood Mapping 1% AEP Water Depths

4 Earth and Roadworks

4.1 Bulk Earthworks

Two small sections of roadway are proposed as part of the project, they include:

- New section at site entrance to allow for the manoeuvring of a coach and providing car parking spaces for educational purposes (i.e. university field trips).
- New section of roadway around the solar inverter and storage area in the south area of the subject site.

In addition, passing bays are proposed along the existing driveway. Based on the new sections of roadway and passing bays, it is anticipated that earthworks volumes shall be minimal with only minor cutting and filling required.

4.2 Service Trenching

Assuming the Telecommunication cable is live, service trenching will be required to relocate the telecommunications cable passing through the subject site. The new alignment is proposed to follow the existing driveway and connect back to the previous alignment.

In addition, service trenching will be required to connect the internal solar infrastructure to the inverter and also connect the solar farm to the electricity grid.

Refer to Appendix C for the site civil plans.

4.3 Driveway Access

New circulation driveways shall be designed and constructed in accordance with AS2890 and NRLG standards and specifications.

Key design parameters include but not limited to:

- Driveways with low traffic volumes are required to be a minimum width of 3m and provide passing opportunities every 30m. It should be noted that the use of the driveway past the viewing platform will be minimum with only authorised personnel and the tenants at the existing residence will be utilising this driveway. In addition, the driveway is straight meaning sightlines to approaching vehicles can be seen from over 30m away and accordingly there is opportunity to increase the passing opportunity interval;
- Maximum Grade – 1 in 6 (desirable) 1 in 4 (absolute maximum).
- Maximum carpark grade - 10%;
- Coach turn around area to ensure coach can enter and exit the site in a forward motion while tyres remain on the pavement; and
- Solar inverter turn around area to ensure a Light Rigid Vehicle can enter and exit the site in a forward motion while tyres remain on the pavement.

For additional details regarding the proposed driveway, refer to Planit's Traffic Impact Statement (J6558-DINGO_LN-TIS01).

5 Stormwater Management

5.1 Stormwater Conveyance

The subject site topography has areas of steep grade (>10%) in the southern area of the lot and areas of shallow grade (<1%) in the northern areas of the site. There is stormwater infrastructure located on the development site. Currently, there is a driveway present with culvert crossings in 4 locations to convey water from upstream. Refer to Figure 5 below for a visual of the exisitng flow paths. Note that these flow paths shown below are subject to flooding and become inundated in major events.

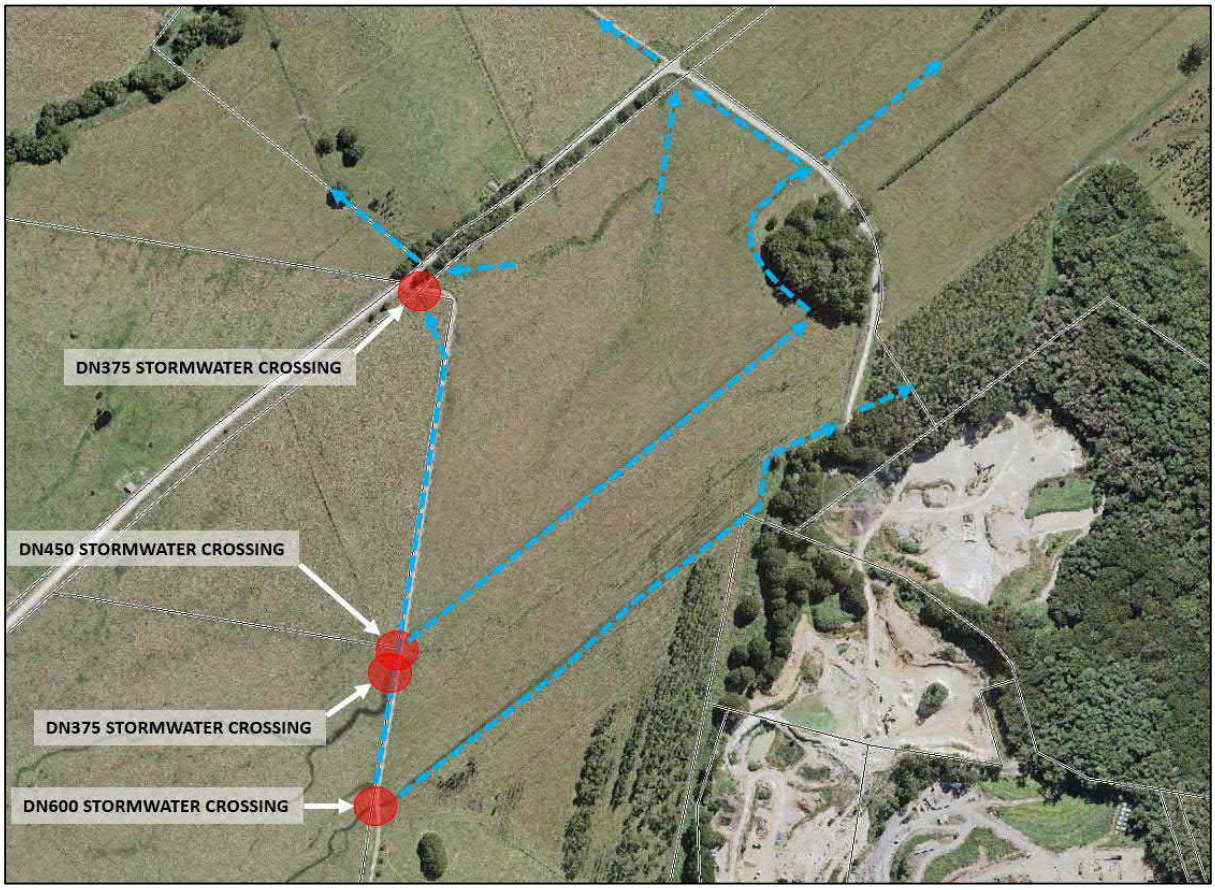


Figure 5- Existing Site Conveyance

It should be noted that the proposed solar farm shall generally be located in the shallow low lying areas with only the inverter to be located on the steeper slope to ensure it is located above the 1% AEP flood event.

In addition, the proposed project finished surface levels are to remain generally consistent with the existing topography as to minimise the impact to upstream and downstream waterways/infrastructure. Refer to Figure 6 below for a concept layout of the proposed solar farm.

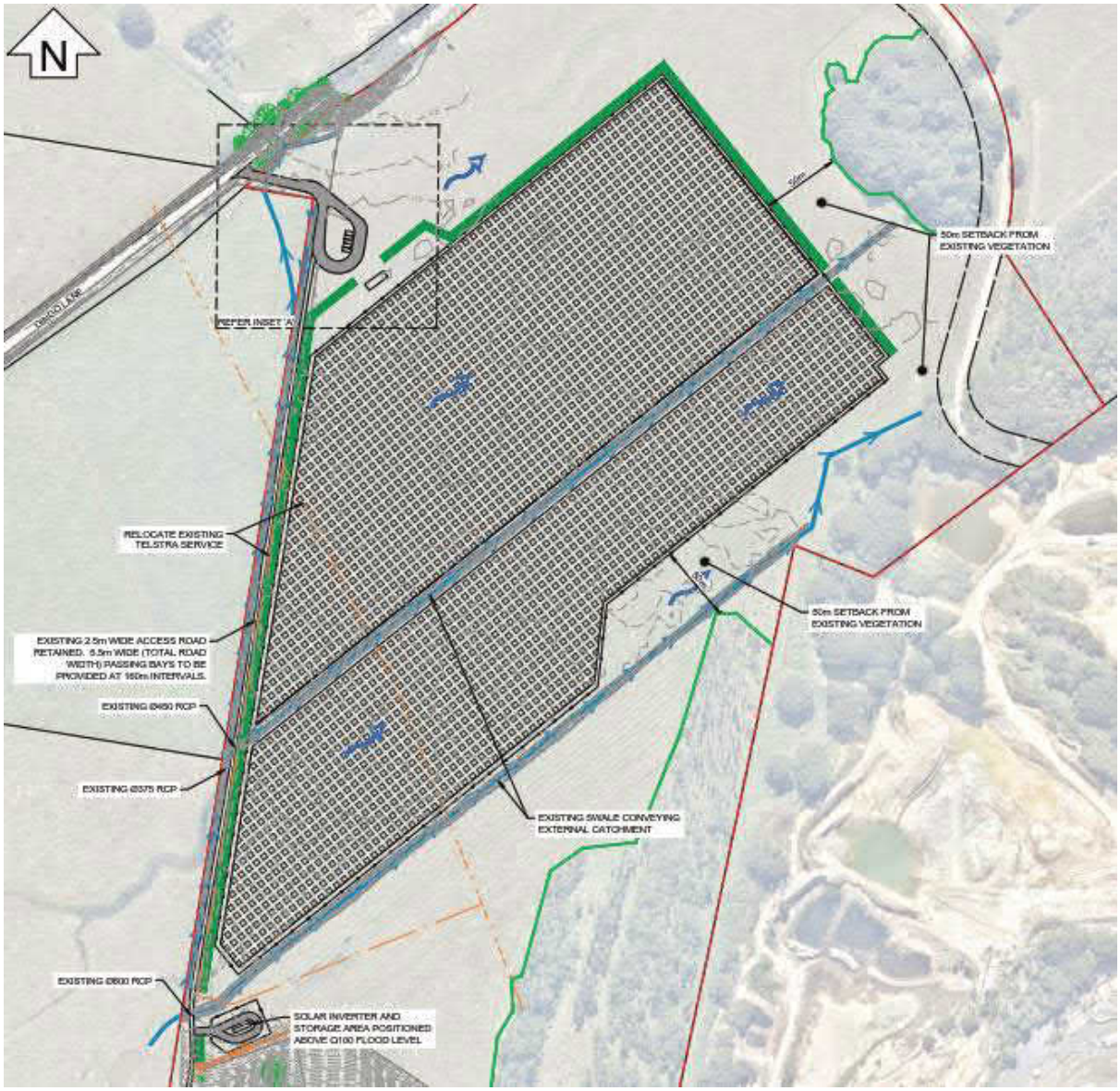


Figure 6- Proposed Site Conveyance

5.2 Stormwater Quantity Assessment

It is proposed to increase the impervious area of the subject site and accordingly a stormwater quantity assessment has been carried out to determine detention requirements. Based on the proposed design, it is anticipated to increase the impervious area as per Table 2.

Table 2 – Site Surface Breakdown

Scenario	Area (ha)	Solar Farm area @ 50% impervious area (ha)	Coach turn around hardstand (ha)	Inverter hardstand (ha)	Total impervious area (ha)	Total % impervious
*Existing	24.55	0	0	0	0	0%
Proposed	24.55	11.00	0.15	0.06	5.71	23%

*The existing gravel driveway is considered as 0% imp

To determine detention and conveyance requirements for the site, a hydraulic assessment was carried out using DRAINS software. Refer below for inputs for the DRAINS model.

5.2.1 Model type

Horton/ILSAX model has been utilised with parameters as per Figure 7 below.

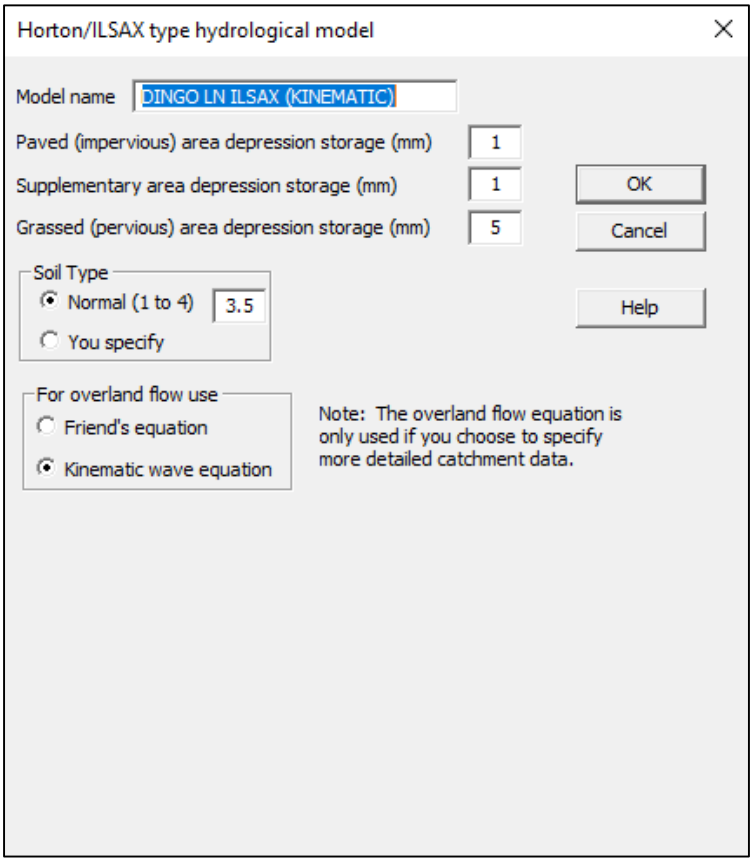


Figure 7- Hydraulic Model Parameters

Notes:

1. 3.5 has been assigned as the soil type as geotechnical information suggests silty clay soils.
2. The time of concentrations have been calculated within DRAINS using the Kinematic wave equation as the site is generally uniform in slope and roughness.

Rainfall data

Rainfall data was collected from the ARR data hub at the following latitude and longitude:

- Latitude: -28.588
- Longitude: 153.508

5.2.2 Catchments

To quantity the peak flow rates from the existing and proposed sites, a lumped catchment approach was carried out. Catchments have been assigned as per Figure 8 below.

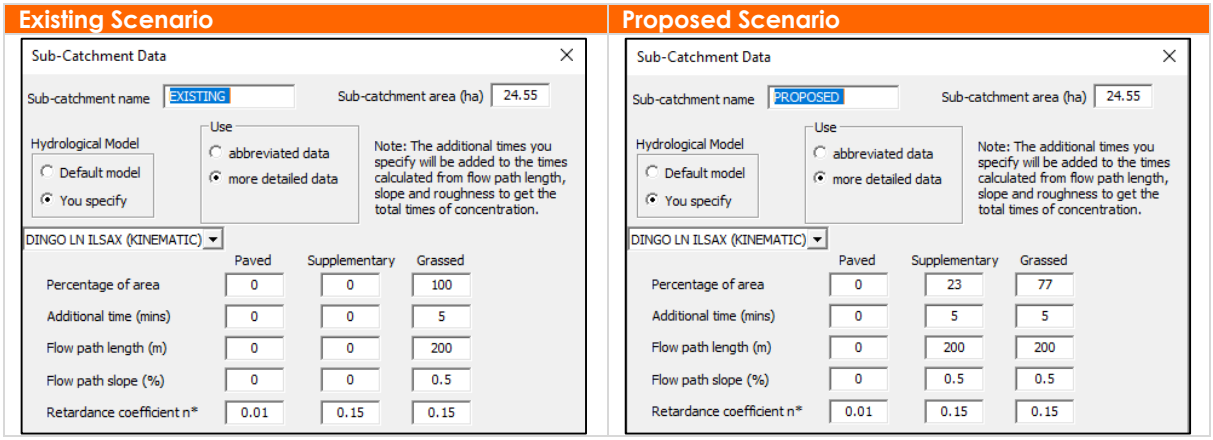


Figure 8- DRAINS Catchments

Notes:

1. Refer to Figure 9 below for the definition of each surface type (Paved, Supplementary, and Grassed areas).
2. Assigned parameters to determine the time of concentrations have been assigned as the following in accordance with QUDM:
    - 200m is assumed to be the maximum sheet flow length before forming concentrated flows.
    - Flow path slope has been assigned based on site conditions.
    - Retardance coefficient has been assigned in accordance with Table 4.6.5 of the QUDM.
    - 5 minutes of additional time has been added to account for travel times of concentrated flows (based on speed relationship (3m/s over 1000m)).
3. As minimal earthworks are proposed, stormwater runoff shall generally be as per the existing conditions.
4. It is assumed rainfall that lands on solar panels will run off to the ground and form sheet flow as the existing topography is relatively flat (<1%).

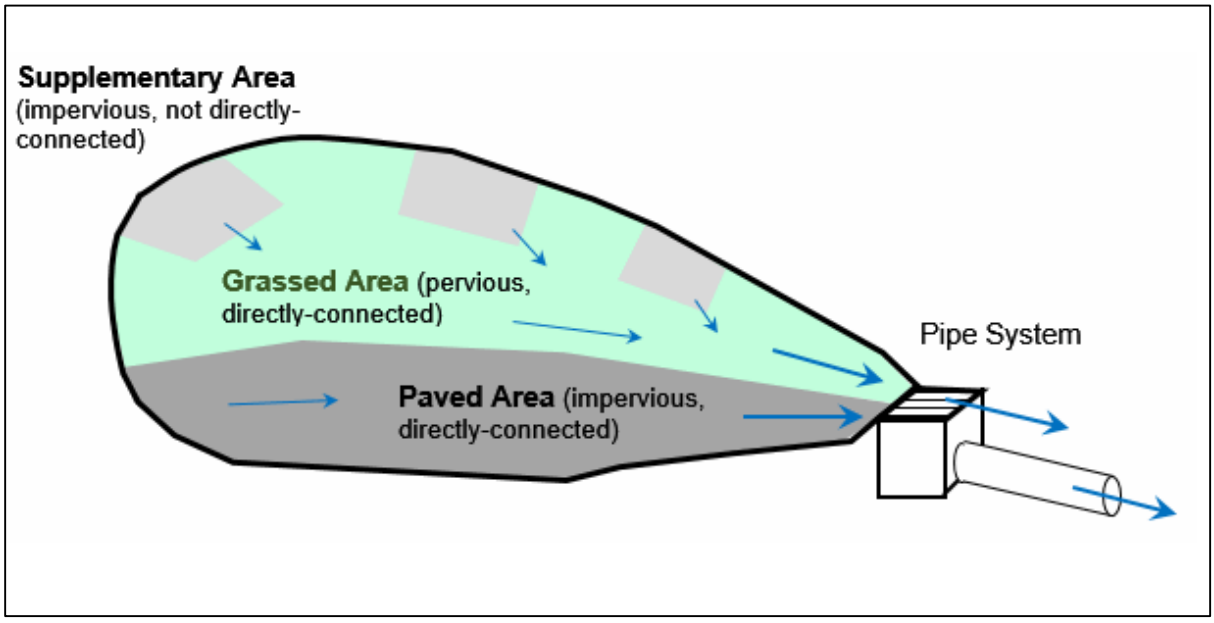


Figure 9- Surface Type Definition

5.2.3 Results

Results from the hydraulic assessment reveal peak flow rates generated from each scenario. Refer to Table 3 below for a comparison between the pre and post development flow rates for equivalent storm events from the minor to major events (20% AEP to the 1% AEP). In addition, refer to Figure 10 and 11 for the minor and major peak flow charts.

Table 3 – Existing and Proposed Scenario Peak Flow Rate Comparison

Scenario	20% AEP (m3/s)	10% AEP (m3/s)	5% AEP (m3/s)	2% AEP (m3/s)	1% AEP (m3/s)
Existing	2.590	3.410	4.270	5.430	6.330
Proposed	2.550	3.240	3.970	5.060	5.840
Impact	-0.040	-0.170	-0.300	-0.370	-0.490

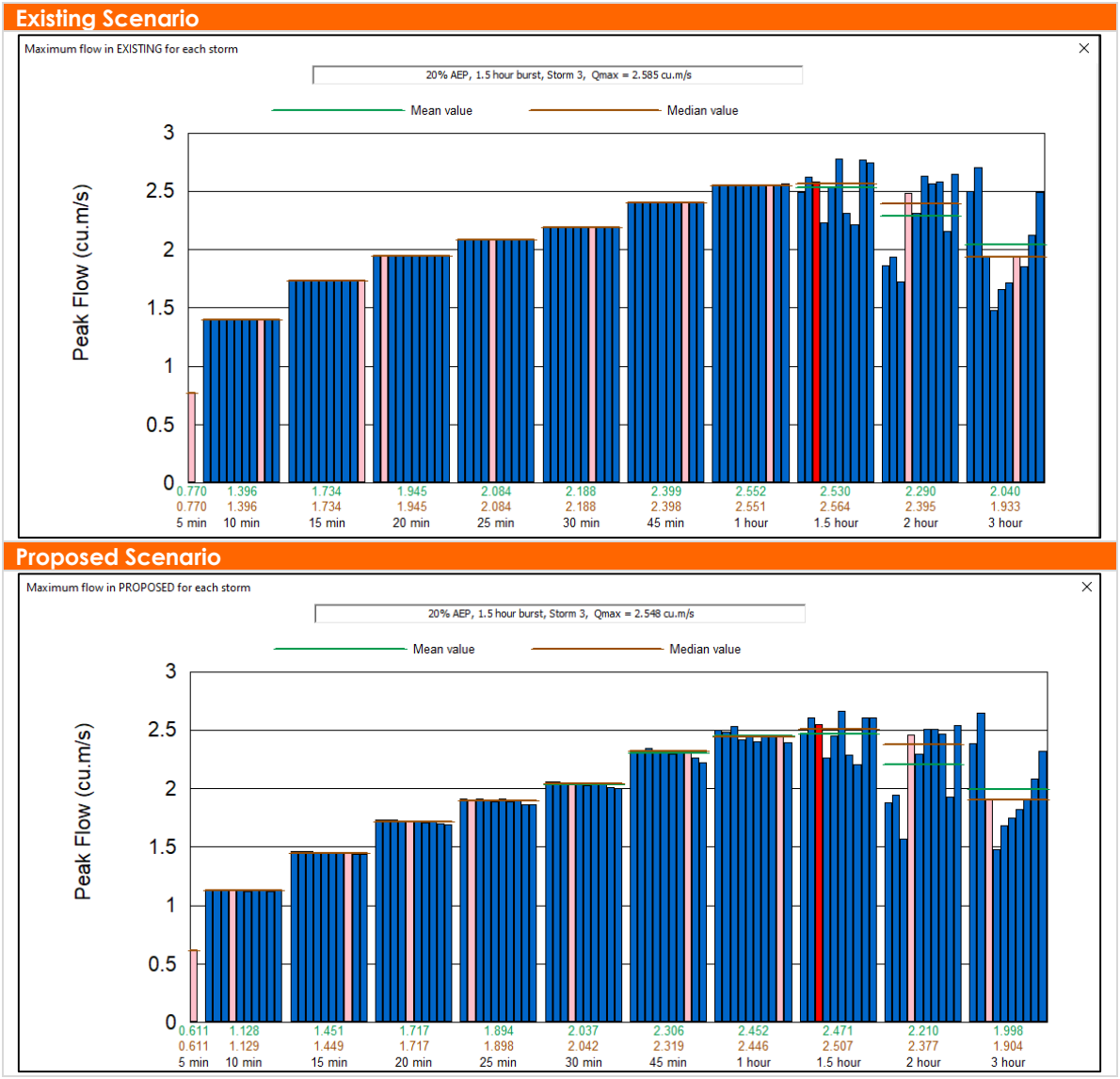


Figure 10- Minor Event (20% AEP) Peak Flow Chart

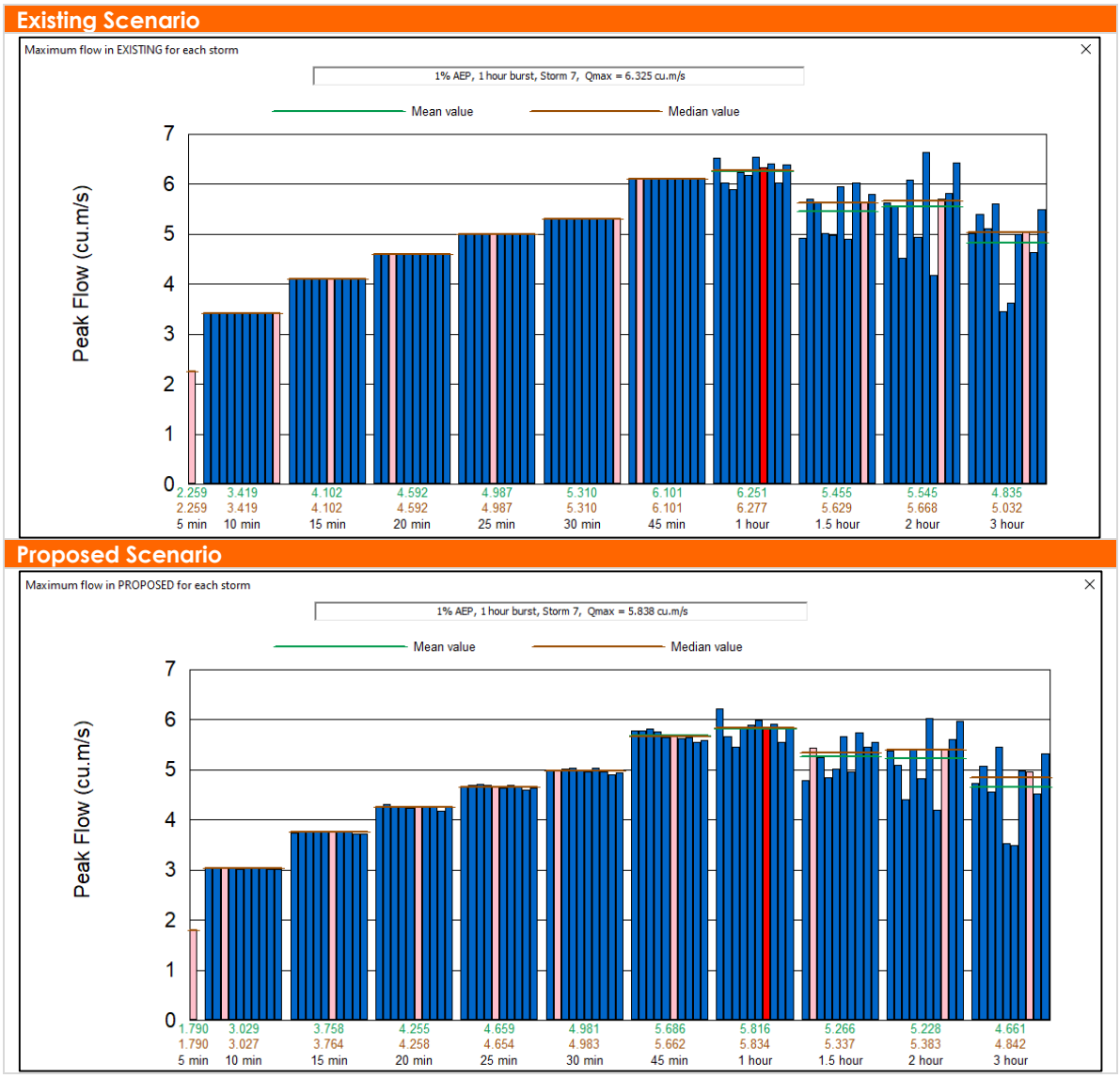


Figure 11- Major Event (1% AEP) Peak Flow Chart

Results from the hydraulic assessment reveal a reduced peak flow for the major and minor events. Based on the results, the supplementary areas and grassed areas become less concentrated due to the different surface types. Accordingly, the hydraulic assessment concluded that no detention is required and upon completion of the project (operation phase) stormwater runoff characteristics shall be generally as per the existing scenario.

5.3 Stormwater Quality Assessment (Operational)

The proposed solar farm is not expected to experience extensive traffic movements (refer to Planit's Traffic Impact Statement (J6558-DINGO_LN-TIS01), nor does the project propose a high percentage of indirectly connected hardstand areas (refer to section 5.2 of this document). Therefore, pollutant loading on roadways will be minimal and is anticipated to flow over grass (receiving treatment) prior to discharging offsite. In addition, solar panels will not collect extensive quantities of pollutants and runoff from solar panels will be required to sheet flow over grass (receiving treatment) and discharge offsite.

Based on the proposed solar farm and the above assumptions, it is not proposed to install stormwater treatment devices as any impact to water quality downstream shall be negligible.

Although no stormwater treatment devices are proposed during the operation phase of the project, during construction, sediment and erosion control measures will be required to ensure vegetation onsite is re-established to avoid scour and erosion of streams.

Refer to section 5.4 below for details of the proposed controls to be implemented during the construction phase.

5.4 Stormwater Quality Assessment (Construction)

The aim of the following controls is to achieve a no worsening impact of stormwater quality and achieve no reduction in the environmental values of the downstream receiving waters caused by construction activities on the subject site during the construction of the development.

Stormwater quality during construction activities shall be achieved through the implementation of Erosion and Sediment Controls in accordance with the requirements of the Landcom 'Soils and Construction Volume 1 – Managing Urban Stormwater: Soils and Construction' (i.e. Blue Book). The measures are to be implemented before the commencement of any subdivision works and should be inspected regularly, and after heavy storm events to ensure they are achieving their desired purpose. The measures to be used on site include:

- Minimise the number of site access points and provide stabilised site access.
- Stabilised site access to be provided at access to shake down all vehicles entering and leaving the site, minimising the transport of sediment off-site. All vehicles must use the designated site access to enter or leave the site.
- Installation of downstream sediment barriers prior to commencement of any works.
- Sediment fences are to be installed downstream of works and exposed soils to ensure contaminated run-off is filtered and sediment captured before it can make its way into the downstream receiving environment.
- Turf Strips where required.
- Cut-off drains are to be formed at the top of batter slopes (Cut-off drains will allow the discharge of water to be conveyed and directed to the most desirable points of discharge to ensure suitable sediment treatment is achieved).
- External catchment is to be conveyed around the area of works and discharged at appropriate location.
- Stabilise and protect earthwork areas immediately once earthwork profiles are achieved.
- Stockpile materials in protected locations away from overland flow paths and protected by sediment fence boundaries.
- Stockpile locations will be located in an elevated, level area nominally 5m away from any water body or channel. Upslope protection measures (i.e. sandbags or equal) are to be used to divert run-off in the event of rain, and sediment fences are to be installed downstream of any erodible stockpile. At the end of each day or in the event of rain or high winds, stockpiles are to be covered and secured. Appropriate locations of stockpiles are to be determined by the site manager at the time of construction.
- Sediment fence to be used on low side of any areas of soil disturbance (e.g. road formation, house pad, soil stockpiles, etc).
- Rock filter dams and gypsum filled bags, flock blocks or equivalent placed on low side of check dam spillway, are to be provided in key locations to treat stormwater run-off from the works area.
- Site is to be watered during the construction phase to minimise the generation of dust onsite.
- When wind speeds reach 35km/h, all dust generating construction activities must cease onsite.

The following inspection program shall be established by the Site Contractor and monthly Check Sheet reports shall be submitted to the Supervising Engineer:

- Daily inspection of the site Stabilised Access point and amendments as necessary.
- Formal weekly inspection of erosion and sediment controls.
- Inspections after 10mm rainfall events in 24 hours.
- Testing runoff after significant rainfall events to ensure a max. discharge of 50mg/L suspended solids.

In addition to the inspection details, the following information will be recorded:

- List frequency and method of removal of material from stabilised access point.
- Volume of material removed from in/around sediment controls.
- Location of site where materials are disposed.
- Any repairs/additions as appropriate.

Refer to Appendix C for the proposed sediment and erosion control plan, including locations of proposed treatment devices.

6 Services Assessment

6.1.1 Potable Water

No amenities are proposed as part of the project with the existing residence having access to water through the use of rainwater tanks. Accordingly, there is no potable water provisions for the site and a connection is not required.

6.1.2 Sewer

No amenities are proposed as part of the project with the existing residence having assumed to have an onsite system. Accordingly, there is no provisions for additional sewer connections.

6.1.3 Power

The solar farm shall be connected to the existing infrastructure available in the south area of the subject site. It is expected that augmentation/modification to the existing infrastructure will be required as part of this project, however this is to be confined by the service provider.

It should be noted that all power components (i.e. solar panels, cables, joints etc.) shall be kept above the 1% AEP flood level. Refer to Appendix E for BMT's 1% AEP flood mapping.

6.1.4 Telecommunications

As records indicate a telecommunication cable crossing the subject site in the area where the solar panels are proposed, it is proposed to realign the cable to avoid possible clashes with solar panels. It is proposed to relocate this cable as per Figure 12 below.

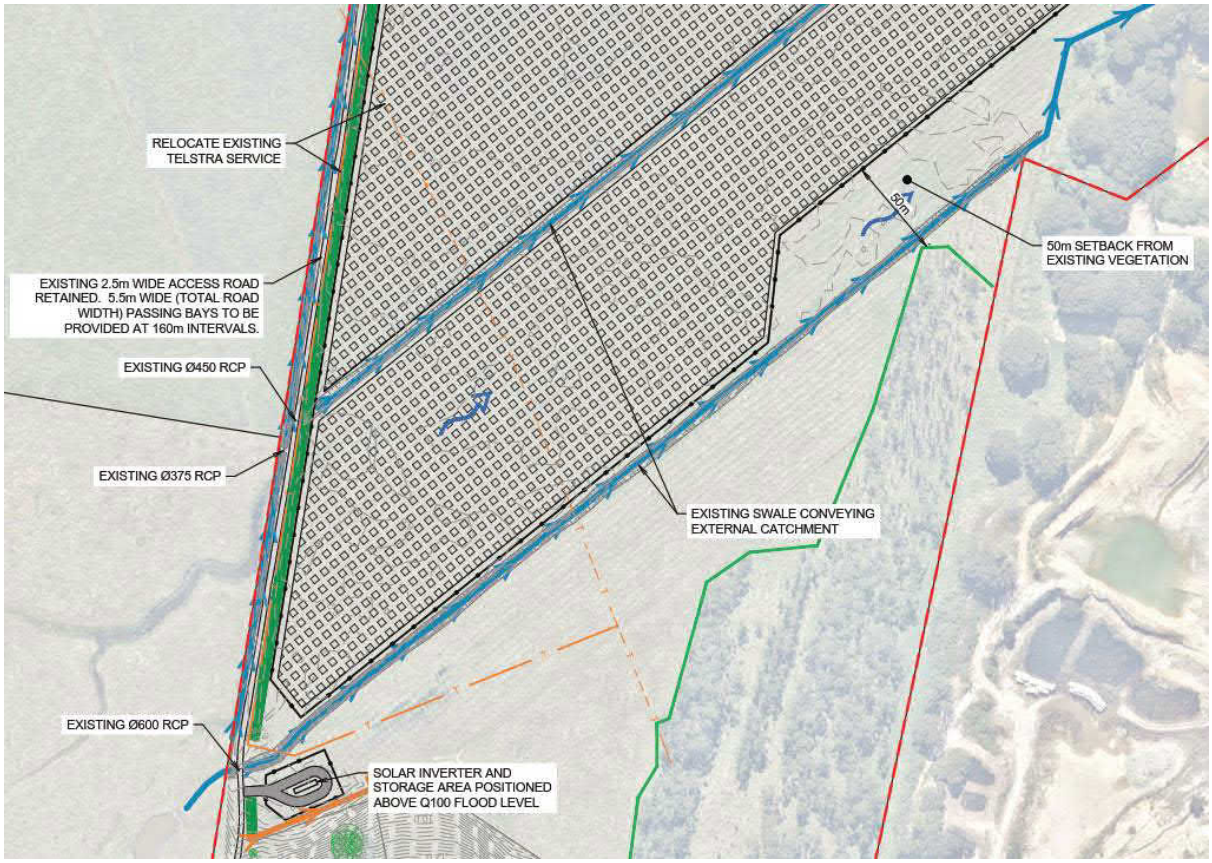


Figure 12- Proposed Telecomunicatons Cable Realignment

7 Conclusion/Recommendations

The assessment outlines the constraints of the site and the proposed strategy to successfully complete earthworks, convey stormwater, and provide water, sewer, electricity, and telecommunication connections to the proposed development. Additionally, a Stormwater Management Plan has been prepared and is presented in Section 5 of this document, detailing treatment and detention requirements to minimise the impacts of the project both during its construction and operational phase.

Planit has designed this project in accordance with Byron Shire Council standards (including Northern River Local Government Development design/construction manuals and standard drawings), Queensland Urban Drainage Manual (QUDM), and the 'Blue Book'. Accordingly, Planit recommends the following:

Earthworks/Road works:

- Minor earthworks to accommodate the proposed coach turn around area, the solar inverter roadway and passing bays on the existing driveway.
- Topography within the solar array area to remain consistent with the existing scenario as to minimise the impact of site hydraulics.
- Construction of compliant access driveways for the site from Dingo Lane.

Stormwater:

- Hydraulic assessment determined that detention is not required.
- Sediment and erosion control devices are required during the construction of the project to ensure full re-vegetation upon completion of the project.
- Stormwater treatment during the operation phase is not required given that vegetation achieved full re-establishment.

Additional Services:

- Ensure the inverter and all electrical components will be constructed above the 1% AEP flood event.
- Service trenching to relocate telecommunications cable and provide connections to power.
- No sewer or water infrastructure is proposed and therefore no additional sewer or water connections are required.

Based on the assessment undertaken, it is believed that the proposed development can readily be serviced in a sustainable way.

Appendix A

Site Survey

NOTES

- THIS NOTE APPLIES TO ALL SHEETS AND FORMS AN INTEGRAL PART OF THIS PLAN.
- THE PURPOSE OF THIS DETAIL SURVEY PLAN IS TO SHOW DETAIL AND LEVELS FOR PLANNING AND DESIGN. DO NOT USE THE INFORMATION SHOWN FOR ANY OTHER PURPOSE.
- PROPERTY LINES HAVE BEEN COMPILED FROM DEPOSITED PLANS AVAILABLE AT NSW LAND REGISTRY SERVICES. NO BOUNDARY SURVEY OR INVESTIGATION HAS BEEN MADE AND NO BOUNDARIES HAVE BEEN MARKED. BOUNDARIES SHOWN HEREON ARE PROVISIONAL AND SUBJECT TO FURTHER SURVEY. POSITION OF IMPROVEMENTS RELATIVE TO BOUNDARIES SHOWN HEREON IS DIAGRAMMATIC ONLY.
- UNDERGROUND SERVICES LINE STYLES SHOWN ON THIS PLAN ARE IN ACCORDANCE WITH AS5488 - CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION (SUI). THE FOLLOWING POSITION ACCURACIES APPLY TO UNDERGROUND LINE STYLES:

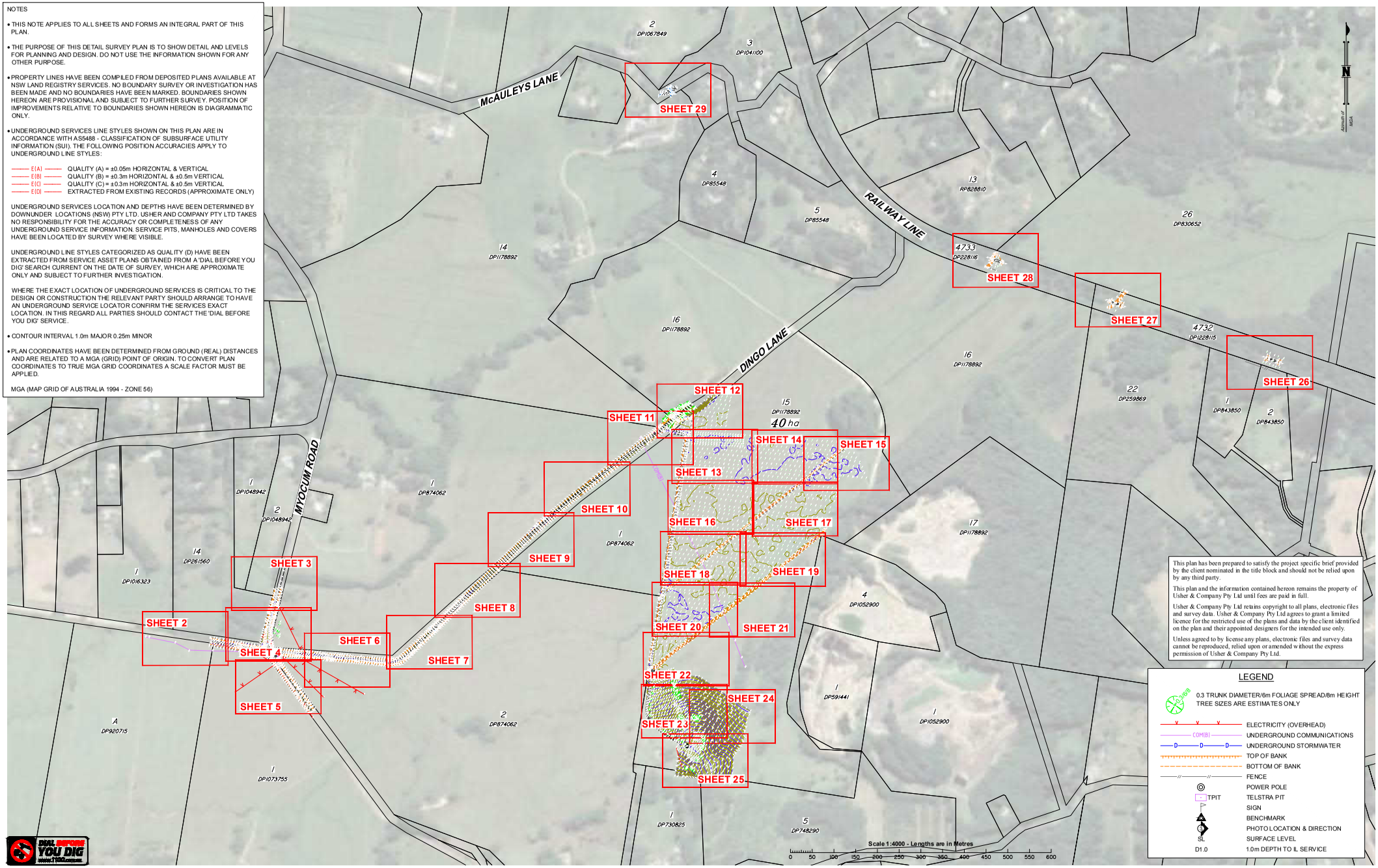
  E(A) QUALITY (A) = ±0.05m HORIZONTAL & VERTICAL
  E(B) QUALITY (B) = ±0.3m HORIZONTAL & ±0.5m VERTICAL
  E(C) QUALITY (C) = ±0.3m HORIZONTAL & ±0.5m VERTICAL
  E(D) EXTRACTED FROM EXISTING RECORDS (APPROXIMATE ONLY)

  UNDERGROUND SERVICES LOCATION AND DEPTHS HAVE BEEN DETERMINED BY DOWNUNDER LOCATIONS (NSW) PTY LTD. USHER AND COMPANY PTY LTD TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF ANY UNDERGROUND SERVICE INFORMATION. SERVICE PITS, MANHOLES AND COVERS HAVE BEEN LOCATED BY SURVEY WHERE VISIBLE.

  UNDERGROUND LINE STYLES CATEGORIZED AS QUALITY (D) HAVE BEEN EXTRACTED FROM SERVICE ASSET PLANS OBTAINED FROM A 'DIAL BEFORE YOU DIG' SEARCH CURRENT ON THE DATE OF SURVEY, WHICH ARE APPROXIMATE ONLY AND SUBJECT TO FURTHER INVESTIGATION.

  WHERE THE EXACT LOCATION OF UNDERGROUND SERVICES IS CRITICAL TO THE DESIGN OR CONSTRUCTION THE RELEVANT PARTY SHOULD ARRANGE TO HAVE AN UNDERGROUND SERVICE LOCATOR CONFIRM THE SERVICES EXACT LOCATION. IN THIS REGARD ALL PARTIES SHOULD CONTACT THE 'DIAL BEFORE YOU DIG' SERVICE.
- CONTOUR INTERVAL 1.0m MAJOR 0.25m MINOR
- PLAN COORDINATES HAVE BEEN DETERMINED FROM GROUND (REAL) DISTANCES AND ARE RELATED TO A MGA (GRID) POINT OF ORIGIN. TO CONVERT PLAN COORDINATES TO TRUE MGA GRID COORDINATES A SCALE FACTOR MUST BE APPLIED.

  MGA (MAP GRID OF AUSTRALIA 1994 - ZONE 56)



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LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COM(B) UNDERGROUND COMMUNICATIONS
- D UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
- POWER POLE
- TPIT TELSTRA PIT
- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL SURFACE LEVEL
- D1.0 1.0m DEPTH TO IL SERVICE

DIAL BEFORE YOU DIG www.1100.com.au

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A.B.N. 70 128 414 602
1 West Street, Burleigh Heads QLD 4220
PO Box 756 Burleigh Heads QLD 4220
Phone: (07) 5535 8346
Fax: (07) 5535 8155
Email: admin@usherandcompany.com.au

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Amendments

ISSUE	DATE	DETAILS
A	15-06-2020	Original Issue

TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 1 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:4000 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

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PLAN REFERENCE: 10823

ISSUE: A

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- ELECTRICITY (OVERHEAD)
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- UNDERGROUND STORMWATER
- TOP OF BANK
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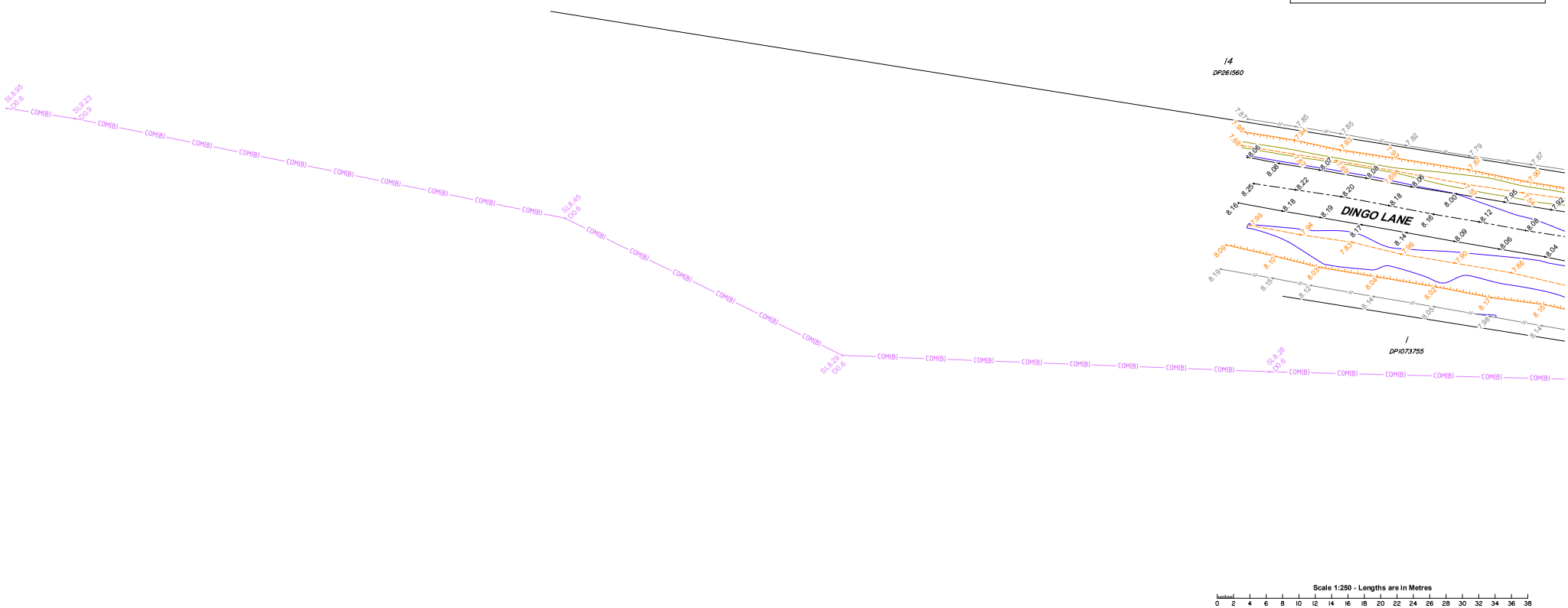
- D1.0 1.0m DEPTH TO IL SERVICE



Scale 1:250 - Lengths are in Metres

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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 2 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 3 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
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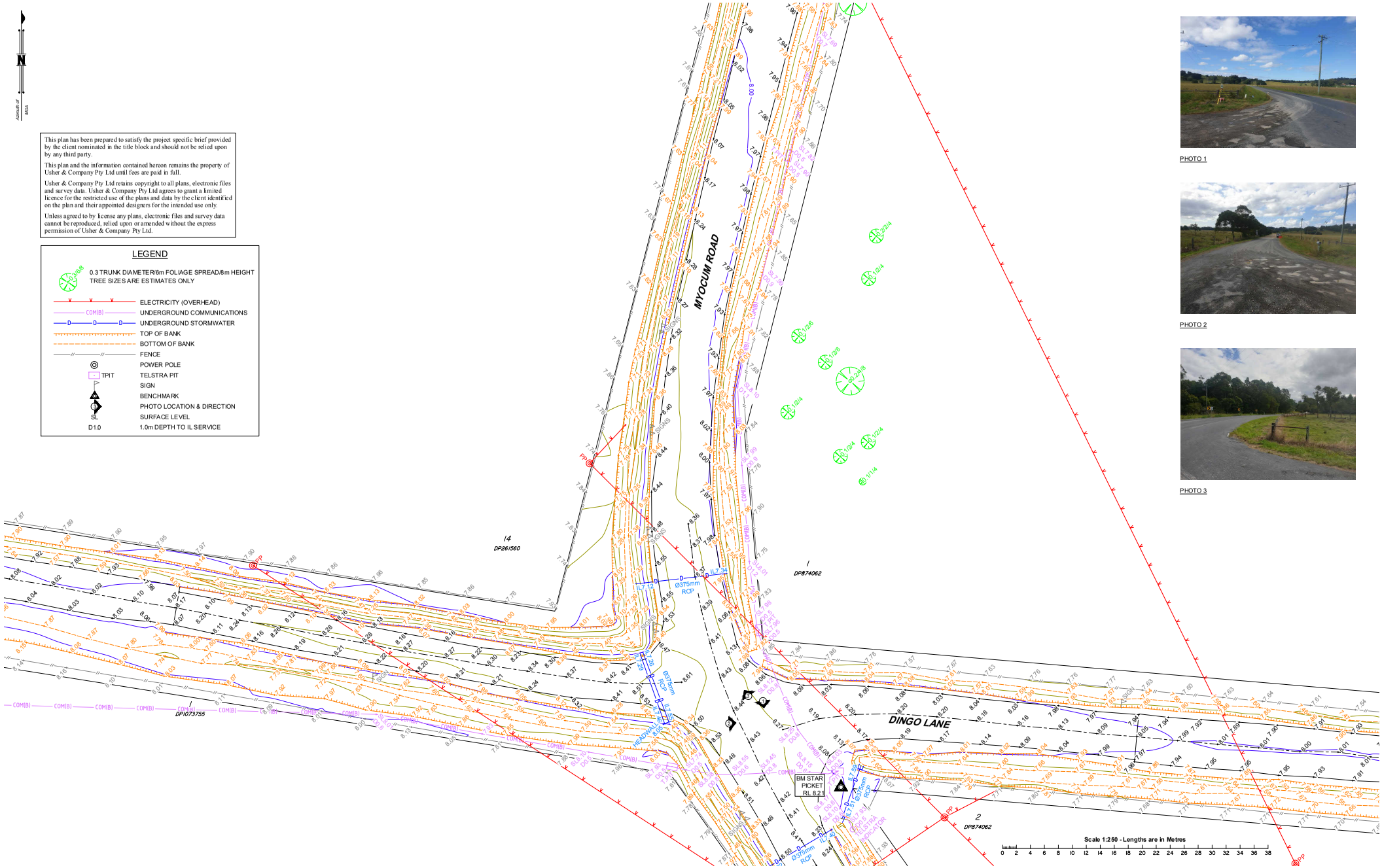

PHOTO 1

PHOTO 2

PHOTO 3

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BEING LOT 15 ON DP1178892
SHEET 4 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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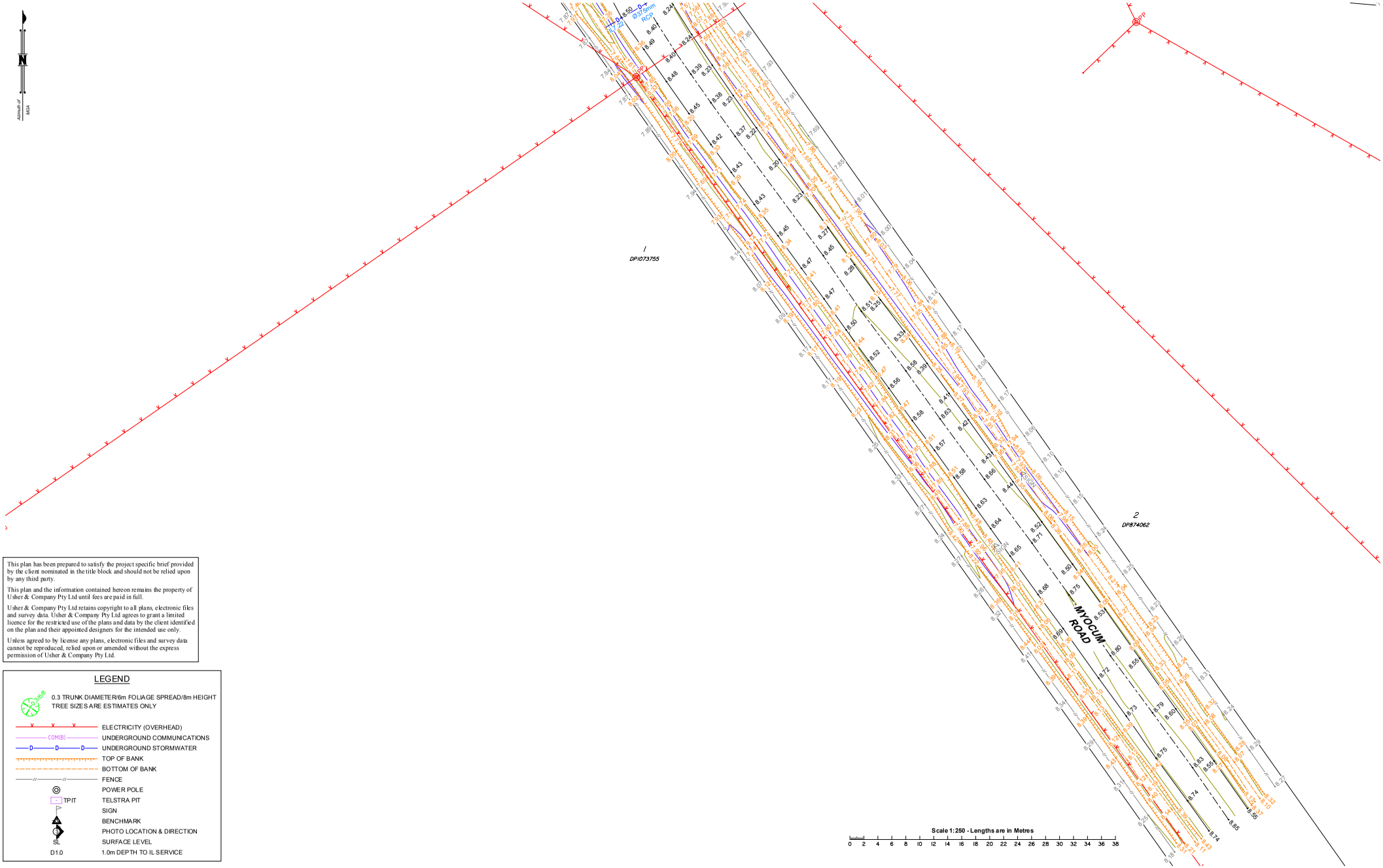

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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 5 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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N

Azimuth of MGA

/
DP874062

2
DP874062

DINGO LANE

BMP

Scale 1:250 - Lengths are in Metres

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SHEET 6 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
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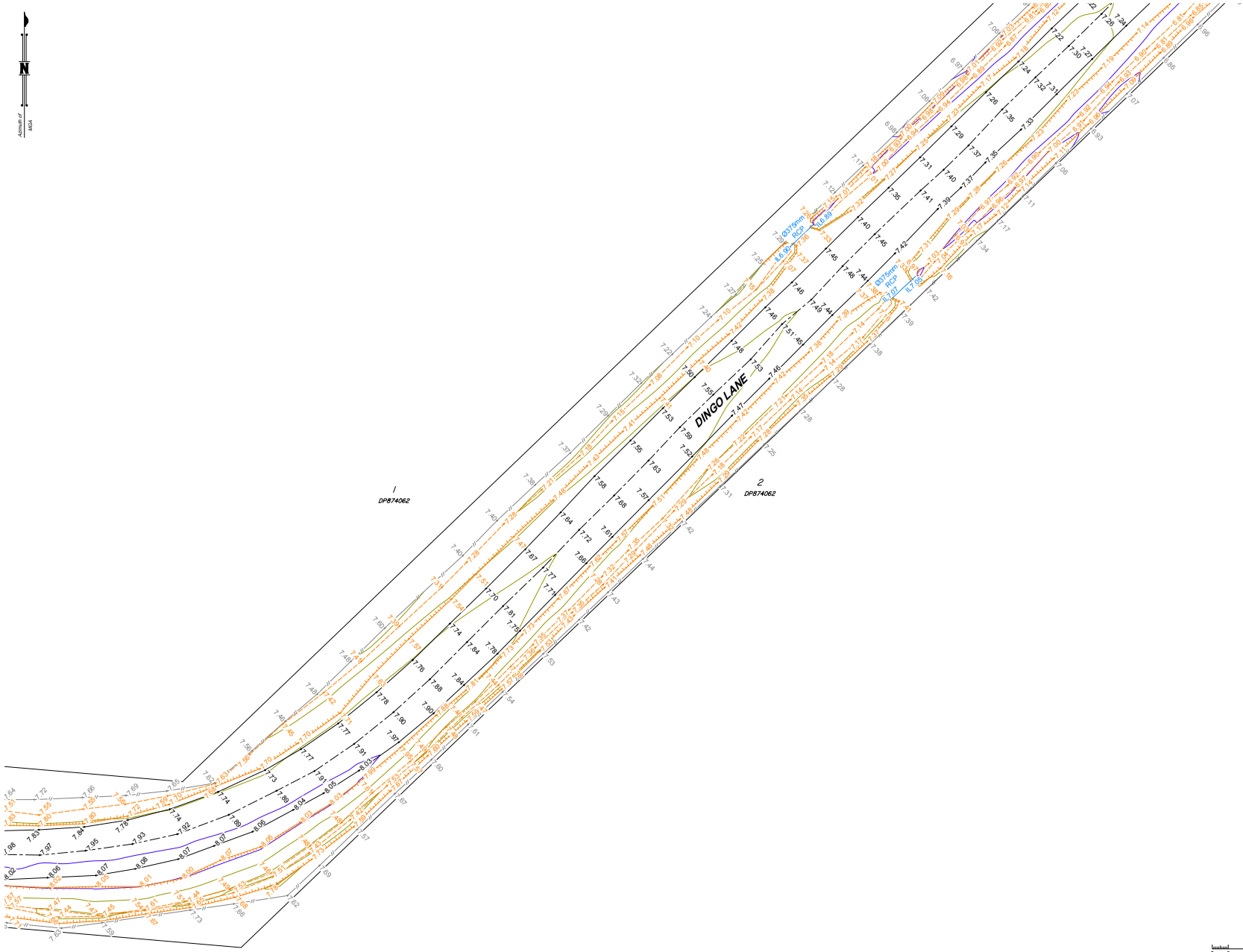

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Scale 1:250 - Lengths are in Metres

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 7 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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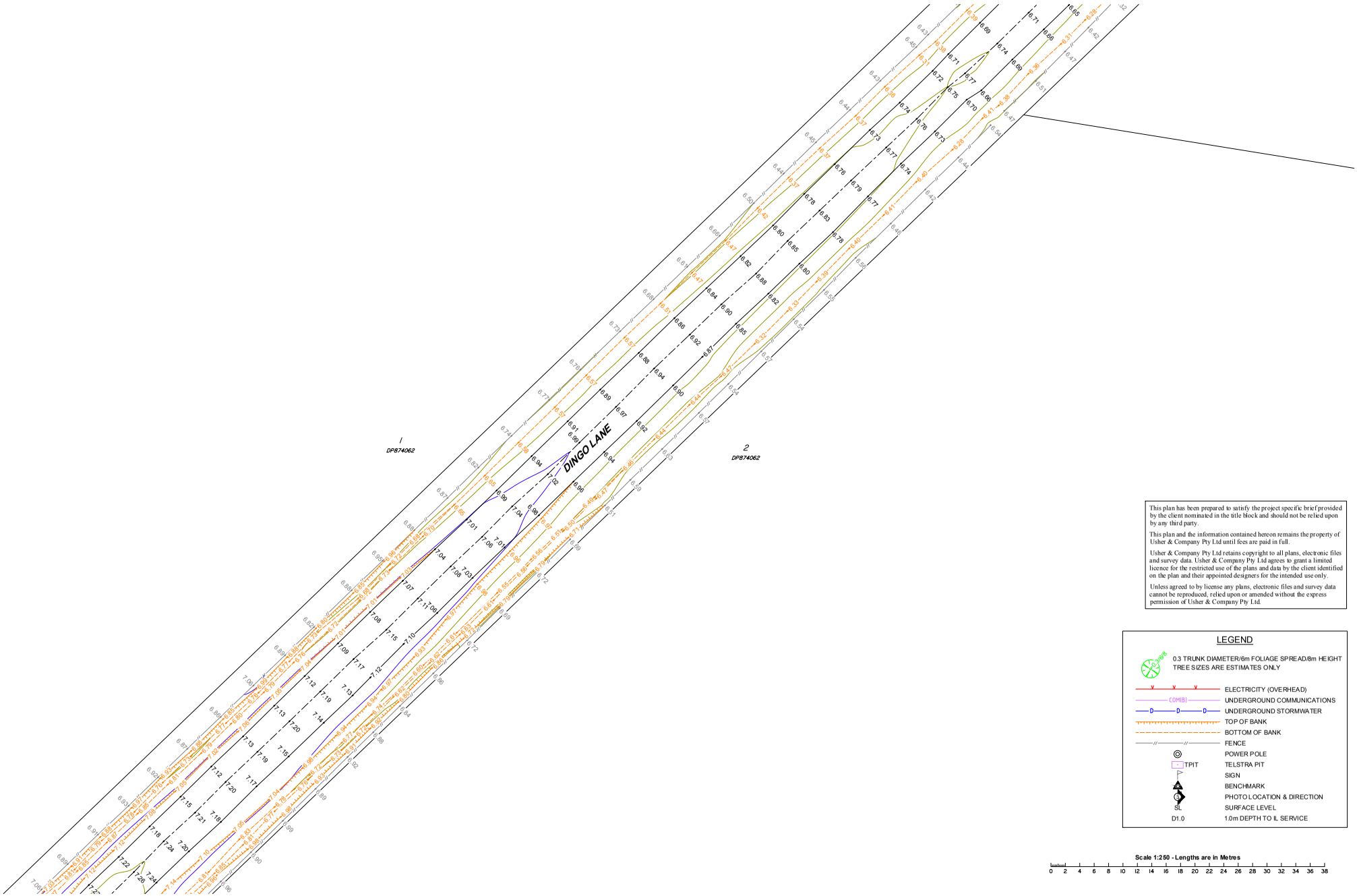

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BEING LOT 15 ON DP1178892
SHEET 8 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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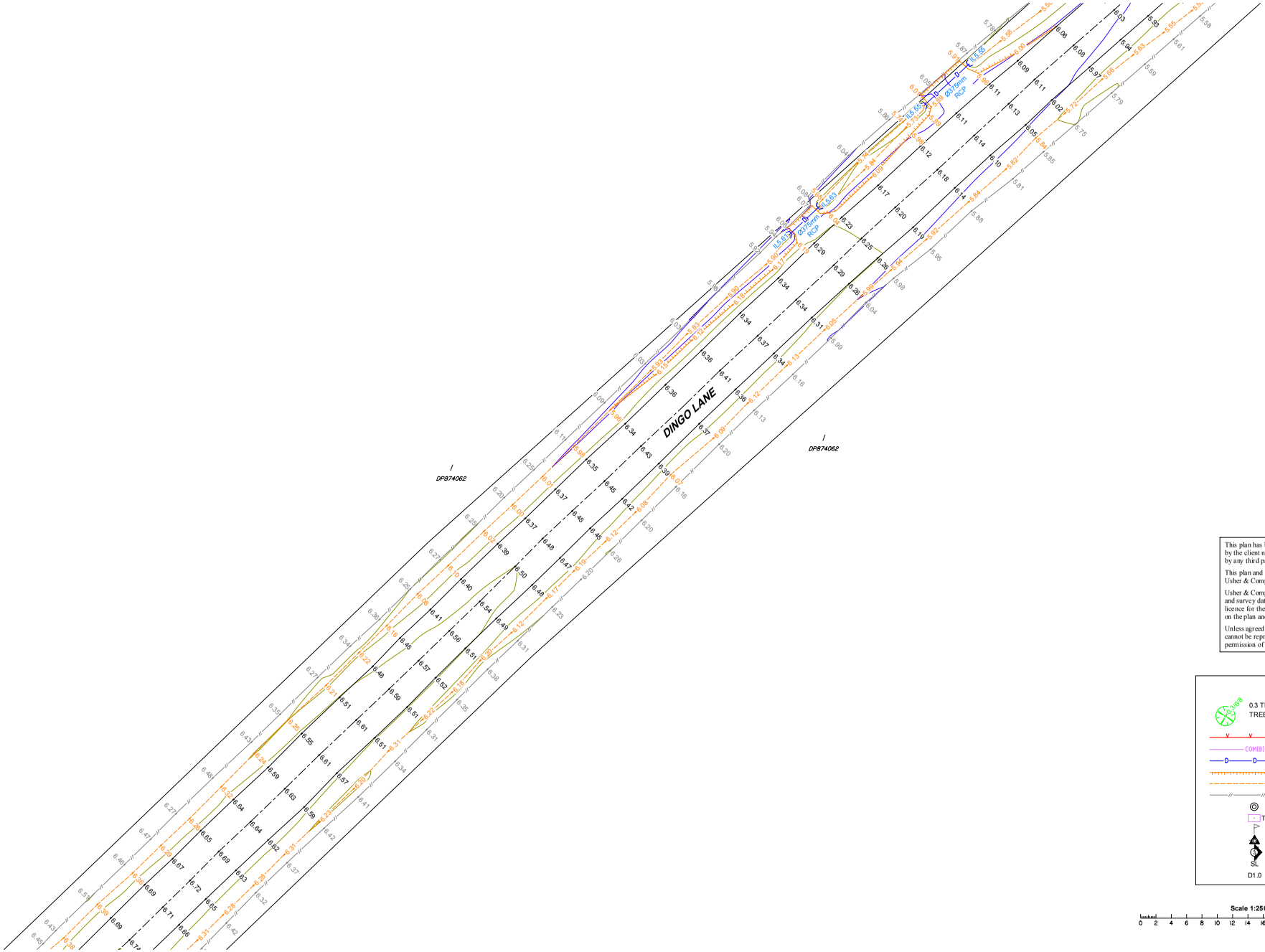

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SHEET 9 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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DATE OF SURVEY:	19-05-2020
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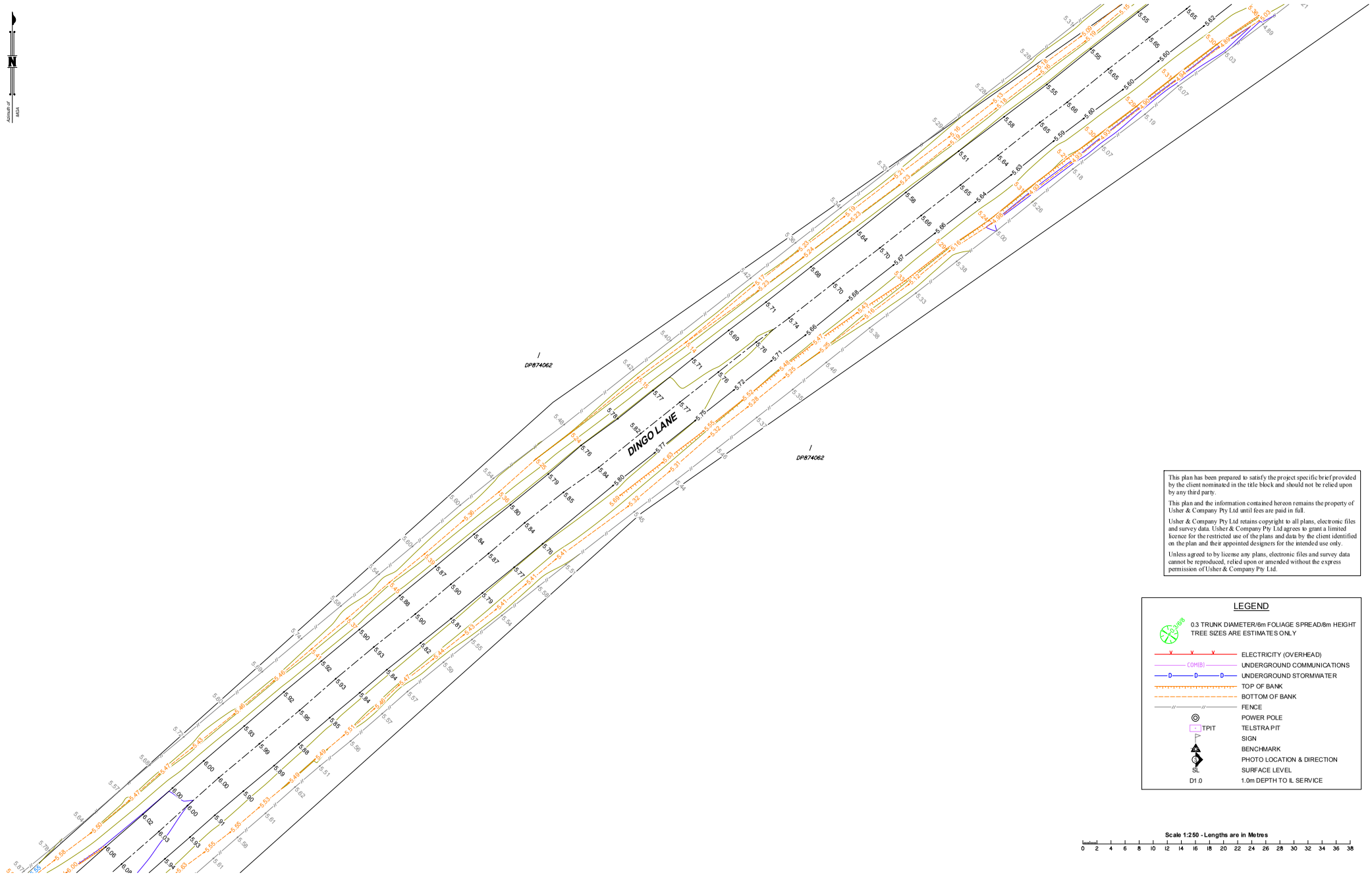

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SHEET 10 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

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LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT — TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- UNDERGROUND COMMUNICATIONS
- UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
- POWER POLE
- TPIT — TELSTRA PIT
- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL — SURFACE LEVEL
- D1.0 — 1.0m DEPTH TO IL SERVICE

USHER & COMPANY
Surveying & Land Development Consultants
A.B.N. 70 128 414 602

1 West Street, Burleigh Heads QLD 4220
PO Box 756 Burleigh Heads QLD 4220
Phone: (07) 5535 8346
Fax: (07) 5535 8155
Email: admin@usherandcompany.com.au

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Amendments

ISSUE	DATE	DETAILS
A	15-06-2020	Original Issue

TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 11 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

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PLAN REFERENCE: 10823

ISSUE: A

Azimuth of MGA

LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COM(B) — UNDERGROUND COMMUNICATIONS
- UNDERGROUND STORMWATER
- TOP OF BANK
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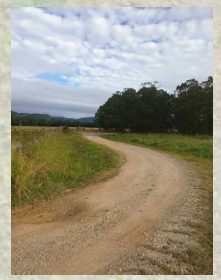

PHOTO 6

DINGO LANE

16 DP1178892

15 DP1178892 40 ha

14 DP1178892

1 DP874062

Scale 1:250 - Lengths are in Metres

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 12 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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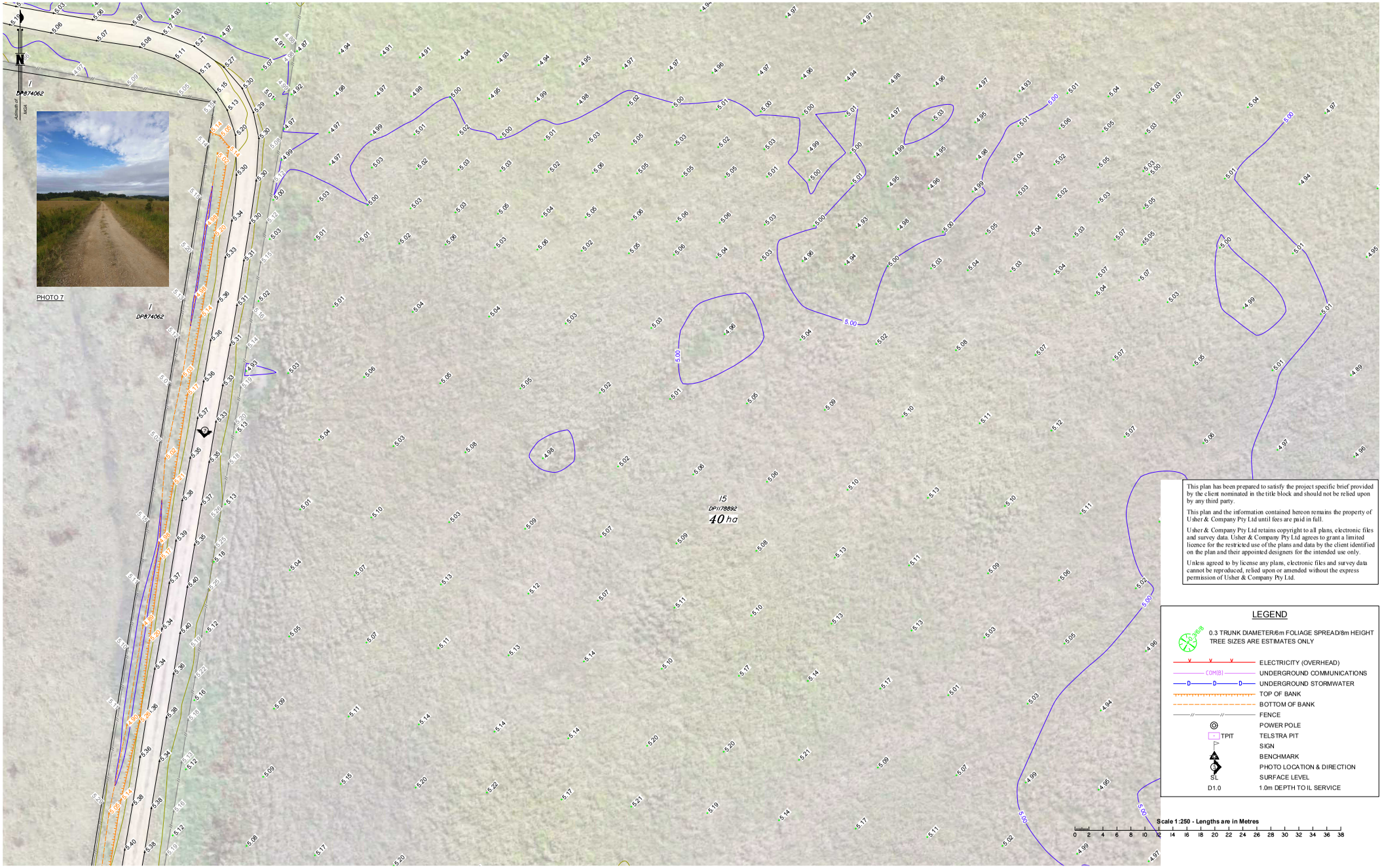

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LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COMB — UNDERGROUND COMMUNICATIONS
- D — UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 13 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
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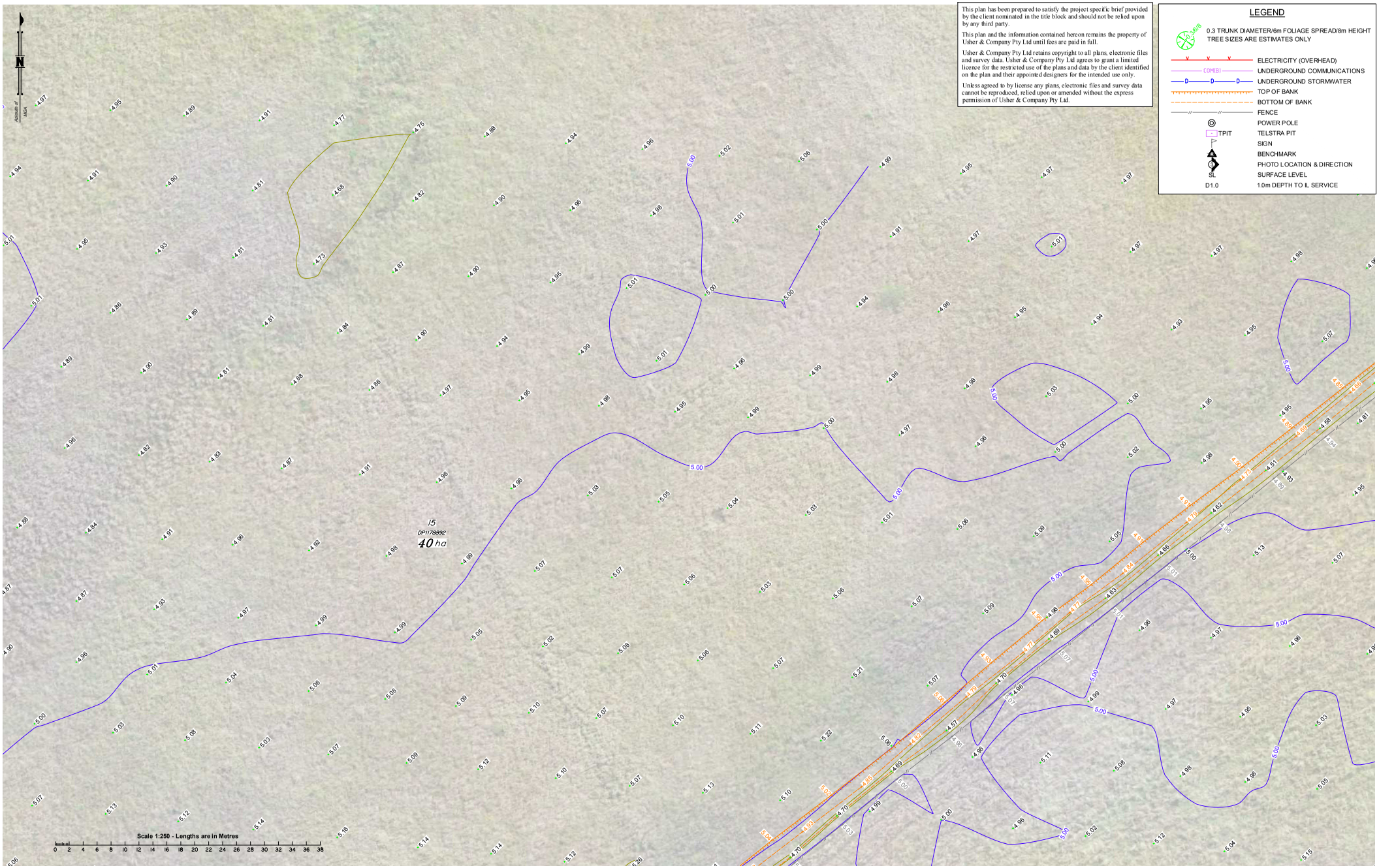

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 14 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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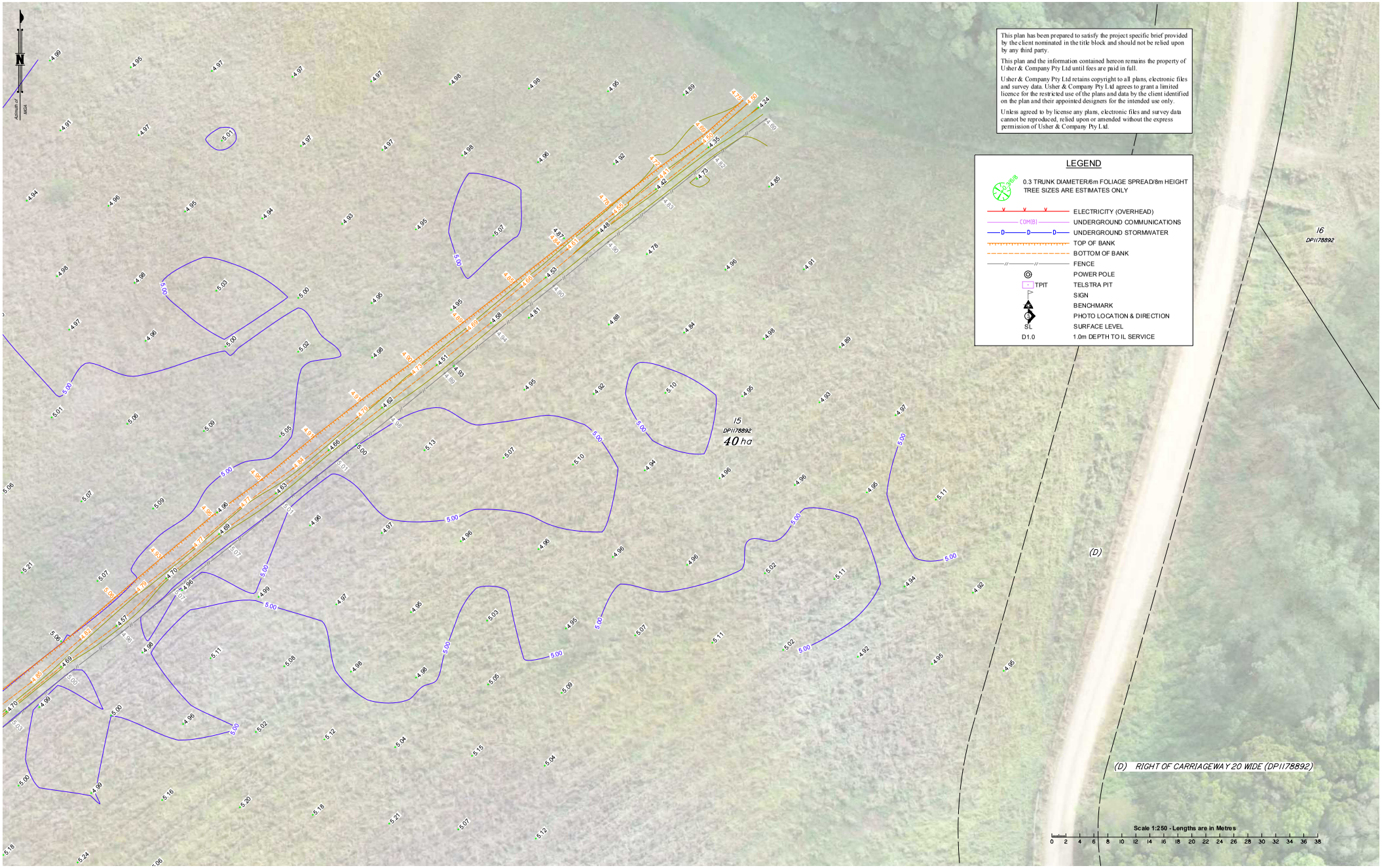

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SHEET 15 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 16 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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BEING LOT 15 ON DP1178892
SHEET 17 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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- PHOTO LOCATION & DIRECTION
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- D1.0 1.0m DEPTH TO IL SERVICE

Scale 1:250 - Lengths are in Metres

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 18 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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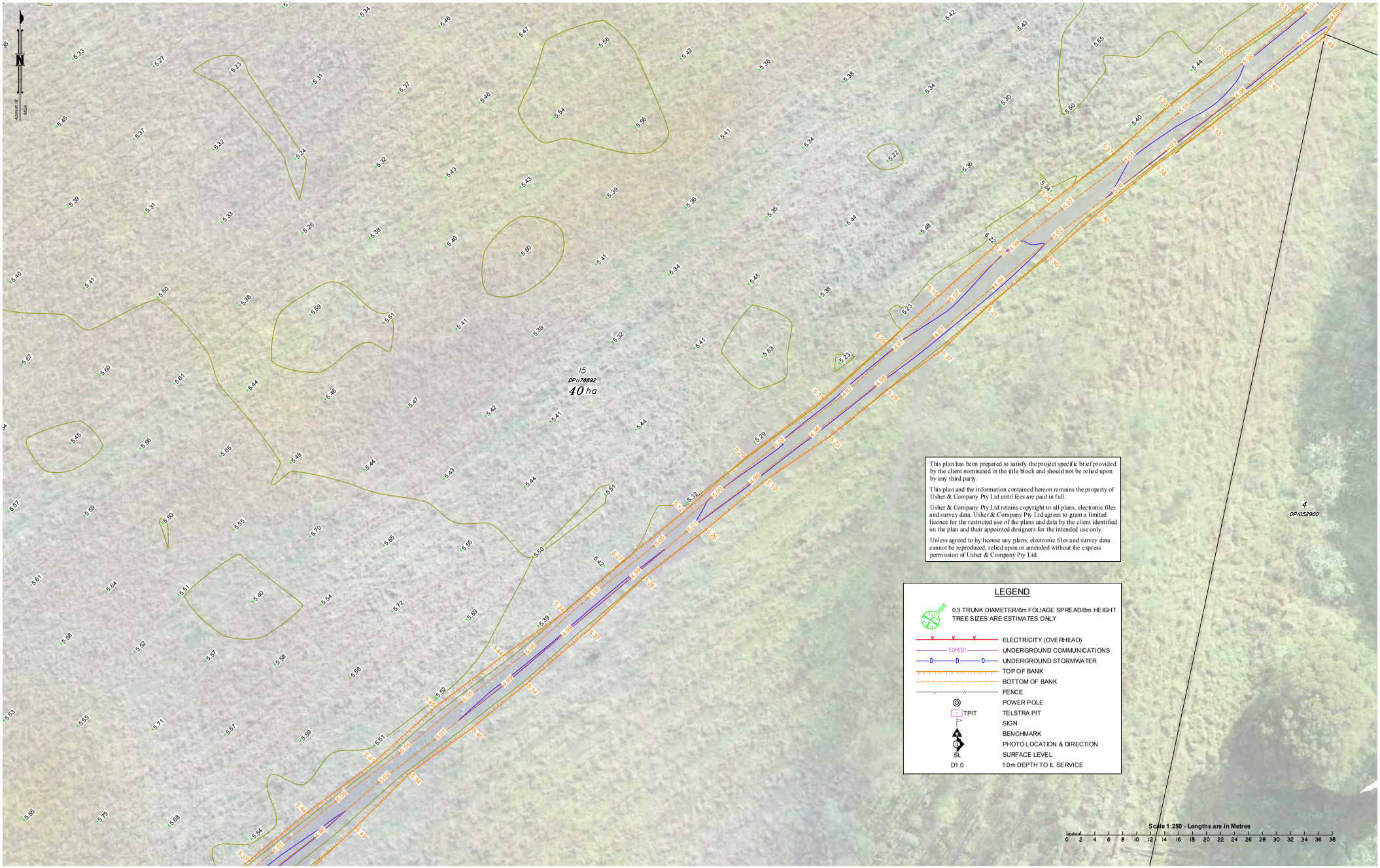

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 19 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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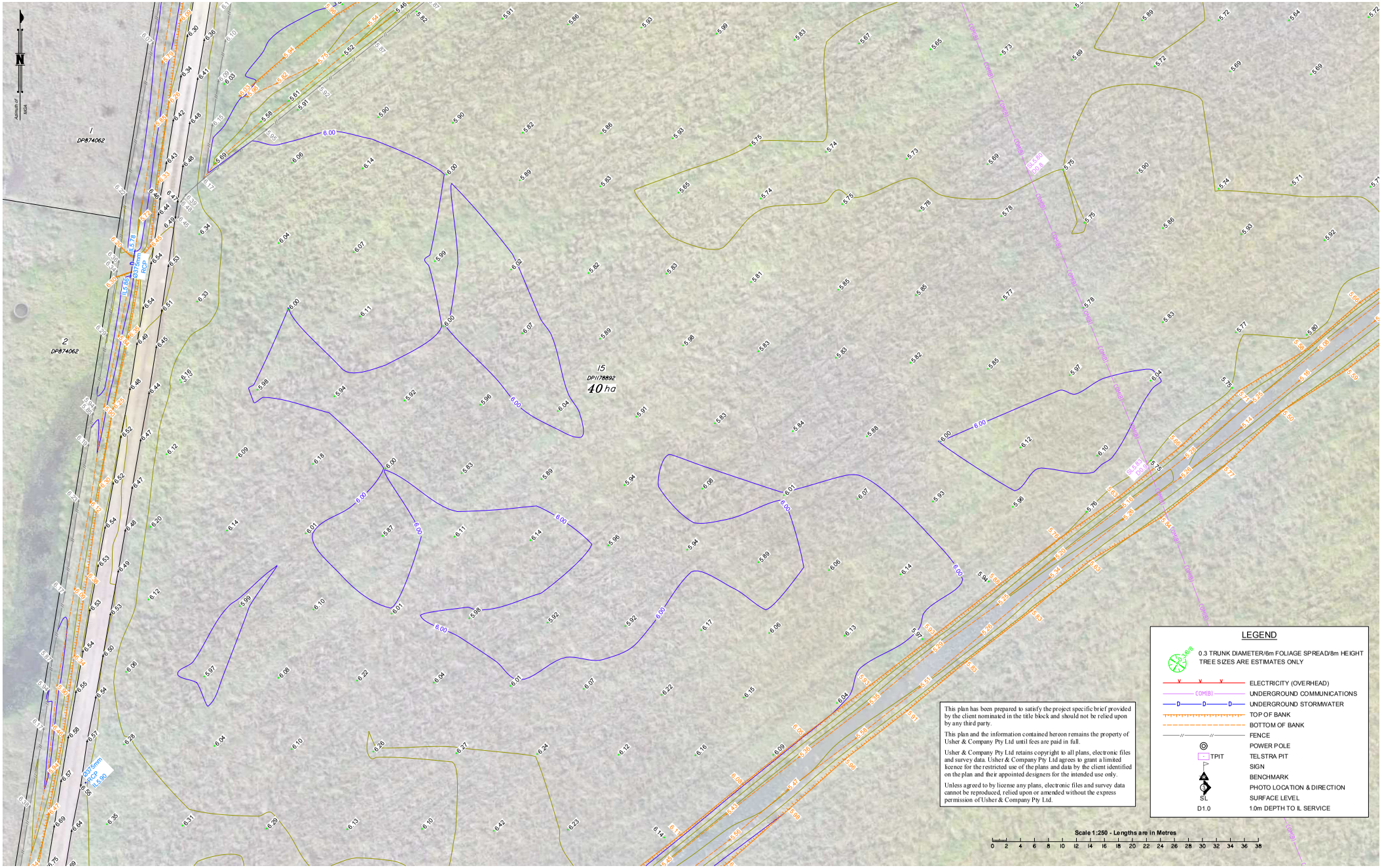

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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 20 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL SURFACE LEVEL
- D1.0 1.0m DEPTH TO IL SERVICE

Scale 1:250 - Lengths are in Metres

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TITLE: PLAN OF SITE DETAIL AND LEVELS AT DINGO LANE SOLAR FARM BEING LOT 15 ON DP1178892
SHEET 21 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 22 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
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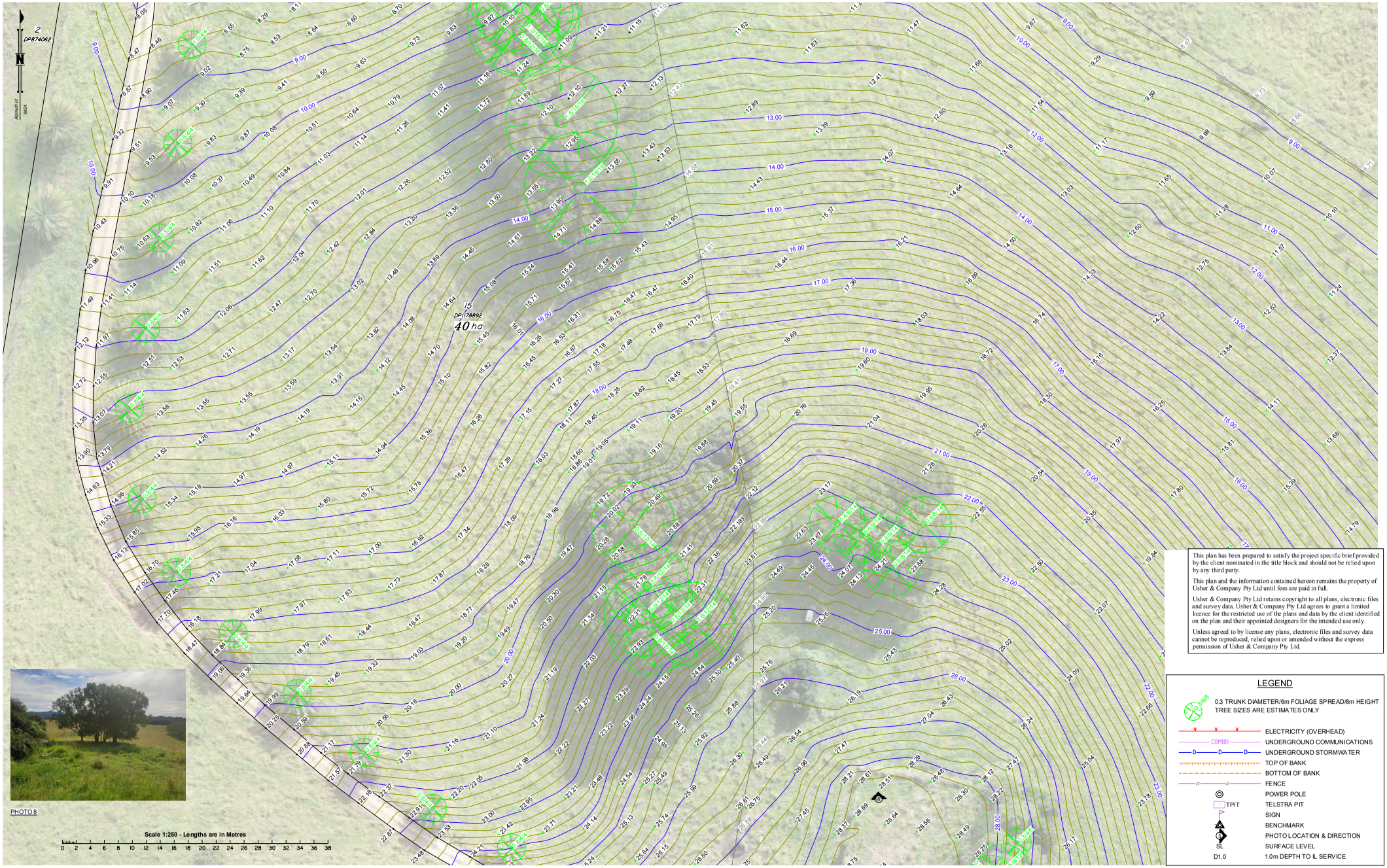

LEGEND

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SHEET 23 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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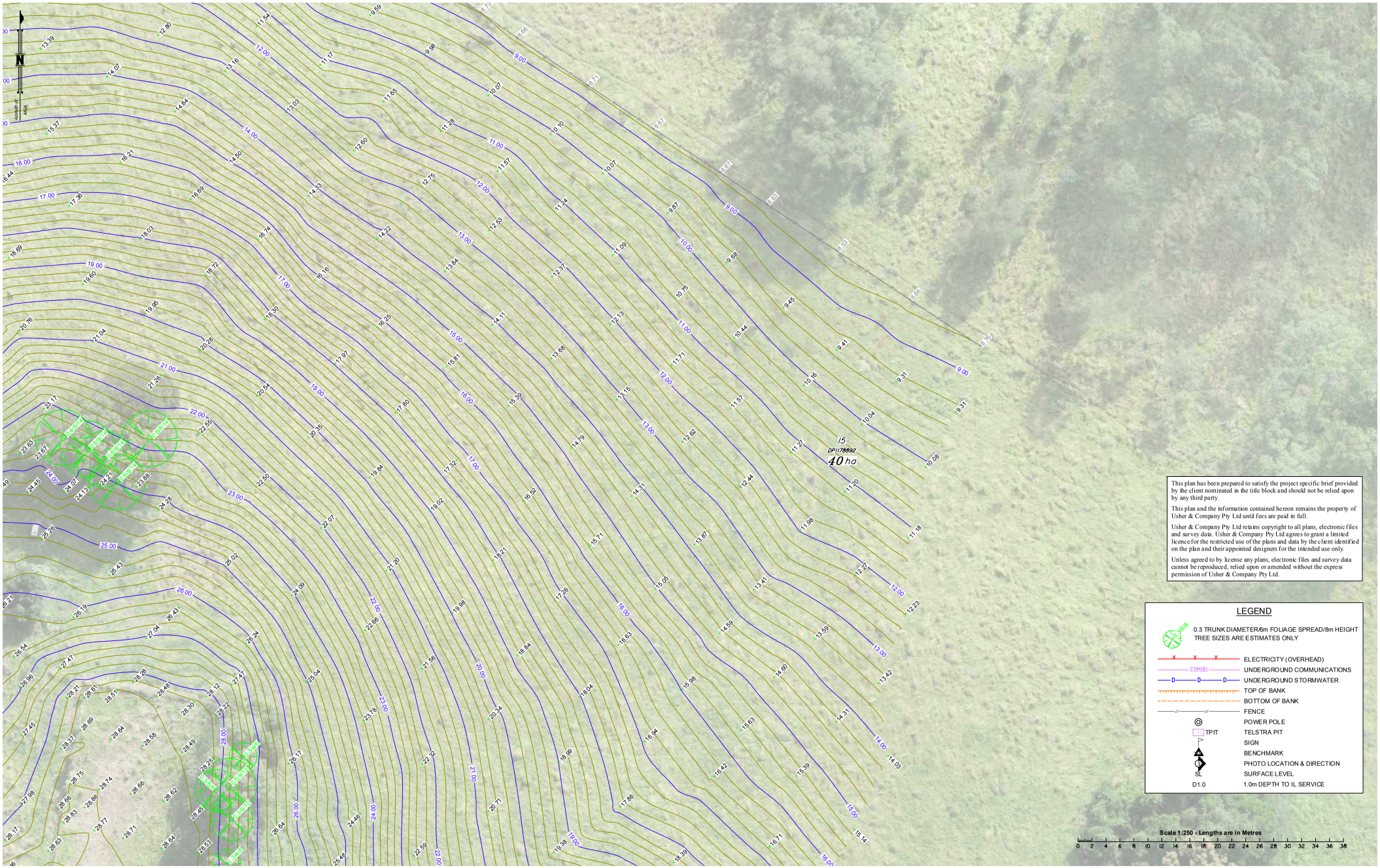

LEGEND

0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT
TREE SIZES ARE ESTIMATES ONLY

- ELECTRICITY (OVERHEAD)
- COM[B] UNDERGROUND COMMUNICATIONS
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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 24 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
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DATE OF SURVEY:	19-05-2020
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PLAN REFERENCE: 10823

ISSUE: A

PHOTO 9

LEGEND

- 0.3/6 — 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COM(B) — UNDERGROUND COMMUNICATIONS
- D — UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
- POWER POLE
- TPIT — TELSTRA PIT
- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL — SURFACE LEVEL
- D1.0 — 1.0m DEPTH TO IL SERVICE

USHER & COMPANY
Surveying & Land Development Consultants
A.B.N. 70 128 414 602
1 West Street, Burleigh Heads QLD 4220
PO Box 756 Burleigh Heads QLD 4220
Phone: (07) 5535 8346
Fax: (07) 5535 8155
Email: admin@usherandcompany.com.au

APPROVED

Amendments

ISSUE	DATE	DETAILS
A	15-06-2020	Original Issue

TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 25 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

THIS PLAN IS FOR THE EXCLUSIVE USE OF
PLANIT CONSULTING PTY LTD

A1

PLAN REFERENCE: 10823

ISSUE: A

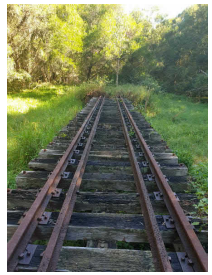

PHOTO 10

LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- UNDERGROUND COMMUNICATIONS (COM(B))
- UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
- POWER POLE
- TPIT — TELSTRA PIT
- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL — SURFACE LEVEL
- D1.0 — 1.0m DEPTH TO IL SERVICE

Scale 1:250 - Lengths are in Metres

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

USHER & COMPANY
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APPROVED

Amendments

ISSUE	DATE	DETAILS
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PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 26 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

THIS PLAN IS FOR THE EXCLUSIVE USE OF
PLANIT CONSULTING PTY LTD

A1

PLAN REFERENCE: 10823

ISSUE: A

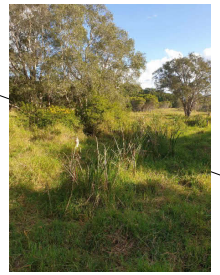

PHOTO 11

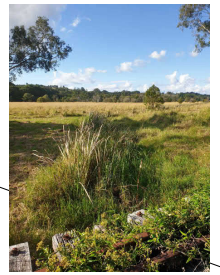

PHOTO 12

(X) EASEMENT TO DRAIN WATER 20 WIDE (DP830652)

(X)

26
DP830625

RAILWAY LINE

RAIL FORMATION

BRIDGE

RAIL FORMATION

4732
DP1228115

16
DP1178892

22
DP259869

This plan has been prepared to satisfy the project specific brief provided by the client nominated in the title block and should not be relied upon by any third party.

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LEGEND

0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY

- ELECTRICITY (OVERHEAD)
- UNDERGROUND COMMUNICATIONS
- UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
- FENCE
- POWER POLE
- TPIT TELSTRA PIT
- SIGN
- BENCHMARK
- PHOTO LOCATION & DIRECTION
- SL SURFACE LEVEL
- D1.0 1.0m DEPTH TO IL SERVICE

Scale 1:250 - Lengths are in Metres

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38

USHER & COMPANY
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APPROVED

Amendments

ISSUE	DATE	DETAILS
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TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 27 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3

REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

THIS PLAN IS FOR THE EXCLUSIVE USE OF
PLANIT CONSULTING PTY LTD

A1

PLAN REFERENCE: 10823

ISSUE: A

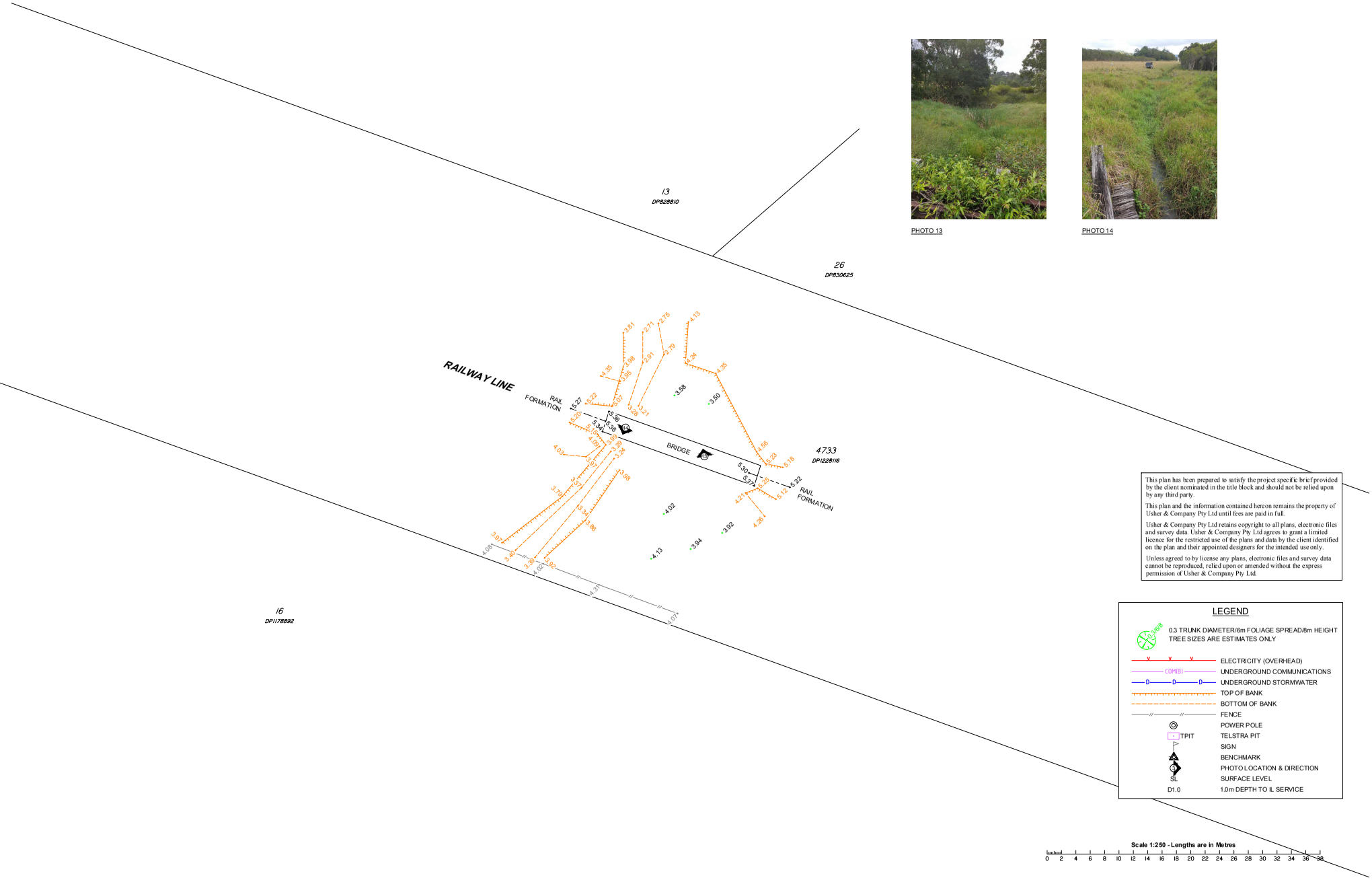

PHOTO 13

PHOTO 14

LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COM(B) — UNDERGROUND COMMUNICATIONS
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TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 28 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

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A1

PLAN REFERENCE: 10823

ISSUE: A

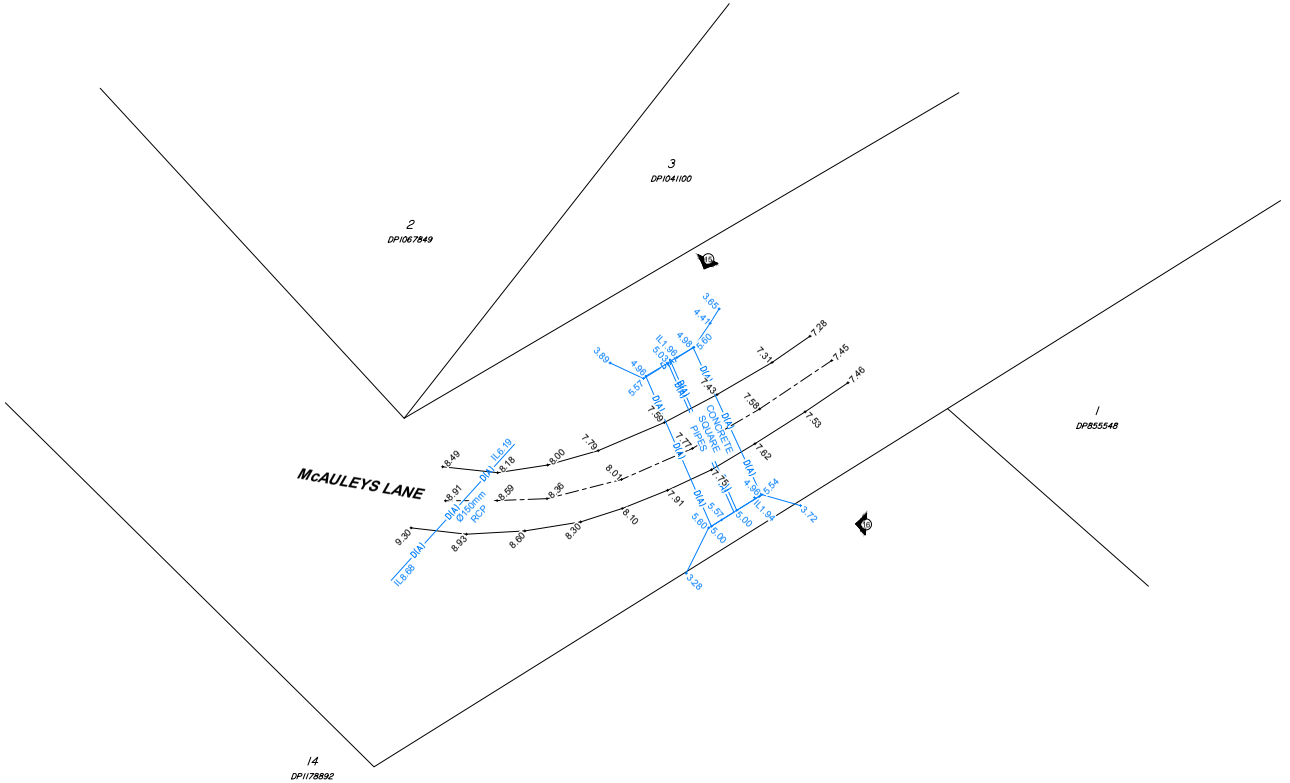

PHOTO 15

PHOTO 16

LEGEND

- 0.3 TRUNK DIAMETER/6m FOLIAGE SPREAD/8m HEIGHT TREE SIZES ARE ESTIMATES ONLY
- ELECTRICITY (OVERHEAD)
- COM(B) UNDERGROUND COMMUNICATIONS
- D D D UNDERGROUND STORMWATER
- TOP OF BANK
- BOTTOM OF BANK
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APPROVED

Amendments

ISSUE	DATE	DETAILS
A	15-06-2020	Original Issue

TITLE:

PLAN OF SITE DETAIL AND LEVELS
AT DINGO LANE SOLAR FARM
BEING LOT 15 ON DP1178892
SHEET 29 OF 29

LGA:	BYRON
SUBURB:	MYOCUM
ORIGIN:	SSM 62392 RL 30.917 AHD CLASS LC, ORDER L3
REDUCTION RATIO:	1:250 (A1)
DATUM:	AHD
DATE OF SURVEY:	19-05-2020
SURVEYED BY:	SD & TC
DRAWN BY:	TM

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A1

PLAN REFERENCE: 10823

ISSUE: A

Appendix B

Dial Before You Dig (DBYD)

Job No 20122249

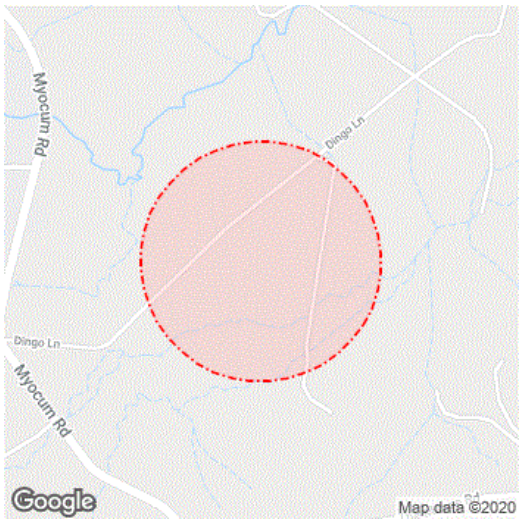
Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mr Jake Bentley	**Caller Id:**	1860742	**Phone:**	0455911994
Company:	PlanIt	**Mobile:**	0455911994	**Fax:**	Not Supplied
Address:	9A, 80-84 Ballina Street Lennox Head NSW 2478	**Email:**	jakeb@planitconsulting.com.au		

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: Dingo Ln
Working on Behalf of: Private

Enquiry Date:	**Start Date:**	**End Date:**
25/08/2020	31/08/2020	23/09/2020

Address:
Dingo Ln
Myocum NSW 2481

Job Purpose:	**Onsite Activity:**
Excavation	Mechanical Excavation
Location of Workplace:	**Location in Road:**
Both	CarriageWay,Footpath,Nature Strip

- Check the location of the dig site is correct. If not submit a new enquiry.
- If the scope of works change, or plan validity dates expire, resubmit your enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:

Your Responsibilities and Duty of Care

- The lodgement of an enquiry does not authorise the project to commence. You must obtain all necessary information from any and all likely impacted asset owners prior to excavation.
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days.
Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

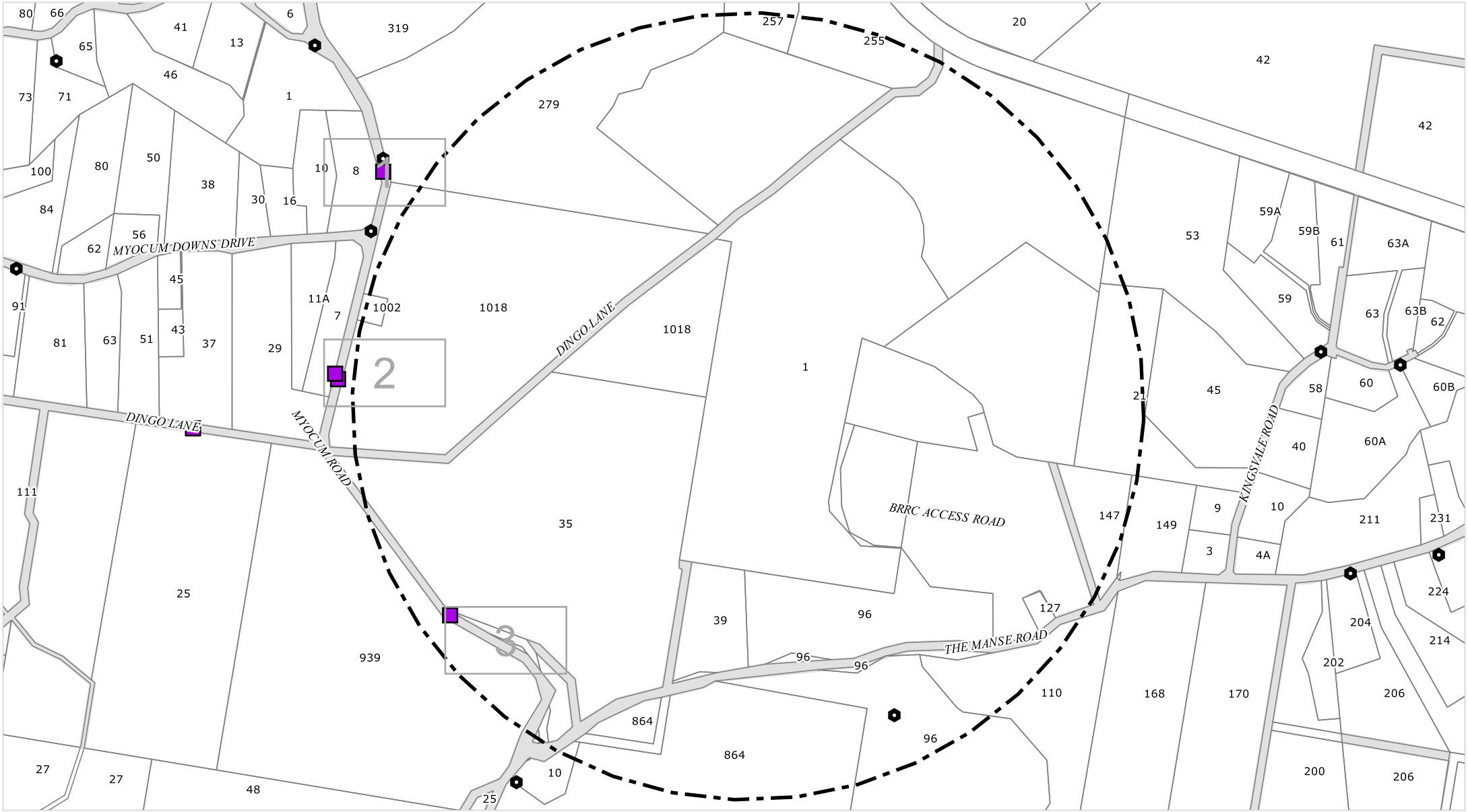
Seq. No.	Authority Name	Phone	Status
101078667	Byron Shire Council	0266267000	NOTIFIED
101078668	Essential Energy	132391	NOTIFIED
101078669	Telstra NSW, North	1800653935	NOTIFIED

END OF UTILITIES LIST

Sequence No: 98170359
Job No: 19620284
Location: Dingo Ln, Myocum, NSW 2481

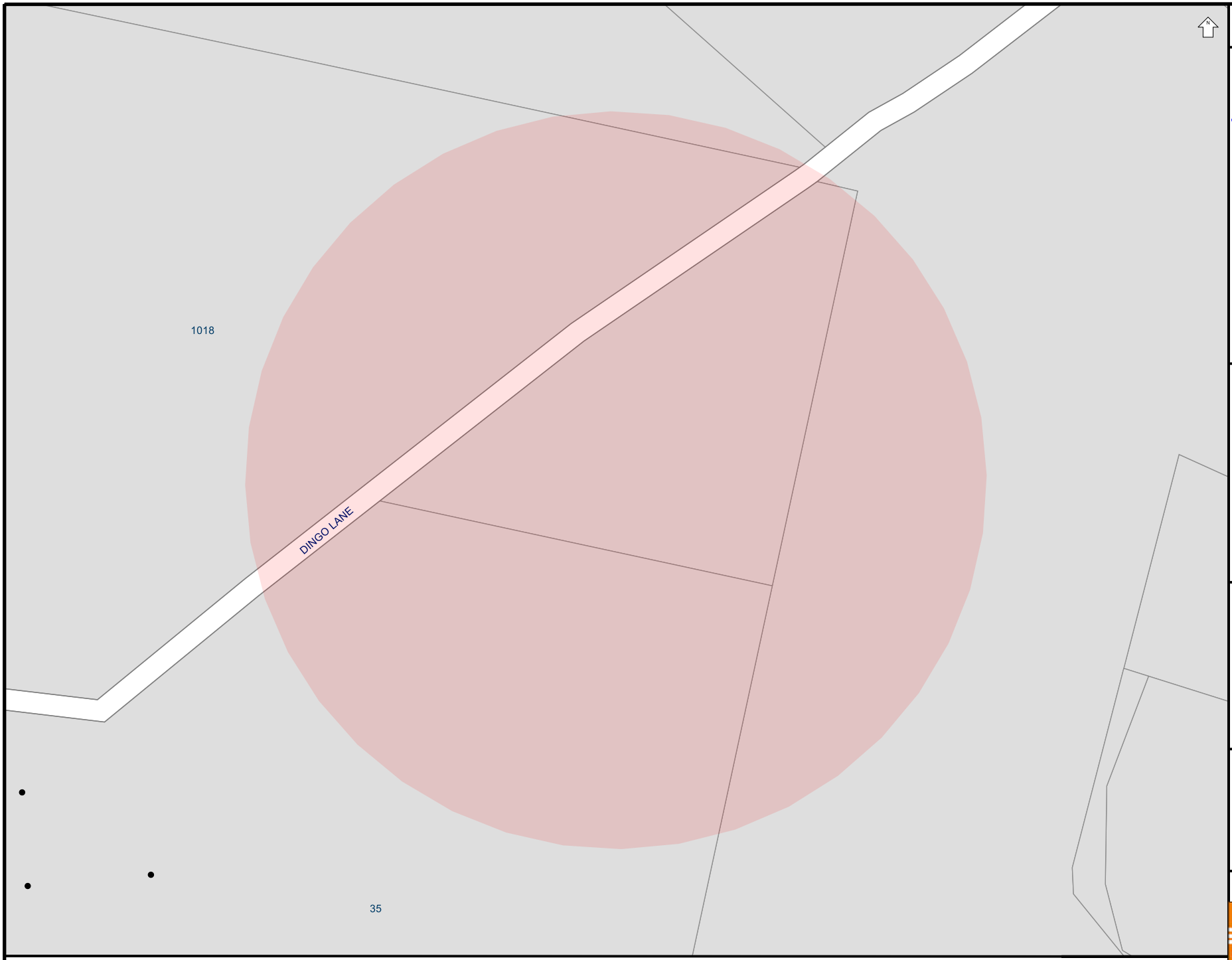
Scale: 1:12061 (A4)

DIAL BEFORE YOU DIG www.1100.com.au The Essential First Step.



N

Water Main Drinking
Water Main Abandoned
Water Meter Pipe
Water Valves
Water Hydrants
Water Main Recycled
Water Valves Recycled
Wastewater Gravity Main
Wastewater Manhole
Wastewater Rising Main
Wastewater Valve
Wastewater Vacuum Main
Wastewater Vacuum Valves
Wastewater Vacuum Pods
Wastewater Pressure Main
Wastewater Pressure Valve
Stormwater Main
Stormwater Pit
Stormwater Culvert
SCIMS Survey Control Point
Incomplete Data
Property Boundary
Road Reserve
Rivers
No Digging Permitted



Overhead wires not shown
LOOK UP & LIVE!

LEGEND

- LV Underground Cable
- HV Underground Cable
- Underground Pipe
- Underground Earth or Wires
- Ground Substation
- Pole
- Cubicle
- Pit
- Area of Interest

Critical Assets

Contact Essential Energy on 13 23 91

- Zone Substation
- Underground Cable
- Underground Fibre

Proposed Works

- Area of proposed works

Proposed assets are shown as orange symbols

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE. If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

ISSUE DATE: 25/08/2020

You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 | SCALE: 1:4663

Job Number: 20122249 Sequence number: 101078668 Job location: Dingo Ln, Myocum

Map Centre: 153° 30' 15.7", -28° 35' 14.6"

essential energy

Appendix C

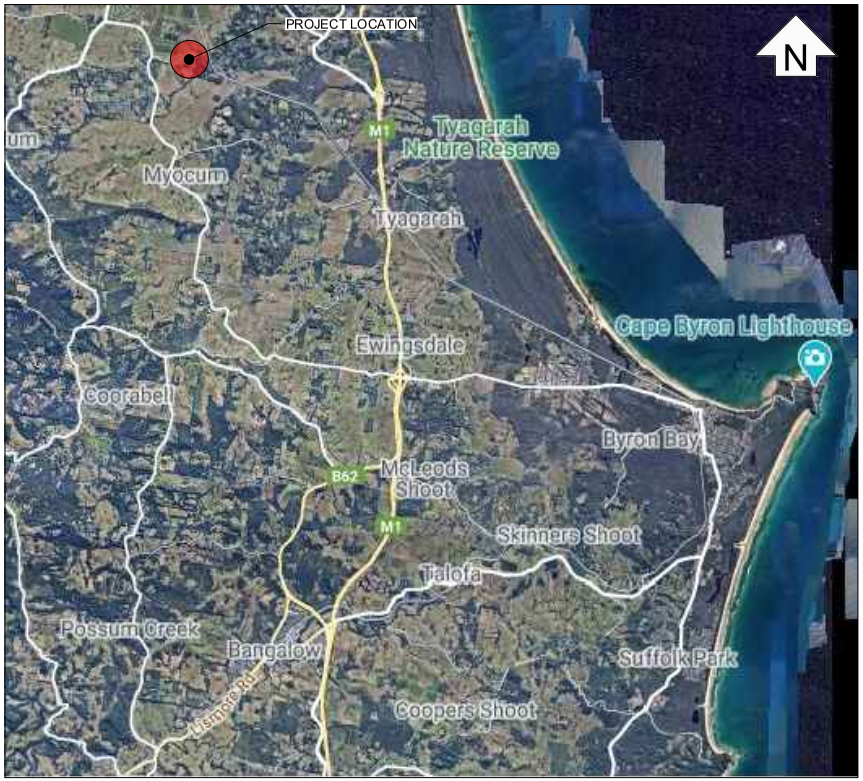
Civil Plans

BYRON SHIRE COUNCIL

DINGO LANE SOLAR FARM

BYRON BAY, NSW

DRAWING REGISTER		
DRAWING NUMBER	TITLE	DRAWING REVISION
0001	COVER SHEET AND DRAWING REGISTER	B
0020	GENERAL ARRANGMENT PLAN	B
0100	EROSION AND SEDIMENT CONTROL PLAN	B
0110	EROSION AND SEDIMENT CONTROL NOTES AND DETAILS	B
0301	MYOCUM ROAD & DINGO LANE INTERSECTION	B
0310	SITE ACCESS ARRANGEMENT	B



LOCALITY PLAN
NOT TO SCALE

SOURCE: NEARMAP

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY ISSUE	28.08.20	RD	BT	JT	JT
B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES: NTS

DO NOT SCALE FROM DRAWING

DRAWN BY:
DESIGN BY:
APPROVED BY:
DATE:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

PLANIT CONSULTING
SUITE 9A, 80-84 BALLINA STREET
PO BOX 161
LENNOX HEAD NSW 2478

TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL

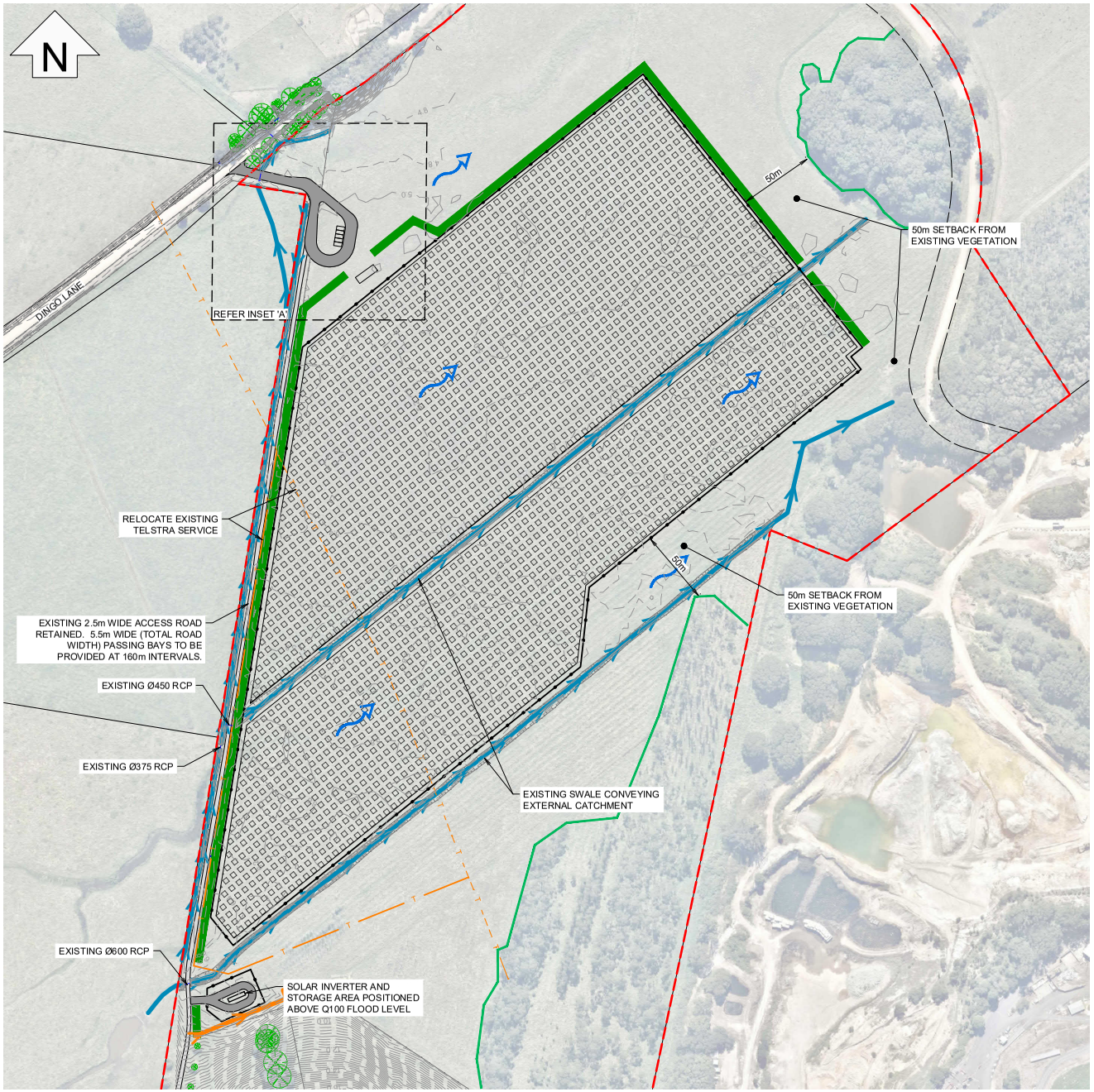
LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

PROJECT: DINGO LANE SOLAR FARM

DRAWING TITLE: COVER SHEET AND DRAWING REGISTER

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
A1	J6558	0001	B

CAD FILE: T:\J6558 - DINGO LANE SOLAR FARM BSC\7 - DRAFTING\0001 COVER SHEET AND DRAWING REGISTER.DWG PLOTTED BY: NVO PLOT DATE: 1\01\2022 12:29:22 PM



PLAN
SCALE 1:2,000

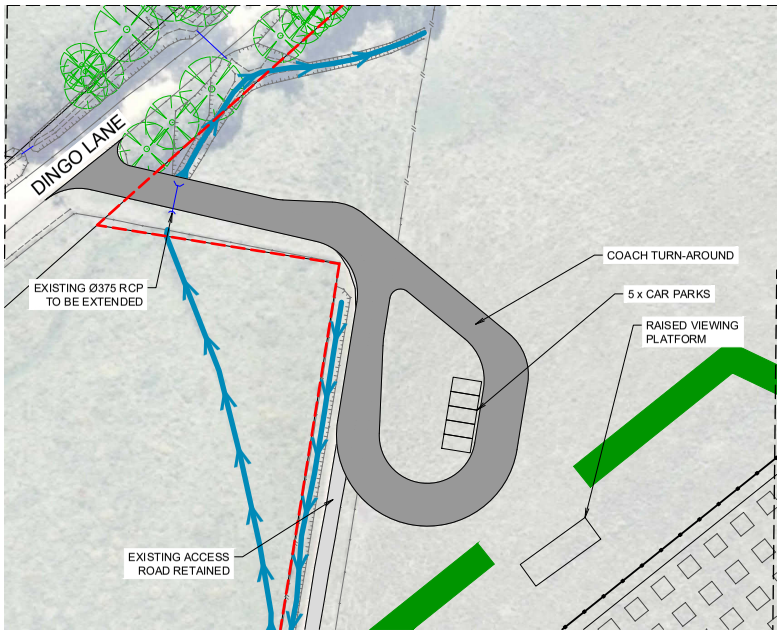
LEGEND

- SITE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING SWALE
- PROPOSED DRAIN
- OVERLAND FLOW PATH
- EXISTING UNSEALED ROAD
- SOLAR ARRAY AREA (11ha)
- PROPOSED SEALED ROAD
- SECURITY FENCE
- LANDSCAPE SCREENING
- EXISTING TELSTRA SERVCE
- TELSTRA SERVICE DIVERSION

NOTES:

SOLAR ARRAY AREA ASSUMPTIONS:
- 5m SPACING BETWEEN PANEL ROWS
- SURFACE TO BE NAVIGABLE BY LIGHT VEHICLE FOR MAINTENANCE

THIS PLAN SHOULD BE READ IN CONJUNCTION WITH PLANIT'S ENGINEERING ASSESMENT (J6558- DINGO_LN-EA01) AND PLANIT'S TRAFFIC IMPACT STATEMENT (J6558-DINGO_LN-TIS01)



INSET 'A'
SCALE 1:500

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY ISSUE	28.08.20	RD	BT	JT	JT
B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES:
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Full Size 1:2000 ; Half Size 1:4000
Scale (m)
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Full Size 1:500 ; Half Size 1:1000
Scale (m)
DO NOT SCALE FROM DRAWING

DRAWN BY:
DESIGN BY:
APPROVED BY:
DATE:
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

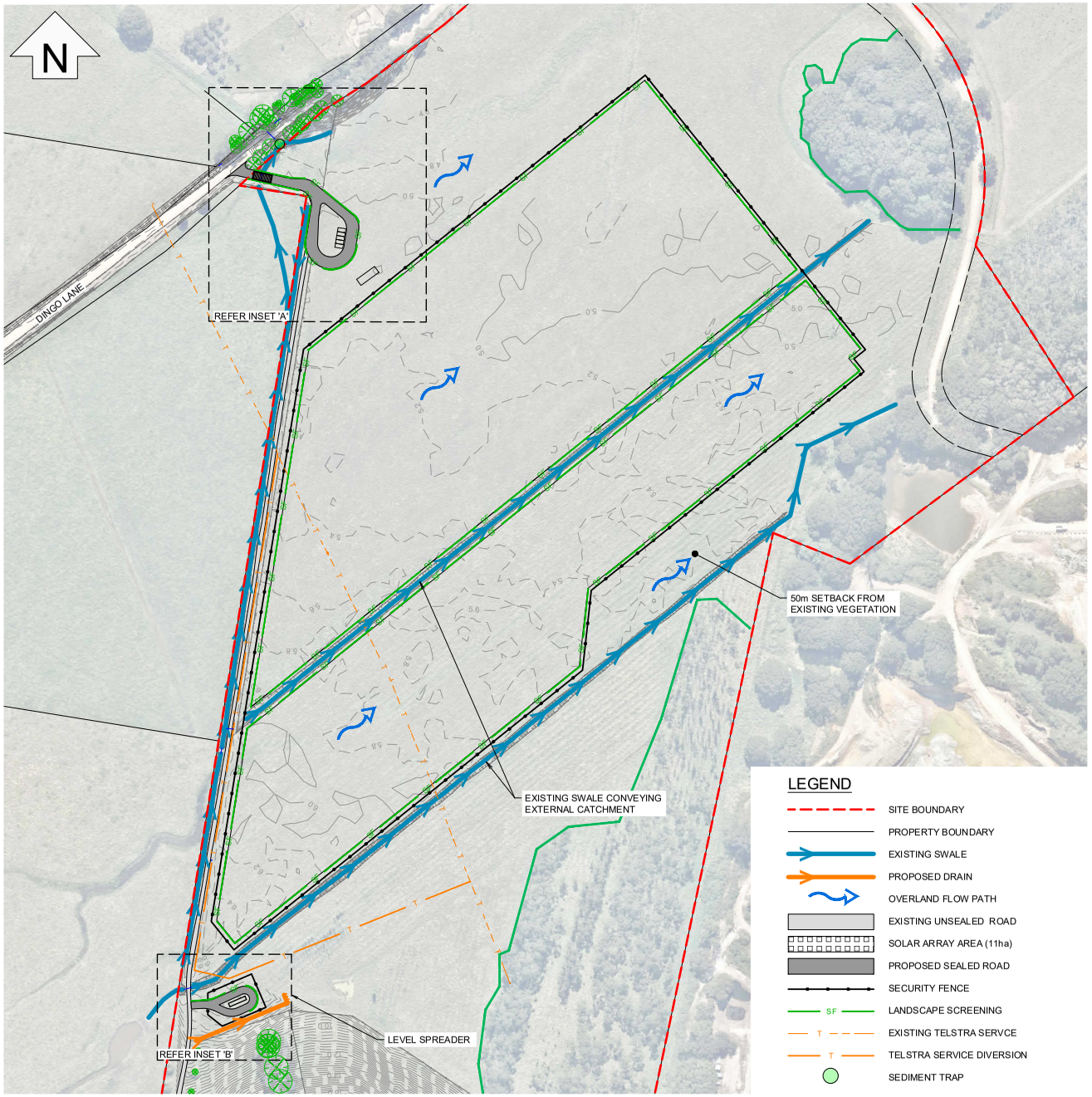
PLANIT CONSULTING
SUITE 9A, 80-84 BALLINA STREET
PO BOX 161
LENNOX HEAD NSW 2478
TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL
LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

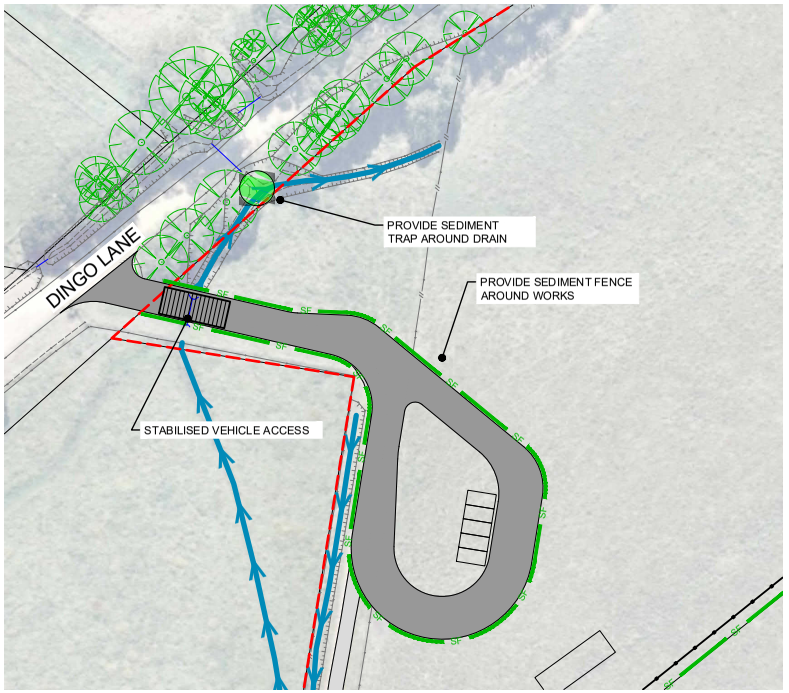
PROJECT: DINGO LANE SOLAR FARM
DRAWING TITLE: GENERAL ARRANGMENT PLAN

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
A1	J6558	0020	B

CAD FILE: T:\J6558 - DINGO LANE SOLAR FARM BS\C17 - DRAFTING\0020 GENERAL ARRANGMENT PLAN.DWG PLOTTED BY: NVO PLOT DATE: 11/01/2022 12:30:19 PM



PLAN
SCALE 1:2,000



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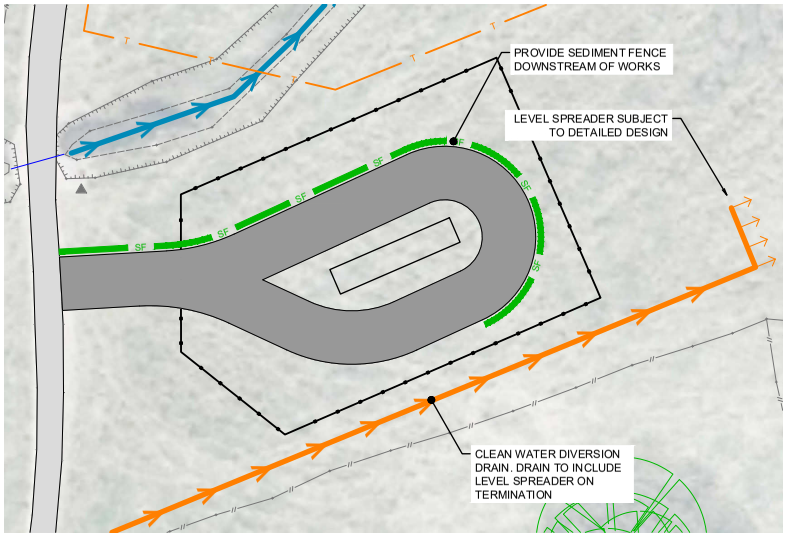
SCALE 1:500



INSET 'B'
SCALE 1:250

LEGEND

- SITE BOUNDARY
- PROPERTY BOUNDARY
- EXISTING SWALE
- PROPOSED DRAIN
- OVERLAND FLOW PATH
- EXISTING UNSEALED ROAD
- SOLAR ARRAY AREA (11ha)
- PROPOSED SEALED ROAD
- SECURITY FENCE
- SF — LANDSCAPE SCREENING
- T — EXISTING TELSTRA SERVCE
- T — TELSTRA SERVICE DIVERSION
- SEDIMENT TRAP

NOT FOR CONSTRUCTION

REV	DESCRIPTION	DATE	DRAWN	DESIGN	CHECK	APPROVED
A	PRELIMINARY ISSUE	28.08.20	RD	BT	JT	JT
B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

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Full Size 1:500 ; Half Size 1:1000
Scale (m)
0 2.5 5 10 15
Full Size 1:250 ; Half Size 1:500
Scale (m)
DO NOT SCALE FROM DRAWING

DRAWN BY:
DESIGN BY:
APPROVED BY:
DATE:
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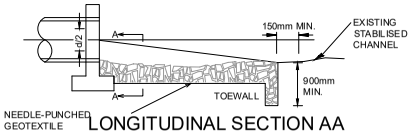
TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL
LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

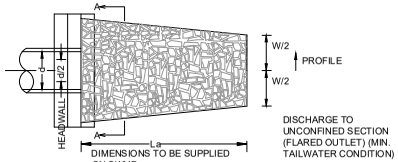
PROJECT: DINGO LANE SOLAR FARM
DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
A1	J6558	0100	B

CAD FILE: T:\J6558 - DINGO LANE SOLAR FARM BSC\7 - DRAFTING\0100 EROSION AND SEDIMENT CONTROL PLAN.DWG PLOTTED BY: NVO PLOT DATE: 11/01/2022 12:31:16 PM



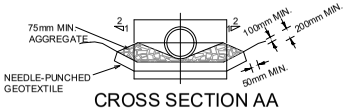
LONGITUDINAL SECTION AA



PLAN VIEW

CONSTRUCTION NOTES

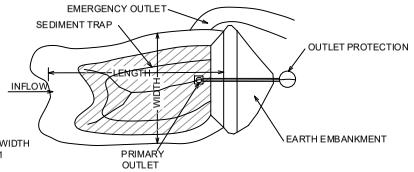
1. COMPACT THE SUBGRADE FILL TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL.
2. PREPARE A SMOOTH, EVEN FOUNDATION FOR THE STRUCTURE THAT WILL ENSURE THAT THE NEEDLE-PUNCHED GEOTEXTILE DOES NOT SUSTAIN SERIOUS DAMAGE WHEN COVERED WITH ROCK.
3. SHOULD ANY MINOR DAMAGE TO THE GEOTEXTILE OCCUR, REPAIR IT BEFORE SPREADING ANY AGGREGATE. FOR REPAIRS, PATCH ONE PIECE OF FABRIC OVER THE DAMAGE, MAKING SURE THAT ALL JOINTS AND PATCHES OVERLAP MORE THAN 300mm.
4. LAY ROCK FOLLOWING THE DRAWING, ACCORDING TO TABLE 5.2 OF LANDCOM (2004) AND WITH MIN. DIAMETER OF 75mm.
5. ENSURE THAT ANY CONCRETE OR RIPRAP USED FOR THE ENERGY DISSIPATER OR THE OUTLET PROTECTION CONFORMS TO THE GRADING LIMITS SPECIFIED ON THE SWMP.



CROSS SECTION AA

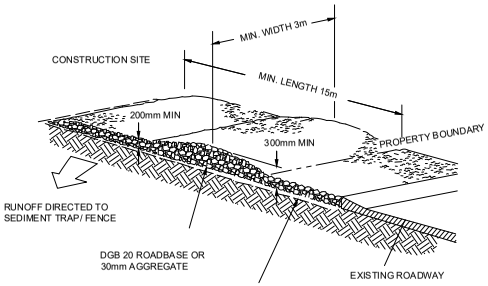
ENERGY DISSIPATER

NOT TO SCALE



PLAN VIEW OF TYPICAL SEDIMENT BASIN

NOT TO SCALE

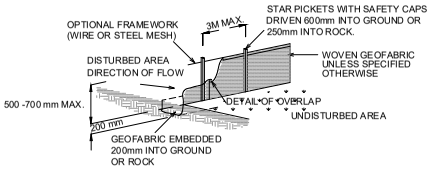


CONSTRUCTION NOTES

1. STRIP TOPSOIL AND LEVEL SITE.
2. COMPACT SUBGRADE.
3. COVER AREA WITH NEEDLE PUNCHED GEOTEXTILE.
4. CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 30mm AGGREGATE. MININUM LENGTH 15m OR BUILDING ALIGNMENT. MINIMUM WIDTH 3m.
5. CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE/TRAP.

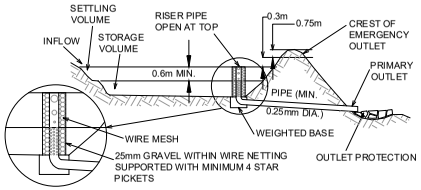
STABILISED SITE ACCESS

NOT TO SCALE



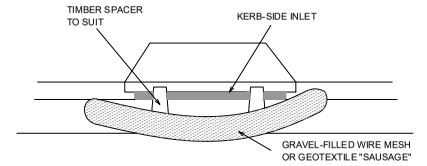
SEDIMENT FENCE

NOT TO SCALE



CROSS SECTION OF TYPICAL SEDIMENT BASIN

NOT TO SCALE

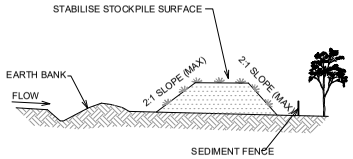


CONSTRUCTION NOTES

1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT.
2. FILL THE SLEEVE WITH 25mm TO 50mm GRAVEL.
3. FROM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING OF THE KERB INLET OR FIELD INLET LEAVING A 100mm GAP AT THE TOP TO ACT AS AN EMERGENCY SPILLWAY.
5. MAINTAIN THE OPENING WITH SPACER BLOCKS.
6. FORM A SEAL WITH THE KERBING AND PREVENT SEDIMENT BYPASSING THE FILTER.
7. FIT TO ALL KERB INLETS AND FIELD INLET PITS AT SAG POINTS.

FILTER BAG TO SAG SIDE ENTRY PIT

NOT TO SCALE

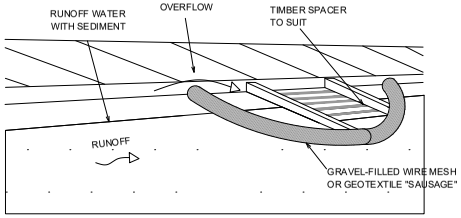


CONSTRUCTION NOTES

1. WHERE POSSIBLE LOCATE STOCKPILE AT LEAST 5m FROM EXISTING VEGETATION, CONCENTRATED WATER FLOWS, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS A LOW, FLAT, ELONGATED MOUND.
3. WHERE THERE IS SUFFICIENT AREA TOPSOIL STOCKPILE SHALL BE LESS THAN 2m IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ESCP.
5. CONSTRUCT EARTH BANK (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT RUNOFF AROUND THE STOCKPILE AND A SEDIMENT FENCE (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE OF STOCKPILE.

TOPSOIL STOCKPILE

NOT TO SCALE

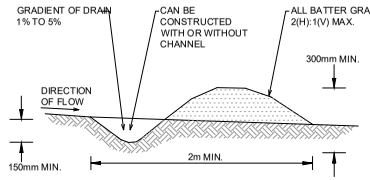


FILTER BAG TO DROP INLET PIT

NOT TO SCALE

NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN.
2. ALL CONTROL MEASURES SHALL BE IN ACCORDANCE WITH NORTHERN RIVERS LOCAL GOVERNMENT SPECIFICATION D7 "EROSION CONTROL AND STROWMATER MANAGEMENT AND LANDCOM'S "MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION - VOLUME 1" (THE 'BLUE BOOK').
3. SEDIMENT AND EROSION CONTROL MEASURES ARE INDICATIVE ONLY AND SHALL BE CONFIRMED BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL INFORM ALL STAFF AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN.
5. CONTROL MEASURES SHALL BE IN PLACE PRIOR TO EACH SITE DISTURBANCE.
6. ALL WORKS ARE TO BE INSPECTED, AND MAINTAINED WHERE NECESSARY, ON A WEEKLY BASIS AND AFTER EACH RAIN EVENT.
7. ADEQUATE MEASURES SHALL BE TAKEN TO PREVENT DUST FROM AFFECTING THE AMENITY OF THE NEIGHBOURHOOD DURING CONSTRUCTION. WATER SITE AS REQUIRED TO PREVENT DUST GENERATION. USE TEMPORARY SPRINKLERS AS REQUIRED.
8. ALL WORKS ON SITE SHALL STOP WHEN WIND SPEEDS REACHES 35km/h.
9. CLEANING OF FOOTPATHS AND ROADWAYS SHALL BE CARRIED OUT REGULARLY
10. TURF AND VERGE AREAS TO BE REINSTATED WHEN DISTURBED DURING CONSTRUCTION.



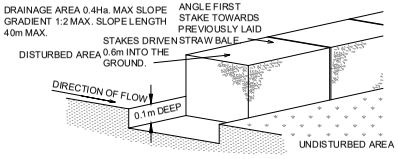
NOTE
ONLY TO BE USED AS TEMPORARY BANK WHERE MAX. UPSLOPE LENGTH IS 80m.

CONSTRUCTION NOTES

1. CONSTRUCT WITH GRADIENT OF 1% TO 5%.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE.
3. DRAINS TO BE CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. PERMANENT OR TEMPORARY STABILISATION OF THE EARTH BANK TO BE COMPLETED WITHIN 10 DAYS OF CONSTRUCTION.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO A SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT BANK WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

EARTH BANK (LOW FLOW)

NOT TO SCALE



STRAW BALE SEDIMENT FILTER

NOT TO SCALE

NOT FOR CONSTRUCTION

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B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES:

DO NOT SCALE FROM DRAWING

DRAWN BY:
DESIGN BY:
APPROVED BY:
DATE:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

PLANIT CONSULTING
SUITE 9A, 80-84 BALLINA STREET
PO BOX 161
LENNOX HEAD NSW 2478

TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL

LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

PROJECT: DINGO LANE SOLAR FARM

DRAWING TITLE: EROSION AND SEDIMENT CONTROL NOTES AND DETAILS

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
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CAD FILE: T:\J6558 - DINGO LANE SOLAR FARM BS\C\7 - DRAFTING\0110 EROSION AND SEDIMENT CONTROL NOTES AND DETAILS.DWG PLOTTED BY: NVO PLOT DATE: 11/01/2022 12:31:27 PM

NOT FOR CONSTRUCTION

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B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES:

0 5 10 20 30

Full Size 1:500 ; Half Size 1:1000
Scale (m)

DO NOT SCALE FROM DRAWING

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DESIGN BY:
APPROVED BY:
DATE:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

PLANIT CONSULTING
SUITE 9A, 80-84 BALLINA STREET
PO BOX 161
LENNOX HEAD NSW 2478

TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL

LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

PROJECT: DINGO LANE SOLAR FARM

DRAWING TITLE: MYCRUM ROAD & DINGO LANE INTERSECTION ASD & SISD

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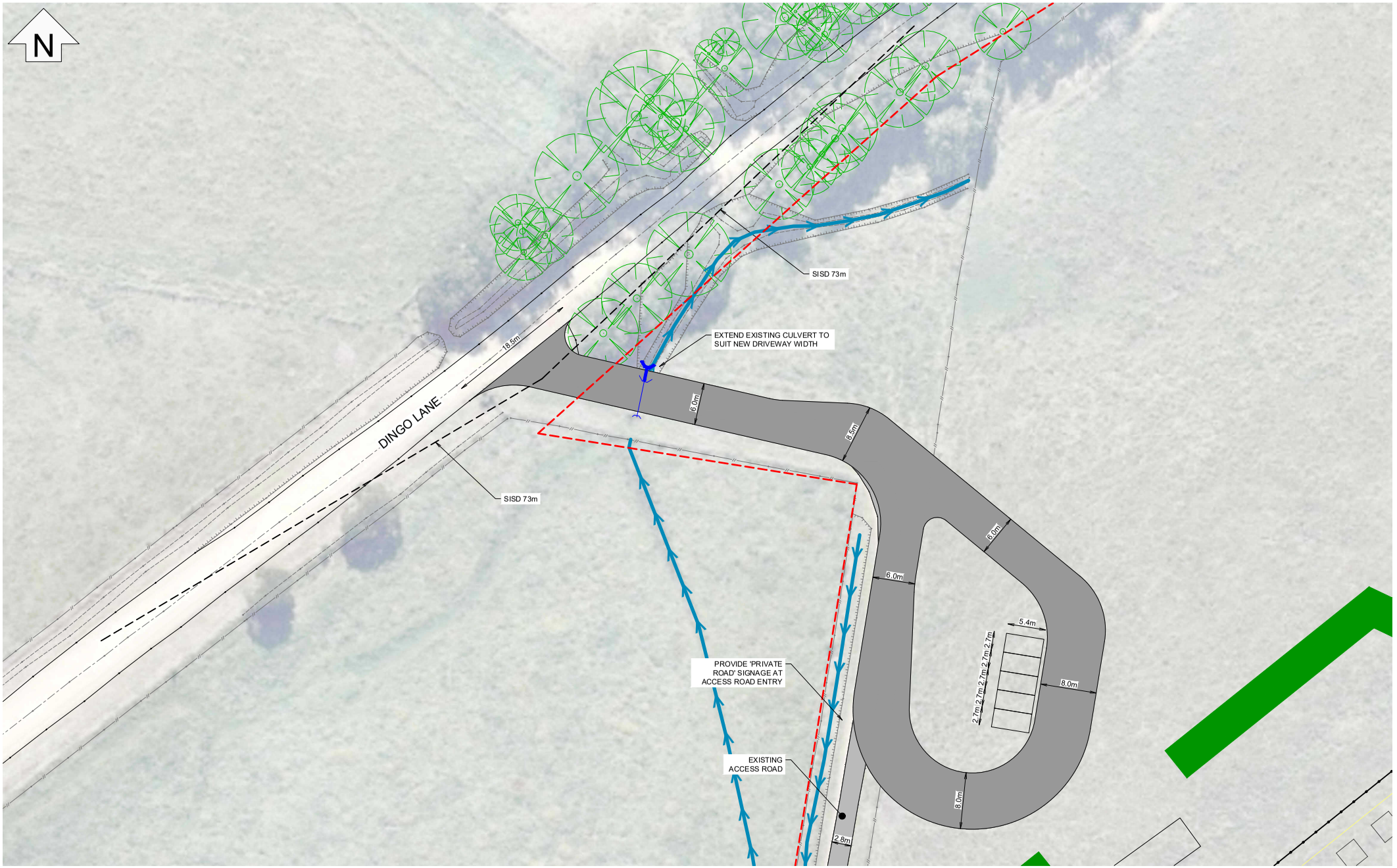

NOT FOR CONSTRUCTION

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B	ISSUED FOR APPROVAL	11.01.22	RD	BT	NVO	NVO

SCALES:

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Scale (m)

DO NOT SCALE FROM DRAWING

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DESIGN BY:
APPROVED BY:
DATE:

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS APPROVED

PLANIT CONSULTING
SUITE 9A, 80-84 BALLINA STREET
PO BOX 161
LENNOX HEAD NSW 2478

TELEPHONE: 02 6687 4666
ABN: 20 099 261 711
EMAIL: administration@planitconsulting.com.au

CLIENT: BYRON SHIRE COUNCIL

LOCAL GOVERNMENT AUTHORITY: BYRON SHIRE COUNCIL

PROJECT: DINGO LANE SOLAR FARM

DRAWING TITLE: SITE ACCESS ARRANGMENT

ORIGINAL SIZE:	PLANIT JOB No.:	DRAWING No.:	REV:
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Appendix D

Acid Sulfate Soil Investigation

AUSTRALIAN SOIL AND CONCRETE TESTING

PO Box 5120
Ballina Mail Centre, Ballina NSW 2478
17 De-Havilland Crescent, Ballina NSW 2478

Telephone: (02) 6681 1516
Mob: 0402 876 868
A.B.N. 92 602 346 127

Acid Sulfate Soil Investigation

For

Proposed Solar Farm Development

At

Dingo Lane, Myocum, NSW 2483

Prepared For

Byron Shire Council
Station Street,
Mullumbimby NSW 2481

Reference Number: H19-1331-ASS-R

10th January 2020

10th January 2020

Reference No: H19-1331-ASS

Byron Shire Council
Station Street,
Mullumbimby NSW 2481

Acid Sulfate Soil Report
For: Proposed Solar Farm Development
At: Dingo Lane, Myocum, NSW 2481.

Introduction
Australian Soil and Concrete Testing (ASCT) have undertaken an acid sulfate soil (ASS) investigation for a proposed solar farm development at Dingo Lane, Myocum, NSW.
The work has been executed under the guidance provided in;
National Acid Sulfate Soils Sampling and Identification Methods Manual (NASS SIMM), and
National Acid Sulfate Soils Identification and Laboratory Methods Manual (NASS ILMM).
This report presents the results of the acid sulfate soil investigation.

Desktop Assessment
A desktop assessment was undertaken to determine the likelihood of ASS materials being present at the site. This assessment included a review of available ASS risk mapping, aerial photography, topographic mapping, geological mapping and ASCT experience.

Element	*Reference*	*Descriptor / Indicator / Trigger*
ASS Risk Mapping	Byron Shire Council NSW SEED Mapping	Zone 4 (Planning Instrument). Low Probability.
Photography	Google Earth	Flood Plains
Topography	Google Earth	>6m AHD
Geological	NSW – Tweed Heads 1:250k	Qa - Alluvium
ASCT Experience	H19-1331	ASS very likely

Site Inspection
With knowledge of the desktop assessment results, a site inspection was conducted. The site inspection provided further ASS/PASS indicators, as listed below.

Characteristics	*Indicators (if any)*	*Inspection Result*
Soil	Dark grey silty sands. Sulphurous smell.	Not Observed
Water	Iron staining of surface drainage.	Not Observed
Vegetation	Salt/acid tolerant vegetation (paperbarks).	Not Observed
Infrastructure	Corrosion of concrete pipe outlets.	Not Observed

This information is also useful in selecting the location of investigation boreholes.

Soil Sampling, Field Testing and Collection

Three (3) boreholes were drilled and two (2) test pits conducted in the proposed solar farm location at the site on the 18th December 2019, the location of the boreholes and test pits are displayed in Figure 1. The field logs for the boreholes are attached in Appendix B.

As no groundwater alteration is expected, the boreholes were extended to a depth of 2.0m (i.e.: 1m below the maximum depth of proposed disturbance).

Sampling

Starting from the existing ground surface, soil samples were representatively collected within vertical intervals not exceeding 0.5m. All collected samples were handled, transported and stored to preserve their condition.

Field Testing

All field samples (above) were tested for field pH (pH_F) and field pH peroxide (pH_{FOX}) in accordance with *National acid sulfate soils sampling and identification methods manual:* The results of field testing are contained within the attached Lab Reports (Appendix A).

Collection

The proposed site works equate to a 'Small-scale disturbance'.
In accordance with the provisions of NASS SIM clause 6.7.4 a limited number of samples were collected, based on their likelihood to have the highest potential of an acidity hazard. These samples were collected from the 'pool' of field samples (above).
The resultant soil sample collection was detailed in a *Chain of Custody* (CoC) and forwarded to the laboratory for quantitative analysis.

Laboratory Analysis

The collection of soil samples (detailed above) was submitted to the Environmental Analysis Laboratory (EAL, Lismore). The requested analysis included;
Moisture Content,
Potential Sulfidic Acidity - Chromium Reducible Sulfur (CRS),
Actual Acidity – Titratable Actual Acidity (TAA),
Net acidity and Liming rate.

A summary of the laboratory results is provided below, with the actual test Certificates included in Appendix A.

Summary of laboratory test results.

Field Sample Number	**1**	**2**	**3**
Sample Location	BH1	BH2	BH3
Depth (m)	0.5	2.0	1.5
Potential Sulfidic Acidity (mol H^+/t)	0	0	0
Actual Acidity (mol H^+/t)	54	107	154
Retained Acidity (mol H^+/t)	-	-	-
Net Acidity (mol H^+/t)	54	107	154
Texture	Medium	Fine	Medium
NASS ILMM Action Criteria[1] (mole H^+/t)	≥ 36	≥ 62	≥ 36
ASS Management Plan Triggered	Yes	Yes	Yes
Liming Rate (kg $CaCO_3$/t DW[2])	4	8	12

1. Action criteria taken from the National Acid Sulfate Soils Identification and Laboratory Methods Manual (NASS ILMM) Table 1.1, based on less than 1000 tonnes of soil to be disturbed and dependent on soil texture.
2. DW – Dry Weight.

Conclusions

The laboratory analysis indicates that one or more of the soil materials has triggered the NASS ILMM action criteria based on their Net Acidity. As such, these soil materials are either;

- Actual ASS (AASS: ASS materials that have been oxidised and are severely acidic), or
- Potential ASS (PASS: ASS materials that would become severely acidic if allowed to oxidise completely).

These soils materials pose an environmental hazard and require management.

The laboratory analysis has determined a liming application rate (with a safety factor of 1.5) based on the results of testing. The recommended liming rate is up to 12 kg CaCo3 (lime)/t of soil which is based on the treatment of the 'worst case' acidic soil detected in the investigation.
The lime neutralising agent shall be applied to the soil at the site at the calculated rate immediately upon excavation.

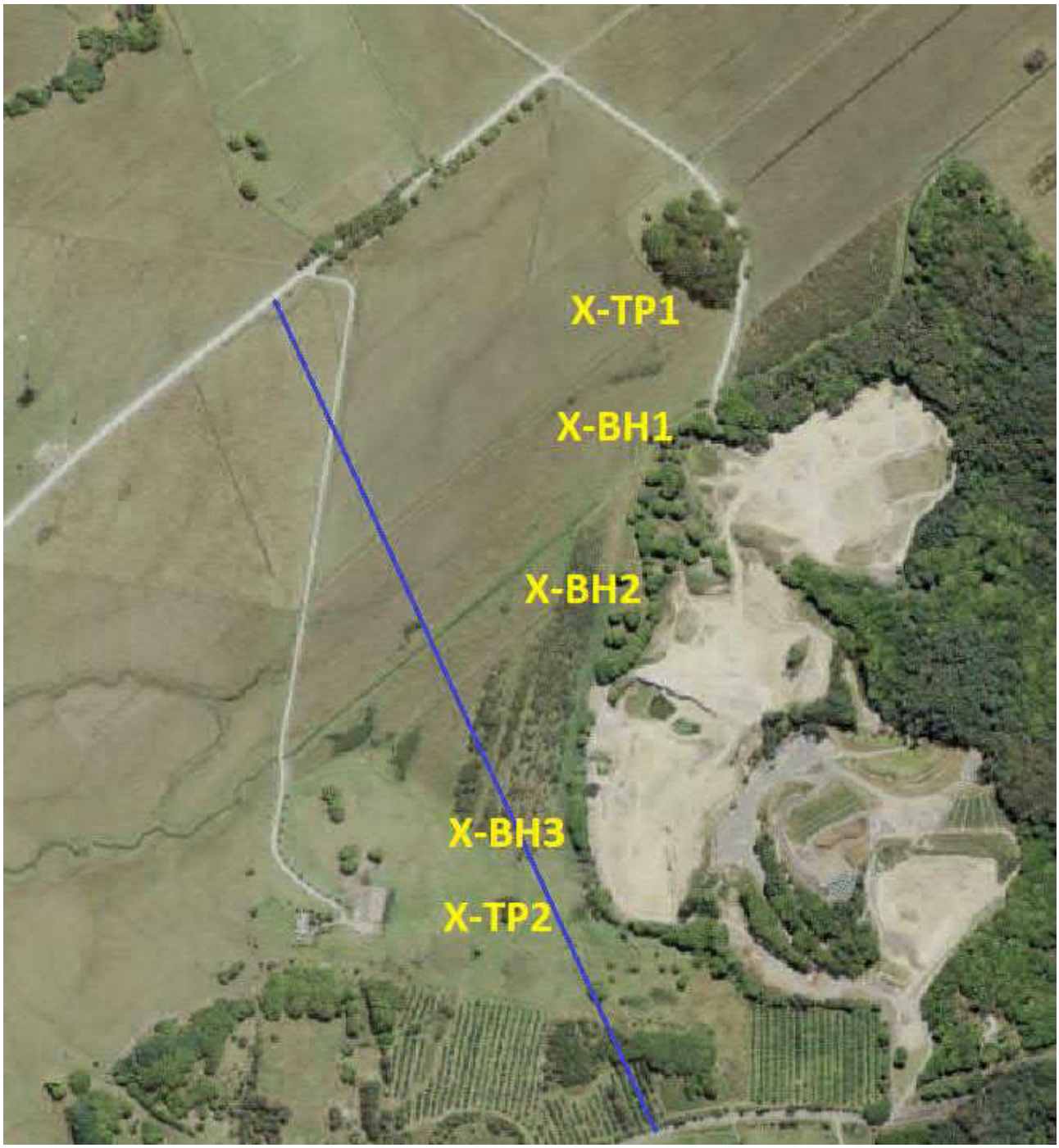
Limitations

This report relies on information supplied by the client and the results of investigations conducted in accordance with accepted practices and standards. The report is intended to represent a reasonable interpretation of the appropriate legislation and the condition of the site at the time of the investigation. However, due to these elements being subject to change over time the report under no circumstances can be considered to represent the definitive state of the site at all times.

Finally, should you require any further assistance, please do not hesitate to contact our office.

Yours Faithfully,
Australian Soil and Concrete Testing

Darran Kennedy
Laboratory Manager



X – ASS Investigation sampling points.

Figure 1: Dingo Lane, Myocum, NSW 2481, showing the location of the acid sulfate soil sampling points (Boreholes).

APPENDIX A – Results of Laboratory Soil Analysis

RESULTS OF ACID SULFATE SOIL ANALYSIS

3 samples supplied by Australian Soil & Concrete Testing on 7th January, 2020. Lab Job No.i9324
Analysis requested by Darran Kennedy. Your Job: 1804

17 De-Havilland Crescent BALLINA NSW 2478

Sample Identification	Depth	EAL Lab Code	Texture	Moisture Content		Potential Sulfidic Acidity (Chromium Reducible Sulfur - CRS)			Actual Acidity (Titratable Actual Acidity - TAA)	Retained Acidity		Non-treated soil: Acid Neutralising Capacity (ANC_{BT})		Non-treated soil: Net Acidity	Non-treated soil: Lime Calculation
	(m)			(% moisture of total wet weight)	(g moisture / g of oven dry soil)	(% S_{pa})	(mol H^+/t)	pH_{KCl}	(mol H^+/t)	(%S_{NAS})	(mol H^+/t)	(% $CaCO_3$)	(mol H^+/t)	(mol H^+/t)	(kg $CaCO_3$/t DW)
Method Info.			**		**	*(In-house method S20)*			*(In-house method T6b)*		**	*(In-house method S14)*		**	**
9303 BH1	**0.0**	*i9324/1*	Medium	24.0	0.32	< 0.005	0	4.62	54	..	..	..	..	54	4
9309 BH2	**0.5**	*i9324/2*	Fine	29.4	0.42	< 0.005	0	4.02	107	..	..	..	..	107	8
9315 BH3	**1.0**	*i9324/3*	Medium	27.2	0.37	< 0.005	0	4.11	154	..	..	..	..	154	12

NOTES:

1. All analysis is reported on a dry weight (DW) basis, unless wet weight (WW) is specified.
2. Samples are dried and ground immediately upon arrival (unless supplied dried and ground).
3. Analytical procedures are sourced from Sullivan L, Ward N, Toppler N and Lancaster G. 2018. National acid sulfate soils guidance: national acid sulfate soils identification and laboratory methods manual, Department of Agriculture and Water Resources, Canberra, ACT. CC BY 4.0.
4. The Acid Base Accounting Equation, where Acid Neutralising Capacity has not been corroborated by other data, is **Net Acidity = Potential Acidity + Actual Acidity + Retained Acidity** (Eq. 3.2; Sullivan et al. 2018 - full reference above).
5. The Acid Base Accounting Equation for post-limed soil materials is **Net Acidity = Potential Acidity + Actual Acidity + Retained Acidity - (post treatment Acid Neutralising Capacity - initial Acid Neutralising Capacity)** (Eq. 3.3; Sullivan et al. 2018 - full reference above).
   While the Acid Neutralising Capacity of a soil material may not be included in the Net Acidity calculation (Note 4), it must be measured to give an Initial Acid Neutralising Capacity if verification testing is planned post-liming.
   The Inital Acid Neutralising Capacity must be provided by the client to enable EAL to produce Verification Net Acidity and Liming calculations for post-limed soil materials.
6. The Acid Base Accounting Equation, where Acid Neutralising Capacity has been corroborated by other data, is Net Acidity = Potential Acidity + Actual Acidity + Retained Acidity - Acid Neutralising Capacity (Eq. 3.1; Sullivan et al. 2018 - full reference above).
7. The lime calculation includes a Safety Factor of 1.5 as a safety margin for acid neutralisation (Sullivan et al. 2018). This is only applied to positive values. An increased Safety Factor may be required in some cases.
8. Retained Acidity is required when the pH_{KCl} < 4.5 or where jarosite has been visually observed.
9. A negative Net Acidity result indicates an excess acid neutralising capacity.
10. If insufficient mixing occurs during intial sampling, or during post-liming, or both: the Potential Sulfidic Acidity may be greater in the post-limed sample than in the intial sample; the post-liming Acid Neutralising Capacity may be lower in the post-limed sample than in the intial sample.
11. **An acid sulfate soil management plan is triggered by Net Acidity results greater than the texture dependent criterion: coarse texture ≥ 0.03% S or 18 mol H^+/t; medium texture ≥ 0.06% S or 36 mol H^+/t; fine texture ≥ 0.1% S or 62 mol H^+/t)** (Table 1.1; Sullivan et al. 2018 - full reference above)
12. For projects that disturb > 1000 t of soil material, the coarse trigger of ≥ 0.03% S or ≥ 18 mol H^+/t must be applied in accordance with Sullivan et al. (2018) (full reference above).
13. Acid sulfate soil texture triggers can be related to NCST (2009) textures: coarse and peats = sands to loamy sands; medium = clayey sand to light clays; fine = light medium to heavy clays (Sullivan et al. 2018 - full reference above).
14. Bulk density is required to convert liming rates to soil volume based results. Field bulk density rings can be submitted to EAL for bulk density determination.
15. A negative Net Acidity result indicates an excess acid neutralising capacity.
16. '..' is reported where a test is either not requested or not required. Where pH_{KCl} is < 4.5 or > 6.5, zero is reported for S_{NAS} and ANC in Net Acidity calculations, respectively.
17. Results refer to samples as received at the laboratory. This report is not to be reproduced except in full.
18. ** NATA accreditation does not cover the performance of this service.
19. Analysis conducted between sample arrival date and reporting date.
20. All services undertaken by EAL are covered by the EAL Laboratory Services Terms and Conditions (refer scu.edu.au/eal or on request).
21. Results relate to the samples tested.
22. This report was issued on 09/01/2020.

NATA
Accreditation No. 14960
Accredited for compliance with ISO/IEC 17025 - Testing

Environmental Analysis Laboratory, Southern Cross University,
Tel. 02 6620 3678, website: scu.edu.au/eal

checked: .....
Graham Lancaster
Laboratory Manager

AUSTRALIAN SOIL AND CONCRETE TESTING

Australian Soil and Concrete Testing - Ballina
PO Box 5120, Ballina Mail Centre, Ballina NSW 2478
17 De-Havilland Crescent, NSW, Ballina 2478
Telephone: (02) 6686 8567
E-Mail: office@asct.com.au
Mobile: 0424 410 850
A.B.N. 92 602 346 127

Report on Moisture Content, Emerson Class, Soil pH, and PASS/AASS

Client:	Byron Shire Council	Report No:	1
Client Address:	70-90 Station Street Mullumbimby	Report Date:	7/01/2020
Project:	Dingo Lane, Myocum	Report Page:	Page 1 of 1
Works Component:	Matterial Assessment	Project No:	1804
Material Used:	Existing	Test Request/Order:	Email
Material Description:	Silty Silty	Lot Number:	NA
Lot Boundaries:	Chainage NA to NA. Offsets NA to NA.	ITP/PCP Number:	-
Lot Comments:	-	Control Line:	NA

Sample Number:		**9303**	**9304**	**9305**	**9306**	**9307**
Field Sample/Test Date:		18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
Lab Test Date (Moisture):		-	-	-	-	-
Chainage / Location:	(m)	BH-1	BH-1	BH-1	BH-1	BH-1
Offset from control line:	(m)	NA	NA	NA	NA	NA
Level of Test:	(m)	Subgrade	Subgrade	Subgrade	Subgrade	Subgrade
Test Depth:	(mm)	0.0m	0.5m	1.0m	1.5m	2.0m
Moisture Content:	(%)	-	-	-	-	-
Test Water Used:		-	-	-	-	-
Temperature of Water:	(°C)	-	-	-	-	-
Soil Description:		-	-	-	-	-
Emerson Class Number:		-	-	-	-	-
Soil-suspension made of 30g soil & :		-	-	-	-	-
pH Value of Soil-suspension:	(pH)	-	-	-	-	-
Field pH:	(pH_F)	**6.4**	**5.0**	**4.8**	**5.3**	**6.6**
Field pH Oxidised:	(pH_{FOX})	**4.2**	**3.1**	**3.3**	**4.0**	**6.4**
Acid Sulfate Soil Indication:		**PASS Very Likely**	**PASS Very Likely**	**PASS Possible**	**PASS Possible**	**Non-AASS**

Sample Number:		**9308**	**9309**	**9310**	**9311**	**9312**
Field Sample/Test Date:		18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
Lab Test Date (Moisture):		-	-	-	-	-
Chainage / Location:	(m)	BH-2	BH-2	BH-2	BH-2	BH-2
Offset from control line:	(m)	NA	NA	NA	NA	NA
Level of Test:	(m)	Subgrade	Subgrade	Subgrade	Subgrade	Subgrade
Test Depth:	(mm)	0.0m	0.5m	1.0m	1.5m	2.0m
Moisture Content:	(%)	-	-	-	-	-
Test Water Used:		-	-	-	-	-
Temperature of Water:	(°C)	-	-	-	-	-
Soil Description:		-	-	-	-	-
Emerson Class Number:		-	-	-	-	-
Soil-suspension made of 30g soil & :		-	-	-	-	-
pH Value of Soil-suspension:	(pH)	-	-	-	-	-
Field pH:	(pH_F)	**5.4**	**4.9**	**4.6**	**4.7**	**5.5**
Field pH Oxidised:	(pH_{FOX})	**3.3**	**3.2**	**3.3**	**3.6**	**4.9**
Acid Sulfate Soil Indication:		**PASS Very Likely**	**PASS Very Likely**	**PASS Possible**	**PASS Possible**	**PASS Possible**

Sampling & Test Methods (Results relate only to the items sampled/tested)

AS 1289.1.2.1, Cl 6.5.3: Disturbed Soil Sampling - Powered - Auger
AS 1289.1.1: Preparation of disturbed soil samples
AS 1289.4.3.1: pH value of a soil (Electrometric method)

Report Remarks & Endorsement

AUSTRALIAN SOIL AND CONCRETE TESTING
Always Test With The Best.

Issued By: D.Kennedy
Approved Signatory

ASCT Doc # WB57 - Rev 8, 15/05/2019

Australian Soil and Concrete Testing - Ballina
PO Box 5120, Ballina Mail Centre, Ballina NSW 2478
17 De-Havilland Crescent, NSW, Ballina 2478
Telephone: (02) 6686 8567
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Report on Moisture Content, Emerson Class, Soil pH, and PASS/AASS

Client:	Byron Shire Council	Report No:	1
Client Address:	70-90 Station Street Mullumbimby	Report Date:	7/01/2020
Project:	Dingo Lane, Myocum	Report Page:	Page 1 of 1
Works Component:	Matterial Assessment	Project No:	1804
Material Used:	Existing	Test Request/Order:	Email
Material Description:	Silty Silty	Lot Number:	NA
Lot Boundaries:	Chainage NA to NA. Offsets NA to NA.	ITP/PCP Number:	-
Lot Comments:	-	Control Line:	NA

Sample Number:		**9313**	**9314**	**9315**	**9316**	**9317**
Field Sample/Test Date:		18/12/2019	18/12/2019	18/12/2019	18/12/2019	18/12/2019
Lab Test Date (Moisture):		-	-	-	-	-
Chainage / Location:	(m)	BH-3	BH-3	BH-3	BH-3	BH-3
Offset from control line:	(m)	NA	NA	NA	NA	NA
Level of Test:	(m)	Subgrade	Subgrade	Subgrade	Subgrade	Subgrade
Test Depth:	(mm)	0.0m	0.5m	1.0m	1.5m	2.0m
Moisture Content:	(%)	-	-	-	-	-
Test Water Used:		-	-	-	-	-
Temperature of Water:	(°C)	-	-	-	-	-
Soil Description:		-	-	-	-	-
Emerson Class Number:		-	-	-	-	-
Soil-suspension made of 30g soil & :		-	-	-	-	-
pH Value of Soil-suspension:	(pH)	-	-	-	-	-
Field pH:	(pH_F)	**5.7**	**5.2**	**5.1**	**4.9**	**5.0**
Field pH Oxidised:	(pH_{FOX})	**3.5**	**3.6**	**3.8**	**4.0**	**4.0**
Acid Sulfate Soil Indication:		**PASS Very Likely**	**PASS Very Likely**	**PASS Possible**	**PASS Possible**	**PASS Possible**

Sample Number:		-	-	-	-	-
Field Sample/Test Date:		-	-	-	-	-
Lab Test Date (Moisture):		-	-	-	-	-
Chainage / Location:	(m)	-	-	-	-	-
Offset from control line:	(m)	-	-	-	-	-
Level of Test:	(m)	-	-	-	-	-
Test Depth:	(mm)	-	-	-	-	-
Moisture Content:	(%)	-	-	-	-	-
Test Water Used:		-	-	-	-	-
Temperature of Water:	(°C)	-	-	-	-	-
Soil Description:		-	-	-	-	-
Emerson Class Number:		-	-	-	-	-
Soil-suspension made of 30g soil & :		-	-	-	-	-
pH Value of Soil-suspension:	(pH)	-	-	-	-	-
Field pH:	(pH_F)	-	-	-	-	-
Field pH Oxidised:	(pH_{FOX})	-	-	-	-	-
Acid Sulfate Soil Indication:		-	-	-	-	-

Sampling & Test Methods (Results relate only to the items sampled/tested)

AS 1289.1.2.1, Cl 6.5.3: Disturbed Soil Sampling - Powered - Auger
AS 1289.1.1: Preparation of disturbed soil samples
NASS SIMM: NASS - Sampling & Identification Methods Manual (Jun 2018)

Report Remarks & Endorsement

Always Test With The Best.

Issued By: D.Kennedy
Approved Signatory

ASCT Doc # WB57 - Rev 8, 15/05/2019

APPENDIX B – ASS Test Hole Logs

BOREHOLE LOG SHEET - 1

Client:	Byron Shire Council	**ASCT Ref No:**	H19-1331
Project:	- Dingo Lane, Myocum	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Exisiting Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		CH	**Silty CLAY, NATURAL: (topsoil)** black, high plasticity,	Soft	1	Disturbed
0.1			medium dry strength, dry to moist.		1	
0.2		CH	**Silty CLAY, NATURAL:** mottled black/brown	Soft	1	
0.3			high plasticity, high dry strength, moist.	to	1	
0.4				Firm	1	
0.5					2	Disturbed
0.6					2	
0.7					2	
0.8					2	
0.9					1	
1.0					1	Disturbed
1.1		CH	**Silty CLAY, NATURAL: ('pug')** black, high plasticity,	Soft	1	
1.2			high dry strength, moist.	to	1	
1.3				Stiff	1	
1.4					1	
1.5					1	Disturbed
1.6					2	
1.7					3	
1.8					3	
1.9					3	
2.0					3	Disturbed
2.1					4	
2.2					Stopped	
2.3						
2.4						
2.5			**DRILLING TERMINATED:** target depth reached.			
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
5.0						

BOREHOLE LOG SHEET - 2

Client:	Byron Shire Council	**ASCT Ref No:**	H19-1331
Project:	- Dingo Lane, Myocum	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Exisiting Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0		CH	**Silty CLAY, NATURAL: (topsoil)** black, high plasticity,	Stiff	3	Disturbed
0.1			medium dry strength, dry to moist.		2	
0.2		CH	**Silty CLAY, NATURAL:** mottled black/brown	Firm	2	
0.3			high plasticity, high dry strength, moist.	to	1	
0.4				Soft	2	
0.5					2	U50 Tube
0.6					1	
0.7					1	
0.8					2	
0.9					2	
1.0					1	Disturbed
1.1		CH	**Silty CLAY, NATURAL ('pug'):** black, high plasticity,	Soft	1	
1.2			high dry strength, moist.	to	1	
1.3				Stiff	1	
1.4					1	
1.5					1	Disturbed
1.6					1	
1.7					1	
1.8					2	
1.9					2	
2.0					3	Disturbed
2.1					3	
2.2					4	
2.3					Stopped	
2.4						
2.5			**DRILLING TERMINATED:** target depth reached.			Disturbed
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
5.0						

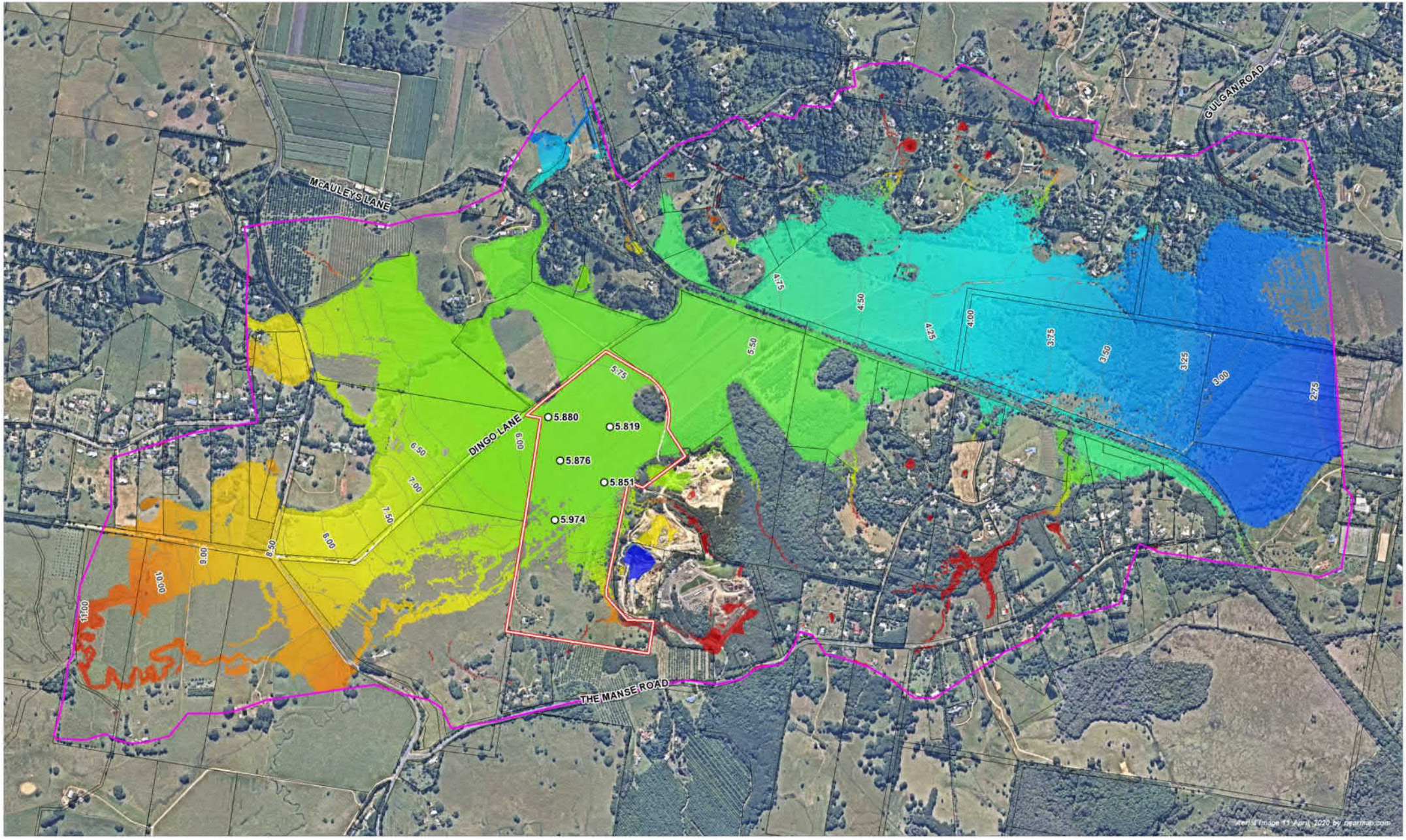
BOREHOLE LOG SHEET - 3

Client:	Byron Shire Council	**ASCT Ref No:**	H19-1331
Project:	- Dingo Lane, Myocum	**Client Ref No:**	NA
Borehole Position:	See Site Sketch	**Drilling Method:**	Power Auger
Surface Elevation:	Exisiting Surface Level	**Drill Bit:**	100mm Ø TC

Depth (m)	Graphic Symbol	Group Symbol	Soil Description (AS 1726)	Consistency / Relative Density / Rock Strength	DCP Blows / 100mm	Test Sample
					Cone Tip	
0.0			**Silty CLAY, NATURAL: (topsoil)** dark brown, high		1	Disturbed
0.1			plasticity, high dry strength, moist		2	
0.2				Stiff	4	
0.3			**Silty CLAY, NATURAL:** brown, high plasticity, high dry		4	
0.4			strength, moist		5	
0.5					4	Disturbed
0.6			**Silty CLAY, NATURAL:** dark brown, high plastic, high dry		4	
0.7			strength, moist	Very Stiff	5	
0.8					5	
0.9					5	
1.0					6	Disturbed
1.1					5	
1.2					5	
1.3					6	
1.4		XW	**Silty CLAY, NATURAL: (extremely weathered rock),**	Very Stiff	5	
1.5			mottled orange brown/grey, medium plasticity,		5	Disturbed
1.6			medium dry strength, trace sand, moist.		4	
1.7		XW	**Silty CLAY, NATURAL: (extremely weathered rock),**	Stiff	4	
1.8			mottled grey/brown, medium plasticity, medium	to	6	
1.9			dry strength, trace sand, moist.	Very Stiff	6	
2.0			**DRILLING TERMINATED:** target depth reached.		Stopped	Disturbed
2.1						
2.2						
2.3						
2.4						
2.5						
2.6						
2.7						
2.8						
2.9						
3.0						
3.1						
3.2						
3.3						
3.4						
3.5						
3.6						
3.7						
3.8						
3.9						
4.0						
4.1						
4.2						
4.3						
4.4						
4.5						
4.6						
4.7						
4.8						
4.9						
5.0						

Appendix E

BMT 1% AEP Flood Mapping



LEGEND

- Project Site
- Reporting Points (Level mAHD)
- Model Extent
- Cadastral Boundaries
- Flood Level Contours (0.25m intervals)

Flood Level (mAHD): 2 3 4 5 6 7 8 9 10 11 12

Title:
1 in 100 AEP Water Level

Figure: C-1

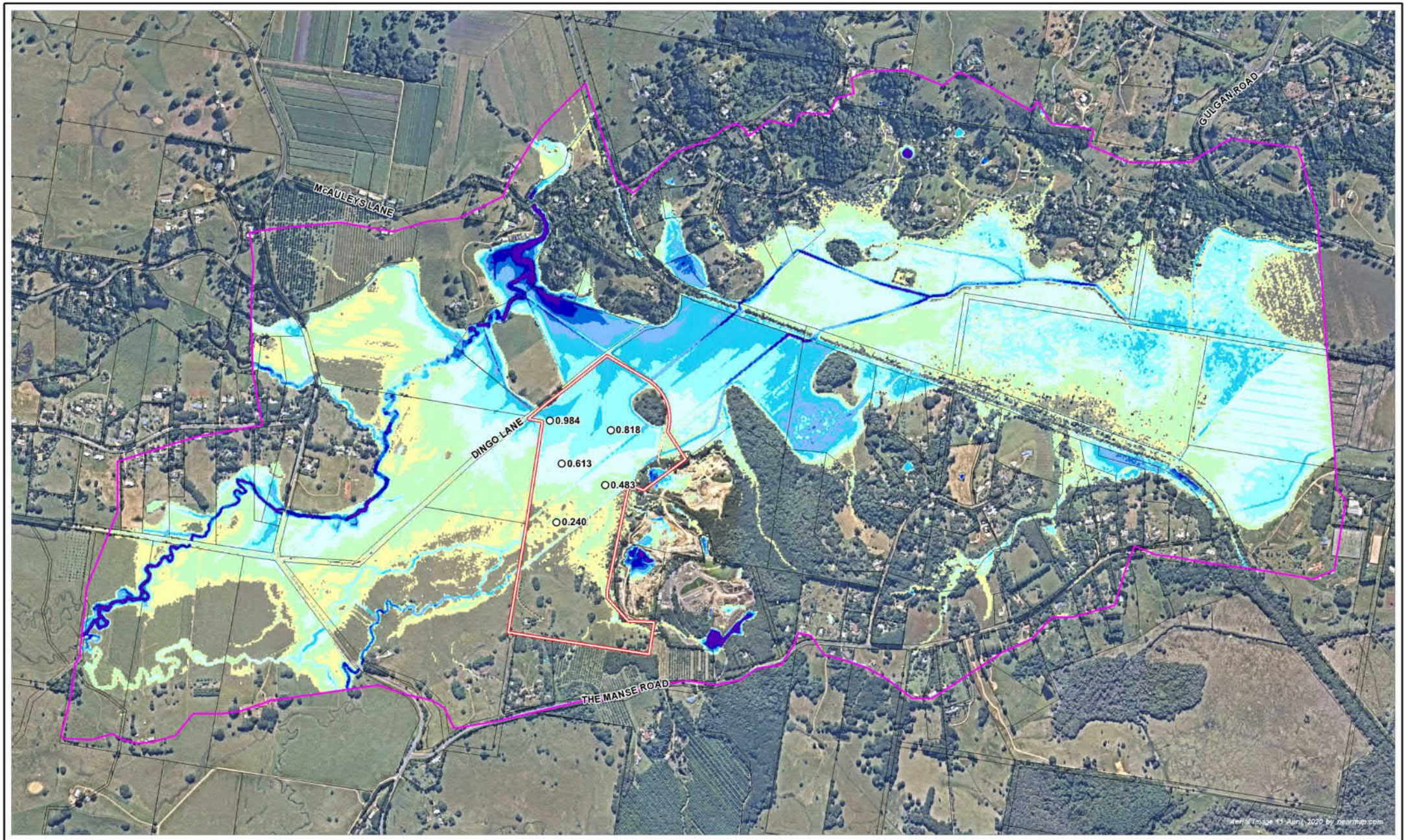
Rev: A

N

0 300 600
metres

BMT
www.bmt.org

Filepath: I:\B24085.i.rej_Dingo_SolarFarm\DRG\FLD_001_200706_WaterLevel_100AEP.WOR



LEGEND

Project Site

Reporting Points (Depth m/s)

Model Extent

Cadastral Boundaries

Peak Flood Depth (m)

0.00 to 0.25	1.25 to 1.50
0.25 to 0.50	1.50 to 1.75
0.50 to 0.75	1.75 to 2.00
0.75 to 1.00	2.00 to 5.00
1.00 to 1.25	> 5.00

Title:

1 in 100 AEP Depth

Figure: C-2

Rev: A

N

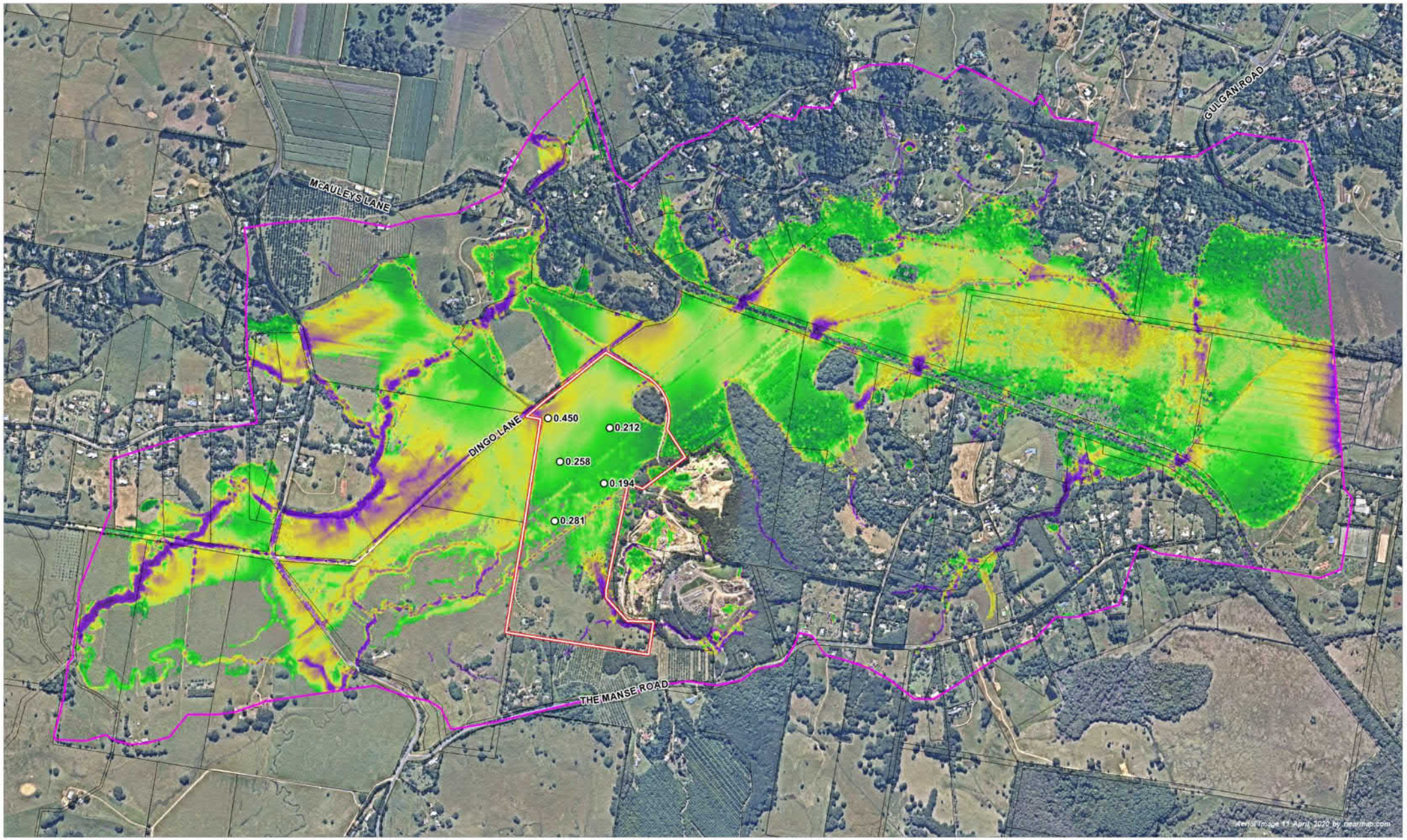
0 300 600

metres

BMT

www.bmt.org

Filepath: I:\B24085.i.rej_Dingo_SolarFarm\DRG\FLD_002_200706_WaterDepth_100AEP.WOR



LEGEND

- Project Site
- Reporting Points (Velocity m/s)
- Model Extent
- Cadastral Boundaries

0.00 0.25 0.50 0.75 1.00 1.25 1.50

Velocity (m/s)

Title:
1 in 100 AEP Velocity

Figure: C-3

Rev: A

N

0 300 600

metres

BMT
www.bmt.org

Filepath: I:\B24085.i.rej_Dingo_SolarFarm\DRG\FLD_003_200706_Velocity_100AEP.WOR