

# Civil Engineering Design Report

## Gledswood Hills High School

Prepared for NSW Department of Education / 17 December 2024

241458

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Rev	Date	Prepared By	Approved By	Remarks
0	15/11/2024	S. Fok	C. Rope	DRAFT REF
1	17/12/2024	S. Fok	C. Rope	ISSUED FOR REF

## 1.0 Introduction

This Civil Engineering Design Report has been prepared by Taylor Thomson Whitting (TTW) on behalf of the NSW Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction of the new Gledswood Hills High School (the **Proposal**) at 9 Gregory Hills Drive, Gledswood Hills (the **site**). The works are proposed by the DoE to meet the growth in educational demand in Gregory Hills and Gledswood Hills, and the broader South West Growth Area.

This report has been prepared to address the civil engineering design of the GHHS works including stormwater quantity, overland flow, flooding, stormwater quality, pavements and earthworks design. The relevant requirements of Camden Council's Development Control Plan (DCP) and engineering specifications as well as School Infrastructure's 'Educational Facilities Standards and Guidelines' (EFSG) will be addressed.

### 1.1 Summary of the Activity

The proposed activity involves the construction and operation of a new high school at the site accommodating 1000 students, including:

- A series of school buildings along the northern, eastern and southern site boundaries.
- A school hall.
- An assembly area, sports field and multi sports courts.
- Car parking and a Kiss and Drop zone.
- Associated on and off-site infrastructure to support the school, including a new pedestrian crossing and relocation of the existing bus stop on Gregory Hills Drive to the site frontage.

The Review of Environmental Factors prepared by Ethos Urban provides a full description of the proposed works.

### 1.2 Site Description

The site is located at 9 Gregory Hills Drive, Gledswood Hills, within the Camden Local Government Area (LGA), approximately 60km southwest of the Sydney CBD and approximately 3.5km from Narellan Town Centre. It comprises one lot, legally described as Lot 2 in DP 1262720, that measures approximately 4.15ha in area. The site is bound by Digitaria Drive to the north and Gregory Hills Drive to the south. To the east lies two vacant lots, a childcare centre and a fast food outlet. To the west lies another childcare centre and a vacant lot (which also has approval for a childcare centre).

An aerial image of the site is shown at Figure 1.

### 1.3 Concept Approval

This report has considered the concept approval (DA/2017/45/1) for a mixed-use development comprising bulky goods premises, business premises, food and drink premises, indoor recreation facilities, two hotels and a cinema at the proposed school site. It has been determined that potential impacts of the proposed activity on the concept approval can be appropriately mitigated or managed as detailed at Section 5.0.

Further discussion of minor changes to the concept design is contained in Section 3.1.2.



Figure 1 Site Aerial



Figure 2 Site Plan

## 1.4 Significance of Environmental Impacts

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that:

- The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

## 1.5 Guidance documents

The following documents have been reviewed and referenced in preparing this report:

- Turner Road Precinct Development Control Plan (DCP), Department of Planning, Housing and infrastructure 2018;
- Camden Council Development Control Plan (DCP), 2019;
- Camden Council Engineering Design Specification, 2009;
- Blue Book – Managing Urban Stormwater Soils and Construction (Landcom NSW);
- NSW Department of Education Educational Facilities Standards and Guidelines;
- NSW Floodplain Development Manual;
- Australian Rainfall and Runoff 2019;

Design inputs by others:

- Desktop Analysis Review for Gledswood/Gregory Hills New High School by SDG dated 15 December 2023;
- Site Contamination Due Diligence (DD) Detailed Site Investigation (DSI) by Geotechnique dated 28 February 2024;
- Preliminary Geotechnical Desktop Study and Intrusive Geotechnical Investigation Report by Geotechnique dated 28 February 2024;
- Gregory Hills, Gledswood High School Infrastructure, Demand and Capacity Study by Stantec dated 23 January 2024;
- Flooding Memo – 9 Gregory Hills Drive, Gledswood Hills by Site Plus dated 7 November 2023;
- No. 9 Gregory Hills Drive, Lot 2 DP1262720, Gledswood Hills - Flooding Advice New High School by Site Plus dated 15 December 2023;



## 2.0 Existing Site

### 2.1 Site Topography

The site has been filled and generally sits at a minimum of 2m above the surrounding street levels. The perimeter of the fill platform sits generally at RL101.30m AHD and then batters down to meet the street and access road levels on the north, east and south at grades between 11-16%. There is a crest located along the eastern boundary with a level of RL103.20m AHD. The site grades radially away from this to the south, southwest, west and northwest at grades between 1.4-2.5%. The levels particularly at the southwest corner are generally flat over an expanse of 80m.

The site frontage along Gregory Hills Drive grades towards the west at approximately 1%. There is a crest within the site frontage to Digitaria Drive. The road to west of the crest grades at approximately 3% and to the east of the crest at approximately 1%.

During a site walk conducted on 18<sup>th</sup> June, it was noted that there is a 1.8m high retaining wall along the western boundary with an easement for support benefiting the subject site. This runs along the shared boundary with the adjoining preschool.

### 2.2 Easements

The site fronts Gregory Hills Drive to the south and Digitaria Drive to the north. Along the eastern boundary there is an existing access road approximately 270m long that partially sits within the property connecting Gregory Hills Drive to Digitaria Drive. The southern 215m length of the access road is within the site and benefits adjoining lots for access. The northern 55m length of the access road lays within an adjoining property. This part of the road has easement rights for access and also contains drainage infrastructure benefiting the subject site and other adjoining properties.

### 2.3 Existing Services

Taylor Thomson Whitting have conducted a Before You Dig Australia (BYDA) enquiry attached in Appendix A to identify known in-ground public assets that may impact the activity. As part of the detail survey, SDG have also carried out services survey. This has been reviewed in preparing this report. For further details, refer to the survey plan by SDG attached in Appendix B.

The site survey contains location of existing potable water, recycled water, sewer, electricity, gas and communications services. These services are found within Gregory Hills Drive and Digitaria Drive. It is recommended that services be physically located prior to detail design to identify any clash points with proposed in-ground infrastructure. The design must be progressed in accordance with the relevant services consultants' design advice and in consultation with all relevant statutory authorities.

### 2.4 Geotechnical Conditions

A preliminary geotechnical report for the proposed school site has been prepared by Geotechnique. The report provides comment on the following items:

- Permanent and temporary batter limits;
- Suitability of site-won fill for reuse;
- Water table level;
- Confirmation that the site is not impacted by acid sulphate soils;
- Existing fill depths and soil profiles
- General earthworks methodology;
- Saline soils requiring a saline soil management plan.

We note that CBR testing was not carried out as part of the investigation. This information will be required to inform any pavement design. Further, Geotechnique have advised that the existing fill on site is likely suitable to be used as controlled fill or as foundation material subject to confirmation by previous records that the fill was placed in a controlled manner.

## 3.0 Stormwater

### 3.1 Stormwater Quantity

#### 3.1.1 Existing Stormwater

The site is an undeveloped site with a total area of approximately 4.157 hectares. The existing site is considered to be approximately 95% pervious, with 5% of the site area consisting of the existing access road to the east.

As mentioned above, the access road has existing drainage. Pits lay within the centre of the road at sag points and the inground pipe runs from the southern boundary north making connection to drainage within Digitaria Drive. There was no other inground stormwater surveyed within the site.

The survey investigation has identified drainage within Digitaria Drive and Gregory Hills Drive along the site frontages. There are also three raingardens located within the verge on Digitaria Drive.

The site topography indicates that there is no upstream catchment that drains through the site.

#### 3.1.2 Proposed Stormwater Design

The proposed stormwater design is to be in accordance with the relevant Australian Standards, Australian Rainfall and Runoff 2019 (ARR 2019), the Council's DCP, Council's Engineering Design Specification and SINSW's EFSG requirements.

Council's DCP requires that an adequate stormwater system shall be designed and constructed to ensure that new works do not increase stormwater peak flows in any downstream areas for all storm events up to and including the 1% AEP storm event.

The stormwater design can be separated into two categories – roof stormwater and surface stormwater. All roof stormwater will be collected through the use of gutters and downpipes and directed to rainwater tanks as reuse for landscape irrigation. The overflow from rainwater tanks is conveyed to the in-ground pipes system for surface stormwater up to and including the 20% Annual Exceedance Probability (AEP) storm event. All surface stormwater shall be collected by a series of surface inlet pits and in-ground pipes. Stormwater flows in excess of the 20% AEP and up to the 1% AEP event will be directed either by overland flow paths or in-ground stormwater to an on-site detention tank. Where flows exceed the 1% AEP storm or pits become blocked, surface grading will facilitate overland flow to be conveyed out of the site.

As majority of the site falls towards the southwest corner, the point of discharge is proposed to be to Council's existing stormwater pit within Gregory Hills Drive. The proposed carpark area will drain towards the existing access road. This varies from the previously approved concept drainage plan (DA/2017/45/1). In the previous concept plan, the development included lots to the northeast and southwest of the site as part of the development proposal for a corporate park. These areas are not part of the proposed school works. Based on the previous larger site area and proposal for a corporate park with multiple subdivided lots, the drainage proposal included several stormwater connections to Council drainage within Digitaria Drive and Gregory Hills Drive and connections to drainage within the access road.

The proposed school activity is designed to the same parameters as the previous Concept DA and is therefore not detrimental to the stormwater outcomes for adjacent lots or the wider precinct.

#### 3.1.3 Onsite Stormwater Detention

Section 6.2: Flooding and Watercycle Management of the Turner Road Precinct DCP (DPIE) stipulates that post works peak flows up to and including the 1% AEP storm event must be reduced to pre-works levels by the implementation of stormwater detention. Camden Council were contacted via email correspondence on 5<sup>th</sup> July 2024 to confirm the stormwater requirements for the site including stormwater detention and stormwater

quality. Council provided a response on 29<sup>th</sup> July 2024 confirming the requirements, the correspondence is provided in Appendix C.

As such, on site detention (OSD) is required and will be addressed by providing an inground OSD tank towards the southwest corner of the site. The proposed detention tank was modelled in DRAINS software to determine the required detention volume to mitigate flows in accordance with Council's requirements. Conceptual modelling determined that a detention tank with 600m<sup>3</sup> of effective volume would be sufficient in reducing post works peak flows up to and including the 1% AEP storm event to pre-works levels. The results of the modelling are shown below.

Storm Event	Total Pre-Works Flow (L/s)	Total Post Works Flow (L/s)
1 EY	398	334
50% AEP	454	371
20% AEP	1,120	817
10% AEP	1,360	920
5% AEP	1,580	1,140
2% AEP	1,910	1,330
1% AEP	2,200	1,530

### 3.2 Stormwater Quality

Stormwater quality treatment is required to comply with the requirements outlined in Section 6.2 of Council's Turner Road Precinct DCP. Council's stormwater quality targets are depicted in Figure 6 below.

**Table 9: Environmental Stormwater Objectives**

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio Post-development duration of above 'stream forming flow' : Natural duration of above 'stream forming flow' <sup>1</sup>
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorus	Total nitrogen	
Stormwater management objective	90	85	65	45	3.5 – 5.0 : 1 <sup>2</sup>
'Ideal' stormwater outcome	100	95	95	85	1 : 1

<sup>1</sup> For the purposes of these objectives, the 'stream forming flow' is defined as 50% of the 50% AEP flow rate estimated for the catchment under natural conditions

<sup>2</sup> This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time

Figure 3: DCP Water Quality Targets

A conceptual treatment train and MUSIC model has been prepared which meets Council's requirements above. This treatment train consists of the following treatment devices:

- 30 x Ocean Protect Oceanguard pit filter baskets
- 20 x Ocean Protect 690mm Psorb Stormfilter cartridges
- Total of 40kL rainwater tank for landscape irrigation reuse
- Approx. 60m<sup>2</sup> bioretention raingardens
- Swales

The MUSIC model layout and results are shown below. The model can be provided for review.



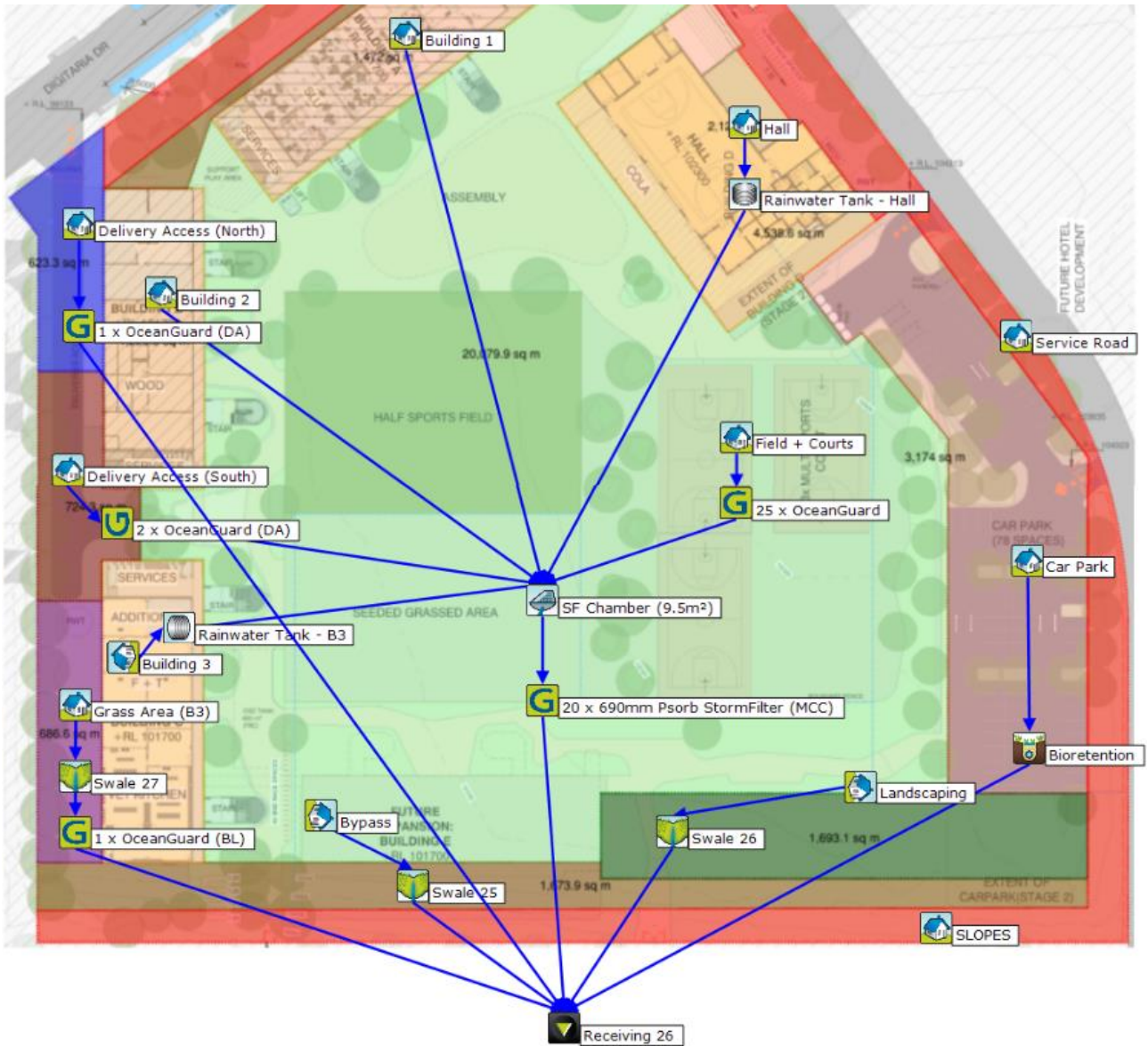


Figure 4 MUSIC model layout

	Sources	Residual Load	% Reduction
Flow (ML/yr)	14.56	13.65	6.25
Total Suspended Solids (kg/yr)	1930	205	89.38
Total Phosphorus (kg/yr)	4.512	1.469	67.43
Total Nitrogen (kg/yr)	38.02	18.82	50.51
Gross Pollutants (kg/yr)	372.5	0	100

Figure 5 MUSIC model results

Note, the total rainwater tank volume is based on advice from others – refer to separate Hydraulic and ESD reports.

It is assumed that as the activity does not propose any change to the existing access road along the eastern boundary or to the perimeter embankment and that these areas can be excluded from the stormwater quality assessment.

### 3.3 Erosion and Sediment Control

An erosion and sediment control plan (ESCP) will be implemented during the construction stage to mitigate soil erosion and control the discharge of stormwater laden with sediment, nutrients and other pollutants to adjoining properties, bushland, roadways or receiving water bodies. Stormwater controls on site are detailed in ESCPs which are in accordance with Council's DCP and regulatory authority guidelines including Landcom NSW's Managing Urban Stormwater, Soils and Construction ("Blue Book").

The disturbance of the site during construction must be controlled through erosion prevention and sediment control measures. Typical provisions for a site of this type and scale would include:

- Silt fences to prevent silt and waste being washed into neighbouring sites and streets and may be integrated with safety fencing.
- Catch drains with hay bales to carry and treat site runoff.
- Sedimentation basin(s) to be installed at the low point of site excavation.
- Shaker grids at the construction site entrance(s) to ensure that vehicles and machinery leave the site with clean wheels.
- Pits will have silt protection installed to prevent silt from entering the stormwater system during construction.

The proposed Erosion and Sediment Control Plan for the site is part of the civil engineering plans prepared for REF submission and included in the appendices.

## 4.0 Site Works

### 4.1 Pavement Design

Pavements with vehicular traffic will need to be designed with capacity for the proposed design vehicle and vehicular movements and to cater for a minimum 25-year design life in accordance with the EFSG.

Should inferior subgrade be present within proposed vehicular areas within the site, appropriate subgrade improvement may involve the placement of a select fill layer of good quality granular material below the pavement or lime stabilisation of the subgrade soils. This will be further developed in the detail design stage with geotechnical advice.

### 4.2 Bulk Earthworks

Bulk earthworks for the school will consist of reshaping the site to provide flat building pads and suitably graded pavements, car parking and play areas. Requirements for the removal of topsoil and any ground improvement will be based on the geotechnical advice, including any imported materials and the proposed finished level. The bulk earthworks has been developed with the objective to achieve a balance of cut and fill on site so far as practical.

The geotechnical advice provided by Geotechnique in the report dated 28 February 2024 has highlighted the following site preparation requirements:

- Stripping of topsoil from work areas to be stockpiled for landscape areas.
- Tyne, water, and roll the areas on which filling, paving or building slabs are to be placed. Proof roll and ameliorate subgrade as required. The final proof roll should have movement no greater than 3mm.
- Placement of acceptable fill material from cut areas or from off-site shall be placed and compacted in layers of no more than 200mm.
- Filled areas and cut areas to be overlain by buildings and pavements are to be protected to maintain constant moisture content in the soil. The protection is to remain in place until construction is complete.
- An independent approved NATA registered testing authority will be required to perform all the compaction testing of earthworks and submit test certificates. Compaction will need to comply with the earthworks specifications.

#### 4.2.1 Cut & Fill

A preliminary cut and fill analysis has been conducted to provide a high-level estimate of anticipated earthworks to inform costing based on the architectural plan. The analysis determined that there will be approximately 1,420m<sup>3</sup> of excess fill (subject to detailed design). This is based on assumed pavement and landscape set-downs developed through the schematic design. It is intended that any cut material obtained during construction works will be re-used on site (e.g. used as fill or retained at a suitable location).

This analysis excluded consideration of the proposed landscape works, allowance for topsoil and excavation in rock, services, stormwater trenching and OSD excavation and any remediation works.

### 4.3 Public Domain Works

As part of the activity, public domain works are proposed including on Digiteria Drive provision of signage and linemarkings for 'kiss & ride' on the southern side, widening the existing footpath on the south side to the kerb within the Kiss & Drop zone and a raised wombat crossing. On Gregory Hills Drive, the eastbound bus stop will be moved to within the site frontage and a new westbound bus stop will be provided including a shelter.

## 5.0 Mitigation Measures

The following mitigation measures are proposed to minimise impact of the proposed activity on the community and environment:

Project Stage Design (D) Construction (C) Operation (O)	Mitigation Measure	Reason for Mitigation Measure	Relevant section of report
C	Erosion and sediment control measures including silt fence, sediment traps and sediment basins.	To reduce silt and other pollutants in stormwater runoff from the site during construction works	<a href="#">Section 3.3,</a> <a href="#">Appendix D</a>
O	On site detention to mitigate increase in peak flows from the site as a result of the work to pre-works levels in accordance with the Council requirements.	To mitigate flooding or inundation of the downstream stormwater network due to increase of impervious area related to the activity.	<a href="#">Section 3.1.3,</a> <a href="#">Appendix D</a>
O	Stormwater quality treatment measures to treat stormwater in accordance with the Council requirements.	To reduce pollutants in stormwater runoff as a result of the proposed activity and change in catchment c	<a href="#">Section 3.2,</a> <a href="#">Appendix D</a>

## 6.0 Conclusion

This section summarises the key civil engineering elements of the proposed activity for the site:

- Stormwater quantity has been designed in accordance with Camden Council and EFSG requirements. OSD is proposed to mitigate peak flows post works. An inground tank is proposed with an effective volume of 600m<sup>3</sup>.
- Stormwater quality is proposed to be addressed by a treatment train consisting of rainwater reuse, filter baskets, filter cartridges, swales and bioretention raingardens to meet Camden Council's requirements.
- Erosion and sediment control will be provided in accordance with industry best practice and the 'Blue Book' to mitigate sediment in runoff during construction.
- Other civil works including earthworks, proposed pavements and retaining walls will not impact on the environment.

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the civil engineering works associated with the proposed activity, it is determined that:

- The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

Prepared by  
**TTW (NSW) PTY LTD**



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**STEPHEN FOK**  
Senio Civil Engineer

Authorised By  
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**COLIN ROPE**  
Associate Director

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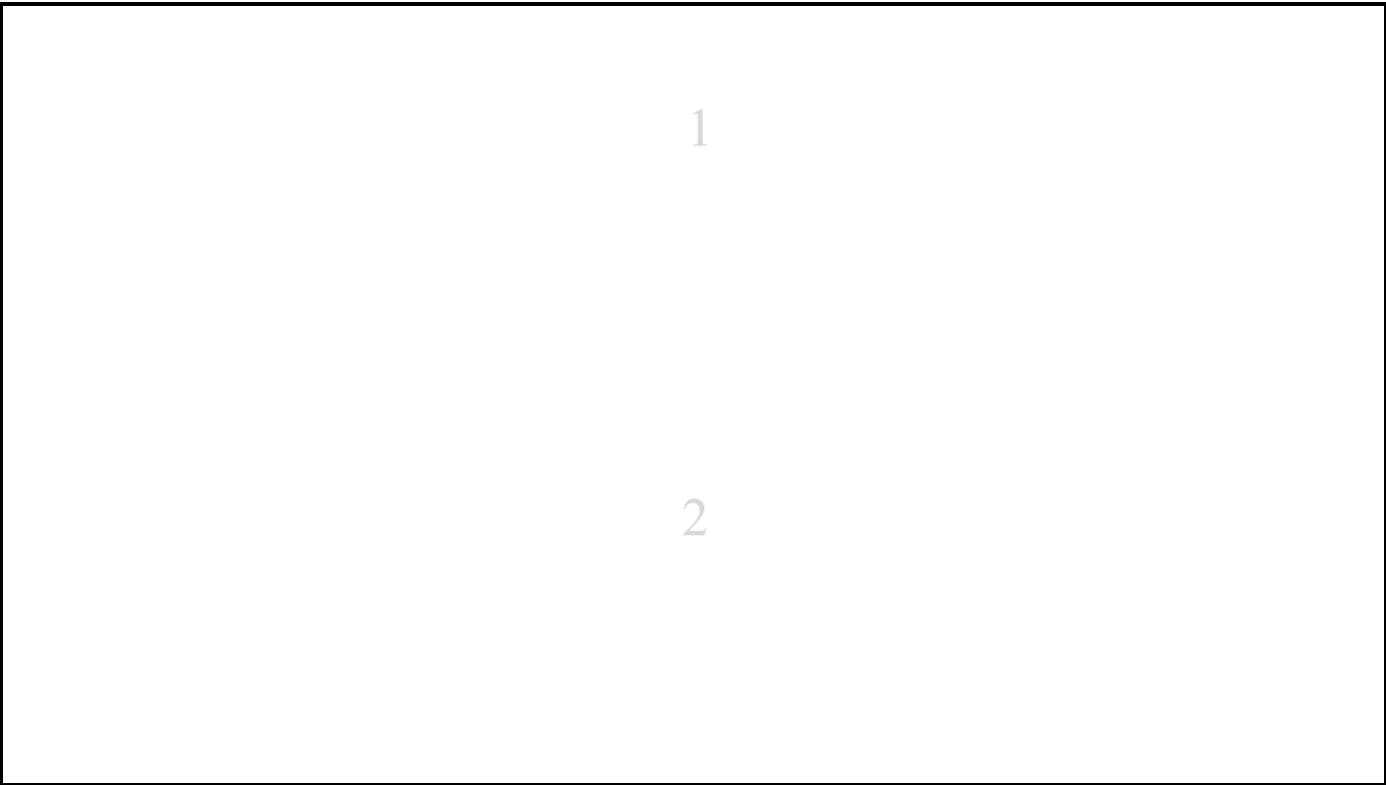
## Appendix A

# BYDA Documents

**To:** Kyrellos Habib  
**Phone:** Not Supplied  
**Fax:** Not Supplied  
**Email:** Kyrellos.habib@ttw.com.au

<b>Dial before you dig Job #:</b>	36829811	
<b>Sequence #</b>	240112647	
<b>Issue Date:</b>	04/06/2024	
<b>Location:</b>	4 Digitaria Drive , Gledswood Hills , NSW , 2557	

Indicative Plans are tiled below to demonstrate how to layout and read nbn asset plans



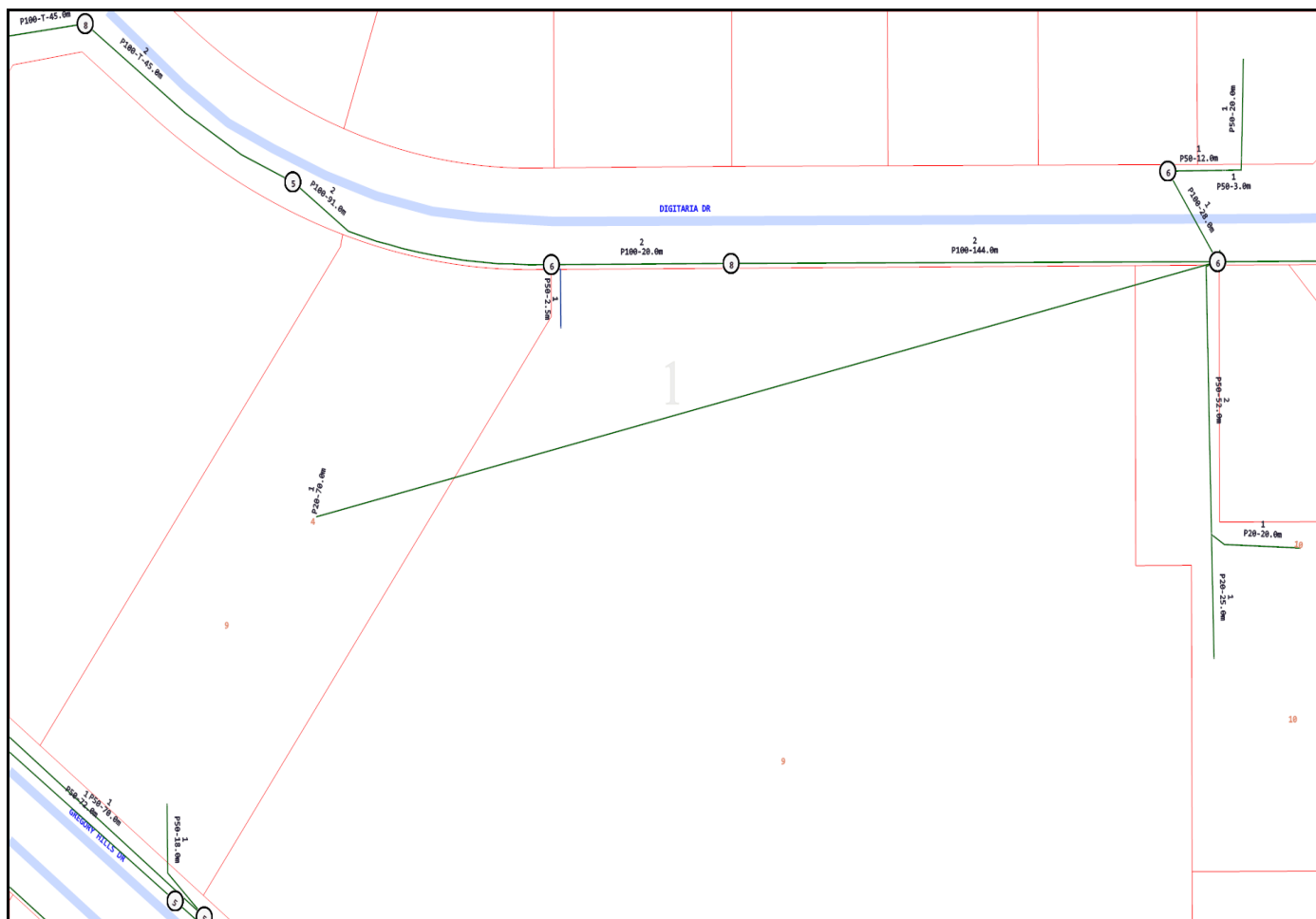


## LEGEND

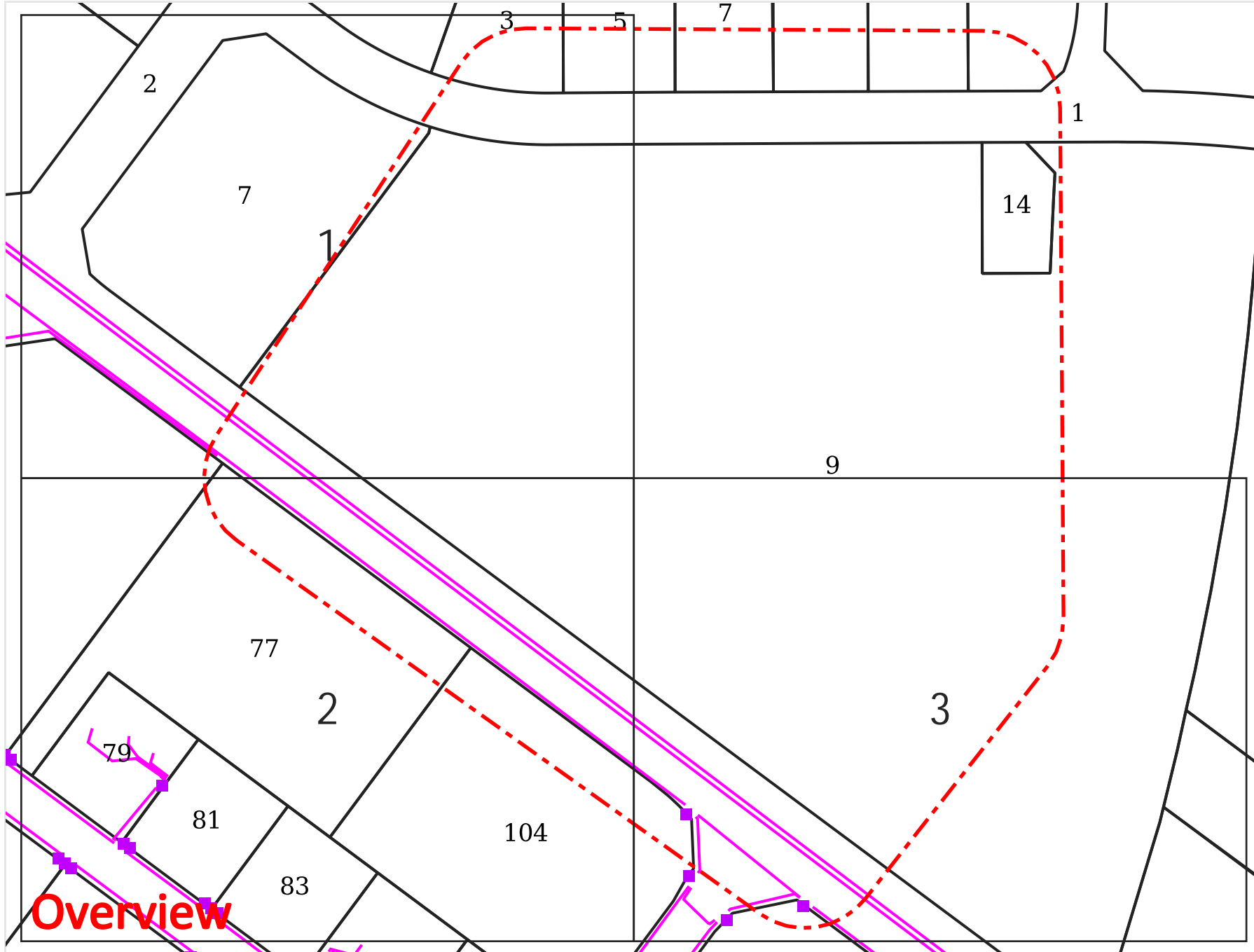


	Parcel and the location
	Pit with size "5"
	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
	2 Direct buried cables between pits of sizes, "5" and "9" are 10.0m apart.
	Trench containing any <b>INSERVICE/CONSTRUCTED</b> (Copper/RF/Fibre) cables.
	Trench containing only <b>DESIGNED/PLANNED</b> (Copper/RF/Fibre/Power) cables.
	Trench containing any <b>INSERVICE/CONSTRUCTED</b> (Power) cables.
	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m 









## Legend

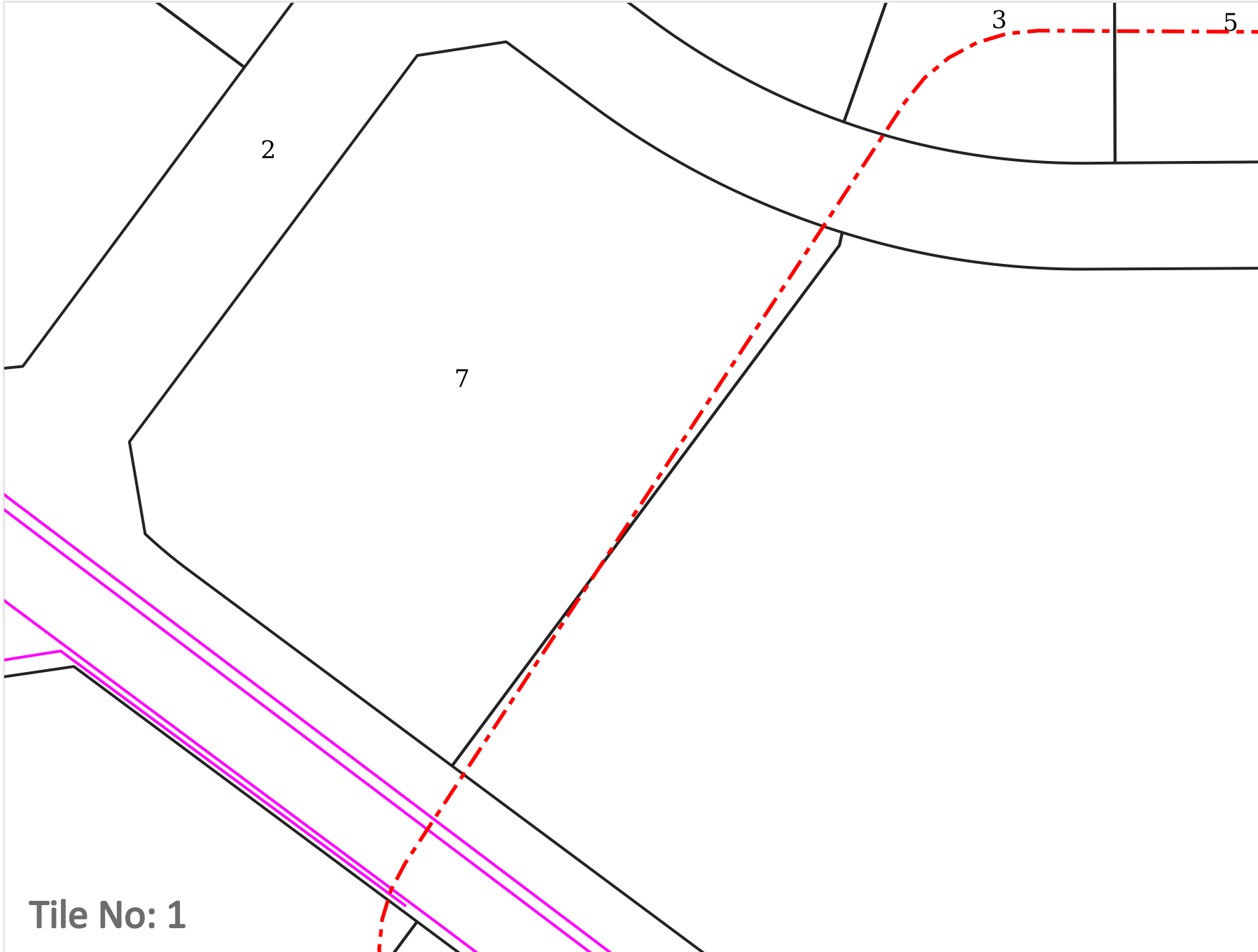
- Pipes
- Pits



Scale: 1:2050  
Expires: 02 Jul 2024

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**Overview**



Legend

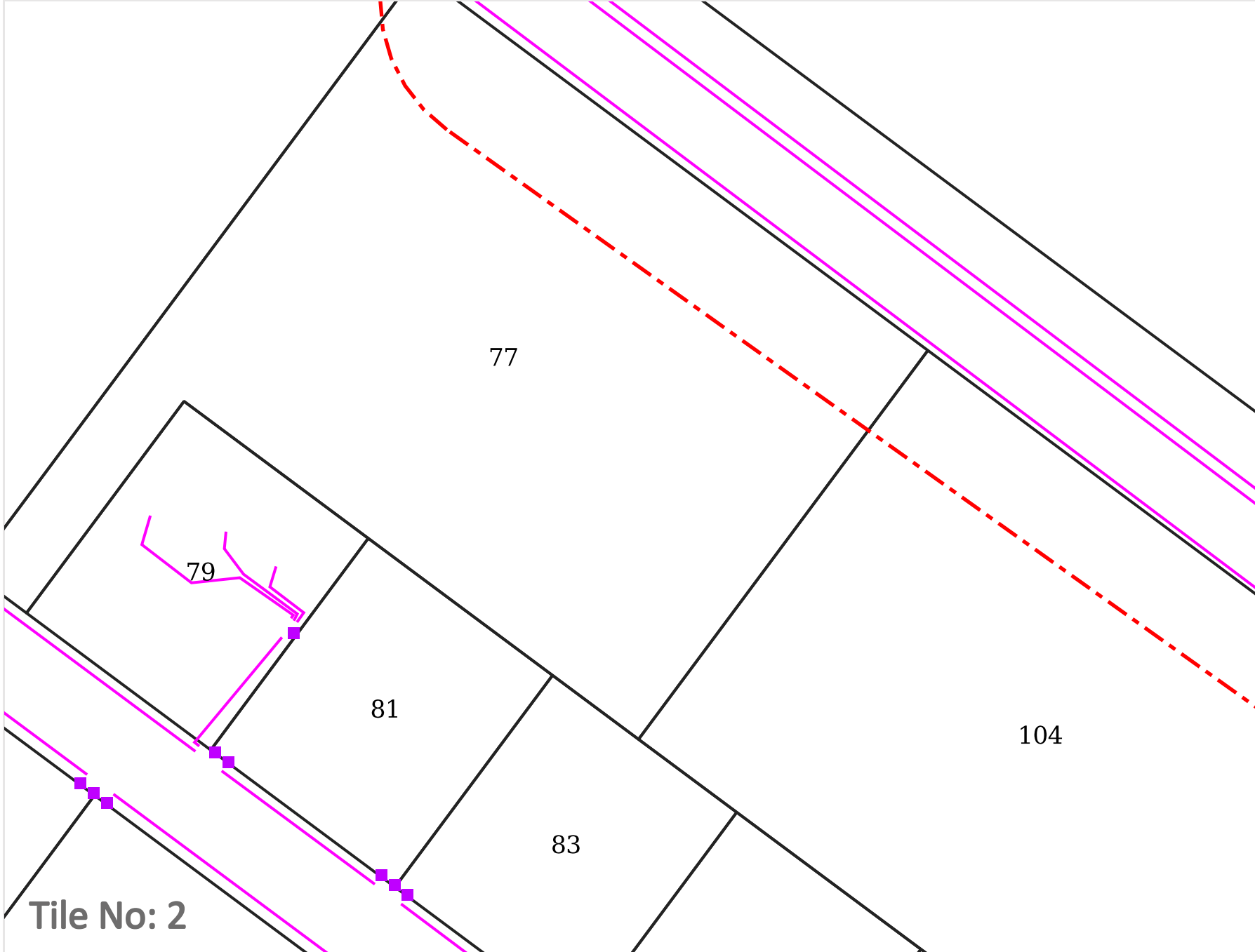
-  Pipes
-  Pits



Scale: 1:1000  
 Expires: 02 Jul 2024

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Tile No: 1



### Legend

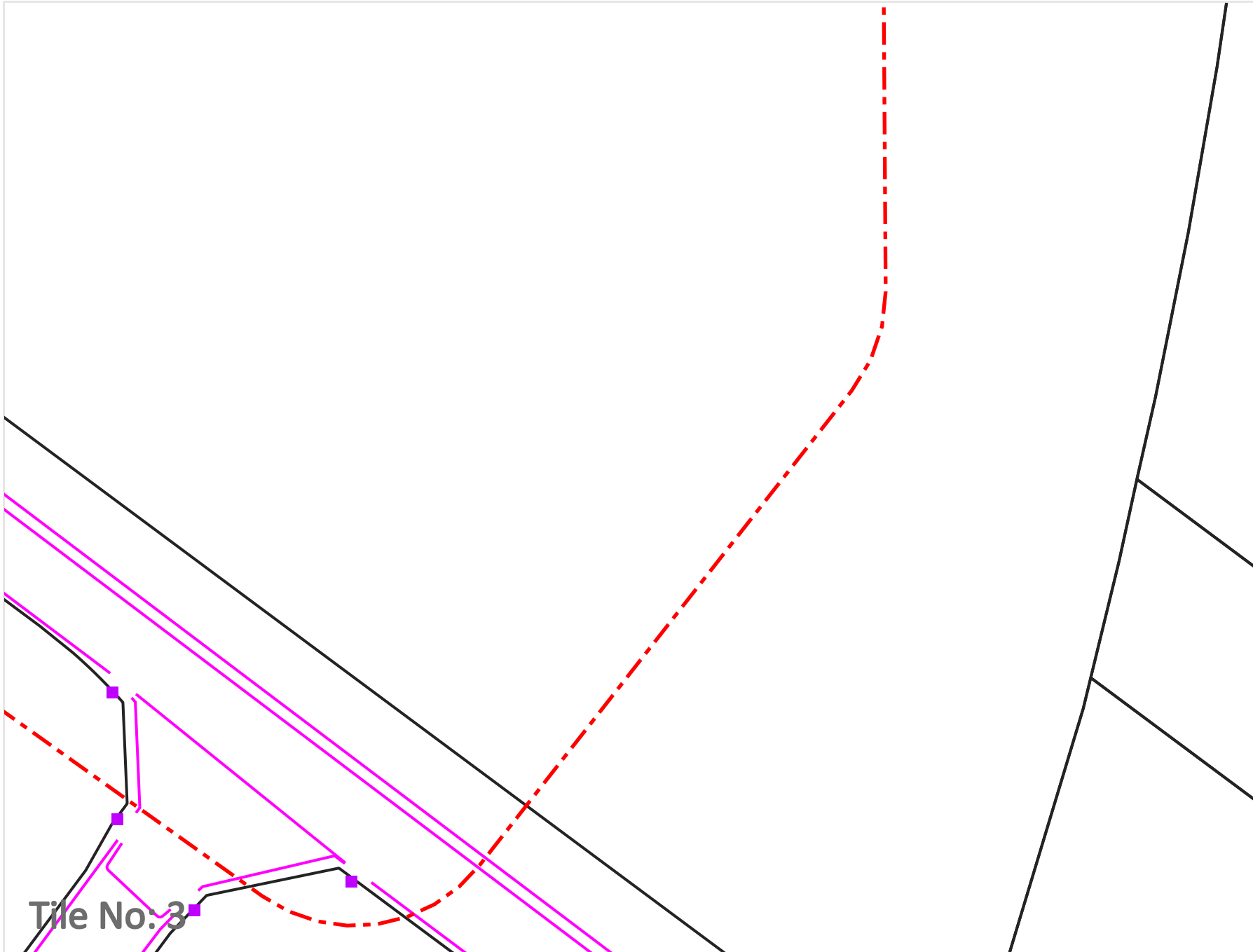
-  Pipes
-  Pits



Scale: 1:1000  
 Expires: 02 Jul 2024

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Tile No: 2



## Legend

-  Pipes
-  Pits



Scale: 1:1000  
Expires: 02 Jul 2024

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## WARNING

- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.
- In accordance with the *Electricity Supply Act 1995*, you are obliged to report any damage to Endeavour Energy Assets immediately by calling **131 003**.
- The customer must obtain a new set of plans from Endeavour Energy if work has not been started or completed within twenty (20) working days of the original plan issue date.
- The customer must contact Endeavour Energy if any of the plans provided have blank pages, as some underground asset information may be incomplete.
- Endeavour Energy underground earth grids may exist and their location **may not** be shown on plans. Persons excavating are expected to exercise all due care, especially in the vicinity of padmount substations, pole mounted substations, pole mounted switches, transmission poles and towers.
- Endeavour Energy plans **do not** show any underground customer service mains or information relating to service mains within private property.
- Asbestos or asbestos-containing material may be present on or near Endeavour Energy's underground assets.
- Organo-Chloride Pesticides (OCP) may be present in some sub-transmission trenches.
- All plans must be made available at the worksite where excavation is to be undertaken in either printed or electronic format. If the plans are in an electronic format, they must be in a format visible on a screen size 10 inches or greater. Plans must be reviewed and understood by the crew on site prior to commencing excavation.
- Non-destructive water excavation must be operated at or below 2000PSI. Any operation exceeding 2000PSI must be classed and treated as a destructive excavation practice

## INFORMATION PROVIDED BY ENDEAVOUR ENERGY

- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
- Depth of underground assets may vary significantly from information provided on plans as a result of changes to road, footpath or surface levels subsequent to installation.
- Such plans have been prepared solely for use by Endeavour Energy staff for design, construction and maintenance purposes.
- All enquiry details and results are kept in a register.

## DISCLAIMER

Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.

- or ■ Street light column
- ▭ Padmount substation
- or ■ Overground pillar (O.G.Box)
- ⊠ Underground pit
- Duct run
- Cable run
- ⊙ Typical duct section
- ▲ Asbestos warning



## NOT TO SCALE

BYDA Sequence No.:	240112649
Issued Date:	04/06/2024

Cadastre: © Land and Property Information 2015, 2016

# Overview



**WARNING**



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**INFORMATION PROVIDED BY ENDEAVOUR ENERGY**


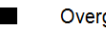
- Any plans provided pursuant to this service are intended to show the approximate location of underground assets relative to road boundaries, property fences and other structures at the time of installation.
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**DISCLAIMER**


Whilst Endeavour Energy has taken all reasonable steps to ensure that the information contained in the plans is as accurate as possible it will accept no liability for inaccuracies in the information shown on such plans.


-  or 


Street light column
- 


Padmount substation
-  or 

Overground pillar (O.G.Box)
- 

Underground pit
- 

Duct run
- 

Cable run
- 

Typical duct section
- 

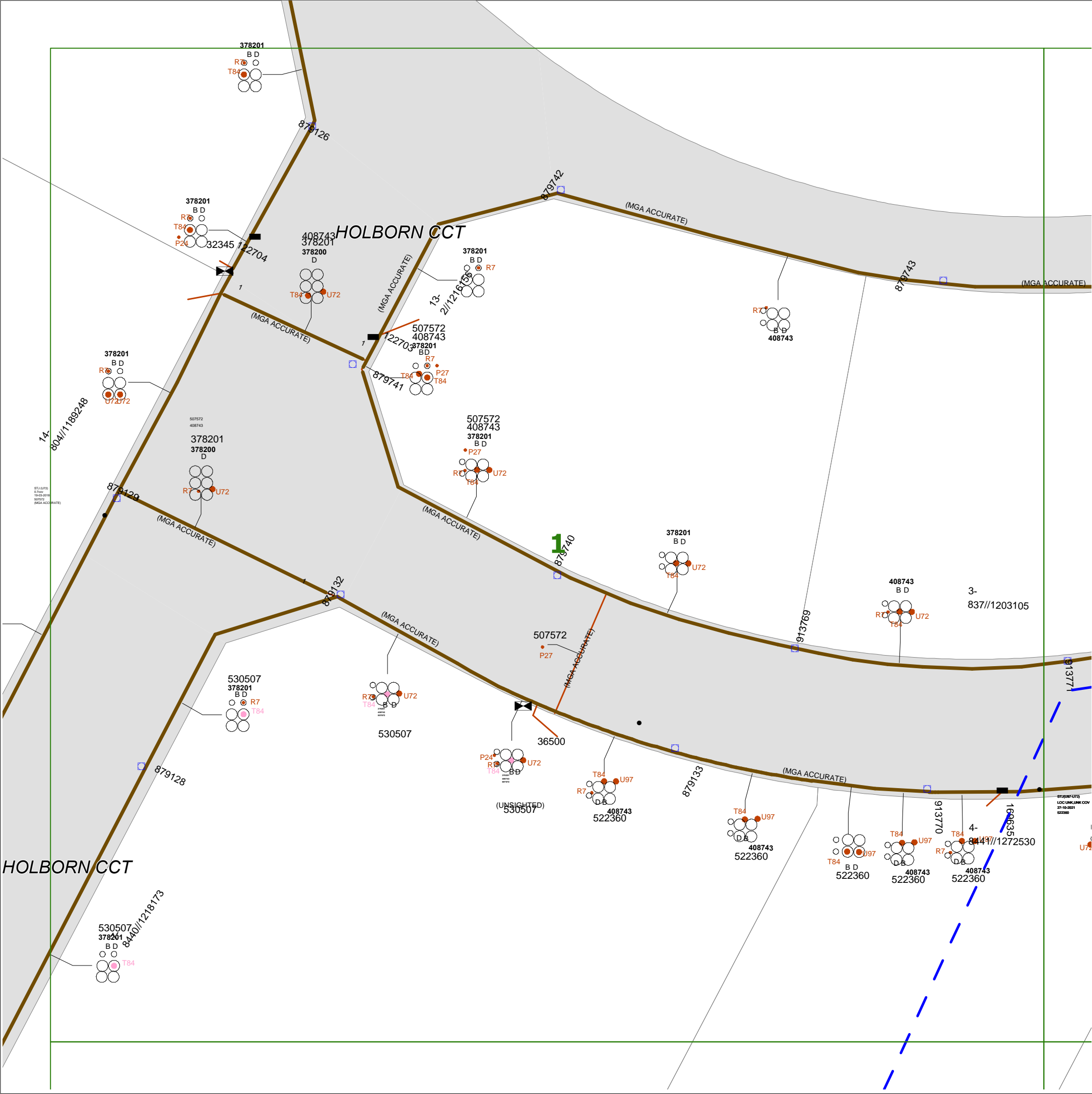
Asbestos warning



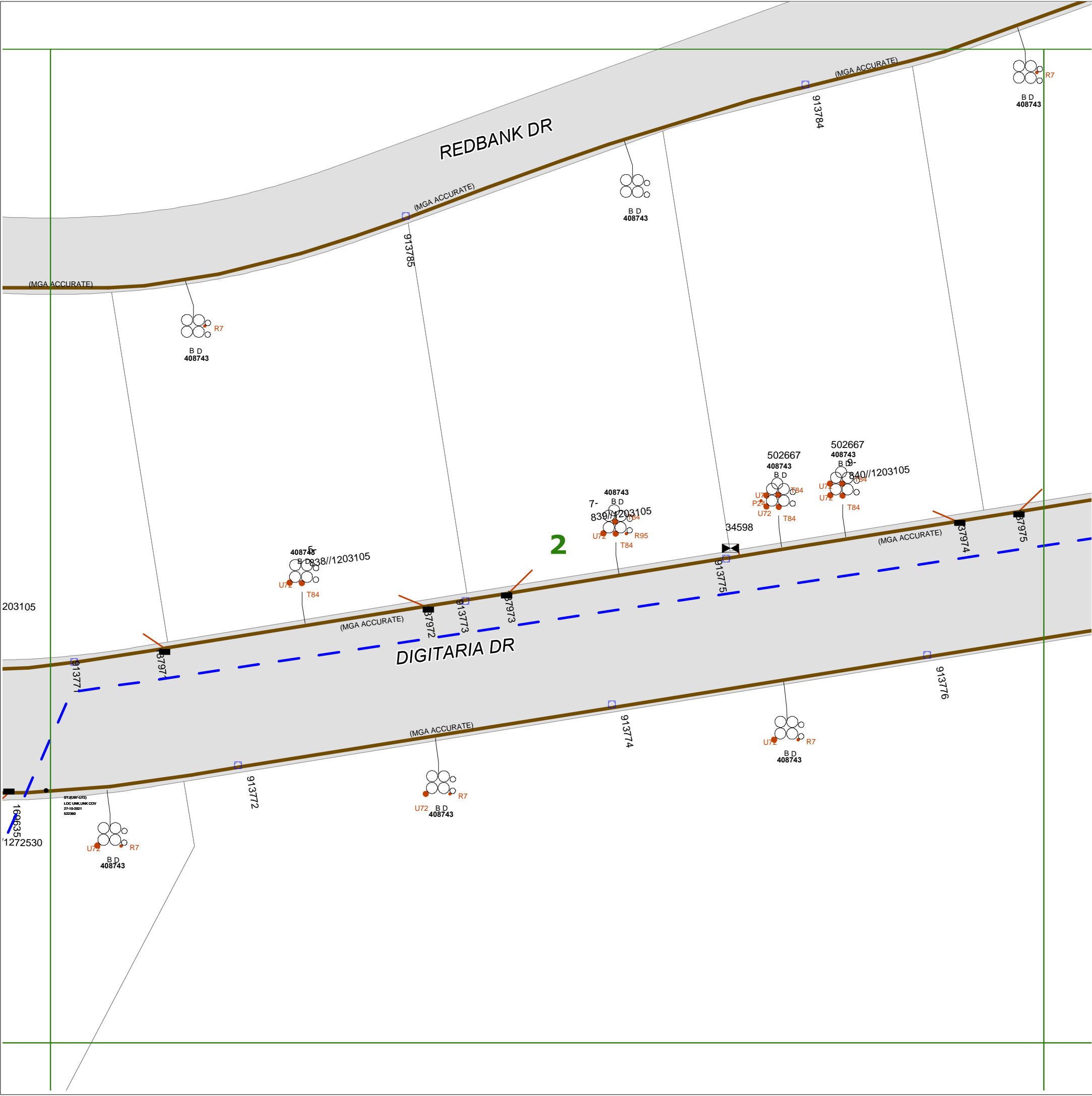
**NOT TO SCALE**

BYDA Sequence No.:	240112649
Issued Date:	04/06/2024

Cadastre: © Land and Property Information 2015, 2016






$$N \uparrow$$

Cadastre: © Land and Property Information 2015, 2016

**WARNING**



- **All electrical apparatus shall be regarded as live until proved de-energised.** Contact with live electrical apparatus will cause severe injury or death.
- Underground assets may be congested at the approach to bridges and other structures. Typical asset depths and alignment may vary substantially, rising and falling sharply and at much shallower depths than elsewhere as they are channelled into shared allocated spaces on bridges and other structures. Additional precautions and underground asset location methods will be required in proximity to bridges and other structures.
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-  or 


 Street light column
- 


 Padmount substation
-  or 

 Overground pillar (O.G.Box)
- 

 Underground pit
- 

 Duct run
- 

 Cable run
- 

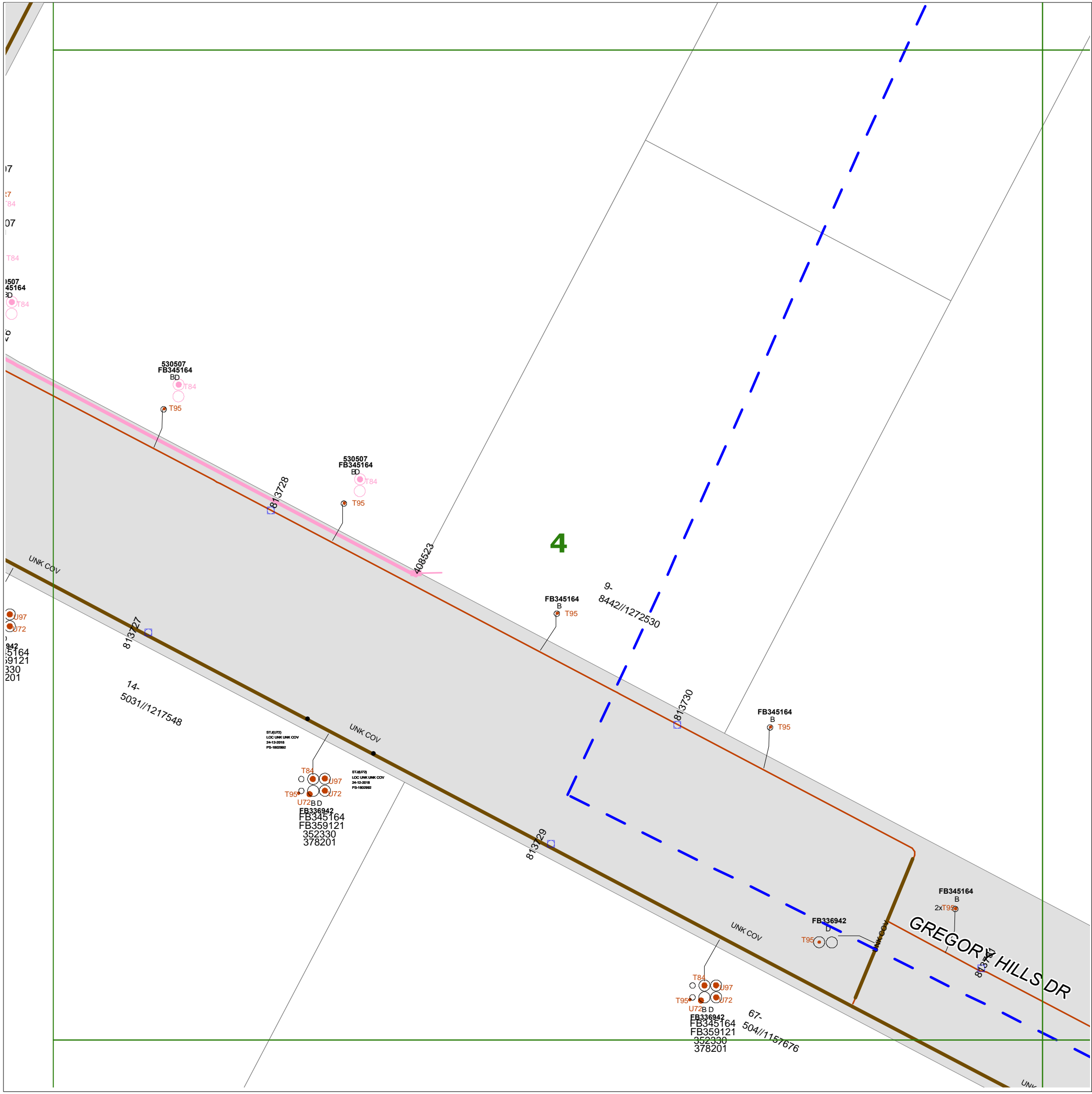
 Typical duct section
- 

 Asbestos warning



**NOT TO SCALE**

BYDA Sequence No.:	240112649
Issued Date:	04/06/2024



Cadastre: © Land and Property Information 2015, 2016

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-  or 

 Street light column
- 
- Padmount substation

 or 

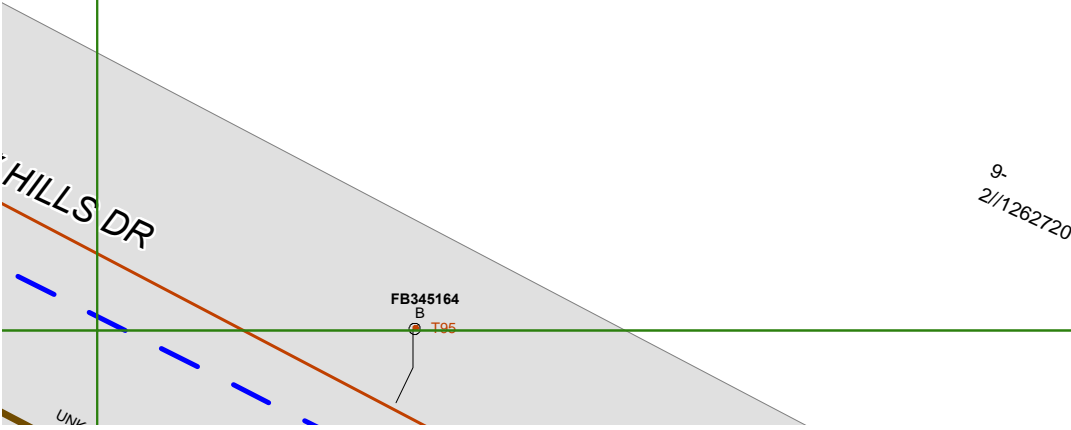
 Overground pillar (O.G.Box)

**NOT TO SCALE**

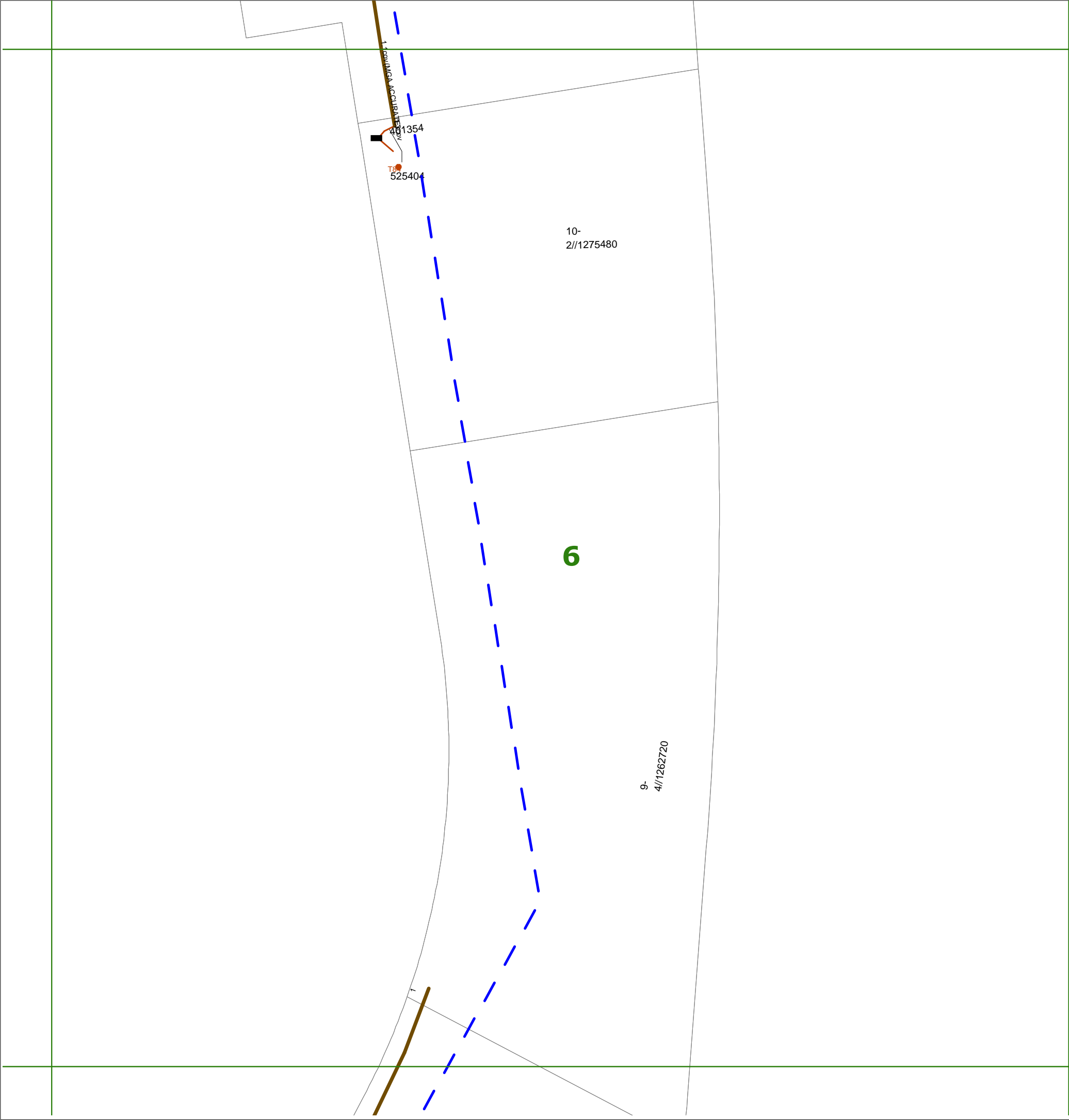
BYDA Sequence No.:	240112649
Issued Date:	04/06/2024

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5










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-  or 

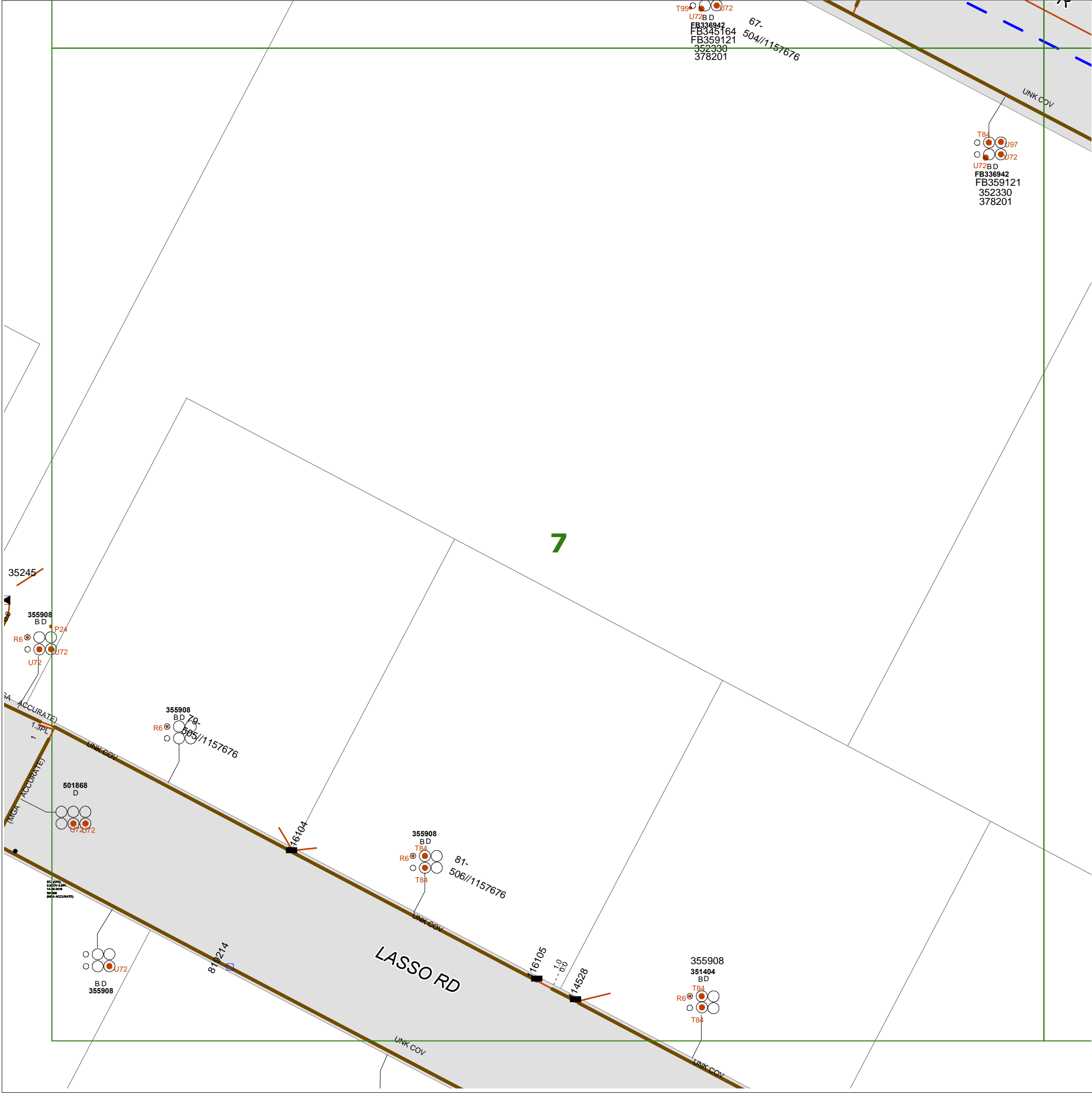
 Street light column
- 
- Padmount substation

 or 

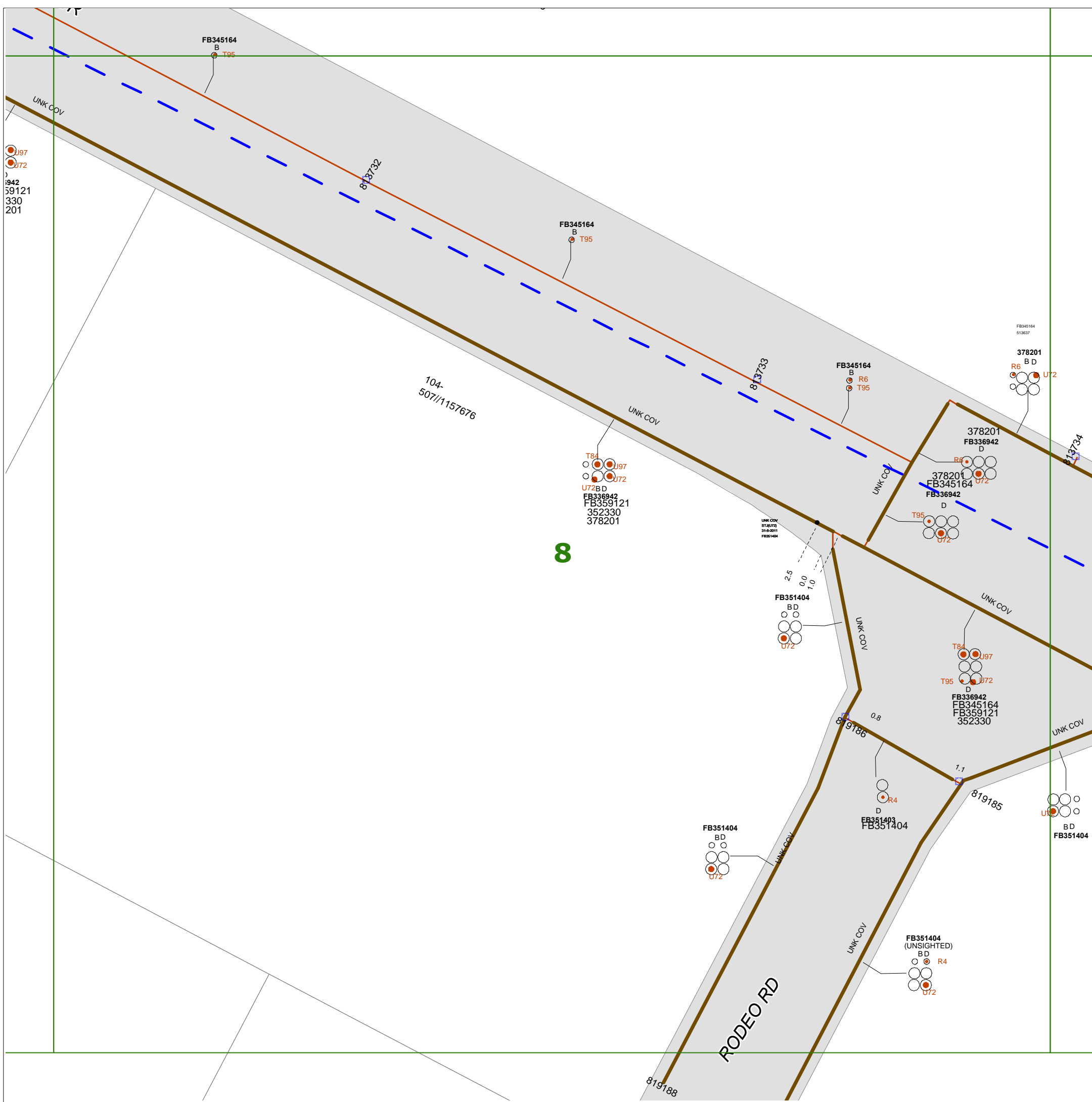
 Overground pillar (O.G.Box)

**NOT TO SCALE**

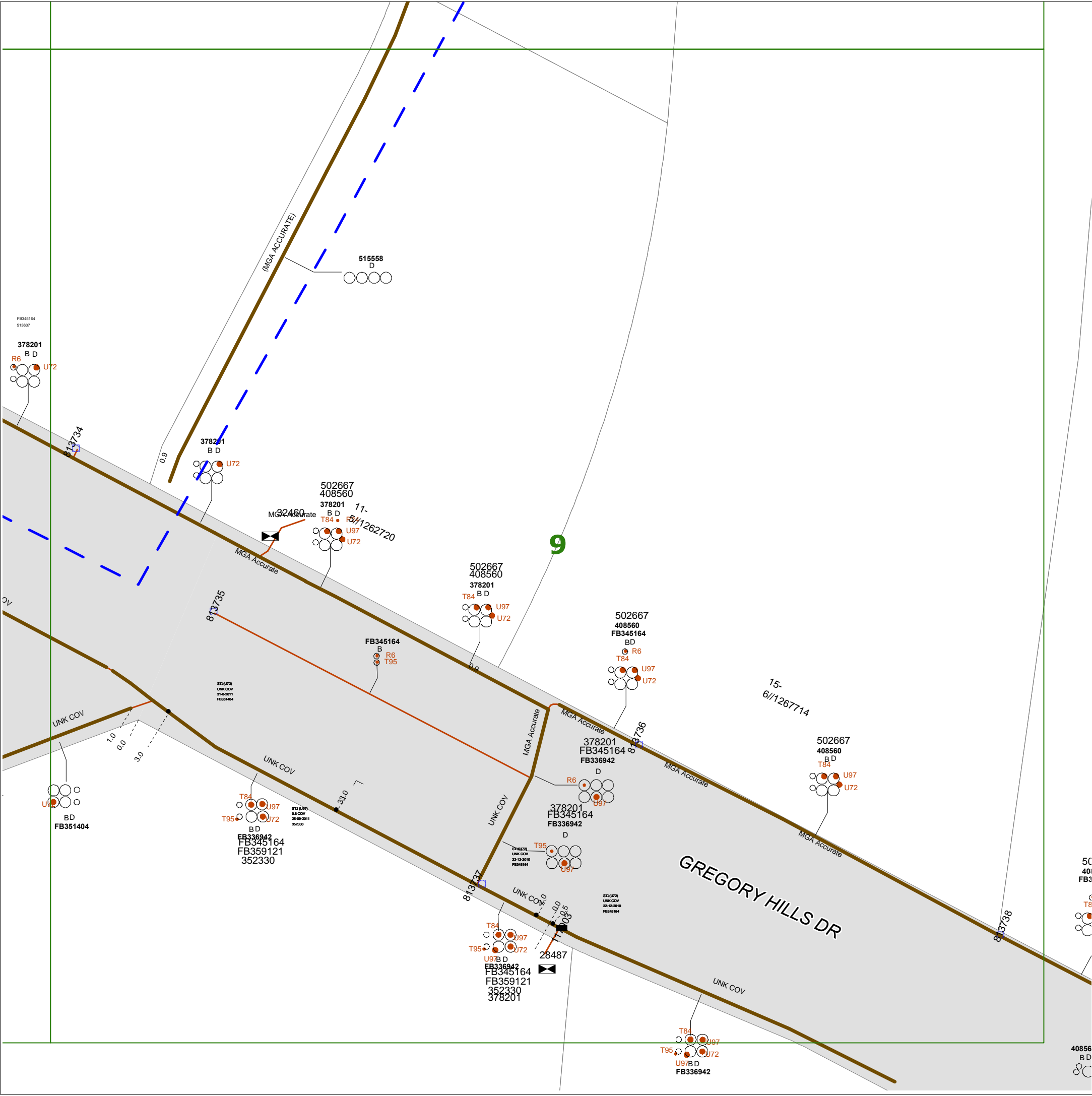
BYDA Sequence No.:	240112649
Issued Date:	04/06/2024



Cadastre: © Land and Property Information 2015, 2016



Cadastre: © Land and Property Information 2015, 2016



Cadastre: © Land and Property Information 2015, 2016



Date: 04/06/2024

Enquirer Name: Kyrellos Habib  
Enquirer Address: 47 Ancrum Street  
Email: Kyrellos.habib@ttw.com.au  
Phone: +61290675073

Dear Kyrellos Habib

The following is our response on behalf of each of the TPG carriers (listed below) to your Before You Dig Australia enquiry – Sequence 240112650

It is provided to you on a confidential basis under the following conditions and must be shredded or securely disposed of after use.

### Assets Affected: 4 Digitaria Drive Gledswood Hills

Carriers (each a “TPG carrier”) and assets affected:

PIPE Networks

#### Location:

According to our records, the underground assets in the vicinity of the location stated in your enquiry are **AFFECTED**. Please read the below information and disclaimers in addition to the any attached plans provided prior to any construction activities.

#### IMPORTANT INFORMATION

- The information provided is valid for 30 days from the date of this response. If your work site area changes or your construction activity is beyond 30 days please contact Before You Dig Australia on 1100 or [www.1100.com.au](http://www.1100.com.au) to re-submit a new enquiry.
- Due to the nature of underground assets and the age of some assets and records, our plans are indicative of the general location only and may not show all assets in the location. You should not solely rely on these plans when undertaking construction works. It is also inaccurate to assume depth or that underground network conduit and cables follow straight lines, and careful on-site investigations are essential to locate an asset's exact position prior to excavation. It is your responsibility to locate and confirm the exact location of our infrastructure using non-destructive techniques. We make no warranty or guarantee that our plans are complete, current or error free, and to the maximum extent permitted by law we exclude all liability to you, your employees, agents and contractors for any loss, damage or claim arising out of or in connection with using our plans.
- Please note that some of our conduits carry electrical cables and gas pipes. Please exercise extreme care when working within the vicinity of these conduit and take into account the minimum clearance distances under Duty Of Care below.
- You (and your employee and contractors) must not open, move, interfere, alter or relocate any of our assets without our prior approval.
- **Note** It is a criminal offence under the *Criminal Code Act 1995 (Cth)* to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by us as a result of such unauthorised works may be claimed against you.

#### **DAMAGE**

- You must report immediately any damage to our network on **1800 786 306** (24hrs). We will hold you liable and seek compensation for any loss or damage to our network, our property and our customers that is caused by or arises out of your activities.

#### **DUTY OF CARE**

You have a duty of care to carefully locate, validate and protect our assets when carrying out works near our infrastructure. For construction activities that may impact on or interfere with our network, you will need to call us on **1800 786 306** to discuss a suitable engineering solution, lead time and cost involved. The below precautions must be taken when working in the vicinity of our network:

- Contact us on **1800 786 306** to discuss and obtain relevant information and plans on our infrastructure in a particular location if the information provided in this response is insufficient.
- Physically locate and mark on-site our network infrastructure using non-destructive techniques i.e. pot holing or hand digging every 5 metres prior to commencing any construction activities. Assets located must be marked to AS5488 standard. **NO CONSTRUCTION WORK IS ALLOWED UNTIL THIS STEP IS COMPLETED.** You must use an approved telecommunications accredited locator, or we can provide a locator for you at your expense. If we provide you with a locator, and this locator attended the site and is proven to be grossly negligent in physically locating and marking our infrastructure, then to the extent any TPG carrier is liable for this locator's negligence, acts and omissions, the total liability aggregated for all TPG carriers is limited, at our option, to attend the site and re-mark the infrastructure or to pay for a third party to re-mark the infrastructure.
- If you require us to locate or monitor our infrastructure, please allow five business days' notice for us to respond.
- Ensure all information, including our network requirements and any associated plans provided by us are kept confidential and remain on-site throughout your construction works.

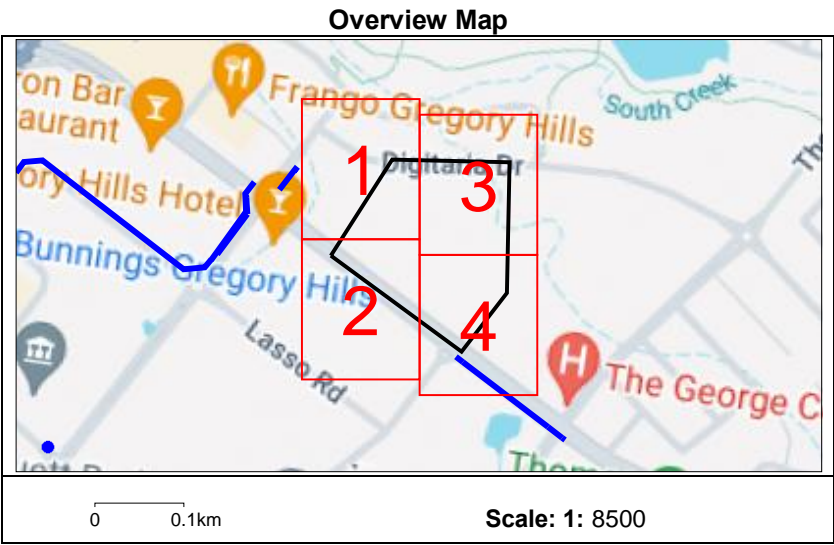
- Use suitably qualified and supervised professionals, particularly if you are working near assets that contain electricity cables or gas pipes.
- Ensure the below minimum clearance distances between the construction activities and the actual location of our assets are met. If you need clearance distances for our above ground assets, or if the below distances cannot be met, call **1800 786 306** to discuss.

**Minimum assets clearance distances.**

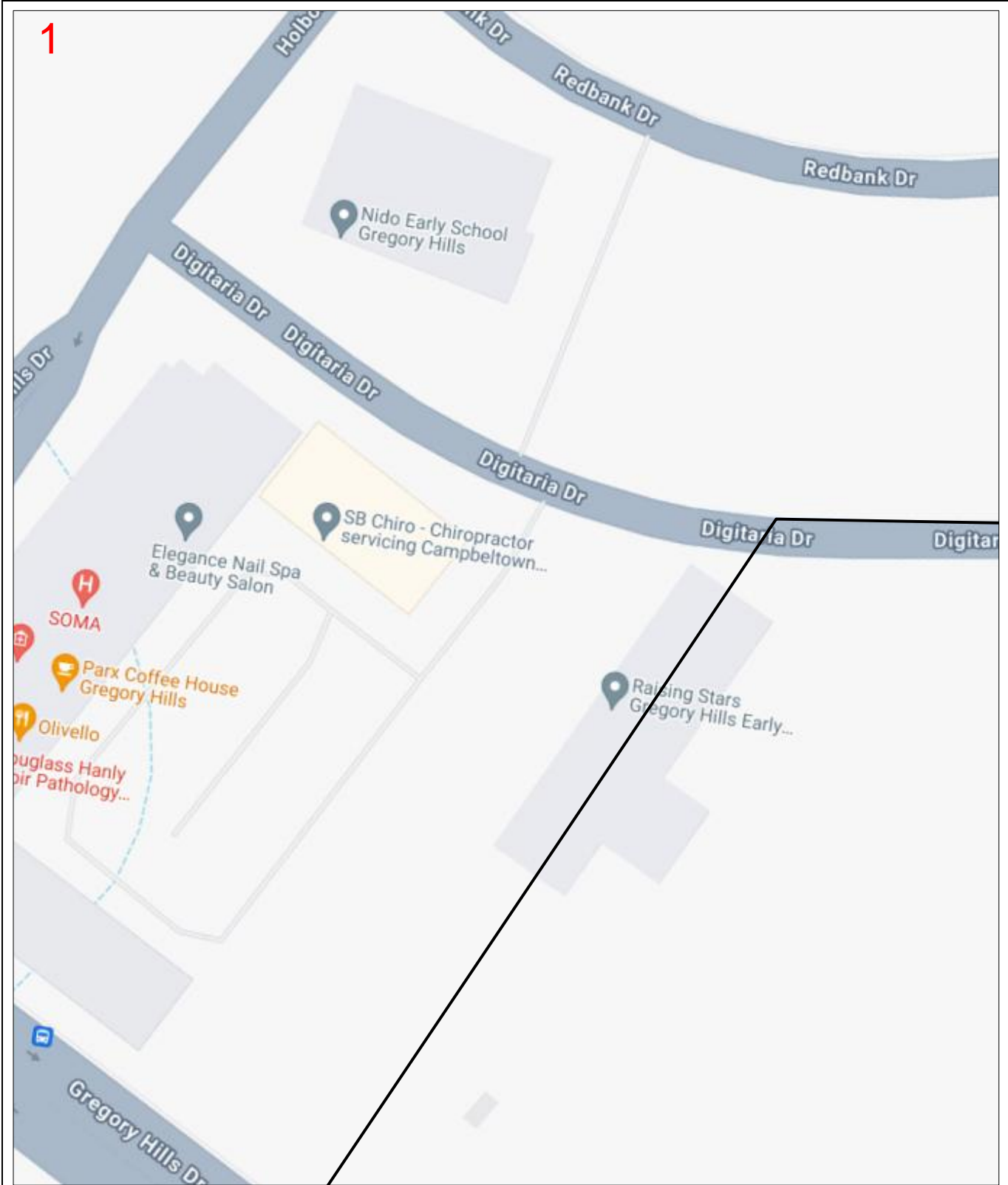
- 300mm when laying asset inline, horizontal or vertical.
  - 1000mm when operating vibrating equipment. Eg: vibrating plates. No vibrating equipment on top of asset.
  - 1000mm when operating mechanical excavators or jackhammers/pneumatic breakers.
  - 2000mm when performing directional bore in-line, horizontal and vertical.
  - No heavy vehicle over 3 tonnes to be driven over asset with less than 600mm of cover.
- Reinstate exposed TPG network infrastructure back to original state.

**PRIVACY & CONFIDENTIALITY**

- Privacy Notice – Your information has been provided to us by Before You Dig Australia to respond to your Before You Dig Australia enquiry. We will keep your personal information in accordance with TPG’s privacy policy, see [www.tpg.com.au/about/privacy](http://www.tpg.com.au/about/privacy).
- Confidentiality – The information we have provided to you is confidential and is to be used only for planning and designing purposes in connection with your Before You Dig Australia enquiry. Please dispose of the information by shredding or other secure disposal method after use. We retain all intellectual property rights (including copyrights) in all our documents and plans.



TPG Telecom Limited



**Enquiry Number:** 240112650

**Map Sheet:** 1

**Scale:** 1: 750

0 0.008km

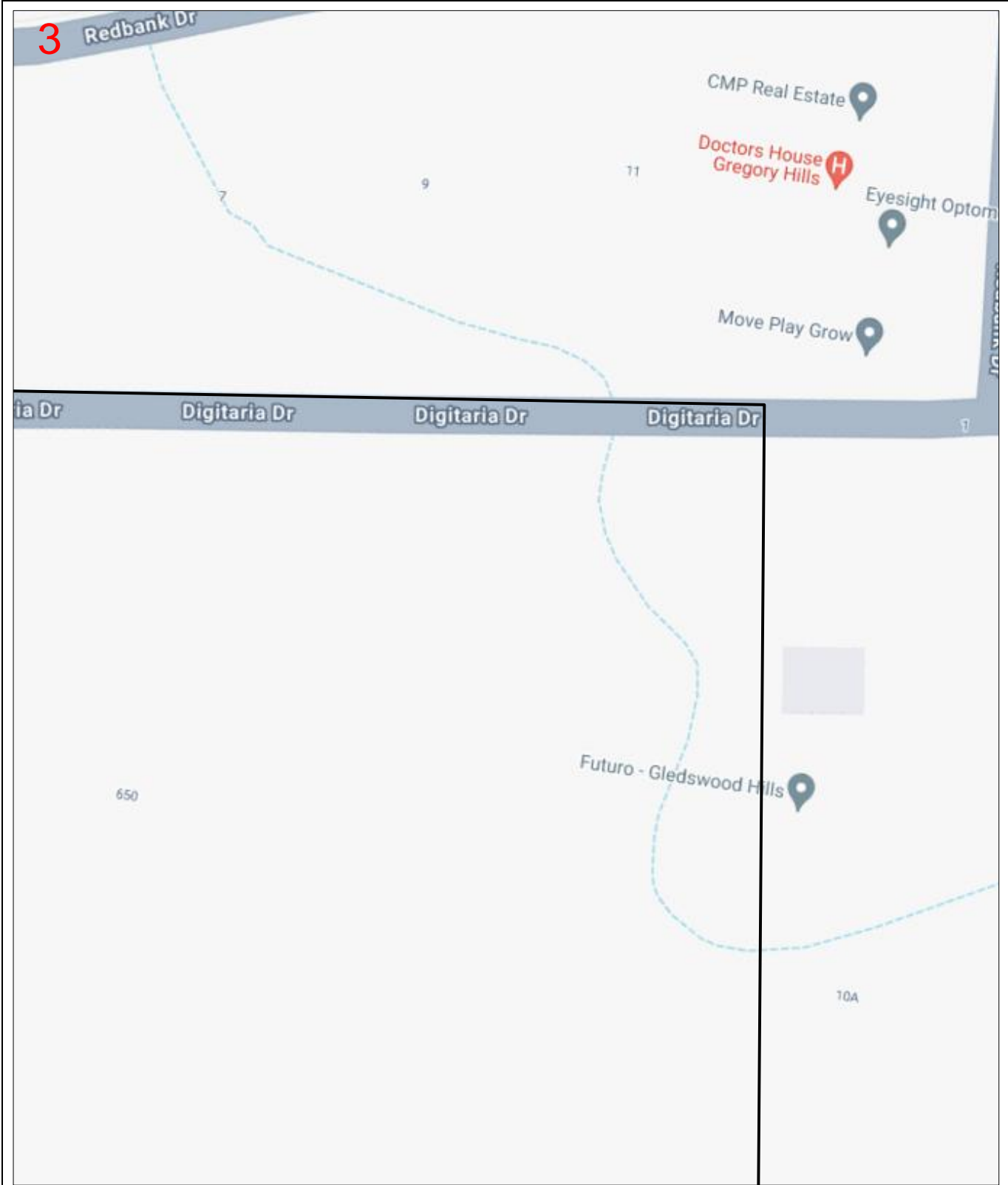
**LEGEND**

BYDA Work Area

AAPT/PowerTel Pit		TransACT Pit	
AAPT/PowerTel Duct		TransACT Duct	
DDA Pit		SOUL Pattinson Telecoms Pit	
DDA Duct		SOUL Pattinson Telecoms Duct	
Agile/Adam Pit		PIPE Networks Pit	
Agile/Adam Duct		PIPE Networks Duct	

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**Enquiry Number:** 240112650

**Map Sheet:** 3

**Scale:** 1: 750

00.008km

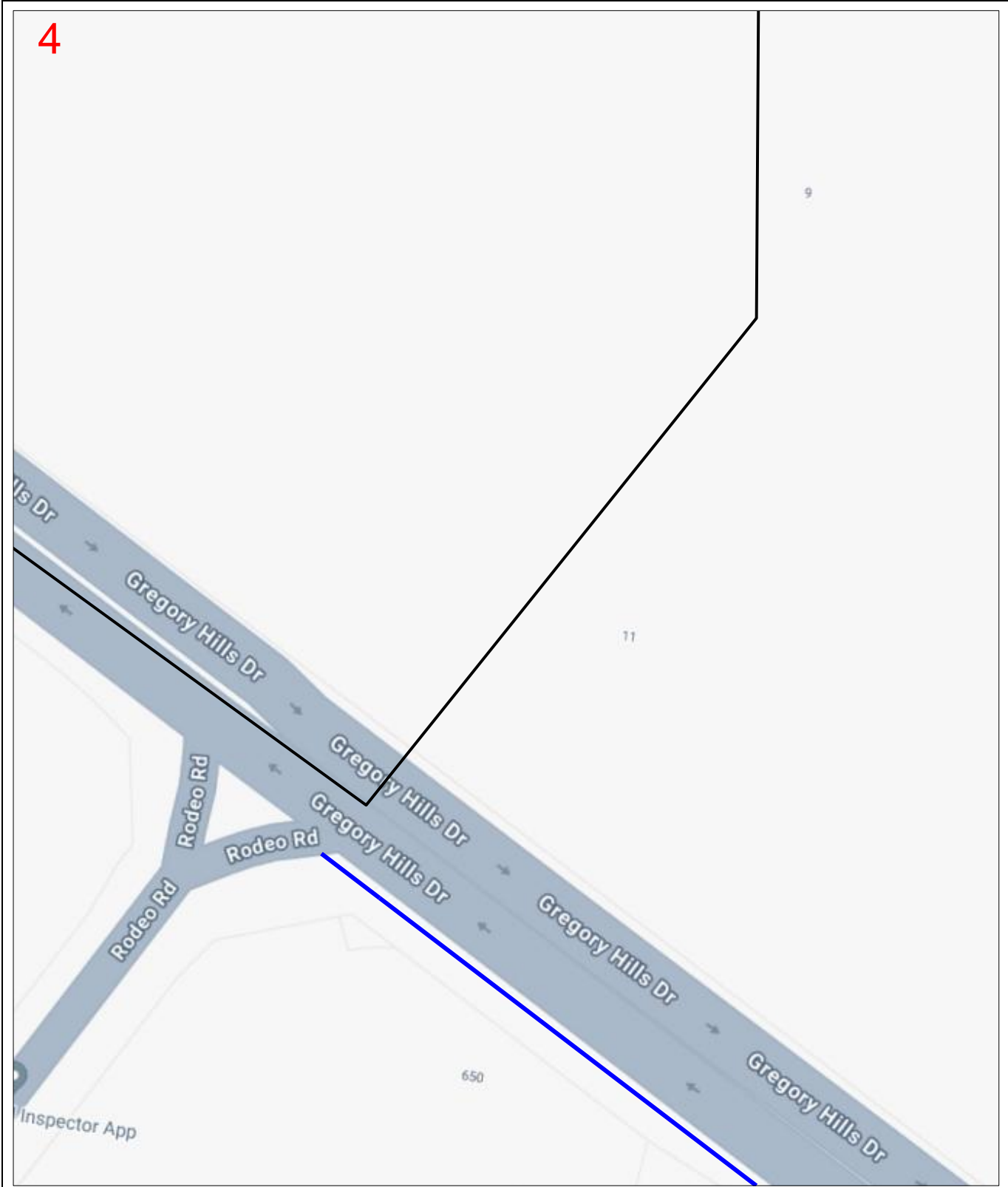
N

**LEGEND**

BYDA Work Area

AAPT/PowerTel Pit	●	TransACT Pit	●
AAPT/PowerTel Duct	—	TransACT Duct	—
DDA Pit	●	SOUL Pattinson Telecoms Pit	●
DDA Duct	—	SOUL Pattinson Telecoms Duct	—
Agile/Adam Pit	●	PIPE Networks Pit	●
Agile/Adam Duct	—	PIPE Networks Duct	—

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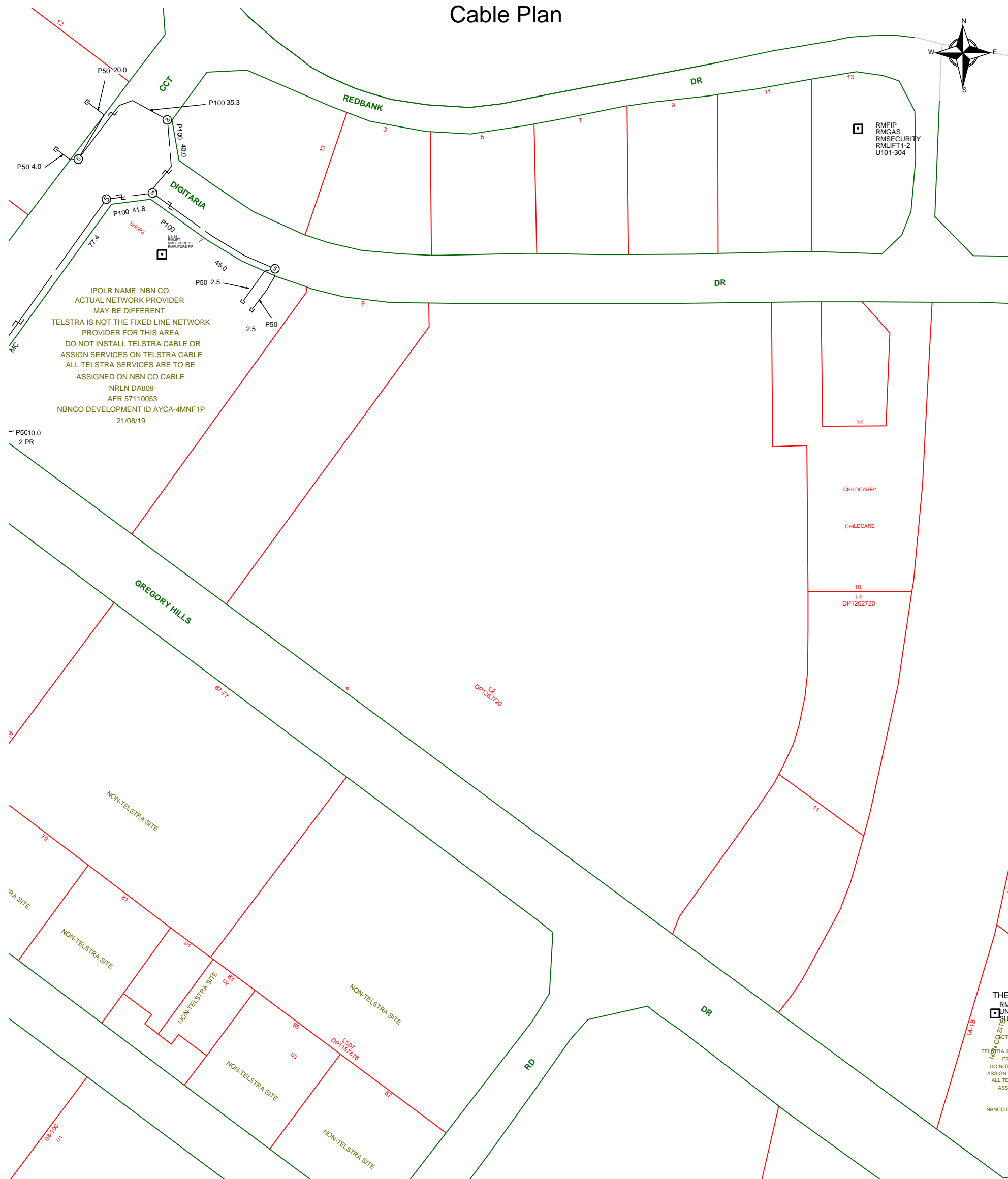


Enquiry Number: 240112650		LEGEND	
Map Sheet: 4		BYDA Work Area	
Scale: 1: 750			
AAPT/PowerTel Pit			TransACT Pit
AAPT/PowerTel Duct			TransACT Duct
DDA Pit			SOUL Pattinson Telecoms Pit
DDA Duct			SOUL Pattinson Telecoms Duct
Agile/Adam Pit			PIPE Networks Pit
Agile/Adam Duct			PIPE Networks Duct

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# Cable Plan



Report Damage: <https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment>  
Ph - 13 22 03  
Email - Telstra.Plans@team.telstra.com  
Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries

TELSTRA LIMITED A.C.N. 086 174 781

**Generated On 04/06/2024 12:49:41**

Sequence Number: 240112653

**CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.**

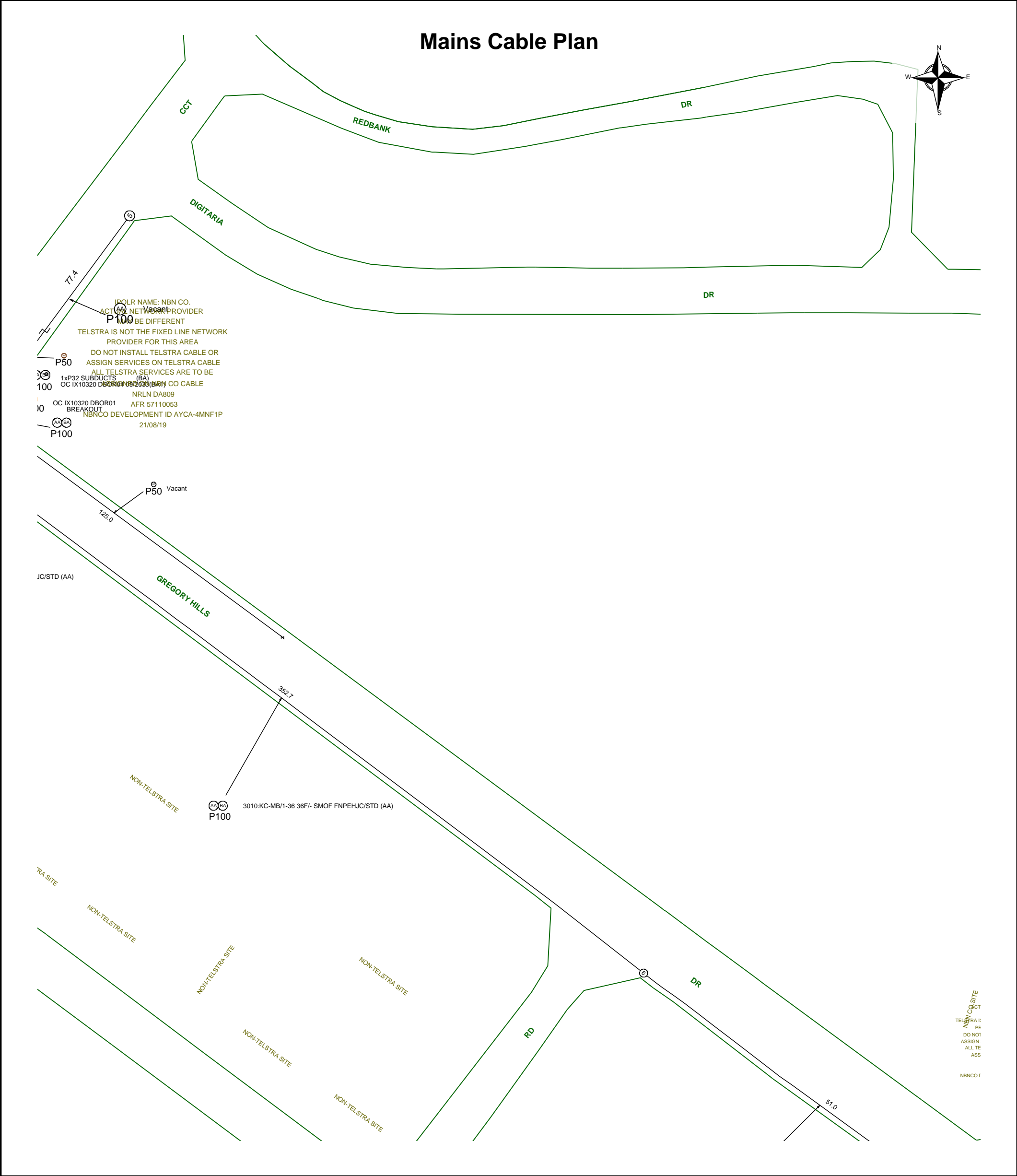
**The above plan must be viewed in conjunction with the Mains Cable Plan on the following page**

## WARNING

Telstra plans and location information conform to Quality Level "D" of the Australian Standard AS 5488-Classification of Subsurface Utility Information. As such, Telstra supplied location information is indicative only. Spatial accuracy is not applicable to Quality Level D. Refer to AS 5488 for further details. The exact position of Telstra assets can only be validated by physically exposing it. Telstra does not warrant or hold out that its plans are accurate and accepts no responsibility for any inaccuracy. Further on site investigation is required to validate the exact location of Telstra plant prior to commencing construction work. A Certified Locating Organisation is an essential part of the process to validate the exact location of Telstra assets and to ensure the asset is protected during construction works.

See the Steps- Telstra Duty of Care that was provided in the email response.



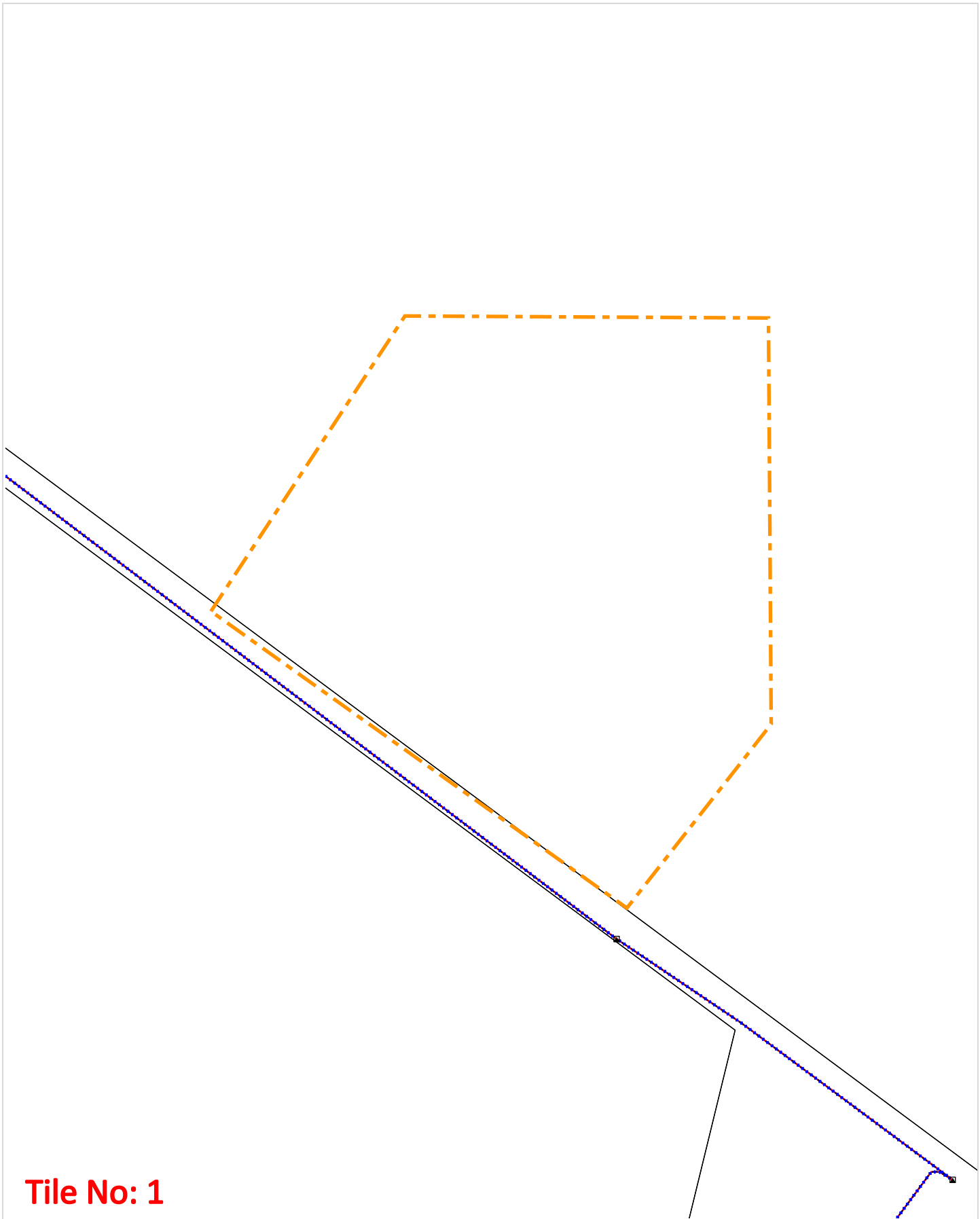


	Report Damage: <a href="https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment">https://service.telstra.com.au/customer/general/forms/report-damage-to-telstra-equipment</a> Ph - 13 22 03 Email - Telstra.Plans@team.telstra.com Planned Services - ph 1800 653 935 (AEST bus hrs only) General Enquiries	Sequence Number: 240112653
	TELSTRA LIMITED A.C.N. 086 174 781	<b>CAUTION: Fibre optic and/ or major network present in plot area. Please read the Duty of Care and contact Telstra Plan Services should you require any assistance.</b>
	Generated On 04/06/2024 12:49:43	

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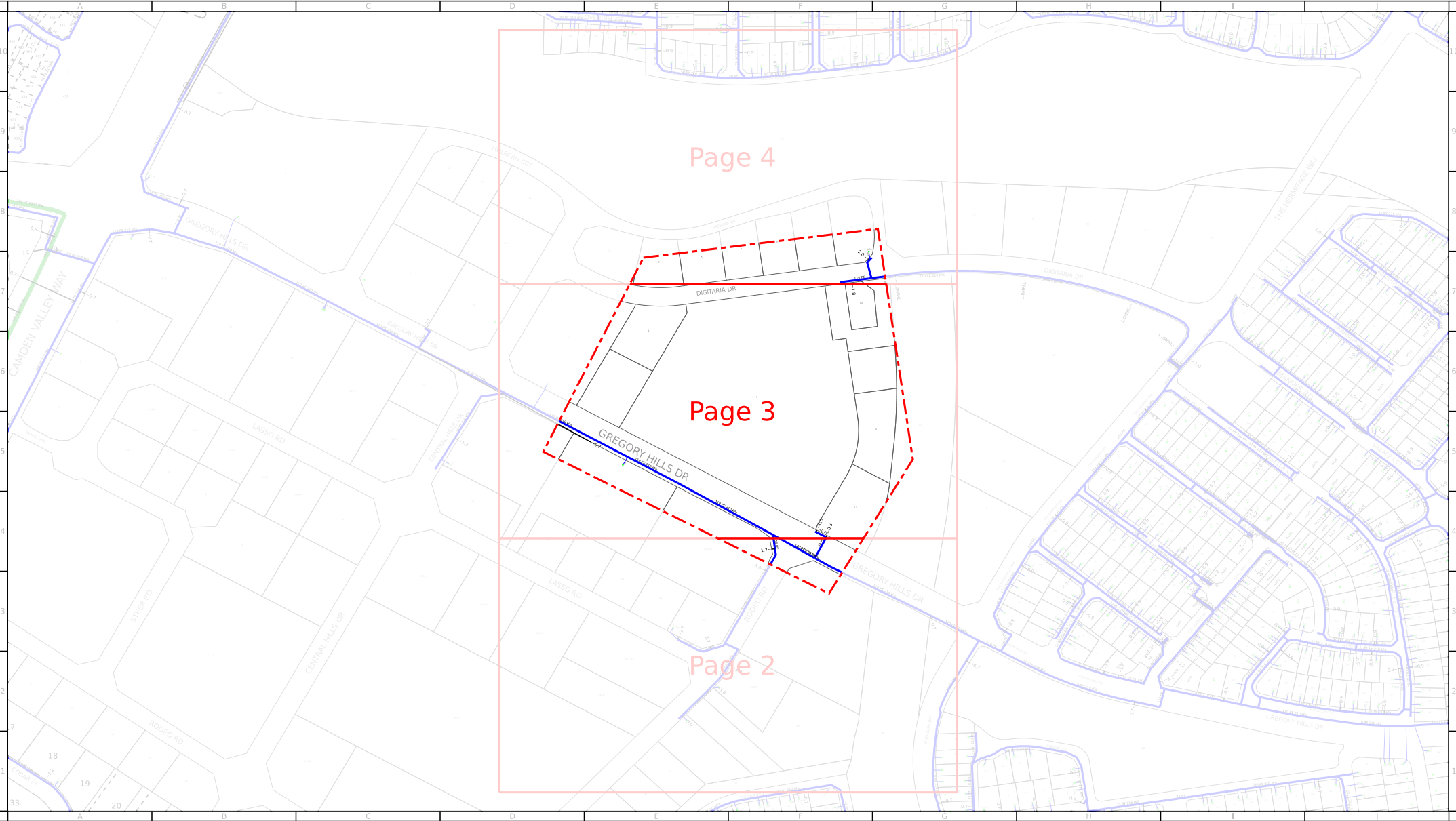
WARNING: This document is confidential and may also be privileged. Confidentiality nor privilege is not waived or destroyed by virtue of it being transmitted to an incorrect addressee. Unauthorised use of the contents is therefore strictly prohibited. Any information contained in this document that has been extracted from our records is believed to be accurate, but no responsibility is assumed for any error or omission. Optus Plans and information supplied are valid for 30 days from the date of issue. If this timeline has elapsed, please raise a new enquiry.

Sequence Number: 240112654

Date Generated: 04 Jun 2024

**OPTUS** yes  
For all Optus DBYD plan enquiries –  
Email: [Fibre.Locations@optus.net.au](mailto:Fibre.Locations@optus.net.au)  
For urgent onsite assistance contact 1800 505 777  
Optus Limited ACN 052 833 208





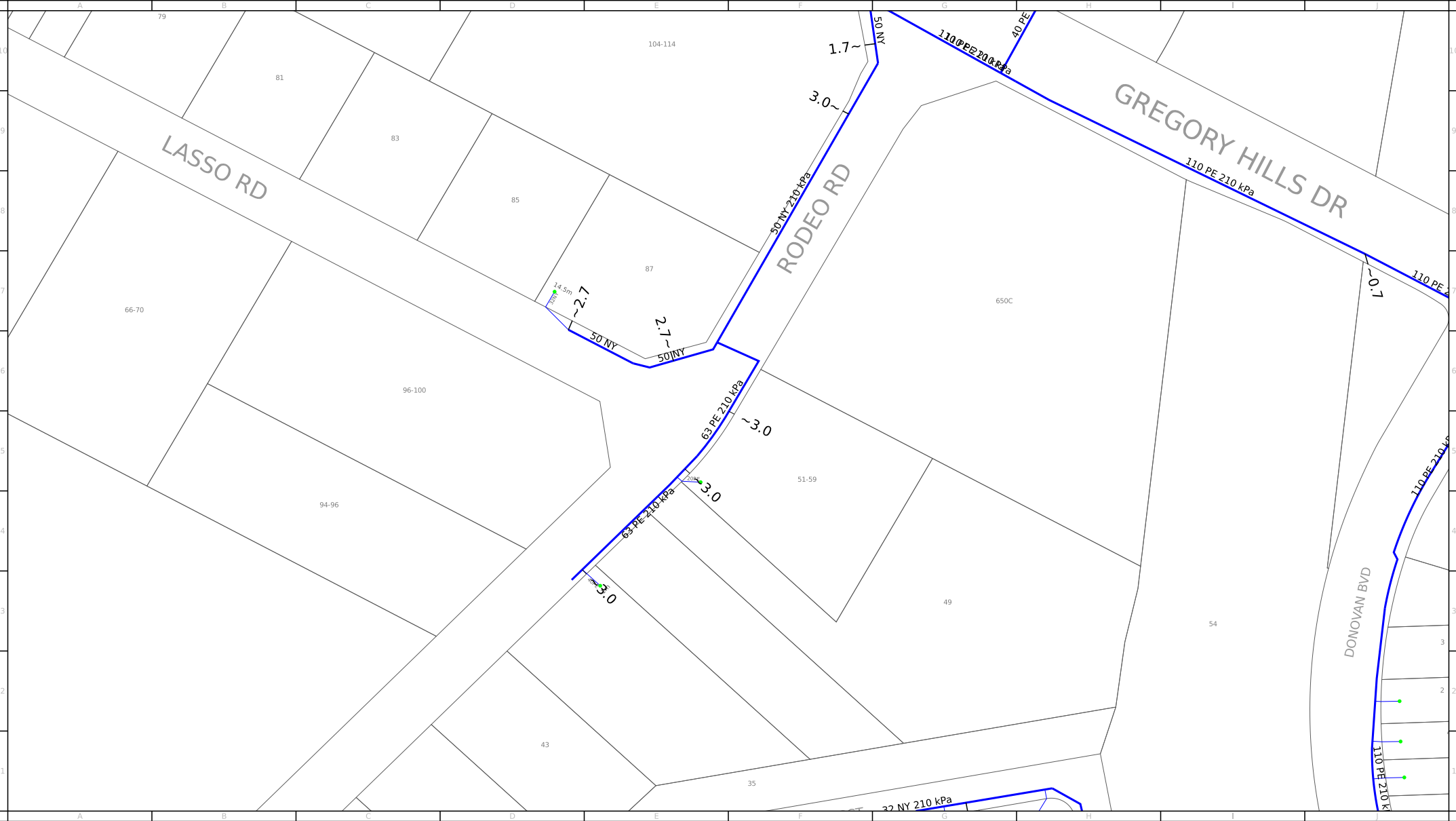
For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.



Scale: 1:6301

Issue Date: 04/06/2024  
BYDA Seq No: 240112652  
BYDA Job No: 36829811  
Overview Page:

**WARNING:** This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.

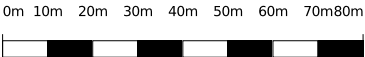


For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

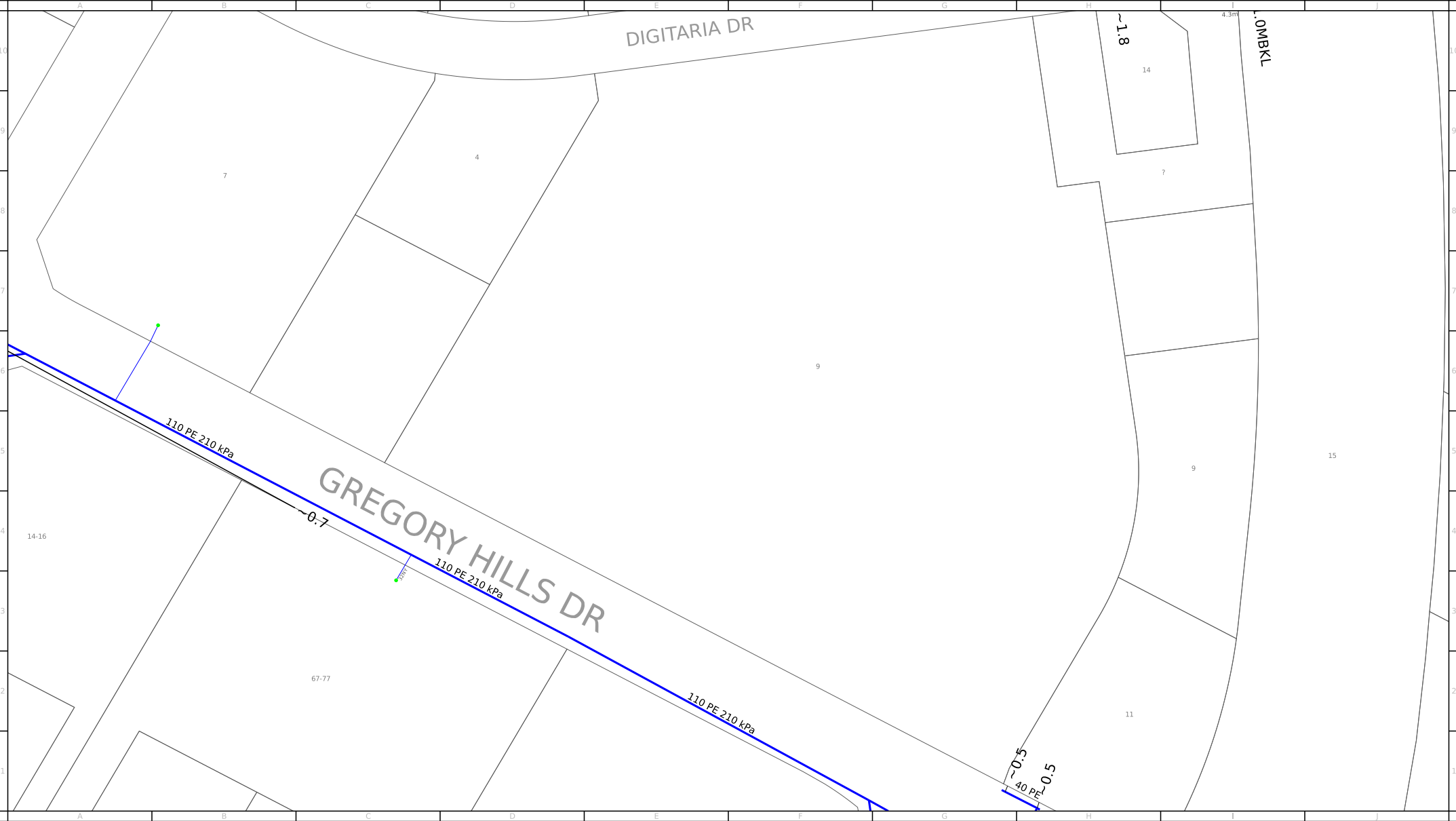


Scale: 1:2000

Issue Date: 04/06/2024  
BYDA Seq No: 240112652  
BYDA Job No: 36829811



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For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.

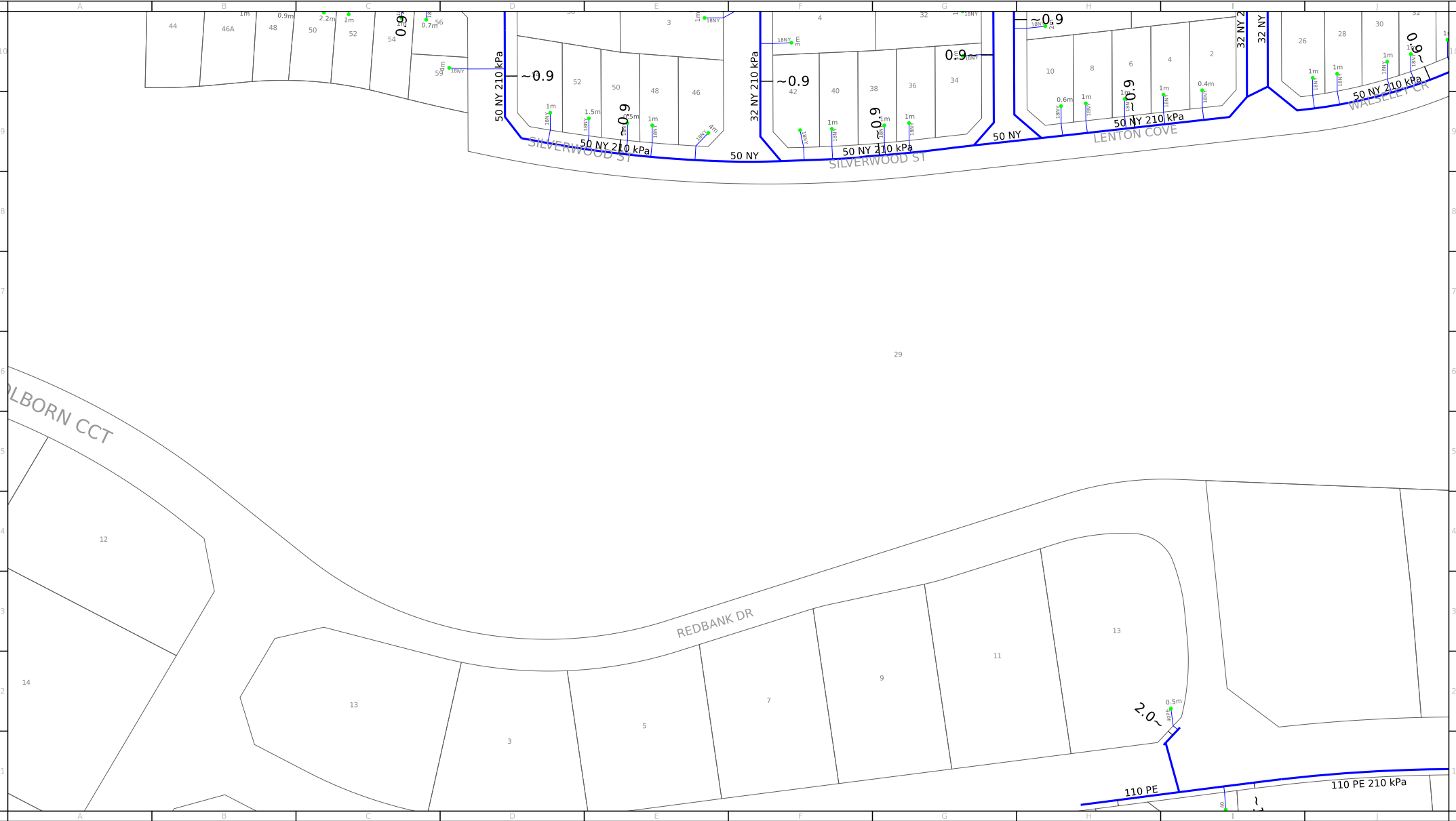


Scale:1:2000

Issue Date: 04/06/2024  
BYDA Seq No: 240112652  
BYDA Job No: 36829811

0m 10m 20m 30m 40m 50m 60m 70m80m

**WARNING:** This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagrammatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.



For legend details, please refer to the Coversheet attachment provided as part of this BYDA response.



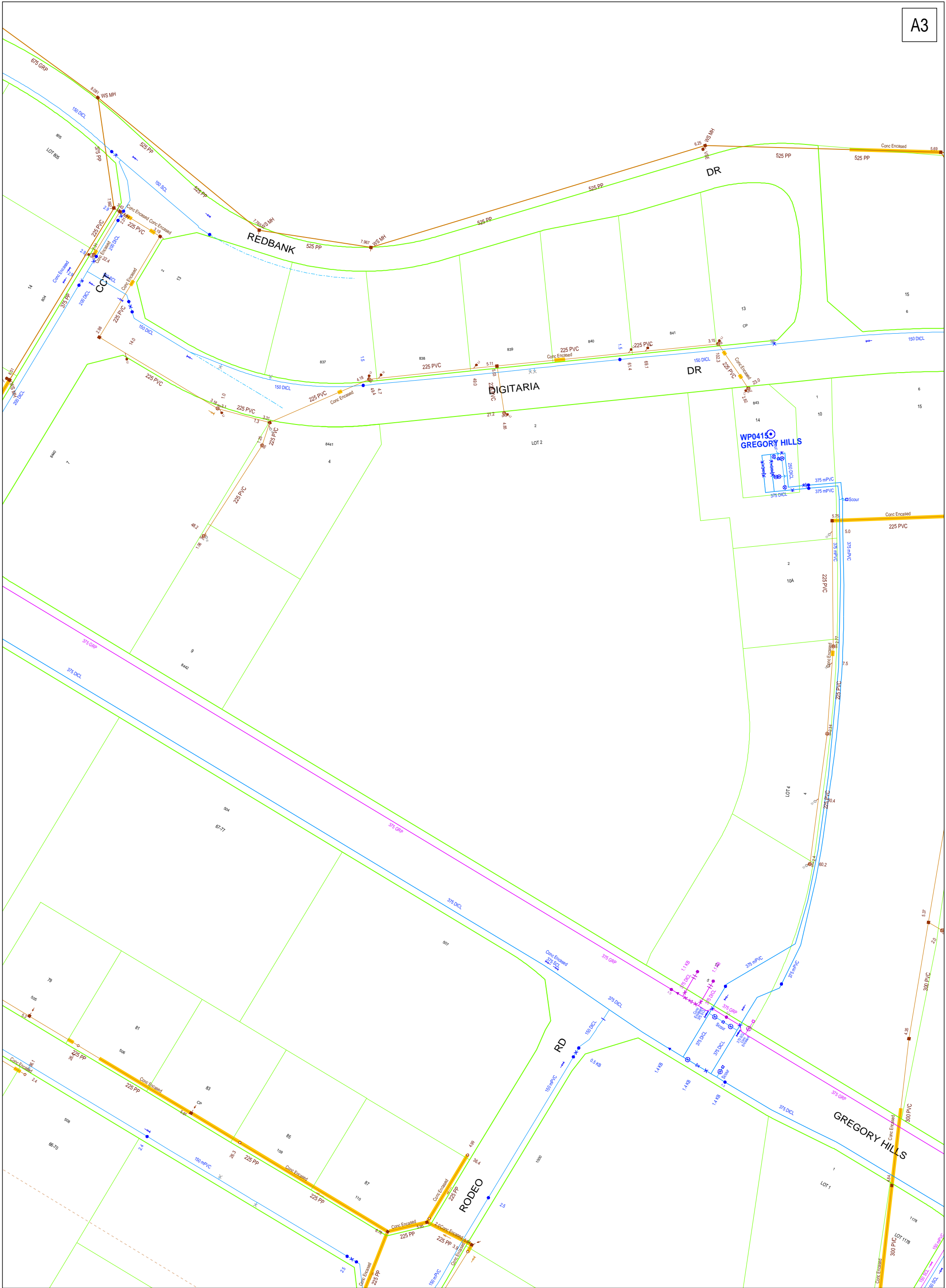
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Issue Date: 04/06/2024  
BYDA Seq No: 240112652  
BYDA Job No: 36829811

0m 10m 20m 30m 40m 50m 60m 70m 80m



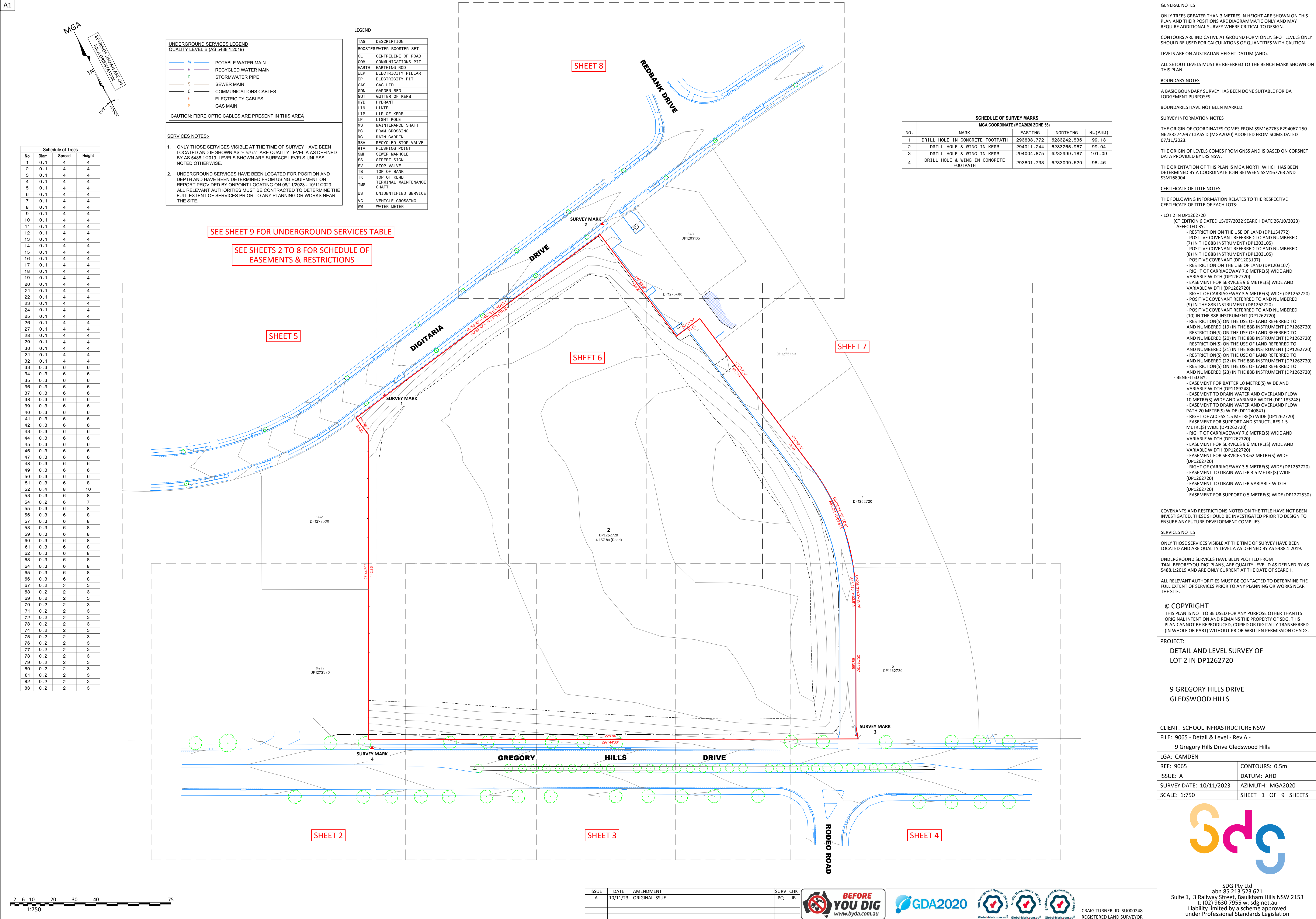
**WARNING:** This is a representation of Jemena Gas Networks underground assets only and may not indicate all assets in the area. It must not be used for the purpose of exact asset location in order to undertake any type of excavation. This plan is diagrammatic only, and distances scaled from this plan may not be accurate. Please read all conditions and information on the attached information sheet. This extract is subject to those conditions. The information contained on this plan is only valid for 28 days from the date of issue.



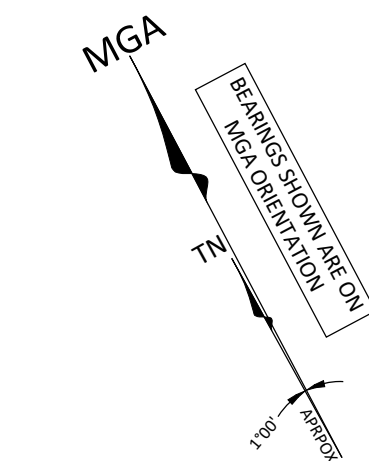


# Appendix B

# Site Survey







Schedule of Easements & Restrictions	
No	Description
(G)	EASEMENT FOR SERVICES 9.6 WIDE AND VARIABLE (DP1262720)
(H)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1262720)
(F)	RIGHT OF CARRIAGEWAY 7.6 WIDE AND VARIABLE (DP1262720)
(A)	RIGHT OF ACCESS 1.5 WIDE (DP1262720)
(B)	EASEMENT FOR SUPPORT AND STRUCTURES 1.5 WIDE (DP1262720)
(N)	EASEMENT FOR SERVICES 2 WIDE (DP1262720)
(C)	RIGHT OF ACCESS 1.5 WIDE (DP1275480)
(K)	EASEMENT FOR UNDERGROUND CABLES 1 WIDE (DP1275480)
(J)	RIGHT OF ACCESS 7.6 WIDE (DP1275480)
(T)	EASEMENT FOR SERVICES 9.6 WIDE (DP1275480)
(Q)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1275480)
(Z)	RIGHT OF ACCESS 1.5 WIDE (DP1283822)
(I)	EASEMENT TO DRAIN WATER 3.5 WIDE (DP1262720)
(P)	EASEMENT FOR SUPPORT 0.5 WIDE (DP1272530)
(M)	RIGHT OF CARRIAGEWAY 3.5 WIDE (DP1262720)

SEE SHEET 5 FOR CONTINUATION

(P)

84.42

DP1272530

2  
DP1262720  
4.157 ha (Deed)

GRASSED VACANT LOT

1.8m HIGH CHAINWIRE FENCING

TOP OF BANK

TOP OF BANK

(M)

1.8m HIGH CHAINWIRE FENCING

GREGORY HILLS DRIVE

STORMWATER PIT

Grate RL:97.60

Invert RL:95.86

STORMWATER PIT

Grate RL:98.23

Invert RL:96.47

Ø525

STORMWATER PIT

Grate RL:98.77

Invert RL:97.07

Ø525

STORMWATER PIT

Grate RL:98.13

Invert RL:96.66

Ø450

STORMWATER PIT

Grate RL:98.71

Invert RL:97.17

Ø450

SEE SHEET 1 FOR LEGEND, TREE TABLE, UNDERGROUND SERVICES LEGEND &amp; SURVEY MARK SCHEDULE

SEE SHEET 9 FOR UNDERGROUND SERVICES TABLE

## GENERAL NOTES

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CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

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ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

## BOUNDARY NOTES

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODGEMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

## SURVEY INFORMATION NOTES

THE ORIGIN OF COORDINATES COMES FROM SSM167763 E294067.250 N623274.997 CLASS D (MGA2020) ADOPTED FROM SCIMS DATED 07/11/2023.

THE ORIGIN OF LEVELS COMES FROM GNSS AND IS BASED ON CORSNET DATA PROVIDED BY LRS NSW.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY A COORDINATE JOIN BETWEEN SSM167763 AND SSM168904.

## CERTIFICATE OF TITLE NOTES

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOT:

- LOT 2 IN DP1262720  
(CT EDITION 6 DATED 15/07/2022 SEARCH DATE 26/10/2023)
- AFFECTED BY:
- RESTRICTION ON THE USE OF LAND (DP1154772)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (7) IN THE 888 INSTRUMENT (DP1203105)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (8) IN THE 888 INSTRUMENT (DP1203105)
  - POSITIVE COVENANT (DP1203107)
  - RESTRICTION ON THE USE OF LAND (DP1203107)
  - RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (9) IN THE 888 INSTRUMENT (DP1262720)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (10) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (19) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (20) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (21) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (22) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (23) IN THE 888 INSTRUMENT (DP1262720)
- BENEFITED BY:
- EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1189248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)
  - RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)
  - EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)
  - RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SERVICES 13.62 METRE(S) WIDE (DP1262720)
  - RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SUPPORT 0.5 METRE(S) WIDE (DP1272530)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

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## PROJECT:

DETAIL AND LEVEL SURVEY OF  
LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE  
GLEDSDOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW

FILE: 9065 - Detail &amp; Level - Rev A -

9 Gregory Hills Drive Gledswood Hills

LGA: CAMDEN

REF: 9065

ISSUE: A

SURVEY DATE: 10/11/2023

SCALE: 1:250

SHEET 2 OF 9 SHEETS



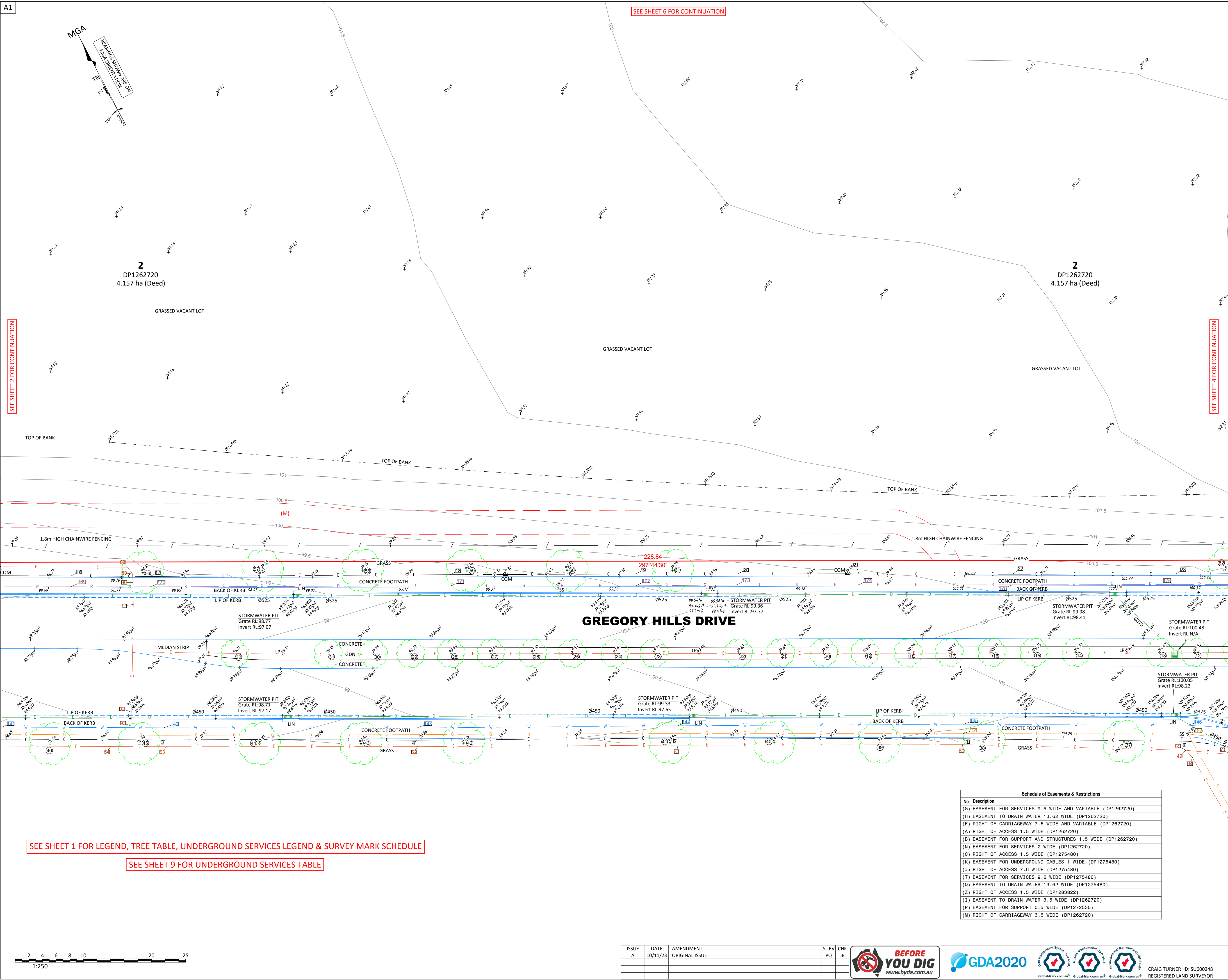
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ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB

CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR



A1



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  - POSITIVE COVENANT (DP1203107)
  - RESTRICTION ON THE USE OF LAND (DP1203107)
  - RIGHT OF CARRIAGEWAY 7.5 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
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- BENEFITED BY:
  - EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)
  - RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)
  - EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)
  - RIGHT OF CARRIAGEWAY 7.5 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
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**PROJECT:**

DETAIL AND LEVEL SURVEY OF LOT 2 IN DP1262720

**9 GREGORY HILLS DRIVE GLEDSDOOD HILLS**

**CLIENT:** SCHOOL INFRASTRUCTURE NSW

**FILE:** 9065 - Detail & Level - Rev A - 9 Gregory Hills Drive Gledswood Hills

**LGA:** CAMDEN

**REF:** 9065 **CONTOURS:** 0.5m

**ISSUE:** A **DATUM:** AHD

**SURVEY DATE:** 10/11/2023 **AZIMUTH:** MGA2020

**SCALE:** 1:250 **SHEET 3 OF 9 SHEETS**

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ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB

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CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR



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- AFFECTED BY:  
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PROJECT:

DETAIL AND LEVEL SURVEY OF  
LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE  
GLEDSWOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW

FILE: 9065 - Detail & Level - Rev A -  
9 Gregory Hills Drive Gledswood Hills

LGA: CAMDEN

REF: 9065

ISSUE: A

SURVEY DATE: 10/11/2023

SCALE: 1:250

CONTOURS: 0.5m

DATUM: AHD

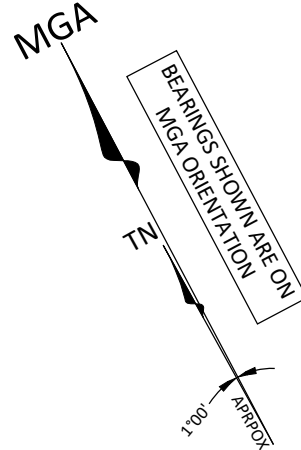
AZIMUTH: MGA2020

SHEET 4 OF 9 SHEETS

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CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR



SEE SHEET 7 FOR CONTINUATION

SEE SHEET 3 FOR CONTINUATION

SEE SHEET 1 FOR LEGEND, TREE TABLE, UNDERGROUND SERVICES LEGEND & SURVEY MARK SCHEDULE

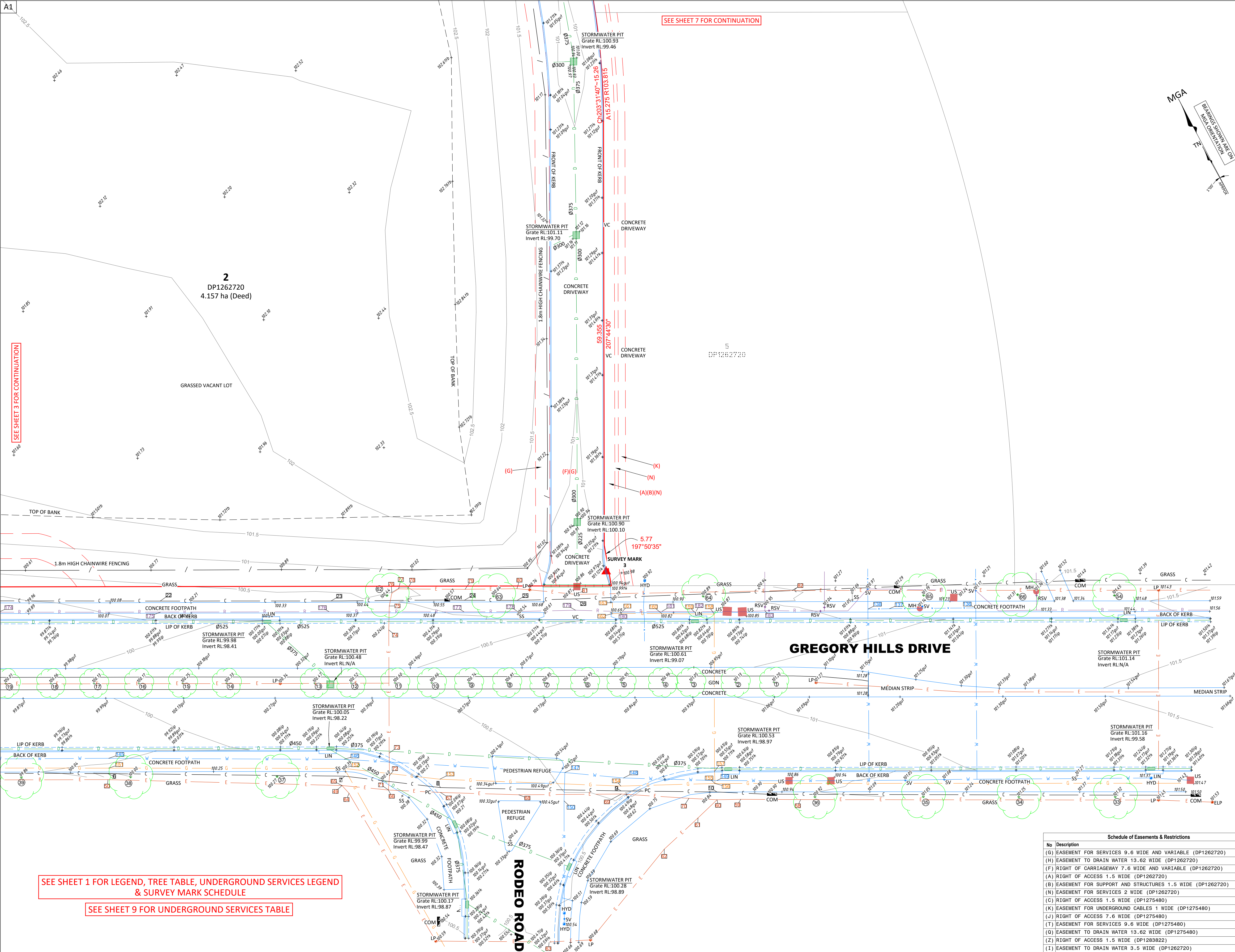
SEE SHEET 9 FOR UNDERGROUND SERVICES TABLE



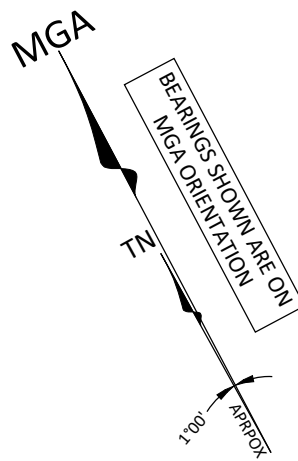
ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB



CRAIG TURNER ID: SU000248  
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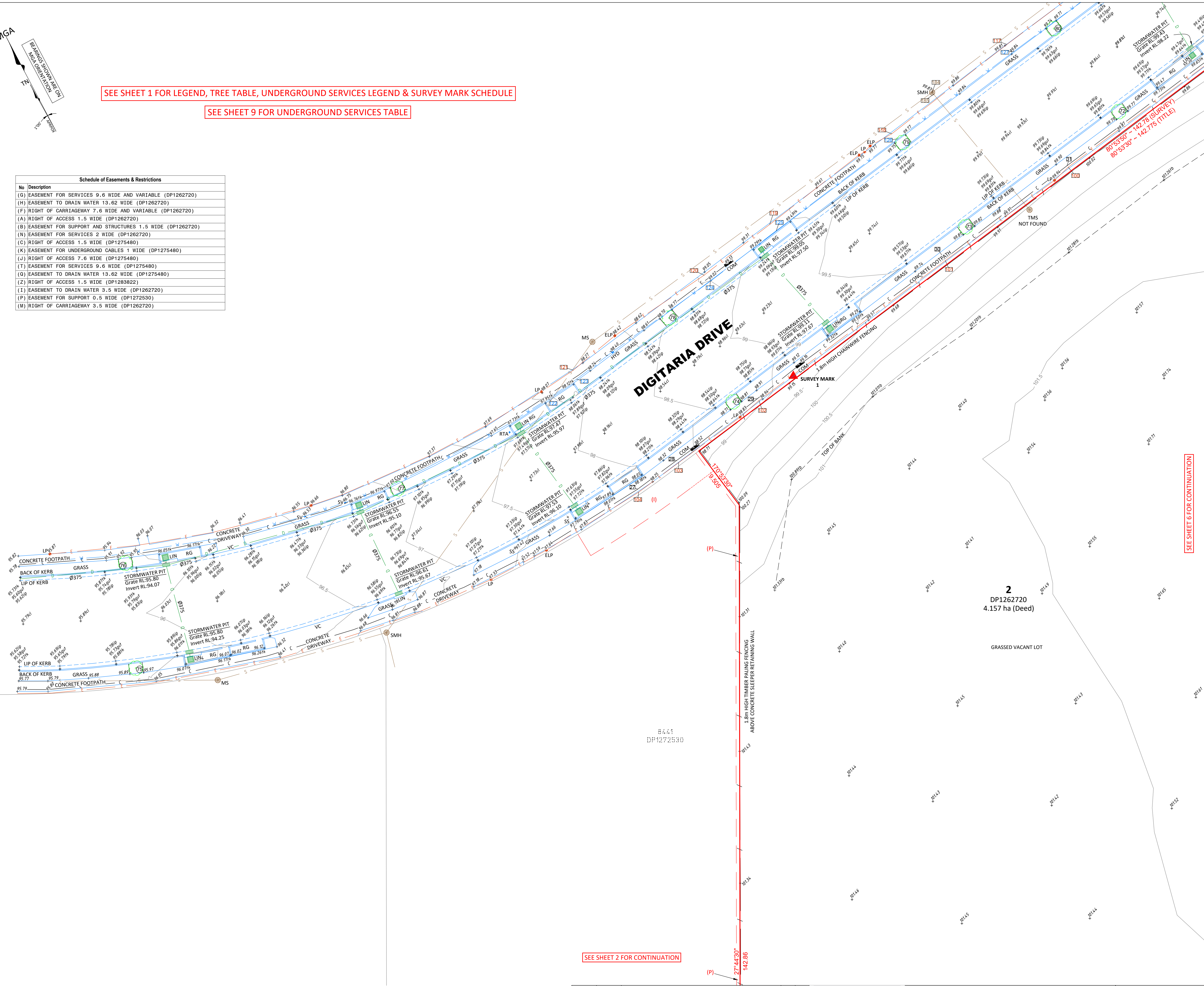




SEE SHEET 1 FOR LEGEND, TREE TABLE, UNDERGROUND SERVICES LEGEND & SURVEY MARK SCHEDULE

SEE SHEET 9 FOR UNDERGROUND SERVICES TABLE

Schedule of Easements & Restrictions	
No	Description
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(Z)	RIGHT OF ACCESS 1.5 WIDE (DP1283822)
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(P)	EASEMENT FOR SUPPORT 0.5 WIDE (DP1272530)
(M)	RIGHT OF CARRIAGEWAY 3.5 WIDE (DP1262720)



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  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (9) IN THE 888 INSTRUMENT (DP1262720)
  - POSITIVE COVENANT REFERRED TO AND NUMBERED (10) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (19) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (20) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (21) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (22) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (23) IN THE 888 INSTRUMENT (DP1262720)
- BENEFITED BY:
  - EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1189248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)
  - RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)
  - EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)
  - RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SUPPORT 0.5 METRE(S) WIDE (DP1272530)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

SERVICES NOTES

ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019.

UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS, ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT AT THE DATE OF SEARCH.

ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

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PROJECT:

DETAIL AND LEVEL SURVEY OF LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE GLEDSDOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW

FILE: 9065 - Detail & Level - Rev A -

9 Gregory Hills Drive Gledswood Hills

LGA: CAMDEN

REF: 9065

ISSUE: A

SURVEY DATE: 10/11/2023

SCALE: 1:250

CONTOURS: 0.5m

DATUM: AHD

AZIMUTH: MGA2020

SHEET 5 OF 9 SHEETS



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SEE SHEET 2 FOR CONTINUATION

ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB

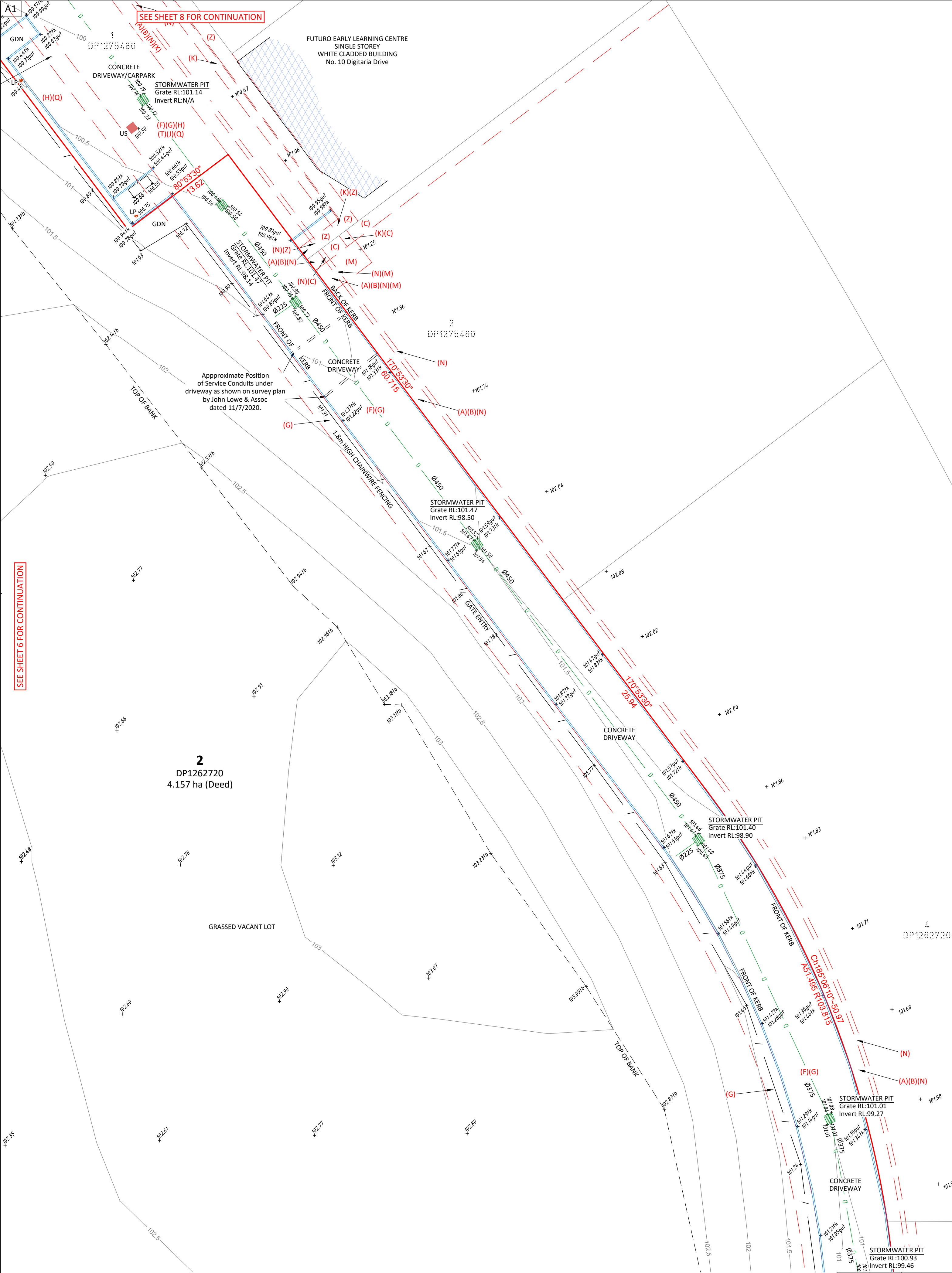


CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR





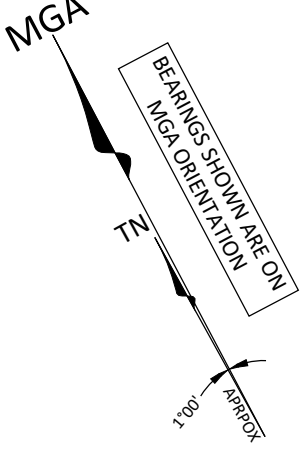




SEE SHEET 1 FOR LEGEND, TREE TABLE, UNDERGROUND SERVICES LEGEND & SURVEY MARK SCHEDULE

SEE SHEET 9 FOR UNDERGROUND SERVICES TABLE

Schedule of Easements & Restrictions	
No	Description
(G)	EASEMENT FOR SERVICES 9.6 WIDE AND VARIABLE (DP1262720)
(H)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1262720)
(F)	RIGHT OF CARRIAGEWAY 7.6 WIDE AND VARIABLE (DP1262720)
(A)	RIGHT OF ACCESS 1.5 WIDE (DP1262720)
(B)	EASEMENT FOR SUPPORT AND STRUCTURES 1.5 WIDE (DP1262720)
(N)	EASEMENT FOR SERVICES 2 WIDE (DP1262720)
(C)	RIGHT OF ACCESS 1.5 WIDE (DP1275480)
(K)	EASEMENT FOR UNDERGROUND CABLES 1 WIDE (DP1275480)
(J)	RIGHT OF ACCESS 7.6 WIDE (DP1275480)
(T)	EASEMENT FOR SERVICES 9.6 WIDE (DP1275480)
(O)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1275480)
(Z)	RIGHT OF ACCESS 1.5 WIDE (DP1283822)
(L)	EASEMENT TO DRAIN WATER 3.5 WIDE (DP1262720)
(P)	EASEMENT FOR SUPPORT 0.5 WIDE (DP1272530)
(M)	RIGHT OF CARRIAGEWAY 3.5 WIDE (DP1262720)



GENERAL NOTES

ONLY TREES GREATER THAN 3 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

**BOUNDARY NOTES**

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODGEMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

**SURVEY INFORMATION NOTES**

THE ORIGIN OF COORDINATES COMES FROM SSM167763 E294067.250 N623274.997 CLASS D (MGA2020) ADOPTED FROM SCHMS DATED 07/11/2023.

THE ORIGIN OF LEVELS COMES FROM GNSS AND IS BASED ON CORSNET DATA PROVIDED BY LRS NSW.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY A COORDINATE JOIN BETWEEN SSM167763 AND SSM168904.

**CERTIFICATE OF TITLE NOTES**

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOT:

- LOT 2 IN DP1262720  
(CT EDITION 6 DATED 15/07/2022 SEARCH DATE 26/10/2023)  
- AFFECTED BY:  
- RESTRICTION ON THE USE OF LAND (DP1154772)  
- POSITIVE COVENANT REFERRED TO AND NUMBERED (7) IN THE 888 INSTRUMENT (DP1203105)  
- POSITIVE COVENANT REFERRED TO AND NUMBERED (8) IN THE 888 INSTRUMENT (DP1203105)  
- POSITIVE COVENANT (DP1203107)  
- RESTRICTION ON THE USE OF LAND (DP1203107)  
- RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)  
- EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)  
- RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)  
- POSITIVE COVENANT REFERRED TO AND NUMBERED (9) IN THE 888 INSTRUMENT (DP1262720)  
- POSITIVE COVENANT REFERRED TO AND NUMBERED (10) IN THE 888 INSTRUMENT (DP1262720)  
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- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (20) IN THE 888 INSTRUMENT (DP1262720)  
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (21) IN THE 888 INSTRUMENT (DP1262720)  
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (22) IN THE 888 INSTRUMENT (DP1262720)  
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (23) IN THE 888 INSTRUMENT (DP1262720)  
- BENEFITED BY:  
- EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1189248)  
- EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)  
- EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)  
- RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)  
- EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)  
- RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)  
- EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)  
- EASEMENT FOR SERVICES 13.62 METRE(S) WIDE (DP1262720)  
- RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)  
- EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (DP1262720)  
- EASEMENT TO DRAIN WATER VARIABLE WIDTH (DP1262720)  
- EASEMENT FOR SUPPORT 0.5 METRE(S) WIDE (DP1272530)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

**SERVICES NOTES**

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UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS, ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT AT THE DATE OF SEARCH.

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PROJECT:  
DETAIL AND LEVEL SURVEY OF  
LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE  
GLEDSDOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW  
FILE: 9065 - Detail & Level - Rev A -  
9 Gregory Hills Drive Gledswood Hills  
LGA: CAMDEN  
REF: 9065  
ISSUE: A  
SURVEY DATE: 10/11/2023  
SCALE: 1:250

CONTOURS: 0.5m  
DATUM: AHD  
AZIMUTH: MGA2020  
SHEET 7 OF 9 SHEETS



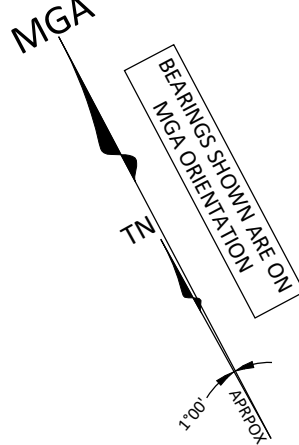
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ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB



CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR

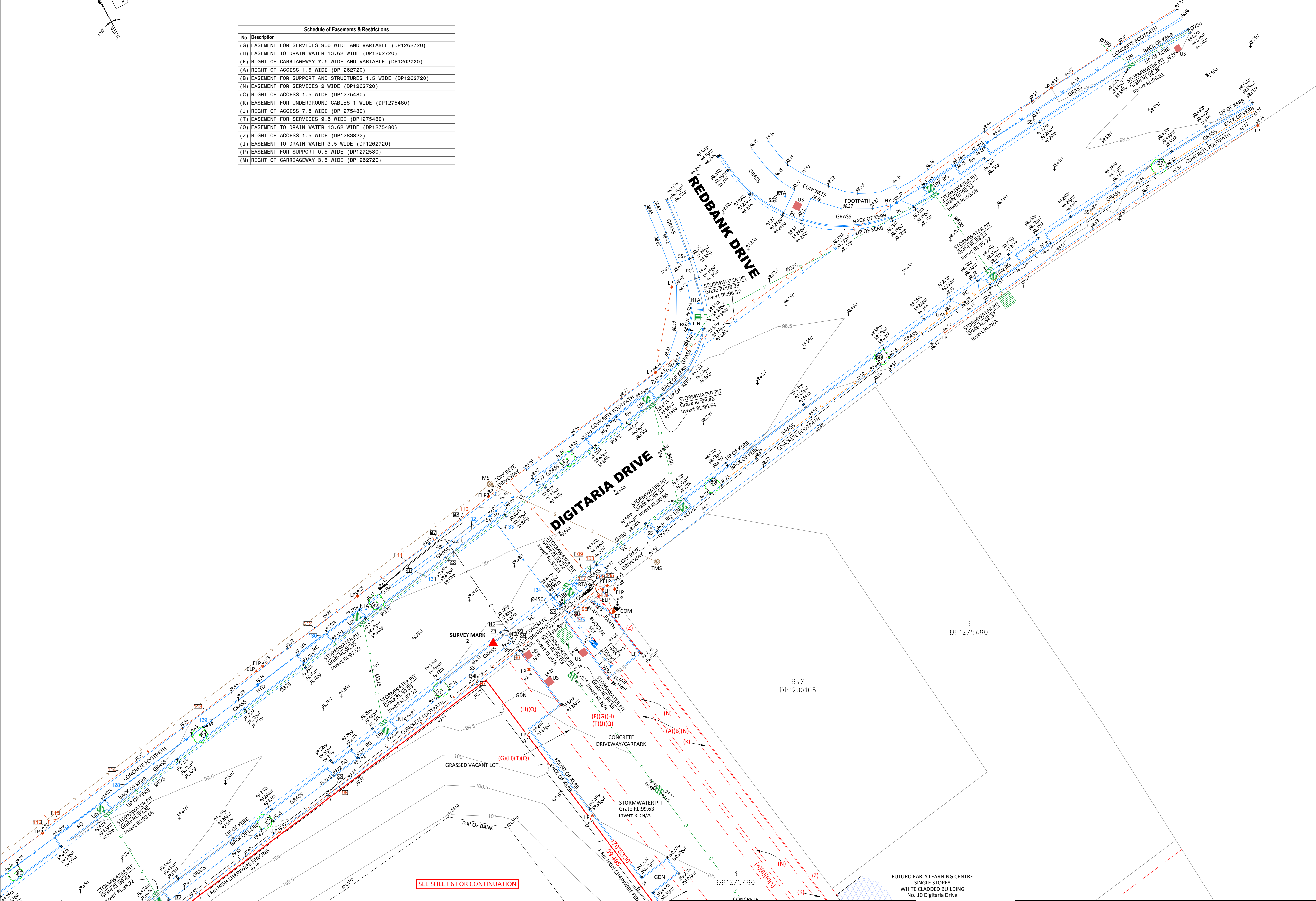




SEE SHEET 1 FOR LEGEND, TREE TABLE, UNDERGROUND SERVICES LEGEND & SURVEY MARK SCHEDULE

SEE SHEET 9 FOR UNDERGROUND SERVICES TABLE

Schedule of Easements & Restrictions	
No	Description
(G)	EASEMENT FOR SERVICES 9.6 WIDE AND VARIABLE (DP1262720)
(H)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1262720)
(F)	RIGHT OF CARRIAGEWAY 7.6 WIDE AND VARIABLE (DP1262720)
(A)	RIGHT OF ACCESS 1.5 WIDE (DP1262720)
(B)	EASEMENT FOR SUPPORT AND STRUCTURES 1.5 WIDE (DP1262720)
(N)	EASEMENT FOR SERVICES 2 WIDE (DP1262720)
(C)	RIGHT OF ACCESS 1.5 WIDE (DP1275480)
(K)	EASEMENT FOR UNDERGROUND CABLES 1 WIDE (DP1275480)
(J)	RIGHT OF ACCESS 7.6 WIDE (DP1275480)
(T)	EASEMENT FOR SERVICES 9.6 WIDE (DP1275480)
(Q)	EASEMENT TO DRAIN WATER 13.62 WIDE (DP1275480)
(Z)	RIGHT OF ACCESS 1.5 WIDE (DP1283822)
(I)	EASEMENT TO DRAIN WATER 3.5 WIDE (DP1262720)
(P)	EASEMENT FOR SUPPORT 0.5 WIDE (DP1272530)
(M)	RIGHT OF CARRIAGEWAY 3.5 WIDE (DP1262720)



SEE SHEET 6 FOR CONTINUATION

ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB



CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR

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SURVEY INFORMATION NOTES

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CERTIFICATE OF TITLE NOTES

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOT:

- LOT 2 IN DP1262720 (CT EDITION 6 DATED 15/07/2022 SEARCH DATE 26/10/2023)
- AFFECTED BY:
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  - POSITIVE COVENANT REFERRED TO AND NUMBERED (8) IN THE 888 INSTRUMENT (DP1203105)
  - POSITIVE COVENANT (DP1203107)
  - RESTRICTION ON THE USE OF LAND (DP1203107)
  - RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
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  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (21) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (22) IN THE 888 INSTRUMENT (DP1262720)
  - RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (23) IN THE 888 INSTRUMENT (DP1262720)
- BENEFITED BY:
  - EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1189248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
  - EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)
  - RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)
  - EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)
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  - EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
  - EASEMENT TO DRAIN WATER 13.62 METRE(S) WIDE (DP1262720)
  - RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (DP1262720)
  - EASEMENT TO DRAIN WATER VARIABLE WIDTH (DP1262720)
  - EASEMENT FOR SUPPORT 0.5 METRE(S) WIDE (DP1272530)

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PROJECT:  
DETAIL AND LEVEL SURVEY OF  
LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE  
GLEDSDOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW

FILE: 9065 - Detail & Level - Rev A -

9 Gregory Hills Drive Gledswood Hills

LGA: CAMDEN

REF: 9065

ISSUE: A

SURVEY DATE: 10/11/2023

SCALE: 1:250

CONTOURS: 0.5m

DATUM: AHD

AZIMUTH: MGA2020

SHEET 8 OF 9 SHEETS



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SERVICES-COMMUNICATIONS			
No	Surface RL	Approx Depth	Service RL
1	98.31	0.40	97.91
2	98.56	0.50	98.06
3	98.85	0.50	98.35
4	99.20	0.50	98.70
5	99.54	0.50	99.04
6	99.98	0.55	99.43
7	100.31	0.55	99.76
8	100.15	0.50	99.65
9	100.53		
10	100.86		
11	98.10	0.40	97.70
12	98.18	0.40	97.78
13	98.21	0.40	97.81
14	98.61	0.40	98.21
15	98.61	0.40	98.21
16	98.74	0.40	98.34
17	98.74	0.40	98.34
18	99.20	0.40	98.80
19	99.52	0.40	99.12
20	99.69	0.40	99.29
21	99.90	0.40	99.50
22	100.14	0.30	99.84
23	100.33	0.30	100.03
24	100.53	0.40	100.13
25	100.62	0.60	100.02
26	100.77	0.70	100.07
27	98.17	0.60	97.57
28	98.42	0.60	97.82
29	98.93	0.90	98.03
30	99.85	0.90	98.95
31	99.93	0.70	99.23
32	99.70	0.70	99.00
33	99.41	0.90	98.51
34	99.21	0.60	98.61
35	99.14	0.60	98.54
36	98.99	0.60	98.39
37	98.99	0.60	98.39
38	99.10		
39	99.10		
40	99.06	0.80	98.26
41	98.91		
42	98.98	0.60	98.38
43	99.02		
44	99.03		
45	99.02		
46	99.13	0.70	98.43
47	99.04		
48	99.03	0.60	98.43

SERVICES-ELECTRICITY			
No	Surface RL	Approx Depth	Service RL
49	100.26		
50	100.01	1.10	98.91
51	99.57	1.00	98.57
52	99.28	1.30	97.98
53	98.89	1.20	97.69
54	98.79		
55	98.61	1.00	97.61
56	98.36	1.00	97.36
57	98.08	1.00	97.08
58	100.82	1.20	99.62
59	100.84	0.90	99.94
60	100.80		
61	100.77	0.90	99.87
62	100.77	1.00	99.77
63	100.52	0.60	99.92
64	100.26		
65	100.26		
66	100.28		
67	100.12	0.85	99.27
68	100.43	1.00	99.43
69	100.52	1.00	99.52
70	100.76	0.95	99.81
71	100.28		
72	100.36	1.10	99.26
73	100.19	1.20	98.99
74	100.31	0.80	99.51
75	100.44	0.80	99.64
76	100.46		
77	100.47		
78	100.45	0.80	99.65
79	100.54	0.80	99.74
80	100.72		
81	100.83		
82	100.99	1.00	99.99
83	98.15	1.00	97.15
84	98.24	1.00	97.24
85	98.26	0.70	97.56
86	98.44	0.60	97.84
87	98.58	0.60	97.98
88	98.77		
89	98.70		
90	98.73	1.00	97.73
91	98.70	1.00	97.70
92	98.59		
93	98.70	1.20	97.50
94	98.97		
95	99.01	1.10	97.91
96	99.16	1.10	98.06
97	99.23	1.20	98.03
98	99.43	0.80	98.63
99	99.71	0.75	98.96
100	99.93	0.70	99.23
101	99.85	0.70	99.15
102	98.94	0.70	98.24
103	98.43	1.00	97.43
104	98.21	1.00	97.21
105	98.97		
106	98.96		
107	98.93		
108	98.89	1.10	97.79
109	98.83	1.10	97.73
110	99.02	0.80	98.22
111	99.11	0.60	98.51
112	99.31	0.80	98.51
113	99.45	0.80	98.65
114	99.60	0.90	98.70
115	99.66		
116	99.70		
117	99.80	0.80	99.00
118	99.85	0.70	99.15
119	99.43	1.10	98.33
120	99.05	1.00	98.05
121	98.21	1.00	97.21

SERVICES-POTABLE WATER			
No	Surface RL	Approx Depth	Service RL
122	98.01	0.60	97.41
123	98.18	0.60	97.58
124	99.00	0.60	98.40
125	99.44	1.00	98.44
126	99.82	0.50	99.32
127	99.86	0.60	99.26
128	99.55	0.50	99.05
129	99.40	0.50	98.90
130	99.26	0.60	98.66
131	99.05	0.60	98.45
132	98.98	0.60	98.38
133	98.88	0.80	98.08
134	98.88	0.80	98.08
135	99.01	0.80	98.21
136	101.17		
137	101.10	0.80	100.30
138	101.08		
140	98.22	0.85	97.37
141	98.52	0.80	97.72
142	98.78	1.00	97.78
143	99.17	0.95	98.22
144	99.53	1.00	98.53
145	99.96	1.00	98.96
146	100.29	1.20	99.09
147	100.53		
148	100.56		
149	100.78		
150	100.49		

SERVICES-RECYCLED WATER			
No	Surface RL	Approx Depth	Service RL
164	98.02	0.90	97.12
165	98.13	0.80	97.33
166	98.20	0.80	97.40
167	98.47	0.80	97.67
168	98.53	0.80	97.73
169	98.71	0.80	97.91
170	98.78	0.80	97.98
171	99.22	0.90	98.32
172	99.50	0.65	98.85
173	99.66	0.75	98.91
174	99.84	1.00	98.84
175	100.08	0.95	99.13
176	100.32	1.00	99.32
177	100.54	1.30	99.24
178	100.64	1.00	99.64
179	100.65		
180	100.72	1.00	99.72
181	100.82	1.00	99.82
182	100.82	1.00	99.82
183	100.93		

SERVICES-GAS			
No	Surface RL	Approx Depth	Service RL
151	100.03	0.50	99.53
152	100.37	0.50	99.87
153	100.19		
154	100.54		
155	100.79	0.45	100.34
156	100.79	0.45	100.34
157	100.73		
158	100.79		
159	100.79		
160	100.76		
161	100.70		
162	100.64		
163	100.78		

SERVICES-SEWER			
No	Surface RL	Approx Depth	Service RL
184	99.83		
185	99.85	4.96	94.89

GENERAL NOTES

ONLY TREES GREATER THAN 3 METRES IN HEIGHT ARE SHOWN ON THIS PLAN AND THEIR POSITIONS ARE DIAGRAMMATIC ONLY AND MAY REQUIRE ADDITIONAL SURVEY WHERE CRITICAL TO DESIGN.

CONTOURS ARE INDICATIVE AT GROUND FORM ONLY. SPOT LEVELS ONLY SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION.

LEVELS ARE ON AUSTRALIAN HEIGHT DATUM (AHD).

ALL SETOUT LEVELS MUST BE REFERRED TO THE BENCH MARK SHOWN ON THIS PLAN.

**BOUNDARY NOTES**

A BASIC BOUNDARY SURVEY HAS BEEN DONE SUITABLE FOR DA LODGEMENT PURPOSES.

BOUNDARIES HAVE NOT BEEN MARKED.

**SURVEY INFORMATION NOTES**

THE ORIGIN OF COORDINATES COMES FROM SSM167763 E294067.250 N623274.997 CLASS D (MGA2020) ADOPTED FROM SCIMS DATED 07/11/2023.

THE ORIGIN OF LEVELS COMES FROM GNSS AND IS BASED ON CORSNET DATA PROVIDED BY LRS NSW.

THE ORIENTATION OF THIS PLAN IS MGA NORTH WHICH HAS BEEN DETERMINED BY A COORDINATE JOIN BETWEEN SSM167763 AND SSM168904.

**CERTIFICATE OF TITLE NOTES**

THE FOLLOWING INFORMATION RELATES TO THE RESPECTIVE CERTIFICATE OF TITLE OF EACH LOT:

- LOT 2 IN DP1262720  
(CT EDITION 6 DATED 15/07/2022 SEARCH DATE 26/10/2023)

- AFFECTED BY:

- RESTRICTION ON THE USE OF LAND (DP1154772)
- POSITIVE COVENANT REFERRED TO AND NUMBERED (7) IN THE 888 INSTRUMENT (DP1203105)
- POSITIVE COVENANT REFERRED TO AND NUMBERED (8) IN THE 888 INSTRUMENT (DP1203105)
- POSITIVE COVENANT (DP1203107)
- RESTRICTION ON THE USE OF LAND (DP1203107)
- RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
- EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
- RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
- POSITIVE COVENANT REFERRED TO AND NUMBERED (9) IN THE 888 INSTRUMENT (DP1262720)
- POSITIVE COVENANT REFERRED TO AND NUMBERED (10) IN THE 888 INSTRUMENT (DP1262720)
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (19) IN THE 888 INSTRUMENT (DP1262720)
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (20) IN THE 888 INSTRUMENT (DP1262720)
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (21) IN THE 888 INSTRUMENT (DP1262720)
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (22) IN THE 888 INSTRUMENT (DP1262720)
- RESTRICTION(S) ON THE USE OF LAND REFERRED TO AND NUMBERED (23) IN THE 888 INSTRUMENT (DP1262720)

- BENEFITED BY:

- EASEMENT FOR BATTER 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1189248)
- EASEMENT TO DRAIN WATER AND OVERLAND FLOW 10 METRE(S) WIDE AND VARIABLE WIDTH (DP1183248)
- EASEMENT TO DRAIN WATER AND OVERLAND FLOW PATH 20 METRE(S) WIDE (DP1240841)
- RIGHT OF ACCESS 1.5 METRE(S) WIDE (DP1262720)
- EASEMENT FOR SUPPORT AND STRUCTURES 1.5 METRE(S) WIDE (DP1262720)
- RIGHT OF CARRIAGEWAY 7.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
- EASEMENT FOR SERVICES 9.6 METRE(S) WIDE AND VARIABLE WIDTH (DP1262720)
- EASEMENT FOR SERVICES 13.62 METRE(S) WIDE (DP1262720)
- RIGHT OF CARRIAGEWAY 3.5 METRE(S) WIDE (DP1262720)
- EASEMENT TO DRAIN WATER 3.5 METRE(S) WIDE (DP1262720)
- EASEMENT TO DRAIN WATER VARIABLE WIDTH (DP1262720)
- EASEMENT FOR SUPPORT 0.5 METRE(S) WIDE (DP1272530)

COVENANTS AND RESTRICTIONS NOTED ON THE TITLE HAVE NOT BEEN INVESTIGATED. THESE SHOULD BE INVESTIGATED PRIOR TO DESIGN TO ENSURE ANY FUTURE DEVELOPMENT COMPLIES.

**SERVICES NOTES**

ONLY THOSE SERVICES VISIBLE AT THE TIME OF SURVEY HAVE BEEN LOCATED AND ARE QUALITY LEVEL A AS DEFINED BY AS 5488.1:2019.

UNDERGROUND SERVICES HAVE BEEN PLOTTED FROM 'DIAL-BEFORE-YOU-DIG' PLANS, ARE QUALITY LEVEL D AS DEFINED BY AS 5488.1:2019 AND ARE ONLY CURRENT AT THE DATE OF SEARCH.

ALL RELEVANT AUTHORITIES MUST BE CONTACTED TO DETERMINE THE FULL EXTENT OF SERVICES PRIOR TO ANY PLANNING OR WORKS NEAR THE SITE.

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PROJECT:

DETAIL AND LEVEL SURVEY OF  
LOT 2 IN DP1262720

9 GREGORY HILLS DRIVE  
GLEDSDOOD HILLS

CLIENT: SCHOOL INFRASTRUCTURE NSW

FILE: 9065 - Detail & Level - Rev A -  
9 Gregory Hills Drive Gledswood Hills

LGA: CAMDEN

REF: 9065  
ISSUE: A

CONTOURS: 0.5m  
DATUM: AHD

SURVEY DATE: 10/11/2023  
SCALE: N/A

AZIMUTH: MGA2020  
SHEET 9 OF 9 SHEETS



SDG Pty Ltd  
abn 85 213 523 621  
Suite 1, 3 Railway Street, Baulkham Hills NSW 2153  
t: (02) 9630 7955 w: sdg.net.au  
Liability limited by a scheme approved  
under Professional Standards Legislation

ISSUE	DATE	AMENDMENT	SURV	CHK
A	10/11/23	ORIGINAL ISSUE	PQ	JB



CRAIG TURNER ID: SU000248  
REGISTERED LAND SURVEYOR

Appendix C

Council Correspondence

**RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS**

Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>

Wed 7/17/2024 12:34 PM

To: Stephen Fok <stephen.fok@ttw.com.au>

Cc: Kyrellos Habib <kyrellos.habib@ttw.com.au>

You don't often get email from [nikhil.pattanashetti@camden.nsw.gov.au](mailto:nikhil.pattanashetti@camden.nsw.gov.au). [Learn why this is important](#)

**[External Email]: Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Hi Stephen,

Yes, confirming yellow highlighted are correct.

Regarding the enviro flows requirement, I wouldn't stress about it now and if any issues are raised during DA assessment, guidance will be provided. Noting that following discussions with my team, we generally don't look into compliance with the enviro flows requirement of the spec.

Kind Regards,

**Nikhil Pattanashetti**  
Land Development Engineer



70 Central Avenue, Oran Park,  
2570

(02) 4654 7699

[www.camden.nsw.gov.au](http://www.camden.nsw.gov.au)



PO Box 183, Camden NSW 2570



[Nikhil.Pattanashetti@camden.nsw.gov.au](mailto:Nikhil.Pattanashetti@camden.nsw.gov.au)



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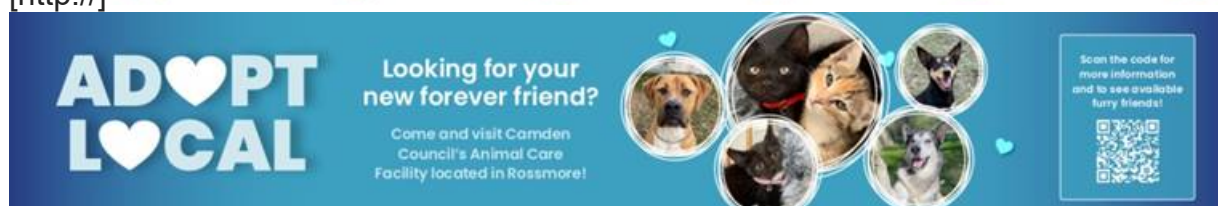


COMMITMENT



SAFETY

[http://]



Camden Council acknowledges the Dharawal peoples as the Traditional Custodians of our lands and waterways, and also recognises the Dharug and Gundungurra Nations. We pay our respects to Elders past, present and emerging and to all Aboriginal and Torres Strait Islander peoples on these lands.



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**From:** Stephen Fok <stephen.fok@ttw.com.au>

**Sent:** Wednesday, July 17, 2024 12:03 PM

**To:** Nikhil Pattanashetti <Nikhil.Pattanashetti@camden.nsw.gov.au>

**Cc:** Kyrellos Habib <kyrellos.habib@ttw.com.au>

**Subject:** RE: CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

**Warning - This email originates from an external organisation**

---

Thanks Nikhil,

Appreciate you getting back to me.

So confirming, the yellow highlighted assumptions below are correct?

Also, are you able to provide some guidance on how the environmental flows requirements is met or examples of where it has been met? I haven't come across this requirement before.

Regards,  
Stephen



**Stephen Fok | Senior Civil Engineer**

+61 2 9439 7288 | | [stephen.fok@ttw.com.au](mailto:stephen.fok@ttw.com.au)

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**From:** Nikhil Pattanashetti <[Nikhil.Pattanashetti@camden.nsw.gov.au](mailto:Nikhil.Pattanashetti@camden.nsw.gov.au)>

**Sent:** Tuesday, July 16, 2024 11:53 AM

**To:** Stephen Fok <[stephen.fok@ttw.com.au](mailto:stephen.fok@ttw.com.au)>

**Subject:** CRM 22661/2024 & CRM 22648/2024 - Stormwater and Floodplain Management Enquiry - 128-134 Rickard Road LEPPINGTON & 9 Gregory Hills Drive GLEDSWOOD HILLS

You don't often get email from [nikhil.pattanashetti@camden.nsw.gov.au](mailto:nikhil.pattanashetti@camden.nsw.gov.au). [Learn why this is important](#)

**[External Email]: Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Hi Stephen,

Thank you for sending your query for the abovementioned sites. I have responded to the questions in this email for the Leppington job, however please use these responses for the Gledswood Hills job as well, noting that the questions were the same. Please see below:

Regarding your queries below, please see my responses below in **red**.

Kind Regards,

**Nikhil Pattanashetti**  
Land Development Engineer



70 Central Avenue, Oran Park,  
2570

(02) 4654 7699

[www.camden.nsw.gov.au](http://www.camden.nsw.gov.au)



PO Box 183, Camden NSW 2570



[Nikhil.Pattanashetti@camden.nsw.gov.au](mailto:Nikhil.Pattanashetti@camden.nsw.gov.au)







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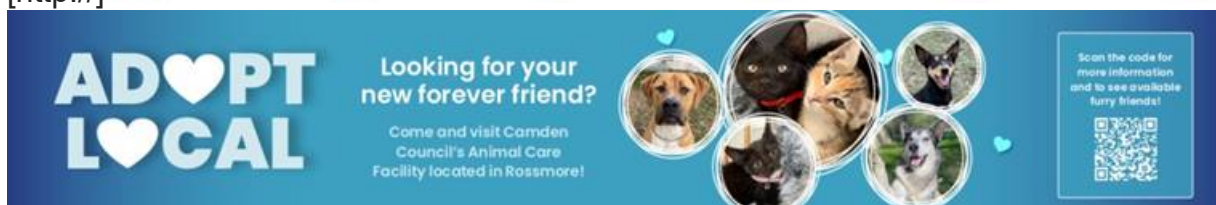
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**From:** Stephen Fok <[stephen.fok@ttw.com.au](mailto:stephen.fok@ttw.com.au)>

**Sent:** Friday, July 5, 2024 11:37 AM

**To:** Council Mailbox <[Council.Mailbox@camden.nsw.gov.au](mailto:Council.Mailbox@camden.nsw.gov.au)>

**Cc:** Mardi Christian <[mardi.christian@tsariley.au](mailto:mardi.christian@tsariley.au)>; Alexander Quah-Smith <[alexander.quahsmith@tsariley.au](mailto:alexander.quahsmith@tsariley.au)>; Colin Rope <[colin.rope@ttw.com.au](mailto:colin.rope@ttw.com.au)>

**Subject:** Stormwater Requirements - 128-134 Rickard Road, Leppington

**Warning - This email originates from an external organisation**

Dear Sir/Madam,

I am hoping to get confirmation on the stormwater requirements for a proposed development at 128-134 Rickard Road, Leppington.



I understand the requirements of the Camden Growth Centre Precincts Development Control Plan apply to this site. From this, the proposed development is required to:

- Provide detention to attenuate peak flows from the 50% AEP to the 1% AEP storms
- Provide water quality treatment in accordance with Table 2-1 of the DCP (excerpt below)

**Table 2-1: Water quality and environmental flow targets**

	WATER QUALITY % reduction in pollutant loads				ENVIRONMENTAL FLOWS Stream erosion control ratio <sup>1</sup>
	Gross Pollutants (>5mm)	Total suspended solids	Total phosphorous	Total nitrogen	
Stormwater management Objective	90	85	65	45	3.5-5.0: 1
'Ideal' stormwater outcome	100	95	95	85	1:1

<sup>1</sup> This ratio should be minimised to limit stream erosion to the minimum practicable. Development proposals should be designed to achieve a value as close to one as practicable, and values within the nominated range should not be exceeded. A specific target cannot be defined at this time.

- Prepare soil and water management plans in accordance with 'The Blue Book'

A few queries:

- Majority of the site currently discharges to an open channel in Rickard Road. We are proposing to maintain this as the discharge point for the developed site noting that OSD will be provided. Does Council have any comments on this proposal? **I don't believe there should be any issues with this, however once a DA is submitted, any issues with the discharge points will be looked at more closely. Council may issue you with an ultimate design for Rickard Rd fronting your development, which you may use for designs, or may instruct you to develop interim designs. The Leppington team (which looks after developments fronting major roads within Leppington and their ultimate designs) will provide this advice.**
- Could you please confirm if the environmental flows requirement applies to this development? **Yes.**
- There are significant areas of the site that will remain undeveloped as part of the development including areas designated for future road or road widening (Rickard Road). Do the requirements above apply to the entire site or just areas that are to be developed or otherwise draining to areas that are to be developed? **The entire site is usually considered during a pre-development vs. post-development assessment.**
- Is there a timeline for when the Rickard Road widening and Town Centre Road are to be delivered? **Leppington team may assist you with this query.**
- Are there any further specific requirements which apply to development at this site? **N/A, items may raise during DA assessment.**

Regards,

Stephen



**Stephen Fok | Senior Civil Engineer**

+61 2 9439 7288 | | [stephen.fok@ttw.com.au](mailto:stephen.fok@ttw.com.au)

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## Appendix D

# Civil plans



# GLEDSWOOD HILLS HIGH SCHOOL

## LOT 2 DP1262720 GLEDSWOOD HILLS, NSW 2557

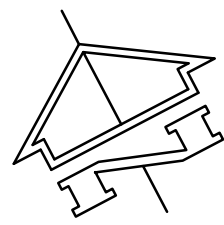


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GHHS-TTW-01-00-DR-C-00001	GENERAL COVER SHEET
GHHS-TTW-01-00-DR-C-00003	GENERAL NOTES AND LEGEND SHEET 1
GHHS-TTW-01-00-DR-C-00100	OVERALL SITE PLAN
GHHS-TTW-01-00-DR-C-00401	GENERAL ARRANGEMENT PLAN SHEET 1
GHHS-TTW-01-00-DR-C-00402	GENERAL ARRANGEMENT PLAN SHEET 2
GHHS-TTW-01-00-DR-C-00403	GENERAL ARRANGEMENT PLAN SHEET 3
GHHS-TTW-01-00-DR-C-00404	GENERAL ARRANGEMENT PLAN SHEET 4
EROSION AND SEDIMENT CONTROL-02000	
GHHS-TTW-01-00-DR-C-02001	EROSION AND SEDIMENT CONTROL NOTES AND LEGEND SHEET 1
GHHS-TTW-01-00-DR-C-02101	EROSION AND SEDIMENT CONTROL PLAN
EARTHWORKS-03000	
GHHS-TTW-01-00-DR-C-03101	EARTHWORKS CUT AND FILL VOLUMES PLAN
STORMWATER-04000	
GHHS-TTW-01-00-DR-C-04001	STORMWATER NOTES AND LEGEND SHEET 1
GHHS-TTW-01-00-DR-C-04101	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 1
GHHS-TTW-01-00-DR-C-04102	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 2
GHHS-TTW-01-00-DR-C-04103	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 3
GHHS-TTW-01-00-DR-C-04104	STORMWATER AND SUBSOIL DRAINAGE PLAN SHEET 4
GHHS-TTW-01-00-DR-C-04501	STORMWATER DETAILS SHEET 1
GHHS-TTW-01-00-DR-C-04502	STORMWATER DETAILS SHEET 2
PUBLIC DOMAIN WORKS-05000	
GHHS-TTW-01-00-DR-C-05001	PUBLIC DOMAIN SITE WORKS PLAN
RETAINING WALLS-06000	
GHHS-TTW-01-00-DR-C-06501	RETAINING WALL DETAILS
PAVEMENT-07000	
GHHS-TTW-01-00-DR-C-07001	PAVEMENT NOTES AND LEGEND
GHHS-TTW-01-00-DR-C-07101	PAVEMENT PLAN
GHHS-TTW-01-00-DR-C-07501	PAVEMENT DETAILS SHEET 1
GHHS-TTW-01-00-DR-C-07502	PAVEMENT DETAILS SHEET 2
GHHS-TTW-01-00-DR-C-07503	PAVEMENT DETAILS SHEET 3
SIGNAGE AND LINEMARKING-08000	
GHHS-TTW-01-00-DR-C-08101	SIGNAGE AND LINEMARKING PLAN



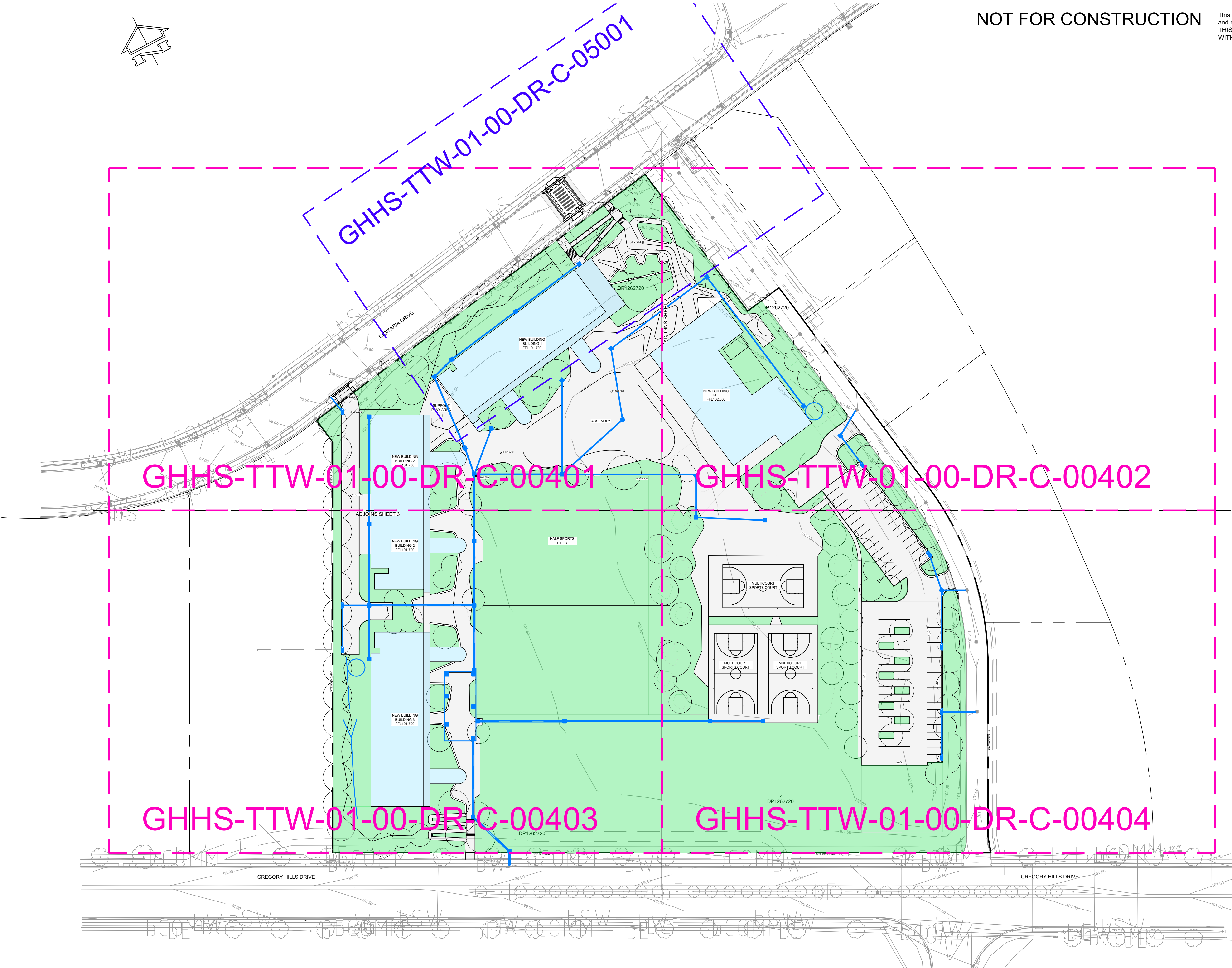






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1	FINAL DRAFT ISSUE FOR REF	SF	ES 21.11.2024												

Client:

 **School Infrastructure NSW**

Engineer:

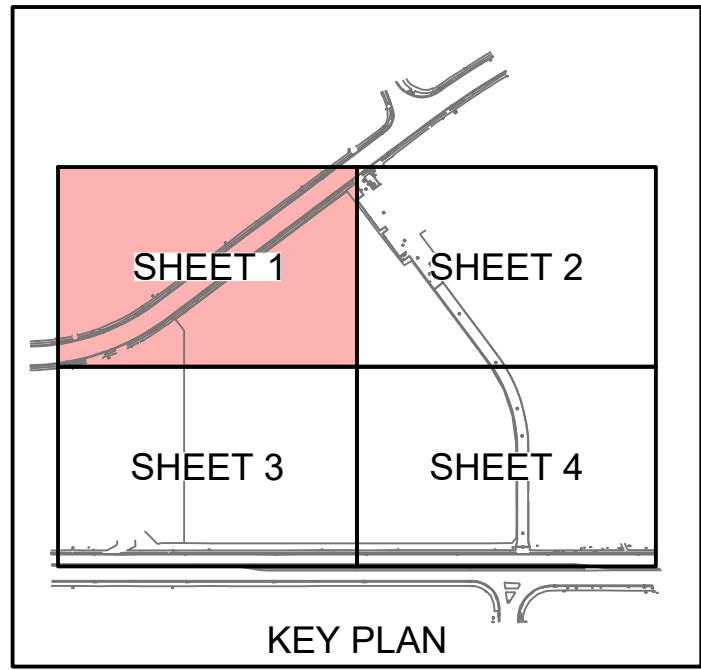
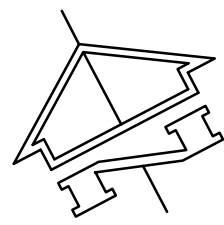
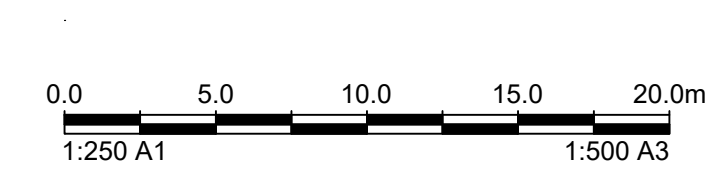
  
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Project:  
**GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720**

Drawing Title:  
**OVERALL SITE PLAN**

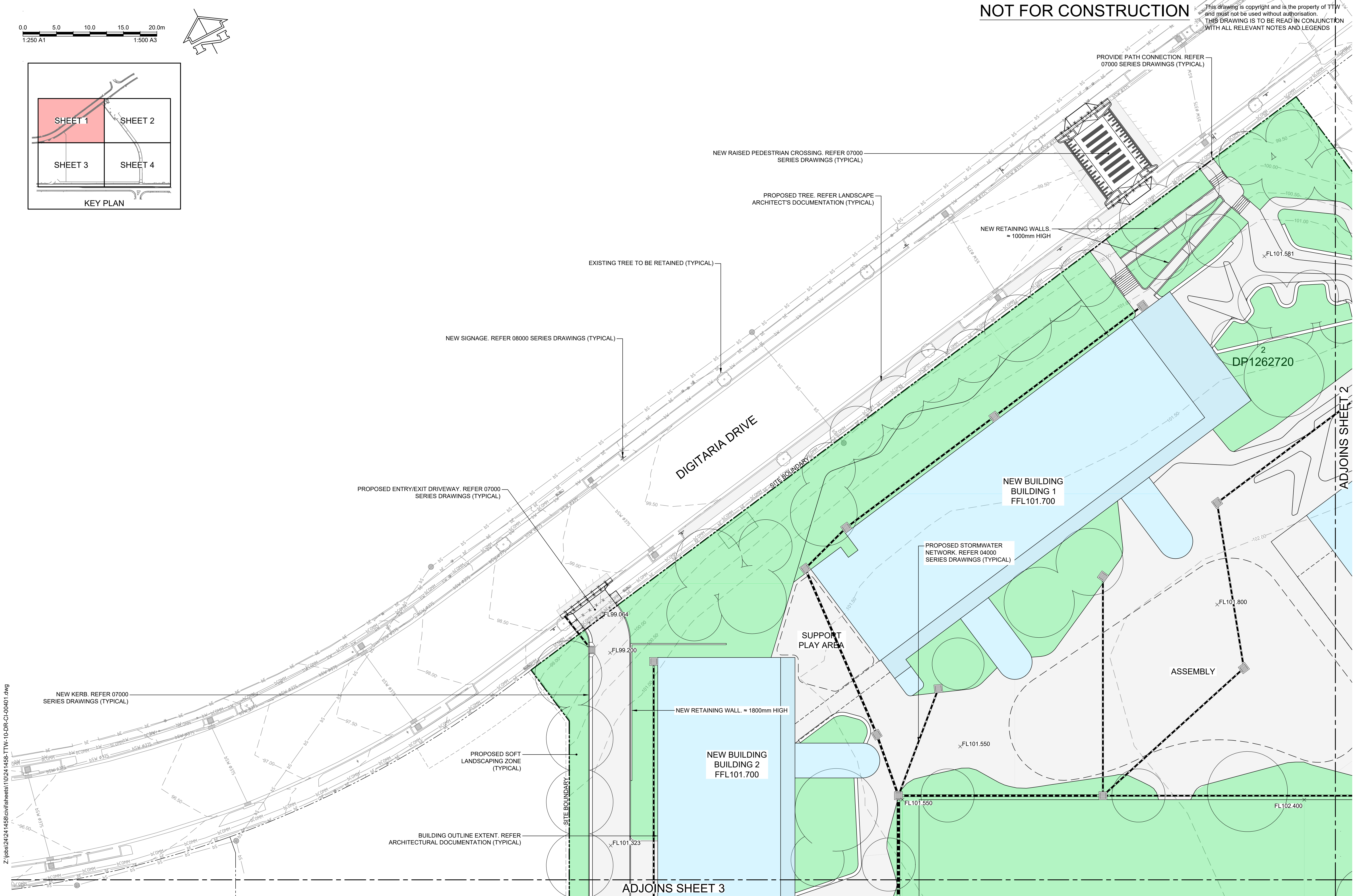
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1	FINAL DRAFT ISSUE FOR REF	SF	ES	21.11.2024										

Client:  School Infrastructure NSW

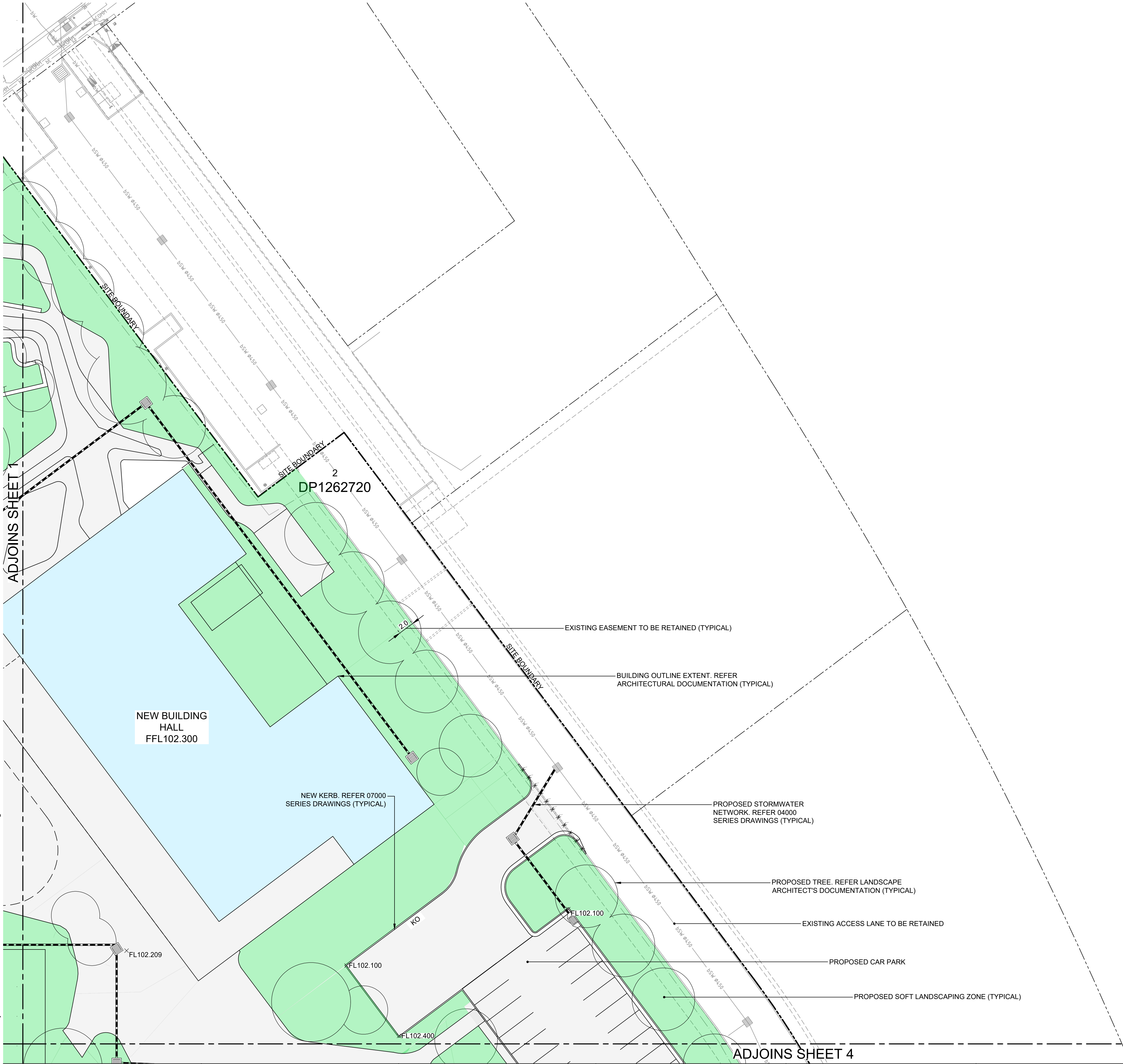
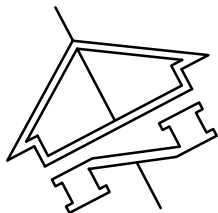
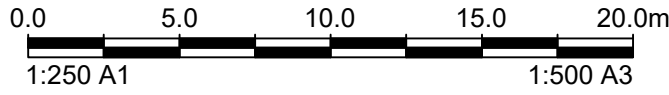
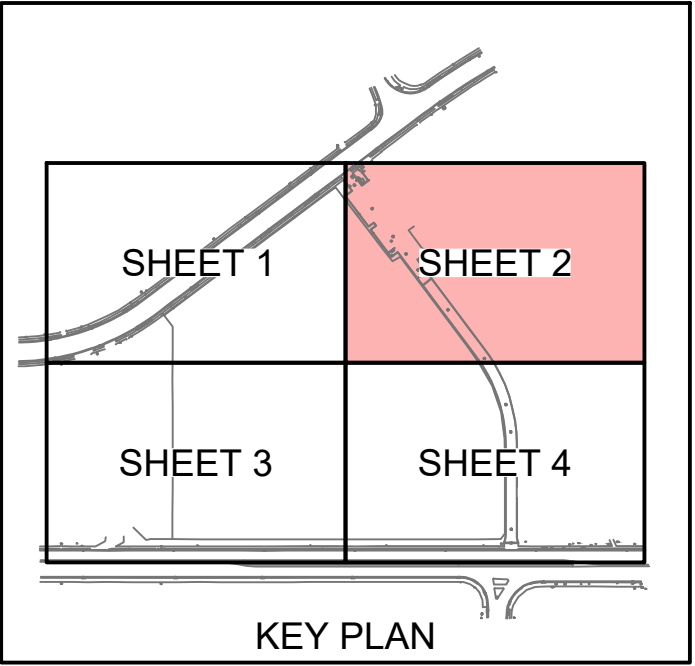
Engineer:    
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Project: GLEDSDOOD HILLS HIGH SCHOOL LOT 2 DP1262720

Drawing Title: GENERAL ARRANGEMENT PLAN SHEET 1

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Designed: CR  
Approved: CR  
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Originator: 16.12.2024 3:17 PM  
Type: Role: Sheet No.: Rev:





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1	FINAL DRAFT ISSUE FOR REF	SF	ES	21.11.2024										

Client:

 School Infrastructure NSW

Engineer:

 www.ttwengineers.com

Project:

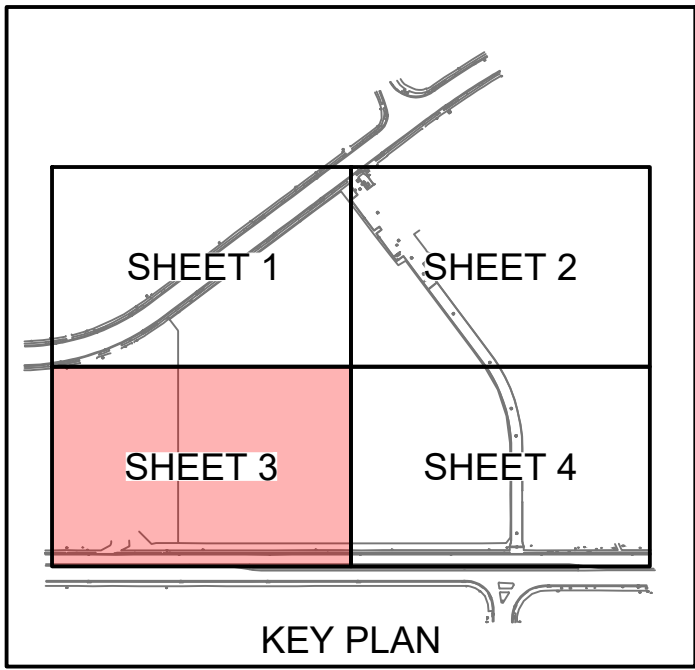
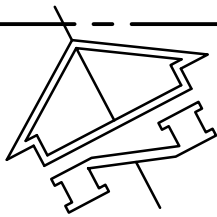
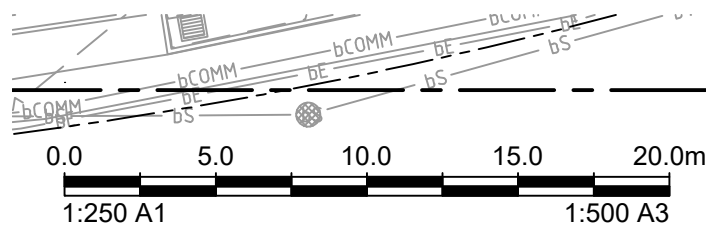
GLEDSWOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title:

GENERAL  
ARRANGEMENT PLAN  
SHEET 2

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NEW KERB. REFER 07000 SERIES DRAWINGS (TYPICAL)

PROPOSED STORMWATER NETWORK. REFER 04000 SERIES DRAWINGS (TYPICAL)

PROPOSED TREE. REFER LANDSCAPE ARCHITECT'S DOCUMENTATION (TYPICAL)

BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)

PROPOSED SOFT LANDSCAPING ZONE (TYPICAL)

ADJOINS SHEET 1

NEW BUILDING  
BUILDING 2  
FFL101.700

NEW BUILDING  
BUILDING 3  
FFL101.700

HALF SPORTS  
FIELD

ADJOINS SHEET 4

2  
DP1262720

EXISTING EASEMENT TO BE RETAINED (TYPICAL)  
(RIGHT OF CARRIAGEWAY)

GREGORY HILLS DRIVE

EXISTING BUST STOP. PROVIDE PROVISIONS FOR A SECOND BUS STOP ACROSS ROADWAY. REFER 08000 SERIES DRAWINGS

PROVIDE PATH CONNECTION. REFER 07000 SERIES DRAWINGS (TYPICAL)

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Rev	Description	Eng Draft	Date	Rev	Description	Eng Draft	Date	Rev	Description	Eng Draft	Date
2	SCHEMATIC DESIGN FOR REF	SF	ES 17.12.2024								
1	FINAL DRAFT ISSUE FOR REF	SF	ES 21.11.2024								

Client:	
Engineer:	



Project:  
GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title:  
GENERAL  
ARRANGEMENT PLAN  
SHEET 3

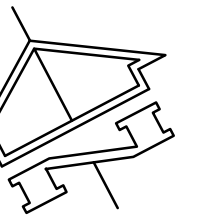
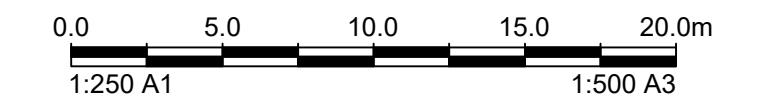
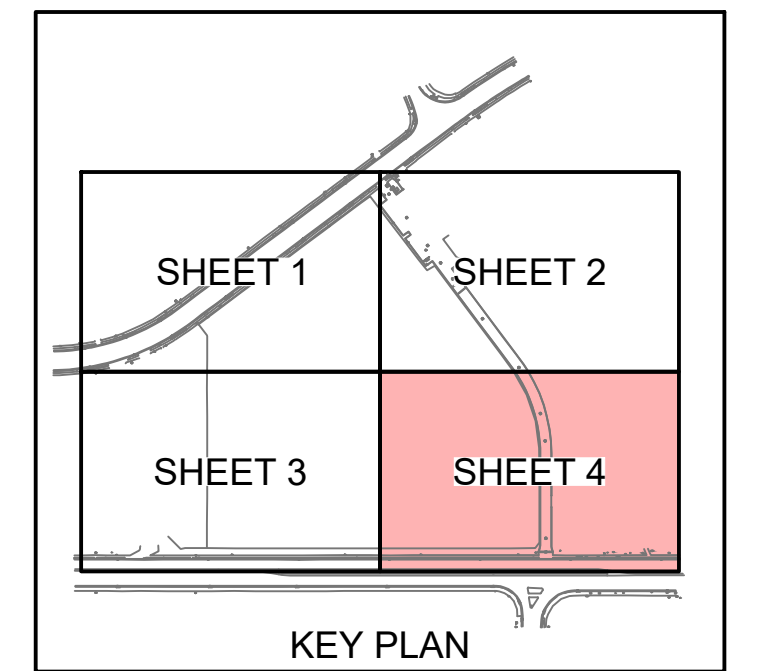
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Project No  
Originator  
Type  
Role  
Sheet No.  
Rev  
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17.12.2024 9:39 AM



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ADJOINS SHEET 3

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2	SCHEMATIC DESIGN FOR REF	SF	ES	17.12.2024
1	FINAL DRAFT ISSUE FOR REF	SF	ES	21.11.2024

Rev	Description	Eng Draft	Date
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Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
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Client	
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**School Infrastructure NSW**

Engineer



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Project:  
GLEDSWOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title:  
GENERAL  
ARRANGEMENT PLAN  
SHEET 4

Scale at A1	Drawn	Designed	Approved
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250 ES

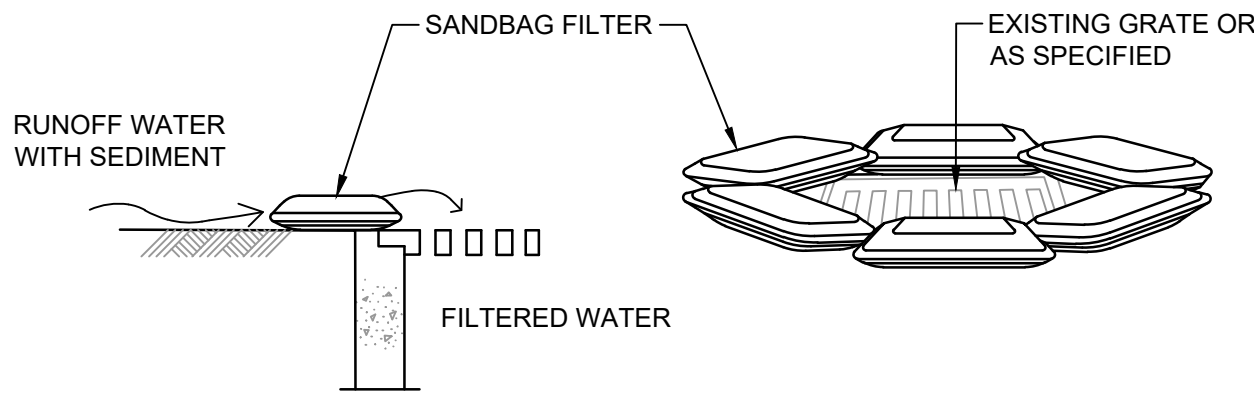
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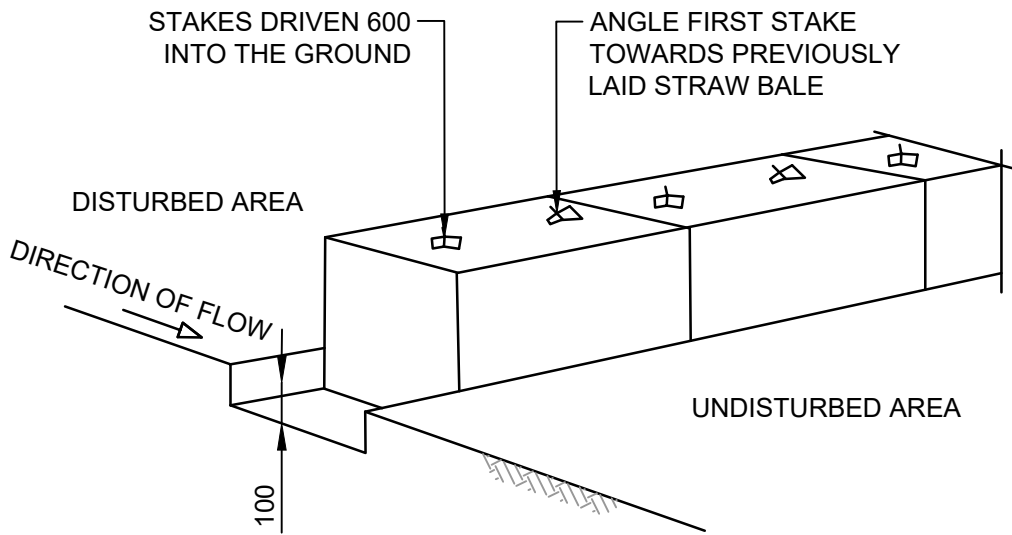
17.12.2024 9:38 AM

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

ANY ACCUMULATED WATER CONTAMINATED WITH SEDIMENT, FROM A SEDIMENT BASIN OR EXCAVATION PIT, IS TO BE FLOCCULATED OR FILTERED IN ORDER TO LOWER THE SUSPENDED SOLID LOAD TO LESS THAN 50MG PER LITRE  
GYPSUM GAS OR OTHER APPROVED FLOCCULANT SHOULD BE APPLIED WITHIN 24 HOURS OF THE END OF THE STORM EVENT. THE GYPSUM MUST BE SPREAD EVENLY OVER THE ENTIRE WATER SURFACE. PUMPING IS NOT TO OCCUR FOR AT LEAST 36 HOURS AND PREFERABLY 48 HOURS AFTER APPLICATION. CLEAN WATER IS TO BE DISCHARGED TO THE WATER TABLE VIA A HALE BAIL SEDIMENT FILTER IN A WAY THAT DOES NOT PICK UP SEDIMENT THAT HAS DROPPED TO THE BOTTOM.  
NOTE: GYPSUM IS A HYDRATED FORM OF CALCIUM SULPHATE AND IS AVAILABLE AT MANY SWIMMING POOL SHOPS AND HARDWARE STORES.

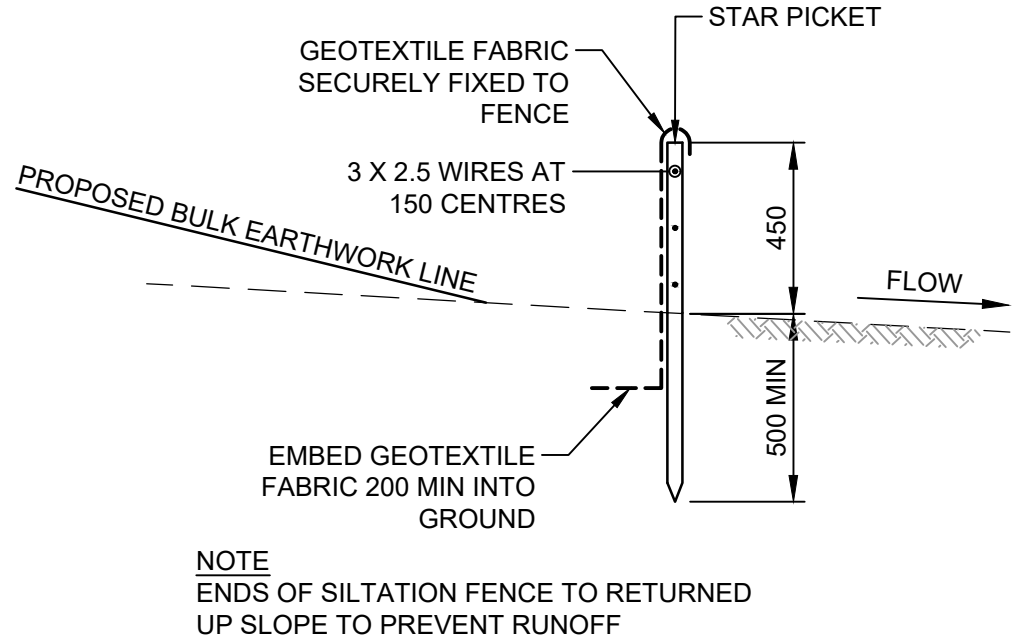


SANDBAG KERB SEDIMENT TRAP  
NTS



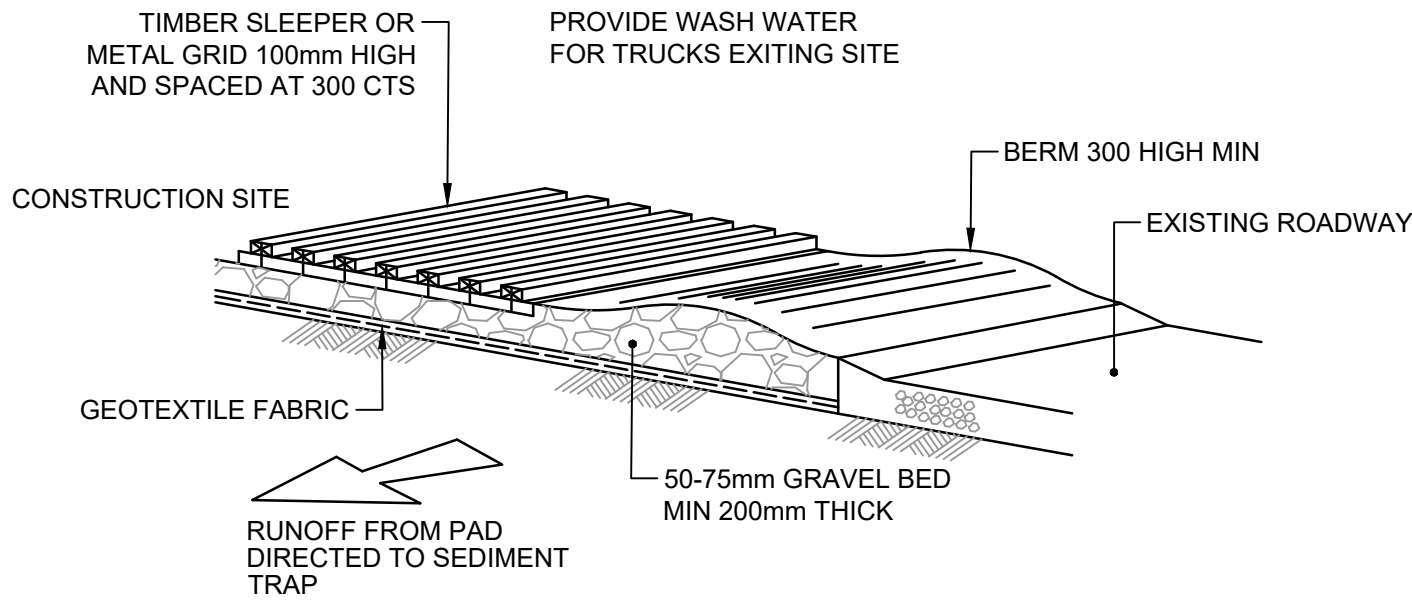
HAY BALE SEDIMENT FILTER  
NTS

NOTE: STAKE TO BE EITHER TAR COATED STAR OR 50 x 50 HARDWOOD

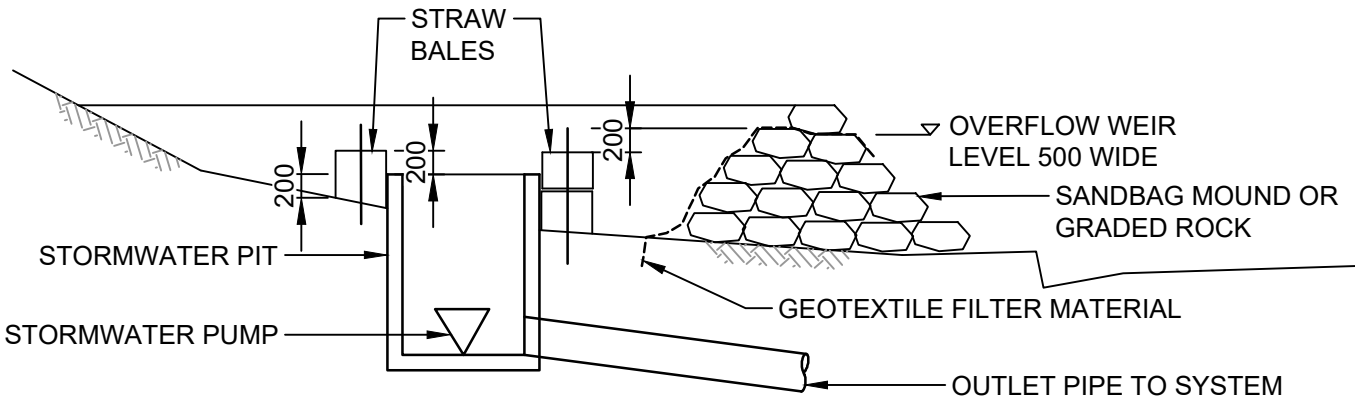


NOTE  
ENDS OF SILTATION FENCE TO RETURNED UP SLOPE TO PREVENT RUNOFF

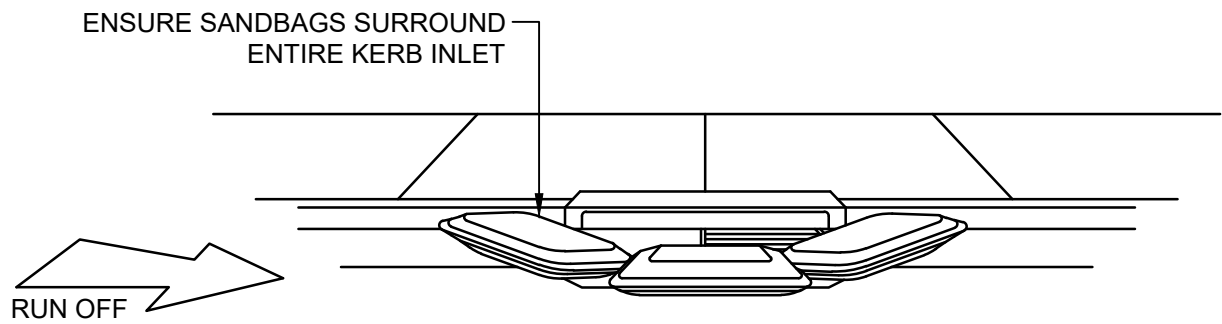
SILTATION FENCE DETAIL  
SCALE 1:20



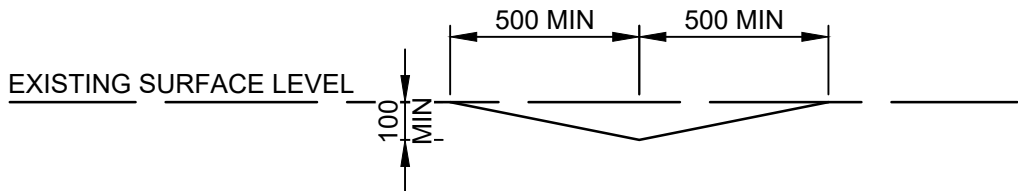
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SEDIMENTATION TRAP  
NTS



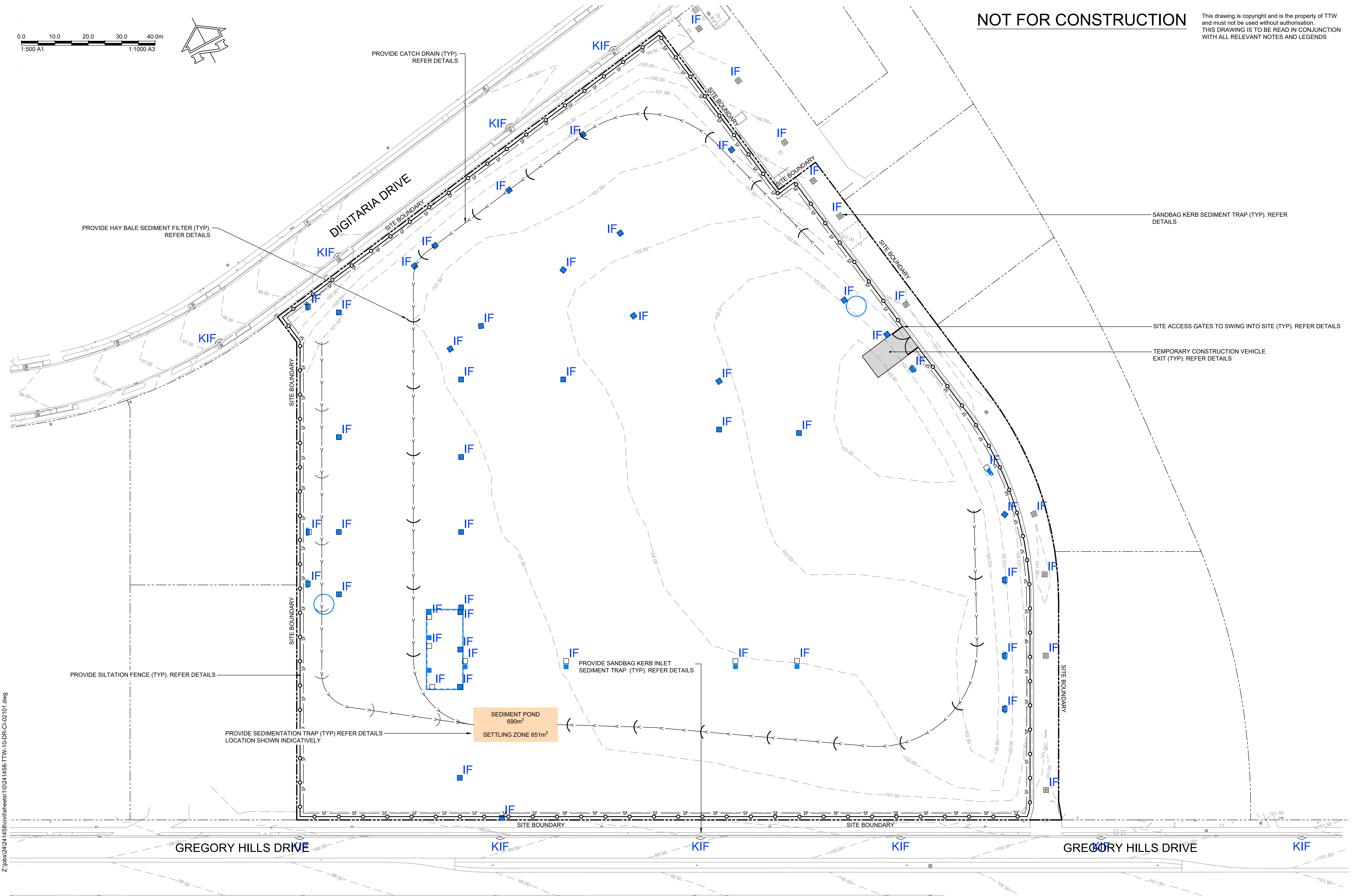
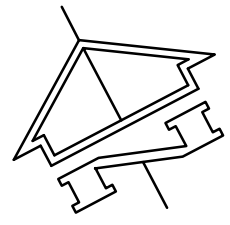
SANDBAG KERB INLET SEDIMENT TRAP  
NTS



TYPICAL SECTION  
THROUGH CATCH DRAIN  
SCALE 1:20

						Client:			Engineer:			Project:			Drawing Title:			Scale at A1			Drawn		Designed		Approved					
						 School Infrastructure NSW			 www.ttweengineers.com			GLEDSDOOD HILLS HIGH SCHOOL LOT 2 DP1262720			EROSION AND SEDIMENT CONTROL NOTES AND LEGEND SHEET 1			ES					CR							
2 SCHEMATIC DESIGN FOR REF SF ES 17.12.2024																		Project No			Originator		Type		Role		Sheet No.		Rev	
1 FINAL DRAFT ISSUE FOR REF SF ES 21.11.2024																		GHHS-TTW-01-00-DR-C-02001-2												
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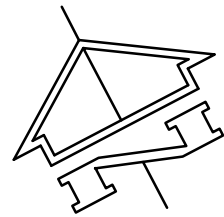


[illegible]



Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
CUT AND FILL	<b>1.000</b>	<b>1.000</b>	26493.87sq.m.	2868.99 Cu. M.	5244.39 Cu. M.	2375.39 Cu. M.<Fill>

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1. All bulk earthworks setout from grid lines U.N.O.
2. All batters at a slope of 2 (H) : 1 (V) U.N.O.
3. Excavated material may be used as structural fill provided,
  - (i) it complies with the specification requirements for fill material,
  - (ii) the placement moisture content complies with the Geotechnical Consultants requirements, and allows filling to be placed and proffiled in accordance with the specification. Where necessary the Contractor must moisture condition the excavated material to meet these requirements.

Location	Standard dry density (AS 1289 5.1.1.)	Moisture (OMC)
Under building slabs on ground:	98%	±2%
Under roads and carparks:	98%	±2%
Landscaped areas:	95%	±2%

5. Before placing fill, proof roll exposed subgrade with a 12 tonne minimum roller to test subgrade and then remove soft spots (areas with more than 3mm movement under roller). Soft spots to be replaced with granular fill U.N.O.
6. Contractor shall place safety barriers around excavations in accordance with relevant safety regulations.
7. For interpretation of bulk earthworks foot print line shown on the bulk earthworks drawings refer to the bulk earthworks construction legend.
8. Bulk earthwork drawings are not to be used for detailed excavation.
9. Refer to Geotechnical Report
10. Detailed earthworks such as piling, pile caps, ground beams, lift pits, service trenching & landscape mounding etc is excluded.
11. The following allowances have been adopted in the bulk earthworks quantity calculations:
  - Site stripping level = 150mm below existing surface level, and site strip volume is 3974m<sup>3</sup>
12. Bulk earthworks does not consider detailed excavation including excavation for footings, beams, services trenching and slab falls. No allowance for bulking factors made
13. Contractor to locate all existing services prior to commencement of work
14. Contractor to make their own assessment of cut and fill volumes
15. All bulk earthworks in accordance with AS3798-2007 Guidelines on earthworks for commercial and residential development.



ROAD PAVEMENT	BUILDING SLABS	EXTERNAL PAVEMENT	LANDSCAPE
400mm	400mm	250mm	150mm

LEVELS TABLE			
No.	FROM LEVEL (m)	TO LEVEL (m)	COLOUR
1	-3.00	-2.50	
2	-2.50	-2.00	
3	-2.00	-1.50	
4	-1.50	-1.00	
5	-1.00	-0.50	
6	-0.50	0.00	
7	0.00	0.50	
8	0.50	1.00	
9	1.00	1.50	
10	1.50	2.00	

[illegible]

Engineer:
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Drawing Title:  
**EARTHWORKS  
CUT AND FILL  
VOLUMES PLAN**

Scale at A1	Drawn	Designed	Approved
500	ES		CR
Project No	Originator	Type	Role Sheet No. Rev
GHHS-TTW-01-00-DR-C-03101-2			
16.12.2024 3:24 PM			



STORMWATER DRAINAGE

1. STORMWATER DESIGN CRITERIA
- (A) AVERAGE EXCEEDANCE PROBABILITY: -
  - 1% AEP FOR ROOF DRAINAGE TO FIRST EXTERNAL PIT
  - 5% AEP FOR PAVED AND LANDSCAPED AREAS
- (B) RAINFALL INTENSITIES : -
  - TIME OF CONCENTRATION: 5 MINUTES
  - 1% AEP = 235mm/hr
  - 5% AEP = 177mm/hr
- (C) RAINFALL LOSSES: -
  - IMPERVIOUS AREAS: IL = 1.5mm CL = 0mm/hr
  - PERVIOUS AREAS: IL = 28mm CL = 1.2mm/hr
2. PIPES 300 DIA AND LARGER TO BE REINFORCED CONCRETE CLASS "4" APPROVED SPIGOT AND SOCKET WITH RUBBER RING JOINTS U.N.O.
3. PIPES UP TO 300 DIA MAY BE SEWER GRADE UPVC WITH SOLVENT WELDED JOINTS, SUBJECT TO APPROVAL BY THE ENGINEER
4. EQUIVALENT STRENGTH VCP OR FRP PIPES MAY BE USED SUBJECT TO APPROVAL.
5. PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY ENGINEER.
6. ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE MANUFACTURED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.
7. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED UPVC SEWER GRADE PIPE IS TO BE USED.
8. GRATES AND COVERS SHALL CONFORM WITH AS 3996-2006, AND AS 1428.1 FOR ACCESS REQUIREMENTS.
9. PIPES ARE TO BE INSTALLED IN ACCORDANCE WITH AS 3725, ALL BEDDING TO BE TYPE H2 U.N.O.
10. CARE IS TO BE TAKEN WITH INVERT LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
11. ALL STORMWATER PIPES TO BE 150 DIA AT 1.0% MIN FALL U.N.O.
12. SUBSOIL DRAINS TO BE SLOTTED FLEXIBLE UPVC U.N.O.
13. ADOPT INVERT LEVELS FOR PIPE INSTALLATION (GRADES SHOWN ARE ONLY NOMINAL).

STORMWATER PIPE INFORMATION

PIPE INFORMATION		TIE INFORMATION	
USIL Ø000	UPSTREAM INVERT LEVEL	SW	TIE LENGTH
0.0m	PIPE INTERNAL DIAMETER	L 10.0m	TIE DEPTH
0.0 m/s	PIPE MATERIAL AND CLASS	D 1.0m	TIE DIAMETER
%0.0	PIPE LENGTH	Ø150	
DSIL	HYDRAULIC FLOW RATE		
	PIPE GRADE		
	DOWNSTEAM INVERT LEVEL		

STORMWATER STRUCTURE IDENTIFICATION

SW1-2 LINE NUMBER 1 - STRUCTURE NUMBER 2

SUBSOIL DRAINAGE

1. ALL SUBSOIL DRAINAGE WORKS ARE TO BE COMPLETED IN ACCORDANCE WITH THE RELEVANT STANDARDS AND SPECIFICATIONS OUTLINED IN THE PROJECT SPECIFICATION.
2. WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.
3. SUBSOIL DRAINS TO BE Ø100 SLOTTED FLEXIBLE uPVC UNLESS NOTED OTHERWISE.
4. ALL SUBSOIL DRAINS ARE TO BE AT MINIMUM 1% GRADE UNLESS NOTED OTHERWISE.
5. ALL SUBSOIL DRAINS TO BE RODDED PRIOR TO THE PLACEMENT OF ASPHALT.
6. ALL SUBSOIL DRAINS ARE DRAWN DIAGRAMMATICALLY FOR CLARITY. REFER TO TYPICAL DETAIL FOR SUBSOIL SETOUT.

STORMWATER LEGEND

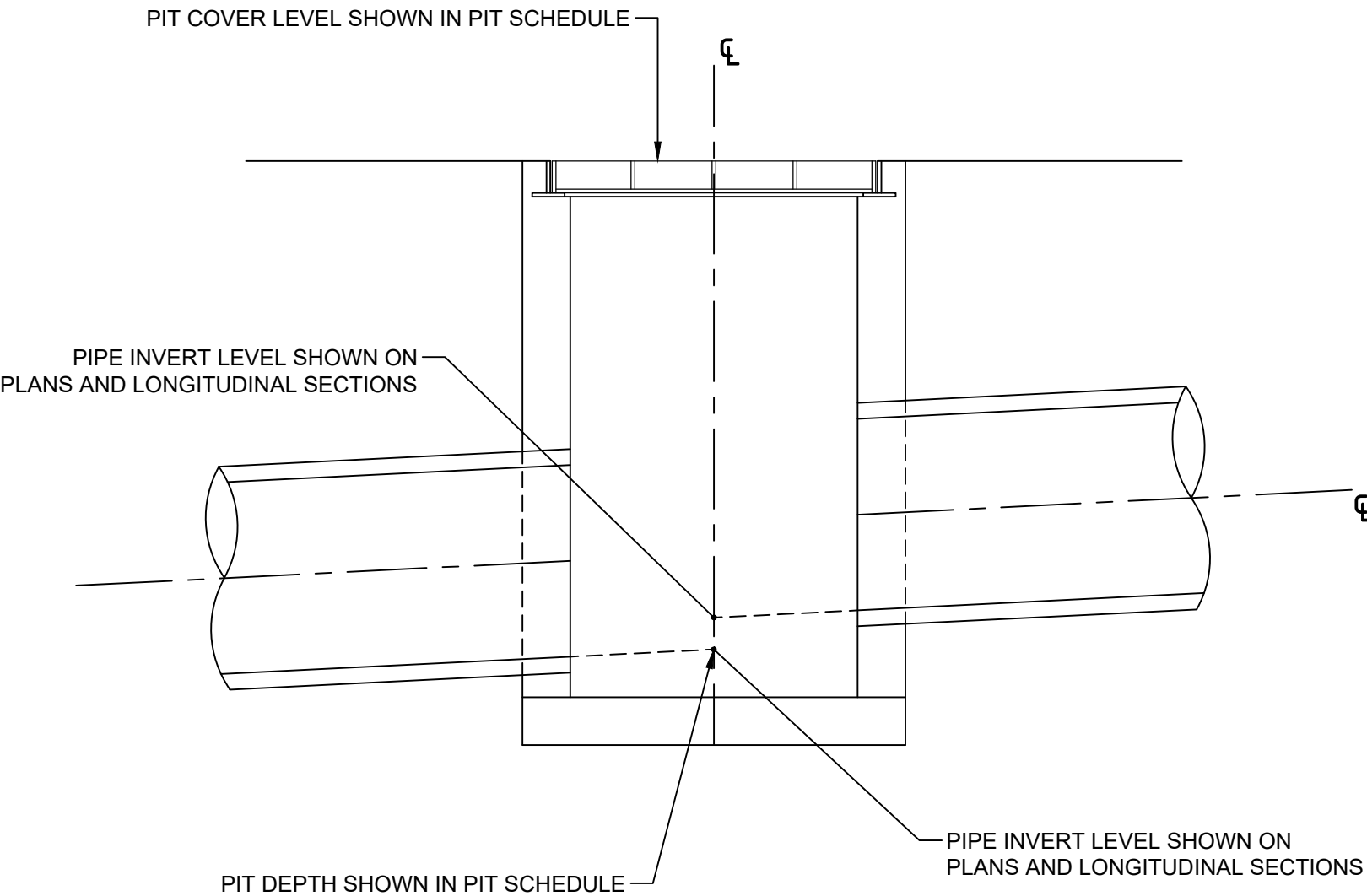
	STORMWATER PIPE
	DOWN PIPE
	RODDING POINT
	PLANTER OUTLET
	RAINWATER OUTLET
	GROSS POLLUTANT TRAP
	OVERLAND FLOW ARROW
	CONCRETE INCASED PIPE
	SWALE DRAIN

STORMWATER ANNOTATIONS

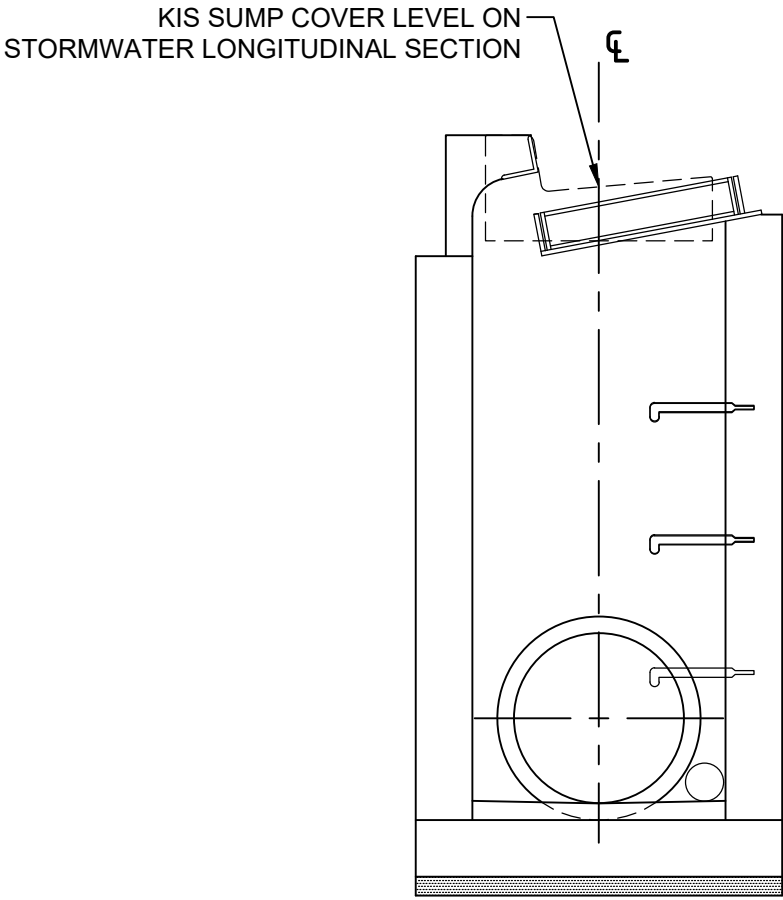
IL	PIPE INVERT LEVEL
OL	PIPE OBVERT LEVEL
CL	PIT COVER LEVEL
WL	WATER LEVEL

NOTE

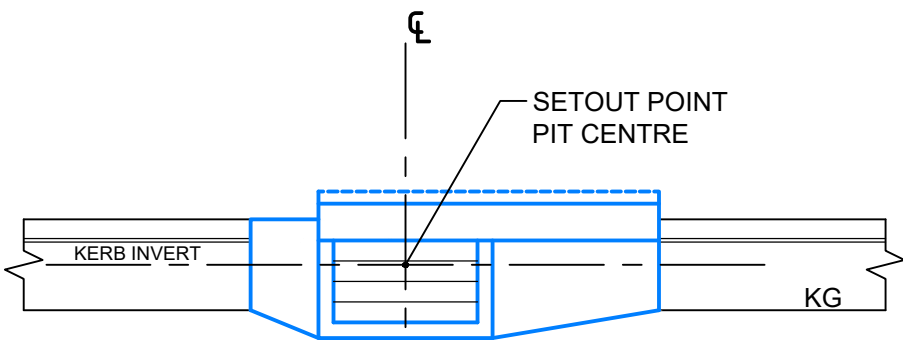
STORMWATER DRAINAGE NOTES AND LEGEND IS TO READ IN CONJUNCTION WITH GENERAL NOTES AND LEGEND. REFER DRAWING No. 00002



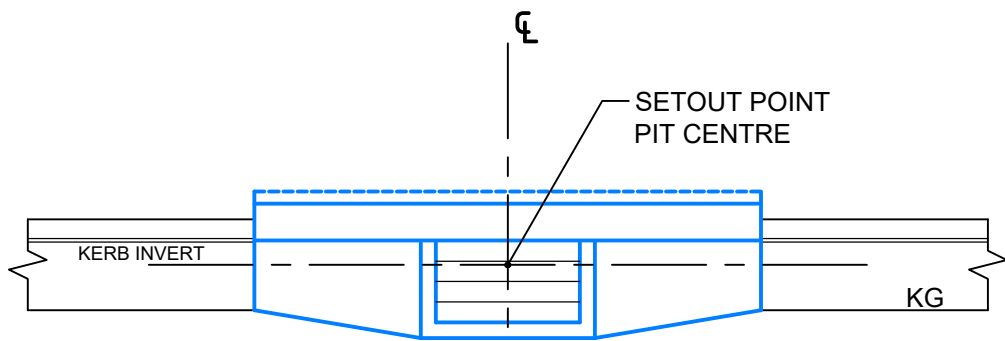
DESIGN INVERT LEVELS  
AT STORMWATER STRUCTURES  
SCALE 1:20



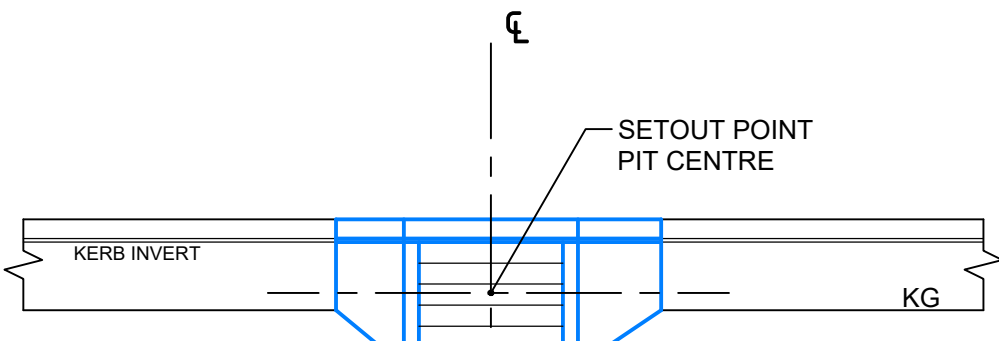
KERB INLET STRUCTURE (KIS)  
COVER LEVEL FOR KIS IN ROAD  
SCALE 1:20



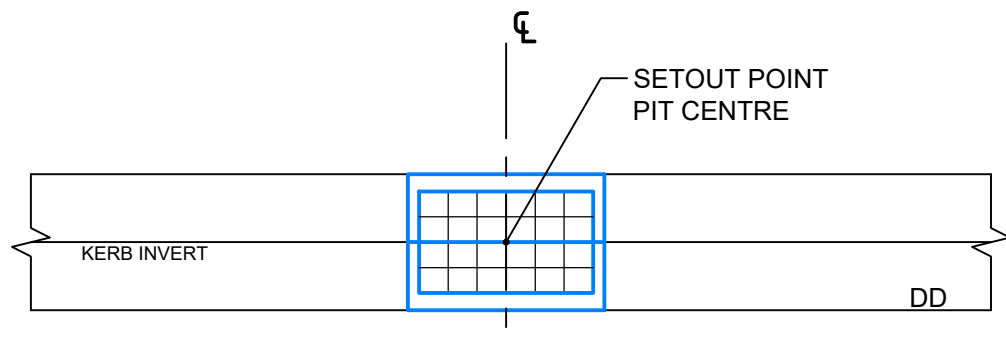
KERB INLET SUMP (KIS) ON GRADE  
SCALE 1:50



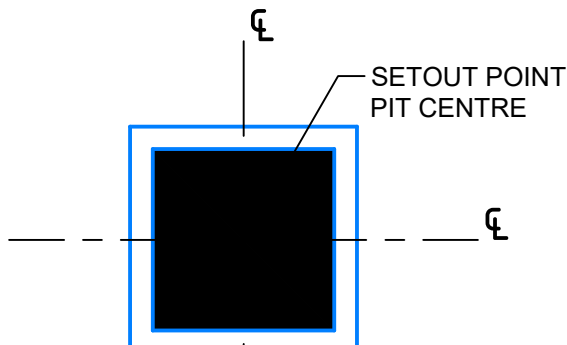
KERB INLET SUMP (KIS) IN SAG  
SCALE 1:50



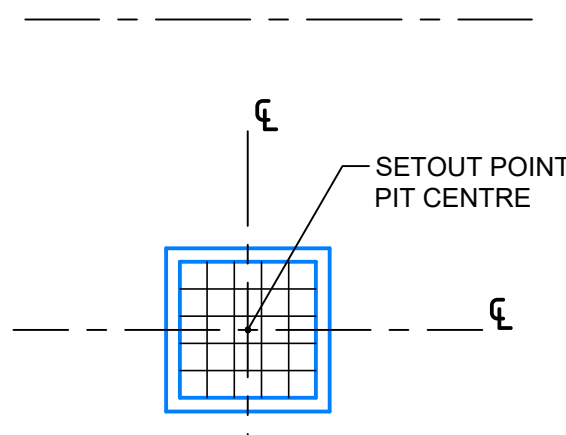
KERB GRATED INLET SUMP (KGI)  
SCALE 1:50



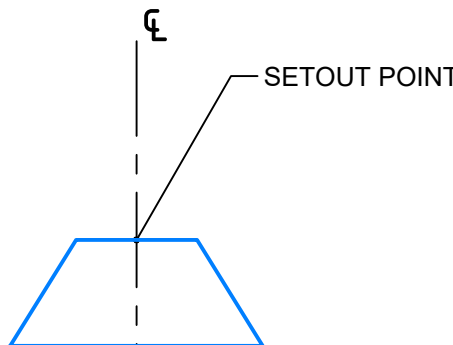
DISH DRAIN GRATED INLET SUMP (DDI)  
SCALE 1:50



JUNCTION PIT  
SCALE 1:50



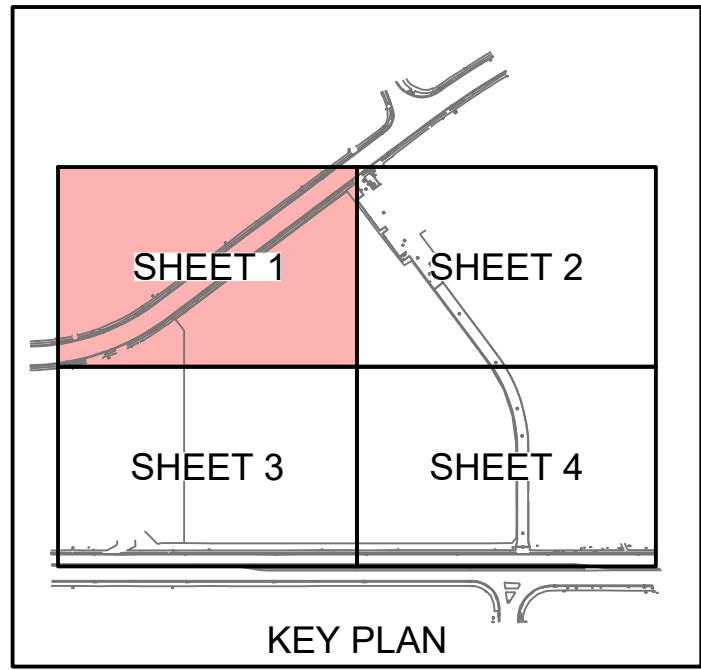
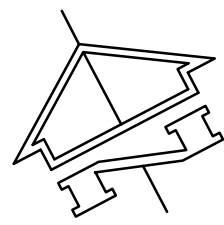
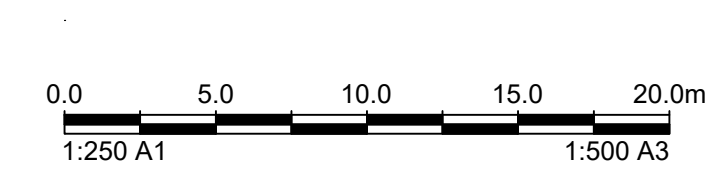
GRATED INLET SUMP  
SCALE 1:50



HEADWALL  
SCALE 1:50

			Client:			Engineer:			Project:			Drawing Title:			Scale at A1		
			School Infrastructure NSW			TTW			GLEDSDOOD HILLS HIGH SCHOOL LOT 2 DP1262720			STORMWATER NOTES AND LEGEND SHEET 1			ES		
															CR		
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															Type		
															Role		
															Sheet No.		
															Rev		
															16.12.2024 3:24 PM		





NOTE:

1. SUBSOIL TO BE PROVIDED BEHIND ALL RETAINING WALLS, KERBS, PAVEMENT EDGES AND WITHIN THE SPORTS FIELD. LAYOUT TO BE CONFIRMED IN DETAILED DESIGN
2. ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT

PROVIDE STORMWATER DISCHARGE POINT IN KERB IN ACCORDANCE WITH CAMDEN CITY COUNCIL STANDARDS

COUNCIL STANDARD KERB ADAPTOR DISCHARGING TO INVERT OF GUTTER

PROPOSED KIS SUMP (TYPICAL)

BUILDING OUTLINE EXTENT. REFER ARCHITECTURAL DOCUMENTATION (TYPICAL)

DIGITARIA DRIVE

SUPPORT PLAY AREA

NEW BUILDING BUILDING 1 FFL101.700

PROPOSED GRATED INLET PIT (TYPICAL)

ASSEMBLY

NEW BUILDING BUILDING 2 FFL101.700

ADJOINS SHEET 3

ADJOINS SHEET 2

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Engineer:	

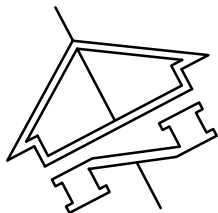
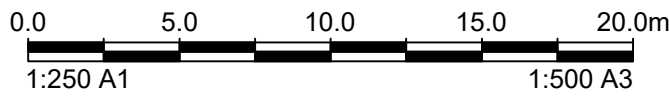
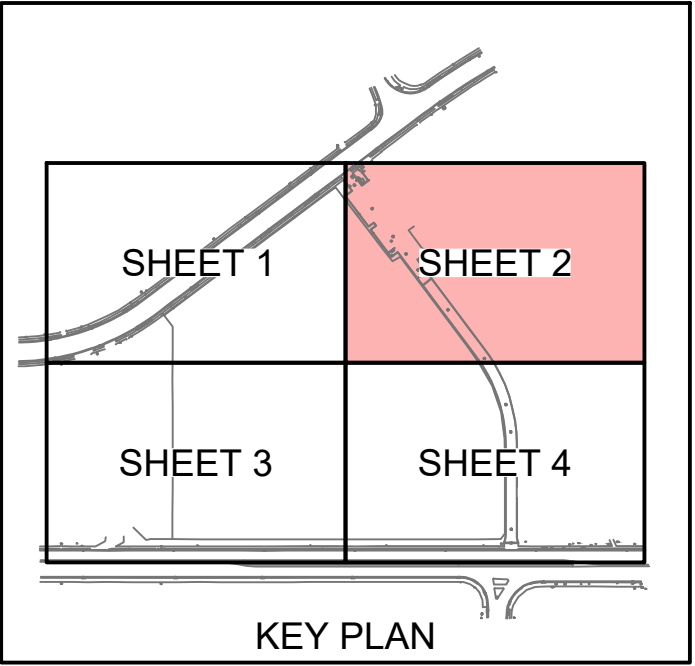


Project:  
GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title:  
STORMWATER  
AND SUBSOIL DRAINAGE  
PLAN SHEET 1

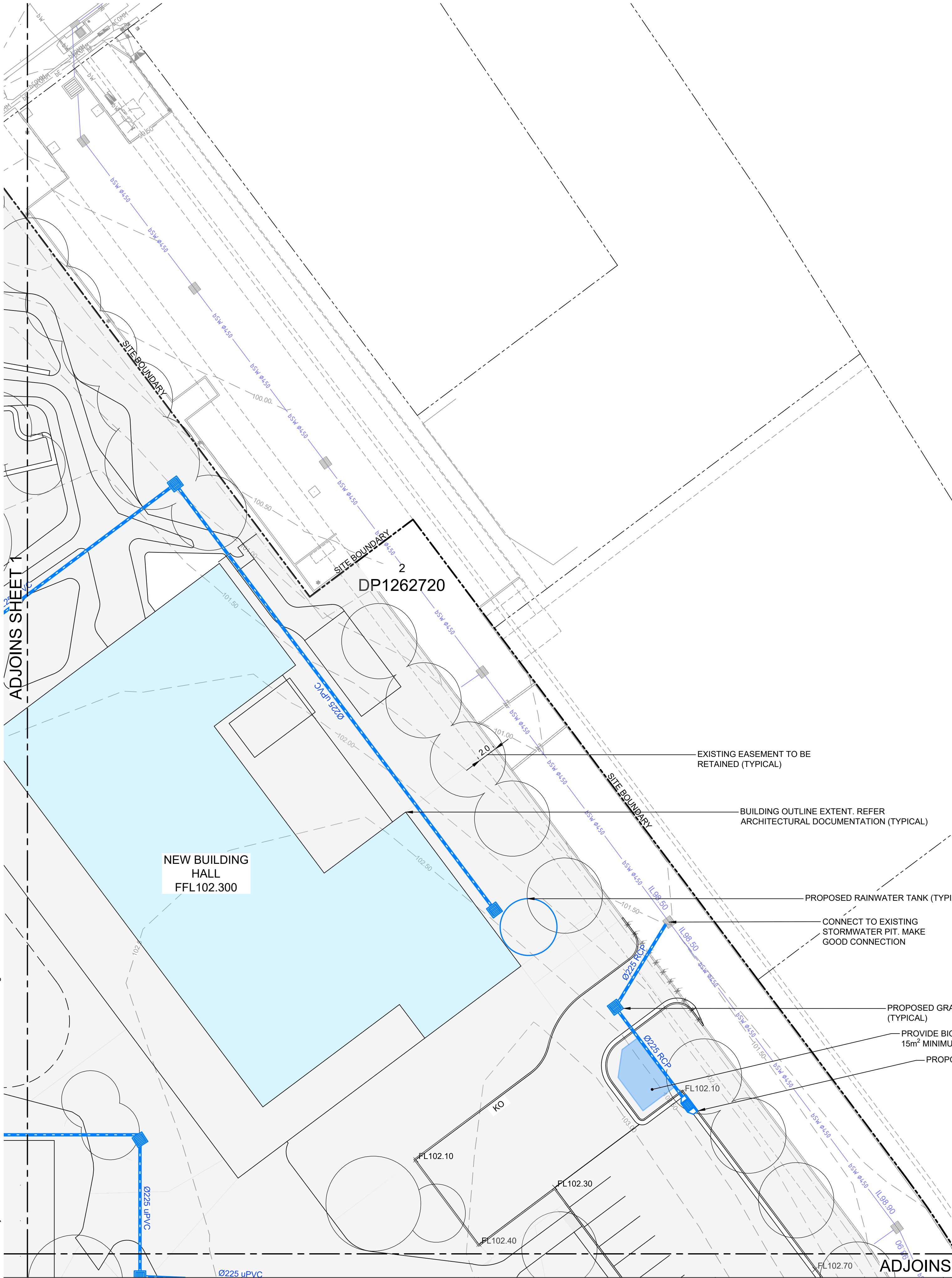
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16.12.2024 3:26 PM							





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- ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT



Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
2	SCHEMATIC DESIGN FOR REF	SF	ES	17.12.2024										
1	FINAL DRAFT ISSUE FOR REF	SF	ES	21.11.2024										

Client:

 **School Infrastructure NSW**

Engineer:

 **TTW**  
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Project:

**GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720**

Drawing Title:

**STORMWATER  
AND SUBSOIL DRAINAGE  
PLAN SHEET 2**

Scale at A1: 250

Drawn: ES

Designed: CR

Approved: CR

Project No: GHHS-TTW-01-00-DR-C-04102-2

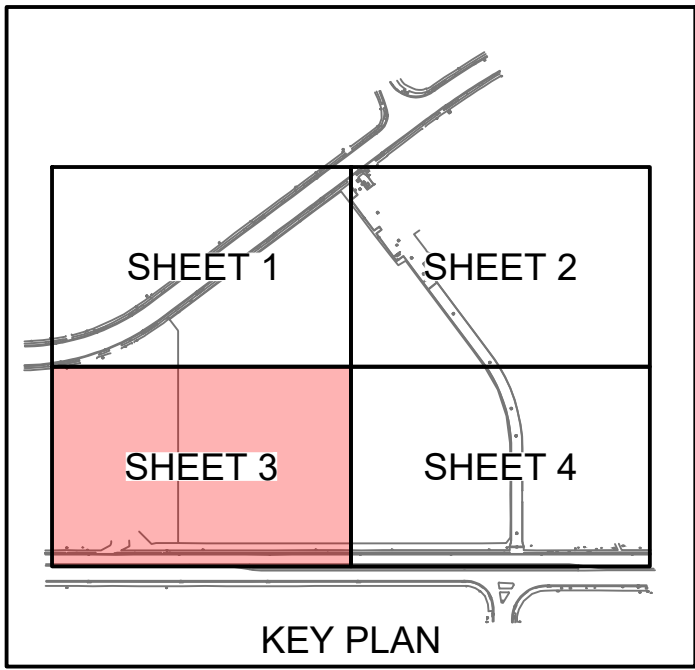
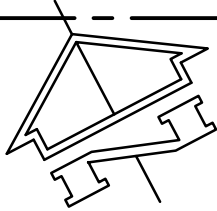
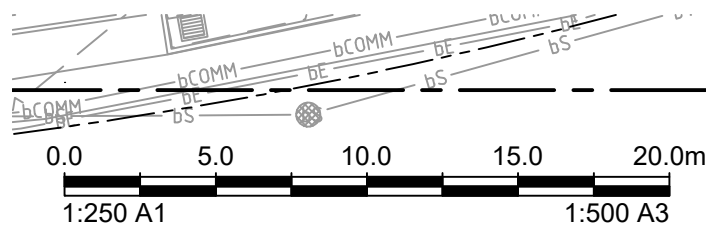
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Type: Rev

Role: Sheet No.

Rev

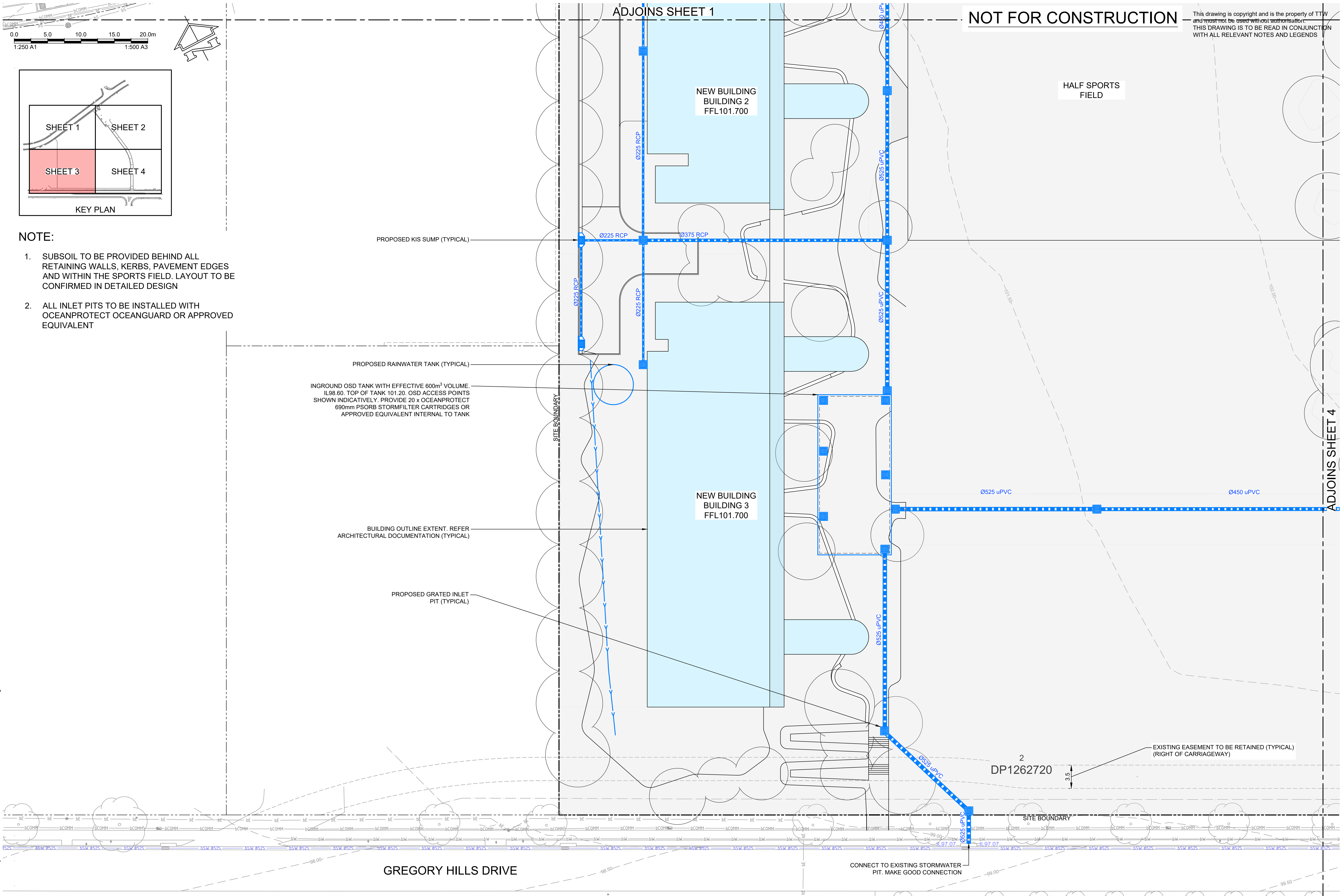




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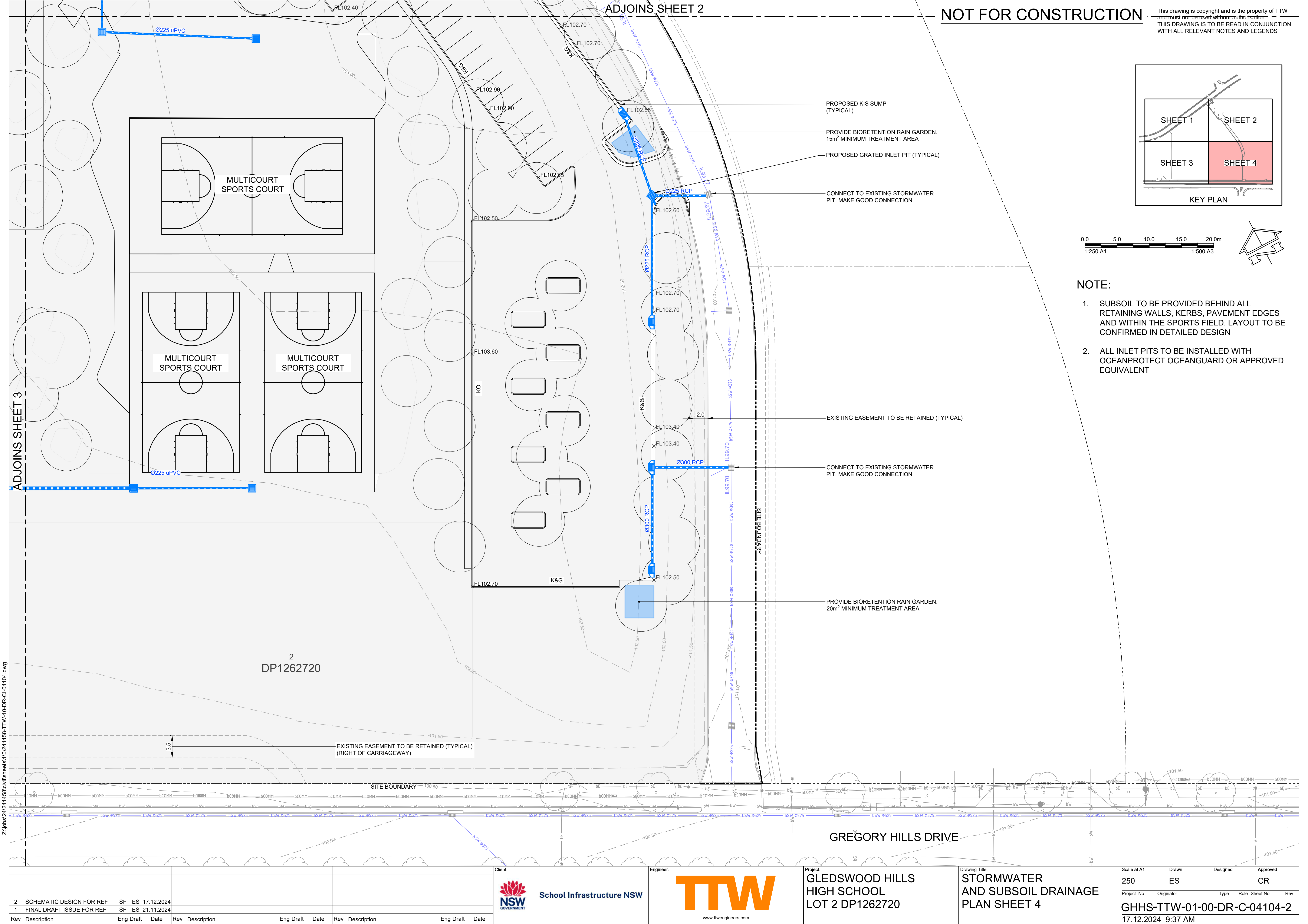
- SUBSOIL TO BE PROVIDED BEHIND ALL RETAINING WALLS, KERBS, PAVEMENT EDGES AND WITHIN THE SPORTS FIELD. LAYOUT TO BE CONFIRMED IN DETAILED DESIGN
- ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT

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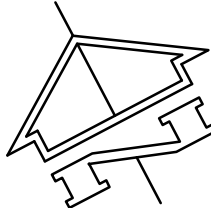
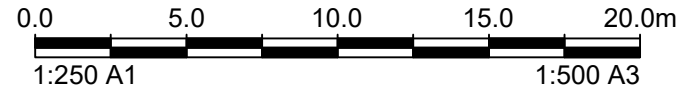
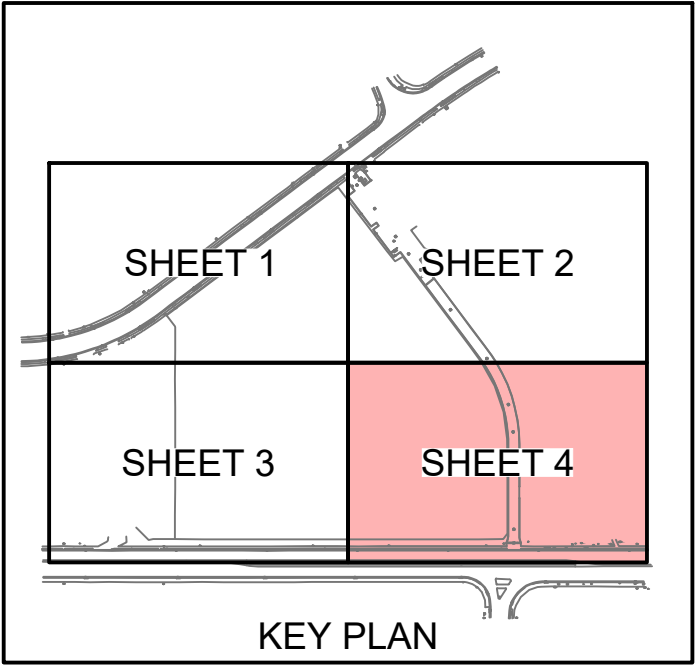
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2 SCHEMATIC DESIGN FOR REF SF ES 17.12.2024															Project No			Originator			Type			Role Sheet No.		
1 FINAL DRAFT ISSUE FOR REF SF ES 21.11.2024															GHHS-TTW-01-00-DR-C-04103-2											
Rev Description			Eng Draft Date			Rev Description			Eng Draft Date						17.12.2024 9:37 AM											





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NOTE:

- 1. SUBSOIL TO BE PROVIDED BEHIND ALL RETAINING WALLS, KERBS, PAVEMENT EDGES AND WITHIN THE SPORTS FIELD. LAYOUT TO BE CONFIRMED IN DETAILED DESIGN
- 2. ALL INLET PITS TO BE INSTALLED WITH OCEANPROTECT OCEANGUARD OR APPROVED EQUIVALENT

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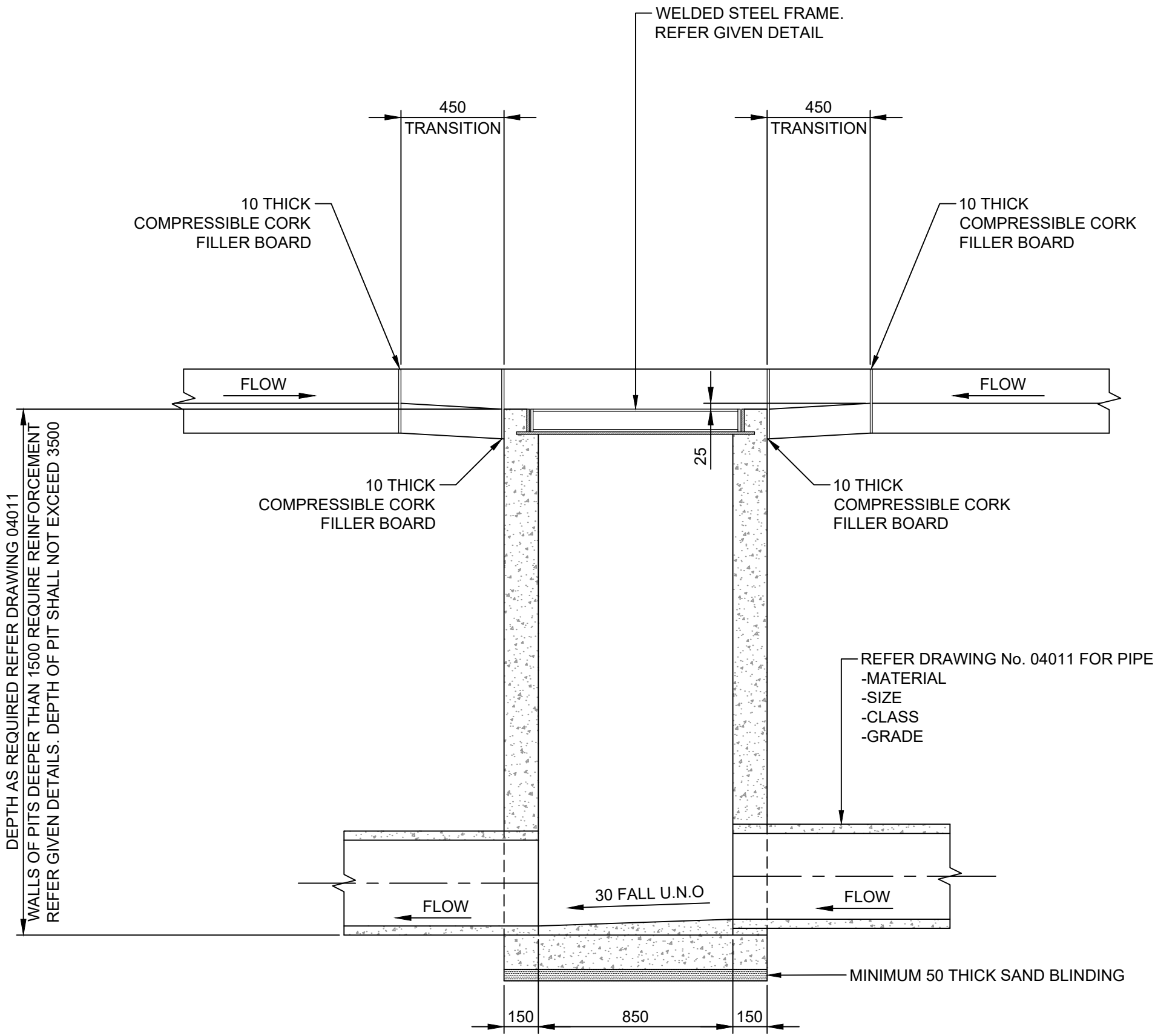
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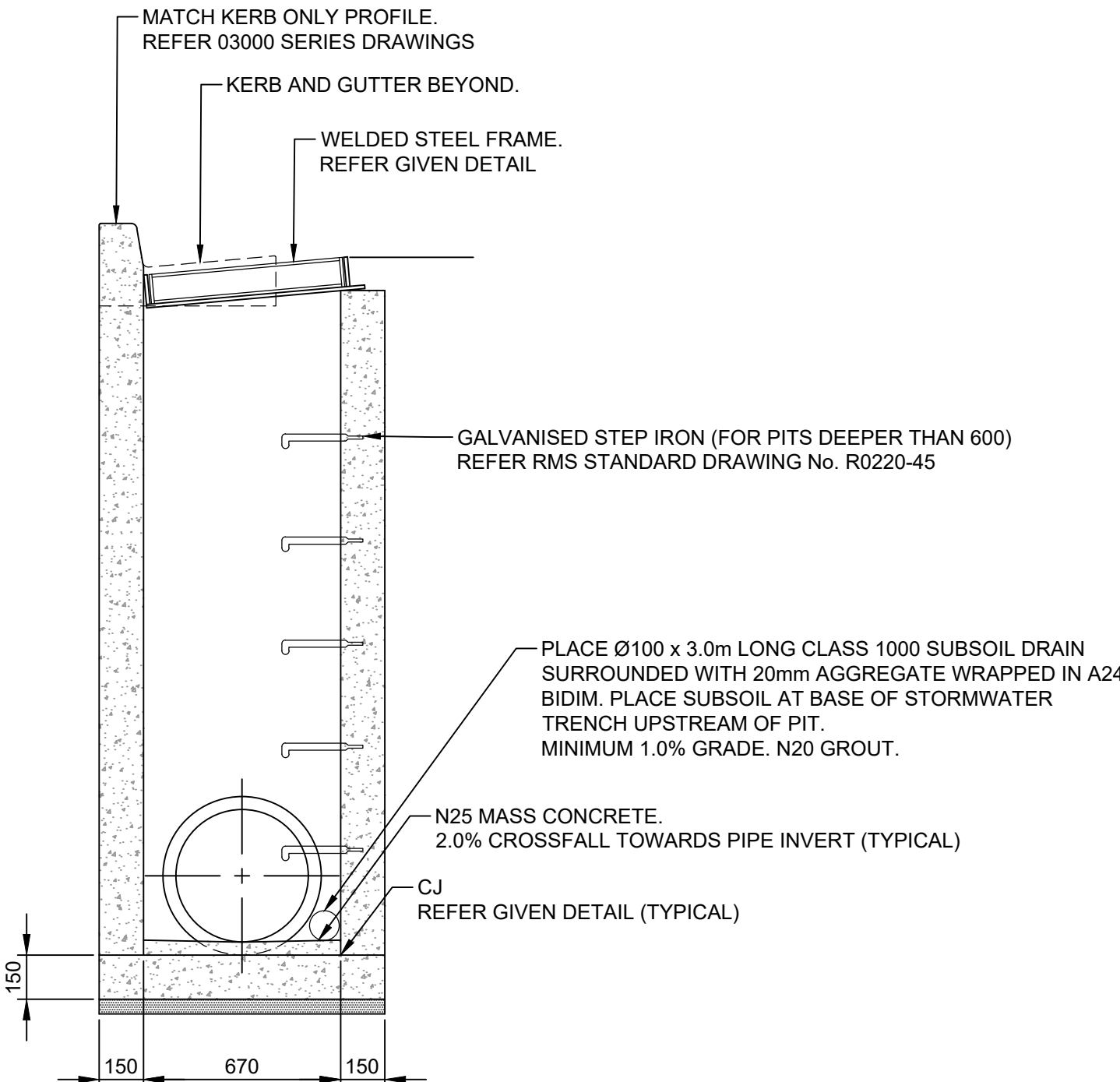
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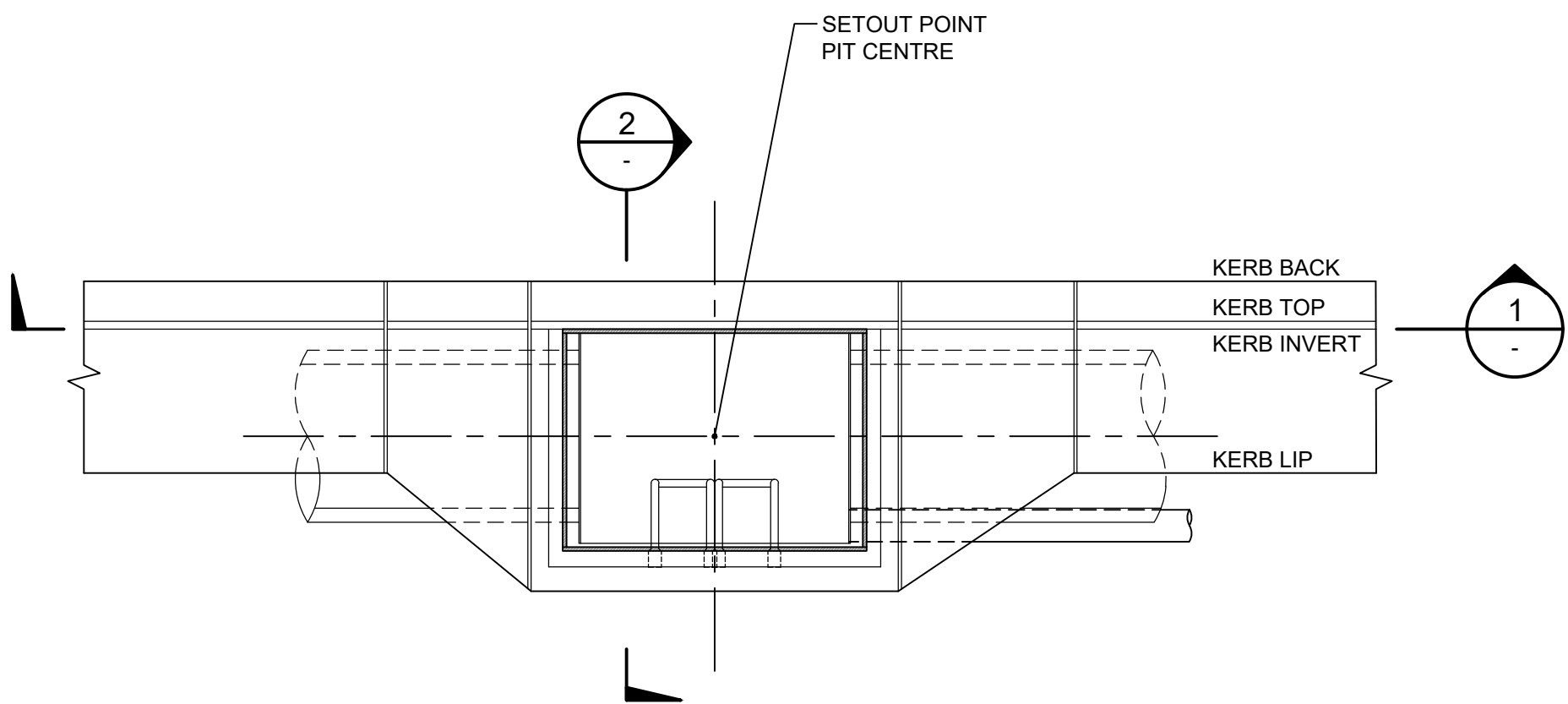
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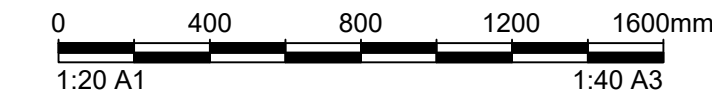


SECTION 2  
SCALE 1:20



KERB GRATED INLET PIT (KGIS)  
FOR PIPES UP TO Ø450  
SCALE 1:20

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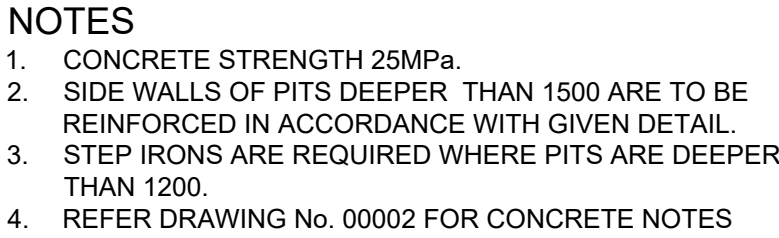
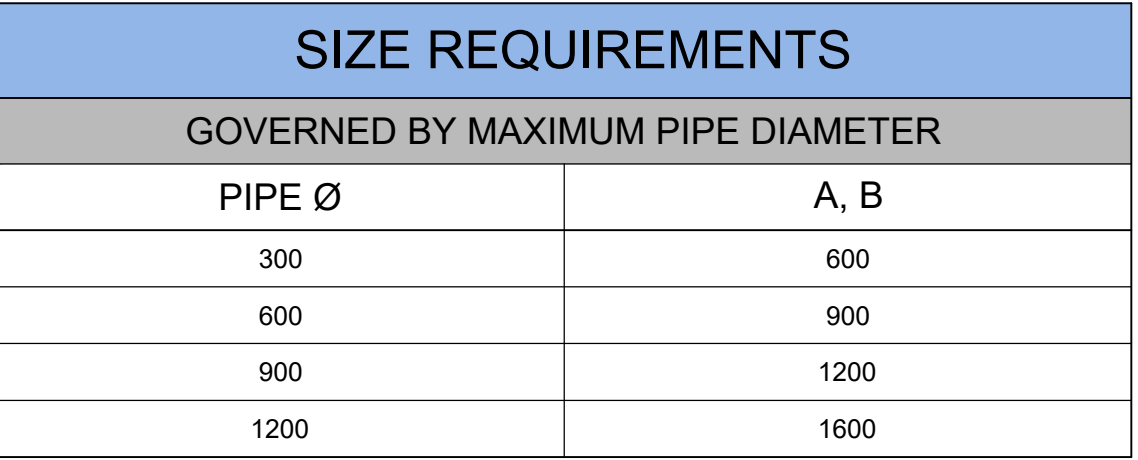


Project: GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title: STORMWATER  
DETAILS SHEET 1

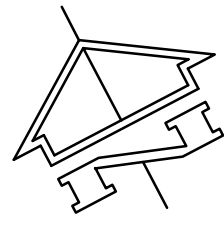
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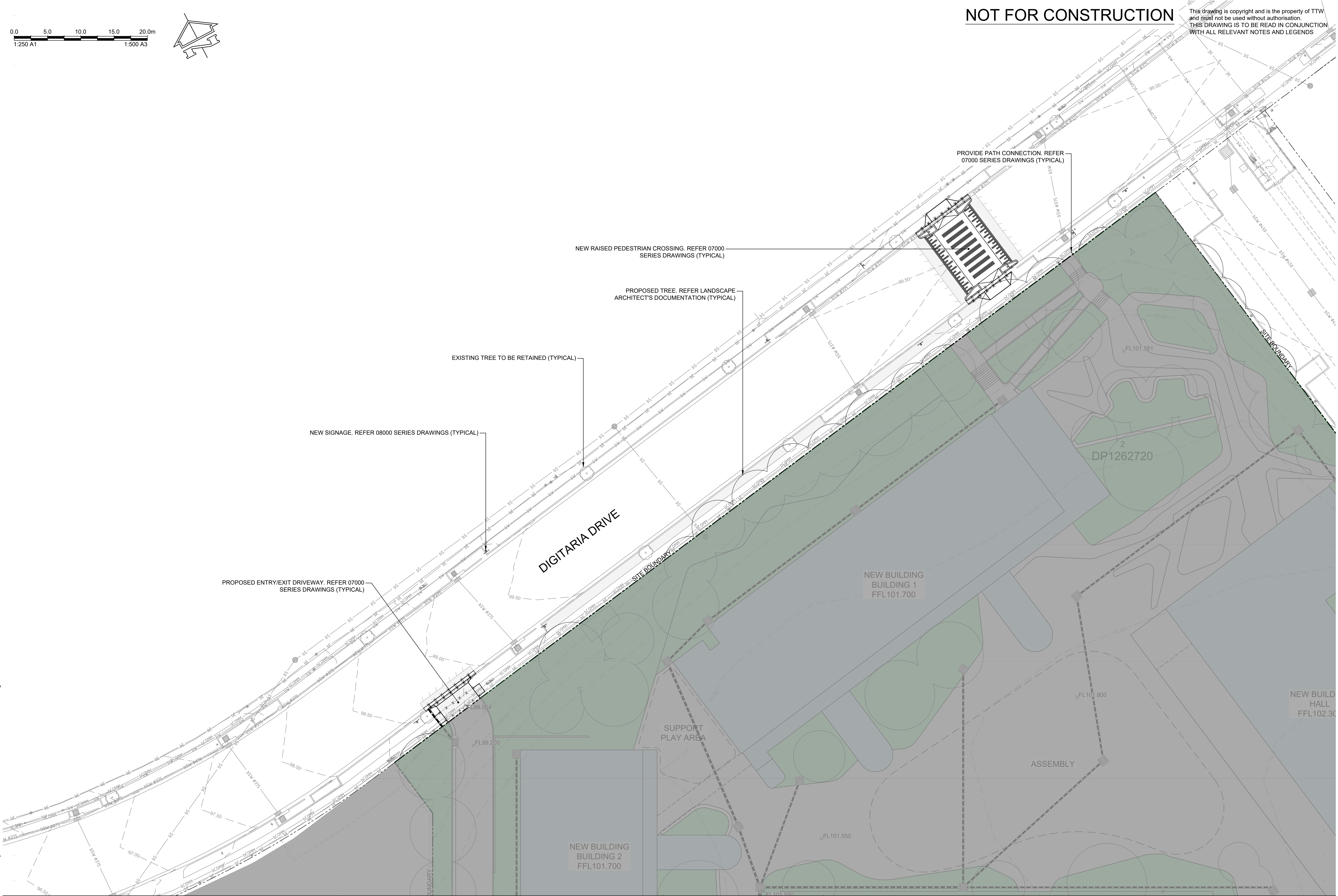
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1	FINAL DRAFT ISSUE FOR REF	SF	ES	21.11.2024										

Client:



Project:  
GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720

Drawing Title:  
PUBLIC DOMIAN  
SITWORKS PLAN

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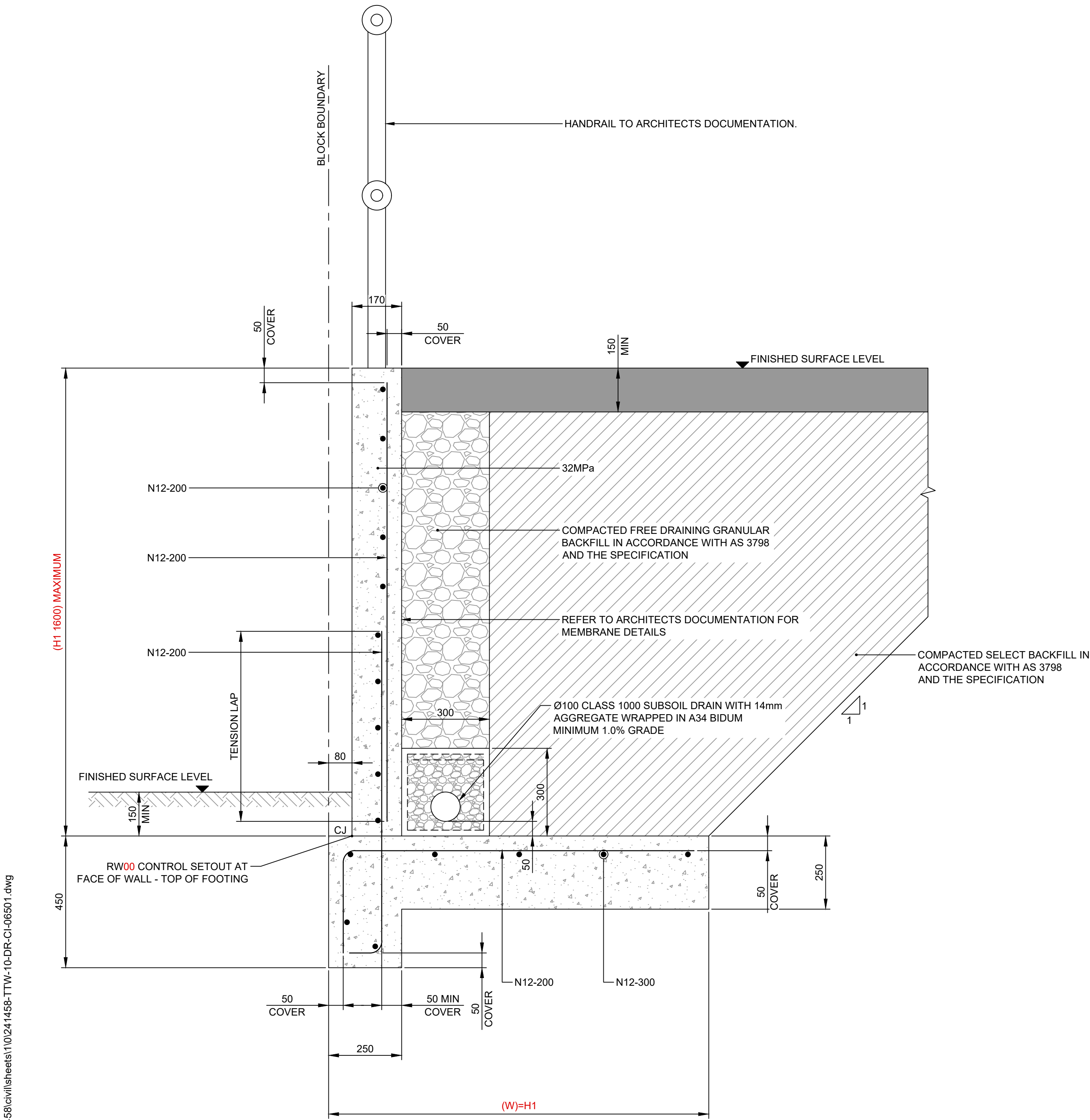
NOTE: RETAINING WALLS ARE SHOWN INDICATIVELY AND ARE SUBJECT TO DETAILED DESIGN

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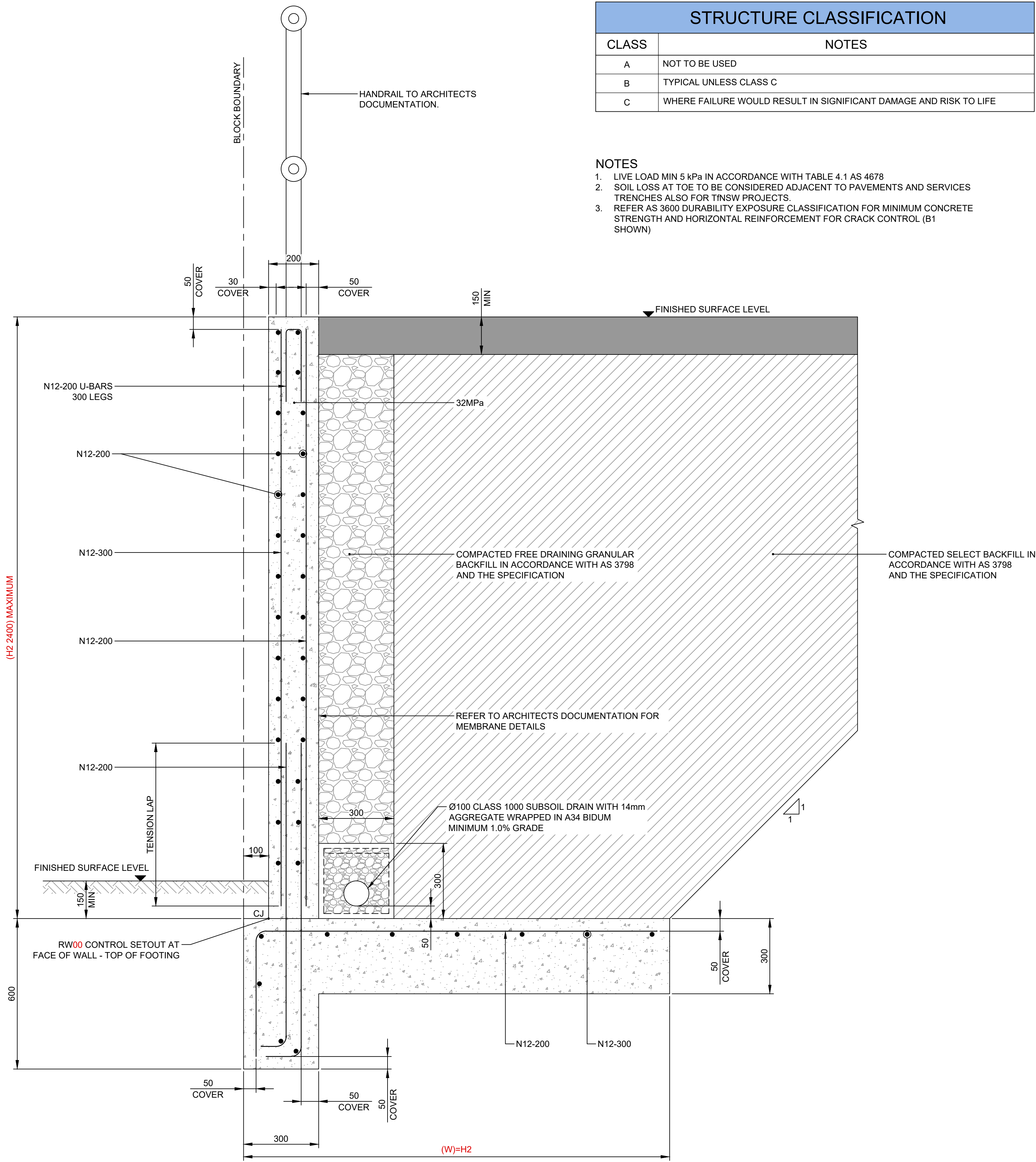
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STRUCTURE CLASSIFICATION	
CLASS	NOTES
A	NOT TO BE USED
B	TYPICAL UNLESS CLASS C
C	WHERE FAILURE WOULD RESULT IN SIGNIFICANT DAMAGE AND RISK TO LIFE

- NOTES
- LIVE LOAD MIN 5 kPa IN ACCORDANCE WITH TABLE 4.1 AS 4678
  - SOIL LOSS AT TOE TO BE CONSIDERED ADJACENT TO PAVEMENTS AND SERVICES TRENCHES ALSO FOR TNSW PROJECTS.
  - REFER AS 3600 DURABILITY EXPOSURE CLASSIFICATION FOR MINIMUM CONCRETE STRENGTH AND HORIZONTAL REINFORCEMENT FOR CRACK CONTROL (B1 SHOWN)




RETAINING WALL TYPE - 1  
170 THICK REINFORCED CONCRETE  
SCALE 1:10



RETAINING WALL TYPE - 2  
200 THICK REINFORCED CONCRETE  
SCALE 1:10

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2	SCHEMATIC DESIGN FOR REF	SF	ES	17.12.2024										
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Client:	
	School Infrastructure NSW

Engineer:	
	www.ttwengineers.com

Project:	GLEDSWOOD HILLS HIGH SCHOOL LOT 2 DP1262720
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Drawing Title:	RETAINING WALL DETAILS
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Scale at A1	Drawn	Designed	Approved		
ES		CR			
Project No	Originator	Type	Role	Sheet No.	Rev
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CONCRETE

1. PLACE CONCRETE OF THE FOLLOWING CHARACTERISTIC COMPRESSIVE STRENGTH  $f_c$  IN ACCORDANCE WITH AS 1379.
- 2.

LOCATION	$f_c$ MPa (28 DAYS)	SPECIFIED SLUMP	NOMINAL AGG. SIZE
KERBS	S20	80	20
RETAINING WALL FOOTINGS	S40	80	20

3. USE TYPE 'GP' CEMENT, UNLESS OTHERWISE SPECIFIED.
4. ALL CONCRETE SHALL BE SUBJECT TO PROJECT ASSESSMENT AND TESTING TO AS 1379.
5. CONSOLIDATE BY MECHANICAL VIBRATION. CURE ALL CONCRETE SURFACES AS DIRECTED IN THE SPECIFICATION.
6. FOR ALL FALLS IN SLAB, DRIP GROOVES, REGLETS, CHAMFERS ETC. REFER TO ARCHITECTS DRAWINGS AND SPECIFICATIONS.
7. UNLESS SHOWN ON THE DRAWINGS, THE LOCATION OF ALL CONSTRUCTION JOINTS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW.
8. NO HOLES OR CHASES SHALL BE MADE IN THE SLAB WITHOUT THE APPROVAL OF THE ENGINEER.
9. CONDUITS AND PIPES ARE TO BE FIXED TO THE UNDERSIDE OF THE TOP REINFORCEMENT LAYER.
10. SLURRY USED TO LUBRICATE CONCRETE PUMP LINES IS NOT TO BE USED IN ANY STRUCTURAL MEMBERS.
11. ALL SLABS CAST ON GROUND REQUIRE SAND BLINDING WITH A CONCRETE UNDERLAY

CONCRETE FINISHING

1. ALL EXPOSED CONCRETE PAVEMENTS ARE TO BE BROOMED FINISHED.
2. ALL EDGES OF THE CONCRETE PAVEMENT INCLUDING KEYED AND DOWELLED JOINTS ARE TO BE FINISHED WITH AN EDGING TOOL.
3. CONCRETE PAVEMENTS WITH GRADES GREATER THAN 10 % SHALL BE HEAVILY BROOMED FINISHED.
4. CARBORUNDUM TO BE ADDED TO ALL STAIR TREADS AND RAMPED CROSSINGS U.N.O.

FORMWORK

1. THE DESIGN, CERTIFICATION, CONSTRUCTION AND PERFORMANCE OF THE FORMWORK, FALSEWORK AND BACKPROPPING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROPOSED METHOD OF INSTALLATION AND REMOVAL OF FORMWORK IS TO BE SUBMITTED TO THE SUPERINTENDENT FOR COMMENT PRIOR TO WORK BEING CARRIED OUT.

LEGEND

<div>PT1</div>	VEHICULAR PAVEMENT - ASPHALTIC CONCRETE 40mm COMPACTED THICKNESS AC14 WEARING COURSE ON 120mm COMPACTED THICKNESS DGB20 CLASS 1 BASE TO 98% MMDD AT $\pm 2\%$ OMC ON 125mm COMPACTED THICKNESS DGS20 SUBBASE TO 98% MMDD AT $\pm 2\%$ OMC ON SUBGRADE MIN. CBR 5% COMPACTED TO 98% SMDD AT $\pm 2\%$ OMC
<div>PT2</div>	VEHICULAR PAVEMENT - CONCRETE 170mm thick 32MPa concrete F82 on, 100mm thick compacted fine crushed rock (DGB20) on, compacted subgrade
<div>PT3</div>	HARDSTANDING - PEDESTRIAN PAVEMENT 125mm thick 32MPa concrete (colour oxide to landscape specification) SL72 on, 150mm thick compacted fine crushed rock (DGB20) on, compacted subgrade
<div>PT4</div>	HARDSTANDING - PEDESTRIAN PAVEMENT 125mm thick 32MPa concrete (colour oxide to landscape specification) SL72 on, 150mm thick compacted fine crushed rock (DGB20) on, compacted subgrade
<div>PT5</div>	REINSTATED ASPHALTIC CONCRETE PAVEMENT
<div>PT6</div>	PATH PAVEMENT TO CAMDEN CITY COUNCIL SPECIFICATION
<div>PT7</div>	DRIVEWAY PAVEMENT TO CAMDEN CITY COUNCIL SPECIFICATION
<div></div>	LANDSCAPING REFER TO LANDSCAPE ARCHITECT'S DOCUMENTATION

NOTES:

1. PAVEMENT BUILDUPS ARE INDICATIVE AND TO BE DEVELOPED IN DETAILED DESIGN.
2. ADOPTED DESIGN PARAMETERS:  
DESIGN TRAFFIC 5x10<sup>6</sup> ESA, SUBGRADE 5% CBR MIN.

CONCRETE REINFORCEMENT

1. FIX REINFORCEMENT AS SHOWN ON DRAWINGS. THE TYPE AND GRADE IS INDICATED BY A SYMBOL AS SHOWN BELOW. ON THE DRAWINGS THIS IS FOLLOWED BY A NUMERAL WHICH INDICATES THE SIZE IN MILLIMETRES OF THE REINFORCEMENT.

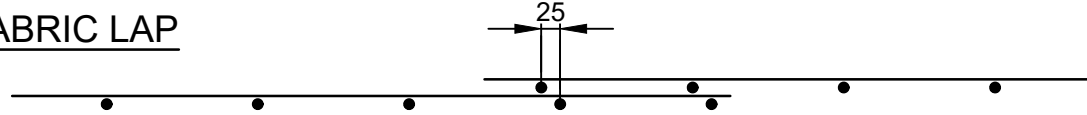
SYMBOL	TYPE	GRADE
N	HOT ROLLED RIBBED BAR	DN500N
R	PLAIN ROUND BAR	R250N
SL	SQUARE MESH	500L
RL	RECTANGULAR MESH	500L

2. PROVIDE BAR SUPPORTS OR SPACERS TO GIVE THE FOLLOWING CONCRETE COVER TO ALL REINFORCEMENT UNLESS OTHERWISE NOTED ON DRAWINGS.

LOCATION	COVER (MM)
FOOTINGS	50
WALLS	30

3. COVER TO REINFORCEMENT ENDS TO BE 50 mm U.N.O.
4. PROVIDE N12-450 SUPPORT BARS TO TOP REINFORCEMENT AS REQUIRED, LAP 500 U.N.O.
5. MAINTAIN COVER TO ALL PIPES, CONDUITS, REGLETS, DRIP GROOVES ETC
6. ALL COGS TO BE STANDARD COGS UNLESS NOTED OTHERWISE
7. FABRIC END AND SIDE LAPS ARE TO BE PLACED STRICTLY IN ACCORDANCE WITH THE MANUFACTURERS REQUIREMENTS TO ACHIEVE A FULL TENSILE LAP. FABRIC SHALL BE LAID SO THAT THERE IS A MAXIMUM OF 3 LAYERS AT ANY LOCATION.

FABRIC LAP



8. LAPS IN REINFORCEMENT SHALL BE MADE ONLY WHERE SHOWN ON THE DRAWINGS UNLESS OTHERWISE APPROVED. LAP LENGTHS AS PER TABLE BELOW.

TENSION LAPS		
BAR SIZE	TOP BARS IN BANDS AND BEAMS	ALL OTHER BARS
N12	570	480
N16	800	700
N20	1150	950
N24	1500	1250
N28	1850	1500
N32	2250	1800
N36	2700	2100

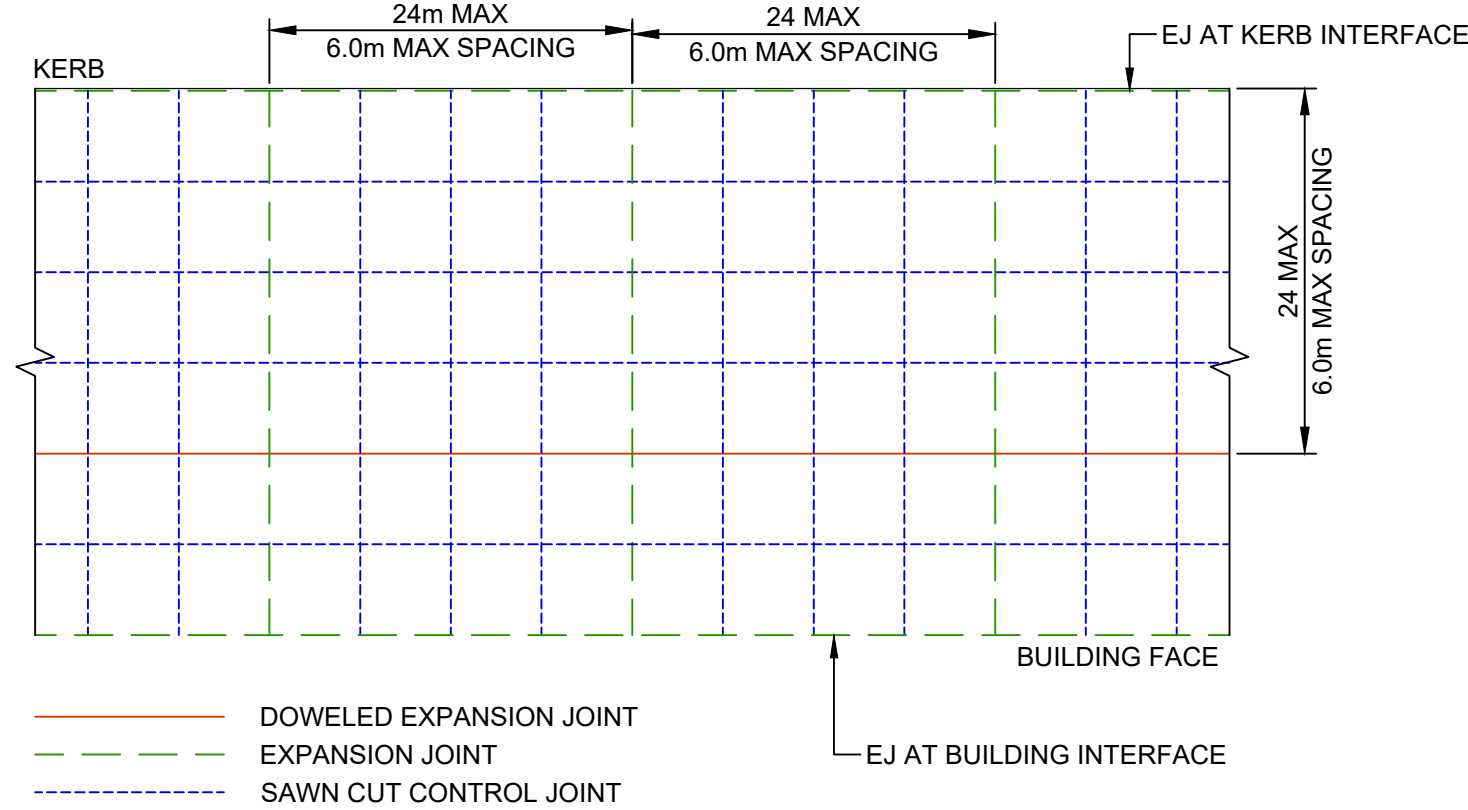
COMPRESSION LAPS	
BAR SIZE	
N16	640
N20	800
N24	960
N28	1120
N32	1280
N36	1440

ASSUMPTIONS:

1. TOP BARS IN BANDS AND BEAMS:  
MORE THAN 300mm OF CONCRETE BELOW THE BAR.
2. MINIMUM COVER OF 25mm AND MINIMUM STIRRUP SIZE OF N12 GIVING Cd=37mm; THEREFORE MINIMUM CLEAR SPACING BETWEEN BARS = 2 X Cd = 74mm. MINIMUM COVER IS BASED ON THE NEW A2 EXPOSURE CLASSIFICATION FOR INTERIOR, NON-RESIDENTIAL WHICH REQUIRES 25mm COVER FOR 32Mpa CONCRETE.
3.  $f_c$  = 32Mpa  
ALL OTHER BARS:  
1. LESS THAN 300mm OF CONCRETE BELOW THE BAR.  
2. MINIMUM COVER OF 25mm GIVING Cd = 25mm; THEREFORE MINIMUM CLEAR SPACING BETWEEN BARS = 2 X Cd = 50mm.
3.  $f_c$  = 32Mpa.  
COLUMNS:  
1. COVER TO COLUMNS = 40mm (30+10)k7 = 1.25  
2. COVERS FOR FIRE RATING ARE TO BE DESIGNED BY THE ENGINEER.

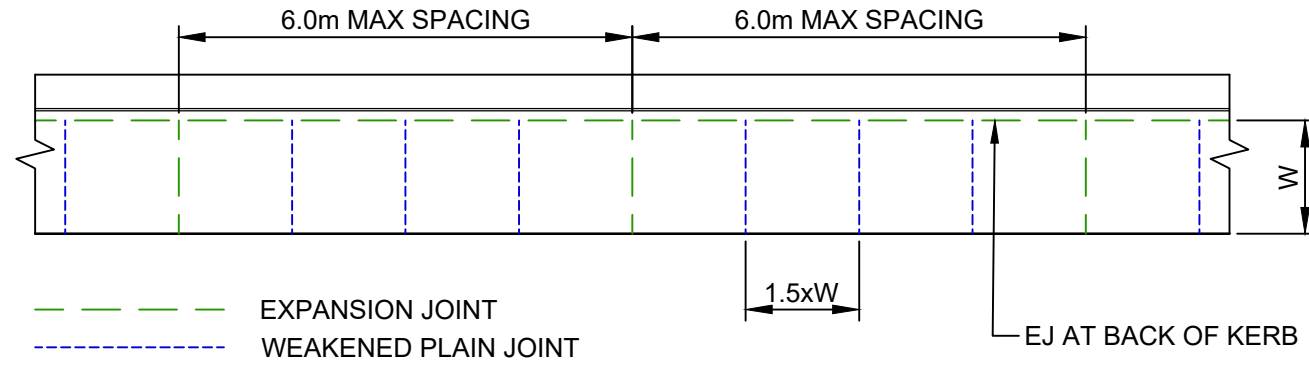
VEHICULAR PAVEMENT JOINTING (03000 SERIES DRAWINGS)

1. ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.
2. DOWEL BARS ARE TO BE IN ACCORDANCE WITH GIVEN DETAIL. REFER 03000 SERIES DRAWINGS.
3. DOWELED EXPANSION JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 24.0M CENTRES.
4. SAWN JOINTS SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 6.0M CENTRES OR 1.5 X THE SPACING OF PERPENDICULAR SAWN JOINTS.
5. PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS BETWEEN BUILDINGS/STRUCTURES AND ALL CONCRETE OR UNIT PAVERS.
6. THE TIMING OF THE SAW CUT IS TO BE CONFIRMED BY THE CONTRACTOR ON SITE. SITE CONDITIONS WILL DETERMINE HOW MANY HOURS AFTER THE CONCRETE POUR BEFORE THE SAW CUTS ARE COMMENCED. REFER TO THE SPECIFICATION FOR WEATHER CONDITIONS AND TEMPERATURES REQUIRED.
7. VEHICULAR PAVEMENT JOINTING AS FOLLOWS.



PEDESTRIAN PATH JOINTING (03000 SERIES DRAWINGS)

1. EXPANSION JOINTS ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT MAX 6.0M CENTRES.
2. WEAKENED PLANE JOINTS ARE TO BE LOCATED AT A MAX 1.5 X WIDTH OF THE PAVEMENT.
3. WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.
4. ALL PEDESTRIAN FOOTPATH JOINTING AS FOLLOWS (UNO).



KERBING

INCLUDES ALL KERBS, GUTTERS, DISH DRAINS, CROSSINGS AND EDGES.

1. ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON MINIMUM 75mm GRANULAR BASECOURSE COMPACTED TO MINIMUM 98% MODIFIED MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1.
2. EXPANSION JOINTS (EJ) TO BE FORMED FROM 10mm COMPRESSIBLE CORK FILLER BOARD FOR THE FULL DEPTH OF THE SECTION AND CUT TO PROFILE. EXPANSION JOINTS TO BE LOCATED AT DRAINAGE PITS, ON TANGENT POINTS OF CURVES AND ELSEWHERE AT 12M CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
3. WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3M CENTRES EXCEPT FOR INTEGRAL KERBS WHERE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN SLABS.
4. BROOMED FINISHED TO ALL RAMPED AND VEHICULAR CROSSINGS, ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.
5. IN THE REPLACEMENT OF KERBS - EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm FROM LIP OF GUTTER. UPON COMPLETION OF NEW KERBS, NEW BASE COURSE AND SURFACE IS TO BE LAID 900mm WIDE TO MATCH EXISTING MATERIALS AND THICKNESSES. EXISTING ALLOTMENT DRAINAGE PIPES ARE TO BE BUILT INTO THE NEW KERB WITH A 100mm DIA HOLE. EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.





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Engineer:

 **TTW**  
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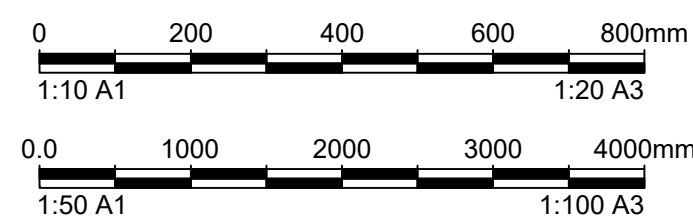
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HIGH SCHOOL  
LOT 2 DP1262720**

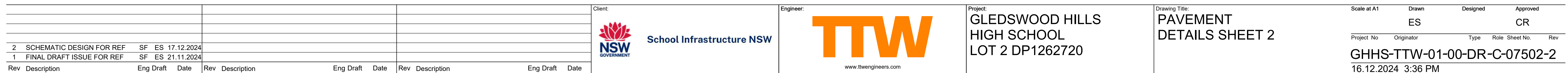
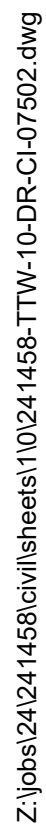
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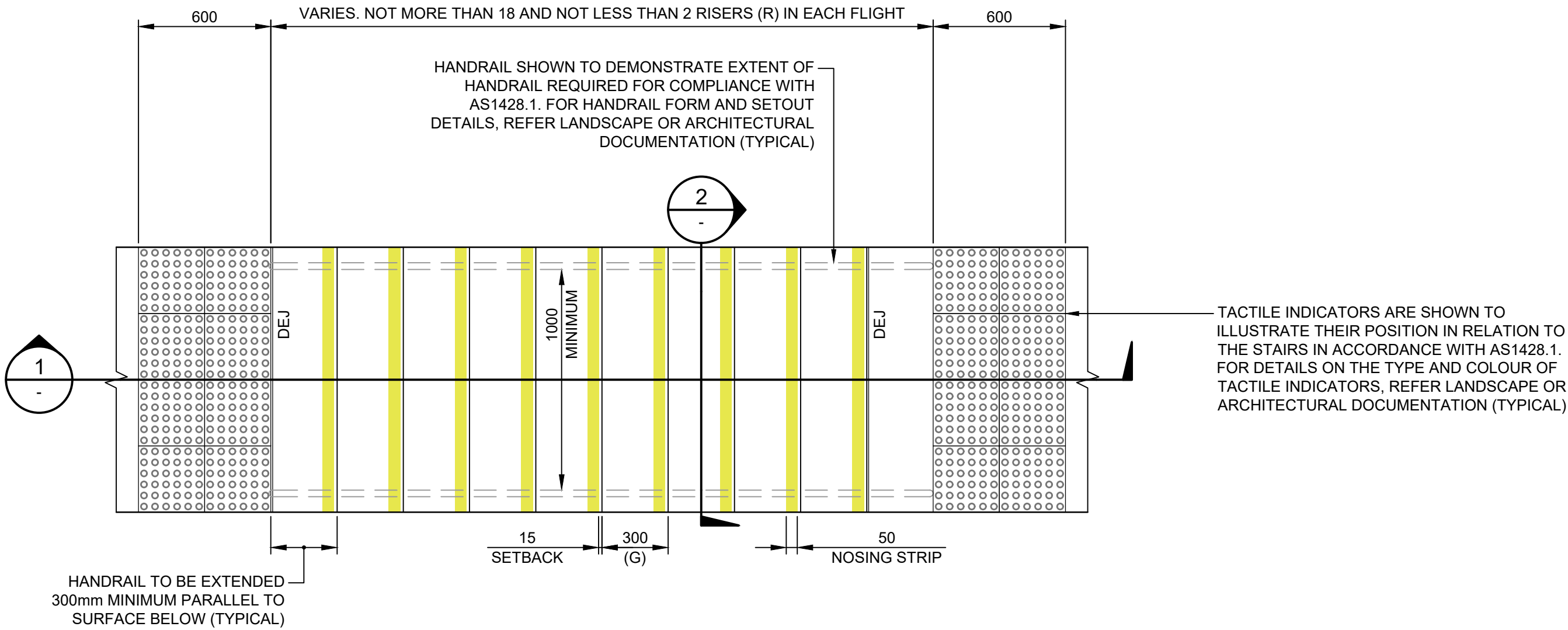
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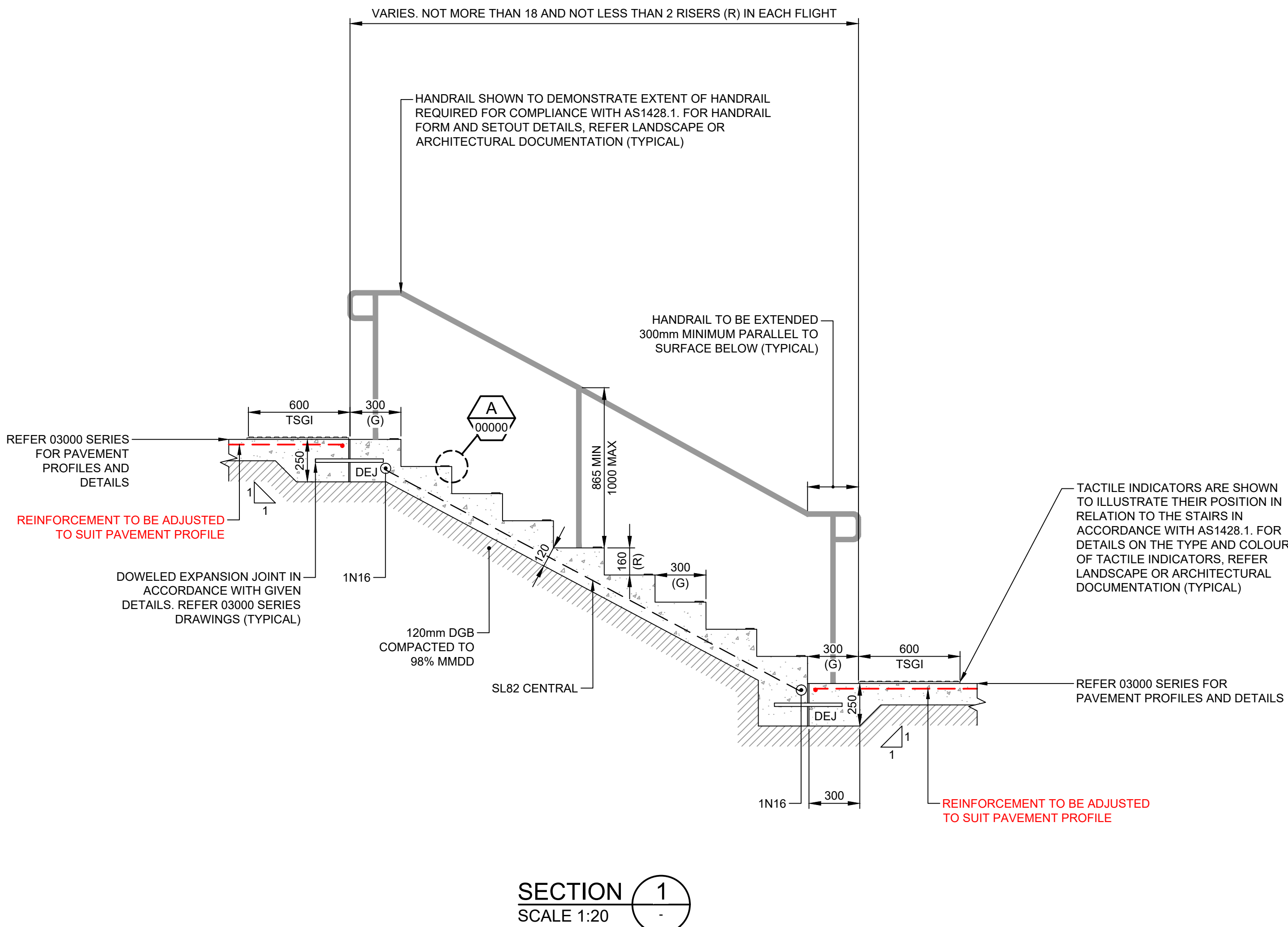
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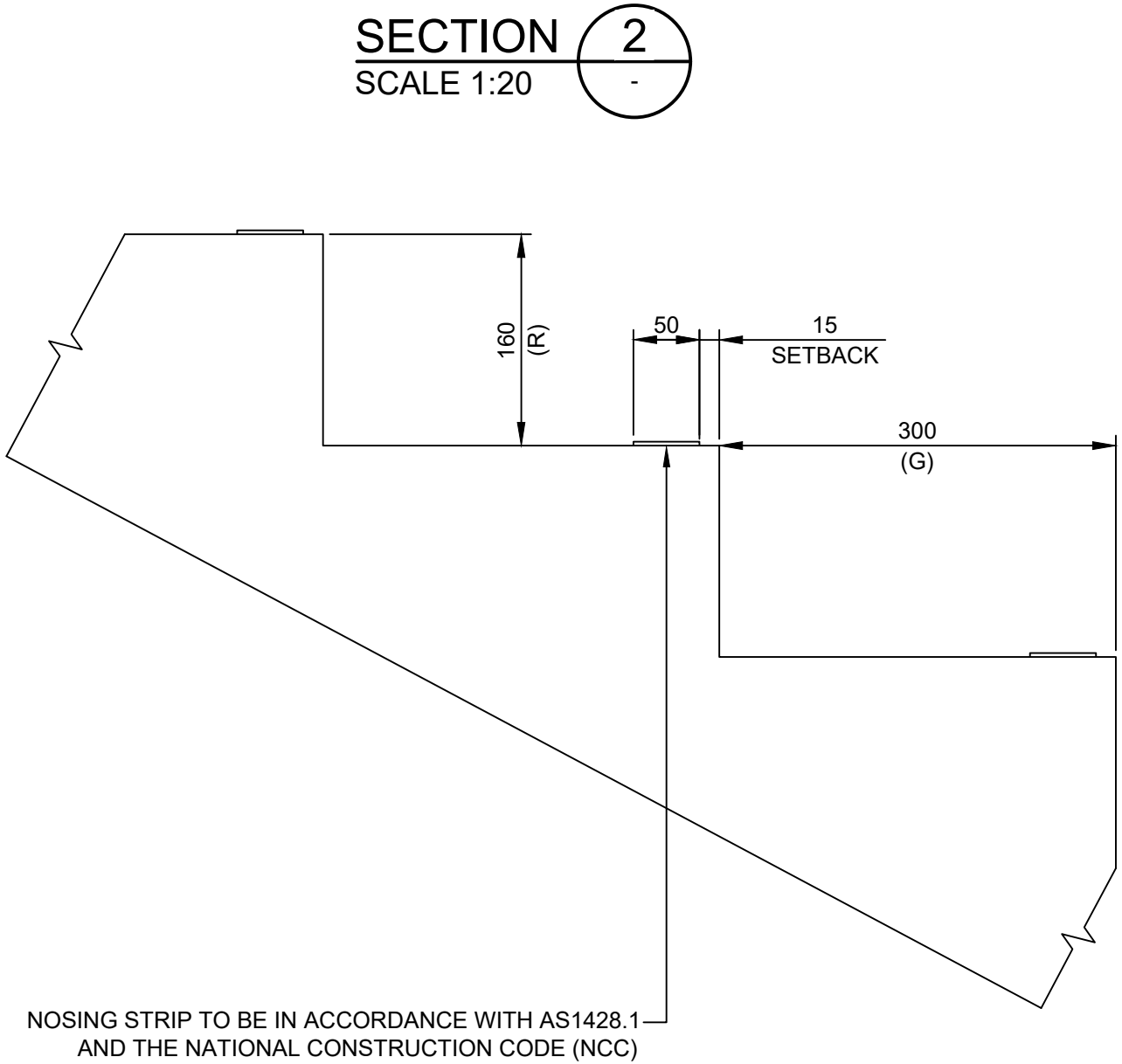
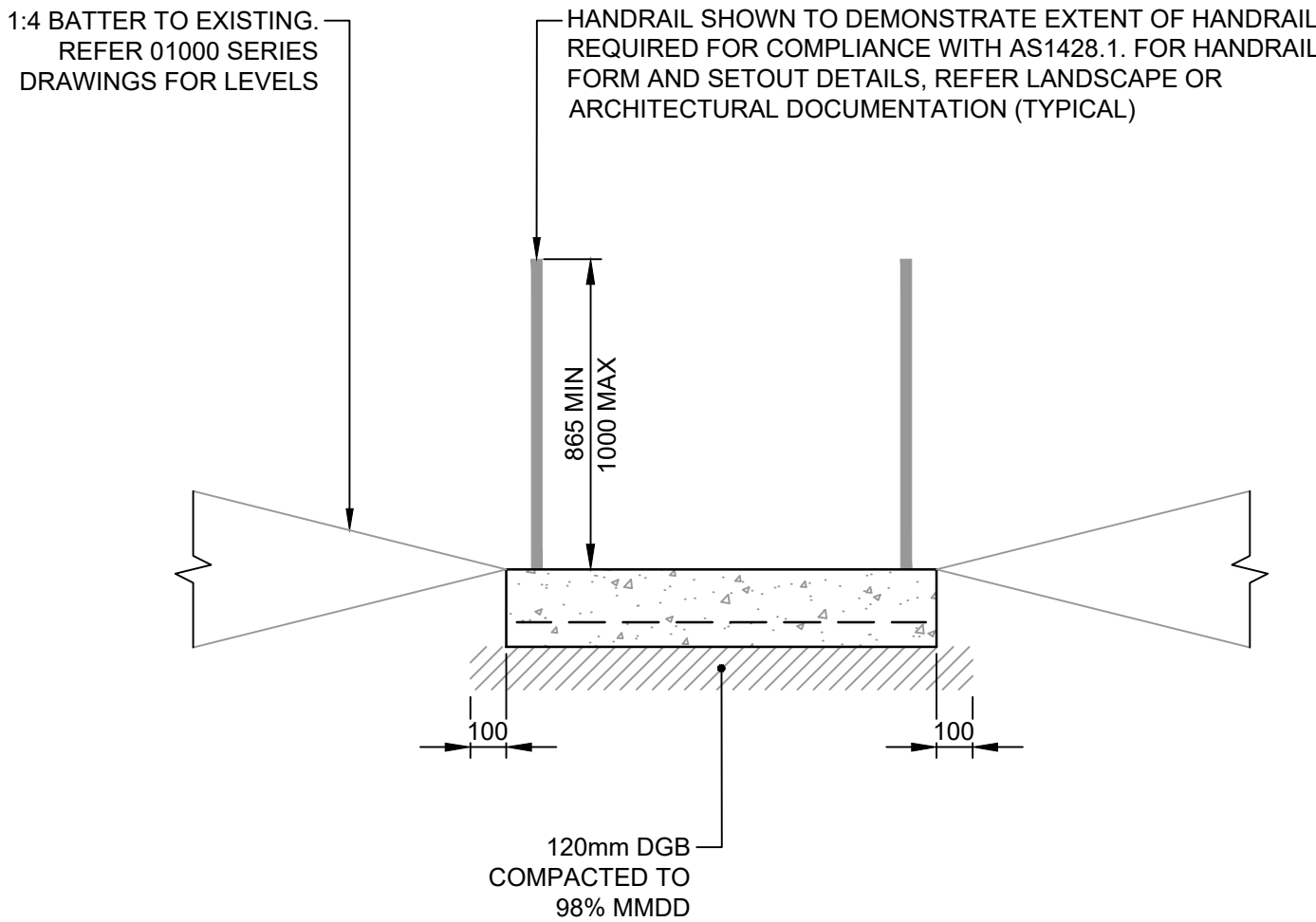
TYPICAL STAIR ON GRADE  
SCALE 1:20



RISER AND GOING DIMENSIONS						
STAIR TYPE	RISER (R)		GOING (G)		SLOPE RELATIONSHIP (2R+G)	
	MAX	MIN	MAX	MIN	MAX	MIN
STAIRS (OTHER THAN SPIRAL)	190	115	355	240	700	550
SPIRAL	220	140	370	210	680	590

NOTES

- CONCRETE STRENGTH TO BE 32MPa
- REFER SITE PLANS FOR SETOUT, LEVELS AND GEOMETRY
- FOR MINIMUM SLIP RESISTANCE OF STAIR TREADS AND LANDINGS REFER LANDSCAPE OR ARCHITECTURAL DOCUMENTATION



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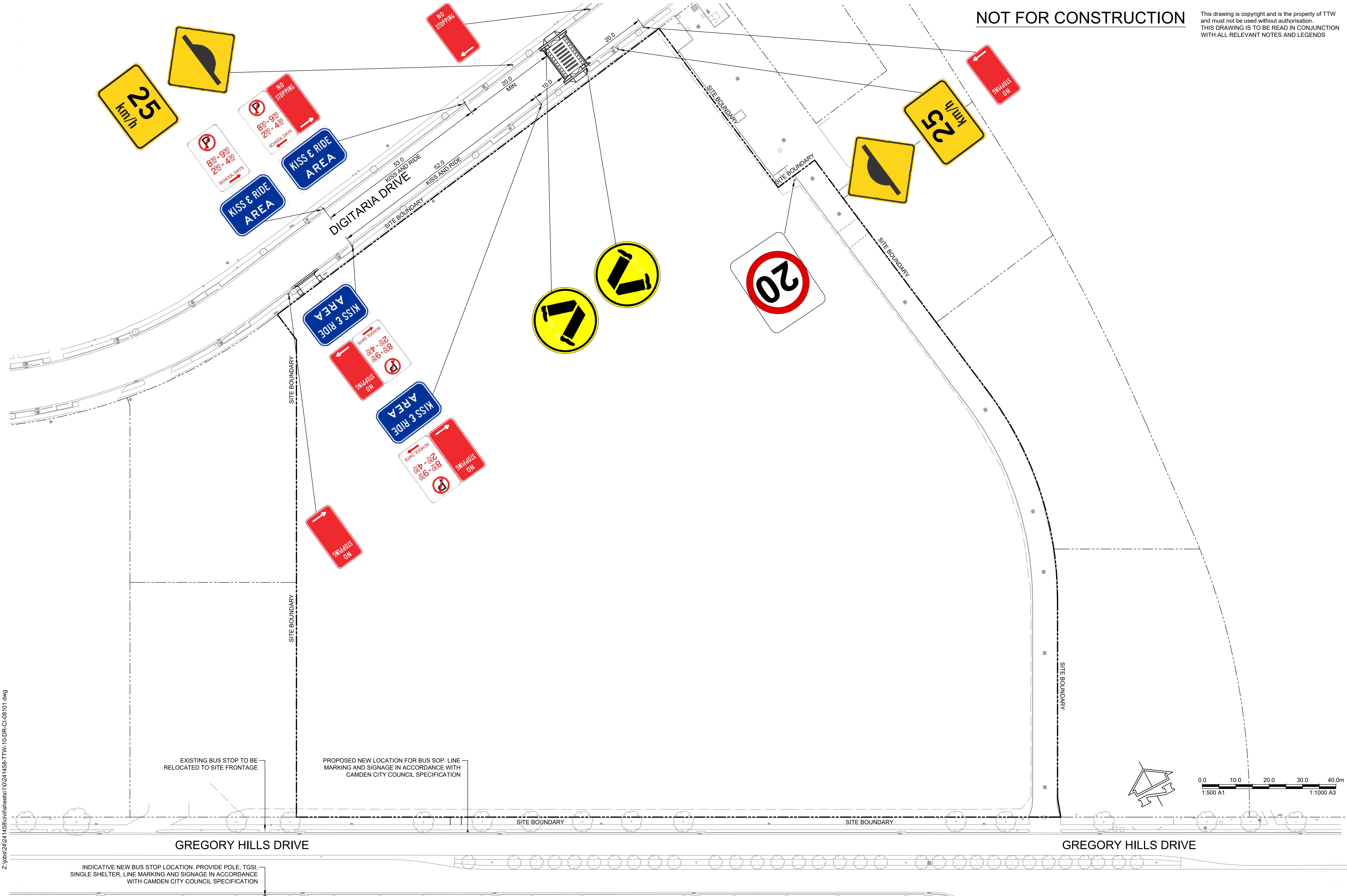


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Client:

 **School Infrastructure NSW**

Engineer:

  
www.ttwengineers.com

Project:

**GLEDSDOOD HILLS  
HIGH SCHOOL  
LOT 2 DP1262720**

Drawing Title:

**SIGNAGE AND LINEMARKING  
PLAN**

Scale at A1: 500

Drawn: ES  
Designed: CR  
Approved: CR

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