Report

Infrastructure Management Plan

WSU BANKSTOWN CITY CAMPUS PROJECT

Walker Corporation

CONFIDENTIAL

Revision: 6.0 - Issued for SSDA Submission
Issued: 14 August 2020

Norman Disney & Young
A TETRA TECH COMPANY

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1 EXECUTIVE SUMMARY

NDY have been engaged by Western Sydney University to complete the Utilities Report associated with the new Western Sydney University (WSU) Bankstown City Campus Development in Bankstown, Sydney. This report has been prepared for submission as part of the Environmental Impact Statement (EIS). NDY have been engaged to prepare an Infrastructure Management Plan for the proposed development in response to item '12. Utilities' within the SEARs application SSDA 9831.

This report outlines the outcomes of initial Authority consultation, to determine the capacities of existing services and utilities available for the proposed development. This document is intended to provide sufficient information to demonstrate servicing can be provided to support the proposed development. In general, it should be noted that formal applications to relevant authorities for site servicing/supply can only be made after Development Consent has been granted.

Sections 4.3, 5.2, sl.no. 8 of section 3 maximum demand table, of this report relating to Stormwater Drainage and Water Sensitive Urban Design (section 6.4) have been provided by Bonacci, as the Civil Engineers for the project.

1.1 Abbreviations

WSU	Western Sydney University
EIS	Environmental Impact Statement
SEARs	Secretary's Environmental Assessment Requirements
SSDA	State Significant Development Application
BCCD	Bankstown City Campus Development
m^2	Square Meter (measurement of area)
CBD	Central Business District
AHU	Air Handling Unit
DA	Development Application
KVA	Kilo Volt Ampere
kL/day	Kilo Litres per day
l/s	Litres per second
Mj/h	Mega Joules per Hour

m^3/h	Cubic Meter per second (Measurement of Volume)
uPVC	Unplasticised Poly Vinyl Chloride
DN	Nominal Diameter
WSA	Water Services Association of Australia
PSD	Permissible Site Discharge
NY	Nylon
kPa	Kilo Pascal
KV	Kilo Volt
HV	High Voltage
NBN	National Broadband Network
WELS	Water Efficiency Labelling and Standards
BMS	Building Management System
WSUD	Water Sensitive Urban Design
OSD	On Site Detention System
NOR	Notice of Requirements

2 SEARS ISSUE ADDRESSED

This report addresses how the proposed project addresses Item 13 of the SEARs and outlines strategies relating to Utilities. These requirements are outlined below alongside where the response to each can be found within this report;

Item	Action to Address the Requirement	Report Location
Preparation of an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.	This IMP report details the existing hydraulic and electrical services infrastructure available to service the proposed Western Sydney University, Bankstown City Campus. This report also includes details regarding augmentation / amplifications required to service the proposed development	Section 5
Preparation of Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design	Section 6 of this report describes the strategy proposed to be used within the proposed school to offset the use of potable water services.	Section 6

3 SITE DESCRIPTION

The Bankstown City Campus Development (BCCD) is a key component of Western Sydney University's Western Growth Program. The project, entailing a stand-alone vertical campus and University/Education Space use building on an undeveloped site in Bankstown Central Business District, will facilitate the relocation of most programs from the existing campus at Milperra into new facilities that support new modes of working, learning and research, with scope to accommodate future growth.

The project site, located at 74 Rickard Road, is owned by Canterbury Bankstown Council, and subject to a Lease agreement between the Council and the University. The site is within the Civic Precinct, located next to Council office and chambers, Bankstown Knowledge Hub and the Bryan Brown Theatre, and Paul Keating Park. On the east side of the site The Appian Way, a partially pedestrianised roadway, links from Rickard Road south to Bankstown Railway Station.

Project Description:

The building characteristics are as noted below:

- **Basement**: The Bankstown City Campus development has two levels of basement, accommodating carparking, loading & delivery, building management office, end of trip facilities and building services plant.
- **Ground Level**: The Ground Level concept is to create a porous building, connected to its external context, drawing both landscape and visitors into the Ground Level, and continuing through to the levels above. Key entry points provided at the centre of the Rickard Road and Paul Keating Park frontages. The ground level also contains 3 retail tenancies which are proposed to food and beverage tenancies.
- **Levels 1 & 2**: Level 1 & 2 are the largest floor plates of the Bankstown City Campus Development. A greater floor to floor height has been provided to both these levels and consists of learning studios, student support, meeting rooms, ITDS workplace, robotics etc .
- **Level 3**: Level 3 consists of the Badanami Centre, the Club and Society, Kitchen, Den and an external terrace.
- **Levels 4-6**: Levels 4 to 6 are proposed to house a variety of University Workspace, Research and Learning, including the Library at Level 4, situated directly above the Student Hub below. The levels are served by escalators, was well as lifts. The large rectangular flexible floor plate allows for a range of learning accommodation, including larger rooms to the north, where the column spans are at their greatest.
- **Level 7**: Levels 7 is the final level served by the escalators. The Collaborative Space is envisaged as another destination hub, facilitating spaces designed to foster a strong cross disciplinary collaboration and learning culture between University Staff, students and industry partnerships.
- **Level 8**: Level 8 is designed to accommodate a conference facility for the University, catering for up to 300 persons.
- **Levels 9-13**: Levels 9 to 12 form the mid-tower, with access via the passenger lifts. The levels are expected to accommodate a variety of University Workspace and Learning Spaces. A series of balconies are provided at each floor the south-west façade allowing for external study and breakout areas from the main floorplate.
- **Levels 14-18**: Upper tower levels form the cantilevered form of the building. These levels allow future growth opportunities for the University as the campus develops. The floors will be fitted out for future to accommodate University growth needs. Terraces are provided to Level 16 and Level 18 overlooking Bankstown CBD to the south, as well as Level 17 to the north. The north east corner of the Level 18 floor

plate accommodates the back-up generator, and external cooling towers. Additional smaller plant rooms are located at Level 14, 15 and 17, accommodating AHU and stair pressurisation plant.

Early site preparation works will be subject to a separate development application and assessed by Canterbury Bankstown Council.

Early works will include:

- Erection of site hoardings;
- Demolition, including tree removal;
- Bulk excavation;
- Shoring, including temporary anchors;
- Disconnection and/or diversion of services; and
- A new lay-back along Rickard Road leading into Appian Way.

Details of the infrastructure presently within the site and surrounds is detailed within this report. Diversion or disconnection and capping of services traversing the subject site will occur as part of the Early Works DA package

4 MAXIMUM DEMAND

The maximum demand for the site is as follows:

Sl No.	Service	Unit	Maximum Demand	Remarks
1.	Electricity	KVA	3500	Based on AS3000
2.	Potable Water	kL/day	52	Sydney Water Average Water Usage Data
3.	Sewer Drainage	kL/day	45	Sydney Water Average Water Usage Data
4.	Fire Hydrant	l/s	20	AS2419.1-2005
5.	Fire Sprinklers	l/s	18	AS2118.1-2017
6.	Fire Drenchers	l/s	20	AS2118.2-2010
7.	Natural Gas	MJ/h	11,300	F&B, Mech Boilers, Domestic Hot Water Plant
8.	Stormwater	m^3/h	5 Year ARI: 0.077m^3/s 20 Year ARI: 0.095m^3/s 100 year ARI: 0.112m^3/s	

5 INFRASTRUCTURE OVERVIEW

5.1 Potable Water Services

The following information has been provided and sourced to inform this report and our assessment of the Potable Water Service.

- Dial Before You Dig
- Discussions with the Water Servicing Coordinator

Sydney Water own and operate the potable water infrastructure on Rickard Road that is available for connection.

5.1.1 Existing Potable Water Services

The site has access to the following Sydney Water water mains:

- DN150 uPVC water main within Rickard Road.

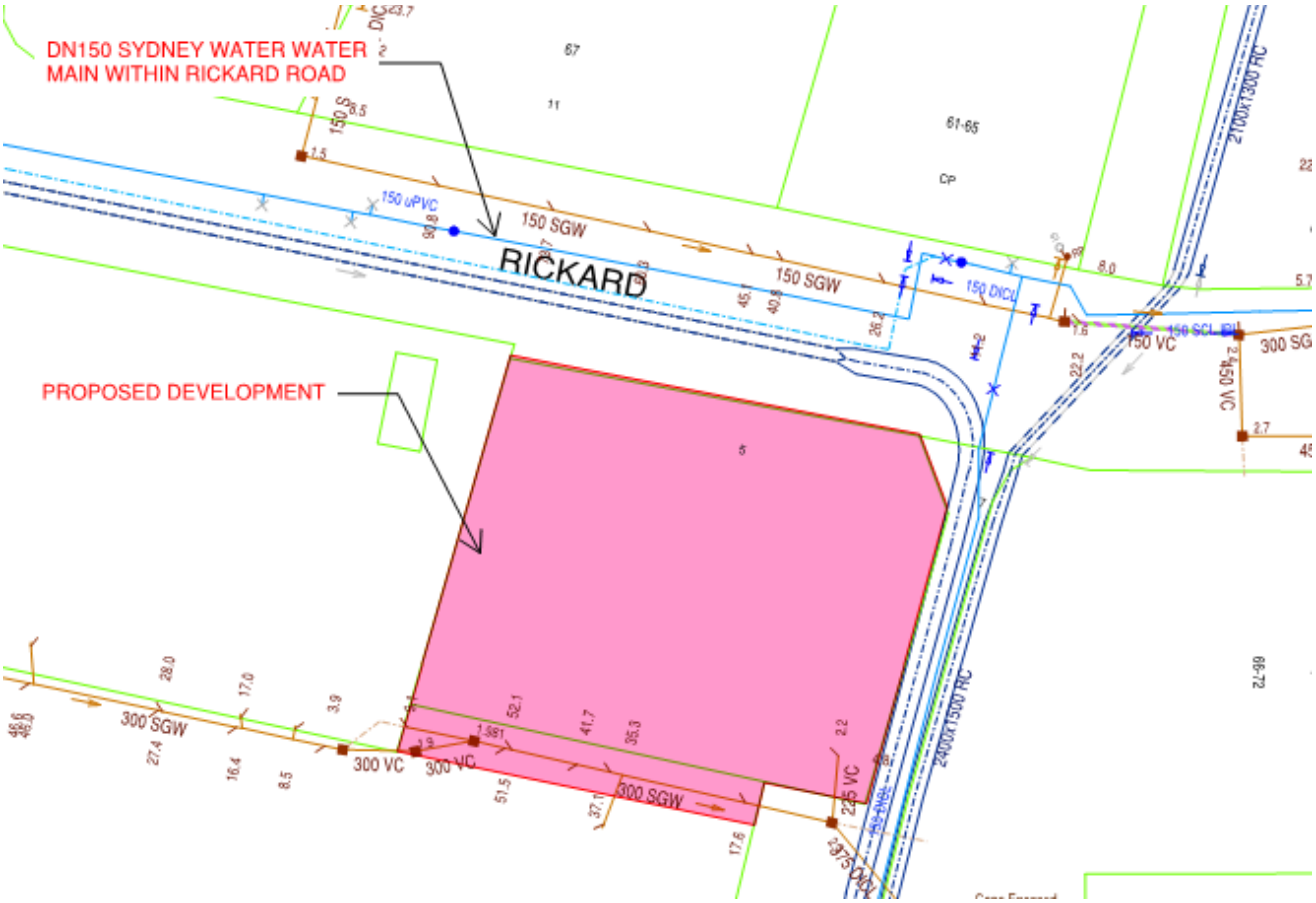

Figure 5.1.1 Sydney Water Infrastructure

5.1.2 Proposed Potable Water Services

The proposed development shall make connection into the DN150 Sydney Water water main within Rickard Road.

Further to the Sydney Water section 73 assessment, within the notice of requirements Sydney Water have confirmed that the existing DN150 Sydney Water water main has sufficient capacity to service the potable water and fire fighting demands.

NDY have received the pressure and flow information from Sydney Water for the DN150 water main. The water main size is deemed adequate as per the Water Supply code of Australia WSA-03 table 3.1.

TABLE 3.1

MINIMUM PIPE SIZES FOR PARTICULAR DEVELOPMENTS

ZONING/DEVELOPMENT	MINIMUM PIPE SIZE (DN)	
	Cast iron outside diameter series	ISO series[3]
Low and medium density residential	100 [1]	125 [1]
High density residential (≥ 4 storeys)	150	180
Multiple developments of high density residential (≥ 8 storeys)	200 or 225 [2]	250 or 280 [2]
Industrial and commercial	150	180

NOTES:

1 *The Water Agency may authorise smaller pipe sizes to address issues such as water quality, provided that requirements for fire fighting supply are otherwise met.*

2 *The Water Agency to nominate the preferred size.*

3 *For steel (SCL) and polyethylene (PE) pipes only.*

Figure 5.1.2 Extract from WSA-03

Refer to appendix A for the notice of requirements.

There are no existing or proposed Sydney Water easements within our site as part of this project.

5.2 Sewer Drainage Services

The following information has been provided and sourced to inform this report and our assessment of the Sewer Drainage Service.

- Dial Before You Dig
- Discussions with the Water Servicing Coordinator

Sydney Water own and operate the potable water infrastructure on Rickard Road that is available for connection.

5.2.1 Existing Sewer Drainage Services

The site has frontage to the following Sydney Water sewer mains:

- DN150 Sydney Water sewer main within Rickard Road;
- DN300 Sydney Water sewer main traversing the site along the southern boundary of the site.

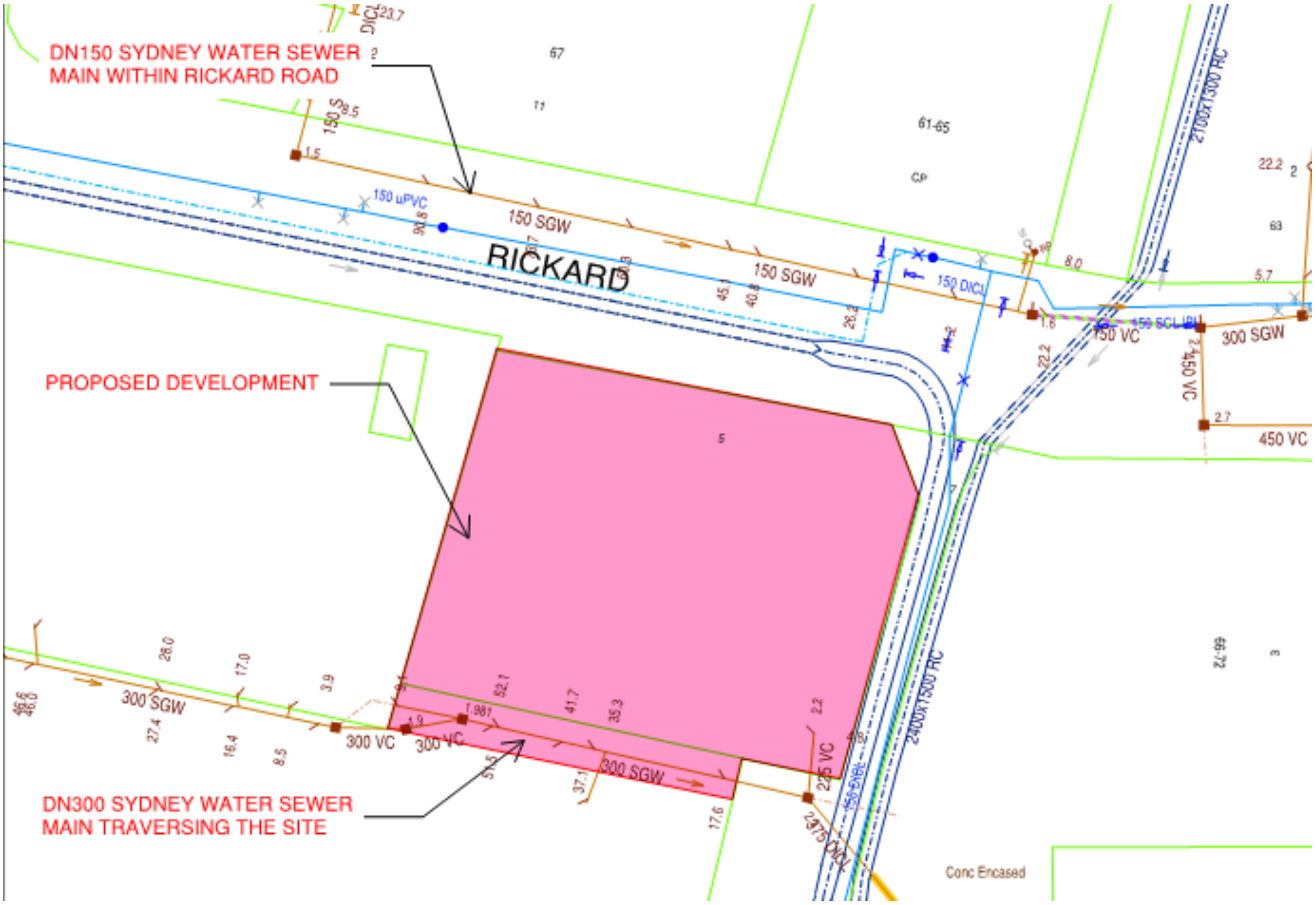

Figure 5.2.1 Sydney Water Infrastructure

5.2.2 Proposed Sewer Drainage Services

The site has an existing DN225 sewer drainage connection connecting into the DN300 Sydney Water sewer main traversing the site.

The existing DN300 Sydney Water sewer main traversing the site is reticulating within the proposed building footprint. Further to the Sydney Water section 73 assessment, within the notice of requirements Sydney Water have requested the sewer main to be amplified and diverted to cater for future loads.

The water servicing coordinator has prepared the sewer main amplification and diversion design (case number 177945WW).

The sewer diversion works will form part of a separate early works development application and the design will be lodged with Sydney Water once development consent is received for the Early Works by Canterbury Bankstown Council.

There are no existing or proposed Sydney Water easements within our site as part of this project.

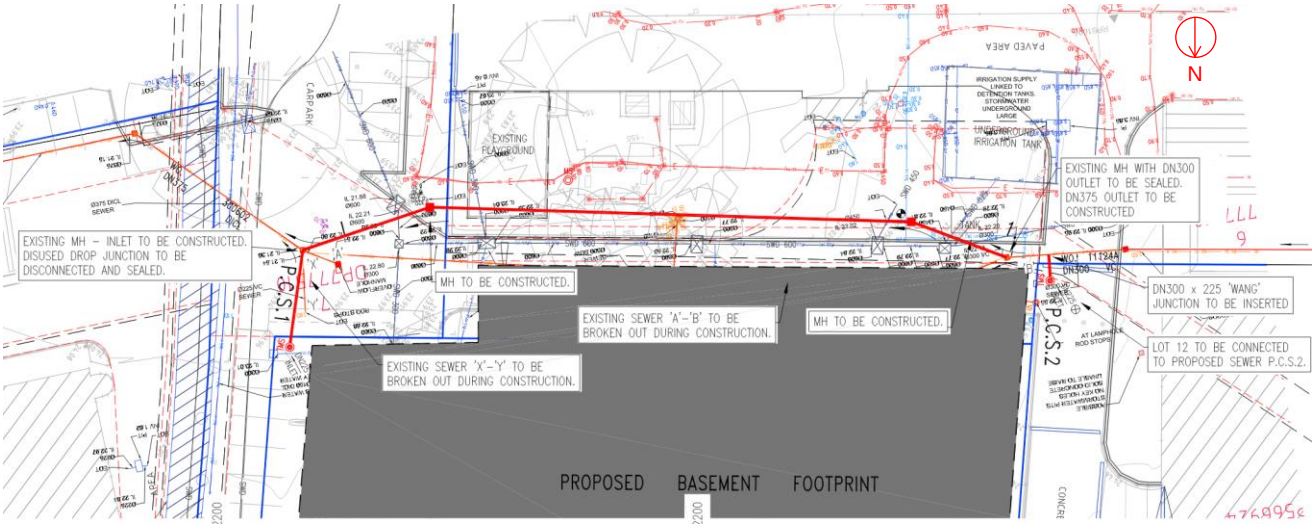

Figure 5.2.2 Sewer Amplification and Diversion Design prepared by the Water Servicing Coordinator

5.3 Stormwater Drainage Services

Existing stormwater infrastructure exists for the proposed development site. Stormwater runoff for the existing carpark sheet flows from the north to the south from Rickard Road towards Paul Keating Park. Part of this runoff is captured by kerb inlet pits located near the southern site boundary. Runoff on Appian Way is captured by a sag pit at the south eastern corner of the site. These pits drain towards the 2.4mx1.5m box culvert running parallel to Appian Way. As the site is flood affected (refer to Civil Design report for further details), the 2.4mx1.5m culvert forms a major channel conveying much of the flood waters past the site.

The development consists of a new grated drain along Appian Way where it connects to the existing Council pits via a new junction pit.

Discharge Rate

5 Year ARI: 0.077m³ PSD - .086m³ /s

20 Year ARI: 0.095m³ PSD - .122m³ /s

100 year ARI: 0.112m³ PSD - .157m³/s

Volume of OSD Tank: 35m³

Refer to appendix C for the Canterbury Bankstown Council easement location plan.

Refer to appendix B for Specialist Engineering Assessment Report (Rev.02) prepared by Bonacci Group for further details regarding stormwater assets.

5.4 Natural Gas Services

The following information has been provided and sourced to inform this report and our assessment of the Natural Gas Service.

- Dial Before You Dig
- Discussion with Jemena

5.4.1 Existing Natural Gas Services

The site has frontage to the following Jemena Natural Gas mains:

- DN75 NY 7kPa Jemena Gas main within Rickard Road;

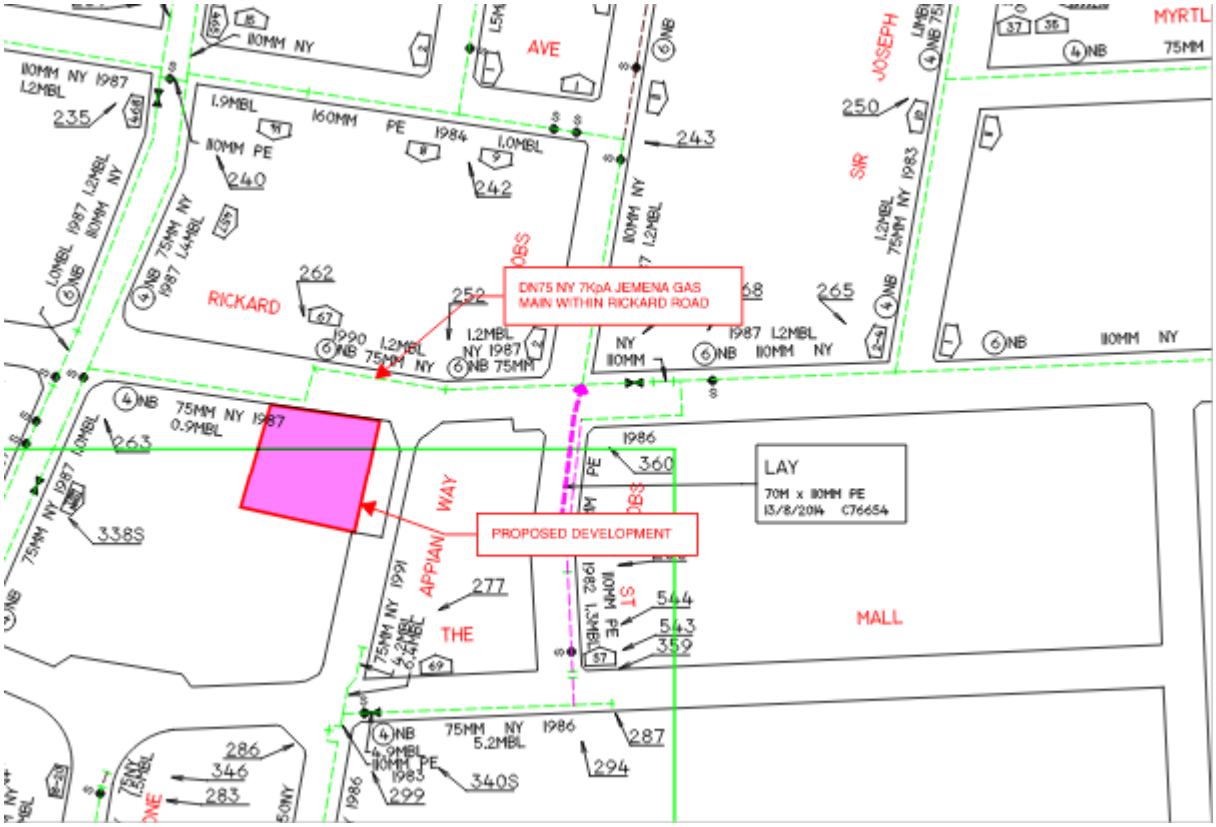

Figure 5.4.1 Jemena Infrastructure

5.4.2 Proposed Natural Gas Service

Natural gas is proposed to be used within the development for the following:

1. Retail Tenancies (assumed food and beverage);
2. Domestic Hot Water System;
3. Mechanical Heating System;

NDY have liaised with Jemena regarding the capacity of the existing natural gas main and Jemena have confirmed that the existing 7kPa natural gas main within Rickard Road does not have sufficient capacity to service the proposed development.

Jemena have confirmed that the development can be serviced by extending a new natural gas main off the 210kPa natural gas main located at the corner of Kitchener Parade and Rickard Road. The length of extension is approximately 250m. The natural gas main extension will be completed by Jemena once the connection application is lodged post receipt of the development approval.

There are no existing or proposed Jemena easements within our site as part of this project.

From: Alex Raeside <alex.raeside@jemena.com.au>
Sent: Friday, 8 March 2019 3:16 PM
To: Muralidharan, Ashwin <a.muralidharan@ndy.com>
Subject: RE: WSU Bankstown Campus

Hi Ashwin,

Thanks for your email and apologies for delay in getting back to you.

The 7kPa out the front does not have the capacity to support this load, the supply may need to come from the 210kPa gas network located in Kitchener Parade and be a mains extension down Rickard Rd.

Do you have any further details on the actual meter room location, i.e a site plan of the site so I can review?

Kind Regards

Alex Raeside
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Customer & Markets
Jemena
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02 9867 8443
Alex.Raeside@jemena.com.au | www.jemena.com.au

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bringing energy to life

Figure 5.4.2 Jemena Confirmation Regarding Capacity

5.5 Electrical High Voltage Services

5.5.1 Background Information

The following information has been provided and sourced to inform this report and our assessment of the Electrical High Voltage Infrastructure Service.

- Ausgrid Design Info Pack AN-20271 dated 23 October 2019.
- Ausgrid High Voltage Connection AN-20271.
- Ausgrid WebGIS plans.
- Dial Before You Dig (DBYD) plans.

5.5.2 Existing Electrical 11kV High Voltage Services

There are substations in the vicinity of the project site as shown on figure 3.1.

There are 11kV underground cable along the footpath of Rickard Road, opposite to the site as show figure 3.5.1 and 3.5.2.

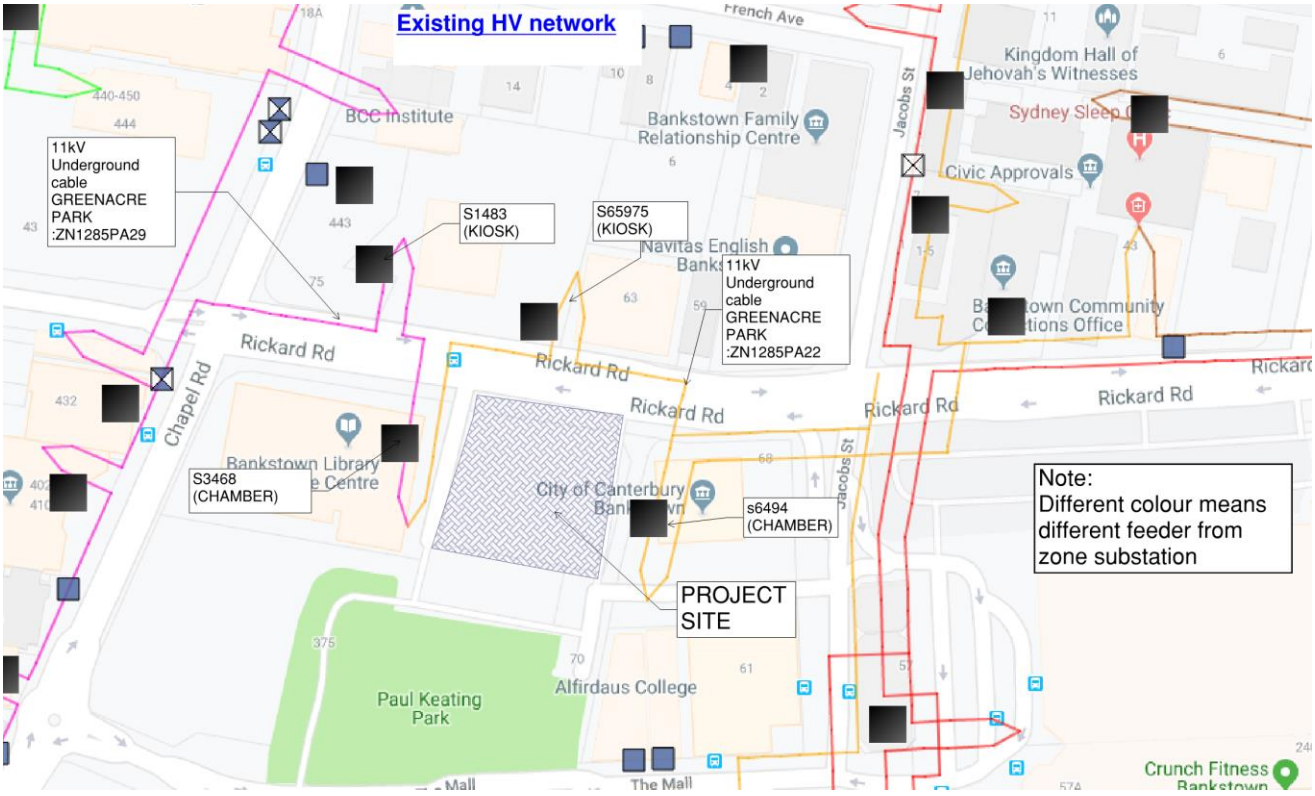

Figure 5.5.1 Proposed 11kV network (Source Ausgrid WebGIS)

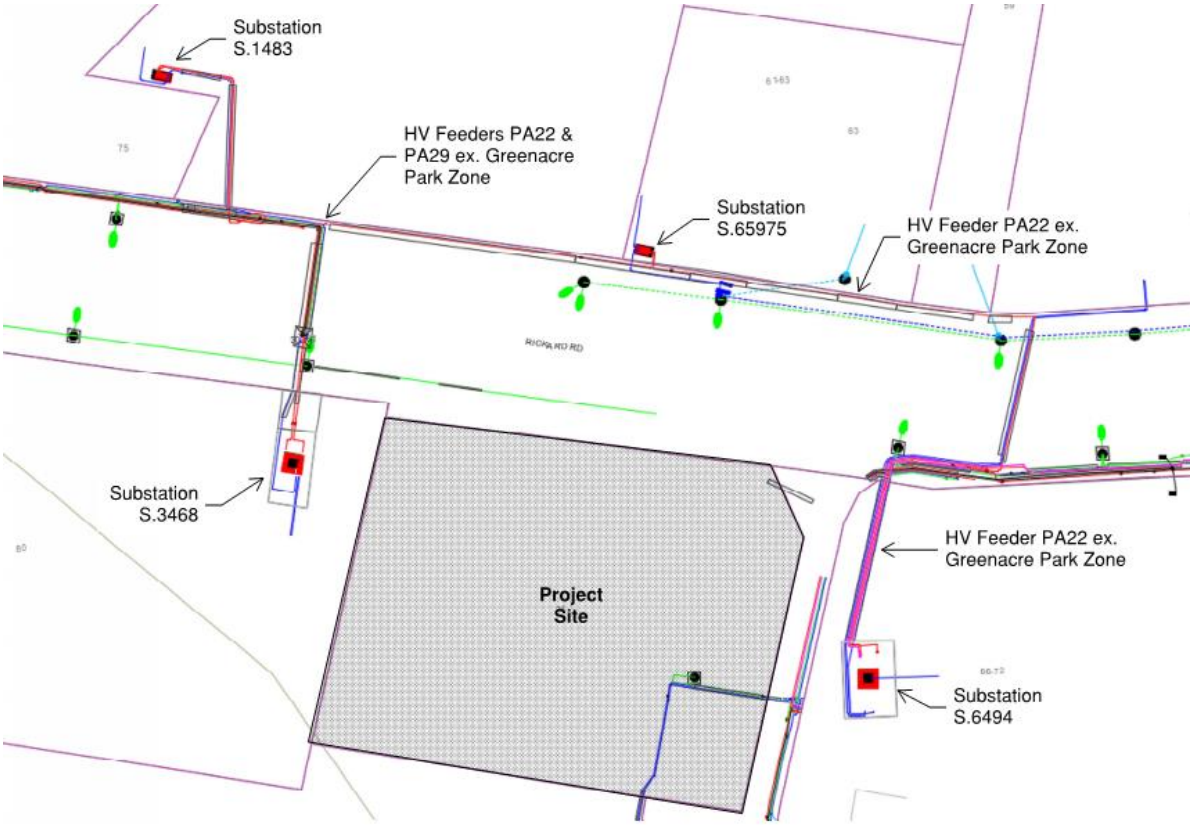

Figure 5.5.2 Proposed 11kV network (Source Ausgrid GIS CAD)

5.5.3 Proposed Electrical High Voltage Services

The maximum demand for the new WSU building is approx. 3500kVA. Therefore one (1) chamber substation with 3 x 1500kVA transformer arrangement is required layout shown in figure 3.5.3.

There are existing Ausgrid distribution substations near the new WSU building. Existing substation S3468 is approx. 20m from the proposed substation on site. The location of the proposed substation is shown on figure 3.3 and figure 3.4.

The substation will be located on ground floor in the North-west corner of the project site, adjacent to the existing Ausgrid Substation S.3468 that is located approx. 20m West from the proposed WSU substation on the neighbouring property.

Ausgrid's Design Info Pack AN-20271, nominates HV Feeder Pa.29 ex. Greenacre Zone as the HV point of connection for the WSU substation. The proposed HV connection arrangement is shown in Figure 3.5.4.

New High and Low Voltage cabling will need to be installed within the site, the neighbouring site & the Rickard Rd road reserve (footpath) to connect the proposed WSU substation to Ausgrid existing surrounding network. The proposed construction works are shown on Figure 3.5.5. The following is a proposal only, the final 11kV network arrangement will be determined during the detailed design phase.

The following easements will apply to the development:

- Substation Easement;
- Cable Easement from the property boundary to the substation;
- Right of Way to access to the substation.

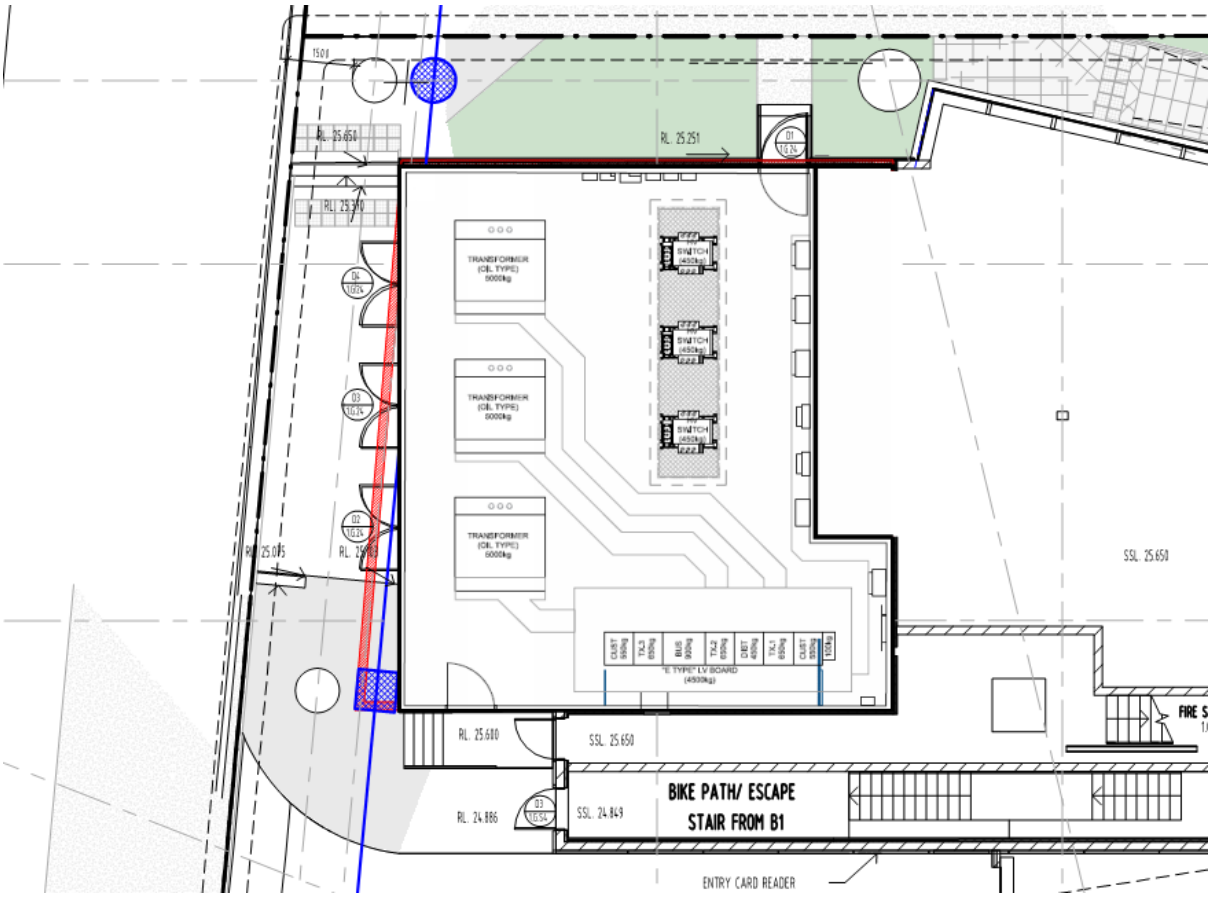

Figure 5.5.3 Proposed Substation Layout

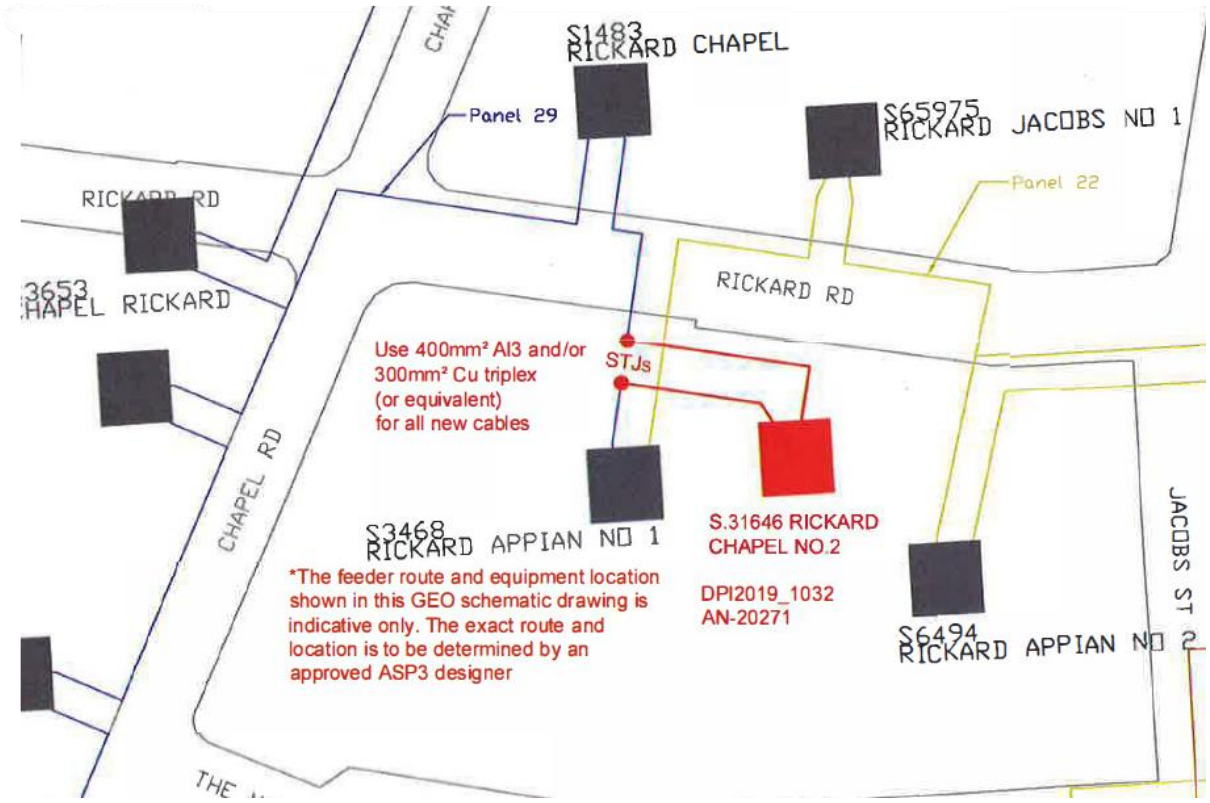

Figure 5.5.4 Proposed 11kV network (Source Ausgrid GIS CAD)

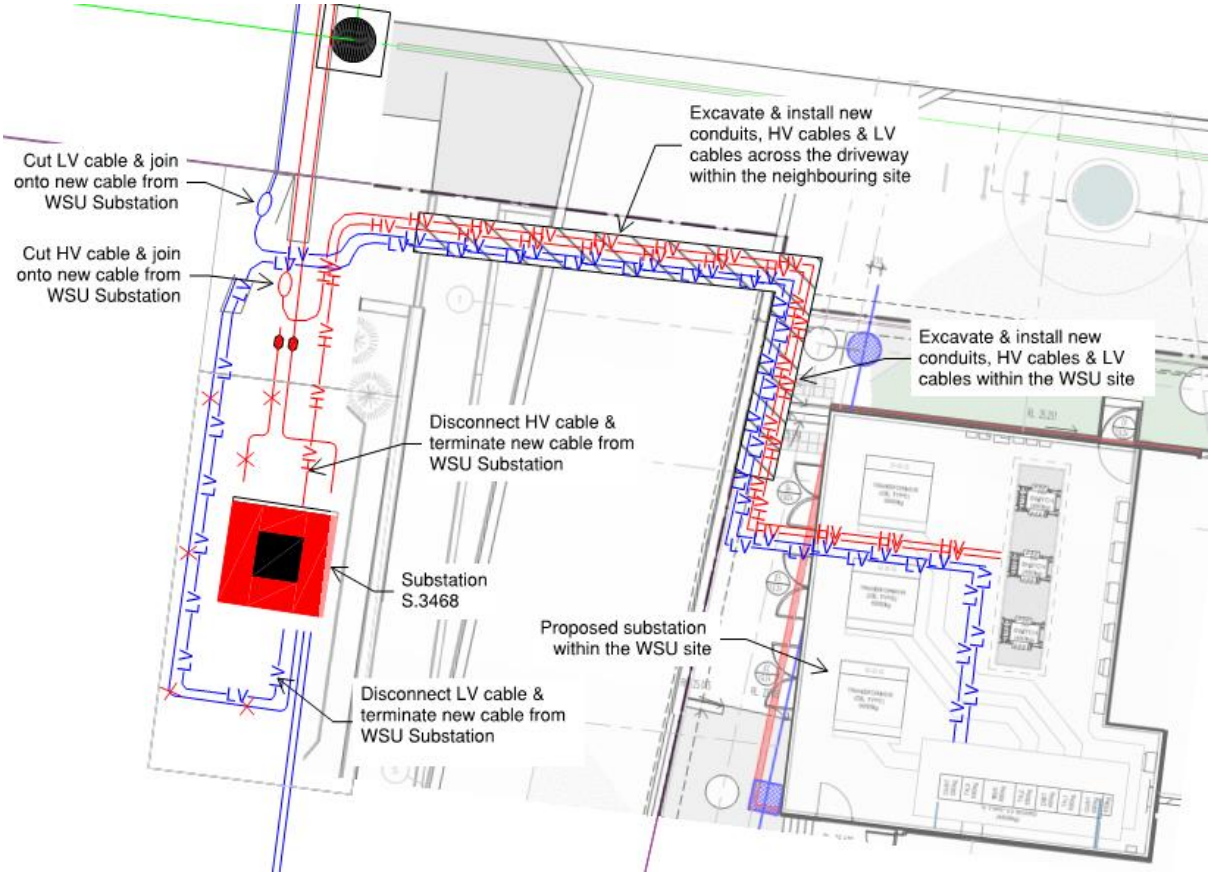

Figure 5.5.5 Proposed Construction Works

5.5.4 Status

The maximum demand of 3500kVA requires an additional 184A at 11kV from the existing network, to supply the site.

This is subject to the HV planner information, provided by Ausgrid.

Next Steps

NDY to prepare and issue the detailed design to Ausgrid.

5.6 Communication Services

5.6.1 Background Information

The following information has been provided and sourced to inform this report and our assessment of the Communications Infrastructure Service.

- Dial Before You Dig (DBYD)
- Bankstown City Council - Data/Voice Cabling Layout

5.6.2 Existing Communications Services

The site is currently used as council parking lot.

The site has 50pr of copper lead-in cables from the Appian way, however these copper cables are confirmed dead by Telstra DBYD and will not be used as there are NBN services are available in the area. The removal of this obsolete infrastructure will form part of the Early Works DA and subject to a separate consent.

Currently, there is no lead-in fibre cables to the site.

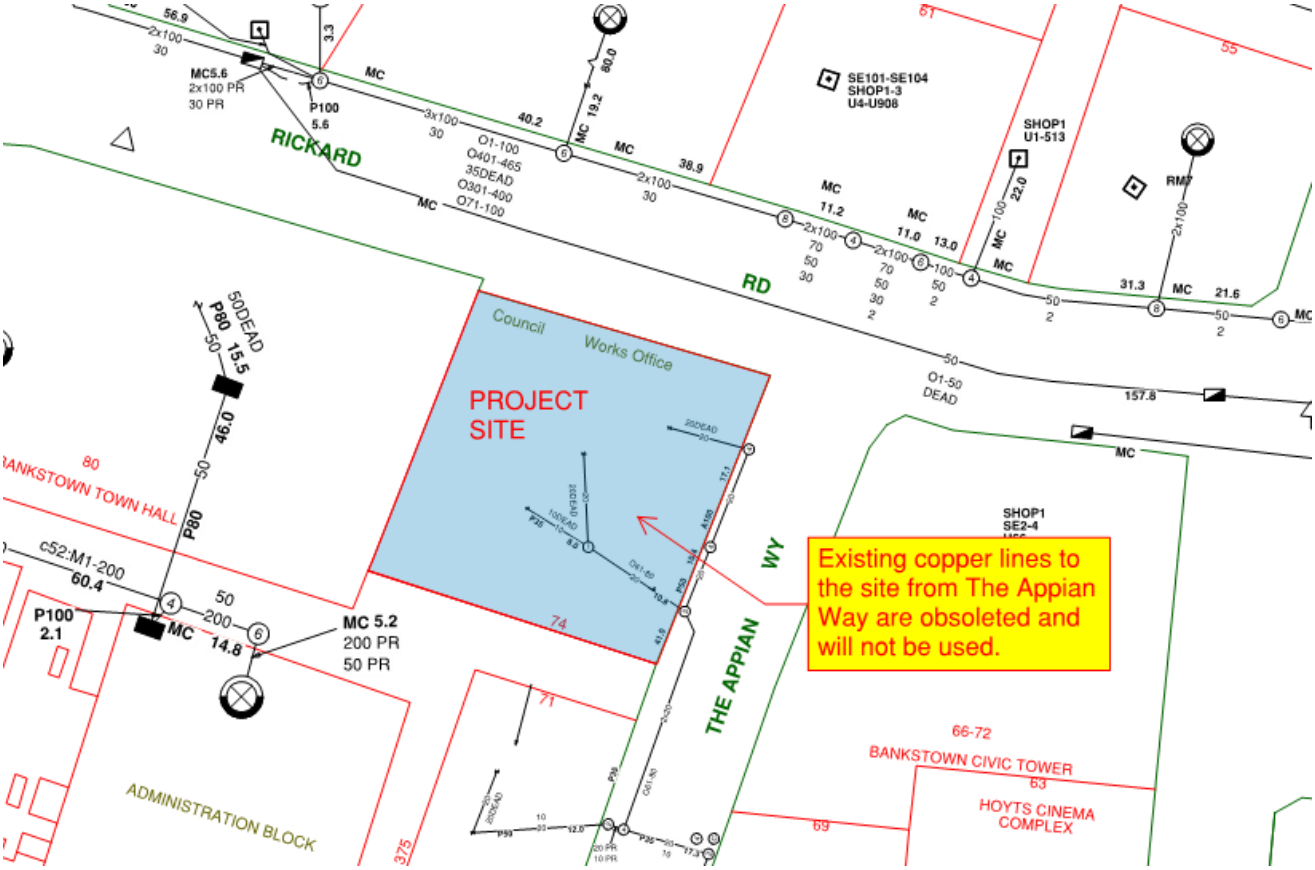

Figure 5.6.1 Existing copper lead-in cabling (Source Telstra copper network)

5.6.3 Proposed Communication Services

It is proposed that Carrier fibre to be run underground from the closest existing pit on Rickard road as shown in Fig.3.5.2.

There are no existing or proposed easements within our site as part of this project.

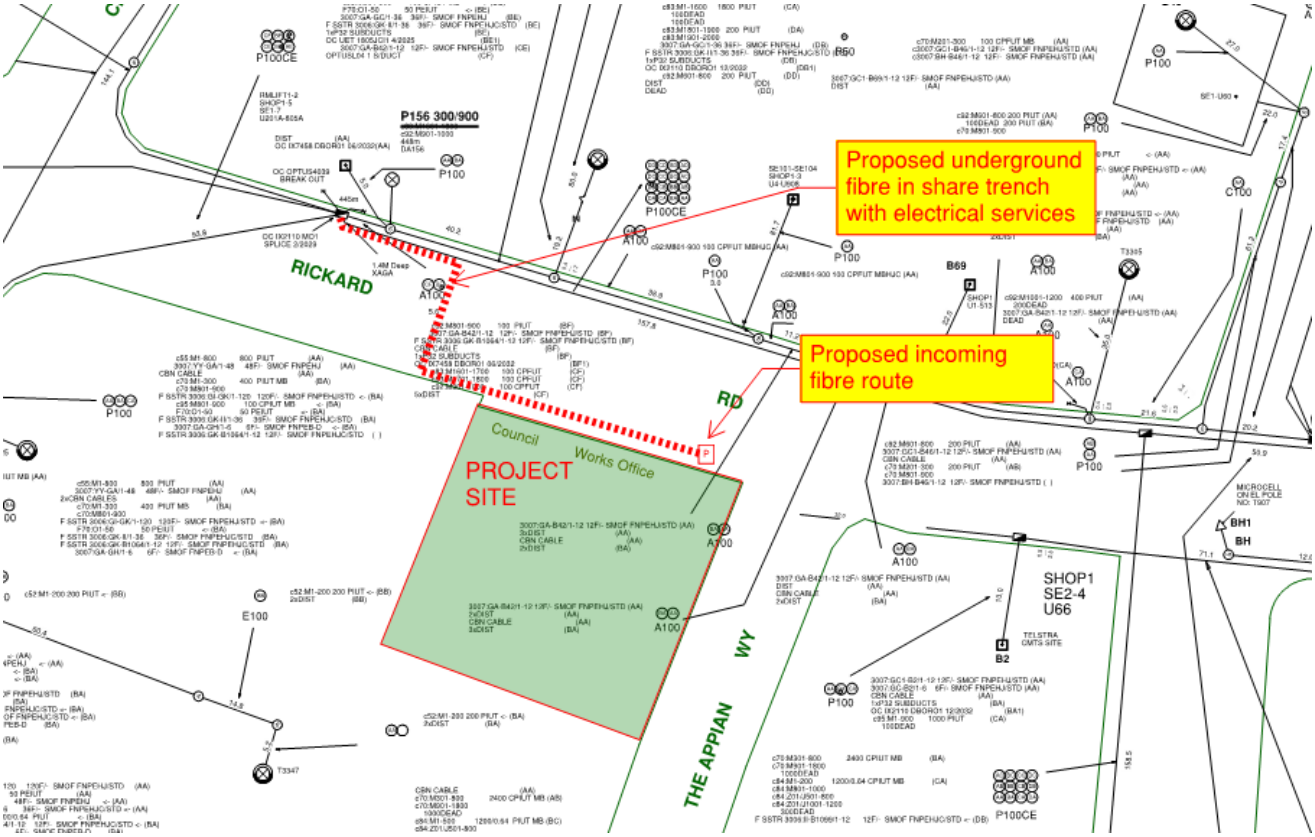

Figure 5.6.2 Proposed route for incoming fibre cabling (Source Telstra Fibre Network)

6 INTEGRATED WATER MANAGEMENT PLAN

This section outlines the proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design for the proposed development works. The objective is to encourage building design that minimised potable water consumption in operations. The following lists the major items that contribute to minimising the potable water consumption:

6.1 Water Efficiency

Sanitary fixture and tapware will be WELS rated in accordance will be within one star of the WELS rating stated in the table below. Sinks, boiling and chilled water taps are excluded from the assessment criteria.

Fixture / Equipment Type	WELS Rating
Taps	6 Star
Urinals	6 Star
Toilet	5 Star
Showers	3 Star (> 4.5 but <= 6.0)**
Clothes Washing Machines	5 Star
Dishwashers	6 Star

6.2 Non-Potable Water Services

The proposed development includes a 45kL rainwater tank that captures the entire roof drainage. Rainwater is being re-used for toilet flushing and irrigation. The rainwater re-use system consists of:

- Dual non-potable water pumpsets duty / standby arrangement;
- 50 Micron Bag Filters;
- Dual Backwash Filters;
- Dual UV Filters.

The recycled rainwater reticulates within the hydraulic riser located at the core of the building. The non-potable water services are metered at each level to monitor the consumption. The meter is wired back to the Building Management System (BMS).

The rainwater tank is provided with domestic water top up from the authority towns main system.

6.3 Fire Water Re-use

The fire protection system test water is reconnected to the fire services tanks located on B1. A minimum of 80% of fire services test water is captured for re-use.

6.4 Water Sensitive Urban Design

Majority of the site is currently used for carparking. The site does not currently have any water quality treatment measures. The conversion of the carpark into a new building with roofed catchments already provides significant water quality improvements to the existing situation. The proposed development shall demonstrate water sensitive urban design (WSUD) and shall demonstrate further improvements to water quality by meeting the water quality targets specified above by Green Building Council of Australia.

The proposed site has been distributed into sub-catchments based on the specific WSUD measures required for the site. The sub catchments include a roofed area of approximately 0.316ha and remaining pedestrian area along Appian Way. The entire roof area drains to a 45kL rainwater tank where treatment is provided in the form of rainwater reuse (reuse data supplied by the Hydraulic Engineer which indicated nominally 12959.1kL/yr). Overflow from rainwater tank is routed to the OSD tank before discharging to an enviropod located on Appian Way and then discharging out of the site. The remaining site area (Appian Way) drains to the same stormwater pit fitted with an enviropod. This strategy provides water quality measures for roof as well as treatment measures for Appian way.

7 CONCLUSION

The project located at 74 Rickard Road Bankstown can be adequately serviced by power, telecommunications, water, sewer and gas services.

It has been identified that the existing gas supply infrastructure is insufficient to support the proposed development and Jemena has confirmed that a new gas main will be extended to service the development.

The existing Sydney Water sewer main traversing the site will be diverted and the design has been submitted to Sydney Water for approval.

The Infrastructure Management Plan has addressed all aspects of item 13 of the SEAR's as identified in section 2 of this report.

8 APPENDIX A SYDNEY WATER NOR

Case Number: 177945

9 December 2019

CANTERBURY BANKSTOWN COUNCIL
c/- MGP BUILDING & INFRASTRUCTURE SERVICE PL

NOTICE OF ANTICIPATED REQUIREMENTS
for
SECTION 73 SUBDIVIDER/DEVELOPER COMPLIANCE CERTIFICATE
(Sydney Water Act 1994, Part 6, Division 9)
PENDING DEVELOPMENT CONSENT

Developer:	**CANTERBURY BANKSTOWN COUNCIL**
Your reference:	**2019-0086**
Development:	**Lots 5 & 6 DP777510, RICKARD RD, Bankstown**
Development Description:	**Early works for proposed WSU Bankstown City Campus including demolition, tree removal, bulk excavation, shoring and temporary anchors, services diversion and alterations to the Appian Road layback at Rickard Road.**
Council:	**Canterbury Bankstown Council**
Your application date:	**15 October 2019**

Note: **Level 2 water restrictions are in place from December 10**, which limits how and when water can be used outdoors. This can impact you and your contractors in the activities they need to undertake for this proposal.

Using water to suppress dust is only permitted via a permit when no other water source is available.

You/your contractors will need to apply for an exemption permit to use water for most outdoor uses including:

- Cleaning equipment and the exterior of **new** buildings
- Drilling and boring, and
- Batching concrete on-site

Fines for deliberate breaches of restriction rules are in place.

For more information on the restrictions and for applying for an exemption, visit our web site at https://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/water-restrictions/level-2-water-restrictions/index.htm

The more water everyone saves, the longer we can stave off the progression to stricter restrictions or emergency measures.

Please provide this information to your contractors and delivery partners to inform them of their obligations and check our web site for up to date restriction information.

Dear Applicant

Sydney Water has assessed your application for the anticipated requirements of a Section 73 Compliance Certificate (the Certificate) pending development consent for the development shown above. Detailed information on your anticipated requirements is outlined below.

You have until 9 December 2020 to meet those requirements and receive the Certificate. If you have not received the Certificate by then you will have to reapply (and pay another application fee) and Sydney Water will issue you with a new notice. We may have extra requirements and charges may change in the new notice.

The Water Servicing Coordinator (Coordinator) will be your point of contact with Sydney Water. They can answer most questions you might have on our developer process and charges.
This is not a final notice and Sydney Water is not liable for any actions you take as a result of this Notice. You do not have the authority to start construction of works.

Once you receive final development consent you should submit a copy to Sydney Water. Provided that there have been no significant changes to the development, we will send you a Confirmation Letter.

If the development application has been subject to significant change then this anticipated requirements application will be terminated and you must submit a formal Section 73 application.

You can also find out about this process by visiting www.sydneywater.com.au > Plumbing, building & developing > Developing > Land development. If you want to find out the status of your application, simply select 'Developer Application Progress' and enter your case number (shown above) and email address. A response will be sent automatically to you.

What You Must Do To Get A Section 73 Certificate

Summary

This is a summary of Sydney Water's requirements. The detailed list begins on the next page.

You must do all of the following things:

1. Engage a Water Servicing Coordinator (Coordinator) before you sign the enclosed Agreement.

2. Sign both originals of the enclosed Agreement and give them to the Coordinator. You must do all the things that we ask you to do in that Agreement.

3. After you have signed the Agreement you then need to build the required sewer works at your own cost.

4. See Section 4 for any Ancillary Matters

5. Have your building plans approved because what you are building may be over or near our pipes and we need to check your property building plans. Your Coordinator can tell you more about this and help with the approval.

6. Provide the Final Development Consent.

Other things you need to do:

At the end of this Notice are some other things that you may need to do. They are NOT a requirement to be met before the Certificate can issue but may well be a requirement in the future because of the impact of your development on our assets. You must read them before you go any further.

DETAILED REQUIREMENTS

1. Water Servicing Coordinator

You must engage your current or another authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another Coordinator (at any point in this process) you must write and tell Sydney Water.

For a list of authorised Coordinators, either visit www.sydneywater.com.au > Plumbing, building & developing > Developing > Providers > Lists or call **13 20 92.**

Coordinators will give you a quote or information about costs for services/works, including Sydney Water costs.

2. Developer Works Deed

After you engage a Coordinator, you must engage other Developer Infrastructure Providers (Providers) to carry out, where needed, the design and construction of the works. They must all have the appropriate capability. Your Coordinator can assist you.

You and your Providers will need to enter into an agreement with Sydney Water. To do this you need to sign and lodge **both originals** of the enclosed Developer Works Deed (Deed) with your nominated Coordinator. You will then need to work with your Coordinator to have the other Providers sign the Deed.

Before signing the Deed, each party must also read and understand the conditions of the agreement that are set out in the Developer Works Deed – Schedule 1: Standard Terms document. That document as well as information about it are available at sydneywater.com.au > Plumbing, building & developing > Developing > Developer deeds & standard terms

The Deed and the Standard Terms set out for this development all parties' roles and responsibilities as well as other information.

You must do all the things that we ask you to do in the Deed. This is because your development does not have sewer services and you must construct and pay for the following works extensions under this Deed to provide these services.

3. Water and Sewer Works

3.1 Water

Your development must have a frontage to a water main that is the right size and can be used for connection.

Sydney Water has assessed your application and found that:

- The drinking water main available for connection is the 150mm main in Rickard Road.

Private Water Services Connection and Metering.

To provide domestic water to the total development you will need to connect to the Sydney Water main. You must lodge an application for this connection at Sydney Water Tap in™. We will then tell you about any requirements you need to meet. Visit www.sydneywater.com.au > Plumbing, building & developing > Building > Sydney Water Tap in™ to find out more.

Visit www.sydneywater.com.au > Plumbing, building & developing > Plumbing > Meters & metered standpipes to find out more about our metering requirements for your development.

Once you have received your final Development Consent and the WSC has determined there are significant changes to the development that affect your design, your WSC will be required to submit a new application.

3.2 Sewer

Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's boundaries.

Sydney Water has assessed your application and found that:

- The developer has indicated that the 300mm wastewater main traversing the property will require deviating due to the basement of the building.
- **Due to growth in the area the main will need to be amplified when it is deviated.** The design will need to be reviewed by ISP when it is lodged due to the size of main and wet weather backwater effect in the network.
- Modelling of the proposed deviation may be required, and the developer needs to include the time in the development program to avoid delays.
- It is a requirement of the proposed deviation that the drop junction or similar size drop is maintained at the downstream maintenance hole.

- **You must construct a waste water main deviation / extension to serve your development**. The terms of the Deed define this extension as ‘Major Works’.

- Because your development requires adjustment/deviation of a “live” wastewater main you must work with your Water Service Coordinator to ensure that:
  - Your Building Plans are approved prior to temporary pipework and excavation,
  - You submit your temporary pipework design (if required) with your permanent wastewater deviation design for approval,
  - Accept in writing to bonding conditions that will be provided in the Bond Agreement,
  - Submit your Bond and signed Bond Agreement,
  - Submit the Construction Commencement Notice for construction of the temporary pipework,
  - Have your temporary pipework constructed by a listed provider, and then
  - Complete your permanent deviation works

3.3 Stormwater Requirements.

Sydney Water has assessed your application and found that:

Activity adjacent to stormwater assets

Proponent must ensure there is no excavation or any other construction activities are to be carried out within 1m from the outside face of the Sydney Water' stormwater pipe/ channel/ assets

Specialist Engineering Assessment

A specialist engineering assessment report is to be prepared addressing "Item 1.10" of "Technical Guidelines – Building Over and Adjacent to Pipe Assets". This report is to be part of your building plan approval submission. Any further requirements are subject to review of this Specialist Engineering Assessment report.

Dilapidation Survey Report

The proponent is required to undertake a dilapidation survey report / CCTV report of the Sydney Water's stormwater channel/ pipe prior to commencement of any work on the site. This report should extent at least 10m upstream and downstream from the property boundary. A copy of this dilapidation report is to be provided to Sydney Water.

This dilapidation survey report/ CCTV Report is to be carried out again upon completion of the all construction work and need to provide an assessment report, confirming that no damage has occurred to Sydney Water's stormwater assets during construction.

Stormwater Connection

If the proposed development is required to discharge stormwater into Sydney Water's stormwater channel, then a separate application is to be forwarded to Sydney Water.

All stormwater connections should comply with Sydney Water's On-Site Detention policy and connection requirements. For further details please contact Sydney Water's Stormwater Team.

Once you have received your final Development Consent and the WSC has determined there are significant changes to the development that affect your design, your WSC will be required to submit a new application.

4. Ancillary Matters

4.1 Flow Management and Isolation of Sydney Water's Asset.

The above works will be constructed with a connection/cut-in to Sydney Water's (wastewater, water and/or stormwater) assets. To see that it complies with Occupational Health and Safety and Environmental legislation you must talk to your coordinator about the timely submission to Sydney Water of a request for flow management and asset isolation requirements.

4.2 Asset Adjustments

After Sydney Water issues this Notice (and more detailed designs are available), Sydney

Water may require that the water main/sewer main/stormwater located in the footway/ your property be adjusted/deviated. If this happens, you will need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. Sydney Water will need to see the completed designs for the work and we will require you to lodge a security. The security will be refunded once the work is completed.

4.3 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use Sydney Water's **Permission to Enter** form(s) for this. You can get copies of these forms from your Coordinator or the Sydney Water website. Your Coordinator can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

4.4 Costs

Construction of these works will require you to pay project management, survey, design and construction costs **directly to your providers**. Additional costs payable to Sydney Water may include:

- design and construction audit fees;
- contract administration, Operations Area Charge & Customer Redress prior to project finalisation; and
- creation or alteration of easements etc.

Note: Payment for any Goods and Services (including Customer Redress) provided by Sydney Water will be required prior to the issue of the Section 73 Certificate or release of the Bank Guarantee or Cash Bond.

Your Coordinator can tell you about these costs.

5. Approval of your Building Plans

You must have your building plans approved by a Water Servicing Coordinator **before the Certificate can be issued. In any case, building construction work MUST NOT commence until Sydney Water has granted approval.** Approval is needed because construction/building works may affect Sydney Water's assets (e.g. water, sewer and stormwater mains).

Where a Sydney Water stormwater channel, pipe or culvert is located within ten (10) metres of your development site it must be referred to Sydney Water for further assessment.

Your Coordinator can tell you about the approval process including:

- Your provision, if required, of a "Services Protection Report" (also known as a "pegout"). This is needed to check whether the building and engineering plans show accurately where Sydney Water's assets are located in relation to your proposed

building work. Your Coordinator will then either approve the plans or make requirements to protect those assets before approving the plans;

- Possible requirements;
- Costs; and;
- Timeframes.

You can also find information about this process (including technical specifications) if you either:

- Visit www.sydneywater.com.au > Plumbing, building & developing > Building > Building over or next to assets. Here you can find Sydney Water's *Technical guidelines - Building over and adjacent to pipe assets;* or
- Call 13 20 92.

Notes:

- **The Certificate will not be issued until the plans have been approved and, if required, Sydney Water's assets are altered or deviated;**
- **You can only remove, deviate or replace any of Sydney Water's pipes using temporary pipework if you have written approval from Sydney Water's Urban Growth Business. You must engage your Coordinator to arrange this approval; and**
- **You must obtain our written approval before you do any work on Sydney Water's systems. Sydney Water will take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994.***

6. Provide the Final Development Consent.

This application is based on the development and consent shown on Page 1. You must give us the **final** Development Consent before we issue the Certificate so we can make sure that the development is the same.

If the development is the same and all the requirements of this Notice have been met, we will issue the Certificate. If the development is NOT the same you must reapply (and pay another application fee) and we will issue another Notice. The requirements and charges may change in that Notice.

OTHER THINGS YOU NEED TO DO:

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement of Sydney Water in the future because of the impact of your development on our assets. You must read them before you go any further.

Disused Sewerage Service Sealing

Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to a Sydney Water sewer main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code

requires this.

Soffit Requirements

Please be aware that floor levels must be able to meet Sydney Water's soffit requirements for property connection and drainage.

Requirements for Business Customers for Commercial and Industrial Property Developments

If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Trade Wastewater Requirements

If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must wait for approval of this permit before any business activities can commence.

The permit application should be emailed to Sydney Water's Business Customer Services at businesscustomers@sydneywater.com.au

It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

A **Boundary Trap** is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention Containment Device** appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can be found on the Sydney Water website:
http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, http://www.waterrating.gov.au/
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at: http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/ or contact Business Customer Services on **1300 985 227** or businesscustomers@sydneywater.com.au

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of Sydney Water’s system

to provide that flow in an emergency. Sydney Water's Operating Licence directs that Sydney Water's mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through Sydney Water Tap in™ and may be of some assistance when defining the fire fighting system. The Statement of Available pressure, may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main is available to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with Sydney Water Tap in™. You, or your hydraulic consultant, may need to supply the following:

- A plan of the hydraulic layout;
- A list of all the fixtures/fittings within the property;
- A copy of the fireflow pressure inquiry issued by Sydney Water;
- A pump application form (if a pump is required);
- All pump details (if a pump is required).

You will have to pay an application fee.

Sydney Water does not consider whether a water main is adequate for fire fighting purposes for your development. We cannot guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to a Sydney Water water main. This work must meet Sydney Water's standards in the Plumbing Code of Australia (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements

The requirements in this Notice relate to your Certificate application only. Sydney Water may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs;
- the installation of backflow prevention devices;
- trade waste requirements;
- large water connections and
- council fire fighting requirements. (It will help you to know what the fire fighting

requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

END OF NOTICE

9 APPENDIX B SPECIALIST ENGINEERING REPORT

Western Sydney University

Bankstown City Campus Development

Specialist Engineering Assessment Report

Revision: 02

Project No.: 10979 01C

Issued For: Review

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Report Amendment Register

Rev. No.	Section & Page No.	Issue/Amendment	Author/Initials		Updated/Initials		Reviewer/Initials	Date	
1		Draft for review	Jacky Hu	JH			SN		15/01/2020
2		Re-Issued Draft Client Review			Jason Bomans	JB			03/03/2020

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1. INTRODUCTION

This report has been prepared by Bonacci Group (NSW) Pty Ltd for the "Specialist Engineering Assessment" of the Sydney Water pipe assets adjacent to the proposed basement excavation works located at 74 Rickard Road Bankstown. The report assesses the impact of the proposed excavation works on the Sydney Water pipe assets. The Sydney Water pipe assets include:

- Existing twin 1200mm diameter reinforced concrete stormwater pipe (RCP) along the northern site boundary on Rickard Road, to be retained
- Existing 2.4(W)x1.22(H)m (adjacent the sites boundary) and a 2.4(W)x1.5(H)m (adjacent Council's property) stormwater box culvert along the eastern site boundary on the Appian Way, to be retained. Box culverts will be referenced by their heights in the remainder of the report.
- Existing 150mm diameter Sydney Water watermain along the eastern site boundary on Appian Way, to be retained
- Existing 300mm diameter Sydney Water sewer along the southern site boundary on Civil Drive, to be demolished
- New 300mm diameter Sydney Water sanitary sewer proposed along the southern site boundary on Civic Drive, to be designed and constructed

The location of the assets relative to the subject site are shown in Figures below (extracted from the Service Protection Report by MGP Pty Ltd dated 27/08/19 and Sydney Water Sewerage Deviation Plan Case No. 177945WW dated 01/04/19).

The 1.5m box culvert and watermain are located within their respective easements along Appian Way. No easements are discovered for the remaining Sydney Water pipe assets described above.

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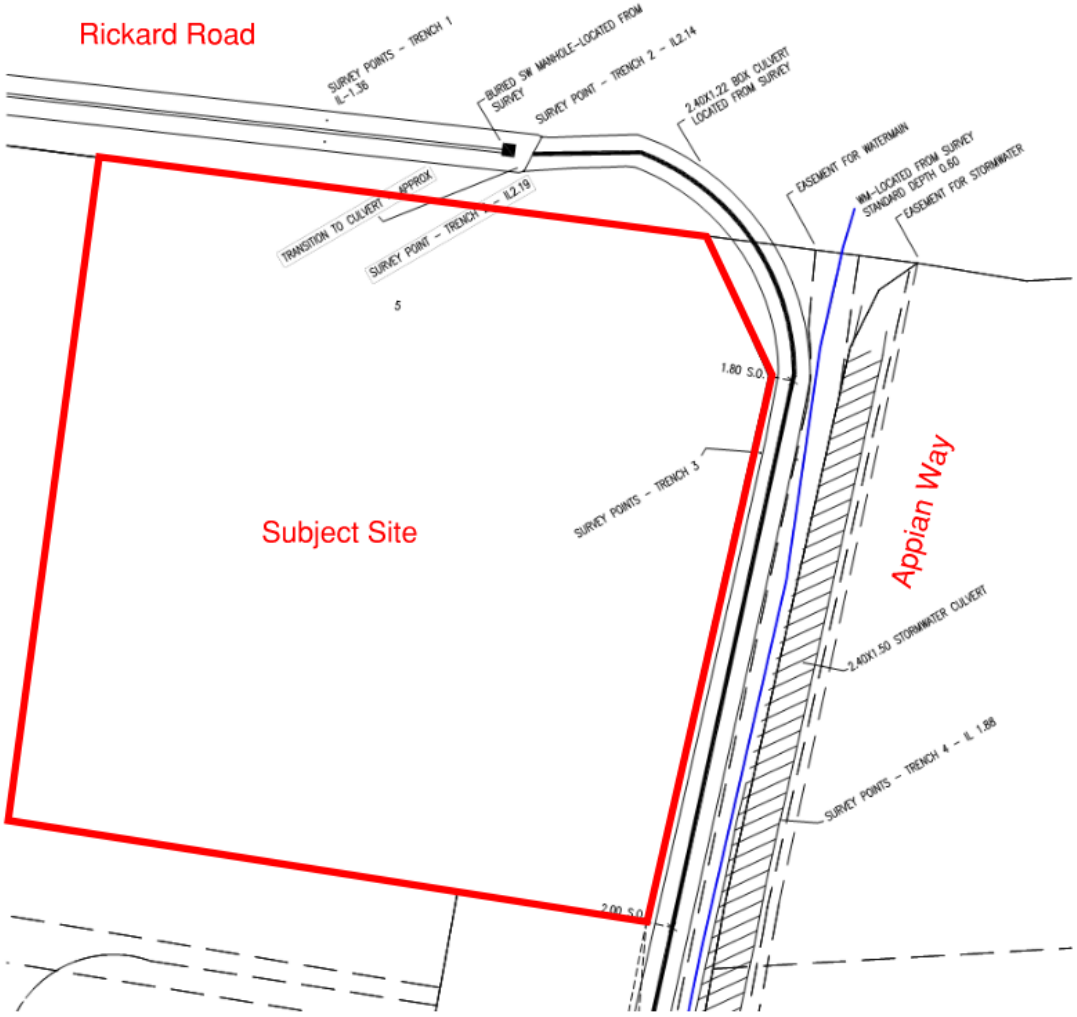

Figure 1-1 Location of existing twin RCP, box culverts & water main

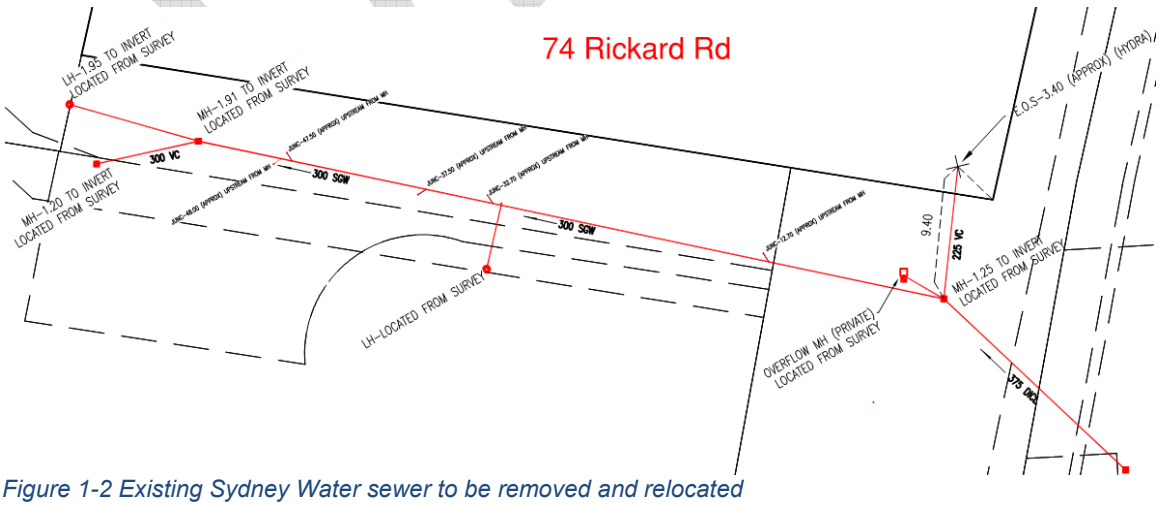

Figure 1-2 Existing Sydney Water sewer to be removed and relocated

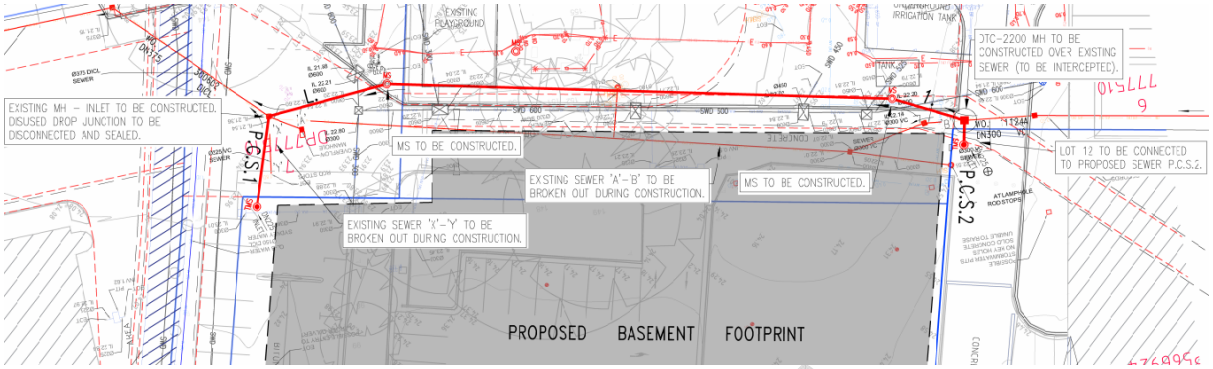

Figure 1-3 Proposed Sydney Water sewer realignment

2. Proposed Civil Works

A Development Application has been submitted to the City of Canterbury Bankstown Council for the basement excavation works located at 74 Rickard Road Bankstown. The proposed civil works (refer to civil drawings in Appendix B of this report) includes:

- Decommission and demolish existing 300mm sewer line within the site boundary of 74 Rickard Road Bankstown
- Construct new 300mm sewer line in accordance with Sydney Water Sewerage Deviation Plan Case No. 177945WW dated 01/04/19 (designed by others)
- Shoring of the site (to structural engineer's details) and bulk excavation of the site to RL 17.38 (refer to civil bulk earthworks plan C01-10, C01-20 and C01-21)
- Civil siteworks including construction of new layback from Rickard Road to Appian Way and removal of planter pots on Appian Way (refer to civil drawing C01-41)
- Establishment of sediment and erosion control methods for the above scope of work (refer to civil drawings C01-05 and C01-06).
- Pedestrian access along Appian Way to Paul Keating park is to be maintained and public vehicle access down Appian Way is closed off for the duration of the works. To prevent public vehicle access down Appian Way, water filled barriers shall be placed adjacent to the new layback.

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3. CONSTRUCTION METHODOLOGY

The following describes the construction methodology that is typical of basement excavation works similar in size and scale to that of the proposed basement excavation works at 74 Rickard Road Bankstown. The contractor's methodology defines the final construction methodology to be adopted on site and the following is an example which would provide guidance to the contractor's methodology necessary to protect the Sydney Water assets.

1. Physically locate, survey and peg out existing Sydney Water sewer, box culvert, water main, twin 1200mm RCP using non-destructive excavation.

2. Trench and construct new sewer line and maintenance shaft in accordance with Sydney Water Sewerage Deviation Plan Case No. 177945WW dated 01/04/19.

3. Construct new sewer manhole over existing sewer line for connection of new sewer line in accordance with Sydney Water Sewerage Deviation Plan Case No. 177945WW dated 01/04/19.

4. Decommission, cap and demolish existing sewer line in accordance with Sydney Water Sewerage Deviation Plan Case No. 177945WW dated 01/04/19. Decommissioning of other services within zone of excavation in accordance with service's engineers' drawings.

5. Drill 600mm diameter hole for the shoring wall to the set out and depths shown on plans, elevations and sections. The level of bases shall be verified and corrected by packing as required.

6. Install the reinforcement cages into the holes, vertical and true to line. Backfill to surface with cement stabilised sand when concrete foundation has hardened sufficiently.

7. Excavate within the site to a level 500mm below top anchor location.

8. Drill, install and stress anchors with minimum clearance of 2m from the new sewer.

9. Excavate between soldiers to the back of the infill wall, remove stabilised sand from keys and bend out tie bars.

10. Construct infill wall panels (these panels may be formed and poured or sprayed).

11. Continue until excavation to bulk earthworks level is achieved. At the lowest section of the wall, excavate and cast strip footing before casting infill wall.

12. Minimum 3 months after pouring ground floor slab, clean out rebates at suspended basements and grout. When grout has attained strength of 32MPa, ground anchors shall be de-stressed and anchor heads removed.

13. Excavators shall load excavated soil onto truck and dogs (approximately 48ton) at the south east site entrance for appropriate disposal off site.

14. 30t road crane shall deliver construction material to the bottom of excavation via Rickard Road site entrance.

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4. CONSTRUCTION EQUIPMENT

The following describes the construction machinery that is typical of basement excavation works similar in size and scale to that of the proposed basement excavation works at 74 Rickard Road Bankstown. Final construction equipment is to be confirmed by the contractor.

- 8-wheeler concrete trucks (approximate weight: 32t)
- 18m truck and dog for removal of spoil (approximate weight: 48t)
- Excavator (approximate weight: 30t)
- Piling rig (approximate weight: xxxxxxxxx)
- Road crane (approximate weight: 30t)
- 8m Bogie tipper (approximate weight: 20t)

5. EXISTING DOCUMENTATION USED IN THE SUPPORT OF THIS REPORT

The Sydney Water pipe assets' location and depth are shown in Appendix A. The shown locations, depths and cover of the assets are based on the following sources of information supplied to Bonacci:

- MGP Service Protection Report drawing SPR2 issue 2
- Trench cards from RPS services plan drawing No. PR140676-Services-001-D.dwg
- As-Built box culvert drawing SWC-85/18 by Gutteridge Haskins & Davey
- Basement Sewer & Stormwater Drainage Issued for Construction plan by Warren Smith & Partners drawing H-101 Revision 3
- Details Sheet Hydraulic Services Issued for Construction plan by Warren Smith & Partners drawing H-111 Revision 3
- Stormwater Potholing Investigation Report by RPS Group Plc dated 13-14/08/2019

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6. Existing Condition of Pipe Assets

The Sydney Water pipe assets condition assessment was completed by Quron Pty Ltd under instruction by MGP as a prequalified provider.

Quron Pty Ltd performed a CCTV condition assessment of Sydney Water pipe assets immediately adjacent the site including the twin 1200 mm diameter stormwater pipes on Rickard Road and also the twin 2400 mm box culverts on Appian Way and provided the results in a condition assessment report for review.

The results varied but can generally be classified as follows;

6.1.1. Existing Twin 1200mm diameter stormwater pipes (Rickard Road)

- Connections appear to be a mixture of good and poor workmanship
- Poor workmanship of connections to the stormwater pipe appear to have exposed pipe reinforcement in numerous areas which has led to the reinforcement corroding to varying degrees
- Tap roots were noted to have reduced the cross-sectional area between 5-20% in portions

Figure 6-1 CCTV Photo Exposed Reinforcement

Figure 6-2 CCTV Photo Poor Connection Workmanship

6.1.2. Existing 1.22m and 1.5m Rectangular Stormwater Box Culverts (Appian Way)

- Connections appear to be a mixture of good and poor workmanship
- A connection was noted as being blocked with rubble
- Poor workmanship of connections to the stormwater pipe appear to have exposed pipe reinforcement in numerous areas which has led to the reinforcement corroding to varying degrees
- Tap roots were noted to have reduced the cross-sectional area between 5-20% in portions
- Changes and reductions in cross sectional area were noted at various points in the alignment especially in the arcs, bends and at the transition between circular and box culvert sections

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Figure 6-3 CCTV Photo Tap Roots Reduction Area

Figure 6-4 CCTV Photo Exposed Reinforcement

As noted previously, the findings varied in different sections of Sydney Water stormwater pipes, however inclusion of tap roots and minor rubble are generally consistent of stormwater infrastructure that's been in commission. Poor workmanship of multiple stormwater connections into the 1200 mm diameter pipes and box culvert infrastructure may have affected the long-term lifecycle of the infrastructure, however this remains to be confirmed.

6.1.3. Post Construction

Sydney Water requires on-site confirmation of Sydney Water assets including a post construction CCTV inspection of the new sewer and existing stormwater pipe assets to close out the approval.

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7. Impact Of Proposed Works on Sydney water Assets

7.1. Horizontal Clearance from Reticulation Sewers

- Sydney Waters requirement is that proposed piles are installed a minimum of 900 mm away from 300 mm or smaller diameter reticulation sewers.

7.1.1. New 300mm Sewer

- Piles will be installed at a minimum clearance of 900mm from face of piles to the face of the new sewer line and piles are to be founded below sewer's zone of influence (see - extracted from Sydney Water Building Over and Adjacent to Pipe Assets Technical Guidelines (SWC BOA) and cross sections in Appendix A). This is achieved as piles are founded below bulk earthworks level RL17.18 and proposed sewer invert slopes from nominally IL22.2-IL21.4m. The proposed sewer is nominally 2.5m horizontally from the face of piles.

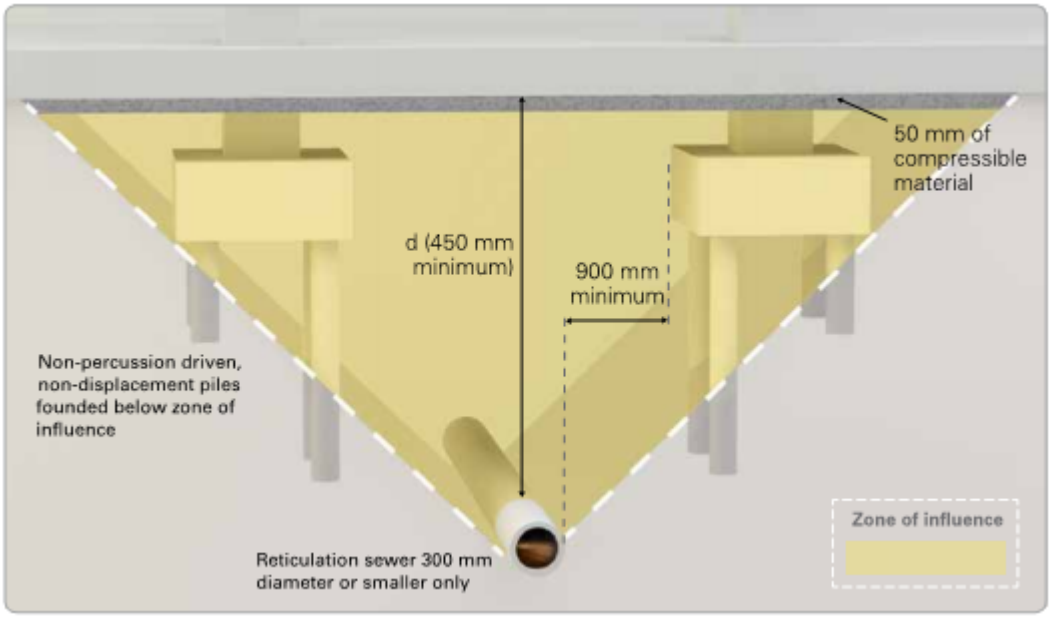

Figure 7-1 Diagram 17 of SWC BOA pipe assets

7.2. Horizontal Clearance from Buildings

- Sydney Waters requirement is that stormwater assets have a 1 metre clearance on either side of the asset with a 1:1 slope up to the ground level outside of the zone of influence from proposed buildings and building basements.

7.2.1. Existing Twin 1,200mm & Box Culvert Stormwater (Rickard Road)

- The existing twin 1200mm diameter stormwater pipes on Rickard Road are located more than 2.5m from the face of the piles to the face of closest pipe and culvert faces. The piles are to be founded below the existing stormwater assets zone of influence, as the piles are founded below bulk earthworks level of RL 17.18 and the obvert of the existing stormwater culverts were potholed at an approximate level of RL 24.51. Refer to Appendix A sections.

- As part of the development application for excavation works for the site at 74 Rickard Road, only minor works associated with footpath and landscaping rectification are expected within the boulevard on the section of Rickard Road where the twin 1200mm RCP are located under. Construction vehicles

(as mentioned in section 4) travelling on Rickard Road are not expected to impact on the twin 1200mm stormwater RCP

7.2.2. Existing 1.22m Box Culvert Stormwater (Appian Way)

- The closest existing stormwater box culvert on Appian Way is located more than 1 metre at the narrowest point and tapers out to more than 3m, from the face of the piles to the face of closest stormwater box culvert. The piles are to be founded below the existing stormwater culverts zone of influence, as the piles are founded below bulk earthworks level of RL 17.18 and the obvert of the existing stormwater culverts were potholed at an approximate level of between RL 24.17 and 23.73. Refer to Appendix A.

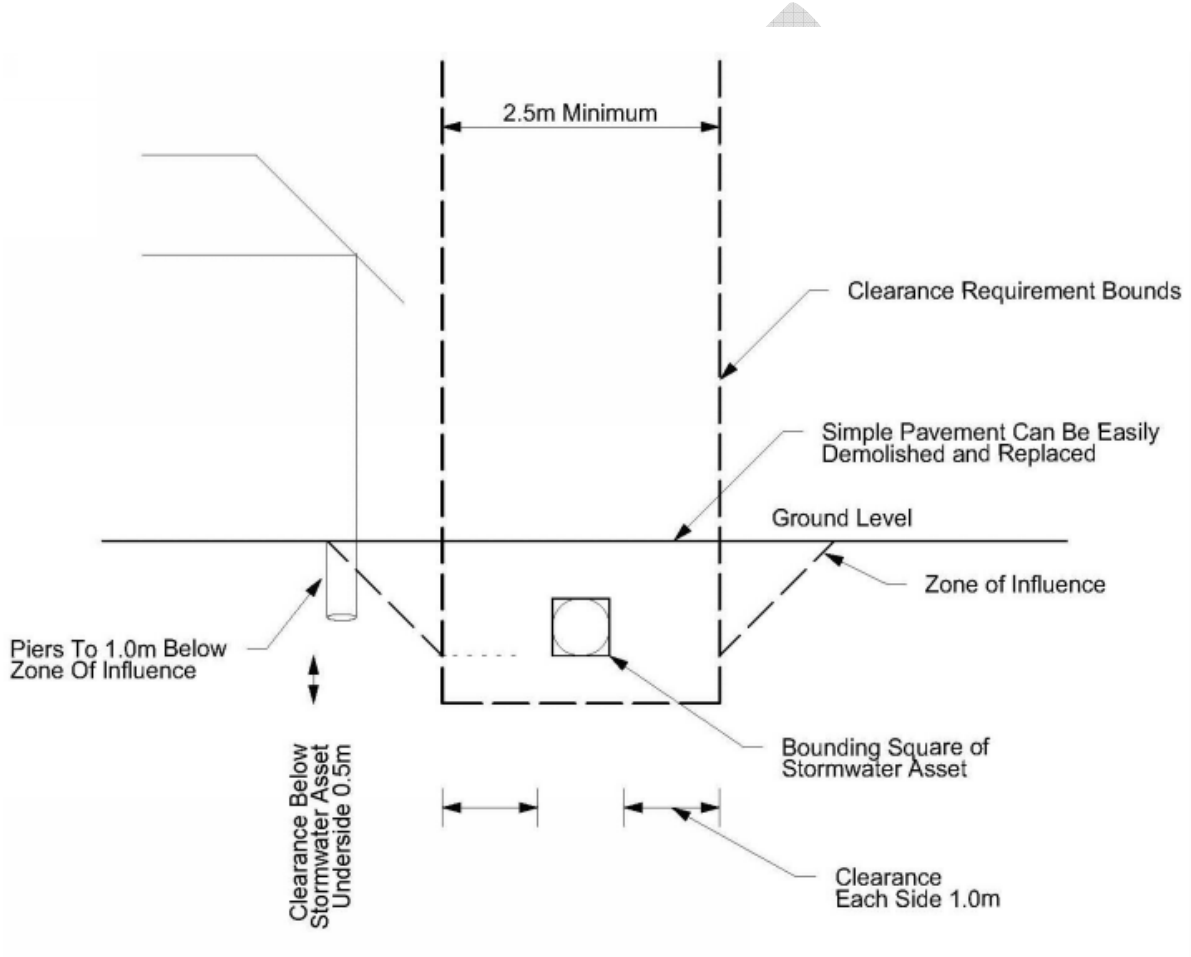

Figure 7-2 from SWC BOA SW Assets

7.3. Construction Loading

- Sydney Waters requirement is that construction equipment is generally permitted above pipes with more than 1.2m of cover above assets with axle loads not exceeding 160 kN.

7.3.1. New 300mm Sewer

- The cover of the new sewer ranges from 1.8m at the western manhole to 2.1m at the eastern manhole as per Figure 7-3. Generally, construction plant with wheel load not exceeding 80kN or axle load not exceeding 160kN is permitted over sewer where there is more than 1.2m of soil cover (see Figure 7-5). Only the section of sewer "PCS1" is located directly under construction vehicle's expected path of travel on Civil Drive (The expected construction vehicle access route is via Civic Dr > Jacob St > Rickard Rd > Stacey St. Refer to Early Works Preliminary Construction Pedestrian Traffic Management Plan by Arup 2019). The other sections of the sewer are outside of boundary/hoarding line and is not expected to receive construction vehicle loading.

  No heavy construction plant or plants exceeding 80kN wheel load is expected to be within PCS1's zone of influence (it is expected only 30t excavator and truck and dogs are to travel on this path and road cranes lifting construction materials into bottom of excavation is expected to occur on Rickard Road site entrance). Where heavy construction plant is required to cross over, a 50mm thick steel plate will be installed over the zone of influence to transfer the plant load to the ground outside the zone of influence. PCS1 trench will be backfilled to hydraulic engineer's specification to provide further support.

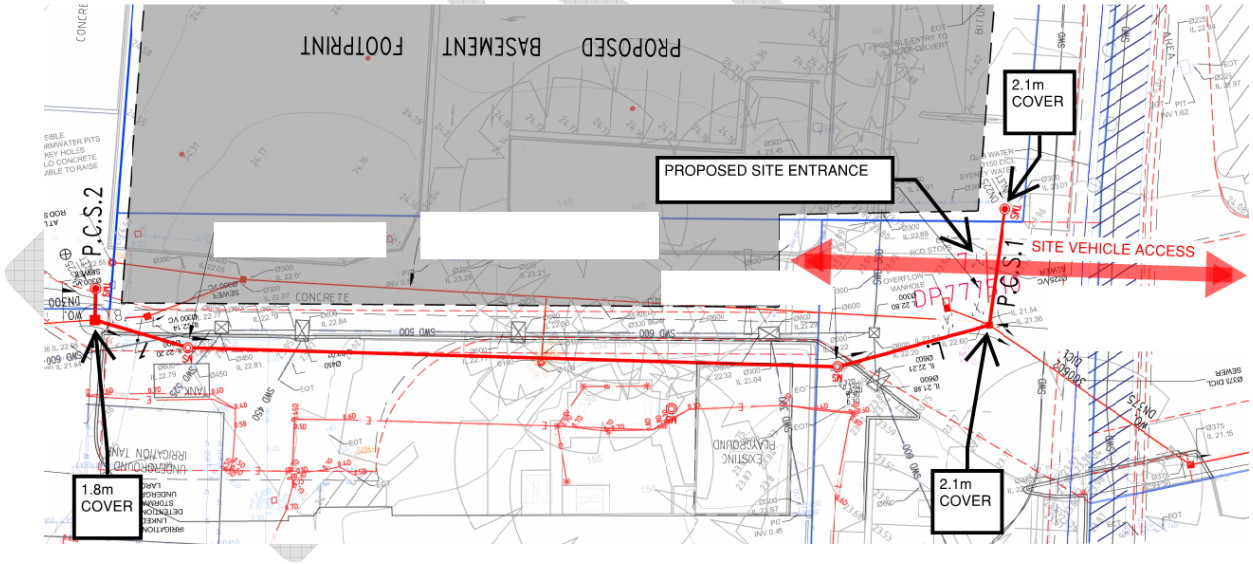

Figure 7-3 Sewer pipe cover

7.3.2. Existing 150mm Watermain

- The cover above the watermain was confirmed through potholing to be between approximately 600mm to 900mm below the existing levels of Appian Way as per MGP Service Protection Report. At the northern section, the watermain crosses under Rickard Road. Rickard Road is a state-owned road and is in a relatively good condition (no major cracks were observed). It is not expected that site vehicles travelling on Rickard Road would have an impact to the watermain as the road pavement is in relatively good condition and therefore would be able to evenly spread the load onto services below.

However, a 50mm thick steel plate will be installed over the zone of influence of the watermain at the south east corner to transfer the plant load to the ground outside the zone of influence (see

- Figure 7-4).

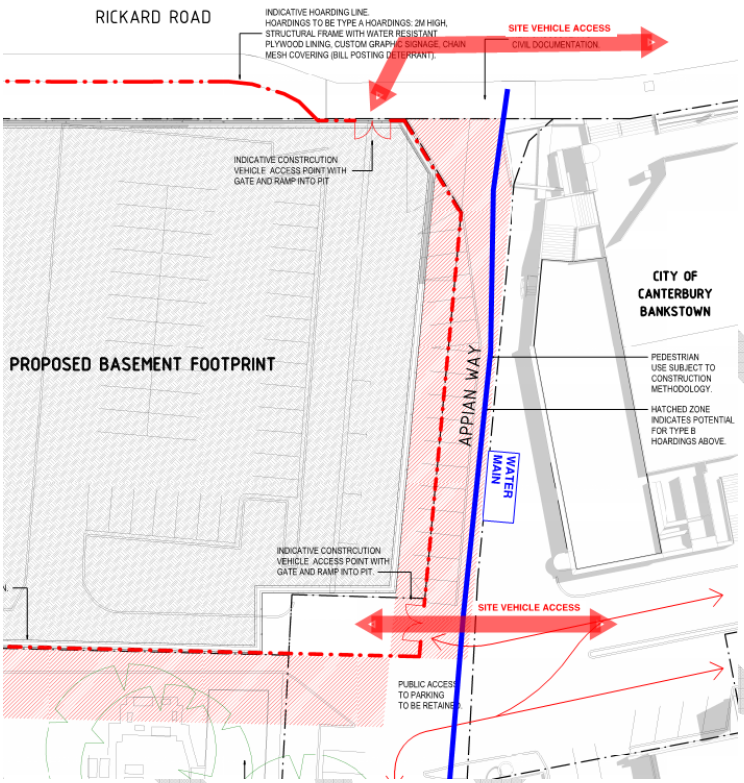

Figure 7-4 Watermain Location

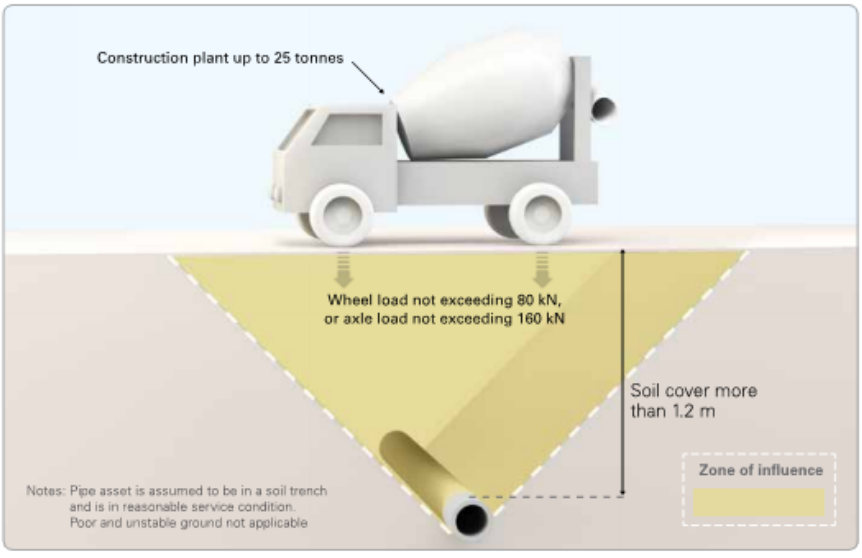

Figure 7-5 Figure 6 of SWC BOA Pipe Assets

7.3.1. Existing 1.22m and 1.5m Stormwater Box Culverts (Appian Way)

- Construction traffic isn't expected to traverse above the existing box culverts on Appian Way. The construction vehicle's expected path of travel is to access route is via Civic Dr > Jacob St > Rickard Rd > Stacey St. Refer to Early Works Preliminary Construction Pedestrian Traffic Management Plan by Arup 2019).

- The box culverts have been constructed using a 250mm thick cast in-situ base slab and a precast unit placed over. As-built details of the box culvert have been obtained from MGP Pty Ltd (refer to as built drawing SWC-85/`8 Bankstown Drainage Salt Pan Creek SWC No 85 Stacey St- Appian Way BCH No85L & Meredith Street BCH No85P. Amplification & Diversion. General Arrangement). The box culverts have been designed to NAASRA T44 standard vehicle + impact and 0-2m of fill. A section of the culverts (sections 20 and 21), have been designed to SCC Mobile Crane outrigger load 150kN and 0-2m of fill (see Figure 7-6). Based on the design loads and subject to the condition assessment of the box culverts, it is not expected that the construction vehicles specified in section 4 would adversely impact the box culverts mentioned.

- Where larger construction plant is required to cross over the box culverts, temporary 50mm steel plates will be installed over the culverts to spread the load outside of the assets' zone of influence at construction road entrances to the site. Refer to

- Figure 7-4 for proposed construction entrances.

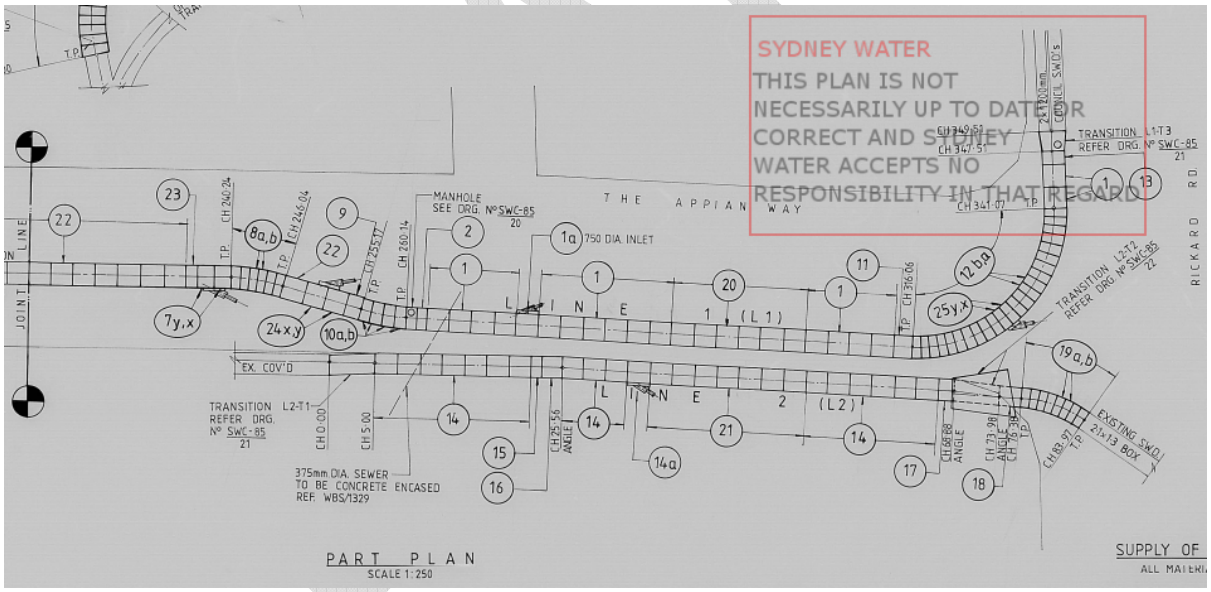

Figure 7-6 As built box culvert- extract from drawing SWC-85/18

7.4. Cover Condition

- Sydney Waters requirement is that proposed sewers have a minimum of 900mm cover and watermains have a minimum of 600 mm cover beneath pavement with vehicular loading

7.4.1. New 300mm Sewer

- The new sewer to be designed by others, is currently proposed at depths of between 1.8-2.1m below the existing ground with cover levels exceeding the 900mm minimum in accordance with Figure 7-7. Refer to cross sections Appendix A.

7.4.2. Existing 150mm Watermain (Appian Way)

- No civil works are proposed to affect the existing 150mm watermain as part of the early works. Potholing has confirmed the existing watermain has a minimum of 600mm cover and more than 900mm cover in areas meeting the cover requirements.

7.4.3. Existing Twin 1200 mm Diameter and Box Culvert (Rickard Road)

- Potholing was undertaken and confirmed the depth of the existing 1200 mm diameter stormwater pipes below the existing ground levels of Rickard Road, by approximately 0.75 metres. Refer to sections in Appendix A for reference.

- Potholing was undertaken and confirmed the depth of the existing 1200 mm diameter stormwater to box culvert convergence to be below the existing ground levels of Rickard Road, by approximately 0.52 metres. Refer to sections in Appendix A for reference.

7.4.4. Existing 1.22m and 1.5m Stormwater Box Culverts (Appian Way)

- Potholing was undertaken and confirmed the depth of the shallower existing stormwater box culvert below the existing ground levels along Appian Way. Potholing confirmed the shallower box culvert at approximately 160-170 mm below the ground levels of Appian Way. Refer to sections in Appendix A for reference.

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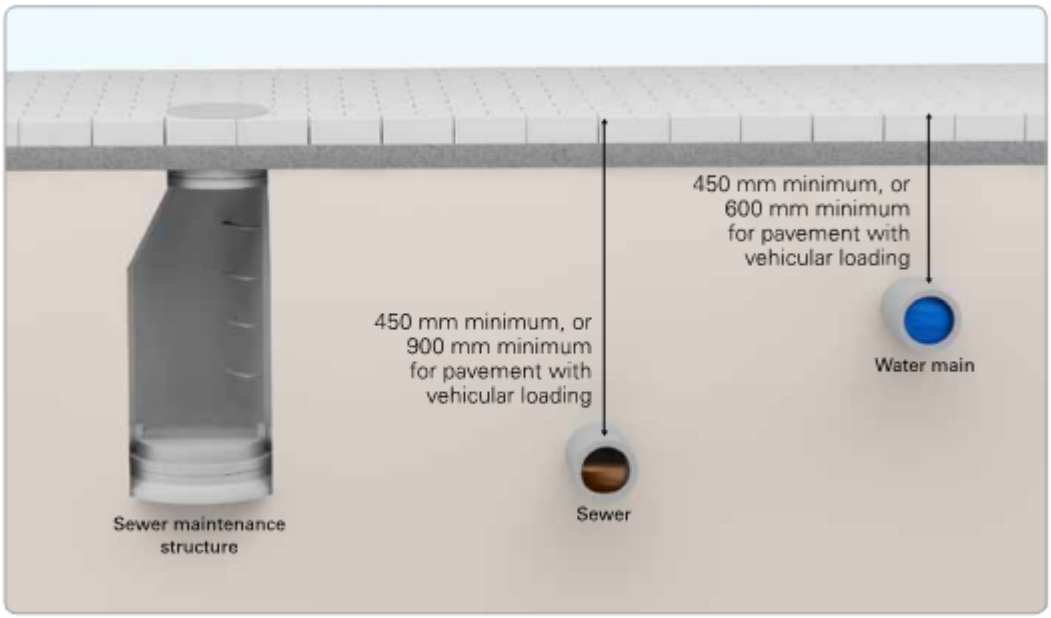

Figure 7-7 Diagram 4 SWC BOA Pipe Assets

7.5. Maintenance Space

- Sydney Waters requirement is that proposed sewers have 1 metre clear unobstructed working space at ground level for maintenance holes and 0.6 metre unobstructed working space at ground level for maintenance shafts

7.5.1. New 300mm Sewer

- Maintenance holes and maintenance shafts have approximately 1m and 0.6m working space around respectively (see Figure 7-8).

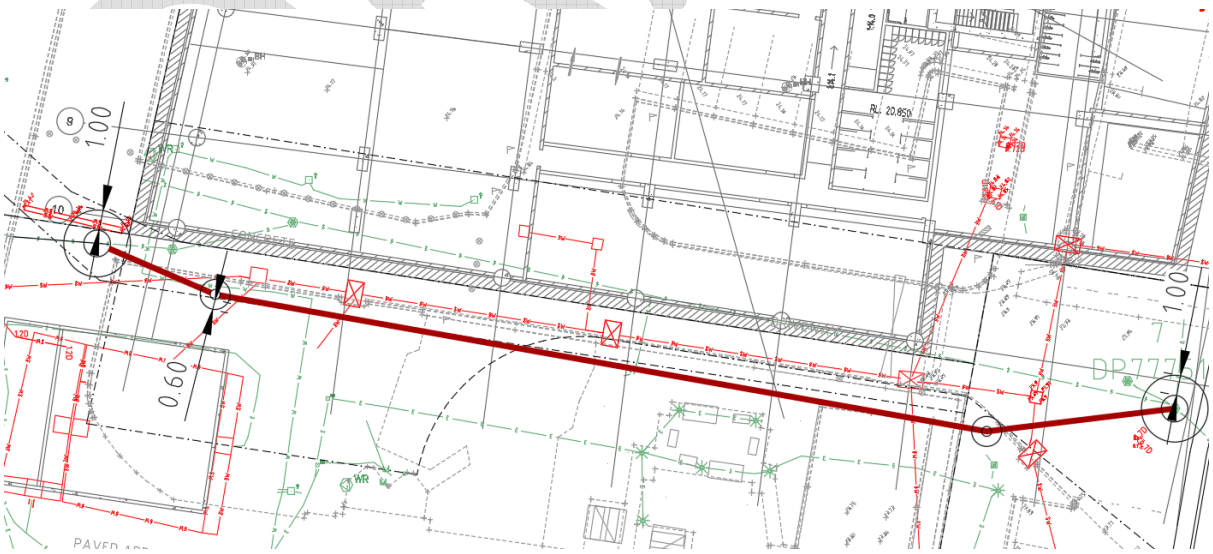

Figure 7-8 Sewer MH and MS working clearance

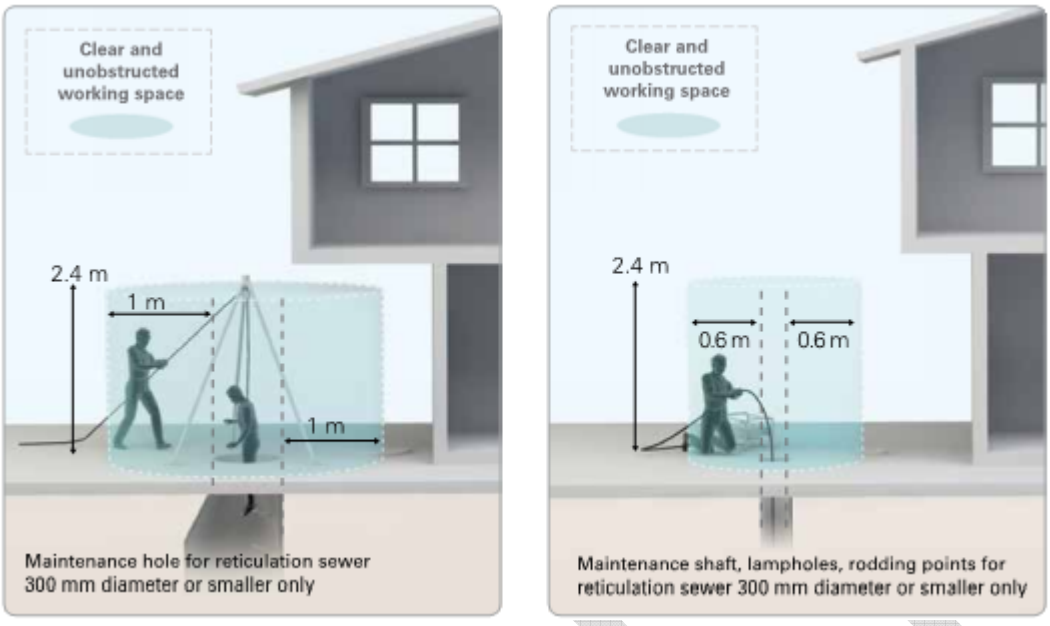

Figure 7-9 Diagram 6 and 7 of SWC BOA Pipe Assets

7.6. Anchor Clearance

- Sydney Waters requirement is that pipe assets have a 2-meter minimum from the influence of excavation and ground anchors.

7.6.1. New 300mm Sewer

- The proposed sewer is located within the excavation zone of influence for the building as well as located in the vicinity of building ground anchors. However, a 2m clearance has been achieved as accordance with Figure 7-10. See section S9/S10 as shown in Appendix A.

7.6.2. Existing 150mm Watermain (Appian Way)

- The existing water main is located within excavation zone of influence and is in the vicinity of ground anchors. A 2m clearance minimum is achieved throughout Appian Way in accordance with Figure 7-10. The existing watermain is protected on either side between two existing stormwater box culverts. See sections shown in Appendix A.

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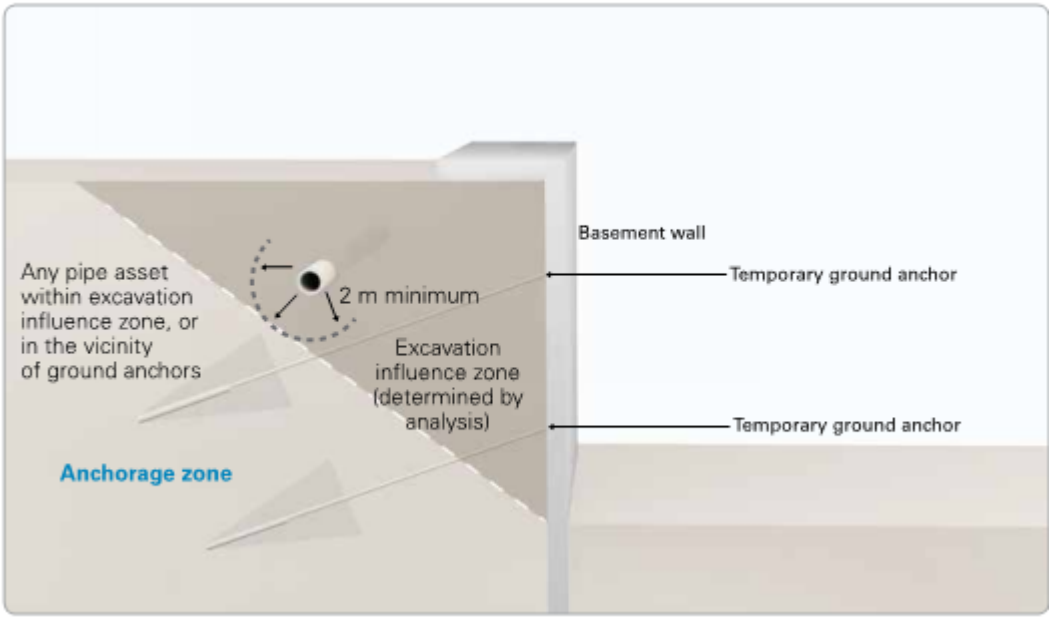

Figure 7-10 Diagram 20 of SWC BOA Pipe Assets

7.7. Clearance to Water Tanks / Stormwater Chambers

- Sydney Waters requirement is that reticulation sewers 300mm diameter and smaller can be built a minimum of 600mm from the pipe wall.

7.7.1. New 300mm Sewer

- An existing rainwater tank is located at the south western corner of the development (see civil drawing C01-41 and Figure 7-11). The tank location and layout has been estimated from RPS Australia existing services survey drawing No.PR140676. The dimensions and depths of the tank have been estimated from Issued For Construction drawings H-101 revision 3 by Warren Smith & Partners. The proposed sewer line is located at approximately 4m from the tank location and therefore satisfies the 600mm minimum clearance to tank wall as shown in Figure 7-13.

- An existing stormwater chamber is located at the south wester corner of the development (see civil drawing C01-41 and Figure 7-11). This chamber was located during a potholing investigation as evidenced above however exact details were not provided and it is proposed that a further investigation regarding this infrastructure is undertaken prior to the sewer alignment being finalized and or demolished on-site during construction.

7.7.2. Existing 150mm Watermain (Appian Way)

- The existing watermain is not known to be affected by any proposed or existing rainwater tanks.

7.7.3. Existing Twin 1,200mm & Box Culvert Stormwater (Rickard Road)

- The existing twin 1200 mm box culverts are not known to be affected by any known proposed or existing rainwater tanks.

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7.7.4. Existing Twin Box Culvert Stormwater (Appian Way)

The existing twin 1200 mm box culverts are not known to be affected by any known proposed or existing rainwater tanks.

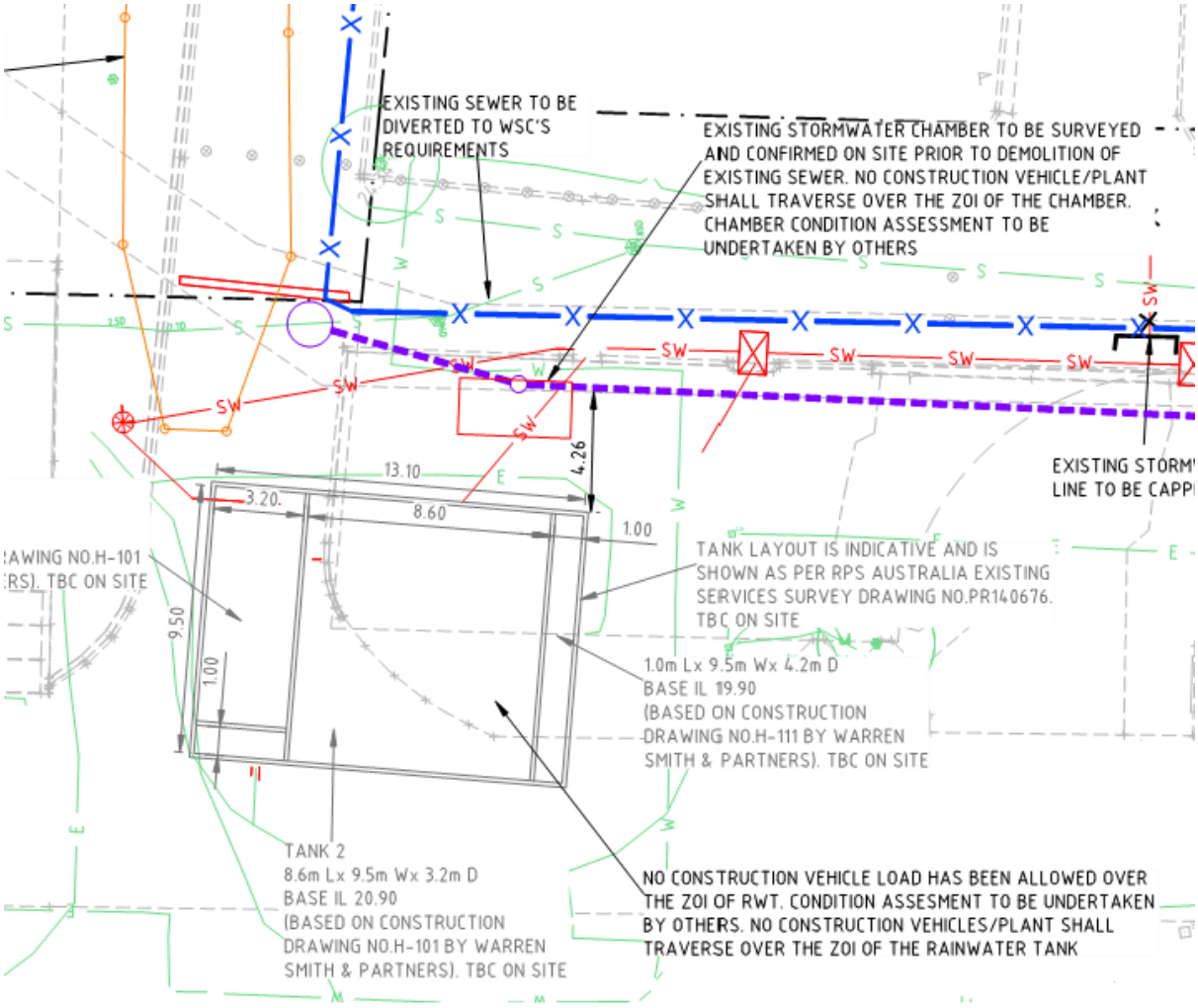

Figure 7-11 Extract from civil drawing C01-41

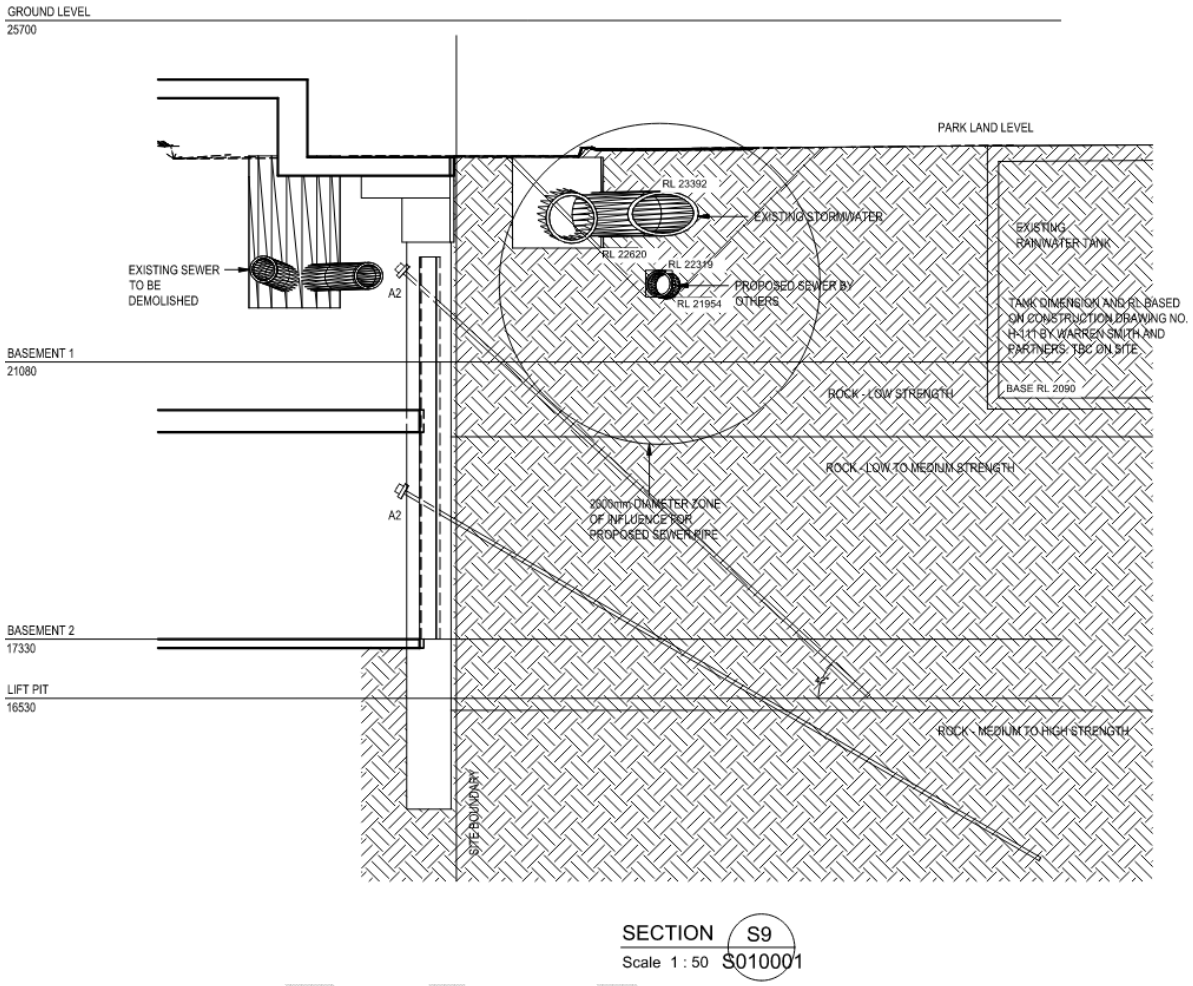

Figure 7-12 Clearance to Water Tank

A stormwater pit chamber is located adjacent to the water tank (refer to civil drawing C01-41). The pit chamber location was discovered during a potholing and CCTV investigation; however, the information was not definitive and shall be surveyed and confirmed on site prior to demolition of the existing sewer and a condition assessment is to be undertaken as part of early works.

7.7.5. Domestic Swimming Pools

None of the existing Sydney Water assets are known to be affected by domestic swimming pools as per Figure 7-13 & 7-14 below.

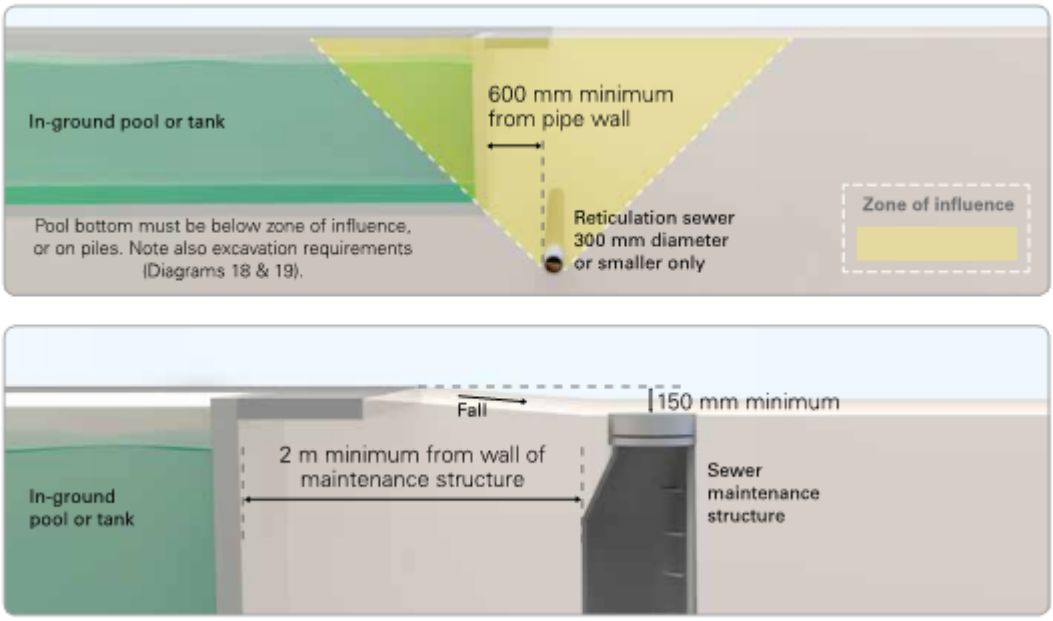

Figure 7-13 Diagram 13 of SWC BOA Pipe Assets

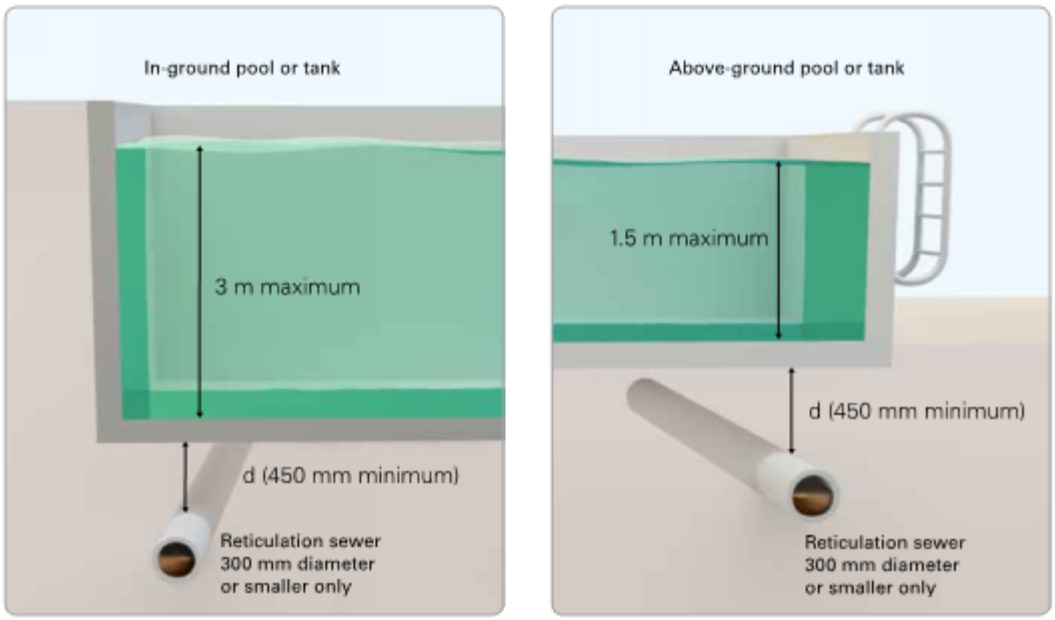

Figure 7-14 Diagram 14 of SWC BOA Pipe Assets

Appendix A

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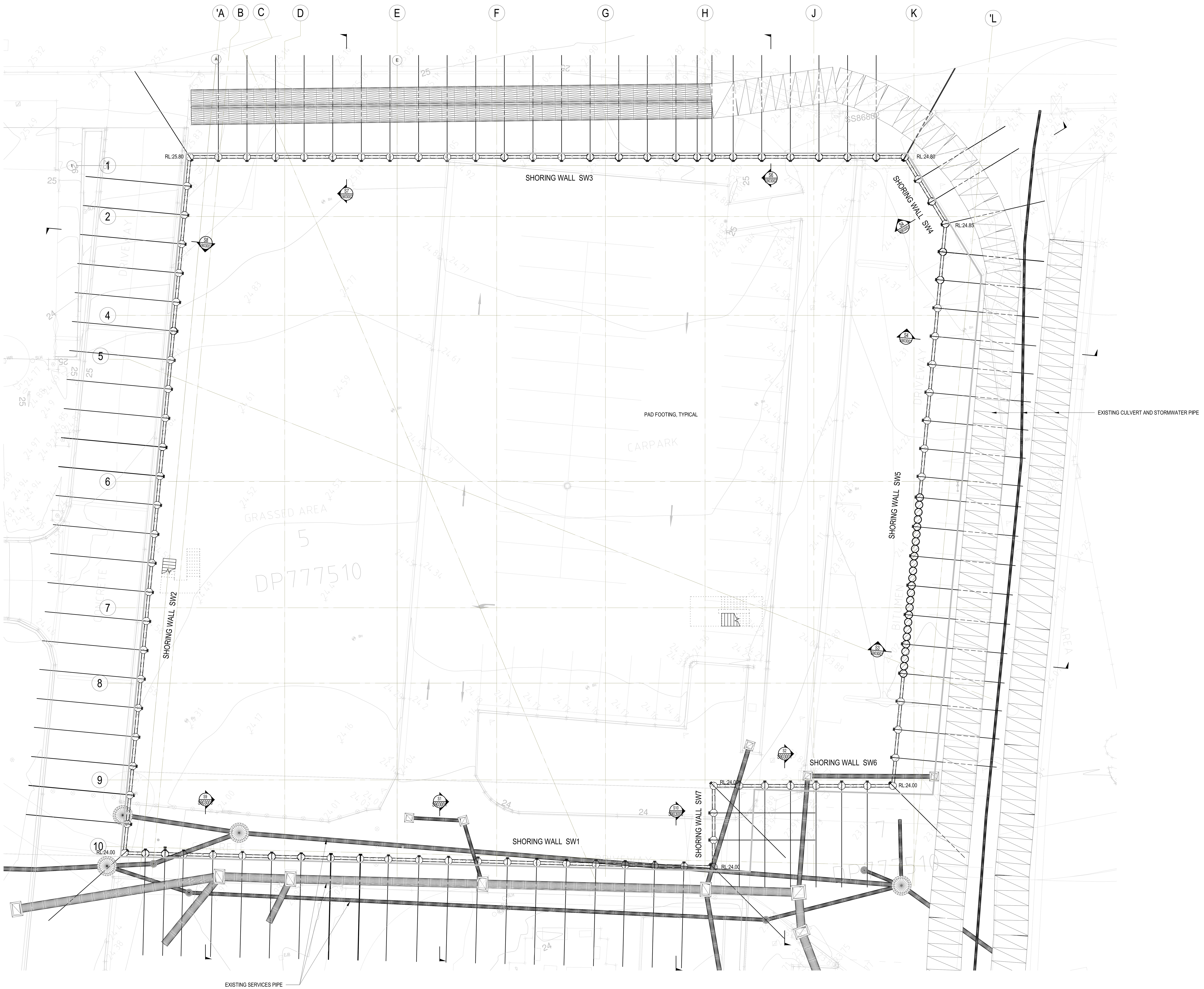

EXISTING SERVICES PLAN

Rev	Description	Date	By	App
B	ISSUED FOR INFORMATION	15.01.20	PA	
A	ISSUED FOR INFORMATION	21.10.19	PA	

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EARLY WORKS
EXISTING SERVICES PLAN

DESIGN DEVELOPMENT

Designed	V.C	Project Director Approved	Date	North
Drawn	C.R			
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Date	11/03/19	10979	S901010	B
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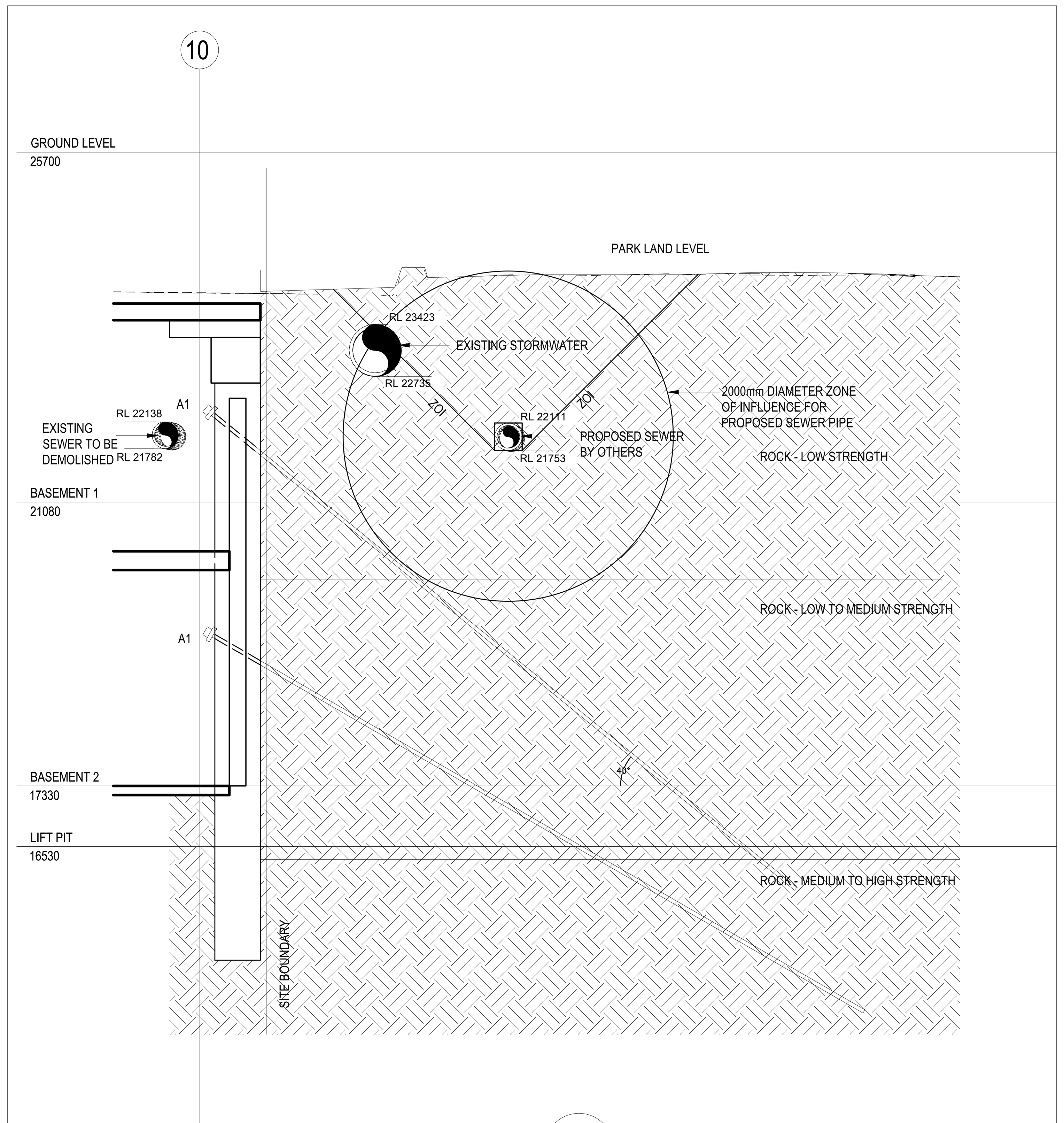
B1



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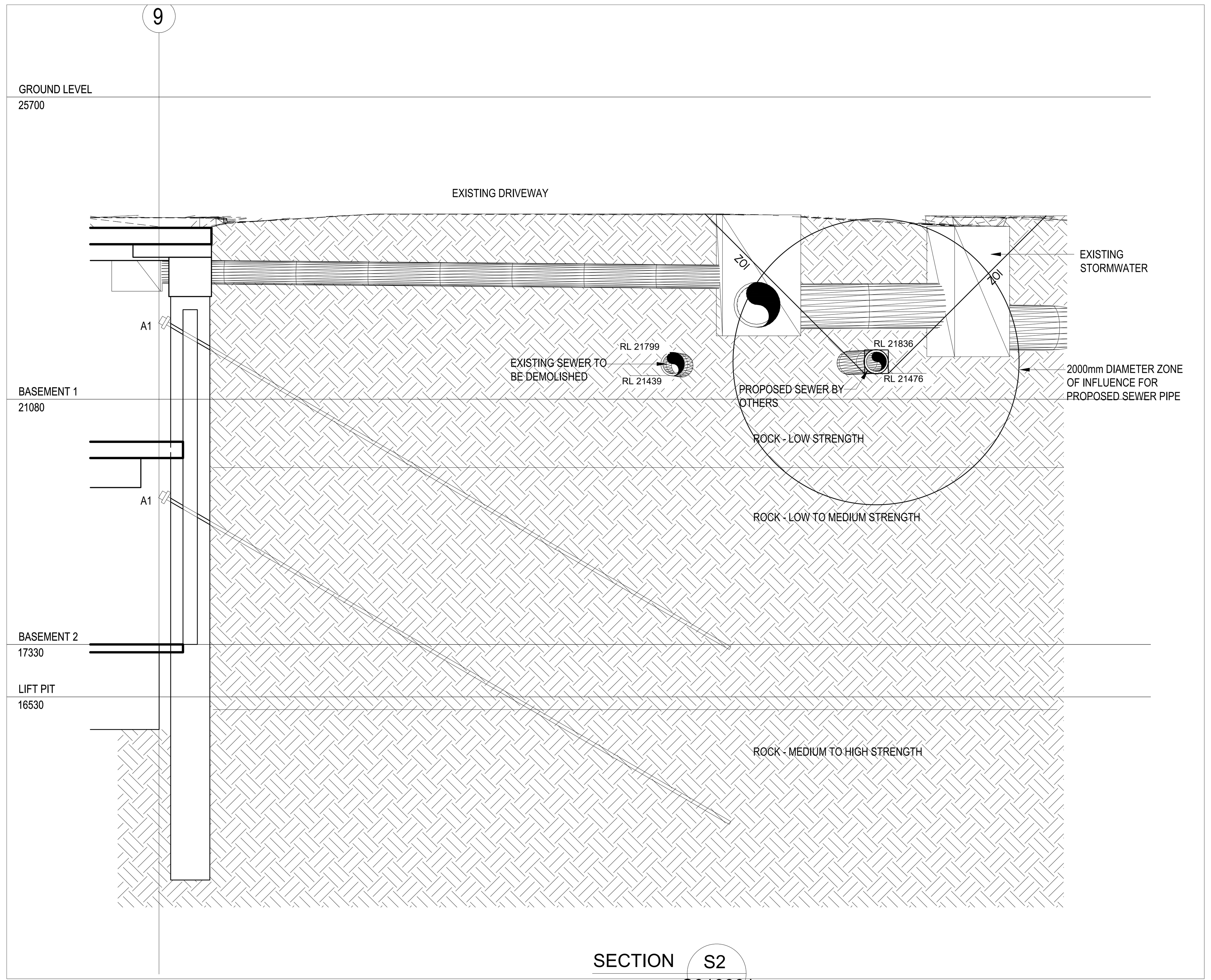

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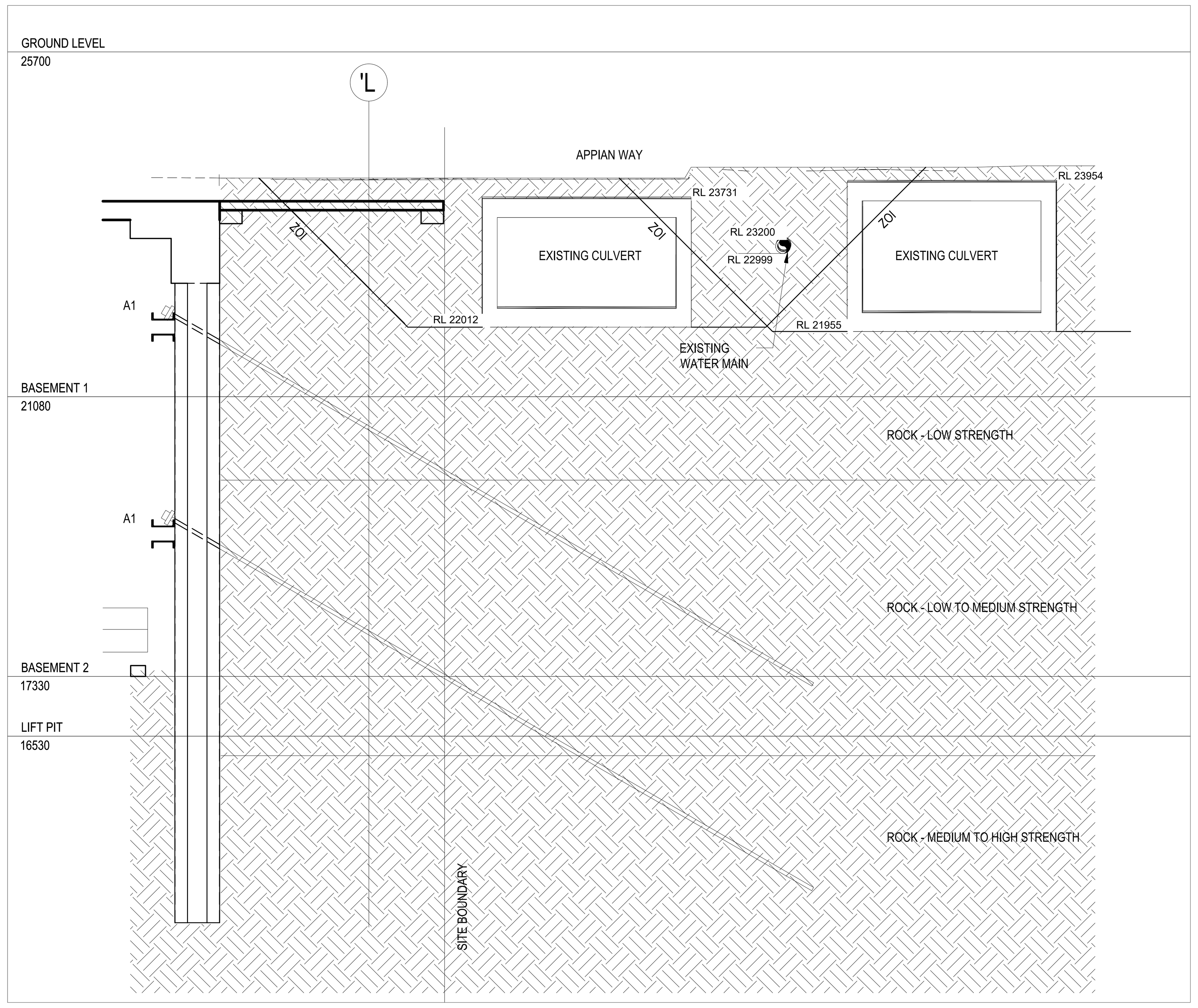

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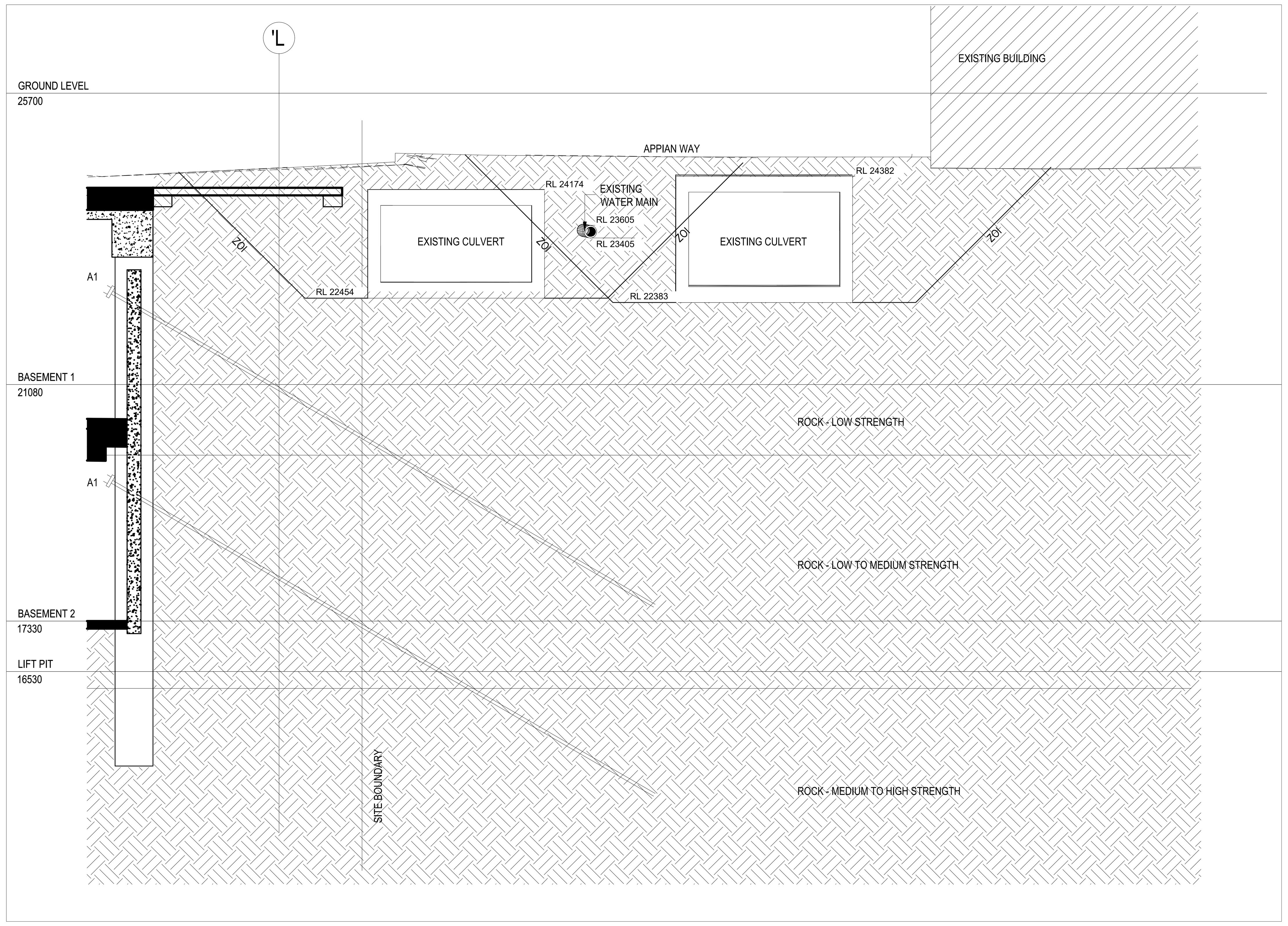

SECTION S4
Scale 1 : 50 S010001

NOTE:
LOCATION, INVERT & SIZE OF EXISTING STORMWATER CULVERTS HAVE BEEN BASED ON
1. MGP SERVICE PROTECTION REPORT DWG SPR2 ISSUE 2
2. TRENCH CARDS FROM RPS SERVICES PLAN DRAWING NO. PR140676-SERVICES-001-D.dwg
3. AS-BUILT BANKSTOWN DRAINAGE SALT PAN CREEK SWC NO. 85 STACEY ST-APPIAN WAY BCH NO85L & MEREDITH STREET BCH NO85P. AMPLIFICATION & DIVERSION. GENERAL ARRANGEMENT DRAWING NO. SWC-85/18
4. ASSUMED TOP THICKNESS OF CULVERT 250mm.

LOCATION, INVERT & SIZE OF EXISTING WATER MAIN HAVE BEEN BASED ON
1. MGP SERVICE PROTECTION REPORT DWG SPR2 ISSUE 2
2. TRENCH CARDS FROM RPS SERVICES PLAN DRAWING NO. PR140676-SERVICES-001-D.dwg

LOCATION, INVERT & SIZE OF PROPOSED SEWER AND EXISTING WATER TANK ADJACENT TO PROPOSED SEWER TO BE CONFIRMED BY MGP.

Rev	Description	Date	By	App
c	ISSUED FOR INFORMATION	15.01.20	CR	
B	ISSUED FOR INFORMATION	21.10.19	CR	
A	ISSUED FOR EARLY WORKS DA	23.08.19	CR	

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EARLY WORKS SHORING WALL SECTIONS SHEET 1

DESIGN DEVELOPMENT

Designed	V.C	Project Director Approved	Date	North
Drawn	C.R			
Scale	1:50	Project Ref.	Drawing No.	Rev
Date	11/03/19	10979	S903001	C
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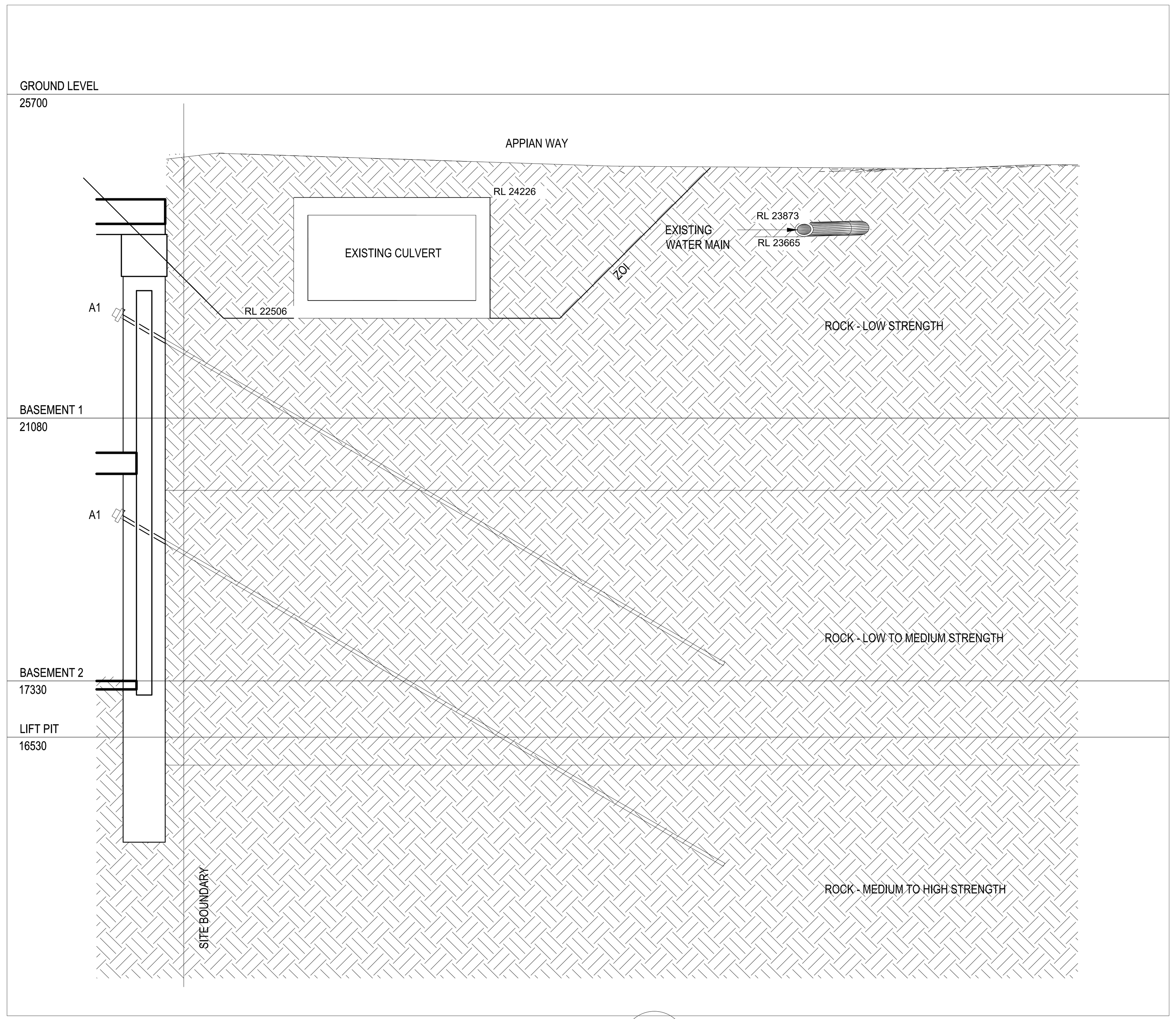

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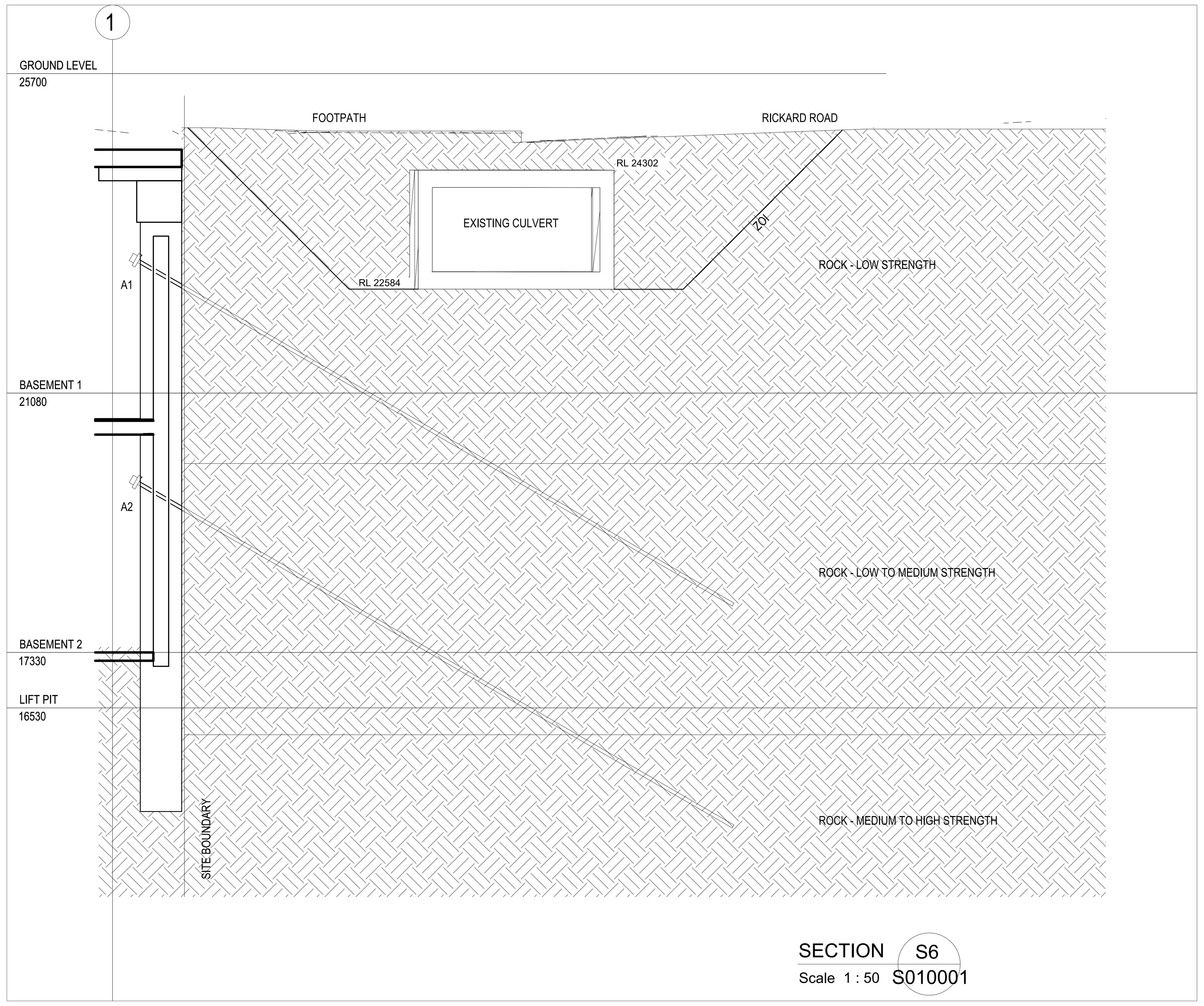

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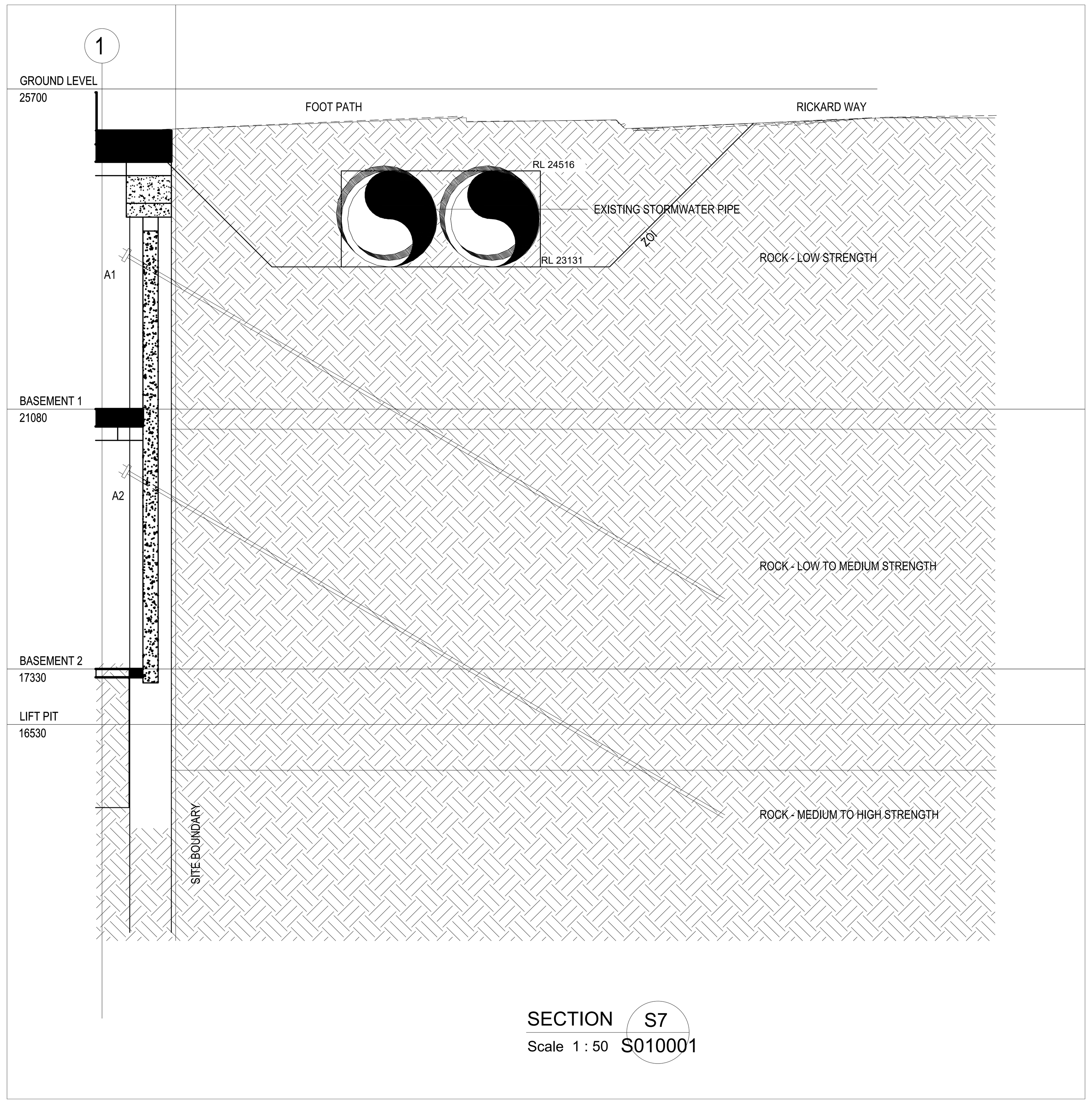

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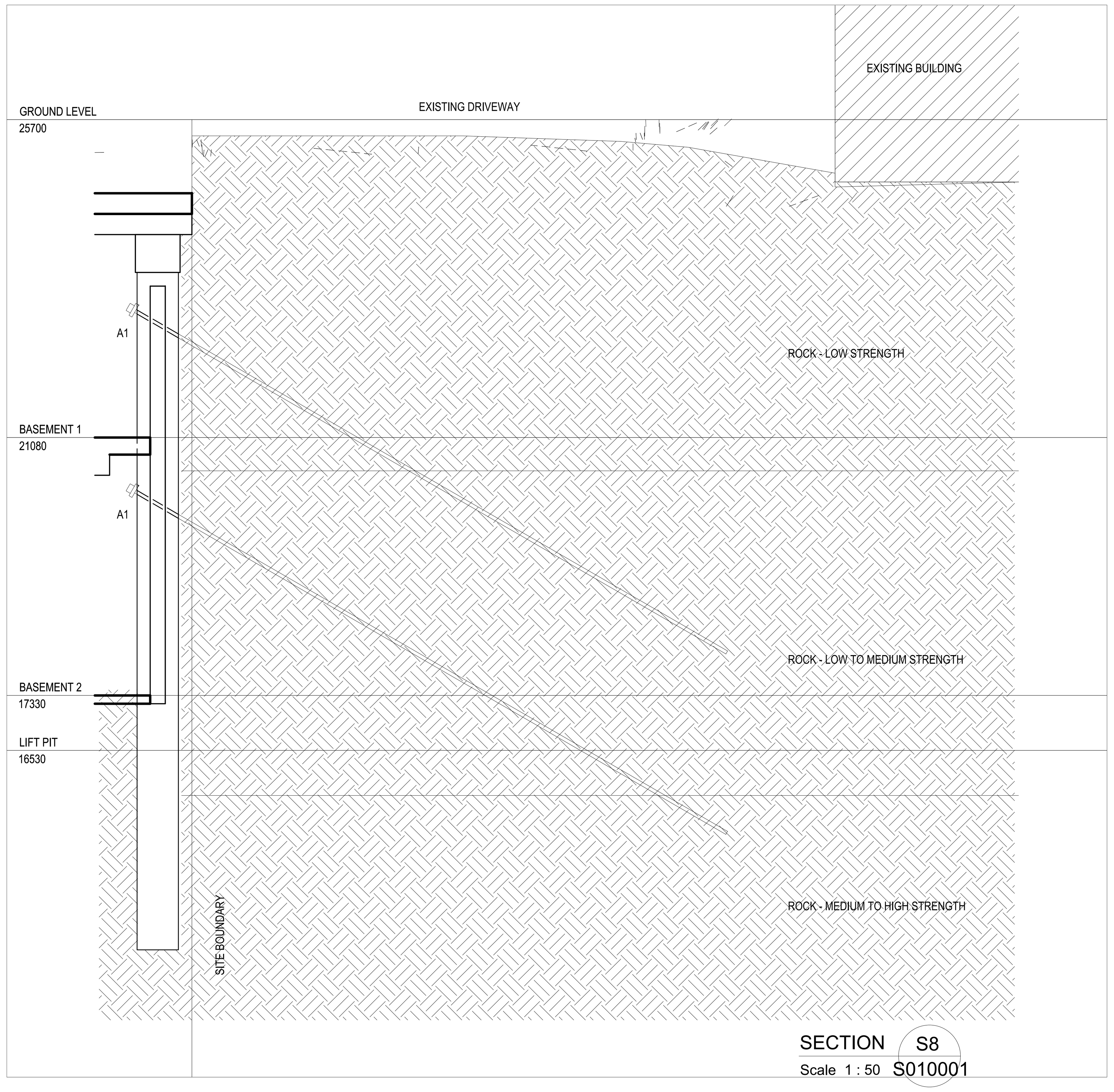

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NOTE:

LOCATION, INVERT & SIZE OF EXISTING STORMWATER CULVERTS HAVE BEEN BASED ON

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2. TRENCH CARDS FROM RPS SERVICES PLAN DRAWING NO. PR140676-SERVICES-001-D.dwg
3. AS-BUILT BANKSTOWN DRAINAGE SALT PAN CREEK SWC NO. 85 STACEY ST-APPIAN WAY BCH NO85L & MEREDITH STREET BCH NO85P. AMPLIFICATION & DIVERSION. GENERAL ARRANGEMENT DRAWING NO. SWC-85/18
4. ASSUMED TOP THICKNESS OF CULVERT 250mm.

LOCATION, INVERT & SIZE OF EXISTING WATER MAIN HAVE BEEN BASED ON

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2. TRENCH CARDS FROM RPS SERVICES PLAN DRAWING NO. PR140676-SERVICES-001-D.dwg

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B	ISSUED FOR INFORMATION	15.01.19	CR	
B	ISSUED FOR INFORMATION	21.10.19	CR	
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EARLY WORKS
SHORING WALL SECTIONS
SHEET 2

DESIGN DEVELOPMENT

Designed	V.C	Project Director Approved	Date	North
Drawn	C.R			
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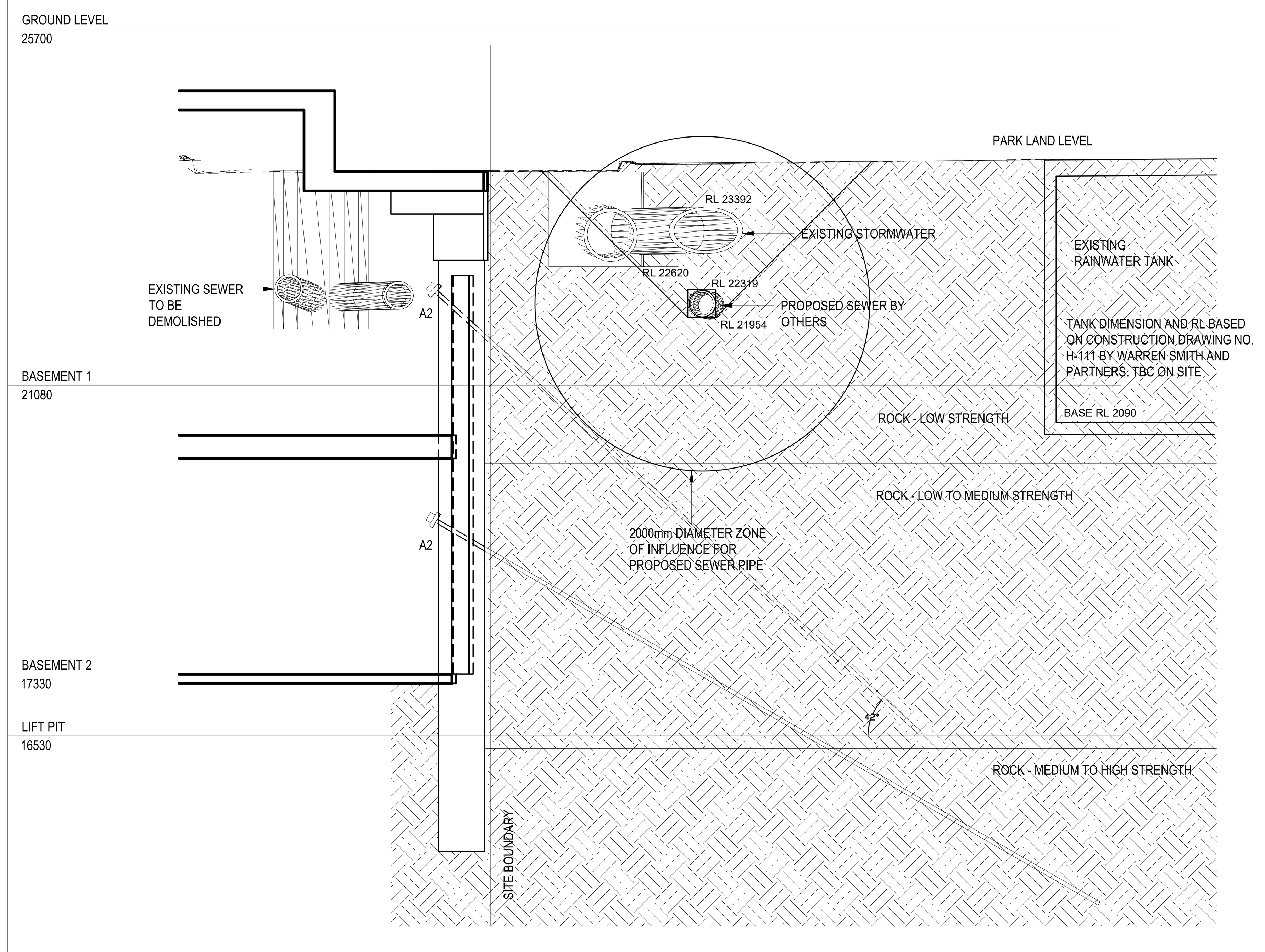

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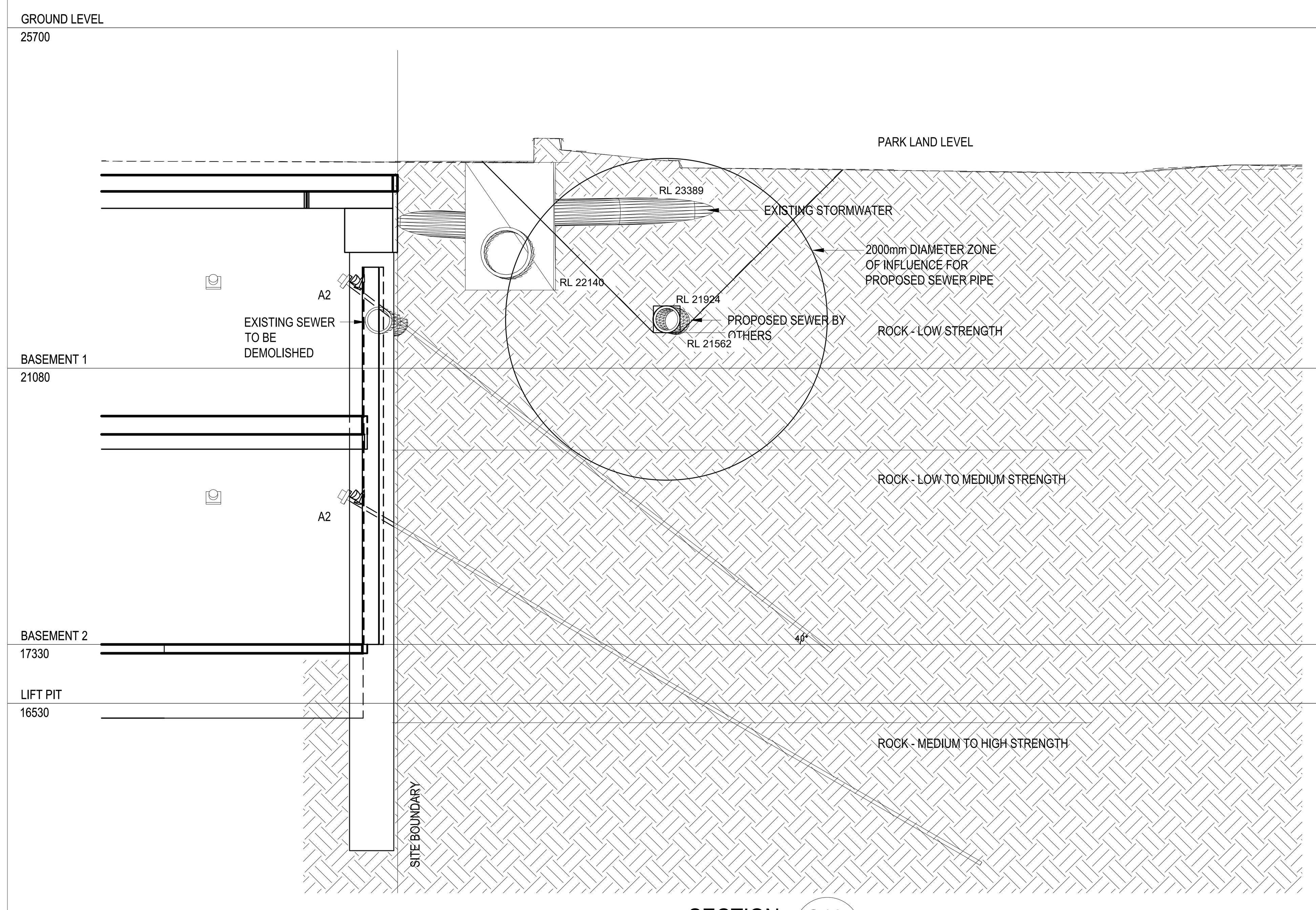

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NOTE:
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LOCATION, INVERT & SIZE OF EXISTING WATER MAIN HAVE BEEN BASED ON
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EARLY WORKS
SHORING WALL SECTIONS
SHEET 3

DESIGN DEVELOPMENT

Designed	V.C	Project Director Approved	Date	North
Drawn	C.R			
Scale	1:50	Project Ref.	Drawing No.	Rev
Date	11/03/19	10979	S903003	B
Sheet	B1			

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Appendix B

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WESTERN SYDNEY UNIVERSITY
BANKSTOWN CITY CAMPUS DEVELOPMENT-EARLY WORKS

DRAWING No.	DESCRIPTION
C01-01	EARLY WORKS DRAWING REGISTER AND CONSTRUCTION NOTES
C01-05	EARLY WORKS SEDIMENT AND EROSION CONTROL PLAN
C01-06	EARLY WORKS SEDIMENT AND EROSION CONTROL DETAILS
C01-10	EARLY WORKS BULK EARTHWORKS PLAN
C01-20	EARLY WORKS BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 1
C01-21	EARLY WORKS BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 2
C01-41	EARLY WORKS SITEWORKS PLAN
C01-65	EARLY WORKS COUNCIL STANDARD LAYBACK

GENERAL NOTES

G1 THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANTS DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS OR SKETCHES AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE SUPERINTENDENT BEFORE PROCEEDING WITH WORK.

G2 MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE SPECIFICATION, CURRENT SAA CODES, BUILDING REGULATIONS AND THE REQUIREMENTS OF ANY OTHER RELEVANT STATUTORY AUTHORITIES.

G3 THESE DRAWINGS MUST NOT BE SCALED. ALL DIMENSIONS ARE IN METERS. ALL SET OUT DIMENSIONS AND LEVELS, INCLUDING THOSE SHOWN ON THESE DRAWINGS SHALL BE IN ACCORDANCE WITH THE ARCHITECT'S DRAWINGS AND VERIFIED ON SITE.

G4 ALL SETOUT AND DIMENSIONS OF THE STRUCTURE INCLUDING KERBS AND RETAINING WALLS, AND BULK EARTHWORKS MUST BE TAKEN FROM THE ARCHITECT'S DRAWINGS. SETOUT OF THE STORMWATER PITS BY OTHERS. CONTRACTOR TO CONFIRM SETOUT OF SERVICE TRENCHING INCLUDING SUBSOIL ON SITE.

G5 THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS OF AUTHORITIES HAVING JURISDICTON OVER THE WORKS. REFER TO GEOTECHNICAL REPORT BY DOUGLAS PARTNERS, PROJECT NO. 86462.00, DATED AUGUST 2018.

G6 ALL DIMENSIONS AND REDUCED LEVELS MUST BE VERIFIED ON SITE BEFORE THE COMMENCEMENT OF ANY WORK.

G7 THE APPROVAL OF A SUBSTITUTION SHALL BE SOUGHT FROM THE SUPERINTENDENT BUT IS NOT AN AUTHORISATION OF A COST VARIATION. THE SUPERINTENDENT MUST APPROVE ANY COST VARIATION INVOLVED BEFORE ANY WORK STARTS.

G8 ALL LEVELS SHOWN ARE TO THE AUSTRALIAN HEIGHT DATUM.

G9 SERVICE INFORMATION SHOWN IS APPROXIMATE ONLY. PRIOR TO COMMENCEMENT OF ANY WORKS, THE CONTRACTOR SHALL LOCATE ALL UNDERGROUND SERVICES AND COMPLY WITH ALL REQUIREMENTS OF THOSE AUTHORITIES.

G10 EXISTING SURFACE CONTOURS, WHERE SHOWN, ARE INTERPOLATED AND MAY NOT BE ACCURATE.

G11 UNLESS NOTED OTHERWISE, ALL VEGETATION SHALL BE STRIPPED TO A MINIMUM DEPTH OF 150mm UNDER ALL PROPOSED PAVEMENT AND BUILDING AREAS.

G12 MAKE SMOOTH CONNECTION WITH ALL EXISTING WORKS.

KERBING NOTES

K1 ALL CONCRETE TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 32 MPa U.N.O.

K2 ALL KERBS, GUTTERS, DISH DRAINS AND CROSSINGS TO BE CONSTRUCTED ON 75mm GRANULAR BASECOURSE COMPACTED TO A MINIMUM 98% MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS1289 5.2.1.

K3 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 MAX 12m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE EXPANSION JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K4 WEAKENED PLANE JOINTS TO BE MIN 3mm WIDE AND LOCATED AT 3m CENTRES EXCEPT FOR INTEGRAL KERBS WHERE THE WEAKENED PLANE JOINTS ARE TO MATCH THE JOINT LOCATIONS IN THE SLAB.

K5 BROOMED FINISH TO ALL RAMPED AND VEHICULAR CROSSINGS. ALL OTHER KERBING OR DISH DRAINS TO BE STEEL FLOAT FINISHED.

K6 IN THE REPLACEMENT OF KERBS:-
- EXISTING ROAD PAVEMENT IS TO BE SAWCUT 900mm U.N.O. FROM THE LIP OF GUTTER. UPON COMPLETION OF THE NEW KERB AND GUTTER, NEW BASECOURSE AND SURFACE TO BE LAID 600mm WIDE U.N.O.
- EXISTING KERBS ARE TO BE COMPLETELY REMOVED WHERE NEW KERBS ARE SHOWN.

STORMWATER DRAINAGE NOTES

SW1 UNLESS NOTED OTHERWISE BY HYDRAULIC ENGINEERS DRAWINGS, ALL DOWNPIPES & GRATED INLETS SHALL BE CONNECTED TO PITS OR MAIN STORMWATER DRAINS WITH 150 DIA. UPVC PIPES LAID AT A MINIMUM GRADE OF 1 IN 100. FOR SYPHONIC ROOF DRAINAGE SYSTEMS ALL DOWNPIPES CONNECTION DRAIN SIZES TO BE CONNECTED INTO MAIN STORMWATER DRAINS SHALL BE IN ACCORDANCE WITH HYDRAULIC ENGINEERS DRAWINGS.

SW2 ALL MAIN STORMWATER DRAINS SHALL BE CONSTRUCTED USING MATERIALS AS SPECIFIED ON THE DRAWINGS IN ACCORDANCE WITH THE APPROPRIATE A.S. IF NOT SPECIFIED THEN CLASS 2 RRJ RCP SHALL BE USED FOR DIAMETERS > 225mm. SEWER CLASS SEH UPVC IN ACCORDANCE WITH AS1260 SHALL BE USED FOR Φ225mm OR SMALLER.

SW3 ALL PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH AS3725 FOR RCP AND AS2032 FOR PVC. ALL BEDDING TO BE TYPE H2 UNLESS NOTED OTHERWISE.

SW4 FOR ALL PITS > 1.2m DEEP, STEP IRONS SHALL BE INSTALLED.

SW5 PRECAST PITS MAY BE USED EXTERNAL TO THE BUILDING SUBJECT TO APPROVAL BY BONACCI GROUP.

SW6 ENLARGERS, CONNECTIONS AND JUNCTIONS TO BE PREFABRICATED FITTINGS WHERE PIPES ARE LESS THAN 300 DIA.

SW7 WHERE SUBSOIL DRAINS PASS UNDER FLOOR SLABS AND VEHICULAR PAVEMENTS, UNSLOTTED uPVC SEWER GRADE PIPE IS TO BE USED.

SW8 GRATES AND COVERS SHALL CONFORM WITH AS 3996 AND AS 1428.1 FOR ACCESS REQUIREMENTS.

SW9 CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES ARE NOT TO BE REDUCED WITHOUT APPROVAL.

SW10 AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.

SW11 ALL EXISTING STORMWATER DRAINAGE LINES AND PITS THAT ARE TO REMAIN ARE TO BE INSPECTED AND CLEANED. DURING THIS PROCESS ANY PART OF THE STORMWATER DRAINAGE SYSTEM THAT WARRANTS REPAIR SHALL BE REPORTED TO THE SUPERINTENDENT/ENGINEER FOR FURTHER DIRECTIONS.

SITEWORKS NOTES

S1 PRIOR TO THE PLACEMENT OF ANY PAVEMENTS, BUILDINGS OR DRAINS THE EXPOSED SUBGRADE SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD COMPACTION IN ACCORDANCE WITH TEST 'E1.1' OF A.S. 1289 FOR THE TOP 300mm. ANY SOFT SPOTS SHALL BE REMOVED AND REPLACED WITH GRANULAR FILL TO THE ENGINEERS APPROVAL AND COMPACTED IN ACCORDANCE WITH THE COMPACTION REQUIREMENTS SET OUT BELOW. ON HIGHLY REACTIVE CLAY AREAS SITE EXCAVATED MATERIAL MAY BE USED WITH THE PRIOR AUTHORISATION OF THE ENGINEER.

S2 ALL FILL AND PAVEMENT MATERIALS SHALL BE COMPACTED IN ACCORDANCE WITH GEOTECHNICAL REPORT BY DOUGLAS PARTNERS, PROJECT NO. 86462.00, DATED AUGUST 2018 MOISTURE CONTENT TO BE MAINTAINED AT +/- 2% OMC. MINIMUM COMPACTION REQUIREMENTS ARE DETAILED BELOW FOR (ALL REQUIREMENTS ARE TO VERIFIED BY A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER):

- LANDSCAPED AREAS 95% STD.
- FILL UNDER ANY FOOTINGS AND FLOOR SLABS FOR ANY STRUCTURE TO SUBGRADE LEVEL;
  - FINE CRUSHED ROCK 98% STD.
  - SELECTED FILL WITHOUT CONSPICUOUS CLAY CONTENT 98% STD.
- BUILDING BASECOURSE 98% MOD
- FILL UNDER ROAD PAVEMENTS;
  - TO WITHIN 500mm OF FINISHED SUBGRADE LEVEL 98% STD.
  - UP TO FINISHED SUBGRADE LEVEL 98% STD.
- ROAD PAVEMENT MATERIALS;
  - SUB BASE 98% MOD.
  - BASE COURSE 98% MOD.

THE MAXIMUM COMPACTION IS TO BE NO GREATER THAN 4% ON TOP OF THE ABOVE MENTIONED VALUES.

S3 GRADE EVENLY BETWEEN FINISHED SURFACE SPOT LEVELS. FINISHED SURFACE CONTOURS ARE SHOWN FOR CLARITY. WHERE FINISHED SURFACE LEVELS ARE NOT SHOWN, THE SURFACE SHALL BE GRADED SMOOTHLY SO THAT IT WILL DRAIN AND MATCH ADJACENT SURFACES OR STRUCTURES.

S4 ALL DIMENSIONS GIVEN ARE TO FACE OF KERB, CENTER OF PIPE OR EXTERIOR FACE OF BUILDING UNLESS NOTED OTHERWISE.

S5 ANY STRUCTURES, PAVEMENTS OR SURFACES DAMAGED, DIRTIED OR MADE UNSERVICABLE DUE TO CONSTRUCTION WORK SHALL BE REINSTATED TO THE SATISFACTION OF THE ENGINEER/COUNCIL.

S6 ANY FILL REQUIRED SHALL BE APPROVED BY THE ENGINEER / GEOTECHNICAL CONSULTANT

S7 CONTRACTOR IS TO ENSURE THAT ALL EXCAVATIONS ARE MAINTAINED IN A DRY CONDITION WITH NO WATER ALLOWED TO REMAIN IN THE EXCAVATIONS.

S8 ALL FINISHES AND COLOURS TO BE IN ACCORDANCE WITH ARCHITECTURAL SPECIFICATIONS.

S9 REFER TO STRUCTURAL DRAWINGS FOR CONCRETE, REINFORCEMENT AND RETAINING WALL DETAILS.

S10 GENERALLY FOR TRENCHING WORKS THE CONTRACTOR MUST:
A) COMPLY WITH THE GENERAL PROVISIONS OF PART 3.1 "MANAGING RISKS TO HEALTH AND SAFETY" OF NSW WORK AND HEALTH AND SAFETY REGULATION 2011

B) COMPLY PART 6.3 DIVISION 3 "EXCAVATION WORK" OF NSW WORK HEALTH AND SAFETY REGULATION NSW 2011

S11 PRIOR TO THE EXCAVATION OF ANY TRENCH DEEPER THAN 1.5 METRES THE CONTRACTOR MUST:
A) NOTIFY THE OCCUPATIONAL HEALTH AND SAFETY AUTHORITY ON THE APPROPRIATE FORM.

JOINTING NOTES

PEDESTRIAN FOOTPATH JOINTS

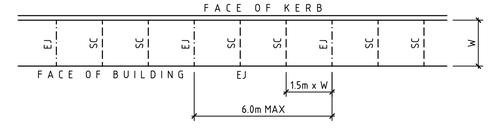
J1 EXPANSION JOINTS (EJ) ARE TO BE LOCATED WHERE POSSIBLE AT TANGENT POINTS OF CURVES AND ELSEWHERE AT 6m CENTRES.

J2 SAWCUT JOINTS (SC) ARE TO BE LOCATED AT A MAX 1.5m x WIDTH OF PAVEMENT. THE TIMING OF THE SAWCUT 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.

J3 WHERE POSSIBLE JOINTS SHOULD BE LOCATED TO MATCH KERBING AND / OR ADJACENT PAVEMENT JOINTS.

J4 PROVIDE 10mm WIDE FULL DEPTH EXPANSION JOINTS (EJ) BETWEEN BUILDINGS AND ALL CONCRETE OR UNIT PAVERS

J5 ALL PEDESTRIAN FOOTPATH JOINTINGS AS FOLLOWS (U.N.O.).



VEHICULAR PAVEMENT JOINTS

J6 ALL VEHICULAR PAVEMENTS TO BE JOINTED AS SHOWN ON DRAWINGS.

J7 LONGITUDINAL WARPING JOINTS (LWJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 3m TO 4.5m MAX CENTERS. ALL LWJ's SHOULD BE TIED UP TO A MAXIMUM TOTAL WIDTH OF 30m.

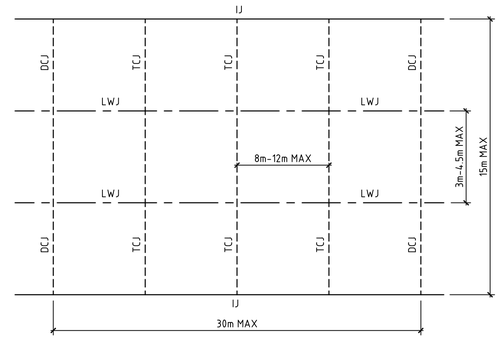
J8 TRANSVERSE CONTRACTION JOINTS (TCJ) SHOULD GENERALLY BE LOCATED AT A MAXIMUM OF 8m TO 12m MAX CENTERS. TCJ's CAN BE SPACED AT SUITABLE INTERVALS UP TO A RECOMMENDED MAXIMUM LENGTH OF 15m.

J9 TRANSVERSE DOWELLED CONSTRUCTION JOINTS (DCJ) TO BE PROVIDED FOR PLANNED INTERRUPTIONS SUCH AS AT THE END OF EACH DAY'S OPERATIONS (POUR BREAK), AT BLOCK OUTS FOR BRIDGES AND INTERSECTIONS OR FOR UNEXPECTED DELAYS WHEN THE SUSPENSION OF OPERATIONS IS LIKELY TO CREATE A JOINT.

J10 ISOLATION JOINTS WITH SUB-GRADE BEAM (IJ) TO BE PROVIDED AT INTERSECTIONS OR AT THE JUNCTION OF A POUR BREAK.

J11 ALL VEHICULAR PAVEMENTS TO BE JOINTED IN ACCORDANCE WITH AUSTROADS AGPT02-12 GUIDE TO PAVEMENT TECHNOLOGY PART 2 STRUCTURAL PAVEMENT DESIGN AND SUPPLEMENT AP-T36-06 PAVEMENT DESIGN FOR LIGHT TRAFFIC

J12 VEHICULAR PAVEMENT JOINTING AS FOLLOWS (U.N.O.)



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REV.	DETAILS	DATE
01	EARLY WORKS DA	23.08.2019
02	ISSUED FOR REVIEW	15.01.2020
03	ISSUED FOR TENDER	31.01.2020

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PROJECT
NEW WESTERN SYDNEY UNIVERSITY
BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS DRAWING REGISTER & CONSTRUCTION NOTES

FOR TENDER

NORTH

SCALE NTS

JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No. C01-01

REVISION 03

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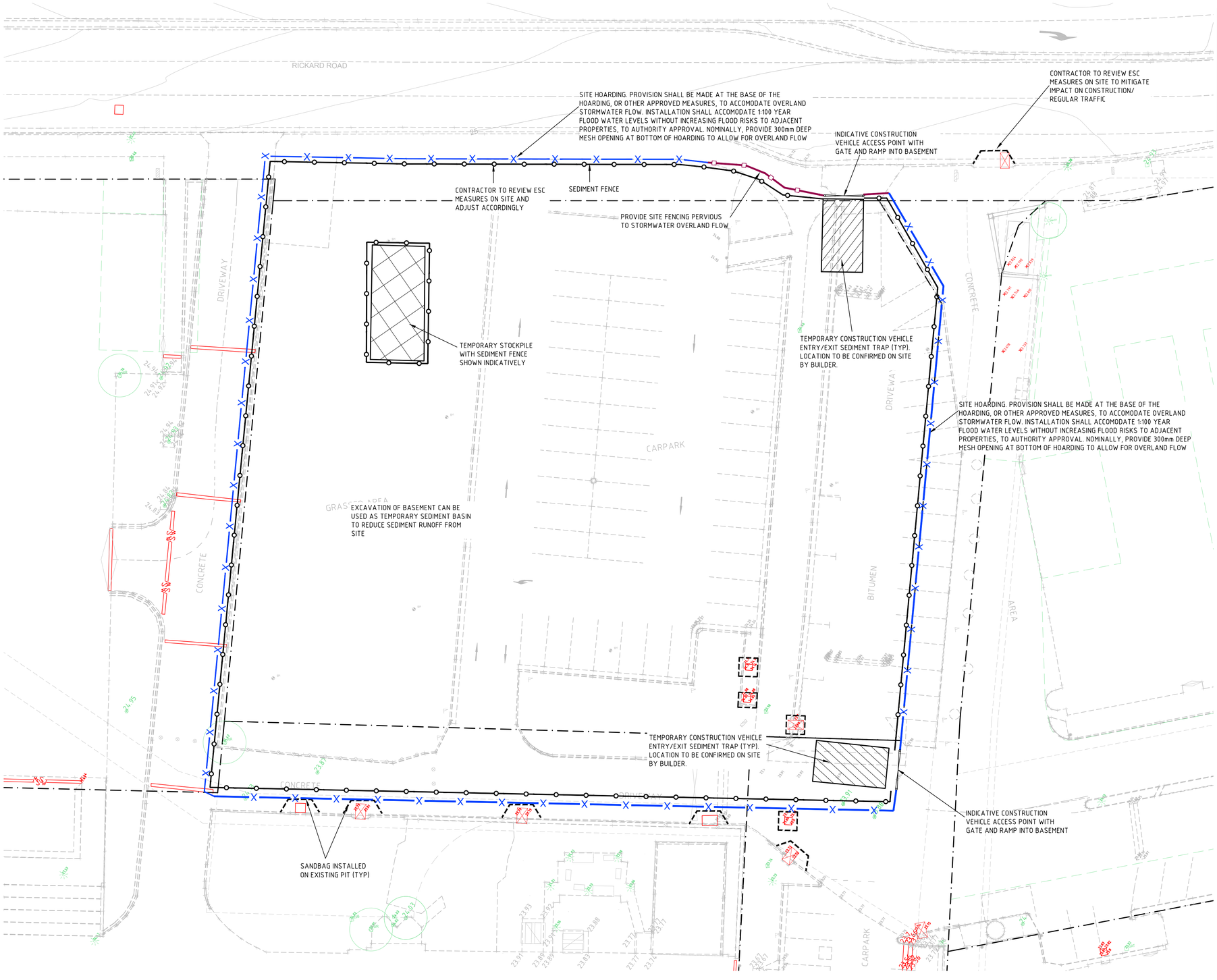

GENERAL NOTE

DUE TO SITE CONDITIONS, THE CONTRACTOR SHALL RECEIVE PERMISSION TO ENCROACH ONTO PRIVATE/PUBLIC ROADS TO UNDERTAKE ANY WORKS. THE CONTRACTOR MUST OBTAIN WRITTEN PERMISSION PRIOR TO ENTERING THE PRIVATE ROADS TO PERFORM WORKS. COPIES OF THIS CONSENT MUST BE SUBMITTED TO COUNCIL AND THE ENGINEER, PRIOR TO ANY WORKS BEING PERFORMED. FAILURE TO COMPLY IS AT THE CONTRACTOR OWN RISK.

SOIL AND WATER MANAGEMENT LEGEND

- BOUNDARY
- EX SURFACE CONTOUR
- EX TREE
- EX STORMWATER DRAINAGE LINE
- EX SEWER LINE
- EX WATER MAIN
- EX GAS LINE
- EX TELECOMMUNICATIONS LINE
- EX ELECTRICAL LINE
- SITE HOARDING
- SEDIMENT FENCE
- PERVIOUS SITE FENCE
- TEMPORARY SHAKER RAMP FOR ENTRY/EXIT
- TEMPORARY STOCKPILE (LOCATION TBC ON-SITE)
- SANDBAGS INSTALLED ON EXISTING PIT
- GEOTEXTILE PIT FILTER / FILTER SURROUND INSTALLED ON EXISTING PIT

SOIL AND WATER MANAGEMENT NOTES

1. IT HAS BEEN ASSUMED THAT SEDIMENT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
2. ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".
3. MINIMISE CLEARING OUTSIDE BASEMENT EXTENT.
4. SEDIMENT CONTROL FOR LANDSCAPED WORKS DOWNSTREAM OF THE BUILDING TO INCLUDE A SILTFENCE AND SANDBAGS AS REQUIRED. TO BE MANAGED AT A RATE OF 50L/S BY THE CONTRACTOR ON SITE. INSTALL CATCH DRAIN TO DIVERT UPSTREAM CATCHMENT AWAY FROM DISTURBED SOIL AREA.

SEDIMENT CONTROL CONDITIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES) AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS & WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREAS INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS & DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR SHALL PROVIDE TEMPORARY SEDIMENT CONTROLS UNTIL WHICH TIME AS EXISTING STORMWATER INFRASTRUCTURE IS REMOVED AND MIGRATION OF SEDIMENT HAS BEEN REMOVED.
7. CONTRACTOR TO DESIGN/SIZE/CONSTRUCT TEMPORARY SEDIMENT BASIN, WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE . ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED & DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

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PROJECT
NEW WESTERN SYDNEY UNIVERSITY BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS SEDIMENT AND EROSION CONTROL PLAN

FOR TENDER

NORTH

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JOB No.	DRAWN	CHECKED	DATE
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DRAWING No. C01-05

REVISION 03

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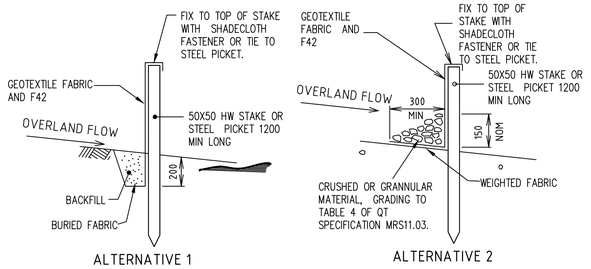
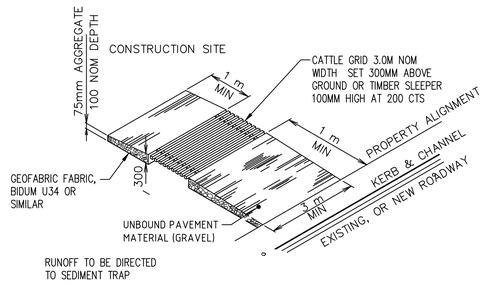
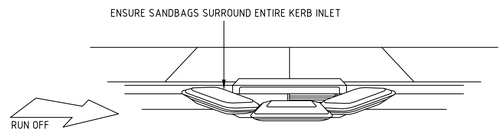




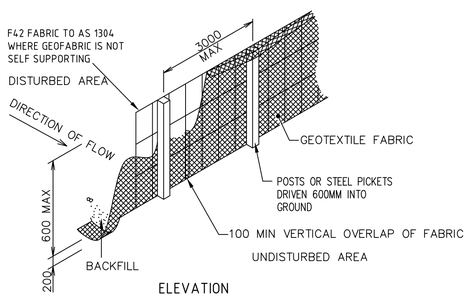
TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP

NOT TO SCALE



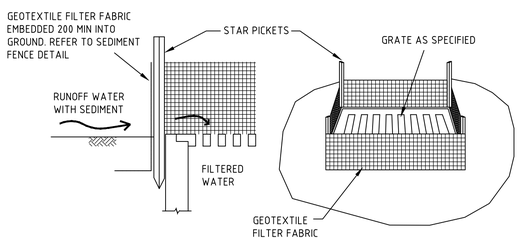
SANDBAG KERB INLET SEDIMENT TRAP

NOT TO SCALE



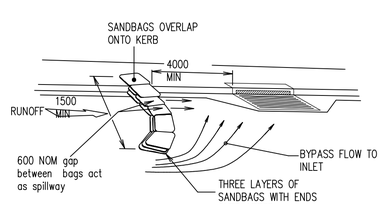
SEDIMENT FENCE

NOT TO SCALE



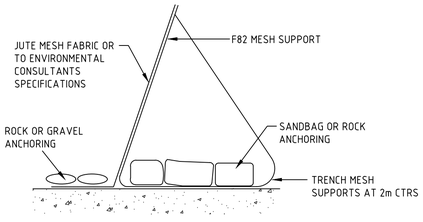
GEOTEXTILE PIT FILTER 1

NOT TO SCALE



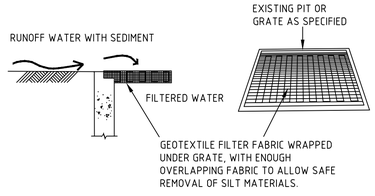
ON GRADE KERB INLET SEDIMENT TRAP

NOT TO SCALE



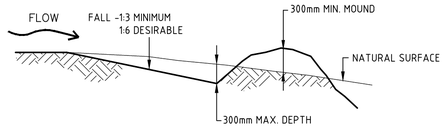
ALTERNATIVE SEDIMENT FENCE

NOT TO SCALE



GEOTEXTILE PIT FILTER 2

NOT TO SCALE



CATCH DRAIN

NOT TO SCALE

ALTERNATIVE SEDIMENT FENCE NOTES

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.

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GENERAL NOTES

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PROJECT
NEW WESTERN SYDNEY UNIVERSITY
BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS SEDIMENT AND EROSION CONTROL DETAILS

FOR TENDER

NORTH

SCALE
NTS

JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No.
C01-06

REVISION
03

A1 841 x 594
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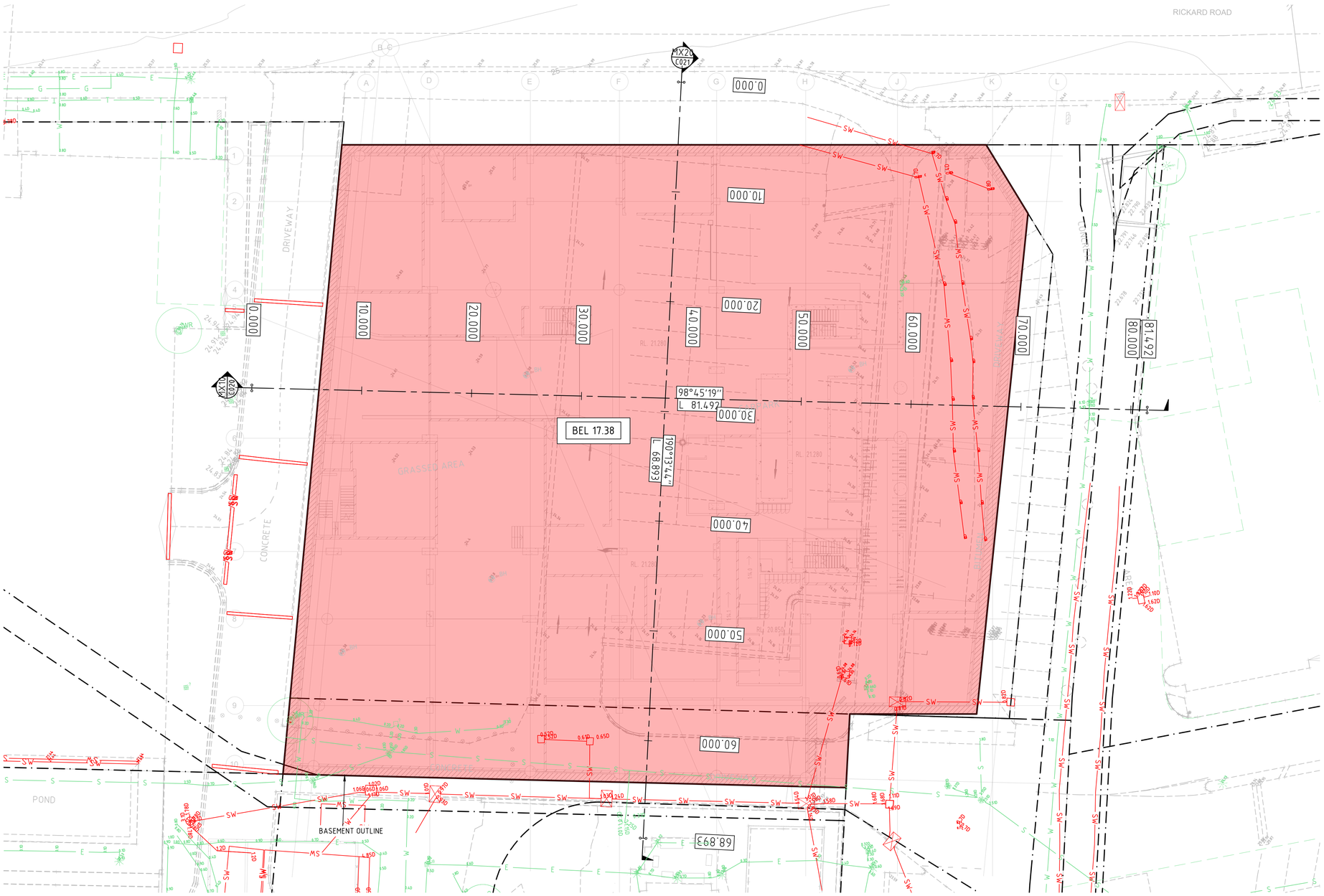

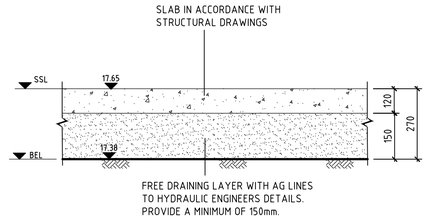

BUILDING BULK EARTHWORKS DETAIL

SCALE 1:10

SURVEY LEGEND

- SW — EX STORMWATER DRAINAGE LINE
- S — EX SEWER LINE
- W — EX WATER MAIN
- G — EX GAS LINE
- T — EX TELECOMMUNICATIONS LINE
- E — EX ELECTRICAL LINE

BULK EARTHWORKS LEGEND

- EXTENT OF CUT TO BULK EARTHWORKS LEVEL
  BUILDING CUT VOLUME = 24800 m³
- BEL 100.700 — FINISHED BULK EXCAVATION LEVEL

NOTE
1. NET VOLUMES ARE APPROXIMATE ONLY, WHICH ARE FOR MATERIALS COMPACTED IN PLACE AND DO NOT INCORPORATE BULKING FACTORS OR OVER EXCAVATION.
2. GROUND WATER SEEPAGE MAY OCCUR IN EXCAVATED AREAS. DE-WATERING MAY BE REQUIRED IN THIS INSTANCE.
3. CONTRACTOR SHALL HAVE PLAN IN PLACE TO DEAL WITH DE-WATERING AND WATER SEEPAGE.CONTRACTOR TO FOLLOW ESC BEST PRACTICES

EXCAVATION NOTES

1. THIS DRAWING ONLY DETAILS BULK EARTHWORKS ASSOCIATED WITH THE BUILDING SLAB (IGNORING STRUCTURAL FOOTINGS, BEAMS AND COLUMNS) AND DRIVEWAY ACCESS RAMP.
2. PERMANENT SHORING WALLS ARE ASSUMED TO BE PROVIDED AROUND PERIMETER OF BASEMENT.
3. SEDIMENT & EROSION CONTROL MEASURES IN ACCORDANCE WITH LANDCOM "BLUE BOOK" MUST BE IMPLEMENTED DURING CONSTRUCTION TO PREVENT SEDIMENT LADEN WATER LEAVING THE SITE.
4. 270mm ZONE BELOW FINISHED BASEMENT SLAB FINISH LEVEL HAS BEEN ALLOWED FOR (NOMINAL 120mm THICK SLAB AND 150mm DRAINAGE LAYER).
5. ALL EXISTING PROPERTY SERVICES LOCATIONS AND DEPTHS ARE APPROXIMATE AND MUST BE VERIFIED ON SITE. THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS THAT MAY AFFECT THESE SERVICES.

WARNING
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REV.	DETAILS	DATE
01	EARLY WORKS DA	23.08.2019
02	ISSUED FOR REVIEW	15.01.2020
03	ISSUED FOR TENDER	31.01.2020

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GENERAL NOTES
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PROJECT
NEW WESTERN SYDNEY UNIVERSITY
BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS BULK EARTHWORKS PLAN

FOR TENDER

NORTH

SCALE 1:200@ A1

JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No. C01-10
REVISION 03

A1 841 x 594
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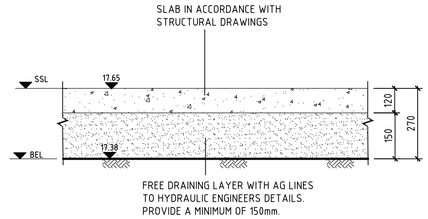

BUILDING BULK EARTHWORKS DETAIL

SCALE 1:10

DESIGN GRADELINE

HORIZONTAL GEOMETRY

DATUM 11.3

MX10											
EARTHWORKS		17.380	17.380	17.380	17.380	17.380	17.380	17.380			
EXISTING SURFACE	24.618	24.621	24.570	24.523	24.588	24.579	24.232	24.242	24.478		
CHAINAGES	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	81.492	

1 in 200 HORIZONTAL
1 in 100 VERTICAL

MX10 LONGITUDINAL SECTION

BULK EARTHWORKS ARE NET IN PLACE AND DO NOT ACCOUNT FOR ANY BUILDING FOOTING PADS OR OVER EXCAVATION

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NEW WESTERN SYDNEY UNIVERSITY
BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS BULK EARTHWORKS LONGITUDINAL SECTIONS SHEET 1

FOR TENDER

NORTH

SCALE
NOTED

JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No. **C01-20**

REVISION **03**

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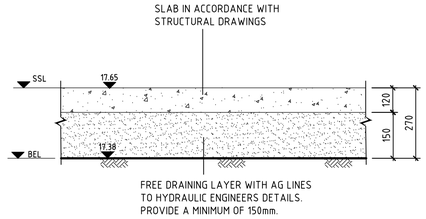
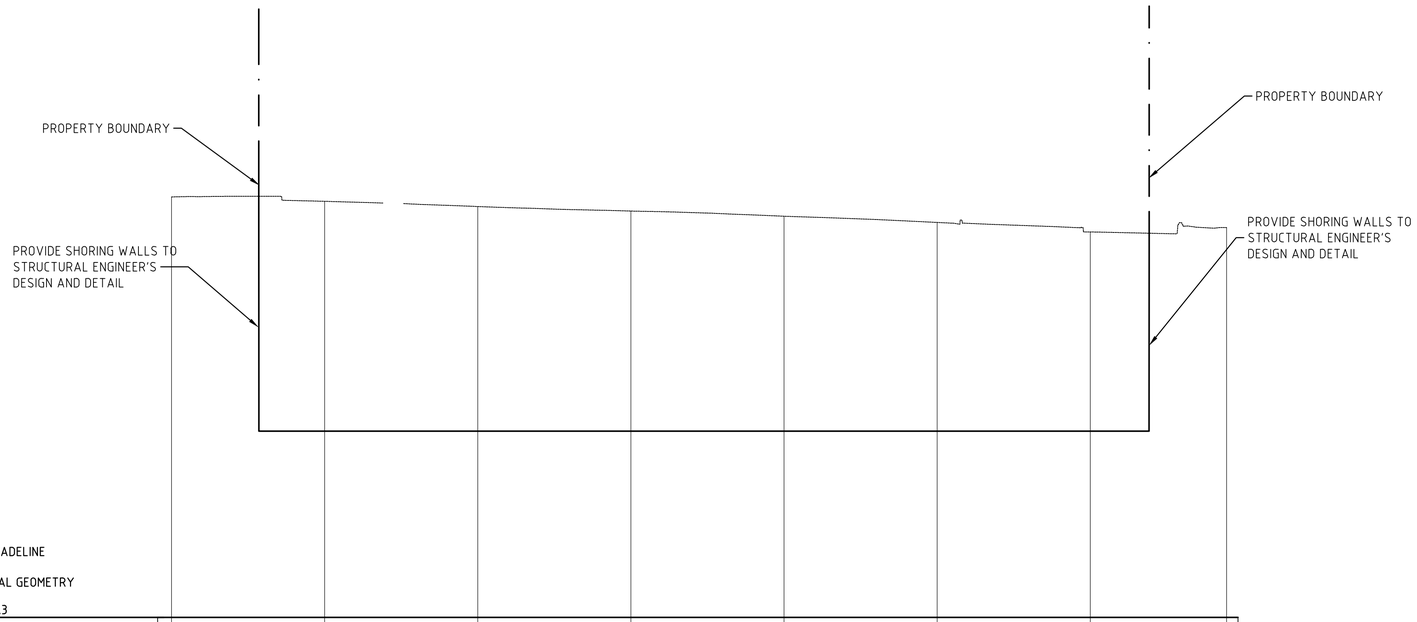


BUILDING BULK EARTHWORKS DETAIL

SCALE 1:10



DESIGN GRADELINE

HORIZONTAL GEOMETRY

DATUM 11.3

MX20								
EARTHWORKS		17.380	17.380	17.380	17.380	17.380	17.380	
EXISTING SURFACE	25.025	24.882	24.712	24.564	24.395	24.193	23.881	24.027
CHAINAGES	0.000	10.000	20.000	30.000	40.000	50.000	60.000	68.893

1 in 200 HORIZONTAL
1 in 100 VERTICAL

MX20 LONGITUDINAL SECTION

BULK EARTHWORKS ARE NET IN PLACE AND DO NOT ACCOUNT FOR ANY BUILDING FOOTING PADS OR OVER EXCAVATION

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BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS BULK EARTHWORKS
LONGITUDINAL SECTIONS
SHEET 2

FOR TENDER

NORTH

SCALE
NOTED

JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No.
C01-21

REVISION
03

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RICKARD ROAD

RICKARD ROAD

EXISTING TWIN 1200mm STORMWATER PIPE TO BE RETAINED. CONDITION ASSESSMENT TO BE UNDERTAKEN BY OTHERS

INDICATIVE CONSTRUCTION VEHICLE ACCESS POINT WITH GATE AND RAMP INTO BASEMENT

CONSTRUCTION VEHICLE ACCESS VIA EXISTING LAYBACK

CONSTRUCT NEW LAYBACK TO COUNCIL STANDARD.(REFER TO DRAWING NO C01-65 FOR DETAIL). REFER TO TRAFFIC SWEPT PATH FOR THE EXTENT

EX LAYBACK 7.54m WIDE

PROPOSED LAYBACK

PROVIDE SITE FENCING PERVIOUS TO STORMWATER OVERLAND FLOW

WATER FILLED BARRIER ALONG NEW LAYBACK TO PREVENT PUBLIC VEHICLE ACCESS

EXISTING TWIN BOX CULVERT TO BE RETAINED. CONDITION ASSESSMENT TO BE UNDERTAKEN BY OTHERS

SITE HOARDING. PROVISION SHALL BE MADE AT THE BASE OF THE HOARDING, OR THE APPROVED MEASURES, TO ACCOMODATE OVERLAND STORMWATER FLOW. INSTALLATION SHALL ACCOMODATE 1:100 YEAR FLOOD WATER LEVELS WITHOUT INCREASING FLOOD RISKS TO ADJACENT PROPERTIES, TO AUTHORITY APPROVAL. NOMINALLY, PROVIDE 300mm DEEP MESH OPENING AT BOTTOM OF HOARDING TO ALLOW FOR OVERLAND FLOW

TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP (TYP). LOCATION TO BE CONFIRMED ON SITE BY BUILDER.

REMOVE EXISTING PLANTERS

REMOVE EXISTING PLANTERS

EXISTING REDUNDANT STORMWATER LINE TO BE DEMOLISHED.

PEDESTRAIN ACCESS TO BE MAINTAINED ON APPIAN WAY

REMOVE EXISTING PLANTERS

SITE HOARDING. PROVISION SHALL BE MADE AT THE BASE OF THE HOARDING, OR THE APPROVED MEASURES, TO ACCOMODATE OVERLAND STORMWATER FLOW. INSTALLATION SHALL ACCOMODATE 1:100 YEAR FLOOD WATER LEVELS WITHOUT INCREASING FLOOD RISKS TO ADJACENT PROPERTIES, TO AUTHORITY APPROVAL. NOMINALLY, PROVIDE 300mm DEEP MESH OPENING AT BOTTOM OF HOARDING TO ALLOW FOR OVERLAND FLOW

REMOVE EXISTING PLANTERS

ENSURE NO CLASH OF THE BASEMENT ANCHORS WITH GEOTHERMAL BOREHOLE. REFER TO STRUCTURAL DRAWINGS FOR DETAIL

EXISTING BOLLARD TO BE DEMOLISHED

INDICATIVE LOCATION OF GEOTHERMAL LOOP LAYOUT. REFER TO QPS GEOTHERMAL AS BUILT DRAWING NO. QPSG_BANKSTOWN_01 FOR DETAIL. CONTRACTOR/BUILDER TO SURVEY THE EXACT LOCATION OF BOREHOLES

TEMPORARY CONSTRUCTION VEHICLE ENTRY/EXIT SEDIMENT TRAP (TYP). LOCATION TO BE CONFIRMED ON SITE BY BUILDER.

DEMOLISH EXISTING STORMWATER PIT

EXISTING SEWER TO BE DIVERTED TO WSC'S REQUIREMENTS

EXISTING STORMWATER LINE TO BE CAPPED AND PROTECTED FOR FUTURE MAIN WORKS CONNECTION

PROVISION OF STEEL PLATE SHALL BE MADE FOR THE TEMPORARY PROTECTION OF WATER MAIN FOR CONSTRUCTION VEHICLES

EXISTING SEWER TO BE DIVERTED TO WSC'S REQUIREMENTS

EXISTING STORMWATER PIT CHAMBER TO BE SURVEYED AND CONFIRMED ON SITE PRIOR TO DEMOLITION OF EXISTING SEWER. NO CONSTRUCTION VEHICLE/PLANT SHALL TRAVERSE OVER THE ZOI OF THE PIT CHAMBER. PIT CONDITION ASSESSMENT TO BE UNDERTAKEN BY OTHERS

EXISTING STORMWATER LINE TO BE CAPPED

EXISTING STORMWATER LINE TO BE CAPPED

INDICATIVE LOCATION OF PROPOSED SEWER SHOWN FOR ILLUSTRATIVE PURPOSE ONLY. REFER TO DRAWING NO. 17794.SWW BY MGP FOR DETAIL. NO CONSTRUCTION VEHICLE/PLANT SHALL TRAVERSE OVER THE ZOI OF THE SEWER

INDICATIVE CONSTRUCTION VEHICLE ACCESS POINT WITH GATE AND RAMP INTO BASEMENT

TANK 1
3.2m Lx 9.5m Wx 3.2m D
BASE IL 20.90
(BASED ON CONSTRUCTION DRAWING NO.H-101 BY WARREN SMITH & PARTNERS). TBC ON SITE

TANK LAYOUT IS INDICATIVE AND IS SHOWN AS PER RPS AUSTRALIA EXISTING SERVICES SURVEY DRAWING NO.PR140676. TBC ON SITE

1.0m Lx 9.5m Wx 4.2m D
BASE IL 19.90
(BASED ON CONSTRUCTION DRAWING NO.H-111 BY WARREN SMITH & PARTNERS). TBC ON SITE

TANK 2
8.6m Lx 9.5m Wx 3.2m D
BASE IL 20.90
(BASED ON CONSTRUCTION DRAWING NO.H-101 BY WARREN SMITH & PARTNERS). TBC ON SITE

NO CONSTRUCTION VEHICLE LOAD HAS BEEN ALLOWED OVER THE ZOI OF RWT. CONDITION ASSESMENT TO BE UNDERTAKEN BY OTHERS. NO CONSTRUCTION VEHICLES/PLANT SHALL TRAVERSE OVER THE ZOI OF THE RAINWATER TANK

LEGEND

- EX SURFACE CONTOUR
- EX STORMWATER DRAINAGE LINE
- EX SEWER LINE
- EX SEWER LINE TO BE DEMOLISHED
- EX WATER MAIN
- EX GAS LINE
- EX TELECOMMUNICATIONS LINE
- EX ELECTRICAL LINE
- EX STORMWATER DRAINAGE LINE TO BE DEMOLISHED
- BOUNDARY
- SITE HOARDING
- SITE FENCE
- WATER FILLED BARRIER
- PROPOSED SEWER BY OTHERS
- EXISTING BOX CULVERT
- EXISTING GEOTHERMAL LOOP LAYOUT AND BOREHOLE. REFER TO QPS GEOTHERMAL AS BUILT DRAWING NO. QPSG_BANKSTOWN_01 FOR DETAIL
- TEMPORARY STEEL PLATE

GENERAL NOTE
REFER TO DEMOLITION PLAN BY ARCHITECT FOR REMOVAL OF TREES, ONGRADE CARPARK INCLUDING REDUNDANT SIGNAGE, LIGHTING AND UTILITIES

WARNING
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PROJECT
NEW WESTERN SYDNEY UNIVERSITY BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS SITEWORKS PLAN

FOR TENDER

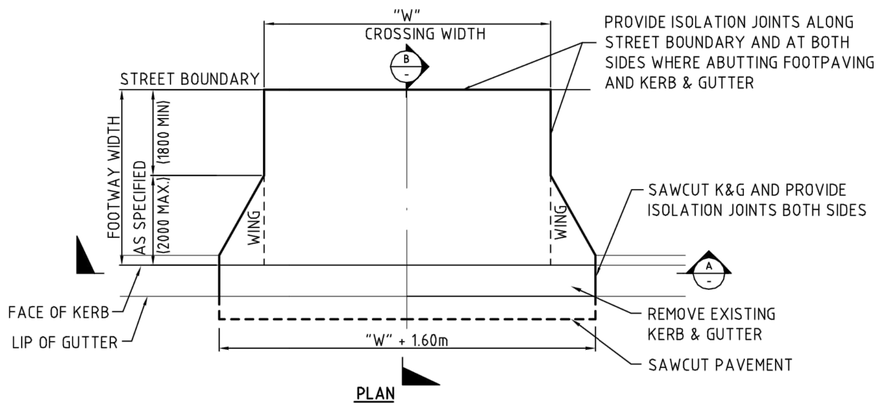
NORTH

SCALE 1:200 @ A1

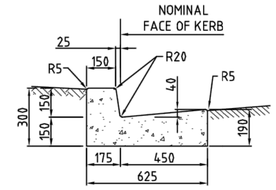
JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No. C01-41

REVISION 03



ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE



STANDARD KERB & GUTTER

NOTES :

1. VEHICULAR FOOTWAY CROSSING LEVELS AND DIMENSIONS TO BE IN ACCORDANCE WITH DETAILED DRAWING ISSUED BY COUNCIL
2. ROAD BASE MATERIAL IS TO BE CRUSHED ROCK GRADED TO DGB20, CRUSHED CONCRETE GRADED TO DGS20, OR GRADED RECYCLED ASPHALT WITH MAX. PARTICLE SIZE OF 20.
3. CONCRETE: STRENGTH GRADE N32, 20mm MAX SIZE AGGREGATE, IN ACCORDANCE WITH AS3600
4. RMS 40MPa SP40H CONCRETE MIX (WITH <0.8% CaCl2) CAN BE USED TO ALLOW TRAFFIC AFTER 12 HOURS. CaCl2 IS CORROSIVE AND ALL STEEL MESH AND DOWELS MUST BE GALVANISED.
5. ASPHALT HOTMIX TO BE SUPPLIED AND COMPACTED AT A MINIMUM TEMPERATURE OF 140°C IN ACCORDANCE WITH AS2150. **(COLD MIX NOT PERMITTED).**
6. ISOLATION JOINTS SHALL CONSIST OF FULL DEPTH 10MM THICK COMPRESSIBLE FILLER. EITHER BITUMEN IMPREGNATED FIBREBOARD OR CLOSED CELL POLYETHYLENE FOAM SEALED WITH 10x10 POLYURETHANE SEALANT. ISOLATION JOINTS SHALL BE INSTALLED WHERE THE CONCRETE SLAB ABUTS HARD SURFACES.
7. PAVEMENT ADJOINING KERB AND GUTTER IS TO BE RECONSTRUCTED 300mm WIDE AS DETAILED. COUNCILS SUPERVISOR MAY ALLOW THE EXISTING PAVEMENT TO BE RETAINED IF IN GOOD CONDITION. ALTERNATE AC LAYERING MAY BE APPROVED.
8. PROVIDE 65 TOP COVER TO STEEL MESH REINFORCEMENT AND 75 COVER AT ENDS. STEEL MESH IS TO BE PLACED ON PLASTIC BAR CHAIRS IN A REGULAR GRID NOT EXCEEDING 1.0m SPACING.
9. POLYETHYLENE SHEETING IS TO BE PLACED UNDER THE CONCRETE WHERE THE VFC IS CONTAINED ON BOTH SIDES BY FULL WIDTH PAVING.
10. ALL PERIMETER EDGES TO BE ROUNDED TO 20 RADIUS USING AN EDGING TOOL.
11. ADJOINING EXISTING CONCRETE FOOTPAVING IS TO BE RECONSTRUCTED TO MATCH THE VFC AT A GRADE GENERALLY NOT EXCEEDING 1 in 14 AS REQUIRED BY THE COUNCIL SUPERVISOR.
12. ADJOINING NATURAL FOOTWAY IS TO BE SHAPED TO GRADE EVENLY TO THE VFC AS REQUIRED BY THE COUNCIL SUPERVISOR. DISTURBED AREAS TO BE TURFED.
13. THIS PLAN APPLIES FOR HEAVY TRUCK MOVEMENTS OF LESS THAN 25 PER DAY.
14. THIS PLAN DOES NOT APPLY FOR FOOTWAY WIDTHS LESS THAN 2800.

CANTERBURY BANKSTOWN

CITY OF CANTERBURY BANKSTOWN | STD DWG N° S-009

STANDARD HEAVY DUTY VEHICULAR FOOTWAY CROSSING (VFC)

PLAN VIEW, SECTIONS AND GENERAL NOTES

Sheet N°: 1 of 1 | Revision: 1/05/2017

File Name: S-009.dwg

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NOT FOR CONSTRUCTION

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REV.	DETAILS	DATE
01	EARLY WORKS DA	23.08.2019
02	ISSUED FOR REVIEW	15.01.2020
03	ISSUED FOR TENDER	31.01.2020

CLIENT
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GENERAL NOTES

THE CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY WORK OR MAKING OF ANY SHOP DRAWINGS. FIGURED DIMENSIONS MUST BE USED IN PREFERENCE TO SCALED DIMENSIONS. ALL SCALED DIMENSIONS MUST BE VERIFIED ON SITE. THIS DRAWING IS COPYRIGHT AND REMAINS THE PROPERTY OF THE ARCHITECT.

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PROJECT
NEW WESTERN SYDNEY UNIVERSITY BANKSTOWN CITY CAMPUS
74 RICKARD ROAD ALONG WITH A PORTION OF 375 CHAPEL ROAD

DRAWING TITLE
EARLY WORKS COUNCIL STANDARD LAYBACK

FOR TENDER

NORTH

SCALE
NOTED

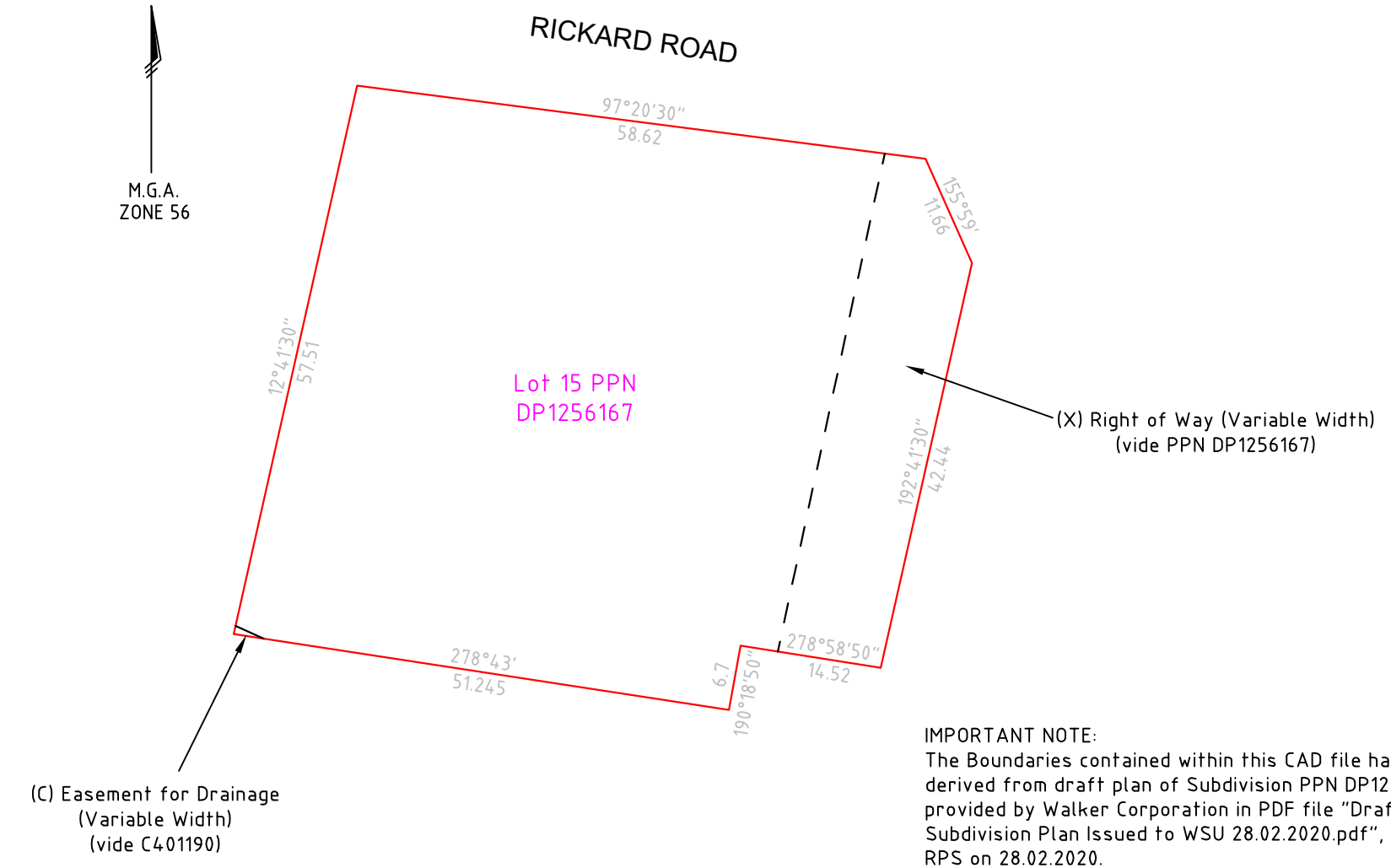
JOB No.	DRAWN	CHECKED	DATE
1097901C	PA	-	-

DRAWING No. C01-65

REVISION 03

A1 841 x 594
File: C:\Jobs\1097901_Civil\Issued\Dwg\C01-65-C4D[03].dwg
Plotted: 31.01.20 at 2:53 PM

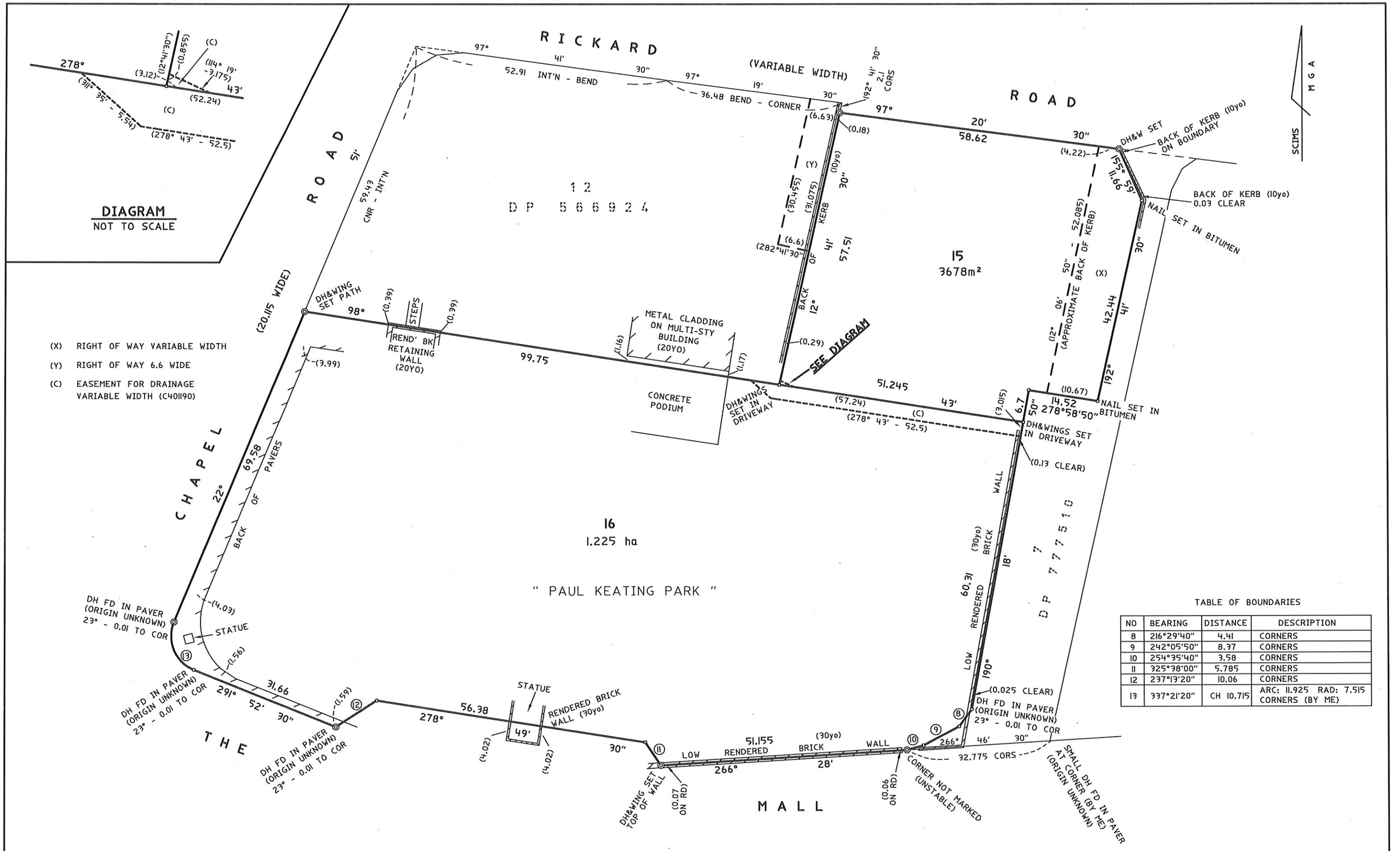
10 APPENDIX C CANTERBURY BANKSTOWN COUNCIL EASEMENT



IMPORTANT NOTE:
The Boundaries contained within this CAD file have been derived from draft plan of Subdivision PPN DP1256167, as provided by Walker Corporation in PDF file "Draft Subdivision Plan Issued to WSU 28.02.2020.pdf", received by RPS on 28.02.2020.

Note that the the site boundaries will only become finalised upon the registration of the subdivision plan with Land Registry Services NSW.

PLAN FORM 2 (A2) WARNING: CREASING OR FOLDING WILL LEAD TO REJECTION Sheet 2 of 2 sheets



(X) RIGHT OF WAY VARIABLE WIDTH

(Y) RIGHT OF WAY 6.6 WIDE

(C) EASEMENT FOR DRAINAGE VARIABLE WIDTH (C401190)

TABLE OF BOUNDARIES

NO	BEARING	DISTANCE	DESCRIPTION
8	216°29'40"	4.41	CORNERS
9	242°05'50"	8.37	CORNERS
10	254°35'40"	3.58	CORNERS
11	325°38'00"	5.785	CORNERS
12	237°13'20"	10.06	CORNERS
13	337°21'20"	CH 10.715	ARC: 11.925 RAD: 7.515 CORNERS (BY ME)

Surveyor: CHRISTOPHER C ROBERTSON GEOMETRA CONSULTING PTY LTD PO BOX 3530, CENTRO BANKSTOWN NSW 2200 Date of survey: 15th August 2019 Surveyor's Ref: 12505-1	PLAN OF SUBDIVISION OF LOTS 5 & 6 IN DP 777510 AND RIGHT OF WAY OVER LOT 12 IN DP 566924	LGA: CANTERBURY BANKSTOWN Locality: BANKSTOWN Subdivision No: Lengths are in metres. Reduction Ratio 1:500	Registered:	DP

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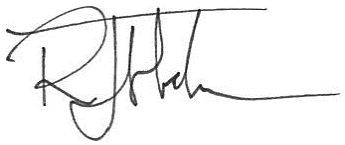
Revision No:	6.0
Revision Date:	14 August 2020
Reason Description:	Issued for SSDA Submission
File Location:	\\ndy.group\syd\w\S321xx\S32110\003\00\24_Reports
Filename:	rp190528s0009
Client Name:	Walker Corporation
Client Contact:	Patrick Polomka
Project Leader:	Ryan Hahn
Editor:	Ashwin Muralidharan

Authorisation By: Ryan Hahn



Verification By: Ryan Hahn

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