Suite 2, Level 1
33 Herbert Street
ST LEONARDS NSW 2065

PO Box 292
ST LEONARDS NSW 1590

T 02 9438 5098
F 02 9438 5398

ENGINEERS

MANAGERS

INFRASTRUCTURE
PLANNERS

DEVELOPMENT
CONSULTANTS

Civil and Stormwater Design Report

Glendenning Road Data Centre

Prepared for: LCI Consultants

Document no: GRDC86-XX-XX-RP-C-0001

Issue no: F

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Revisions

Revision	Description	Date	Prepared by	Approved by
A	100% Draft	15/10/2024	E. Liang	M. Buttarelli
B	Client Review	08/11/2024	E. Liang	M. Buttarelli
C	Final SSDA Issue	19.11.2024	E. Liang	M. Buttarelli
D	Final SSDA Issue – Updated Internal Road Speed Limit	09.12.2024	E. Liang	M. Buttarelli
E	Issued for Public Exhibition – SSDA 73761707'	04.03.2025	E. Liang	M. Buttarelli
F	Updated to Respond to Council RtS Comments	08.10.2025	E. Liang	M. Buttarelli

Review Panel

Division/ office	Name
Sydney	Matthew Buttarelli

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1 Introduction

1.1 Purpose of this Report

This Civil and Stormwater report has been prepared for LCI Consultants (LCI) to describe the civil and stormwater engineering for a proposed data centre facility at 2 Glendenning Road, Glendenning NSW 2761.

1.2 Existing Site

The subject site is located at 2 Glendenning Road, Glendenning and is legally described as Lot 2 DP 1137162. It is zoned E4 General Industrial under the *Blacktown Local Environmental Plan 2015.*

The subject site comprises a total area of 10.44ha and exhibits a primary frontage to Glendenning Road at the western boundary for approximately 295m. A secondary frontage to Woodstock Avenue is located along the southern boundary, for a length of approximately 335m.

The subject site comprises three (3) existing warehouse buildings that undertake various operations, including storage and logistics and a transport vehicle centre. The buildings are positioned toward the Glendenning Road frontage and cover approximately one half of the subject site. The remainder of the subject site to the rear is vacant and contains a mix of grass, native vegetation and sporadic trees. A patch of mature native vegetation exists along the southern boundary, which is identified as outstanding biodiversity value. An established landscaping strip is located along the Glendenning Road frontage, providing some screening of the existing buildings.

Vehicle access is obtained via four (4) vehicles crossings off Glendenning Road, which provide separate access for the two (2) large tenants. Vehicle access is also provided off Woodstock Avenue for the southern tenant.

The subject site is traversed by overhead 132kV transmission lines and towers, managed by Endeavour Energy. A drainage reserve also exists directly north of the subject site, which is managed by Blacktown City Council.

The subject site is surrounded by industrial land to the north, west and south (refer to the site context in **Figure 2**). Directly adjoining the subject site to the east is the Nurragingy Reserve, which falls under the jurisdiction of the Western Parklands. The Eastern Creek is located within the reserve and runs along the eastern boundary of the subject site. The closest residential area is located approximately 400m to the west of the subject site on the opposite side of the Westlink M7 Motorway.

The subject site is depicted in **Figure 1** below.

Figure 1. Aerial Map of Subject Site (Source: NearMap, 2024)

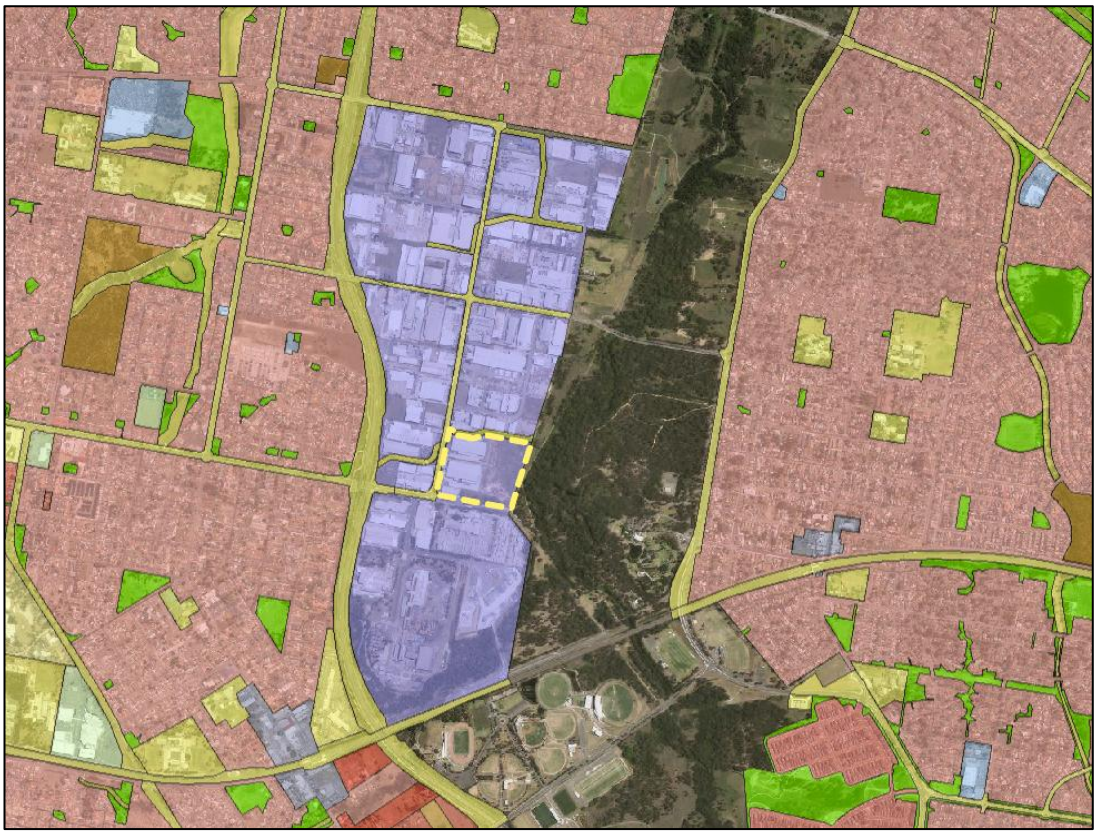


Figure 2. Site Context and Zoning (Source: Blacktown Local Environmental Plan, 2024)

1.3 Proposed Development

The proposal involves the staged construction and operation of a data centre development, comprising:

- Site preparation and establishment works including:
  - Bulk earthworks to create proposed site levels;
  - In-ground building services and utility work;
  - Clearance of trees and vegetation within the proposed development extent;
- Construction and operation of three data centre buildings, known as DC01, DC02 and DC03, comprising:
  - A total Gross Floor Area (GFA) of 50,233m^2 (DC01 – 19,985m^2, DC02 – 10,263m^2 and DC03 – 19,985m^2);
  - A maximum building height of 45.3m, including five storeys for each building;
  - Three internal substations;
  - A total IT capacity of approximately 193.6MW (DC01 – 79.2MW, DC02 – 35.2MW and DC03 – 79.2MW);
- Total diesel fuel storage of 2,736,030L within underground bulk fuel storage tanks and generator day tanks;
- 97 back-up generators across the full development;
- External plant and equipment (including water tanks and pump rooms);
- Installation of evaporative cooling units;
- Three vehicle crossovers to Glendenning Road and internal access roads;
- Security fencing surrounding the development, including a controlled entry and exit point;
- 165 on-site car parking spaces (including 6 accessible parking spaces and 12 Electric Vehicle (EV) parking spaces);
- Landscaping across the subject site;
- Hours of operation being on a 24 hours per day, seven days per week basis.

The proposed works would be constructed in three stages, as follows:

- **Stage 1:** The first stage would include the construction of DC01, located at the rear of the subject site. The three existing site buildings would be demolished.
- **Stage 2:** The second stage would involve the construction of DC02.
- **Stage 3: T**he construction of DC03.

2 SEARS and SSDA Requirements

This report provides a civil and stormwater assessment and responds to the Secretary's Environmental Assessment Requirements (SEARs) issued by DPIE on 25 July 2024 An outline of the SEARs relevant to this civil and stormwater assessment, and how they have been responded to, is summarised in the table below.

Table 1: SEARs Requirements

Issue and Assessment Requirements	Where Addressed
Soils and Water	
▪ A topographic assessment and justification demonstrating the proposed earthworks are responsive and contextually appropriate;	Section 3.2, Appendix A
▪ A detailed site water balance including a description of the water demands and breakdown of water supplies, and any water licensing requirements;	
▪ Details of stormwater/wastewater management system including the capacity of water harvesting, onsite detention (OSD) system(s), water sensitive urban design (WSUD) and measures to treat, reuse and dispose of water;	Section 8
▪ Description of the proposed erosion and sediment controls during construction	Sections 7-8
	Section 9
Traffic and Transport	
▪ Details and plans of the proposed internal road network, service bay turning and manoeuvring of the largest anticipated vehicle, on-site parking generation and provisions, and sufficient pedestrian and cyclist end-of-trip facilities, in accordance with the relevant Australian Standards	Section 4
▪ Details of road upgrades, infrastructure works or new roads or access points required for the development if necessary	Section 4
▪ Details of the largest vehicle anticipated to access and move within the site, including swept path analysis	Section 4
▪ Swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site.	Section 4, Appendix B

2.1 Scope of Report

The objective of this Civil and Stormwater Design Report is to identify the design criteria and underlying methodology for the proposed civil works and stormwater drainage system.

For the purpose of this report, the civil works and stormwater drainage system encompasses the following elements:

- Road geometrical design and site grading, including site carparking and access roads around the proposed buildings,
- Pavement design,
- Minor (piped) stormwater drainage system,
- Major (overland flow) stormwater drainage system,
- Stormwater quality treatment train,

An assessment of mainstream (riverine) and overland flooding for the development is addressed by an accompanying report (ref: GRDC86-XX-XX-RP-C-0002).

3 Basis of Design

3.1 Design Standards and Guidelines

This Civil and Stormwater Management Report was prepared in conjunction with relevant standards and guidelines. The documents used as part of the design control are as followed:

- Australian Rainfall and Runoff (2019)
- Blacktown City Council Guidelines:
  - Blacktown Development Control Plan: Part E Development in the Industrial Areas and Part J Water Sensitive Urban Design and Integrated Water Cycle Management (2015)
  - Engineering Guide for Development (July 2005)
  - Civil Works Specifications (2005)
  - WSUD Developer Handbook (2020)
  - WSUD Standard Drawings (2017)
- Bureau of Meteorology IFD Data – sourced from www.bom.gov.au
- Australian Rainfall and Runoff Data Hub – sourced from data.arr-software.org
- Landcom Managing Urban Stormwater: Soils and Construction Volume 1 (2004)
- Geotechnical Assessment Report prepared by Martens & Associates Pty Ltd (ref: P2310014JR01V03 dated 20 September 2024)
- AS/NZS 3500.3-2021
- AS/NZS 2890.1-2004
- AS 2890.2-2018
- AS/NZS 2890.6-2022

3.2 Site Characteristics

3.2.1 Topography

The site generally falls from southwest to northeast, towards the eastern corner of the site. An existing drainage channel extends outside of the site boundary to the east, which directs overland flows into Eastern Creek.

The elevation of the site ranges from 44.5 m AHD in the south-western corner of the site, to 30.5 m AHD in the north-eastern corner of the site. Elevation changes across the site are largely managed through existing retaining walls along the existing Endeavour Energy transmission easement within the southern portion of the site, and the existing stacked rock retaining wall along the northern site boundary.

The area subject to re-development works is relatively flat, with an approximate gradient of between 0.5% to 1.0% sloping from western boundary (Glendenning Road) to eastern boundary (Eastern Creek).

Topographic survey plans prepared by LTS Surveyors have been enclosed as Appendix A to this Report.

3.3 Geotechnical Investigation and Groundwater Assessment

3.3.1 Historical Geotechnical Investigations

The following available geotechnical investigations for the site have been used to inform the geotechnical properties in the below section of this report along with the geotechnical investigation undertaken by Martens & Associates for the project (ref: P2310014JR01V03 240920 dated 20 September 2024).

- Coffey Geotechnics – 2008
  - 36 test pits
  - 5 boreholes
  - Laboratory testing (5x shrink/swell index tests and 4x CBR tests)
- Pells Sullivan Meynink (PSM) – 2015
  - 10 plate load tests
  - 3 test pits to a maximum depth of 1.5m
- Martens & Associates (Martens) – 2024
  - 6 boreholes including NMLC rock coring within the vicinity of the DC01 building
  - 3 boreholes including NMLC rock coring within the vicinity of the DC02 building
  - 1 borehole including NMLC rock coring within the vicinity of the DC03 building
  - Standard Penetration Tests (SPT) within all boreholes
  - 1 Dynamic Cone Penetrometer Test carried out at BH105 within the centre of the site
  - Laboratory testing
    - 25 point load strength testing of rock core samples
    - 3 Atterberg limit and linear shrinkage tests on soil samples
    - 2 4-day soaked CBR strength tests on bulk soil samples
    - 6 aggressivity test on soil samples

3.3.2 Location of Tests

The location of the test pits and boreholes by Coffey are shown in Figure 3 below. Whilst the testing locations are not shown on an aerial image background, it can be inferred that the test locations are located on the eastern half of the subject site.

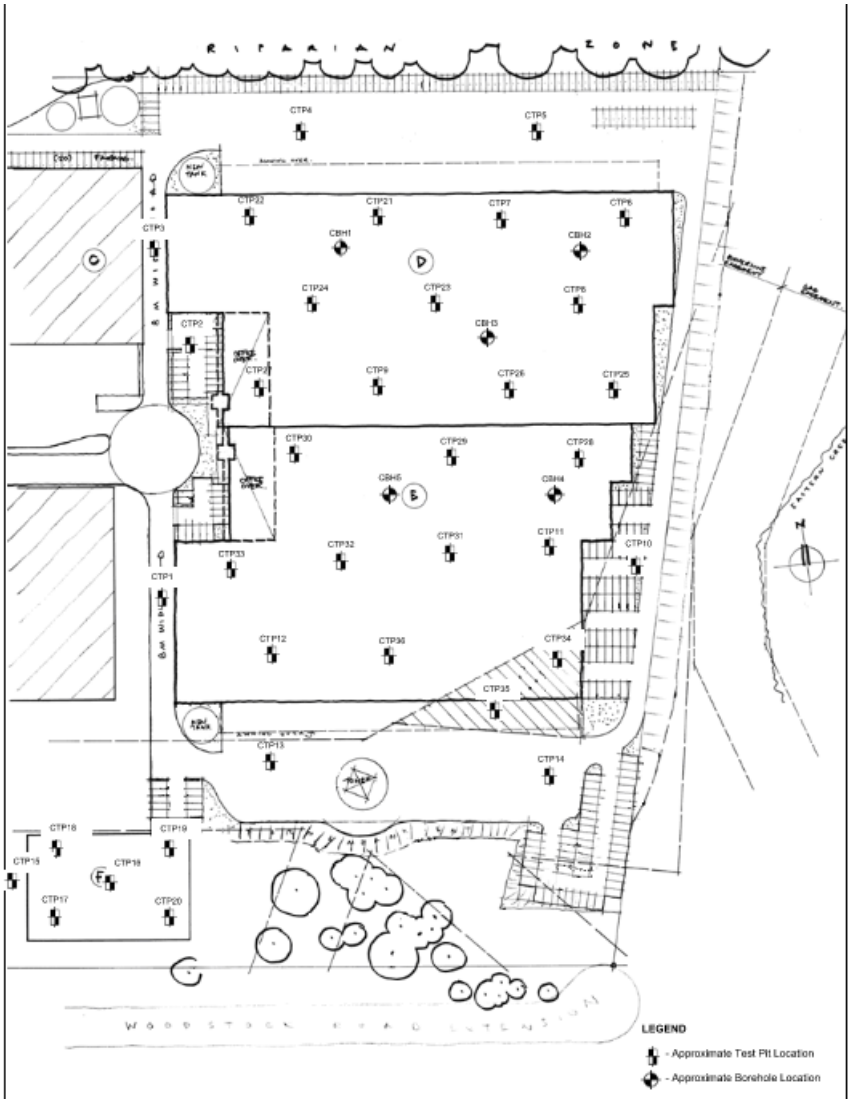


Figure 3 Geotechnical Testing Locations – Coffey, 2008

The Martens geotechnical investigation locations are shown in Figure 4 below.

Figure 4 Geotechnical Testing Locations – Martens, 2024

3.3.3 Subsurface Conditions

The subsurface conditions encountered during geotechnical investigations is summarised within the Martens geotechnical investigation, shown in the below Table:

Table 2: Geotechnical Subsurface Conditions

Unit	Layer		Depth mbgl (mAHD)			
		BH101 (34.3 mAHD)	BH102 (33.8 mAHD)	BH103 (34.5 mAHD)	BH104 (33.7 mAHD)	BH105 (33.6 mAHD)
A	Fill: Silty CLAY	0.0 – 2.10 (34.3 – 32.2)	0.0 – 3.0 (33.8 – 30.8)	0.0 – 1.5 (34.5 – 33.0)	0.0 – 3.0 (33.7 – 30.7)	0.0 – 0.3 (33.6 – 33.3)
B1	Alluvial: Stiff Silty CLAY	-	-	-	3.0 – 5.2 (30.7 – 28.5)	-
B2	Alluvial: Very Stiff Silty CLAY	2.10 – 3.50 (32.2 – 30.8)	3.0 – 9.0 (30.8 – 24.8)	1.5 – 2.5 (33.0 – 32.0)	-	-
C1	Residual: Stiff Silty CLAY	3.50 – 5.0 (30.8 – 29.3)	9.0 – 10.5 (30.8 – 23.3)	-	-	-
C2	Residual: Very Stiff Silty CLAY	5.0 – 6.2 (29.3 – 28.1)	-	2.5 – 3.0 (32.0 – 31.5)	5.2 – 6.0 (28.5 – 27.7)	0.3 – 1.5 (33.3 – 32.1)
C3	Residual: Hard Silty CLAY	-	-	-	-	-

Notes:

1. Encountered below a 0.15 m thick concrete pavement in BH109 and 0.2 m thick concrete / asphaltic pavement in BH108 and BH110.

Unit	Layer	Depth mbgl (mAHD)				
		BH106 (33.8 mAHD)	BH107 (33.8 mAHD)	BH108 [1] (34.7 mAHD)	BH109 [1] (34.8 mAHD)	BH110 [1] (33.7 mAHD)
A	Fill: Silty CLAY	0.0 – 1.5 (33.8 – 32.3)	0.0 – 0.5 (33.8 – 33.3)	0.2 – 1.3 (34.5 – 33.4)	0.15 – 0.8 (34.65 – 34.0)	0.2 – 1.5 (33.5 – 32.2)
B1	Alluvial: Stiff Silty CLAY	-	-	-	-	1.5 – 2.9 (32.2 – 30.8)
B2	Alluvial: Very Stiff Silty CLAY	-	-	-	-	-
C1	Residual: Stiff Silty CLAY	-	-	-	-	
C2	Residual: Very Stiff Silty CLAY	1.5 – 4.8	-	-	0.8 – 2.1	2.9 – 4.0
Unit	Layer	Depth mbgl (mAHD)				
		BH106 (33.8 mAHD)	BH107 (33.8 mAHD)	BH108 [1] (34.7 mAHD)	BH109 [1] (34.8 mAHD)	BH110 [1] (33.7 mAHD)
		(32.3 – 29.0)			(34.0 – 32.7)	(30.8 – 29.7)
C3	Residual: Hard Silty CLAY	-	0.5 – 2.5 (33.3 – 31.3)	-	-	-

Notes:

1. Encountered below a 0.15 m thick concrete pavement in BH109 and 0.2 m thick concrete / asphaltic pavement in BH108 and BH110.

3.3.4 Geotechnical Parameters

The following geotechnical design parameters relating to civil engineering design have been extracted from the Martens geotechnical investigation:

- CBR Strength: 1.0% to 2.0%
  - A design CBR strength of 1.0% has been used in pavement calculations
- Site Classification: Class “P”
- Plasticity Classification: medium to high
- Batter slope angles
  - Temporary batters: 2H:1V
  - Permanent Batters: 3H:1V
- Excavation support
  - Cohesion:
    - Existing clay fill: 1 kPa
    - Alluvium / residual silty clay (stiff): 2 kPa
    - Alluvium / residual silty clay (very stiff): 5 kPa
    - Residual clay (hard): 6 kPa
    - Weathered Class V Shale: 30 kPa

        - Weathered Class IV Shale: 75 kPa
        - Weathered Class III Shale: 150 kPa
    - Friction angle:
        - Existing clay fill: 25 degrees
        - Alluvium / residual silty clay (stiff): 25 degrees
        - Alluvium / residual silty clay (very stiff): 26 degrees
        - Residual clay (hard): 28 degrees
        - Weathered Class V Shale: 28 degrees
        - Weathered Class IV Shale: 30 degrees
        - Weathered Class III Shale: 32 degrees
    - Allowable bearing capacity for shallow footings:
        - Engineered fill over existing fill: 50-100kPa (Subject to at least 0.5 m of engineered fill beneath shallow footing to achieve 50 kPa. Soil replacement over full depth of existing uncontrolled fill with engineered fill is required to achieve 100 kPa; and adopted foundation arrangement)
        - Existing clay fill: 50kPa
        - Alluvium / residual silty clay (stiff): 100 kPa
        - Alluvium / residual silty clay (very stiff): 150 kPa
        - Residual clay (hard): 300 kPa
        - Weathered Class V Shale: 500 kPa
        - Weathered Class IV Shale: 1000 kPa
        - Weathered Class III Shale: 1500 kPa
- Groundwater:
    - BH101: 7.7 mbgl (26.6m AHD)
    - BH102: 9.0 mbgl (24.8m AHD)

4 Road Geometry & Site Grading

4.1 Scope of Design

The proposed development road network includes the following:

- Main vehicle entry connection to Glendenning Road with separated entry and exit driveway crossings.
- Secondary vehicle entry located in the north-western corner of the site, which will be constructed upon demolition works to the existing north-western warehouse building and construction of DC03. This secondary vehicle entry will be controlled by sliding gate access and will generally only be used for maintenance vehicle access for equipment replacement and during emergencies.

- New circulation roads linking the main vehicle entry to the proposed data centre parking, loading dock facilities and back of house area. The circulation roads have been designed to cater for the largest vehicle accessing the site, being a 19.0m articulated vehicle.
- A secure main entry with double security gates and guard house for filtering and approval of vehicles entering and exiting the site.
  - The main entry intercom and boom gate position has been designed so that the largest design vehicle (19.0m AV) can be contained wholly within the site boundary to avoid obstruction of the Glendenning Road reserve and public footpath.
  - A vehicle refusal bay has been designed at the main entry to provide the largest design vehicle (19.0m AV) the required turning space to undertake a "U-turn" at the entry driveway to exit the site in a forward direction, should the vehicle be rejected from entering the security gates.
- Recessed loading docks to each building for deliveries and general operations.

4.2 Design Criteria and Methodology

4.2.1 Design Vehicle

A 19.0m Articulated Vehicle has been selected as the design vehicle for the proposed development. This will be the largest operational vehicle that is proposed to access the site.

According to AS2890.2-2018 Table 2.1, the following vehicle dimensions have been utilised for the swept path analysis for the site:

Table 3: Design Vehicle Dimensions, Articulated Vehicle

PARAMETER	VALUE
Overall Length (m)	19.0
Design Width (m)	2.50
Wheelbase (m)	14.50
Design Turning Radius (m)	12.5
Swept Circle (m)	26.6
Clearance Height (m)	4.5

Source: Australian Standard 2890.2-2018 Table 2.1

Vehicle swept path plans have been prepared to illustrate vehicle movements throughout the site. Refer to drawings GRDC86-ACR-00-XX-DR-C-2700, GRDC86-ACR-00-XX-DR-C-2701, GRDC86-ACR-00-XX-DR-C-2702, GRDC86-ACR-00-XX-DR-C-2703, GRDC86-ACR-00-XX-DR-C-2704 and GRDC86-ACR-00-XX-DR-C-2705 enclosed as Appendix B to this report.

4.2.2 Road Width and Horizontal Geometry

According to Council's *DCP Part E Section 4.7,* the minimum road width for 2-way circulation roads is 7.0m

AS2890.2 Table 3.1 outlines, for a 19m Articulated Vehicle, the minimum road width for large turning radii is 6.5m for a two-way road. As such the following minimum road widths have been adopted:

- One-Way Road: 6.5m
- Two-Way Road: 7.0m

The above minimum road widths are also in accordance with relevant emergency services vehicle circulation requirements, including Fire Resue NSW's *Fire Safety Guideline – Access for Fire Brigade Vehicles and Firefighters*.

Roadways have been increased in width in areas where the design vehicle swept paths require additional vehicle circulation space greater than the minimum roadway widths identified above.

The design speed of the circulation road geometry is 30km/hr. The posted speed limit for the circulation road network will be 15km/hr.

4.2.3 Maximum Road Grades

In accordance with AS2890.2 Table 3.2 and 3.3, the maximum allowable grades and rates of grade change on circulation roadways, for a 19.0m Articulated Vehicle, are as follows:

- Maximum Grade: 1:6.5 (15.4%)
- Maximum Rate of Change of Grade: 1:16 (6.25%) in 10m of travel.

4.2.4 Minimum Road Grades

In accordance with Council's *Engineering Guide for Development Section 3.14,* the preferred minimum road grade shall be 1.0%, with an absolute minimum of 0.7%.

The following minimum grades for concrete and asphalt surface have been adopted for the site:

- Roadways – Minimum Grade: 1.0%
- Loading Dock – Minimum Grade: 0.7%

5 Stormwater Drainage

5.1 Design Criteria

5.1.1 Pit and Pipe Design (Minor Storm)

The minor drainage system comprises of the below ground pit and pipe network and is designed to safely collect and convey stormwater flows generated during minor storm events.

Blacktown Council's Engineering Guide for Development Appendix D Section 1.1 requires that the minor system be designed for the 20 Year ARI (5% AEP) Storm Event for industrial sites.

Additionally, the in-ground stormwater system has been designed with additional capacity to cater for the following:

- Allowance for climate change factors in the form of a rainfall intensity modifier (refer to Section 5.2.1.4 of this report for further details).

Rainfall data in Australia is supplied by the Bureau of Meteorology, which follows the AR&R standard design rainfall events.

5.1.2 Overland Flow Path (Major Storm)

The major drainage system incorporates overland flow routes through the circulation roadways for storm events up to and including the 100 Year ARI (1% AEP) storm event. The major system also allows safe conveyance of flows should failure of the minor system occur.

In accordance with Council's requirements, the major drainage system is to be designed in a manner that ensures that personal safety is not compromised. As such, all overland flow routes for the site are to be designed so that the following criteria are satisfied:

- The maximum velocity-depth product shall not exceed 0.4m^2/s in accordance with Council's *Engineering Guide for Development Appendix D*.
- A minimum freeboard of 0.3m from the calculated top water level of the overland flow path to the adjacent building floor levels
- Maximum 150mm depth of flow to contain flows within the roadway

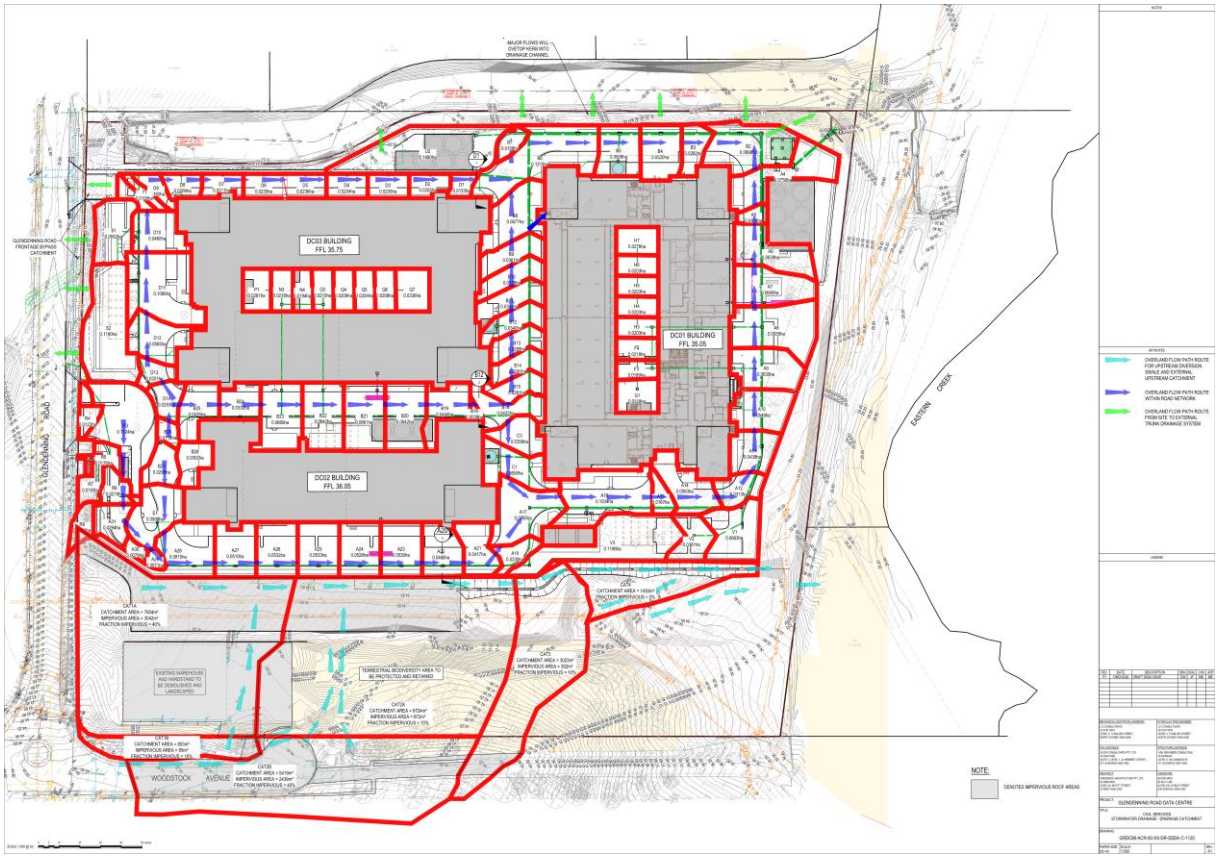


Figure 5 Drainage Catchment Plan with Overland Flow Path Routes

5.2 Design Methodology and Modelling

A hydrological model of the proposed site catchment was created using the DRAINS software package and was analysed to assess the performance of the site stormwater network. The initial losses / continuing losses (IL/CL) hydrological model has been used in DRAINS program to perform design and analysis calculations for urban stormwater systems.

The user data inputs required by the DRAINS IL/CL model include catchment areas, flow path lengths, time of concentration, pervious and impervious areas, IFD rainfall intensities and flow path roughness. Modelling is performed through the development of a network of pipes, pits and nodes to represent both the proposed scenario on site. The ARR2019 design methodology has been adopted for this project, in accordance with industry best practice.

5.2.1 Hydrological Modelling Parameters

5.2.1.1 Impervious Percentages

All catchments have been calculated based on an assumed 100% impervious area for flexibility in the drainage design.

5.2.1.2 Time of Concentration (TOC)

Generally, catchments larger than 1 ha will adopt a time of concentration based on kinematic wave calculations of the catchment characteristics, however all sub-catchments within the subject site are less than 1 ha.

As such, a minimum Time of Concentration (TOC) of 5 minutes for impervious surfaces and 7 minutes for pervious surfaces have been applied for all catchments.

5.2.1.3 Intensity Frequency Duration (IFD) and Temporal Patterns

IFD information has been sourced from the Bureau of Meteorology (BoM) using the coordinates provided below. The 20%, 10%, 5%, 2% and 1% AEP storm events were used for storm durations including the 5, 10, 15, 20, 25, 30, 45, 60, 90 and 120 minute storm events, with the rainfall depths in Table 4.

- Site Coordinates: -33.76, 150.85

ARR2019 analyses storm events against multiple temporal patterns to ensure the worst-case storm event is considered in designs. Temporal patterns have been provided from the ARR Data Hub website.

Table 4: Rainfall Depth (mm)

DURATION	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP
5 mins	10.7	12.6	14.6	17.2	19.2
10 mins	17.3	20.6	23.8	28.2	31.5
15 mins	21.7	25.8	29.8	35.2	39.4
20 mins	24.8	29.4	34.0	40.2	44.9
25 mins	27.1	32.2	37.2	43.9	49.1
30 mins	29.0	34.4	39.8	46.9	52.5
45 mins	33.1	39.2	45.3	53.4	59.8
60 mins	36.1	42.7	49.2	58.1	65.1
90 mins	40.7	47.9	55.2	65.3	73.3
120 mins	44.3	52.2	60.2	71.3	80.2

Source: Bureau of Meteorology (BoM) 2024

5.2.1.4 Climate Change Factor

The design rainfall data adopted for the site stormwater model has incorporated a rainfall intensity modifier to account for climate change in accordance with ARR Chapter 6 *Climate Change Considerations*.

A 12% increase in rainfall intensity has been applied to all storm events within the stormwater drainage design model. This is based on the following parameters:

- East Coast Natural Resource Management (NRM) Cluster
- Representative Concentration Pathway (RCP) of RCP4.5
- End of planning horizon of 2060
- Consequence risk rating of medium
- Temperature midpoint of 2.25 degrees Celsius

5.2.1.5 Loss Parameters

The loss parameters utilised in the DRAINS model have been summarised in Table 5.

Table 5: DRAINS Model Loss Parameters

PARAMETER	VALUE
Impervious Area Initial Loss (mm)	0
Impervious Area Continuing Loss (mm/hr)	0
Pervious Area Initial Loss (mm)	42
Pervious Area Continuing Loss (mm/hr)	1.04

5.2.1.6 Blockage Factors

Blockage factors have been applied to the on-grade and sag stormwater pit network to assess the effect of grates blocking with debris during a major storm event.

Council's *Engineering Guide for Development, Appendix D Section 10.2* outlines the required parameters for hydrological models. The following blockage factors have been implemented when assessing the 1% AEP Storm Event:

Table 6: DRAINS Model Blockage Factors

PIT TYPE	BLOCKAGE FACTOR
On Grade Pit	0.2
Sag Pit	0.5

Source: Blacktown City Council's *Engineering Guide for Development* (July 2005)

5.3 Design Results

5.3.1 Proposed Scenario DRAINS Model

A DRAINS model of the proposed site stormwater system has been developed using the parameters specified in Section 5.2.1 above and demonstrates that the stormwater design requirements can be met in accordance with Council's requirements.

The layout of the DRAINS model is shown in Figure 6 below:

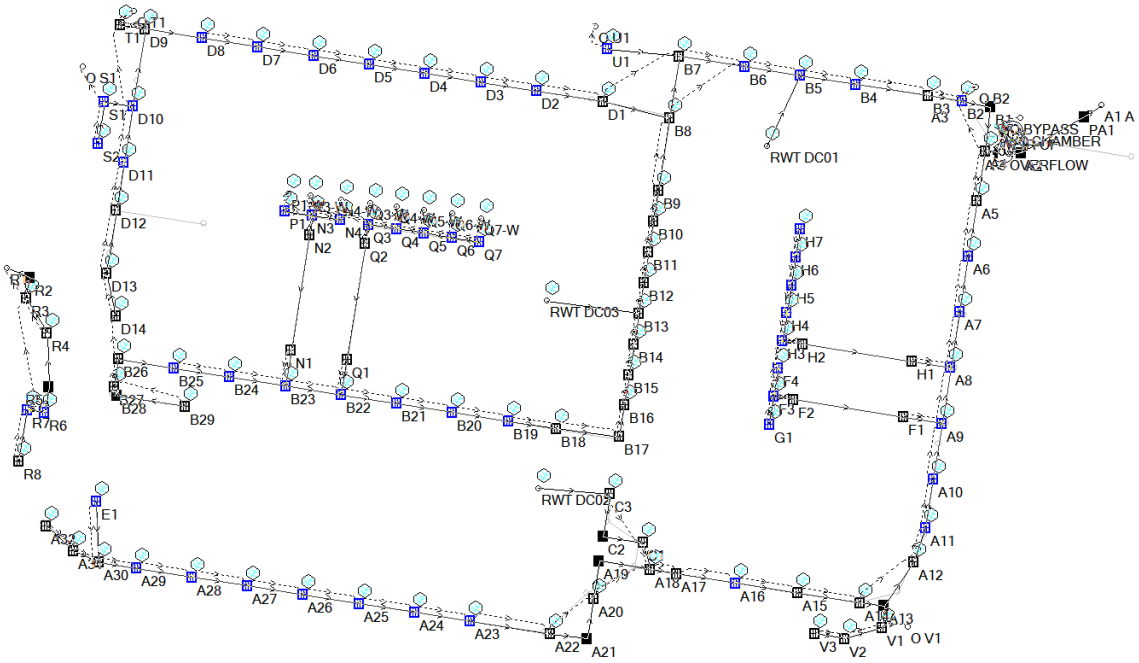


Figure 6 Proposed DRAINS Model

5.3.2 Pit and Pipe Design (Minor Storm)

All stormwater pits and pipes have been designed with sufficient capacity to collect and convey the 5% AEP storm event, including the nominated climate change factor for increase in rainfall intensity.

The DRAINS model results for the 5% AEP storm event are shown in Figure 6 below:

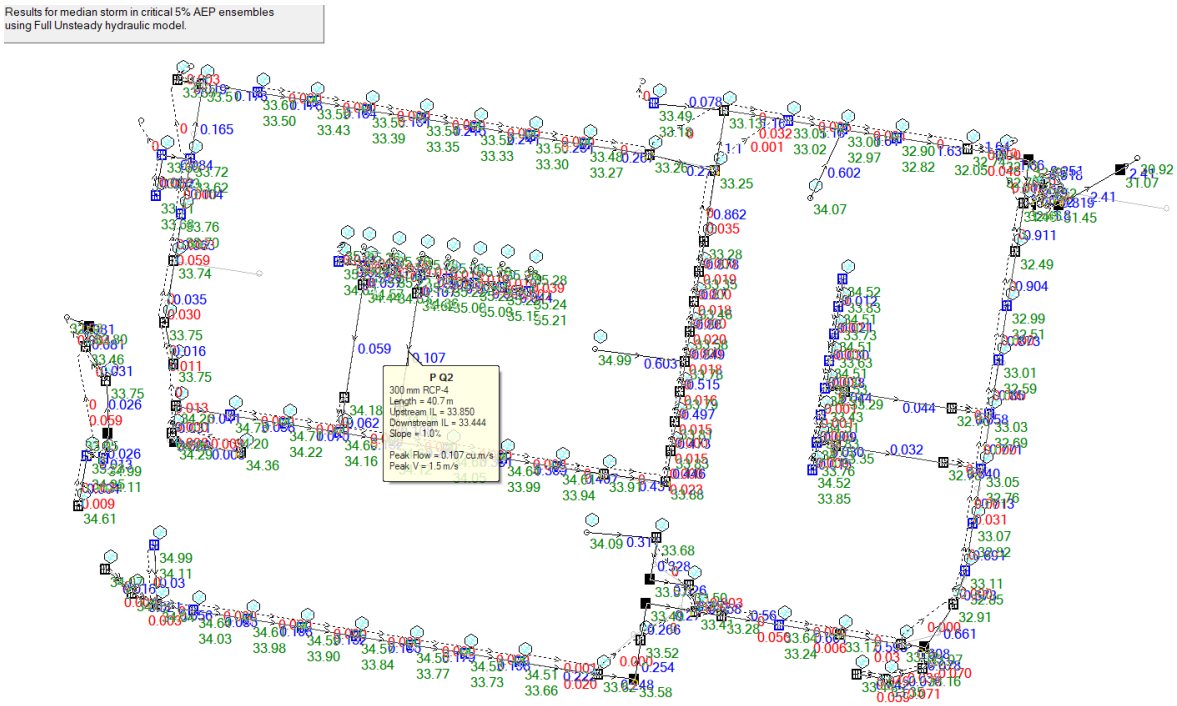


Figure 7 DRAINS Results 5% AEP Storm Event

5.3.3 Overland Flow Path (Major Storm)

The major system for stormwater conveyance consists of overland flow paths for all flows in excess of the minor system capacity above the 5% AEP and up to 1% AEP storm events.

The overland flow paths through the circulation roadways and open space areas have been designed to meet the following requirements:

- safe velocity-depth product equal to or less than 0.4m²/s
- minimum of 300mm freeboard to the floor levels
- maximum 150mm depth of flow to contain flows within the roadway

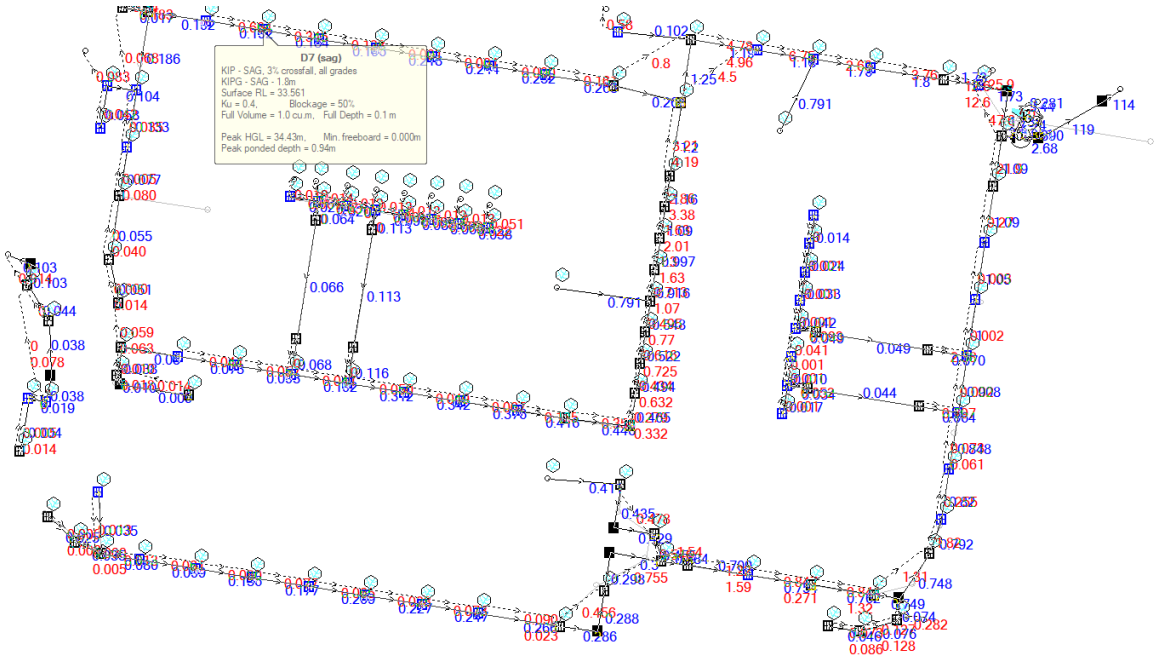


Figure 8 DRAINS Results 1% AEP Storm Event

6 Stormwater On-Site Detention

An on-site detention (OSD) system has not been provided for the proposed development as the site is located in an OSD-exempt location as defined by Blacktown City Council's OSD DCP Map, shown in the Figure below.

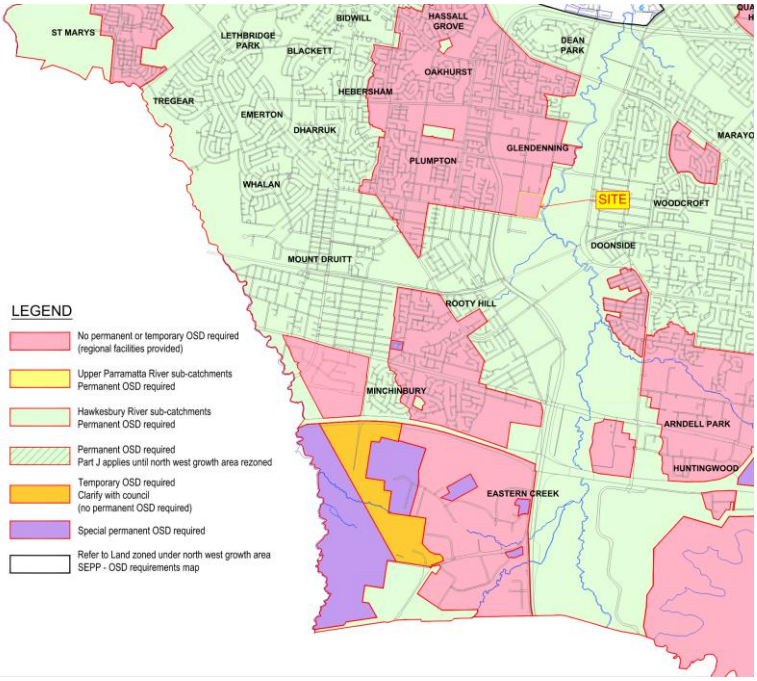


Figure 9 OSD DCP Map. Source: Blacktown City Council

7 Stormwater Quality

7.1 Water Sensitive Urban Design (WSUD) Design Criteria

Blacktown City Council's WSUD Developer Handbook requires stormwater quality control on-lot, which must comply with the target water quality pollutant removal rates which is summarised in Table 7 below:

Table 7: Water Quality Objectives

POLLUTANT	REDUCTION OBJECTIVE
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	65%
Total Nitrogen (TN)	45%
Gross Pollutants (GP)	90%

Source: Blacktown City Council's *WSUD Developer Handbook (2020)*

Additionally, Council's *WSUD Developer Handbook Section 3.4* requires industrial sites to provide a rainwater reuse system to supply a minimum 80% of the non-potable reuse demand for the site.

7.2 Design Methodology

Treatment removal loads were analysed for the proposed development using MUSIC (Model for Urban Stormwater Improvement Conceptualisation) Version 6.3 Software. MUSIC is a water quality modelling tool which is utilised to simulate urban stormwater systems operating at a range of temporal and spatial scales.

MUSIC models the total amounts of gross pollutants, phosphorus, nitrogen, and total suspended solids produced within various types of catchments. It allows the user to simulate the removal rates expected when implementing water quality treatment devices to decrease the increased pollutant levels created by the proposed development.

ACOR has prepared three MUSIC models to demonstrate the stormwater quality results under different scenarios to support pollutant reduction targets and net benefits when comparing against the pre-development (current site condition) scenario:

- Post-development (No Bypass Catchment) MUSIC Model

  This model excludes the northern and southern bypass catchments due to the absence of existing in-ground stormwater infrastructure. It has been developed to demonstrate compliance with Council's stormwater quality targets.

- Pre-development Bypass MUSIC model

  This model includes the pre-development northern and southern bypass catchments to allow stormwater quality assessment of the site as a whole. The northern bypass catchment located in the northern strip vegetation area between the fence and the existing drainage channel, while the southern bypass catchment is located northern portion of the site where no existing in-ground stormwater exists.

- Post-development Bypass MUSIC model

  This model includes the post-development bypass northern and southern catchments to provide a holistic assessment of total stormwater quality. The northern bypass catchment

remains unchanged from the pre-development scenario. Within the southern bypass catchments (revegetated and impervious), the post-development works include demolition of the existing building and hardstand area, re-vegetation of the demolished area with new landscape that integrates with the residual bushland, and incorporation of a diversion swale which acts as a buffer swale for polishing of stormwater runoff.

7.2.1 MUSIC Model Parameters

7.2.1.1 Water Quality Catchments

Water quality catchments have been separated to provide accurate calculation of the pollutants in the proposed stormwater runoff. The catchments are separated into the following sub-catchment types:

- Roof
- Roads (sealed)
- Hardstand – non-trafficable areas
- Landscape
- Driveway bypass
- Re-vegetated land bypass
  - Southern Bypass
  - Northen Bypass

Refer to the Stormwater Quality Catchment Plan GRDC86-ACR-00-XX-DR-C-1121 for catchment details.

7.2.1.2 Rainfall and Evapotranspiration Data

Rainfall and Evapotranspiration data has been provided by Blacktown City Council's MUSIC Link. MUSIC Link is a pre-determined template prepared by e-Water and Blacktown City Council for use when using MUSIC Modelling within the LGA.

7.2.1.3 Source Soil Parameters

Source soil parameters have been adopted from Section 9 of Council's *WSUD Developer Handbook* and outlined in Table 8 below:

Table 8: MUSIC Source Node Soil Properties

SOIL PARAMETER	VALUE
Rainfall Threshold (mm/day)	1.40
Soil Storage Capacity (mm)	170
Initial Storage (% of Capacity)	30
Field Capacity	70
Infiltration Capacity Coefficient – a	210
Infiltration Capacity Coefficient – b	4.7

SOIL PARAMETER	VALUE
Groundwater Initial Depth (mm)	10
Groundwater Daily Recharge Rate (%)	50
Groundwater Daily Base Flow (%)	4
Groundwater Daily Deep Seepage Rate (%)	0

Source: Blacktown City Council's *WSUD Developer Handbook (2020)*

7.2.1.4 Catchments Pollutant Mean Concentrations

Source node pollutants have been identified and separated as per the catchments outlined in Section 7.2.1.1 of this report. In accordance with Council's *WSUD Developer Handbook* Section 8, the recommended stormwater pollutant generation parameters for total suspended solids, total phosphorus and total nitrogen for the different land use categories are summarised in Table 9 below:

Table 9: Base Flow and Storm Flow Pollutant Mean Concentration Values

CATCHMENT TYPE		TSS (log 10)		TP (log 10)		TN (log 10)	
		MEAN	STD. DEV	MEAN	STD. DEV	MEAN	STD. DEV
Roof	Base Flow	1.20	0.17	-0.85	0.19	0.11	0.12
	Storm Flow	1.30	0.32	-0.89	0.25	0.30	0.19
Roads and hardstand	Base Flow	1.20	0.17	-0.85	0.19	0.11	0.12
	Storm Flow	2.43	0.32	-0.30	0.25	0.34	0.19
Landscape	Base Flow	1.20	0.17	-0.85	0.19	0.11	0.12
	Storm Flow	2.15	0.32	-0.60	0.25	0.30	0.19

7.3 MUSIC Models

The post-development (no bypass catchment) MUSIC model created in consultation with the proposed stormwater treatment supplier (Ocean Protect), demonstrates that the stormwater quality targets can be achieved in accordance with Council's requirements.

However, a further stormwater quality challenge arises when considering the northern and southern bypass catchment. The northern vegetated strip located between the site boundary fence and the existing drainage channel, while the southern portion of the site, encompassing land within and beyond the Endeavour Energy easement, which lies outside the data centre boundary fence.

These northern and southern bypass areas have no existing in-ground stormwater infrastructure and discharge directly without any practical opportunity for water treatment, particularly as they form part of the unchanged portions of land that are not subject to data centre proposed development and are encumbered by easements and are outside of the security fence line for the development.

ACOR has prepared two additional MUSIC models—a pre-development bypass model and a post-development bypass model. These models allow assessment of the site as a whole, clearly demonstrating that while no treatment is provided within the bypass catchments themselves, the proposed works will still result in a measurable net improvement in overall water quality outcomes in terms of pollutant load (kilograms per year of pollutants discharging from site rather than percentage reduction).

This approach offers an evidence-based solution that demonstrates a net reduction in stormwater pollutant residual load, while also addressing Blacktown City Council's requirement for a whole-of-site stormwater assessment. Refer to Section 7.3.4.2 for residual load results.

7.3.1 Post-development (No Bypass Catchment) MUSIC Model

A MUSIC model, excluding Northern and Southern bypass Catchments, of the proposed site has been developed using the parameters specified in Section 7.2.1 above and nominated treatment train outlined in this section to meet Council's pollutant reduction objectives outlined in Section 7.3.4.1.

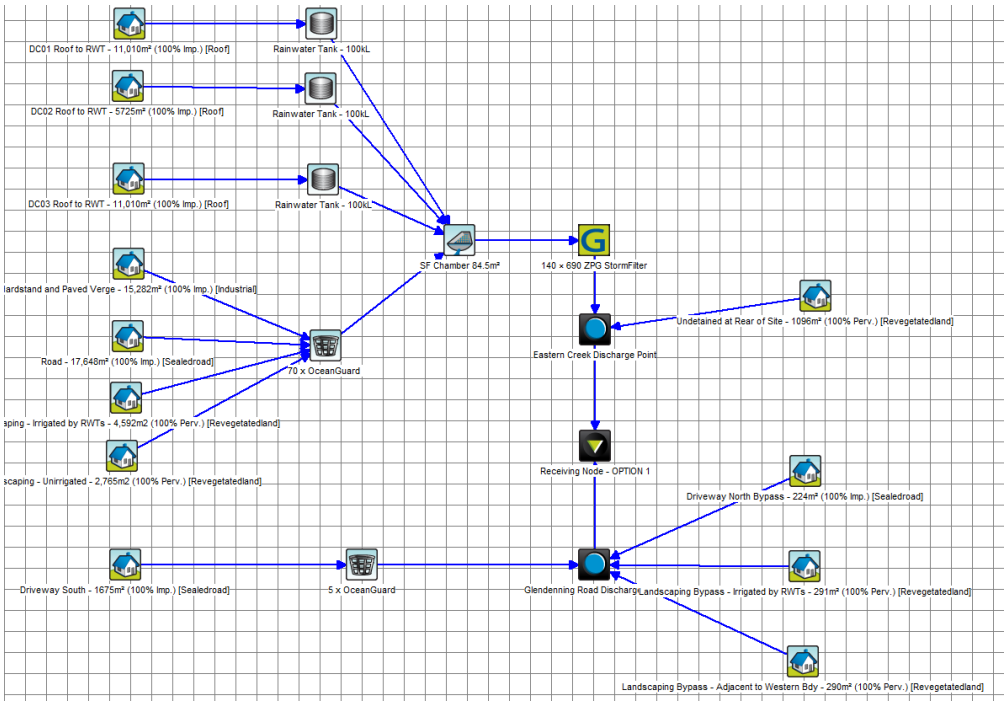


Figure 10 Post-development (No Bypass Catchment) MUSIC Model

The stormwater treatment train has been divided into two different treatment train sub-catchments, outlined as follows:

- WSUD Treatment Train 1: DC01, DC02 and DC03 roof, roads, hardstands and landscape areas draining to Eastern Creek including existing and re-vegetated areas which bypass the stormwater quality treatment train at low-lying areas of the site.
- WSUD Treatment Train 2: main entry driveway draining to Glendenning Road due to site level constraints. WSUD treatment train 2 includes driveway and landscape areas which bypass the stormwater quality treatment train at low-lying areas along the Glendenning Road frontage.

Each treatment train is to consist of:

- WSUD Treatment Train 1
  - 3 x 100 kL effective capacity rainwater tanks (1x 100kL per building)
    - Each rainwater tank will have an additional 10% capacity to account for anaerobic zones and a tank air gap.
  - 70 x OceanGuards by Ocean Protect, located in grated stormwater pits
  - 140 x 690 ZPG StormFilters by Ocean Protect
- WSUD Treatment Train 2
  - 5 x OceanGuards by Ocean Protect

7.3.1.1 Rainwater Tanks

The non-potable water demand is composed of three elements:

1. Toilet flushing
2. Landscape irrigation of landscape zones nominated by the landscape architect which require permanent, long-term irrigation. Areas nominated by the landscape architect as not requiring permanent irrigation due to the native species selection have been shown on the water quality catchment plan submitted as part of the SSDA civil drawing package.
3. Mechanical water storage tank top-up to supplement potable water sources for the data centre mechanical cooling system

The non-potable demand for toilet flushing has been set as 0.1kL/day per toilet or urinal on commercial/ industrial sites (7 days a week operation). Each building will have the following number of toilets and daily reuse demand:

- DC01
  - 23 toilets
  - 2.3kL/day
- DC02
  - 10 toilets
  - 1.0kL/day
- DC03
  - 23 toilets
  - 2.3kL/day

The mechanical water cooling system water demand has been calculated by the project mechanical engineer based on Bureau of Meteorology temperature data for the regional to estimate monthly water demand. The calculated water demand for each building is as follows:

- DC01
  - 4094 kL/year
- DC02
  - 2047 kL/year
- DC03
  - 4094kL/year

As the mechanical cooling system will operate in hotter months only, the distribution of rainwater reuse in the MUSIC model has been defined as an annual demand (ML/yr) and scaled according to the daily PET value minus the daily rainfall data contained in the MUSIC-Link Meteorological Template (PET-Rain function in MUSIC).

Three 100kL rainwater tanks (one rainwater tank for each building) are proposed to collect all roof runoff from data centre buildings DC01, DC02 and DC03 respectively. Overflow from the rainwater tanks will also be able to be treated by StormFilters within the proposed Stormfilter chamber.

7.3.1.2 OceanGuards

The OceanGuard pit basket is designed to fit within the stormwater pits to remove pollution from stormwater runoff. It intercepts stormwater as it enters the pits throughout a site. The OceanGuard has diversion panels that are placed flush with the pit walls, which ensures that stormwater entering at the top of the pit is directed to the middle of the insert where the filtration bag is located.

The removal rates used for the OceanGuard have been provided in Council's *WSUD Developer Handbook Section 12.2* and are outlined in Table 10 below.

Table 10: OceanGuard Performance

POLLUTANT	REMOVAL
Total Suspended Solids (TSS)	54%
Total Phosphorus (TP)	30%
Total Nitrogen (TN)	21%
Gross Pollutants (GP)	95%

Source: Blacktown City Council's *WSUD Developer Handbook (2020)*

WSUD Treatment Train 1 uses 70 OceanGuards to provide primary treatment to the roads and hardstand, and landscape area, before secondary treatment by filtration cartridges.

WSUD Treatment Train 2 uses 5 OceanGuards to provide primary treatment to the driveway bypass areas.

7.3.1.3 StormFilter

140 x 690 ZPG Ocean Protect StormFilter cartridges have been installed inside an underground tank with a minimum 84.5m^2 surface area to treat stormwater. The Ocean Protect StormFilter cartridges are designed and sized to remove fine solids, soluble heavy metals, oil and soluble nutrients using a variety of media.

The removal rates used for the Stormfilter have been provided in Council's WSUD Developer Handbook Section 12.11 and are outlined in Table 11 below.

Table 11: StormFilter Performance

POLLUTANT	REMOVAL
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	59%
Total Nitrogen (TN)	33%
Gross Pollutants (GP)	95%

Source: Blacktown City Council's *WSUD Developer Handbook (2020)*

7.3.2 Pre-development Bypass MUSIC Model

The pre-development bypass MUSIC model has been created based on the current site condition and pervious / impervious area break-up, with incorporation of the following northern and southern bypass catchments.

Table 12: Pre-development Bypass Catchments

CATCHMENT	TREATMENT	AREA (m2)	PERCENTAGE IMPERVIOUS
Bypass - Existing Northern Vegetation	Untreated	2930	0%
Southern Bypass - Revegetated	Untreated	22003	0%
Southern Bypass - Impervious	Untreated	7977	100%

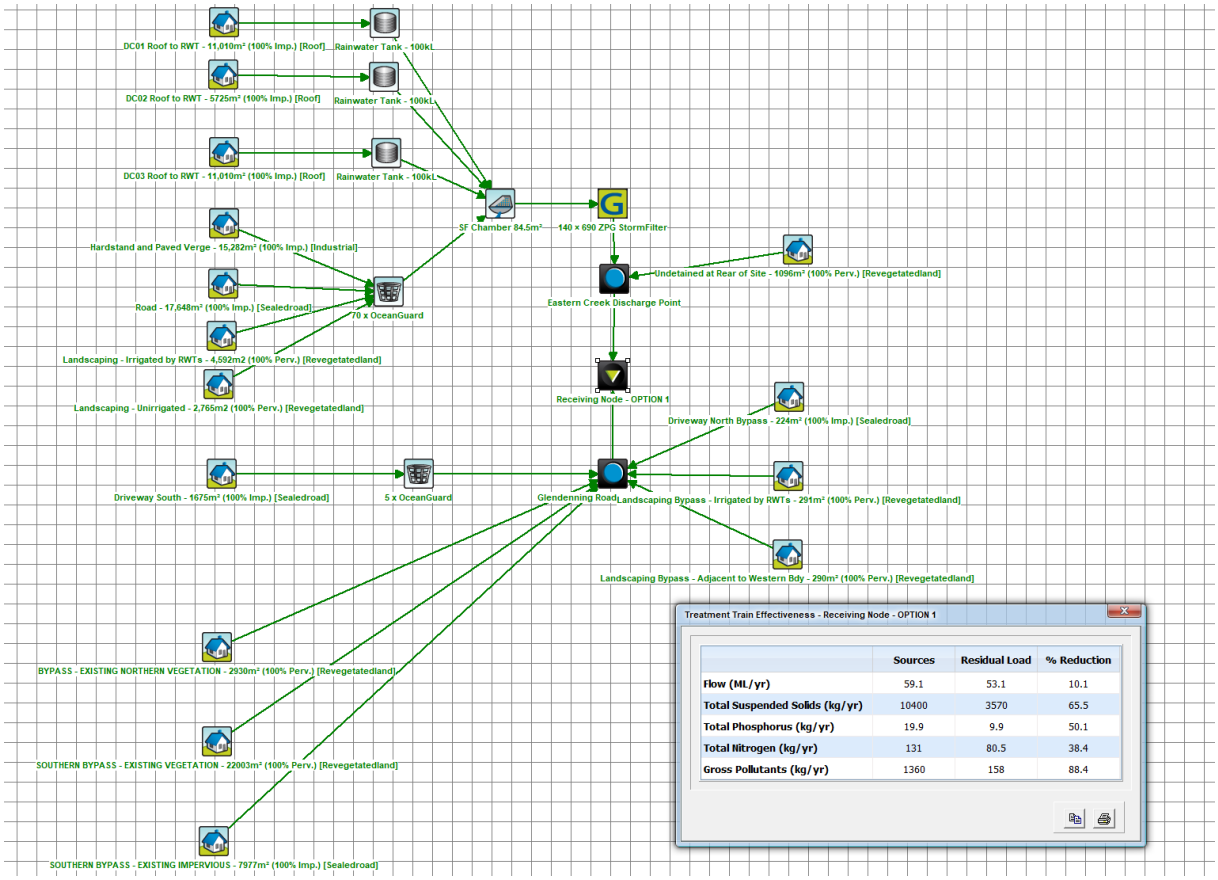


Figure 11: Pre-dev Bypass MUSIC Model

7.3.3 Post-development Bypass MUSIC Model

The post-development bypass MUSIC model has been prepared using the same methodology as the pre-development bypass model, with updated pervious / impervious percentages based on the development specifics and inclusion of the northern and southern bypass catchments.

The 'bypass – existing northern vegetation' comprising the vegetated strip between the site fence and the existing drainage channel, remains unchanged from the pre-development condition.

The southern bypass catchment reflects post-development works, including demolition of the existing building and hardstand, re-vegetation of the demolished area with landscaping integrated with the into the surrounding bushland, and the incorporation of a diversion swale.

Table 13: Post-development Bypass Catchments

CATCHMENT	TREATMENT	AREA (m2)	PERCENTAGE IMPERVIOUS
Bypass - Existing Northern Vegetation	Untreated	2930	0%
Southern Bypass - Revegetated	Untreated	25325	0%
Southern Bypass - Impervious	Untreated	4655	100%

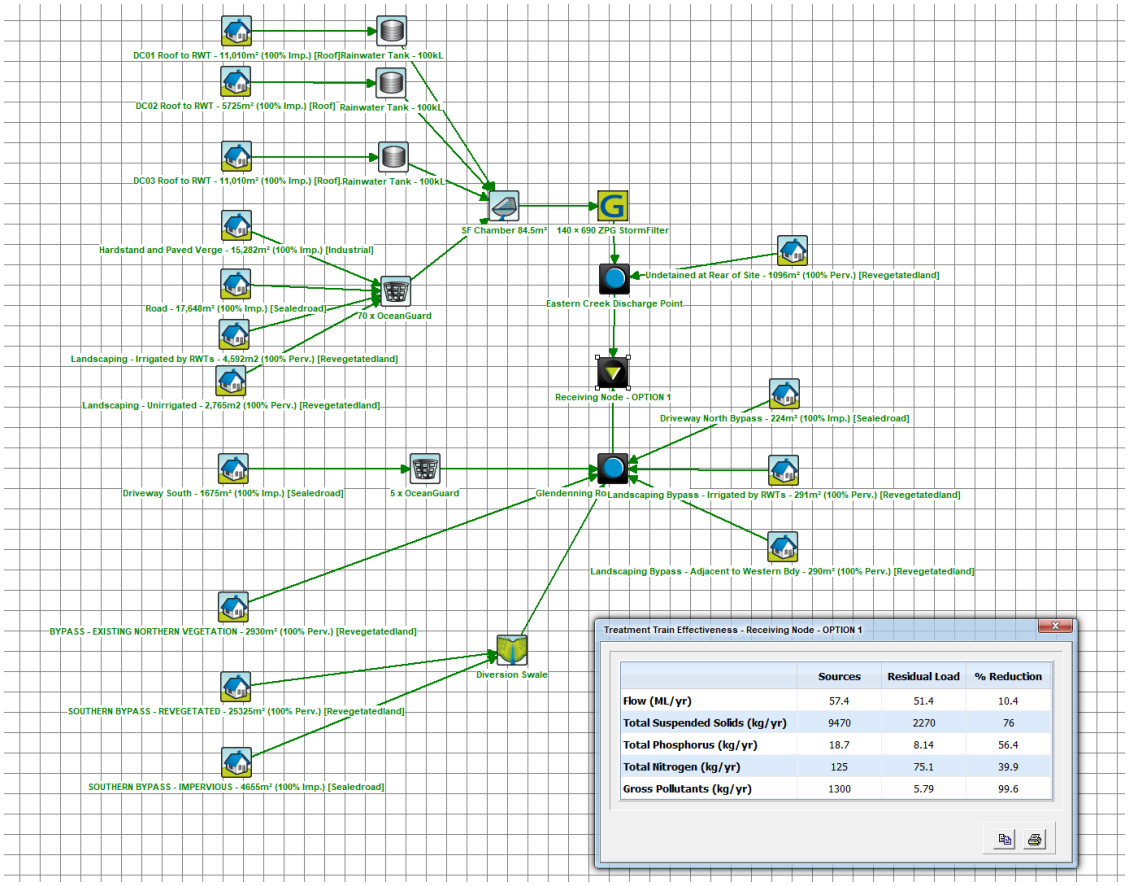


Figure 12: Post-dev Bypass MUSIC Model

Table 14: Diversion Swale Parameters

Properties	
Length	148.00
Bed Slope (%)	0.50
Base Width (m)	1.00
Top Width (m)	7.00
Depth (m)	0.50
Vegetation Height (m)	0.05
Exfiltration Rate (mm/hr)	0.00

7.3.4 MUSIC Model Results

7.3.4.1 Post-development (No Bypass Catchment) MUSIC Model Results

Results of the MUSIC analysis indicates that, by including the nominated treatment train as described in Section 7.3.1, the post-developed pollutant reductions meet Council's objectives.

The results are summarised in Table 15 below.

Table 15: MUSIC Model Results

	SOURCE LOAD	RESIDUAL LOAD	% ACHIEVED REDUCTION	% REQUIRED REDUCTION
TSS (kg/yr)	7,850	1,080	86.3%	85%
TP (kg/yr)	15.3	5.35	65.0%	65%
TN (kg/yr)	108	57.8	46.5%	45%
Gross Pollutants (kg/yr)	1,210	5.79	99.5%	90%

Source: MUSIC Model

7.3.4.2 Pre-development Bypass and Post-development Bypass MUSIC Model Results

The post-development bypass MUSIC model demonstrates a net improvement in overall water quality compared with the pre-development bypass scenario. The results indicate a measurable reduction in residual pollutant loads across the entire site.

It should be noted that no stormwater treatment is proposed for the northern and southern bypass catchments, as these areas lack existing in-ground stormwater infrastructure and are located outside the proposed development extent of the data centre. Despite the absence of direct treatment for the bypass catchments, the model demonstrates that the proposed development achieves a net environmental benefit in water quality in terms of pollutant loads.

Table 16: MUSIC Model Results

	PRE-DEVELOPMENT BYPASS MUSIC MODEL Residual Load	POST-DEVELOPMENT BYPASS MUSIC MODEL Residual Load	ACHIEVED REDUCTION (kg/yr)	% ACHIEVED REDUCTION
TSS (kg/yr)	3570.00	2270.00	1300.00	36.41
TP (kg/yr)	9.90	8.14	1.76	17.78
TN (kg/yr)	80.50	75.10	5.40	6.71
Gross Pollutants (kg/yr)	158.00	5.79	152.21	96.34

7.3.4.3 Stream Erosion Index (SEI) Analysis

The Stream Erosion Index (SEI) is used to assess the impacts of proposed development on local creeks and streams, including increases in peak flows and runoff volume.

An SEI analysis was conducted in accordance with the methodology outlined in *Blacktown City Council's WSUD Developer Handbook Section 13.4,* using MUSIC software to evaluate the potential impacts of the proposed development. This analysis considers both pre- and post-development catchments as illustrated in Figure 13.

The inputs and results of the SEI analysis are provided in Table 17, demonstrating the post-development output flow is no greater than 3.5 times the pre-development output flow.

Table 17: SEI Inputs and Results

Calculation	
Site Area (all bypass and non-bypass areas)	103,229 m^2
Time of Concentration	19 minutes
Rainfall Intensity – 2-year, 19 mins	56.5 mm/hr
Critical Flow (Q)	0.18 m^3/s
Pre-dev Mean Annual Load Outflow (ML/yr)	5.92
Post-dev Mean Annual Load Outflow (ML/yr)	7.44
SEI	1.257
Target SEI (Blacktown Council Guidelines)	3.5

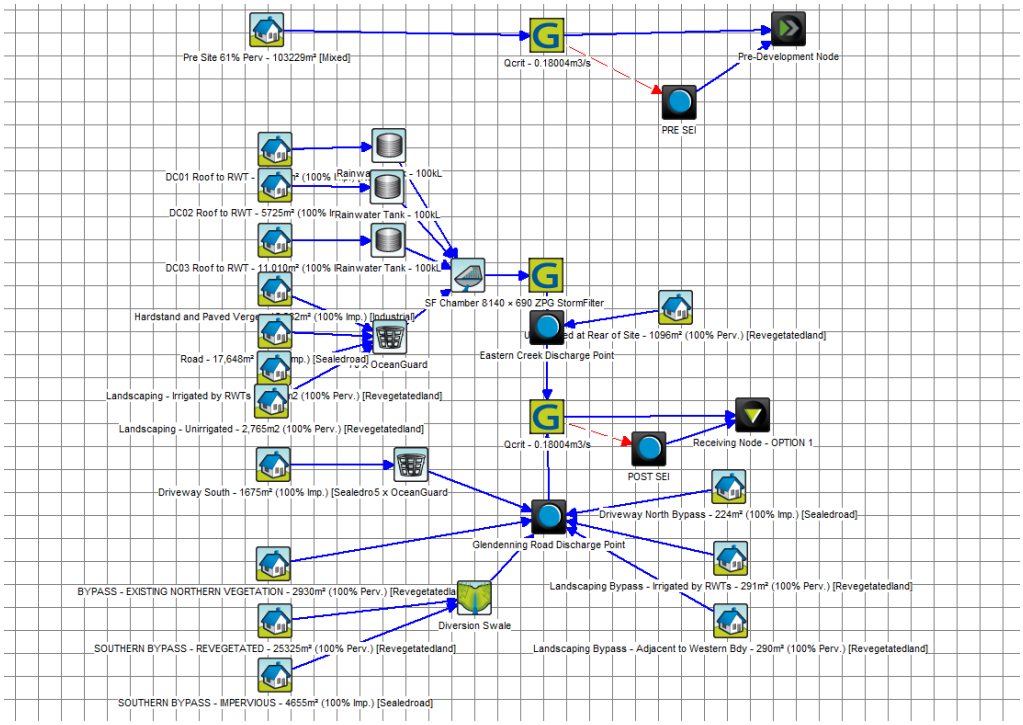


Figure 13: SEI MUSIC Model

7.4 Hydrocarbon TreatmentTransformer Room Oil Spill Containment

Each data centre building will include an internal substation, including a transformer room (with the exception of DC01 which will include two 132kV/22kV transformer rooms). Each transformer is located within a bund and separated by fire-rated walls within the building envelope and thus not exposed to any rainfall.

Each transformer includes a fuel tank, and as such, an oil containment and separation system is required prior to connection to the downstream stormwater system in accordance with AS1940 – *The storage and handling of flammable and combustible liquids.*

The proposed drainage configuration to each transformer room includes a sump with a flame trap that drains to a closed valve pit external to the building envelope. The bunded area in each transformer room is sized to contain the maximum possible oil spill volume including fire water runoff. The valves are set by default to the closed position such that, in the event of a spill, all oil is contained within the sump/bund.

Oil spill containment tanks will also be provided for each data centre building, sized to contain the maximum possible oil spill volume including fire water runoff. During a spill event or complete failure of the transformer, oil and fire water will be contained within the transformer room bunding due to the valve pit being in the closed position. The bund can then be drained by opening the valve to allow oil/water to drain safely into the spill containment tank. The tank can then be drained by pumping into a waste disposal truck.

As the transformer rooms and pipework reticulation to the spill containment tanks will not be exposed to rainfall, a containment tank is proposed in lieu of an oil/water separator.

The proposed spill containment tank for each data centre building is a 45,000 litre Atlan Tankstor. The spill containment tank sizing is based on the below volumes for transformer lubricating oil and fire water:

- Volume of transformer lubricating oil = 36,140 L
- 20-minute volume of fire sprinkler water within transformer room = 3,720 L
- Total volume of oil and water = 39,860 L
- Total minimum volume of spill containment tank (10% increase in volume for variance = 43,846 L

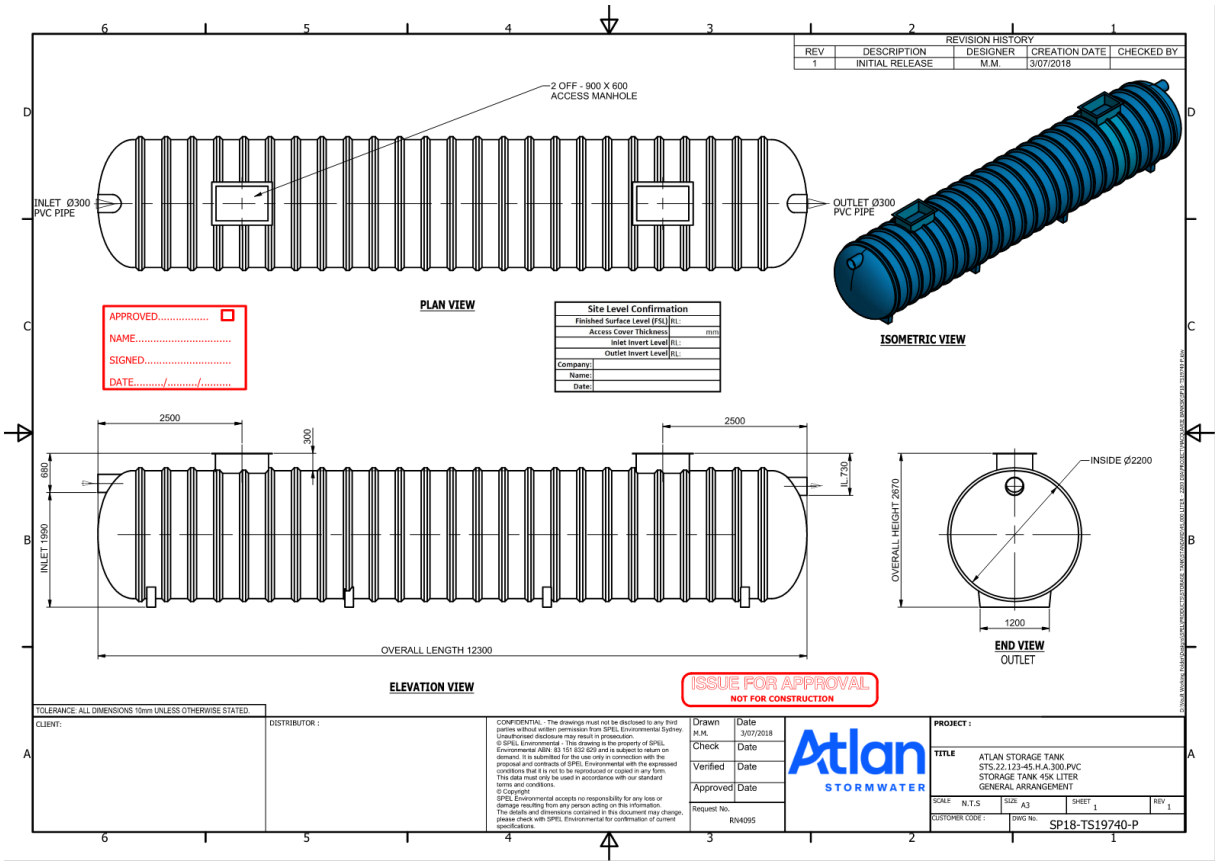


Figure 14 Atlan Tankstor Spill Containment Tank Typical Detail

7.4.1 Bulk Fuel Tank Fill Bays

A designated parking bay indented into the circulation roadway is provided for each data centre building, adjacent to each underground bulk diesel storage tank array, for refuelling operations.

Each refuelling bay will include an ESK-20-B-2250 oil/water separator by Ocean Protect with a maximum spill capacity at shut off of 5,500 litres. The fuel fill bays will be graded away from the circulation roadway to capture runoff and accidental spills within the oil/water separator.

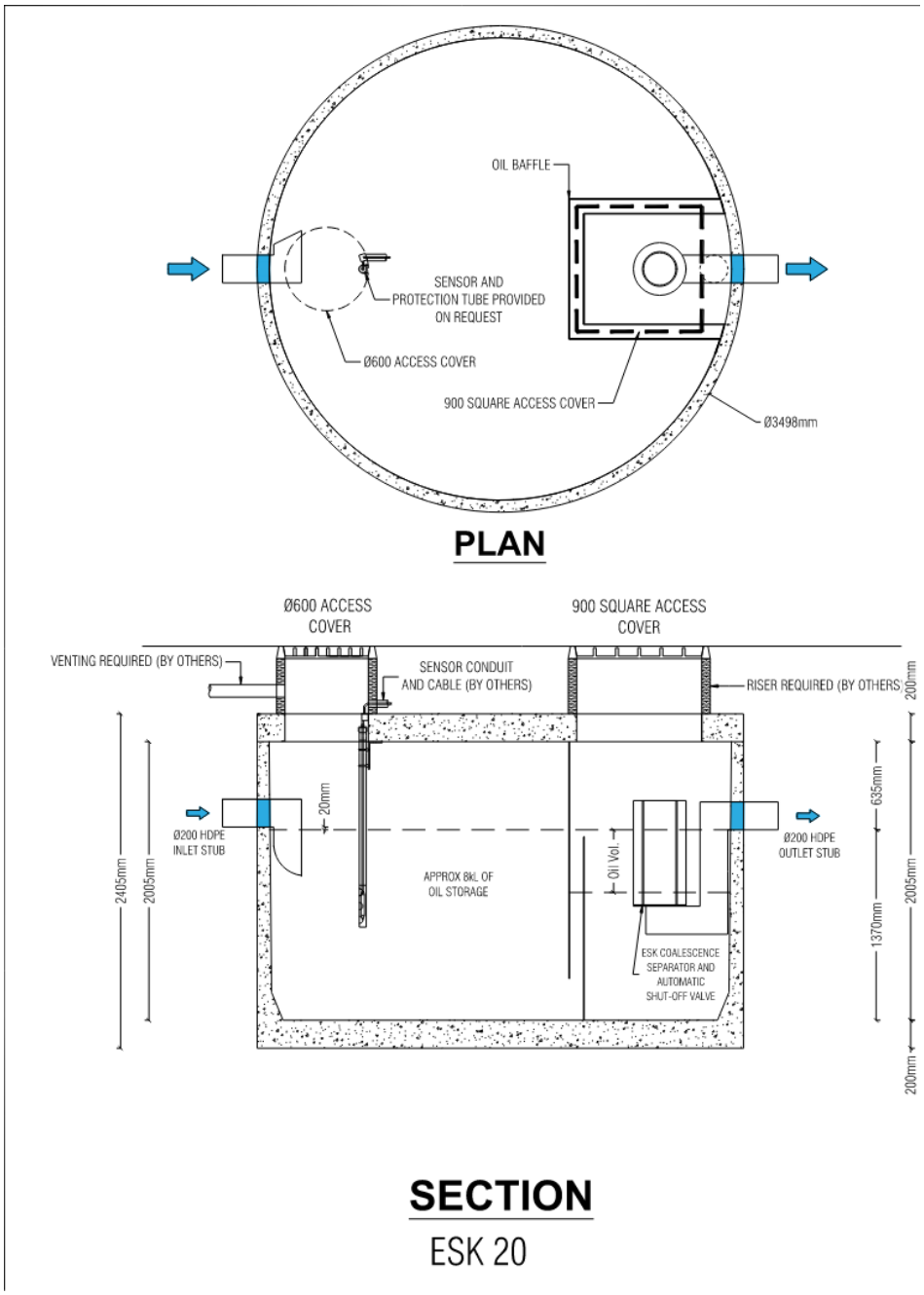


Figure 15 Ocean Protect ESK-20-B-2250 Oil/Water Separator Typical Detail

8 Soil Erosion and Sedimentation Control

8.1 General Principles

The SEARs documentation requires a description of the proposed erosion and sediment control during construction in accordance with the Landcom Managing Urban Stormwater: Soils and Construction Volume 1 (2004).

A Soil and Water Management Plan has been prepared for the proposed data centre works. The following general principles of soil and water management have been applied:

- Minimise the area of soil disturbed and exposed to erosion
- Conserve topsoil for later site rehabilitation/revegetation
- Control water flows from the top of, and through the development area
- Rehabilitate disturbed lands quickly
- Maintain soil and water management measures appropriately during the construction phase

8.2 Sources of Pollution

Based on the proposed development activities, the following sources of pollution during construction that could lead to earthworks erosion, sediment and silt transportation and contamination of downstream stormwater systems have been considered:

- Earthworks undertaken prior to rainfall events without sufficient auxiliary measures to manage runoff
- Earthworks areas that have not been stabilised or are exposed prior to temporary or permanent ground cover
- Establishment time for rehabilitation/revegetation of exposed earthworks
- Localised groundwater dewatering activities during earthworks excavations
- Construction works to existing stormwater pipelines and overland flow paths
- Vehicle entry and exit to the construction site and associated tracking of debris out of the site
- Clearing and grubbing of vegetation/organic matter and stripping of topsoil
- Stockpiling of excavated materials or construction materials (e.g. road base, ordinary and select fill, etc)
- Re-fuelling and general maintenance of construction plant and equipment
- Storage of chemicals, fuel, and other hazardous materials
- Ineffective/incorrect installation or maintenance of soil erosion and sedimentation control measures.

8.3 Soil and Water Management Strategy

The following construction management methodology has been developed for the proposed data centre works:

- Establish sediment fencing to the downstream perimeter of the zone of disturbed works to protect downstream assets and properties
- Installation of stabilised construction entry and exit grids to prevent construction vehicles tracking debris into adjacent Authority roadways and stormwater systems

- Construction of “clean water” diversion drains with rock check dams to divert unpolluted water to the existing stormwater system in a controlled manner
- Construction of “dirty water” catch drains with rock check dams to divert sediment-laden and silt-laden water to proposed sedimentation basins
- Construction of appropriately sized and maintained sedimentation basins to promote settling of gross pollutants and suspended solids. Dosing and flocculation of fine suspended particulates will also be undertaken depending on tested water quality profiles within the sedimentation basin
- Protection of materials stockpiles by suitable wind protection fencing and / or temporary covering of stockpiles
- Protection of existing and recently constructed surface inlet pits with temporary sediment traps using geotextile filter fabric and sandbags
- Protection of existing and recently constructed overland flow paths with vegetated ground cover
- General expedited revegetation and stabilisation of exposed earthworks to prevent sedimentation of stormwater runoff

9 Conclusion

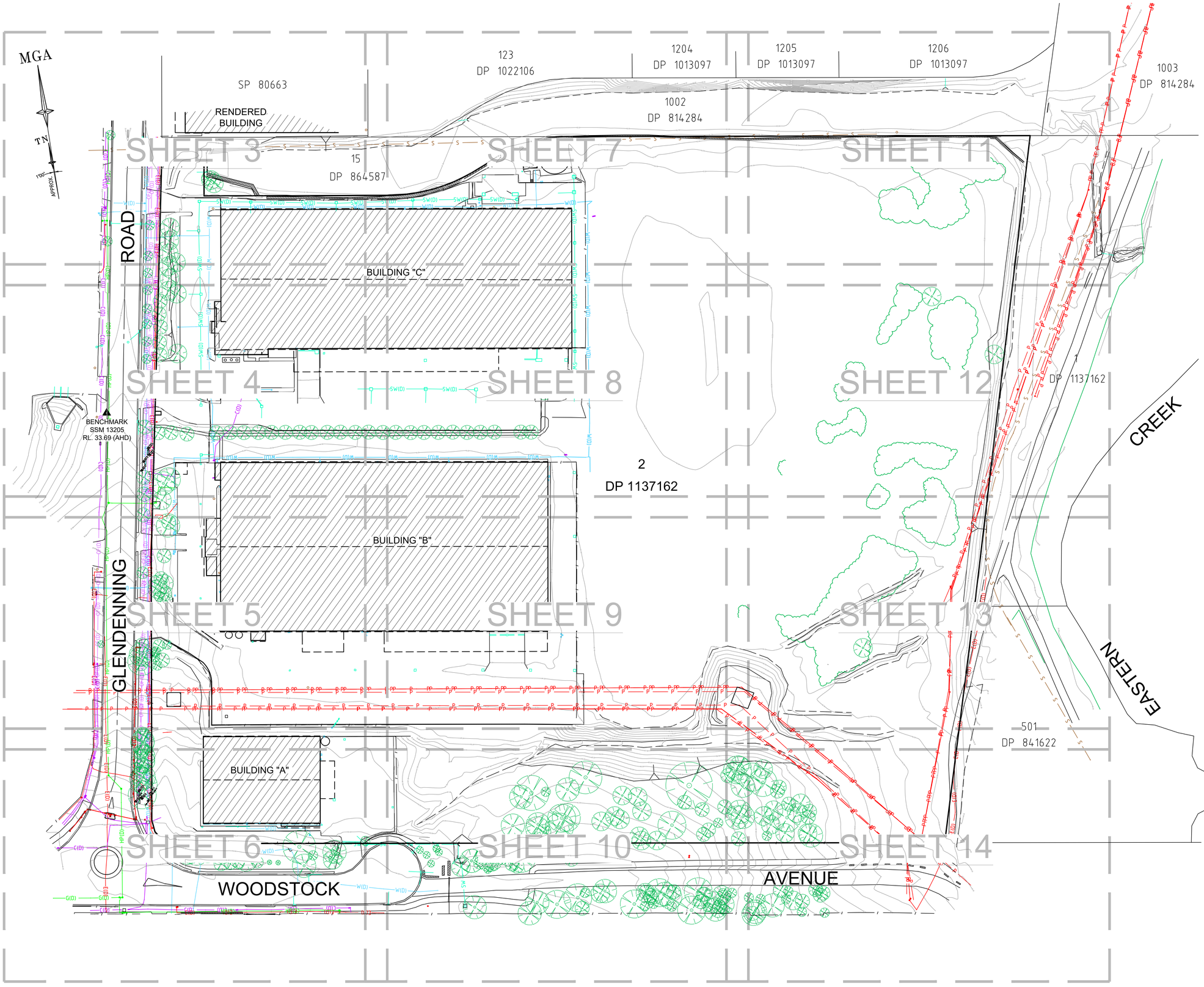
The proposed data centre development has been designed to meet the relevant Blacktown City Council and SEARs.

The pit and pipe stormwater system has been designed to convey the 5% AEP storm event including climate change factors. The overland flow paths during 1% AEP storm event have been designed to convey flow safely to the roadway or open space areas within the subject site.

On-site detention of stormwater is not required as the site is located in an OSD-exempt location as defined by Blacktown City Council’s OSD DCP Map.

Stormwater quantity treatment has been provided for the development to satisfy Blacktown City Council pollution reduction targets. Rainwater reuse through 3x 100kL rainwater tanks (one per building) has been provided as part of the treatment train system to supply recycled water for toilet flushing and to supplement water use for the mechanical cooling system.

Appendix A - Topographic Survey Plans



LEGEND

BENCH MARK	▲	TRAFFIC LIGHT	■ TL
TELSTRA PIT	TEL	ROADS & MARITIME SERVICES	⊠ RMS
COMMS PIT	COM	STREET SIGN	⊠ SS
OPTUS PIT	OP	LARGE SIGN	⊠ LS
TELSTRA PILLAR	⊠ TP	BOLLARD	○ BOL
POSSIBLE COMMS (EMPTY PIT)	CMTY	GATE	
ELECTRIC LIGHT POLE	ELP	VEHICLE CROSSING	(VC)
ELECTRICITY PIT	EPIT	PRAM CROSSING	(PC)
ELECTRICITY BOX	EL	TOP OF WALL	TW
POWER POLE	PP	TOP OF RETAINING WALL	TRW
GRATED INLET PIT	GIP	TOP OF SANDSTONE WALL	TSW
GULLY PIT	GUL	REFLECTIVE BOLLARD	REF
KERB INLET PIT	KIP	PIT FULL OF DEBRIS	FOD
DRAIN	DR	UNABLE TO OPEN	UTO
GRATED DRAIN		END OF TRACE	EOT
SEWER INSPECTION POINT	SIP	INVERT LEVEL	IL
SEWER VENT	SEV	OBVERT LEVEL	OBV
SEWER MANHOLE	SMH	DEPTH OF SERVICE & QUALITY LEVEL	D0.5-A
STOP VALVE	SV	PIPE DIAMETER	-P100
HYDRANT	HYD	OVERHEAD ELECTRICITY (SEE NOTE 13)	OHE
FIRE HYDRANT	FHYD	SEWER (SEE NOTE 15)	S
WATER METER	WM	OPTICAL FIBRE (SEE NOTE 16)	OF
WATER TAP	TAP	COMMUNICATIONS (DETECTED)	C(D)
IRRIGATION CONTROL VALVE	ICV	WATER (DETECTED)	W(D)
GAS VALVE	GAS	STORMWATER (DETECTED)	SW(D)
GAS METER	GM	ELECTRICITY (DETECTED)	E(D)
SERVICE PIT	PIT	GAS (DETECTED)	G(D)
PIT WITH CONCRETE LID	CLID	GAS HIGH PRESSURE (DETECTED)	HP(D)
PIT WITH METAL LID	MLID		

THIS ELECTRONIC PLAN FILE CONTAINS 3D POINTS ON LAYERS PREFIXED '3D_'. THESE POINTS CAN BE USED TO VERIFY RLS SHOWN ON THE PLAN

DTM DATA BEYOND 10m STRIP ALONG THE REAR BOUNDARY IS SOURCED FROM 3rd PARTY SURVEY

NOTES

1. THE BOUNDARIES HAVE NOT BEEN MARKED ON GROUND
2. THE BOUNDARY SURVEY (DIMENSIONS AND AREA) HAVE BEEN SURVEYED IN ACCORDANCE WITH SURVEYING AND SPATIAL INFORMATION REGULATION 2017 CLAUSE 10 "IDENTIFICATION SURVEYS" AND ARE SUBJECT TO FINAL SURVEY
3. ORIGIN OF **MGA2020** COORDINATES IS TAKEN FROM **SSM 132052** - E:**300948.029**, N:**6262459.813** IN GLENDENNING ROAD **(SCIMS ON 27/05/2024)**
4. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM **SSM 132052** R.L. **33.686** (A.H.D.) IN GLENDENNING ROAD
5. CONTOUR INTERVAL **0.5 m**
6. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
7. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
8. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
9. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
10. AN INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. UNDERGROUND SERVICES HAVE BEEN DETECTED BY "DOWN UNDER DETECTION SERVICES" AND ARE APPROXIMATE ONLY. SOME SERVICES SUCH AS FIRE&WATER SUPPLY, GAS AND OPTICAL FIBRE CABLING DO NOT HAVE METALLIC TRACING WIRES OR METAL PIPES AND MAY NOT HAVE BEEN DETECTED. SERVICES HAVE ALSO BEEN PLOTTED FROM RELEVANT AUTHORITIES RECORDS AS SUPPLIED BY BEFORE YOU DIG AUSTRALIA.
11. 8/.4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
12. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
13. POWERLINE SAG RL'S NOTED (OH1) ARE UNDERSIDE OF CABLE LEVEL TAKEN ABOVE CONCRETE CAR PARK ON THE 23/05/2024 AT 1:00PM, TEMPERATURE 19° SLIGHT WIND 4kmS WNW
14. POWERLINE SAG RL'S NOTED (OH2) ARE UNDERSIDE OF CABLE LEVEL TAKEN ABOVE DIRT TRACK ON THE 28/05/2024 BETWEEN 11:00AM TO 12:00PM, TEMPERATURE 16° SUNNY, SLIGHT WIND 2KMS WSW
15. SEWER LINE UNABLE TO BE DETECTED. SEWER LINE HAS BEEN DERIVED FROM "OZDETECT" MUD MAP, AND IS APPROXIMATE ONLY.
16. OPTICAL FIBRE CABLES HAVE NOT BEEN DETECTED BY US. OPTICAL FIBRE HAS BEEN DERIVED FROM "OZDETECT" MUD MAP, AND IS APPROXIMATE ONLY.

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GDA2020

0 16 32 48 64 80

SCALE 1:800 @ A1

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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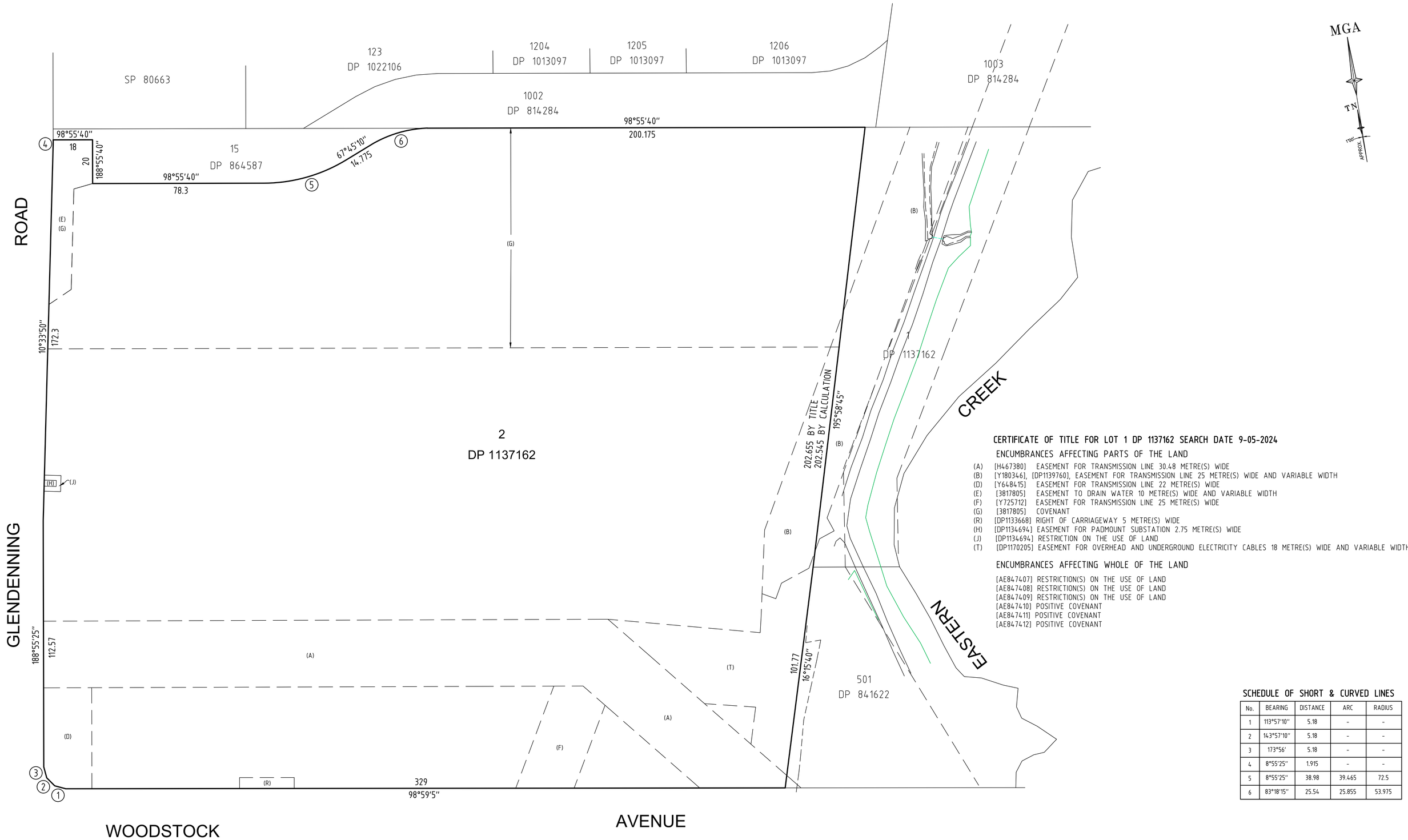
Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
reference number 52282 001DT_3
site Area 10.44ha(Title)
scale 1:800 @A1
date of survey 29/05/2024
LGA BLACKTOWN
SHEET 1 OF 15



2

DP 1137162

CERTIFICATE OF TITLE FOR LOT 1 DP 1137162 SEARCH DATE 9-05-2024

ENCUMBRANCES AFFECTING PARTS OF THE LAND

(A) [H467380] EASEMENT FOR TRANSMISSION LINE 30.48 METRE(S) WIDE
(B) [Y180346], [DP1139760], EASEMENT FOR TRANSMISSION LINE 25 METRE(S) WIDE AND VARIABLE WIDTH
(D) [Y648415] EASEMENT FOR TRANSMISSION LINE 22 METRE(S) WIDE
(E) [3817805] EASEMENT TO DRAIN WATER 10 METRE(S) WIDE AND VARIABLE WIDTH
(F) [Y725712] EASEMENT FOR TRANSMISSION LINE 25 METRE(S) WIDE
(G) [3817805] COVENANT
(R) [DP1133668] RIGHT OF CARRIAGEWAY 5 METRE(S) WIDE
(H) [DP1134694] EASEMENT FOR PADMOUNT SUBSTATION 2.75 METRE(S) WIDE
(J) [DP1134694] RESTRICTION ON THE USE OF LAND
(T) [DP1170205] EASEMENT FOR OVERHEAD AND UNDERGROUND ELECTRICITY CABLES 18 METRE(S) WIDE AND VARIABLE WIDTH

ENCUMBRANCES AFFECTING WHOLE OF THE LAND

[AE847407] RESTRICTION(S) ON THE USE OF LAND
[AE847408] RESTRICTION(S) ON THE USE OF LAND
[AE847409] RESTRICTION(S) ON THE USE OF LAND
[AE847410] POSITIVE COVENANT
[AE847411] POSITIVE COVENANT
[AE847412] POSITIVE COVENANT

SCHEDULE OF SHORT & CURVED LINES

No.	BEARING	DISTANCE	ARC	RADIUS
1	113°57'10"	5.18	-	-
2	143°57'10"	5.18	-	-
3	173°56'	5.18	-	-
4	8°55'25"	1.915	-	-
5	8°55'25"	38.98	39.465	72.5
6	83°18'15"	25.54	25.855	53.975

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GDA2020

0 16 32 48 64 80
SCALE 1:800 @ A1

SEE SHEET 1 FOR LEGEND & NOTES

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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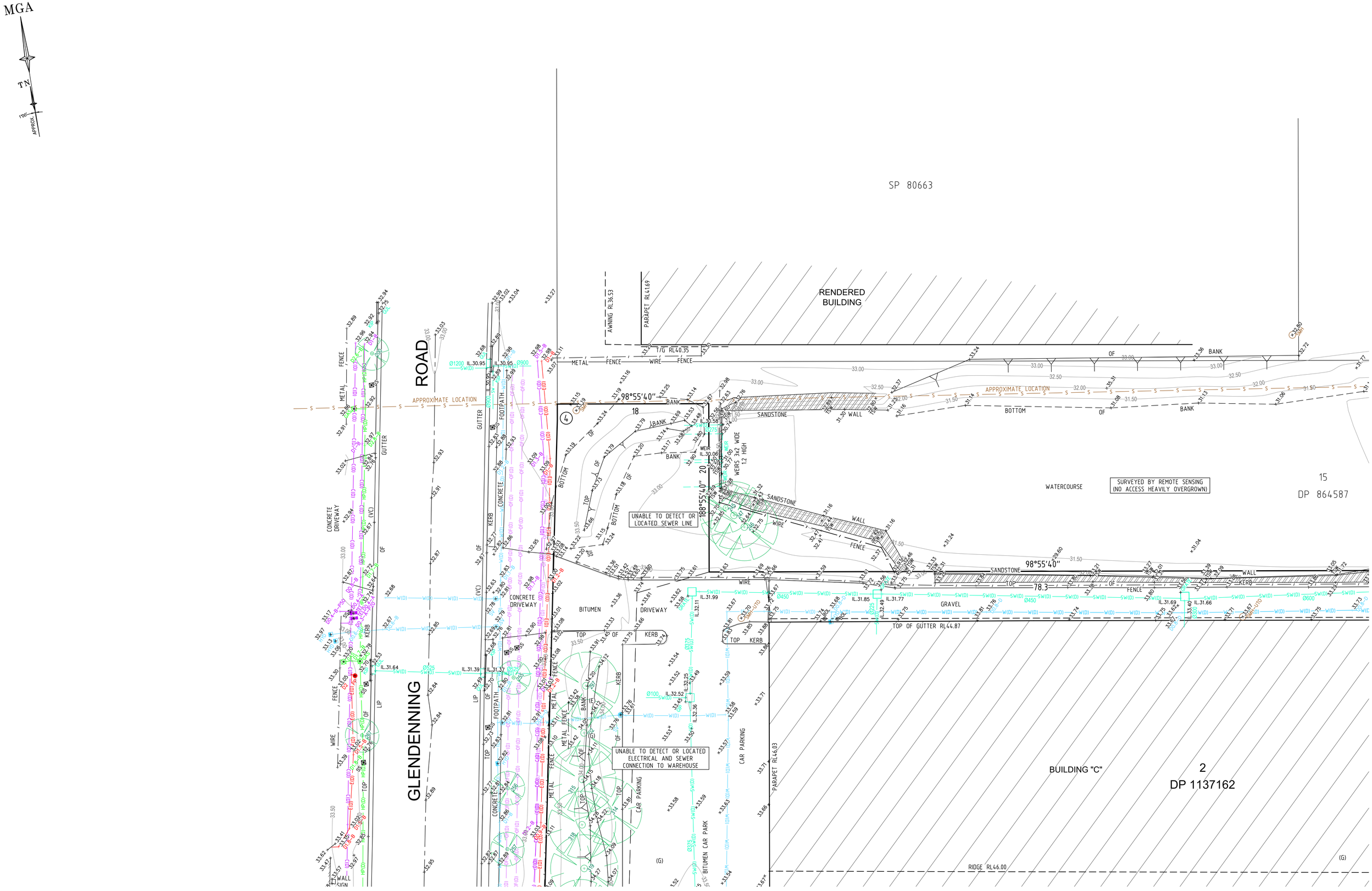
Client LCI CONSULTANTS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162
KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD,
GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN
reference number 52282 001DT_3
scale 1:800 @A1
date of survey 29/05/2024
SHEET 2 OF 15



SEE SHEET 1 FOR LEGEND & NOTES SEE SHEET 2 FOR BOUNDARY & EASEMENTS SEE SHEET 15 FOR TREE SCHEDULE

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0 4 8 12 16 20

SCALE 1:200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD	reference number 52282 001DT_3		
site Area 10.44ha(Title)	scale 1:200 @A1	date of survey 29/05/2024	
LGA BLACKTOWN	SHEET OF 15	3	

MGA

TN

APPROX. 10dec

ROAD

GLENDENNING

BUILDING "C"

BUILDING "B"

2
DP 1137162

BITUMEN CAR PARK

PLANT AREA

AWNING

AWNING RL40.90

CONCRETE CAR PARK

COVERED LUNCH AREA

AWN RL36.03

AWN RL36.18

T/G RL44.80

T/G RL44.82

PAR RL37.47

PAR RL42.82

T/G RL37.28

T/G RL41.17

TOP OF GUTTER RL44.75

BENCHMARK
SSM 13205
RL. 33.69 (AHD)

SUBSTATION No.2557

WEIRS 3x2 WIDE
1.2 HIGH

BOTTOM OF BANK

CAR PARKING

DRIVEWAY

BITUMEN DRIVEWAY

FOOTPATH

GUTTER

KERB

FENCE

WIRE

GARDEN

BANK

CONCRETE

METAL

GRASS

ROCK

HEADWALL

RAMP

GUARD RAIL

CONC. PATH

BLOCK WALL

GRATED DRAIN

SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

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GDA2020

0 4 8 12 16 20

SCALE 1: 200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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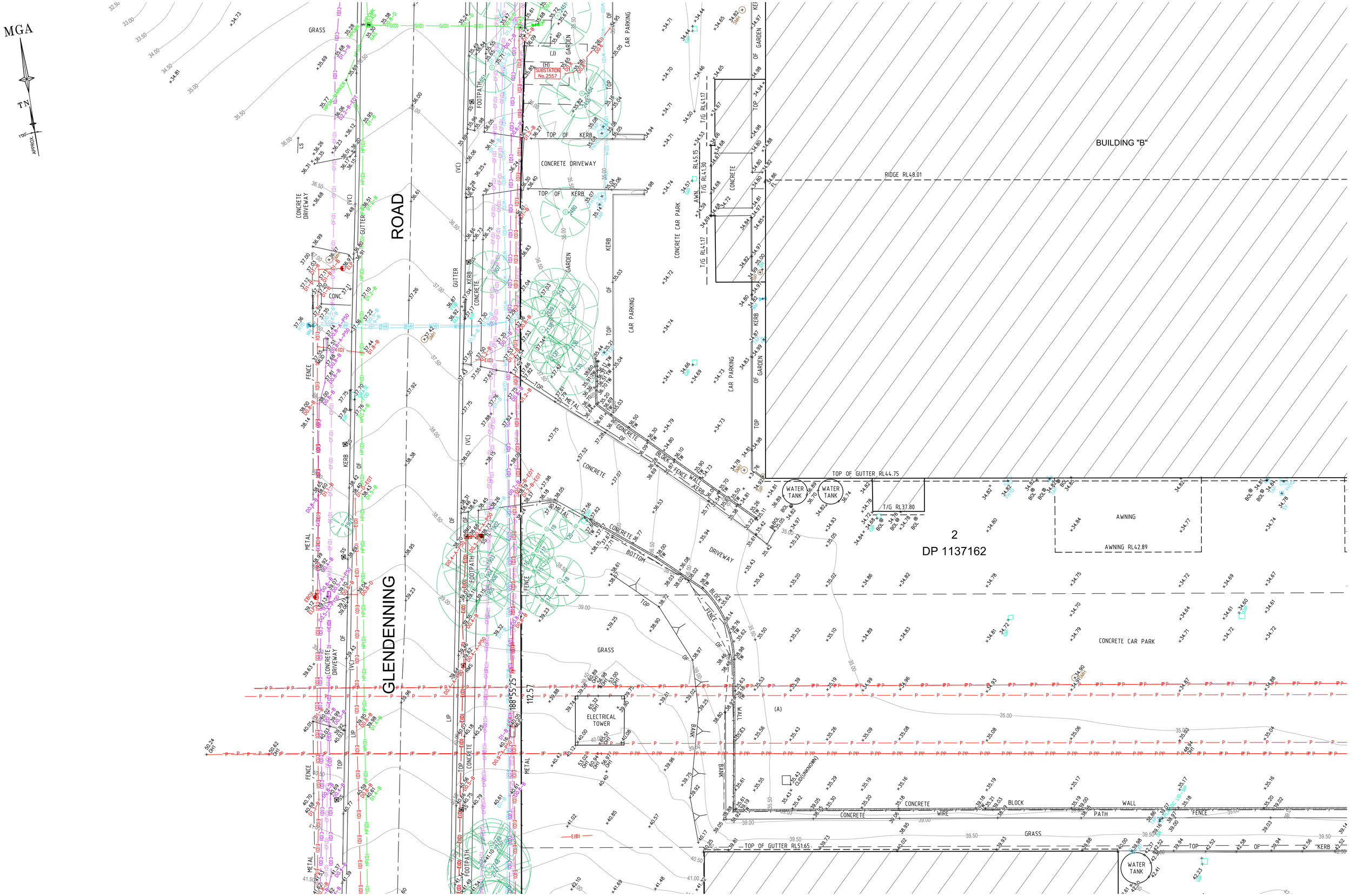
Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN

reference number 52282 001DT_3
scale 1:200 @A1
date of survey 29/05/2024

SHEET 4 OF 15



SEE SHEET 1 FOR LEGEND & NOTES SEE SHEET 2 FOR BOUNDARY & EASEMENTS SEE SHEET 15 FOR TREE SCHEDULE

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0 4 8 12 16 20

SCALE 1: 200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD	reference number 52282 001DT_3		
site Area 10.44ha(Title)	scale 1:200 @A1	date of survey 29/05/2024	
LGA BLACKTOWN	SHEET OF 15	5	

MGA

TN

100m APPROX.

2
DP 1137162

BUILDING "A"

RIDGE RL53.36

WATER TANK

AWNING RL48.50

CONCRETE CAR PARK

TOP OF GUTTER RL51.65

TOP OF GUTTER RL51.68

T/G RL49.30

IL 41.82

IL 42.74

IL 43.53

IL 44.03

PAVED ROUND-A-BOUT

WOODSTOCK AVENUE

SEE SHEET 1 FOR LEGEND & NOTES
SEE SHEET 2 FOR BOUNDARY & EASEMENTS
SEE SHEET 15 FOR TREE SCHEDULE

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GDA2020

0 4 8 12 16 20

SCALE 1:200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD	reference number 52282 001DT_3		
site Area 10.44ha(Title)	scale 1:200 @A1	date of survey 29/05/2024	
LGA BLACKTOWN	SHEET OF 15	6	

MGA

TN

APPROX. 10dec

123
DP 1022106

1204
DP 1013097

1002
DP 814284

15
DP 864587

2
DP 1137162

SURVEYED BY REMOTE SENSING
(NO ACCESS HEAVILY OVERGROWN)

WATERCOURSE

BOTTOM OF BANK

HEADWALL

APPROXIMATE LOCATION

IRREGULAR

SANDSTONE WALL

CONCRETE WALL

BRICK BUILDING

WATER TANK

67°45'10"
14.775

GRASS

KERB

CONCRETE

PITS PART OF LARGER RETENTION SYSTEM

GRAVEL

TOP OF GUTTER RL44.83

BUILDING "C"

RIDGE RL45.94

FENCE

WIRE

BLOCK WALL

T/G RL35.75

NO DEPTH PROVIDED

SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 4 8 12 16 20

SCALE 1:200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162
KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD,
GLENDENNING

datum	AHD
site Area	10.44ha(Title)
LGA	BLACKTOWN
reference number	52282 001DT_3
scale	1:200 @A1
date of survey	29/05/2024
SHEET	7
OF	15

BUILDING "C"

(G)

RIDGE RL45.94

AWNING

AWNING RL40.87

TOP OF GUTTER RL44.83

FENCE

WIRE

GRAVEL

KERB

2
DP 1137162

CONCRETE CAR PARK

CONC. PATH

TOP

CONCRETE

BLOCK WALL

PATH

GRASS

TOP OF GUTTER RL44.77

BUILDING "B"

MGA

TN

APPROX 1°00'

SEE SHEET 1 FOR LEGEND & NOTES SEE SHEET 2 FOR BOUNDARY & EASEMENTS SEE SHEET 15 FOR TREE SCHEDULE

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GDA2020

0 4 8 12 16 20

SCALE 1: 200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN
reference number 52282 001DT_3
scale 1: 200 @A1
date of survey 29/05/2024
SHEET 8 OF 15

BUILDING "B"

RIDGE RL 48.02

AWNING

AWNING RL42.41

AWNING RL41.36

GRATED DRAIN

GRATED DRAIN

RAMP

KERB

TOP

OF

CONCRETE

CONCRETE CAR PARK

(A)

CONCRETE

BLOCK

WALL

KERB

BOTTOM

TOP

OF

BANK

BANK

BANK

BOTTOM

WIRE

FENCE

CONCRETE

ON

FENCE

WIRE

GRASS

GRASS

GROUP C TREES

ELECTRICAL TOWER

POWERLINE

POWERLINE

MGA

TN

APPROX 7.00°

2

DP 1137162

SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 4 8 12 16 20

SCALE 1: 200 @ A1

Revision	Date	Description	Reference
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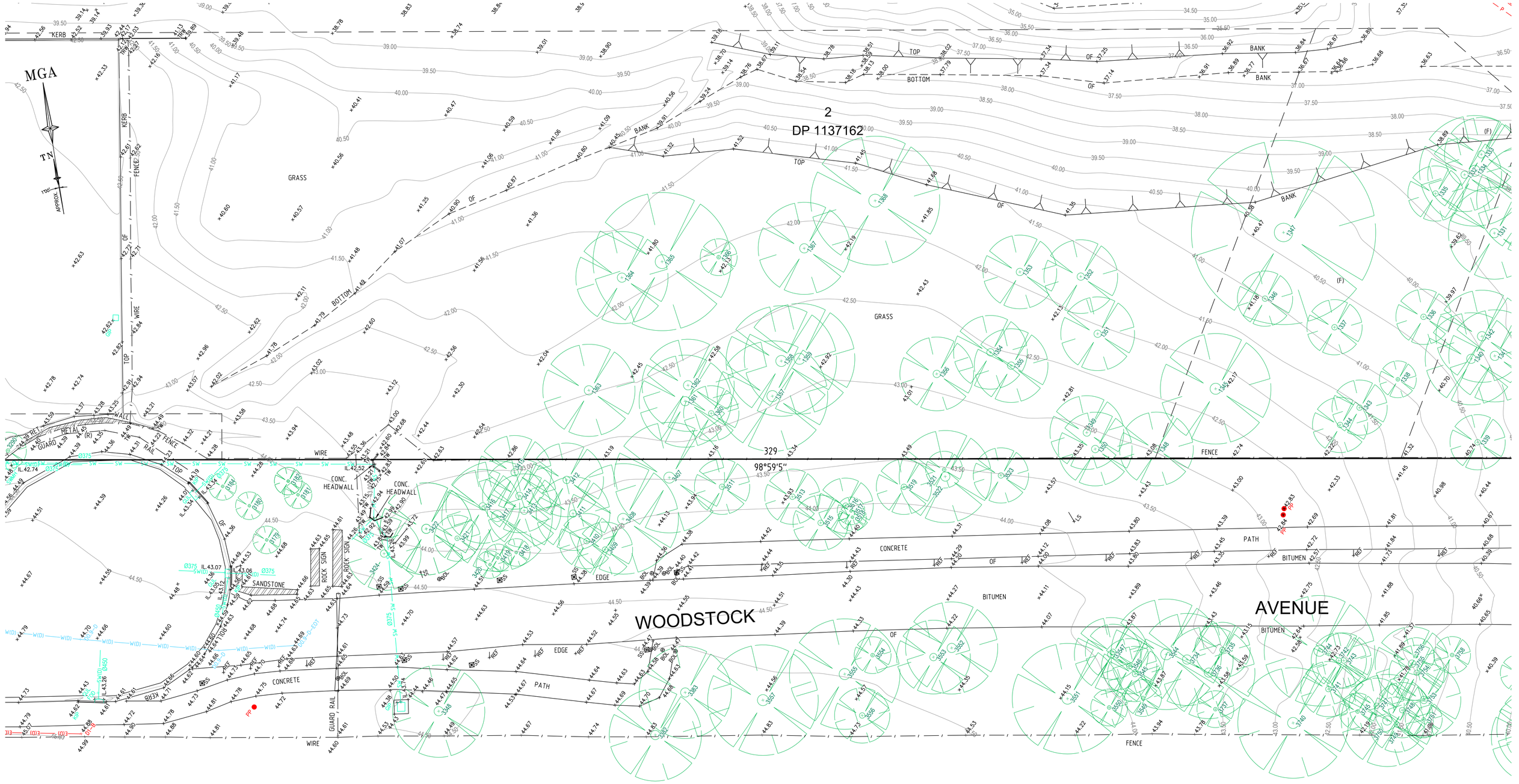
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD		reference number	52282 001DT_3
site Area 10.44ha(Title)		scale 1: 200 @A1	date of survey 29/05/2024
LGA BLACKTOWN		SHEET OF 15	9



SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 4 8 12 16 20

SCALE 1:200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS

Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

LGA BLACKTOWN

site Area 10.44ha(Title)

datum AHD

scale 1:200 @A1

date of survey 29/05/2024

reference number 52282 001DT_3

SHEET 10 OF 15

1205
DP 1013097

1206
DP 1013097

1002
DP 814284

2
DP 1137162

1
DP 1137162

MGA

TN

APPROX MAPW

SURVEYED BY REMOTE SENSING
(NO ACCESS HEAVILY OVERGROWN)

WATERCOURSE

BOTTOM OF BANK

HEADWALL

CONC WEIR

RIP RAP DISCHARGE AREA

98°55'40"

200.175

IRREGULAR

APPROXIMATE LOCATION

SANDSTONE

WALL

GROUP OF TREES

GRASS

BANK

TOP

BOTTOM

HEADWAL

(B)

(G)

SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 4 8 12 16 20

SCALE 1: 200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN
reference number 52282 001DT_3
scale 1:200 @A1
date of survey 29/05/2024
SHEET 11 OF 15

GRASS

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

GROUP OF TREES

2
DP 1137162

1
DP 1137162

BANK

BANK

TOP

BOTTOM

(B)

(G)

202.545 BY CALCULATION
202.655 BY TITLE
195°58'45"

APPROXIMATE LOCATION

GRAVEL TRACK

GRAVEL TRACK

LINE OF TREES

LINE OF TREES

EASTERN CREEK

GRASS

MGA

TN

APPROX

SEE SHEET 1 FOR LEGEND & NOTES

SEE SHEET 2 FOR BOUNDARY & EASEMENTS

SEE SHEET 15 FOR TREE SCHEDULE

BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm

GDA2020

0 4 8 12 16 20

SCALE 1:200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
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F	00/00/00	–	00
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PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN

reference number 52282 001DT_3
scale 1:200 @A1
date of survey 29/05/2024
SHEET 12 OF 15

GROUP OF TREES
GROUP OF TREES
GRASS
GROUP OF TREES
GROUP OF TREES
GRASS
GRASS
2
DP 1137162
1
DP 1137162
501
DP 841622
CREEK
EASTERN
ELECTRICAL TOWER
POWER POLE ANCHOR
POWERLINE
BANK
TOP
BOTTOM
OF
TRACK
GRAVEL
GRAVEL TRACK
LINE OF TREES
APPROXIMATE LOCATION
(B)
(T)
101.77
16°15'40"
MGA
TN
MAGNETIC
SCALE 1:200 @ A1
0 4 8 12 16 20
BEFORE YOU DIG www.byda.com.au Zero Damage - Zero Harm
GDA2020

SEE SHEET 1 FOR LEGEND & NOTES SEE SHEET 2 FOR BOUNDARY & EASEMENTS SEE SHEET 15 FOR TREE SCHEDULE

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
F	00/00/00	–	00
E	00/00/00	–	00
D	00/00/00	–	00
C	00/00/00	–	00
B	00/00/00	–	00
A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

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Client LCI CONSULTANTS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
reference number 52282 001DT_3
site Area 10.44ha(Title)
scale 1:200 @A1
date of survey 29/05/2024
LGA BLACKTOWN
SHEET 13 OF 15

501
DP 841622

2
DP 1137162

WOODSTOCK AVENUE

MGA
TN
APPROX 36.1°

SEE SHEET 1 FOR LEGEND & NOTES SEE SHEET 2 FOR BOUNDARY & EASEMENTS SEE SHEET 15 FOR TREE SCHEDULE

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0 4 8 12 16 20
SCALE 1:200 @ A1

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PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN
reference number 52282 001DT_3
scale 1:200 @A1
date of survey 29/05/2024
SHEET 14 OF 15

TREE SCHEDULE

No.	EASTING	NORTHING	RL	DETAILS
200	300968.270	6262576.823	32.99	4/.1/3
255	300978.828	6262536.136	32.98	4/.2/4
256	300976.088	6262523.259	32.99	4/.1/4
257	300974.884	6262516.122	33.00	4/.1/4
258	300973.609	6262508.912	33.03	4/.1/4
259	300972.203	6262501.082	33.11	4/.1/4
260	300971.061	6262494.610	33.18	4/.1/4
261	300969.691	6262487.291	33.23	4/.15/4
262	300968.518	6262479.898	33.34	4/.2/4
267	300959.961	6262532.190	33.00	4/.1/3
297	300987.156	6262533.820	34.25	8/.4/10
302	300986.053	6262528.323	34.11	8/.4/10
314	300987.416	6262518.684	34.12	8/.3/10
315	300984.974	6262522.899	34.29	8/.4/10
318	300984.099	6262517.579	34.19	8/.4/10
319	300983.543	6262512.419	34.31	8/.4/10
321	300982.340	6262507.227	34.27	8/.4/10
323	300985.701	6262505.419	34.12	8/.4/10
581	300981.907	6262480.133	34.02	8/.3/6
613	300979.964	6262468.890	33.71	4/.1/4
873	300992.963	6262444.183	34.71	6/.3/6
874	300998.845	6262443.248	34.57	6/.2/6
875	301004.656	6262442.284	34.66	6/.3/6
888	301010.818	6262441.341	34.60	6/.3/6
889	301016.353	6262440.484	34.63	6/.3/6
890	301022.187	6262439.601	34.59	6/.2/6
891	301028.225	6262438.661	34.54	6/.2/6
906	301033.183	6262437.778	34.62	6/.2/6
907	301039.841	6262436.763	34.64	6/.2/6
908	301045.425	6262435.958	34.62	6/.2/6
909	301051.707	6262434.857	34.61	6/.2/6
926	301063.394	6262432.982	34.58	6/.2/6
927	301057.309	6262434.100	34.62	6/.2/6
928	301068.759	6262432.162	34.55	6/.2/6
929	301075.046	6262431.055	34.61	6/.2/6
938	301080.677	6262430.233	34.59	6/.3/6
939	301086.743	6262429.298	34.63	6/.3/6
951	301092.877	6262428.428	34.59	6/.2/6
952	301098.863	6262427.356	34.66	6/.2/6
968	301110.479	6262425.605	34.64	6/.2/6
969	301104.516	6262426.500	34.58	6/.2/6
975	301121.609	6262423.867	34.68	6/.2/6
992	301125.962	6262423.158	34.53	6/.2/6
1054	301134.063	6262438.885	34.04	6/.3/8
1401	300974.430	6262480.760	33.61	6/.3/6
1402	300974.978	6262485.968	33.46	6/.3/6
1403	300976.555	6262492.420	33.53	6/.4/6
1404	300976.841	6262498.021	33.43	6/.4/6
1405	300978.151	6262503.386	33.48	6/.4/6
1470	300968.405	6262447.976	34.38	6/.3/6
1471	300973.890	6262447.146	34.49	6/.3/6
1476	300980.488	6262445.504	34.60	6/.3/6
1551	300956.638	6262414.315	35.78	6/.2/5
1552	300958.326	6262423.054	35.31	6/.2/5
1553	300959.370	6262430.162	34.94	6/.2/5
1554	300963.197	6262451.275	33.93	6/.15/5
1901	300930.113	6262362.629	38.75	3/.1/4
1902	300947.446	6262359.453	38.69	6/.3/10
1903	300946.289	6262355.527	38.94	10/.5/12
1904	300945.804	6262353.856	38.97	6/.3/8
1905	300945.591	6262351.715	39.10	6/.2/8

No.	EASTING	NORTHING	RL	DETAILS
1906	300946.148	6262352.647	39.06	12/.5/12
1907	300952.457	6262389.985	37.03	5/.2/5
2135	300960.330	6262376.712	36.79	6/.4/12
2136	300960.273	6262379.532	36.69	6/.3/10
2137	300957.788	6262378.694	37.38	4/.2/6
2138	300957.643	6262382.078	37.40	8/.5/12
2139	300958.013	6262384.011	37.19	8/.5/12
2140	300960.709	6262383.841	36.55	8/.4/12
2141	300959.839	6262386.208	36.73	6/.3/6
2447	300969.776	6262427.626	35.26	10/.5/10
2448	300967.216	6262426.266	35.47	10/.4/10
2451	300965.488	6262419.235	35.68	8/.3/8
2454	300966.887	6262409.510	35.67	6/.3/6
2455	300966.383	6262408.214	35.70	10/.4/100
2480	300962.655	6262395.669	39.83	6/.3/6
2733	300937.396	6262296.286	43.25	12/.5/10
2734	300939.439	6262300.357	42.87	10/.4/10
2735	300938.058	6262303.028	42.37	10/.4/10
2736	300939.151	6262303.624	42.35	10/.4/10
2738	300938.075	6262304.285	42.37	8/.4/8
2739	300939.382	6262308.528	41.96	6/.3/8
2740	300939.259	6262308.829	41.89	6/.3/8
2741	300939.925	6262310.419	41.85	10/.5/12
2742	300939.954	6262310.448	41.86	10/.5/12
2743	300940.332	6262312.325	41.67	10/.5/10
2744	300940.325	6262312.335	41.67	10/.5/10
2745	300940.417	6262315.086	41.53	6/.3/8
2746	300940.535	6262314.404	41.55	6/.3/8
2747	300940.920	6262318.180	41.33	10/.5/12
2748	300941.147	6262318.842	41.29	10/.5/12
2749	300941.750	6262321.757	41.06	6/.3/6
2750	300941.819	6262321.242	40.88	6/.3/8
2826	301000.957	6262255.449	45.07	10/.5/10
2827	301000.213	6262263.799	44.43	14/.714
2831	300990.200	6262258.511	45.36	2/.1/4
2832	300986.555	6262259.241	45.48	2/.15/6
2833	300981.497	6262260.086	45.56	5/.2/8
2834	300973.474	6262261.075	45.62	5/.2/8
2835	300969.914	6262261.204	45.64	5/.2/8
2836	300966.007	6262261.884	45.72	6/.3/8
2837	300976.935	6262262.020	45.50	10/.4/10
2838	300970.592	6262266.962	45.04	10/.4/10
2839	300966.343	6262266.564	45.23	10/.4/10
2840	300968.148	6262267.288	45.09	10/.5/10
2841	300961.200	6262268.121	45.22	10/.4/10
2842	300956.367	6262267.801	45.31	10/.4/10
2843	300952.333	6262267.842	45.27	8/.3/10
2844	300954.012	6262268.971	45.18	10/.6/10
3179	301054.698	6262247.822	44.59	3/.1/6
3180	301053.421	6262251.780	44.46	3/.2/6
3181	301058.822	6262252.128	44.22	3/.2/6
3182	301058.003	6262253.758	44.21	3/.2/8
3183	301058.002	6262253.756	44.21	3/.2/8
3184	301050.885	6262254.313	44.37	3/.2/5
3186	301013.438	6262256.079	44.63	8/.4/12
3187	301013.781	6262256.705	44.64	4/.2/6
3188	301014.739	6262259.244	44.26	10/.5/12
3189	301015.430	6262259.497	44.19	4/.2/6
3290	301028.485	6262261.811	43.79	4/.2/4
3306	301005.407	6262259.252	44.69	4/.2/8
3348	301070.207	6262226.510	44.36	10/.5/10

No.	EASTING	NORTHING	RL	DETAILS
3382	301093.019	6262220.265	44.98	10/.5/12
3383	301096.951	6262224.314	44.59	10/.6/12
3407	301098.914	6262247.627	43.44	12/.6/15
3408	301093.256	6262243.986	43.98	12/.6/15
3409	301090.793	6262241.004	44.30	6/.2/6
3410	301088.960	6262242.227	44.23	6/.2/6
3411	301087.980	6262245.411	43.89	8/.3/10
3412	301087.870	6262249.130	43.48	8/.3/10
3413	301082.796	6262246.558	43.87	8/.3/10
3414	301082.537	6262248.232	43.61	8/.3/10
3415	301082.421	6262250.826	43.08	8/.3/10
3416	301078.430	6262247.728	43.54	8/.3/10
3417	301079.799	6262246.434	43.92	12/.6/15
3418	301081.228	6262242.215	44.26	3/.15/8
3419	301079.161	6262241.948	44.33	3/.15/7
3420	301078.210	6262241.362	44.40	3/.15/7
3421	301075.144	6262244.745	43.92	5/.2/8
3422	301071.982	6262246.278	43.82	10/.5/14
3423	301071.983	6262246.280	43.82	10/.5/14
3424	301067.048	6262244.349	44.17	8/.4/12
3511	301104.413	6262245.741	43.63	6/.3/6
3513	301111.781	6262243.476	43.89	6/.3/6
3515	301114.362	6262240.192	44.23	6/.3/6
3516	301117.330	6262241.603	44.03	6/.3/6
3517	301117.829	6262240.950	44.13	3/.15/5
3518	301117.867	6262240.247	44.21	3/.15/5
3519	301123.904	6262242.632	43.91	6/.3/6
3521	301128.504	6262243.789	43.58	4/.2/5
3522	301128.510	6262243.027	43.67	10/.6/12
3523	301134.496	6262242.196	43.52	6/.3/6
3544	301149.158	6262220.192	44.03	12/.6/14
3545	301145.483	6262218.617	43.98	6/.3/6
3546	301144.988	6262219.549	43.98	6/.3/6
3547	301143.496	6262221.373	43.99	6/.3/6
3548	301143.263	6262221.123	43.99	8/.4/10
3549	301145.923	6262215.905	43.95	4/.2/5
3550	301142.135	6262215.469	43.95	4/.2/5
3551	301137.819	6262217.123	44.21	12/.6/14
3552	301126.269	6262224.540	44.37	10/.5/12
3553	301124.162	6262223.874	44.45	8/.4/10
3554	301117.672	6262225.118	44.34	D/.4/4
3555	301114.359	6262223.565	44.48	12/.6/14
3556	301115.524	6262218.826	44.65	6/.3/10
3557	301105.148	6262222.164	44.59	12/.6/14
3734	301151.303	6262219.286	43.89	10/.5/12
3735	301155.262	6262219.702	43.67	6/.3/10
3736	301153.418	6262217.508	43.84	10/.5/12
3737	301153.494	6262213.472	43.63	4/.2/5
3740	301161.586	6262210.669	43.26	12/.6/14
3741	301165.948	6262213.697	42.71	6/.3/10
3742	301167.549	6262216.575	42.69	6/.3/10
3743	301168.083	6262216.495	42.60	6/.3/10
3744	301165.640	6262217.960	42.82	12/.6/14
3745	301168.698	6262210.793	42.32	4/.2/5
3747	301170.829	6262211.087	42.13	6/.3/10
3748	301173.502	6262210.181	41.55	6/.3/10
3749	301172.691	6262208.727	41.69	6/.3/10
3750	301171.726	6262209.326	41.79	10/.5/12
3751	301175.652	6262208.822	41.15	4/.2/8
3753	301175.999	6262210.900	41.25	8/.4/10
3754	301175.698	6262213.934	41.52	6/.3/10

No.	EASTING	NORTHING	RL	DETAILS
3755	301175.341	6262214.997	41.70	8/.4/10
3756	301175.908	6262215.738	41.66	4/.2/5
3758	301179.790	6262215.243	40.88	4/.2/5
3759	301186.630	6262212.164	40.01	D/.3/10
3760	301191.476	6262210.749	39.46	D/.3/10
3761	301188.257	6262205.709	39.65	10/.5/12
3762	301187.529	6262204.927	39.86	10/.5/12
3763	301187.142	6262205.161	39.76	6/.3/10
3767	301196.144	6262207.219	39.08	10/.5/12
3768	301202.190	6262208.905	38.44	D/.3/10
3769	301200.401	6262213.085	38.76	6/.3/10
3770	301203.710	6262212.140	38.36	4/.2/5
3771	301205.147	6262207.899	38.25	8/.4/10
3773	301208.039	6262202.537	38.20	4/.2/5
3774	301209.019	6262206.954	38.03	6/.3/10
3775	301215.368	6262210.995	37.52	6/.3/10
3776	301215.894	6262210.351	37.51	4/.2/5
3777	301216.997	6262208.337	37.47	6/.3/10
3778	301218.236	6262209.024	37.35	6/.3/10
3779	301217.566	6262200.639	37.72	D/.4/10
3822	301176.257	6262534.240	33.46	4/.2/5
114	300952.508	6262349.821	39.22	4/0.2/6
115	300952.050	6262353.419	39.03	4/0.1/5
116	300952.261	6262355.478	38.81	4/0.1/5
117	300952.865	6262355.799	38.84	4/0.1/7
118	300954.956	6262351.771	39.22	6/0.2/7
119	300954.404	6262358.214	38.65	5/.2/4
120	300957.951	6262358.003	38.01	4/0.2/7
245	301006.871	6262552.092	32.80	6/0.3/6
246	301008.714	6262549.488	32.93	8/0.37
247	301007.715	6262551.059	32.76	8/0.3/7
1061	301304.224	6262453.442	33.82	8/.3/10
1067	301326.761	6262424.806	33.46	D/.3/10
1149	301251.574	6262309.812	33.70	8/.3/8
1313	301217.030	6262234.156	37.63	10/.5/14
1314	301215.712	6262235.332	37.73	8/.3/10
1315	301217.092	6262242.077	37.54	6/.3/8
1316	301218.037	6262244.446	37.79	6/.3/8
1317	301214.813	6262248.406	38.01	8/.4/10
1318	301212.541	6262244.582	38.25	8/.4/102
1319	301208.084	6262243.322	38.44	12/.5/15
1320	301206.206	6262236.980	38.45	8/.3/10
1321	301200.743	6262241.408	38.88	8/.3/8
1322	301198.410	6262236.969	39.21	D/.514
1323	301198.250	6262245.540	39.12	8/.3/10
1324	301202.879	6262247.314	38.83	8/.4/12
1325	301209.734	6262248.882	38.32	6/.3/8
1326	301206.881	6262256.668	38.64	6/.3/8
1327	301205.856	6262255.129	38.83	6/.3/6
1328	301200.284	6262259.738	38.82	12/.6/12
1329	301196.136	6262262.748	38.87	12/.6/15
1330	301201.293	6262265.371	38.60	8/.3/10
1331	301191.536	6262259.756	39.24	10/.5/12
1332	301189.335	6262266.528	39.07	8/.3/10
1333	301191.480	6262268.423	39.01	8/.3/10
1334	301190.482	6262266.770	38.95	12/.5/12
1335	301185.891	6262265.009	39.28	6/.3/6
1336	301182.501	6262251.989	40.21	6/.3/6
1337	301172.786	6262252.392	40.81	6/.3/6
1338	301178.685	6262245.725	40.85	D/.4/14
1339	301186.160	6262237.617	40.67	6/.3/8

No.	EASTING	NORTHING	RL	DETAILS
1340	301186.902	6262246.677	40.16	10/.4/14
1341	301189.480	6262246.587	39.92	10/.4/12
1342	301188.440	6262248.908	39.86	10/.4/12
1343	301174.097	6262243.346	41.69	6/.3/6
1344	301171.712	6262241.821	42.06	6/.3/6
1345	301158.992	6262247.825	42.43	12/.6/14
1346	301165.822	6262256.648	41.07	6/.3/8
1347	301168.938	6262263.428	40.64	20/01/2018
1348	301151.619	6262242.381	43.12	8/.3/10
1349	301144.433	6262245.329	42.95	8/.3/10
1350	301145.054	6262243.419	42.94	8/.3/10
1351	301147.283	6262255.740	42.20	8/.3/10
1352	301146.451	6262262.157	41.72	8/.3/10
1353	301140.004	6262263.694	42.10	8/.3/10
1354	301135.477	6262255.581	42.67	8/.3/10
1355	301137.465	6262253.801	42.65	8/.3/10
1356	301129.349	6262254.179	42.95	8/.3/10
1357	301111.356	6262254.603	43.01	12/.6/15
1358	301112.911	6262258.219	42.93	12/.6/15
1359	301114.901	6262258.143	43.06	12/.6/15
1360	301104.506	6262253.799	42.88	6/.3/8
1361	301101.920	6262255.554	42.82	10/.5/15
1362	301102.501	6262257.206	42.95	10/.5/15
1363	301091.782	6262258.361	42.62	10/.5/15
1364	301097.251	6262269.882	41.94	10/.5/12
1365	301101.830	6262270.907	42.22	15/.7/15
1366	301107.969	6262270.421	42.22	D/0.510
1367	301117.293	6262269.908	42.37	10/.5/15
1368	301125.716	6262273.808	42.16	14/.7/15

NOTE
8/.4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m

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GDA2020

SEE SHEET 1 FOR LEGEND & NOTES

0 4 8 12 16 20
SCALE 1: 200 @ A1

Revision	Date	Description	Reference
H	00/00/00	–	00
G	00/00/00	–	00
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A	26/06/24	ADDITIONAL EXTERNAL SURVEY INFORMATION ADDED	_3

LTS CONFIDENCE TOGETHER
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Client LCI CONSULTANTS
Drawing title
PLAN OF DETAIL AND LEVELS OVER LOT 2 IN DP1137162 KNOWN AS No.2A, 2B & 2C GLENDENNING ROAD, GLENDENNING

datum AHD
site Area 10.44ha(Title)
LGA BLACKTOWN
reference number 52282 001DT_3
scale 1:100 @A1
date of survey 29/05/2024
SHEET 15 OF 15

Appendix B - Vehicle Swept Paths

DC03 BUILDING
FFL 35.75

DC01 BUILDING
FFL 35.05

DC02 BUILDING
FFL 36.05

19.0m

GLENDENNING ROAD

EXIT SALLY PORT

GUARD HOUSE

ENTRY SALLY PORT

EASTERN CREEK

WOODSTOCK AVENUE

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET H

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET G

GRDC86-ACR-00-XX-DR-SSDA-C-2704 INSET R

GRDC86-ACR-00-XX-DR-SSDA-C-2704 INSET Q

GRDC86-ACR-00-XX-DR-SSDA-C-2701 INSET C

GRDC86-ACR-00-XX-DR-SSDA-C-2701 INSET D

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET F

GRDC86-ACR-00-XX-DR-SSDA-C-2703 INSET P

GRDC86-ACR-00-XX-DR-SSDA-C-2703 INSET N

GRDC86-ACR-00-XX-DR-SSDA-C-2701 INSET E

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET J

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET K

GRDC86-ACR-00-XX-DR-SSDA-C-2701 INSET B

GRDC86-ACR-00-XX-DR-SSDA-C-2701 INSET A

GRDC86-ACR-00-XX-DR-SSDA-C-2702 INSET L

GRDC86-ACR-00-XX-DR-SSDA-C-2703 INSET M

EXISTING WAREHOUSE AND HARDSTAND TO BE DEMOLISHED

TERRESTRIAL BIODIVERSITY AREA TO BE PROTECTED AND RETAINED

SURVEYED BY REMOTE SENSING AND ACCESS HEAVILY OVERGROWN

SCALE 1:500 @ A0 0 5 10 20 30 40 50 metres

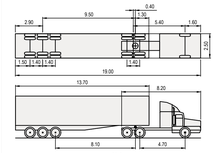
LEGEND

VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT

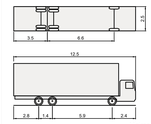
0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE



	Metres
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m).

NTS



	Metres
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

REV	DATE	DESCRIPTION	DRN	ENG	CHK	APP
P1	13NOV2024	DRAFT SSDA ISSUE	DW	JF	MB	MB
A	20NOV2024	SSDA ISSUE	DW	JF	MB	MB

MECHANICAL / ELECTRICAL ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

HYDRAULIC/ FIRE ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

CIVIL ENGINEER:
ACOR CONSULTANTS PTY LTD
02 9438 5098
SUITE 2, LEVEL 1, 33 HERBERT STREET,
ST LEONARDS NSW 2065

STRUCTURAL ENGINEER:
VAN DER MEER CONSULTING
02 94360433
LEVEL 6, 39 CHANDOS ST,
ST LEONARDS NSW 2065

ARCHITECT:
GREENBOX ARCHITECTURE PTY LTD
02 8069 8939
LEVEL 22, 66 PITT STREET,
SYDNEY NSW 2000

LANDSCAPE:
GEOSCAPES
02 9411 1485
SUITE 3.03, 8 HELP STREET,
CHATSWOOD, NSW 2067

PROJECT: GLENDENNING ROAD DATA CENTRE

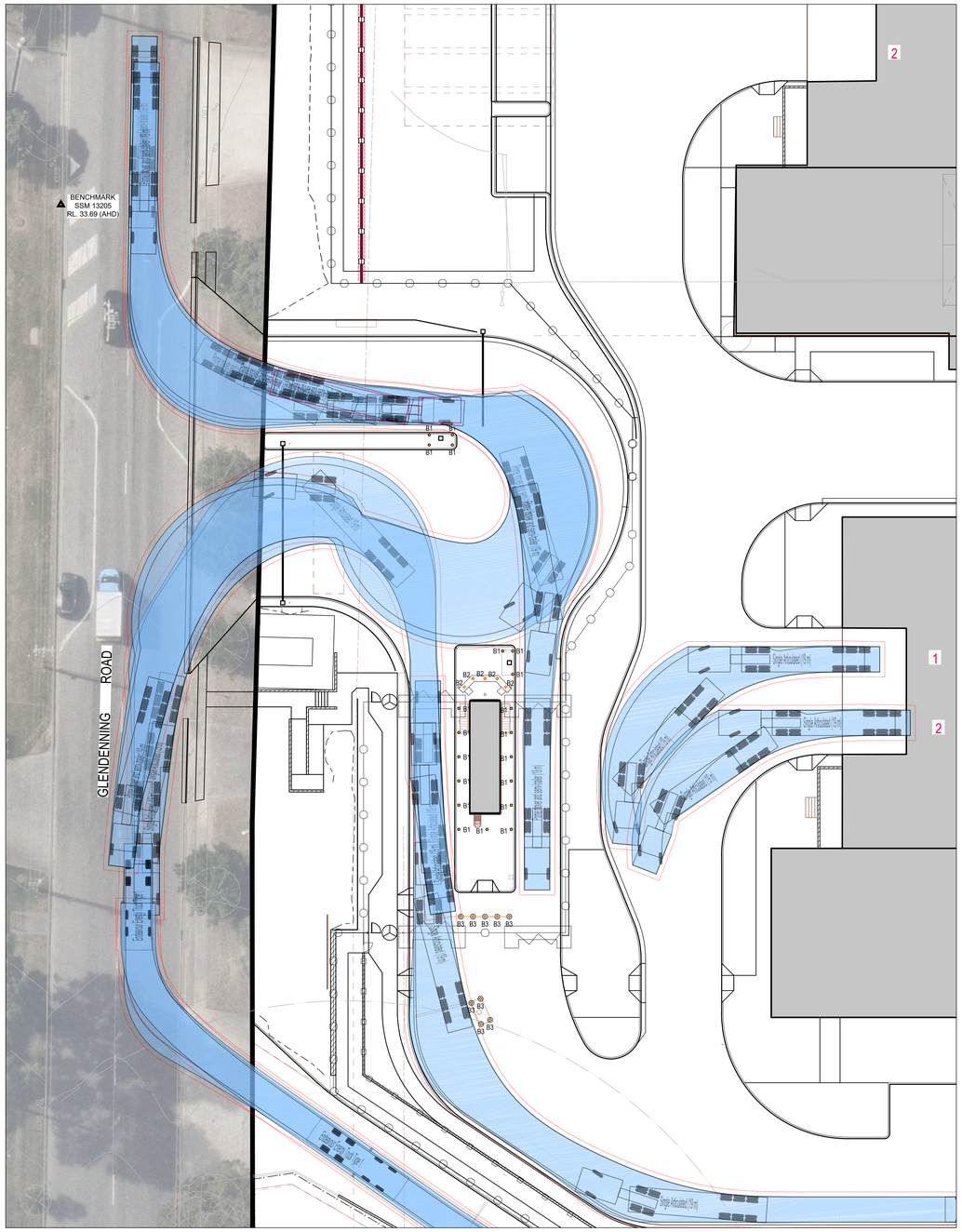
TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN -OVERALL SITE

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2700

PAPER SIZE:	SCALE:	REV:
ISO A0	1:500	A

PRINT IN COLOUR

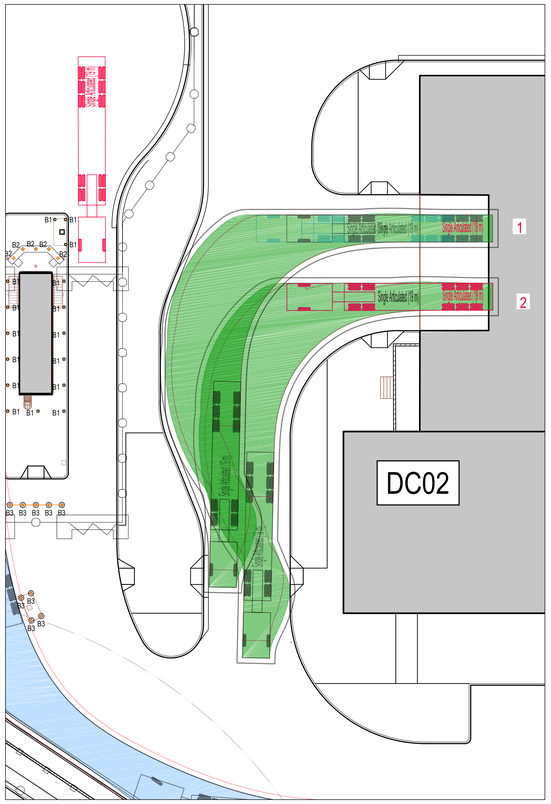
C-0000



INSET A - SITE ENTRY AND EXIT SWEPT PATHS - 19m ARTICULATED VEHICLE

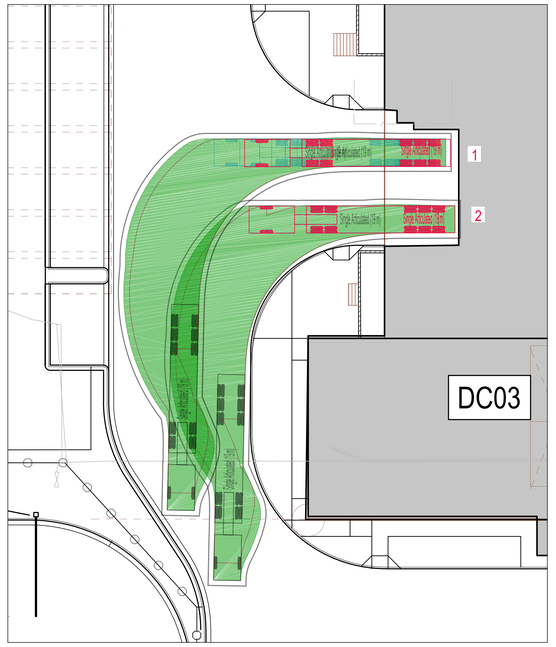
SCALE 1:200

SCALE 1:200 @ A0 0 2 4 8 12 16 20 metres



INSET B - DC02 LOADING DOCK REVERSE ENTRY - 19m ARTICULATED VEHICLE

SCALE 1:200



INSET D - DC03 LOADING DOCK REVERSE ENTRY- OPTION 2 - 19m ARTICULATED VEHICLE

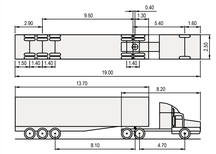
SCALE 1:200

INSET C - DC03 LOADING DOCK REVERSE ENTRY- OPTION 1 - 19m ARTICULATED VEHICLE

SCALE 1:200

LEGEND

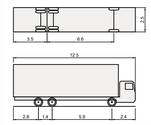
- VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT
- 0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE
- VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT
- 0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE



	Metres
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m).

NTS



	Metres
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

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A	20NOV2024	SSDA ISSUE	DW	JF	MB	MB

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NORTH SYDNEY NSW 2060

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02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

CIVIL ENGINEER:
ACOR CONSULTANTS PTY LTD
02 9438 5098
SUITE 2, LEVEL 1, 33 HERBERT STREET,
ST LEONARDS NSW 2065

STRUCTURAL ENGINEER:
VAN DER MEER CONSULTING
02 94393433
LEVEL 6, 39 CHANDOS ST,
ST LEONARDS NSW 2065

ARCHITECT:
GREENBOX ARCHITECTURE PTY LTD
02 8069 8539
LEVEL 22, 68 PITT STREET,
SYDNEY NSW 2000

LANDSCAPE:
GEOSCAPES
02 9411 1485
SUITE 3.03, 8 HELP STREET,
CHATSWOOD, NSW 2067

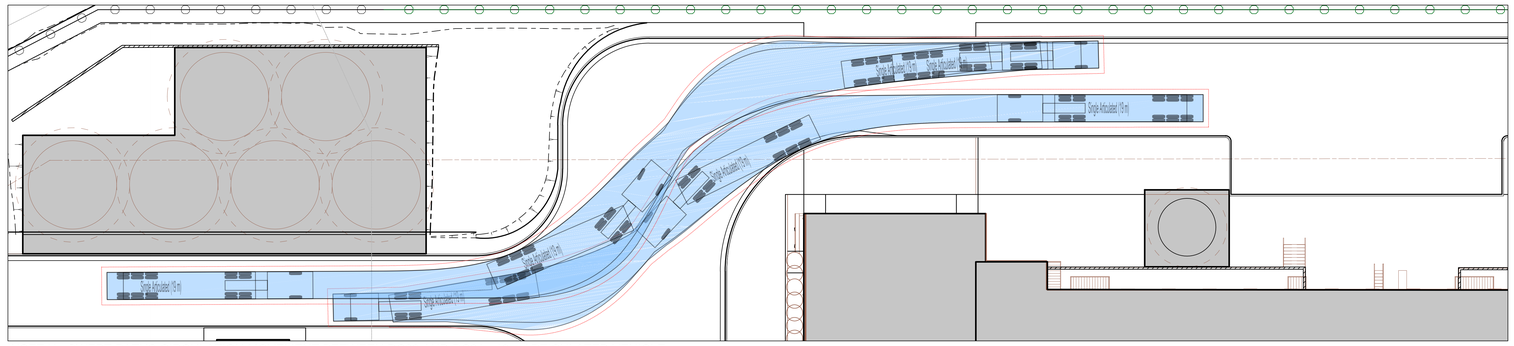
PROJECT: GLENDENNING ROAD DATA CENTRE

TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN - SHEET 1

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2701

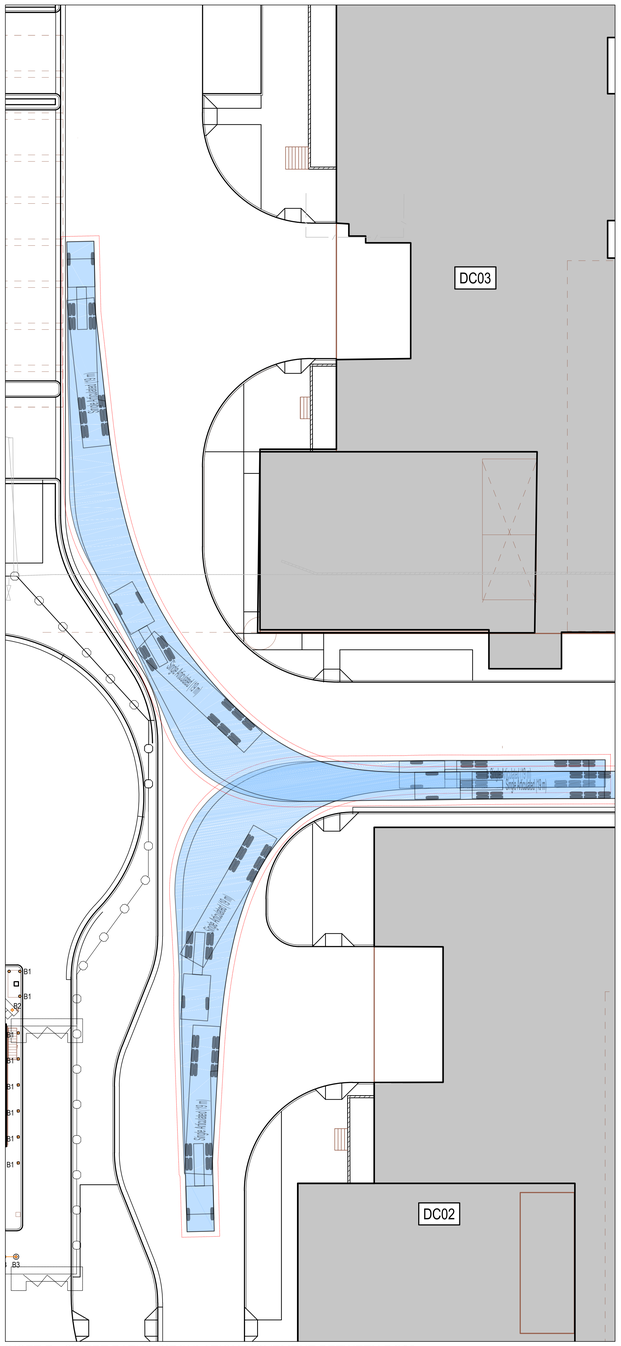
PAPER SIZE:	SCALE:		REV:
ISO A0	1:200		A

PRINT IN COLOUR



INSET H - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC01 - 19m ARTICULATED VEHICLE

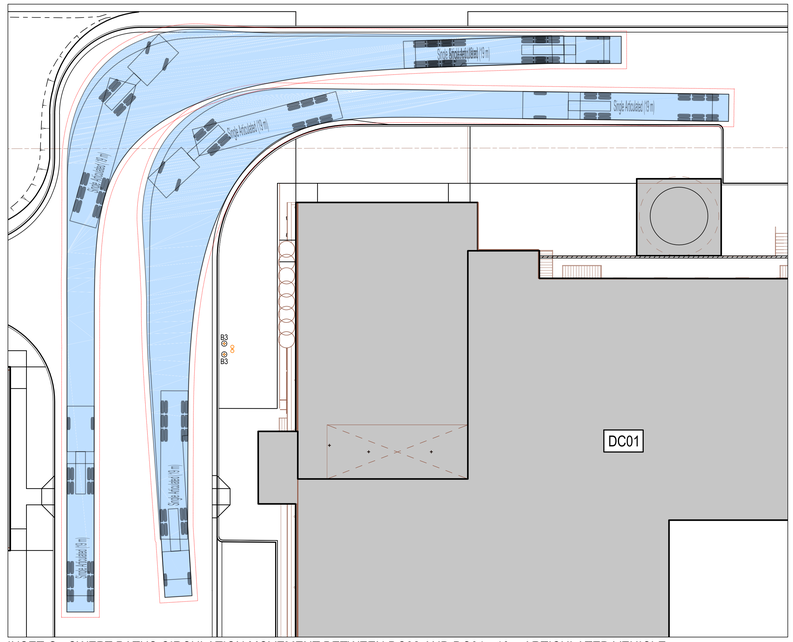
SCALE 1:200



INSET E - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC03 - 19m ARTICULATED VEHICLE

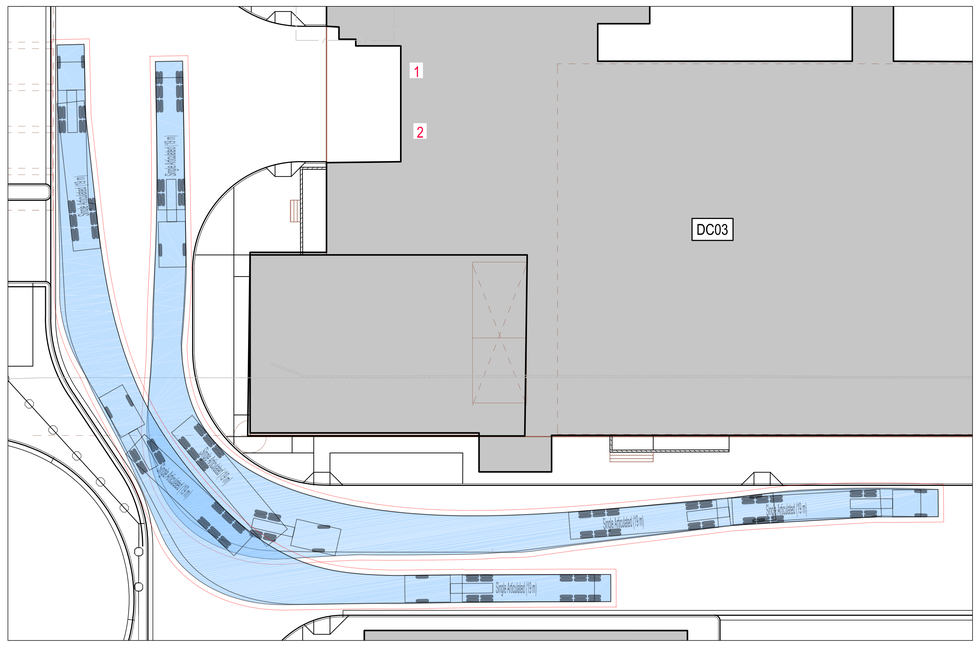
SCALE 1:200

SCALE 1:200 @ A0 0 2 4 8 12 16 20 metres



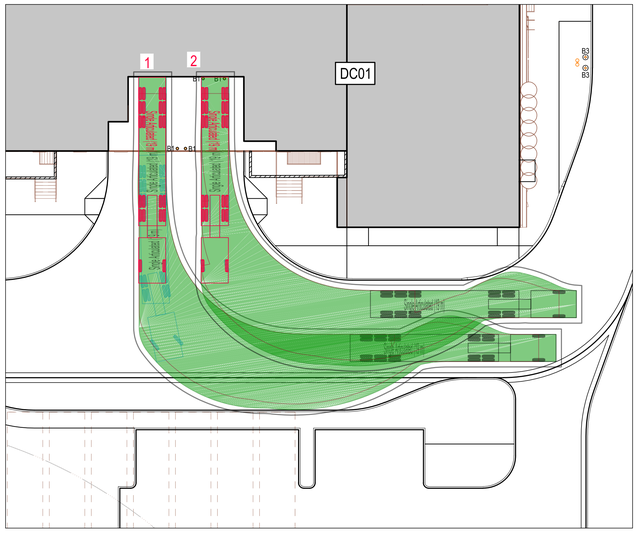
INSET G - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC01 - 19m ARTICULATED VEHICLE

SCALE 1:200



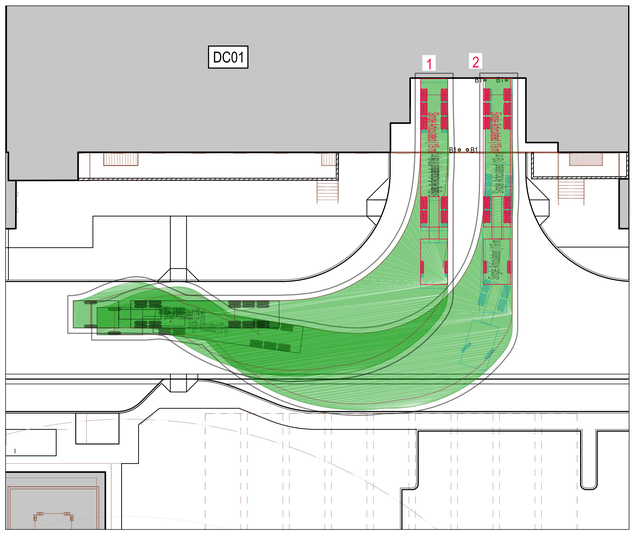
INSET F - SWEPT PATHS CIRCULATION MOVEMENT DC03 - 19m ARTICULATED VEHICLE

SCALE 1:200



INSET K - DC01 LOADING DOCK REVERSE ENTRY- ENTRY FROM EAST- 19m ARTICULATED VEHICLE

SCALE 1:200



INSET J - DC01 LOADING DOCK REVERSE ENTRY- ENTRY FROM WEST - 19m ARTICULATED VEHICLE

SCALE 1:200

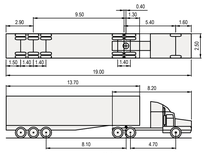
LEGEND

VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT

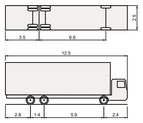
0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE



Metres	
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m)

NTS



Metres	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

REV	DATE	DESCRIPTION	DRN	ENG	CHK	APP
P1	13NOV2024	DRAFT SSDA ISSUE	DW	JF	MB	MB
A	26NOV2024	SSDA ISSUE	DW	JF	MB	MB

MECHANICAL/ ELECTRICAL ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

HYDRAULIC/ FIRE ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

CIVIL ENGINEER:
ACOR CONSULTANTS PTY LTD
02 9438 5098
SUITE 2, LEVEL 1, 33 HERBERT STREET,
ST LEONARDS NSW 2065

STRUCTURAL ENGINEER:
VAN DER MEER CONSULTING
02 94360433
LEVEL 6, 39 CHANDOS ST,
ST LEONARDS NSW 2065

ARCHITECT:
GREENBOX ARCHITECTURE PTY LTD
02 8069 8539
LEVEL 22, 68 PITT STREET,
SYDNEY NSW 2000

LANDSCAPE:
GEOSCAPES
02 9411 1485
SUITE 3.03, 8 HELP STREET,
CHATSWOOD, NSW 2067

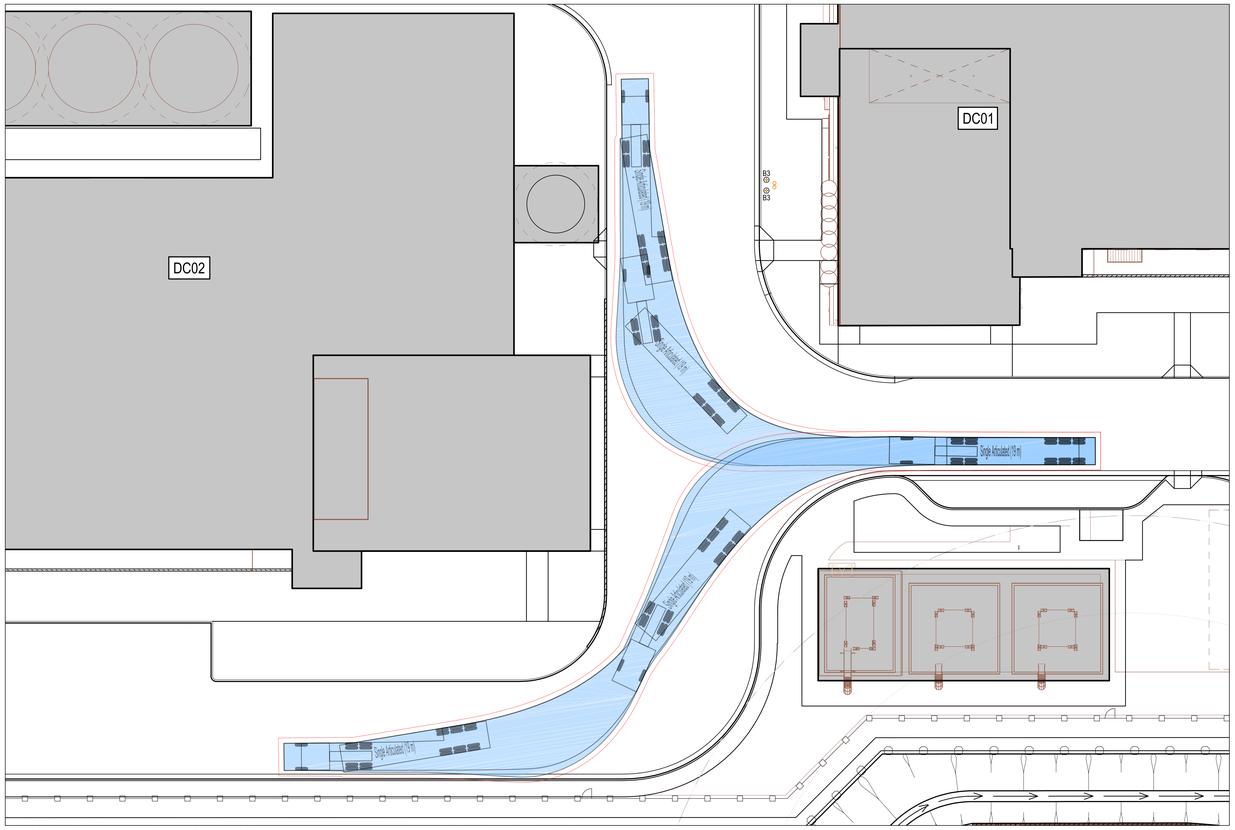
PROJECT: GLENDENNING ROAD DATA CENTRE

TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN - SHEET 2

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2702

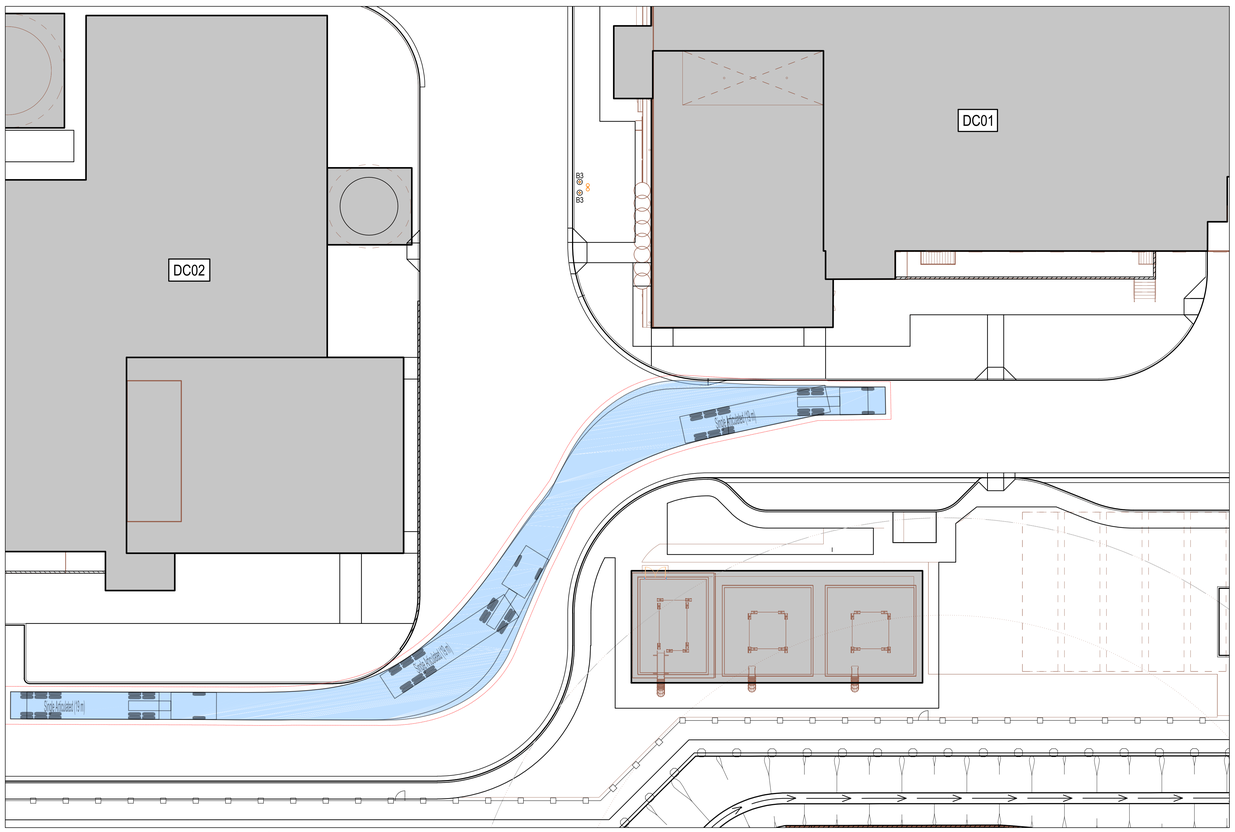
PAPER SIZE:	SCALE:		REV:
ISO A0	1:200		A

PRINT IN COLOUR



INSET M - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC01 - 19m ARTICULATED VEHICLE

SCALE 1:200

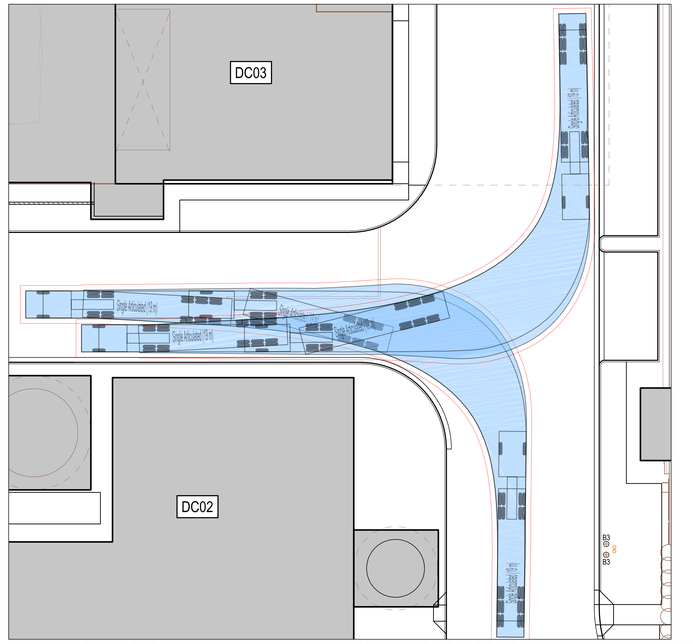


INSET L - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC01 - 19m ARTICULATED VEHICLE

SCALE 1:200

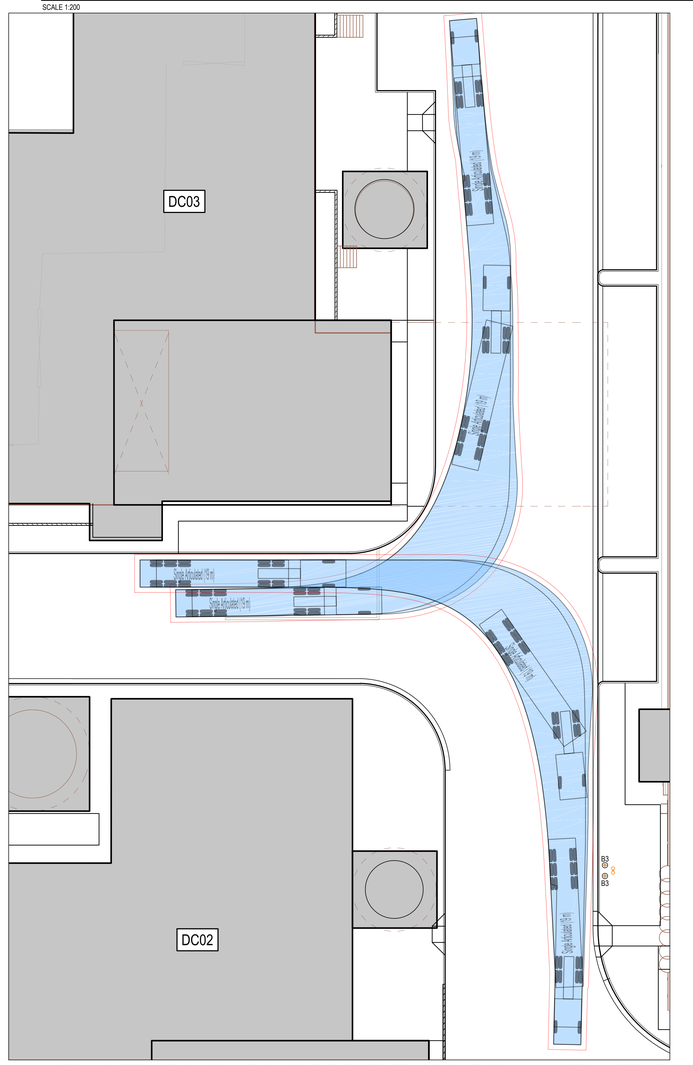
SCALE 1:200 @ A0

0 2 4 8 12 16 20 metres



INSET P - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC03 - 19m ARTICULATED VEHICLE

SCALE 1:200



INSET N - SWEPT PATHS CIRCULATION MOVEMENT BETWEEN DC02 AND DC03 - 19m ARTICULATED VEHICLE

SCALE 1:200

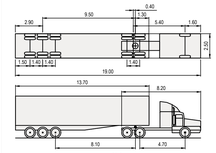
LEGEND

VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT

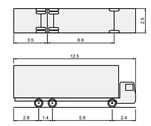
0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE



	Metres
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m).

NTS



	Metres
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

REV	DATE	DESCRIPTION	DRN	ENG	CHK	APP
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PROJECT: GLENDENNING ROAD DATA CENTRE

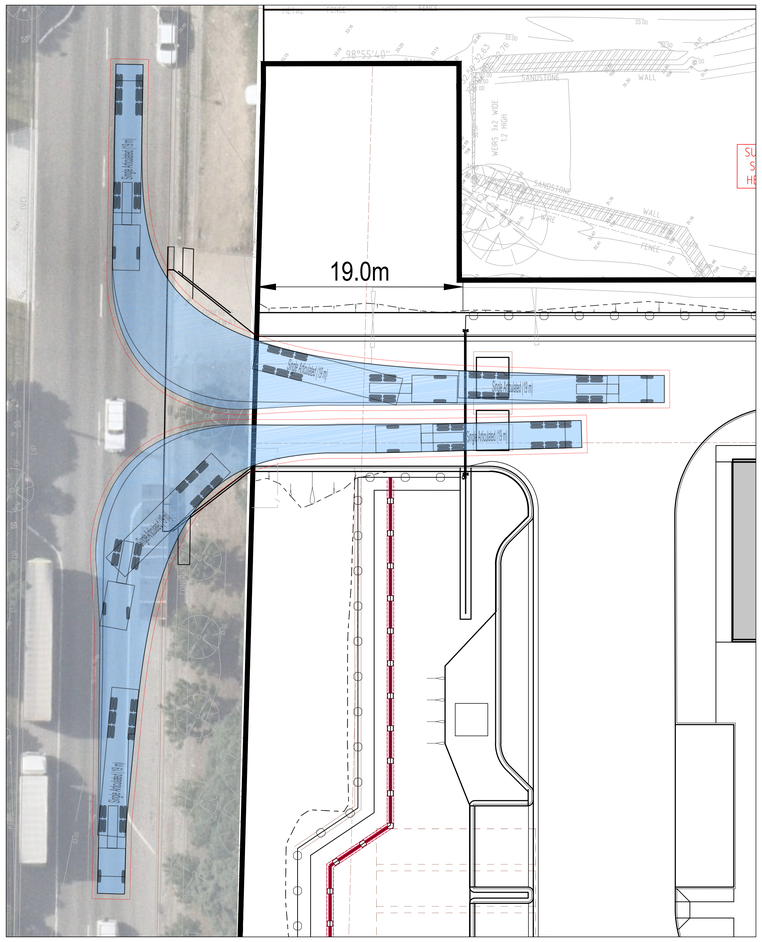
TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN - SHEET 3

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2703

PAPER SIZE:	SCALE:		REV:
ISO A0	1:200		A

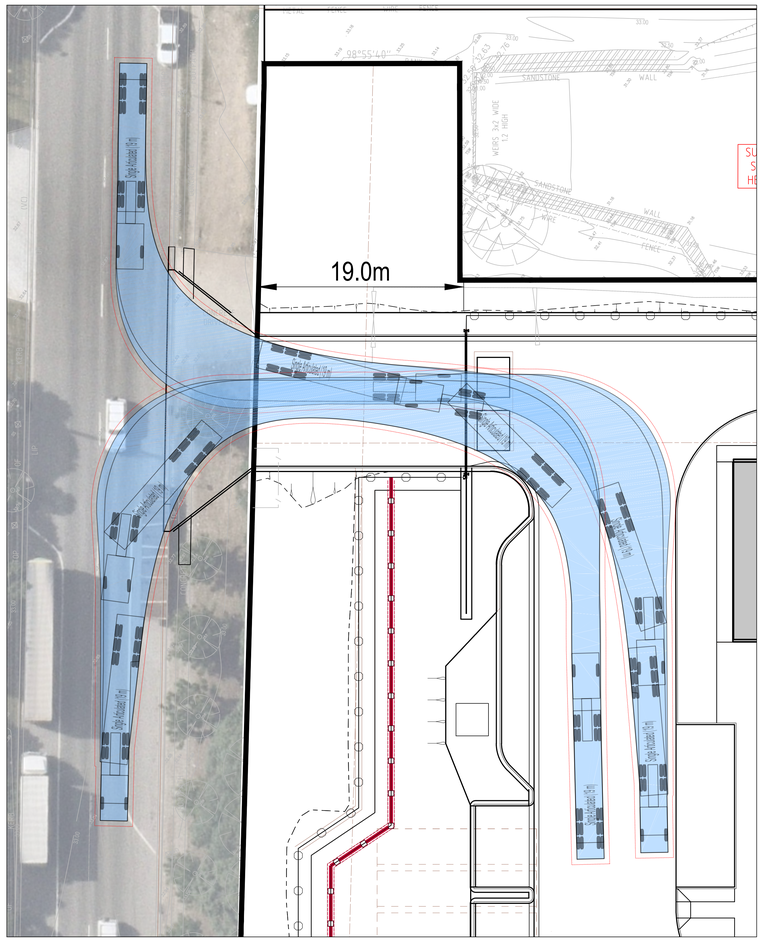
PRINT IN COLOUR

C-0000



INSET Q - SWEPT PATHS ENTRY AND EXIT SECONDARY GATE - 19m ARTICULATED VEHICLE

SCALE 1:200



INSET R - SWEPT PATHS ENTRY AND EXIT SECONDARY GATE - 19m ARTICULATED VEHICLE

SCALE 1:200

SCALE 1:200 @ A0

0 2 4 8 12 16 20 metres

LEGEND

VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

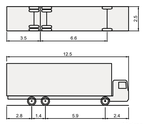
VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

	Metres
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m).

NTS



	Metres
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

REV	DATE	DESCRIPTION	DRN	ENG	CHK	APP
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A	20NOV2024	SSDA ISSUE	DW	JF	MB	MB

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LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

CIVIL ENGINEER:
ACOR CONSULTANTS PTY LTD
02 9438 5288
SUITE 2, LEVEL 1, 33 HERBERT ST,
ST LEONARDS NSW 2065

STRUCTURAL ENGINEER:
VAN DER MEER CONSULTING
02 94360433
LEVEL 6, 39 CHANDOS ST,
ST LEONARDS NSW 2065

ARCHITECT:
GREENBOX ARCHITECTURE PTY LTD
02 8069 8939
LEVEL 22, 68 PITT STREET,
SYDNEY NSW 2000

LANDSCAPE:
GEOSCAPES
02 9411 1485
SUITE 3.03, 6 HELP STREET,
CHATSWOOD, NSW 2067

PROJECT: GLENDENNING ROAD DATA CENTRE

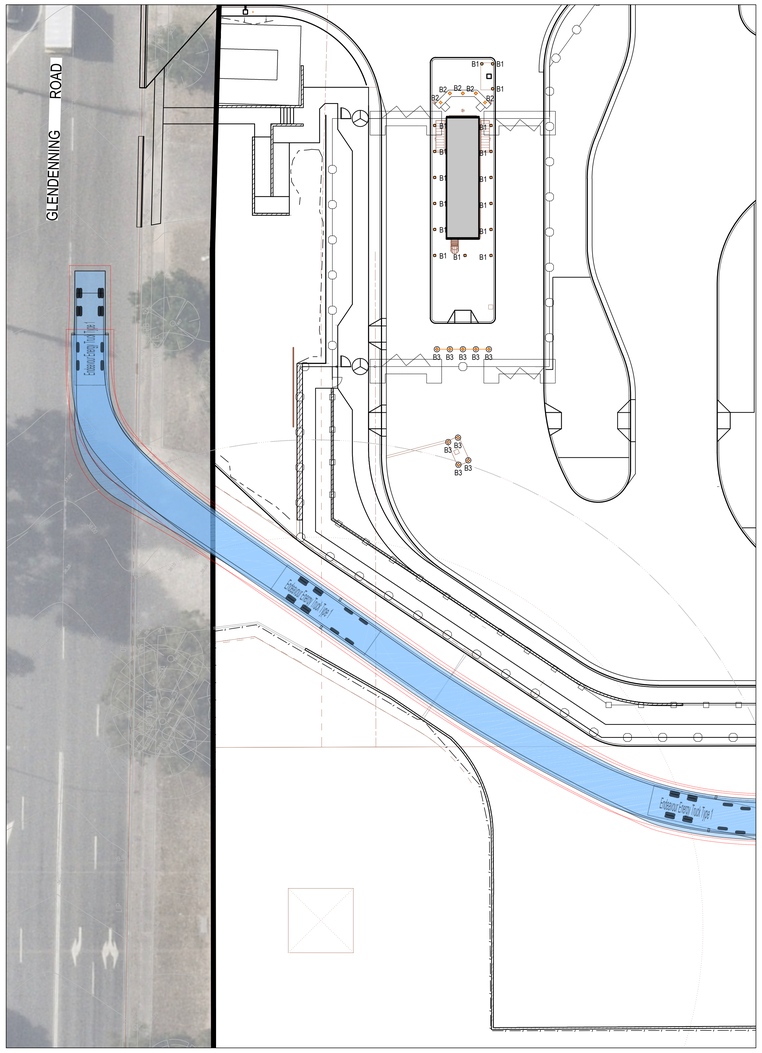
TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN - SHEET 4

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2704

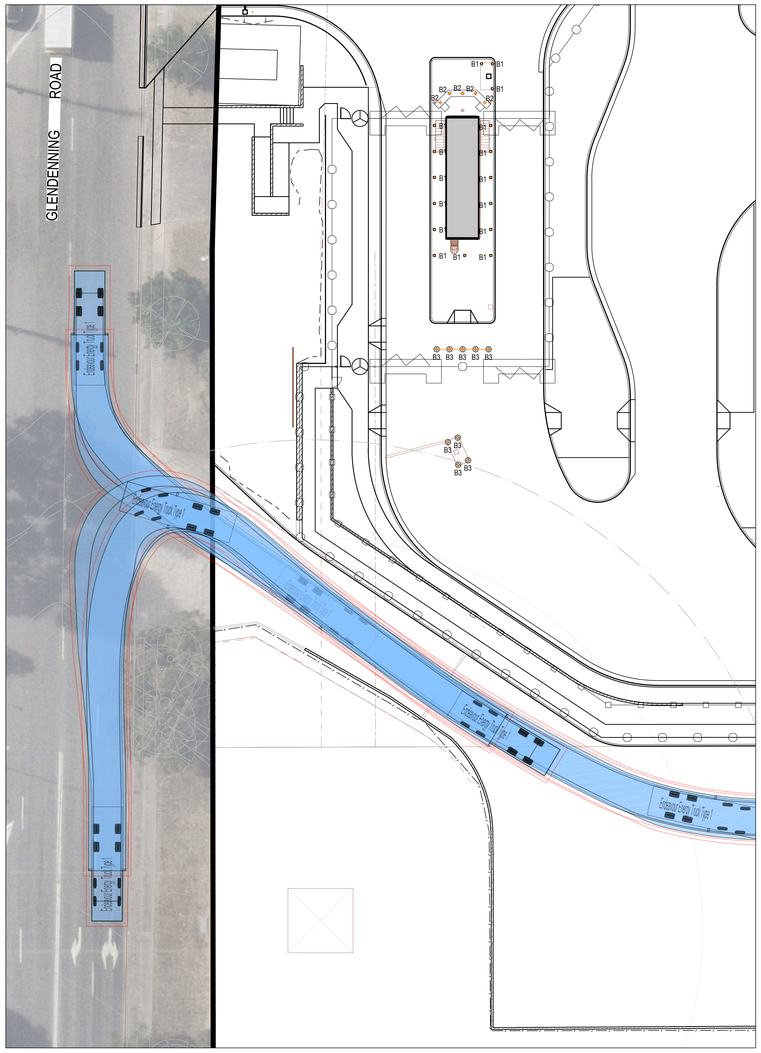
PAPER SIZE:	SCALE:		REV:
ISO A0	1:200		A

PRINT IN COLOUR

C-0000



INSET R - SWEPT PATHS ENTRY EXISTING DRIVEWAY - ENDEAVOUR ENERGY VEHICLE



INSET R - SWEPT PATHS EXIT EXISTING DRIVEWAY - ENDEAVOUR ENERGY VEHICLE

SCALE 1:200 @ A0

0 2 4 8 12 16 20 metres

LEGEND

VEHICLE BODY SWEPT PATH ENVELOPE - FORWARD MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

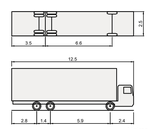
VEHICLE BODY SWEPT PATH ENVELOPE - REVERSE MOVEMENT

0.5m VEHICLE SWEPT PATH CLEARANCE ENVELOPE

	Metres
Overall Length	19.000m
Overall Width	2.500m
Overall Body Height	4.301m
Min Body Ground Clearance	0.418
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

AV - ARTICULATED VEHICLE (AV 19.0m)

NTS



	Metres
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Kerb to Kerb Turning Radius	12.500m

HRV - HEAVY RIGID VEHICLE (HRV 12.5m)

REV	DATE	DESCRIPTION	DRN	ENG	CHK	APP
P1	13NOV2024	DRAFT SSDA ISSUE	DW	JF	MB	MB
A	20NOV2024	SSDA ISSUE	DW	JF	MB	MB

MECHANICAL/ ELECTRICAL ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

HYDRAULIC/ FIRE ENGINEER:
LCI CONSULTANTS
02 9157 0570
LEVEL 5, 73 MILLER STREET,
NORTH SYDNEY NSW 2060

CIVIL ENGINEER:
ACOR CONSULTANTS PTY LTD
02 9438 5098
SUITE 2, LEVEL 1, 33 HERBERT STREET,
ST LEONARDS NSW 2065

STRUCTURAL ENGINEER:
VAN DER MEER CONSULTING
02 94360433
LEVEL 6, 39 CHANDOS ST,
ST LEONARDS NSW 2065

ARCHITECT:
GREENBOX ARCHITECTURE PTY LTD
02 8069 8939
LEVEL 22, 68 PITT STREET,
SYDNEY NSW 2000

LANDSCAPE:
GEOSCAPES
02 9411 1485
SUITE 3.03, 8 HELP STREET,
CHATSWOOD, NSW 2067

PROJECT: GLENDENNING ROAD DATA CENTRE

TITLE: CIVIL SERVICES
VEHICLE SWEPT PATHS PLAN - SHEET 5

DRAWING: GRDC86-ACR-00-XX-DR-SSDA-C-2705

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