



# *Integrated Water Management Plan Report*

## Tempus St Rouse Hill CV

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# Report Amendment Register

Issue Ref	Amended Section(s)	Issue/Amendment Details	Author(s)	Reviewer	Date
01	All	Preliminary Concept	Nghia Ly Baarath Baskaran	Allen Ang	12 March 2025
02	All	Final Issue	Nghia Ly	Allen Ang	21 March 2025
03	All	Final Issue	Nghia Ly	Allen Ang	08 April 2025



# Executive Summary

This Integrated Water Management Plan Report has been prepared by Robert Bird Group (RBG) to accompany a detailed State Significant Development Application (SSDA) for the mixed-use development at 2-30 Tempus Street, Rouse Hill. The site is made up of one lot, being Lot 19 in DP 280013.

This report has been prepared to address the Secretary's Environmental Assessment Requirements (**SEARs**) issued for the project (SSD-76190964).

This report concludes that the proposed mixed-use development is suitable and warrants approval subject to the implementation of the following mitigation measures.

Table 1-1 Summary of mitigation measures

ID	Mitigation Measure
<b>Stormwater Management</b>	
SM001	To provide stormwater pit and pipe infrastructure to connect to council stormwater legal point of discharge
SM002	To provide OSD tank
SM003	Retain existing overland flow path
<b>Water Sensitive Urban Design</b>	
WS001	To provide Rainwater tank for water reuse
WS002	To provide water quality treatment to stormwater prior to disposal
WS003	Increase pervious area and deep soil zone where possible
<b>Sediment and Erosion Control</b>	
SE001	To provide temporary site security fence
SE002	Sediment fencing provided downstream of disturbed areas including any topsoil stockpiles,
SE003	Dust control measures including covering stockpiles, installing fence hessian, and watering exposed areas
SE004	Placement of hay bales or mesh and gravel inlet filters around the existing drains and inlets pits
SE005	Any stockpiled material, including topsoil, shall be located as far away as possible from any associated natural watercourses or temporary overland flow paths. All stockpiles and embankment formations shall be stabilised by hydroseeding or hydro mulching on formation

Following the implementation of the above mitigation measures, the remaining impacts are considered appropriate.



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- Appendix A**      **Civil Plans**
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# 1. Introduction

The application seeks development consent for the development of an 11, 18 and 23 storey mixed use development at 2-30 Tempus Street, Rouse Hill. Specifically, the SSDA seeks development consent for:

- Site preparation works including removal of temporary planting, bulk excavation and earthworks
- Construction and operation of an 11, 18 and 23 storey mixed use development, comprising:
  - Consolidated podium comprising ground level lobby, retail and wellness tenancies, and two levels of commercial floor space above
  - 216 co-living units within the 11-storey tower
  - 332 build-to-rent units across the 18 and 23-storey towers, including 105 units in a dual key configuration
  - Rooftop internal and external amenity spaces on each tower to service the build-to-rent and co-living residents
- Landscaping and public domain works, including:
  - Retaining existing street trees
  - Provision of a deep soil landscaped buffer zone along the rear boundary
  - On-structure landscaping on each rooftop.
- Construction and use of two basement levels, accessed from White Hart Drive, to accommodate:
  - Approximately 111 car spaces
  - Motorcycle and bicycle parking
  - Loading dock facilities
- Extension and augmentation of services and infrastructure as required.

The purpose of the project is to facilitate the delivery of high-quality, diverse housing and commercial floor space at a strategically located site. The proposal seeks to deliver a built form outcome that responds appropriately to its location at the edge of Rouse Hill Town Centre and adjacent to Rouse Hill Metro Station and that is consistent with the desired future character of Rouse Hill.

This report has been prepared in response to the requirements contained within the Secretary’s Environmental Assessment Requirements (SEARs) dated 30<sup>th</sup> September 2024 and issued for SSD-76190964. Specifically, this report has been prepared to respond to the SEARs requirement issued below.

Table 1-1 SEARs Requirements

Description of SEARs Requirement	Section Reference (This Report uno)
<p><b>Section 13. Ground and Water Conditions (Partial)</b></p> <ul style="list-style-type: none"> <li>• Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity and acid sulfate soils.</li> <li>• Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on:</li> </ul>	<ul style="list-style-type: none"> <li>• Refer to Geotechnical Engineer Report prepared by others</li> <li>• Surface Water Impact Assessment</li> </ul>



- 
- surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses.
  - groundwater resources in accordance with the Groundwater Guidelines.
  - Refer to Section 3.4 - Water Sensitive Urban Design
  - Refer To Geotechnical Engineer Report prepared by others
- 

#### Section 14. Water Management

Provide an Integrated Water Management Plan for the development that:

- Is prepared in consultation with the local council and any other relevant drainage or water authority.
  - Outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provisions).
  - Details the proposed drainage design (stormwater and wastewater) for the site including any on-site treatment, reuse and detention facilities, water quality management measures and nominated discharge points.
  - Demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.
  - Refer Section 2 - Design Input and Guidelines
  - Refer to Hydraulic Engineer Report prepared by others
  - **Stormwater**  
Refer to Section 3 - Stormwater Management Plan
  - **Wastewater**  
Refer to Hydraulic Engineer Report prepared by others
  - Refer to Section 3 - Stormwater Management Plan
  - Where drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards of, the local council or other drainage or water authority.
  - Refer Section 2 - Design Input and Guidelines
  - Refer to Section 3 - Stormwater Management Plan
- 



## 1.1 Purpose of the Report

This document forms the basis for the stormwater management design and documentation for the project. This report provides reference information, design standards and inputs, a description of the existing site and the proposed works, and discussion on the hydrological and hydraulic analysis of the proposed stormwater design.

This report sets out an assessment of the proposed development's Integrated Water Management Plan, including consideration of the following:

- Stormwater management: addressing design philosophy, on-site detention (OSD), and sediment and erosion control.
- Rainwater reuse systems and their role in sustainable water use.
- Water Sensitive Urban Design (WSUD) elements, including design requirements and their Green Star Impact.
- Compliance with relevant standards, design guidelines, and environmental assessments requirements

## 1.2 Secretary's Environmental Assessment Requirements

This Stormwater Management Report has been prepared in accordance with the following directions contained within the Secretary's Environmental Assessment Requirements (SEARs) that were issued by NSW Department of Planning, Housing and Infrastructure (DPHI) for this project as mentioned in Section 1.

Table 1-2 Summary of mitigation measures

ID	Mitigation Measure
<b>Stormwater Management</b>	
SM001	To provide stormwater pit and pipe infrastructure to connect to council stormwater legal point of discharge
SM002	To provide OSD tank
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SE005	Any stockpiled material, including topsoil, shall be located as far away as possible from any associated natural watercourses or temporary overland flow paths. All stockpiles and embankment formations shall be stabilised by hydroseeding or hydro mulching on formation

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## 1.3 Site Description

The site is located at 2-30 Tempus Street, Rouse Hill, within The Hills local government area (LGA). The site is legally described as Lot 19 in DP 280013

The site has a frontage of approximately 118m to Tempus Street and approximately 50m to White Hart Drive. The site has a total area of 4,387sqm.



Figure 1 Local Context Map (Source: Urbis)

The site is located on the southern edge of Rouse Hill Town Centre and to the east of Rouse Hill Metro Station.

To the east of the site across White Hart Drive is a large residential area comprising single dwellings and town houses.

To the south of the site across White Hart Drive is new residential flat development of approximately 6 to 12 storeys.

Open spaces are located in proximity to the site including Castlebrook Memorial Park to the south-west of the site across Windsor Road, Caddies Creek Park and Reserve to the south of the site and Iron Bark Ridge Reserve to the west of the site at Caddies Creek.

The site is identified as a 'sleeve' site in the Rouse Hill Town Centre Precinct Plan approval (DA 1581/2005/HB) where the intent is for future development to screen the existing big box retail and car parking structures behind. As the retail and car parking structures have already been constructed and are in operation, the site was temporarily treated with earth berms, landscaping and tree planting until the site is developed.

No other structures exist on the site.

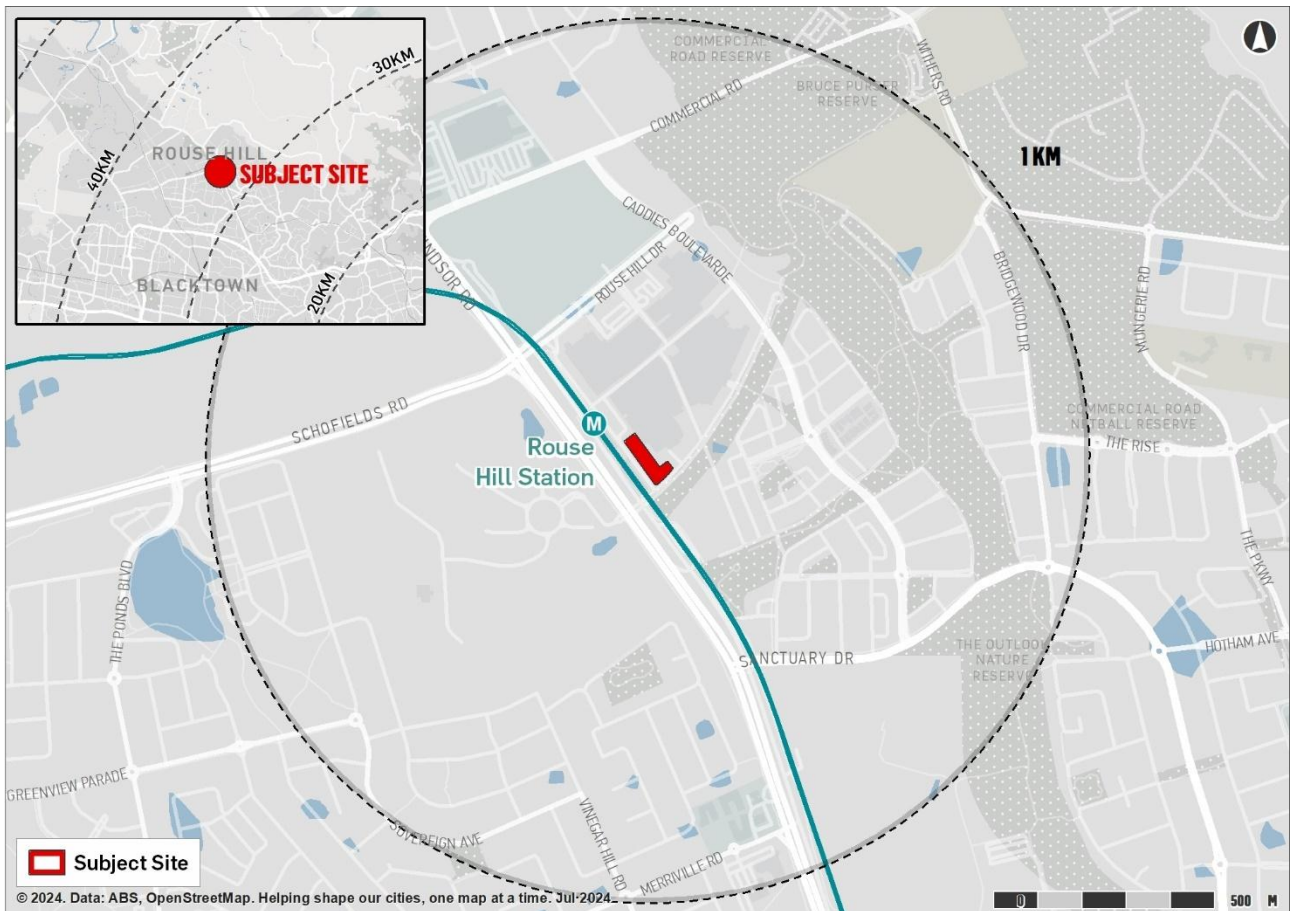


Figure 2 Regional Context (Source: Urbis)

## 1.4 Methodology

The Integrated Water Management Report follows a structured methodology, integrating technical analysis and stakeholder engagement to ensure optimal outcomes. Key components include:

### 1.4.1 Site Analysis & Baseline Assessment

- Review of existing hydrological conditions, rainfall patterns, and soil permeability.

- Assessment of site constraints, including flooding, drainage capacity, and water table levels.
- Identification of opportunities for water reuse and stormwater treatment.

## 1.4.2 Stormwater Management Strategy

- Hydrological and hydraulic modelling (DRAINS and MUSIC models) to design stormwater infrastructure.
- On-site detention (OSD) sizing to meet pre-development discharge criteria.
- Treatment train approach integrating stormwater filter system, rain gardens, and WSUD assets.

## 1.4.3 Stakeholder Engagement & Regulatory Compliance

- Coordination with local councils, water authorities, and environmental agencies.
- Preparation of SSDA-compliant documentation addressing planning and environmental conditions.

## 1.4.4 Implementation & Monitoring Framework

- Development of an asset management plan for long-term system maintenance.
- Inclusion of adaptive management strategies to refine water performance over time.
- This methodology ensures that the IWM strategy aligns with project objectives while delivering sustainable, functional, and compliant water management solutions for the SSDA.

# 2. Design Inputs and Guidelines

## 2.1 Consultation

Robert Bird Group has consulted with the project team during the concept design stages. The proposed stormwater design will be carried out in accordance with The Hills Council's Development Control Plan (DCP) and other relevant authorities.

## 2.2 Relevant Standard and Design Guidelines

The stormwater drainage design of the project to date has been carried out in accordance with the relevant local, state and national design guidelines and Australian Standard Codes of practices including the following:

Table 2-1 Design Guidelines

Author/Document	Standard/Description
AR&R 2019	Australian Rainfall and Runoff 2019
AS3500.3:2021	Plumbing and Drainage, Part 3: Stormwater
AS/NZS 3798	Guidelines on Earthworks for Commercial and Residential Developments
NCC 2019	National Construction Code of Australia 2019

Author/Document	Standard/Description
DCP 2012	The Hills Shire Council Development Control Plan 2012 The Hills Shire Design Guidelines Subdivision/Developments
AUSTROADS	Guide to Road Design
SEARs	Secretary's Environmental Assessment Requirements for build to rent housing
Development Application Assessment	Development Assessment Pre-lodgement meeting notes by The Hills shire council (56/2024/PRE), dated 06/03/2024

## 2.3 Other Consultants Inputs

The concept stormwater design is based on other consultants' inputs, including:

- Architectural progress plans by Architectus, dated 25/03/25
- Survey drawing provided by LTS Surveyors, dated 21/11/24
- Building Services Drawings provided by Collective Engineering, dated 15/10/24
- Flood Engineering input provided by SMEC, dated 25/02/25

## 2.4 Design Rainfall Intensities

Local rainfall data has been obtained from the Bureau of Meteorology, revised in accordance with the Australian rainfall and Runoff (2019) and is summarised in Figure 3.



Duration	Annual Exceedance Probability (AEP)						
	63.2%	50%#	20%*	10%	5%	2%	1%
1 min	125	141	193	229	265	314	352
2 min	102	113	151	177	204	240	270
3 min	94.6	106	141	166	192	226	254
4 min	89.3	100	135	160	184	218	244
5 min	84.7	95.3	129	153	177	210	235
10 min	67.4	76.4	105	125	145	172	193
15 min	56.0	63.6	87.7	104	121	143	161
20 min	48.2	54.6	75.2	89.4	104	123	137
25 min	42.4	48.0	65.9	78.3	90.6	107	120
30 min	38.0	42.9	58.7	69.7	80.7	95.4	107
45 min	29.3	33.0	44.8	53.0	61.3	72.4	81.2
1 hour	24.2	27.2	36.6	43.3	50.0	59.2	66.4
1.5 hour	18.5	20.6	27.5	32.5	37.5	44.5	50.0
2 hour	15.2	16.9	22.6	26.6	30.7	36.5	41.2
3 hour	11.6	12.9	17.2	20.3	23.5	28.0	31.7
4.5 hour	8.98	9.98	13.3	15.8	18.3	22.0	25.0
6 hour	7.51	8.37	11.2	13.4	15.6	18.8	21.3
9 hour	5.88	6.58	8.95	10.7	12.6	15.2	17.4
12 hour	4.96	5.57	7.67	9.25	10.9	13.2	15.1
18 hour	3.89	4.41	6.19	7.54	9.00	10.9	12.5
24 hour	3.27	3.73	5.30	6.51	7.82	9.47	10.8
30 hour	2.84	3.25	4.68	5.78	6.98	8.44	9.61
36 hour	2.53	2.90	4.21	5.23	6.33	7.64	8.68
48 hour	2.09	2.41	3.53	4.40	5.35	6.44	7.29
72 hour	1.56	1.81	2.67	3.35	4.09	4.88	5.49
96 hour	1.25	1.45	2.14	2.69	3.27	3.89	4.36
120 hour	1.05	1.21	1.78	2.22	2.70	3.20	3.57
144 hour	0.899	1.04	1.52	1.89	2.28	2.70	3.01
168 hour	0.790	0.908	1.32	1.63	1.96	2.32	2.58

Figure 3: Frequency Duration Design Rainfall Intensities mm/h from AR&R (2019)



Duration (min)	Average Storm Recurrence Interval						
	1 Year (mm/hr)	2 Year (mm/hr)	5 Year (mm/hr)	10 Year (mm/hr)	20 Year (mm/hr)	50 Year (mm/hr)	100 Year (mm/hr)
5	79.76	102.36	130.81	147.22	169.01	197.45	219.06
6	74.73	95.90	122.52	137.88	158.27	184.88	205.10
7							
8							
9							
10	61.12	78.40	100.10	112.59	129.21	150.88	167.33
11							
12	56.49	72.46	92.49	104.02	119.35	139.35	154.53
13							
14							
15	51.06	65.49	83.55	93.95	107.78	125.81	139.50
16							
17							
18	46.83	60.05	76.59	86.11	98.11	115.29	127.82
20	44.48	57.03	72.73	81.76	93.77	109.44	121.33
24	40.58	52.03	66.33	74.55	85.50	99.76	110.59
30	36.13	46.32	59.02	66.32	76.04	88.71	98.32
35							
40							
45	28.96	37.11	47.25	53.07	60.82	70.93	78.59
50							
55							
60	24.59	31.50	40.08	45.00	51.57	60.12	66.60
75							
90	19.33	24.80	31.66	35.61	40.86	47.71	52.91

Figure 4: Rainfall Intensity for the Hawkesbury Catchment (Source: The Hills Shire Design Guidelines)



Duration (hr)	Average Storm Recurrence Interval						
	1 Year (mm/hr)	2 Year (mm/hr)	5 Year (mm/hr)	10 Year (mm/hr)	20 Year (mm/hr)	50 Year (mm/hr)	100 Year (mm/hr)
2	16.25	20.86	26.69	30.05	34.52	40.35	44.78
3	12.68	16.29	20.92	23.60	27.14	31.78	35.31
4							
4.5	9.88	12.72	16.38	18.51	21.32	25.00	27.81
5							
6	8.28	10.67	13.77	15.58	17.97	21.10	23.48
8							
9	6.46	8.33	10.79	12.23	14.13	16.61	18.51
10							
12	5.42	7.00	9.08	10.31	11.92	14.03	15.65
14							
15							
16							
18	4.13	5.36	7.05	8.06	9.37	11.10	12.43
20							
22							
24	3.40	4.43	5.88	6.75	7.88	9.38	10.54
36	2.91	3.80	5.09	5.87	6.87	8.21	9.25
48	2.56	3.35	4.51	5.22	6.13	7.35	8.29
60	2.08	2.73	3.71	4.32	5.09	6.13	6.94
72	1.51	2.00	2.76	3.24	3.84	4.66	5.30

Figure 5: Continued - Rainfall Intensity for the Hawkesbury Catchment (Source: The Hills Shire Design Guidelines)

## 2.5 Design Criteria and Requirements

Table 2-2 presented below has summarised the design criteria for the hydrological and hydraulic analysis.

Table 2-2: Hydrological & Hydraulic Design Criteria

Parameter	Criteria Adopted	Reference
Hydrological Analysis	<ul style="list-style-type: none"> <li>Horton ILSAX hydrological model in DRAINS</li> </ul>	RBG Recommendation
Rainfall Intensities	<ul style="list-style-type: none"> <li>Design rainfall intensities are based on the current rainfall intensity and frequency data, presented in Figure 3, extracted from the 2016 IFDs of Bureau of Meteorology (BOM).</li> </ul>	BOM 2016



Parameter	Criteria Adopted	Reference																										
Design Storm Events	<ul style="list-style-type: none"> <li>Proposed stormwater drainage systems:                             <ul style="list-style-type: none"> <li>No surcharged during minor events up to the 10 years ARI storm event and up to 20 years ARI storm event for sag pits</li> </ul> </li> <li>OSDs and overland flow/flooding:                             <ul style="list-style-type: none"> <li>designed for major storms up to 1% AEP.</li> </ul> </li> </ul>	<p>The Hills Shire Council Recommendation (56/2024/PRE)</p> <p>The Hills Shire Development Guidelines (Section 4.8)</p>																										
Run-off Coefficients	<ul style="list-style-type: none"> <li>To be calculated using the AS3500.3 Standard</li> <li>Refer to The Hills Shire Design Guidelines Section 4.11 for Fraction Impervious Values and 'C' Values</li> </ul>	AS3500.3 Plumbing and Drainage 2021																										
Mannings 'n' Values	<p>Recommended Manning's 'n' Values</p> <table border="1"> <thead> <tr> <th>Surface Type</th> <th>Roughness Coefficient (n)</th> </tr> </thead> <tbody> <tr> <td>Concrete</td> <td>0.013</td> </tr> <tr> <td>Asphaltic concrete</td> <td>0.013</td> </tr> <tr> <td>Flush seal</td> <td>0.014</td> </tr> <tr> <td>Rough Texture surfaces - eg. Pavers</td> <td>0.018</td> </tr> <tr> <td>Gravel</td> <td>0.02</td> </tr> <tr> <td>Bare Clay - Loam earth</td> <td>0.022</td> </tr> <tr> <td>Lawns</td> <td>0.05</td> </tr> <tr> <td>Short grass</td> <td>0.06</td> </tr> <tr> <td>Long grass</td> <td>0.1</td> </tr> <tr> <td>Natural channel with earth bed</td> <td>0.04</td> </tr> <tr> <td>Natural channel with rock bed</td> <td>0.045</td> </tr> <tr> <td>Natural channel with coarse gravel bed</td> <td>0.05</td> </tr> </tbody> </table>	Surface Type	Roughness Coefficient (n)	Concrete	0.013	Asphaltic concrete	0.013	Flush seal	0.014	Rough Texture surfaces - eg. Pavers	0.018	Gravel	0.02	Bare Clay - Loam earth	0.022	Lawns	0.05	Short grass	0.06	Long grass	0.1	Natural channel with earth bed	0.04	Natural channel with rock bed	0.045	Natural channel with coarse gravel bed	0.05	The Hills Shire Development Guidelines (Section 4.20)
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Time of Concentration ( $T_c$ )	<ul style="list-style-type: none"> <li><math>T_c</math> be calculated using the Kinematic Wave Equation</li> <li><math>T_c</math> shall not be less than 5 minutes or greater than 20 minutes within urban catchment</li> </ul>	AS3500.3 Plumbing and Drainage 2021 & RBG Recommendation																										
Hydraulic Grade Line Analysis	<ul style="list-style-type: none"> <li>The Colebrook-White formula will be used with a roughness coefficient of 0.15 for all reinforced concrete pipes</li> </ul>	AS3500.3 Plumbing and Drainage 2021																										
Pit Loss Coefficient	<ul style="list-style-type: none"> <li>QUDM Charts Procedure</li> </ul>	QUDM 2017																										
Design Pipe Flow Velocities	<ul style="list-style-type: none"> <li>Minimum velocity:                             <ul style="list-style-type: none"> <li>Absolute minimum 0.7m/s</li> <li>Preferable minimum 1.2m/s for self-cleaning</li> </ul> </li> <li>Maximum velocity:                             <ul style="list-style-type: none"> <li>Absolute maximum 6.0 m/s</li> <li>Preferable maximum 4.7m/s to prevent any pipe scouring</li> </ul> </li> </ul>	RBG Recommendation																										
Minimum Pipe Sizes	<ul style="list-style-type: none"> <li>In-ground for internal site – 150mm dia.</li> <li>External area – Matching existing public drainage pipe sizes</li> </ul>	RBG Recommendation																										
Pipe Cover	<ul style="list-style-type: none"> <li>Pedestrian Area (not subject to vehicle loading) – minimum 300mm for RCP or uPVC pipes.</li> </ul>	RBG Recommendation																										



Parameter	Criteria Adopted	Reference		
	<ul style="list-style-type: none"> <li>Pedestrian Area (subject to vehicle loading) – minimum 450mm for RCP or uPVC pipes.</li> <li>Trafficable Area (sealed road) – minimum 600mm for RCP or uPVC pipes.</li> </ul>			
Pit Freeboard	<ul style="list-style-type: none"> <li>The water surface level for inlet pits shall be 0.15m below the invert of the gutter or 0.15m below the underside of the lid for junction pits.</li> </ul>	RBG Recommendation		
Theoretical Inflow Capacity	Theoretical Inflow Capacity		The Hills Shire Design Guidelines (Table 4.10)	
	<b>Condition</b>	<b>Pit Type</b>		<b>Theoretical Capacity Allowed</b>
	Continuous Grade	Kerb Inlet Pit		90%
	Sag	Kerb Sag Pit		80%
	Surface Inlet Pit Cover	Surface Inlet Pit		50%
	Surface Inlet Pit Cover with legs	Surface Inlet Pit	80%	
Pit Size	Minimum Internal Dimensions for Stormwater Pits		The Hills Shire Design Guidelines (Section 4.17)	
	Depth to Invert of Outlet (mm)	Minimum Internal Dimensions (mm)		
		Rectangular		
		Width		Length
	≤800	600		600
>800 ≤1500	600	900		
> 1500	900	900		
K- Values	Pipe Material	Recommended K Value (mm)	The Hills Shire Design Guidelines (Section 4.18)	
	UPVC	0.03		
	VCP	0.04		
	RHS	0.046		
	FRC	0.06		
	RCP	0.3		
Pipe Grade	A minimum of 1% shall be provided for self cleansing purposes under low flow velocities.			
	Max grade for 300 diameter pipe is 20%			



Parameter	Criteria Adopted	Reference
	Max grade for 450 diameter pipe is 11%	
Step Irons	<ul style="list-style-type: none"> <li>Step irons are required for all pits deeper than 1200mm.</li> </ul>	RBG Recommendation
Overland Flow path Safe Factor	<ul style="list-style-type: none"> <li>Pedestrian Area - Maximum D x V of 0.4 m<sup>2</sup>/s</li> <li>Trafficable Area - Maximum D x V of 0.6 m<sup>2</sup>/s</li> </ul>	ARR 2019 & RBG Recommendation

## 3. Stormwater Management Plan

### 3.1 Design Philosophy

The stormwater design concept for the project is to provide elements that:

- Promote the planning and architectural visions and adhere to the functional requirements.
- Provide minimal disturbance to the region, maintaining catchments for stormwater drainage paths and reduced earthworks.
- Provide natural systems where possible.
- Propose assets that are seamless within the site, incorporate constructability aspects, are safe and minimise nuisance for the operational phase of the building.

Key principals in the civil stormwater design are to provide:

- Value for Money
- Fit for purpose
- Long term reliability
- Minimal maintenance requirements/costs
- Water sensitive urban design and sustainability

### 3.2 On-Site Detention

As per Council's Pre-lodgement meeting notes Section A, on-site stormwater detention (OSD) is required for the development. The OSD shall be designed in accordance with the UPRCT and Hawkesbury parameters. As per The Hills Shire Development Guidelines, Section 4.22, for Hawkesbury River catchment, the permissible Site Discharge (PSD) and the Site Storage Volume (SSV) requirements shall be derived from the table below:

Table 3.2.1: PSD and SSV requirements

Site Slope	PSD (L/s/ha)	SSV (m <sup>3</sup> /ha)
Greater than 15%	136	298
Between 10% and 15%	115	336
Between 6%-10%	104	362



<b>Between 3% and 6%</b>	92	396
<b>Between 0% and 3%</b>	87	412

The existing street frontage slope is approximate 2.5%, hence it is expected that the post-development site will be between 0%-3% fall.

The total area of the site is around 0.44ha.

The PSD and SSV for the site are computed as below:

$$\text{PSD} = 87 \text{ L/s/ha} \times 0.44\text{ha}$$

$$= 38.28 \text{ L/s}$$

$$\text{SSV} = 412 \text{ m}^3/\text{ha} \times 0.44\text{ha}$$

$$= 181.28 \text{ m}^3$$

The proposed underground OSD tank has a total volume of 190m<sup>3</sup> and is located underneath the new driveway ramp off White Hart Drive.

### 3.3 Proposed Drainage Design

Minor storm flows will be directed through the piped network. The major storm will surcharge into overland flow paths that will be directed to Tempus Street and White Hart Drive. This will utilise the natural fall and existing drainage paths. All roof water will be directed to a rainwater tank and will be documented by the hydraulic engineer. All surface water will be directed via pits and pipes and connect into the water quality chamber located within the OSD tank.

Based on the initial site survey and site observations, the proposed discharge point for this development will be the existing kerb inlet pit that will be demolished and replaced with a v-grate inlet pit downstream of White Hart Drive, where the new driveway is located.

The concept proposed drainage design is presented in Figure 6.

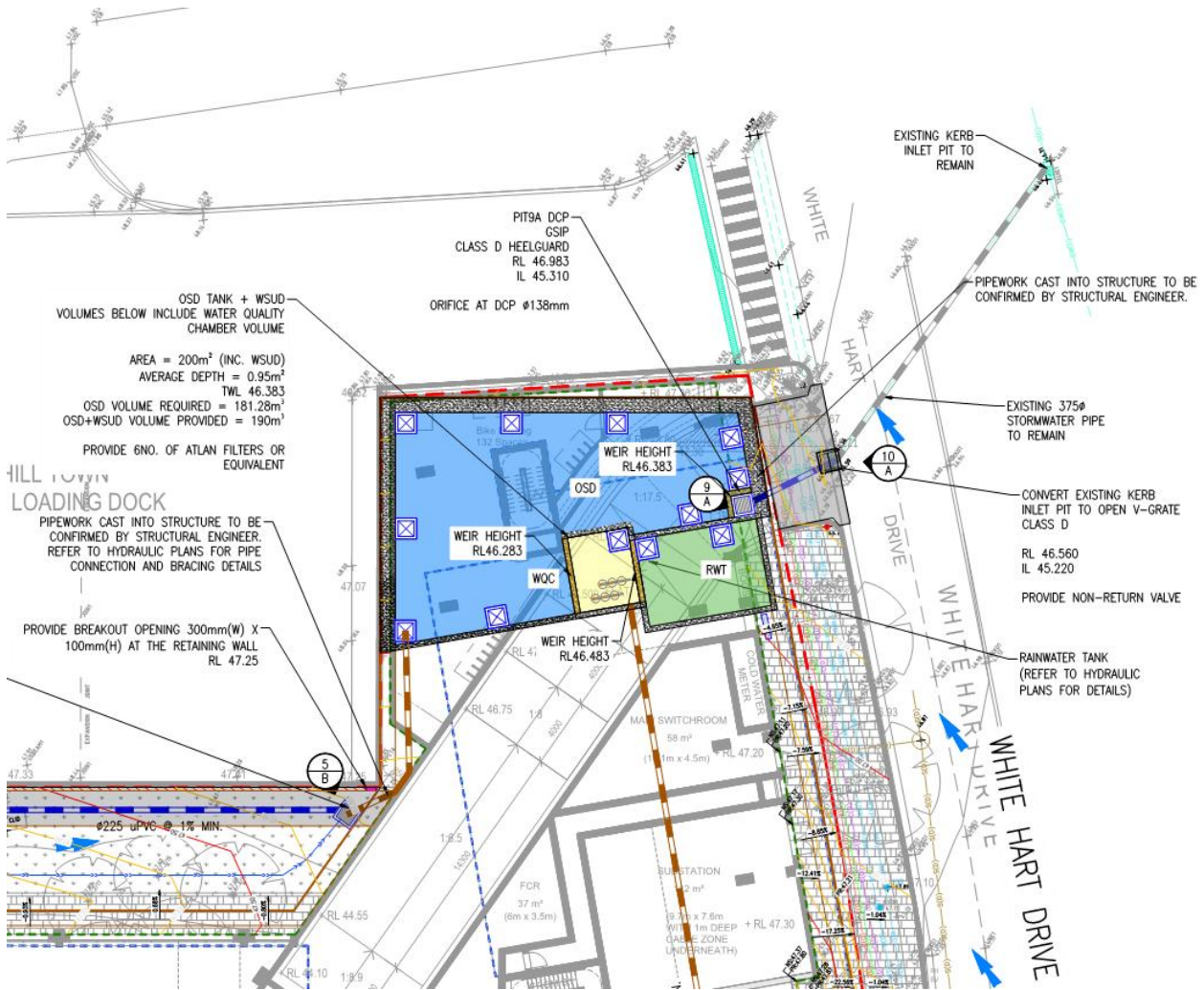


Figure 6: Proposed Concept Drainage Design Layout (Refer to Appendix A for more detail)

### 3.4 Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) aims to minimise the impacts of developments on the quantity and quality of stormwater runoff, to decrease flooding risk and reduce the effects of waterborne pollution on receiving waterways. This is an important consideration during an urban development’s planning and design process to satisfy the ecological and sustainable outcomes as required by the Hills Shire Council.

As per the pre-lodgement meeting notes by the Hills Shire Council, the Water Sensitive Urban elements must demonstrate a reduction in annual average pollution export loads from the development site in line with the following environmental targets:

Table 3-1: The Hills Shire Council Water Quality Targets (Source: The Hills Shire Pre-lodgement meeting notes)

Water Quality Parameters	Pollutant Reduction Targets
Total Suspended Solids (TSS)	85%
Total Phosphorus (TP)	65%
Total Nitrogen (TN)	45%



Water Quality Parameters	Pollutant Reduction Targets
Gross Pollutants	90%

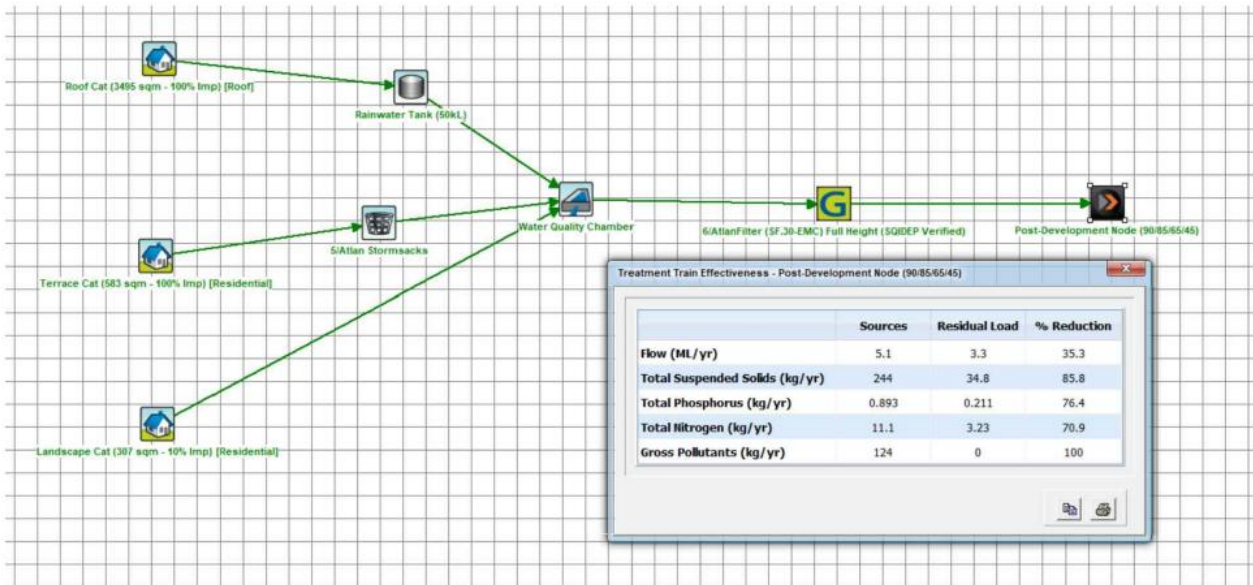


Figure 7: MUSIC model results

The MUSIC modelling results show that the site will require:

- a 16m<sup>2</sup> Water Quality Chamber with 6xSF.30-EMC Atlan filter cartridges (or equivalent)
- 5 nos of Atlan Stormsack pit filtration (or equivalent)
- A 50kL Rainwater tank

## 4. Erosion and Sediment Control

### 4.1 Design Intent and Criteria

To maintain the water quality during the construction stage, erosion and sediment control measures will be installed. The sediment and erosion design criteria are outlined as below:

- AS/NZS 3500.3:2021 Stormwater Drainage
- Managing Urban Stormwater Soil & Construction (2004) by Landcom (The Blue Book)
- Sydney Water Onsite Stormwater Detention Policy (2021)

### 4.2 Design

Potential erosion and sediment control measures for the development will include the following:

- Sediment fences around stockpiles and construction zones where soils are exposed.
- Settlement tanks/basins
- Catch drains/bunds to collect construction site runoff and convey flows to the settlement basin



- Sediment protection devices on existing and proposed inlet pits, i.e. sandbags.
- Truck Wash/Shaker Grid at all site access/egress points.

The Erosion and Sediment Control Plan and Details will be provided in the detailed design stage.

## 5. Conclusion & Recommendations

The proposed stormwater management plan and water-sensitive urban design comply with the guidelines established by The Hills Shire Council and the relevant stormwater provisions outlined in SEARs.

On-site detention is required for this development. The design effectively integrates with the existing drainage system to manage both minor and major storm events. The proposed drainage design includes a discharge point at a Council pit along White Hart Drive, aligned with the location of the new driveway.

The water quality assessment indicates that the post-development water quality objectives will be met through the proposed stormwater treatment train, which consists of a rainwater reuse tank, water quality chamber, water quality treatment devices, and an on-site detention (OSD) tank. The reduction in average annual stormwater discharge has been achieved through the rainwater reuse scheme, supporting irrigation and non-potable water demand.

A sediment basin is required to effectively capture sediment runoff during site preparation and development works. Sediment and erosion control measures must be installed and maintained throughout the construction period.

Further refinement of the proposed design and models during the detailed design stage may lead to adjustments in the locations of infrastructure and structures. However, the final design must achieve the performance outcomes specified in this report.





# Appendix A Civil Plans

Tempus St Rouse Hill CV

# TEMPUS STREET ROUSE HILL CIVIL ENGINEERING DRAWINGS PRELIMINARY CONCEPT DESIGN



LOCALITY PLAN  
SCALE: NTS

Sheet List Table	
Sheet Number	Sheet Title
24378-RBG-XX-XX-DR-CV-80000	COVER SHEET
24378-RBG-XX-XX-DR-CV-80001	GENERAL NOTES
24378-RBG-XX-XX-DR-CV-81001	EROSION AND SEDIMENT CONTROL PLAN
24378-RBG-XX-XX-DR-CV-81101	EROSION AND SEDIMENT CONTROL DETAILS
24378-RBG-XX-XX-DR-CV-83001	GENERAL ARRANGEMENT PLAN
24378-RBG-XX-XX-DR-CV-83101	CIVIL DETAILS SHEET 1
24378-RBG-XX-XX-DR-CV-87001	STORMWATER MANAGEMENT PLAN
24378-RBG-XX-XX-DR-CV-87101	STORMWATER DETAILS SHEET 1
24378-RBG-XX-XX-DR-CV-87401	STORMWATER PRE DEVELOPMENT CATCHMENT PLAN
24378-RBG-XX-XX-DR-CV-87410	STORMWATER POST DEVELOPMENT CATCHMENT PLAN

Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

Rev	Revision Description	By	App	Date

Scale 1:1 1:2 1:3 1:4 1:5 1:6 1:7 1:8

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REFER TO GENERAL NOTES UNLESS NOTED OTHERWISE**

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Client  
**FREECITY ROUSE HILL  
DEVELOPMENT**

Title  
**COVER SHEET**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
08.03.25

Scale of A1  
AS SHOWN

Drawn  
MARELLANO

Designer  
NLY

Design Checker  
AJANG

Approved  
AJANG

RBG Project No.  
**24378**

**NOT FOR CONSTRUCTION**

Drawing Number  
**24378-RBG-XX-XX-DR-CV-80000**

Revision  
**P02**

**GENERAL NOTES**

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL OTHER ENGINEERING DRAWINGS OF THE HILLS SHIRE COUNCIL REQUIREMENTS, THE HILLS SHIRE COUNCIL ENGINEERING CONSTRUCTION SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
- THESE ENGINEERING PLANS ARE TO BE READ IN CONJUNCTION WITH PROJECT SPECIFICATIONS AND OTHER CONSULTANTS DOCUMENTATION ON THE PROJECT.
- THESE ENGINEERING PLANS HAVE BEEN PREPARED FROM INFORMATION AVAILABLE AT THE TIME OF ISSUE. AS THIS INFORMATION MAY BE THE SUBJECT OF CHANGE PRIOR TO OR DURING CONSTRUCTION THE CONTRACTOR IS TO ADVISE THE ENGINEER WHERE DISCREPANCIES OCCUR.
- THESE DRAWINGS SHALL NOT BE USED FOR FINAL SETOUT OF THE PROJECT UNLESS SPECIFICALLY STATED.
- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE HILLS SHIRE COUNCIL STANDARDS, GUIDELINES AND TECHNICAL MANUALS.
- ALL WORKS SHALL HAVE SMOOTH JUNCTIONS WITH EXISTING.
- ALL SURFACES SHALL BE EVEN GRADED AT MINIMUM 1% TO PREVENT SURFACE WATER PONDING.
- WHERE CERTIFICATION IS REQUIRED, INSPECTIONS ARE TO BE PERFORMED BY A DULY APPOINTED INSPECTOR FROM 'ROBERT BIRD GROUP'. THESE INSPECTIONS ARE TO BE PERFORMED IN ACCORDANCE WITH THE INSPECTION & TEST SCHEDULES PREPARED BY 'ROBERT BIRD GROUP.' THE INSPECTOR IS TO BE GIVEN A MINIMUM NOTICE AS DETAILED IN THE SPECIFICATIONS.
- ALL MATERIALS SHALL COMPLY WITH THE PROJECT DRAWINGS AND IN THE PROJECT SPECIFICATIONS.
- THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING SERVICES WITH ALL RELEVANT SERVICE AUTHORITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. A COPY OF THE LOCATIONS OF THE EXISTING SERVICES IS TO BE PROVIDED TO THE MANAGING CONTRACTOR BY THE SERVICES ENGINEER. CONTRACTOR TO NOTIFY MANAGING CONTRACTOR OF ANY POTENTIAL CLASHES.
- THE CONTRACTOR SHALL VERIFY OFFSET PEGS AND BENCHMARK LEVELS, AND ADVISE THE MANAGING CONTRACTOR OF ANY DISCREPANCY PRIOR TO COMMENCING CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY THE EXISTING LEVELS WHERE NEW WORKS ARE TO JOIN TO EXISTING WORKS, AND ADVISE THE MANAGING CONTRACTOR OF ANY DISCREPANCY PRIOR TO COMMENCING CONSTRUCTION.
- THE CONTRACTOR SHALL CHECK OR OBTAIN ALL DIMENSIONS RELEVANT TO SETTING OUT OF SITE WORKS.
- DURING CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE STABILITY OF THE WORKS AND ENSURE NO PART IS OVERSTRESSED. THE DESIGN AND CERTIFICATION OF ALL FORMWORK AND BACKPROPPING IS TO BE THE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR IS TO OBTAIN DESIGN ADVICE FROM A SUITABLY QUALIFIED ENGINEER REGARDING DEMOLITION, RETROFITTING, TEMPORARY WORKS, HEALTH & SAFETY AND NUISANCE. THIS HAS BEEN REFERRED TO AS THE "CONTRACTORS ENGINEER" THROUGHOUT THE REMAINING NOTES.
- FORMWORK STRIPPING: UNLESS SPECIFIED OTHERWISE IN THE PROJECT DOCUMENTATION, MINIMUM STRIPPING TIMES FOR IN-SITU CONCRETE FORMWORK SHALL COMPLY WITH SECTION 5.4.3 (TABLE 5.4.1) OF AS3610 - 'FORMWORK FOR CONCRETE'.
- WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT AUSTRALIAN STANDARDS AND BCA STATUTORY REQUIREMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT SUFFICIENT TOLERANCES ARE PROVIDED AND INTEGRATED THROUGHOUT ALL ELEMENTS OF THE WORKS.
- ALL DIMENSIONS ARE IN METERS UNLESS STATED OTHERWISE.
- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (A.H.D.).
- DESIGN LEVELS AND SETOUT DETAILED HEREIN ARE DERIVED FROM THE LANDSCAPE AND ARCHITECTURAL PLANS. CONTRACTOR SHALL CONFIRM LEVELS ARE COORDINATED PRIOR TO COMMENCING WORKS. EXISTING LEVELS ARE DERIVED FROM SURVEY DATA. CONTRACTOR TO CONFIRM ALL ON SITE PRIOR TO COMMENCING WORKS.

**HEALTH & SAFETY**

- THE CONTRACTOR SHALL DEVELOP, IMPLEMENT AND ADMINISTER A WORKPLACE HEALTH AND SAFETY PROGRAM THAT WILL ENSURE THAT ALL CONSTRUCTION ACTIVITIES ARE PERFORMED TO THE RELEVANT WORKPLACE HEALTH AND SAFETY REQUIREMENTS AND ANY OTHER RELEVANT STATUTORY REQUIREMENTS.
- THE WORKPLACE HEALTH AND SAFETY PROGRAM MUST BE CO-ORDINATED WITH ADJOINING PROPERTY OWNERS AND ALL RELEVANT PARTIES AS NECESSARY TO ENSURE A SAFE BUILDING ENVIRONMENT AT ALL TIMES.

**NUISANCE**

- THE CONTRACTOR SHALL DEVELOP, IMPLEMENT, AND ADMINISTER A PLAN THAT WILL ENSURE THE MANAGEMENT OF NOISE AND VIBRATION RESULTING FROM CONSTRUCTION WORKS. REFER TO SPECIFICATIONS FOR REQUIRED LIMITS, OTHERWISE, CONTACT ENGINEER FOR GUIDANCE.
- THE CONTRACTOR WILL NEED TO ENSURE ALL ADJOINING PROPERTY REQUIREMENTS RELATING TO NOISE AND VIBRATION ARE MET.
- IF IT IS ESTABLISHED THAT THERE ARE NO SITE SPECIFIC REQUIREMENTS, THEN THE CONTRACTOR SHALL REFER TO MINIMUM REQUIREMENTS FOR ABATEMENT OF NOISE AND VIBRATION NOMINATED BY RELEVANT STATUTORY REQUIREMENTS
- THE CONTRACTOR WILL NEED TO PREPARE AND ADVISE ON MONITORING AND MANAGEMENT OF NOISE AND VIBRATION BASED ON PROFESSIONAL ADVICE FROM SUITABLY QUALIFIED PERSON OR PERSONS.

**SURVEY NOTES**

- THE SURVEY INFORMATION SHOWN ON ROBERT BIRD GROUP DRAWINGS HAS BEEN OVERLAID FROM INFORMATION PROVIDED IN THE SURVEY BY LITS, REF: 51666 00SDT DATED 30.09.24. ROBERT BIRD GROUP DO NOT GUARANTEE THAT THE SURVEY INFORMATION IS ACCURATE, AND ACCEPTS NO LIABILITY FOR INACCURACIES.

**SEDIMENT AND EROSION CONTROL NOTES**

- EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PROVIDED IN ACCORDANCE WITH SPECIFICATION AND EPA "MANAGING URBAN STORMWATER CONSTRUCTION ACTIVITIES" 1998. ALL WORKS SHALL BE COMPLETED PRIOR TO CONSTRUCTION COMMENCING.
- REFER TO ROBERT BIRD GROUP'S DRAWING SHEETS 24378-RBG-XX-XX-DR-CV-81001 AND 24378-RBG-XX-XX-DR-CV-81101 FOR EROSION AND SEDIMENT CONTROL NOTES AND DETAILS FOR FURTHER INFORMATION.

**EARTHWORKS NOTES**

- THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL, COMPACTION AND DISPOSAL OF ALL EXCAVATED MATERIAL.
- ALL EARTHWORKS AREAS ARE TO BE LEFT IN A FREE DRAINING STATE.
- PROOF ROLL SUBGRADE TO REVEAL SOFT SPOTS. SOFT SPOTS TO BE REMOVED AND BACKFILLED. ALL NATURAL SUBGRADE IS TO BE COMPACTED TO IN ACCORDANCE WITH AS1289 PRIOR TO PLACEMENT OF FILL MATERIAL.
- MATERIAL WON FROM THE SITE TO BE INSPECTED BY THE GEOTECHNICAL ENGINEER FOR APPROVAL PRIOR TO USE AS FILL. ALL FILL TO BE COMPACTED TO MIN. 98% STANDARD COMPACTION IN 200mm MAXIMUM THICK LAYERS IN ACCORDANCE WITH AS1289.
- TEST CERTIFICATES ON THE FILL MATERIAL SHALL BE SUPPLIED TO THE SUPERINTENDENT FOR APPROVAL PRIOR TO THE USE OF THE FILL MATERIAL.

**TEMPORARY WORKS**

- THE CONTRACTOR SHALL ALLOW FOR THE DESIGN, SUPPLY, INSTALLATION AND REMOVAL OF ALL TEMPORARY BACK PROPPING, SAFETY SCREENS, SCAFFOLDING AND OTHER REQUIREMENTS OF THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ENGAGE SUITABLY QUALIFIED ENGINEER REFERRED TO AS "CONTRACTORS ENGINEER". TO DESIGN INSPECT AND CERTIFY ALL TEMPORARY WORKS, AND DEMOLITION WORKS.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE OVERALL STABILITY OF THE STRUCTURES WHILST UNDER CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ADVICE FROM THE CONTRACTORS ENGINEER.

**CONCRETE NOTES**

- GENERAL**
- CONCRETE WORK SHALL BE IN ACCORDANCE WITH AS3600 AND WITH THE PROJECT SPECIFICATIONS.
  - CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN ON SUPERINTENDENT DRAWINGS OR SPECIFICALLY APPROVED BY SUPERINTENDENT.
  - ALL THICKNESSES SHOWN ARE MINIMUM STRUCTURAL REQUIREMENTS, NO REDUCTION IN THICKNESS DUE TO FALLS OR TOPPING IS PERMITTED.
  - UNLESS A GROOVE LINE ALLOWANCE HAS BEEN NOTED ON THE DRAWINGS, NO GROOVE LINES ARE PERMITTED, EXCEPT AT SLAB LINES. ALL GROOVE LINES ARE TO BE SUBMITTED TO 'ROBERT BIRD GROUP' FOR APPROVAL.
  - THE FACE OF ALL CONCRETE AGAINST WHICH NEW CONCRETE IS TO BE CAST IS TO BE THOROUGHLY MECHANICALLY SCABBLED, FULLY EXPOSING THE AGGREGATE MATRIX.

**CONCRETE**

- THE CHARACTERISTIC COMPRESSIVE STRENGTH (f'c) AT 28 DAYS OF IN PLACE CONCRETE SHALL BE AS NOTED IN THE SPECIFICATION OR OTHERWISE NOTED ON THE DRAWINGS
- MAXIMUM AGGREGATE SIZE.....20mm
- SLUMP.....80mm
- ALL CONCRETE SHALL BE VIBRATED.
- ALL CONCRETE SHALL BE CURED IN ACCORDANCE WITH THE SPECIFICATION
- ALL CONCRETE SHALL BE SAMPLED AND TESTED IN ACCORDANCE WITH AS1012 AND THE PROJECT SPECIFICATION.
- ALL FORM WORK SHALL COMPLY WITH AS3610
- REFER STRUCTURAL ENGINEER'S SPECIFICATIONS FOR CONCRETE REQUIREMENTS.

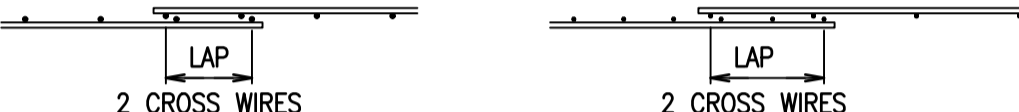
**REINFORCEMENT**

- REINFORCEMENT IS TO BE MANUFACTURED IN ACCORDANCE WITH AS4671 AND SHALL BE FIXED AS SHOWN ON DRAWINGS.
- MATERIAL IS INDICATED BY THE FOLLOWING SYMBOLS:-  
 Y DEFORMED BAR GRADE 400  
 N DEFORMED BAR GRADE 500 (NORMAL DUCTILITY)  
 R PLAIN ROUND BAR GRADE 250  
 W PLAIN WIRE GRADE 450  
 SL SQUARE FABRIC GRADE 500  
 RL RECTANGULAR FABRIC GRADE 500
- THE BAR SIZE IS INDICATED BY A NUMBER AFTER THE SYMBOL, WHICH INDICATES THE BAR DIAMETER IN MILLIMETRES.
- REINFORCEMENT SPACING NOMINATED ON DRAWINGS IS TO ASSIST SCHEDULER AND STEEL FIXER TO ASSESS TOTAL NUMBER OF BARS REQUIRED. WHERE BARS PLACED IN ACCORDANCE WITH SPACING NOMINATED FOUL WITH OTHER STRUCTURAL REQUIREMENTS, PREFERENCE IS TO BE GIVEN TO RELOCATING BARS BY LOCALLY ADJUSTING SPACING TO ENABLE ASSEMBLY OF REINFORCEMENT TO BE COMPLETED. ENGINEER IS TO BE CONTACTED IN THE EVENT THAT REINFORCEMENT IS NEEDED TO BE CUT ON SITE PRIOR TO CONTINUING.
- LAP LENGTHS TO REINFORCEMENT BARS TO BE AS NOTED ON THE RELEVANT DRAWINGS.
- WELDING OF REINFORCEMENT BARS IS NOT PERMITTED UNLESS APPROVED.

**CONCRETE NOTES CONTINUED  
REINFORCEMENT CONTINUED**

- COVER SHALL BE AS NOTED ON THE RELEVANT DRAWINGS.
- CONCRETE COVERS NOTED ARE MEASURED FROM THE FORM WORK OR GROUND FACE TO THE OUTERMOST REINFORCEMENT COMPONENT. i.e.. IN COLUMNS AND BEAMS TO THE OUTSIDE OF TIES OR LIGATURES.
- COVER TO BE MAINTAINED DURING POURING BY THE USE OF PLASTIC CHAIRS OR PLASTIC TIPPED METAL CHAIRS.
- WHERE NO REINFORCEMENT IS SHOWN ON THE DRAWING AT RIGHT ANGLES TO THE MAIN REINFORCEMENT DISTRIBUTION REINFORCEMENT IS TO BE PROVIDED.
- BENDING & STRAIGHTENING  
 COLD BENDING: BARS CANNOT BE COLD BENT WITHOUT PRIOR APPROVAL FROM THE PROJECT STRUCTURAL ENGINEER. CORRECT MINIMUM DIAMETER FORMERS ARE TO BE USED IN ACCORDANCE WITH AS3600.  
 HOT BENDING: HOT BENDING MAY ONLY BE CONDUCTED WITH THE APPROVAL OF THE PROJECT STRUCTURAL ENGINEER. HOT BENDING CAN ONLY BE PERFORMED BY A CERTIFIED WELDER. TEST CERTIFICATE OF AFFECTED AREA TO BE OBTAINED.  
 STRAIGHTENING: WHEN RE-STRAIGHTENING PARTIALLY EMBEDDED BARS, DO NOT BEND OVER FORMERS OF SMALLER DIAMETER THAN PERMITTED IN AS 3600. DO NOT SUBJECT REINFORCEMENT BARS TO IMPACT IN ORDER TO STRAIGHTEN.

**SLAB ON GROUND NOTES**

- SLAB ON GROUND TO BE POURED ON A LAYER OF POLYETHYLENE SHEETING 200µm THICK ON TOP OF 50mm OF BEDDING SAND. JOINTS TO BE TAPED
- FABRIC TO BE PLACED ON CHAIRS AT 800 x 800 CENTRES AND CHAIRS TO BE PLACED ON STEEL PANS.
- LAP FABRIC REINFORCEMENT THUS:  

- WHERE BEDDING SAND IS REQUIRED UNDER SLAB, THIS SHALL BE COMPACTED SUFFICIENTLY TO SUPPORT REINFORCEMENT PLUS 100kg/CHAIR WITHOUT VERTICAL DISPLACEMENT EXCEEDING 5mm.

**ROADS AND PAVEMENT NOTES**

**GENERAL**

- PAVEMENT SHALL BE BOXED OUT TO THE DEPTHS HAS SHOWN ON THE PAVEMENT DRAWINGS, AND SUBGRADE TESTING IS TO BE UNDERTAKEN. SUBGRADE TESTING RESULTS ARE TO BE FORWARDED TO THE ENGINEER (ROBERT BIRD GROUP) FOR DETERMINATION OF FINAL PAVEMENT DEPTH. PAVEMENT CONSTRUCTION IS TO HOLD UNTIL FINAL PAVEMENT DEPTH HAS BEEN DETERMINED BY THE ENGINEER, AND APPROVED BY THE RELEVANT AUTHORITY.
- THE CONTRACTOR IS TO TEST AND PROVIDE EVIDENCE THAT THE EXISTING SUBGRADE EXCEEDS CBR THE DESIGN CBR TESTING IS TO BE CARRIED OUT BY A NATA ACCREDITED LABORATORY PRIOR TO ANY PAVEMENT WORK COMMENCING.

**PREPARATION OF SELECT SUBGRADE LAYERED**

- THE SELECT SUBGRADE LAYER IS DEFINED AS THE UPPER 300MM OF THE FORMATION UPON WHICH THE ROAD PAVEMENT IS TO BE CONSTRUCTED. THE UPPER SURFACE OF THE SUBGRADE LAYER IS DEFINED AS THE DESIGN SUBGRADE LEVEL.
- THE SELECT SUBGRADE LAYER SHALL BE FREE FROM ALL POCKETS OF SOFT COMPRESSIBLE MATERIAL, FREE FROM STONE WITH A MAXIMUM DIMENSION LARGER THAN 50MM, AND HAVE A MINIMUM SOAKED CBR AS SPECIFIED ON DRAWINGS.
- ANY UNSUITABLE LAYER SHALL BE COMPACTED TO A FIELD DRY DENSITY OF NOT LESS THAN 100% AS DETERMINED IN ACCORDANCE WITH RMS TEST METHOD T111 - STANDARD COMPACTION (FOR A COHESIVE SOIL) OR A MINIMUM DENSITY INDEX OF 80% WHEN TESTED IN ACCORDANCE WITH AS.1289.5.6.1 (FOR A COHESIVE LESS SOIL)
- TESTS FOR COMPACTION OF SELECTED SUBGRADE LAYER SHALL BE CARRIED OUT BY THE CONTRACTOR AT LOCATION APPROVED BY THE SUPERINTENDENT AT A RATE AS SPECIFIED.

**PLACEMENT OF PAVEMENT MATERIALS**

- THE PAVEMENT SHALL BE CONSTRUCTED TO THE THICKNESS AS SHOWN ON THE DRAWINGS. PAVEMENT COURSES MORE/ GREATER THAN 150mm IN COMPACTED THICKNESS SHALL BE SPREAD AND COMPACTED IN TWO OR MORE LAYERS OF NOT LESS THAN 75mm IN COMPACTED THICKNESS.
- SPREADING SHALL BE UNDERTAKEN BY A METHOD THAT WILL ENSURE THAT SEGREGATION DOES NOT OCCUR.
- MIXING OR BLENDING OF PAVEMENT MATERIALS WILL NOT BE ALLOWED ON THE ROAD FORMATION. PAVEMENT MATERIAL SHALL NOT BE SPREAD ON A WATERLOGGED SUBGRADE NOR BROKEN ON THE SUBGRADE. WHEN SPREADING AND/OR MIXING PAVEMENT MATERIAL, CARE SHALL BE TAKEN TO ENSURE THAT THE SUBGRADE SHALL NOT BE DISTURBED, BECOME RUTTED OR MIXED WITH THE PAVEMENT MATERIALS.
- IF, AT ANY TIME ANY PART OF SUBGRADE AND PAVEMENT MATERIALS BECOME MIXED, THE CONTRACTOR SHALL, AT ITS COST, REMOVE THE MIXTURE AND RESHAPE THE SUBGRADE WITH APPROVED MATERIAL COMPACTED UNIFORMLY WITH THE SURROUNDING SURFACE.
- WHEN EACH LAYER OF PAVEMENT MATERIAL HAS BEEN SPREAD, WATERING SHALL BE CARRIED OUT AS NECESSARY TO MAINTAIN THE MATERIAL AT A MOISTURE CONTENT DURING ROLLING AS CLOSE TO BUT NOT EXCEEDING ITS OPTIMUM MOISTURE CONTENT.
- WHERE THE MOISTURE CONTENT OF PAVEMENT MATERIAL IS INSUFFICIENT, WATER SHALL BE ADDED BY APPROVED WATERING EQUIPMENT AND SHALL BE MIXED UNIFORMLY WITH THE MATERIAL BY AN APPROVED MECHANICAL DEVICE.
- WHERE THERE IS EXCESS MOISTURE IN THE PAVEMENT MATERIAL, IT SHALL BE DRIED TO THE REQUIRED MOISTURE CONTENT BY LOOSENING AND AERATING.

**COMPACTION OF PAVEMENT MATERIALS**

- AS EACH LAYER IS BROUGHT TO IT OPTIMUM MOISTURE CONTENT, IT SHALL BE IMMEDIATELY COMPACTED BY ROLLING.
- COMPACTION SHALL BE CARRIED OUT USING APPROVED EQUIPMENT OF ADEQUATE CAPACITY TO ACHIEVE THE DEGREE OF COMPACTION SPECIFIED.
- ANY DEFICIENCIES MADE BY THE SINKING OF THE COMPACTOR WHEN COMPACTING MATERIAL SHALL AT ONCE BE MADE GOOD BY SCARIFYING THE SURFACE AND ADDING ADDITIONAL MATERIAL AT THE CONTRACTOR'S EXPENSE.
- ON THE SECTION OF PAVEMENT HAVING A ONE-WAY CROSS FALL, COMPACTION SHALL COMMENCE AT THE LOWER EDGE OF THE BASE AND PROGRESS UPWARDS TO THE HIGHER EDGE.
- ON CROWNED SECTION OF PAVEMENT, COMPACTION SHALL COMMENCE AT THE OUTER EDGES OF THE BASE AND PROGRESS INWARDS TOWARDS THE CROWN.
- EACH PASS OF THE COMPACTION PLANT SHALL BE PARALLEL TO THE CENTRE LINE OF THE PAVEMENT. THE METHOD OF COMPACTION SHALL ALLOW FOR PROGRESSIVE AND UNIFORM OVERLAP BETWEEN PASSES.
- IF NON-VIBRATING SMOOTH-WHEELED ROLLERS ARE USED AS COMPACTION PLANT. THEY SHALL BE OPERATED WITH THE DRIVING ROLLERS FACING THE UNCOMPACTED MATERIAL DURING THE INITIAL PASS.
- IF VIBRATING ROLLERS ARE USED AS COMPACTION PLANT, THE VIBRATOR SHALL NOT BE ACTIVATED UNTIL A MINIMUM OF TWO "STATIC" PASSES HAVE BEEN MADE. IN ADDITION, THE VIBRATORS SHALL NOT BE ACTIVATED DURING ANY CHANGE IN DIRECTION OF THE ROLLER.
- COMPACTION PLANT AND OTHER ANCILLARY PLANT SHALL NOT BE ALLOWED TO REMAIN STANDING ON THE COMPACTED PAVEMENT WITHOUT THE APPROVAL OF THE SUPERINTENDENT.
- TRAFFIC SHALL NOT BE ALLOWED ON ANY COMPACTED LAYER WITHOUT APPROVAL OF THE SUPERINTENDENT. EACH LAYER IN A MULTI-LAYERED COURSE SHALL BE FULLY COMPACTED IN SEQUENCE. THE SURFACE OF THE COMPACTED LAYER SHALL BE KEPT SUFFICIENTLY MOIST TO MAINTAIN THE REQUIRED FIELD MOISTURE CONTENT THROUGHOUT THE FULL DEPTH OF THE LAYER PRIOR TO PLACEMENT OF SUBSEQUENT LAYERS OR TO THE APPLICATION OF THE SURFACE PRIMER, AS APPLICABLE.
- COMPACTION SHALL CONTINUE UNTIL THE MATERIAL DOES NOT CREEP OR WAVE AHEAD OF THE ROLLER, UNTIL THE SURFACE PRESENTS A SMOOTH UNIFORM APPEARANCE AND UNTIL THE MATERIAL HAS BEEN LEVELED AND COMPACTED TO THE REQUIREMENTS AND TOLERANCES SPECIFIED ELSEWHERE HEREIN.
- TESTS FOR COMPACTION OF ROAD PAVEMENT MATERIALS SHALL BE CARRIED OUT BY THE CONTRACTOR AT LOCATIONS APPROVED BY THE SUPERINTENDENT AT A RATE AS SPECIFIED.

**STORMWATER DRAINAGE NOTES**

- THESE NOTES SHALL BE READ IN CONJUNCTION WITH:  
 A. GENERAL NOTES AND DISCLAIMERS FOR THE PROJECT  
 B. ROADWORKS NOTES FOR THE PROJECT  
 C. SPECIFICATIONS FOR THE PROJECT.
- STORMWATER PIPES 375NB AND GREATER SHALL BE RCP R/RJ, U.N.O. CLASSES AS NOTED ON THE DRAWINGS. FRC PERMITTED.
- STORMWATER DRAINAGE PIPES LESS THAN OR EQUAL TO 900mm DIAMETER SHALL BE SPIGOT AND SOCKET AND RUBBER RING JOINTED.
- OUTLET LOCATIONS ARE TO BE CONFIRMED ON SITE BY THE MANAGING CONTRACTOR PRIOR TO THE COMMENCEMENT OF STORMWATER DRAINAGE CONSTRUCTION.
- ALL PROPOSED STORMWATER WORKS DESIGNED IN ACCORDANCE WITH  
 A. AUSTRALIAN RAINFALL AND RUNOFF (1987 EDITION) VOLUMES 1 AND 2.  
 B. AS 3500 NATIONAL PLUMBING CODE PART 3 - STORMWATER DRAINAGE.  
 C. THE HILLS SHIRE COUNCIL DCP.

**ROAD SIGNAGE & LINE MARKING NOTES**

- ALL SIGNS AND LINEMARKING SHALL BE TO RMS STANDARDS, SPECIFICATIONS AND AS1742.

**SERVICE NOTES**

- ALL EXISTING SERVICES LIDS THAT ARE TO REMAIN ARE TO BE RECONSTRUCTED TO MATCH PROPOSED LEVELS.

**HYDRAULICS NOTES**

- REFER TO HYDRAULIC ENGINEERS DRAWINGS FOR SEWER, WATER AND INTERNAL SITE STORMWATER DRAINAGE WORKS.

Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25


Rev	Revision Description	By	App	Date

Scale	11	12	13	14	15	16	17	18

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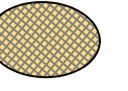











Client  
**FREECITY ROUSE HILL DEVELOPMENT**

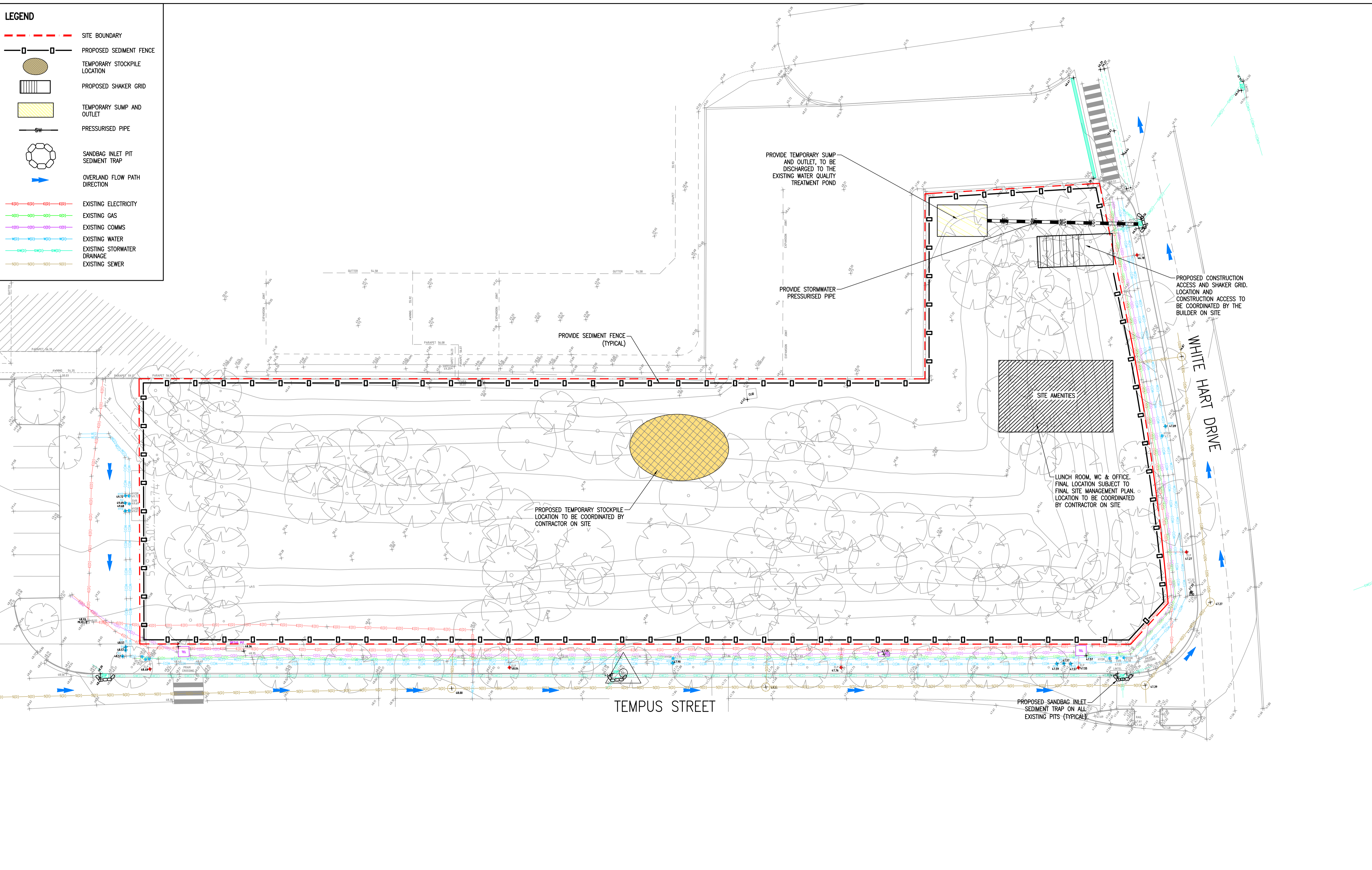
Title  
**GENERAL NOTES**

Project  
**TEMPUS STREET ROUSE HILL**

Date 08.03.25	Drawn MARELLANO	Design Checker A/ANG
Scale of A1 NTS	Designer NLY	Approved A/ANG
RBG Project No. <b>24378</b>		
<b>NOT FOR CONSTRUCTION</b>		
Drawing Number <b>24378-RBG-XX-XX-DR-CV-80001</b>	Revision <b>P02</b>	

**LEGEND**

-  SITE BOUNDARY
-  PROPOSED SEDIMENT FENCE
-  TEMPORARY STOCKPILE LOCATION
-  PROPOSED SHAKER GRID
-  TEMPORARY SUMP AND OUTLET
-  PRESSURISED PIPE
-  SANDBAG INLET PIT SEDIMENT TRAP
-  OVERLAND FLOW PATH DIRECTION
-  EXISTING ELECTRICITY
-  EXISTING GAS
-  EXISTING COMMS
-  EXISTING WATER
-  EXISTING STORWATER DRAINAGE
-  EXISTING SEWER



Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24

Rev	Revision Description	By	App	Date

Scale 1:200

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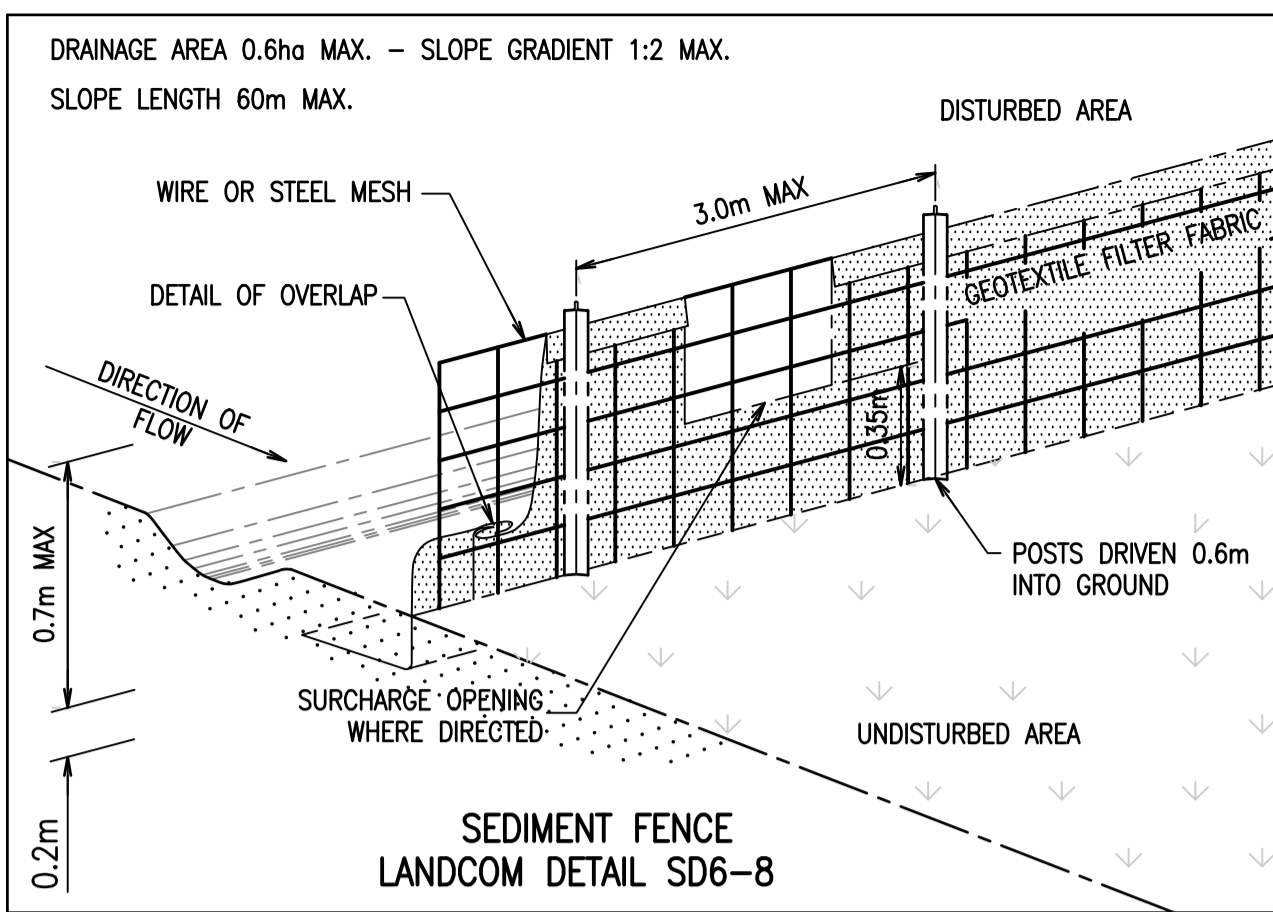
Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**EROSION AND SEDIMENT CONTROL PLAN**

Project  
**TEMPUS STREET ROUSE HILL**

Date 20.12.24	Drawn MARELLANO	Design Checker AJANG
Scale of A1 1:200	Designer NLY	Approved AJANG
Project <b>24378-RBG-XX-XX-DR-CV-81001</b>		RBG Project No. <b>24378</b>
Drawing Number		Revision <b>P01</b>

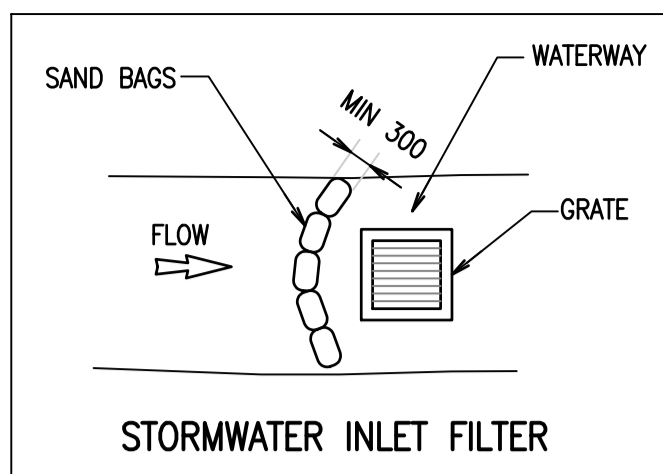
**NOT FOR CONSTRUCTION**



**INSTALLATION**

1. EXCAVATE A TRENCH 200mm DEEP.
2. DRIVE POSTS 500-700mm INTO GROUND AT A MAXIMUM SPACING OF 3.0m CENTRES.
3. PLACE AND FIX SUPPORT MESH (F52) TO POST.
4. LAY BIDIM GEOTEXTILE (SF 2000) AGAINST THE SUPPORT MESH AND FIX BY TIE WIRE, STAPLES OR HOG RINGS.
5. PLACE BIDIM IN TRENCH AND BACKFILL WITH SOIL.

**NOTE:**  
POSITION OF SEDIMENT FENCE AS DIRECTED BY MANAGING CONTRACTOR. FENCE TO REMAIN IN PLACE UNTIL EXCAVATION IS BELOW FOOTPATH LEVEL. PROVIDE 2m x 2m TURFED AREA ON DOWNSLOPE SIDE OF FENCE AT SURCHARGE OPENINGS.

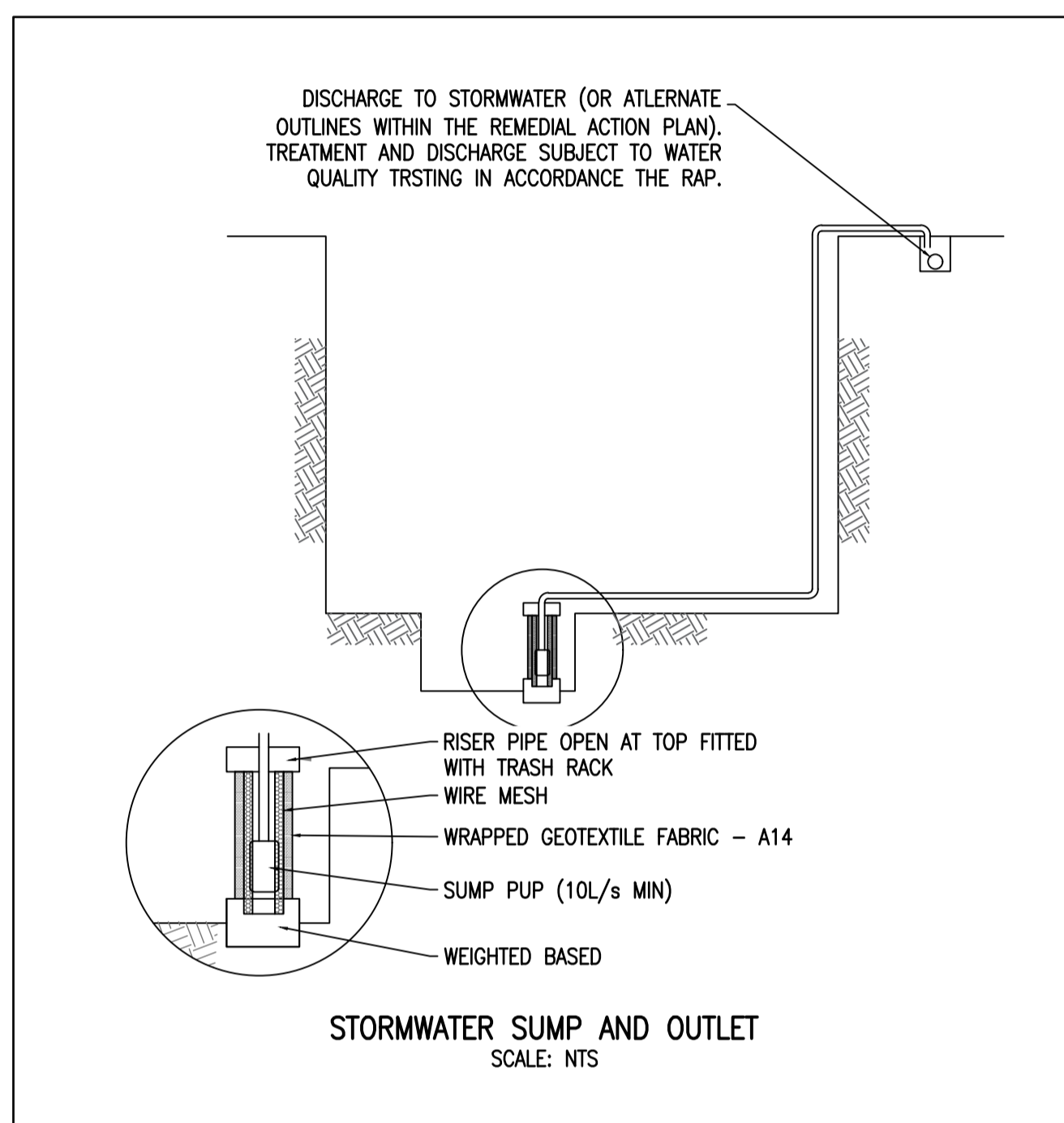
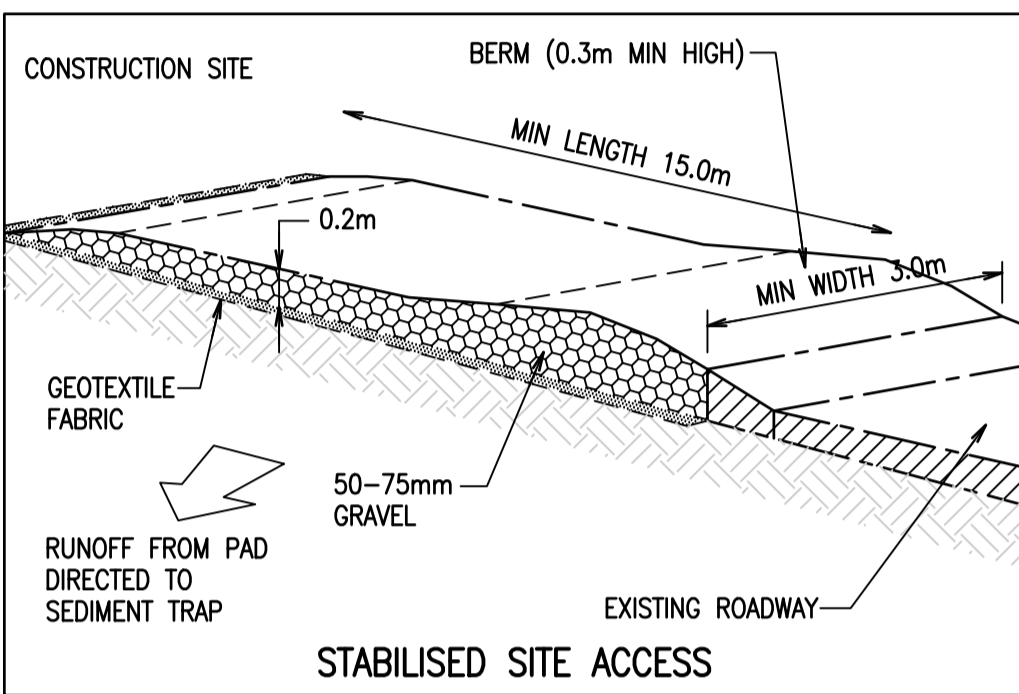


**GENERAL NOTES:**

- A1. THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
- A2. CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE HILLS SHIRE COUNCIL REQUIREMENTS AND TO LANDCOM - MANAGING URBAN STORMWATER: SOIL AND CONSTRUCTION, 4th EDITION, MAR 2004.
- A3. REFER GEOTECHNICAL REPORT FOR EARTHWORKS AND PARAMETERS.
- A4. ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE VIA THE APPROVED CONSTRUCTION ENTRY/EXIT ROUTE.
- A5. ALL VEHICLES LEAVING THE SITE SHALL BE CLEANED AND INSPECTED BEFORE LEAVING.
- A6. MAINTAIN ALL STORMWATER PIPES AND PITS CLEAR OF DEBRIS AND SEDIMENT. INSPECT STORMWATER SYSTEM AND CLEAN OUT AFTER EACH STORM EVENT.
- A7. CLEAN OUT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH STORM EVENT.
- A8. ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS HAVE BEEN COMPLETED.
- A9. KERB INLET SOCKS TO BE PROVIDED ON DOWNSLOPE PITS.

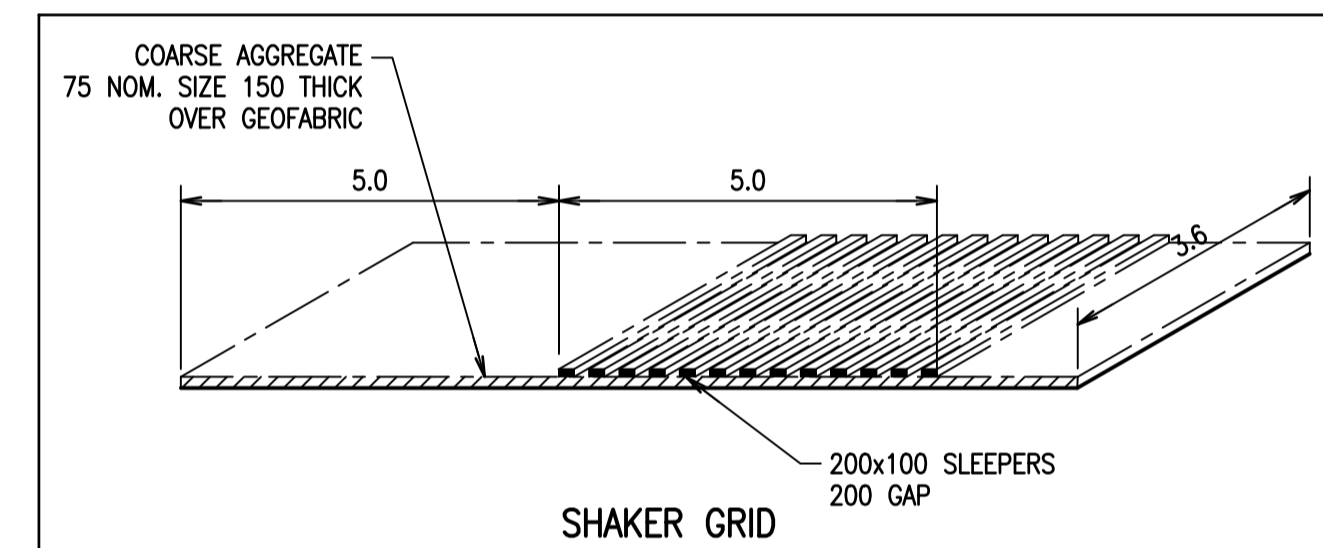
**SEDIMENT CONTROL NOTES:**

- SC1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE CONTRACTOR TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
- SC2. SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
- SC3. SEDIMENT FENCES SHOULD LAST FOR UP TO SIX MONTHS BUT REQUIRE REGULAR MAINTENANCE AND WEEKLY CHECKS. IT MUST REMAIN VERTICAL AND KEYED INTO THE SOIL. DAMAGED FENCES MUST BE REPAIRED PROMPTLY.
- SC4. SEDIMENT FENCES NEED TO BE TRENCHED IN AT LEAST 150mm AND BURIED SO THE WATER FLOWS THROUGH AND NOT UNDERNEATH.
- SC5. SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
- SC6. STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
- SC7. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE.
- SC8. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
- SC9. ACCESS TO SITES SHOULD BE STABILIZED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.
- SC10. TEMPORARY STORMWATER SUMPS (LOCATIONS TO SUIT SITE PHASING).
  - DISCHARGE PUMP NOM. FLOW RATE = 10 l/s
  - RUNOFF COEFFICIENT = 1.00
  - SIZING OF SUMPS BASED ON STORAGE REQUIRED FOR A 3 MONTH ARI STORM EVENT UP TO 12 HOURS IN DURATION INTENSITIES FROM AUSTRALIAN BUREAU OF METEOROLOGY IFD DATA SYSTEM
- SC11. PRIOR TO DISCHARGING COLLECTED WATER TO INCLUDING THOSE IDENTIFIED IN THE RAP, IT IS TO BE TESTED TO ENSURE COMPLIANCE WITH WATER QUALITY REQUIREMENTS. SHOULD TESTING GIVE RESULTS THAT DO NOT COMPLY WITH THE ABOVE, TREATMENT MEASURES (SUCH AS THE APPLICATION OF A pH NEUTRAL FLOCCULENT) AND SUBSEQUENT RETESTING ARE REQUIRED. DOCUMENTARY RESULTS OF WATER QUALITY TESTING PRIOR TO DEWATERING ARE TO BE KEPT. A FILE IS TO BE KEPT ONSITE OF ALL WATER TESTING/DEWATERING EVENTS. FOLLOWING DEWATERING THE SUMP IS TO BE CLEARED OF SEDIMENT AND THE GEOTEXTILE ON THE PUMP WELL IS TO BE REPLACED.
- SC12. CONTRACTOR MUST ENSURE THAT ALL VEHICLES LEAVING SITE ARE HOSED DOWN (OR SIMILAR) TO REMOVE SEDIMENT.



**SITE MAINTENANCE NOTES:**

- SM1. THE CONTRACTOR WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
  - A) ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT AND NECESSARY REPAIRS.
  - B) REMOVED SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
  - C) REMOVED TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURES HAS BEEN EXCEEDED.
  - D) ENSURE REHABILITATION LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
  - E) CONSTRUCT ADDITIONAL EROSION AND OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECT TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
  - F) MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
  - G) FILL IN AND COMPACT ALL TRENCHES IMMEDIATELY AFTER SERVICES HAVE BEEN LAID.
- SM2. THE CONTRACTOR WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
  - A) THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
  - B) THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
  - C) THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
  - D) THE NEED FOR DUST PREVENTION STRATEGIES
 THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.



**WASTE CONTROL NOTES:**

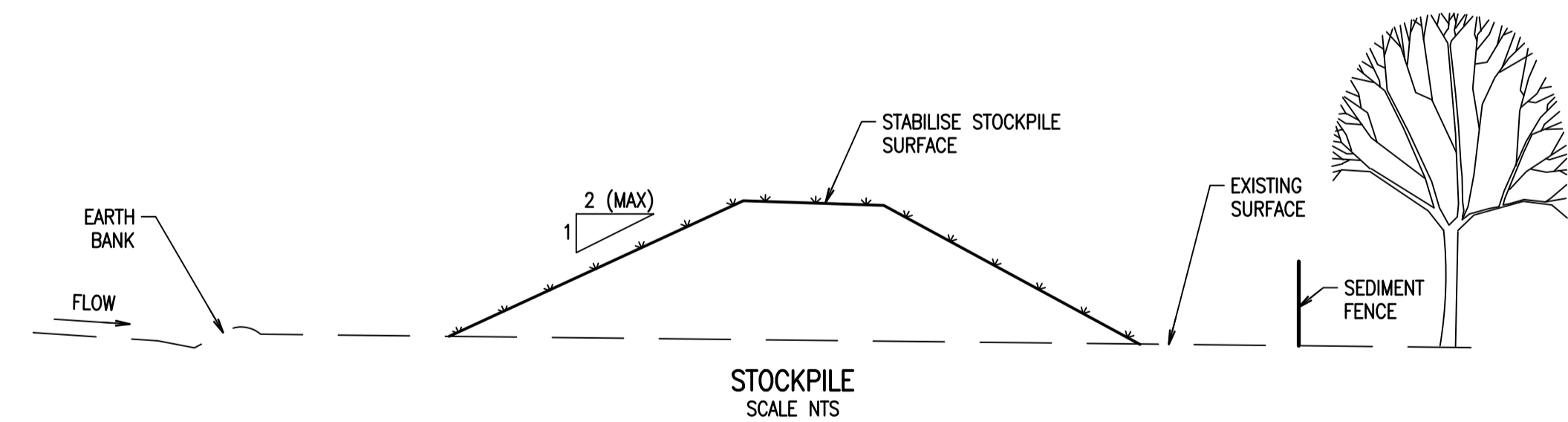
- WC1. ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST WEEKLY. DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE CONTRACTOR.
- WC2. ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOW PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
- WC3. ALL SITE STAFF AND SUBCONTRACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
- WC4. ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
- WC5. PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

**LAND DISTURBANCE NOTES:**

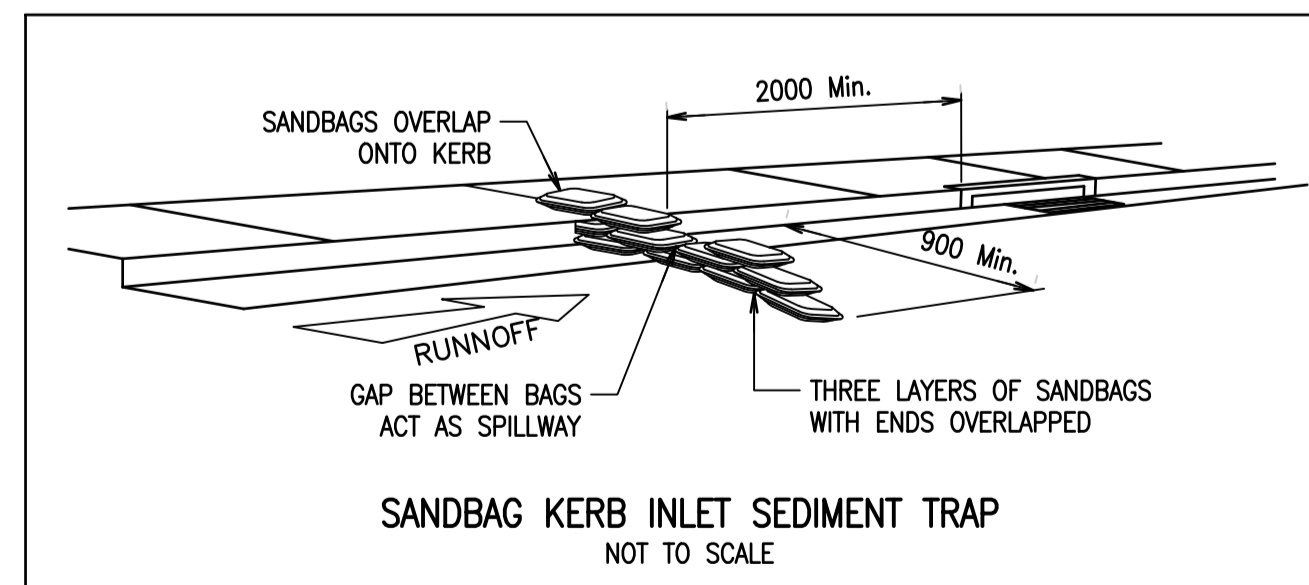
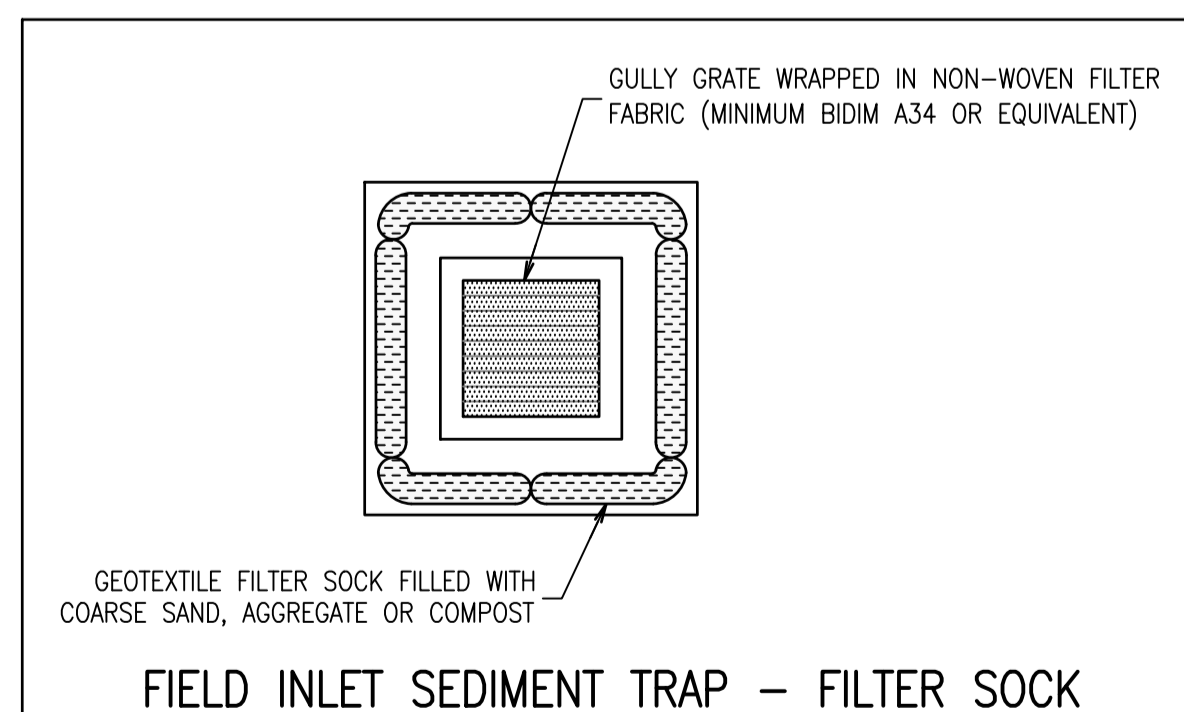
- LD1. ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METERS THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNIZE THOSE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH A BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
- LD2. ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
- LD3. WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
  - A) INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
  - B) CONSTRUCT THE STABILISED SITE ACCESS.
  - C) CONSTRUCT DIVERSION DRAINS AS REQUIRED.
  - D) INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
  - E) INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
  - F) CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
  - G) UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
  - H) GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
  - I) REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- LD4. ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING.

**SOIL EROSION CONTROL NOTES:**

- SE1. EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTES, THAN THAT RECOMMENDED BY GEOTECHNICAL REPORT.
- SE2. ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
- SE3. WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
- SE4. STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.1% (60% GROUND-COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
- SE5. ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
- SE6. PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND-COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.



- NOTES:**
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
  2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
  3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
  4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
  5. CONSTRUCT EARTH BANKS ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES 1 TO 2 METRES DOWNSLOPE.



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P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

Rev	Revision Description	By	App	Date
11				
12				
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Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**EROSION AND SEDIMENT CONTROL DETAILS**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
08.03.25

Scale of A1  
NTS

Drawn  
MARELLANO

Designer  
NLY

Design Checker  
AANG

Approved  
AANG

RBG Project No.  
**24378**

**NOT FOR CONSTRUCTION**

Drawing Number  
**24378-RBG-XX-XX-DR-CV-81101**

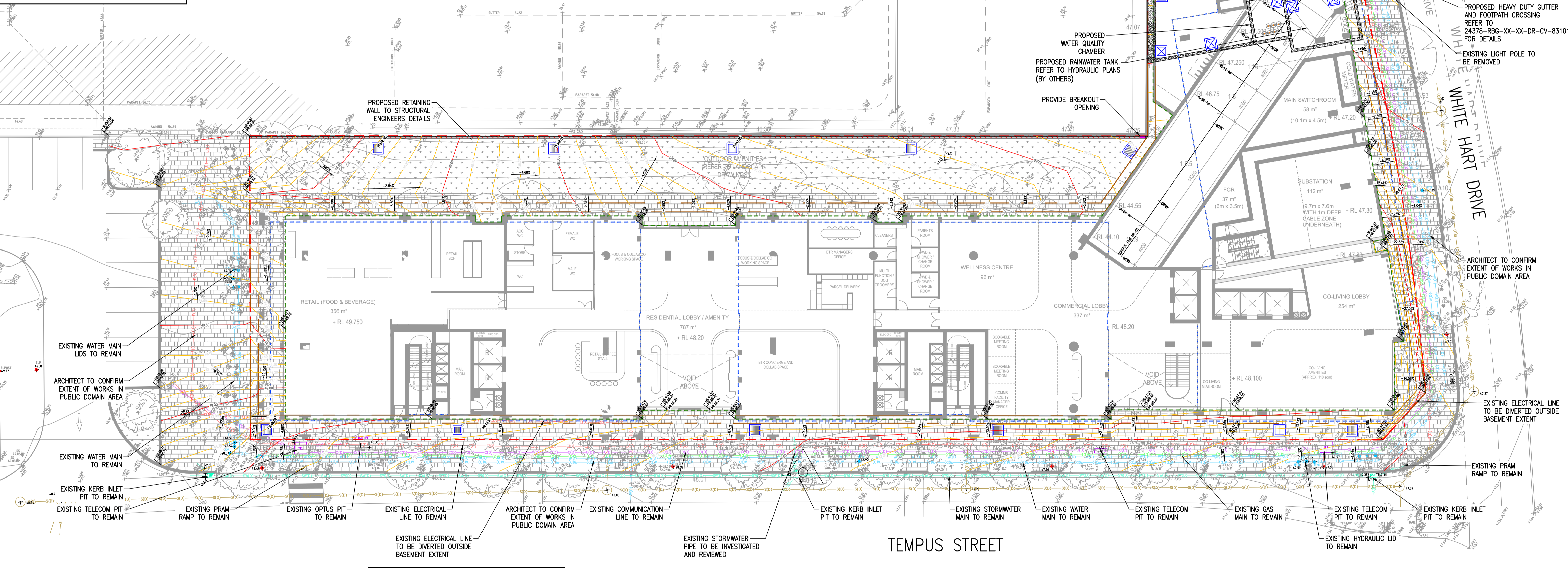
Revision  
**P02**

**LEGEND**

- SITE BOUNDARY
- 49 PROPOSED MAJOR CONTOURS
- 49 PROPOSED MINOR CONTOURS
- BASEMENT OUTLINE
- UPPER LEVEL OUTLINE
- EXISTING ELECTRICITY
- EXISTING GAS
- EXISTING COMMS
- EXISTING WATER
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER
- BASEMENT OUTLINE
- UPPER LEVEL OUTLINE
- PROPOSED STORMWATER PIT
- ▨ PROPOSED RETAINING WALL
- BREAKOUT OPENING

**LEGEND**

- LANDSCAPE
- PAVEMENT (REFER TO LANDSCAPE PLAN DETAILS)



NOTE: ARCHITECT TO CONFIRM EXTERNAL/PUBLIC DOMAIN WORKS

Rev Revision Description By App Date

P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

SCALE 1:200

Rev Revision Description By App Date

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12				
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Web: [www.robertbird.com](http://www.robertbird.com)  
ACN 010 580 248

Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**GENERAL ARRANGEMENT PLAN**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
11.03.25  
Scale of A1  
1:200

Drawn  
MARELLANO

Design  
ANJANG

Design Checker  
ANJANG

Approved  
ANJANG

RBG Project No.  
**24378**

**NOT FOR CONSTRUCTION**

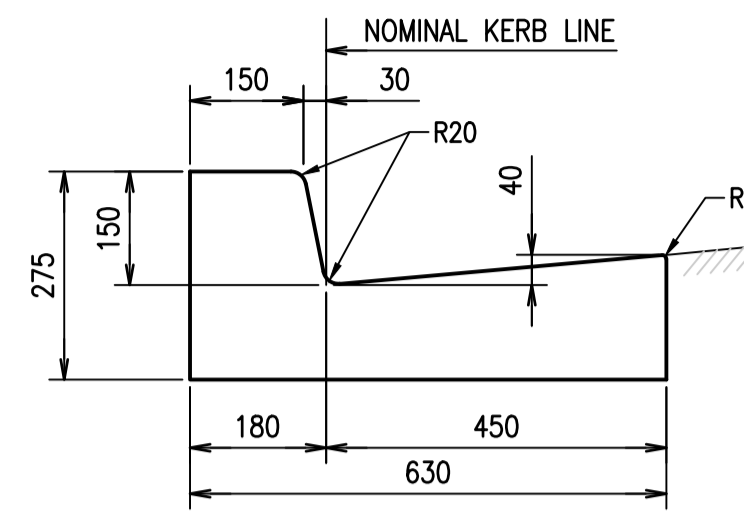
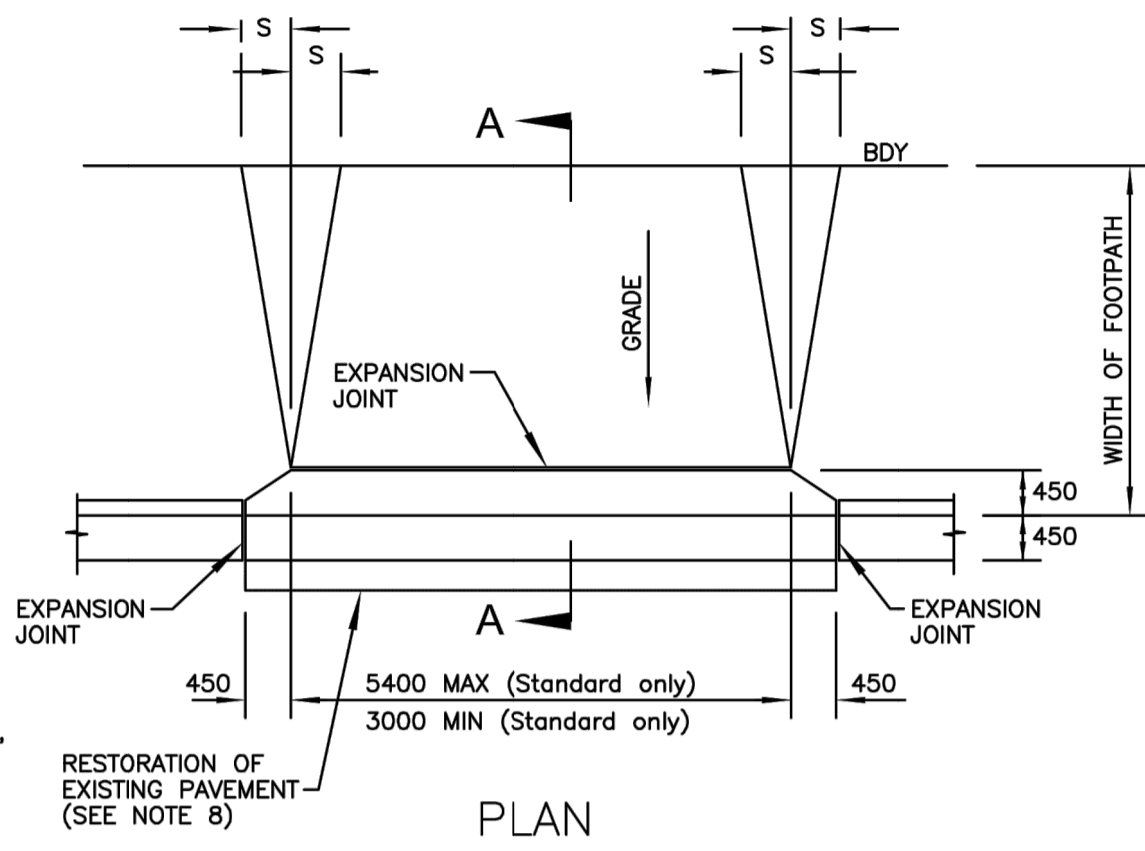
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Revision  
**P02**

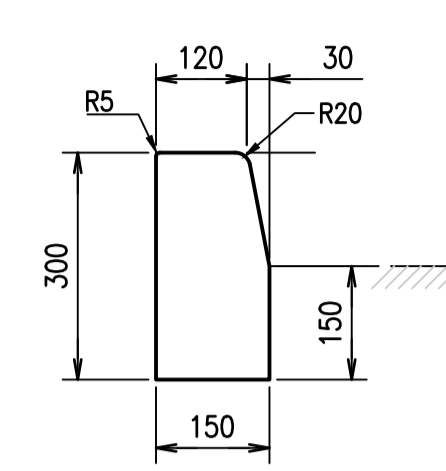
**NOTES:**

- ALL DIMENSIONS ARE IN MILLIMETRES.
- STEEL FABRIC TO BE PLACED A MINIMUM OF 40mm AND A MAXIMUM 50mm BELOW THE CONCRETE SURFACE LEVEL.
- CONCRETE USED IN THE WORK SHALL DEVELOP A MINIMUM CRUSHING STRENGTH OF 25 MPa AFTER 28 DAYS.
- GUTTER CROSSING TO BE POURED BEFORE AND SEPARATELY FROM FOOTPATH CROSSING.
- EXPOSED LENGTH OF DOWEL FROM GUTTER CROSSING POUR TO BE COATED WITH "BRUSHABLE DURASEAL" OR EQUIVALENT PRIOR TO POURING FOOTPATH SLAB.
- REFER TO ELECTRICITY SUPPLIER FOR LOCATION OF CABLE DUCTS.
- TELECOMMUNICATIONS SUPPLIER REQUIRES THAT CONDUITS BE PROVIDED UNDER FOOTPATH CROSSING. THREE WORKING DAYS NOTICE REQUIRED TO ARRANGE INSTALLATION.
- PROVIDE SAWCUT TO EDGE OF DAMAGED PAVEMENT PRIOR TO RESTORATION WITH FULL DEPTH ASPHALTIC CONCRETE (AC 10)
- THE KERB AND GUTTER MUST BE POURED AS A SINGLE CONTIGUOUS STRUCTURE. WHERE A NEW DRIVEWAY IS BEING INSTALLED, THE EXISTING KERB AND GUTTER MUST BE REMOVED IN ITS ENTIRETY.
- IF THE EXISTING GUTTER CROSSING OR PEDESTRIAN FOOTPATH IS DAMAGED OR CRACKED, IT MUST BE COMPLETELY REMOVED AND RECONSTRUCTED.
- ROOFWATER OUTLET CONNECTIONS MUST BE LOCATED 0.5m (MINIMUM) CLEAR OF DRIVEWAYS. EXISTING CONNECTIONS CONFLICTING WITH A PROPOSED DRIVEWAY MUST BE RELOCATED

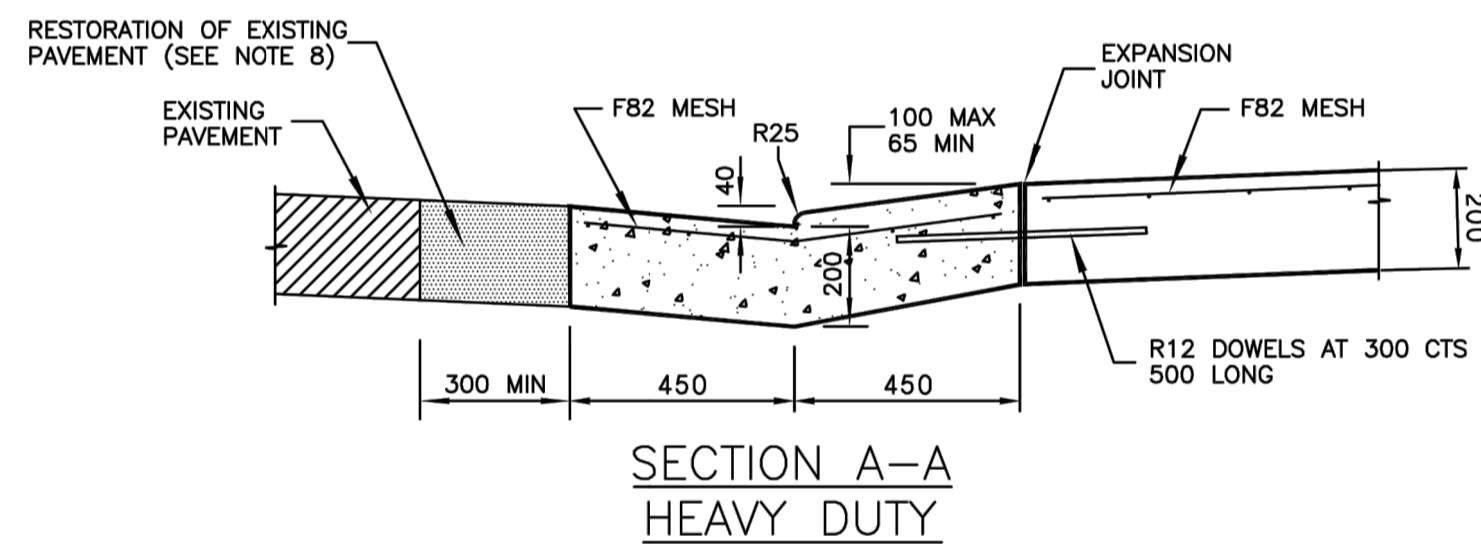
CROSSING TYPE	S
STANDARD DUTY	1000 mm MAXIMUM
MEDIUM DUTY	500 mm MINIMUM
HEAVY DUTY	500 mm MINIMUM



**KERB & GUTTER DETAIL**  
1:10

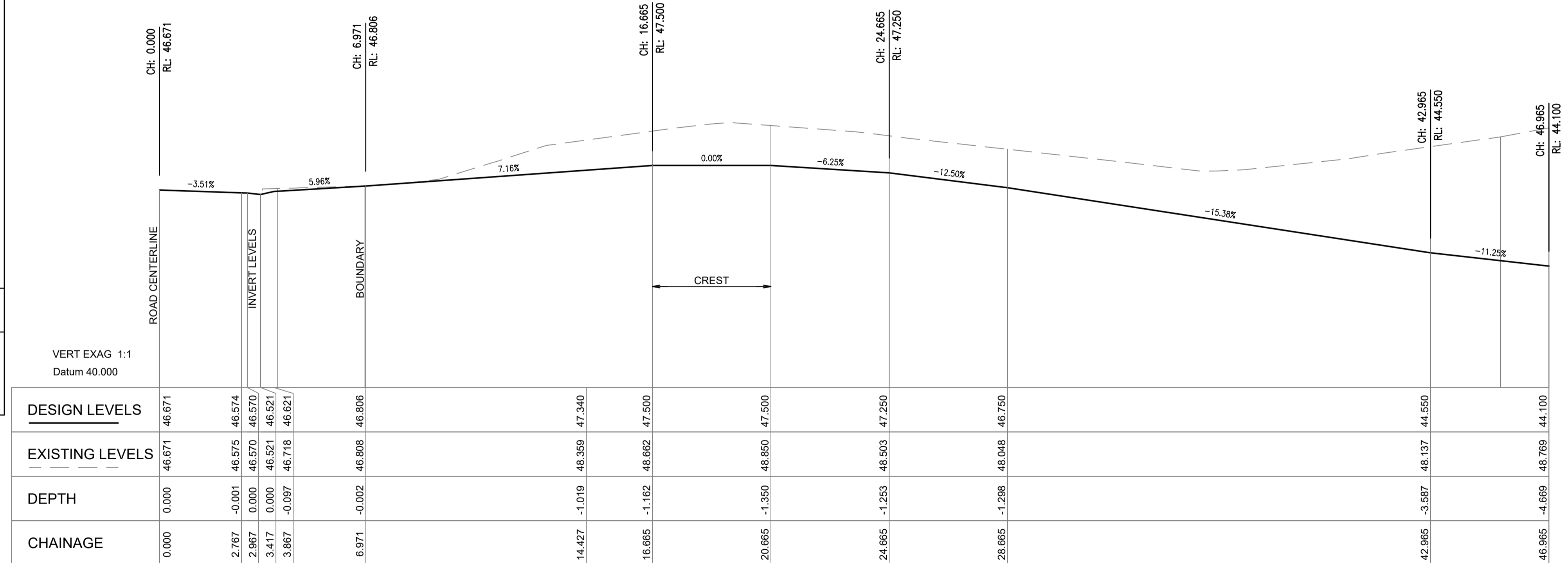


**KERB ONLY DETAIL**  
1:10

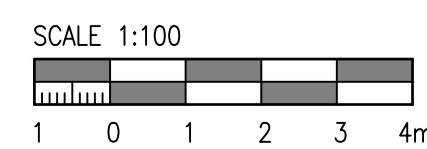


**SECTION A-A**  
**HEAVY DUTY**

	<b>THE HILLS SHIRE COUNCIL</b>	DATE: APR.2021
	<b>GUTTER &amp; FOOTPATH CROSSING</b>	DRAWING No.: <b>SD.15</b>



**LONGITUDINAL SECTION - CONTROL LINE MK-01**  
SCALE 1:100 V&H



Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

Rev	Revision Description	By	App	Date
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12				
13				
14				
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17				
18				

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ACN 010 580 248

Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**CIVIL DETAILS SHEET 1**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
10.03.25  
Scale of A1  
NTS

Drawn  
MARELLANO

Designer  
NLY

Design Checker  
AJANG

Approved  
AJANG

RBG Reference No.  
**24378**

**NOT FOR CONSTRUCTION**

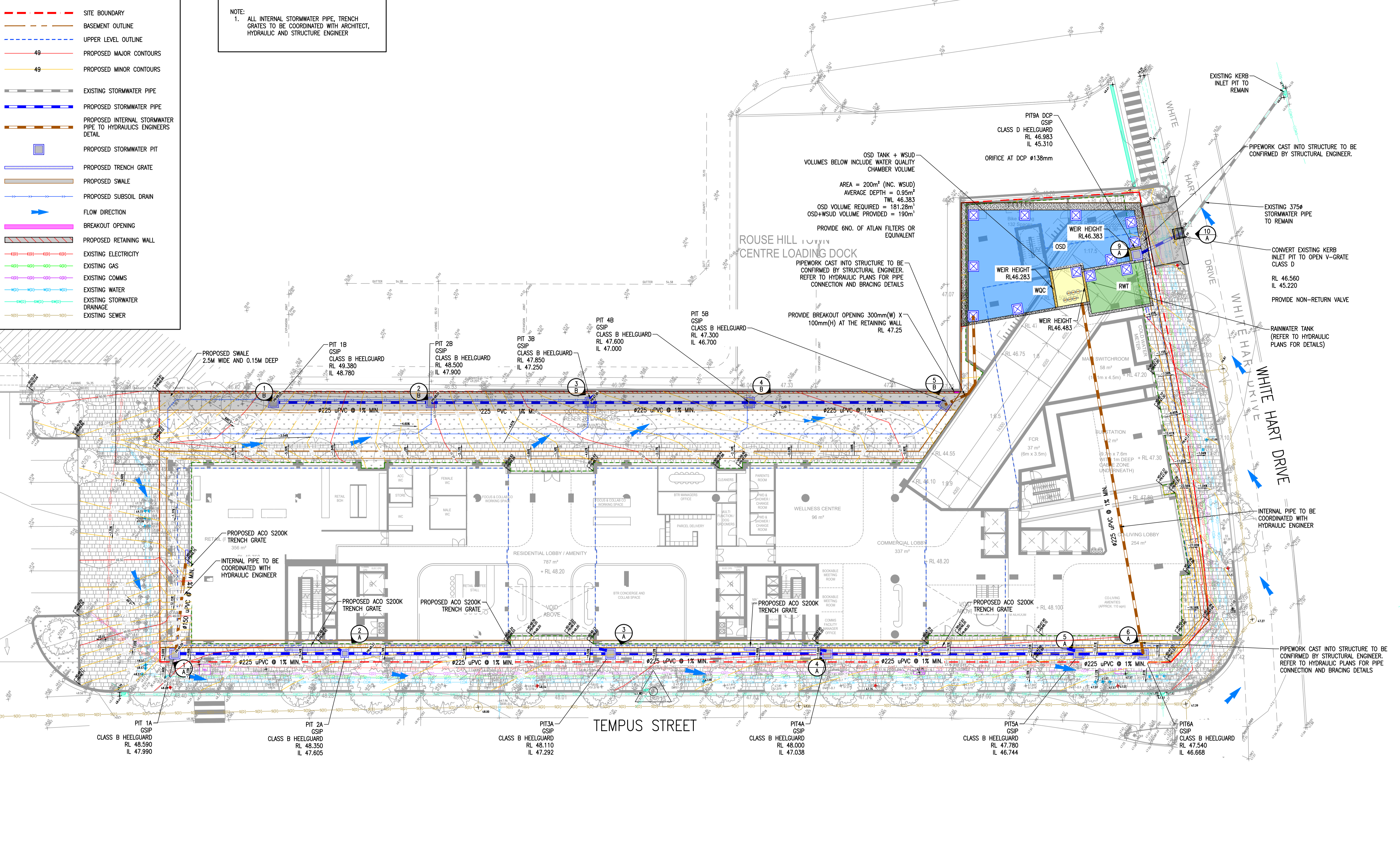
Drawing Number  
**24378-RBG-XX-XX-DR-CV-83101**

Revision  
**P02**

**LEGEND**

- SITE BOUNDARY
- BASEMENT OUTLINE
- UPPER LEVEL OUTLINE
- 49 PROPOSED MAJOR CONTOURS
- 49 PROPOSED MINOR CONTOURS
- EXISTING STORMWATER PIPE
- PROPOSED STORMWATER PIPE
- PROPOSED INTERNAL STORMWATER PIPE TO HYDRAULICS ENGINEERS DETAIL
- PROPOSED STORMWATER PIT
- PROPOSED TRENCH GRATE
- PROPOSED SWALE
- PROPOSED SUBSOIL DRAIN
- FLOW DIRECTION
- BREAKOUT OPENING
- PROPOSED RETAINING WALL
- EXISTING ELECTRICITY
- EXISTING GAS
- EXISTING COMMS
- EXISTING WATER
- EXISTING STORMWATER DRAINAGE
- EXISTING SEWER

NOTE:  
1. ALL INTERNAL STORMWATER PIPE, TRENCH GRATES TO BE COORDINATED WITH ARCHITECT, HYDRAULIC AND STRUCTURE ENGINEER



Rev	Revision Description	By	App	Date
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P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

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Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**STORMWATER MANAGEMENT PLAN**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
11.03.25  
Scale of A1  
1:200

Drawn  
MARELLANO

Design  
NLY

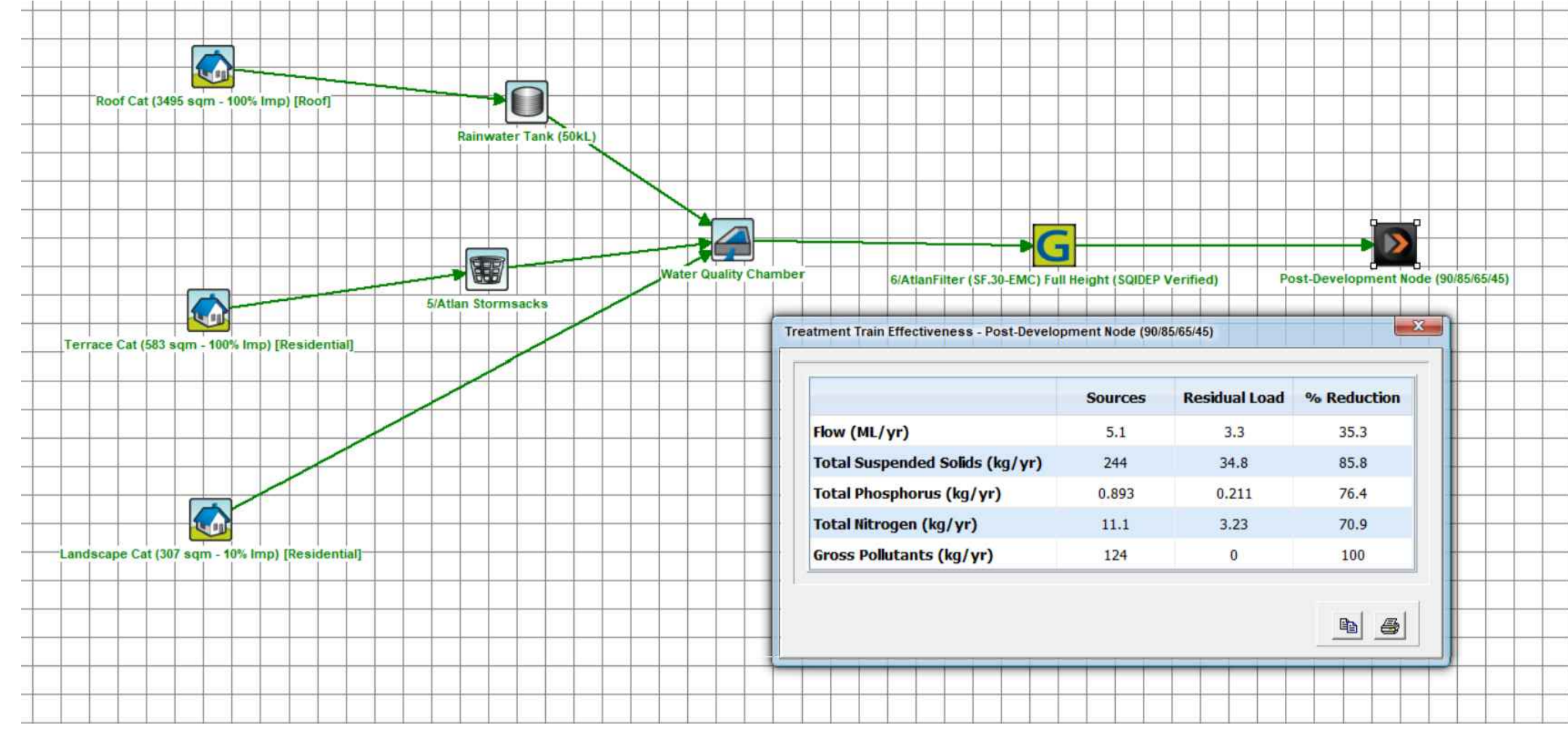
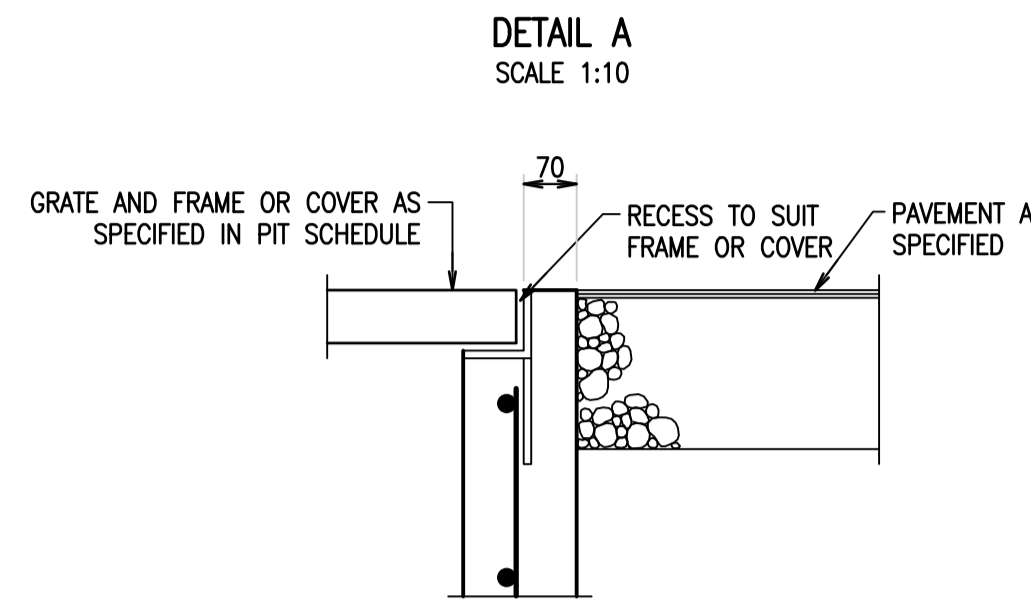
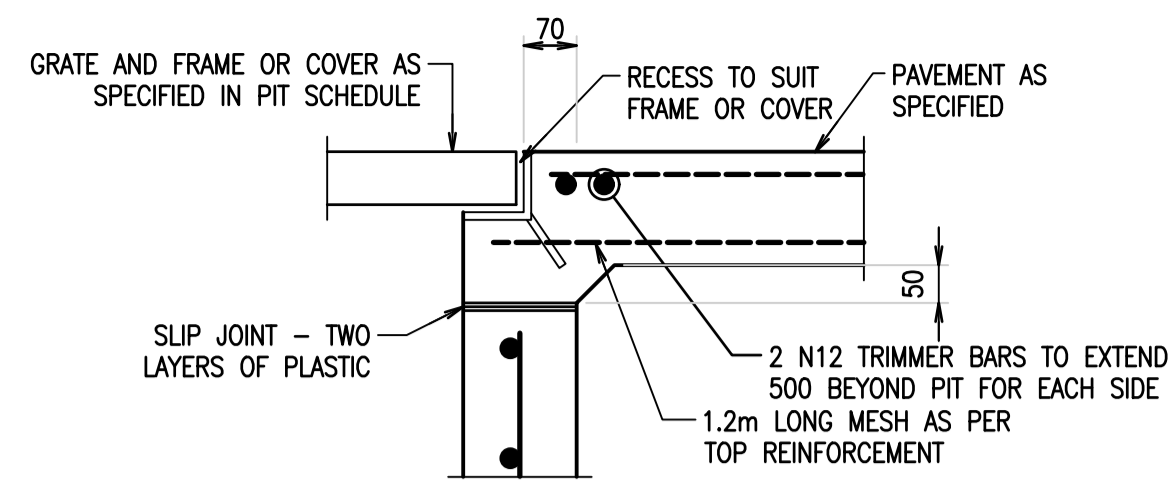
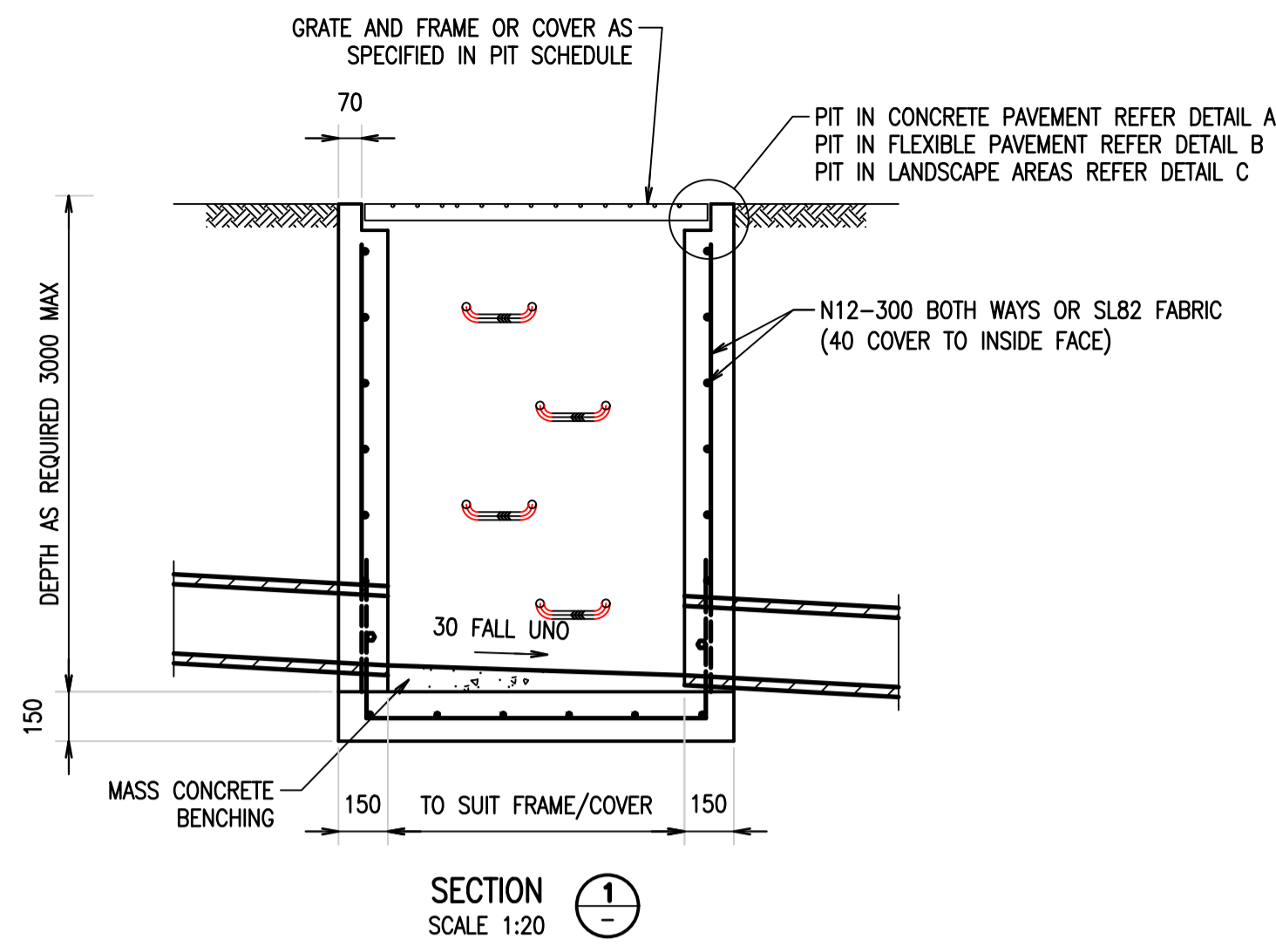
Design Checker  
Approved  
ALANG

RBG Reference No.  
**24378**

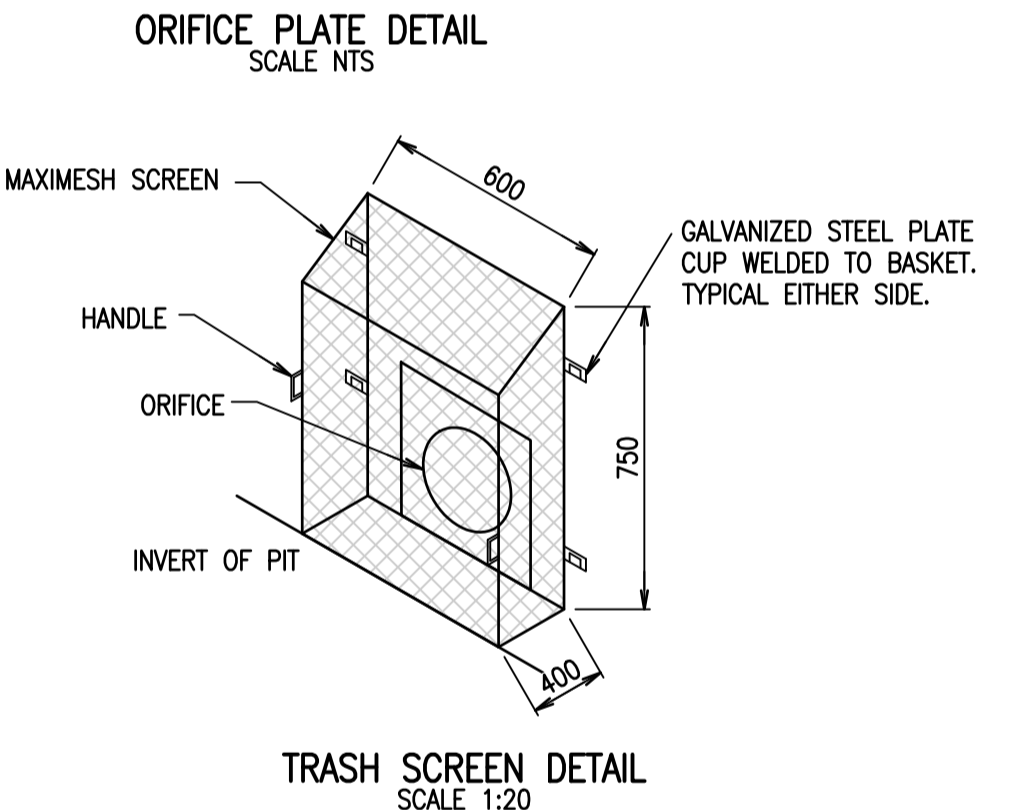
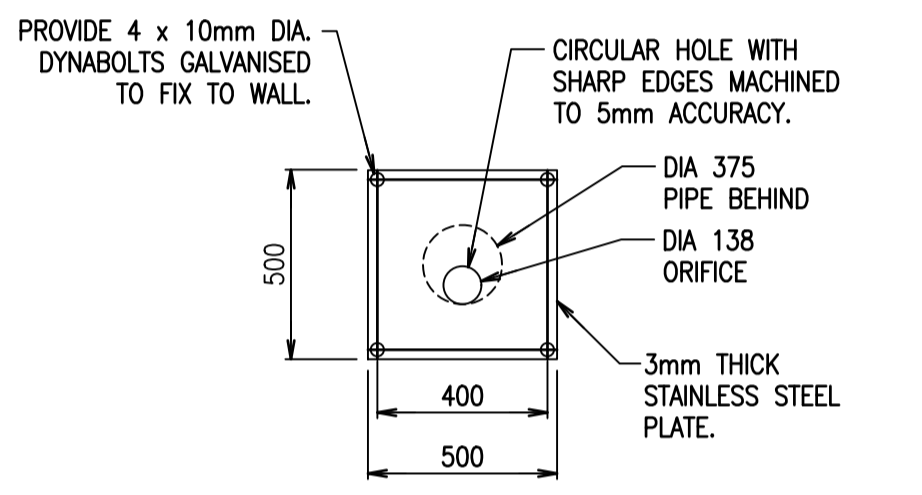
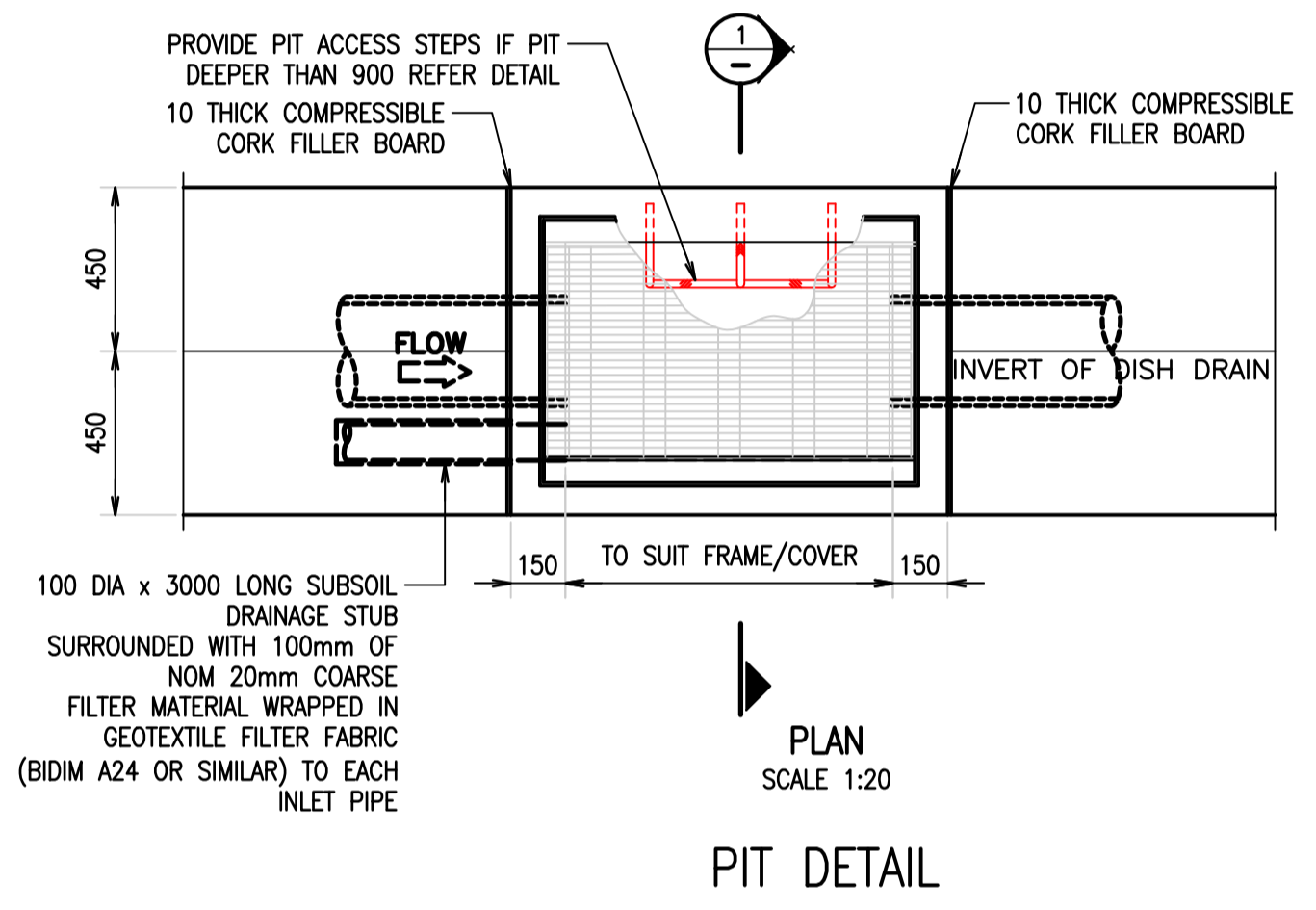
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Drawing Number  
**24378-RBG-XX-XX-DR-CV-87001**

Revision  
**P02**

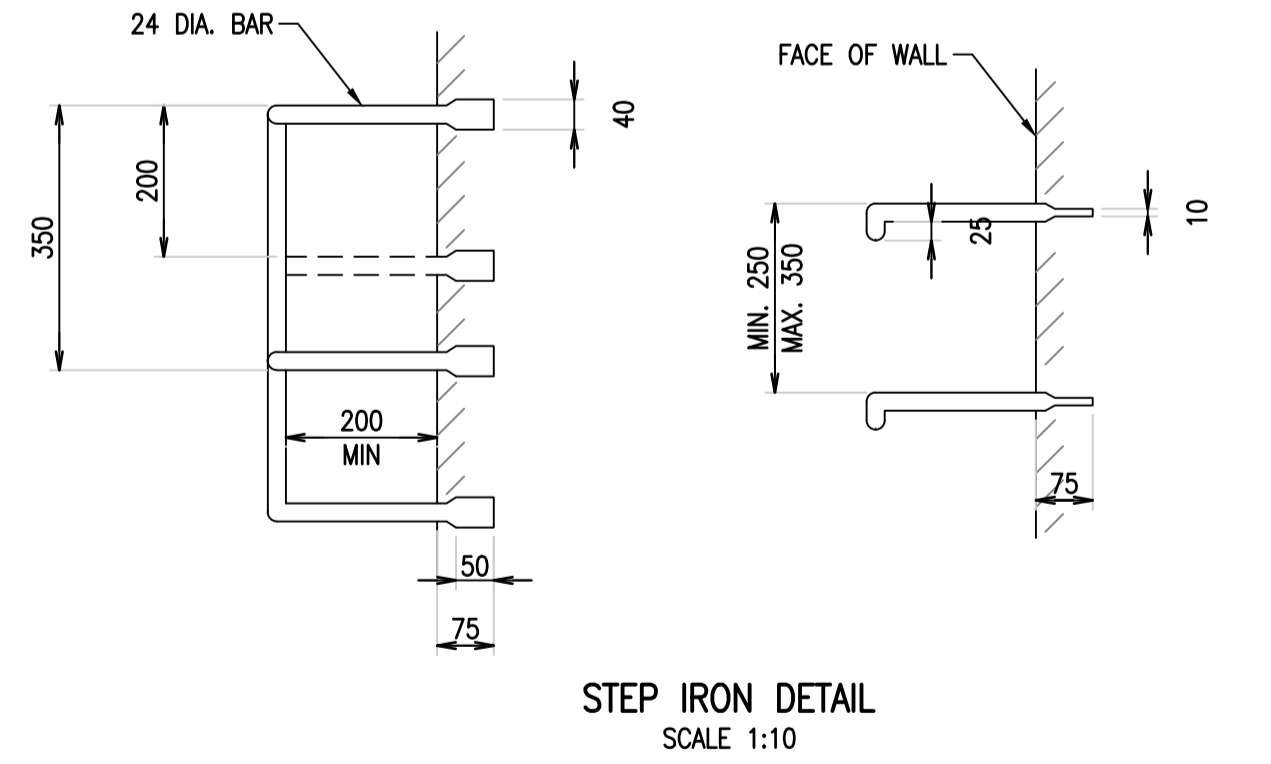
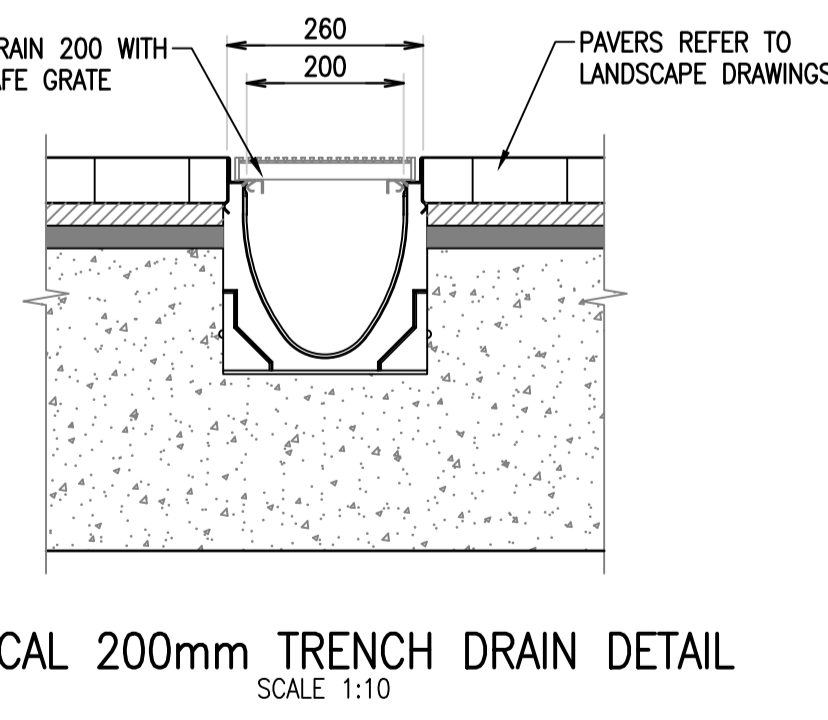
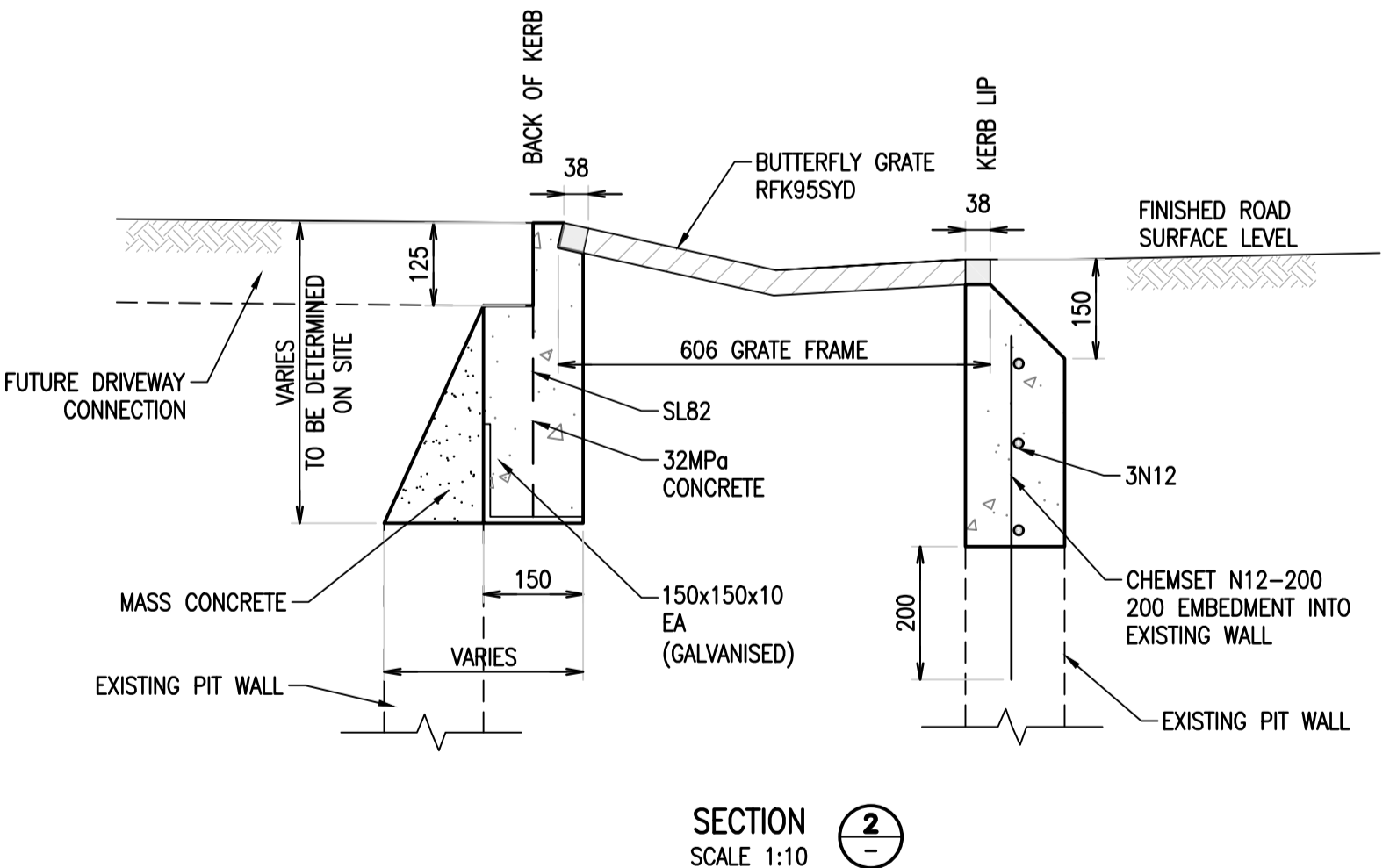
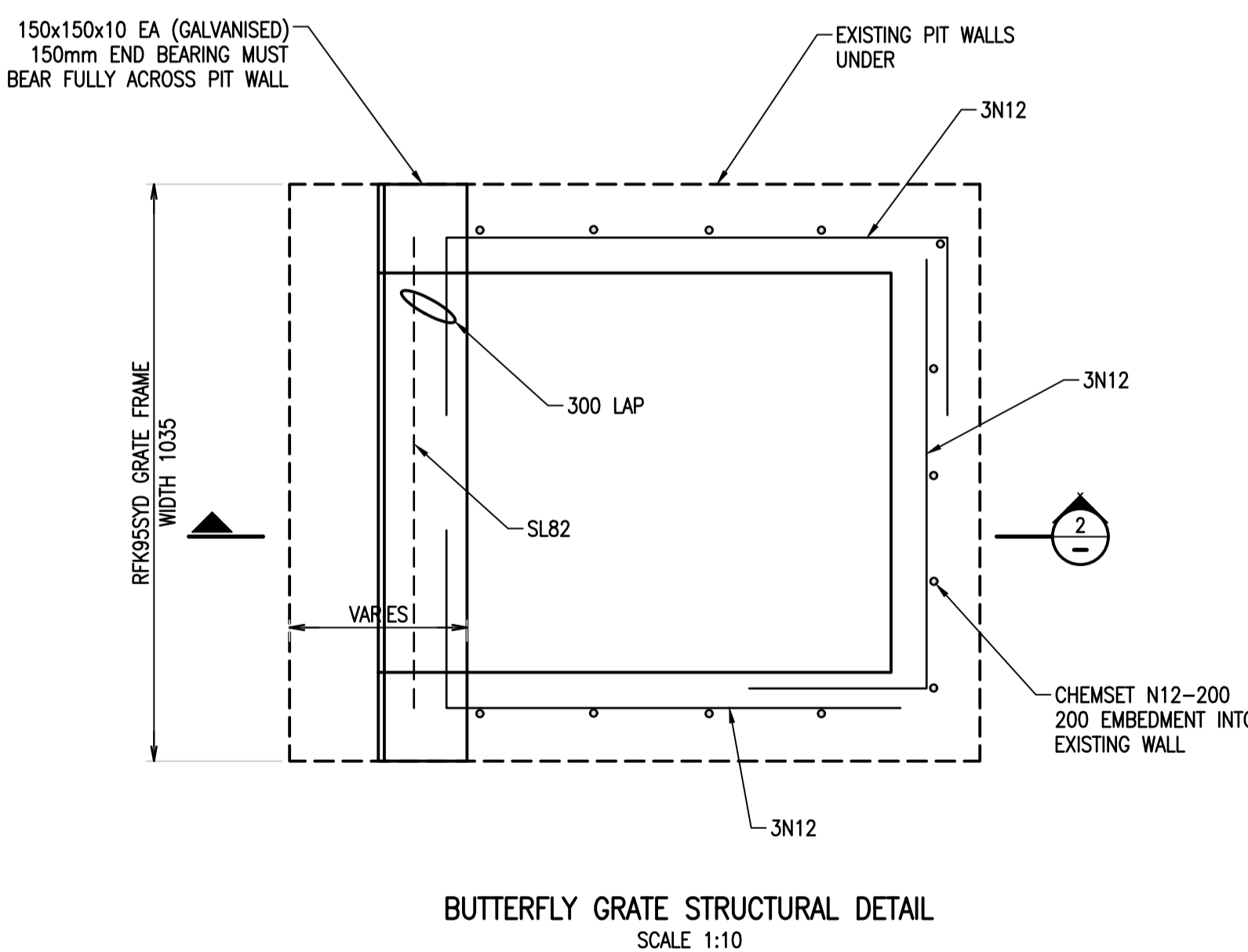


	Sources	Residual Load	% Reduction
Flow (ML/yr)	5.1	3.3	35.3
Total Suspended Solids (kg/yr)	244	34.8	85.8
Total Phosphorus (kg/yr)	0.893	0.211	76.4
Total Nitrogen (kg/yr)	11.1	3.23	70.9
Gross Pollutants (kg/yr)	124	0	100



**ON-SITE STORMWATER DETENTION NOTES:**  
 AS PER THE HILLS DCP AND DESIGN GUIDELINES, THE SITE IS LOCATED WITHIN THE HAWKESBURY RIVER CATCHMENTS. THE PERMISSIBLE SITE DISCHARGE (PSD) IS 87 L/s AND THE SITE STORAGE VOLUME (SSV) IS 412 (m<sup>3</sup>/ha)  
 PSD = 87 L/s x 0.44ha = 38.28 L/s  
 SSV = 412 (m<sup>3</sup>/ha) x 0.44ha = 181.28 m<sup>3</sup>

**ORIFICE CALCULATION:**  
 $Q = CA \sqrt{2gH}$   
 - C = 0.6  
 - H = 1.8-0.45 = 1.25m  
 - Q = 38.38 L/s  
 ORIFICE 138mm



STEP IRONS SHALL BE PROVIDED AT 350 CTS UNDER LID WHERE PIT IS DEEPER THAN 1200.

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P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

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 ACN 010 580 248

Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**STORMWATER DETAILS SHEET 1**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
 10.03.25  
 Scale of A1  
 NTS

Drawn  
 MARELLANO

Designer  
 NLY

Design Checker  
 AANG

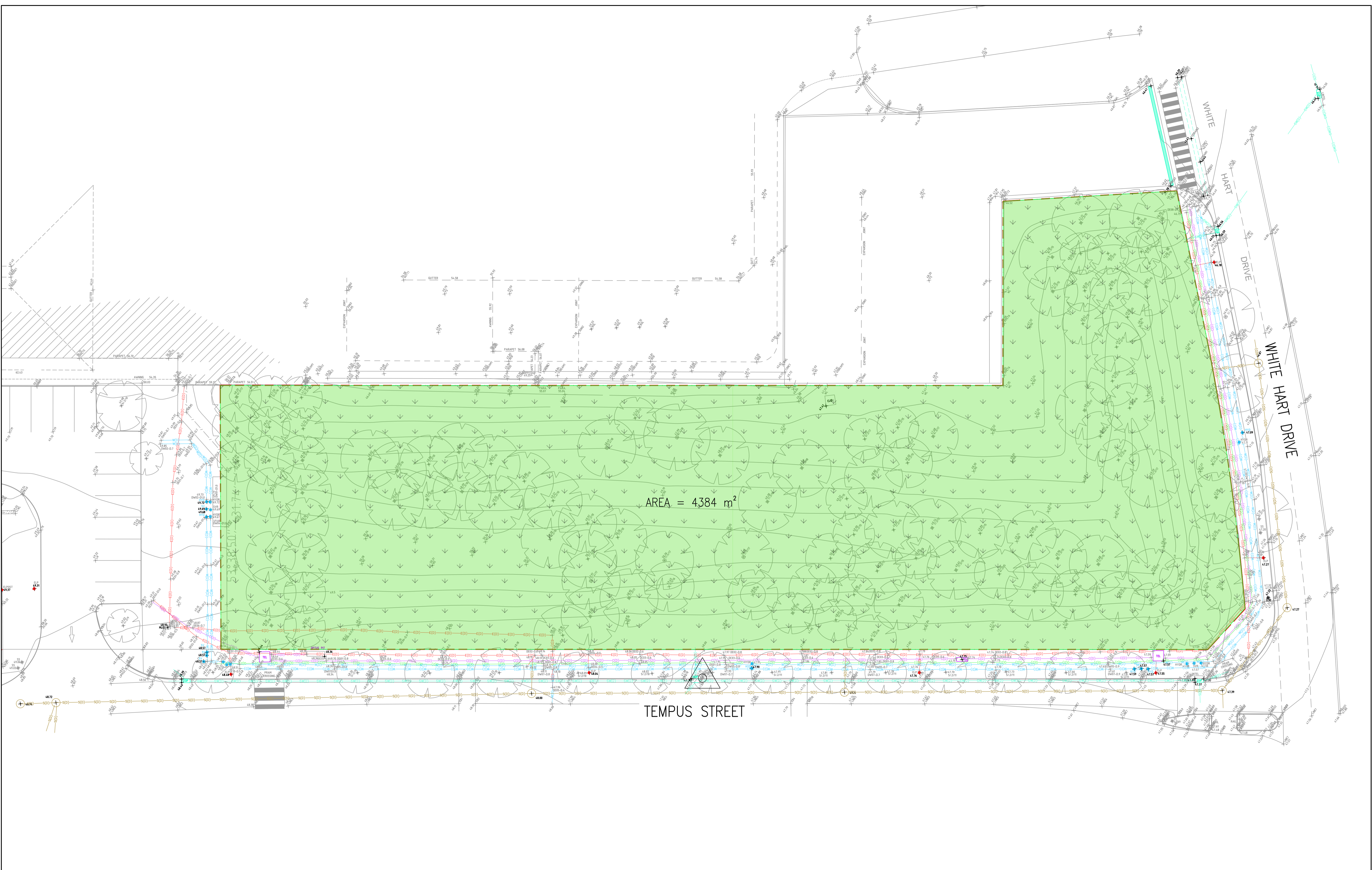
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 AANG

RBG Reference No.  
**24378**

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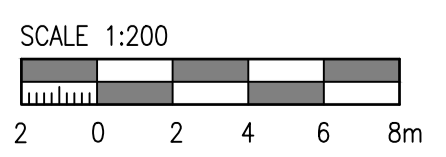
Drawing Number  
**24378-RBG-XX-XX-DR-CV-87101**

Revision  
**P02**



AREA = 4,384 m<sup>2</sup>

TEMPUS STREET



Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

Rev	Revision Description	By	App	Date

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Web: www.robertbird.com  
ACN 010 580 248

Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**STORMWATER PRE DEVELOPMENT CATCHMENT PLAN**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
09.03.25

Scale of A1  
1:200

Drawn  
MARELLANO

Designer  
NLY

Design Checker  
AJANG

Approved  
AJANG

RBG Project No.  
**24378**

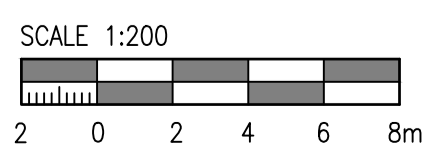
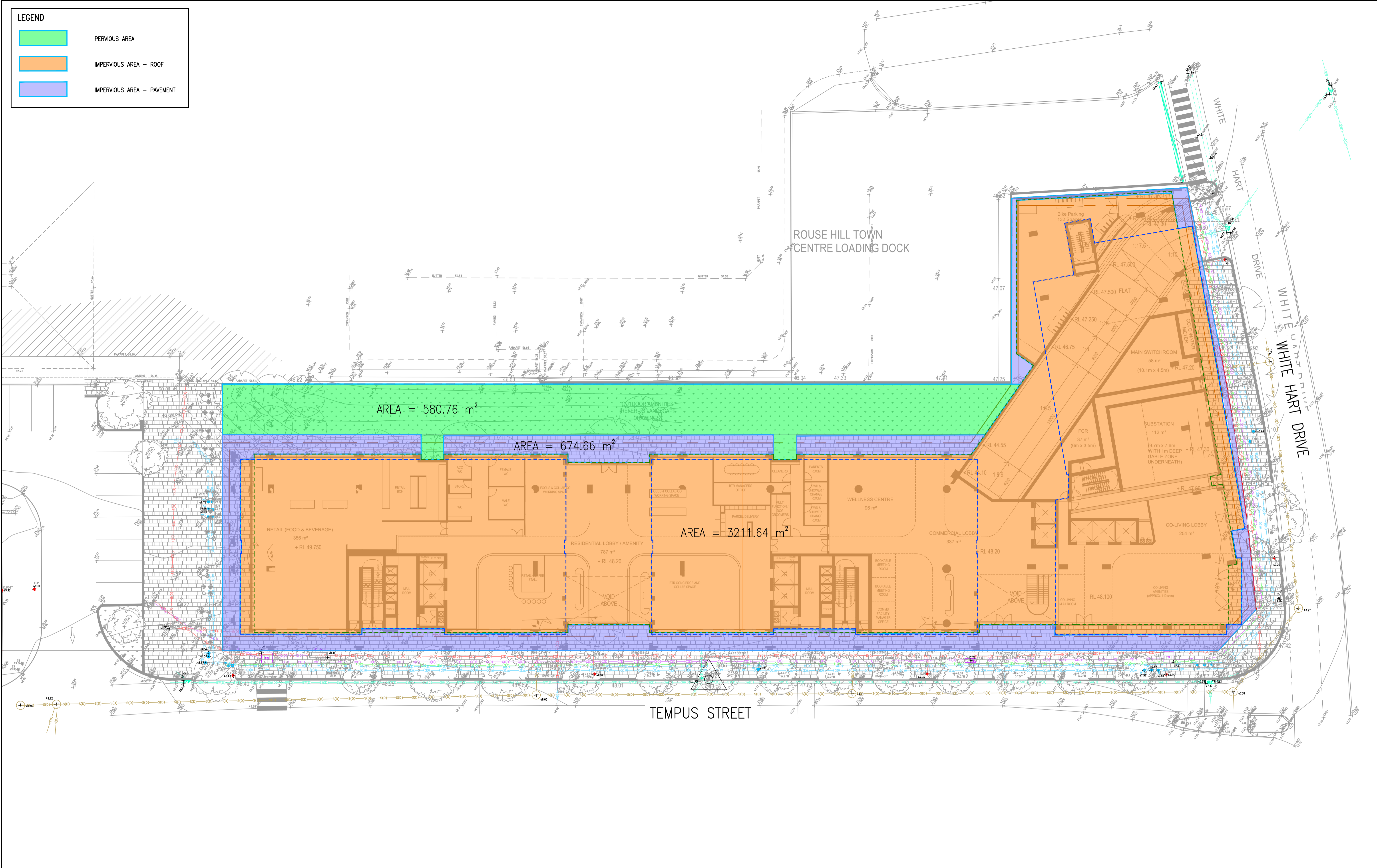
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Drawing Number  
**24378-RBG-XX-XX-DR-CV-87401**

Revision  
**P02**

**LEGEND**

- PERVIOUS AREA
- IMPERVIOUS AREA - ROOF
- IMPERVIOUS AREA - PAVEMENT



Rev	Revision Description	By	App	Date
P01	PRELIMINARY CONCEPT DESIGN	NL	AA	20.12.24
P02	PRELIMINARY CONCEPT DESIGN	NL	AA	11.03.25

Rev	Revision Description	By	App	Date

Scale 1:1 2:1 3:1 4:1 5:1 6:1 7:1 8:1 9:1 10:1 11:1 12:1 13:1 14:1 15:1 16:1 17:1 18:1

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Web: [www.robertbird.com](http://www.robertbird.com)  
ACN 010 580 248

Client  
**FREECITY ROUSE HILL DEVELOPMENT**

Title  
**STORMWATER POST DEVELOPMENT CATCHMENT PLAN**

Project  
**TEMPUS STREET ROUSE HILL**

Date  
11.03.25

Scale of A1  
1:200

Drawing Number  
**24378-RBG-XX-XX-DR-CV-87410**

Drawn  
MARELLANO

Designer  
NLY

Design Checker  
AJANG

Approved  
AJANG

RBG Project No.  
**24378**

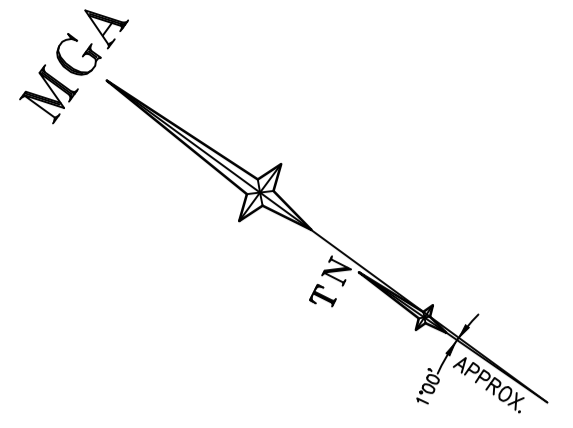
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Revision  
**P02**

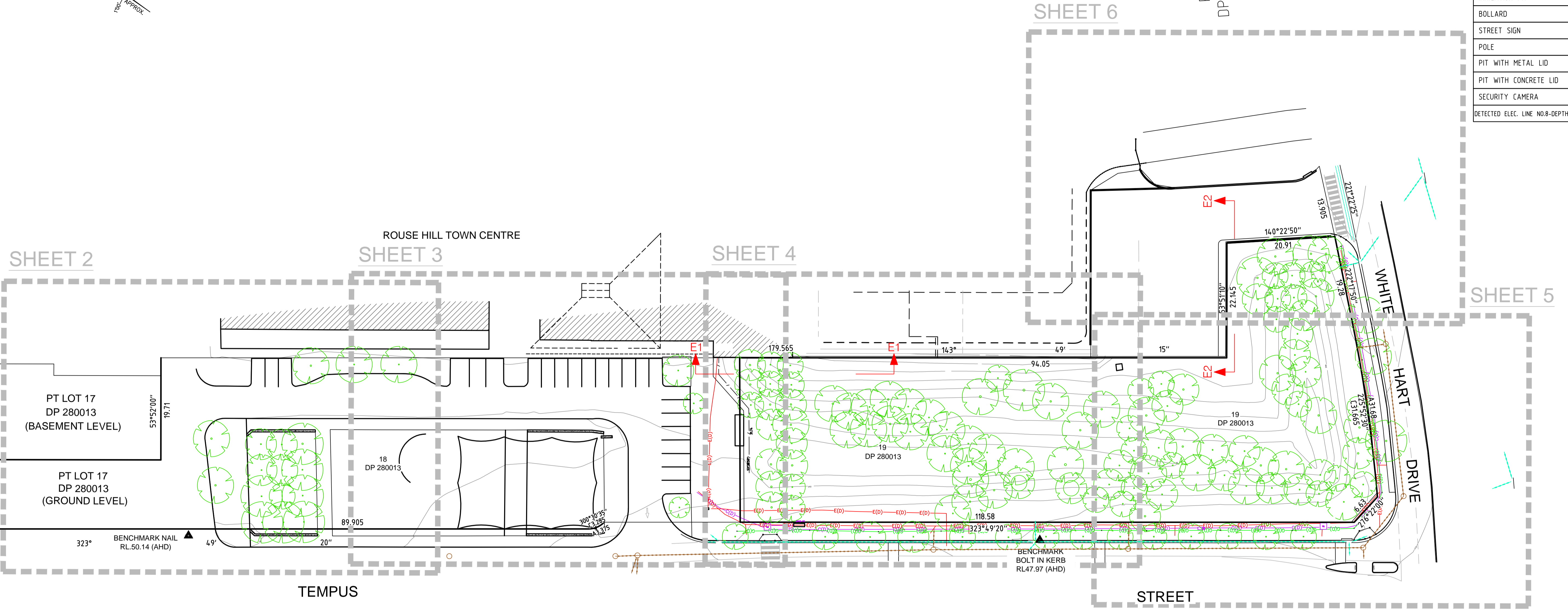


## Appendix B Survey

Tempus St Rouse Hill CV



LEGEND	
BENCH MARK	▲
ELECTRIC LIGHT POLE	● ELP
ELECTRIC OUTLET POST	● ELPOST
GRATED INLET PIT	■ GIP
HYDRANT	■ HYD
HYDRANT (RECYCLED WATER)	■ HYDR
STOP VALVE	■ SV
IRRIGATION PIT	■ IRR
BOLLARD	○ BOL
STREET SIGN	■ SS
POLE	○ P
PIT WITH METAL LID	□ MLID
PIT WITH CONCRETE LID	□ CLID
SECURITY CAMERA	■ CCTV
DETECTED ELEC. LINE NO.8-DEPTH 1.2	DE08-D1.2



**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 180043 - E:307703.648, N:6269877.938 IN WINDSOR ROAD (01/11/2022)
4. ORIGIN OF LEVELS ON A.H.D. IS TAKEN FROM NAIL IN TRAFFIC ISLAND R.L. 50.14 (A.H.D.) AS SHOWN ON PLAN BY GEOSTRATA DATED 29/11/2021
5. CONTOUR INTERVAL 0.5 m
6. CONTOURS ARE INDICATIVE ONLY. ONLY SPOT LEVELS SHOULD BE USED FOR CALCULATIONS OF QUANTITIES WITH CAUTION
7. KERB LEVELS ARE TO THE TOP OF KERB UNLESS SHOWN OTHERWISE
8. FLOOR LEVELS SHOWN ARE THRESHOLD LEVELS. NO INVESTIGATION OF INTERNAL FLOOR LEVELS HAS BEEN UNDERTAKEN
9. NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. SERVICES HAVE BEEN PLOTTED FROM RELEVANT AUTHORITIES INFORMATION AND HAVE NOT BEEN SURVEYED. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE
10. 8/4/7 DENOTES TREE SPREAD OF 8m, TRUNK DIAMETER OF 0.4m & APPROX HEIGHT OF 7m
11. SHOWS APPROXIMATE POSITION OF ROAD LINEMARKING AND IS INDICATIVE ONLY
12. BEARINGS SHOWN ARE MGA (MAP GRID OF AUSTRALIA) ADD APPROX. 1°00' FOR TRUE NORTH
13. SOME LAYERS HAVE BEEN TURNED OFF FOR CLARITY
14. SEE SHEET 7 FOR ELEVATION DETAIL.

REFER TO NOTES AND LEGEND

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**GDA2020**

SCALE 1:400 @ A1

Revision	Date	Description	Reference	Revision	Date	Description	Reference
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G	00/00/00	-	00	C	00/00/00	-	00
F	00/00/00	-	00	B	00/00/00	-	00
E	00/00/00	-	00	A	00/00/00	-	00

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Registered Surveyor NSW

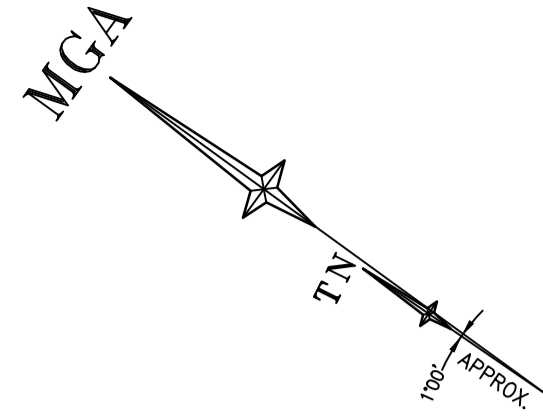
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Drawing title: PLAN OF DETAIL AND LEVELS OVER LOT 19 IN DP 280013 AT ROUSE HILL TOWN CENTRE, TEMPUS STREET, ROUSE HILL.

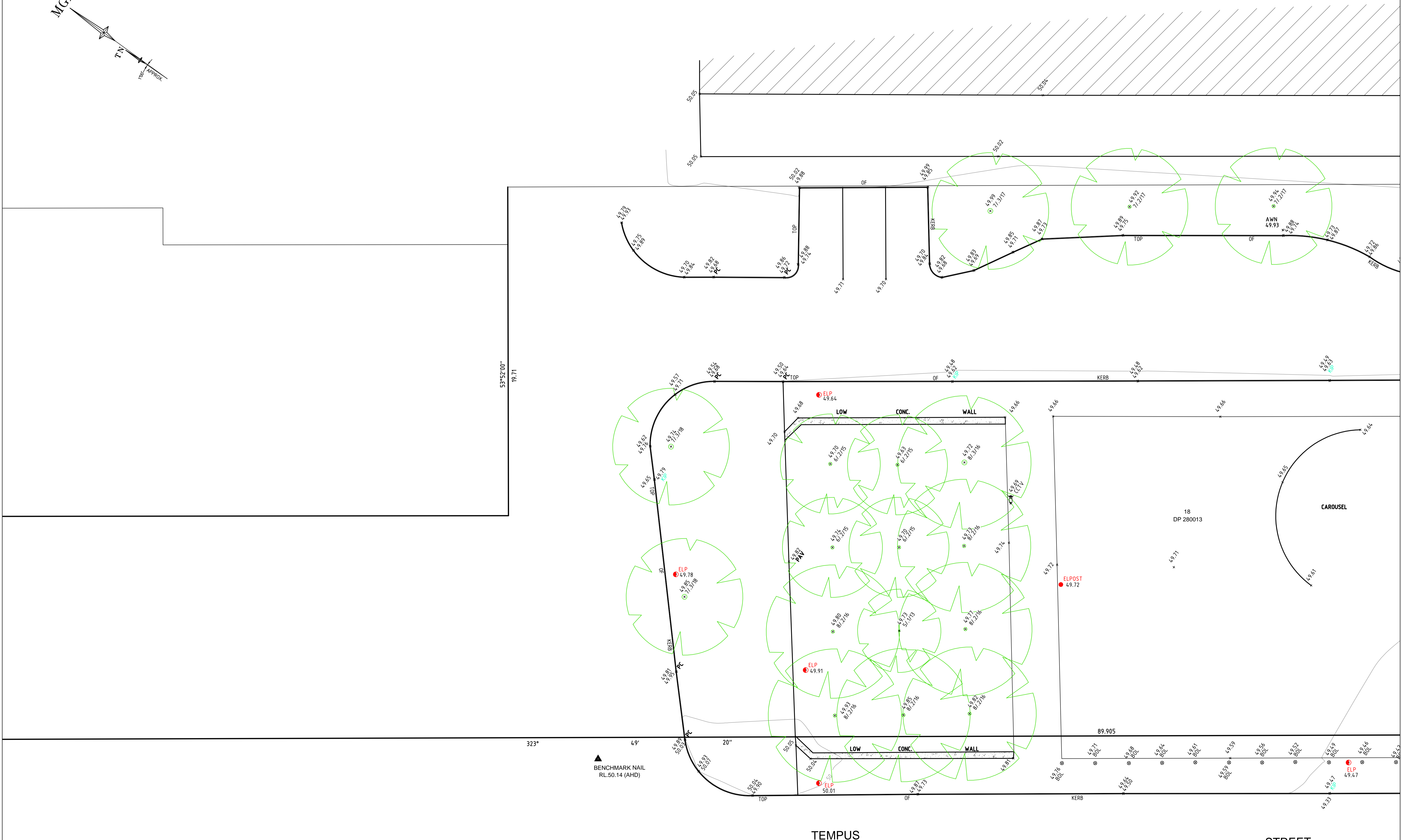
datum AHD  
site Area 4.385m²  
LGA THE HILLS SHIRE

reference number 51666 005DT  
scale 1:400 @A1  
date of survey 19/09/2024

SHEET 7 OF 1



ROUSE HILL TOWN CENTRE



SEE SHEET 1 FOR LEGEND & NOTES

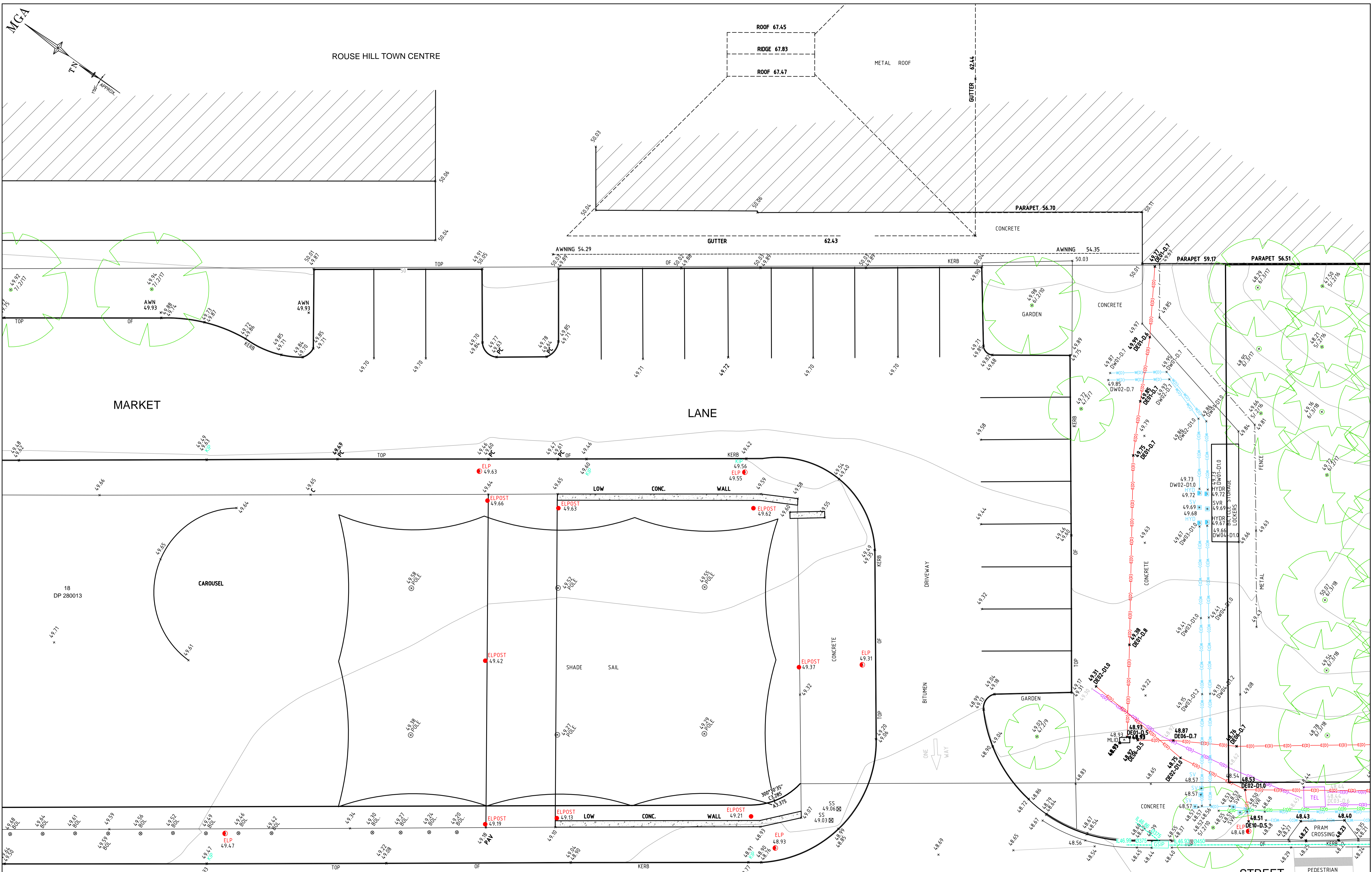


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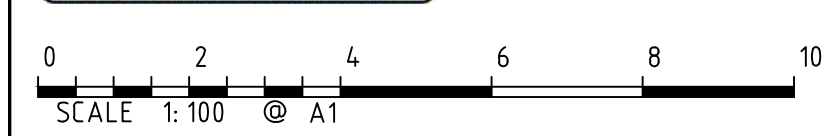
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datum AHD  
site Area 4.385m<sup>2</sup>  
LGA THE HILLS SHIRE  
reference number 51666 005DT  
scale 1:100 @A1  
date of survey 19/09/2024  
SHEET 7 OF 2



SEE SHEET 1 FOR LEGEND & NOTES



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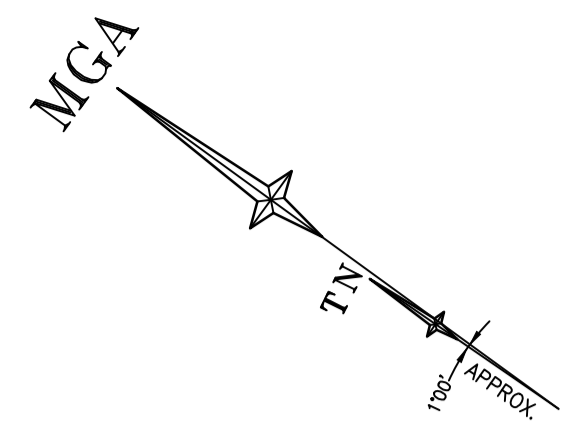
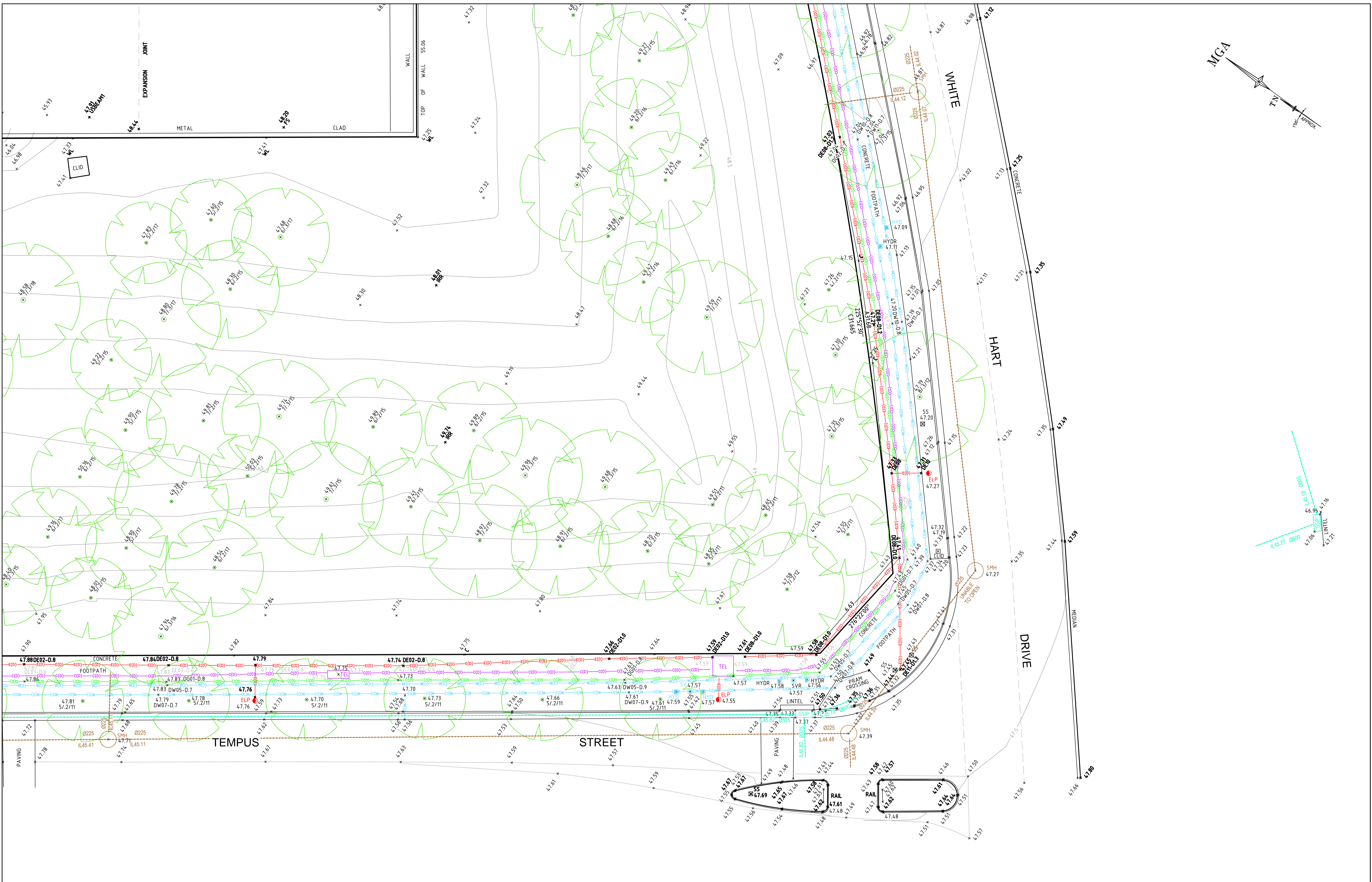


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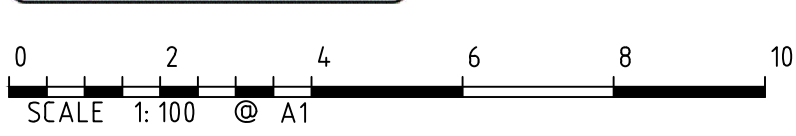
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datum AHD  
 site Area 4.385m²  
 LGA THE HILLS SHIRE  
 reference number 51666 005DT  
 scale 1:100  
 date of survey 19/09/2024  
 SHEET 7 OF 3

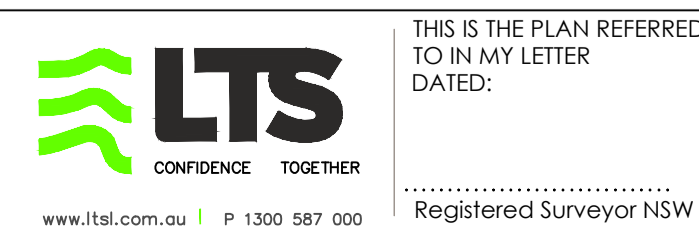




SEE SHEET 1 FOR LEGEND & NOTES



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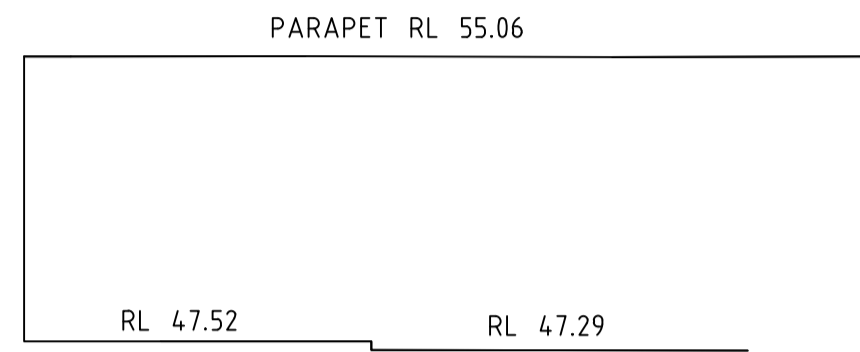


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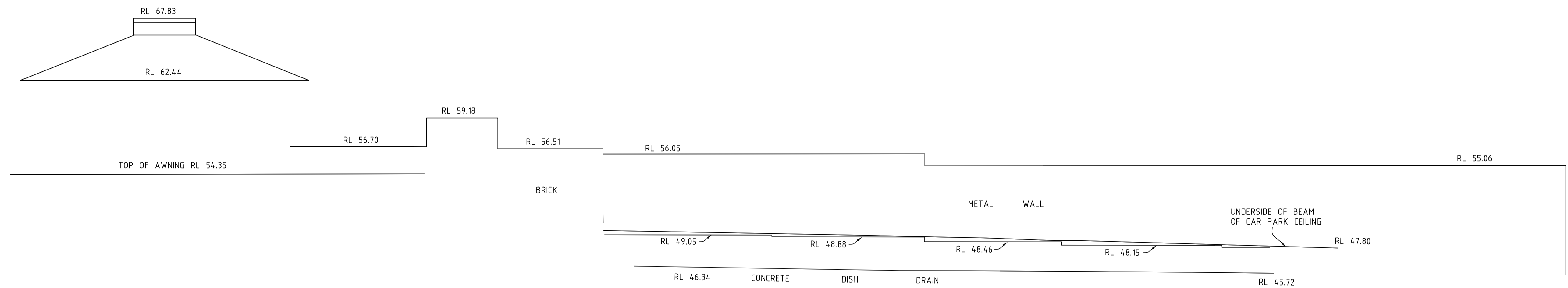
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datum AHD  
 site Area 4.385m<sup>2</sup>  
 LGA THE HILLS SHIRE  
 reference number 51666 005DT  
 scale 1:100 @A1  
 date of survey 19/09/2024  
 SHEET 5 OF 7





E2 SOUTH EASTERN ELEVATION



E1 SOUTH WESTERN ELEVATION

SEE SHEET 1 FOR LEGEND & NOTES



Revision	Date	Description	Reference	Revision	Date	Description	Reference
H	00/00/00	-	00	D	00/00/00	-	00
G	00/00/00	-	00	C	00/00/00	-	00
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datum: AHD  
site Area: 4.385m<sup>2</sup>  
LGA: THE HILLS SHIRE  
reference number: 51666 005DT  
scale: 1:200 @A1  
date of survey: 19/09/2024  
SHEET 7 OF 7



## **Appendix C**

# **SEARS Requirements**

Tempus St Rouse Hill CV

# Planning Secretary's Environmental Assessment Requirements



## Build-to-rent housing

### Application

These assessment requirements apply to eligible applications<sup>1</sup> for development that is specified in Schedule 1, Section 27 in *State Environmental Planning Policy (Planning Systems) 2021*.

## Development details

Application number	
Project name	
Location	
Applicant	
Date of issue	

## Content and guidance

Any Environmental Impact Statement (EIS) must meet the minimum form and content requirements as prescribed by Part 8 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) and the *State Significant Development Guidelines*.

Relevant policies and guidelines can be found at <https://www.planningportal.nsw.gov.au/major-projects/assessment/policies-and-guidelines>.

## Key issues and documentation

Issue and Assessment Requirements	Documentation
<p><b>1. Statutory Context</b></p> <ul style="list-style-type: none"><li>Address all relevant legislation, environmental planning instruments (EPIs) (including drafts), plans, policies, guidelines.</li><li>Identify compliance with applicable development standards and provide a detailed justification for any non-compliances.</li><li>Provide an explanation of how the development as described in the EIS is consistent with the development as was described in the request for SEARs (including any components that were not SSD) and provide a justification for any differences.</li><li>Address the requirements of any approvals applying to the site, including any concept approval or recommendation from any Gateway determination.</li></ul>	<ul style="list-style-type: none"><li>Address in EIS</li></ul>

<sup>1</sup> Industry-specific SEARs only apply to SSD applications other than those that:

- would be designated development but for the Act, section 4.10(2), or
- are partly prohibited by an environmental planning instrument (EPI), or
- are wholly prohibited by an EPI, to the extent permitted by the Act, section 4.38(5), or
- are a concept development application for State significant development.

## Build-to-rent housing

<p><b>2. Estimated Development Cost and Employment</b></p> <ul style="list-style-type: none"> <li>• Provide the estimated development cost (EDC) of the development prepared in accordance with the relevant planning circular using the Standard Form of EDC Report.</li> <li>• The EDC Report must specify the EDC of the tenanted component of the built-to-rent development, and its percentage of the total EDC.</li> <li>• Provide an estimate of the retained and new jobs that would be created during the construction and operational phases of the development, including details of the methodology to determine the figures provided.</li> </ul>	<ul style="list-style-type: none"> <li>• EDC Report</li> </ul>
<p><b>3. Design Quality</b></p> <ul style="list-style-type: none"> <li>• Demonstrate how the development will achieve: <ul style="list-style-type: none"> <li>○ design excellence in accordance with any applicable EPI provisions.</li> <li>○ good design in accordance with the seven objectives for good design in <i>Better Placed</i>.</li> </ul> </li> <li>• Demonstrate that the development: <ul style="list-style-type: none"> <li>○ where required by an EPI or concept approval, or where proposed, has been subject to a competitive design process, carried out in accordance with an endorsed brief and Design Excellence Strategy; or</li> <li>○ in all other instances, has been reviewed by the State Design Review Panel (SDRP) where required under the <i>NSW SDRP: Guidelines for Project Teams</i>.</li> </ul> </li> <li>• Recommendations of the jury and Design Integrity Panel (where a competitive design process has been held) or the SDRP are to be addressed prior to lodgement.</li> </ul>	<ul style="list-style-type: none"> <li>• Design Excellence Strategy (where design excellence is required by an EPI)</li> <li>• Competition Report (where a competitive design process has been held)</li> <li>• Design Review Report (where the project has been reviewed by the SDRP)</li> </ul>
<p><b>4. Built Form and Urban Design</b></p> <ul style="list-style-type: none"> <li>• Explain and illustrate the proposed built form, including a detailed site and context analysis to justify the proposed site planning and design approach.</li> <li>• Demonstrate how the proposed built form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality.</li> <li>• Demonstrate how the building design will deliver a high-quality development, including consideration of façade design, articulation, activation, roof design, materials, finishes, colours, any signage and integration of services.</li> <li>• Assess how the development complies with the relevant accessibility requirements.</li> </ul>	<ul style="list-style-type: none"> <li>• Architectural drawings</li> <li>• Design Report</li> <li>• Survey Plan</li> <li>• Building Code of Australia Compliance Report</li> <li>• Accessibility Report</li> </ul>
<p><b>5. Environmental Amenity</b></p>	<ul style="list-style-type: none"> <li>• Shadow Diagrams</li> <li>• SEPP 65 Verification Statement</li> </ul>

# Planning Secretary's Environmental Assessment Requirements



## Build-to-rent housing

<ul style="list-style-type: none"> <li>• Address how good internal and external environmental amenity is achieved, including access to natural daylight and ventilation, pedestrian movement throughout the site, access to landscape and outdoor spaces.</li> <li>• Assess amenity impacts on the surrounding locality, including lighting impacts, reflectivity, solar access, visual privacy, visual amenity, view loss and view sharing, overshadowing and wind impacts. A high level of environmental amenity for any surrounding residential or other sensitive land uses must be demonstrated.</li> <li>• Provide a solar access analysis of the overshadowing impacts of the development within the site, on surrounding properties and public spaces (during summer and winter solstice and spring and autumn equinox) at hourly intervals between 9am and 3pm, when compared to the existing situation and a compliant development (if relevant).</li> </ul>	<ul style="list-style-type: none"> <li>• SEPP 65 Assessment</li> <li>• View Analysis</li> <li>• Pedestrian Wind Environment Assessment</li> </ul>
<p><b>6. Visual Impact</b></p> <ul style="list-style-type: none"> <li>• Provide a visual analysis of the development from key viewpoints, including photomontages or perspectives showing the proposed and likely future development.</li> <li>• Where the visual analysis has identified potential for significant visual impact, provide a visual impact assessment that addresses the impacts of the development on the existing catchment.</li> </ul>	<ul style="list-style-type: none"> <li>• Visual Analysis</li> <li>• Visual Impact Assessment</li> </ul>
<p><b>7. Public Space</b></p> <ul style="list-style-type: none"> <li>• Demonstrate how the development maximises the amount, access to and quality of public spaces (including open space, public facilities and streets/plazas within and surrounding the site), reflecting relevant design guidelines and advice from the local council and the Department.</li> <li>• Demonstrate how the development:             <ul style="list-style-type: none"> <li>○ ensures that public space is welcoming, attractive and accessible for all.</li> <li>○ maximises permeability and connectivity.</li> <li>○ maximises the amenity of public spaces in line with their intended use, such as through adequate facilities, solar access, shade and wind protection.</li> <li>○ maximises street activation.</li> <li>○ minimises potential vehicle, bicycle and pedestrian conflicts.</li> </ul> </li> <li>• Address how Crime Prevention through Environmental Design (CPTED) principles are to be integrated into the development, in accordance with <i>Crime Prevention and the Assessment of Development Applications Guidelines</i>.</li> </ul>	<ul style="list-style-type: none"> <li>• Public Space Plan (as part of the Design Report)</li> <li>• CPTED Report</li> </ul>
<p><b>8. Trees and Landscaping</b></p>	<ul style="list-style-type: none"> <li>• Arboricultural Impact Assessment</li> </ul>

## Build-to-rent housing

<ul style="list-style-type: none"> <li>• Assess the number, location, condition and significance of trees to be removed and retained and note any existing canopy coverage to be retained on-site.</li> <li>• Provide a detailed site-wide landscape plan, that:             <ul style="list-style-type: none"> <li>○ details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage (as a percentage of the site area).</li> <li>○ provides evidence that opportunities to retain significant trees have been explored and/or informs the plan.</li> <li>○ demonstrates how the proposed development would:                 <ul style="list-style-type: none"> <li>▪ contribute to long term landscape setting in respect of the site and streetscape.</li> <li>▪ mitigate the urban heat island effect and ensure appropriate comfort levels on-site.</li> <li>▪ contribute to the objective of increased urban tree canopy cover.</li> <li>▪ maximise opportunities for green infrastructure, consistent with <i>Greener Places</i> and having regard to any bush fire risk.</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Landscape Plan</li> </ul>
<p><b>9. Ecologically Sustainable Development (ESD)</b></p> <ul style="list-style-type: none"> <li>• Identify how ESD principles (as defined in section 193 of the EP&amp;A Regulation) are incorporated in the design and ongoing operation of the development.</li> <li>• Demonstrate how the development will meet or exceed the relevant industry recognised building sustainability and environmental performance standards.</li> <li>• Demonstrate how the development minimises greenhouse gas emissions (reflecting the Government's goal of net zero emissions by 2050) and consumption of energy, water (including water sensitive urban design) and material resources.</li> </ul>	<ul style="list-style-type: none"> <li>• ESD Report</li> <li>• BASIX Certificate</li> </ul>
<p><b>10. Traffic, Transport and Accessibility</b></p> <ul style="list-style-type: none"> <li>• Provide a transport and accessibility impact assessment, which includes:             <ul style="list-style-type: none"> <li>○ an analysis of the existing transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, current daily and peak hour vehicle movements, and existing performance levels of nearby intersections.</li> <li>○ details of the proposed development, including pedestrian and vehicular access arrangements (including swept path analysis of the largest vehicle and height clearances), parking arrangements and rates (including bicycle and end-of-trip facilities), drop-off/pick-up-zone(s) and bus bays (if applicable), and provisions for servicing and loading/unloading.</li> <li>○ analysis of the impacts of the proposed development during construction and operation (including justification for the methodology used), including predicted modal split, a forecast of additional daily and peak hour multimodal network flows as a result of the development</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Transport and Accessibility Impact Assessment</li> <li>• Construction Traffic Management Plan</li> <li>• Green Travel Plan or equivalent</li> </ul>

## Build-to-rent housing

<p>(using industry standard modelling), identification of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cyclist conflict) and any cumulative impact from surrounding approved developments.</p> <ul style="list-style-type: none"> <li>○ measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms of delivery (including proposed arrangements with local councils or government agencies) of any infrastructure improvements in accordance with relevant standards.</li> <li>○ proposals to promote sustainable travel choices for employees, residents, guests and visitors, such as connections into existing walking and cycling networks, minimising car parking provision, encouraging car share and public transport, providing adequate bicycle parking and high quality end-of-trip facilities, and implementing a Green Travel Plan.</li> </ul> <ul style="list-style-type: none"> <li>● Provide a Construction Traffic Management Plan detailing predicted construction vehicle routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.</li> </ul>	
<p><b>11. Biodiversity</b></p> <ul style="list-style-type: none"> <li>● Assess any biodiversity impacts associated with the development in accordance with the <i>Biodiversity Conservation Act 2016</i> and the <i>Biodiversity Assessment Method 2020</i>, including the preparation of a Biodiversity Development Assessment Report (BDAR), unless a waiver is granted, or the site is on biodiversity certified land.</li> <li>● If the development is on biodiversity certified land, provide information to identify the site (using associated mapping) and demonstrate the proposed development is consistent with the relevant biodiversity measure conferred by the biodiversity certification.</li> </ul>	<ul style="list-style-type: none"> <li>● Biodiversity Development Assessment Report or BDAR Waiver</li> </ul>
<p><b>12. Noise and Vibration</b></p> <ul style="list-style-type: none"> <li>● Provide a noise and vibration assessment prepared in accordance with the relevant NSW Environment Protection Authority (EPA) guidelines. The assessment must detail construction and operational noise and vibration impacts on nearby sensitive receivers and structures and outline the proposed management and mitigation measures that would be implemented.</li> </ul>	<ul style="list-style-type: none"> <li>● Noise and Vibration Impact Assessment</li> </ul>
<p><b>13. Ground and Water Conditions</b></p> <ul style="list-style-type: none"> <li>● Assess potential impacts on soil resources and related infrastructure and riparian lands on and near the site, including soil erosion, salinity and acid sulfate soils.</li> <li>● Provide a Surface and Groundwater Impact Assessment that assesses potential impacts on:             <ul style="list-style-type: none"> <li>○ surface water resources (quality and quantity) including related infrastructure, hydrology, dependent ecosystems, drainage lines, downstream assets and watercourses.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>● Geotechnical Assessment</li> <li>● Surface and Groundwater Impact Assessment</li> <li>● Salinity Management Plan and/or Acid Sulfate Soils Management Plan</li> </ul>

## Build-to-rent housing

<ul style="list-style-type: none"> <li>○ groundwater resources in accordance with the <i>Groundwater Guidelines</i>.</li> </ul>	
<p><b>14. Water Management</b></p> <ul style="list-style-type: none"> <li>● Provide an Integrated Water Management Plan for the development that:             <ul style="list-style-type: none"> <li>○ is prepared in consultation with the local council and any other relevant drainage or water authority.</li> <li>○ outlines the water-related servicing infrastructure required by the development (informed by the anticipated annual and ultimate increase in servicing demand) and evaluates opportunities to reduce water demand (such as recycled water provision).</li> <li>○ details the proposed drainage design (stormwater and wastewater) for the site including any on-site treatment, reuse and detention facilities, water quality management measures and nominated discharge points.</li> <li>○ demonstrates compliance with the local council or other drainage or water authority requirements and avoids adverse downstream impacts.</li> </ul> </li> <li>● Where drainage infrastructure works are required that would be handed over to the local council, or other drainage or water authority, provide full hydraulic details and detailed plans and specification of proposed works that have been prepared in consultation with, and comply with the relevant standards of, the local council or other drainage or water authority.</li> </ul>	<ul style="list-style-type: none"> <li>● Water Management Plan</li> </ul>
<p><b>15. Flood Risk</b></p> <ul style="list-style-type: none"> <li>● Identify any flood risk on-site having regard to adopted flood studies, the potential effects of climate change, and any relevant provisions of the <i>NSW Flood Risk Management Manual</i>.</li> <li>● Where the development could alter flood behaviour, affect flood risk to the existing community or expose its users to flood risk, provide a flood impact and risk assessment (FIRA) prepared in accordance with the Flood Impact and Risk Assessment – Flood Risk Management Guide LU01.</li> <li>● Detail design solutions and operational procedures to mitigate flood risk where required.</li> </ul>	<ul style="list-style-type: none"> <li>● Flood Impact Risk Assessment</li> </ul>
<p><b>16. Contamination and Remediation</b></p> <ul style="list-style-type: none"> <li>● In accordance with Chapter 4 of SEPP (Resilience and Hazards) 2021, assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable (or will be suitable, after remediation) for the development.</li> </ul>	<ul style="list-style-type: none"> <li>● Preliminary Site Investigation</li> </ul> <p>If required:</p> <ul style="list-style-type: none"> <li>● Detailed Site Investigation</li> <li>● Remedial Action Plan</li> <li>● Preliminary Long-term Environmental Management Plan</li> </ul>
<p><b>17. Waste Management</b></p>	<ul style="list-style-type: none"> <li>● Waste Management Plan</li> </ul>

# Planning Secretary's Environmental Assessment Requirements



## Build-to-rent housing

<ul style="list-style-type: none"> <li>Identify, quantify and classify the likely waste streams to be generated during construction and operation.</li> <li>Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.</li> <li>Identify appropriate servicing arrangements for the site.</li> <li>If buildings are proposed to be demolished or altered, provide a hazardous materials survey.</li> </ul>	<ul style="list-style-type: none"> <li>Hazardous Material Survey</li> </ul>
<p><b>18. Aboriginal Cultural Heritage</b></p> <ul style="list-style-type: none"> <li>Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with relevant guidelines, identifying, describing and assessing any impacts to any Aboriginal cultural heritage sites or values associated with the site.</li> </ul>	<ul style="list-style-type: none"> <li>Aboriginal Cultural Heritage Assessment Report</li> </ul>
<p><b>19. Environmental Heritage</b></p> <ul style="list-style-type: none"> <li>Where there is potential for direct or indirect impacts on the heritage significance of environmental heritage, provide a Statement of Heritage Impact and Archaeological Assessment (if potential impacts to archaeological resources are identified), prepared in accordance with the relevant guidelines, which assesses any impacts and outlines measures to ensure they are minimised and mitigated.</li> </ul>	<ul style="list-style-type: none"> <li>Statement of Heritage Impact</li> <li>Archaeological Assessment</li> </ul>
<p><b>20. Social Impact</b></p> <ul style="list-style-type: none"> <li>Provide a Social Impact Assessment prepared in accordance with the <i>Social Impact Assessment Guidelines for State Significant Projects</i>.</li> </ul>	<ul style="list-style-type: none"> <li>Social Impact Assessment</li> </ul>
<p><b>21. Infrastructure Requirements and Utilities</b></p> <ul style="list-style-type: none"> <li>In consultation with relevant service providers:             <ul style="list-style-type: none"> <li>assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site.</li> <li>identify any infrastructure required on-site and off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained.</li> <li>provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Infrastructure Delivery, Management and Staging Plan</li> </ul>
<p><b>22. Bush Fire Risk</b></p> <ul style="list-style-type: none"> <li>If the development is on mapped bush fire prone land, or a bush fire threat is identified on or adjoining the site, provide a bush fire assessment that details proposed bush fire protection measures and demonstrates compliance with <i>Planning for Bush Fire Protection</i>.</li> </ul>	<ul style="list-style-type: none"> <li>Bush Fire Assessment</li> </ul>
<p><b>23. Aviation</b></p>	<ul style="list-style-type: none"> <li>Aviation Report</li> </ul>

# Planning Secretary's Environmental Assessment Requirements



## Build-to-rent housing

<ul style="list-style-type: none"> <li>• If the development proposes a helicopter landing site (HLS), assess its potential impacts on the flight paths of any nearby airport, airfield or HLS.</li> <li>• If the site contains or is adjacent to a HLS, assess the impacts of the development on that HLS.</li> </ul>	
<p><b>24. Construction, Operation and Staging</b></p> <ul style="list-style-type: none"> <li>• If staging is proposed, provide details of how construction and operation would be managed and any impacts mitigated.</li> </ul>	<ul style="list-style-type: none"> <li>• Address in EIS</li> </ul>
<p><b>25. Contributions and Public Benefit</b></p> <ul style="list-style-type: none"> <li>• Address the requirements of any relevant contribution plan(s), planning agreement or EPI requiring a monetary contribution, dedication of land and/or works-in-kind and include details of any proposal for further material public benefit.</li> <li>• Where the development proposes alternative public benefits or a departure from an existing contributions framework, the local council, the Department and relevant State agencies are to be consulted prior to lodgement and details, including how comments have been addressed, are to be provided.</li> </ul>	<ul style="list-style-type: none"> <li>• Address in EIS</li> </ul>
<p><b>26. Engagement</b></p> <ul style="list-style-type: none"> <li>• Detail engagement undertaken and demonstrate how it was consistent with the <i>Undertaking Engagement Guidelines for State Significant Projects</i>. Detail how issues raised and feedback provided have been considered and responded to in the project. In particular, applicants must consult with:             <ul style="list-style-type: none"> <li>○ the relevant Department assessment team.</li> <li>○ any relevant local councils.</li> <li>○ any relevant agencies (including the Western Parkland City Authority for development within the Western Parkland City).</li> <li>○ the community.</li> <li>○ if the development would have required an approval or authorisation under another Act but for the application of s 4.41 of the EP&amp;A Act or requires an approval or authorisation under another Act to be applied consistently by s 4.42 of the EP&amp;A Act, the agency relevant to that approval or authorisation.</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Engagement Report</li> </ul>

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Build-to-rent housing

## Version details

Version Number	Publication Date	Notes
1.7	January 2024	Updated to reflect 2024 MOG changes
1.8	March 2024	Updated to incorporate feedback from agencies & accommodate flooding & EDC updates



## **Appendix D**

### **Pre-DA conditions**

Tempus St Rouse Hill CV



## DEVELOPMENT ASSESSMENT

### PRE-LODGEMENT MEETING NOTES

6 March 2024

56/2024/PRE

APPLICANT: Freecity C/-Urbis  
TELEPHONE: 0423 779 631 - Simon Wilkes  
PROPERTY: Lot 19 DP 280013, Lot 18 DP 280013, Tempus Street, ROUSE HILL  
(Rouse Hill Town Centre)  
ZONING: MU1 Mixed Use  
SUBJECT: Build to Rent Housing, Serviced Apartments and Commercial  
Development  
OFFICERS IN ATTENDANCE: Kristine McKenzie – Principal Co-ordinator Development Assessment  
Megan Munari – Principal Co-ordinator Forward Planning  
Comments provided by other Council staff and detailed below

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#### **PROPOSAL:**

- The proposal is for a build to rent housing, serviced apartments and commercial development which will be a State Significant DA.
- The proposed works include:
  - Maximum height of 18 storey;
  - Build to rent housing including 208 units;
  - Serviced apartments including 45 units;
  - Commercial/retail area on lower three levels of approximately 7000m<sup>2</sup>.
- The applicant has indicated a cost of works of approximately \$180M.

#### **ISSUES DISCUSSED:**

In broad terms, the proposed uses are not supported by Council staff on this site. As outlined below, increased residential development is not needed on this site and is not anticipated by the strategic and statutory planning framework, which identifies commercial/non-residential outcomes for this land. If additional building mass is suitable for the site, it would be preferred if this was occupied by employment generating uses, rather than residential uses.

As such whilst residentially based uses may be permitted within the MU1 Mixed Use zoning, they are not considered to be the most suitable use for the site.

### Planning Comments:

- The information provided is conceptual in nature only and as such detailed comments are not able to be provided.
- Documents are to be updated to make reference to the approved Rouse Hill Masterplan under DA 1604/2004/HB (as amended) and the approved Town Centre Precinct Plan DA 1581/2005/HB (as amended and distinct from the Rouse Hill Strategic Centre Precinct Plan adopted November 2023) and address how the proposal complies or otherwise with these approvals.
- The density provisions of the Masterplan, Precinct Plan and DCP Part D Section 6 – Rouse Hill Regional Centre are required to be considered.
- The approved land use under the Masterplan indicates a community/retail use.
- The information submitted in regard to the location of parking does not specify the location of parking in regard to the site boundaries and the existing shopping centre parking. The information also indicates that half the parking required for the development by the DCP will be provided which, given the high car ownership in the Shire, is unlikely to address the needs of future residents notwithstanding the location of the site in close proximity to the Metro and bus line. A Parking Report including an assessment of modal split is required to support any reduced parking rate. A minimum of one space per rental unit/serviced apartment should be provided.
- The plans and documents are required to be consistent in regard to height – in this regard the massing plans show an 18 storey height and other plans indicate 20 storey.
- The applicant indicated that they have discussed the proposed height with the Department given the proposed variation to the approved Masterplan and Precinct Plan and the adopted Strategic Centre Precinct Plan. There are a number of options being considered by the applicant and the Department has advised the applicant to provide legal advice to support their preferred option. The applicant was requested to submit the advice also to Council staff for review.
- The applicant was advised of the Rouse Hill Design Review Panel (DRP) and were advised to contact GPT to arrange attendance at a DRP meeting as all DAs are required to be endorsed by the DRP prior to lodgement.

### Strategic Planning Comments:

- The Hills has undertaken active planning for residential growth and has not only met, but exceeded, its housing targets, as articulated in the current strategic planning framework. Increased residential development is not needed on this site and is not anticipated by the strategic and statutory planning framework, which identifies commercial/non-residential outcomes for this land. If additional building mass is suitable for the site, it would be preferred if this was occupied by employment generating uses, rather than residential.
- As such any residential growth is not accounted for in the existing contributions planning framework and the proposal should identify the demand placed on existing infrastructure and consider contributions toward infrastructure upgrades that could meet this demand, particularly with respect to traffic and transport items and active and passive open space. Any DA lodged should be accompanied by a Letter of Offer.
- The proposed building height appears excessive for the site and there are concerns that the visual impact and shadowing on the street, as well as the open space the south east.
- The massing study indicates that the ground level will be comprised of commercial/serviced apartments/back of house and amenities. This will not adequately integrate with the existing character and uses expected at the street level in the town centre. This site is extremely close to the station and it is expected that the ground floor uses will be consistent with the existing uses, such

as retail, food and drink premises and services with active street frontages, particularly fronting Tempus Street.

Landscape Comments:

a. Ecology:

Consideration is to be given to whether the proposal will trigger entry into the Biodiversity Offset Scheme (BOS). The development is expected to propose a number of native trees (native to NSW) for removal, which may exceed the area clearing threshold and trigger into the BOS. An accredited assessor is to be engaged to undertake this assessment. In the development entry into the Biodiversity Offset Scheme, a finalised Biodiversity Development Assessment Report is to be provided.

b. Trees and Landscaping

- An Arboricultural impact Assessment (Arborist Report) is to be prepared by a suitably qualified Australian Qualification Framework Level 5 Arborist in accordance with Australian Standard 4970-2009 Protection of Trees on Development Sites. The report should contain the following information:
  - Identify all existing trees on site, and on neighbouring sites in the vicinity of the site boundaries, including species, condition, height and spread;
  - Identify development impacts on trees to be retained and provide recommendations to minimise encroachments to enable tree retention where possible. Neighbouring trees must be demonstrated to be retainable and able to be protected; and
  - Identify whether trees are to be removed or retained; and
  - Details of how those trees to be retained will be protected during construction.
- Provide fully detailed Landscape Plans (to scale) for the landscaping of the site prepared by a suitably qualified landscape architect or landscape designer, providing high quality landscaping in accordance with THDCP Part C Section 3 Landscaping indicating:
  - Trees to be retained and removed;
  - Existing contours and spot;
  - Proposed landscape levels throughout the landscape;
  - Top of wall (TOW) wall height and soil depth of planter boxes, with all retaining walls clearly located on the plans;
  - Surface finishes, and retaining wall finishes and materials;
  - Retaining walls and garden edging; clearly located and distinguished from one another;
  - Fully detailed Planting Plans indicating species locations on Plan and in Planting Schedule including name, size and quantities. Large mass planted 'Mixes' are not supported and sufficed detail or provision of numerous planting mixes must be provided;
  - Use a mix of trees, shrub and groundcovers;
  - Proposed fencing heights and materials are to be shown on the landscape plan; and
  - Roof over, where areas have an enclosed roof over.
- Planting to provide softening of the development is to be provided within setbacks wherever possible.
- Planting is to be considerate of overshadowing and aspect.

- All planting must be demonstrated to be able to be sustained by minimum soil depths and be able to be maintained. Significant detail is to be provided to allow an assessment soil depth and accessibility of garden areas for maintenance.
- For all planting on slab and planter boxes allow the following minimum soil depths:
  - 1.2m for large trees or 800mm for small trees;
  - 650mm for shrubs;
  - 300-450mm for groundcover; and
  - 200mm for turf.

Note: this is the soil depth alone and not the overall depth of the planter, and that mounding to achieve soil depth is not supported.
- In order to provide sufficient detail of soil depth, a slab plan, and/or slab levels, and sections with soil depth dimensions throughout the development are to be provided. It is to be noted that considerable soil mounding is not supported, and appropriate wall heights or dropped slabs must be provided to provide sufficient depth of soil.
- Street Tree species are to be in accordance with the Rouse Hill Street Tree Masterplan
- The Landscape Plan is to be fully co-ordinated with architectural and civil/stormwater plans.
- Any proposed public domain elements are to be clearly identified and detailed on the landscape plan.

Health Comments:

- An acoustic report is required to be submitted. This report must address noise issues associated with the location of the site and the use of the site including but not limited to noise from the Rouse Hill Station and associated metro line, the loading dock, vehicle and shopping centre noise and mechanical ventilation from the premises. The report is to detail the proposed internal noise levels within the residential units and provide detail as to how these noise levels will be met. The acoustic report shall include noise emission considerations and details such as:
  - Project description;
  - Relevant guidelines or policy that has been applied;
  - Background noise measurements;
  - Details of instruments and methodology used for noise measurements (including reasons for setting and descriptors used, calibration details);
  - A site map showing noise sources, measurement locations and noise receivers;
  - Noise criteria applied to the project;
  - Noise predictions for the proposed activity
  - A comparison of noise predictions against noise criteria;
  - A discussion of proposed noise mitigation measures, the noise reduction likely and the feasibility and reasonableness of these measures; and
  - How compliance can be practically determined

The acoustic report is to be carried out by an appropriately qualified and practicing acoustical consultant in accordance with the requirements of the Environmental Protection Authority's *Noise Policy for Industry*.

## Engineering Comments:

### a. Stormwater

- The design of the stormwater including Water Sensitive Urban Design shall be consistent with the approved stormwater management strategy under Masterplan DA 1604/2004/HB (as amended) and DA 1581/2005//HB (as amended)
- The capacity of the stormwater system into which stormwater from the development discharges into, must be checked/analysed. Please note that the check/analysis shall be carried out to the legal point of discharge to ensure that the street pits will not be surcharged during minor events up to the 10 years ARI storm event and up to the 20 years ARI storm event for the sag pit.
- A stormwater plan and report shall be submitted with the application. Refer to Section 4.4 - Lawful Point of Discharge of Council's Design Guidelines Subdivisions/ Developments.
- The OSD, water quality and rainwater tanks shall be shown on the civil plans and relevant sections plans. OSD and rainwater tanks are permitted on common areas only.
- Any proposed work on Council's land/road due to the proposed development shall be prepared and provided in accordance with Council's Design Guidelines Subdivisions/ Developments and Works Specifications Subdivisions/Developments.
- A catchment plan (including internal and external), pipe sizes, design and existing levels shall be shown on the plans.
- OSD is required for this development and shall be designed in accordance with the UPRCT and Hawkesbury parameters shall be utilised.
- The Water Sensitive Urban Design elements must demonstrate a reduction in annual average pollution export loads from the development site in line with the following environmental targets:
  - 90% reduction in the annual average load of gross pollutants
  - 85% reduction in the annual average load of total suspended solids
  - 65% reduction in the annual average load of total phosphorous
  - 45% reduction in the annual average load of total nitrogen
  - All model parameters and data outputs are to be provided.
- Any proposed retaining wall shall be designed such that it accepts and caters for any surface runoff from the up slope adjoining land in a 'failsafe' manner without affecting any other property. No diversion or concentration of stormwater surface flows will be permitted. Any proposed retaining wall including footing and subsoil drain shall be design and constructed fully inside the property boundary
- Civil Engineering plans shall be prepared and provided as part of the application. This shall include but not limited to full road's width, long section, cross-section, earthworks, extent of the cut/full, drainage, services...etc. Earthwork plan, cut & fill, and retaining wall shall be provided on a separate plan.
- Any proposed work on Council's land/road due to the proposed development shall be subject/ requires separate approval from Council beforehand via Section 138 of the Roads Act 1993.
- When OSD, Water Sensitive Urban Design elements and rainwater tanks are provided for the development, Positive Covenant/Restriction-as-to-use – legal protection are required to be placed on a property title requiring owners to repair and maintain the OSD systems.

### b. Road layout and traffic

- A traffic report prepared by suitably qualified traffic engineer shall be provided with the application. The traffic report will be required addressing sight distance, driveways, ramps, circulation aisles, car park areas, clearance heights etc.

- The design of the internal road and site access shall comply with Part D Section 6 Rouse Hill Regional Centre and the Precinct Plan under Masterplan DA 1604/2004/HB (as amended) and DA 1581/2005//HB (as amended)
- Minimum Sight Distance Requirements (MSDR) and Minimum Gap Sight Distance (MGSD) (including sight distance for pedestrian) shall comply with relevant Ausroad and AS/ NZS 2890.1, AS 2890.2 and AS/ NZS 2890.6.
- A footpath and shared pathway shall be shown on the plans and shall be connected to an existing footpath and shared pathway
- Details are to be provided for expected longest vehicle type that will access the driveway/basement (e.g. MRV/HRV).
- Carpark layout driveways, and aisles are to be designed according to the relevant Australian Standards. AS/NZS 2890.1:2004, AS 2890.2-2002 and AS/NZS 2890.6:2009. All dimensions are to be clearly labelled on the plans. Plans should also clearly identify if spaces are dedicated to visitor or staff. All dimensions are to be detailed on the plan including the parking spaces relevant to the user classification.
- A cross section plan of all ramps will need to be provided on plan and it must detail the gradient and the rate of grade change compliance with the relevant Australian Standards.
- Submit swept turning paths demonstrating the required manoeuvring in order for longest vehicle to enter and leave the site in a forward direction.
- The driveway width must be designed to facilitate the expected longest vehicle type and a B99 car pass each other simultaneously (i.e. maintaining two-way traffic flow).
- The driveway must be a minimum of 6m wide for the first 6m into the site, measured from the boundary.
- A turning bay will need to be provided within the basement visitor parking.

c. Flooding

- Flood compliance report prepared by a suitably accredited in flood engineering must be submitted with the application satisfying the requirements of Part C – Section 6 – Flood Controlled Land.
- For a copy of the flood information/advice you need to contact Council's Waterways and Stormwater team. Mr Anisul Huq, Council's Floodplains Systems Engineer, can be contacted on 9843 0464 or via his e-mail: [ahug@thehills.nsw.gov.au](mailto:ahug@thehills.nsw.gov.au)

Waste Comments:

- Onsite waste collection must be proposed for all uses of the site (residential and commercial).
- Vehicular access and loading must be designed in accordance with Australian Standards AS2890.2 for the standard 12.5m long Heavy Rigid Vehicle at minimum.
  - A minimum vertical height clearance of 4.5m must be provided.
  - Service bays must have a minimum width of 4.5m to provide the operational space needed to wheel bulk bins to the rear of the collection vehicles.
  - Waste collection vehicles must enter and exit each site in a forward direction. Reversing must be limited to one reverse manoeuvre performed wholly onsite as part of a typical 3-point turn to help access the waste collection bay. Turntables will not be supported.
  - Two-way traffic flow between waste collection vehicles and the standard B99 passenger vehicle (AS2890.1) must be achieved at the footpath crossover and driveway aisle.

- The following standard residential waste generation rates and collection schedules are applicable to calculate the total minimum number of 1100 litre sized garbage and recycling bins the central bin collection room must be designed to accommodate. Organics bins will be collected in 240 litre sized bins:

Developments with 200-249 apartments:

- 120 litres of garbage per unit collected once weekly,
- 120 litres of recycling per unit collected once fortnightly,
- 15L litres of food organics per unit collected once weekly,
- A residential central bin collection room (separate from the commercial bin collection room) must be provided that can comfortably store the total minimum number of bins required to service the site in accordance with the standard waste generation rates detailed above. The central bin collection room must be located to open directly onto the dedicated waste loading bay.
- The layout of the central bin collection room must be shown on plans with bins drawn to scale. Bins must not be stacked more than 2 rows deep. All internal walkways and the waste servicing door must have a clear floor width of 1.5m.
  - 1100L bin dimensions: 1245mm deep, 1370mm wide, and 1470mm high.
  - 240L bin dimensions: 735mm deep, 580mm wide, and 1080mm high.
- The residential central bin collection room must have a separate resident access door that ensures residents do not access the loading bay when accessing the room to dispose of waste directly into the bins. The resident access door must be wheelchair accessible.
- If any residential lift core is located more than 75m of the central bin collection room a temporary bin holding room must be provided adjacent to the lift core to ensure residents have convenient access to a waste disposal point.
- A separate bulky waste storage room must be provided and located adjacent to the loading bay and central bin collection room. The room must be sized to accommodate 4m<sup>2</sup> per 50 apartments, rounded up to provide the best operational outcome.
- A private waste contractor must be engaged to service the commercial tenancies and the serviced apartments.
- Applicable Waste generation rates for commercial uses and the serviced apartments can be found in the NSW Better Practice Guide for Resource Recovery in Residential Developments 2019 – Table F3 on page 95 '*Calculating commercial and industrial waste and recycling generation rates*'.

It should be noted that commercial waste collection methodologies can vary, including front-lift collection, rear-loading collection, and a range of other systems. Any applications must submit an Operational Waste Management Plan detailing the proposed ongoing commercial waste management systems.

- Clear vertical height clearances and driveway ramp grades must consider commercial waste collection methodologies.
- A central bin collection room (separate from the residential bin collection room) must be provided that can comfortably store the total minimum number of bins required to service the commercial tenancies and the serviced apartments accordance with the standard waste generation rates detailed in the NSW EPA Better Practice Guide for Resource Recovery 2019. The central bin collection room must be located to open directly onto the dedicated loading bay.

#### Traffic Comments:


- A traffic and parking impact assessment report is required to demonstrate that the anticipated traffic generation will not adversely impact on the surrounding roads and intersections. The proposed development must not cause any queuing

on White Hart Drive from the proposed driveway accesses. The report shall include traffic modelling of all access points and surrounding intersections for the existing and plus-development scenario for the opening year and future year 2036.

- Concern is raised that there will be an increased risk of car collisions on White Hart Drive due to the proximity of the proposed driveways to the intersection of Tempus Street and White Hart Drive. A sight distance assessment shall be undertaken to demonstrate compliance with Australian Standards and Austroads Guide in terms of Approach Sight Distance (ASD), Stopping Sight Distance (SSD), Safe Intersection Sight Distance (SISD) and Minimum Gap Sight Distance (MGSD) for vehicles entering and exiting the proposed driveways (including the loading dock driveway) and Tempus Street. A deceleration lane on White Hart Drive may be required.
  - Pedestrian sight distance shall comply with AS2890.1.2004 and clearly shown on the plan. Any proposed vegetation e.g. street tree, garden bed etc must not impede the pedestrian sight distance. Considering this site is in proximity to Metro station with high volume of pedestrian traffic, a flashing light/alarm system is suggested to be installed at the proposed driveway entrance/exit to warn pedestrians on the footpath of the oncoming vehicle.
  - Swept paths shall be provided demonstrating simultaneous movements of the largest service vehicle and a B99 vehicle accessing the driveways.
  - Adequate on-site parking spaces shall be provided for all intended uses and comply with DCP requirements. The existing on-street parking must not be affected. Short-term drop-off/pick-up bays (for both mini-bus and cars) for visitors checking in/out of the serviced apartments are to be provided within the basement parking.
  - Clear and visible wayfinding signs shall be provided on White Hart Drive to direct vehicles to the car park entrance.
- *With respect to the provision of telecommunication infrastructure, the applicant is required to investigate whether the subject site falls within the National Broadband Network's fibred area/ make an online application via the NBN website:*  
[www.nbnco.com.au](http://www.nbnco.com.au)

***Finally, it should be acknowledged that the above advice is preliminary only and is based on the information provided to date and limited research into the sites history and constraints. Any application submitted would be subject to a more thorough assessment that could potentially add to or amend the above advice. This advice does not bind Council to a decision should an application be received.***

#### PRELODGE MENT



**Kristine McKenzie**  
**PRINCIPAL COORDINATOR**

13 March 2024

## Contact Details

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