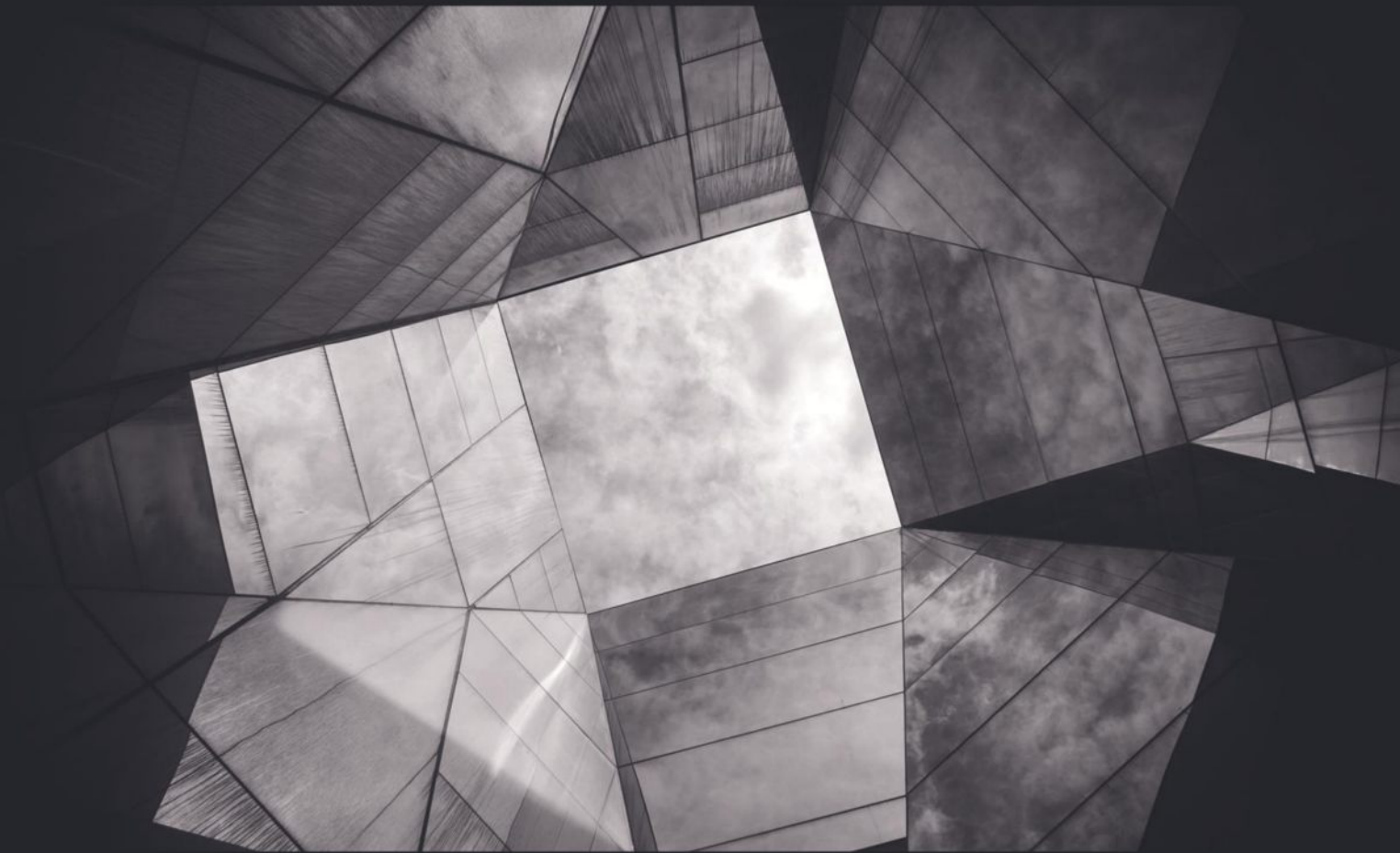


NAXOS

ENGINEERS

HYDRAULIC REPORT OVERLAND FLOW ANALYSIS



PROPOSED RESIDENTIAL SUBDIVISION

290 FREEMAN RD, INALA QLD 4077

ROOFBROOK CONSULTING ENGINEERS PTY LTD

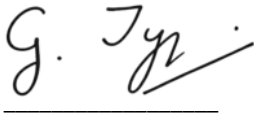
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1.0 INTRODUCTION

1.1. OVERVIEW

Naxos Engineers Pty Ltd has been engaged by our client Roofbrook Consulting Engineers Pty Ltd to prepare this Hydraulic/Overland Flow Report for a proposed residential subdivision at 290 Freeman Road, Inala QLD 4077 (subject site).

This Report will form part of the Development Application which will be submitted to Brisbane City Council (BCC) as supporting documentation for the proposed development.

A TUFLOW two-dimensional unsteady state model has been developed to simulate the effects of overland flow flooding in its current existing state and post construction/Development state.

This Report will address the following issues that affect the proposed Development site:

- Determine the extents of the 2% AEP storm overland flow traversing the subject site,
- Define the floor levels as required by Brisbane City Council City Plan 2014
- Provide appropriate flood immunity.

1.2. AVAILABLE INFORMATION

- Proposed Subdivision Layout prepared by Lawson Surveys. (Appendix A)
- Detail Survey Plan prepared by Lawson Surveys. (Appendix B)
- BCC Overlay and Utility Mapping Documentation. (Appendix C)

2.0 SCOPE OF REPORT

This Report will address the following overland flow flooding issues:

- Identify the existing overland flow flood hazard affecting the subject site and the applicable Flood Planning Area designation under Brisbane City Council City Plan 2014,
- Assess the compatibility of the proposed land use with the identified flood hazard,
- Determine the minimum lot levels required for the proposed subdivision in accordance with the Flood Overlay Code,
- Prepare a TUFLOW hydraulic model to determine the 2% AEP flood extents, depths, and water levels across the subject site, and
- Demonstrate that the proposed Development will not result in any adverse hydraulic impacts to downstream or adjoining properties.

3.0 SITE CHARACTERISTICS

3.1. LOCATION

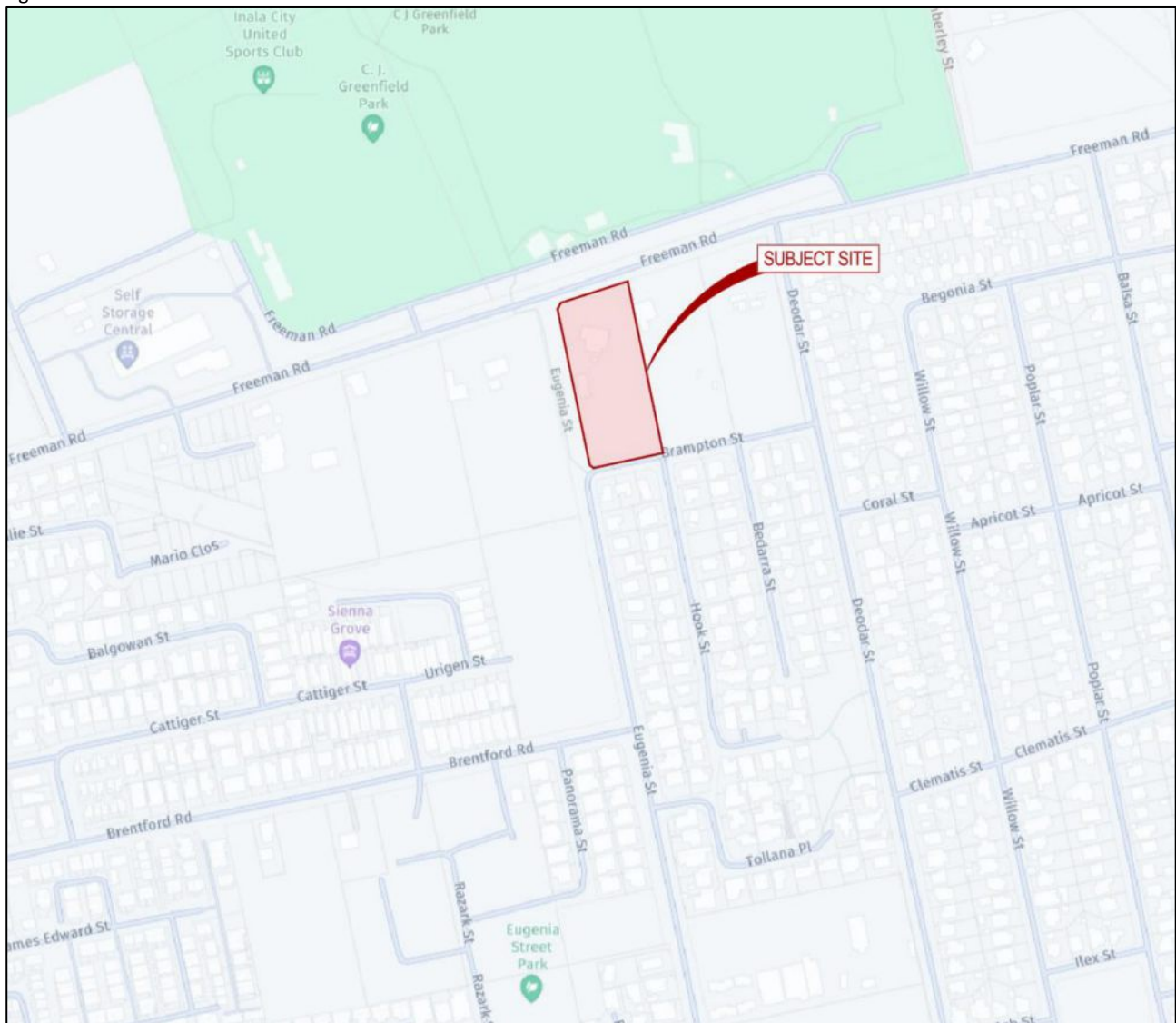
The Table below outlines the property details that have been extracted from the BCC Property Lot Report generated for the subject site.

Table 3-1 PROPERTY DESCRIPTION

Subject Site Street Address	290 Freeman Road, Inala 4077 QLD
Lot / RP Descriptions	Lot 45 RP52227
Title Area	9,853m ²
City Plan 2014 Zone	LMR3 – Low-Medium Density Residential (Up to 3 storeys)

The Figure below illustrates the sites locality.

Figure 3-1 SITE LOCATION



3.2. PRE-DEVELOPMENT SITE DESCRIPTION AND USE

LOCATION & CONTEXT

The subject site is located at 290 Freeman Road, Inala, within the Brisbane City Council (BCC) local government area, approximately 14 km southwest of the Brisbane CBD. The site is formally described as Lot 45 on RP52227 and has a total area of approximately 9,853m².

The surrounding land use context is predominantly low- to medium-density residential.

SITE CONDITIONS & TOPOGRAPHY

As illustrated in Figure 2-2 below, the site is currently utilized for residential purposes with a single dwelling located on the site with associated sheds, paths and driveways. Ground levels across the site range from approximately 35.45 m AHD along the northern boundary, falling to a minimum of approximately 33.35 m AHD at the central low point, before rising to approximately 34.94 m AHD near the southern boundary. The northern and southern portions of the site exhibit a moderate and generally uniform grade, with the entirety of the site draining toward the central low point.

A detailed survey plan is provided in Appendix B.

Figure 3-2 SITE AERIAL



3.3. EXISTING STORMWATER DISCHARGE

Based on the available information, including Brisbane City Council records and the detailed survey prepared for the site, the following existing stormwater infrastructure has been identified adjacent to and within the subject site:

An unformed, open drain (BCC Asset ID: T11000004) traverses the site in a meandering alignment from west to east, occupying the central low-lying corridor of the lot. This drain functions as the primary stormwater conveyance path for the site, receiving overland flow from both the northern and southern sub-catchments under existing conditions, in addition to conveying runoff generated by the upstream catchment.

The drain is unlined and currently unformed, with no engineered channel geometry. Given its meandering planform and unconfined nature, the drain exhibits variable hydraulic capacity and is susceptible to localised overbank flow under moderate to major storm events.

Discharge from the wider upstream catchment is introduced to the open drain via an existing headwall structure (BCC Asset ID: L15147040), located in the south-western corner of the site.

The existing dwelling on-site currently discharges roof water to surface level, where it combines with general surface runoff and conveys southward in accordance with the natural topographic contours, ultimately draining to the open drain described above.

Figure 3-3 EXISTING STORMWATER INFRASTRUCTURE (BCC INFRASTRUCTURE MAPPING)



3.4. PROPOSED DEVELOPMENT

The proposed Development involves the demolition of the existing dwelling and associated structures, followed by the reconfiguration of Lot 45 on RP52227 into 10 new lots in accordance with the subdivision layout within in Appendix A.

The proposed subdivision yields the following:

- 8 x residential allotments ranging in area from 332m² to 2287m², intended for residential use.
- 1 x 3,043m² drainage reserve lot for the existing unformed open channel (T11000004)
- 1 x 400m² lot for stormwater management as detailed in the SBSMP prepared by Naxos Engineers.

The stormwater management lot (Lot 101) is proposed to accommodate a stormwater treatment basin designed to address both water quality and quantity objectives as detailed in the SBSMP prepared by Naxos Engineers.

The drainage reserve lot (Lot 100) is proposed over the existing unformed open drain, to facilitating ongoing BCC access and maintenance.

4.0 FLOODING AND FLOOD PLANNING ASSESSMENT

4.1. FLOOD OVERLAY MAPPING

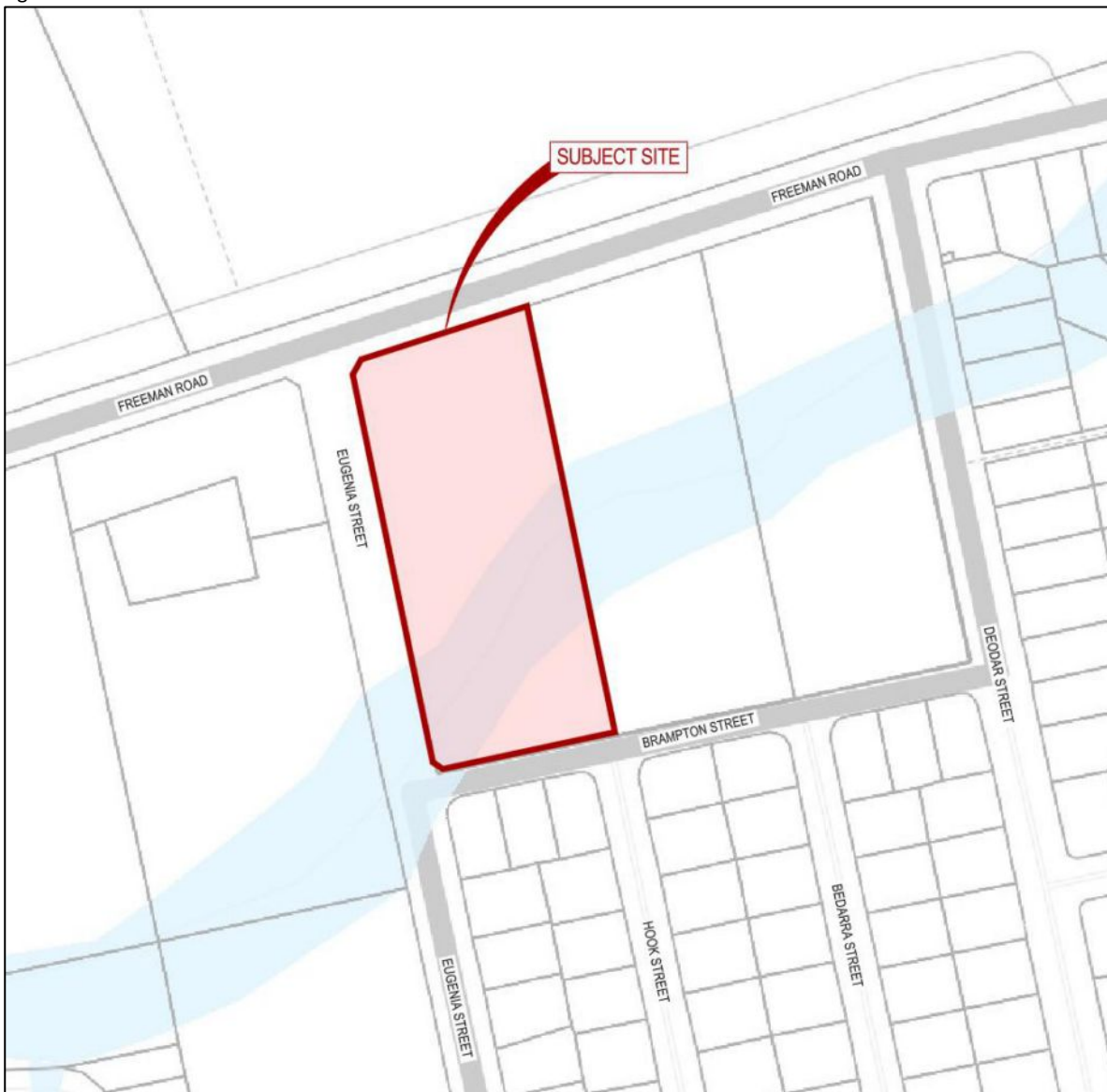
A BCC FloodWise Property Report was generated for the subject site (refer Appendix D). The Flood Planning Areas (FPA's) and sub-categories relevant to the subject site are summarised in Table 4-2 below.

Table 4-2 PROPERTY DESCRIPTION

Flood Planning Areas	Sub-Category	Applicable
Brisbane River	1, 2a, 2b, 3, 5 and/or 5	No
Creek/Waterway	1, 2, 3, 4 and/or 4	No
Overland Flow	-	Yes

The extent of the Overland Flow Flood Planning Area is illustrated in Figure 3-4.

Figure 4-4 OVERLAND FLOW FLOOD PLANNING AREA EXTENTS



4.2. LAND USE COMPATIBILITY WITH FLOOD HAZARD

Below is an extract from Brisbane City Council's City Plan 2014 Part 8 Overlay Codes, Flood Overlay Code Table 8.2.11.3.C – Land Use Compatibility with Flood Hazard which is used to determine compatibility of the proposed use of the Development with the flood hazard type.

For the purposes of this assessment, the future land use of the proposed allotments has been assumed to be multiple dwelling (1–3 storeys) in accordance with the BCC zoning of the site. Given the lot sizes and potential for subsequent townhouse development, this assumption represents the most conservative approach.

FPA sub-categories that apply to the proposed Development are highlighted in orange.

Table 4-3 LAND USE COMPATIBILITY WITH FLOOD HAZARD

Activities	Brisbane River FPA						Creek/Waterway FPA					Overland Flow FPA
	5	4	3	2B	2A	1	5	4	3	2	1	
Multiple Dwelling (1-3 Storeys)	C	C	#	#	#	#	C	#	#	#	#	C

C: Land use is compatible with the flood hazard subject to meeting all other relevant requirements.

#: A Flood Risk Assessment in accordance with the requirements of the Flood Planning Scheme Policy is required to demonstrate the use is compatible with the flood hazard.

Notes—

- A flood risk assessment is required for residential reconfiguring a lot Development where creating more than two new lots in the overland flow flood planning area sub-category.
- Additional requirements apply for the Brisbane River flood planning area sub-category if the residential flood level is greater than 12.8m AHD.
- Minimum site levels, requirements for no adverse off-site impacts and other provisions in the planning scheme still apply.

As outlined in Table 4-3 above, the proposed use of 'Multiple Dwelling (1-3 Storeys)' is compatible with the flood hazard associated with the Overland Flow FPA, and therefore a flood risk assessment is not required.

Furthermore, no new residential allotments are created within the Overland Flow FPA. The area subject to overland flow flood hazard falls entirely within Lot 101, which is dedicated as a drainage reserve as outlined in Section 2.4.

4.3. REQUIRED FLOOD IMMUNITY LEVELS FOR ROL

Based on Brisbane City Council's City Plan 2014 Part 8 Overlay Codes, Flood Overlay Code Table 8.2.11.3.J – Flood Planning Levels for Reconfiguring a Lot, the following minimum lot levels are required for the proposed development.

Table 4-4 REQUIRED FLOOD IMMUNITY CATEGORIES

Flooding Source	Minimum Lot Levels (m AHD)		
	Residential (Creating 6 or less lots with no new road)	Residential (Creating 6 or more lots), or a new road	Other than residential
Brisbane River	2% AEP Flood Level + 300mm	1% AEP Flood Level + 300mm	1% AEP Flood Level
Creek/Waterway	Minimum 300m ² at 1% AEP Flood Level + 300mm	1% AEP Flood Level + 300mm	2% AEP Flood Level
Overland Flow	Minimum 300m ² at 2% AEP Flood Level + 300mm	2% AEP Flood Level + 300mm	2% AEP Flood Level

In accordance with Table 4-5 above and given the proposed subdivision creates more than 6 residential allotments, all new lots are required to achieve a minimum lot level of the 2% AEP Overland Flow flood level plus 300mm AHD.

As no 2% AEP overland flow flood level was available within the BCC FloodWise Property Report for the subject site, a TUFLOW hydraulic model was developed to determine the 2% AEP flood extent and flood levels across the site.

The model was further utilised to assess whether the proposed Development results in any adverse off-site hydraulic impacts, including changes to flood levels, velocities, and flow paths in the surrounding area. The modelling methodology, results, and findings are detailed in the following sections of this Report.

5.0 OVERLAND FLOW

5.1. UPSTREAM CATCHMENT HYDROLOGY

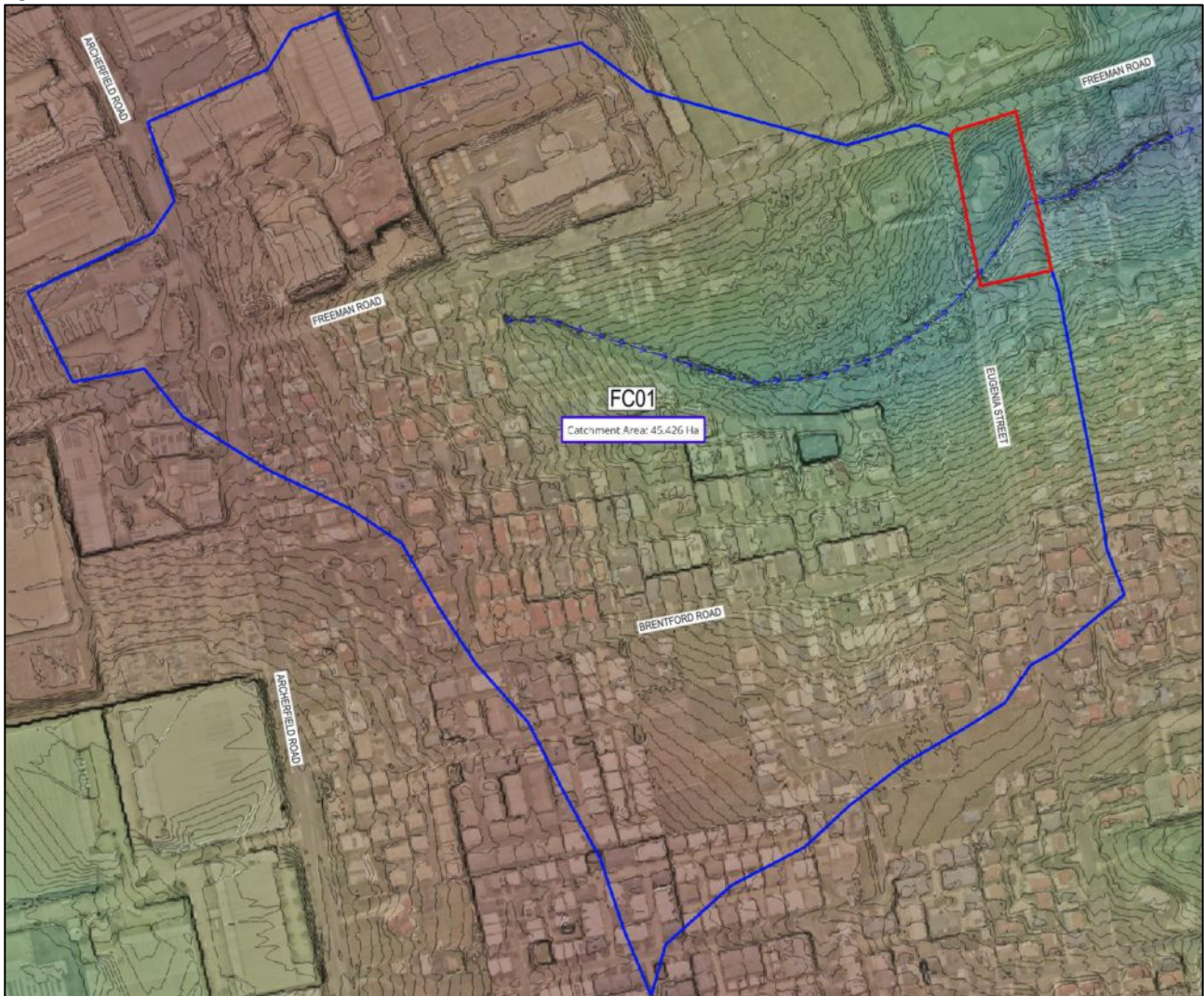
The upstream catchment contributing to overland flow at the subject site is pictured in Figure 5-5 below.

The catchment covers approximately 45.426Ha and drains from the upper reach near the intersection of Archerfield and Freeman Road, flowing east along an existing open drain, passing underneath the Eugina Street footbridge and continuing east through the previously mentioned unformed open drain at the subject site.

A low-density residential runoff coefficient was applied across the full catchment to reflect ultimate Development conditions and ensure a conservative design flow estimate.

For the purposes of this Report this catchment will be referred to as FC01.

Figure 5-5 UPSTREAM CATCHMENT



5.2. EXISTING SITE HYDROLOGY

Under existing conditions, the site comprises two distinct sub-catchments draining toward the central open drain (BCC Asset ID: T11000004). The northern sub-catchment drains southward from the northern boundary, while the southern sub-catchment drains northward from the southern boundary, with both areas converging at the unformed open drain traversing the site in a west to east direction.

5.3. PROPOSED SITE HYDROLOGY

The proposed subdivision introduces a combination of impervious and semi-pervious surfaces across the new residential allotments, resulting in an increase in site imperviousness relative to existing conditions.

Minor earthworks and filling are proposed across the site to achieve the required minimum lot levels in accordance with the flood immunity requirements outlined in Section 3.3. These works will include localised raising of finished surface levels across the residential allotments, with the open drain corridor formalised as part of the proposed drainage reserve (Lot 101). The formalisation of the open drain will involve minor reshaping of the channel corridor to define a consistent geometry, improving upon the existing unformed condition.

Stormwater runoff from the proposed residential allotments will discharge to the formalised open drain via the proposed headwalls consistent with the existing drainage regime.

6.0 STORMWATER RUNOFF CALCULATIONS

6.1. DETERMINATION OF STORMWATER RUNOFF

The Watershed Bounded Network Model (WBNM) was used to derive inflow hydrographs at the subject site.

WBNM was originally developed to be a physically realistic representation of a catchment as it transforms storm rainfall into a flood hydrograph. It has built in lag relations, based on catchment geomorphology. The actual lag times in these relations were derived using recorded rainfall and flood hydrograph data.

A node and link relationship was defined for the catchment which describes the interconnectivity of each subarea from the top of the catchment to the outlet. The adopted node and link relationship for the model used in DRAINS software is depicted below:

Figure 6-6 WBNM DRAINS MODEL

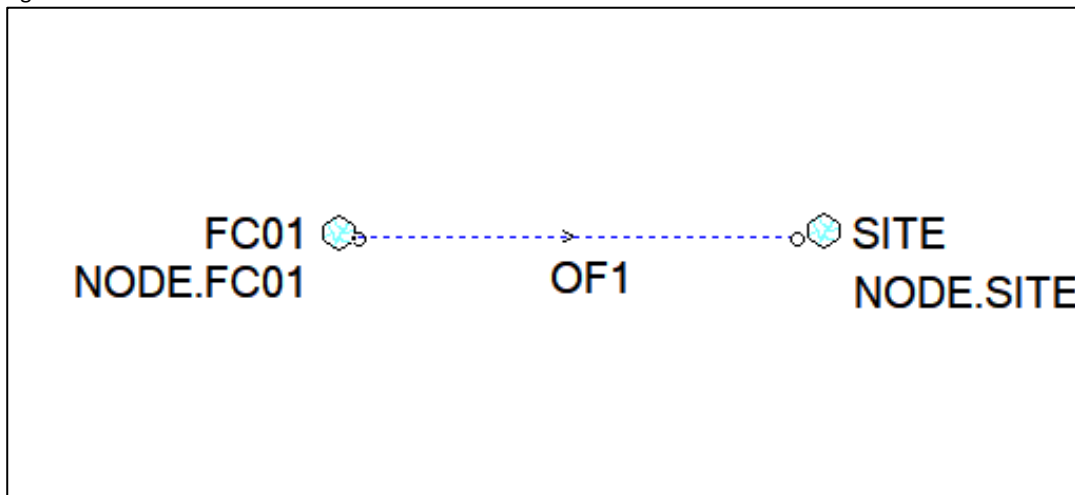
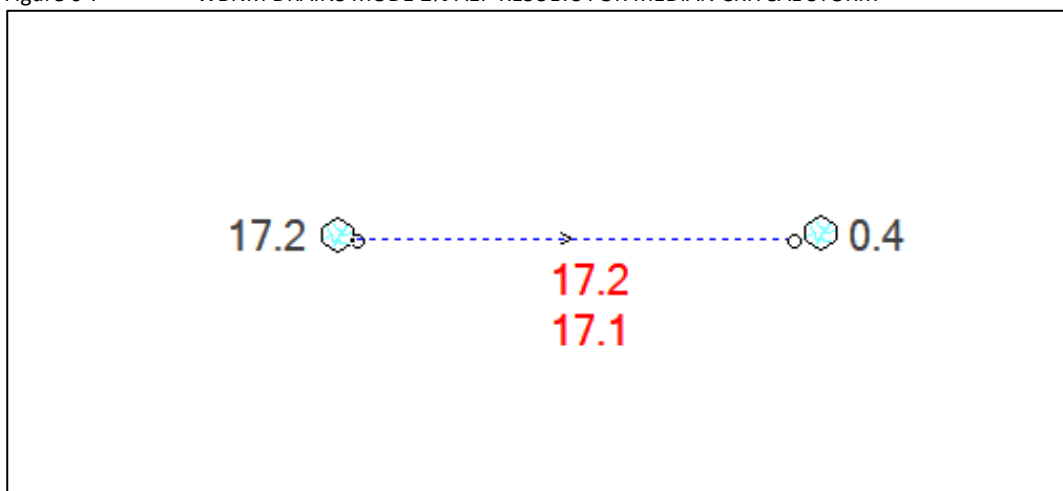


Figure 6-7 WBNM DRAINS MODE 2% AEP RESULTS FOR MEDIAN CRITICAL STORM



6.2. WBNM MODEL PARAMETERS

As outlined above the hydrologic modelling has been undertaken using the WBNM, adopting Brisbane-specific rainfall intensity frequency duration (IFD) data and standard loss parameters consistent with BCC and ARR guidelines.

RAINFALL INTENSITIES

The adopted rainfall intensities for the 2% AEP events used within the model are summarised below.

Table 6-5 RAINFALL INTENSITY FREQ. DURATION DATA - BRISBANE

Duration (hr)	2% AEP (mm/hr)
1	88.10
12	19.10
72	6.790

STATISTICAL PARAMETERS

The associated statistical parameters used in the derivation of design rainfall are summarised in below.

Table 6-6 RAINFALL STATISTICAL PARAMETERS - BRISBANE

Skewness G	0.13
F2	47.80
F50	17.15

In addition, conservative initial and continuing loss values were applied to represent both pervious and impervious surfaces within the catchment. These values are consistent with typical urban catchment hydrology and ensure a robust and conservative peak-flow estimate.

Table 6-7 LOSSES

Impervious Area Initial Losses (mm)	1
Impervious Area Continuing Losses (mm/hr)	0.5
Pervious Area Initial Loss (mm)	5
Pervious Area Continuing Loss (mm/hr)	2.5
Lag Parameter (C)	1.7
Stream Lag Factor (For DRAINS model)	0.33

These rainfall and loss parameters were incorporated into the WBNM model to derive design hydrographs for input to hydraulic modelling.

6.3. PIPE FLOWS

A review of the existing stormwater pipe network within and adjacent to the subject site was undertaken utilising BCC infrastructure records. All existing stormwater infrastructure identified in the vicinity of the site ultimately directs runoff to the existing unformed open drain (BCC Asset ID: T11000004), which serves as the primary receiving waterway for the broader catchment.

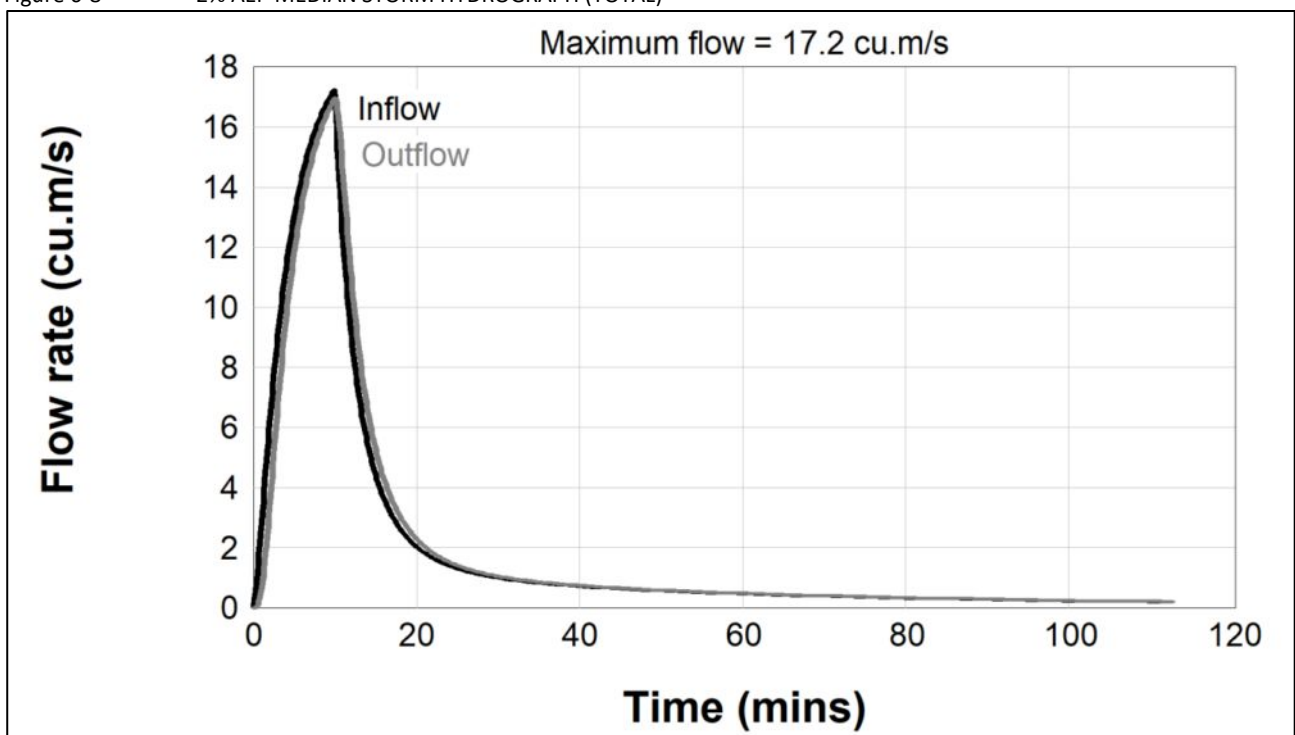
As all pipe network flows are conveyed to the open drain prior to or at the study area boundary, no flows are diverted away from the overland flow path. Accordingly, no pipe flow deductions have been applied to the overland flow hydrograph adopted for hydraulic assessment purposes.

6.4. FINAL DETERMINATION OF OVERLAND FLOW

The inflow hydrograph for the upstream contributing catchment has been generated using DRAINS for the 2% AEP design storm, in accordance with Brisbane City Council standards for overland flow assessment.

The figure below presents the total inflow hydrograph, representing the combined runoff from the upstream catchment as it arrives at the subject site via the existing headwall structure (BCC Asset ID: L15147040) located in the south-eastern corner of the site. This hydrograph captures both piped and overland flow contributions from the broader upstream catchment.

Figure 6-8 2% AEP MEDIAN STORM HYDROGRAPH (TOTAL)



7.0 TUFLOW MODEL DEVELOPMENT

7.1. METHODOLOGY

The TUFLOW two-dimensional unsteady flow model (WBM, 2008) was used to estimate the 2% AEP design flood levels along the overland flow path within the vicinity of the subject site.

TUFLOW estimates flood levels on a fixed grid pattern by solving the full two-dimensional depth averaged momentum and continuity equations for free surface flow. It can also incorporate a one-dimensional or quasi two-dimensional modelling system (ESTRY). The one-dimensional (ESTRY) and two-dimensional (TUFLOW) schemes are solved independently but are dynamically linked at the boundary to ensure continuity (mass) is conserved.

A one metre grid was adopted for the two-dimensional model area. That is, flow depths and flow velocities are calculated every 1m across the entire study area with a 0.5 second time step.

7.2. AVAILABLE DATA FOR MODELLING

The data used for the hydraulic modelling was obtained from and is based upon the following sources;

- LiDAR aerial survey from the Department of Natural Resources for TuFLOW modelling
- Detailed Site Survey for the subject site.
- Aerial imagery from nearmap.
- Google Street View to check for dwellings which act as blocked obstructions and any major obstructions within the vicinity of the subject site.

7.3. TUFLOW MODELLING PARAMETERS

INFLOW AND OUTFLOW BOUNDARIES

The Table below outlines, the locations of the 2D inflow and outflow boundaries.

Table 7-8 TUFLOW BOUNDARY CONDITIONS

Name	Location	Direction	Distance
Inflow Boundary	Upstream of Subject Site	South	387m
Outflow Boundary	Downstream of Subject Site	North	340m

The extent and configuration of both the pre-Development and post-Development TUFLOW models are available within drawings TUFLOW-01 and TUFLOW-02 within Appendix E.

INFLOW HYDROGRAPH

For the purpose of this Report, the Overland Flow Hydrograph, shown in Figure 6-8, was input into the TUFLOW model to generate inflow at the upstream boundary condition. This will simulate a nominal flow rate regardless of the travel time taken to outflow the catchment.

MANNINGS INPUTS

Within the TUFLOW model, a general catchment and common areas Mannings coefficient of 0.1 was used to simulate fences, sheds and other general obstructions with the model extents.

More specific Mannings values were used where the use of aerial photography allowed an accurate use of other surface roughness values, for example, roads ways, building outlines and vegetated open channels.

The following Manning's 'n' values were adopted within 2D domain.

Table 7-9 MANNINGS VALUES

Area Description	Mannings 'n'
Roads	0.025
General Catchment	0.100
Surrounding Buildings (Slab on Ground)	3.000
Surrounding Buildings (Suspended)	0.040
Unformed Open Drain	0.150

(Aerial photography was used to determine the land use characteristics within the study area).

7.4. PRE-DEVELOPMENTMODEL

An extract of the Pre-Development TUFLOW model is provided within the Figure below:

Figure 7-9 PRE-DEVELOPMENT TUFLOW MODEL



A summary of modelled material regions and inflow/outflow boundaries is provided below with more a more detailed plan available on Drawing TUFLOW-01 within Appendix E:

- The red hatched areas represent existing dwellings/buildings within the model domain;
- The light blue hatched area represents the densely vegetated unformed open drain;
- The green hatched areas represent Council owned verges;
- The grey hatched areas represent roads;
- The blue line to the left of the Figure represents the upstream inflow boundary; and
- The red line to the right of the Figure represents the downstream outflow boundary.

7.5. POST-DEVELOPMENT MODEL

An extract of the Post-Development TUFLOW model is provided within the Figure below:

Figure 7-10 POST-DEVELOPMENT TUFLOW MODEL



A summary of modelled material regions and inflow/outflow boundaries is provided below with more a more detailed plan available on Drawing TUFLOW-02 within Appendix E:

- The red hatched areas represent existing dwellings/buildings within the model domain;
- The light blue hatched area represents the densely vegetated unformed open drain;
- The green hatched areas represent Council owned verges;
- The grey hatched areas represent roads;
- The orange hatched areas represent the proposed fill associated with the development;
- The blue line to the left of the Figure represents the upstream inflow boundary; and
- The red line to the right of the Figure represents the downstream outflow boundary.

8.0 TUFLOW MODEL RESULTS

Both the pre- and post-Development TUFLOW models as detailed above were ran and the following results were generated for each scenario:

8.1. 2% AEP PRE-DEVELOPMENT

The following Pre-Development results are presented on Drawings SK102 – SK105 in Appendix E:

- 2% AEP Maximum Depth (Drawing: SK102 – Appendix E)
- 2% AEP Maximum Velocity (Drawing: SK103 – Appendix E)
- 2% AEP Depth x Velocity Product (Drawing: SK104 – Appendix E)
- 2% AEP Water Level (Drawing: SK105 – Appendix E)

8.2. POST-DEVELOPMENT RESULTS

The following Post-Development results are presented on Drawings SK106 – SK109 in Appendix E:

- 2% AEP Maximum Depth (Drawing: SK106 – Appendix E)
- 2% AEP Maximum Velocity (Drawing: SK107 – Appendix E)
- 2% AEP Depth x Velocity Product (Drawing: SK108 – Appendix E)
- 2% AEP Water Level (Drawing: SK109 – Appendix E)

8.3. PRE- vs. POST-DEVELOPMENT DEPTH COMPARISON RESULTS

The maximum Pre- and Post-Development depth were compared using SMS, a surface water modelling system and the net increase in flood water depths is presented on Drawing SK110 within Appendix E.

9.0 ANALYSIS OF TUFLOW MODEL RESULTS

9.1. UNDERCROFT REQUIREMENTS

There is no undercroft proposed as a part of the proposed development.

9.2. ROAD TRAFFICABILITY

Emergency vehicles can safely manoeuvre through floodwaters up to 300mm, as specified by the Queensland Urban Drainage Manual (QUDM).

Flood waters associated with the 2% AEP overland flow event are largely contained within the existing unformed open drain.

All roads surrounding the proposed Development are largely flood free during the 2% AEP overland flow event, including Freeman Road and Eugenia Street north of the pedestrian footbridge. Minor flooding is present at the corner of Eugenia Street (south of the footbridge) and Brampton Street, with depths not exceeding 100mm during the 2% AEP event.

Flood free access to the southern lots is available via Brampton Street.

All proposed lots are flood immune during the 2% AEP overland flow event.

9.3. EASEMENTS

It is Brisbane City Council policy to require a drainage easement over areas affected by 2% AEP overland flow.

The 2% AEP flood extent is contained within Proposed Lot 100, which is to be transferred to Council ownership as a drainage reserve. All 2% AEP floodwaters are contained within this lot, and no easement over private lots is required.

9.4. FLOOD IMPACT ASSESSMENT OF THE PROPOSED DEVELOPMENT

The primary overland flow path traversing the subject site is maintained and protected by Council drainage lot (Proposed Lot 100).

Minor filling associated with the proposed Development results in a slight shift in flow distribution, with a maximum flood depth increase of 16mm occurring within the subject site at the western boundary. The extents of all depth increases are illustrated on Drawing SK110 within Appendix E.

This increase is confined within the existing unformed open drain and will not adversely affect downstream/adjoining properties.

The proposed Development is therefore considered acceptable in terms of flood impact.

9.5. OVERLAND FLOW

Careful consideration has been undertaken in the siting and planning of the proposed Development to incorporate the Overland Flow and provide accurate modelling of such to ensure no detrimental effects to the surrounding properties.

Should amendments to the layout modelled be proposed, Naxos Engineers may need to undertake further analysis to ensure the conditions of this Report are met.

10.0 RECOMMENDATIONS

10.1. MINIMUM LOT LEVEL

It is recommended that all Proposed Lots are filled to achieve a minimum finished surface level equal to the 2% AEP flood level plus 300mm, in accordance with Table 4-4 of this Report.

As per Drawing SK109 (Appendix E), the maximum post-Development 2% AEP overland flow flood level within the subject site is RL 24.200m. Therefore, the minimum recommended lot level is:

Minimum Lot Level = 2% AEP Flood Level + 300mm

Minimum Lot Level = RL 24.200m + 300mm

Minimum Lot Level = RL 24.500m

11.0 CONCLUSION

This Report presents the findings of the hydraulic assessment undertaken for a proposed residential subdivision at 290 Freeman Road, Inala QLD 4077.

The subject site is located within the Overland Flow Flood Planning Area, with overland flow conveyed through the site via an existing unformed open drain (BCC Asset ID: T11000004).

A WBNM hydrological model was developed within DRAINS to derive the 2% AEP inflow hydrograph for the upstream contributing catchment of approximately 45.4Ha, which was subsequently applied as the boundary condition for both pre- and post-Development TUFLOW models.

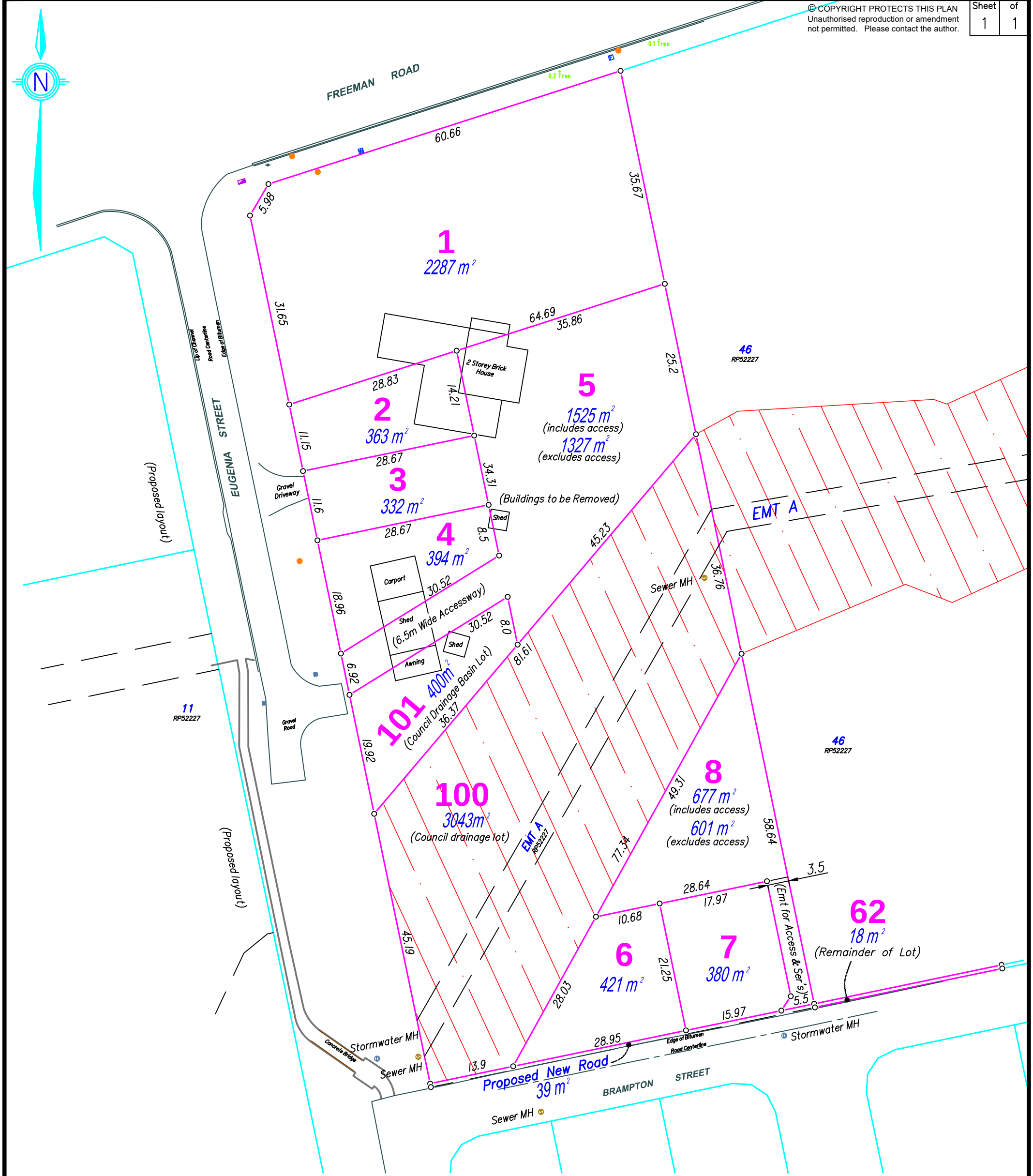
Pre- and post-Development TUFLOW models were developed and analysed for the 2% AEP design storm event. The results demonstrate that flood waters are largely contained within the existing unformed open drain, with all surrounding roads including Freeman Road and Eugenia Street (north of the footbridge) remaining flood free. Minor flooding of less than 100mm is present at the corner of Eugenia Street (south of the footbridge) and Brampton Street, with flood free access to the southern lots available via Brampton Street from the west.

Minor filling associated with the proposed Development results in a maximum flood depth increase of 16mm, confined entirely within the existing unformed open drain at the western boundary of the site. This increase will not adversely affect downstream or adjoining properties, and the Development is therefore considered acceptable in terms of flood impact.

The 2% AEP flood extent is fully contained within Proposed Lot 100, which is to be transferred to Brisbane City Council ownership as a drainage reserve. No drainage easement over private lots is required.

All proposed residential lots are flood immune during the 2% AEP overland flow event. It is recommended that all lots be filled to achieve a minimum finished surface level of RL 24.500m, being the maximum post-Development 2% AEP flood level of RL 24.200m plus 300mm freeboard, in accordance with the requirements of the Flood Overlay Code.

Appendix A – PROPOSED SUBDIVISION LAYOUT

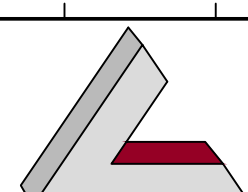


- NOTES**
- 1) DIMENSIONS AND AREAS ARE APPROXIMATE ONLY AND SUBJECT TO FINAL SURVEY.
 - 2) TOTAL AREA OF SUBDIVISION - 9878m²
 - 3) CONTOURS AND SITE DETAILS FROM LAWSON SURVEYS DETAIL AND CONTOUR SURVEY DATED 3/06/2025.
 - 4) ALL STRUCTURES ON SITE TO BE REMOVED.
 - 5) POSSIBLE WATERWAY CORRIDOR SUBJECT TO CHANGE. BCC APPROVAL & HYDRAULICS STUDY.

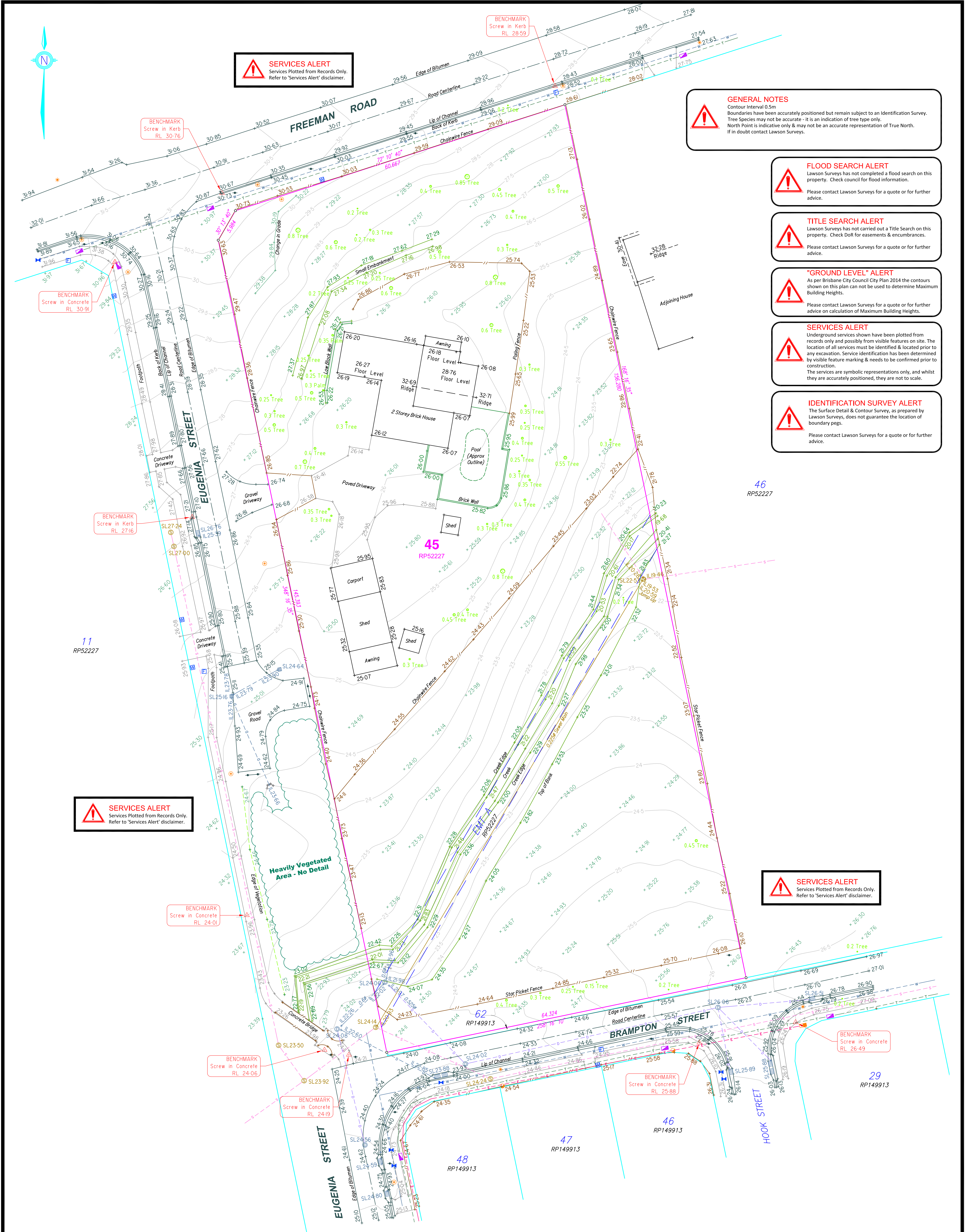
SCALE 1:600 at A3 - Lengths are in metres

0 12 24 36 48 60 72 84 96m

0 100 200 mm

SUBDIVISION PROPOSAL PLAN		 LAWSON SURVEYS		A.B.N 46 272 949 047 CONSULTING LAND SURVEYORS 9B / 62 BISHOP STREET KELVIN GROVE QLD 4059 Ph 07 3352 3326 Fax 07 3352 6991 mail@lawsonsurveys.com.au www.lawsonsurveys.com.au	
Lots 1 - 8, 62, 100, 101 & Easements Cancelling Lot 45 on RP52227 & Lot 62 on RP149913					
LOCATION 288 Freeman Road Inala		LOCAL AUTHORITY BRISBANE CITY COUNCIL		REFERENCE 21478	ISSUE G DATE 5/05/2026
LEVEL DATUM AHD - VIDE BCC EBIMAP	DRAWN CM/SPK DWG 21478 Prop.G				

Appendix B – DETAIL SURVEY



SERVICES ALERT
Services Plotted from Records Only.
Refer to 'Services Alert' disclaimer.

GENERAL NOTES
Contour Interval 0.5m
Boundaries have been accurately positioned but remain subject to an Identification Survey.
Tree Species may not be accurate - it is an indication of tree type only.
North Point is indicative only & may not be an accurate representation of True North.
If in doubt contact Lawson Surveys.

FLOOD SEARCH ALERT
Lawson Surveys has not completed a flood search on this property. Check council for flood information.
Please contact Lawson Surveys for a quote or for further advice.

TITLE SEARCH ALERT
Lawson Surveys has not carried out a Title Search on this property. Check DoK for easements & encumbrances.
Please contact Lawson Surveys for a quote or for further advice.

"GROUND LEVEL" ALERT
As per Brisbane City Council City Plan 2014 the contours shown on this plan can not be used to determine Maximum Building Heights.
Please contact Lawson Surveys for a quote or for further advice on calculation of Maximum Building Heights.

SERVICES ALERT
Underground services shown have been plotted from records only and possibly from visible features on site. The location of all services must be identified & located prior to any excavation. Service identification has been determined by visible feature marking & needs to be confirmed prior to construction.
The services are symbolic representations only, and whilst they are accurately positioned, they are not to scale.

IDENTIFICATION SURVEY ALERT
The Surface Detail & Contour Survey, as prepared by Lawson Surveys, does not guarantee the location of boundary pegs.
Please contact Lawson Surveys for a quote or for further advice.

SERVICES ALERT
Services Plotted from Records Only.
Refer to 'Services Alert' disclaimer.

SERVICES ALERT
Services Plotted from Records Only.
Refer to 'Services Alert' disclaimer.

PLAN SHOWING		CLIENT	DUYEN TIEN	
SURFACE DETAIL & CONTOURS		LOCATION	290 FREEMAN ROAD INALA	
LEVEL DATUM AHD - VIDE PSM 11439 RL 22.893	SCALE 1:300 @ A1	LOCATION	290 FREEMAN ROAD INALA	
LOCAL AUTHORITY BRISBANE CITY COUNCIL	DATE 03/06/2025	RPD	LOT 45 ON RP52227	
MERIDIAN DP332581	SURVEYED BY RC			
DWG NAME ACAD-21478-DT	DRAWN BY RC			



A.B.N 46 272 949 047
CONSULTING LAND SURVEYORS
9B / 62 BISHOP STREET
KELVIN GROVE QLD 4059
Ph 07 3352 3326 Fax 07 3352 6991
mail@lawsonsurveys.com.au
www.lawsonsurveys.com.au

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REFERENCE **21478-DT**

A	03/06/2025	INITIAL ISSUE
ISSUE	DATE	COMMENTS

Appendix C - BCC MAPPING RESULTS



Waterway corridors



Local waterway corridor

Local Government Authorities



LGA boundary

Property boundaries holding



Property Holding



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Please refer to CityPlan.Brisbane.qld.gov.au for full terms and conditions.

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 Queensland Roads and Tracks ©2021 State of Queensland (Department of Resources)

City Plan 2014 — Zoning overlay

	Refer to Part 10 of the planning scheme
	LDR Low density residential
	CR1 Character residential (Character)
	CR2 Character residential (Infill housing)
	LMR1 Low-medium density residential (2 storey mix)
	LMR2 Low-medium density residential (2 or 3 storey mix)
	LMR3 Low-medium density residential (Up to 3 storeys)
	MDR Medium density residential
	HDR1 High density residential (Up to 8 storeys)
	HDR2 High density residential (Up to 15 storeys)
	TA Tourist accommodation
	NC Neighbourhood centre
	DC1 District centre (District)
	DC2 District centre (Corridor)
	MC Major centre
	PC1 Principal centre (City centre)
	PC2 Principal centre (Regional centre)
	LII Low impact industry
	IN1 General industry A
	IN2 General industry B
	IN3 General industry C
	SI Special industry
	II Industry investigation
	SR Sport and recreation
	SR1 Sport and recreation (Local)
	SR2 Sport and recreation (District)
	SR3 Sport and recreation (Metropolitan)
	OS Open space
	OS1 Open space (Local)
	OS2 Open space (District)
	OS3 Open space (Metropolitan)
	EM Environmental management
	CN Conservation
	CN1 Conservation (Local)
	CN2 Conservation (District)
	CN3 Conservation (Metropolitan)
	EC Emerging community
	EI Extractive industry
	MU1 Mixed use (Inner city)

-  MU2 Mixed use (Centre frame)
-  MU3 Mixed use (Corridor)
-  RU Rural
-  RR Rural residential
-  T Township
-  CF1 Community facilities Major health care
-  CF2 Community facilities Major sports venue
-  CF3 Community facilities Cemetery
-  CF4 Community facilities Community purposes
-  CF5 Community facilities Education purposes
-  CF6 Community facilities Emergency services
-  CF7 Community facilities Health care purposes
-  SC1 Specialised centre (Major education and research facility)
-  SC2 Specialised centre (Entertainment and conference centre)
-  SC3 Specialised centre (Brisbane Markets)
-  SC4 Specialised centre (Large format retail)
-  SC5 Specialised centre (Mixed industry and business)
-  SC6 Specialised centre (Marina)
-  SP1 Special purpose (Defence)
-  SP2 Special purpose (Detention facility)
-  SP3 Special purpose (Transport infrastructure)
-  SP4 Special purpose (Utility services)
-  SP5 Special purpose (Airport)
-  SP6 Special purpose (Port)

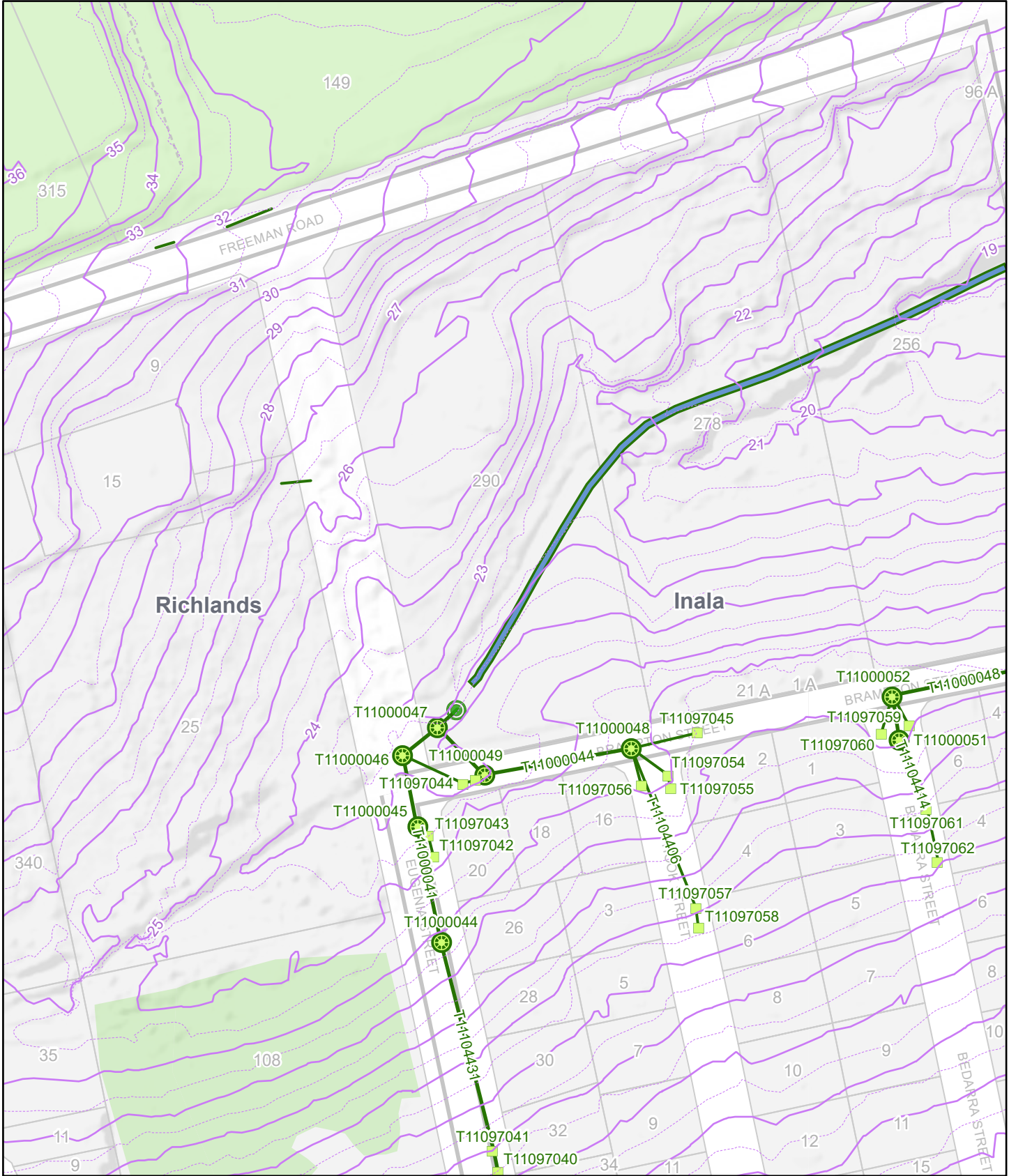
Local Government Authorities

-  LGA boundary

Property boundaries holding

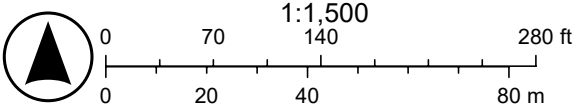
-  Property Holding

290 Freeman -SWD



12/06/2026, 10:02:37

- | | | |
|------------------------------|----------------------|--------------------|
| Contours — 2002 | ● Junction | Surface Drain |
| Intermediate - 1m Contour | ● Stormwater Manhole | Waterbody |
| Supplementary - 0.5m Contour | Pipe | Artesian Well |
| Culvert | DRAIN | Detention Basin |
| End Structure | FOUL WATER | Lake |
| End cap | GULLY CONNECT | Sealed Plan |
| Flood Gate | ROOF WATER | Property Parcel |
| Pipe End Outlet | SQID | Parcel Outside BCC |
| Gully | | |



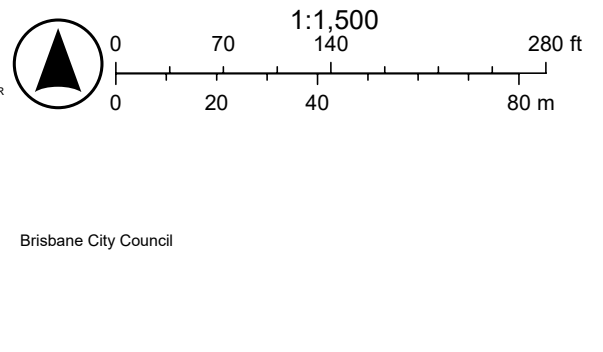
Brisbane City Council

290 Freeman - Water and Sewer



12/06/2026, 10:02:59

Water Control Valve		Water System Valve		GIBBAULT JOINT	
	Reflex		BALL		TAPPING BAND
	Scour		BUTTERFLY		TAPPING
	Air		GATE		REDUCER
	Pressure Sustaining		Water Fitting		WYE
	Pressure Reducing		BEND		TEE
	Altitude		PIGGING POINT		RESERVOIR INLET
	Flow Control		END CAP		RESERVOIR OUTLET
			CROSS		
			JOINT		



Appendix D - BCC FLOODWISE PROPERTY REPORT

FloodWise Property Report

290 FREEMAN RD, INALA 4077
Lot 45 on RP52227



Dedicated to a better Brisbane

THE PURPOSE OF THIS REPORT IS FOR BUILDING AND DEVELOPMENT

Brisbane City Council's FloodWise Property Report provides technical flood planning information including estimated flood levels, habitable floor level requirements and more. This report uses the adopted flood planning information in **Brisbane City Plan 2014**, that guides how land in Brisbane is used and developed for the future. Find out more about [planning and building](#). To understand how to be resilient and prepare for floods, visit Council's [Be Prepared](#) webpage. Find more information about [how to read a FloodWise Property Report](#).

This property has no flood levels

Brisbane City Council has not assigned flood level information for this property however it may be affected by one or more flood or property development flags. Please refer to the Flood Planning and Development Information below for details. The property may have 0.2% AEP flood level which will appear on the Flood Planning Information table if applicable. For professional advice or detailed assessment of a property contact a Registered Professional Engineer of Queensland.

Visit the [Be Prepared](#) page to find more information on how to prepare your home or business for potential flooding.

 **Combined** 1% AEP for river, creek and storm tide flood extent (if applicable) from the adopted Brisbane City Plan 2014. Read more about [Brisbane City Plan 2014](#).



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Are you resilient and ready for flood?

- Sign up to the Brisbane Severe Weather Alert at brisbane.qld.gov.au/beprepared
- Visit bom.gov.au for the latest weather updates.
- Have an evacuation plan, emergency kit and important phone numbers ready.
- Observe where water flows from and to during heavy rain.
- Consider how flood-resilient building techniques will have you home faster and with less damage.

Life threatening emergencies
000 Police/fire/ambulance
(mobiles **000** and **112**)

State Emergency Service (SES) **132 500**
Energex **13 19 62**
Brisbane City Council **3403 8888**

Technical Summary

This section of the FloodWise Property Report contains more detailed flood information for this property so **surveyors, builders, certifiers, architects, and engineers can plan and build** in accordance with Council's planning scheme.

Find more information about [planning and building](#) in Brisbane or talk to a Development Services Planning Information Officer via Council's Contact Centre on (07) 3403 8888.

Property Information Summary

The following table provides a summary of flood information for this property. More detailed flood level information is provided in the following sections of this report.

Property Summary	Level (mAHD) / Comment	Data Quality Code
Minimum ground level	21.1	C
Maximum ground level	30.6	C
Indicative existing floor level	26.3	C

Flood Planning and Development Information

This section of the FloodWise Property Report contains information about Council's planning scheme overlays. Overlays identify areas within the planning scheme that reflect distinct themes that may include constrained land and/or areas sensitive to the effects of development.

Flood overlay code

The Flood overlay code of Council's planning scheme uses the following information to provide guidelines when developing properties. The table below summarises the flood planning areas (FPAs) that apply to this property. Development guidelines for the FPAs are explained in [Council's planning scheme](#).

Flood planning areas (FPA)		
River	Creek / waterway	Overland flow
		Applicable

To find more information about Council's flood planning areas (FPAs) for Brisbane River and Creek/waterway flooding to guide future building and development in flood prone areas, please review [Council's Flood Planning Provisions](#).

Coastal hazard overlay code

The Coastal hazard overlay code of Council's planning scheme uses the following information to provide guidelines when conducting new developments. The table below summarises the coastal hazard categories that apply to this property. Development guidelines for the following Coastal hazard overlay sub-categories are explained in Council's [planning scheme](#).

Coastal hazard overlay sub-categories
There are currently no Coastal hazard overlay sub-categories that apply to this property.

Note: Where land is identified within one for more flood planning areas on the Flood overlay or is identified within one of the Storm tide inundation area sub-categories on the Coastal hazard overlay, the assessment criteria that provides the highest level of protection from any source of flooding applies.

Property development flags

Waterway corridor - This property may also be located within a mapped waterway corridor as identified in the Waterway corridors overlay map of Council's planning scheme. Please consider this in conjunction with Council's planning scheme requirements.

Overland flow path - Mapping indicates this property may be located within an overland flow path. Overland flow flooding usually occurs when the capacity of the underground piped drainage system is exceeded and/or when the overland flow path is blocked. It is recommended you consult a Registered Professional Engineer of Queensland (RPEQ) to determine this property's habitable floor level and flooding depth. Please refer to Council's planning scheme for further information.

Large allotment - This property is either a Large Allotment of over 1000 square metres or is located within a Large Allotment. Flood levels may vary significantly across allotments of this size. Further investigations may be warranted in determining the variation in flood levels and the minimum habitable floor level across the site.
For more information or advice, please consult a Registered Professional Engineer of Queensland (RPEQ).

Useful Flood Information Definitions

Australian Height Datum (AHD) - The reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.

Annual Exceedance Probability (AEP) - The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage annual chance.

- **0.2% AEP** - A flood event of this size is considered rare but may still occur. A flood of size or larger has a 1 in 500 chance or a 0.2% probability of occurring in any year.
- **1% AEP** - A flood of this size or larger has a 1 in 100 chance or a 1% probability of occurring in any year.
- **2% AEP** - A flood of this size or larger has a 1 in 50 chance or a 2% probability of occurring in any year.
- **5% AEP** - A flood of this size or larger has a 1 in 20 chance or a 5% probability of occurring in any year.
- **20% AEP** - A flood of this size or larger has a 1 in 5 chance or a 20% probability of occurring in any year.

Data quality

- **Data Quality Code A** - Level data based on recent surveyor report or approved as-constructed drawings.
- **Data Quality Code B** - Level data based on ground-based mobile survey or similar.
- **Data Quality Code C** - Level data derived from Airborne Laser Scanning or LiDAR information.

Defined Flood Level (DFL) - The DFL is used for commercial and industrial development. The Defined flood level (DFL) for Brisbane River flooding is a level of 3.7m AHD at the Brisbane City Gauge based on a flow of 6,800 m/s. DFL is only applicable for non-residential uses affected by Brisbane River flooding.

Flood planning area (FPA) - Council has developed five Flood planning areas (FPAs) as part of Brisbane City Plan 2014 Flood overlay mapping for Brisbane River, Creek/waterway flooding and Overland flow to guide future building and development in flood prone areas. Storm tide flooding is mapped separately. The FPAs are designed to recognise the flood hazard for different flooding types. Flood hazard is a combination of frequency of flooding, the flood depth, and the speed at which the water is travelling. [Find more information here.](#)

Maximum and minimum ground level - Highest and lowest ground levels on the property based on available ground level information. A Registered Surveyor can confirm exact ground levels.

Minimum habitable floor level (dwelling house) - The minimum level in metres AHD at which habitable areas of development (generally including bedrooms, living rooms, kitchen, study, family, and rumpus rooms) must be constructed as required by the Brisbane City Plan 2014.

Indicative existing floor level - The approximate level in metres AHD of the lowest habitable floor in the existing building (excluding apartments). The data is sourced from a range of sources with varying accuracy levels.

Property - A property will contain 1 or more lots. The multiple lot warning is shown if you have selected a property that contains multiple lots.

Residential flood level (RFL) - This flood level for the Brisbane River equates to the 1% annual exceedance probability (AEP) flood level.

To learn more, visit [Brisbane City Council's Flood Information Hub](#)

Brisbane City Council's Online Flood Tools

Council provides several online flood tools:

- to guide planning and development
- to help residents and businesses understand their flood risk and prepare for flooding.

Council's online flood tools for planning and development purposes include:

- **FloodWise Property Report**
- **Flood Overlay Code**

For more information on Council's planning scheme and online flood tools for planning and development:

- phone (07) 3403 8888 and ask to talk to a Development Services Planning Information Officer

- visit brisbane.qld.gov.au/planning-building

Council's Planning Scheme - The Brisbane City Plan 2014 (planning scheme) has been prepared in accordance with the Sustainable Planning Act as a framework for managing development in a way that advances the purpose of the Act. In seeking to achieve this purpose, the planning scheme sets out the Council's intention for future development in the planning scheme area, over the next 20 years.

Disclaimer

1. Defined flood levels and residential flood levels, minimum habitable floor levels and indicative existing floor levels are determined from the best available information to Council at the date of issue. These levels, for a particular property, may change if more detailed information becomes available or changes are made in the method of calculating levels.
2. Council makes no warranty or representation regarding the accuracy or completeness of a FloodWise Property Report. Council disdaims any responsibility or liability in relation to the use or reliance by any person on a FloodWise Property Report.

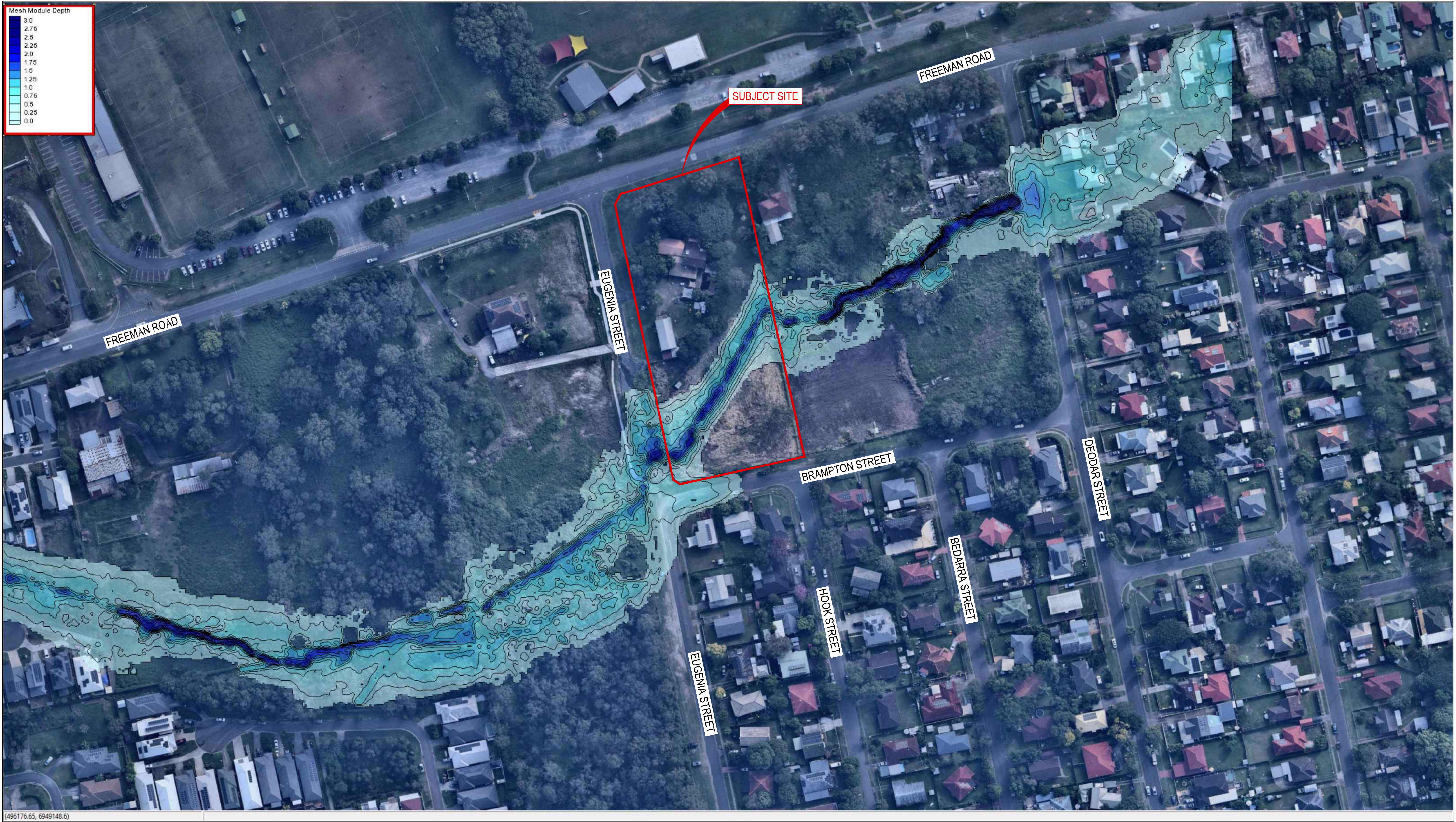


Planning to build or renovate?

For information, guidelines, tools and resources to help you track, plan or apply for your development visit brisbane.qld.gov.au/planning-building

You can also find the Brisbane City Plan 2014 and Neighbourhood Plans as well as other information and training videos to help, with your building and development plans.

Appendix E – TUFLOW RESULTS



CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
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TELEPHONE : 1300 598 544
EMAIL : jack@naxosengineers.com.au

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E info@naxosengineers.com.au
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PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	11.06.2026	ISSUE FOR HYDRAULIC REPORT	JB

Associated Consultant:
ROOFBROOK PTY LTD

Approved: GREGG TYQUIN

RPEQ. 1528

Date: .

Drawn: JB

Checked: GT

Design: JB

Supervisor: GF

DISCLAIMER NOTE

THIS PLAN WAS PREPARED FOR DISCUSSION AND ESTIMATING PURPOSES. THE LAYOUT SHOWN IS INDICATIVE ONLY AND MAY BE SUBJECT TO LOCAL AUTHORITY / GOVERNMENT REQUIREMENTS AND FURTHER DETAILED ENGINEERING DESIGN.

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - PRE-DEVELOPMENT - MAXIMUM DEPTH

ROOFBROOK PTY LTD

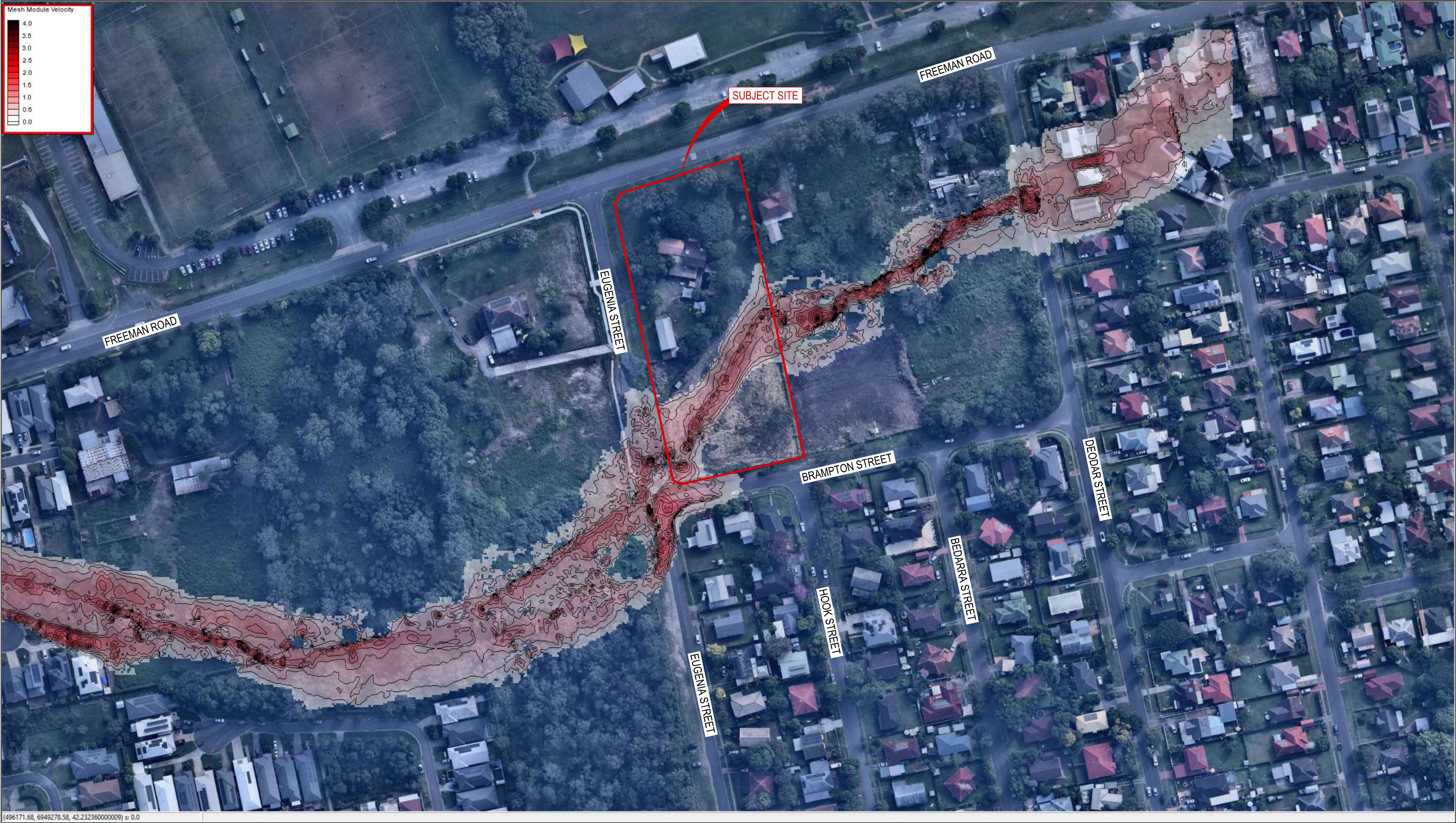
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK102

Revision:

A



CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JACK BAILLIE
TELEPHONE : 1300 598 544
EMAIL : jack@naxosengineers.com.au

NAXOS
ENGINEERS

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E info@naxosengineers.com.au
Level 1, Suite B
557 Gregory Terrace, Fortitude Valley, Qld 4006
PO Box 224, Spring Hill QLD 4004
NAXOSENGINEERS.COM.AU

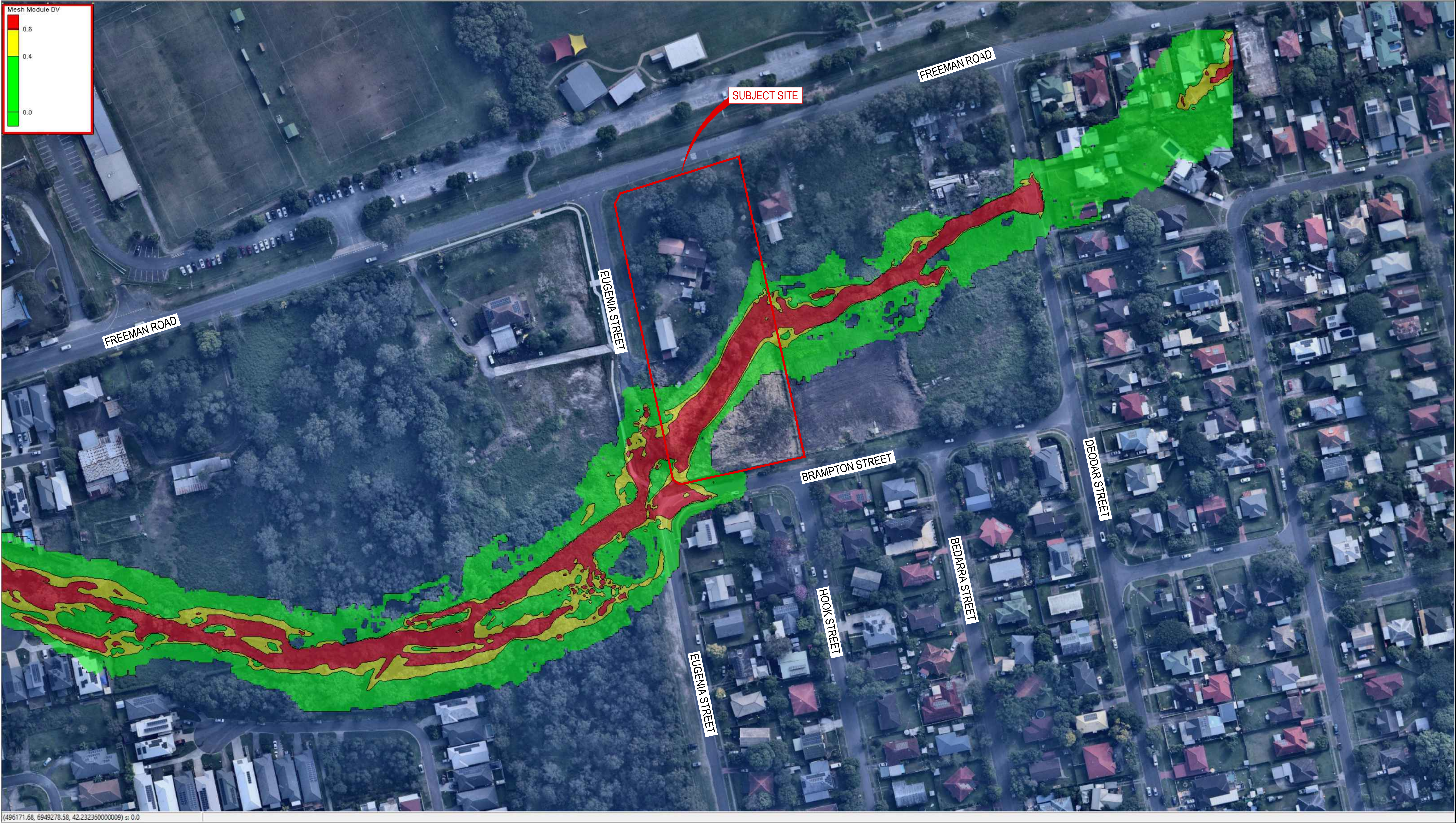
AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	11.06.2026	ISSUE FOR HYDRAULIC REPORT	JB

Associated Consultant: ROOFBROOK PTY LTD			
Approved: GREGG TYQUIN			
Drawn: JB		Design: JB	
Checked: GT		Supervisor: GF	
RPEQ: 1528		Date: .	

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2% AEP - PRE-DEVELOPMENT - MAXIMUM VELOCITY				
North: 	Size of Land: 9853m²	Client: ROOFBROOK PTY LTD	Job No. 25-136	Revision: A
Scale: N.T.S.	Project: PROPOSED DEVELOPMENT AT 290 FREEMAN ROAD, INALA 4077	Drawing No. SK103		



CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	11.06.2026	ISSUE FOR HYDRAULIC REPORT	JB

Associated Consultant:
ROOFBROOK PTY LTD

Approved: GREGG TYQUIN

RPEQ: 1528

Date: .

Drawn:
JB

Design:
JB

Checked:
GT

Supervisor:
GF

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - PRE-DEVELOPMENT - D x V PRODUCT

ROOFBROOK PTY LTD

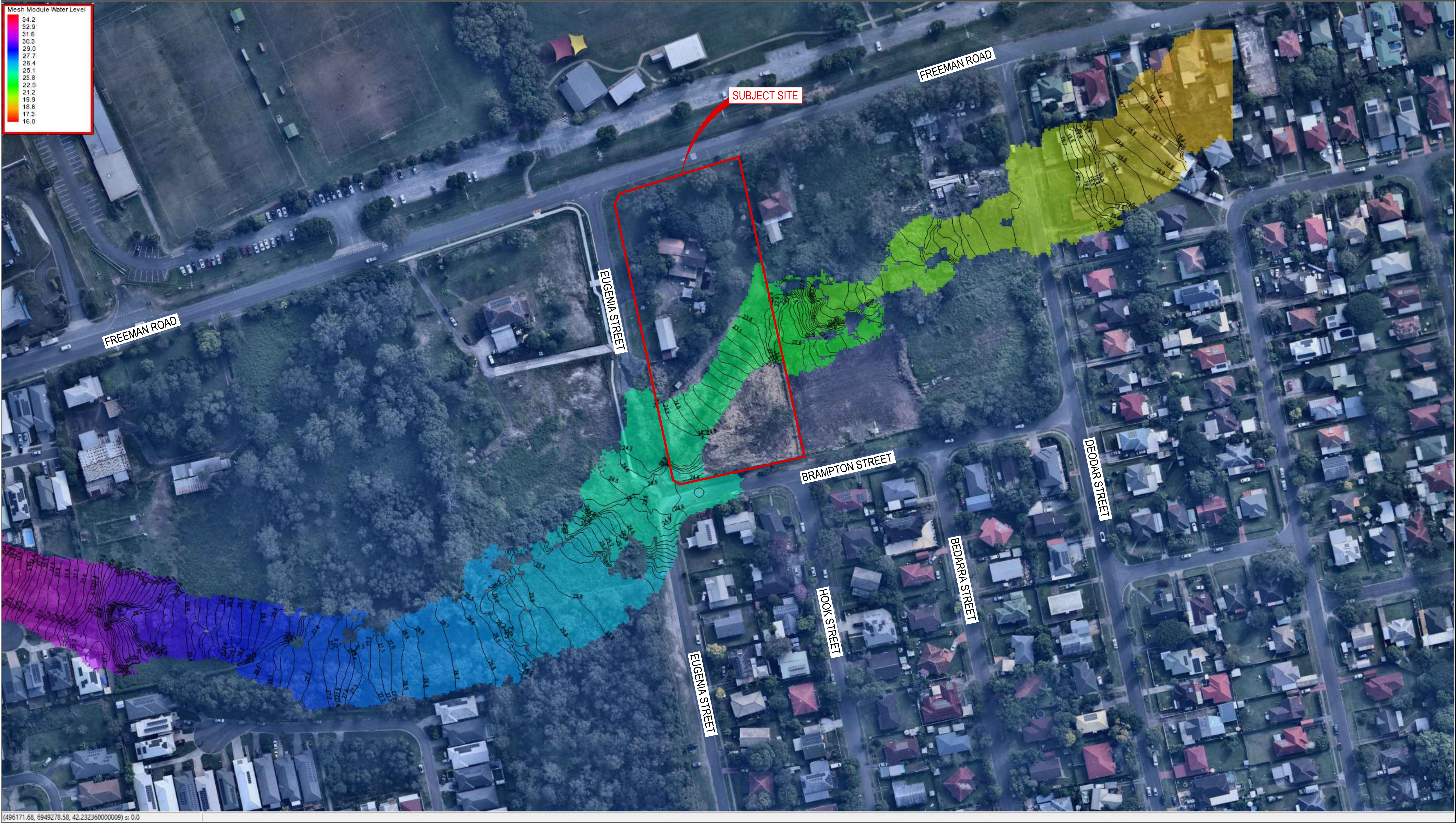
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK104

Revision:

A



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Associated Consultant:
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Approved: GREGG TYQUIN

RPEQ: 1528

Date: .

Drawn: JB

Checked: GT

Design: JB

Supervisor: GF

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - PRE-DEVELOPMENT - WATER LEVEL

ROOFBROOK PTY LTD

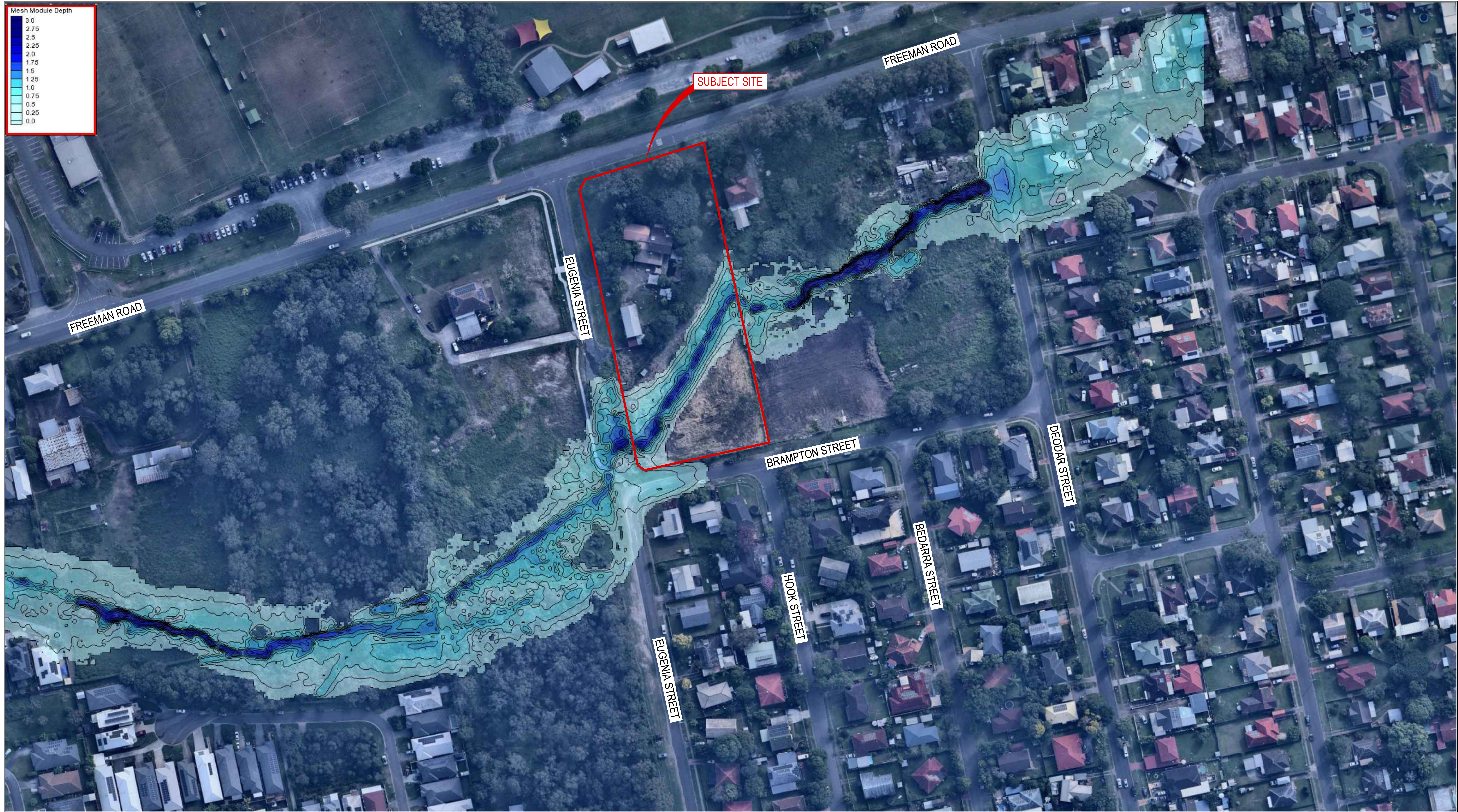
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK105

Revision:

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Approved: GREGG TYQUIN

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Drawn:
JB

Design:
JB

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - POST-DEVELOPMENT - MAXIMUM DEPTH

ROOFBROOK PTY LTD

PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK106

Revision:

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Approved: GREGG TYQUIN

RPEQ. 1528

Date: .

Drawn:
JB

Design:
JB

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GT

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - POST-DEVELOPMENT - VELOCITY

ROOFBROOK PTY LTD

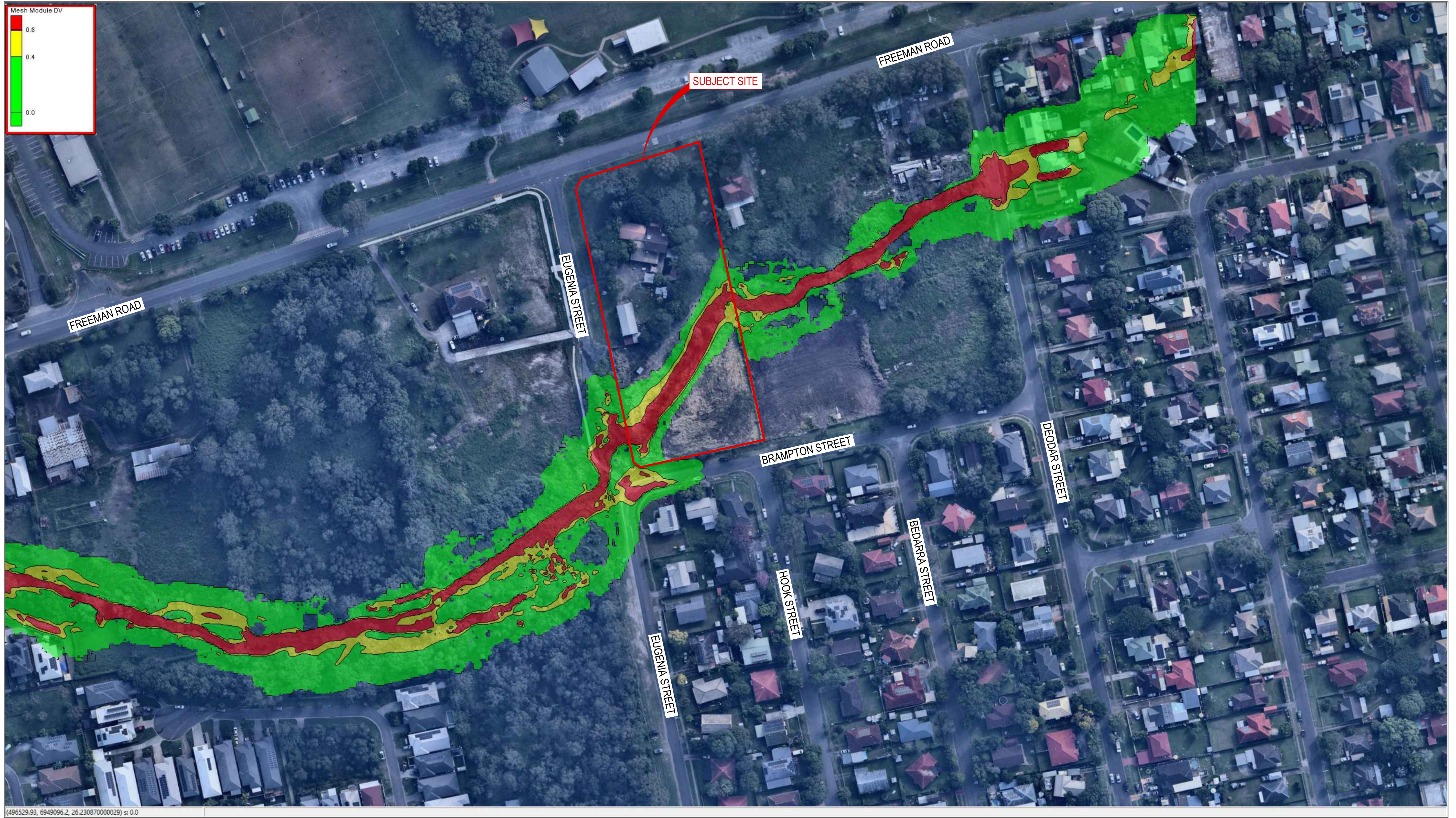
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK107

Revision:

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - POST-DEVELOPMENT - DxV PRODUCT

ROOFBROOK PTY LTD

PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK108

Revision:

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - POST-DEVELOPMENT - WATER LEVEL

ROOFBROOK PTY LTD

PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK109

Revision:

A



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RPEQ: 1528

Date: .

Drawn: JB

Design: JB

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²
Scale:
N.T.S.

Client:
Project:

2% AEP - MAXIMUM DEPTH COMPARISON

ROOFBROOK PTY LTD

PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK110

Revision:
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Associated Consultant: ROOFBROOK PTY LTD			
Approved: GREGG TYQUIN		Drawn: JB	Design: JB
RPEQ. 1528 Date: .		Checked: GT	Supervisor: GF

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North:

Orig. Dwg. Size
A1

Size of Land:
9853m²

Scale:
N.T.S.

Client:
ROOFBROOK PTY LTD

Project:
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK100

Revision:
A

PRE-DEVELOPMENT TUFLOW MODEL



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RPEQ. 1528 Date: .		Checked: GT	Supervisor: GF

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North:

Size of Land:
9853m²

Scale:
N.T.S.

Orig. Dwg. Size
A1

Client:
ROOFBROOK PTY LTD

Project:
PROPOSED DEVELOPMENT AT
290 FREEMAN ROAD, INALA 4077

Job No.
25-136

Drawing No.
SK101

Revision:
A

POST-DEVELOPMENT TUFLOW MODEL

Appendix F – CONCEPT CIVIL PLANS

290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION
ROOFBROOK CONSULTING ENGINEERS PTY LTD



LOCALITY PLAN
SCALE N.T.S

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WATER RETICULATION LEGEND		
EXISTING	PROPOSED	ITEM DESCRIPTION
		WATER RETICULATION MAIN - POTABLE
		WATER RETICULATION MAIN - RECYCLED
		DISUSED WATER RETICULATION MAIN
		FIRE HYDRANT
		ISOLATION VALVE
		SCOUR VALVE
		AIR VALVE
		DEAD END
		CONNECTOR
		TEST/CHLORINATION POINT
		REDUCER
		PIPE MATERIAL CHANGE
		ISOLATION VALVE TO REMAIN CLOSED PENDING CLEARANCE OF NEW MAIN
		WATER METER (SMALL / LARGE)
		FLUSHING POINT
		HYDRANT - OPERATIONAL PURPOSES ONLY
		BOUNDARY VALVE
		FLOW METER
		THRUST / ANCHOR BLOCK
		ENCASING / ENVELOPER PIPE
		WATER SERVICE CONDUIT
NOTES: 1. THIS IS A GENERIC LEGEND. NOT ALL ITEMS WITHIN THIS LEGEND MAY BE PRESENT ON THIS PLAN AND THE SCALE OF THE ITEMS MAY BE DIFFERENT TO THE ITEMS PRESENTED ON THIS PLAN.		

STORMWATER DRAINAGE CATCHMENT LEGEND		
EXISTING	PROPOSED	ITEM DESCRIPTION
		STORMWATER DRAINAGE PIPE CULVERT
		STORMWATER DRAINAGE BOX CULVERT
		STORMWATER MANHOLE
		STORMWATER GULLY PIT (LIP IN LINE)
		STORMWATER GULLY PIT (KERB IN LINE)
		STORMWATER FIELD INLET WITH GRATE
		STORMWATER FIELD INLET WITH DOME
		STORMWATER TRENCH GRATE
		STORMWATER HEADWALL
		STORMWATER OVERLAND FLOW PATH
		STORMWATER CATCHMENT BOUNDARY
		STORMWATER IMPERVIOUS SURFACE
		STORMWATER PERVIOUS SURFACE
		STORMWATER CATCHMENT NAME (NOTE: RW (PREFIX) DENOTES ROOFWATER CATCHMENT)
NOTES: 1. THIS IS A GENERIC LEGEND. NOT ALL ITEMS WITHIN THIS LEGEND MAY BE PRESENT ON THIS PLAN AND THE SCALE OF THE ITEMS MAY BE DIFFERENT TO THE ITEMS PRESENTED ON THIS PLAN.		

SERVICES LEGEND		
EXISTING	PROPOSED	ITEM DESCRIPTION
		ELECTRICAL SERVICE - UNDERGROUND
		ELECTRICAL SERVICE - OVERHEAD
		GAS MAIN
		TELECOMMUNICATIONS - UNDERGROUND
		TELECOMMUNICATIONS - OVERHEAD
		TELECOMMUNICATIONS - NBN
		TELECOMMUNICATIONS - OPTIC FIBRE
		SEWER MAIN
		WATER RETICULATION MAIN - RECYCLED
		WATER RETICULATION MAIN - POTABLE
		STORMWATER DRAINAGE
		ROOFWATER DRAINAGE

SEWERAGE RETICULATION LEGEND		
EXISTING	PROPOSED	ITEM DESCRIPTION
		GRAVITY MAIN
		DISUSED / ABANDONED GRAVITY MAIN
		FLOW DIRECTION
		PROPERTY CONNECTION
		RIISING MAIN
		DISUSED / ABANDONED RISING MAIN
		MANHOLE STRUCTURE (MH)
		MAINTENANCE STRUCTURE (MS)
		TERMINAL ENTRY POINT (TEP)
		LOT CONTROL LEVEL
		ALLOTMENT FALL
		STRUCTURE NAME
		BEND NAME (HB DENOTES HORIZONTAL BEND) (VB DENOTES VERTICAL BEND)
NOTES: 1. THIS IS A GENERIC LEGEND. NOT ALL ITEMS WITHIN THIS LEGEND MAY BE PRESENT ON THIS PLAN AND THE SCALE OF THE ITEMS MAY BE DIFFERENT TO THE ITEMS PRESENTED ON THIS PLAN.		

ISSUE FOR APPROVAL

290 FREEMAN ROAD, INALA QLD 4077

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ENGINEERS

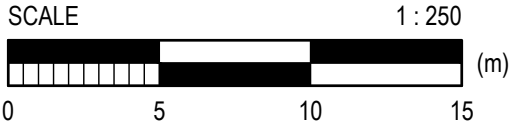
T 1300 598 544
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Surveyor:
LAWSON SURVEYS
Plan Ref.: ACAD-21478-DT
Level Datum AHD
AHD-VIDE PSM 11439
RP Description:
LOT 45
RP52227
Size of Land:
9853m²

Orig. Drg. Size
A1
Job No.
23-136
Drawing No.
SK000
Scale:
N.T.S
Rev.
A1

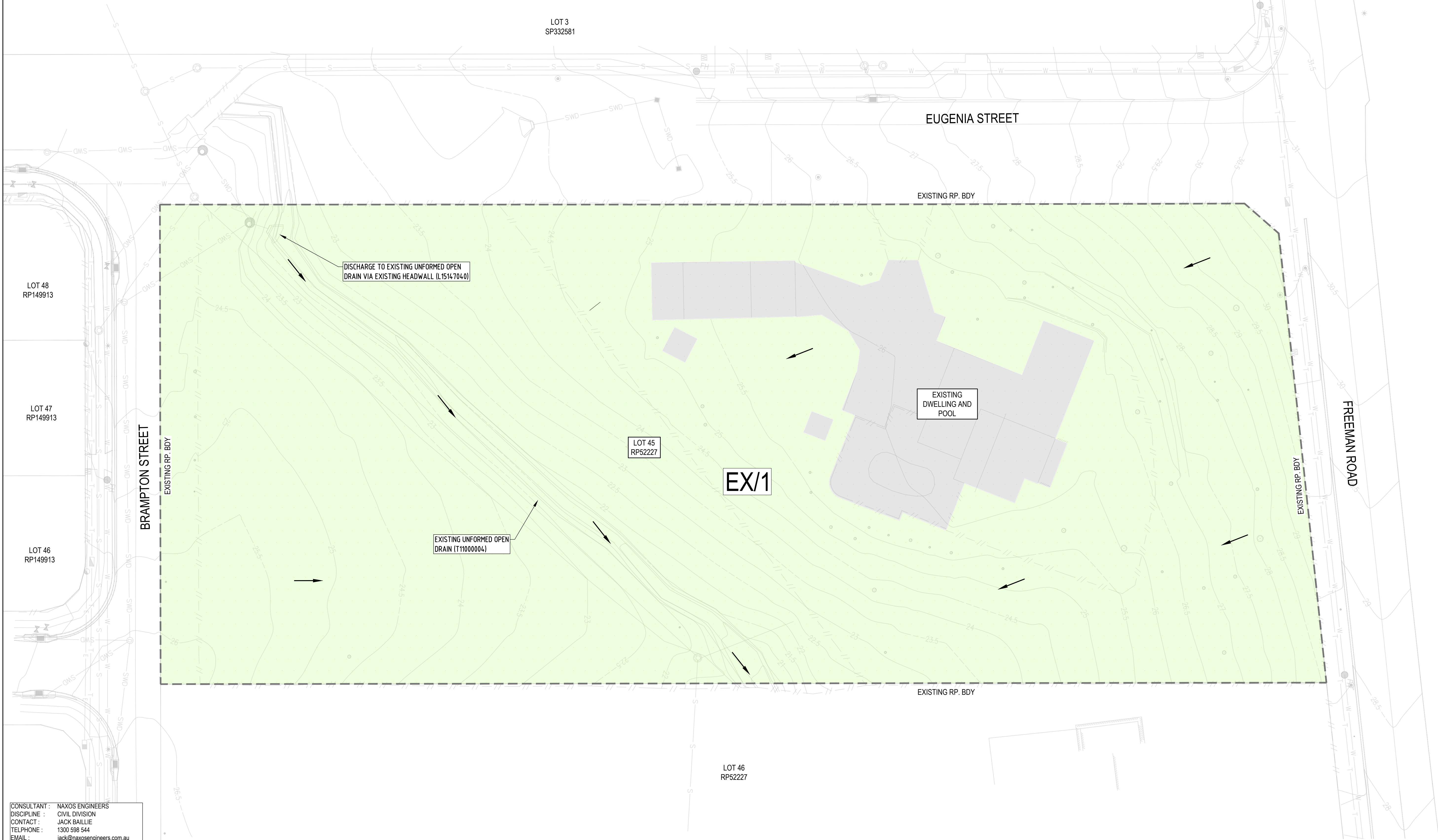
PRELIMINARY

NOTE:
REFER TO SK000 FOR LEGEND.



ISSUE FOR APPROVAL

STORMWATER CATCHMENT TABLE					
STORM EVENTS: MINOR 10yr, MAJOR 100yr			INTENSITY (1hr/10yr ARI): 61.80mm/Hr		
CATCHMENT NAME	CATCHMENT AREA (ha)	FRACTION IMPERVIOUS	TIME OF CONCENTRATION	MINOR COEFFICIENT	MAJOR COEFFICIENT
EX1	0.9853	0.10	15.00	0.70	0.84



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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW
B	14.07.2026	ISSUE FOR APPROVAL	JB

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ. 1528 Date:

Drawn: CW

Checked: JB

Design: JB

Supervisor: JB

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Size of Land:
9853M²
Scale:
1:250
Orig. Dwg. Size
A1

Client:

Project:

PRE-DEVELOPMENT CATCHMENT PLAN

ROOFBROOK CONSULTING ENGINEERS PTY LTD

290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION

Job No.

25-136

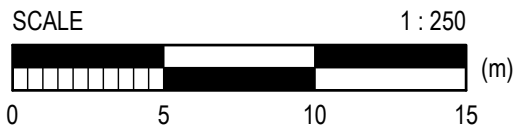
Drawing No.

SK001

Revision:

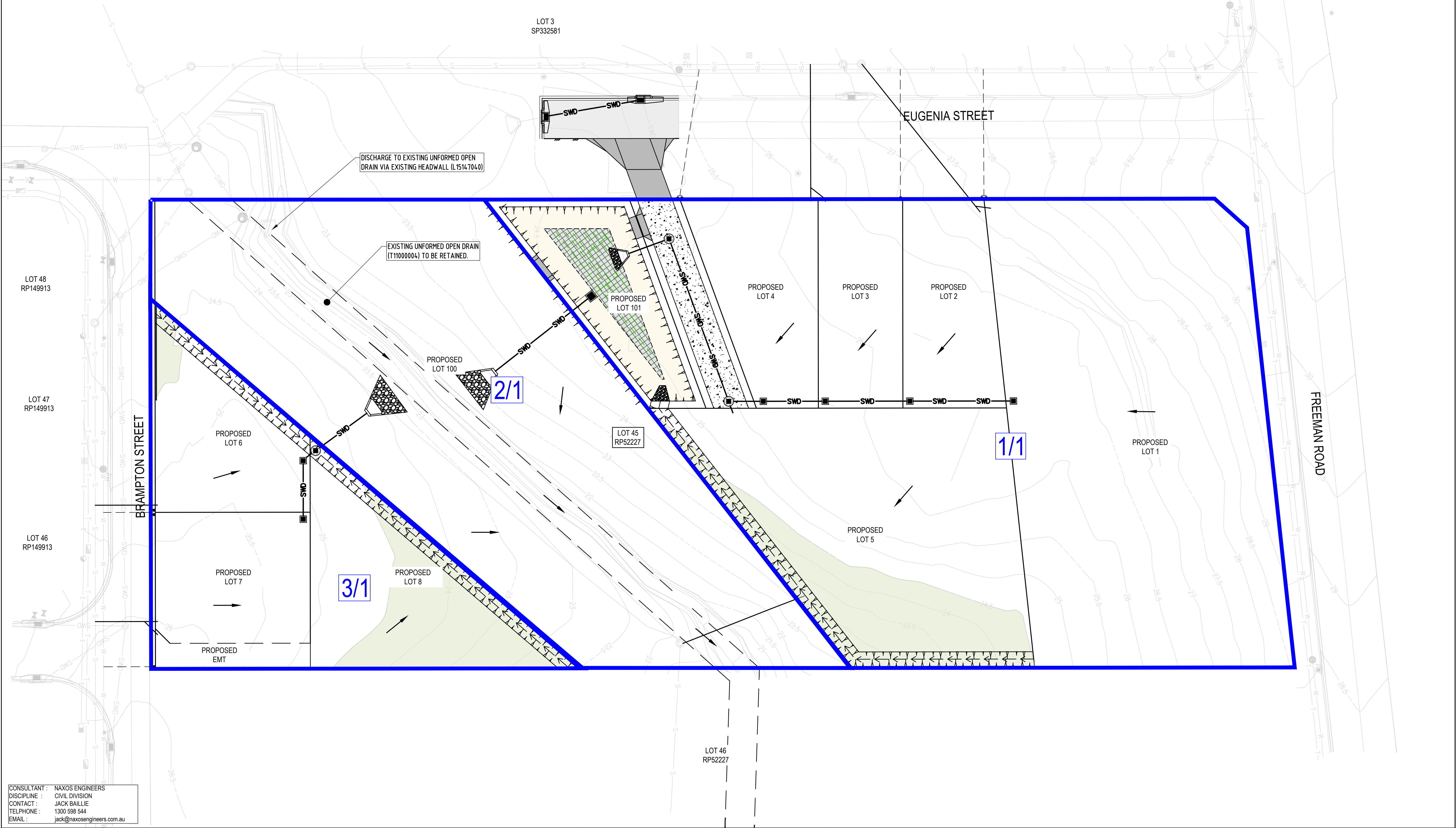
B

NOTE:
REFER TO SK000 FOR LEGEND.



ISSUE FOR APPROVAL

STORMWATER CATCHMENT TABLE					
STORM EVENTS: MINOR 10yr, MAJOR 100yr INTENSITY (1hr/10yr ARI): 61.80mm/Hr					
CATCHMENT NAME	CATCHMENT AREA (ha)	FRACTION IMPERVIOUS	TIME OF CONCENTRATION	MINOR COEFFICIENT	MAJOR COEFFICIENT
1/1	0.530	0.60	5	0.78	0.94
2/1	0.304	0	10	0.70	0.84
3/1	0.151	0.60	5.00	0.78	0.94



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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW
B	14.07.2026	ISSUE FOR APPROVAL	JB

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ. 1528 Date:

Drawn: CW

Design: JB

Checked: JB

Supervisor: JB

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Size of Land: 9853M²
Scale: 1:250

Client:
Project:

POST-DEVELOPMENT CATCHMENT PLAN

ROOFBROOK CONSULTING ENGINEERS PTY LTD

290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION

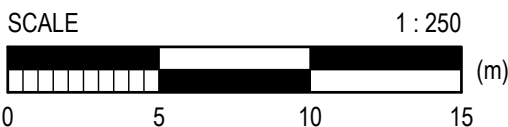
Job No. 25-136

Drawing No. SK002

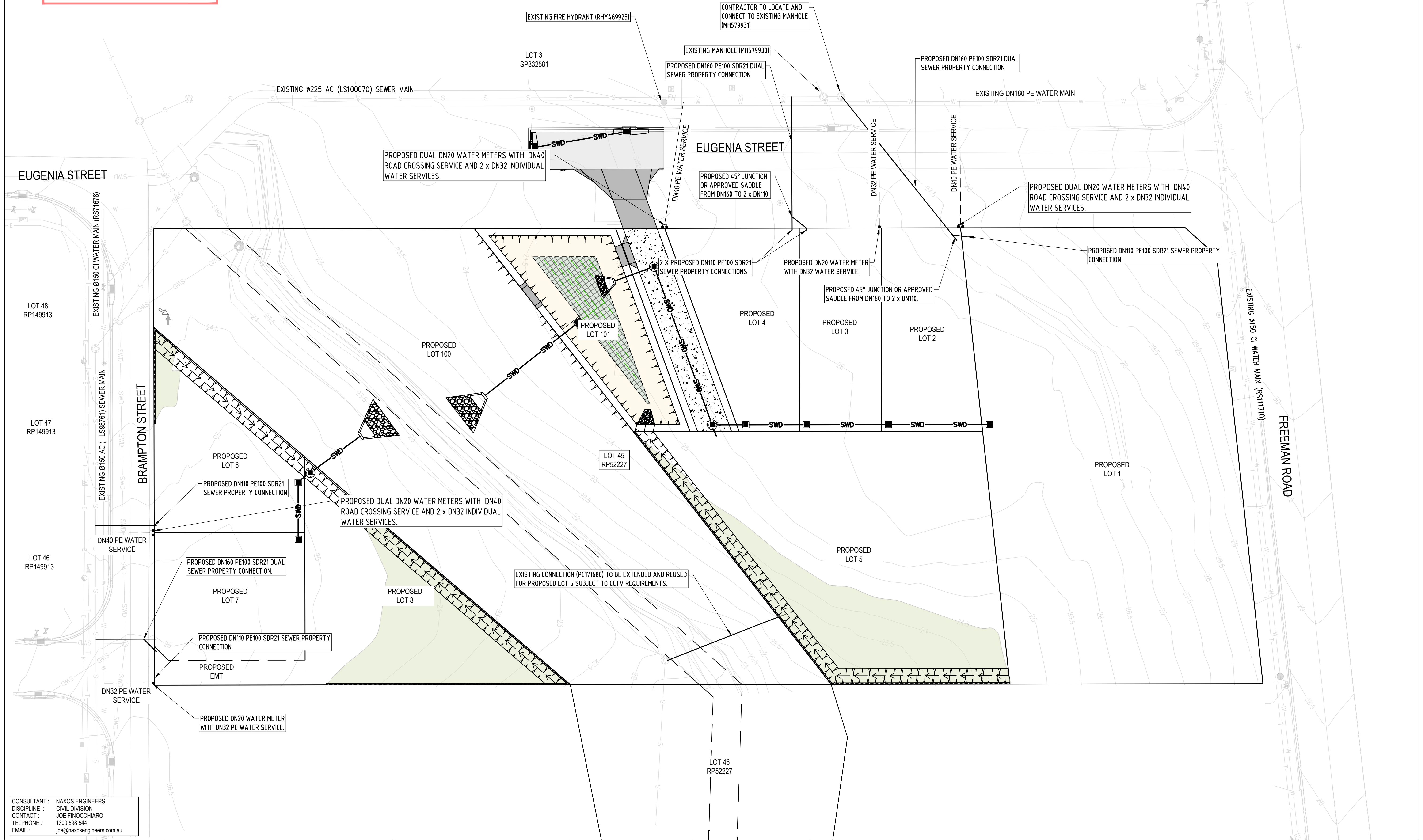
Revision:

B

NOTE:
REFER TO SK000 FOR LEGEND.



ISSUE FOR APPROVAL



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DISCIPLINE : CIVIL DIVISION
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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW
B	14.07.2026	ISSUE FOR APPROVAL	JB

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ. 1528 Date:

Drawn: JB

Design: CW

Checked: JB

Supervisor: JB

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Size of Land:
9853M²
Scale:
1:250
Orig. Dwg. Size
A1

Client:
Project:

CONCEPT SERVICES PLAN

ROOFBROOK CONSULTING ENGINEERS PTY LTD

290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION

Job No.
25-136

Drawing No.
SK003

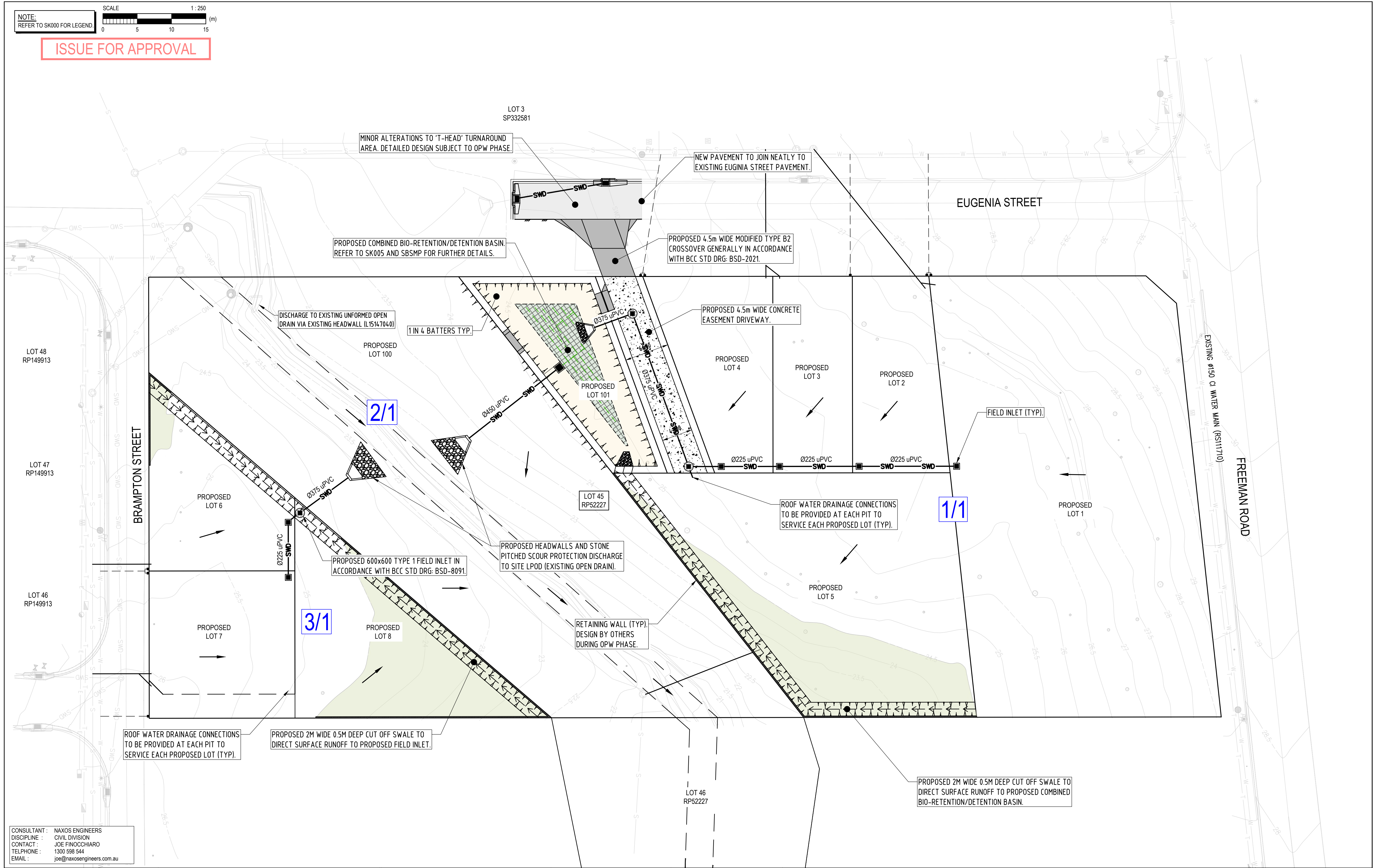
Revision:

B

NOTE:
REFER TO SK000 FOR LEGEND.



ISSUE FOR APPROVAL



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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW
B	14.07.2026	ISSUE FOR APPROVAL	JB

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ: 1528 Date:

Drawn: CW

Design: JB

Checked: JB

Supervisor: JB

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Size of Land:
9853M²
Scale:
Orig. Dwg. Size
A1

Client:
Project:

CONCEPT STORMWATER PLAN

ROOFBROOK CONSULTING ENGINEERS PTY LTD

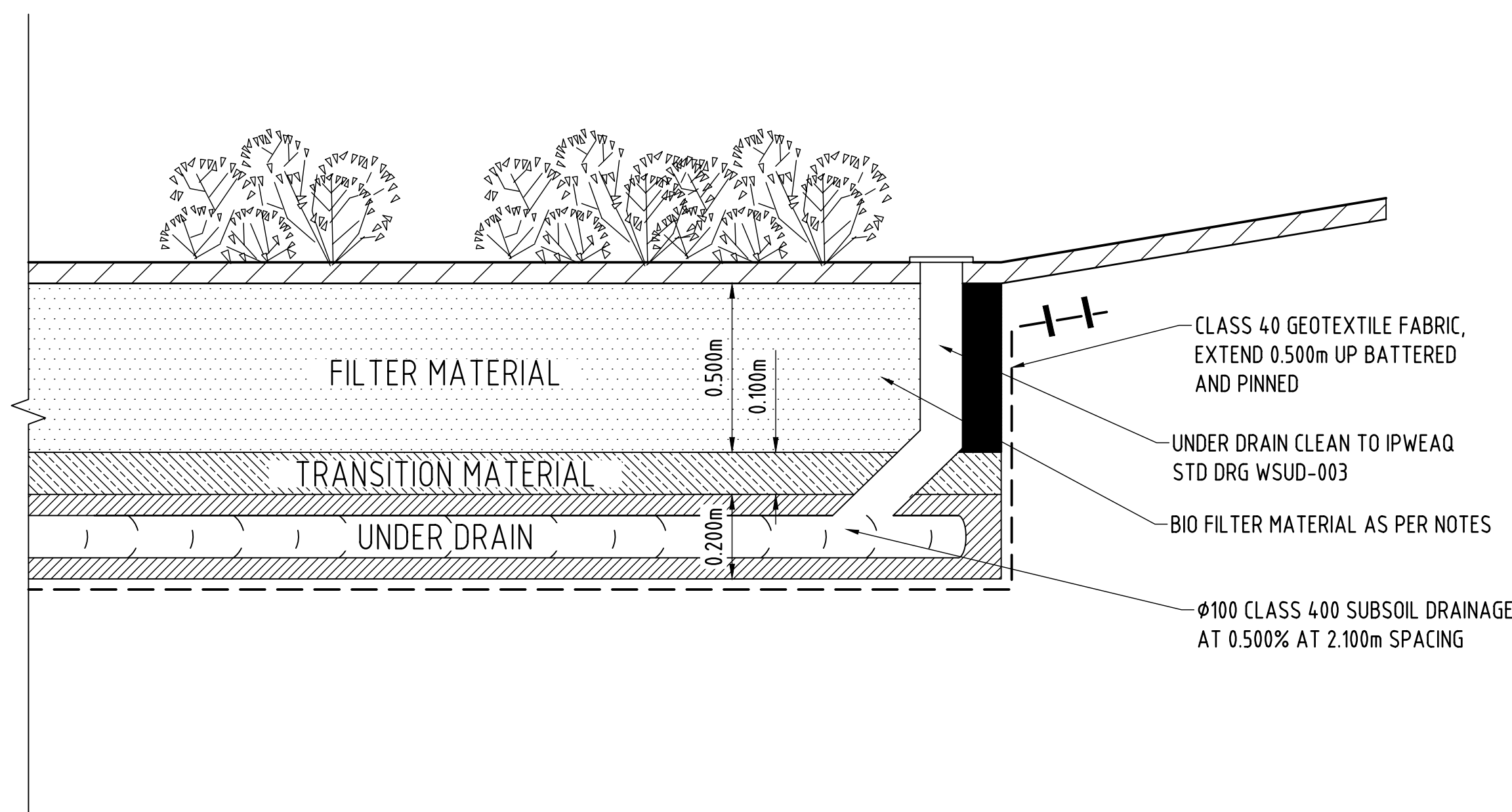
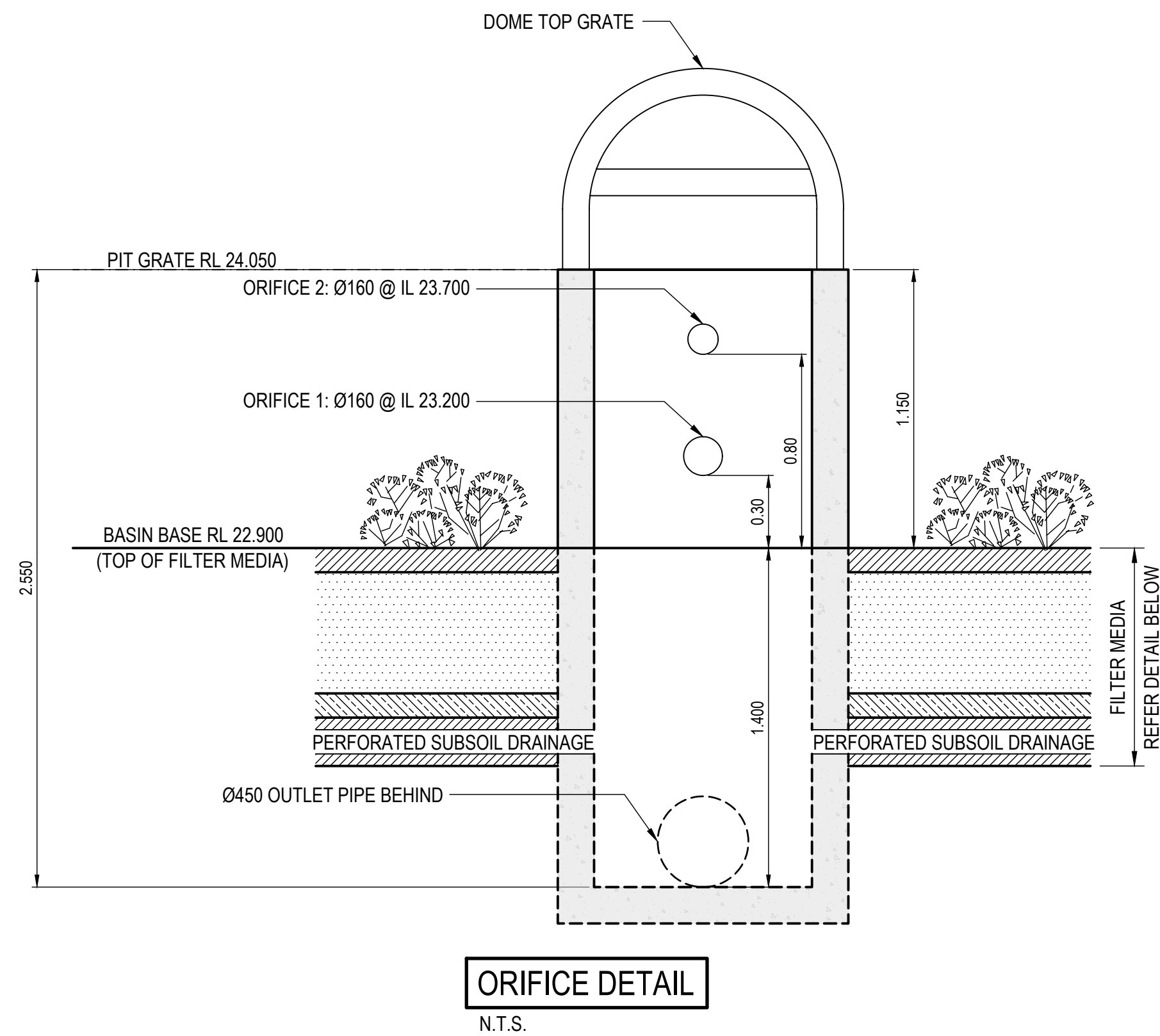
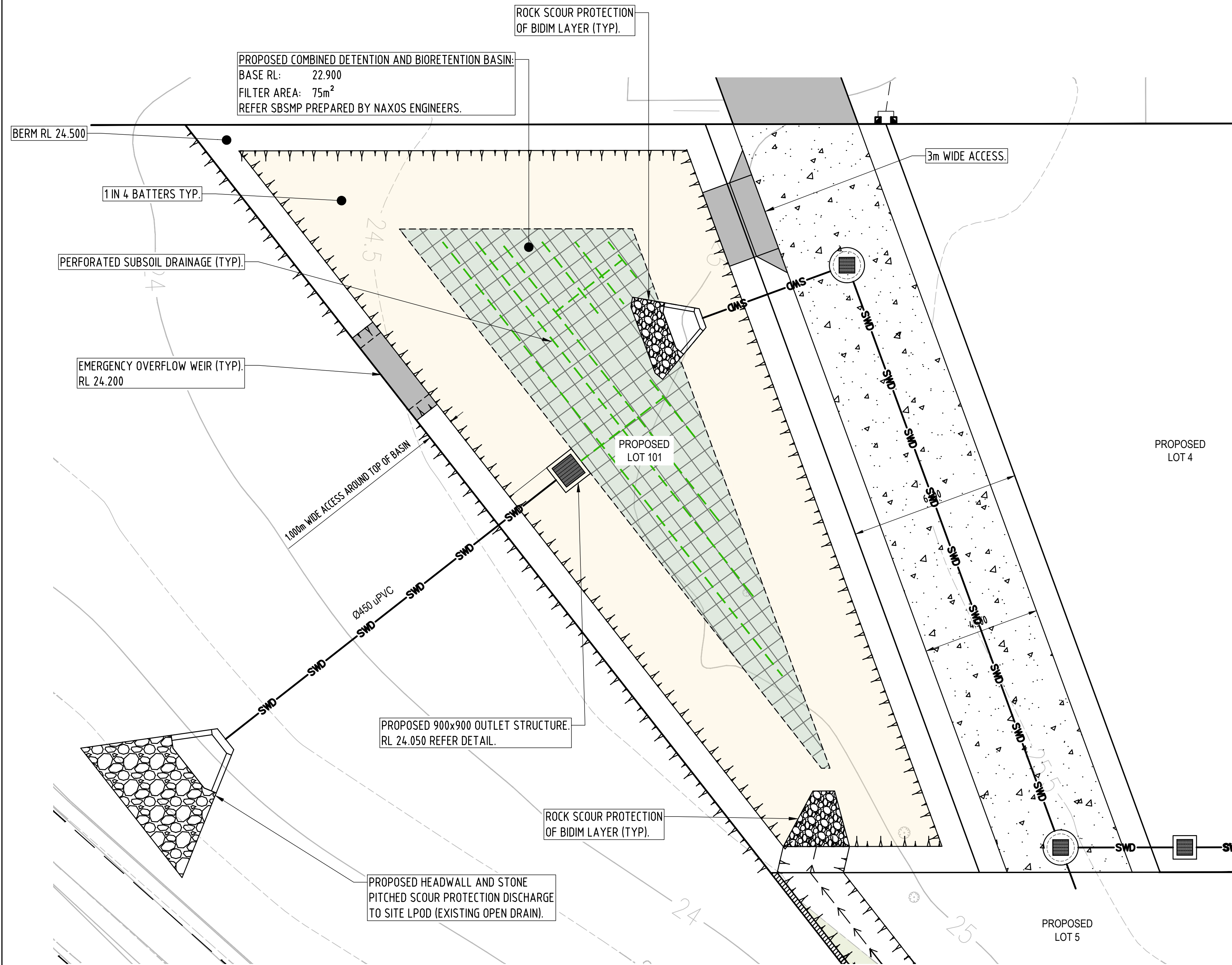
290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION

Job No.
25-136

Drawing No.
SK004

Revision:

B



CONSULTANT : NAXOS ENGINEERS
DISCIPLINE : CIVIL DIVISION
CONTACT : JOE FINOCCHIARO
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NOTE:
REFER TO SK000 FOR LEGEND.

SCALE
0 5 10 15 (m)
1 : 250

ISSUE FOR APPROVAL

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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW
B	14.07.2026	ISSUE FOR APPROVAL	JB

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ. 1528 Date:

Drawn: CW

Checked: JB

Design: JB

Supervisor: JB

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North:
Size of Land:
9853M²
Scale:
1:100
Orig. Dwg. Size
A1

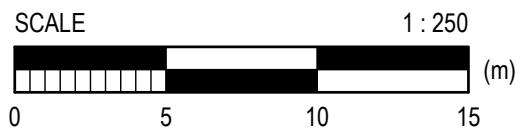
Client:
Project:

CONCEPT BASIN DETAIL PLAN
ROOFBROOK CONSULTING ENGINEERS PTY LTD
290 FREEMAN ROAD, INALA QLD 4077
PROPOSED RESIDENTIAL SUBDIVISION

Job No.
25-136
Drawing No.
SK005

Revision:
B

NOTE:
REFER TO SK000 FOR LEGEND.



PRELIMINARY DRAWING



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AMENDMENTS			
No.	DATE	DESCRIPTION	DRAWN
A	10.06.2026	PRELIMINARY ISSUE	CW

Associated Consultant:
ASSOCIATED CONSULTANT

Approved: GREGG TYQUIN

RPEQ: 1528

Date:

Drawn: CW

Design: CW

Checked: JB

Supervisor: JB

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North:



Orig. Dwg. Size A1

Size of Land:

9853M²

Scale:

Project:

Client:

Project:

CONCEPT STORMWATER PLAN

ROOFBROOK CONSULTING ENGINEERS PTY LTD

25-136 - FREEMAN (290)
PROPOSED RESIDENTIAL SUBDIVISION

Job No.

25-136

Revision:

Drawing No.

SK004

A