

CCQ Stage 2

Water Cycle Management Report

Prepared for Urban Property Group

January 2026

Project Number S25049

Document Number RPT-CI-0001

Revision C

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Document Control

Revision	Date	Description		Prepared	Reviewed	Approved
A	12/12/2025	Development Application Issue	Name [RPEQ/RPEV] No.	Adam Malass	Jonahie Lucas 3703721	Jonahie Lucas 3703721
B	19/12/2025	Development application issue	Name [RPEQ/RPEV] No.	Adam Malass	Jonahie Lucas 3703721	Jonahie Lucas 3703721
C	20/02/2026	Appendices update	Name [RPEQ/RPEV] No.	Jonahie Lucas 3703721	-	Jonahie Lucas 3703721

1. Introduction

This Water Cycle Management report has been prepared by BG&E on behalf of UPG Waterfront Pty Ltd (the Applicant) to accompany a concurrent rezoning and State Significant Development Application (SSDA) at 26-30 Mann Street, Gosford, also known as 'Central Coast Quarter' (the site).

The site is located on the Stage 2 component of the Central Coast Quarter site in Gosford City Centre, within the Central Coast Local Government Area (LGA). The Stage 2 site is legally described as Lots 3 and 4 in Deposited Plan 1319239.

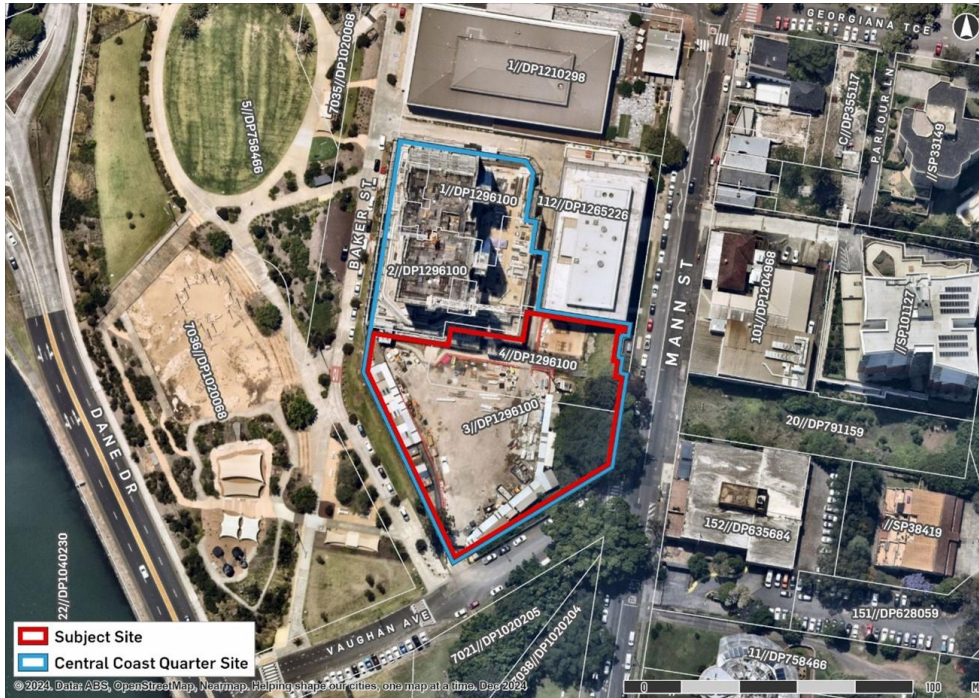


Figure 1-1 - Aerial Photograph of the site (Source Urbis)

SSD-90960208 seeks consent for the detailed design, construction and operation of a mixed-use development comprising:

- Construction of two towers (36 and 42 storeys in height) above a retail podium (including pavilion building), comprising:
 - Retail, residential and hotel gross floor area (GFA).
 - 394 apartments, comprising the following mix:
 - ▶ 296 market apartments.
 - ▶ 98 affordable housing apartments to be managed by a CHP for 15 years (equating to approximately 20% of the residential GFA).
- 152 hotel keys (eastern tower).
- Five parking levels, with vehicular access from Vaughan Avenue.
- Storage areas and services.
- Communal open space and deep soil planting (including retention of the Port Jackson Fig).
- Publicly accessible through site links, including stairs, walkways public art and landscaping.
- Provision of utilities and services infrastructure, as required.

To facilitate the built form proposed under SSD-90960208, concurrent amendments are sought to the *State Environmental Planning Policy (Precincts – Regional) 2021* (Regional SEPP) pursuant to the concurrent SEPP Amendment process facilitated by the HDA planning pathway.

2. Response to SEARs

This report has been prepared in response to the requirements contained within the Secretary's Environmental Assessment Requirements (SEARs) dated 20 August 2025 issued for the SSDA (SSD-90960208). Specifically, this report has been prepared to respond to the SEARS requirement issued below.

Table 2-1 - SEARs Compliance

Item	Description of Requirements	Section Reference
14 Water Management	<p><u>Water Management Plan</u></p> <ul style="list-style-type: none"> • Provide an Integrated Water Management Plan for the development that: <ul style="list-style-type: none"> - 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 provision). - 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. • Where water and 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, the local council or other drainage or water authority. 	Section 4
15. Flood Risk	<p><u>Flood Risk</u></p> <ul style="list-style-type: none"> • Identify the flood planning level as set out in the relevant council LEP or SEPP and identify any: <ul style="list-style-type: none"> - Flood risks on site having regard to adopted flood studies - The potential effects of climate change, and - Any relevant provisions of the NSW Flood Risk Management Manual. • Where the development is occurring on flood prone land a flood impact and risk assessment (FIRA) must be prepared having regard to the Flood Impact and Risk Assessment Guideline - LU01 (FIRA guide). When determining the scope and category of the FIRA the requirements outlined in the FIRA guide must be considered. <ul style="list-style-type: none"> - Detail any flood risk management measures that are to be incorporated as part of the development having regard to relevant guidelines (including any design solutions, flood modification measures, property modification measures, operational procedures or Flood Emergency Response Plan). 	Section 5

3. Related Reports and Documents

This report is to be read in conjunction with the following reports and documents:

1. Development Application Documentation prepared by BG&E (Appendix A)

Table 3-1 – Drawing Schedule

Drawing Number	Drawing Name
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	SITEWORKS AND STORMWATER MANAGEMENT PLAN BASEMENT 1
CI-0201	SITEWORKS AND STORMWATER MANAGEMENT PLAN GROUND FLOOR
CI-0202	SITEWORKS AND STORMWATER MANAGEMENT PLAN LEVEL 1
CI-0270	DRIVEWAY LONGSECTIONS
CI-0300	DRAINAGE CATCHMENT PLAN
CI-0340	RAINWATER TANK PLAN, SECTION AND DETAILS
CI-0450	DETAILS
CI 0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS

2. Central Coast Council Civil Works Specification Design Guideline 2020
3. Chapter 3.1 Floodplain Management/ Water Cycle Management Central Coast Council DCP 2022
4. Chapter 4.4 Gosford Waterfront Central Coast Council DCP 2022

4. Stormwater Management Strategy

4.1 General Strategy

The on-site stormwater management system has been designed to replicate the processes which would occur naturally on site. The proposed development will incorporate a number of devices and measures aimed at providing adequate and responsible management of stormwater runoff for minor and major storm events.

In line with Chapter 3.1 Part C Central Coast Development Control Plan 2022, the water cycle management strategy has considered the following items which will be discussed in the following sections of this report:

- Stormwater capture and disposal;
- Water conservation;
- Stormwater retention;
- Stormwater quality
- On-site Detention
- Local Overland drainage;
- Flooding.

4.2 Stormwater Capture and Disposal

Concept stormwater management plans have been prepared for the proposed development and are included in this report. The majority of the development area is of a suspended structure-built form. The methods of stormwater capture and disposal are outlined below and are to be designed in accordance with AS3500.3 and Central Coast Council Engineering Guidelines.

- Runoff from the roof of the towers will be captured via a conventional roof drainage system. Once runoff is captured, it will then be conveyed to the rainwater harvesting tank.
- The rainwater harvesting will have a high-level overflow to the stormwater system.
- Runoff from the balcony and podium areas will also be captured by conventional drainage systems and conveyed to the stormwater system on the eastern side of the development, bypassing the rainwater tank.
- Runoff from the vehicular access on the south side of the site will be captured and conveyed to a stormwater pump out pit. The captured runoff will then be pumped via a rising main to the stormwater system on the northeastern side of the development. In addition to the requirements of AS3500.3, the pump out pit is proposed to be equipped by a backup power source to operate in the event of a power outage

4.3 Water Conservation

The water conservation objective for the proposed development is to reduce potable water demand by 40% using the provisions nominated within the BASIX report. In summary, it is proposed that the re-development will incorporate the following water saving measures:

- Using water efficient fixtures for shower heads, toilet cisterns, toilet taps and kitchen taps including undertaking regular maintenance of these fixtures;
- The use of water efficient dishwashers;
- Landscaping with plant species that require minimal watering and irrigation with appropriate systems to minimise water loss and evaporation. This includes native plant species, using mulch around garden beds, avoiding watering when it's windy, watering during the coolest parts of the day and using drip irrigation;
- Harvested rainwater from part of the roof is proposed to be collected and reused for hardstand washdown, carwash bay and irrigation of landscaping areas.

It is our opinion that the measures outlined above will provide adequate reduction in potable demand to meet the intent of the water conservation target. For detailed assessment of the proposed water conservation initiatives proposed for the development, refer to the project specific BASIX report.

4.4 Retention

The intent of water retention targets in Chapter 3.1 of DCP 2022 is to mimic the natural catchment hydrology from all development sites, in terms of:

- Quantity – the annual volume of stormwater reaching natural creeks and waterways;
- Rate – the peak flow rates leaving the site; and
- Response – the time it takes for rain to runoff the site.

Runoff from the roof will be captured and harvested in the rainwater tank located below the ground floor carpark. This process involves the collection, storage and re-use of rainwater from the roof areas of the development for internal and external uses.

The stormwater retention volume (SRV) has been determined in accordance with Section 3.1.11.2.4 of 3.1 of GCC DCP 2022. The SRV calculation is shown below:

$$SRV = 0.01 \times A \times (0.02 \times F)^2$$

Where: SRV = stormwater retention volume (m³)

A = site area (m²)

F = fraction impervious (%)

$$= 0.01 \times 5665 \times (0.02 \times 91)^2$$

$$= 187.6\text{m}^3$$

The entire retention volume will be provided by a single 187.6kL rainwater tank.

Adequate draw down will be provided via reuse for hardstand washdown, car wash bay and irrigation of the landscape areas on the ground floor and level 4 podium.

4.5 Stormwater Quality

In order to minimise any adverse impacts upon the ecology of downstream watercourses, stormwater treatment devices have been incorporated into the design of the development. The adopted stormwater quality targets were specified in Central Coast Council’s Engineering Guidelines and are summarised in Table 4-1:

Table 4-1 – Required Water Quality Reductions

Pollutant Criteria	Required Reduction Target (%)
Total Suspended Solids (TSS)	80
Total Phosphorous (TP)	45
Total Nitrogen (TN)	45
Gross Pollutants	80

The performance of the proposed stormwater management strategy was assessed against these targets using the conceptual design software MUSIC (Version 6). The MUSIC model was developed using parameters recommended in the document “NSW MUSIC Modelling Guidelines” (WBM, 2015) and Central Coast Council MUSIC Link.

The total catchment area was split into sub-catchments representing the areas draining to the different treatment devices. A schematic of the MUSIC model is provided in Figure 4-1.

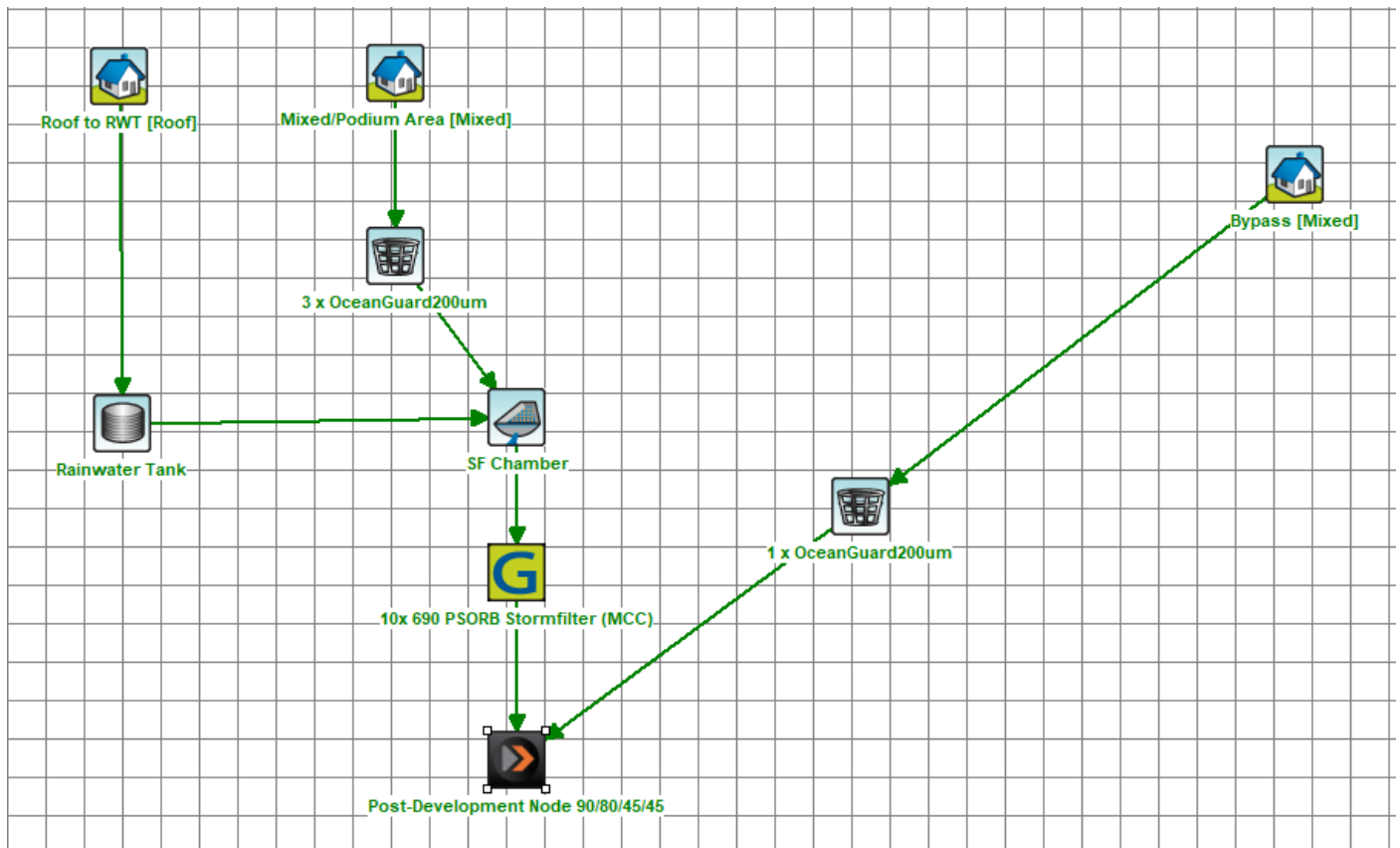


Figure 4-1 - MUSIC Model Schematic

A number of factors were identified in order to select the most appropriate stormwater quality improvement devices (SQUIDs). The proposed development footprint and usage was considered especially significant to this design which eliminated a number of effective treatment options. In addition to the practical constraints, maintenance, operability and aesthetics were considered.

The proposed treatment train incorporates:

- Primary treatment via a proprietary sediment trap and GPT devices, rainwater harvesting tank and proprietary pit filter inserts; and
- Secondary treatment via a proprietary Ocean Protect 690mm Psorb Stormfilter cartridges.

The following is a summary of the water quality treatment devices that have been utilised in the proposed treatment train. The modelling parameters used can be found in the MUSIC Link report appended to the rear of this report.

- **Rainwater Harvesting Tank** – Runoff from roof areas is to be directed to a below-ground rainwater harvesting tank. The tank is to be fitted with a proprietary first-flush device which will effectively remove dead insects, bird and animal droppings and concentrated tannic acids from the stormwater system. The rainwater tank will also provide secondary treatment by acting as an initial sediment trap, collecting suspended solids and nutrients attached to those sediments. The volume collected in the harvesting tank is to be reused as described previously in this report.
- **Ocean Protect 690mm Psorb Stormfilter Cartridges** – Overflow from the rainwater tank and runoff from the podium areas will pass through a proprietary filter device which is designed to remove hydrocarbons, fine suspended solids and nutrients from entering downstream water ways.
- **Ocean Protect Ocean Guard filter baskets**– Runoff from the podium areas will pass through a proprietary device designed to capture gross pollutants and suspended solids.

Water Sensitive Urban Design – Concept Design Tools from the Central Coast Councils Civil Works Design Guidelines. Treatment nodes have been adopted from OceanProtect. The MUSIC modelling results for the above-mentioned treatment strategy are shown below in Table 4-2

Table 4-2 – MUSIC Modelling Results

Pollutant Criteria	Required Reduction Target (%)	Sources (kg/yr)	Residual Load (kg/yr)	Achieved Reduction (%)	Compliance
Total Suspended Solids (TSS)	80	5447	47.3	89.4	Y
Total Phosphorous (TP)	45	1.09	0.33	69.7	Y
Total Nitrogen (TN)	45	11.7	5.54	52.6	Y
Gross Pollutants	80	131	0.00261	100	Y

Note: The MUSIC model can be provided to Council upon request.

Table 4-3 shows that the proposed stormwater quality management strategy will achieve the required load reduction targets. A copy of the MUSIC Link report has been appended to the rear of this report.

4.6 On-Site Stormwater Detention

It is proposed the stormwater runoff from the development site to connect to the existing Council drainage network approximately 200m upstream of its outlet the Brisbane Water. Location of the site is within the lower extremities of the much larger upstream catchment. The peak discharge from the site will occur much sooner than the peak discharge from the upstream catchment. For this development, providing OSD will have negligible impact on reducing peak discharge in the stormwater system and as such is not proposed for this development.

4.7 Local Overland Drainage

The subject site is not impacted by local overland drainage from upstream.

5. Flooding

Central Coast Council has prepared detailed flood studies for the subject site area, including the Brisbane Water Foreshore Flood Risk Management Study (2013) and the Gosford CBD Local Overland Flow Flood Study (2013). Flood Certificate of the development has been undertaken for the existing conditions, as detailed in the flood report prepared by Central Coast Council. This assessment state the planning levels. The proposed development is above the flood planning levels and complies with Council requirements. Refer to Appendix C for more information.

Table 5-1 Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	3.79	7.47
1% AEP	2.97	6.44
5% AEP	2.93	6.42

The studies investigate the flood behaviour of the subject site and investigates both flooding as a result of local overland runoff as well as the Brisbane Water foreshore flooding. Both studies included consideration for the potential impacts of climate change, by assessing an increase to rainfall intensity as well as a rise in sea levels.

Upon review of these flood studies, it was concluded that the site was not impacted by local overland flow and as such will have no impact on the flood behaviour of this type of flood event. The flooding generated by the Brisbane Water foreshore flood event contains a volume of flood water that is several magnitudes higher than any potential fill or lost flood storage as a result from the proposed development, and as such it is considered that the development would have no measurable impact to the flood behaviour.

A number of flood requirements and planning controls are still required to satisfy the intent of the NSW Floodplain Development Manual (2005) and Central Coast Council's DCP Requirements. Central Coast Council has previously provided correspondence relating to the required Flood Planning Level for the development.

Central Coast Council – Sears DA Requirements – (20th August 2025)

Central Coast Council provided advice in response to the SEARs request dated 20th August 2025 which included a number of matters to be taken into consideration for the proposed masterplan. The following advice was provided in relation to flooding:

- A minimum floor level of RL 3.0m AHD for all habitable areas including commercial areas.
- The crest in the existing/proposed access in the right of way to basement car parks is to be at RL 3.0m AHD. If the existing right of way does not achieve this level then flood gates to achieve a raised height of RL 3.0m AHD could be considered.
- Flood compatible materials are to be used below RL 3.0m AHD.

Sea Level Rise Figure 5-1 presents the sea level rise projection adopted by Central Coast Council for the purposes of flood planning requirements.

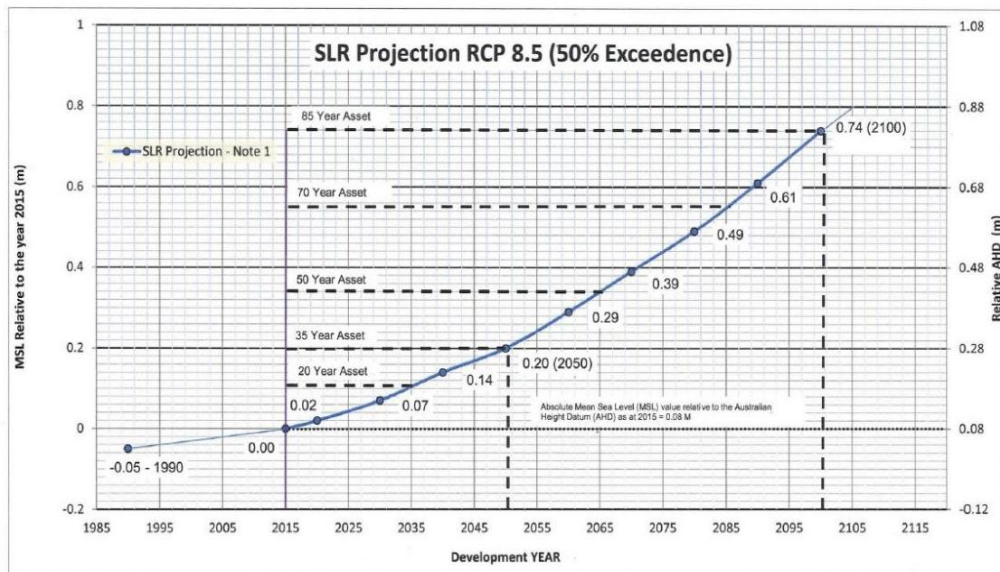


Figure 1- Sea Level Rise Projection RCP 8.5

¹ Extracted from Table 1 p28 Gosford City Council Sea Level Rise Benchmarks Discussion Paper Whitehead & Associates Environmental/Coastal Environment (Feb, 2015)
Intermediate values obtain Table 10 South Coast Regional Sea Level Rise Policy and Planning Framework – Whitehead & Associates Environmental/Coastal Environment (2014)

Figure 5-1 - Sea level rise projection - central coast council planning requirements

The amount of sea level rise adopted is dependent on the design life of the development. Thus, it can be observed that an increase to the design life of the development will result in an increase in the expected sea level rise.

Based on the information presented above, the minimum floor level of the ground floor units is proposed to be RL 3.00m. It is also noted that the existing right of way does not achieve the required level, as the crest has been constructed at RL 2.71m AHD. As such, flood gates will be required to be installed to achieve flood protection to at least RL 3.00m AHD. This has been addressed as part of Stage 1 approval for the Northern Tower. Refer Figure 5-2 showing the location of the Flood gates as part of the stage 1 approval works.

The proposed stormwater management design presented above has been prepared to comply with Central Coast DCP Chapter 6.7 as well as industry best practice. The design philosophy is based on the principle of at source treatment, to reduce conveyance infrastructure and manage water quantity and quality aspects.

At a concept level the system has been designed to cater for frequent and infrequent storm events.

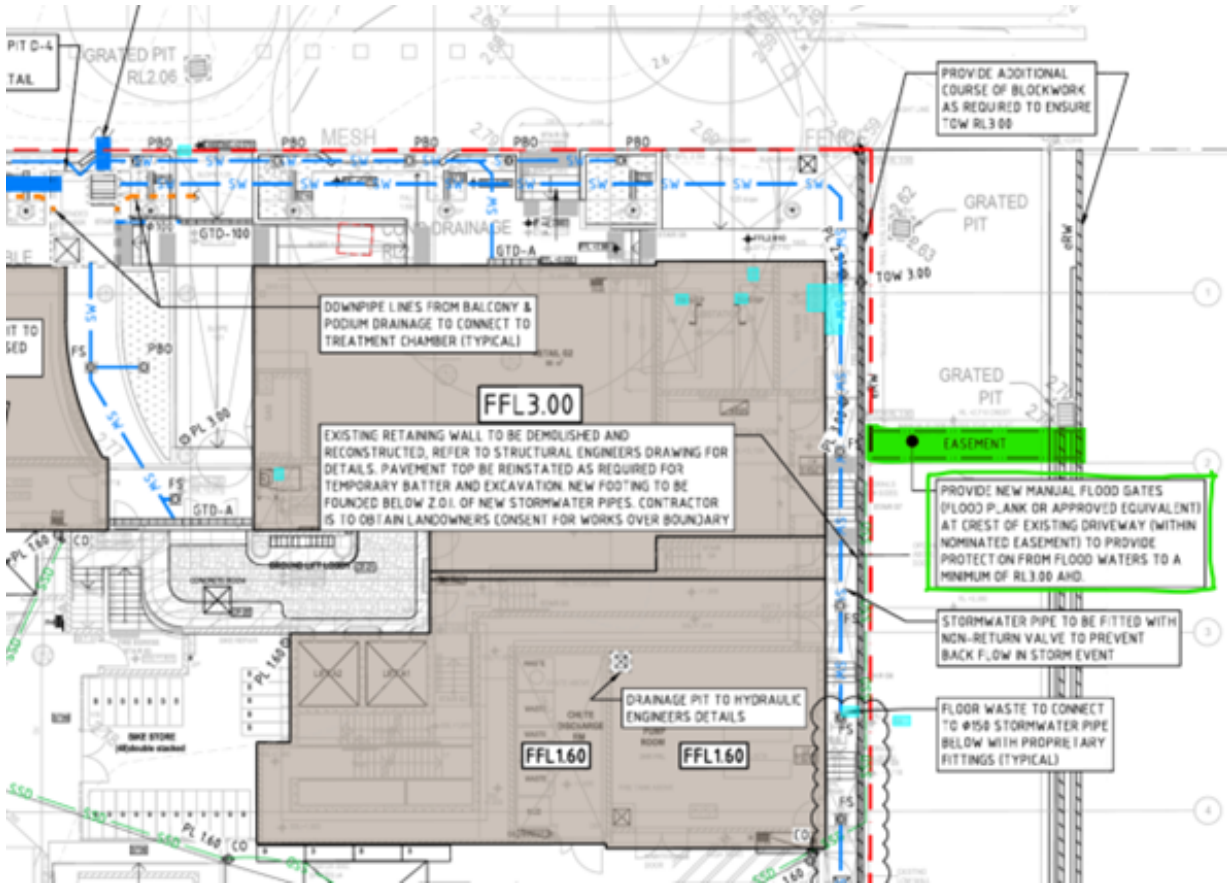


Figure 5-2 Flood gate location as part of Stage 1 approved works

6. Conclusion

This Water Cycle Management Report has been prepared to present the design assumptions, methods and inputs that were utilised to produce the Civil Engineering design for the proposed development.

This include stormwater quality assessment demonstrates that the proposed treatment will be required to meet the pollutant removal targets as defined in Council's DCP during the operational phase of the proposed development.

This report demonstrates that the design of the stormwater drainage and associated with civil infrastructure are compliant with the objectives of Central Coast Council's requirements and therefore we believe should support the proposed development.

Appendices

Appendix A

Concept Civil Engineering Drawings

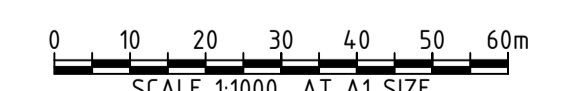
CENTRAL COAST QUARTER S2

26-30 MANN STREET GOSFORD NSW 2250

LGA: CENTRAL COAST COUNCIL
 ISSUED FOR STATE SIGNIFICANT DEVELOPMENT APPLICATION

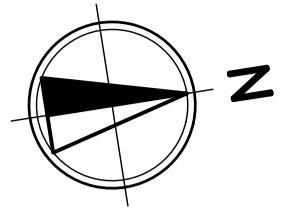


DRAWING INDEX	
DRAWING No.	DESCRIPTION
CI-0000	COVER SHEET, LOCALITY PLAN AND DRAWING INDEX
CI-0200	SITWORKS AND STORMWATER MANAGEMENT PLAN BASEMENT 1
CI-0201	SITWORKS AND STORMWATER MANAGEMENT PLAN GROUND FLOOR
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CI-0450	DRAINAGE DETAILS
CI-0700	EROSION AND SEDIMENT CONTROL PLAN
CI-0710	EROSION AND SEDIMENT CONTROL DETAILS



CLIENT URBAN PROPERTY		ARCHITECT DKO		Sydney Office— L2, 8 Windmill St, Sydney NSW 2000 P / +61 2 9770 3300 E / info@bgeeng.com bgeeng.com—		PROJECT CENTRAL COAST QUARTER S2 26-30 MANN STREET GOSFORD NSW 2250		STATUS CONCEPT DESIGN NOT TO BE USED FOR CONSTRUCTION		TITLE COVER SHEET, LOCALITY PLAN AND DRAWING INDEX	
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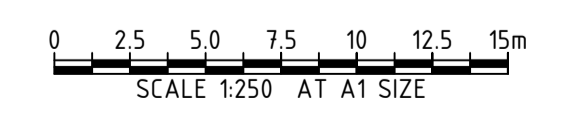
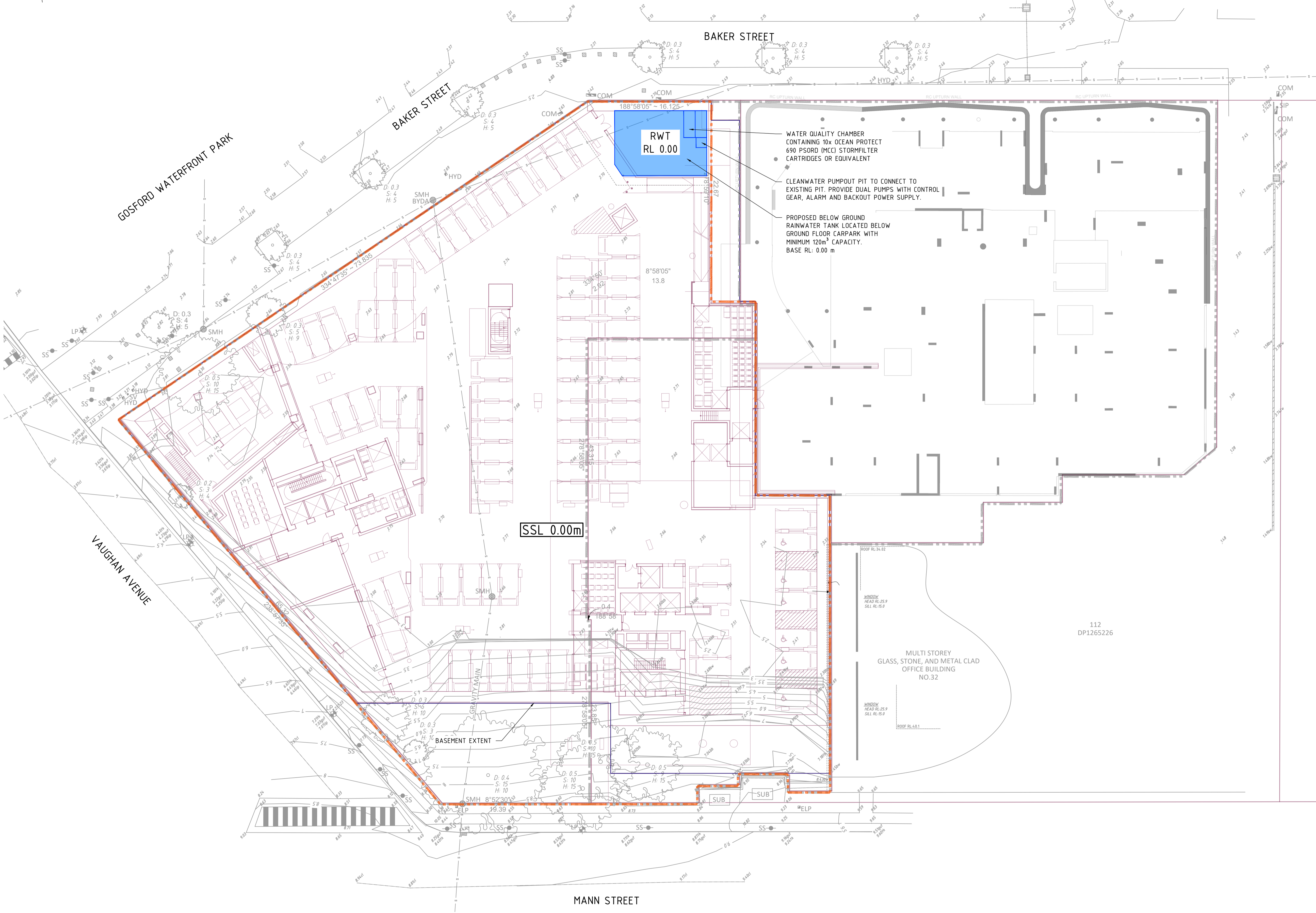
LEAGUES CLUB PARK

LEGEND

- SITE BOUNDARY
- ARCHITECTURAL
- LANDSCAPE
- SURVEY
- EXISTING SURFACE CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- PROPOSED STORMWATER (SIZE AND GRADE)
- EXISTING DRAINAGE PIPE
- PROPOSED GRATED INLET PIT
- PROPOSED JUNCTION PIT
- EXISTING INLET PITS
- G/D
- OVERLAND FLOW PATH
- PROPOSED SUBSOIL DRAIN
- PROPOSED CHANNEL FLOW PATH
- PROPOSED RAINWATER TANK

NOTES

1. THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH RELEVANT LOCAL AUTHORITY GUIDELINES FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY AND ARE SUBJECT TO CENTRAL COUNCIL COUNCIL APPROVAL AN DETAILED DESIGN AT CONSTRUCTION CERTIFICATE STAGE.
2. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWING. ALL DIMENSIONS ARE IN METRES (m). ALL LEVELS ARE IN AUSTRALIAN HEIGHT DATUM (AHD).
3. RUN ALL STORMWATER PIPEWORK @1% (MIN) U.O.D. CONNECT TO DOWNPIPE MINIMUM 100mm BELOW FFL.
4. ALL WORKS EXTERNAL TO THE SITE ARE TO BE UNDERTAKEN IN ACCORDANCE WITH COUNCIL SPECIFICATIONS AND STANDARD DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT COUNCIL SPECIFICATION AND STANDARD DRAWINGS PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO CONFIRM THE LEVELS OF ALL EXISTING SERVICES WITHIN THE SITE AND PUBLIC DOMAIN PRIOR TO CONSTRUCTION.
6. CENTRAL COAST COUNCIL TO UNDERTAKE INSPECTIONS OF THEIR RELEVANT ASSETS DURING CONSTRUCTION IN ACCORDANCE WITH COUNCIL SPECIFICATIONS.
7. ALL PROPRIETARY ITEMS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
8. GEOTECHNICAL TESTING REQUIRED TO DETERMINE LEVEL OF WATER TABLE. PROVIDE TANKING TO THE BASEMENT IN ACCORDANCE WITH GEOTECHNICAL SPECIFICATIONS.



REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
B	20.02.26	ISSUED FOR S5DA	JL		
A	12.12.25	ISSUED FOR S5DA	SM		

CLIENT

ARCHITECT

Sydney Office—
L2, 8 Windmill St, Sydney NSW 2000
P / +61 2 9770 3300
E / info@bgeeng.com
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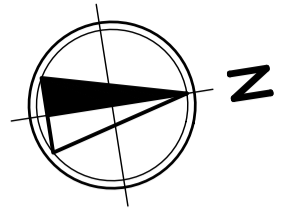
PROJECT

CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

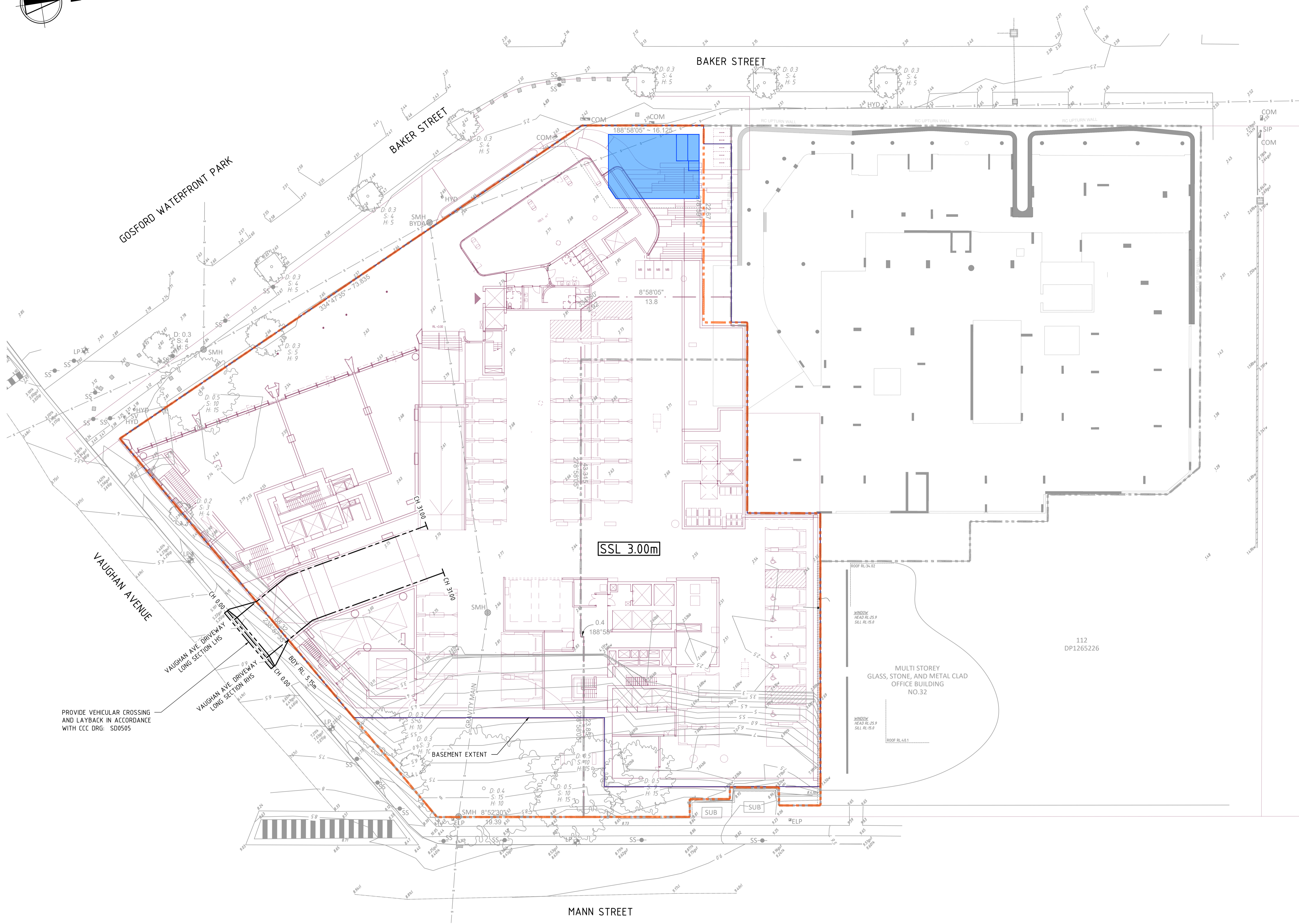
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AHD	GDA 2020 MGA-56	1:250	

TITLE	
SITWORKS AND STORMWATER MANAGEMENT PLAN BASEMENT 1	
PROJECT No.	DRAWING No.
S25049	CI-0200
REV	B

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LEAGUES CLUB PARK



LEGEND

- SITE BOUNDARY
- ARCHITECTURAL
- LANDSCAPE
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5. CONTRACTOR TO CONFIRM THE LEVELS OF ALL EXISTING SERVICES WITHIN THE SITE AND PUBLIC DOMAIN PRIOR TO CONSTRUCTION.
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7. ALL PROPRIETARY ITEMS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
8. GEOTECHNICAL TESTING REQUIRED TO DETERMINE LEVEL OF WATER TABLE. PROVIDE TANKING TO THE BASEMENT IN ACCORDANCE WITH GEOTECHNICAL SPECIFICATIONS.

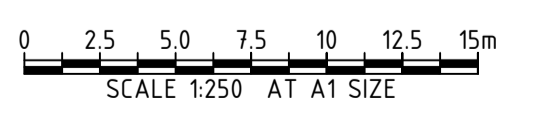
PROVIDE VEHICULAR CROSSING AND LAYBACK IN ACCORDANCE WITH CCC DRG: SD0505

SSL 3.00m

BASEMENT EXTENT

MULTI STOREY GLASS, STONE, AND METAL CLAD OFFICE BUILDING NO.32

112 DP1265226



REV	DATE	DESCRIPTION	REV	DATE	DESCRIPTION
B	20.02.25	ISSUED FOR S5DA	JL		
A	12.12.25	ISSUED FOR S5DA	SM		

CLIENT

ARCHITECT

Sydney Office—
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P / +61 2 9770 3300
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bgeeng.com—

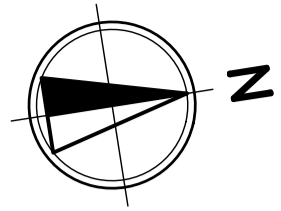
PROJECT

CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

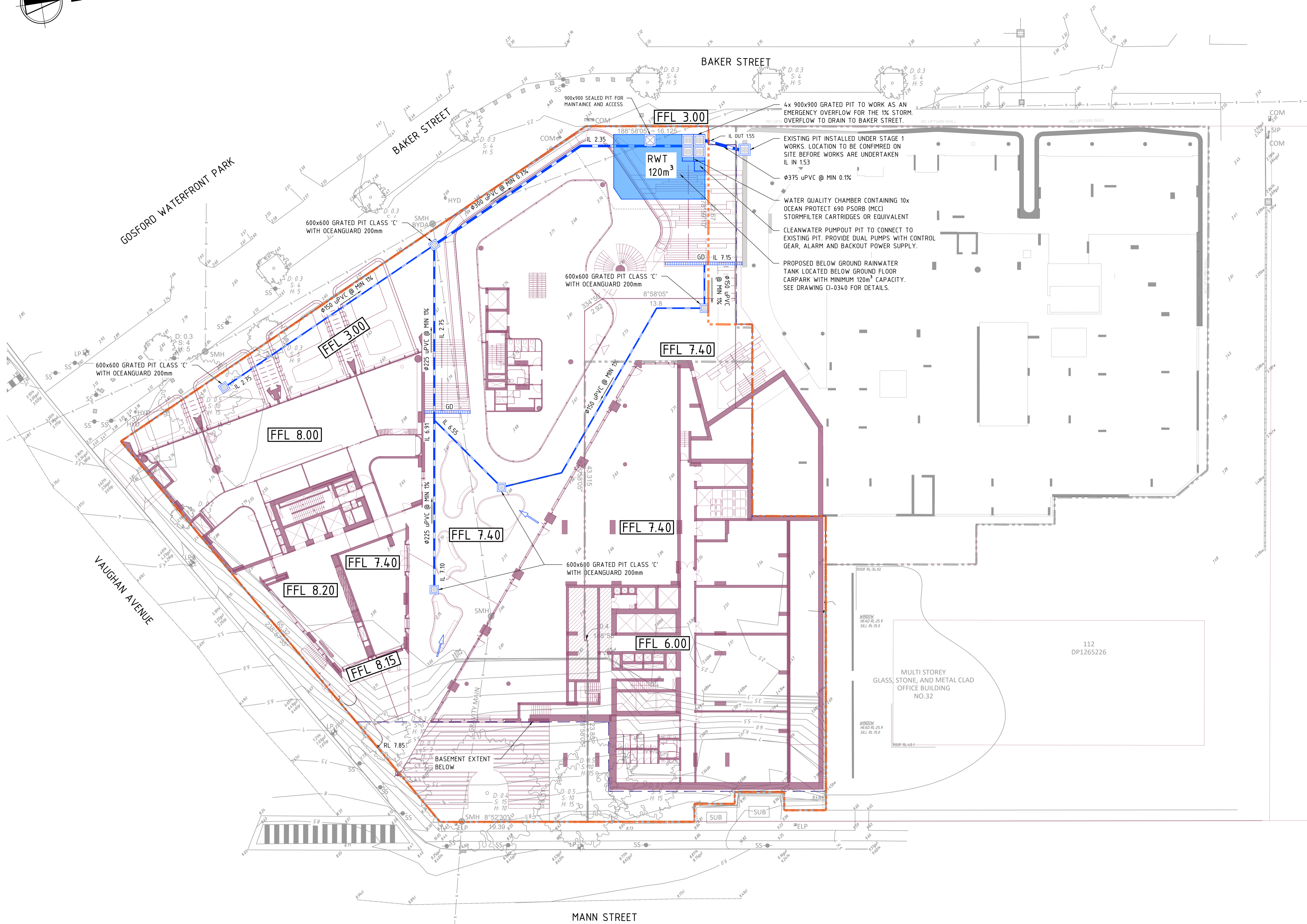
STATUS			
DESIGNED	CHECKED	APPROVED	
JL	JL	SM	

TITLE	
SITeworks AND STORMWATER MANAGEMENT PLAN GROUND FLOOR	
PROJECT No.	DRAWING No.
S25049	CI-0201
DATE	REV
AHD	B

\\USERS\MARIA.HROUDKOVIC\LOCALS\SSDA_A\NS\20\URBAN CIVIL\DRY\190\PROJECT FILES\S25049 - 000_S25002_LEVEL\CAD\URB\SSDA\S25049_KK-CI-0201.dwg 2/19/2026 10:39:28 AM



LEAGUES CLUB PARK

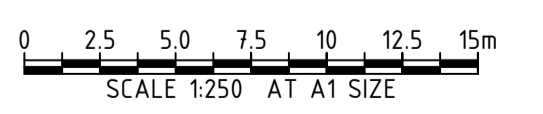


LEGEND

- SITE BOUNDARY
- ARCHITECTURAL
- LANDSCAPE
- SURVEY
- EXISTING SURFACE CONTOURS
- PROPOSED MAJOR CONTOURS
- PROPOSED MINOR CONTOURS
- $\phi 150$ uPVC @ 1% MIN PROPOSED STORMWATER (SIZE AND GRADE)
- EXISTING DRAINAGE PIPE
- PROPOSED GRATED INLET PIT
- PROPOSED JUNCTION PIT
- EXISTING INLET PITS
- GO PROPOSED GRATED DRAIN
- OVERLAND FLOW PATH
- PROPOSED SUBSOIL DRAIN
- PROPOSED CHANNEL FLOW PATH
- PROPOSED RAINWATER TANK

NOTES

1. THESE PLANS HAVE BEEN DESIGNED IN ACCORDANCE WITH RELEVANT LOCAL AUTHORITY GUIDELINES FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY AND ARE SUBJECT TO CENTRAL COUNCIL COUNCIL APPROVAL AN DETAILED DESIGN AT CONSTRUCTION CERTIFICATE STAGE.
2. DO NOT OBTAIN DIMENSIONS BY SCALING THE DRAWING. ALL DIMENSIONS ARE IN METRES (m). ALL LEVELS ARE IN AUSTRALIAN HEIGHT DATUM (AHD).
3. RUN ALL STORMWATER PIPEWORK @1% (MIN) U.O.D. CONNECT TO DOWNPIPE MINIMUM 100mm BELOW FFL.
4. ALL WORKS EXTERNAL TO THE SITE ARE TO BE UNDERTAKEN IN ACCORDANCE WITH COUNCIL SPECIFICATIONS AND STANDARD DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ALL RELEVANT COUNCIL SPECIFICATION AND STANDARD DRAWINGS PRIOR TO CONSTRUCTION.
5. CONTRACTOR TO CONFIRM THE LEVELS OF ALL EXISTING SERVICES WITHIN THE SITE AND PUBLIC DOMAIN PRIOR TO CONSTRUCTION.
6. CENTRAL COAST COUNCIL TO UNDERTAKE INSPECTIONS OF THEIR RELEVANT ASSETS DURING CONSTRUCTION IN ACCORDANCE WITH COUNCIL SPECIFICATIONS.
7. ALL PROPRIETARY ITEMS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
8. GEOTECHNICAL TESTING REQUIRED TO DETERMINE LEVEL OF WATER TABLE. PROVIDE TANKING TO THE BASEMENT IN ACCORDANCE WITH GEOTECHNICAL SPECIFICATIONS.



REV	DATE	DESCRIPTION	REVISED BY	DATE	DESCRIPTION
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A	12.12.25	ISSUED FOR S5DA	SM		

CLIENT

ARCHITECT

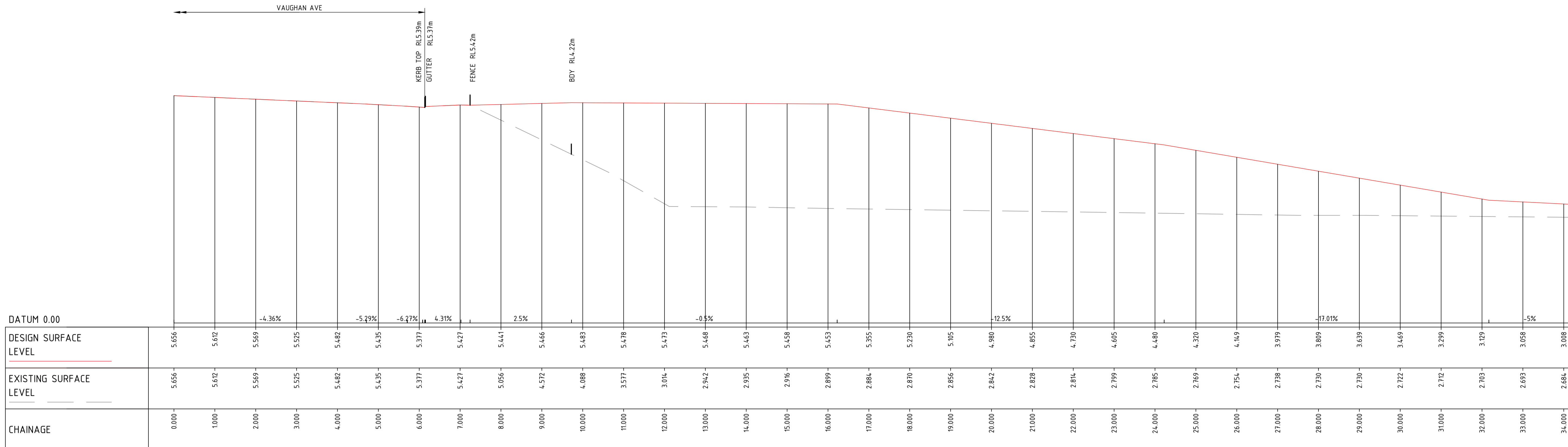
Sydney Office—
L2, 8 Windmill St, Sydney NSW 2000
P / +61 2 9770 3300
E / info@bgeeng.com
bgeeng.com—

PROJECT

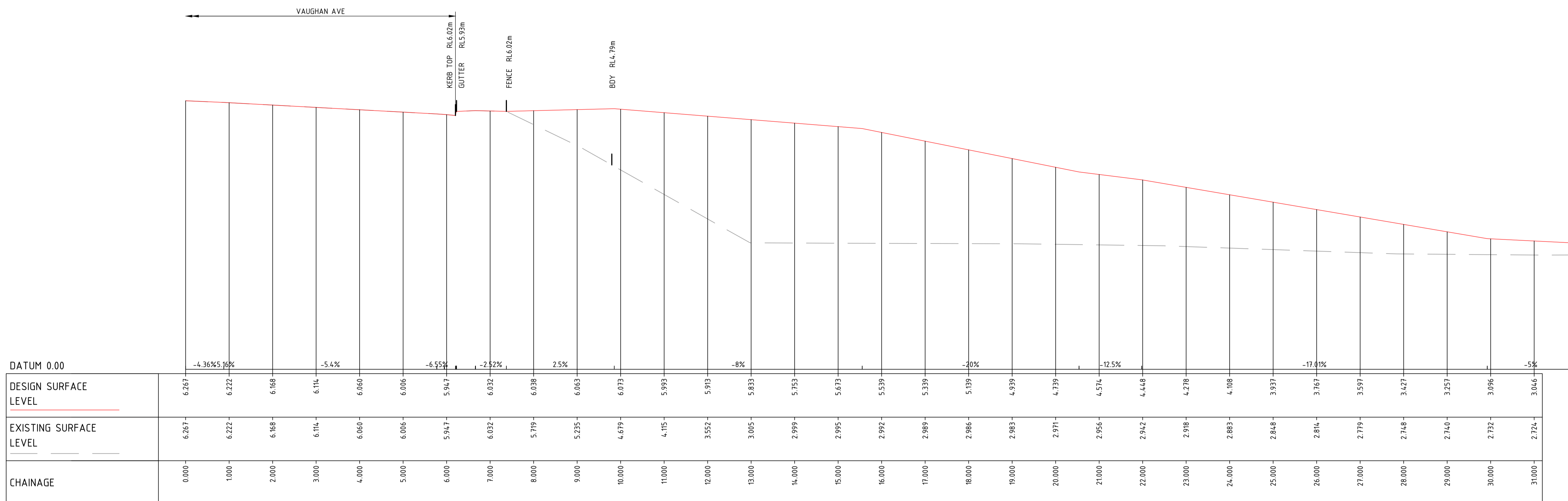
CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

STATUS			
DRAWN	DESIGNED	CHECKED	APPROVED
CMM	JL	JL	SM
SCALE			
1:250			

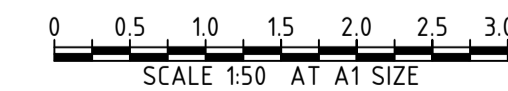
TITLE	
SITWORKS AND STORMWATER MANAGEMENT PLAN LEVEL 1	
PROJECT No.	S25049
DRAWING No.	CI-0202
REV	B



VEHICLE CROSSING LONGITUDINAL SECTION LHS
SCALE HORIZ. 1:50
VERT. 1:50



VEHICLE CROSSING LONGITUDINAL SECTION RHS
SCALE HORIZ. 1:50
VERT. 1:50



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
A	12.12.25	ISSUED FOR SDA	SM				

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PROJECT

CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

STATUS

CONCEPT DESIGN
NOT TO BE USED FOR CONSTRUCTION

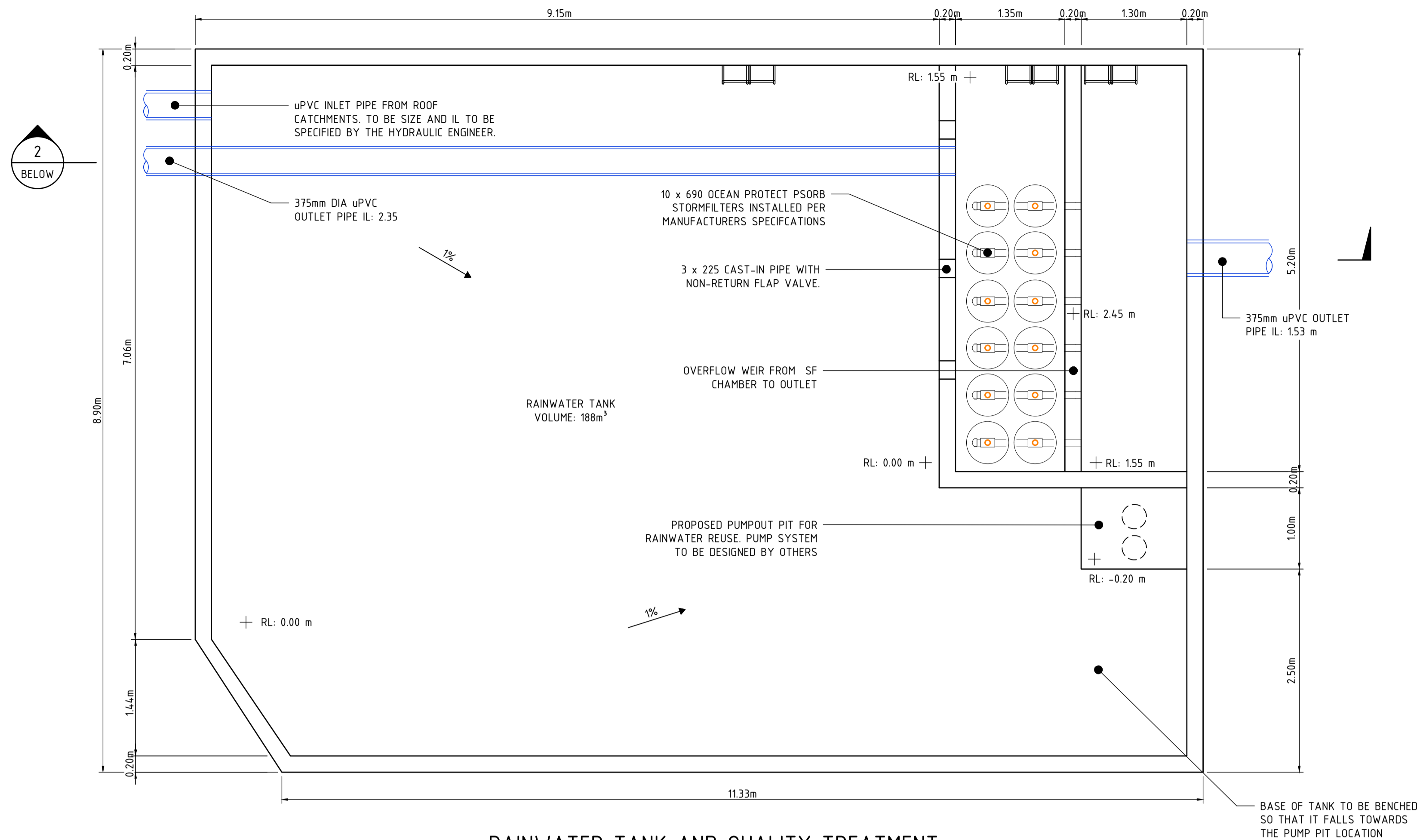
DRAWN	DESIGNED	CHECKED	APPROVED
CMM	JL	JL	SM

DATUM: AHD
GRID: GDA 2020
MGA-56
SCALE: 1:50

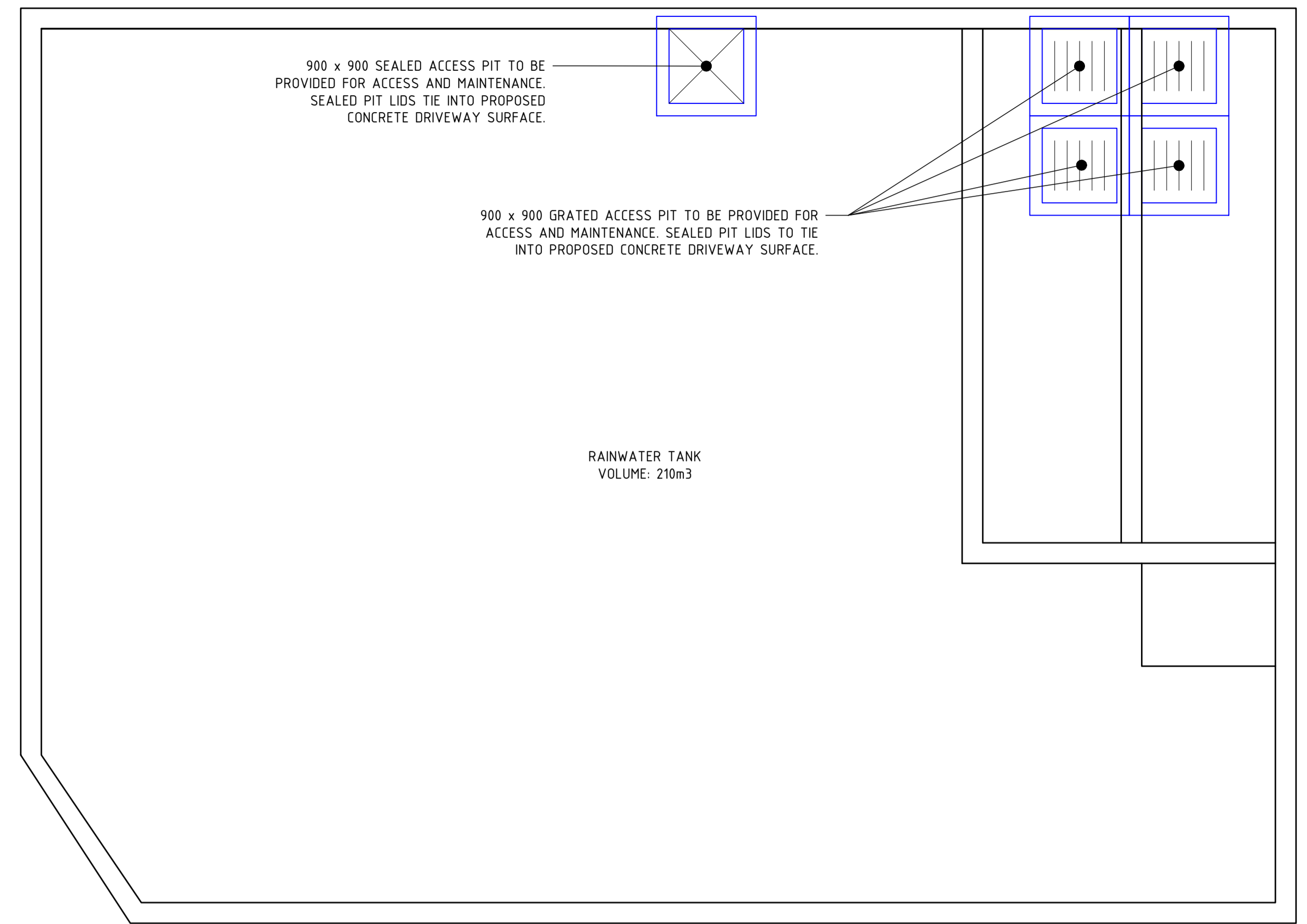
TITLE

DRIVEWAY
LONGITUDINAL SECTIONS

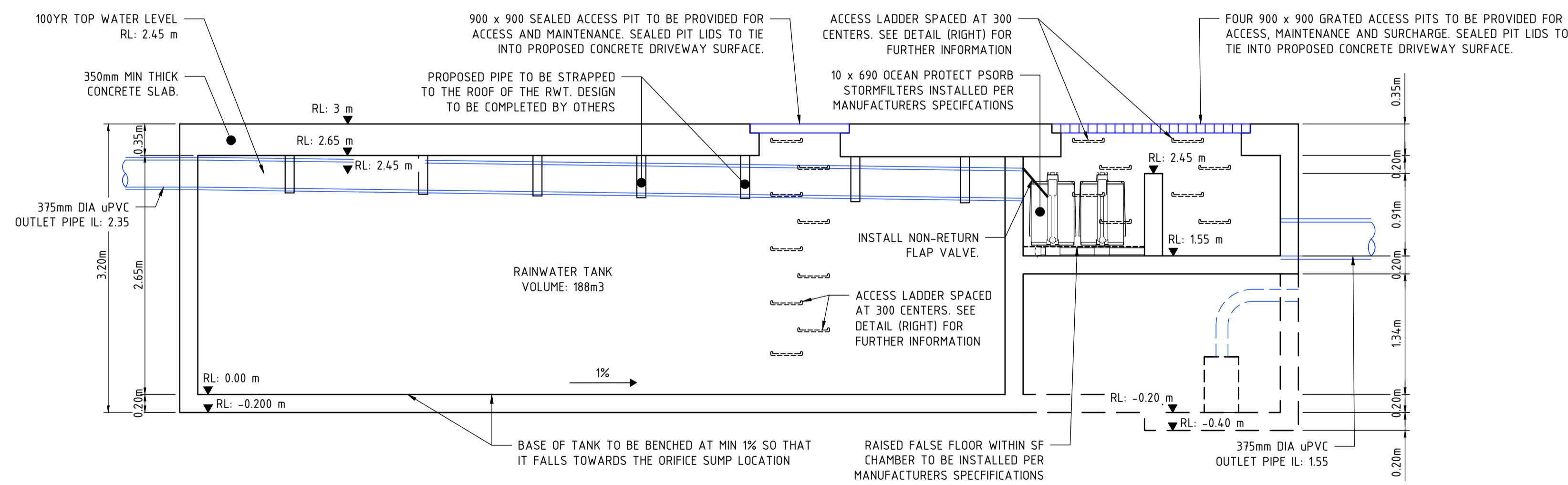
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DRAWING No. CI-0270
REV. A



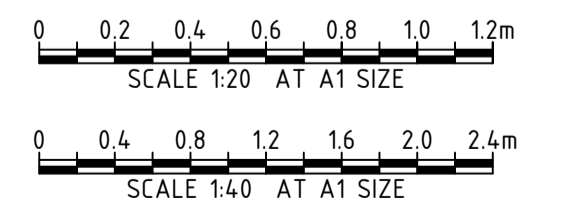
RAINWATER TANK AND QUALITY TREATMENT CHAMBER PLAN
SCALE 1:40



RAINWATER TANK AND QUALITY TREATMENT LID PLAN
SCALE 1:40



RAINWATER TANK AND QUALITY TREATMENT CHAMBER SECTION
SCALE 1:40



REV	DATE	DESCRIPTION	REVISIONS
A	12.12.25	ISSUED FOR S&SDA	SM

CLIENT: **URBAN PROPERTY**

ARCHITECT: **DKO**

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BG & E

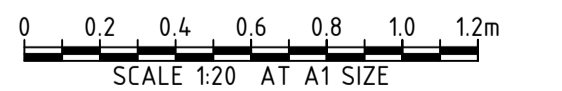
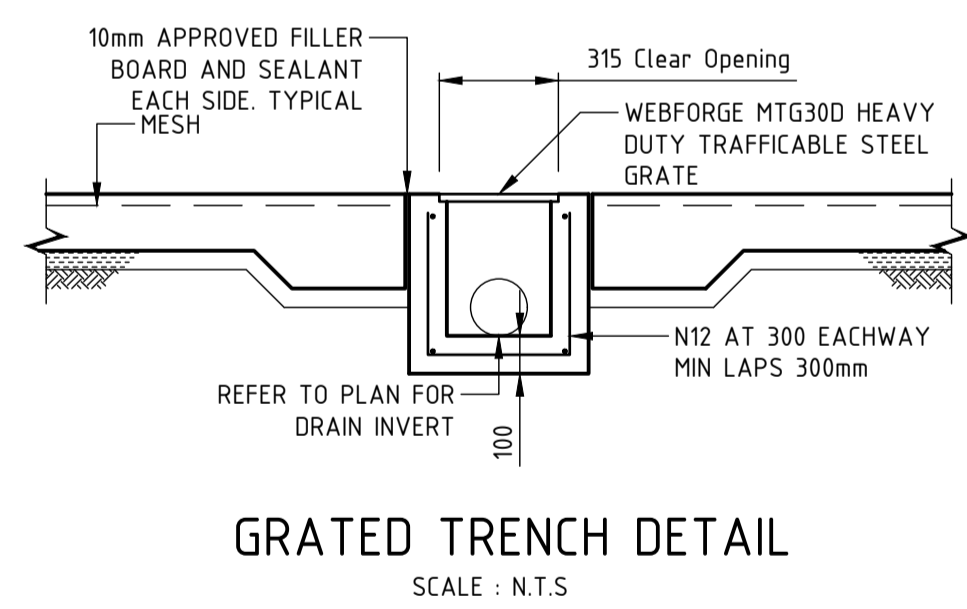
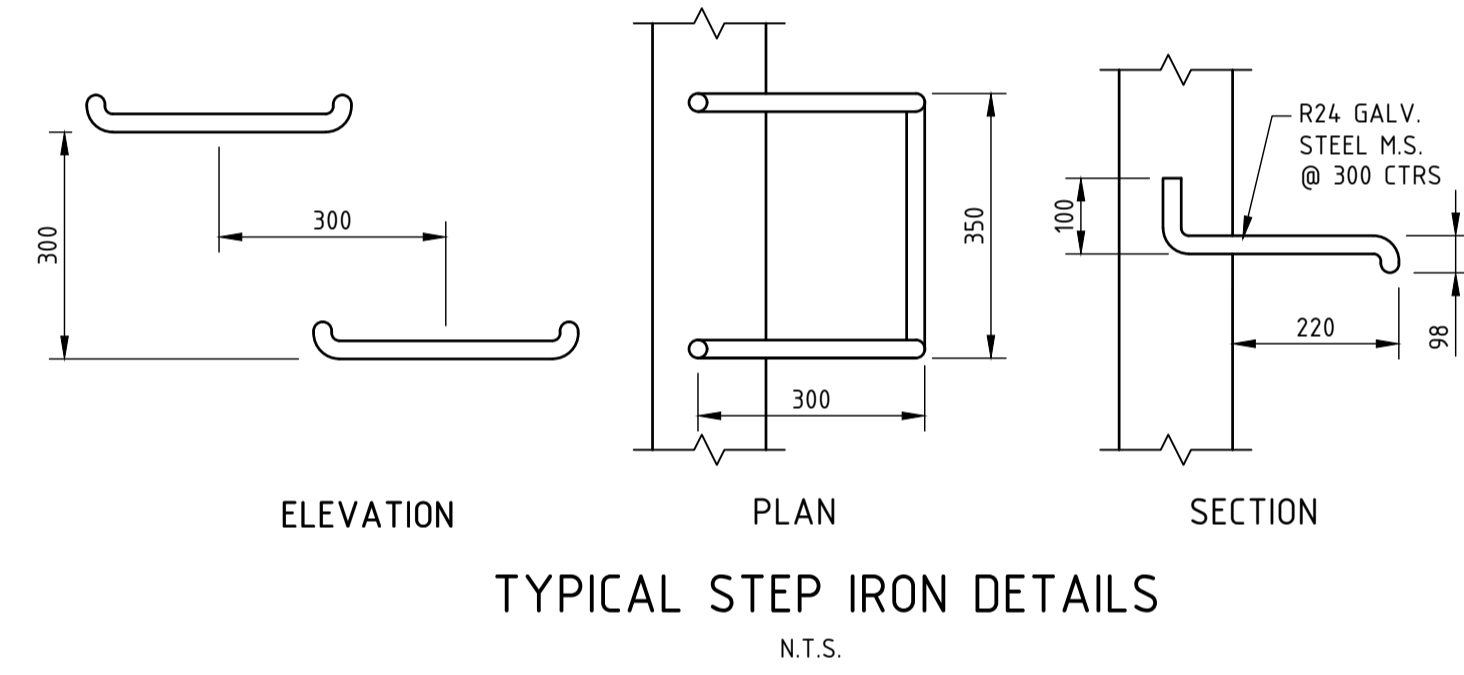
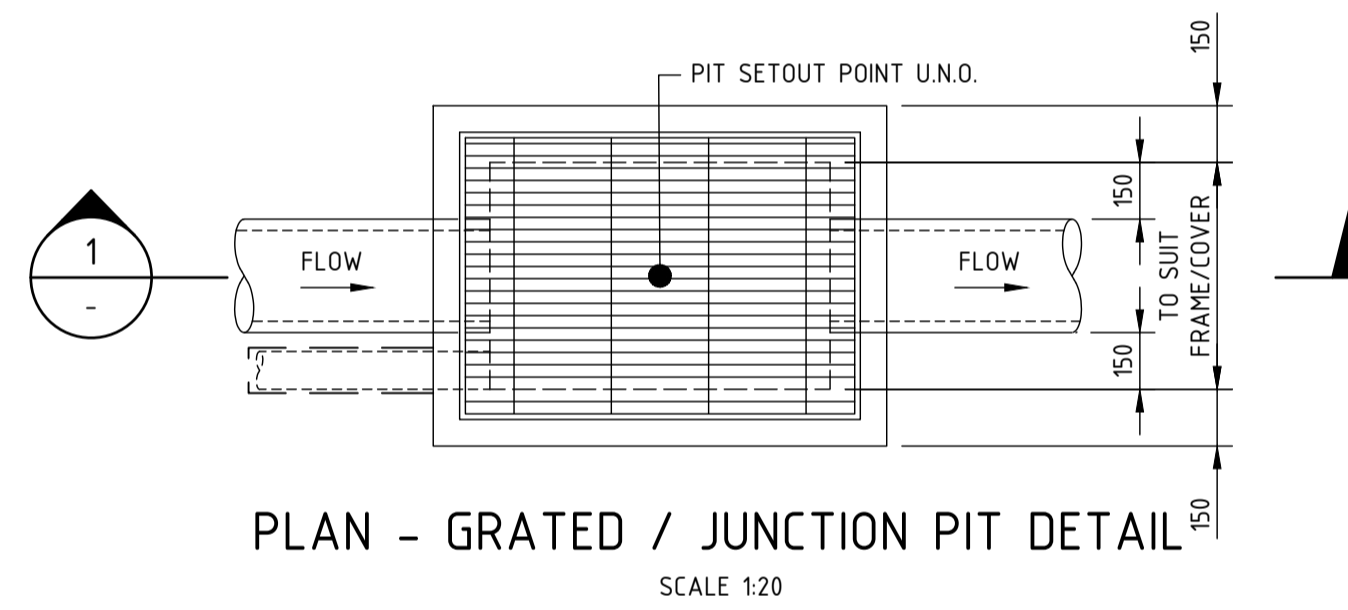
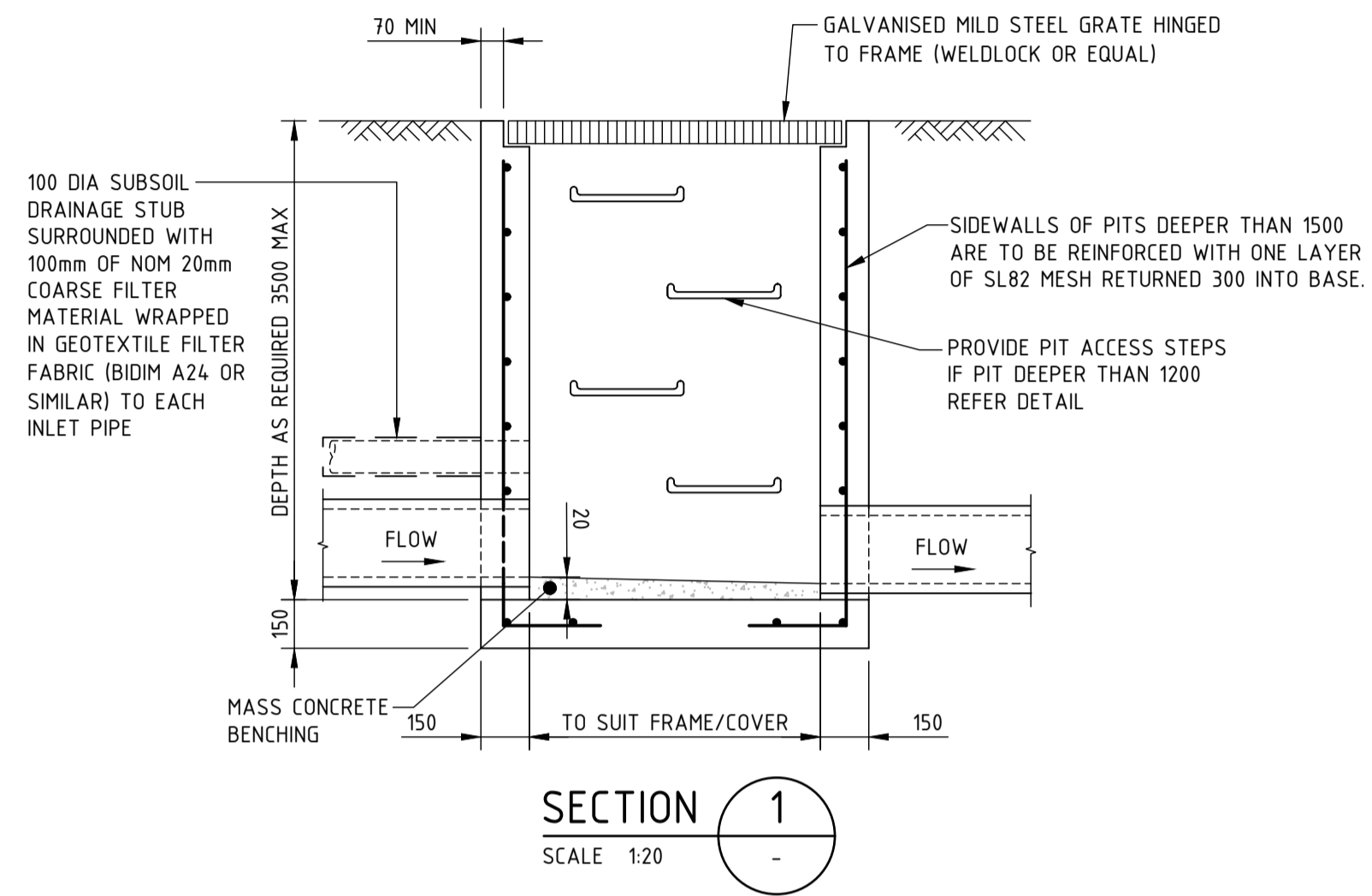
PROJECT: **CENTRAL COAST QUARTER S2**
26-30 MANN STREET GOSFORD NSW 2250

STATUS: ISSUED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
CMM	JL	JL	SM
DATUM	GRID	SCALE	PROJECT No.
AHD	GDA 2020 MGA-56	AS SHOWN	S25049

TITLE: **RAINWATER TANK PLAN, SECTION AND DETAILS**

DRAWING No: **CI-0340** REV: **A**

\\USERS\MARIA.HOOPER\PROJECTS\SSDA - RAINWATER TANK CHAMBER PLAN\PROJECT FILES\S25049 - 100 521002 ENL1\CAD\DWG\S25049-XX-01-0340.DWG
2/19/2026 10:39:31 AM



REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
B	20.02.26	ISSUED FOR S5DA	JL				
A	12.12.25	ISSUED FOR S5DA	SM				

CLIENT

URBAN
PROPERTY

ARCHITECT

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PROJECT

CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

STATUS			
CONCEPT DESIGN			
NOT TO BE USED FOR CONSTRUCTION			
DRAWN	DESIGNED	CHECKED	APPROVED
CMM	JL	JL	SM
DATUM	GRID	SCALE	
AHD	GDA 2020 MGA-56	AS SHOWN	

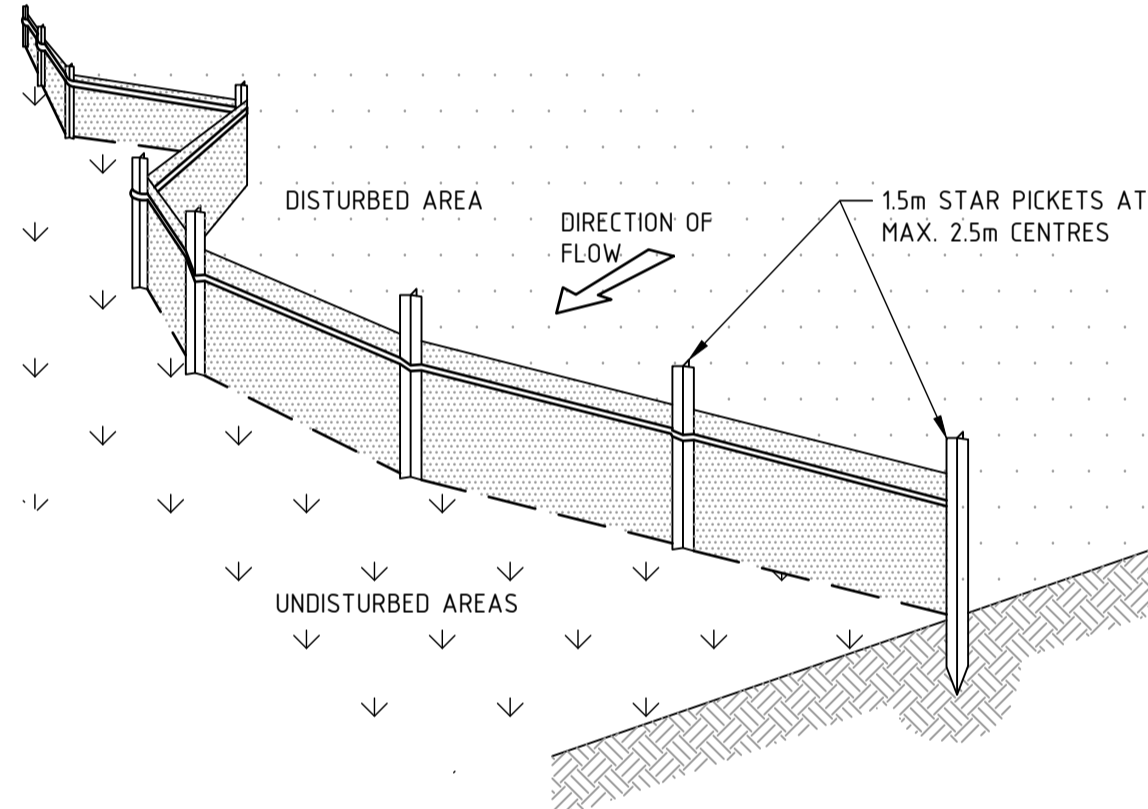
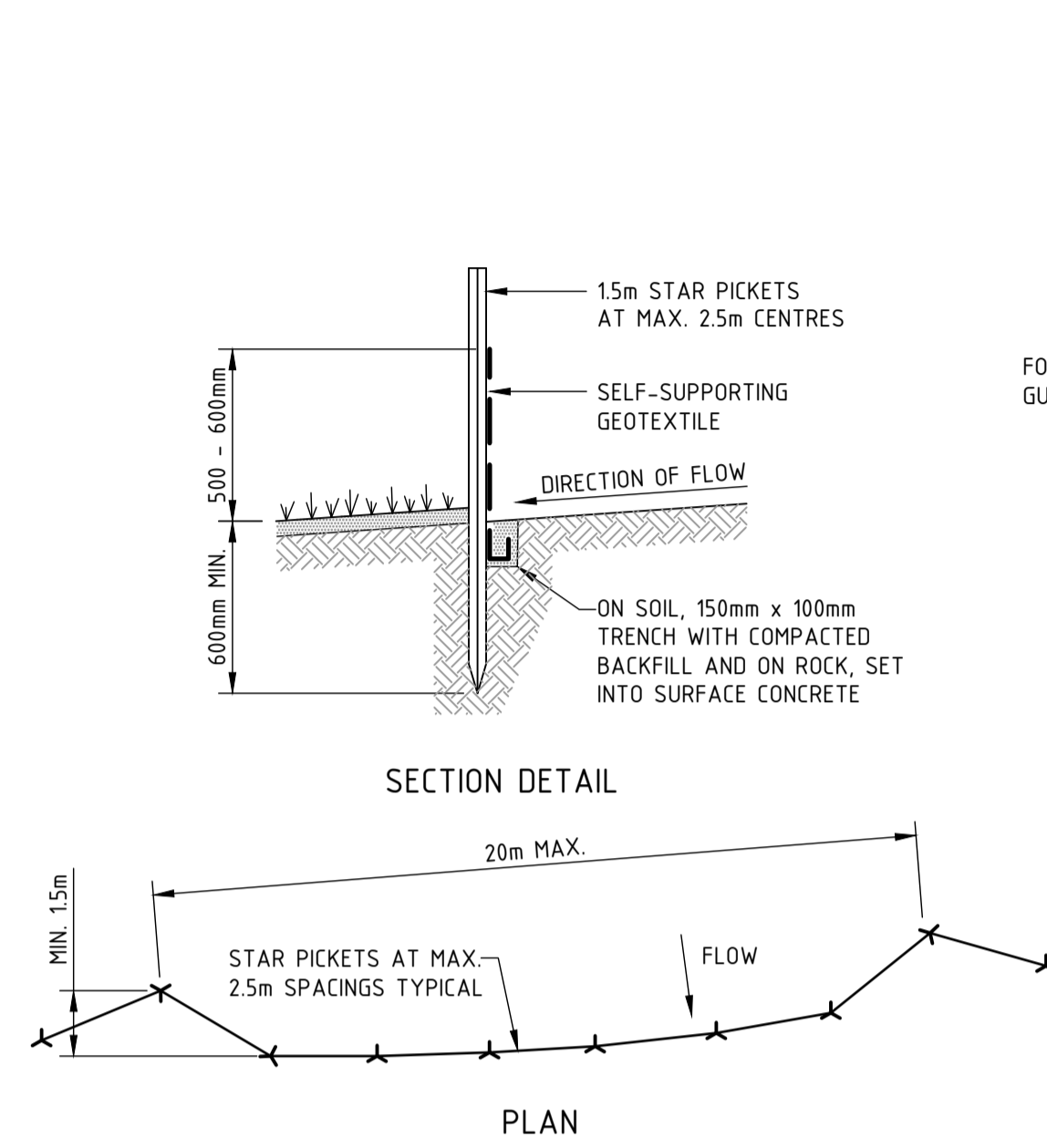
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DRAINAGE DETAILS

PROJECT No. **S25049**

DRAWING No. **CI-0450**

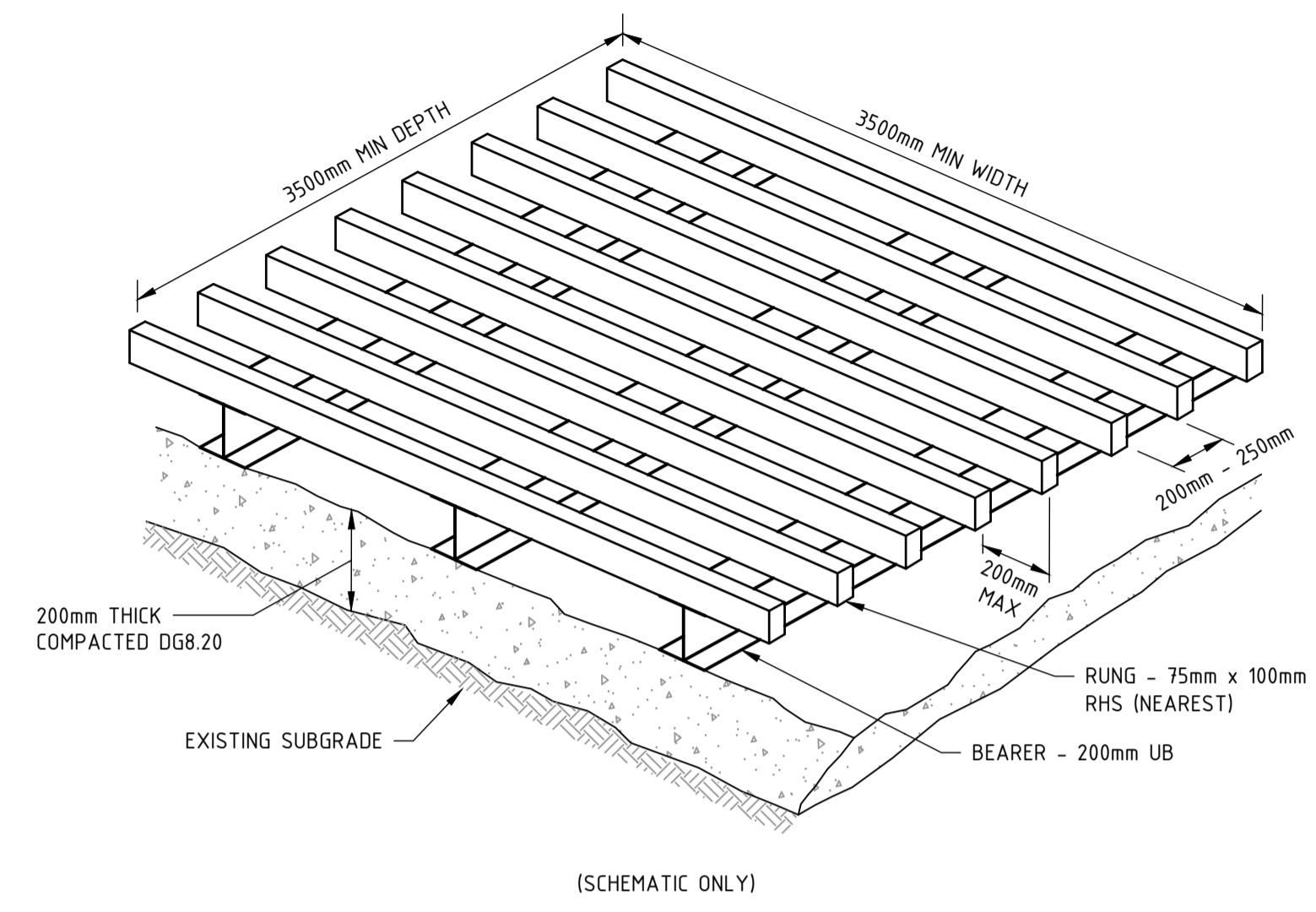
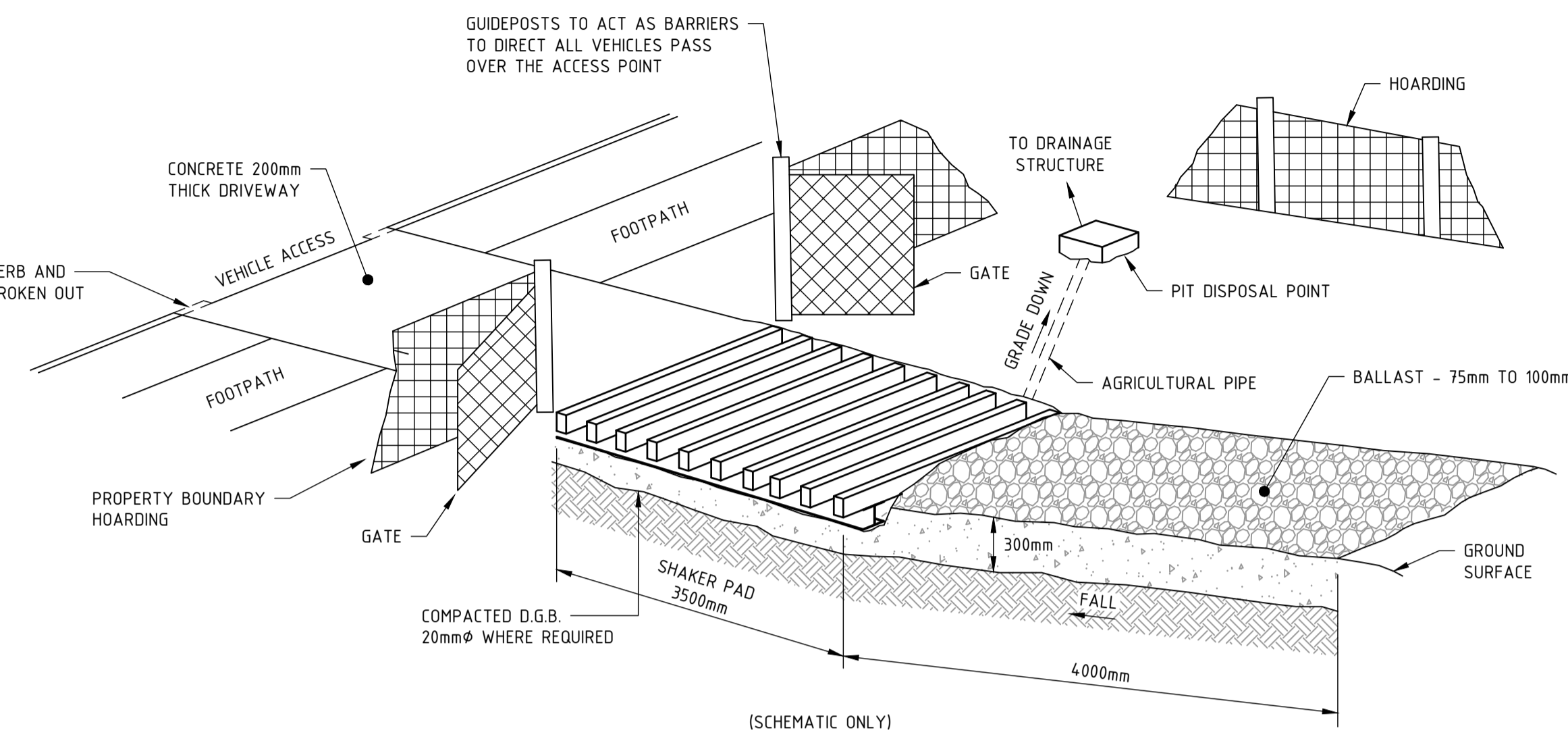
REV **A**



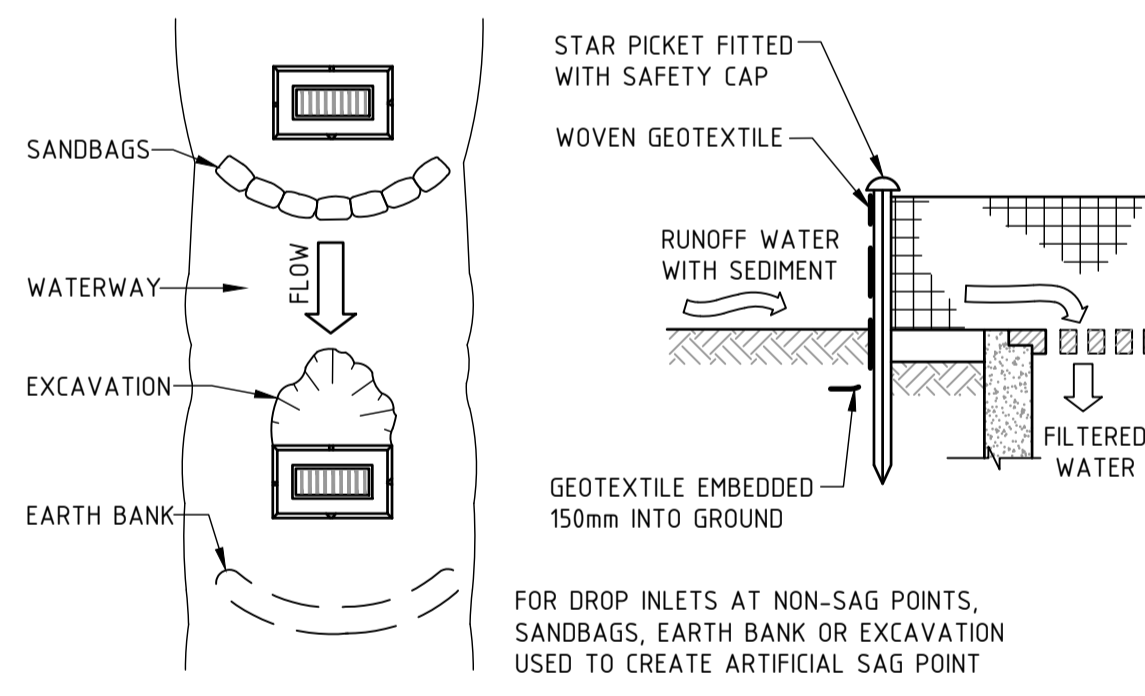
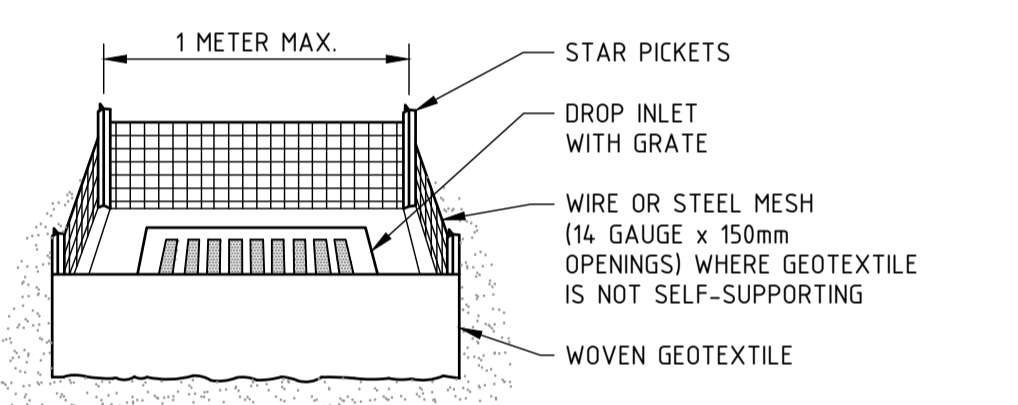
SEDIMENT FENCE CONSTRUCTION NOTES:

- CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITERS PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
- CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
- DRIVE 15m LONG STAR PICKETS INTO GROUND AT 2.5m INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
- FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
- JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
- BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE
SCALE N.T.S



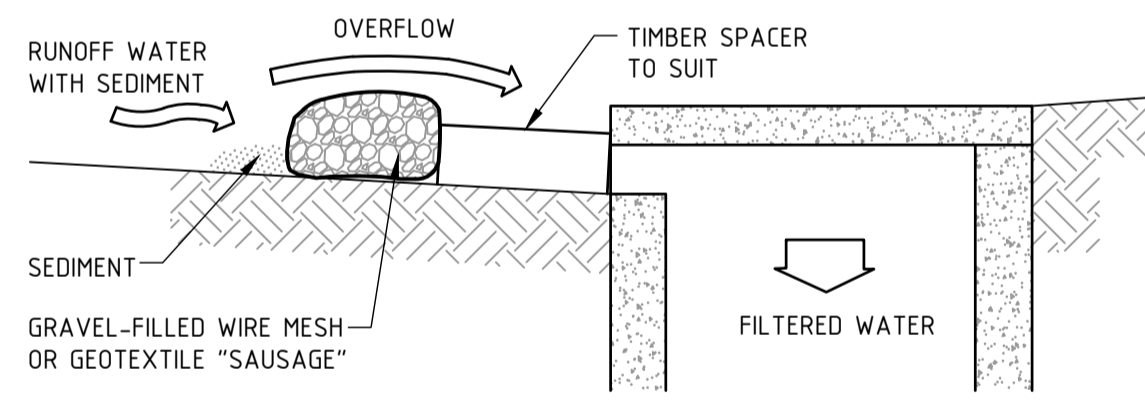
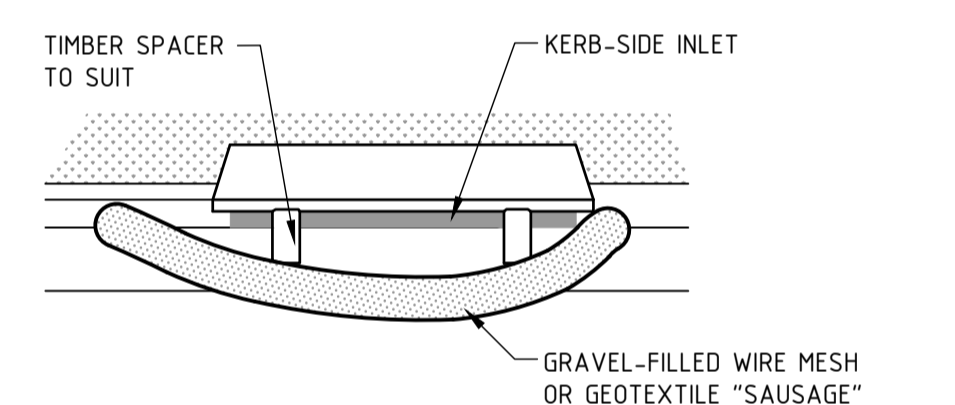
STABILISED SITE ACCESS - SHAKER GRID
SCALE N.T.S



GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:

- FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
- PICKET SPACING TO BE A MAXIMUM 1.0m CENTRES.
- IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
- DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

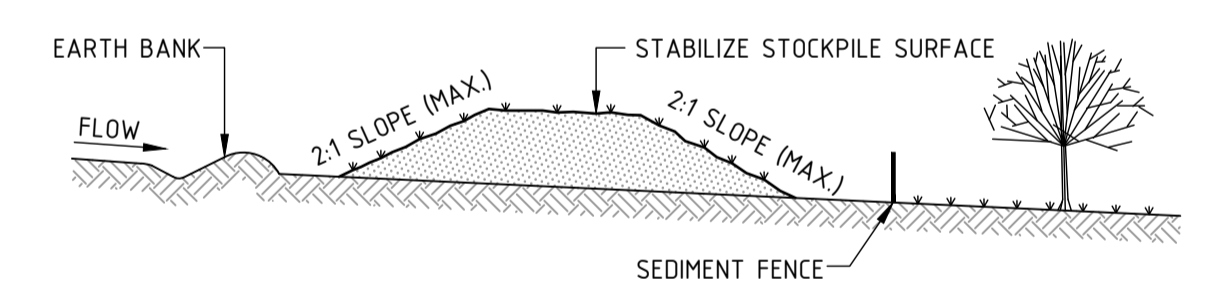
GEOTEXTILE INLET FILTER
SCALE N.T.S



MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

- INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
- FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
- FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
- PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
- FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
- SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY CAN FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH & GRAVEL INLET FILTER
SCALE N.T.S



STOCKPILE CONSTRUCTION NOTES:

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

STOCKPILES
SCALE N.T.S

REV	DATE	DESCRIPTION	RVD	REV	DATE	DESCRIPTION	RVD
A	12.12.25	ISSUED FOR SDA	SM				

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BG & E

PROJECT
CENTRAL COAST QUARTER S2
26-30 MANN STREET GOSFORD NSW 2250

STATUS
ISSUED FOR APPROVAL
NOT TO BE USED FOR CONSTRUCTION

DRAWN	DESIGNED	CHECKED	APPROVED
CMM	JL	JL	SM

DATUM: AHD
GRID: GDA 2020
MGA-56
SCALE: NTS
AT: A1 SIZE

TITLE
EROSION AND SEDIMENT CONTROL DETAILS

PROJECT No: **S25049**
DRAWING No: **CI-0710**
REV: **A**

Appendix B

MUSIC Link Report



MUSIC-link Report

Project Details		Company Details	
Project:	CCQ Stage 2	Company:	BG&E
Report Export Date:	12/12/2025	Contact:	Jona Lucas
Catchment Name:	S25049 CCQ Stage 2 Gosford	Address:	8 Windmill St, Millers Point
Catchment Area:	0.465ha	Phone:	0404476876
Impervious Area*:	96.38%	Email:	jonalhie.lucas@bgeeng.com
Rainfall Station:	66062 SYDNEY		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1974 - 31/12/1993 11:54:00 PM		
Mean Annual Rainfall:	1297mm		
Evapotranspiration:	1261mm		
MUSIC Version:	6.4.0		
MUSIC-link data Version:	6.40		
Study Area:	Lowland		
Scenario:	Central Coast Development		

* takes into account area from all source nodes that link to the chosen reporting node, excluding Import Data Nodes

Treatment Train Effectiveness		Treatment Nodes		Source Nodes	
Node: Post-Development Node	Reduction	Node Type	Number	Node Type	Number
90/80/45/45					
Flow	-0.0292%	Rain Water Tank Node	1	Urban Source Node	3
TSS	89.5%	Sedimentation Basin Node	1		
TP	69.8%	Generic Node	1		
TN	52.5%	GPT Node	2		
GP	100%				

Comments

Issued for State Significant Development Application



Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
GPT	1 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	3 x OceanGuard200um	Hi-flow bypass rate (cum/sec)	None	99	0.06
Post	Post-Development Node 90/80/45/45	% Load Reduction	None	None	-0.0292
Post	Post-Development Node 90/80/45/45	GP % Load Reduction	90	None	100
Post	Post-Development Node 90/80/45/45	TN % Load Reduction	45	None	52.5
Post	Post-Development Node 90/80/45/45	TP % Load Reduction	45	None	69.8
Post	Post-Development Node 90/80/45/45	TSS % Load Reduction	80	None	89.5
Sedimentation	SF Chamber	Exfiltration Rate (mm/hr)	0	0	0
Sedimentation	SF Chamber	Extended detention depth (m)	0.25	1	0.77
Sedimentation	SF Chamber	High Flow Bypass Out (ML/yr)	None	None	0
Urban	Bypass	Baseflow Total Nitrogen Mean (log mg/L)	0.11	0.11	0.11
Urban	Bypass	Baseflow Total Phosphorus Mean (log mg/L)	-0.85	-0.85	-0.85
Urban	Bypass	Baseflow Total Suspended Solids Mean (log mg/L)	1.2	1.2	1.2
Urban	Bypass	Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	0.3
Urban	Bypass	Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.6	-0.6
Urban	Bypass	Stormflow Total Suspended Solids Mean (log mg/L)	2.15	2.15	2.15
Urban	Mixed/Podium Area	Baseflow Total Nitrogen Mean (log mg/L)	0.11	0.11	0.11
Urban	Mixed/Podium Area	Baseflow Total Phosphorus Mean (log mg/L)	-0.85	-0.85	-0.85
Urban	Mixed/Podium Area	Baseflow Total Suspended Solids Mean (log mg/L)	1.2	1.2	1.2
Urban	Mixed/Podium Area	Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	0.3
Urban	Mixed/Podium Area	Stormflow Total Phosphorus Mean (log mg/L)	-0.6	-0.6	-0.6
Urban	Mixed/Podium Area	Stormflow Total Suspended Solids Mean (log mg/L)	2.15	2.15	2.15
Urban	Roof to RWT	Baseflow Total Nitrogen Mean (log mg/L)	0.32	0.32	0.32
Urban	Roof to RWT	Baseflow Total Phosphorus Mean (log mg/L)	-0.82	-0.82	-0.82
Urban	Roof to RWT	Baseflow Total Suspended Solids Mean (log mg/L)	1.1	1.1	1.1
Urban	Roof to RWT	Stormflow Total Nitrogen Mean (log mg/L)	0.3	0.3	0.3
Urban	Roof to RWT	Stormflow Total Phosphorus Mean (log mg/L)	-0.89	-0.89	-0.89
Urban	Roof to RWT	Stormflow Total Suspended Solids Mean (log mg/L)	1.3	1.3	1.3

Only certain parameters are reported when they pass validation



Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	SF Chamber	Notional Detention Time (hrs)	8	12	0.0595
Sedimentation	SF Chamber	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber	Total Suspended Solids - k (m/yr)	8000	8000	1

Only certain parameters are reported when they pass validation

Appendix C Flood Information Certificate

Flood Information Certificate

Property Address: 26 Mann St, GOSFORD
Lot /DP: 4/DP1296100
Date Prepared: 10 September 2025
Source of information: Gosford CBD Local Overland Flow Flood Study, 2013

This Flood Certificate provides advice furnished in good faith by the council relating to the likelihood of the land identified above being flooded and to the nature or extent of any such flooding ("flood risk").

Flood level and flood planning advice is provided in the tables below and as maps in the Appendix. This advice regarding flood risk has been derived from the flood study listed above. Should you have any enquiries concerning this certificate, please do not hesitate to contact Andrew Dewar on 02 4306 7900 during the hours of 8.00am to 4.15pm Monday to Friday.

Flood Level Information Table

Flood Event	Minimum Level (m AHD)	Maximum Level (m AHD)
PMF	3.79	7.47
1% AEP	2.97	6.44
5% AEP	2.93	6.42

Planning Information Table

Flood Control Lot	<input checked="" type="checkbox"/>
Minimum Habitable Floor Level	6.94m AHD
<i>Complying Development: Flood Exclusionary Categories</i>	
(a) Flood Storage Area	<input checked="" type="checkbox"/>
(b) Floodway Area	<input type="checkbox"/>
(c) Flow Path	<input type="checkbox"/>
(d) High Hazard Area (H3, H4, H5, H6 Hazard Categorisation)	<input type="checkbox"/>
(e) High Risk Area	<input type="checkbox"/>

Flood Information Certificate

Minimum Habitable Floor Level in the Planning Information Table above is also known as the Flood Planning Level. It is derived from the maximum 1% AEP Flood Level plus 0.5m freeboard and an allowance for sea level rise if applicable. For large lots the maximum 1% AEP flood level may vary across the lot; as such the Minimum Habitable Floor Level would vary at different locations on the lot, which may result in a lower Minimum Habitable Floor Level than the one quoted in the Planning Information Table. Note that Minimum Habitable Floor Levels are based on a flood size that has a 1% chance each year of either being reached or exceeded. Larger floods still have a small chance of occurring. For this reason, Council recommends that property owners consider the merits of choosing a floor level above the minimum floor level if practical to do so.

Flood Mapping related to this address is included in the Appendix. On the Environmental Layers you can choose to view 1% AEP (1 in 100y) flood extents, as well as Flood Precincts, which are referred to in the Development Control Plan.

<https://maps.centralcoast.nsw.gov.au/public/>

Development Controls set appropriate floor levels, construction materials, pedestrian and vehicular access, car parking and impacts on surrounding property for a proposed development; either complying development (fast tracked - see below) or a DA. Council's development controls vary depending on the location:

- Former Gosford: LEP 2014 Clauses 5.21 & 7.3, DCP 2013 Chapter 6.7
- Former Wyong: LEP 2013 Clauses 5.21 & 7.3, DCP 2013 Chapter 3.3

<https://www.centralcoast.nsw.gov.au/plan-and-build/planning-controls-and-guidelines>

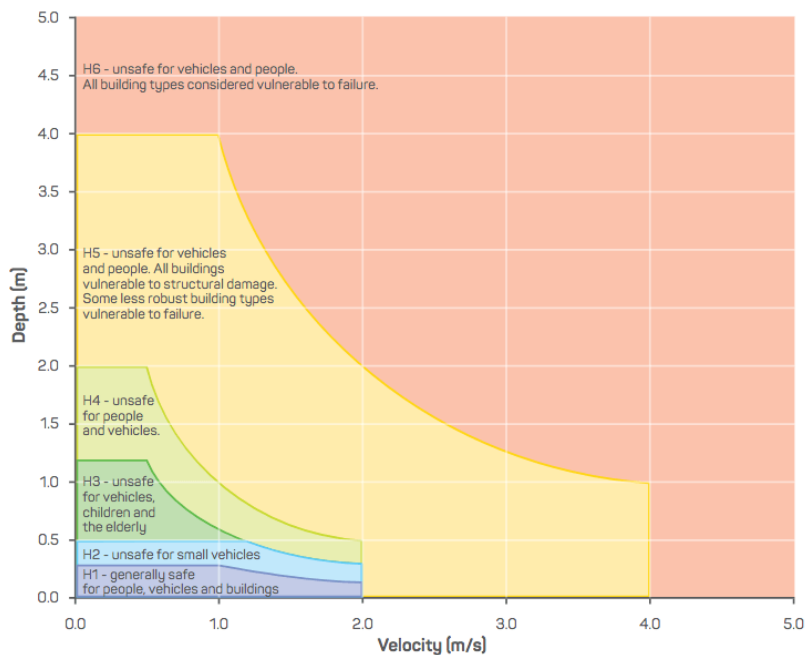
Complying Development is a fast-track approval process for straightforward residential, commercial and industrial development (e.g. Granny Flats). From 1 July 2021, all Complying Development Certificate (CDC) applications must be lodged through the online NSW Planning Portal. If the application meets specific criteria it can be determined by a registered certifier. Under Clause 3A.38 of the Codes SEPP 2008 Development must not be carried out on any part of a *flood control lot* that is considered to be in one of the following exclusionary categories: (a) flood storage area, (b) floodway area, (c) flow path, (d) high hazard area, (e) high risk area. Complying Development may be allowable at this address if none of the five flood exclusionary categories in the Planning Information Table above are marked "Yes".

<https://www.planning.nsw.gov.au/Assess-and-Regulate/Development-Assessment/Planning-Approval-Pathways/Complying-development>

Flood Hazard: Flooding has the potential to cause loss: loss of life, injury or economic loss. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.

Council classifies flood hazard using thresholds related to the stability of people as they walk or drive through flood waters, or shelter in a building during a flood. This method classifies hazard on a spectrum of H1 to H6 as described by the hazard vulnerability curves below. For further information refer to: Flood Hazard: Guideline 7.3, Australian Institute for Disaster Resilience 2017 <https://knowledge.aidr.org.au/media/3518/adr-guideline-7-3.pdf>

Flood Information Certificate



Source – Australian Institute for Disaster Resilience 2017. Hydraulic Hazard: refer also to Australian Rainfall and Runoff Section 7.2.7 General Flood Hazard Curves (Figure 6.7.9) <http://book.arr.org.au.s3-website-ap-southeast-2.amazonaws.com/>

Disclaimers

- This certificate is based on Council's relevant flood study, which covers a large area and utilises *airborne laser scanning* ground level data. Flood depths as shown on the maps at specific locations may not accurately account for localised changes in ground topography; the accuracy of flood depth information at a specific location may be improved by taking the flood level and subtracting the accurate ground level at a particular location, which could be established by a Registered Surveyor.
- Without limiting s.733 of the *Local Government Act 1993*, Council expressly disclaims all and any liability and responsibility in respect of loss, damage or injury to person or property arising from anything done or omitted to be done by any person in reliance, whether wholly or in part, upon any part of this information. Any person having regard to the information contained in this document is encouraged to seek, at their discretion, all other sources of information on the subject matter as they consider appropriate, which may include local knowledge and/or professional advice.
- Council does not, and cannot, warrant that it will, in its capacity as a consent authority under the *Environmental Planning and Assessment Act 1979*, grant consent to a DA that seeks to erect or use dwellings or other structures on the above property that conform with the levels set out in the above information. Council assesses DAs based on merit, which must consider various development controls as set out in the LEP and DCP. For any development proposal on a *Flood Control Lot* Council recommends the applicant to engage the services of a professional engineer who specialises in Flood Risk Management.

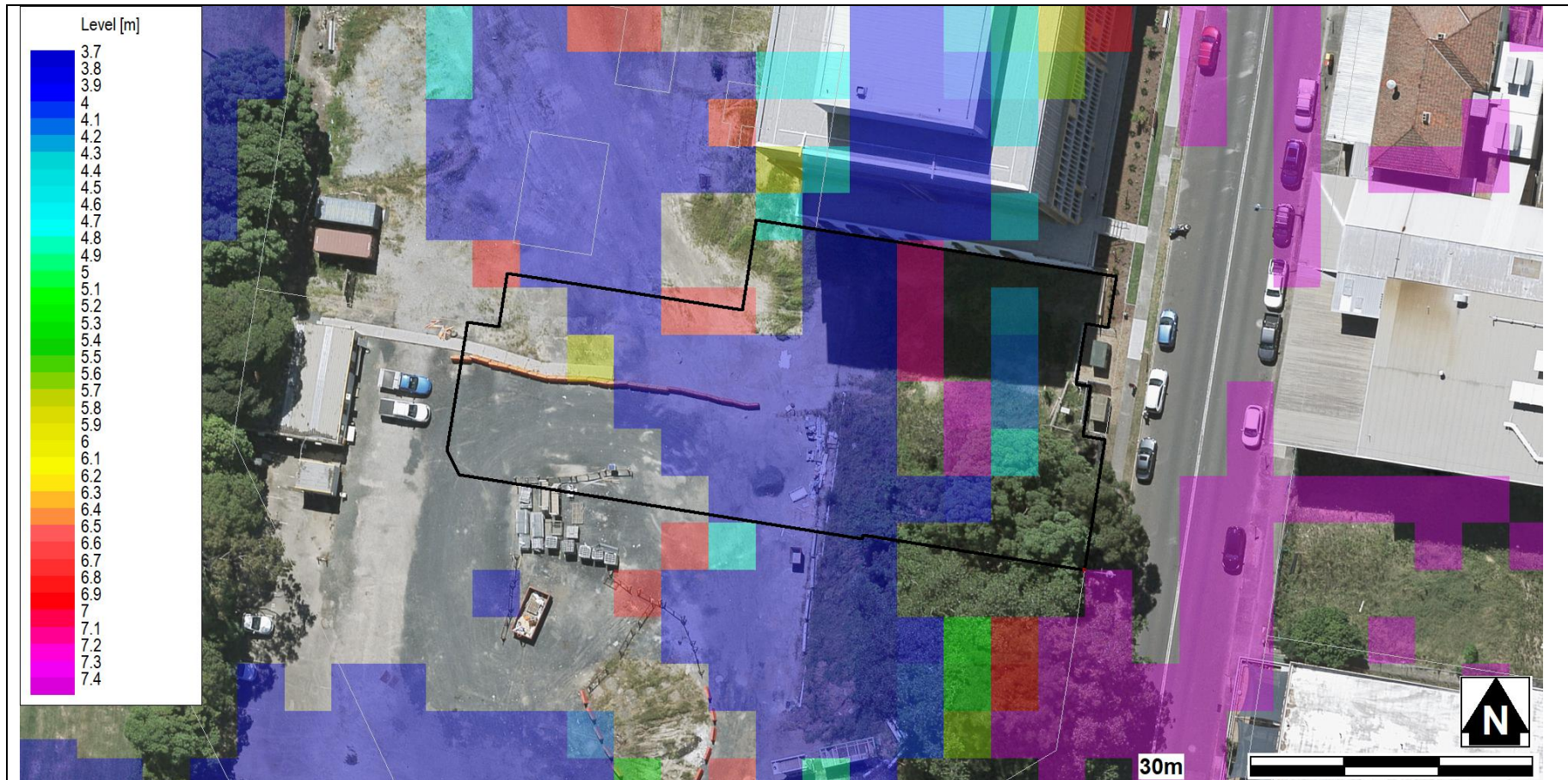
Flood Information Certificate

Glossary

AEP	<i>Annual Exceedance Probability</i> : The probability of a flood event of a given size occurring in any one year, usually expressed as a percentage. For example, the 1% AEP flood has a 1% probability of occurring in any given year. This flood is sometimes referred to as 1 in 100, 100yr ARI or Q100
AHD	<i>Australian Height Datum</i> is the reference level for defining ground levels in Australia. The level of 0.0m AHD is approximately mean sea level.
Airborne Laser Scanning	A ground level measurement system in which a laser is emitted from an instrument in an aircraft and directed to the ground in a scanning pattern
DA	Development Application
DCP	Development Control Plan
Flood Control Lot	A land parcel that is subject to flood related development controls
Flood Hazard	Flooding which has the potential to cause loss: loss of life, injury or economic loss. The degree of hazard varies with the severity of flooding and is affected by flood behaviour (extent, depth, velocity, isolation, rate of rise of floodwaters, duration), topography and emergency management.
Flood Storage Area	Areas that are important for the temporary storage of floodwaters during the passage of flood.
Floodway Area	Those areas where a significant volume of water flows during floods.
Flow Path	Those areas where a flow path is identified in the relevant flood study, generally associated with velocities greater than 1 metre per second in the 1% AEP flood.
Freeboard	A factor of safety used in relation to the setting of floor levels. The typical freeboard set by the NSW Government is 0.5m, unless Council can demonstrate a different freeboard can apply as defined in an adopted Floodplain Risk Management Plan.
Ground Levels	Highest and lowest ground levels on the property, predominately based on ground level information databases created by <i>Airborne Laser Scanning</i> . A Registered Surveyor can confirm exact ground levels.
High Hazard Area	Those areas where flooding has the potential to be unsafe or cause damage. Council considers those areas that are Hazard Category H3 or above in a 1% AEP flood to be high hazard. Refer to Section on Flood Hazard below.
High Risk Area	Those areas of high flood risk as identified in a flood study or Floodplain Risk Management Plan.
LEP	Local Environment Plan
PMF	The <i>Probable Maximum Flood</i> is an extreme flood deemed to be the largest flood that could conceivably occur at a specific location. It is generally not physically or economically possible to provide complete protection against this flood event but should be considered for emergency response. The PMF defines the extent of flood prone land (i.e. the floodplain).

Flood Information Certificate

PMF Flood Level



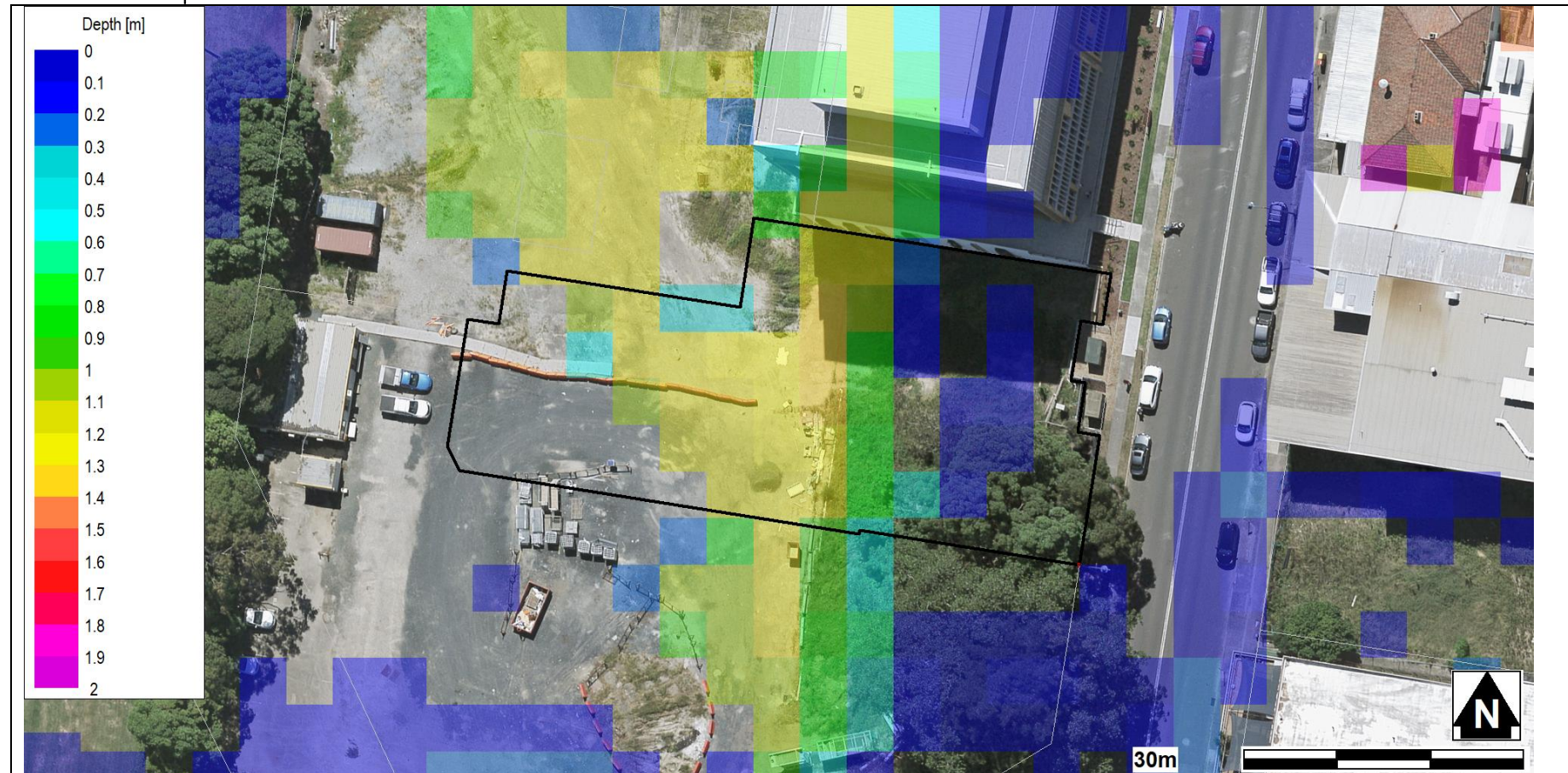
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Flood Information Certificate

PMF Flood Depth



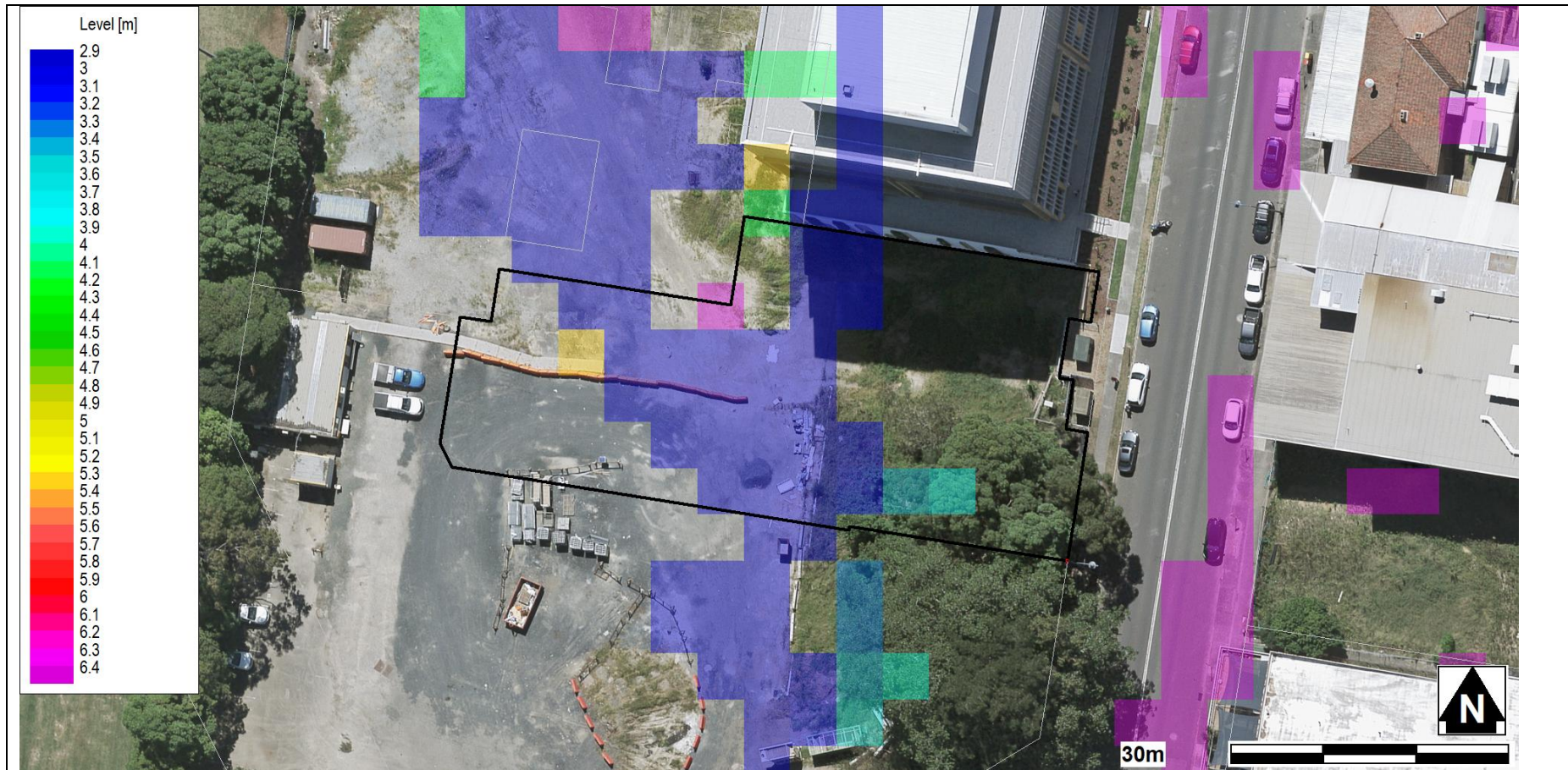
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Flood Information Certificate

1% AEP Flood Level



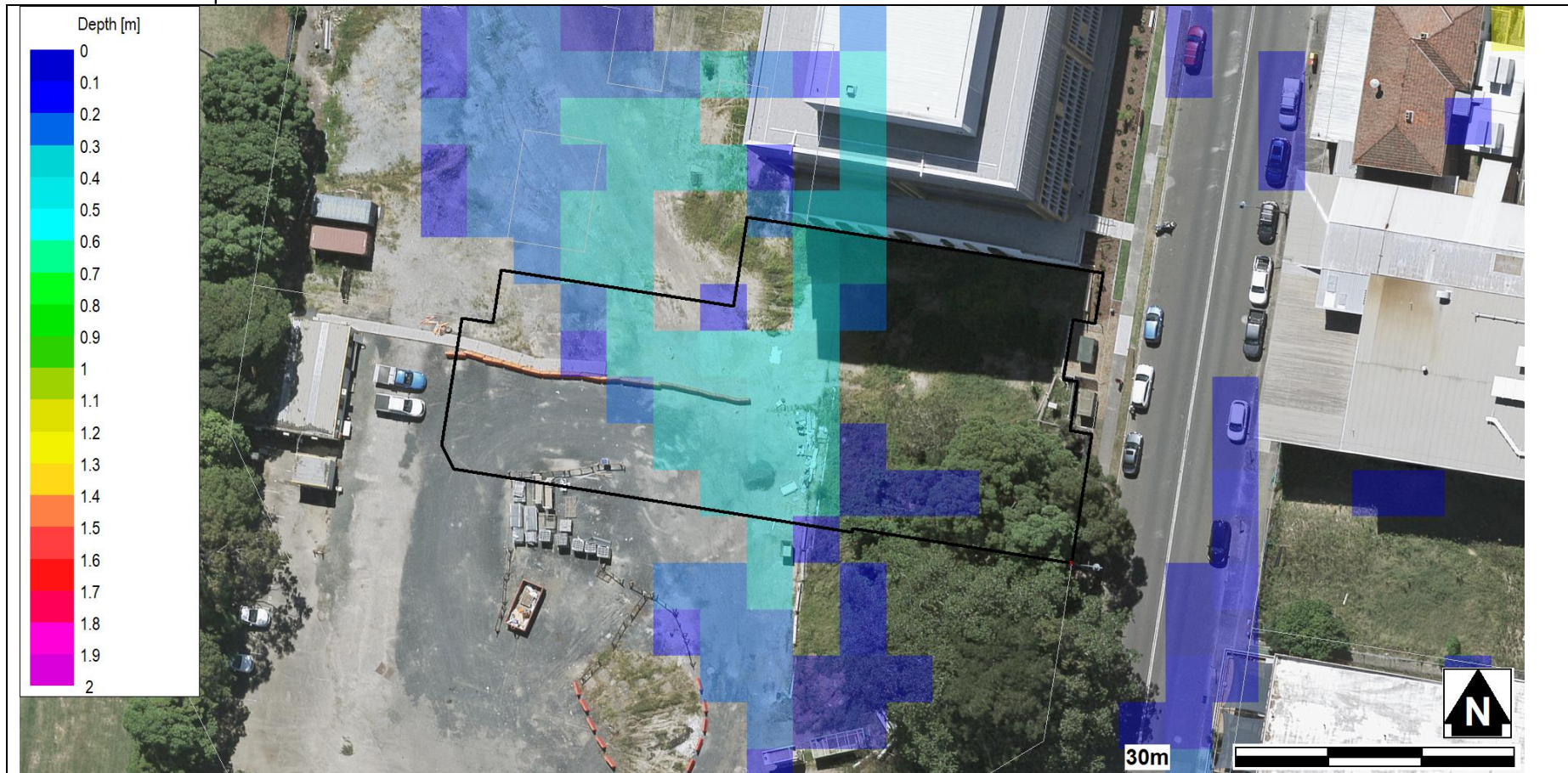
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Flood Information Certificate

1% AEP Flood Depth



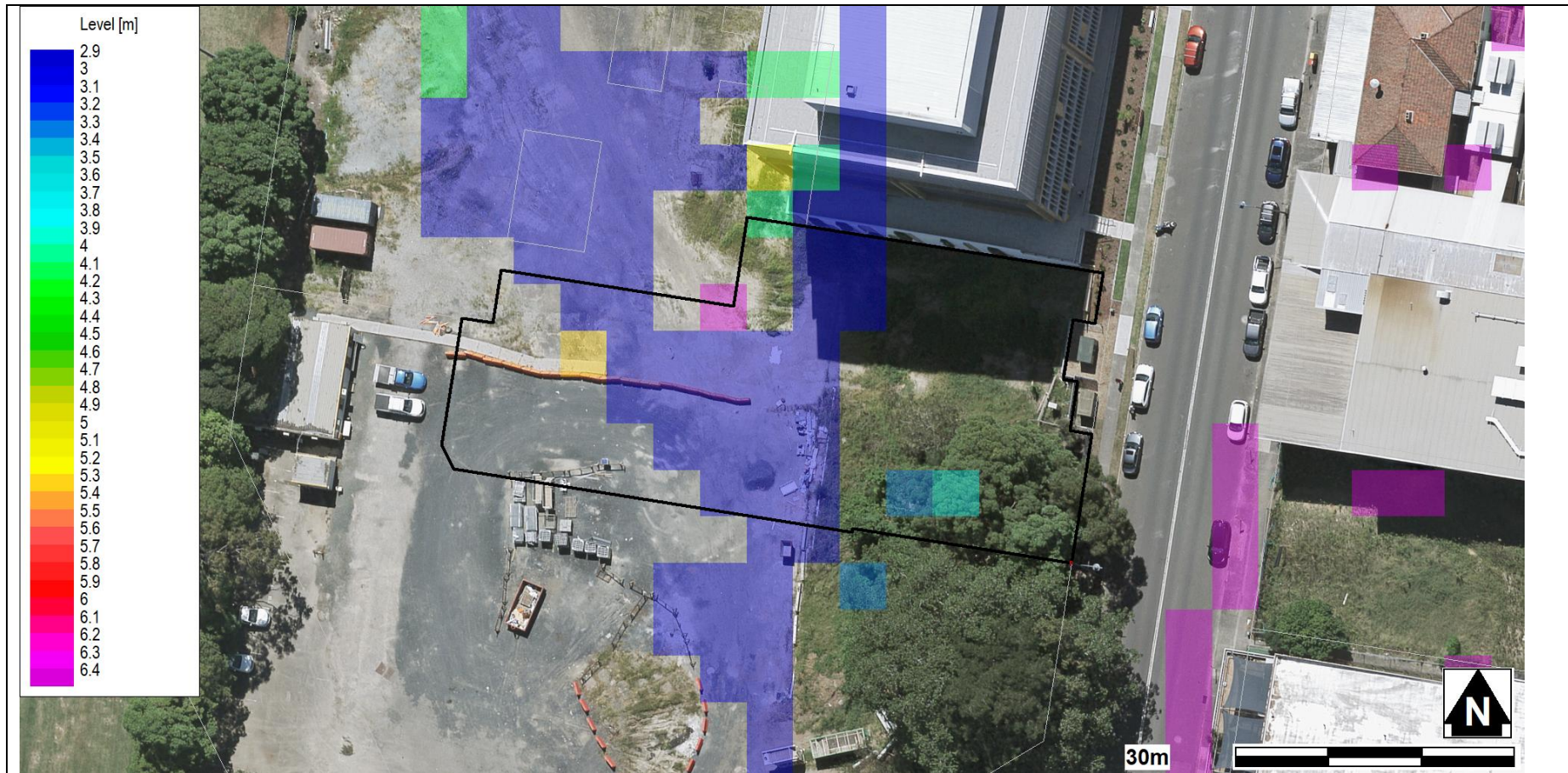
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Flood Information Certificate

5% AEP Flood Level



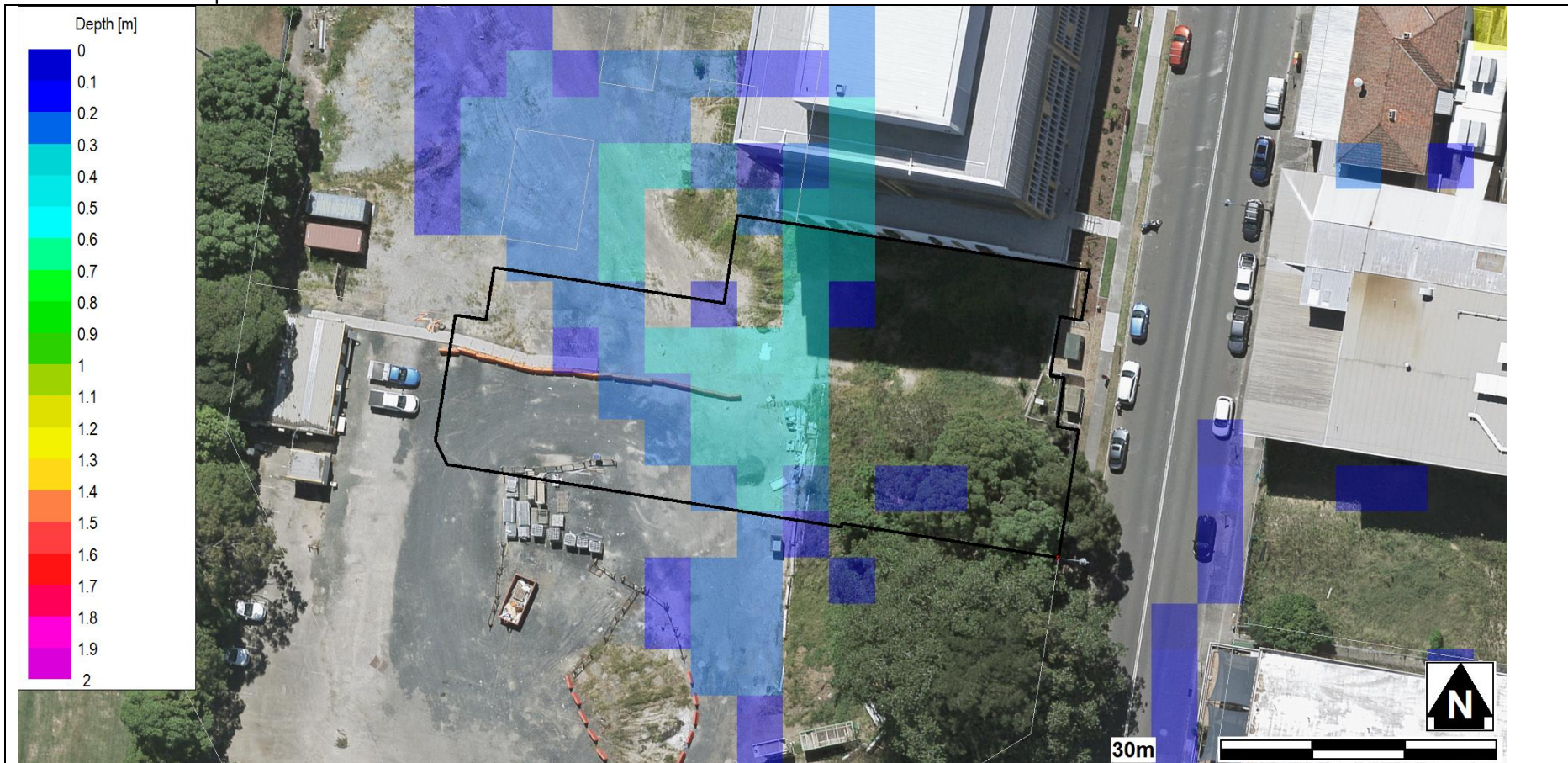
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Flood Information Certificate

5% AEP Flood Depths



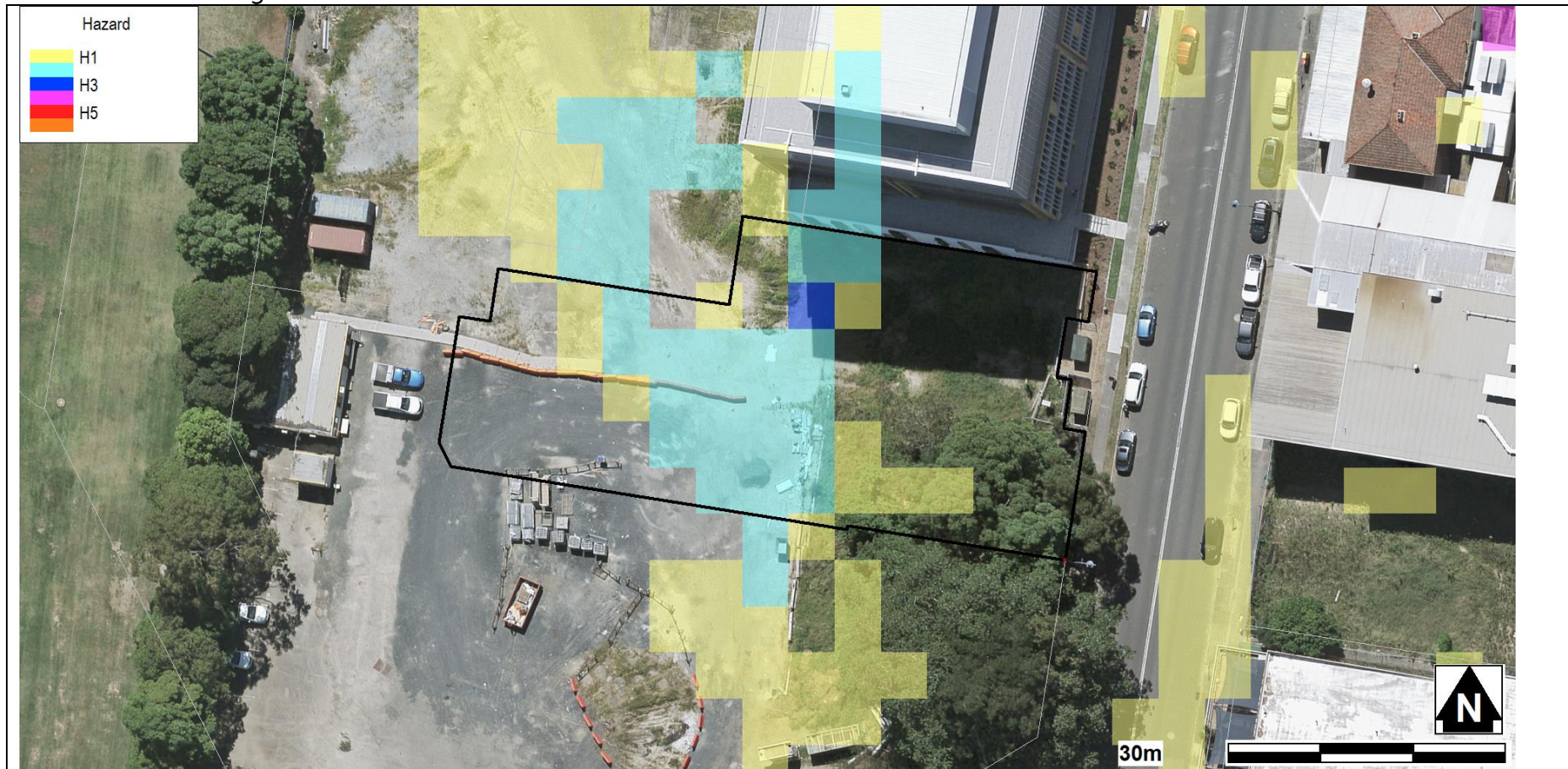
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Flood Information Certificate

1% AEP Hazard Categorisation



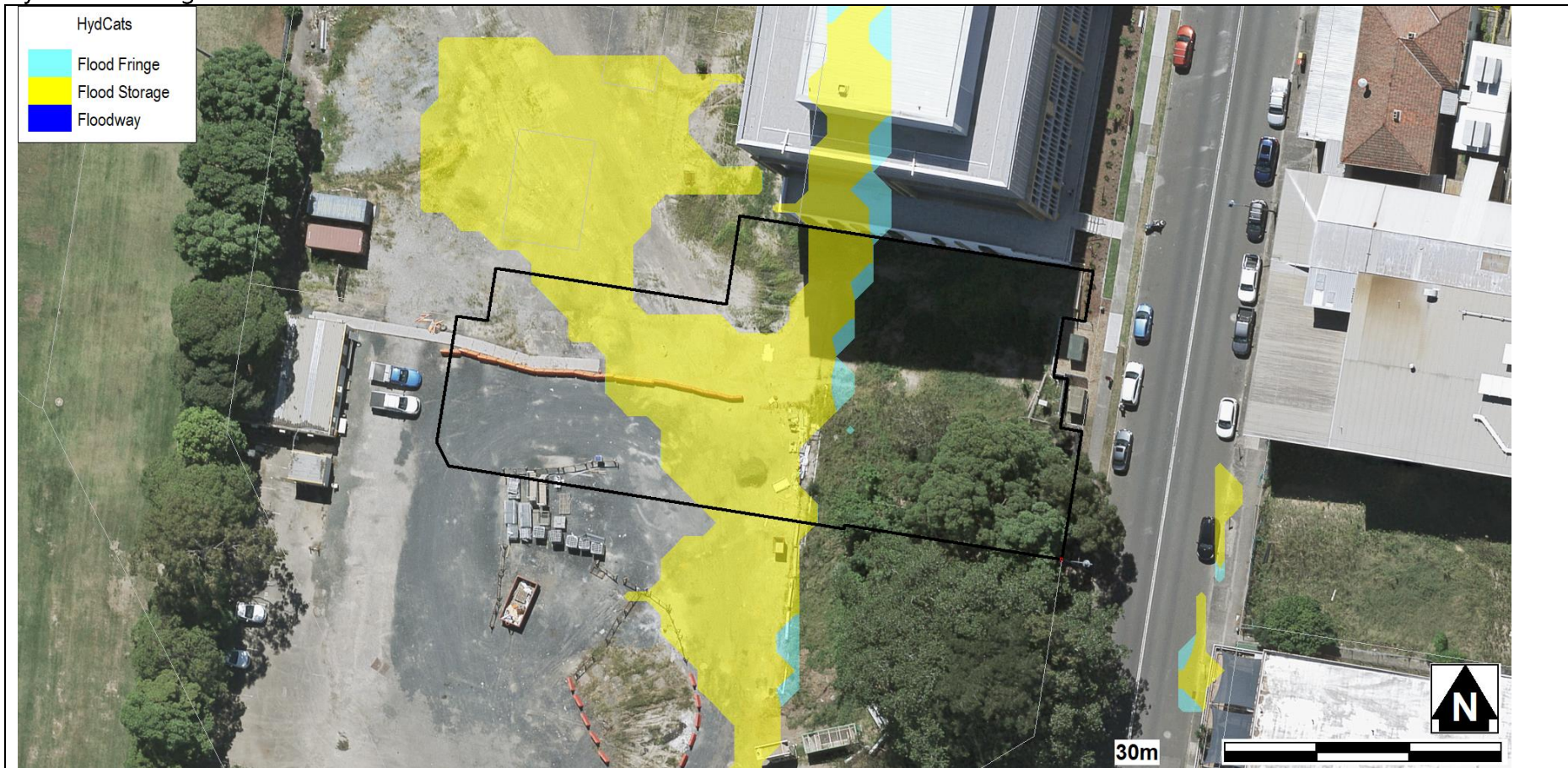
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Flood Information Certificate

Hydraulic Categorisation



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Appendix D SEARS Requirements & Response

Requirement / comment	Response / where addressed
<p>Address the following flooding, stormwater and hydrology matters as per the Future Environment Assessment Requirements SSD Concept Approval SSD10114 and requirements of the Bio Diversity and Conservation Division (BCD) of the Environment, Energy and Science (EES) branch of the Department Including:</p> <p>a) Assess and map the potential flooding impacts associated with the development and consider the relevant provision of the NSW Floodplain Development Manual (2005), including the Potential impacts of Climate Change, Sea Level Rise and Increase in Rainfall intensity</p>	<p>The subject site has already been assessed and is detailed in the Flood Studies prepared by Central Coast Council as Discussed in Section 4.8. The existing flood studies address the relevant provisions of the NSW Floodplain Development Manual and includes assessment of potential climate change impacts such as increasing rainfall intensity and sea level rise.</p> <p>A detailed review of the Flood Studies and a qualitative review of potential flood impacts concludes that the proposed development will have no significant flooding impacts.</p>
<p>b) Prepare a stormwater management report demonstrating how stormwater would be appropriately managed in accordance with Council's requirements</p>	<p>This has been addressed by Section 4 of this report.</p>
<p>c) Described flood assessment and modelling undertaken in determining the design flood levels for events, including a maximum of the 1 in 10 year, 1 in 100 year flood levels and the probable maximum flood, or an equivalent extreme event</p>	<p>Detailed flood assessment and modelling has been undertaken by Flood Studies prepared by Central Coast Council. More detailed information can be obtained in the Brisbane Water Foreshore Flood Study (2013) and the Gosford CBD Local Overland Flow Flood Study (2013).</p>
<p>d) Model the effect of the proposed development (including fill) on the flood behaviour under the following scenarios:</p> <p>Current flood behaviour for a range of design events as identified in 11 above. This includes the 1 in 200 and 1 in 500 year flood events as proxies for assessing sensitivity to an increase in rainfall intensity of flood producing rainfall events due to climate change</p>	<p>As outlined in Section 4.8 of this report, the site is not impacted by overland flow flooding and is only impacted by the Brisbane Water foreshore Flooding (+Sea Level Rise). During the foreshore flooding event the volume of water inundation is order of magnitudes higher than the potential fill footprint for the development. As such a desktop review of the flood behaviour would yield that there would be very minor impacts, likely to be outside of a measurable range from modelling.</p>
<p>Modelling in the EIS must consider and document:</p> <p>a) The impact on existing flood behaviour for a full range of flood events including up to the probably maximum flood</p>	<p>See above comment. – No significant adverse impacts are anticipated.</p>

Requirement / comment	Response / where addressed
<p>b) Impacts of the development on flood behaviour resulting in detrimental changes in potential flood affection of other developments or land. This may include redirection of flow, flow velocities, flood levels, hazards and hydraulic categories</p>	<p>See above comment. – No significant adverse impacts are anticipated.</p>
<p>c) Relevant provisions of the NSW Flood plain development manual</p>	<p>Planning controls are incorporated to the proposed development to meet the relevant provisions of the NSW Floodplain Development Manual & Council's DCP Requirements.</p>
<p>Assess the impacts on the proposed development on flood behaviour including:</p> <p>a) Any detrimental increases in potential flood affectation of other properties, assets and infrastructure.</p>	<p>See above comment. – No significant adverse impacts are anticipated.</p>
<p>b) Consistency with Council floodplain risk management plans</p>	<p>Information was obtained from Council Floodplain risk management plans & flood studies. Proposed development is consistent with the outcomes of the risk management plans.</p>
<p>c) Compatibility with the flood hazard of the land.</p>	<p>The nature of the proposed development is compatible with the flood hazard of the land, as the relevant planning requirements are met (i.e. minimum floor levels).</p>
<p>d) Compatibility with the hydraulic functions of flow conveyance in floodway's and storage in flood storage areas of the land.</p>	<p>Site is not impacted by flow conveyance of a floodway. No flood storage areas are utilised on the site and the loss of potential flood storage in the foreshore flooding event would be negligible.</p>

e) Any adverse effect to beneficial inundation of the floodplain environment, on, adjacent to or downstream of the site.	Due to the location and nature of the flood behaviour identified by the two Council Flood Studies, it can be concluded that there will be no adverse impact to the floodplain environment or to adjacent or downstream areas.
f) Any direct or indirect increase in erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses	Not Applicable for this development.

Requirement / comment	Response / where addressed
g) Any impacts the development may have upon existing community emergency management arrangements for flooding. These matters are to be discussed with the SES and Council	It is anticipated that any required flood emergency response will likely utilise a shelter in place arrangement, as the habitable spaces will be above any expected flood level, and the flood event relatively short. Details of the flood emergency response plan or flood evacuation plan will be provided during detailed design.
h) Emergency management, evacuation and access, and contingency measures for the development considering the full range of flood risk (based upon the probable maximum flood or an equivalent extreme flood event). These matters are to be discussed with and have the support of Council and the SES	See above comment.
i) Any impacts the development may have on the social and economic costs to the community as consequence of flooding.	No impact to the social or economic costs to the community is likely to occur as a consequence of flooding.
Assess water quality and hydrology impacts of the development, including: a) Water balance including quantity, quality and source	All water demand for the proposed development will be provided by either potable water, or rainwater reuse and waste water will be discharged to the authority sewer. There is minimal benefit to performing a detailed water balance assessment for the site. The stormwater runoff quality, quantity and source has been detailed in Section 4.5 of this report.
b) Effects to downstream rivers, wetlands, estuaries, marine waters and floodplain areas	Not applicable for this development.
c) Effects to downstream water-dependent fauna and flora including groundwater dependent ecosystems	Not applicable for this development.

Requirement / comment	Response / where addressed
d) Impacts to natural processes and functions within rivers, wetlands, estuaries and floodplains that affect river system and landscape health such as nutrient flow, aquatic connectivity and access to habitat for spawning and refuge.	Not applicable for this development.
e) Changes to environmental water availability, both regulated/licensed and unregulated/rules based sources of such water	Not applicable for this development.
f) Mitigating effects of proposed stormwater and wastewater management during and after construction on hydrological attributes such as volumes, flow rates, management methods and re-use options	Management of stormwater and rainwater re-use options are outlined in Section 4 of this report. A soil and water management plan during construction has been provided in the concept engineering plans.
g) Identification of proposed monitoring of hydrological attributes	Not applicable for this development.
h) The assessment must specifically demonstrate that the development will not adversely impact water quality in	Sediment and erosion control measures are detailed on the concept engineering plans for effective management of stormwater quality for runoff that discharges to Brisbane Water. During operation, effective treatment devices will be

<p>Brisbane Water in the vicinity of the inlet to Gosford Tidal Terrace during construction or operation</p>	<p>implemented to treat stormwater runoff to acceptable standards in line with Council DCP requirements as outlined in Section 4.5 of this report.</p>
<p>The EIS must describe the potential effects of coastal processes and hazards (within the meaning of the Coastal Management Act 2016), including sea level rise and climate change:</p> <ul style="list-style-type: none"> a) On the proposed development. b) Arising from the proposed development 	<p>Sea level rise from climate change has been addressed in the existing Flood Studies provided by Central Coast Council. This report discusses the relevant controls to be implemented with the development to address sea level rise and climate change.</p>
<p>The EIS/EA must consider have regard to any certified Coastal Management Program (or Coastal Zone Management Plan) and be consistent with the management objectives described in the Coastal Management Act 2016 and development controls for coastal management areas mapped under the State Environment Planning Policy (Coastal Management) 2018</p>	<p>The relevant Coastal Management Program for the site is the Coastal Zone Management Plan for Brisbane Water. The only identified remediation works is to upgrade the seawall along the edge of the Central Coast Highway to the southwest of the subject site. These works are not proposed for the subject site, and is otherwise consistent with the management objectives outlined in the management plan.</p>