NORTHROP

Stormwater Management Report

for

Fleet Street Salamander Bay

for Wanda Beach Estate Pty Ltd

NORTHROP
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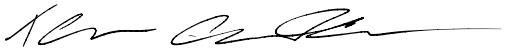
Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
16/09/24	A	For Approval	B. Ward	K. Sinclair
07/04/25	B	For Approval	T. van Koeverden	K. Sinclair

Prepared by:



Thomas van Koeverden
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		Date
Prepared by	TVK	07/04/2025
Checked by	KS	07/04/2025
Admin	HB	07/04/2025

Table of Contents

1. Introduction

Northrop Consulting Engineers Pty Ltd have been engaged to undertake engineering design for the proposed development at 4 Fleet Street, Salamander Bay– contained within DP 285191. This report has been prepared to accompany a Development Application.

The purpose of this report is to summarise the proposed civil engineering solutions for submission of the Development Application to Council. The proposed management plan has been developed in accordance with Port Stephens Council's (PSC's) 2014 Development Control Plan (DCP), PSC Soil Infiltration Technical Information guidelines and relevant Australian Standards.

This management plan should be read in conjunction with the attached drawings prepared by Northrop Consulting Engineers, DA-C01.01 – DA-C09.01. We note the information contained in this report is not intended to present detailed design solutions but rather provide solutions commensurate with a design suitable for Development Application assessment.

2. Site Description

The subject site is bounded within a neighbourhood scheme off Fleet Street. The scheme bounded to the North and West by undeveloped land, to the East by existing residential developments, and to the South by Fleet Street. Figure 1 show the development extent as well as the locality of the site.

Figure 1 – Aerial Image (NEARMAP)

The site contains existing residential developments and related ancillary structures including bin stores, car parking, internal roads and a tennis court. A ridge running from west to east splits the site in two catchments. The Southern side of the ridge generally falls to the South and Southeast, while the Northern side of the ridge generally falls North. A pit and pipe network contained within Fleet Street collects stormwater runoff from the existing development South of the ridge, while runoff heading North discharges over the boundary into Stoney Ridge Reserve.

3. Proposed Development

The proposed development comprises of 30 new multistorey residential units including incorporated garages, driveways, new road access and related landscaping. The development also includes the renovations of 11 existing cabins, extensions of pavement extents along Anchor Cove, new garages beneath 4 of the renovated cabins and 5 standalone garage units and related driveway access. The layout of the proposed development has been illustrated in the Civil Engineering Plans appended to the rear of this report.

4. Stormwater Management

General Stormwater Management Strategy

The proposed development will incorporate multiple devices and measures aimed at providing adequate and responsible management of stormwater runoff. The measures as outlined in this report are the minimum to satisfy Council requirements, however enhanced measures may also be considered in subsequent design stages for the development.

In line with Part B4 Drainage and Water Quality of Port Stephens Council DCP, the stormwater management strategy has considered the following items which will be discussed in the following sections of this report:

- Stormwater Drainage Plan
- On-site detention / on-site infiltration
- Water Quality

Stormwater Drainage Plan

Plans detailing the stormwater system design intent of the proposed development is appended to the rear of this report.

The Northern catchment is drained via a pit and pipe network that conveys the captured stormwater to an on-site infiltration trench, designed to infiltrate the 1% AEP event. Overflow from the trench is proposed to connect to the existing internal drainage system that overflows into an existing creek to the north of the site that ultimately drains to Salamander Bay.

The southern catchments are also drained via a pit and pipe network to proposed on-site detention tanks, designed to attune post developed flows for the development footprint back to greenfield flows. Outflow from the tanks connect to the existing internal drainage network that ultimately discharge to the Council network in Fleet St. Infiltration was not proposed for the southern catchment given the limited footprint available (outside of buildings and existing roads) and the high groundwater level. New units are proposed to have individual rainwater reuse tanks that will be reticulated both internally for toilet flushing and laundry and externally for landscape irrigation and hardstand washdown.

Stormwater Quantity

Council guidelines require on-site stormwater detention and infiltration to limit post developed flow to predeveloped volume and flow rates for all storm events up to and including the 1% AEP storm event. Runoff from the proposed development was modelled using the runoff routing software DRAINS. A lumped-node approach was taken to simulate the infiltration and detention volumes required to adequately satisfy the Council guidelines. As directed by Council, the Northern catchment of the development is to be directed to an infiltration system via pit and pipe network, where all design storms up to the 1% AEP critical event are to be infiltrated with no overflow. A FoS of 3 was used for the infiltration values, inline with advice provided by geotechnical report 754-NTLGE307333-AB. Applying the FoS, an infiltration rate of 3.67 x 10^{-5} m/sec was used for the infiltration trench within the model. Figure 2 displays the schematic of the DRAINS model.

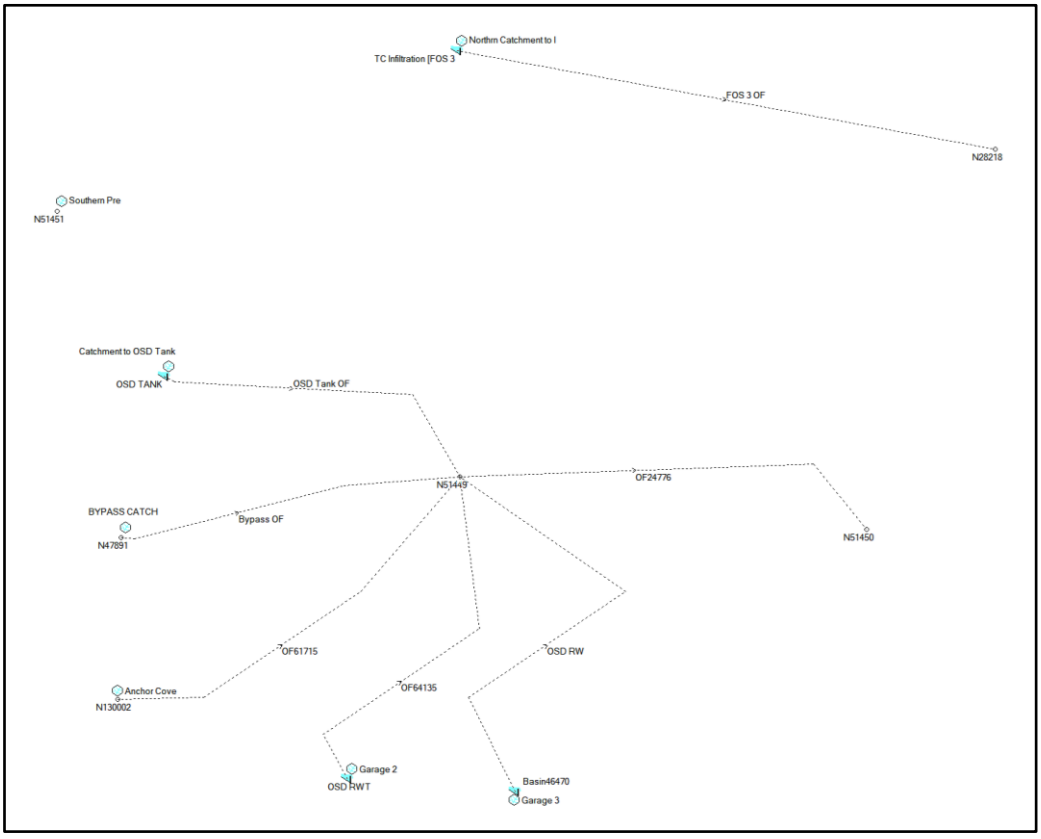

Figure 2 - DRAINS model schematic

The Continuing Loss Hydrological model in DRAINS was used to generate runoff hydrographs for the pre and post developed site. Data from the Bureau of Meteorology and ARR Data Hub was used to generate design storms. Runoff Parameters were selected to replicate the site conditions that will be present in the post-developed case, and that which currently occur in the pre-developed case. A summary of parameters used for the model are shown below:

Impervious Area Initial Loss	= 0 mm
Impervious Area Continuing Loss	= 0 mm/hr
Pervious Area Initial Loss	= 6.3 mm
Pervious Area Continuing Loss	= 0.84 mm/hr

Storm durations ranging from 5 minutes to 72 hours were investigated for each of the design storm events.

The southern catchment contains several OSD systems including a 19m^3 underground detention tank, one 6kL and two 3kL above ground combined reuse/OSD tanks. The predeveloped scenario for the southern catchment has been broken up into the new central area draining to the OSD Tank 1 [South 1] and the new garages and alterations to the very southern portion of the site [south 2].

The South 1 catchment's predeveloped flowrates are based on a greenfield site. The South 2 catchment has been modelled to include the existing hardstand within the development footprint as this the area is currently developed and the works are not a significant change to the current drainage regime. Refer to the predeveloped Drains catchment plan for further details. A comparison between the pre-development and post-development peak flows from the site for the critical storm duration for each return interval up to and including the 1% AEP is presented in Table 1.

Table 1 - DRAINS Results Southern Catchment

AEP	Pre-Flowrate (m^3/s)		Post-Flowrate (m^3/s)	
	South 1	South 2	South 1	South 2
1%	0.369	0.147	0.315	0.130
2%	0.308	0.126	0.260	0.113
5%	0.242	0.103	0.200	0.093
10%	0.197	0.086	0.167	0.078
20%	0.144	0.064	0.133	0.061

The infiltration trench is designed with a storage depth of 0.7m above the infiltration floor at RL 7.0m AHD, which is approximately 0.5m above the estimated ground water level (GWL) of RL 6.5m AHD from the infiltration testing in report 754-NTLGE307333-AB. It is acknowledged the buffer to the GWT is less than the 1m specified by PSC, however it is noted that onsite potholing was undertaken on 21.02.23 and the water level was intercepted at RL5.51 as shown in Figure 3. The full plan is appended to this report. This level is significantly lower than the aforementioned RL6.5AHD nominated within the infiltration testing report. As such it is recommended that further long term GWL monitoring be undertaken during the detailed design and if required the trench layout/depth can be adjusted.

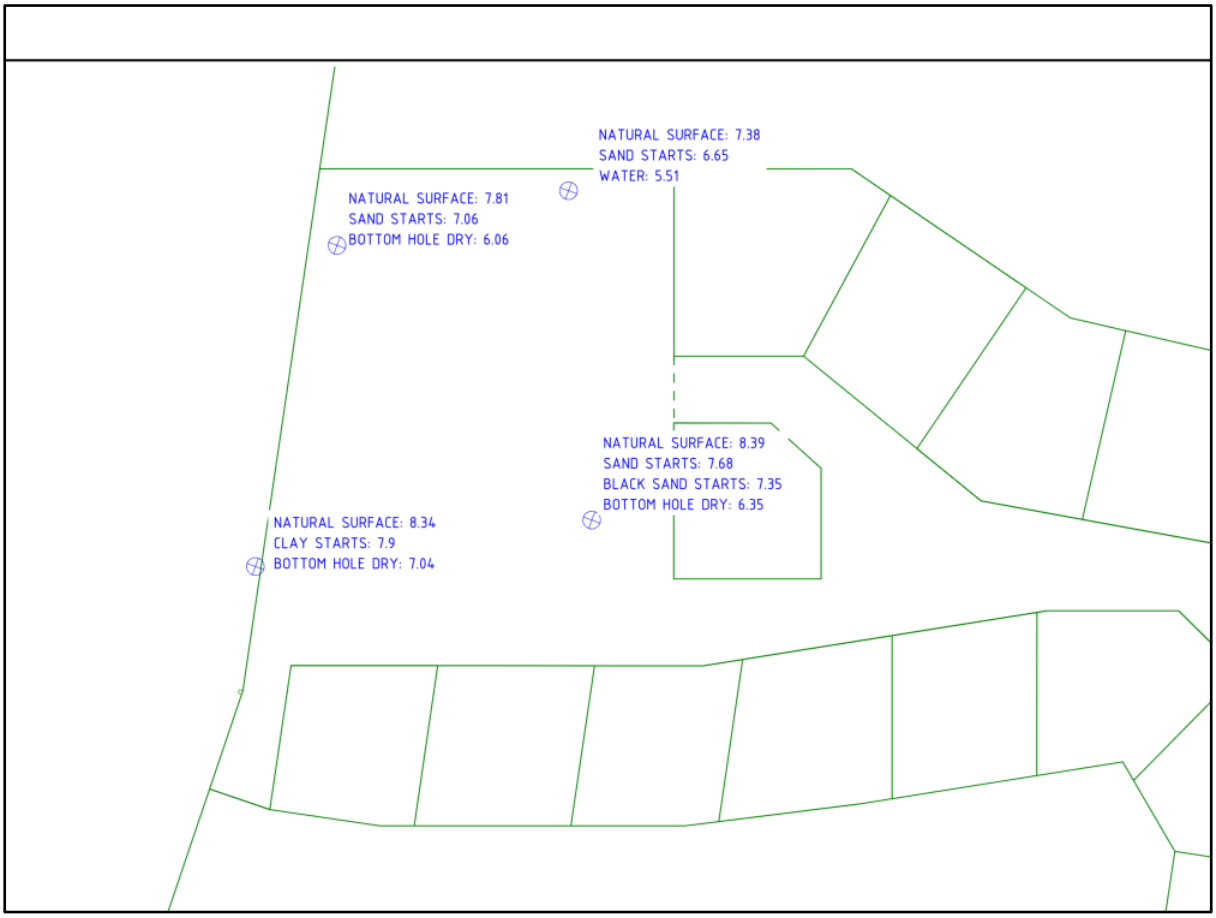

Figure 3. Onsite potholing results

If a GWL of RL6.5m is adopted, to provide the 1m buffer, it will be infeasible to infiltrate the 1% AEP design storm, given the the available footprint is limited. The Total Infiltration storage currently provided is 420m³.

The below ground OSD tank contained within the Southern catchment is designed with a maximum 0.80m detention depth. Storm events are to be controlled via a 250mm low flow orifice plate with an invert at the base of the tank and an internal weir elevated 0.6m from the base of the tank. Flows are to discharge from the tank via an outlet pipe into the existing pit and pipe network. The 6kL above ground combined OSD/Reuse tank is designed with a 70mm low flow orifice outlet and the two 3kL above ground combined OSD/Reuse tanks are designed with a 50mm low flow orifice outlet.

The results in Table 1 show that a proposed detention strategy should effectively attenuate runoff up to the 1% AEP event and therefore effectively mitigate the effect of the development on stormwater quantity in accordance with the DCP. The proposed infiltration trench effectively infiltrates all storm events up to and including the 1% AEP. The DRAINS model is available upon request.

Stormwater Quality

In order to minimise adverse impacts upon the ecology of downstream watercourses and achieve Council's stormwater pollutant reduction targets, stormwater treatment devices are proposed to be incorporated into the design of the development. The adopted nutrient and pollution targets are summarised in Table 1:

Table 1 - Required Water Quality Targets

Pollutant Criteria	Required Reduction Target (%)
Total Suspended Solids (TSS)	90
Total Phosphorous (TP)	60
Total Nitrogen (TN)	45
Gross Pollutants	90

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), Council Guidelines and Port Stephens 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.

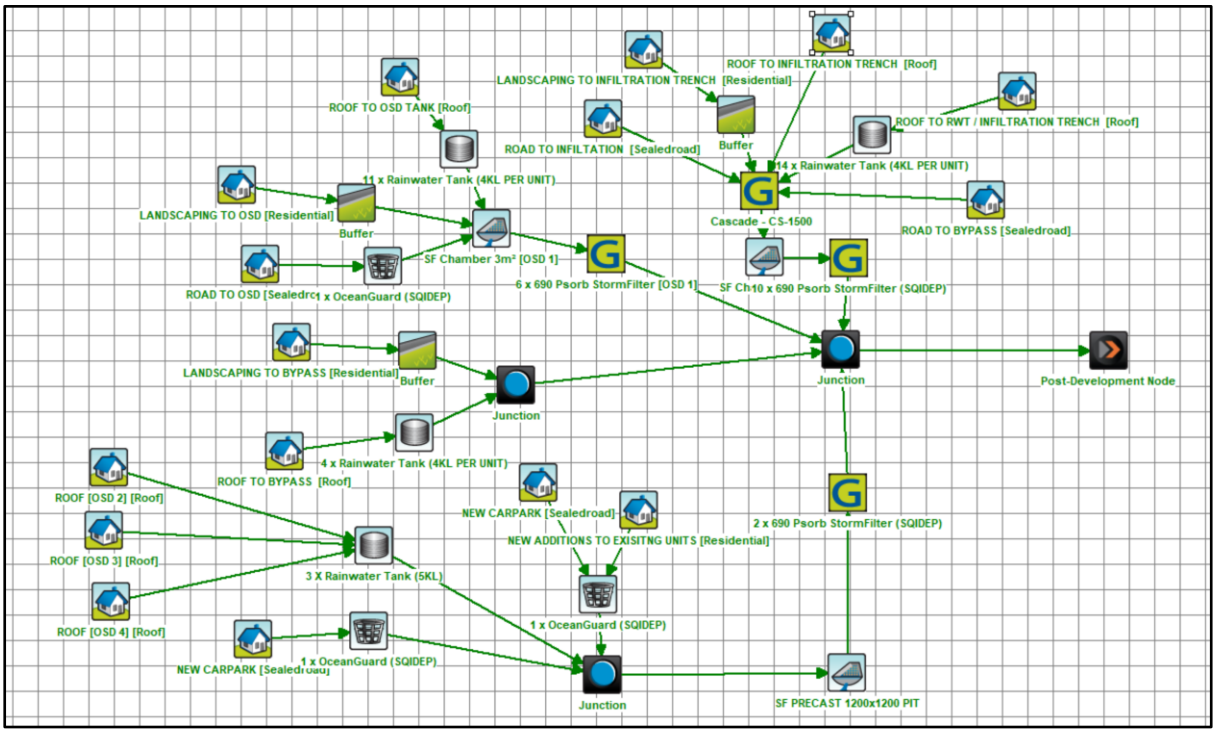

Figure 4 - MUSIC Model Schematic

The following is a summary of the water quality treatment devices that have been utilised in the proposed treatment train.

- **Rainwater Harvesting Tank** – Runoff from roof areas are to be directed to rainwater harvesting tanks. The tanks are 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 the nutrients attached to those sediments. 4kL rainwater tanks are to be provided for each residential unit, and a 5kL rainwater tank is to be provided for the each of the garage units located within Anchor Cove. The re-use rates of the rainwater tanks have been modelled as per WSUD Technical Guidelines. Water captured in the rainwater tanks is expected to be reused for internal re-use and external irrigation.

- **Sediment Trap** – Captured runoff is directed into a sediment trap containing the filter cartridges. The sediment trap further assists with the collecting of suspended solids and any attached nutrients.
- **Proprietary Filter Cartridges** (e.g. Ocean Protect Psorb Stormfilter) – Water within the sediment trap is further treated with siphon actuated cartridges that passes water evenly through a filter media to efficiently capture total suspended solids, hydrocarbons, nutrients and soluble heavy metals.
- **Proprietary Pit Filter Insert** (e.g. Ocean Protect Ocean Guard) – Runoff collected via surface inlet pits will be passed through a proprietary pit filter insert. The filter inserts will prevent ingress of gross pollutants as well as removed small amounts of nutrients and fine sediments attached to larger items captured.
- **Proprietary Gross Pollutant Trap** (e.g. Ocean Protect Cascade) – Runoff collected prior to entering the infiltration trench will be conveyed via a proprietary GPT. The GPT will prevent ingress of gross pollutants as well as removed small amounts of nutrients and fine sediments attached to larger items captured.

A small portion of the proposed road will bypass the treatment train [area b2, approximately 145m^2]. The GPT and Stormfilter cartridges that treat the runoff prior to entering the infiltration trench will capture an additional existing pavement area that is greater than the 145m^2 that is bypassing the system [over 200m^3]. As such the 145m^2 of catchment [road to bypass] has been added to the treatment train at the GPT to reflect the conditions that will be present onsite.

Table 3 presents the reduction in pollutants for an indicative treatment train as outlined above.

Table 3 - MUSIC Model Results

	Source Loads (kg/yr)	Residual Loads (kg/yr)	% Achieved Reduction	% Target Reduction
TSS	1210	103	91.5	90
TP	2.73	0.68	75.1	60
TN	23.7	7.99	66.3	45
GP	245	15.1	93.8	90

Based on the results shown in Table 3, the proposed water quality treatment system will meet the design intent and reduction targets. An electronic copy of the MUSIC model can be provided upon request, and the MUSIC Link report is appended to the rear of this report.

In conclusion, the stormwater management plan prepared by Northrop demonstrates that the pollution reduction targets by Council can be achieved by implementing the treatment devices described above onsite. Post development flows for the southern catchment should be contained and reduced to pre-development flowrates with the proposed and detention storage tanks. For the northern catchment flows up to the 1% AEP event will be infiltrated via a proposed infiltration trench.

The catchment plans for both the DRAINS and MUSIC modelling have been appended to the rear of this report for context.

We trust this meets your expectations. Should you have any queries, please feel free to contact the undersigned.

Yours Sincerely,

Thomas van Koeverden
Civil Engineer
B.E. Civil (Hons) | MIEAust

Limitation Statement

Northrop Consulting Engineers Pty Ltd (Northrop) has been retained to prepare this report based on specific instructions, scope of work and purpose pursuant to a contract with its client. It has been prepared in accordance with the usual care and thoroughness of the consulting profession for the use by Wanda Beach Estate Pty Ltd. The report is based on generally accepted practices and standards applicable to the scope of work at the time it was prepared. No other warranty, express or implied, is made as to the professional advice included in this report.

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WANDA BEACH ESTATE

FLEET STREET, SALAMANDER BAY NSW 2317
CIVIL ENGINEERING PACKAGE

LOCALITY PLAN

IMAGE SOURCE : NEARMAPS

Sheet List Table	
Sheet Number	Sheet Title
DA-C01.01	COVER SHEET, DRAWING LIST AND LOCALITY PLAN
DA-C01.20	GENERAL ARRANGEMENT PLAN
DA-C02.01	EROSION AND SEDIMENT CONTROL PLAN
DA-C02.10	EROSION AND SEDIMENT CONTROL DETAILS
DA-C03.01	CUT AND FILL PLAN
DA-C04.01	CIVIL WORKS PLAN - SHEET 1
DA-C04.02	CIVIL WORKS PLAN - SHEET 2
DA-C04.03	CIVIL WORKS PLAN - SHEET 3
DA-C05.01	ROAD LONGITUDINAL SECTIONS
DA-C09.01	CIVIL DETAILS

DRAWN: J.KNIGHT DESIGNED: T. VAN KOEVERDEN/ B. WARD JOB MANAGER: T. VAN KOEVERDEN VERIFIER: K. SINCLAIR

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	RG		JG	15.07.22
2	ISSUED FOR INFORMATION	JK		BW	05.09.24
3	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
4	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
5	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

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SCALE 1:2000@A1 0 20 40 60 80 100m

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PROJECT
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FLEET STREET, SALAMANDER BAY NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

COVER SHEET, DRAWING LIST AND LOCALITY PLAN

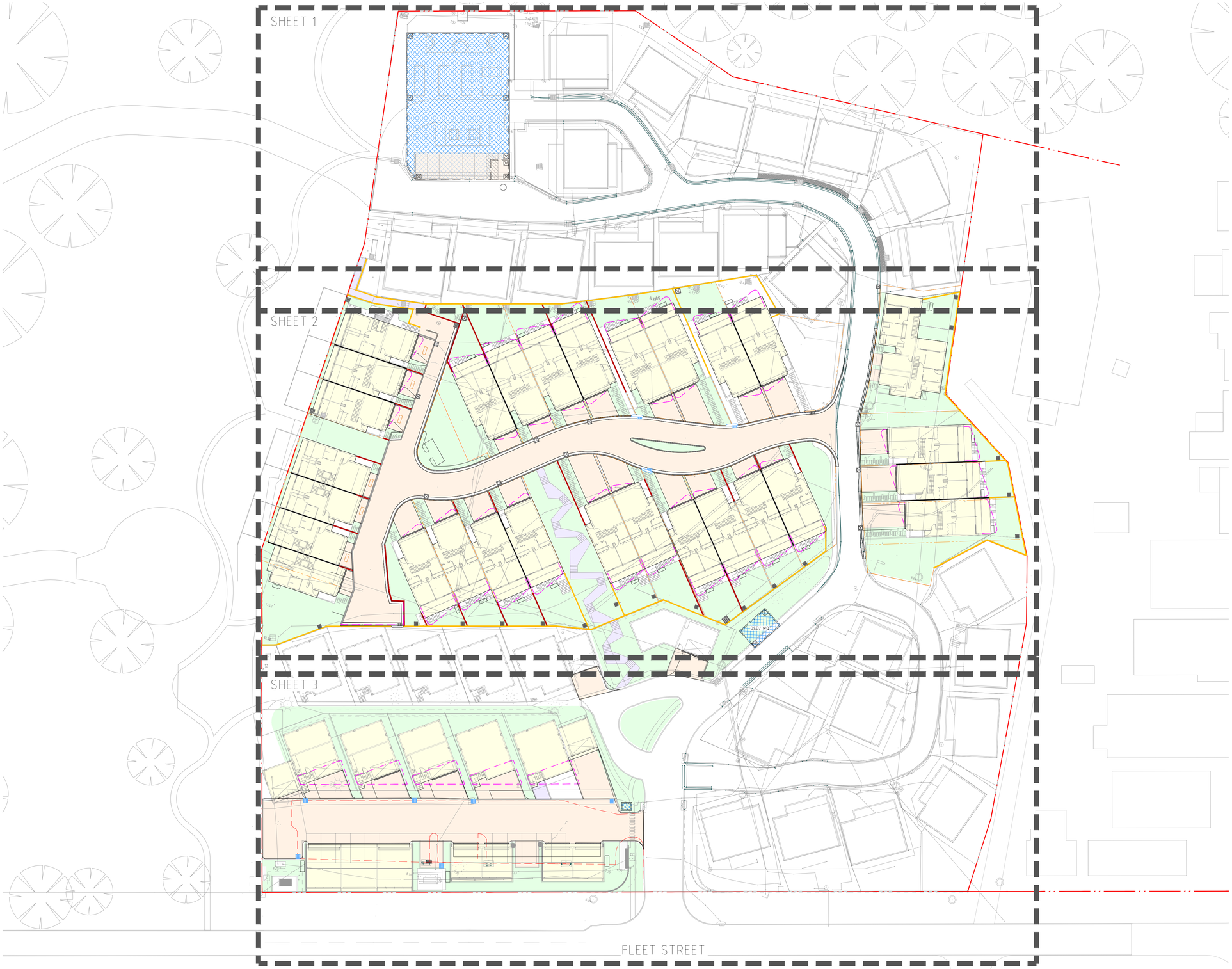
JOB NUMBER
NL221140

DRAWING NUMBER
DA-C01.01

REVISION
5

DRAWING SHEET SIZE = A1

Date : 07.04.2025 2:26 PM Plotted By : JOSH KNIGHT Found : O:\5 Pre-July 24 Projects\Newcastle\YEAR 2022 Jobs\NL221140 - Fleet Street Salamander Bay\O - Drawings\CIVIL\03-CADD\DA\NL221140-DA-C01.01 COVER.dwg



DRAWN J KNIGHT
DESIGNED T VAN KOEVEREN/ B WARD
JOB MANAGER T VAN KOEVEREN
VERIFIER K SINCLAIR

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1	ISSUED FOR INFORMATION	JK		BW	05.09.24
2	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
3	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
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SCALE 1:400 @ A1

0 4 8 12 16 20m

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GENERAL ARRANGEMENT PLAN

JOB NUMBER
NL221140

DRAWING NUMBER
DA-C01.20

REVISION
4

DRAWING SHEET SIZE = A1

LEGEND

- SITE BOUNDARY LINE
- DEVELOPMENT AREA BOUNDARY LINE
- PROPOSED STORMWATER PIT
- PROPOSED GRATED TRENCH DRAIN
- INDICATIVE EXTENT OF DISTRUBANCE
- SEDIMENT FENCE
- GF — GEOTEXTILE INLET FILTER
- SB — SANDBAG SEDIMENT FILTER
- SEDIMENT BASIN. REFER TO DETAILS ON C02.10
- DIVERSION DRAIN
- STABILISED SITE ACCESS
- STOCKPILES
- XX XX — EXISTING CONTOURS (X Xm INTERVAL)
- OVERFLOW FROM SEDIMENT BASINS TO BE LINED WITH GEOFABRIC TO PROTECT THE SITE FROM EROSION - REFER TO DETAIL SD5.7

NOTE

APPROXIMATE LOCATION OF SEDIMENT BASIN ASSUMING COMPLETE CLEARING OF ASSOCIATED CATCHMENT. BASIN SIZE AND LOCATION MAY BE ADJUSTED TO SUIT CONTRACTORS REQUIREMENTS, AND SOIL CONDITIONS ENCOUNTERED DURING CONSTRUCTION

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DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVEREN/ B. WARD
JOB MANAGER: T. VAN KOEVEREN
VERIFIER: K. SINCLAIR

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR APPROVAL	JK		CS	20.06.22
2	ISSUED FOR INFORMATION	JK		BW	05.09.24
3	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
4	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
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SCALE 1:400@ A1 — 0 4 8 12 16 20m

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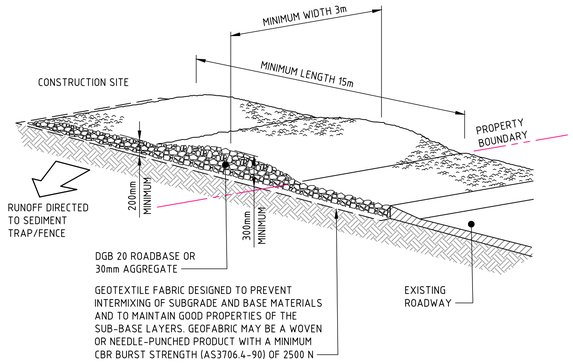
EROSION AND SEDIMENT CONTROL PLAN

JOB NUMBER
NL221140

DRAWING NUMBER
DA-C02.01

REVISION
5

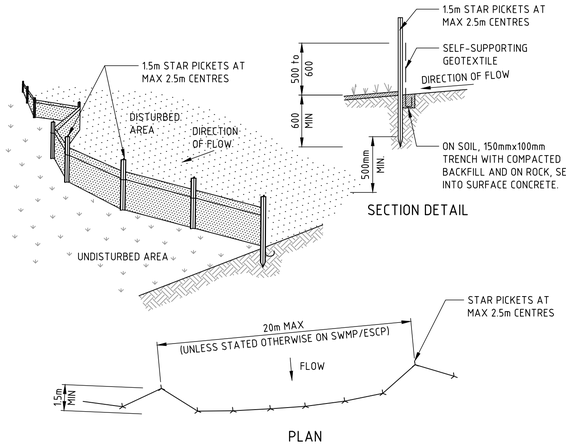
DRAWING SHEET SIZE = A1



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)



CONSTRUCTION NOTES

1. 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 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. 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.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE (SD 6-8)

EROSION AND SEDIMENTATION CONTROL NOTES:

1. ALL EROSION AND SEDIMENTATION CONTROL MEASURES MUST BE APPROPRIATE FOR THE SEDIMENT TYPE(S) OF THE SOILS ON-SITE, IN ACCORDANCE WITH THE 'BLUE BOOK' (MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION. LANDCOM, 2004), OR OTHER CURRENT RECOGNISED INDUSTRY STANDARDS FOR EROSION AND SEDIMENT CONTROL FOR AUSTRALIAN CONDITIONS. THIS INCLUDES SEDIMENT TRAPS AND LINING OF CHANNELS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION AND SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS AND SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ALL MAINTENANCE, CLEANING AND BREACHES. THIS RECORD SHALL BE KEPT ON-SITE AT ALL TIMES AND SHALL BE MADE AVAILABLE FOR INSPECTION BY THE PRINCIPAL CERTIFYING AUTHORITY AND THE SUPERINTENDENT DURING NORMAL WORKING HOURS.
3. INSTALL SEDIMENT PROTECTION FILTERS ON ALL NEW AND EXISTING STORMWATER INLET PITS IN ACCORDANCE WITH EITHER THE MESH AND GRAVEL INLET FILTER DETAIL SD6-11 OR THE GEOTEXTILE INLET FILTER DETAIL SD6-12 OF THE 'BLUE BOOK'.
4. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
5. INSTALL SEDIMENT FENCING, OR OTHER SEDIMENT CONTROL DEVICES, AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT OR APPROPRIATE COUNCIL OFFICER.
6. ALL TRENCHES INCLUDING ALL SERVICE TRENCHES AND SWALE EXCAVATION SHALL BE SIDE-CAST TO THE HIGH SIDE AND CLOSED AT THE END OF EACH DAYS WORK.
7. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB AND GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION.
8. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ON-SITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
9. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE SPREAD ON-SITE AS DIRECTED BY THE SUPERINTENDENT OR REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
10. CONSTRUCT AND MAINTAIN ALL MATERIAL STOCKPILES IN ACCORDANCE WITH DETAIL SD4-1 OF THE 'BLUE BOOK' (INCLUDING CUT-OFF SWALES TO THE HIGH SIDE AND SEDIMENT FENCES TO THE LOW SIDE).
11. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
12. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
13. ONCE CUT/FILL OPERATIONS HAVE BEEN FINALIZED ALL DISTURBED AREAS THAT ARE NOT BEING WORKED ON SHALL BE RE-VEGETATED AS SOON AS IS PRACTICAL.

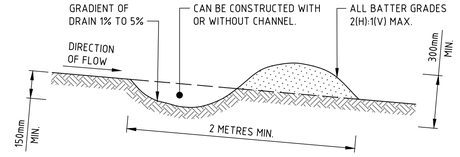
SEDIMENT BASIN SIZING CALCULATION:

THE SITE IS LOCATED WITHIN THE SHOAL BAY SOIL LANDSCAPE AND PRIMARILY CONSISTS OF CLAYEY SANDS (PENDING A SITE SPECIFIC GEOTECHNICAL INVESTIGATION), WHICH HAS THE FOLLOWING PROPERTIES:

CENTRAL SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
SEDIMENT TYPE	C (COARSE)	
SOIL HYDROLOGY GROUP	A	
A = CATCHMENT AREA	0.34	ha
FLOW (4EY)	53	L/s
PARTICLE SIZE	0.05	mm
AREA FACTOR	635	
SEDIMENT BASIN AREA	33.7	m^2
SETTLING ZONE HEIGHT	0.6	m
VOLUME SETTLING ZONE	20.2	m^3
VOLUME SEDIMENT STORAGE	20.2	m^3
TOTAL BASIN VOLUME REQUIRED	40.4	m^3

NORTHERN SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
SEDIMENT TYPE	C (COARSE)	
SOIL HYDROLOGY GROUP	A	
A = CATCHMENT AREA	0.38	ha
FLOW (4EY)	60	L/s
PARTICLE SIZE	0.05	mm
AREA FACTOR	635	
SEDIMENT BASIN AREA	38.1	m^2
SETTLING ZONE HEIGHT	0.6	m
VOLUME SETTLING ZONE	22.9	m^3
VOLUME SEDIMENT STORAGE	22.9	m^3
TOTAL BASIN VOLUME REQUIRED	45.7	m^3

SOUTHERN SEDIMENT BASIN SIZING		
CONSTRAINT	VALUE	UNITS
SEDIMENT TYPE	C (COARSE)	
SOIL HYDROLOGY GROUP	A	
A = CATCHMENT AREA	0.20	ha
FLOW (4EY)	32	L/s
PARTICLE SIZE	0.05	mm
AREA FACTOR	635	
SEDIMENT BASIN AREA	20	m^2
SETTLING ZONE HEIGHT	0.6	m
VOLUME SETTLING ZONE	12.2	m^3
VOLUME SEDIMENT STORAGE	12.2	m^3
TOTAL BASIN VOLUME REQUIRED	24.4	m^3

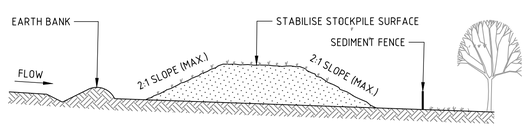


CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

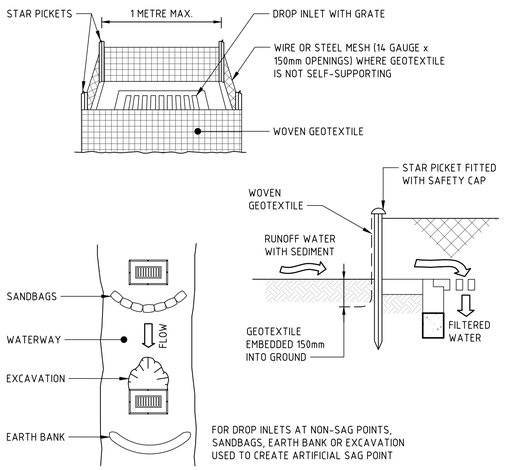
EARTH BANK - LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

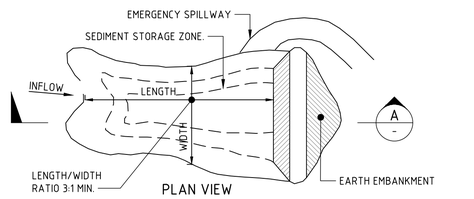
STOCKPILES (SD 4-1)

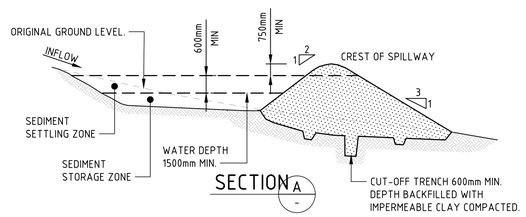


CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER (SD 6-12)



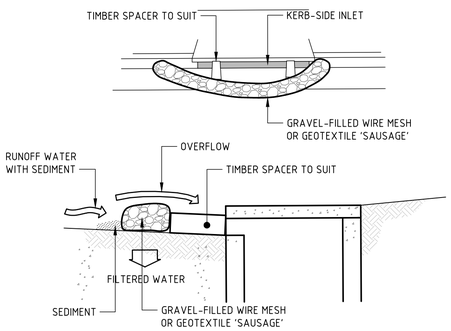


CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)

EARTH SEDIMENT BASIN - WET (SD 6-4)



NOTE:THIS PRACTICE ONLY TO BE USED
WHERE SPECIFIED IN APPROVED SWMP/ESCP.

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. 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.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

SANDBAG SEDIMENT FILTER (SD 6-11)

NOT FOR CONSTRUCTION

DESIGNED: T. VAN KOEVERDEN/ B. WARD
DRAWN: J.KNIGHT
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER: K. SINCLAIR

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR APPROVAL	JK		CS	20.06.22
2	ISSUED FOR INFORMATION	JK		BW	05.09.24
3	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
4	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
WANDA BEACH ESTATE PTY LTD

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

ARCHITECT
EJE architecture

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NOT TO SCALE

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

EROSION AND SEDIMENT CONTROL DETAILS

JOB NUMBER
NL221140

DRAWING NUMBER
DA-02.10

REVISION
4

DRAWING SHEET SIZE = A1

LEGEND

- SITE BOUNDARY LINE
- • BE XX.XX — BULK EARTHWORKS SPOT HEIGHT

DEPTH OF CUT

- - 999m TO -3.0m
- -3.0m TO -2.0m
- -2.0m TO -1.0m
- -1.0m TO 0.0m

DEPTH OF FILL

- 0.0m TO 1.0m
- 1.0m TO 2.0m
- 2.0m TO 3.0m
- 3.0m TO 999m

NOTES

1. BULK EARTHWORKS LEVELS AND VOLUMES ARE BASED ON A COMPARISON OF THE DESIGN BULK EARTHWORKS SURFACE AND THE EXISTING SURFACE LEVEL AS SURVEYED
2. NO ALLOWANCE HAS BEEN MADE FOR SELECT LAYERS OR UNSUITABLE MATERIAL THAT IS LIKELY TO BE PRESENT.
3. NO ALLOWANCE HAS BEEN MADE FOR TEMPORARY SEDIMENT DAMS
4. NO ALLOWANCE HAS BEEN MADE FOR SAND LEVELING LAYER BENEATH BUILDING PADS
5. NO ALLOWANCE HAS BEEN MADE FOR SERVICE TRENCHES, DRAINAGE TRENCHES, DRAINAGE INFRASTRUCTURE (PITS, CULVERTS, ETC) IN THE LEVELS OR VOLUMES PRESENTED ON THIS PLAN.
6. NO ALLOWANCE FOR ANY TEMPORARY BATTERS DURING WORKS.
7. NO BULKING FACTORS HAVE BEEN CONSIDERED/ALLOWED FOR.
8. ALL BULK EARTHWORKS TO BE UNDERTAKEN IN ACCORDANCE WITH SITE SPECIFIC GEOTECHNICAL REPORT AND BULK EARTHWORKS NOTES.

DESIGNED: T. VAN KOEVEROEN/ B. WARD
DRAWN: J.KNIGHT
JOB MANAGER: T. VAN KOEVEROEN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
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ARCHITECT
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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

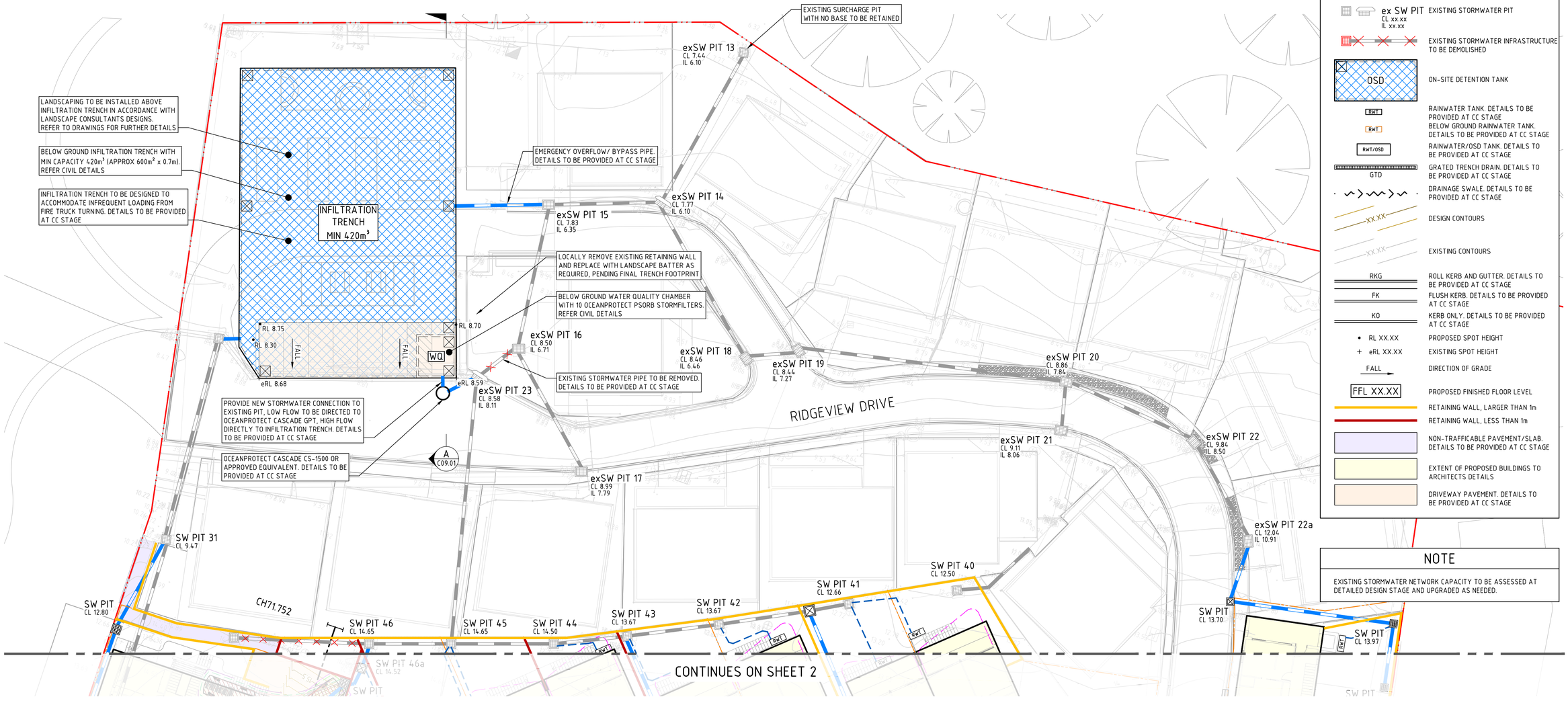
DRAWING TITLE
CIVIL ENGINEERING PACKAGE

CUT AND FILL PLAN

JOB NUMBER **NL221140**

DRAWING NUMBER **DA-C03.01** REVISION **1**

DRAWING SHEET SIZE = A1



LEGEND

- SITE BOUNDARY LINE
- EXISTING BOUNDARY LINE
- PROPOSED LOT BOUNDARY LINE
- LINE OF BUILDING ABOVE
- PROPOSED CRASH BARRIER (CB)
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- EXTENT OF ITEMS TO BE DEMOLISHED
- RAINWATER TANK DISCHARGE PIPE
- SW PIT CL xx.xx — PROPOSED STORMWATER PIT AND TAG COVER LEVEL / INVERT LEVEL
- PROPOSED JUNCTION PIT. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED STORMWATER PIT WITH OCEANPROTECT OCEANGUARD
- ex SW PIT CL xx.xx IL xx.xx — EXISTING STORMWATER PIT
- EXISTING STORMWATER INFRASTRUCTURE TO BE DEMOLISHED
- OSD — ON-SITE DETENTION TANK
- RWT — RAINWATER TANK. DETAILS TO BE PROVIDED AT CC STAGE
- BELOW GROUND RAINWATER TANK. DETAILS TO BE PROVIDED AT CC STAGE
- RWT/OSD — RAINWATER/OSD TANK. DETAILS TO BE PROVIDED AT CC STAGE
- GTD — GRATED TRENCH DRAIN. DETAILS TO BE PROVIDED AT CC STAGE
- DRAINAGE SWALE. DETAILS TO BE PROVIDED AT CC STAGE
- XX.XX — DESIGN CONTOURS
- XX.XX — EXISTING CONTOURS
- RKG — ROLL KERB AND GUTTER. DETAILS TO BE PROVIDED AT CC STAGE
- FK — FLUSH KERB. DETAILS TO BE PROVIDED AT CC STAGE
- KO — KERB ONLY. DETAILS TO BE PROVIDED AT CC STAGE
- RL XX.XX — PROPOSED SPOT HEIGHT
- + eRL XX.XX — EXISTING SPOT HEIGHT
- FALL — DIRECTION OF GRADE
- FFL XX.XX — PROPOSED FINISHED FLOOR LEVEL
- RETAINING WALL, LARGER THAN 1m
- RETAINING WALL, LESS THAN 1m
- NON-TRAFFICABLE PAVEMENT/SLAB. DETAILS TO BE PROVIDED AT CC STAGE
- EXTENT OF PROPOSED BUILDINGS TO ARCHITECTS DETAILS
- DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE

NOTE

EXISTING STORMWATER NETWORK CAPACITY TO BE ASSESSED AT DETAILED DESIGN STAGE AND UPGRADED AS NEEDED.

NOT FOR CONSTRUCTION

DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVERDEN/ B. WARD
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER: K. SINCLAIR

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	RG		JG	15.07.22
2	ISSUED FOR INFORMATION	JK		BW	05.09.24
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4	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
5	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
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ARCHITECT
EJE architecture

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
CIVIL WORKS PLAN - SHEET 1

JOB NUMBER **NL221140**
DRAWING NUMBER **DA-C04.01**
REVISION **5**
DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON SHEET 1

EXISTING STORMWATER PIT TO BE REMOVED

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

REDUNDANT DRAINAGE LINE TO BE REMOVED AND STORMWATER PIT TO BE REPAIRED AND SPARGED

STRUCTURAL WALLS AT REAR OF BUILDINGS INDICATIVE ONLY SUBJECT TO FUTURE DETAILED DESIGN (TYP)

EXISTING STORMWATER LINE TO BE MAINTAINED IF FEASIBLE , ALTERNATIVELY NEW LINE TO BE CONSTRUCTED AS SHOWN,TO BE CONFIRMED AT CC STAGE

4KL RAINWATER TANK TO BE INSTALLED BENEATH DRIVEWAY PAVEMENT IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS. DETAILS TO BE PROVIDED AT CC STAGE

OCEANGUARD PIT INSERT INSTALLED WITHIN PIT

EXISTING RETAINING WALL TO BE RETAINED. DETAILS TO BE PROVIDED AT CC STAGE

BLOCKOUTS NEEDED IN RETAINING WALL TO ALLOW WATER TO FLOW INTO ADJACENT DRIVEWAY

OVERFLOW FROM RAINWATER REUSE TANKS TO BE DIRECTED TO REAR DRAINAGE LINE. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING KERB INLET PIT TO BE REMOVED AND REPLACED WITH ROLL KERB GRATE AND ASSOCIATED KERBING. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING DRAINAGE LINE CAPACITY TO BE ASSESSED AT DETAILED DESIGN STAGE AND BE UPGRADED AS REQUIRED

19m³ OSD TANK (24m² x 0.8m) WITH ORIFICE PLATE - Ø250 AT BASE OF TANK, HIGH FLOW WEIR AT 0.60m ABOVE BASE OF TANK. WQ CHAMBER 3m² WITH 6 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

STREET FACING ROOF TO BYPASS RAINWATER TANKS AND DISCHARGE INTO STREET DRAINAGE NETWORK. DETAILS TO PROVIDED AT CC STAGE (TYPICAL)

GRADE LANDSCAPING TOWARDS PROPOSED PIT

LANDSCAPING TO BE SHAPED TOWARDS NEAREST DOWNSTREAM STORMWATER PIT

CONTINUES ON SHEET 3

DESIGNED T. VAN KOEVERDEN/ B. WARD
DRAWN J.KNIGHT
JOB MANAGER T. VAN KOEVERDEN
VERIFIER K. SINCLAIR

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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CLIENT
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PROJECT
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FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

CIVIL WORKS PLAN - SHEET 2

JOB NUMBER
NL221140

DRAWING NUMBER
DA-C04.02

REVISION
4

DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON SHEET 2

NEW DRIVEWAY TO RENOVATED CABIN

FFL 9.259

FFL 7.80

eRL 8.25 (APPROX)

eRL 7.16 (APPROX)

eRL 8.98 (APPROX)

eRL 8.95 (APPROX)

EXISTING STRUCTURES TO BE LIFTED TO FACILITATE CARPARKING BENEATH BUILDING. EXISTING DRAINAGE REGIME TO BE MAINTAINED

CONNECT TO EXISTING STORMWATER PIT DETAILS TO BE PROVIDED AT CC STAGE

EXISTING STORMWATER PIPE TO BE UPSIZED. DETAILS TO BE PROVIDED AT CC STAGE

exSW PIT 5
CL 6.87
IL 6.18

exSW PIT 4
CL 6.58
IL 5.88

RIDGEVIEW DRIVE

UPRIGHT KERB/WALL TO BE PROVIDE AT CC STAGE AS REQUIRED TO ACCOUNT FOR ANY LEVELS DIFFERENCE TO BOUNADRY

EXISTING PIT AND PIPE NETWORK TO BE DEMOLISHED

FFL 9.340

FFL 8.105

FFL 7.555

FFL 7.566

FFL 7.20

FFL 9.265

RL 7.56

RL 7.30

RL 9.12

RL 8.71

RL 8.31

RL 8.13

RL 7.88

RL 7.70

RL 7.49

RL 7.24

RL 6.77

RL 6.53

SW PIT
CL 9.20

SW PIT
CL 8.10

SW PIT
CL 7.70

SW PIT
CL 6.45

WQ

exSW PIT 3
CL 5.98
IL 5.31

WQ CHAMBER 2m² WITH 2 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

CONNECT TO EXISTING NETWORK BUILDING

exSW PIT 2
CL 5.96
IL 5.23

exSW PIT 8
CL 5.94
IL 5.26

MTE

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

GTD

RL 8.45 RL 8.20

RL 7.66 RL 7.42

RL 6.19

RL 8.62

SW PIT
CL 8.50

FFL 8.65

SW PIT
CL 8.10

FFL 7.98

FFL 7.78

FFL 7.35

FFL 7.15

RL 8.27

RL 8.11

RL 7.72 RL 7.65

RL 7.46

RL 7.40

RL 6.80

RL 6.80

RL 7.01

RL 6.97

RL 6.52

RL 6.31

RWT WITH 5KL REUSE VOLUME AND 6KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

REMOVE EXISTING STORMWATER NETWORK UNDER PROPOSED BUILDING

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

exSW PIT 1
CL 5.80
IL 5.17

375 RCP

FLEET STREET

VERIFIER: K. SINCLAIR
JOB MANAGER: T. VAN KOEVERDEN
DESIGNED: T. VAN KOEVERDEN / B. WARD
DRAWN: J.KNIGHT

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		BW	05.09.24
2	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
3	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
4	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
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ARCHITECT
EJE architecture

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SCALE 1:200 @ A1

0 2 4 6 8 10m

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE

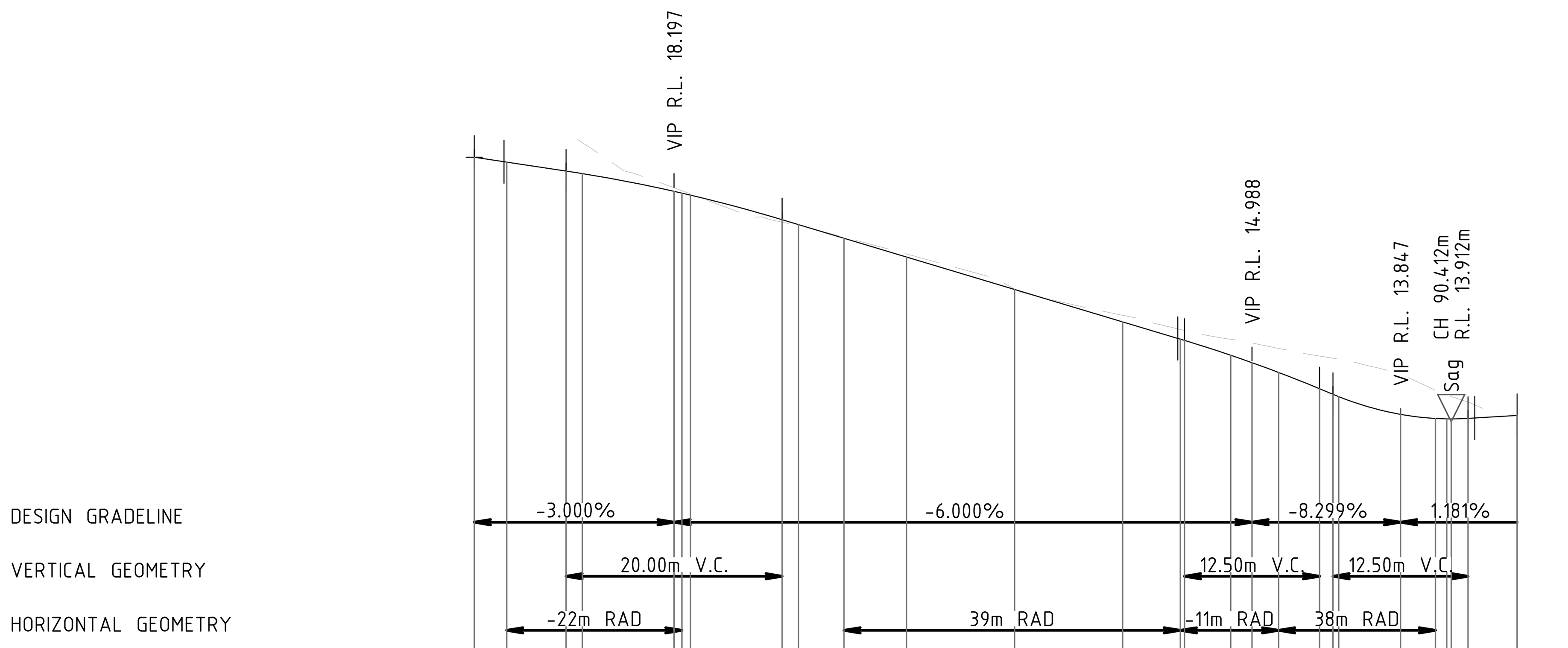
CIVIL WORKS PLAN - SHEET 3

JOB NUMBER
NL221140

DRAWING NUMBER
DA-C04.03

REVISION
4

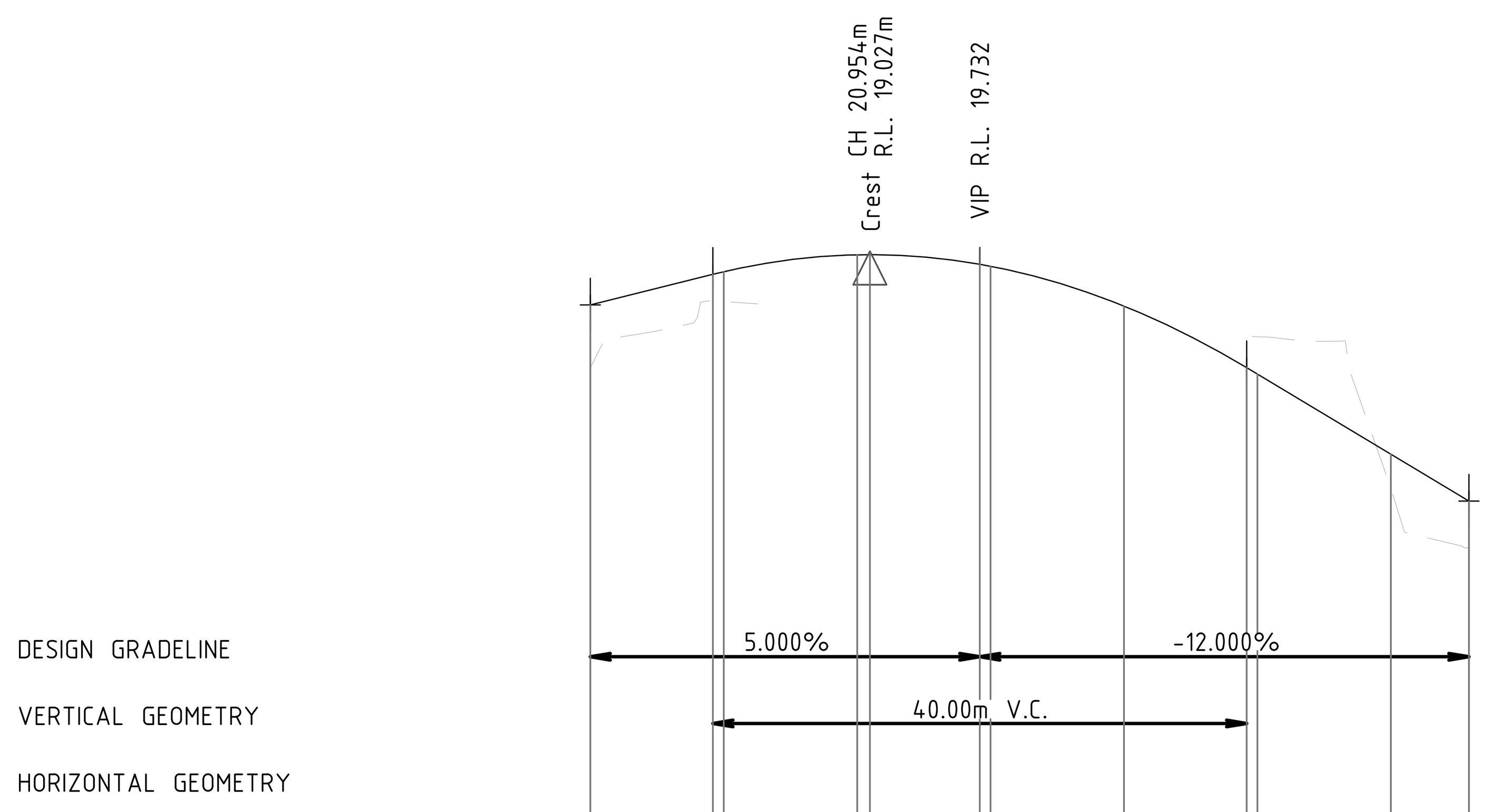
DRAWING SHEET SIZE = A1



DATUM RL 7.0

CHAINAGE	FINISHED SURFACE	EXISTING SURFACE
0	18.752	
3	18.662	
8.492	18.497	
10	18.45	19.023
18.492	18.122	18.188
19.215	18.089	18.134
20	18.052	18.075
28.492	17.597	17.551
30	17.506	17.487
34.215	17.254	17.273
40	16.906	16.963
50	16.306	16.315
60	15.706	15.828
65.338	15.386	15.566
65.725	15.363	15.547
70	15.09	15.384
71.975	14.952	15.317
74.435	14.771	15.216
78.225	14.469	15.075
79.469	14.366	15.033
80	14.323	15.016
85.719	13.995	14.742
88.95	13.92	14.441
90	13.912	14.345
90.412	13.912	14.323
91.969	13.921	14.221
96.503	13.975	13.975

LONGITUDINAL SECTION ALONG MC01
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1



DATUM RL 8.0

CHAINAGE	FINISHED SURFACE	EXISTING SURFACE
0	18.273	17.329
9.189	18.732	18.331
10	18.772	18.321
20	19.025	
20.954	19.027	
29.189	18.882	
30	18.853	
40	18.256	
49.189	17.332	
50	17.235	17.796
60	16.035	15.525
65.85	15.333	14.625

LONGITUDINAL SECTION ALONG MC02
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1

DRAWN: J.KNIGHT DESIGNED: T. VAN KOEVERDEN/ B. WARD JOB MANAGER: T. VAN KOEVERDEN VERIFIER: K. SINCLAIR

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	RG		JG	15.07.22
2	ISSUED FOR INFORMATION	JK		BW	05.09.24
3	ISSUED FOR DA APPROVAL	JK		BW	16.09.24
4	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
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EJE architecture

SCALE 1:500@A1 0 5 10 15 20 25m
SCALE 1:100@A1 0 1 2 3 4 5m

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
ROAD LONGITUDINAL SECTIONS

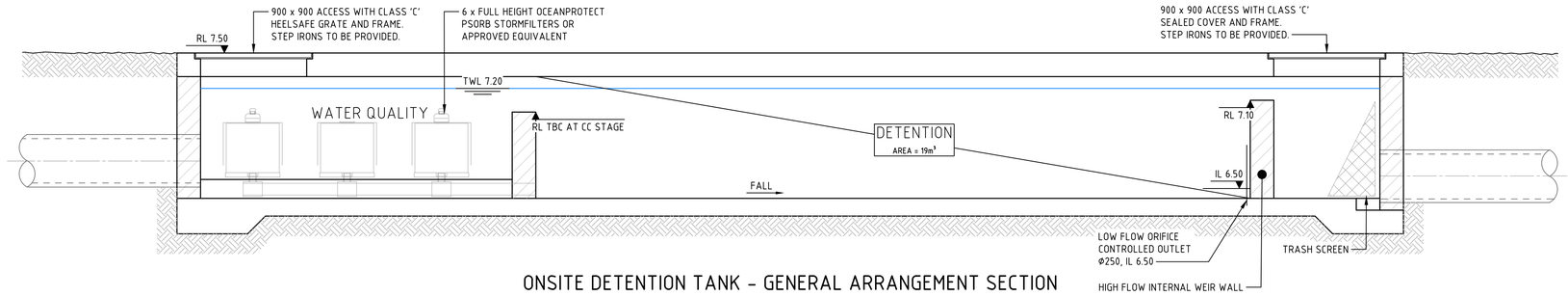
JOB NUMBER
NL221140

DRAWING NUMBER
DA-C05.01

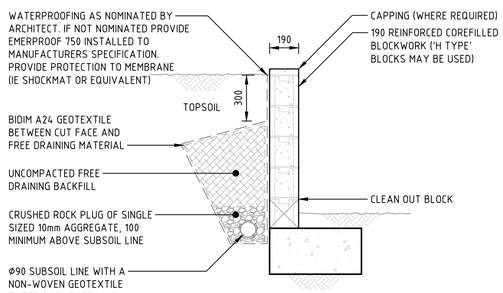
REVISION
4

DRAWING SHEET SIZE = A1

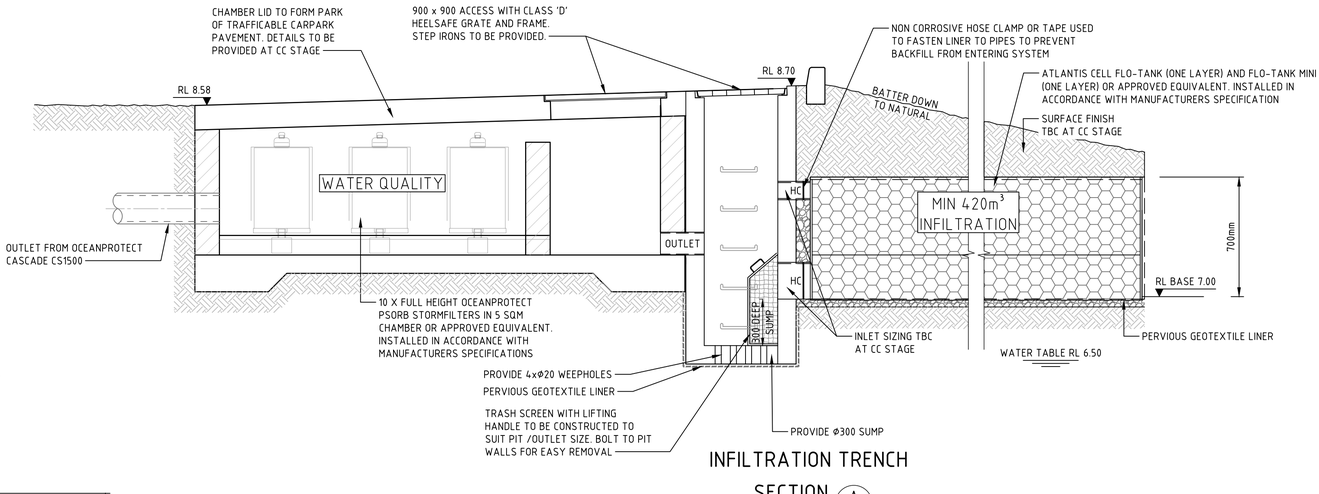
Date : 07.04.2025 2:27 PM Plotted By : JOSH KNIGHT Found : O:\5 Pre-July 24 Projects\Newcastle\YEAR 2022 Jobs\NL221140 - Fleet Street Salamander Bay\O - Drawings\CIVIL\03-CAD\DA\NL221140-DA-C05.01 LSECTS.dwg



ONSITE DETENTION TANK - GENERAL ARRANGEMENT SECTION

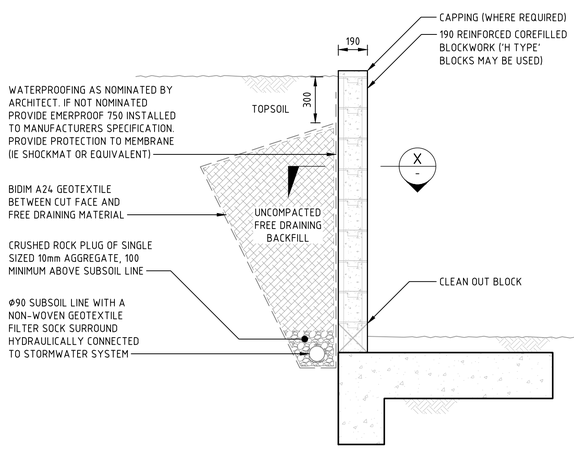


RETAINING WALL LESS THAN 1m DETAIL



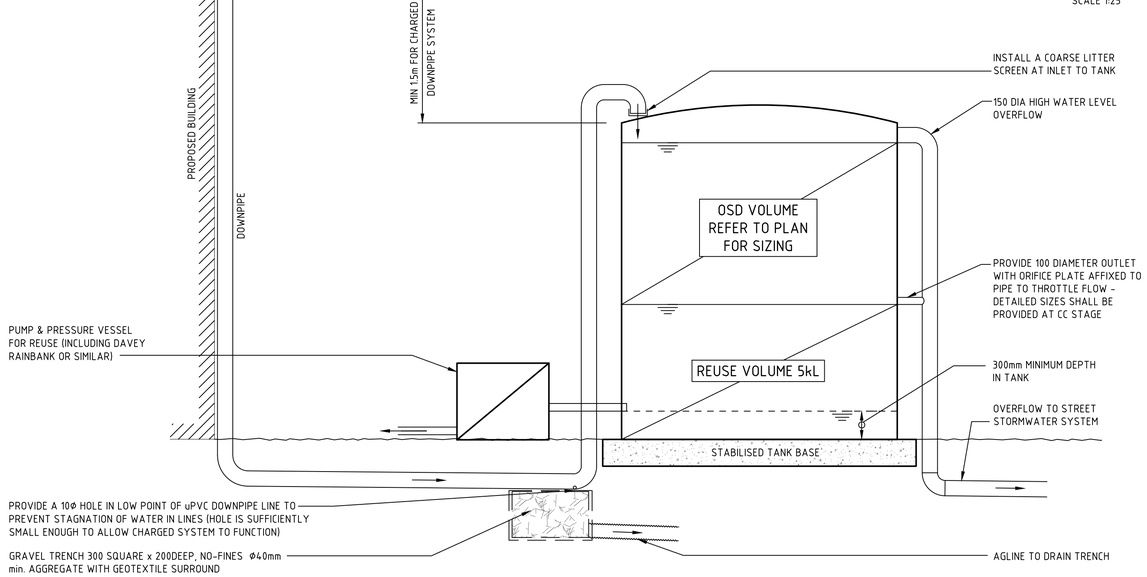
INFILTRATION TRENCH

SECTION A C04.01
SCALE 1:25

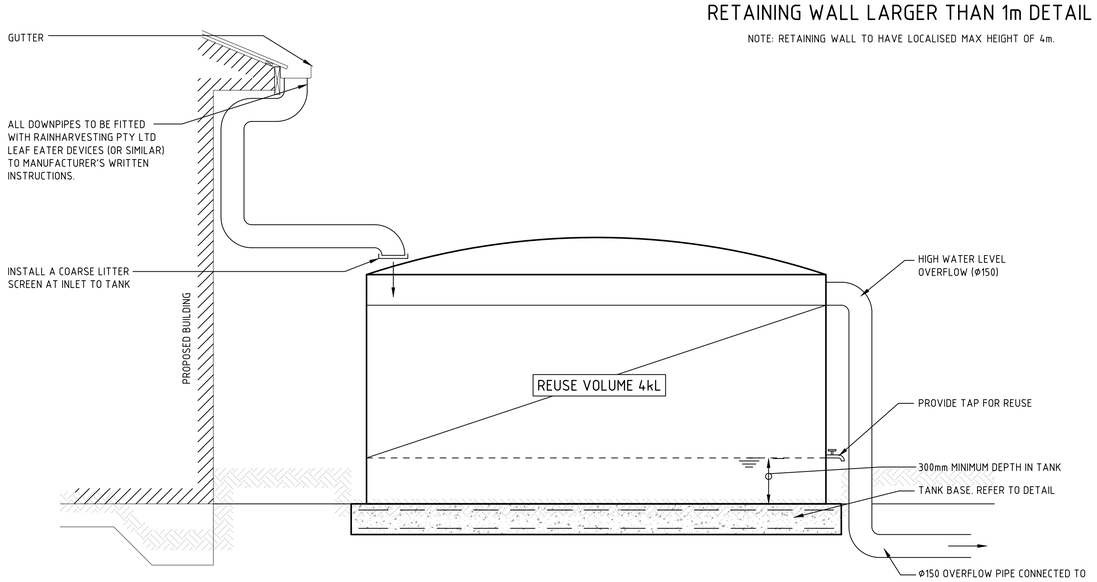


RETAINING WALL LARGER THAN 1m DETAIL

NOTE: RETAINING WALL TO HAVE LOCALISED MAX HEIGHT OF 4m.



TYPICAL REUSE/OSD ABOVE GROUND TANK DETAIL



TYPICAL REUSE ABOVE GROUND TANK DETAIL

NOTE: THE ENTIRE PRESSURISED DOWNPIPE SYSTEM SHALL BE AIR TIGHT AND BE ABLE TO WITHSTAND ATMOSPHERIC PRESSURE. THE PIPING SYSTEM SHALL BE MINIMUM SN6 AND FITTINGS WITH INTERNAL ULTRA VIOLET STABILISING (OR APPROVED EQUIVALENT).

DESIGNED: T. VAN KOEVERDEN/ B. WARD
DRAWN: J.KNIGHT
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER: K. SINCLAIR

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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4	ISSUED FOR INFORMATION	RDU		TVK	04.04.25
5	ISSUED FOR DA APPROVAL	JK	KS	TVK	07.04.25

CLIENT
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ARCHITECT
EJE architecture

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SCALE 1:25@ A1
0 0.25 0.5 0.75 1 1.25m

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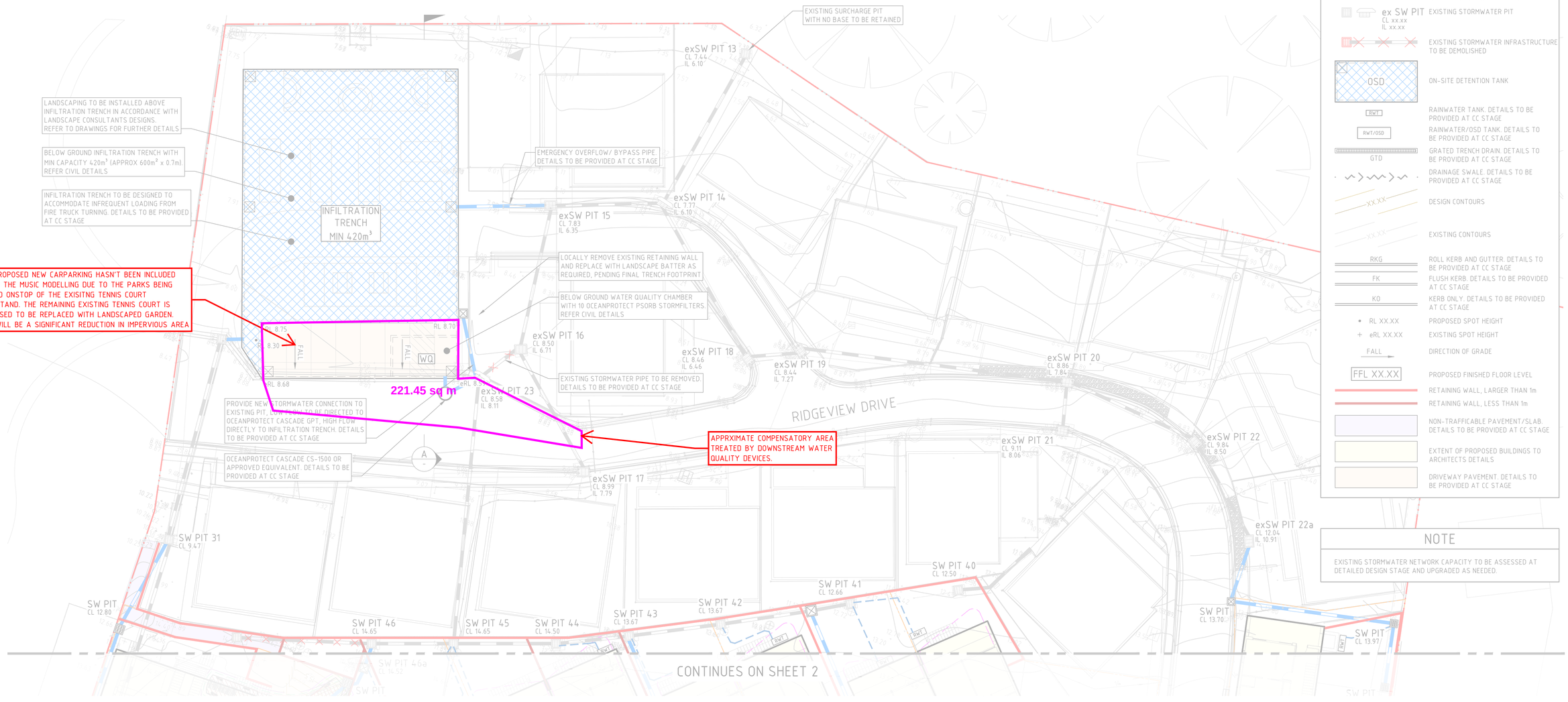
PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
CIVIL DETAILS

JOB NUMBER **NL221140**
DRAWING NUMBER **DA-C09.01**
REVISION **5**
DRAWING SHEET SIZE = A1

Date : 07.04.2025 2:27 PM Plotted By : JOSH KNIGHT Found : O:\5 Pre-July 24 Projects\Newcastle\YEAR 2022 Jobs\NL221140 - Fleet Street Salamander Bay\O - Drawings\CIVIL\03-CAD\DA\NL221140-DA-C09.01 CIV DETAILS.dwg



LEGEND

- SITE BOUNDARY LINE
- EXISTING BOUNDARY LINE
- PROPOSED LOT BOUNDARY LINE
- LINE OF BUILDING ABOVE
- CB — PROPOSED CRASH BARRIER
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- EXTENT OF ITEMS TO BE DEMOLISHED
- RAINWATER TANK DISCHARGE PIPE
- SW PIT CL xx.xx — PROPOSED STORMWATER PIT AND TAG COVER LEVEL / INVERT LEVEL
- PROPOSED JUNCTION PIT. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED STORMWATER PIT WITH OCEANPROTECT OCEANGUARD
- ex SW PIT CL xx.xx IL xx.xx — EXISTING STORMWATER PIT
- EXISTING STORMWATER INFRASTRUCTURE TO BE DEMOLISHED
- OSD — ON-SITE DETENTION TANK
- RWT — RAINWATER TANK. DETAILS TO BE PROVIDED AT CC STAGE
- RWT/OSD — RAINWATER/OSD TANK. DETAILS TO BE PROVIDED AT CC STAGE
- GTD — GRATED TRENCH DRAIN. DETAILS TO BE PROVIDED AT CC STAGE
- DRAINAGE SWALE. DETAILS TO BE PROVIDED AT CC STAGE
- XX.XX — DESIGN CONTOURS
- XX.XX — EXISTING CONTOURS
- RKG — ROLL KERB AND GUTTER. DETAILS TO BE PROVIDED AT CC STAGE
- FK — FLUSH KERB. DETAILS TO BE PROVIDED AT CC STAGE
- KO — KERB ONLY. DETAILS TO BE PROVIDED AT CC STAGE
- RL XX.XX — PROPOSED SPOT HEIGHT
- eRL XX.XX — EXISTING SPOT HEIGHT
- FALL — DIRECTION OF GRADE
- FFL XX.XX — PROPOSED FINISHED FLOOR LEVEL
- RETAINING WALL, LARGER THAN 1m
- RETAINING WALL, LESS THAN 1m
- NON-TRAFFICABLE PAVEMENT/SLAB. DETAILS TO BE PROVIDED AT CC STAGE
- EXTENT OF PROPOSED BUILDINGS TO ARCHITECTS DETAILS
- DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE

NOTE

EXISTING STORMWATER NETWORK CAPACITY TO BE ASSESSED AT DETAILED DESIGN STAGE AND UPGRADED AS NEEDED.

DRAWN: J.KNIGHT DESIGNED: T. VAN KOEVERDEN/ B. WARD JOB MANAGER: T. VAN KOEVERDEN VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		TVK	07.04.25

CLIENT: **WANDA BEACH ESTATE PTY LTD**

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ARCHITECT: EJE architecture

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SCALE 1:200 @ A1 — 0 2 4 6 8 10m

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ABN 81 094 433 100

PROJECT: **WANDA BEACH ESTATE FLEET STREET, SALAMANDER BAY NSW 2317**

DRAWING TITLE: **CIVIL ENGINEERING PACKAGE**

MUSIC CATCHMENT PLAN

JOB NUMBER: **NL221140**

DRAWING NUMBER: **RFIC02.01** REVISION: **1**

DRAWING SHEET SIZE = A1

ROAD CATCHMENT BYPASSING B2 IS NOT ABLE TO BE TREATED HOWEVER THERE IS A LARGE AREA ADJACENT TO THE NORTHERN INFILTRATION TRENCH TREATMENT DEVICES THAT ARE GOING TO BE COMPENSATORY TREATED. THE MUSIC MODEL HAS INCLUDED THE 145M² OF THE BYPASS HOWEVER IN REALITY THE ROAD AREA TREATED BY THIS SYSTEM WOULD BE CLOSER TO 220M².

FOR LEGEND, REFER SHEET 1

CONTINUES ON SHEET 1

EXISTING STORMWATER PIT TO BE REMOVED

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

REDUNDANT DRAINAGE LINE TO BE REMOVED AND STORMWATER PIT TO BE REPAIRED AND SPARGED

EXISTING STORMWATER LINE TO BE MAINTAINED IF FEASIBLE , ALTERNATIVELY NEW LINE TO BE CONSTRUCTED AS SHOWN,TO BE CONFIRMED AT CC STAGE

STRUCTURAL WALLS AT R... BUILDINGS INDICATIVE ONLY SUBJECT TO FUTURE DETAILED DESIGN (TYP)

RIDGEVIEW DRIVE

ANGEL CLOSE

OCEANGUARD PIT INSERT INSTALLED WITHIN PIT

EXISTING RETAINING WALL TO BE RETAINED. DETAILS TO BE PROVIDED AT CC STAGE

BLOCKOUTS PROVIDED IN RETAINING WALL TO ALLOW WATER TO FLOW TO ADJACENT DRIVEWAY

OVERFLOW FROM RAINWATER REUSE TANKS TO BE DIRECTED TO MAIN DRAINAGE LINE. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING KERB INLET PIT TO BE REMOVED AND REPLACED WITH ROLL KERB GRATE AND ASSOCIATED KERBING. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING DRAINAGE LINE CAPACITY TO BE ASSESSED AT DETAILED DESIGN STAGE AND BE UPGRADED AS REQUIRED

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

STREET FACING ROOF TO BYPASS RAINWATER TANKS AND DISCHARGE INTO STREET DRAINAGE NETWORK. DETAILS TO PROVIDED AT CC STAGE (TYPICAL)

GRADE LANDSCAPING TOWARDS PROPOSED PIT

LANDSCAPING TO BE SHAPED TOWARDS NEAREST DOWNSTREAM STORMWATER PIT

19m³ OSD TANK (24m² x 0.8m) WITH ORIFICE PLATE - Ø250 AT BASE OF TANK, HIGH FLOW WEIR AT 0.60m ABOVE BASE OF TANK. WQ CHAMBER 3m² WITH 6 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

CONTINUES ON SHEET 3

357.77 sq m	26.52 sq m
978.28 sq m	
343.38 sq m	359.17 sq m
107.79 sq m	179.79 sq m
292.77 sq m	
1,897.09 sq m	
782.05 sq m	
371.51 sq m	
225.23 sq m	323.07 sq m
240.31 sq m	332.27 sq m
1,989.54 sq m	
466.07 sq m	1,288.11 sq m
234.85 sq m	
237.78 sq m	
281.66 sq m	35.49 sq m
144.52 sq m	14.07 sq m
126.51 sq m	
114.77 sq m	486.06 sq m
578.03 sq m	229.53 sq m
485.78 sq m	365.72 sq m
71.01 sq m	
39.95 sq m	141.85 sq m
212.5 sq m	224.86 sq m
1,301.81 sq m	
357 sq m	543.71 sq m

i1 i2 i3 i4 i5 b1 b2 b3 b4 b5 osd1

17.90

OSD/ WQ

FFL 7.80

FFL 9.259

SW PIT

exSW PIT

DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVERDEN / B. WARD
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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CLIENT
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ARCHITECT
EJE architecture

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SCALE 1:200 @ A1

0 2 4 6 8 10m

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
MUSIC CATCHMENT PLAN

JOB NUMBER **NL221140**

DRAWING NUMBER **RFIC02.02**

REVISION **1**

DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON SHEET 2

NEW DRIVEWAY TO RENOVATED CABIN

EXISTING STRUCTURES TO BE LIFTED TO FACILITATE CARPARKING BENEATH BUILDING. EXISTING DRAINAGE REGIME TO BE MAINTAINED

UPRIGHT KERB/WALL TO BE PROVIDE AT CC STAGE AS REQUIRED TO ACCOUNT FOR ANY LEVELS DIFFERENCE TO BOUNADRY

EXISTING PIT AND PIPE NETWORK TO BE DEMOLISHED

FFL 9.259
FFL 7.80
FFL 9.340
FFL 8.105
FFL 7.555
FFL 7.566
FFL 7.20
FFL 9.265

40.75 sq m
18.6 sq m
18.66 sq m
19.26 sq m
29.87 sq m
306.35 sq m
96.43 sq m

eRL 8.25 (APPROX)
eRL 7.16 (APPROX)
eRL 8.98 (APPROX)
eRL 8.95 (APPROX)

RIDGEVIEW DRIVE

exSW PIT 5
CL 6.87
IL 6.18

exSW PIT 4
CL 6.58
IL 5.88

exSW PIT 3
CL 5.98
IL 5.31

exSW PIT 2
CL 5.23
IL 5.23

exSW PIT 8
CL 5.75
IL 5.26

exSW PIT 1
CL 5.80
IL 5.17

CONNECT TO EXISTING STORMWATER PIT. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING STORMWATER PIPE TO BE UPSIZED. DETAILS TO BE PROVIDED AT CC STAGE

WQ CHAMBER 2m² WITH 2 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

CONNECT TO EXISTING NETWORK BUILDING

ROAD NOT TAKEN AS PART OF MUSIC MODELING AS IT IS EXISITNG ROAD THAT IS TO BE RESEALED.

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

WQ

SW PIT CL 9.20
SW PIT CL 8.10
SW PIT CL 7.70
SW PIT CL 6.45
SW PIT CL 8.50
SW PIT CL 8.10

osd2
211.28 sq m
26.38 sq m
osd3
95.87 sq m
FFL 7.98
FFL 7.78
25.94 sq m
osd4
96.31 sq m
FFL 7.35
FFL 7.15

RWT WITH 5KL REUSE VOLUME AND 6KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

REMOVE EXISTING STORMWATER NETWORK UNDER PROPOSED BUILDING

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

FLEET STREET

DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVERDEN/ B. WARD
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER:

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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CLIENT
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SCALE 1:200 @ A1 (0 2 4 6 8 10m)

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
MUSIC CATCHMENT PLAN

JOB NUMBER **NL221140**
DRAWING NUMBER **RFIC02.03**
REVISION **1**
DRAWING SHEET SIZE = A1

PORT STEPHENS COUNCIL

music@link

MUSIC-*link* Report

Project Details		Company Details	
Project:	NL221140	**Company:**	Northrop Consulting Engineers
Report Export Date:	4/04/2025	**Contact:**	Thomas van Koeverden
Catchment Name:	NL221140 - DA MUSIC Model [2]	**Address:**	215 Pacific Highway, Charlestown, NSW 2290
Catchment Area:	1.011ha	**Phone:**	49431777
Impervious Area*:	80.06%	**Email:**	tvkoeverden@northrop.com.au
Rainfall Station:	WILLIAMTOWN RAAF - Station 061078 - Zone D		
Modelling Time-step:	6 Minutes		
Modelling Period:	1/01/1998 - 31/12/2007 11:54:00 PM		
Mean Annual Rainfall:	1351mm		
Evapotranspiration:	1394mm		
MUSIC Version:	6.3.0		
MUSIC-link data Version:	6.35		
Study Area:	Seaham		
Scenario:	Default Catchment - Sandy soils		

* 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**
Flow	20.1%	Rain Water Tank Node	4	Urban Source Node	16
TSS	91.5%	Sedimentation Basin Node	3		
TP	75.1%	Buffer Node	3		
TN	66.3%	Generic Node	4		
GP	93.8%	GPT Node	3		

Comments

Proprietary nodes used in accordance with manufacturers recommended inputs.

Passing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Buffer	Buffer	Proportion of upstream impervious area treated	None	None	1
Buffer	Buffer	Proportion of upstream impervious area treated	None	None	1
Buffer	Buffer	Proportion of upstream impervious area treated	None	None	1
GPT	1 x OceanGuard (SQIDEP)	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x OceanGuard (SQIDEP)	Hi-flow bypass rate (cum/sec)	None	99	0.02
GPT	1 x OceanGuard (SQIDEP)	Hi-flow bypass rate (cum/sec)	None	99	0.02
Post	Post-Development Node	% Load Reduction	None	None	20.1
Post	Post-Development Node	GP % Load Reduction	90	None	93.8
Post	Post-Development Node	TN % Load Reduction	45	None	66.3
Post	Post-Development Node	TP % Load Reduction	60	None	75.1
Post	Post-Development Node	TSS % Load Reduction	90	None	91.5
Rain	11 x Rainwater Tank (4KL PER UNIT)	% Reuse Demand Met	None	None	33.46
Rain	14 x Rainwater Tank (4KL PER UNIT)	% Reuse Demand Met	None	None	50.34
Rain	3 X Rainwater Tank (5KL)	% Reuse Demand Met	None	None	33.1893
Rain	4 x Rainwater Tank (4KL PER UNIT)	% Reuse Demand Met	None	None	42.96
Sedimentation	SF Chamber 3m◆ [OSD 1]	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber 3m◆ [OSD 1]	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF Chamber 5m◆	% Reuse Demand Met	None	None	0
Sedimentation	SF Chamber 5m◆	High Flow Bypass Out (ML/yr)	None	None	0
Sedimentation	SF PRECAST 1200x1200 PIT	% Reuse Demand Met	None	None	0
Sedimentation	SF PRECAST 1200x1200 PIT	High Flow Bypass Out (ML/yr)	None	None	0
Urban	LANDSCAPING TO BYPASS	Area Impervious (ha)	None	None	0.029
Urban	LANDSCAPING TO BYPASS	Area Pervious (ha)	None	None	0.098
Urban	LANDSCAPING TO BYPASS	Total Area (ha)	None	None	0.128
Urban	LANDSCAPING TO INFILTRATION TRENCH	Area Impervious (ha)	None	None	0.145
Urban	LANDSCAPING TO INFILTRATION TRENCH	Area Pervious (ha)	None	None	0.016
Urban	LANDSCAPING TO INFILTRATION TRENCH	Total Area (ha)	None	None	0.162
Urban	LANDSCAPING TO OSD	Area Impervious (ha)	None	None	0.028
Urban	LANDSCAPING TO OSD	Area Pervious (ha)	None	None	0.081
Urban	LANDSCAPING TO OSD	Total Area (ha)	None	None	0.11
Urban	NEW ADDITIONS TO EXISITNG UNITS	Area Impervious (ha)	None	None	0.026
Urban	NEW ADDITIONS TO EXISITNG UNITS	Area Pervious (ha)	None	None	0.004
Urban	NEW ADDITIONS TO EXISITNG UNITS	Total Area (ha)	None	None	0.031
Urban	NEW CARPARK	Area Impervious (ha)	None	None	0.003
Urban	NEW CARPARK	Area Impervious (ha)	None	None	0.003
Urban	NEW CARPARK	Area Pervious (ha)	None	None	0
Urban	NEW CARPARK	Area Pervious (ha)	None	None	0
Urban	NEW CARPARK	Total Area (ha)	None	None	0.003
Urban	NEW CARPARK	Total Area (ha)	None	None	0.003
Urban	ROAD TO BYPASS	Area Impervious (ha)	None	None	0.014

Only certain parameters are reported when they pass validation

Node Type	Node Name	Parameter	Min	Max	Actual
Urban	ROAD TO BYPASS	Area Pervious (ha)	None	None	0
Urban	ROAD TO BYPASS	Total Area (ha)	None	None	0.014
Urban	ROAD TO INFILTATION	Area Impervious (ha)	None	None	0.078
Urban	ROAD TO INFILTATION	Area Pervious (ha)	None	None	0
Urban	ROAD TO INFILTATION	Total Area (ha)	None	None	0.078
Urban	ROAD TO OSD	Area Impervious (ha)	None	None	0.018
Urban	ROAD TO OSD	Area Pervious (ha)	None	None	0
Urban	ROAD TO OSD	Total Area (ha)	None	None	0.018
Urban	ROOF [OSD 2]	Area Impervious (ha)	None	None	0.021
Urban	ROOF [OSD 2]	Area Pervious (ha)	None	None	0
Urban	ROOF [OSD 2]	Total Area (ha)	None	None	0.021
Urban	ROOF [OSD 3]	Area Impervious (ha)	None	None	0.01
Urban	ROOF [OSD 3]	Area Pervious (ha)	None	None	0
Urban	ROOF [OSD 3]	Total Area (ha)	None	None	0.01
Urban	ROOF [OSD 4]	Area Impervious (ha)	None	None	0.01
Urban	ROOF [OSD 4]	Area Pervious (ha)	None	None	0
Urban	ROOF [OSD 4]	Total Area (ha)	None	None	0.01
Urban	ROOF TO BYPASS	Area Impervious (ha)	None	None	0.057
Urban	ROOF TO BYPASS	Area Pervious (ha)	None	None	0
Urban	ROOF TO BYPASS	Total Area (ha)	None	None	0.057
Urban	ROOF TO INFILTRATION TRENCH	Area Impervious (ha)	None	None	0.057
Urban	ROOF TO INFILTRATION TRENCH	Area Pervious (ha)	None	None	0
Urban	ROOF TO INFILTRATION TRENCH	Total Area (ha)	None	None	0.057
Urban	ROOF TO OSD TANK	Area Impervious (ha)	None	None	0.071
Urban	ROOF TO OSD TANK	Area Pervious (ha)	None	None	0
Urban	ROOF TO OSD TANK	Total Area (ha)	None	None	0.071
Urban	ROOF TO RWT / INFILTRATION TRENCH	Area Impervious (ha)	None	None	0.238
Urban	ROOF TO RWT / INFILTRATION TRENCH	Area Pervious (ha)	None	None	0
Urban	ROOF TO RWT / INFILTRATION TRENCH	Total Area (ha)	None	None	0.238

Only certain parameters are reported when they pass validation

Failing Parameters

Node Type	Node Name	Parameter	Min	Max	Actual
Sedimentation	SF Chamber 3m◆ [OSD 1]	Notional Detention Time (hrs)	8	12	0.043
Sedimentation	SF Chamber 3m◆ [OSD 1]	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber 3m◆ [OSD 1]	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber 3m◆ [OSD 1]	Total Suspended Solids - k (m/yr)	8000	8000	1
Sedimentation	SF Chamber 5m◆	Notional Detention Time (hrs)	8	12	0.0432
Sedimentation	SF Chamber 5m◆	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF Chamber 5m◆	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF Chamber 5m◆	Total Suspended Solids - k (m/yr)	8000	8000	1
Sedimentation	SF PRECAST 1200x1200 PIT	Notional Detention Time (hrs)	8	12	0.0757
Sedimentation	SF PRECAST 1200x1200 PIT	Total Nitrogen - k (m/yr)	500	500	1
Sedimentation	SF PRECAST 1200x1200 PIT	Total Phosphorus - k (m/yr)	6000	6000	1
Sedimentation	SF PRECAST 1200x1200 PIT	Total Suspended Solids - k (m/yr)	8000	8000	1

Only certain parameters are reported when they pass validation

(A) – EASEMENT FOR TOWN WATER SUPPLY OVER EXISTING LINE OF PIPES (APPROX POSITION) (VIDE DP839815)
(B) – EASEMENT TO DRAIN SEWAGE OVER EXISTING LINE OF PIPES (APPROX POSITION) (VIDE DP839815)
(C) – EASEMENT FOR GAS SERVICE OVER EXISTING LINE OF PIPES. (VIDE DP839815)
(D) – EASEMENT FOR GAS STORAGE TANK 2.1 WIDE. (VIDE DP839815)
(E) – RIGHT OF WAY VARIABLE WIDTH. (VIDE DP839815)
(F) – EASEMENT FOR SERVICES 1, 2 & 3.3 WIDE. (VIDE DP839815)
(G) – EASEMENT FOR WATER SUPPLY 2 & 2.5 WIDE. (VIDE DP839815)
(H) – EASEMENT FOR ELECTRICITY METER VARIABLE WIDTH. (VIDE DP839815)
(J) – EASEMENT FOR SEWAGE PUMP VARIABLE WIDTH. (VIDE DP839815)

(R) – EASEMENT FOR ROOF DRAINAGE AND GUTTER 0.2 WIDE (DP285191)
(S) – EASEMENT FOR SUPPORT 0.2 WIDE (DP285191)
(W) – RIGHT OF WAY VARIABLE WIDTH (DP285191)

MGA GRID NORTH

INFILTRATION CATCHMENT

3,036.64 sq m

RL19.00

118.29 m

4,211.98 sq m

SOUTH 1 CATCHMENT

1,302.22 sq m

SOUTH 1 CATCHMENT

RL10.55

REFER TO RFIC04.02 FOR DETAILED BREAKDOWN OF SOUTH 2 CATCHMENT

EXISTING BOUNDARIES
PROPOSED DEVELOPMENT LOT
PROPOSED BOUNDARY ADJUSTMENTS
PROPOSED NEW BOUNDARY
EXISTING EASEMENTS (DP839815)
EXISTING EASEMENTS (DP285191)
PROPOSED EASEMENTS (DP285191)

LEGEND

- TO INFILTRATION TRENCH
- SOUTH 1 CATCHMENT
- SOUTH 2 CATCHMENT

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		TVK	07.04.26

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SCALE @ A1

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
DRAINS PREDEVEOPED CATCHMENT PLAN

JOB NUMBER
NL229999

DRAWING NUMBER
RFIC04.01

REVISION
1

DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON PREVIOUS PAGE

CONTINUES ON SHEET 2

NEW DRIVEWAY TO RENOVATED CABIN

81.11 sq m

FFL 9.259

FFL 7.80

eRL 8.98 (APPROX)

eRL 8.95 (APPROX)

eRL 7.16 (APPROX)

EXISTING STRUCTURES TO BE LIFTED TO FACILITATE CARPARKING BENEATH BUILDING. EXISTING DRAINAGE REGIME TO BE MAINTAINED

UPRIGHT KERB/WALL TO BE PROVIDE AT CC STAGE AS REQUIRED TO ACCOUNT FOR ANY LEVELS DIFFERENCE TO BOUNADRY

EXISTING PIT AND PIPE NETWORK TO BE DEMOLISHED

FFL 9.340

FFL 8.105

FFL 7.555

FFL 7.566

FFL 9.265

FFL 7.20

40.75 sq m

18.6 sq m

18.66 sq m

19.26 sq m

29.87 sq m

96.33 sq m

SOUTH 2 CATCHMENT

1,376.17 sq m

788.73 sq m

211.28 sq m

95.87 sq m

96.31 sq m

FFL 7.98

FFL 7.78

FFL 7.35

FFL 7.15

RWT WITH 5KL REUSE VOLUME AND 6KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

REMOVE EXISTING STORMWATER NETWORK UNDER PROPOSED BUILDING

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

CONNECT TO EXISTING STORMWATER PIT. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING STORMWATER PIPE TO BE UPSIZED. DETAILS TO BE PROVIDED AT CC STAGE

WQ CHAMBER 2m² WITH 2 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

CONNECT TO EXISTING NETWORK BUILDING

exSW PIT 5 CL 6.87 IL 6.18

exSW PIT 4 CL 6.58 IL 5.88

exSW PIT 3 CL 5.98 IL 5.31

exSW PIT 2 CL 5.96 IL 5.23

exSW PIT 8 CL 5.94 IL 5.26

exSW PIT 1 CL 5.80 IL 5.17

RIDGEVIEW DRIVE

FLEET STREET

LEGEND

- TO INFILTRATION TRENCH
- SOUTH 1 CATCHMENT
- SOUTH 2 CATCHMENT

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR INFORMATION	JK		TVK	07.04.25

DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVERDEN/ B. WARD
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER:

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SCALE 1:200 @ A1

0 2 4 6 8 10m

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PROJECT
WANDA BEACH ESTATE FLEET STREET, SALAMANDER BAY NSW 2317

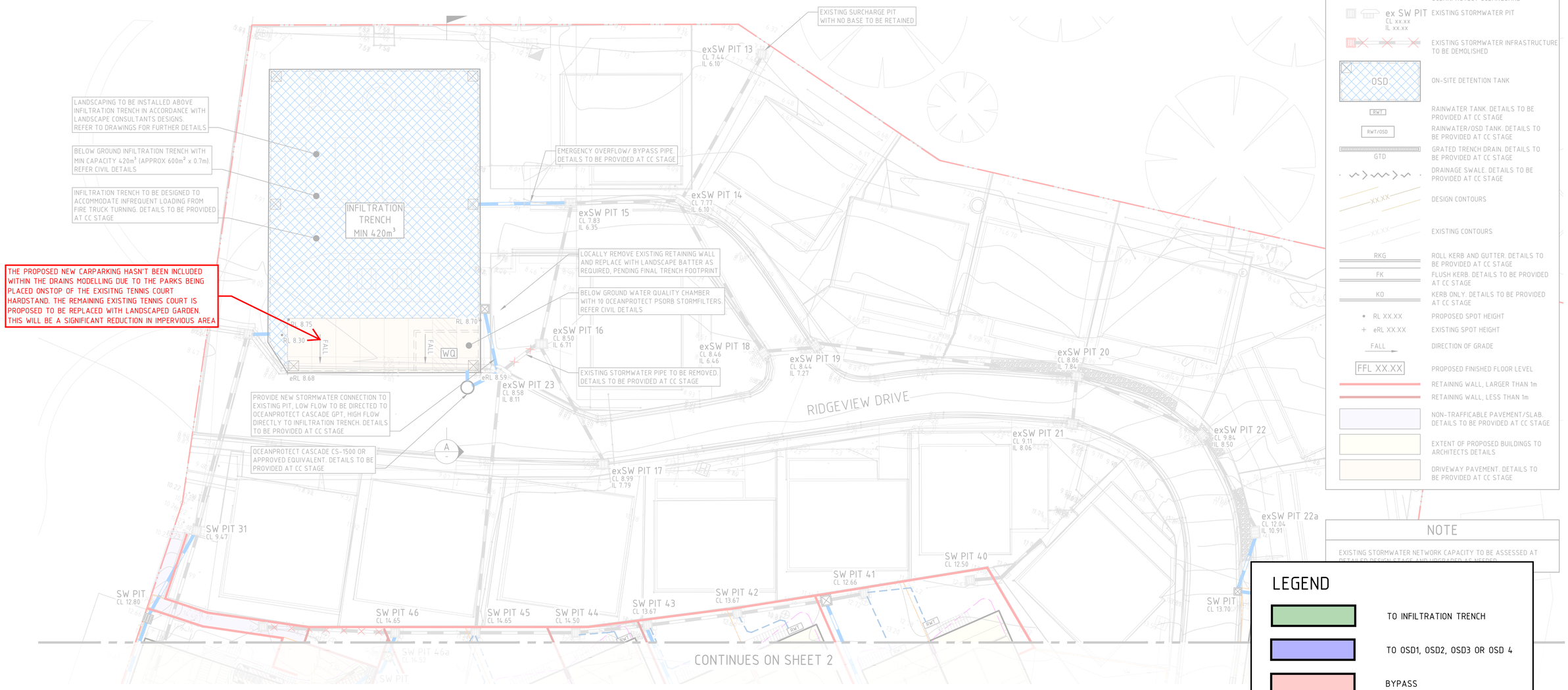
DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DRAINS PREDEVEOPED CATCHMENT PLAN

JOB NUMBER **NL221140**

DRAWING NUMBER **RFIC04.02**

REVISION **1**

DRAWING SHEET SIZE = A1



LEGEND

- SITE BOUNDARY LINE
- EXISTING BOUNDARY LINE
- PROPOSED LOT BOUNDARY LINE
- LINE OF BUILDING ABOVE
- CB — PROPOSED CRASH BARRIER
- PROPOSED STORMWATER PIPE
- EXISTING STORMWATER PIPE
- EXTENT OF ITEMS TO BE DEMOLISHED
- RAINWATER TANK DISCHARGE PIPE
- SW PIT CL xx.xx — PROPOSED STORMWATER PIT AND TAG COVER LEVEL / INVERT LEVEL
- PROPOSED JUNCTION PIT. DETAILS TO BE PROVIDED AT CC STAGE
- PROPOSED STORMWATER PIT WITH OCEANPROTECT OCEANGUARD
- ex SW PIT CL xx.xx IL xx.xx — EXISTING STORMWATER PIT
- EXISTING STORMWATER INFRASTRUCTURE TO BE DEMOLISHED
- OSD — ON-SITE DETENTION TANK
- RWT — RAINWATER TANK. DETAILS TO BE PROVIDED AT CC STAGE
- RWT/OSD — RAINWATER/OSD TANK. DETAILS TO BE PROVIDED AT CC STAGE
- GTD — GRATED TRENCH DRAIN. DETAILS TO BE PROVIDED AT CC STAGE
- DRAINAGE SWALE. DETAILS TO BE PROVIDED AT CC STAGE
- XX.XX — DESIGN CONTOURS
- XX.XX — EXISTING CONTOURS
- RKG — ROLL KERB AND GUTTER. DETAILS TO BE PROVIDED AT CC STAGE
- FK — FLUSH KERB. DETAILS TO BE PROVIDED AT CC STAGE
- KO — KERB ONLY. DETAILS TO BE PROVIDED AT CC STAGE
- RL XX.XX — PROPOSED SPOT HEIGHT
- eRL XX.XX — EXISTING SPOT HEIGHT
- FALL — DIRECTION OF GRADE
- FFL XX.XX — PROPOSED FINISHED FLOOR LEVEL
- RETAINING WALL, LARGER THAN 1m
- RETAINING WALL, LESS THAN 1m
- NON-TRAFFICABLE PAVEMENT/SLAB. DETAILS TO BE PROVIDED AT CC STAGE
- EXTENT OF PROPOSED BUILDINGS TO ARCHITECTS DETAILS
- DRIVEWAY PAVEMENT. DETAILS TO BE PROVIDED AT CC STAGE

NOTE

EXISTING STORMWATER NETWORK CAPACITY TO BE ASSESSED AT DETAILED DESIGN STAGE AND UPGRADED AS NEEDED

LEGEND

- TO INFILTRATION TRENCH
- TO OSD1, OSD2, OSD3 OR OSD 4
- BYPASS

DRAWN: J.KNIGHT
DESIGNED: T. VAN KOEVERDEN/ B. WARD
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DRAINS CATCHMENT PLAN

JOB NUMBER
NL221140

DRAWING NUMBER
RFIC03.01

REVISION
1

DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON SHEET 1

EXISTING STORMWATER PIT TO BE REMOVED

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

REDUNDANT DRAINAGE LINE TO BE REMOVED AND STORMWATER PIT TO BE REPAIRED AND SPARGED

EXISTING STORMWATER LINE TO BE MAINTAINED IF FEASIBLE , ALTERNATIVELY NEW LINE TO BE CONSTRUCTED AS SHOWN,TO BE CONFIRMED AT CC STAGE

STRUCTURAL WALLS AT REAR OF BUILDINGS INDICATIVE ONLY SUBJECT TO FUTURE DETAILED DESIGN (TYP)

OCEANGUARD PIT INSERT INSTALLED WITHIN PIT

EXISTING RETAINING WALL TO BE RETAINED. DETAILS TO BE PROVIDED AT CC STAGE

BLOCKOUTS PROVIDED IN RETAINING WALL TO ALLOW WATER TO FLOW TO ADJACENT DRIVEWAY

OVERFLOW FROM RAINWATER RETAIN TANKS TO BE DIRECTED TO STORM DRAINAGE LINE. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING KERB INLET PIT TO BE REMOVED AND REPLACED WITH ROLL KERB GRATE AND ASSOCIATED KERBING. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING DRAINAGE LINE CAPACITY TO

PROVIDE PROPRIETARY CRASH BARRIER 'CB' AT ROAD WALL INTERFACE. DETAILS TO BE PROVIDED AT CC STAGE

STREET FACING ROOF TO BYPASS RAINWATER TANKS AND DISCHARGE INTO STREET DRAINAGE NETWORK. DETAILS TO PROVIDED AT CC STAGE (TYPICAL)

GRADE LANDSCAPING TOWARDS PROPOSED PIT

LANDSCAPING TO BE SHAPED TOWARDS NEAREST DOWNSTREAM STORMWATER PIT

19m³ OSD TANK (24m² x 0.8m) WITH ORIFICE PLATE - Ø250 AT BASE OF TANK, HIGH FLOW WEIR AT 0.60m ABOVE BASE OF TANK. WQ CHAMBER 3m² WITH 6 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

ANGEL CLOSE

RIDGEVIEW DRIVE

i1 978.28 sq m

i2 1,897.09 sq m

i3 782.05 sq m

i4 371.51 sq m

i5 578.03 sq m

426.52 sq m

359.17 sq m

323.07 sq m

1,288.12 sq m

486.06 sq m

485.78 sq m

b1 281.66 sq m

35.49 sq m

144.52 sq m

b2

b3 126.51 sq m

b4 1,301.81 sq m

224.86 sq m

543.71 sq m

b5 141.85 sq m

39.95 sq m

osd1 1,989.54 sq m

TO OSD 1

71.01 sq m

332.27 sq m

292.77 sq m

17.90

OSD/ WQ

CONTINUES ON SHEET 3

LEGEND

- TO INFILTRATION TRENCH
- TO OSD1, OSD2, OSD3 OR OSD 4
- BYPASS

NOT FOR CONSTRUCTION

JOB MANAGER: T. VAN KOEVERDEN
VERIFIER:
DESIGNED: T. VAN KOEVERDEN/ B. WARD
DRAWN: J.KNIGHT

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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SCALE 1:200 @ A1

0 2 4 6 8 10m

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PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DRAINS CATCHMENT PLAN

JOB NUMBER **NL221140**

DRAWING NUMBER **RFIC03.02**

REVISION **1**

DRAWING SHEET SIZE = A1

FOR LEGEND, REFER SHEET 1

CONTINUES ON PREVIOUS PAGE

CONTINUES ON SHEET 2

NEW DRIVEWAY TO RENOVATED CABIN

EXISTING STRUCTURES TO BE LIFTED TO FACILITATE CARPARKING BENEATH BUILDING. EXISTING DRAINAGE REGIME TO BE MAINTAINED

UPRIGHT KERB/WALL TO BE PROVIDE AT CC STAGE AS REQUIRED TO ACCOUNT FOR ANY LEVELS DIFFERENCE TO BOUNADRY

EXISTING PIT AND PIPE NETWORK TO BE DEMOLISHED

RIDGEVIEW DRIVE

FFL 9.259
FFL 7.80
FFL 9.340
FFL 8.105
FFL 7.555
FFL 7.566
FFL 7.20
FFL 9.265

40.75 sq m
18.6 sq m
18.66 sq m
19.26 sq m
29.87 sq m
96.33 sq m
1,376.17 sq m
788.73 sq m
b6
211.28 sq m
osd2
95.87 sq m
osd3
96.31 sq m
osd4

eRL 8.98 (APPROX)
eRL 8.95 (APPROX)
eRL 7.16 (APPROX)

SW PIT CL 9.20
SW PIT CL 8.10
SW PIT CL 7.70
SW PIT CL 6.45
SW PIT CL 8.50
SW PIT CL 8.10
WQ
OSD/ WQ

exSW PIT 5
CL 6.87
IL 6.18

exSW PIT 4
CL 6.58
IL 5.88

exSW PIT 3
CL 5.98
IL 5.31

exSW PIT 2
CL 5.96
IL 5.23

exSW PIT 8
CL 5.94
IL 5.26

exSW PIT 1
CL 5.80
IL 5.17

CONNECT TO EXISTING STORMWATER PIT. DETAILS TO BE PROVIDED AT CC STAGE

EXISTING STORMWATER PIPE TO BE UPSIZED. DETAILS TO BE PROVIDED AT CC STAGE

WQ CHAMBER 2m² WITH 2 x FULL HEIGHT PSORB STORMFILTERS. DETAILS TO BE PROVIDED AT CC STAGE

CONNECT TO EXISTING NETWORK BUILDING

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

RWT WITH 5KL REUSE VOLUME AND 6KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

REMOVE EXISTING STORMWATER NETWORK UNDER PROPOSED BUILDING

RWT WITH 5KL REUSE VOLUME AND 3KL DETENTION. CONNECT ALL DOWNPIPES TO TANK. REFER TO DETAILS FOR CONFIGURATION

FLEET STREET

LEGEND

- TO INFILTRATION TRENCH
- TO OSD1, OSD2, OSD3 OR OSD 4
- BYPASS

NOT FOR CONSTRUCTION

DESIGNED: T. VAN KOEVERDEN
DRAWN: J.KNIGHT
JOB MANAGER: T. VAN KOEVERDEN
VERIFIER: B. WARD

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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0 2 4 6 8 10m

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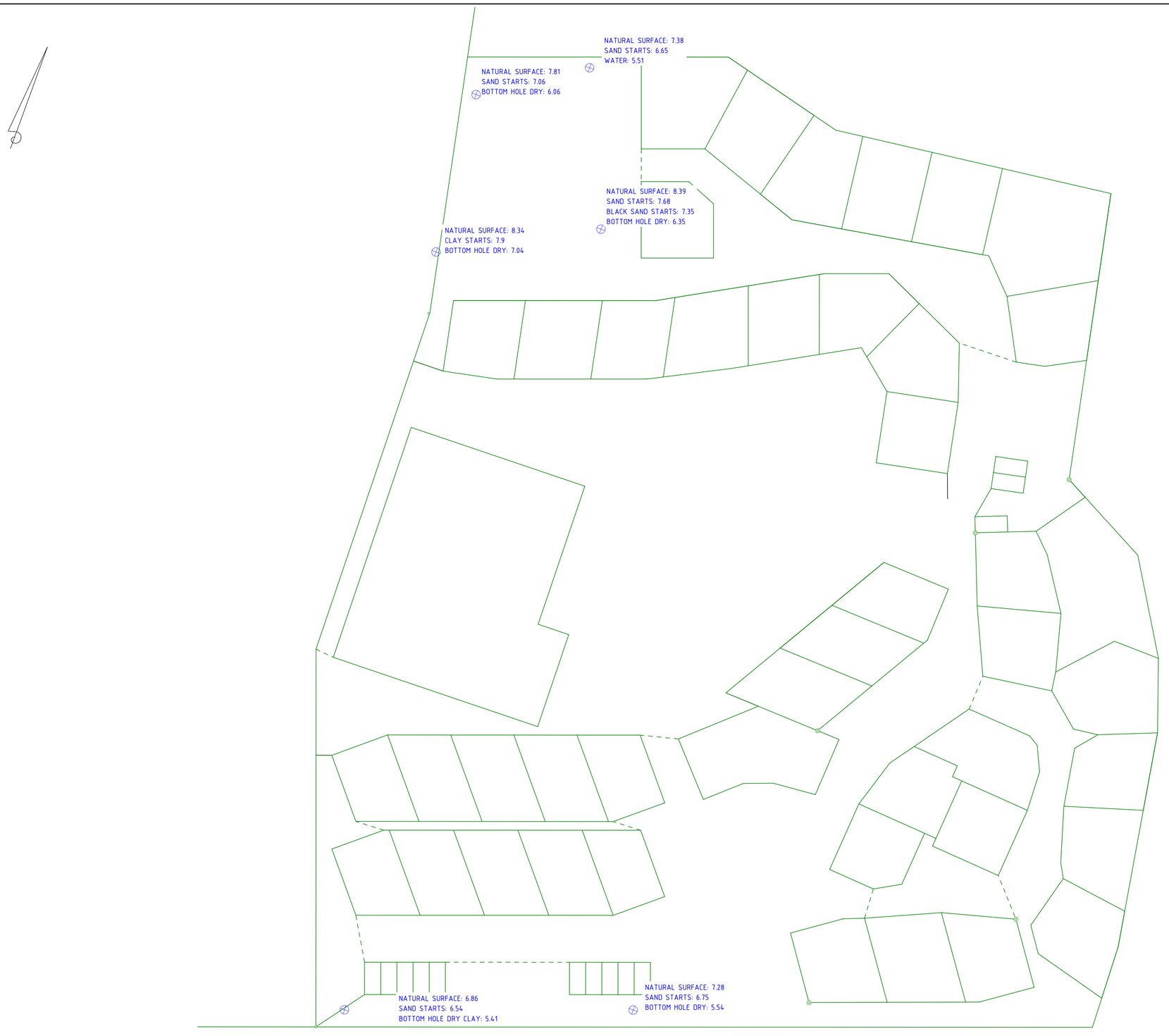
PROJECT
WANDA BEACH ESTATE
FLEET STREET, SALAMANDER BAY
NSW 2317

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DRAINS CATCHMENT PLAN

JOB NUMBER **NL221140**
DRAWING NUMBER **RFIC03.03**
REVISION **1**
DRAWING SHEET SIZE = A1



LEVELS AND LOCATION DATA WERE RECORDED VIA GNSS RTK SURVEY

David Cant
SURVEYORS
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Unit 3 479 High St
PO Box 418
MAITLAND NSW 2320
Ph (02) 4934 5011
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0 4 8 12 16 20 40
SCALE 1:400 (A1)
1:800 (A3)

PLAN

DATUM AHD
SSM 68070 @ RL 6.016 SCIMS 18/07/2022

SURVEYED BY	BM
SURVEYED ON	21/02/2023
DESIGNED	-
DRAWN	MB
PASSED	D CANT

REV	AMENDMENTS	BY	DATE

L.G.A.	PORT STEPHENS
LOCALITY	SALAMANDER BAY
PARISH	TOMAREE
COUNTY	GLOUCESTER

PROJECT	TEST PITS UPON DP258191
LOCATION	4 FLEET ST, SALAMANDER BAY
CLIENT	Colonial Ridge Resort

SHEET No. 1 of 1
Revision 0
SURVEYOR'S REF 21-99 Salamander Bay