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CIVIL STORMWATER MANAGEMENT PLAN

38 Pacific Highway, St Leonards

Prepared for Tonkin Zulaikha Greer

233364-01

Revision [A]

28 March 2025

1. Introduction

Northrop Consulting Engineers Pty Ltd has been engaged to undertake the conceptual stormwater management design on behalf of Edsgear Pty Ltd support of a Development Application for a commercial development, at 28-38 Pacific Highway, St Leonards. The subject site is contained within Lots A and B in DP418201, Lot D in DP419248, and Lot 1 DP746012.

The purpose of this report is to summarise the proposed design solutions for the stormwater management for a Development Application submission to Lane Cove Council. The proposed design has been considered with regard to the Lane Cove Council DCP 2010, in particular Part O – Stormwater Management as well as industry best practice.

We note the information contained in this report is not intended to present detailed design solutions but rather provide solutions commensurate with a conceptual design suitable for Development Application assessment.

2. Site Description

The subject site is bound by the Pacific highway to the north, existing residential development to the east, Marshall Lane to the south, and existing commercial development to the west. The site falls towards the south with levels ranging from approximately 79.00m AHD to 74.00m AHD

Figure 1 presents an aerial overview of the site in its existing state.

Figure 1 - Areial Image of Site (Obtained from Sixmaps)

3. Proposed Development

The proposed development consists of a commercial development comprising of the following:

- Two levels of basement carparking
- Ground floor and mezzanine level with commercial/retail GFA
- Proposed Hotel with 8 stories.

For detailed information of the proposed development layout, refer to the architectural drawings prepared by Tonkin Zulaikha Greer Architects.

4. Proposed Stormwater Management Strategy

4.1 General Strategy

The onsite 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 Part O – Stormwater Management of Lane Cove DCP, the stormwater management strategy has considered the following items which will be discussed in the following sections of this report:

- Onsite detention;
- Rainwater Harvesting & Reuse;
- Flood Risk Management;
- Local overland drainage;
- Stormwater quality and pollution control.

4.2 Onsite Detention

In accordance with Lane Cove DCP, on-site detention will be required to limit post development flows from the proposed development site to less than or equal to pre-development flows for storm events from the 20% AEP to the 1% AEP storm events and to limit the post development peak flow to less then or equal to the determined Permissible Site Discharge (PSD) for all storm events up to the 1% AEP storm. The permissible runoff from the proposed development was modelled using the runoff routing software DRAINS incorporating an on-site detention facility. This was compared to the pre-developed site in its existing state with an impervious percentage of 100%.

An initial and continuing losses (IL/CL) hydrological model was developed in the runoff routing software DRAINS to generate hydrographs for the subject site in the predeveloped and post developed condition. Rainfall data from the bureau of meteorology was used to generate design storms in combination with the parameters as shown below:

- Total catchment area = 1,235 m^2
- Pre-developed fraction impervious = 100%
- Post-developed fraction impervious = 92% (1,135m^2)
- Pre-developed time of concentration = 5 mins
- Post-developed time of concentration = 5 mins
- OSD bypass catchment area = 284 m^2

The permissible site discharge was calculated in accordance with Section 7.4 as followed:

$$PSD = 0.014(E)^{-1.37}$$

Where,

E = (Total Impervious Area + New impervious area bypassing the storage facility) / Total Impervious Area

= 1.30

Therefore, the PSD was calculated to be 10L/s.

Storm durations ranging from 5 mins to 180mins were analysed.

It is proposed that a below ground OSD tank with 69.5kl storage volume is provided for the development. A ø56mm orifice control outlet is proposed to limit the flow rate from the tank along with a high-level overflow pipe providing redundant relief in the event of blockage. A surface surcharge pit is also located outside the extents of building as a relief point for in the rare event of blockage of outlet both pipes. Any surcharge from this grate is then directed towards the Pacific Highway frontage.

A DRAINS model can be provided upon request. A screenshot of the DRAINS model for is displayed in Figure 2.

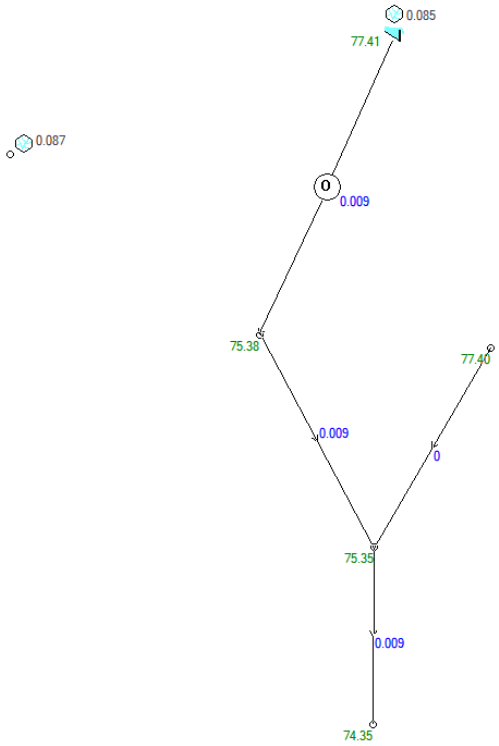

Figure 2: DRAINS Model Schematic

A comparison between the pre-development and post-development flows from the site for the critical storm duration for each of the design storm events, up to and including the 1% AEP is presented in Table 1.

Table 1: DRAINS output comparing pre-development and post-development flows.

AEP	Pre-Developed Peak Flow (L/s)	Post-Developed Peak Flow No OSD (L/s)	Permissible Site Discharge (L/s)	Post-Developed Peak Flow with OSD (L/s)
1%	87	85	10	9
2%	78	75	10	9
5%	67	64	10	8
10%	58	56	10	7
20%	50	47	10	6

As shown in **Table 1**, the peak post-development flows for storm events up to the 100-year ARI have been detained to less than that for the pre-development site and PSD. Confirming the OSD provided will achieve the design intent to limit post-development flows to that of the pre-development state.

4.3 Rainwater Reuse & Harvesting

The objective of O.6 Rainwater Tanks of the DCP is to ensure that proposed rainwater tanks are designed such that they are to not materially impact on the environment and amenity of the neighbourhood and to encourage water conservation.

Given the proposed layout of the development, the catchment area for 'roof only' areas are relatively small, as most of the site footprint consists of balcony and podium spaces. As such a below ground rainwater tank of 5kL has been proposed which is incorporated as part of the OSD tank structure. The tank will capture the runoff from the roof areas with the harvested water to be reused for irrigation purposes only.

4.4 Flood Risk Management

Engineering Officers from Lane Cove Council provided verbal confirmation via a phone conversation that the subject site is not flood impacted.

4.5 Stormwater Quality and Pollution Control

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 strategy is to be in accordance with water sensitive urban design best practice as Lane Cove Council do not have specific water quality targets.

The overall site will have a reduction in impervious area through the use of landscaping areas and garden beds on podium and rooftop areas.

The runoff from the roof area will be treated through the incorporation of a first flush device, prior to harvesting via the rainwater tank for reuse supply. The first flush device will remove suspended solids and pollutants from the initial runoff from roof top areas.

The onsite detention tank will be fitted with a trash screen which will be used in addition to the first flush device and leaf guards to capture suspended solids and gross pollutants.

4.6 Local Over Land Drainage

Overland drainage has been incorporated into the proposed stormwater design which includes:

- Ensuring that the proposed footway levels along the Pacific Highway frontage fall towards the street and away from the building entry.
- Surcharge relief pit from the OSD tank directs any overflow towards the Pacific Highway frontage.
- Surcharge from the stormwater connection in the laneway is also directed along the laneway frontage.
- The driveway to the development has also been designed to ramp up from the road to a crest within the property, ensuring any overland flow remains within the road reserve.

5. Conclusion

The proposed stormwater management design presented above has been prepared to comply with Lane Cove Council DCP 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.

Based on the above, our investigation and concept designs indicate the proposed development can adequately manage and address all items surrounding stormwater runoff. Should you have any queries, please feel free to contact the undersigned on (02) 4365 1668.

Yours sincerely,

Dylan Hyslop

Civil Engineer

BEng (Hons) Civil Engineering

Robert Suckling

Civil Engineer

BE Civil (Hons1) MIEAust

On behalf of Northrop Consulting Engineers Pty Ltd

References:

Lane Cove Council Development Control Plan – Amendment 28 September 2023

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 our client. 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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APPENDIX A – SUPPLEMENTARY INFORMATION

- Concept Stormwater Management Plans

TRANSMITTAL

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Job No:	**Job Name:**	**Pages:**
233364	28-39 PACIFIC HWY, ST LEONARDS	1 of 1

From	Robert Suckling

Description	**Date**														
PROPOSED MIXED-USE DEVELOPMENT	Day	29	27												
28-38 PACIFIC HIGHWAY, ST LEONARDS, NSW 2065	Month	11	03												
INTERNAL CIVIL WORKS	Year	24	25												

Doc No.	**Document Title**		**Revision**												
C1.01	COVER SHEET	A	1	A											
C2.01	CONCEPT SEDIMENT & EROSION CONTROL PLAN	A		A											
C2.02	SEDIMENT & EROSION CONTROL DETAILS	A		A											
C3.01	STORMWATER MANAGEMENT PLAN GROUND FLOOR	A	1	A											
C3.11	STORMWATER MANAGEMENT PLAN LOWER GROUND FLOOR	A	1	A											
C3.21	STORMWATER MANAGEMENT PLAN BASEMENT LEVEL 1	A	1	A											
C5.01	CIVIL DETAILS – SHEET 1	A	1	A											
	STORMWATER MANAGEMENT REPORT	A		A											

Current Revision

Distribution	**Number of copies**														
Wolfgang Ripberger	1														
TONKIN ZULAIKHA GREER		1													

PURPOSE	I = Information A = Approval T = Tender C = Construction M = Amendment	I	A												
FORMAT	P = Print D = Disc E = Electronic	E	E												
SIZE	A0/A1/A2/A3/A4 etc	A1	A1												
METHOD	C = Courier H = Hand E = Email F = Facsimile P = Post	E	E												
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PROPOSED MIXED-USE DEVELOPMENT

28 - 38 PACIFIC HIGHWAY, ST LEONARDS, NSW 2065
INTERNAL CIVIL WORKS

LOCALITY PLAN

NORTHROP

DRAWING SCHEDULE

DWG No.	DRAWING TITLE
C1.01	COVER SHEET
C2.01	CONCEPT SEDIMENT & EROSION CONTROL PLAN
C2.02	SEDIMENT & EROSION CONTROL DETAILS
C3.01	STORMWATER MANAGEMENT PLAN GROUND FLOOR
C3.11	STORMWATER MANAGEMENT PLAN LOWER GROUND FLOOR
C3.21	STORMWATER MANAGEMENT PLAN BASEMENT LEVEL 1
C5.01	CIVIL DETAILS - SHEET 1

DRAWN J.WINWOOD-SMITH DESIGNED D.HYSLOP JOB MANAGER R.SUCKLING VERIFIER

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR COORDINATION	JWS			29.11.24
A	DEVELOPMENT APPLICATION	JWS			27.03.25

CLIENT: EDSGEAR PTY LTD

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ARCHITECT: tonkin zulaikha greer

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PROJECT: PROPOSED MIXED-USE DEVELOPMENT
28 - 38 PACIFIC HGIHWAY
ST LEONARDS
NSW 2065

DRAWING TITLE: INTERNAL CIVIL WORKS
COVER SHEET

JOB NUMBER: 233364

DRAWING NUMBER: C1.01

REVISION: A

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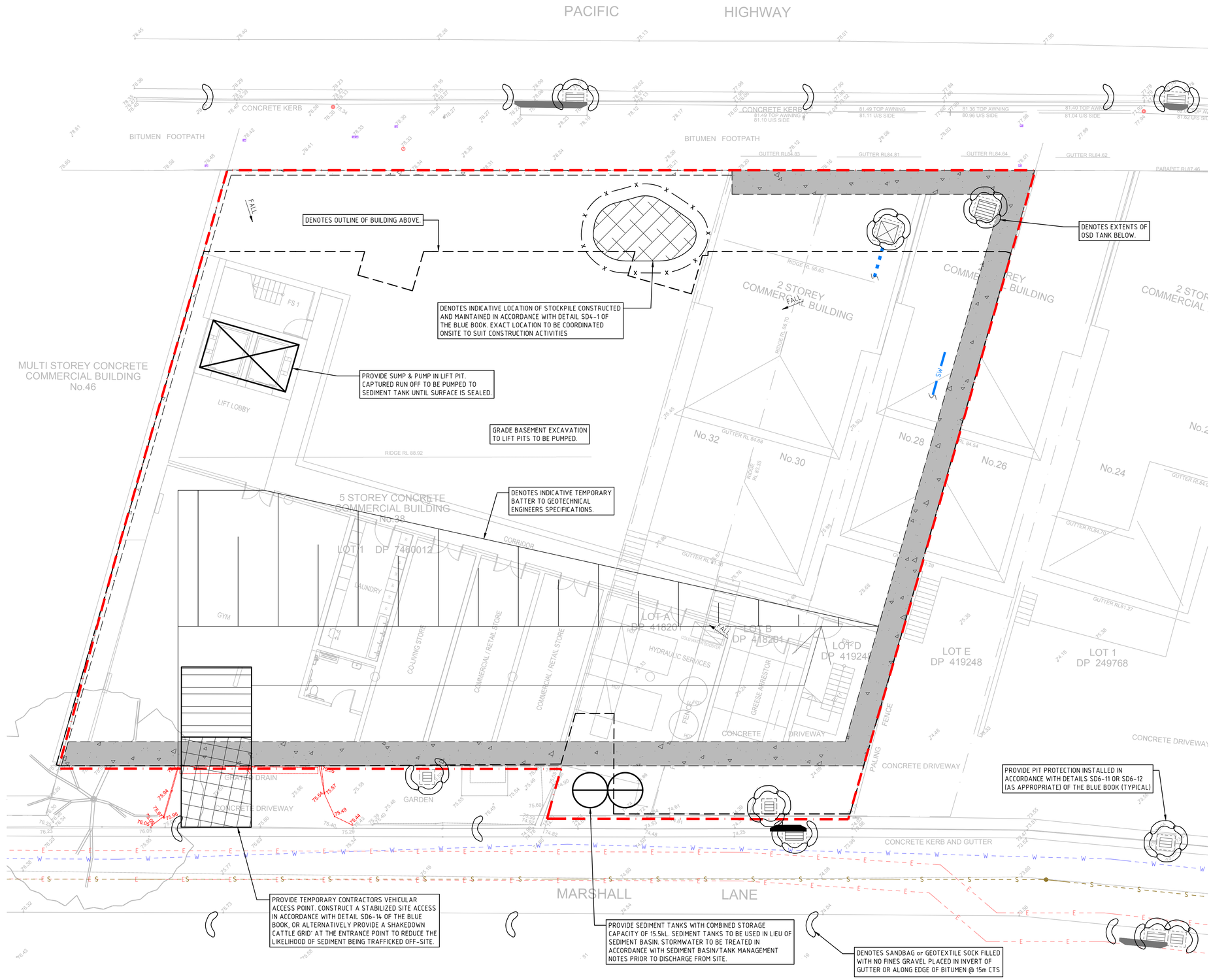

LEGEND

- DENOTES SITE BOUNDARY LINE
- DENOTES COMBINED SITE/SILT FENCE 'SILTMASTER' OR SIMILAR, INSTALLED IN ACCORDANCE WITH DETAIL SD6-8 OF THE BLUEBOOK.
- DENOTES TEMPORARY CONTRACTORS VEHICULAR ACCESS POINT. CONSTRUCT A STABILISED SITE ACCESS IN ACCORDANCE WITH DETAIL SD6-14 OF THE BLUE BOOK OR PROVIDE A SHAKEDOWN CATTLE GRID AT ENTRANCE POINT TO REDUCE LIKELIHOOD OF SEDIMENT BEING TRAFFICKED OFF-SITE
- DENOTES GEOTEXTILE INLET FILTER INSTALLED IN ACCORDANCE WITH DETAIL SD6-12 OF THE BLUE BOOK
- INDICATES MESH & GRAVEL INLET FILTER INSTALLED IN ACCORDANCE WITH DETAILS SD6-11 OF THE BLUE BOOK
- DENOTES SANDBAG or GEOTEXTILE SOCK FILLED WITH NO FINES GRAVEL PLACED IN INVERT OF GUTTER OR ALONG EDGE OF BITUMEN
- DENOTES INDICATIVE LOCATION OF STOCKPILE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH DETAIL SD4-1 OF THE BLUE BOOK
- DENOTES SHORING WALL/CAPPING BEAM, REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR DETAILS
- DENOTES EXISTING SHORING WALL SHOWN INDICATIVELY, REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR DETAILS

SEDIMENT & EROSION CONTROL NOTES

1. ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH RELEVANT ORDINANCES AND REGULATIONS; NOTE IN PARTICULAR THE REQUIREMENTS OF LANDCOMS MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION' (THE 'BLUE BOOK').
2. 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'.
3. ESTABLISH ALL REQUIRED SEDIMENT FENCES IN ACCORDANCE WITH DETAIL SD6-8 OF THE 'BLUE BOOK'.
4. INSTALL SEDIMENT FENCING AROUND INDIVIDUAL BUILDING ZONES/AREAS AS REQUIRED AND AS DIRECTED BY THE SUPERINTENDENT.
5. 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.
6. THE CONTRACTOR SHALL ENSURE THAT ALL VEGETATION (TREE, SHRUB & GROUND COVER) WHICH IS TO BE RETAINED SHALL BE PROTECTED DURING THE DURATION OF CONSTRUCTION. REFER ARCHITECTS PLANS FOR TREES TO BE KEPT.
7. ALL VEGETATION TO BE REMOVED SHALL BE MULCHED ONSITE AND SPREAD/STOCKPILED AS DIRECTED BY THE SUPERINTENDENT.
8. STRIP TOPSOIL IN AREAS DESIGNATED FOR STRIPPING AND STOCKPILE FOR RE-USE AS REQUIRED. ANY SURPLUS MATERIAL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH EPA GUIDELINES.
9. 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).
10. ENSURE STOCKPILES DO NOT EXCEED 2.0m HIGH. PROVIDE WIND AND RAIN EROSION PROTECTION AS REQUIRED IN ACCORDANCE WITH THE 'BLUE BOOK'.
11. PROVIDE WATER TRUCKS OR SPRINKLER DEVICES DURING CONSTRUCTION AS REQUIRED TO SUPPRESS DUST.
12. 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.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING A DETAILED WRITTEN RECORD OF ALL EROSION & SEDIMENT CONTROLS ON-SITE DURING THE CONSTRUCTION PERIOD. THIS RECORD SHALL BE UPDATED ON A DAILY BASIS & SHALL CONTAIN DETAILS ON THE CONDITION OF CONTROLS AND ANY/ ALL MAINTENANCE, CLEANING & 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.

THE CONTRACTOR SHALL ENSURE COUNCIL ASSETS AND THE UTILITIES ARE PROTECTED AT ALL TIMES. ANY AND ALL DAMAGES TO COUNCIL ASSETS AND/OR UTILITIES SHALL BE REPAIRED BY THE CONTRACTOR TO THE SPECIFICATION OF COUNCIL AND THE UTILITIES AUTHORITY AND AT NO COST TO THE PRINCIPAL OR NORTHROP CONSULTING ENGINEERS.

NOTE: THIS SEDIMENT & EROSION CONTROL PLAN IS DESIGNED FOR THE MANAGEMENT OF THE EFFECTS OF STORMWATER RUNOFF DURING CONSTRUCTION. IT IS NOT DESIGNED FOR THE MANAGEMENT OF GROUNDWATER. SHOULD GROUNDWATER MANAGEMENT BE REQUIRED, A SEPERATE MANAGEMENT PLAN WILL NEED TO BE DESIGNED BY A SUITABLY QUALIFIED GEOTECHNICAL/ENVIRONMENTAL CONSULTANT.

NOTE THAT ORIGINAL DRAWING IS IN COLOUR

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JOB MANAGER R SUCKLING
DESIGNED D HYSLOP
DRAWN J WINWOOD-SMITH

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A	DEVELOPMENT APPLICATION	JWS			27.03.25

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT 28 - 38 PACIFIC HGIHWAY ST LEONARDS NSW 2065**

DRAWING TITLE: **INTERNAL CIVIL WORKS CONCEPT SEDIMENT & EROSION CONTROL PLAN**

JOB NUMBER: **233364**

DRAWING NUMBER: **C2.01**

REVISION: **A**

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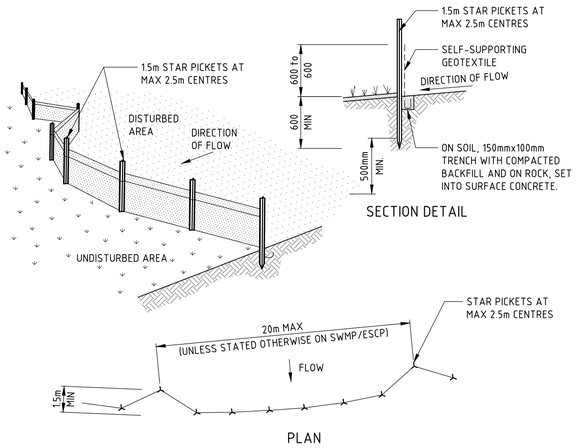
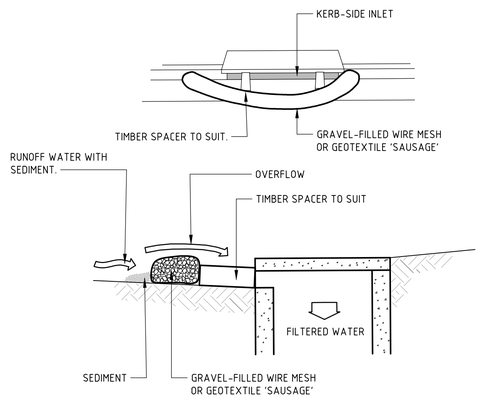


CONSTRUCTION NOTES

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)

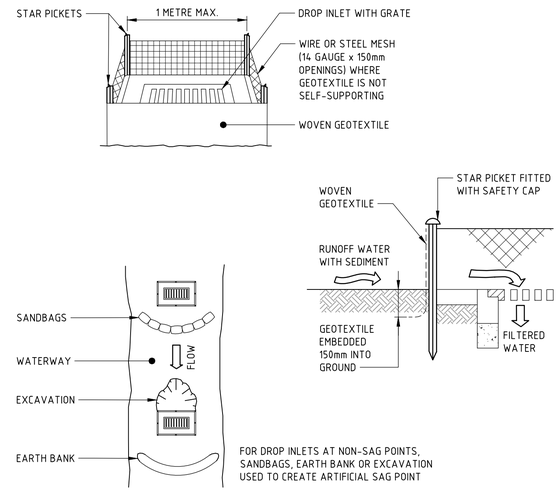


NOTE:THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

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.

MESH AND GRAVEL INLET FILTER (SD 6-11)

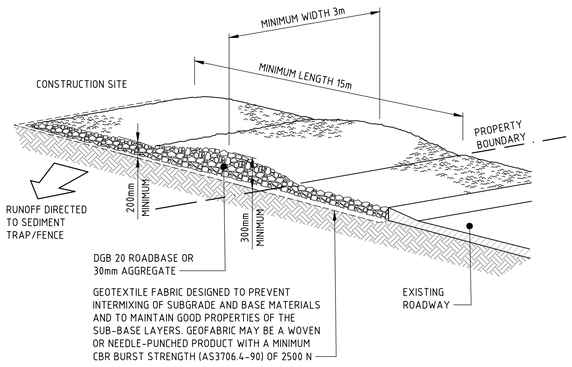


FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

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.

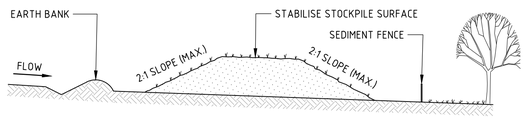
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

1. 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. 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)

SEDIMENT BASIN SIZING CALCULATION

THE SITE IS LOCATED WITHIN THE LANE COVE SOIL LANDSCAPE AND PRIMARILY CONSISTS OF , WHICH HAS THE FOLLOWING PROPERTIES (IN ACCORDANCE WITH TABLE C17 OF THE 'BLUE BOOK'.

SITE PARAMETERS	
CONSTRAINT	VALUE
SEDIMENT TYPE	C
SOIL HYDROLOGY GROUP	B
K = SOIL ERODIBILITY (K-FACTOR)	0.019
R = RAINFALL EROSIVITY (R-FACTOR)	2960
S = 2 YEAR, 6 HOUR STORM INTENSITY	11.7mm/hr
LS = SLOPE LENGTH/GRADIENT	0.16 (36m SLOPE @ 1% GRADE)
P = EROSION CONTROL PRACTICE (P-FACTOR)	1.3 (TYPICAL)
C = GROUND COVER (C-FACTOR)	1.0 (TYPICAL FOR STRIPPED SITE)
SOIL LOSS (RUSLE METHOD) (tonnes/ha/yr)	12 tonnes/Ha/Yr
EROSION HAZARD (TABLE 4.2 BLUE BOOK)	VERY LOW
BASIN/TANKS NOT REQUIRED.	

SEDIMENT BASIN/TANKS MANAGEMENT NOTES

1. PRIOR TO ANY FORECAST WEATHER EVENT, LIKELY TO RESULT IN SEDIMENT LADEN RUNOFF ON THE SITE, ANY EXISTING DETENTION BASINS/TANKS/TRAPS SHALL BE DEWATERED TO PROVIDE SUFFICIENT CAPACITY TO CAPTURE SEDIMENT LADEN WATER FROM THE SITE.
2. ANY SEDIMENT LADEN WATER CAPTURED ON-SITE MUST BE TREATED TO ENSURE IT WILL ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES PRIOR TO ITS RELEASE FROM SITE. A SAMPLE OF THE RELEASED TREATED WATER MUST BE KEPT ON-SITE IN A CLEAR CONTAINER WITH THE SAMPLE DATE RECORDED.
3. NO ALUMINIUM BASED PRODUCTS MAY BE USED TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) ON-SITE WITHOUT THE PRIOR WRITTEN PERMISSION FROM AN APPROPRIATE COUNCIL OFFICER. THE APPLICANT MUST HAVE DEMONSTRATED ABILITY TO USE SUCH PRODUCTS CORRECTLY AND WITHOUT ENVIRONMENTAL HARM PRIOR TO ANY APPROVAL.
4. THE CHEMICAL/AGENT (FLOCCULATING/COAGULANTS) USED IN TYPE D AND TYPE F BASINS/TANKS TO TREAT TURBID WATER CAPTURED IN THE BASIN/TANKS MUST BE APPLIED IN CONCENTRATIONS SUFFICIENT TO ACHIEVE COUNCIL'S WATER QUALITY OBJECTIVES (TSS < 50mg/L, TURBIDITY < 60 NTU, 6.5 < pH < 8.5) WITHIN THE 5-DAY RAINFALL DEPTH USED TO CALCULATE THE CAPACITY OF THE BASIN/TANKS, AFTER A RAINFALL EVENT.
5. ALL MANUFACTURERS INSTRUCTIONS MUST BE FOLLOWED FOR THE USE OF ANY CHEMICALS/AGENTS USED ON-SITE, EXCEPT WHERE APPROVED BY THE RESPONSIBLE PERSON OR AN APPROPRIATE COUNCIL OFFICER.
6. SUFFICIENT QUANTITIES OF CHEMICALS/AGENTS TO TREAT TURBID WATER (FLOCCULATING/COAGULANTS) MUST BE PLACED SUCH THAT WATER ENTERING THE BASINS/TANKS/SEDIMENT TRAP MIXES WITH THE CHEMICALS/AGENTS AND IS CARRIED INTO THE BASIN/TANKS/TRAP.
7. ANY BASIN/TANKS MUST BE DEWATERD AS SOON AS PRACTICAL, ONCE WATER CAPTURED IN THE BASIN/TANKS ACHIEVES COUNCIL'S WATER QUALITY OBJECTIVES.
8. INSPECT THE SEDIMENT BASINS/TANKS AFTER EACH RAINFALL EVENT AND/OR WEEKLY. ENSURE THAT ALL SEDIMENT IS REMOVED ONCE THE SEDIMENT STORAGE ZONE IS FULL. ENSURE THAT OUTLET AND EMERGENCY SPILLWAY WORKS ARE MAINTAINED IN A FULLY OPERATIONAL CONDITION AT ALL TIMES.

SEDIMENT BASIN TANK SIZING

SEDIMENT BASIN NOT REQUIRED, HOWEVER SEDIMENT TANK OF MINIMUM SIZE WILL BE PROVIDED FOR EXCAVATION & EARTHWORKS

SEDIMENT BASIN SIZING	
CONSTRAINT	VALUE
CV = VOLUMETRIC RUNOFF COEFFICIENT	0.5
R = 5 DAY, 75TH PERCENTILE RAINFALL	23.4mm
A = CATCHMENT AREA	0.124ha
SETTLING ZONE VOLUME (10xCVxRxA)	14.5m³
SOIL LOSS (CALC ABOVE)	12m³/ha/yr
A2 = DISTURBED CATCHMENT AREA	0.124ha
SEDIMENT STORAGE VOLUME (0.17xSOIL LOSSxA2)	11m³
TOTAL BASIN VOLUME REQUIRED	15.5m³

DRAWN: J.WINWOOD-SMITH DESIGNED: D.HYSLOP JOB MANAGER: R.SUCKLING VERIFIER:

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A	DEVELOPMENT APPLICATION	JWS			27.03.25

CLIENT: EDSGEAR PTY LTD

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PROJECT: PROPOSED MIXED-USE DEVELOPMENT
28 - 38 PACIFIC HGIHWAY
ST LEONARDS
NSW 2065

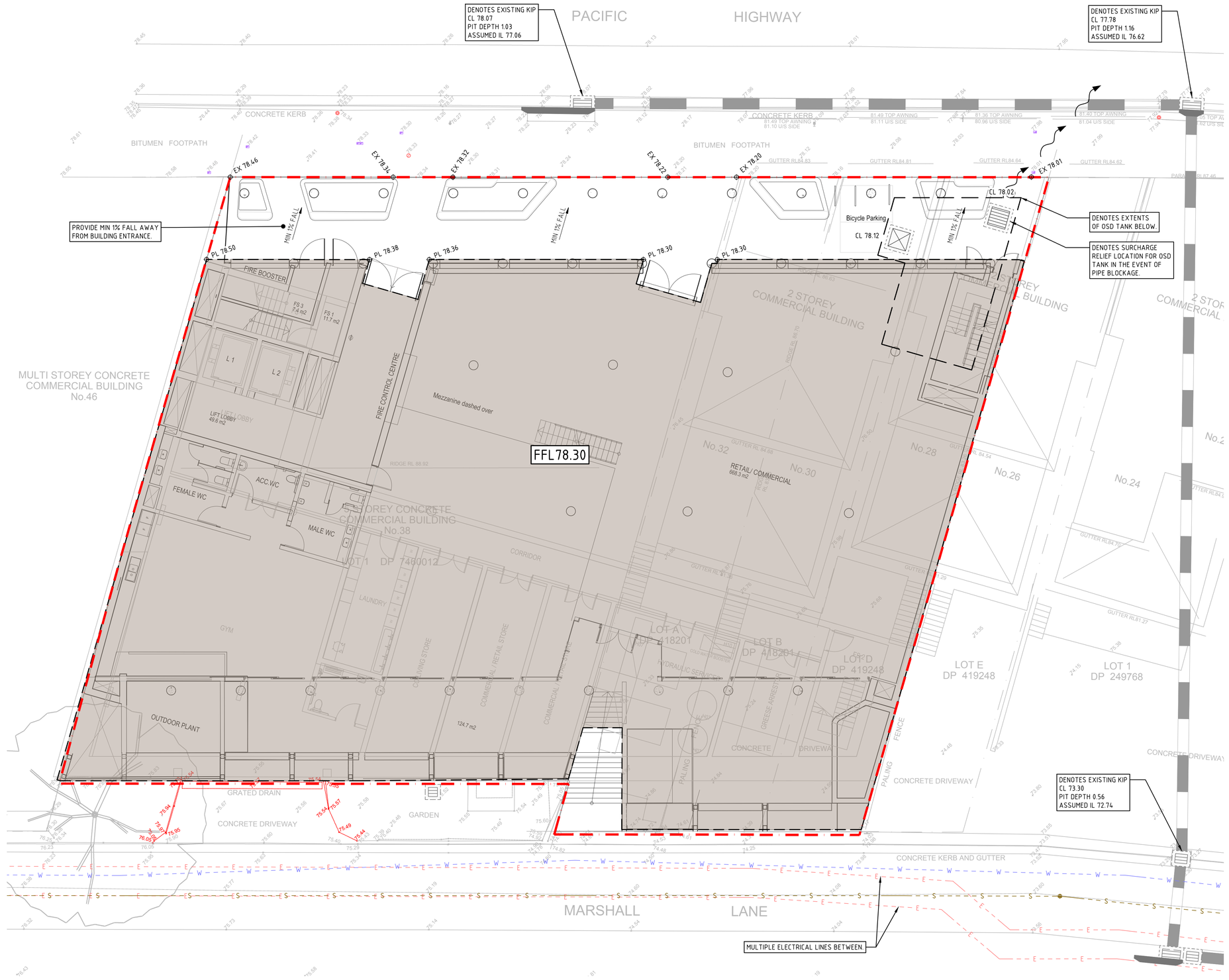
DRAWING TITLE: INTERNAL CIVIL WORKS
SEDIMENT & EROSION
CONTROL DETAILS

JOB NUMBER: 233364

DRAWING NUMBER: C2.02

REVISION: A

DRAWING SHEET SIZE = A1



LEGEND

- DENOTES SITE BOUNDARY LINE
- DENOTES PROPOSED BUILDING EXTENTS, REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR DETAILS
- DENOTES PROPOSED RESIDENTIAL VEHICLE ACCESS CROSSING IN ACCORDANCE LANE COVE CITY COUNCIL GUIDELINES
- FFL8.90 — DENOTES PROPOSED FINISHED FLOOR LEVEL
- PL 9.23 — DENOTES PROPOSED FINISHED SURFACE LEVEL
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- EX 9.25 — DENOTES EXISTING SURFACE LEVEL
- DENOTES STORMWATER PIT (NEW / EXISTING). NOTE: ON-GRADE PITS ARE TO HAVE GRATES SET ON-GRADE TO MATCH SURFACE GRADING.
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- eLB — DENOTES EXISTING LAYBACK
- INT1 — DENOTES PAVEMENT INTERFACE (& TYPE), REFER TO DETAIL
- RW-S — DENOTES RETAINING WALL TO STRUCTURAL ENGINEERS DETAILS

NOTE: PROVIDE SUBSOIL DRAINAGE BEHIND ALL RETAINING WALLS & HYDRAULICALLY CONNECT TO NEAREST DOWNSTREAM STORMWATER PIT (N.S.O.P). REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR DETAILS

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NOTE: ALL LEVELS TO AUSTRALIAN HEIGHT DATUM (AHD). ORIGIN OF LEVELS SSM 930005

NOTE: REFER TO C5.01 FOR STORMWATER MANAGEMENT NOTES

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VERIFIER:
JOB MANAGER: R SUCKLING
DESIGNED: D.HYSLOP
DRAWN: J.WINWOOD-SMITH

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR COORDINATION	JWS			29.11.23
A	DEVELOPMENT APPLICATION	JWS			27.03.25

CLIENT: **EDSGEAR PTY LTD**

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ARCHITECT: tonkin zulaikha greer

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT 28 - 38 PACIFIC HGIHWAY ST LEONARDS NSW 2065**

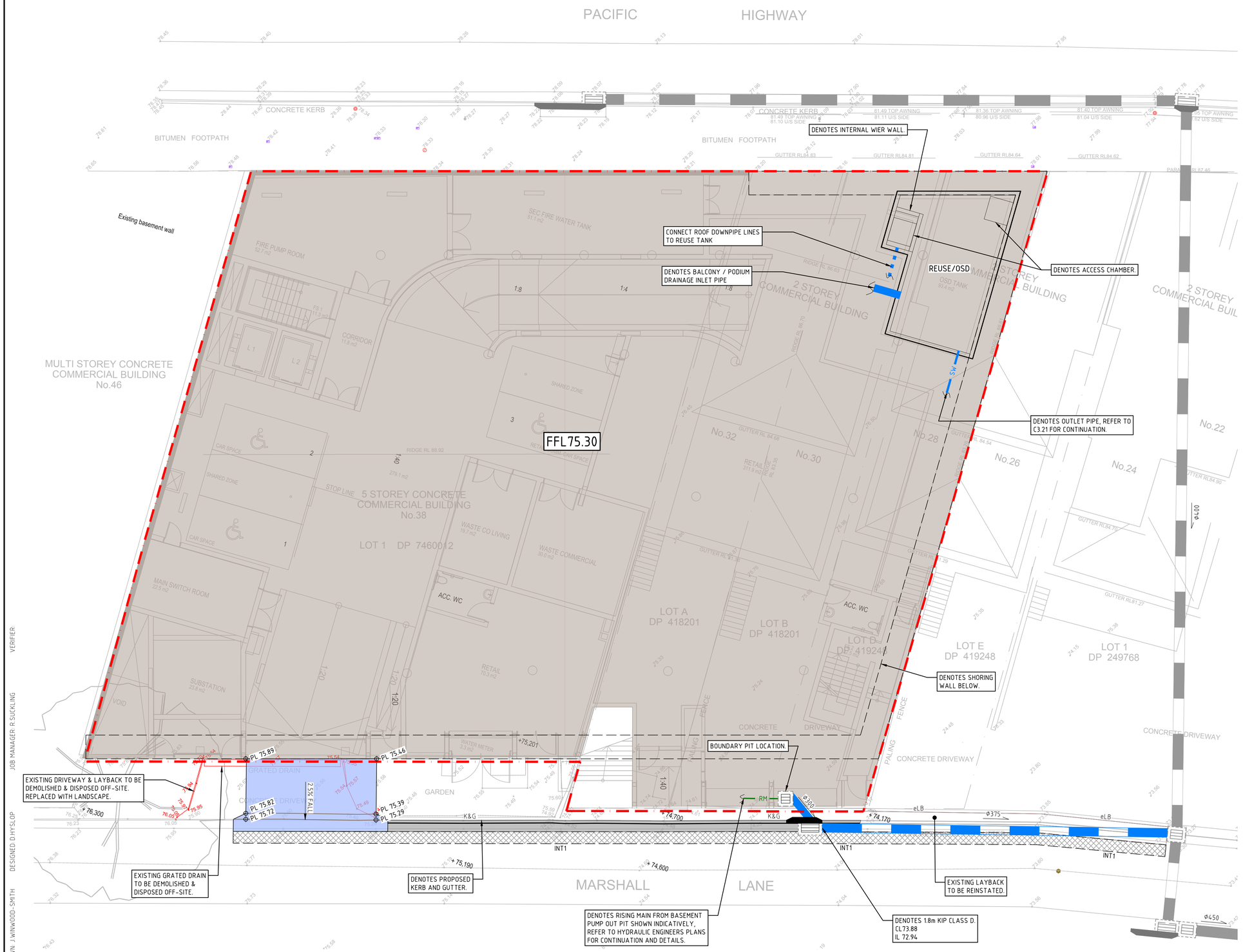
DRAWING TITLE: **INTERNAL CIVIL WORKS STORMWATER MANAGEMENT GROUND FLOOR**

JOB NUMBER: **233364**

DRAWING NUMBER: **C3.01**

REVISION: **A**

DRAWING SHEET SIZE = A1



VERIFIER:

JOB MANAGER: R.SUCKLING

DESIGNED: D.HYSLOP

DRAWN: J.WINWOOD-SMITH

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NOTE: REFER TO C5.01 FOR STORMWATER MANAGEMENT NOTES

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A	DEVELOPMENT APPLICATION	JWS			27.03.25

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ARCHITECT: tonkin zulaikha greer

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT 28 - 38 PACIFIC HGIHWAY ST LEONARDS NSW 2065**

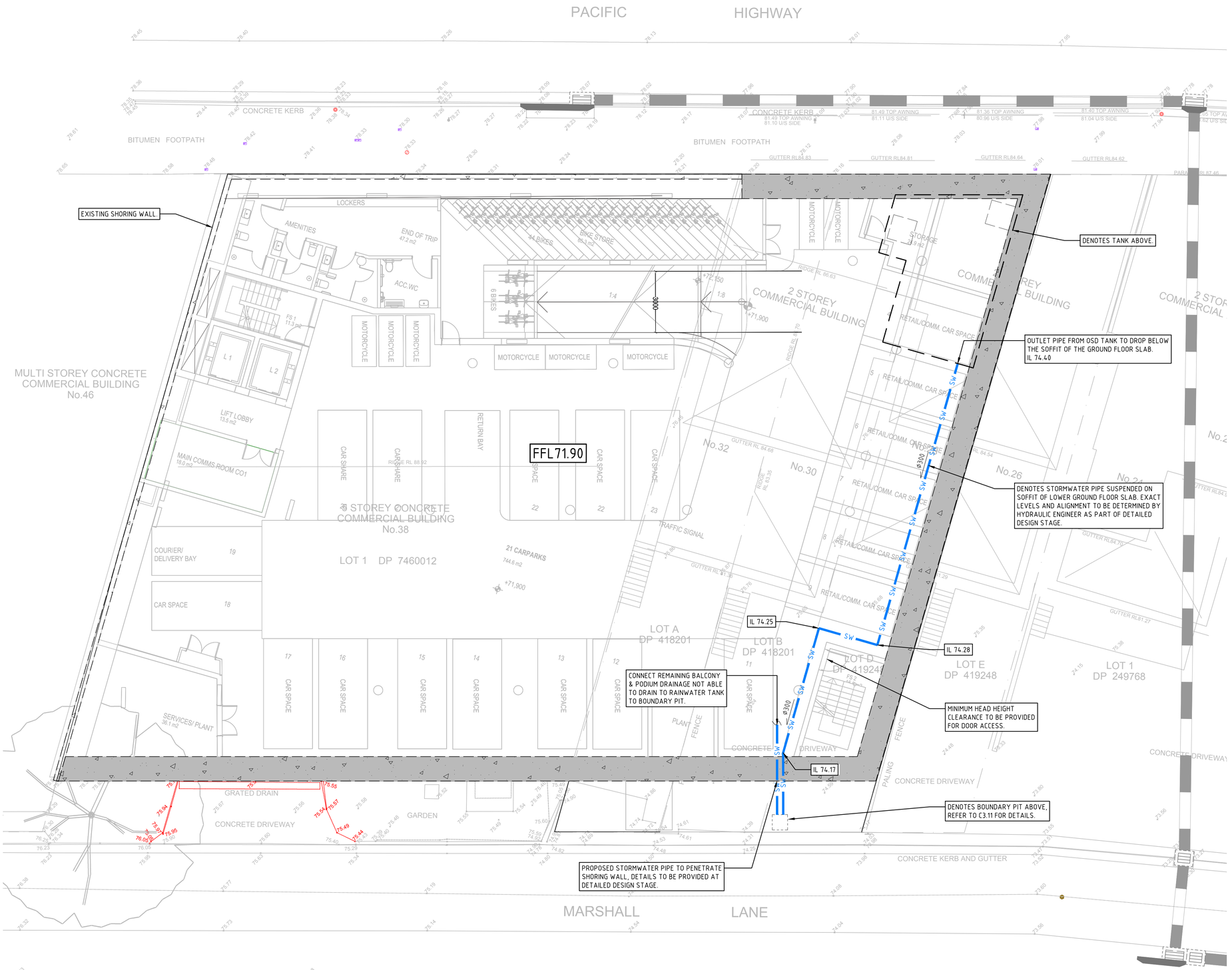
DRAWING TITLE: **INTERNAL CIVIL WORKS STORMWATER MANAGEMENT LOWER GROUND FLOOR**

JOB NUMBER: **233364**

DRAWING NUMBER: **C3.11**

REVISION: **A**

DRAWING SHEET SIZE = A1



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DESIGNED D HYSLOP
DRAWN J WINWOOD-SMITH

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT 28 - 38 PACIFIC HGIHWAY ST LEONARDS NSW 2065**

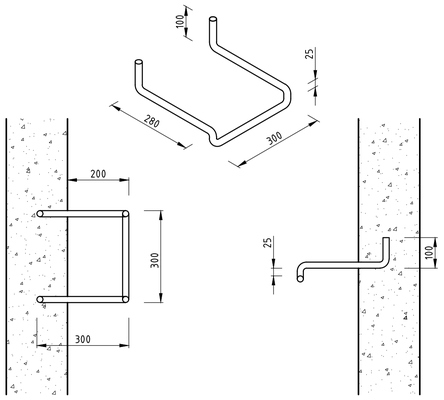
DRAWING TITLE: **INTERNAL CIVIL WORKS STORMWATER MANAGEMENT BASEMENT LEVEL 1**

JOB NUMBER: **233364**

DRAWING NUMBER: **C3.21**

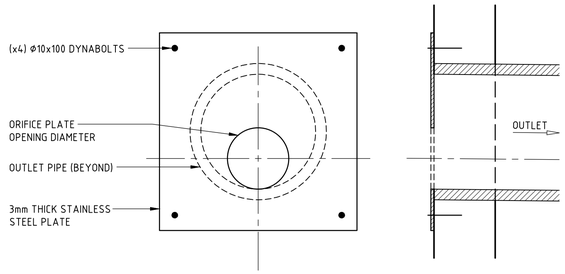
REVISION: **A**

DRAWING SHEET SIZE = A1

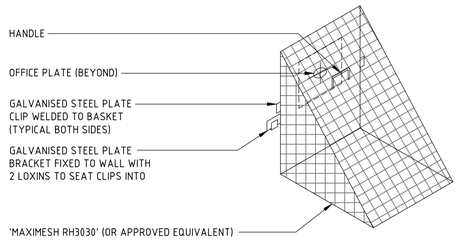


STEP IRON DETAIL

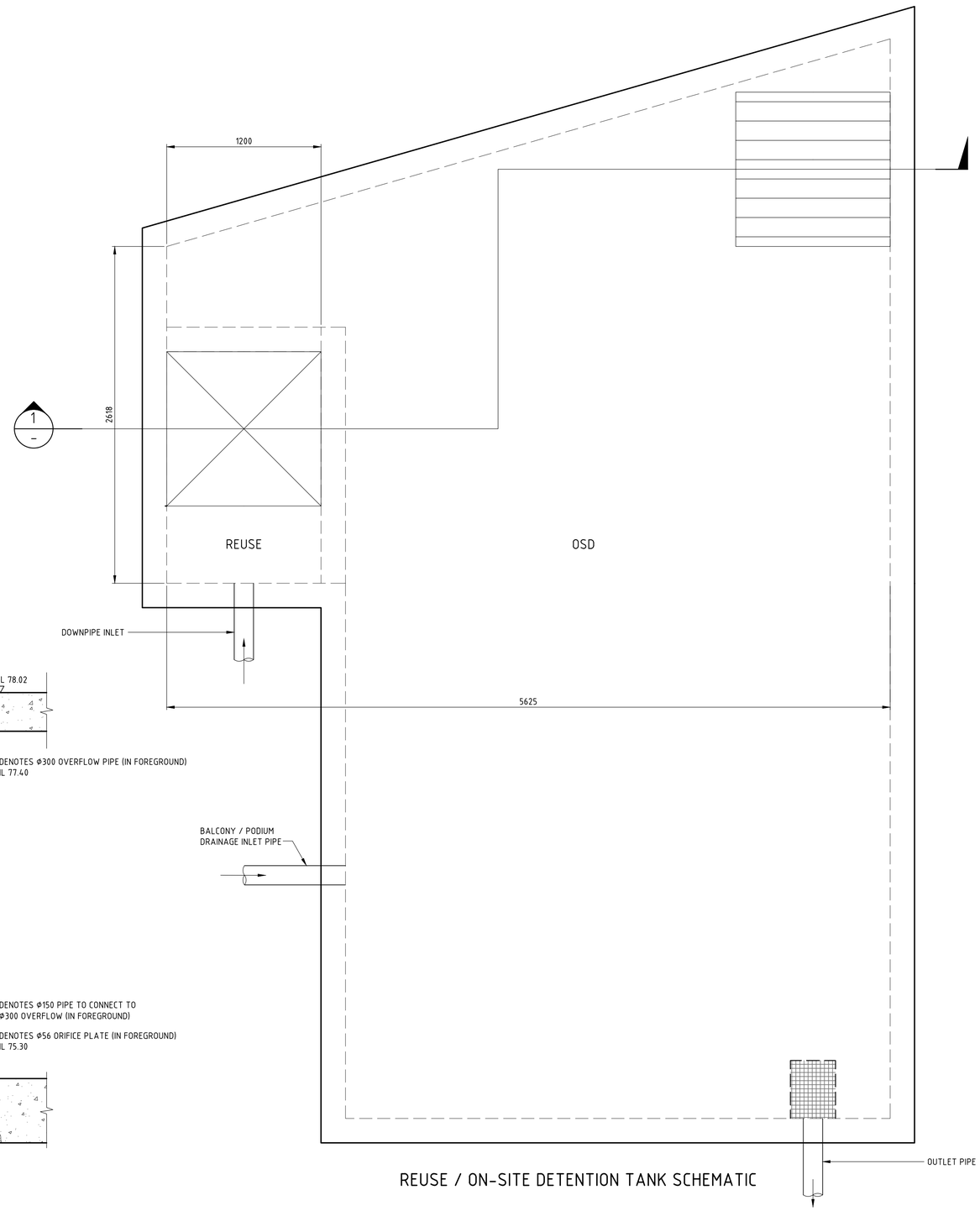
STEP IRON OF 20mm GALVANISED STEEL MADE TO SHAPE AND DIMENSIONS AS SHOWN, PLACED AT 300 CENTRES AND STAGGERED HORIZONTALLY FOR ALL PITS DEEPER THAN 1.0m. THE USE OF PROPRIETARY STEP IRONS ARE ACCEPTABLE PROVIDED THE PRODUCT IS IN ACCORDANCE WITH AUSTRALIAN STANDARDS



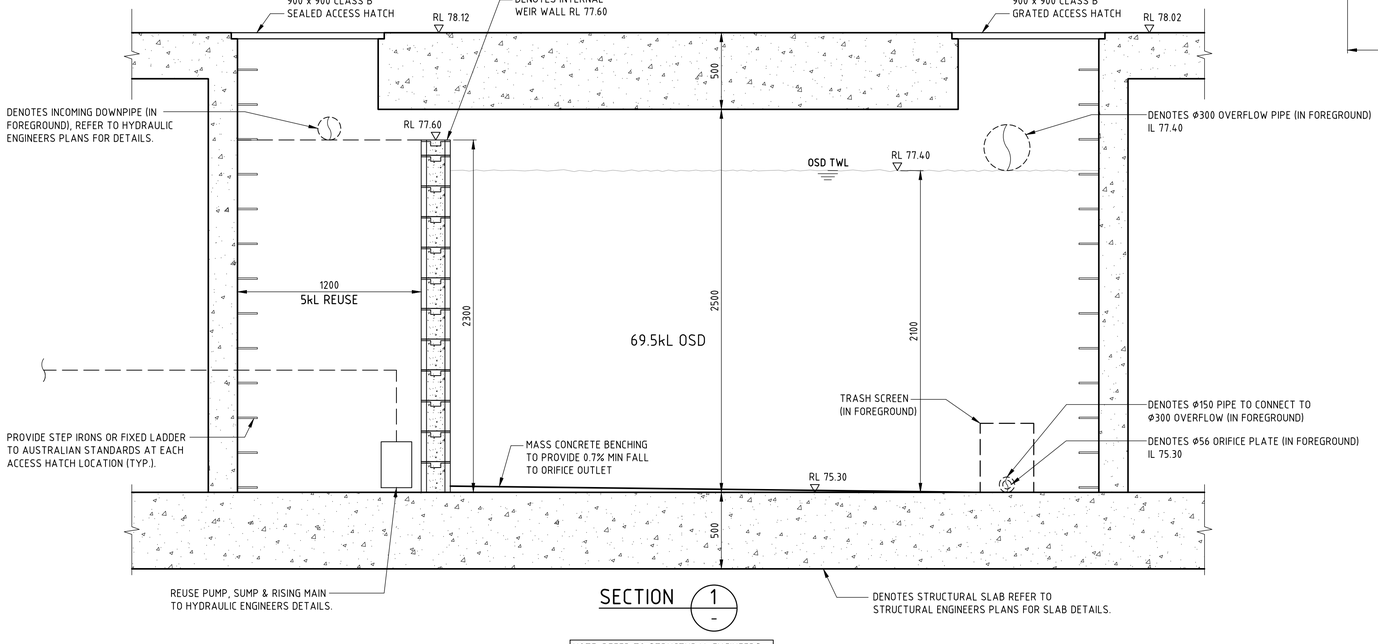
ORIFICE PLATE DETAIL



TRASH SCREEN DETAIL



REUSE / ON-SITE DETENTION TANK SCHEMATIC



SECTION 1

NOTE: REFER TO STRUCTURAL ENGINEERS DRAWINGS FOR TANK STRUCTURE DETAILS

DRAWN: J.WINWOOD-SMITH DESIGNED: D.HYSLOP JOB MANAGER: R.SUCKLING VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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DETAILS 1:20@A1 0 200 400 600 800 1000

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PROJECT: **PROPOSED MIXED-USE DEVELOPMENT**
28 - 38 PACIFIC HGIHWAY
ST LEONARDS
NSW 2065

DRAWING TITLE: **INTERNAL CIVIL WORKS**
CIVIL DETAILS
SHEET 1

JOB NUMBER: **233364**

DRAWING NUMBER: **C5.01**

REVISION: **A**

DRAWING SHEET SIZE = A1

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