

22 RAVEN CIRCUIT, WARRIEWOOD STORMWATER MANAGEMENT PLANS

STORMWATER DESIGN NOTES

1. ALL DRAINAGE WORKS ARE TO BE IN ACCORDANCE WITH AS/NZS 3500.3
- STORMWATER DRAINAGE, NORTHERN BEACHES COUNCIL - PART 1
CONSOLIDATED STORMWATER MANAGEMENT
POLICY AND THE LATEST BASIX CERTIFICATE (IF APPLICABLE).

2. THE SITE AREA = 362.3 m²

- TOTAL SITE EXISTING IMPERVIOUS AREA = 0 m² (0%)
- TOTAL SITE PROPOSED IMPERVIOUS AREA = 178 m² (50%)

3. RAINWATER TANK IS REQUIRED FOR THIS DEVELOPMENT BASED ON A DESKTOP ASSESSMENT OF NORTHERN BEACHES COUNCIL - PART 1 CONSOLIDATED STORMWATER MANAGEMENT POLICY.

4. OSD IS REQUIRED FOR THE DEVELOPMENT BASED ON A DESKTOP ASSESSMENT OF NORTHERN BEACHES COUNCIL – PART 1 CONSOLIDATED STORMWATER MANAGEMENT POLICY.

5. THE POINT OF DISCHARGE FOR THE DEVELOPMENT SHALL BE VIA EXISTING KERB AND GUTTER CONNECTION.

ABBREVIATIONS









LEVELS

FFL	FINISHED FLOOR LEVEL
IL	INVERT LEVEL
RL	REDUCED LEVEL
H/L	HIGH LEVEL
L/L	LOW LEVEL
+	NEW REDUCED LEVEL
×	EXISTING LEVEL
AHD	AUSTRALIAN HEIGHT DATUM
OPF	OVERLAND FLOW PATH
SSL	STRUCTURAL SLAB LEVEL
SRZ	STRUCTURAL ROOT ZONE
TRZ	TREE ROOT ZONE
UNO	UNLESS NOTED OTHERWISE

FIXTURES

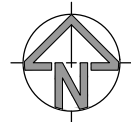
RWO	RAINWATER OUTLET
SWP	STORMWATER PIT (GRATE/SEALED)
PBO	PLANTER BOX OUTLET
CO	CLEAR OUT
GD	GRATED TRENCH DRAIN
RWT	RAINWATER TANK
KIP	KERB INLET PIT

SERVICES LEGEND

	EXISTING WATER MAIN
	EXISTING GAS MAIN
	EXISTING SEWER MAIN
	EXISTING ELECTRICAL SERVICE
	EXISTING STORMWATER PIPEWORK
	STORMWATER PIPEWORK
	RAINWATER PIPEWORK
	SUBSOIL PIPEWORK

ROOF DRAINAGE FIXTURES


RHS	RECTANGULAR HOLLOW SECTION
O/F	OVERFLOW
SP	SPREADER
DP	DOWN PIPE
RH	RAINWATER HEAD
BO	BALCONY OUTLET

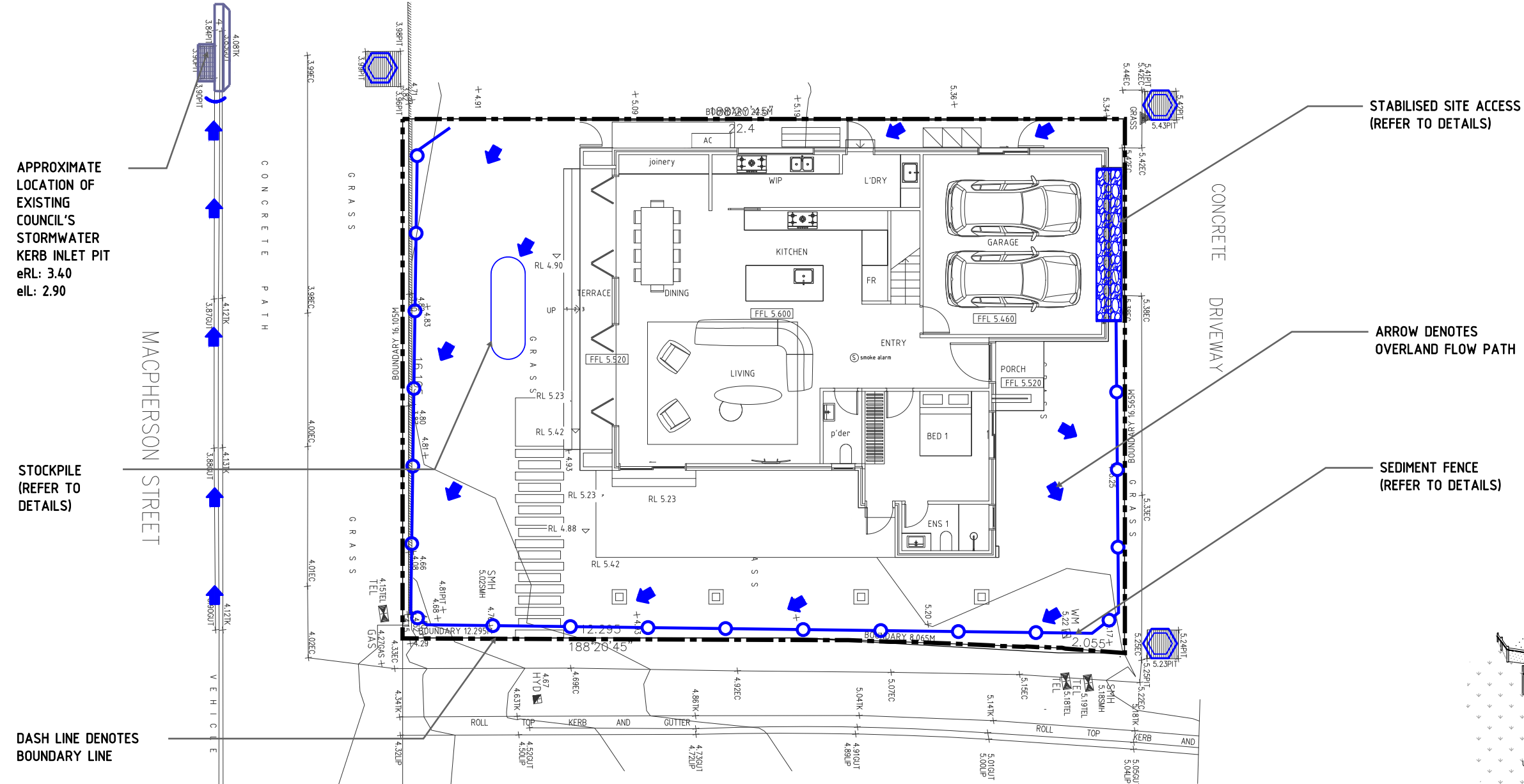


SITE LOCALITY PLAN

DRAWING LIST

DRAWING LIST	
DRAWING NUMBER	DRAWING NAME
2025H0026-SW01	COVER SHEET, NOTES & LEGEND
2025H0026-SW02	SEDIMENT AND EROSION CONTROL PLAN
2025H0026-SW03	CATCHMENT PLAN
2025H0026-SW04	GROUND FLOOR PLAN
2025H0026-SW05	DETAILS SHEET 01
2025H0026-SW06	DETAILS SHEET 02

					STORMWATER MANAGEMENT PLANS			CLIENT KULVIR SINGH		PROJECT NORTH POINT		DESIGNER P.D		DATE CREATED 06.06.2025		THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW		 CIVIL AND HYDRAULIC ENGINEERING ABN 85 653 756 042 E: info.mdmengineering@gmail.com	
P4	P.D	06.06.2025	D.H	REISSUED FOR DA								ENGINEER D.H		STATUS DA					
P3	W.N	23.05.2025	D.H	REISSUED FOR DA				PROJECT NAME 22 RAVEN CIRCUIT, WARRIEWOOD											
P2	P.D	22.05.2025	D.H	REISSUED FOR DA															
P1	P.D	04.03.2025	D.H	ISSUED FOR DA															
REV.	DES.	DATE	VER.	DESCRIPTION	DRAWINGS #	2025H0026-SW01	REVISION	P4											



APPROXIMATE LOCATION OF EXISTING COUNCIL'S STORMWATER KERB INLET PIT
eRL: 3.40
eIL: 2.90

STOCKPILE (REFER TO DETAILS)

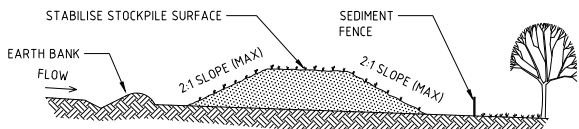
DASH LINE DENOTES BOUNDARY LINE

STABILISED SITE ACCESS (REFER TO DETAILS)

ARROW DENOTES OVERLAND FLOW PATH

SEDIMENT FENCE (REFER TO DETAILS)

SITE PLAN
SCALE 1: 150

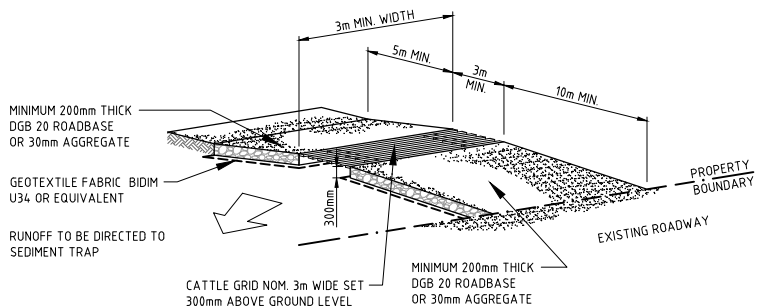


CONSTRUCTION NOTES:

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

STOCK PILE DETAIL

NOT TO SCALE



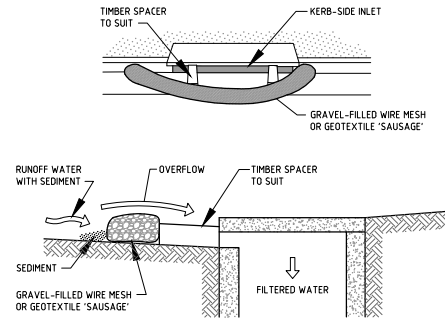
GEOTEXTILE FABRIC BIDIM U34 OR EQUIVALENT
RUNOFF TO BE DIRECTED TO SEDIMENT TRAP
CATTLE GRID NOM. 3m WIDE SET 300mm ABOVE GROUND LEVEL
MINIMUM 200mm THICK DGB 20 ROADBASE OR 30mm AGGREGATE
PROPERTY BOUNDARY
EXISTING ROADWAY

CONSTRUCTION NOTES:

- STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
- COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
- CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
- ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
- 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 WITH SHAKER GRID DETAIL

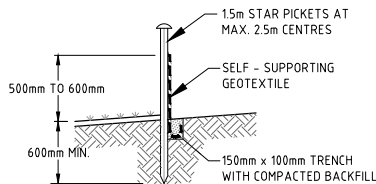
NOT TO SCALE



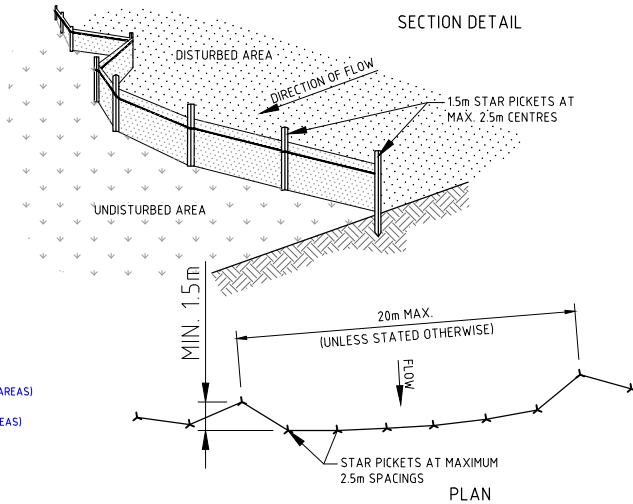
CONSTRUCTION NOTES:

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

MESH AND GRAVEL INLET FILTER DETAIL
NOT TO SCALE



SECTION DETAIL



PLAN

CONSTRUCTION NOTES:

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

SEDIMENT FENCE DETAIL

NOT TO SCALE

					STORMWATER MANAGEMENT PLANS	CLIENT KUL VIR SINGH	PROJECT NORTH POINT 	DESIGNER P.D	DATE CREATED 06.06.2025	THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW	 CIVIL AND HYDRAULIC ENGINEERING ABN 85 653 756 042 E: info@ndmengineers@gmail.com
P4	P.D	06.06.2025	D.H	REISSUED FOR DA	SEDIMENT AND EROSION CONTROL PLAN	PROJECT NAME 22 RAVEN CIRCUIT, WARRIEWOOD		ENGINEER D.H	STATUS DA	PROJECT SUPERINTENDENT'S SIGNATURE: _____ DATE: _____	
P3	W.N	23.05.2025	D.H	REISSUED FOR DA				VERIFIER D.H	SCALE @ A3 1:150		
P2	P.D	22.05.2025	D.H	REISSUED FOR DA							
P1	P.D	04.03.2025	D.H	ISSUED FOR DA							
REV.	DES.	DATE	VER.	DESCRIPTION	DRAWING # 2025H0026-SW02	REVISION P4		© THIS DRAWING AND DESIGN IS THE COPYRIGHT OF LEOPARD ENGINEERING GROUP. NO PART OF THIS DRAWING OR DESIGN SHALL BE REPRODUCED OR USED WITHOUT PRIOR WRITTEN CONSENT FROM LEOPARD CONSULTING ENGINEERS GROUP.			

DASH LINE DENOTES
BOUNDARY LINE

IMPORTANT NOTES:

AS PER ADVICE RECEIVED FROM THE COUNCIL OF NORTHERN BEACHES, OSD IS
REQUIRED FOR THIS DEVELOPMENT IN ACCORDANCE WITH THE COUNCIL
NORTHERN BEACHES ON-SITE STORMWATER DETENTION POLICY

TOTAL PRE-DEVELOPED IMPERVIOUS AREA = 0 m²
(0% OF THE TOTAL SITE AREA)

PRE-DEVELOPED IMPERVIOUS CATCHMENT PLAN

SCALE 1:200

DASH LINE DENOTES
BOUNDARY LINE

TOTAL AREA DRAWING TO OSD = 170 m²
(55% OF THE TOTAL SITE AREA)

OSD BY PASS AREA. 8 m²

POST-DEVELOPED IMPERVIOUS CATCHMENT PLAN

SCALE 1:200

REV.	DES.	DATE	VER.	DESCRIPTION	DRAWING #	REVISION	CLIENT	PROJECT NAME	PROJECT NORTH POINT	DESIGNER	DATE CREATED	THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW	CIVIL AND HYDRAULIC ENGINEERING
							KUL VIR SINGH	22 RAVEN CIRCUIT, WARRIEWOOD		P.D	06.06.2025		
P4	P.D	06.06.2025	D.H	REISSUED FOR DA						ENGINEER	D.H	STATUS	DA
P3	W.N	23.05.2025	D.H	REISSUED FOR DA						VERIFIER	D.H	SCALE @ A3	1:200
P2	P.D	22.05.2025	D.H	REISSUED FOR DA									
P1	P.D	04.03.2025	D.H	ISSUED FOR DA									
					2025H0026-SW03	P4							

EX SWP
RL: 3.98
IL: UNKNOWN

NEW SWP
600X600
RL: 4.74
IL: 4.04

OSD BASIN WITH MINIMUM
EFFECTIVE VOLUME OF 6.50
M3 AND PSD OF 2.49 L/S.
REFER TO SECTION 1 & 2 FOR
DETAILS

APPROXIMATE LOCATION
OF EXISTING GAS
SERVICE.

APPROXIMATE
LOCATION OF
EXISTING SEWER
SERVICE.

NEW SWP
600X600
RL: 4.93
IL: 4.43

APPROXIMATE
LOCATION OF
EXISTING
ELECTRICAL
SERVICE.

APPROXIMATE LOCATION
OF EXISTING SYDNEY
WATER SERVICE.

OSD DESIGN NOTES:

SSR: 13.3 M3 - 7.0M3 PROVIDED BY BASIN STORAGE & 6.5M3 PROVIDED BY OSD/RWT STORAGE

PSD: 4.49 L/S - 2.49 L/S RESTRICTED BY BASIN & 2.0L RESTRICTED BY OSD/RWT

EX SWP
RL: 5.42
IL: UNKNOWN

ACO K200 KLASSIK
DRAIN CLASS D
GRATE OR
APPROVED
EQUIVALENT.

BALCONY DRAINAGE PROVISION

— DASH LINE
DENOTES
BOUNDARY LINE

— EX SWP
RL: 5.24
IL: UNKNOWN

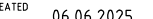

FIRST FLUSH SYSTEM
WITH MINIMUM
CAPACITY OF 100L.

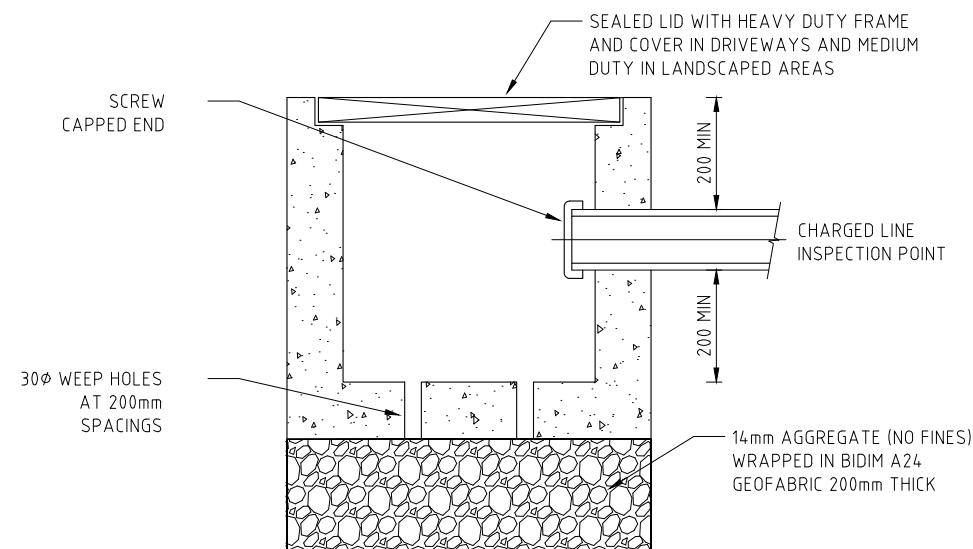
Above-ground OSD/RWT location as per architectural drawings, to be confirmed in CC stage

GROUND FLOOR PLAN

SCALE 1:100

— 8500L OSD/RWT HARVESTING TANK WITH 2000L MINIMUM EFFECTIVE VOLUME IN ACCORDANCE WITH BASIX CERTIFICATE REQUIREMENTS AND 6500L EFFECTIVE VOLUME REQUIRED FOR OSD TANK IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL'S REQUIREMENTS. REFER TO OSD/RWT SECTION FOR DETAILS SHEET.

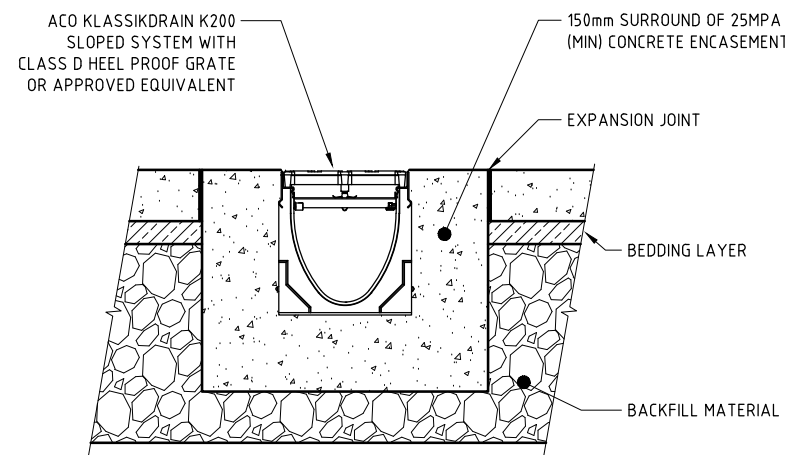
					STORMWATER MANAGEMENT PLANS		CLIENT KUL VIR SINGH		<div>PROJECT NORTH POINT</div> <div></div>		DESIGNER P.D		DATE CREATED 06.06.2025		THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW		<div></div> <div>CIVIL AND HYDRAULIC ENGINEERING ABN 85 653 756 042 Vt: info.mdr@engineers@gmail.com</div>	
P4	P.D	06.06.2025	D.H	REISSUED FOR DA	GROUND FLOOR PLAN		PROJECT NAME 22 RAVEN CIRCUIT, WARRIEWOOD				ENGINEER D.H		STATUS DA		PROJECT SUPERINTENDENT'S SIGNATURE: _____ DATE: _____			
P3	W.N	23.05.2025	D.H	REISSUED FOR DA							VERIFIER D.H		SCALE @ A3 1:100					
P2	P.D	22.05.2025	D.H	REISSUED FOR DA														
P1	P.D	04.03.2025	D.H	ISSUED FOR DA														
REV.	DES.	DATE	VER.	DESCRIPTION	DRAWING #	2025H0026-SW04	REVISION	P4										



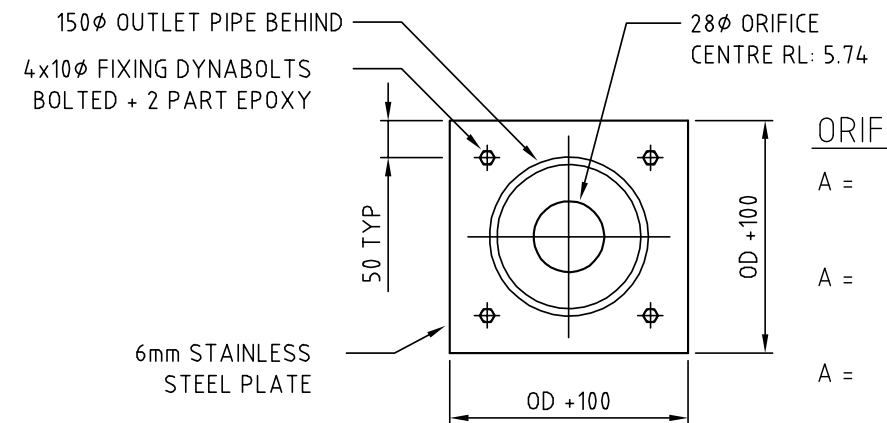
CLEANOUT PIT DETAIL

N.T.S.

A
DWG



TRENCH GRATE (200mm WIDE) CLASS D
N.T.S



ORIFICE SIZE

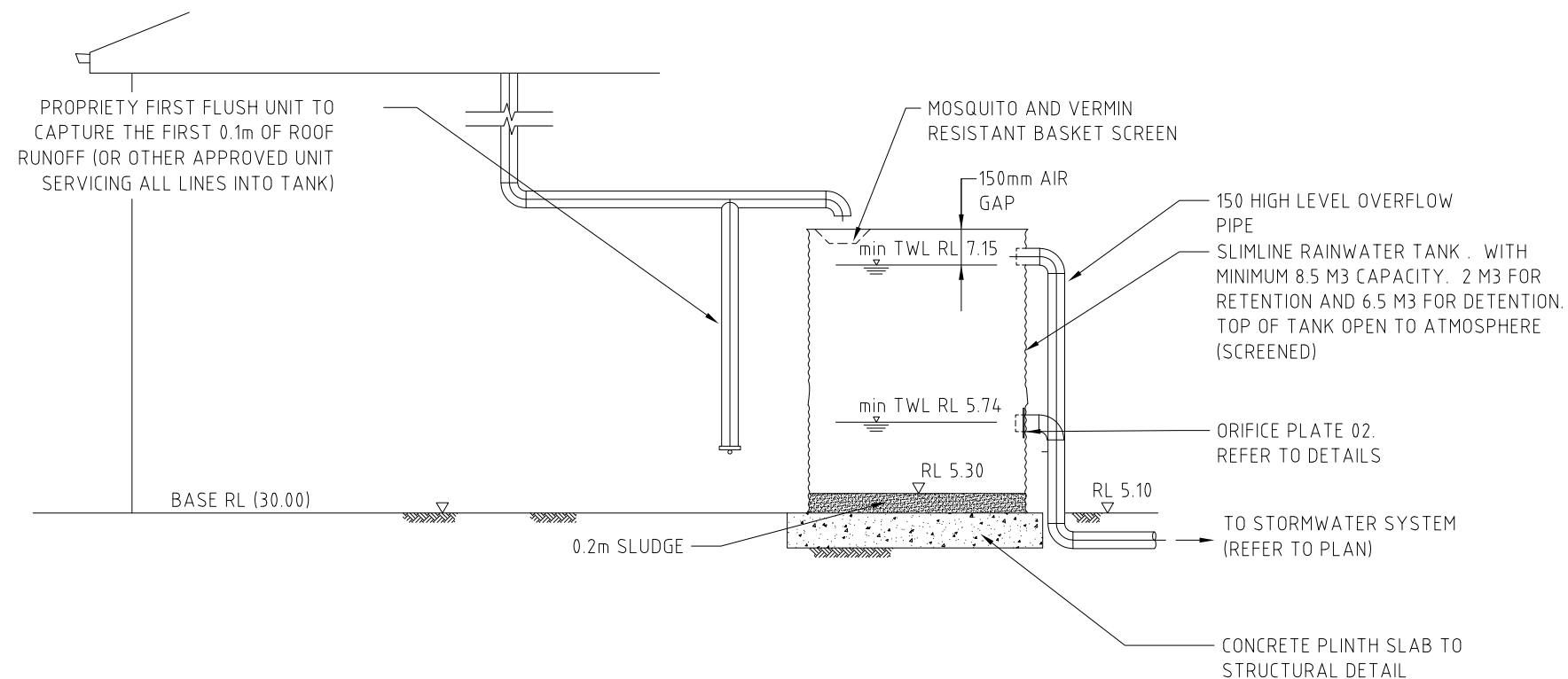
$$A = \frac{Q}{Cd \times \sqrt{2 \times g \times H}}$$
$$A = \frac{0.002}{0.62 \times \sqrt{2 \times 9.81 \times 1.41}}$$
$$A = 0.0006m^2$$

THEREFORE

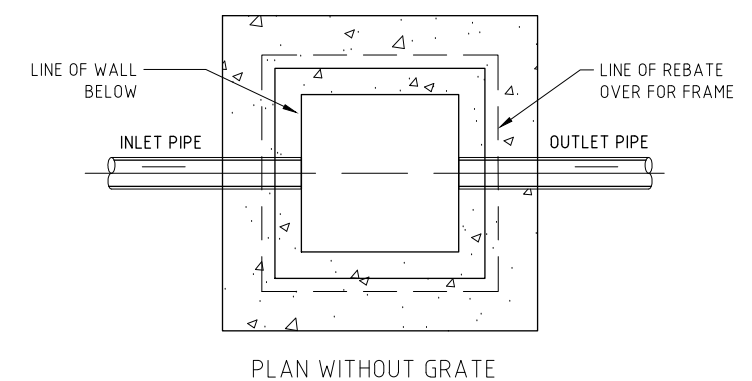
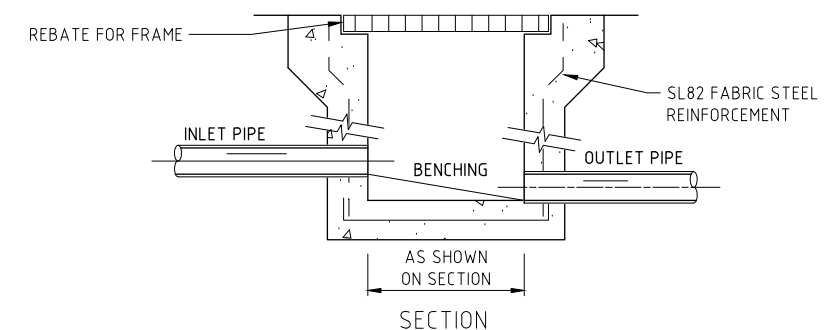
$$D = 28mm$$

ORIFICE PLATE 02
N.T.S

A
DWG



ABOVE RWT/OSD STORAGE TANK
N.T.S.



TYPICAL GRATED INLET PIT
N.T.S

					STORMWATER MANAGEMENT PLANS	CLIENT		PROJECT NORTH POINT	DESIGNER	P.D	DATE CREATED	06.06.2025	THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW		 CIVIL AND HYDRAULIC ENGINEERING ABN 85 653 756 042 E: info.mdmengineers@gmail.com
P4	P.D	06.06.2025	D.H	REISSUED FOR DA		DETAILS SHEET 01	PROJECT NAME 22 RAVEN CIRCUIT, WARRIEWOOD		ENGINEER	D.H	STATUS	DA	PROJECT SUPERINTENDENT'S SIGNATURE:		

