

STORMWATER DRAINAGE PLAN

103 POWDERWORKS ROAD, NORTH NARRABEEN, NSW 2101

LIST OF DRAWINGS

SHEET No.	SHEET NAME	REV	DATE
H01	CONSTRUCTION NOTES	B	11/06/2025
H02	SITE DRAINAGE PLAN	B	11/06/2025
H03	LOWER GROUND, GROUND FLOOR & ROOF DRAINAGE PLAN	B	11/06/2025
H04	OSD DETAILS	B	11/06/2025
H05	DISPERTION TRENCH DETAILS	B	11/06/2025
H06	CATCHMENT PLAN	B	11/06/2025

GENERAL

1.

THE PLUMBER/ DRAINER SHALL INSPECT THE SITE AND CONFIRM THE EXISTING SITE STRUCTURES, SERVICES AND CONDITIONS PRIOR TO PROCEEDING. SHOULD ANY DISCREPANCIES BE FOUND, CONTACT THE ENGINEER FOR DISCUSSION PRIOR TO PROCEEDING THE WORKS.
2.

LOCATION OF STORMWATER SYSTEMS, INCLUDING DOWNPIPES, PIPES, PITS, ONSITE DETENTION AND RAINWATER TANK ARE INDICATIVE ONLY. EXACT LOCATION SHALL BE DETERMINED ON SITE BY THE PLUMBER/BUILDER TO SUIT SITE CONDITIONS.
3.

THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND OTHER CONSULTANT DRAWINGS. IF ANY DISCREPANCIES FOUND, CONTACT THE ENGINEER FOR DISCUSSION PRIOR TO PROCEEDING THE WORKS.
4.

ALL MATERIAL AND WORKMANSHIP TO BE CARRIED OUT IN ACCORDANCE WITH AS3500.3:2018 STORMWATER DRAINAGE, BCA AND LOCAL COUNCIL POLICY, CONSENT AND REQUIREMENTS. IT IS THE RESPONSIBILITY OF THE PLUMBER/ DRAINER TO OBTAIN ANY APPROVALS/ PERMITS/ LICENSES ISSUED BY THE AUTHORITIES PRIOR TO PROCEEDING WITH STORMWATER WORKS.
5.

ALL DIMENSIONS AND LEVELS ARE TO BE VERIFIED AND CONFIRMED ONSITE BY THE PLUMBER/BUILDER PRIOR TO COMMENCEMENT OF THE WORKS.
6.

THESE DRAWINGS ARE NOT TO BE SCALED FOR DIMENSIONS NOR TO BE USED FOR SETOUT PURPOSES.
7.

THESE DRAWINGS DEPIC THE DESIGN OF SURFACE STORMWATER RUNOFF DRAINAGE SYSTEMS ONLY AND DO NOT DEPICT ROOF DRAINAGE OR SUBSOIL DRAINAGE SYSTEM. UNLESS NOTED OTHERWISE, THE DESIGN OF ROOF AND SUBSOIL DRAINAGE SYSTEMS IS THE RESPONSIBILITY OF OTHERS.
8.

ALL DOWNPIPES TO BE Ø100 SEWER GRADE AND FULLY SEALED U.N.O. ALL STORMWATER PIPES TO BE Ø100 SEWER GRADE AT 1% MIN. FALL U.N.O. ALL MATERIALS USED IN THE WORK SHALL BE NEW AND CONFORM WITH RELEVANT AUSTRALIAN STANDARDS AND BEAR THE REQUIRED STANDARDS MARK.
9.

INSPECTION AND CERTIFICATION, IF REQUIRED, SHALL BE DONE PRIOR TO BACKFILLING. ALLOW 24 HOUR NOTICE FOR THE ENGINEER TO CARRY OUT INSPECTION.
10.

ANY DAMAGE TO SERVICES DURING CONSTRUCTION SHALL BE REPAIRED IMMEDIATELY AT THE PLUMBER/ DRAINER'S OWN EXPENSE.

UTILITIES

1.

THE LOCATION OF UTILITIES SHOWN ON THESE DRAWINGS ARE INDICATIVE ONLY. THE CONTRACTOR SHALL, BEFORE COMMENCING ANY WORKS:

a.

DETERMINE THE EXTENT OF EXISTING UTILITY SURVEY AND INFORMATION REFERENCED ON THESE DRAWINGS.

b.

OBTAIN CURRENT DIAL BEFORE YOU DIG PLANS AND INFORMATION BY TELEPHONING 1100 OR FAX 1300 682 077 TO ASCERTAIN THE EXACT LOCATION OF UTILITIES.



c.

MAKE ANY OTHER ENQUIRIES AS THE CONTRACTOR CONSIDERS NECESSARY TO SATISFY ITSELF AS TO THE EXACT LOCATION OF UTILITY SERVICES; AND

d.

ENSURE THAT THE ADOPTED WORK METHOD WILL AVOID DAMAGE TO ALL UTILITIES.

2.

THE CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING IN THE VICINITY OF EXISTING UTILITY SERVICES.
3.

THIS FIRM WILL NOT BE LIABLE FOR ANY COSTS ARISING FROM DAMAGE TO ANY UTILITY SERVICES CAUSED BY THE CONTRACTOR.

DRAINAGE NOTES

1.

UNLESS NOTED AS OTHERWISE, ALL DOWNPIPES TO BE Ø100 ROUND (OR 100X75 RECTANGULAR) AND FULLY SEALED; ALL STORMWATER PIPES TO BE Ø100 SEWER GRADE. ALL STORMWATER PIPES TO BE LAID AT 1% MIN. FALL. ALL MATERIALS USED IN THE WORK SHALL BE NEW AND CONFORM WITH RELEVANT AUSTRALIAN STANDARDS AND BEAR THE REQUIRED STANDARDS MARK.
2.

UNLESS NOTED AS OTHERWISE, THE PIPE COVER, MEASURED FROM THE TOP OF THE PIPE TO THE FINISHED SURFACE, SHALL BE AS PER THE TABLE BELOW:

PIPE LOCATION	MINIMUM COVER
NOT SUBJECT TO VEHICULAR LOADING	100MM FOR SINGLE DWELLING 300MM FOR ALL OTHER DEVELOPMENTS
SUBJECT TO VEHICULAR LOADING	450MM WHERE NOT UNDER ROAD
UNDER SEALED ROAD	600MM
UNDER UNSEALED ROAD	750MM
UNDER FOOTPATHS	400MM
PARKS	400MM
PAVED DRIVEWAY	100MM BELOW UNDER SIDE OF PAVEMENT

3.

ANY PIPES BENEATH RELEVANT LOCAL AUTHORITY ROAD TO BE RUBBER RING JOINTED RCP, UNLESS NOTED AS OTHERWISE.
4.

ALL STORMWATER PIT WITHIN THE PROPERTY ARE TO BE FITTED WITH "WELDLCK" OR APPROVED EQUIVALENT GRATE OF:

-

LIGHT DUTY FOR LANDSCAPED AREAS

-

HEAVY DUTY WHERE SUBJECTED TO VEHICULAR TRAFFIC
5.

UNLESS NOTED AS OTHERWISE, MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS SHALL BE GIVEN IN TABLE BELOW:

DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSION (mm)	
	WIDTH	LENGTH
UP TO 450mm	450	450
450mm TO 600mm	600	600
600mm TO 900mm	600	900
900mm TO 1500mm (x)	900	900
1500mm TO 2000mm (x)	1200	1200

(x) NOTE STEP IRONS SHALL BE PROVIDED FOR PITS WITH DEPTHS EXCEEDING 1200 MM

6.

ALL PITS IN ROADWAY SHALL BE FITTED WITH HEAVY DUTY GRATES WITH LOCKING BOLTS AND CONTINUOUS HINGES.
7.

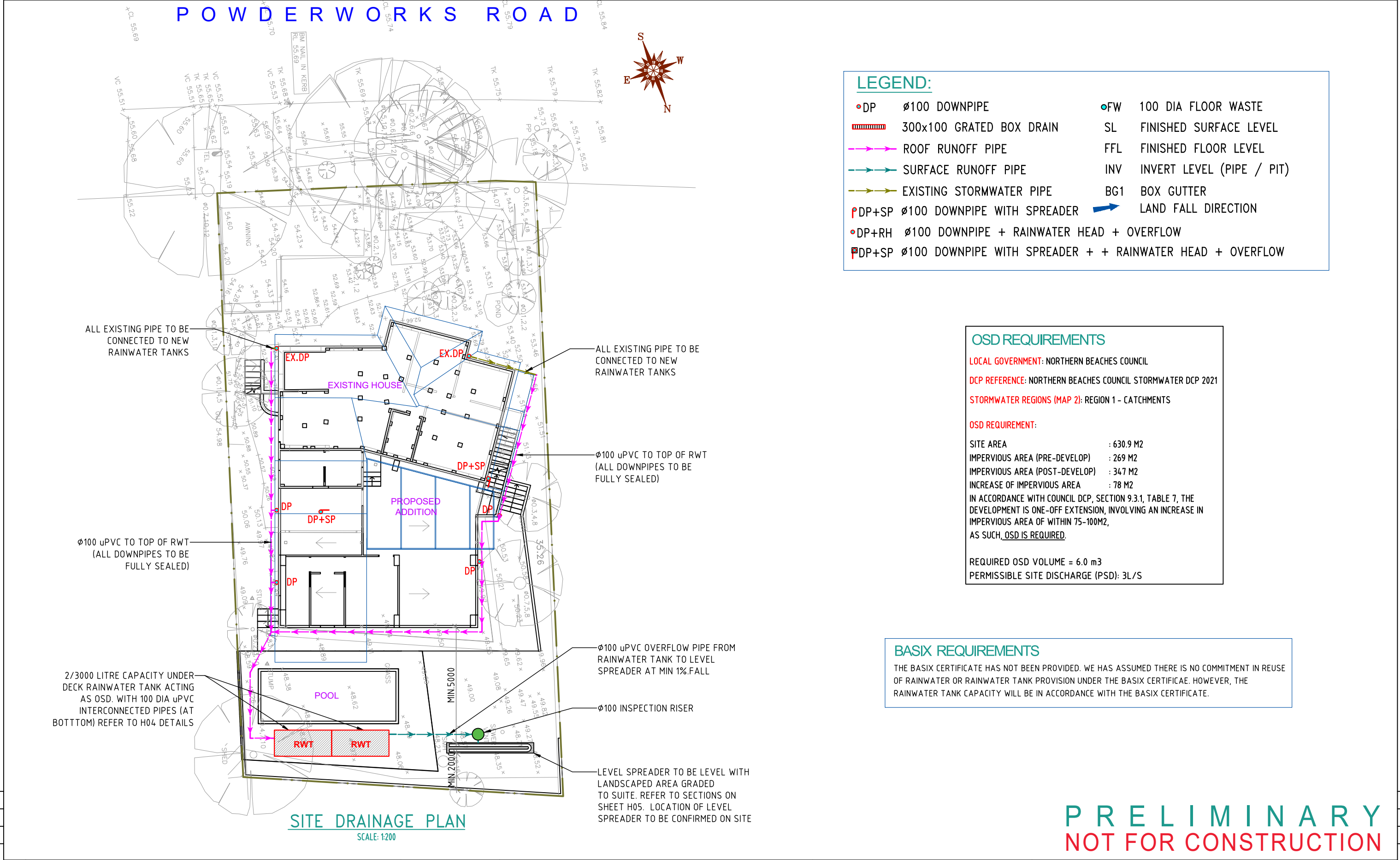
SUB-SOIL DRAINS FOR RETAINING WALL AND EMBANKMENTS SHALL BE INSTALLED BY THE BUILDER AND CONNECTED TO STORMWATER LINES. ALL AGG. LINES SHALL BE 100MM DIA., UNLESS NOTED OTHERWISE.

PRELIMINARY
NOT FOR CONSTRUCTION

PAPER SIZE: A3						<div><div>Eric Tran</div><div>Structural/Civil Engineer</div><div>B.E (Civil)</div><div>MIE Aust, CPEng</div><div>NER# 5259070</div><div>RPEQ# 22238</div></div>	DRAWINGS / DESIGN PREPARED BY		CLIENT:		PROJECT:	
							5S PROJECTS CONSULTING ENGINEERS PTY LTD		FRANCOIS DLC		PROPOSED ATERATIONS & ADDITIONS	
							ABN: 38 634 702 113				PROJECT ADDRESS:	
							A: PO BOX 208, EARLWOOD NSW 2206				103 POWDERWORKS ROAD, NORTH NARRABEEN, NSW 2101	
							M: (02) 9906 5668		LGA:		DRAWING TITLE	
							E: info@5sprojects.com.au		NORTHERN BEACHES COUNCIL		CONSTRUCTION NOTES	
	B	REISSUED FOR CLIENT REVIEW	11/06/2025	LT	ET		W: 5sprojects.com.au				SCALE	
	A	ISSUED FOR CLIENT REVIEW	10/06/2025	LT	ET						TOTAL SHEET:	
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											FSP-DWG-254367 - H01	
											REV:	
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50mm ON A3 SIZE ORIGINAL



OSD REQUIREMENTS

LOCAL GOVERNMENT: NORTHERN BEACHES COUNCIL

DCP REFERENCE: NORTHERN BEACHES COUNCIL STORMWATER DCP 2021

STORMWATER REGIONS (MAP 2): REGION 1 - CATCHMENTS

OSD REQUIREMENT:

SITE AREA : 630.9 M2

IMPERVIOUS AREA (PRE-DEVELOP) : 269 M2

IMPERVIOUS AREA (POST-DEVELOP) : 347 M2

INCREASE OF IMPERVIOUS AREA : 78 M2

IN ACCORDANCE WITH COUNCIL DCP, SECTION 9.3.1, TABLE 7, THE DEVELOPMENT IS ONE-OFF EXTENSION, INVOLVING AN INCREASE IN IMPERVIOUS AREA OF WITHIN 75-100M2, AS SUCH, OSD IS REQUIRED.

REQUIRED OSD VOLUME = 6.0 m3

PERMISSIBLE SITE DISCHARGE (PSD): 3L/S

BASIX REQUIREMENTS

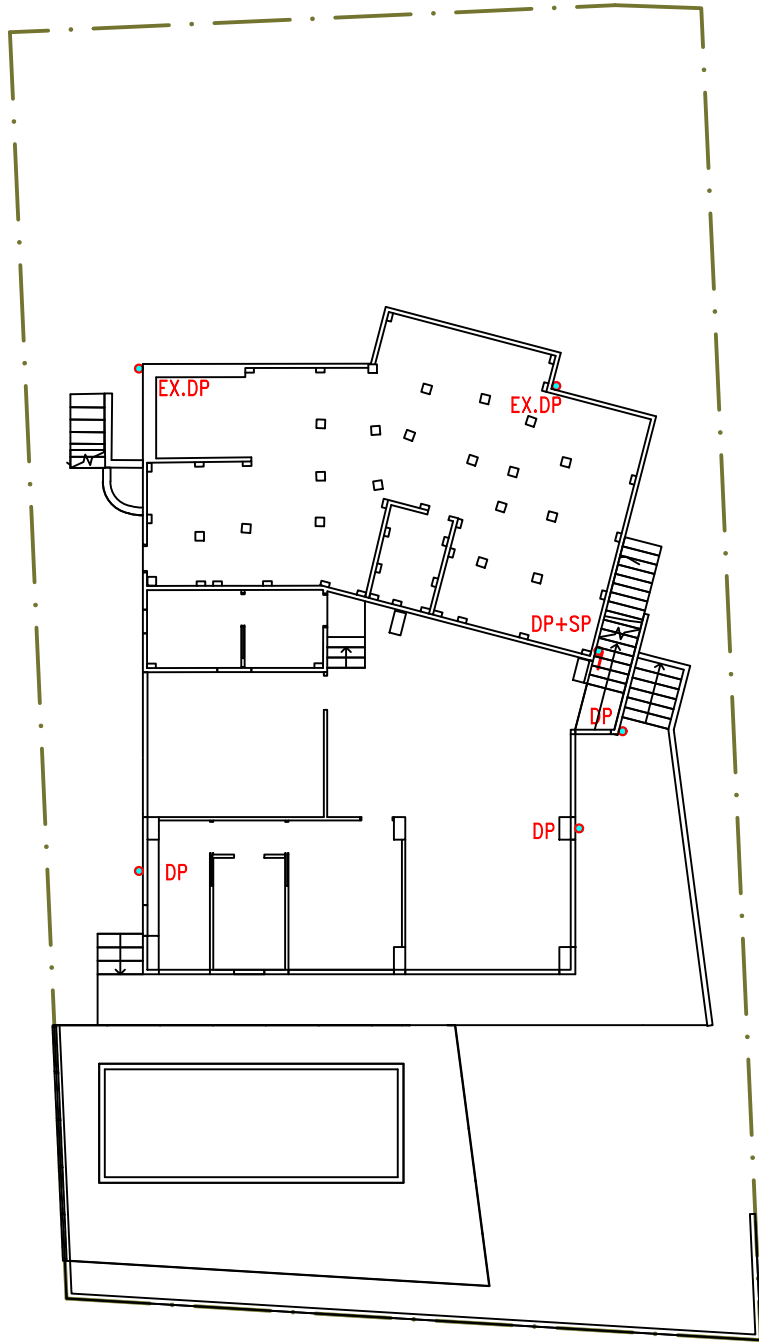
THE BASIX CERTIFICATE HAS NOT BEEN PROVIDED. WE HAS ASSUMED THERE IS NO COMMITMENT IN REUSE OF RAINWATER OR RAINWATER TANK PROVISION UNDER THE BASIX CERTIFICATE. HOWEVER, THE RAINWATER TANK CAPACITY WILL BE IN ACCORDANCE WITH THE BASIX CERTIFICATE.

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	B	REISSUED FOR CLIENT REVIEW	11/06/2025	LT	ET			<div>FRANCOIS DLC</div> <div>LGA: NORTHERN BEACHES COUNCIL</div>	DRAWING TITLE SITE DRAINAGE PLAN		SCALE	A3
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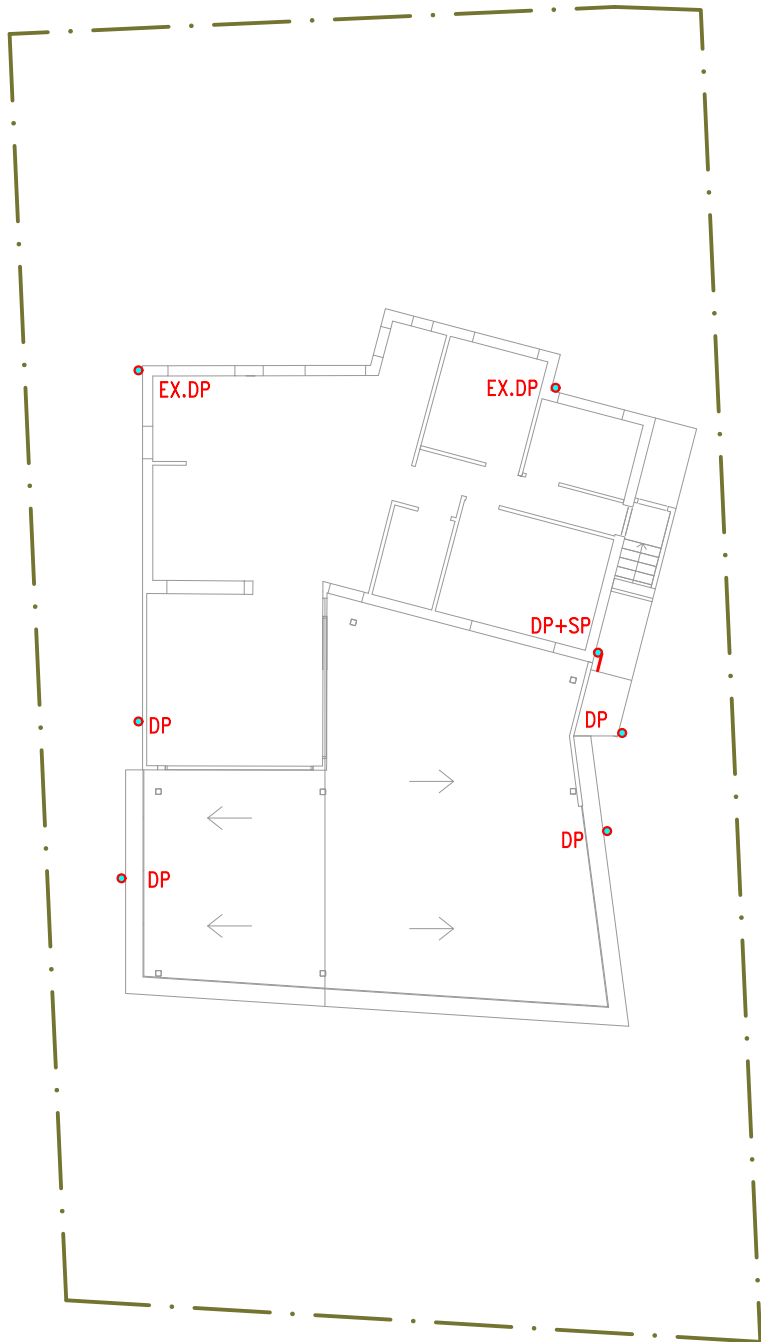
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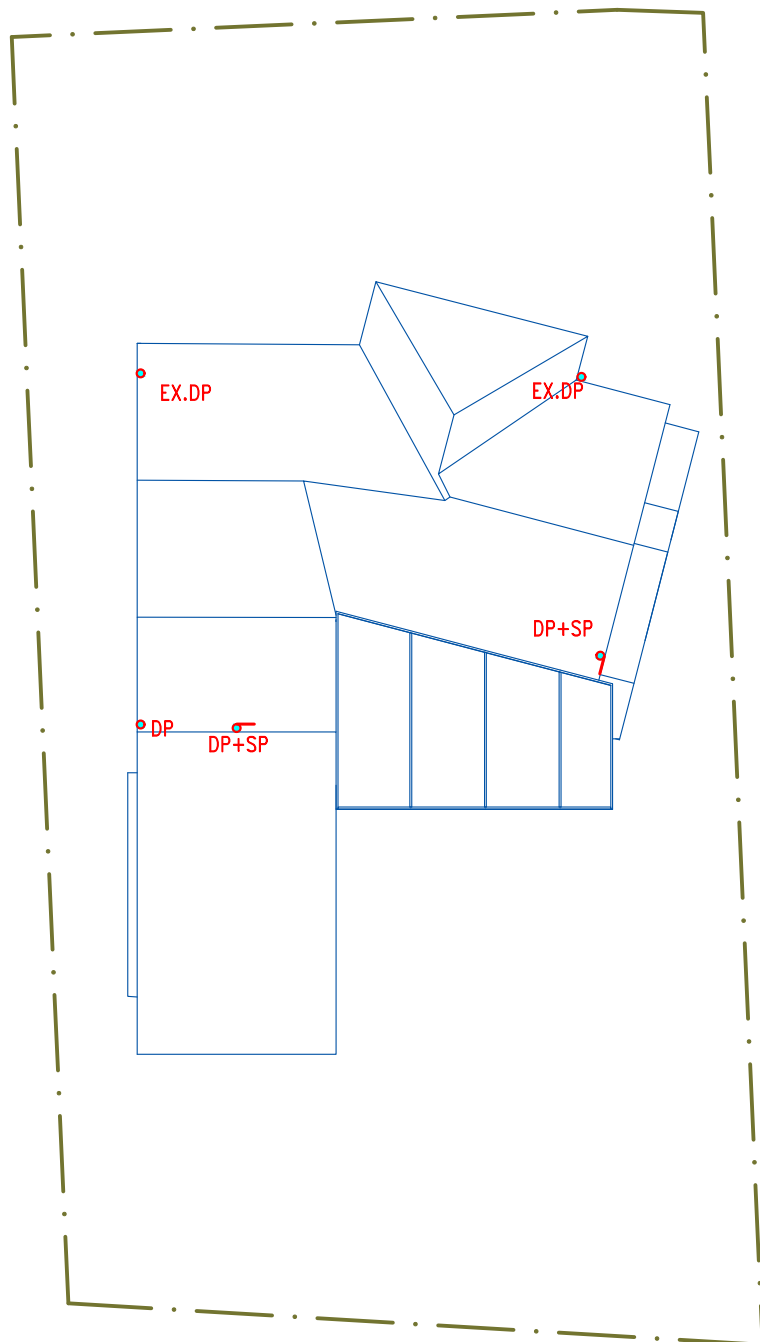
50mm ON A3 SIZE ORIGINAL



LOWER GROUND PLAN
SCALE: 1:200




GROUND FLOOR PLAN
SCALE: 1:200



ROOF PLAN
SCALE: 1:200

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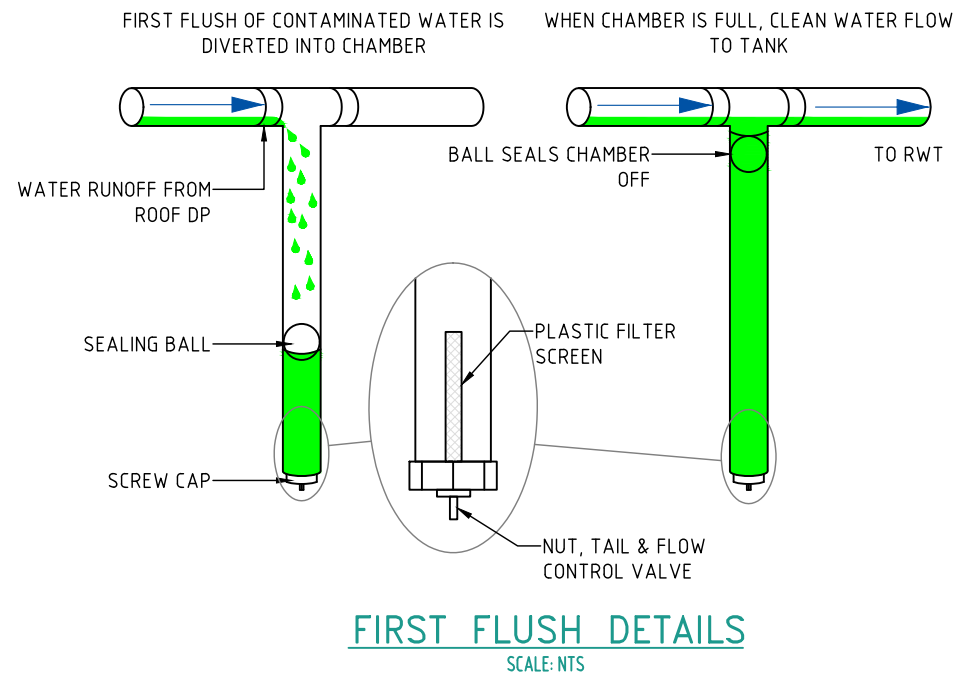
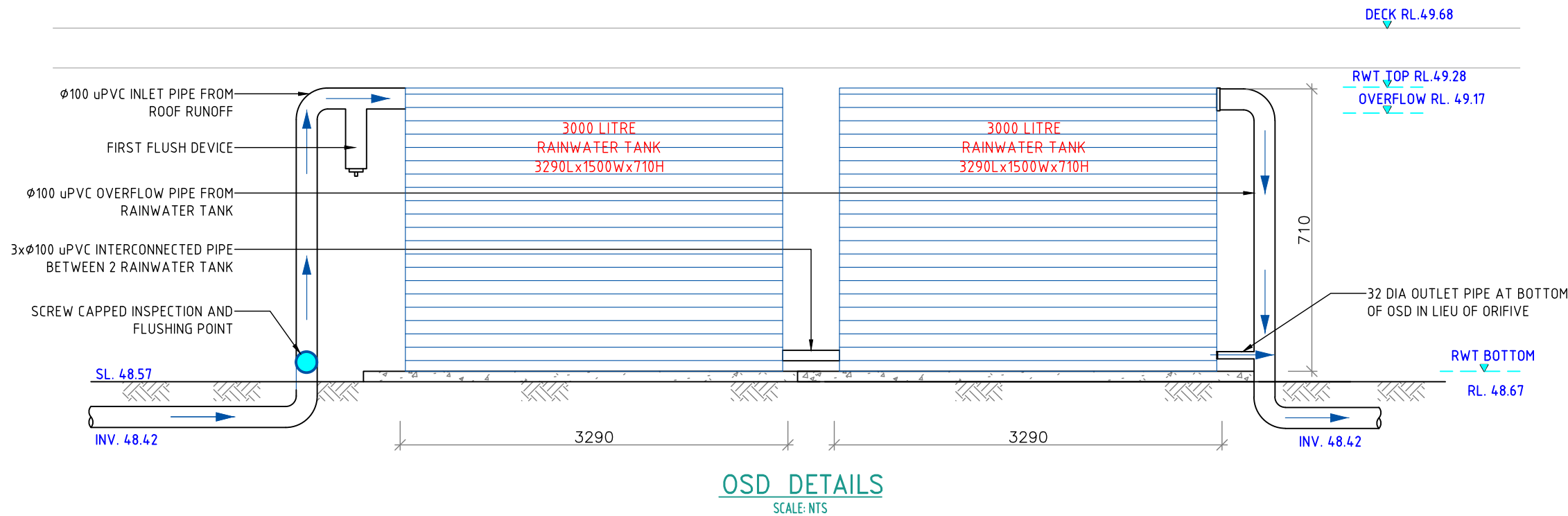
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			LGA: NORTHERN BEACHES COUNCIL		DRAWING TITLE: LOWER GROUND, GROUND FLOOR & ROOF DRAINAGE PLAN	SCALE: A3 TOTAL SHEET: 06
					DRG NUMBER FSP-DWG-254367 -H03	REV: B

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50mm ON A3 SIZE ORIGINAL



RAINWATER TANK NOTES:

- RAINWATER TANK IS TO BE TANKSHOP SLIMLINE TANK OR APPROVED EQUIVALENT PRODUCT TO BE USED FOR THIS DEVELOPMENT.
- ALL TANKS ARE TO BE PLACED ON A STRUCTURALLY ADEQUATE BASE, IN ACCORDANCE WITH THE MANUFACTURER'S OR ENGINEERS DETAILS
- DIMENSIONS OF THE RWT ARE INDICATIVE ONLY AND TO BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
- FIRST FLUSH FILTERING DEVICE IS POSITIONED IN LINE WITH THE TOP OF THE TANK TO REMOVE FLOATING MATERIALS AND PREVENT FINER FINER PARTICLES FROM ENTERING THE TANK
- CLEAN FIRST FLUSH FILTER DEVICE AS DIRECTED BY THE MANUFACTURER
- EMPTY TANK AND REMOVE SEDIMENTS EVERY 5 YEARS WHEN REUSE IN BOTH INTERNAL AND EXTERNAL
- RAINWATER OUTLET CONNECTIONS AS PER BASIX CERTIFICATE.

Orifice Plate Discharge Calculation :

$$Q_{\max} = AC_d \sqrt{2gh} \Rightarrow A = \frac{Q_{\max}}{C_d \sqrt{2gh}}$$

Qmax = 0,003 (m3/s)
h = 1,8 (m)
Cd = 0,61
g = 9,8 m/s2
A = 0,001 m2

$$\text{Orifice Diameter} = D = \sqrt{\frac{A \times 4}{\Pi}} = 32 \text{ (mm)}$$

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	B	REISSUED FOR CLIENT REVIEW	11/06/2025	LT	ET						DRAWING TITLE OSD DETAILS		SCALE A3
	A	ISSUED FOR CLIENT REVIEW	10/06/2025	LT	ET						DRG NUMBER FSP-DWG-254367 -H04		TOTAL SHEET: 06
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END CAP (TYP)

600

200

5000

200

75

150

150

75

Ø100 INSPECTION RISER

LEVEL SPREADER PLAN
SCALE: 1:20

BACKFILL COARSE FREE DRAINING MATERIAL

100

150Ø SLOTTED uPVC PIPE

MIN. 600mm DEEP WASHED RIVER SAND

MIN. 600

600

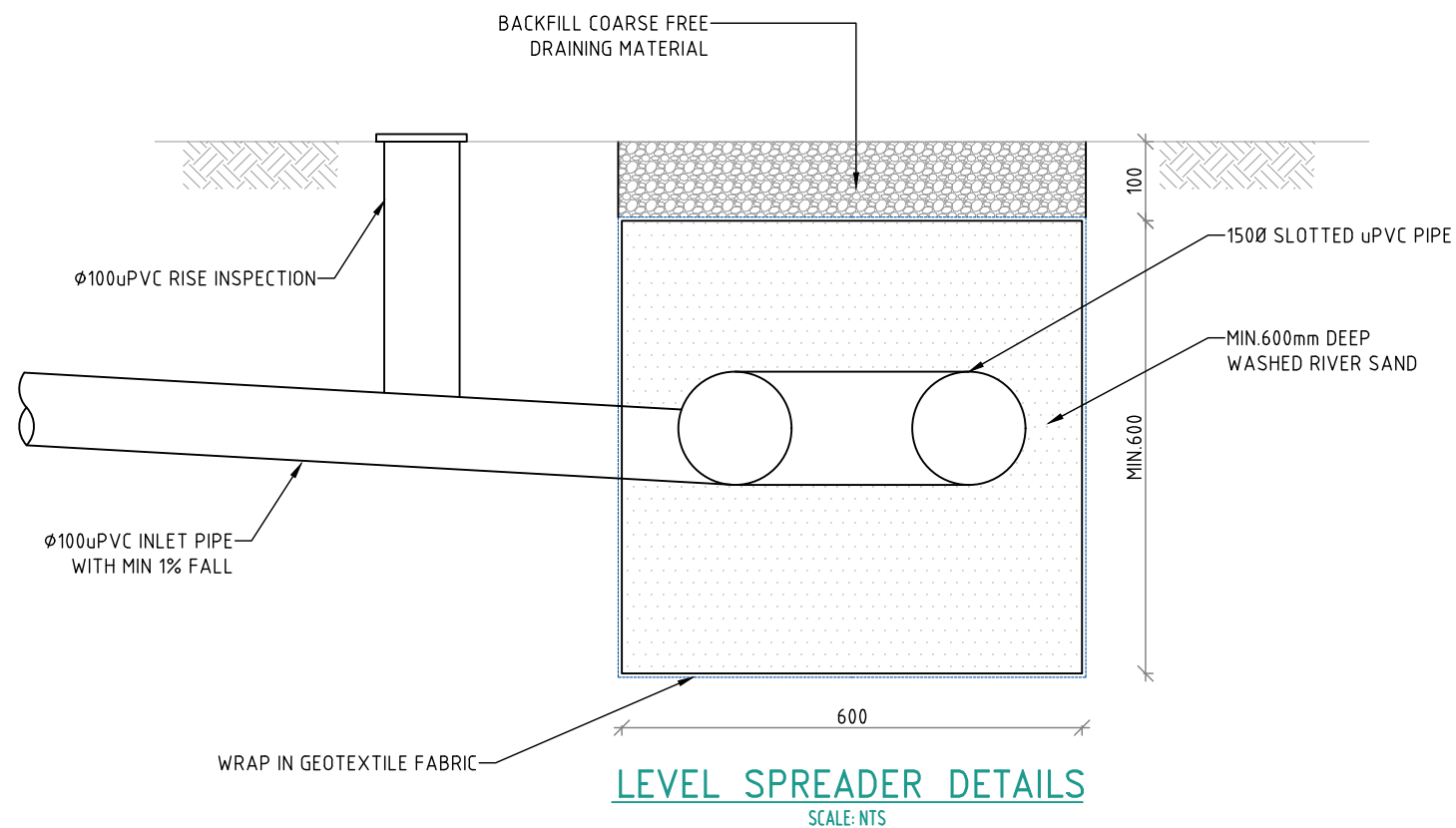
Ø100uPVC RISE INSPECTION

Ø100uPVC INLET PIPE WITH MIN 1% FALL

WRAP IN GEOTEXTILE FABRIC

LEVEL SPREADER DETAILS
SCALE: NTS

PRELIMINARY
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PRELIMINARY
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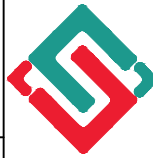
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CLIENT:

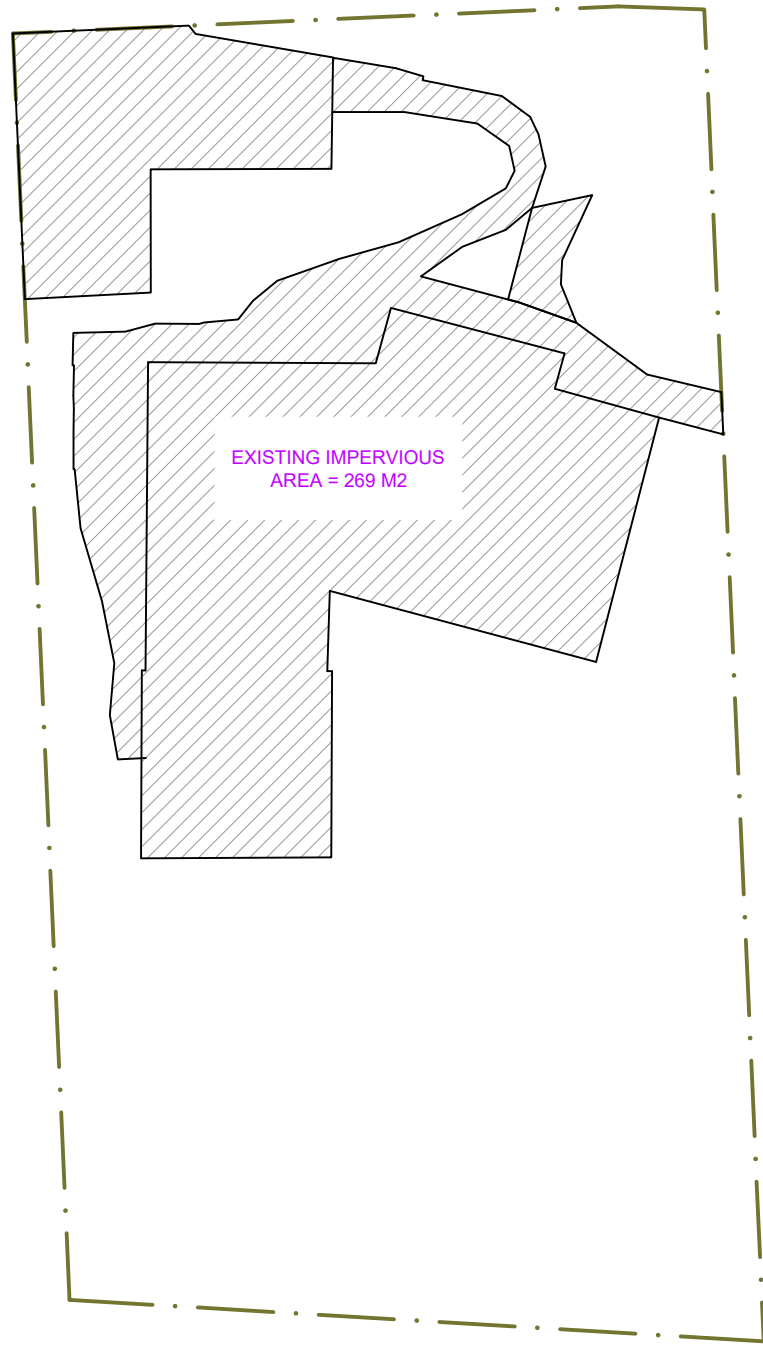
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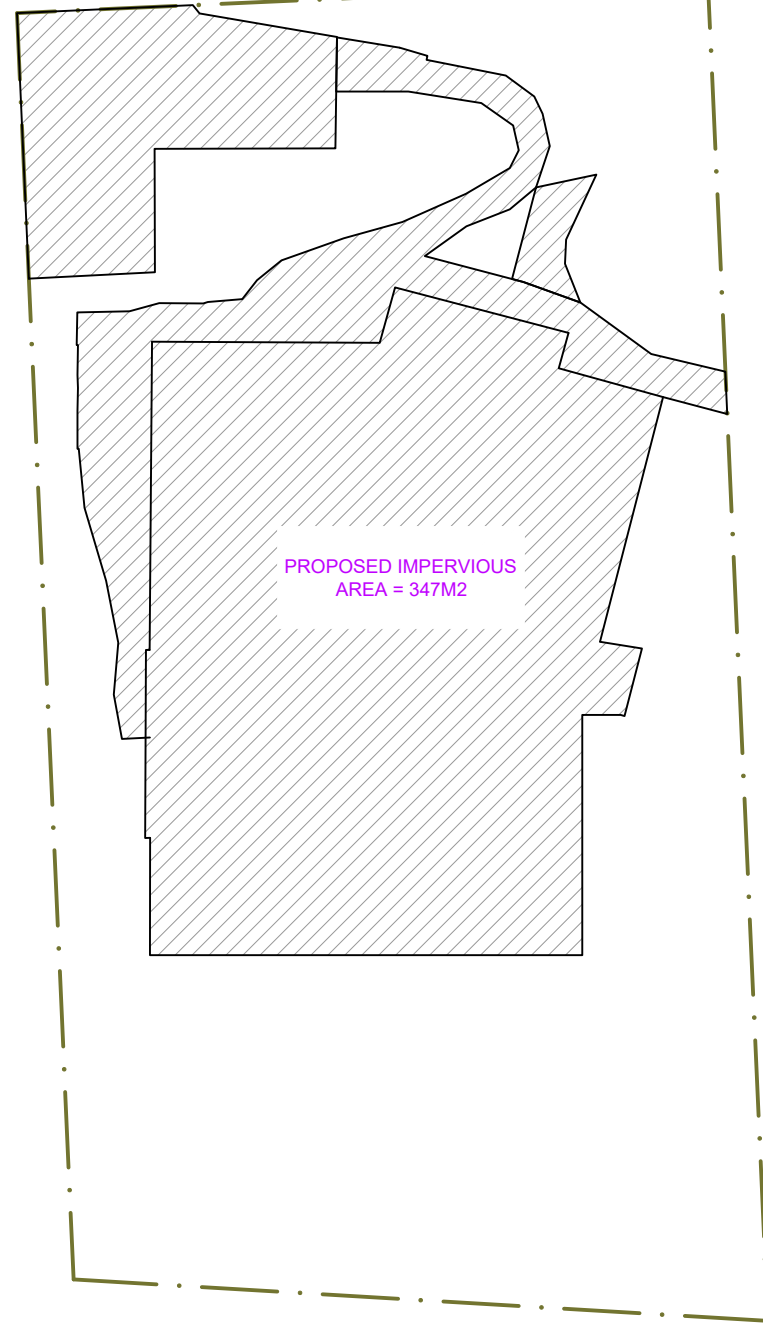
PROJECT: PROPOSED ATERATIONS & ADDITIONS

PROJECT ADDRESS:
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DRAWING TITLE	CATCHMENT PLAN	SCALE	A3
DRG NUMBER	FSP-DWG-254367 - H06	TOTAL SHEET:	06
		REV:	B



EXISTING IMPERVIOUS AREA
SCALE: 1:200



PROPOSED IMPERVIOUS AREA
SCALE: 1:200

OSD REQUIREMENTS

LOCAL GOVERNMENT: NORTHERN BEACHES COUNCIL

DCP REFERENCE: NORTHERN BEACHES COUNCIL STORMWATER DCP 2021

STORMWATER REGIONS (MAP 2): REGION 1 - CATCHMENTS

OSD REQUIREMENT:

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IN ACCORDANCE WITH COUNCIL DCP, SECTION 9.3.1, TABLE 7, THE DEVELOPMENT IS ONE-OFF EXTENSION, INVOLVING AN INCREASE IN IMPERVIOUS AREA OF WITHIN 75-100M2, AS SUCH, OSD IS REQUIRED.

REQUIRED OSD VOLUME = 6.0 m3
PERMISSIBLE SITE DISCHARGE (PSD): 3L/S

Additional Hard (Impervious) Surface Area (square metres)	Minimum Capacity of On-Site Detention Tank (Litres)	Discharge Rate Litres/Sec
0 -50	Nil	Nil
>50 - 75	4,500	2
>75 - 100	6,000	3
>100 - 150	9,000	4
>150 - 200	12,000	6
>200 - 250	15,000	7
>250 - 300	18,000	9
>300 - 400	24,000	12
>400 - 500	30,000	15
>500 - 600	36,000	18
>600 - 700	42,000	21
>700 - 800	48,000	24
>800 - 900	54,000	27
>900 - 1,000	60,000	30
>1,000*	A minimum storage capacity of 60 liters per m ² of additional hard/impervious surface area, and a discharge rate which replicates the discharge from the site were it to be undeveloped.	

PRELIMINARY
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