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LEDGE HOUSE

No.2 WYADRA AVENUE, FRESHWATER

SITE STORMWATER MANAGEMENT

LEGEND

RW	RAIN WATER
SW	STORM WATER
SS	SUBSOIL DRIANAGE
ESW	EXISTING STORM WATER

I.O	INSPECTION OPENING
EX.	EXISTING
S.I.P	STORMWATER INLET PIT
RWH	RAINWATER HEAD
M/H	SEWER MANHOLE
CAT.	CATCHMENT
H/W	HEAD WALL
HY.	DUAL FIRE HYDRANT
RWO	RAINWATER OUTLET
T.B.C	TO BE COORDINATED
NB	NOMINAL BORE
F.F.L	FINISHED FLOOR LEVEL
L/s	LITRES PER SECOND
G.D	GRATED DRAIN
IV.L	INVERT LEVEL
F.W	FLOOR WASTE
EX.	EXISTING
WT	WATER TANK
DP	DOWNPIPE
OSD	ONSITE STORMWATER DETENTION

CONTINUES ON PLAN No.

VP 100 — RISER, SERVCIE, SIZE, DROPPER

CONSENT AUTHORITIES

- NORTHERN BEACHES COUNCIL
- NSW WORKCOVER

CODES / INSTALLATION STANDARDS

- NCC 2019 VOL 1
- NCC 2019 VOL 3 PLUMBING CODE OF AUSTRALIA
- N.B.C D.C.P 21.

STORMWATER MANAGEMENT DESIGN PLAN

1. DESIGN I.F.D - 5min EVENT.
   - 2 YR = 110mm/hr
   - 20 YR = 198mm/hr
   - 100 YR = 261mm/hr
2. SEE ATTACHED DRAINS MODEL ANALYSIS OF SITE STORMWATER MANAGEMENT DESIGN.
   - DESIGN ANALYSIS INPUT DATA FILE.
   - DESIGN ANALYSIS RESULTS DATA FILE.

SPECIFICATION AND INSTALLATION NOTES:

- IT IS THE RESPONSIBILITY OF THE LICENSED PLUMBING CONTRACTOR TO ENSURE ALL WORKS ARE COMPLIANT WITH INSTALLATION CONTROL STANDARDS.
- THE DRAWINGS ARE A GUIDE ONLY FOR THE LOCATION AND LAYOUT OF SERVICES, DO NOT SCALE FROM DRAWINGS.
- VERIFY THAT ALL INVERT LEVELS, SURFACE LEVELS AND CLEARANCES ARE CORRECT AND OBTAINABLE PRIOR TO COMMENCING WORKS.
- ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH AS/NZS 3500, LOCAL AUTHORITY GUIDELINES AND NATIONAL CONSTRUCTION CODE 2016 AND PLUMBING CODE OF AUSTRALIA.
- ALL PLUMBING AND DRAINAGE MATERIALS SHALL BE IN ACCORDANCE WITH AS/NZS 3500, LOCAL AUTHORITY GUIDELINES AND NATIONAL CONSTRUCTION CODE 2016 AND PLUMBING CODE OF AUSTRALIA.
- WORKS SHALL BE CONSTRUCTED BY SUITABLY QUALIFIED, COMPETENT AND LICENSED TRADES PEOPLE.
- ALL TESTING AND INSPECTION REQUIREMENTS OUTLINED ON THESE DRAWINGS, CONTRACT DOCUMENTS AND REVEL ANT STANDARDS, CODES AND LEGISLATION TO BE UNDERTAKEN AND COMPLIANCE DOCUMENTED. ALL COST ASSOCIATED SHALL BE PAYABLE AS REQUIRED.
- ALL PIPEWORK SERVICE DIMENSIONS INDICATED ON DRAWINGS ARE TO BE TAKEN AS NOMINAL INTERNAL DIAMETER. FOR NOMINAL INTERNAL DIAMETER OF PIPEWORK UP TO DN50, REFER AS/NZS 3500.1 APPENDIX J.
- PROVIDE SERVICE MARKING TAPE TO CLEARLY IDENTIFY SERVICE BELOW IN ACCORDANCE WITH AS/NZS 2648.1.
  SERVICE MARKING TAPE TO BE PLASTIC WITH INTEGRATED WIRE TRACER LAID 350mm ABOVE BURIED SERVICE AND COVERED WITH 100mm OF SAND BACKFILL.
- COMPLETE A DIAL - BEFORE - YOU - DIG SURVEY PRIOR TO START OF WORKS.

MATERIAL SPECIFICATION

NOTE: ALL MATERIALS ARE TO BE WATERMARK CERTIFIED.

- ALL SITE STORMWATER PIPE LINES TO BE INSTALLED IN DWV.
- SITE SUB-SOIL LINES INSTALLED AS PER DETAIL.

PLAN SCHEDULE

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER

Drawing Title: TITLEPAGE AND LEGEND

Date: 23/03/22 | Scale: N/A A2 | Plan No. 1

Drawn By: L.OLIVE | Design By: J.OLIVE | Checked By: .....

Drawing No. 2021-X50/H01

Issued For: DEVELOPMENT APPLICATION 1

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North Point.

S/S LINE TO BE POSITIONED AT BASE OF EXCAVATION

WATER TANK OVERFLOW TO O.S.D TANK

DP.1 - DISCHARGES TO W.T

DP.2 - DISCHARGES TO O.S.D

S.I.P No.2
POSITION IN CENTER OF GRAVEL SURROUND STRUCTURE TO COLLECT OVERFLOW FROM DP.7 INLET

DP.7 TO LEVEL 2

MAIN S.W LINE TO BE INSTALLED IN LOCATION OF EXISTING WATER COURSE.
NOTE THAT S.W LINE TO INCLUDE S/S DRAINAGE ELEMENT.
SEE DETAIL PLAN

new stair–location to be confirmed on site

existing stair

FINAL LOCATION OF S.W LINE TO BE COORDINATED WITH LANDSCAPE ELEMENTS.

PROPOSED LANDSCAPE EPHEMERAL RILL

COLLECTED/CONTROLLED FLOWS DISCHARGE TO EXISTING STORMWATER Ø150mm LINE INSTALLED INTO EASEMENT.
- 2YR = 9L/s
- 20YR = 15L/s
- 100YR = 20L/s

S.I.P No.1
FINAL LOCATION T.B.C.
RL. 34.40 (T.B.C)
IV.L 33.90 (T.B.C)

POST DEVELOPED
TOTAL UNCONTROLLED STORM RUNOFF FLOWS FROM SITE
- 2YR = 5L/s
- 20YR = 10L/s
- 100YR = 13L/s

EX. SEWER M/H

RL. 25.90
EX. S.W PIT

EXISTING Ø150mm S.W LINE LOCATED IN EXISTING EASEMENT

TOTAL POST DEVELOPMENT SITE
STORM RUNOFF
- 2YR = 14L/s
- 20YR = 25L/s
- 100YR = 33L/s

TOTAL PRE-DEVELOPED SITE
STORM RUNOFF
- 2YR = 13L/s
- 20YR = 25L/s
- 100YR = 37L/s

NOTE: SEE ATTACHED DRAINS MODEL INPUT DATA AND RESULTS DATA FILE.

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER

Drawing Title: LEVEL 1 STORMWATER MANAGEMENT PLAN

Date: 23/03/22 | Scale: 1:100 A2 | Plan No. 2

Drawn By: L.OLIVE | Design By: J.OLIVE | Checked By: .....

Drawing No. 2021-X50/H02

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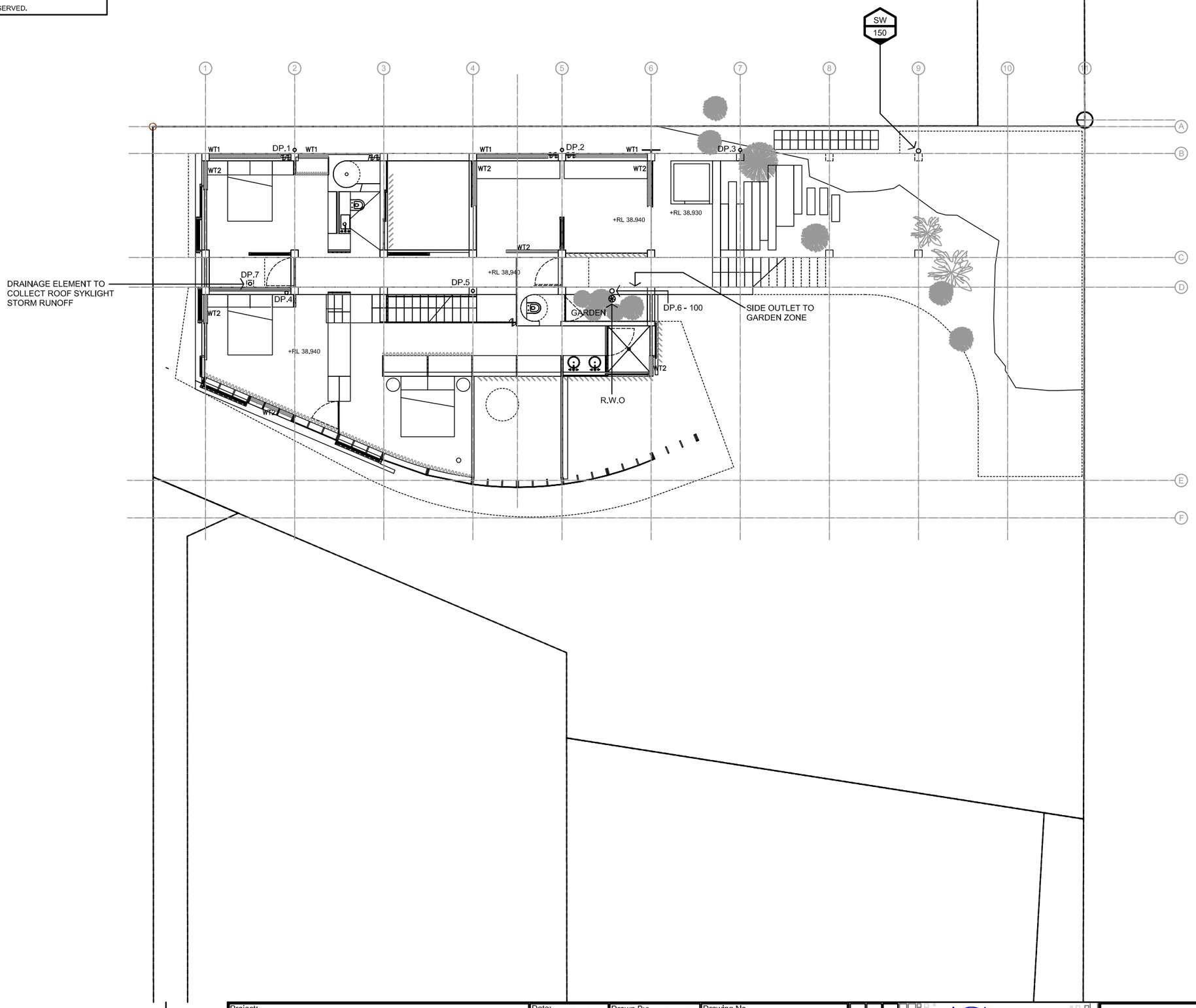

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER

Drawing Title: LEVEL 2 STORMWATER MANAGEMENT PLAN

Date: 23/03/22
Scale: 1:100 A2
Plan No. 3

Drawn By: L.OLIVE
Design By: J.OLIVE
Checked By: .....

Drawing No. 2021-X50/H03
Issued For: DEVELOPMENT APPLICATION 1

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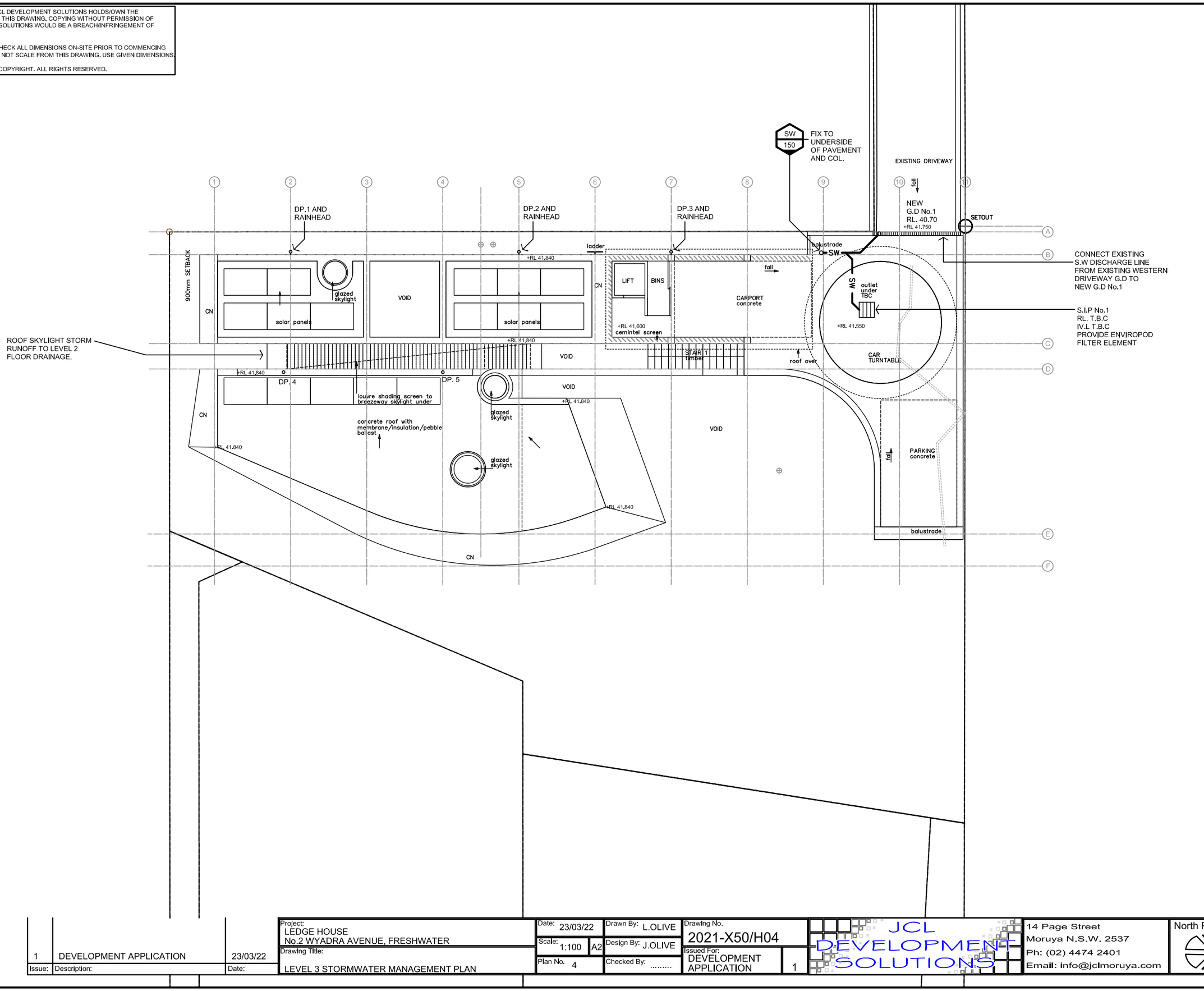

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER

Drawing Title: LEVEL 3 STORMWATER MANAGEMENT PLAN

Date: 23/03/22 | Scale: 1:100 A2 | Plan No. 4

Drawn By: L.OLIVE | Design By: J.OLIVE | Checked By: .....

Drawing No. 2021-X50/H04

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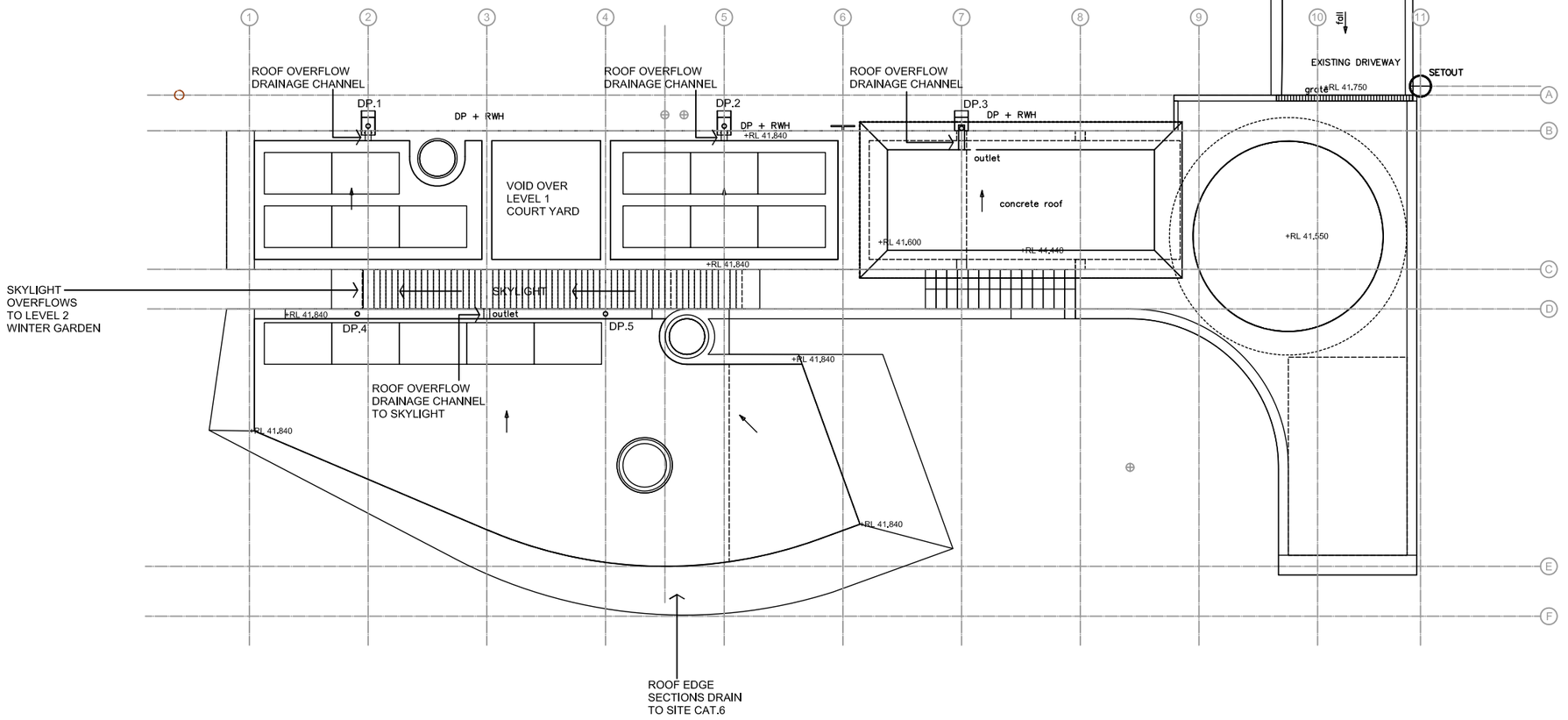

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER

Drawing Title: ROOF PLAN

Date: 23/03/22 | Scale: 1:100 A2 | Plan No. 5

Drawn By: L.OLIVE | Design By: J.OLIVE | Checked By: .....

Drawing No. 2021-X50/H05

Issued For: DEVELOPMENT APPLICATION 1

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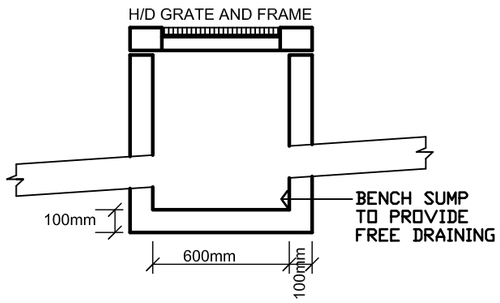
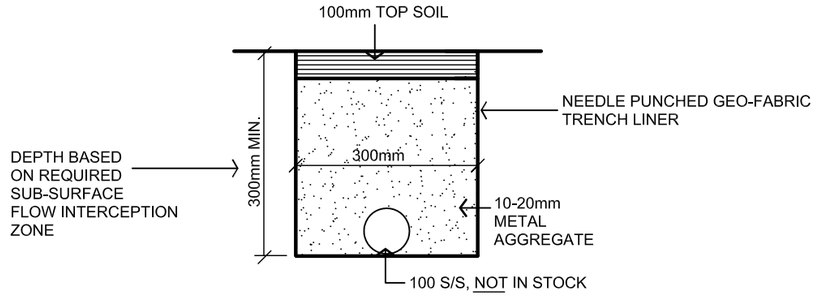
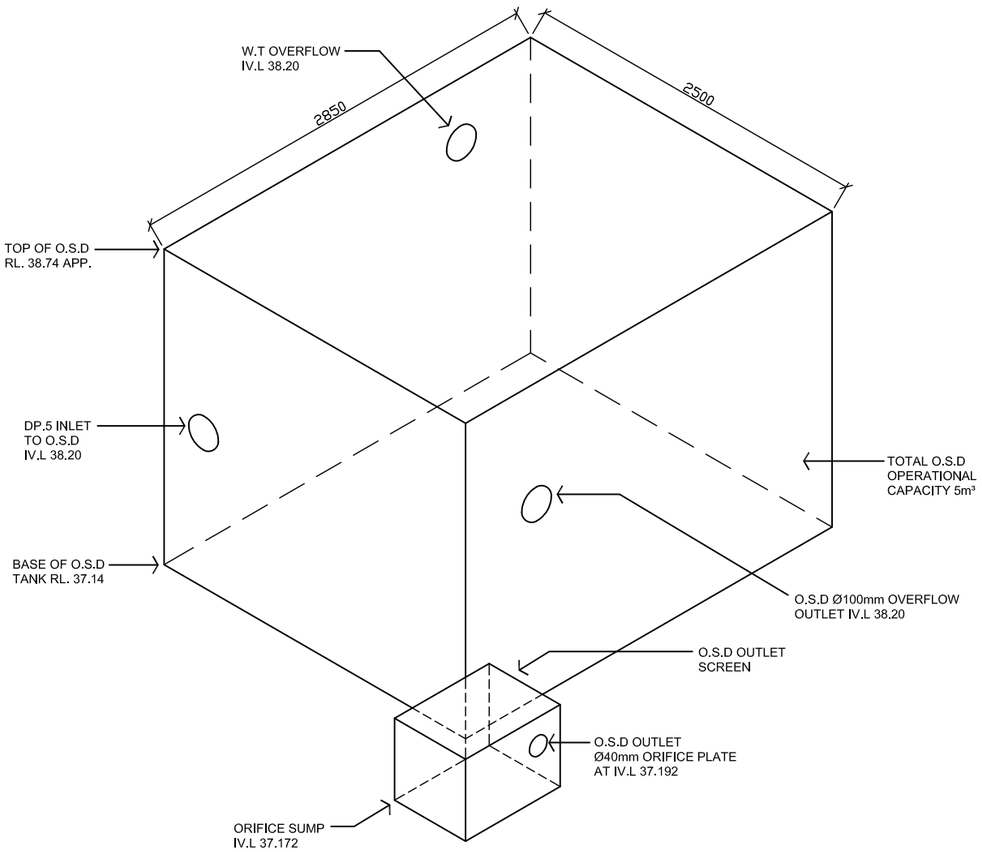


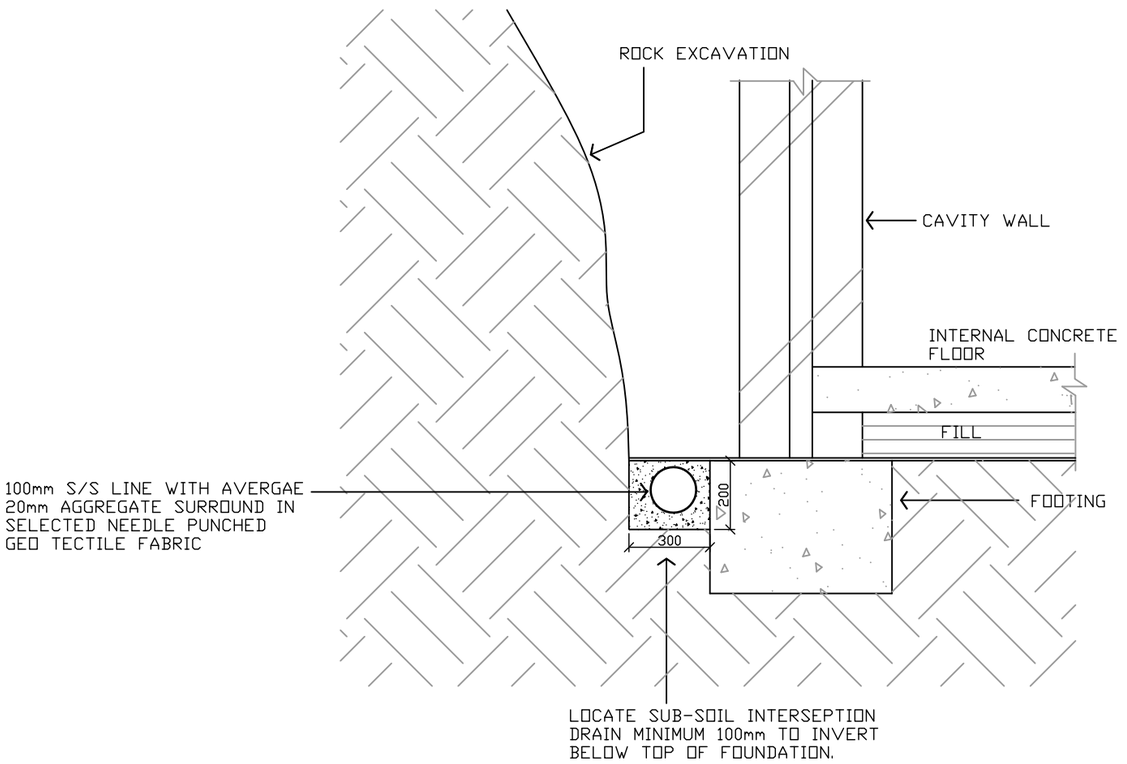
TYPICAL PRE-CAST
GRC OR CONCRETE S/W SUMP



SUB-SOIL LINE INSTALLED PARALELL
TO MAIN S.W LINE BELOW BUILDING



O.S.D TANK



SUB-SOIL DETAIL TO ROCK EXCAVATION

Issue:	Description:	Date:
1	DEVELOPMENT APPLICATION	23/03/22

Project: LEDGE HOUSE
No.2 WYADRA AVENUE, FRESHWATER
Drawing Title: ROOF PLAN

Date: 23/03/22
Scale: N.T.S A2
Plan No. 6
Drawn By: L.OLIVE
Design By: J.OLIVE
Checked By: .....

Drawing No. 2021-X50/H05
Issued For: DEVELOPMENT APPLICATION 1

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JCL No 2 Wyadra Avenue, Freshwater DRAINS analysis result data file.

Note that this DRAINS analysis has been prepared to support the Stormwater Management design principle adopted in the preparation of system designs detailed on JCL plan set X50-H01 to H01 to H06.

Analysis modelling of pre-developed site and post-developed site adopts site ground description as detailed in the Crozier Geotechnical Consultants report that describes the site as general rock shelf, therefore no disposal of collected storm runoff from the site is proposed for disposal into the existing site soil profile.

All collected and controlled storm runoff from the site is to be discharged via the existing stormwater easement pipe line that currently services the block.

The following results are confirmed by the completed DRAINS analysis.

Pre-Developed total site discharge flows- uncontrolled	2 year-13 l/s	20 year-27 l/s	100 year-37 l/s
Post-Developed total site discharge flows-controlled/uncontrolled	2 year-14 l/s	20 year-25 l/s	100 year-33 l/s

DRAINS results prepared from Version 2020.061

PIT / NODE DETAILS Version 8

Name	Max HGL	Max Pond HGL	Max Surface Flow Arriving (cu.m/s)	Max Pond Volume (cu.m)	Min Freeboard (m)	Overflow (cu.m/s)	Constraint
Pit1	38.41		0.007	0.89	0.000	None	
N2	7.02		0.000				

JCL Project 2021/X-50

SUB-CATCHMENT DETAILS

Name	Max Flow Q (cu.m/s)	Paved Max Q	Grassed Max Q (cu.m/s)	Paved Tc	Grassed Tc (cu.m/s)	Supp. Tc	Due to Storm (min)	(min)	(min)
Cat1	0.016	0.016	0.000	5.00	3.00	2.00	x50 1%		
Cat2	0.007	0.007	0.000	5.00	5.00	2.00	x50 1%		
Cat3	0.013	0.013	0.000	7.00	10.00	2.00	x50 1%		
Cat4	0.001	0.001	0.000	7.00	5.00	2.00	x50 1%		
Cat5	0.001	0.001	0.000	7.00	5.00	2.00	x50 1%		
Cat6	0.032	0.031	0.001	7.00	7.00	2.00	x50 1%		

Outflow Volumes for Total Catchment (0.13 impervious + 0.00 pervious = 0.14 total ha)

Storm	Total Rainfall cu.m	Total Runoff cu.m (Runoff %)	Impervious Runoff cu.m (Runoff %)	Pervious Runoff cu.m (Runoff %)
x50 1%	29.84	26.96 (90.4%)	26.42 (90.8%)	0.54 (72.6%)
x50 5%	22.64	19.76 (87.3%)	19.40 (87.9%)	0.36 (63.9%)
X50 50%		12.58	9.70 (77.1%)	9.59 (78.2%)	0.11 (35.2%)

PIPE DETAILS

Name	Max Q (cu.m/s)	Max V	Max U/S (m/s)	Max U/S HGL (m)	Max D/S	Max D/S HGL (m)	Due to Storm
Pipe1	0.007	0.89	38.357	38.257	x50 1%		
Pipe2	0.001	0.83	7.223	7.023	x50 1%		

CHANNEL DETAILS

Name	Max Q (cu.m/s)	Max V (m/s)	Chainage (m)	Max HGL (m)	Due to Storm

OVERFLOW ROUTE DETAILS

Name	Max Q U/S	Max Q D/S	Safe Q	Max D	Max DxV	Max Width	Max V	Due to Storm
OF1	0	1.442	0	0	0	0		

DETENTION BASIN DETAILS

Name	Max WL	MaxVol Total	Max Q Low Level	Max Q	Max Q High Level
Basin1	37.38	1.6	0.001	0.001	0.000

CONTINUITY CHECK for x50 1%

Node	Inflow	Outflow	Storage Change	Difference
	(cu.m)	(cu.m)	(cu.m)	%
N1	4.84	4.84	0.00	0.0
Pit1	2.09	2.09	0.00	0.0
Basin1	2.09	1.85	0.24	-0.1
N2	1.85	1.85	0.00	0.0
N3	5.63	5.63	0.00	0.0
N4	0.39	0.39	0.00	0.0
N5	0.59	0.59	0.00	0.0
N6	13.41	13.41	0.00	0.0

Run Log for X50 run at 10:23:30 on 22/3/2022 using version 2020.061

No water upwelling from any pit. Freeboard was adequate at all pits.

Flows were safe in all overflow routes.