PROPOSED DEVELOPMENT
(No.75-77) FOAMCREST AVENUE, NEWPORT
STORMWATER MANAGEMENT PLANS

LEGEND

- DENOTES ON-SITE DETENTION TANK
- DENOTES ON-SITE RETENTION TANK
- DENOTES DWELLING FOOTPRINT
- SW — DENOTES 100mm DIA. STORMWATER/SURFACE WATER SYSTEM PIPE AT 1% MIN. GRADE U.N.O.
- RW — DENOTES 100mm DIA. FULLY SEALED RAINWATER SYSTEM PIPE U.N.O.
- 150 RW — DENOTES RAINWATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
- 150 SW — DENOTES STORMWATER/SURFACE WATER PIPE AND DIA. WHEN PIPE EXCEEDS 100mm DIA.
- 65 W/RM — DENOTES RISING MAIN AND PIPE DIA. U.N.O.
- 100 SS — DENOTES SUBSOIL DRAINAGE LINE AND DIA. WRAPPED IN GEOFABRIC U.N.O.
- DP — DENOTES DOWNPIPE
- IO — DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL
- CO — DENOTES INSPECTION OPENING WITH SCREW DOWN LID AT FINISHED SURFACE LEVEL FOR SYSTEM FLUSHING PURPOSES
- STORMWATER PIT - SOLID COVER
- STORMWATER PIT - GRATED INLET
- DENOTES GRATED DRAIN
- DENOTES ABSORPTION TRENCH
- NON RETURN VALVE
- PUMP
- STOP VALVE (ISOLATION VALVE)
- 240v REQUIRED
- IL23.31 — DENOTES LEVEL OF INLET /OUTLET OF STORMWATER PIPE. NOTE: UNLESS NOTED OTHERWISE, THE BASE OF THE PIT IS THE SAME AS THE PIPE INLET/OUTLET.

DIAL BEFORE YOU DIG

DIAL BEFORE YOU DIG www.1100.com.au

IMPORTANT: THE CONTRACTOR IS TO MAINTAIN A CURRENT SET OF "DIAL BEFORE YOU DIG" DRAWINGS ON SITE AT ALL TIMES.

GENERAL NOTES

1. THESE PLANS SHALL BE READ IN CONJUNCTION WITH OTHER RELEVANT CONSULTANTS' PLANS, SPECIFICATIONS, CONDITIONS OF DEVELOPMENT CONSENT AND CONSTRUCTION CERTIFICATE REQUIREMENTS. WHERE DISCREPANCIES ARE FOUND ACOR CONSULTANTS (CC) MUST BE CONTACTED IMMEDIATELY FOR VERIFICATION
2. WHERE THESE PLANS ARE NOTED FOR DEVELOPMENT APPLICATION PURPOSES ONLY, THEY SHALL NOT BE USED FOR OBTAINING A CONSTRUCTION CERTIFICATE NOR USED FOR CONSTRUCTION PURPOSES
3. SUBSOIL DRAINAGE SHALL BE DESIGNED AND DETAILED BY THE STRUCTURAL ENGINEER. SUBSOIL DRAINAGE SHALL NOT BE CONNECTED INTO THE STORMWATER SYSTEM IDENTIFIED ON THESE PLANS UNLESS APPROVED BY ACOR CONSULTANTS (CC)

STORMWATER CONSTRUCTION NOTES

1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500 (CURRENT EDITION) AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES
2. THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY
3. THE MINIMUM GRADIENT OF STORMWATER DRAINS SHALL BE 1%, UNLESS NOTED OTHERWISE
4. COUNCIL'S TREE PRESERVATION ORDER IS TO BE STRICTLY ADHERED TO. NO TREES SHALL BE REMOVED UNTIL PERMIT IS OBTAINED
5. PUBLIC UTILITY SERVICES ARE TO BE ADJUSTED AS NECESSARY AT THE CLIENT'S EXPENSE
6. ALL PITS TO BE BENCHED AND STREAMLINED. PROVIDE STEP IRONS FOR ALL PITS OVER 1.2m DEEP
7. MAKE SMOOTH JUNCTION WITH ALL EXISTING WORK
8. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION
9. SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATIONS AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION
10. ANY VARIATION TO THE WORKS AS SHOWN ON THE APPROVED DRAWINGS ARE TO BE CONFIRMED BY ACOR CONSULTANTS (CC) PRIOR TO THEIR COMMENCEMENT

RAINWATER RE-USE SYSTEM NOTES

1. RAINWATER SUPPLY PLUMBING TO BE CONNECTED TO OUTLETS WHERE REQUIRED BY BASIX CERTIFICATE (BY OTHERS)
2. TOWN WATER CONNECTION TO RAINWATER TANK TO BE TO THE SATISFACTION OF THE REGULATORY AUTHORITY. THIS MAY REQUIRE PROVISION OF:
   2.1. PERMANENT AIR GAP
   2.2. BACKFLOW PREVENTION DEVICE
3. NO DIRECT CONNECTION BETWEEN TOWN WATER SUPPLY AND THE RAIN WATER SUPPLY
4. AN APPROVED STOP VALVE AND/OR PRESSURE LIMITING VALVE AT THE RAINWATER TANK
5. PROVIDE APPROPRIATE FLOAT VALVES AND/OR SOLENOID VALVES TO CONTROL TOWN WATER SUPPLY INLET TO TANK IN ORDER TO ACHIEVE THE TOP-UP INDICATED ON THE TYPICAL DETAIL
6. ALL PLUMBING WORKS ARE TO BE CARRIED OUT BY LICENSED PLUMBERS IN ACCORDANCE WITH AS/NZS3500.1 NATIONAL PLUMBING AND DRAINAGE CODE
7. PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN
8. ONLY ROOF RUN-OFF IS TO BE DIRECTED TO THE RAINWATER TANK . SURFACE WATER INLETS ARE NOT TO BE CONNECTED
9. PIPE MATERIALS FOR RAINWATER SUPPLY PLUMBING ARE TO BE APPROVED MATERIALS TO AS/NZS3500 PART 1 SECTION 2 AND TO BE CLEARLY AND PERMANENTLY IDENTIFIED AS 'RAINWATER'. THIS MAY BE ACHIEVED FOR BELOW GROUND PIPES USING IDENTIFICATION TAPE (MADE IN ACCORDANCE WITH AS2648) OR FOR ABOVE GROUND PIPES BY USING ADHESIVE PIPE MARKERS (MADE IN ACCORDANCE WITH AS1345)
10. EVERY RAINWATER SUPPLY OUTLET POINT AND THE RAINWATER TANK ARE TO BE LABELED 'RAINWATER' ON A METALLIC SIGN IN ACCORDANCE WITH AS1319
11. ALL INLETS AND OUTLETS TO THE RAINWATER TANK ARE TO HAVE SUITABLE MEASURES PROVIDED TO PREVENT MOSQUITO AND VERMIN ENTRY

SHEET INDEX

COVER SHEET & NOTES	SHEET C1
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STORMWATER QUALITY REPORT SHEET 1 OF 2	SHEET C7
STORMWATER QUALITY REPORT SHEET 2 OF 2	SHEET C8

NORTHERN BEACHES COUNCIL REQUIREMENTS

1. SITE AREA (m²) 1393
2. PRE-DEVELOPED IMPERVIOUS AREA (m²) 637
3. POST DEVELOPED IMPERVIOUS AREA (m²) 998
4. INCREASE IN IMPERVIOUS AREA (m²) 361
5. RAINWATER RE-USE
   RAINWATER REUSE TANK PROVIDED IN ACCORDANCE WITH BASIX REQUIREMENT.
   - 10,000 LITRES OF RAINWATER REUSE HAS BEEN PROVIDED.
6. ON-SITE DETENTION
   ON SITE DETENTION TANK PROVIDED IN ACCORDANCE WITH COUNCIL REQUIREMENTS.
   24,000 LITRES OF ON SITE DETENTION HAS BEEN PROVIDED.

   ON SITE STORMWATER DISPOSAL REQUIREMENTS REGION 1 NORTHERN CATCHMENTS

northern beaches council

Table 7 Requirements for Size and Allowable Discharge from On-Site Detention Systems

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

7. DESIGN HAS BEEN PREPARED IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL'S WATER MANAGEMENT POLICY, AR&R AND AS/ANZS 3500

DRAWINGS MUST BE PRINTED IN COLOUR

Issue	Description	Date	Drawn	Approved
C	RE-ISSUED FOR S4.55 APPROVAL	19.03.22	RH	BK
B	DRAFT CONSTRUCTION CERTIFICATE ISSUE	24.02.22	RH	BK
A	ISSUED FOR CLIENT REVIEW & COMMENT	16.02.22	RH	BK

1cm at full size

North

Client: PROVENT PROPERTY GROUP

Architect

ACOR CONSULTANTS
ACOR Consultants (CC) Pty Ltd
Platinum Building, Suite 2.01, 4 Ilya Avenue
ERINA NSW 2250, Australia
T +61 2 4324 3499
ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project: PROPOSED RESIDENTIAL DEVELOPMENT
No. 75-77
FOAMCREST AVENUE
NEWPORT

Drawing Title: COVER SHEET & NOTES

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
BK	CC210481		C1	C

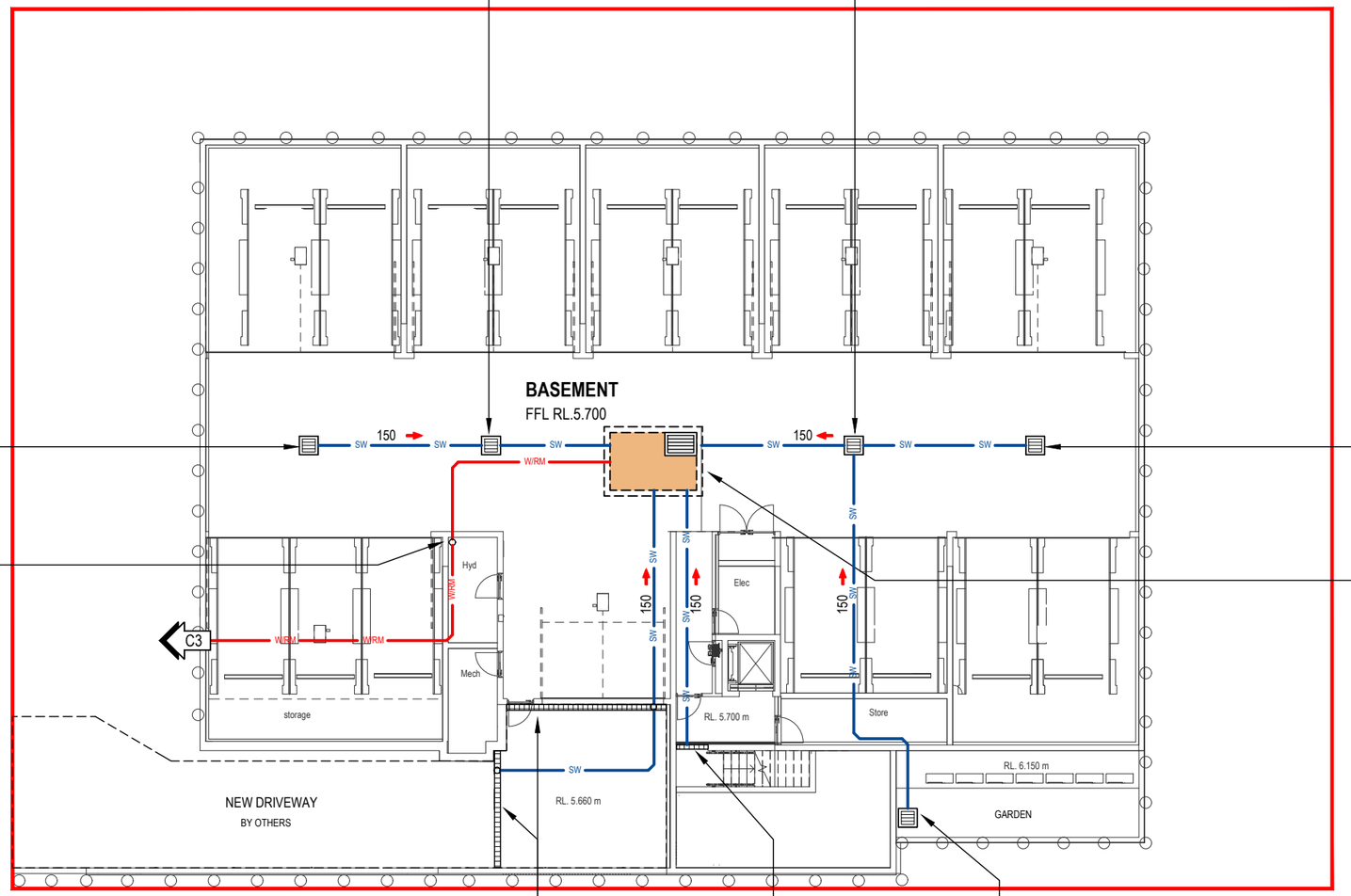
CARPARK PIT - BP2
450 SQUARE PIT WITH MEDIUM DUTY GRATED INLET
TOP OF GRATE - RL5.60 nom
INVERT OF OUTLET - IL 5.25 nom

CARPARK PIT - BP3
450 SQUARE PIT WITH MEDIUM DUTY GRATED INLET
TOP OF GRATE - RL5.60 nom
INVERT OF OUTLET - IL 5.25 nom

WARNING
LOCATION AND DEPTH OF ALL UNDERGROUND SERVICES TO BE INVESTIGATED WITH THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK

CARPARK PIT - BP1
450 SQUARE PIT WITH MEDIUM DUTY GRATED INLET
TOP OF GRATE - RL5.60 nom
INVERT OF OUTLET - IL 5.30 nom

WATER RISING MAIN - BY OTHERS. W/RM RISES TO HIGH LEVEL AND IS TO BE CONVEYED TO THE OSD TANK



CARPARK PIT - BP4
450 SQUARE PIT WITH MEDIUM DUTY GRATED INLET
TOP OF GRATE - RL5.60 nom
INVERT OF OUTLET - IL 5.30 nom

BASEMENT PUMPOUT TANK
REFER TO SHEET C6 FOR DETAILS
MINIMUM STORAGE CAPACITY BASED ON DRIVEWAY CATCHMENT AREA OF 100m²
ALLOW TO PROVIDE MINIMUM EFFECTIVE STORAGE OF 10m³.

CONSTRUCT 300 WIDE GRATED BOX DRAIN MIN 150 DEEP INVERT TO GRADE TO OUTLET AT A MINIMUM GRADE OF 2%.
TOP OF GRATE 5.660 nom TYP UNO

ALLOW TO PROVIDE STAINLESS STEEL GRATED DRAIN WITH HEELPROOF GRATE & FRAME TO ARCHITECTS SPECIFICATION AT EACH STAIR LOCATION TYP.

GARDEN PIT - BP5
450 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - RL6.00nom
INVERT OF OUTLET - IL5.40nom

STORMWATER MANAGEMENT PLAN
SCALE - 1:100/A1, 1:200/A3
0 1 2 4 6 8 10m

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1cm at full size (0 – 10cm)

North

Client: PROVENT PROPERTY GROUP

Architect

ACOR Consultants (CC) Pty Ltd
Platinum Building, Suite 2.01, 4 Ilya Avenue
ERINA NSW 2250, Australia
T +61 2 4324 3499
ACOR CONSULTANTS ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project: PROPOSED RESIDENTIAL DEVELOPMENT
No. 75-77
FOAMCREST AVENUE
NEWPORT

Drawing Title: STORMWATER MANAGEMENT PLAN - BASEMENT

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
BK	CC210481		C2	C

WARNING
LOCATION AND DEPTH OF ALL UNDERGROUND SERVICES TO BE INVESTIGATED WITH THE RELEVANT AUTHORITIES PRIOR TO COMMENCING WORK

LANDSCAPE PIT
600 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.80 nom
INVERT OF OUTLET - IL 8.00 nom

LANDSCAPE PIT
450 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.75 nom
INVERT OF OUTLET - IL 8.15 nom

LANDSCAPE PIT
450 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.75 nom
INVERT OF OUTLET - IL 8.20 nom

FINAL ALIGNMENT OF PIPE/S TO BE VERIFIED BY THE CONSULTING ARBORIST. TYP UNO

LANDSCAPE PIT
450 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.75 nom
INVERT OF OUTLET - IL 8.35 nom

EX.SWP
GRATE RL 9.01
INVERT IL 6.44

SW DENOTES UNDERGROUND SURFACE STORMWATER LINE @ 1% GRADE MIN. CONNECT ALL SURFACE WATER OUTLETS & DOWNPIPES CONVEYING SURFACE WATER TO THIS PIPE. TYP UNO

JUNCTION PIT
600 SQUARE PIT WITH SOLID COVER
TOP OF COVER - 8.55 nom
INVERT OF OUTLET - IL7.95nom

RAINWATER RE-USE TANK
REFER TO DETAIL ON SHEET C5
BELOW GROUND STORAGE TANK
OSR VOLUME = 10m³ (BASIX REQUIREMENT)

LANDSCAPE PIT
600 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.50 nom
INVERT OF OUTLET - IL 7.85 nom

ON-SITE DETENTION TANK WITH WATER QUALITY CHAMBER
REFER TO DETAIL ON SHEET C4
BELOW GROUND STORAGE TANK
INTERNAL FOOTPRINT - 18m²
OSD VOLUME = 24m³ (INCLUDING SPEL CHAMBER)

CROSSOVER AND DRIVEWAY TO BE IN ACCORDANCE WITH COUNCIL REQUIREMENTS. THE LEVELS AND DESIGN OF THE CROSSOVER AND DRIVEWAY SHALL BE BY OTHERS.

EXISTING 375 DIA STORMWATER PIPE

CONSTRUCT NEW KERB INLET PIT TO COUNCIL'S SPECIFICATIONS AND MAKE GOOD CONNECTION TO EXISTING 375 DIA STORMWATER PIPE
FSL RL 7.22
INVERT IL 6.20

AVENUE

FOAMCREST

Garden Apt 2

Garden Apt 3

TERRACE
FFL RL.8.900

ALLOW TO CONSTRUCT DOWNPIPE WITHIN COLUMNS TO CONVEY SURFACE WATER RUNOFF FROM BALCONIES OVER

APT 1
FFL RL.8.900

APT 2
FFL RL.8.900

APT 3
FFL RL.8.900

APT 4
FFL RL.8.900

CONSTRUCT AERIAL PIPE/S THROUGH BASEMENT CARPARK AT HIGH LEVEL

GARBAGE
RL 8.500 m

NEW DRIVEWAY
BY OTHERS

EXISTING LAYBACK

IL 7.75 NOM

225@MIN% GRADE

1000

PIT P1 - SURCHARGE PIT
900 x 600 SQUARE PIT GRATED INLET
TOP OF GRATE - 8.00 nom
INVERT OF OUTLET - IL 6.30 nom

ALLOW TO PROVIDE STAINLESS STEEL GRATED DRAIN WITH HEELPROOF GRATE & FRAME TO ARCHITECTS SPECIFICATION

PROVIDE ATLANTIS DRAINAGE CELL TO RAISED PLANTERS OVER CARPARK SLAB COMPLETE WITH PLANTER DRAIN OUTLETS (PDO's) & CONNECT TO SURFACE SW SYSTEM PROVIDED. NUMBER AND EXACT LOCATION OF OUTLETS TO BE VERIFIED AT CC STAGE

LANDSCAPE PIT
450 SQUARE PIT WITH LIGHT DUTY GRATED INLET
TOP OF GRATE - 8.40 nom
INVERT OF OUTLET - IL 8.10 nom

STORMWATER MANAGEMENT PLAN
SCALE - 1:100/A1, 1:200/A3
0 1 2 4 6 8 10m

DENOTES OUTLINE OF ROOF

PIPE SHOWN FOR CLARITY PURPOSES ONLY. LOCATE STORMWATER PIPES AS CLOSE AS PRACTICABLE TO BUILDING TO MINIMISE DISTURBANCE OF EXISTING SYDNEY WATER SEWER MAIN

ASW DENOTES SEALED SOLVENT WELDED AERIAL LINE @ 1% GRADE MIN. SUPPORT PIPE IN ACC. WITH AS/NZS 3500.3. CONNECT OUTLETS / DOWNPIPES COLLECTING SURFACE WATER TO THIS AERIAL DRAINAGE SYSTEM UNDER SOFFIT OF GROUND FLOOR SLAB.
FINAL PIPE ALIGNMENTS TO BE VERIFIED AT CC STAGE.

ARW DENOTES SEALED SOLVENT WELDED AERIAL LINE @ 1% GRADE MIN. SUPPORT PIPE IN ACC. WITH AS/NZS 3500.3. CONNECT ROOF WATER DOWNPIPES FROM ABOVE TO AERIAL DRAINAGE SYSTEM UNDER SOFFIT OF GROUND FLOOR SLAB. FINAL PIPE ALIGNMENTS TO BE VERIFIED AT CC STAGE.

OUTLINE OF BASEMENT BELOW SHOWN THUS:

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1cm at full size 10cm

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ACOR Consultants (CC) Pty Ltd
Platinum Building, Suite 2.01, 4 Ilya Avenue
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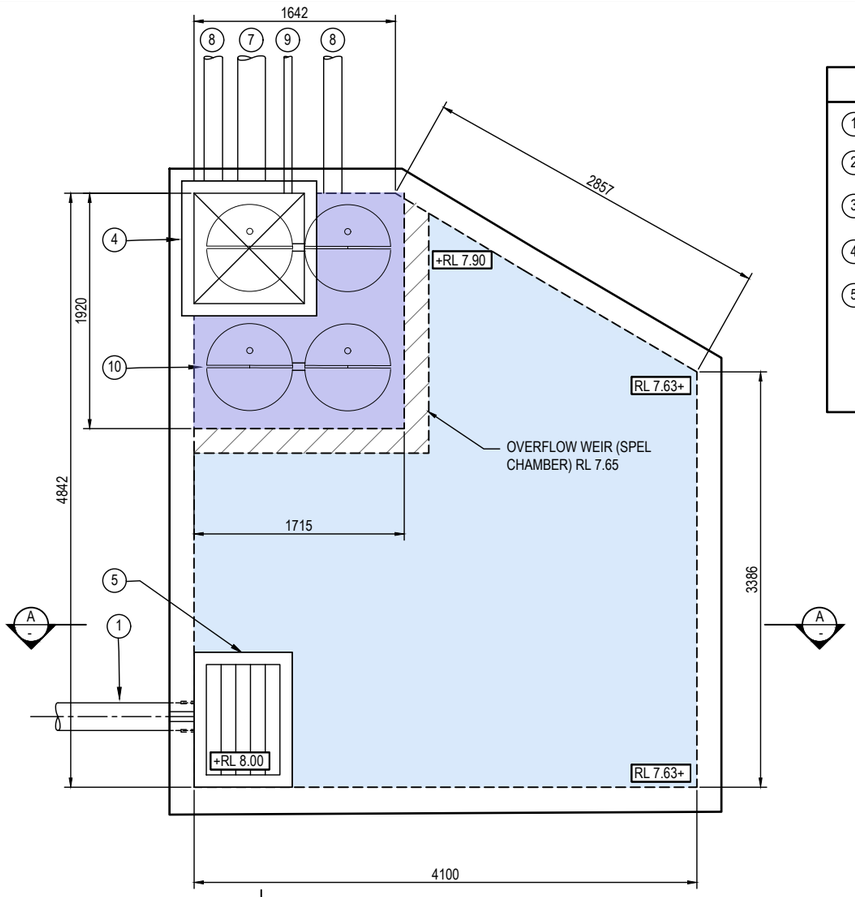
ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project
PROPOSED RESIDENTIAL DEVELOPMENT
No. 75-77
FOAMCREST AVENUE
NEWPORT

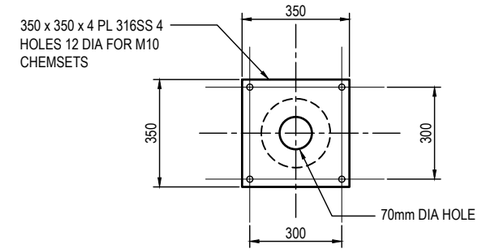
Drawing Title
STORMWATER MANAGEMENT PLAN - GROUND FLOOR

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
BK	CC210481		C3	C

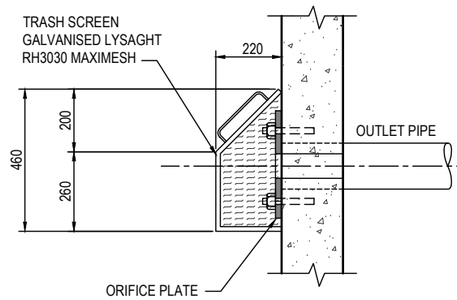


LEGEND

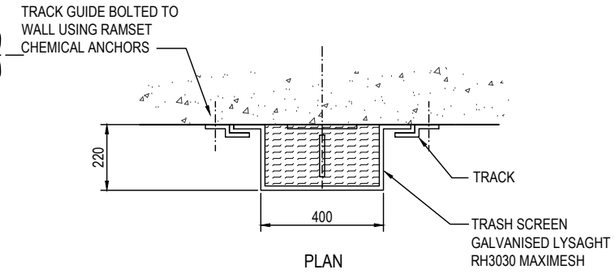
1	225 DIA OUTLET PIPE	6	PROVIDE GALVANISED STEP IRONS AT 300mm CENTRES WHERE DEPTH EXCEEDS 1100mm IN ACCORDANCE WITH THE AUST. STANDARDS AT ALL ACCESS POINTS OF THE TANK, TYP.
2	350 x 350 x 4 PL 316SS 4 HOLES 12 DIA FOR M10 CHEMSETS	7	RAINWATER TANK OVERFLOW PIPE
3	TRASH SCREEN LYSAGHT RH3030 GALV. REMOVABLE WITH HANDLE	8	STORMWATER INLET PIPE
4	900 x 900 SOLID COVER BOLTED DOWN	9	WATER RISING MAIN FROM BASEMENT PUMPOUT INLET PIPE
5	900 x 600 BOLTED DOWN GRATED INLET	10	4 X FULL HEIGHT SPEL WATER QUALITY TREATMENT FILTERS



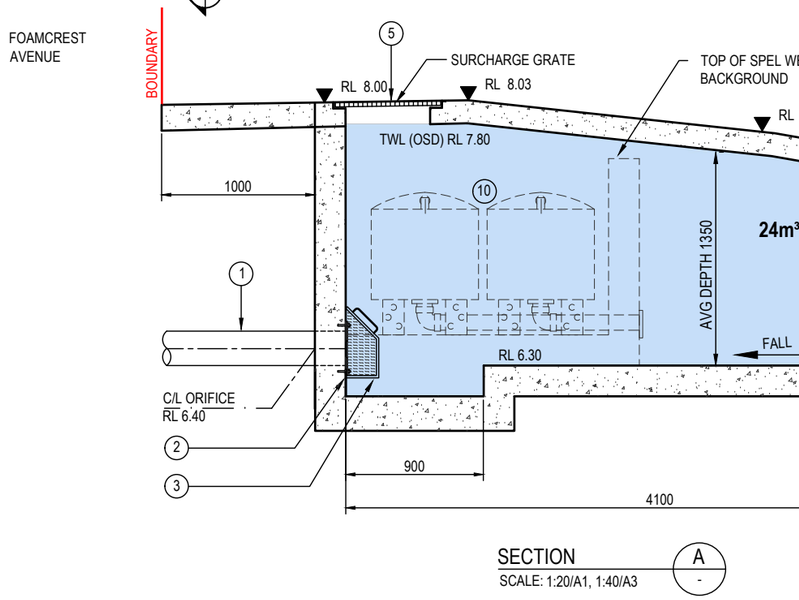
ORIFICE PLATE DETAIL
NTS



SIDE VIEW CROSS SECTION



PLAN



ON-SITE DETENTION TANK ROOF PLAN
SCALE - 1:25/A1, 1:50/A3

SECTION A
SCALE: 1:20/A1, 1:40/A3

PROVIDE CONFINED SPACE SIGNAGE AT ENTRY POINTS INTO TANK.

TRASH SCREEN DETAIL
NTS

SECTION B
SCALE: 1:20/A1, 1:40/A3

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A	NIL ISSUE	-	-	-

1cm at full size

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ACOR Consultants (CC) Pty Ltd
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ERINA NSW 2250, Australia
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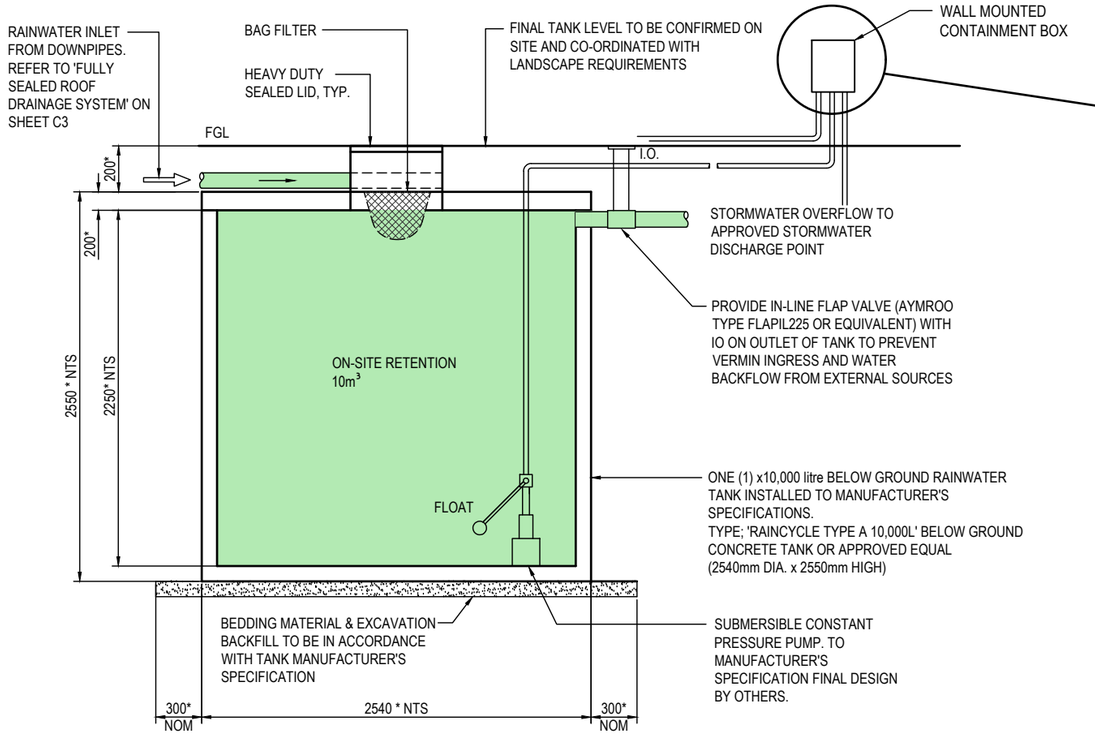
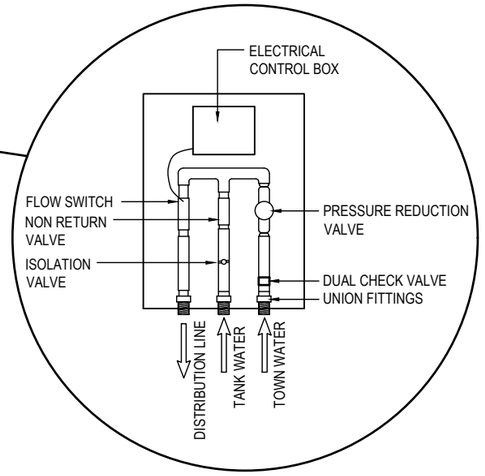
No. 75-77
FOAMCREST AVENUE
NEWPORT

Drawing Title: STORMWATER MANAGEMENT DETAIL SHEET No. 1

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
BK	CC210481		C4	C





TYPICAL WARNING SIGN

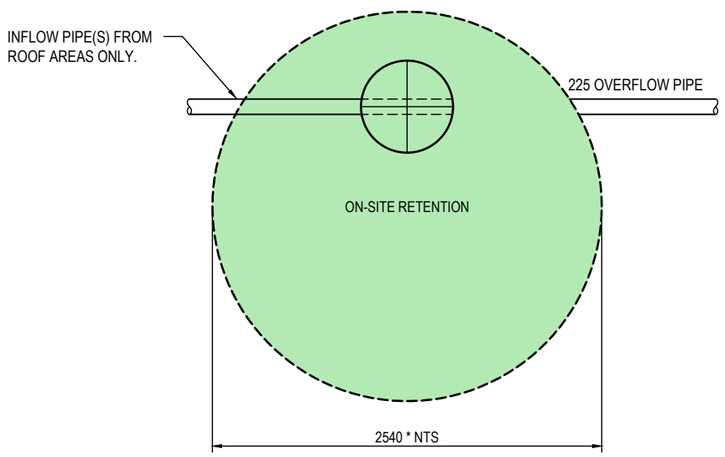
SCALE N.T.S

* EVERY EXTERNAL SUPPLY OUTLET FROM RAINWATER RE-USE TANK TO BE LABELED WITH METALLIC WARNING SIGN

DETAIL 1 - BELOW GROUND RAINWATER RE-USE TANK ELEVATION

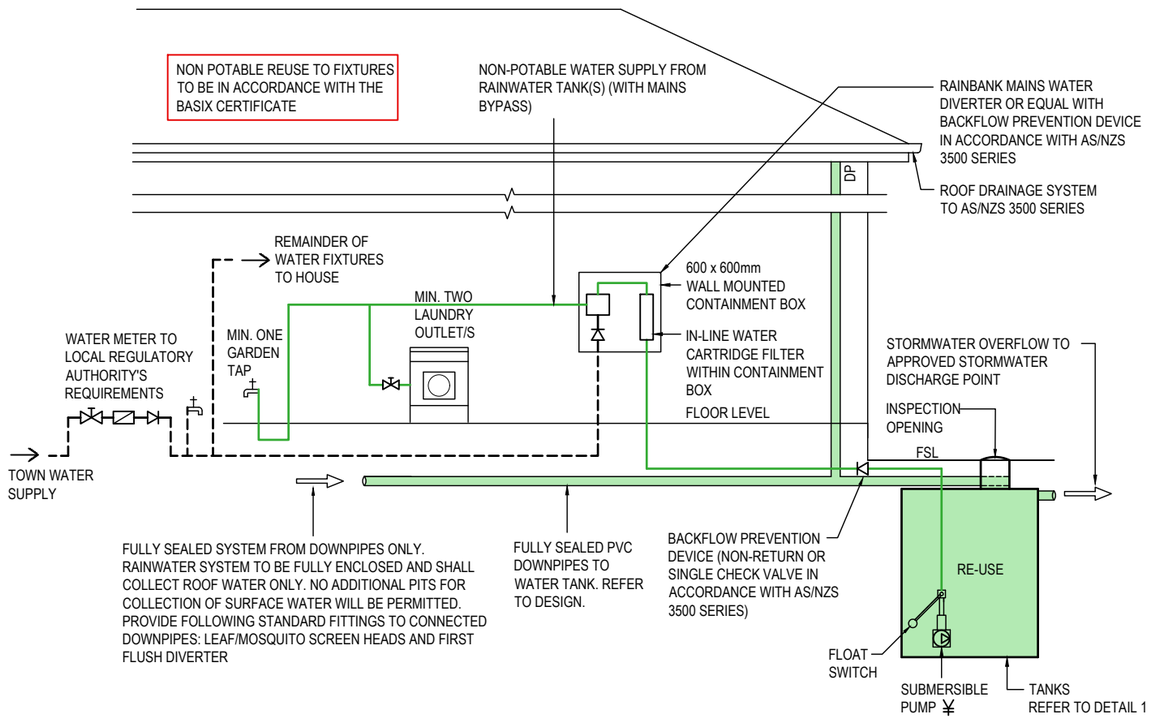
NOT TO SCALE

* DIMENSIONS TO BE CONFIRMED WITH MANUFACTURER, VARIATION TO BE REFERRED TO THE DESIGN ENGINEER FOR VALIDATION



RAINWATER RE-USE TANK PLAN

NOT TO SCALE



BELOW GROUND RAINWATER TANK - SCHEMATIC LAYOUT

NOT TO SCALE

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NEWPORT

Drawing Title: STORMWATER MANAGEMENT DETAIL SHEET No. 2

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
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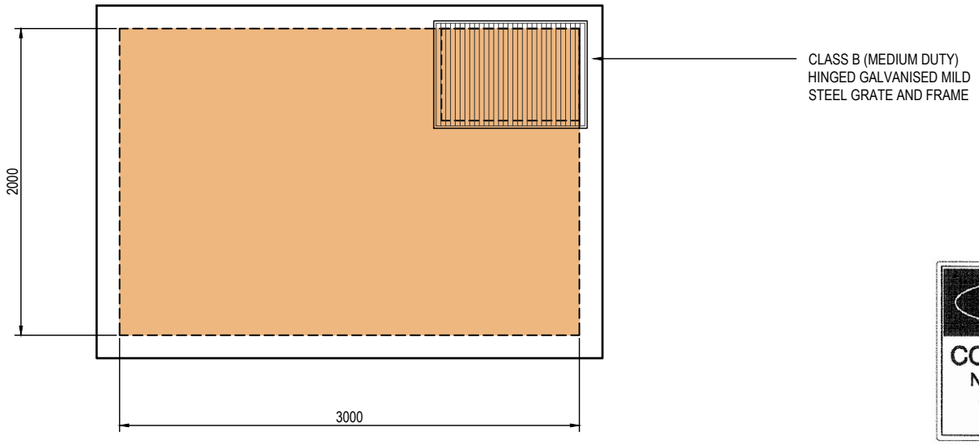


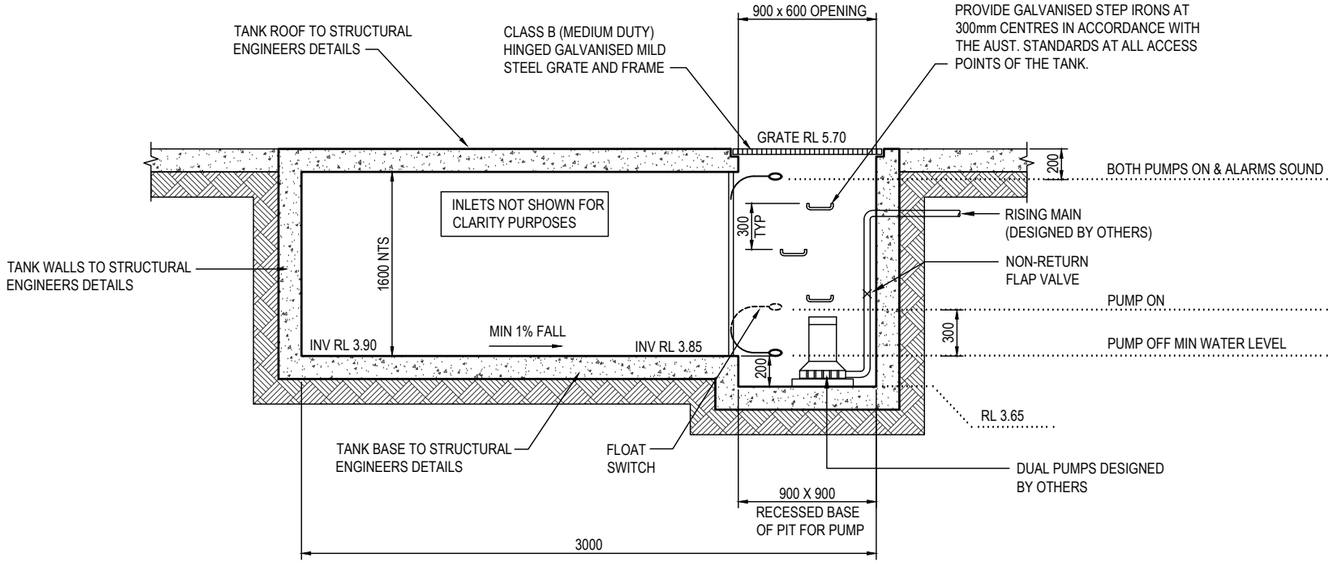
PUMP OUT TANK PLAN
SCALE 1:20/A1, 1:40/A3

INSTALL CONFINED SPACE WARNING SIGN

STANDARD PUMP OUT DESIGN NOTES

THE PUMP SYSTEM SHALL BE OPERATED IN THE FOLLOWING MANNER:-

1. THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE
2. A FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS AT THE MINIMUM WATER LEVEL. THE SAME FLOAT SHALL BE SET TO TURN ONE OF THE PUMPS ON UPON WATER LEVEL IN THE TANK RISING TO APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL. THE PUMP SHALL OPERATE UNTIL THE TANK IS DRAINED TO THE MINIMUM WATER LEVEL.
3. A SECOND FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHALL START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
4. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.
5. A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK.



PUMP OUT TANK
AVERAGE HEIGHT = 1.6m
WIDTH = 2.0m
LENGTH = 3.0m
VOLUME PROVIDED = $10m^3$

TYPICAL SECTION THROUGH PUMP OUT TANK
SCALE 1:20/A1, 1:40/A3

PUMP-OUT TANK MAINTENANCE SCHEDULE

MAINTENANCE CONTRACT

NOTE: A 24 HOUR X 12 MONTHLY EMERGENCY AND MAINTENANCE CONTRACT SHALL BE OBTAINED FROM A COMPANY CAPABLE OF EXECUTING THE WORK AND SHALL BE KEPT IN FORCE BY THE PROPERTY OWNER(S) FOR THE LIFE OF THE BUILDING.

THE MAINTENANCE CONTRACT SHALL BE CARRIED OUT EVERY THREE (3) MONTHS AND SHALL INCLUDE THE FOLLOWING ACTIVITIES:

1. CLEAN OUT ALL PITS OF SILT AND DEBRIS.
2. CHECK AND CLEAN OUT, IF NECESSARY, ALL PIPELINES.
3. CHECK:
   - 3.1. PUMPS FOR WEAR
   - 3.2. PUMP OIL SEALS
   - 3.3. PUMP STRAINER AND CLEAN
4. CARRY OUT ROUTINE MAINTENANCE TO PUMPS AS RECOMMENDED BY THE MANUFACTURER.
5. CHECK OPERATIONAL SEQUENCE OF LEVEL SWITCHES, PUMPS AND CONTROL PANEL.
6. THE EMERGENCY CONTRACT SHALL PROVIDE FOR A 24 HOUR X 7 DAY PER WEEK SERVICE.

THE CONTRACTOR SHALL PROVIDE A NAME PLATE STATING NAME, WORKING HOURS, TELEPHONE NUMBER AND OUT OF HOURS NUMBER AND SUCH NAME PLATE SHALL BE FIXED TO THE FRONT OF THE CONTROL PANEL.

Issue	Description	Date	Drawn	Approved
C	RE-ISSUED FOR S4.55 APPROVAL	19.03.22	RH	BK
B	DRAFT CONSTRUCTION CERTIFICATE ISSUE	24.02.22	RH	BK
A	NIL ISSUE	-	-	-

0 10cm at full size 10cm

North

Client: PROVENT PROPERTY GROUP

Architect:

ACOR Consultants (CC) Pty Ltd
Platinum Building, Suite 2.01, 4 Ilya Avenue
ERINA NSW 2250, Australia
T +61 2 4324 3499
CONSULTANTS ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

Project: PROPOSED RESIDENTIAL DEVELOPMENT
No. 75-77
FOAMCREST AVENUE
NEWPORT

Drawing Title: STORMWATER MANAGEMENT DETAIL SHEET No. 3

Drawn	Date	Scale A1	Q.A. Check	Date
RH	FEB 22	AS NOTED	-	-
Designed	Project No.		Dwg. No.	Issue
BK	CC210481		C6	C

STORMWATER QUALITY REPORT

1 INTRODUCTION

A CATCHMENT BASED WATER QUALITY MODEL WAS DEVELOPED TO ASSESS THE STORMWATER RUNOFF QUALITY IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 5 OF NORTHERN BEACHES COUNCIL WATER MANAGEMENT FOR DEVELOPMENT POLICY. IN THIS REGARD WE REFER TO THE PRESCRIBED TARGETS TABLED FOLLOWING:

TABLE 1 - STORMWATER POLUTANT REDUCTION TARGETS

STORMWATER POLLUTANT	REDUCTION TARGETS
GROSS POLLUTANT	90%
TOTAL SUSPENDED SOLIDS (TSS)	85%
TOTAL PHOSPHORUS (TP)	65%
TOTAL NITROGEN (TN)	45%

2 STUDY METHODOLOGY

THE OBJECTIVES OF THIS REPORT ARE TO:

- ASSESS THE RUNOFF QUALITY FOR THE UNTREATED POST DEVELOPED SCENARIO AND IDENTIFY STORMWATER QUALITY CONTROLS LIKELY TO IMPACT ON RUNOFF QUALITY.
- ASSESS THE STORMWATER QUALITY FOR THE POST DEVELOPED SCENARIO INCLUDING THE MEASURES PROPOSED TO MEET THE POLLUTANT REMOVAL TARGETS .

THE REPORT IS BASED ON THE APPLICATION OF MUSIC SOFTWARE (MODEL FOR URBAN STORMWATER IMPROVEMENT CONCEPTUALISATION). IN THIS REGARD THE MODEL IS DEFINED AS FOLLOWS:

- A STORMWATER QUALITY MODEL TO CONVERT RAINFALL AND EVAPOTRANSPIRATION INTO RUNOFF.
- ESTIMATION OF STORMWATER FLOW AND POLLUTION GENERATION BY SIMULATING THE PERFORMANCE OF STORMWATER TREATMENT DEVICES INDIVIDUALLY AND AS PART OF A TREATMENT TRAIN.

THE MODEL DEFINES WATER QUALITY PROFILES FOR BOTH TREATED AND UNTREATED POST DEVELOPED SCENARIOS. THE TREATED POST DEVELOPED MODEL INCLUDES PARAMETERS WHICH REPRESENT THE WATER QUALITY MEASURES.

3 STORMWATER QUALITY MODELLING

3.1 GENERAL

THE FOLLOWING PARAMETERS WERE ASSESSED FOR THE HYDROLOGICAL MODELLING ASSOCIATED WITH THE CATCHMENT.

- RAINFALL/RUNOFF AND EVAPOTRANSPIRATION.
- SUB CATCHMENT DIVERSIONS.
- LAND USE (PERVIOUS AND IMPERVIOUS)

3.2 RAINFALL/RUNOFF AND EVAPOTRANSPIRATION

THE ADOPTED RAINFALL, RUNOFF AND EVAPOTRANSPIRATION USED IN THIS STUDY IS IN ACCORDANCE WTH THE VALUES RECOMMENDED IN NORTHERN BEACHES COUNCIL WSUD & MUSIC MODELLING GUIDELINES. THE DETAILS ARE SUMMARISED IN TABLE 3.1 AND 3.2

TABLE 3.1 - DETAILS OF DAILY RAINFALL DATA

STATION	NAME	PERIOD	TIMESTEP
066062	SYDNEY OBSERVATORY HILL	01/01/1981-31/12/1985	6 min

TABLE 3.2 - SUMMARY OF POTENTIAL EVAPOTRANSPIRATION (PET)

JAN	FEB	MAR	APR	MAY	JUN
180	135	128	85	58	43
JUL	AUG	SEP	OCT	NOV	DEC
43	58	88	127	152	163

3.3 CATCHMENT DEFINITION

THE POST DEVELOPED CATCHMENT CHARACTERISTICS ARE IDENTIFIED IN TABLE 3.3.

TABLE 3.3 - POST DEVELOPMENT SUB CATCHMENT DETAILS

SUB CATCHMENT ID	SUB CATCHMENT AREA (ha)	% IMPERVIOUS AREA	% PERVIOUS AREA
ROOF	0.092	100	0
DRIVEWAY TO PUMP OUT	0.005	100	0
IMPERVIOUS AREA TO SPEL CHAMBER	0.002	100	0

4 MUSIC MODEL

THE MUSIC MODEL IS BASED ON A 6 min RAINFALL-RUNOFF MODEL IN CONJUNCTION WITH REPRESENTATIVE BASEFLOW AND STORMFLOW EVENT MEAN CONCENTRATIONS (EMCs).

4.1 WATER QUALITY PARAMETERS

THE ADOPTED VALUES OF VARIOUS MUSIC RAINFALL AND RUNOFF PARAMETERS ARE SUMMARISED IN TABLE 4.1 IN ACCORDANCE WTH THE VALUES RECOMMENDED IN NORTHERN BEACHES COUNCIL WSUD & MUSIC MODELLING GUIDELINES FOR SANDY LOAM.

TABLE 4.1 - ADOPTED MUSIC RAINFALL/RUNOFF PARAMETERS

PARAMETER	VALUE
IMPERVIOUS AREA PROPERTIES	
RAINFALL THRESHOLD (mm/DAY)	1.5 (0.3 ROOFS)
PERVIOUS AREA PROPERTIES	
SOIL STORAGE CAPACITY (mm)	108
SOIL INITIAL STORAGE (% OF CAPACITY)	30
FIELD CAPACITY (mm)	73
INFILTRATION CAPACITY COEFFICIENT - a	250
INFILTRATION CAPACITY EXPONENT - b	1.3
GROUNDWATER PROPERTIES	
INITIAL DEPTH (mm)	10
DAILY RECHARGE RATE (%)	60
DAILY BASEFLOW RATE (%)	45
DAILY DEEP SEEPAGE RATE (%)	0

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ACOR CONSULTANTS
ACOR Consultants (CC) Pty Ltd
Platinum Building, Suite 2.01, 4 Ilya Avenue
ERINA NSW 2250, Australia
T +61 2 4324 3499
ENGINEERS | MANAGERS | INFRASTRUCTURE PLANNERS | DEVELOPMENT CONSULTANTS

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Drawing Title: STORMATER QUALITY REPORT SHEET 1 OF 2

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4.1 WATER QUALITY PARAMETERS CONT.

STORMWATER QUALITY IS CHARACTERISED USING EVENT MEAN CONCENTRATION (EMCs) UNDER STORM AND BASE FLOW CONDITIONS. THE VALUE OF WATER QUALITY PARAMETERS ADOPTED IN THIS STUDY IS SUMMARISED IN TABLE 4.2

TABLE 4.2 - ADOPTED MUSIC WATER QUALITY PARAMETERS

LAND-USE CATEGORY		Log_{10} TSS (mg/L)		Log_{10} TP (mg/L)		Log_{10} TN (mg/L)	
		STORM FLOW	BASE FLOW	STORM FLOW	BASE FLOW	STORM FLOW	BASE FLOW
GENERAL URBAN	MEAN	2.15	1.20	-0.60	-0.85	0.30	0.11
	STD DEV	0.32	0.17	0.25	0.19	0.19	0.12
ROADS	MEAN	2.43	1.20	-0.3	-0.85	0.34	0.11
	STD DEV	0.32	0.17	0.25	0.19	0.19	0.12
ROOFS	MEAN	1.30	1.10	-0.89	-0.82	0.30	0.32
	STD DEV	0.32	0.17	0.25	0.19	0.19	0.12

4.2 STORMWATER TREATMENT MEASURES

THE PROPOSED STORMWATER TREATMENT MEASURES INCLUDED IN THE POST DEVELOPED MODEL ARE AS FOLLOWS:

- 4 X SPEL FILTERS (SF.29-EMC FULL HEIGHT)
- 10,000 LITRE RAINWATER TANK

THE SCHEMATIC LAYOUT FOR THE POST DEVELOPED MUSIC MODEL IS DEPICTED IN FOLLOWING FIGURE 1

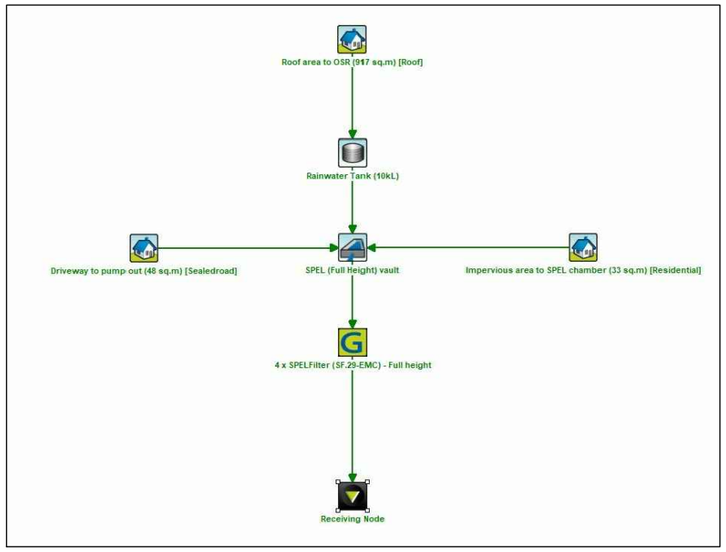

FIGURE 1 - MUSIC MODEL SCHEMATIC

5 RESULTS & CONCLUSION

BASED ON THE FOREGOING AND THE ACHIEVED POLLUTANT REDUCTION RESULTS DEPICTED IN TABLE 5.1 THE PROPOSED STORMWATER QUALITY TREATMENT MEASURES MEET THE REQUIRED TARGETS OF NORTHERN BEACHES COUNCIL.

TABLE 5.1 - TREATMENT TRAIN EFFECTIVENESS

Treatment Train Effectiveness - Receiving Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.19	0.916	23.2
Total Suspended Solids (kg/yr)	53.9	4.69	91.3
Total Phosphorus (kg/yr)	0.208	0.0462	77.8
Total Nitrogen (kg/yr)	2.67	1.22	54.4
Gross Pollutants (kg/yr)	30.6	0	100

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