

- STORMWATER NOTES:**
1. ALL PIPES TO BE 100mm Ø UNLESS NOTED OTHERWISE.
 2. ALL PIPES TO BE UPVC UNLESS NOTED OTHERWISE.
 3. ALL PIPES TO BE LAID AT 1% MINIMUM GRADE UNLESS NOTED OTHERWISE.
 4. ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D. BELOW PAVEMENTS. NO COMPACTION REQUIRED BELOW LANDSCAPING COVER TO SURFACE FROM TOP OF PIPE TO BE 300mm MINIMUM. BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN TRENCHES TO BE FILLED WITH GRANULAR MATERIAL AS SPECIFIED.
 5. ALL PIPES SHOWN ON PLAN ARE SHOWN INDICATIVELY ONLY & MINIMUM CLEARANCES FROM THE EXTERNAL WALLS OF BUILDINGS, FOR THE EXCAVATION OF TRENCHES, ARE TO BE PROVIDED IN ACCORDANCE WITH AS3500.
 6. ALL DOWN PIPES TO BE 90mm Ø UNLESS NOTED OTHERWISE.
 7. DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
 8. PROVIDE CLEANING EYES AT ALL DOWNPIPES UNDO.
 9. ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
 10. ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
 11. ALL LEVELS SHOWN ARE TO AHD.
 12. ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
 13. EXCAVATION OF TRENCHES ADJACENT TO TREES TO BE CARRIED OUT USING HAND TOOLS ONLY.
 14. ALL EXISTING EARTHWARE PIPES TO BE UPGRADED TO UPVC.
 15. ALL WORKS TO BE IN ACCORDANCE WITH AS 3500.
 16. THE FOLLOWING ABBREVIATIONS DENOTE:
FSL - FINISHED SURFACE LEVEL
INV - INVERT
 17. PROVIDE FALLS IN SURFACES TO ALL PITS, GRATED DRAINS & FLOOR DRAINS IN ACCORDANCE WITH AS3500 & ARCHITECT'S DETAILS.

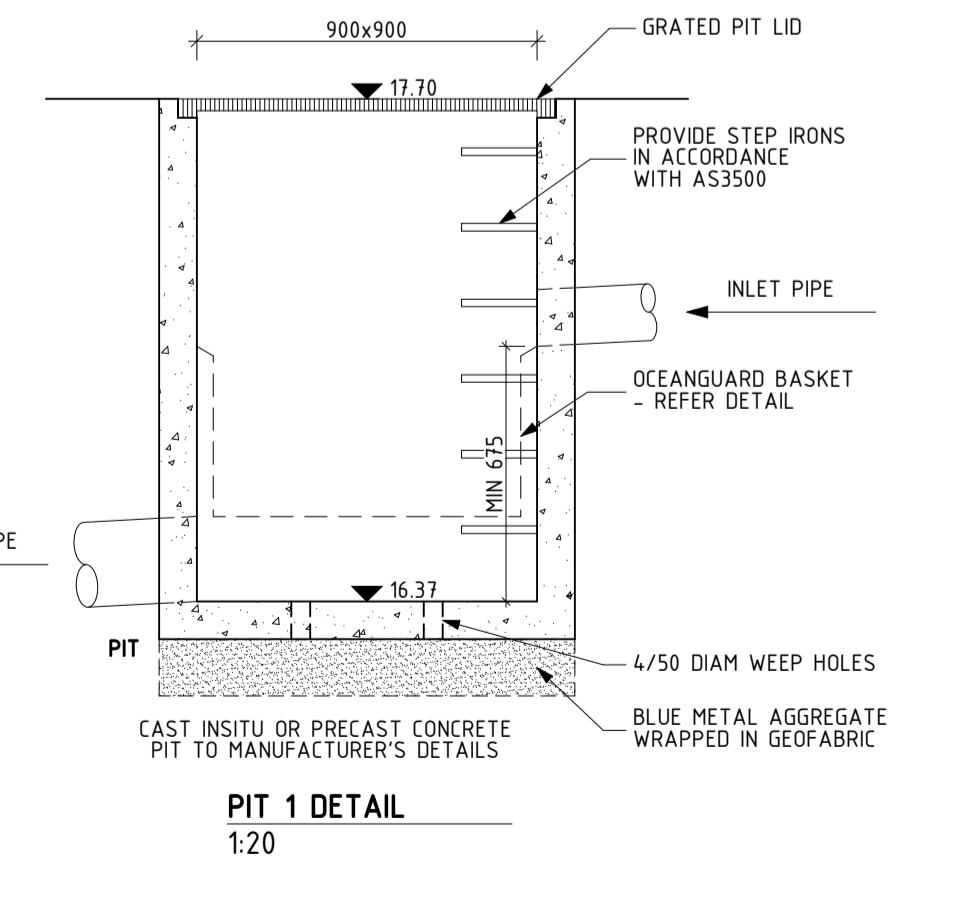
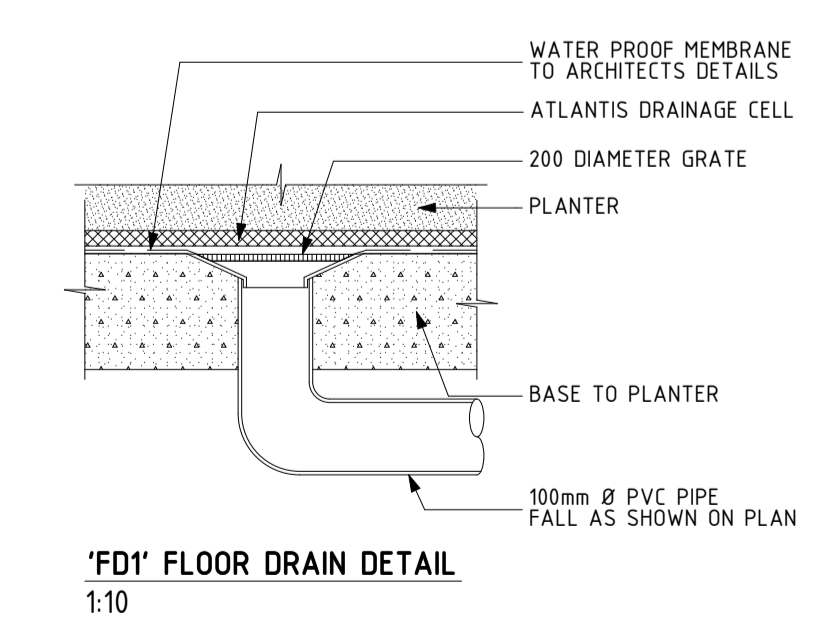
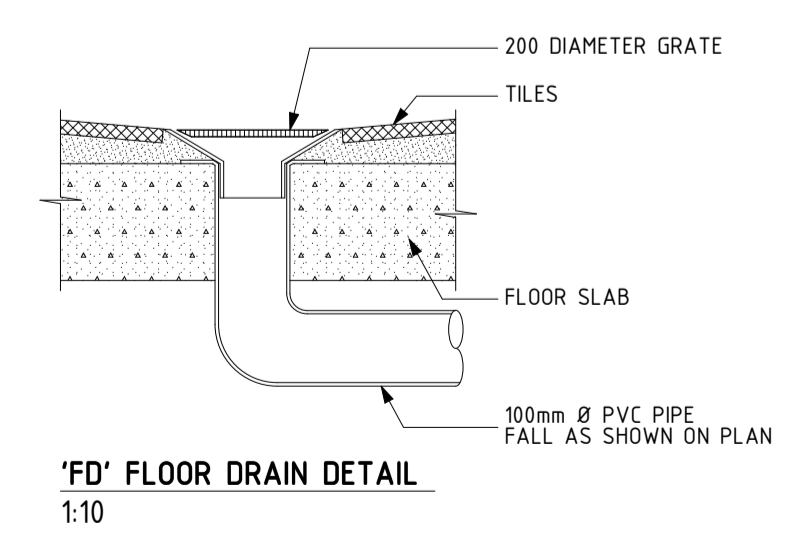
● RL65.15 DENOTES EXISTING LEVELS
● RL65.15 DENOTES PROPOSED LEVELS

ON-SITE DETENTION (OSD) CALCULATION SHEET

DEVELOPMENT TYPE:	MIXED USE DEVELOPMENT
DESIGN METHOD USED:	FULL COMPUTATION METHOD
SITE AREA:	1274 m ²
PRE DEVELOPMENT IMPERVIOUS AREA:	1274 m ² (0m ² IN DRAINS)
POST DEVELOPMENT IMPERVIOUS AREA:	1274 m ²
INCREASE IN IMPERVIOUS AREA:	0 m ²
IMPERVIOUS AREA DRAINING TO OSD:	1254 m ²
PERVIOUS AREA DRAINING TO OSD:	0 m ²
IMPERVIOUS AREA BYPASSING OSD:	20 m ²
PERVIOUS AREA BYPASSING OSD:	0 m ²
PRE DEVELOPMENT SITE DISCHARGE (5-YEAR):	27 l/s
POST DEVELOPMENT SITE DISCHARGE (5-YEAR):	25 l/s
PRE DEVELOPMENT SITE DISCHARGE (100-YEAR):	58 l/s
POST DEVELOPMENT SITE DISCHARGE (100-YEAR):	26 l/s
SITE STORAGE REQUIREMENT (SSR):	41 m ³
RAINWATER RE-USE TANK REQUIRED FOR BASIX:	10000 l
OSD VOLUME REQUIRED:	31 m ³
TYPE OF CONTROL:	SUSPENDED CONCRETE TANK BELOW GROUND FLOOR
DIMENSIONS OF OSD:	22.8m x 0.91m (AVERAGE DEPTH) + 5.55m x 1.9m x 0.96m + 0.9m x 0.9m x 1.02m
OSD PROVIDED:	31.6 m ³
ORIFICE SIZE:	108 mm Ø

MARK	SIZE/TYPE	FSL	INV
AH1	600x600 GRATED ACCESS HATCH	COS	-
AH2	600x600 GRATED ACCESS HATCH	19.382	-
AH3	900x900 GRATED ACCESS HATCH	19.382	-
AH4	900x900 GRATED ACCESS HATCH	19.382	-
AH5	600x600 GRATED ACCESS HATCH	19.652	-
AH6	600x600 PRESSURE SEALED ACCESS HATCH	19.652	-
PIT 1	900x900 PIT WITH GRATED LID WITH OCEANGUARD BASKET - REFER DETAIL	17.70	16.37
GD1	200 WIDE x 100 DEEP GRATED DRAIN	19.74	19.64
FD1	200 DIAMETER FLOOR DRAIN	-	-
FDI	200 DIAMETER FLOOR DRAIN (PLANTER)	-	-
DP	100 DIAMETER PVC DOWNPIPE	-	-
DP1	100 DIAMETER SEWER GRADE PVC PRESSURE SEALED CHARGED DOWNPIPE	-	-
DP3	100 DIAMETER PVC DOWNPIPE TO COLLECT WATER FROM BALCONY & TERRACE ONLY	-	-
RWT	10300 LITRE RAINWATER RE-USE TANK SUSPENDED BELOW GROUND FLOOR (11.4m x 9.00m) TANK TO COLLECT RAINWATER RUNOFF FROM ALL ROOF AREAS AS SHOWN & BE RE-USED FOR TOILET FLUSHING, LAUNDRIES & GARDEN IRRIGATION. TANK TO BE FITTED WITH FIRST FLUSH DEVICE & WATER FILTRATION DEVICES & INSTALLED IN ACCORDANCE WITH AS3500, BASIX & STONEY WATER REQUIREMENTS. ALL CONNECTIONS INTO & OUT OF RWT TO BE FULLY SEALED	-	-
OSD	MIN 31600 LITRE ON-SITE DETENTION TANK SUSPENDED BELOW GROUND FLOOR (22.8m x 9.100m (AVERAGE) + 5550L x 1900W x 960D + 900L x 900W x 1020D)	-	-

NOTE:
- ALL PIPES UNDER SUSPENDED FLOOR TO BE STRAPPED TO UNDERSIDE OF FLOOR STRUCTURE AT MIN 1%



GROUND FLOOR DRAINAGE & SITE STORMWATER MANAGEMENT PLAN
1:100

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B	20.11.20	REVISED BASED ON AMENDED ARCH DRAWINGS	DI				
A	24.06.20	ISSUE FOR DA SUBMISSION	DI				
1	21.02.20	ISSUE FOR REVIEW ONLY	DI				

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CLIENT
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STATUS	ISSUE FOR DA SUBMISSION	DATE	FEB 2020
PROJECT	321 CONDOMINE STREET, MANLY VALE	PROJECT NUMBER	200203
DRAWING	DM A1	PAGE SIZE	
DRAWING	DM A1	PAGE SIZE	
CHECKED	DI B	REVISION	D01
DRAWING	GROUND FLOOR DRAINAGE & SITE STORMWATER MANAGEMENT PLAN	DRAWING NUMBER	D01



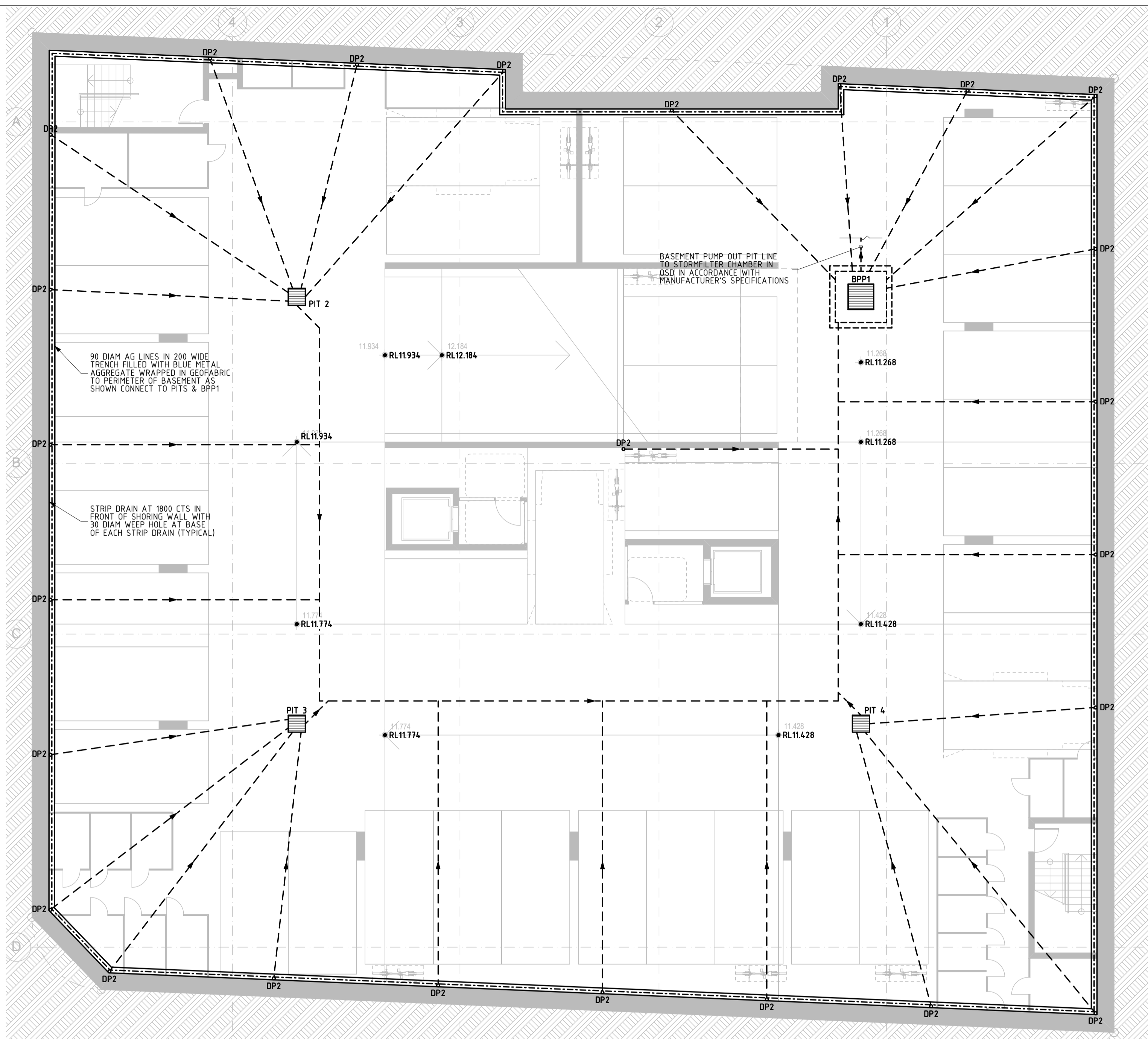
BASEMENT B1 DRAINAGE PLAN

1:100

MARK	SIZE/TYPE	FSL	INV
PIT 2	600x600 PIT WITH GRATED LID	11.934	11.434
PIT 3	600x600 PIT WITH GRATED LID	11.774	11.274
PIT 4	600x600 PIT WITH GRATED LID	11.428	10.928
BPP1	3m ³ BASEMENT PUMP OUT PIT - REFER DETAIL	11.268	10.118
SD	MIN 100 WIDE SPOON DRAIN FORMED IN SLAB MIN 1% FALL TO OUTLETS	-	-
FD	200 DIAMETER FLOOR DRAIN	-	-
FD2	100 DIAMETER FLOOR DRAIN	-	-
DP2	100 DIAMETER PVC DOWNPIPE	-	-

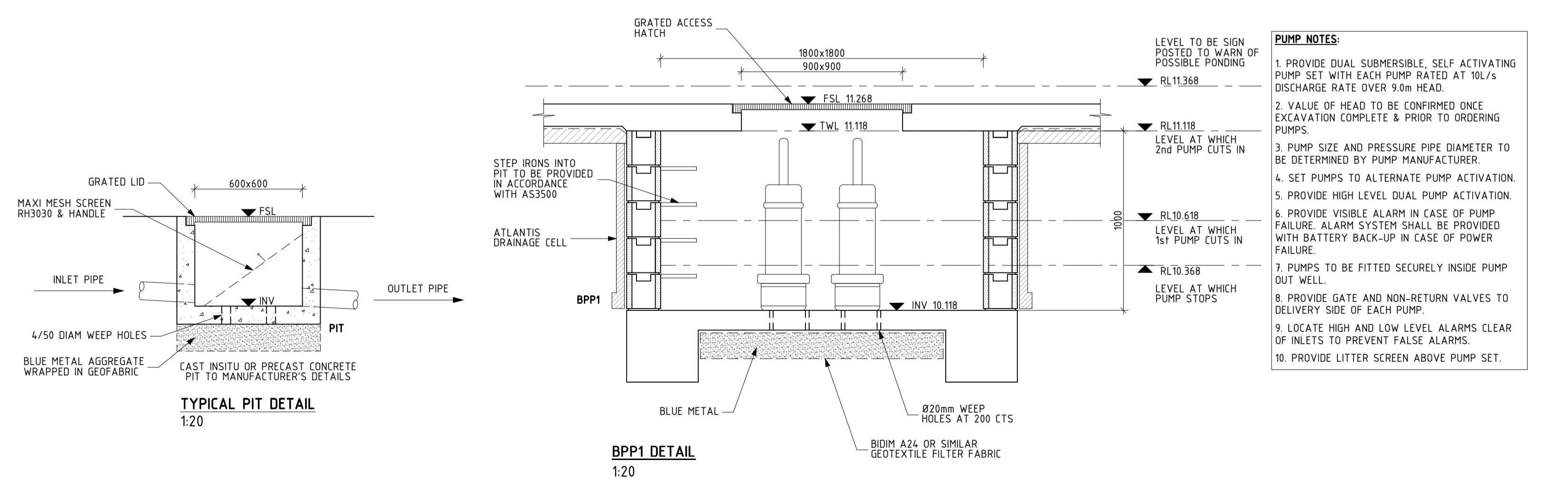
NOTE:

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BASEMENT B2 DRAINAGE PLAN

1:100

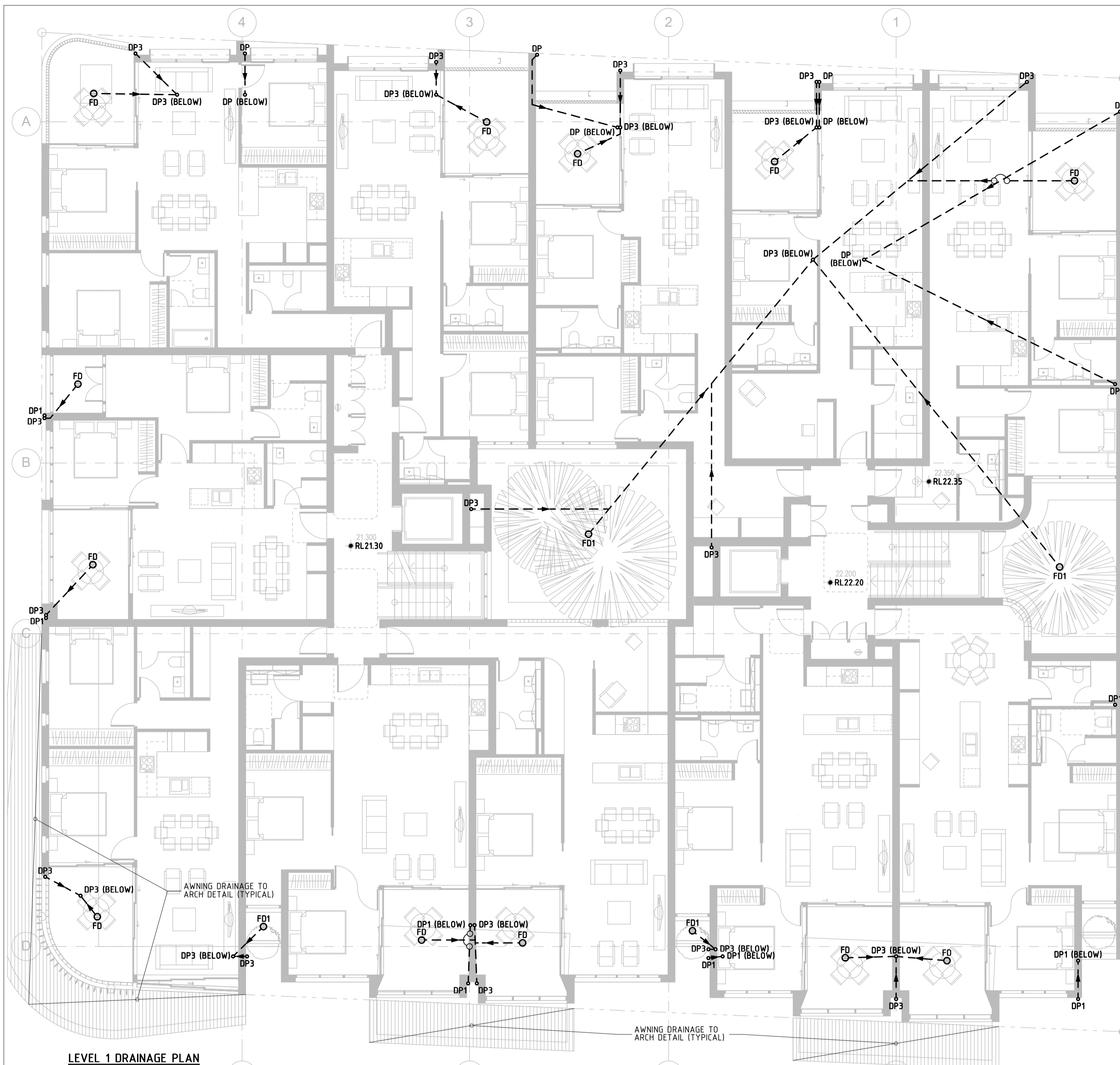


- PUMP NOTES:**
1. PROVIDE DUAL SUBMERSIBLE, SELF ACTIVATING PUMP SET WITH EACH PUMP RATED AT 10L/s DISCHARGE RATE OVER 9.0m HEAD.
 2. VALUE OF HEAD TO BE CONFIRMED ONCE EXCAVATION COMPLETE & PRIOR TO ORDERING PUMPS.
 3. PUMP SIZE AND PRESSURE PIPE DIAMETER TO BE DETERMINED BY PUMP MANUFACTURER.
 4. SET PUMPS TO ALTERNATE PUMP ACTIVATION.
 5. PROVIDE HIGH LEVEL DUAL PUMP ACTIVATION.
 6. PROVIDE VISIBLE ALARM IN CASE OF PUMP FAILURE. ALARM SYSTEM SHALL BE PROVIDED WITH BATTERY BACK-UP IN CASE OF POWER FAILURE.
 7. PUMPS TO BE FITTED SECURELY INSIDE PUMP OUT WELL.
 8. PROVIDE GATE AND NON-RETURN VALVES TO DELIVERY SIDE OF EACH PUMP.
 9. LOCATE HIGH AND LOW LEVEL ALARMS CLEAR OF INLETS TO PREVENT FALSE ALARMS.
 10. PROVIDE LITTER SCREEN ABOVE PUMP SET.

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STATUS	ISSUE FOR DA SUBMISSION	DATE	FEB 2020
PROJECT	321 CONDAMINE STREET, MANLY VALE	PROJECT NUMBER	200203
DRAWING	BASEMENT B1 & B2 DRAINAGE PLANS	DRAWING NUMBER	D02
DESIGNED	DM	SCALE	REFER DWG
DRAWN	DM	PAGE SIZE	A1
CHECKED	DI	REVISION	B

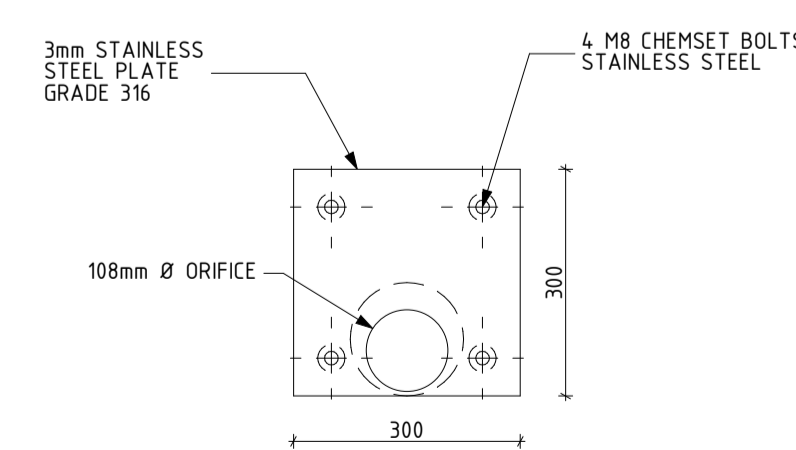


LEVEL 1 DRAINAGE PLAN

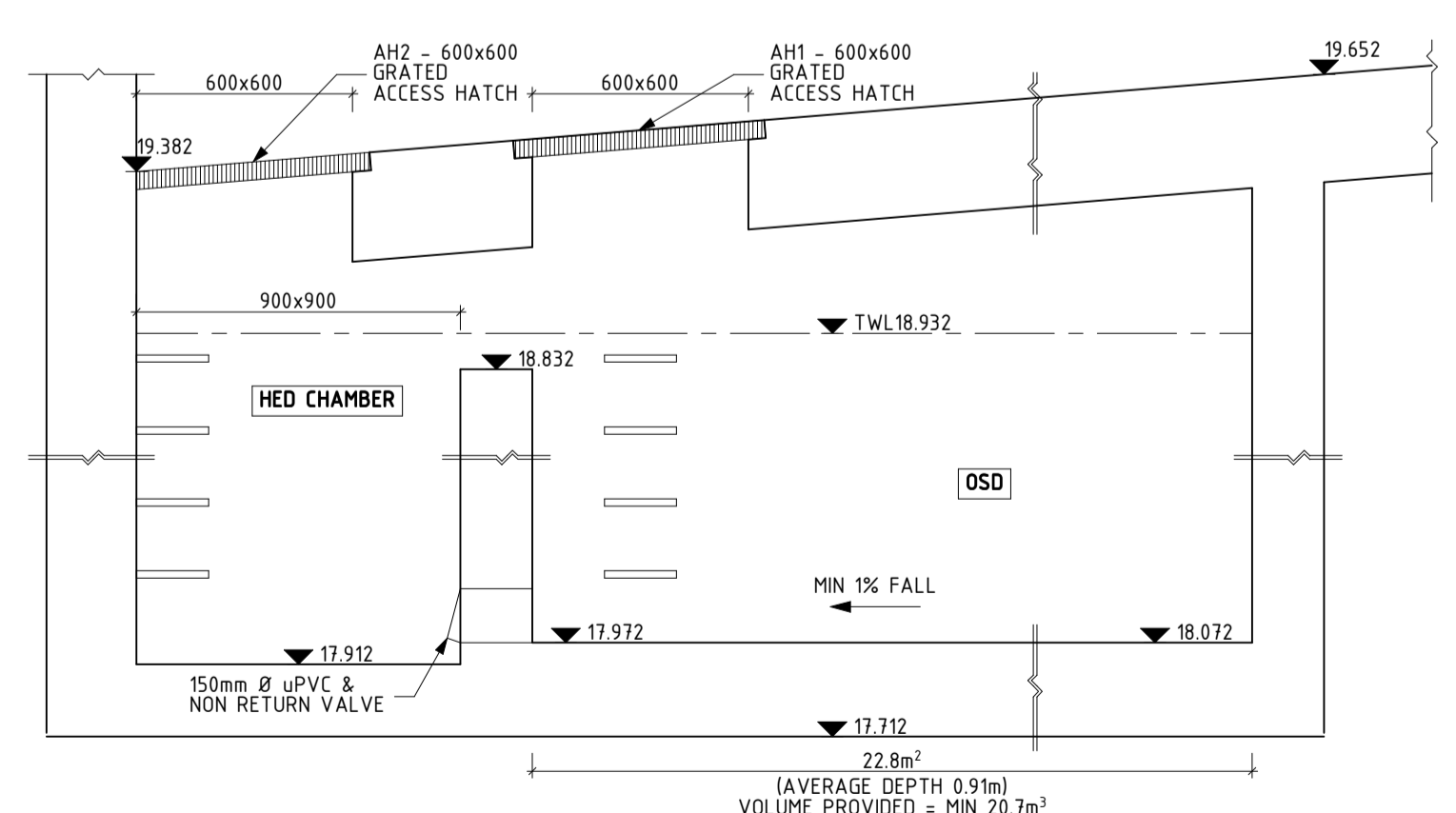
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MARK	SIZE/TYPE
FD	200 DIAMETER FLOOR DRAIN
FD1	200 DIAMETER FLOOR DRAIN (PLANTER)
DP	100 DIAMETER PVC DOWNPIPE
DP1	100 DIAMETER SEWER GRADE PVC PRESSURE SEALED CHARGED DOWNPIPE
DP3	100 DIAMETER PVC DOWNPIPE TO COLLECT WATER FROM BALCONY & TERRACE ONLY

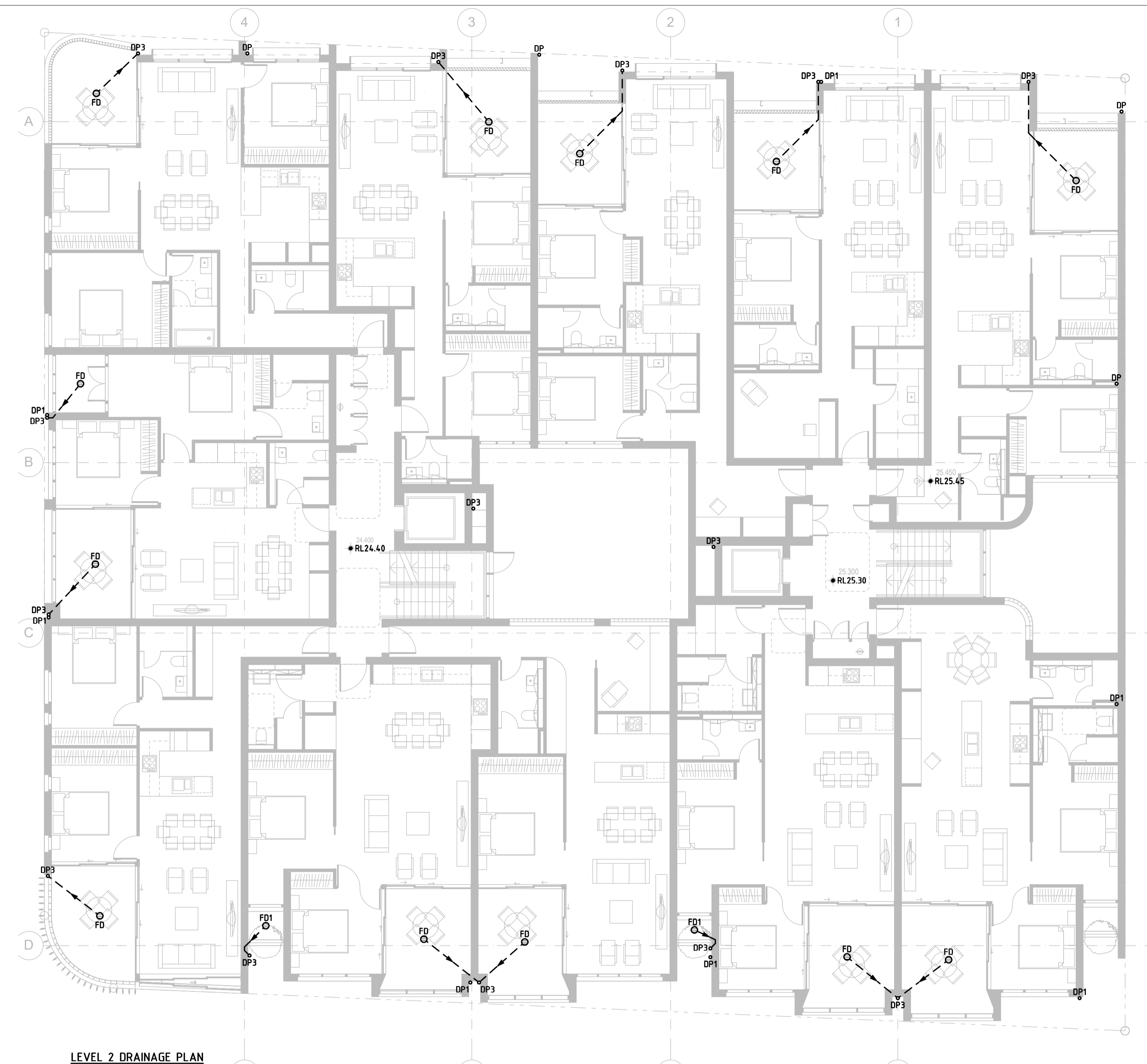
NOTE:
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ORIFICE PLATE DETAIL
1:10

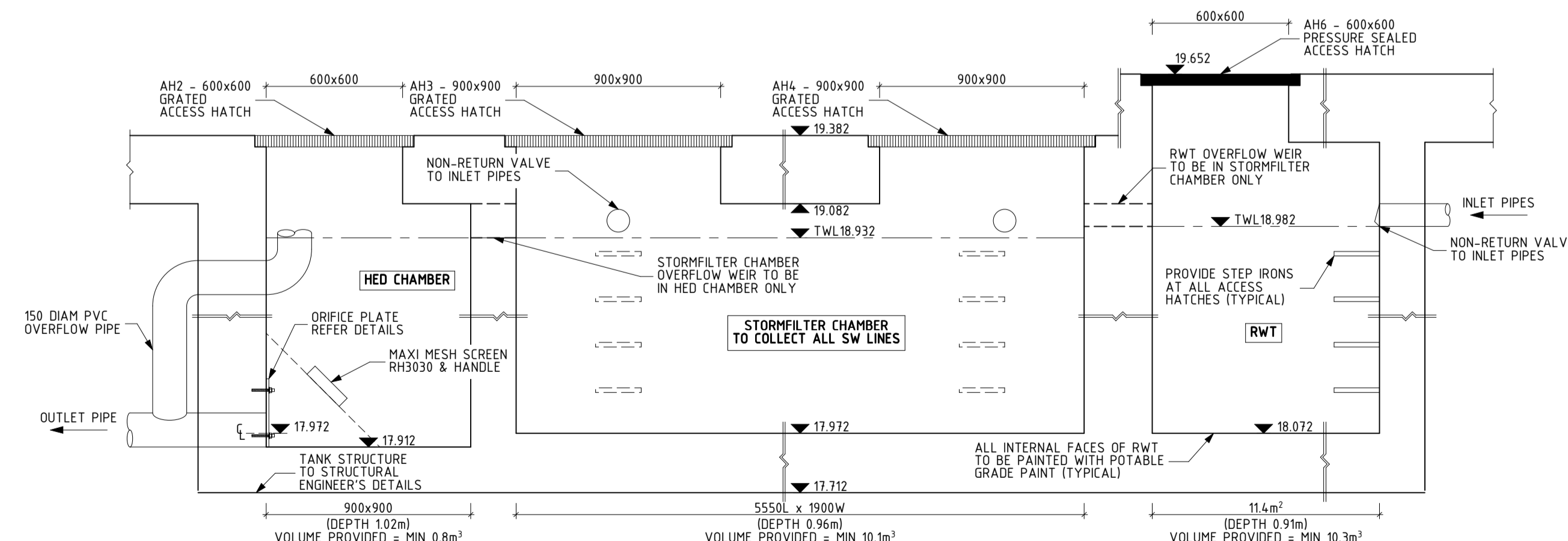


SECTION 1
1:20



LEVEL 2 DRAINAGE PLAN

1:100



SECTION 2
1:20

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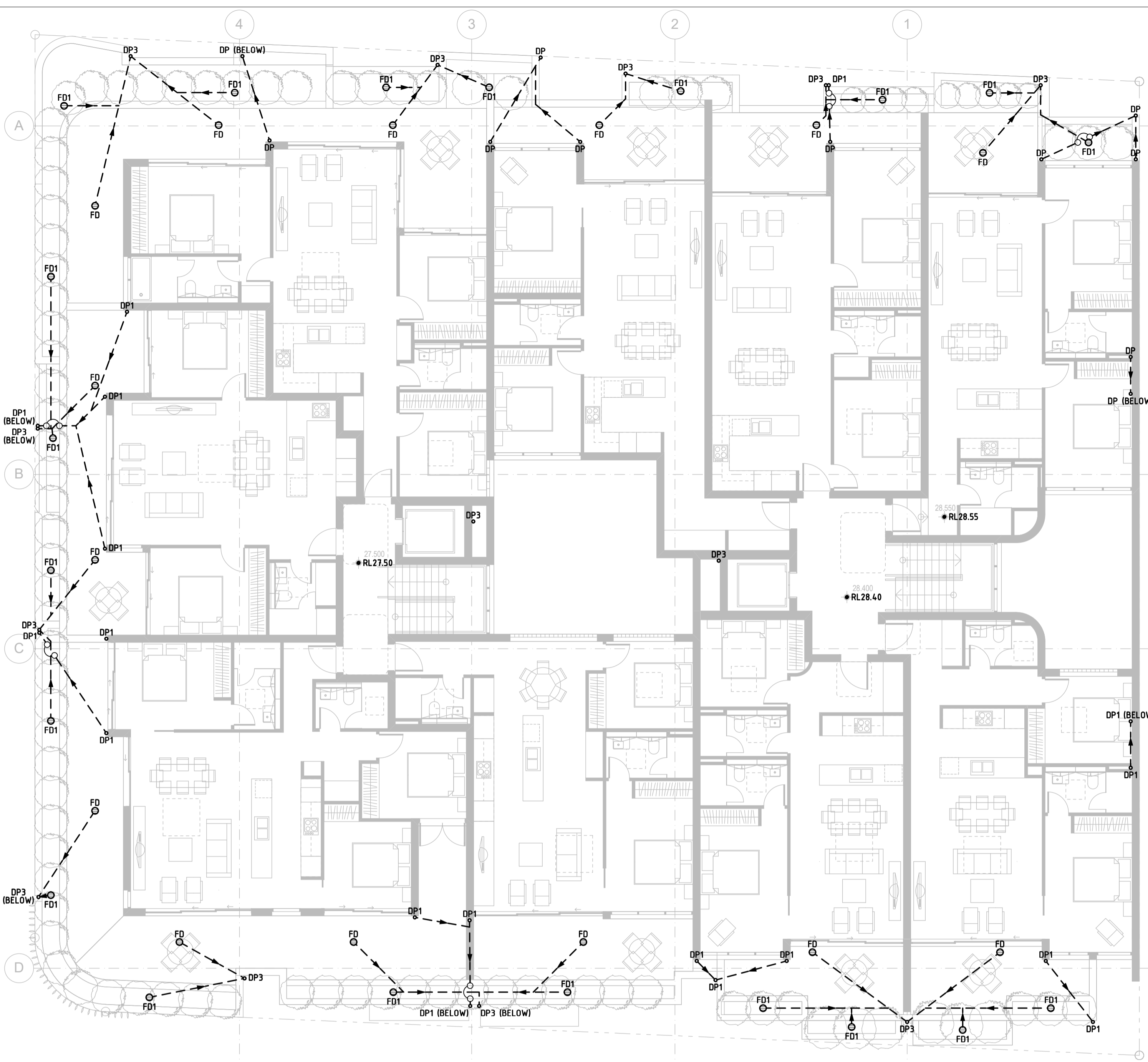
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STATUS	ISSUE FOR DA SUBMISSION	DATE	FEB 2020
PROJECT	321 CONDAMINE STREET, MANLY VALE	PROJECT NUMBER	200203
DRAWING	LEVEL 1 & 2 DRAINAGE PLANS	DRAWING NUMBER	D03
DESIGNED	DM	SCALE	REFER DWG
DRAWN	DM	PAGE SIZE	A1
CHECKED	DI	REVISION	B



LEVEL 3 DRAINAGE PLAN

1:100

MARK	SIZE/TYP
FD	200 DIAMETER FLOOR DRAIN
FD1	200 DIAMETER FLOOR DRAIN (PLANTER)
SP	50 WIDE SPITTER SLOT THROUGH BALUSTRADE
DP	100 DIAMETER PVC DOWNPIPE
DP1	100 DIAMETER SEWER GRADE PVC PRESSURE SEALED CHARGED DOWNPIPE
DP3	100 DIAMETER PVC DOWNPIPE TO COLLECT WATER FROM BALCONY & TERRACE ONLY

NOTE:
- ALL PIPES UNDER SUSPENDED FLOOR TO BE STRAPPED TO UNDERSIDE OF FLOOR STRUCTURE AT MIN 1%



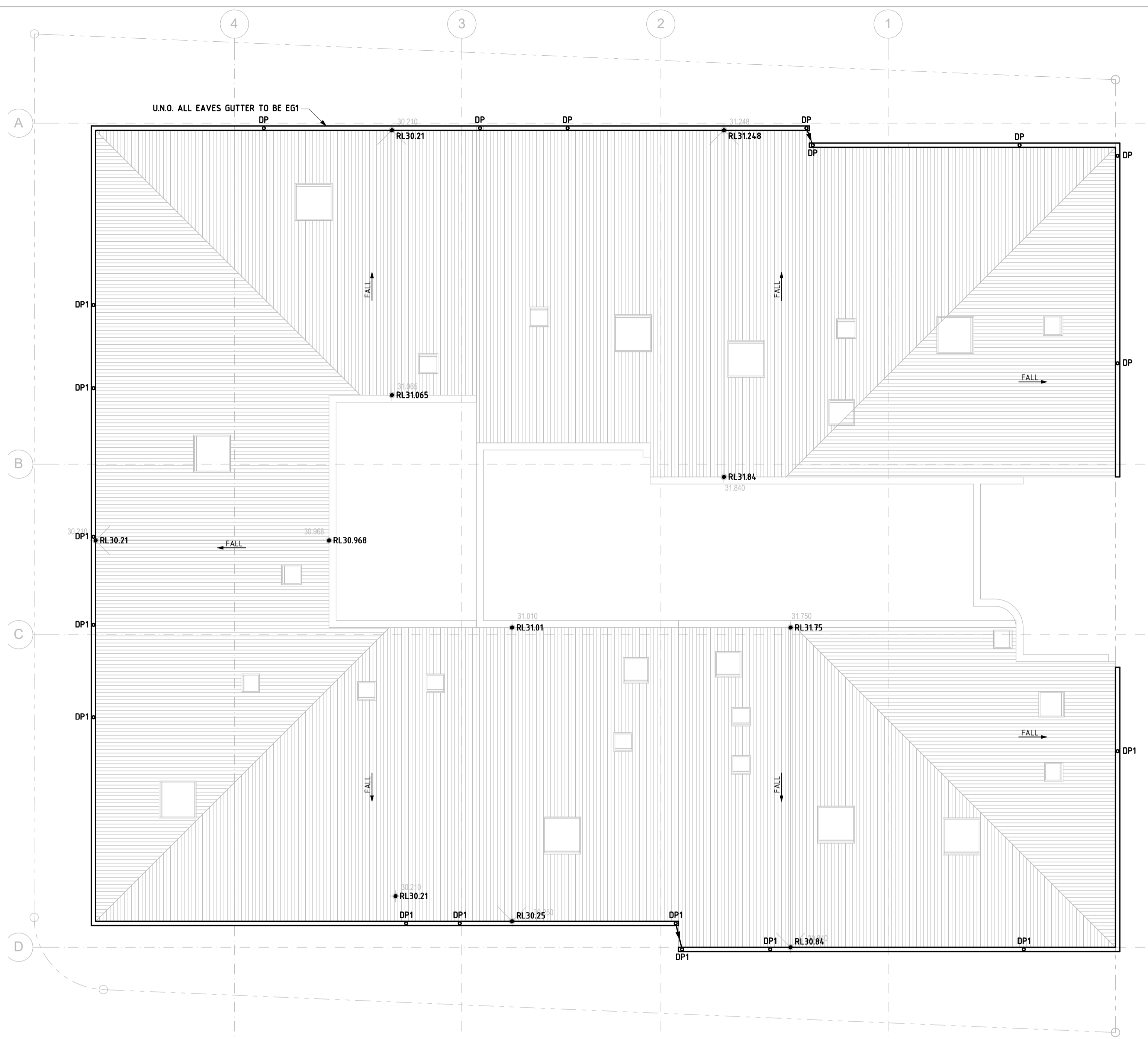
LOWER ROOF DRAINAGE PLAN

1:100

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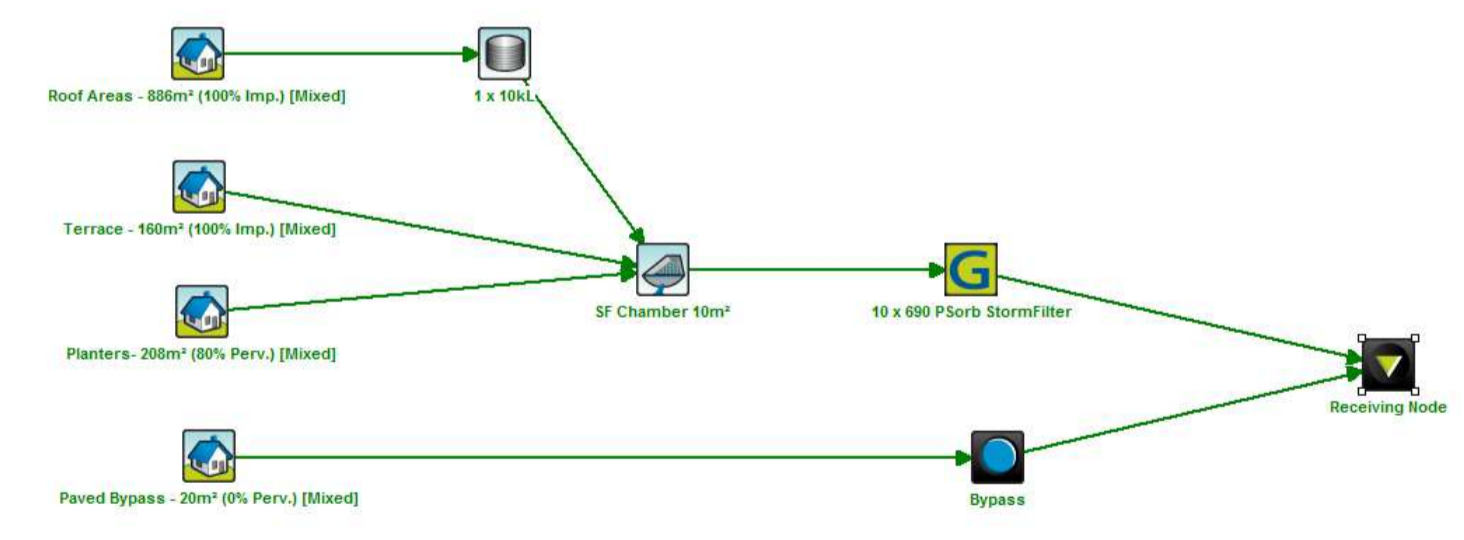
STATUS	ISSUE FOR DA SUBMISSION	DATE	FEB 2020
PROJECT	321 CONDAMINE STREET, MANLY VALE	PROJECT NUMBER	200203
DRAWING	LEVEL 3 & LOWER DRAINAGE PLANS	DRAWING NUMBER	D04
DESIGNED	DM	SCALE	REFER DWG
DRAWN	DM	PAGE SIZE	A1
CHECKED	DI	REVISION	B



UPPER ROOF DRAINAGE PLAN
1:100

MARK	SIZE/TYPE
DP	100 DIAMETER PVC DOWNPIPE
DP1	100 DIAMETER SEWER GRADE PVC PRESSURE SEALED CHARGED DOWNPIPE
EGI	HALF ROUND 150 EAVES GUTTER

NOTE:
- PROVIDE GUTTER GUARD TO ALL GUTTERS
- MOSQUITO PROOF MESH TO BE PROVIDED AT ALL END POINTS TO CHARGED LINES



	Sources	Residual Load	% Reduction
Flow (ML/yr)	1.38	1.29	5.9
Total Suspended Solids (kg/yr)	77.7	11.6	85
Total Phosphorus (kg/yr)	0.246	0.0455	81.5
Total Nitrogen (kg/yr)	2.98	1.3	56.5
Gross Pollutants (kg/yr)	34.5	0.533	98.5

PLAN ID	MAXIMUM PIT PLAN DIMENSIONS
S	450mm x 450mm
M	600mm x 600mm
L	900mm x 900mm
XL	1200mm x 1200mm

DEPTH ID	BAG DEPTH	OVERALL DEPTH
1	170	270
2	300	450
3	600	700

PLAN ID	DEPTH ID		
	1	2	3
S	■	■	■
M	■	■	■
L	■	■	■
XL	■	■	■

GENERAL NOTES

- THE MINIMUM CLEARANCE DEPENDS ON THE CONFIGURATION (SEE NOTE 2) AND THE LOCAL COUNCIL REQUIREMENTS.
- CLEARANCE FOR ANY PIT WITHOUT AN INLET PIPE (ONLY USED FOR SURFACE FLOW) CAN BE AS LOW AS 50mm. FOR OTHER PITS, THE RECOMMENDED CLEARANCE SHOULD BE GREATER OR EQUAL TO THE PIPE OBVERT SO AS NOT TO INHIBIT HYDRAULIC CAPACITY.
- OCEAN PROTECT PROVIDES TWO FILTRATION BAG TYPES - 200 MICRON BAGS FOR HIGHER WATER QUALITY FILTERING AND A COARSE BAG FOR TARGETING GROSS POLLUTANTS.
- DRAWINGS NOT TO SCALE.

OCEAN PROTECT
OCEANGUARD
TYPICAL ARRANGEMENTS
SPECIFICATION DRAWING

STORMFILTER DESIGN TABLE			
CARTRIDGE NAME / SIPHON HEIGHT (mm)	690	460	310
CARTRIDGE PHYSICAL HEIGHT (mm)	840	600	600
TYPICAL WEIR HEIGHT [H] (mm)	920	690	540
CARTRIDGE FLOW RATE FOR ZPG MEDIA (L/s)	1.6	1.1	0.7
CARTRIDGE FLOW RATE FOR PSORB MEDIA (L/s)	0.9	0.46	0.39

SITE SPECIFIC DATA REQUIREMENTS	
STRUCTURE ID	
NUMBER OF CARTRIDGES REQ'D	
SIPHON HEIGHT (310 / 460 / 690)	
MEDIA TYPE (ZPG / PSORB)	
WATER QUALITY FLOW RATE (L/S)	
DIMENSION A	
DIMENSION B	

GENERAL NOTES

- INLET AND OUTLET PIPES TO BE IN ACCORDANCE WITH APPROVED PLANS.
- A HIGH FLOW BYPASS ARRANGEMENT OR DISSIPATION STRUCTURE MAY BE REQUIRED TO MINIMISE RE-SPERSION OF SOLIDS OR ANY SIGNIFICANT INERTIAL FORCES ON THE CARTRIDGES.
- ALL WATER QUALITY TREATMENT DEVICES REQUIRE PERIODIC MAINTENANCE. REFER TO OPERATION AND MAINTENANCE MANUAL FOR GUIDELINES AND ACCESS REQUIREMENTS.
- SITE SPECIFIC PRODUCTION DRAWING WILL BE PROVIDED ON PLACEMENT OF ORDER.
- THE INVERT LEVEL OF THE INLET PIPE MUST BE GREATER THAN THE RL OF THE FALSE FLOOR WITHIN THE CARTRIDGE CHAMBER.
- CONCRETE STRUCTURE AND ACCESS COVERS DESIGNED AND PROVIDED BY OTHERS. ACCESS COVERS TO BE ASSESSED BY OTHERS ON SITE.
- THE STRUCTURE THICKNESSES SHOWN ARE FOR REPRESENTATIONAL PURPOSES.
- DRAWINGS NOT TO SCALE.

INSTALLATION NOTES

- UNDERDRAIN AND FALSE FLOOR INSTALLED BY OCEAN PROTECT.

OCEAN PROTECT
STORMFILTER SYSTEM
DETENTION TANK ARRANGEMENT
SPECIFICATION DRAWING

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STATUS ISSUE FOR DA SUBMISSION

PROJECT 321 CONDAMINE STREET, MANLY VALE

DRAWING UPPER ROOF DRAINAGE PLAN

DATE FEB 2020

PROJECT NUMBER 200203

DRAWING NUMBER D05

DESIGNED DM
SCALE REFER DWG
DRAWN DM
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