

PROPOSED NEW LEURA MALL HOTEL AT 198-204 LEURA MALL, LEURA NSW 2780



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CONCEPT STORMWATER DESIGN PLANS

LEGEND	
	STORMWATER LINE
	SUBSOIL LINE
	STORMWATER RISING MAIN
	EXISTING STORMWATER LINE
	AUTHORITY STORMWATER LINE
	AUTHORITY SEWER LINE
	AUTHORITY WATER LINE
	AUTHORITY GAS LINE
	AUTHORITY ELECTRICITY LINE
	AUTHORITY UNDERGROUND ELECTRICITY LINE
	AUTHORITY FIBRE OPTIC LINE
	AUTHORITY COMMS LINE
	FENCE LINE
	GRATED SURFACE INLET PIT
	GRATED SURFACE INLET PIT WITH ENVIROPD INSERT
	JUNCTION PIT
	KERB INLET PIT
	EXISTING GRATED SURFACE INLET PIT
	GRATED TRENCH DRAIN
	EXISTING JUNCTION PIT
	EXISTING KERB INLET PIT
	EXISTING TELSTRA PIT
	EXISTING HYDRANT
	EXISTING STOP VALVE
	EXISTING GAS VALVE
	EXISTING POWER POLE
	EXISTING BOUNDARY TRAP

SERVICES SHOWN ON PLAN ARE INDICATIVE, EXACT DEPTH AND LOCATION TO BE CONFIRMED ONSITE. CONTRACTOR TO CARRY OUT DIAL BEFORE YOU DIG APPLICATION AND ENGAGE A REGISTERED SURVEYOR TO PEG OUT ALL EXISTING SERVICES PRIOR TO ANY WORK COMMENCING ONSITE.

LEGEND	
	EXISTING SEWER MANHOLE
	OVERLAND FLOW PATH
	RAINWATER OUTLET
	CLEAR OUT POINT
	DISH DRAIN OUTLET
	PLANTER DRAIN
	CAPPING
	PIT TAG/NUMBER
	RAINHEAD
	DOWNPIPE DROP
	NON RETURN VALVE
	WALL PENETRATION
	DOWNPIPE
	DOWNPIPE + SPREADER
	WARNING LIGHT
	SPOT LEVELS
	BENCHMARK

ABBREVIATIONS:

Ø or DIA	DIAMETER
CBR	CALIFORNIA BEARING RATIO
CH	CHAINAGE
CL	CENTER LINE
CO	CLEAR OUT
DD	DISH DRAIN
DDO	DISH DRAIN OUTLET
DEJ	DOWELLED EXPANSION JOINT
DGB	DENSE GRADED BASECOURSE
DGS	DENSE GRADED SUB-BASE
DP	DOWNPIPE
e	EXISTING
FFL	FINISHED FLOOR LEVEL
GTD	GRATED TRENCH DRAIN
GSIP	GRATED SURFACE INLET PIT
HYD	HYDRANT
IJ	ISOLATING JOINT
IK	INTEGRAL KERB
IL	INVERT LEVEL
IP	INTERSECTION POINT
KIP	KERB INLET PIT
KO	KERB ONLY
K&G	KERB & GUTTER
KR	KERB RETURN
LS	LONGITUDINAL SECTION
NGL	NATURAL GROUND LEVEL
OPF	OVERLAND FLOW PATH
OSD	ON-SITE DETENTION
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RK	ROLL KERB & GUTTER
RL	REDUCING LEVEL
RW	RETAINING WALL
RWT	RAINWATER TANK
SJ	SAWN CONTROL JOINT
SMH	SEWER MAN HOLE
SW	STORMWATER
SWP	STORMWATER PIT
SWRM	STORMWATER RISING MAIN
SWS	STORMWATER SUMP
SV	STOP VALVE
TOK	TOP OF KERB
TOW	TOP OF WALL
TWL	TOP WATER LEVEL
TP	TANGENT POINT
UPVC	UNPLASTICISED POLYVINYL CHLORIDE
UNO	UNLESS NOTED OTHERWISE
WPJ	WEAKENED PLANE JOINT
FF	FIRST FLUSH DEVICE
TYP	TYPICAL

DRAINAGE NOTES:

ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED

100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE

MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm

ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS

BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL

ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)

SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS

HEAVY DUTY GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS

PIT GRATE TO BE TYPE WELDLOK OR APPROVED EQUIVALENT

ALL PITS SHALL BE PROVIDED WITH A LOCKING CLIP

ALL PITS SHALL BE MAINTAINED REGULARLY

TOP OF BENCHING SHALL BE TO THE HALF OF THE OUTLET PIPE DIAMETER

MAXIMUM FRONT ENTRY PIPE:-
STRAIGHT ENTRY - Ø750
SKEW ENTRY 45° - Ø525

Ø100 SUBSOIL DRAINAGE PIPE 3000mm LONG WRAPPED IN FABRIC SOCK TO BE PROVIDED ADJACENT TO INLET PIPES

COMPRESSIVE STRENGTH f_c FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS

PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS

ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS

ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm

STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

STORMWATER PIPE BEDDING/PAVING NOTES:

WHERE TRENCH BASE IS ROCK A MINIMUM OF 75mm BEDDING TO BE PROVIDED UNDER PIPE COLLARS.

STORMWATER PIPE BEDDING DETAIL TO BE IN ACCORDANCE WITH LOCAL COUNCIL REQUIREMENTS. BEDDING DETAILS TO BE CONFIRMED UPON EXCAVATION & PRIOR TO INSTALLATION OF PIPEWORK.

FOOTPATH REINSTATEMENT NOTES:

REMOVE ALL SAND FILL WITHIN THE FOOTPATH AREA TO THE EXISTING SUBGRADE.

SUPPORT ALL AUTHORITY SERVICES TO STRUCTURAL ENGINEERS DETAILS DURING EXCAVATION.

REINSTATE FOOTPATH SUBGRADE.

THE CONTRACTOR SHALL PROVIDE CERTIFICATION OF COMPACTION FROM A NATA REGISTERED TESTING AUTHORITY. MINIMUM THREE TESTS PER LAYER AS FOLLOWS:

SELECT FILL	95% MODIFIED
SELECT FILL (LESS THAN 300mm BELOW BASE COURSE)	98% MODIFIED
BASE COURSE	100% MODIFIED

EROSION & SEDIMENT CONTROL NOTES:

PROVIDE SILT FENCE/HAY BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS (TYPICAL).

ISOLATE EXISTING STORMWATER PITS WITH HAY BALES TO FILTER ALL INCOMING FLOWS.

DO NOT STOCK PILE EXCAVATED MATERIAL ON THE ROAD WAY.

SURVEY

THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY RICHARD HOGAN & CO P/L, BEING REGISTERED SURVEYORS. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. GEBA CONSULTING DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE OR ITS SUITABILITY AS A BASIS FOR CONSTRUCTION DRAW.

SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT GEBA CONSULTING.

ADOPT DATUM PM 41036 RL.962.066 (A.H.D) AS PER RICHARD HOGAN & CO P/L. REFERENCE-17892.

DRAWING REGISTER

NUMBER	NAME	REVISION
SW-01	COVER SHEET & SPECIFICATIONS	F
SW-02	EROSION & SEDIMENT CONTROL PLAN	F
SW-03	BASEMENT PLAN	F
SW-04	GROUND FLOOR PLAN	F
SW-05	OSD & DRAINS MODEL RESULTS	F
SW-06	WSUD & MUSIC MODEL CATCHMENT PLAN	F
SW-07	WSUD & MUSIC MODEL RESULTS	F
SW-08	DETAILS - SHEET 1	F
SW-09	DETAILS - SHEET 2	F



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Architect
PTI ARCHITECTS

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Scale

0m 1 2 3 4 5
SCALE 1:100 ON ORIGINAL SIZE

Northpoint

Description	Des.	Chk.	App.	Rev.	Date
FOR DA SUBMISSION TO COUNCIL	G.E.	G.E.	G.E.	A	12.02.20
FOR DA SUBMISSION TO COUNCIL	G.E.	G.E.	G.E.	B	19.02.20
AMENDED TO WATER NSW COMMENTS	G.E.	G.E.	G.E.	C	17.06.20
AMENDED AS PER COUNCIL COMMENTS	G.E.	G.E.	G.E.	D	09.11.20
FOR SUBMISSION	J.S.	G.E.	G.E.	E	29.04.22
FOR APPROVAL	J.S.	G.E.	G.E.	F	17.08.22

DEVELOPMENT APPLICATION (DA)

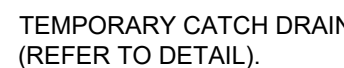
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COVER SHEET & SPECIFICATIONS

Project number	Drawing number	Original Size	Scale
GC20010	SW01	A1	1:100

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SUBSOIL DESIGN CALCS:

100yr 4hr ARI STORM= 36.8mm/hr
AR1x4=147.2mm
IMPERVIOUS AREA ENTERING PUMP-OUT PIT= 608.6m²

$V=A \times d$
=608.6x(147.2/1000)
=608.6x0.1472
=89.58m³

STANDARD PUMP OUT DESIGN NOTES:

THE PUMP OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED IN THE FOLLOWING MANNER:-

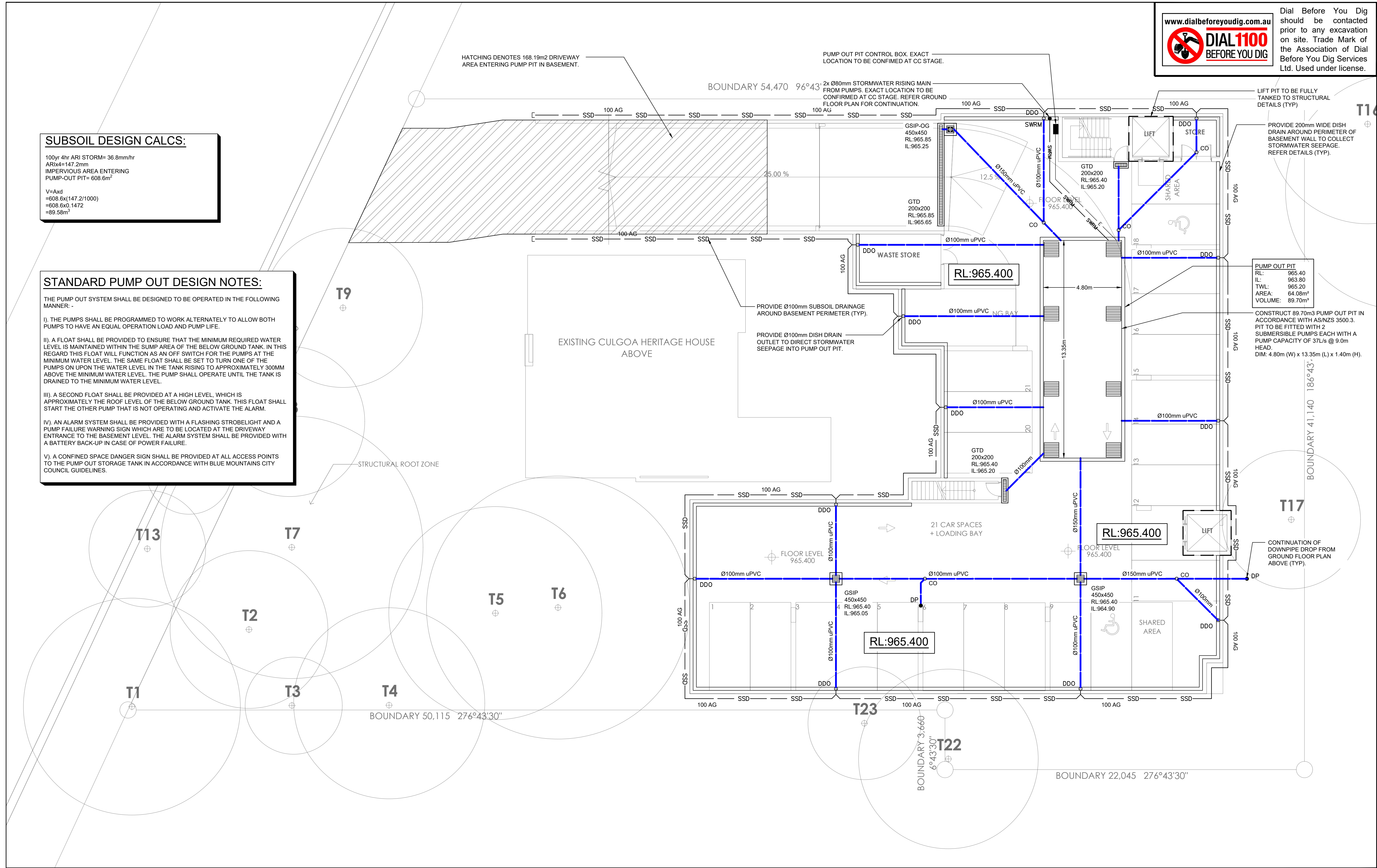
I). THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.

II). 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 THE 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.

III). 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.

IV). AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBELIGHT 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.


V). A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT ALL ACCESS POINTS TO THE PUMP OUT STORAGE TANK IN ACCORDANCE WITH BLUE MOUNTAINS CITY COUNCIL GUIDELINES.



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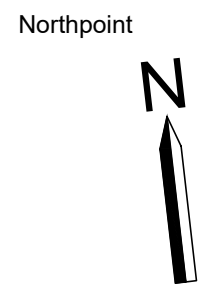
Project
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Scale

0m 1 2 3 4 5

SCALE 1:100 ON ORIGINAL SIZE



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AMENDED TO WATER NSW COMMENTS

AMENDED AS PER COUNCIL COMMENTS

FOR SUBMISSION

FOR APPROVAL

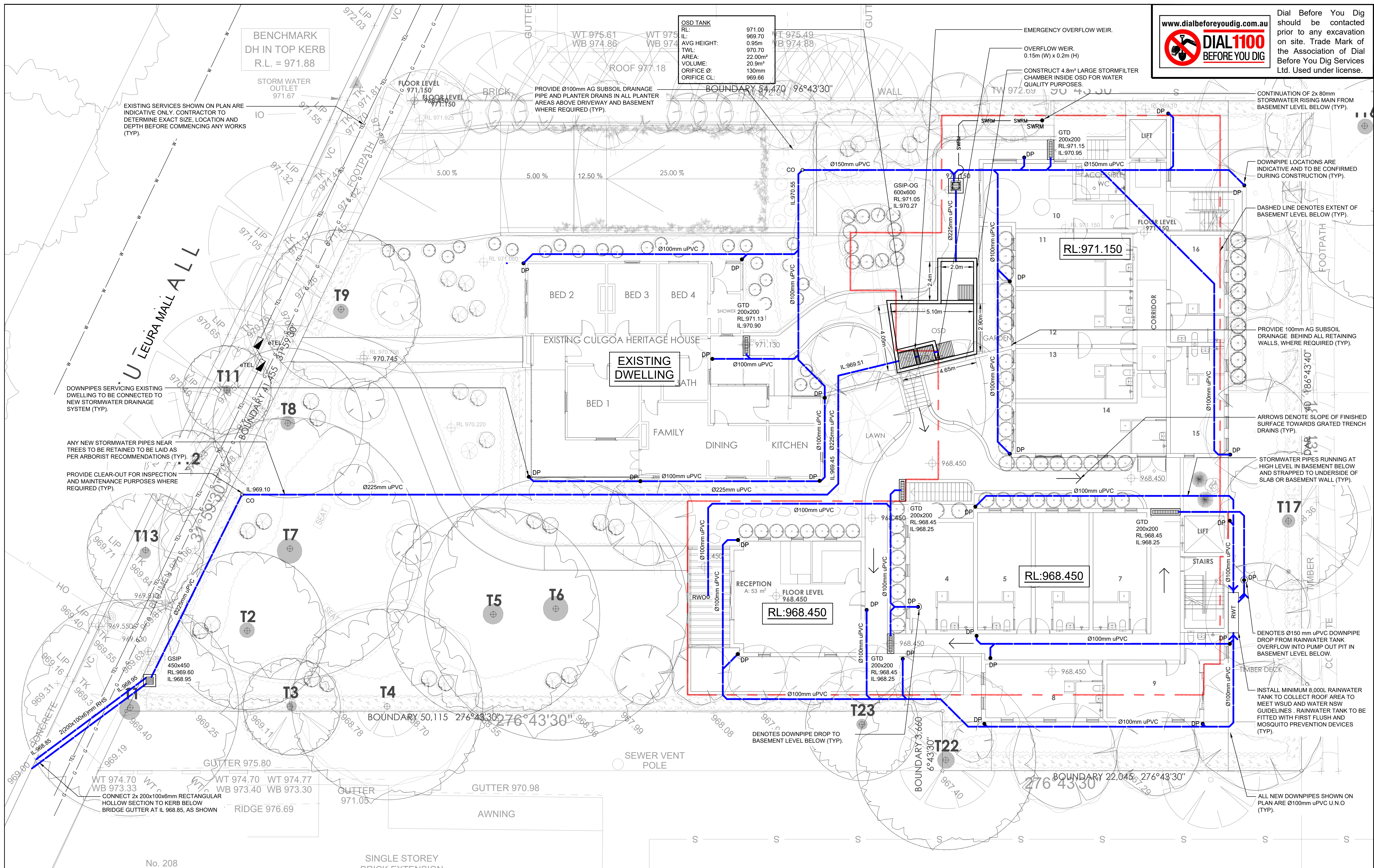
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J.S.	G.E.	G.E.	F	17.08.22

DEVELOPMENT APPLICATION (DA)

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BASEMENT PLAN

Project number	Drawing number	Original Size	Scale
GC20010	SW03	A1	1:100



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DEVELOPMENT APPLICATION (DA)
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GROUND FLOOR PLAN
Project number GC20010
Drawing number SW04
Original Size A1
Scale 1:100

RWT NOTES:

RAINWATER TANK TO SIZED AT 1000L PER 100m² INCREASE IN IMPERVIOUS AREA, AS PER SECTION C6.1.3, CONDITION C2 (B) OF THE BLUE MOUNTAINS DCP, AS PER LEC CASE 2021/00307840

1244.95- 790.3 = 454.65 m² INCREASE IN IMPERVIOUS AREA.

THEREFORE A MINIMUM OF 4,600L RAINWATER TANK STORAGE IS REQUIRED TO MEET DCP REQUIREMENTS

MINIMUM 8,000L RAINWATER TANK TO BE PROVIDED TOP MEET WSUD AND WATERNSW GUIDELINES.

DESIGN NOTES:

THE SITE IS LOCATED IN BLUE MOUNTAINS CITY COUNCIL.

SITE AREA = 2,453m².

SITE IS LOCATED IN THE 'SYDNEY DRINKING WATER CATCHMENTS'.

THEREFORE, PROVIDE WATER SENSITIVE URBAN DESIGN (WSUD) IN ACCORDANCE WITH WATER-NSW GUIDELINES.

ON-SITE STORMWATER DETENTION (OSD) IS REQUIRED IN ACCORDANCE WITH BMCC DCP2015 - PART C6.2.

THE OSD STORAGE SYSTEM WILL BE BELOW GROUND.

OSD WAS DESIGNED USING DRAINS. THE RESULTS ARE SHOWN BELOW:

DRAINS MODELLING PARAMETERS:

THE STORAGE CAPACITY AND PERMISSIBLE SITE DISCHARGE OF THE OSD WAS CALCULATED THROUGH A DRAINS MODEL WITH REGARDS TO BLUE MOUNTAINS CITY COUNCIL DCP REQUIREMENTS LISTED BELOW:

POST-DEVELOPMENT FLOWS RESTRICTED TO THE PRE-DEVELOPMENT FLOWS (IN ACCORDANCE WITH COUNCIL DCP).

PRE-DEVELOPMENT IMPERVIOUS CATCHMENT = 790.3m2
POST-DEVELOPMENT IMPERVIOUS CATCHMENT = 1244.95m2

TIME OF CONCENTRATION = 5min(s)

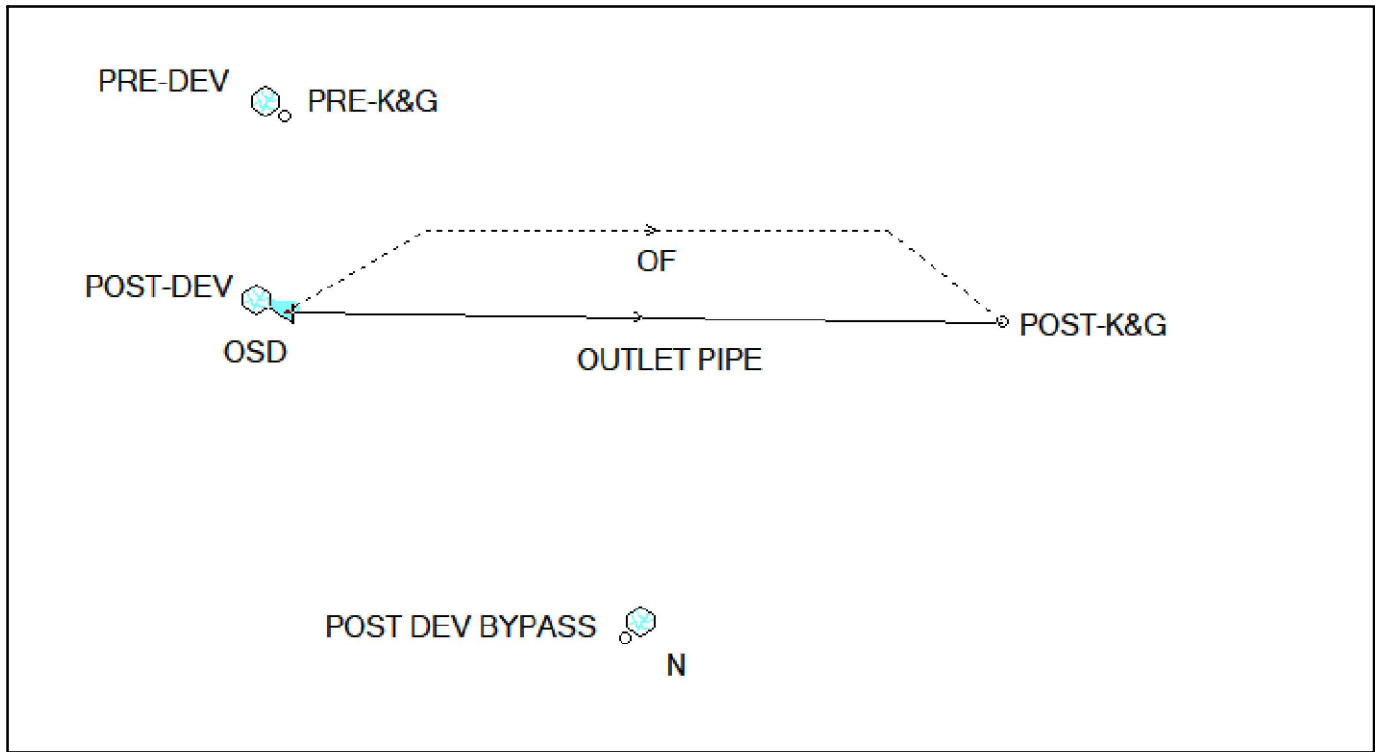
ALL STORMWATER PIPES SHOWN ON PLAN ARE Ø100mm uPVC U.N.O.

PROVIDE CLEAR OUTS FOR INSPECTION AND MAINTENANCE PURPOSES, WHERE REQUIRED.

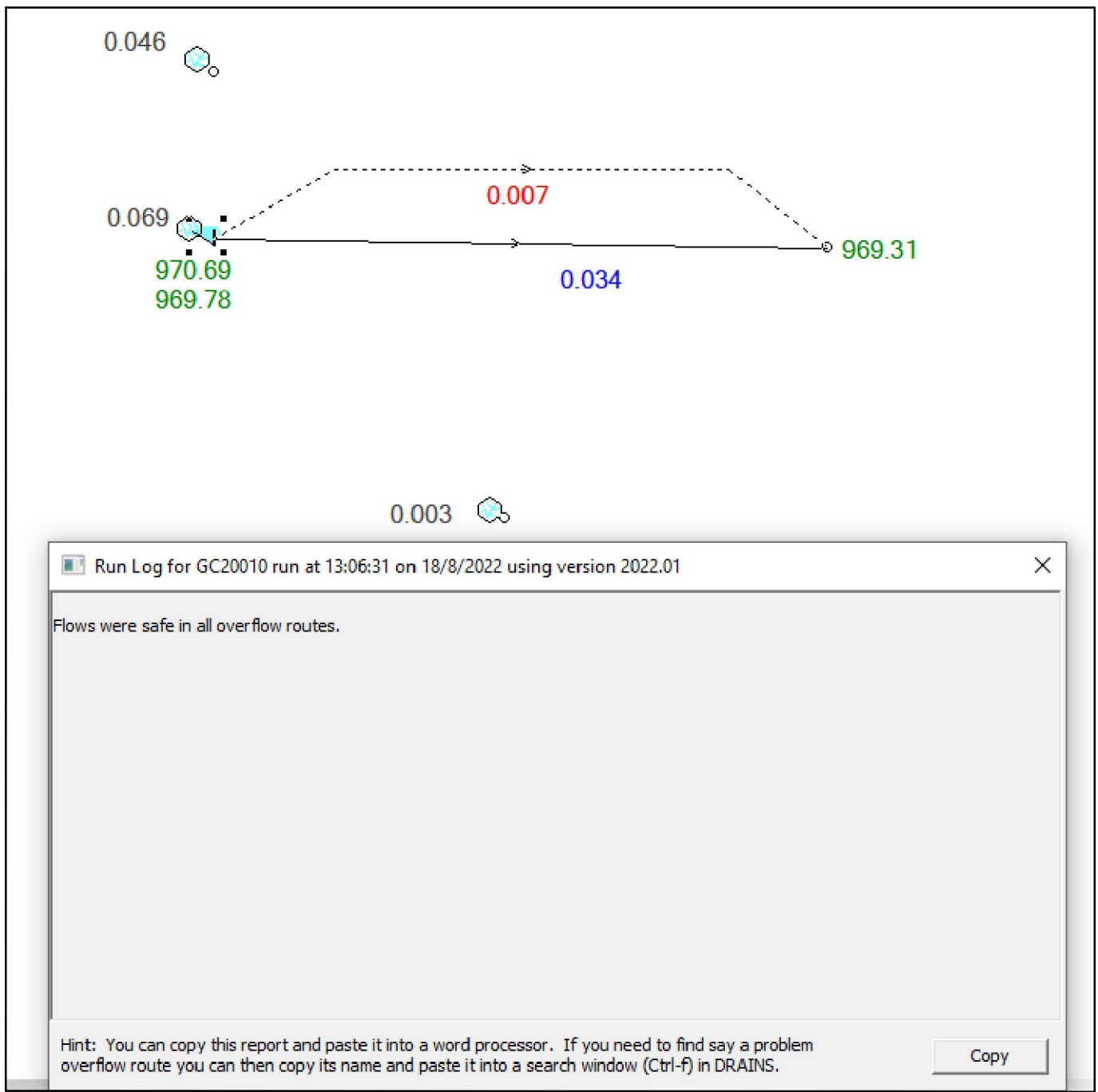
OSD DESIGN PARAMETERS:

1. THE PRE/POST-DEVELOPMENT IMPERVIOUS AREA WAS MEASURED THROUGH AUTOCAD.
2. THE POST-DEVELOPMENT IMPERVIOUS AREA WAS DESIGNATED A VALUE OF 100.0% FOR A MORE ACCURATE VALUE AND TO REPLICATE THE PROPOSED IMPERVIOUS AREA FOR SIZING OSD ON DRAINS.
3. THE RAINFALL DATA WAS CALCULATED AND OBTAINED BY THE BUREAU OF METEOROLOGY, AUSTRALIA FOR THE RESPECTIVE LOCATION OF THE SITE.
- LATITUDE: 33.725 (S)
- LONGITUDE: 150.325 (E)

OSD - DRAINS MODEL



OSD - DRAINS RESULT



POST-DEVELOPMENT OSD REQUIREMENTS:

LOT AREA (m²)	PRE-DEV IMPERVIOUS (m²)	POST-DEV IMPERVIOUS (m²)	STORM (YR)	PRE-DEV FLOW (m³/s)	POST-DEV FLOW (m³/s)	PIPE OUTFLOW (m³/s)	WEIR OUTFLOW (m³/s)	OSD BYPASS (m³/s)	TOTAL PSD (m³/s)	OSD VOLUME (m³)
2,453	790.3	1244.95	5	0.027	0.043	0.025	0.000	0.002	0.027	20.90
			20	0.036	0.060	0.030	0.000	0.003	0.033	
			100	0.046	0.072	0.034	0.007	0.003	0.044	

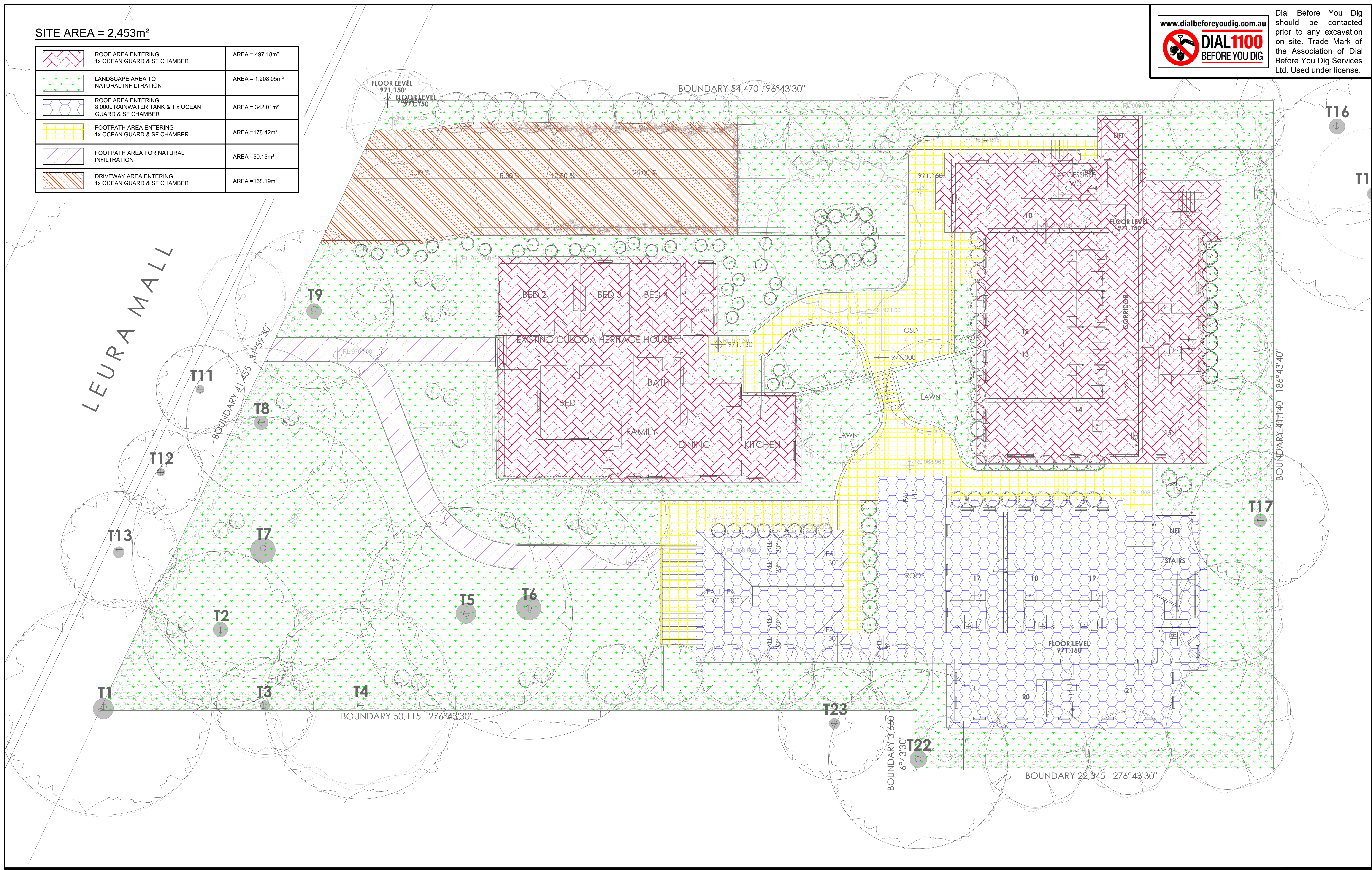
SITE AREA = 2,453m²

	ROOF AREA ENTERING 1x OCEAN GUARD & SF CHAMBER	AREA = 497.18m ²
	LANDSCAPE AREA TO NATURAL INFILTRATION	AREA = 1,208.05m ²
	ROOF AREA ENTERING 8,000L RAINWATER TANK & 1 x OCEAN GUARD & SF CHAMBER	AREA = 342.01m ²
	FOOTPATH AREA ENTERING 1x OCEAN GUARD & SF CHAMBER	AREA = 178.42m ²
	FOOTPATH AREA FOR NATURAL INFILTRATION	AREA = 59.15m ²
	DRIVEWAY AREA ENTERING 1x OCEAN GUARD & SF CHAMBER	AREA = 168.19m ²

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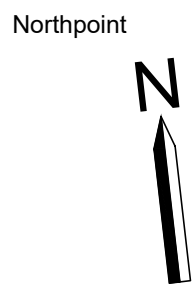
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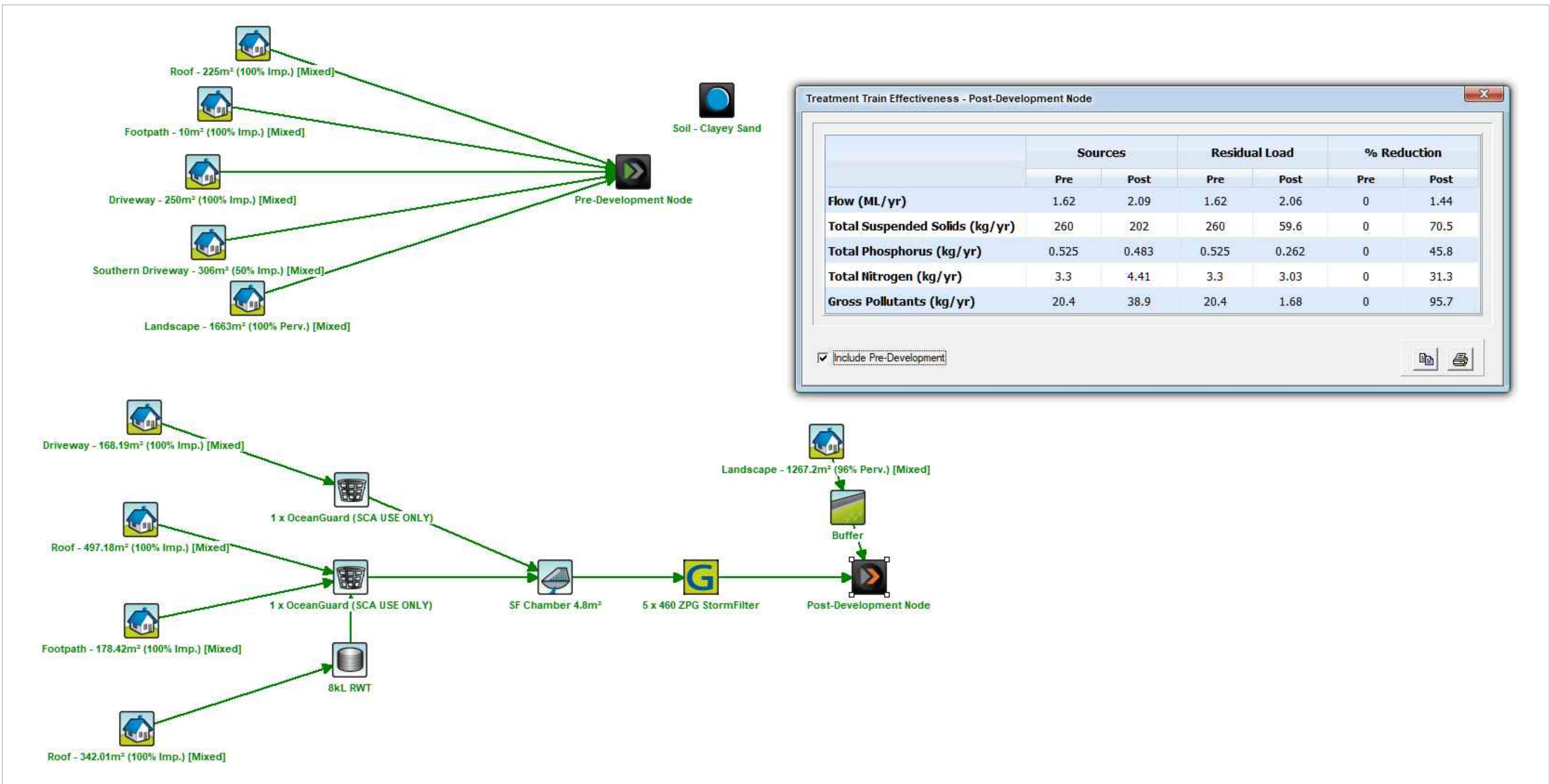
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DEVELOPMENT APPLICATION (DA)
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WSUD & MUSIC MODEL CATCHMENT PLAN
Project number
GC20010
Drawing number
SW06
Original Size
A1
Scale
1:100

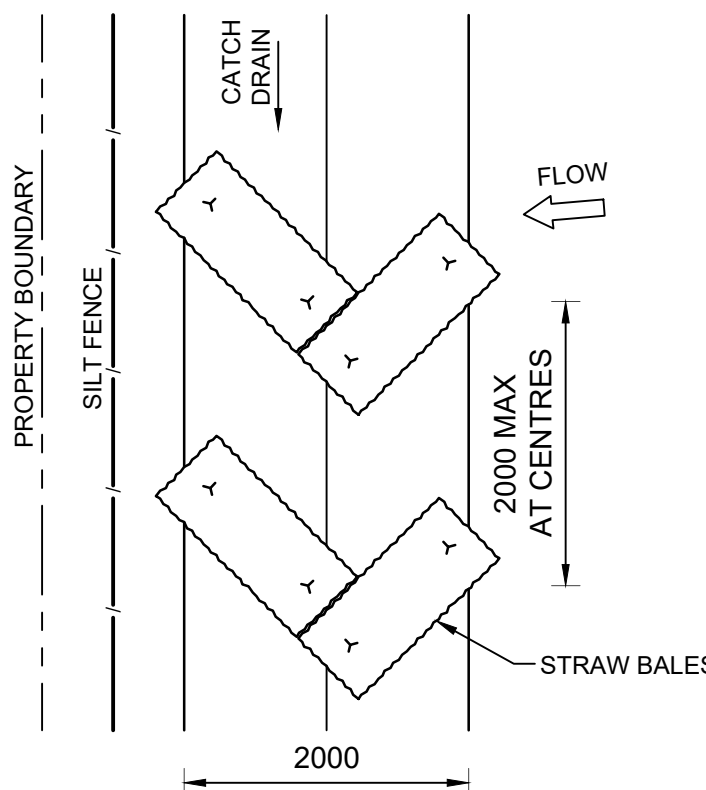
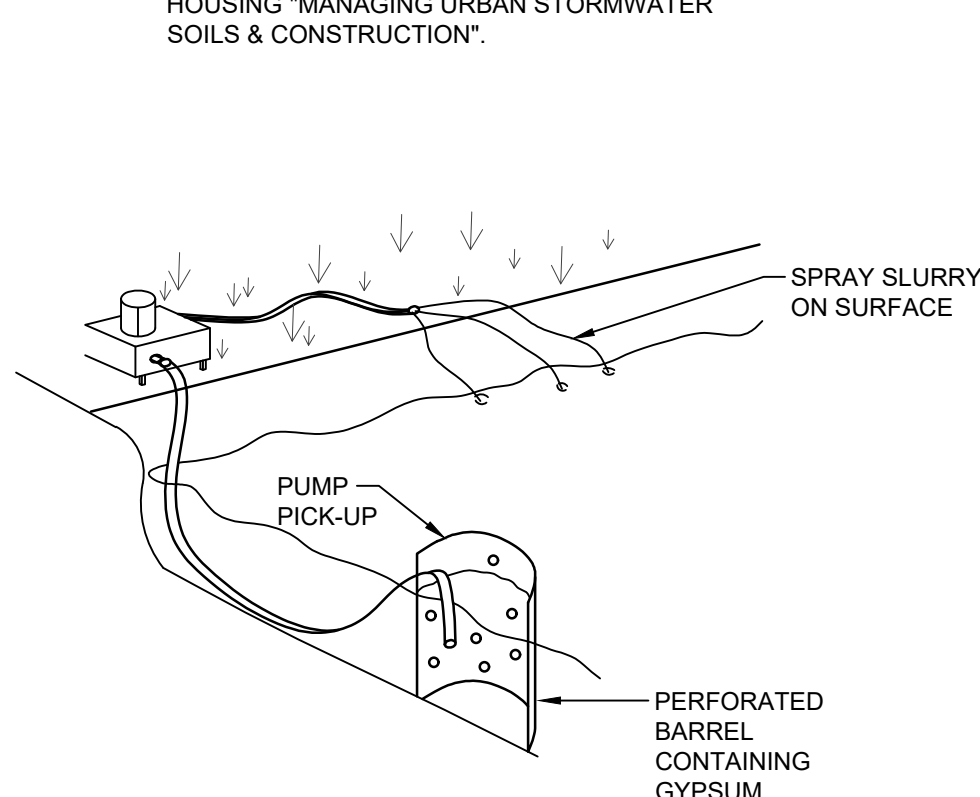
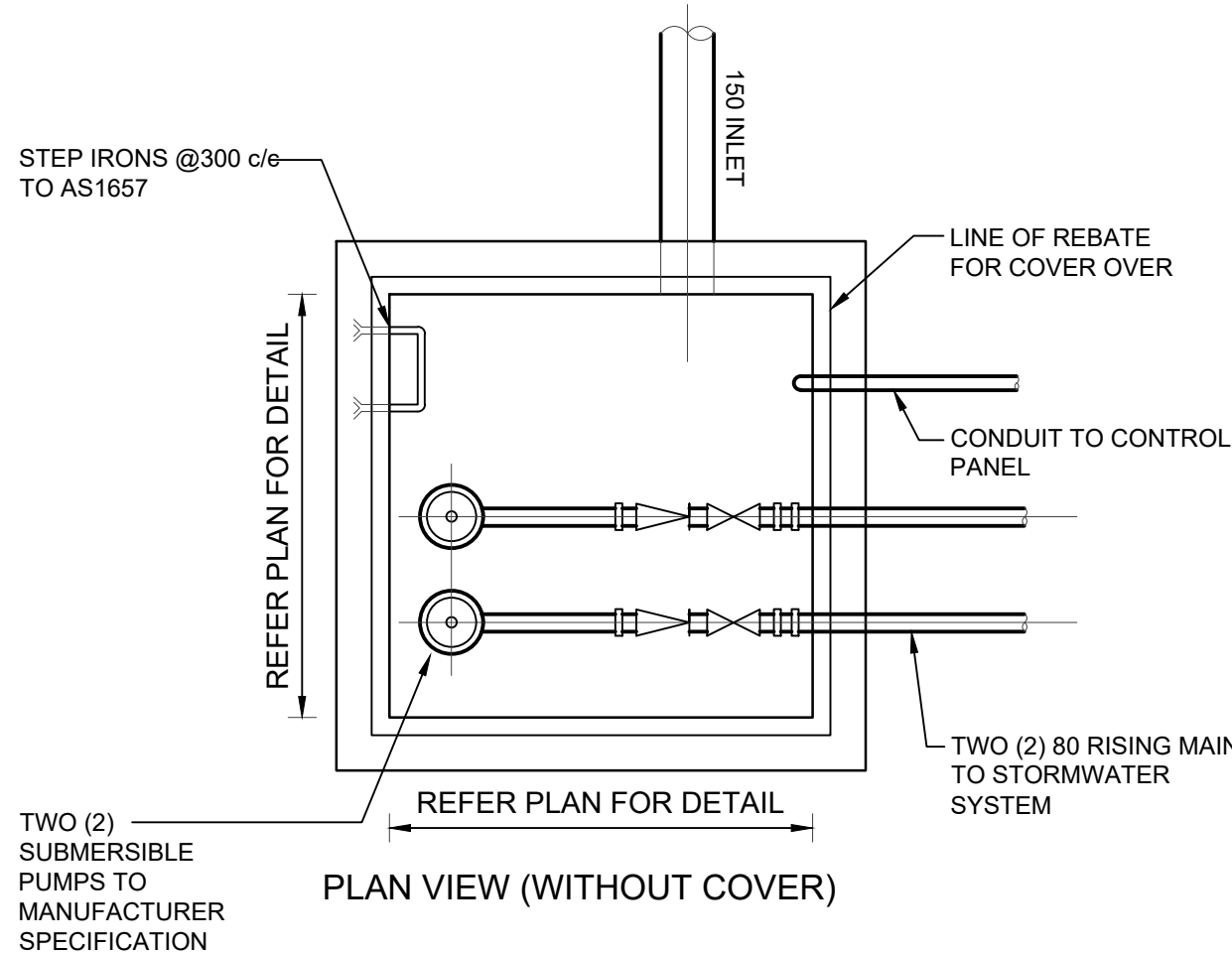
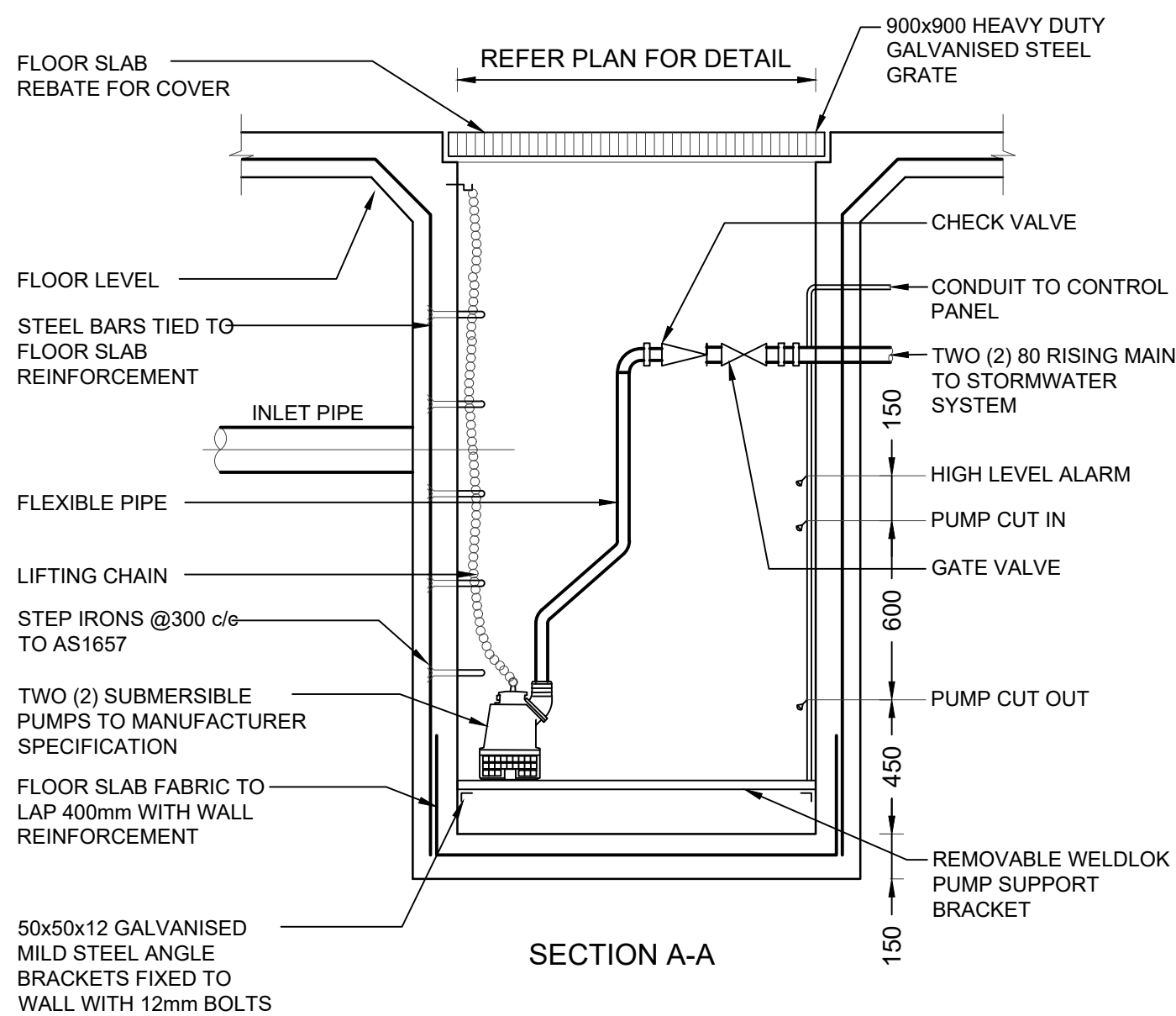


Pre-Development	Source (kg/yr)	Residual Load (kg/yr)	% Reduction
Flow (ML/yr)	1.62E+00	1.62E+00	0
Total Suspended Solids (kg/yr)	260	260	0
Total Phosphorus (kg/yr)	5.25E-01	5.25E-01	0
Total Nitrogen (kg/yr)	3.30E+00	3.30E+00	0
Gross Pollutants (kg/yr)	20.4	20.4	0
Post-Development	Source (kg/yr)	Residual Load (kg/yr)	% Reduction
Flow (ML/yr)	2.09E+00	2.06E+00	1.2
Total Suspended Solids (kg/yr)	2.02E+02	59.6	70.5
Total Phosphorus (kg/yr)	4.83E-01	2.62E-01	45.9
Total Nitrogen (kg/yr)	4.41	3.03	31.2
Gross Pollutants (kg/yr)	38.9	1.68E+00	95.7
NorBE	Pre-Development Load (kg/yr)	Post Development Load (kg/yr)	% Pre. Vs Post Reduction
Flow (ML/yr)	1.62	2.06	-27.2%
Total Suspended Solids (kg/yr)	2.60E+02	59.6	77.1%
Total Phosphorus (kg/yr)	0.525	0.262	50.1%
Total Nitrogen (kg/yr)	3.3	3.03	8.2%
Gross Pollutants (kg/yr)	20.4	1.68	91.8%

NOTE:

1. FLOCCULATION TO BE USED IF WATER IS NOT CLEAR (ie. SEDIMENT GREATER THAN 50 mg/L) PRIOR TO DISCHARGING FROM TEMPORARY PUMP OUT

2. FOR RATES & AGENTS SEE APPENDIX E OF NEW SOUTH WALES DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION".



DETAIL
FLOCCULATION DETAIL
NOT TO SCALE

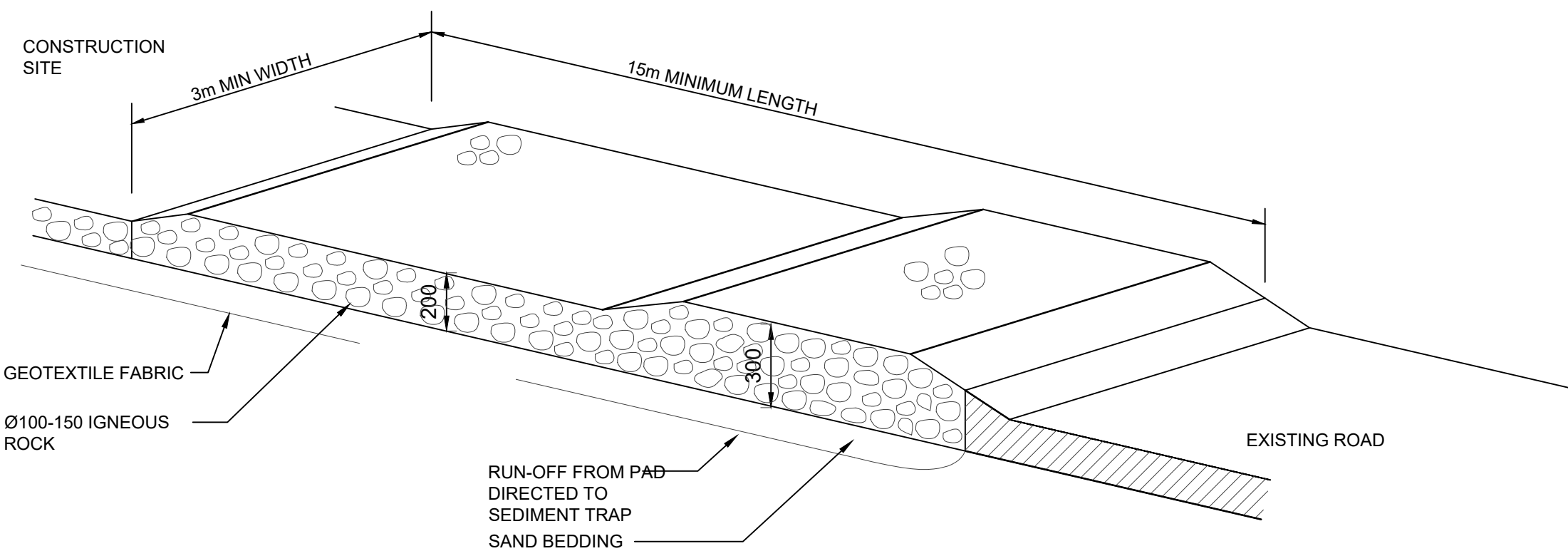
4
-

DETAIL
TEMPORARY CATCH DRAIN
SCALE 1:50

5
-

DETAIL
SUBSOIL PUMP OUT PIT
NOT TO SCALE

1
-

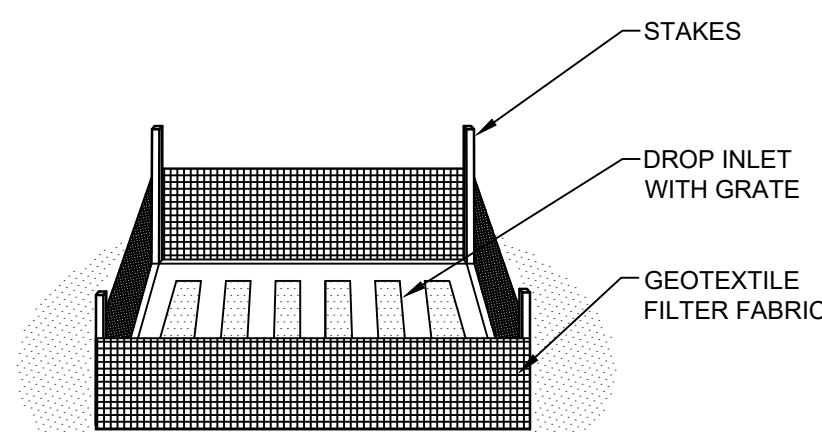


RUBBLE ALTERNATIVE

DETAIL

TEMPORARY
CONSTRUCTION EXIT
NOT TO SCALE

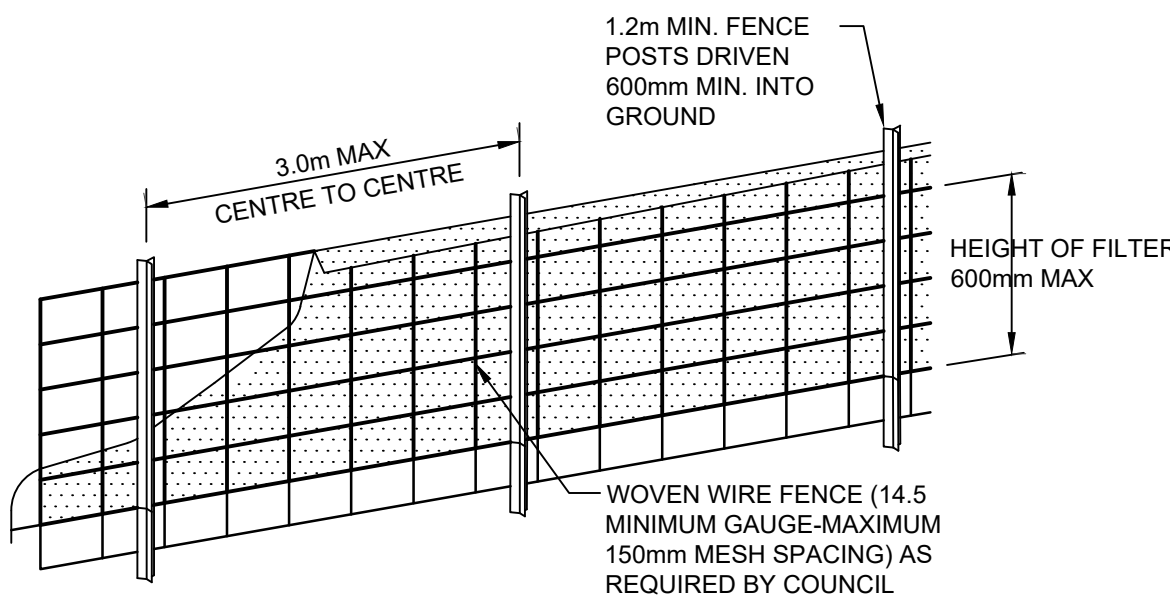
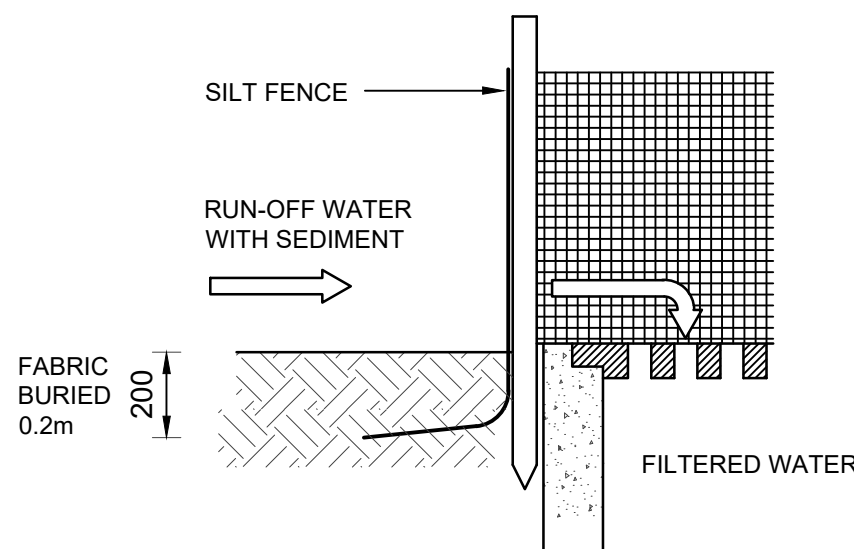
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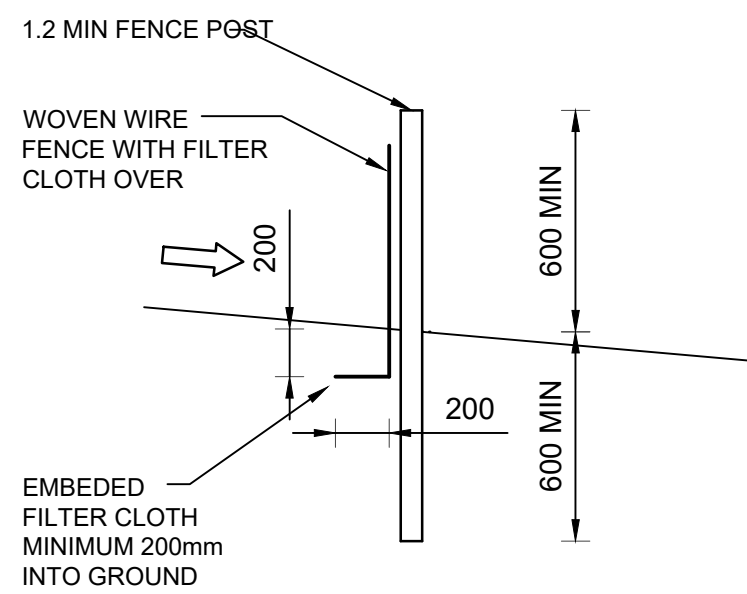
DETAIL

SUMP SEDIMENT TRAP
NOT TO SCALE

3
-



DIAGRAMMATIC VIEW



TYPICAL SECTION

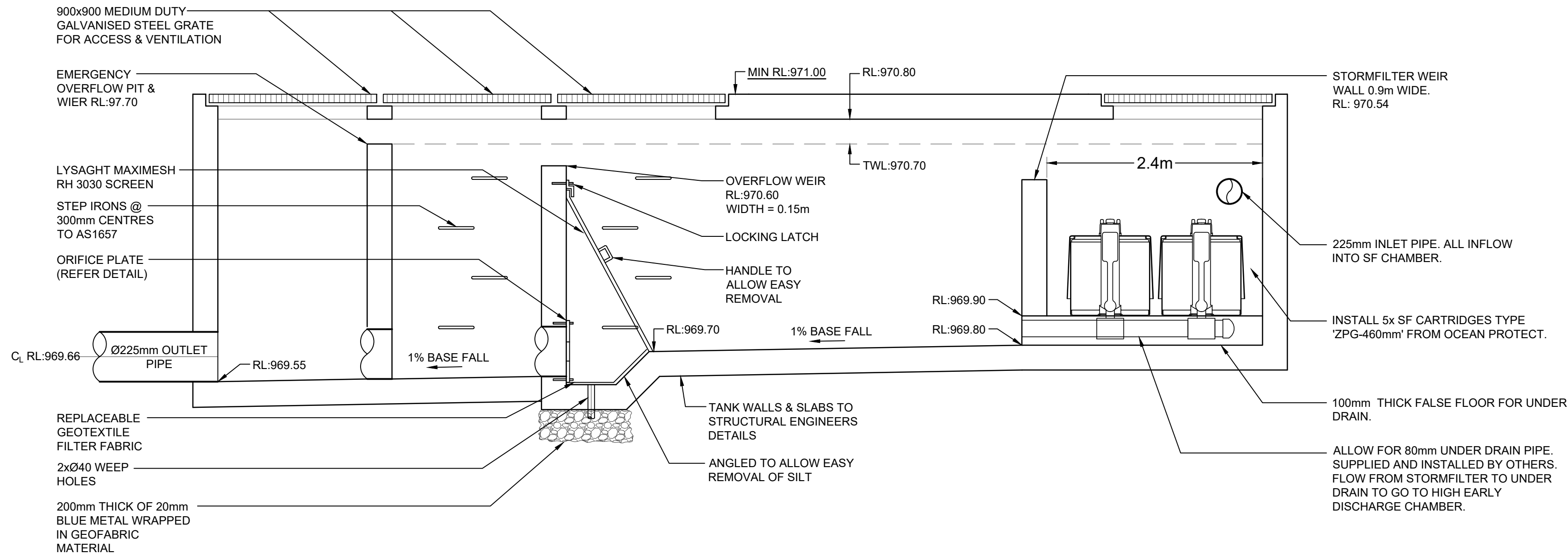
DETAIL

SEDIMENT FENCE
NOT TO SCALE

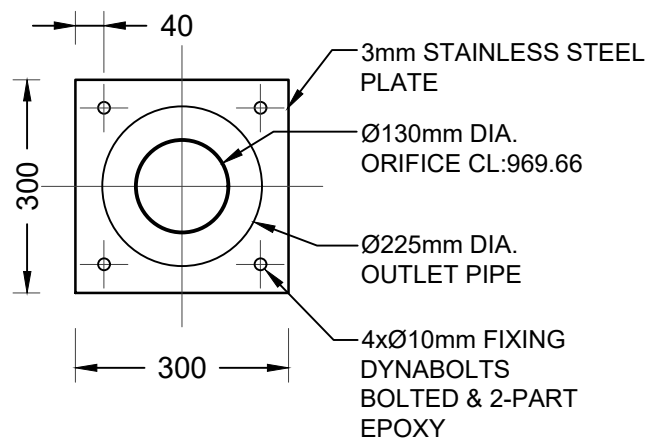
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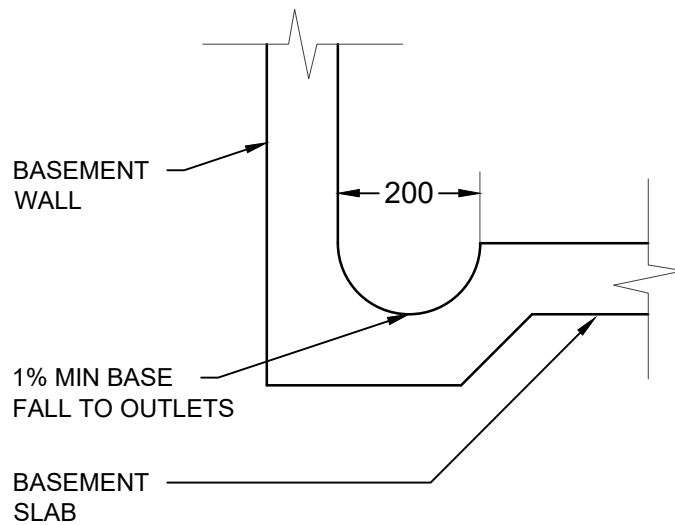
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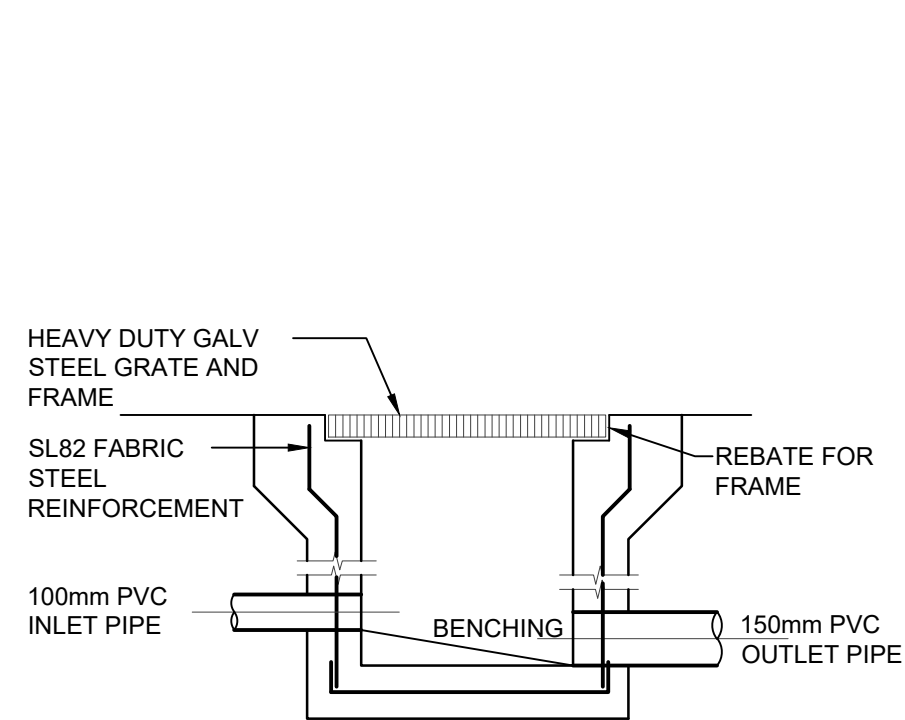
DETAIL 7
OSD/SF SECTION
NOT TO SCALE



DETAIL 13
ORIFICE PLATE
SCALE 1:20



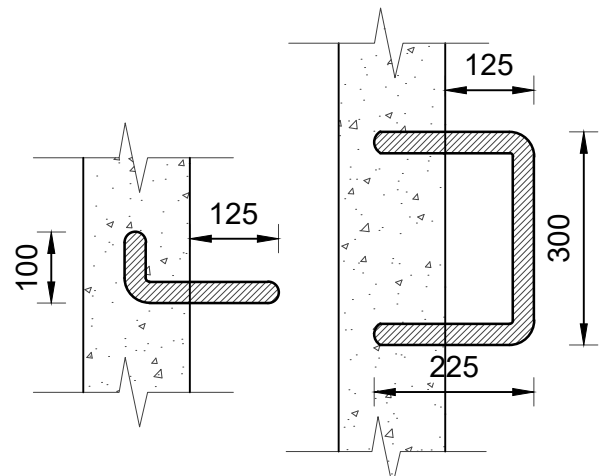
DETAIL 14
DISH DRAIN
SCALE 1:10



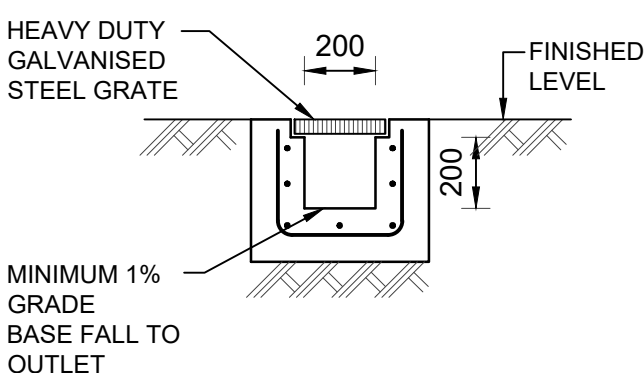
DETAIL 9
OSD SIGN
SCALE 1:10



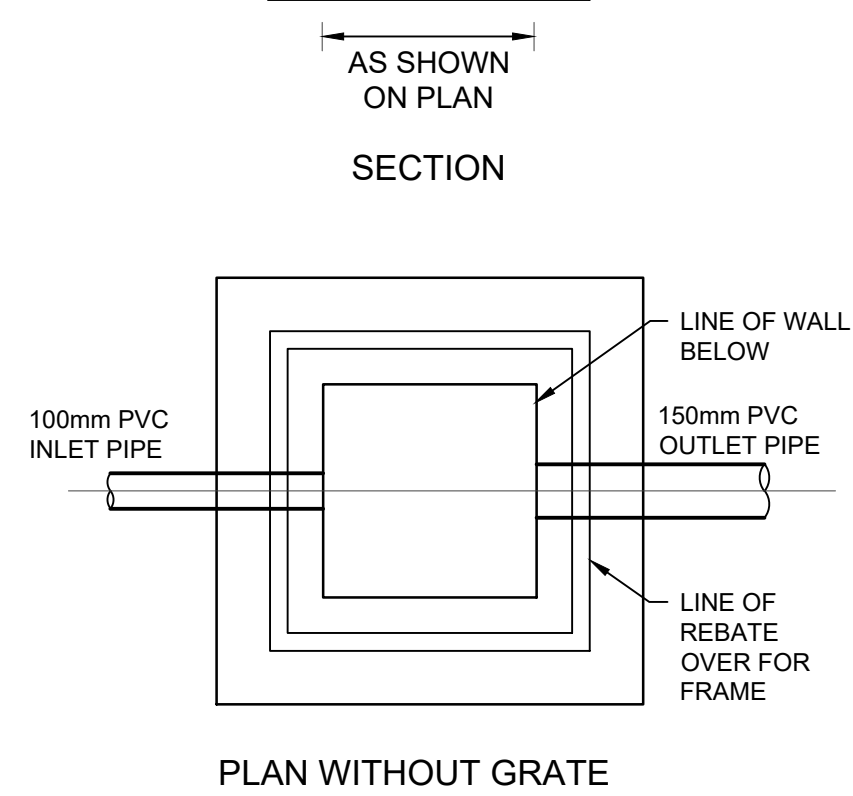
DETAIL 11
CONFINED SPACE SIGN
SCALE 1:10



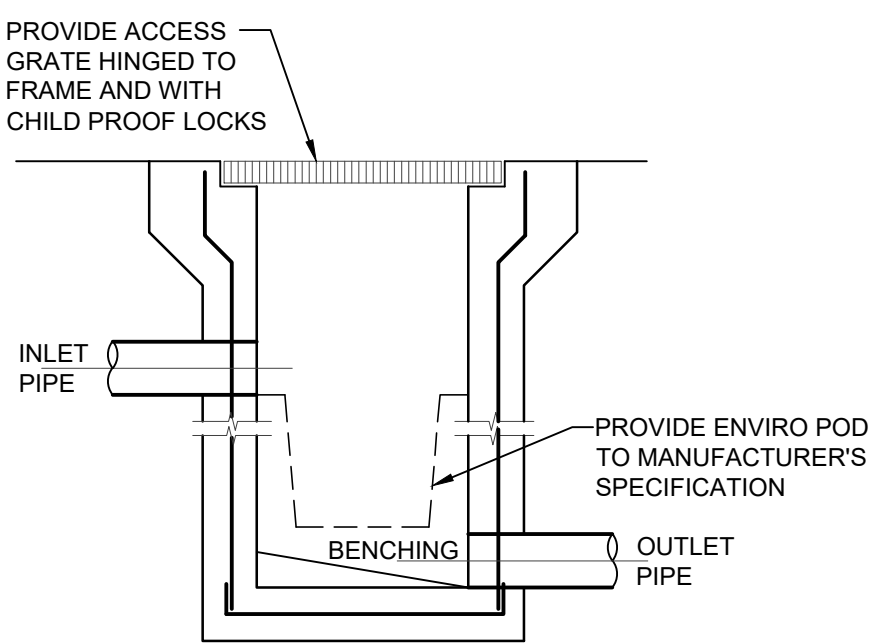
DETAIL 15
STEP IRON
SCALE 1:10



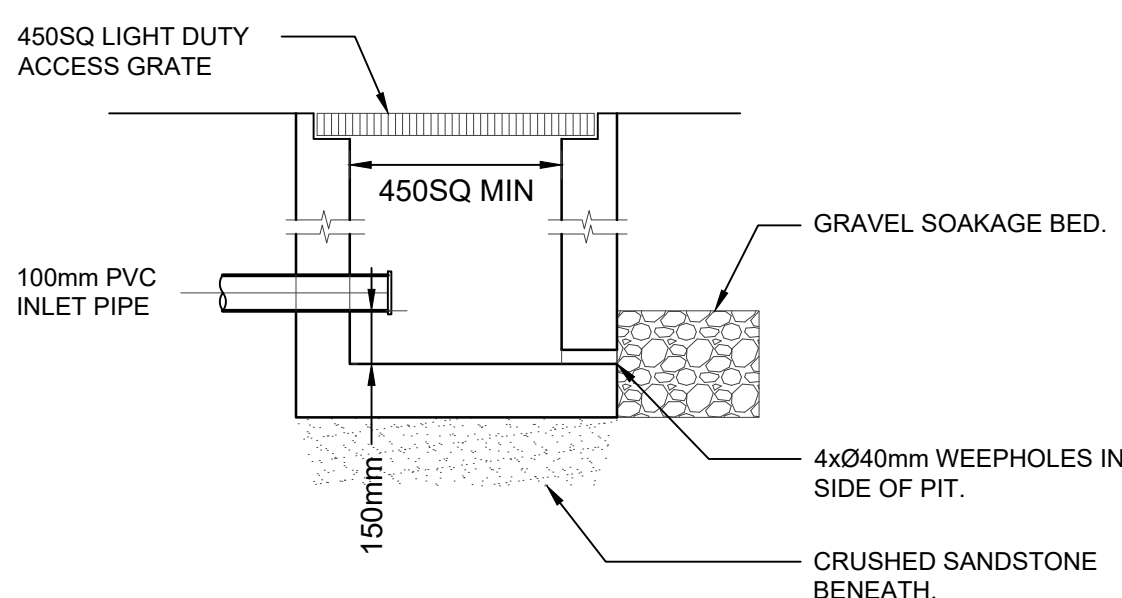
DETAIL 16
GRATED TRENCH DRAIN
SCALE 1:20



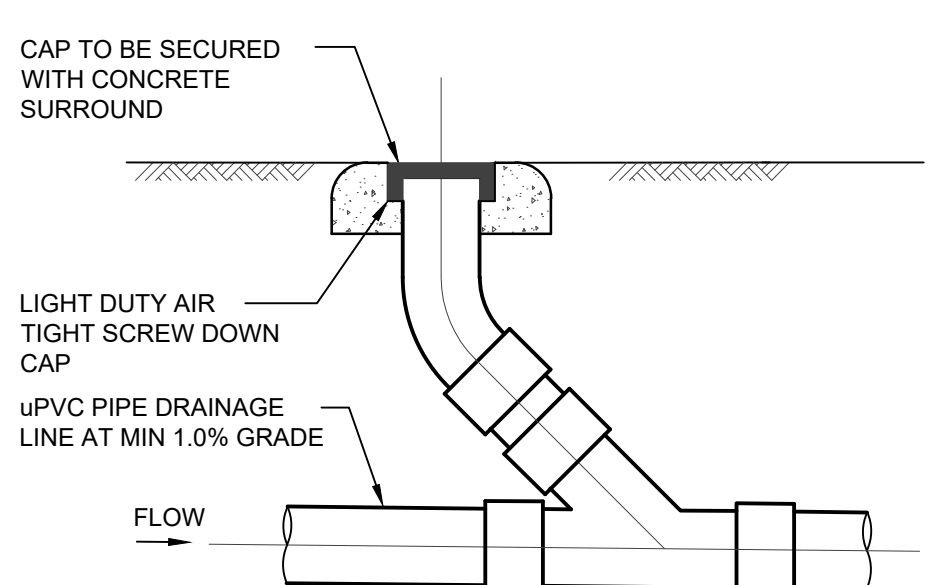
DETAIL 8
STORMWATER PIT
SCALE 1:20



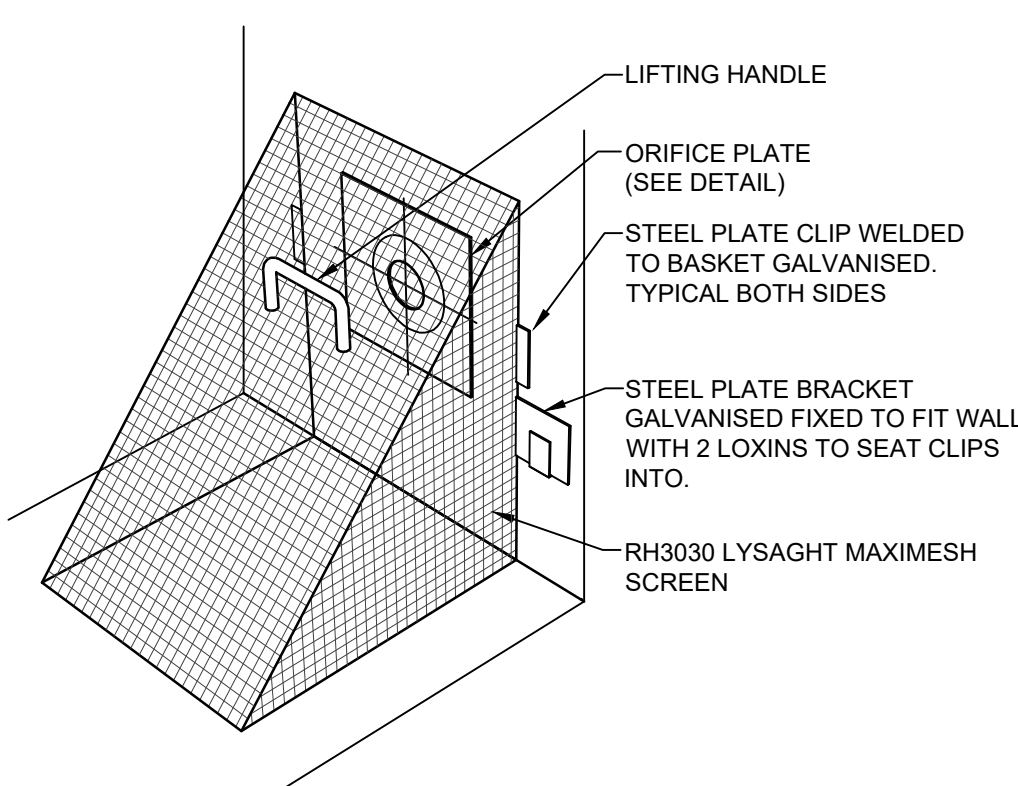
DETAIL 10
STORMWATER PIT OCEANGUARD INSERT
SCALE 1:20



DETAIL 12
MAINTENANCE PIT
SCALE 1:20



DETAIL 17
CLEANING EYE
SCALE 1:20



DETAIL 18
DEBRIS SCREEN
NOT TO SCALE

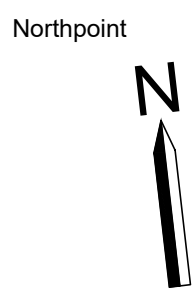


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Architect
PTI ARCHITECTS
Project
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Address
198-204 LEURA MALL, LEURA NSW 2780

Scale
0m 1 2 3 4 5
SCALE 1:100 ON ORIGINAL SIZE



Description	Des.	Chk.	App.	Rev.	Date
FOR DA SUBMISSION TO COUNCIL	G.E.	G.E.	G.E.	A	12.02.20
FOR DA SUBMISSION TO COUNCIL	G.E.	G.E.	G.E.	B	19.02.20
AMENDED TO WATER NSW COMMENTS	G.E.	G.E.	G.E.	C	17.06.20
AMENDED AS PER COUNCIL COMMENTS	G.E.	G.E.	G.E.	D	09.11.20
FOR SUBMISSION	J.S.	G.E.	G.E.	E	29.04.22
FOR APPROVAL	J.S.	G.E.	G.E.	F	17.08.22

DEVELOPMENT APPLICATION (DA)			
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DETAILS - SHEET 2			
Project number	Drawing number	Original Size	Scale
GC20010	SW09	A1	1:100