

DEVELOPMENT APPLICATION

SCHEDULE OF DRAWINGS	
DRAWING No.	DESCRIPTION
SW00	COVER SHEET
SW01	STORMWATER PLAN SHEET 1
SW02	STORMWATER PLAN SHEET 2
SW03	STORMWATER PLAN SHEET 3
SW04	STORMWATER DETAILS
SW05	SEDIMENT AND EROSION CONTROL PLAN



SITE LOCALITY PLAN

GENERAL

1. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE LOCAL COUNCIL ENGINEERING SPECIFICATIONS.
2. FINAL LOCATION OF NEW DOWNPIPES TO BE DETERMINED BY BUILDER/ARCHITECT AT TIME OF CONSTRUCTION.
3. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE ARCHITECTS AND OTHER CONSULTANT DRAWINGS. ANY DISCREPANCIES MUST BE REFERRED TO THE ENGINEER BEFORE PROCEEDING.
4. INSPECTIONS BY THE CERTIFYING AUTHORITY SHALL BE CARRIED OUT FOR ALL THE CIVIL WORKS PRIOR TO RELEASE OF THE HOLD POINTS INCLUDING THE FOLLOWING STAGES:
 - 4.1. PRIOR TO INSTALLATION OF EROSION AND SEDIMENT CONTROL STRUCTURES
 - 4.2. FINAL INSPECTION AFTER ALL WORKS ARE COMPLETED AND "WORK AS EXECUTED" PLANS HAVE BEEN SUBMITTED TO COUNCIL
5. MAKE SMOOTH JUNCTIONS WITH EXISTING WORKS.
6. NO WORK TO BE CARRIED OUT ON COUNCIL PROPERTY OR ADJOINING PROPERTIES WITHOUT THE WRITTEN PERMISSION FROM THE OWNER/S.
7. VEHICULAR ACCESS AND ALL SERVICES TO BE MAINTAINED AT ALL TIMES TO ADJOINING PROPERTIES AFFECTED BY CONSTRUCTION
8. ALL RUBBISH, BUILDINGS, SHEDS AND FENCES TO BE REMOVED TO SATISFACTION OF COUNCIL'S ENGINEER.
9. THE CONTRACTOR SHALL OBTAIN ALL LEVELS FROM ESTABLISHED BENCH MARKS ONLY.

WARNING
BEWARE OF UNDERGROUND SERVICES

The locations of underground services are approximate only and their exact position should be proven on site.

No guarantee is given that all existing services are shown.

Locate all underground services before commencement of works

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TABLE 7.1
MINIMUM PIPE COVER
(from finished surface to top of pipe)

Location		million	
		Cast iron, ductile iron, galvanized steel	Other authorized products
		Minimum cover	
1	Subject to vehicular loading:		
(a)	not without pavement—		
(i)	for single dwellings	Nil	100
(ii)	for other than item (i)	Nil	300
(b)	with pavement of brick or unreinforced concrete	Nil†	50†
2	Subject to vehicular loading:		
(a)	other than roads—		
(i)	without pavement	300	450
(ii)	with pavement of—		
(A)	reinforced concrete for heavy vehicular loading	Nil†	100†
(B)	brick or unreinforced concrete for light vehicular loading	Nil†	75†
(b)	roads—		
(i)	sealed	300	500‡
(ii)	unsealed	300	500‡
3	Subject to construction equipment loading or in embankment conditions	300	500‡

* Includes overlay above the top of the pipe of not less than 50 mm thick.
† Below the underside of the pavement.
‡ Subject to compliance with AS 1762, AS 2033, AS/NZS 2566.1, AS 3725 or AS 4068.

EXISTING UNDERGROUND SERVICES
NOTES

CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS. CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.

SITeworks Notes

1. ORIGIN OF LEVELS:- REFER SURVEY NOTES.
2. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORK. A
3. MAKE SMOOTH CONNECTION WITH EXISTING WORKS.
4. ALL TRENCH BACKFILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.
5. BASE AND SUB-BASE LAYERS ARE TO BE INSPECTED AND TESTED BY AN INDEPENDENT GEOTECHNICAL TESTING AUTHORITY TO LEVEL 1 RESPONSIBILITY AS DEFINED IN AS3798.
6. ALL BASECOURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH RMS FORM 3051, COMPACTED TO MINIMUM 98% MODIFIED DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m³ OF BASECOURSE MATERIAL PLACED.
7. ALL SUB-BASE COURSE MATERIAL SHALL BE IGNEOUS ROCK QUARRIED MATERIAL TO COMPLY WITH RMS FORM 3051, AND COMPACTED TO MINIMUM 95% MODIFIED DENSITY IN ACCORDANCE WITH A S 1289 5.2.1. FREQUENCY OF COMPACTION TESTING SHALL NOT BE LESS THAN 1 TEST PER 50m³ OF SUB-BASE COURSE MATERIAL PLACED.
8. SHOULD THE CONTRACTOR WISH TO USE A RECYCLED PRODUCT THIS SHALL BE CLEARLY INDICATED IN THEIR TENDER AND THE PRICE DIFFERENCE BETWEEN AN IGNEOUS PRODUCT AND A RECYCLED PRODUCT SHALL BE CLEARLY INDICATED.
9. WHERE NOTED ON THE DRAWINGS THAT WORKS ARE TO BE CARRIED BY OTHERS, (eg ADJUSTMENT OF SERVICES), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CO-ORDINATION OF THESE WORKS.

MINIMUM GRADIENT OF SITE STORMWATER DRAIN

Nominal size	Minimum gradient		Nominal size	Minimum gradient	
DN	Aust.	NZ	DN	Aust.	NZ
90	1:100	1:90	225	1:200	1:35
100	1:100	1:120	300	1:250	1:35
150	1:100	1:200	375	1:300	1:35

AS3500

MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS

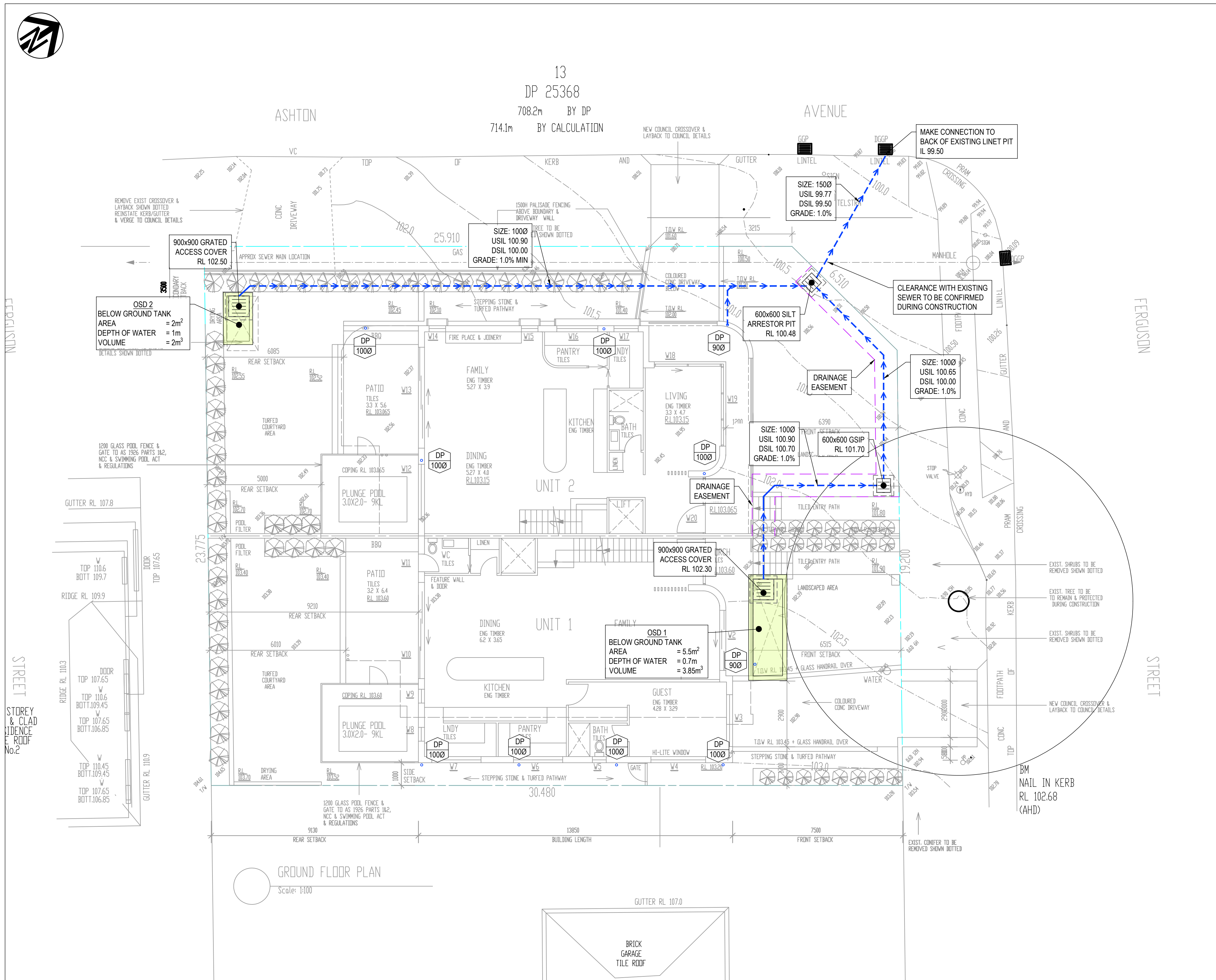
Depth to invert of outlet		Minimum internal dimensions mm		
		Rectangular		Circular
		Width	Length	Diameter
≤600		450	450	600
>600 ≤900		600	600	900
>900 ≤1200		600	900	1 000
> 1 200		900	900	1 000

AS3500

2	ISSUED FOR DA	AE	10.03.2020
1	ISSUED FOR DA	AE	20.11.2020
REFVISION	DESCRIPTION	ISSUED	DATE



DRAWN BY	AE	PROJECT 41 FERGUSON STREET, FORESTVILLE	PROJECT NUMBER 24216	STATUS FOR APPROVAL	
DRAWN DATE	NOV'24			FOR CONSTRUCTION PURPOSES WHEN STAMPED	
COORDINATE SYSTEM	MGA-56	DRAWING TITLE COVER SHEET	SHEET SIZE: A1	DRAWING NUMBER	REV: 2
HEIGHT DATUM	AHD			SW00	

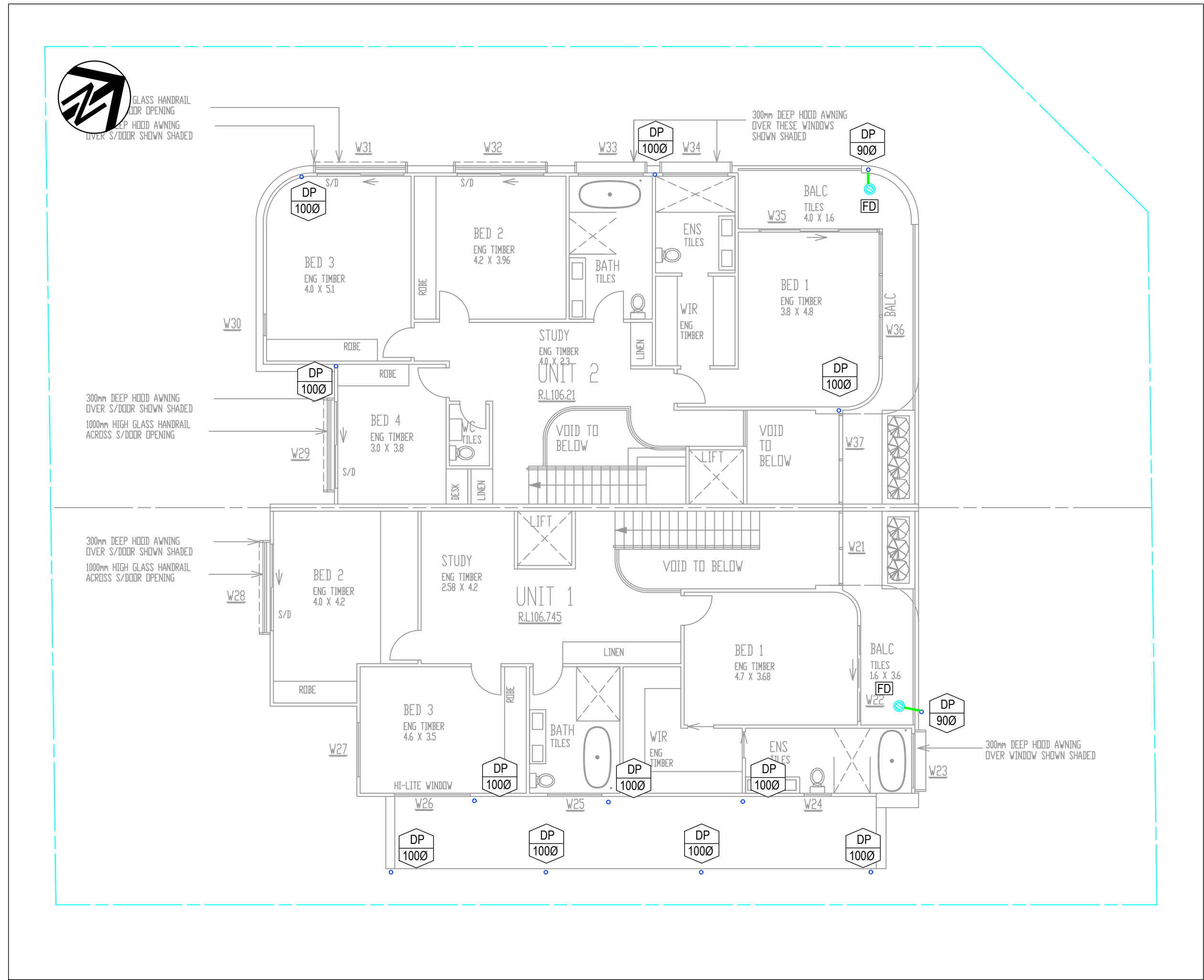


GROUND - STORMWATER PLAN
SCALE 1:100

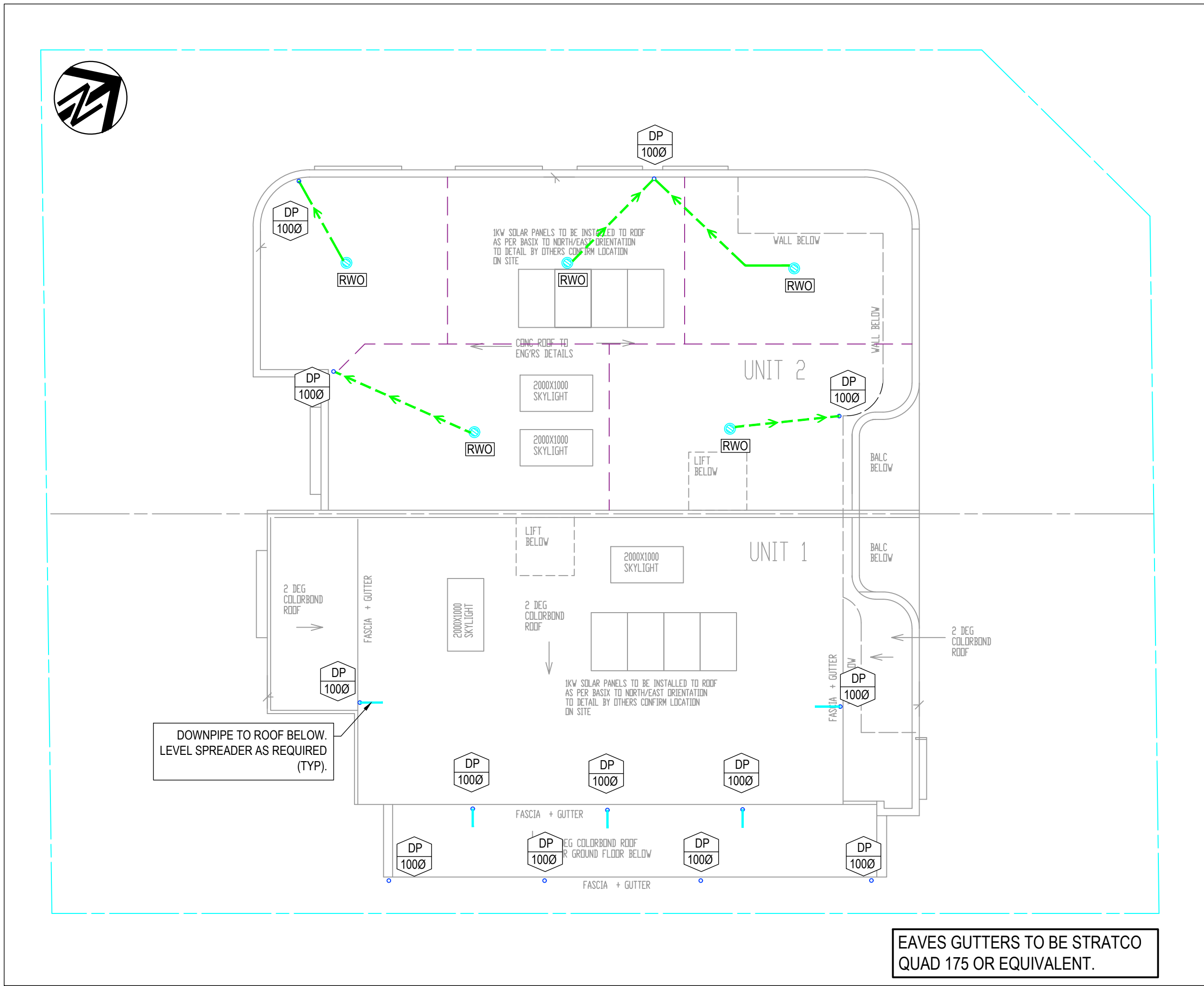
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DRAWN DATE	NOV'24						FOR CONSTRUCTION PURPOSES WHEN STAMPED
COORDINATE SYSTEM	MGA-56	DRAWING TITLE	STORMWATER PLAN SHEET 1	SHEET SIZE:	A1	DRAWING NUMBER	SW01
HEIGHT DATUM	AHD						REV: 2



FIRST FLOOR - STORMWATER PLAN
SCALE 1:100



ROOF - STORMWATER PLAN
SCALE 1:100

LEGEND

- IN SLAB/SUSPENDED DRAINAGE (Ø50 MIN)
- FLOOR DRAIN
- RAIN WATER OUTLET
- DOWNPIPE SIZE

DESIGN SUMMARY

COUNCIL AREA:
NORTHERN BEACHES COUNCIL

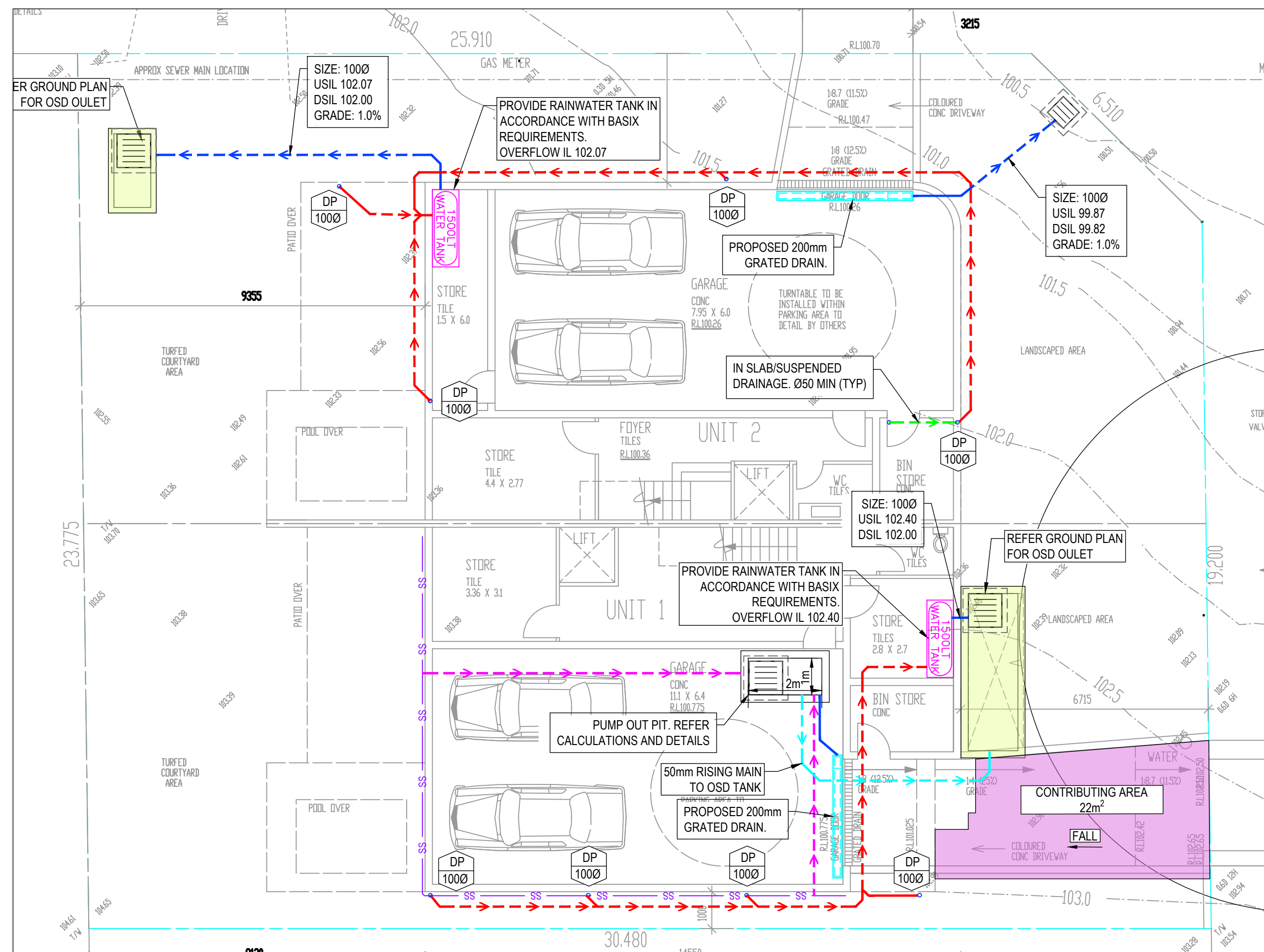
OSD REQUIREMENT:
OSD IS REQUIRED. REFER CALCULATIONS AND DETAILS

LEGAL POINT OF DISCHARGE:
DISCHARGE TO KERB AND GUTTER

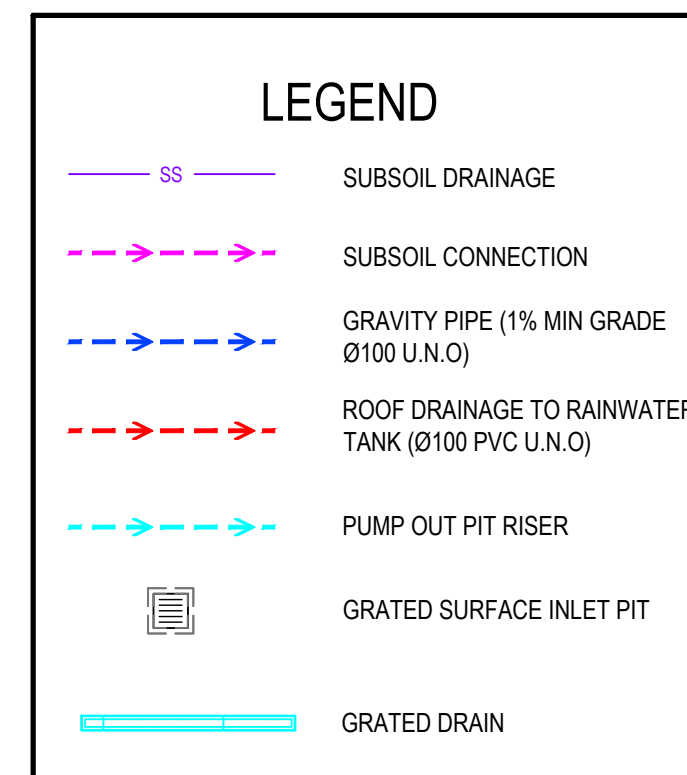
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1	ISSUED FOR DA	AE	20.11.2024
REVISION	DESCRIPTION	ISSUED	DATE



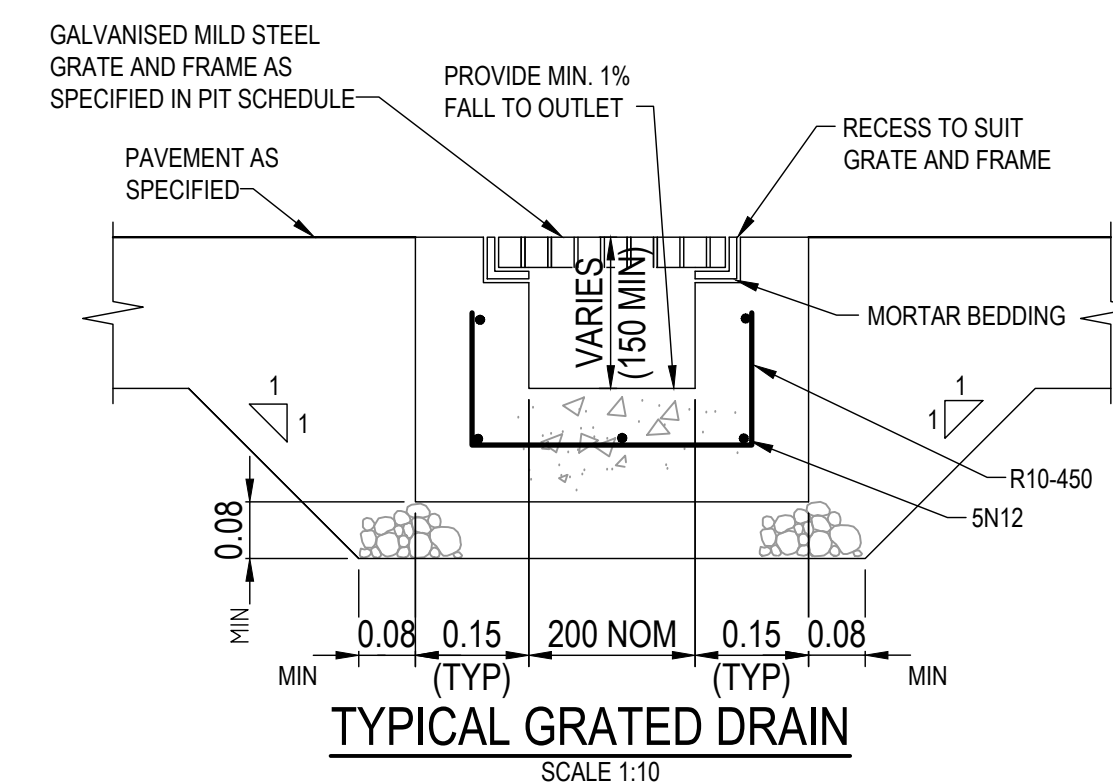
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DRAWN DATE	NOV'24						FOR CONSTRUCTION PURPOSES WHEN STAMPED
COORDINATE SYSTEM	MGA-56	DRAWING TITLE	STORMWATER PLAN SHEET 2	SHEET SIZE: A1		DRAWING NUMBER	SW02
HEIGHT DATUM	AHD						REV: 2



BASEMENT - STORMWATER PLAN
SCALE 1:100



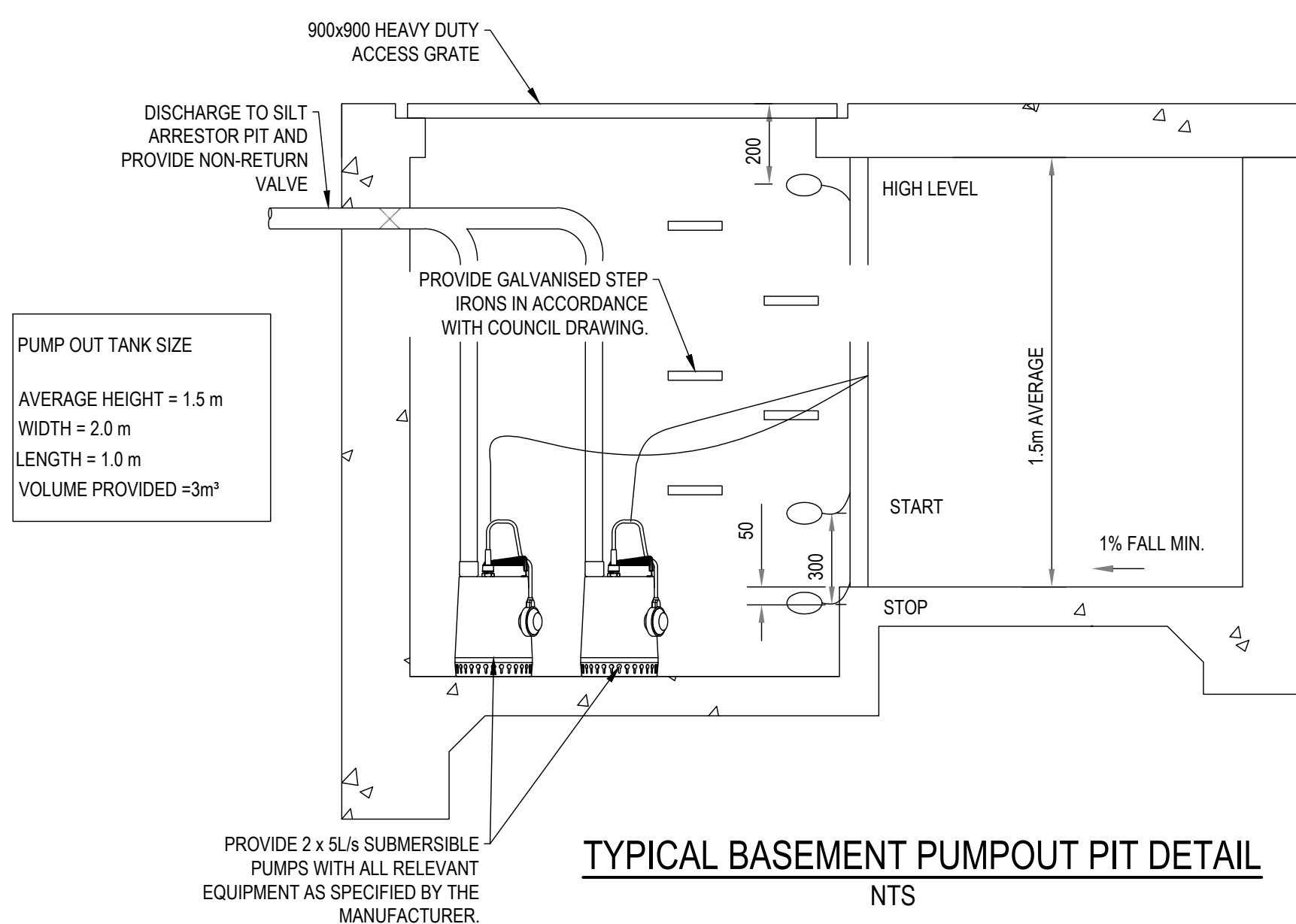
CONFINED SPACE SIGN
A CONFINED SPACE DANGER SIGN SHALL BE PROVIDED AT EACH ACCESS GRATE OF THE BELOW GROUND DETENTION TANK



STANDARD PUMP OUT DESIGN NOTES

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

- > THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATIVELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.
- > A LOW LEVEL 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.
- > A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL, WHEREBY ONE OF THE PUMPS WILL OPERATE AND DRAIN THE TANK TO THE LEVEL OF THE LOW-LEVEL FLOAT.
- > A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
- > 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
- > HOLDING TANK IN BASEMENT FLOOR IS TO BE PROVIDED TO STORE SEEPAGE WATER FOR A PERIOD OF 24 HOURS. THE DISCHARGE TO THE KERB IS TO BE RESTRICTED BETWEEN 11.00PM TO 3.00AM WITH A MAXIMUM DISCHARGE RATE OF 5.0 L/S. RAISE MAIN FROM THE BASEMENT HOLDING TANK SHALL BE CONNECTED TO A SILT ARRESTOR PIT PRIOR TO DISCHARGE TO KERB BY GRAVITY DURING THE PERIOD OF DISCHARGE



TYPICAL BASEMENT PUMPOUT PIT DETAIL
NTS

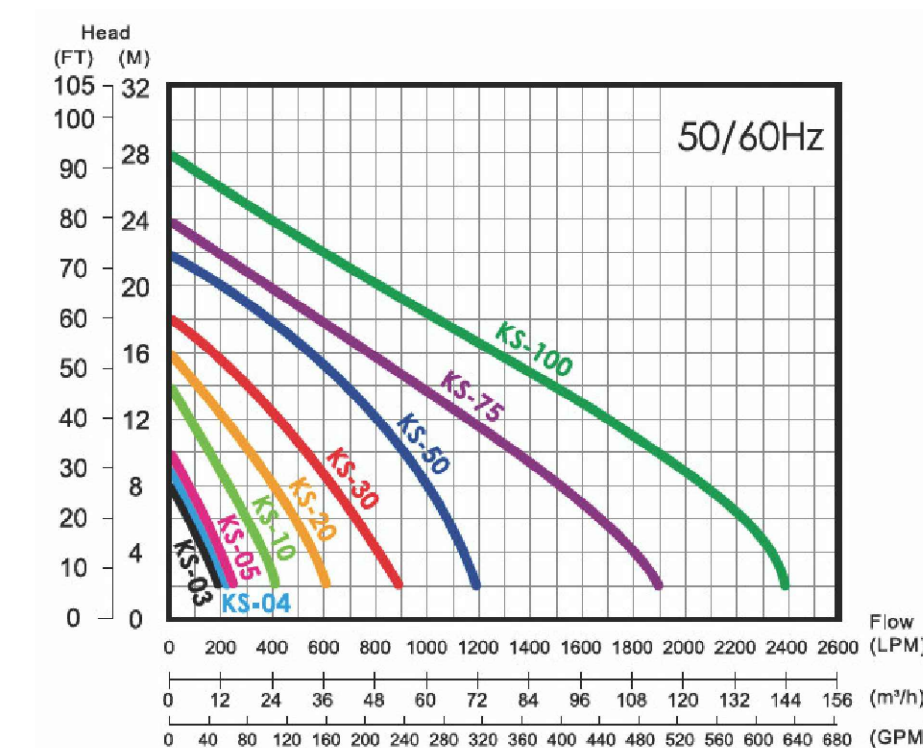
UNIT 1 - PUMP OUT PIT

RUN OFF RATE CALCULATION FOR 100 YEAR ARI 5 MIN STORM DURATION:

Area contributing overland to basement (A) = 22 m²
100 year ARI for 5 min duration (I_h) = 283 mm/hr
Coeff. of runoff (C) = 0.9
Flow rate (Q_h) = CIA/3600 = 1.55 L/s
Therefore <10L/s capacity of pump adopted = 10.0 L/s

DETAIL PUMPING OUT CALCULATION FROM BASEMENT:

Area contributing overland to basement (A) = 22 m²
10 year ARI for 2 (T) hrs duration (I) = 40 mm/hr
Coeff. of runoff (C) = 0.9
Flow rate per sq m (Q) = I x C = 36 L/h/m²
Total vol for 2 hrs storm (V) = ((Q/1000) x T x A = 1.58 m³
Volume to be provided = 3m³
Capacity of pump (P) = 10.0 L/s (Chosen above)
Pump capacity over 30min (P30) = P x 30min x 60/1000 = 18 m³
Volume of wet well required = V-P30 = -16.42, therefore adopt volume above.



PUMP PERFORMANCE CURVE

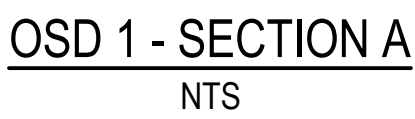
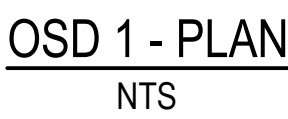
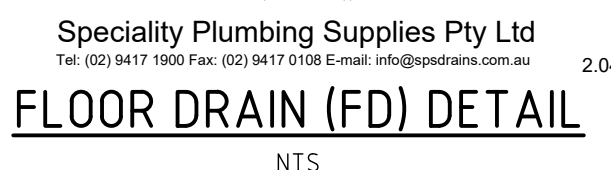
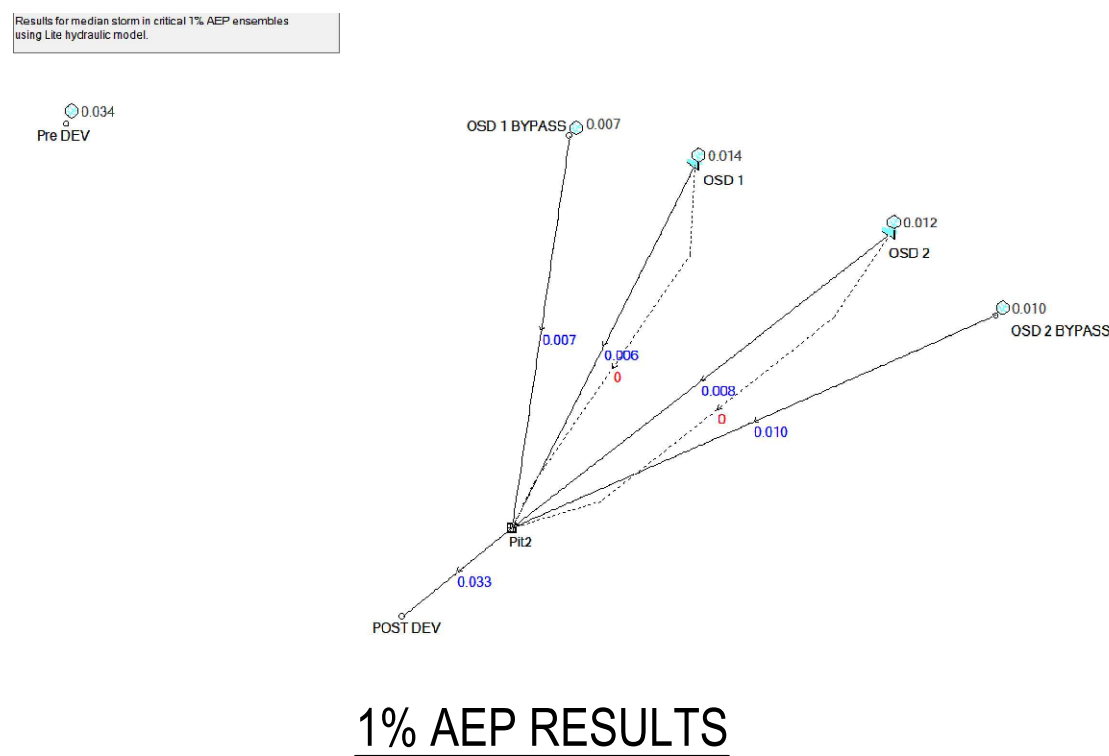
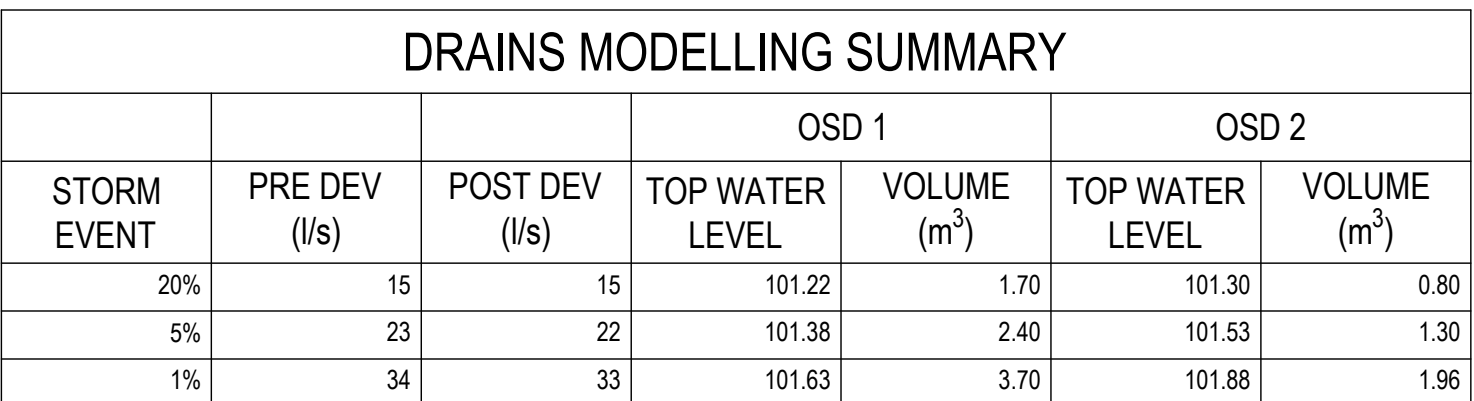
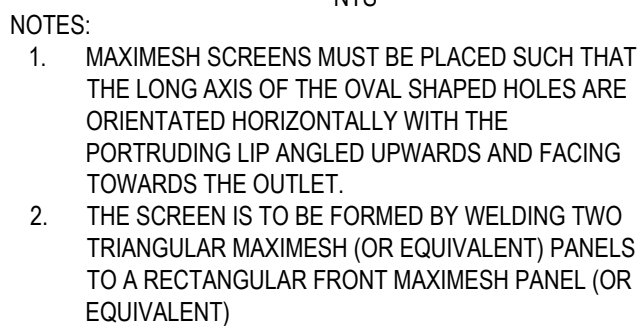
Type	Output		Outlet		Rated		Maximum		Weight	Dimension		
	HP	kW	mm	Inch	M	LPM	M	LPM		L(mm)	W(mm)	H(mm)
KS-03	1/3	0.25	40	1 1/2"	3	130	8	180	9	188	141	305
KS-04	1/2	0.4	50	2"	5	150	8	220	11	208	140	359
KS-05	1/2	0.4	50	2"	5	160	10	260	14	230	156	375
KS-08	1	0.75	50	2"	6	240	13	380	21	290	180	425
KS-20	2	1.5	80	3"	10	300	16	600	31	278	182	475
KS-30	3	2.2	80	3"	10	500	18	800	42	390	250	450
KS-50	5	3.7	100	4"	10	800	21	1100	48	450	240	530
KS-75	7.5	5.6	100	4"	15	800	23	1300	60	550	310	590
KS-100	10	7.5	150	6"	18	900	25	1600	70	550	310	610

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1	ISSUED FOR DA	AE	20.11.2024



SCALE 1:100 1 0 1 2 3 4 5

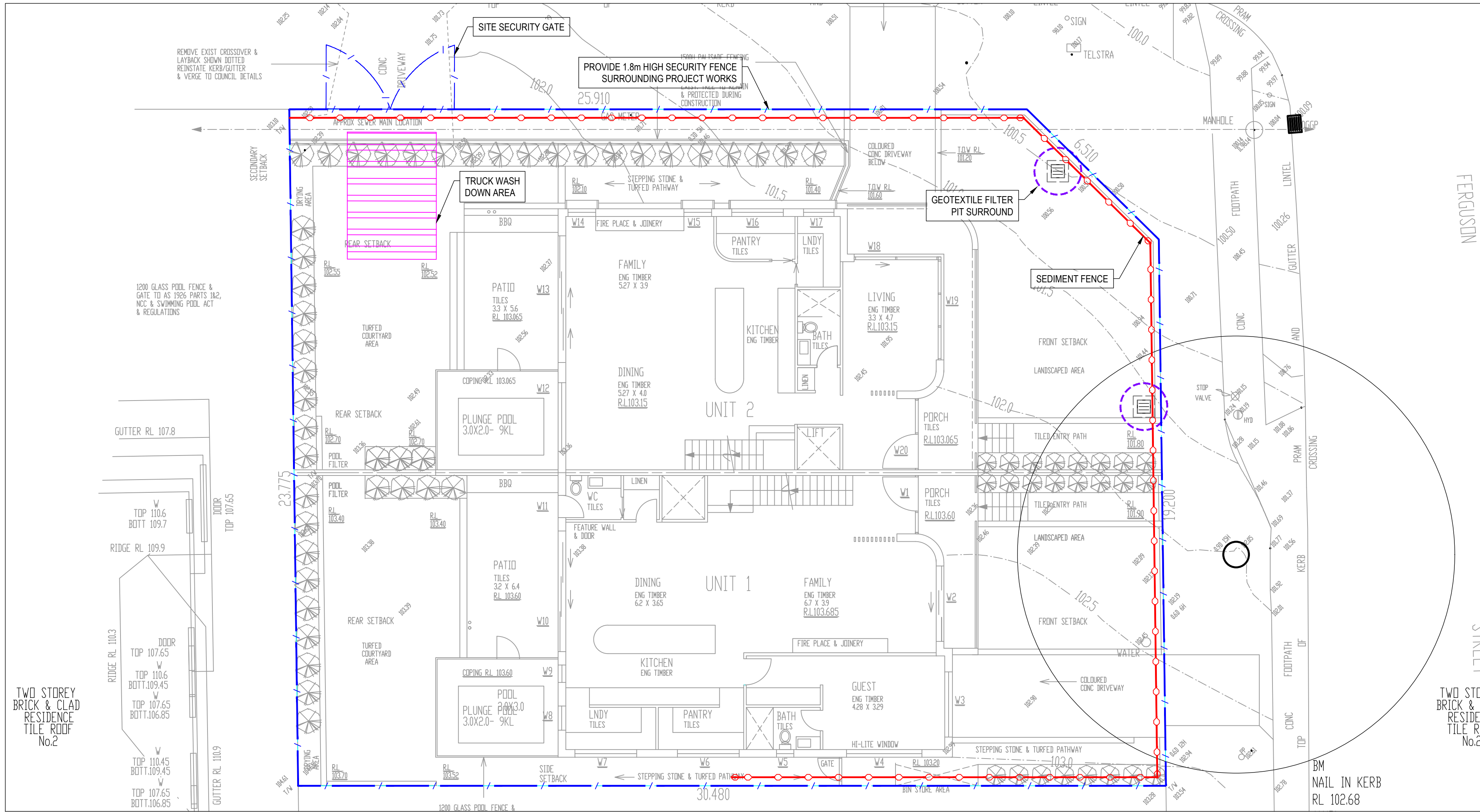
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DRAWN DATE	NOV/24						FOR CONSTRUCTION PURPOSES WHEN STAMPED
COORDINATE SYSTEM	MGA-56	DRAWING TITLE	STORMWATER PLAN SHEET 3	SHEET SIZE: A1		DRAWING NUMBER	SW03
HEIGHT DATUM	AHD						REV: 2



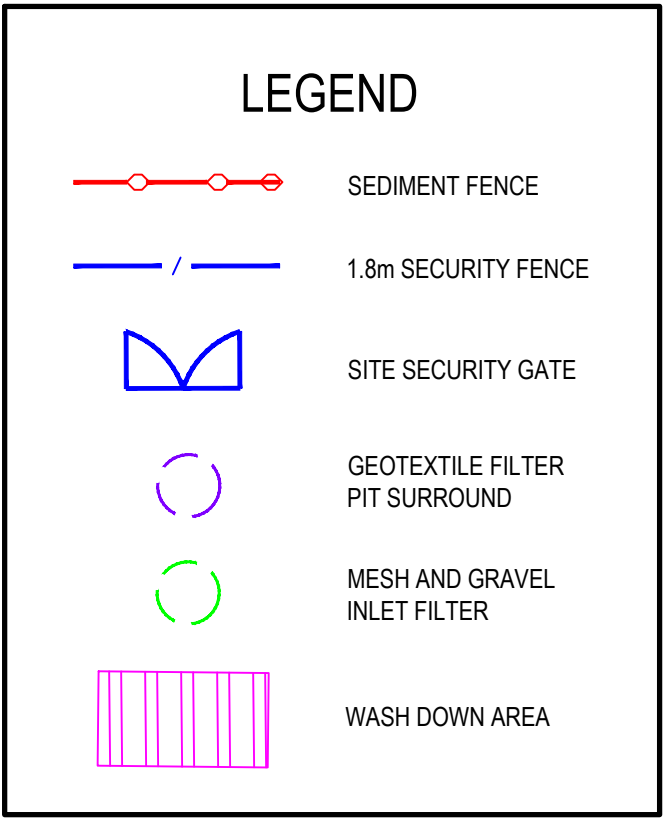
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DRAWN DATE	NOV'24			FOR CONSTRUCTION PURPOSES WHEN STAMPED	
COORDINATE SYSTEM	MGA-56	DRAWING TITLE STORMWATER DETAILS	SHEET SIZE: A1	DRAWING NUMBER	REV: 2
HEIGHT DATUM	AHD			SW04	



SEDIMENT & EROSION PLAN
SCALE 1:100



NOTE: THE EROSION AND SEDIMENT CONTROL PLAN IS INDICATIVE ONLY. IT IS THE RESPONSIBILITY OF THE CONTRACTORS ON SITE TO ENSURE WATER RUN-OFF FROM THEIR SITE IS PROTECTED AND CLEANED. THE LOCATION OF SUCH SEDIMENT FENCES, SAND BAGS ETC IS UP TO THE DISCRETION OF THE CONTRACTORS ON SITE TO ENSURE SEDIMENT AND EROSION CONTROL IS MAINTAINED AT ALL TIMES.

SEDIMENT AND EROSION CONTROL NOTES

GENERAL INSTRUCTION

- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONTROL OF EROSION AND SEDIMENTATION TO THE SATISFACTION OF COUNCIL, NSW OFFICE OF WATER, OFFICE OF ENVIRONMENT AND HERITAGE. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE DRAWINGS SHALL ONLY BE USED AS A GUIDE BY THE CONTRACTOR, AND SHALL REPRESENT THE MINIMUM REQUIREMENT ONLY.
- THE CONTRACTOR SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE LOCATED AS DOCUMENTED OR AS OTHERWISE DIRECTED BY THE SUPERINTENDENT. ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH:
 - LOCAL AUTHORITY REQUIREMENTS
 - EPA REQUIREMENTS
 - NSW DEPARTMENT OF HOUSING MANUAL "MANAGING URBAN STORMWATER, SOILS AND CONSTRUCTION", 4th EDITION, MARCH 2004.
- MAINTAIN THE EROSION CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
- WHEN STORMWATER PITS ARE CONSTRUCTED, PREVENT SITE RUNOFF ENTERING UNLESS SEDIMENT FENCES ARE ERECTED AROUND PITS.
- CONTRACTOR IS TO ENSURE ALL EROSION & SEDIMENT CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER AND OPERATE EFFECTIVELY. REPAIRS AND OR MAINTENANCE SHALL BE UNDERTAKEN AS REQUIRED, PARTICULARLY FOLLOWING STORM EVENTS.

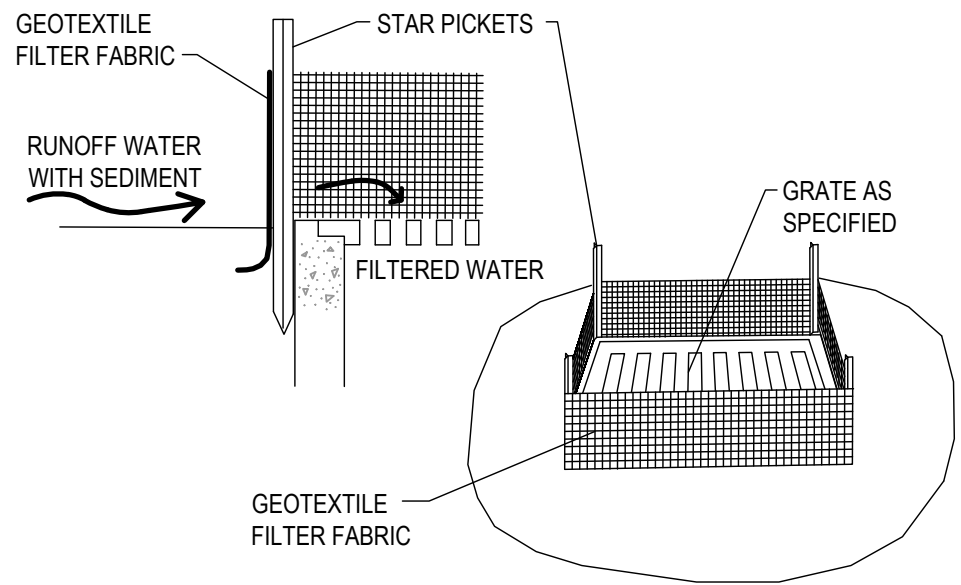
LAND DISTURBANCE

- WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE WILL BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

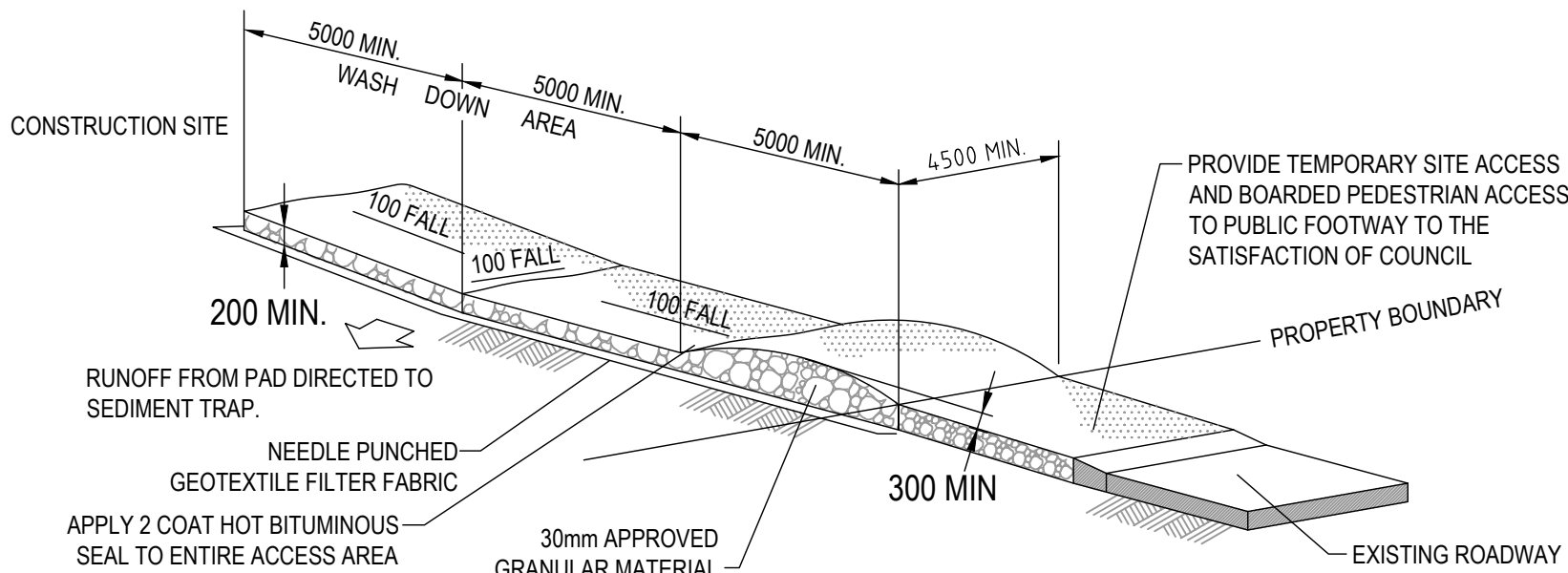
- INSTALL A SEDIMENT FENCE ALONG THE BOUNDARIES AS SHOWN ON PLAN. REFER DETAIL.
 - CONSTRUCT STABILISED CONSTRUCTION ENTRANCE TO LOCATION AS DETERMINED BY SUPERINTENDENT/ENGINEER. REFER DETAIL.
 - UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.
- EROSION CONTROL**
- DURING WINDY WEATHER, LARGE, UNPROTECTED AREAS WILL BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.
 - FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.
- SEDIMENT CONTROL**
- STOCKPILES WILL NOT BE LOCATED WITHIN 2 METRES OF HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS. WHERE THEY ARE BETWEEN 2 AND 5 METRES FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSLOPE WATERS, E.G. THROUGH INSTALLATION OF SEDIMENT FENCING.
 - ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD OVER THE SURFACE) WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.
 - WATER WILL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE, I.E. THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AN APPROVED

STRUCTURE.

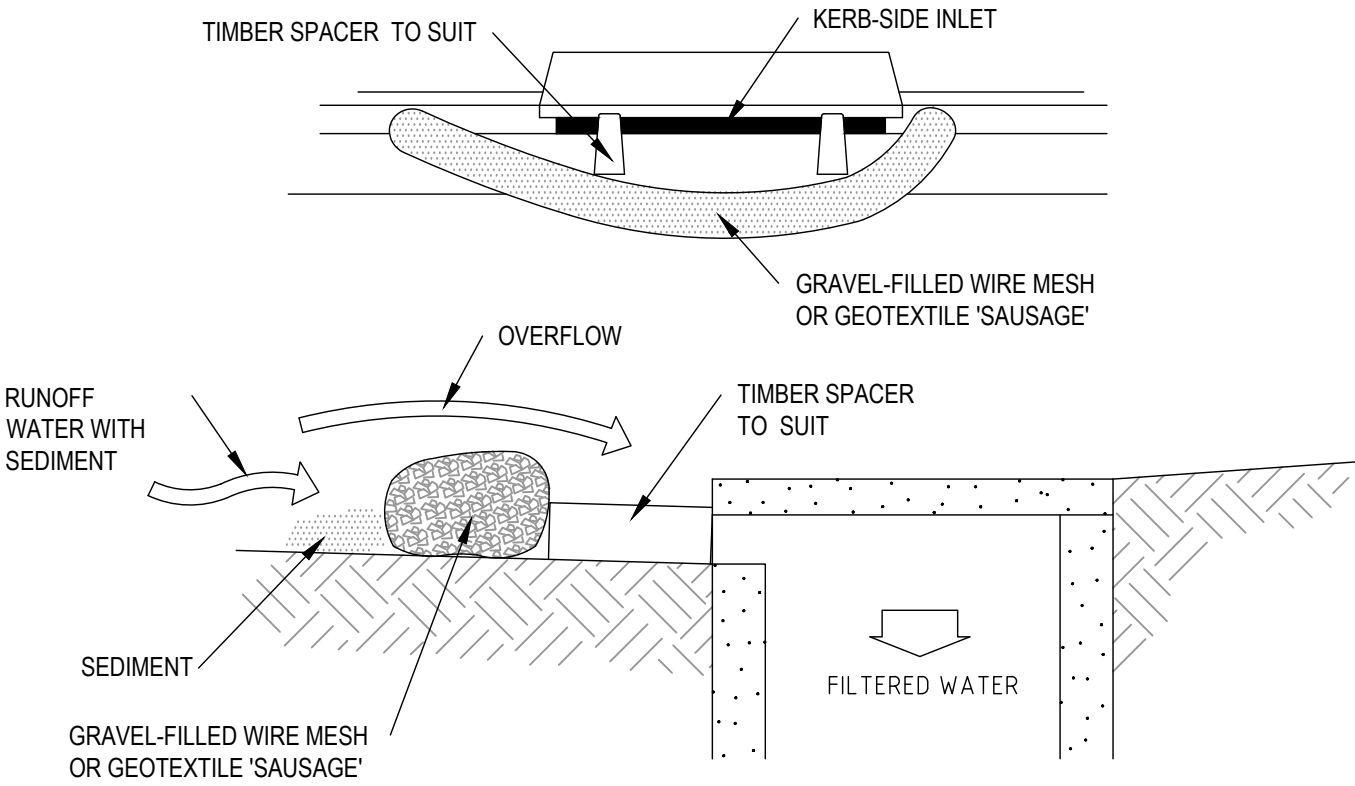
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.
- ACCEPTABLE RECEPTORS WILL BE PROVIDED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.
- ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY:
 - PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE
 - ENSURING THAT NOTHING IS NAILED TO THEM
 - PROHIBITING PAVING, GRADING, SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS:
 - ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICHEVER IS THE GREATER
 - A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH
 - CARE IS TAKEN NOT TO CUT ROOTS UNNECESSARILY NOR TO COMPACT THE SOIL AROUND THEM.



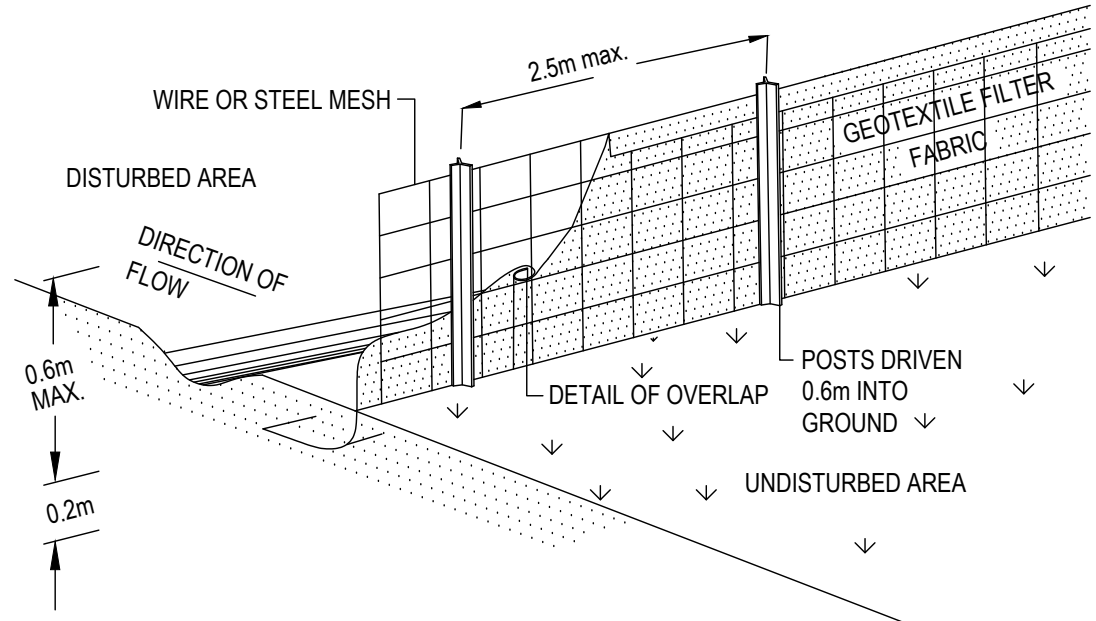
GEOTEXTILE FILTER PIT SURROUND
NTS



STABILISED SITE ACCESS AND TRUCK WASH DOWN AREA
NTS



MESH AND GRAVEL INLET FILTER
NTS



SEDIMENT FENCE
NTS

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DRAWN DATE	NOV'24						FOR CONSTRUCTION PURPOSES WHEN STAMPED
COORDINATE SYSTEM	MGA-56	DRAWING TITLE	SEDIMENT AND EROSION CONTROL PLAN	SHEET SIZE:	A1	DRAWING NUMBER	SW05
HEIGHT DATUM	AHD						REV: 2