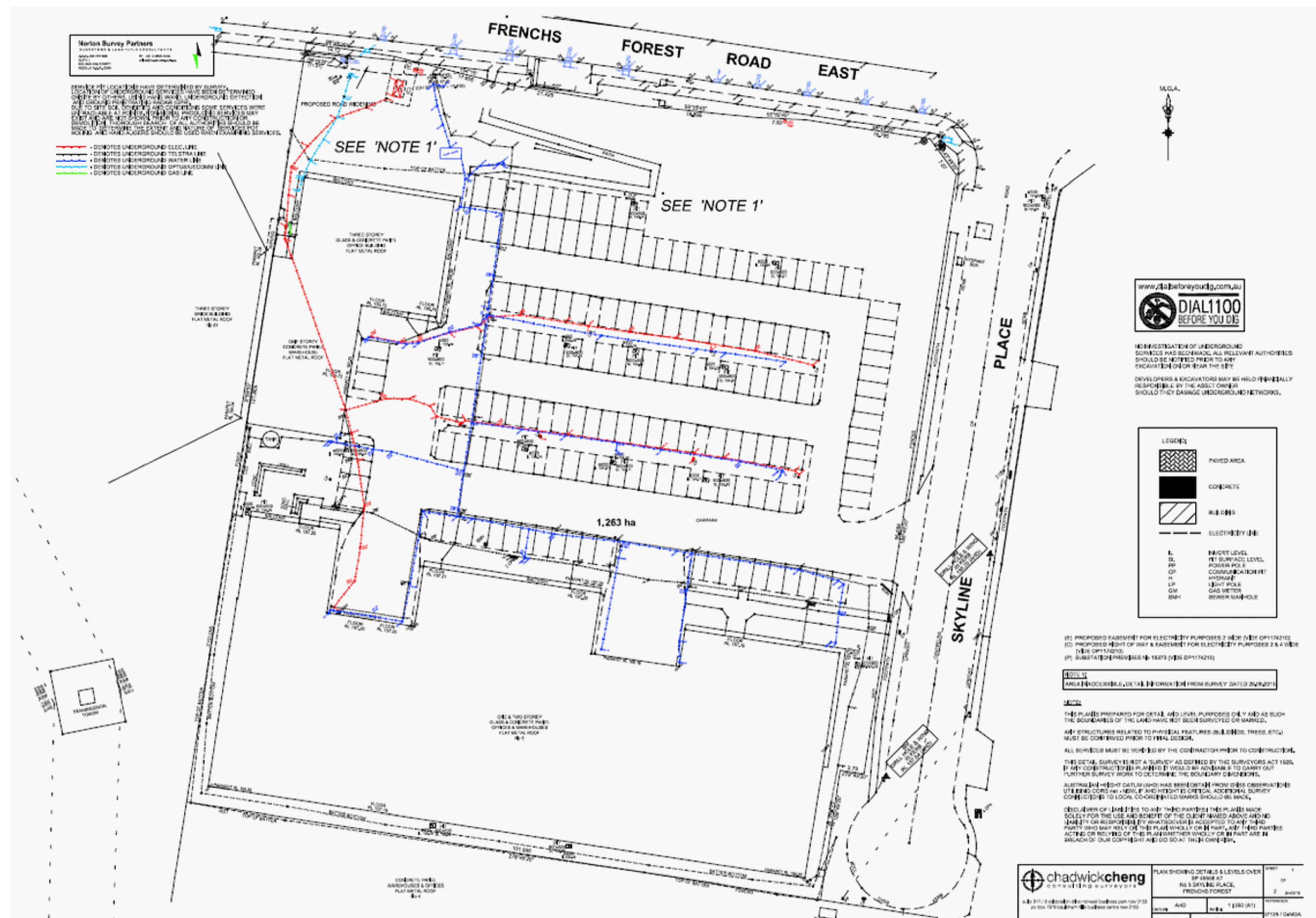


# NOT FOR CONSTRUCTION



**EXISTING COUNCIL'S STORMWATER ASSET**

NOT TO SCALE



**SURVEY OF EXISTING SERVICES WITHIN DEVELOPMENT SITE**

NOT TO SCALE

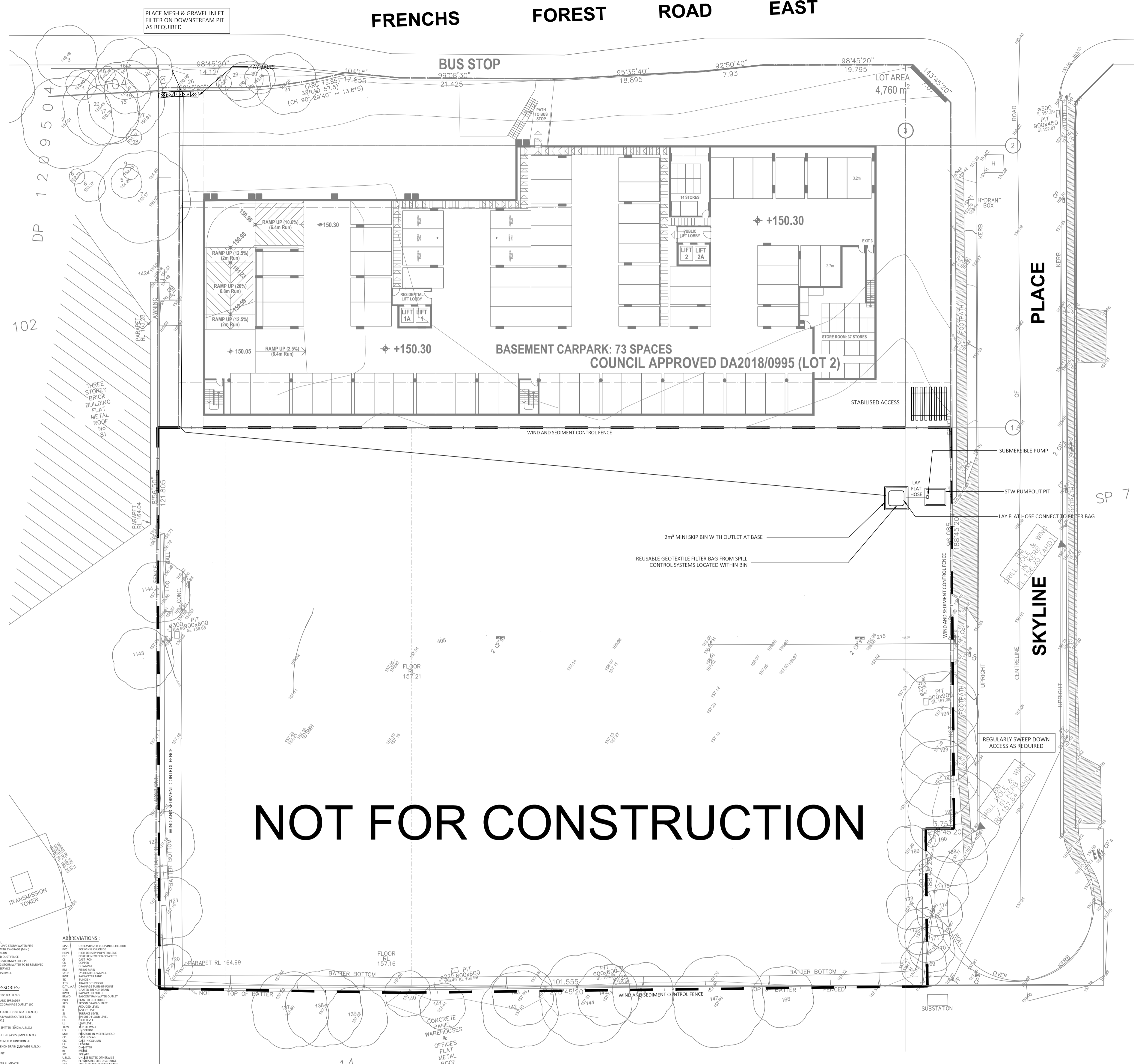
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VERIFY ALL DISCREPANCIES WITH PROJECT ARCHITECT/ MANAGER PRIOR TO PROCEEDING WITH ANY WORKS. **Do not scale off drawings.**

		Drawn & Designed By : R. Koh		Designed By <b>ING CONSULTING ENGINEERS PTY LTD</b> P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Seniors Living (Stage 2)	Drawing Title Existing Services and Survey Plan	
		Checked By : N. Evans		At 5 Skyline Place Frenchs Forest NSW 2086	Date January 2021	Scale As Shown @ A1	
		Approved By : Kenneth T. NG NIE Aust CE (Eng) NER APEC Engineer IntPE (Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading		Client	Project No. 284012021DA	Drawing & Sheet No./Issue 28401-01/18 / C	
C	Update for S82 Review Submission	8 Dec. 2021					
B	Incorporate Council's Comments re WSUD	20 Apr. 2021					
A	Development Application	28 Jan. 2021					
Issue	Description	Date of Drawing					



FRENCHS FOREST ROAD EAST

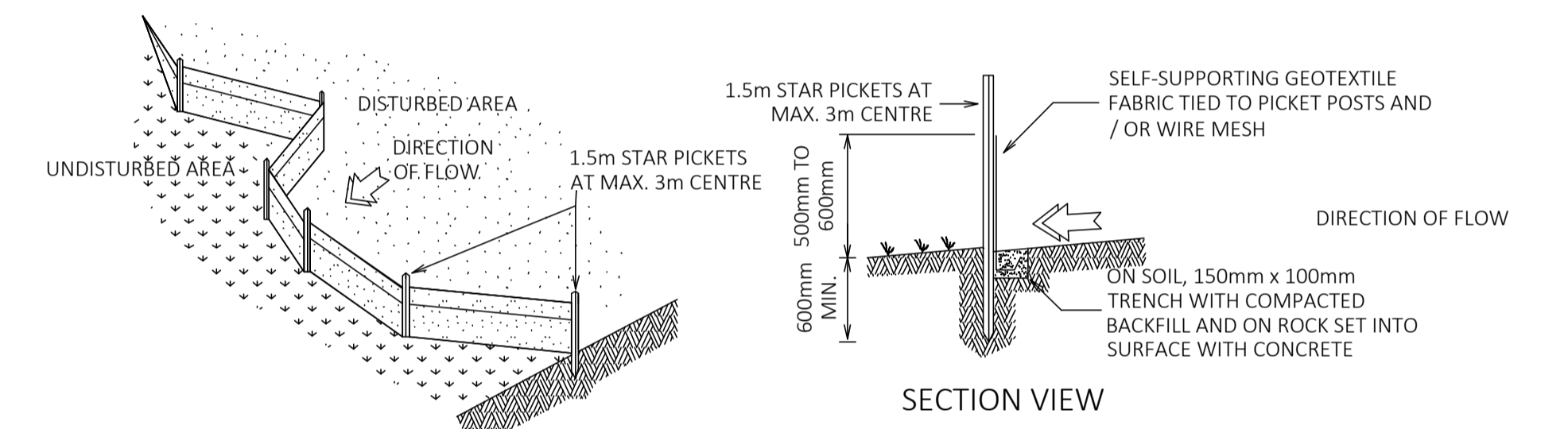


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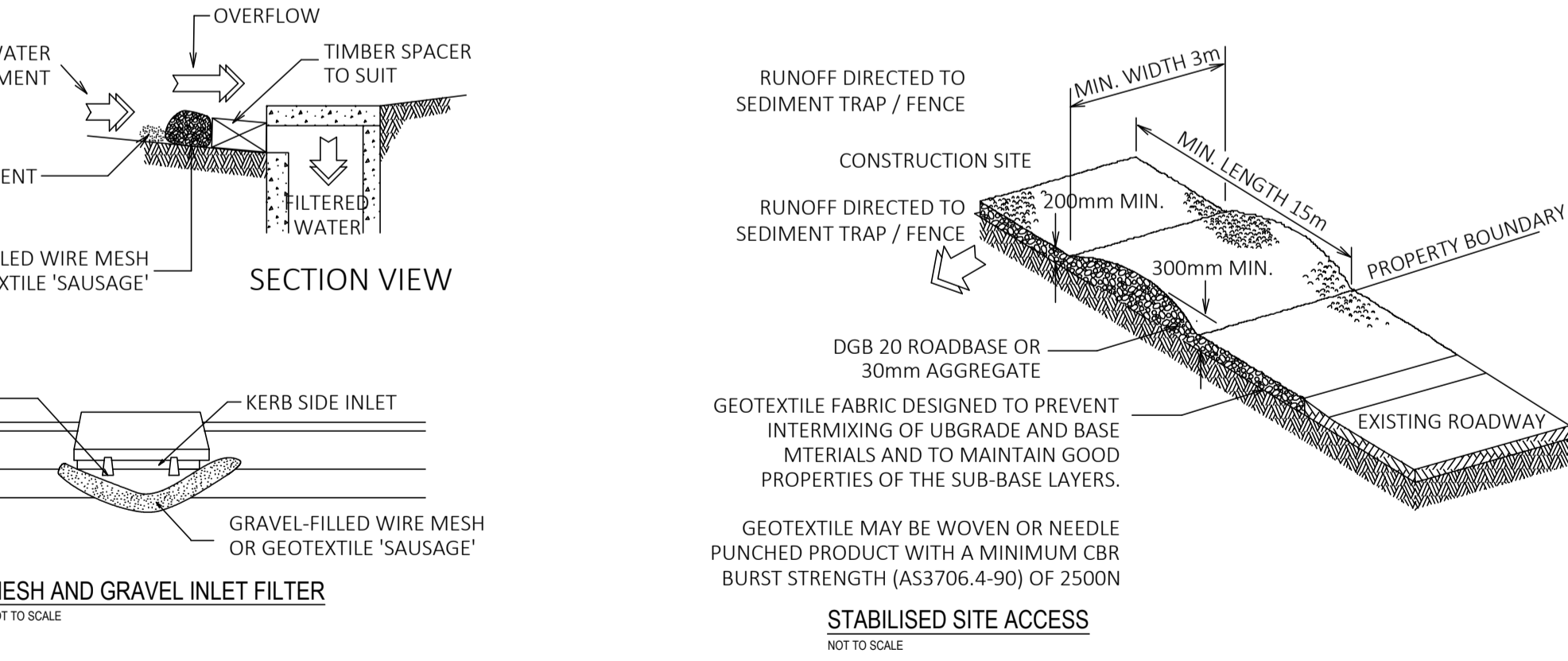
EROSION AND SEDIMENT CONTROL PLAN

SCALE 1 : 300

- EROSION AND SEDIMENT CONTROL**
- THE NOTES AND MEASURES STATED HEREAFTER SHALL BE READ IN CONJUNCTION WITH THE NSW PUBLICATION "MANAGING URBAN STORMWATER, SOILS & CONSTRUCTION, FOURTH EDITION 2004 VOLUME 1" PREPARED BY LANDCOM. PARTICULAR ATTENTION SHALL BE PAID TO CHAPTERS 6 & 8.
  - EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE PRIOR AND DURING THE CONSTRUCTION PERIOD. THESE CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED REGULARLY BY THE CONTRACTOR TO ENSURE THE EFFECTIVES OF THE SYSTEM, ESPECIALLY AFTER STORM EVENTS.
  - ALL NECESSARY WORKS SHALL BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION AND SEDIMENTATION OF THE PROJECT SITE AND ADJACENT PROPERTIES AND DRAINAGE SYSTEMS.
  - MINIMISE DISTURBED AREAS COVERED WITH NATURAL VEGETATION, ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.
  - DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.
  - ADOPT TEMPORARY MEASURES AS MAY BE NECESSARY FOR EROSION AND SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING :
    - DRAINS - CONSTRUCT TEMPORARY DRAINS AND CATCH DRAINS
    - CONSTRUCT SPREADER BANKS OR OTHER STRUCTURES - DISPERSE CONCENTRATED RUN-OFF
    - SILT TRAPS - CONSTRUCT AND MAINTAIN SILT TRAPS TO PREVENT DISCHARGE OF SCOURED MATERIAL TO DOWNSTREAM AREAS
    - TEMPORARY FENCING - CONSTRUCT, MAINTAIN AND KEEP IN GOOD REPAIR ALL SILT AND WIND FENCES. CHECK AND CLAEIN FENCES FOLLOWING RIN AND STORM EVENTS
    - REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED
    - ALL DISCOLOURED WATER SHALL BE TREATED TO EPA TANDARDS PRIOR TO DICHARGE OFF SITE, OR ALTERNATIVELY REMOVED BY TANKER WITH A LICENSED TRADE WASTE COLLECTOR
  - ALL STORMWATER INLET PITS ARE TO BE PROTECTED FILTER FABRIC DROP INLET SEDIMENT TRAPS OR GRAVEL SAUSAGE, WHICH IS BLUE METAL WRAPPED IN GEOTEXTILE FABRIC.
  - STOCKPILED MATERIALS SHALL BE KEPT WITHIN THE SITE BOUNDARIES IN A POSITION NOT VULNERABLE TO CONCENTRATED SURFACE RUNOFF.
- DUST CONTROL:**
- DUST IS TO BE WELL CONTROLLED ON THE CONSTRUCTION SITE AT ALL TIMES, ESPECIALLY AT EXCAVATIONS, DEMOLITION ETC.
  - WATER SPRAY TO BE USED TO CONTROL DUST ON DIRT/GRADED AREAS ONLY.
  - CARE TO BE EXERCISED TO ENSURE WATER SPRAY DISPENSE ONLY SUFFICIENT WATER FOR DUST CONTROL PURPOSES.
  - CARE TO BE EXERCISED TO ENSURE ONLY OPTIMUM MOISTURE CONTENT OF THE SOIL IS REACHED FOR COMPACTION.
  - FOR CONTROLLING DUST ON PAVED FOOTPATHS, A SWEEPER IS TO BE USED WITH WATER-JET SPRAYERS.
  - NO SURFACE WATER RUN-OFF IS TO BE GENERATED.
  - CARE IS TO BE EXERCISED TO ENSURE ONLY SUITABLE AMOUNTS OF WATER IS USED DURING SWEEPING.
  - NO RUN-OFF FROM SPRAYERS TO FLOW INTO CATCH BASINS.
  - MINIMISE THE AREAS OF EXISTING VEGETATED AREA THAT ARE DISTURBED DURING CONSTRUCTION.
  - AREAS NOT BEING WORKED ON FOR 30 DAYS OR MORE ARE TO BE VEGETATED OR COVERED TO AVOID DUST GENERATION.
  - SAND & SOIL STOCKPILE ARE TO BE SUFFICIENTLY COVERED DURING WEEKENDS AND AT TIMES WHEN WINDY CONDITIONS PREVAIL.



- CONSTRUCTION NOTES :**
- FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT
  - FILL THE SLEEVE WITH 25mm TO 50mm GRAVEL
  - FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
  - PLACE THE FILTER AT THE BEGINNING OF THE KERB INLET LEAVING A 100mm GAP AT THE TOP TO ACT AS AN EMERGENCY SPILLWAY.
  - MAINTAIN THE OPENING WITH SPACER BLOCKS.
  - FORM A SEAL WITH THE KERBING AND PREVENT SEDIMENT BYPASSING THE FILTER.
  - FIT TO ALL KERB INLETS AT SAG POINTS.
- CONSTRUCTION NOTES :**
- STRIP TOPSOIL AND LEVEL SITE.
  - COMPACT SUBGRADE
  - COVER AREA WITH NEEDLE PUNCHED GEOTEXTILE.
  - CONSTRUCT 200mm THICK PAD OVER GEOTEXTILE USING ROADBASE OR 300mm AGGREGATE MINIMUM LENGTH 15m OR TO BUILDING ALIGNMENT. MINIMUM WITH 3m.
  - CONSTRUCT HUMP IMMEDIATELY WITHIN BOUNDARY TO DIVERT WATER TO A SEDIMENT FENCE OR SEDIMENT TRAP.



**LEGEND**

**PIPEWORK**

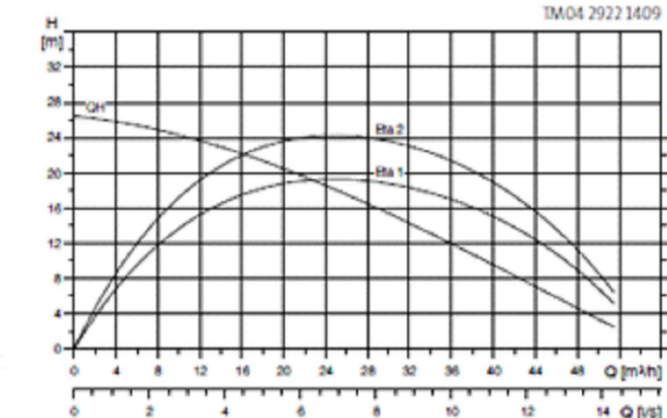
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**ABBREVIATIONS :**

- CONCRETE
- ASPHALT
- GRAVEL
- SUBGRADE
- ROADBASE
- AGGREGATE
- GEOTEXTILE
- WIRE MESH
- STAR PICKET
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- SUBGRADE
- ROADBASE</



> Performance



> Technical Information

3 x 380 - 415 V, 50 Hz	
Part Number	96922727
Maximum shut off head	26.5 m
Flow head @ BEP	18 L/s @ 7.1 m
Maximum flow @ low head	14.3 L/s @ 2.5 m
Pump power rating	2.2 kW
Full load current	5.1 A
Outlet size	3" / 80 mm Hose tail
Pump weight	45 kg
Can operate partially submerged	No
Cooling jacket included / material	No / NA
Motor enclosure material	Cast iron GG20
Pump casing material	Cast iron GG20
Impeller type & material	Open style high chrome stainless steel
Free passage size solids	6 mm
Mechanical seal configuration and materials	Double in oil bath Pump side - silicon carbide Motor side - silicon carbide
Strainer material	400 Stainless steel
Cable length	10 m
Insulation protection	Class F / IP68
Liquid temperature range	0 °C to 40 °C
Aluminium present in pump	Yes

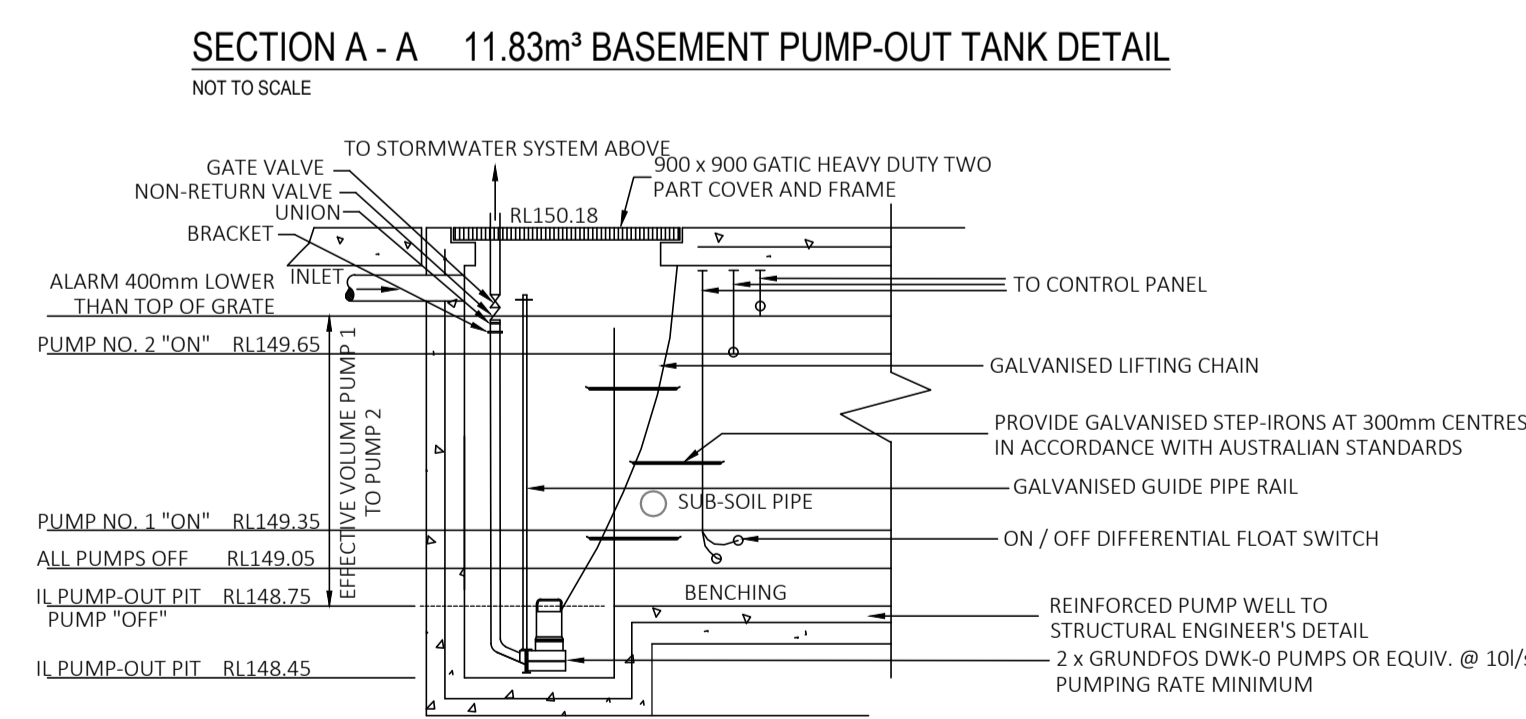
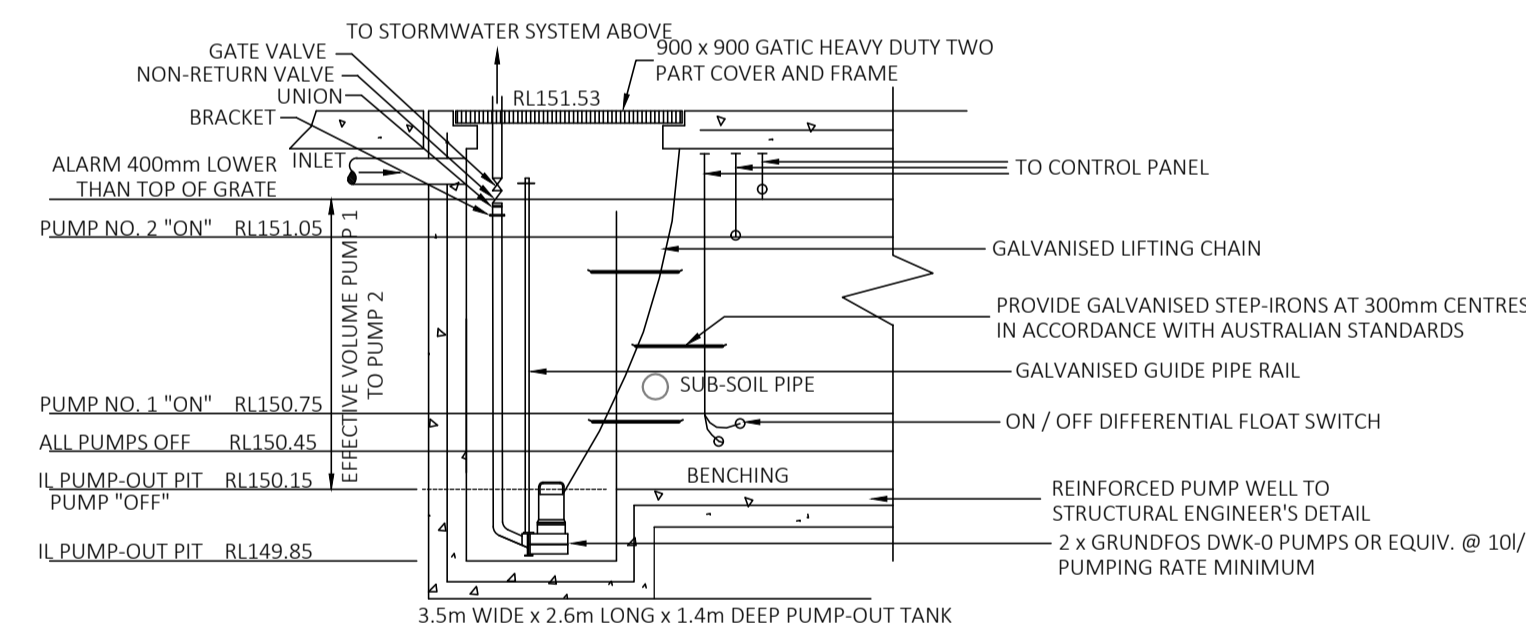
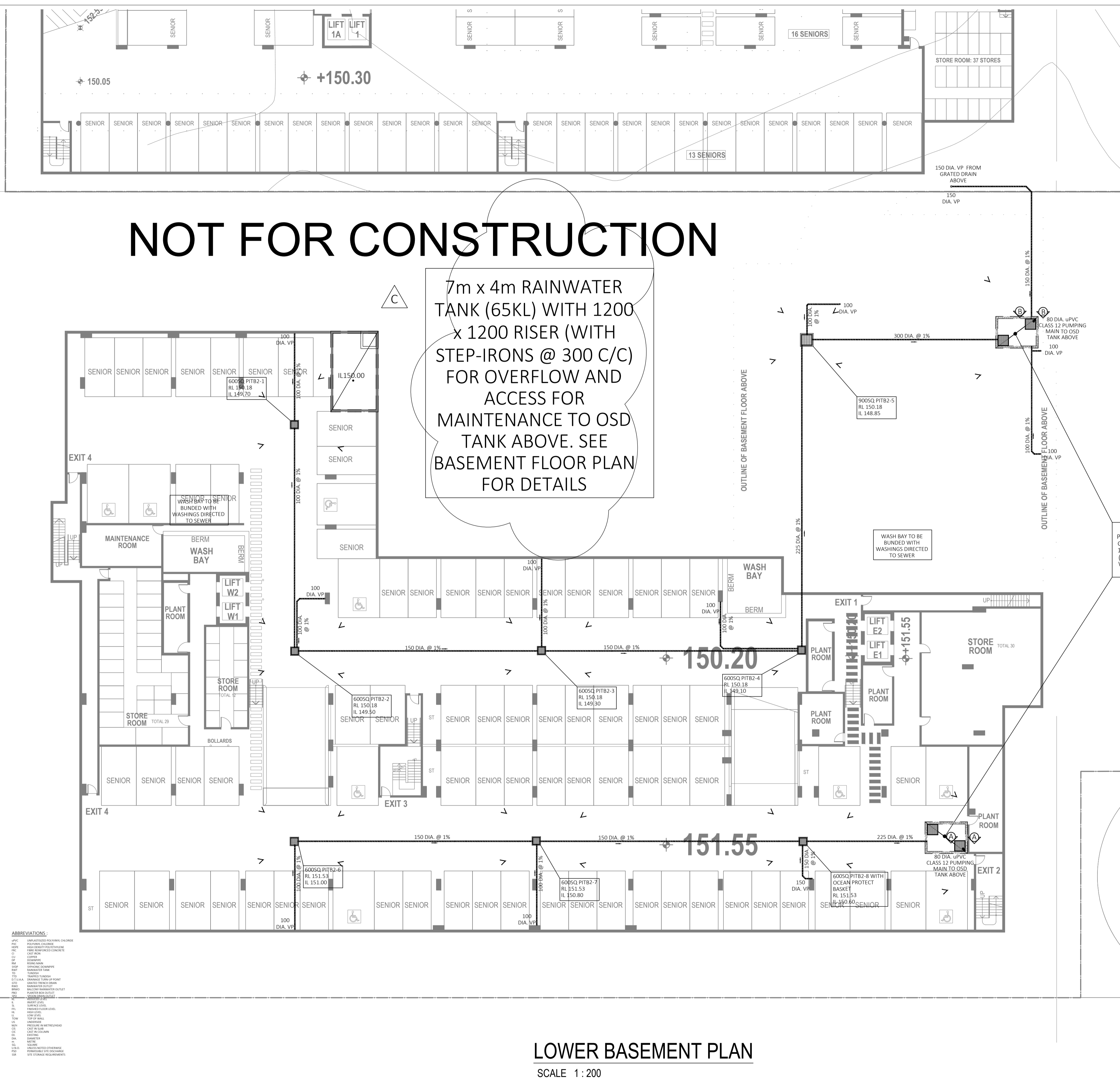


CONFINED SPACE SIGNAGE  
NOT TO SCALE

**NOT FOR CONSTRUCTION**

7m x 4m RAINWATER TANK (65KL) WITH 1200 x 1200 RISER (WITH STEP-IRONS @ 300 C/C) FOR OVERFLOW AND ACCESS FOR MAINTENANCE TO OSD TANK ABOVE. SEE BASEMENT FLOOR PLAN FOR DETAILS

SKYLINE PLACE



LOWER BASEMENT PLAN  
SCALE 1:200

- LEGEND
- PIPEWORK
- ABBREVIATIONS
- SERVICE ACCESSORIES

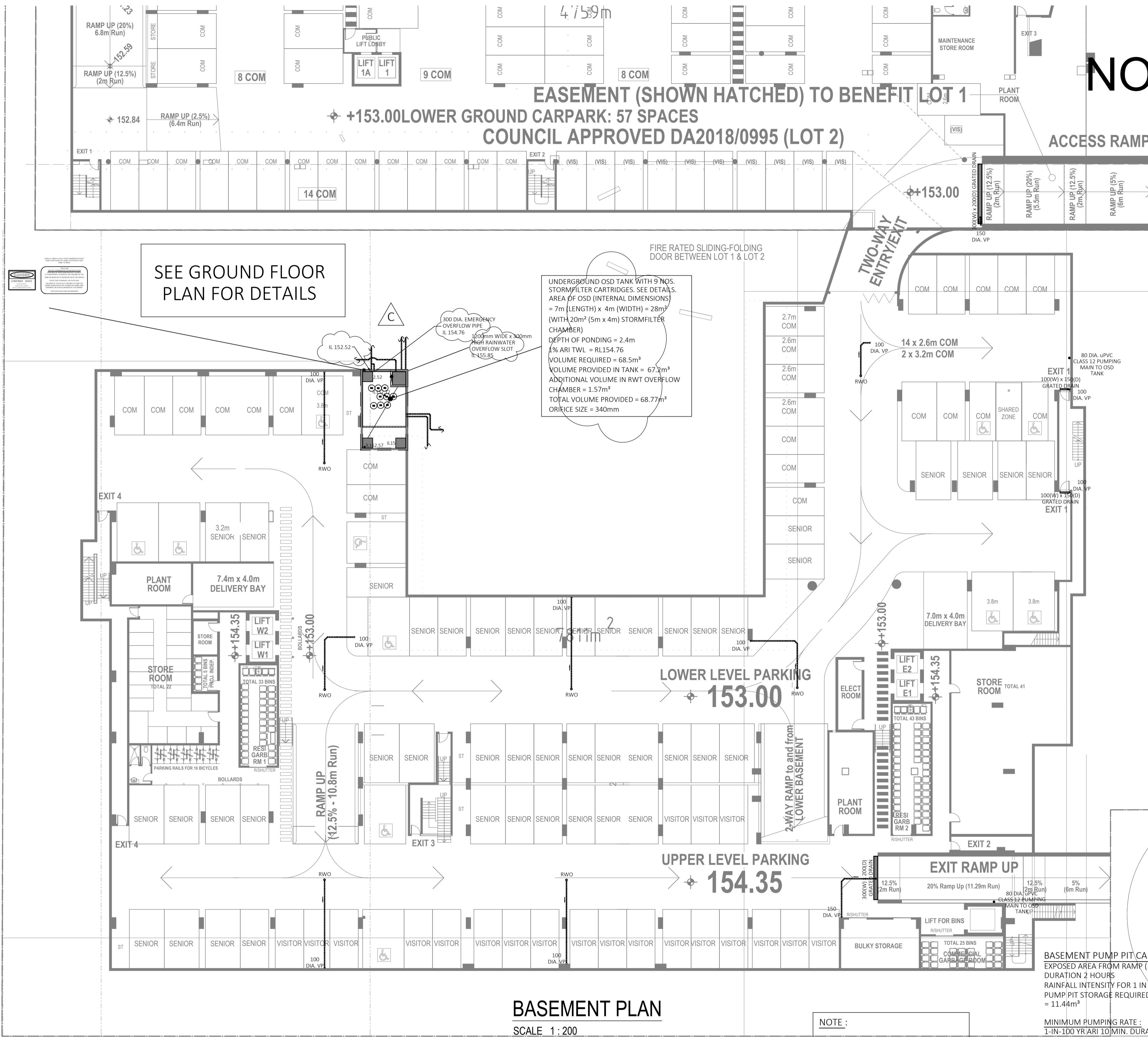
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VERIFY ALL DISCREPANCIES WITH PROJECT ARCHITECT/ MANAGER PRIOR TO PROCEEDING WITH ANY WORKS. Do not scale off drawings.

Drawn & Designed By : R. Koh Checked By : N. Evans Approved By : Kenneth T. NG MIE(Aust) CPEng NER APEC Engineer InsPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading		Project Proposed Seniors Living (Stage 2) At 5 Skyline Place Frenchs Forest NSW 2086 Client	Drawing Title Lower Basement Plan Date January 2021 Project No. 284012021DA Scale As Shown @ A1 Drawing & Sheet No./Issue 28401-03/18 / C
C Update for S82 Review Submission B Incorporate Council's Comments re WSUD A Development Application Issue Description	8 Dec. 2021 20 Apr. 2021 28 Jan. 2021 Date of Drawing	Project Proposed Seniors Living (Stage 2) At 5 Skyline Place Frenchs Forest NSW 2086 Client	Drawing Title Lower Basement Plan Date January 2021 Project No. 284012021DA Scale As Shown @ A1 Drawing & Sheet No./Issue 28401-03/18 / C



# NOT FOR CONSTRUCTION



**SKYLINE PLACE**

**WARNING**  
 PUMP-OUT SYSTEM  
 FAILURE IN BASEMENT  
 WHEN LIGHT IS  
 FLASHING AND SIREN  
 IS SOUNDING

**BASEMENT PUMP-OUT FAILURE WARNING SIGN**  
 NOT TO SCALE

**BASEMENT PUMP-OUT SYSTEM NOTES**

THE PUMP-OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED AS FOLLOWS:

1. A MINIMUM OF TWO PUMPS ARE TO BE PROVIDED - ONE DUTY PUMP AND ONE STAND-BY PUMP.
2. THE PUMPS SHALL BE PROGRAMMED TO OPERATE ALTERNATIVELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATIONAL LOAD AND PUMP LIFE.
3. A LOW-LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE UNDERGROUND TANK. THE FLOAT SHALL FUNCTION AS AN "OFF" SWITCH FOR THE PUMP.
4. A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, WHICH IS APPROXIMATELY 200mm ABOVE THE MINIMUM WATER LEVEL, IN WHICH ONE OF THE PUMPS WILL OPERATE AND DRAIN THE UNDERGROUND TANK TO THE LEVEL OF THE LOW-LEVEL FLOAT.
5. A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY 200mm ABOVE THE SECOND FLOAT. THIS FLOAT SHALL BE DESIGNED TO START THE STAND-BY PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
6. AN ALARM WARNING SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT, SIREN AND A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO TH BASEMENT. THE ALARM WARNING SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURES.

COLOURS:  
 "WARNING" - RED  
 BORDER - BLACK  
 WORDING - BLACK

LEGEND	
	PIPESWORKS
	SERVICE ACCESSORIES
	ABBREVIATIONS

**BASEMENT PLAN**  
 SCALE 1:200

**NOTE:**  
 ENTIRE BASEMENT TO BE FULLY TANKED, DETAILS TO BE PROVIDED BY STRUCTURAL ENGINEER.

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Drawn & Designed By : R. Koh		Designed By <b>ING CONSULTING ENGINEERS PTY LTD</b> P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Seniors Living (Stage 2)		Drawing Title Basement Plan	
Checked By : N. Evans			At 5 Skyline Place Frenchs Forest NSW 2086		Date January 2021	Scale As Shown @ A1
Approved By : Kenneth T. NG NIEAust CE(Eng) NER APEC Engineer InstPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading			Client		Project No. 284012021DA	Drawing & Sheet No./Issue 28401-04/18/ C
C	Update for S82 Review Submission		8 Dec. 2021			
B	Incorporate Council's Comments re WSUD		20 Apr. 2021			
A	Development Application		28 Jan. 2021			
Issue	Description	Date of Drawing				









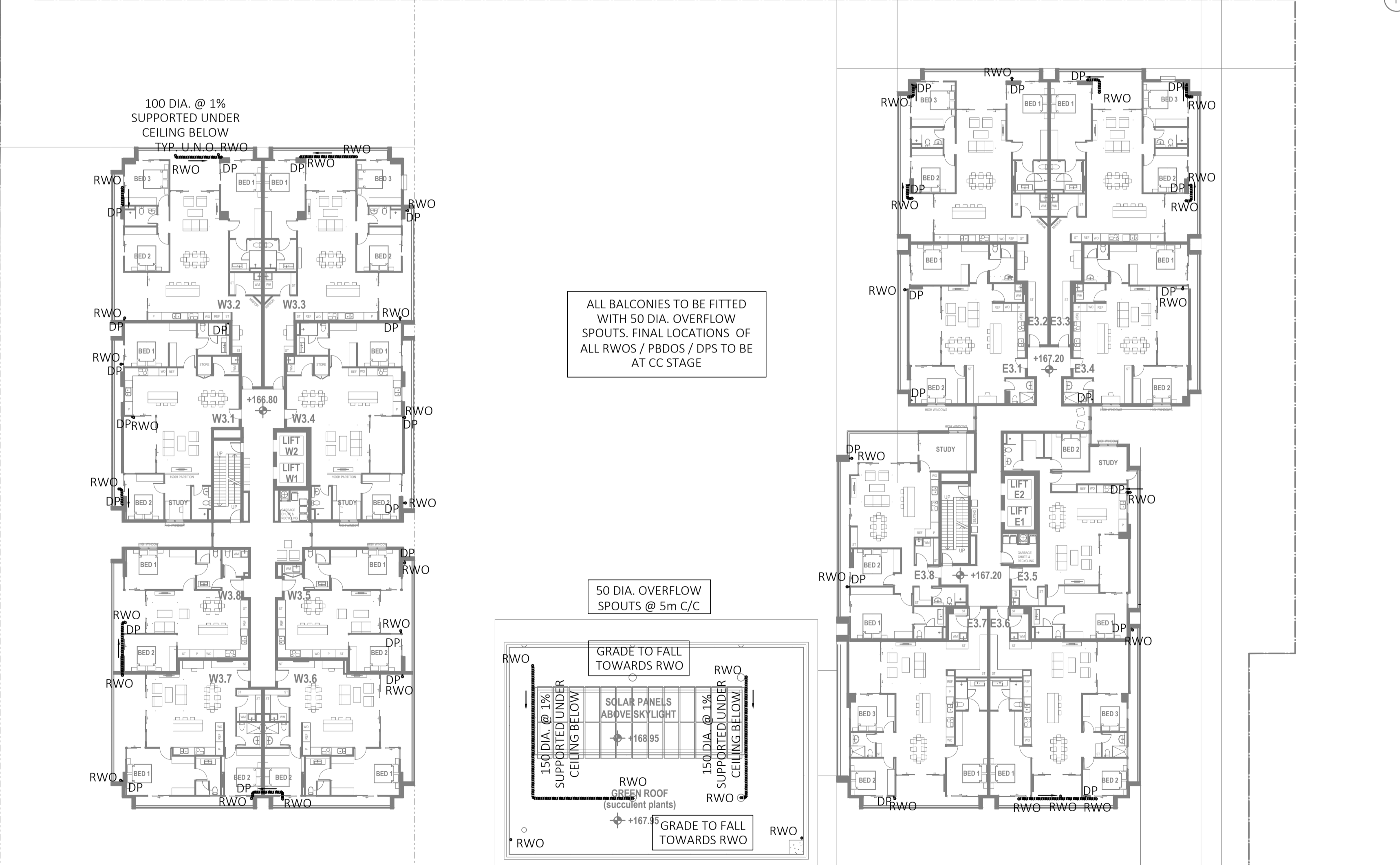
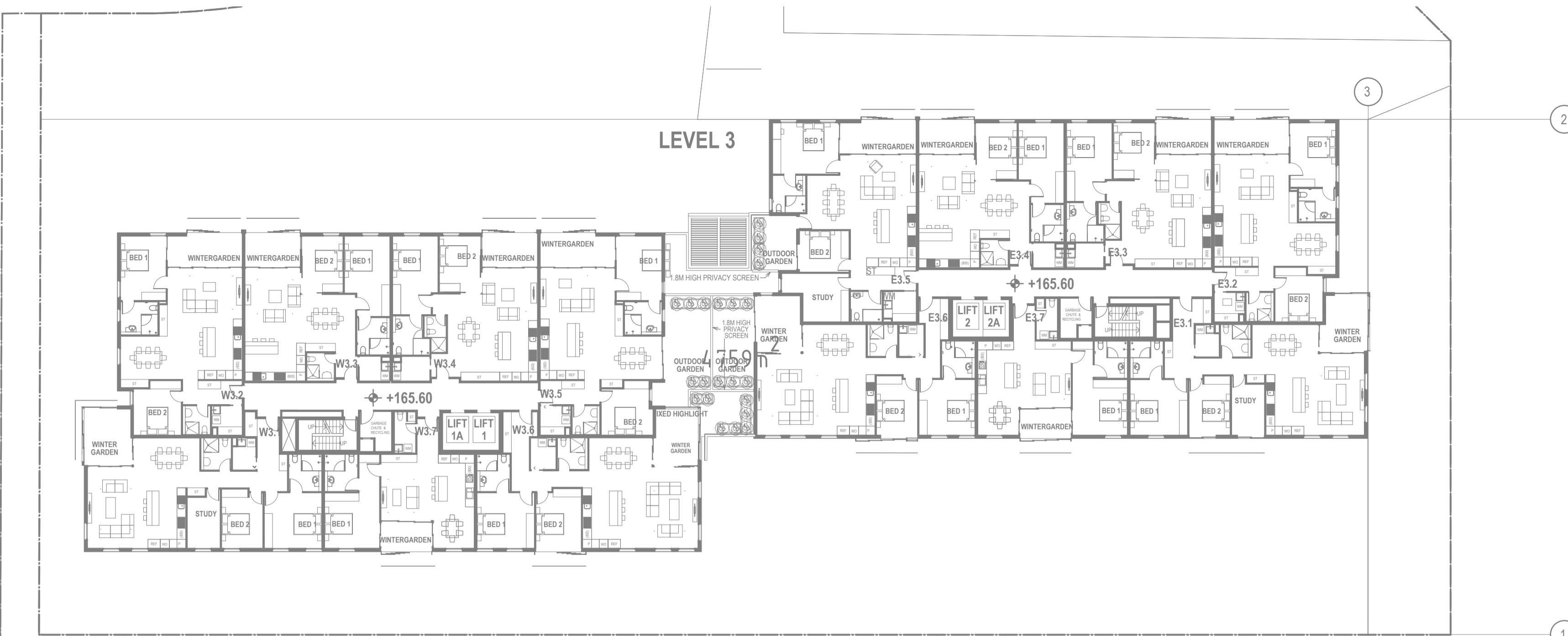








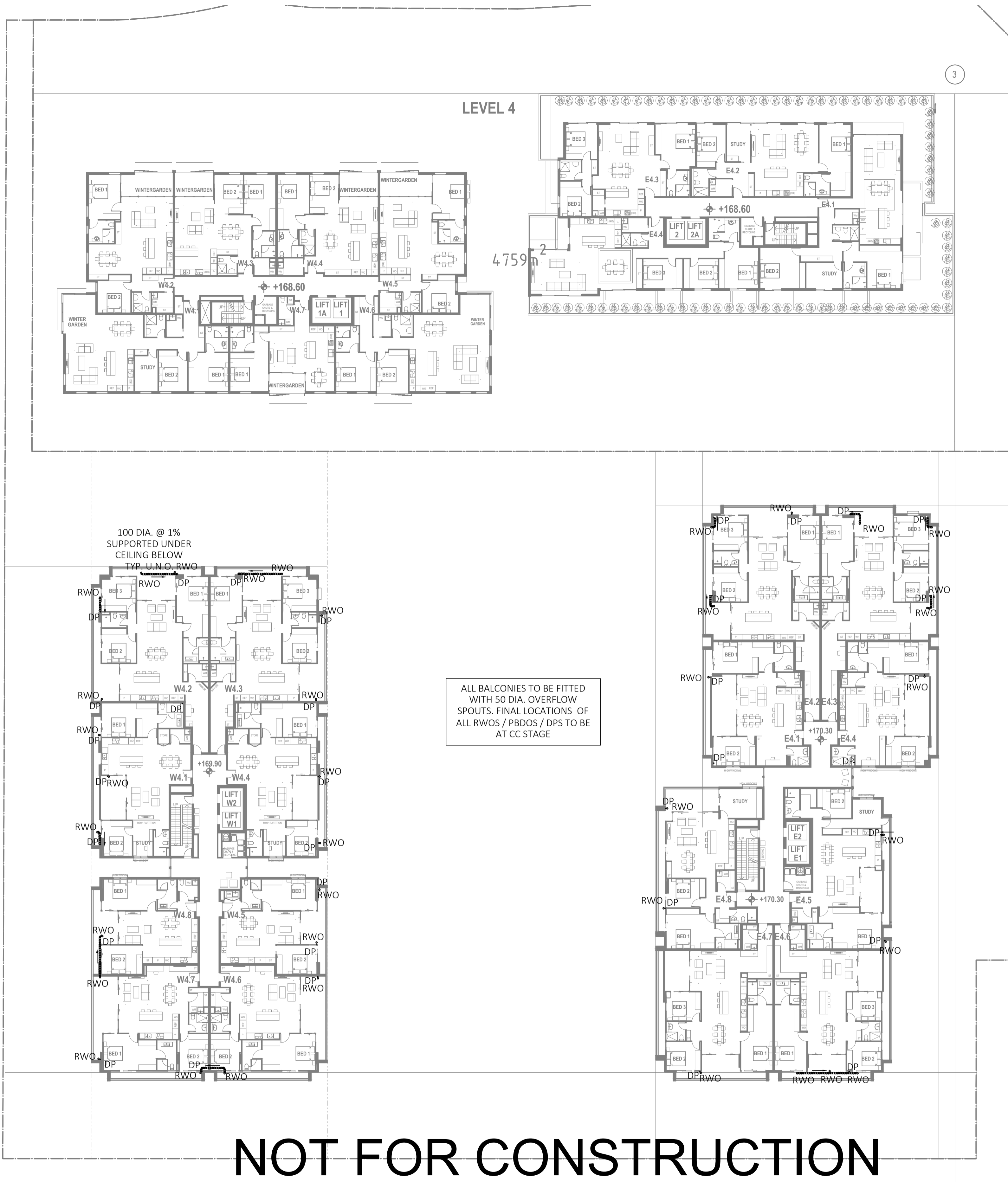




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- 9000 DIA. @ 1% SLOPE
- 9600 DIA. @ 1% SLOPE
- 10200 DIA. @ 1% SLOPE
- 10800 DIA. @ 1% SLOPE
- 11400 DIA. @ 1% SLOPE
- 12000 DIA. @ 1% SLOPE
- 12600 DIA. @ 1% SLOPE
- 13200 DIA. @ 1% SLOPE
- 13800 DIA. @ 1% SLOPE
- 14400 DIA. @ 1% SLOPE
- 15000 DIA. @ 1% SLOPE
- 15600 DIA. @ 1% SLOPE
- 16200 DIA. @ 1% SLOPE
- 16800 DIA. @ 1% SLOPE
- 17400 DIA. @ 1% SLOPE
- 18000 DIA. @ 1% SLOPE
- 18600 DIA. @ 1% SLOPE
- 19200 DIA. @ 1% SLOPE
- 19800 DIA. @ 1% SLOPE
- 20400 DIA. @ 1% SLOPE
- 21000 DIA. @ 1% SLOPE
- 21600 DIA. @ 1% SLOPE
- 22200 DIA. @ 1% SLOPE
- 22800 DIA. @ 1% SLOPE
- 23400 DIA. @ 1% SLOPE
- 24000 DIA. @ 1% SLOPE
- 24600 DIA. @ 1% SLOPE
- 25200 DIA. @ 1% SLOPE
- 25800 DIA. @ 1% SLOPE
- 26400 DIA. @ 1% SLOPE
- 27000 DIA. @ 1% SLOPE
- 27600 DIA. @ 1% SLOPE
- 28200 DIA. @ 1% SLOPE
- 28800 DIA. @ 1% SLOPE
- 29400 DIA. @ 1% SLOPE
- 30000 DIA. @ 1% SLOPE

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		Checked By : N. Evans		At 5 Skyline Place Frenchs Forest NSW 2086	Date January 2021	Scale 1 : 250 @ A1	
		Approved By : Kenneth T. NG NIEAust CPEng NER APEC Engineer InstPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading		Client	Project No. 284012021DA	Drawing & Sheet No./Issue 28401-10/18 / C	
C	Update for S82 Review Submission	8 Dec. 2021					
B	Incorporate Council's Comments re WSUD	20 Apr. 2021					
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Issue	Description	Date of Drawing					









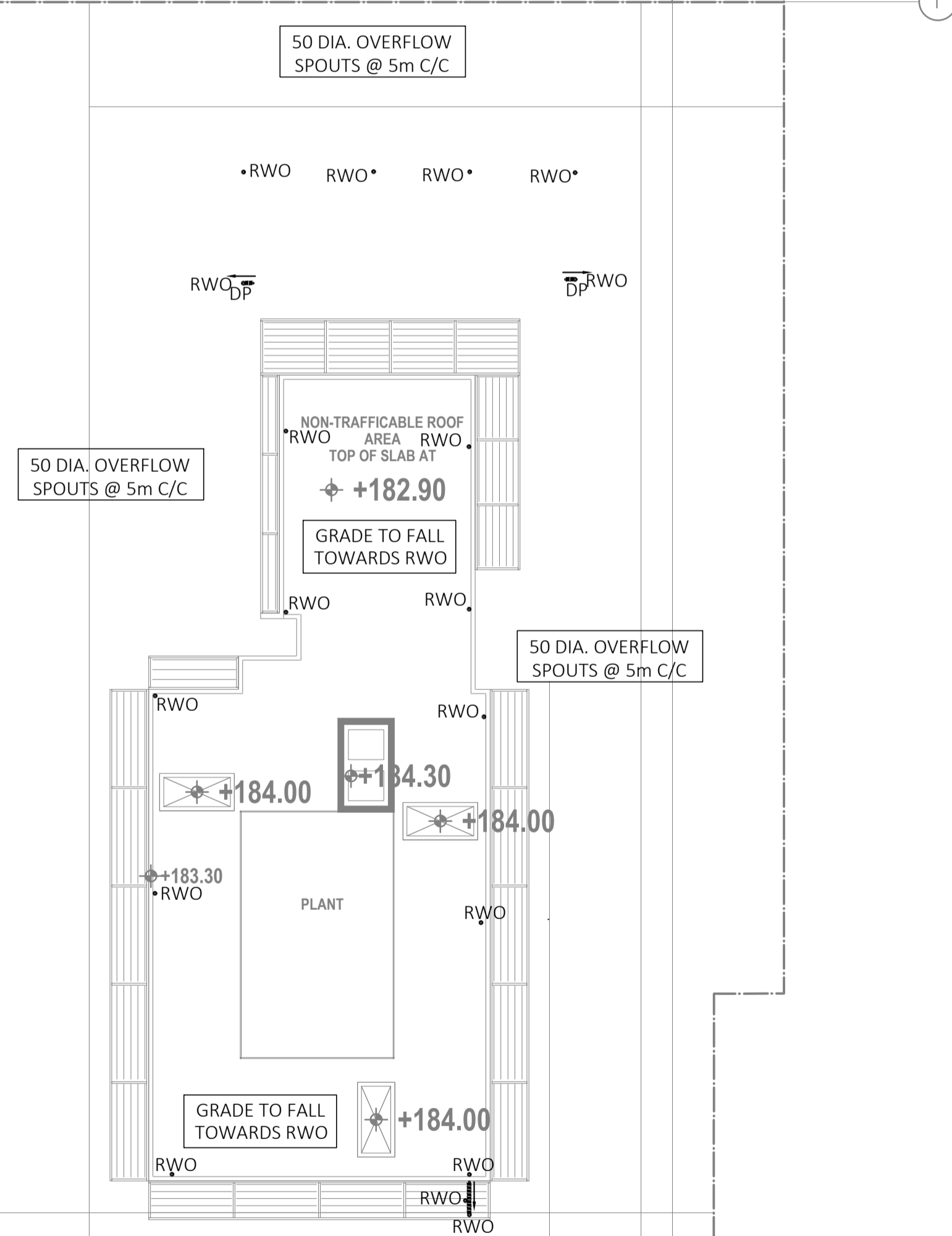






4.759m<sup>2</sup>

# NOT FOR CONSTRUCTION



**LEGEND**

- PIPEWORK**
- 100mm PVC UPSTAIRS
  - 150mm PVC UPSTAIRS
  - 100mm PVC DOWNSTAIRS
  - 150mm PVC DOWNSTAIRS
  - 100mm PVC HORIZONTAL
  - 150mm PVC HORIZONTAL
  - 100mm PVC VERTICAL
  - 150mm PVC VERTICAL
  - 100mm PVC RISER
  - 150mm PVC RISER
  - 100mm PVC MANHOLE
  - 150mm PVC MANHOLE
  - 100mm PVC CLEANOUT
  - 150mm PVC CLEANOUT
  - 100mm PVC TRAP
  - 150mm PVC TRAP
  - 100mm PVC VALVE
  - 150mm PVC VALVE
  - 100mm PVC FITTING
  - 150mm PVC FITTING
  - 100mm PVC JOINT
  - 150mm PVC JOINT
  - 100mm PVC END
  - 150mm PVC END
- SERVICE ACCESSORIES**
- 100mm PVC MANHOLE
  - 150mm PVC MANHOLE
  - 100mm PVC CLEANOUT
  - 150mm PVC CLEANOUT
  - 100mm PVC TRAP
  - 150mm PVC TRAP
  - 100mm PVC VALVE
  - 150mm PVC VALVE
  - 100mm PVC FITTING
  - 150mm PVC FITTING
  - 100mm PVC JOINT
  - 150mm PVC JOINT
  - 100mm PVC END
  - 150mm PVC END

**ABBREVIATIONS:**

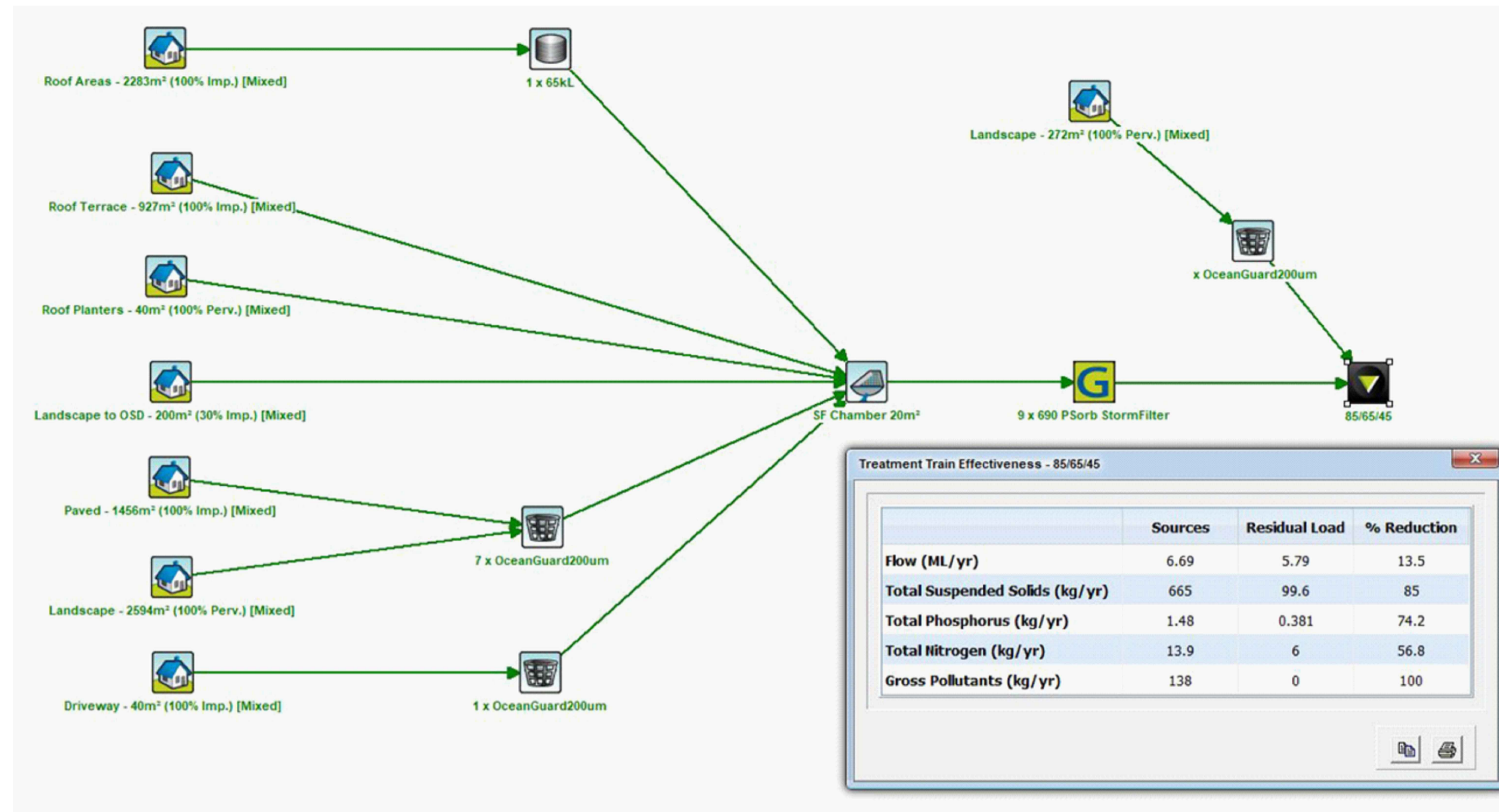
- 100mm PVC UPSTAIRS
- 150mm PVC UPSTAIRS
- 100mm PVC DOWNSTAIRS
- 150mm PVC DOWNSTAIRS
- 100mm PVC HORIZONTAL
- 150mm PVC HORIZONTAL
- 100mm PVC VERTICAL
- 150mm PVC VERTICAL
- 100mm PVC RISER
- 150mm PVC RISER
- 100mm PVC MANHOLE
- 150mm PVC MANHOLE
- 100mm PVC CLEANOUT
- 150mm PVC CLEANOUT
- 100mm PVC TRAP
- 150mm PVC TRAP
- 100mm PVC VALVE
- 150mm PVC VALVE
- 100mm PVC FITTING
- 150mm PVC FITTING
- 100mm PVC JOINT
- 150mm PVC JOINT
- 100mm PVC END
- 150mm PVC END

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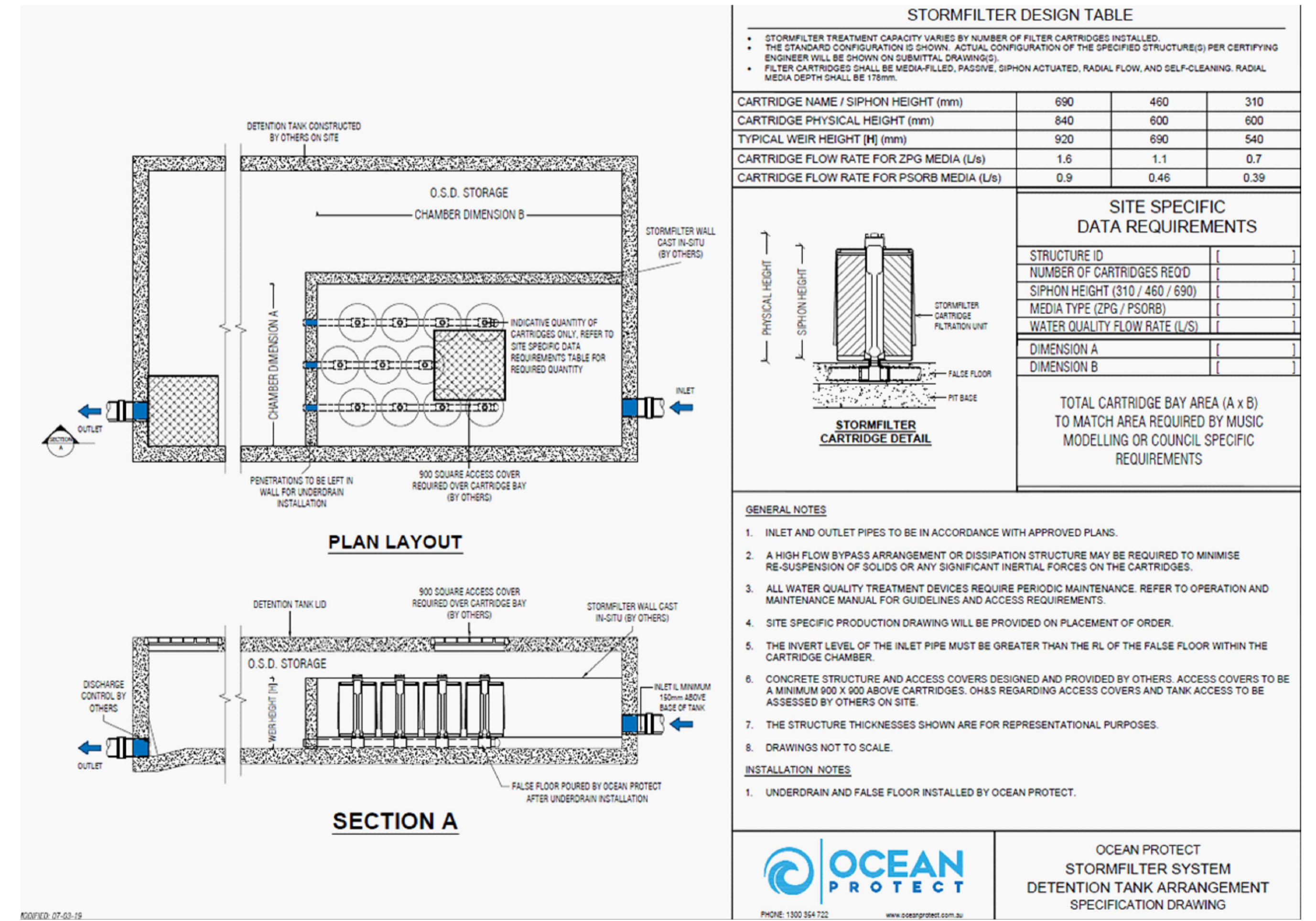
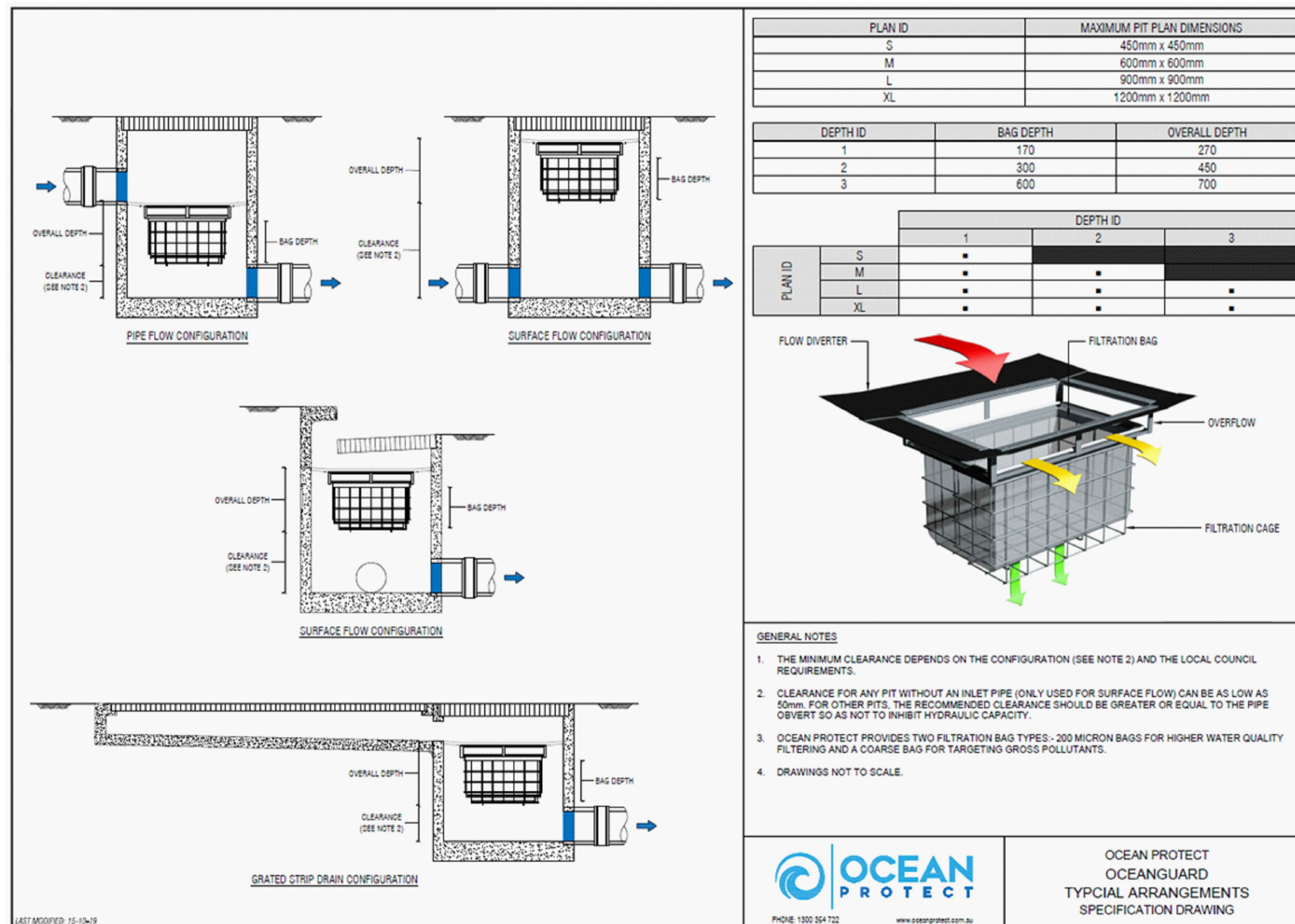
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		Checked By : N. Evans				Date January 2021	Scale 1 : 250 @ A1
		Approved By : Kenneth T. NG <small>MIE(Aust) (Reg. No. 2206352) RPEQ                  Registered Certifier (Hydraulic (stormwater), Road &amp; Drainage and Stormwater) (Reg. No. BDC0827)                  Registered Design Practitioner (Drainage &amp; Civil Engineering) (Reg. No. DEPO000692)                  &amp; Professional Engineer (Civil) (Reg. No. DEPO000630)                  NSW Fair Trading</small>				Project No. 284012021DA	Drawing & Sheet No./Issue 28401-14/18/ C
C	Update for S82 Review Submission	8 Dec. 2021					
B	Incorporate Council's Comments re WSUD	20 Apr. 2021					
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		Checked By : N. Evans		At : 5 Skyline Place Frenchs Forest NSW 2086	Date : January 2021 Scale : As Shown @ A1
C	Update for S82 Review Submission	8 Dec. 2021	Approved By : Kenneth T. NG MIE Aust CPENG NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading	Client : 284012021DA	Project No. : 28401-15/18 / C
B	Incorporate Council's Comments re WSUD	20 Apr. 2021			
A	Development Application	28 Jan. 2021			
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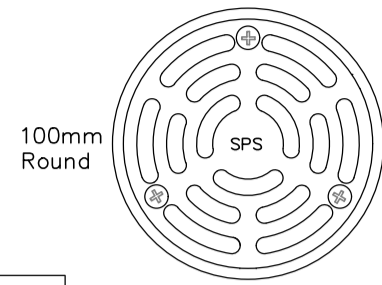


- GENERAL NOTES**
1. THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.
  2. ALL WORKS ARE TO BE CARRIED OUT TO THE DETAILS SHOWN ON THE DRAWINGS.
  3. THESE PLANS ARE READ IN CONJUNCTION WITH APPROVED ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
  4. CARE IS TO BE TAKEN WHEN EXCAVATING NEAR SERVICES. NO MECHANICAL EXCAVATION ARE TO BE UNDERTAKEN OVER TELECOMMUNICATION OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS ONLY.
  5. DIAL 1100 BEFORE YOU DIG FOR LOCATION OF UNDERGROUND SERVICES PRIOR TO ANY CONSTRUCTION WORKS.
  6. SERVICES HAVE NOT BEEN SHOWN ON THIS PLAN. FIELD INVESTIGATIONS ARE TO BE CARRIED OUT SEPARATELY TO DETERMINE EXACT POSITIONS OF SERVICES OR INFORMATION IS TO BE PROVIDED BY THE PROPERTY PROPRIETOR. NOT WITHSTANDING THIS, ALL INFORMATION PROVIDED SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS.
  7. THESE DRAWINGS ARE ONLY APPROVED WHEN THEY ARE SIGNED WITH AN ORIGINAL SIGNATURE BY THE ENGINEER.

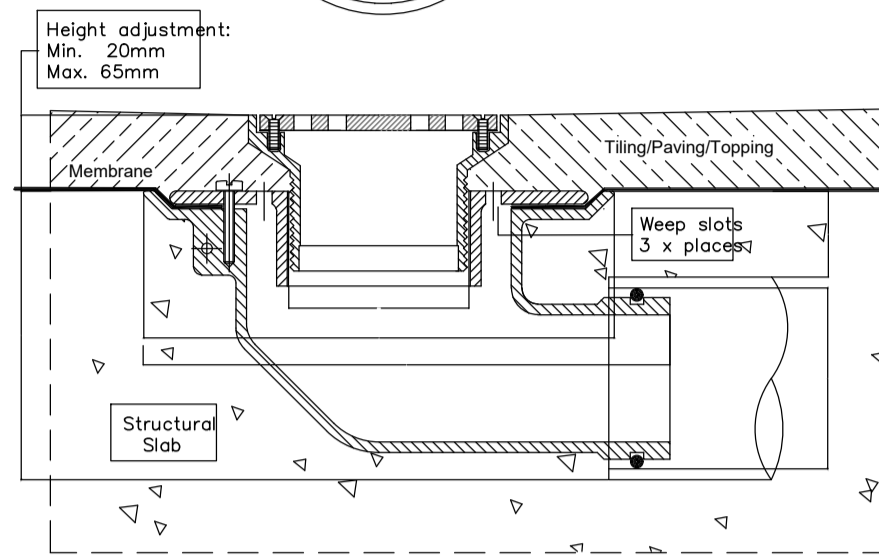
- STORMWATER DRAINAGE**
8. ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS 3500 AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES.
  9. ALL GUTTERS TO BE 100 x 75 MIN. AND DOWNPIPES TO BE 100 x 75 (76 DIA.) UNLESS OTHERWISE NOTED.
  10. ALL PIPES TO BE 100mm uPVC SEWER GRADE UNLESS NOTED OTHERWISE.
  11. ALL GRADIENTS FOR STORMWATER PIPES TO BE NOT LESS THAN 1.0% UNLESS NOTED OTHERWISE.
  12. THE INVERTS OF ALL OUTLET PIPES ARE TO BE INSTALLED FLUSH WITH THE BASE OF ALL STORMWATER/RAINWATER PIT.
  13. ALL FENCES SHALL BE KEPT AT LEAST 100mm ABOVE THE GROUND LEVEL TO FACILITATE THE FREE PASSAGE FOR STORMWATER OVERLAND FLOW.
  14. MANUFACTURER'S CERTIFICATE SHALL BE OBTAINED BY THE BUILDER FOR PIPES, PRE-CAST PITS AND GRATES FOR THE STRUCTURAL ADEQUACY RELATING TO ITS LOCATION.
  15. AREAS SPREAD WITH BARK SHALL BE BARRICADED TO PREVENT BARK GETTING INTO THE PITS AND STORMWATER SYSTEMS.
  16. MINIMUM SLOPE FOR PAVED AREAS SHALL BE 0.5%, FOR LANDSCAPED AREAS MINIMUM SLOPE SHALL BE 1% AND GRADED TOWARDS THE GRATED PITS.
  17. ALL EXCAVATIONS WITHIN THE INFLUENCE OF BUILDINGS AND SERVICES SHALL BE UNDERTAKEN WITH THE KNOWLEDGE OF THE HYDRAULIC AND STRUCTURAL ENGINEER.
  18. THE DETENTION AND DRAINAGE SYSTEM SHALL BE MAINTAINED AT REGULAR INTERVALS AND THE CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS.
  19. CONNECTION OF DISCHARGE PIPE TO EXISTING COUNCIL KERB AND GUTTER, PIPE OR KERB INLET PIT SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.
  20. PROVIDE STEP-IRONS 'MASCOT S1:104' OR SIMILAR STAGGERED TO GIVE SPACING 300 VERTICAL AND 220 HORIZONTAL TO ALL PIT DEEPER THAN 1m .
  21. SUITABLE AG-LINES SHALL BE PROVIDED AND CONNECTED TO STORMWATER SYSTEM OR AS INSTRUCTED BY THE ENGINEER ON SITE PRIOR TO BACKFILLING.

- RAINWATER TANK**
22. DRAWING IS TO BE READ IN CONJUNCTION WITH SYDNEY WATER'S "PLUMBING REQUIREMENTS - GUIDELINES FOR RAINWATER TANKS ON RESIDENTIAL PROPERTIES".
  23. ALL PLUMBING WORK UNDERTAKEN ON OR FOR THE TANK THAT AFFECTS THE WATER SERVICE PIPE OR WATER MAIN MUST BE UNDERTAKEN WITH THE CONSENT OF SYDNEY WATER IN ACCORDANCE WITH THE REQUIREMENTS OF SYDNEY WATER, AND THE MANUFACTURER'S SPECIFICATIONS.
  24. ALL PLUMBING WORKS UNDERTAKEN SHALL BE UNDERTAKEN BY A LICENSED PLUMBER IN ACCORDANCE WITH THE NEW SOUTH WALES CODE OF PRACTICE - PLUMBING AND DRAINAGE PRODUCED BY THE COMMITTEE ON UNIFORMITY OF PLUMBING AND DRAINAGE REGULATIONS IN NEW SOUTH WALES.
  25. ALL PLUMBING MUST BE COMPLETED BY A LICENSED PLUMBER IN COMPLIANCE WITH AS/NZS3500.5, AND ANY OTHER RELEVANT NATIONAL STANDARDS.
  26. INLET TO THE RAINWATER TANKS MUST BE SCREENED OR FILTERED TO PREVENT ENTRY OF FOREIGN MATTER AND CREATURES.
  27. THE RAINWATER TANKS MUST BE MAINTAINED AT ALL TIMES SO AS NOT TO CAUSE A NUISANCE WITH RESPECT TO MOSQUITO BREEDING OR OVERLAND FLOW OF WATER.
  28. A SIGN MUST BE AFFIXED TO THE RAINWATER TANKS CLEARLY STATING THAT THE WATER IN THE TANKS IS RAINWATER.
  29. BOTH THE RE-USE AND ANY FITTINGS CONNECTED TO THE RAINWATER TANKS MUST BE LABELED "RAINWATER , NOT SUITABLE FOR DRINKING".
  30. ALL ROOF GUTTERS ARE TO BE FITTED WITH LEAF GUARDS AND INSPECTED REGULARLY AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES.
  31. PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN.

Specification code:  
 R100B/C90 (grass grate, ABS lower body)  
 R100N/C90 (nickel bronze grate, ABS lower body)  
 R100S4/C90 (polished 304 stainless steel, ABS lower body)  
 R100S/C90 (satin 316 stainless steel grate, ABS lower body)



- Round grate available in nickel bronze, 304 & 316 stainless steel. Bronze non-stock option.
- ABS 90° Body and Reversible Membrane Clamp Collar with female 65mm BSP thread.



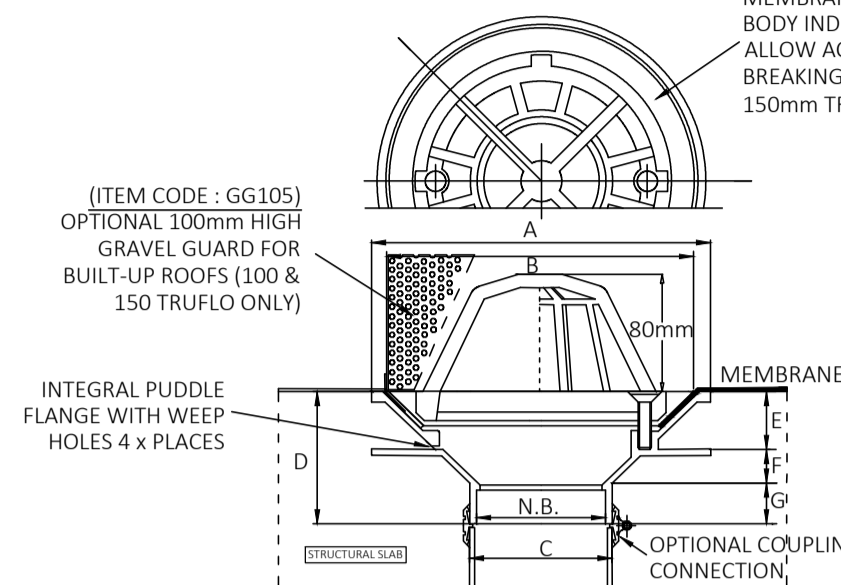
Spigot pushes into 65mm PVC or copper with o-ring connection, or connects to 50mm PVC/HDPE with no-hub coupling.

N.B.	A	B	C	D
50	100	40	180	200
65	105	37	180	200

**RAINWATER OUTLET (RWO) (TERRACE AND COURTYARDS)**  
NOT TO SCALE

**SPS TRUFLO & SUPERFLO DOME GRATE RWO (2-PIECE DOME GRATE, MEMBRANE CLAMP)**

ITEM CODE: GG105  
 OPTIONAL 100mm HIGH GRAVEL GUARD FOR BUILT-UP ROOFS (100 & 150 TRUFLO ONLY)



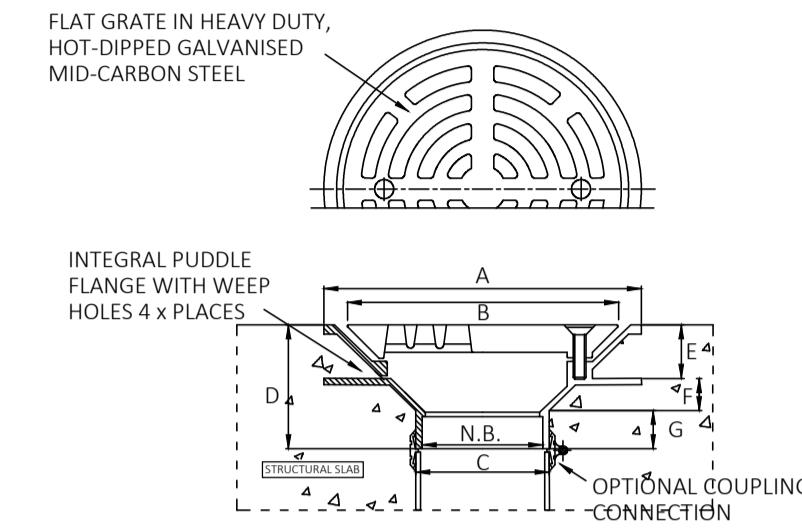
N.B.	A	B	C	D	E	F	G	H	I	J
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150	260	240	300	80	48	4	28	22	25	25
200	300	280	340	80	66	49	38	32	35	35

**SPECIALITY PLUMBING SUPPLIES PTY LTD**  
 TEL: (02) 9416 8031 FAX: (02) 9416 7614 E-MAIL: SP@SPGPOND.NET.AU

**ROOF RAINWATER WATER OUTLET (RWO) 100 TRUFLO**  
NOT TO SCALE

**SPS TRUFLO & SUPERFLO FLAT GRATE RWO (1-PIECE GRATE, NO MEMBRANE CLAMP)**

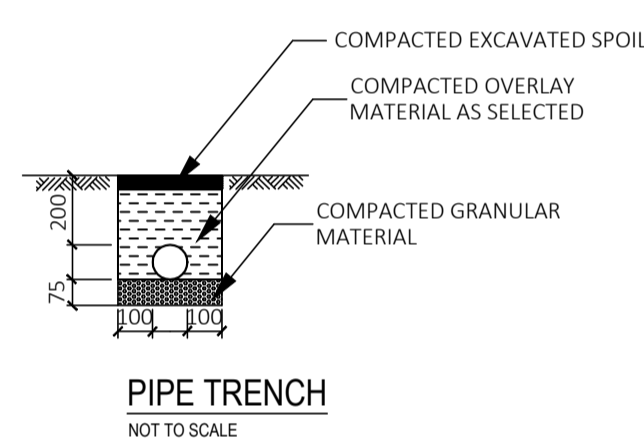
ITEM CODE: GG105  
 OPTIONAL 100mm HIGH GRAVEL GUARD FOR BUILT-UP ROOFS (100 & 150 TRUFLO ONLY)



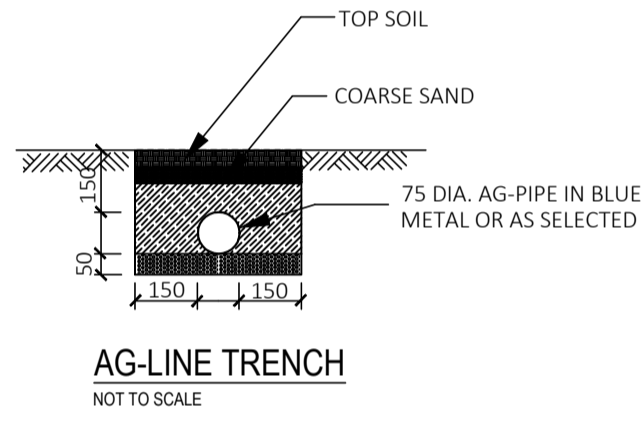
N.B.	A	B	C	D	E	F	G	H	I	J
100	200	180	250	80	33	22	25	25	25	25
150	260	240	300	80	48	4	28	22	25	25
200	300	280	340	80	66	49	38	32	35	35

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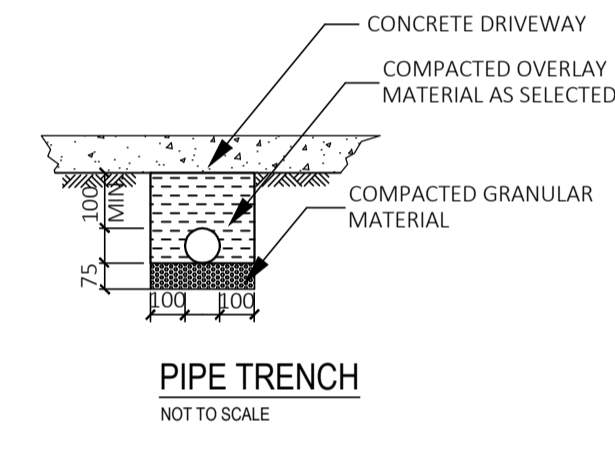
**CARPARK TRUFLOW (RWO)**  
NOT TO SCALE



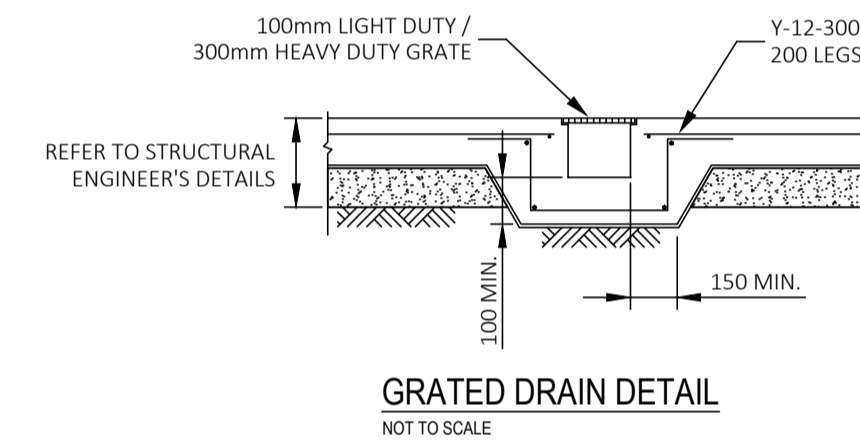
**PIPE TRENCH**  
NOT TO SCALE



**AG-LINE TRENCH**  
NOT TO SCALE



**PIPE TRENCH**  
NOT TO SCALE

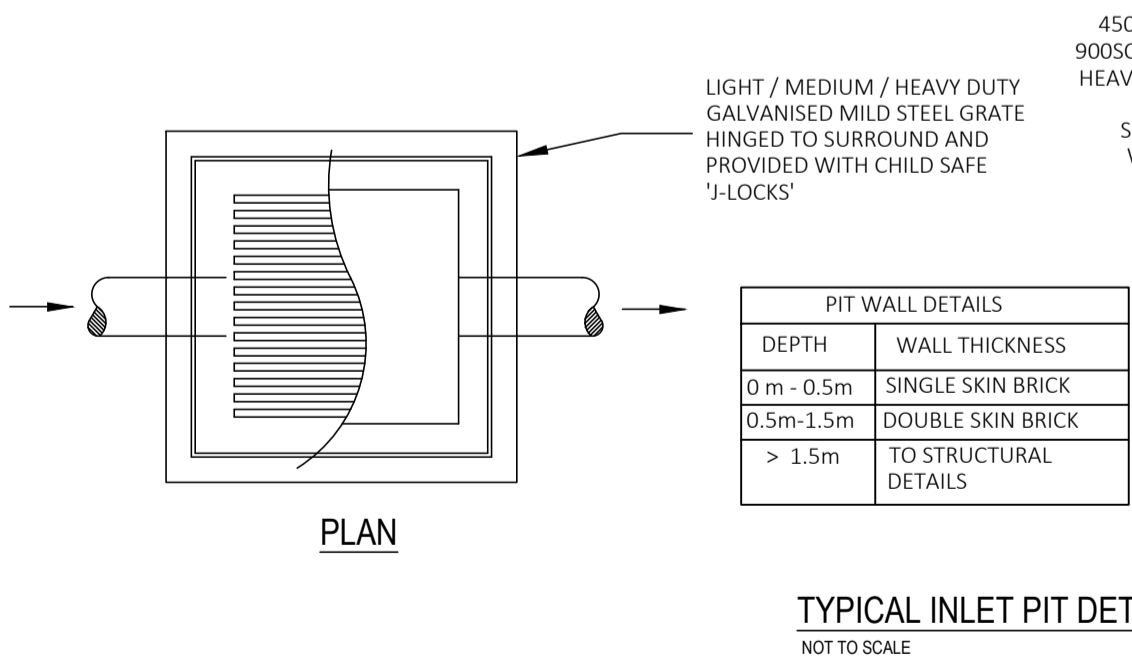


**GRADED DRAIN DETAIL**  
NOT TO SCALE

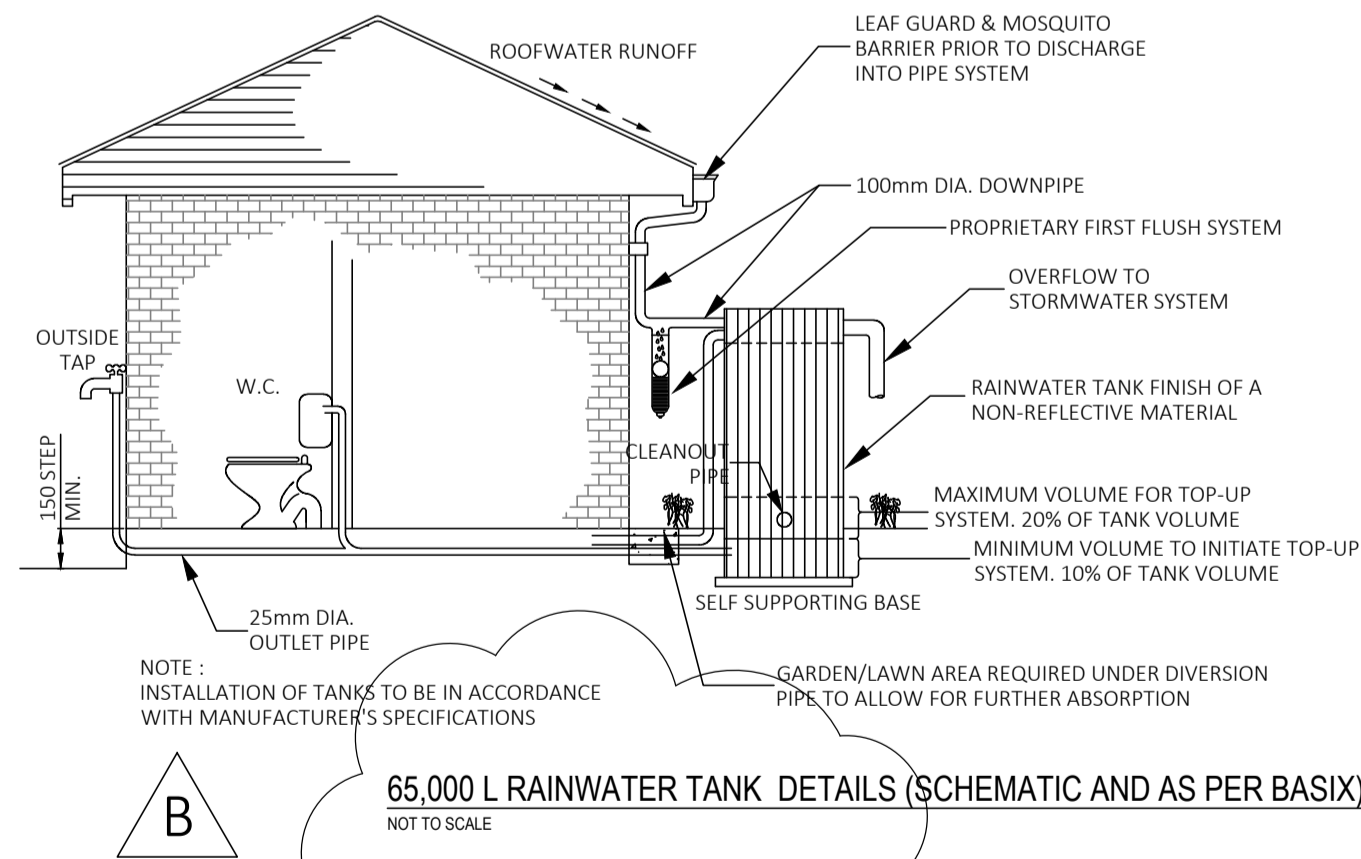
**NOT FOR CONSTRUCTION**

**PIT SCHEDULE**

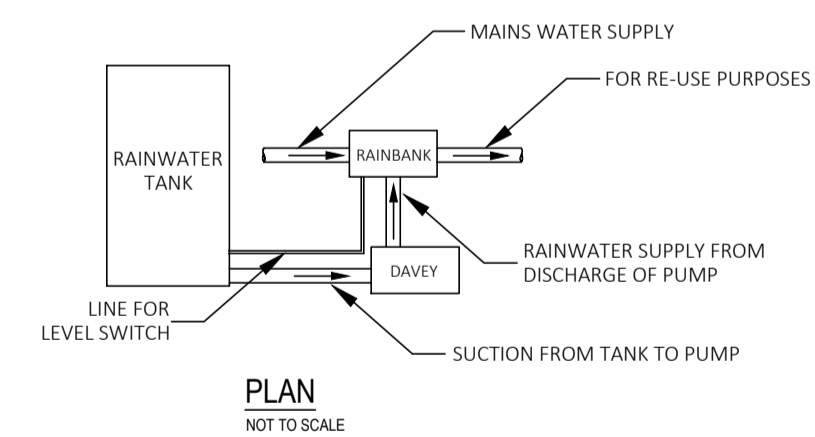
1. PROVIDE LIGHT DUTY GRATES FOR NON VEHICULAR TRAFFICKED AREAS.
2. PROVIDE HEAVY DUTY GRATES FOR VEHICULAR TRAFFICKED AREAS.
3. PROVIDE 450 x 450 CLEAR OPENING FOR PIT DEPTHS UP TO 600mm U.N.O.
4. PROVIDE 600 x 600 CLEAR OPENING FOR PIT DEPTHS UP TO 900mm U.N.O.
5. PROVIDE 900 x 900 CLEAR OPENING FOR PIT DEPTHS GREATER THAN 900mm U.N.O.
6. ALL REINFORCED CONCRETE PIPES SHALL BE OF RUBBER RING JOINTS
7. ALL DISCHARGE CONTROL PITS SHALL HAVE A MINIMUM OF 900 x 900 CLEAR OPENING U.N.O.
8. ALL GRATED TRENCH SHALL BE A MINIMUM OF 150(W) x 200(H) U.N.O.



**TYPICAL INLET PIT DETAIL**  
NOT TO SCALE



**65,000 L RAINWATER TANK DETAILS (SCHEMATIC AND AS PER BASIX)**  
NOT TO SCALE



**PLAN**  
NOT TO SCALE

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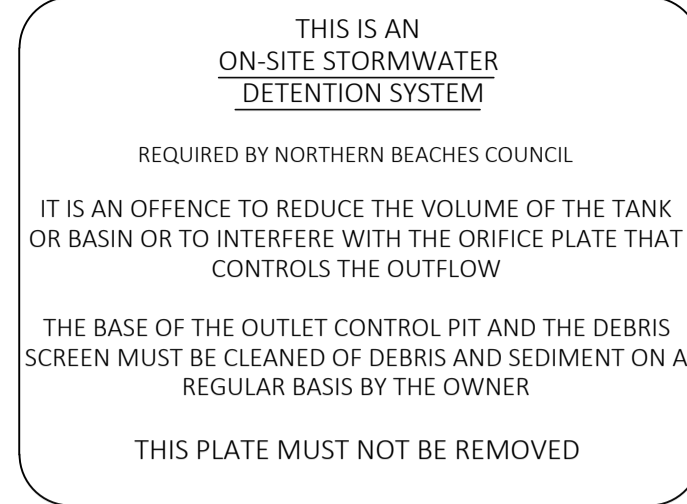
Drawn & Designed By : <b>R. Koh</b>			Designed By <b>ING CONSULTING ENGINEERS PTY LTD</b> P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Seniors Living (Stage 2)		Drawing Title Notes & Details	
Checked By : <b>N. Evans</b>				At 5 Skyline Place Frenchs Forest NSW 2086		Date January 2021	Scale As Shown @ A1
Approved By : <b>Kenneth T. NG</b> MIE Aust CPEng NER APEC Engineer InstPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO00692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading				Client		Project No. 284012021DA	Drawing & Sheet No./Issue 28401-16/18 / C
C	Update for S82 Review Submission	8 Dec. 2021					
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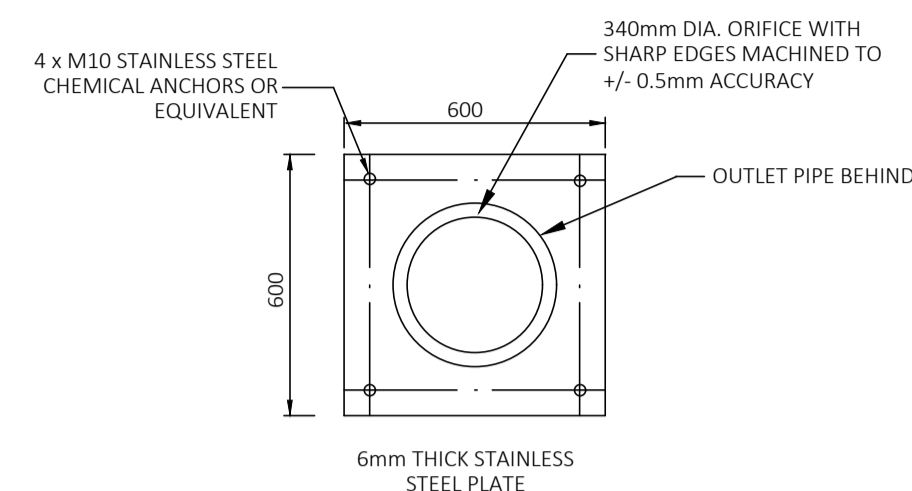


**CONFINED SPACE SIGNAGE**  
NOT TO SCALE

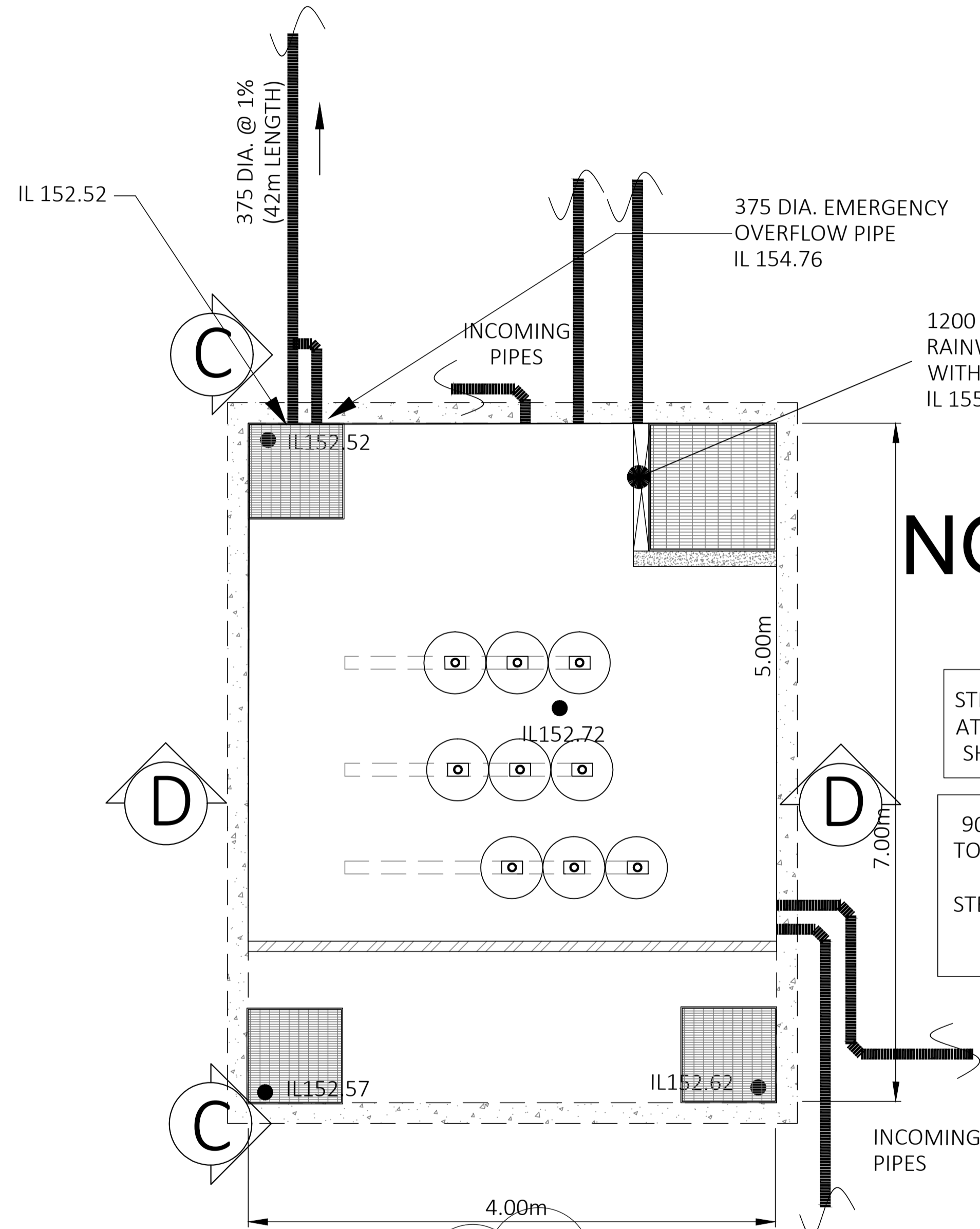
110mm X 80mm SIGN TO BE PLACED AT VISIBLE LOCATION AT OSD TANK, TO READ:



**OSD SIGNAGE**  
NOT TO SCALE



**ORIFICE PLATE DETAIL**  
NOT TO SCALE

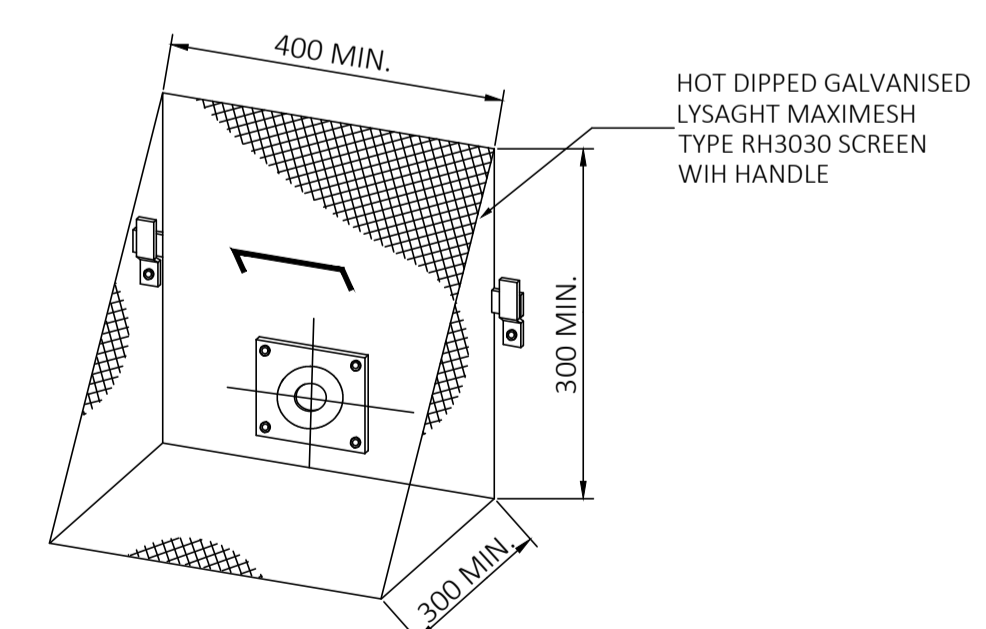


**ON-SITE DETENTION TANK - PLAN**  
NOT TO SCALE

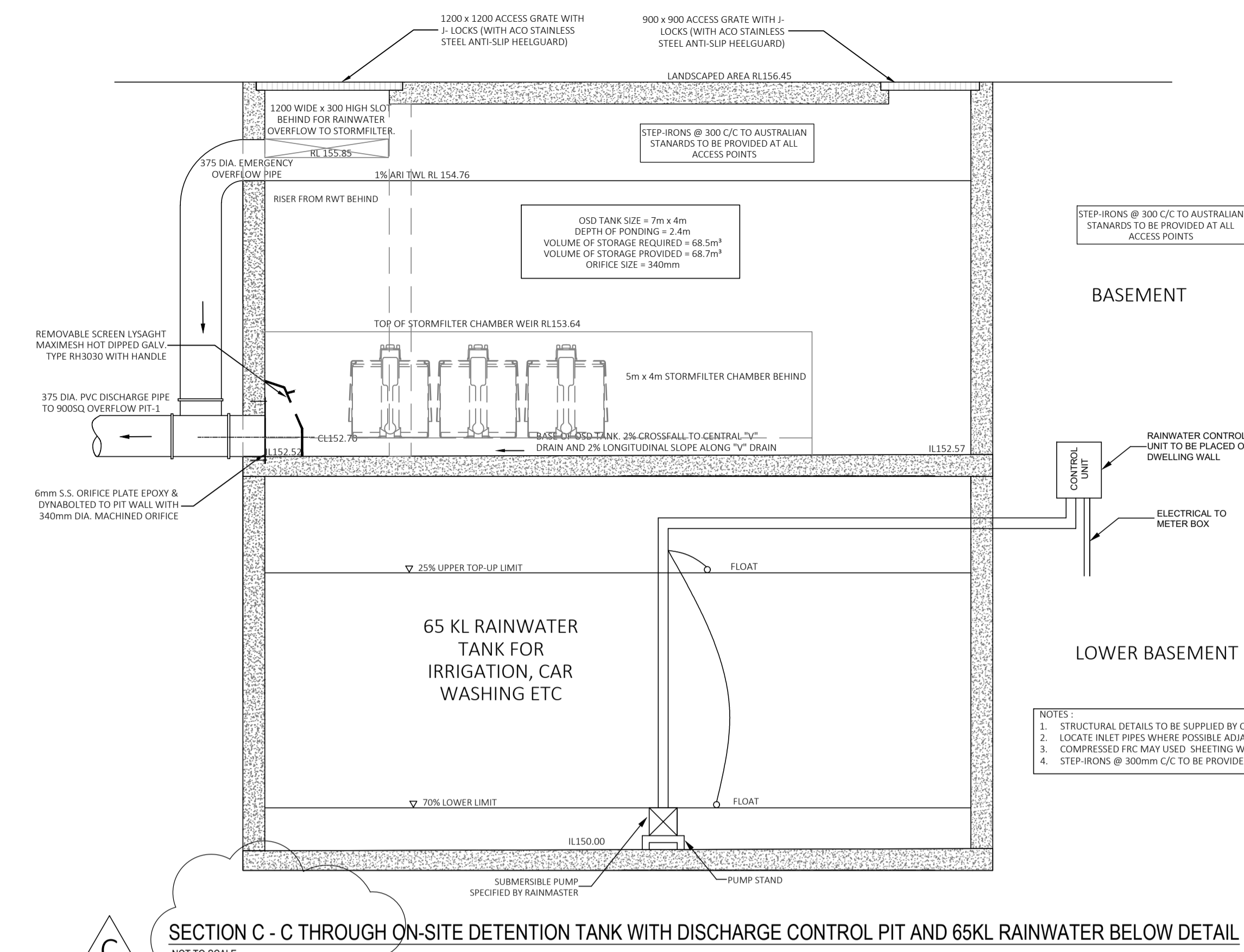
**NOT FOR CONSTRUCTION**

STEP-IRONS @ 300 C/C AT ALL ACCESSES (NOT SHOWN FOR CLARITY)

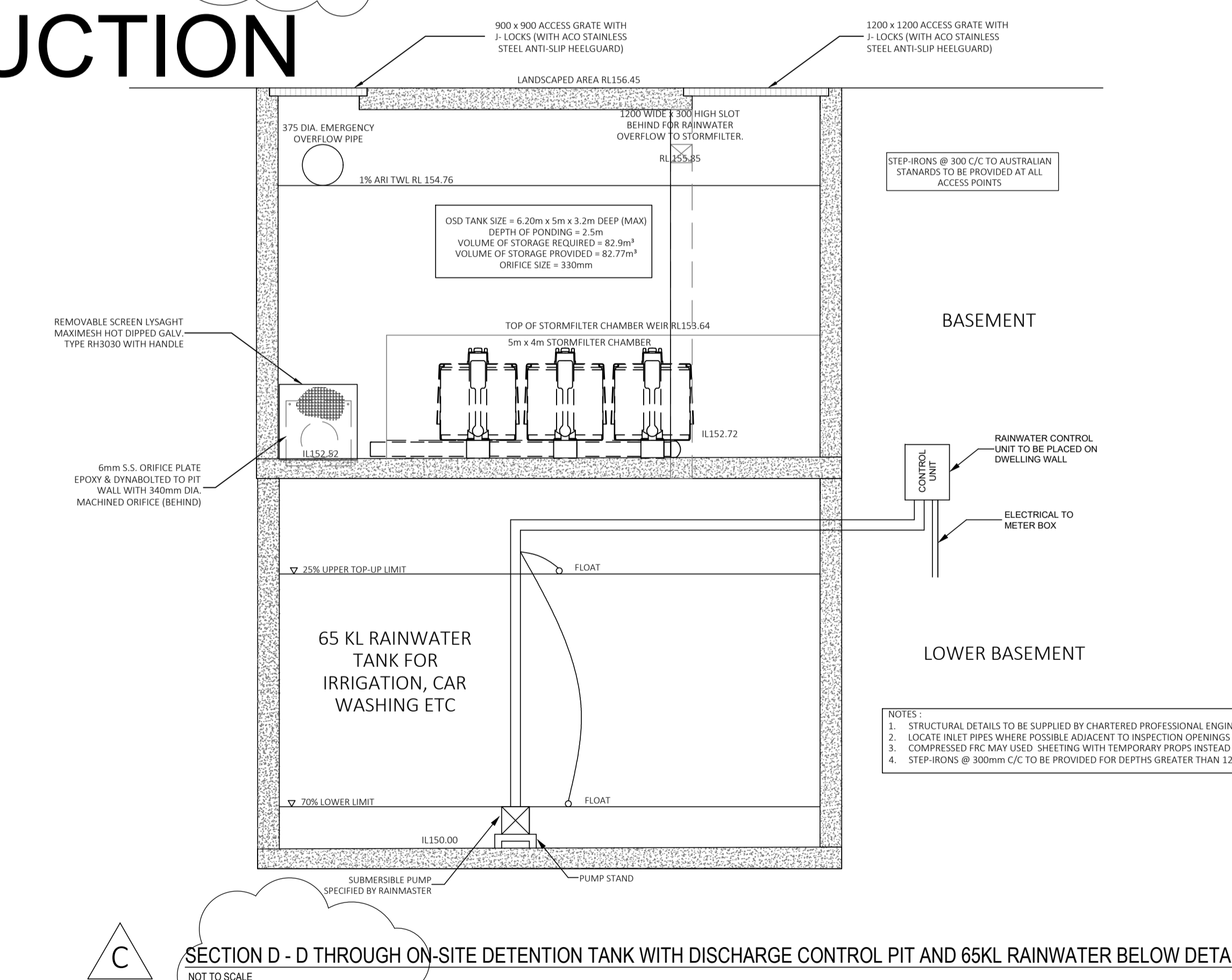
900SQ. AND 1200SQ. ACCESS GRATES TO MATCH FINISHED RLS. ALL ACCESSES TO OSD TO BE PROVIDED WITH STEP-IRONS @ 300 C/C AND GRATES TO HAVE ACO-HEELGARDS AND ARE LOCKABLE



**TRASH SCREEN DETAIL**  
NOT TO SCALE



**SECTION C - C THROUGH ON-SITE DETENTION TANK WITH DISCHARGE CONTROL PIT AND 65KL RAINWATER BELOW DETAIL**  
NOT TO SCALE



**SECTION D - D THROUGH ON-SITE DETENTION TANK WITH DISCHARGE CONTROL PIT AND 65KL RAINWATER BELOW DETAIL**  
NOT TO SCALE

- NOTES:
1. STRUCTURAL DETAILS TO BE SUPPLIED BY CHARTERED PROFESSIONAL ENGINEER (STRUCTURAL).
  2. LOCATE INLET PIPES WHERE POSSIBLE ADJACENT TO INSPECTION OPENINGS.
  3. COMPRESSED FRC MAY BE USED SHEETING WITH TEMPORARY PROPS INSTEAD OF BONDECK.
  4. STEP-IRONS @ 300mm C/C TO BE PROVIDED FOR DEPTHS GREATER THAN 1200mm.

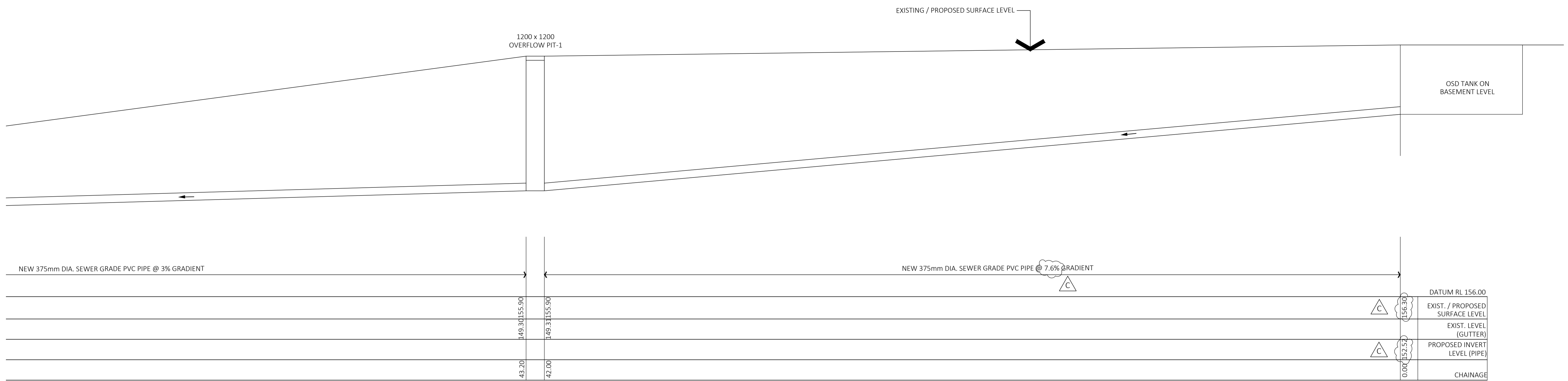
- NOTES:
1. STRUCTURAL DETAILS TO BE SUPPLIED BY CHARTERED PROFESSIONAL ENGINEER (STRUCTURAL).
  2. LOCATE INLET PIPES WHERE POSSIBLE ADJACENT TO INSPECTION OPENINGS.
  3. COMPRESSED FRC MAY BE USED SHEETING WITH TEMPORARY PROPS INSTEAD OF BONDECK.
  4. STEP-IRONS @ 300mm C/C TO BE PROVIDED FOR DEPTHS GREATER THAN 1200mm.

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Drawn & Designed By : R. Koh		Designed By <b>ING CONSULTING ENGINEERS PTY LTD</b> P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Seniors Living (Stage 2)		Drawing Title Notes & Details 2	
Checked By : N. Evans			At 5 Skyline Place Frenchs Forest NSW 2086		Date January 2021	Scale As Shown @ A1
Approved By : Kenneth T. NG MIE Aust CE Eng NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEPO000692) & Professional Engineer (Civil) (Reg. No. DEPO000630) NSW Fair Trading		Client		Project No. 284012021DA	Drawing & Sheet No./Issue 28401-17/18 / C	
C	Update for S82 Review Submission	8 Dec. 2021				
B	Incorporate Council's Comments re WSUD	20 Apr. 2021				
A	Development Application	28 Jan. 2021				
Issue	Description	Date of Drawing				



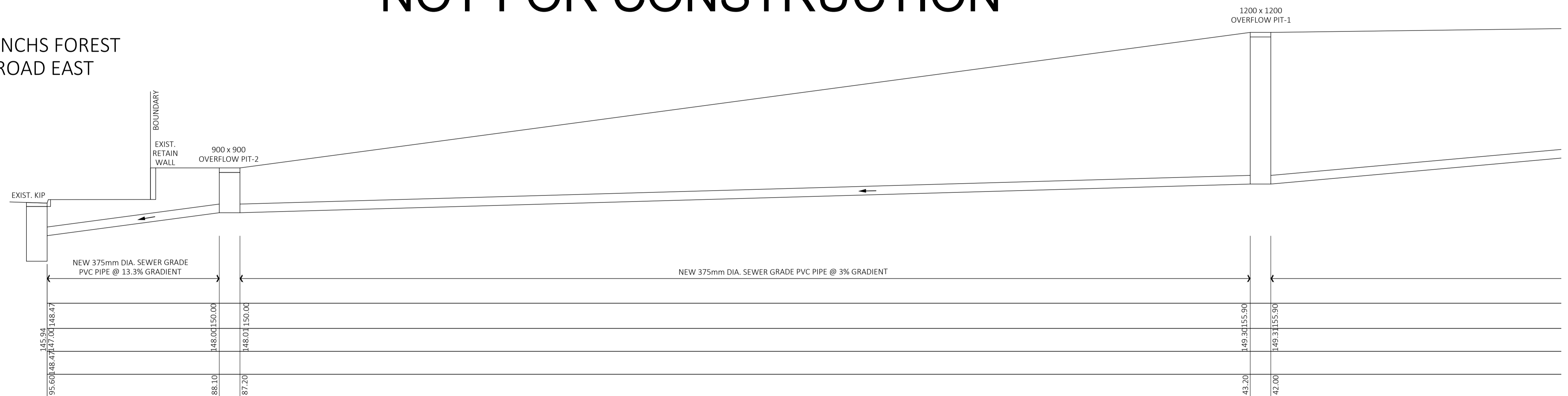


**OSD / PIPE LONGITUDINAL SECTION**

SCALE 1 : 100

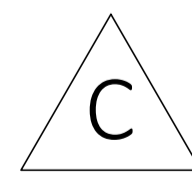
**NOT FOR CONSTRUCTION**

FRENCHS FOREST ROAD EAST



**OSD / PIPE LONGITUDINAL SECTION (CONTINUE)**

SCALE 1 : 100



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		Drawn & Designed By : R. Koh	Designed By <b>ING CONSULTING ENGINEERS PTY LTD</b> P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Seniors Living (Stage 2)	Drawing Title OSD and Discharge Pipe Long Section	
		Checked By : N. Evans		At 5 Skyline Place Frenchs Forest NSW 2086	Date January 2021	Scale 1 : 100 @ A1
		Approved By : Kenneth T. NG <i>Kenneth T. NG</i> <small>MIE Aust CP Eng NER APEC Engineer          IntPE (Aust) (Reg. No. 2206352) RPEQ          Registered Certifier (Hydraulic (stormwater),          Road &amp; Drainage and Stormwater) (Reg. No. BDC0827)          Registered Design Practitioner (Drainage &amp; Civil Engineering)          (Reg. No. DEPO000692)          &amp; Professional Engineer (Civil) (Reg. No. DEPO000630)          NSW Fair Trading</small>		Client	Project No. 284012021DA	Drawing & Sheet No./Issue 28401-18/18 / C
Issue	Description	Date of Drawing				