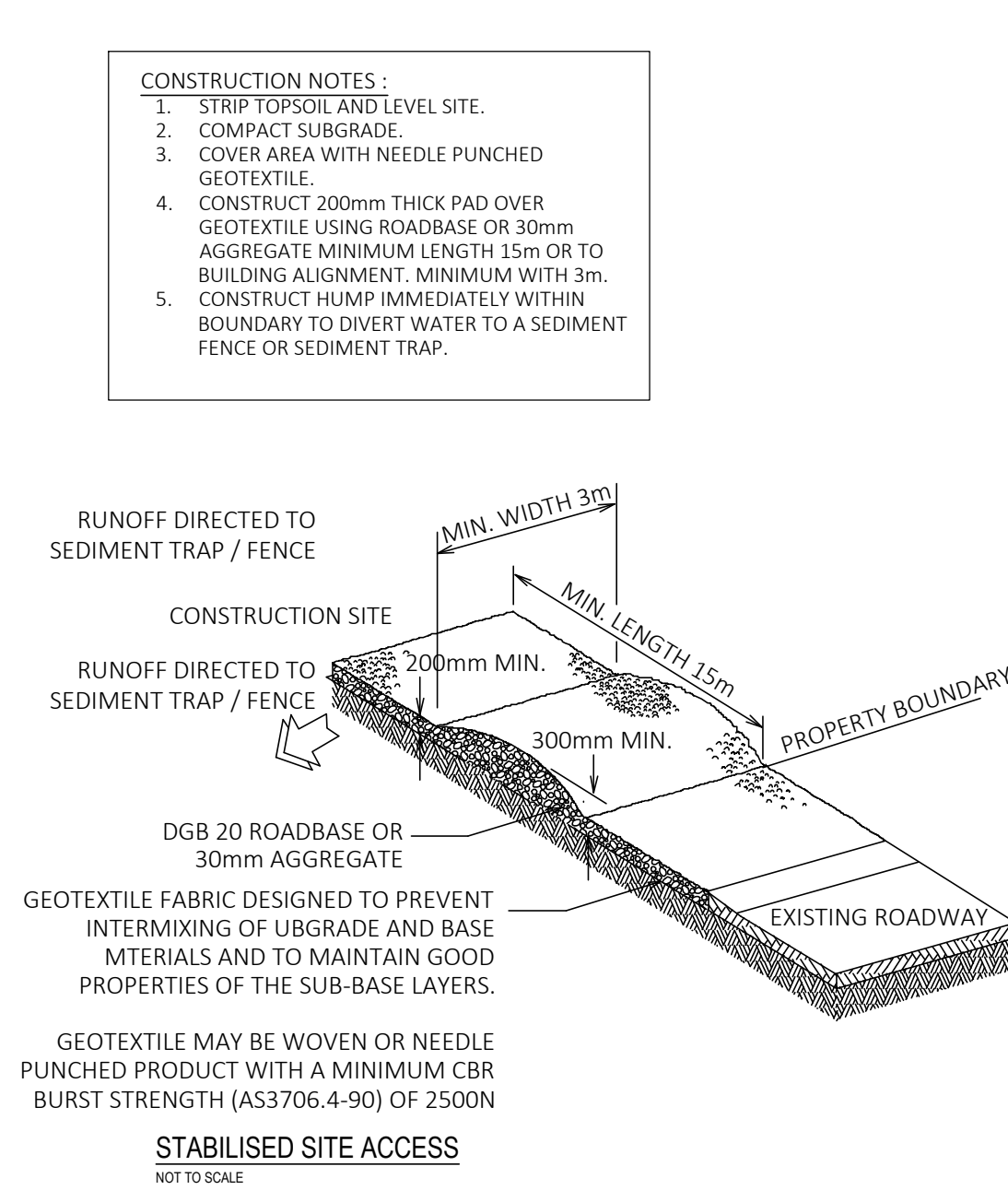
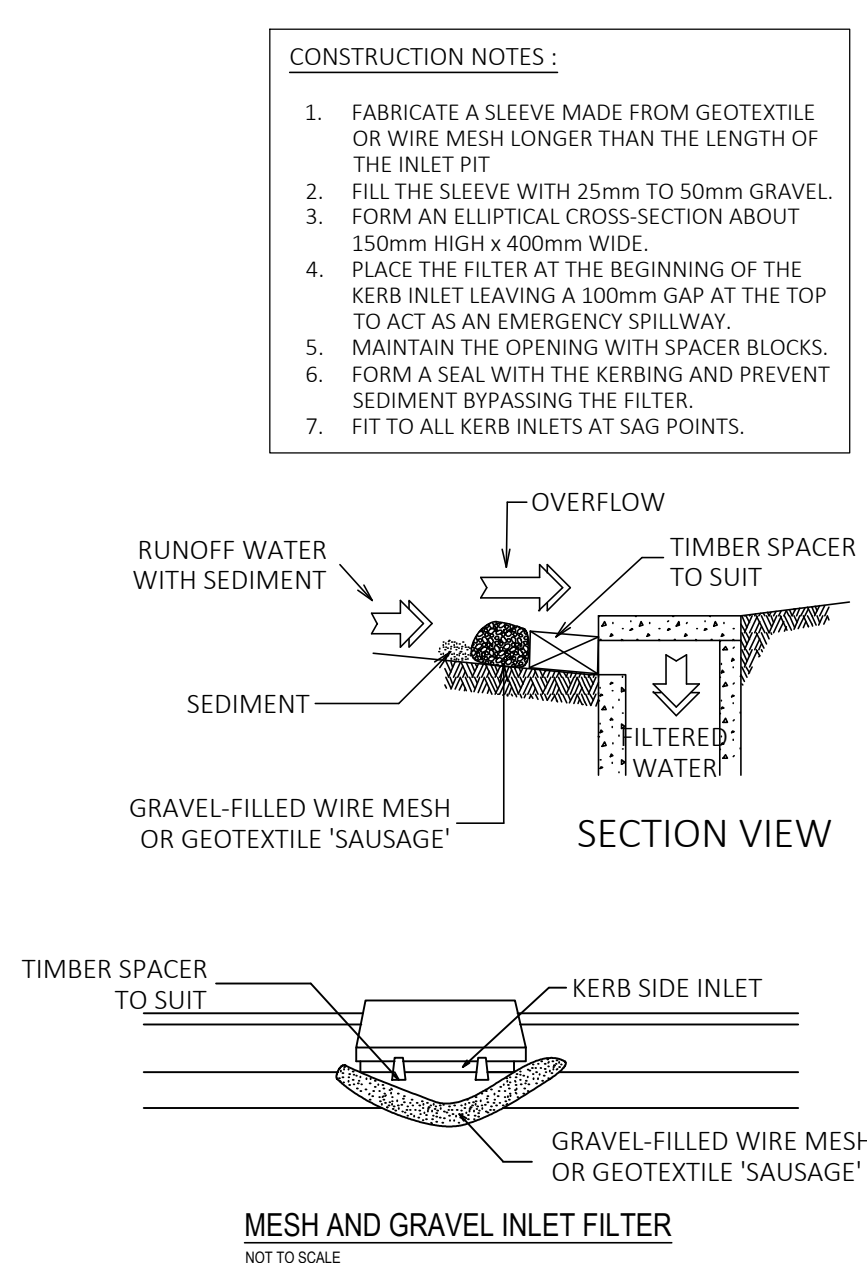
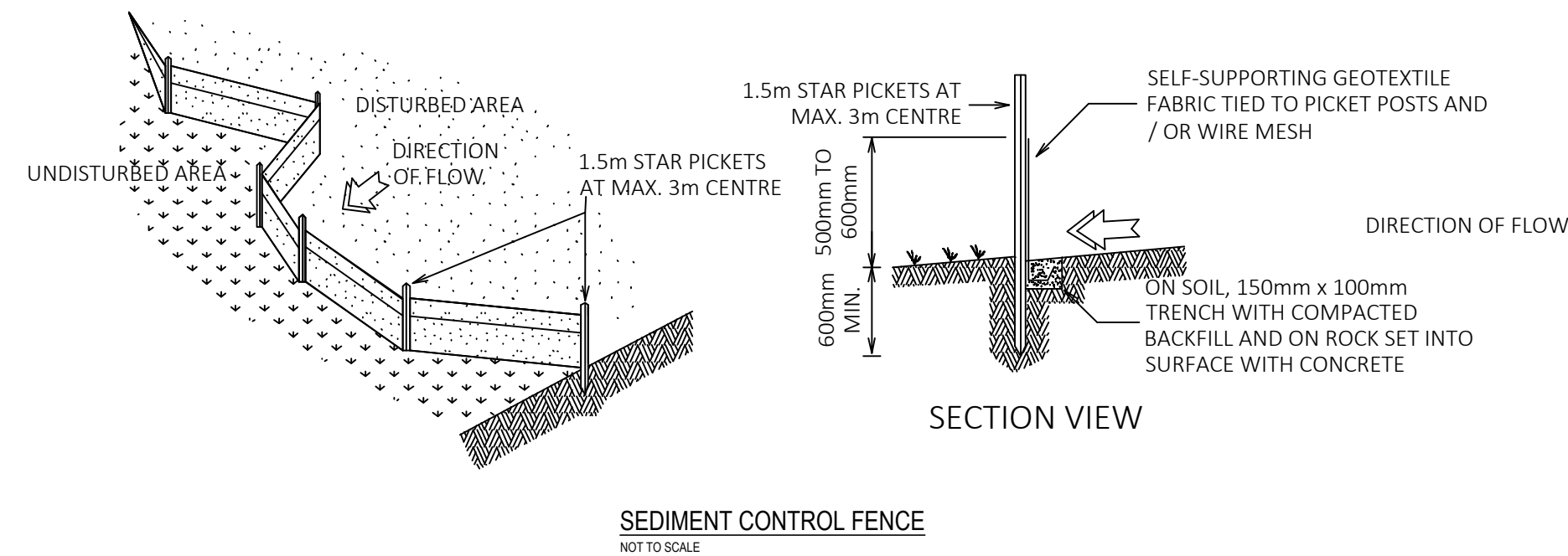
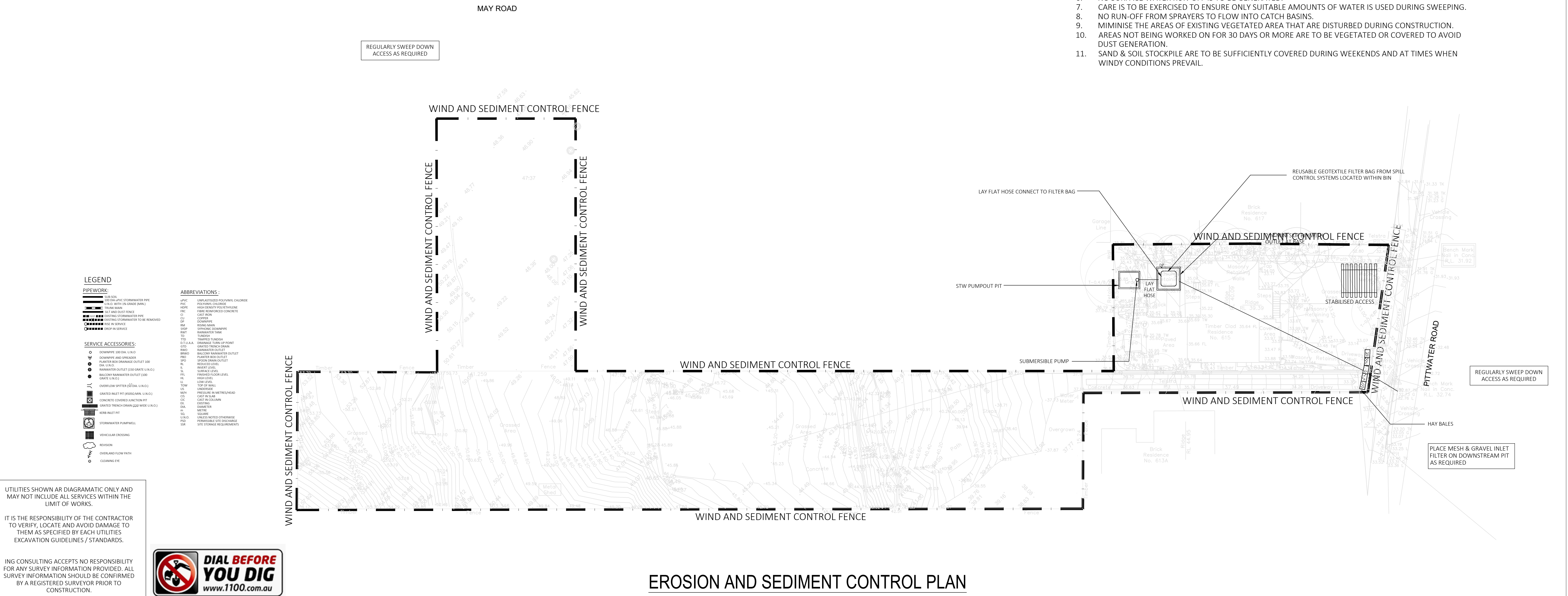


[illegible]

- ### EROSION AND SEDIMENT CONTROL
1. THE NOTES AND MEASURES STATED HEREFTER 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.
 2. 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.
 3. ALL NECESSARY WORKS SHALL BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION AND SEDIMENTATION OF THE PROJECT SITE AND ADJACENT PROPERTIES AND DRAINAGE SYSTEMS.
 4. MINIMISE DISTURBED AREAS COVERED WITH NATURAL VEGETATION, ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.
 5. DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.
 6. 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 STANDARDS PRIOR TO DISCHARGE OFF SITE, OR ALTERNATIVELY REMOVED BY TANKER WITH A LICENSED TRADE WASTE COLLECTOR
 7. 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.
 8. STOCKPILED MATERIALS SHALL BE KEPT WITHIN THE SITE BOUNDARIES IN A POSITION NOT VULNERABLE TO CONCENTRATED SURFACE RUNOFF.
- ### DUST CONTROL:
1. DUST IS TO BE WELL CONTROLLED ON THE CONSTRUCTION SITE AT ALL TIMES, ESPECIALLY AT EXCAVATIONS, DEMOLITION ETC.
 2. WATER SPRAY TO BE USED TO CONTROL DUST ON DIRT/GRADED AREAS ONLY.
 3. CARE TO BE EXERCISED TO ENSURE WATER SPRAY DISPENSE ONLY SUFFICIENT WATER FOR DUST CONTROL PURPOSES.
 4. CARE TO BE EXERCISED TO ENSURE ONLY OPTIMUM MOISTURE CONTENT OF THE SOIL IS REACHED FOR COMPACTION.
 5. FOR CONTROLLING DUST ON PAVED FOOTPATHS, A SWEEPER IS TO BE USED WITH WATER-JET SPRAYERS.
 6. NO SURFACE WATER RUN-OFF IS TO BE GENERATED.
 7. CARE IS TO BE EXERCISED TO ENSURE ONLY SUITABLE AMOUNTS OF WATER IS USED DURING SWEEPING.
 8. NO RUN-OFF FROM SPRAYERS TO FLOW INTO CATCH BASINS.
 9. MINIMISE THE AREAS OF EXISTING VEGETATED AREA THAT ARE DISTURBED DURING CONSTRUCTION.
 10. AREAS NOT BEING WORKED ON FOR 30 DAYS OR MORE ARE TO BE VEGETATED OR COVERED TO AVOID DUST GENERATION.
 11. SAND & SOIL STOCKPILE ARE TO BE SUFFICIENTLY COVERED DURING WEEKENDS AND AT TIMES WHEN WINDY CONDITIONS PREVAIL.



EROSION AND SEDIMENT CONTROL PLAN

SCALE 1 : 250

			Drawn & Designed By : R. Koh		Designed By ING CONSULTING ENGINEERS PTY LTD P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Boarding House	Drawing Title Erosion & Sediment Control Plan	
			Checked By : N. Evans			At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale As Shown @ A1
			Approved By : Kenneth T. NG MIEAust CPEng NER APEC Engineer InPE(Aus) (Reg. No. 2206352) RPEQ, RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BDC0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading			Client	Project No. 416092023S455	Drawing & Sheet No./Issue
A	Issued for S455 Submission and Construction	13 Dec. 2023						41609-01/13 / A
Issue	Description	Date of Drawing						

LEGEND

PIPEWORK:

	SUB-SOIL
	100 DIA uPVC STORMWATER PIPE
	100 DIA. WITH 15 GRADE (MIN.)
	EXISTING MAIN
	SILT AND DUST FENCE
	EXISTING STORMWATER PIPE
	EXISTING STORMWATER TO BE REMOVED
	ROSE IN SERVICE
	DROP IN SERVICE

ABBREVIATIONS:

uPVC	UNPLASTIFIED POLYVINYL CHLORIDE
POLY	POLYETHYLENE
HD	HIGH DENSITY
PE	POLYETHYLENE
FR	FIBRE REINFORCED CONCRETE
CAST	CAST IRON
CU	COPPER
CO	DOWNPIPE
SD	ROSEING MAIN
DY	SYNCHRON DOWNPIPE
DUST	ARMED DUST

Performance graph for the 10002 pump. The graph shows the relationship between flow rate (Q) and head (H) and power (P). The x-axis represents flow rate in m³/h (0 to 14) and l/s (0 to 14). The left y-axis represents head in meters (0 to 30). The right y-axis represents power in Watts (0 to 800). The graph includes curves for H0, H1, H2, and P0. A vertical line indicates the operating point at approximately 10 m³/h and 25 m head.

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Issue	Description

ABBREVIATIONS :

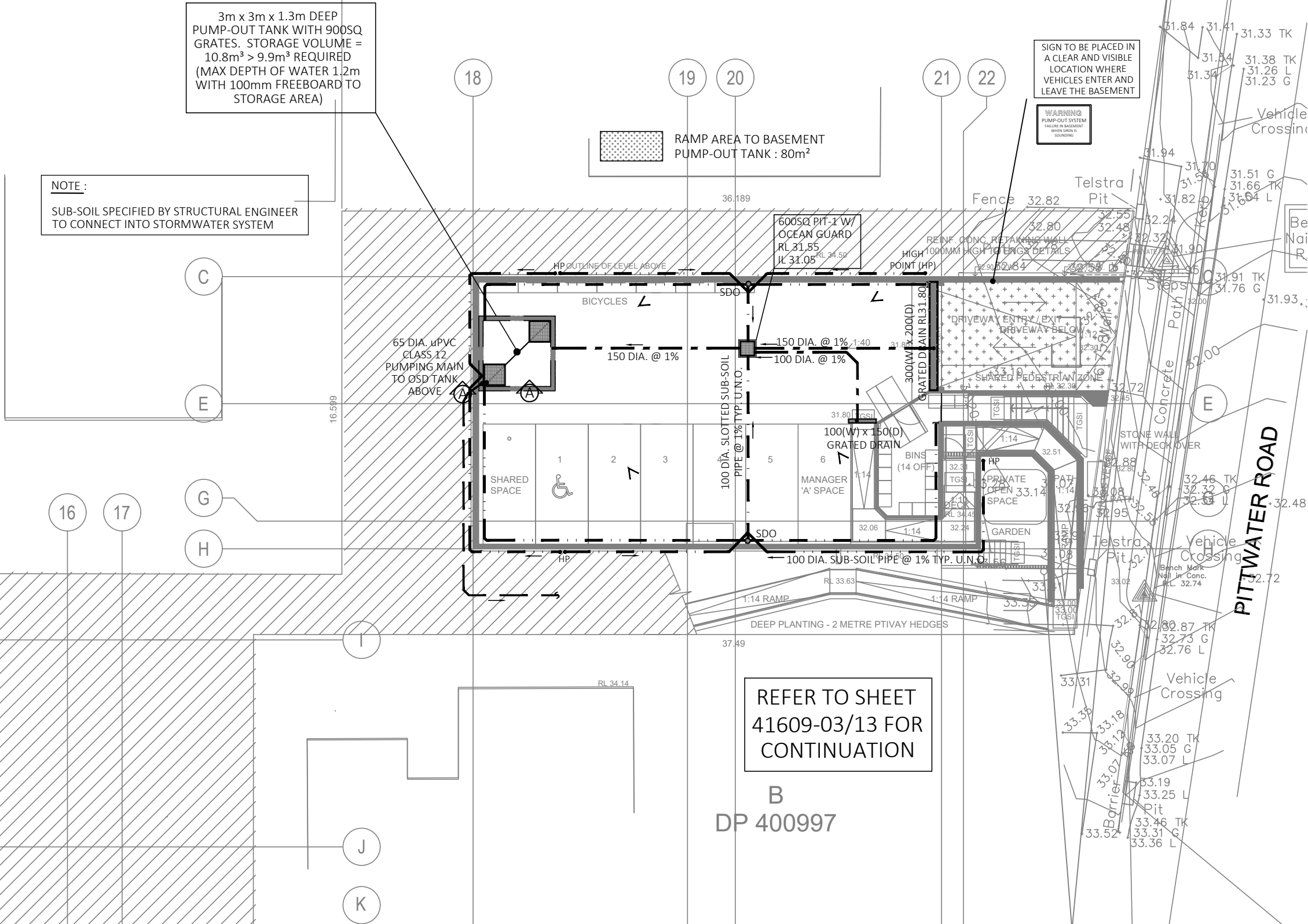
UPVC	UNPLASTICIZED POLYVINYL CHLORIDE
PVC	POLYVINYL CHLORIDE
HDPCE	HIGH DENSITY POLYETHYLENE
FRP	FIBRE REINFORCED CONCRETE
CI	CAST IRON
CO	COFFER
CP	DOWNPIPE
RM	RISING MAIN
WT	WIND TOWER
SP	SPHYONIC DOWNPIPE
RT	RAINWATER TANK
TD	TUNDRISH
TR	TRAPPED TUNDRISH
DT	DOWN TURNOUT
DT U.A.A.	DOWN TURNOUT UNDER A AREA
RT	RAINWATER TANK
BWO	BALCONY RAINWATER OUTLET
PL	PLANTED PLANTER
SPO	SPOON DRAIN OUTLET
LI	REDUCED LEVEL
LI	INVERT LEVEL
FL	SURFACE LEVEL
FL	FINGSHED FLOOR LEVEL
LI	HIGH LEVEL
LI	LOW LEVEL
TO	TOP OF WALL
LL	LOW LEVEL
IS	INTERNAL PRESSURE IN MESH SPREAD
CI	CAST IN SLAB
CS	CAST IN COLUMN
EX	EXISTING
DI	DIAMETER
M	METRE
SQ	SQUARE
UN	UNITS NOTED OTHERWISE
PER	PERMISSIBLE SITE DISCHARGE
SSR	SITE STORAGE REQUIREMENTS

SUB SOIL CALCULATIONS:
 ASSUME SOIL IS SATURATED TO GROUND LEVEL AND INFLOWS BY SUB SOIL
 FLOW NET:
 $Q = \frac{2}{3} \times K \times H$ (m³ PER M OF SUBSOIL LINE)
 $H = \text{HEIGHT} = 5.8\text{m}, 10\text{m}$ AND 13m LENGTH OF SUBSOIL = 80m
 $Q = \frac{2}{3} \times 1 \times 10^5 \times 80 = 1.1/\text{s}$

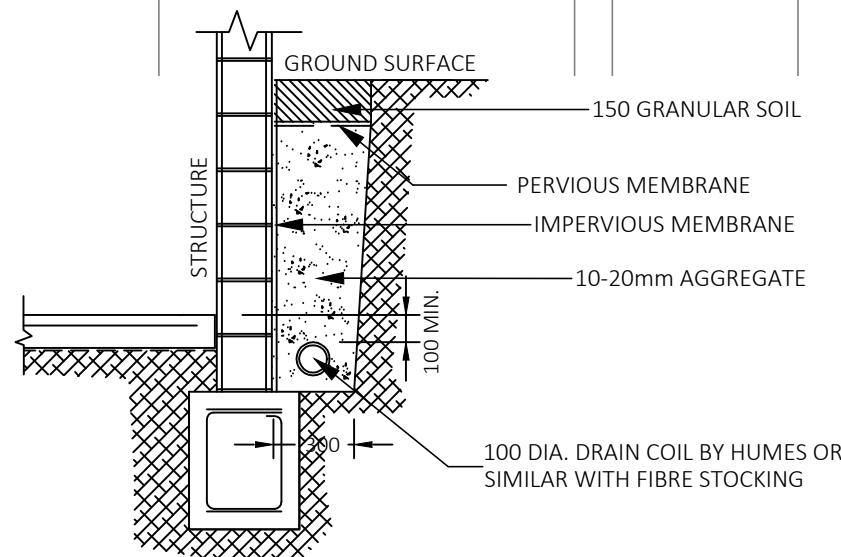
PUMPING RATE :
 1 IN 100-YR AEP 5 MIN. DURATION
 RAINFALL INTENSITY = 264mm/hr
 $Q = 1 \times 264 \times 0.0080 \times 1000 / 360 = 5.9 \text{ l/s}$
 TOTAL Q = 1.1l/s + 5.9l/s = 7l/s

MIN. PUMPING RATE = 10 l/s
USE GRUNDFOS DWK-0 SERIES OR EQUIVALENT DUAL PUMP SYSTEM WITH
BACKUP GENERATOR @ 15m HEAD

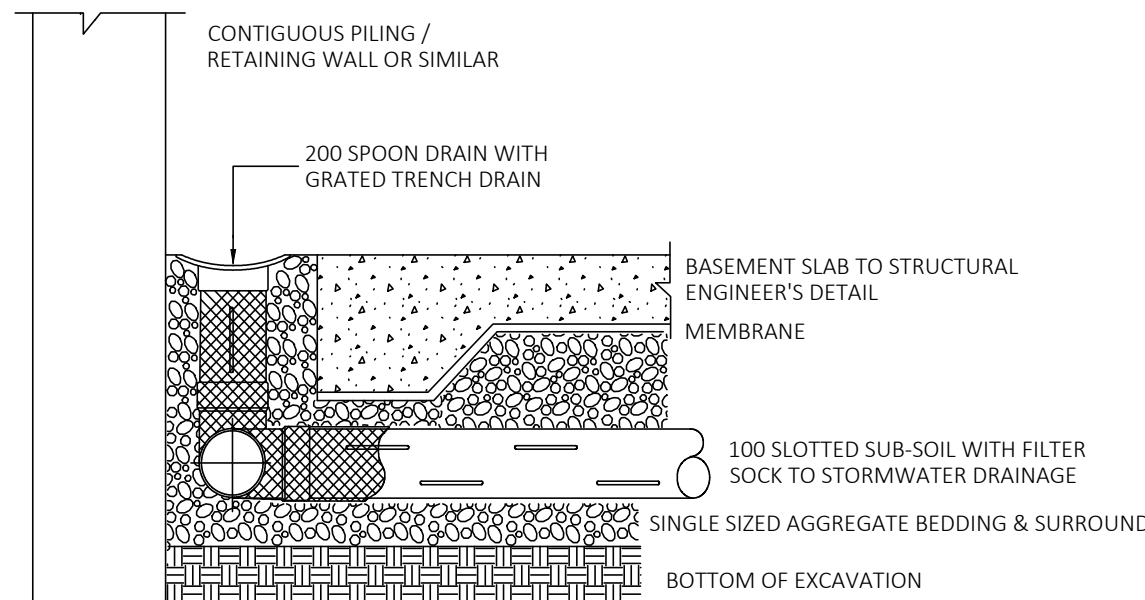
MIN. PUMPING RATE = 10 l/s
USE GRUNDFOS DWK-0 SERIES OR EQUIVALENT DUAL PUMP SYSTEM



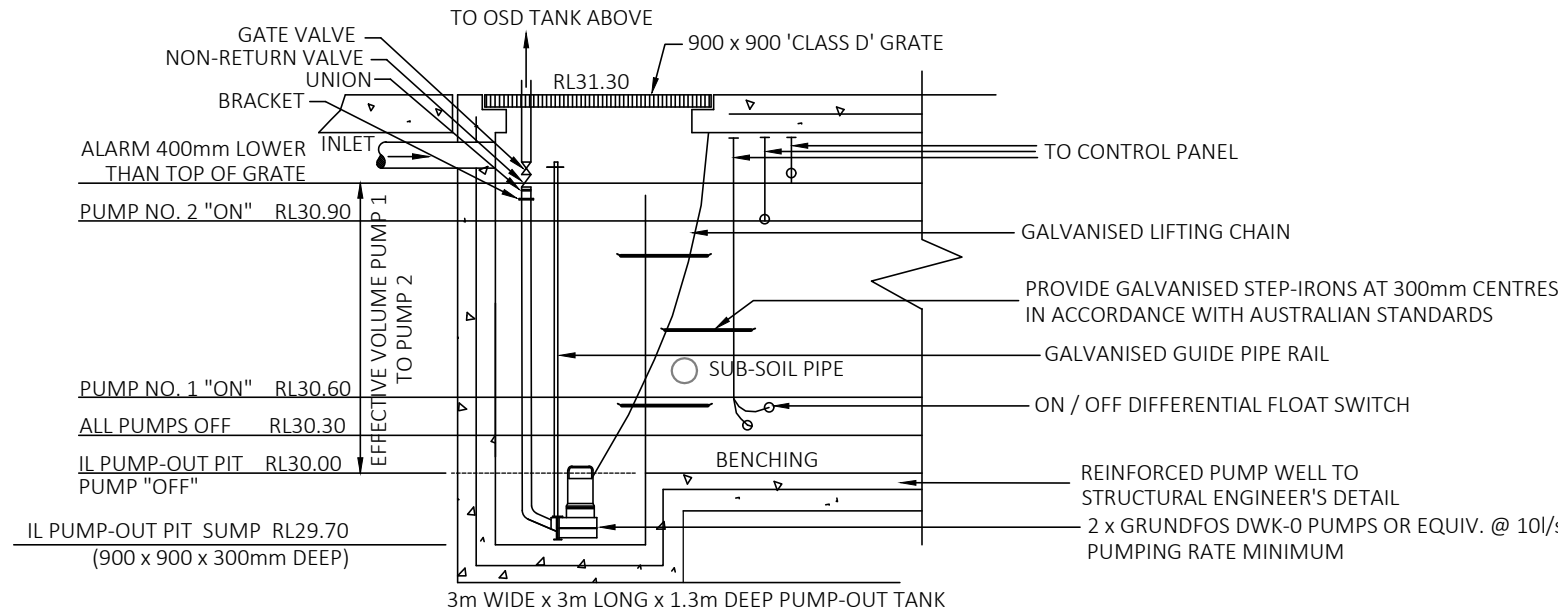
SCALE 1 : 200



TYPICAL SUBSOIL DRAIN
NOT TO SCALE



BASEMENT PERIMETER DRAINAGE WITH SPOON DRAIN OUTLET (SDO)



SECTION THROUGH 10.8m³ BASEMENT PUMP-OUT TANK DETAIL



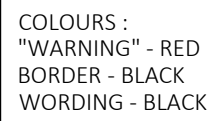
DANGER

CONFINED SPACE

NO ENTRY WITHOUT
CONFINED SPACE TRAINING
PRIOR TO COMMENCEMENT OF WORK

CONFINED SPACE SIGNAGE

NOT TO SCALE



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

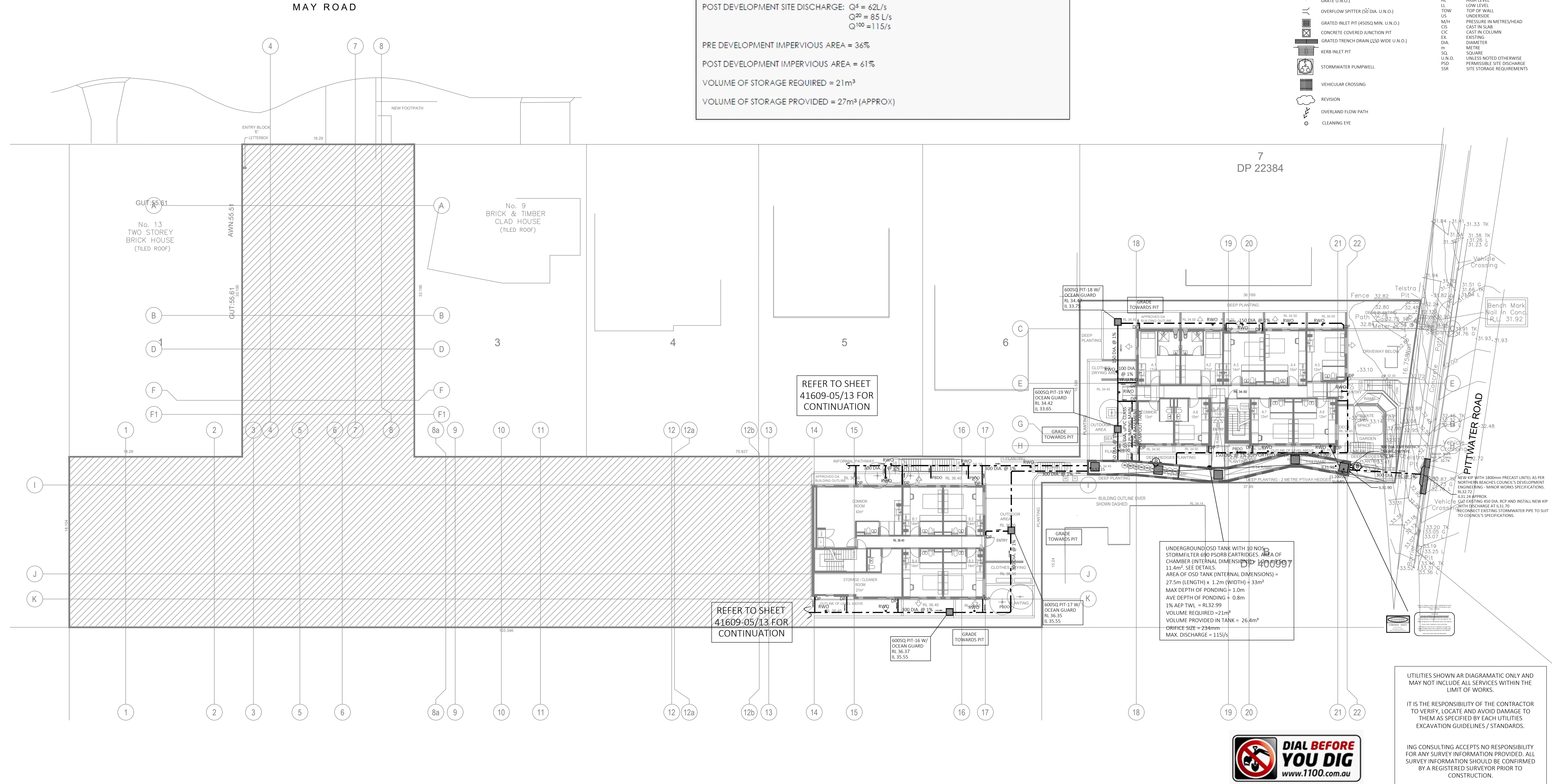
THE PUMP-OUT SYSTEM SHALL BE DESIGNED TO BE OPERATED AS FOLLOWS :

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 THE BASEMENT. THE ALARM WARNING SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURES.

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

Project	Proposed Boarding House	Drawing Title Basement Plan, Notes & Details	
At	613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale As Shown @ A1
Client		Project No. 416092023S455	Drawing & Sheet No./Issue 41609-02/13 / A

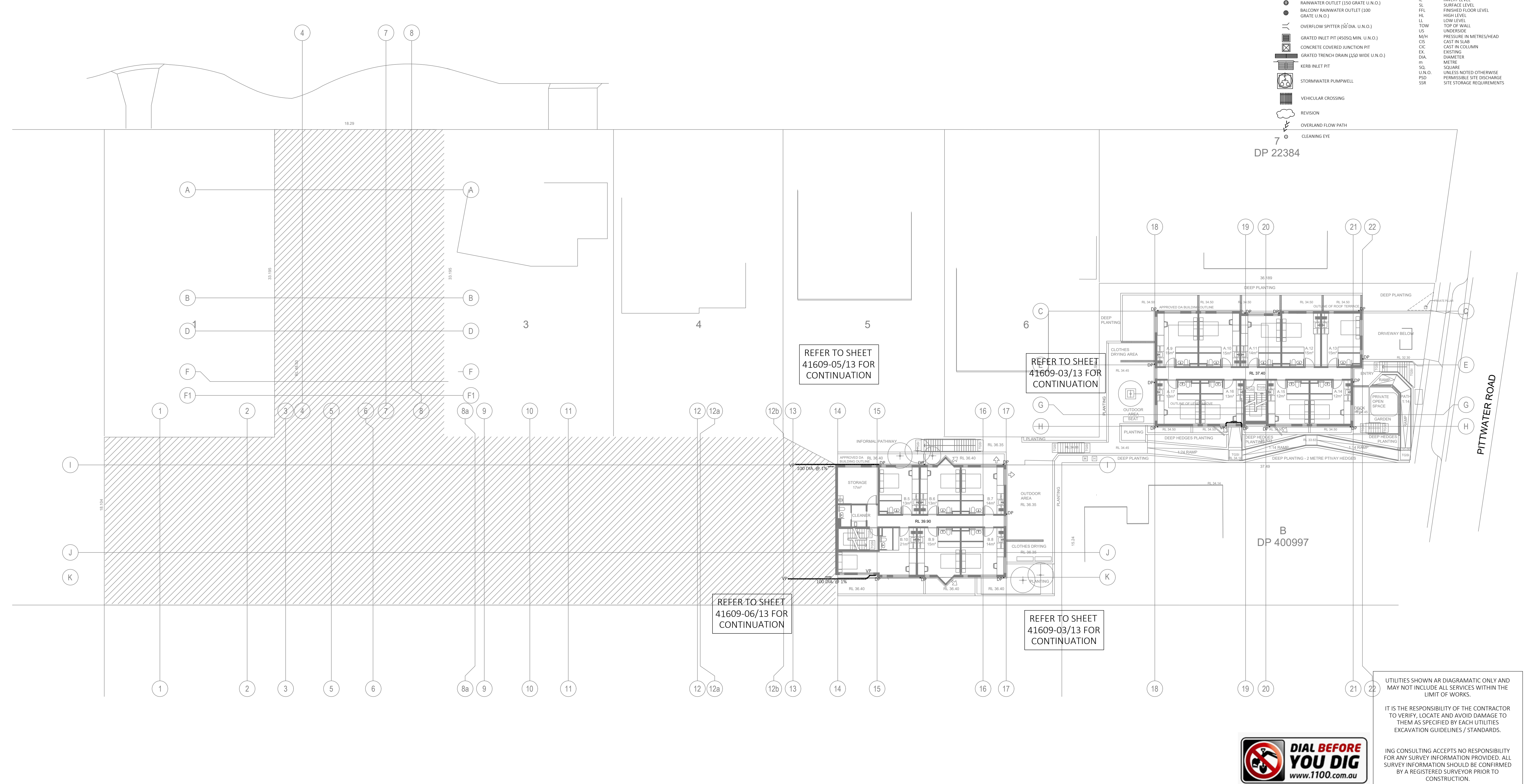
Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No:	DA 2018/1166	Body Corporate Reg No:		
Drawing Title:	Lower Ground/Ground Floor Plan	Drawing No:416092023CC 41609-03/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



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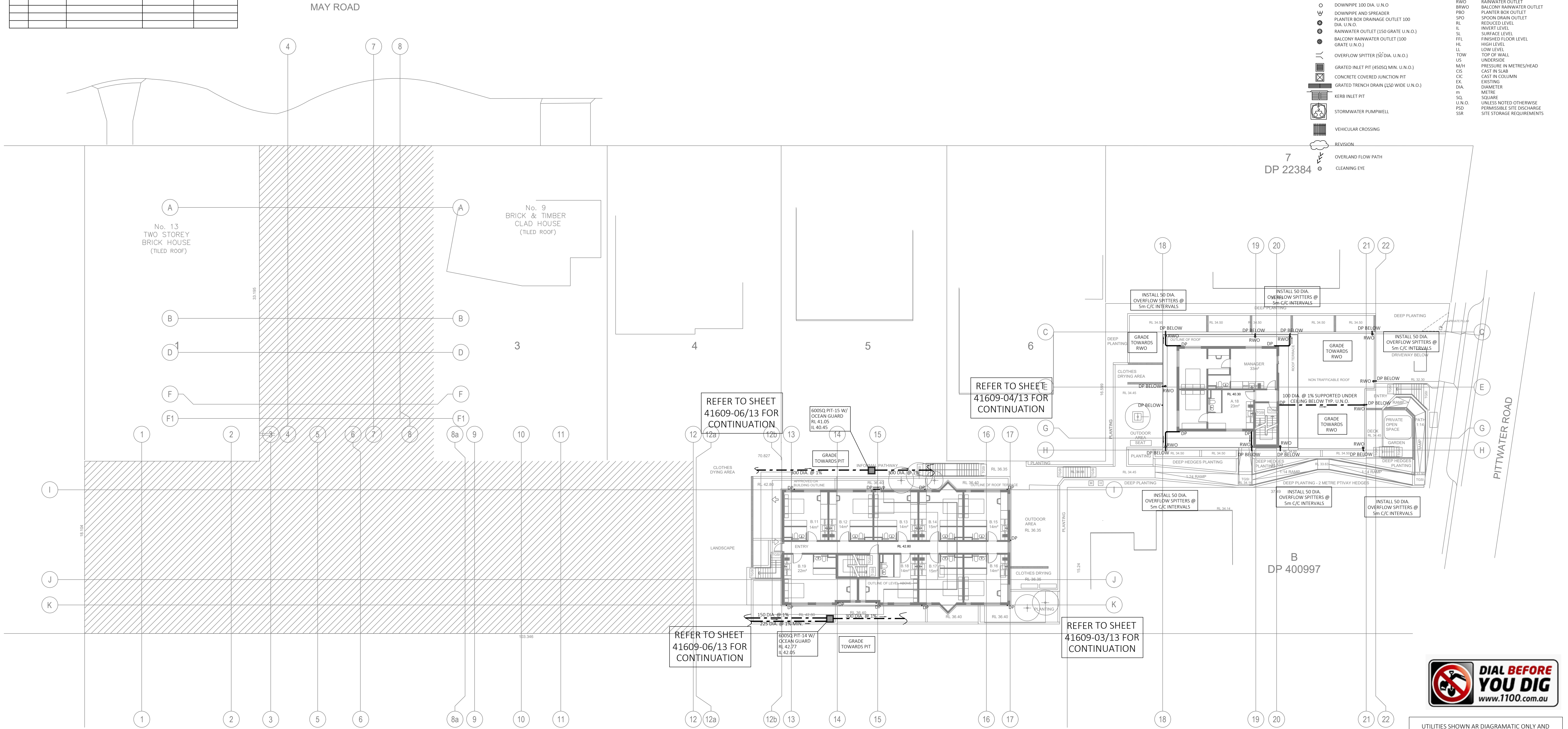
			Drawn & Designed By : R. Koh		Designed By ING CONSULTING ENGINEERS PTY LTD P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Boarding House		Drawing Title Lower Ground / Ground Floor Plan	
			Checked By : N. Evans			At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale 1 : 200 @ A1	
			Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading						Client
A	Issued for S455 Submission and Construction	13 Dec. 2023							
Issue	Description	Date of Drawing							

Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Upper Ground / Level 1 Floor Plan		Drawing No: 416092023CC 41609-04/14		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



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Checked By : N. Evans			ING CONSULTING ENGINEERS PTY LTD		Proposed Boarding House		Upper Ground / Level 1 Floor Plan	
Approved By : Kenneth T. NG			P. O BOX 1543		At		Date	
MIE Aust CP Eng NER APEC Engineer			BAULKHAM HILLS NSW 1755		613 - 615 Pittwater Road		December 2023	
Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827)			F : (02) 8807 5656		Dee Why NSW 2099		Scale	
Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692)			M: 0433 778 109		Client		1 : 200 @ A1	
NSW Fair Trading			E : ken@ingengineers.com.au		Drawing & Sheet No./Issue		416092023S455	
A			Issued for S455 Submission and Construction		Project No.		41609-04/13 / A	
Issue			Description		Drawing & Sheet No./Issue		41609-04/13 / A	
13 Dec. 2023			Date of Drawing		Drawing & Sheet No./Issue		41609-04/13 / A	

Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Level 1 Floor / Roof Plan		Drawing No:416092023CC 41609-05/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



LEGEND

PIPEWORK:

- SUB-SOIL
- 100 DIA UPVC STORMWATER PIPE
- U.N.O. WITH 1% GRADE (MIN.)
- TRUNK MAIN
- SILT AND DUST FENCE
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER TO BE REMOVED
- RISE IN SERVICE
- DROP IN SERVICE

SERVICE ACCESSORIES:

- DOWNPIPE 100 DIA. U.N.O.
- DOWNPIPE AND SPREADER
- PLANTER BOX DRAINAGE OUTLET 100 DIA. U.N.O.
- RAINWATER OUTLET (150 GRADE U.N.O.)
- BALCONY RAINWATER OUTLET (100 GRADE U.N.O.)
- OVERFLOW SPITTER (50 DIA. U.N.O.)
- GRADED INLET PIT (450SQ MIN. U.N.O.)
- CAST IN SLAB
- CONCRETE COVERED JUNCTION PIT
- GRADED TRENCH DRAIN (150 WIDE U.N.O.)
- KERB INLET PIT
- STORMWATER PUMPWELL
- VEHICULAR CROSSING
- REVISION
- OVERLAND FLOW PATH
- CLEANING EYE

ABBREVIATIONS :

- uPVC UNPLASTICIZED POLYVINYL CHLORIDE
- PVC POLYVINYL CHLORIDE
- HDPE HIGH DENSITY POLYETHYLENE
- FRC FIBRE REINFORCED CONCRETE
- CI CAST IRON
- CU COPPER
- DP DOWNPIPE
- RM RISING MAIN
- SDP SYPHONIC DOWNPIPE
- RWT RAINWATER TANK
- TD TUNDISH
- TTO TRAPPED TUNDISH
- D.T.U.A.A. DRAINAGE TURN-UP POINT
- GTD GRATED TRENCH DRAIN
- RWO RAINWATER OUTLET
- PBO PLANTER BOX OUTLET
- SPO BALCONY RAINWATER OUTLET
- IL INVERT LEVEL
- RL REDUCED LEVEL
- IL INVERT LEVEL
- SL SURFACE LEVEL
- FEL FINISHED FLOOR LEVEL
- HL HIGH LEVEL
- LL LOW LEVEL
- TOW TOP OF WALL
- US UNDERSIDE
- M/H PRESSURE IN METRES/HEAD
- CS CAST IN SLAB
- CIC CAST IN COLUMN
- EK EXISTING
- DIA DIAMETER
- m METRE
- sq SQUARE
- U.N.O. UNLESS NOTED OTHERWISE
- PSD PERMISSIBLE SITE DISCHARGE
- SSR SITE STORAGE REQUIREMENTS



UTILITIES SHOWN AR DIAGRAMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDELINES / STANDARDS.

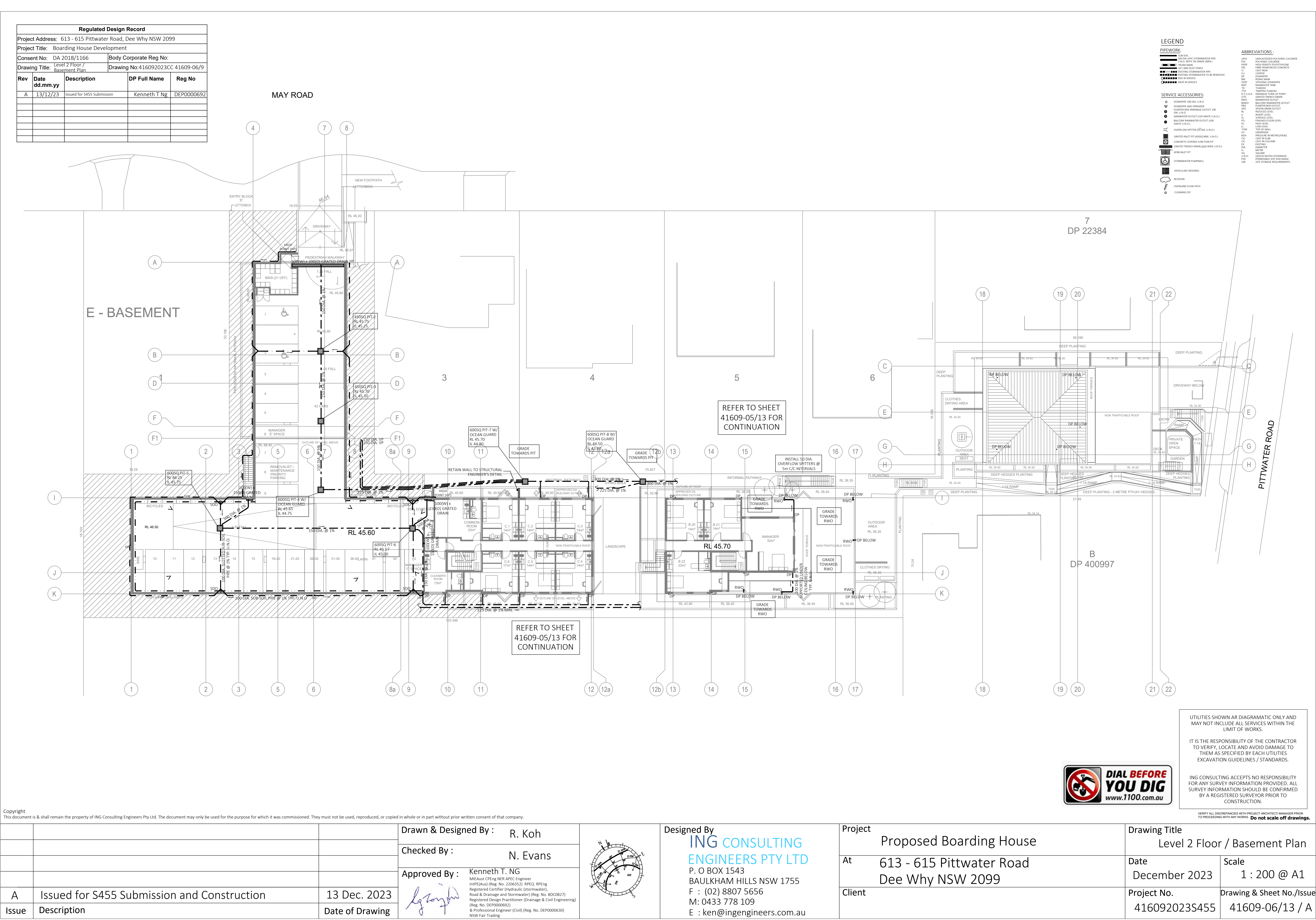
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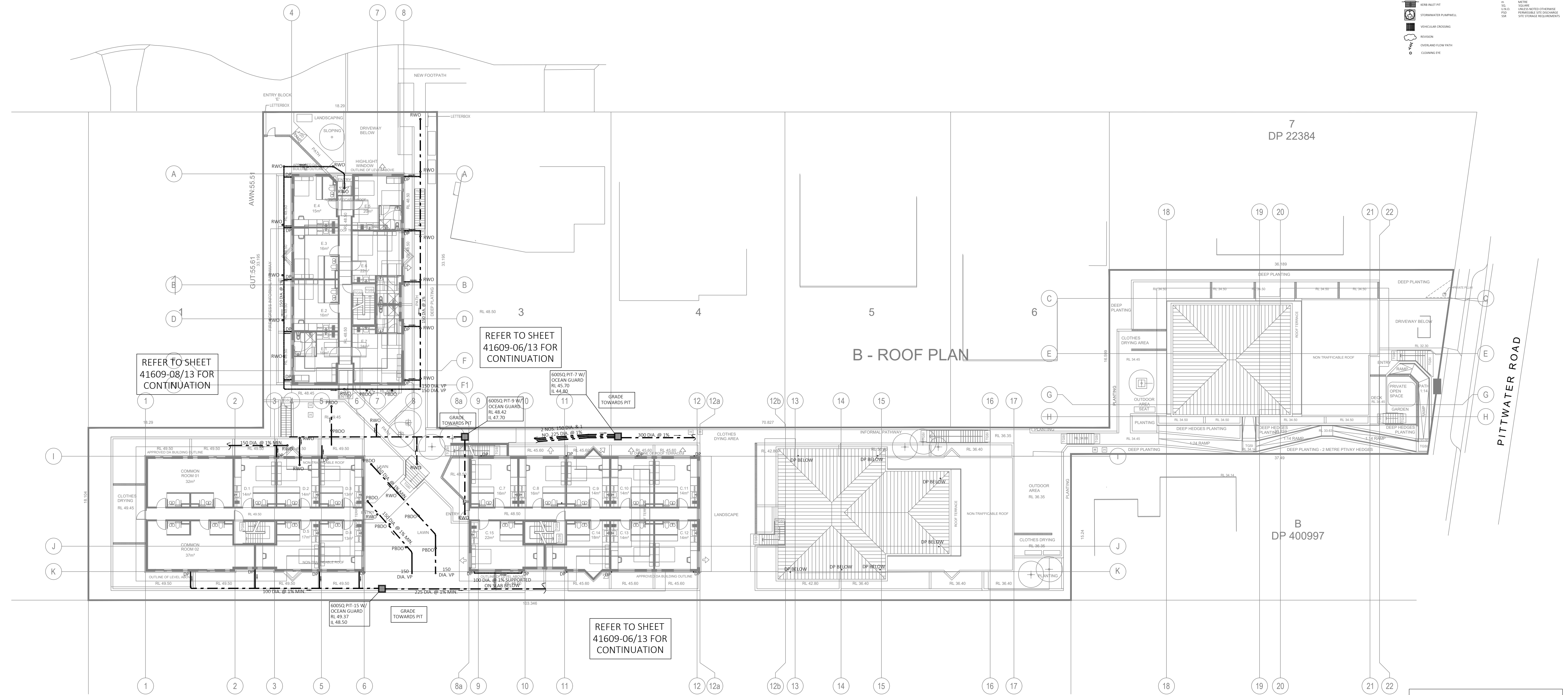
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			Checked By : N. Evans			At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale 1 : 150 @ A1
			Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE (Aust) (Reg. No. 2206352) RPEQ, RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading			Client	Project No. 416092023S455	Drawing & Sheet No./Issue 41609-05/13 / A
A	Issued for S455 Submission and Construction	13 Dec. 2023						
Issue	Description	Date of Drawing						



Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: U. Ground and Ground Floor Plan		Drawing No: 416092023CC 41609-07/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
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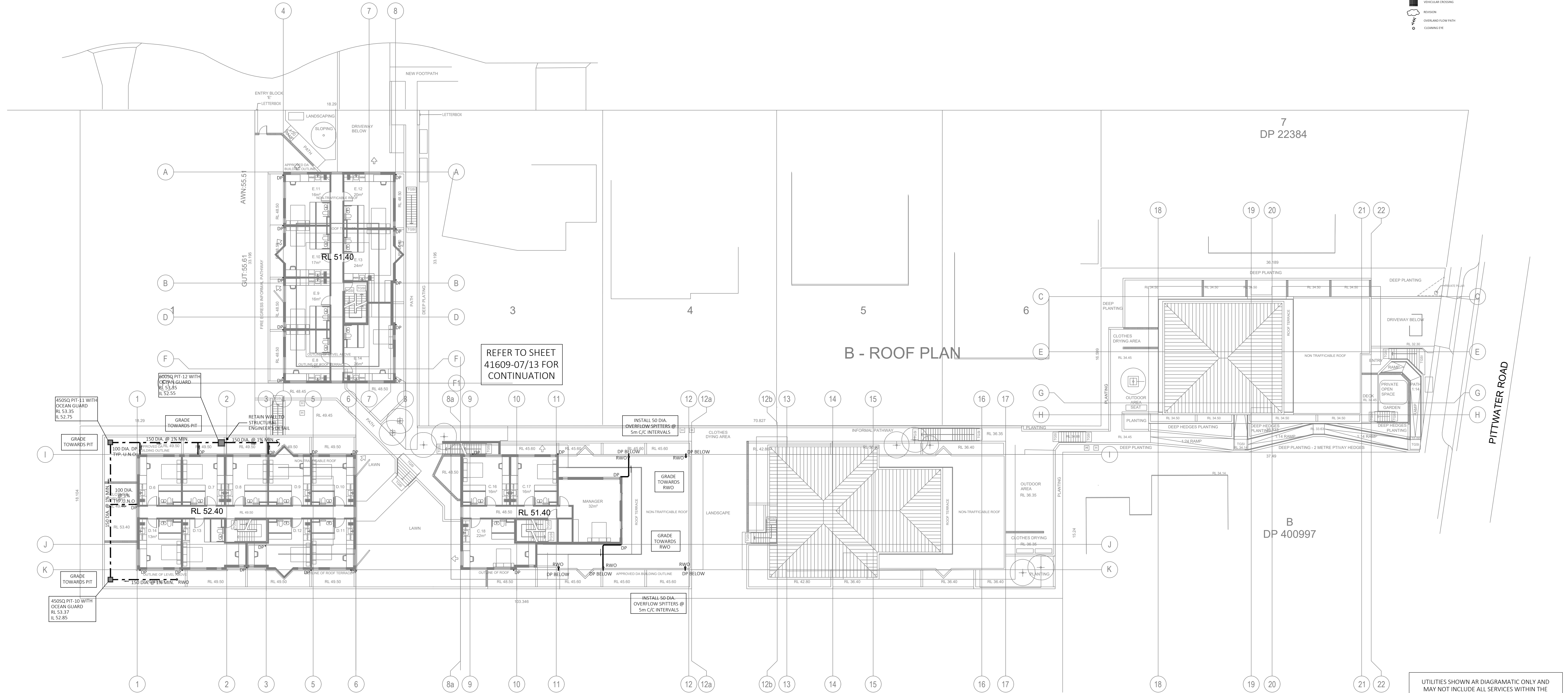
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			Checked By : N. Evans			At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale 1 : 200 @ A1	
A	Issued for S455 Submission and Construction	13 Dec. 2023	Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ, RPeng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading			Client	Project No. 416092023S455	Drawing & Sheet No./Issu 41609-07/13 / A	
Issue	Description	Date of Drawing							

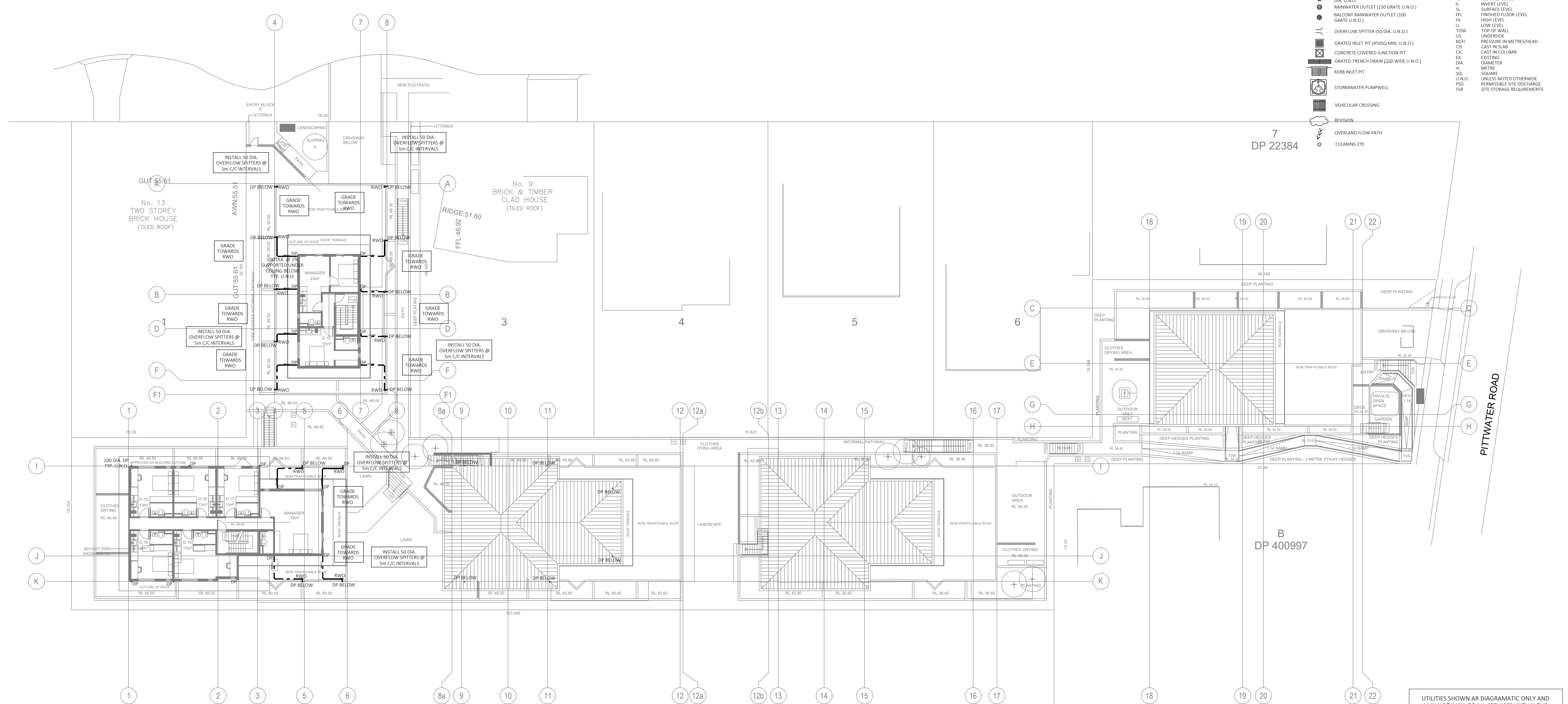
Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Level 4 Floor Plan		Drawing No: 416092023CC 41609-08/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
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			Checked By : N. Evans				Date December 2023	Scale 1 : 200 @ A1
			Approved By : Kenneth T. Ng MIEAust CPEng NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ, RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading				Project No. 416092023S455	Drawing & Sheet No./Issue 41609-08/13 / A
A	Issued for S455 Submission and Construction	13 Dec. 2023						
Issue	Description	Date of Drawing						

Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Level 5 Floor Plan		Drawing No:416092023CC 41609-09/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



LEGEND

PIPEWORK:

- SUB-SOIL
- 100 DIA UPVC STORMWATER PIPE
- U.N.O. WITH 1% GRADE (MIN.)
- TRUNK MAIN
- SILT AND DUST FENCE
- EXISTING STORMWATER PIPE
- EXISTING STORMWATER TO BE REMOVED
- RISE IN SERVICE
- DROP IN SERVICE

SERVICE ACCESSORIES:

- DOWNPIPE 100 DIA. U.N.O.
- DOWNPIPE AND SPREADER
- PLANTER BOX DRAINAGE OUTLET 100 DIA. U.N.O.
- RAINWATER OUTLET (150 GRATE U.N.O.)
- BALCONY RAINWATER OUTLET (100 GRATE U.N.O.)
- OVERFLOW SPITTER (50 DIA. U.N.O.)
- GRATED INLET PIT (450x50 MIN. U.N.O.)
- CONCRETE COVERED JUNCTION PIT
- GRATED TRENCH DRAIN (150 WIDE U.N.O.)
- KERB INLET PIT
- STORMWATER PUMPWELL
- VEHICULAR CROSSING
- OVERLAND FLOW PATH
- CLEANING EYE

ABBREVIATIONS:

- UPVC UNPLASTISIZED POLYVINYL CHLORIDE
- PVC POLYVINYL CHLORIDE
- HDPE HIGH DENSITY POLYETHYLENE
- FRC FIBRE REINFORCED CONCRETE
- CI CAST IRON
- CU COPPER
- BP DOWNPIPE
- BM RISING MAIN
- SYOP SYPHONIC DOWNPIPE
- RWT RAINWATER TANK
- TD TUNDISH
- TTD TRAPPED TUNDISH
- D.T.U.A.A. DRAINAGE TURN-UP POINT
- GTD GRATED TRENCH DRAIN
- RWO RAINWATER OUTLET
- BRWO BALCONY RAINWATER OUTLET
- PBO PLANTER BOX OUTLET
- SPO SPOON DRAIN OUTLET
- RL REDUCED LEVEL
- IL INVERT LEVEL
- SL SURFACE LEVEL
- FFL FINISHED FLOOR LEVEL
- HL HIGH LEVEL
- LL LOW LEVEL
- TOW TOP OF WALL
- US UNDERSIDE
- M/H PRESSURE IN METRES/HEAD
- CIS CAST IN SLAB
- CI CAST IN COLUMN
- EX EXISTING
- DIA DIAMETER
- m METRE
- sq SQUARE
- U.N.O. UNLESS NOTED OTHERWISE
- PSD PERMISSIBLE SITE DISCHARGE
- SSR SITE STORAGE REQUIREMENTS

UTILITIES SHOWN AR DIAGRAMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

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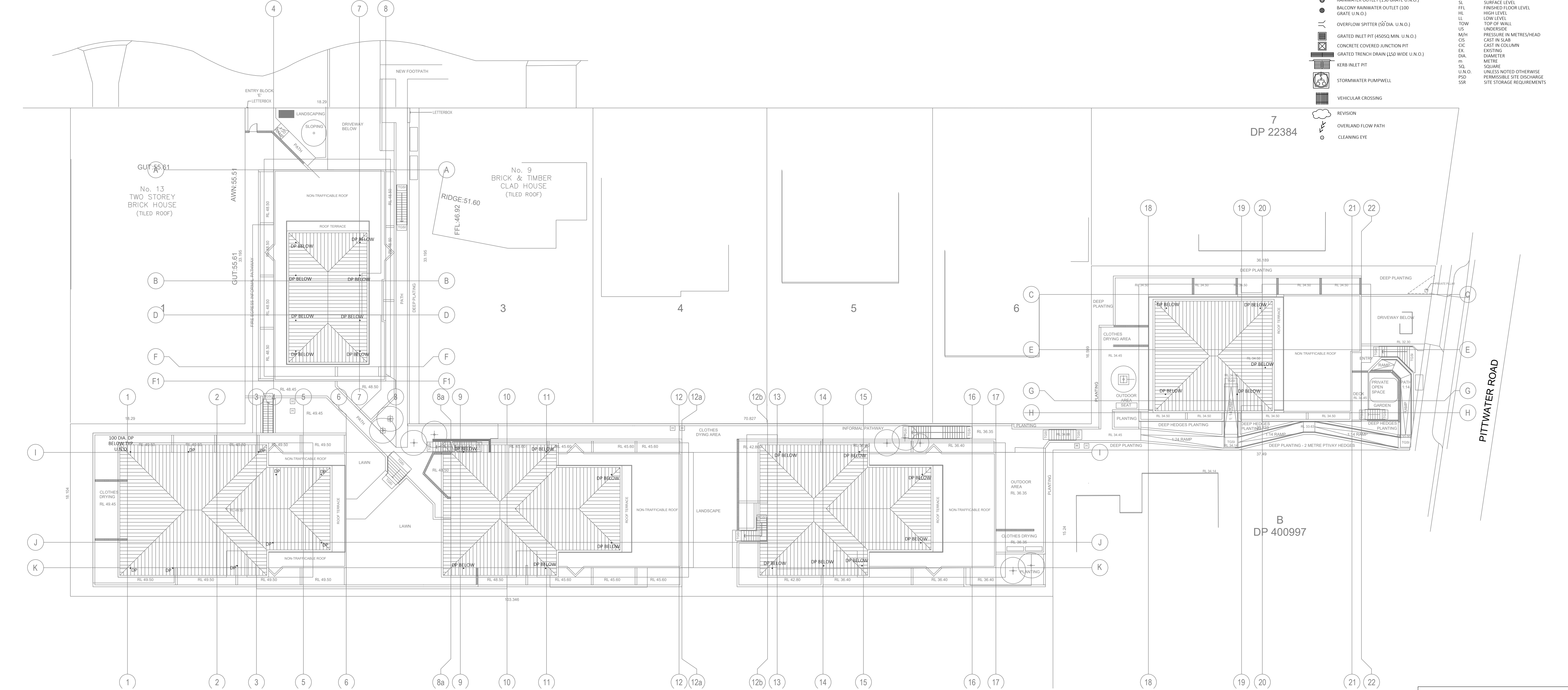
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			Checked By : N. Evans						Date December 2023	Scale 1 : 200 @ A1
			Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE (Aust) (Reg. No. 2206352) RPEQ RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading						Project No. 416092023S455	Drawing & Sheet No./Issu 41609-09/13 / A
A	Issued for S455 Submission and Construction	13 Dec. 2023								
Issue	Description	Date of Drawing								

Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Roof Plan		Drawing No:416092023CC 41609-10/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



LEGEND

PIPEWORK:

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- SILT AND DUST FENCE
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- BALCONY RAINWATER OUTLET (100 GRATE U.N.O.)
- OVERFLOW SPITTER (50 DIA. U.N.O.)
- GRATED INLET PIT (450SQ. MIN. U.N.O.)
- CONCRETE COVERED JUNCTION PIT
- GRATED TRENCH DRAIN (150 WIDE U.N.O.)
- KERB INLET PIT
- STORMWATER PUMP/WELL
- VEHICULAR CROSSING
- REVISION
- OVERLAND FLOW PATH
- CLEANING EYE

ABBREVIATIONS :

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- C/C CAST IN COLUMN
- EX EXISTING
- DIA. DIAMETER
- m METRE
- SQ. SQUARE
- U.N.O. U.N.O.
- P.S.D. PERMISSIBLE SITE DISCHARGE
- SSR SITE STORAGE REQUIREMENTS

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			Checked By : N. Evans				At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale 1 : 200 @ A1
			Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE (Aus) (Reg. No. 2206352) RPEQ, RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading 						
A	Issued for S455 Submission and Construction	13 Dec. 2023					Client	Project No. 416092023S455	Drawing & Sheet No./Issue 41609-10/13 / A
Issue	Description	Date of Drawing							

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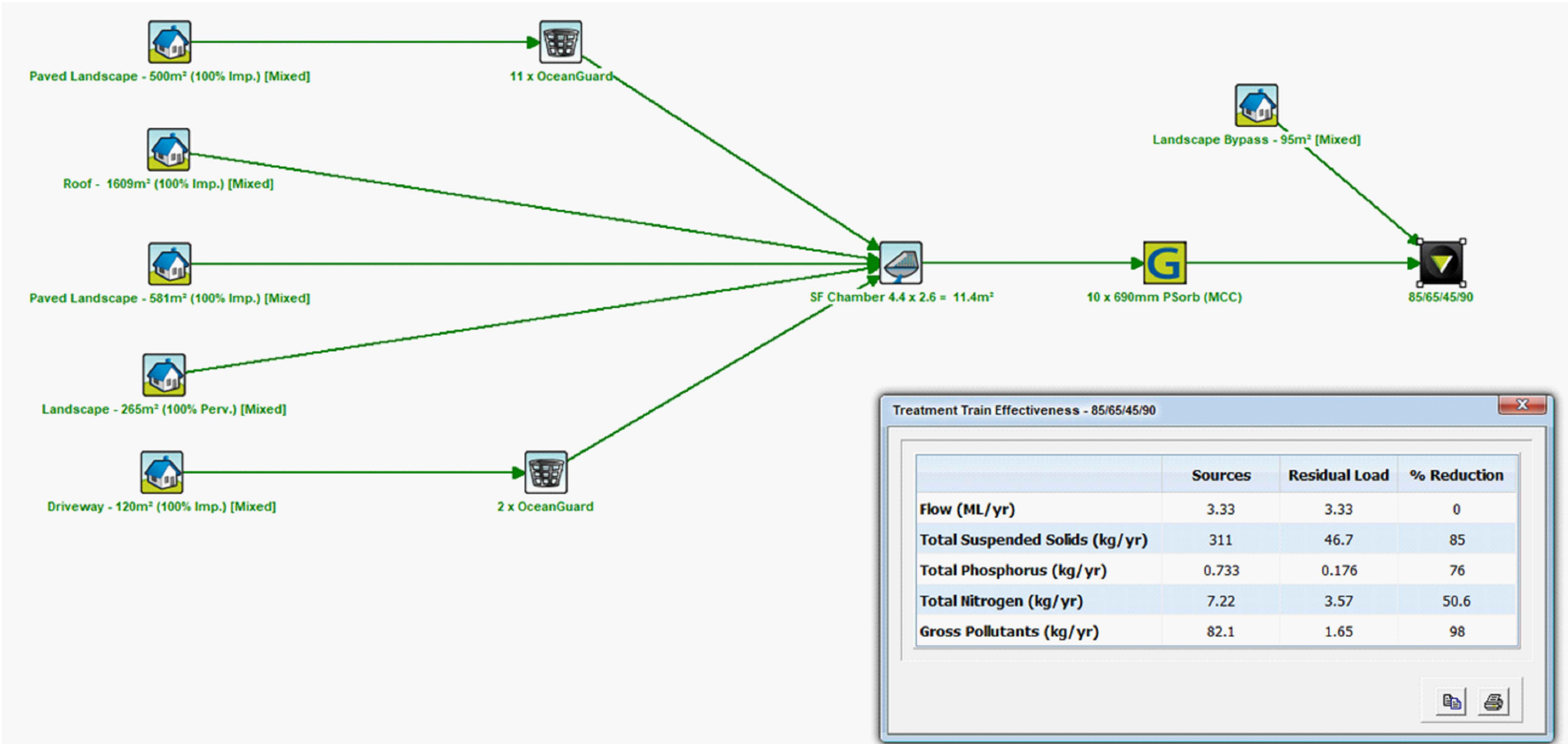
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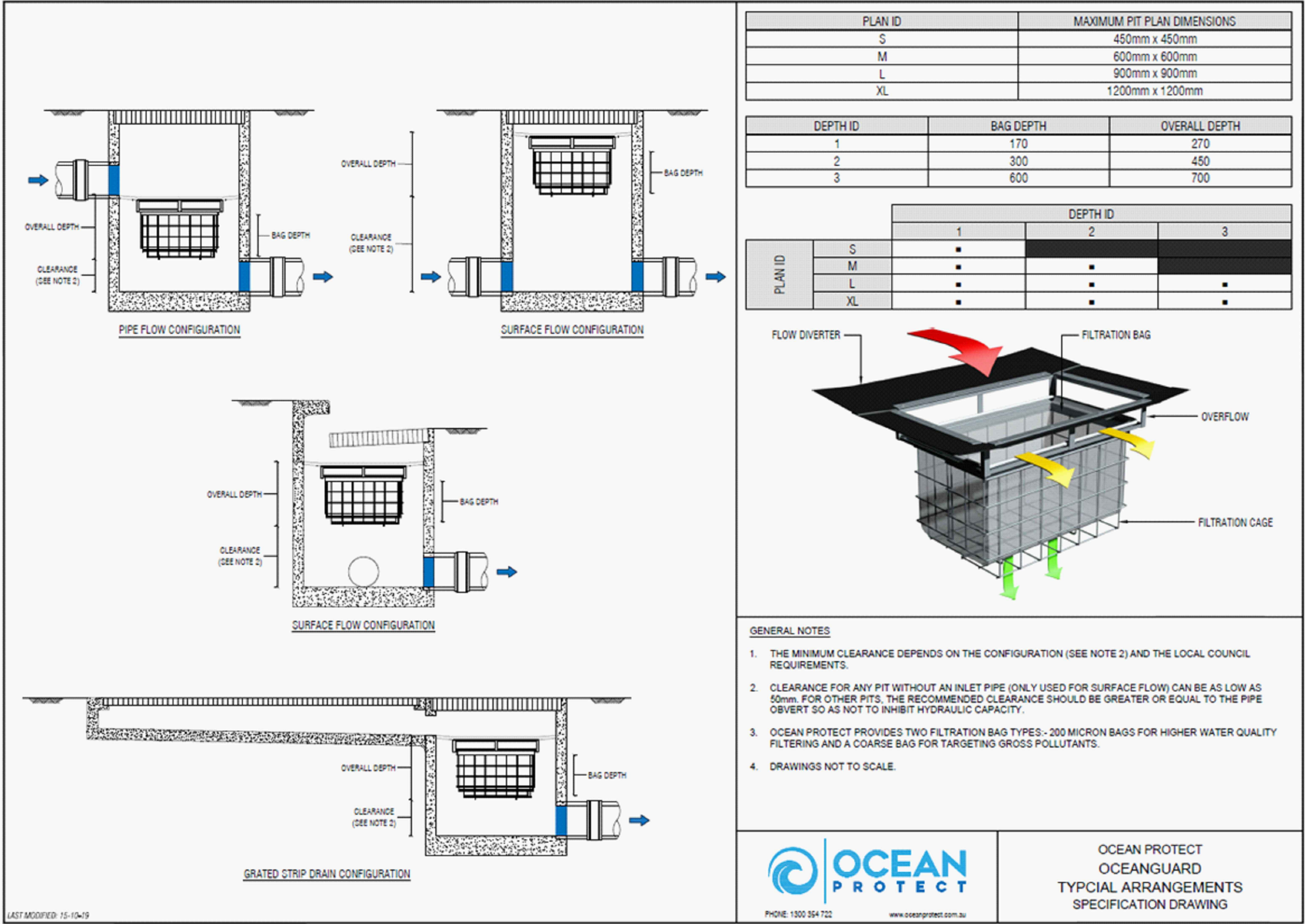
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Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Water Sensitive Urban Design		Drawing No: 416092023CC 41609-11/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



WATER QUALITY MODELING AND RESULTS

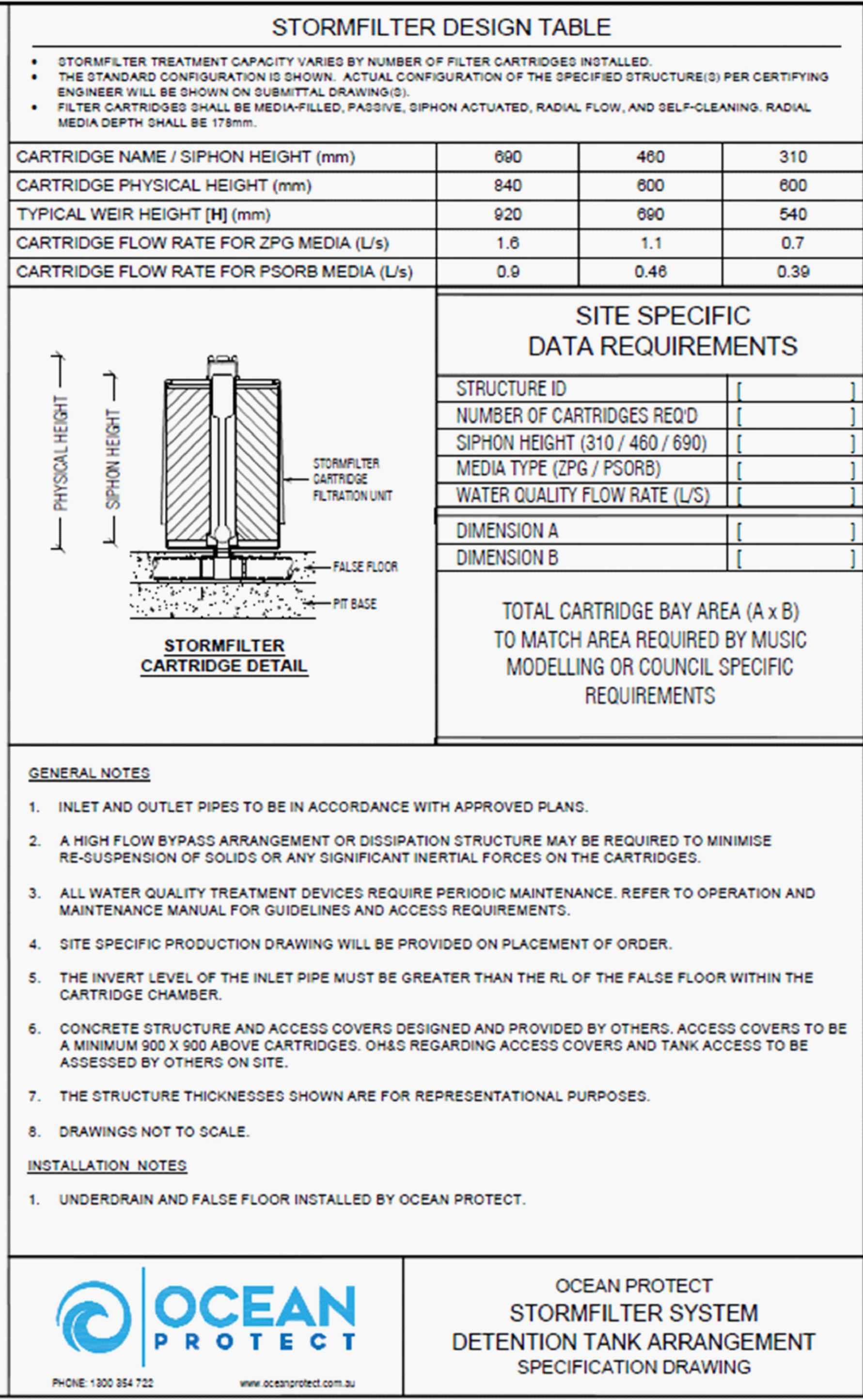
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			Checked By : N. Evans			At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale As Shown @ A1	
			Approved By : Kenneth T. NG MIE Aust CP Eng NER APEC Engineer IntPE(Aust) (Reg. No. 2206352) RPEQ, RPeng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. 80C0827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading				Client	Project No. 416092023S455	Drawing & Sheet No./Issu 41609-11/13 / A
A	Issued for S455 Submission and Construction	13 Dec. 2023							
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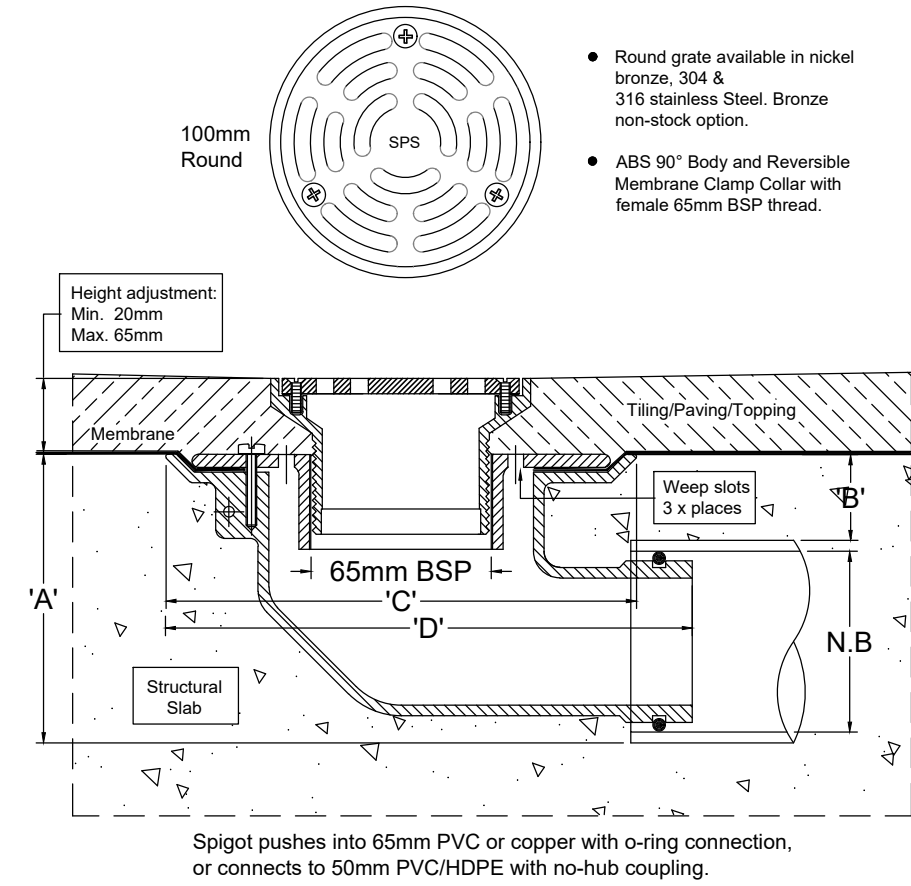
Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Notes & Details		Drawing No:416092023CC 41609-12/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
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- GENERAL NOTES
- THE CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING LEVELS ON SITE PRIOR TO COMMENCEMENT OF WORKS.
 - ALL WORKS ARE TO BE CARRIED OUT TO THE DETAILS SHOWN ON THE DRAWINGS.
 - THESE PLANS ARE READ IN CONJUNCTION WITH APPROVED ARCHITECTURAL, STRUCTURAL, HYDRAULIC AND MECHANICAL DRAWINGS AND SPECIFICATIONS.
 - 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.
 - DIAL 1100 BEFORE YOU DIG FOR LOCATION OF UNDERGROUND SERVICES PRIOR TO ANY CONSTRUCTION WORKS.
 - 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.
 - THESE DRAWINGS ARE ONLY APPROVED WHEN THEY ARE SIGNED WITH AN ORIGINAL SIGNATURE BY THE ENGINEER.

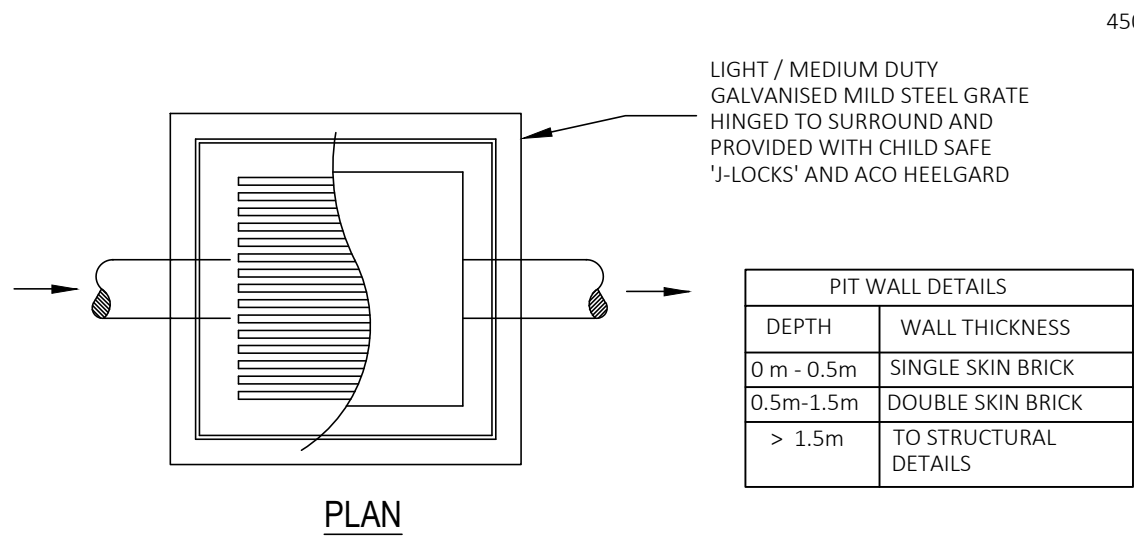
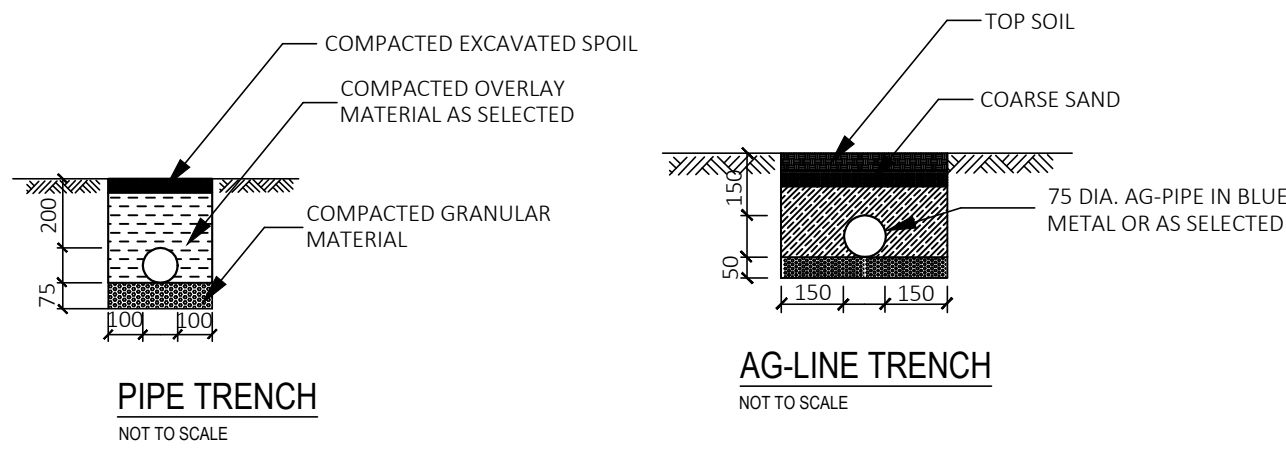
- STORMWATER DRAINAGE
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS 3500 AND THE REQUIREMENTS OF THE LOCAL COUNCIL'S POLICIES AND CODES.
 - ALL GUTTERS TO BE 100 x 75 MIN. OR HALF ROUND AND DOWNPIPES TO BE 100 x 75 (90 DIA.) UNLESS OTHERWISE NOTED.
 - ALL PIPES TO BE 100mm uPVC SEWER GRADE UNLESS NOTED OTHERWISE.
 - ALL GRADIENTS FOR STORMWATER PIPES TO BE NOT LESS THAN 1.0% UNLESS NOTED OTHERWISE.
 - THE INVERTS OF ALL OUTLET PIPES ARE TO BE INSTALLED FLUSHED WITH THE BASE OF ALL STORMWATER/RAINWATER PIT.
 - ALL FENCES SHALL BE KEPT AT LEAST 100mm ABOVE THE GROUND LEVEL TO FACILITATE THE FREE PASSAGE FOR STORMWATER OVERLAND FLOW.
 - MANUFACTURER'S CERTIFICATE SHALL BE OBTAINED BY THE BUILDER FOR PIPES, PRE-CAST PITS AND GRATES FOR THE STRUCTURAL ADEQUACY RELATING TO ITS LOCATION.
 - AREAS SPREAD WITH BARK SHALL BE BARRICADED TO PREVENT BARK GETTING INTO THE PITS AND STORMWATER SYSTEMS.
 - MINIMUM SLOPE FOR PAVED AREAS SHALL BE 0.5%, FOR LANDSCAPED AREAS MINIMUM SLOPE SHALL BE 1% AND GRADED TOWARDS THE GRATED PITS.
 - ALL EXCAVATIONS WITHIN THE INFLUENCE OF BUILDINGS AND SERVICES SHALL BE UNDERTAKEN WITH THE KNOWLEDGE OF THE HYDRAULIC AND STRUCTURAL ENGINEER.
 - THE DETENTION AND DRAINAGE SYSTEM SHALL BE MAINTAINED AT REGULAR INTERVALS AND THE CONTRACTOR SHALL MAKE NECESSARY ARRANGEMENTS.
 - 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.
 - PROVIDE STEP-IRONS 'MASCOT S1:104' OR SIMILAR STAGGERED TO GIVE SPACING 300 VERTICAL AND 220 HORIZONTAL TO ALL PIT DEEPER THAN 1m .
 - SUITABLE AG-LINES SHALL BE PROVIDED AND CONNECTED TO STORMWATER SYSTEM OR AS INSTRUCTED BY THE ENGINEER ON SITE PRIOR TO BACKFILLING.

- RAINWATER TANK
- DRAWING IS TO BE READ IN CONJUNCTION WITH SYDNEY WATER'S "PLUMBING REQUIREMENTS - GUIDELINES FOR RAINWATER TANKS ON RESIDENTIAL PROPERTIES".
 - 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.
 - ALL PLUMBING WORKS UNDERTAKEN SHALL BE UNDERTAKEN BY A LICENSED PLUMBER IN ACCORDNACE 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.
 - ALL PLUMBING MUST BE COMPLETED BY A LICENSED PLUMBER IN COMPLIANCE WITH AS/NZS3500.5, AND ANY OTHER RELEVANT NATIONAL STANDARDS.
 - INLET TO THE RAINWATER TANKS MUST BE SCREENED OR FILTERED TO PREVENT ENTRY OF FOREIGN MATTER AND CREATURES.
 - 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.
 - A SIGN MUST BE AFFIXED TO THE RAINWATER TANKS CLEARLY STATING THAT THE WATER IN THE TANKS IS RAINWATER.
 - BOTH THE RE-USE AND ANY FITTINGS CONNECTED TO THE RAINWATER TANKS MUST BE LABELED "RAINWATER , NOT SUITABLE FOR DRINKING".
 - ALL ROOF GUTTERS ARE TO BE FITTED WITH LEAF GUARDS AND INSPECTED REGULARLY AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES.
 - PRESSURE PUMP ELECTRICAL CONNECTION TO BE CARRIED OUT BY A LICENSED ELECTRICIAN.

Specification code:
R100B/C90 (brass grate, ABS lower body)
R100M/C90 (nickel bronze grate, ABS lower body)
R100SA/C90 (polished 304 stainless steel, ABS lower body)
R100S/C90 (eatin 316 stainless steel grate, ABS lower body)

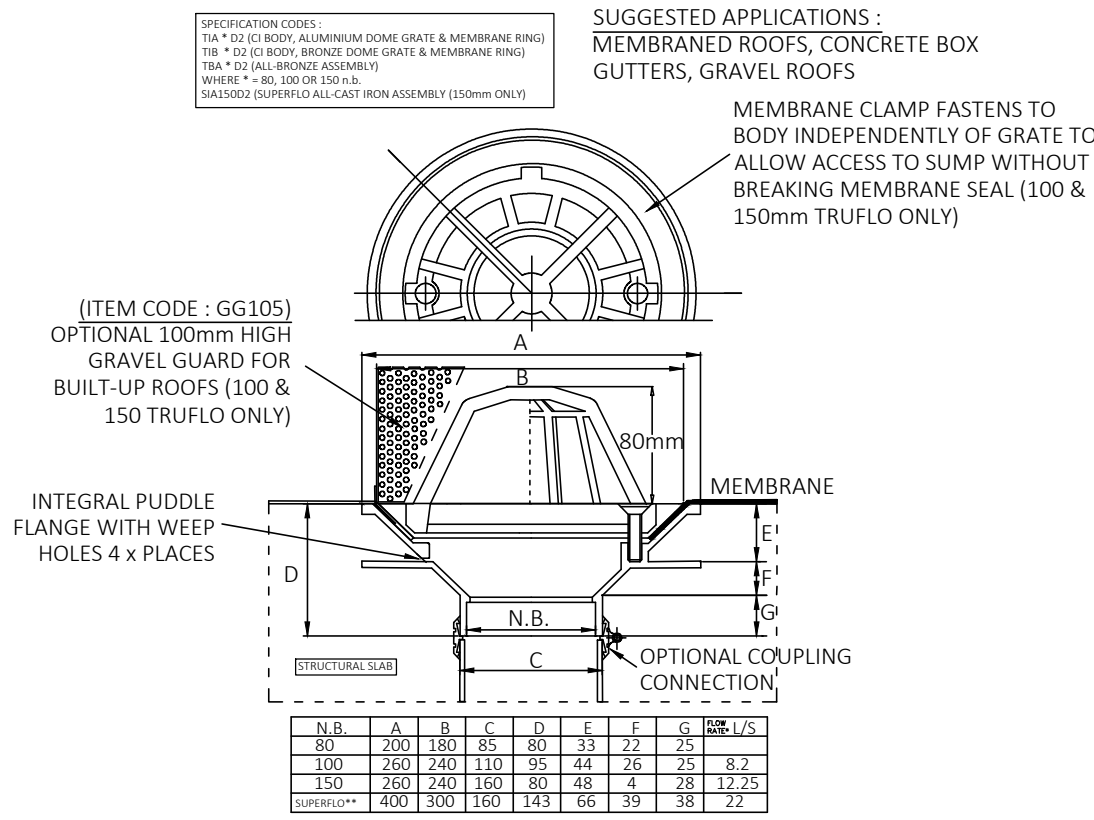


RAINWATER OUTLET (RWO) (TERRACE AND COURTYARDS)
NOT TO SCALE



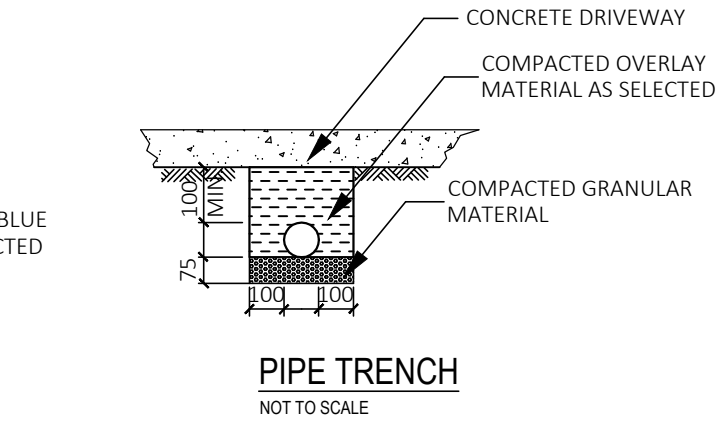
TYPICAL INLET PIT DETAIL
NOT TO SCALE

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



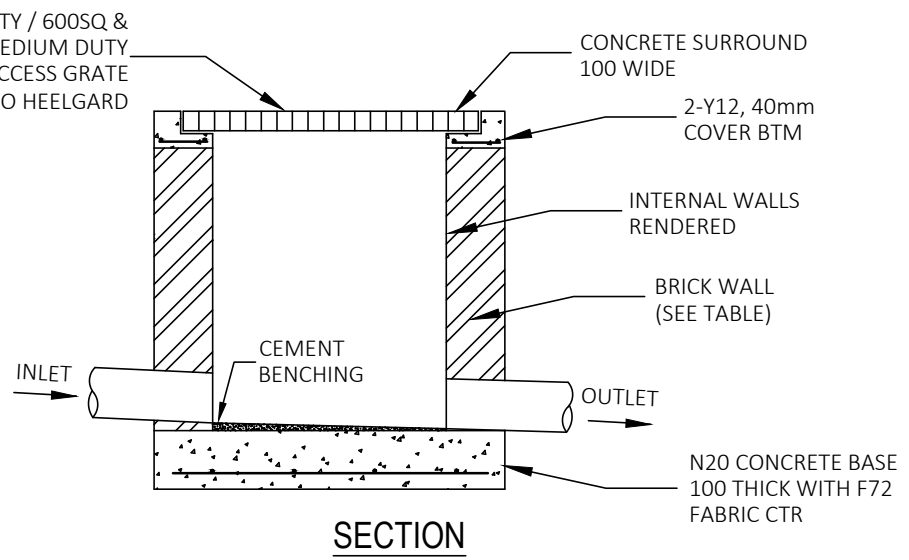
SPECIALITY PLUMBING SUPPLIES PTY LTD
TEL : (02) 9416 8031 FAX : (02) 9416 7614 E-MAIL : SPS@BIGPOND.NET.AU

ROOF RAINWATER WATER OUTLET (RWO) 100 TRUFLOW NOT TO SCALE



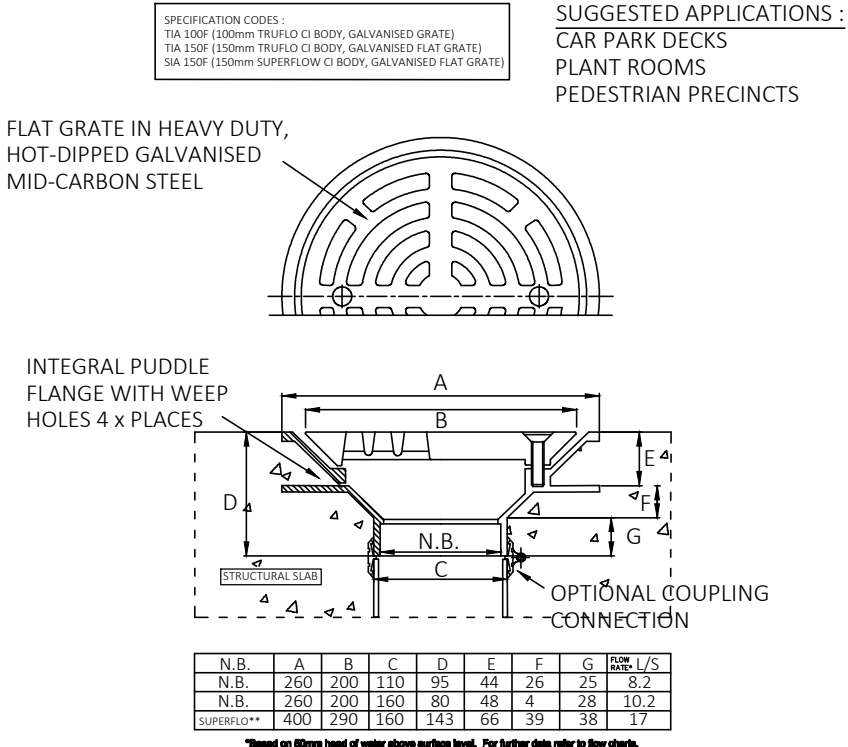
PIT SCHEDULE

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



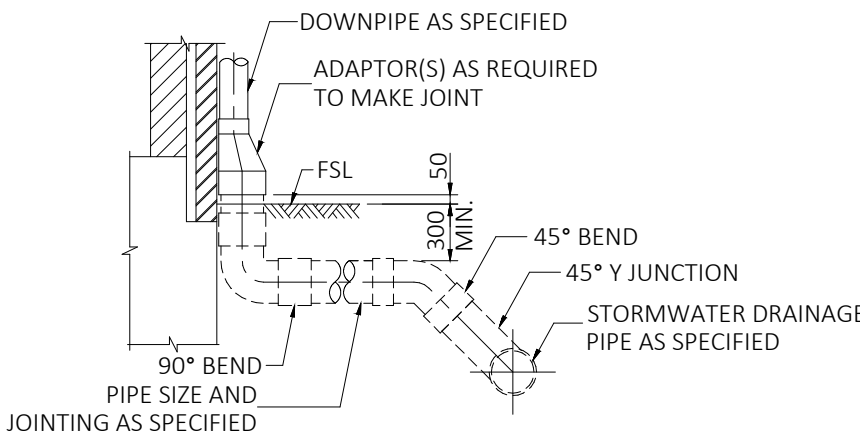
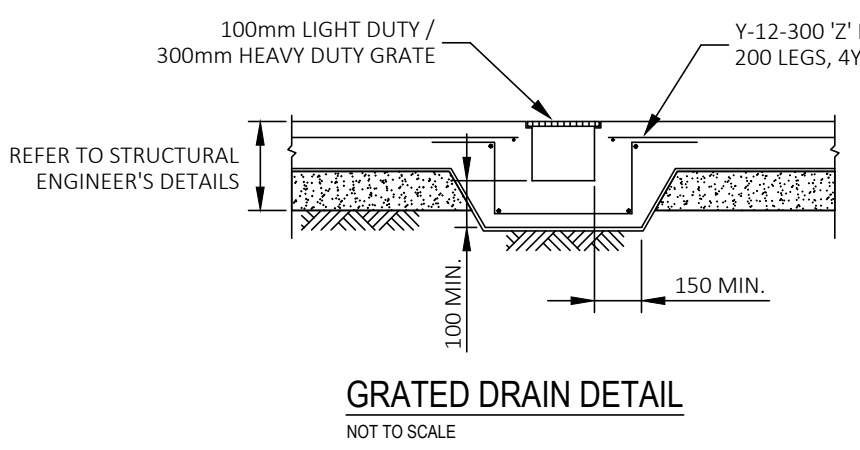
SECTION

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



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

CARPARK TRUFLOW (RWO) NOT TO SCALE



TYPICAL DETAIL - DOWNPIPE CONNECTION TO
STORMWATER DRAINAGE PIPE
NOT TO SCALE



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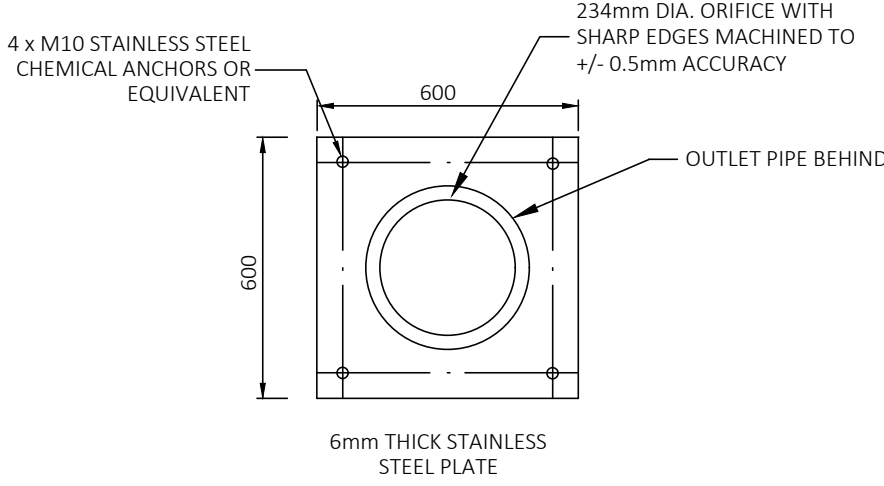
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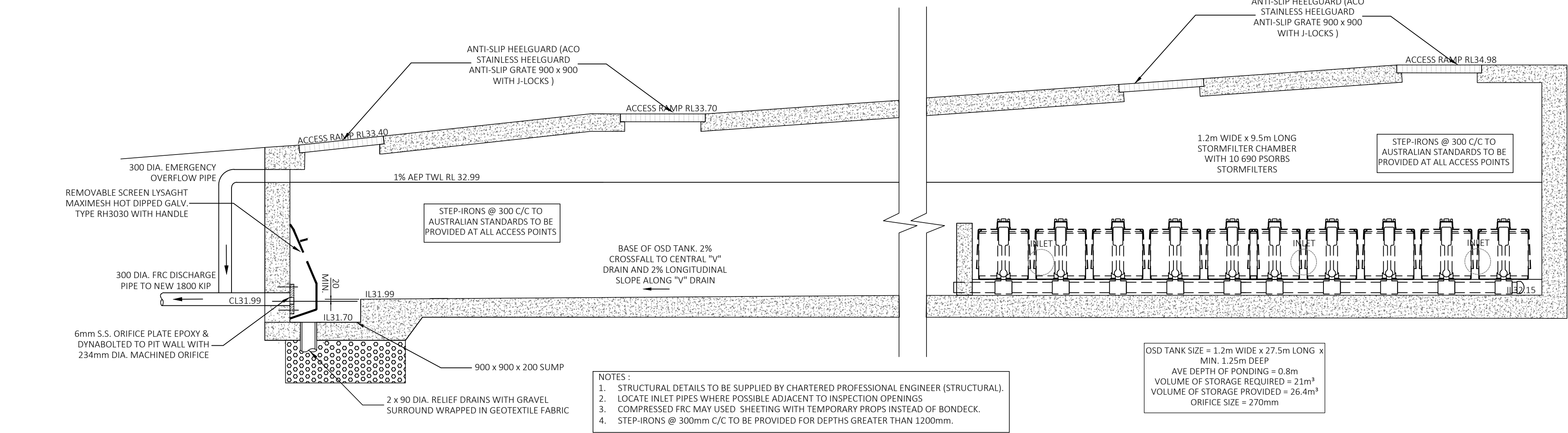
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			Drawn & Designed By : R. Koh	Designed By ING CONSULTING ENGINEERS PTY LTD P. O BOX 1543 BAULKHAM HILLS NSW 1755 F : (02) 8807 5656 M: 0433 778 109 E : ken@ingengineers.com.au	Project Proposed Boarding House	Drawing Title Notes & Details			
			Checked By : N. Evans				At 613 - 615 Pittwater Road Dee Why NSW 2099	Date December 2023	Scale As Shown @ A1
A	Issued for S455 Submission and Construction	13 Dec. 2023	Approved By : Kenneth T. NG MIEAust CPEng NER APEC Engineer IntPE(Aus) (Reg. No. 2206352) RPEQ RPENG 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. 416092023S455	Drawing & Sheet No./Issue 41609-12/13 / A
Issue	Description	Date of Drawing							

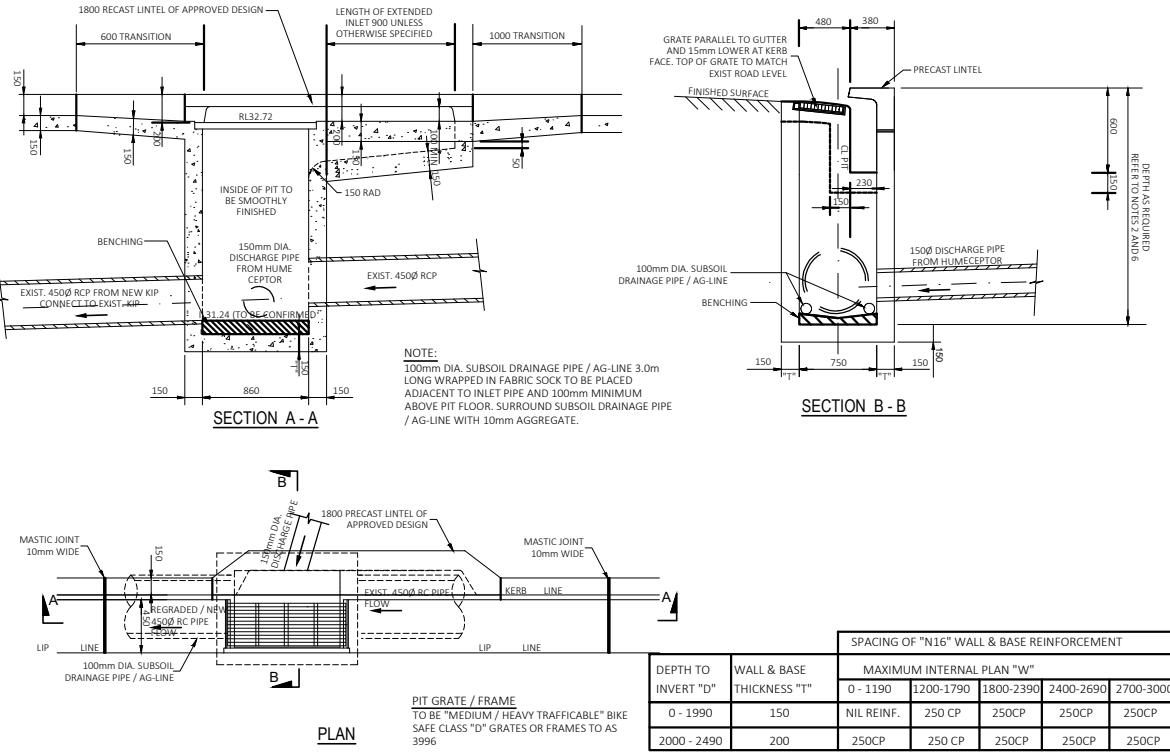
Regulated Design Record				
Project Address: 613 - 615 Pittwater Road, Dee Why NSW 2099				
Project Title: Boarding House Development				
Consent No: DA 2018/1166		Body Corporate Reg No:		
Drawing Title: Notes & Details 2		Drawing No:416092023CC 41609-13/13		
Rev	Date dd.mm.yy	Description	DP Full Name	Reg No
A	13/12/23	Issued for S455 Submission	Kenneth T Ng	DEP0000692



ORIFICE PLATE DETAIL
NOT TO SCALE

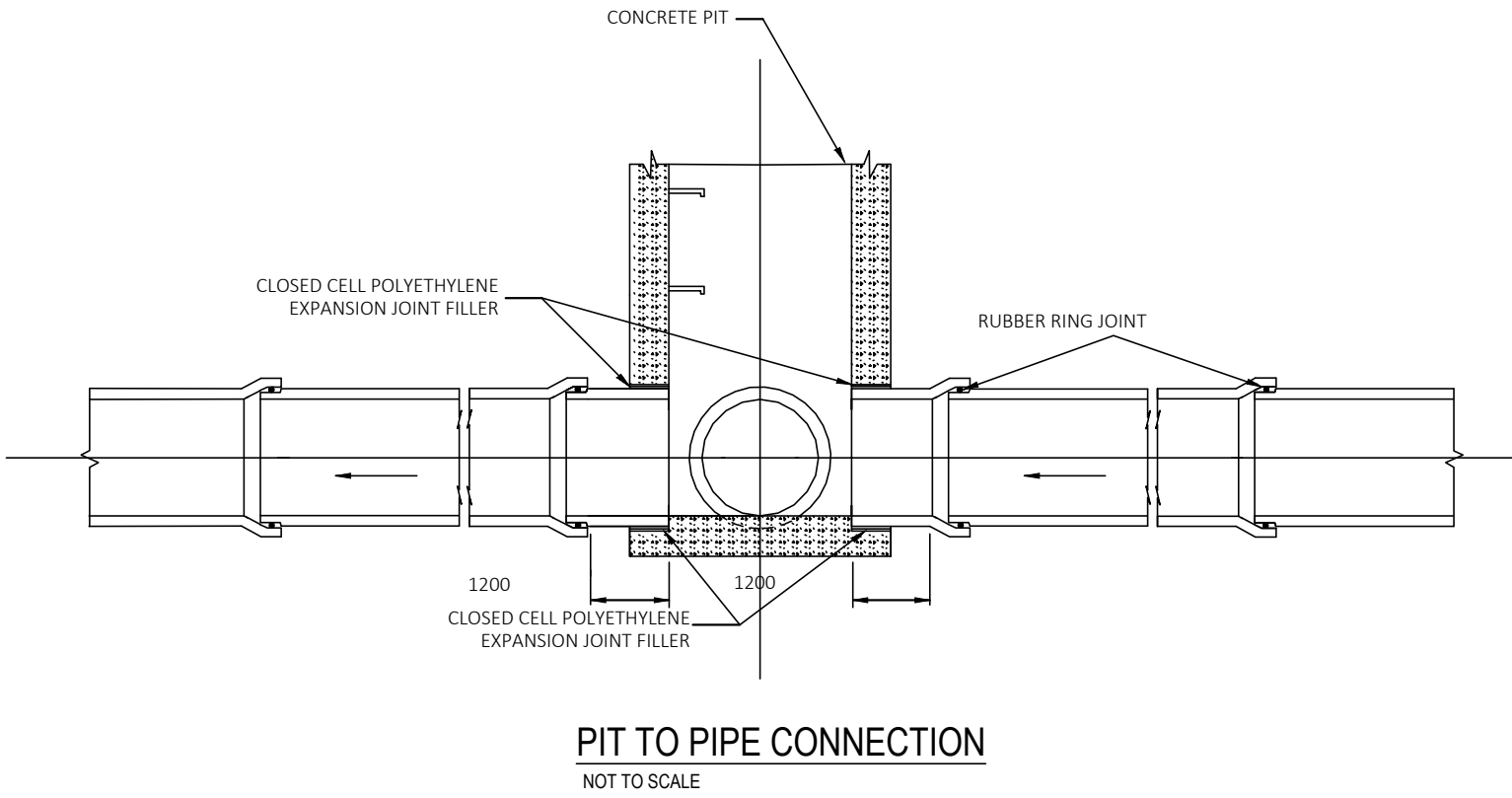


SECTION B - B THROUGH ON-SITE DETENTION TANK WITH DISCHARGE CONTROL PIT DETAIL
NOT TO SCALE

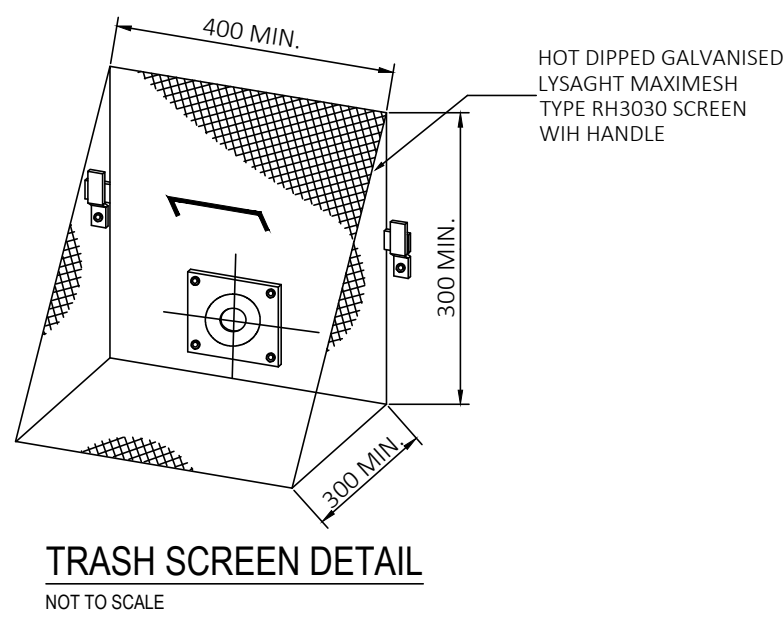


- NOTES:
1. ALL KERB INLET PITS (ON GRADE) SHALL BE PROVIDED WITH AN EXTENDED INLET 900mm (MIN) LONG ON THE HIGHER SIDE.
 2. STEP IRONS TO BE PROVIDED AT 300mm CENTRES FOR PITS GREATER THAN 1200mm DEEP AND PLACED ON A WALL CLEAR OF FLOW WHERE POSSIBLE.
 3. THE COMPRESSIVE STRENGTH OF ALL CONCRETE USED SHALL BE 32MPa AT 28 DAYS.
 4. MINIMUM COVER TO ALL PIPES TO BE 600mm UNDER ROADS AND 450mm ELSEWHERE.
 5. ALL INTERNAL PIT CORNERS TO BE PROVIDED WITH BENCHING TO IMPROVE FLOW.
 6. WHERE INTERNAL WIDTH EXCEEDS 750mm OR DEPTH EXCEEDS 1200mm WALLS TO BE REINFORCED IN ACCORDANCE WITH THE TABLE SHOWN BELOW.
 7. SELECTED GRANULAR MATERIAL BACKFILL SHALL BE PLACED TO FILL ALL EXCAVATED VOIDS (REFER TO AS 3725-2007).
 8. ALL PIPES TO BE LAID SO THAT THEIR VERTICAL CENTRELINES INTERSECT AT THE CENTRE OF THE PIT.
 9. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS STATED OTHERWISE.

STANDARD KERB INLET PIT (ON GRADE) WITH 1800mm LINTEL
NOT TO SCALE



PIT TO PIPE CONNECTION
NOT TO SCALE



TRASH SCREEN DETAIL
NOT TO SCALE



CONFINED SPACE SIGNAGE
NOT TO SCALE



OSD SIGNAGE
NOT TO SCALE

UTILITIES SHOWN AR DIAGRAMATIC ONLY AND MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDELINES / STANDARDS.

ING CONSULTING ACCEPTS NO RESPONSIBILITY FOR ANY SURVEY INFORMATION PROVIDED. ALL SURVEY INFORMATION SHOULD BE CONFIRMED BY A REGISTERED SURVEYOR PRIOR TO CONSTRUCTION.



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Drawn & Designed By : R. Koh			Checked By : N. Evans		At 613 - 615 Pittwater Road Dee Why NSW 2099		Date December 2023	
Approved By : Kenneth T. NG MIEAust CPEng NER APEC Engineer IntPE(Aus) (Reg. No. 2206352) RPEQ RPEng Registered Certifier (Hydraulic (stormwater), Road & Drainage and Stormwater) (Reg. No. BD00827) Registered Design Practitioner (Drainage & Civil Engineering) (Reg. No. DEP0000692) & Professional Engineer (Civil) (Reg. No. DEP0000630) NSW Fair Trading			Client Project No. 416092023S455		Scale As Shown @ A1		Drawing & Sheet No./Issue 41609-13/13 / A	
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Issue Description			Date of Drawing		Project No. 416092023S455		Drawing & Sheet No./Issue 41609-13/13 / A	