

50 CONDOVER STREET, NORTH BALGOWLAH

STORMWATER MANAGEMENT PLAN

DRAWING INDEX:

DR-SW-000	LEGEND
DR-SW-001	PIPE LAYOUT – LOT 1
DR-SW-002	PIPE LAYOUT LOT 2
DR-SW-003	ROOF LAYOUT
DR-SW-004	DETAILS & COMMUNITY SECTION
DR-SW-005	OSD DETAILS
DR-SW-006	SITE AREAS
DR-SD-100	SEDIMENT AND EROSION CONTROL PLAN
LT-100	DESIGN STATEMENT

LEGEND:


— SW — STORMWATER PIPE

 DRAINAGE PIT

NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION.
2. SITE LAYOUT BASED ON ARCHITECTURAL PLANS BY MCGREGOR COXALL (11/09/2023) AND SURVEY PLANS BY TOTAL SURVEYING SOLUTION TSS (04/05/2021).
3. LOCATION OF ALL SERVICES MUST BE CONFIRMED ON SITE PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.
4. ALL STORMWATER DRAINAGE PIPES AND ASSOCIATED DEVICES ARE TO BE INSTALLED IN ACCORDANCE WITH THE RELEVANT STANDARDS, THE BUILDING CODE OF AUSTRALIA, MANUFACTURER'S RECOMMENDATIONS, SYDNEY CATCHMENT AUTHORITY RECOMMENDED PRACTICE, AND LOCAL COUNCIL, AS APPLICABLE.
5. ALL INVERT LEVELS PROVIDED ON THIS DRAWING ARE REDUCED TO AHD AND BASED ON INTERPOLATED SURFACE LEVELS AND SYSTEM REQUIREMENTS.
6. WHERE POSSIBLE, PIPEWORK SHALL BE LOCATED EXTERNAL TO THE BUILDING.
7. DOWNPIPES AND STORMWATER LINES TO BE SEALED DN100 uPVC UNLESS OTHERWISE NOTED.
8. STORMWATER PIPES TO BE GRADED AT A MINIMUM 1% UNLESS NOTED OTHERWISE.
9. ALTERNATIVE GUTTER AND DOWNPIPE CONFIGURATION MAY BE INSTALLED PROVIDED IT COMPLIES WITH AS3500.
10. ALL PIPE AND CONDUITS TO BE MARKED IN ACCORDANCE WITH AS1345 – 1995.
11. TRENCHES AND SERVICE SEPARATIONS IN ACCORDANCE WITH AS/NZS 5601, AS/NZS 3500, AND AS/CA S009.

NOT FOR CONSTRUCTION

This drawing is confidential and shall only be used for the purposes of this project.					Scale		THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM				This design complies with: AS3500.3:2021		50 CONDOVER STREET, NORTH BALGOWLAH					
REVISIONS						NA					 Stellen Consulting ABN 61 149 095 189	LEGEND						
	7	SHA	30/11/2023	APPROVED FOR DA SUBMISSION	YYA	DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED												
	6	SHA	24/10/2023	APPROVED FOR DA SUBMISSION	YYA													
	5	SHA	15/09/2023	APPROVED FOR DA SUBMISSION	YYA													
		No.	BY	DATE	DESCRIPTION					APPD								
											Size	A3	Status	APPROVED FOR DA SUBMISSION	Drg No.	P170945-DR-SW-000	Rev.	7



50 CONDOVER STREET, NORTH BALGOWLAH					
PIPE LAYOUT - LOT 1					
Size	A3	Status	APPROVED FOR DA SUBMISSION	Drg No. P170945-DR-SW-001	Rev. 7

NOMENCLATURE
DP - DOWNPIPE
RWH - RAINWATER HEAD
EG - EAVES GUTTER

GUTTER SIZING
EAVE GUTTER DESIGNED TO ARI (20YR:205mm/hr)
RWH DESIGNED TO ARI (200YR:269mm/hr)
EG1 - MIN CSA 6,900 mm²

LEGEND

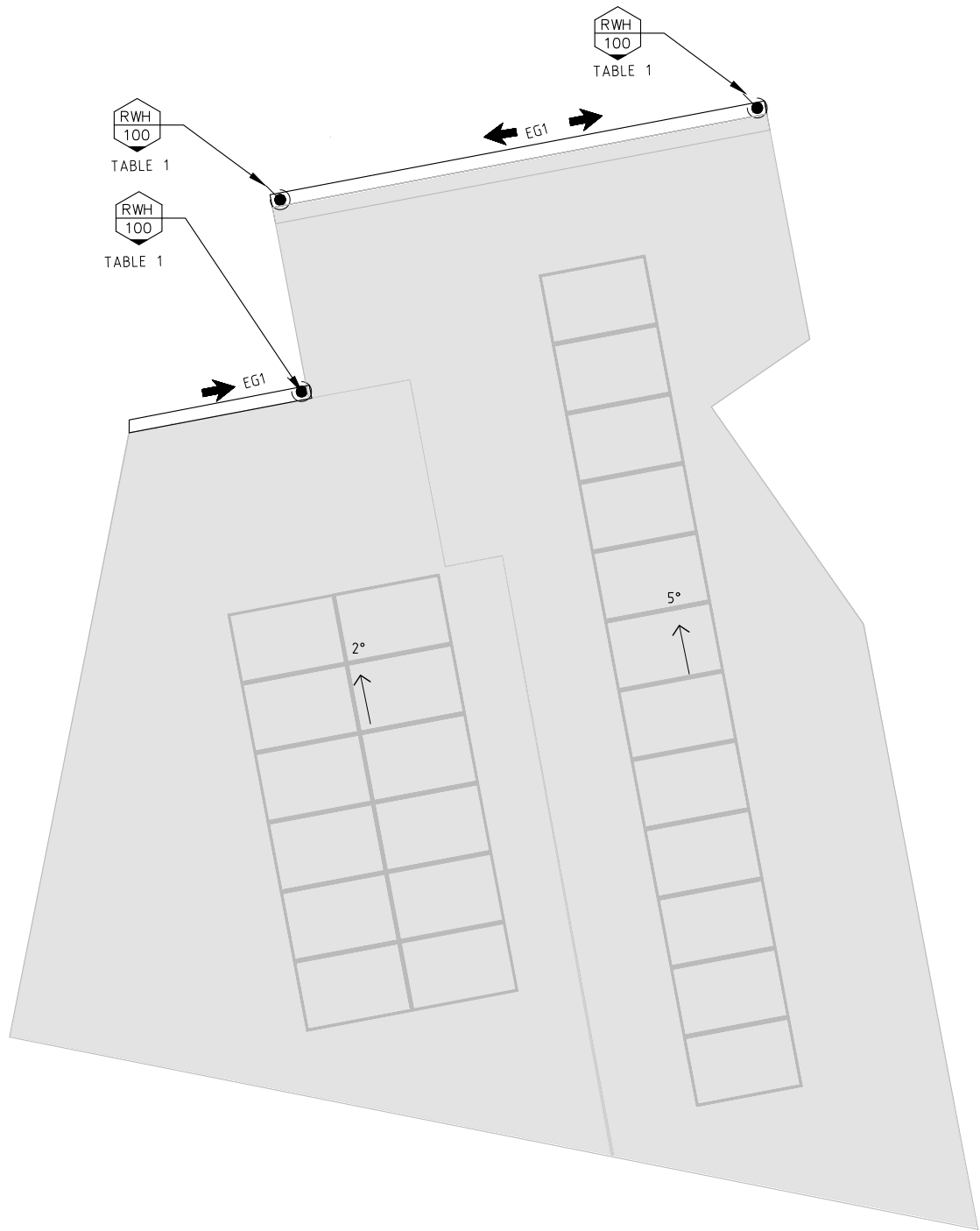
TYPE
DIA

DOWNPIPE TYPE AND DIAMETER

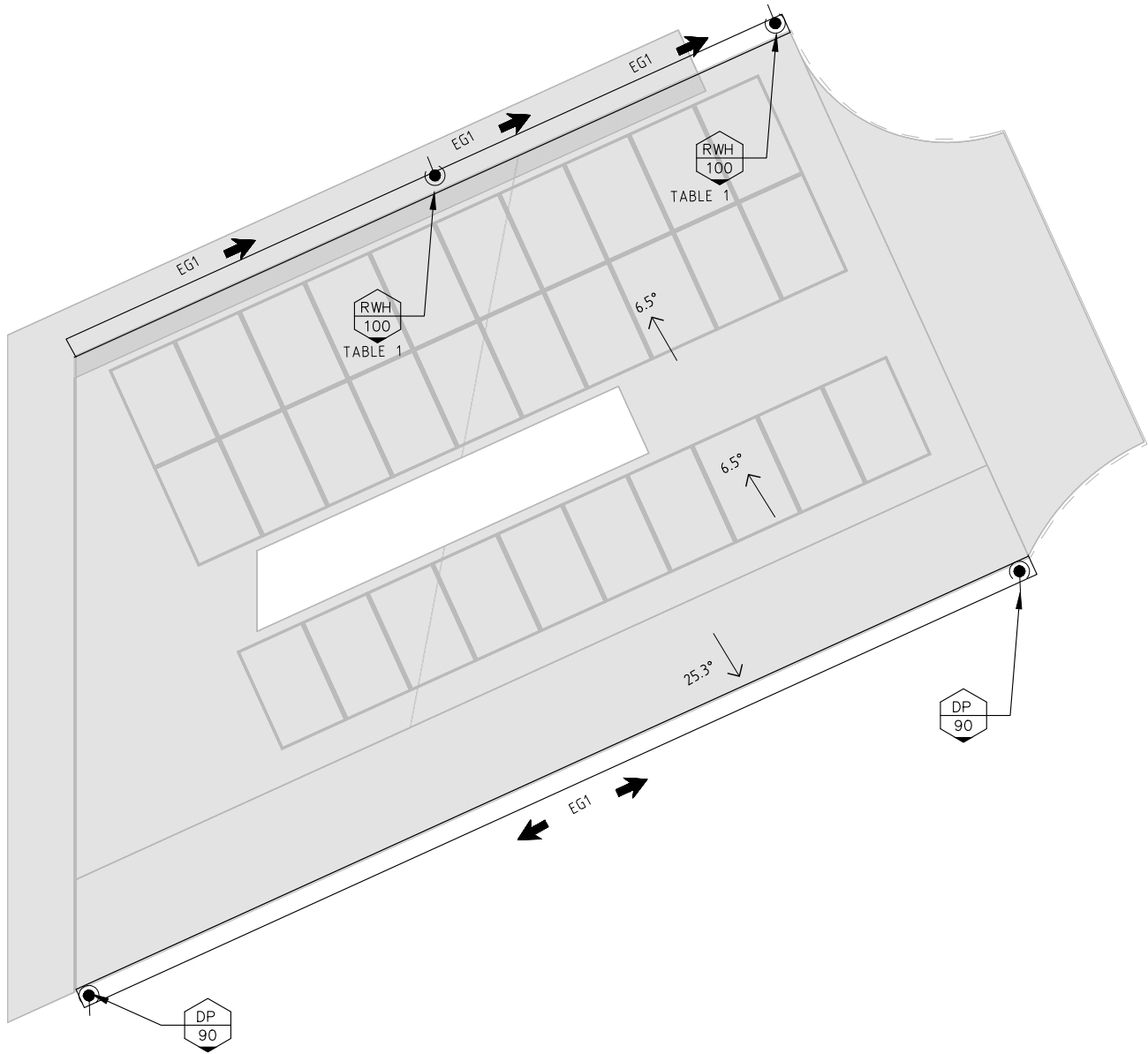
➔

DIRECTION OF FALL

TABLE 1 – RAIN WATER HEAD DESIGN (100 YEAR ARI, 1:200 FALL)		
ROOF SERVICE AREA	–	82m ²
DOWNPIPE DIAMETER	DP	100mm
LENGTH OF RAINWATER HEAD	L _r	125mm
RAINWATER HEAD DEPTH	h _r	125mm
RAINWATER HEAD WIDTH (MIN)	W _{rh}	200mm



PLAN 7
ROOF LAYOUT – LOT 1
1:100



PLAN 8
ROOF LAYOUT – LOT 2
1:100

NOT FOR CONSTRUCTION


This drawing is confidential and shall only be used for the purposes of this project.					Scale 1:100 DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED	THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM				 Stellen Stellen Consulting ABN 61 149 095 189	This design complies with: AS3500.3:2021	50 CONDOVER STREET, NORTH BALGOWLAH				
REVISIONS	5	SHA	15/09/2023	APPROVED FOR DA SUBMISSION		YYA	DESIGNED	SHA	CHECKED			YYA	ROOF LAYOUT			
	4	SHA	15/09/2023	APPROVED FOR DA SUBMISSION		YYA	DRAWN	SHA	CHECKED			YYA				
	3	SHA	13/09/2023	APPROVED FOR DA SUBMISSION		YYA	APPROVED	YYA	DATE			15/09/2023				
	2	SHA	03/05/2023	APPROVED FOR DA SUBMISSION		YYA										
	1	SHA	28/04/2023	APPROVED FOR DA SUBMISSION		YYA										
0	SHA	29/03/2023	APPROVED FOR DA SUBMISSION	YYA					Size A3	Status APPROVED FOR DA SUBMISSION	Dwg No. P170945-DR-SW-003	Rev. 5				
No.	BY	DATE	DESCRIPTION		APPD											



Diagram illustrating the construction details of a concrete wall and slab, showing the drainage system components:

- TYPICAL CONCRETE WALL TO STRUCTURAL ENGINEER'S DETAIL.
- TOP SOIL
- PERVIOUS MEMBRANE
- AGGREGATE
- IMPERVIOUS MEMBRANE
- GEOTEXTILE FABRIC
- 100mm SLOTTED AGRICULTURAL PIPE WRAPPED IN GEOTEXTILE FABRIC
- TYPICAL CONCRETE SLAB TO STRUCTURAL ENGINEER'S DETAIL.



Diagram illustrating the cross-section of a retaining wall and foundation detail, showing the following components:

- TYPICAL CONCRETE WALL TO STRUCTURAL ENGINEER'S DETAIL.
- IMPERVIOUS MEMBRANE
- TYPICAL CONCRETE SLAB TO STRUCTURAL ENGINEER'S DETAIL.
- EXISTING ROCK / RETAINING WALL
- SPOON DRAIN UNDER THE DECK
- 100mm SLOTTED AGRICULTURAL PIPE WRAPPED IN GEOTEXTILE FABRIC
- TYPICAL CONCRETE FOOTING TO STRUCTURAL ENGINEER'S DETAIL.
- FOUNDATION AS PER GEO-TECHNICAL ENGINEER'S DETAIL



Diagram illustrating a cross-section of a stormwater management system, showing two pits with grating and trash screens, and discharge pipes.

Labels and Components:

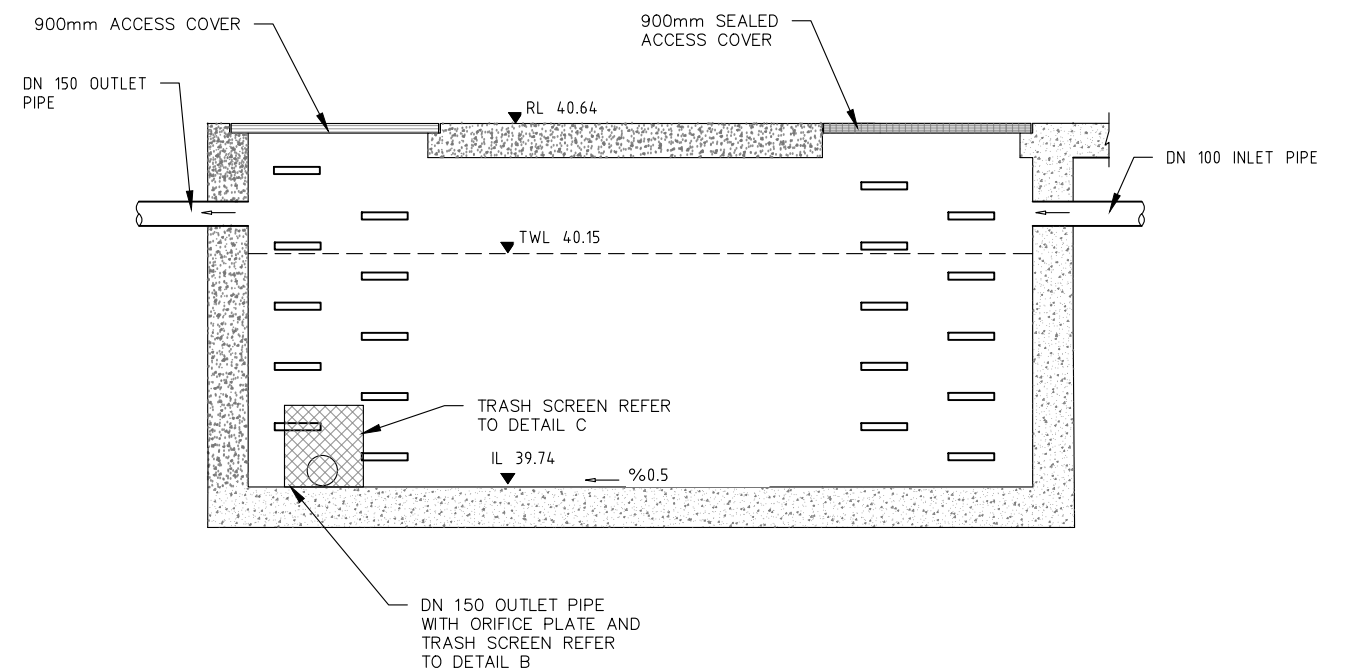
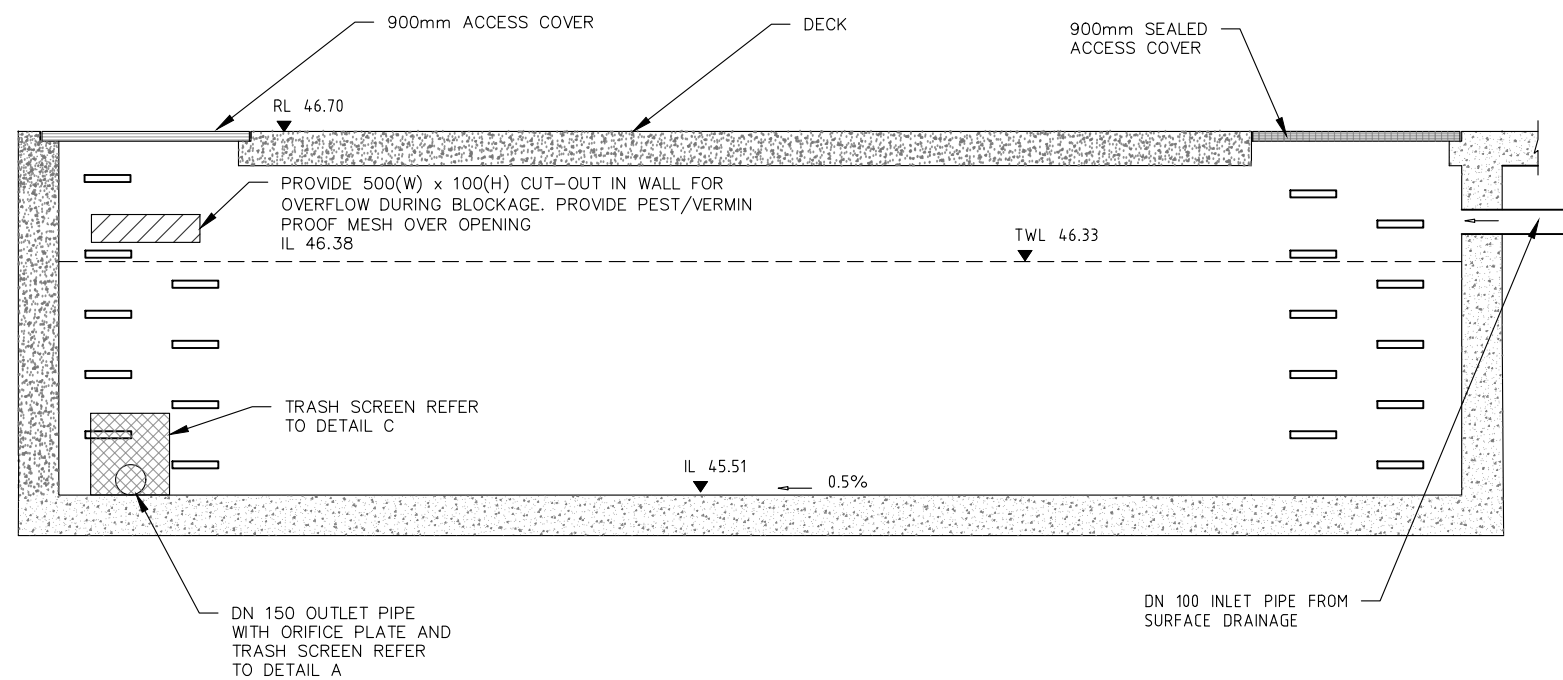
- RAISED MEDIUM DUTY GRATE
- 600 SQUARE PIT WITH HEAVY DUTY GRATING
- WATER LEVEL OF OVERLAND FLOW.
- 300mm HIGH WALL REFER P170945-SW-DR-002 SEC.1 FOR DETAIL
- 600 SQUARE PIT WITH HEAVY DUTY GRATING
- RAISED MEDIUM DUTY GRATE
- OVERFLOW TO KERB BY GRAVITY
- MAXIMESH TRASH SCREEN
- INLET DN100 FROM LOT A
- IL 43.00
- CONCRETE BENCHING AT BASE OF PIT TO PROVIDE A 1% MINIMUM FALL.
- IL 42.53
- DN 150 uPVC
- CONCRETE BENCHING AT BASE OF PIT TO PROVIDE A 1% MINIMUM FALL.
- IL 37.20
- IL 37.085
- 200x100x6 GALV. STEEL RHS MIN. 1% FALL TO DISCHARGE TO CONDOVER STREET KERB.

Elevations:

- RL 43.69
- RL 38.895



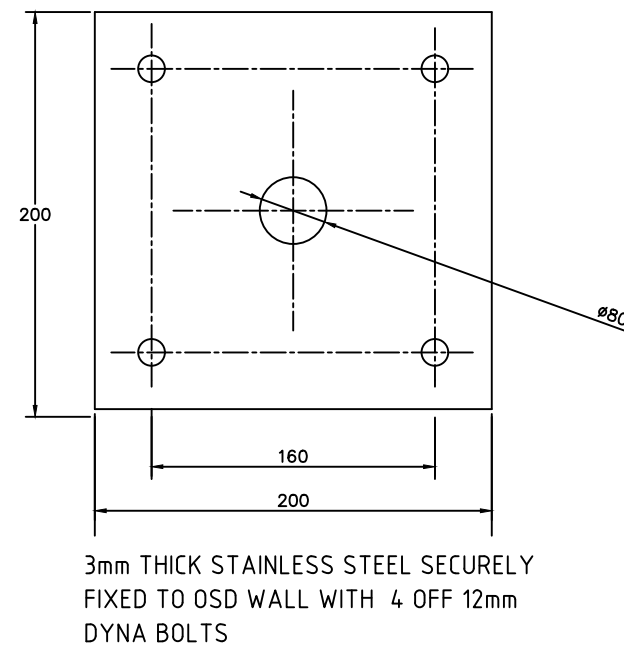
Size	A3	Status	APPROVED FOR DA SUBMISSION	Drg No.	P170945-DR-SW-004	Re
------	----	--------	----------------------------	---------	-------------------	----



DETAIL 4 DISCHARGE PIT TYPICAL DETAIL – LOT 1
NOT TO SCALE

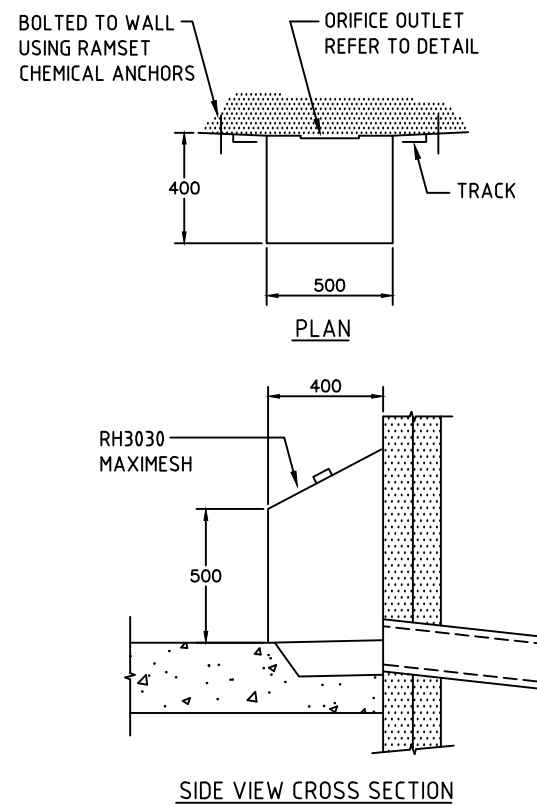
NOTE:

- ALL PIPES TO THE CONCRETE OSD TANK MUST BE WATER TIGHT TO PREVENT LEAKAGE THAT RESULTS IN SATURATION OF SOILS AND DAMAGE TO STRUCTURES.
- CONDUCT ANNUAL LEAK TEST FOR LEAK PREVENTION AND REMEDIATION.

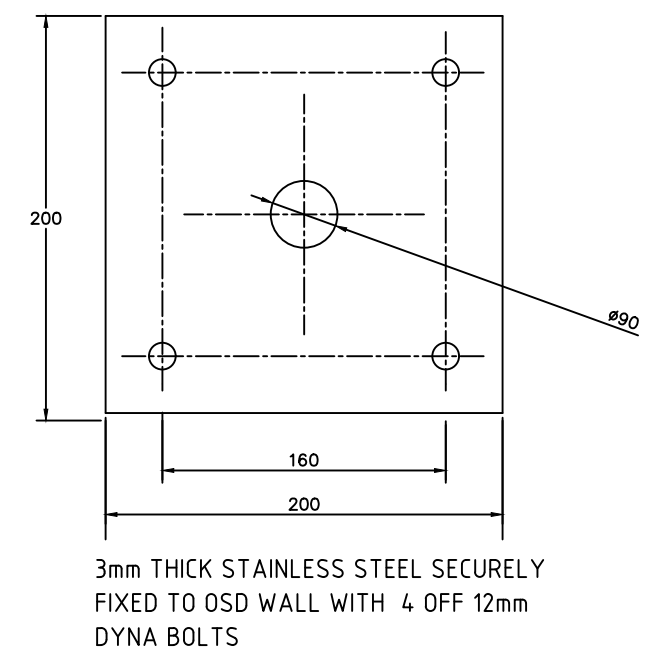


DETAIL
A

ORIFICE PLATE DETAIL – LOT 1
NOT TO SCALE




 TRASH SCREEN – TYPICAL
 NOT TO SCALE




 ORIFICE PLATE DETAIL – LOT 2
 NOT TO SCALE

NOT FOR CONSTRUCTION

This drawing is confidential and shall only be used for the purposes of this project.

Scale

AS NOTED

DO NOT SCALE. ALL DIMENSIONS ARE IN
MILLIMETRES UNLESS OTHERWISE SPECIFIED

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF
THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH
THE STELLEN QUALITY ASSURANCE SYSTEM

DESIGNED	SHA	CHECKED	YYA
DRAWN	SHA	CHECKED	YYA
APPROVED	YYA	DATE	30/11/2023



Stellen Consulting ABN 61 149 095 189

This design complies with:
AS3500.3:2021

50 CONDOVER STREET, NORTH BALGOWLAH

OSD DETAILS

Size A3	Status APPROVED FOR DA SUBMISSION	Drq No. P170945-DR-SW-005	Rev. 3
------------	--------------------------------------	------------------------------	-----------



- LEGEND
- PERVIOUS TO OSD
 - IMPERVIOUS TO OSD
 - PERVIOUS BYPASS OSD
 - IMPERVIOUS BYPASS OSD
 - SWIMMING POOL


PLAN 8 SITE AREAS – PROPOSED
1:200

TABLE 1 – PRE AND POST DEVELOPMENT FLOWS				
LOT 1				
ARI	STATE OF NATURE, PSD (l/s)	POST DEVELOPED FLOWS (l/s)		
		TO OSD	BYPASS	TOTAL
5 YEAR	12	7	0	7
20 YEAR	19	9	0	9
100 YEAR	25	11	1	12

TABLE 2 – PRE AND POST DEVELOPMENT FLOWS				
LOT 2				
ARI	STATE OF NATURE, PSD (l/s)	POST DEVELOPED FLOWS (l/s)		
		TO OSD	BYPASS	TOTAL
5 YEAR	10	6	2	8
20 YEAR	17	8	3	11
100 YEAR	23	10	4	14

TABLE 3 – PRE AND POST DEVELOPMENT FLOWS				
FLOW FROM LOT 1 AND LOT 2 LIMITED TO 30l/s				
ARI	PRE DEVELOPMENT FLOW, PSD (l/s)	POST DEVELOPED FLOWS (l/s)		
		LOT A	LOT B	TOTAL
5 YEAR	25	7	8	15
20 YEAR	39	9	11	20
100 YEAR	52	12	14	26

NOT FOR CONSTRUCTION

This drawing is confidential and shall only be used for the purposes of this project.				Scale 1:200 DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED	THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM				 Stellen Consulting ABN 61 149 095 189	This design complies with: AS3500.3:2021	50 CONDOVER STREET, NORTH BALGOWLAH															
REVISIONS	5	YYA	30/11/2023		APPROVED FOR DA SUBMISSION	YYA	DESIGNED	SHA			CHECKED	YYA	DRAWN	SHA	CHECKED	YYA	APPROVED	YYA	DATE	30/11/2023	SITE AREAS					
	4	SHA	24/10/2023		APPROVED FOR DA SUBMISSION	YYA																				
	3	SHA	15/09/2023		APPROVED FOR DA SUBMISSION	YYA																				
	2	SHA	13/09/2023		APPROVED FOR DA SUBMISSION	YYA																				
1	SHA	28/04/2023	APPROVED FOR DA SUBMISSION	YYA																						
0	SHA	29/03/2023	APPROVED FOR DA SUBMISSION	YYA																						
No.		BY	DATE	DESCRIPTION	APPD														Size	A3	Status	APPROVED FOR DA SUBMISSION	Org No.	P170945-DR-SW-006	Rev.	5

GENERAL REQUIREMENTS

THE FOLLOWING EROSION AND SEDIMENT CONTROL PLAN (ESCP) HAS BEEN DEVELOPED IN GENERAL ACCORDANCE WITH LANDCOM (2004) – MANAGING URBAN STORMWATER: SOILS AND CONSTRUCTION, OTHERWISE KNOWN AS "THE BLUE BOOK". THIS PLAN SHOULD ALSO BE READ IN CONJUNCTION WITH MANAGING URBAN STORMWATER – SOILS AND CONSTRUCTION (VOLUME 2A INSTALLATION OF SERVICES).

SITE ESTABLISHMENT

PRIOR TO THE COMMENCEMENT OF EARTHWORKS ON THE SITE THE FOLLOWING SHALL BE UNDERTAKEN AS A MINIMUM:

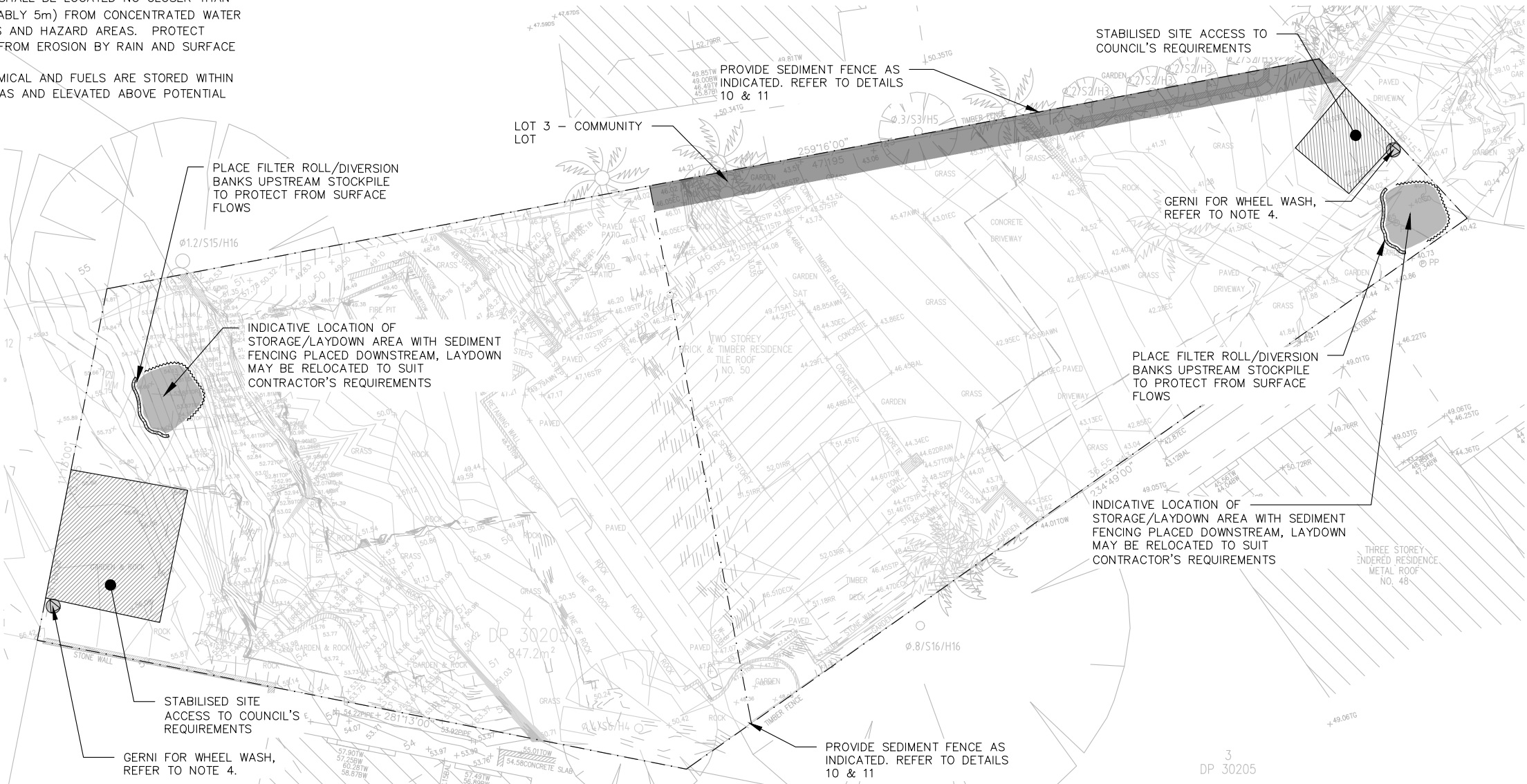
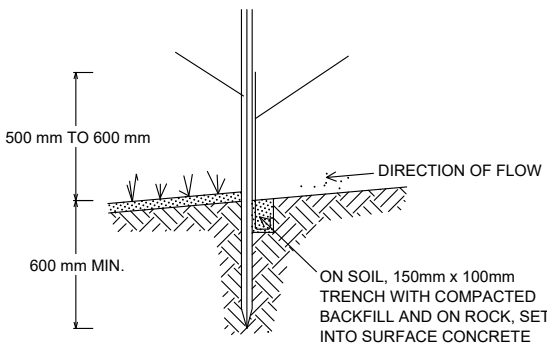
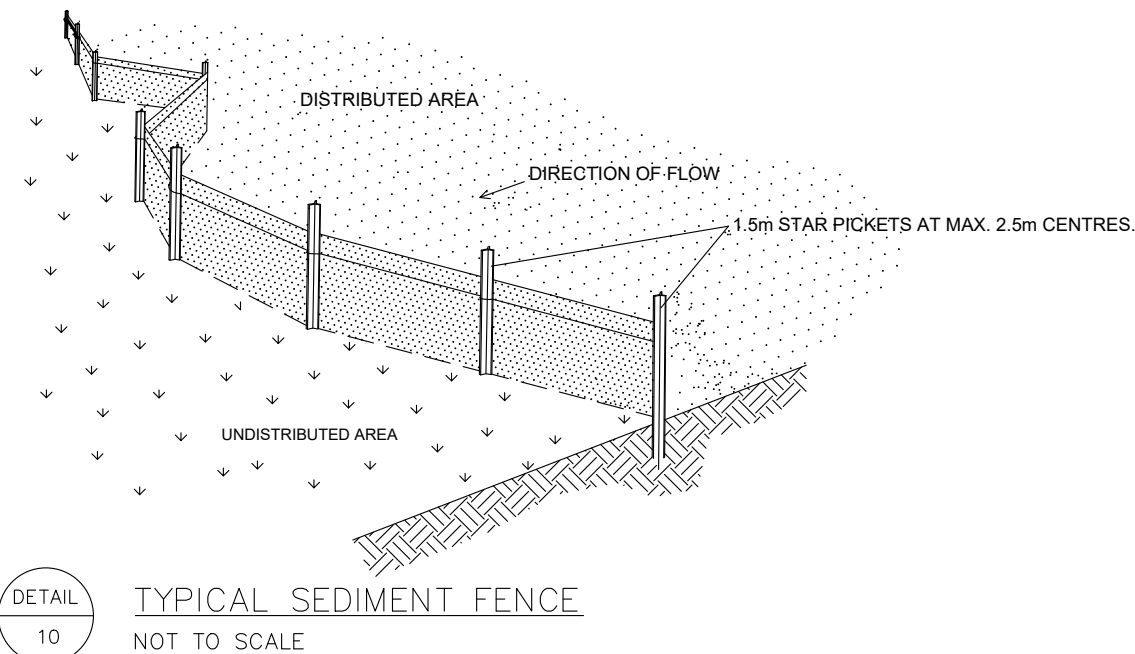
1. ERECT SAFETY FENCING WITH SIGNAGE CLEARLY INDICATING THAT THE SITE IS A CONSTRUCTION ZONE AND ACCESS IS RESTRICTED AS DEEMED NECESSARY.
2. ERECT CLEARLY VISIBLE BARRIER FENCING AT LOCATIONS SHOWN OR IF NOT SHOWN AT THE DISCRETION OF THE SITE SUPERINTENDENT TO ENSURE TRAFFIC IS CONTROLLED AND TO PROHIBIT UNNECESSARY SITE DISTURBANCE.
3. WHERE REQUIRED AT THE DISCRETION OF THE SITE SUPERINTENDENT, INSTALL STABILISED SITE ACCESS AT SITE ACCESS POINT TO PREVENT CONSTRUCTION EQUIPMENT FROM CARRYING SEDIMENT OFF THE SITE ONTO SURROUNDING ROADS.
4. PROVIDE GERNI PRESSURE CLEANER AT SITE EXIT POINT FOR TYRE WASH DOWN AT THE DISCRETION OF THE SITE SUPERINTENDENT.
5. INSTALL SEDIMENT AND EROSION CONTROL DEVICES IN ACCORDANCE WITH THE CONSTRUCTION DETAILS SPECIFIED IN THIS DRAWING SET AND/OR THE REQUIREMENTS OF THE 'BLUE BOOK'.

CONSTRUCTION

6. USE SANDBAGS, HAY BALES AND/OR GRAVEL FILLED GEOTEXTILE SOCKS TO FILTER AND CONVEY STORMWATER RUNOFF WITHIN THE SITE.
7. ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
8. INLET FILTERS SHALL BE INSTALLED WHERE SHOWN TO PREVENT WATER FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE. IF THE LOCATION OF INLET FILTERS ARE NOT SHOWN ON THE PLAN THEIR LOCATION SHALL BE AT THE DISCRETION OF THE SUPERINTENDENT.
9. STAGE WORK AND PROGRAMMING OF CONSTRUCTION ACTIVITIES TO MINIMISE THE EXTENT AND DURATION OF OPEN EXCAVATION. AVOID OPENING TRENCHES WHENEVER THE RISKS OF STORMS ARE HIGH.
10. DIVERT SURFACE WATER AWAY FROM EXCAVATION AREAS WITH SANDBAGS OR EQUIVALENT.
11. FOR DEWATERING OF EXCAVATION AREAS SET UP TEMPORARY DEWATERING PUMP OUT SYSTEM AS REQUIRED AND ENSURE FLOCCULATION IS USED IF WATER IS NOT CLEAR (i.e. SEDIMENT > 50mg/L). FOR RATES AND AGENTS REFER APPENDIX E NSW DEPARTMENT OF HOUSING "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION". DISCHARGE SHALL BE DIRECTLY TO COUNCIL'S PIPED DRAINAGE SYSTEM. DO NOT DISCHARGE TO THE KERB.
12. STOCKPILES SHALL BE LOCATED NO CLOSER THAN 2m (PREFERABLY 5m) FROM CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS. PROTECT STOCKPILES FROM EROSION BY RAIN AND SURFACE FLOWS.
13. ENSURE CHEMICAL AND FUELS ARE STORED WITHIN BUNDED AREAS AND ELEVATED ABOVE POTENTIAL FLOW PATHS.

MAINTENANCE

14. ALL DEDICATED SEDIMENT STORAGE ZONES WITHIN TRAPS SHALL BE CLEANED WHEN A MAXIMUM OF 60% FULL OF SOLID MATERIALS AND DISPOSED OF IN A MANNER THAT PREVENTS FURTHER POLLUTION OF THE SITE.
15. TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES WILL BE RETAINED UNTIL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS STABILISED.
16. THE CONTRACTOR SHALL INSPECT THE SITE AT LEAST WEEKLY AND AFTER ANY STORM EVENT AND WILL:
 - ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS;
 - REMOVE SPILLED SAND OR OTHER MATERIALS FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS (ESPECIALLY DRAINS AND TEMPORARY FLOW PATHS)
 - REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE;
 - CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS REQUIRED;
 - MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS STABILISED; AND
 - REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL STRUCTURES AS THE LAST ACTIVITY IN THE CONSTRUCTION PROGRAM.



NOT FOR CONSTRUCTION

REVISIONS				
No.	BY	DATE	DESCRIPTION	APPD
3	SHA	15/09/2023	APPROVED FOR DA SUBMISSION	YYA
2	SHA	13/09/2023	APPROVED FOR DA SUBMISSION	YYA
1	SHA	28/04/2023	APPROVED FOR DA SUBMISSION	YYA
0	SHA	29/03/2023	APPROVED FOR DA SUBMISSION	YYA

AS NOTED

DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED

THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM			
DESIGNED	SHA	CHECKED	YYA
DRAWN	SHA	CHECKED	YYA
APPROVED	YYA	DATE	13/09/2023



Stellen Consulting ABN 61 149 095 189

This design complies with:
AS3500.3:2021

50 CONDOVER STREET, NORTH BALGOWLAH			
SEDIMENT & EROSION CONTROL PLAN			
Size	Status	Dwg No.	Rev.
A3	APPROVED FOR DA SUBMISSION	P170945-DR-SD-100	3

1.0 STORMWATER MANAGEMENT PLAN FOR DA



The stormwater management plan is described in the following Stellen drawings:

DR-SW-000	Revision 6	Legend
DR-SW-001	Revision 7	Pipe Layout - Lot 1
DR-SW-002	Revision 7	Pipe Layout - Lot 2
DR-SW-003	Revision 5	Roof Layout
DR-SW-004	Revision 5	Details & Community Section
DR-SW-005	Revision 3	OSD Details
DR-SW-006	Revision 5	Site Areas
DR-SD-100	Revision 3	Sediment & Erosion Control Plan

The proposed stormwater design as described by the drawing complies with the following documents with noted exceptions:

- Australian Standard AS3500.3 (2021) - Plumbing and Drainage: Part 3 Stormwater Drainage.
- Northern Beaches Council Water Management for Development Policy 2021.

We recommend the proposed plan (as described in the drawings) as a safe and practical solution to support the development.

REVISIONS	This drawing is confidential and shall only be used for the purposes of this project.					Scale	<div>AS NOTED</div> <div>DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED</div>				<div><div>THE SIGNING OF THIS TITLE BLOCK CONFIRMS THE DESIGN AND DRAFTING OF THIS PROJECT HAVE BEEN PREPARED AND CHECKED IN ACCORDANCE WITH THE STELLEN QUALITY ASSURANCE SYSTEM</div><table><tr><td>DESIGNED</td><td>SHA</td><td>CHECKED</td><td>YYA</td></tr><tr><td>DRAWN</td><td>SHA</td><td>CHECKED</td><td>YYA</td></tr><tr><td>APPROVED</td><td>YYA</td><td>DATE</td><td>30/11/2023</td></tr></table><div><div></div><div>Stellen</div><div>Stellen Consulting ABN 61 149 095 189</div></div></div>				DESIGNED	SHA	CHECKED	YYA	DRAWN	SHA	CHECKED	YYA	APPROVED	YYA	DATE	30/11/2023	50 CONDOVER STREET, NORTH BALGOWLAH			
	DESIGNED	SHA	CHECKED	YYA																										
	DRAWN	SHA	CHECKED	YYA																										
	APPROVED	YYA	DATE	30/11/2023																										
															DESIGN STATEMENT															
7	YYA	30/11/2023	APPROVED FOR DA SUBMISSION		YYA	DO NOT SCALE. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SPECIFIED				<div><div></div><div>Stellen</div><div>Stellen Consulting ABN 61 149 095 189</div></div>				50 CONDOVER STREET, NORTH BALGOWLAH																
No.	BY	DATE	DESCRIPTION		APPD																									
										Size A3				Status FOR DA SUBMISSION				Dwg No. P170945-LT-SW-100				Rev. 7								