PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale

CONCEPT STORMWATER / CIVIL WORKS

GENERAL NOTES

G1. THE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL DRAWINGS AND SPECIFICATIONS AND OTHER WRITTEN INSTRUCTIONS THAT MAY BE ISSUED.
G2. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING FROM THE DRAWINGS. REFER ARCHITECTS DRAWINGS FOR ALL DIMENSIONS.
G3. REFER ANY DISCREPANCY TO THE ENGINEER/ARCHITECT.
G4. MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE APPROPRIATE SAA SPECIFICATIONS OR CODE AND WITH THE REQUIREMENTS OF THE RELEVANT LOCAL AUTHORITY.
G5. THE ALIGNMENT AND LEVEL OF ALL SERVICES SHOWN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL CONFIRM THE POSITION AND LEVEL OF ALL SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DAMAGE TO SERVICES SHALL BE RECTIFIED AT THE CONTRACTORS EXPENSE.
G6. NO WORKS ARE TO COMMENCE UNTIL THE REQUIRED TREE REMOVAL PERMITS HAVE BEEN GRANTED BY RELEVANT LOCAL AUTHORITY, AND THE APPROPRIATE NOTICE OF INTENTION TO COMMENCE GIVEN.
G7. ALL SERVICES, OR CONDUITS FOR SERVICING SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF PAVEMENT CONSTRUCTION.
G8. SUBSOIL DRAINAGE, COMPRISING 100 AGRICULTURE PIPE IN GEO-STOCKING TO BE PLACED AS SHOWN AND AS MAY BE DIRECTED BY THE SUPERINTENDENT. SUBSOIL DRAINAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.
G9. NO WORK IS PERMITTED WITHIN ADJOINING PROPERTIES WITHOUT WRITTEN PERMISSION FROM THE OWNERS OR RESPONSIBLE AUTHORITY.

DRAINAGE NOTES

D1. ALL DRAINAGE OUTLET LEVELS SHALL BE CONFIRMED ON SITE, PRIOR TO CONSTRUCTION COMMENCING.
D2. ALL PIPES WITHIN THE PROPERTY TO BE MIN. 100 DIA UPVC @ 1% MIN. GRADE, UNO.
D3. ALL PITS WITHIN THE PROPERTY ARE TO BE FITTED WITH "WELDLOK" OR APPROVED EQUIVALENT GRATES:
- LIGHT DUTY FOR LANDSCAPED AREAS
- HEAVY DUTY WHERE SUBJECTED TO VEHICULAR TRAFFIC
D4. PITS WITHIN THE PROPERTY MAY BE CONSTRUCTED AS:
1) PRECAST STORMWATER PITS
2) CAST INSITU MASS CONCRETE
3) CEMENT RENDERED 230mm BRICKWORK
SUBJECT TO THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.
D5. ENSURE ALL GRATES TO PITS ARE SET BELOW FINISHED SURFACE LEVEL WITHIN THE PROPERTY. TOP OF PIT RL'S ARE APPROXIMATE ONLY AND MAY BE VARIED SUBJECT TO APPROVAL OF THE ENGINEER. ALL INVERT LEVELS ARE TO BE ACHIEVED.
D6. ANY PIPES BENEATH RELEVANT LOCAL AUTHORITY ROAD TO BE RUBBER RING JOINTED RCP, UNO.
D7. ALL PITS IN ROADWAYS ARE TO BE FITTED WITH HEAVY DUTY GRATES WITH LOCKING BOLTS AND CONTINUOUS HINGE.
D8. PROVIDE STEP IRONS TO STORMWATER PITS GREATER THAN 1200 IN DEPTH.
D9. TRENCH BACK FILL IN ROADWAYS SHALL COMPRISE SHARP, CLEAN GRANULAR BACK FILL IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY SPECIFICATION TO NON-TRAFFICABLE AREAS TO BE COMPACTED BY RODDING AND TAMPING USING A FLAT PLATE VIBRATOR.
D10. WHERE A HIGH EARLY DISCHARGE (HED) PIT IS PROVIDED ALL PIPES ARE TO BE CONNECTED TO THE HED PIT, UNO.
D11. DOWN PIPES SHALL BE A MINIMUM OF DN100 SW GRADE UPVC OR 100X100 COLORBOND/ZINCALUME STEEL, UNO.
D12. COLORBOND OR ZINCALUME STEEL BOX GUTTERS SHALL BE A MINIMUM OF 450 WIDE X 150 DEEP.
D13. EAVES GUTTERS SHALL BE A MINIMUM OF 125 WIDE X 100 DEEP (OR OF EQUIVALENT AREA) COLORBOND OR ZINCALUME STEEL, UNO.
D14. SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM, UNO.

EARTHWORKS NOTES

E1. THE EARTHWORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT.
E2. THE SITE OF THE WORKS SHALL BE PREPARED BY STRIPPING ALL EXISTING TOPSOIL, FILL AND VEGETATION.
E3. SUBGRADE SHALL BE COMPACTED UNTIL A DRY DENSITY HAS BEEN ACHIEVED OF NOT LESS THAN 100% OF THE STANDARD MAXIMUM DRY DENSITY WHEN TESTED IN ACCORDANCE WITH AS 1289 TESTS E.1.1. OR E.1.2.
E4. THE EXPOSED SUBGRADE SHOULD BE PROOF ROLLED TO DETECT ANY SOFT OR WET AREAS WHICH SHOULD BE LOCALLY EXCAVATED AND BACK FILLED WITH SELECTED MATERIAL.
E5. THE BACK FILLING MATERIAL SHALL BE IMPORTED GRANULAR FILL OF LOW PLASTICITY, PREFERABLY CRUSHED SANDSTONE, OR AN APPROVED FILL MATERIAL COMPLYING WITH AN EPA RESOURCE RECOVERY ORDER AND TO BE PLACED IN LAYERS NOT EXCEEDING 150 LOOSE THICKNESS AND COMPACTED TO 98% OF STANDARD DRY DENSITY AT A MOISTURE CONTENT WITHIN 2% OF OPTIMUM.
E6. SITE WORKS ARE TO BE BATTERED TO ADJACENT PROPERTY LEVELS.
E7. STORMWATER MUST NOT BE CONCENTRATED ON TO AN ADJACENT PROPERTY.
E8. AT NO TIME DURING OR AFTER CONSTRUCTION IS STORMWATER TO BE PONDED ON ADJOINING PROPERTIES.
E9. THE SITE SHALL BE GRADED AND DRAINED SO THAT STORMWATER WILL BE DIRECTED AWAY FROM THE BUILDING PLATFORM.
E10. STORMWATER DRAINAGE SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE COURSE OF CONSTRUCTION. ALL STORMWATER RUNOFF SHALL BE GRADED AWAY FROM THE SITE WORKS AND DISPOSED OF VIA SURFACE CATCHDRAINS AND STORMWATER COLLECTION PITS.
E11. ALL SURFACE CATCH DRAINS SHALL BE GRADED AT 1% (1 IN 100) MINIMUM. THE GROUND SHALL GRADE AWAY FROM ANY DWELLING AT 5% (1 IN 20) FOR THE FIRST METRE THEN AT 2.5% (1 IN 40).
E12. WHERE A CUT FILL PLATFORM IS USED THERE SHALL BE A MINIMUM BERM 1000 WIDE TO THE PERIMETER OF THE SITE WORKS WHICH SHALL BE SUPPORTED BY BATTERS OF 3:1 IN FILL.
E13. ANY VERTICAL OR NEAR VERTICAL PERMANENT EXCAVATION (CUT) DEEPER THAN 600 IN MATERIAL OTHER THAN ROCK SHALL BE ADEQUATELY RETAINED OR BATTERED AT A MINIMUM OF 3:1.
E14. WHERE BATTERS CANNOT BE PROVIDED TO SUPPORT THE CUT OR FILL, THEY SHALL BE ADEQUATELY RETAINED.
E15. RETAINING WALLS ARE TO BE CONSTRUCTED WITH ADEQUATE SUBSOIL DRAINAGE.

CONCRETE PAVEMENT

C1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
C2. PROVIDE JOINTING AT MINIMUM 6000 MAX. INTERVALS OR AS OTHERWISE SPECIFIED IN THE DRAWINGS.
C3. CONCRETE SHALL COMPRISE A MIN. COMPRESSIVE STRENGTH OF 32MPa AT 28 DAYS IN ACCORDANCE WITH THE RELEVANT LOCAL AUTHORITY SPECIFICATION, UNO.
C4. ANY SUB-BASE MATERIAL SHALL BE COMPACTED AS OUTLINED IN EARTHWORKS.
C5. CONCRETE KERB AND GUTTER SHALL COMPRISE A MINIMUM COMPRESSIVE STRENGTH OF 25MPa, UNO.
C6. CONCRETE WORKS ARE TO BE CURED BY ONE OF THE FOLLOWING MEANS:
i) WETTING TWICE DAILY FOR THE FIRST THREE DAYS;
ii) USING AN APPROVED CURING COMPOUNDED FOR A MINIMUM OF 7 DAYS COMMENCING IMMEDIATELY AFTER POURING.

FLEXIBLE PAVEMENT NOTES

F1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
F2. PAVEMENT MATERIAL SHALL CONSIST OF APPROVED OR RIPPED SANDSTONE, NATURAL GRAVEL OR FINE CRUSH ROCK AS PER THE RELEVANT COUNCIL AUTHORITY SPECIFICATION.
F3. PAVEMENT MATERIALS SHALL BE SPREAD IN LAYERS NOT EXCEEDING 150 AND NOT LESS 75 COMPACTED THICKNESS.
F4. PAVEMENT MATERIALS SHALL BE SIZED AND OF A STANDARD OUTLINED IN AS1141.
F5. CRUSHED OR RIPPED SANDSTONE SHALL BE MINUS 75 NOMINAL SIZE DERIVED FROM SOUND, CLEAN SANDSTONE FREE FROM OVERBURDEN, CLAY SEAMS, SHALE AND OTHER DELETERIOUS MATERIAL.
F6. PAVEMENT MATERIALS SHALL BE COMPACTED BY SUITABLE MEANS TO SATISFY THE FOLLOWING MINIMUM SPECIFICATIONS (AS PER AS1289.2)

DESCRIPTION	MEDIUM DENSITY RATIO
SUB-BASE	98% MOD
BASE COURSE	98% MOD
ASPHALTIC CONCRETE	97% MOD

AND SUBJECT TO THE RELEVANT LOCAL AUTHORITY CONSTRUCTION SPECIFICATION.

F7. TESTING FOR EACH LAYER SHALL BE UNDERTAKEN BY A N.A.T.A. REGISTERED LABORATORY IN ACCORDANCE WITH AS1289, AT NOT MORE THAN 50m INTERVALS AND A MINIMUM OF TWO PER LAYER. FURTHER FREQUENCY OF TESTING SHALL BE NO LESS THAN THAT REQUIRED BY AS3978.

PAVED AREAS NOTES

A1. SUBGRADE SHALL BE PREPARED AS OUTLINED IN EARTHWORKS.
A2. ALL PAVERS ARE TO BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.
A3. TRAFFICABLE AREAS:
SUB-BASE TO BE 150 COMPACTED THICKNESS DGS75.
SUB-BASE TO BE SUITABLY COMPACTED TO MEDIUM DENSITY 98% MOD.
SUB-BASE TO EXTEND AT LEAST 200 BEYOND PAVED SURFACE.
PAVERS TO BE 80 THICK INTERLOCKING PAVERS ON 50 SAND BEDDING.
A4. NON TRAFFICABLE AREAS:
SUB BASE AS PER TRAFFICABLE AREAS
PAVERS TO BE 60 INTERLOCKING PAVERS ON 50 SAND BEDDING (UNO).

EROSION AND SEDIMENT NOTES

B1. THIS PLAN TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS ATTACHED.
B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF THE RELEVANT LOCAL AUTHORITY PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT THE RELEVANT LOCAL AUTHORITY APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS".
B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL SHALL BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY, (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.
B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM SUCH DEVICES SUCH THAT MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED AND FURTHER AS MAY BE DIRECTED BY THE SUPERINTENDENT OR COUNCIL.
B5. LAY TURF STRIP (MIN 300 WIDE) ON 100 TOPSOIL BEHIND ALL KERB WITH 1000 LONG RETURNS EVERY 6000 AND AROUND STRUCTURES IMMEDIATELY AFTER BACKFILLING AS PER THE RELEVANT LOCAL AUTHORITY SPECIFICATION.
B6. THE CONTRACTOR SHALL GRASS SEED ALL DISTURBED AREAS WITH AN APPROVED MIX AS SOON AS PRACTICABLE AFTER COMPLETION OF EARTHWORKS AND REGRADING.
B7. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.
B8. WHEN ANY DEVICES ARE TO BE HANDED OVER TO COUNCIL THEY SHALL BE IN CLEAN AND STABLE CONDITION.
B9. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.
B10. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENT IS REVEGETATED OR PAVED.
B11. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.
B12. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL:
- DOWNPIPES CONNECTED
- PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER

CONCRETE STRUCTURES NOTES

S1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
S2. CONCRETE COMPONENTS AND QUALITY SHALL BE AS FOLLOWS, UNO:

ELEMENT	SLUMP mm	MAX. SIZE AGG. mm	CEMENT TYPE	f'c AT 28 DAYS - MPa	ADMIXTURE
FOOTINGS	80	20	A	25	-
PIERS & CAPS	80	20	A	25	-
SLABS ON GROUND	80	20	A	32	-
SUSPENDED SLABS	80	20	A	32	-
PITS	80	20	A	25	-

S3. MINIMUM CLEAR CONCRETE COVER TO REINFORCEMENT INCLUDING TIES AND STIRRUPS SHALL BE AS FOLLOWS UNO.

EXPOSURE CLASSIFICATION	MINIMUM COVER (mm)				
	CONCRETE STRENGTH (f'c)				
	20 MPa	25 MPa	32 MPa	40 MPa	>50 MPa
A1	20	20	20	20	20
A2	(50)	30	25	20	20
B1	-	(60)	40	30	25
B2	-	-	(65)	45	35
C	-	-	-	(70)	50

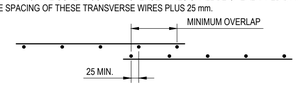
FOR BRACKETED FIGURES REFER TO AS 3600 CURRENT EDITION TABLE 4.10.3.2

S4. MINIMUM COVER FOR FIRE RESISTANCE LEVEL (FRL) SHALL BE AS FOLLOWS;

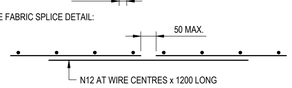
MINIMUM ELEMENT WIDTH OR THICKNESS / MIN COVER (mm)				
FRL	BEAM	SLAB	COLUMN	WALL
60	125 / 30	80 / 20	200 / 20	80 / 20
90	150 / 45	100 / 25	250 / 35	100 / 35
120	200 / 55	120 / 30	300 / 45	120 / 40
180	240 / 70	150 / 45	400 / 60	150 / 45
240	270 / 80	170 / 55	450 / 70	170 / 50

NOTE : 1. REFER TO AS 3600 CURRENT EDITION FOR REDUCED COVERS IF GREATER ELEMENT THICKNESSES ARE ADOPTED FOR BEAMS & COLUMNS.
2. COVER IS MEASURED TO THE MAIN REINFORCEMENT

S5. COVER TO REINFORCEMENT SHALL BE OBTAINED BY THE USE OF APPROVED BAR CHAIRS. ALL CHAIRS SHALL BE SPACED AT 1000 CTS MAXIMUM.
S6. ALL CONCRETE SHALL BE MECHANICALLY VIBRATED. VIBRATORS SHALL NOT BE USED TO SPREAD CONCRETE.
S7. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
S8. NO HOLES OR CHASES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR APPROVAL OF THE ENGINEER.
S9. CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO APPROVAL OF THE ENGINEER. ALL CONSTRUCTION JOINTS SHALL BE SCABBLED OVER THE WHOLE FACE AND ANY UNSOUND MATERIAL REMOVED.
S10. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY; IT IS NOT NECESSARILY SHOWN IN TRUE PROJECTION.
S11. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN OR AS APPROVED BY THE ENGINEER. WHERE THE LAP LENGTH IS NOT SHOWN IT SHALL BE SUFFICIENT TO DEVELOP THE FULL STRENGTH OF THE REINFORCEMENT AS SPECIFIED IN AS3600. COGS AND HOOKS SHALL BE STANDARD UNLESS SHOWN OTHERWISE.
S12. WELDING OF REINFORCEMENT WILL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
S13. PIPES OR CONDUITS SHALL NOT BE PLACED WITHIN THE CONCRETE COVER TO REINFORCEMENT WITHOUT THE APPROVAL OF THE ENGINEER.
S14. REINFORCEMENT SYMBOLS:
N - DENOTES DEFORMED GRADE 500 NORMAL DUCTILITY REINFORCING BARS TO AS/NZS 4671.
R - DENOTES PLAIN ROUND GRADE 250 NORMAL DUCTILITY REINFORCING BARS TO AS/NZS 4671.
SL - DENOTES DEFORMED GRADE 500 LOW DUCTILITY REINFORCING MESH TO AS/NZS 4671.
RL - DENOTES DEFORMED GRADE 500 LOW DUCTILITY REINFORCING MESH TO AS/NZS 4671.
L--TM - DENOTES DEFORMED GRADE 500 LOW DUCTILITY TRENCH MESH TO AS/NZS 4671.
S15. ALL REINFORCING FABRIC SHALL COMPLY WITH AS1303 AND AS1304 AND SHALL BE SUPPLIED IN FLAT SHEETS.
S16. SPLICES IN FABRIC: THE OUTERMOST TRANSVERSE WIRES SHALL BE OVERLAPPED BY AT LEAST THE SPACING OF THESE TRANSVERSE WIRES PLUS 25 mm.



ALTERNATIVE FABRIC SPLICE DETAIL:



S17. EXPOSED CORNERS SHALL BE 20 mm CHAMFERED UNO.
S18. ALL REINFORCEMENT SHALL BE INSPECTED BY THE SUPERINTENDENT OR ENGINEER PRIOR TO PLACING CONCRETE.
S19. ALL SLAB CONCRETE TO BE CURED IN AN APPROVED MANNER FOR A MINIMUM OF 7 DAYS.
S20. ALL FORMWORK AND PROPS FOR SLABS AND BEAMS SHALL BE REMOVED BEFORE CONSTRUCTION OF ANY MASONRY WALLS OR PARTITIONS ON THE FLOOR.
S21. ALL ABBREVIATIONS ARE IN ACCORDANCE WITH AS1100.
S22. FORMWORK SHALL NOT BE STRIPPED UNTIL CONCRETE HAS ACHIEVED A MINIMUM STRENGTH OF 20 MPa. THE CONCRETE SLAB AND BEAMS SHALL BE TEMPORARILY BACK PROPPED UNTIL THE CONCRETE HAS ACHIEVED 28 DAY STRENGTH AND ANY PROPPING TO HIGHER LEVEL FORMS HAVE BEEN REMOVED.
S23. WHERE A SUSPENDED SLAB IS TO BE SUPPORTED OFF A SUSPENDED SLAB BELOW, WRITTEN APPROVAL SHALL BE OBTAINED FROM THE ENGINEER PRIOR TO ANY SITE WORKS.

MASONRY

M1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3700.

M2. THE DESIGN STRENGTH OF MASONRY SHALL BE AS FOLLOWS U.N.O. :

EXPOSURE CLASSIFICATION TO AS 3600	MASONRY COMPRESSIVE STRENGTH MPa (fm)	MASONRY SALT RESISTANCE GRADE	DURABILITY CLASSIFICATION OF BUILT IN COMPONENTS	MORTAR MIX	
				GP PORTLAND CEMENT : LIME : SAND	f'c MPa
A1 / A2	> 6.3	General Purpose	R3 (Galvanised)	1.0 : 1.0 : 6.0	2.8
B1	> 6.3	General Purpose	R3 (Galvanised)	1.0 : 1.0 : 6.0	2.8
B2	> 6.7	Exposure	R4 (Stainless)	1.0 : 0.5 : 4.5	2.8

M3. ALL MASONRY WALLS SUPPORTING SLABS AND BEAMS SHALL HAVE A PRE-GREASED TWO LAYER GALVANISED STEEL SLIP JOINT BETWEEN CONCRETE AND MASONRY.

M4. ALL MASONRY WALLS SUPPORTING OR SUPPORTED BY CONCRETE FLOORS SHALL BE PROVIDED WITH VERTICAL JOINTS TO MATCH ANY CONTROL JOINTS IN THE CONCRETE.

M5. NON LOAD BEARING WALLS SHALL BE SEPARATED FROM CONCRETE ABOVE BY 20 mm THICK CLOSED CELL POLYETHYLENE STRIP.

M6. MASONRY SHALL BE ARTICULATED IN ACCORDANCE WITH TECHNICAL NOTE 61 FROM THE CEMENT AND CONCRETE ASSOCIATION OF AUSTRALIA. VERTICAL CONTROL JOINTS SHALL NOT EXCEED 5 METRES MAXIMUM CENTRES, AND 4 METRES MAXIMUM FROM CORNERS IN MASONRY WALLS, AND BETWEEN NEW & EXISTING BRICKWORK.

M7. MASONARY RETAINING WALLS ARE TO BE BACKFILLED WITH EITHER OF THE FOLLOWING MATERIAL:
- COARSE GRAINED SOIL WITH LOW SILT CONTENT
- RESIDUAL SOIL CONTAINING STONES
- FINE SILTY SAND
- GRANULAR MATERIALS WITH LOW CLAY CONTENT

BLOCKWORK

B1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS3700.

B2. REINFORCED CONCRETE BLOCKWORK SHALL COMPLY WITH THE FOLLOWING, UNO:
- BLOCKS : GRADE 15 CONFORMING TO AS1500.
- MORTAR : 1 CEMENT / 0.25 LIME / 3 SAND.
- PROVIDE CLEANOUT HOLES AT BASE OF WALL & ROD CORE HOLES TO REMOVE PROTRUDING MORTAR FINS.
- CORE FILLING : f'c = 20 MPa, 10 AGG, 230 SLUMP +/- 30 mm.
- COVER : 55 mm MIN. FROM OUTSIDE OF BLOCKWORK.

B3. BACKFILL TO RETAINING WALLS TO BE FREE DRAINING GRANULAR MATERIAL, UNO. PROVIDE SUBSOIL DRAIN BEHIND WALL AND AT WEEP HOLES.

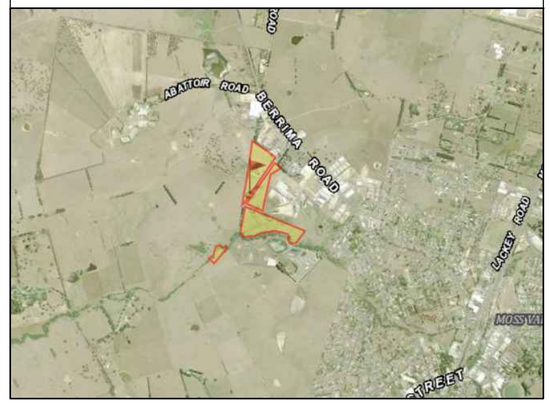
B4. VERTICAL CONTROL JOINTS SHALL BE PROVIDED AT 10 m MAX. CENTRES.

B5. NO ADMIXTURES SHALL BE USED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.

STANDARD LINE TYPES AND SYMBOLS:

PROPOSED KERB & GUTTER
EXISTING KERB & GUTTER
PROPOSED BELOW GROUND PIPELINE
PROPOSED SUSPENDED PIPELINE
EXISTING PIPELINE
SUBSOIL DRAINAGE LINE
PROPOSED KERB INLET PIT
EXISTING KERB INLET PIT
PROPOSED JUNCTION OR INLET PIT
EXISTING JUNCTION OR INLET PIT
DESIGN CENTRELINE
EXISTING EDGE OF BITUMEN
TELECOMUNICATION CONDUIT
GAS MAIN
WATER MAIN
SEWER MAIN
UNDERGROUND ELECTRICITY CABLES
PERMANENT MARK & S.S.M.
BENCH MARK, SURVEY STATION

LOCATION PLAN



SCHEDULE OF DRAWINGS

FOR DA APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES
A1 ORIGINAL SIZE

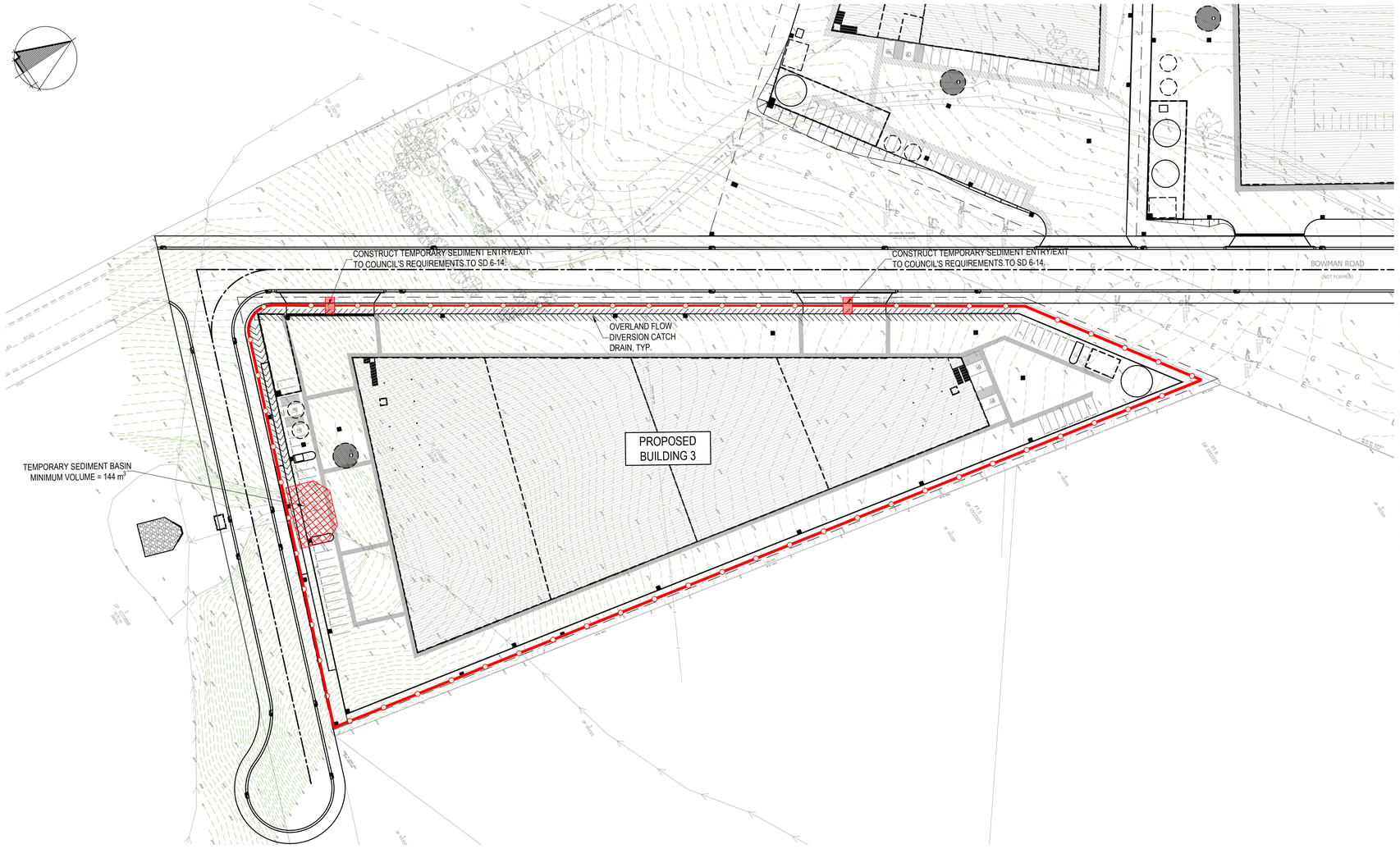
REVISION	DATE	AMENDMENT DESCRIPTION
E	19.03.24	ISSUED FOR DA APPROVAL
D	28.07.23	ISSUED FOR DA APPROVAL
C	30.06.23	ISSUED FOR DA APPROVAL
B	14.06.23	ISSUED FOR DA APPROVAL
A	19.05.23	ISSUED FOR DA APPROVAL

ECLIPSE | CONSULTING ENGINEERS
ECLIPSE Consulting Engineers Pty Ltd
305/12 Century Cct
Norwest Central
NORWEST NSW 2153
Phone : (02) 9894 8500
info@eclipseconsulting.com.au
www.eclipseconsulting.com.au

PROPOSED BUILDING 3
2 Bowman Rd, Moss Vale
For SAAS Aus Pty Ltd

GENERAL NOTES

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE	DRG No.
		-	C301 - E



SEDIMENT & EROSION CONTROL PLAN

1:750

- DENOTES SEDIMENT FENCE

SEDIMENT AND EROSION CONTROL NOTES

SEDIMENT AND EROSION CONTROL SHALL BE EFFECTIVELY MAINTAINED AT ALL TIMES DURING THE COURSE OF CONSTRUCTION AND SHALL NOT BE REMOVED UNTIL THE SITE HAS BEEN STABILISED OR LANDSCAPED TO THE SUPERINTENDENT'S SATISFACTION.

A SINGLE ALL WEATHER ACCESS WAY WILL BE PROVIDED AT THE FRONT OF THE PROPERTY CONSISTING OF 50-75 AGGREGATE OR SIMILAR MATERIAL AT A MINIMUM THICKNESS OF 150 LAID OVER NEEDLE-PUNCHED GEOTEXTILE FABRIC AND CONSTRUCTED PRIOR TO COMMENCEMENT OF WORKS.

THE CONTRACTOR SHALL ENSURE THAT NO SPOIL OR FILL ENCROACHES UPON ADJACENT AREAS FOR THE DURATION OF WORKS.

THE CONTRACTOR SHALL ENSURE THAT KERB INLETS AND DRAINS RECEIVING STORMWATER SHALL BE PROTECTED AT ALL TIMES DURING DEVELOPMENT. KERB INLET SEDIMENT TRAPS SHALL BE INSTALLED ALONG THE IMMEDIATE VICINITY ALONG THE STREET FRONTAGE.

ALL TOPSOIL STRIPPED FROM THE SITE AND STOCKPILED DOES NOT INTERFERE WITH DRAINAGE LINES AND STORMWATER INLETS AND WILL BE SUITABLY COVERED WITH AN IMPERVIOUS MEMBRANE MATERIAL AND SCREENED BY SEDIMENT FENCING.

SOIL CONSERVATION NOTE:

PRIOR TO COMMENCEMENT OF CONSTRUCTION PROVIDE 'SEDIMENT FENCE,' 'SEDIMENT TRAP' AND WASHOUT AREA TO ENSURE THE CAPTURE OF WATER BORNE MATERIAL GENERATED FROM THE SITE.

MAINTAIN THE ABOVE DURING THE COURSE OF CONSTRUCTION, AND CLEAR THE 'SEDIMENT TRAP AFTER EACH STORM.

SEDIMENT TRAP

1000 x 1000 WIDE 500 DEEP PIT, LOCATED AT THE LOWEST POINT TO THE TRAP SEDIMENT AND IN ACCORDANCE WITH LOCAL COUNCIL'S DCP AND SITE CONDITIONS.

SEDIMENT FENCE

PROVIDE 'SEDIMENT FENCE ON DOWN SLOPE BOUNDARY AS SHOWN ON PLAN. FABRIC TO BE BURIED BELOW GROUND AT LOWER EDGE.
REFER TO SD 6-8

BUILDING MATERIAL STOCKPILES

ALL STOCKPILES OF BUILDING MATERIAL SUCH AS SAND AND SOIL MUST BE PROTECTED TO PREVENT SCOUR AND EROSION.

THEY SHOULD NEVER BE PLACED IN THE STREET GUTTER WHERE THEY WILL WASH AWAY WITH THE FIRST RAINSTORM.
REFER TO SD 4-1

GENERAL NOTES

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).

NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.

ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.

DURING EXCAVATION WORK THE STRUCTURE SHALL BE MAINTAINED IN A STABLE AND NO PART SHALL BE OVERSTRESSED.

ALL WORK IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS & THE SPECIFICATION.

EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.

ALL SERVICE TRENCHES UNDER VEHICULAR PAVEMENTS SHALL BE BACK FILLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL COUNCIL.

ALL TRENCH BACK FILL MATERIAL SHALL BE COMPACTED TO THE SAME DENSITY AS THE ADJACENT MATERIAL.

ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.

CONTRACTOR TO OBTAIN ALL AUTHORITY APPROVALS UNLESS DIRECTED OTHERWISE.

STORMWATER DRAINAGE

THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3 - 1990 "STORMWATER DRAINAGE" & AS/NZS 3500.3.2-1998 "STORMWATER DRAINAGE - ACCEPTABLE SOLUTIONS".

ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.

ANY VARIATIONS TO SPECIFIED PRODUCTS OR DETAILS SHALL BE REFERRED TO THE ENGINEER FOR APPROVAL.

DOWN PIPES SHALL BE A MINIMUM OF DN100 SW GRADE UPVC OR 100X100 COLORBOND/ZINCALUME STEEL, UNO.

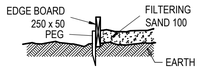
BOX COLORBOND OR ZINCALUME STEEL. GUTTERS SHALL BE A MINIMUM OF 450 WIDE X 150 DEEP.

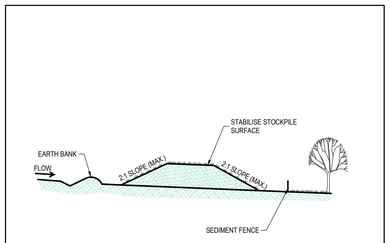
EAVES GUTTERS SHALL BE A MINIMUM OF 125 WIDE X 100 DEEP (OR OF EQUIVALENT AREA) COLORBOND OR ZINCALUME STEEL.

SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.

WASHOUT AREA

TO BE 1800 x 1800 ALLOCATED FOR THE WASHING OF TOOL & EQUIPMENT.

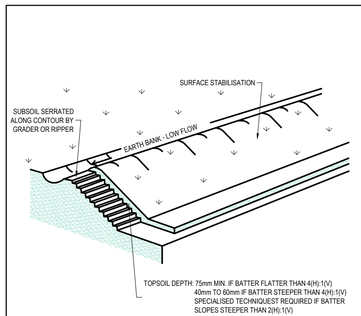




CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

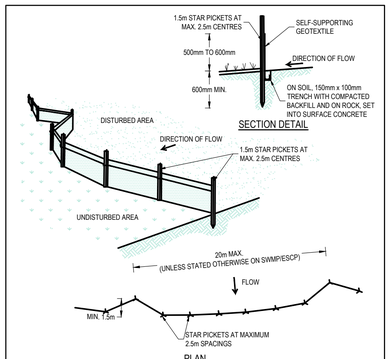
STOCKPILES — SD 4-1



CONSTRUCTION NOTES

1. SCARIFY THE GROUND SURFACE ALONG THE LINE OF THE CONTOUR TO A DEPTH OF 50mm TO 100mm TO BREAK UP ANY HARDSETTING SURFACES AND TO PROVIDE A GOOD BOND BETWEEN THE RESPREAD MATERIAL AND SUBSOIL.
2. ADD SOIL AMELIORANTS AS REQUIRED BY THE ESCP OR SWMP.
3. RIP TO A DEPTH OF 300mm IF COMPACTED LAYERS OCCUR.
4. WHERE POSSIBLE, REPLACE TOPSOIL TO A DEPTH OF 40 TO 60mm ON LANDS WHERE THE SLOPE EXCEEDS 4(H):1(V) AND TO AT LEAST 75mm ON LOWER GRADIENTS.

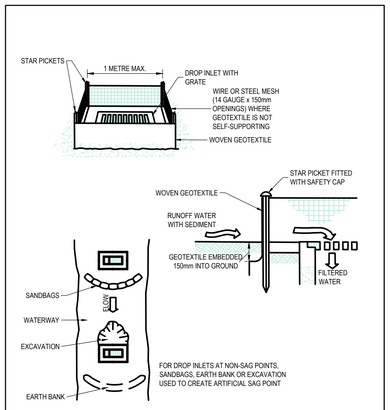
REPLACING TOPSOIL — SD 4-2



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX.) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

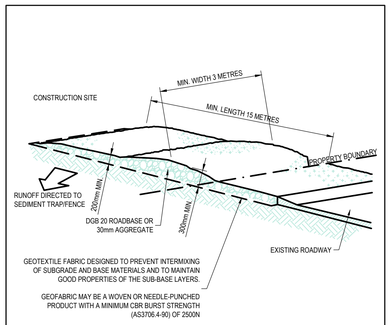
SEDIMENT FENCE — SD 6-8



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

GEOTEXTILE INLET FILTER — SD 6-12



CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS — SD 6-14

FOR DA APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

REVISION	DATE	AMENDMENT DESCRIPTION
F	28.05.24	ISSUED FOR DA APPROVAL
E	19.03.24	ISSUED FOR DA APPROVAL
D	28.07.23	ISSUED FOR DA APPROVAL
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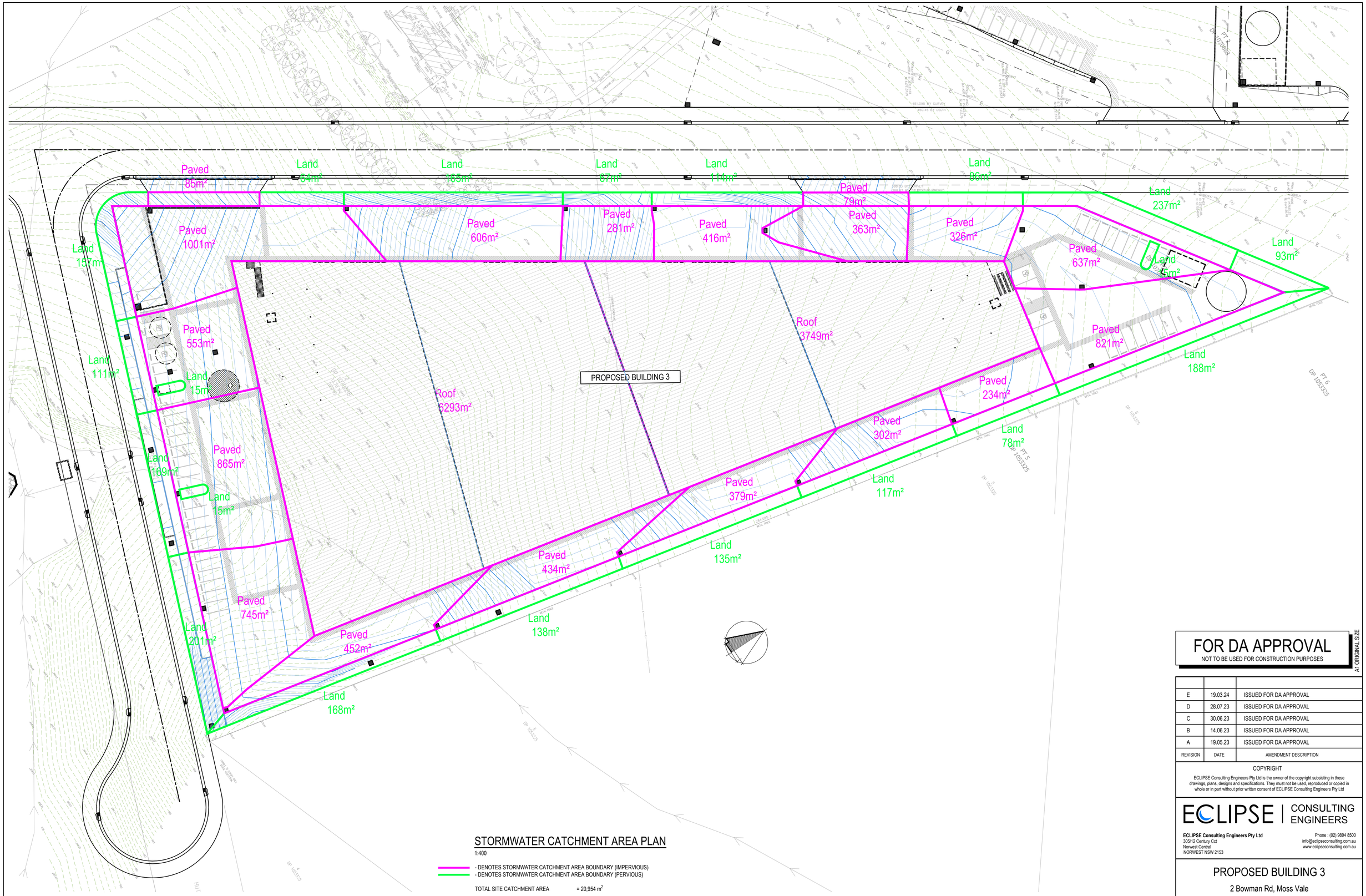
PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale

For SAAS Aus Pty Ltd

SEDIMENT AND EROSION CONTROL PLAN

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE 1:750	DRG No. C302 - F



STORMWATER CATCHMENT AREA PLAN

1:400

- DENOTES STORMWATER CATCHMENT AREA BOUNDARY (IMPERVIOUS)
- DENOTES STORMWATER CATCHMENT AREA BOUNDARY (PERVIOUS)

TOTAL SITE CATCHMENT AREA	= 20,954 m²
ROOF AREA	= 10,042 m²
PAVEMENT AREA	= 8,579 m²
LANDSCAPE AREA	= 2,333 m²

- DENOTES EXISTING SURVEY CONTOUR
- DENOTES NEW SURFACE LEVEL CONTOUR (MAJOR)
- DENOTES NEW SURFACE LEVEL CONTOUR (MINOR)

FOR DA APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

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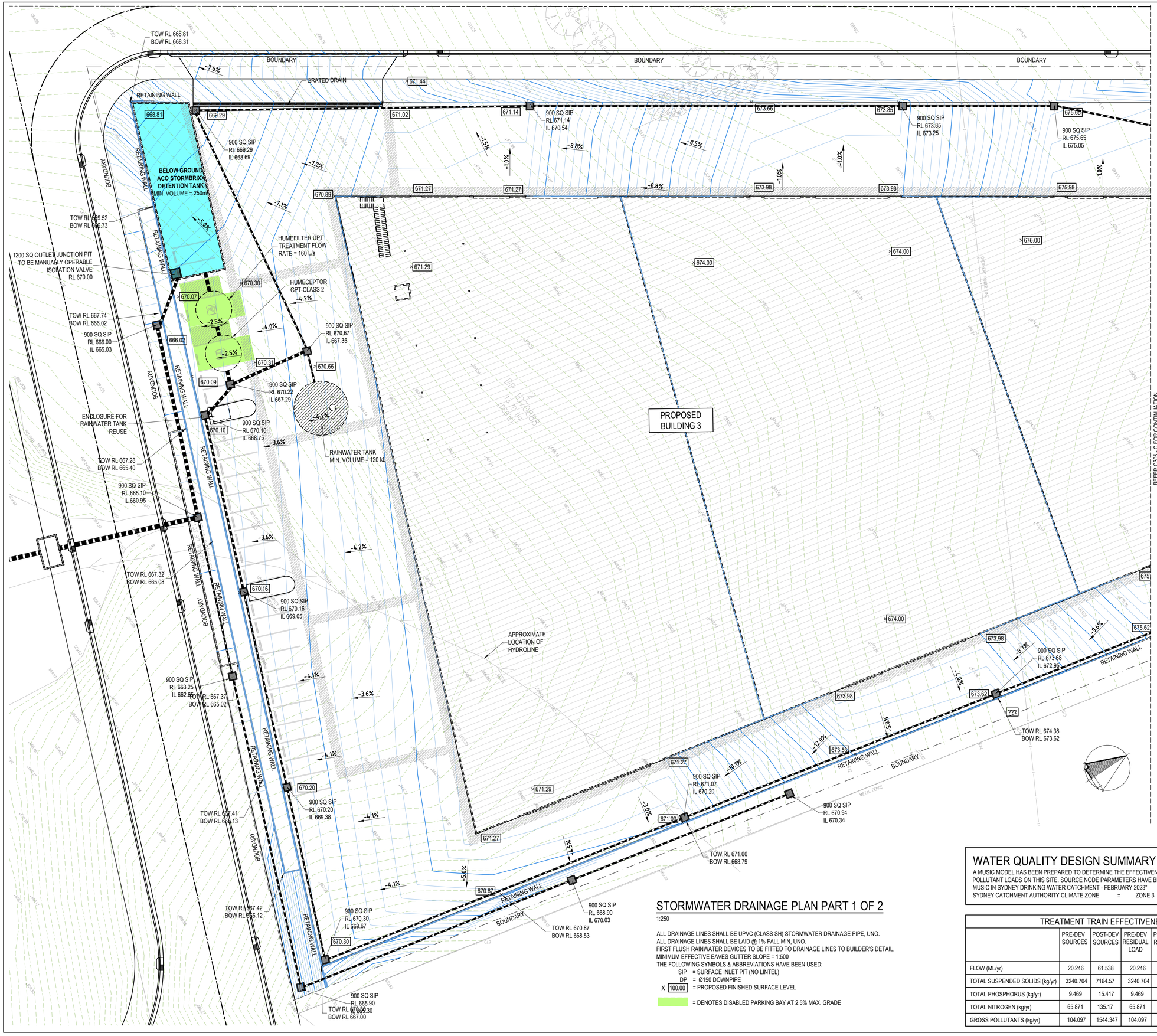
For SAAS Aus Pty Ltd

STORMWATER CATCHMENT AREA PLAN

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE	DRG No.
		1:400	C303 - E



STORMWATER DRAINAGE STRATEGY

- ALL GUTTERS & DOWNPIPES ARE DESIGNED TO ACCEPT A 1:20 YEAR ARI STORM EVENT.
- BOX GUTTERS & DOWNPIPES ARE DESIGNED TO ACCEPT A 1:100 YEAR ARI STORM EVENT.
- ALL PITS & PIPES ARE DESIGNED TO ACCEPT A 1:20 YEAR ARI STORM EVENT.
- DESIGN RAINFALL INTENSITIES:
  1:20 YEAR, 5 MIN = 153 mm/hr
  1:100 YEAR, 5 MIN = 209 mm/hr
- ALL PIPES MUST HAVE A MIN. 1.0% FALL, UNO.
- THE FOLLOWING SQIDs HAVE BEEN DESIGNED FOR THIS DEVELOPMENT
  - RAINWATER TANK
  - HUMECEPTOR - CLASS 2
  - HUMEFILTER - UPT
  - HUMEGARD
  - DETENTION TANK

REUSE ANALYSIS

A RAINWATER REUSE ANALYSIS HAS BEEN CONDUCTED TO EVALUATE THE PERFORMANCE OF RAINWATER TANKS IN REDUCING POTABLE WATER DEMAND.

RETENTION DESIGN

DAILY (9AM) RAINFALL RECORD: 068239 (2001-2023)

ROOF AREA	= 10042 m²
RAINFALL INTERCEPTION DEPTH	= 10 mm
MINIMUM RAINWATER TANK VOLUME	= 100.42 kL
RAINWATER TANK VOLUME	= 120 kL
REUSE DEMANDS:	
TOILETS	= 1.7 kL/day
IRRIGATION FOR LANDSCAPING	= 933.2 kL/m²/yr
DAILY DEMAND	= 4.6 kL/day
RAINWATER TANK CATCHMENT AREA	= 10042 m²
DESIGN RAINWATER TANK VOLUME	= 120 kL
REUSE DEMAND MET	= 90.31%
OVERFLOW FREQUENCY	= 14.22%

DETENTION DESIGN

A DRAINS MODEL HAS BEEN PREPARED TO EVALUATE THE PERFORMANCE OF THE DETENTION SYSTEM.

ANTECEDENT MOISTURE CONDITION DETERMINED FROM RAINFALL RECORD 068239 (2001-2023)	= 3.16
SOIL TYPE	= 3
TIME OF CONCENTRATION (t_c)	= 5 min.
ORIFICE DIAMETER	= 300 mm
INTERNAL WEIR HEIGHT	= 1600 mm
AREA	= 125 m²
DETENTION VOLUME REQUIRED	= 218.1 m³
DETENTION VOLUME PROVIDED	= 250 m³

PRE & POST DEVELOPMENT FLOWS

RAINFALL EVENT	50%	20%	10%	5%	2%	1%
PRE-DEVELOPMENT FLOW (L/s)	212	455	600	715	896	1022
POST-DEVELOPMENT FLOW (L/s)	192	332	502	655	729	823
STORAGE VOLUME REQUIRED (m³)	127.6	187.3	208.8	218.1	240.6	271.1

WATER QUALITY DESIGN SUMMARY

A MUSIC MODEL HAS BEEN PREPARED TO DETERMINE THE EFFECTIVENESS OF SQIDs AT REDUCING POLLUTANT LOADS ON THIS SITE. SOURCE NODE PARAMETERS HAVE BEEN ADOPTED FROM "USING MUSIC IN SYDNEY DRINKING WATER CATCHMENT - FEBRUARY 2023"
SYDNEY CATCHMENT AUTHORITY CLIMATE ZONE = ZONE 3

TREATMENT TRAIN EFFECTIVENESS

	PRE-DEV SOURCES	POST-DEV SOURCES	PRE-DEV RESIDUAL LOAD	POST-DEV RESIDUAL LOAD	% REDUCT. FROM POSTDEV SOURCES	%REDUCT. FROM PREDEV RESIDUAL
FLOW (ML/yr)	20.246	61.538	20.246	57.171	7.098	-183
TOTAL SUSPENDED SOLIDS (kg/yr)	3240.704	7164.57	3240.704	1438.144	79.927	57
TOTAL PHOSPHORUS (kg/yr)	9.469	15.417	9.469	5.043	67.287	46
TOTAL NITROGEN (kg/yr)	65.871	135.17	65.871	61.131	54.775	8
GROSS POLLUTANTS (kg/yr)	104.097	1544.347	104.097	17.302	98.88	83

FOR DA APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

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PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale
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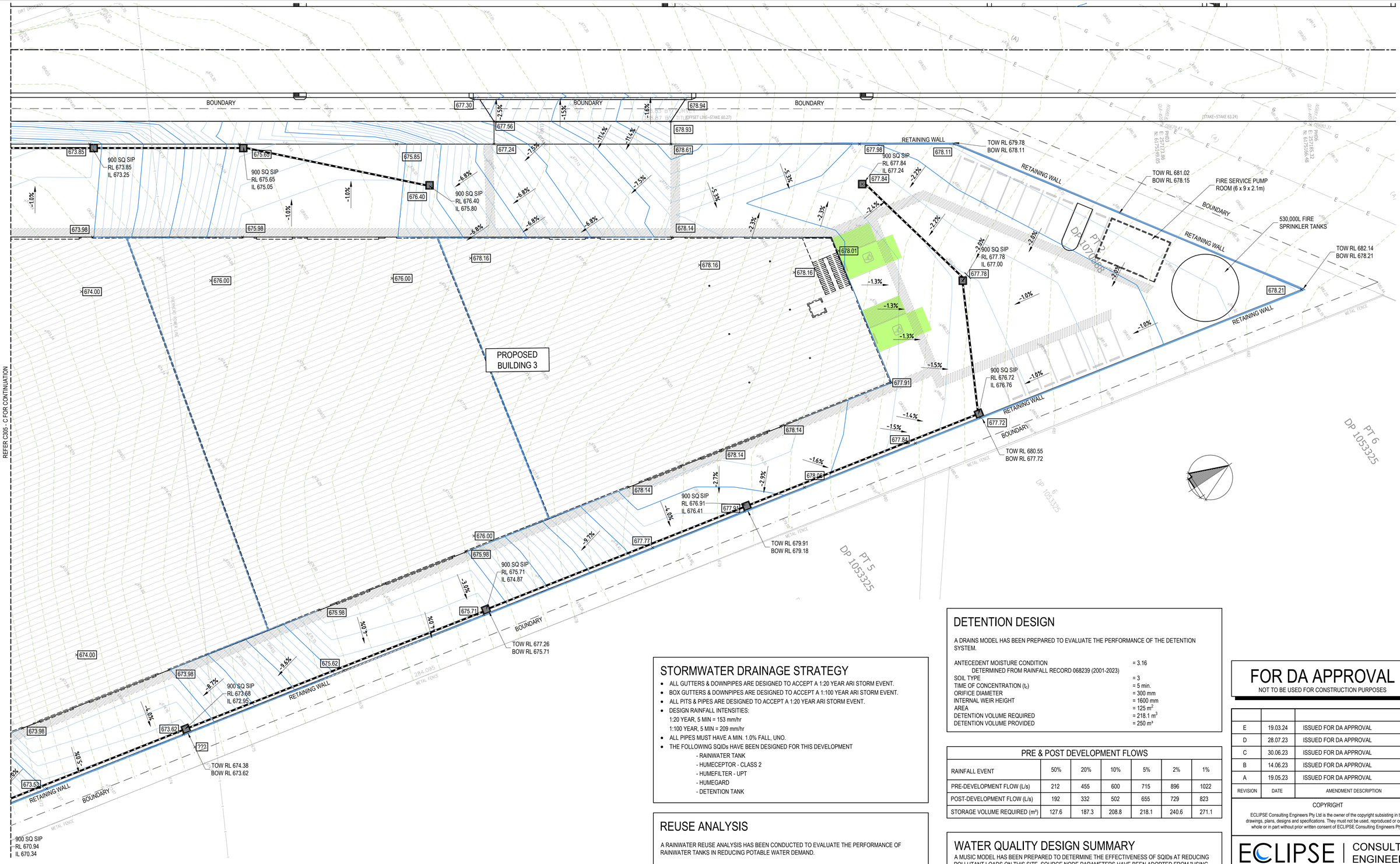
STORMWATER DRAINAGE PLAN PART 1 OF 2

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE 1:250	DRG No. C304 - E



STORMWATER DRAINAGE PLAN PART 2 OF 2

1:250

ALL DRAINAGE LINES SHALL BE UPVC (CLASS SH) STORMWATER DRAINAGE PIPE, UNO.
ALL DRAINAGE LINES SHALL BE LAID @ 1% FALL MIN, UNO.
FIRST FLUSH RAINWATER DEVICES TO BE FITTED TO DRAINAGE LINES TO BUILDER'S DETAIL,
MINIMUM EFFECTIVE EAVES GUTTER SLOPE = 1:500
THE FOLLOWING SYMBOLS & ABBREVIATIONS HAVE BEEN USED:

- SIP = SURFACE INLET PIT (NO LINTEL)
- DP = Ø150 DOWNPIPE
- X 100.00 = PROPOSED FINISHED SURFACE LEVEL
- = DENOTES DISABLED PARKING BAY AT 2.5% MAX. GRADE

STORMWATER DRAINAGE STRATEGY

- ALL GUTTERS & DOWNPIPES ARE DESIGNED TO ACCEPT A 1:20 YEAR ARI STORM EVENT.
- BOX GUTTERS & DOWNPIPES ARE DESIGNED TO ACCEPT A 1:100 YEAR ARI STORM EVENT.
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  - HUMECEPTOR - CLASS 2
  - HUMEFILTER - UPT
  - HUMEGARD
  - DETENTION TANK

REUSE ANALYSIS

A RAINWATER REUSE ANALYSIS HAS BEEN CONDUCTED TO EVALUATE THE PERFORMANCE OF RAINWATER TANKS IN REDUCING POTABLE WATER DEMAND.

RETENTION DESIGN

DAILY (9AM) RAINFALL RECORD: 068239 (2001-2023)

ROOF AREA	= 10042 m²
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MINIMUM RAINWATER TANK VOLUME	= 100.42 kL
RAINWATER TANK VOLUME	= 120 kL
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TOILETS	= 1.7 kL/day
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DAILY DEMAND	= 4.6 kL/day
RAINWATER TANK CATCHMENT AREA	= 10042 m²
DESIGN RAINWATER TANK VOLUME	= 120 kL
REUSE DEMAND MET	= 90.31%
OVERFLOW FREQUENCY	= 14.22%

DETENTION DESIGN

A DRAINS MODEL HAS BEEN PREPARED TO EVALUATE THE PERFORMANCE OF THE DETENTION SYSTEM.

ANTECEDENT MOISTURE CONDITION	= 3.16
DETERMINED FROM RAINFALL RECORD 068239 (2001-2023)	
SOIL TYPE	= 3
TIME OF CONCENTRATION (t_c)	= 5 min.
ORIFICE DIAMETER	= 300 mm
INTERNAL WEIR HEIGHT	= 1600 mm
AREA	= 125 m²
DETENTION VOLUME REQUIRED	= 218.1 m³
DETENTION VOLUME PROVIDED	= 250 m³

PRE & POST DEVELOPMENT FLOWS

RAINFALL EVENT	50%	20%	10%	5%	2%	1%
PRE-DEVELOPMENT FLOW (L/s)	212	455	600	715	896	1022
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WATER QUALITY DESIGN SUMMARY

A MUSIC MODEL HAS BEEN PREPARED TO DETERMINE THE EFFECTIVENESS OF SQIDs AT REDUCING POLLUTANT LOADS ON THIS SITE. SOURCE NODE PARAMETERS HAVE BEEN ADOPTED FROM "USING MUSIC IN SYDNEY DRINKING WATER CATCHMENT - FEBRUARY 2023"
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A1 ORIGINAL SIZE

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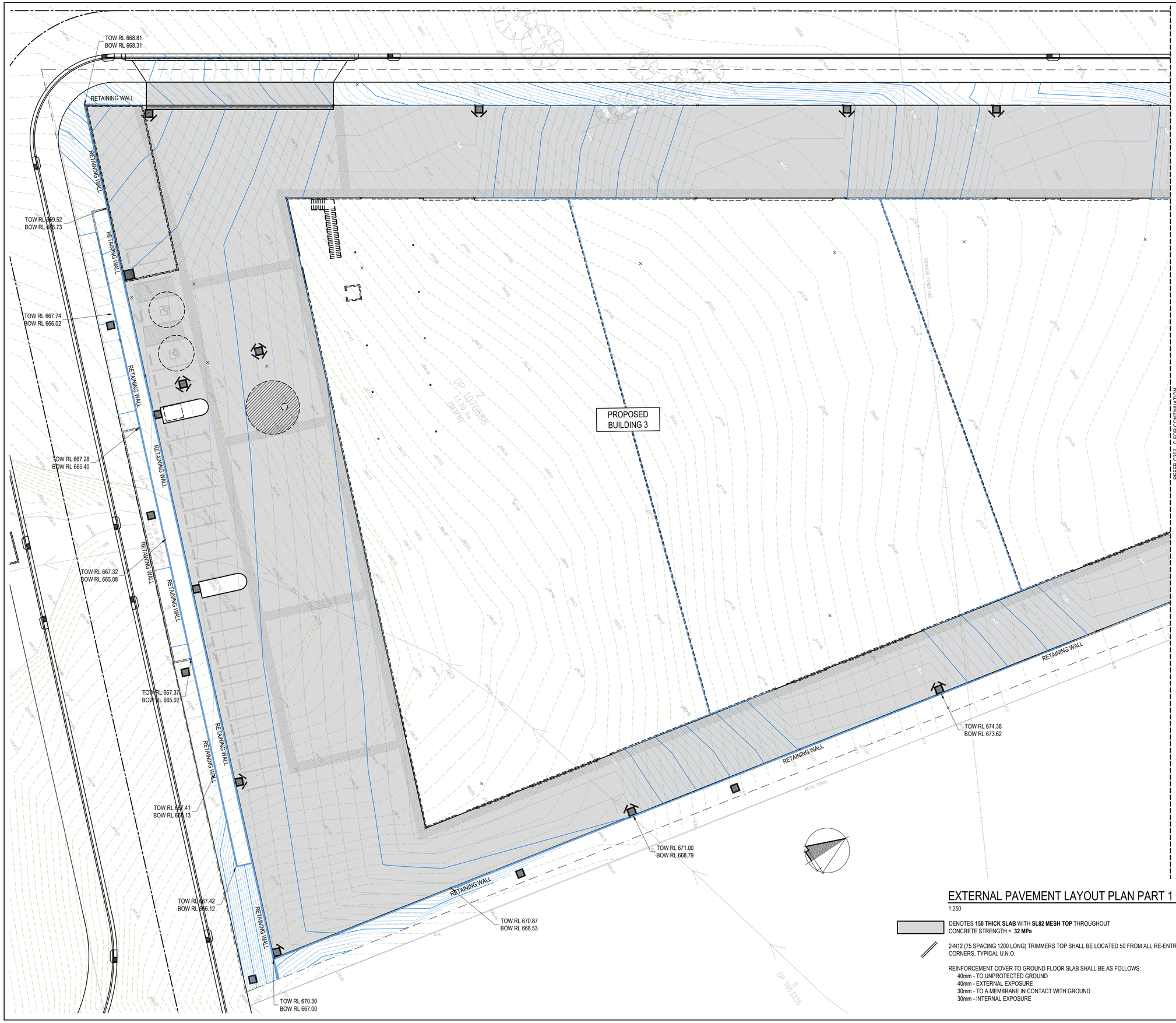
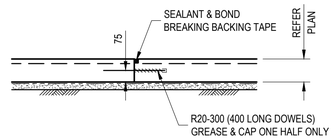
PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale
For SAAS Aus Pty Ltd

STORMWATER DRAINAGE PLAN PART 2 OF 2

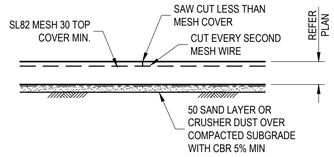
DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE	DRG No.
		1:250	C305 - E





CONSTRUCTION JOINT (C.J.) DETAIL

1:20



SAWN JOINT (S.J.) DETAIL

1:20

EXTERNAL PAVEMENT LAYOUT PLAN PART 1 OF 2

1:250

DENOTES **150 THICK SLAB** WITH **SL82 MESH TOP** THROUGHOUT
CONCRETE STRENGTH = **32 MPa**

2-N12 (75 SPACING 1200 LONG) TRIMMERS TOP SHALL BE LOCATED 50 FROM ALL RE-ENTRANT CORNERS, TYPICAL U.N.O.

REINFORCEMENT COVER TO GROUND FLOOR SLAB SHALL BE AS FOLLOWS:
- 40mm - TO UNPROTECTED GROUND
- 40mm - EXTERNAL EXPOSURE
- 30mm - TO A MEMBRANE IN CONTACT WITH GROUND
- 30mm - INTERNAL EXPOSURE

FOR DA APPROVAL
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A	19.05.23	ISSUED FOR DA APPROVAL

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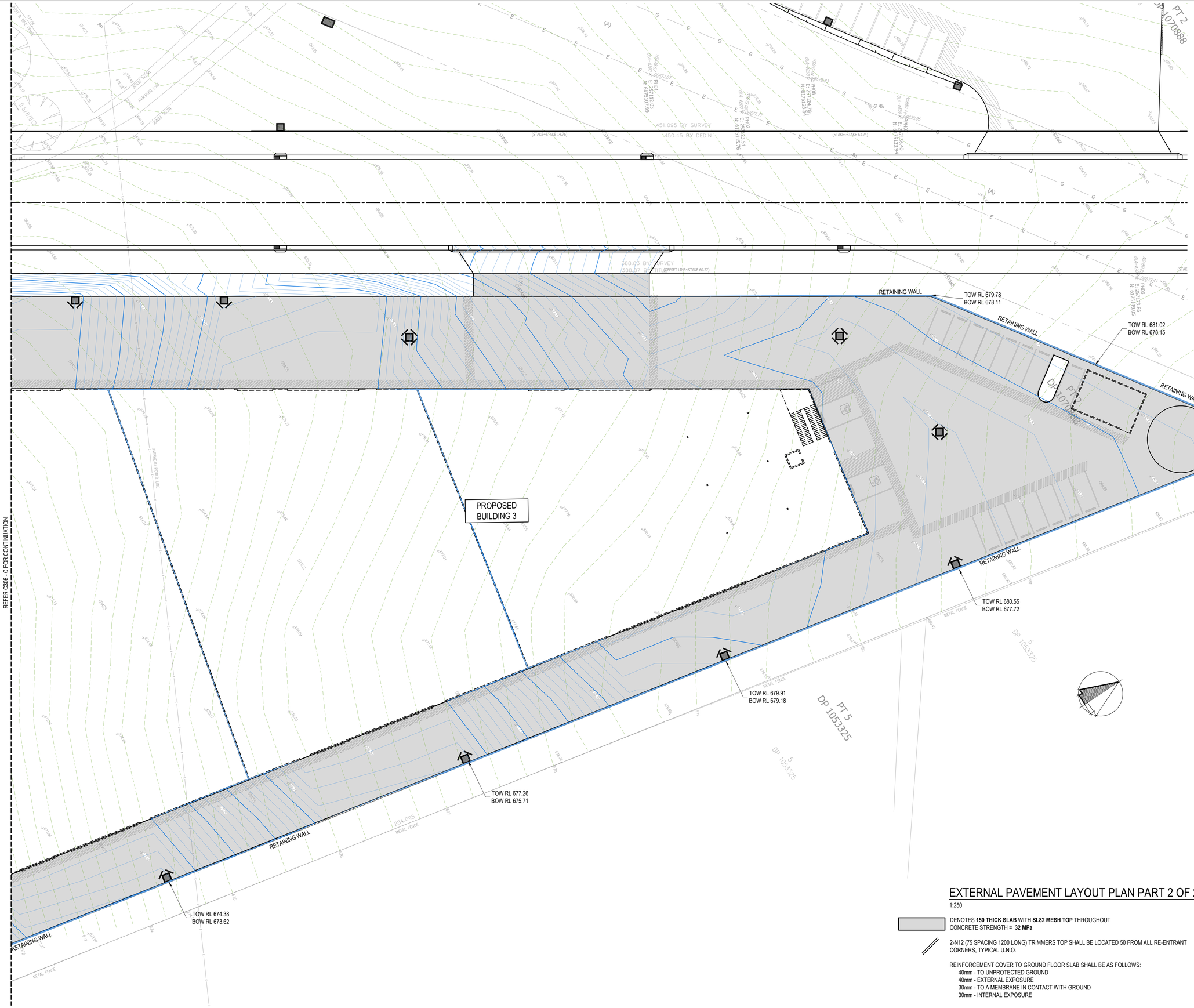
PROPOSED BUILDING 3

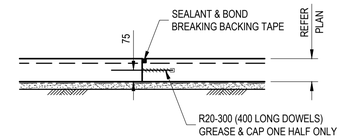
2 Bowman Rd, Moss Vale

For SAAS Aus Pty Ltd

EXTERNAL PAVEMENT PLAN AND DETAILS PART 1 OF 2

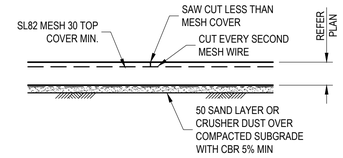
DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE	DRG No.
		1:250	C306 - E





CONSTRUCTION JOINT (C.J.) DETAIL

1:20



SAWN JOINT (S.J.) DETAIL

1:20

EXTERNAL PAVEMENT LAYOUT PLAN PART 2 OF 2

1:250

DENOTES **150 THICK SLAB** WITH **SL82 MESH TOP** THROUGHOUT
CONCRETE STRENGTH = **32 MPa**

2-N12 (75 SPACING 1200 LONG) TRIMMERS TOP SHALL BE LOCATED 50 FROM ALL RE-ENTRANT CORNERS, TYPICAL U.N.O.

REINFORCEMENT COVER TO GROUND FLOOR SLAB SHALL BE AS FOLLOWS:
- 40mm - TO UNPROTECTED GROUND
- 40mm - EXTERNAL EXPOSURE
- 30mm - TO A MEMBRANE IN CONTACT WITH GROUND
- 30mm - INTERNAL EXPOSURE

FOR DA APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

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REVISION	DATE	AMENDMENT DESCRIPTION

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EXTERNAL PAVEMENT PLAN AND DETAILS PART 2 OF 2

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
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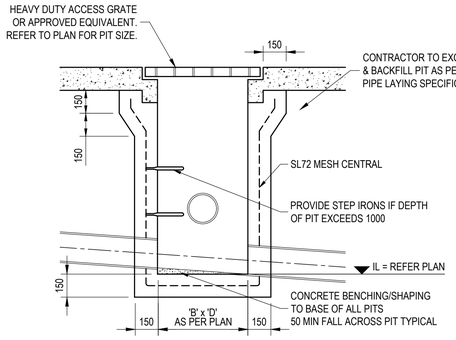
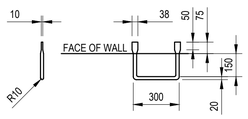
		1:250	C307 - E



TYPICAL SURFACE INLET PIT DETAIL

1:20

TYPICAL FOR ALL PITS IN DRIVEWAY/CARPARK AREAS.



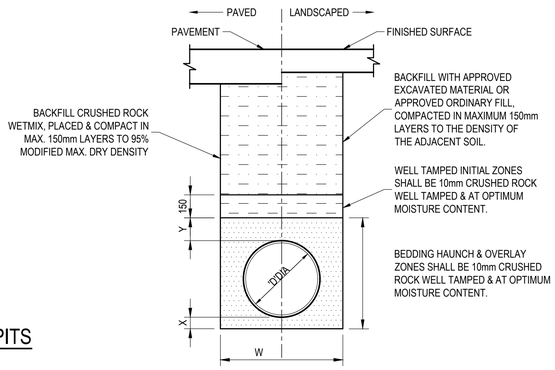
STEP IRONS FOR DRAINAGE PITS

NOTE:

1. FIRST RUNG 150mm DOWN FROM TOP, THEN SPACED AT 300 CENTRES.
2. STEP IRON MATERIAL, 20m DIAMETER MILD STEEL, HEAVY GALVANISED.

STEP IRONS FOR DRAINAGE PITS

1:20

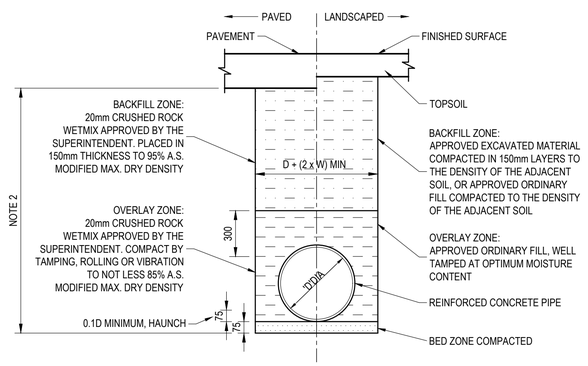


NOTE:

1 REFER TO PIPE LAYING SPECIFICATIONS FOR DETAILS.

PIPE DIA 'D'	W	X MIN	Y
100-150	300	75	75
225-300	600	75	75

UPVC PIPE



NOTE:

1 REFER TO PIPE LAYING SPECIFICATION FOR DETAILS.
2 BACKFILL OVERLAY & BEDDING ZONES 20mm CRUSHED ROCK COMPACT BY TAMPING ROLLING OR VIBRATION TO NOT LESS THAN 85% A.S. STD. MAX. DRY DENSITY.

D	W
150-300	150
375-750	300
+750	600

REINFORCED CONCRETE PIPE

TYPICAL PIPE LAYING DETAIL

1:20

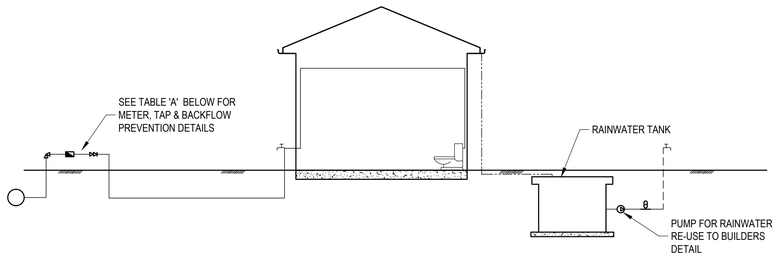


TABLE A

RAINWATER TANK LOCATION	METER SIZE (mm)	TYPE OF TAP	TYPE OF BACKFLOW PREVENTION
ABOVE GROUND	20	BALL VALVE	DUAL CHECK VALVE (COMBINED WITH METER)
	25	BALL VALVE	DUAL CHECK VALVE
	≥ 32	BALL VALVE	DUAL CHECK VALVE
BELOW GROUND	20	BALL VALVE	TESTABLE DOUBLE CHECK VALVE
	25	BALL VALVE	TESTABLE DOUBLE CHECK VALVE
	≥ 32	BALL VALVE	TESTABLE DOUBLE CHECK VALVE

LEGEND

- PRESSURE VESSEL
- METER
- BALL VALVE RIGHT ANGLE TYPE
- DUAL CHECK VALVE
- PUMP
- GARDEN TAP
- DRINKING WATER SUPPLY PIPES
- RAINWATER SUPPLY PIPES
- DOWN PIPES

DIAGRAM NOTES:
DRAWING TO BE READ IN CONJUNCTION WITH SYDNEY WATER PLUMBING REQUIREMENTS

1. FOR TANKS 10,000 LITRES OR LESS, COUNCIL DEVELOPMENT CONSENT IS NOT REQUIRED, IF THEIR CONDITIONS FOR INSTALLATION ARE FOLLOWED.
2. FOR TANKS GREATER THAN 10,000 LITRES COUNCIL DEVELOPMENT CONSENT IS GENERALLY REQUIRED.
3. FOR TANKS MORE THAN 10,000 LITRES APPROVAL IS REQUIRED FOR BUILDING OVER SEWERS.
4. SYDNEY WATER'S APPROVAL IS REQUIRED FOR ANY TOP UP FROM DRINKING WATER SUPPLY, REGARDLESS OF TANK SIZE. NO DIRECT CONNECTION IS ALLOWED BETWEEN THE
5. DRINKING WATER SUPPLY AND THE RAINWATER TANK SUPPLY.
6. RAINWATER PIPEWORK IS SHOWN ON THE DIAGRAM AS SUPPLYING EXTERNAL RAINWATER USES.
7. ANY DESIGNED ACCESS LID INTO RAINWATER RE-USE TANK IS TO HAVE A LOCKABLE LID. IF THE LID IS DESIGNED TO BE ACCESSED BY A MAINTENANCE PERSON, IT MUST BE AT LEAST 600 mm x 900 mm IN SIZE.
8. MAINS WATER TO BYPASS TO TANK (BY PLUMBER) FOR LOW TANK STORAGE.

DUAL DRINKING WATER & RAINWATER SUPPLY DIAGRAM

NTS

THE RAINWATER TANK SHALL BE INSTALLED WITH A FIRST FLUSH DEVICE TO SUPPLIERS DETAILS

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PROPOSED BUILDING 3

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For SAAS Aus Pty Ltd

STORMWATER DETAILS SHEET 1 OF 3

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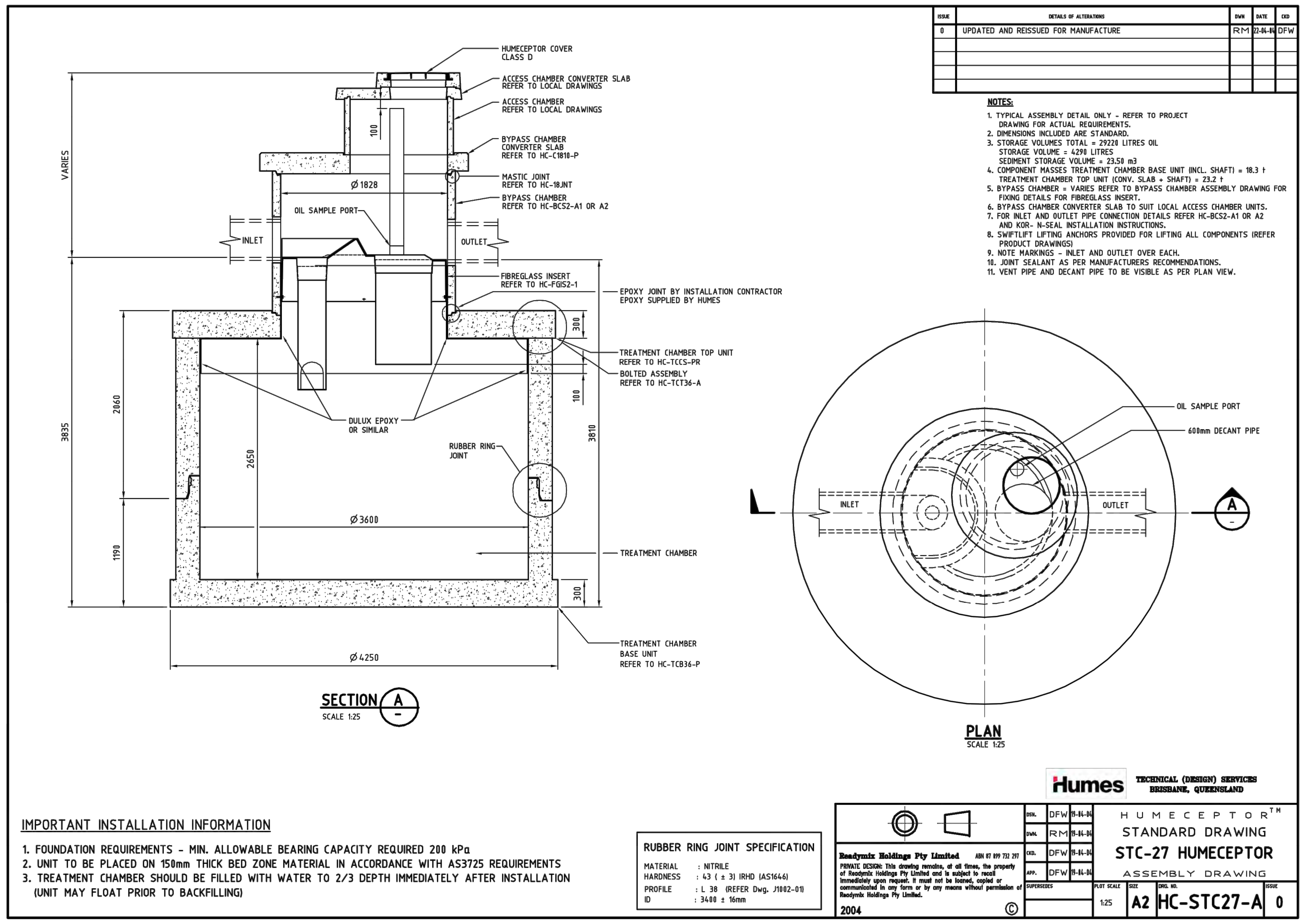
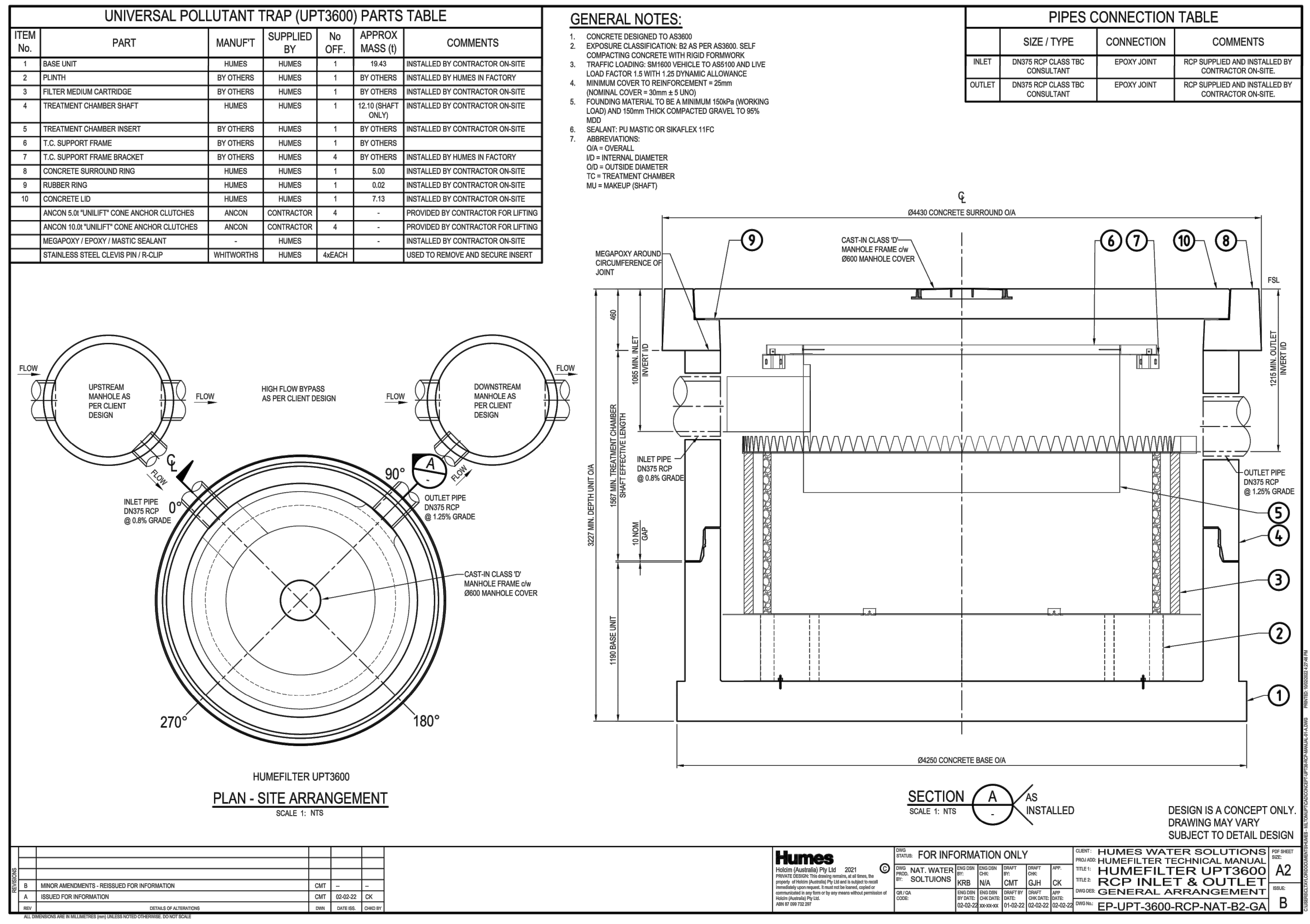
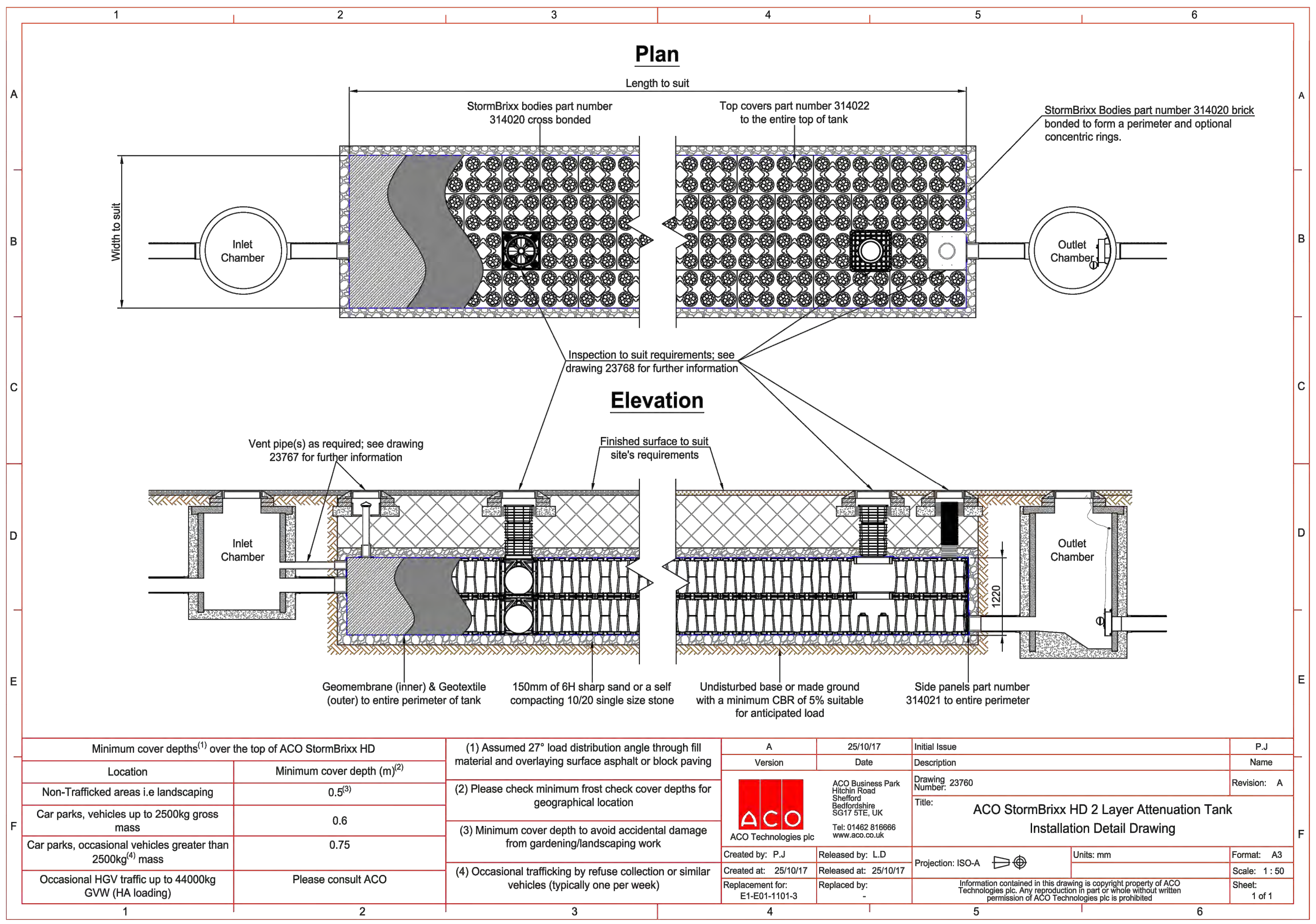
CHECKED	APPROVED	SCALE	DRG No.
		1:20	C308 - E







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PROPOSED BUILDING 2

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For SAAS Aus Pty Ltd

STORMWATER DETAILS SHEET 2 OF 3

DESIGN	DRAWN	DATE	PROJECT No.
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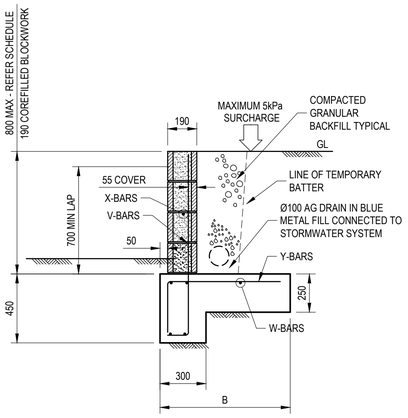
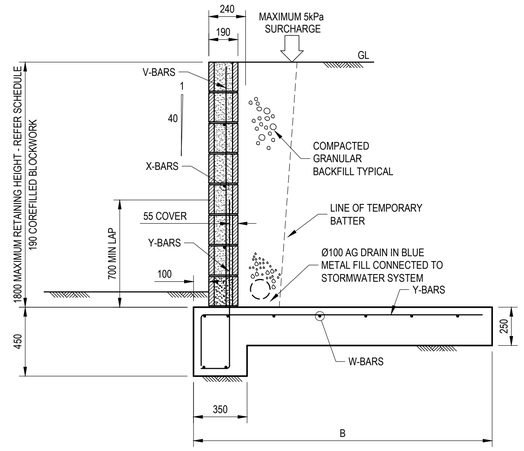
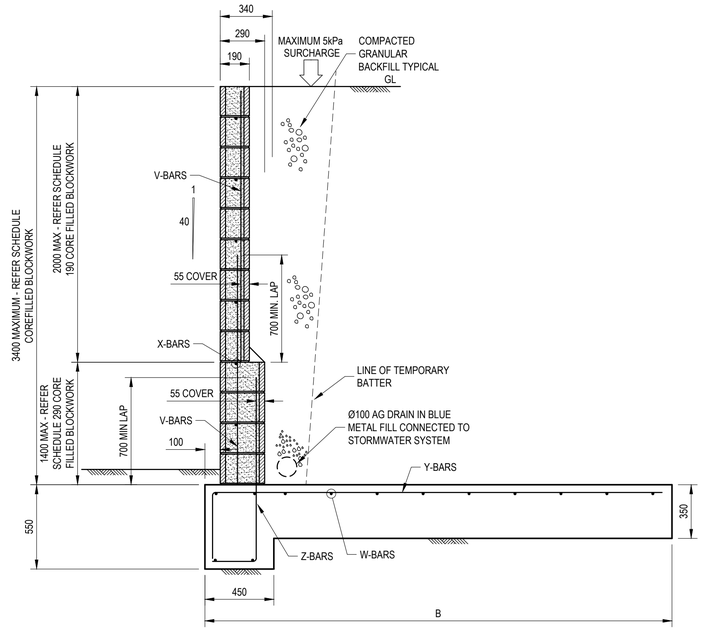
CHECKED	APPROVED	SCALE 1:20	DRG No. C309 - E



400 to 800 HIGH RETAINING HEIGHT					
HEIGHT	B	V-BARS	W-BARS	X-BARS	Y-BARS
400	650	N12-400	N12-300	N12-400	N12-400
600	850	N12-400	N12-300	N12-400	N12-400
800	1150	N12-400	N12-300	N12-400	N12-400



800 to 1800 HIGH RETAINING HEIGHT					
HEIGHT	B	V-BARS	W-BARS	X-BARS	Y-BARS
800	1150	N12-400	N12-300	N12-400	N12-400
1000	1350	N12-400	N12-300	N12-400	N12-400
1200	1550	N12-400	N12-300	N12-400	N12-400
1400	1750	N16-400	N12-300	N12-400	N16-400
1600	1950	N16-400	N12-300	N12-400	N16-400
1800	2150	N16-400	N16-300	N16-400	N16-200



2000 to 3400 HIGH RETAINING HEIGHT								
HEIGHT	B	HEIGHT OF BLOCKWORK		V-BARS	W-BARS	X-BARS	Y-BARS	Z-BARS
		190 mm	290 mm					
2000	2450	1200	800	N16-400	N16-300	N12-400	N16-200	N16-200
2200	2650	1400	800	N16-400	N16-300	N12-400	N16-200	N16-200
2400	2850	1600	800	N16-400	N16-300	N12-400	N16-200	N16-200
2600	3050	1800	800	N16-400	N16-300	N12-400	N16-200	N16-200
2800	3250	1800	1000	N16-400	N16-300	N12-400	N16-200	N16-200
3000	3450	1800	1200	N16-400	N16-300	N16-400	N16-200	N16-200
3200	3650	1800	1400	N20-400	N16-300	N16-400	N20-200	N20-200
3400	3850	1800	1600	N20-400	N16-300	N16-400	N20-200	N20-200

TYPICAL EXTERNAL BLOCKWORK RETAINING WALL DETAILS

1:20

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PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale

For SAAS Aus Pty Ltd

STORMWATER DETAILS SHEET 3 OF 3

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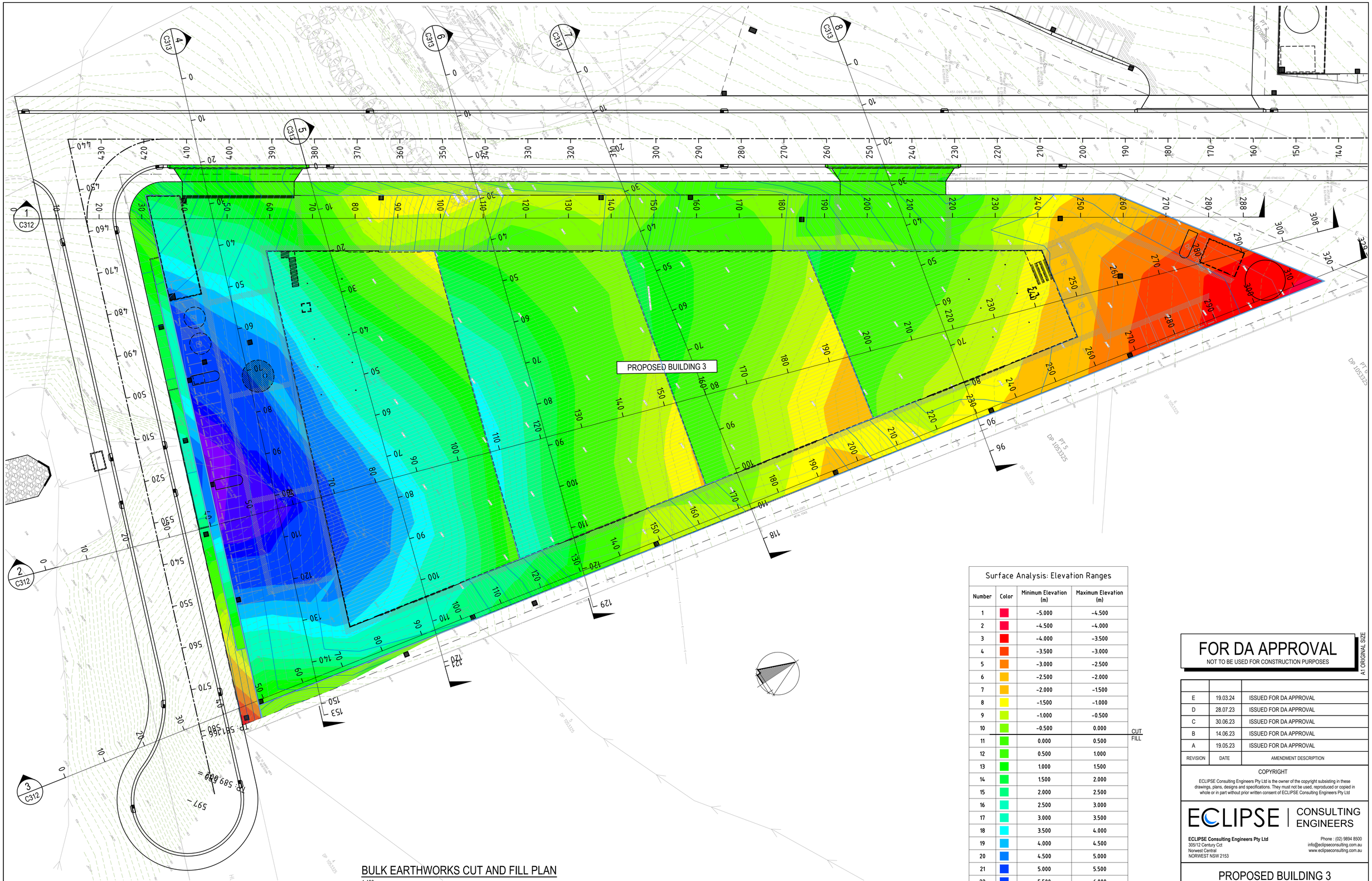
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE	DRG No.
		1:20	C310 - E



BULK EARTHWORKS CUT AND FILL PLAN

1:400

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
bulk earthworks cut and fill - Building 3 - proposed surface less 200mm	**1.000**	**1.000**	20096.548sq.m	8410.567 Cu. M.	29957.731 Cu. M.	21547.164 Cu. M.<Fill>
Totals			20096.548sq.m	8410.567 Cu. M.	29957.731 Cu. M.	21547.164 Cu. M.<Fill>

Surface Analysis: Elevation Ranges

Number	Color	Minimum Elevation (m)	Maximum Elevation (m)	
1		-5.000	-4.500	
2		-4.500	-4.000	
3		-4.000	-3.500	
4		-3.500	-3.000	
5		-3.000	-2.500	
6		-2.500	-2.000	
7		-2.000	-1.500	
8		-1.500	-1.000	
9		-1.000	-0.500	
10		-0.500	0.000	CUT
11		0.000	0.500	FILL
12		0.500	1.000	
13		1.000	1.500	
14		1.500	2.000	
15		2.000	2.500	
16		2.500	3.000	
17		3.000	3.500	
18		3.500	4.000	
19		4.000	4.500	
20		4.500	5.000	
21		5.000	5.500	
22		5.500	6.000	
23		6.000	6.500	
24		6.500	7.000	
25		7.000	7.500	
26		7.500	8.000	

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BULK AND EARTHWORKS CUT AND FILL PLAN

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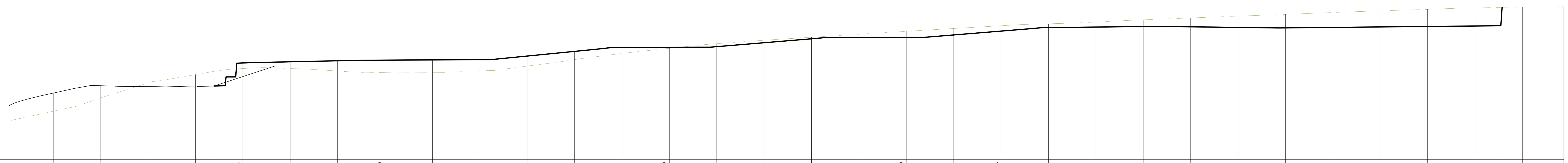
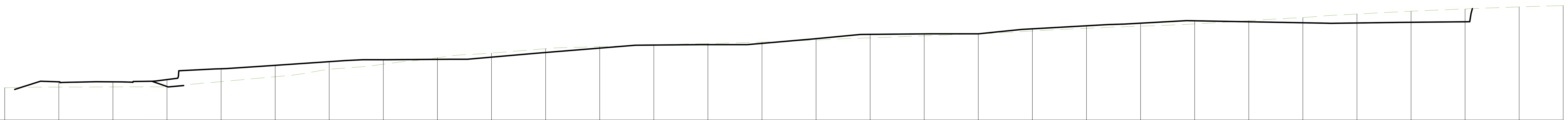
		1:400	C311 - E



VERT EXAG 1:1
Datum 650.000

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS	DEPTH
0.000			
10.000		660.170	
20.000		662.977	
30.000		666.141	
40.000		667.888	
43.909	665.481	668.575	-3.094
50.000	670.345	669.168	1.177
60.000	670.590	669.175	1.415
70.000	670.805	668.641	2.164
80.000	670.940	668.359	2.581
90.000	670.990	668.365	2.626
100.000	671.035	668.696	2.338
110.000	671.804	669.685	2.118
120.000	672.788	671.047	1.742
130.000	673.597	672.349	1.248
140.000	673.640	673.428	0.212
150.000	673.781	674.406	-0.625
160.000	674.610	675.129	-0.519
170.000	675.441	675.778	-0.336
180.000	675.697	676.398	-0.701
190.000	675.740	677.015	-1.275
200.000	676.252	677.612	-1.361
210.000	677.064	678.192	-1.128
220.000	677.822	678.603	-0.781
230.000	677.913	678.980	-1.068
240.000	678.049	679.444	-1.395
250.000	677.961	679.833	-1.873
260.000	677.836	680.223	-2.386
270.000	677.741	680.594	-2.853
280.000	677.841	680.984	-3.143
290.000	677.941	681.324	-3.384
300.000	678.041	681.649	-3.608
310.000	678.141	681.951	-3.810
315.721	682.070	682.070	0.000
320.000		682.121	
328.746		682.197	

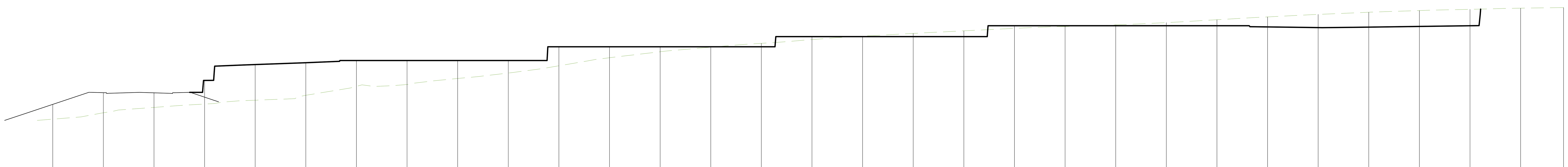
SECTION 3 C309
1:500



VERT EXAG 1:1
Datum 660.000

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS	DEPTH
0.000		665.948	
10.000		666.063	
20.000		666.092	
27.243	667.144	666.111	1.033
30.000	667.451	666.174	1.277
40.000	669.449	667.074	2.375
50.000	670.082	667.973	2.109
60.000	670.761	669.343	1.419
70.000	671.124	670.291	0.833
80.000	671.184	671.479	-0.296
90.000	671.589	672.349	-0.760
100.000	672.452	673.154	-0.702
110.000	673.259	673.539	-0.280
120.000	673.826	673.837	-0.011
130.000	673.907	674.087	-0.179
140.000	674.143	674.382	-0.238
150.000	675.008	674.765	0.243
160.000	675.805	675.154	0.651
170.000	675.893	675.544	0.350
180.000	675.904	675.905	-0.001
190.000	676.828	676.424	0.404
200.000	677.388	676.923	0.465
210.000	677.870	677.312	0.558
220.000	678.312	677.730	0.582
230.000	678.128	678.332	-0.204
240.000	677.944	678.919	-0.975
250.000	677.904	679.559	-1.655
260.000	678.031	680.083	-2.051
270.000	678.126	680.498	-2.372
271.344	680.554	680.554	0.000
280.000		680.870	
288.134		681.118	

SECTION 1 C309
1:500



VERT EXAG 1:1
Datum 650.000

CHAINAGE	DESIGN LEVELS	EXISTING LEVELS	DEPTH
0.000			
10.000		659.736	
20.000		660.989	
30.000		662.053	
37.056	665.020	662.555	2.465
40.000	667.369	662.710	4.659
41.794	667.387	662.805	4.582
41.993	670.187	662.836	7.351
50.000	670.502	663.471	7.032
60.000	670.860	664.443	6.417
70.000	671.294	666.205	5.089
80.000	671.294	666.572	4.722
90.000	671.294	667.755	3.539
100.000	671.294	668.828	2.466
110.000	674.000	670.253	3.747
120.000	674.000	671.847	2.153
130.000	674.000	673.022	0.978
140.000	674.000	673.918	0.082
150.000	674.000	674.682	-0.682
160.000	676.000	675.422	0.578
170.000	676.000	676.111	-0.111
180.000	676.000	676.638	-0.638
190.000	676.000	677.147	-1.147
200.000	678.157	677.643	0.514
210.000	678.157	678.004	0.153
220.000	678.157	678.318	-0.161
230.000	678.157	678.766	-0.609
240.000	678.157	679.336	-1.179
250.000	677.916	679.888	-1.972
260.000	677.785	680.386	-2.601
270.000	677.874	680.810	-2.936
280.000	678.011	681.143	-3.132
290.000	678.148	681.381	-3.232
292.094	681.424	681.424	0.000
300.000		681.612	
308.473		681.729	

SECTION 2 C309
1:500

FOR DA APPROVAL

NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

REVISION	DATE	AMENDMENT DESCRIPTION
E	19.03.24	ISSUED FOR DA APPROVAL
D	28.07.23	ISSUED FOR DA APPROVAL
C	30.06.23	ISSUED FOR DA APPROVAL
B	14.06.23	ISSUED FOR DA APPROVAL
A	19.05.23	ISSUED FOR DA APPROVAL

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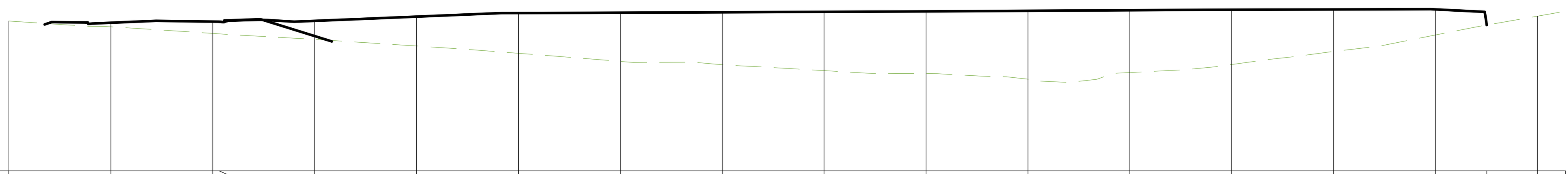
PROPOSED BUILDING 3

2 Bowman Rd, Moss Vale
For SAAS Aus Pty Ltd

SITE CROSS SECTIONS SHEET 1 OF 2

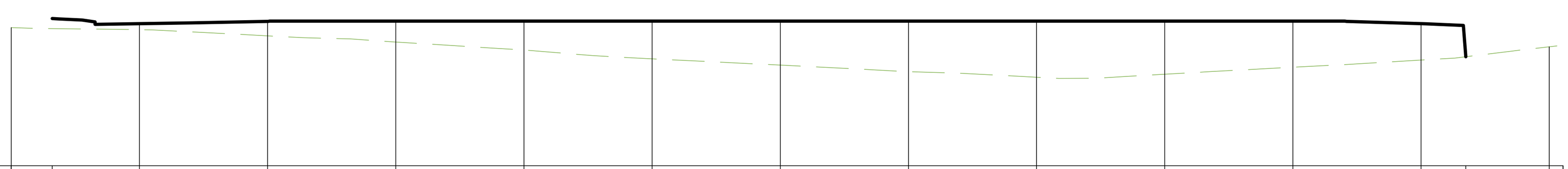
DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE 1:500	DRG No. C312 - E



VERT EXAG 1:1
Datum 655.000

DESIGN LEVELS				669.632	669.720	670.130	670.484	670.516	670.560	670.603	670.650	670.707	670.764	670.812	670.838	670.838	669.308		
EXISTING LEVELS	669.705	669.137	668.488	668.446	667.907	667.251	666.540	665.743	665.411	664.834	664.543	663.978	664.646	665.435	666.715	668.332	669.308	670.182	
DEPTH				1.186	1.812	2.879	3.945	4.774	5.149	5.769	6.106	6.729	6.119	5.377	4.123	2.506	0.000		
CHAINAGE	0.000	10.000	20.000	20.635	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	145.032	150.000	152.737

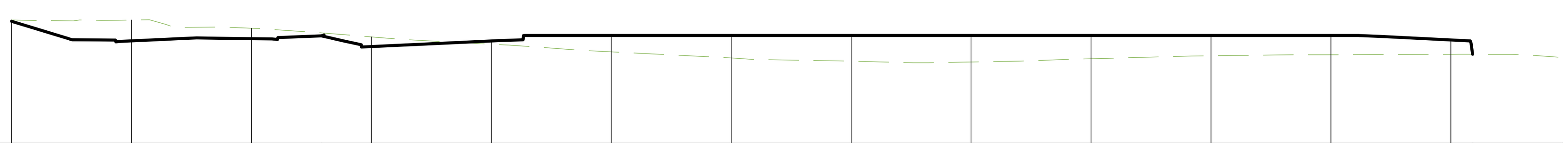
SECTION 4
1:500 C309



VERT EXAG 1:1
Datum 660.000

DESIGN LEVELS		671.498	671.099	671.274	671.294	671.294	671.294	671.294	671.294	671.294	671.294	671.294	671.100	668.511		
EXISTING LEVELS	670.783	670.710	670.624	670.144	669.662	669.034	668.346	667.862	667.347	666.911	667.146	667.691	668.250	668.511	669.289	
DEPTH		0.788	0.475	1.130	1.632	2.260	2.948	3.432	3.947	4.383	4.148	3.603	2.850	0.000		
CHAINAGE	0.000	3.193	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	113.493	120.000	121.075

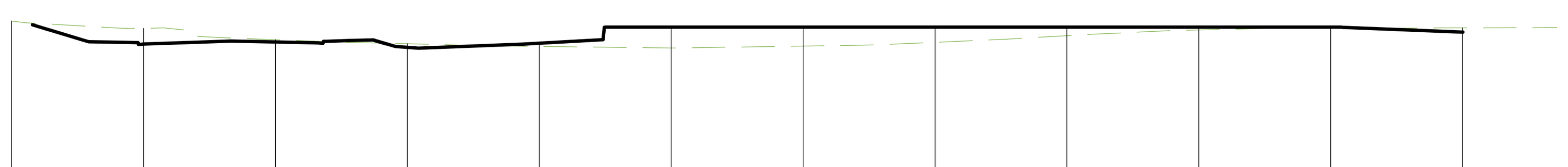
SECTION 5
1:500 C309



VERT EXAG 1:1
Datum 665.000

DESIGN LEVELS				673.964	673.076	673.546	674.000	674.000	674.000	674.000	674.000	674.000	674.000	673.623	672.429	
EXISTING LEVELS	675.288	675.288	674.601	674.223	673.881	673.273	672.636	672.128	671.855	671.789	672.059	672.306	672.394	672.429	672.429	
DEPTH				-0.259	-0.805	0.273	1.364	1.872	2.145	2.211	1.941	1.694	1.606	1.194	0.000	
CHAINAGE	0.000	10.000	20.000	25.834	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	121.805	129.288

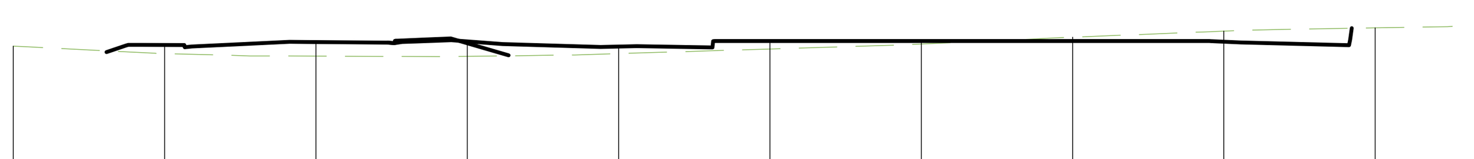
SECTION 6
1:500 C309



VERT EXAG 1:1
Datum 665.000

DESIGN LEVELS				675.033	674.467	674.778	676.000	676.000	676.000	676.000	676.000	676.000	675.619	675.627	
EXISTING LEVELS	676.462	675.910	675.042	674.802	674.740	674.538	674.411	674.563	674.848	675.352	675.786	675.925	675.949	675.949	
DEPTH				0.232	-0.273	0.241	1.589	1.437	1.152	0.648	0.214	0.075	-0.330	-0.322	
CHAINAGE	0.000	10.000	20.000	27.401	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	110.024	117.539

SECTION 7
1:500 C309



VERT EXAG 1:1
Datum 670.000

DESIGN LEVELS				678.045	678.122	677.788	678.157	678.157	678.157	678.104	678.995		
EXISTING LEVELS	677.813	677.327	677.157	677.140	677.143	677.323	677.628	677.951	678.405	678.806	678.995	679.023	
DEPTH				0.906	0.980	0.466	0.529	0.206	-0.248	-0.702	0.000		
CHAINAGE	0.000	10.000	20.000	24.737	30.000	40.000	50.000	60.000	70.000	80.000	88.453	90.000	96.404

SECTION 8
1:500 C309

FOR DA APPROVAL
NOT TO BE USED FOR CONSTRUCTION PURPOSES

A1 ORIGINAL SIZE

REVISION	DATE	AMENDMENT DESCRIPTION
E	19.03.24	ISSUED FOR DA APPROVAL
D	28.07.23	ISSUED FOR DA APPROVAL
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PROPOSED BUILDING 3
2 Bowman Rd, Moss Vale
For SAAS Aus Pty Ltd

SITE CROSS SECTIONS SHEET 2 OF 2

DESIGN	DRAWN	DATE	PROJECT No.
SWH	RCL	JAN 2023	10530
CHECKED	APPROVED	SCALE 1:500	DRG No. C313 - E