

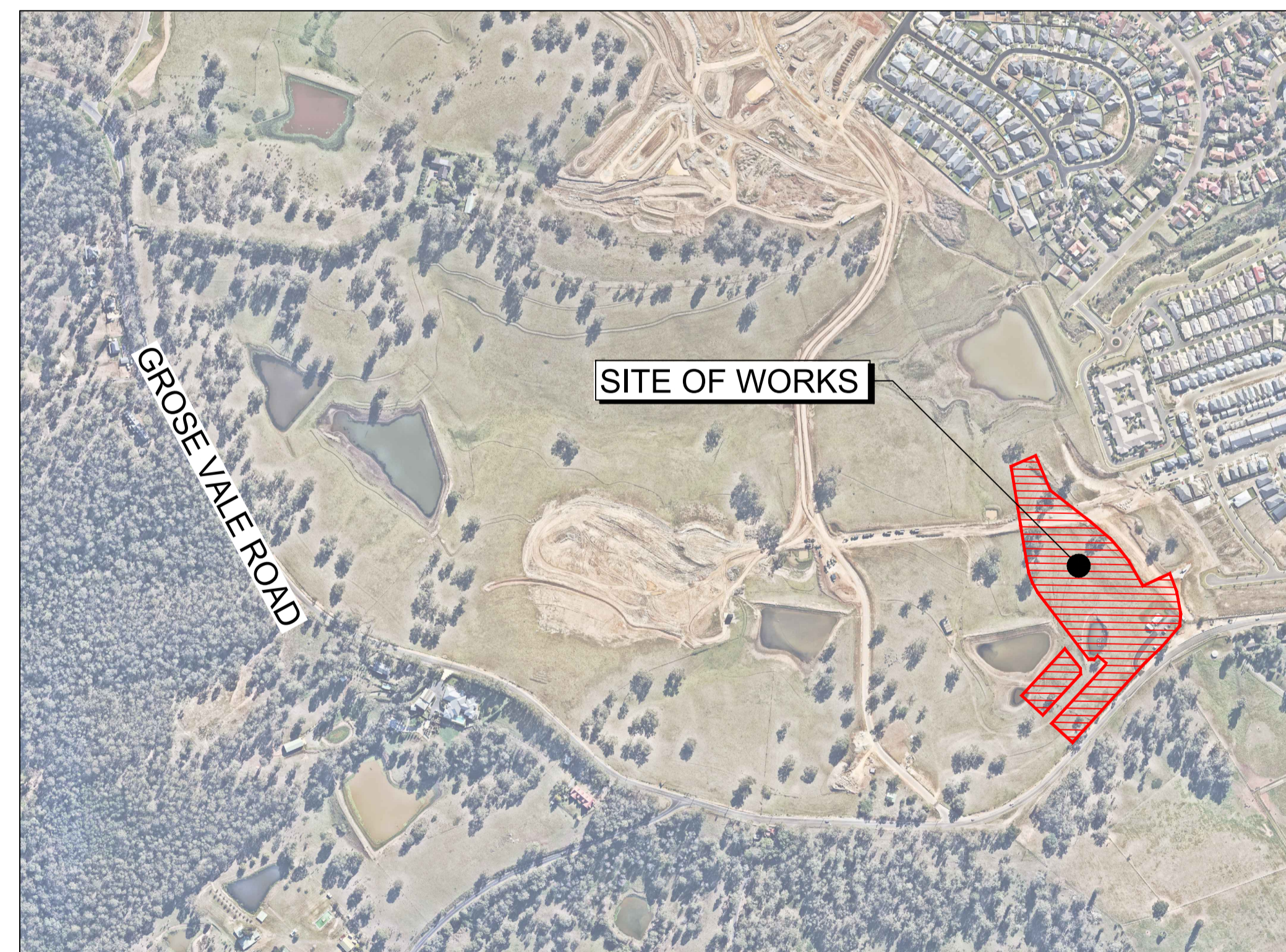
SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Restar*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021

No ancillary civil works are to be completed for the creation of lots within the residual super lots.

REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS PROPOSED CIVIL WORKS FOR SUBDIVISION WORKS CERTIFICATE (HAWKESBURY CITY COUNCIL - DA0498/18)



Survey By:
VINCE MORGAN SURVEYORS

REGISTERED SURVEYORS
 1/77 UNION ROAD PENRITH NSW 2750
 Ph. (02) 4721 5293

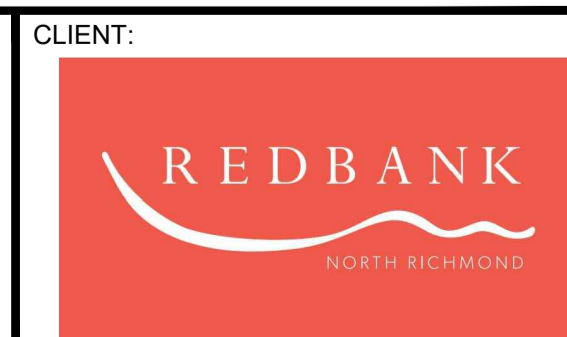
REF: NORTH RICHMOND - DETAIL SURVEY UPDATE 15 MARCH 2017 & 5th MAY 2017, 11 DEC 2019
 LOT LAYOUT PLAN OF SUBDIVISION REF: 22a-REDBANK-PRO-DP1266750-PLAN-DRAFT-201203

Plotted: 29 June, 2021 11:55:20 AM. File Name: \\jwp.local\dfs\jobs\110185 - Redbank North Richmond Residential Precincts12 - Stage 1 DA\CCDC\SOUTHERN HEIGHTS\2.SHI\10185-12-CC2000.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE	
C	ROAD 51 ALIGNMENT UPDATED	MP	NA	RO	RO	17/06/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au



STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
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REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 COVER SHEET

PROJECT No: 110185-12
 SHEET No: CC2000

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2000 C

Plotted: 25 August, 2021, 3:31:53 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DANCIDCCSOUTHERN HEIGHTS2-SH110185-12-CC2001.dwg

LEGEND			
DESCRIPTION	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS	■■■■■■■■		
KERB & GUTTER	KG	====	-----
ROLL KERB		====	-----
KERB ONLY		====	-----
SLOTTED KERB	SK	====	-----
GUIDE POSTS	●●●●●●	○●○●○●○●	
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS	---46.0---	---47.0---	
STOCKPILE CONTOURS		---46.0---	
CATCH DRAIN	→→→→		
STORMWATER DRAINAGE LINE AND PIT			
GROSS POLLUTANT TRAP	GPT		
1:100YR ARI FLOW PATH			
TREES TO BE PROTECTED			
TREES TO BE REMOVED			
TRANSMISSION LINE POWER POLES			
ELECTRICITY, POWER POLE			
WATERMAIN			
CONCRETE PANELS			
RETAINING WALLS			
SANDSTONE RETAINING WALLS			
STREET NAME SIGN	SP	EX SP	

GENERAL NOTES

- ALL WORKS ARE TO BE IN ACCORDANCE WITH HAWKESBURY CITY COUNCIL'S DEVELOPMENT CONTROL PLAN 2009, APPENDIX E "CIVIL WORKS SPECIFICATIONS", PART I, II & III.
- EXISTING SURVEY MARKS SHALL BE RETAINED AT ALL TIMES. WHERE RETENTION IS NOT POSSIBLE THE SUPERINTENDENT MUST BE NOTIFIED AND CONSENT RECEIVED PRIOR TO THEIR REMOVAL.
- THE CONTRACTOR MUST OBTAIN CURRENT DIAL BEFORE YOU DIG UTILITIES PLAN BY DIALING PH 1100, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCING CONSTRUCTION, AND MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST IF NECESSARY.
- THE CONTRACTOR SHALL NOT ENTER UPON NOR DO ANY WORK WITHIN ADJACENT LANDS WITHOUT THE WRITTEN PERMISSION OF THE OWNERS, PROVIDED BY PRINCIPAL.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
- FILLING IS TO BE FROM A NOMINATED SOURCE, OF SOUND CLEAN MATERIAL, FREE FROM LARGE ROCK, STUMPS, CONTAMINATED MATTER, INDUSTRIAL AND BUILDING WASTE, ORGANIC MATTER AND OTHER DEBRIS. PLACING OF FILLING ON THE PREPARED AREAS SHALL NOT COMMENCE UNTIL THE APPROVAL TO DO SO HAS BEEN OBTAINED FROM THE COUNCIL.
- SITE FILL AREAS - THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- ALL SITE FILLING TO BE COMPACTED TO 98% STANDARD COMPACTION AND SHALL BE CONTROLLED BY A REGISTERED SOIL LABORATORY IN ACCORDANCE WITH COUNCIL'S DEVELOPMENT CONTROL PLAN 2009, APPENDIX E "CIVIL WORKS SPECIFICATIONS" PART II
- ALL SITE REGRADING AREAS SHALL BE GRADED AT A MINIMUM 1% TO THE ENGINEERS' REQUIREMENTS.
- SURPLUS EXCAVATED MATERIAL SHALL BE PLACED WHERE DIRECTED BY THE SUPERINTENDENT.
- VEHICULAR CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER WHERE SHOWN.
- PRAM CROSSINGS SHALL BE CONSTRUCTED IN KERB AND GUTTER IN ACCORDANCE WITH COUNCIL'S STANDARD DRAWING.
- ALL NEW WORKS SHALL MAKE A SMOOTH JUNCTION WITH EXISTING CONDITIONS.
- DIMENSIONS OF ANY DETAIL SHALL NOT BE SCALED - DIMENSIONS, IF IN DOUBT, SHALL BE VERIFIED BY THE SUPERINTENDENT.
- ALL CONSTRUCTION AND RESTORATION WORK ON COUNCIL'S ROAD AND FOOTPATH AREA ARE TO BE CARRIED OUT IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S STANDARD SPECIFICATIONS.
- NO FILL MATERIAL IS TO BE IMPORTED TO THE SITE. EXISTING STOCKPILES AND MATERIAL WITHIN THE REDBANK SITE ARE TO BE USED FOR THE EARTHWORKS.

STORMWATER NOTES

- STORMWATER DESIGN CRITERIA:
AVERAGE RECURRENCE INTERVAL:
1:100 MAJOR SYSTEM
1:5 MINOR SYSTEM
- ALL INTERNAL WORKS WITHIN PROPERTY BOUNDARIES ARE TO COMPLY WITH THE REQUIREMENTS OF AS 3500 3.1 (1998) AND AS/NZS 3500 3.2 (1998).
- CARE IS TO BE TAKEN WITH LEVELS OF STORMWATER LINES. GRADES SHOWN ARE NOT TO BE REDUCED WITHOUT APPROVAL.
- GRATES AND COVERS SHALL CONFORM TO AS 3996.
- AT ALL TIMES DURING CONSTRUCTION OF STORMWATER PITS, ADEQUATE SAFETY PROCEDURES SHALL BE TAKEN TO ENSURE AGAINST THE POSSIBILITY OF PERSONNEL FALLING DOWN PITS.
- ALL DRAINAGE LINES THROUGH LOTS SHALL BE CONTAINED WITHIN THE FOLLOWING EASEMENTS: -
a) 1.2m WIDE FOR PIPELINE < 225Ø TO BE CREATED, OR GREATER AS MARKED UP ON PLAN.
b) 2.5m WIDE FOR PIPELINE ≥ 300Ø TO BE CREATED
c) STREET DRAINS - REFER TO COUNCIL'S DESIGN GUIDELINES SUBDIVISION/ DEVELOPMENTS.
- DRAINAGE LINES UNDER ROADS SHALL BE BACKFILLED WITH NON-COHESIVE SAND AND HAVE 3m OF SUBSOIL DRAIN WRAPPED IN APPROVED FILTER SOCK, DISCHARGING INTO DOWN STREAM PITS. FOR PIPELINES GREATER THAN 525Ø, SUBSOIL DRAIN SHALL BE PROVIDED ON BOTH SIDES OF THE TRENCH.
- ALL STORMWATER PIPES WITHIN ROADS TO BE REINFORCED CONCRETE PIPE (RRJ) CLASS 2 UNLESS OTHERWISE INDICATED.
- ALL INTERALLOTMENT DRAINAGE LINES SHALL BE LAID AT A MINIMUM GRADE OF 1% UNLESS OTHERWISE INDICATED.
- DRAINAGE LINES ON PLANS ARE DIAGRAMMATIC ONLY AND PIPE CENTRELINES SHALL ENTER AND EXIT PITS AT THE CENTRE OF THE RESPECTIVE PIT WALLS.
- STEP IRONS REQUIRED WHERE THE PIT EXCEEDS 1200 IN DEPTH. REFER TO COUNCIL DRAWING SD41
- WHERE GRADES EXCEED 14.0%, BULKHEADS TO BE PROVIDED IN ACCORDANCE WITH SECTION 5.12 OF COUNCIL'S CIVIL WORKS SPECIFICATION PART 2 CONSTRUCTION.
- SUBSOIL DRAIN TO BE RUN BOTH SIDE OF ROAD WITH CAPPED FLUSH POINTS AND CONNECTED TO NEAREST STORMWATER PIT.
- ALL PIT GRATES TO HAVE LOCKING CLIP.
- ALL STORMWATER PIPES WITHIN THE ROAD RESERVE AND OPEN SPACE TO BE INSTALLED TO HS3 STANDARD IN ACCORDANCE WITH AS3725 - DESIGN FOR INSTALLATION OF BURIED CONCRETE PIPES.
- BACKFILL OF ALL TRENCHES INCLUDING SEWER THAT IS WITHIN THE ZONE OF INFLUENCE OF THE PAVEMENT SHALL BE STABILISED SAND OR SUITABLE BACKFILL COMPACTED 98% STANDARD.

COMPACTION SPECIFICATION

- WITHIN FULL WIDTH OF ROAD CARRIAGEWAY PLUS 1.0m EITHER SIDE -
a) ALL SUBGRADE SHALL BE CARRIED UP IN HORIZONTAL LAYERS, OF NOT MORE THAN 300mm THICK LOOSE MEASUREMENT, IF REQUIRED, AND SHALL HAVE EACH LAYER COMPACTED TO A 100% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
b) ALL SUB-BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
c) ALL BASE COURSE SHALL BE PLACED AND COMPACTED TO AT LEAST 98% MODIFIED DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
d) ALL ROAD CROSSINGS TO BE PROVIDED IN EXISTING ROADS, THE TRENCHES SHALL BE BACKFILLED AND COMPACTED WITH A SAND/CEMENT BLEND 20:1 MIX TO SUBGRADE LEVEL, THEN DGB20 TO WITHIN 50MM OF THE ROAD SURFACE, OR IF REQUIRED TO A HIGHER SPECIFICATION BY A SPECIFIC UTILITY AUTHORITY, TO THAT SPECIFICATION AS INSTRUCTED BY THE PROJECT SUPERINTENDENT.
e) ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF PAVEMENT, TAKEN 1.0m FROM ALTERNATE SIDES OF PAVEMENT, BY A NATA REGISTERED LABORATORY.
f) THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP APPENDIX E CIVIL WORKS SPECIFICATION PART II - CONSTRUCTION SPECIFICATION.
g) ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
h) ANY FILL MATERIAL SHALL COMPRISE UNCONTAMINATED VIRGIN EXCAVATED NATURAL MATERIAL (VENM) OR EXCAVATED NATURAL MATERIAL (ENM).
- WITHIN FULL WIDTH OF ROAD FOOTPATH / VERGE EXCLUDING 1.0m BESIDE ROAD CARRIAGEWAY EITHER SIDE -
a) ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300mm CONSOLIDATED THICKNESS. EACH LAYER SHALL BE COMPACTED TO AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
b) ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF ROAD FOOTPATH / VERGE ON CENTRELINE, BY A NATA REGISTERED LABORATORY.
c) ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/0% VRAIATION) AS THE SURROUNDING ROAD FOOTPATH / VERGE.
d) ALL TRENCH TESTS TO BE TAKEN IN EACH 300mm LAYER AND EVERY 50 METRES OF TRENCH, BY A NATA REGISTERED LABORATORY.
e) THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP APPENDIX E CIVIL WORKS SPECIFICATION PART II - CONSTRUCTION SPECIFICATION.
f) ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
g) ANY FILL MATERIAL SHALL COMPRISE UNCONTAMINATED VIRGIN EXCAVATED NATURAL MATERIAL (VENM) OR EXCAVATED NATURAL MATERIAL (ENM).
- WITHIN LOTS -
a) ALL FILL SHALL BE CARRIED OUT IN HORIZONTAL LAYERS, EXTENDING THE FULL WIDTH OF THE AREA BEING FILLED, OF NOT MORE THAN 300mm CONSOLIDATED THICKNESS. EACH LAYER SHALL BE COMPACTED TO A DENSITY OF AT LEAST 98% STANDARD DRY DENSITY RATIO DETERMINED IN ACCORDANCE WITH AS1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
b) THE DEPTHS OF FILL AND THE COMPACTION THEREOF ARE TO BE VERIFIED BY THE SUBMISSION OF COMPACTION CERTIFICATES AND A PLAN SHOWING CONTOURED DEPTHS OF FILL IN RELATION TO LOT BOUNDARIES.
c) ALL TESTS TO BE A MINIMUM OF TWO COMPACTION TESTS PER LOT PER LAYER ARE TO BE CARRIED OUT, BY A NATA REGISTERED LABORATORY.
d) ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/0% VARIATION) AS THE SURROUNDING LOTS.
e) ALL TRENCH TESTS TO BE TAKEN IN EACH 300mm LAYER AND EVERY 50 METRES OF TRENCH, BY A NATA REGISTERED LABORATORY.
f) THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP APPENDIX E CIVIL WORKS SPECIFICATION PART II - CONSTRUCTION SPECIFICATION.
g) ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- EARTHWORKS AND SITE PREPARATION TO BE UNDERTAKEN IN ACCORDANCE WITH GEOTECHNICAL INVESTIGATION REPORT PREPARED BY GEOTECHNIQUE, REFERENCE 12261/31-AA DATED 4 DECEMBER 2020.
- TOPSOIL
ALL TOPOSIL ON THE SITE MUST COMPLY WITH THE FOLLOWING:
a) TOPSOIL SHALL ONLY BE STRIPPED FROM APPROVED AREAS AND SHALL BE STOCKPILED FOR RE-USE DURING SITE REHABILITATION AND LANDSCAPING.
b) ALL DISTURBED AREAS ARE TO BE STABILISED/REVEGETATED AS SOON AS PRACTICABLE AFTER THE COMPLETION OF FILLING WORKS. TOPSOIL SHALL BE USED IN DISTURBED AREAS AS FOLLOWS:
(i) A MINIMUM 300mm SURFACE LAYER OF TOPSOIL IN OPEN SPACE AREAS,
(ii) A MINIMUM 100mm SURFACE LAYER OF TOPSOIL ACROSS URBAN LOTS, AND
(iii) A MINIMUM 100mm SURFACE LAYER OF TOPSOIL ACROSS ROAD VERGES.
BATTERS
WHERE THE MAXIMUM GRADE OF ANY FILL BATTER EXCEEDS A RATIO OF THREE HORIZONTAL TO ONE VERTICAL (3:1), RETAINING WALLS, STONE FLAGGING OR TERRACING SHALL BE CONSTRUCTED;

CIVIL PLAN INDEX

PLAN NO.	PLAN NAME	REV
110185-12-CC2000	COVER SHEET	C
110185-12-CC2001	GENERAL NOTES, INDEX & LEGEND	I
110185-12-CC2002	GENERAL LAYOUT PLAN	C
110185-12-CC2003	ROAD SETOUT PLAN	D
-		
110185-12-CC2021	ENGINEERING PLAN SHEET 1	C
110185-12-CC2022	ENGINEERING PLAN SHEET 2	F
-		
110185-12-CC2101	ROAD LONGITUDINAL SECTIONS SHEET 1	D
-		
110185-12-CC2201	ROAD CROSS SECTIONS SHEET 1	C
110185-12-CC2202	ROAD CROSS SECTIONS SHEET 2	C
-		
110185-12-CC2301	KERB RETURN PLAN	D
-		
110185-12-CC2400	CATCHMENT PLAN	C
110185-12-CC2401	PIT SCHEDULE	C
110185-12-CC2411	DRAINAGE CALCULATIONS SHEET 1	D
110185-12-CC2412	DRAINAGE CALCULATIONS SHEET 2	D
110185-12-CC2421	DRAINAGE LONGITUDINAL SECTIONS SHEET 1	C
110185-12-CC2422	DRAINAGE LONGITUDINAL SECTIONS SHEET 2	B
-		
110185-12-CC2500	RETAINING WALLS PLAN	F
110185-12-CC2501	RETAINING WALLS DETAILS	D
110185-12-CC2511	RETAINING WALLS LONGSECTIONS SHEET 1	C
110185-12-CC2512	RETAINING WALLS LONGSECTIONS SHEET 2	C
110185-12-CC2513	RETAINING WALLS LONGSECTIONS SHEET 3	C
110185-12-CC2514	RETAINING WALLS LONGSECTIONS SHEET 4	C
110185-12-CC2515	RETAINING WALLS LONGSECTIONS SHEET 5	C
110185-12-CC2516	RETAINING WALLS LONGSECTIONS SHEET 6	D
110185-12-CC2517	RETAINING WALLS LONGSECTIONS SHEET 7	C
-		
110185-12-CC2700	SOIL & WATER MANAGEMENT NOTES	C
110185-12-CC2701	SOIL & WATER MANAGEMENT PLAN	E
-		
110185-12-CC2800	SIGNAGE AND LINE MARKING PLAN	E
-		
110185-12-CC2900	SWEPT PATH PLAN	C

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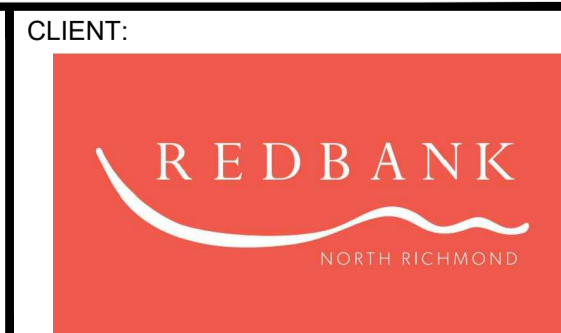


NOTE: UTILITIES SHOWN MAY NOT INCLUDE ALL SERVICES WITHIN THE LIMIT OF WORKS

REV	DESCRIPTION	MP	VS	RO	MS	DATE
I	PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	25/08/21
H	INDEX UPDATED	MP	NM	RO	RO	13/08/21
G	INDEX AMENDED	MP	VS	RO	RO	29/06/21
F	ROAD S1 ALIGNMENT UPDATED	MP	NA	RO	RO	17/06/21
E	SIGNAGE AND LINEMARKING REVISED AND SWEPT PATH PLAN ADDED	JET	JET	MP	RO	26/05/21
D	COMPACTION NOTES REVISED	JET	JET	MP	RO	29/04/21
C	INDEX AMENDED	MP	MP	RO	RO	25/03/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE
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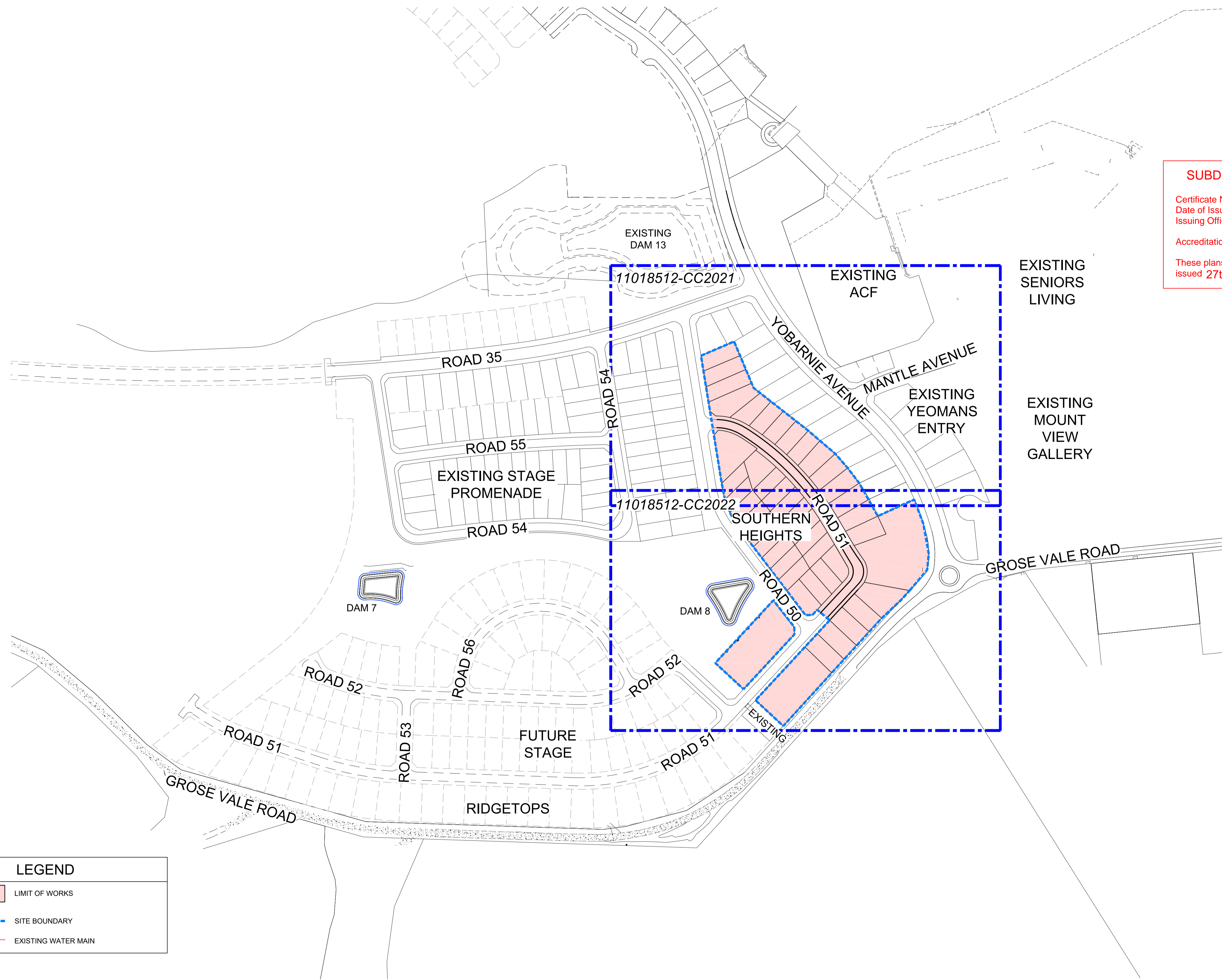
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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
GENERAL NOTES, INDEX & LEGEND

PROJECT No: 110185-12
SHEET No: CC2001

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2001 I

Plotted: 13 August, 2021 4:53:56 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS\2-SH110185-12-CC2002.dwg

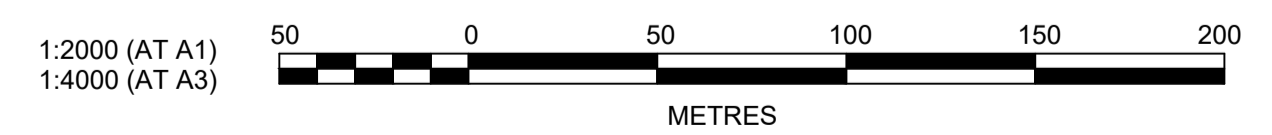


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LEGEND	
	LIMIT OF WORKS
	SITE BOUNDARY
	EXISTING WATER MAIN



AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	NM	RO	RO	13/08/21
B	MP	VS	RO	MS	12/03/21
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REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 GENERAL LAYOUT PLAN

PROJECT No: 110185-12
 SHEET No: CC2002

PLAN No: 110185-12-CC2002

PROJECT No: 110185-12
 SHEET No: CC2002

PLAN No: 110185-12-CC2002

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: C

Plotted: 13 August, 2021 4:55:10 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS2-SH110185-12-CC2003.dwg



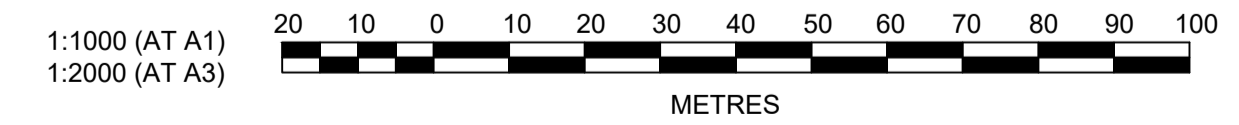
ROAD 51					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286690.65	6281379.21	85°03'11.17"		
10.15	286700.76	6281380.09	85°03'11.17"		
26.32	286717.46	6281381.53		50	32.35
42.5	286731.66	6281372.62	122°07'30.80"		
104.69	286785.35	6281338.9		260	124.37
166.87	286817.5	6281284.25	149°32'00.56"		
190.68	286829.57	6281263.73	149°32'00.56"		
202.24	286835.43	6281253.76		-300	23.12
213.8	286842.05	6281244.28	145°07'04.19"		
221.48	286846.84	6281237.4		15.5	15.36
229.17	286843.71	6281229.63	201°54'40.64"		
233.73	286841.99	6281225.35		25	9.12
238.29	286838.86	6281221.97			
300.02	286796.91	6281176.69			



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CLIENT:

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REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 ROAD SETOUT PLAN

PROJECT No: **110185-12**
 SHEET No: **CC2003**

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: **110185-12-CC2003**

PROJECT No: **110185-12**
 SHEET No: **CC2003**
 PLAN No: **110185-12-CC2003**

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EASEMENT NOTES

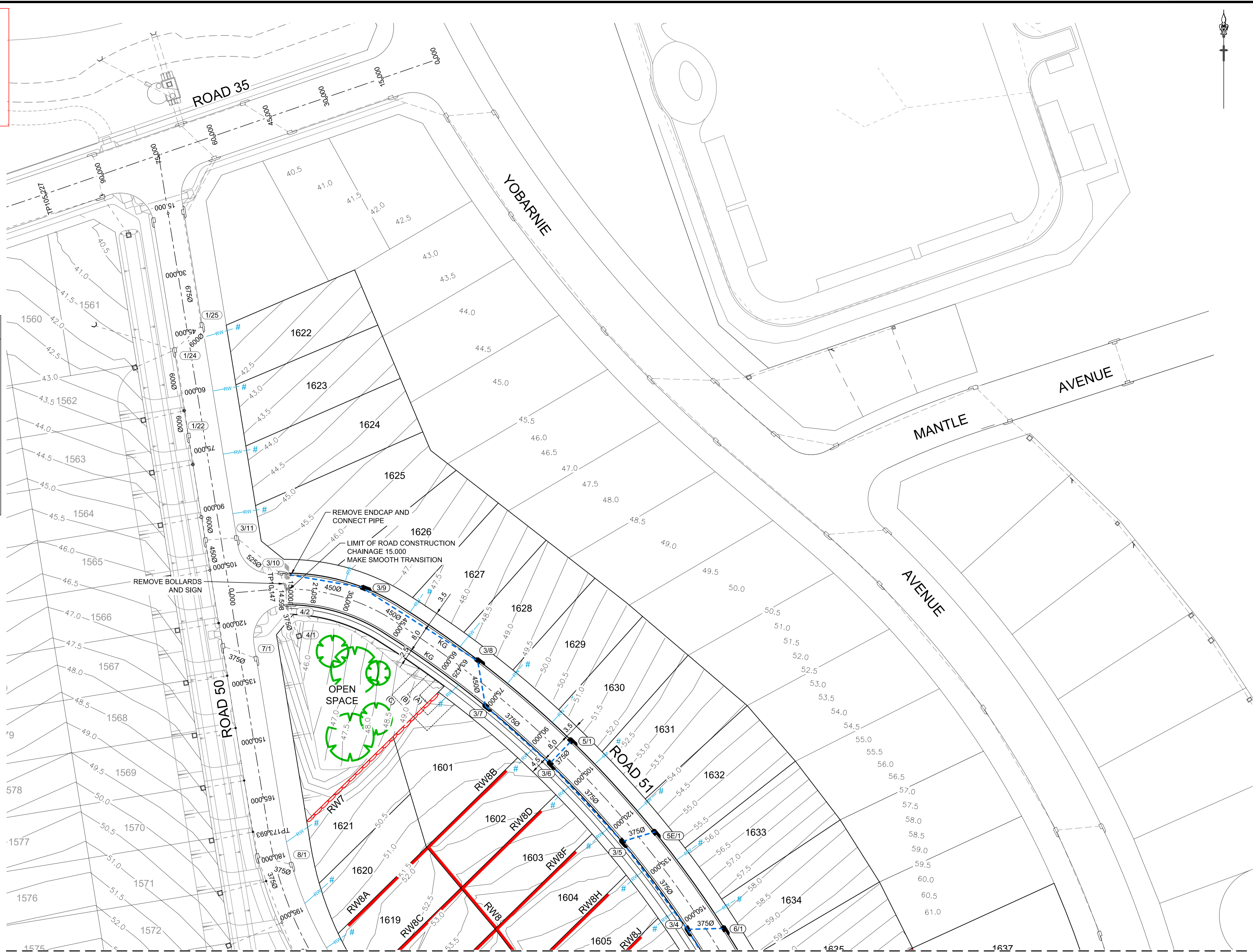
- (A) EASEMENT FOR PADMOUNT STATION 2.75m x 5.5m AND VARIABLE.
- (B) RESTRICTION ON THE USE OF LAND IN RELATION TO FIRE RATINGS OF BUILDINGS MEASURED 3m FROM THE SUBSTATION PLINTH.
- (C) RESTRICTION ON THE USE OF LAND IN RELATION TO SWIMMING POOLS MEASURED 5m FROM THE SUBSTATION PLINTH.

LAYBACK NOTES

LAYBACKS IN KERB AND GUTTER FOR VEHICLE CROSSOVERS TO BE COMPLETED AT EACH LOT PRIOR TO SUBDIVISION WORKS PRACTICAL COMPLETION

LEGEND

<p>RETAINING WALL 450X450 GSIP 1000 UPVC PIPE</p>	<p>EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT FUTURE DRAINING DIRECTLY TO OPEN SPACE</p>
<p>FLOW ARROW</p>	
<p>PROVIDE KERB ADAPTOR AND ROOF WATER CONNECTION TO KERB AND GUTTER TO HAWKESBURY CITY COUNCIL DRAWING SD39</p>	



REFER TO DRAWING CC2022 FOR CONTINUATION

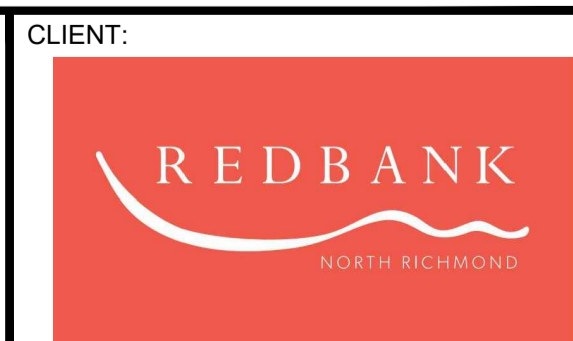
1:500 (AT A1)
 1:1000 (AT A3)
 METRES

Plotted: 29 June, 2021 12:00:09 PM. File Name: \\wp.local\dfs\jobs\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\CCDC\SOUTHERN HEIGHTS\SH110185-12-CC2021.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
C	JET	JET	MP	RO	29/04/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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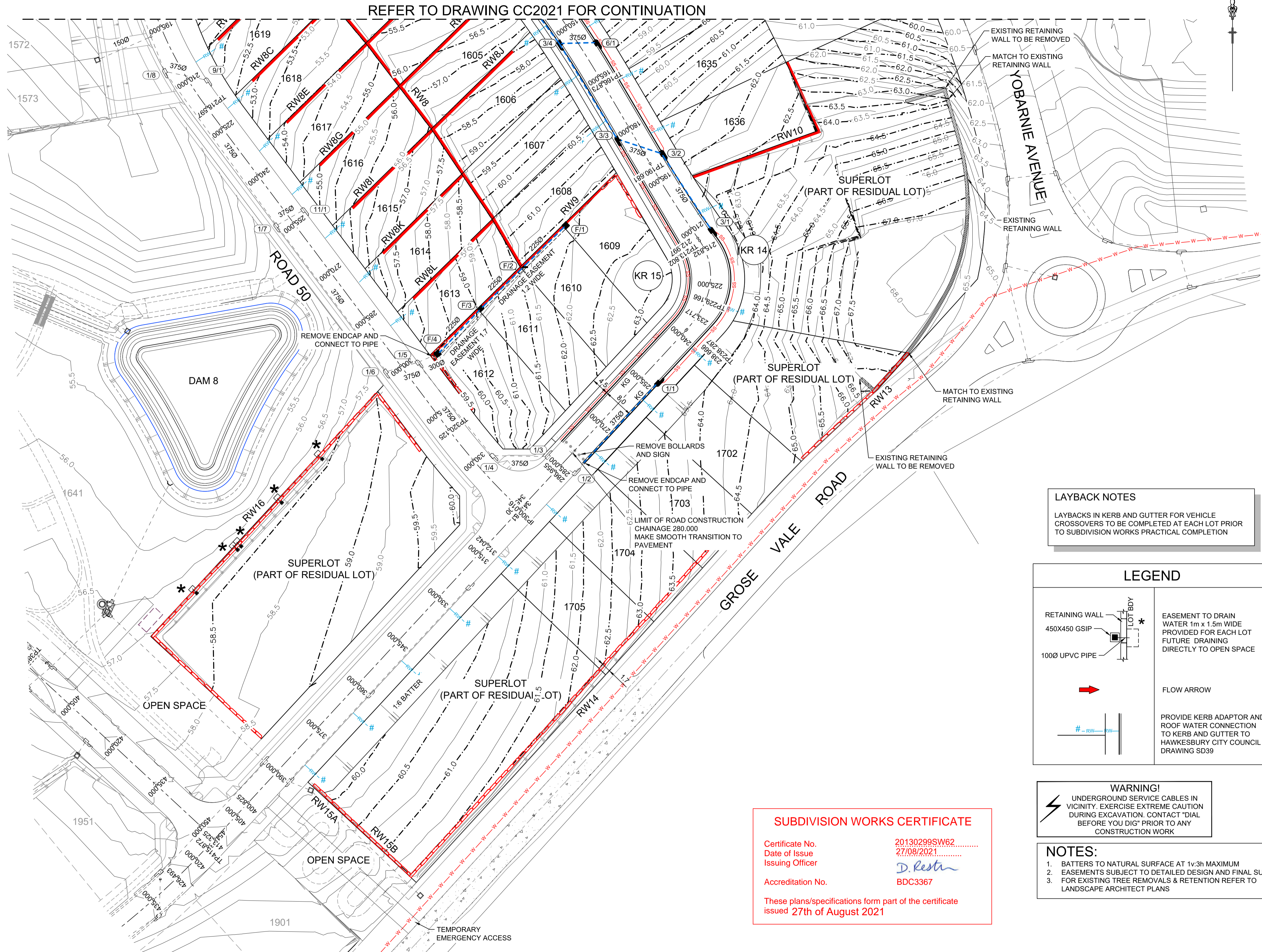
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 ENGINEERING PLAN
 SHEET 1

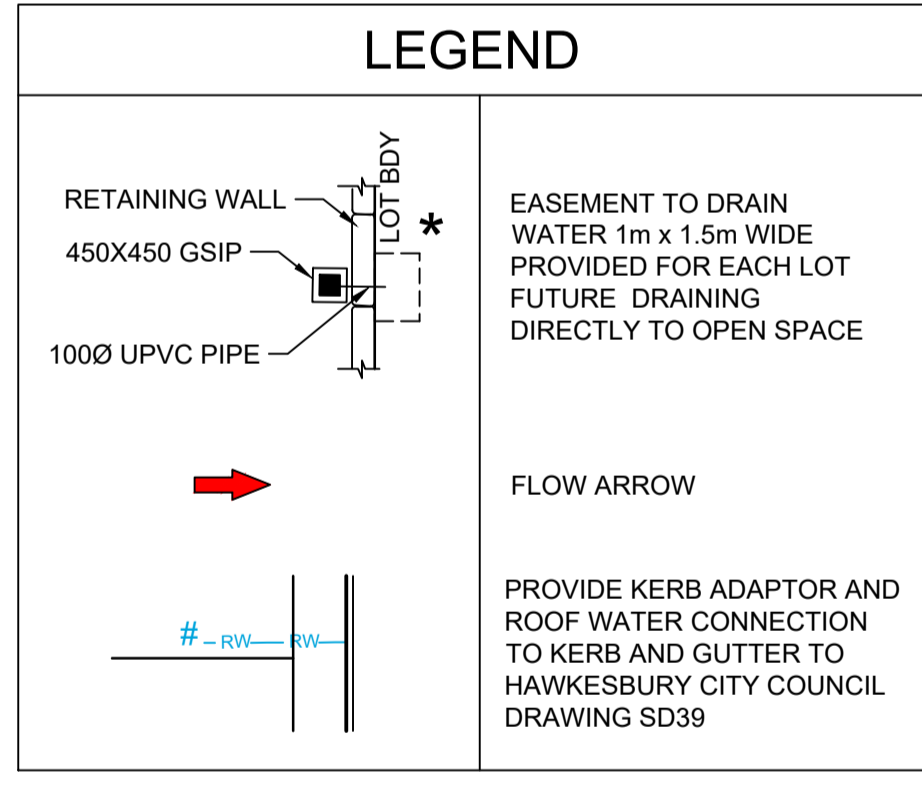
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 SHEET No: CC2021
 PLAN No: 110185-12-CC2021

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2021 C

Plotted: 25 August, 2021, 3:54:20 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS2-SH110185-12-CC2022.dwg



LAYBACK NOTES
 LAYBACKS IN KERB AND GUTTER FOR VEHICLE CROSSOVERS TO BE COMPLETED AT EACH LOT PRIOR TO SUBDIVISION WORKS PRACTICAL COMPLETION



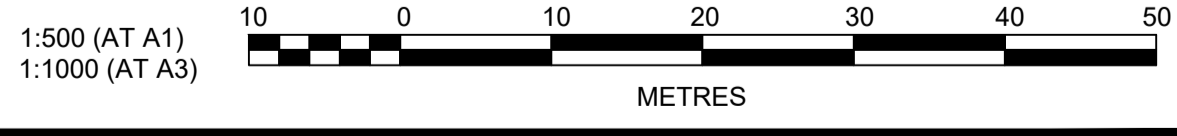
WARNING!
 UNDERGROUND SERVICE CABLES IN VICINITY. EXERCISE EXTREME CAUTION DURING EXCAVATION. CONTACT "DIAL BEFORE YOU DIG" PRIOR TO ANY CONSTRUCTION WORK

SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Resta*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021

- NOTES:**
- BATTERS TO NATURAL SURFACE AT 1v:3h MAXIMUM
 - EASEMENTS SUBJECT TO DETAILED DESIGN AND FINAL SURVEY.
 - FOR EXISTING TREE REMOVALS & RETENTION REFER TO LANDSCAPE ARCHITECT PLANS



AMENDMENT	DES	DRN	CKD	APR	DATE
F PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	24/08/21
E LOT BOUNDARY AMENDED	MP	NM	RO	RO	13/08/21
D ROAD 51 CL UPDATED	MP	VS	RO	RO	29/06/21
C FOOTPATH REVISED & RAIN WATER CONNECTION ADDED	JET	JET	MP	RO	29/04/21
B ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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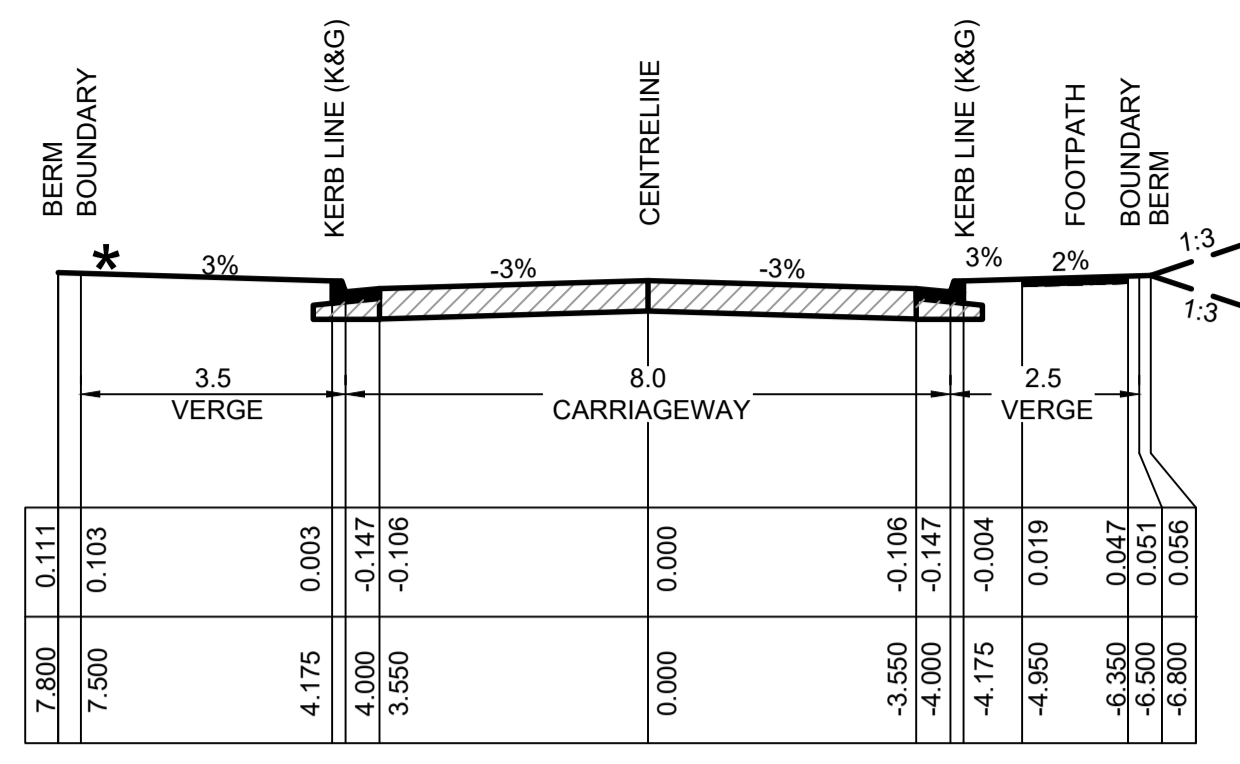
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**

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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
 ENGINEERING PLAN SHEET 2

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2022

PROJECT No: **110185-12**
 SHEET No: **CC2022**
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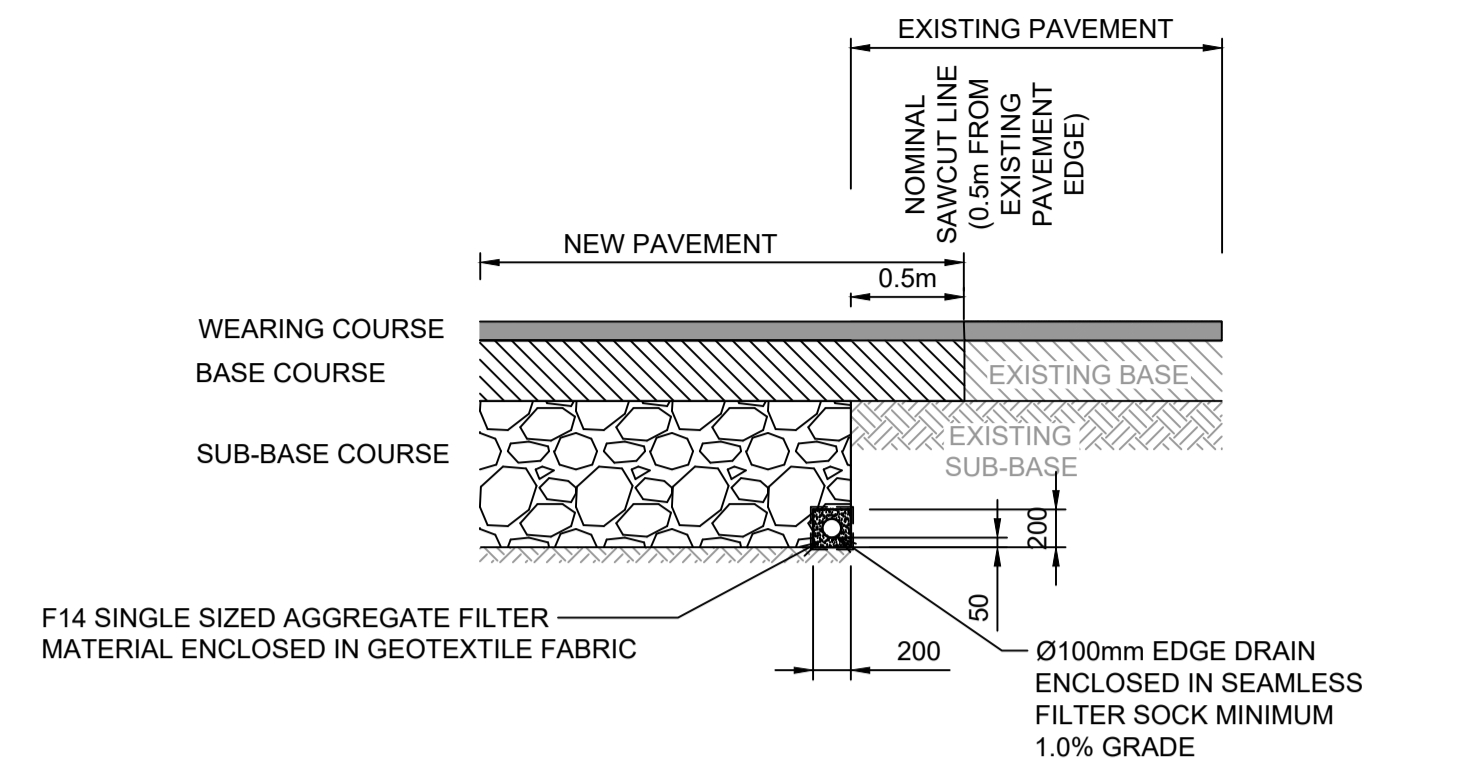


TYPICAL CROSS SECTION
ROAD No.51 (CH15 - CH63.425)
(14m ROAD RESERVE)
SCALE 1:100 NATURAL

NOTE:
SUBSOIL DRAINAGE TO BE PROVIDED UNDER KERBS ON BOTH SIDES OF THE ROAD EXCEPT WHERE STREET DRAINAGE IS PRESENT. REFER TO HCC STANDARD DRAWING No.SD3

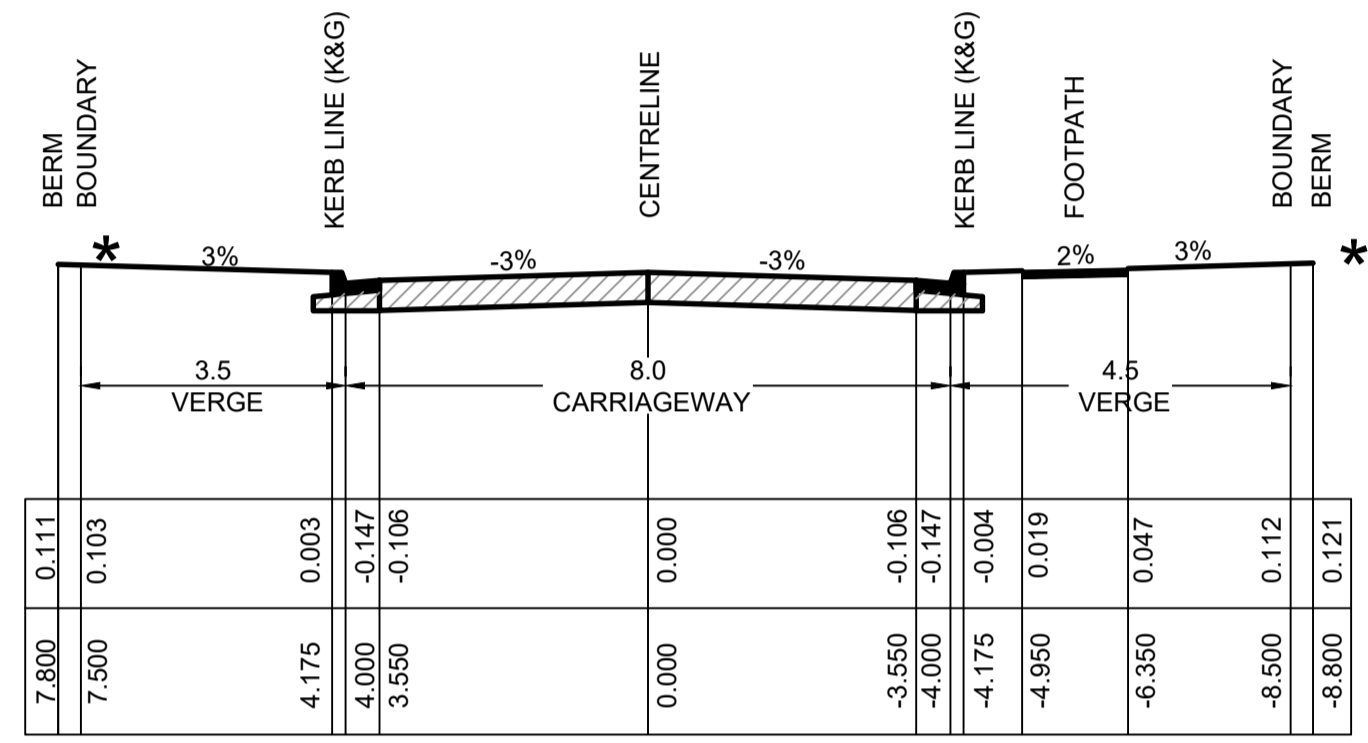
*** REFER TO ENGINEERING PLANS FOR SITE REGRADING**

PAVEMENT NOTES
(ROAD 51)
2x10⁵ ESA (GEOTECHNICAL REPORT BY GEOTECHNIQUE, REF: 12261/31-AA-R1 DATED 4/12/2020)
1. 50mm WEARING COURSE AC10
2. ONE COAT HOT BITUMEN FLUSH SEAL
3. 150mm DGB 20 BASE COURSE
4. 250mm SUB-BASE COURSE

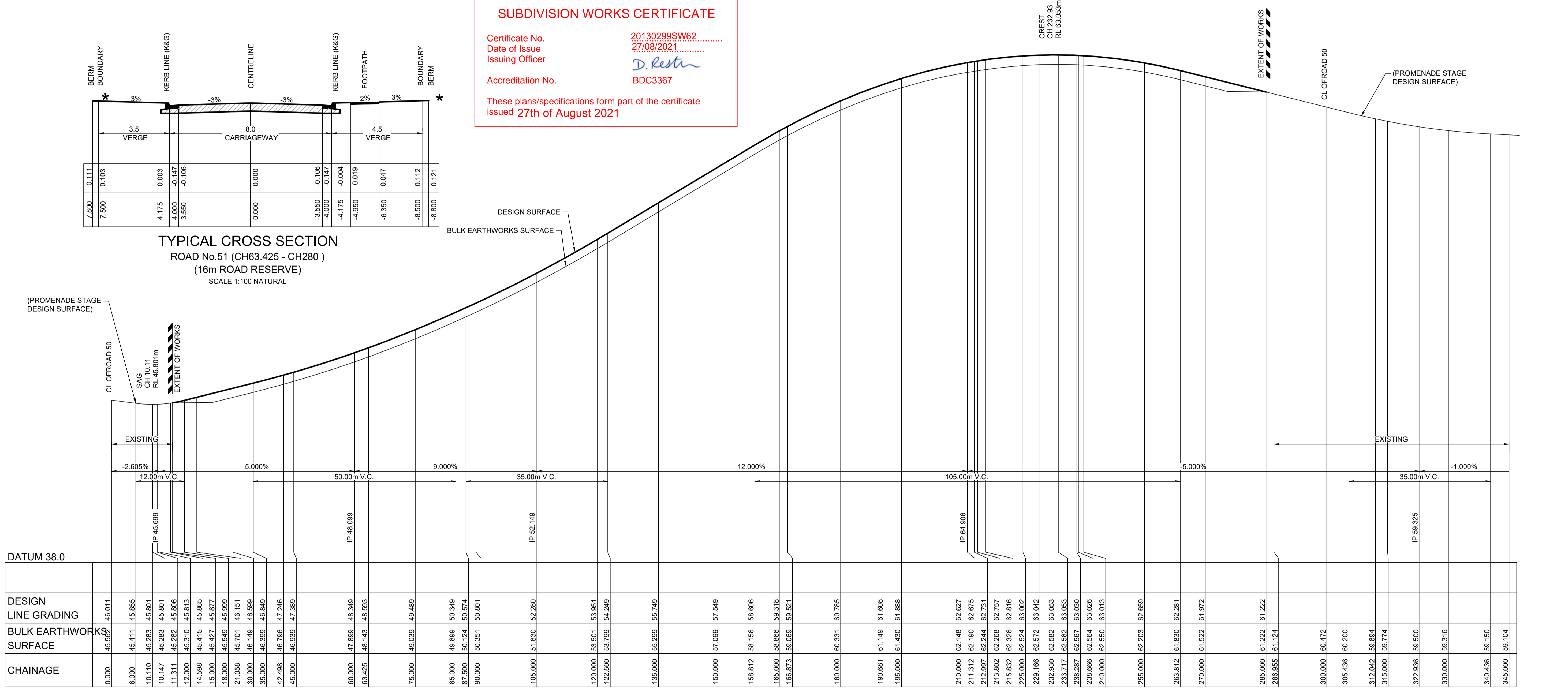


INTERFACE BETWEEN NEW PAVEMENT AND EXISTING PAVEMENT
NTS

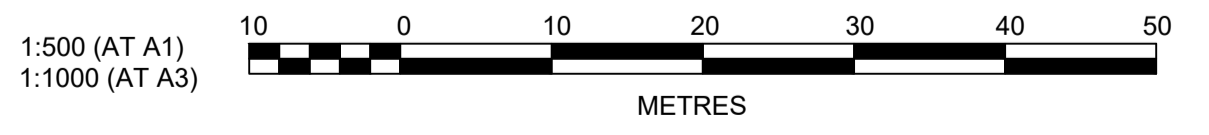
SUBDIVISION WORKS CERTIFICATE
Certificate No. 20130299SW62
Date of Issue 27/08/2021
Issuing Officer D. Restin
Accreditation No. BDC3367
These plans/specifications form part of the certificate issued 27th of August 2021



TYPICAL CROSS SECTION
ROAD No.51 (CH63.425 - CH280)
(16m ROAD RESERVE)
SCALE 1:100 NATURAL



LONGITUDINAL SECTION ROAD 51
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100



CHAINAGE	DESIGN LINE GRADING	BULK EARTHWORKS SURFACE
0.000	46.011	45.562
6.000	45.865	45.411
10.110	45.801	45.283
10.147	45.801	45.283
11.311	45.806	45.282
12.000	45.813	45.310
14.598	45.865	45.415
15.000	45.877	45.427
18.000	45.989	45.549
21.068	46.151	46.149
30.000	46.599	46.599
35.000	46.949	46.949
42.468	47.246	46.796
45.000	47.389	46.939
60.000	48.349	47.899
63.425	48.593	48.143
75.000	49.489	49.489
85.000	50.349	49.899
87.500	50.574	50.124
90.000	50.801	50.351
105.000	52.280	51.830
120.000	53.951	53.501
122.500	54.249	53.799
135.000	55.749	55.299
150.000	57.549	57.099
158.812	58.606	58.156
165.000	59.318	58.866
166.873	59.521	59.069
180.000	60.785	60.331
190.681	61.608	61.149
195.000	61.888	61.430
210.000	62.627	62.148
211.312	62.675	62.190
212.997	62.731	62.244
213.802	62.757	62.268
215.832	62.816	62.326
225.000	63.002	62.524
229.166	63.042	62.572
232.930	63.053	62.582
233.717	63.053	62.582
238.287	63.030	62.567
238.666	63.026	62.564
240.000	63.013	62.550
255.000	62.659	62.203
263.812	62.281	61.830
270.000	61.972	61.522
285.000	61.222	61.222
286.955	61.124	61.124
300.000	60.472	60.472
305.436	60.200	60.200
312.042	59.894	59.894
315.000	59.774	59.774
322.936	59.500	59.500
330.000	59.316	59.316
340.436	59.150	59.150
345.000	59.104	59.104

Plotted: 25 August, 2021 2:21:44 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS\2-SH110185-12-CC2101.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
D	MP	MP	RO	RO	25/08/21
C	MP	VS	RO	RO	29/06/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
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PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
NORTH RICHMOND

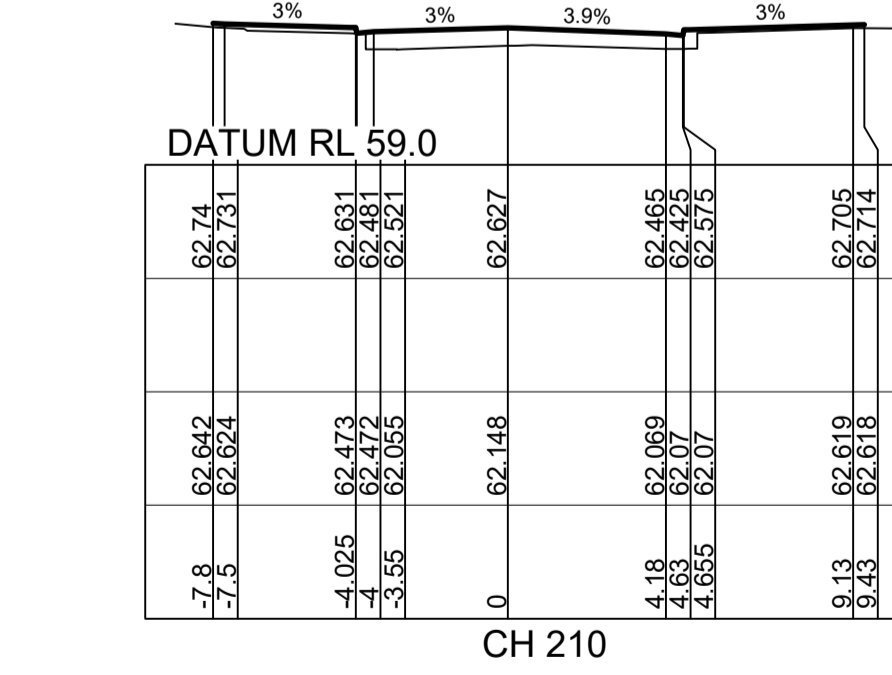
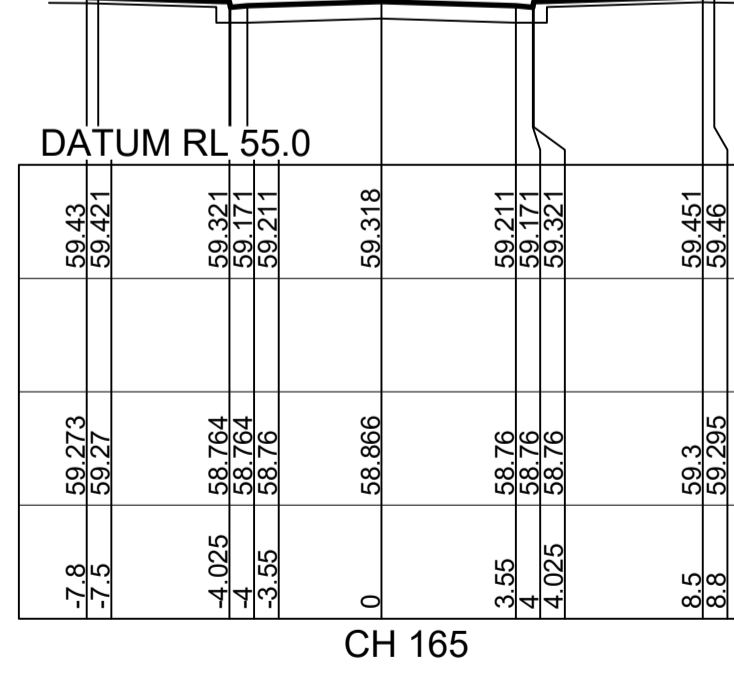
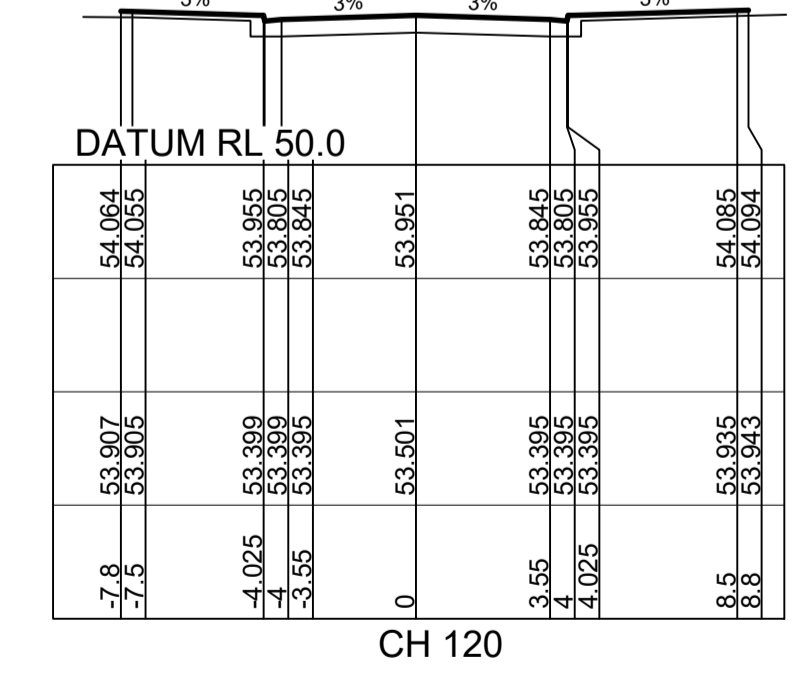
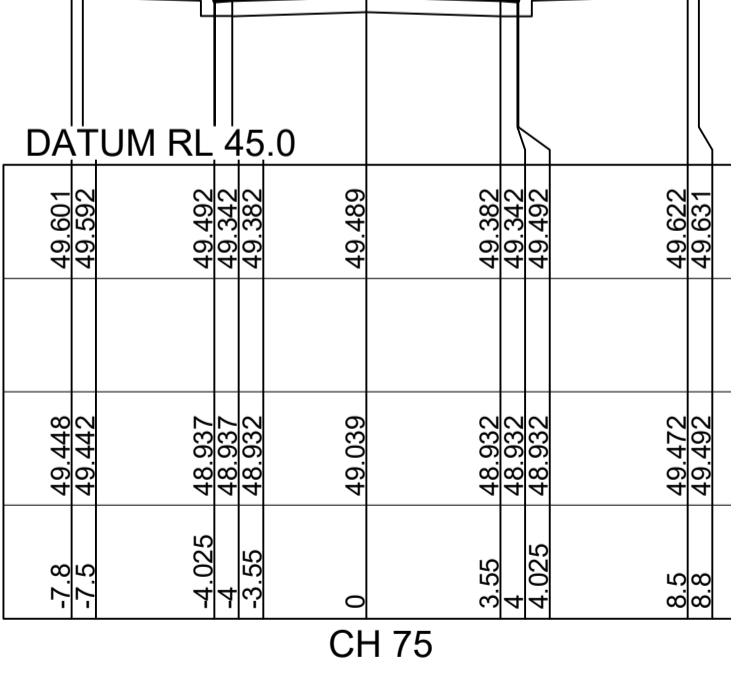
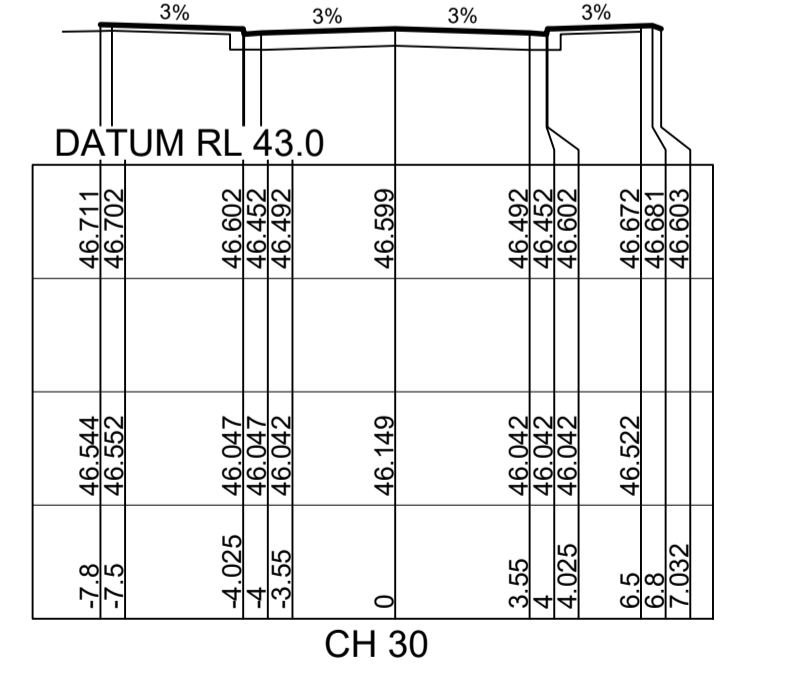
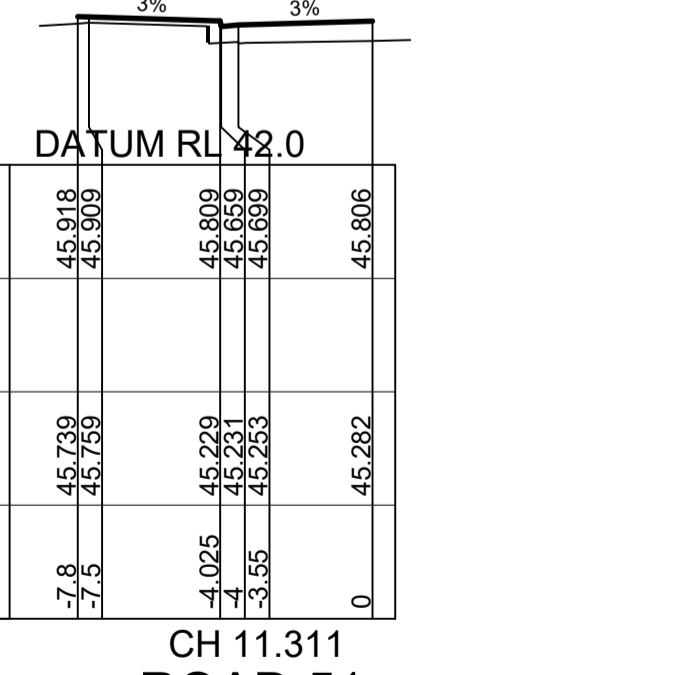
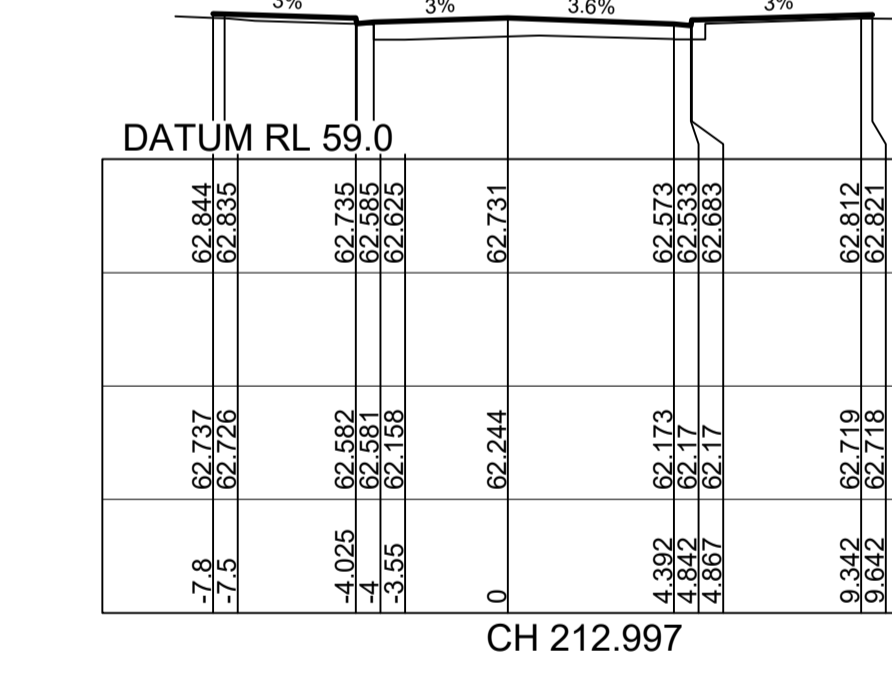
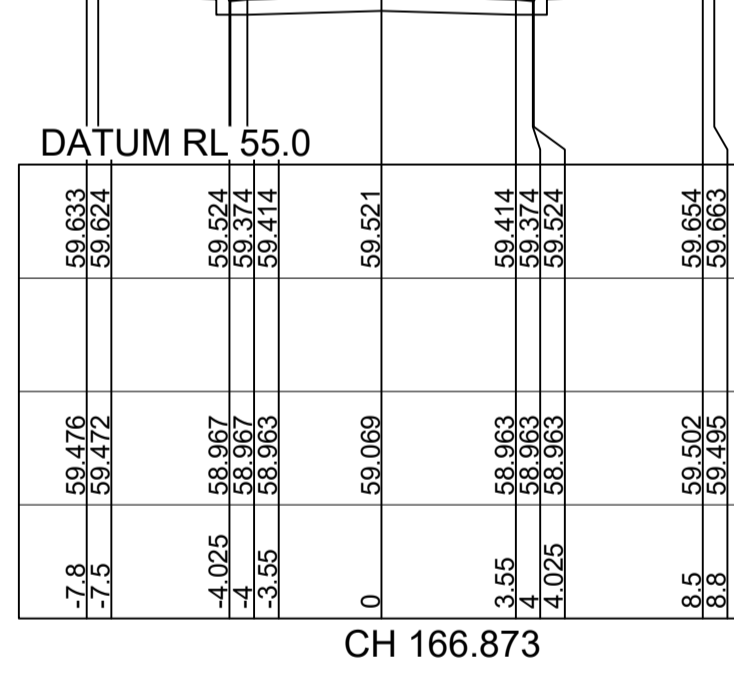
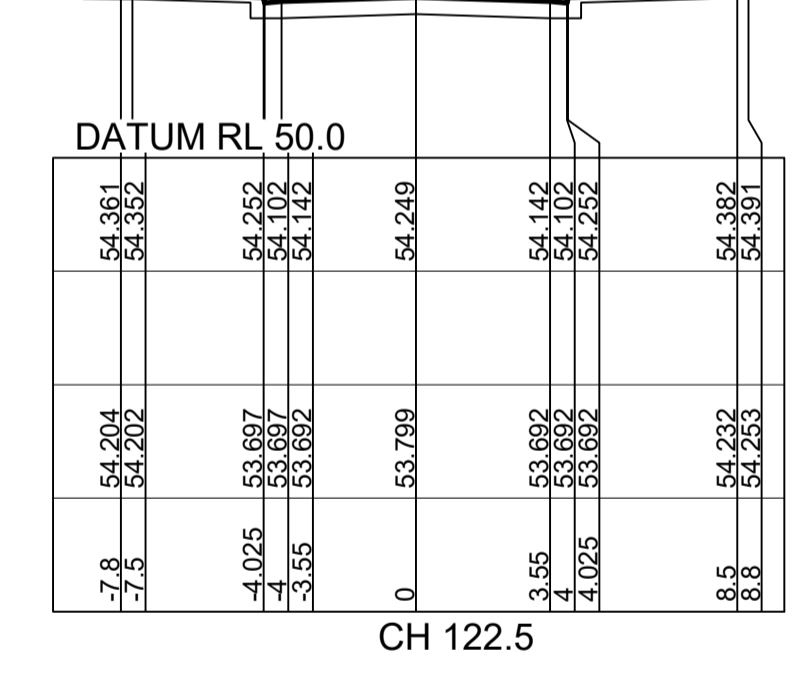
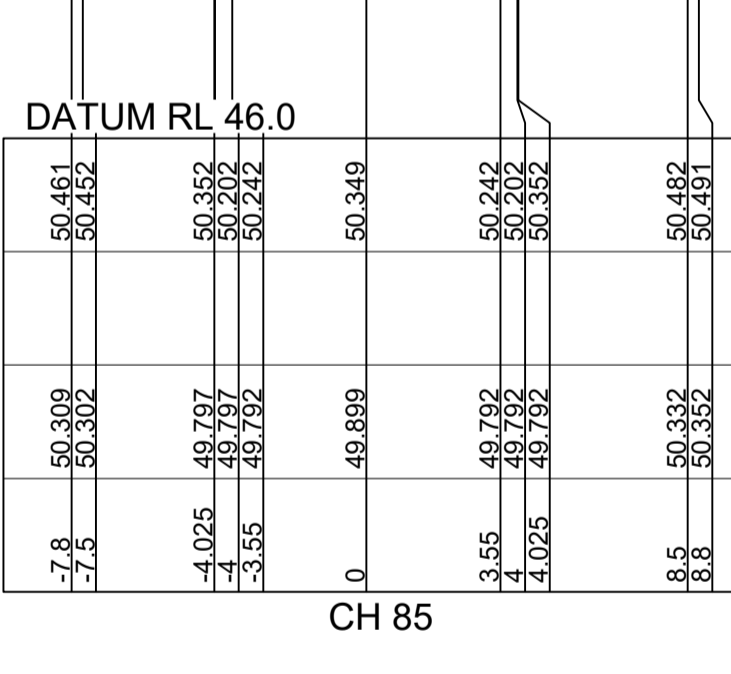
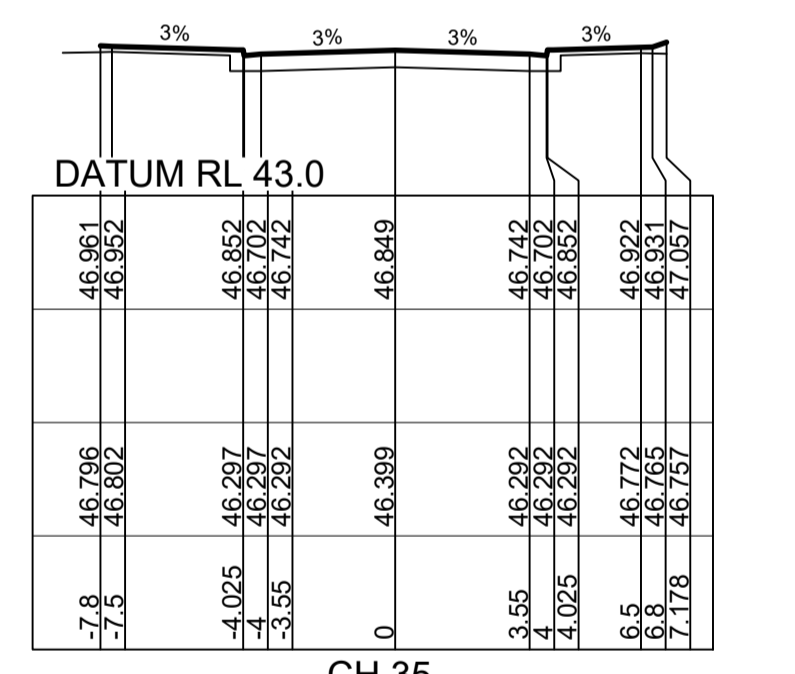
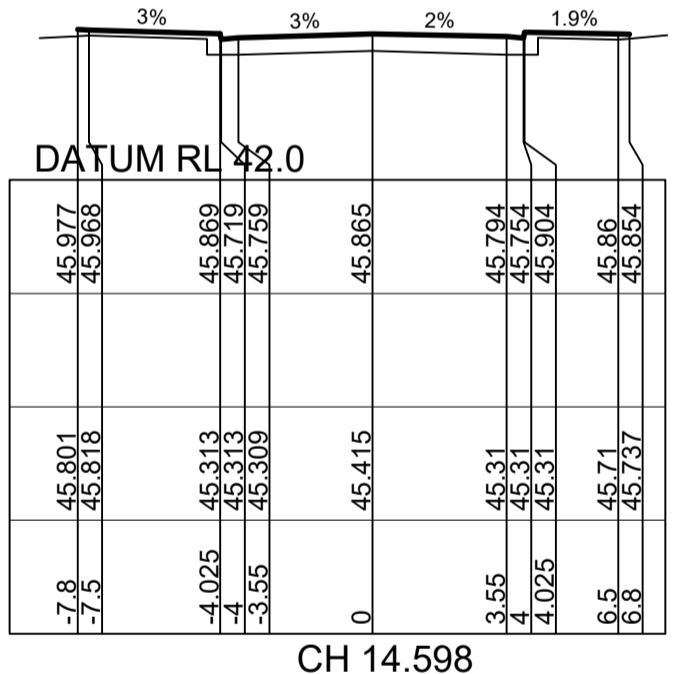
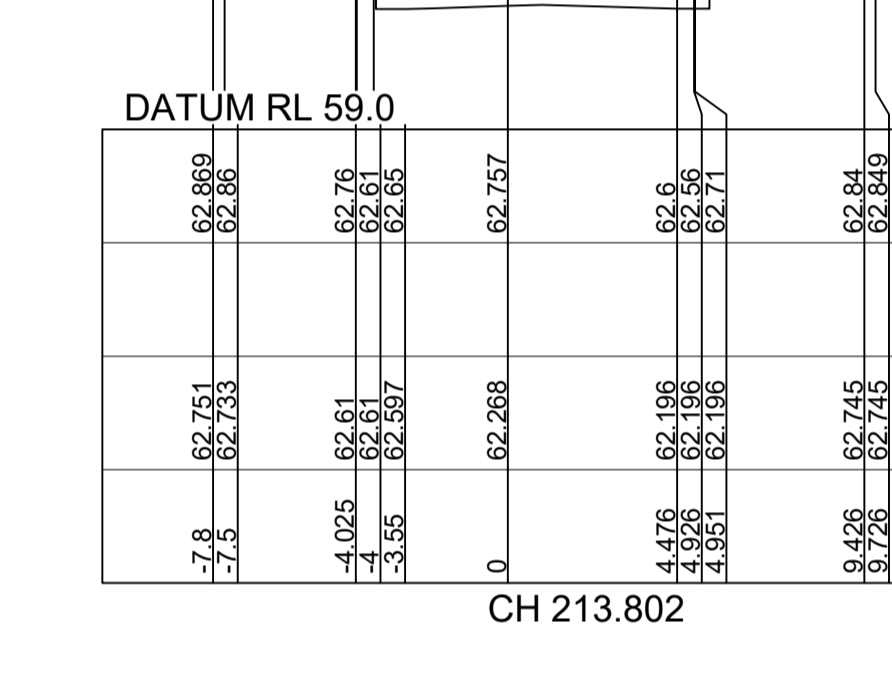
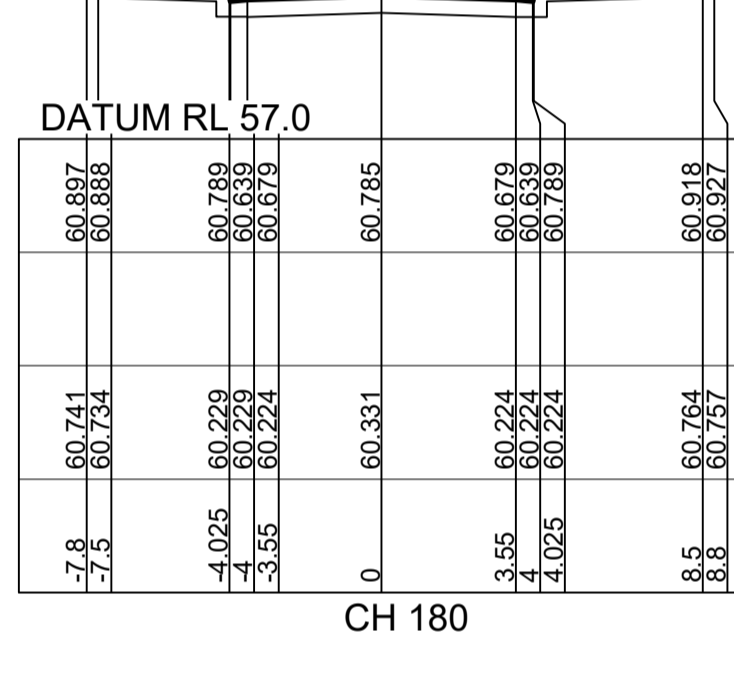
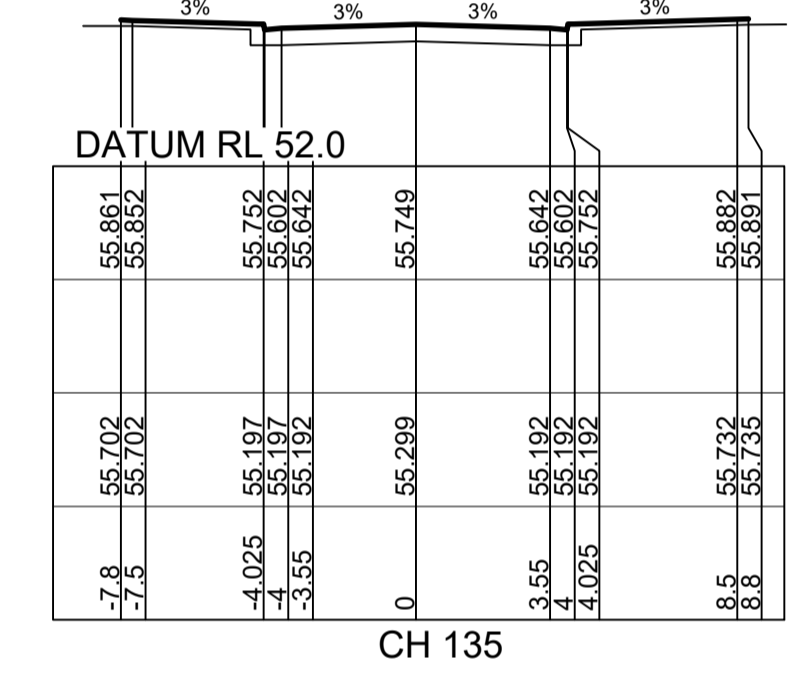
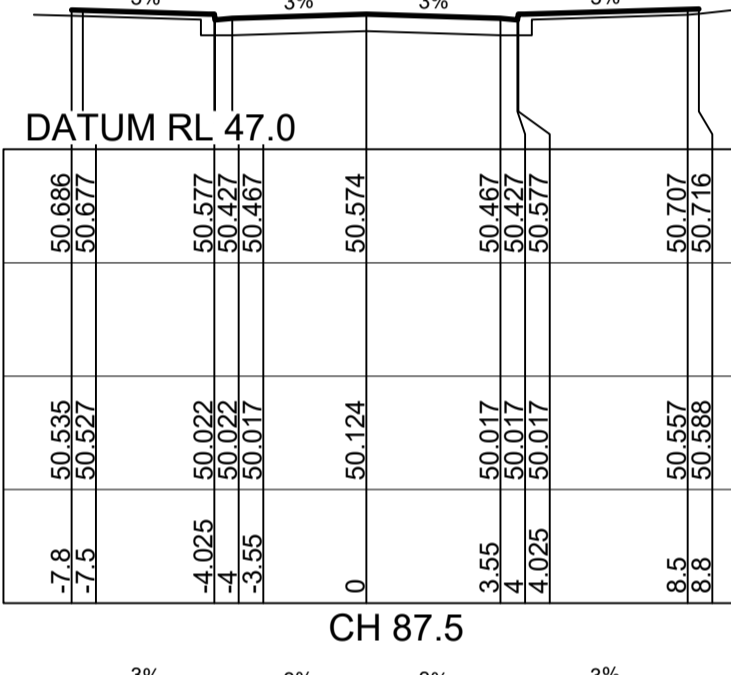
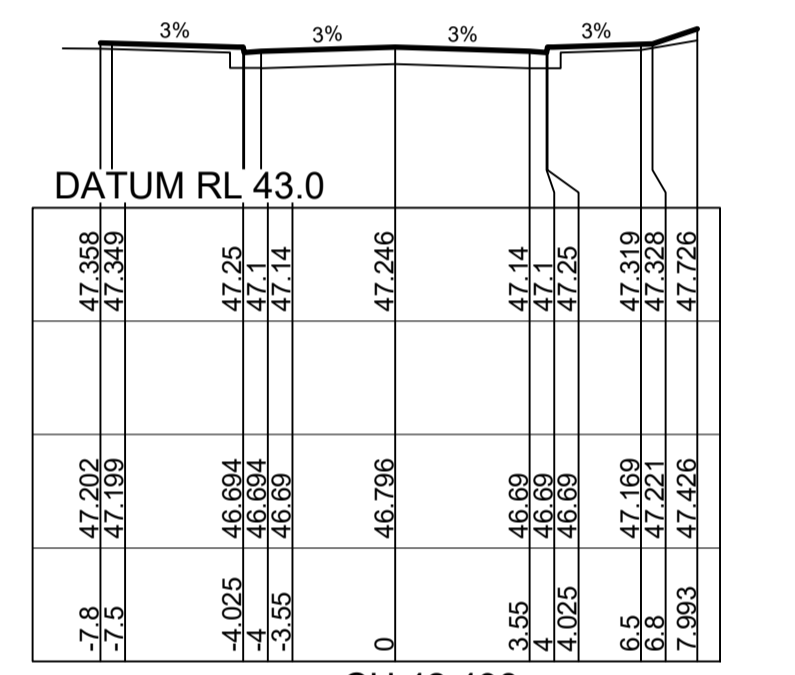
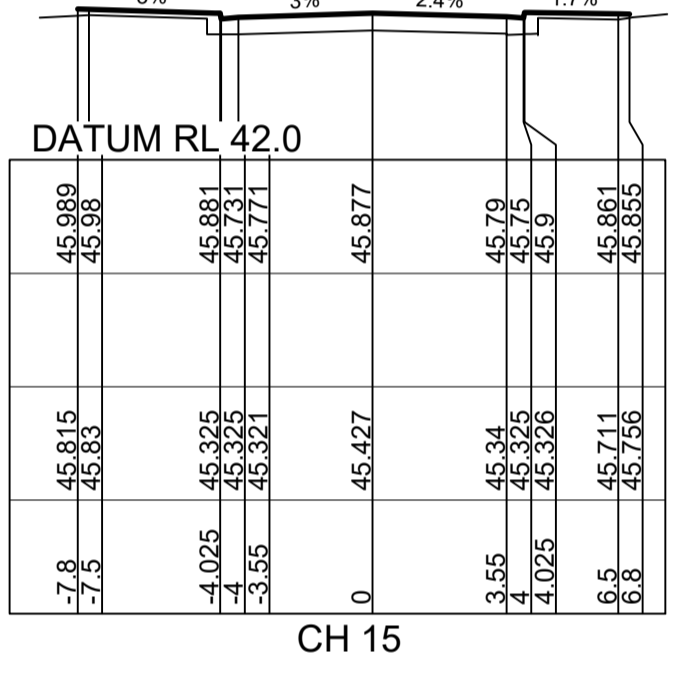
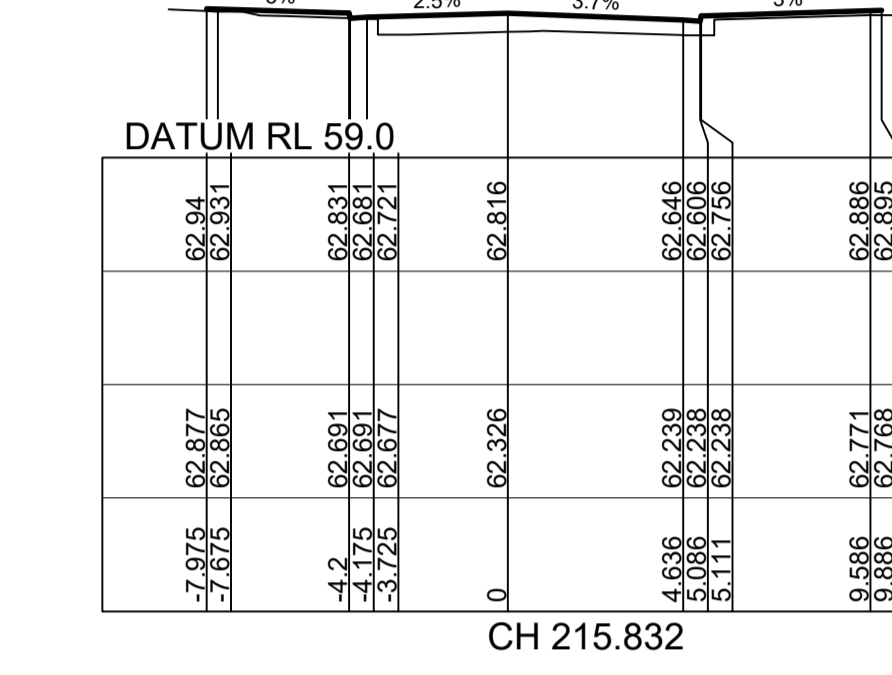
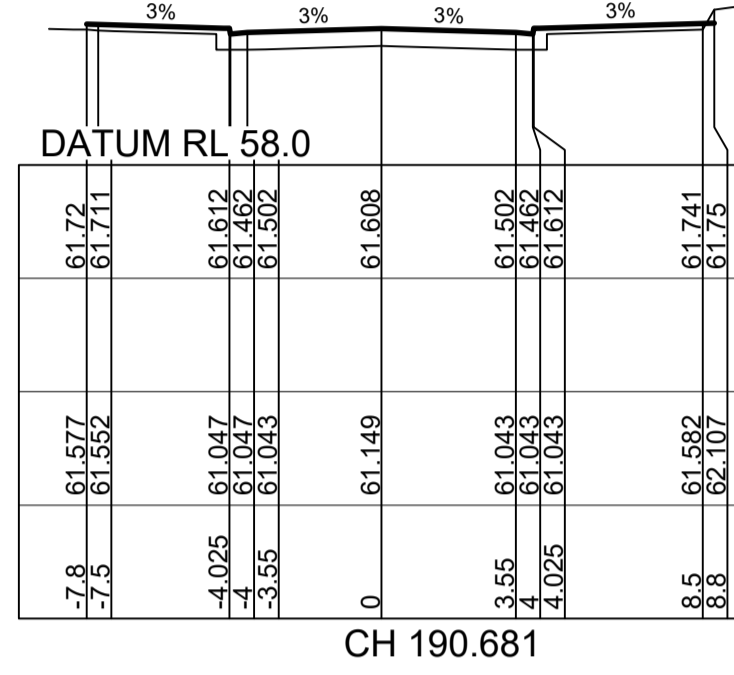
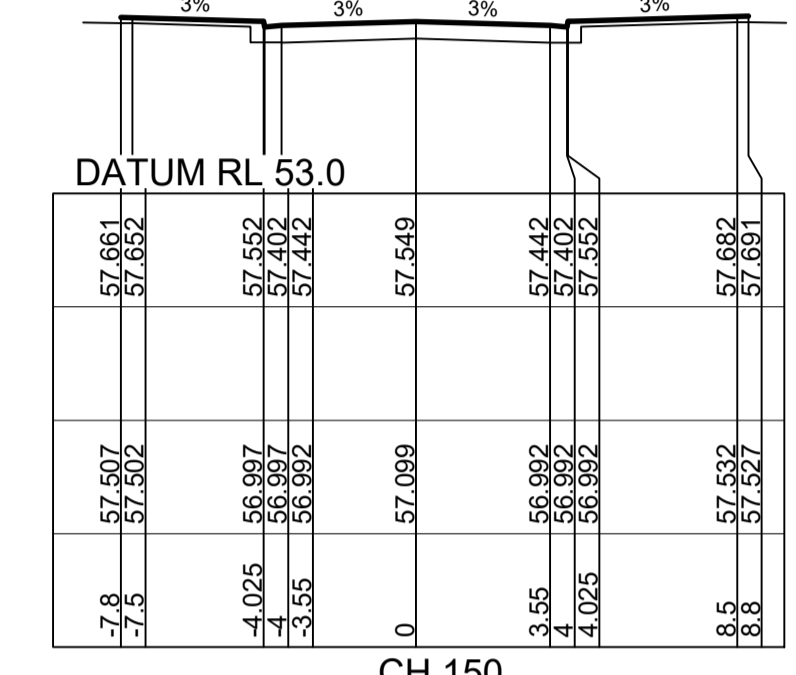
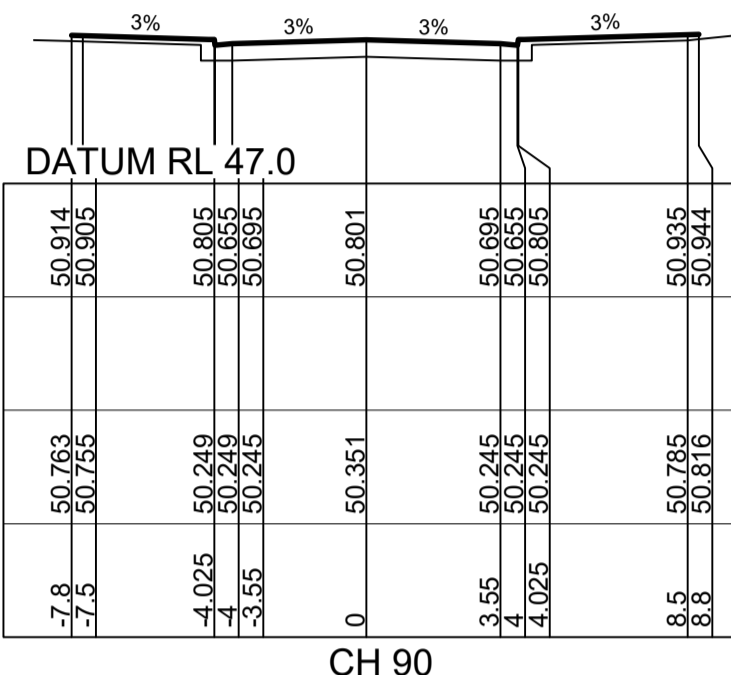
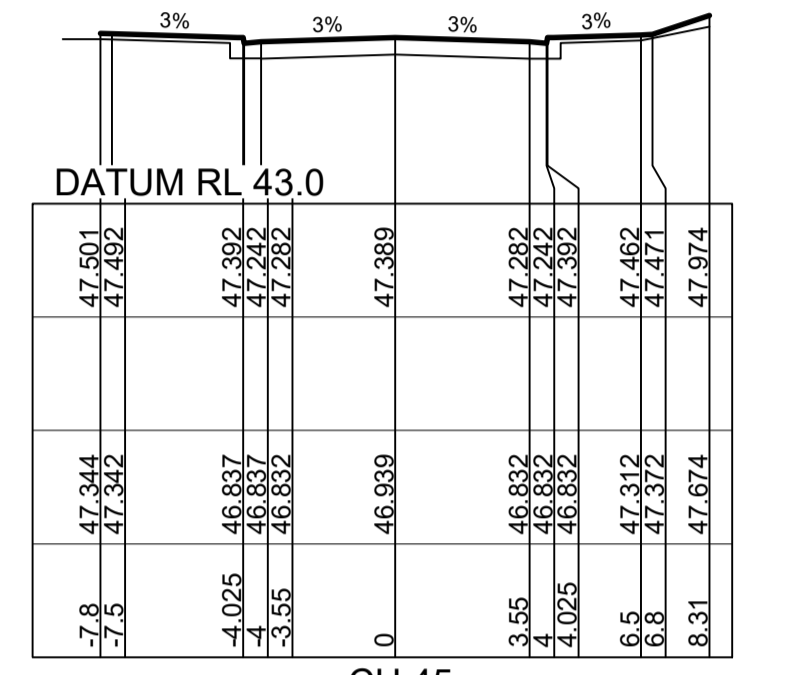
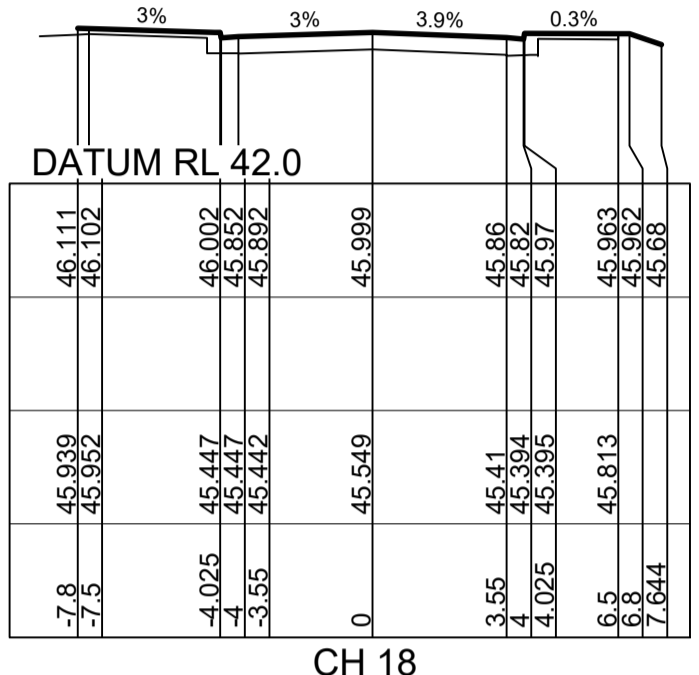
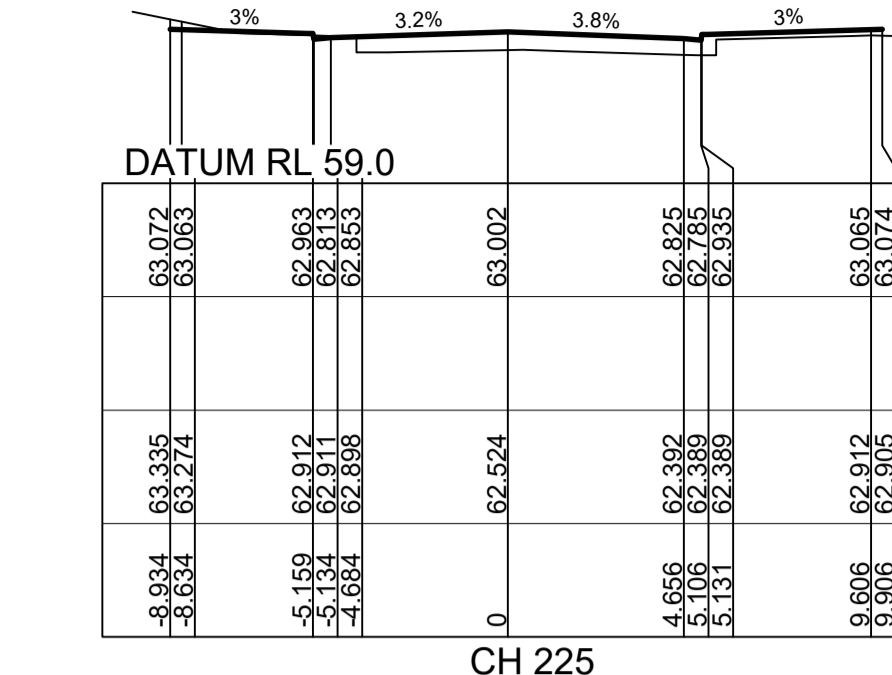
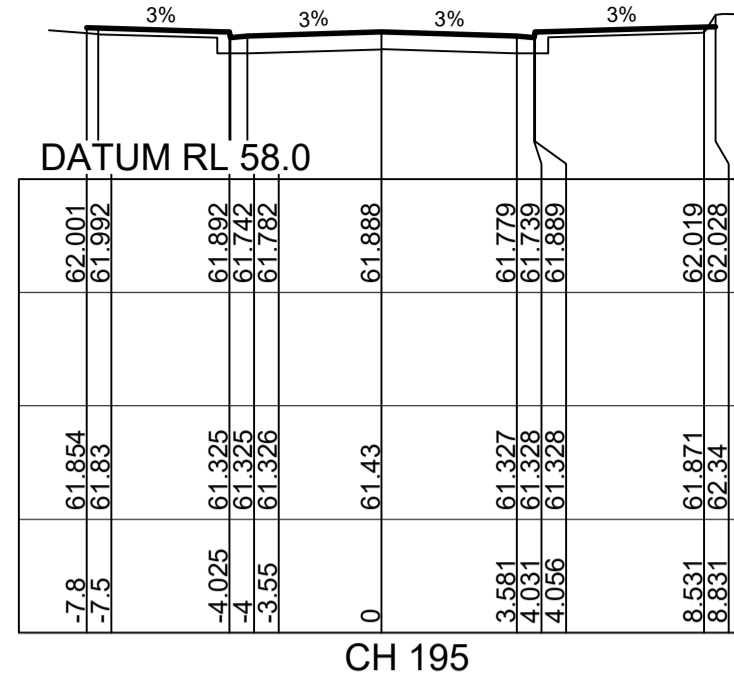
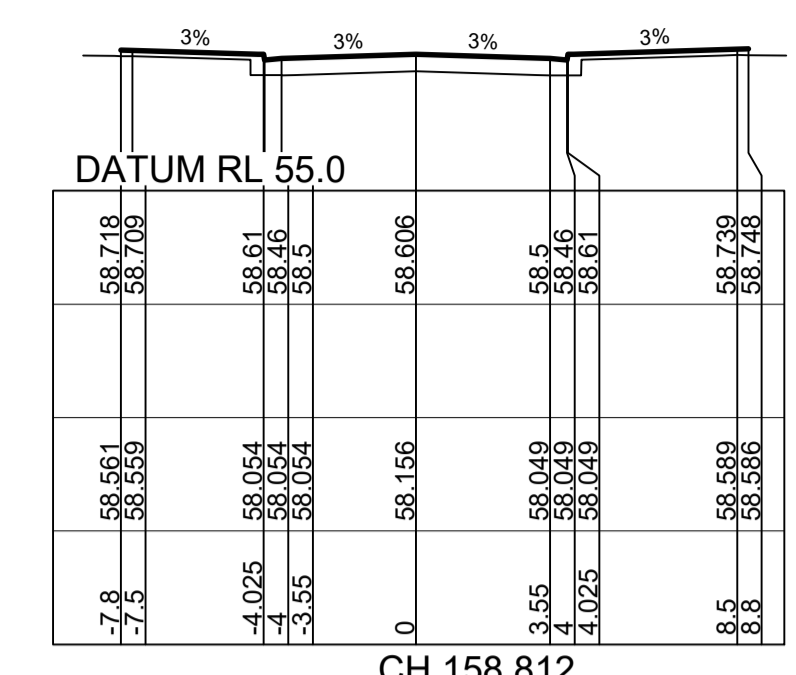
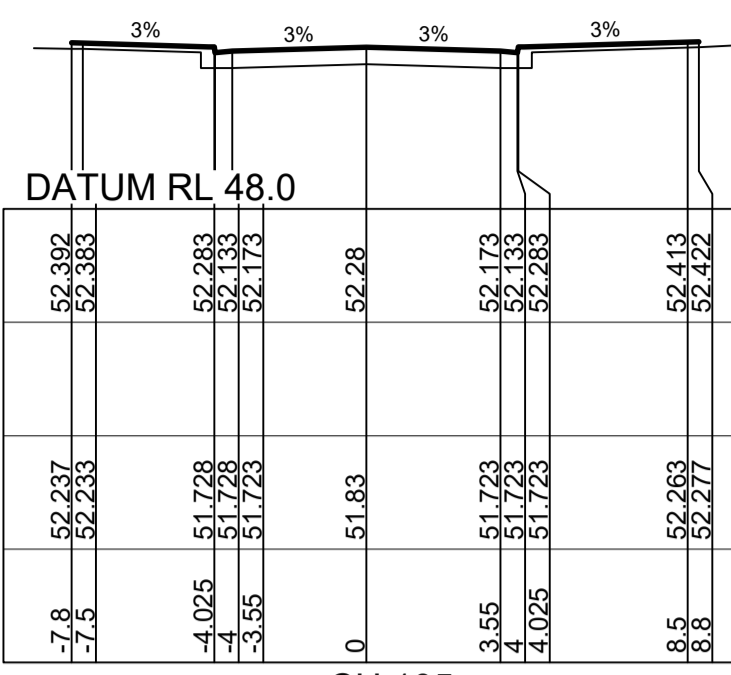
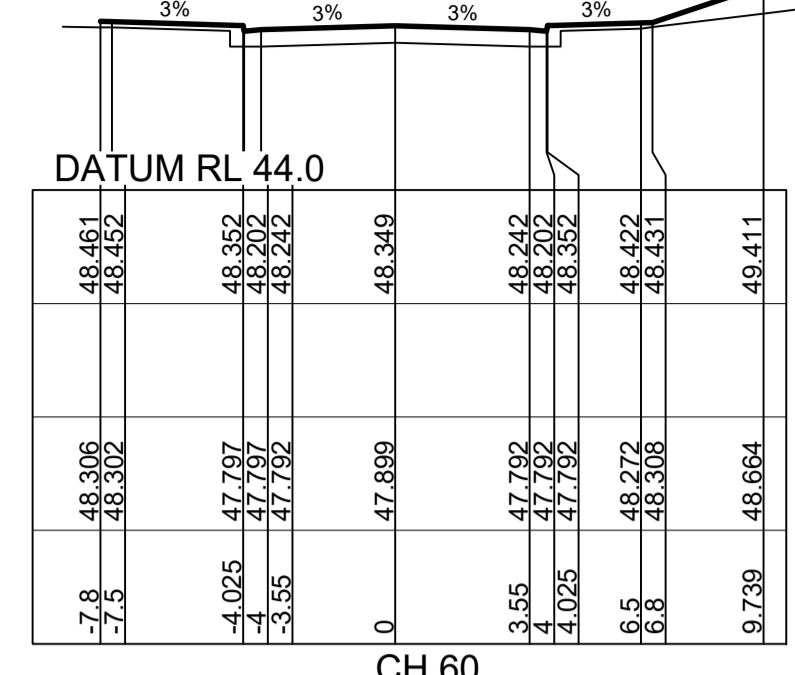
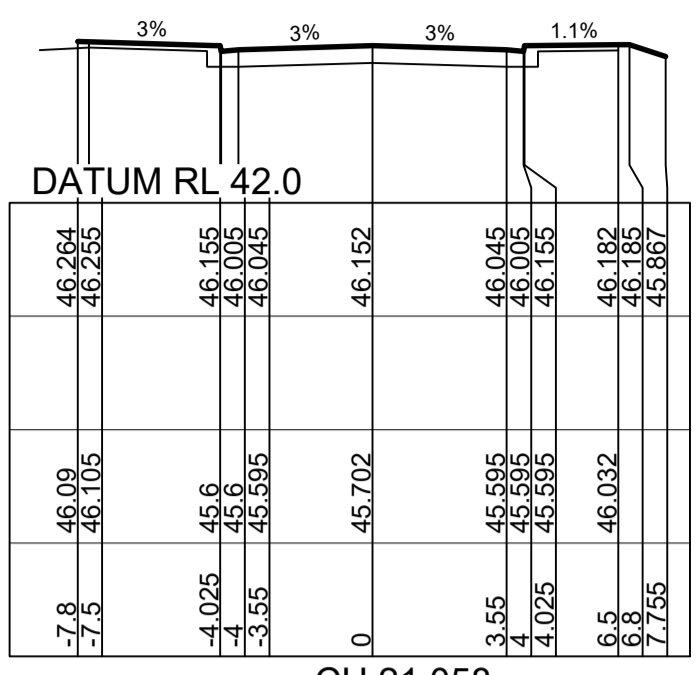
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
ROAD LONGITUDINAL SECTIONS
SHEET 1
AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2101

PROJECT No: **110185-12**
SHEET No: **CC2101**
D

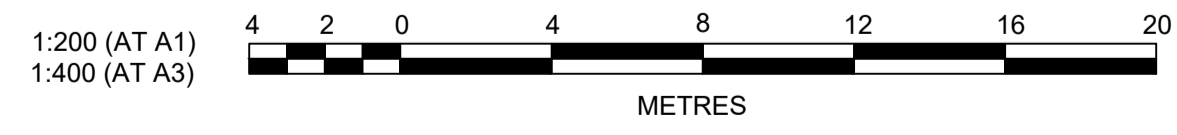
NOTE:
IF BATTERS ARE NOT SHOWN OUTSIDE ROAD RESERVE, REFER TO ENGINEERING PLANS.

SUBDIVISION WORKS CERTIFICATE
29130299SW62.....
27/08/2021.....
D. Kesh
BDC3367
Certificate No.
Date of Issue
Issuing Officer
Accreditation No.
These plans/specifications form part of the certificate issued 27th of August 2021



DESIGN SURFACE LEVEL	WAE	EXISTING SURFACE LEVEL	OFFSET
45.918		45.739	-0.179
45.909		45.739	-0.179
45.809		45.639	-0.179
45.709		45.539	-0.179
45.806		45.639	-0.179

ROAD 51



AMENDMENT	DES	DRN	CKD	APR	DATE
C	ROAD 51 UPDATED	MP	VS	RO	29/06/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	24/02/21

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS
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P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au



STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
ROAD CROSS SECTIONS
SHEET 1
AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2201

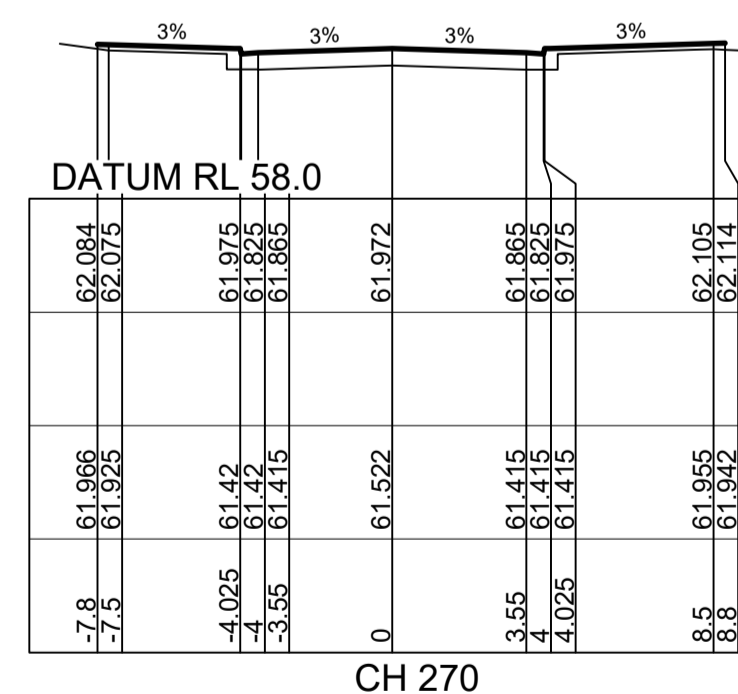
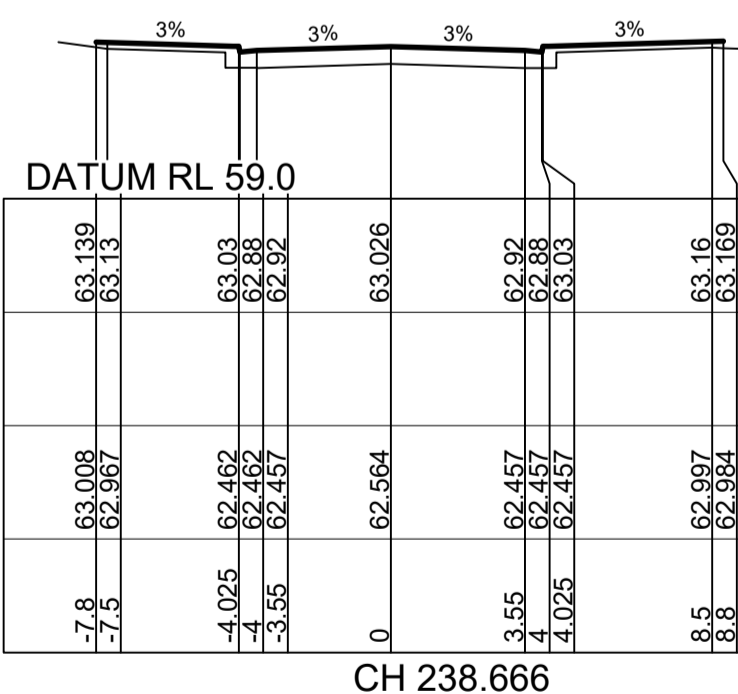
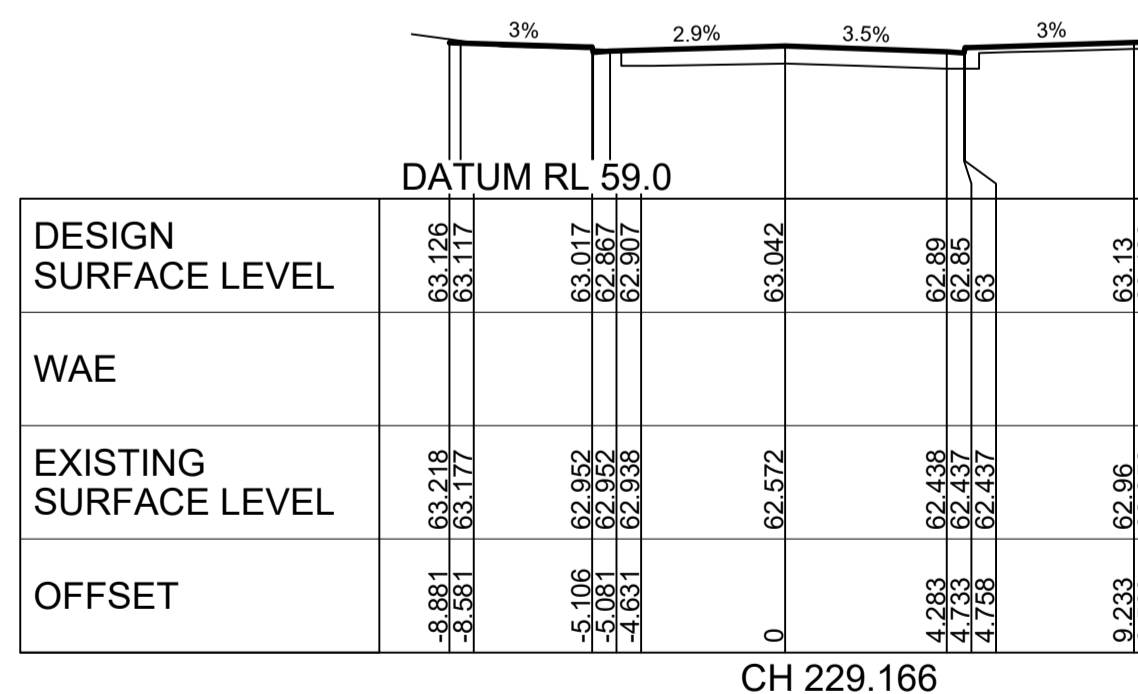
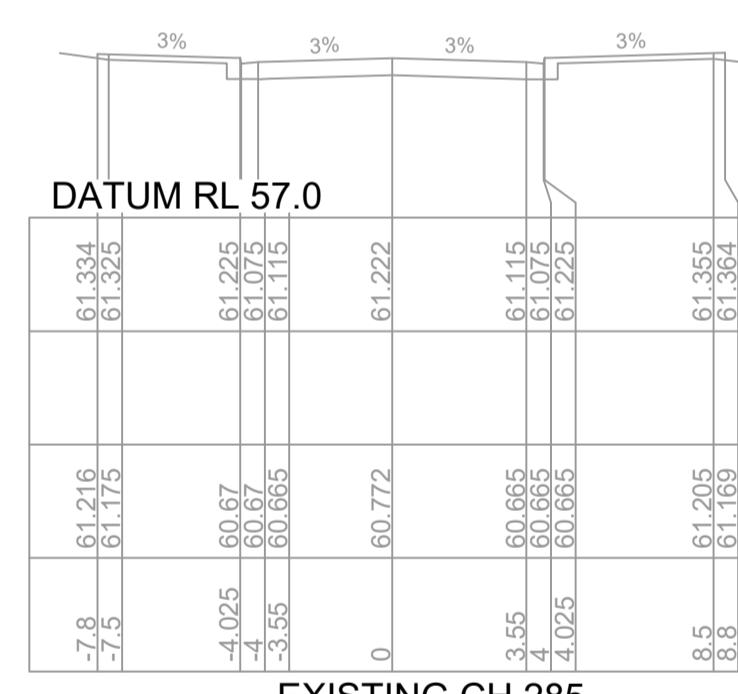
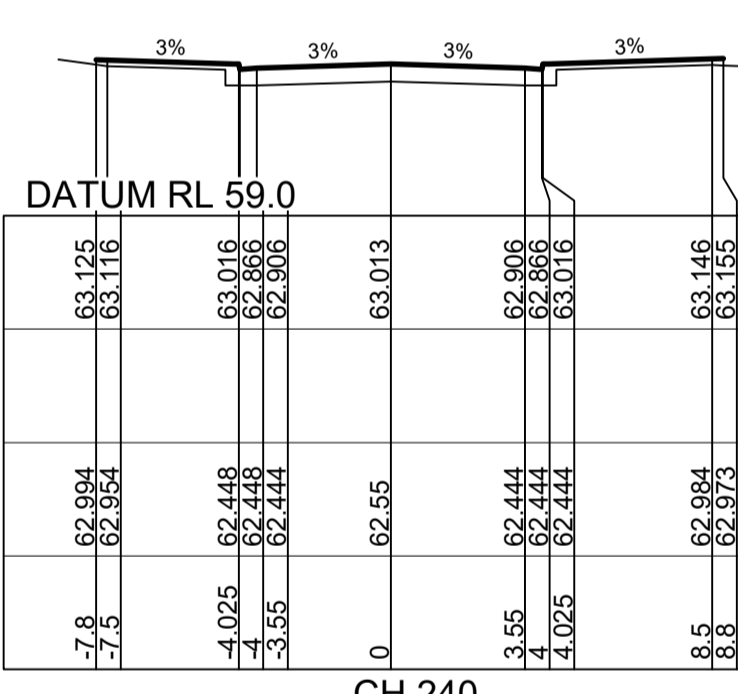
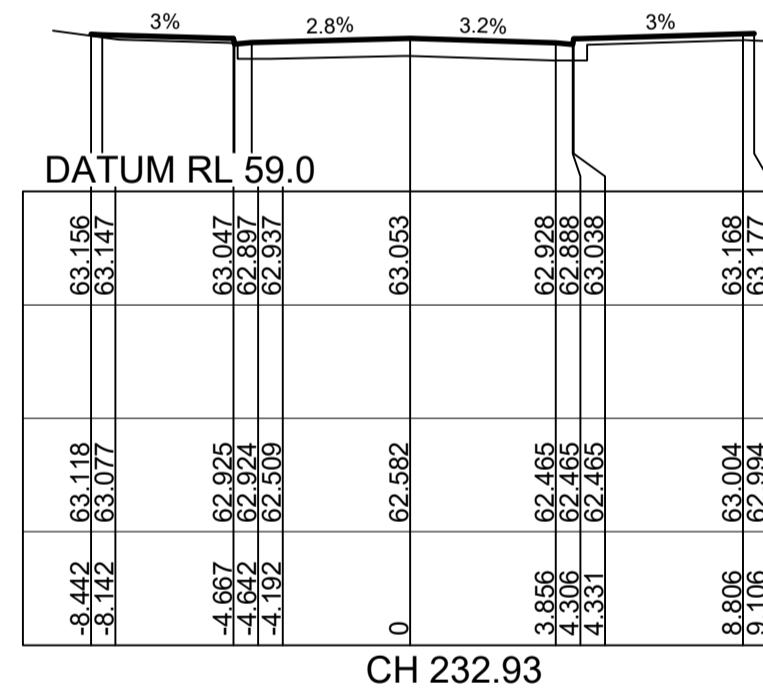
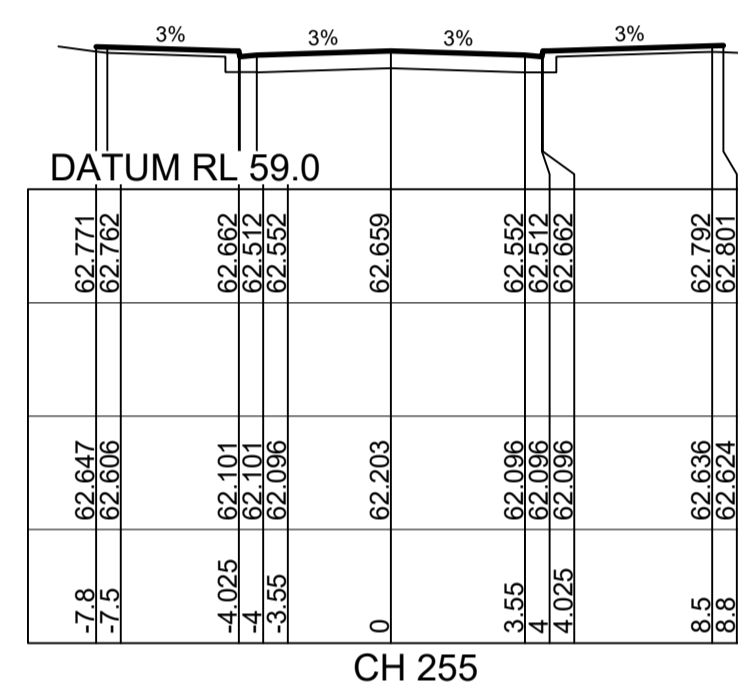
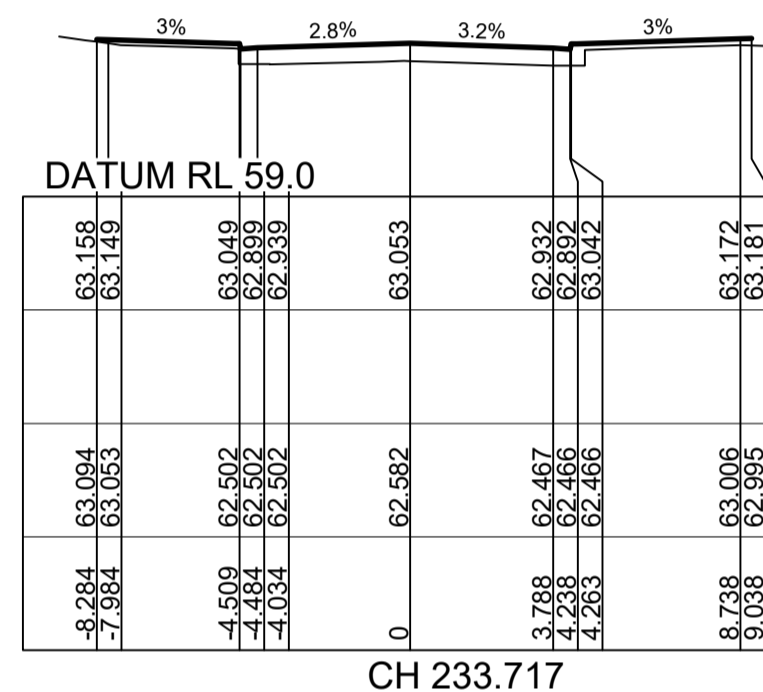
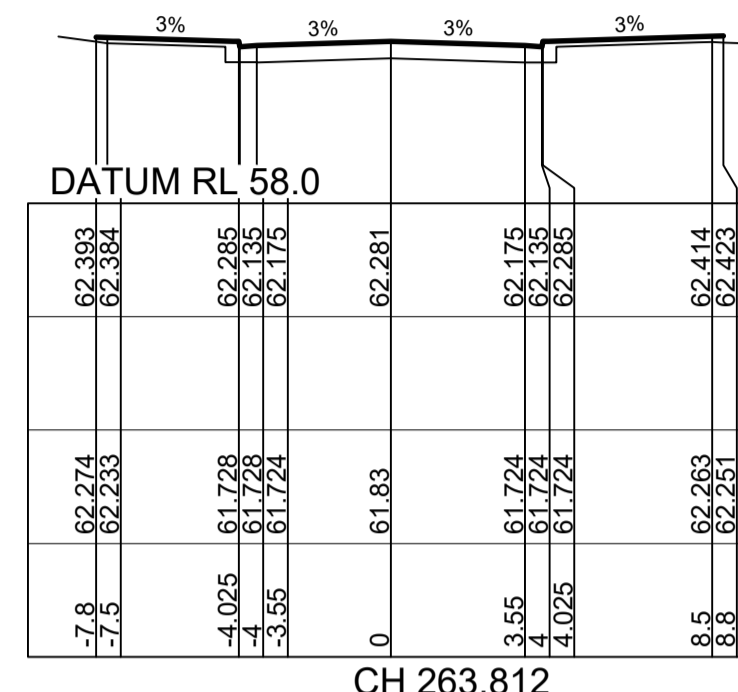
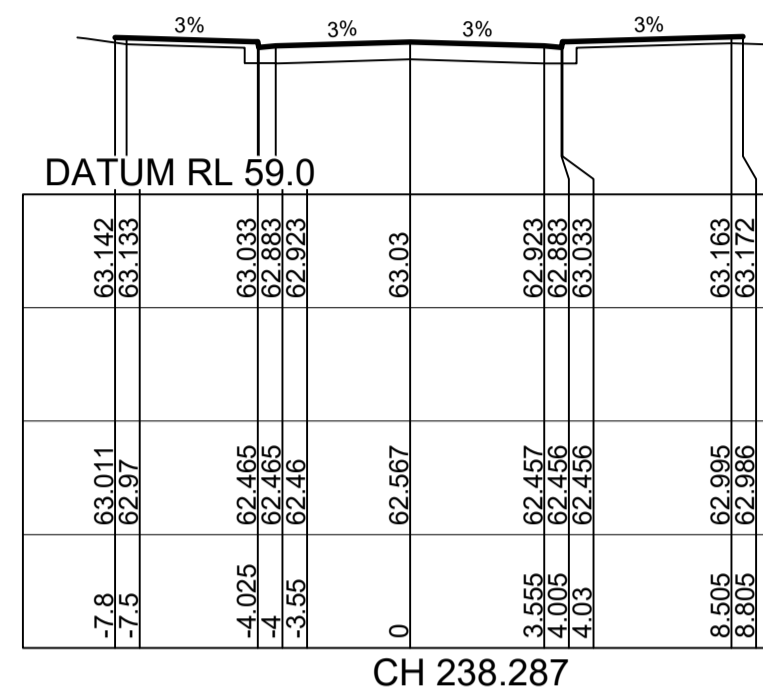
PROJECT No: **110185-12**
SHEET No: **CC2201**
C

SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Restar*
 Accreditation No. BDC3367

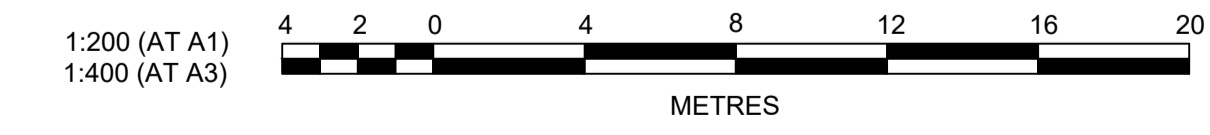
These plans/specifications form part of the certificate issued 27th of August 2021

NOTE:
 IF BATTERS ARE NOT SHOWN OUTSIDE ROAD RESERVE. REFER TO ENGINEERING PLANS.



ROAD 51

DESIGN SURFACE LEVEL	63.126	63.117	63.017	62.807	62.907	63.042	62.89	62.89	63	63.16	63.139
WAE											
EXISTING SURFACE LEVEL	63.216	63.179	62.962	62.937	62.538	62.572	62.438	62.437	62.85	62.66	62.656
OFFSET	-8.881	-8.581	-5.006	-4.733	-4.031	0	4.293	4.733	4.758	9.293	9.593



Plotted: 29 June, 2021 12:04:16 PM. File Name: \\jwp.local\dfs\Jobs\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\CD\CS\SOUTHERN HEIGHTS\2.SHI\10185-12-CC2202.dwg

C	ROAD 51 UPDATED	MP	VS	RO	29/06/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	24/02/21
AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE
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CLIENT: **REDBANK**
 NORTH RICHMOND

STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
 ROAD CROSS SECTIONS SHEET 2
 AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2202

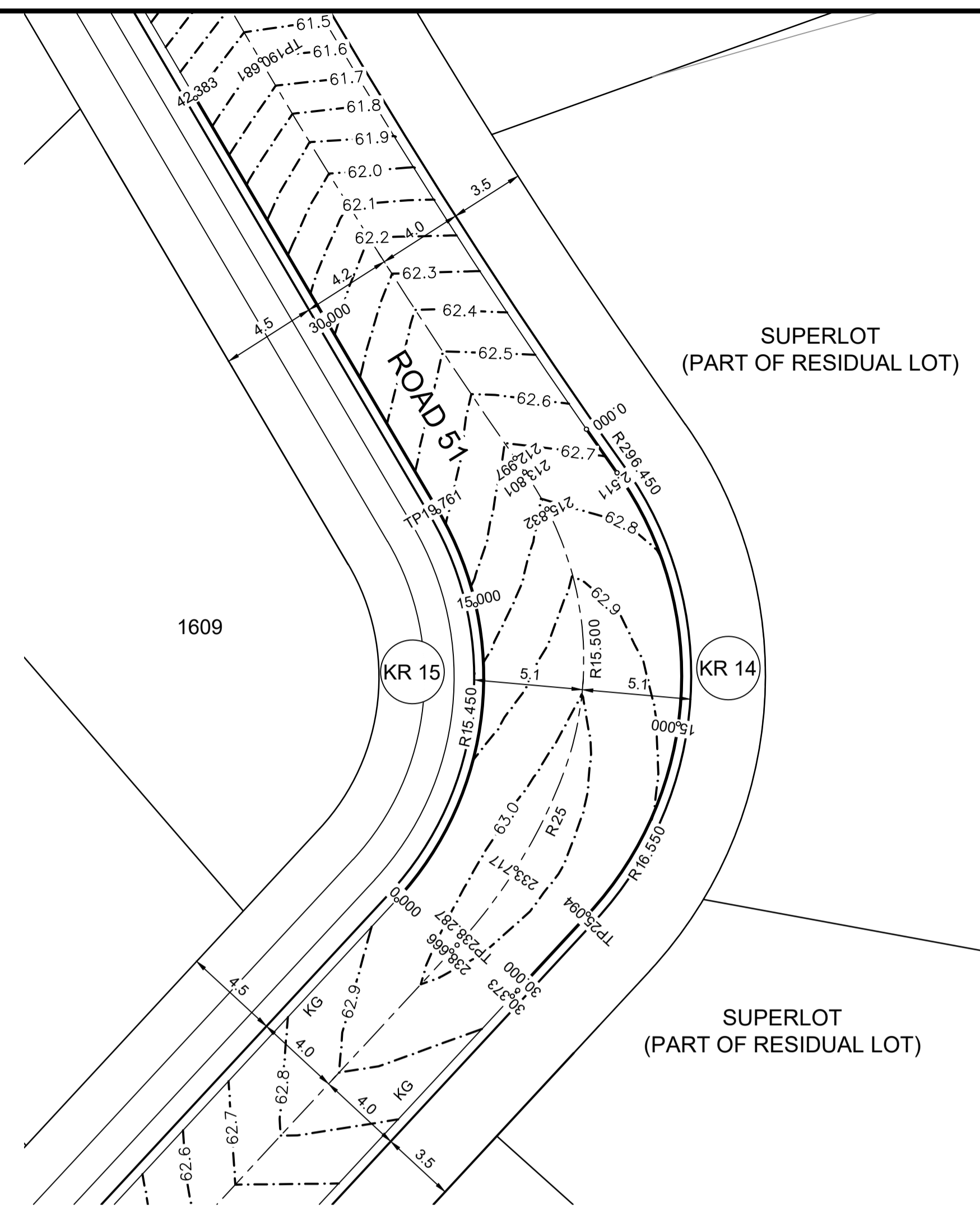
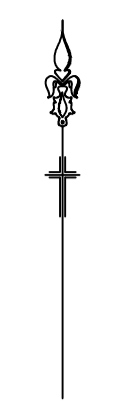
PROJECT No: **110185-12**
 SHEET No: **CC2202**
 C

Plotted: 24 August, 2021, 3:51:59 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS\2-SH110185-12-CC2301.dwg

SUBDIVISION WORKS CERTIFICATE

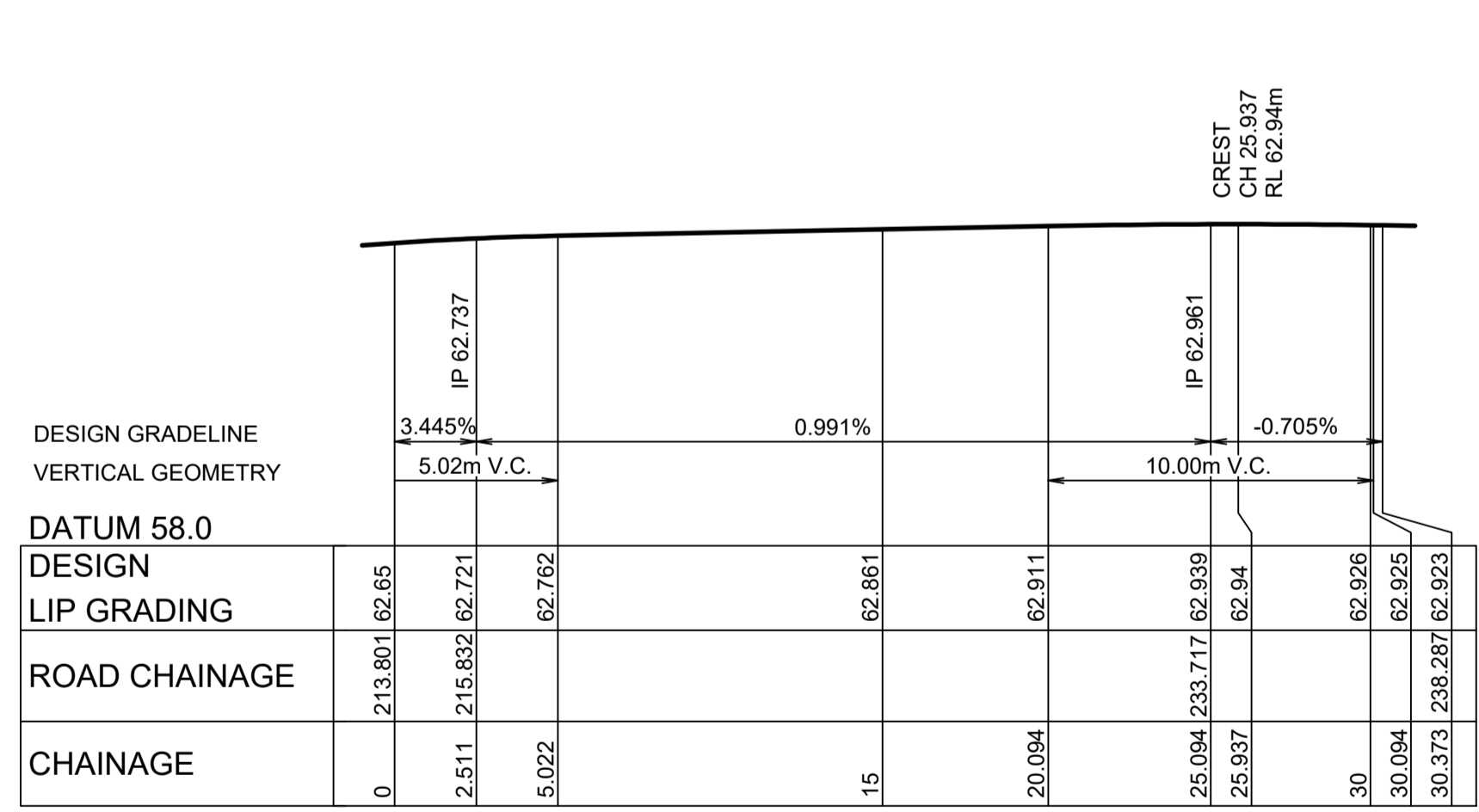
Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Resta*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021

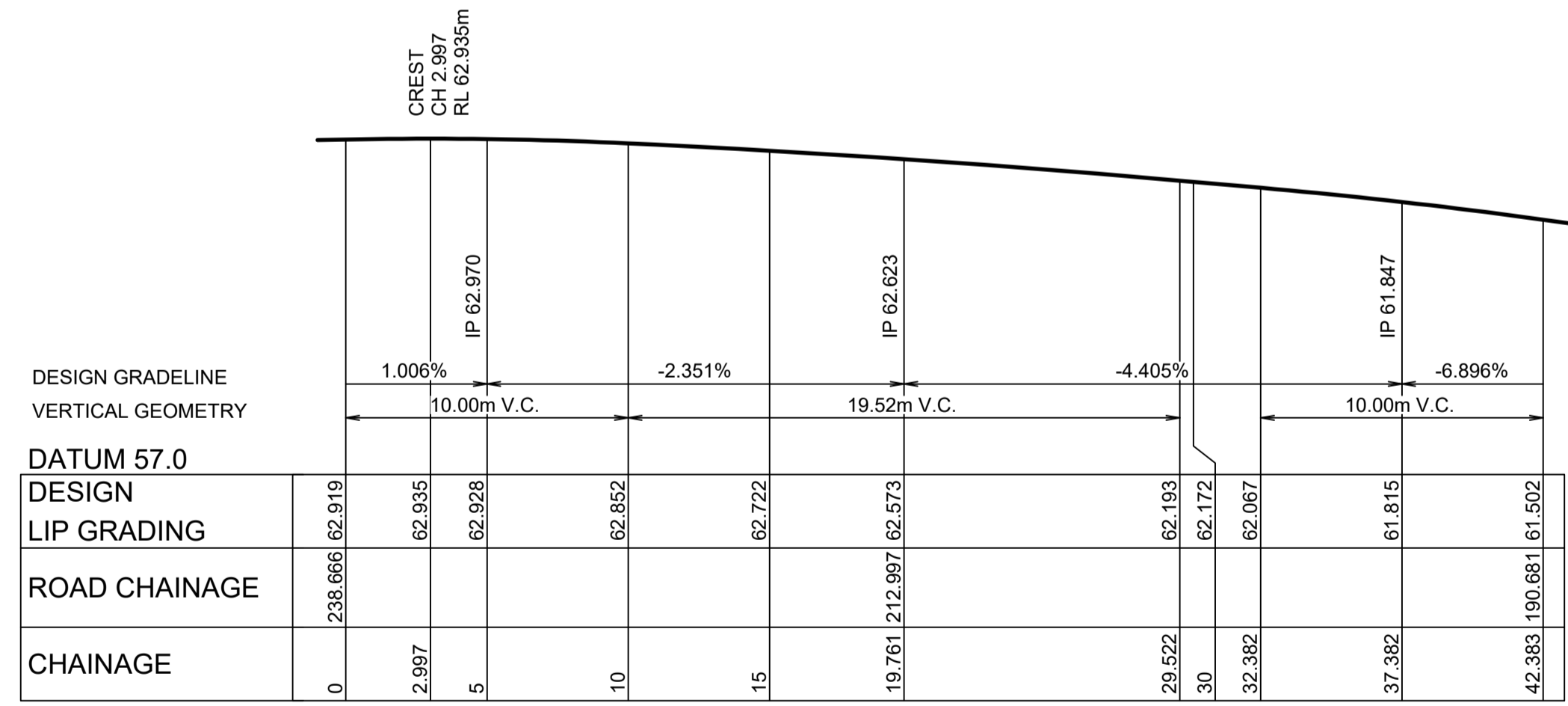


PLAN
SCALE 1:200

DESIGN LEVELS, RADII AND SETOUT ARE TO LIP OF GUTTER



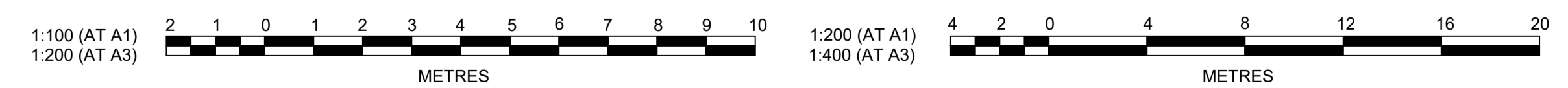
KR 14
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



KR 15
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286844.96	6281246.31	145°07'04.19"		
1.26	286845.68	6281245.28		-296.45	2.51
2.51	286846.41	6281244.25	144°37'57.10"		
13.8	286854.19	6281233.29		16.55	22.58
25.09	286845.05	6281223.43	222°48'55.64"		
30.37	286841.46	6281219.55	222°48'55.64"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286836	6281224.1	42°48'55.64"		
9.88	286843.81	6281232.53		-15.45	19.76
19.76	286837.98	6281242.44	329°32'00.56"		
42.38	286826.51	6281261.93	329°32'00.56"		



AMENDMENT	DES	DRN	CKD	APR	DATE
D PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	24/08/21
C ROAD 51 ALIGNMENT UPDATED	MP	NA	RO	RO	17/06/21
B ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

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CLIENT: **REDBANK**
NORTH RICHMOND

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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
KERB RETURN PLAN

PROJECT No: **110185-12**
SHEET No: **CC2301**

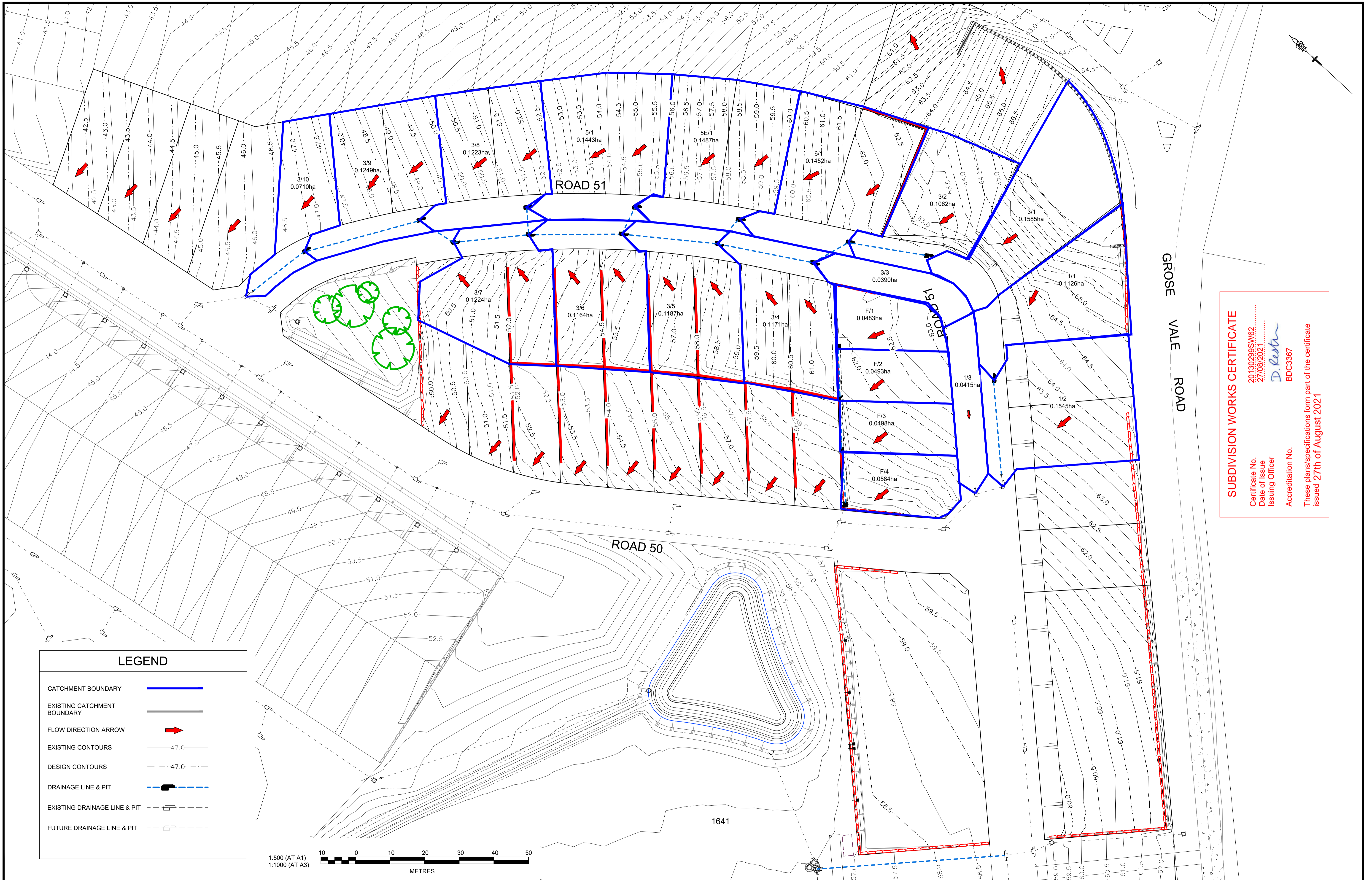
PLAN No: **110185-12-CC2301**

PROJECT No: **110185-12**
SHEET No: **CC2301**

PROJECT No: **110185-12**
SHEET No: **CC2301**

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2301

Plotted: 25 August, 2021 4:07:01 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\CCCSOUTHERN HEIGHTS2-SH110185-12-CC2400.dwg



LEGEND	
CATCHMENT BOUNDARY	
EXISTING CATCHMENT BOUNDARY	
FLOW DIRECTION ARROW	
EXISTING CONTOURS	
DESIGN CONTOURS	
DRAINAGE LINE & PIT	
EXISTING DRAINAGE LINE & PIT	
FUTURE DRAINAGE LINE & PIT	

1:500 (AT A1)
1:1000 (AT A3)
METRES

SUBDIVISION WORKS CERTIFICATE
 Certificate No. 20130298SW62.....
 Date of Issue 27/08/2021
 Issuing Officer *D. Best*
 Accreditation No. BDC3367
 These plans/specifications form part of the certificate issued 27th of August 2021

AMENDMENT	DES	DRN	CKD	APR	DATE
C LOT BOUNDARY AMENDED	MP	NM	RO	RO	13/08/21
B ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

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CLIENT: **REDBANK**
 NORTH RICHMOND

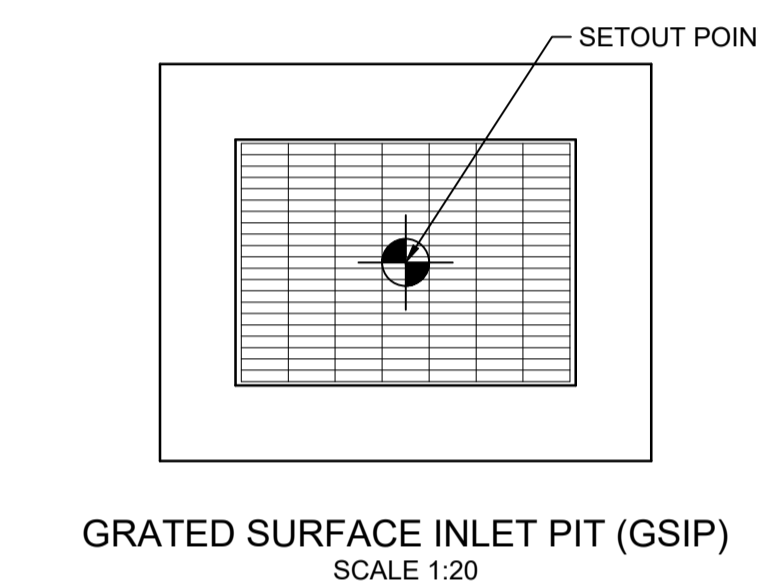
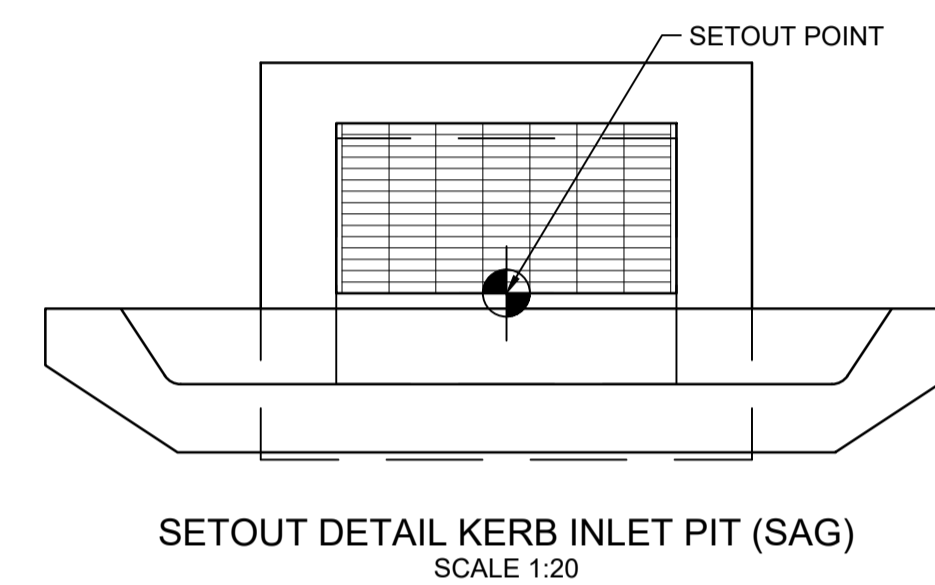
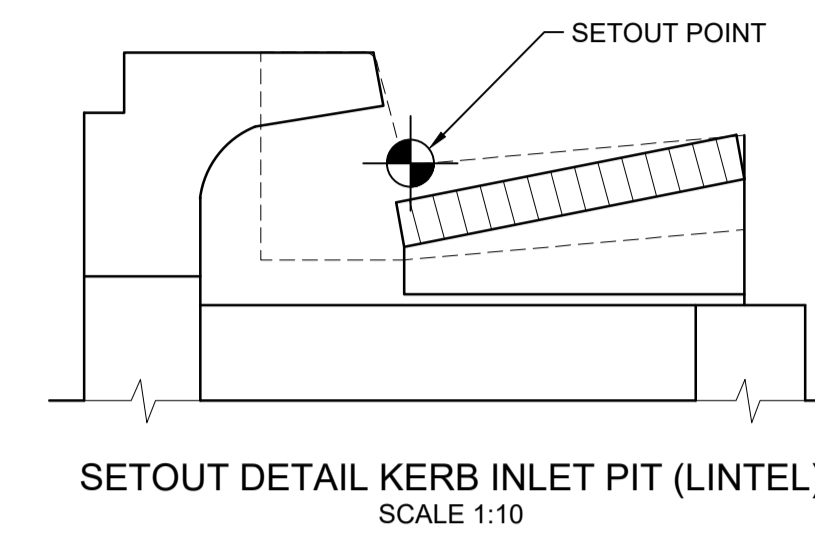
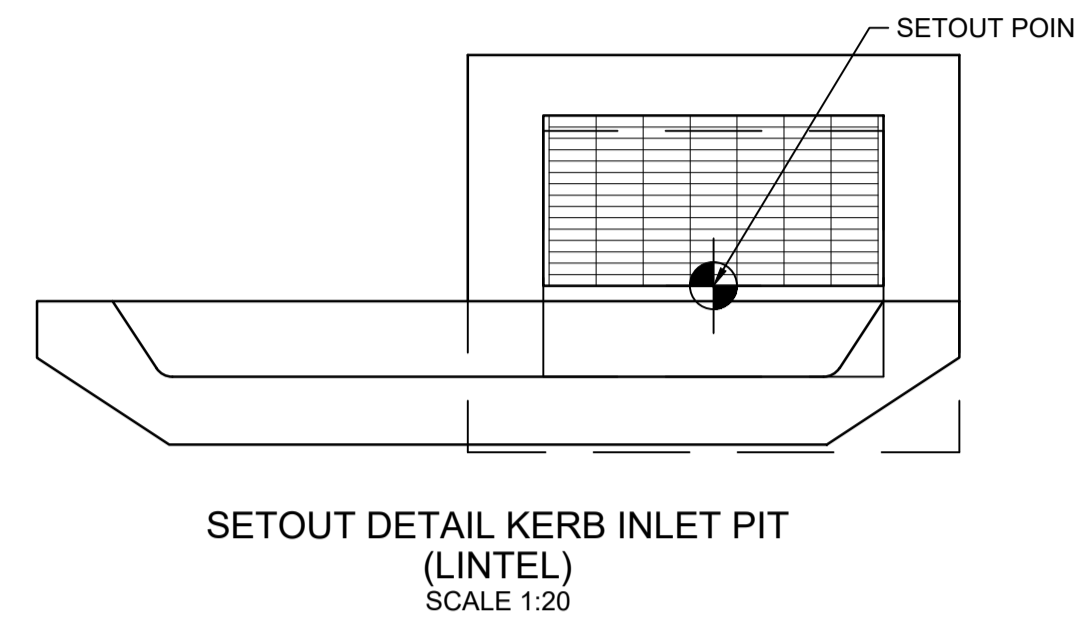
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC CATCHMENT PLAN
 AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2400

PROJECT No: **110185-12**
 SHEET No: **CC2400**
 C

HYDROLOGY NOTES:
STORMWATER SYSTEM DESIGNED
USING 12D RATIONAL METHOD.

PIT SCHEDULE					
PIT	SURFACE FITTING	PIT	PIT	PIT	
NAME	TYPE AND SIZE	EASTING	NORTHING	DEPTH	COMMENTS
(-)	(-)	(m)	(m)	(m)	
1/1	1.8 m lintel	286831.59	6281208.23	1.5	
1/2		286810.63	6281185.61	1.5	EXISTING ENDCAP
3/1	1.8 m lintel	286845.02	6281247.02	1.75	
3/2	1.8 m lintel	286832.67	6281266.35	1.6	
3/3	1.8 m lintel	286821.3	6281269.9	1.55	
3/4	1.8 m lintel	286806.7	6281293.98	1.48	
3/5	1.8 m lintel	286790.14	6281316.22	1.57	
3/6	1.8 m lintel	286771.82	6281336	1.49	
3/7	1.8 m lintel	286755.5	6281350.56	1.69	
3/8	1.8 m lintel	286753.63	6281362.24	1.63	
3/9	1.8 m lintel	286724.63	6281380.6	1.68	
3/10		286703.49	6281384.25	1.64	EXISTING ENDCAP
5/1	1.8 m lintel	286777.34	6281341.8	1.29	
5E/1	1.8 m lintel	286798.48	6281318.68	1.75	
6/1	1.8 m lintel	286816.06	6281294.25	1.73	
F/1	IAD 450x450	286808.34	6281248.11	0.61	
F/2	SLOPE JUNCTION	286797.64	6281237.64	1.06	
F/3	IAD 600x900	286786.94	6281227.16	0.86	
F/4	IAD 900x900	286775.57	6281216.03	2.77	EXISTING ENDCAP



SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
Date of Issue 27/08/2021
Issuing Officer *D. Restar*
Accreditation No. BDC3367

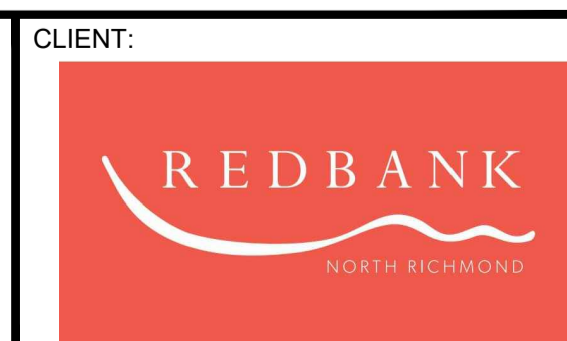
These plans/specifications form part of the certificate issued 27th of August 2021

Plotted: 29 June, 2021 12:08:59 PM. File Name: \\jwp.local\dfs\Jobs\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\CD\CS\Southern Heights\SH110185-12-CC2401.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	VS	RO	RO	29/06/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
PIT SCHEDULE

PROJECT No: 110185-12
SHEET No: CC2401

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2401 C

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT	PIT	CATCHMENT	IMPERVIOUS	RUNOFF	IMPERVIOUS	IMPERVIOUS	PERVIOUS	PERVIOUS	FULL AREA	FULL AREA	FULL AREA	PARTIAL AREA	PARTIAL AREA	PARTIAL AREA	TOTAL	DIRECT	APPROACH	FLOODED	FLOODED	FLOODED	ROAD	ROAD	CHOKE	INLET	BYPASS	BYPASS	COMMENTS	
NAME	TYPE	AREA	PERCENTAGE	C	TIME Tc	INTENSITY I	TIME Tc	INTENSITY I	TIME Tc	INTENSITY I	CATCHMENT FLOW Qc	TIME Tc	INTENSITY I	CATCHMENT FLOW Qc	CATCHMENT FLOW Qc	FLOW Qd	FLOW Qa	DEPTH d	WIDTH w	(vx)	GRADE	XFALL	FACTOR	FLOW Qg	FLOW Qb	PIT		
(-)	(-)	(ha)	(%)	(-)	(min)	(mm/hr)	(min)	(mm/hr)	(min)	(mm/hr)	(L/s)	(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(m)	(sq.m/s)	(%)	(%)	(-)	(L/s)	(L/s)	(-)		
1/1	1.8 m lintel	0.113	70	0.8	5	130.8	10	100.1	10	100.1	25	5	130.8	28	28	0	28	0.06	1.26	0.06	3.2	3	1	27	1	1/2		
1/2	1.8 m lintel	0.155	70	0.8	5	130.8	10	100.1	10	100.1	34	5	130.8	38	38	0	39	0.07	1.31	0.08	5	3	1	37	2	33/1		
3/1	1.8 m lintel	0.158	75	0.8	5	130.8	10	100.1	10	100.1	35	5	130.8	40	40	0	40	0.07	1.55	0.07	3.1	4.3	1	37	3	3/2		
3/2	1.8 m lintel	0.106	70	0.8	5	130.8	10	100.1	10	100.1	24	5	130.8	26	26	0	29	0.06	1.05	0.08	6.6	3	1	29	0	6/1		
3/3	1.8 m lintel	0.039	70	0.8	5	130.8	10	100.1	10	100.1	9	5	130.8	10	10	0	10	0.04	0.42	0.05	8.2	3	1	10	0	3/4		
3/4	1.8 m lintel	0.117	70	0.8	5	130.8	10	100.1	10	100.1	26	5	130.8	29	29	0	29	0.05	0.78	0.09	12.2	3.1	1	29	0	3/5		
3/5	1.8 m lintel	0.119	70	0.8	5	130.8	10	100.1	10	100.1	26	5	130.8	29	29	0	29	0.05	0.8	0.09	12.2	3	1	29	0	3/6		
3/6	1.8 m lintel	0.116	70	0.8	5	130.8	10	100.1	10	100.1	26	5	130.8	29	29	0	29	0.05	0.93	0.08	10	2.9	1	29	0	3/7		
3/7	1.8 m lintel	0.122	70	0.8	5	130.8	10	100.1	10	100.1	27	5	130.8	30	30	0	30	0.06	1.01	0.08	8.5	2.8	1	30	0	4/2		
3/8	1.8 m lintel	0.122	70	0.8	5	130.8	10	100.1	10	100.1	27	5	130.8	30	30	0	31	0.06	1.09	0.08	7.5	3	1	31	0	3/9		
3/9	1.8 m lintel	0.125	70	0.8	5	130.8	10	100.1	10	100.1	28	5	130.8	31	31	0	31	0.06	1.32	0.07	4.6	3.2	1	30	1	3/10		
3/10	1.8 m lintel	0.071	70	0.8	5	130.8	10	100.1	10	100.1	16	5	130.8	18	18	0	19	0.03	1.31	0.06	1.6	3	1	19	0	3/11		
3/11	1.8 m lintel	0.108	70	0.8	5	130.8	10	100.1	10	100.1	24	5	130.8	27	27	0	27	0.06	1.03	0.07	6	3	1	27	0	1/25		
5/1	1.8 m lintel	0.144	70	0.8	5	130.8	10	100.1	10	100.1	32	5	130.8	36	36	0	36	0.06	0.98	0.1	9.7	2.9	1	35	1	3/8		
5E/1	1.8 m lintel	0.149	70	0.8	5	130.8	10	100.1	10	100.1	33	5	130.8	37	37	0	37	0.06	0.93	0.1	11.8	3.1	1	37	1	5/1		
6/1	1.8 m lintel	0.145	70	0.8	5	130.8	10	100.1	10	100.1	32	5	130.8	36	36	0	36	0.06	0.95	0.1	11.8	3.1	1	35	1	5E/1		
F/1	IAD 450x450	0.048	70	0.8	5	130.8	10	100.1	10	100.1	11	5	130.8	12	12	0	12											
F/2	SLOPE JUNCTION	0.049	70	0.8	5	130.8	10	100.1	10	100.1	11	5	130.8	12	12	0	12											
F/3	IAD 600x900	0.05	70	0.8	5	130.8	10	100.1	10	100.1	11	5	130.8	12	12	0	12											
F/4	IAD 900x900	0.058	70	0.8	5	130.8	10	100.1	10	100.1	13	5	130.8	14	14	0	14											

DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE	PIPE	PIPE	PIPE	PIPE	FULL AREA	FULL AREA	FULL AREA	FULL AREA	PART-AREA	PART-AREA	PART-AREA	PART-AREA	DIRECT PIPE	PEAK	NET BYPASS	PIPE	FLOW	Q/Qcap	FULL PIPE	NORM. DEPTH	CRIT. DEPTH	U/S PIT	PIPE	PIPE	PIPE	PIPE	U/S PIT	U/S PIT	PIPE	PIT LOSS	WSE LOSS	TOTAL	U/S PIT	U/S PIPE	D/S PIPE	HGL	MIN.	U/S	COMMENTS	
NAME	TYPE	DIAMETER	LENGTH	SLOPE	TIME Tc	INTENSITY I	SUM CA	FLOW Qc	TIME Tc	INTENSITY I	SUM CA	FLOW Qc	FLOW Qp	FLOW Qrat	FLOW Qb	FLOW Q	CAP. Qcap	RATIO	VELOCITY	VELOCITY	VELOCITY	GRATE RL	U/S IL	D/S IL	D/S DROP	Ku	Kw	V'HEAD	(Ku.V'head)	(Kw.V'head)	PIPE LOSS	HGL	HGL	HGL	GRADE	COVER	FREEBOARD			
(-)	(-)	(mm)	(m)	(%)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
1/1 to 1/2	RRJ2	375	30.84	4.51	0.11	10	100.1	0.09	25	5	130.8	0.08	27.8	0	27.8	-0.8	27	403.4	0.07	0.24	2.08	0.91	62.566	61.058	59.668	0.05	4.5		0	0.01	0.01	1.36	61.447	61.433	60.069	4.42	1.06	1.12		
1/2 to 1/3	RRJ2	375	8.15	1.25	0.11	10.25	99.2	0.214	58.9	5.25	128.8	0.18	65.3	0	65.3	-1.8	63.5	212.5	0.3	0.57	1.68	1.18	61.117	59.618	59.516	0.05	4.5		0.02	0.08	0.08	0.11	60.069	59.993	59.883	1.35	1.14	1.05		
3/1 to 3/2	RRJ2	375	22.94	4.28	0.11	10	100.1	0.127	35.2	5	130.8	0.11	40.3	0	40.3	-3.1	37.2	393.3	0.09	0.34	2.24	1	62.591	60.843	59.86	0.05	4.5		0.01	0.03	0.03	1	61.244	61.218	60.218	4.36	1.38	1.35		
3/2 to 3/3	RRJ2	375	11.91	5.05	0.11	10.17	99.5	0.212	58.5	5.17	129.4	0.18	66	0	66	0	66	426.9	0.15	0.6	2.8	1.2	61.414	59.81	59.209	0.031	1.84	2.47	0.02	0.03	0.04	0.58	60.23	60.185	59.6	4.91	1.18	1.18		
3/3 to 3/4	RRJ2	375	28.15	10.18	0.11	10.24	99.2	0.243	66.9	5.24	128.8	0.21	75.3	0	75.3	0	75.3	606.3	0.12	0.68	3.74	1.25	60.734	59.179	56.313	0.051	1.97	2.4	0.02	0.05	0.06	2.78	59.61	59.554	56.776	9.87	1.14	1.12		
3/4 to 3/5	RRJ2	375	27.73	12.36	0.11	10.37	98.7	0.453	124.1	5.37	127.8	0.39	138.7	0	138.7	-0.6	138.1	667.9	0.21	1.25	4.76	1.6	57.738	56.263	52.836	0.05	1.73	2.18	0.08	0.14	0.17	3.22	56.812	56.638	53.42	11.6	1.07	0.93		
3/5 to 3/6	RRJ2	375	26.96	10.74	0.11	10.46	98.3	0.667	182.1	5.46	127	0.58	202.9	0	202.9	-0.7	202.1	622.8	0.32	1.83	5.03	1.98	54.356	52.786	49.89	0.03	1.51	1.78	0.17	0.26	0.3	2.54	53.465	53.161	50.624	9.41	1.15	0.89		
3/6 to 3/7	RRJ2	375	21.87	9.73	0.11	10.55	98	0.875	238.2	5.38	127.6	0.75	265.2	0	265.2	-1.3	263.9	592.8	0.45	2.39	5.21	2.45	51.346	49.86	47.731	0.076	1.33	1.52	0.29	0.39	0.44	1.78	50.678	50.235	48.454	8.14	1.1	0.67		
3/7 to 3/8	RRJ2	450	11.83	5.03	0.16	10.62	97.7	0.973	264.2	5.45	127.1	0.83	293.9	0	293.9	-1.3	292.6	692.8	0.42	1.84	4.17	2.05	49.342	47.656	47.062	0.03	2.02	2.11	0.17	0.35	0.36	0.23	48.471	48.106	47.879	1.92	1.17	0.87		
3/8 to 3/9	RRJ2	450	34.32	6	0.16	10.67	97.5	1.071	290.2	5.5	126.7	0.92	322.7	0	322.7	-0.3	322.4	757	0.43	2.03	4.57	2.19	48.715	47.032	44.972	0.051	1.9	2.11	0.21	0.4	0.44	1.83	47.924	47.482	45.652	5.33	1.05	0.79		
3/9 to 3/10	RRJ2	450	21.46	3.71	0.16	10.8	97.1	1.171	315.7	5.55	126.2	1	350.4	0	350.4	-1.1	349.3	595.5	0.59	2.2	3.89	2.32	46.752	44.922	44.125	0.075	0.67		0.25	0.17	0.17	0.27	45.652	45.487	45.213	1.28	1.1	1.1		
3/10 to 3/11	RRJ2	525	14.24	3.87	0.22	10.89	96.7	1.37	368.1	5.65	125.5	1.15	400.9	0	400.9	0	400.9	916.7	0.44	1.85	4.09	2.13	45.838	44.05	43.499	0.05	1.55	1.75	0.17	0.27	0.31	0.11	45.246	44.941	44.835	0.74	1.23	0.59		
3/11 to 1/19	RRJ2	525	8.04	2.8	0.22	10.95	96.5	1.456	390.3	5.7	125	1.23	425.4	0	425.4	0	425.4	779.9	0.55	1.97	3.68	2.2	45.101	43.449	43.224	0.075	1.61	1.73	0.2	0.32	0.34	0.07	44.859	44.519	44.452	0.83	1.14	0.24		
5/1 to 3/6	RRJ2	375	8	2	0.11	10	100.1	0.115	32.1	5	130.8	0.1	35.7	0	35.7	-0.5	35.1	268.7	0.13	0.32	1.68	0.99	51.408	50.05	49.89	0.03	4.5		0.01	0.02	0.02	0	50.649	50.626	50.624	0.03	0.94	0.76		
5E/1 to 3/5	RRJ2	375	8.69	2	0.11	10	100.1	0.119	33.1	5	130.8	0.1	36.7	0	36.7	-0.1	36.6	269	0.14	0.33	1.7	1	54.833	53.01	52.836	0.05	4.5		0.01	0.03	0.03	0	53.448	53.423	53.42	0.04	1.23	1.38		
6/1 to 3/4	RRJ2	375	9.36	3	0.11	10	100.1	0.116	32.3	5	130.8	0.1	35.9	0	35.9	-0.6	35.3	329.1	0.11	0.32	1.94	0.99	58.357	56.594	56.313	0.051	4.5		0.01	0.02	0.02	0.19	56.992	56.969	56.776	2.06	1.15	1.36		
F/1 to F/2	uPVC	225	14.97	5	0.04	10	100.1	0.039	10.7	5	130.8	0.03	11.9	0	11.9	0	11.9	130.6	0.09	0.3	2.04	0.81	61.901	61.293	60.544	0	2		0	0.01	0.01	0.74	61.527	61.518	60.773	4.98	0.37	0.37		
F/2 to F/3	uPVC	225	14.97	5	0.04	10.12	99.6	0.078	21.6	5.12	129.8	0.07	24	0	24	0	24	130.6	0.1																					

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT	PIT	CATCHMENT	IMPERVIOUS	RUNOFF	IMPERVIOUS	IMPERVIOUS	PERVIOUS	PERVIOUS	FULL AREA	FULL AREA	FULL AREA	PARTIAL AREA	PARTIAL AREA	PARTIAL AREA	TOTAL	DIRECT	APPROACH	FLOODED	FLOODED	FLOODED	ROAD	ROAD	CHOKO	INLET	BYPASS	BYPASS	COMMENTS
(-)	(-)	(ha)	(%)	(-)	(min)	(mm/hr)	(min)	(mm/hr)	(min)	(mm/hr)	(L/s)	(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(m)	(sq.m/s)	(%)	(%)	(-)	(L/s)	(L/s)	(-)	
1/1	1.8 m lintel	0.113	70	0.95	5	219.1	10	167.3	10	167.3	50	5	219.1	55	55	0	55	0.08	1.74	0.09	3.2	3	0.8	39	17	1/2	
1/2	1.8 m lintel	0.155	70	0.95	5	219.1	10	167.3	10	167.3	68	5	219.1	76	76	0	93	0.08	1.94	0.13	5	3	0.8	58	35	33/1	
3/1	1.8 m lintel	0.158	75	0.95	5	219.1	10	167.3	10	167.3	70	5	219.1	80	80	0	80	0.09	1.99	0.11	3	3	0.8	51	29	3/2	
3/2	1.8 m lintel	0.106	70	0.95	5	219.1	10	167.3	10	167.3	47	5	219.1	52	52	0	81	0.08	1.74	0.12	6.5	3	0.8	53	28	6/1	
3/3	1.8 m lintel	0.039	70	0.95	5	219.1	10	167.3	10	167.3	17	5	219.1	19	19	0	19	0.05	0.78	0.06	8.1	3	0.8	15	4	3/4	
3/4	1.8 m lintel	0.117	70	0.95	5	219.1	10	167.3	10	167.3	52	5	219.1	58	58	0	61	0.07	1.18	0.14	12.2	3.1	0.8	45	17	3/5	
3/5	1.8 m lintel	0.119	70	0.95	5	219.1	10	167.3	10	167.3	52	5	219.1	58	58	0	75	0.07	1.36	0.15	12.2	3	0.8	49	26	3/6	
3/6	1.8 m lintel	0.116	70	0.95	5	219.1	10	167.3	10	167.3	51	5	219.1	57	57	0	83	0.07	1.54	0.14	10	3.1	0.8	56	27	3/7	
3/7	1.8 m lintel	0.122	70	0.95	5	219.1	10	167.3	10	167.3	54	5	219.1	60	60	0	87	0.08	1.71	0.14	8.5	2.8	0	-35	122	4/2	
3/8	1.8 m lintel	0.122	70	0.95	5	219.1	10	167.3	10	167.3	54	5	219.1	60	60	0	112	0.08	1.98	0.15	7.5	3	0.8	62	50	3/9	
3/9	1.8 m lintel	0.125	70	0.95	5	219.1	10	167.3	10	167.3	55	5	219.1	61	61	0	111	0.09	2.34	0.12	4.6	3.2	0.8	65	46	3/10	
3/10	1.8 m lintel	0.071	70	0.95	5	219.1	10	167.3	10	167.3	31	5	219.1	35	35	0	205	0.13	2.34	0.12	1.6	3	0.8	99	106	3/11	
3/11	1.8 m lintel	0.108	70	0.95	5	219.1	10	167.3	10	167.3	48	5	219.1	53	53	0	190	0.1	2.53	0.19	6	3	0	-306	496	1/25	
5/1	1.8 m lintel	0.144	70	0.95	5	219.1	10	167.3	10	167.3	64	5	219.1	71	71	0	116	0.09	1.71	0.18	9.7	2.9	0.8	65	51	3/8	
5E/1	1.8 m lintel	0.149	70	0.95	5	219.1	10	167.3	10	167.3	66	5	219.1	73	73	0	109	0.08	1.65	0.17	11.8	2.9	0.8	63	46	5/1	
6/1	1.8 m lintel	0.145	70	0.95	5	219.1	10	167.3	10	167.3	64	5	219.1	71	71	0	99	0.08	1.54	0.17	11.7	3	0.8	64	36	5E/1	
F/1	IAD 450x450	0.048	70	0.95	5	219.1	10	167.3	10	167.3	21	5	219.1	24	24	0	24							24	0		
F/2	SLOPE JUNCTION	0.049	70	0.95	5	219.1	10	167.3	10	167.3	22	5	219.1	24	24	0	24							24	0		
F/3	IAD 600x900	0.05	70	0.95	5	219.1	10	167.3	10	167.3	22	5	219.1	24	24	0	24							24	0		
F/4	IAD 900x900	0.058	70	0.95	5	219.1	10	167.3	10	167.3	26	5	219.1	29	29	0	29					7.1		29	0		

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

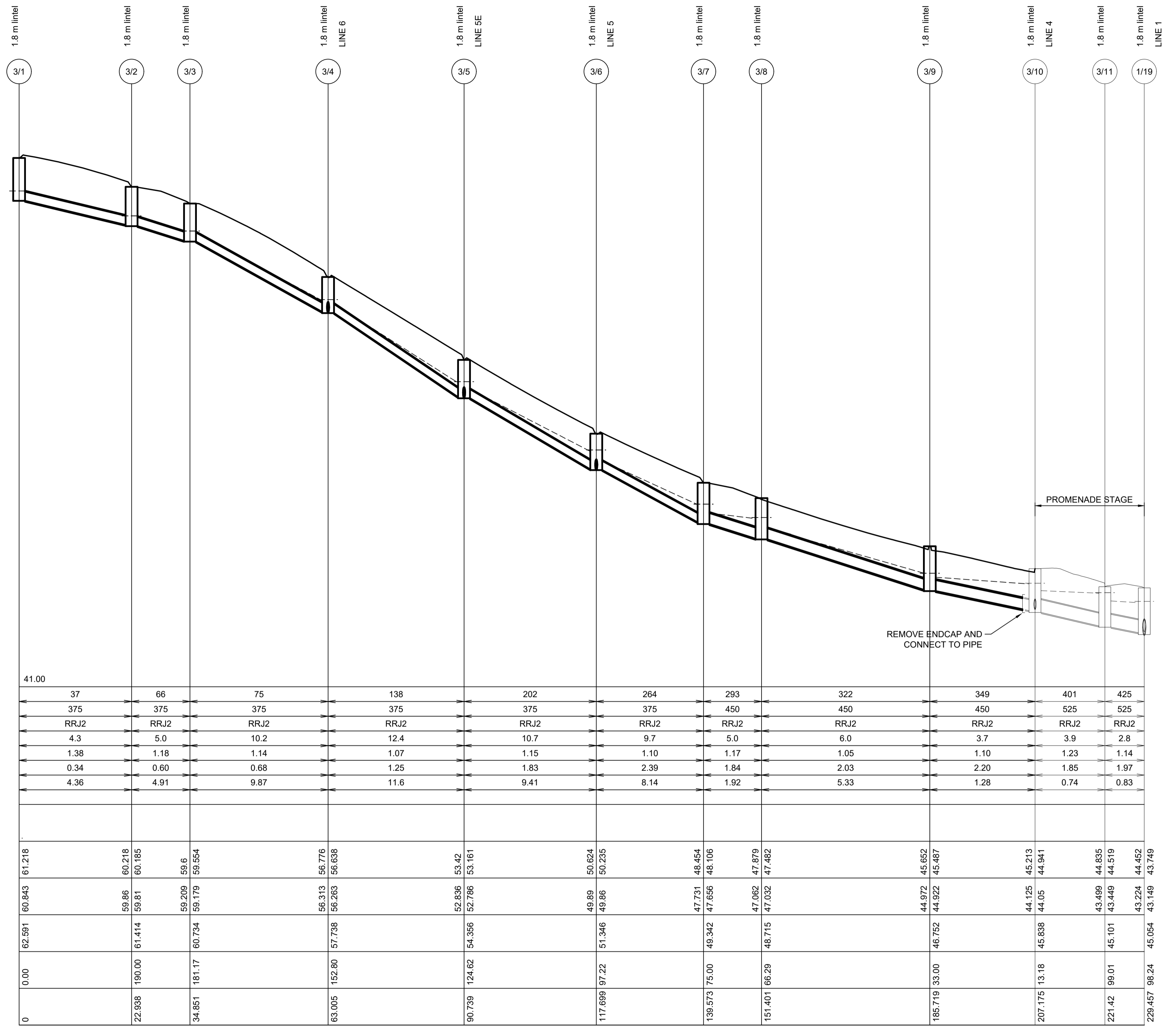
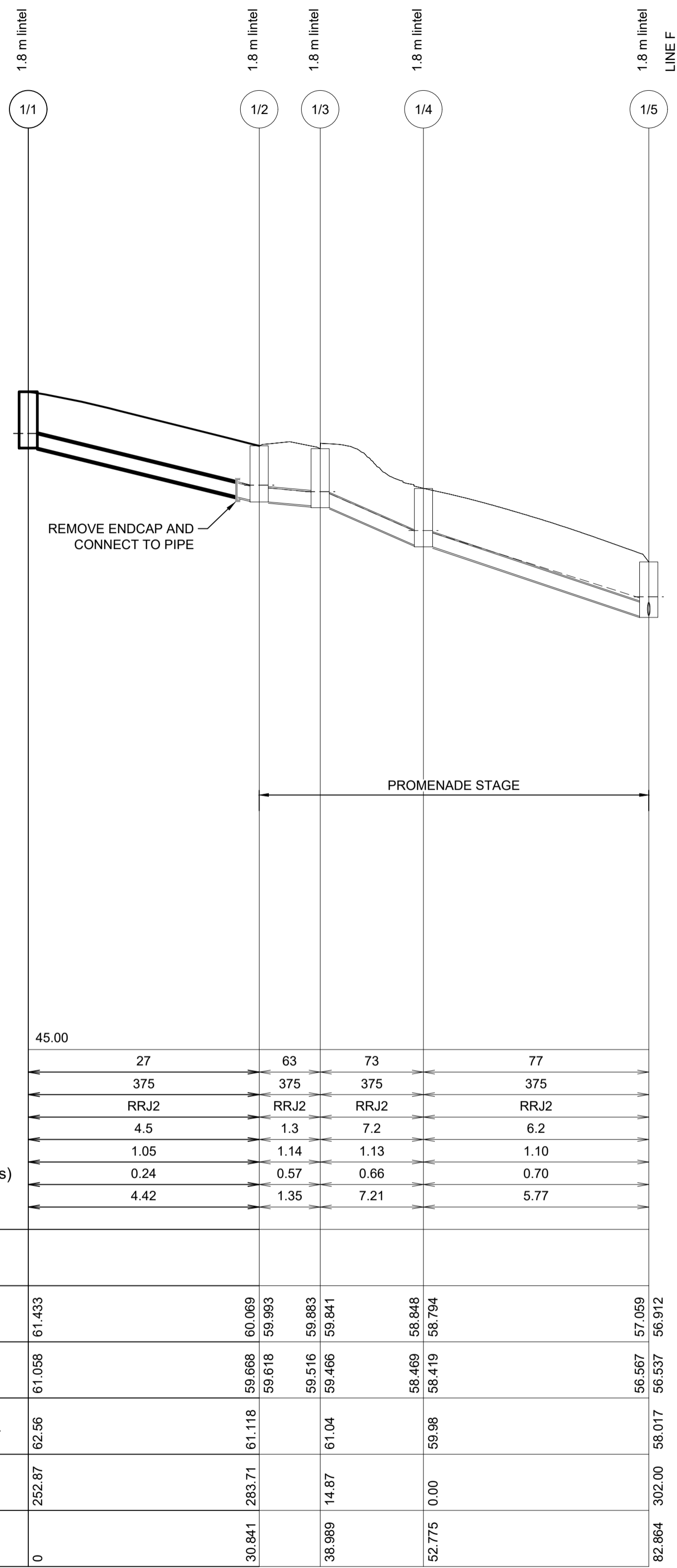
PIPE	PIPE	PIPE	PIPE	PIPE	PIPE	FULL AREA	FULL AREA	FULL AREA	FULL AREA	PART-AREA A	PART-AREA A	PART-AREA A	PART-AREA A	DIRECT PIPE	PEAK	NET BYPASS	PIPE	FLOW	Q/Cap	FULL PIPE	NORM. DEPTH	CRIT. DEPTH	U/S PIT	PIPE	PIPE	PIPE	U/S PIT	U/S PIT	PIPE	PIT LOSS	WSE LOSS	TOTAL	U/S PIT	U/S PIPE	D/S PIPE	HGL	MIN.	U/S	COMMENTS
(-)	(-)	(mm)	(m)	(%)	(sq.m)	(min)	(mm/hr)	(ha)	(L/s)	(min)	(mm/hr)	(ha)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(L/s)	(-)	(m/s)	(m/s)	(m/s)	(m)	(m)	(m)	(m)	(-)	(-)	(m)	(m)	(m)	(m)	(m)	(m)	(m)	(%)	(m)	(m)	
1/1 to 1/2	RRJ2	375	30.84	4.51	0.11	10	167.3	0.107	49.7	5	219.1	0.09	55.3	0	55.3	-16.8	38.6	403.4	0.1	0.35	2.3	1.01	62.56	61.058	59.668	0.05	4.5		0.01	0.03	0.03	1.27	61.461	61.433	60.163	4.12	1.05	1.1	
1/2 to 1/3	RRJ2	375	8.15	1.25	0.11	10.22	165.9	0.254	116.9	5.22	215.9	0.22	130	0	130	-34.8	95.2	212.5	0.45	0.86	1.87	1.36	61.118	59.618	59.516	0.05	4.5		0.04	0.17	0.17	0.06	60.163	59.993	59.936	0.7	1.14	0.95	
3/1 to 3/2	RRJ2	375	22.94	4.28	0.11	10	167.3	0.151	70	5	219.1	0.13	80.2	0	80.2	-28.9	51.3	392.8	0.13	0.46	2.46	1.11	62.573	60.843	59.86	0.05	4.5		0.01	0.05	0.05	0.94	61.267	61.218	60.274	4.1	1.22	1.31	
3/2 to 3/3	RRJ2	375	11.91	5.05	0.11	10.16	166.3	0.251	116.2	5.16	216.9	0.22	131.3	0	131.3	-27.8	103.5	426.9	0.24	0.94	3.18	1.41	61.408	59.81	59.209	0.031	1.99	2.63	0.04	0.09	0.12	0.52	60.303	60.185	59.668	4.33	1.17	1.11	
3/3 to 3/4	RRJ2	375	28.15	10.18	0.11	10.22	165.9	0.288	133	5.22	216	0.25	149.8	0	149.8	-31.6	118.2	606.3	0.2	1.07	4.25	1.49	60.729	59.179	56.313	0.051	1.96	2.4	0.06	0.11	0.14	2.57	59.694	59.554	56.981	9.14	1.14	1.04	
3/4 to 3/5	RRJ2	375	27.73	12.36	0.11	10.33	165.2	0.538	246.8	5.33	214.5	0.46	276.2	0	276.2	-52.1	224.1	667.9	0.34	2.03	5.45	2.14	57.738	56.263	52.836	0.05	1.64	1.9	0.21	0.34	0.4	2.91	57.036	56.638	53.725	10.5	1.07	0.7	
3/5 to 3/6	RRJ2	375	26.96	10.74	0.11	10.41	164.7	0.792	362.2	5.41	213.3	0.68	404.3	0	404.3	-71.3	333	622.8	0.53	3.01	5.73	3.03	54.356	52.786	49.89	0.03	1.22	1.4	0.46	0.56	0.65	1.95	53.811	53.161	51.214	7.22	1.15	0.54	
3/6 to 3/7	RRJ2	375	21.87	9.73	0.11	10.49	164.2	1.039	474	5.34	214.4	0.89	528.8	0	528.8	-78.6	450.2	592.8	0.76	4.08	5.9	4.08	51.346	49.86	47.731	0.076	1.02	1.18	0.76	0.77	0.89	1.1	51.336	50.442	49.342	5.03	1.1	0.01	
3/7 to 3/8	RRJ2	450	11.83	5.03	0.16	10.55	163.8	1.156	525.8	5.4	213.5	0.99	586.1	0	586.1	-173.3	412.9	692.8	0.6	2.6	4.54	2.66	49.342	47.656	47.062	0.03	1.5	1.59	0.34	0.52	0.55	0.21	48.99	48.442	48.231	1.79	1.17	0.35	
3/8 to 3/9	RRJ2	450	34.32	6	0.16	10.6	163.5	1.272	577.6	5.44	212.9	1.09	643.8	0	643.8	-171.7	472.1	757	0.62	2.97	5.02	3	48.66	47.032	44.972	0.051	1.67	1.79	0.45	0.75	0.8	1.02	48.286	47.482	46.461	2.98	1.05	0.37	
3/9 to 3/10	RRJ2	450	21.46	3.71	0.16	10.71	162.8	1.39	628.7	5.49	212.2	1.19	699.3	0	699.3	-167.9	531.4	595.5	0.89	3.34	4.23	3.36	46.604	44.922	44.125	0.075	0.63		0.57	0.36	0.36	0.63	46.461	46.101	45.466	2.96	1.1	0.14	
3/10 to 3/11	RRJ2	525	14.24	3.87	0.22	10.8	162.2	1.627	733.1	5.58	211	1.37	800.2	0	800.2	-105.9	694.4	916.7	0.76	3.21	4.65	3.25	45.689	44.05	43.499	0.05	1.42	1.61	0.18	0.26	0.29	0.11	45.5	45.21	45.101	0.76	1.23	0.19	
3/11 to 1/19	RRJ2	525	8.04	2.8	0.22	10.85	161.9	1.729	777.6	5.63	210.3	1.45	849.4	0	849.4	-464.4	385	779.9	0.49	1.78	3.59	2.08	45.101	43.449	43.224	0.076	1.56	1.61	0.16	0.25	0.26	0.05	45.012	44.752	44.697	0.68	1.14	0.09	
5/1 to 3/5	RRJ2	375	8	2	0.11	10	167.3	0																															

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SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SM62
 Date of Issue 27/09/2021
 Issuing Officer *D. Restu*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021



LINE 1

LINE 3



AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	VS	RO	RO	29/06/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
 P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au



STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**

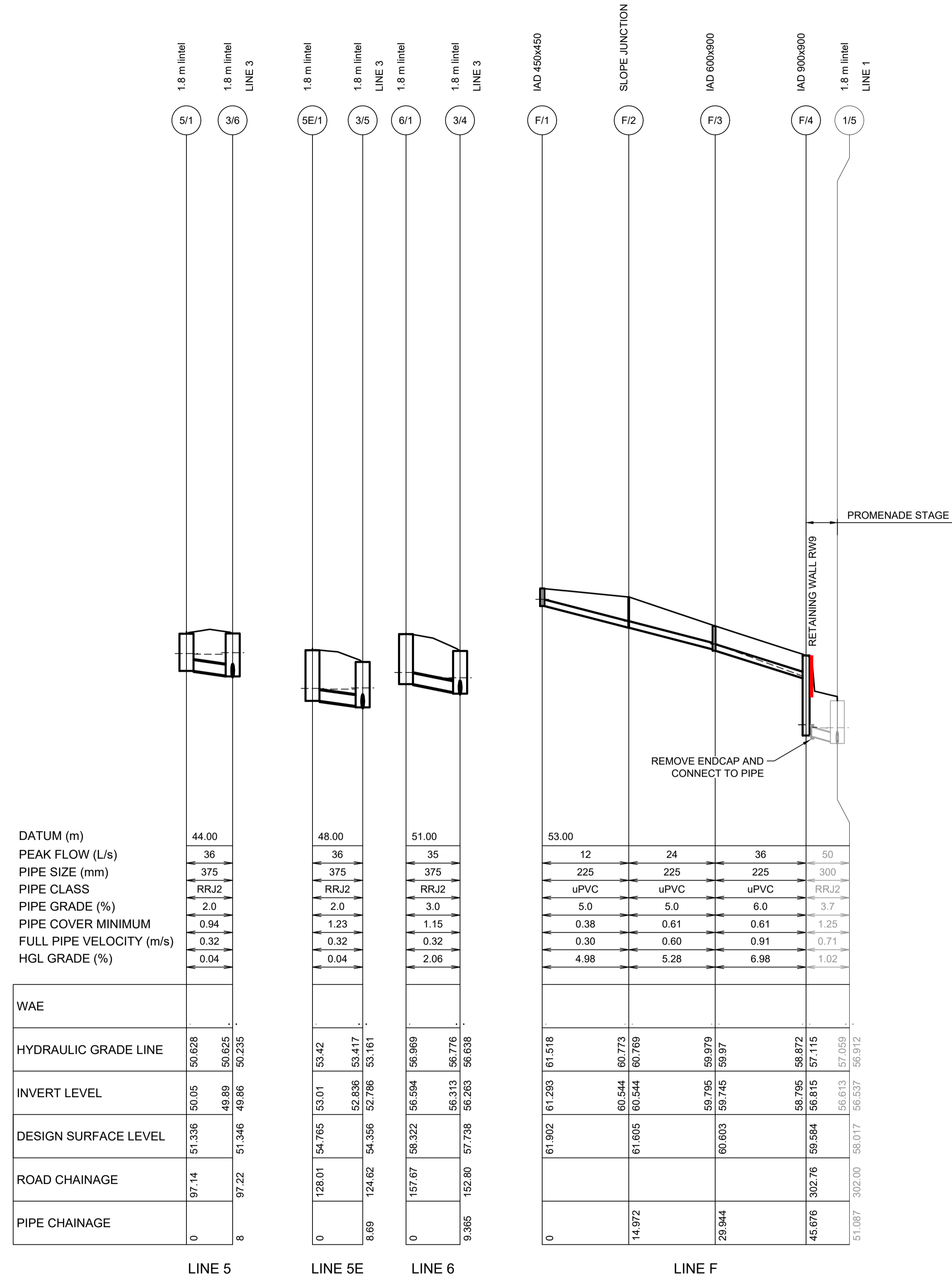
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REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 DRAINAGE LONGITUDINAL SECTIONS
 SHEET 1

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2421

PROJECT No: **110185-12**
 SHEET No: **CC2421**

Plotted: 29 June, 2021 12:11:13 PM. File Name: \\jwp.local\dfs\jobs\110185 - Redbank North Richmond Residential Precinct\12 - Stage 1 DA\CC2422\SW62\SH110185-12-CC2422.dwg



WAE	LINE 5	LINE 5E	LINE 6	LINE F
HYDRAULIC GRADE LINE	50.628, 50.625, 50.235	53.42, 53.417, 53.161	56.989, 56.984, 56.979	61.518, 60.773, 60.769, 59.979, 59.97, 58.872, 57.115, 57.059, 56.537, 56.912
INVERT LEVEL	50.05, 49.89, 49.86	53.01, 52.836, 52.786	56.594, 56.594, 56.313, 56.283	61.293, 60.544, 60.544, 59.795, 59.745, 58.795, 58.815, 56.613, 56.537
DESIGN SURFACE LEVEL	51.336, 51.346	54.765, 54.356	58.322, 57.738	61.902, 61.605, 60.803, 59.584, 58.017
ROAD CHAINAGE	97.14, 97.22	128.01, 124.62	157.67, 152.80	14.972, 29.944, 45.676, 302.76
PIPE CHAINAGE	0, 8	0, 8.69	0, 9.365	0, 14.972, 29.944, 45.676, 51.087

SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Restin*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021



AMENDMENT	DES	DRN	CKD	APR	DATE
B					12/03/21
A					24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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CLIENT: **REDBANK**
 NORTH RICHMOND

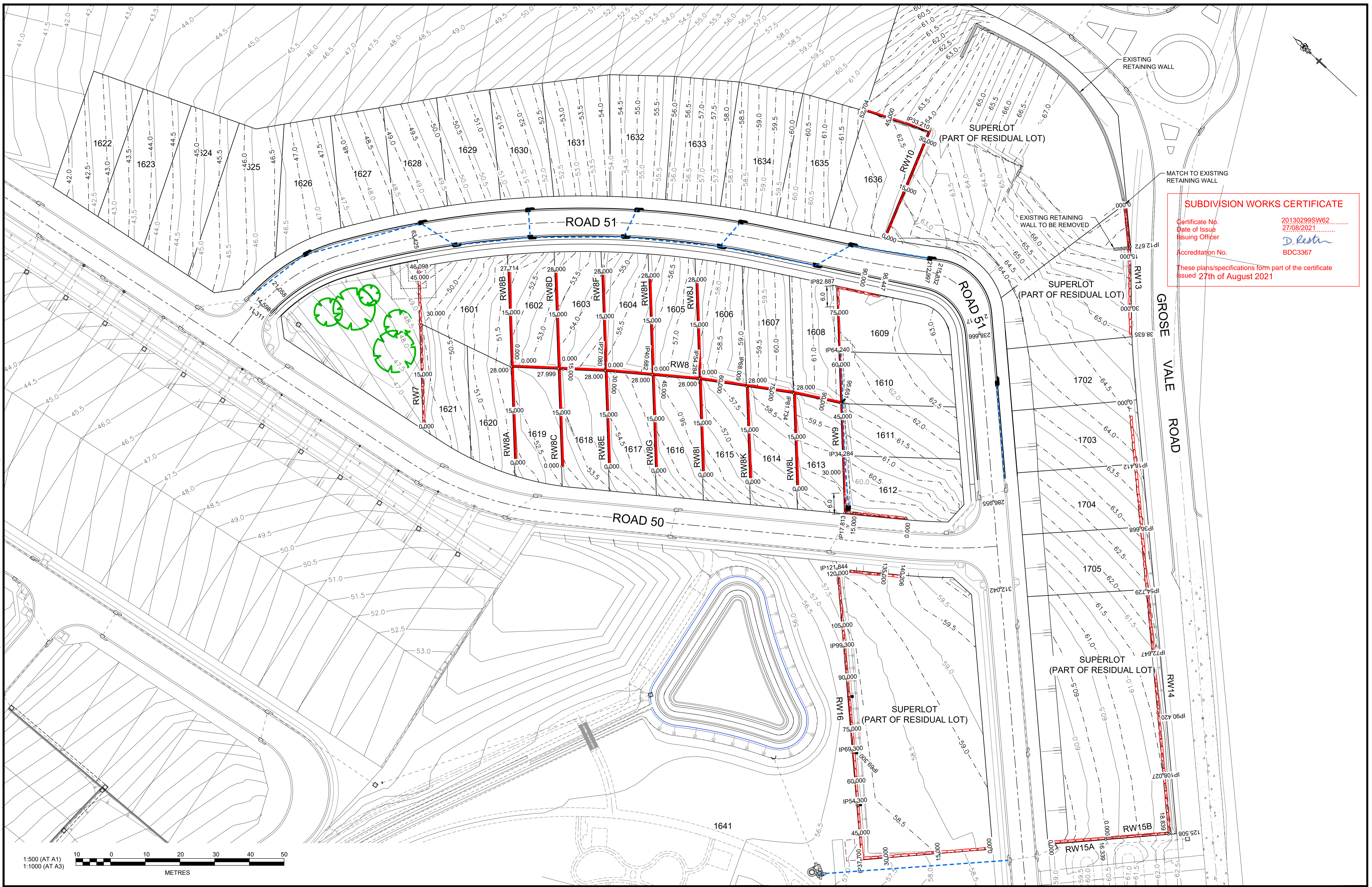
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**

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REDBANK, NORTH RICHMOND
 SOUTHERN HEIGHTS - SWC
 DRAINAGE LONGITUDINAL SECTIONS
 SHEET 2

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2422

PROJECT No: **110185-12**
 SHEET No: **CC2422**



SUBDIVISION WORKS CERTIFICATE

Certificate No. 201302995W62
 Date of Issue 27/08/2021
 Issuing Officer *D. Kesth*
 Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021

Plotted: 25 August, 2021 4:05:24 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DA\DC\CC\SOUTHERN HEIGHTS2-SH110185-12-CC2500.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
F PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	24/08/21
E LOT BOUNDARY AMENDED	MP	NM	RO	RO	13/08/21
D ROAD 51 CL UPDATED	MP	VS	RO	RO	29/06/21
C RETAINING WALL RW14 & RW15 TYPE AMENDED	MP	MP	RO	RO	25/03/21
B ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
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CLIENT:

STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**

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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
 RETAINING WALLS PLAN

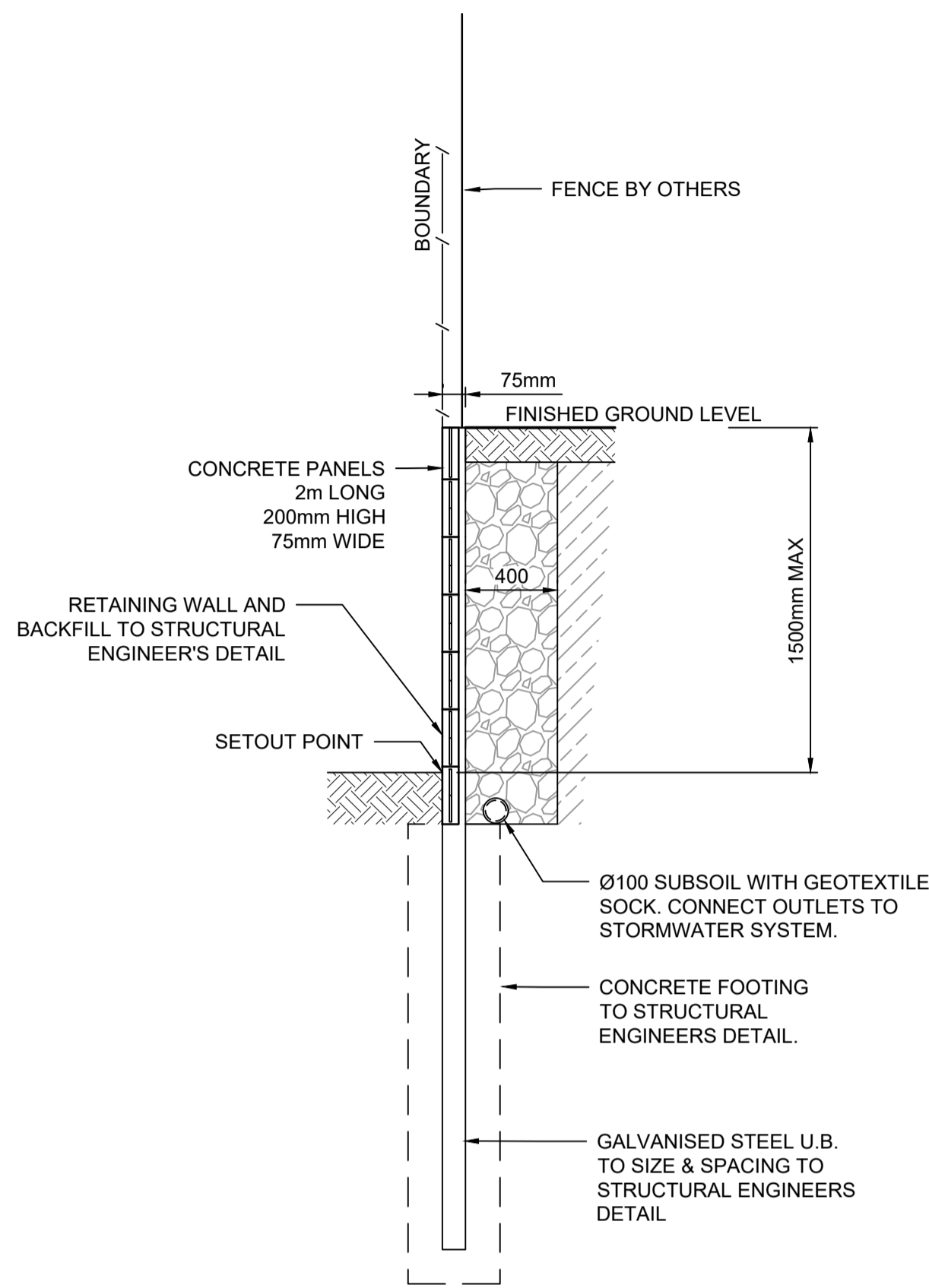
PROJECT No: 110185-12
 SHEET No: CC2500

PLAN No: 110185-12-CC2500

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN:

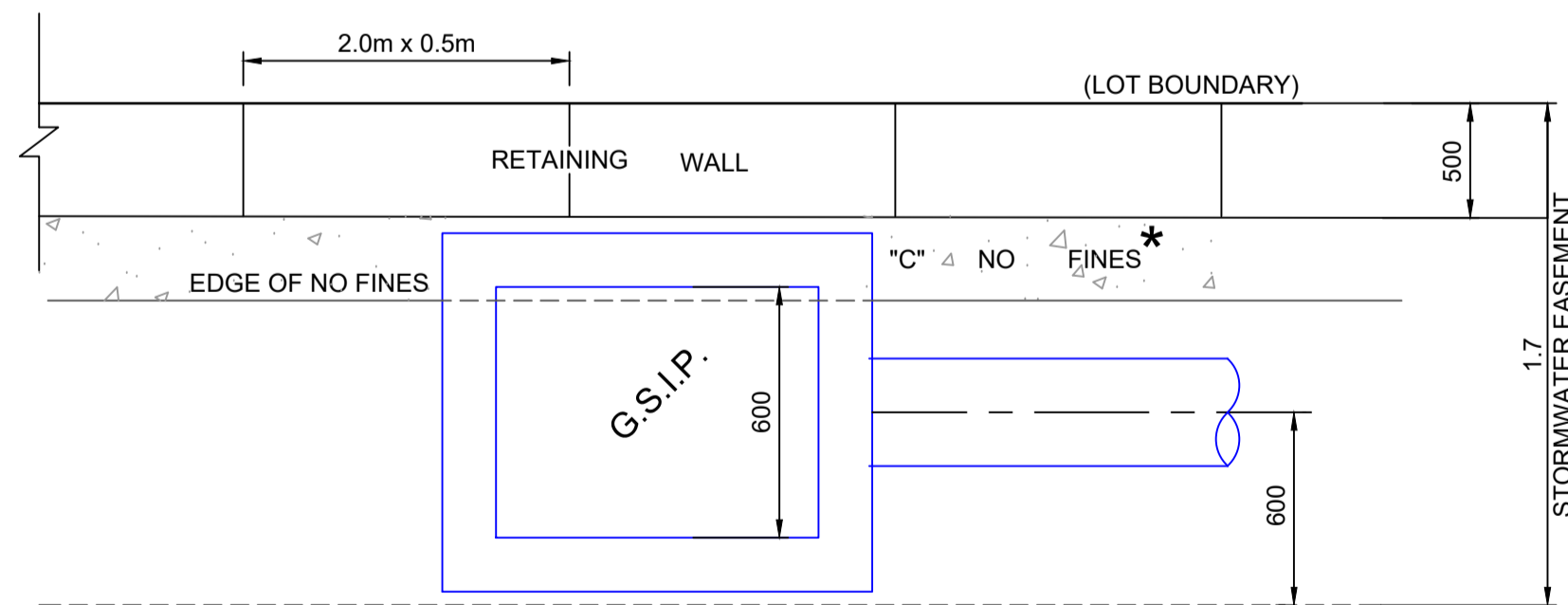
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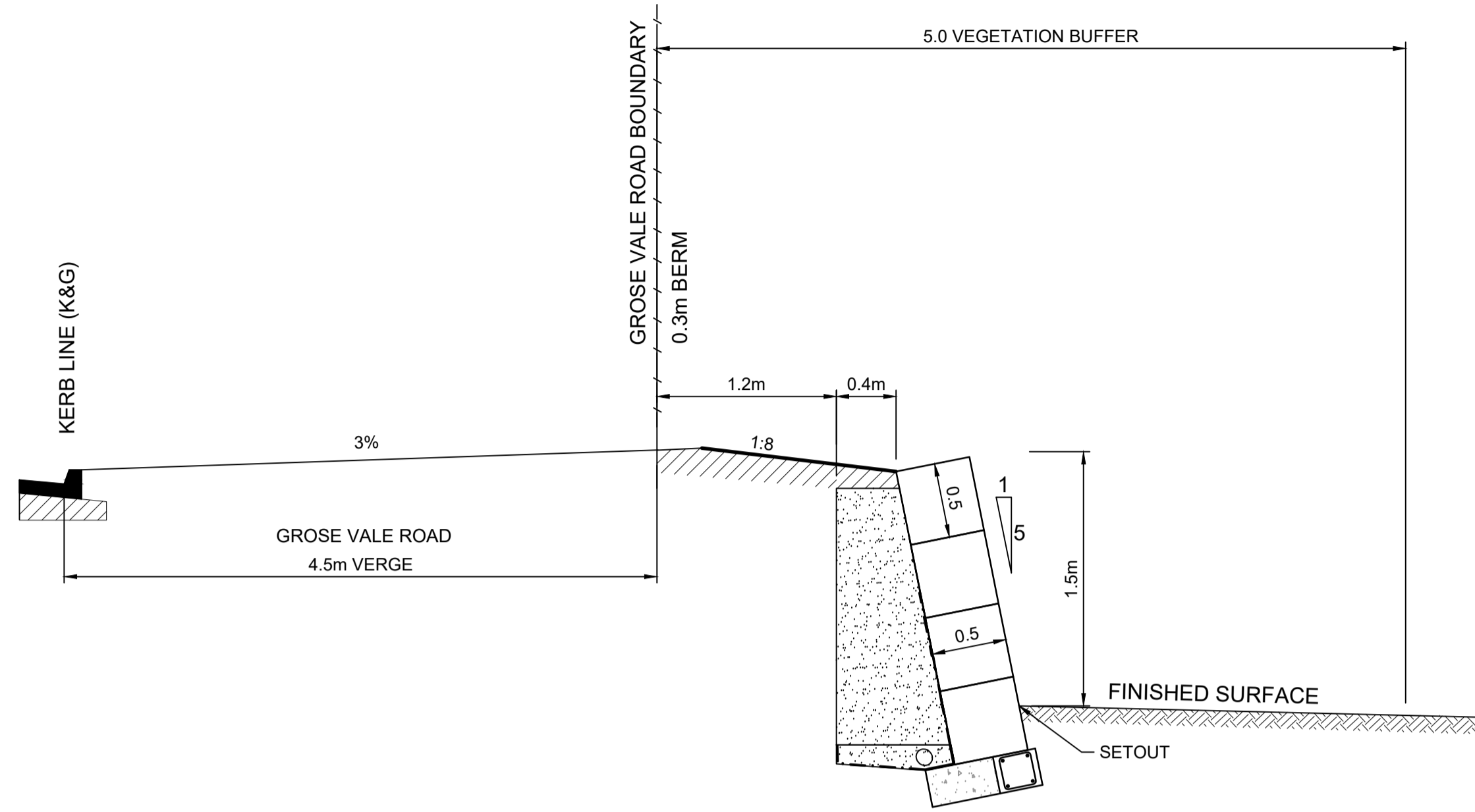


**RETAINING WALL CONCRETE PANELS I-BEAM
STANDARD DETAIL**
FOR RW8, RW8A, RW8B, RW8C, RW8D, RW8E, RW8F, RW8G, RW8H,
RW8I, RW8J, RW8K, RW8L, RW9 (PART), RW10 & RW11
SCALE 1:25

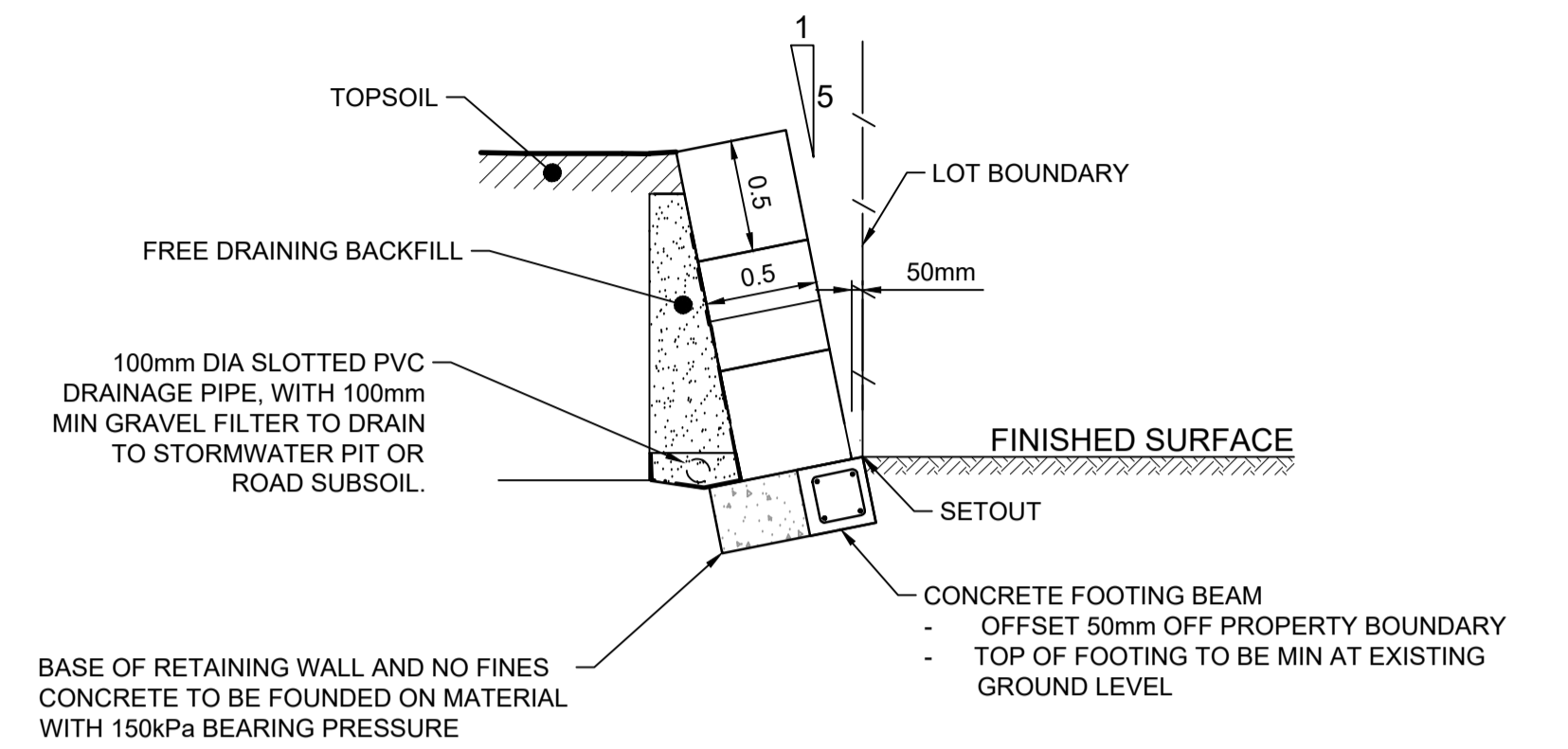
NOTE:
I BEAMS INCLUDE BRACKETS FOR FENCES
TO BE INSTALLED



**INTERALLOTMENT DRAINAGE EASEMENT
WITH SANDSTONE LOGS RETAINING WALL
ARRANGEMENT**
N.T.S

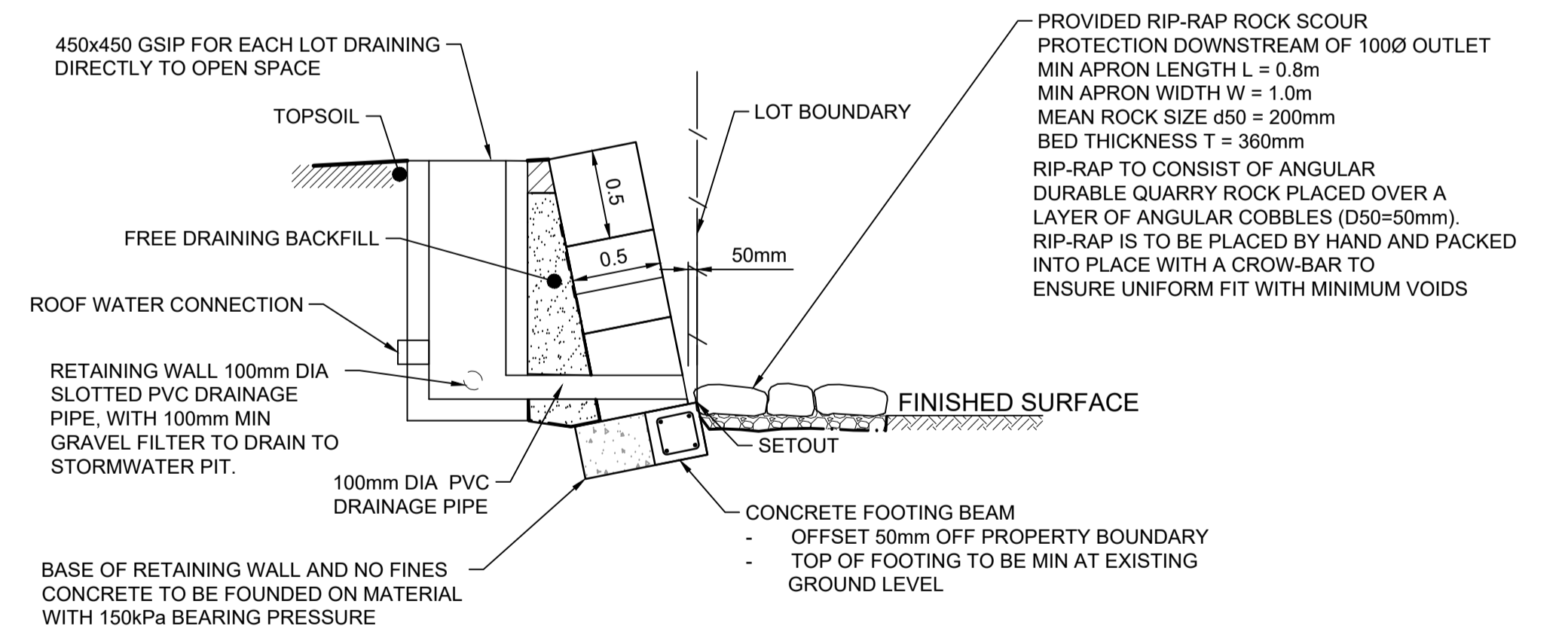


**SANDSTONE LOGS RETAINING WALL
STANDARD DETAIL**
FOR RW 14
3 (AND LESS) BLOCK ARRANGEMENT (1.5m MAX HEIGHT)
N.T.S



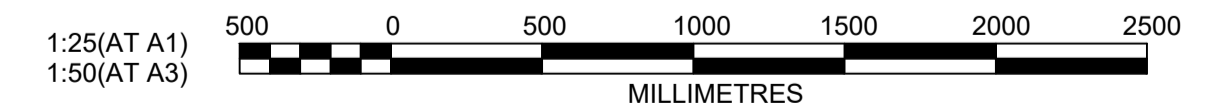
**SANDSTONE LOGS RETAINING WALL
STANDARD DETAIL**
FOR RW 7, 12, 9 (PART), 13, 15 A & 15 B
3 (AND LESS) BLOCK ARRANGEMENT (1.5m MAX HEIGHT)
N.T.S

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 Certificate No. 20130299SW62
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 Issuing Officer *D. Restar*
 Accreditation No. BDC3367
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**SANDSTONE LOGS RETAINING WALL
STANDARD DETAIL**
FOR RW 16 (LOT DRAINAGE DIRECTLY TO OPEN SPACE)
N.T.S

RETAINING WALLS SUBJECT
 TO STRUCTURAL DESIGN
 AND CERTIFICATION



AMENDMENT	DES	DRN	CKD	APR	DATE
D	JET	JET	MP	RO	29/04/21
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

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CLIENT: **REDBANK**
 NORTH RICHMOND

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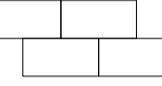
**REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC**
 RETAINING WALLS DETAILS
 AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2501

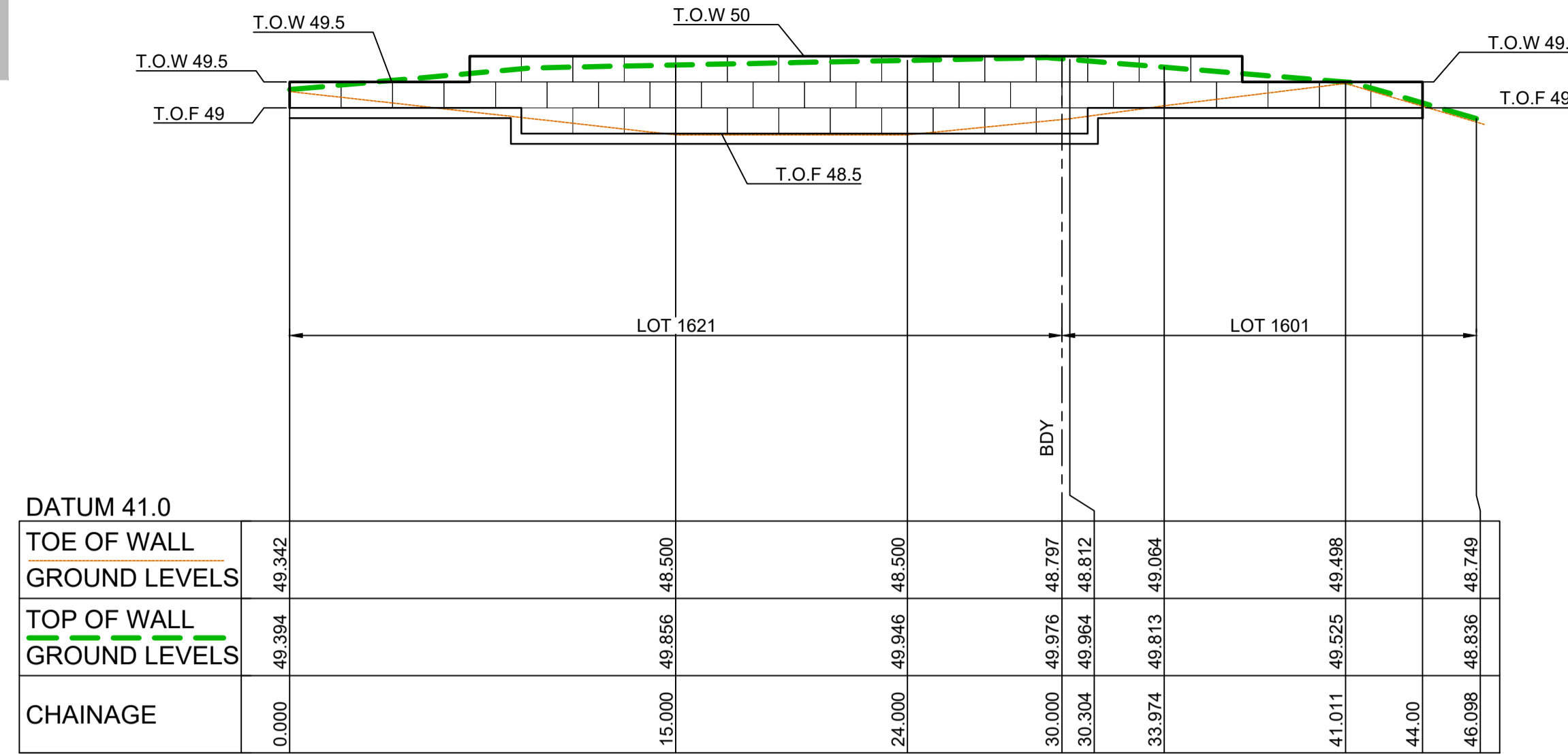
PROJECT No: **110185-12**
 SHEET No: **CC2501**
D

RETAINING WALL PROFILES SHOWN ARE INDICATIVE ONLY.
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SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS

SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION

LEGEND

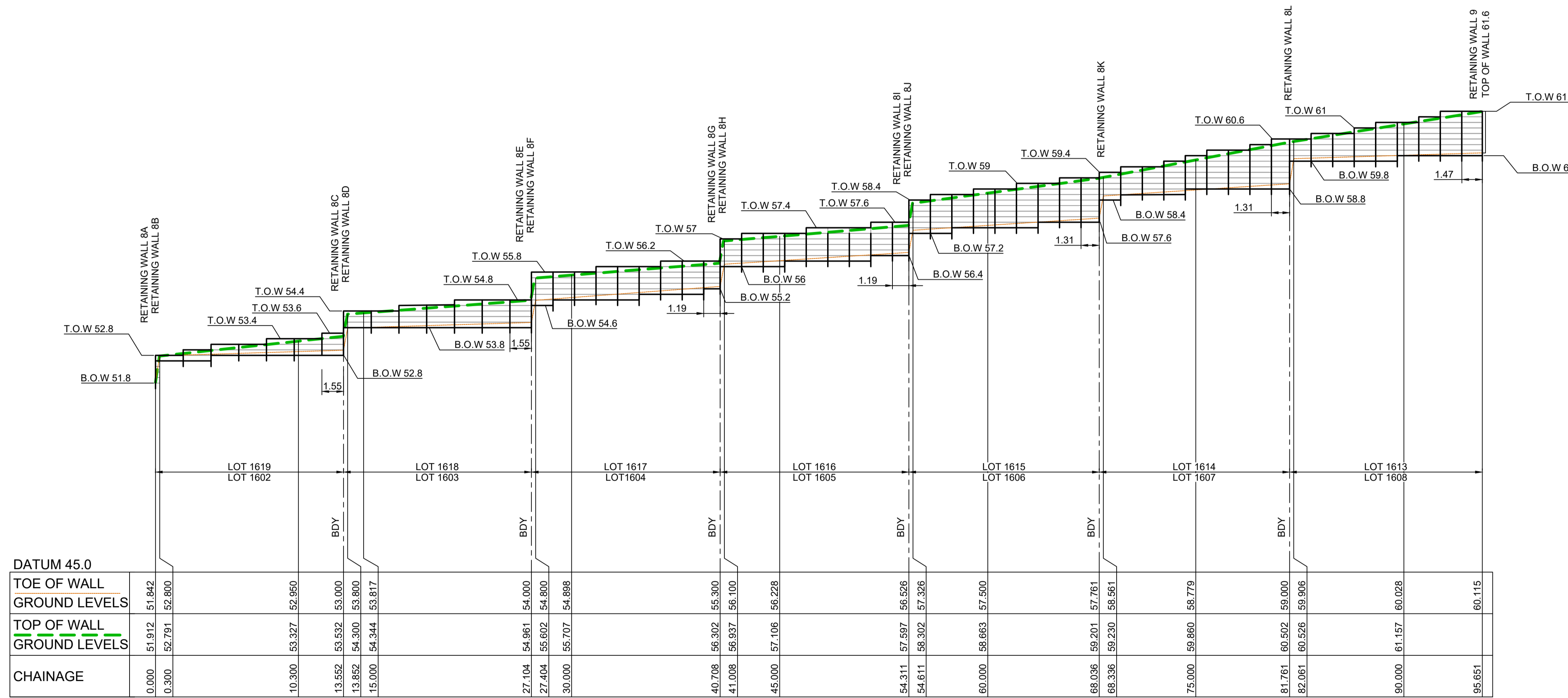
-  CONCRETE PANELS I-BEAM RETAINING WALL
-  SANDSTONE LOG RETAINING WALL



RW7			
CHAINAGE	EASTING	NORTHING	BEARING
0	286710.42	6281321.7	45°36'22.08"
46.1	286743.36	6281353.95	45°36'22.08"

RW8			
CHAINAGE	EASTING	NORTHING	BEARING
0	286740.52	6281314.81	140°01'06.73"
27.08	286757.92	6281294.06	
40.68	286766.18	6281283.25	
54.28	286774.44	6281272.44	
68.01	286782.11	6281261.06	
81.73	286789.79	6281249.68	
95.65	286796.62	6281237.67	149°39'38.82"

LONGITUDINAL SECTION RW7
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

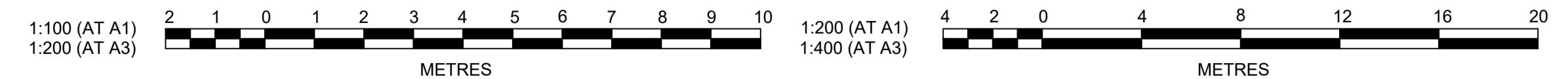


LONGITUDINAL SECTION RW8
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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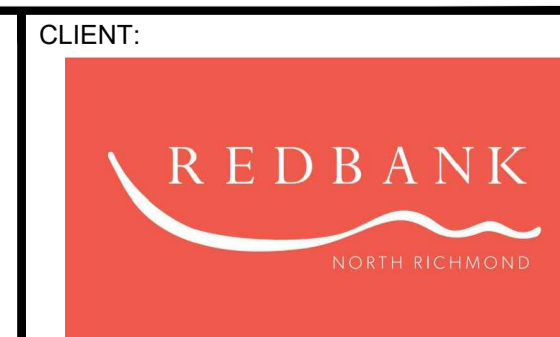


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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 1

PROJECT No: 110185-12
SHEET No: CC2511
PLAN No: 110185-12-CC2511

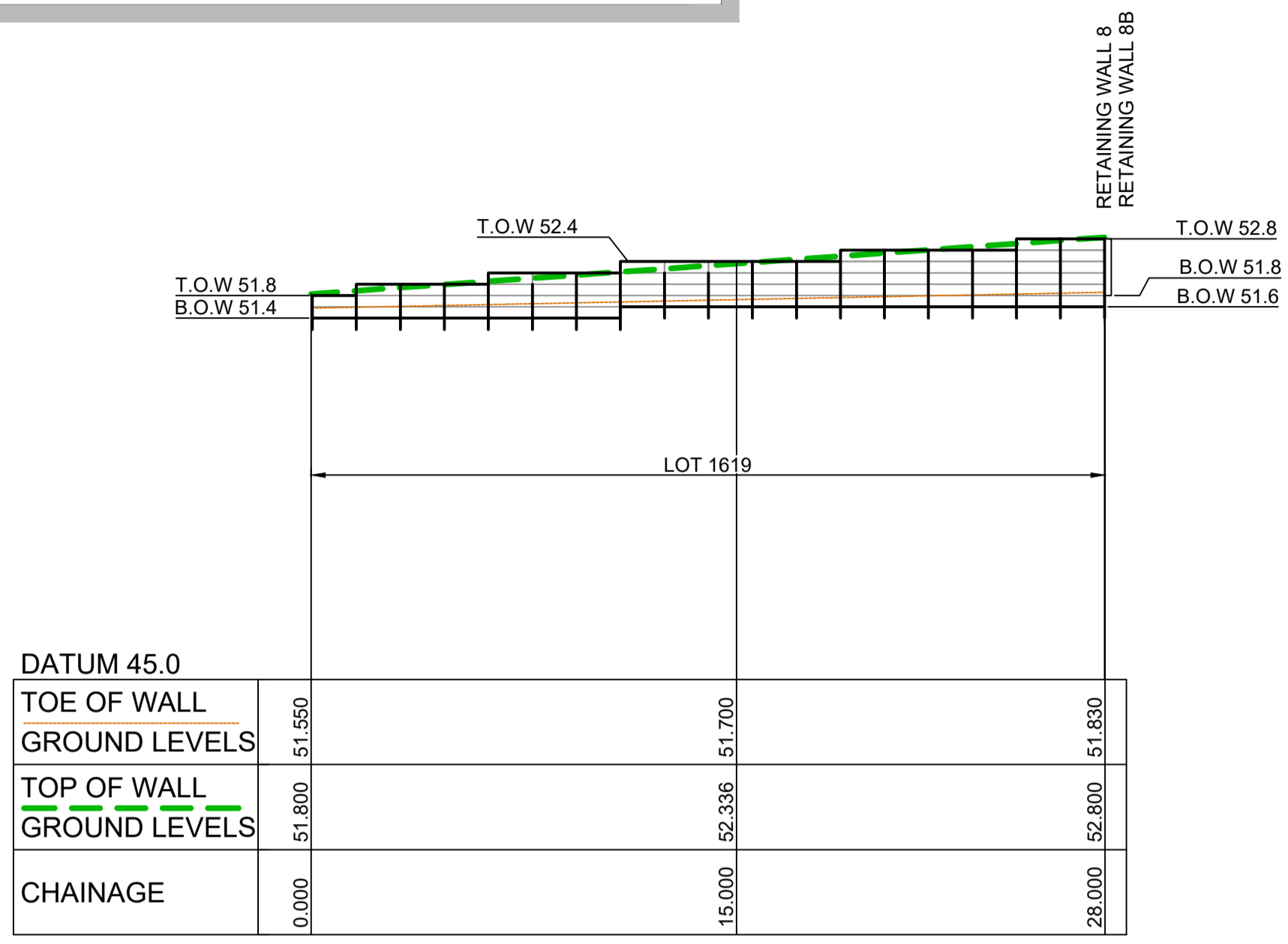
AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2511

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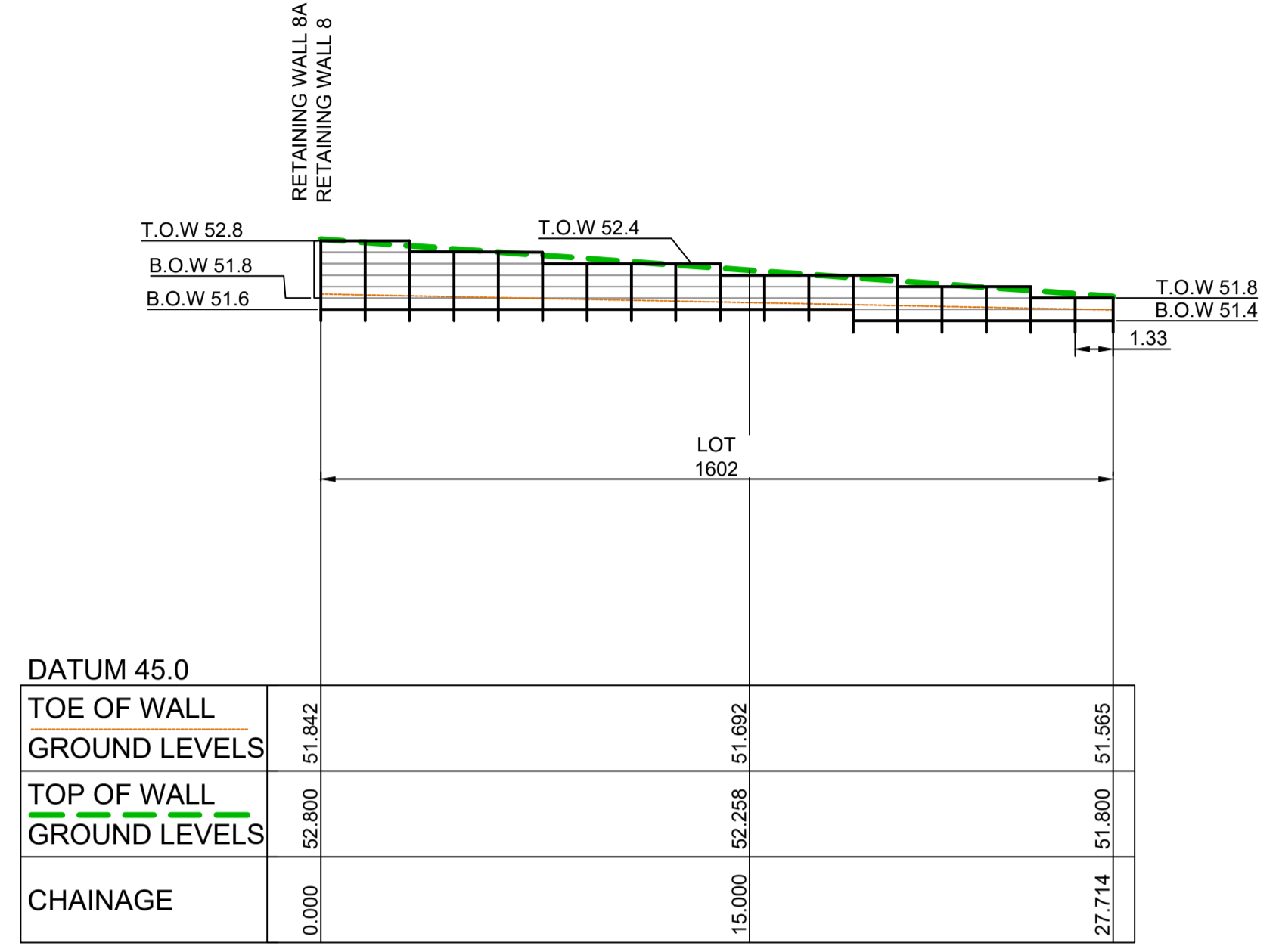
SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION

LEGEND

- CONCRETE PANELS I-BEAM RETAINING WALL
- SANDSTONE LOG RETAINING WALL



LONGITUDINAL SECTION RW 8A
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



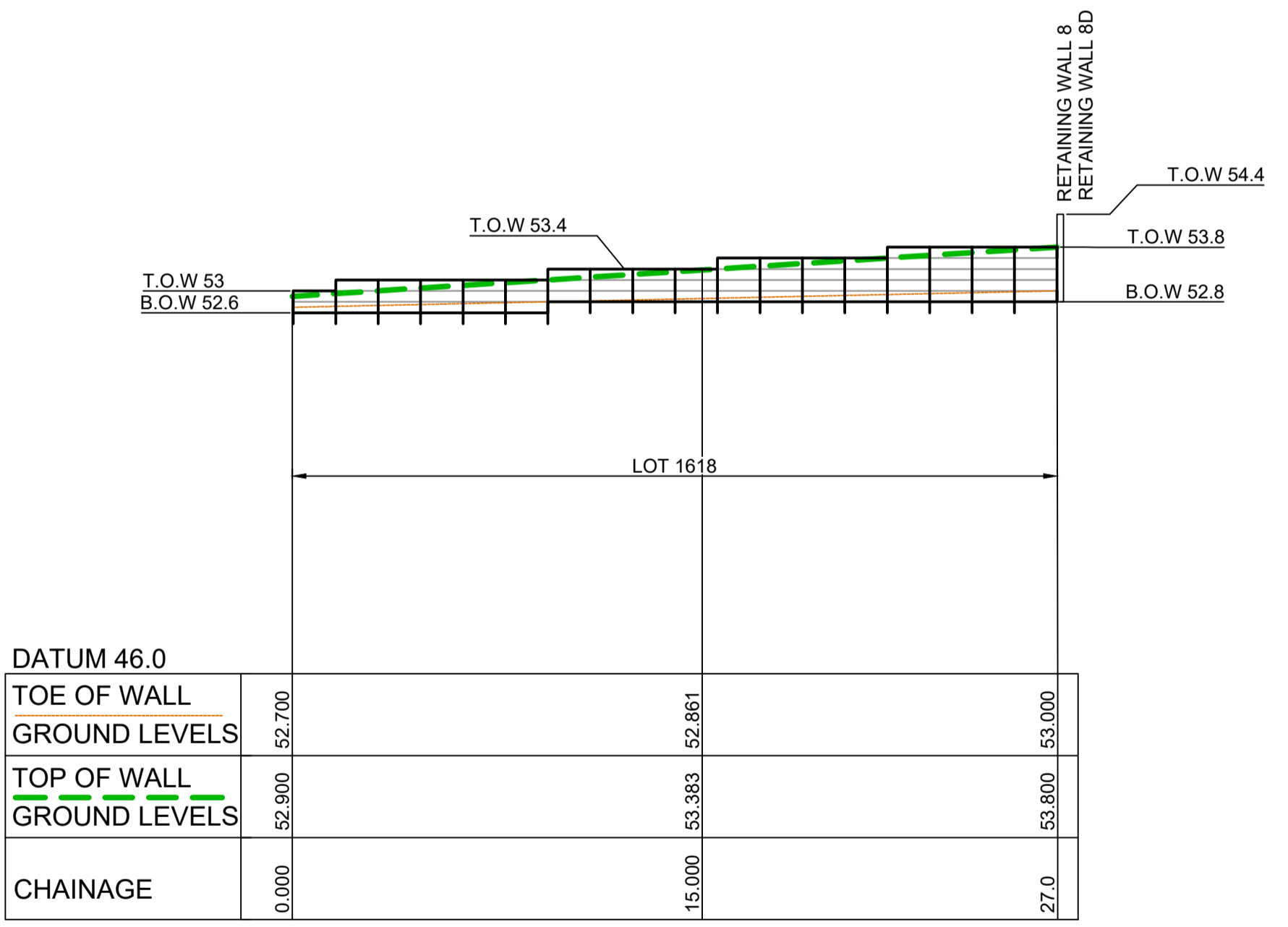
LONGITUDINAL SECTION RW 8B
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

RW 8A			
CHAINAGE	EASTING	NORTHING	BEARING
0	286720.51	6281295.22	45°36'10.48"
28	286740.52	6281314.81	45°36'10.48"

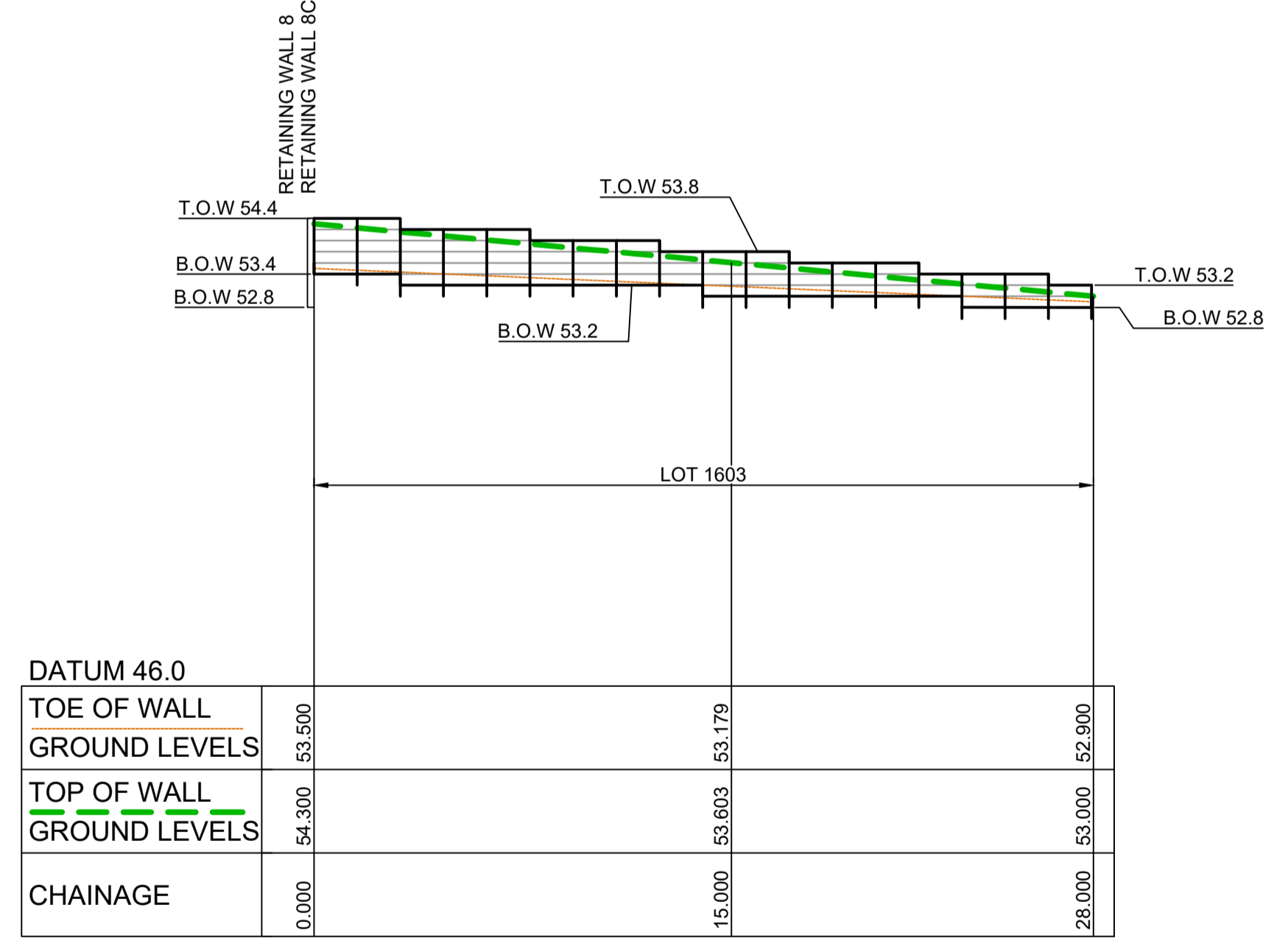
RW 8B			
CHAINAGE	EASTING	NORTHING	BEARING
0	286740.72	6281315.01	45°36'10.48"
27.71	286760.53	6281334.4	45°36'10.48"

RW 8C			
CHAINAGE	EASTING	NORTHING	BEARING
0	286729.21	6281284.85	45°36'28.21"
28	286749.22	6281304.43	45°36'28.21"

RW 8D			
CHAINAGE	EASTING	NORTHING	BEARING
0	286749.43	6281304.64	45°36'10.55"
28	286769.44	6281324.23	45°36'10.55"



LONGITUDINAL SECTION RW 8C
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

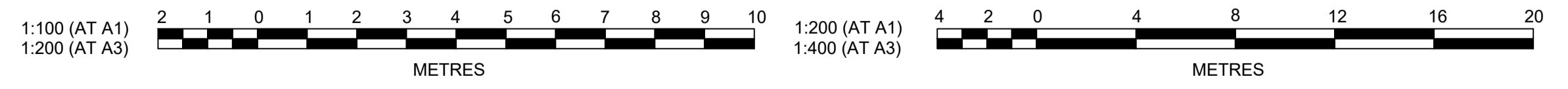


LONGITUDINAL SECTION RW 8D
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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Date of Issue 27/08/2021.....
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Accreditation No. BDC3367

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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

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NORTH RICHMOND

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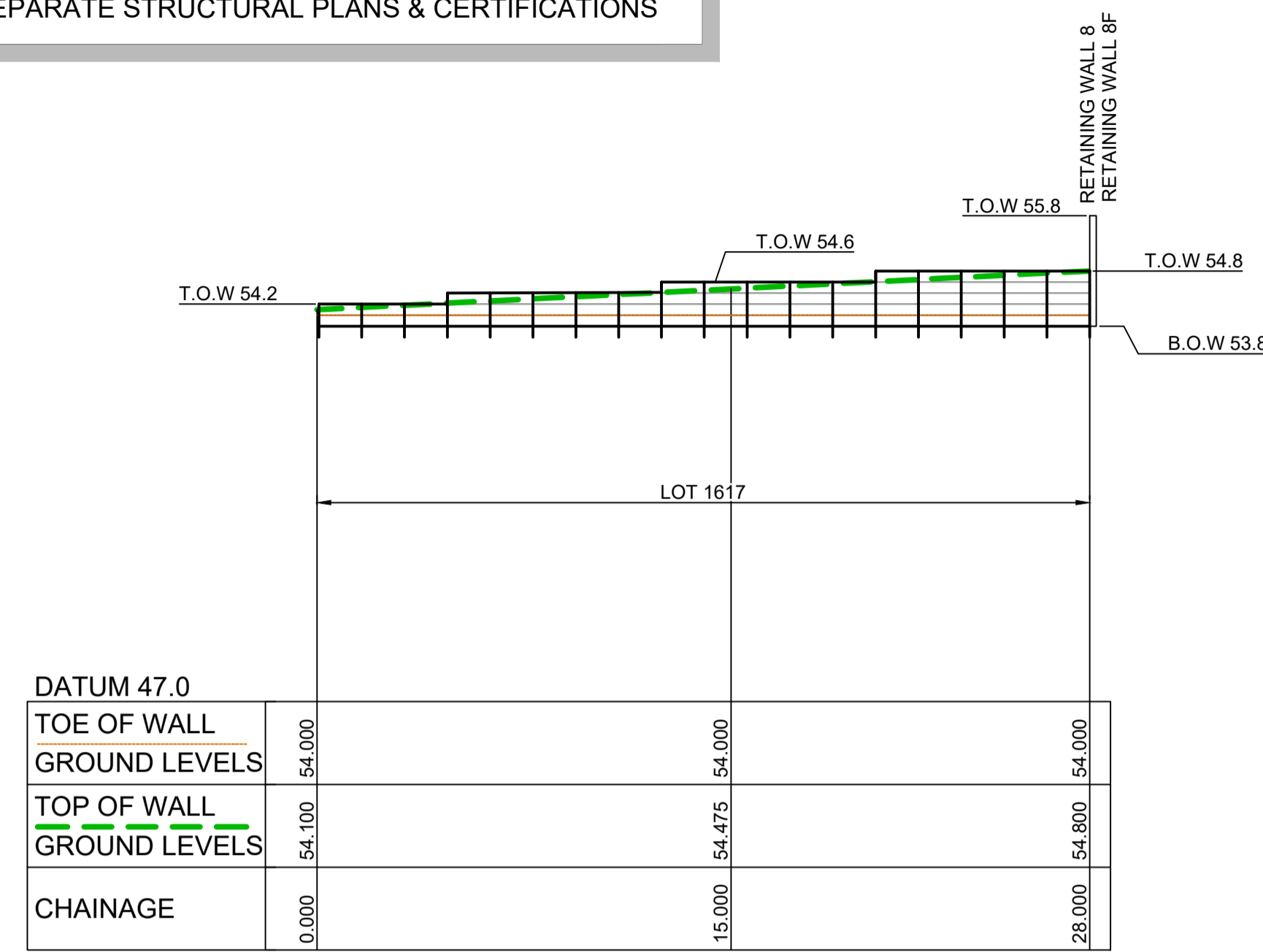
REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 2

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2512

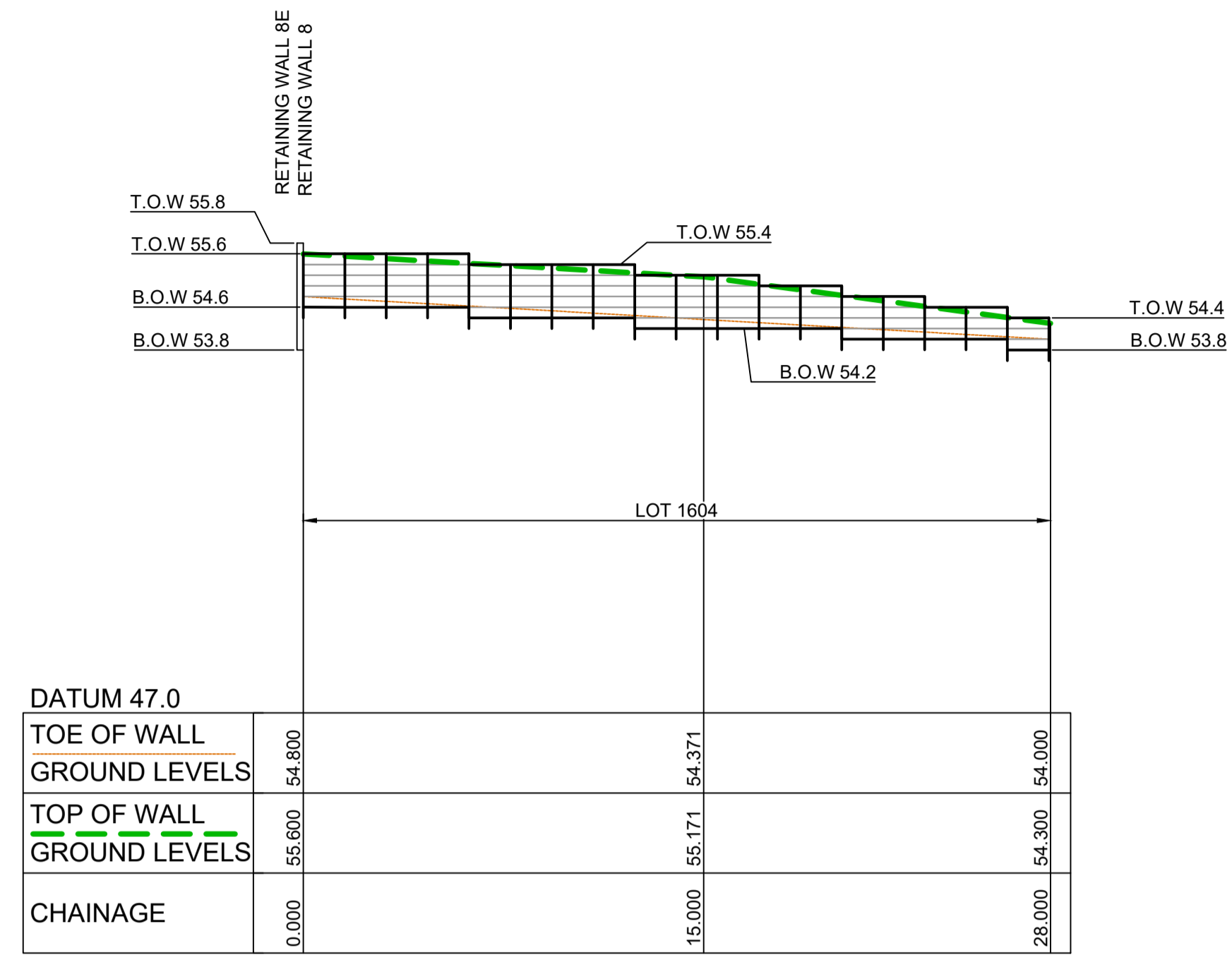
PROJECT No: 110185-12
SHEET No: CC2512

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SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS

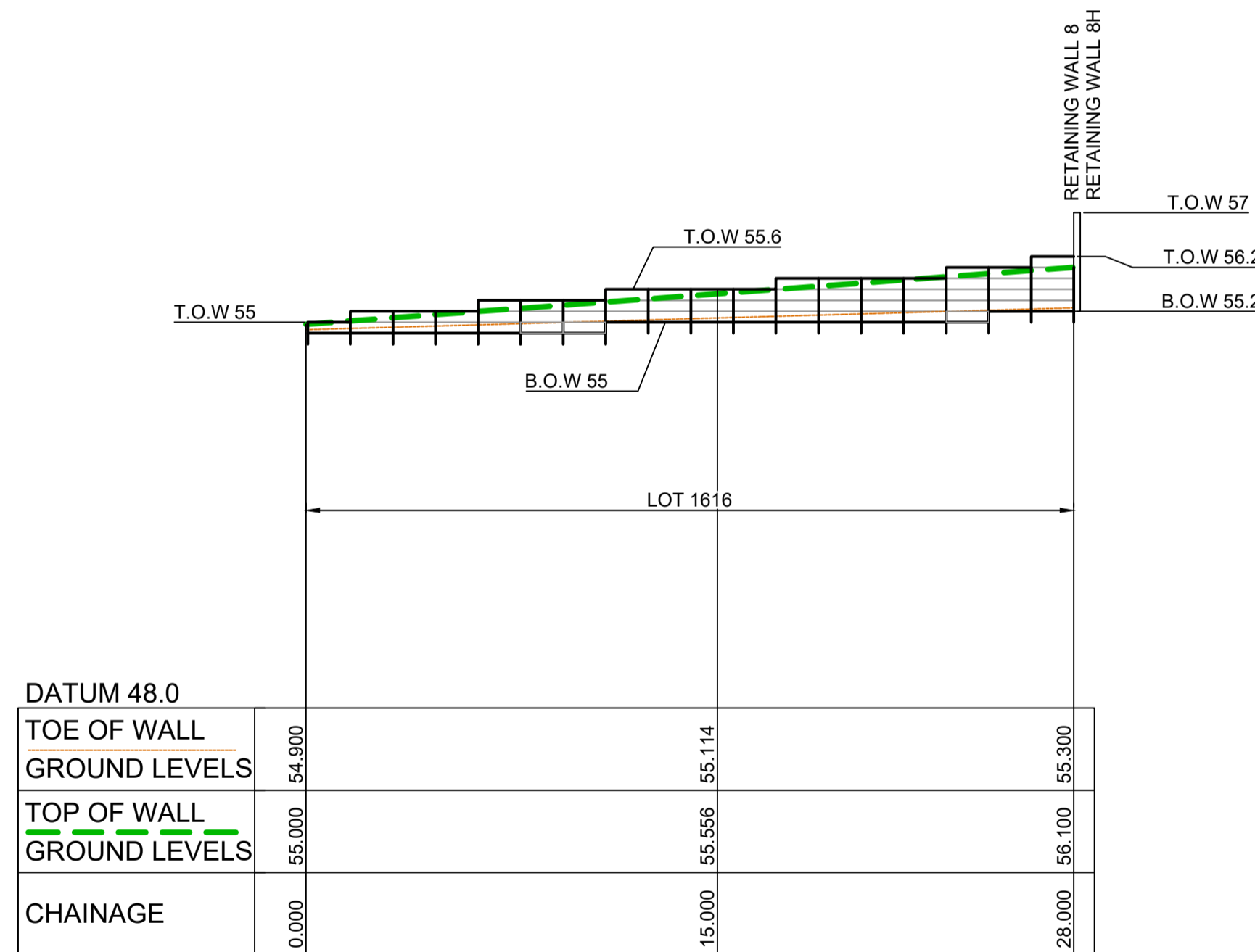
SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION



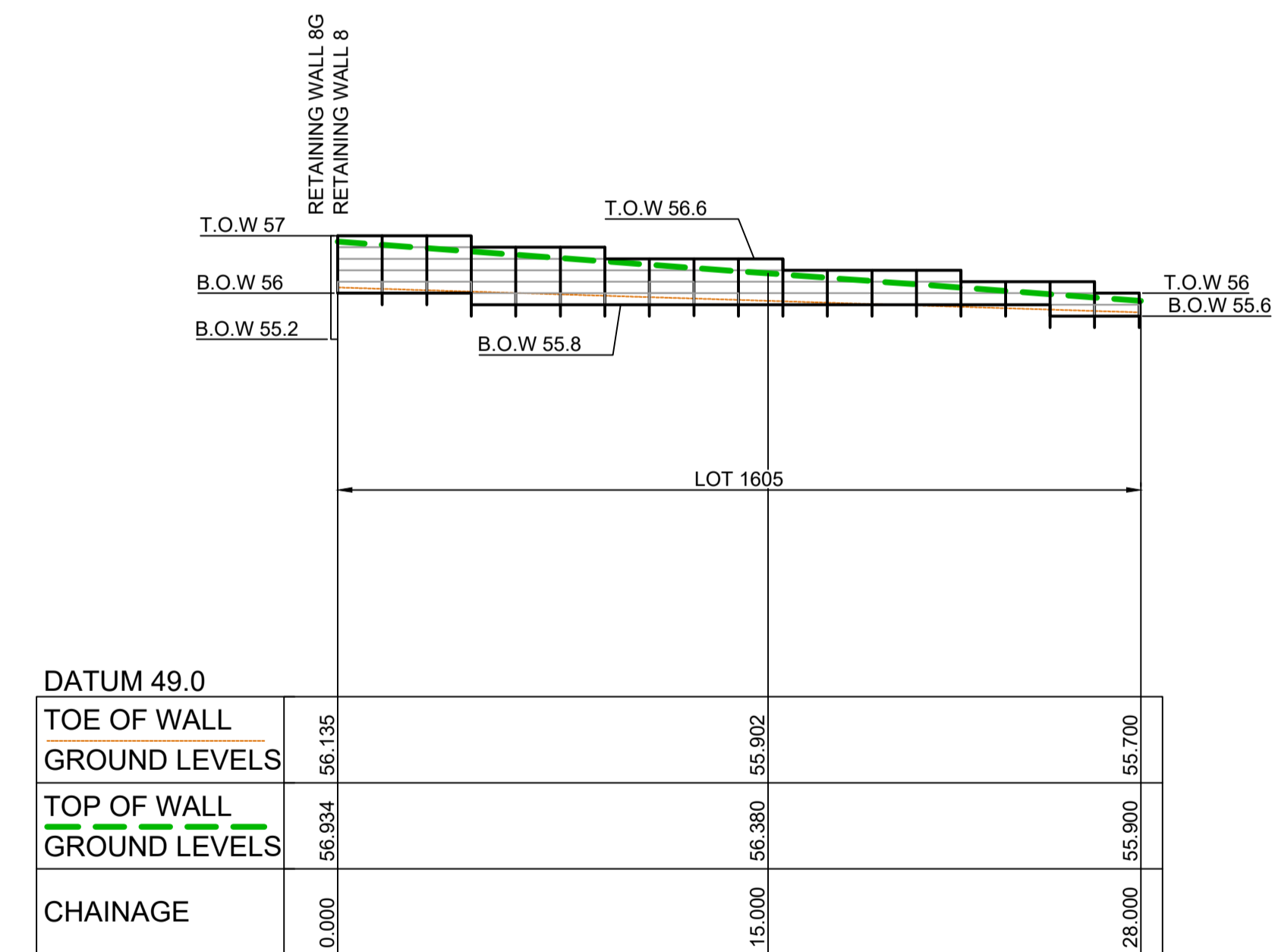
LONGITUDINAL SECTION RW 8E
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8F
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8G
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8H
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

LEGEND

- CONCRETE PANELS I-BEAM RETAINING WALL
- SANDSTONE LOG RETAINING WALL

RW 8E			
CHAINAGE	EASTING	NORTHING	BEARING
0	286737.91	6281274.47	45°36'10.48"
28	286757.92	6281294.06	45°36'10.49"

RW 8F			
CHAINAGE	EASTING	NORTHING	BEARING
0	286758.14	6281294.27	45°36'10.48"
28	286778.14	6281313.86	45°36'10.48"

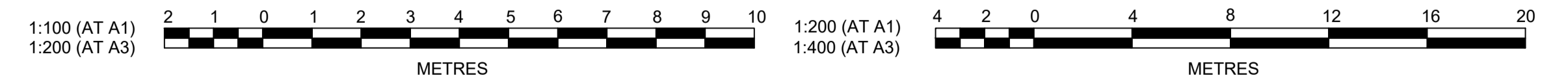
RW 8G			
CHAINAGE	EASTING	NORTHING	BEARING
0	286746.18	6281283.66	45°36'10.48"
28	286766.18	6281283.25	45°36'10.48"

RW 8H			
CHAINAGE	EASTING	NORTHING	BEARING
0	286766.39	6281283.46	45°36'10.48"
28	286786.4	6281303.05	45°36'10.48"

SUBDIVISION WORKS CERTIFICATE

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Accreditation No. BDC3367

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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

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CLIENT: **REDBANK**
NORTH RICHMOND

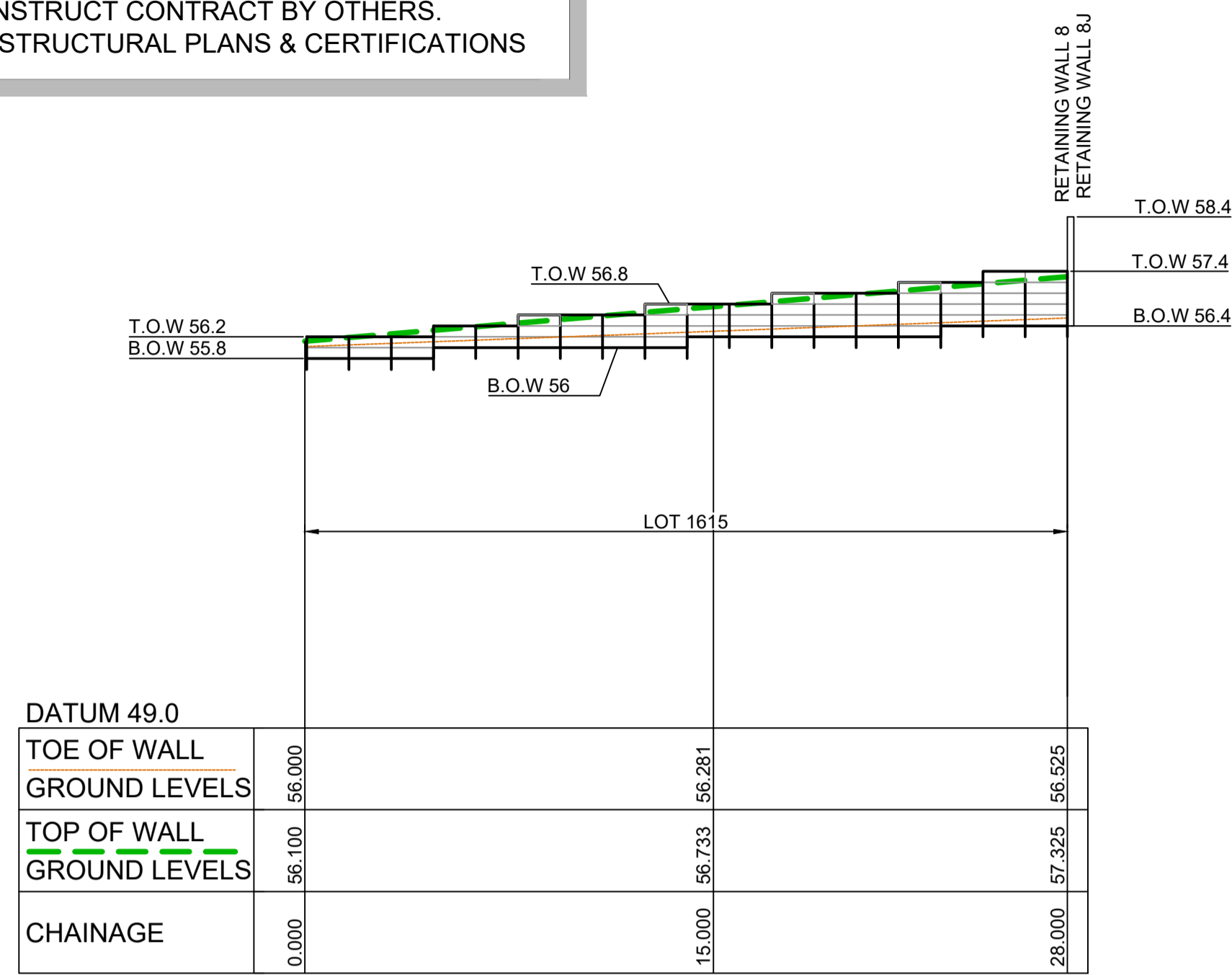
STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**
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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 3
AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2513

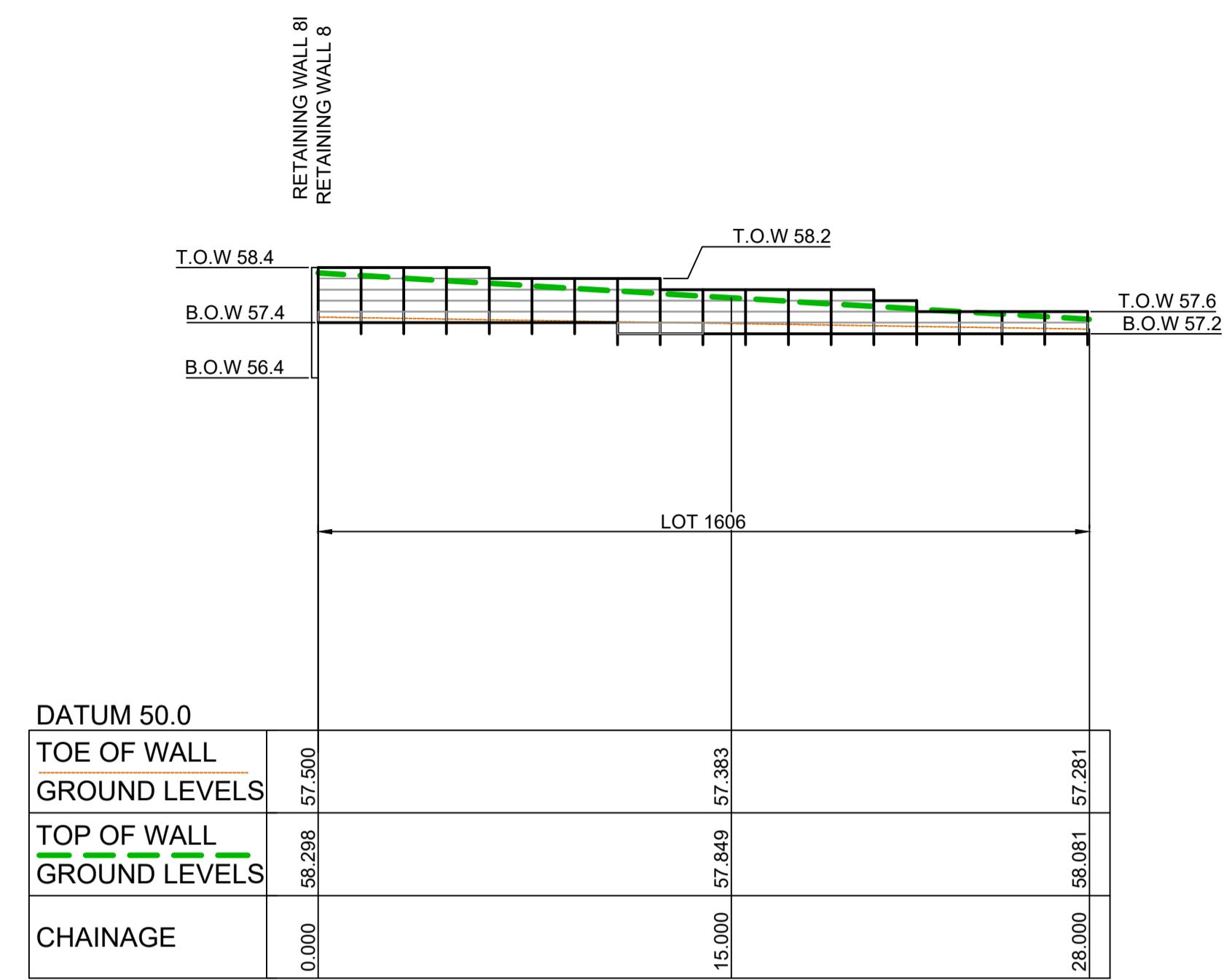
PROJECT No: 110185-12
SHEET No: CC2513
C

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SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS

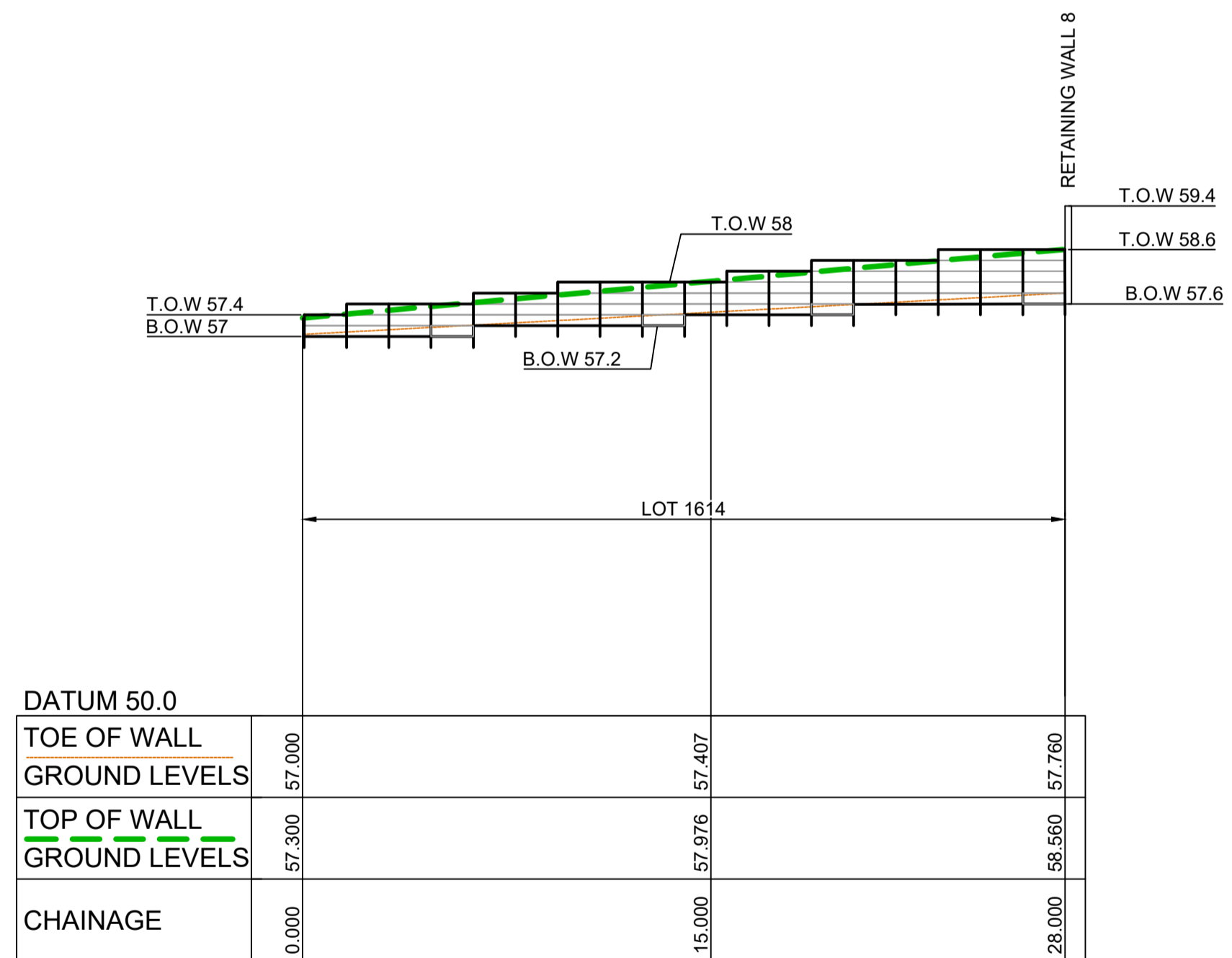
SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION



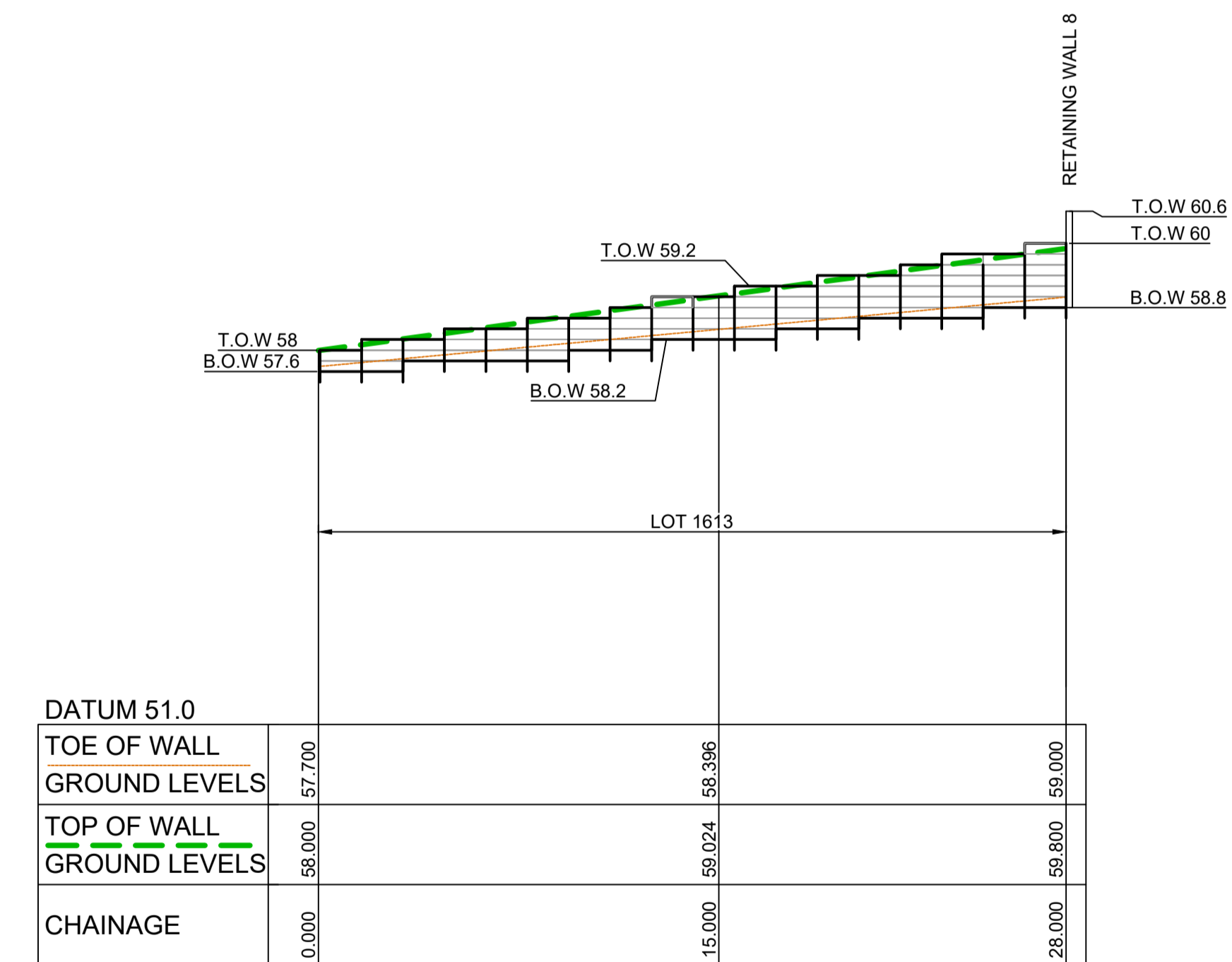
LONGITUDINAL SECTION RW 8I
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8J
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8K
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW 8L
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

LEGEND

- CONCRETE PANELS I-BEAM RETAINING WALL
- SANDSTONE LOG RETAINING WALL

RW 8I			
CHAINAGE	EASTING	NORTHING	BEARING
0	286754.43	6281252.85	45°36'10.47"
28	286774.44	6281272.44	45°36'10.47"

RW 8J			
CHAINAGE	EASTING	NORTHING	BEARING
0	286774.68	6281272.62	45°30'38.83"
28	286794.65	6281292.24	45°30'38.83"

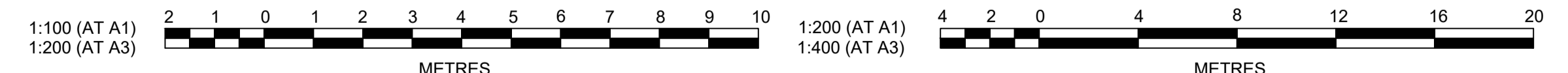
RW 8K			
CHAINAGE	EASTING	NORTHING	BEARING
0	286762.11	6281241.47	45°36'10.50"
28	286782.11	6281261.06	45°36'10.50"

RW 8L			
CHAINAGE	EASTING	NORTHING	BEARING
0	286769.78	6281230.1	45°36'10.48"
28	286789.79	6281249.68	45°36'10.48"

SUBDIVISION WORKS CERTIFICATE

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Issuing Officer *D. Resta*
Accreditation No. BDC3367

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AMENDMENT	DES	DRN	CKD	APR	DATE	
C	RETAINING WALL RW14 & RW15 TYPE AMENDED	MP	MP	RO	RO	25/03/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

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CLIENT: **REDBANK**
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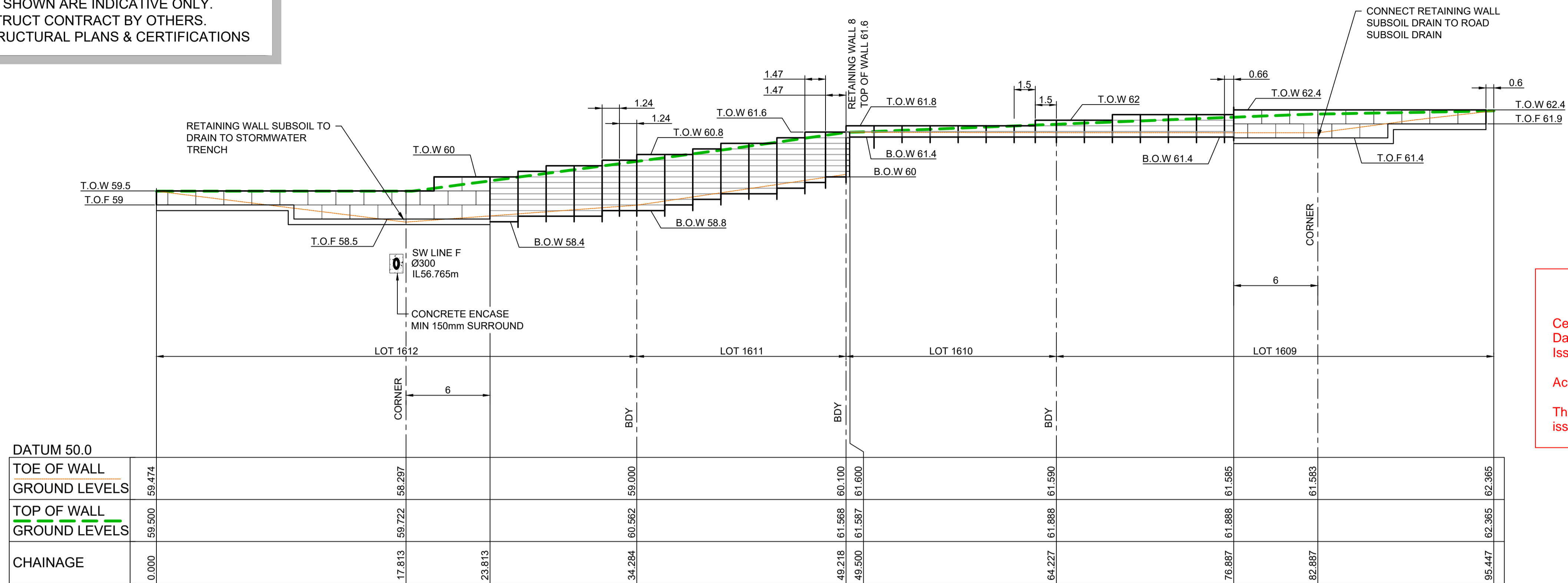
REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 4

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2514

PROJECT No: 110185-12
SHEET No: CC2514

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SUBJECT TO
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AND CERTIFICATION



LEGEND

	CONCRETE PANELS I-BEAM RETAINING WALL
	SANDSTONE LOG RETAINING WALL

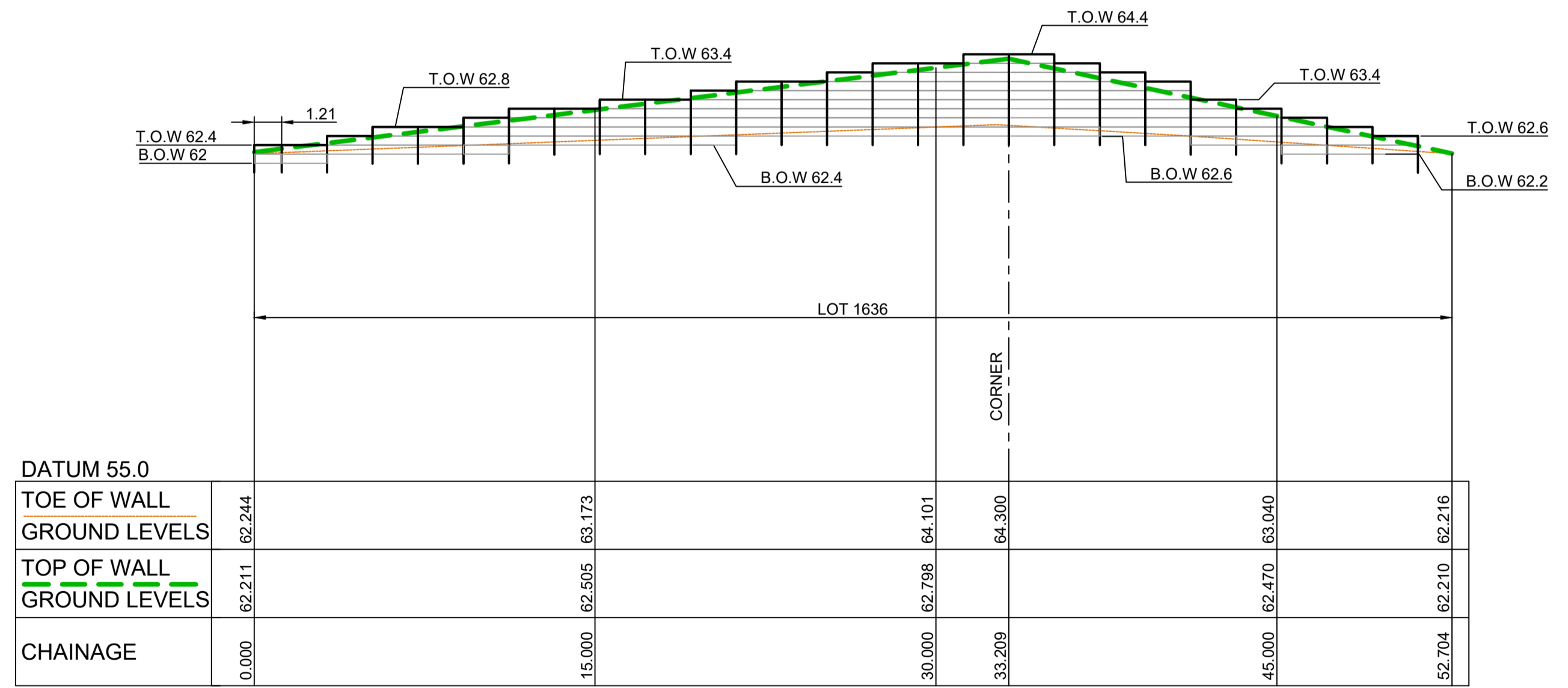
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LONGITUDINAL SECTION RW9

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW10

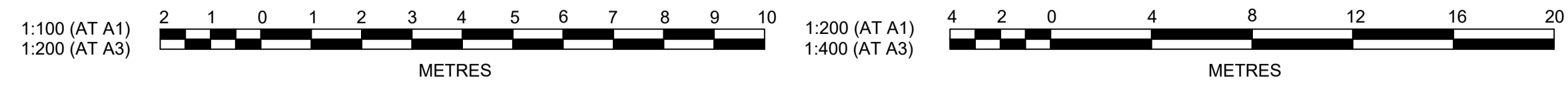
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

RW9

CHAINAGE	EASTING	NORTHING	BEARING
0	286785.05	6281201.43	323°06'41.89"
17.81	286774.35	6281215.68	
62.89	286820.85	6281261.2	
95.45	286827.22	6281250.38	149°32'00.56"

RW10

CHAINAGE	EASTING	NORTHING	BEARING
0	286840.65	6281260.27	70°16'15.95"
33.21	286871.92	6281271.48	
52.7	286863.82	6281289.22	335°28'04.74"

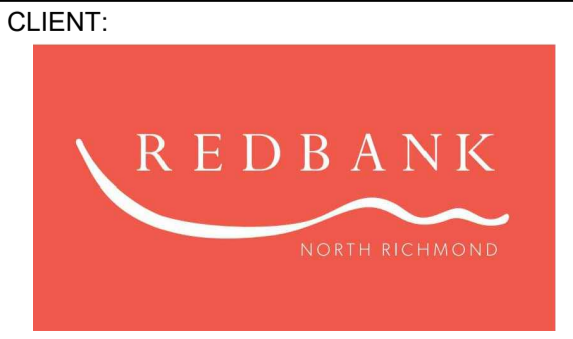


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AMENDMENT	DES	DRN	CKD	APR	DATE
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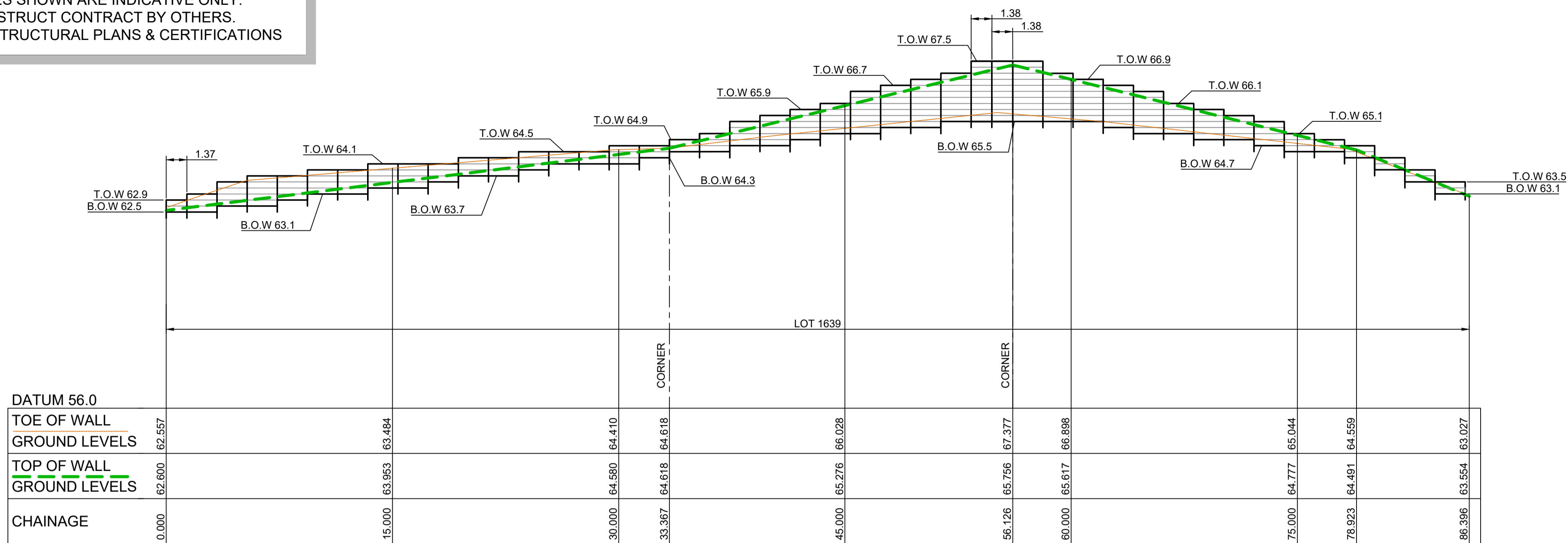
REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 5

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2515

PROJECT No: 110185-12
SHEET No: CC2515

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SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION



LONGITUDINAL SECTION RW11

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

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LEGEND

- CONCRETE PANELS I-BEAM RETAINING WALL
- SANDSTONE LOG RETAINING WALL

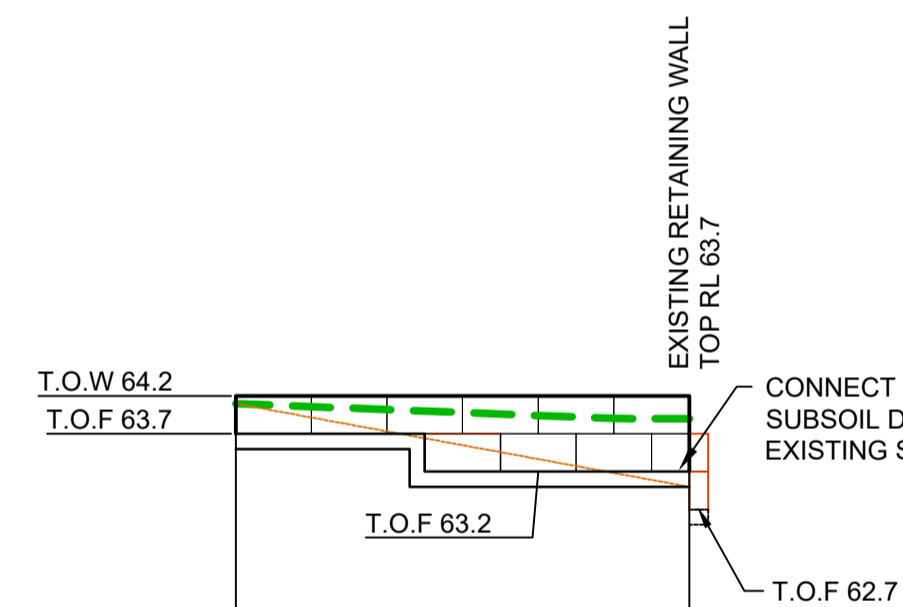
RW11			
CHAINAGE	EASTING	NORTHING	BEARING
0	286843.82	6281255.03	70°17'08.52"
33.37	286875.23	6281266.29	
56.13	286882.84	6281244.84	
86.4	286853.33	6281238.07	257°04'19.46"

RW12			
CHAINAGE	EASTING	NORTHING	BEARING
0	286893.54	6281276.04	70°17'08.52"
12	286904.83	6281280.08	70°17'08.52"

RW13			
CHAINAGE	EASTING	NORTHING	BEARING
0	286895.08	6281215.9	222°03'07.22"
12.67	286886.59	6281206.5	
38.64	286867.66	6281188.73	226°49'31.97"

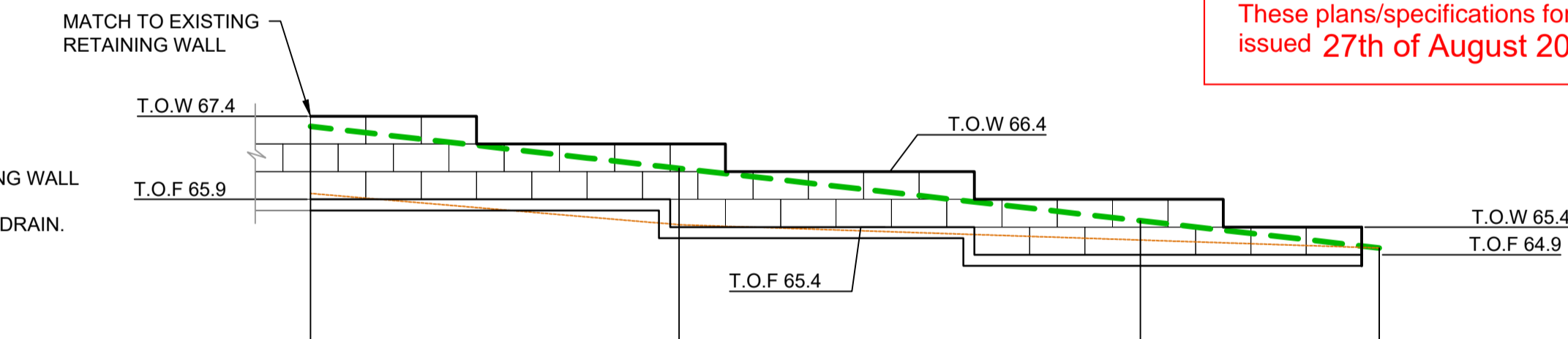
RW15 A			
CHAINAGE	EASTING	NORTHING	BEARING
0	286743.63	6281107.71	132°48'55.65"
16.34	286755.61	6281096.6	132°48'55.65"

RW15 B			
CHAINAGE	EASTING	NORTHING	BEARING
0	286755.95	6281096.97	132°48'55.65"
18.84	286769.77	6281084.16	132°48'55.65"



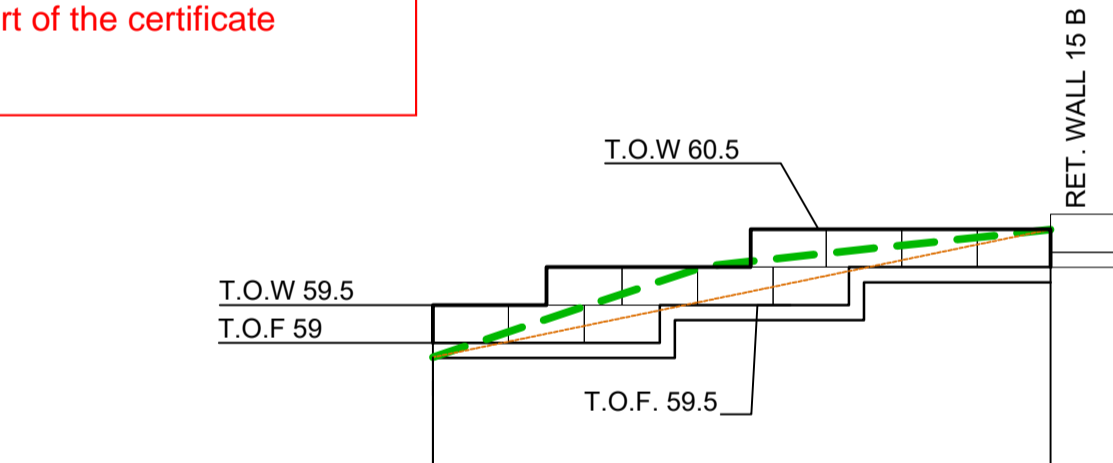
LONGITUDINAL SECTION RW12

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



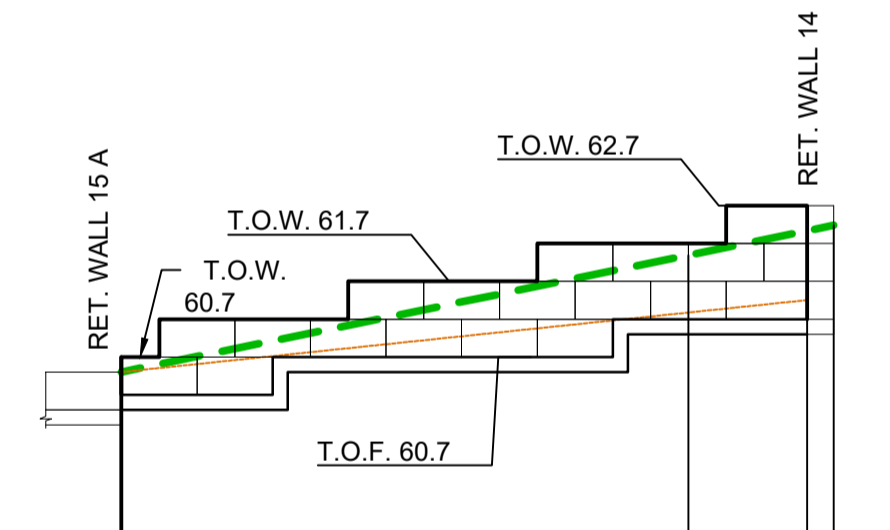
LONGITUDINAL SECTION RW13

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



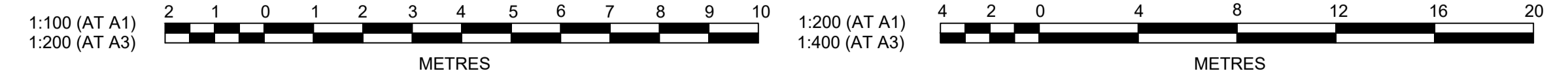
LONGITUDINAL SECTION RW15 A

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW15 B

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100

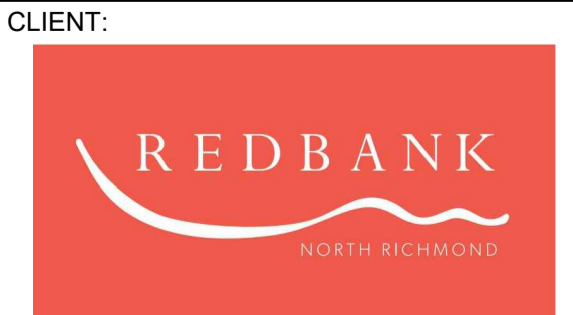


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AMENDMENT	DES	DRN	CKD	APR	DATE
D	MP	VS	RO	RO	29/06/21
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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ISSUE FOR CONSTRUCTION APPROVAL

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 6

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2516

PROJECT No: **110185-12**
SHEET No: **CC2516**

D

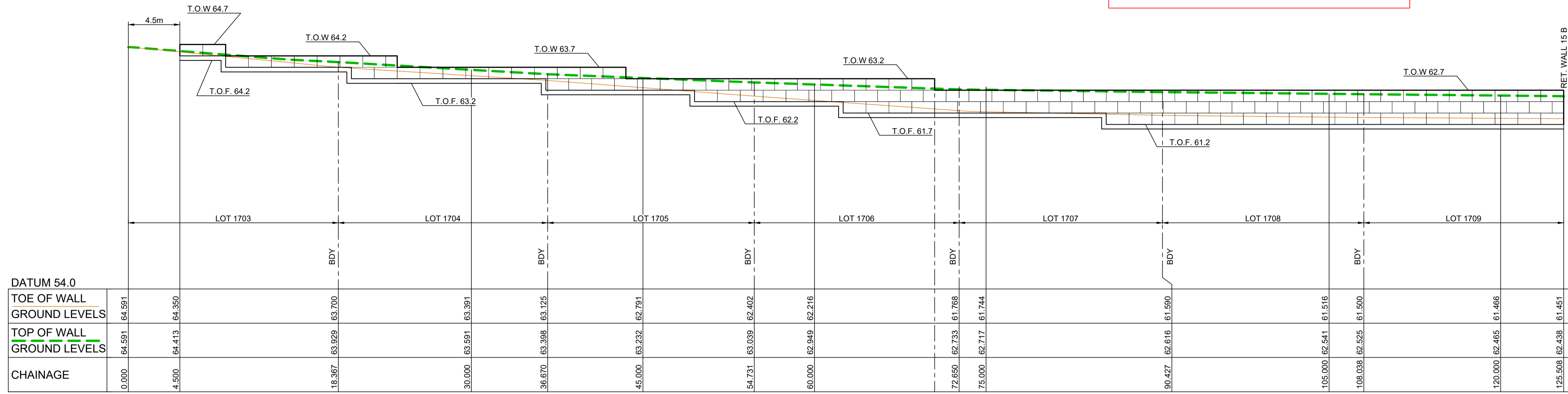
RETAINING WALL PROFILES SHOWN ARE INDICATIVE ONLY.
REFER TO DESIGN & CONSTRUCT CONTRACT BY OTHERS.
SUBJECT TO SEPARATE STRUCTURAL PLANS & CERTIFICATIONS

SUBJECT TO
STRUCTURAL DESIGN
AND CERTIFICATION

SUBDIVISION WORKS CERTIFICATE
Certificate No. 20130299SW62
Date of Issue 27/08/2021
Issuing Officer *D. Resta*
Accreditation No. BDC3367
These plans/specifications form part of the certificate issued 27th of August 2021

LEGEND

- CONCRETE PANELS I-BEAM RETAINING WALL
- SANDSTONE LOG RETAINING WALL



DATUM 54.0

TOE OF WALL	GROUND LEVELS	TOP OF WALL	GROUND LEVELS	CHAINAGE
0.000	64.591	64.591	64.591	0.000
4.500	64.413	64.413	64.413	4.500
18.367	63.929	63.700	63.991	18.367
30.000	63.591	63.391	63.391	30.000
38.670	63.398	63.125	63.125	38.670
45.000	63.232	62.791	62.791	45.000
54.731	63.039	62.402	62.402	54.731
60.000	62.949	62.216	62.216	60.000
72.650	62.733	61.768	61.768	72.650
75.000	62.717	61.744	61.744	75.000
90.427	62.616	61.590	61.590	90.427
105.000	62.541	61.516	61.516	105.000
108.038	62.525	61.500	61.500	108.038
120.000	62.465	61.466	61.466	120.000
125.508	62.438	61.451	61.451	125.508

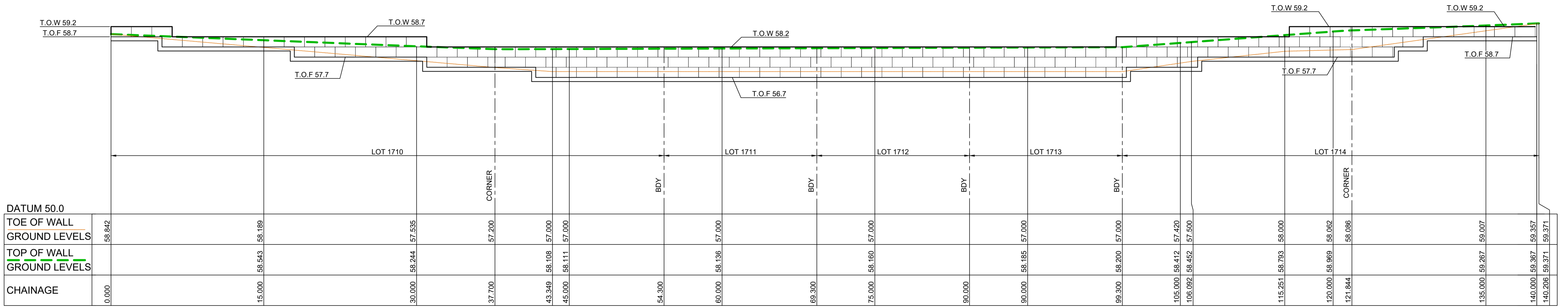
RW14

CHAINAGE	EASTING	NORTHING	BEARING
0	286853.38	6281177.09	222°13'15.00"
36.67	286828.74	6281149.94	
54.73	286816.6	6281136.56	
72.65	286904.58	6281123.29	
90.42	286792.61	6281110.14	
108.03	286780.72	6281097.15	
125.51	286768.91	6281084.26	222°28'42.32"

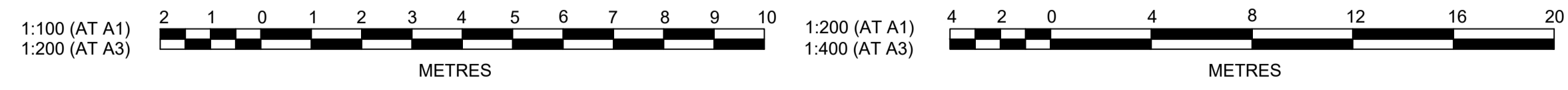
RW16

CHAINAGE	EASTING	NORTHING	BEARING
0	286731.45	6281118.99	312°48'55.67"
37.7	286703.8	6281144.61	
54.3	286715.08	6281156.79	
69.3	286725.27	6281167.79	
69.3	286725.27	6281167.79	
99.3	286745.66	6281189.8	
121.84	286760.99	6281206.33	
140.21	286772.01	6281191.64	143°06'42.10"

LONGITUDINAL SECTION RW14
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



LONGITUDINAL SECTION RW16
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:100



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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	25/03/21
B	MP	VS	RO	MS	12/03/21
A	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750
P 02 4720 3300 W www.jwprince.com.au E jwp@jwprince.com.au

CLIENT: **REDBANK**
NORTH RICHMOND

STATUS: **ISSUE FOR CONSTRUCTION APPROVAL**

THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
RETAINING WALLS LONGSECTIONS
SHEET 7

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2517

PROJECT No: **110185-12**
SHEET No: **CC2517**

SOIL AND WATER MANAGEMENT NOTES

GENERAL NOTES:

- ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "SOILS AND CONSTRUCTION - VOLUME 1, 4TH EDITION, MARCH 2004".
- TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
- ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILISED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
- ALL TAIL-OUT DRAINS SHALL BE COUCH GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
- VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
- ROADS SHALL BE PAVED AS EARLY AS POSSIBLE AFTER FORMATION.
- DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.
- ALL DISTURBED AREAS SHALL BE REVEGETATED AS SOON AS THE RELEVANT WORKS ARE COMPLETED.
- ALL SEDIMENT BASINS AND TRAPS SHALL BE CLEANED WHEN THE STRUCTURES ARE A MAXIMUM 60% FULL OF SOLID MATERIALS, INCLUDING DURING THE MAINTENANCE PERIOD.
- THE SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS, AND COUNCIL'S WRITTEN GUIDELINES FOR THE DEVELOPMENT OF LAND.
- CONTRACTORS SHALL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS SPECIFIED ON THE PLAN AND IN ACCORDANCE WITH THE GUIDELINES SHOWN IN "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION 4TH EDITION" (THE BLUE BOOK).
- ALL CONTRACTORS AND SUBCONTRACTORS ARE RESPONSIBLE FOR REDUCING THE SOIL EROSION AND POLLUTION OF DOWNSLOPE AREAS.
- THE SOIL EROSION HAZARD ON THE SITE IS TO BE KEPT AS LOW AS POSSIBLE AND GENERALLY IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

LAND USE	LIMITATION	COMMENTS
CONSTRUCTION AREAS	DISTURBANCE TO BE NO FURTHER THAN 5m (PREF 2m) FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON THESE PLANS	ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES - WHERE APPROPRIATE THE CONSTRUCTION AREAS ARE TO BE IDENTIFIED WITH BARRIER FENCING (DOWNSLOPE) OR SIMILAR MATERIAL.
ACCESS AREAS	LIMITED TO A MAXIMUM WIDTH OF 10m	THE SITE MANAGER SHALL DETERMINE AND MARK THE LOCATION OF THESE ZONES ONSITE. THEY CAN VARY IN POSITION TO BEST CONSERVE THE EXISTING VEGETATION AND PROTECT DOWNSTREAM AREAS WHILE BEING CONSIDERATE OF THE NEEDS OF EFFICIENT WORKS ACTIVITIES. ALL SITE WORKERS SHALL CLEARLY RECOGNISE THEIR BOUNDARIES. WHERE APPROPRIATE THE ACCESS AREAS ARE TO BE MARKED WITH BARRIER MESH, SEDIMENT FENCING OR SIMILAR MATERIALS.
REMAINING LANDS	ENTRY PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH	THINNING OF GROWTH MAY BE REQUIRED FOR FIRE HAZARD REDUCTION.

NOTE:
WORKS WITHIN WATERWAYS AND CREEKS SHALL BE RESTRICTED AS DIRECTED - ALL LANDS WITHIN CREEKS AND WATERWAYS SHALL HAVE A GROUND COVER MORE THAN 70%, USING MATERIALS THAT CAN CATER FOR CONCENTRATED FLOWS.

- WORKS ARE TO BE UNDERTAKEN IN THE FOLLOWING SEQUENCE. EACH SUBSEQUENT STAGE IS NOT TO COMMENCE UNTIL THE PREVIOUS ONE IS COMPLETE:-
 - INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 6-8.
 - CONSTRUCT STABILISED SITE ACCESS AS SHOWN ON THE PLAN AND TO DETAIL (SD) 6-14.
 - CONSTRUCT LOW FLOW EARTH BANKS WHERE SHOWN ON THE PLAN AND TO DETAIL (SD) 5-5.
 - PROVIDE TEMP. ACCESS TO THE SEDIMENT BASIN(S) AND PROTECT THIS WITH SEDIMENT FENCING (SD) 6-8 OR BARRIER FENCING AND EARTH BANKS (SD) 5-5.
 - PLACE SEDIMENT FENCING (SD) 6-8 DOWNSLOPE OF LANDS TO BE DISTURBED FOR CONSTRUCTION OF THE SEDIMENT BASINS.
 - CONSTRUCT SEDIMENT BASIN(S) GENERALLY IN ACCORDANCE WITH (SD) 6-4
 - STABILISE LAND SURFACES DISTURBED BY CONSTRUCTION OF THE SEDIMENT BASIN(S) AS SOON AS FINAL LEVELS ARE ESTABLISHED
 - CLEAR THE SITE AND STRIP AND STOCKPILE THE TOPSOIL IN THE LOCATIONS SHOWN ON THE PLAN OR AS DIRECTED BY THE SITE SUPERINTENDENT TO DETAIL (SD) 4-1.
 - UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS
 - GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 14 DAYS OF COMPLETION OF CONSTRUCTION WORKS
 - REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
- CLEARLY VISIBLE BARRIER FENCING SHALL BE INSTALLED WHERE DIRECTED BY THE SITE SUPERINTENDENT TO CONTROL AND PROHIBIT UNNECESSARY SITE DISTURBANCE
- EARTH BATTERS SHALL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER THAN:-
 - 2(h) - 1(v) WHERE SLOPE LENGTH IS LESS THAN 7m
 - 2.5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 7m AND 10m
 - 3(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 10m AND 12m
 - 4(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 12m AND 18m
 - 5(h) - 1(v) WHERE SLOPE LENGTH IS BETWEEN 18m AND 27m
 - 6(h) - 1(v) WHERE SLOPE LENGTH IS GREATER THAN 27m

SLOPE LENGTHS CAN BE SHORTENED BY USING LOW FLOW EARTH BANKS AS CATCH DRAINS ABOVE THE EARTH BATTER AREA.

- PROTECTION FROM EROSION FORCES SHALL BE UNDERTAKEN ON ALL LANDS. GROUND COVER TO BE IN PLACE WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION AND BEFORE THEY ARE ALLOWED TO CARRY ANY CONCENTRATED FLOWS.
- TEMPORARY GROUND COVER SHOULD BE MINIMUM 70%. FOOT AND VEHICULAR TRAFFIC SHALL BE KEPT AWAY FROM REHABILITATED AREAS.
- WHERE POSSIBLE THE CONSTRUCTION PROGRAM IS TO SCHEDULE WORKS SUCH THAT LAND DISTURBANCE ACTIVITIES ARE COMPLETED IN LESS THAN 6 MONTHS. REVEGETATION WORKS MUST BE CARRIED OUT AS STIPULATED IN THE RELEVANT COUNCIL GUIDELINES / SPECIFICATIONS SUCH THAT A SATISFACTORY GROUND COVER IS PROVIDED TO AT LEAST 60% OF THE DISTURBED AREA WITHIN 10 DAYS AND AT LEAST 70% OF THE DISTURBED AREA WITHIN A FURTHER 60 DAYS..
- SEDIMENT FENCES (SD) 6-8 SHALL:-
 - BE INSTALLED WHERE SHOWN ON THE PLAN AND AS DIRECTED AT THE DISCRETION OF THE SITE SUPERINTENDENT DURING THE COURSE OF CONSTRUCTION TO CONTAIN THE COARSER SEDIMENT FRACTIONS AS NEAR AS POSSIBLE TO THEIR SOURCE.
 - HAVE A CATCHMENT AREA NOT EXCEEDING 720sq.m. AND A STORAGE DEPTH OF AT LEAST 0.6m.
 - PROVIDE AN UPSLOPE RETURN OF 1m AT INTERVALS ALONG THE FENCE WHERE THE CATCHMENT AREA EXCEEDS 720sq.m. TO LIMIT THE DISCHARGE REACHING EACH SECTION TO 50litres/sec IN A MAX. 10yr Tc DISCHARGE.
- STOCKPILES (SD) 4-1 SHALL BE LOCATED AS SHOWN ON THE PLANS AND AT THE DISCRETION OF THE SITE SUPERINTENDENT.
- DURING WINDY WEATHER LARGE UNPROTECTED AREAS ARE TO BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL. IN THE EVENT WATER IS NOT AVAILABLE IN SUFFICIENT QUANTITIES SOIL BINDERS AND/OR DUST RETARDANTS SHALL BE USED OR THE SURFACE SHALL BE LEFT IN A CLODDY STATE THAT RESISTS REMOVAL BY WIND.
- STOCKPILES SHALL NOT BE LOCATED WITHIN 5m OF HAZARD AREAS, INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS OR DRIVEWAYS.
- THE SEDIMENT RETENTION BASINS (SD) 6-4 SHALL:-
 - BE CONSTRUCTED WHERE SHOWN ON THE PLANS.
 - BE FLOCCULATED (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) BEFORE DISCHARGE OCCURS (UNLESS THE DESIGN STORM EVENT IS EXCEEDED)
 - HAVE ONE OR MORE PEGS PLACED ON THE FLOOR TO CLEARLY INDICATE THE LEVEL AT WHICH DESIGN CAPACITY OCCURS AND WHEN SEDIMENT SHALL BE REMOVED.
- STORED CONTENTS OF THE BASINS SHALL BE TREATED WITH GYPSUM (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.) OR OTHER FLOCCULATING AGENTS WHERE THEY CONTAIN MORE THAN 50mg/litre OF SUSPENDED SOLIDS. TREATMENT SHALL BE AS FOLLOWS:-
 - LOWER SUSPENDED SOLIDS TO LESS THAN 50mg/litre WITHIN 24hrs OF FILLING
 - THE BASINS SHALL THEN BE ALLOWED TO STAND 36 TO 48hrs FOR FLOCCULATED PARTICLES TO SETTLE
 - THE BASINS SHALL THEN BE DRAINED SO THAT FULL STORAGE CAPACITY IS REGAINED WITHOUT DISCHARGING SEDIMENT FROM THE SITE.
- SEDIMENT REMOVED FROM ANY TRAPPING DEVICE SHALL BE DISPOSED IN LOCATIONS WHERE FURTHER EROSION AND CONSEQUENT POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS SHALL NOT OCCUR.
- WATER SHALL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS IT IS RELATIVELY SEDIMENT FREE (ie THE CATCHMENT HAS BEEN LANDSCAPED AND/OR ANY LIKELY SEDIMENT HAS BEEN TREATED IN AN APPROVED DEVICE) NEVERTHELESS STORMWATER INLETS SHALL BE PROTECTED (SD) 6-11 & 6-12.
- TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES SHALL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE STABILISED.
- ACCEPTABLE BINS SHALL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES SHALL BE PROVIDED AT LEAST ONCE A WEEK.

STOCKPILE NOTES:

- SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
- IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
- FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATED.

SEDIMENTATION CONTROL DEVICES:

- ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 600mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINER.
- SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2.5m CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.
- PROVIDE STRIP OF TURF (COUCH OR BUFFALO VARIETY) WITHIN THE ROAD VERGE + 1m WIDE AROUND ALL SURFACE INLET PITS

SITE INSPECTION AND MAINTENANCE:

- A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON AN INSPECTION TEST PLAN (ITP) OR LOG BOOK. A SITE INSPECTION USING THE ITP SHALL BE MADE BY THE SITE MANAGER:-
 - AT LEAST WEEKLY
 - IMMEDIATELY BEFORE SITE CLOSURE
 - IMMEDIATELY FOLLOWING RAINFALL EVENTS IN EXCESS OF 5mm IN ANY 24hr PERIOD.

THE SELF AUDIT SHALL INCLUDE:-

 - RECORDING THE CONDITION OF EVERY 'BEST MANAGEMENT PRACTICE' EMPLOYED
 - RECORDING MAINTENANCE REQUIREMENTS (IF ANY) FOR EACH 'BEST MANAGEMENT PRACTICE'
 - RECORDING THE VOLUMES OF SEDIMENT REMOVED FROM SEDIMENT RETENTION SYSTEMS WHERE APPLICABLE
 - RECORDING THE SITE WHERE SEDIMENT IS DISPOSED
 - FORWARDING A SIGNED DUPLICATE OF THE COMPLETED CHECK SHEET TO THE PROJECT MANAGER/DEVELOPER FOR THEIR INFORMATION.
- IN ADDITION A SUITABLY QUALIFIED PERSON SHALL BE RESPONSIBLE FOR OVERSEEING THE INSTALLATION AND MAINTENANCE OF ALL SOIL AND WATER MANAGEMENT WORKS ON THE SITE. THE PERSON SHALL BE REQUIRED TO SPEND A MINIMUM OF:-
 - 2hrs ONSITE EACH FORTNIGHT UP UNTIL COMPLETION OF ROAD AND DRAINAGE WORKS AND/OR THE COMMISSIONING OF SEDIMENT BASIN(S)/WATER QUALITY CONTROL FACILITIES, AND DURING THE DECOMMISSIONING OF SAME AND/OR FINAL SITE STABILISATION. TO PROVIDE A SHORT MONTHLY WRITTEN REPORT.
 - ONE HOUR ONSITE EACH 2 MONTHS DURING THAT PHASE WHERE THE DEVELOPERS RESPONSIBILITIES ARE LIMITED TO MAINTENANCE OF THE SDS DEVICES AND/OR SEDIMENT BASINS (ie DURING THE STAGE WHEN BUILDING WORKS CAN BE UNDERTAKEN) TO PROVIDE A SHORT WRITTEN REPORT EACH 4 MONTHS

THE RESPONSIBLE PERSON SHALL ENSURE THAT:-

 - THIS PLAN IS BEING IMPLEMENTED CORRECTLY
 - REPAIRS ARE BEING UNDERTAKEN AS REQUIRED
 - ESSENTIAL MODIFICATIONS TO THIS PLAN ARE BEING MADE IF AND WHEN NECESSARY. EACH REPORT SHALL CERTIFY THAT WORKS HAVE BEEN CARRIED OUT ACCORDING TO THE APPROVED PLANS.
- WASTE BINS SHALL BE EMPTIED AS NECESSARY, DISPOSAL OF WASTE SHALL BE IN A MANNER APPROVED BY THE SITE SUPERINTENDENT
- PROPER DRAINAGE OF THE SITE SHALL BE MAINTAINED. DRAINS (INCLUDING INLET AND OUTLET WORKS) SHALL BE CHECKED TO ENSURE THAT THEY ARE OPERATING AS INTENDED, ESPECIALLY THAT:-
 - NO LOW POINTS EXIST WHICH CAN OVERTOP IN A LARGE STORM EVENT.
 - AREAS OF EROSION ARE REPAIRED (ie G LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
 - CLOGGAGES ARE CLEARED (THESE MIGHT OCCUR BECAUSE OF SEDIMENT POLLUTION, SAND/SOIL/SPOIL BEING DEPOSITED IN OR TOO CLOSE TO THEM, BREACHED BY VEHICLE WHEELS etc)
- SAND/SOIL/SPOIL MATERIALS PLACED CLOSER THAN 2m FROM HAZARD AREAS SHALL BE REMOVED SUCH HAZARD AREAS INCLUDE ANY AREAS OF HIGH VELOCITY WATER FLOWS (eg WATERWAYS AND GUTTERS) PAVED AREAS AND DRIVEWAYS.
- RECENTLY STABILISED LANDS SHALL BE CHECKED TO ENSURE THAT THE EROSION HAZARD HAS BEEN EFFECTIVELY REDUCED. ANY REPAIRS SHALL BE INITIATED AS APPROPRIATE.
- EXCESSIVE VEGETATIVE GROWTH SHALL BE CONTROLLED THROUGH MOWING OR SLASHING.
- ALL SEDIMENT DETENTION SYSTEMS SHALL BE KEPT IN GOOD WORKING CONDITION. IN PARTICULAR ATTENTION SHALL BE GIVEN TO:-
 - RECENT WORKS TO ENSURE THAT THEY HAVE NOT RESULTED IN DIVERSION OF SEDIMENT LADEN WATER AWAY FROM THEM.
 - DEGRADABLE PRODUCTS TO ENSURE THAT THEY ARE REPLACED AS REQUIRED
 - SEDIMENT REMOVAL TO ENSURE THE DESIGN CAPACITY OR LESS REMAINS IN THE SETTLING ZONE.
- ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS SHALL BE CONSTRUCTED AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS (ie MAKE ONGOING CHANGES TO THIS PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECT TO CHANGES IN CONDITIONS AT THE WORKS SITE OR ELSEWHERE IN THE CATCHMENT.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED IN A FUNCTIONING CONDITION UNTIL ALL EARTHWORKS ACTIVITIES ARE COMPLETED AND THE SITE STABILISED.
- WATERS IN SEDIMENT RETENTION BASIN(S) THAT OCCUPY MORE THAN 1/4 OF THE DESIGN CAPACITY DURING THAT STAGE OF THE WORKS UP UNTIL COMMISSIONING OF THE BASIN(S) SHALL BE:-
 - TREATED WITH A FLOCCULATING AGENT (APPENDIX E MANAGING URBAN STORMWATER SOILS & CONSTRUCTION 4TH ED.)
 - DISCHARGED WITHIN 5 days FROM THE CONCLUSION OF ANY STORM EVENT LARGE ENOUGH TO FILL THE BASIN TO THAT LEVEL.
- LITTER, DEBRIS AND COARSE SEDIMENT SHALL BE REMOVED FROM THE GROSS POLLUTANT TRAPS AND TRASH RACKS AS REQUIRED.

SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62

Date of Issue 27/08/2021

Issuing Officer *D. Restin*

Accreditation No. BDC3367

These plans/specifications form part of the certificate issued 27th of August 2021

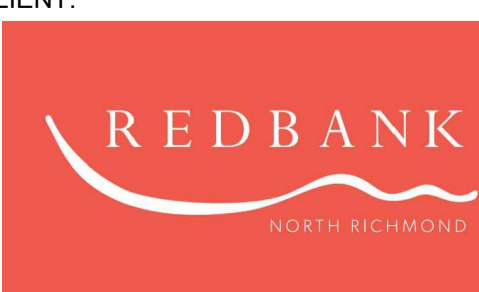
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C	SEDIMENTATION CONTROL DEVICE NOTE REVISED	JET	JET	MP	RO	29/04/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21
	AMENDMENT	DES	DRN	CKD	APR	DATE

J. WYNDHAM PRINCE
CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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CLIENT:



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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
SOIL & WATER MANAGEMENT NOTES

PROJECT No:
110185-12
SHEET No:
CC2700

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2700

C

**SEDIMENT BASIN VOLUME CALCULATIONS
(TYPE D/ F SOILS)**

BASIN VOLUME = SETTLING ZONE VOLUME + SEDIMENT STORAGE ZONE VOLUME

SETTLING ZONE VOLUME

THE SETTLING ZONE VOLUME FOR TYPE D SOILS IS CALCULATED TO PROVIDE CAPACITY TO CONTAIN ALL RUNOFF EXPECTED FROM UP TO THE 85th PERCENTILE RAINFALL EVENT. THE SETTLING ZONE VOLUME (V) CAN BE DETERMINED FROM THE FOLLOWING:

$$V = 10 \cdot C_v \cdot A \cdot R(85th\ i.e.,5day) \cdot m^3$$

where

10 = CONVERSION FACTOR

$C_v = 0.5$ = THE VOLUMETRIC RUNOFF COEFFICIENT,

DEFINED AS THAT PORTION OF RAINFALL THAT RUNS OFF AS STORMWATER OVER THE 5 DAY PERIOD.

$R = 29.5$ = IS THE 5 DAY TOTAL RAINFALL DEPTH (mm)

WHICH IS NOT EXCEEDED IN 85 PERCENT OF RAINFALL EVENTS (SEE TABLE IN SEC.6.3.3 "MANAGING URBAN STORMWATER SOILS & CONSTRUCTION" 4th edition).

CATCHMENT A

CATCHMENT A AREA = 1.38ha

SETTLING VOLUME = $(10 \times 0.5 \times 1.38 \times 29.5) = 204m^3$

CATCHMENT B

CATCHMENT B AREA = 0.62ha

SOIL LOSS = 120 m³/ha/yr - NO SEDIMENT BASIN IS REQUIRED.

SEDIMENT STORAGE ZONE VOLUME

THE SEDIMENT STORAGE ZONE VOLUME CAN BE CALCULATED AS BEING EQUAL TO THE AVERAGE 2 MONTH SOIL LOSS FROM THE DISTURBED AREAS OF THE CATCHMENT. THIS VOLUME (V) IS DETERMINED BY THE REVISED UNIVERSAL SOIL LOSS EQUATION (RUSLE):

APPENDIX A "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION" 4th edition.

$$V = 0.12 \cdot A \cdot (R \cdot K \cdot L_s \cdot P \cdot C) / 1.3 \cdot m^3$$

where

0.12 = A FACTOR CONVERTING ANNUAL ESTIMATED SOIL LOSS TO THE 2 MONTH SOIL LOSS

$R = 2,500$ = RUSLE R FACTOR

$K = 0.03$ = RUSLE K FACTOR

$L_s = 3.05$ = RUSLE Ls FACTOR

$P = 1.3$ = RUSLE P FACTOR

$C = 1$ = RUSLE C FACTOR

1.3 = A FACTOR TO CONVERT TONNES TO CUBIC METRES BASED ON A TYPICAL DENSITY OF SATURATED SEDIMENT OF 1.3

TOTAL SEDIMENT BASIN A

SEDIMENT STORAGE = 50% of settling zone capacity

SEDIMENT BASIN VOLUME REQUIRED = 204m³ + 102m³

REQUIRED VOLUME 305 m³

AVAILABLE VOLUME 338 m³

SEDIMENT BASIN A

H = 1.5m

INVERT RL 43.2

EMBANKMENT 1.0m WIDE

FREEBOARD 0.3m

PROVIDE BAFFLE TO IMPROVE FLOW CIRCULATION AND SEDIMENT SETTLEMENT

1:3 BATTER

IL 44.75

IL 44.92

BLOCK OUTLET END AND PROVIDE OUTLET TO SEDIMENT BASIN

AREA NOT TO BE DISTURBED. REFER LANDSCAPE ARCHITECT PLANS FOR TREE PROTECTION ZONE DETAILS

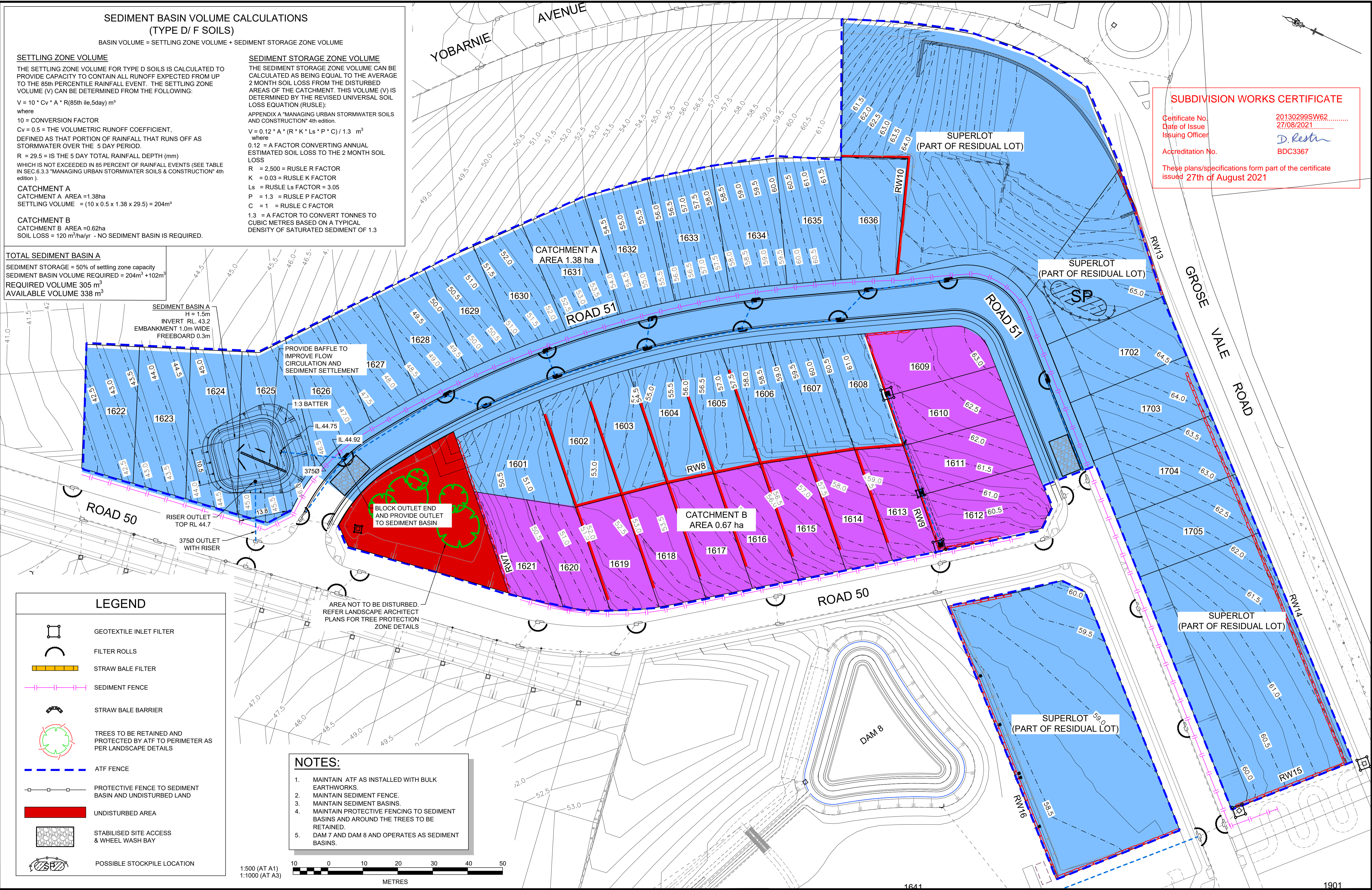
NOTES:

1. MAINTAIN ATF AS INSTALLED WITH BULK EARTHWORKS.
2. MAINTAIN SEDIMENT FENCE.
3. MAINTAIN SEDIMENT BASINS.
4. MAINTAIN PROTECTIVE FENCING TO SEDIMENT BASINS AND AROUND THE TREES TO BE RETAINED.
5. DAM 7 AND DAM 8 AND OPERATES AS SEDIMENT BASINS.

SUBDIVISION WORKS CERTIFICATE

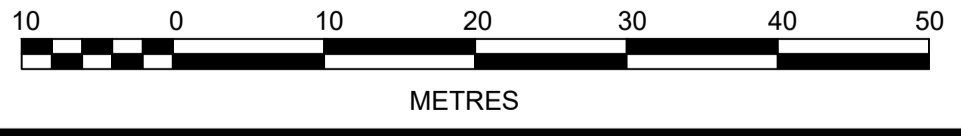
Certificate No. 20130299SW62
Date of Issue 27/08/2021
Issuing Officer *D. Resta*
Accreditation No. BDC3367

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LEGEND

- GEOTEXTILE INLET FILTER
- FILTER ROLLS
- STRAW BALE FILTER
- SEDIMENT FENCE
- STRAW BALE BARRIER
- TREES TO BE RETAINED AND PROTECTED BY ATF TO PERIMETER AS PER LANDSCAPE DETAILS
- ATF FENCE
- PROTECTIVE FENCE TO SEDIMENT BASIN AND UNDISTURBED LAND
- UNDISTURBED AREA
- STABILISED SITE ACCESS & WHEEL WASH BAY
- POSSIBLE STOCKPILE LOCATION



AMENDMENT	DES	DRN	CKD	APR	DATE
E PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	24/08/21
D LOT BOUNDARY AMENDED	MP	NM	RO	RO	13/08/21
C SEDIMENT FENCE REALIGNED	MP	VS	RO	RO	29/06/21
B ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21

J. WYNDHAM PRINCE
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CLIENT: **REDBANK**
NORTH RICHMOND

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REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
SOIL & WATER MANAGEMENT PLAN

PROJECT No: 110185-12
SHEET No: CC2701

PLAN No: 110185-12-CC2701

PROJECT No: 110185-12
SHEET No: CC2701

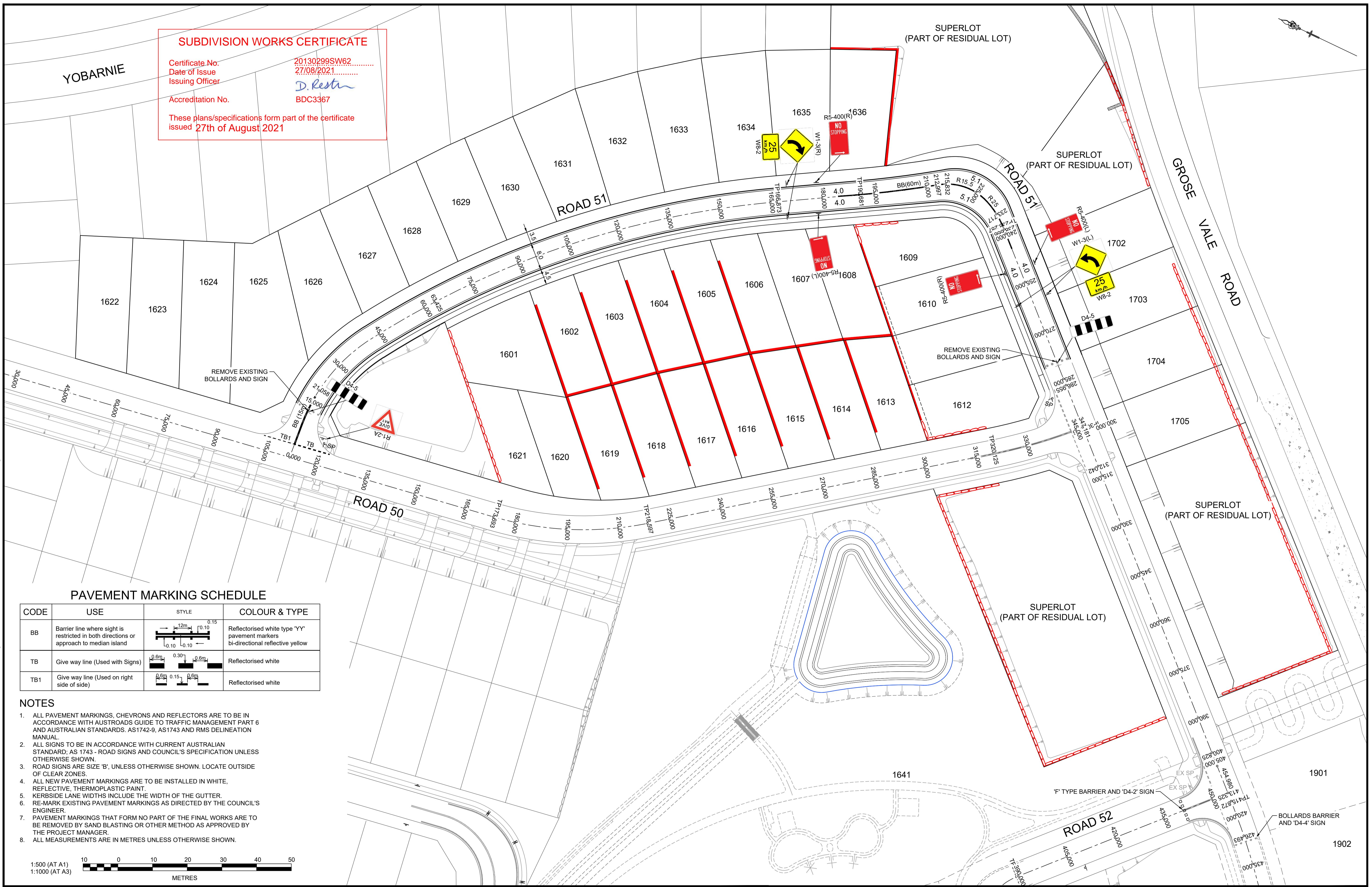
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Plotted: 25 August, 2021, 3:30:05 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DANCDCCSOUTHERN HEIGHTS2-SH110185-12-CC2701.dwg

SUBDIVISION WORKS CERTIFICATE

Certificate No. 20130299SW62
 Date of Issue 27/08/2021
 Issuing Officer *D. Restin*
 Accreditation No. BDC3367

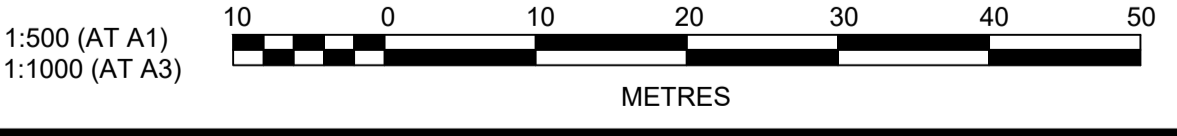
These plans/specifications form part of the certificate issued 27th of August 2021



PAVEMENT MARKING SCHEDULE

CODE	USE	STYLE	COLOUR & TYPE
BB	Barrier line where sight is restricted in both directions or approach to median island		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white

- NOTES**
- ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH AUSTRALIAN GUIDE TO TRAFFIC MANAGEMENT PART 6 AND AUSTRALIAN STANDARDS. AS1742-9, AS1743 AND RMS DELINEATION MANUAL.
 - ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD; AS 1743 - ROAD SIGNS AND COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN.
 - ROAD SIGNS ARE SIZE 'B', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
 - ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
 - KERBSIDE LANE WIDTHS INCLUDE THE WIDTH OF THE GUTTER.
 - RE-MARK EXISTING PAVEMENT MARKINGS AS DIRECTED BY THE COUNCIL'S ENGINEER.
 - PAVEMENT MARKINGS THAT FORM NO PART OF THE FINAL WORKS ARE TO BE REMOVED BY SAND BLASTING OR OTHER METHOD AS APPROVED BY THE PROJECT MANAGER.
 - ALL MEASUREMENTS ARE IN METRES UNLESS OTHERWISE SHOWN.



Plotted: 25 August, 2021 4:03:35 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\12 - Stage 1 DANCDC\CC\SOUTHERN HEIGHTS\2-SH110185-12-CC2800.dwg

REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
E	PRIVATE CERTIFIER COMMENTS	MP	MP	RO	RO	24/08/21
D	ROAD 51 ALIGNMENT UPDATED	MP	NA	RO	RO	17/06/21
C	SIGNAGE AND LINEMARKING REVISED	JET	JET	MP	RO	26/05/21
B	ADDITIONAL RETAINING WALLS ADDED	MP	VS	RO	MS	12/03/21
A	ISSUE FOR CLIENT REVIEW	MP	VS	RO	MS	24/02/21
	AMENDMENT	DES	DRN	CKD	APR	DATE

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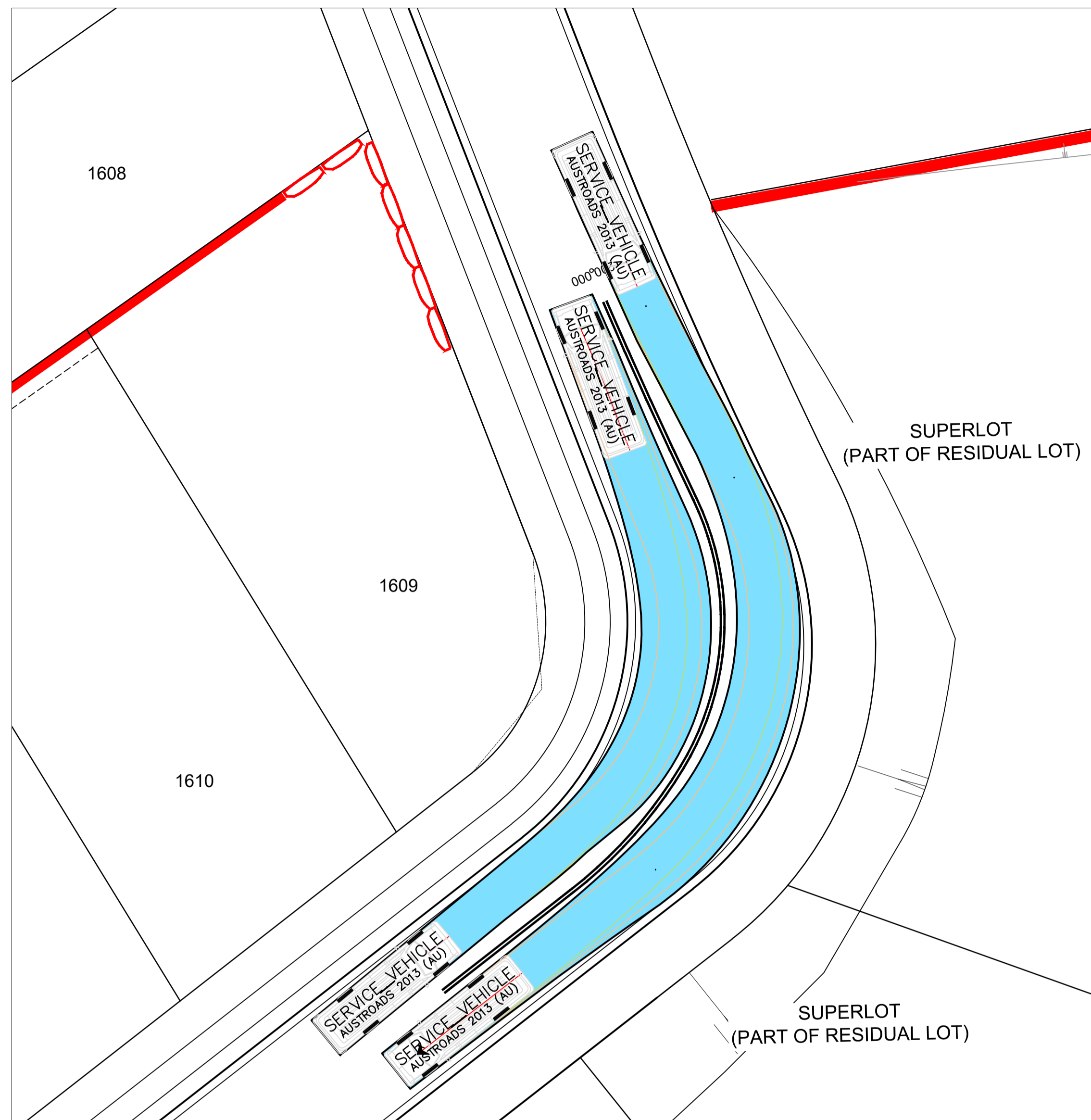
REDBANK, NORTH RICHMOND SOUTHERN HEIGHTS - SWC
 SIGNAGE AND LINE MARKING PLAN

PROJECT No: 110185-12
 SHEET No: CC2800

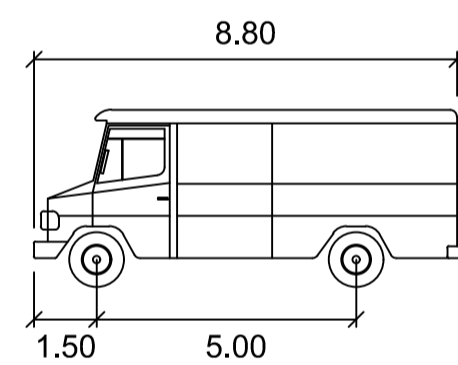
PLAN No: 110185-12-CC2800

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2800

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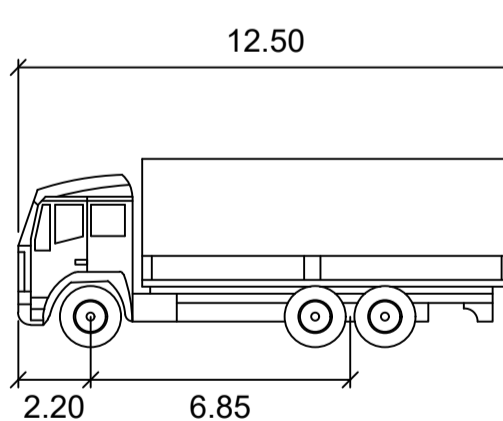


PLAN
SCALE 1:200



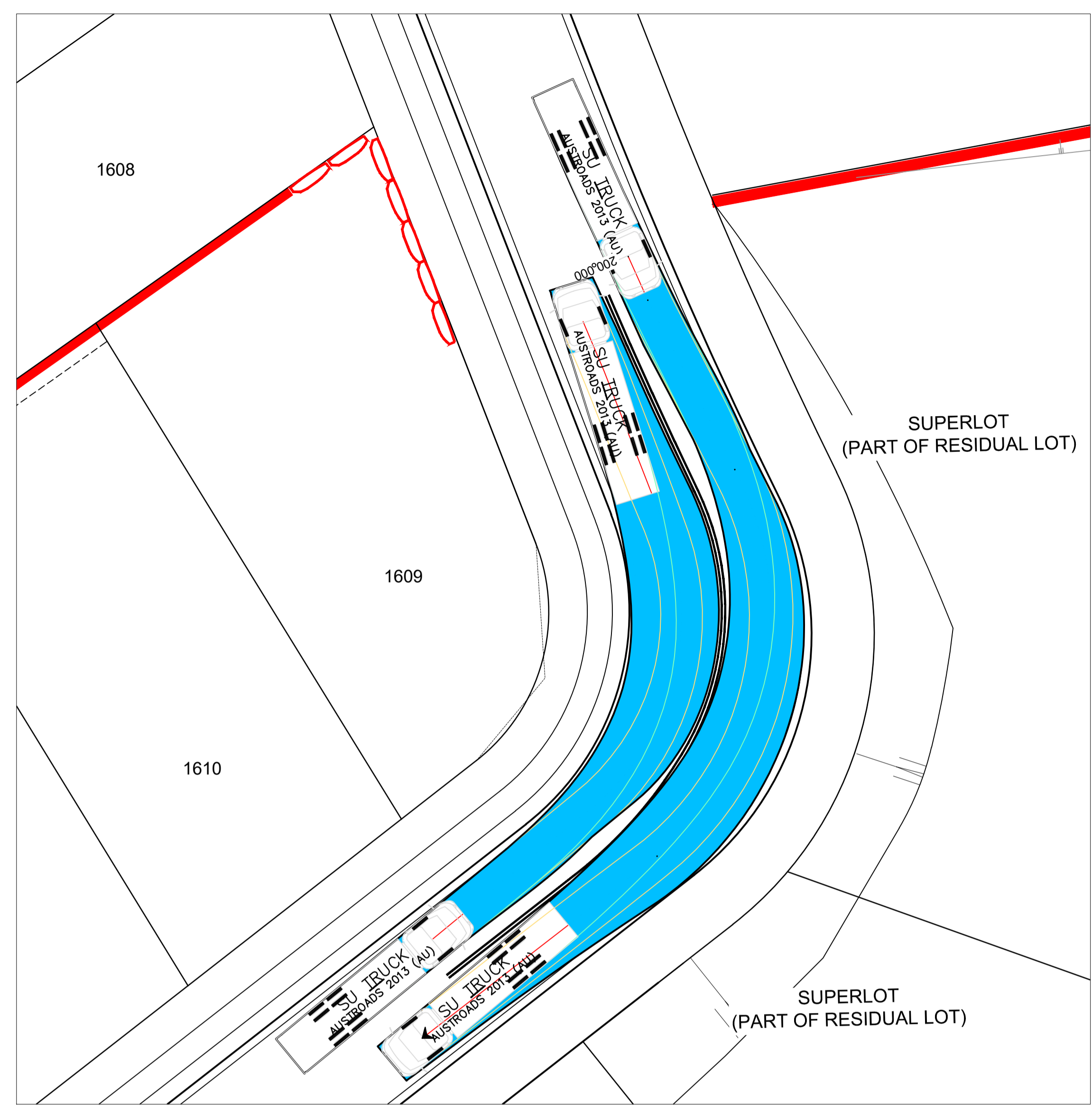
SERVICE VEHICLE

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 38.7



SU TRUCK

	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

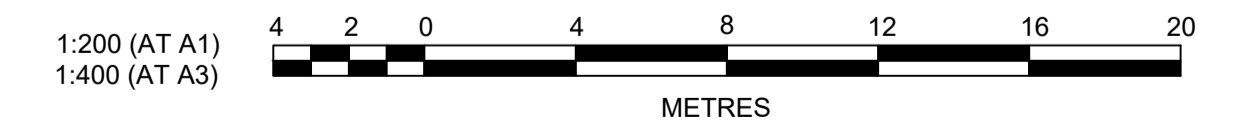


PLAN
SCALE 1:200

SUBDIVISION WORKS CERTIFICATE

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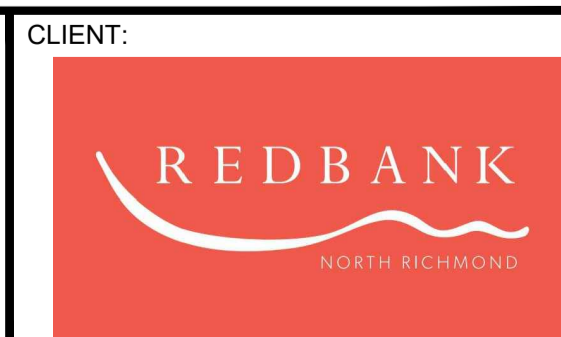
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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	24/08/21
B	MP	NA	RO	RO	17/06/21
A	JET	JET	MP	RO	26/05/21

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REDBANK, NORTH RICHMOND
SOUTHERN HEIGHTS - SWC
SWEEP PATH PLAN

AZIMUTH: M.G.A. DATUM: A.H.D. ORIGIN: PLAN No: 110185-12-CC2900

PROJECT No:
110185-12
SHEET No:
CC2900

C