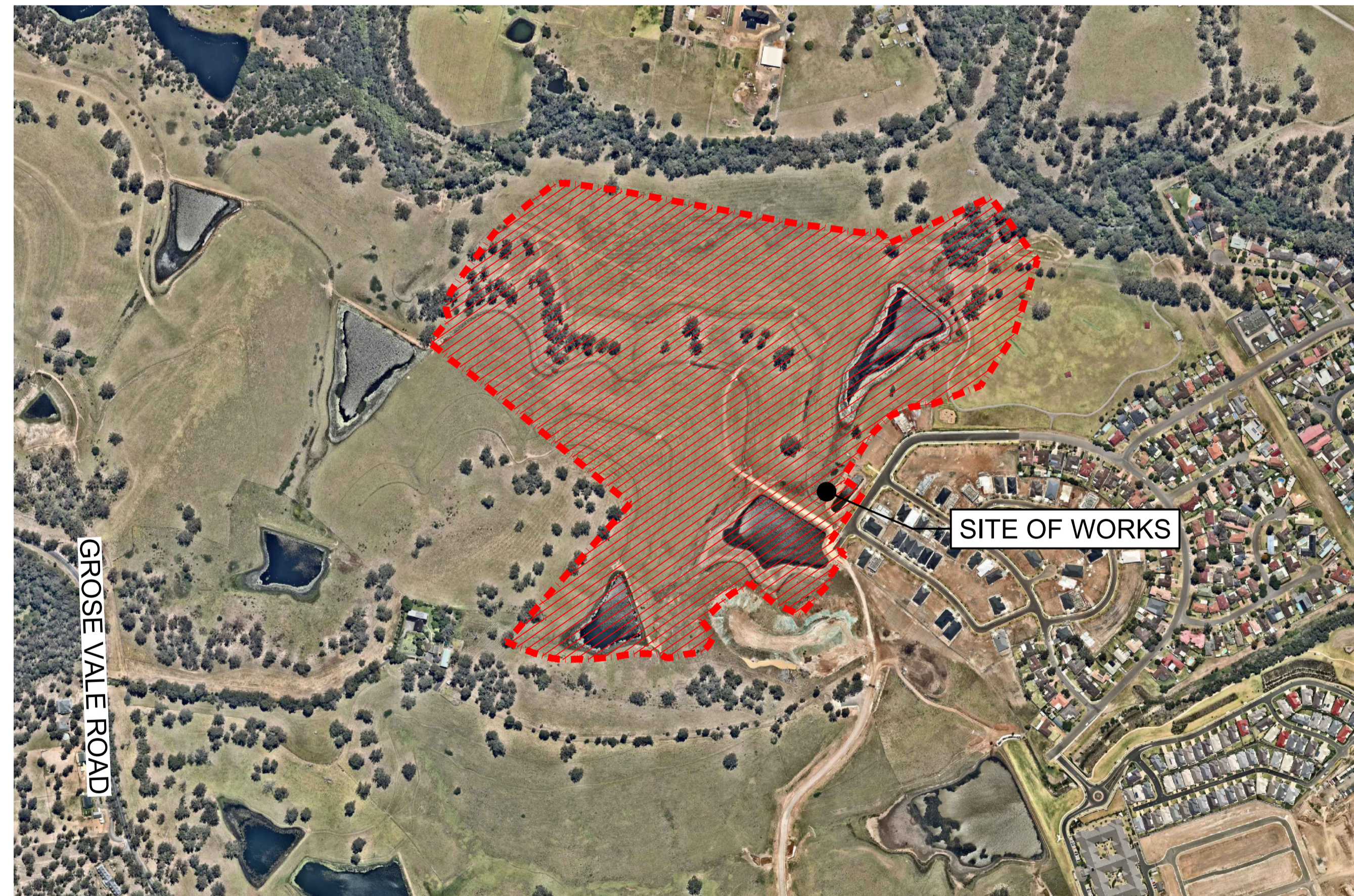




# REDBANK - YEOMANS NORTH PRECINCT PROPOSED LOT, ROAD & DRAINAGE WORKS CONSTRUCTION CERTIFICATE

HAWKESBURY CITY COUNCIL REF: DA0216/16



LOCALITY SKETCH

Prepared By:

**J. WYNDHAM PRINCE**

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CONSTRUCTION CERTIFICATE	
Certificate No.	20130299C42
Date of Issue	5 March 2018
Issuing Officer	<i>Jerry Prince</i>
Accreditation No.	BPB0565
These plans/specifications form part of the certificate issued 5 March 2018	

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

LOT LAYOUT PLAN OF PROPOSED SUBDIVISION REF: 16800-6-P3(C) & 16800-12-L3(B)

**ISSUED FOR CONSTRUCTION APPROVAL**

PLAN No.  
**11018511/CC000 B**

FILE No. 11018511CC000

Plotted: 25 January, 2018 4:29:36 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC01\YEOMANS11018511CC001.dwg

LEGEND			
DESCRIPTION	PROPOSED	EXISTING	FUTURE
EXTENT OF WORKS			
KERB & GUTTER			
ROLL KERB			
KERB ONLY			
SLOTTED KERB			
EDGE RESTRAINT			
DISH CROSSING			
PRAM RAMP			
DRAINAGE LINE, PIT & EASEMENT			
DRAINAGE LINE & PIT			
HEADWALL			
GUIDE POSTS			
EXTENT OF FILL			
EXTENT OF CUT			
CONTOURS			
CATCH DRAIN			
SUBSOIL DRAIN			
KERB RETURN No			
ELECTRICITY, POWER POLE			
TELECOM, BOX			
WATER, STOP VALVE, HYDRANT			
SEWER, MANHOLE			
GAS			
OPEN SPACE STRUCTURAL FENCING			
TREES TO BE PROTECTED			
TREES TO BE REMOVED			
STREET NAME SIGNS			
SURVEY MARKS - BENCH MARKS			
STATE SURVEY MARKS			
TRANSMISSION LINE POWER POLES			

**NOTE:**  
EARTHWORKS AND SITE PREPARATION TO BE UNDERTAKEN IN ACCORDANCE WITH SALINITY ASSESSMENT REPORT PREPARED BY GEOTECHNIQUE PTY. LTD. (REFERENCE 12261 / 18 - AC - R1 DATED 7TH JUNE 2017)

### GENERAL NOTES

- ALL WORKS ARE TO BE IN ACCORDANCE WITH HAWKESBURY CITY COUNCIL CIVIL WORKS SPECIFICATION - APPENDIX E. WHERE DISCREPANCIES OCCUR BETWEEN NOTES PRESENT ON DRAWINGS AND COUNCIL'S NOTES, RFI TO BE RAISED WITH THE SUPERINTENDENT FOR INSTRUCTION TO BE ISSUED.
- THE CONTRACTOR SHALL 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 CLIENT AND SUPERINTENDENT. PERMISSION TO BE PROVIDED PRIOR TO THE APPROVAL OF THE PLANS.
- THE CONTRACTOR SHALL MAINTAIN SERVICES AND ALL WEATHER ACCESS AT ALL TIMES TO ADJOINING PROPERTIES.
- NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF SUPERINTENDENT AND CLIENT'S SPECIALIST CONSULTANTS, IF DIFFERENT TO APPROVED TREE RETENTION / REMOVAL PLAN. REFER TO ARTERRA'S TREES RETAINED/REMOVED PLAN.
- TREES TO BE RETAINED ON SITE SHALL BE PROTECTED BY SUITABLE STURDY APPROVED PROTECTIVE FENCING PRIOR TO COMMENCEMENT OF SITE WORKS AND INSPECTED AND APPROVED BY SITE SUPERINTENDENT BEFORE ANY TREE IS REMOVED WITHIN THE SITE.
- THE CONTRACTOR SHALL CLEAR THE SITE BY REMOVING ALL RUBBISH, FENCES, AND DEBRIS ETC.
- 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 AUTHORITY TO DO SO HAS BEEN OBTAINED FROM THE PRINCIPAL'S NOMINATED CONSULTANTS FOR BOTH GEOTECHNICAL AND CONTAMINATION.
- SITE FILL AREAS: - THE CONTRACTOR SHALL TAKE LEVELS OF EXISTING SURFACE AFTER STRIPPING TOPSOIL AND PRIOR TO COMMENCING FILL OPERATIONS.
- 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.
- 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.
- SERVICE ADJUSTMENTS TO BE AT CLIENT (PRINCIPAL)'S EXPENSE.
- IF TWO OF MORE SPECS ARE APPLICABLE FOR PARTICULAR ELEMENT, AREA, ZONE OR PHASE OF WORK, THE PREVALENCE OF THESE MULTIPLE SPECIFICATIONS IS TO BE IDENTIFIED BY THE CONTRACTOR TO THE SUPERINTENDENT FOR DIRECTION / INSTRUCTION, NOTING THAT IS THE INTENTION OF THIS CONSTRUCTION CERTIFICATE SET AND ITS APPROVAL BY THE ACCREDITED CERTIFIER FOR THE HIGHER SPECIFICATION TO BE SELECTED BY THE SUPERINTENDENT FOR APPLICATION BY THE CONTRACTOR.

### COMPACTION SPECIFICATION

- WITHIN FULL WIDTH OF ROAD CARRIAGEWAY PLUS 1.0M EITHER SIDE -
  - 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".
  - 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".
  - 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".
  - 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.
  - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF PAVEMENT, TAKEN 1.0M FROM ALTERNATE SIDES OF PAVEMENT, BY A NAT REGISTERED LABORATORY.
  - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
  - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN FULL WIDTH OF ROAD FOOTPATH / VERGE EXCLUDING 1.0M BESIDE ROAD CARRIAGEWAY EITHER SIDE -
  - 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 AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO".
  - ALL TESTS TO BE TAKEN EVERY 50 METRE LENGTH OF ROAD FOOTPATH / VERGE ON CENTRELINER, BY A NAT REGISTERED LABORATORY
  - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING ROAD FOOTPATH / VERGE.
  - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NAT REGISTERED LABORATORY.
  - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
  - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.
- WITHIN LOTS -
  - 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 AS 1289 5.4.1-2007 "COMPACTION CONTROL TEST - DRY DENSITY RATIO, MOISTURE VARIATION AND MOISTURE RATIO". 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.
  - ALL TESTS TO BE A MINIMUM OF TWO COMPACTION TESTS PER LOT PER LAYER ARE TO BE CARRIED OUT, BY A NAT REGISTERED LABORATORY.
  - ALL TRENCHES TO BE BACKFILLED TO HAVE EQUAL COMPACTION (+2%/-0% VARIATION) AS THE SURROUNDING LOTS.
  - ALL TRENCH TESTS TO BE TAKEN IN EACH 300MM LAYER AND EVERY 50 METRES OF TRENCH, BY A NAT REGISTERED LABORATORY.
  - THESE AND ALL OTHER REQUIREMENTS TO BE COMPLIED WITH, TO BE READ IN CONJUNCTION WITH HAWKESBURY CITY COUNCIL DCP PART II - CONSTRUCTION SPECIFICATION.
  - ANY ERRORS, OMISSIONS OR QUERIES TO BE SUBMITTED TO THE PROJECT SUPERINTENDENT FOR INSTRUCTION.

### STORMWATER NOTES

- STORMWATER DESIGN CRITERIA:  
AVERAGE RECURRENT INTERVAL:  
1:100 MAJOR SYSTEM  
1:5 MINOR SYSTEM
- PIPES TO BE INSTALLED TO TYPE HS1 SUPPORT IN ACCORDANCE WITH AS 3725 (1989) IN ALL CASES BACKFILL TRENCH WITH SAND TO 300mm ABOVE PIPE. WHERE PIPE IS UNDER PAVEMENTS BACKFILL REMAINDER OF TRENCH TO UNDERSIDE OF PAVEMENT WITH SAND OR APPROVED GRANULAR MATERIAL COMPACTED IN 300mm LAYERS TO MINIMUM 100% STANDARD MAXIMUM DRY DENSITY IN ACCORDANCE WITH AS 1289 5.2.1. (OR A DENSITY INDEX OF NOT LESS THAN 75)
- 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: -
  - 1.2m WIDE FOR PIPELINE < 225Ø TO BE CREATED.
  - 2.5m WIDE FOR PIPELINE > 300Ø TO BE CREATED
  - 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 OR FRC CLASS 2.
- 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 15.0%, 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.

### SURVEY SET OUT INFORMATION NOTES:

- ALL SITE SET OUT AND CONTROL POINTS ARE TO BE CERTIFIED BY A REGISTERED SURVEYOR.
- THE INFORMATION DETAILED ON THE CERTIFIED CONSTRUCTION CERTIFICATE PLANS TAKES PRECEDENCE OVER ALL ELECTRONIC INFORMATION PROVIDED. THE ORDER OF PRIORITY FOR USE OF ALL INFORMATION PROVIDED IS AS FOLLOWS (TO BE READ IN CONJUNCTION WITH SIGNED CONTRACT BETWEEN PRINCIPAL AND CONTRACTOR):
  - CERTIFIED CONSTRUCTION CERTIFICATE DRAWINGS
  - 2D DRAFTING BASE (ELECTRONIC FILE)
  - 3D DTM (ELECTRONIC FILE)
- ANY DISCREPANCY BETWEEN ANY OF THE INFORMATION CONTAINED WITHIN THESE FILES IS TO BE BROUGHT TO THE ATTENTION OF THE SUPERINTENDENT WHO WILL SEEK CLARIFICATION AND ISSUE INSTRUCTIONS ON THE APPROPRIATE COURSE OF ACTION.

### ROCKWALL NOTES

- NATURE OF FOUNDATION:**  
THE WALL MAY BE PLACED ON SUITABLE SOIL FOUNDATIONS. SUITABLE FOUNDING SOILS WOULD NORMALLY BE RESIDUAL SANDSTONE OR OTHER DENSE CLAYEY SANDS. CLEAN SANDS, SILTY SANDS OR HIGH CLAY CONTENT SOILS SUCH AS RESIDUAL SHALE ARE GENERALLY UNACCEPTABLE AS FOUNDING MATERIALS FOR ROCK RETAINING WALLS.
- DRAINAGE:**  
DRAINAGE OF THE WALL FOUNDATION SHALL BE ACHIEVED BY INSTALLING A CONTINUOUS 150mm DIAMETER SUBSOIL DRAIN AT THE REAR OF THE WALL. ALL SURFACE RUNOFF SHALL BE DIRECTED AWAY FROM THE BACK OF THE WALL SO AS TO PREVENT INFILTRATION OF SUCH SURFACE RUNOFF INTO THE GRANULAR BACKFILL.
- MATERIALS:**  
MATERIALS USED FOR CONSTRUCTION OF THE WALL SHALL BE LARGE, COMPETENT BOULDERS, IN GENERAL AT LEAST 2m x 0.5m x 0.5m.
- FOUNDATION PREPARATION - ROCK:**  
WHERE THE WALL IS FOUNDED ON BEDROCK THE PREPARATION OF THE FOUNDATION SHALL INCLUDE THE REMOVAL OF ALL LOOSE ROCK AND SOIL. ANY IRREGULARITIES IN THE LEVEL OF THE BEDROCK SHALL BE FILLED WITH MASS CONCRETE OR RIPPED ROCK COMPACTED TO A MINIMUM DRY DENSITY OF 98% STANDARD.
- FOUNDATION PREPARATION - SOIL:**  
WHERE THE WALL IS TO BE FOUNDED ON SOIL THE EXPOSED FOUNDATION SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 300mm, WETTED TO BRING IT NEAR TO THE STANDARD OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM DRY DENSITY RATIO OF 95% STANDARD. ANY AREA WHICH REMAINS SOFT OR SPONGY AFTER THE COMPACTION, SHALL BE EXCAVATED AND FILLED. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250mm AND COMPACTED IN THE MANNER DESCRIBED ABOVE. THE BASE LAYER OF BOULDERS SHALL BE SET IN CONCRETE OR MORTAR PLACED ON THE PREPARED SOIL FOUNDATION WITHIN THE KEY EXCAVATION.
- FOUNDATION DEPTH:**  
INSITU ROCK A MINIMUM DEPTH OF 200mm BELOW THE FINISHED SURFACE LEVEL AT THE TOE OF THE WALL. WHERE ADDITIONAL RESISTANCE TO SLIDING IS REQUIRED THE BASE OF THE WALL SHALL BE LAID INTO THE FOUNDATION ROCK BY CONCRETING THE BASE COURSE OF BOULDERS. WHERE THE WALL IS TO BE FOUNDED ON A COMPACTED SOIL THE BASE OF THE WALL SHALL BE AT A LEVEL WHICH IS A MINIMUM DEPTH OF 400mm BELOW THE FINISHED LEVEL AT THE TOE OF THE WALL.
- PLACEMENT OF ROCK:**  
ROCK IS TO BE PLACED TO ENSURE THAT INDIVIDUAL BLOCKS ARE INTERLOCKING. TO ACHIEVE THIS, BLOCKS SHOULD BE LAID ROUGHLY COURSED AND BEDDED ON THEIR BROADEST BASES.
- BACKFILL - MATERIALS:**  
MATERIAL USED FOR BACKFILLING BEHIND THE WALL SHALL BE ESSENTIALLY GRANULAR CONSISTING OF SAND, CLAYEY SAND, RIPPED SANDSTONE OR GRAVELLY MATERIAL.
- BACKFILL - COMPACTION:**  
ANY COMPACTION OF FILL PLACED BEHIND THE WALL SHALL BE CAREFULLY CARRIED OUT TO MINIMISE THE INDUCED LATERAL STRESS AGAINST THE WALL. ALL FILL SHOULD BE PLACED IN LAYERS WITH A MAXIMUM LOOSE THICKNESS OF 250mm AND COMPACTED TO A DRY DENSITY RATIO OF NOT LESS THAN 95% BASED ON STANDARD COMPACTION. WHERE PAVEMENT CONSTRUCTION IS TO TAKE PLACE USING THE BACKFILL AS SUBGRADE MATERIAL, NEAR SURFACE COMPACTION OF THE BACKFILL SHALL BE CARRIED OUT IN ACCORDANCE WITH PAVEMENT COMPACTION REQUIREMENTS.
- DRAINAGE:**  
WHERE THE POTENTIAL EXISTS FOR SIGNIFICANT SURFACE RUNOFF OR SURFACE GROUNDWATER FLOW, SUFFICIENT DRAINAGE MEASURES SHALL BE INCORPORATED TO ENSURE THAT WATER PRESSURE DOES NOT DEVELOP IN THE MATERIAL RETAINED BY THE WALL.
- SLOPE STABILITY:**  
WHERE REQUIRED THE OVERALL STABILITY OF THE SLOPE AND ROCK WALL SHALL BE EVALUATED. SUCH AN EVALUATION SHALL BE CARRIED OUT BY A SUITABLY QUALIFIED OR EXPERIENCED GEOTECHNICAL ENGINEER PRIOR TO COMMENCING PLACEMENT OF THE WALL ROCK.
- APPURTENANT STRUCTURE:**  
WHERE PIPES ARE TO PASS THROUGH OR BENEATH THE ROCK WALL THEY SHALL BE ENCASED IN CONCRETE TO ENSURE THAT THE BASE OF THE WALL FOUNDED IN COMPETENT MATERIAL, AND WALL FOUNDATION PIERS AS REQUIRED BY THE STRUCTURAL ENGINEER WHERE REQUIRED.

### CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer *Jerry J...*  
Accreditation No. BPB0656  
  
These plans/specifications form part of the certificate issued 5 March 2018

### NOTE:

PRAM RAMPS TO LANDSCAPE ARCHITECT PLANS



UTILITIES SHOWN ARE DIAGRAMMATIC ONLY, CONTRACTORS ARE RESPONSIBLE TO LOCATE AND AVOID DAMAGE TO THEM AS SPECIFIED BY EACH UTILITIES EXCAVATION GUIDE LINES & STANDARDS.

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

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
GENERAL NOTES AND LEGEND

PLAN No:  
**11018511/CC001 A**  
FILE No: 11018511CC001  
SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D

ORIGIN:

PRINCIPAL:



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

Plotted: 12 February 2018 3:03:31 PM. File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\YEOMANS\1101851\CC002.dwg

DRAWING NUMBER	DRAWING TITLE	REVISION
11018511/CC000	COVER SHEET	B
11018511/CC001	GENERAL NOTES AND LEGEND	A
11018511/CC002	DRAWING INDEX	D
11018511/CC003	LAYOUT PLAN	B
11018511/CC004	SETOUT PLAN SHEET 1 OF 2	B
11018511/CC005	SETOUT PLAN SHEET 2 OF 2	B
11018511/CC006	TYPICAL CROSS SECTIONS SHEET 1 OF 3	C
11018511/CC007	TYPICAL CROSS SECTIONS SHEET 2 OF 3	C
11018511/CC008	TYPICAL CROSS SECTIONS SHEET 3 OF 3	C
11018511/CC021	ENGINEERING PLAN SHEET 1 OF 6	C
11018511/CC022	ENGINEERING PLAN SHEET 2 OF 6	B
11018511/CC023	ENGINEERING PLAN SHEET 3 OF 6	B
11018511/CC024	ENGINEERING PLAN SHEET 4 OF 6	B
11018511/CC025	ENGINEERING PLAN SHEET 5 OF 6	B
11018511/CC026	ENGINEERING PLAN SHEET 6 OF 6	B
11018511/CC041	ROAD LONGITUDINAL SHEET 1 OF 9	A
11018511/CC042	ROAD LONGITUDINAL SHEET 2 OF 9	A
11018511/CC043	ROAD LONGITUDINAL SHEET 3 OF 9	A
11018511/CC044	ROAD LONGITUDINAL SHEET 4 OF 9	A
11018511/CC045	ROAD LONGITUDINAL SHEET 5 OF 9	A
11018511/CC046	ROAD LONGITUDINAL SHEET 6 OF 9	A
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11018511/CC048	ROAD LONGITUDINAL SHEET 8 OF 9	A
11018511/CC049	ROAD LONGITUDINAL SHEET 9 OF 9	A
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11018511/CC062	CROSS SECTIONS SHEET 2 OF 19	A
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11018511/CC093	KERB RETURN PLANS AND SECTIONS SHEET 13 OF 16	A

DRAWING NUMBER	DRAWING TITLE	REVISION
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11018511/CC095	KERB RETURN PLANS AND SECTIONS SHEET 15 OF 16	A
11018511/CC096	KERB RETURN PLANS AND SECTIONS SHEET 16 OF 16	B
11018511/CC101	CATCHMENT PLAN SHEET 1 OF 2	B
11018511/CC102	CATCHMENT PLAN SHEET 2 OF 2	B
11018511/CC103	PIT SCHEDULE	C
11018511/CC104	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 19	B
11018511/CC105	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 19	C
11018511/CC106	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 3 OF 19	C
11018511/CC107	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 4 OF 19	B
11018511/CC108	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 5 OF 19	B
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11018511/CC118	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 15 OF 19	B
11018511/CC119	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 16 OF 19	B
11018511/CC120	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 17 OF 19	B
11018511/CC121	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 18 OF 19	B
11018511/CC122	5 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 19 OF 19	C
11018511/CC123	NOT IN USE	B
11018511/CC124	100 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 1 OF 2	C
11018511/CC125	100 YR DRAINAGE LONGITUDINAL SECTIONS SHEET 2 OF 2	B
11018511/CC126	DRAINAGE CALCULATIONS SHEET 1 OF 9	B
11018511/CC127	DRAINAGE CALCULATIONS SHEET 2 OF 9	B
11018511/CC128	DRAINAGE CALCULATIONS SHEET 3 OF 9	B
11018511/CC129	DRAINAGE CALCULATIONS SHEET 4 OF 9	B
11018511/CC130	DRAINAGE CALCULATIONS SHEET 5 OF 9	B
11018511/CC131	DRAINAGE CALCULATIONS SHEET 6 OF 9	B
11018511/CC132	DRAINAGE CALCULATIONS SHEET 7 OF 9	C
11018511/CC133	DRAINAGE CALCULATIONS SHEET 8 OF 9	C
11018511/CC134	DRAINAGE CALCULATIONS SHEET 9 OF 9	C
11018511/CC141	OVERALL RETAINING WALL PLAN, NOTES & DETAILS	B
11018511/CC142	NOT USED	B
11018511/CC143	RETAINING WALL PLAN AND SECTION SHEET 2 OF 10	B
11018511/CC144	RETAINING WALL PLAN AND SECTION SHEET 3 OF 10	B
11018511/CC145	RETAINING WALL PLAN AND SECTION SHEET 4 OF 10	B
11018511/CC146	NOT USED	B
11018511/CC147	NOT USED	B
11018511/CC148	NOT USED	B
11018511/CC149	RETAINING WALL PLAN AND SECTION SHEET 8 OF 10	B
11018511/CC150	RETAINING WALL PLAN AND SECTION SHEET 9 OF 10	B
11018511/CC151	RETAINING WALL PLAN AND SECTION SHEET 10 OF 10	B
11018511/CC161	RAINGARDEN 1	B
11018511/CC162	RAINGARDEN 1 NOTES AND DETAILS	A
11018511/CC163	RAINGARDEN 1 SECTIONS	A
11018511/CC171	DAM MODIFICATION - DAM 15 PLAN	B
11018511/CC172	DAM MODIFICATION - DAM 15 SECTIONS	B
11018511/CC173	DAM MODIFICATION - DAM 12 PLAN	B
11018511/CC174	DAM MODIFICATION - DAM 12 SECTIONS SHEET 1 OF 2	B
11018511/CC175	DAM MODIFICATION - DAM 12 SECTIONS SHEET 2 OF 2	B

DRAWING NUMBER	DRAWING TITLE	REVISION
11018511/CC176	DAM MODIFICATION - DAM 4 PLAN	B
11018511/CC177	DAM MODIFICATION - DAM 4 SECTIONS	B
11018511/CC181	PHASE 2 PRE-CIVIL WORKS COMMENCEMENT	B
11018511/CC182	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 1 OF 6	B
11018511/CC183	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 2 OF 6	B
11018511/CC184	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 3 OF 6	B
11018511/CC185	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 4 OF 6	C
11018511/CC186	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 5 OF 6	A
11018511/CC187	PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION SHEET 6 OF 6	C
11018511/CC188	SOIL AND WATER MANAGEMENT DETAILS	A
11018511/CC189	SOIL AND WATER MANAGEMENT NOTES	A
11018511/CC200	SIGN POSTING AND LINEMARKING LAYOUT PLAN	B
11018511/CC201	SIGN POSTING AND LINEMARKING SHEET 1 OF 10	B
11018511/CC202	SIGN POSTING AND LINEMARKING SHEET 2 OF 10	B
11018511/CC203	SIGN POSTING AND LINEMARKING SHEET 3 OF 10	B
11018511/CC204	SIGN POSTING AND LINEMARKING SHEET 4 OF 10	B
11018511/CC205	SIGN POSTING AND LINEMARKING SHEET 5 OF 10	B
11018511/CC206	SIGN POSTING AND LINEMARKING SHEET 6 OF 10	B
11018511/CC207	SIGN POSTING AND LINEMARKING SHEET 7 OF 10	B
11018511/CC208	SIGN POSTING AND LINEMARKING SHEET 8 OF 10	B
11018511/CC209	SIGN POSTING AND LINEMARKING SHEET 9 OF 10	B
11018511/CC210	SIGN POSTING AND LINEMARKING SHEET 10 OF 10	B
11018511/CC220	DAM 4 OUTLET PIT 4/1 PLAN, DETAIL AND SECTIONS	B
11018511/CC221	PIT 4/2 PLAN AND SECTIONS	C
11018511/CC222	SURCHARGE PIT 4/3, 4/4 AND 4/5 PLAN AND SECTIONS	B
11018511/CC223	PIT 4/6 PLAN AND SECTIONS	A
11018511/CC224	SPLITTER PIT 4/7 PLAN AND SECTIONS	A
11018511/CC225	PIT 4/8, 4/9 AND 4/10 PLAN AND SECTIONS	C
11018511/CC226	DAM 12 OUTLET PIT 12/01 PLAN, DETAIL AND SECTIONS	B
11018511/CC227	OUTLET PIT 30/16 AND GPT PLAN	A
11018511/CC228	OUTLET PIT 30/17 PLAN AND SECTIONS	A
11018511/CC229	OUTLET PIT 30/18 PLAN AND SECTIONS	A
11018511/CC230	OUTLET PIT 30/19 PLAN AND SECTIONS	A
11018511/CC231	OUTLET PIT 22/9 AND GPT PLAN	A
11018511/CC232	HYDROCON WEST LAYOUT PLAN AND DETAIL	A
11018511/CC233	HYDROCON PIT 30A, PIPES AND SECTION	A
11018511/CC234	HYDROCON WEST SECTIONS SHEET 1 OF 2	A
11018511/CC235	HYDROCON WEST SECTIONS SHEET 2 OF 2	A
11018511/CC236	HYDROCON EAST LAYOUT PLAN	A
11018511/CC237	HYDROCON PIT 22A, PIPES AND SECTION	A
11018511/CC238	HYDROCON EAST SECTION	A
11018511/CC239	OUTLET PIT 22/10 PLAN AND SECTIONS	A
11018511/CC240	DAM 15 CULVERT PLAN AND SECTIONS SHEET 1 OF 2	C
11018511/CC241	DAM 15 CULVERT PLAN AND SECTIONS SHEET 2 OF 2	C
11018511/CC242	PANSY LINE CULVERT PLAN AND SECTIONS SHEET 1 OF 2	A
11018511/CC243	PANSY LINE CULVERT PLAN AND SECTIONS SHEET 2 OF 2	A
11018511/CC244	SURCHARGE PIT 4/11	A
11018511/CC245	SURCHARGE PIT 4/12	A
11018511/CC250	PATH LAYOUT PLAN	A
11018511/CC251	PATH LOCATION AND SETOUT SHEET 1	B
11018511/CC252	PATH LOCATION AND SETOUT SHEET 2	B
11018511/CC253	PATH LOCATION AND SETOUT SHEET 3	B
11018511/CC254	PATH LOCATION AND SETOUT SHEET 4	B
11018511/CC255	PATH LOCATION AND SETOUT SHEET 5	B
11018511/CC256	PATH LOCATION AND SETOUT SHEET 6	B
11018511/CC257	PATH LOCATION AND SETOUT SHEET 7	B

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

REVISED BY	DATE	DESCRIPTION	DES	DRN	CKD	APR	DATE
D	12/02/18	STORMWATER AMENDMENTS	MP	UF	RO	RO	12/02/18
C	25/01/18	DRAINAGE LONGSECTION SHEET ADDED	MP	UF	RO	RO	25/01/18
B		AMENDMENTS TO OPEN SPACE AND ROAD BOUNDARIES	MP	CC	RO	RO	
A	15/06/17	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
		AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:



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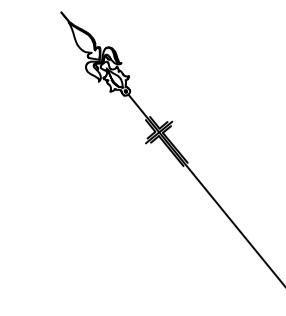
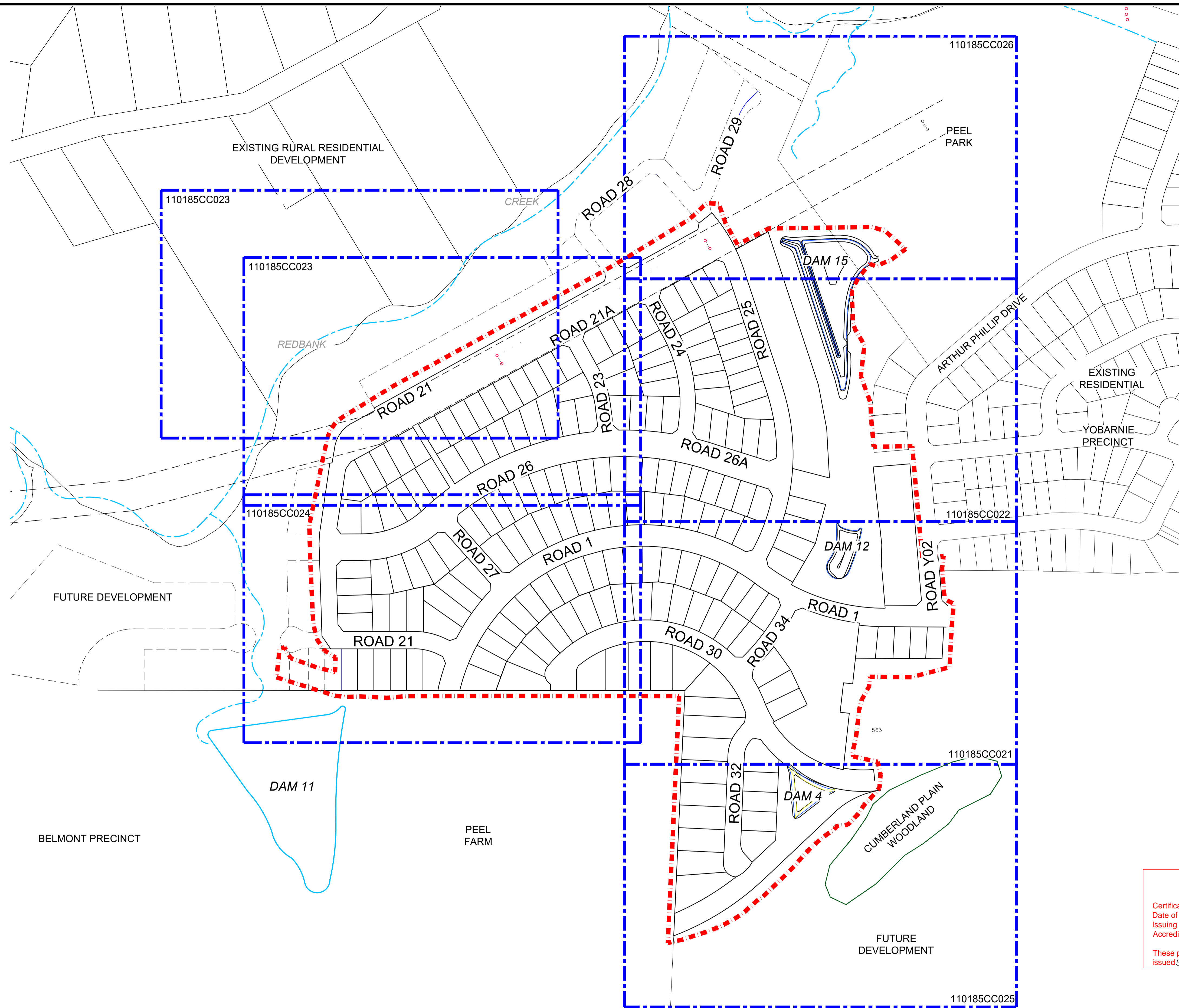
**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

DRAWING INDEX

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 FILE No: 11018511CC002  
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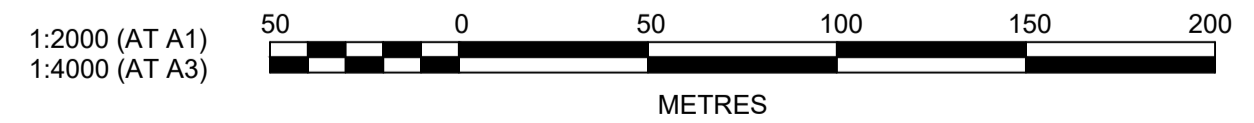
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**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
LAYOUT PLAN**

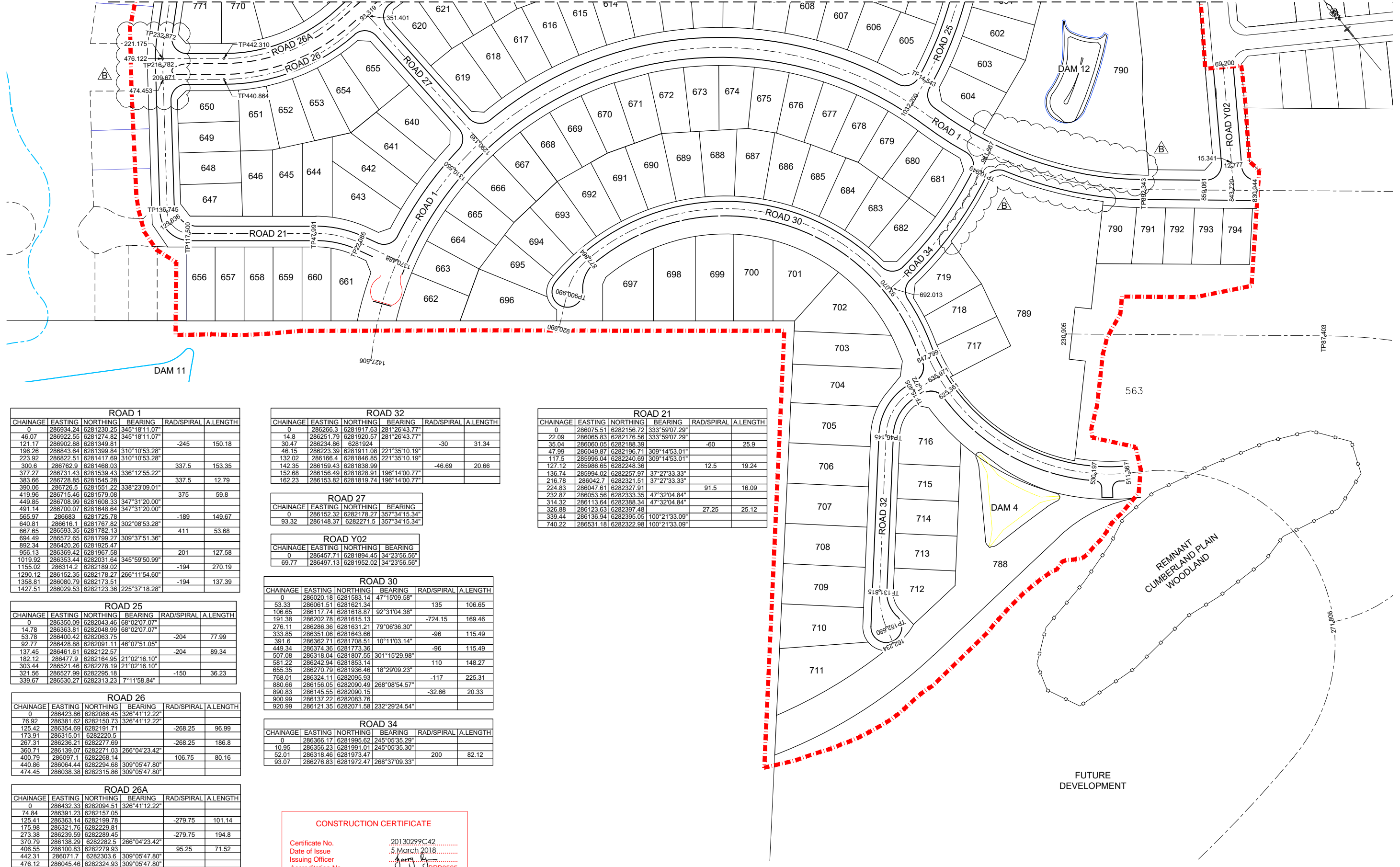
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 FILE No: 11018511CC003  
 SHEET SIZE: A1 ORIGINAL

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REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	BOUNDARY AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING CC005 FOR CONTINUATION



CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286934.24	6281230.25	345°18'11.07"		
46.07	286922.55	6281274.82	345°18'11.07"		
121.17	286902.88	6281349.81		-245	150.18
196.26	286843.64	6281399.84	310°10'53.28"		
223.92	286822.51	6281417.69	310°10'53.28"		
300.6	286762.9	6281468.03		337.5	153.35
377.27	286731.43	6281539.43	336°12'55.22"		
393.66	286728.95	6281545.28		337.5	12.79
390.06	286728.5	6281551.22	338°23'09.01"		
419.96	286715.46	6281579.08		375	59.8
449.85	286708.99	6281608.33	347°31'20.00"		
491.14	286700.07	6281648.64	347°31'20.00"		
565.97	286683	6281725.78		-189	149.67
640.81	286616.1	6281767.82	302°08'53.28"		
667.65	286593.35	6281782.13		411	53.68
694.49	286572.65	6281799.27	309°37'51.36"		
892.34	286420.26	6281925.47			
956.13	286389.42	6281987.58		201	127.58
1019.92	286353.44	6282031.64	345°59'50.99"		
1155.02	286314.2	6282189.02		-194	270.19
1290.12	286152.35	6282178.27	266°11'54.60"		
1358.81	286090.79	6282173.51		-194	137.39
1427.51	286029.53	6282123.36	225°37'18.28"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286266.3	6281917.63	281°26'43.77"		
14.8	286251.79	6281920.57	281°26'43.77"		
30.47	286234.86	6281924		-30	31.34
46.15	286223.39	6281911.08	221°35'10.19"		
132.02	286166.4	6281846.85	221°35'10.19"		
142.35	286159.43	6281836.99		-46.69	20.66
152.68	286156.49	6281828.91	196°14'00.77"		
162.23	286153.82	6281819.74	196°14'00.77"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286075.51	6282156.72	333°59'07.29"		
22.09	286065.83	6282176.56	333°59'07.29"		
35.04	286060.05	6282188.39		-60	25.9
47.99	286049.87	6282196.71	309°14'53.01"		
117.5	285996.04	6282240.69	309°14'53.01"		
127.12	285986.65	6282248.36		12.5	19.24
136.74	285994.02	6282257.97	37°27'33.33"		
216.78	286042.7	6282321.51	37°27'33.33"		
224.83	286047.61	6282327.91		91.5	16.09
232.87	286053.56	6282333.35	47°32'04.84"		
314.32	286113.64	6282388.34	47°32'04.84"		
326.88	286123.63	6282397.48		27.25	25.12
339.44	286136.94	6282395.05	100°21'33.09"		
740.22	286531.18	6282322.98	100°21'33.09"		

CHAINAGE	EASTING	NORTHING	BEARING
0	286152.32	6282178.27	357°34'15.34"
93.32	286148.37	6282221.5	357°34'15.34"

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286020.18	6281583.14	47°15'09.58"		
53.33	286061.51	6281621.34		135	106.65
106.65	286117.74	6281618.87	92°31'04.38"		
191.38	286202.78	6281615.13		-724.15	169.46
276.11	286286.36	6281631.21	79°06'36.30"		
333.85	286351.06	6281643.66		-96	115.49
391.6	286362.71	6281708.51	10°11'03.14"		
449.34	286374.36	6281773.36		-96	115.49
507.08	286318.04	6281807.55	301°15'29.98"		
581.22	286242.94	6281853.14		110	148.27
655.35	286270.79	6281936.46	18°29'09.23"		
768.01	286324.11	6282095.93		-117	225.31
880.66	286156.05	6282090.49	268°08'54.57"		
890.83	286145.55	6282090.15		-32.66	20.33
900.99	286137.22	6282083.76			
920.99	286121.35	6282071.58	232°29'24.54"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286366.17	6281995.62	245°05'35.29"		
10.95	286356.23	6281991.01	245°05'35.29"		
52.01	286318.46	6281973.47		200	82.12
93.07	286276.83	6281972.47	268°37'09.33"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286350.09	6282043.46	68°02'07.07"		
14.78	286363.81	6282048.99	68°02'07.07"		
53.78	286400.42	6282063.75		-204	77.99
92.77	286428.88	6282091.11	46°07'51.05"		
137.45	286461.61	6282122.57		-204	89.34
182.12	286477.9	6282164.95	21°02'16.10"		
303.44	286521.46	6282278.19	21°02'16.10"		
321.56	286527.99	6282295.18		-150	36.23
339.67	286530.27	6282313.23	7°11'58.84"		

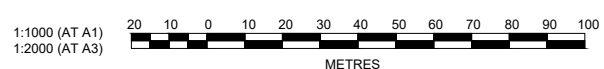
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286423.86	6282086.45	326°41'12.22"		
76.92	286381.62	6282150.73	326°41'12.22"		
125.42	286354.69	6282191.71		-268.25	96.99
173.91	286315.01	6282220.5			
267.31	286236.21	6282277.69		-268.25	186.8
360.71	286139.07	6282271.03	266°04'23.42"		
400.79	286097.1	6282268.14		106.75	80.16
440.86	286064.44	6282294.88	309°05'47.80"		
474.45	286038.38	6282315.86	309°05'47.80"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286432.33	6282094.51	326°41'12.22"		
74.84	286381.23	6282157.05			
125.41	286363.14	6282199.78		-279.75	101.14
175.98	286321.76	6282229.81			
273.38	286239.59	6282289.45		-279.75	194.8
370.79	286138.29	6282282.5	266°04'23.42"		
406.55	286100.83	6282279.93		95.25	71.52
442.31	286071.7	6282303.6	309°05'47.80"		
476.12	286045.46	6282324.93	309°05'47.80"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SETOUT PLAN  
 SHEET 1 OF 2

PLAN No:	11018511/CC004 B
FILE No:	11018511CC004
SHEET SIZE:	A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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B	BOUNDARY AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

ROAD 21A					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286100.99	6282376.77	47°32'04.84"		
5.76	286105.57	6282380.96		12.5	11.52
11.52	286111.68	6282379.84	100°21'33.09"		
435.49	286528.74	6282303.6	100°21'33.09"		

ROAD 29					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286530.27	6282313.23	7°11'58.84"		
11.95	286531.78	6282325.12		-150	23.9
23.9	286531.37	6282337.09			
23.92	286531.37	6282337.1		-150	0.03
23.94	286531.37	6282337.12	358°03'22.40"		
30.82	286531.11	6282344.8		12.5	13.77
37.71	286537.84	6282348.5	61°11'38.80"		
132.43	286620.84	6282394.14	61°11'38.80"		
142.77	286630.04	6282399.2		46.69	20.87
153.1	286640.53	6282399.83	86°33'07.29"		
163.1	286650.52	6282400.43	86°33'07.29"		

ROAD 21					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286075.51	6282156.72	333°59'07.29"		
22.09	286065.83	6282176.56	333°59'07.29"		
35.04	286060.05	6282188.39		-60	25.9
47.99	286049.87	6282196.71	309°14'53.01"		
117.5	285996.04	6282240.69	309°14'53.01"		
127.12	285986.65	6282248.36		12.5	19.24
136.74	285994.02	6282257.97	37°27'33.33"		
216.78	286042.7	6282321.51	37°27'33.33"		
224.83	286047.61	6282327.91		91.5	16.09
232.87	286053.56	6282333.35	47°32'04.84"		
314.32	286113.64	6282388.34	47°32'04.84"		
326.88	286123.63	6282397.48		27.25	25.12
339.44	286136.94	6282395.05	100°21'33.09"		
740.22	286531.18	6282322.98	100°21'33.09"		

ROAD 23					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286362.12	6282353.88	190°21'33.09"		
64.75	286350.48	6282290.19			
82.19	286347.3	6282272.82		91.5	34.88
99.63	286337.89	6282257.88			
143.42	286314.56	6282220.03	212°12'07.03"		

ROAD 24					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286442.62	6282319.35	190°21'33.09"		
47.46	286434.09	6282272.66	190°21'33.09"		
93.94	286425.42	6282225.24		142.5	92.96
140.42	286389.75	6282192.83	227°44'15.09"		
158.44	286376.41	6282180.71	227°44'15.09"		

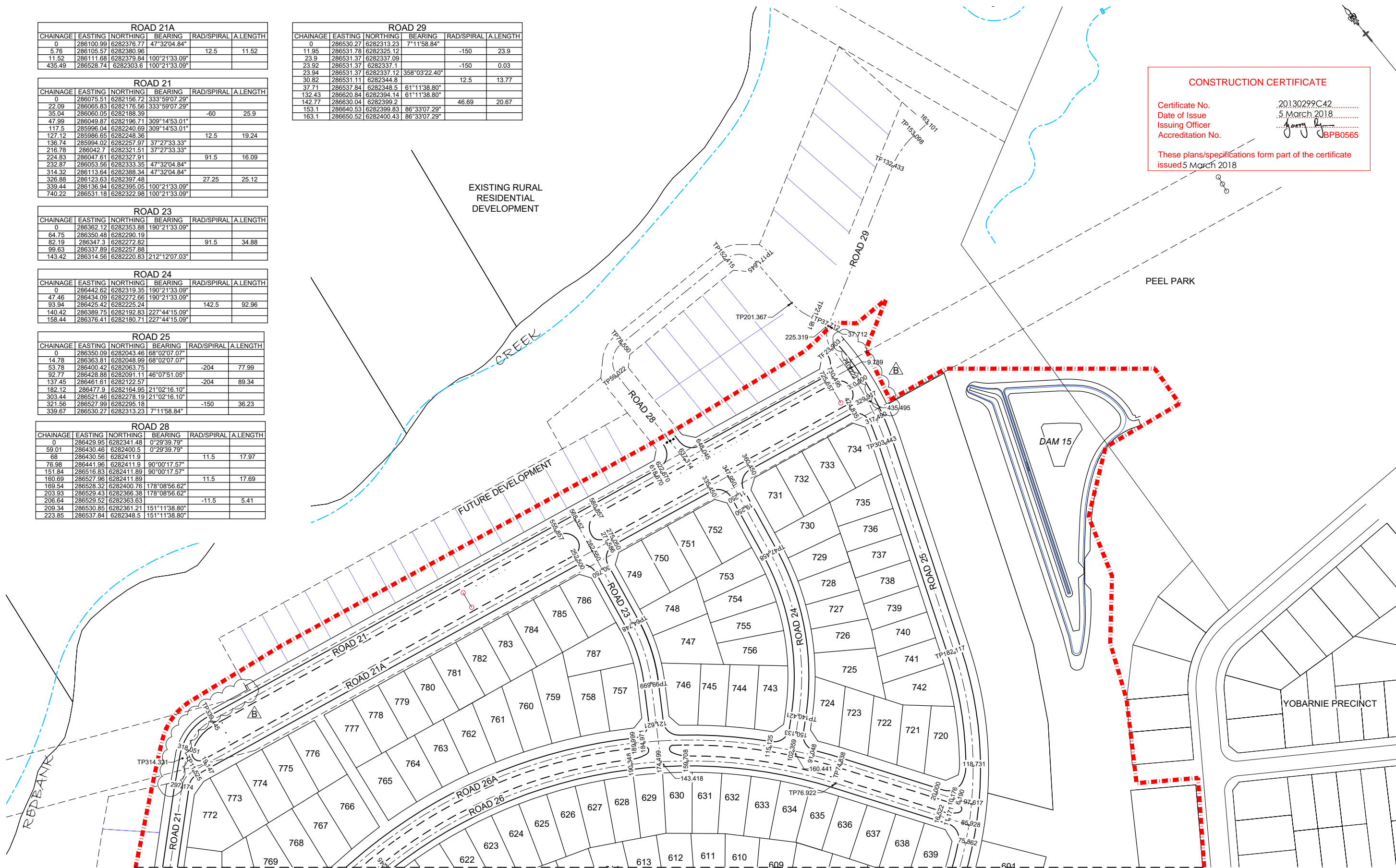
ROAD 25					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286350.09	6282043.46	68°02'07.07"		
14.78	286363.81	6282048.99	68°02'07.07"		
53.78	286400.42	6282063.75		-204	77.99
92.77	286428.88	6282091.11	46°07'51.05"		
137.45	286461.61	6282122.57		-204	89.34
182.12	286477.9	6282164.95	21°02'16.10"		
303.44	286521.46	6282278.19	21°02'16.10"		
321.56	286527.99	6282295.18		-150	36.23
339.67	286530.27	6282313.23	7°11'58.84"		

ROAD 28					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286429.95	6282341.48	0°29'39.79"		
59.01	286430.46	6282400.5	0°29'39.79"		
68	286430.56	6282411.9		11.5	17.97
76.98	286441.96	6282411.9	90°00'17.57"		
151.84	286516.83	6282411.89	90°00'17.57"		
160.69	286527.96	6282411.89		11.5	17.69
169.54	286528.32	6282400.76	178°08'56.62"		
203.93	286529.43	6282366.38	178°08'56.62"		
206.64	286529.52	6282363.63		-11.5	5.41
209.34	286530.85	6282361.21	151°11'38.80"		
223.85	286537.84	6282348.5	151°11'38.80"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Joey B*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



REFER TO DRAWING CC004 FOR CONTINUATION



Plotted: 12 February 2018 2:12:01 PM. File Name: J1110185 - Redbank North Richmond Residential Precinct001 - Description\CC005\CC005.dwg

B	BOUNDARY AMENDED	MP	MG	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PRINCIPAL: **REDBANK** NORTH RICHMOND

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

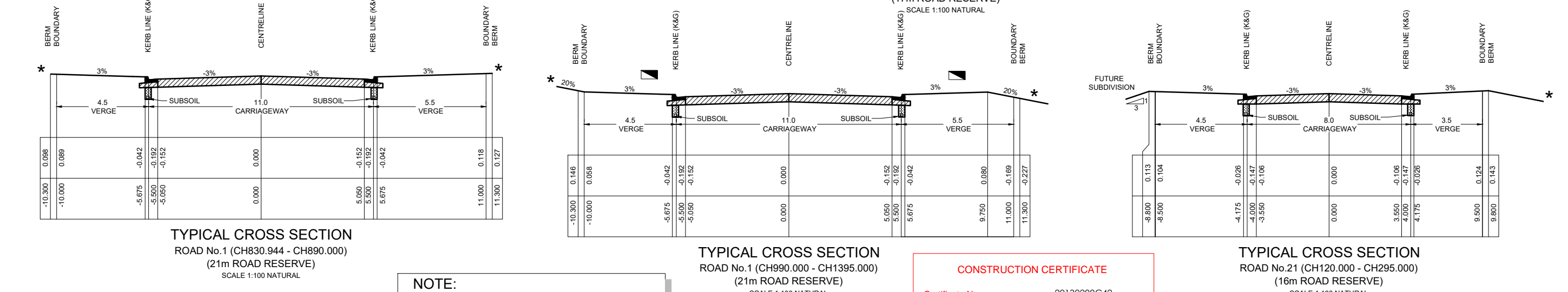
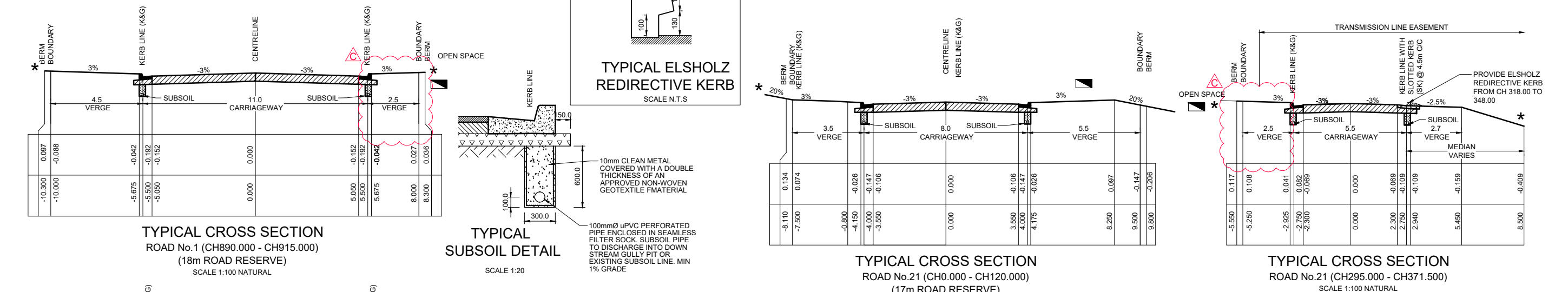
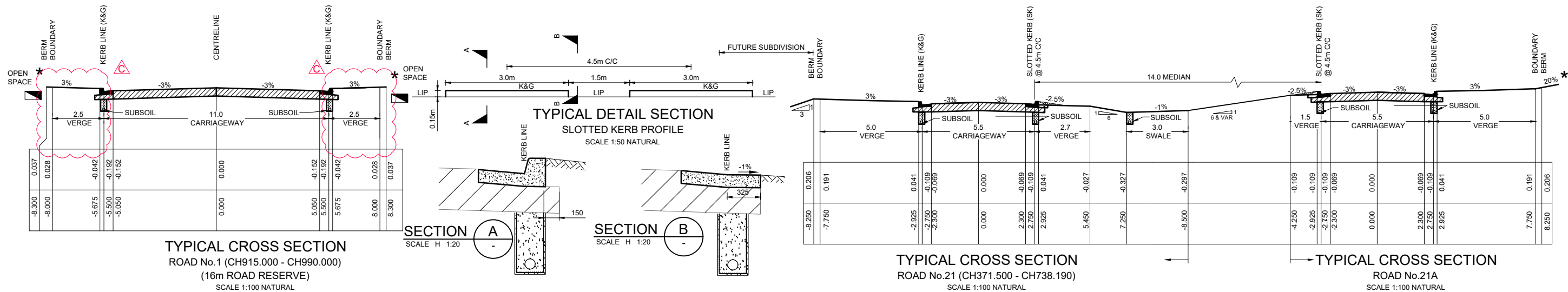
**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**

SETOUT PLAN  
SHEET 2 OF 2

PLAN No: 11018511/CC005 **B**  
 FILE No: 11018511CC005  
 SHEET SIZE: A1 ORIGINAL

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

Plotted: 9 February, 2018 4:24:38 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCY\YEO\MAN\11018511CC006.dwg



REFER TO LANDSCAPE ARCHITECT PLANS FOR FOOTPATH LOCATION DETAILS

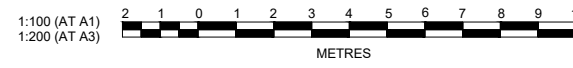
REFER TO ENGINEERING PLANS FOR SITE REGRADING

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

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



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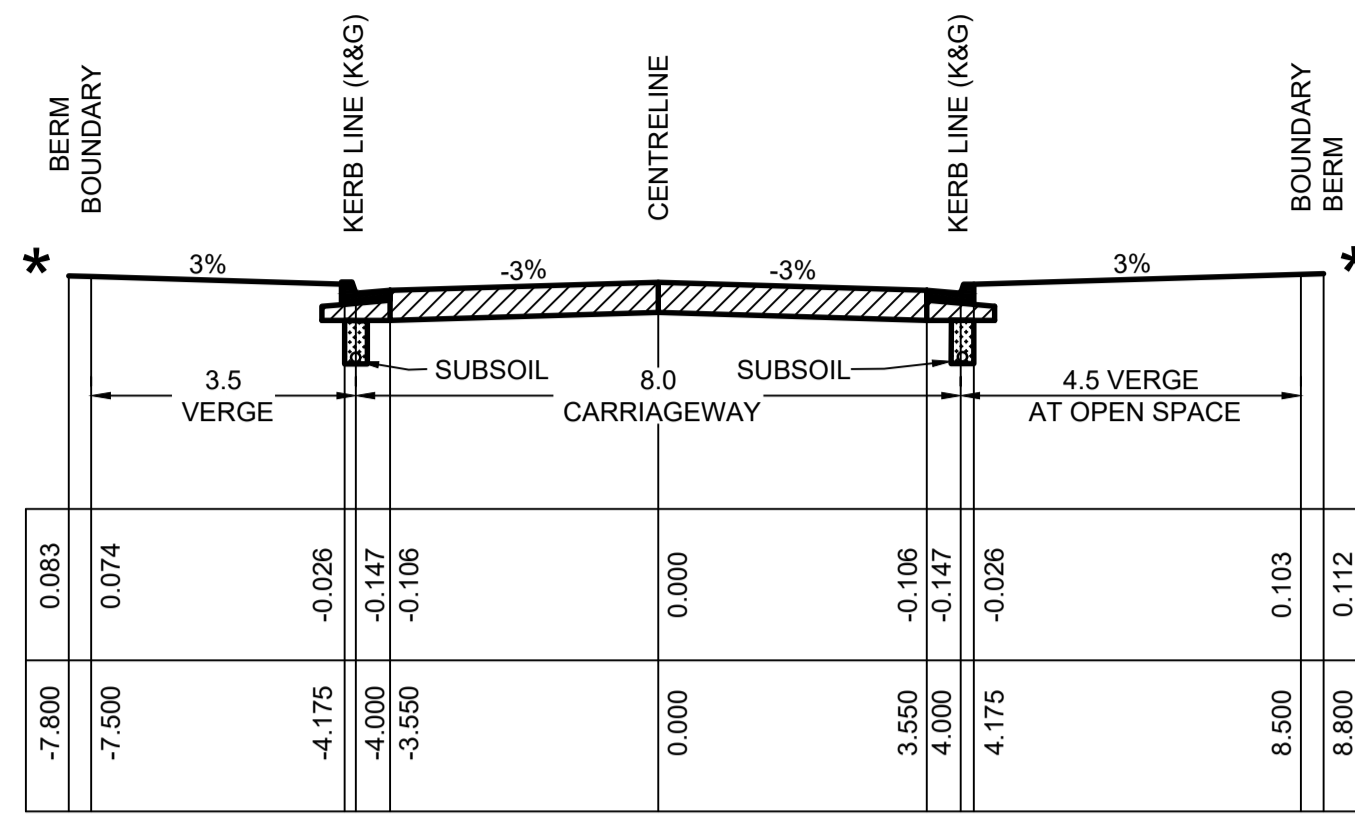
PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

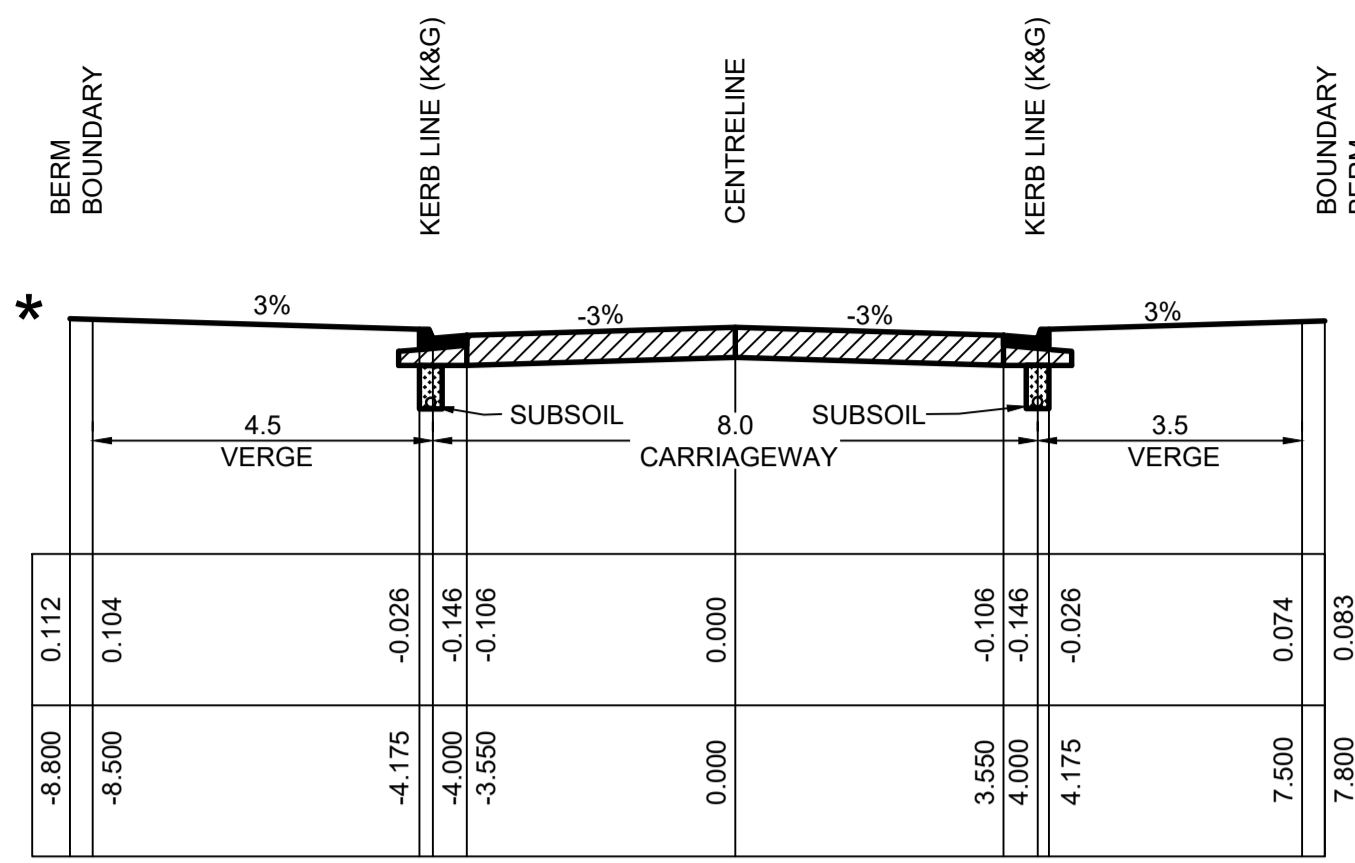
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 TYPICAL CROSS SECTIONS  
 SHEET 1 OF 3

PLAN No: 11018511/CC006 C  
 FILE No: 11018511CC006  
 SHEET SIZE: A1 ORIGINAL

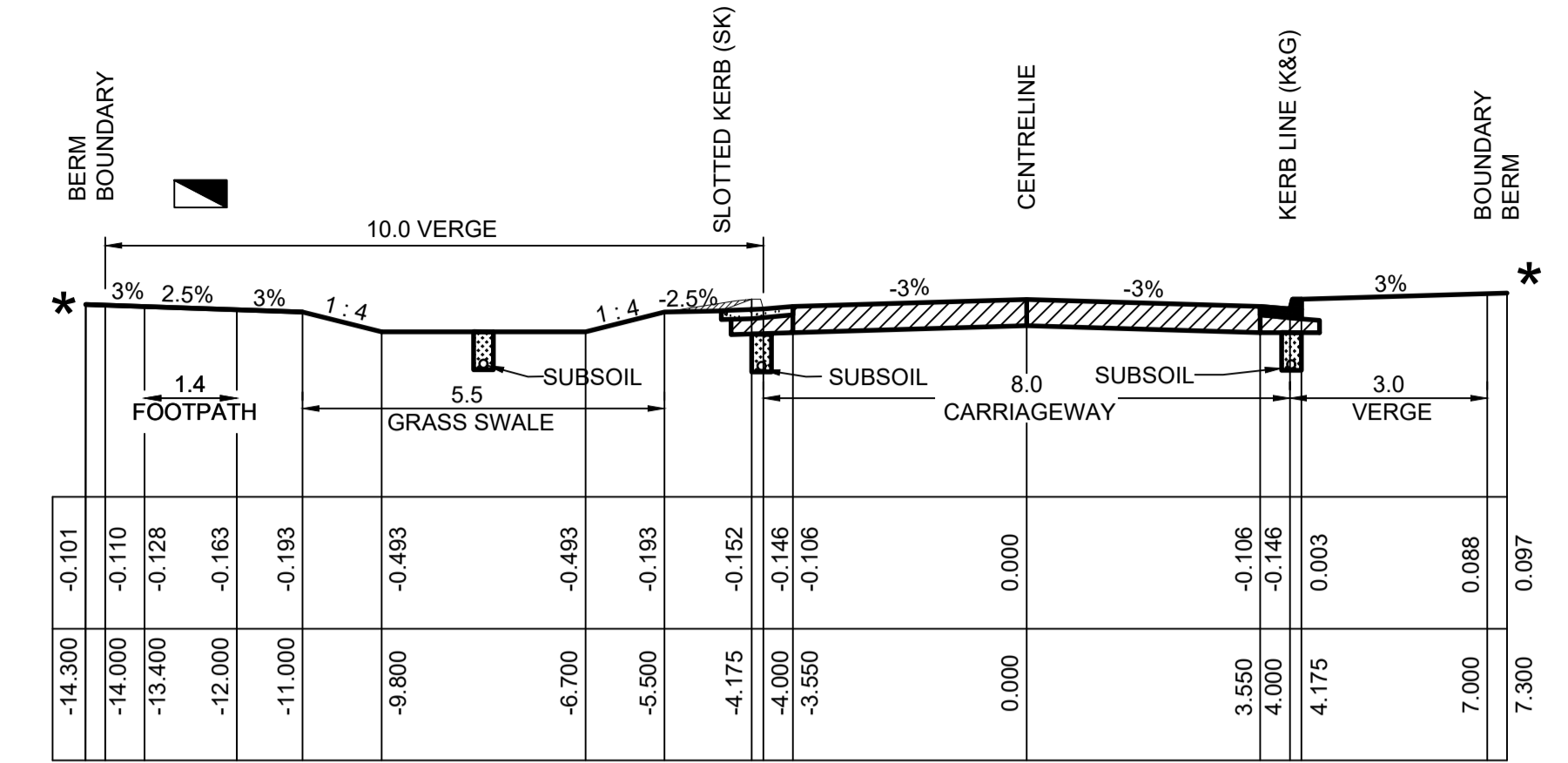
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B	ADDITIONAL SUBSOIL DETAILS ADDED	MP	MG	RO	MS	23/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



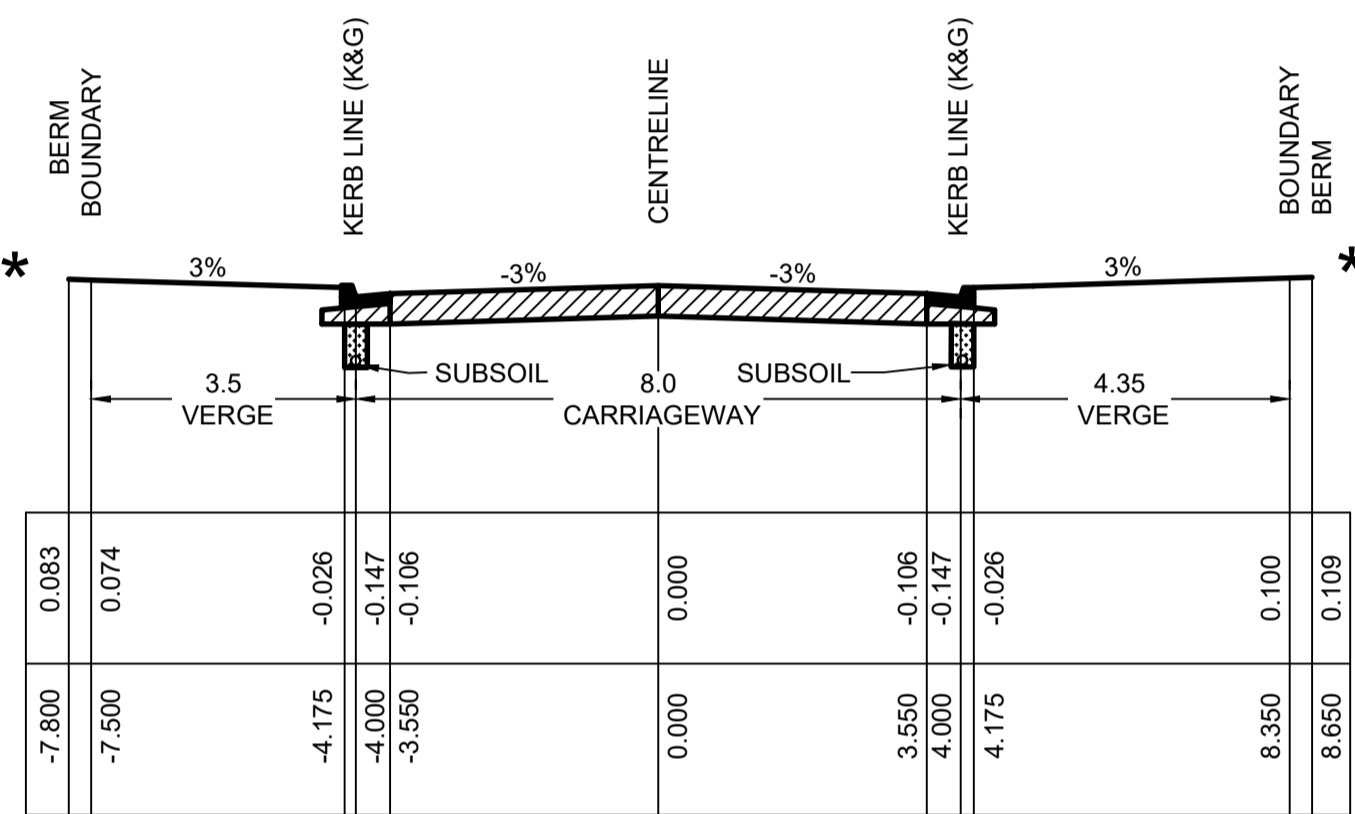
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(16m ROAD RESERVE)  
SCALE 1:100 NATURAL



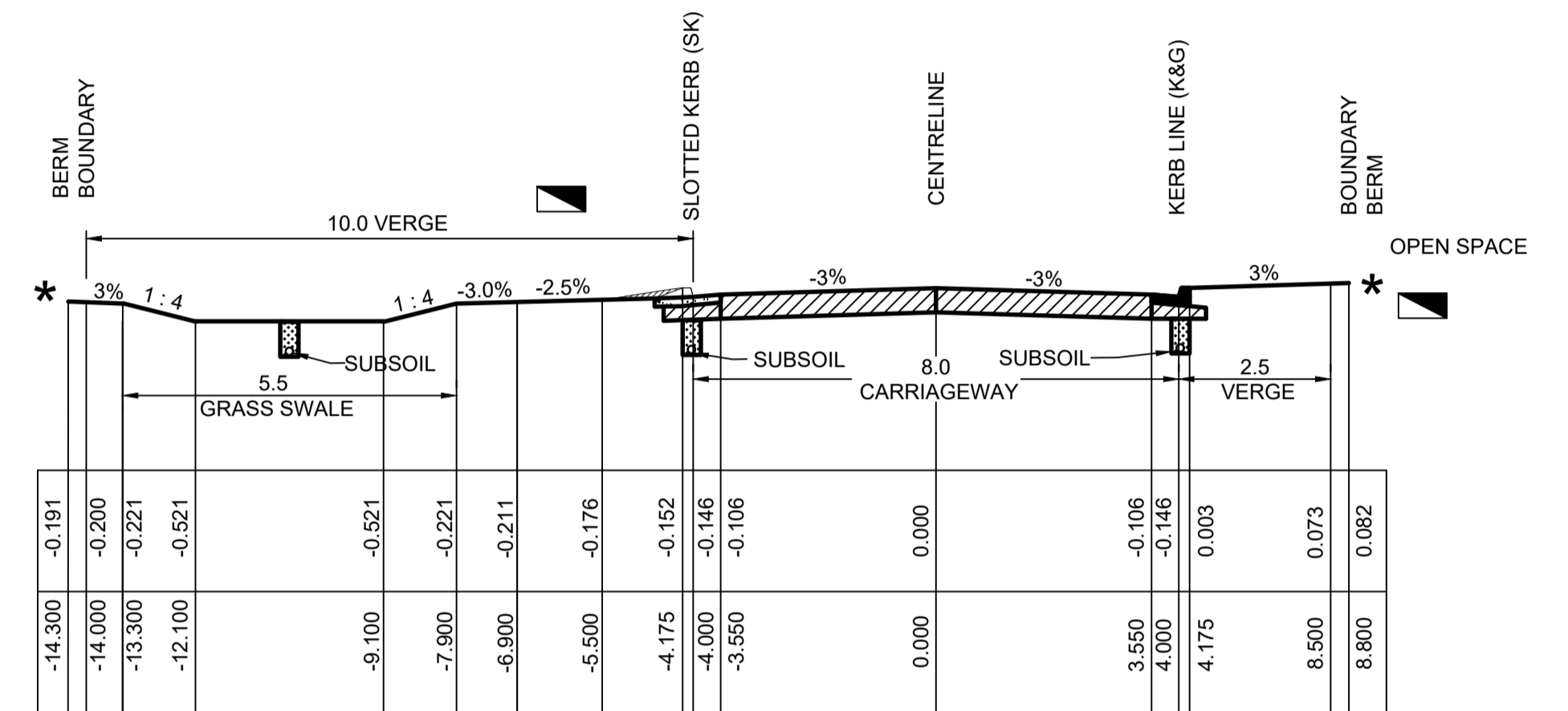
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ROAD No.27  
(16m ROAD RESERVE)  
SCALE 1:100 NATURAL



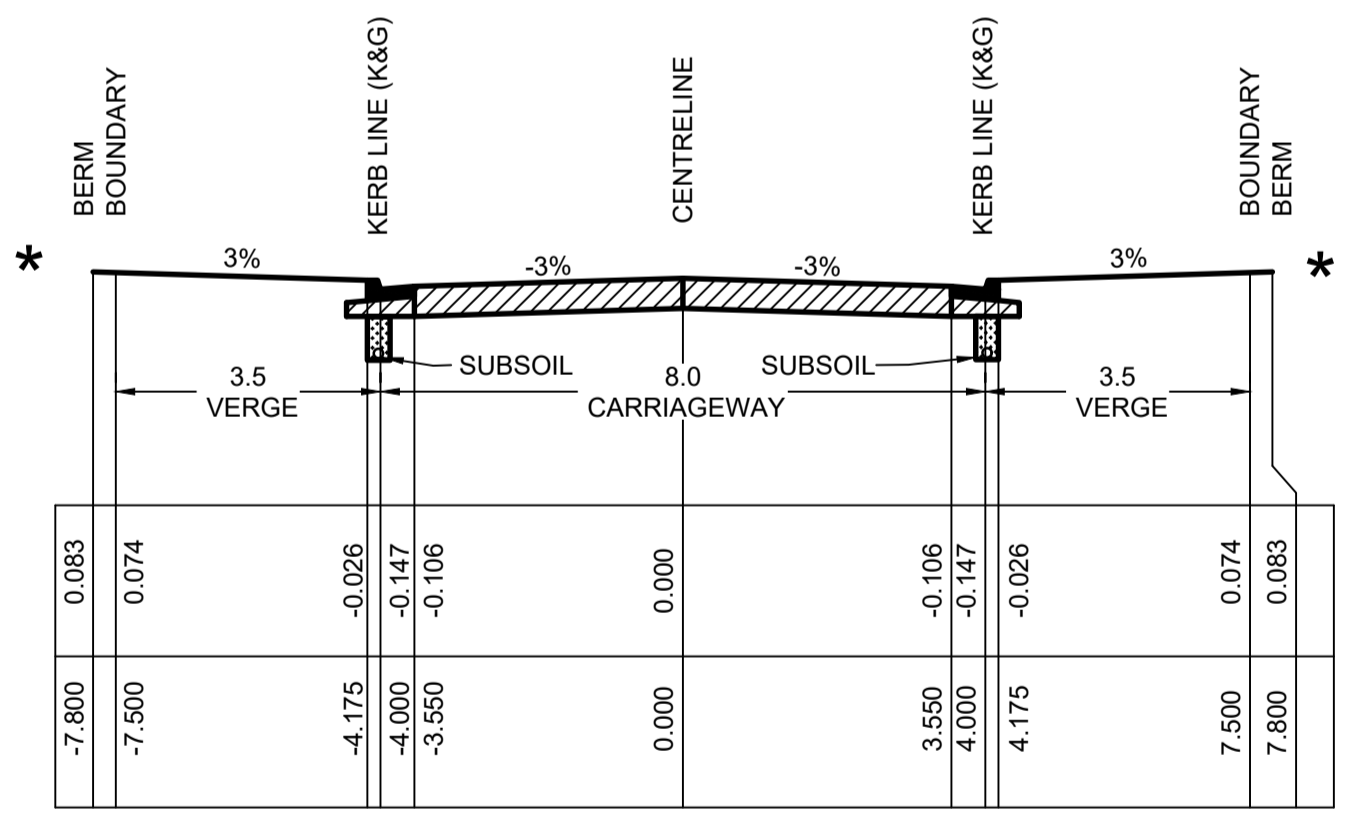
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(21m ROAD RESERVE)  
SCALE 1:100 NATURAL



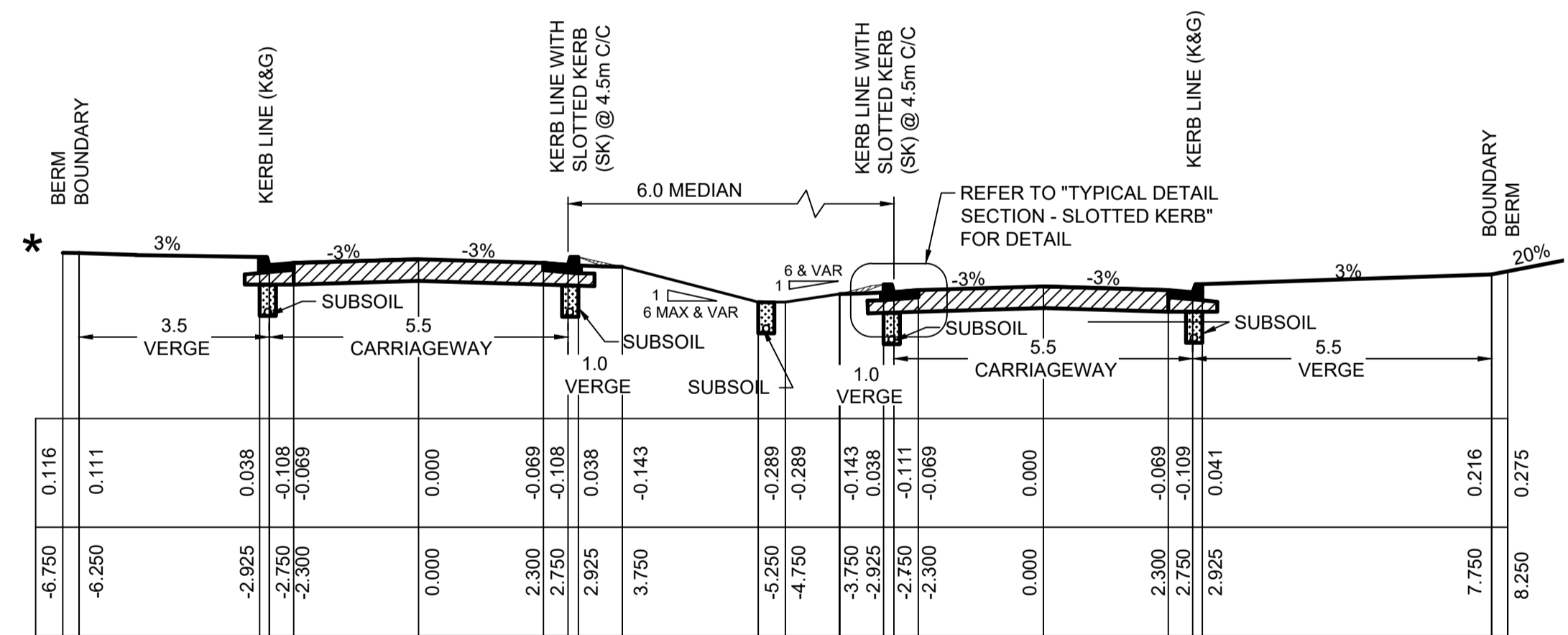
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(15.85m ROAD RESERVE)  
SCALE 1:100 NATURAL



TYPICAL CROSS SECTION  
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(20.5m ROAD RESERVE)  
SCALE 1:100 NATURAL

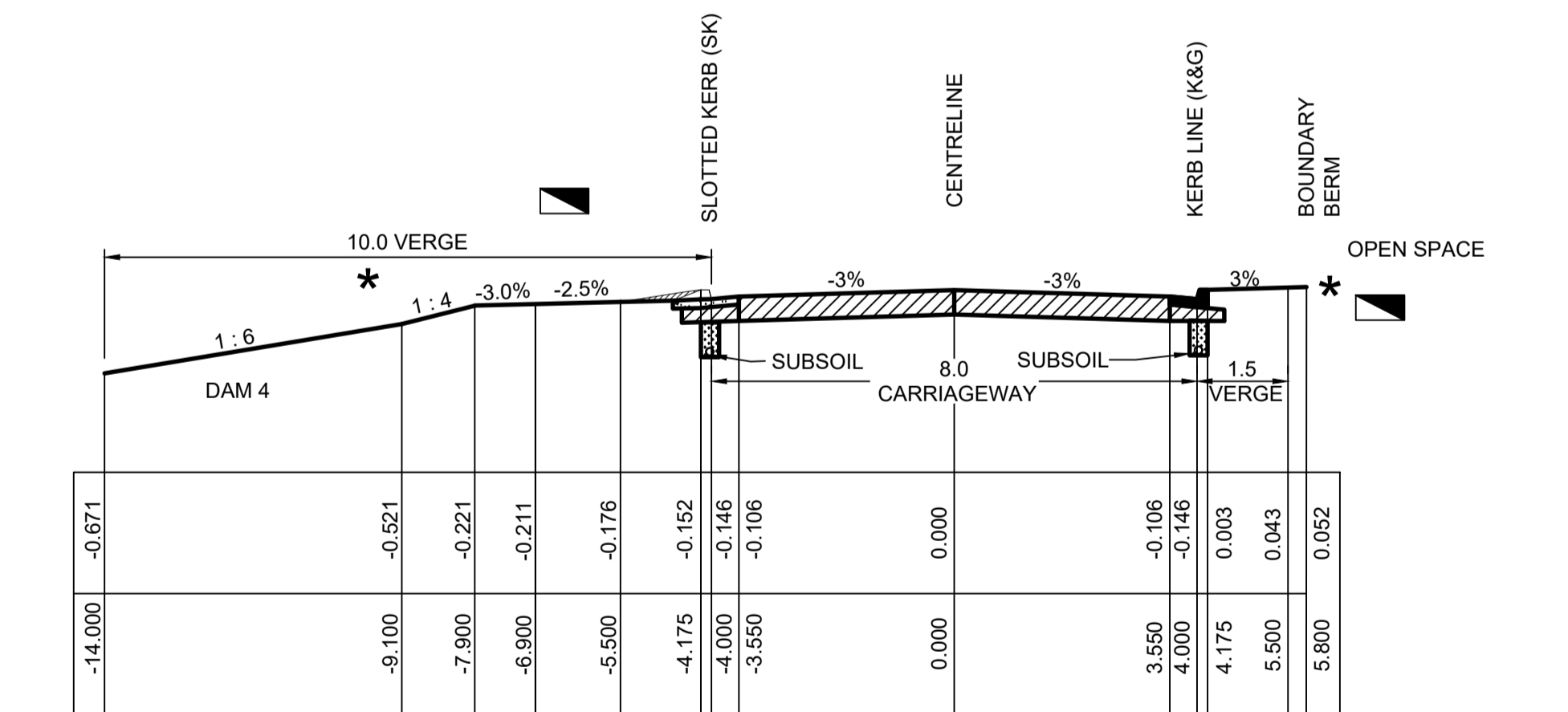


TYPICAL CROSS SECTION  
ROAD No.23 & 24  
(15m ROAD RESERVE)  
SCALE 1:100 NATURAL



TYPICAL CROSS SECTION  
ROAD No.26 (CH0.000 - CH465.000)  
SCALE 1:100 NATURAL

TYPICAL CROSS SECTION  
ROAD No.26A  
SCALE 1:100 NATURAL



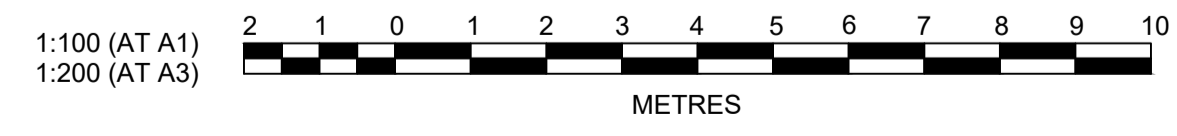
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ROAD No.30 (CH540.000 - CH600.000)  
(19.5m ROAD RESERVE)  
SCALE 1:100 NATURAL

REFER TO LANDSCAPE ARCHITECT PLANS FOR FOOTPATH LOCATION DETAILS

REFER TO ENGINEERING PLANS FOR SITE REGRADING

**NOTE:**  
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REFER HCC STANDARD DRAWING No. SD3.

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. JBPB0565  
These plans/specifications form part of the certificate issued 5 March 2018



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PRINCIPAL:  
**REDBANK**  
AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
TYPICAL CROSS SECTIONS  
SHEET 2 OF 3

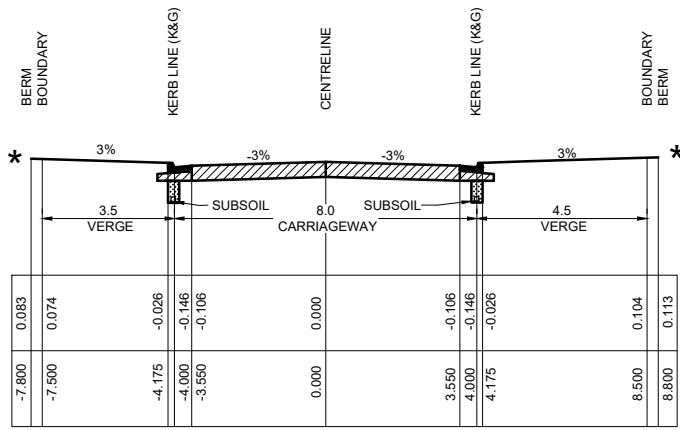
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FILE No: 11018511CC007  
SHEET SIZE: A1 ORIGINAL

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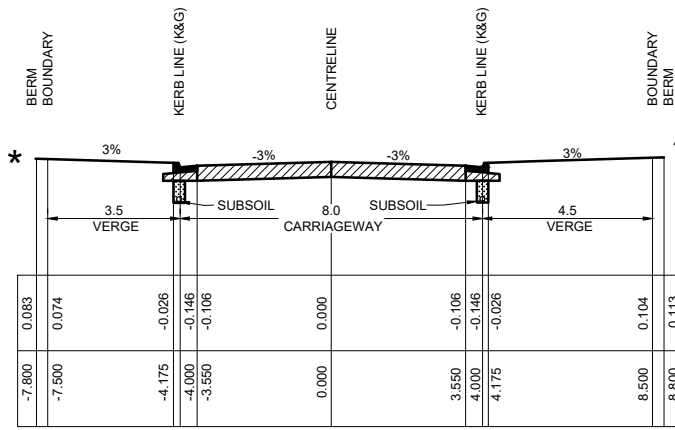
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B	ADDITIONAL SUBSOIL DETAILS ADDED	MP	MG	RO	MS	23/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



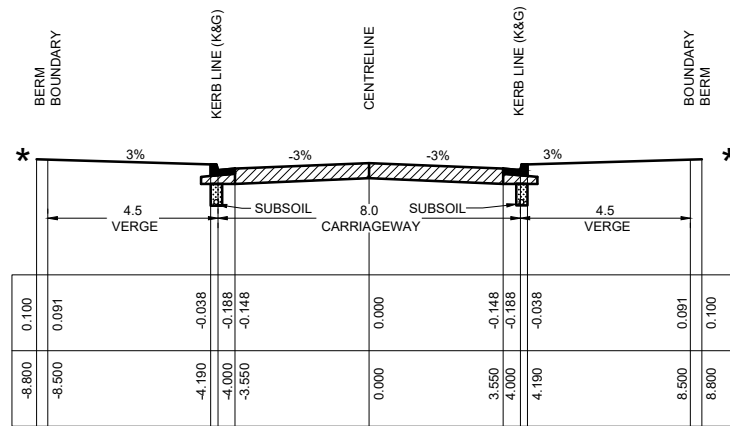
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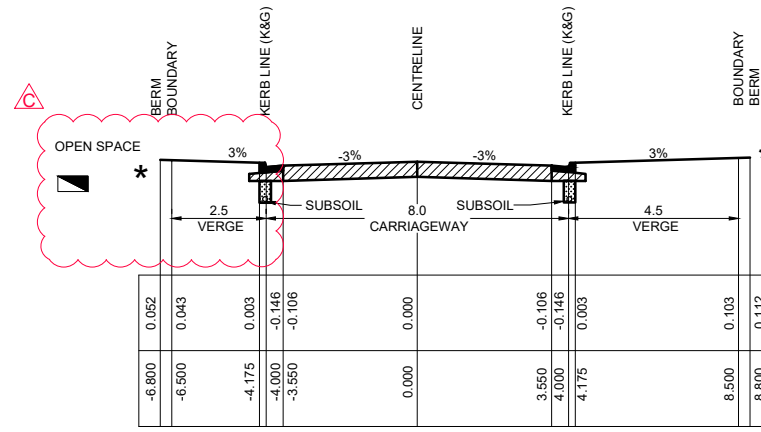
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ROAD No.32  
(16m ROAD RESERVE)  
SCALE 1:100 NATURAL



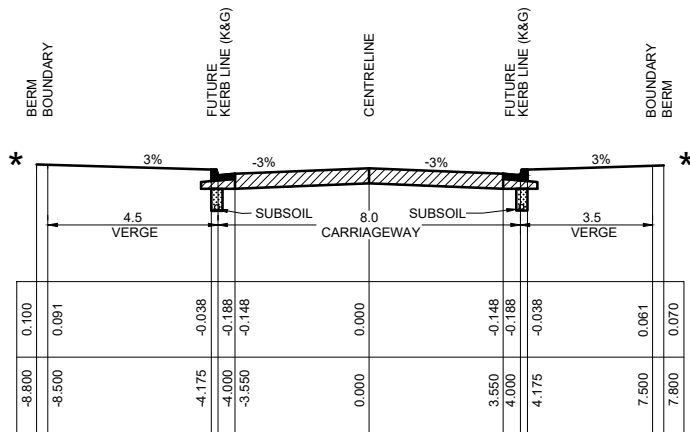
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ROAD No.34 (CH53.000 - CH94.070)  
(16m ROAD RESERVE)  
SCALE 1:100 NATURAL



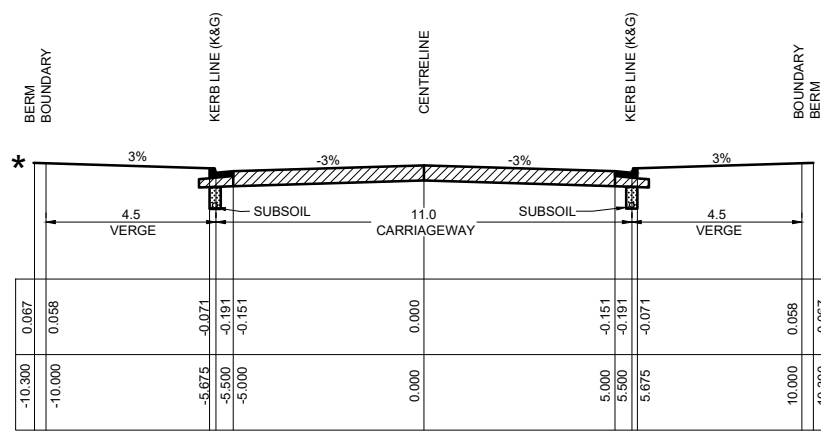
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ROAD No.29  
(17m ROAD RESERVE)  
SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
ROAD No.34 (CH0.000 - CH53.000) - OPEN SPACE  
(15m ROAD RESERVE)  
SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
ROAD No.28 (CH0.000 - CH63.000)  
(16m ROAD RESERVE)  
SCALE 1:100 NATURAL



**TYPICAL CROSS SECTION**  
ROAD No. Y02  
(20m ROAD RESERVE)  
SCALE 1:100 NATURAL

REFER TO LANDSCAPE ARCHITECT PLANS FOR FOOTPATH LOCATION DETAILS

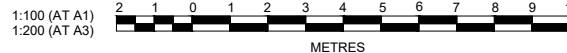
\* REFER TO ENGINEERING PLANS FOR SITE REGRADING

**NOTE:**  
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REFER HCC STANDARD DRAWING No. SD3.

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

C	BOUNDARY AMENDED	MP	CC	RO	RO	09/01/18
B	ADDITIONAL SUBSOIL DETAILS ADDED	MP	MG	RO	MS	23/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwpr@jwprince.com.au

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**

TYPICAL CROSS SECTIONS  
SHEET 3 OF 3

PLAN No:	11018511/CC008	C
FILE No:	11018511CC008	
SHEET SIZE:	A1 ORIGINAL	

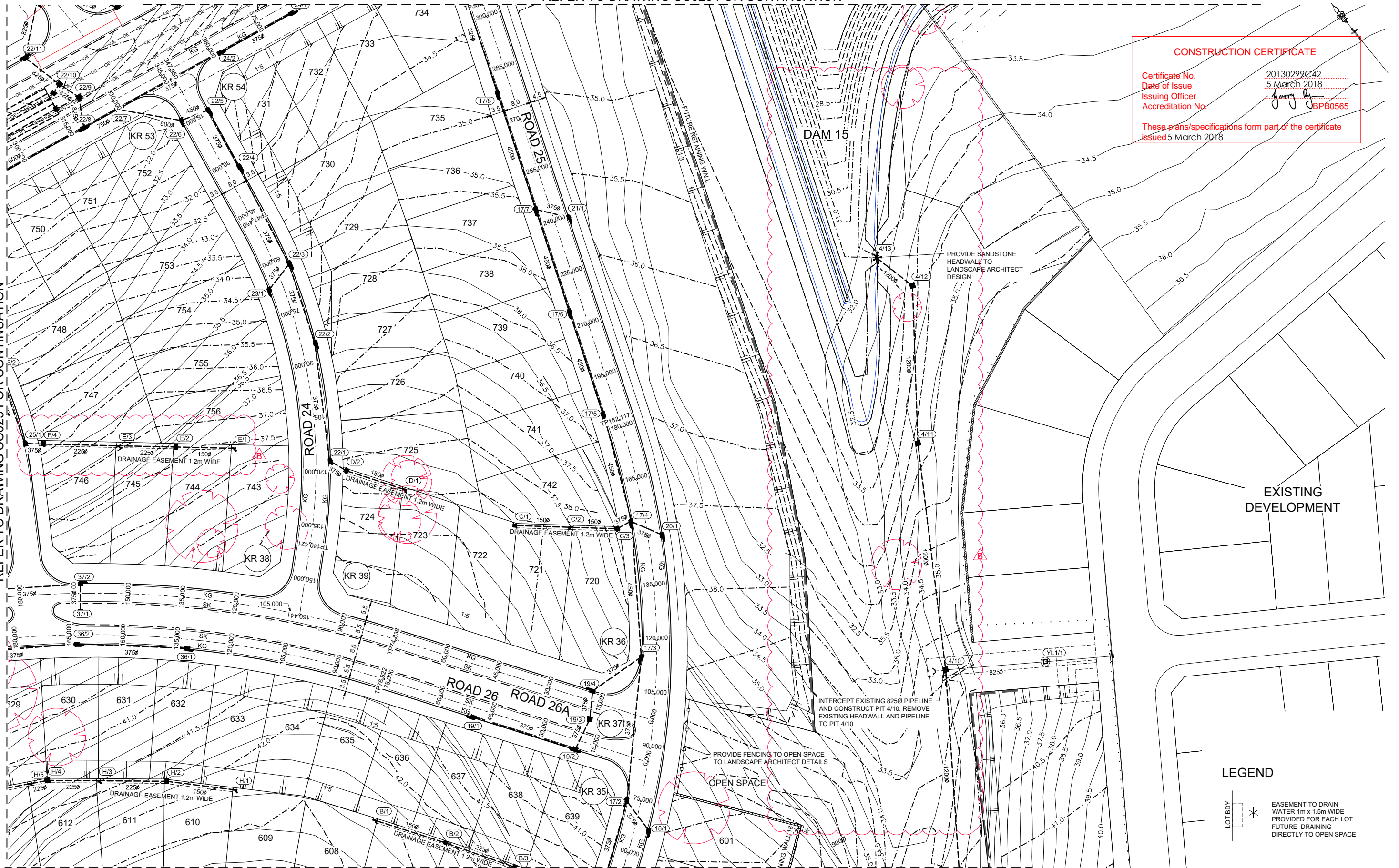


REFER TO DRAWING CC026 FOR CONTINUATION

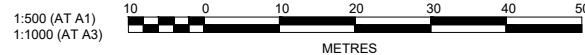
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018

REFER TO DRAWING CC023 FOR CONTINUATION



REFER TO DRAWING CC021 FOR CONTINUATION



**LEGEND**

LOT BDRY  
 \* EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT  
 FUTURE DRAINING DIRECTLY TO OPEN SPACE

Plotted: 9 February, 2018 4:35:41 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\110185\11CC022.dwg

B	INTERNAL RETAINING WALLS REMOVED AND DAM15 REDESIGNED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ENGINEERING PLAN  
 SHEET 2 OF 6

PLAN No: 11018511/CC022 **B**  
 FILE No: 11018511CC022  
 SHEET SIZE: A1 ORIGINAL

**NOTE**

**PROPOSED LOCATION / FOOTPRINT OF HYDROCON PIPE / RAINGARDEN :**

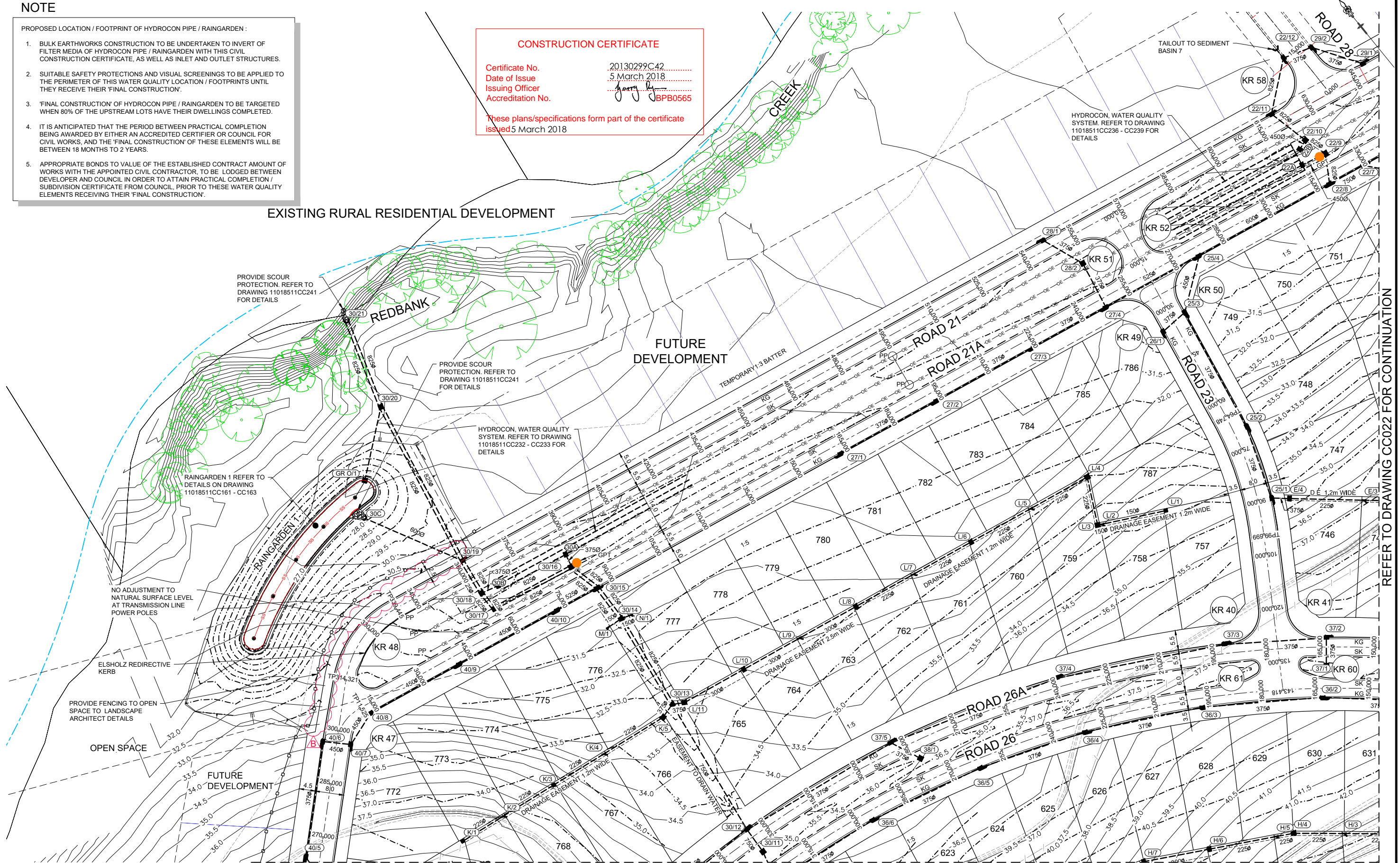
1. BULK EARTHWORKS CONSTRUCTION TO BE UNDERTAKEN TO INVERT OF FILTER MEDIA OF HYDROCON PIPE / RAINGARDEN WITH THIS CIVIL CONSTRUCTION CERTIFICATE, AS WELL AS INLET AND OUTLET STRUCTURES.
2. SUITABLE SAFETY PROTECTIONS AND VISUAL SCREENINGS TO BE APPLIED TO THE PERIMETER OF THIS WATER QUALITY LOCATION / FOOTPRINTS UNTIL THEY RECEIVE THEIR 'FINAL CONSTRUCTION'.
3. 'FINAL CONSTRUCTION' OF HYDROCON PIPE / RAINGARDEN TO BE TARGETED WHEN 80% OF THE UPSTREAM LOTS HAVE THEIR DWELLINGS COMPLETED.
4. IT IS ANTICIPATED THAT THE PERIOD BETWEEN PRACTICAL COMPLETION BEING AWARDED BY EITHER AN ACCREDITED CERTIFIER OR COUNCIL FOR CIVIL WORKS, AND THE 'FINAL CONSTRUCTION' OF THESE ELEMENTS WILL BE BETWEEN 18 MONTHS TO 2 YEARS.
5. APPROPRIATE BONDS TO VALUE OF THE ESTABLISHED CONTRACT AMOUNT OF WORKS WITH THE APPOINTED CIVIL CONTRACTOR, TO BE LODGED BETWEEN DEVELOPER AND COUNCIL IN ORDER TO ATTAIN PRACTICAL COMPLETION / SUBDIVISION CERTIFICATE FROM COUNCIL, PRIOR TO THESE WATER QUALITY ELEMENTS RECEIVING THEIR 'FINAL CONSTRUCTION'.

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry By*  
 Accreditation No. BPB0565

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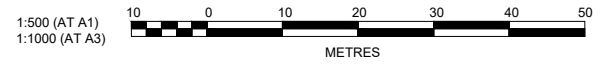
**EXISTING RURAL RESIDENTIAL DEVELOPMENT**



Plotted: 9 February, 2018 4:31:31 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CCY\EOMANS\1101851CC023.dwg

REFER TO DRAWING CC022 FOR CONTINUATION

REFER TO DRAWING CC024 FOR CONTINUATION



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 ENGINEERING PLAN  
 SHEET 3 OF 6

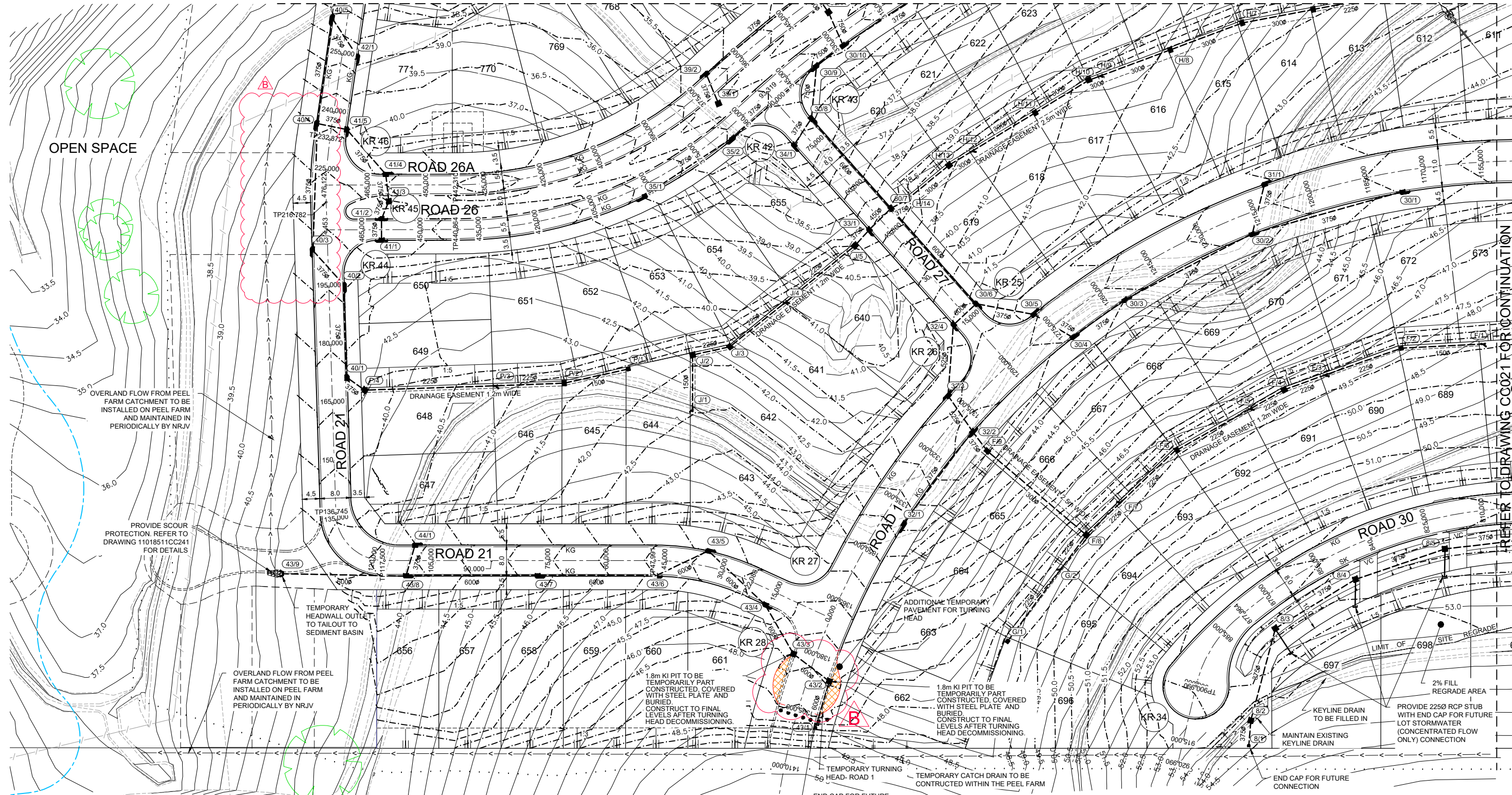
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 FILE No: 1101851CC023  
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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REFER TO DRAWING CC023 FOR CONTINUATION



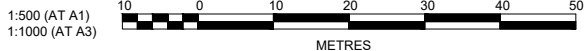
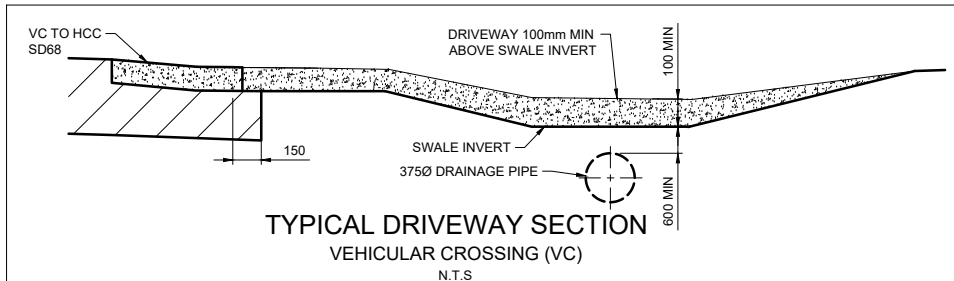
REFER TO DRAWING CC021 FOR CONTINUATION

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565

DAM 11

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**

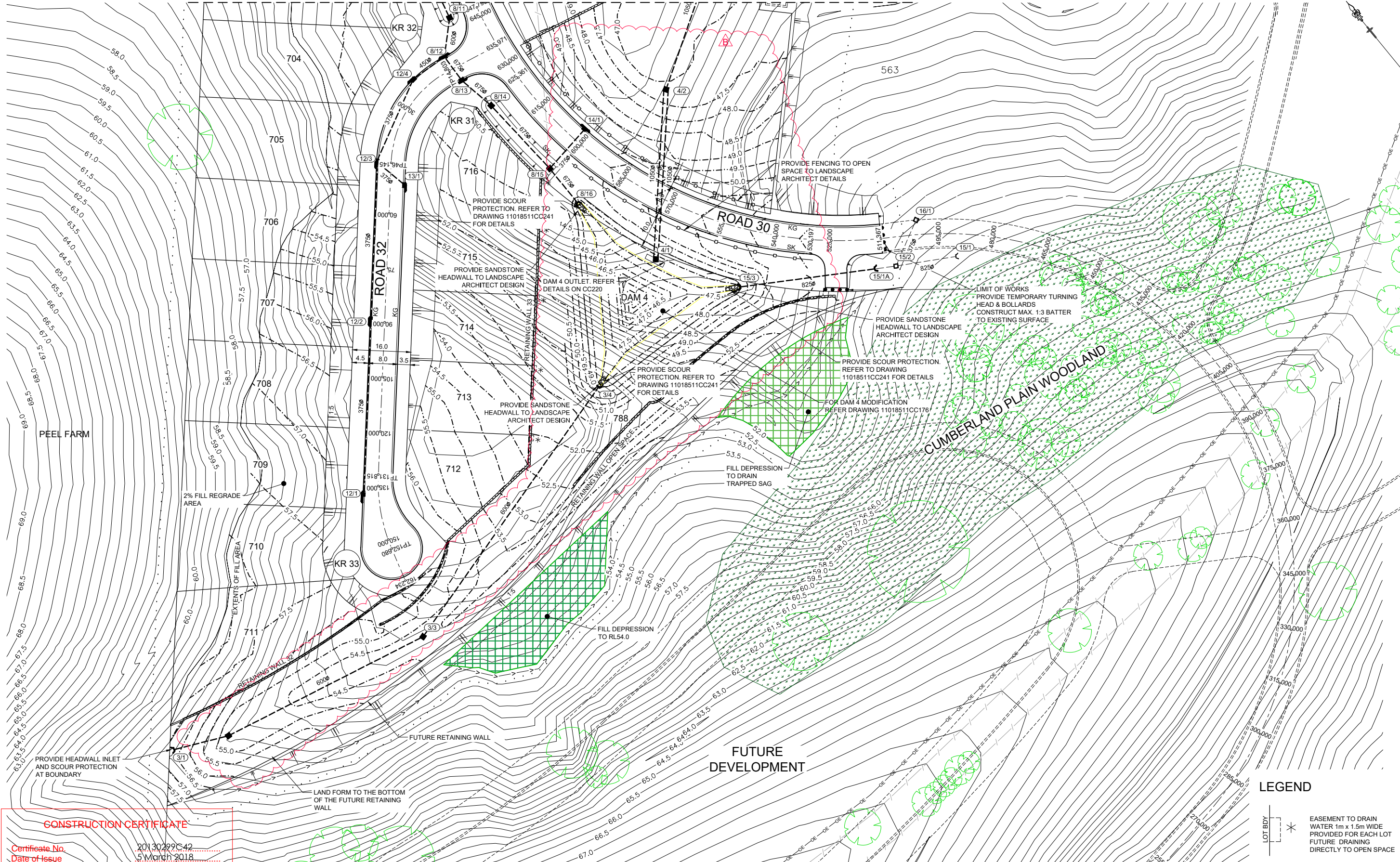
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ENGINEERING PLAN  
 SHEET 4 OF 6

PLAN No: 1101851/CC024 **B**  
 FILE No: 1101851CC024  
 SHEET SIZE: A1 ORIGINAL

B	TEMPORARY TURNING HEAD REDESIGNED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 9 February, 2018 4:32:40 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\1101851\CC024.dwg

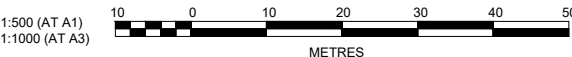
REFER TO DRAWING CC021 FOR CONTINUATION



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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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**LEGEND**

LOT B'DY

EASEMENT TO DRAIN WATER 1m x 1.5m WIDE PROVIDED FOR EACH LOT FUTURE DRAINING DIRECTLY TO OPEN SPACE

B	OPEN SPACE AND DAM 4 REDESIGNED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:

REDBANK NORTH RICHMOND

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

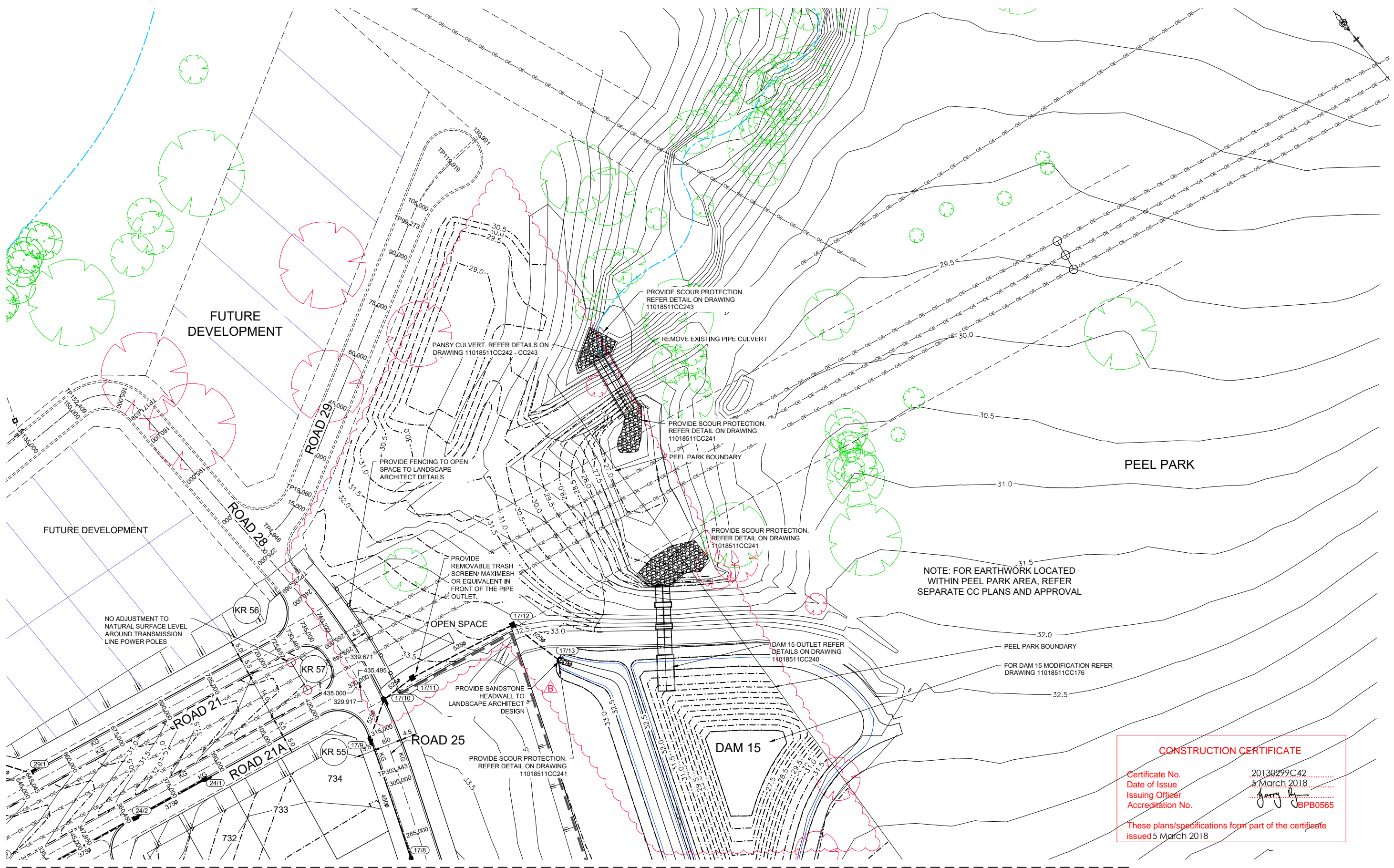
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ENGINEERING PLAN  
 SHEET 5 OF 6

PLAN No: 11018511/CC025 **B**  
 FILE No: 11018511CC025  
 SHEET SIZE: A1 ORIGINAL

Plotted: 9 February, 2018 4:35:50 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC025.dwg

Plotted: 9 February, 2018 5:28:07 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC026.dwg



REFER TO DRAWING CC022 FOR CONTINUATION

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Henry By...*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

B	DAM15 AND OPEN SPACE REDESIGNED PLUS BOUNDARY AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

ENGINEERING PLAN  
 SHEET 6 OF 6

PLAN No: 11018511/CC026 **B**  
 FILE No: 11018511CC026  
 SHEET SIZE: A1 ORIGINAL

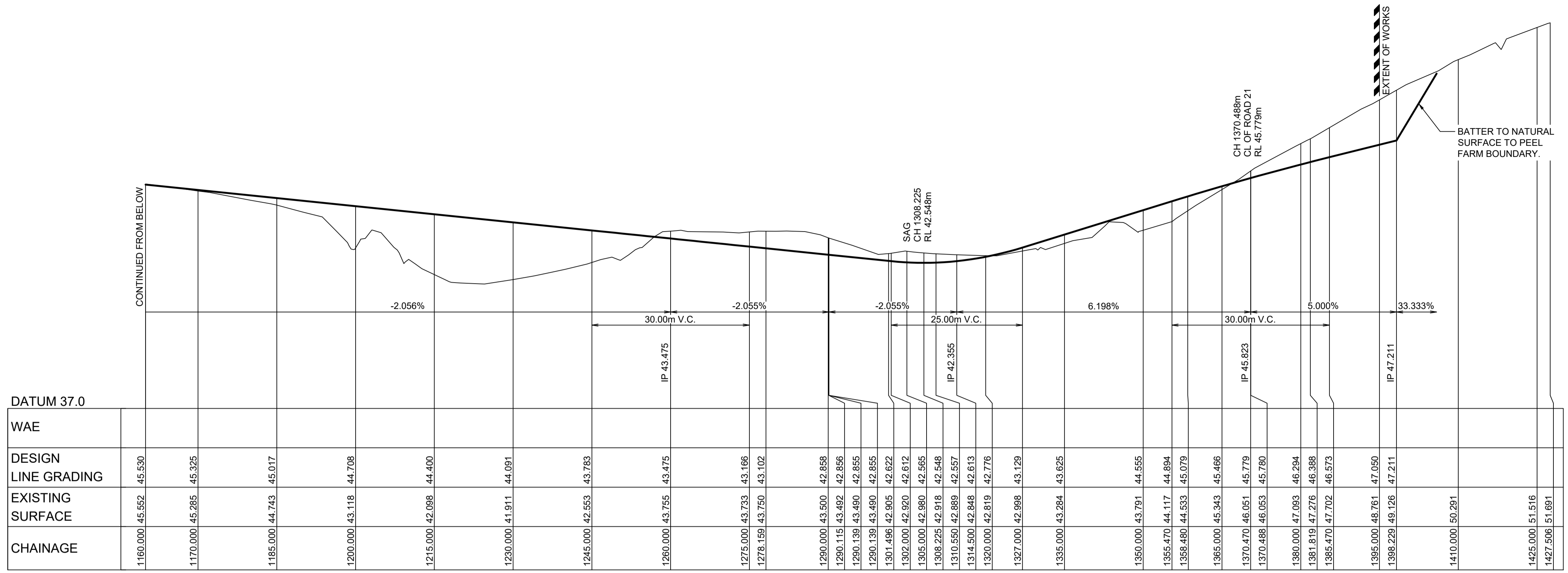
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

# PAVEMENT EVALUATION

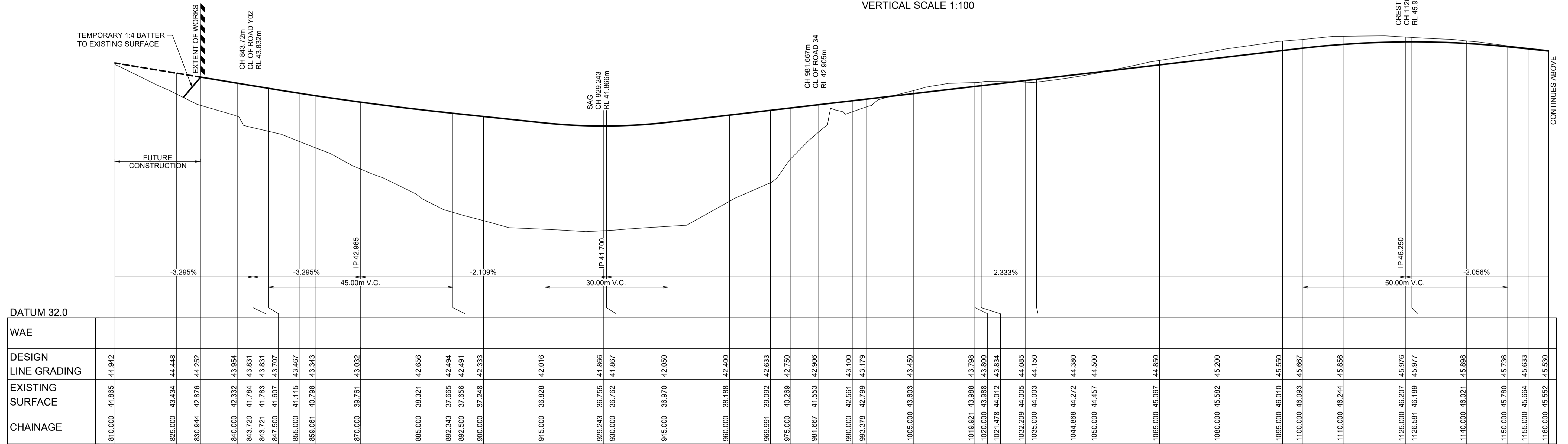
PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

ROAD 1 (LOCAL ROADS) ESA 1x10<sup>6</sup>

AC10 (mm)	= 2x25
ONE COAT HOT BITUMEN FLUSH SEAL	= 150
BASE COURSE (mm) DGB20	= 340
SUB-BASE COURSE (mm)	= 540
CRUSHED SANDSTONE	= 540
TOTAL (mm)	= 1540



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



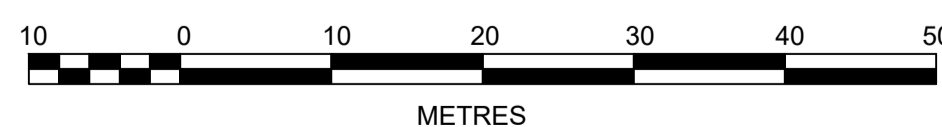
LONGITUDINAL SECTION ROAD 1  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100

### CONSTRUCTION CERTIFICATE

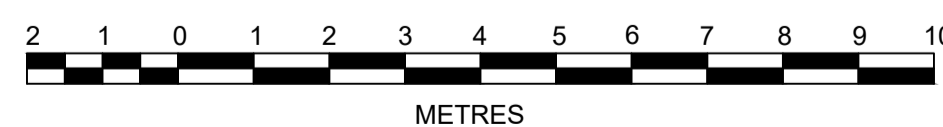
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

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



1:100 (AT A1)  
1:200 (AT A3)



PRINCIPAL:



AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
ROAD LONGITUDINAL  
SHEET 1 OF 9

PLAN No: 11018511/CC041 A  
FILE No: 11018511CC041  
SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

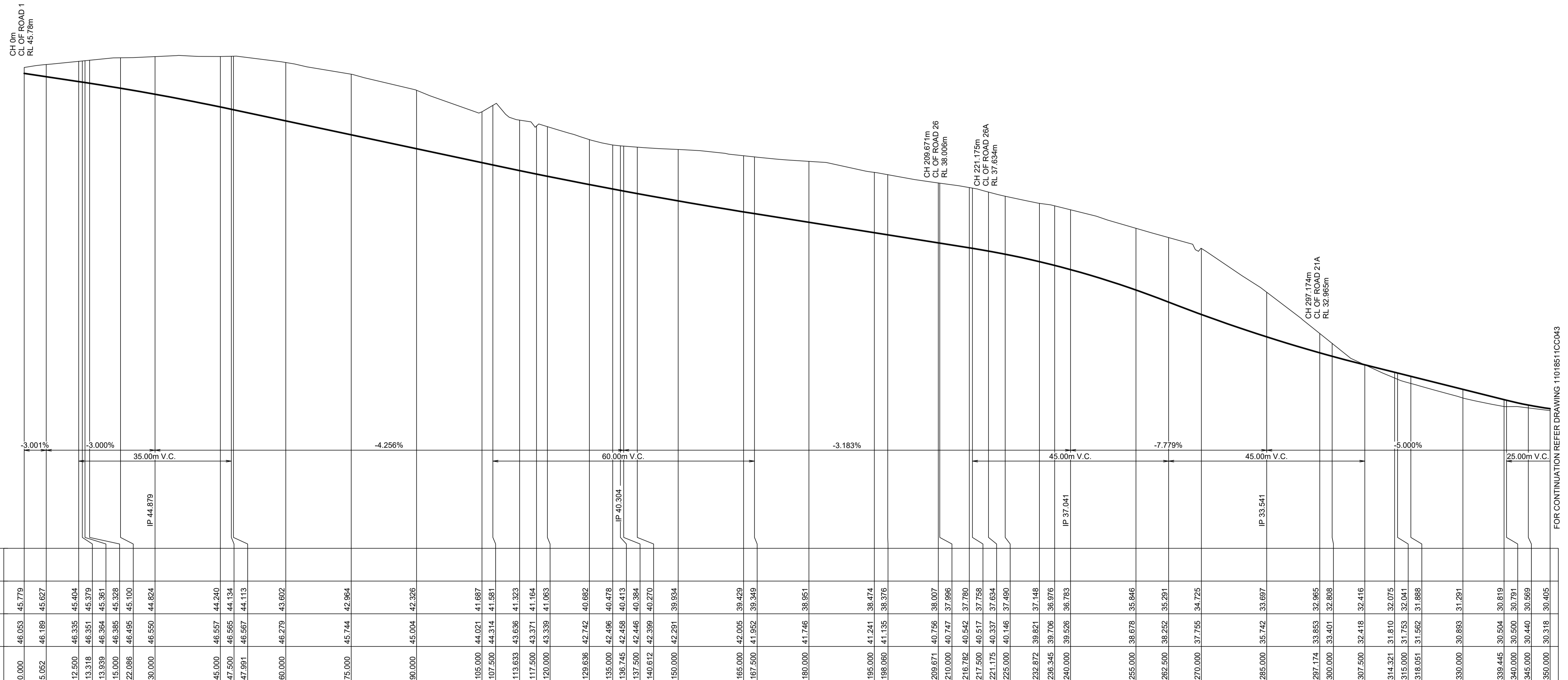
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au



# PAVEMENT EVALUATION

PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

ROAD 21 (LOCAL ROADS) ESA 2x10<sup>5</sup>  
 AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL  
 BASE COURSE (mm) DGB20 = 150  
 SUB-BASE COURSE (mm) = 250  
 CRUSHED SANDSTONE  
 TOTAL (mm) = 450



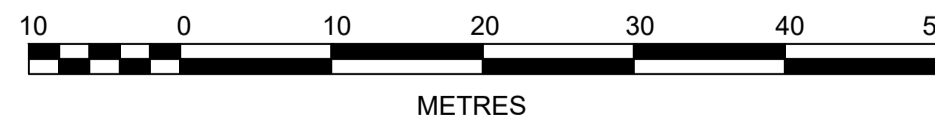
CHAINAGE	EXISTING SURFACE	DESIGN LINE GRADING	WAE
0.000	46.053	45.779	
5.052	46.189	45.627	
12.500	46.335	45.404	
13.318	46.351	45.379	
13.939	46.364	45.381	
15.000	46.385	45.328	
22.086	46.495	45.100	
30.000	46.550	44.824	
45.000	46.557	44.240	
47.500	46.565	44.134	
47.991	46.567	44.113	
60.000	46.279	43.602	
75.000	45.744	42.964	
90.000	45.004	42.326	
105.000	44.021	41.687	
107.500	44.314	41.581	
113.633	43.636	41.323	
117.500	43.371	41.164	
120.000	43.339	41.063	
129.636	42.742	40.682	
135.000	42.496	40.478	
136.745	42.458	40.413	
137.500	42.446	40.384	
140.612	42.399	40.270	
150.000	42.291	39.934	
165.000	42.005	39.429	
167.500	41.952	39.349	
180.000	41.746	38.951	
195.000	41.241	38.474	
199.000	41.135	38.376	
209.671	40.756	38.007	
210.000	40.747	37.996	
216.782	40.542	37.780	
217.500	40.517	37.758	
221.175	40.337	37.634	
225.000	40.146	37.490	
232.872	39.821	37.148	
236.345	39.706	36.976	
240.000	39.526	36.783	
255.000	38.678	35.846	
262.500	38.252	35.291	
270.000	37.755	34.725	
285.000	35.742	33.697	
297.174	33.853	32.965	
300.000	33.401	32.808	
307.500	32.418	32.416	
314.321	31.810	32.075	
315.000	31.753	32.041	
318.051	31.562	31.888	
330.000	30.893	31.291	
339.445	30.504	30.819	
340.000	30.500	30.791	
345.000	30.440	30.569	
350.000	30.318	30.405	

LONGITUDINAL SECTION ROAD 21  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

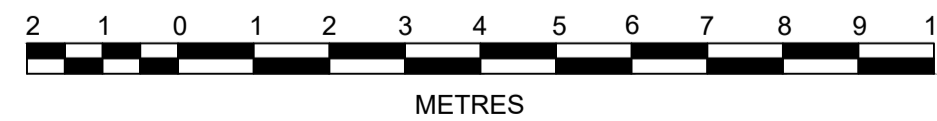
### CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018

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



1:100 (AT A1)  
 1:200 (AT A3)



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:



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ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 2 OF 9

PLAN No: 11018511/CC042 **A**  
 FILE No: 11018511CC042  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 4:34:17 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC043.dwg

IP 32.051 CONTINUED FROM BELOW  
 35.00m V.C.  
 3.208%

DATUM 25.0	
WAE	
DESIGN LINE GRADING	700.000 32.085 31.973
EXISTING SURFACE	705.000 32.349 32.172
CHAINAGE	717.500 32.829 32.613
	720.000 32.846 32.693
	725.657 32.811 32.874
	730.495 32.795 33.030
	735.000 32.727 33.174
	740.222 32.622 33.342

**LONGITUDINAL SECTION ROAD 21**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

CH 740.222m  
 CL OF ROAD 29  
 RL 33.342m

FOR CONTINUATION REFER DRAWING 11018511CC042

DATUM 23.0	
WAE	
DESIGN LINE GRADING	350.000 30.318 30.405
EXISTING SURFACE	352.500 30.257 30.344
CHAINAGE	360.000 30.203 30.247
	361.932 30.188 30.243
	365.000 30.161 30.253
	375.000 30.057 30.323
	390.000 29.803 30.428
	397.500 29.819 30.481
	405.000 29.835 30.528
	420.000 30.128 30.587
	432.487 30.414 30.603
	435.000 30.479 30.602
	450.000 30.551 30.572
	465.000 30.398 30.487
	472.500 30.324 30.443
	480.000 30.256 30.383
	495.000 30.088 30.263
	510.000 29.946 30.143
	525.000 29.759 30.023
	540.000 29.575 29.903
	555.000 29.495 29.783
	555.857 29.500 29.776
	568.357 29.766 29.676
	570.000 29.744 29.683
	580.857 29.565 29.576
	585.000 29.548 29.543
	600.000 29.353 29.423
	615.000 29.239 29.303
	618.670 29.215 29.283
	620.585 29.203 29.281
	622.670 29.198 29.284
	627.500 29.197 29.315
	630.000 29.196 29.344
	637.314 29.251 29.481
	640.000 29.306 29.551
	642.500 29.357 29.620
	645.000 29.409 29.691
	648.045 29.431 29.783
	660.000 29.766 30.192
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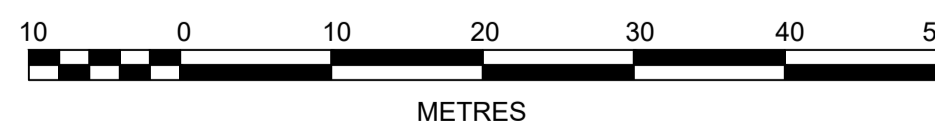
**LONGITUDINAL SECTION ROAD 21**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

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



1:100 (AT A1)  
 1:200 (AT A3)



AZIMUTH:  
MGA 56  
 DATUM:  
A.H.D  
 ORIGIN:

PRINCIPAL:



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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**  
 ROAD LONGITUDINAL  
 SHEET 3 OF 9

PLAN No: **11018511/CC043 A**

FILE No: 11018511CC043

SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

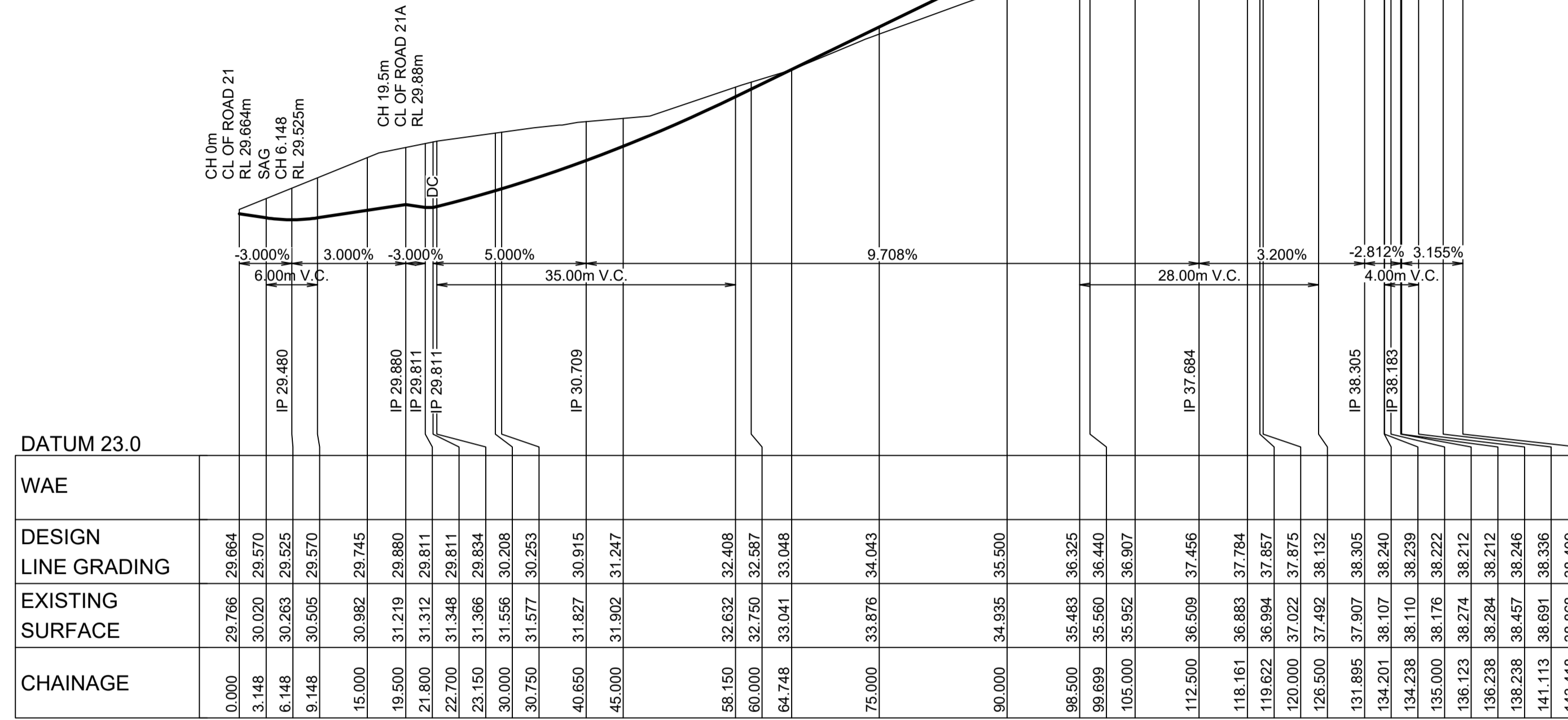
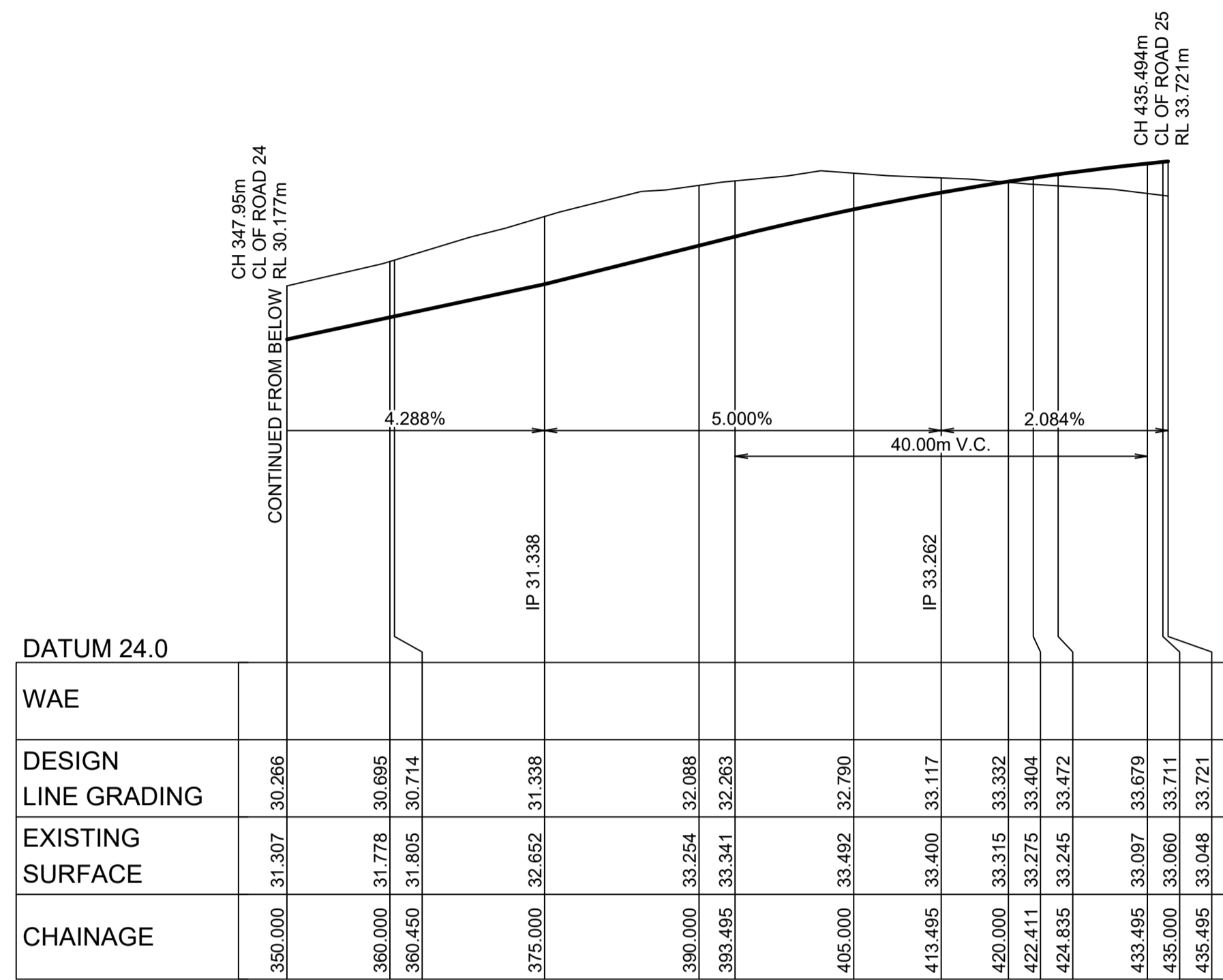
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)  
**ROAD 21A (LOCAL ROADS) ESA 2x10<sup>5</sup>**  
 AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 250  
 SUB-BASE COURSE (mm) = 450  
 CRUSHED SANDSTONE = 450  
**TOTAL (mm) = 450**

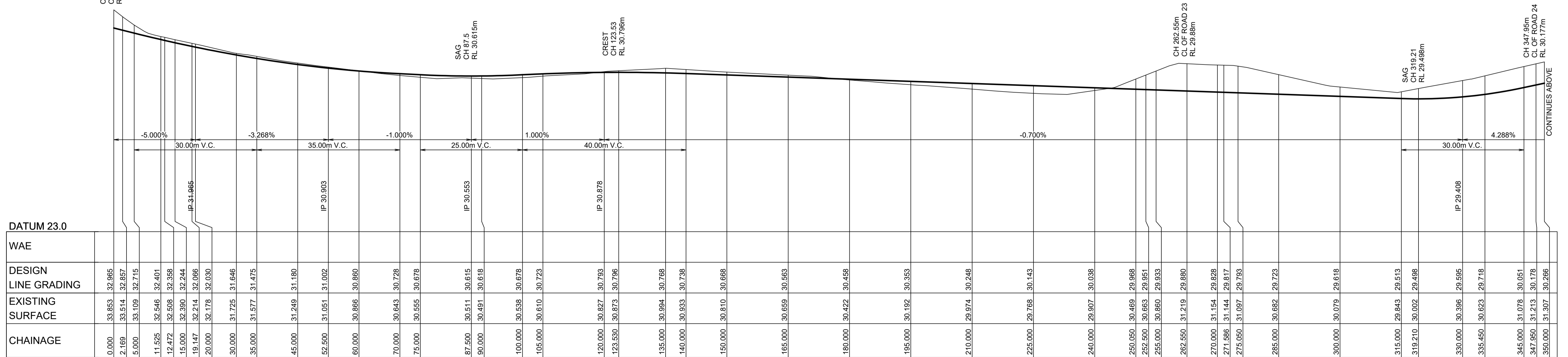
**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)  
**ROAD 23 (LOCAL ROADS) ESA 5x10<sup>4</sup>**  
 AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 200  
 SUB-BASE COURSE (mm) = 400  
 CRUSHED SANDSTONE = 400  
**TOTAL (mm) = 400**



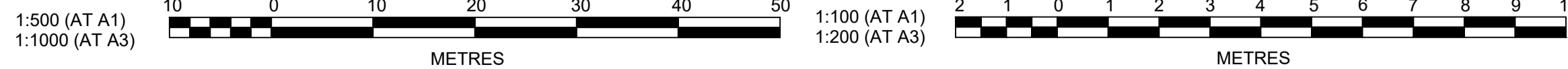
**LONGITUDINAL SECTION ROAD 21A**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

**LONGITUDINAL SECTION ROAD 23**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



**LONGITUDINAL SECTION ROAD 21A**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

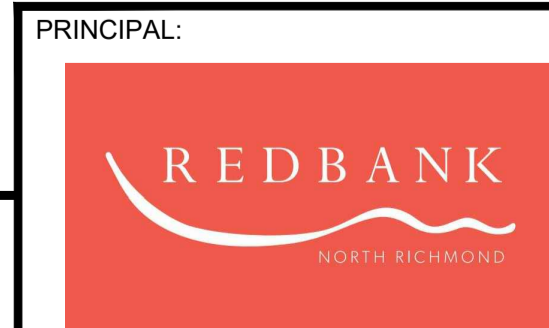
**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 4 OF 9

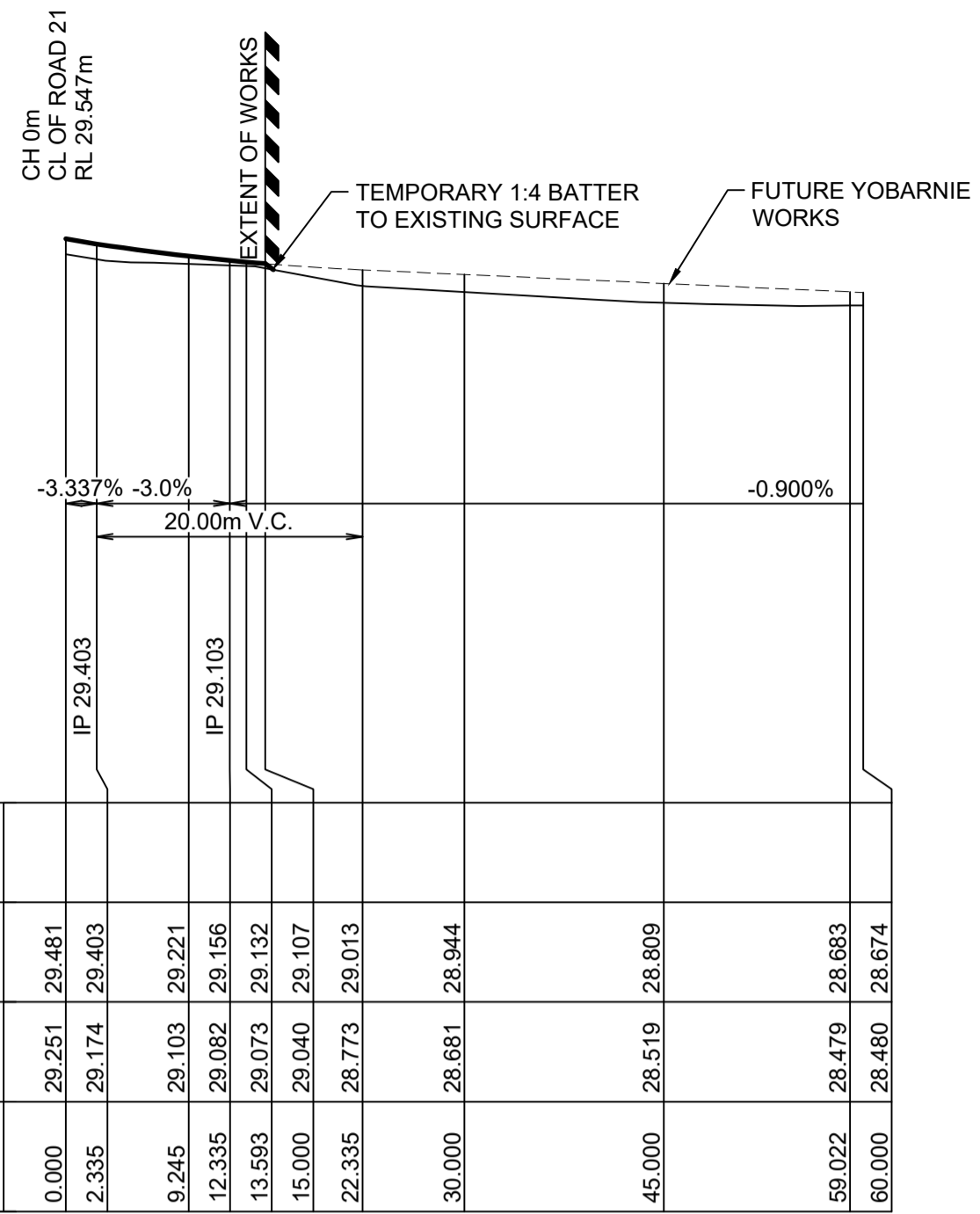
PLAN No: 11018511/CC044 **A**  
 FILE No: 11018511CC044  
 SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

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**PAVEMENT EVALUATION**

PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

**ROAD 28 (LOCAL ROADS) ESA 5x10<sup>4</sup>**

AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 200  
 SUB-BASE COURSE (mm) CRUSHED SANDSTONE = 400  
 TOTAL (mm) = 400

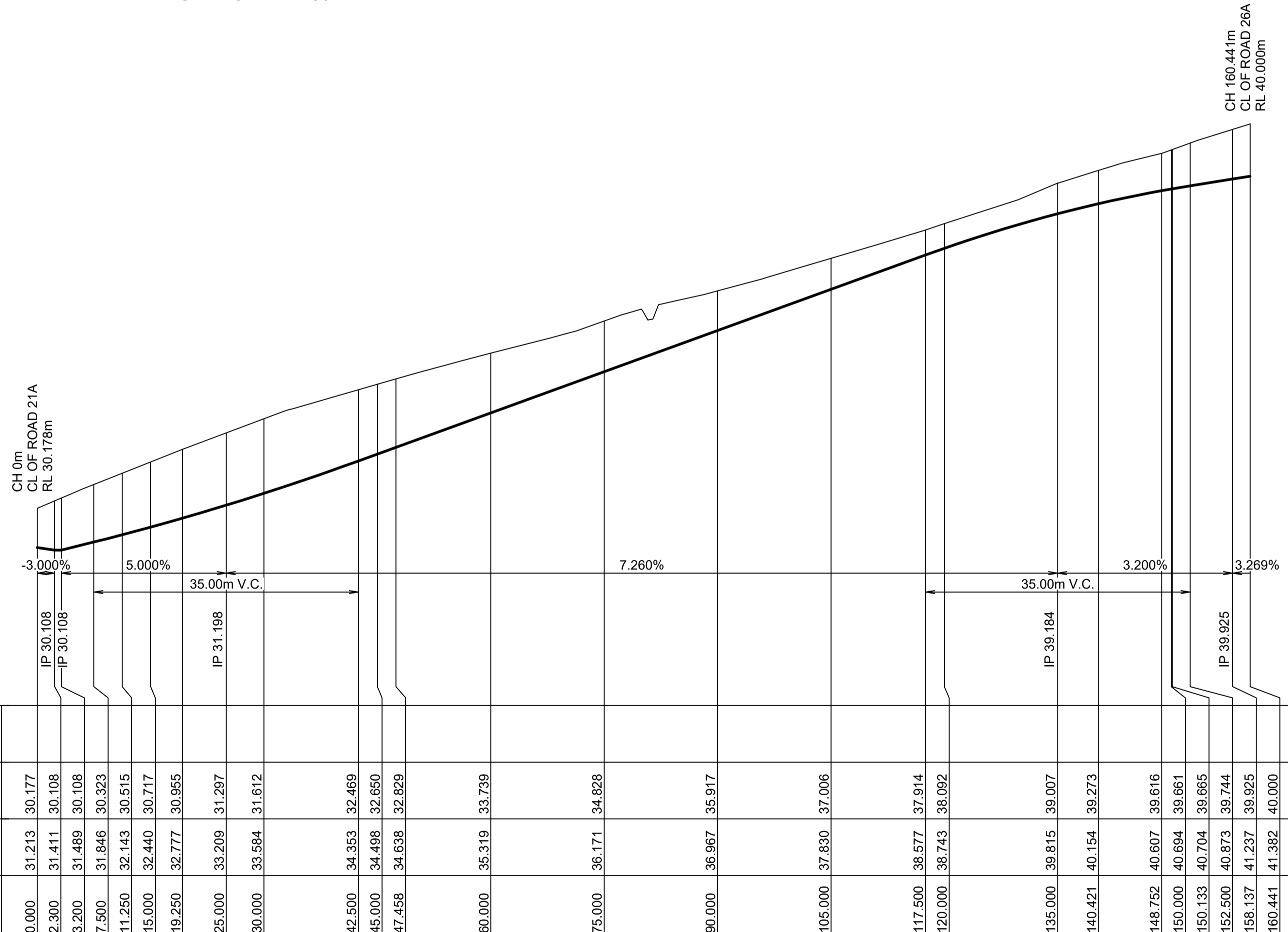
LONGITUDINAL SECTION ROAD 28  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

**PAVEMENT EVALUATION**

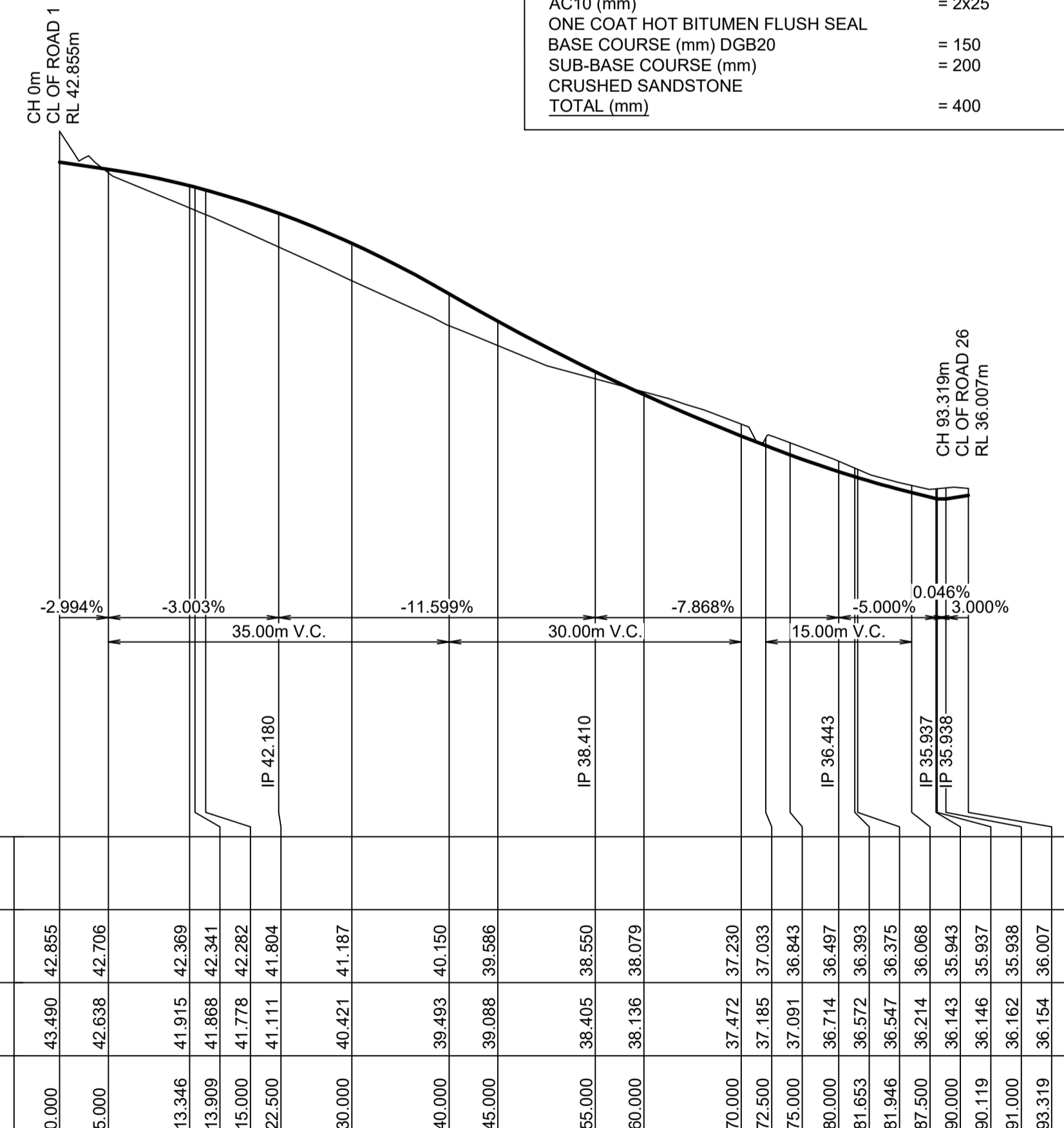
PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

**ROAD 24 (LOCAL ROADS) ESA 5x10<sup>4</sup>**

AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 200  
 SUB-BASE COURSE (mm) CRUSHED SANDSTONE = 400  
 TOTAL (mm) = 400



LONGITUDINAL SECTION ROAD 24  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



LONGITUDINAL SECTION ROAD 27  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

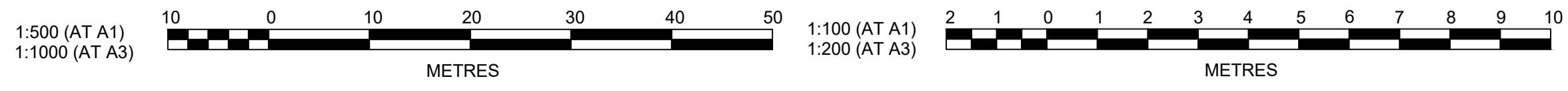
**PAVEMENT EVALUATION**

PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

**ROAD 27 (LOCAL ROADS) ESA 5x10<sup>4</sup>**

AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 200  
 SUB-BASE COURSE (mm) CRUSHED SANDSTONE = 400  
 TOTAL (mm) = 400

Plotted: 25 January, 2018 4:34:42 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC045\YEOMANS\11018511CC045.dwg



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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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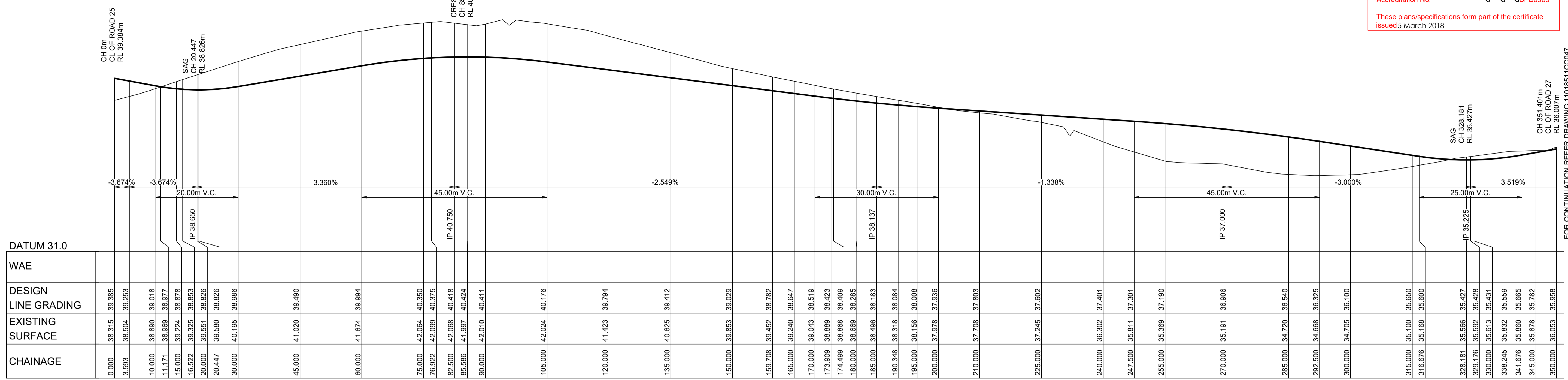
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 5 OF 9

PLAN No: 11018511/CC045 **A**  
 FILE No: 11018511CC045  
 SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
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**LONGITUDINAL SECTION ROAD 26**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

**PAVEMENT EVALUATION**

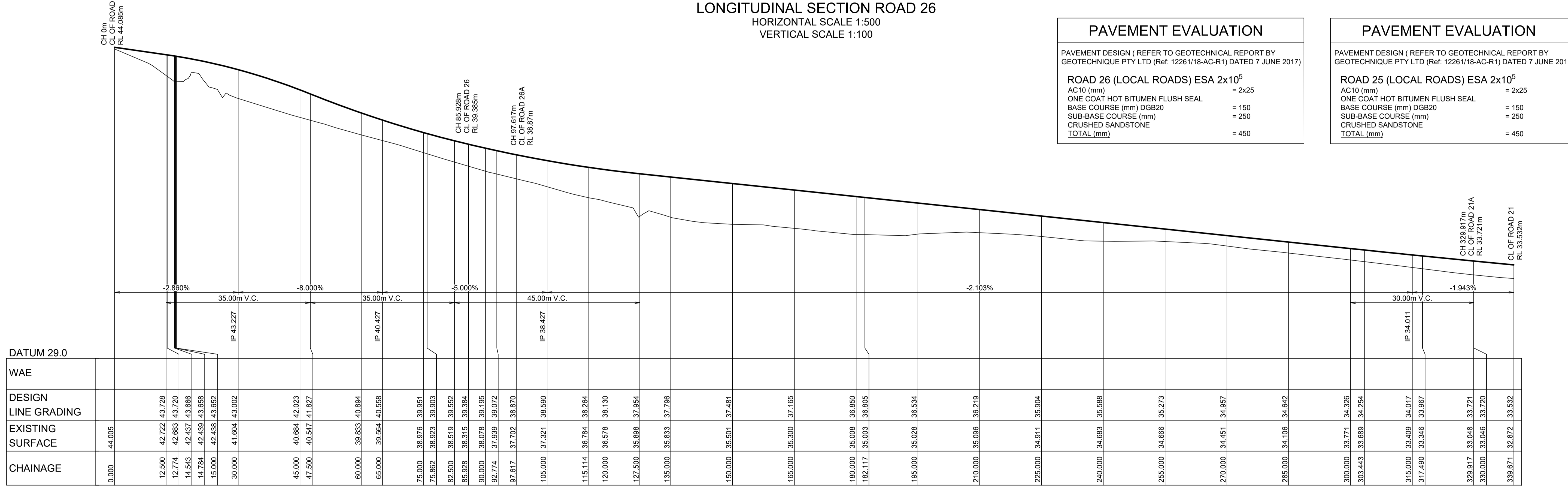
PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

ROAD 26 (LOCAL ROADS) ESA 2x10 <sup>5</sup>
AC10 (mm) = 2x25
ONE COAT HOT BITUMEN FLUSH SEAL = 150
BASE COURSE (mm) DGB20 = 250
SUB-BASE COURSE (mm) = 250
CRUSHED SANDSTONE = 450
TOTAL (mm) = 450

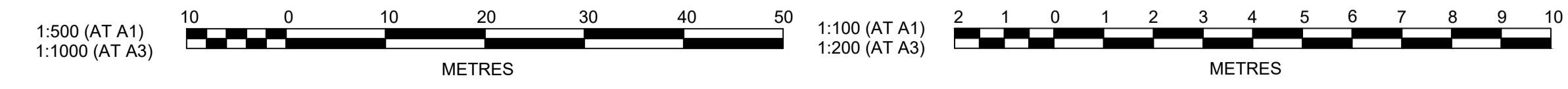
**PAVEMENT EVALUATION**

PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

ROAD 25 (LOCAL ROADS) ESA 2x10 <sup>5</sup>
AC10 (mm) = 2x25
ONE COAT HOT BITUMEN FLUSH SEAL = 150
BASE COURSE (mm) DGB20 = 250
SUB-BASE COURSE (mm) = 250
CRUSHED SANDSTONE = 450
TOTAL (mm) = 450



**LONGITUDINAL SECTION ROAD 25**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 6 OF 9

PLAN No: 11018511/CC046 **A**  
 FILE No: 11018511CC046  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 4:34:55 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC046\11018511CC046.dwg

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

FOR CONTINUATION REFER DRAWING 11018511CC047

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**PAVEMENT EVALUATION**

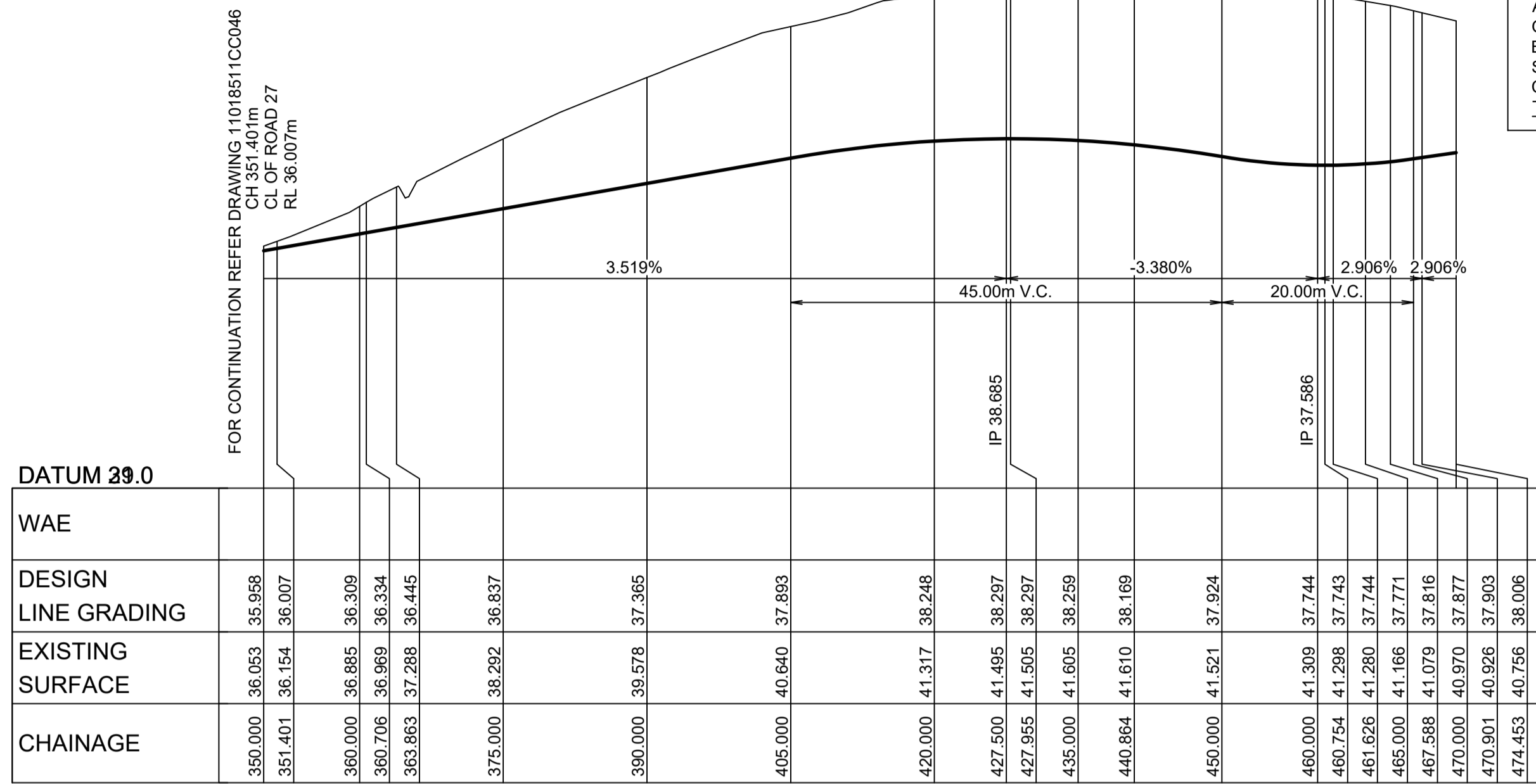
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**ROAD 26 (LOCAL ROADS) ESA 2x10<sup>5</sup>**  
 AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 250  
 SUB-BASE COURSE (mm) = 450  
 CRUSHED SANDSTONE = 450  
 TOTAL (mm) = 450

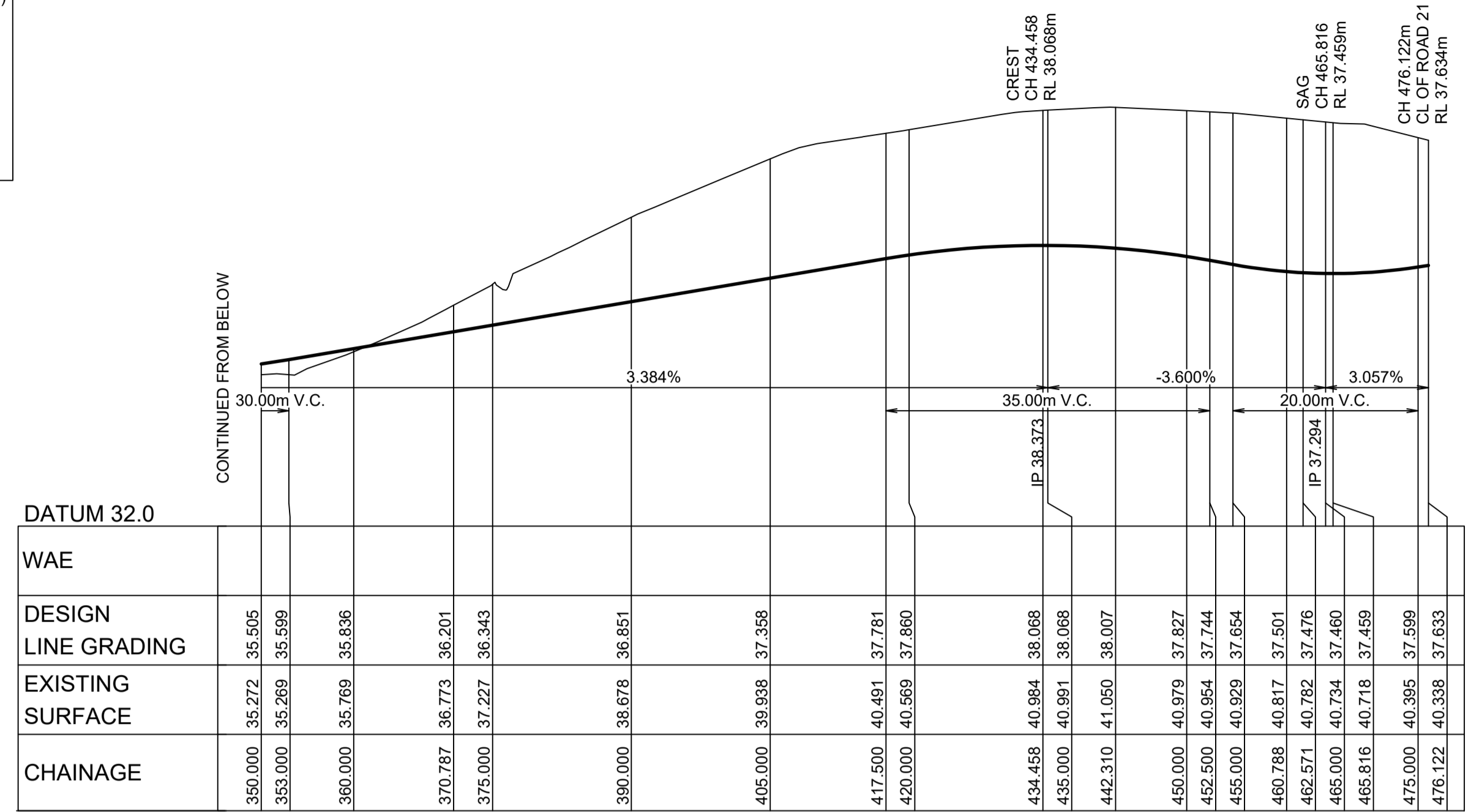
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PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

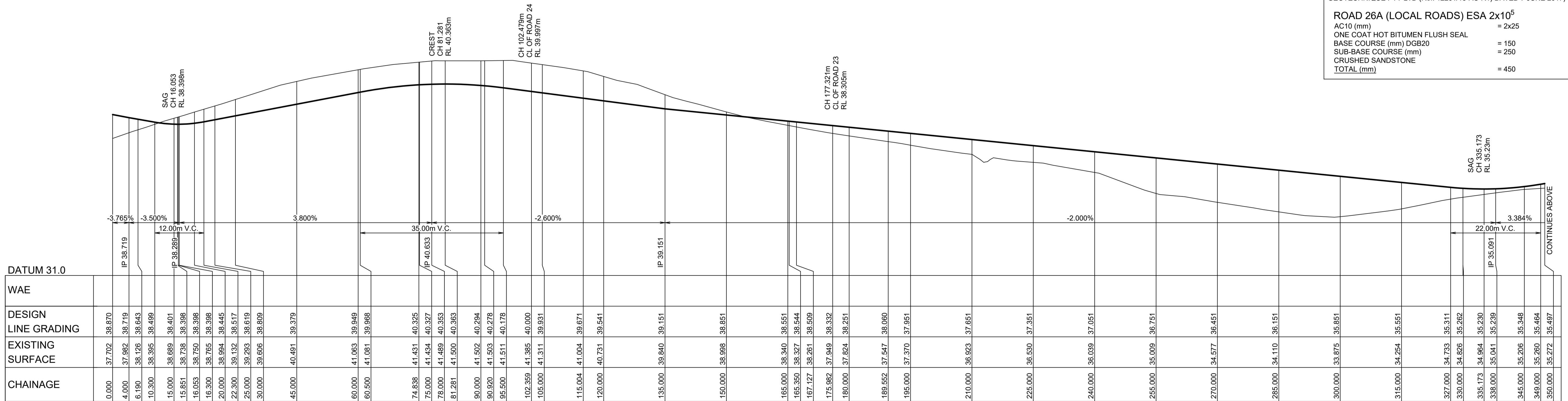
**ROAD 26A (LOCAL ROADS) ESA 2x10<sup>5</sup>**  
 AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 250  
 SUB-BASE COURSE (mm) = 450  
 CRUSHED SANDSTONE = 450  
 TOTAL (mm) = 450



**LONGITUDINAL SECTION ROAD 26**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



**LONGITUDINAL SECTION ROAD 26A**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



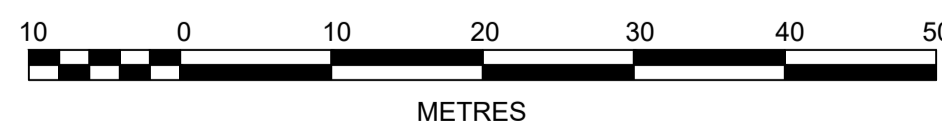
**LONGITUDINAL SECTION ROAD 26A**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100

**CONSTRUCTION CERTIFICATE**

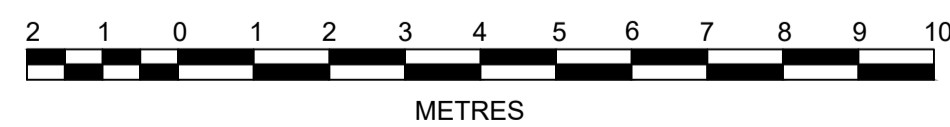
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

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



1:100 (AT A1)  
 1:200 (AT A3)



AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:



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

**ISSUED FOR CONSTRUCTION APPROVAL**

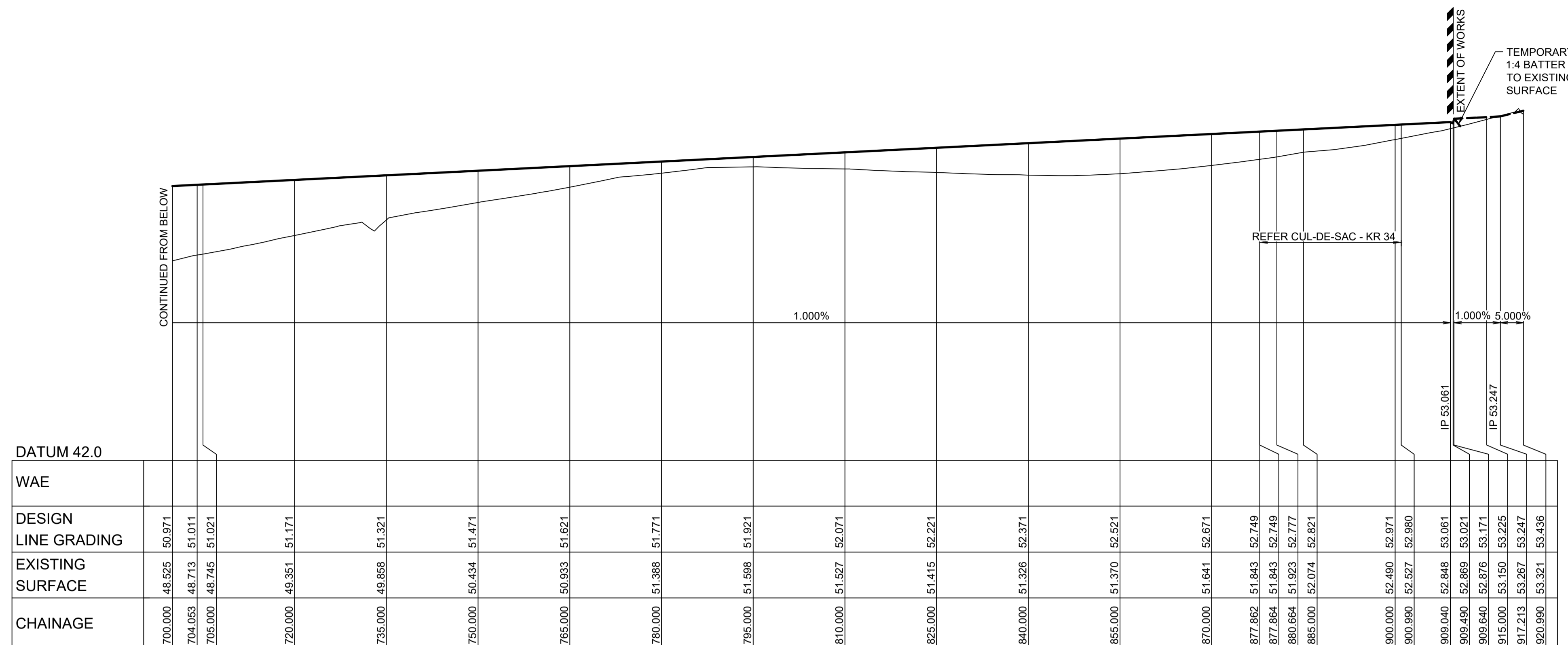
**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 7 OF 9

PLAN No: 11018511/CC047 **A**  
 FILE No: 11018511CC047  
 SHEET SIZE: A1 ORIGINAL

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	AMENDMENT	DES	DRN	CKD	APR	DATE

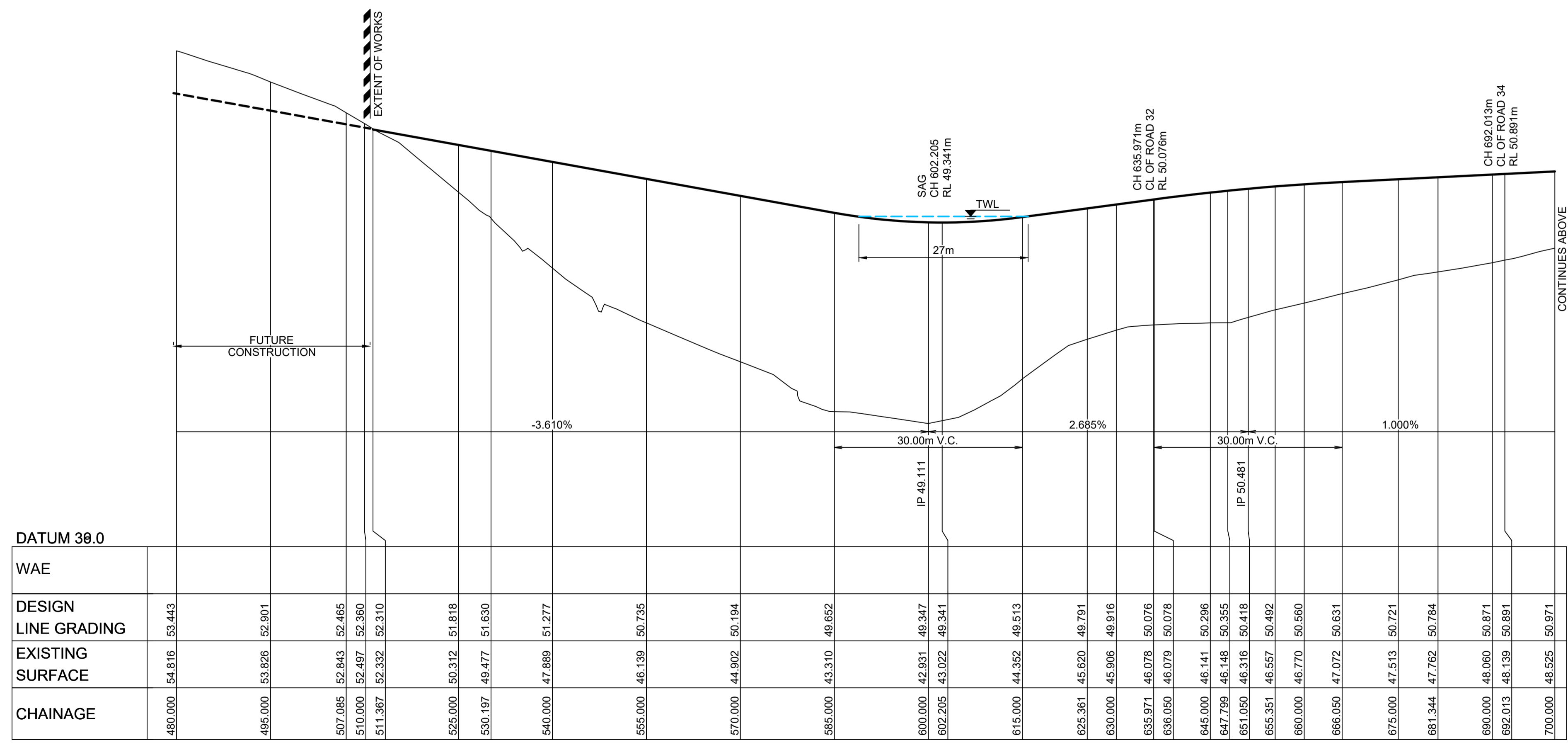
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 25 January, 2018 4:35:20 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC04\YEOMANS\11018511CC048.dwg



LONGITUDINAL SECTION ROAD 30  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100

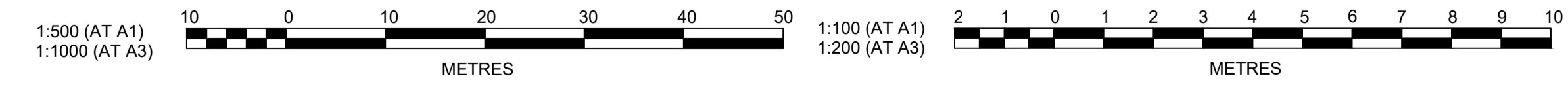
**BASIN 4 OVERLAND FLOW:**  
BASIN OUTLET 2x9000 Q<sub>100</sub> = 5.4 m<sup>3</sup> / s  
ASSUME 50% BLOCKAGE  
OVERFLOW = 2.7 m<sup>3</sup> / s  
TOP RL. 49.52. LENGTH = 27m  
MAX DEPTH = 0.26m



**PAVEMENT EVALUATION**  
PAVEMENT DESIGN (REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)  
**ROAD 30 (LOCAL ROADS) ESA 2x10<sup>5</sup>**  
AC10 (mm) = 2x25  
ONE COAT HOT BITUMEN FLUSH SEAL = 150  
BASE COURSE (mm) DGB20 = 250  
SUB-BASE COURSE (mm) = 450  
CRUSHED SANDSTONE  
TOTAL (mm) = 450

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 5 March 2018

LONGITUDINAL SECTION ROAD 30  
HORIZONTAL SCALE 1:500  
VERTICAL SCALE 1:100



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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:  
**REDBANK**  
NORTH RICHMOND  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
ROAD LONGITUDINAL  
SHEET 8 OF 9

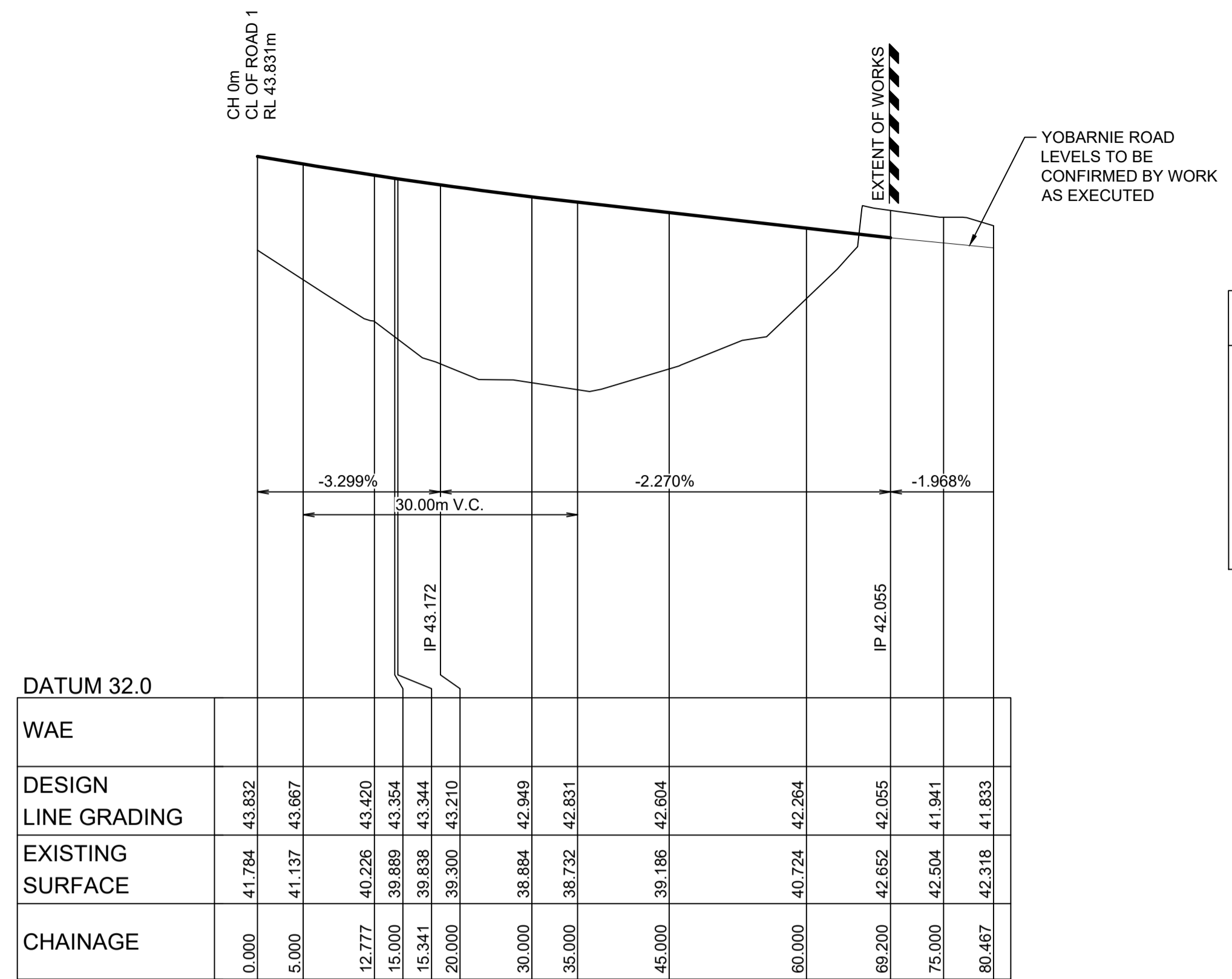
PLAN No: 11018511/CC048 **A**  
FILE No: 11018511CC048  
SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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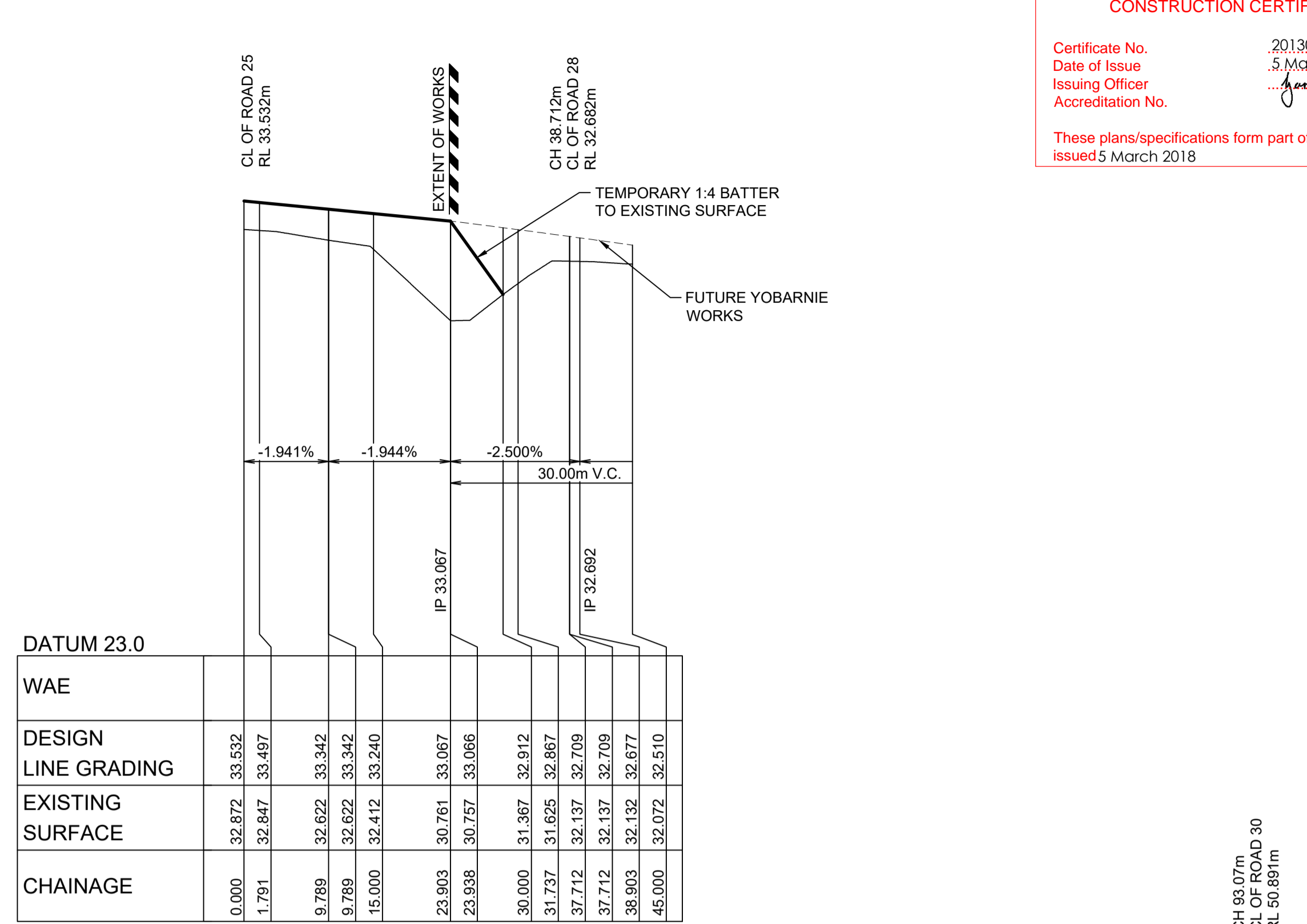


**PAVEMENT EVALUATION**

PAVEMENT DESIGN ( REFER TO GEOTECHNICAL REPORT BY GEOTECHNIQUE PTY LTD (Ref: 12261/18-AC-R1) DATED 7 JUNE 2017)

**ROAD Y02 & 29 (LOCAL ROADS) ESA 2x10<sup>5</sup>**

AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 250  
 SUB-BASE COURSE (mm) CRUSHED SANDSTONE = 450  
 TOTAL (mm) = 450

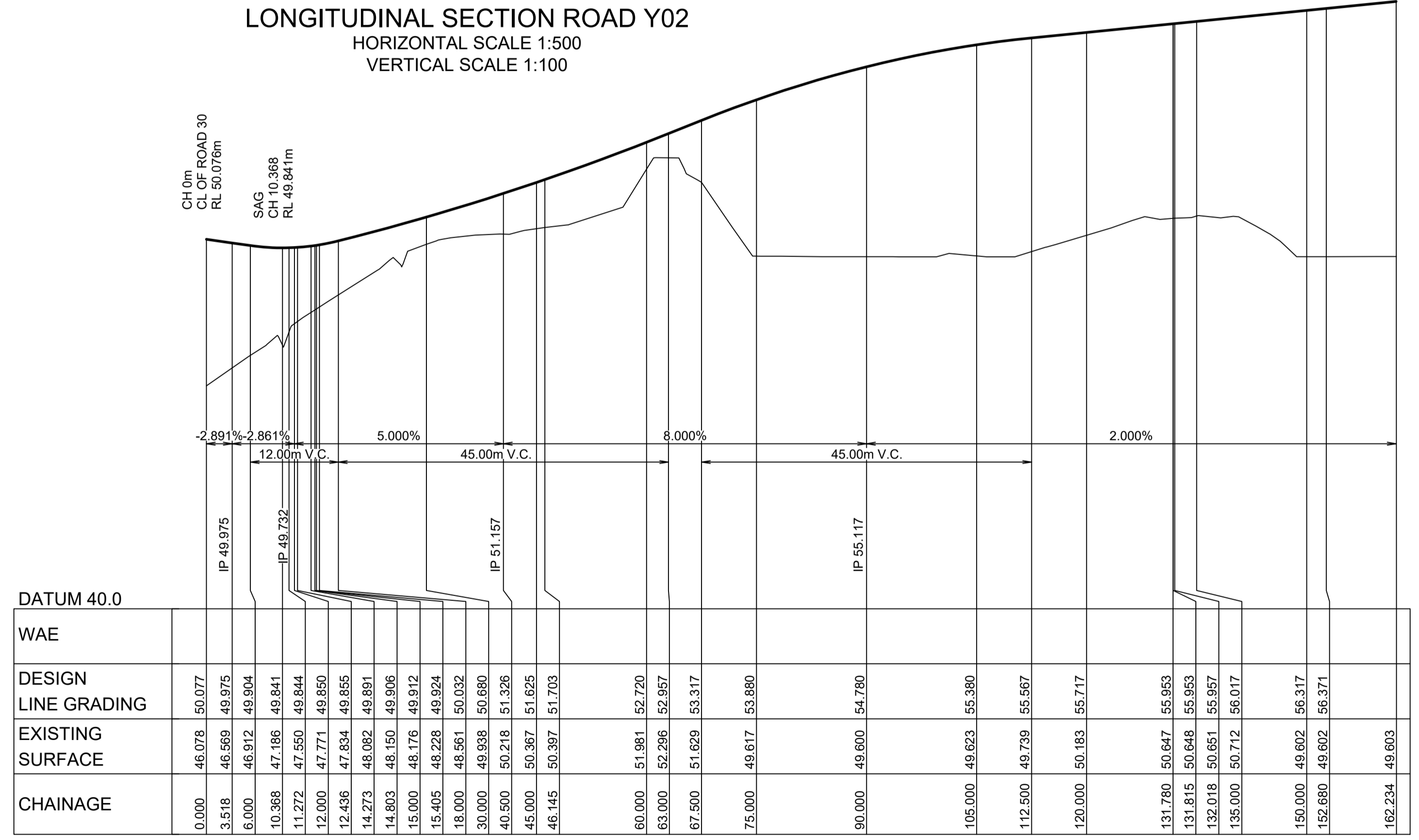


**PAVEMENT EVALUATION**

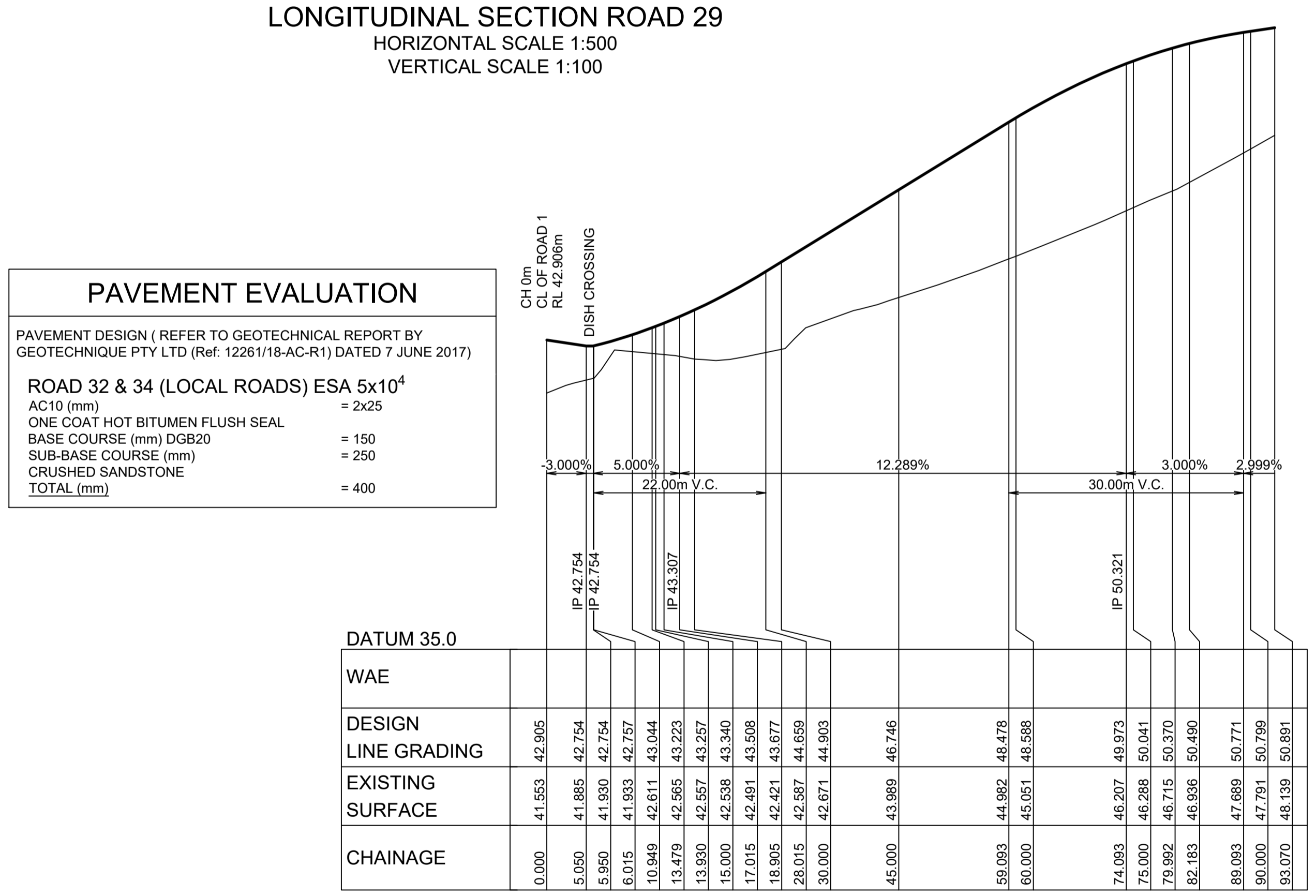
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**ROAD 32 & 34 (LOCAL ROADS) ESA 5x10<sup>4</sup>**

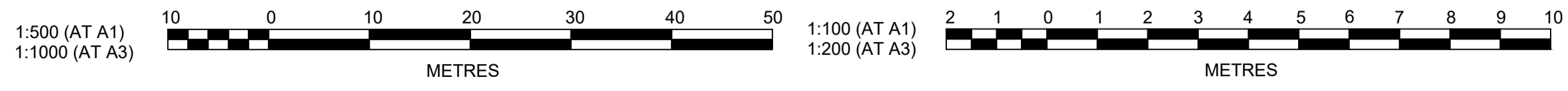
AC10 (mm) = 2x25  
 ONE COAT HOT BITUMEN FLUSH SEAL = 150  
 BASE COURSE (mm) DGB20 = 250  
 SUB-BASE COURSE (mm) CRUSHED SANDSTONE = 400  
 TOTAL (mm) = 400



**LONGITUDINAL SECTION ROAD 32**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



**LONGITUDINAL SECTION ROAD 34**  
 HORIZONTAL SCALE 1:500  
 VERTICAL SCALE 1:100



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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 ROAD LONGITUDINAL  
 SHEET 9 OF 9

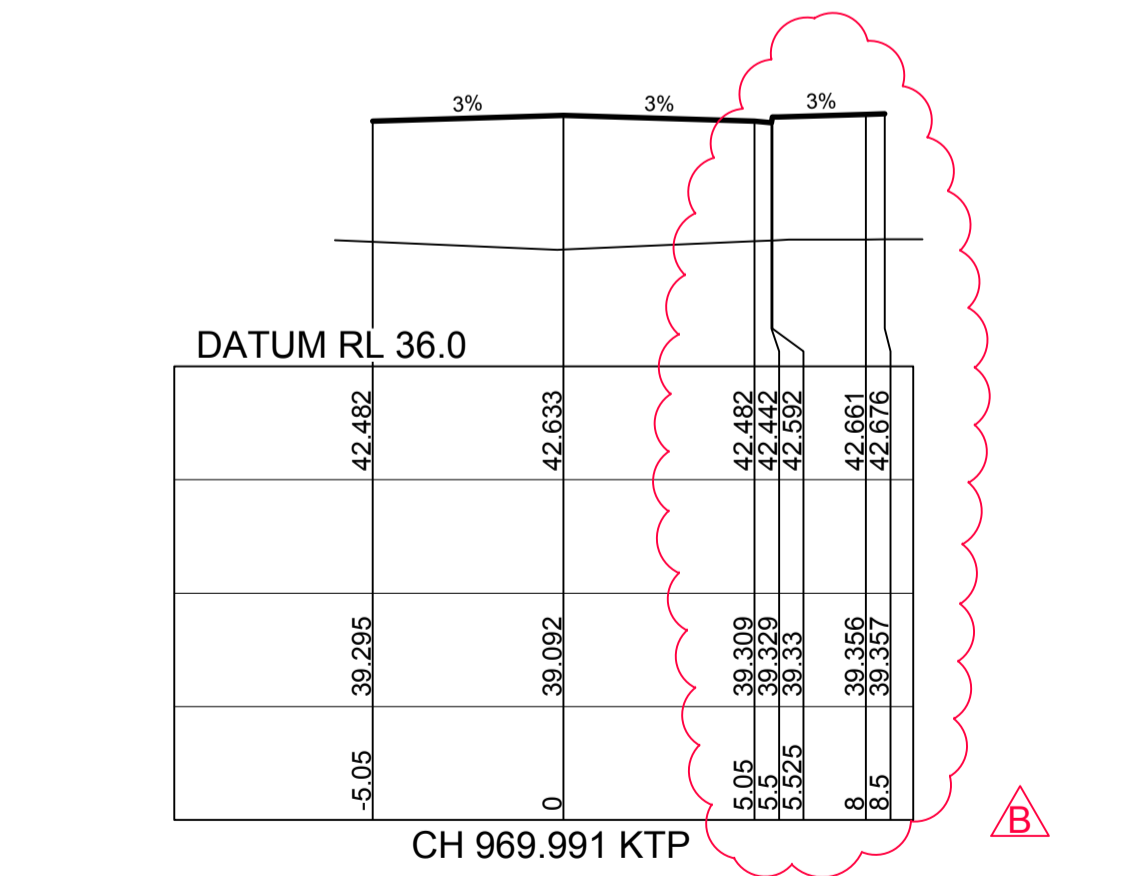
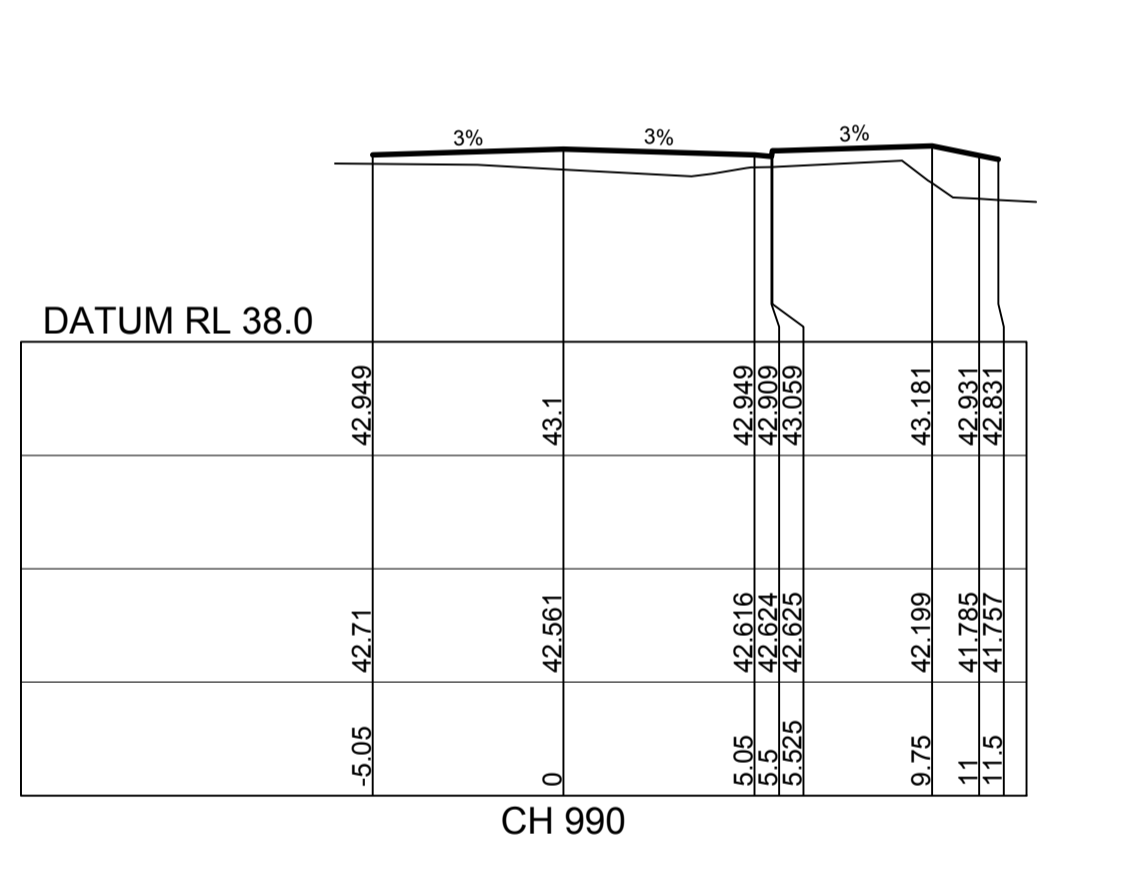
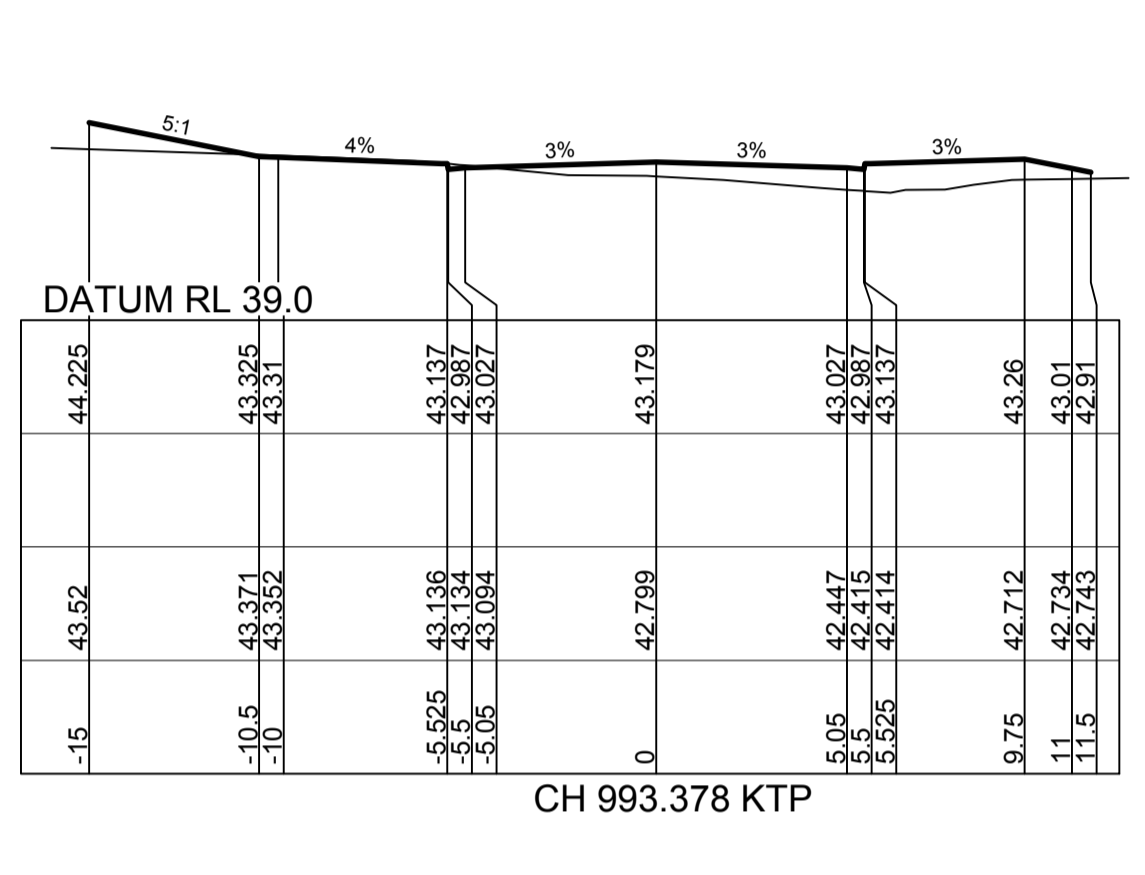
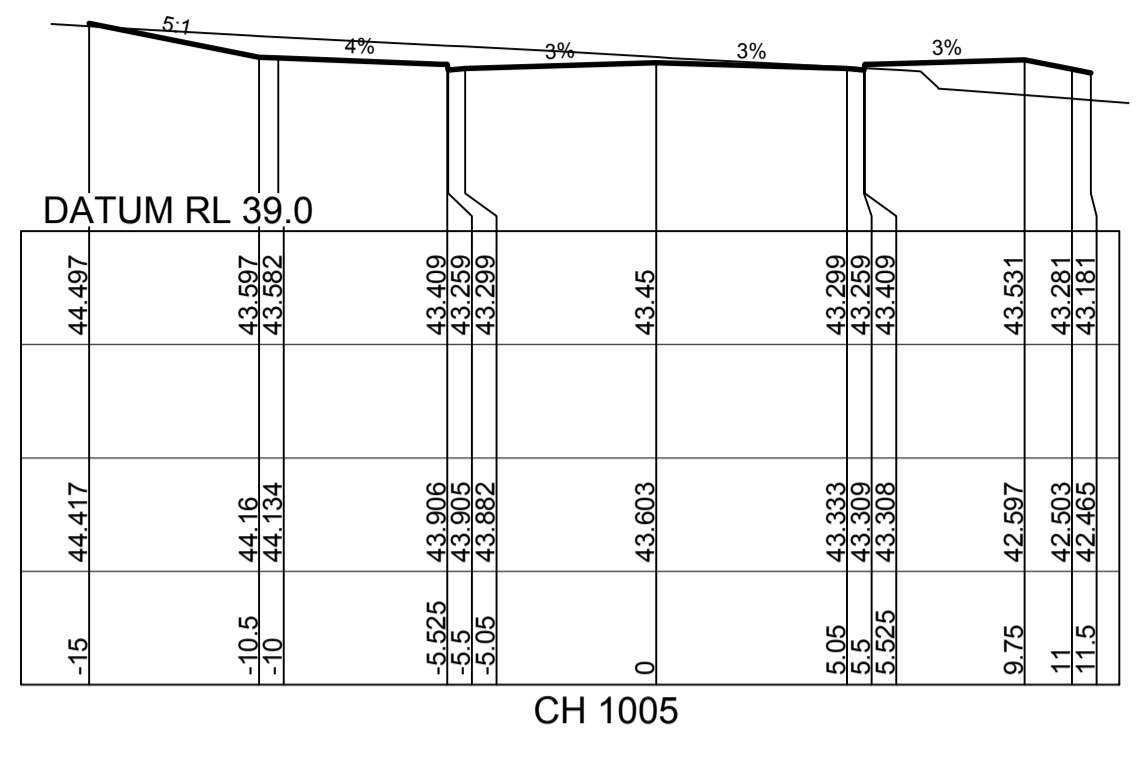
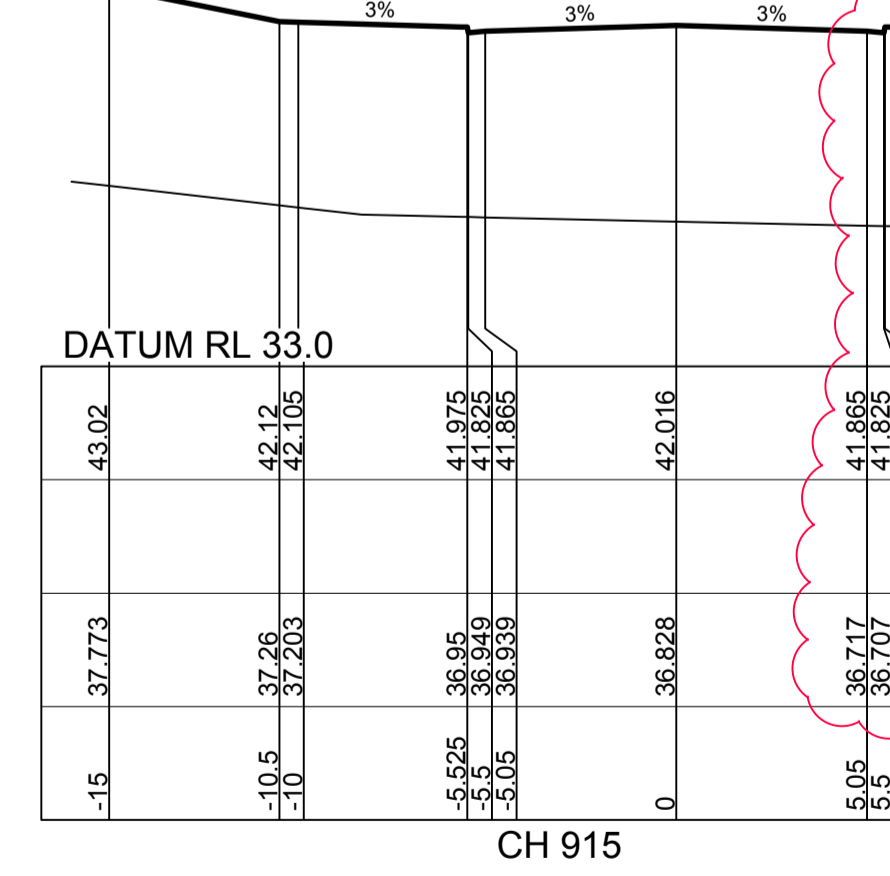
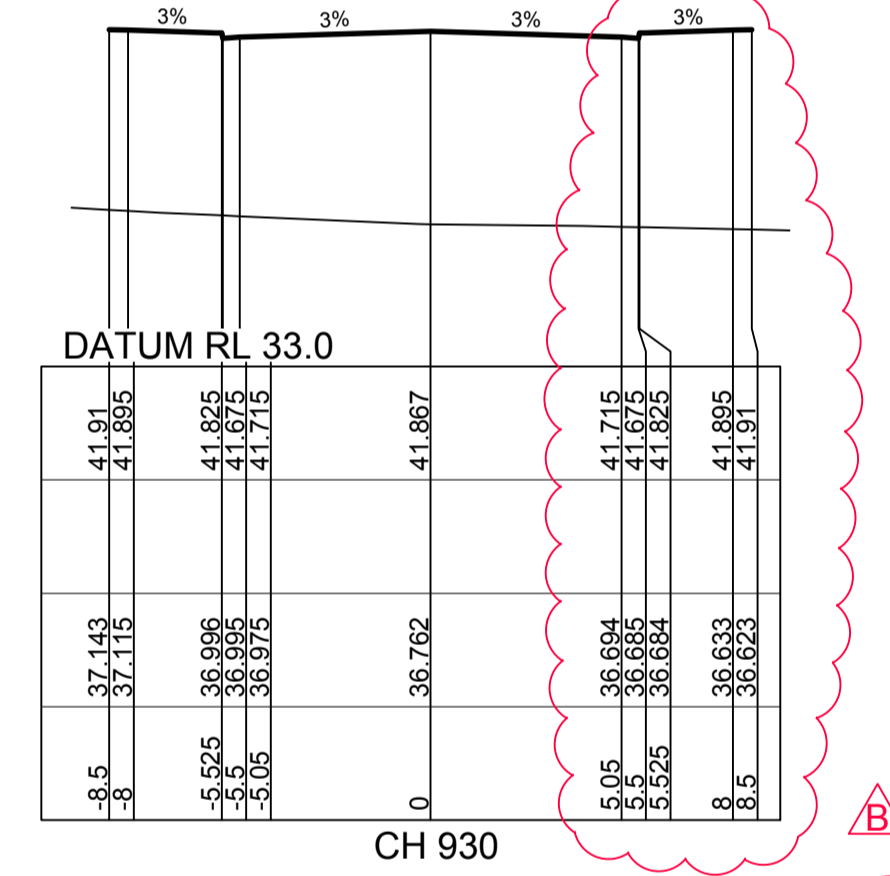
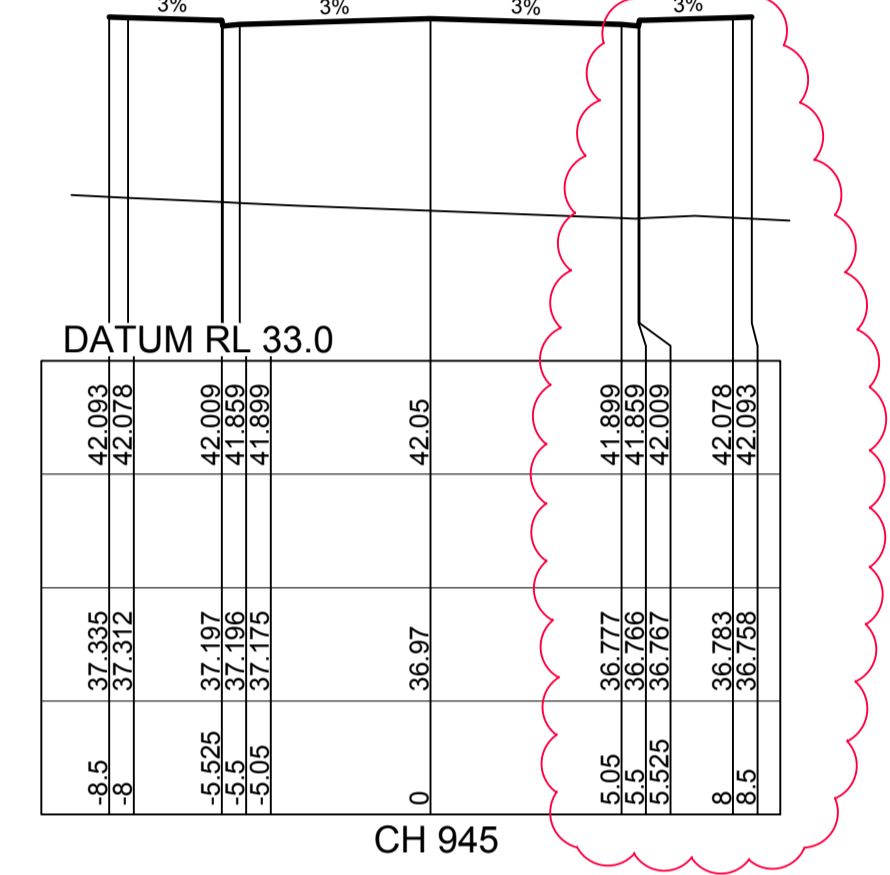
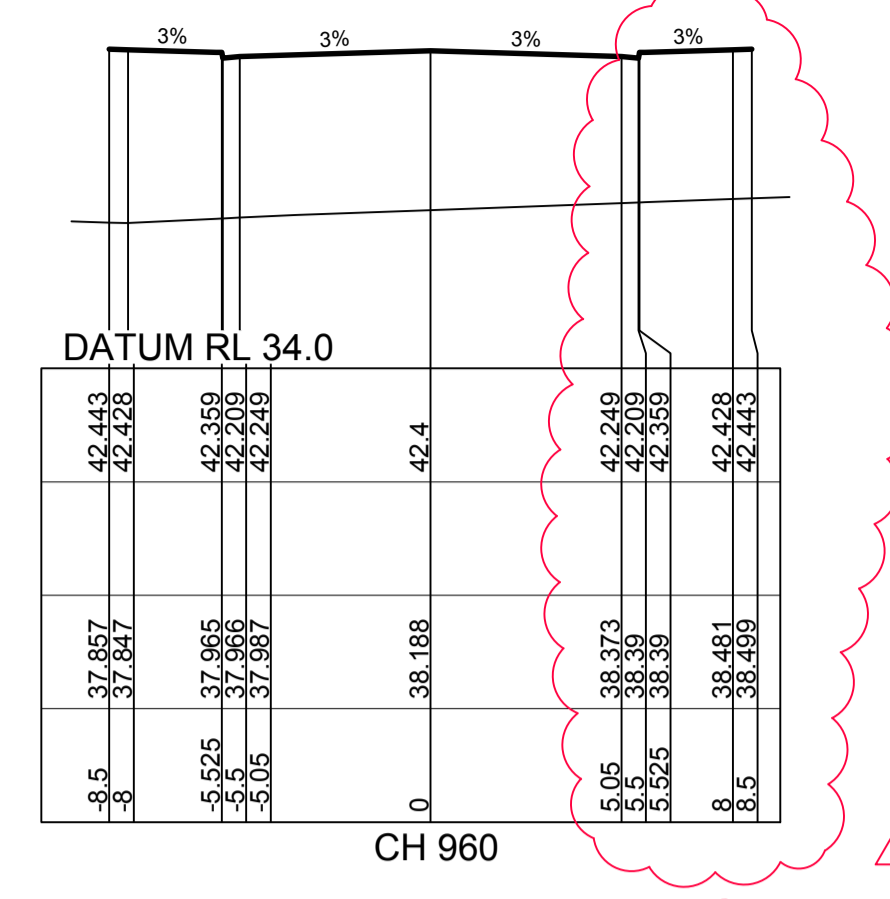
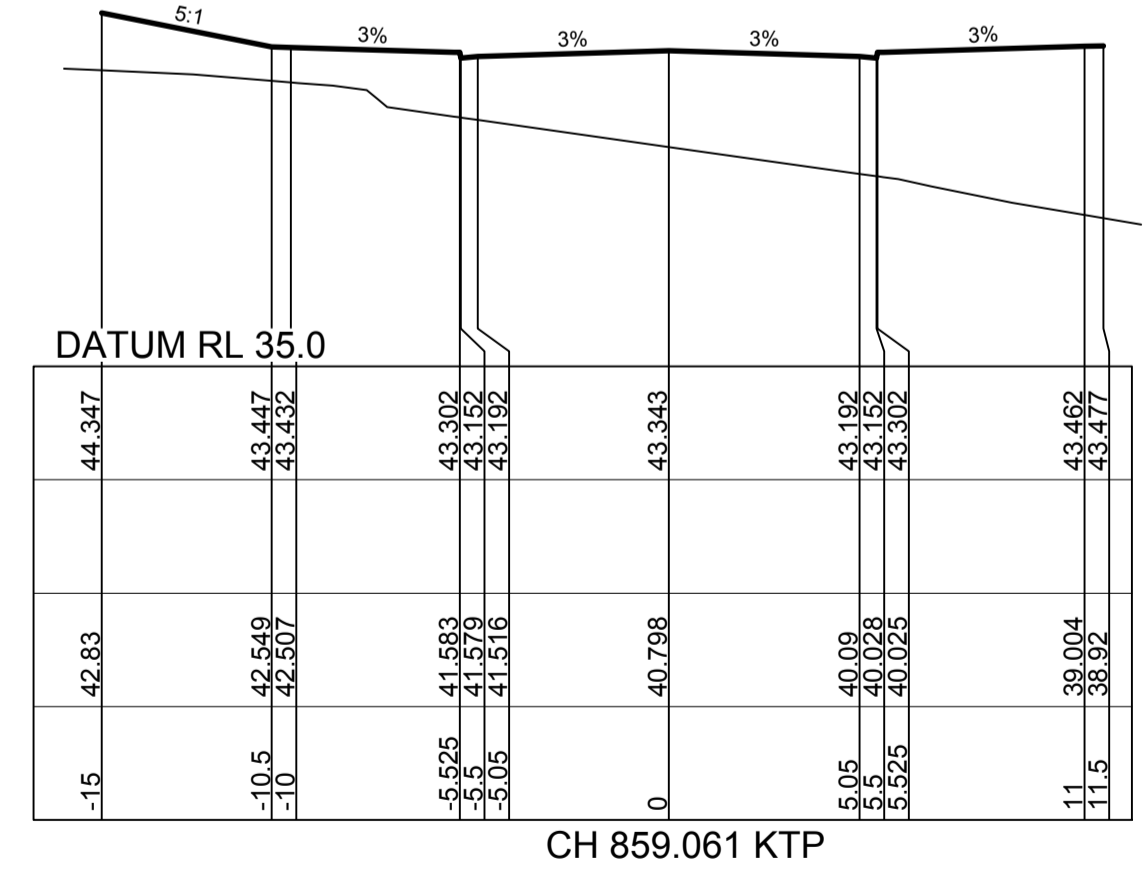
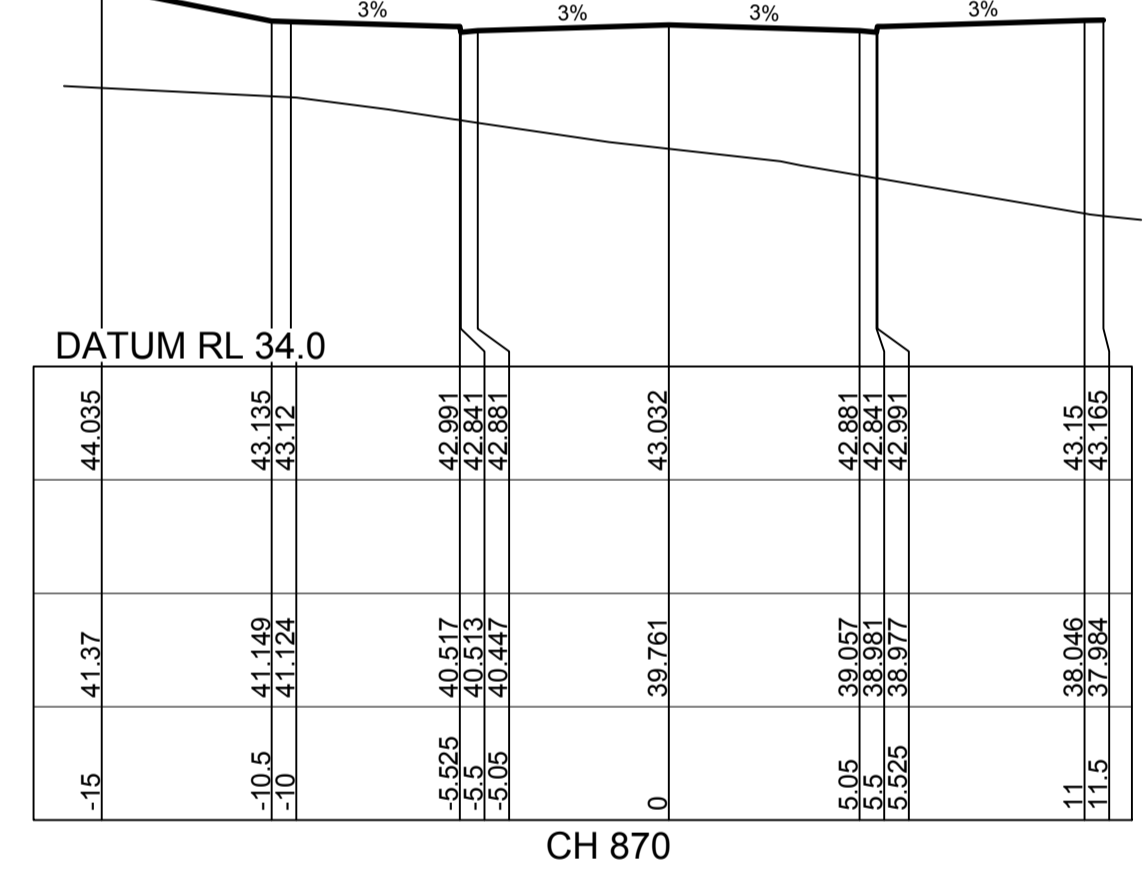
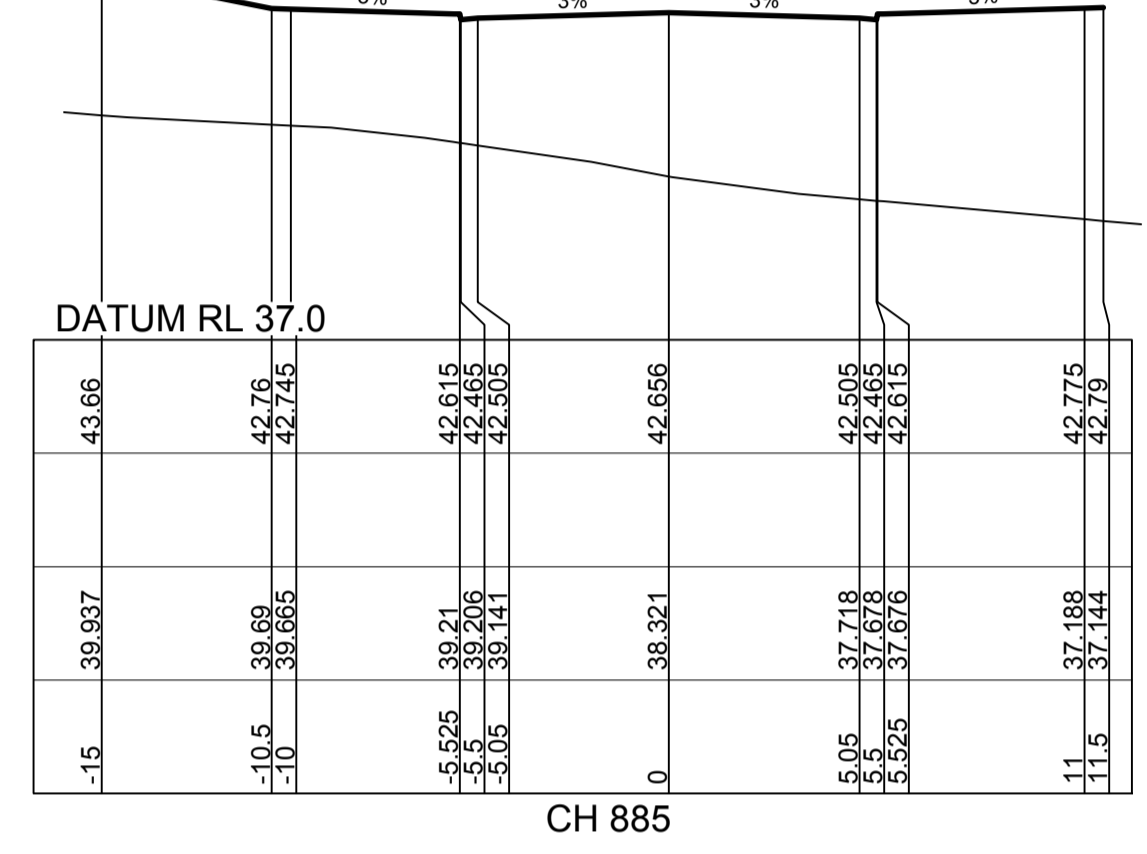
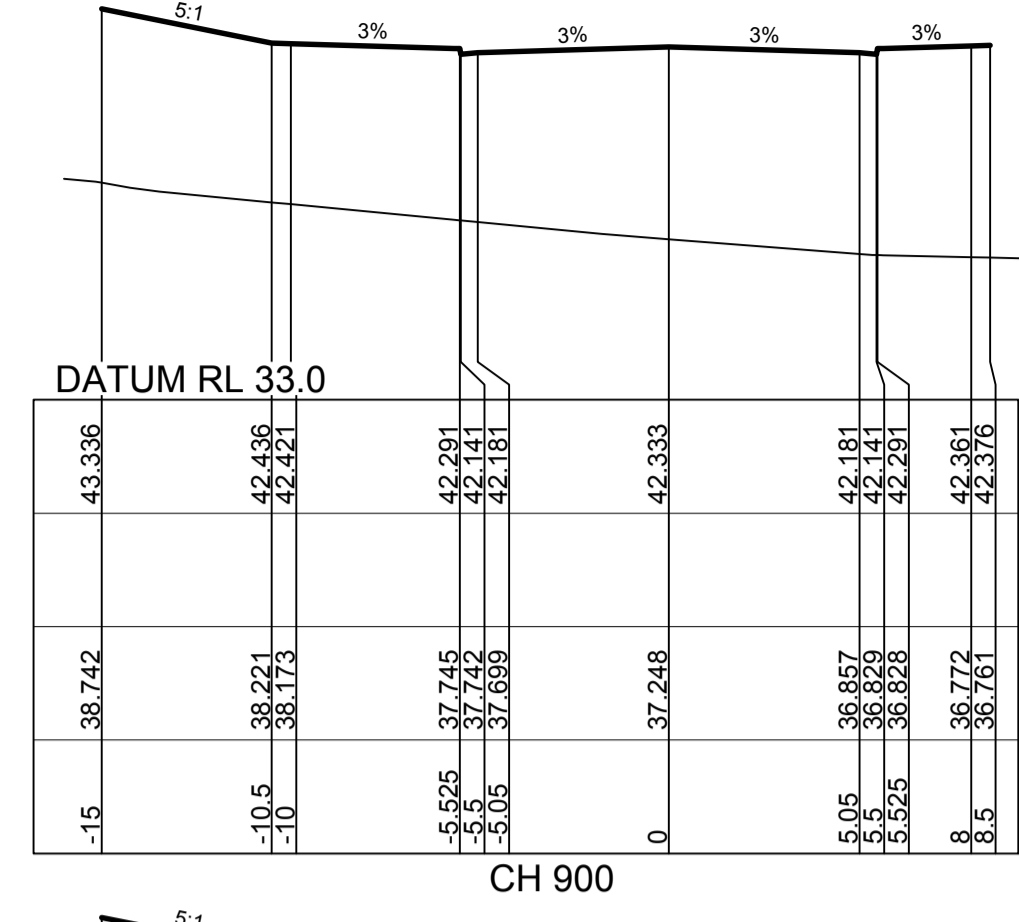
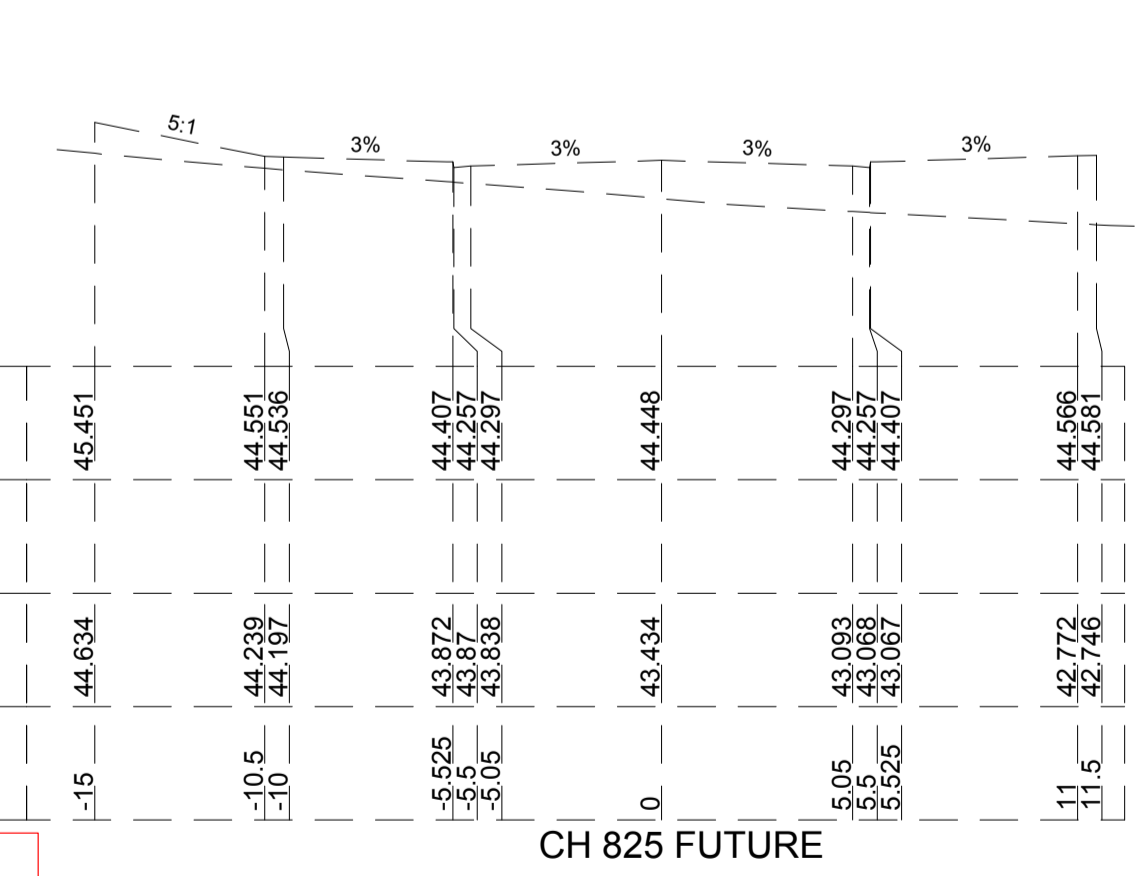
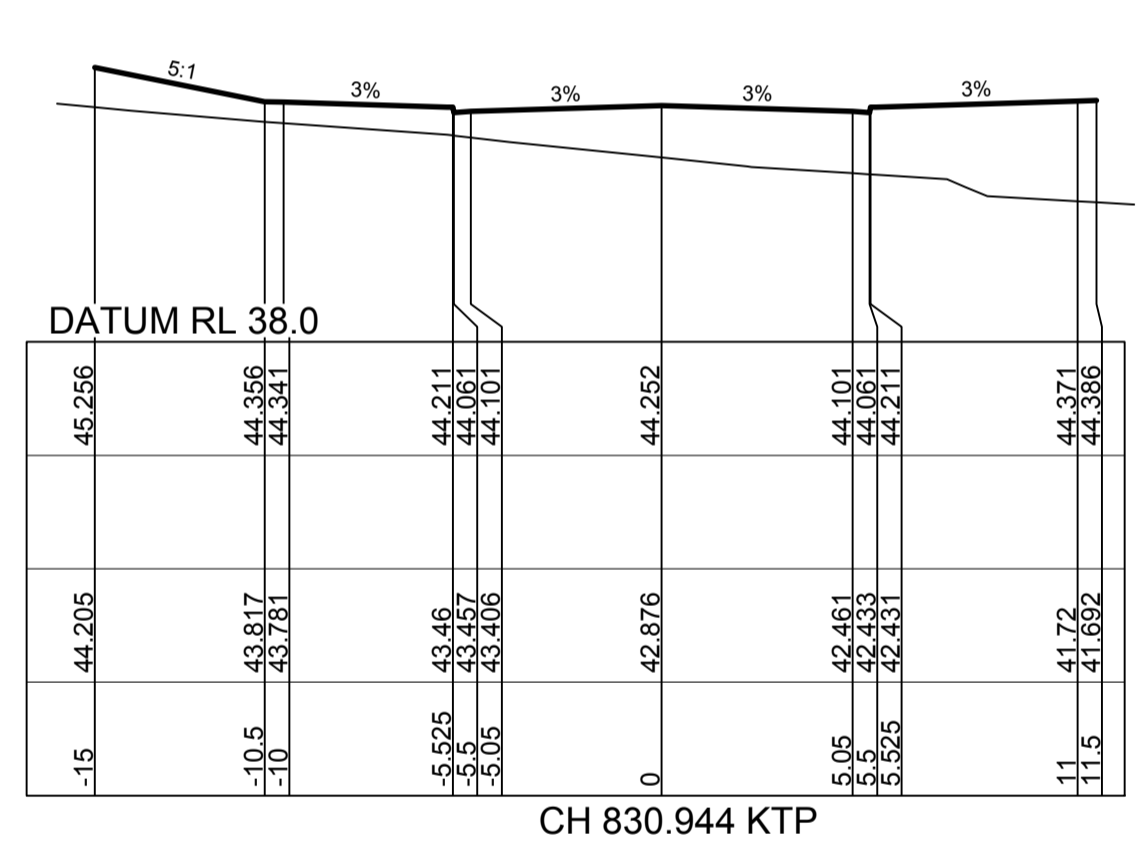
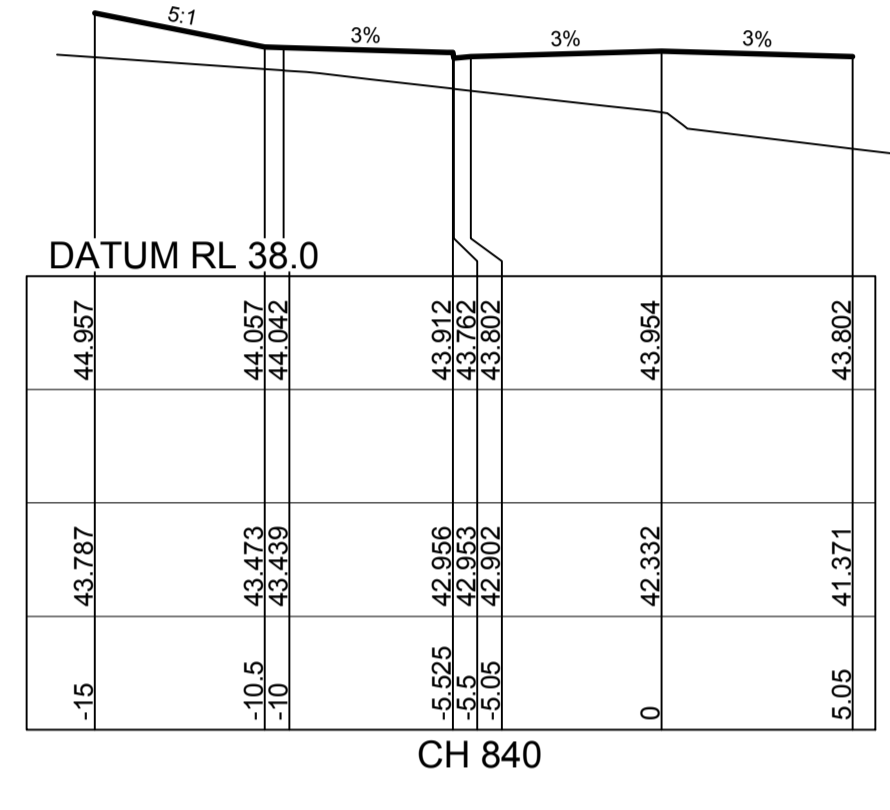
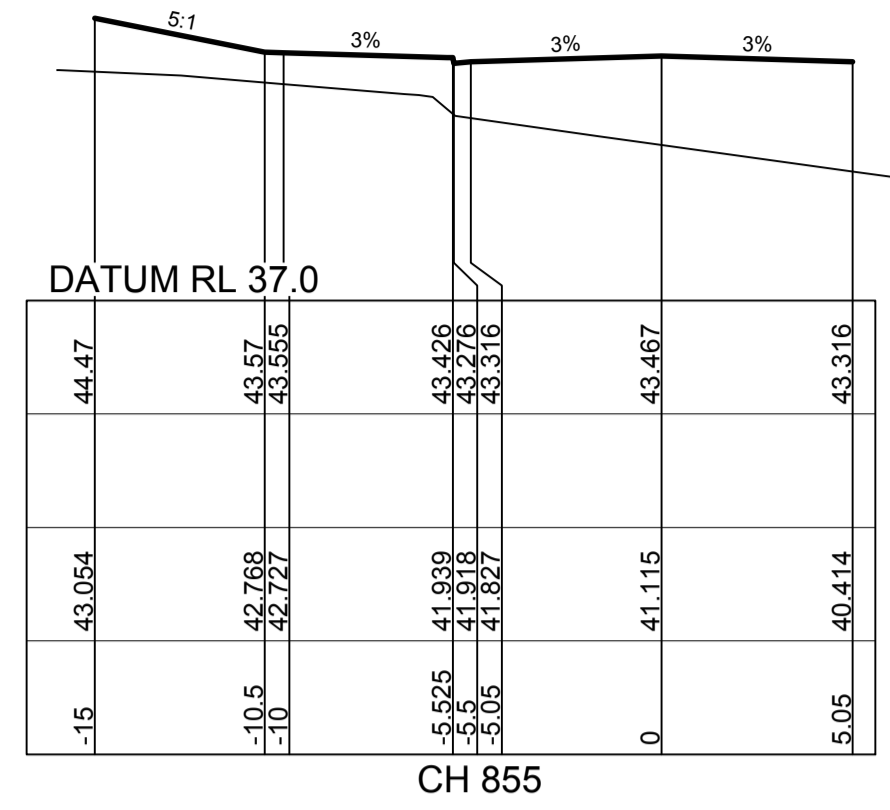
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 FILE No: 11018511CC049  
 SHEET SIZE: A1 ORIGINAL

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NO.	DESCRIPTION	BY	DATE
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	AMENDMENT	DES	DRN
		RO	MS
		CKD	APR



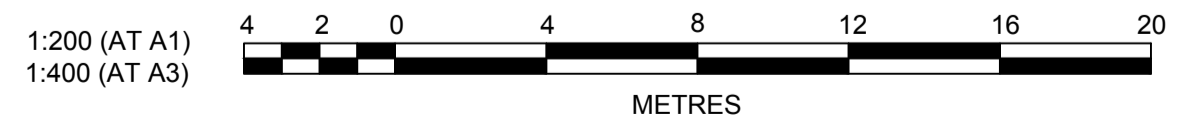
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**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C.42  
 Date of Issue 5 March 2018  
 Issuing Officer *Garry B*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



**CROSS SECTIONS ROAD 1**

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 CROSS SECTIONS  
 SHEET 1 OF 19

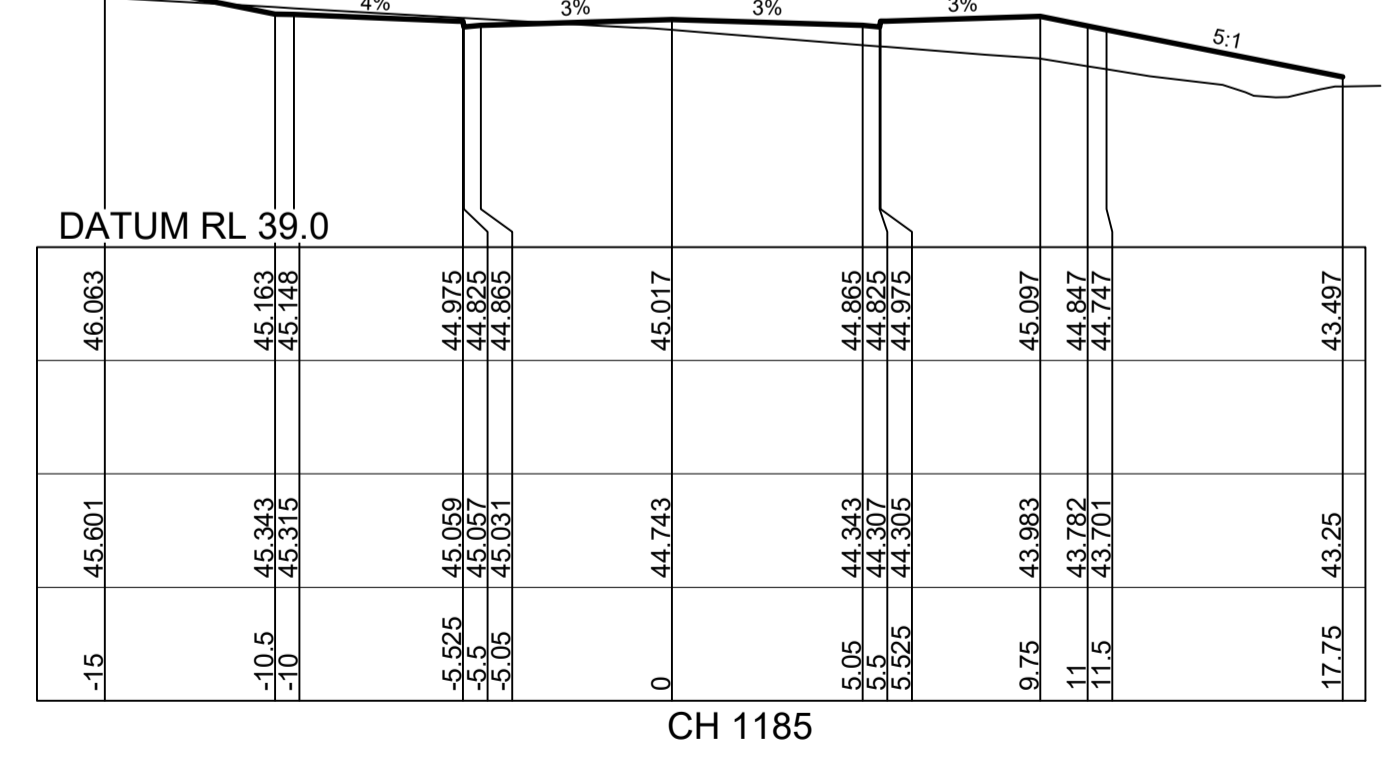
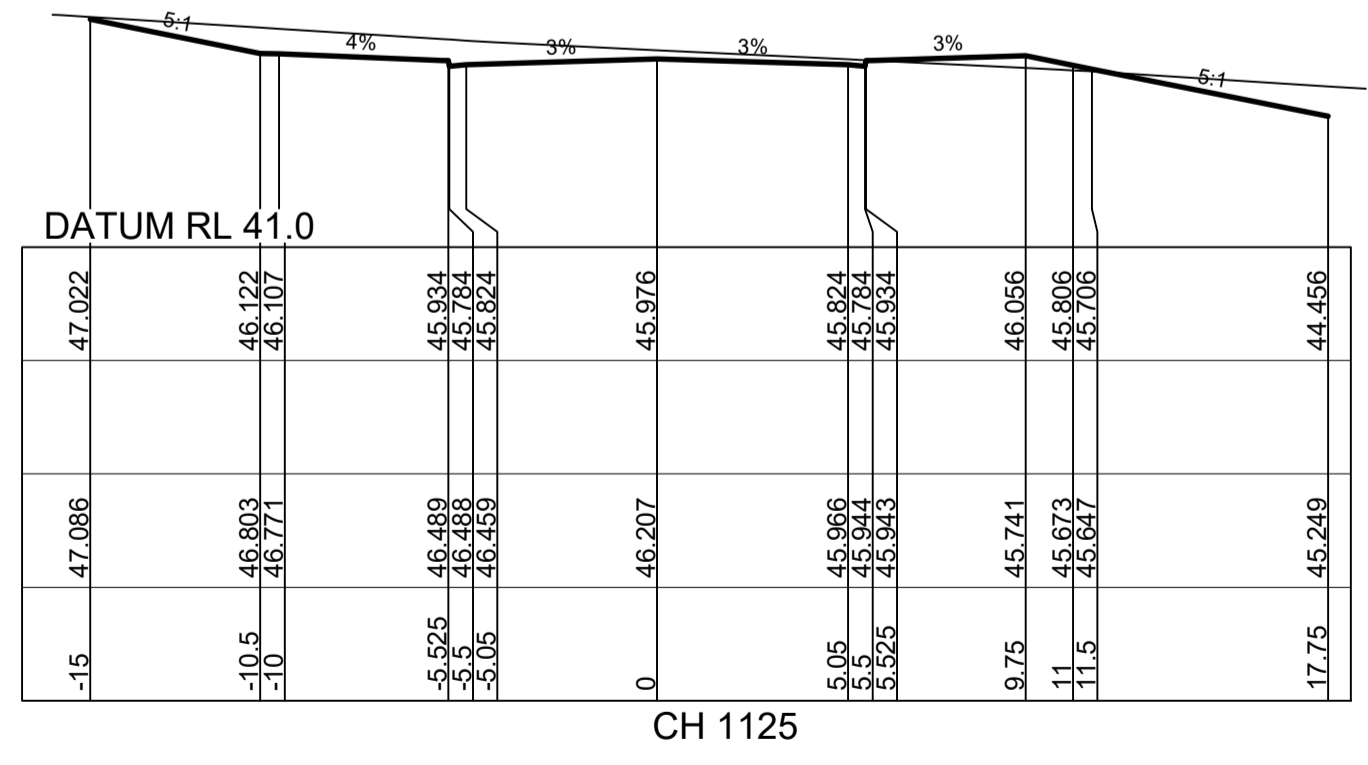
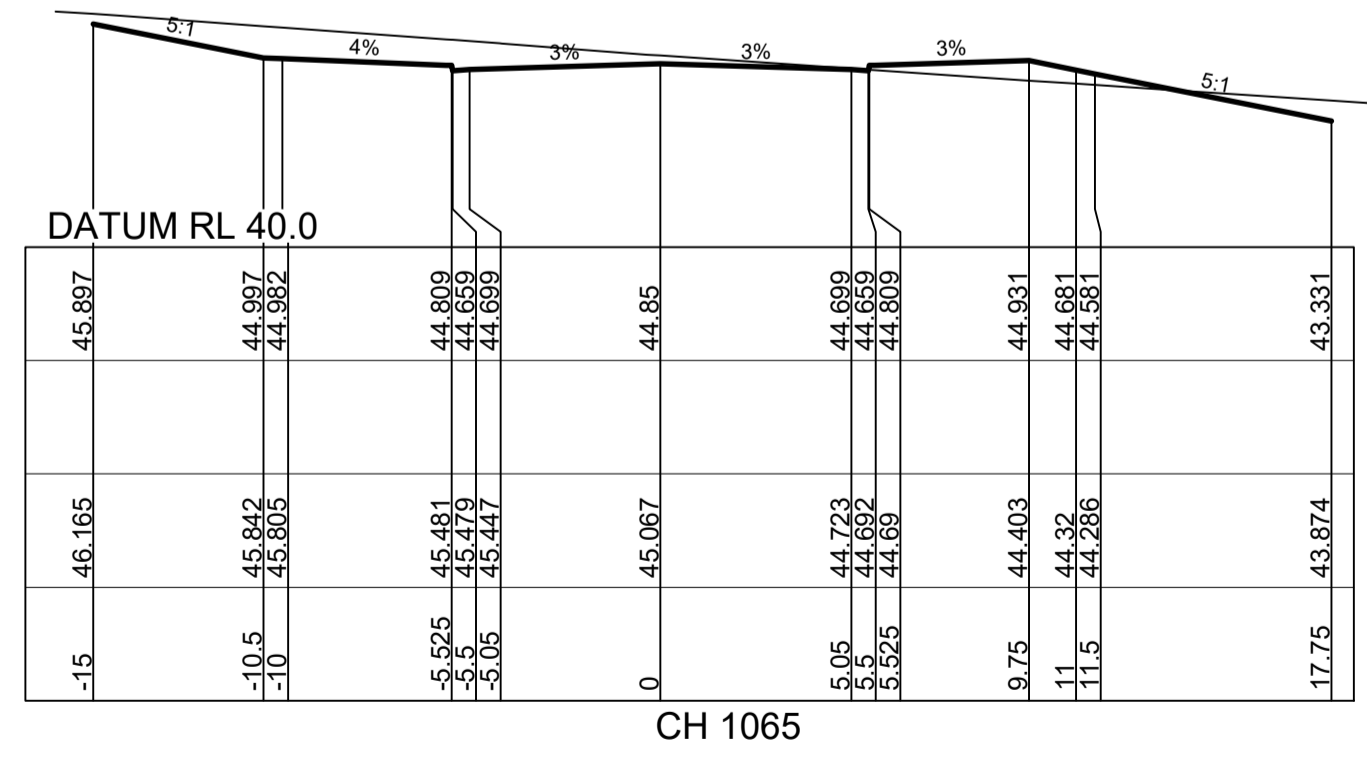
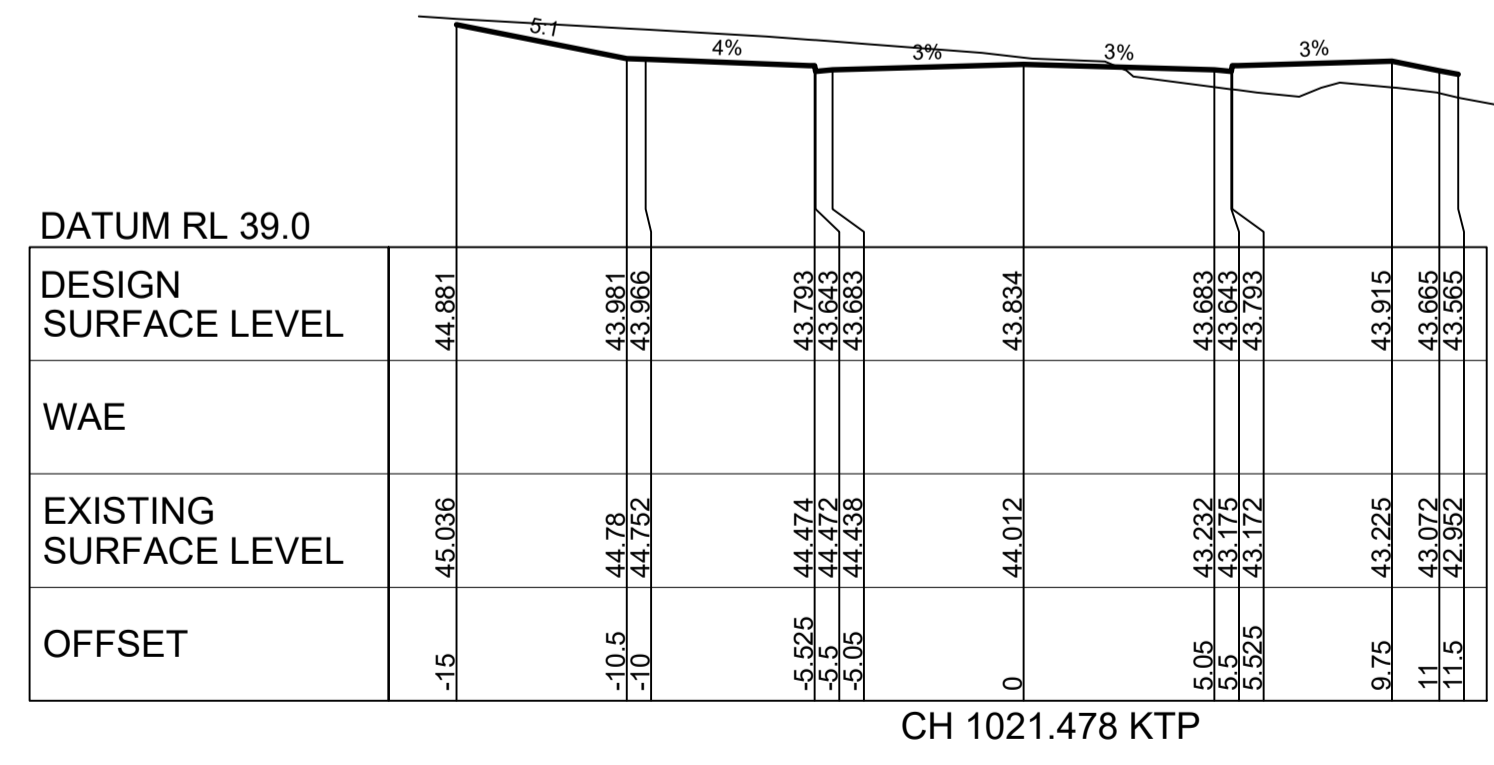
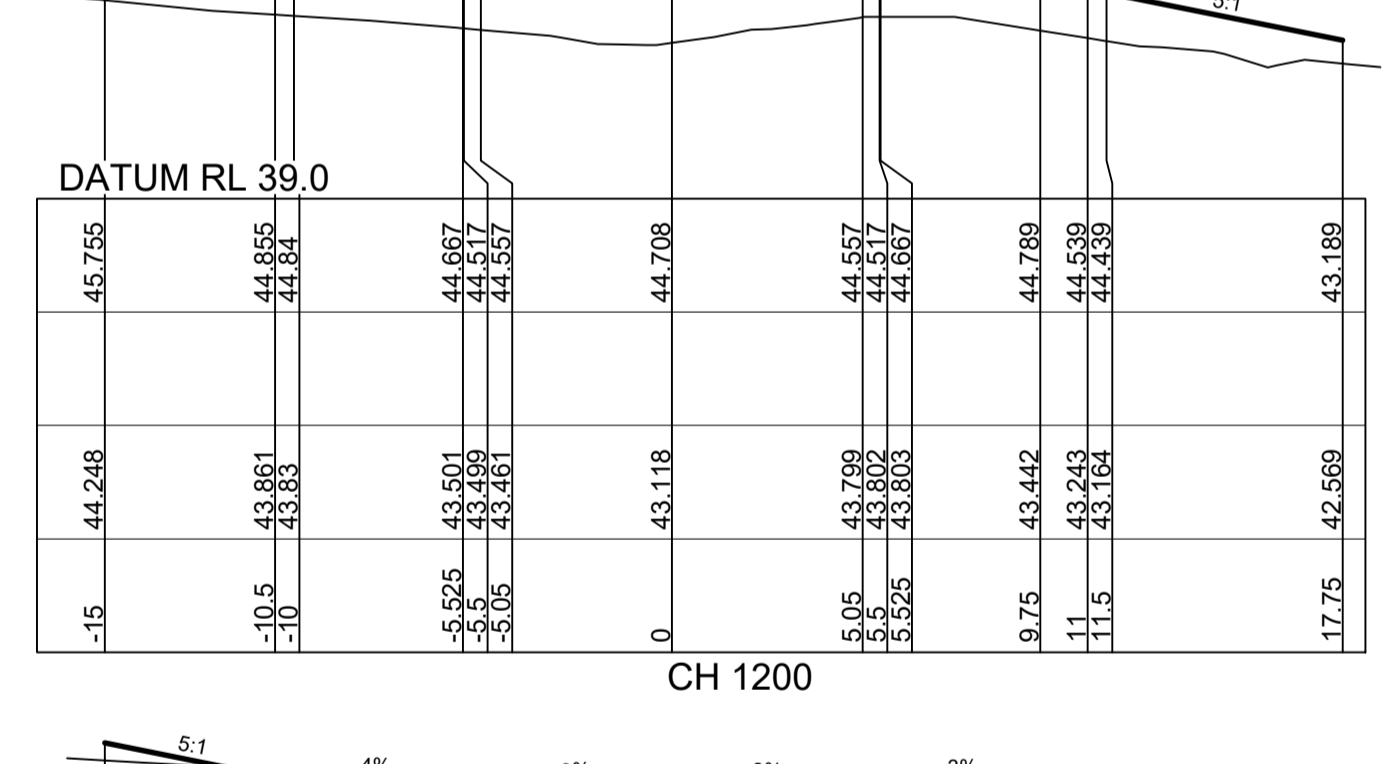
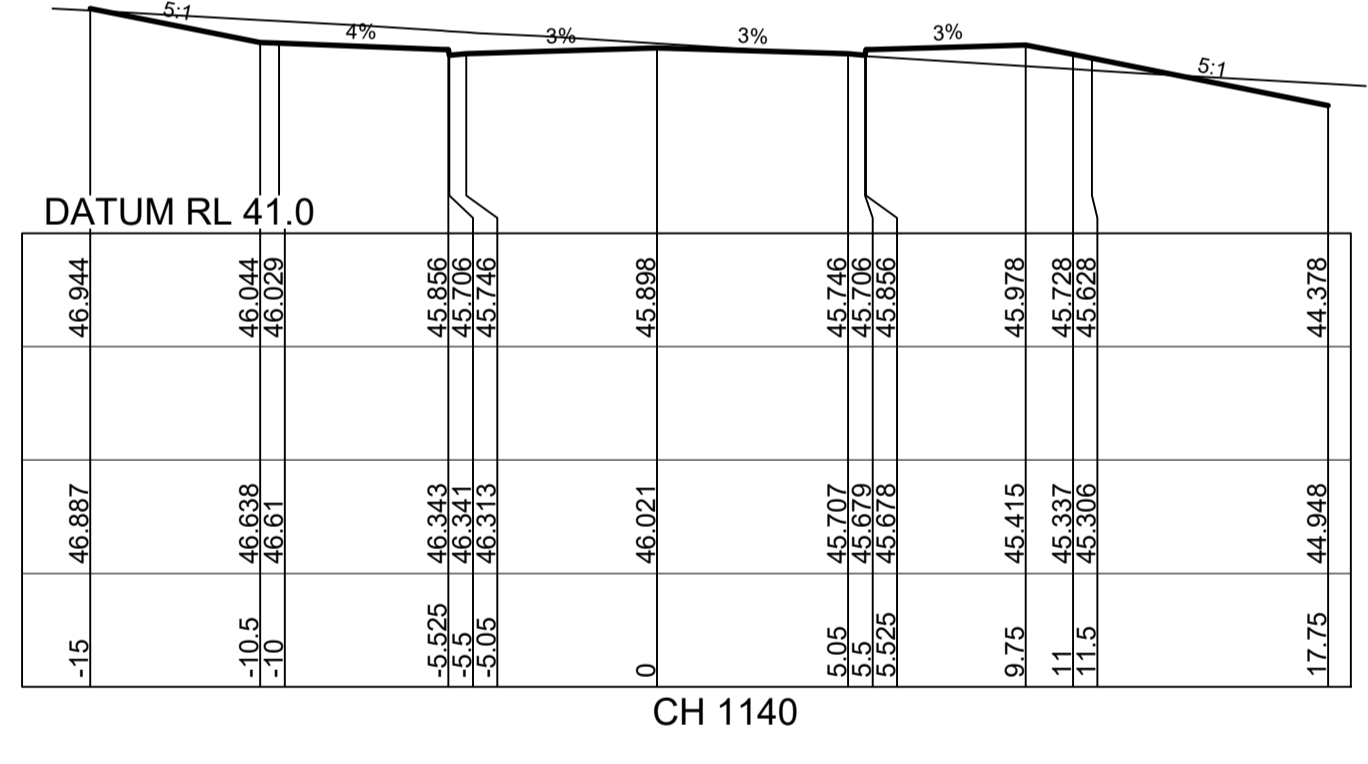
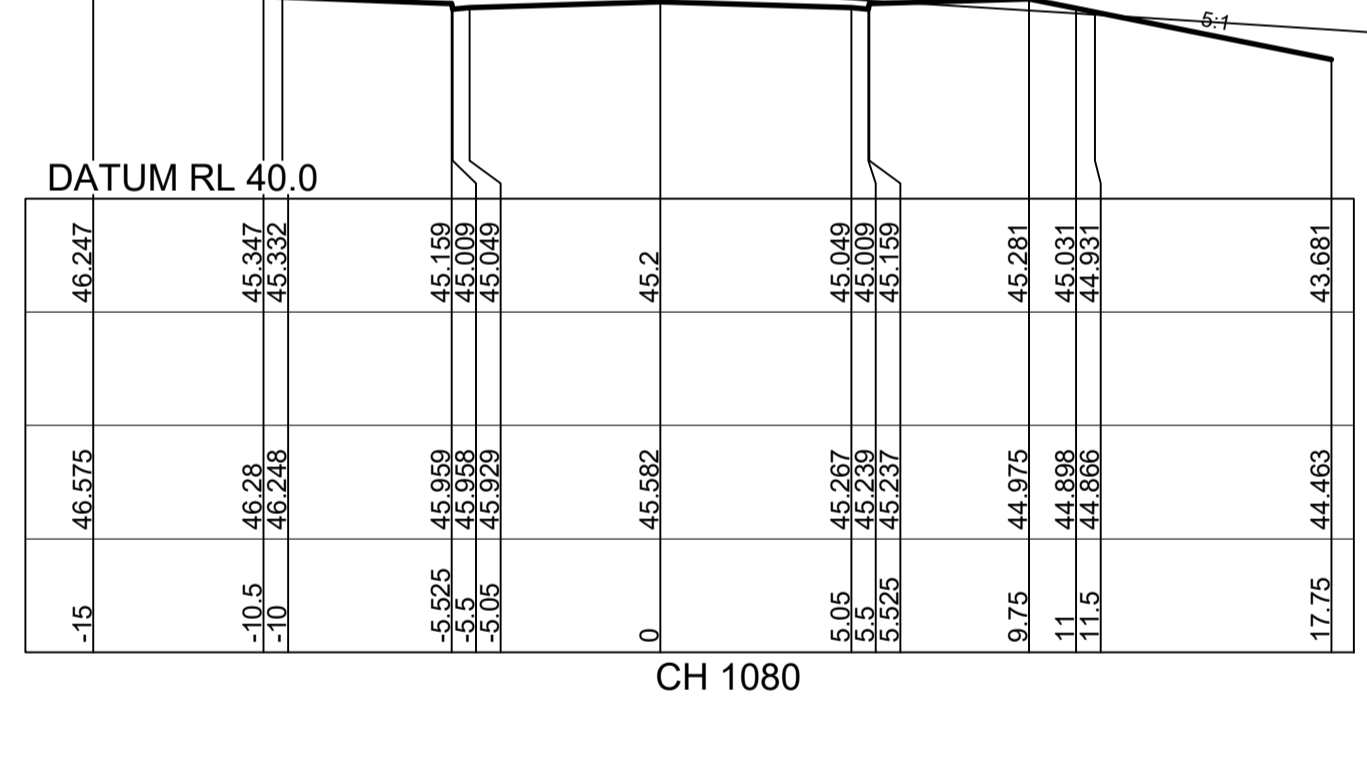
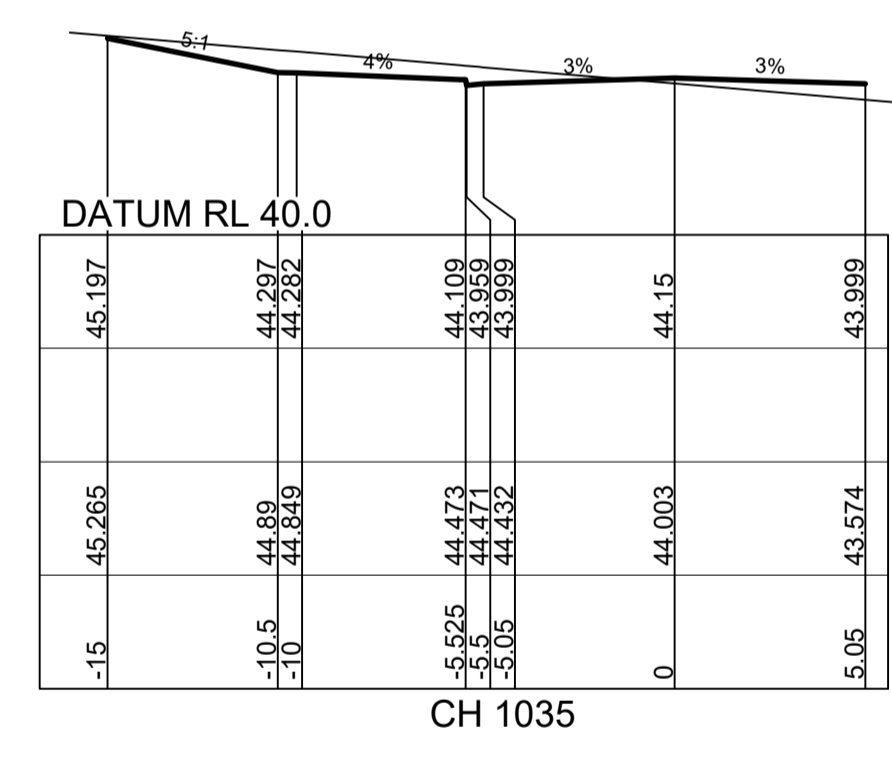
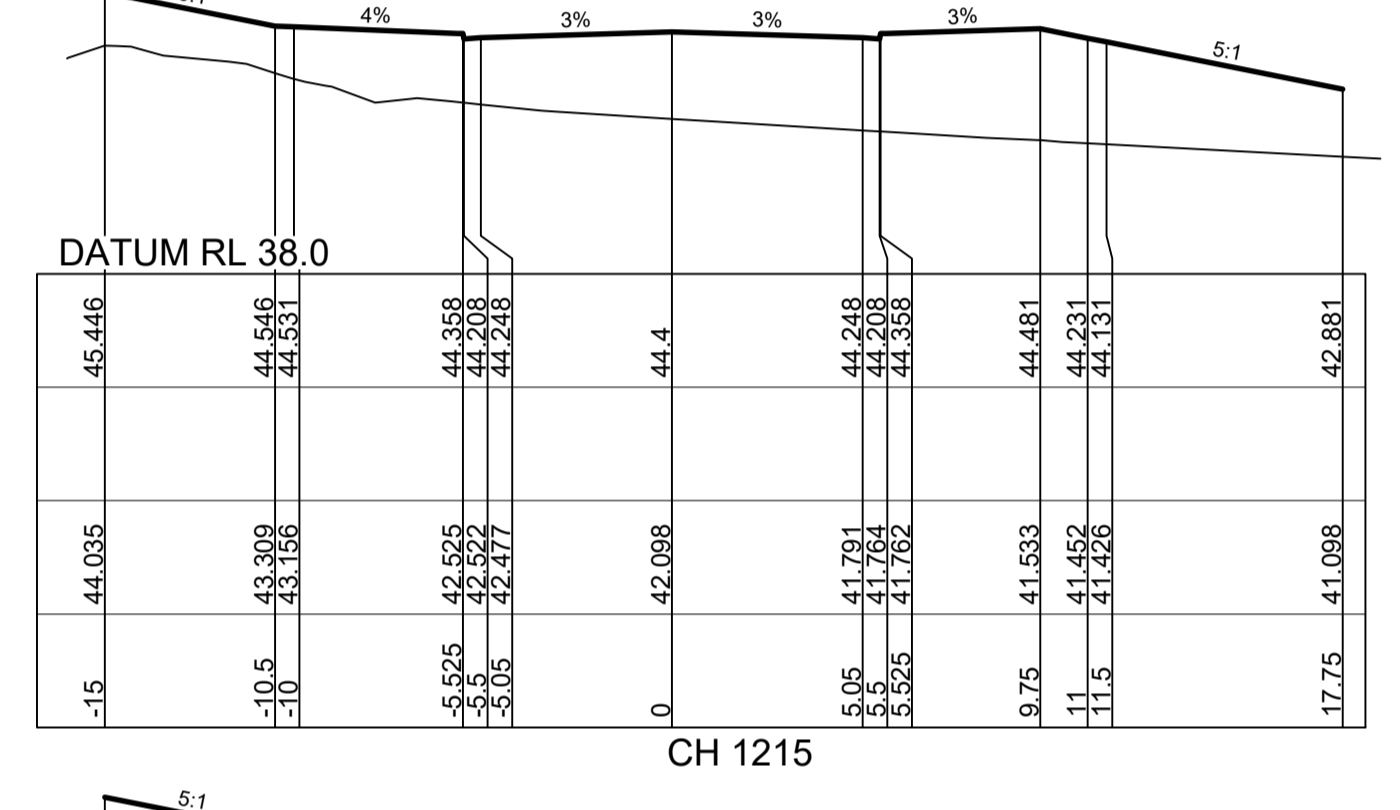
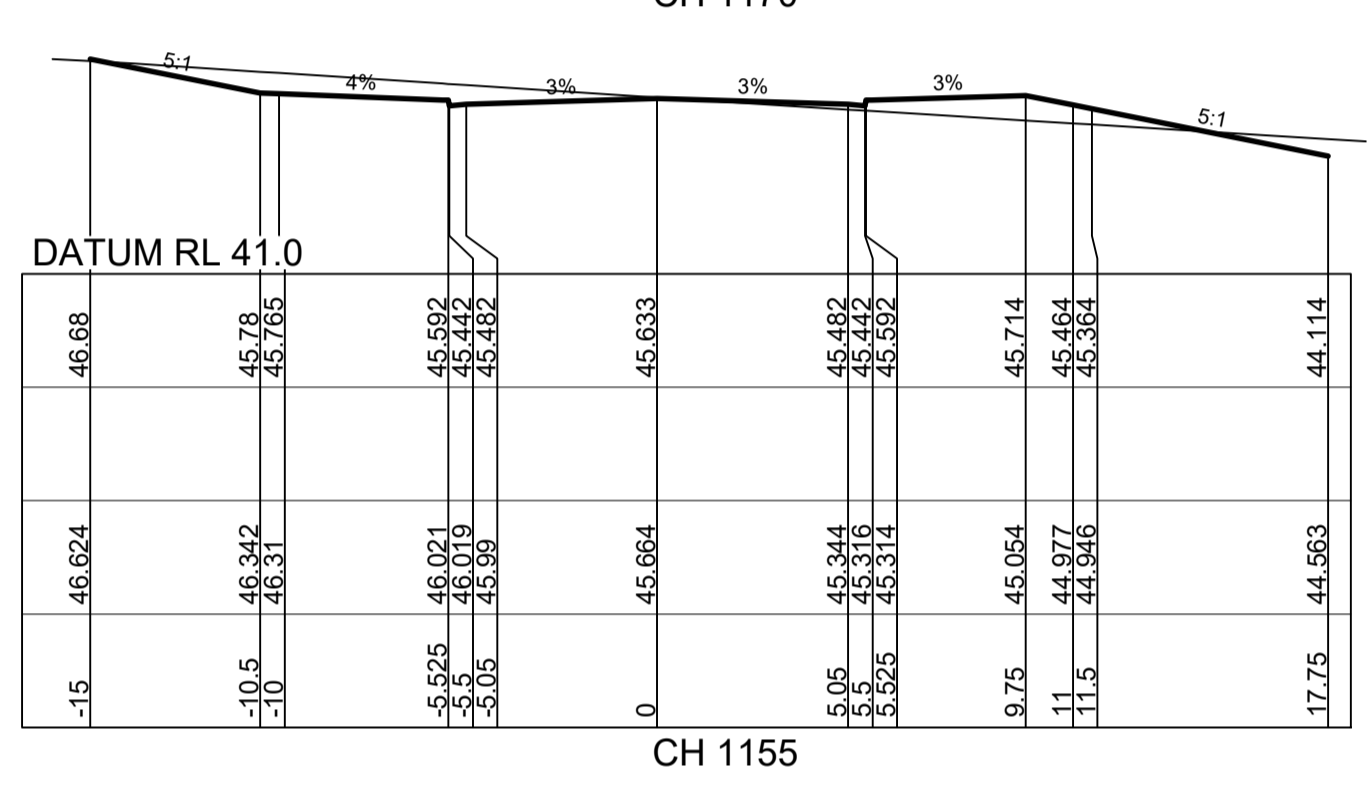
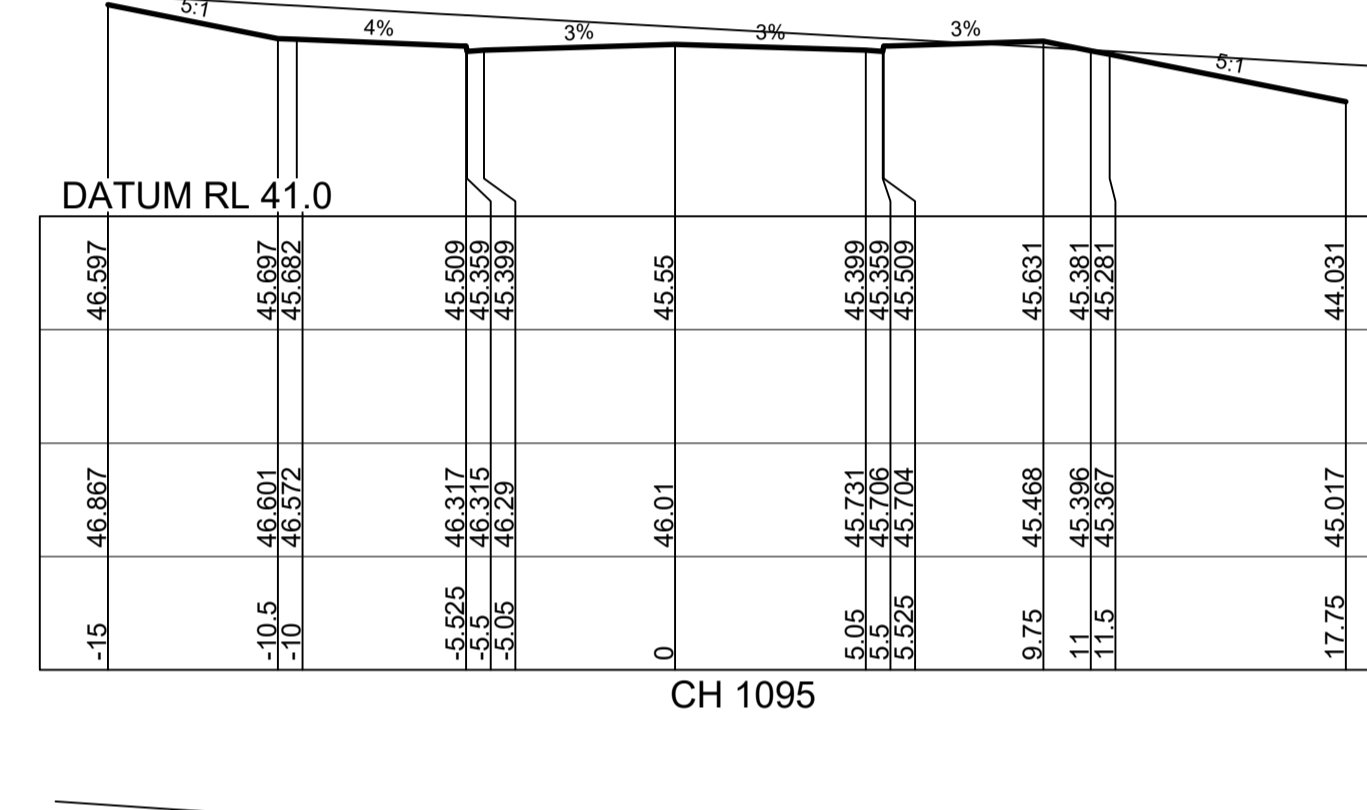
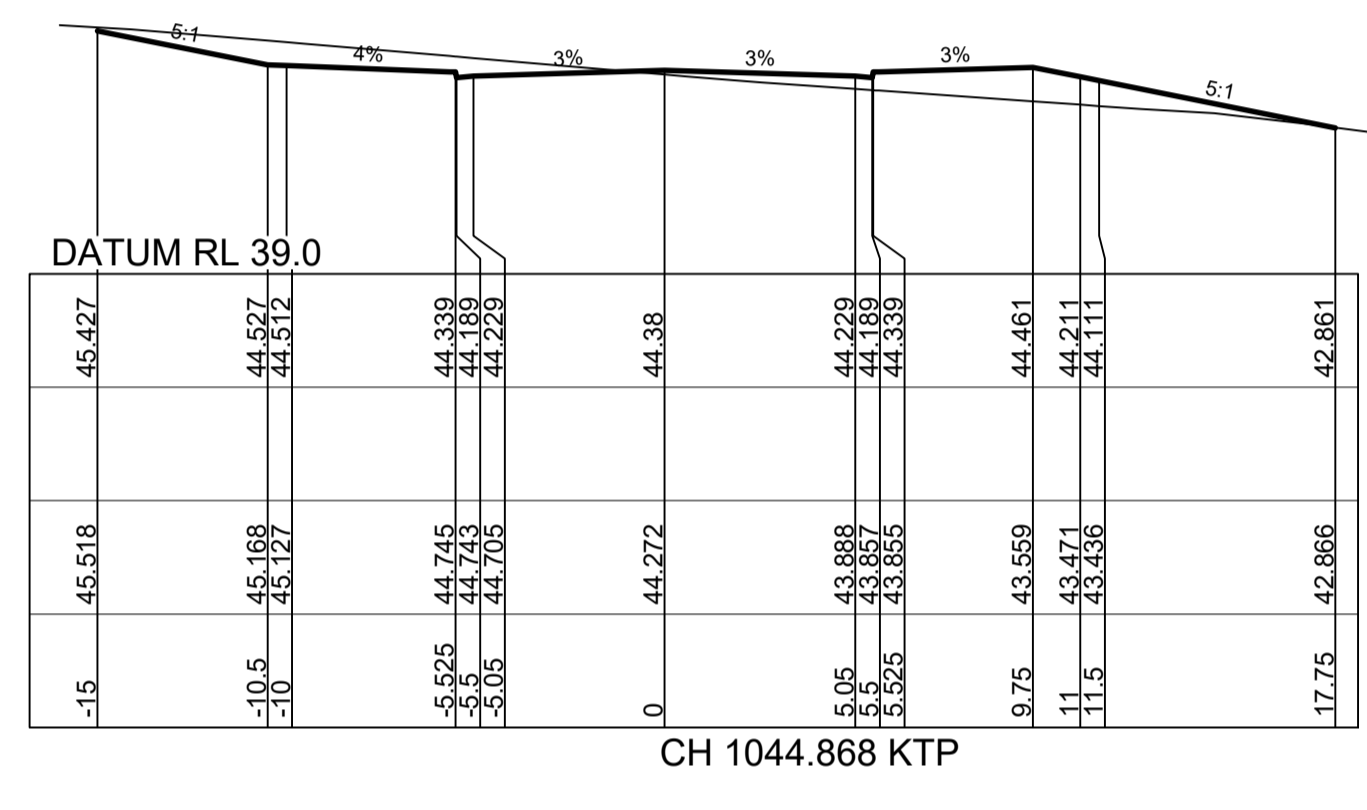
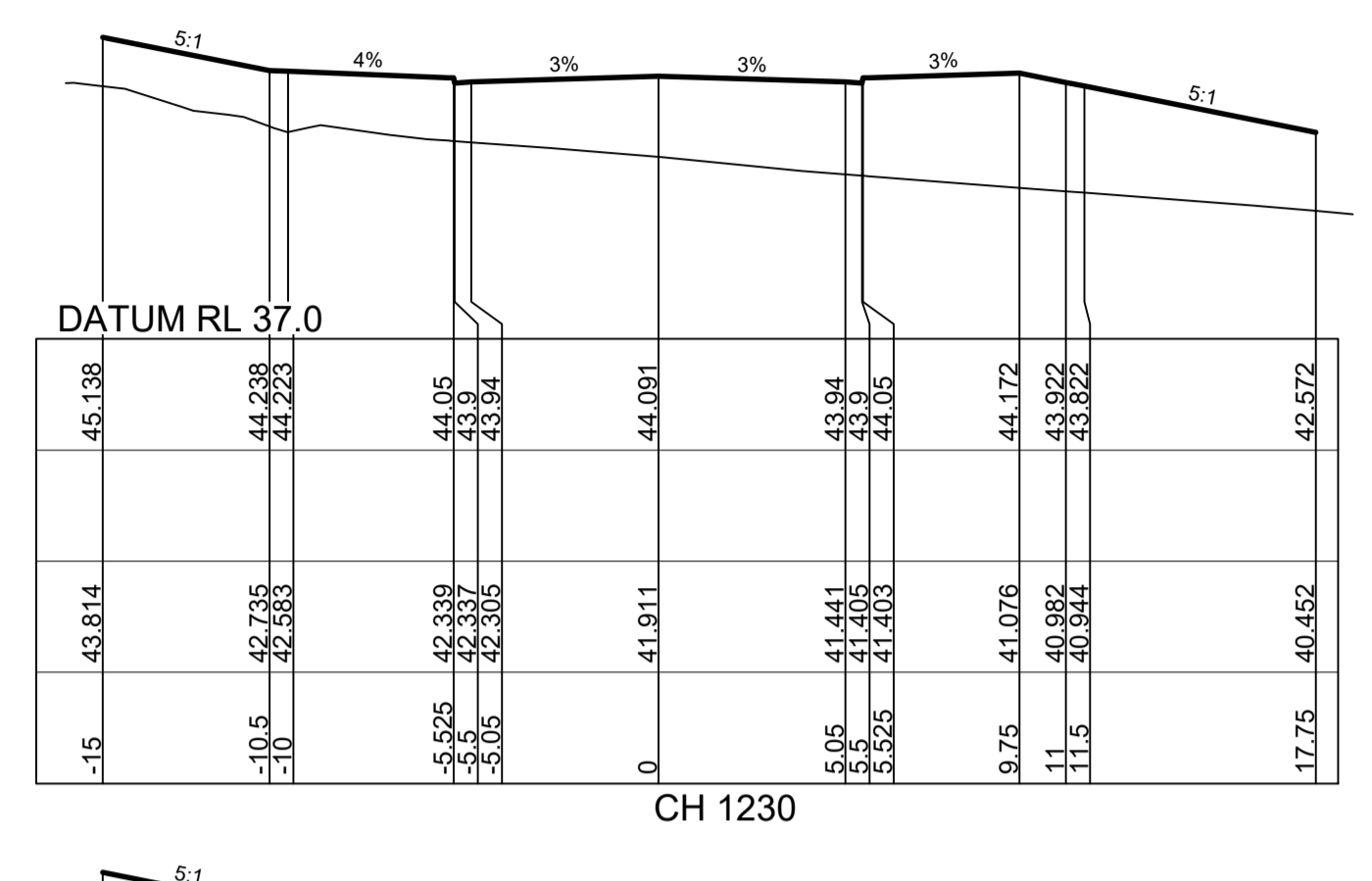
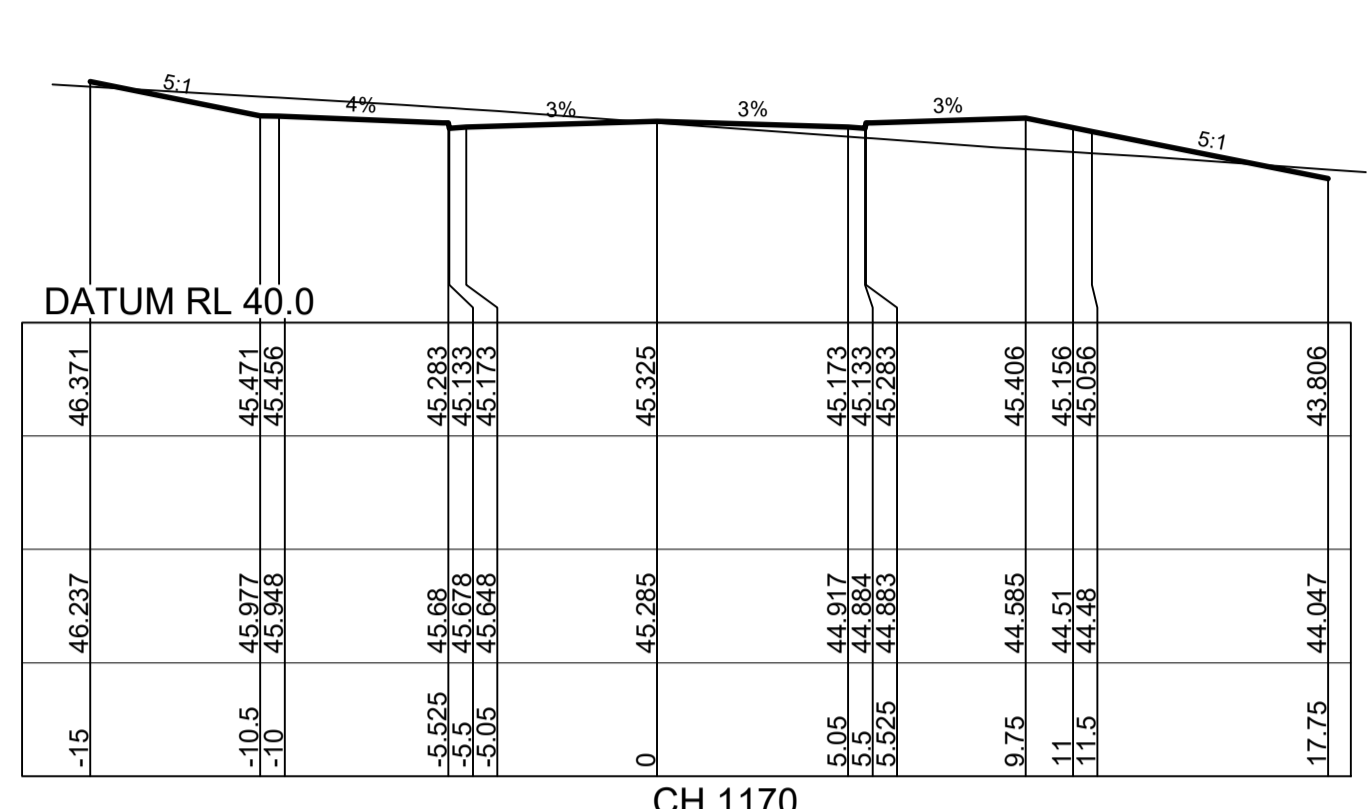
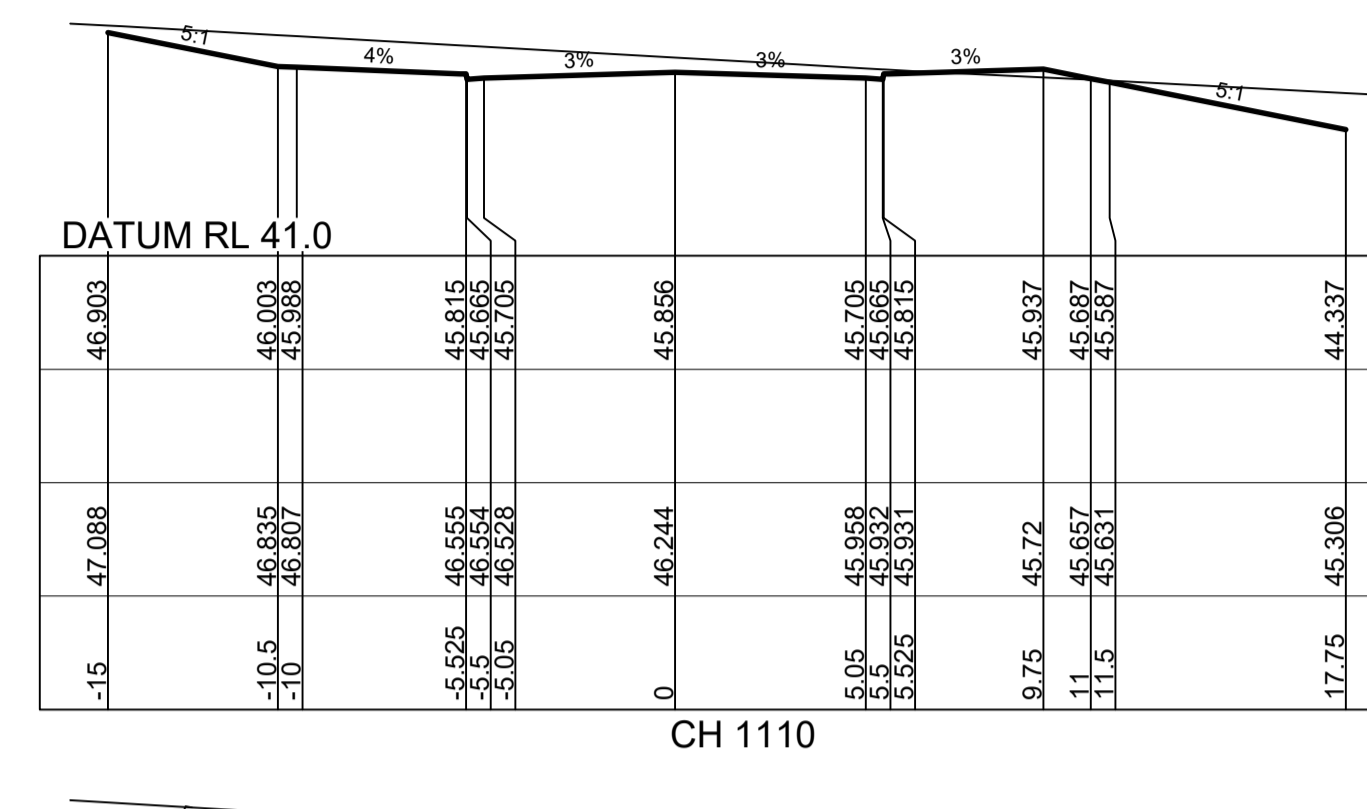
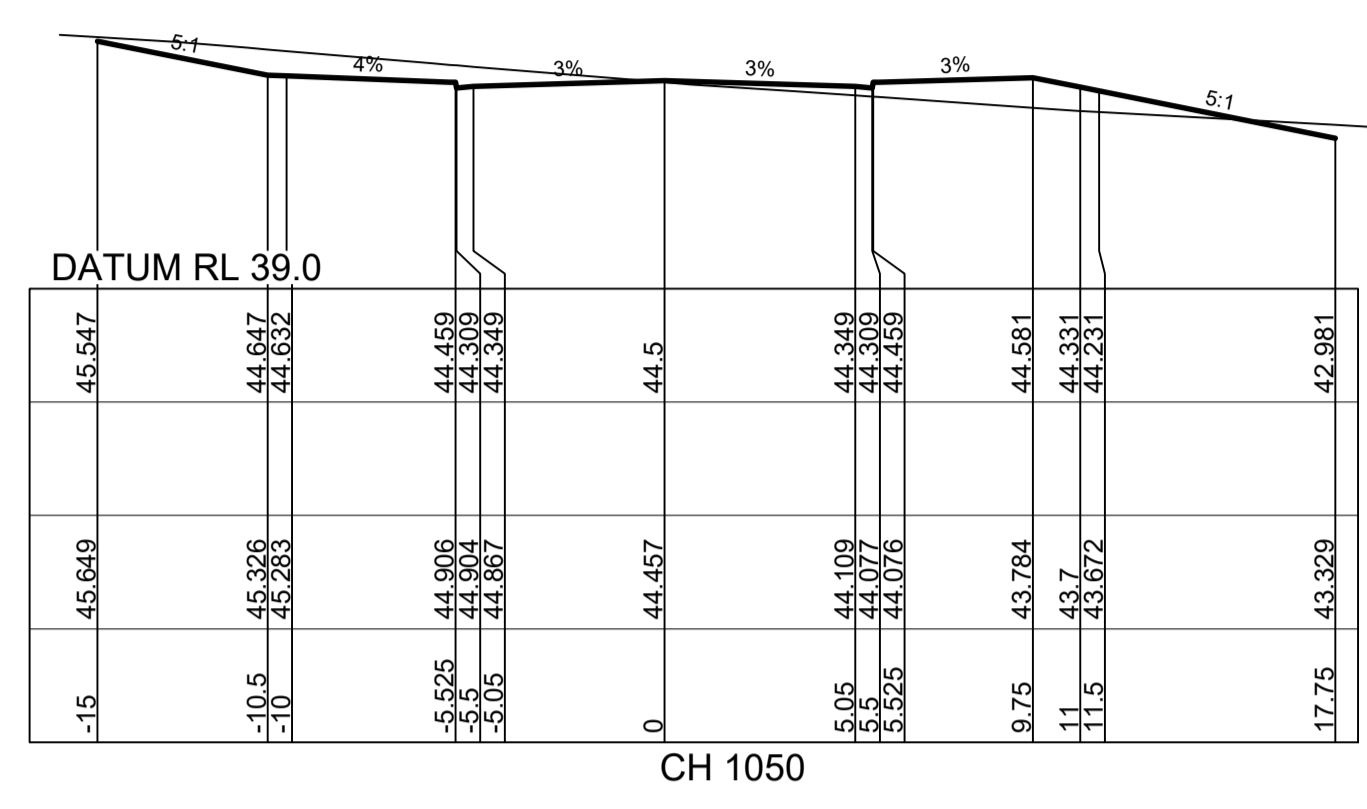
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 FILE No: 11018511CC061  
 SHEET SIZE: A1 ORIGINAL

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	AMENDMENT	DES	DRN	CKD	APR	DATE

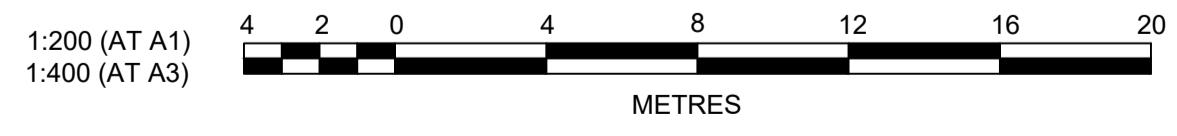
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



CROSS SECTIONS ROAD 1



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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 CROSS SECTIONS  
 SHEET 2 OF 19

PLAN No: 11018511/CC062 A  
 FILE No: 11018511CC062  
 SHEET SIZE: A1 ORIGINAL

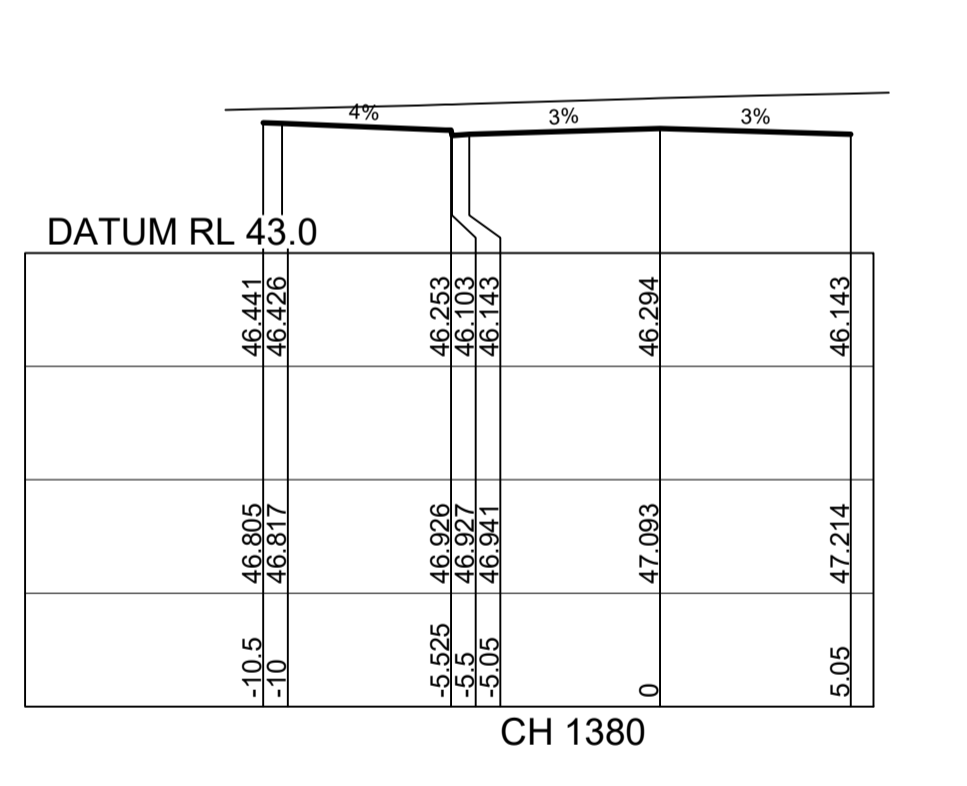
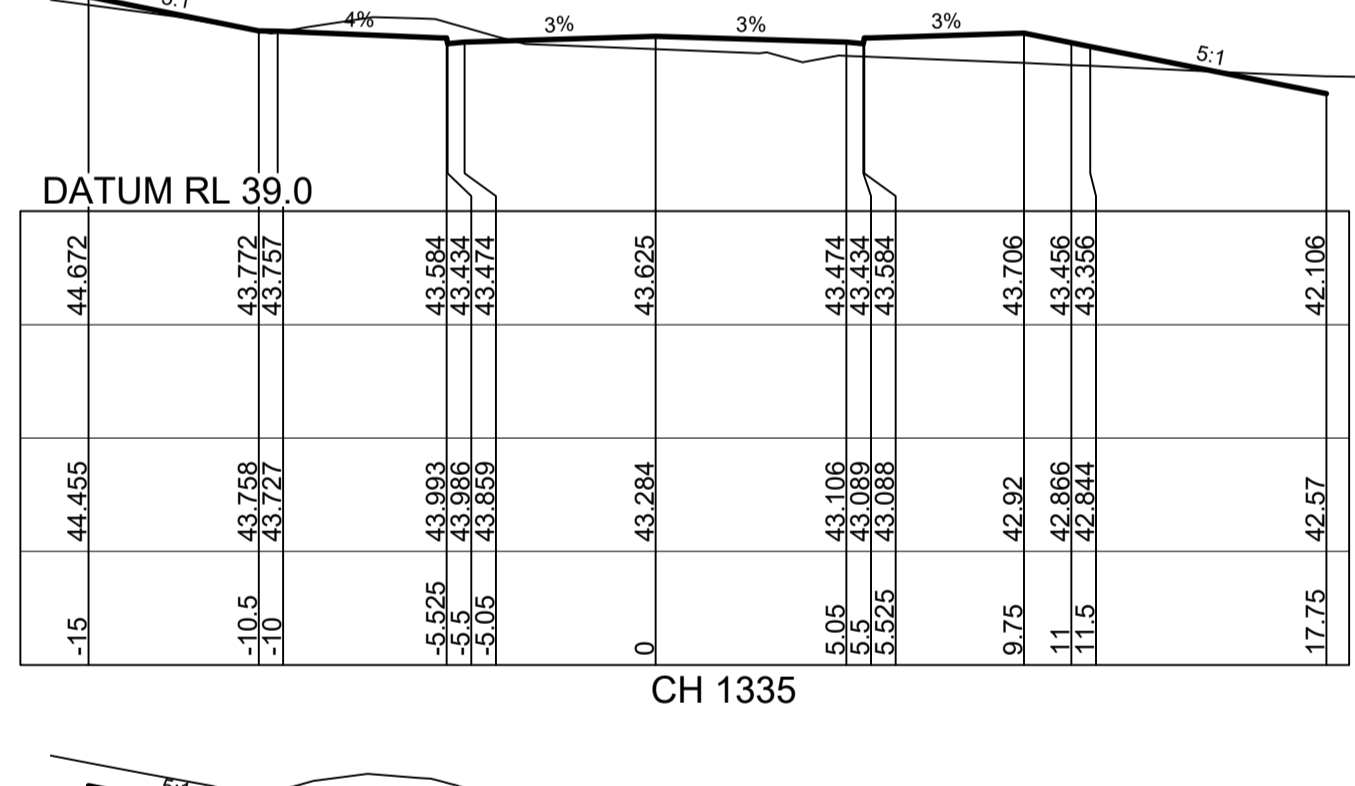
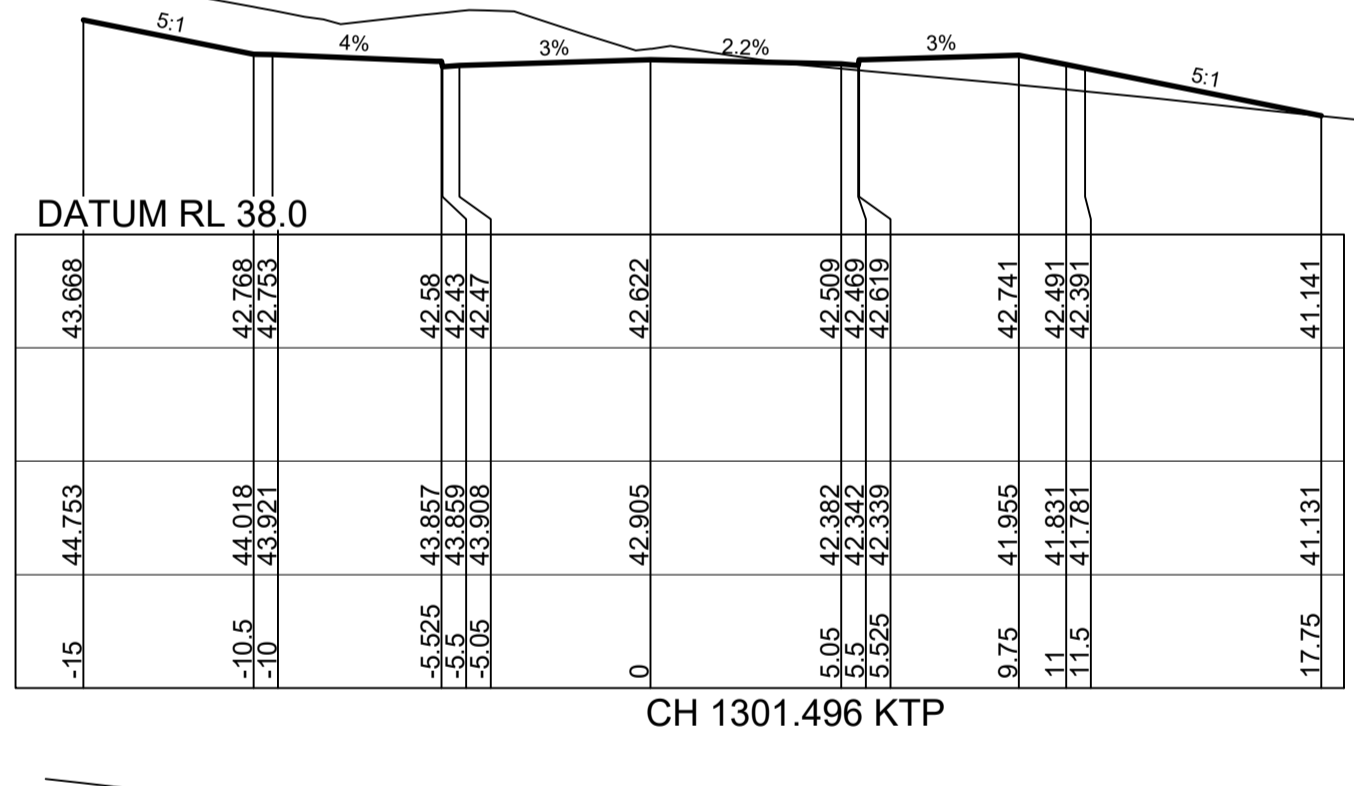
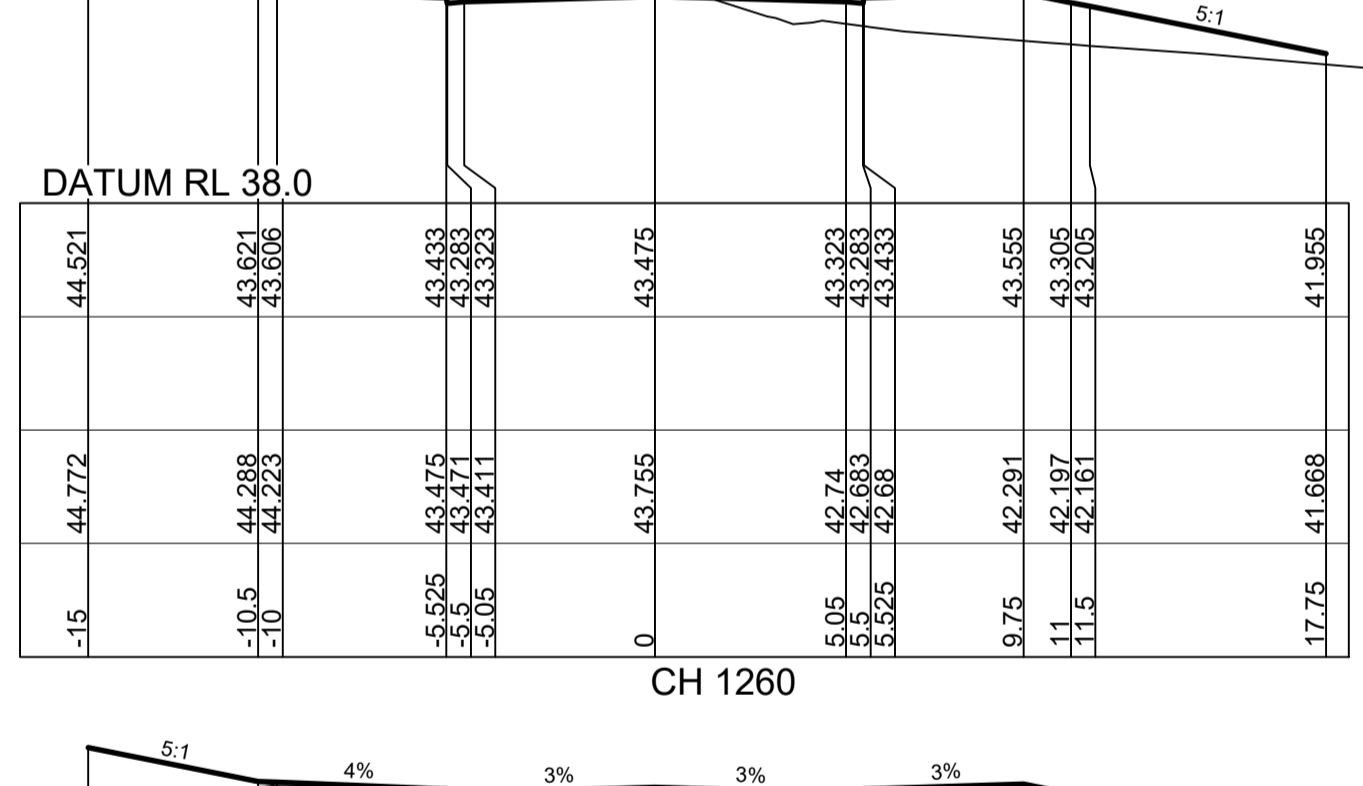
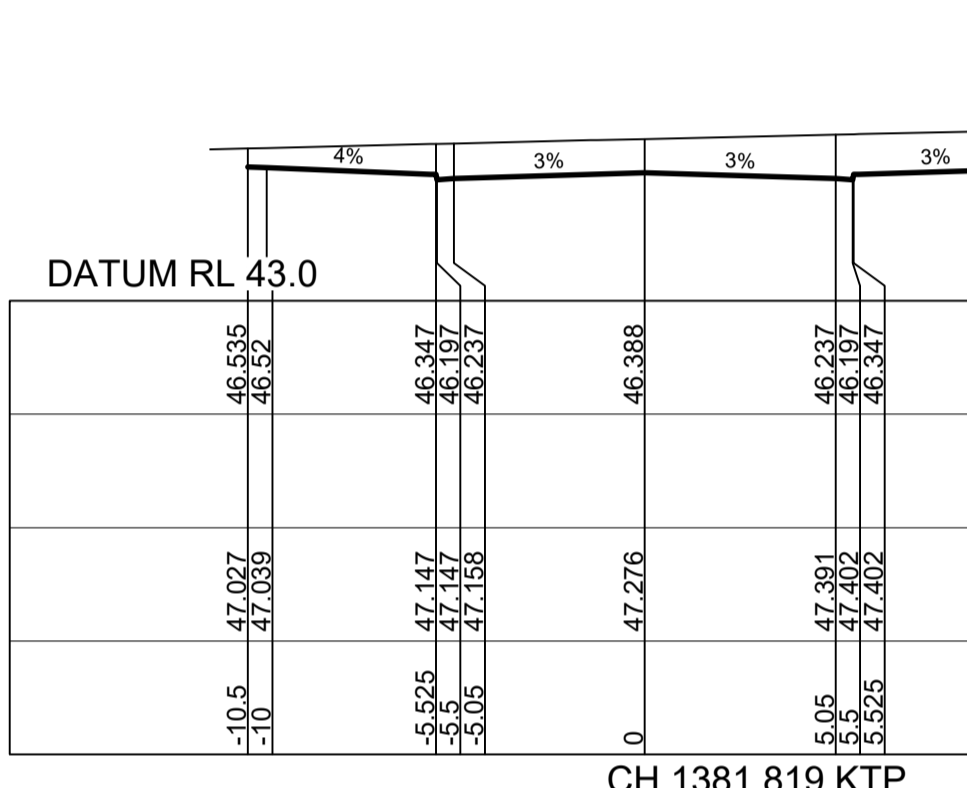
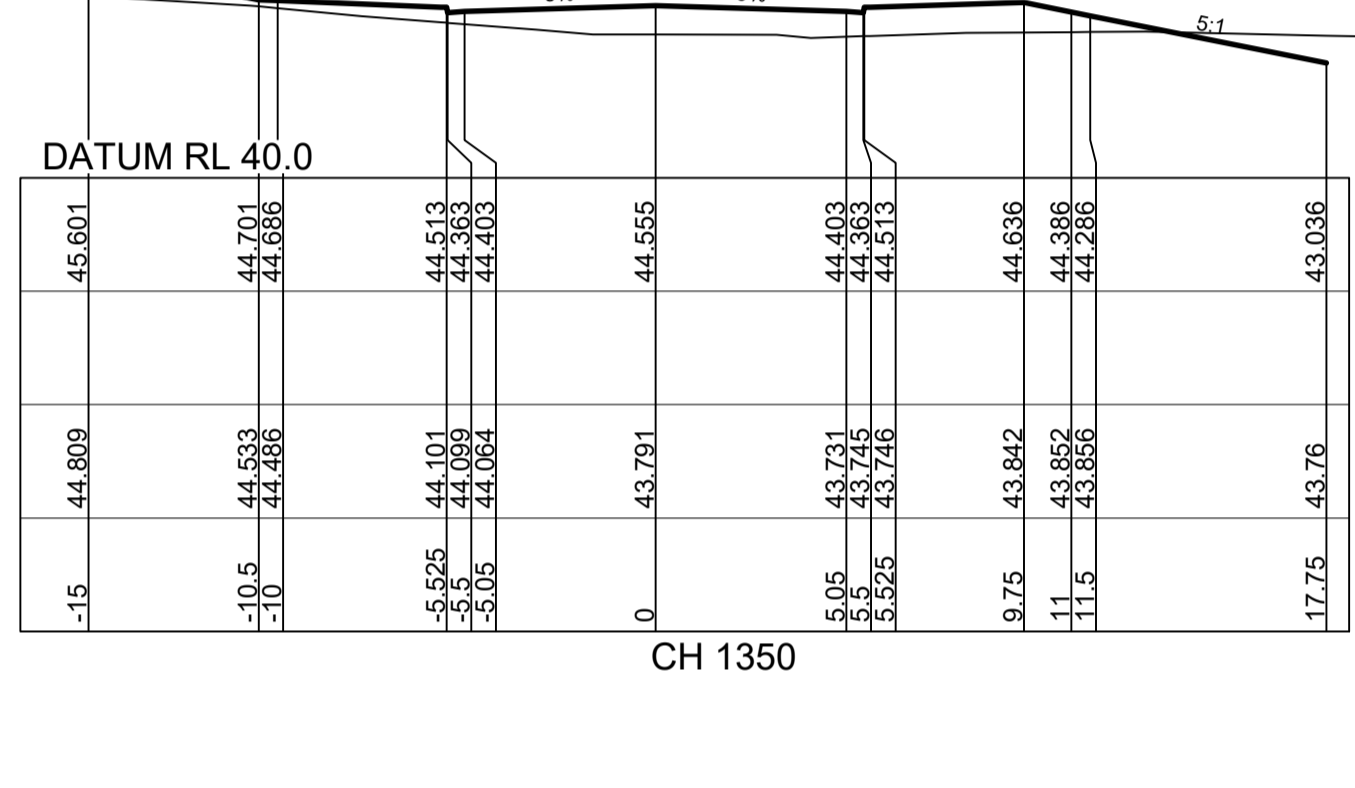
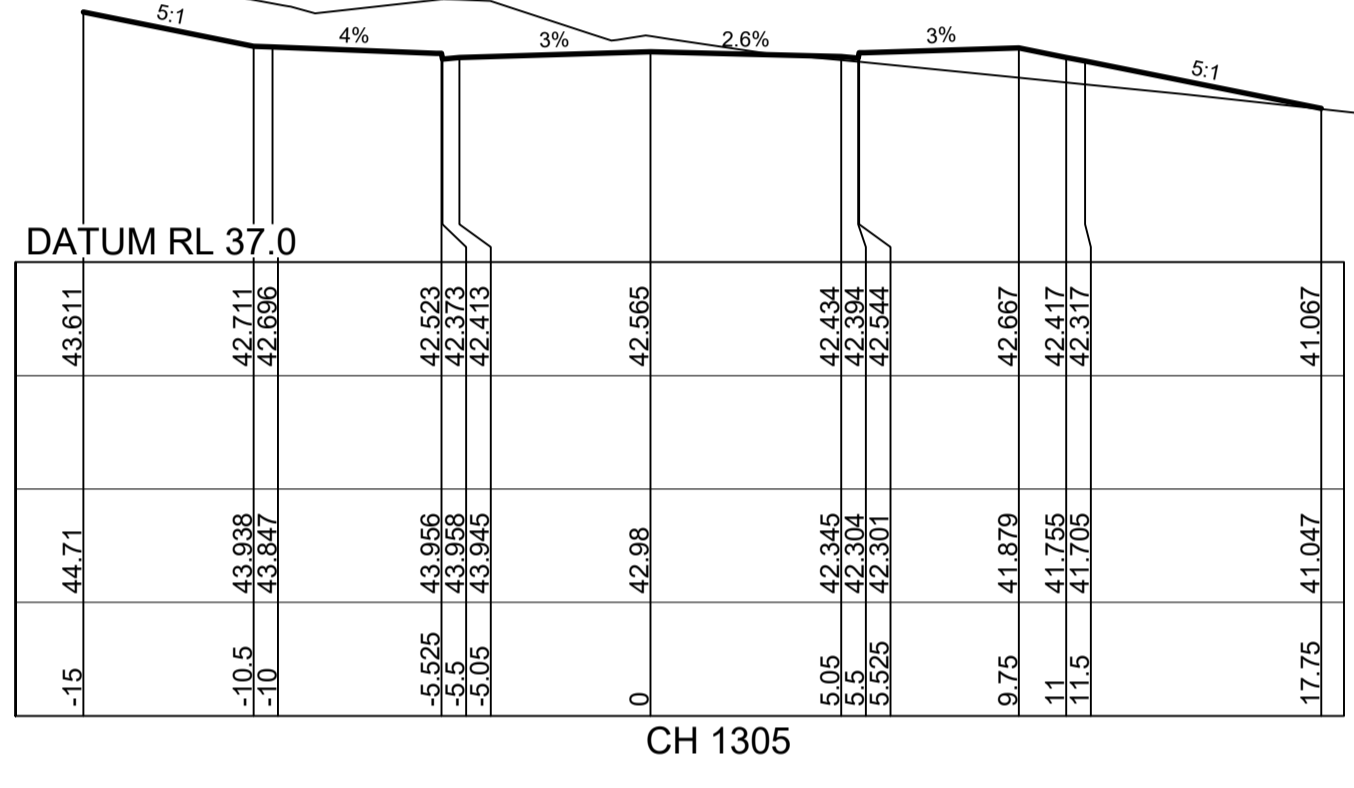
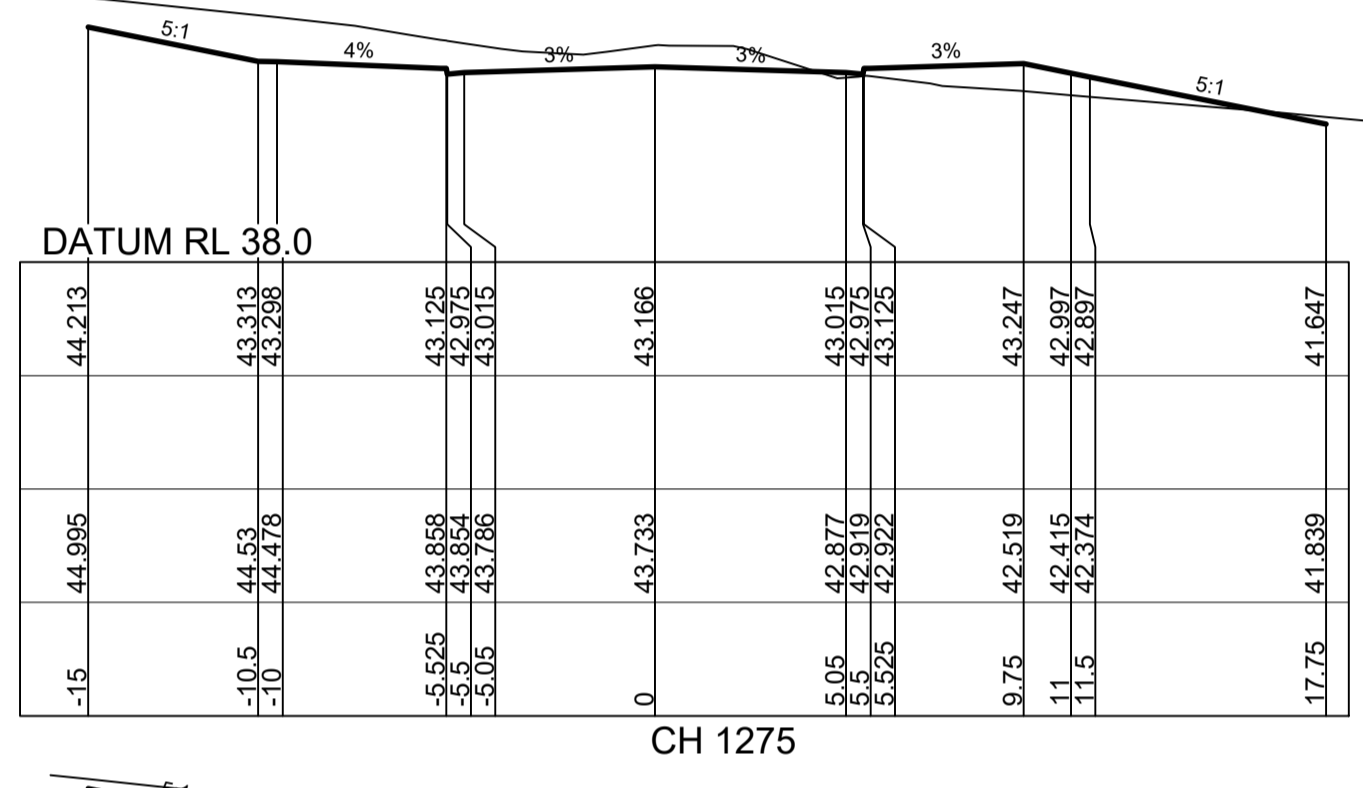
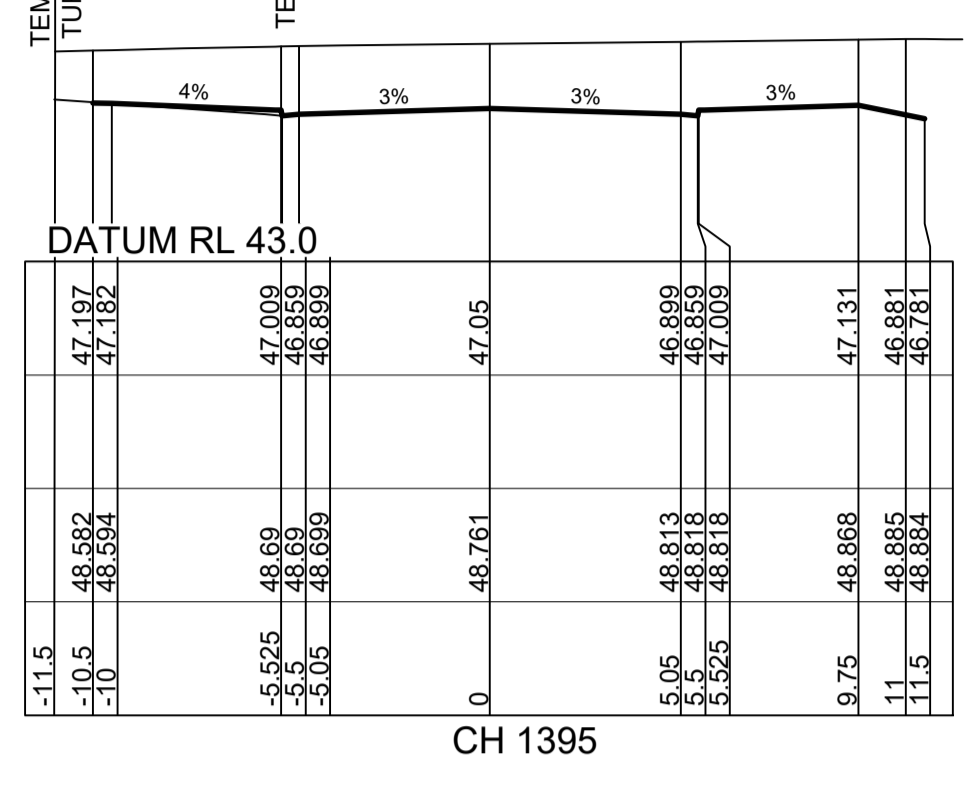
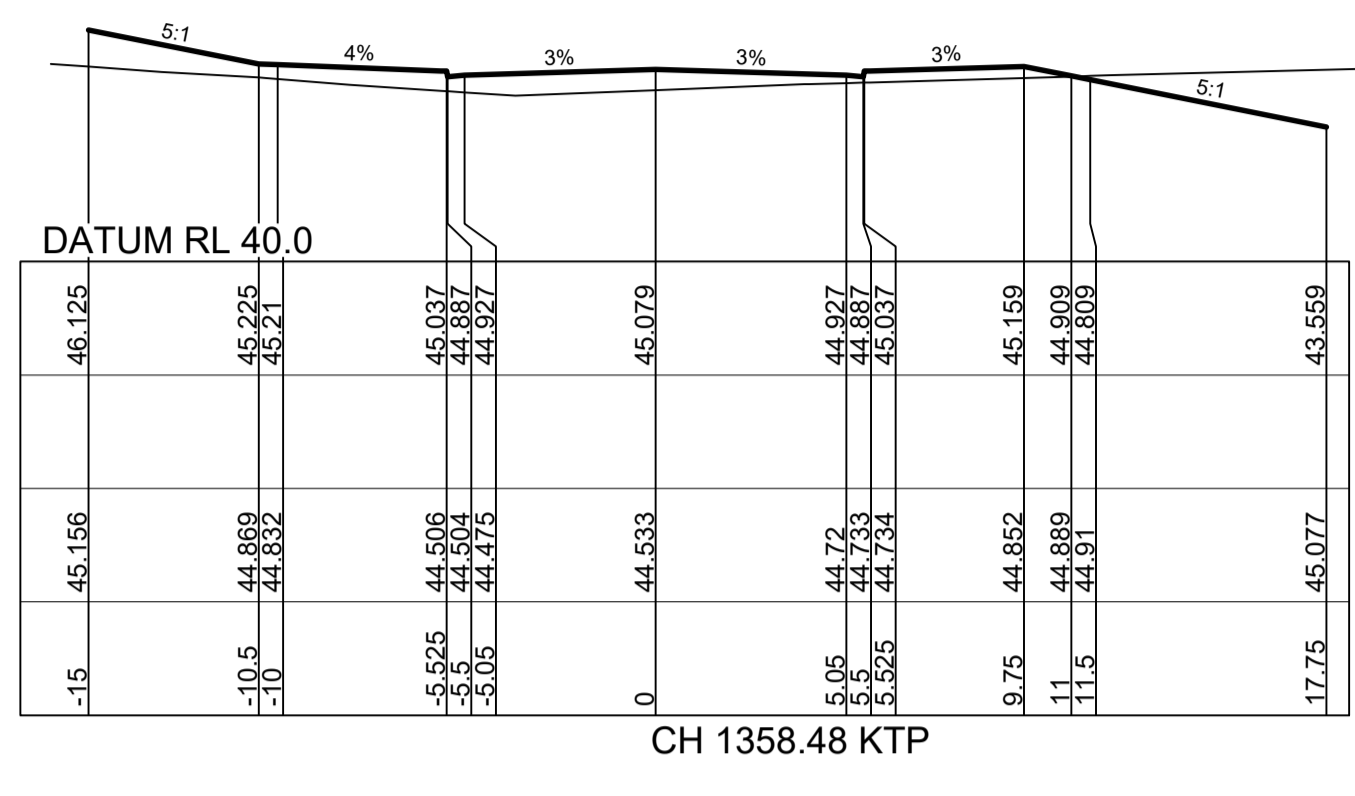
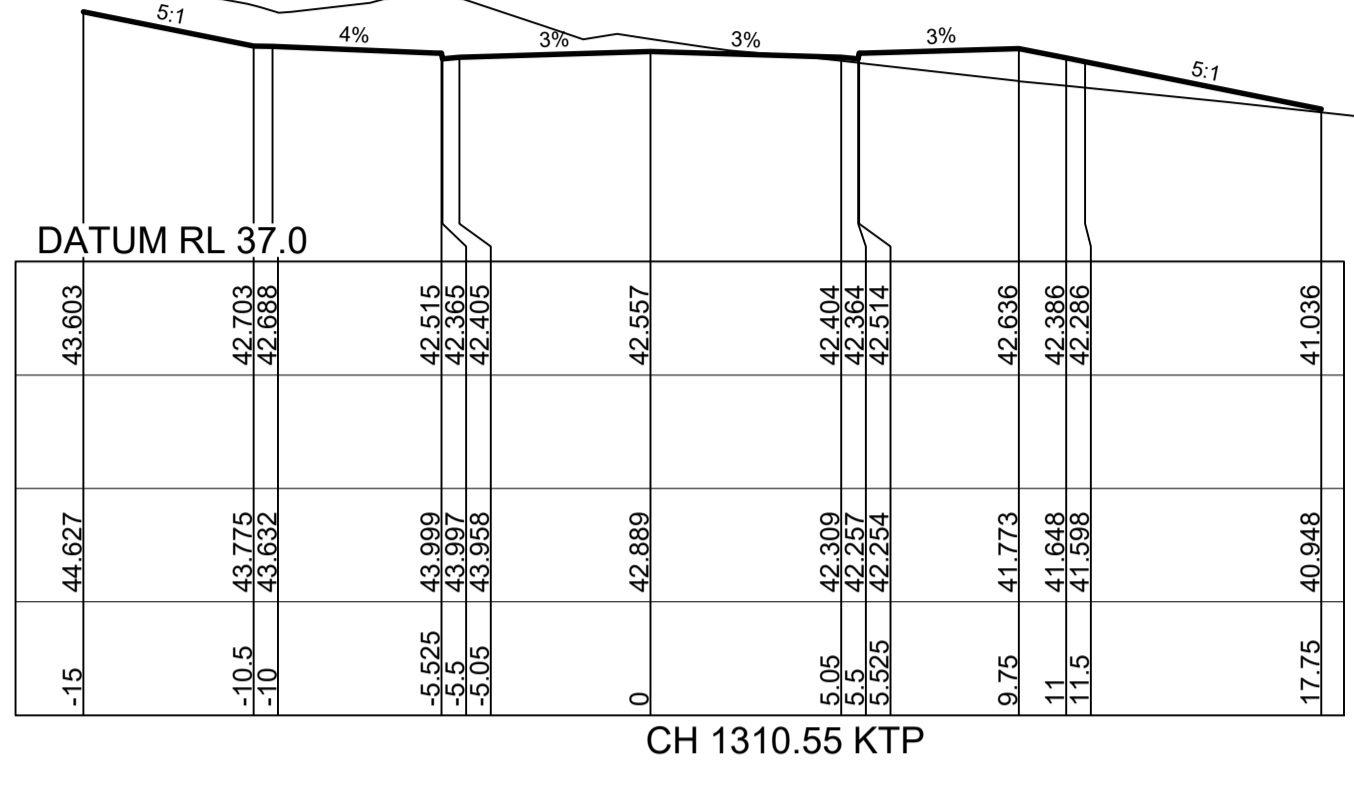
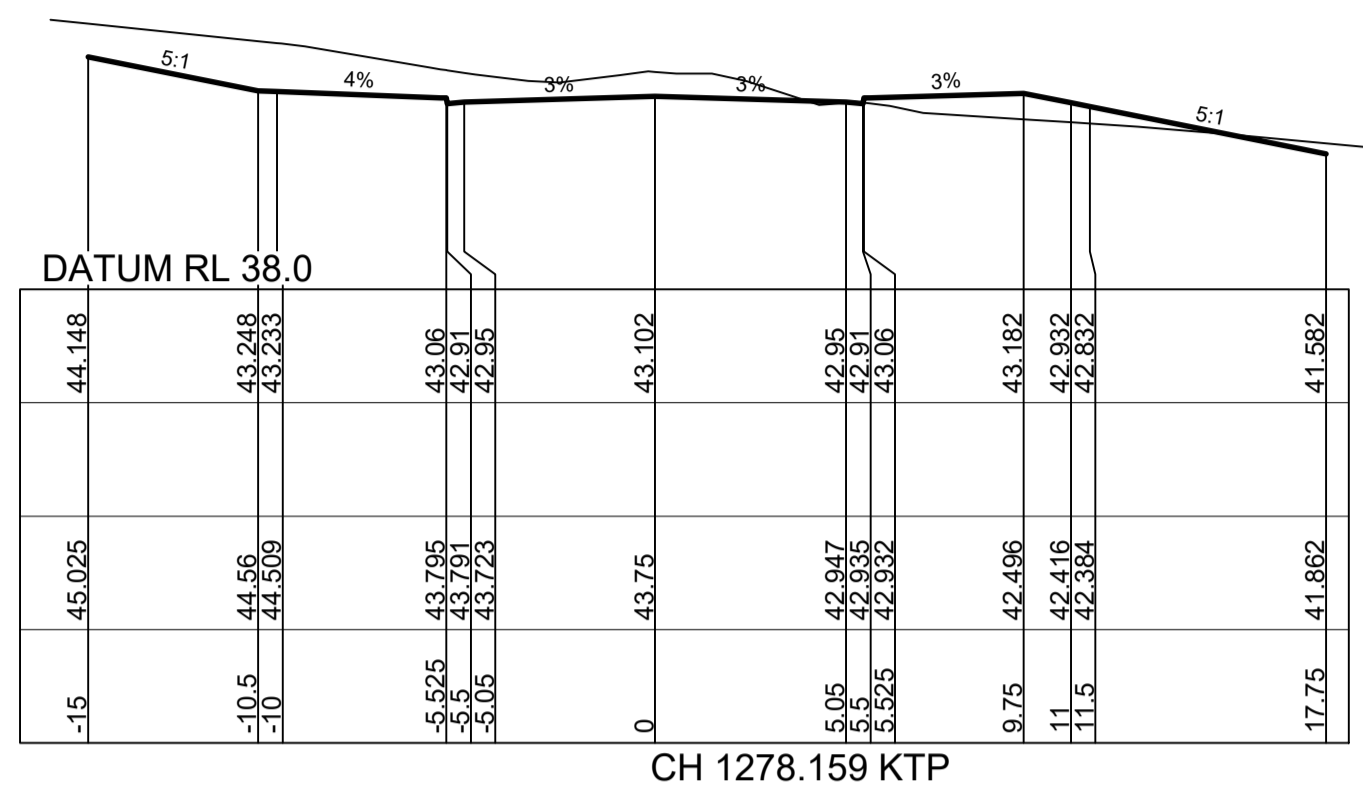
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NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

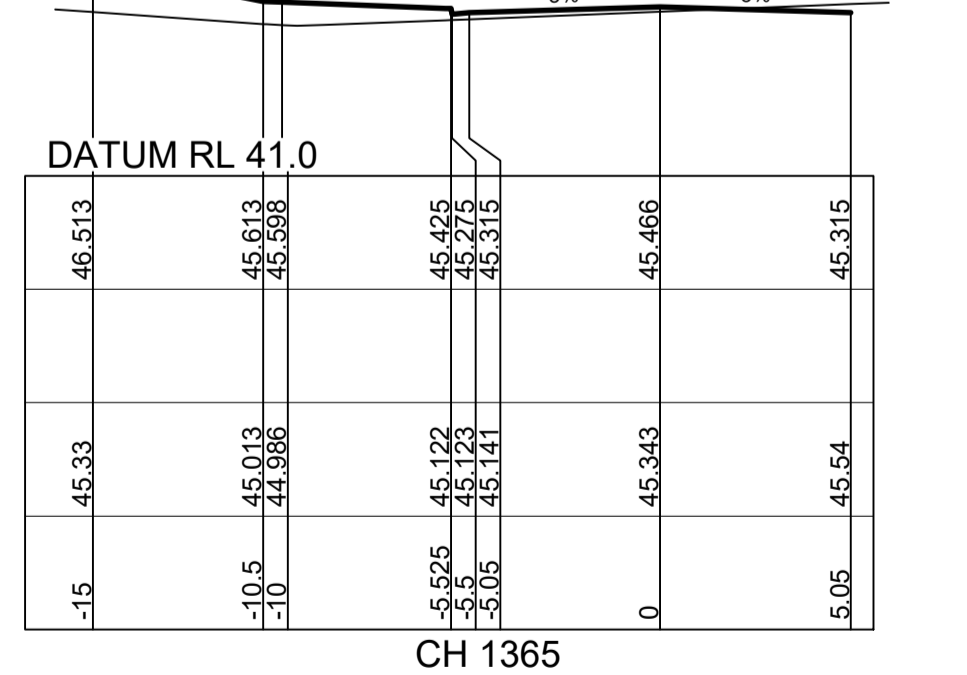
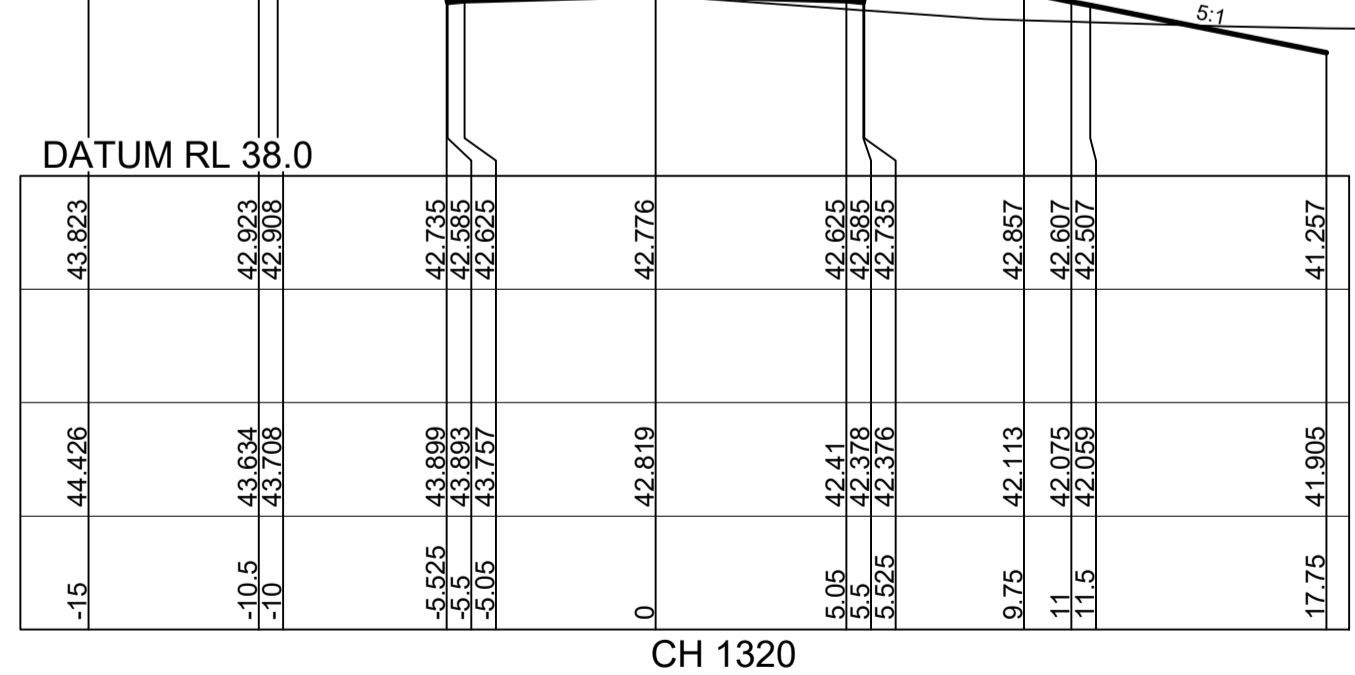
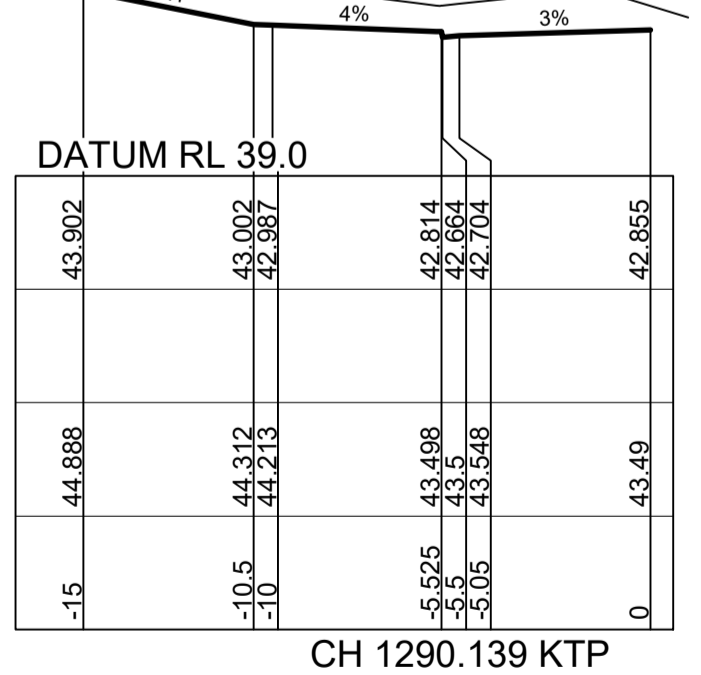
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

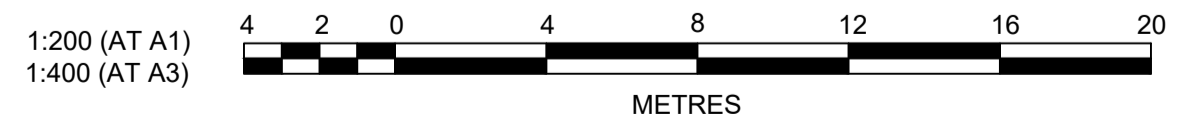
These plans/specifications form part of the certificate issued 5 March 2018



Offset	Design Surface Level	WAE	Existing Surface Level
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-10.5	43.93	43.771	43.93
-10	43.915	43.816	43.915
-5.525	43.742	43.184	43.742
-5	43.532	43.181	43.532
-5.05	43.632	43.076	43.632
0	43.783	42.553	43.783
5.05	43.632	42.131	43.632
5.5	43.592	42.093	43.592
5.525	43.742	42.081	43.742
9.75	43.684	41.732	43.684
11	43.614	41.625	43.614
11.5	43.314	41.388	43.314
17.75	42.264	41.108	42.264



**CROSS SECTIONS ROAD 1**



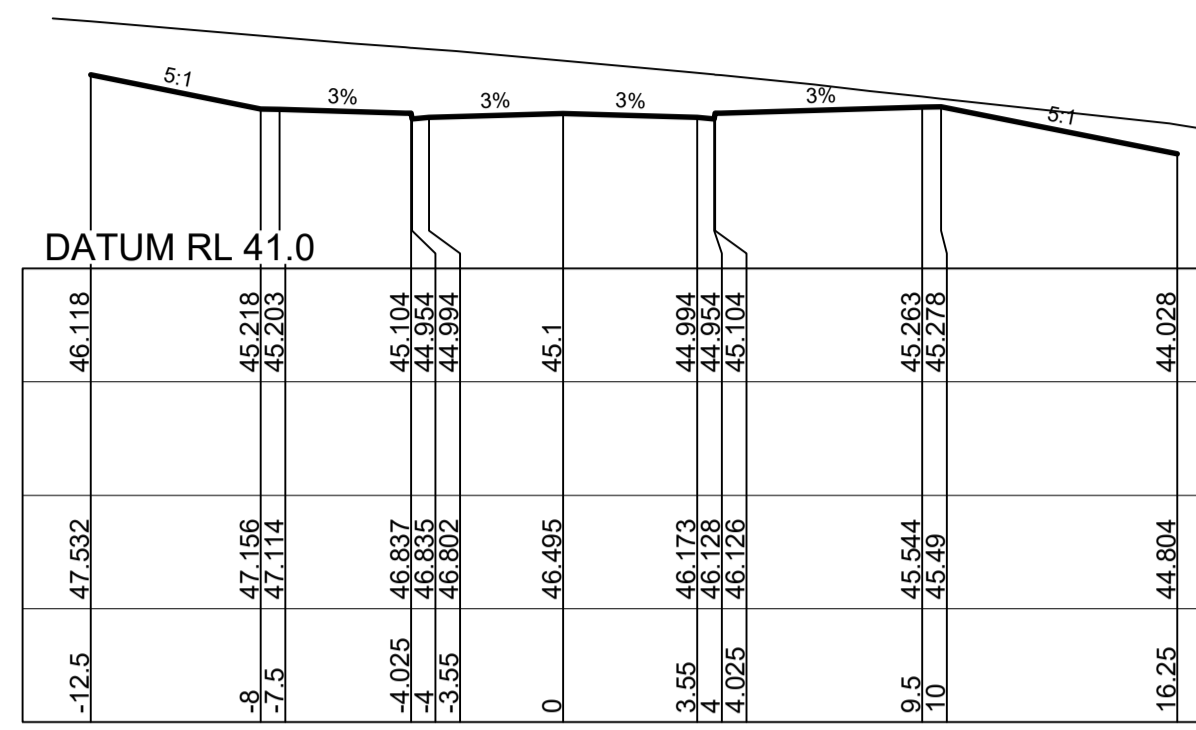
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

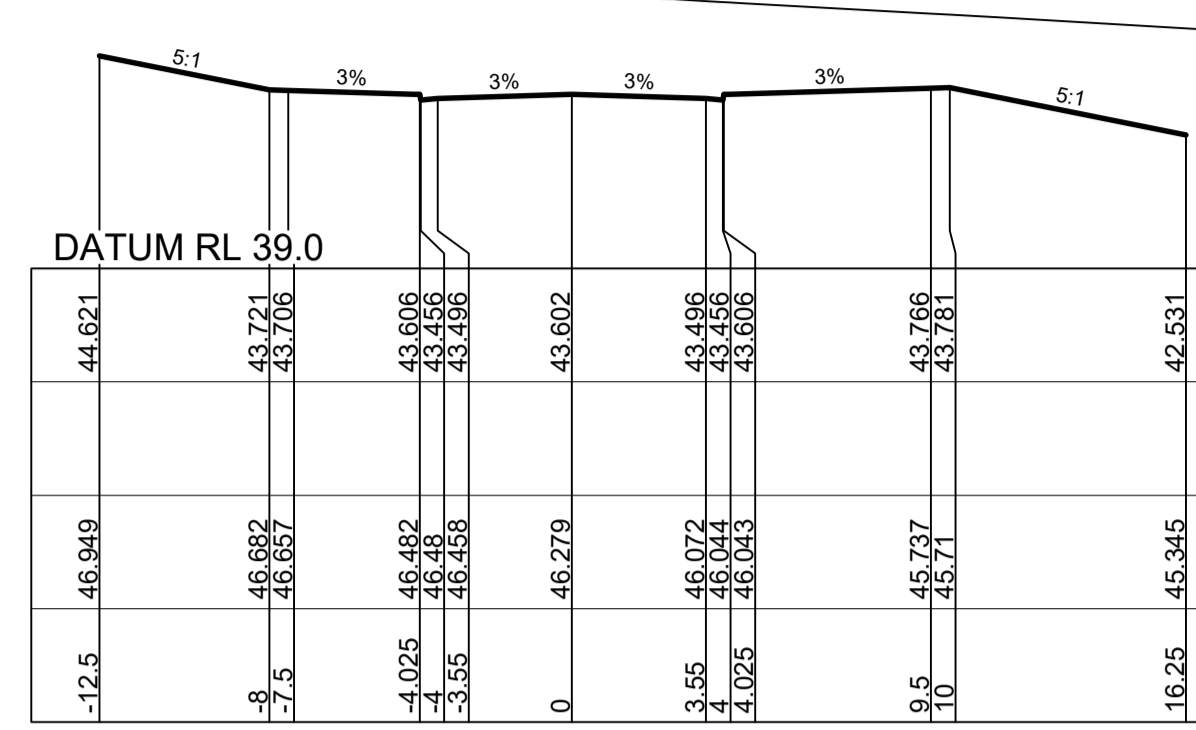
PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

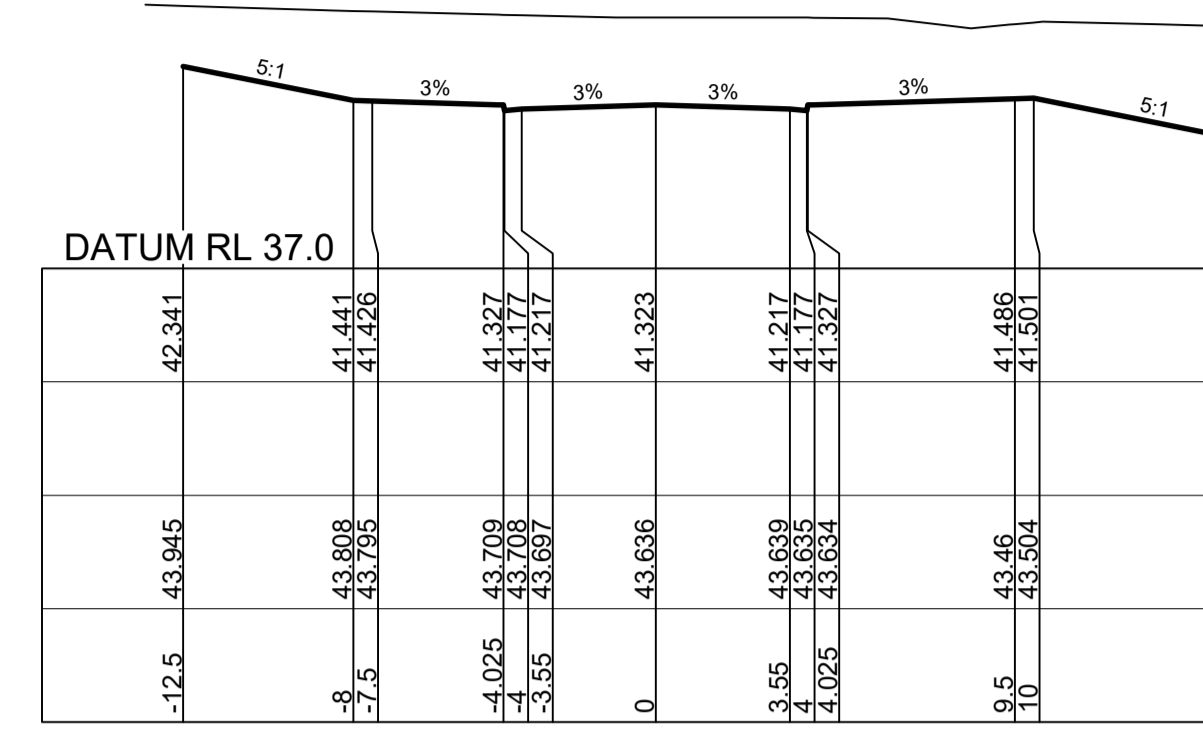
**REDBANK YEOMANS NORTH  
 NORTH RICHMOND ST**



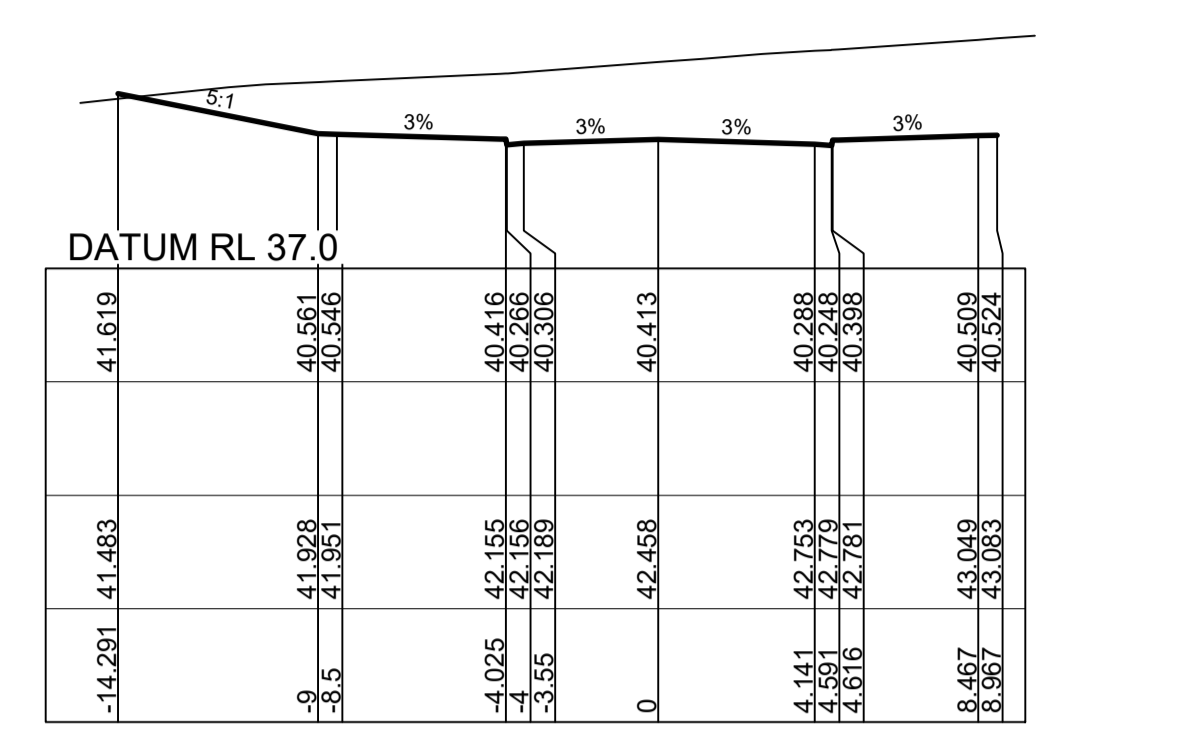
CH 22.086 KTP



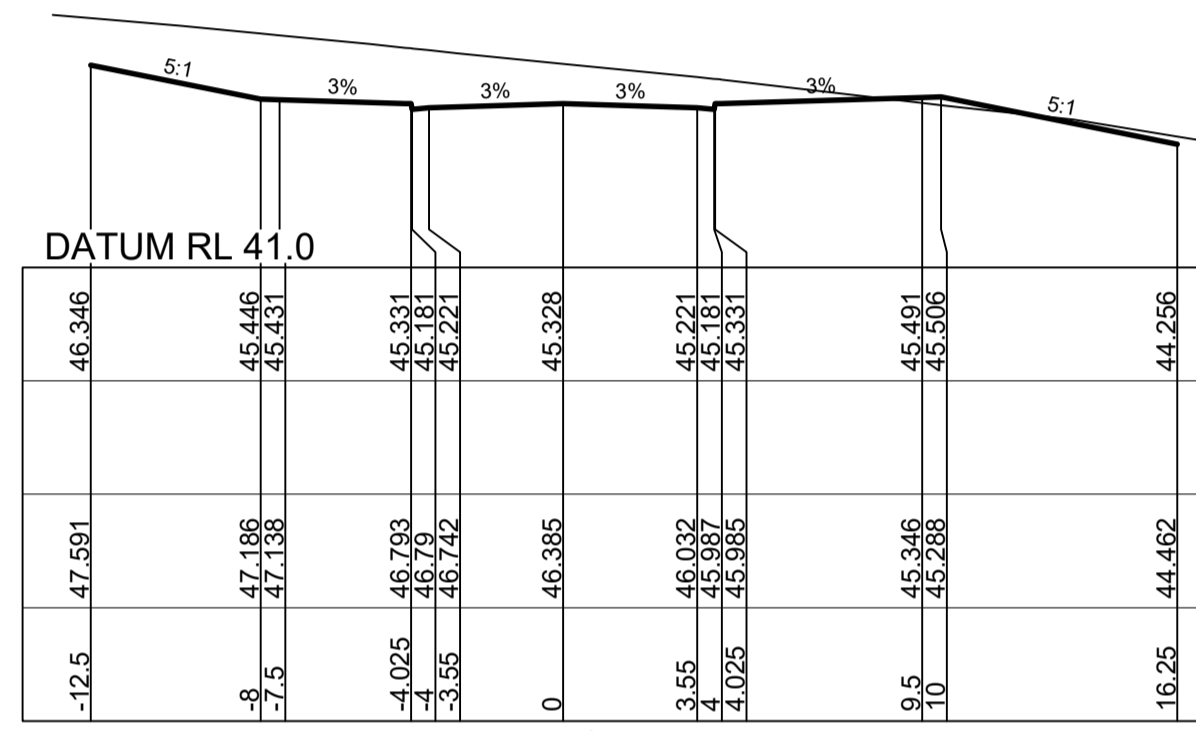
CH 60



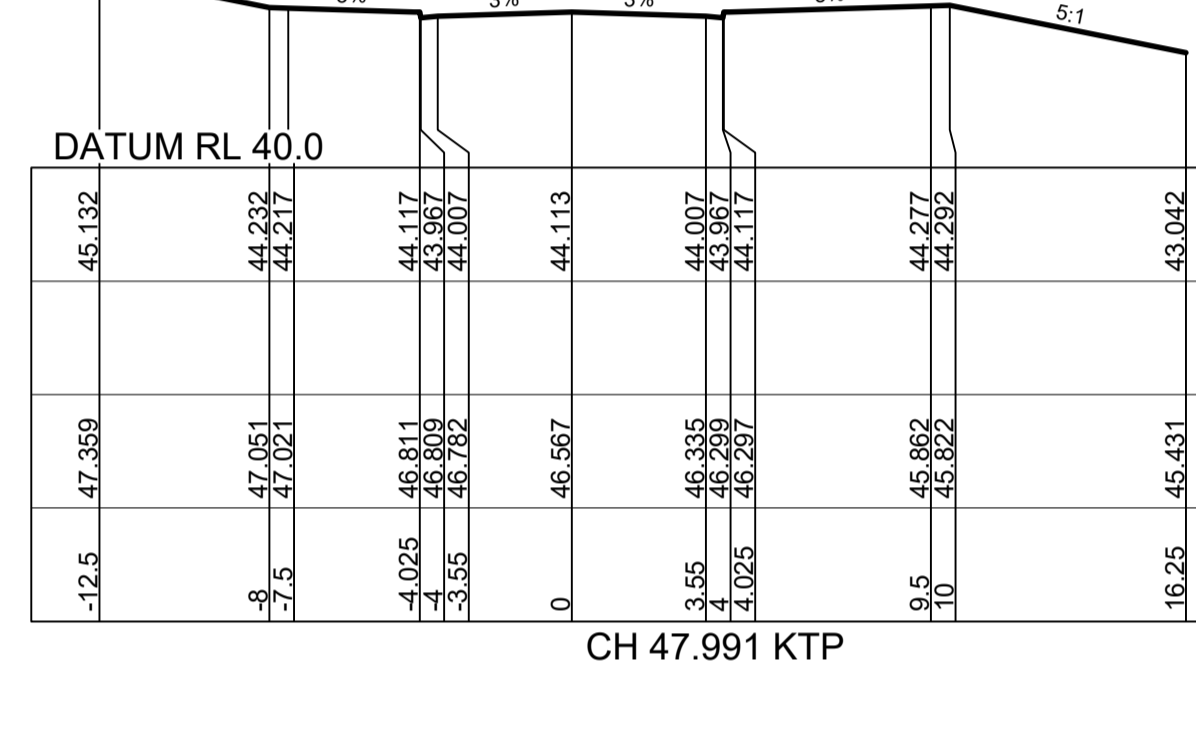
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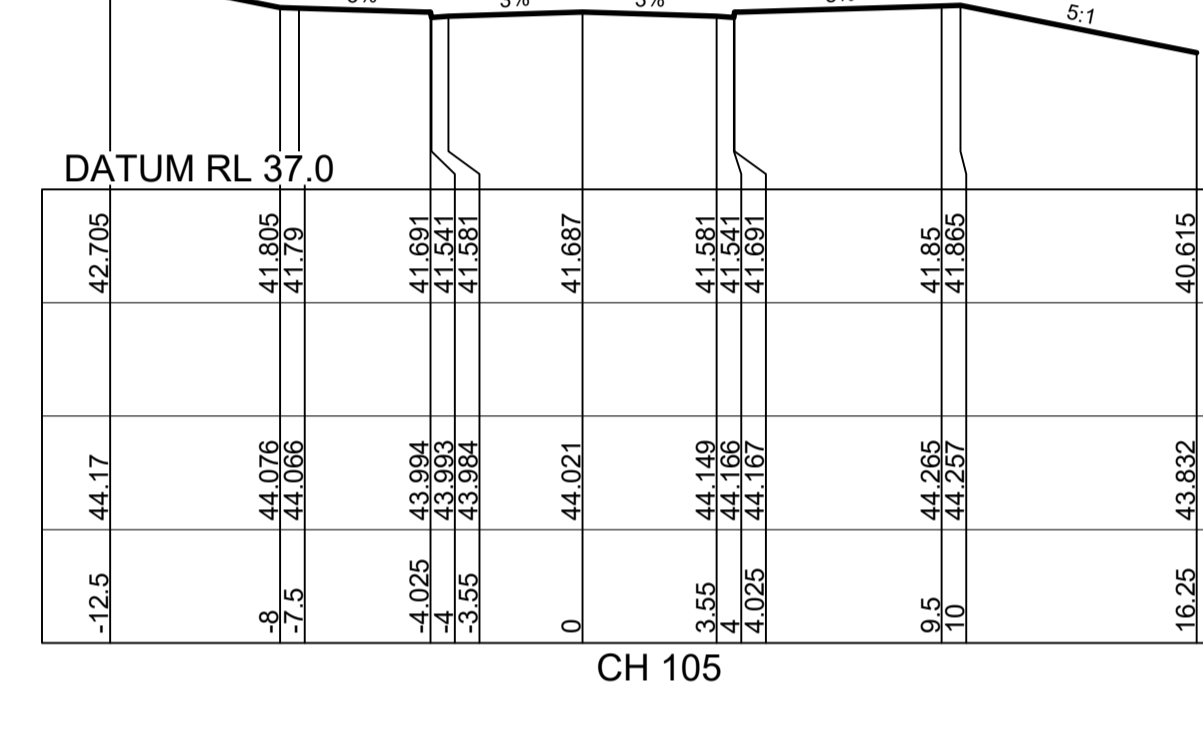
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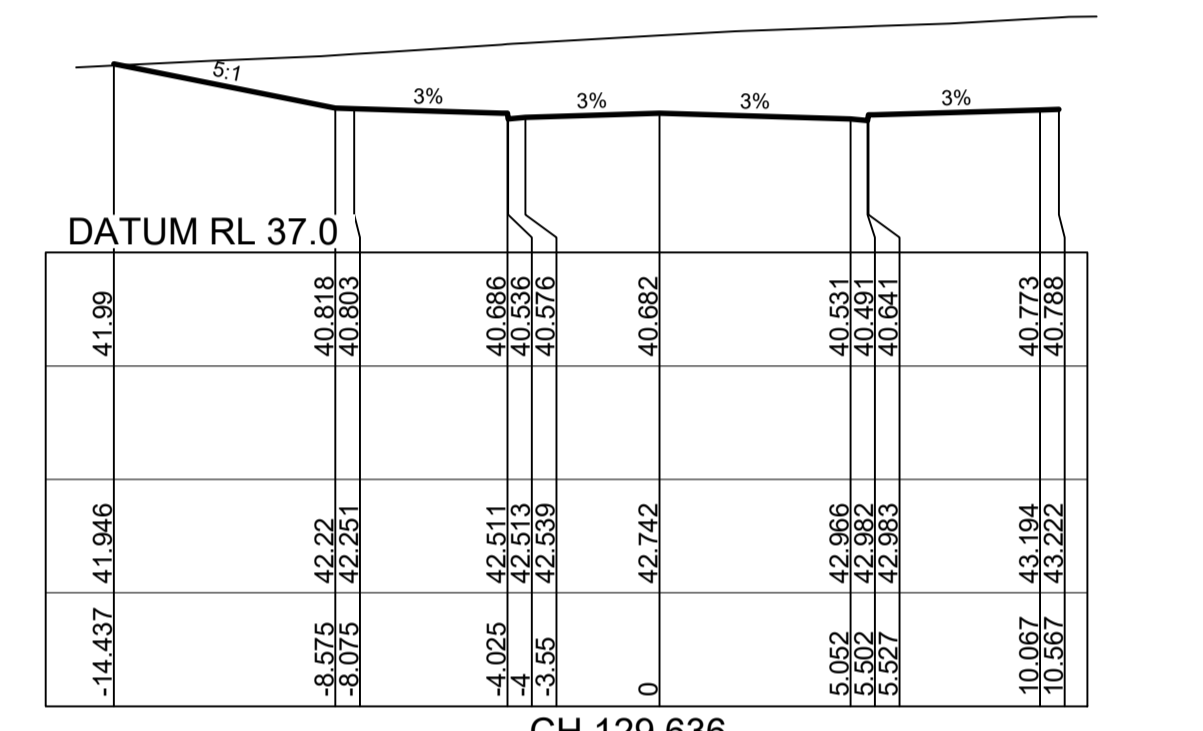
CH 15



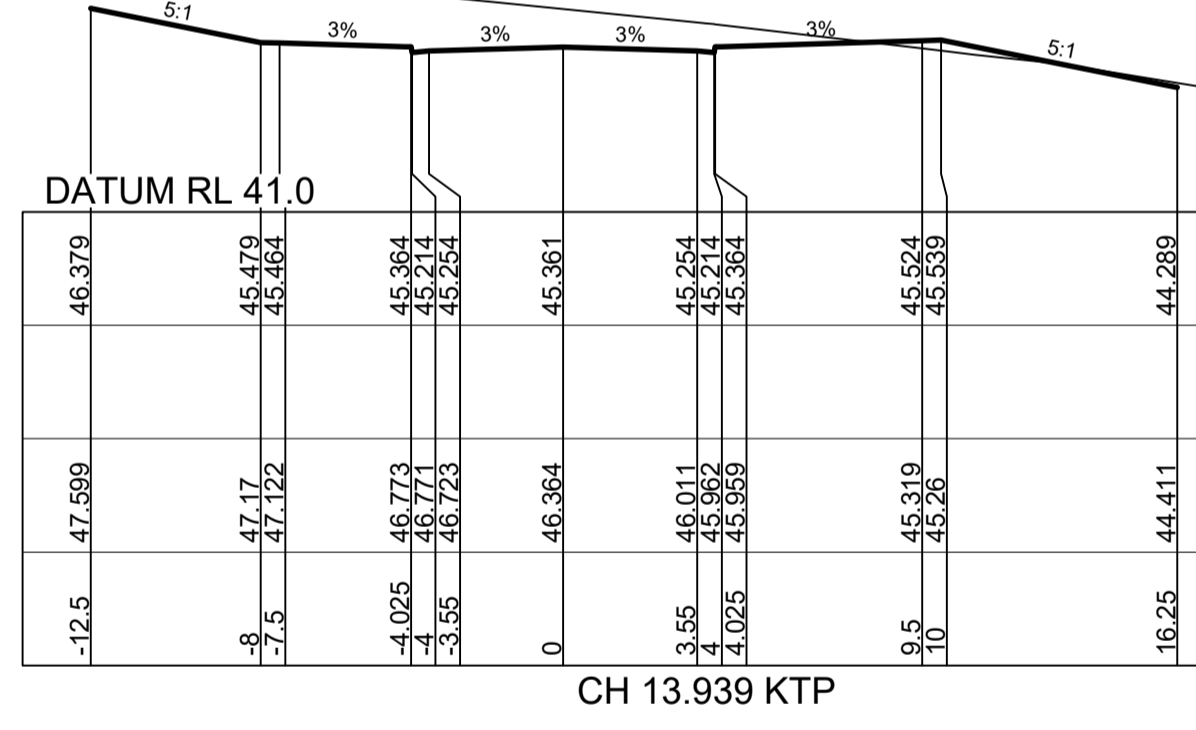
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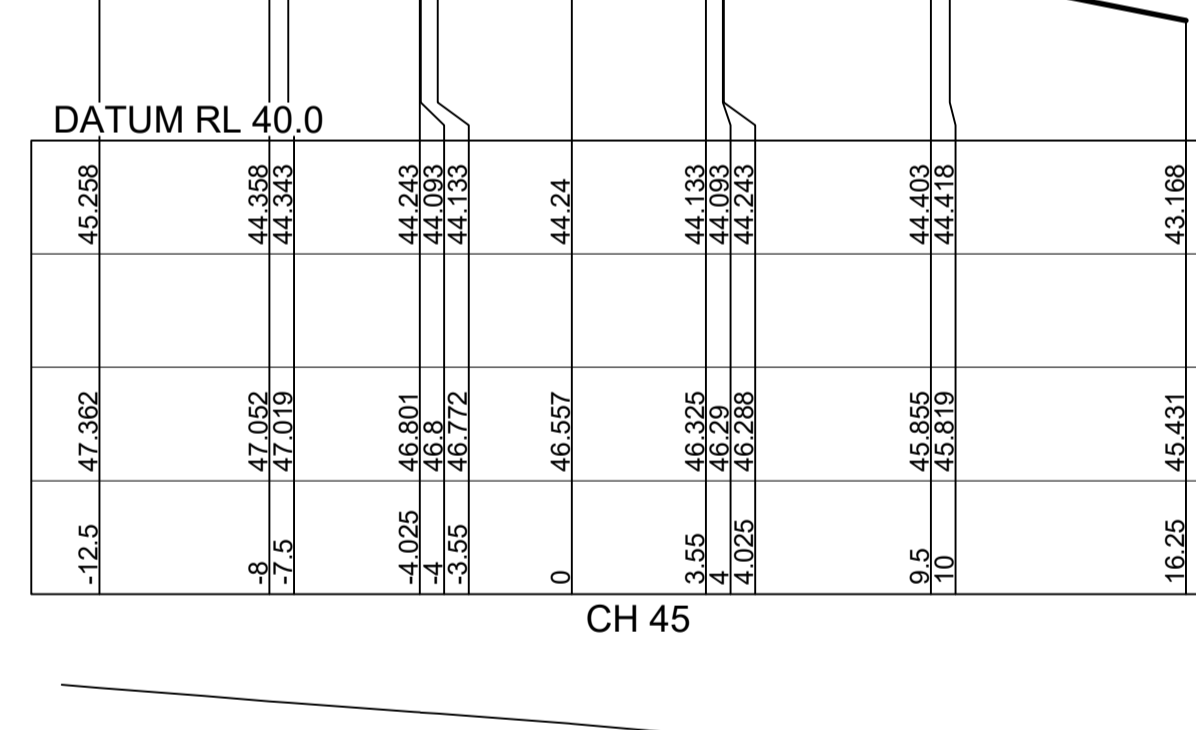
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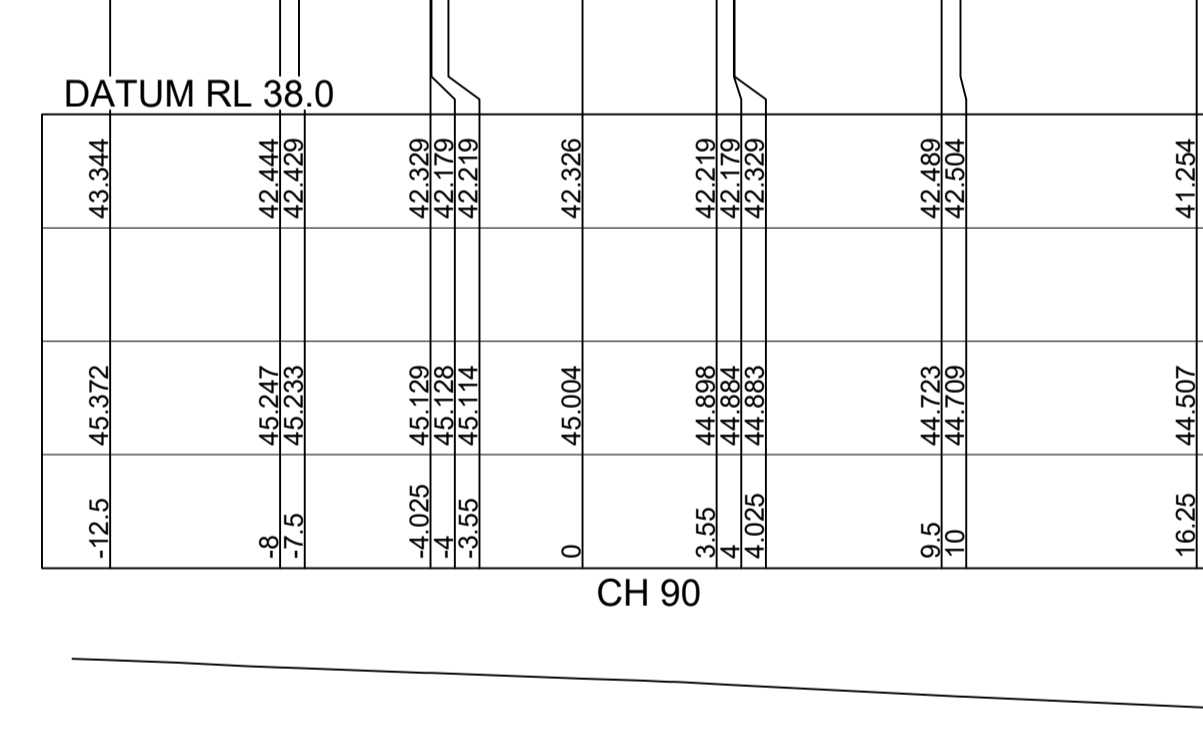
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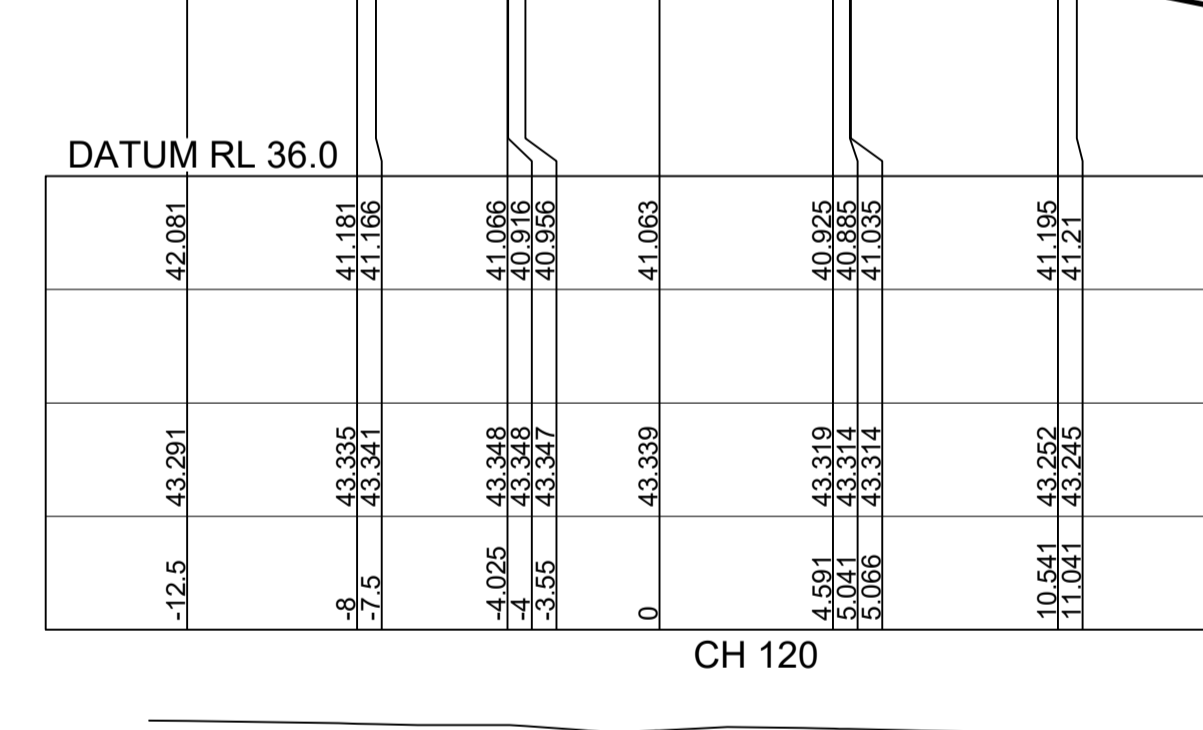
CH 13.939 KTP



CH 45



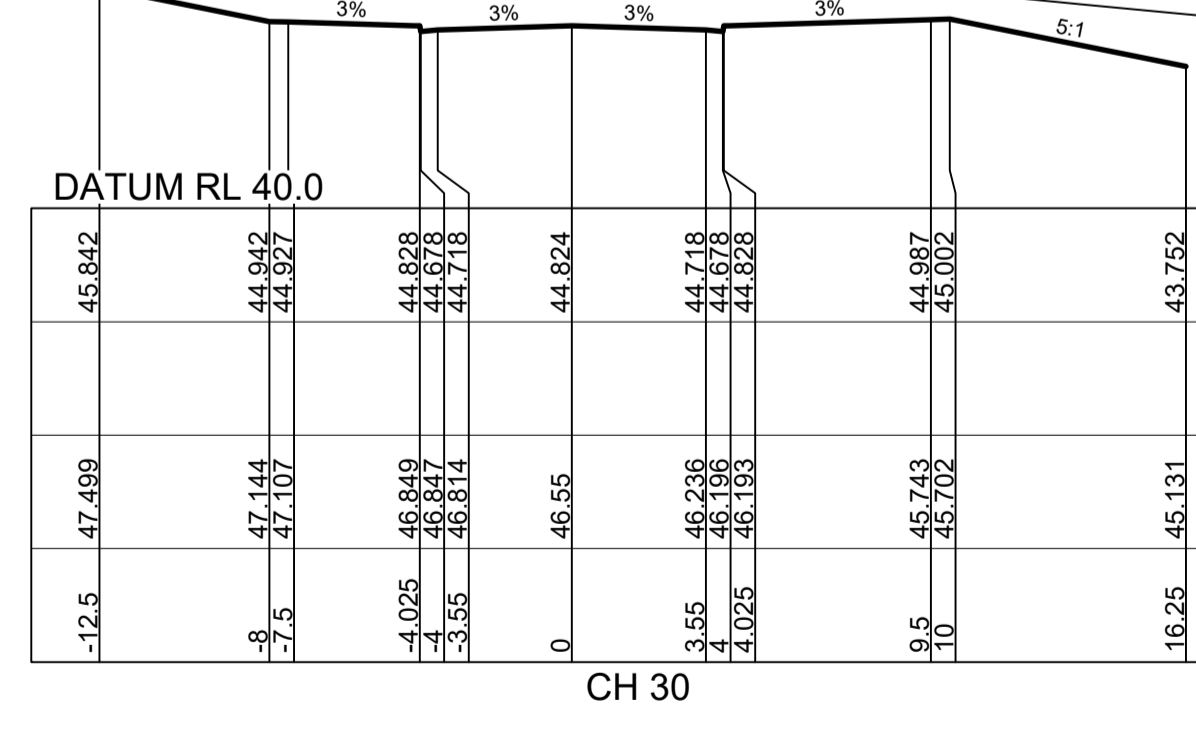
CH 90



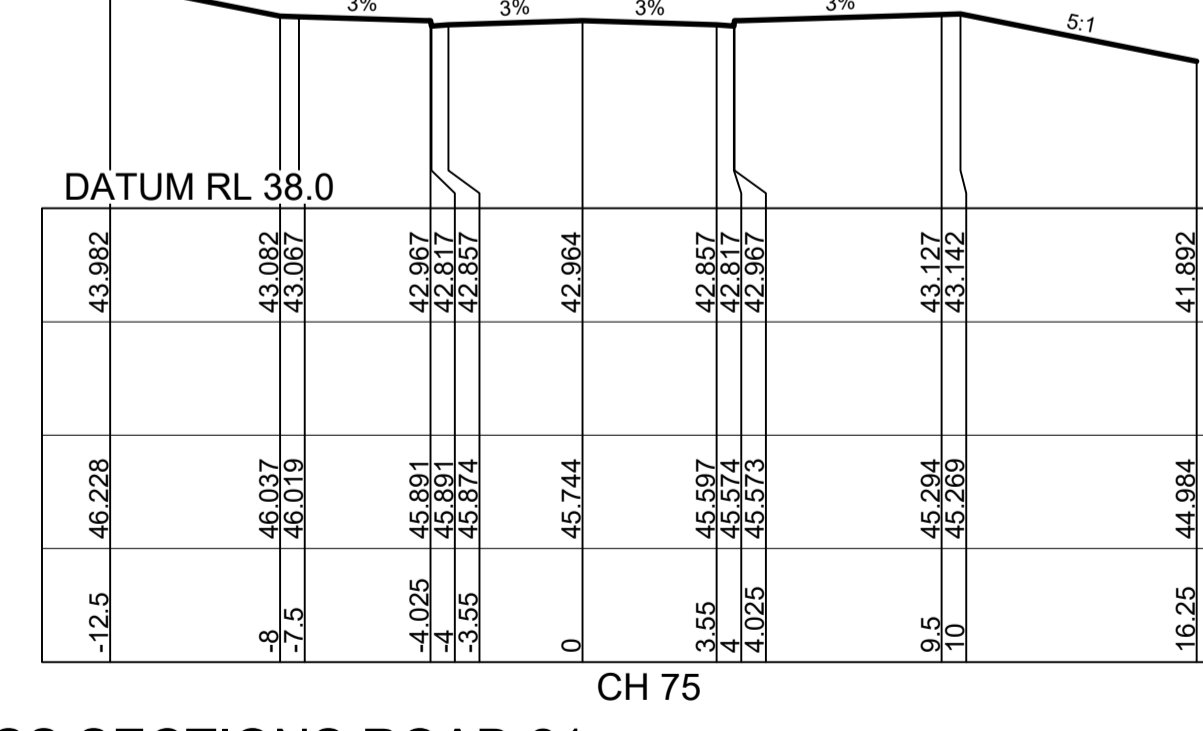
CH 120

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EXISTING SURFACE LEVEL	45.483
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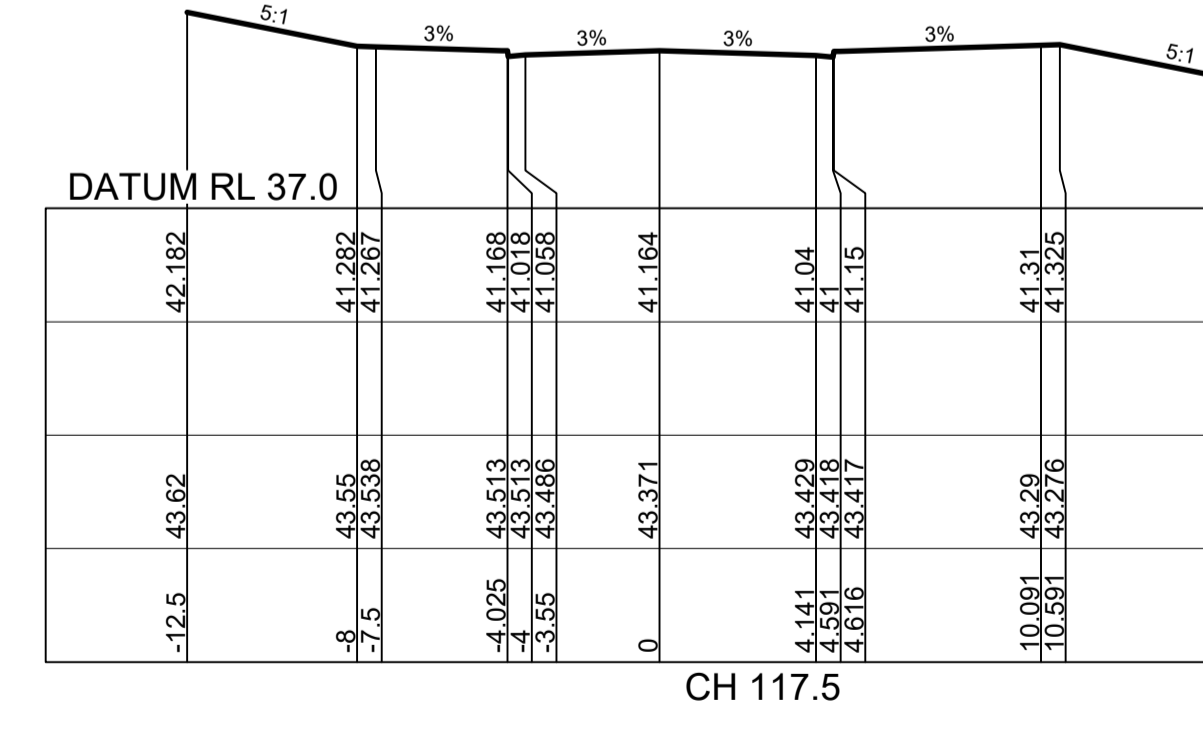
CH 13.318 KTP



CH 30



CH 75



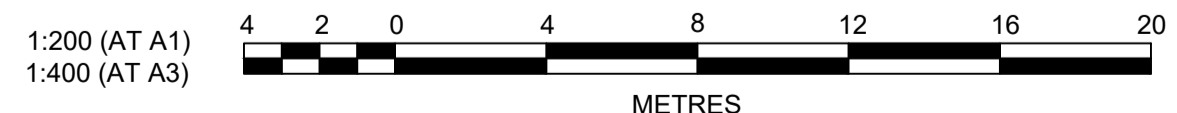
CH 117.5

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPO565

These plans/specifications form part of the certificate issued 5 March 2018

CROSS SECTIONS ROAD 21



PRINCIPAL:

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

ISSUED FOR CONSTRUCTION APPROVAL

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

CROSS SECTIONS  
 SHEET 4 OF 19

PLAN No: 11018511/CC064 **A**

FILE No: 11018511CC064

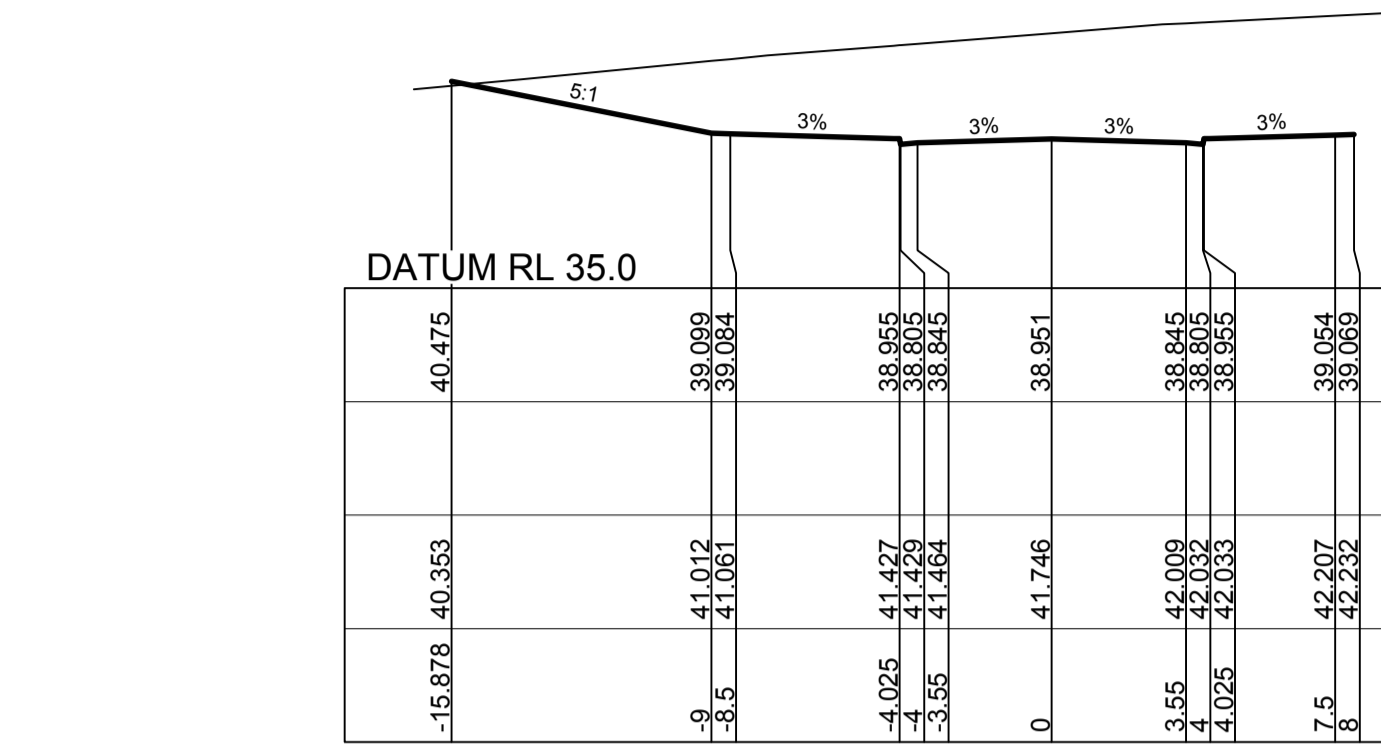
SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

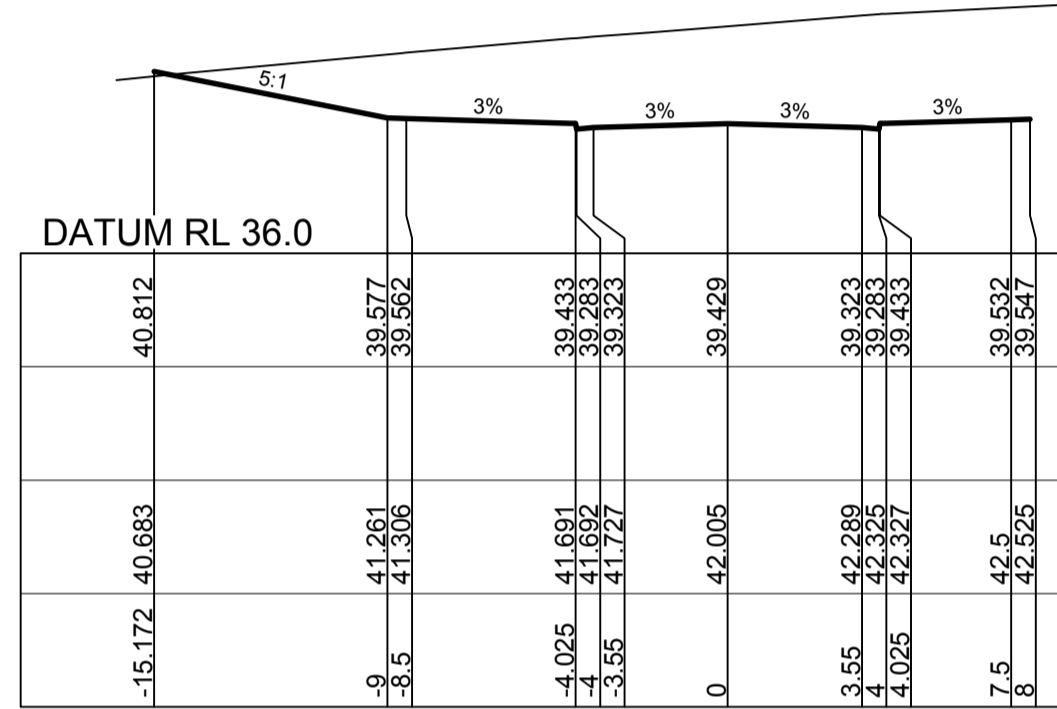
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Joery B*  
 Accreditation No. BPP80665

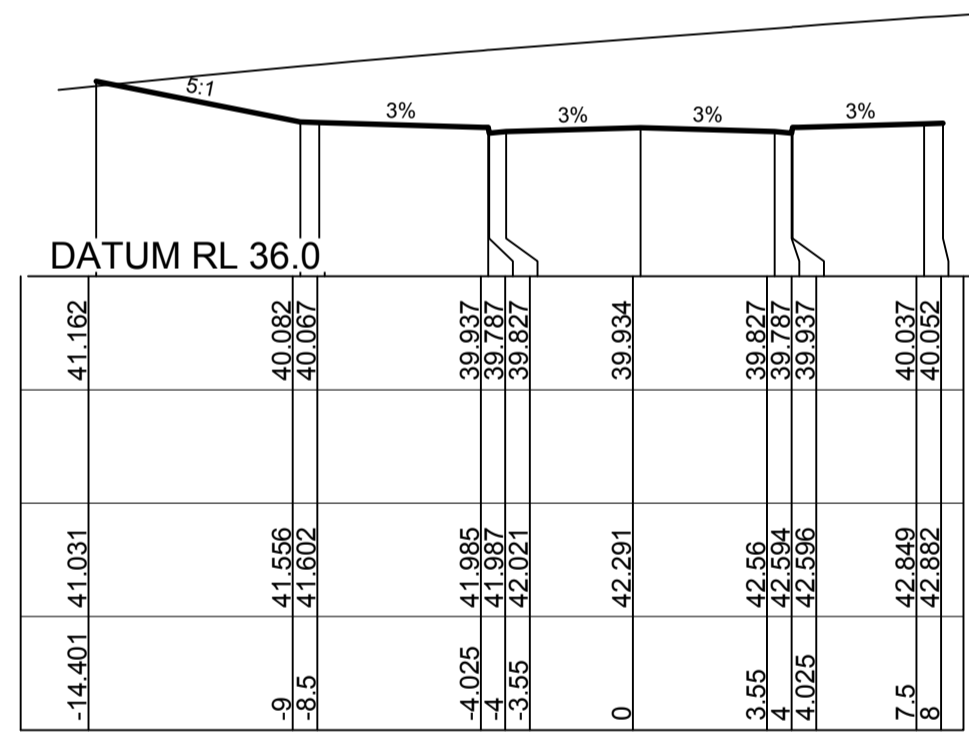
These plans/specifications form part of the certificate issued 5 March 2018



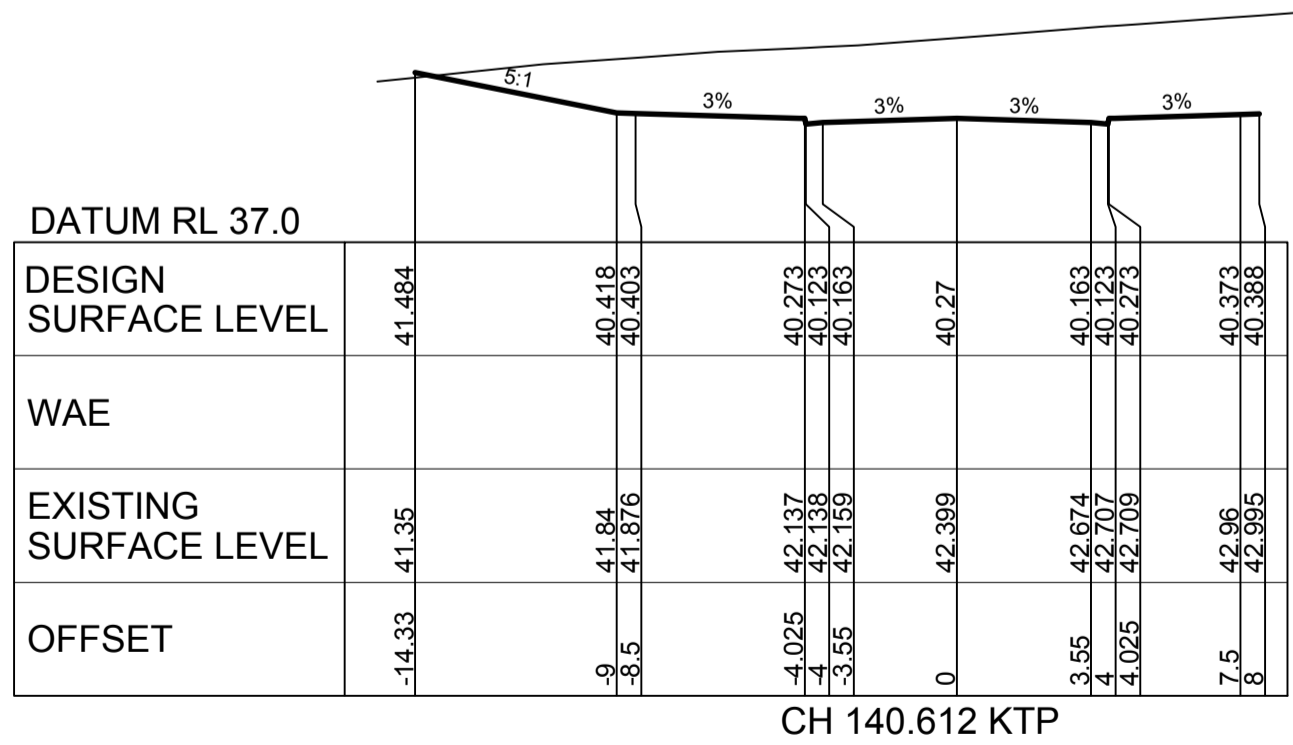
CH 180



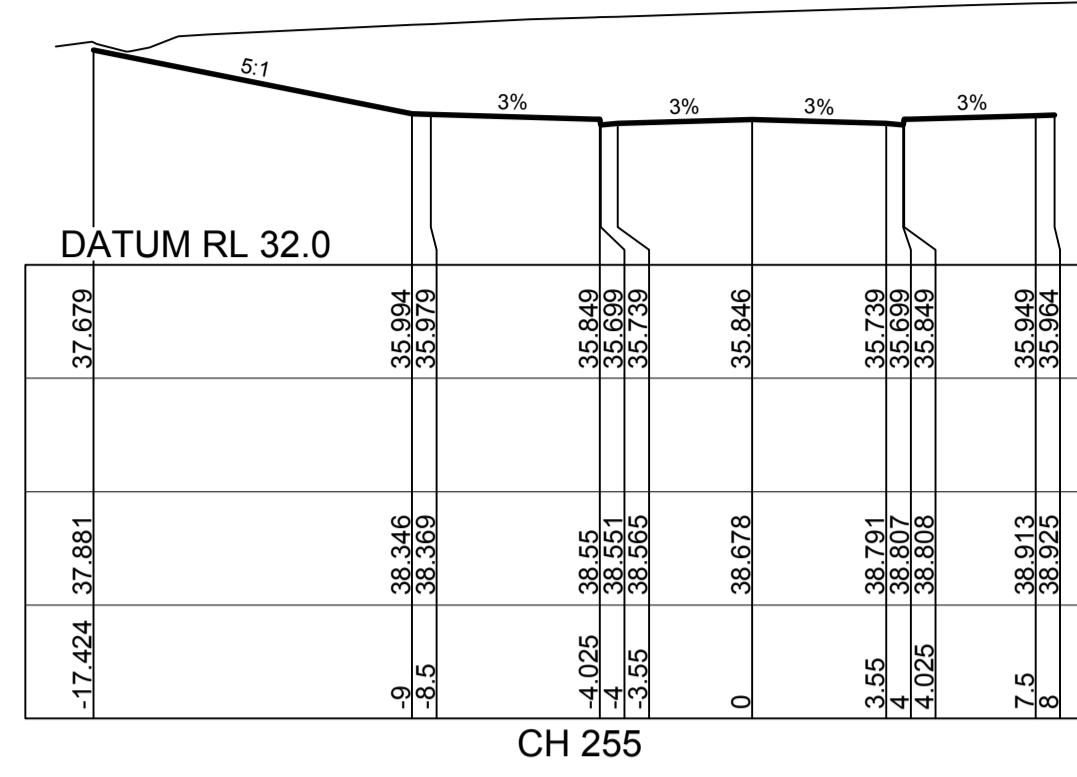
CH 165



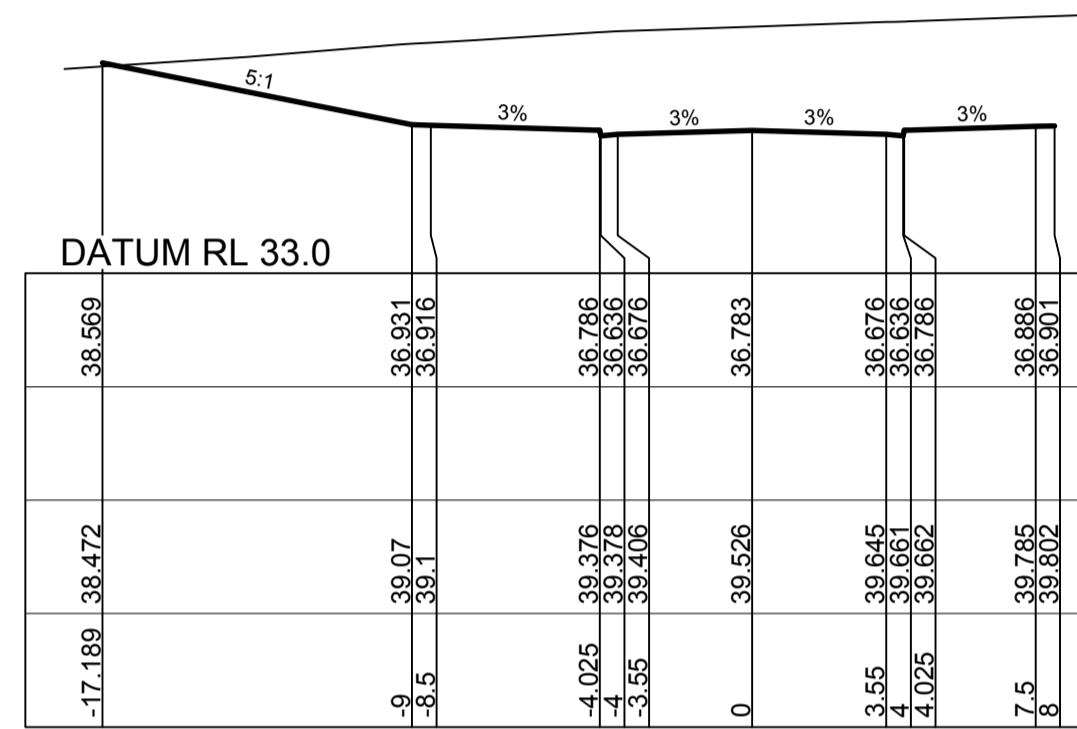
CH 150



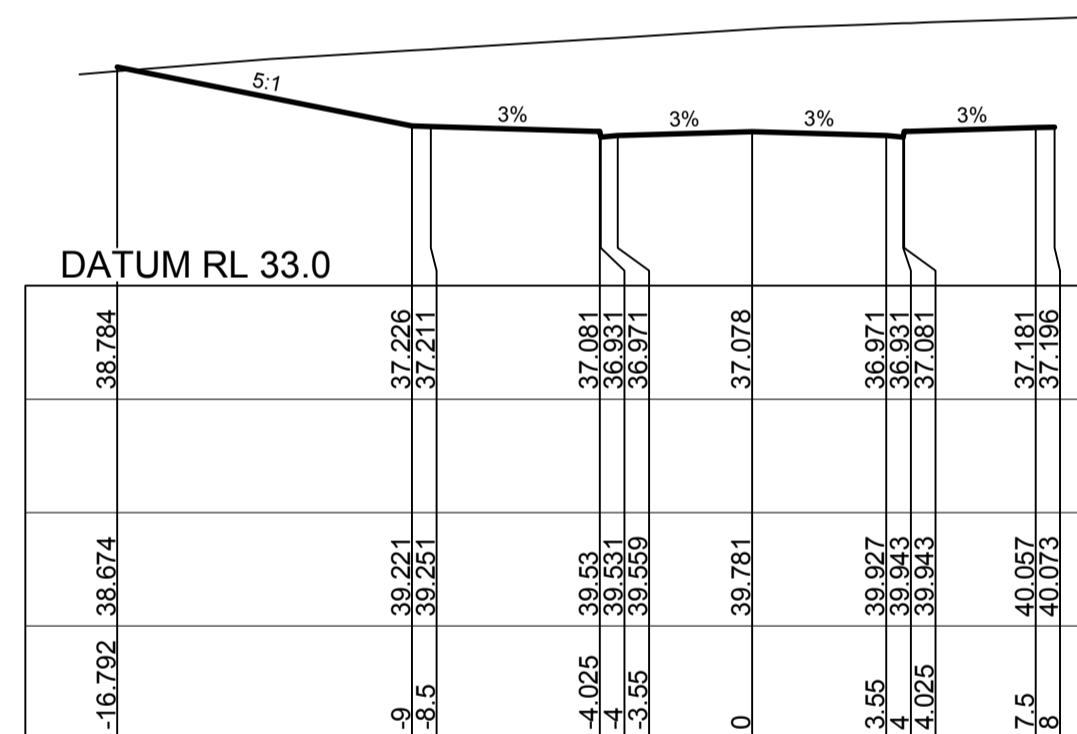
CH 140.612 KTP



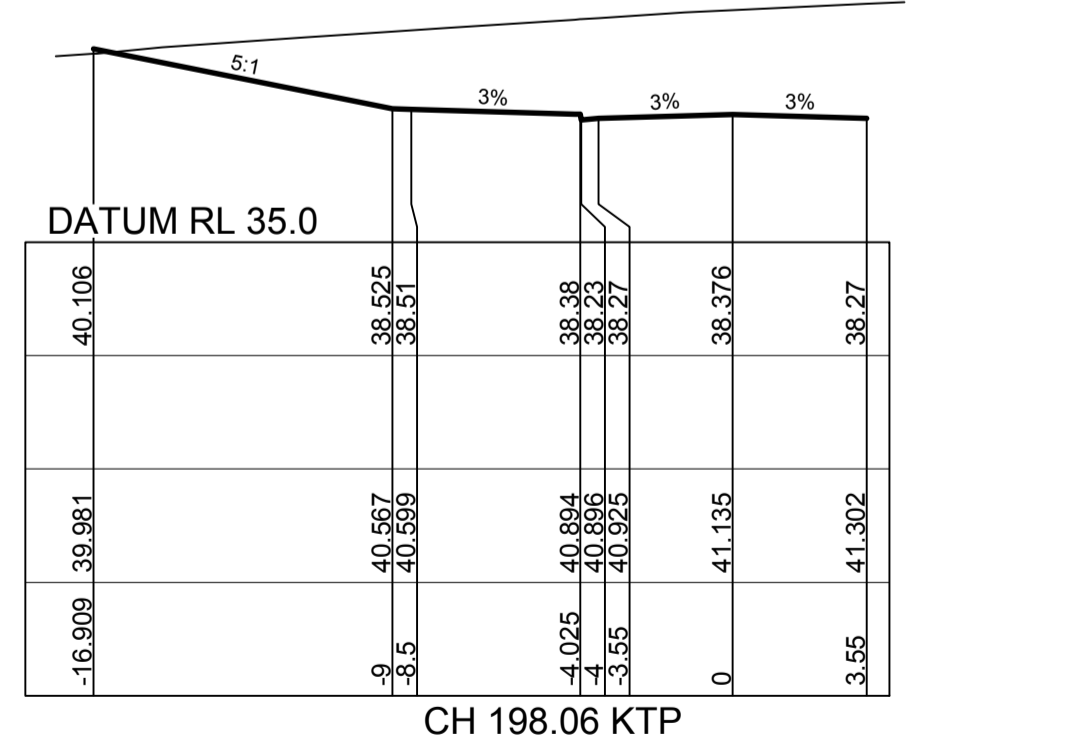
CH 255



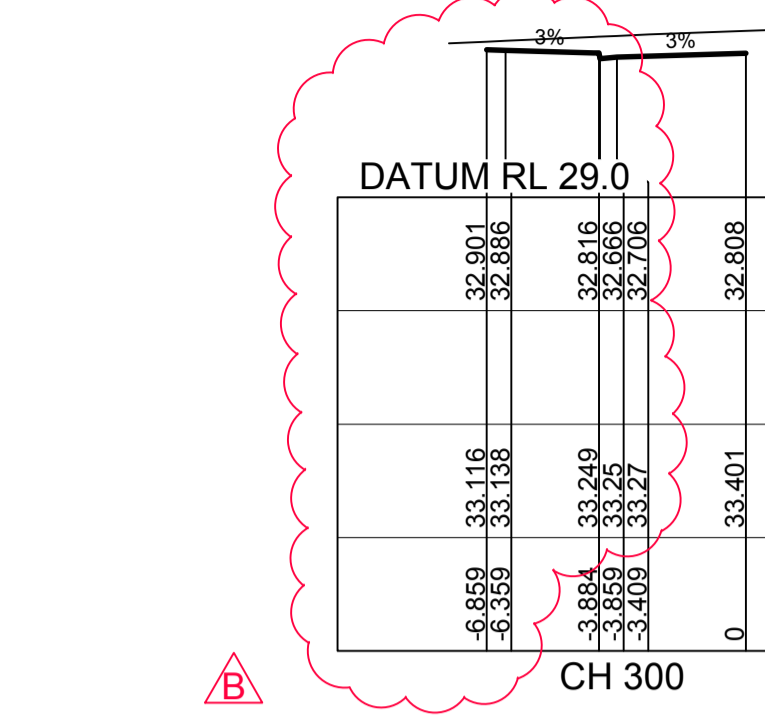
CH 240



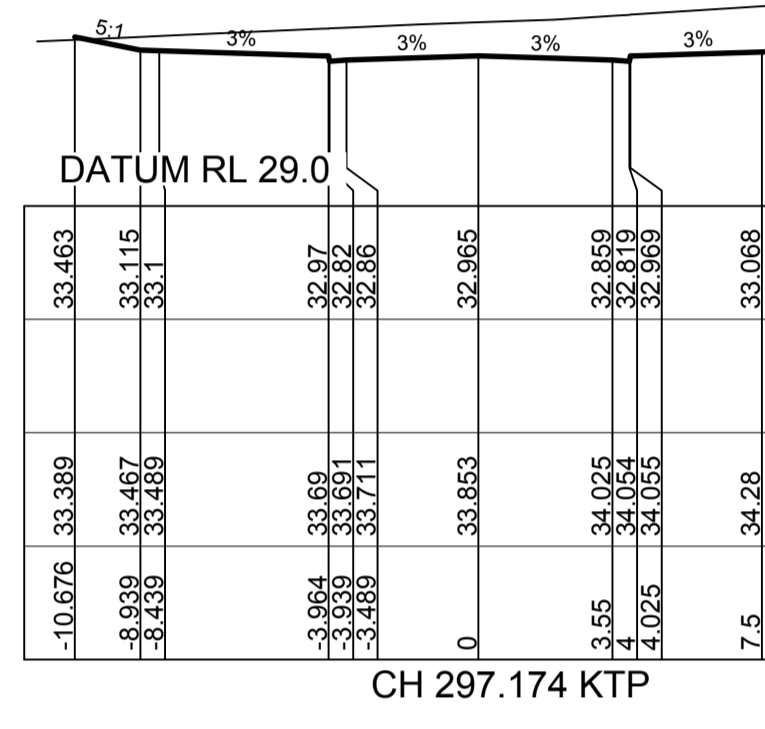
CH 234.323 KTP



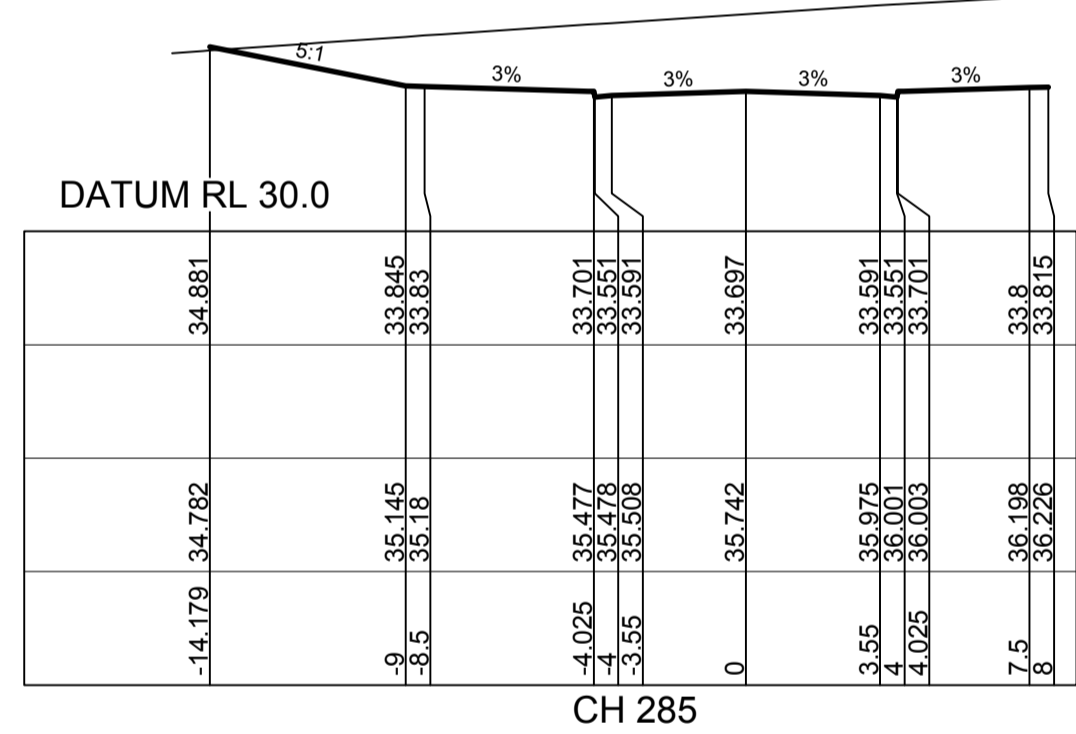
CH 198.06 KTP



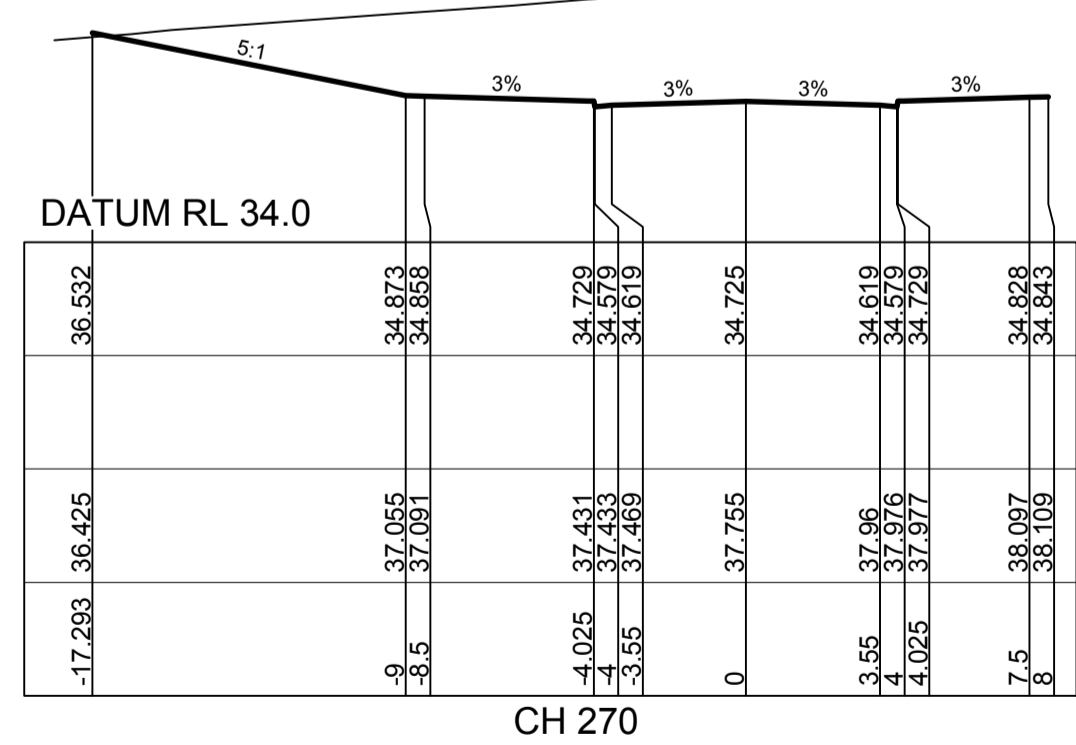
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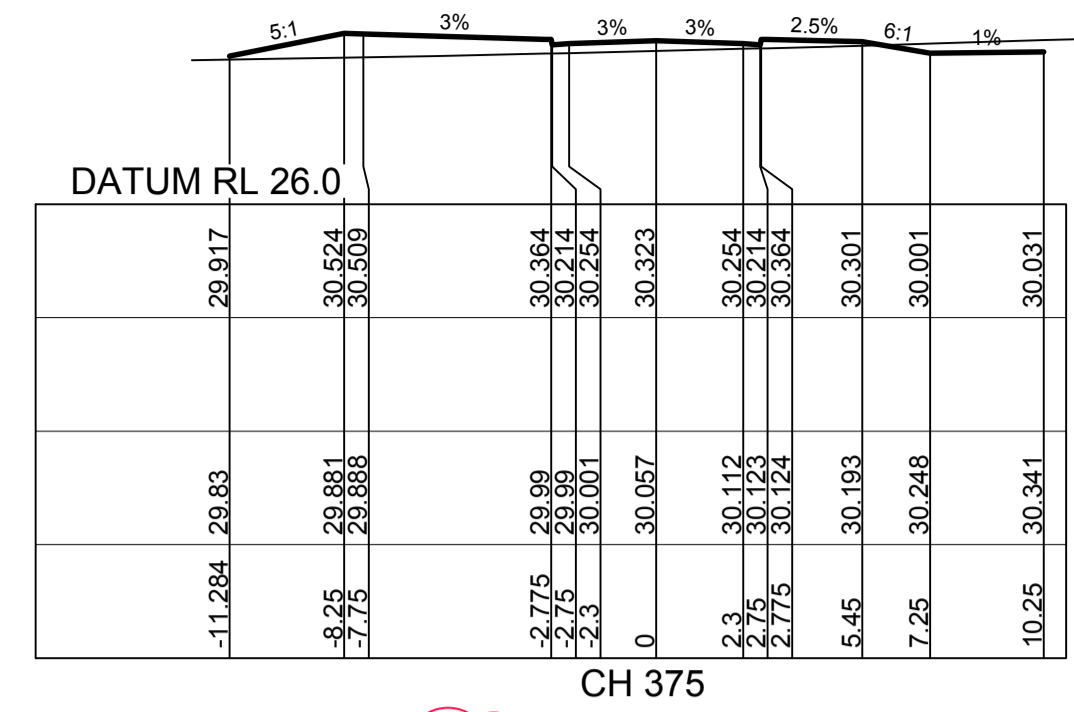
CH 297.174 KTP



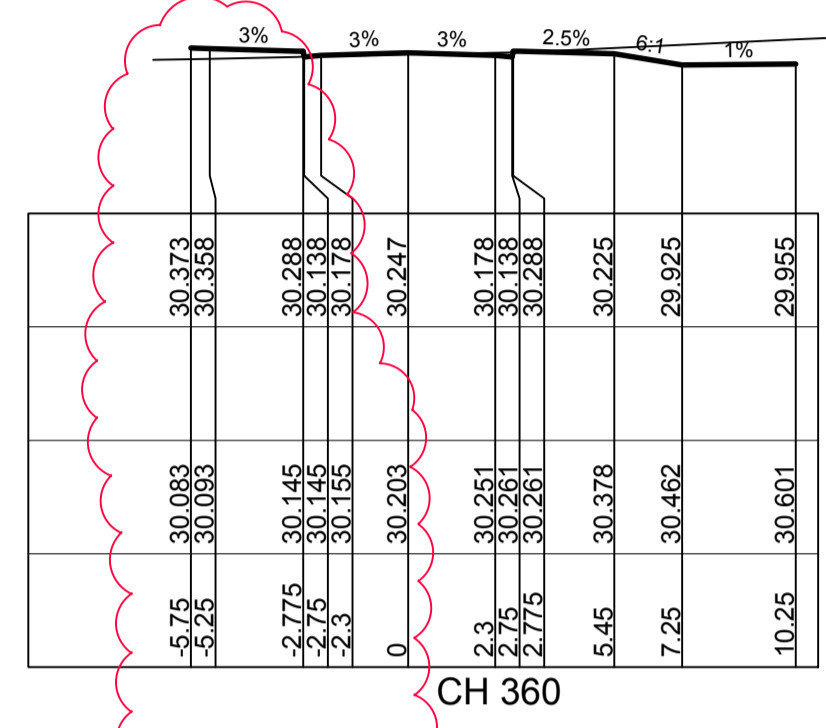
CH 285



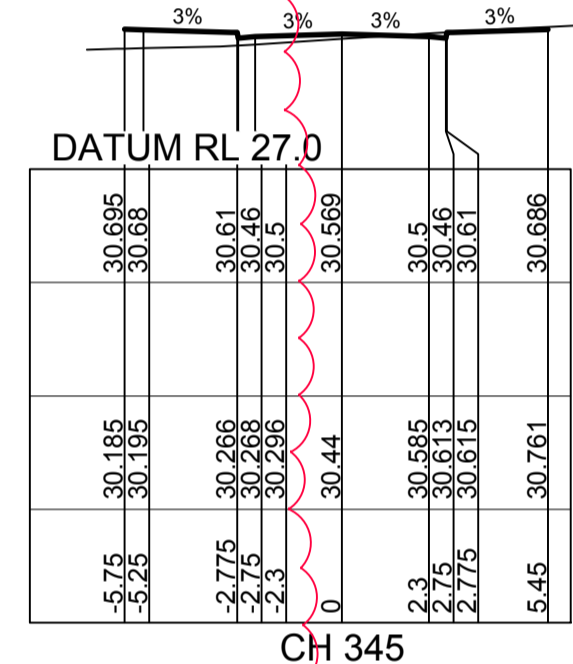
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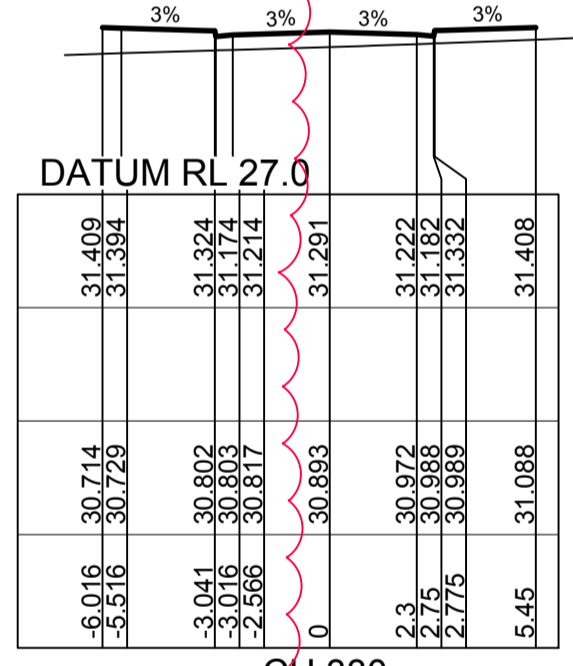
CH 375



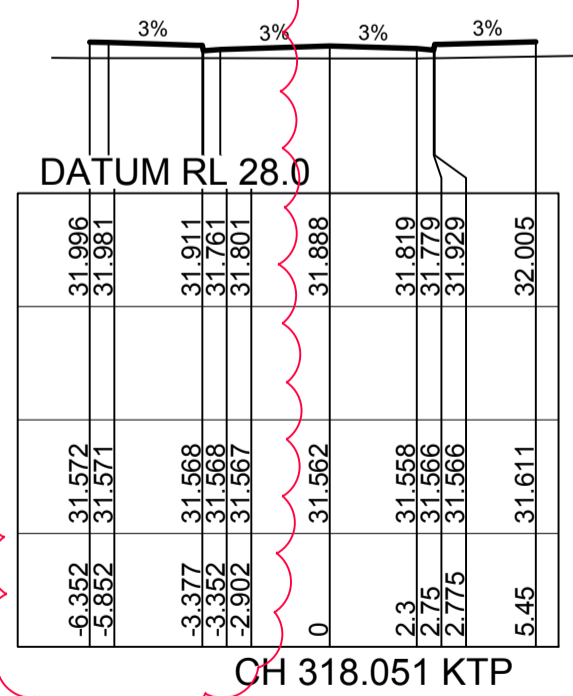
CH 360



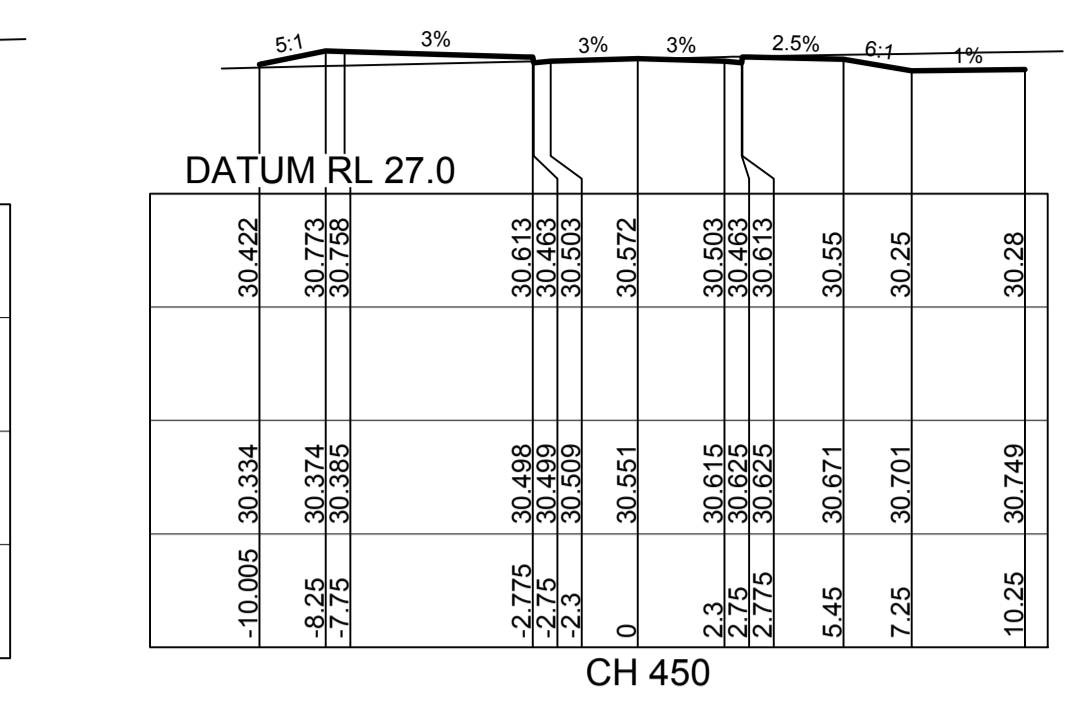
CH 345



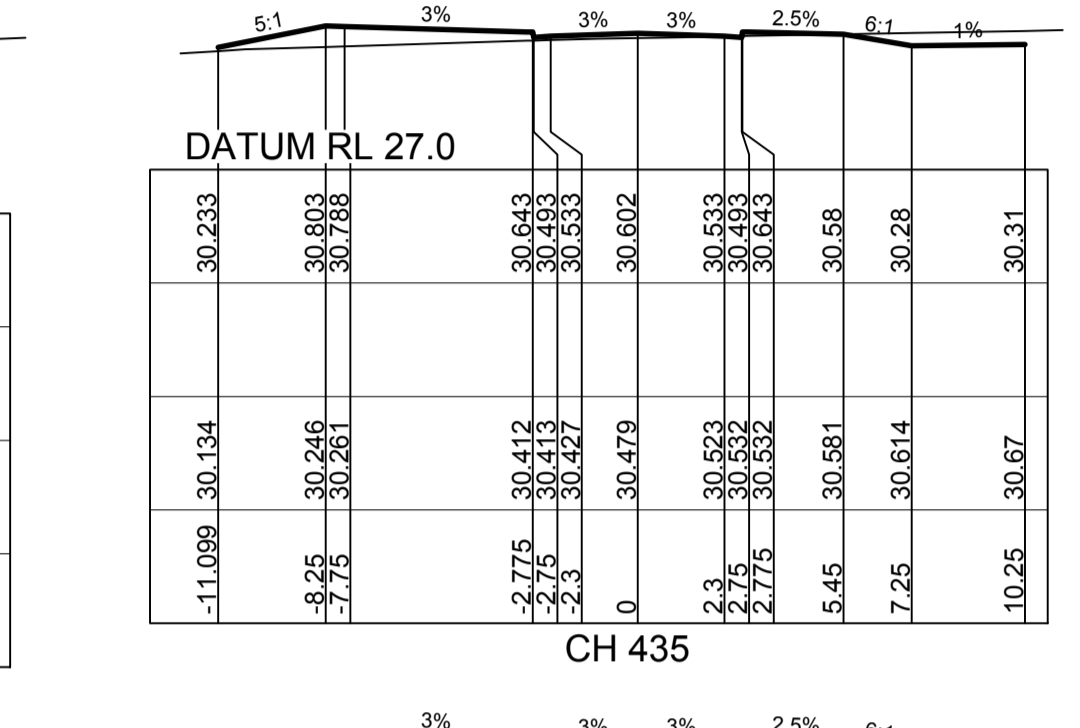
CH 330



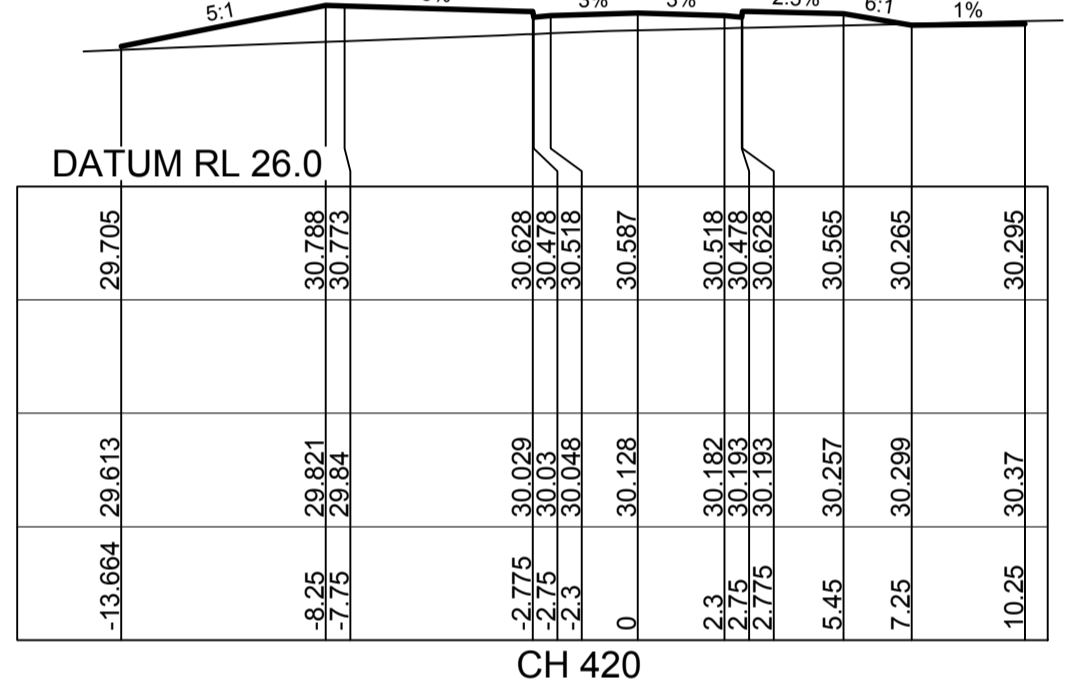
CH 318.051 KTP



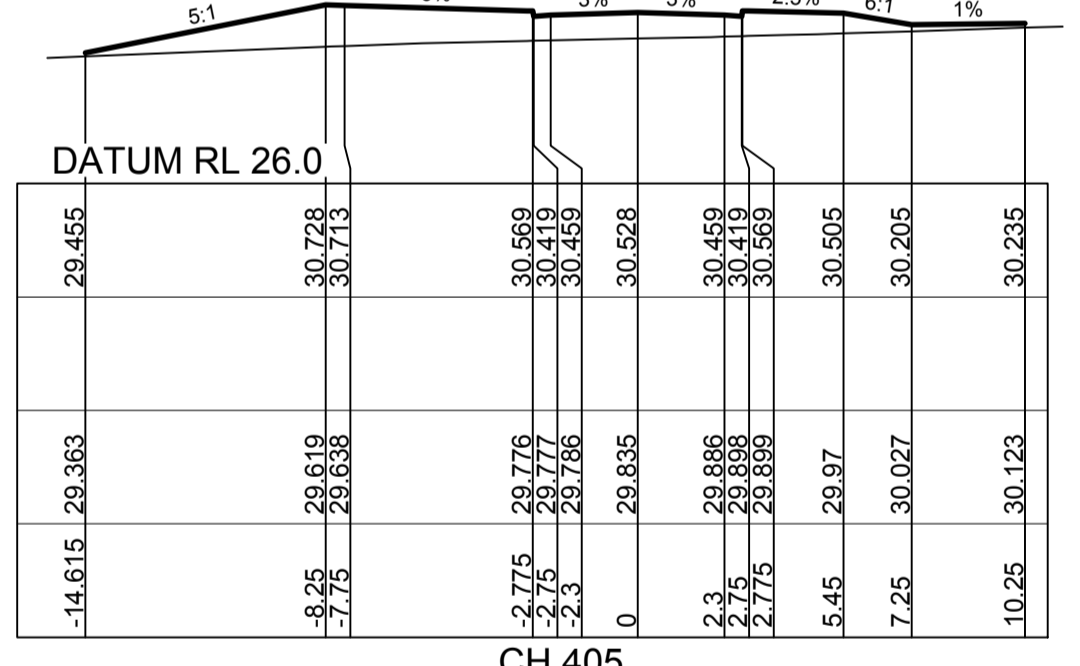
CH 450



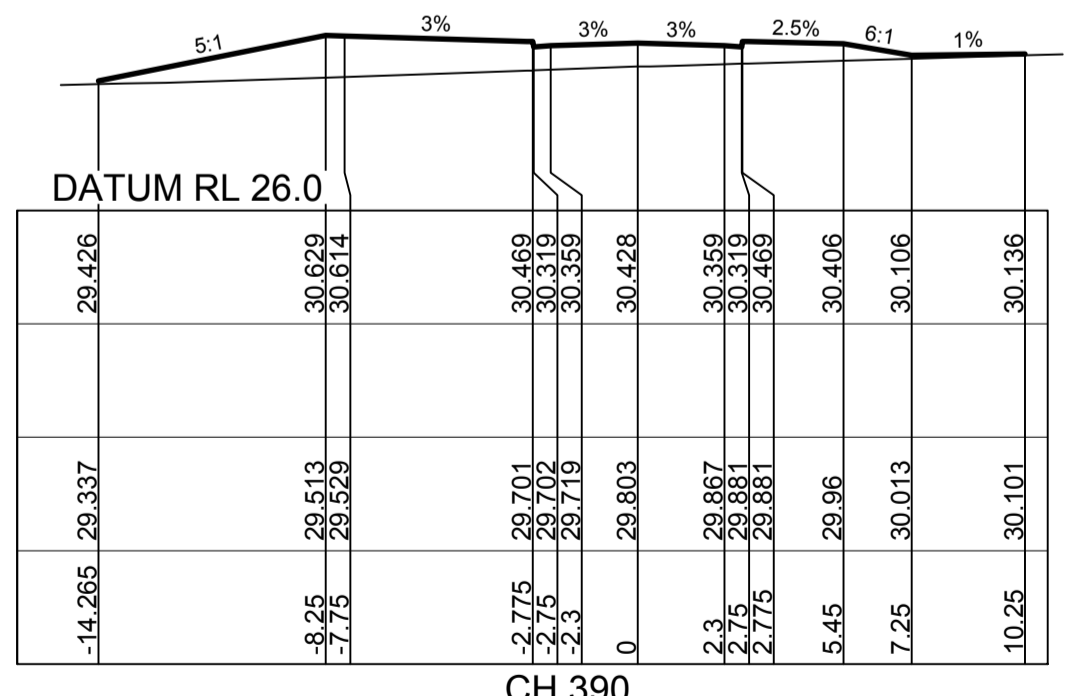
CH 435



CH 420

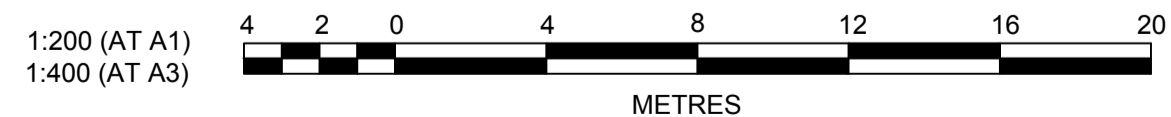


CH 405



CH 390

**CROSS SECTIONS ROAD 21**



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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

**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**

CROSS SECTIONS  
 SHEET 5 OF 19

PLAN No: 11018511/CC065 **B**

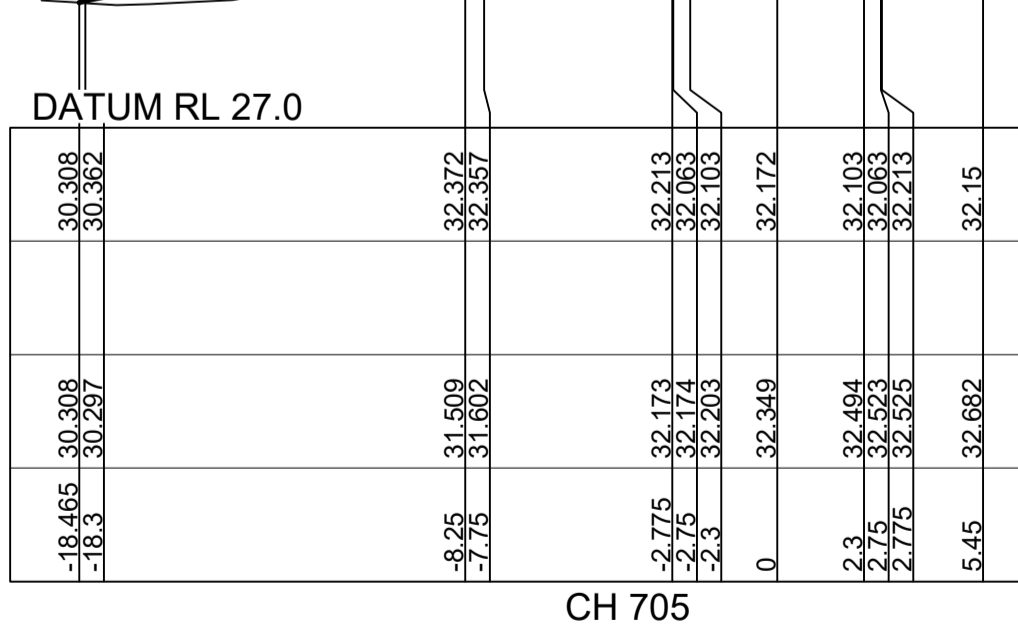
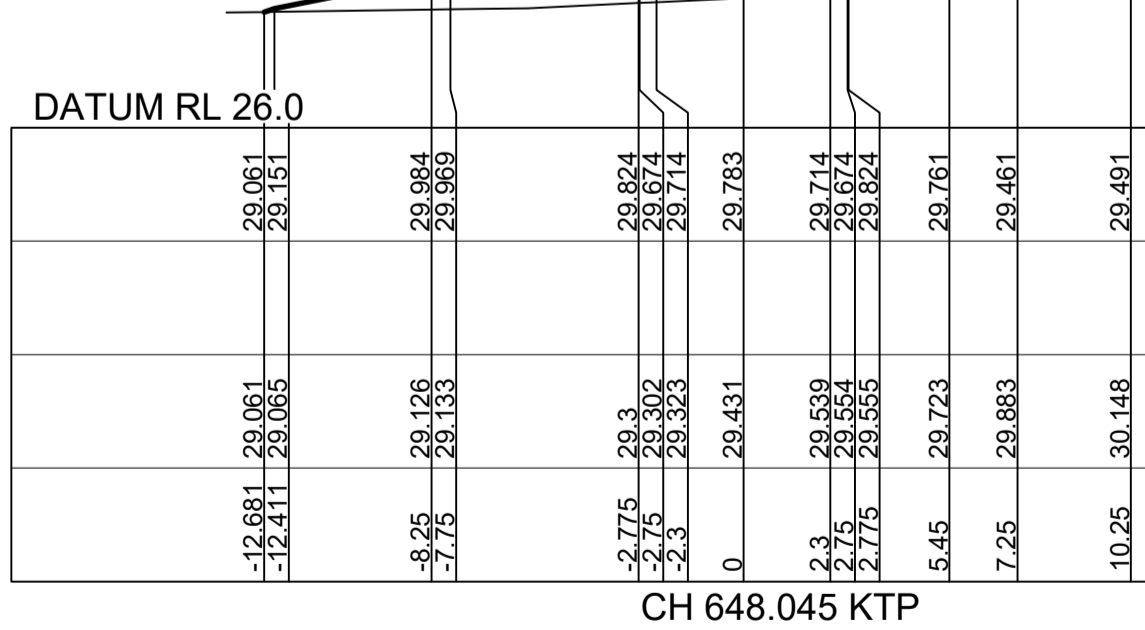
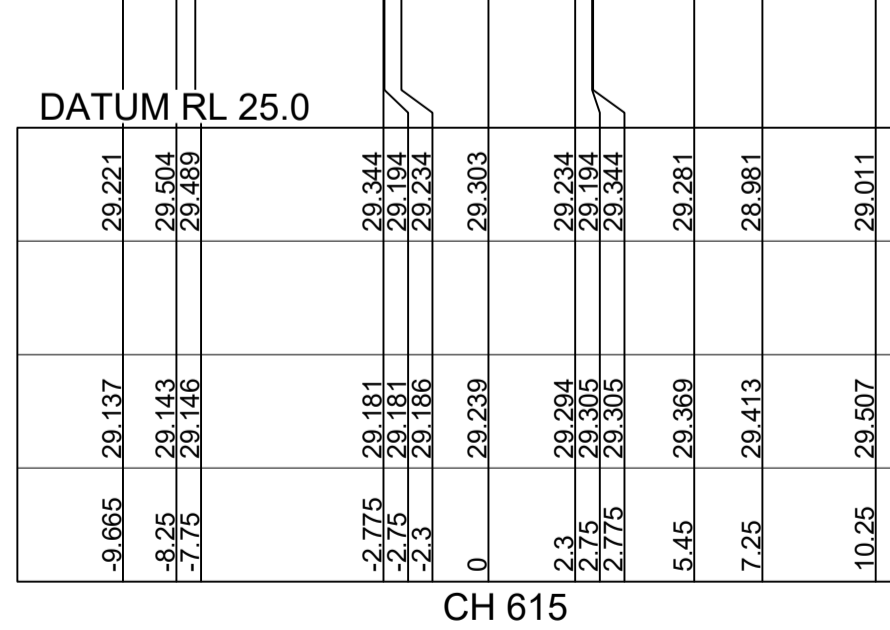
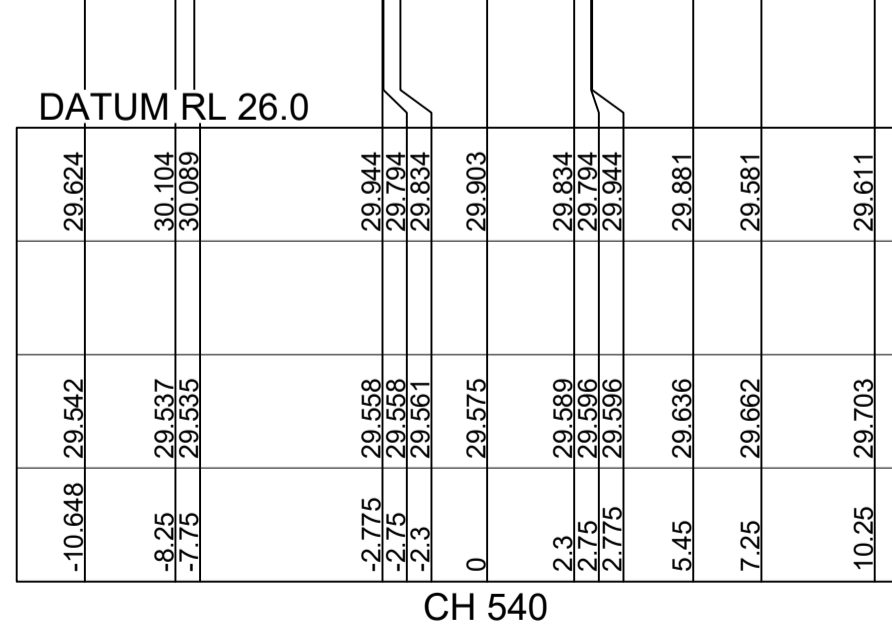
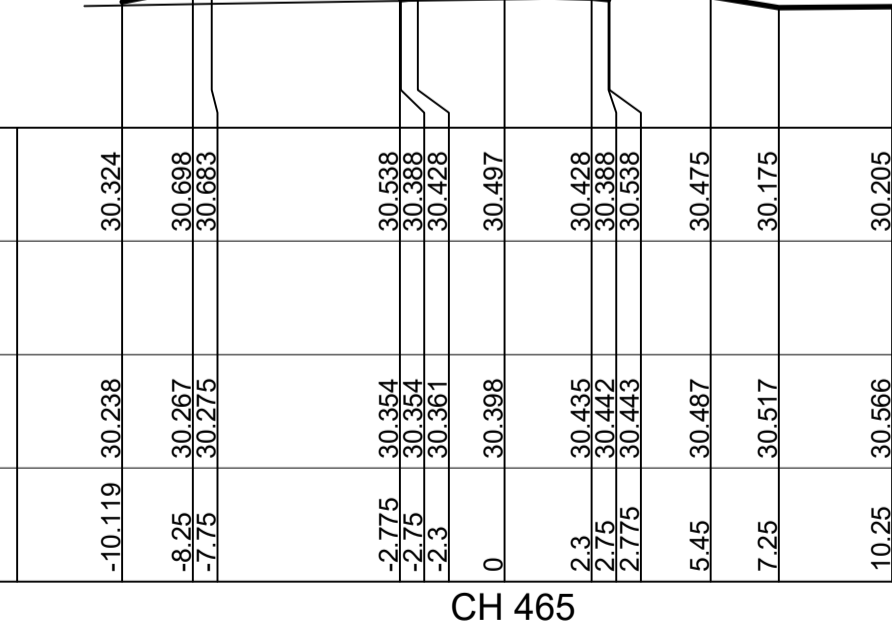
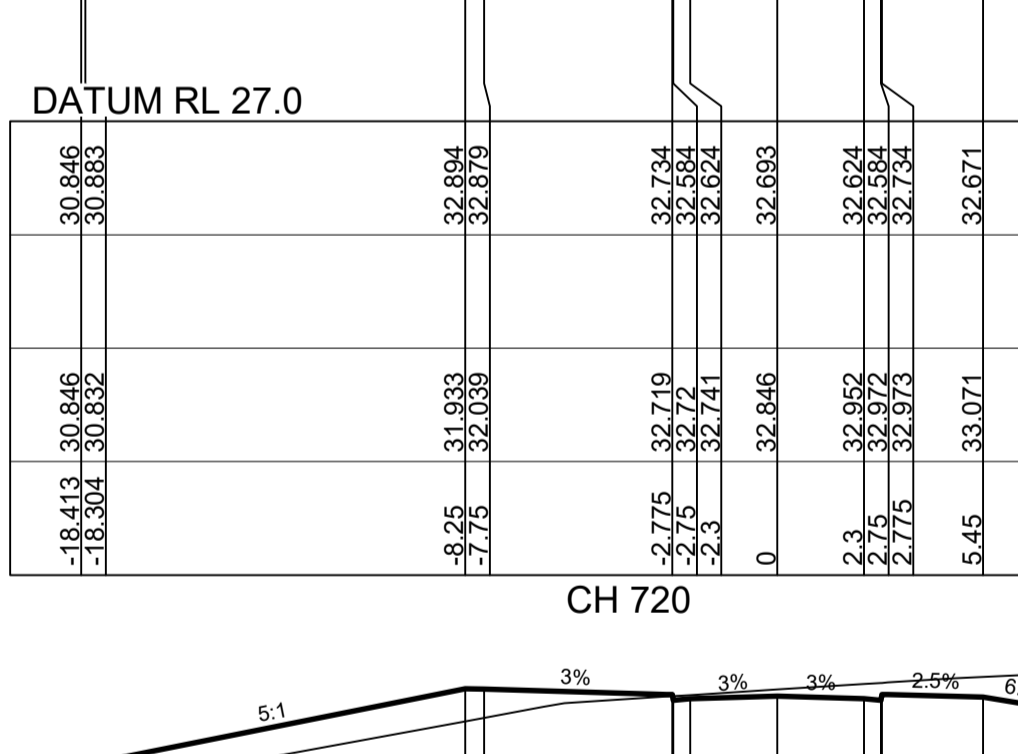
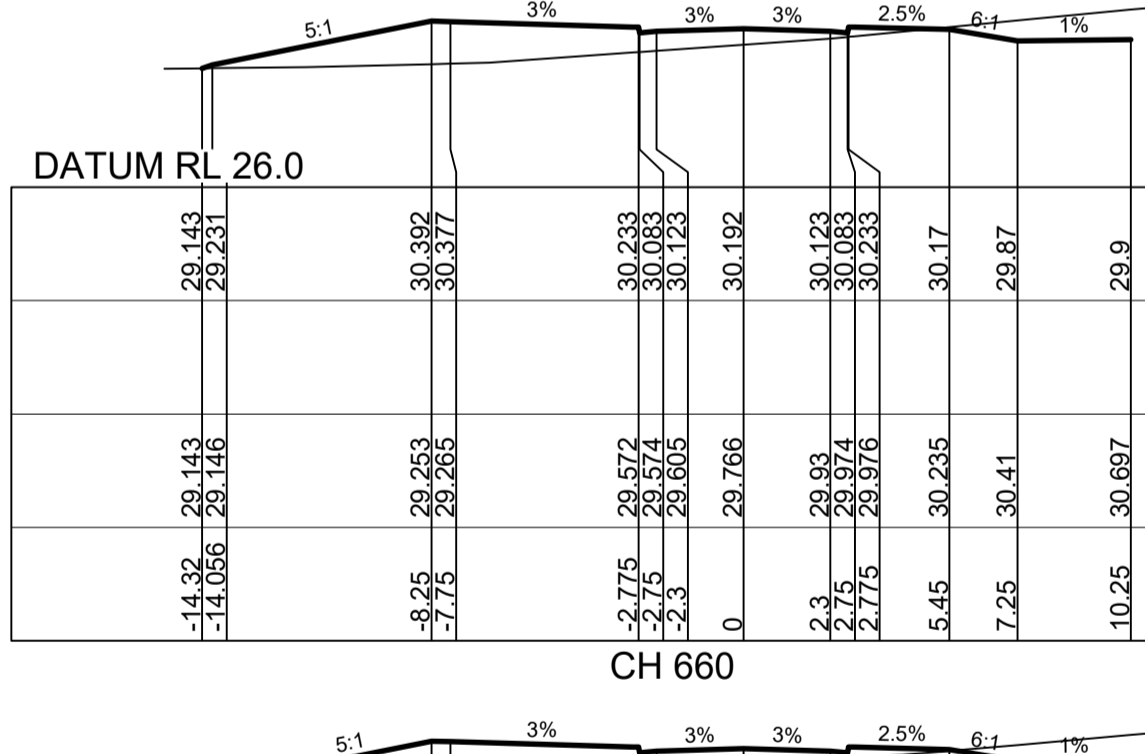
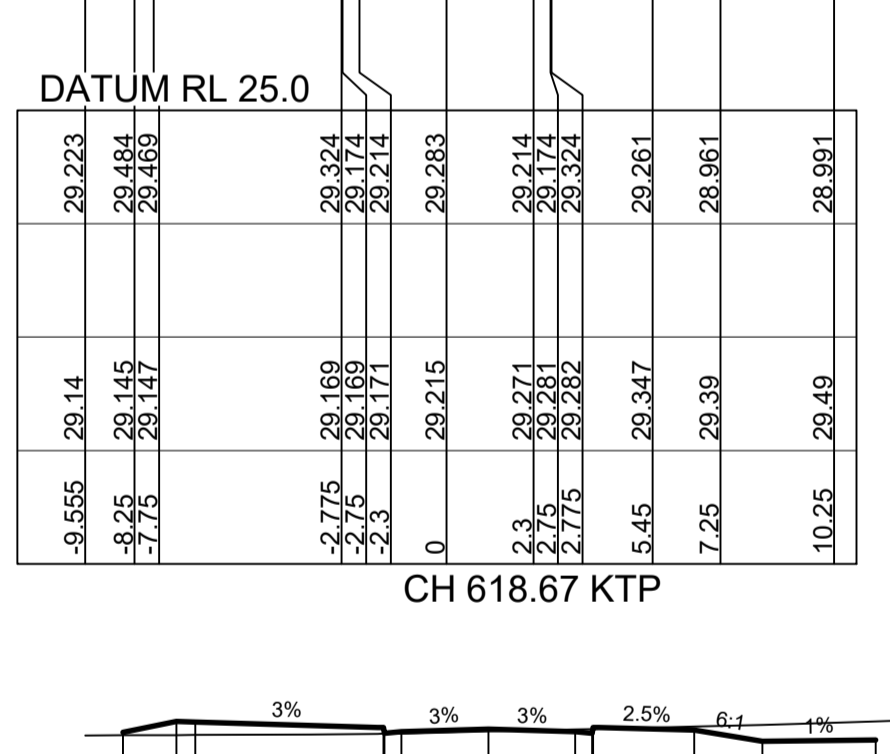
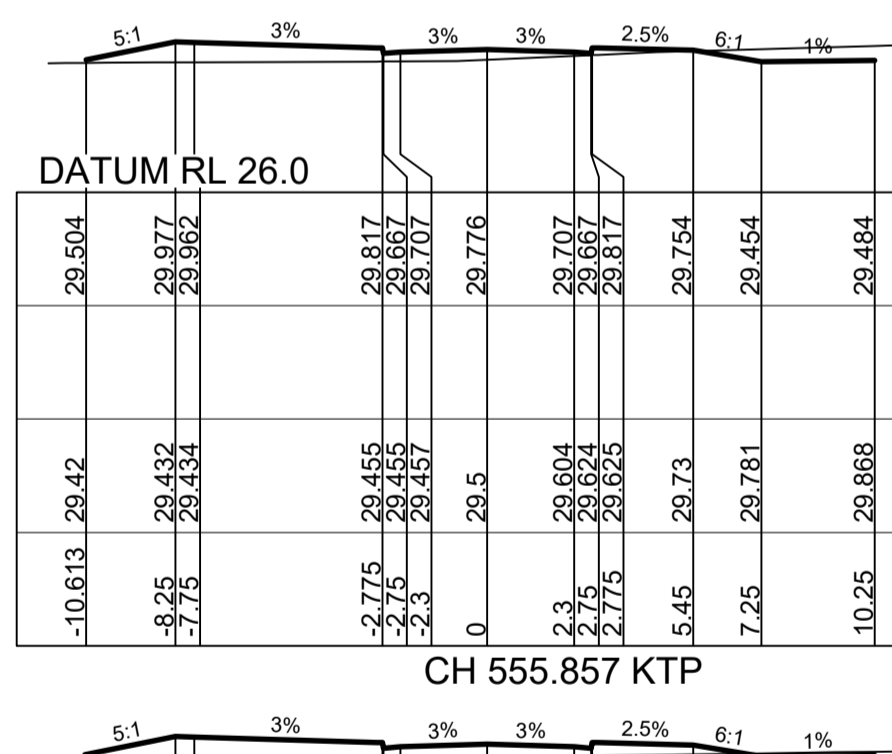
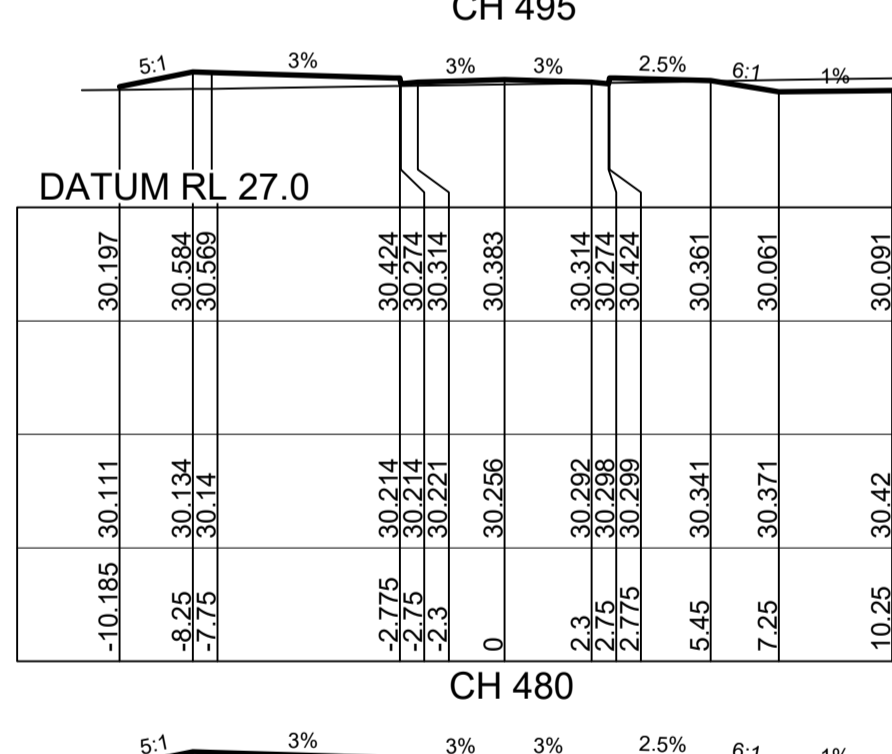
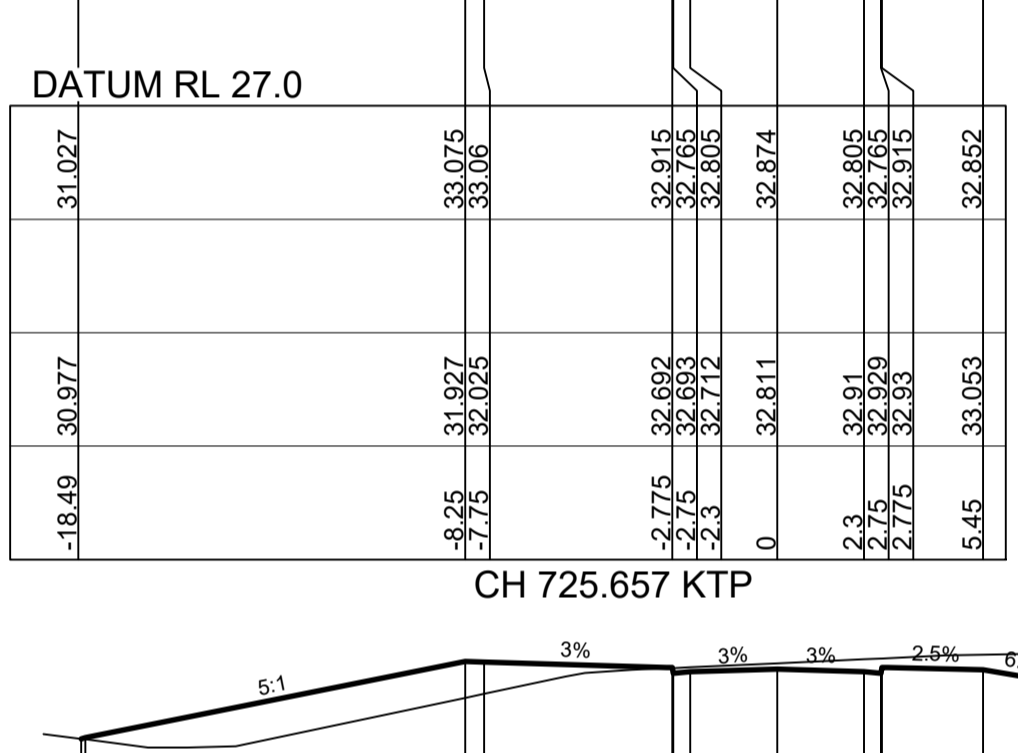
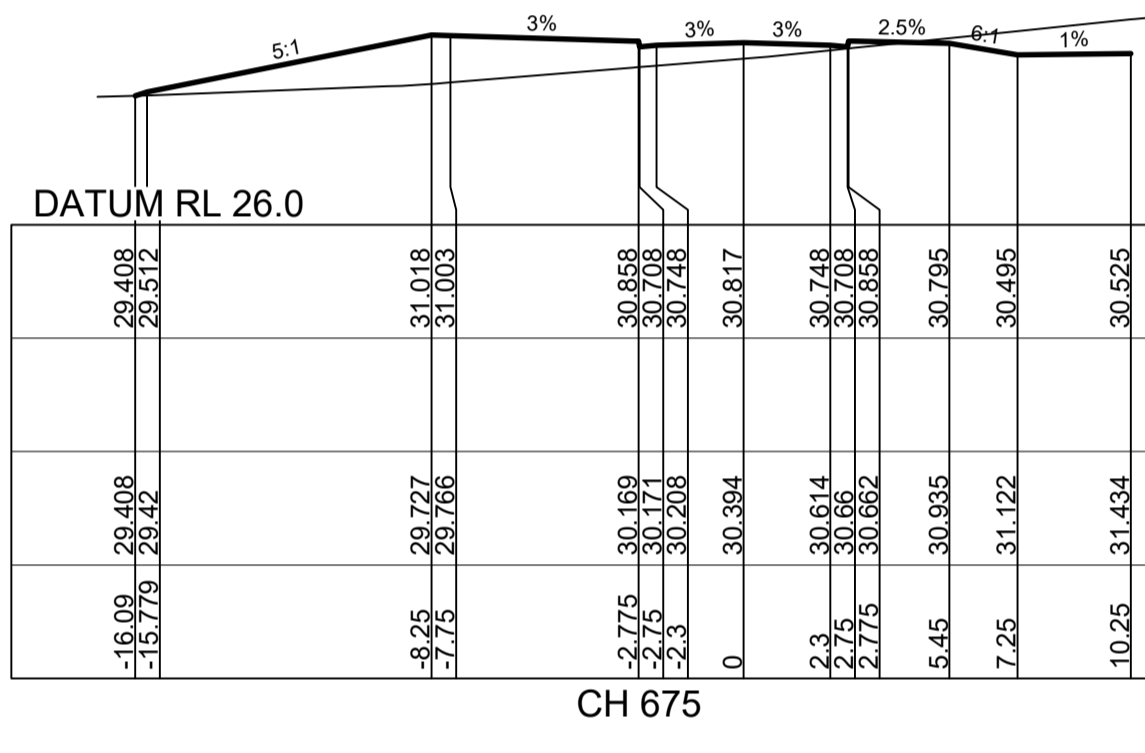
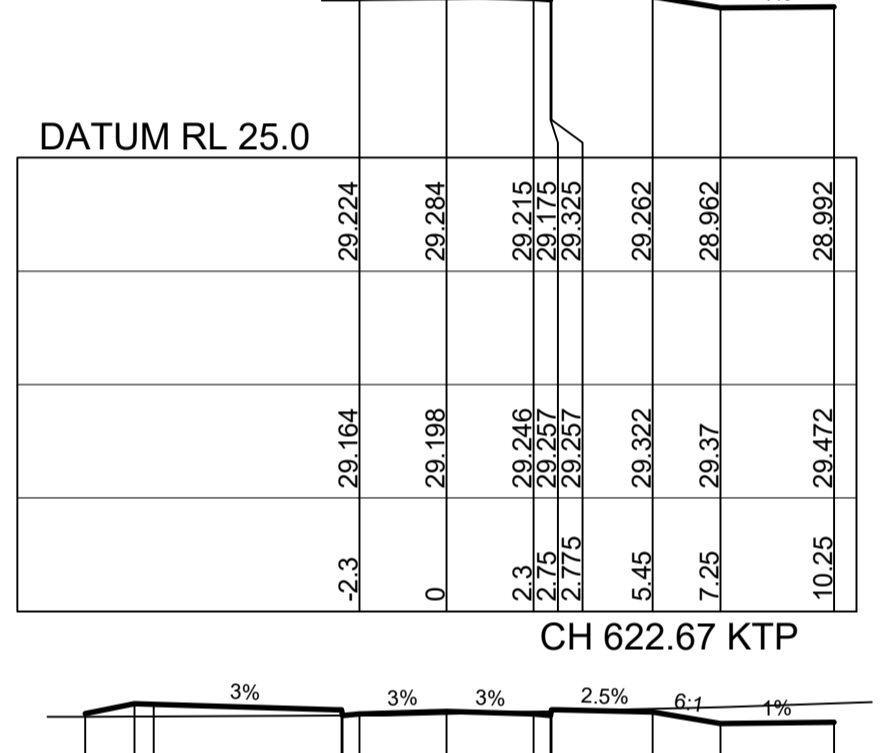
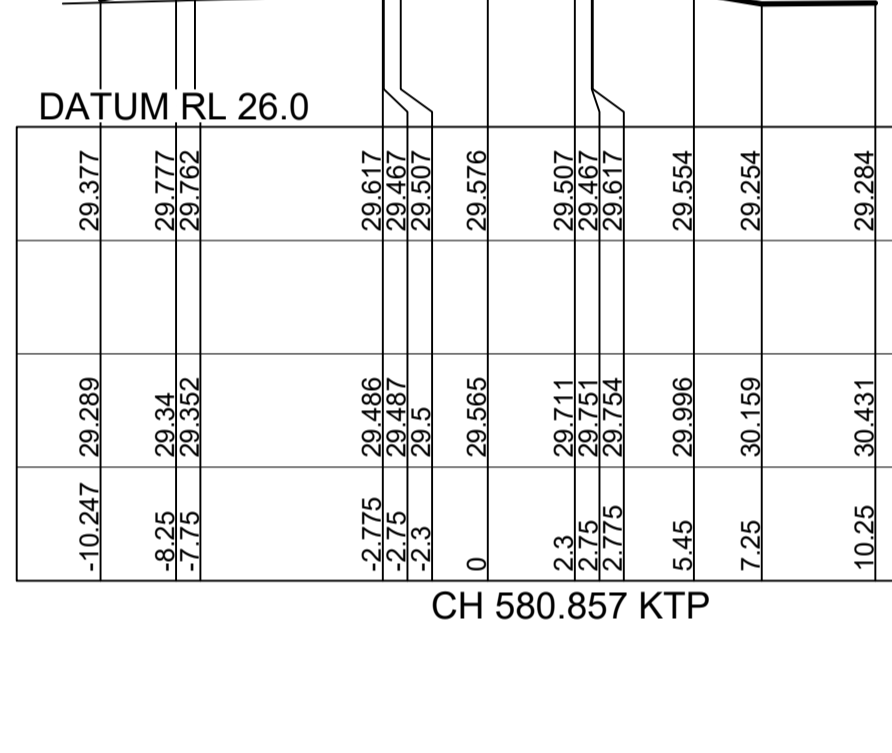
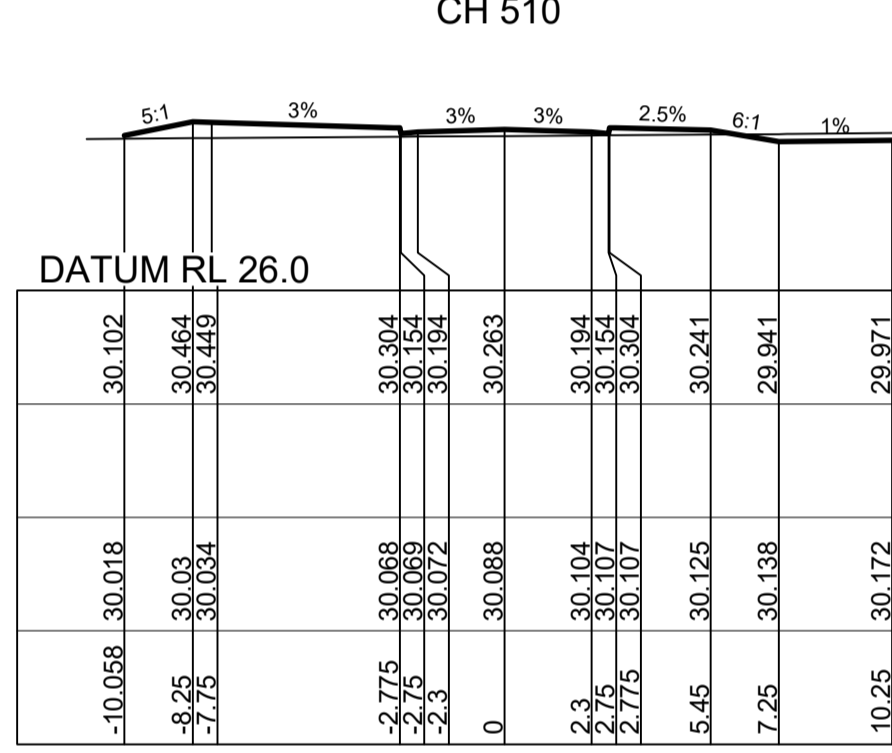
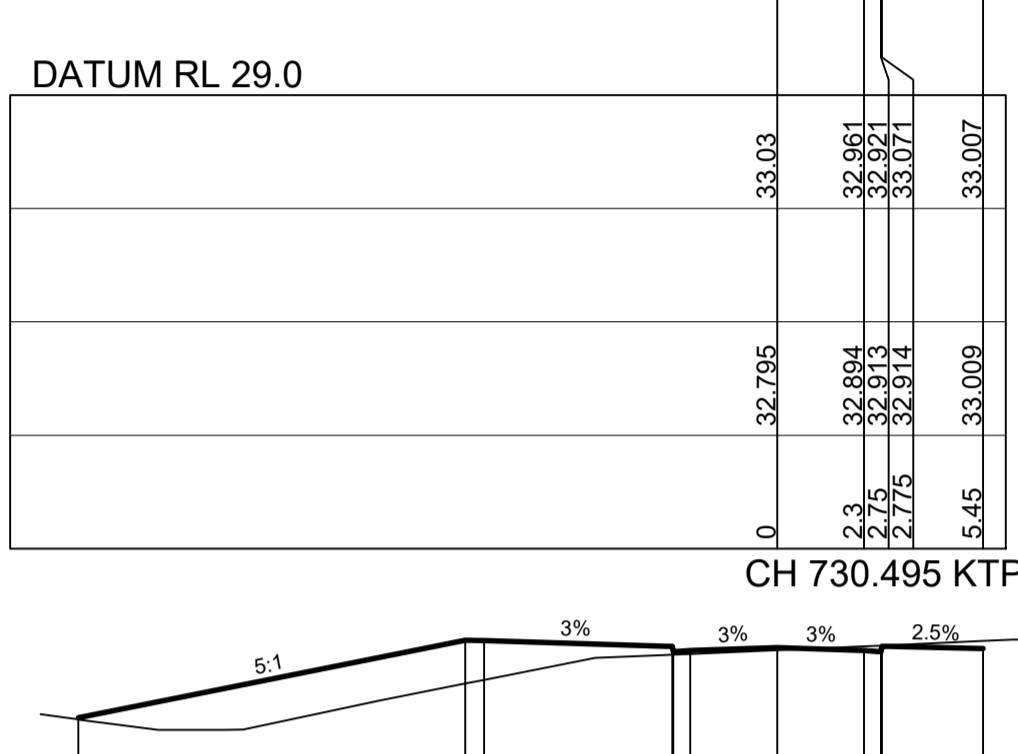
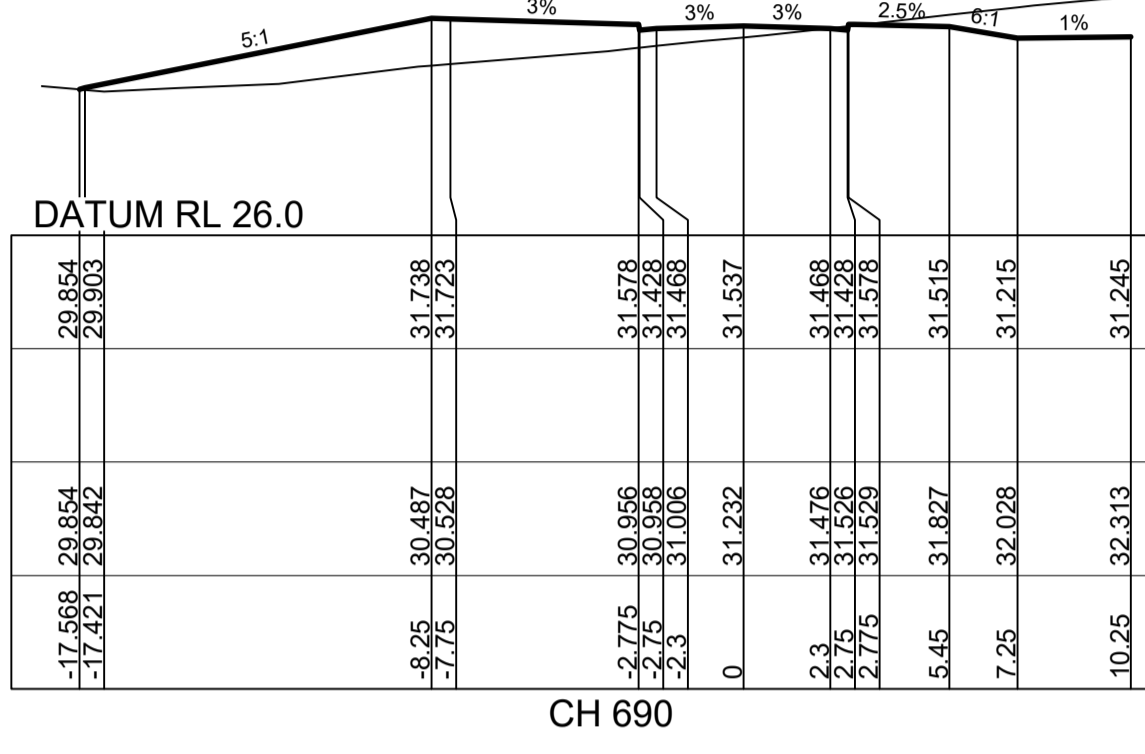
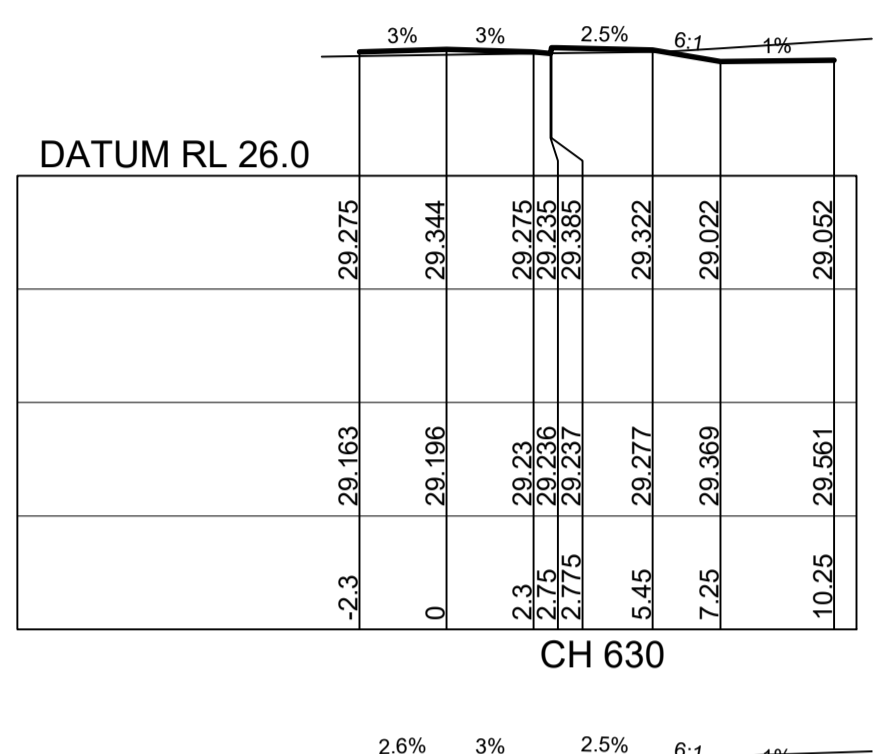
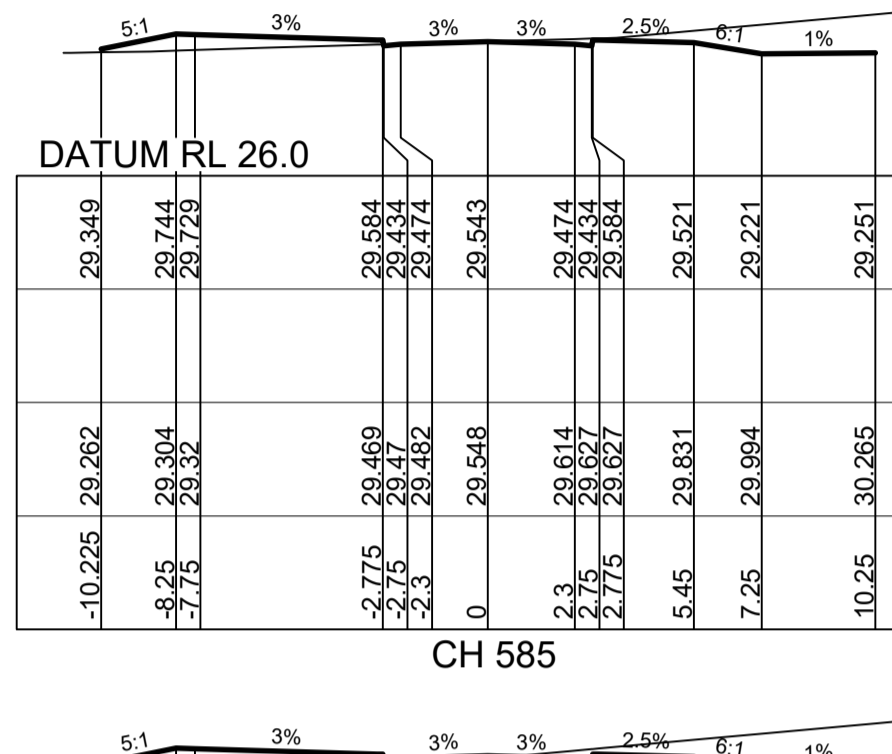
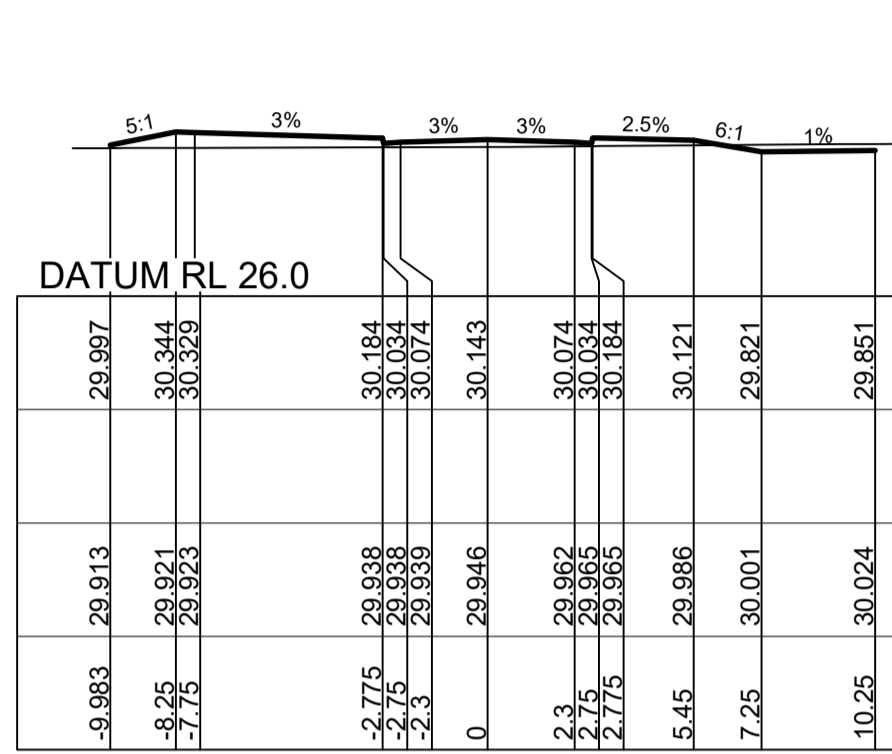
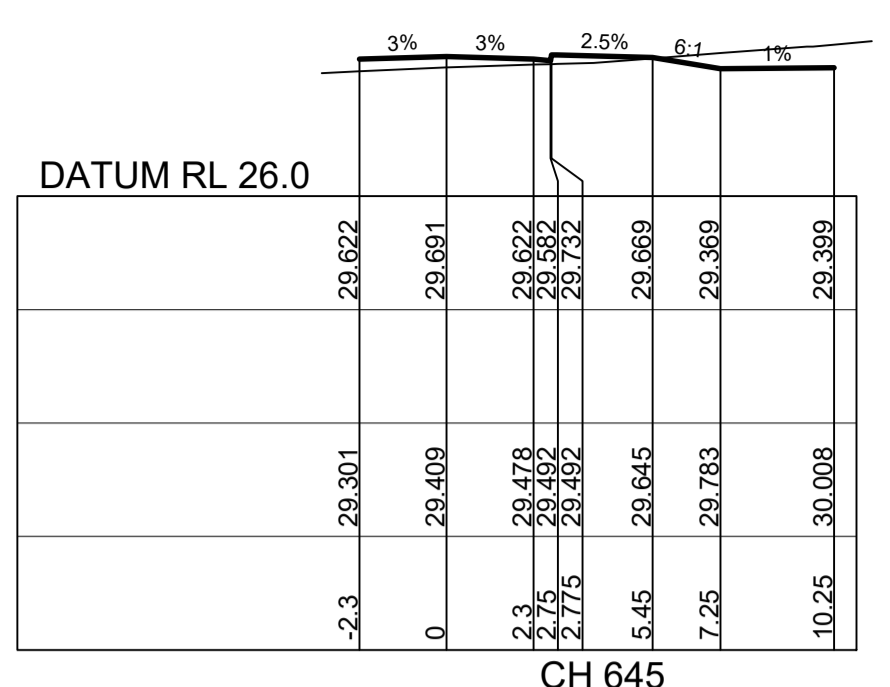
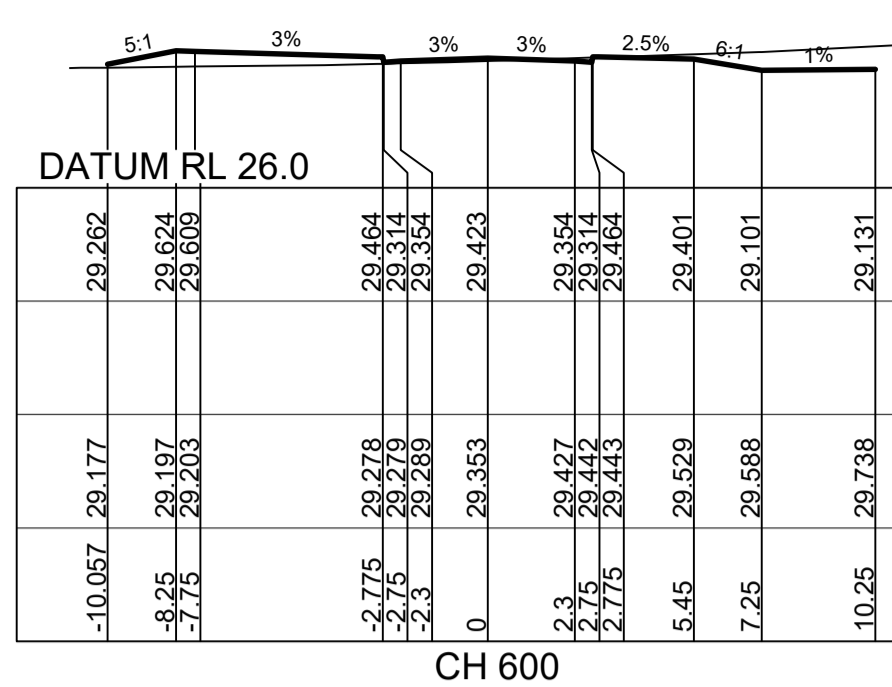
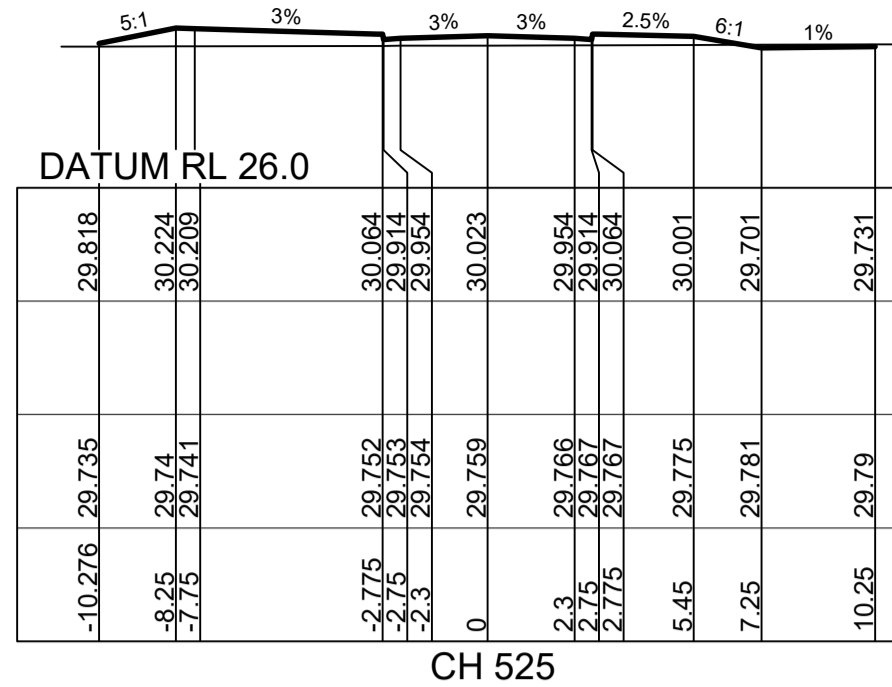
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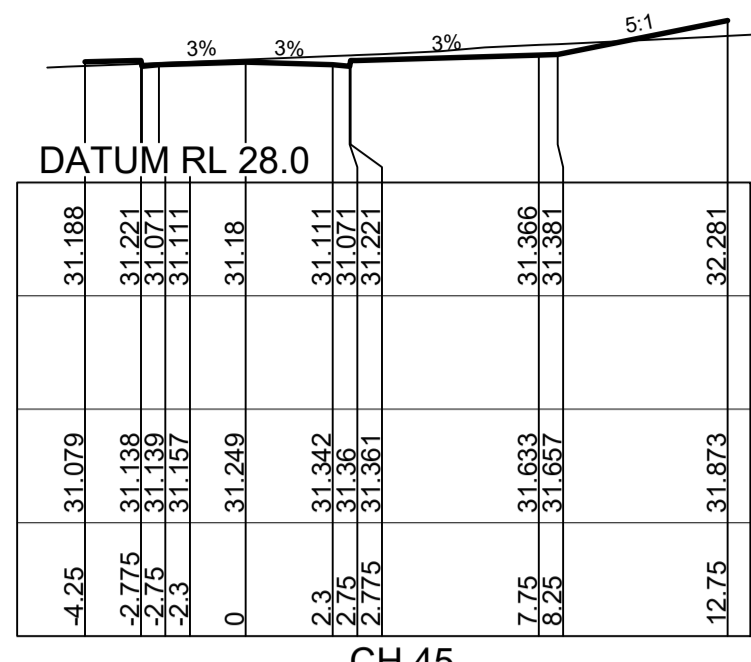
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer   
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018







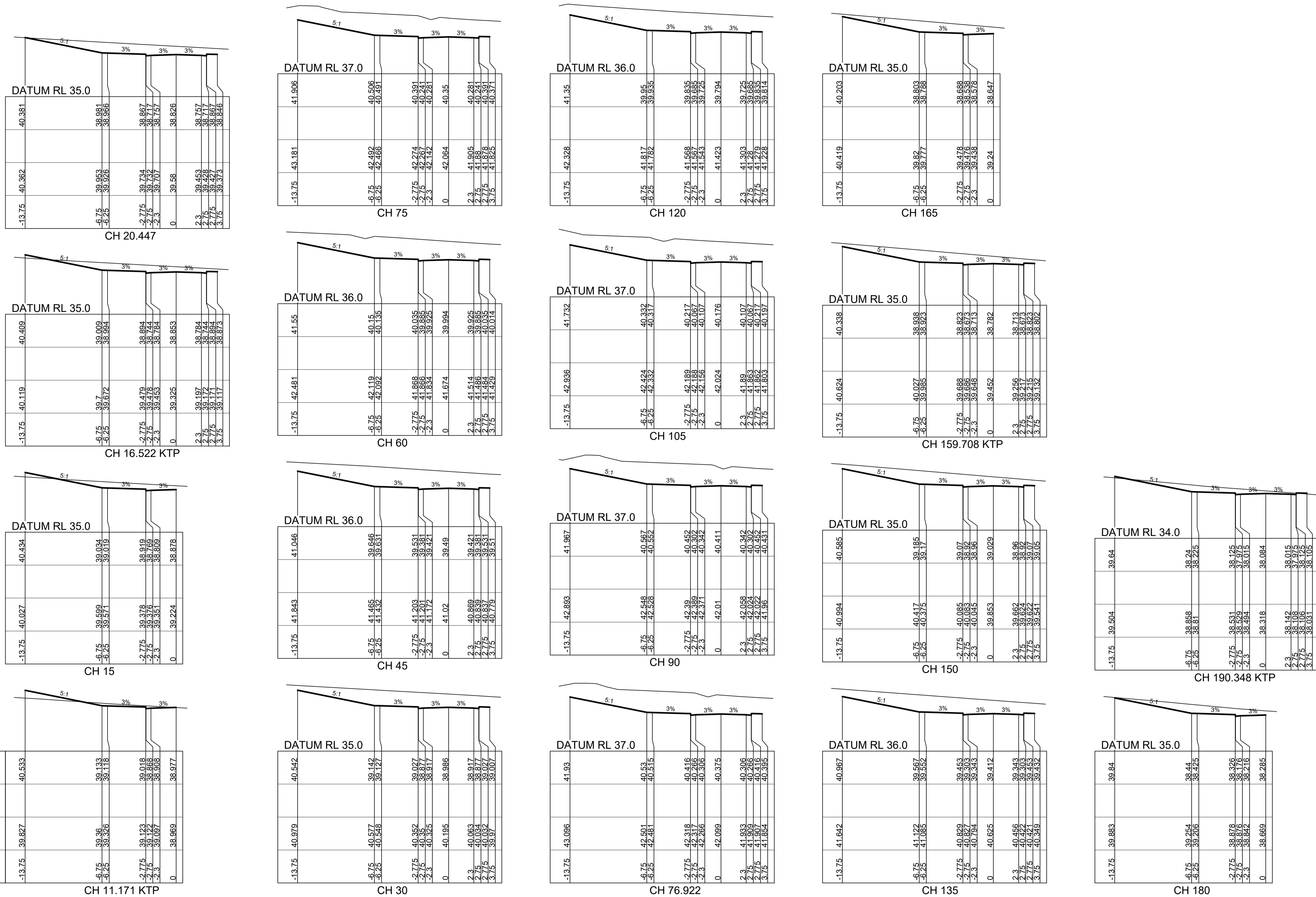




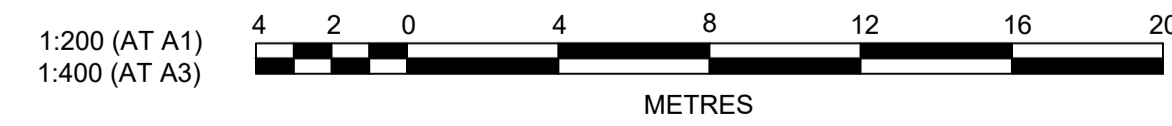
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



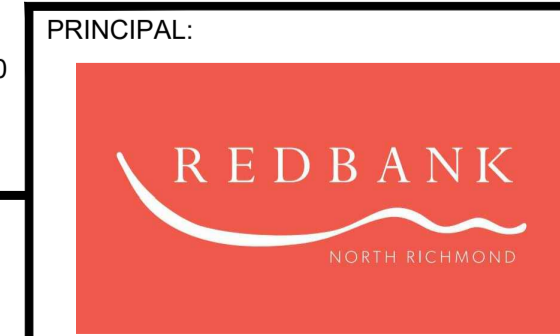
**CROSS SECTIONS ROAD 26**



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH NORTH RICHMOND STAGE 11**

CROSS SECTIONS SHEET 10 OF 19

PLAN No: 11018511/CC070 **A**

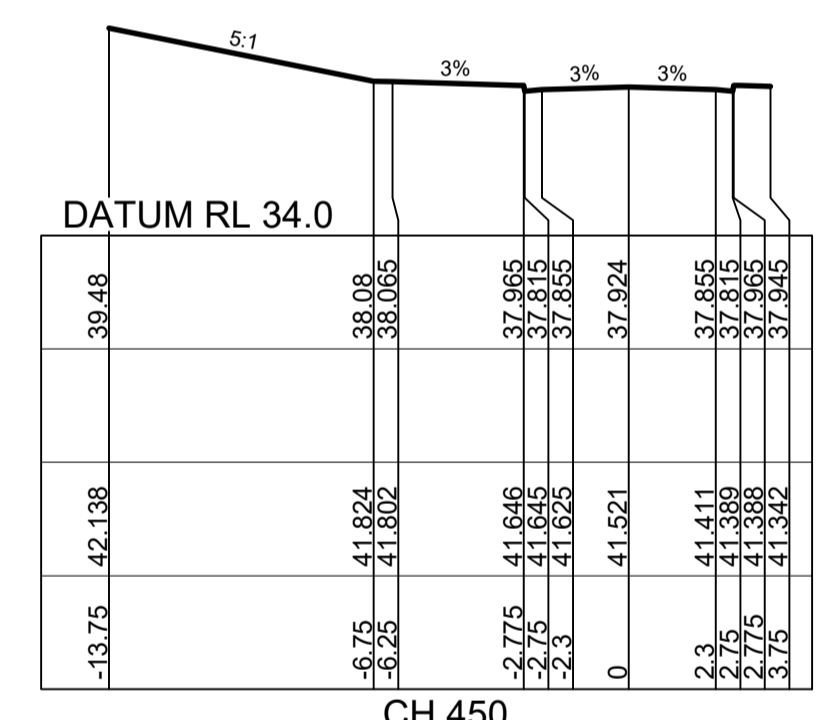
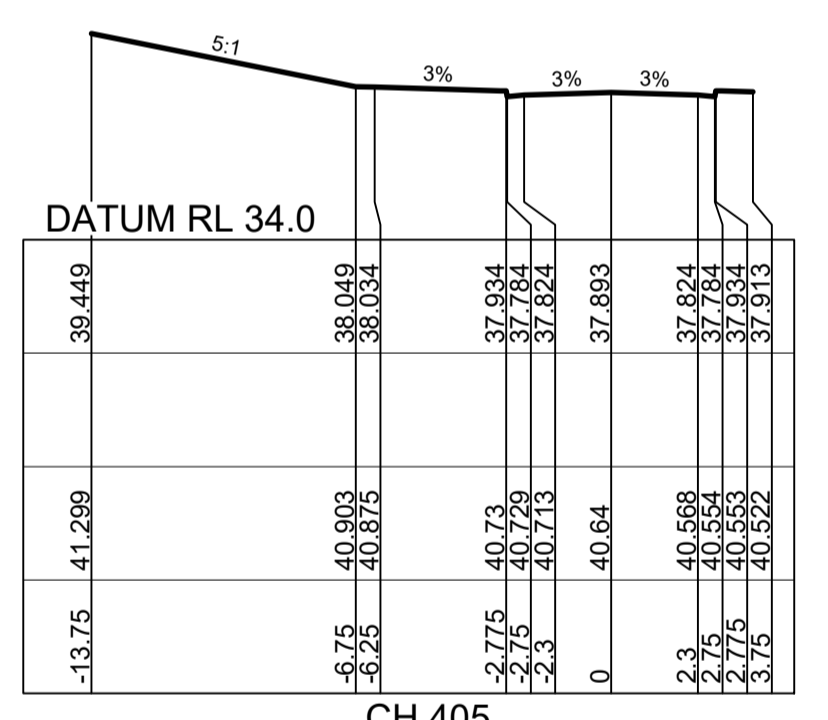
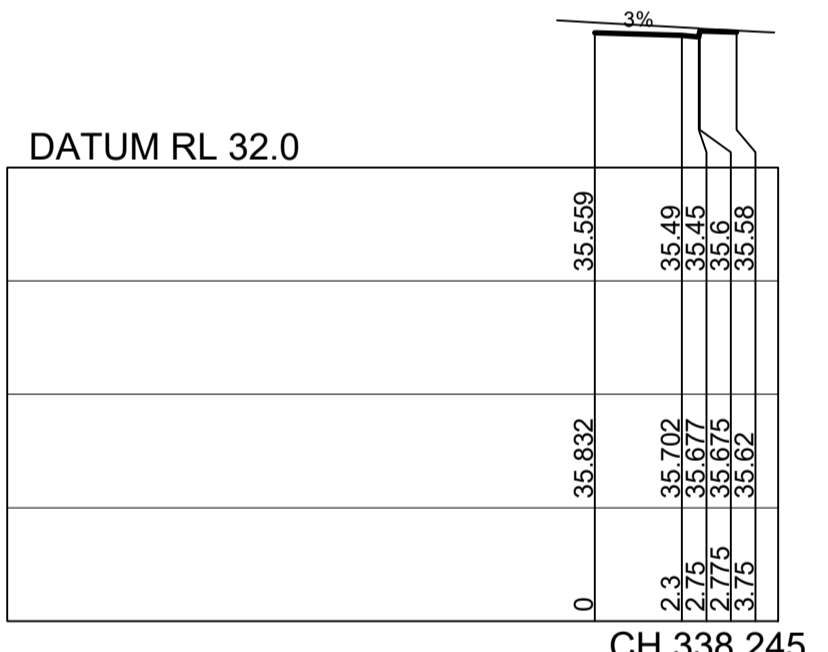
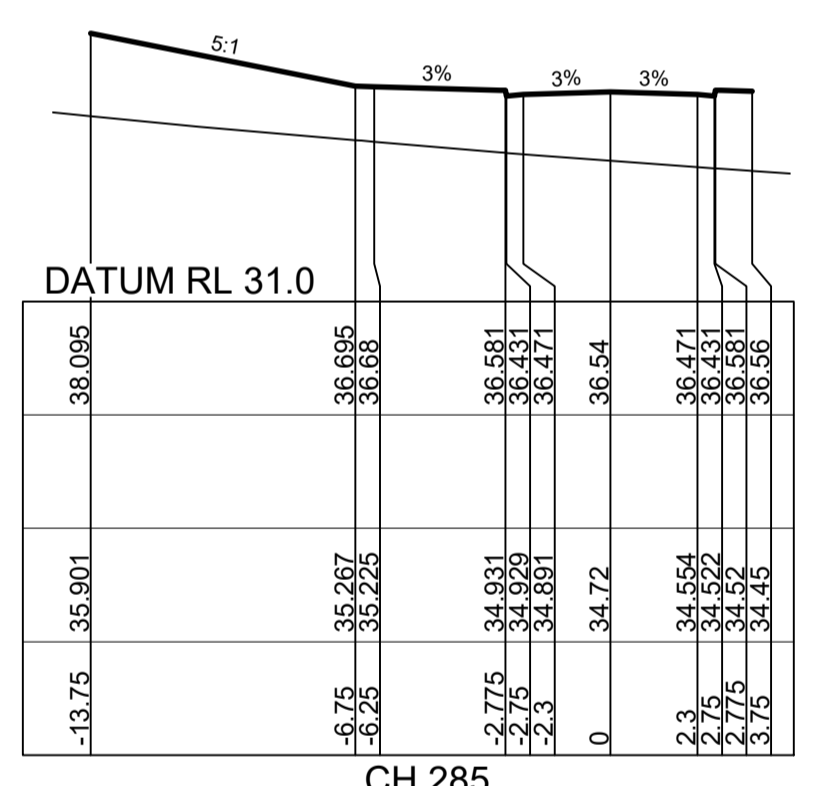
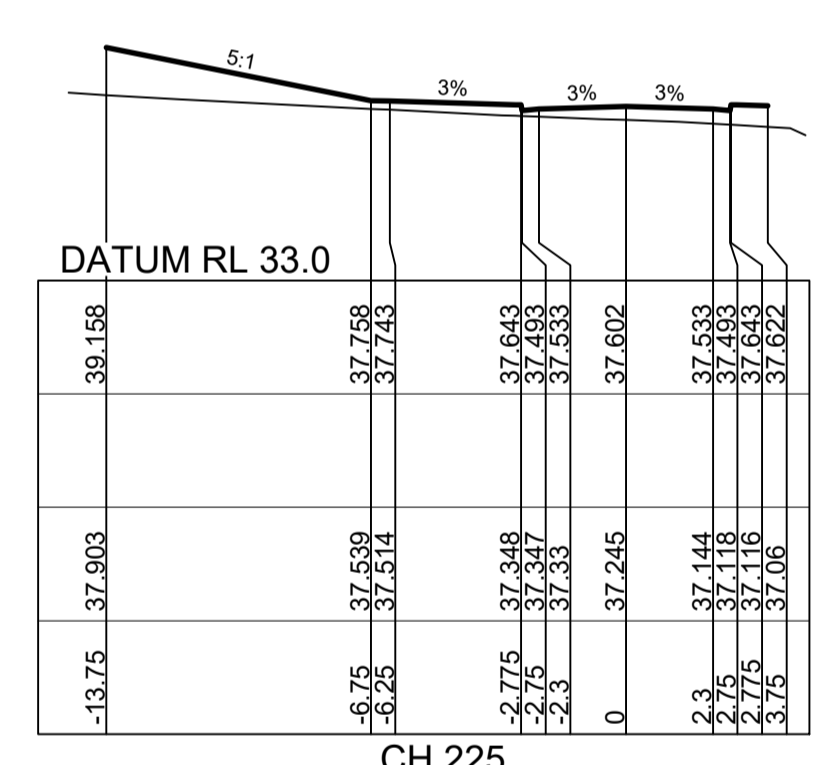
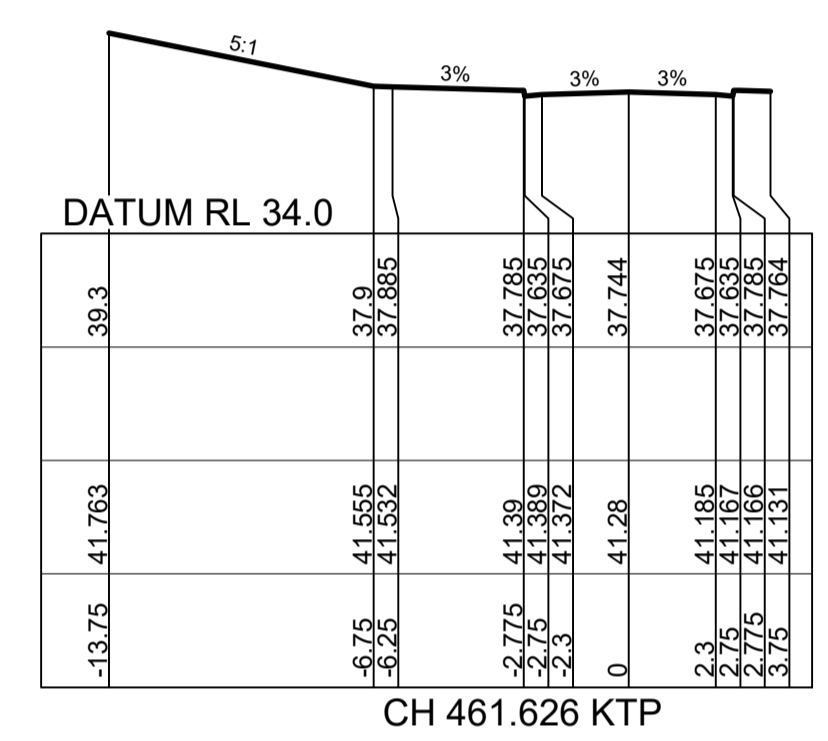
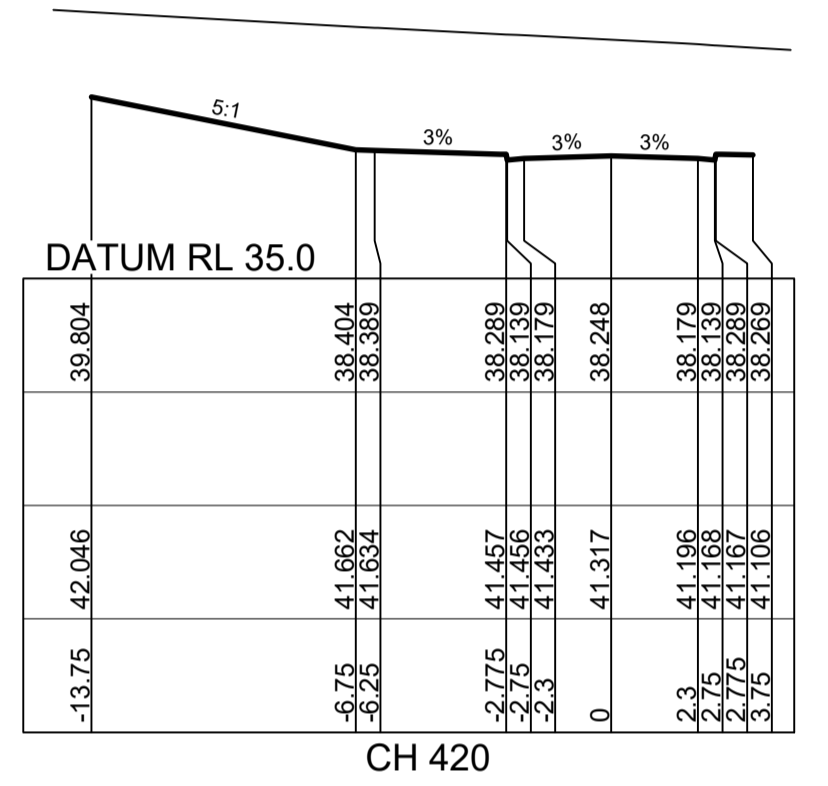
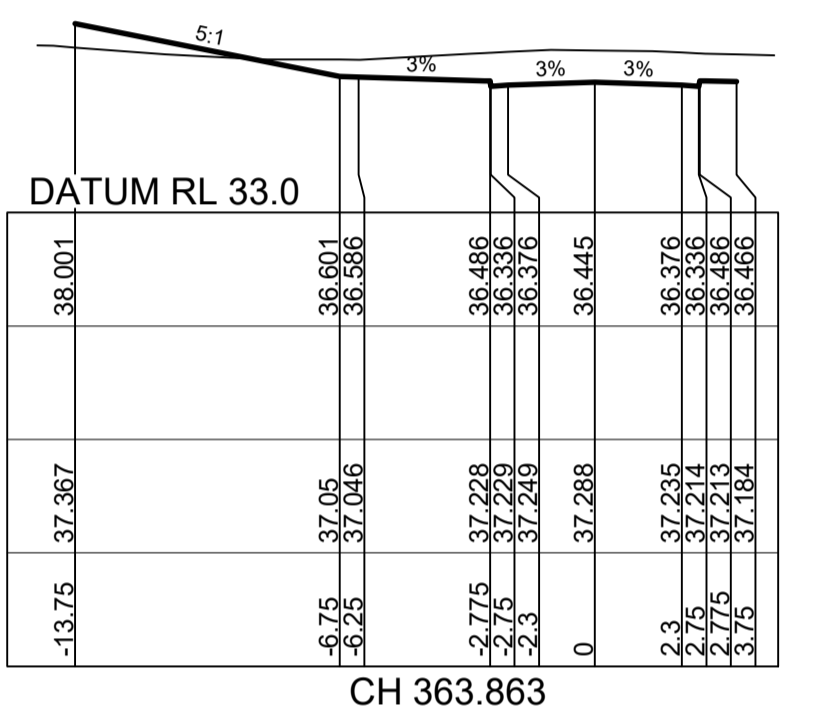
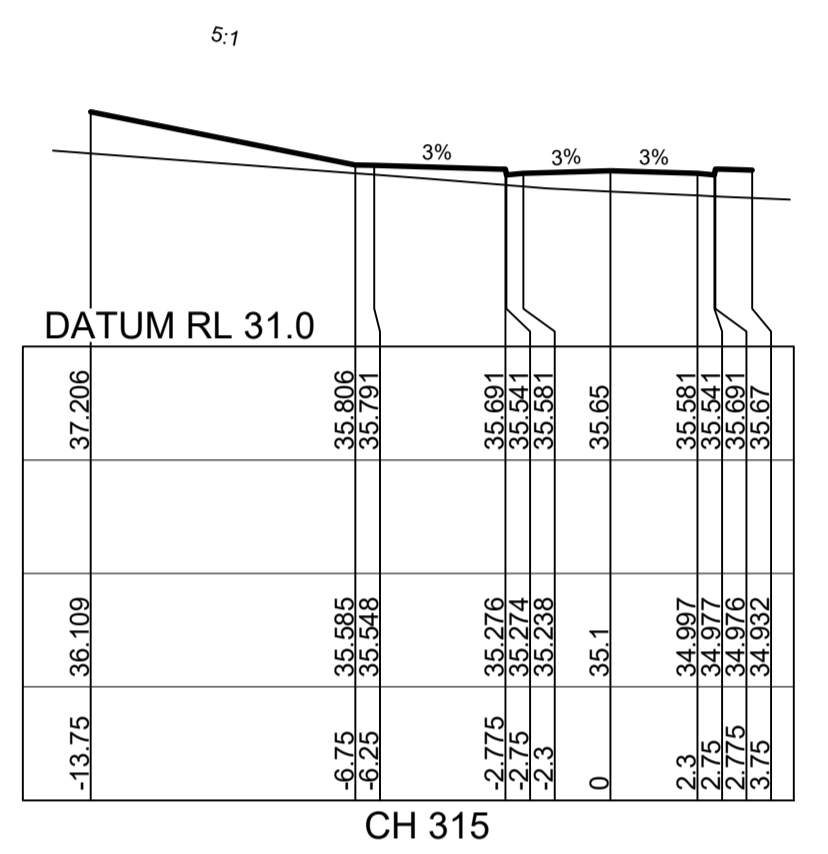
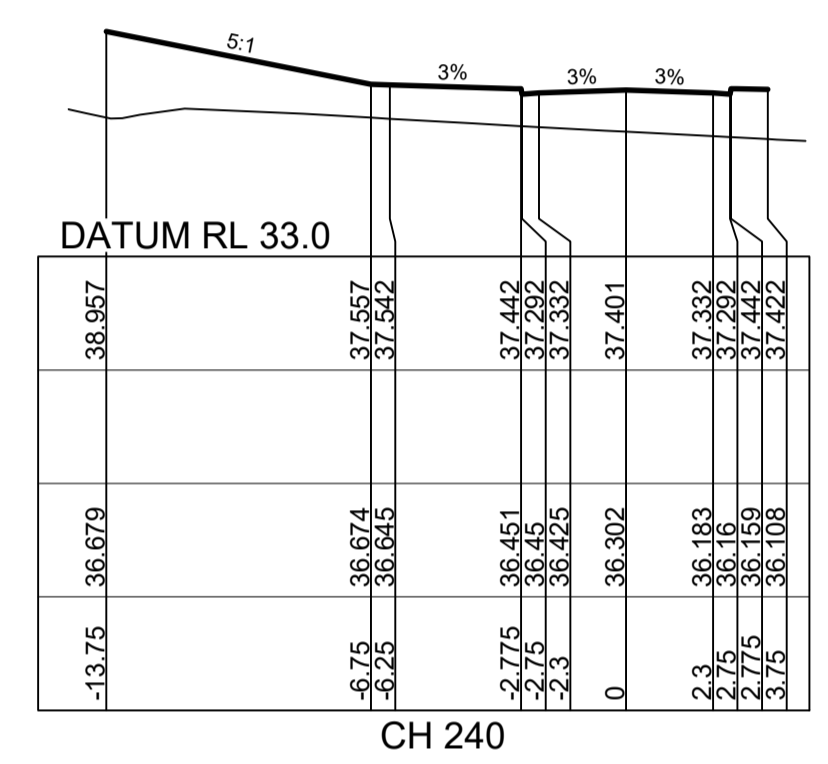
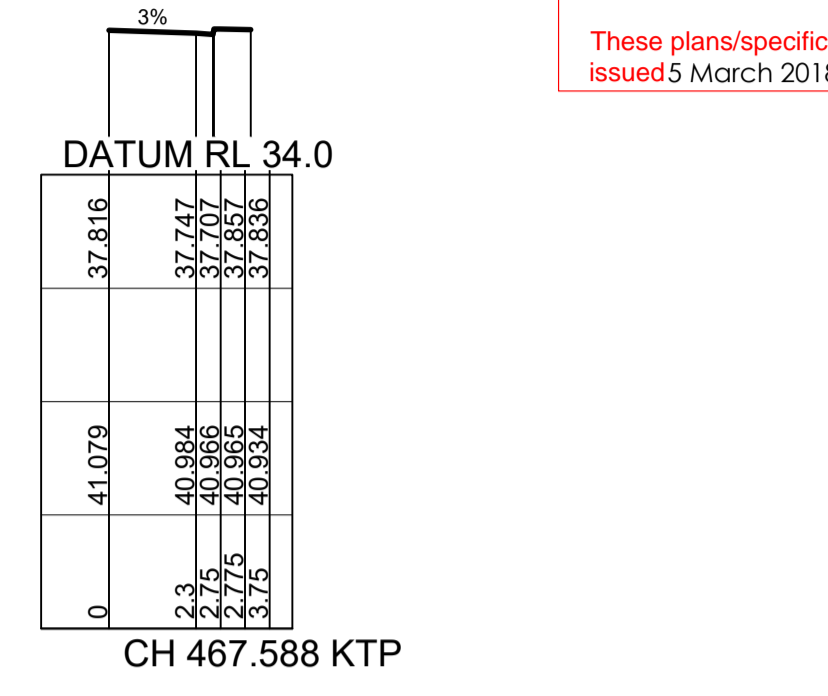
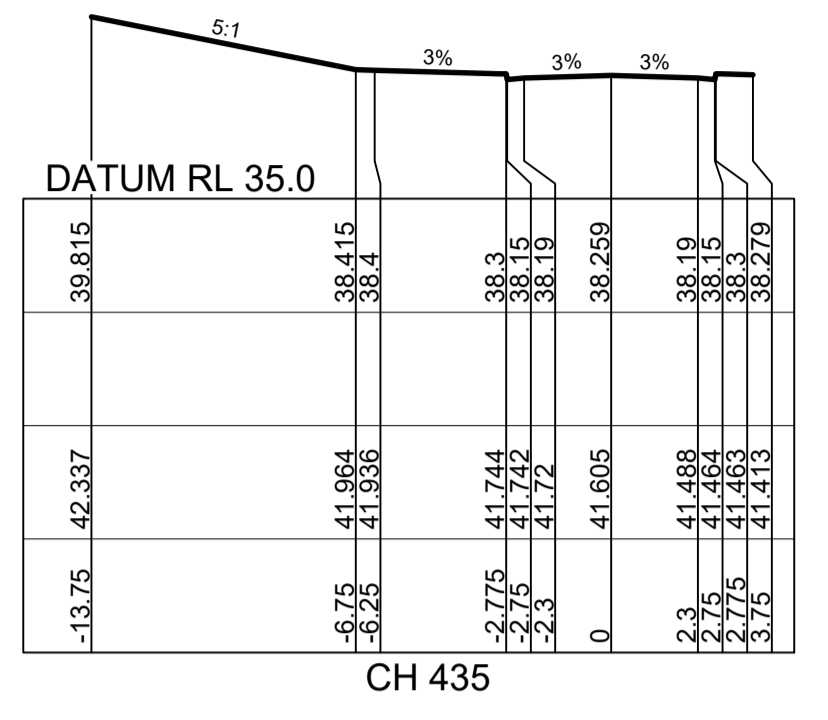
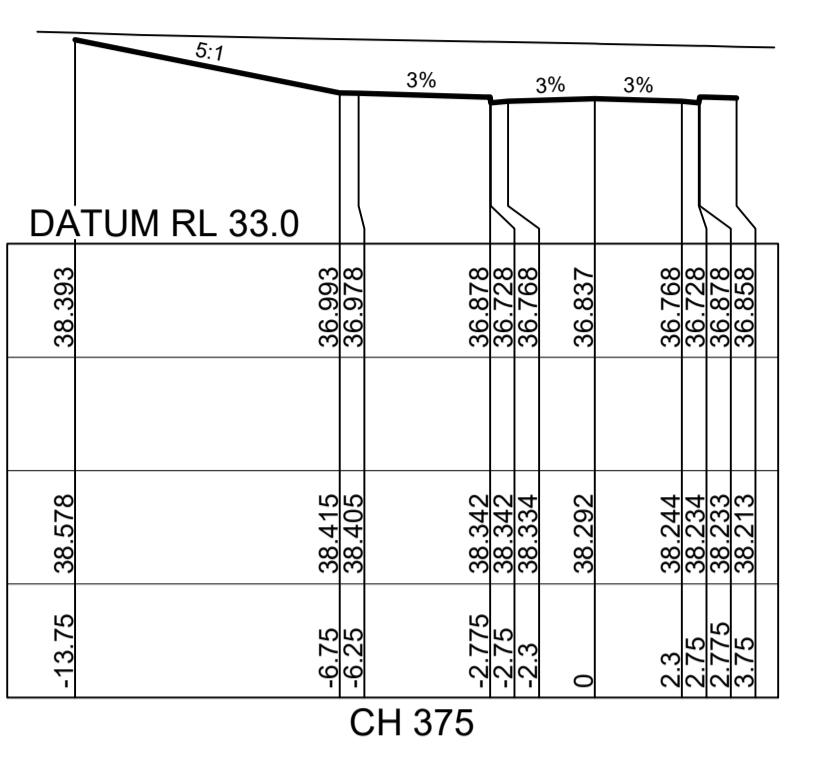
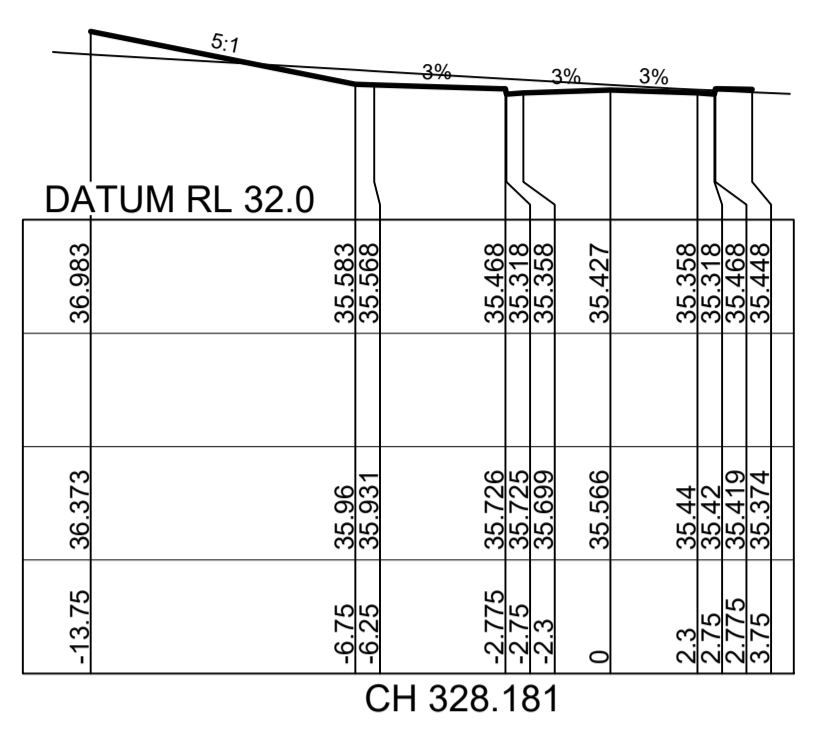
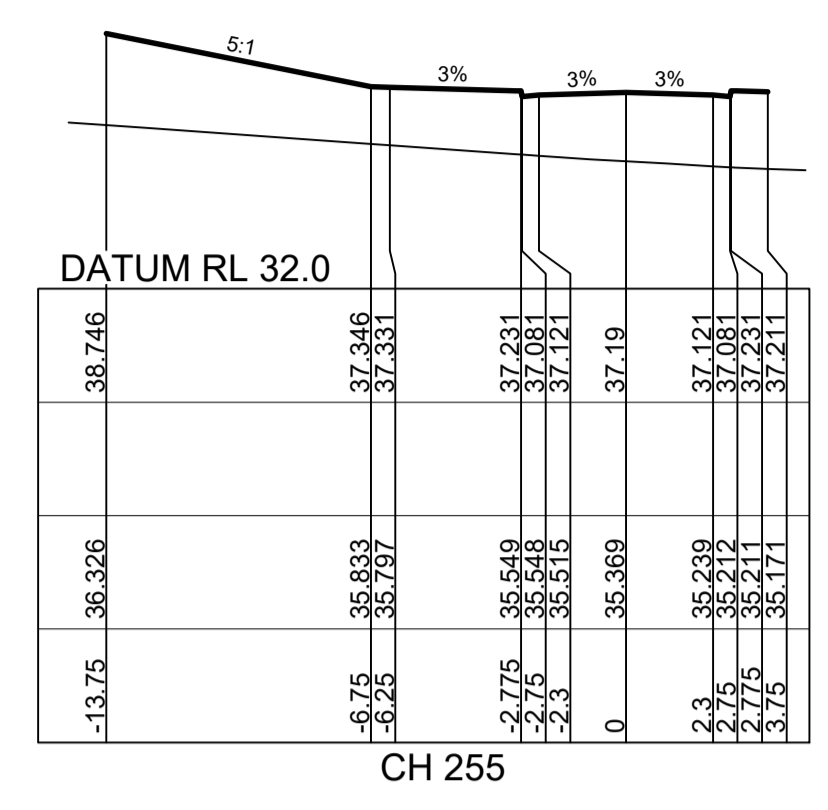
FILE No: 11018511CC070

SHEET SIZE: A1 ORIGINAL

**CONSTRUCTION CERTIFICATE**

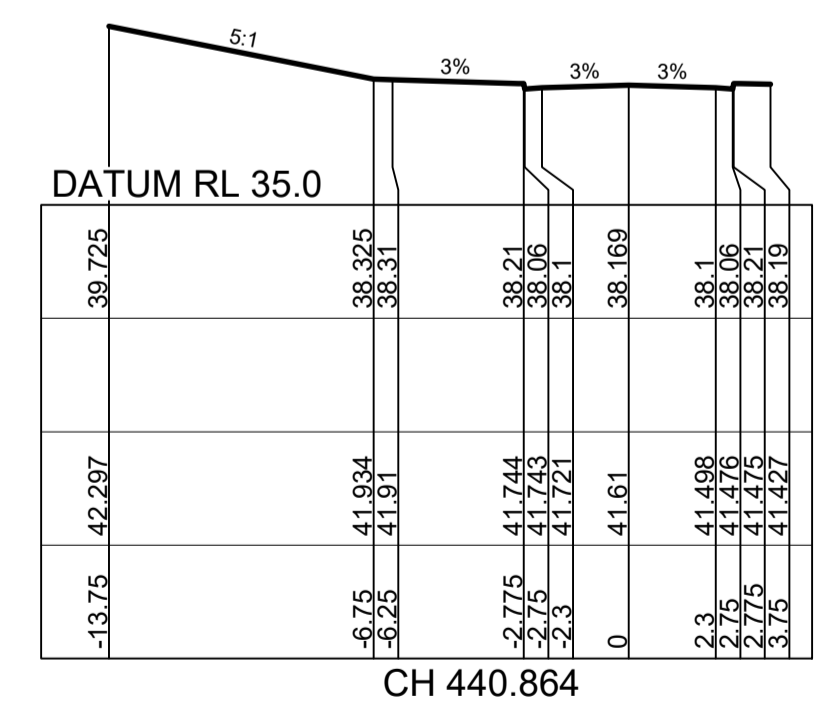
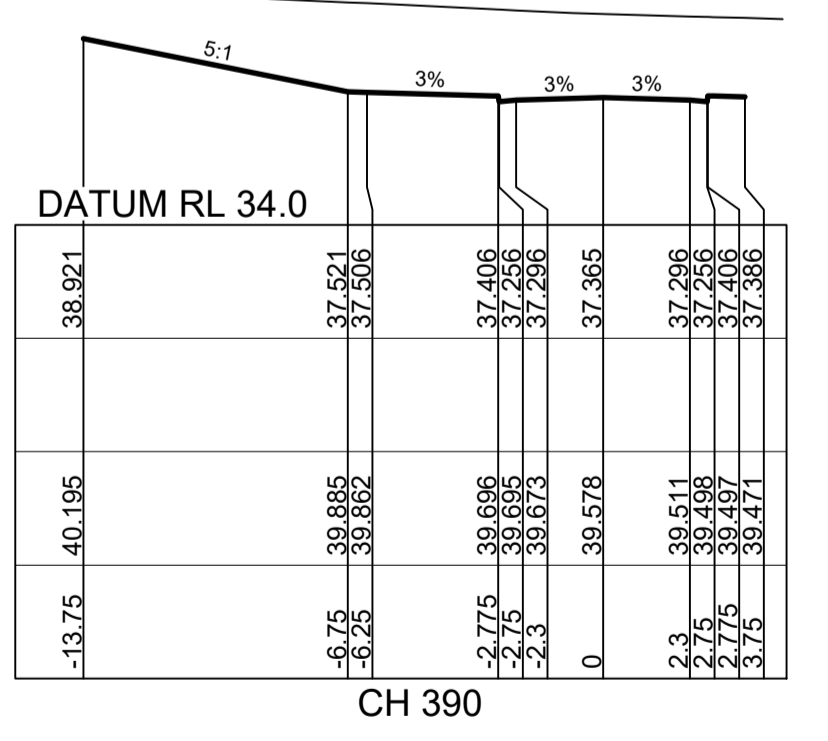
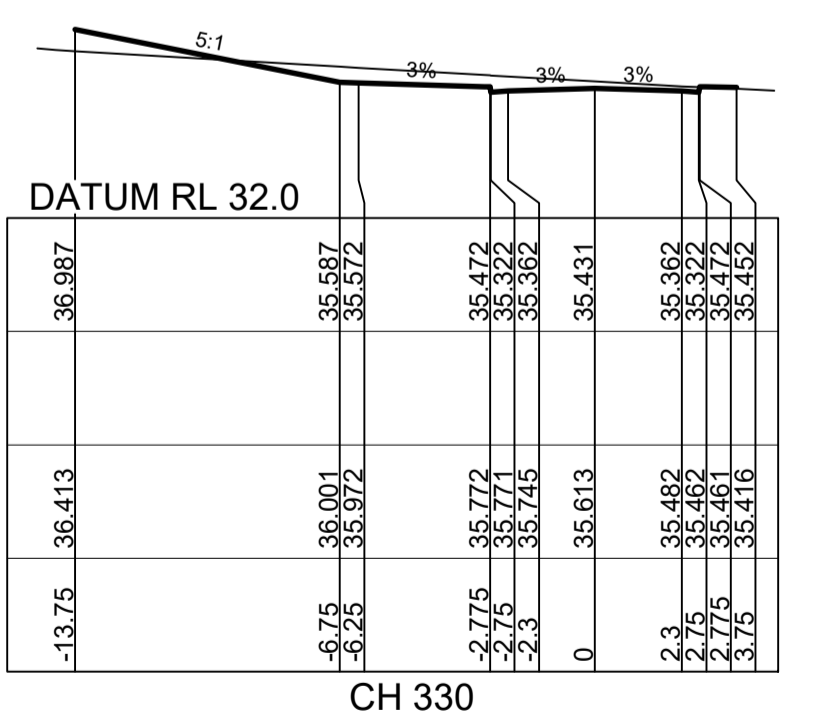
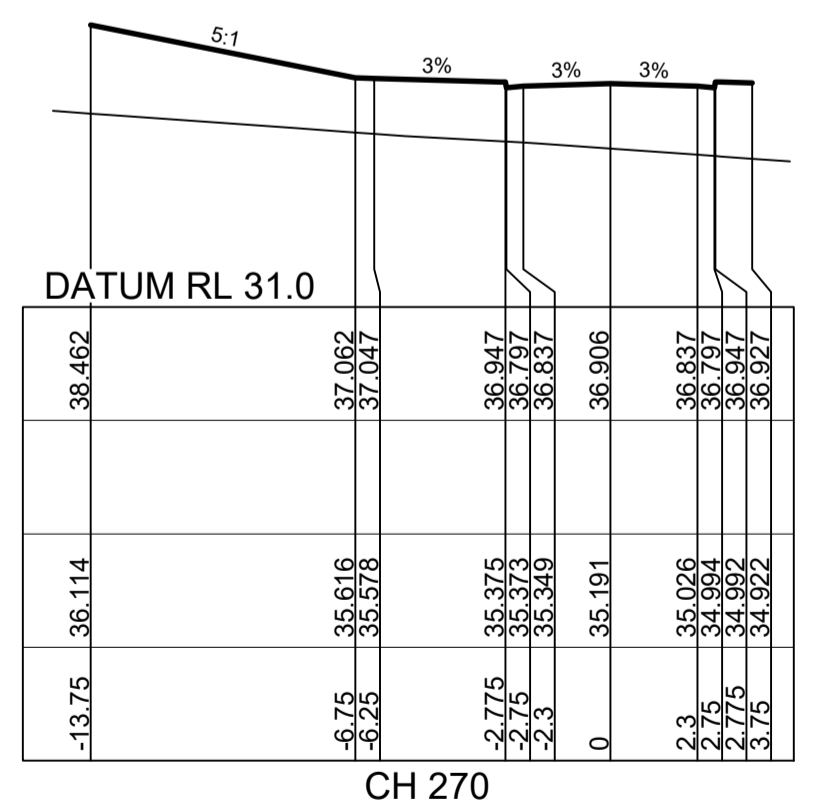
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BFB0565

These plans/specifications form part of the certificate issued 5 March 2018

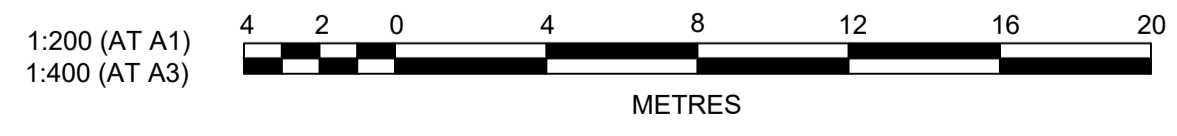


DATUM RL 34.0	
DESIGN SURFACE LEVEL	39.358
WAE	
EXISTING SURFACE LEVEL	38.701
OFFSET	

-13.75	38.701
-6.75	38.193
-6.25	38.157
-2.75	37.907
-2.3	37.873
0	37.708
2.3	37.543
2.75	37.509
3.75	37.656



**CROSS SECTIONS ROAD 26**



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

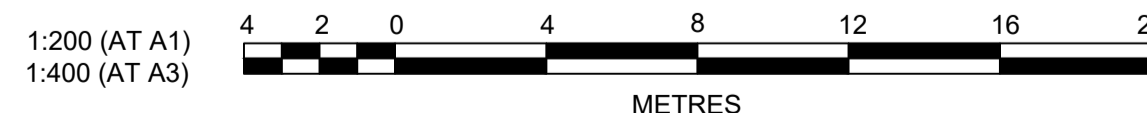
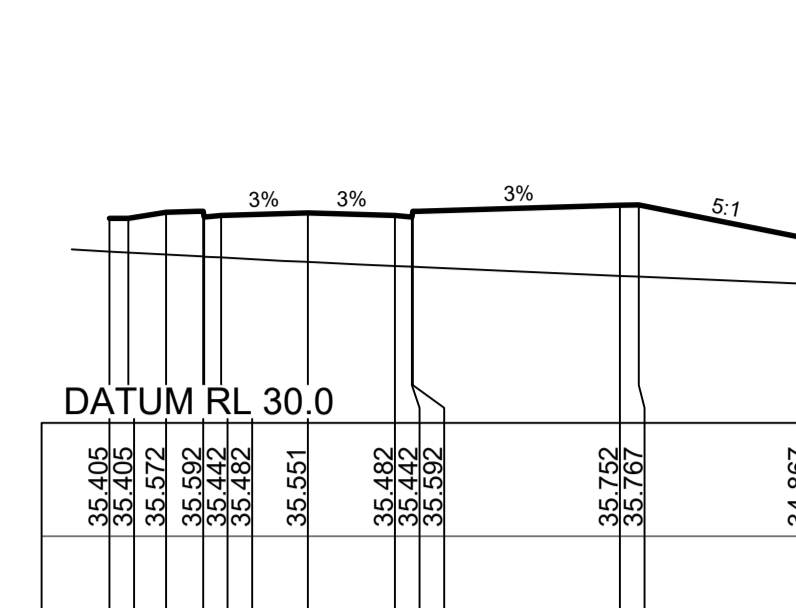
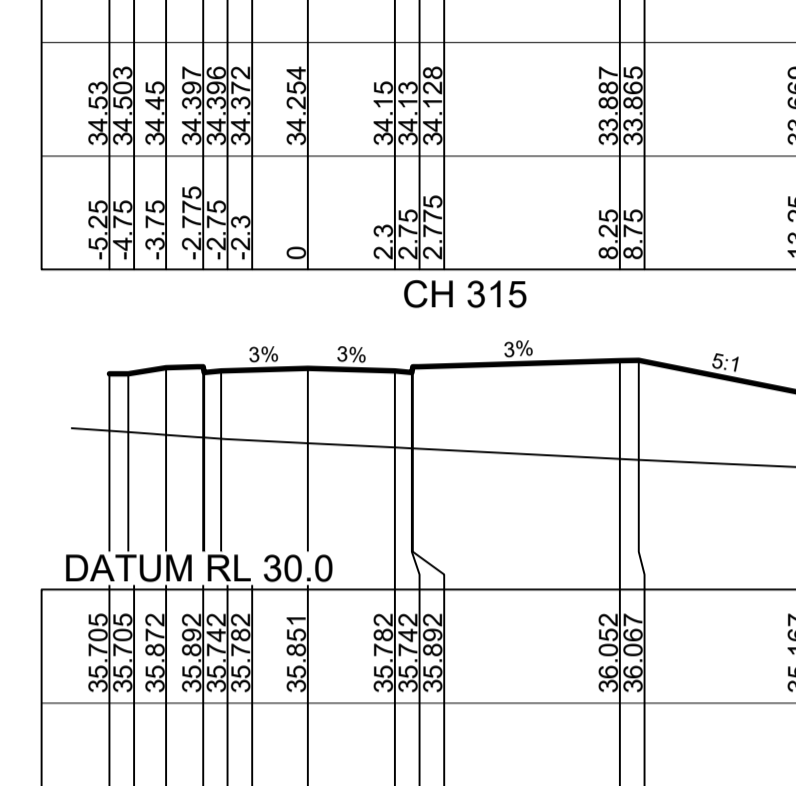
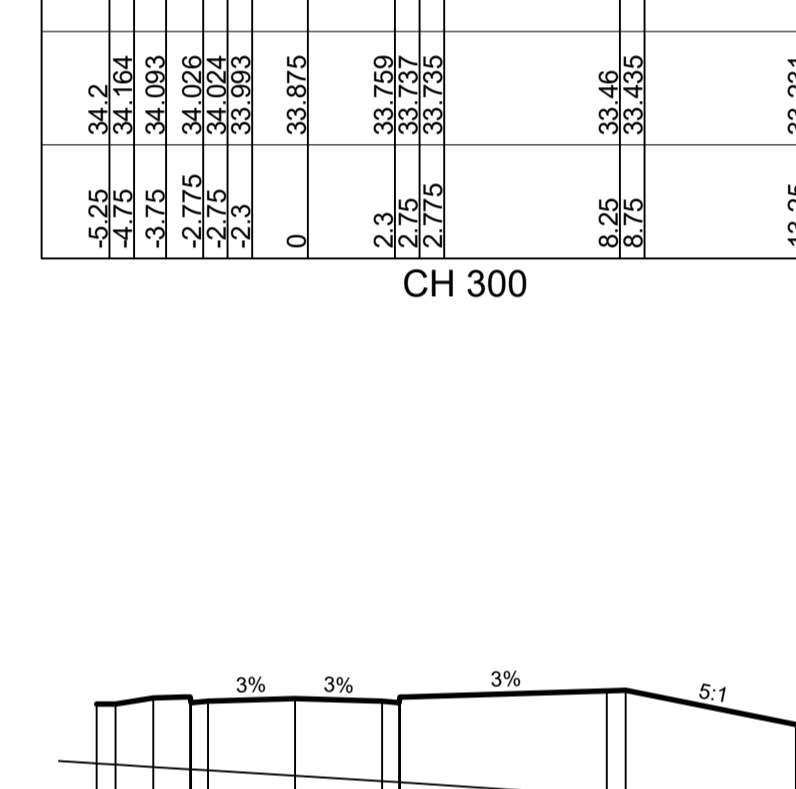
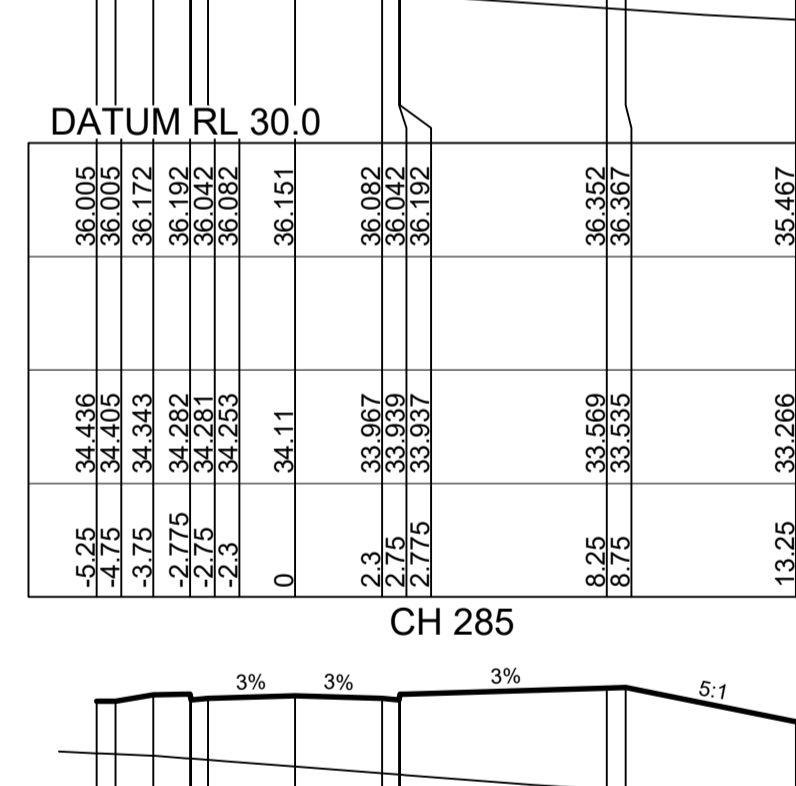
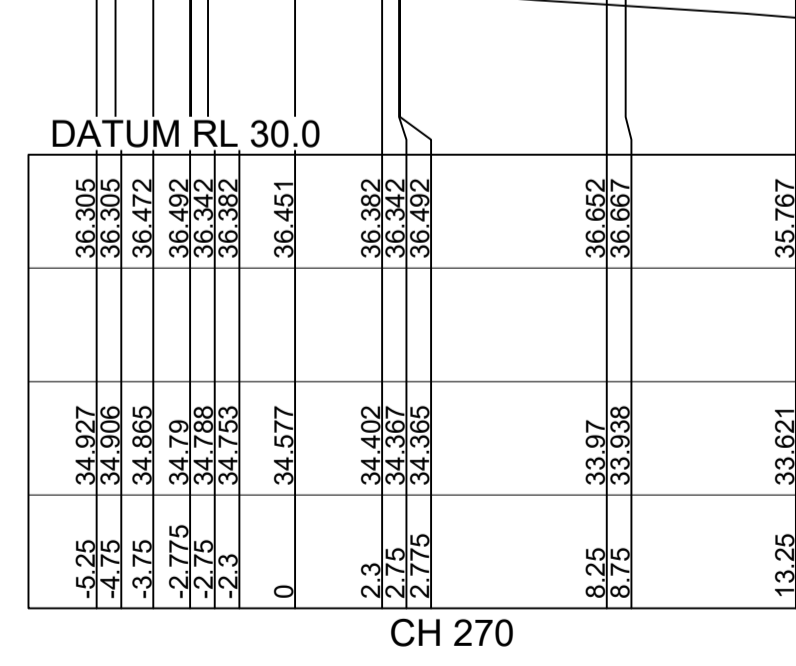
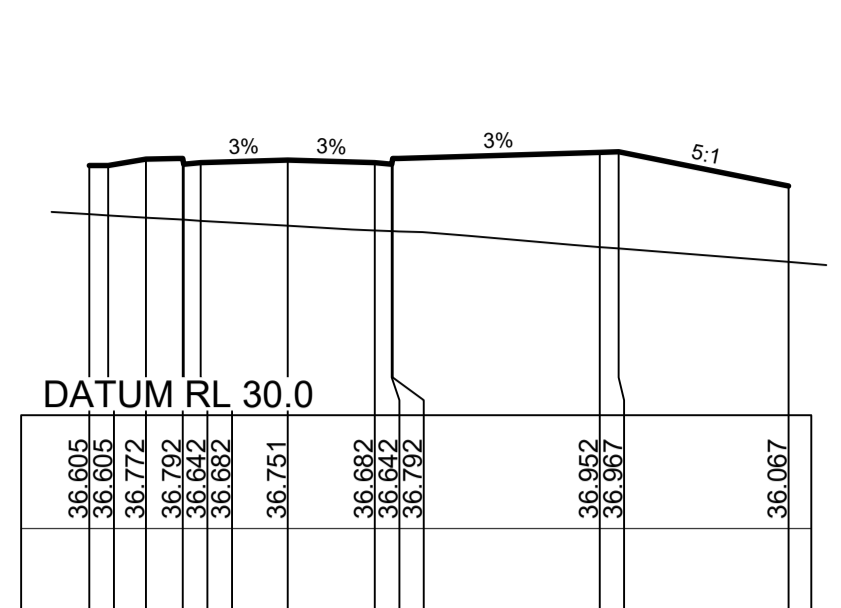
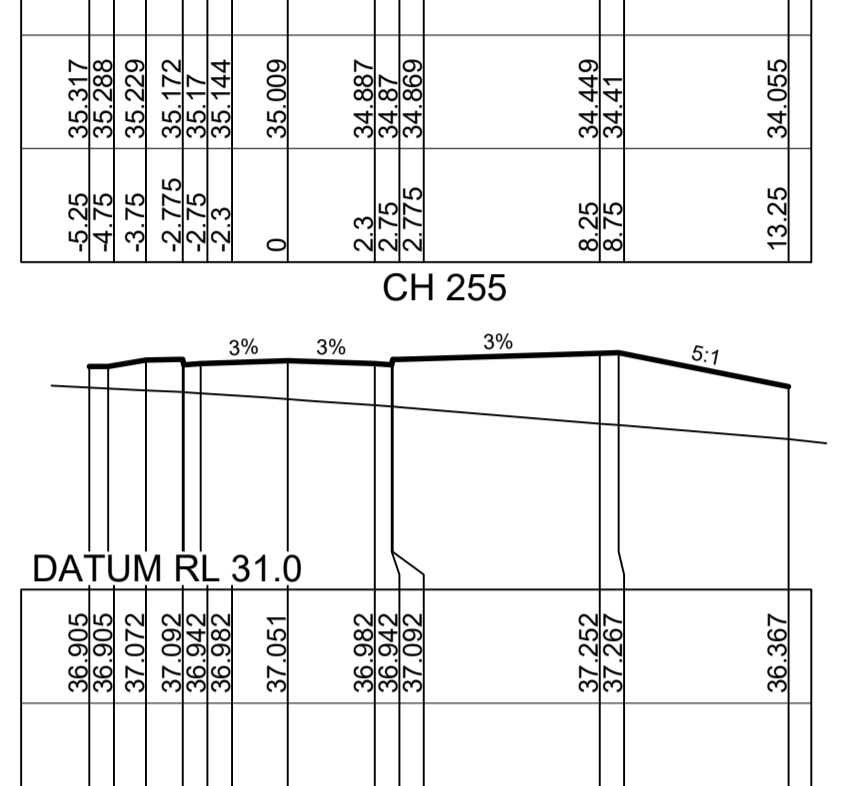
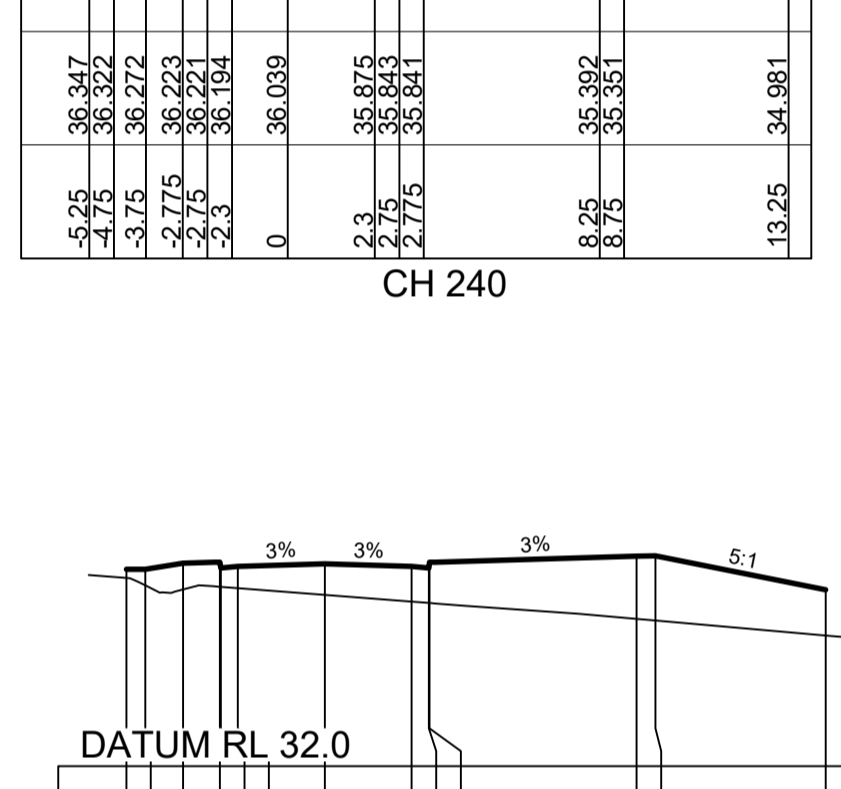
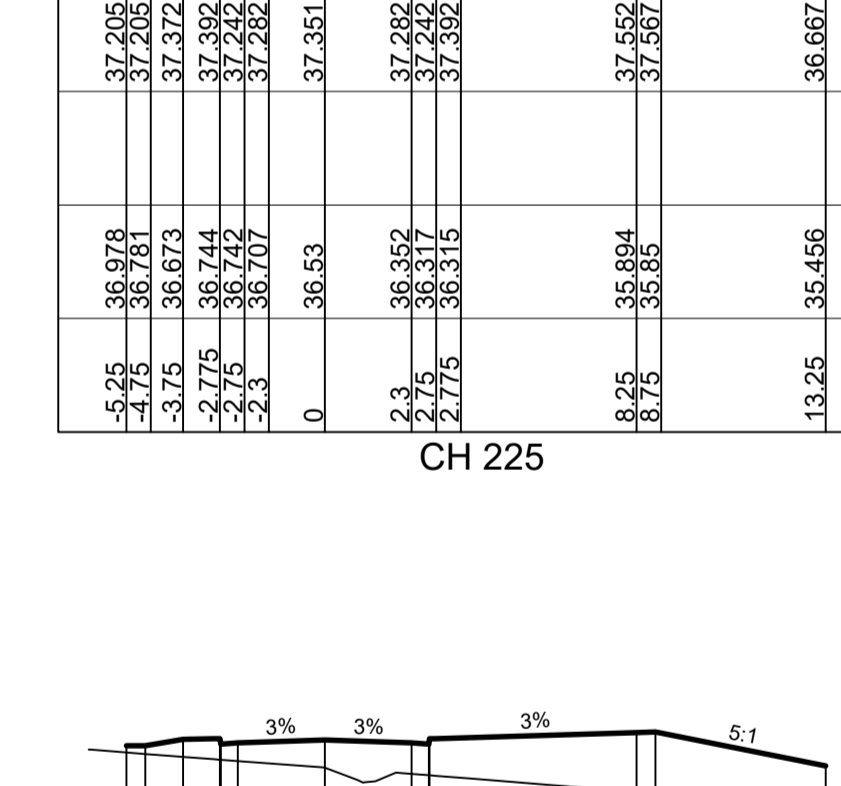
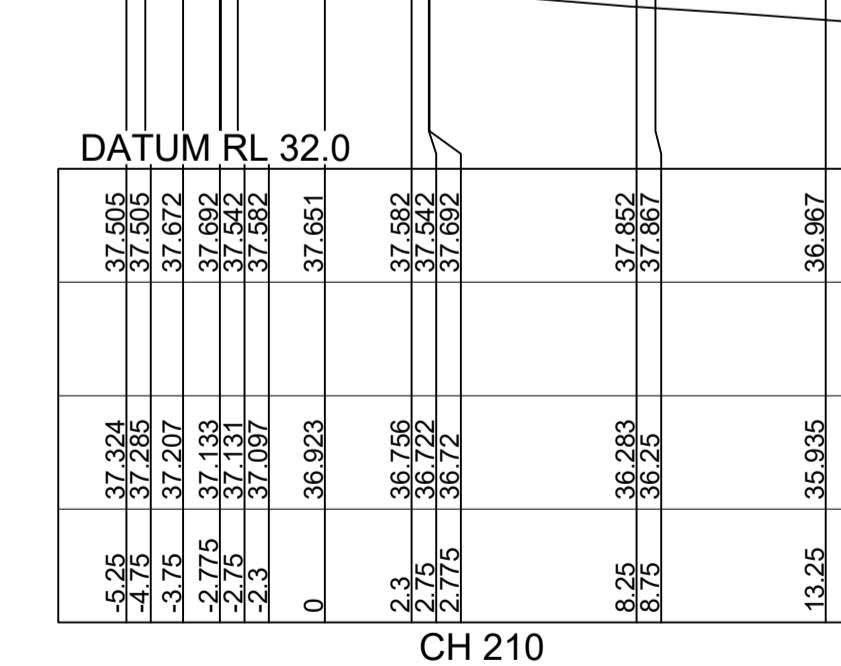
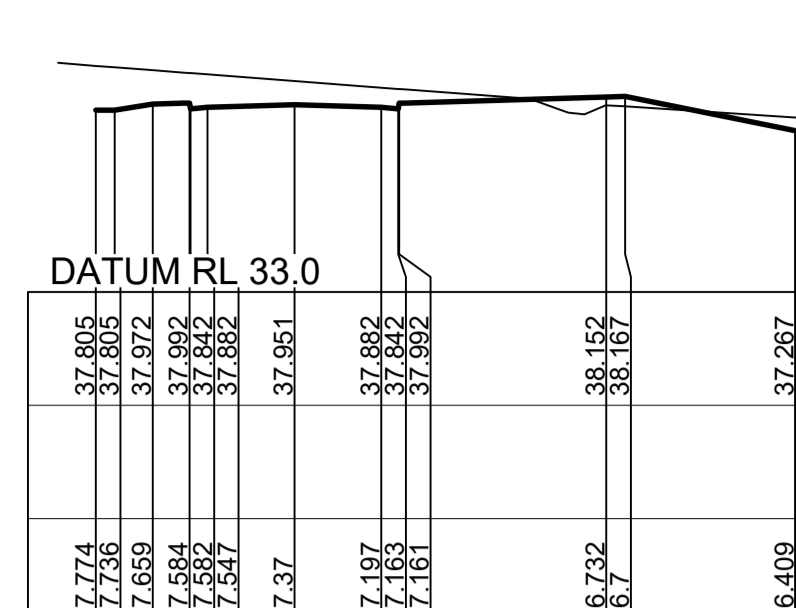
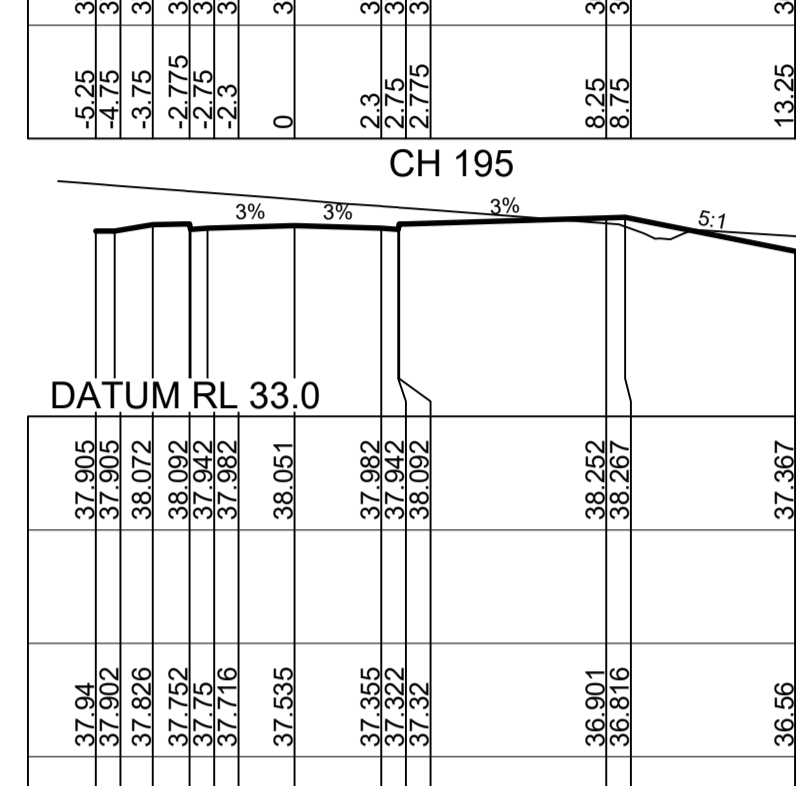
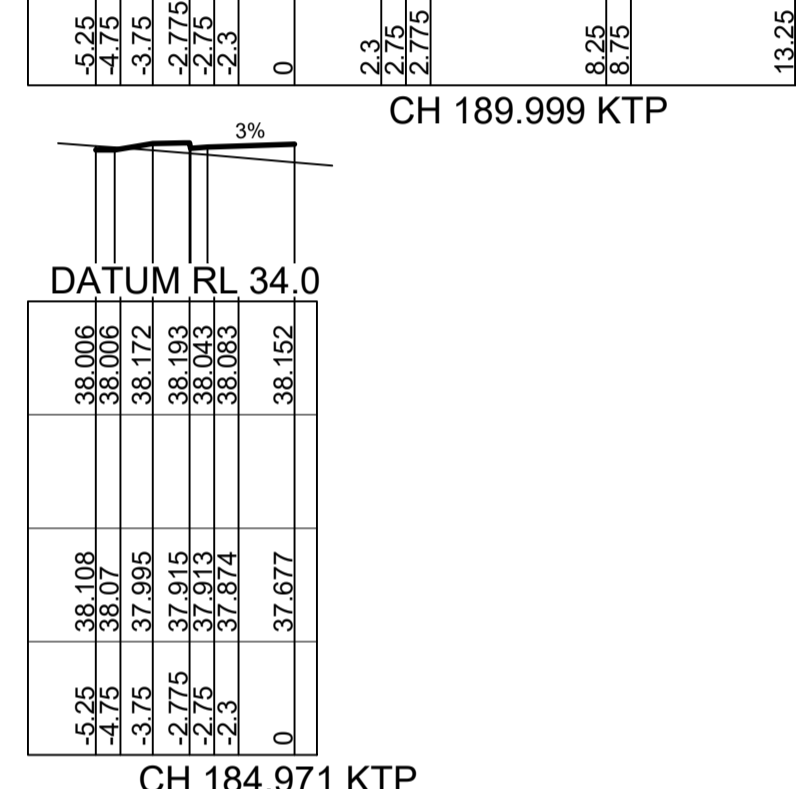
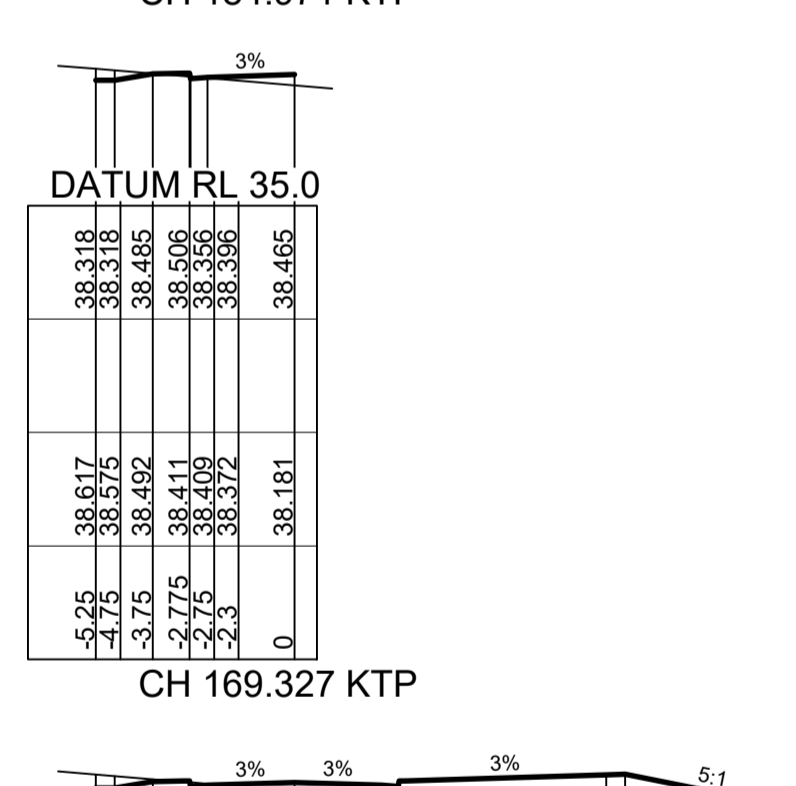
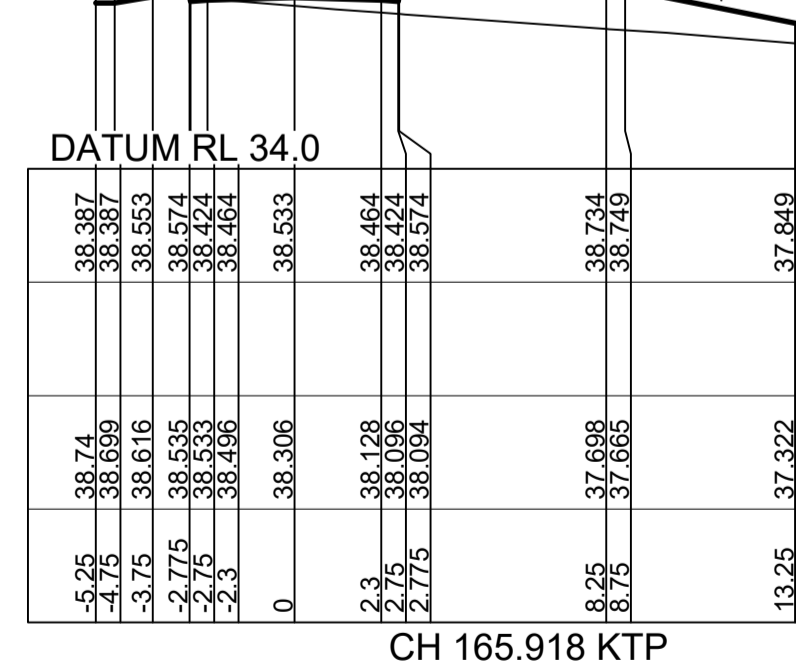
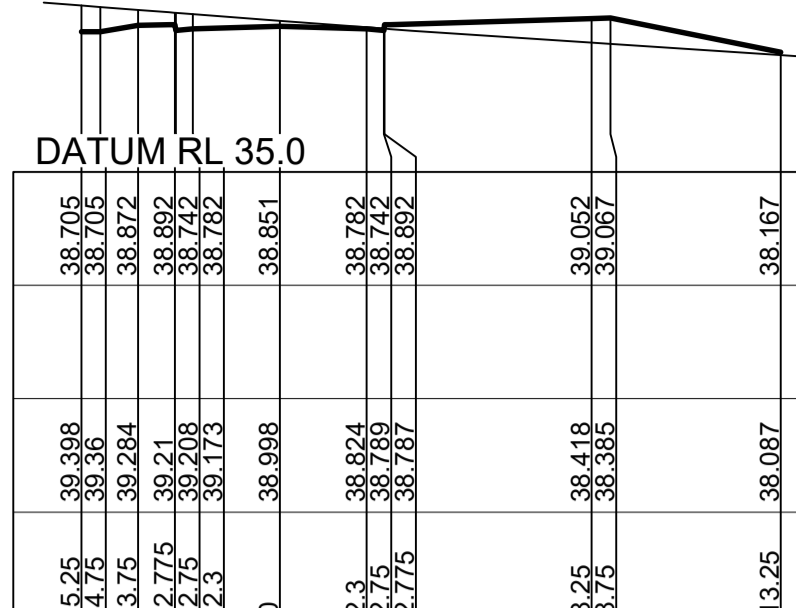
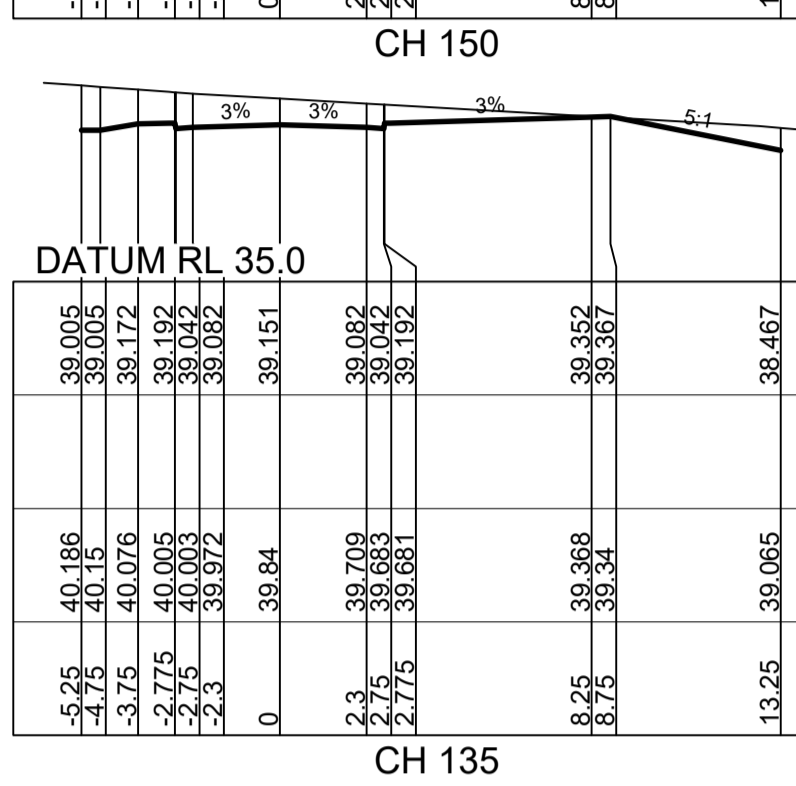
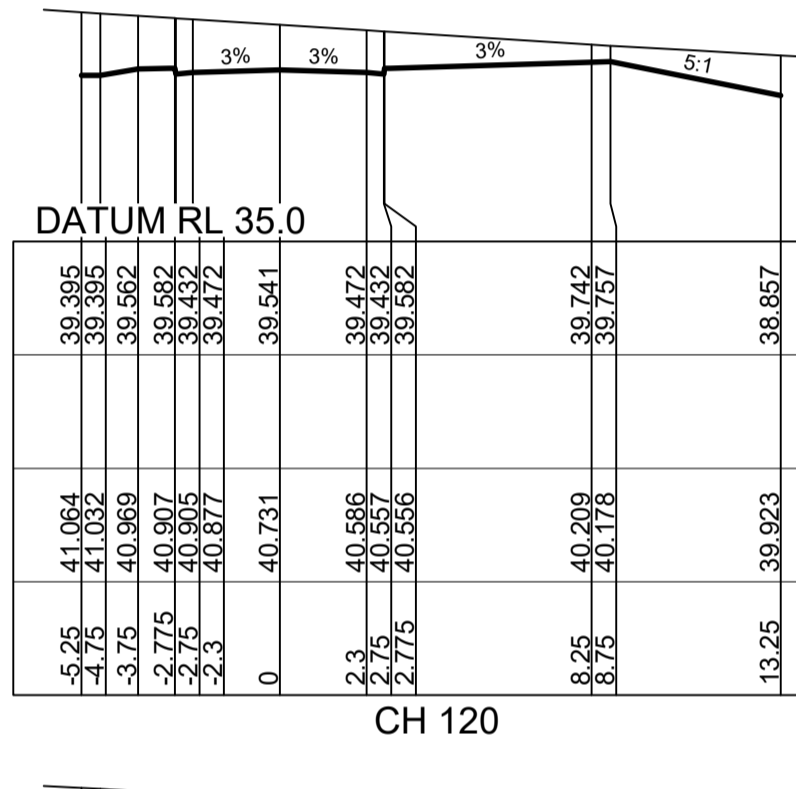
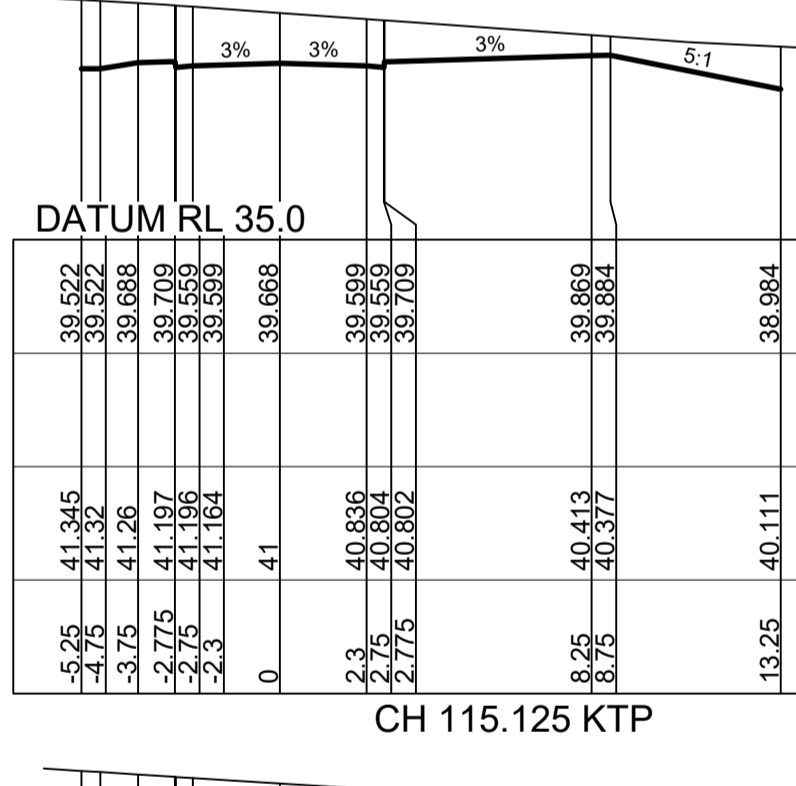
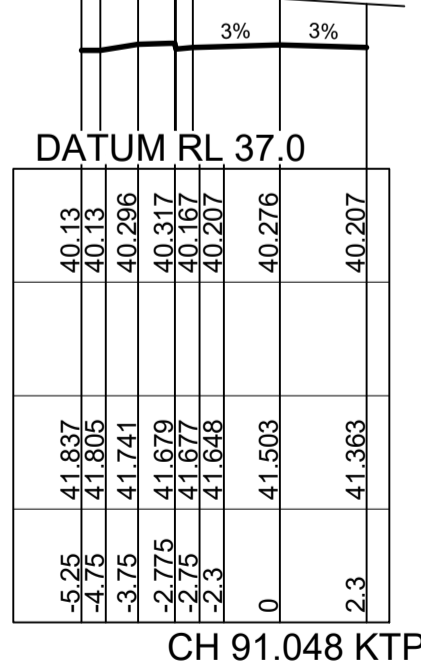
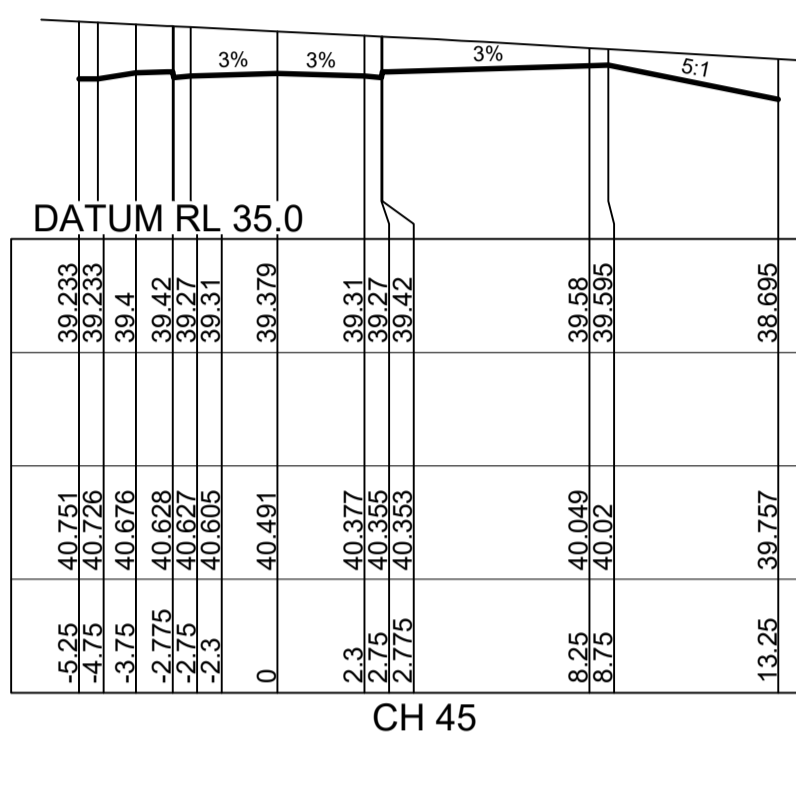
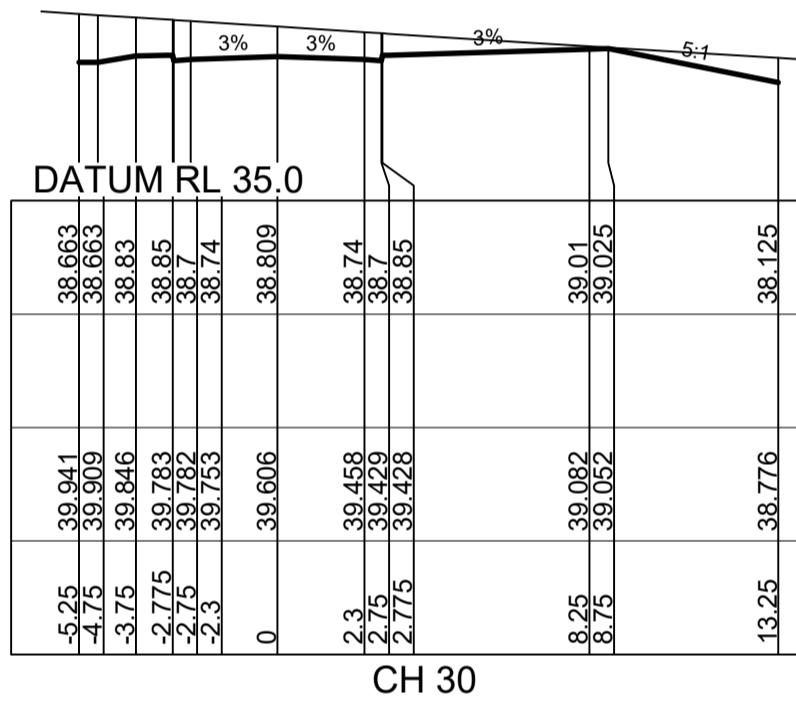
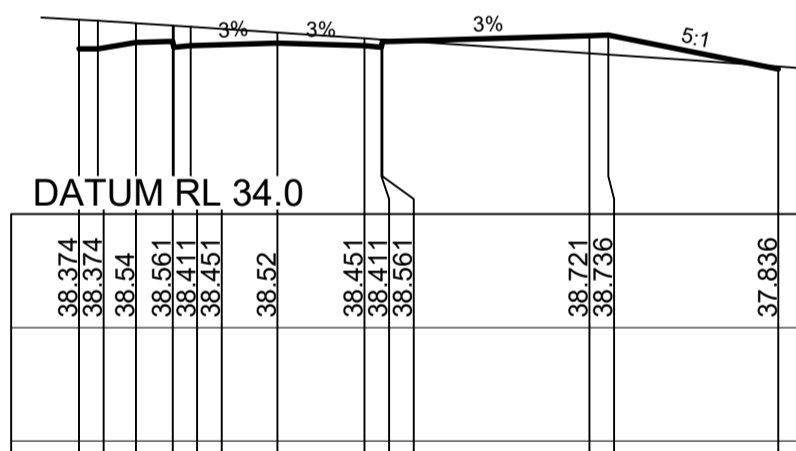
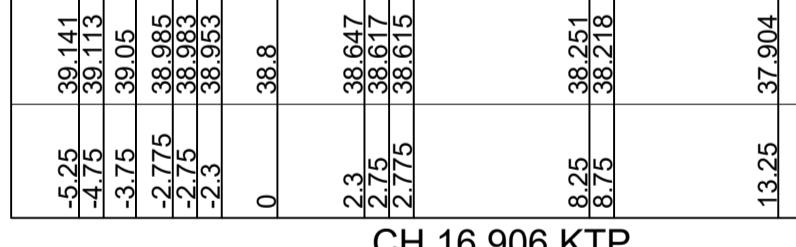
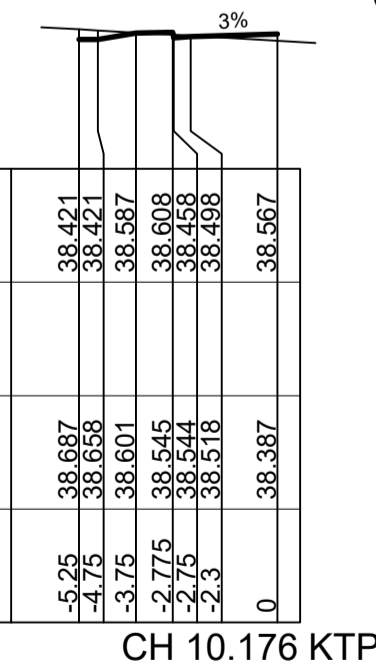
CROSS SECTIONS  
 SHEET 11 OF 19

PLAN No: 11018511/CC071 **A**  
 FILE No: 11018511CC071  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 4:37:56 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC071\1018511CC071.dwg

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

DESIGN SURFACE LEVEL	WAE	EXISTING SURFACE LEVEL	OFFSET
38.421		38.667	-5.25
38.421		38.667	-4.75
38.587		38.601	-3.75
38.608		38.545	-2.75
38.458		38.518	-2.75
38.498		38.518	-2.3
38.567		38.387	0



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PRINCIPAL:  
**REDBANK**  
NORTH RICHMOND

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH NORTH RICHMOND STAGE 11**  
CROSS SECTIONS  
SHEET 12 OF 19

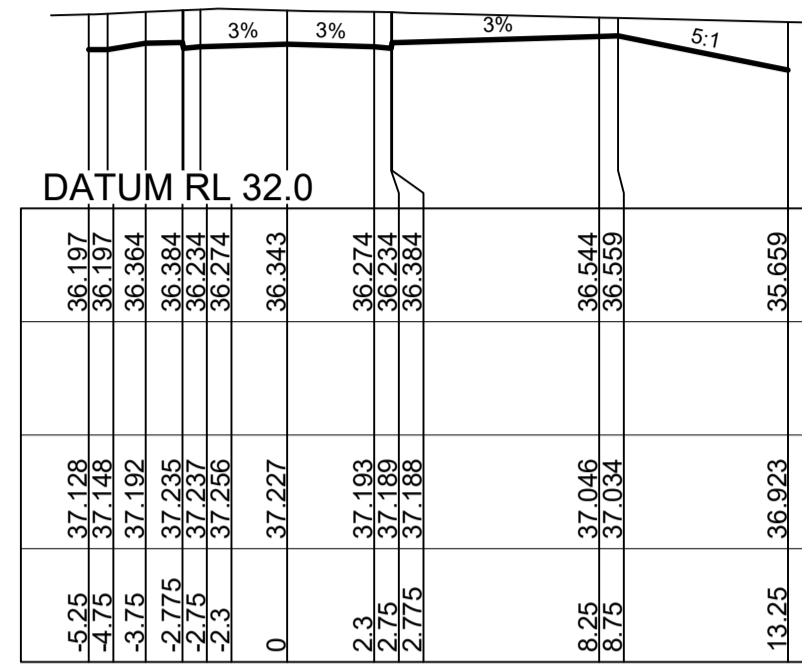
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

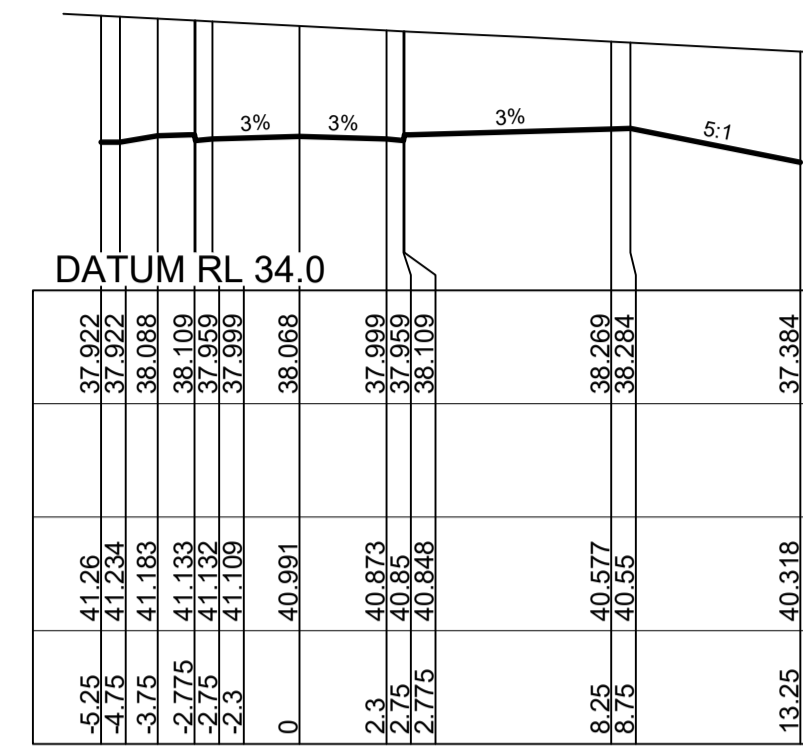
These plans/specifications form part of the certificate issued 5 March 2018

PLAN No:	11018511/CC072	A
FILE No:	11018511CC072	
SHEET SIZE:	A1 ORIGINAL	

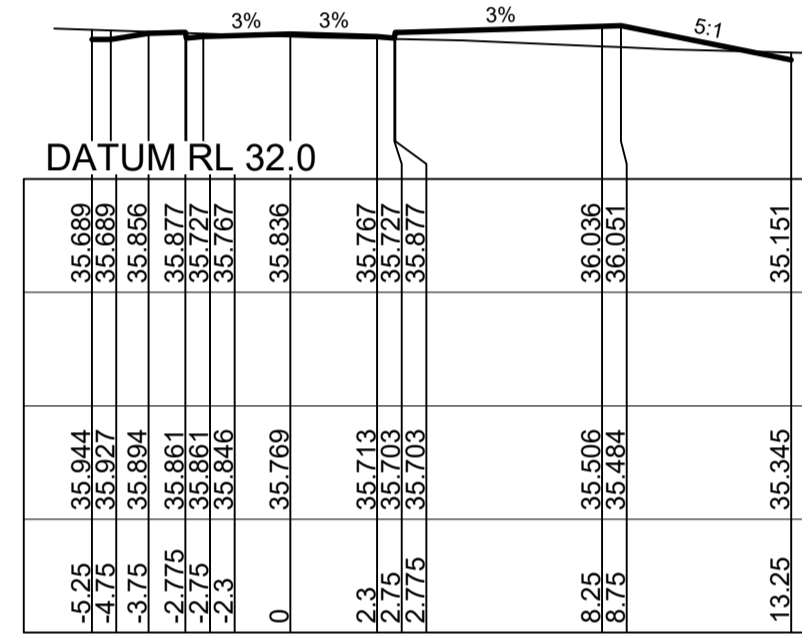
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



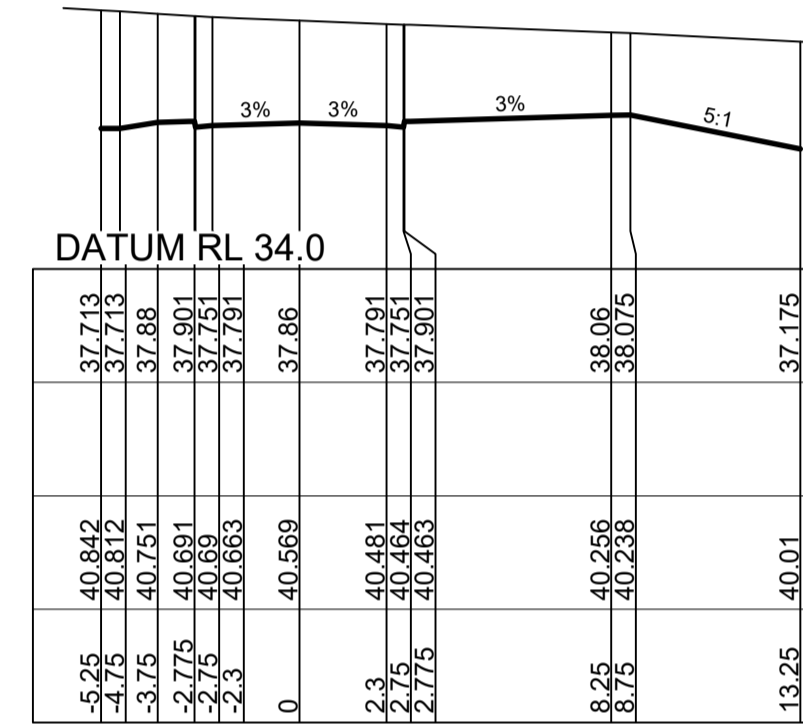
CH 375



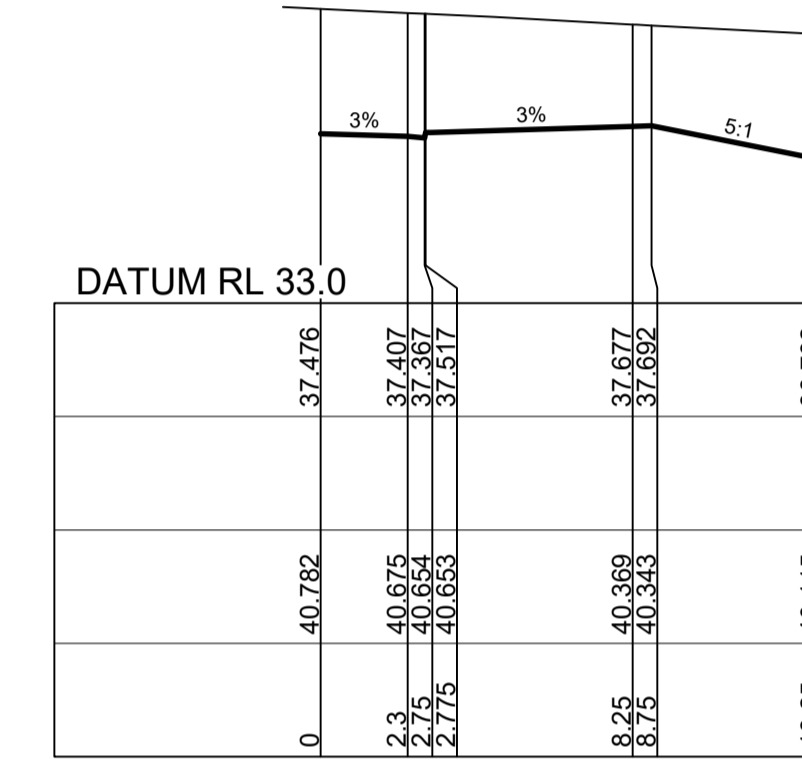
CH 435



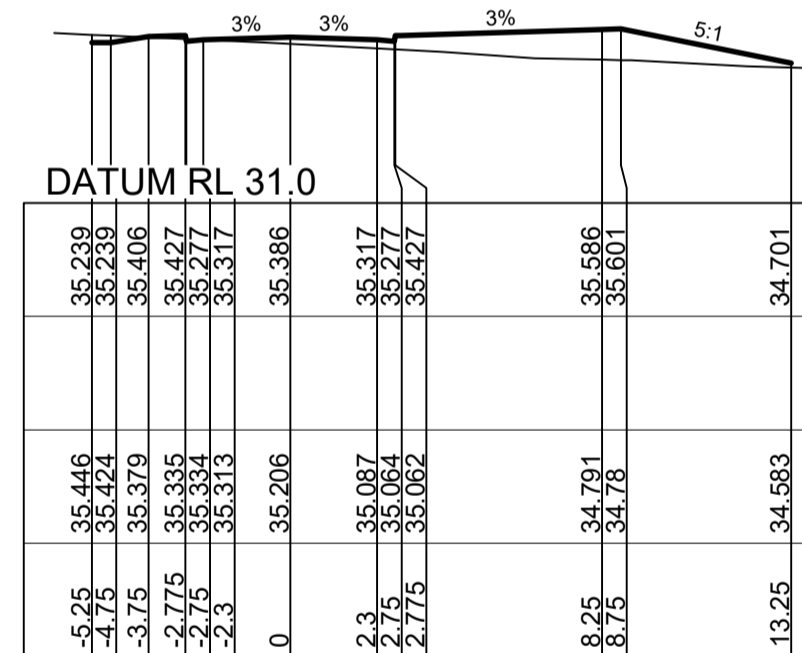
CH 360



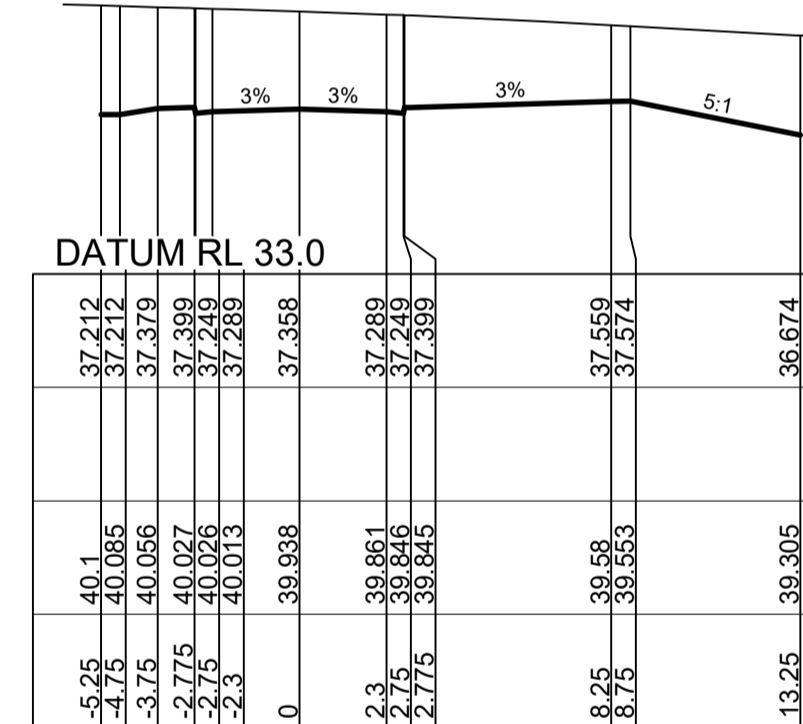
CH 420



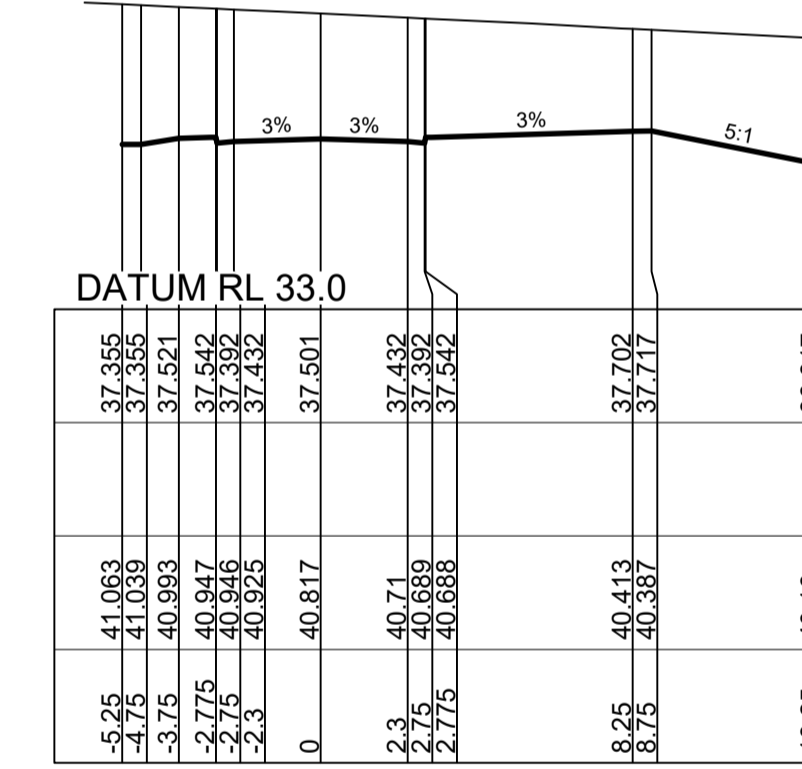
CH 462.571 KTP



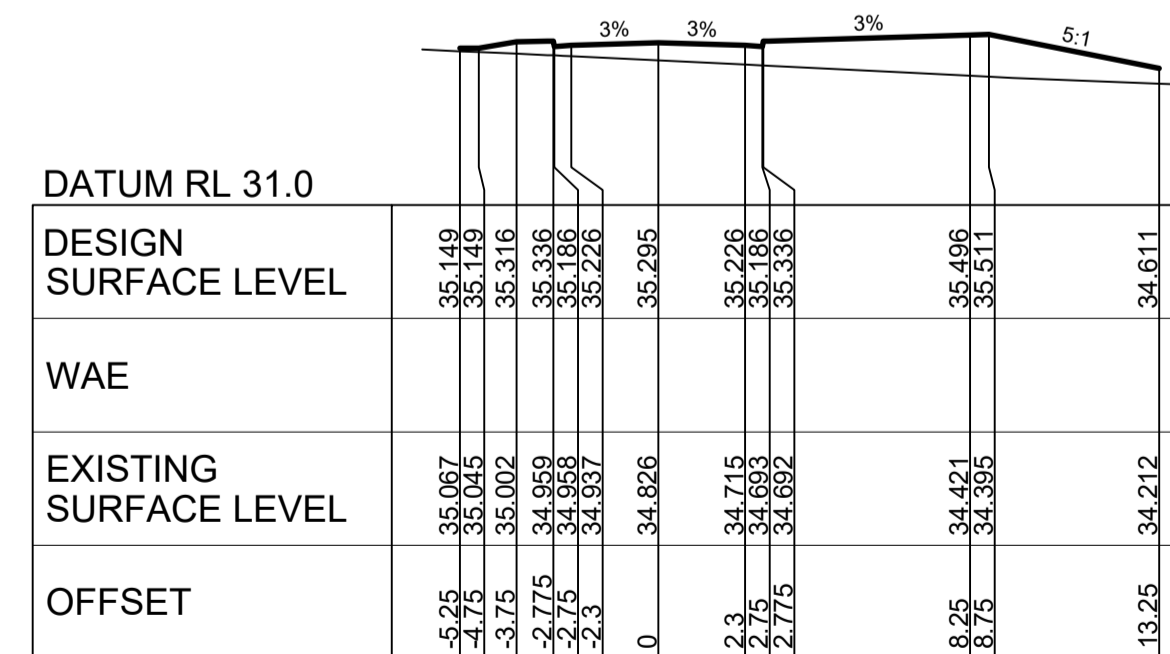
CH 345



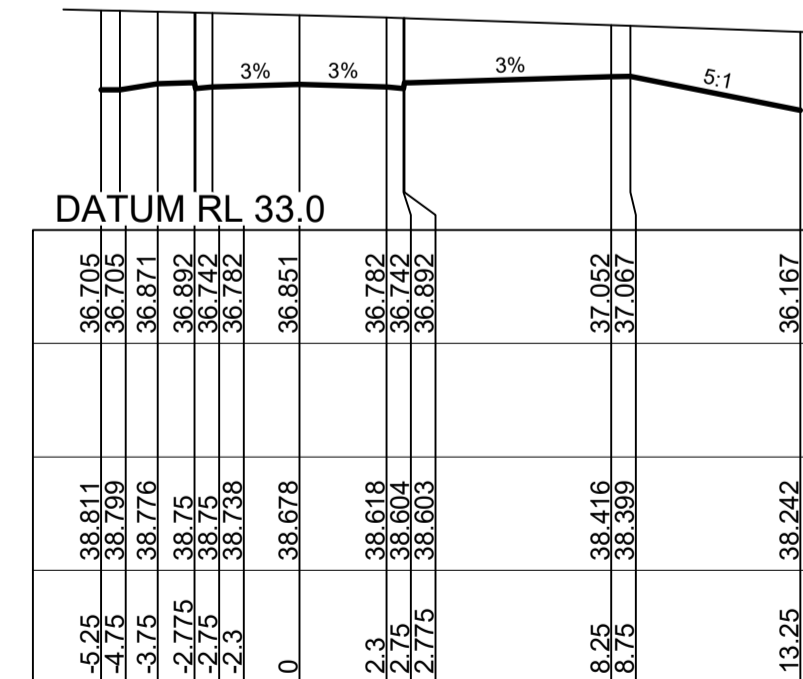
CH 405



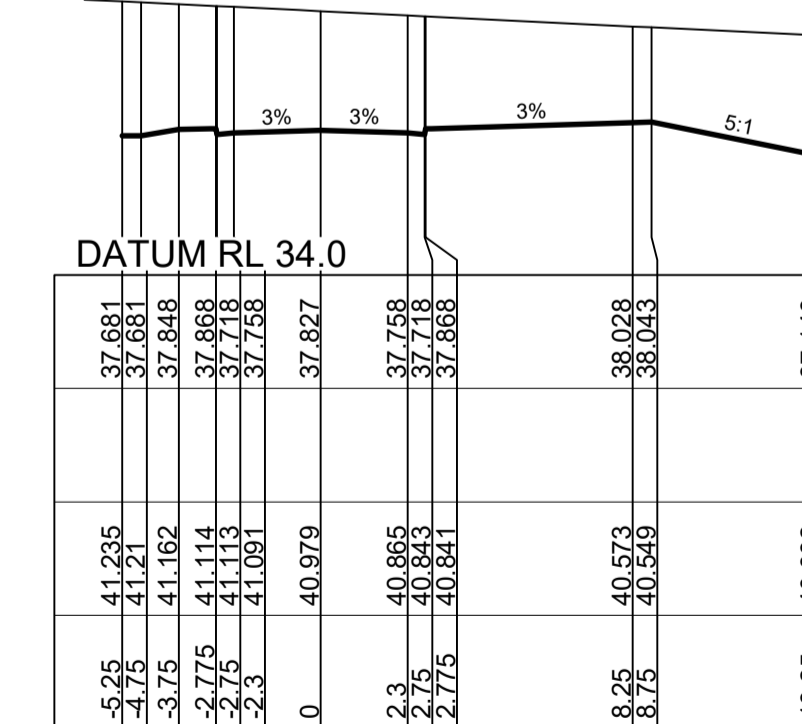
CH 460.788 KTP



CH 330

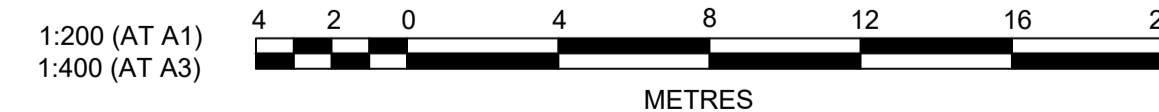


CH 390



CH 450

CROSS SECTIONS ROAD 26A



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AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11

CROSS SECTIONS  
SHEET 13 OF 19

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

PLAN No: 11018511/CC073 **A**

FILE No: 11018511CC073

SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018

DATUM RL 33.0

0	36.594	36.594
3.5	37.067	37.065
4.025	36.603	36.379
4	36.602	36.299
3.55	36.581	36.289
0	36.547	36.375

CH 81.946 KTP

DATUM RL 36.0

-9	40.019	41.335
-3.5	40.041	41.32
4.025	40.317	41.081
4	40.319	41.041
3.55	40.347	41.081
0	40.421	41.187
3.55	40.469	41.081
4	40.475	41.181
4.025	40.475	41.181
7.5	40.555	41.29
8	40.558	41.305

CH 30

DATUM RL 33.0

0	36.541	36.546
3.5	37.059	37.007
4.025	36.618	36.397
4	36.618	36.247
3.55	36.607	36.287
0	36.572	36.393
3.55	36.544	36.297
4	36.545	36.247
4.025	36.535	36.397
7.5	36.458	36.496
8	36.447	36.511

CH 81.653 KTP

DATUM RL 38.0

-9	41.518	42.431
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3.55	41.676	42.376
0	41.778	42.282
3.55	41.88	42.176
4	41.895	42.336
4.025	41.895	42.282
7.5	42.008	42.386
8	42.024	42.401

CH 15

DATUM RL 33.0

0	36.951	36.276
3.5	37.121	36.276
4.025	37.071	36.846
4	37.071	36.696
3.55	37.081	36.736
0	37.091	36.843
3.55	37.043	36.736
4	37.036	36.636
4.025	37.035	36.846
7.5	36.989	36.946
8	36.98	36.961

CH 75

DATUM RL 25.0

-8	29.098	29.226
-7.5	29.095	29.211
4.025	29.089	29.111
4	29.089	29.001
3.55	29.086	29.001
0	29.04	29.107
3.55	29.014	29.001
4	29.011	29.091
4.025	29.01	29.111
7.5	28.985	29.211
8	28.981	29.226
18	29.004	29.326

CH 15 L.O.C

DATUM RL 29.0

-3.55	32.54	33.134
0	32.412	33.24
3.55	32.293	33.134
4	32.267	33.094
4.025	32.266	33.244
8.5	32.104	33.374
8.8	32.103	33.363

CH 15

DATUM RL 38.0

-9	41.605	42.489
-3.5	41.62	42.474
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3.55	41.763	42.234
0	41.868	42.341
3.55	41.977	42.234
4	41.992	42.341
4.025	41.992	42.341
7.5	42.109	42.444
8	42.125	42.459

CH 13.909 KTP

DATUM RL 34.0

0	37.274	38.277
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4	38.04	37.972
3.55	38.067	37.972
0	38.136	38.079
3.55	38.111	37.972
4	38.102	37.832
4.025	38.102	38.082
7.5	38.039	38.182
8	38.03	38.197

CH 60

DATUM RL 25.0

-8.687	29.181	29.271
-8.187	29.13	29.256
4.025	29.101	29.135
4	29.095	29.025
3.55	29.088	29.025
0	29.073	29.132
3.55	29.049	29.025
4	29.045	29.095
4.025	29.045	29.135
7.5	29.021	29.235
8	29.018	29.25
18	29.046	29.35

CH 13.593 KTP

DATUM RL 29.0

-3.55	32.708	33.235
0	32.622	33.242
3.55	32.546	33.235
4	32.536	33.195
4.025	32.536	33.245
8.5	32.441	33.475
8.8	32.434	33.463

CH 9.789 KTP

DATUM RL 27.0

-7.8	31.599	33.025
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4.025	31.537	32.916
4	31.536	32.766
3.55	31.517	32.806
0	31.367	32.912
3.55	31.218	32.806
4	31.188	32.706
4.025	31.188	32.916
7.5	31.016	33.016
7.8	31	33.025

CH 30 FUTURE

DATUM RL 38.0

DESIGN SURFACE LEVEL	42.518	42.373
WAE	42.503	42.358
EXISTING SURFACE LEVEL	41.655	41.795
OFFSET	41.665	41.809

CH 13.346 KTP

DATUM RL 35.0

0	39.274	39.274
3.5	39.179	39.179
4.025	39.689	39.586
4	39.439	39.479
3.55	39.467	39.479
0	39.088	39.586
3.55	39.109	39.479
4	39.109	39.439
4.025	39.109	39.589
7.5	39.112	39.689
8	39.116	39.704

CH 45

DATUM RL 26.0

DESIGN SURFACE LEVEL	29.221	29.114
WAE	29.103	29.074
EXISTING SURFACE LEVEL	29.079	29.074
OFFSET	29.073	29.224

CH 9.245 KTP

DATUM RL 29.0

DESIGN SURFACE LEVEL	33.425	33.532
WAE	33.425	33.425
EXISTING SURFACE LEVEL	32.791	33.385
OFFSET	32.78	33.555

CH 0

DATUM RL 27.0

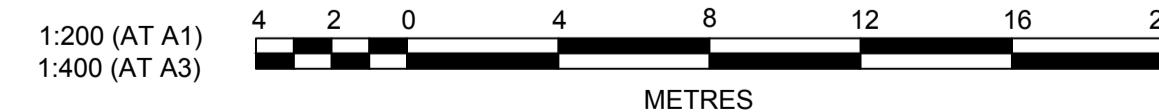
DESIGN SURFACE LEVEL	33.18	33.071
WAE	33.171	33.021
EXISTING SURFACE LEVEL	31.092	30.922
OFFSET	31.076	30.811

CH 23.903 KTP & L.O.C

CROSS SECTIONS ROAD 27

CROSS SECTIONS ROAD 28

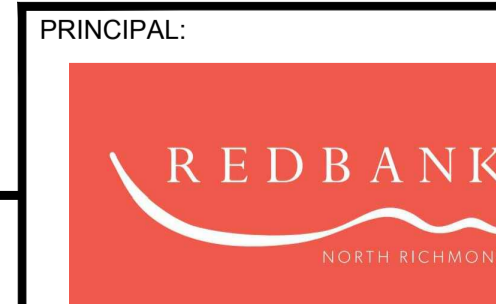
CROSS SECTIONS ROAD 29



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

CROSS SECTIONS  
 SHEET 14 OF 19

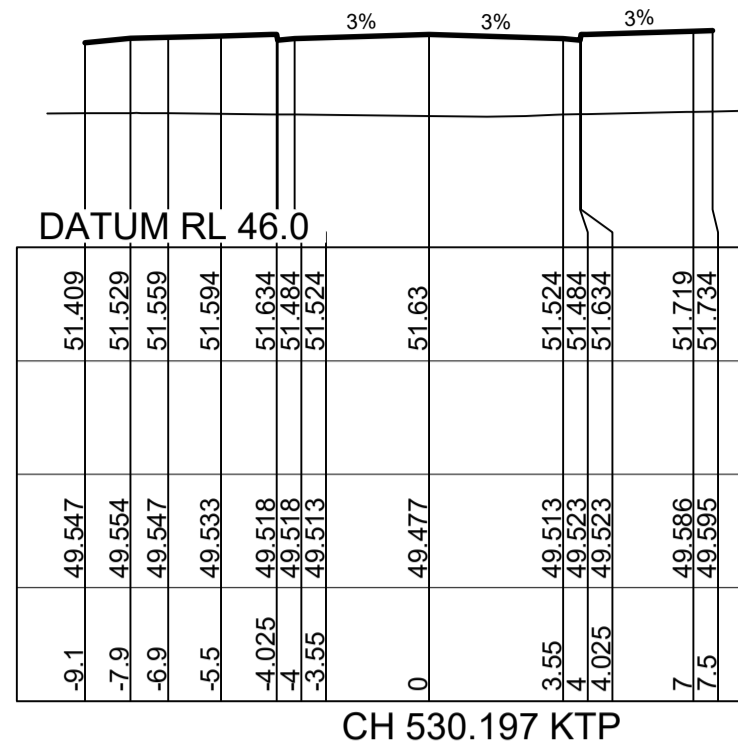
PLAN No: 11018511/CC074 B

FILE No: 11018511CC074

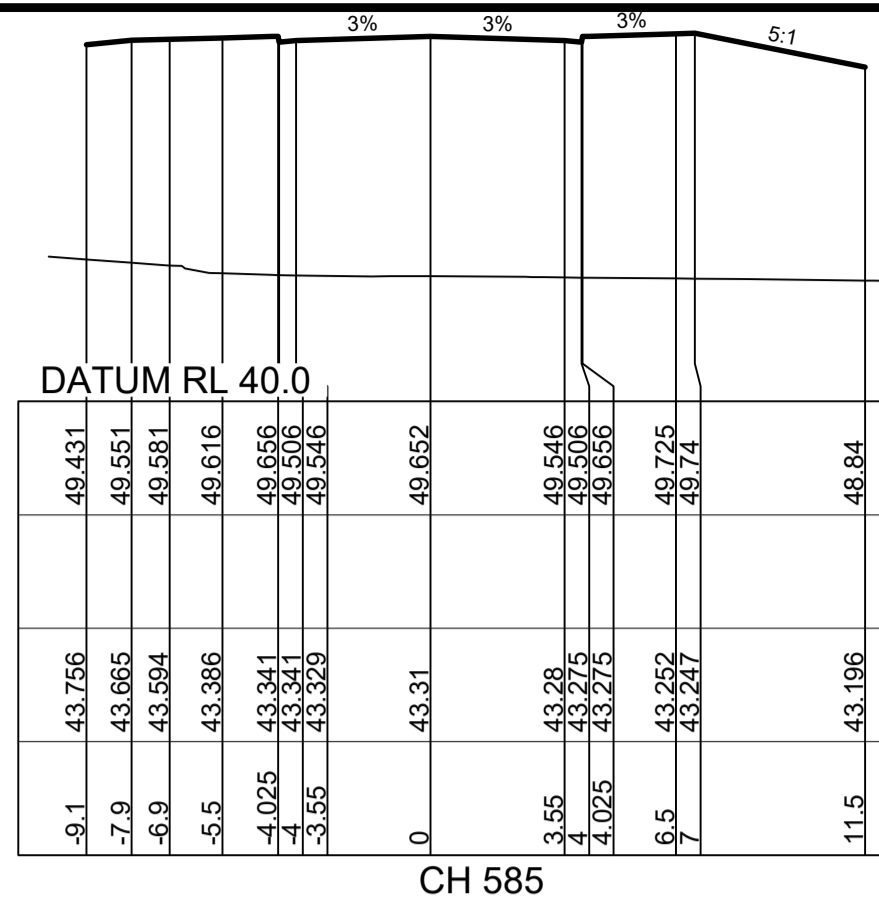
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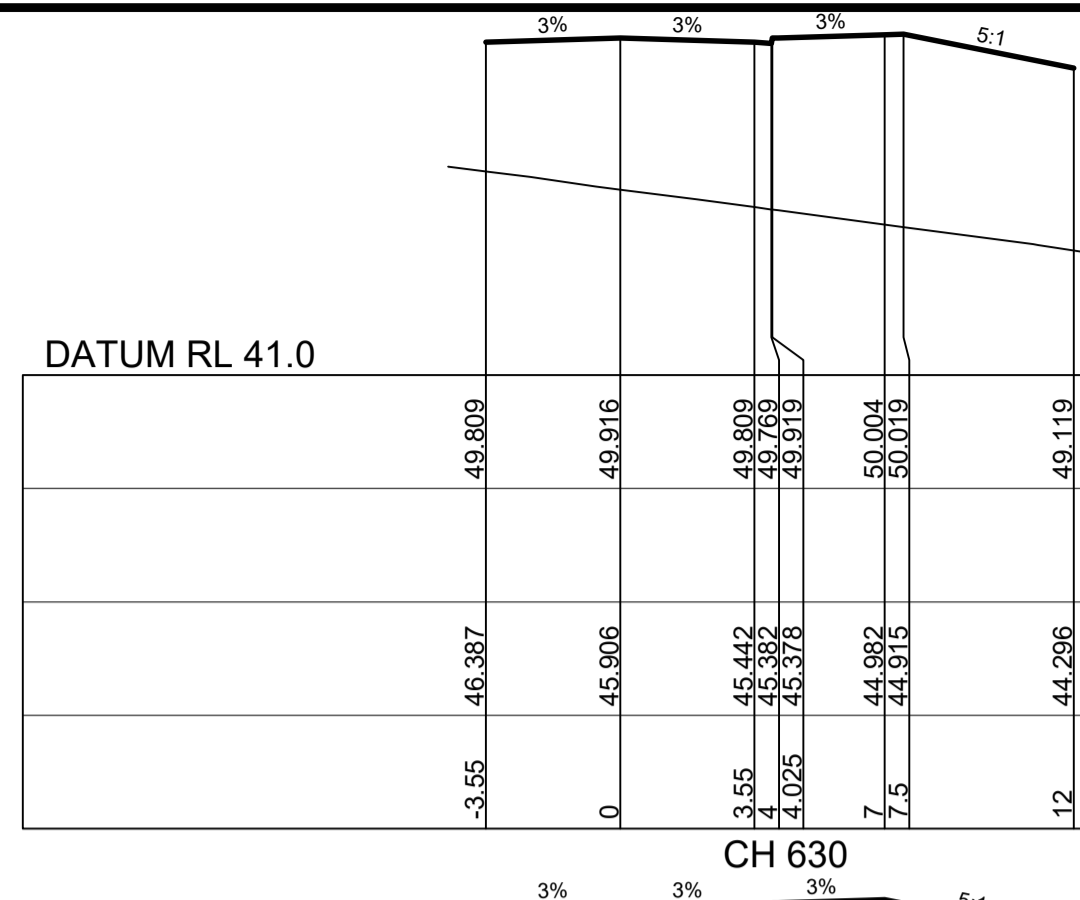
**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C.42 .....  
 Date of Issue 5 March 2018 .....  
 Issuing Officer *Jerry Prince* .....  
 Accreditation No. BPB0565 .....  
 These plans/specifications form part of the certificate issued 5 March 2018



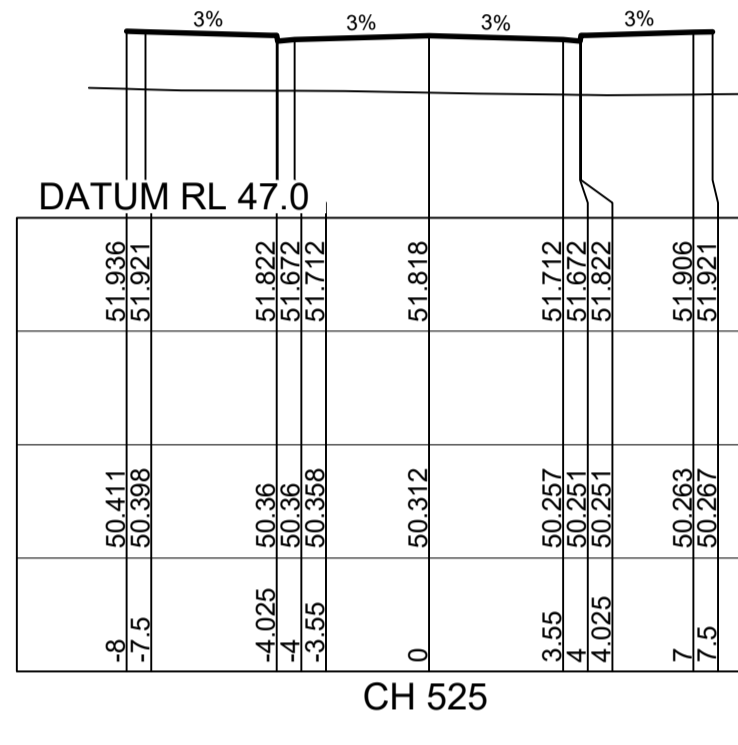
CH 530.197 KTP



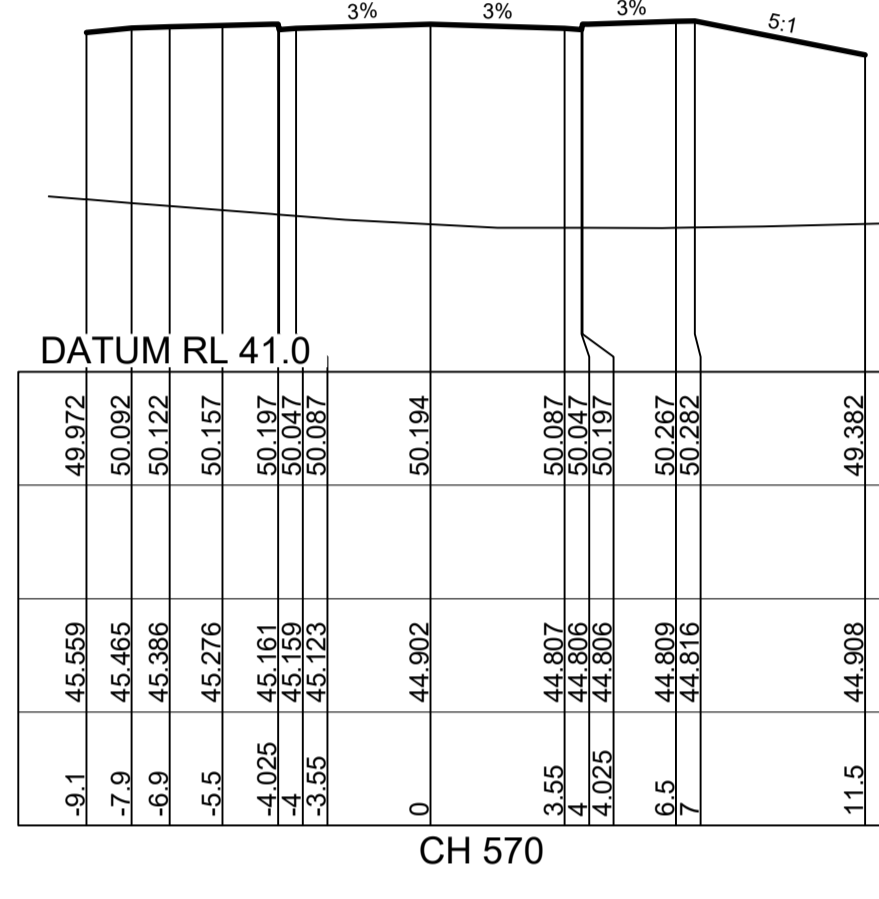
CH 585



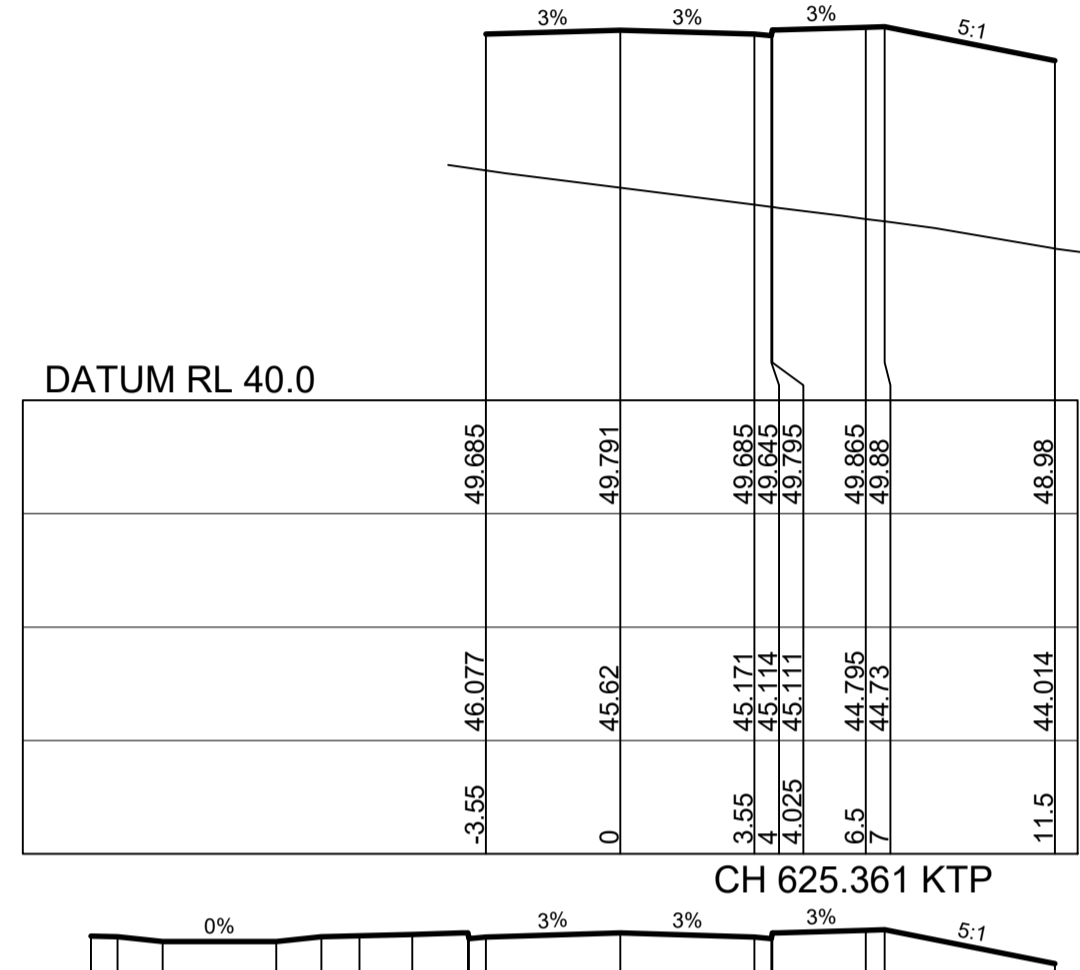
CH 630



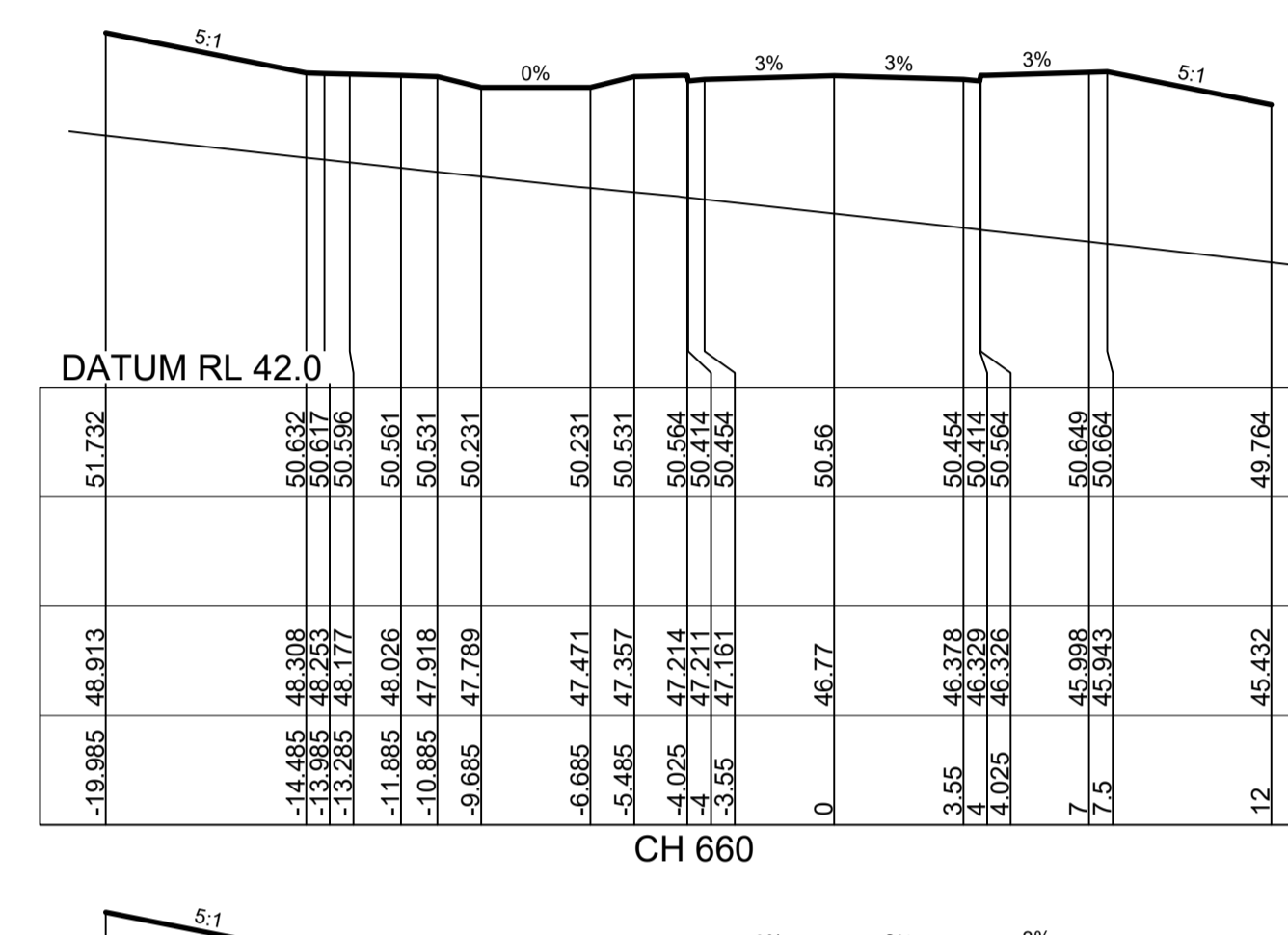
CH 525



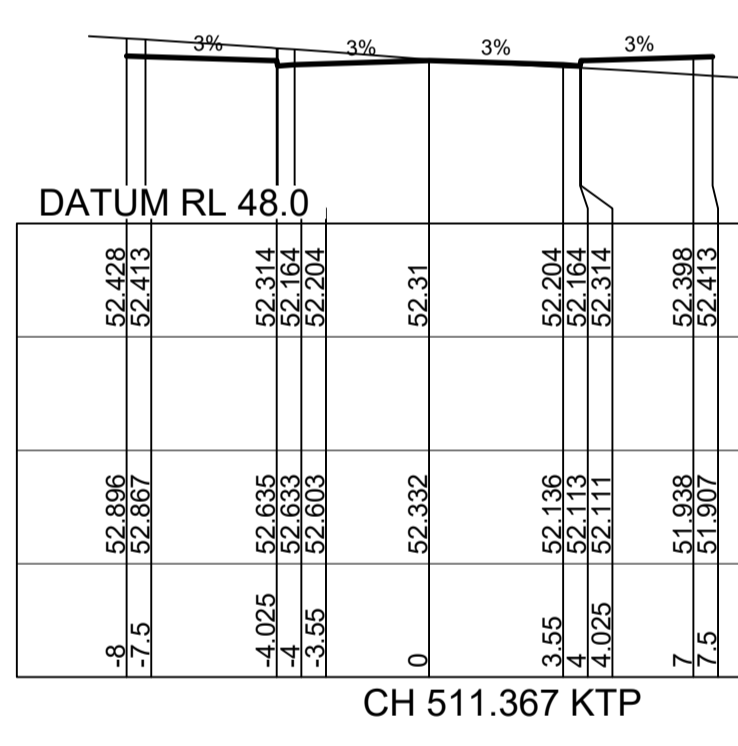
CH 570



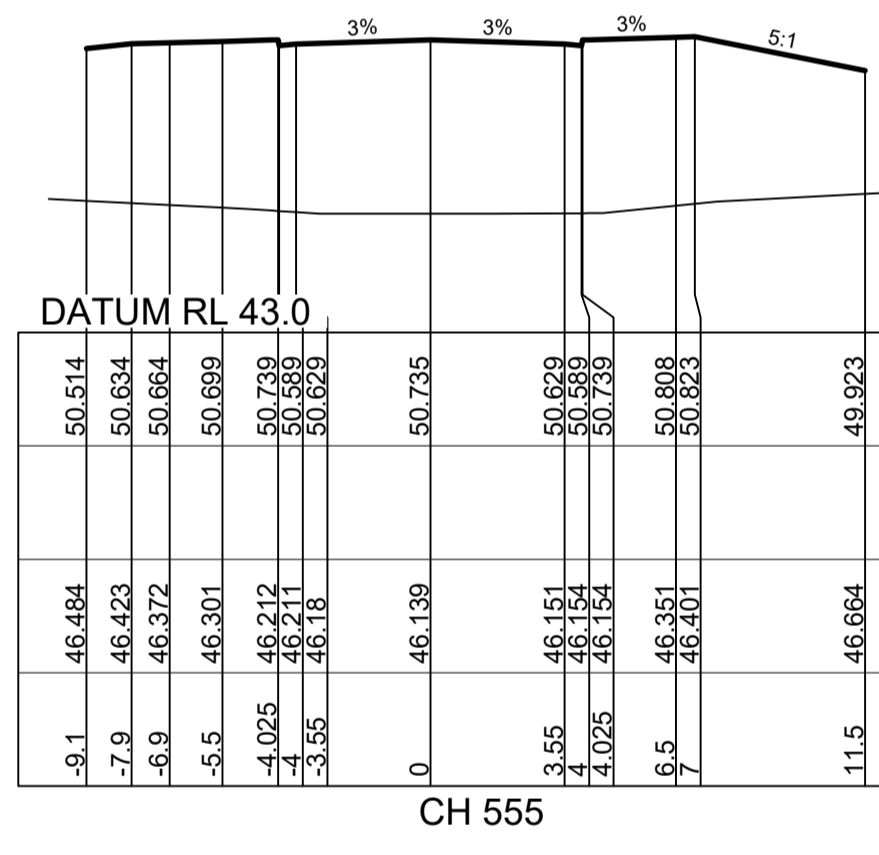
CH 625.361 KTP



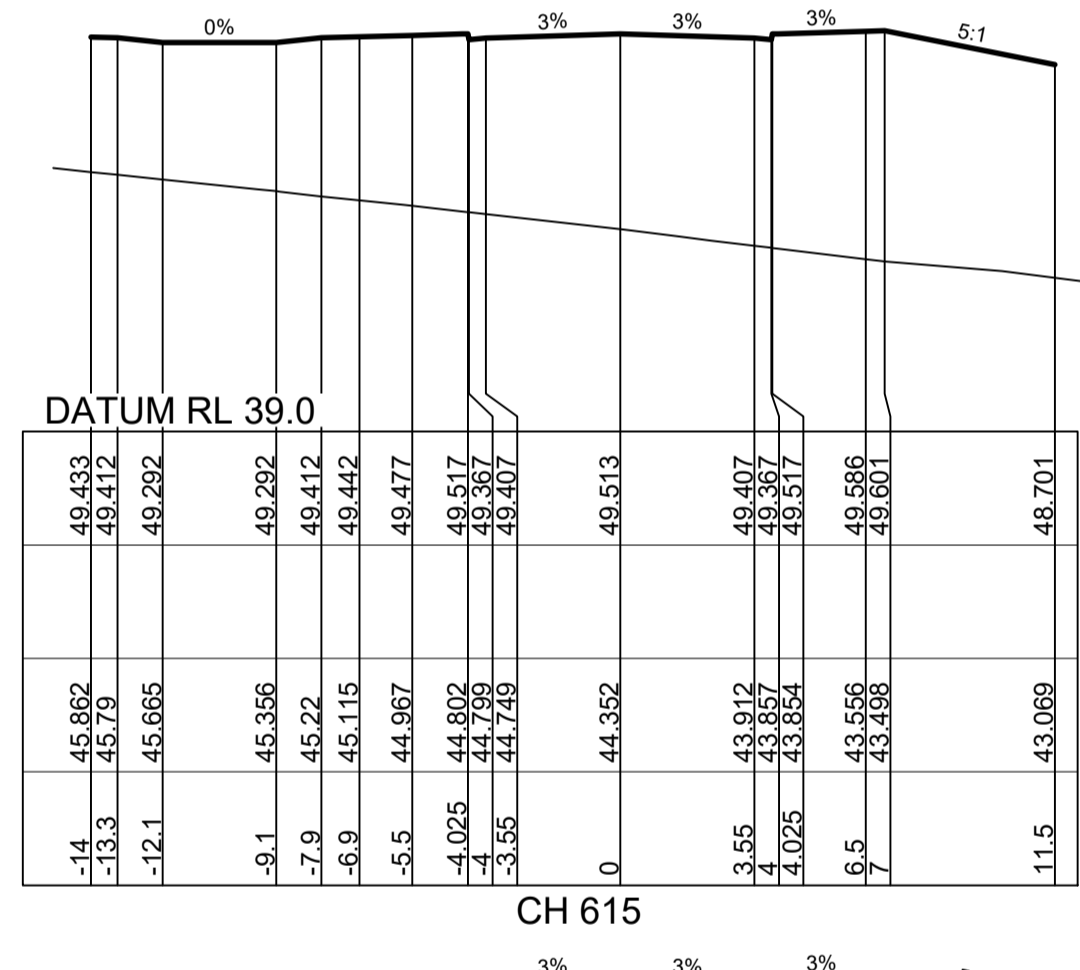
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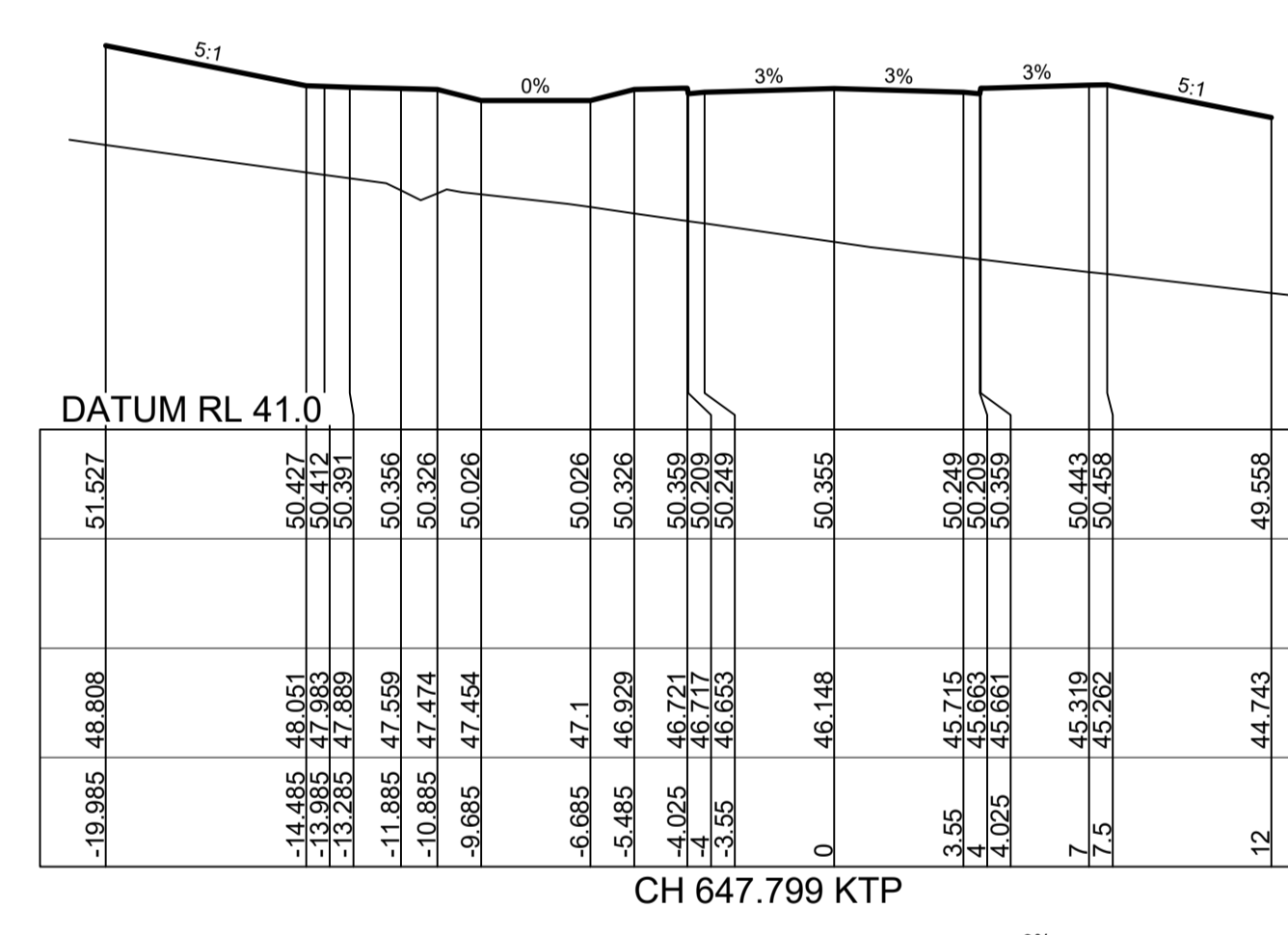
CH 511.367 KTP



CH 555



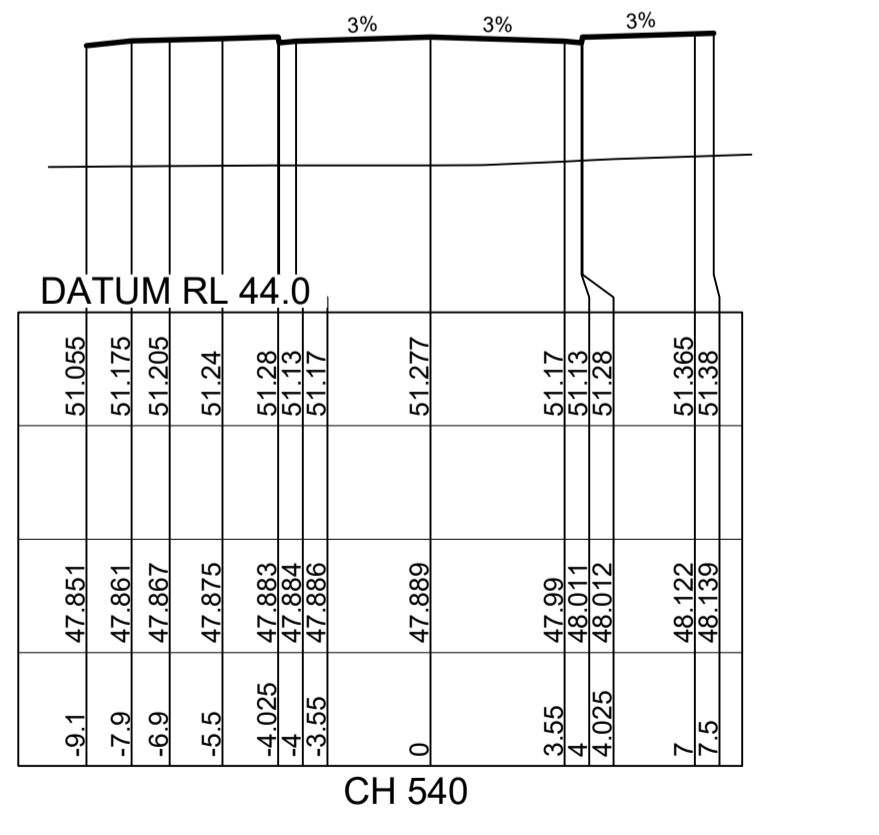
CH 615



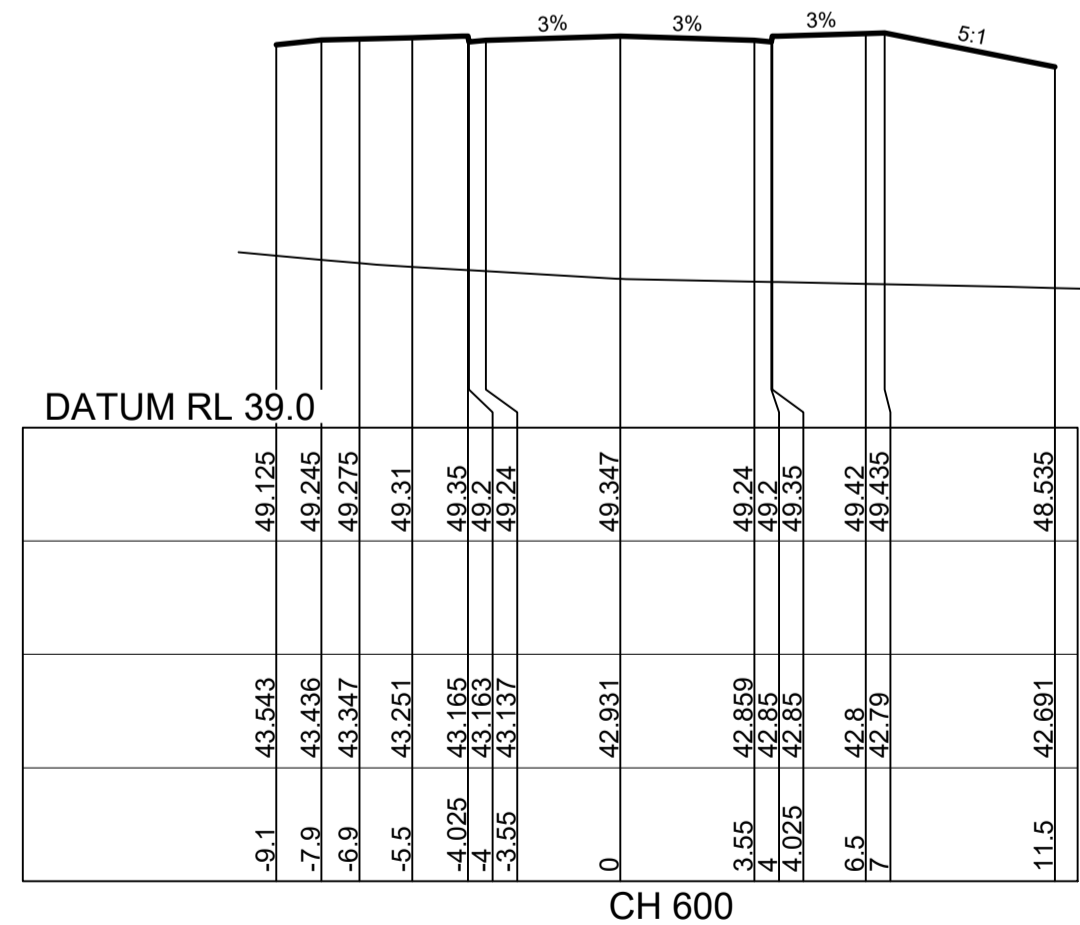
CH 647.799 KTP

DATUM RL 48.0	
DESIGN SURFACE LEVEL	WAE
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52.263	52.263
52.213	52.213
52.363	52.363
52.448	52.448
52.483	52.483

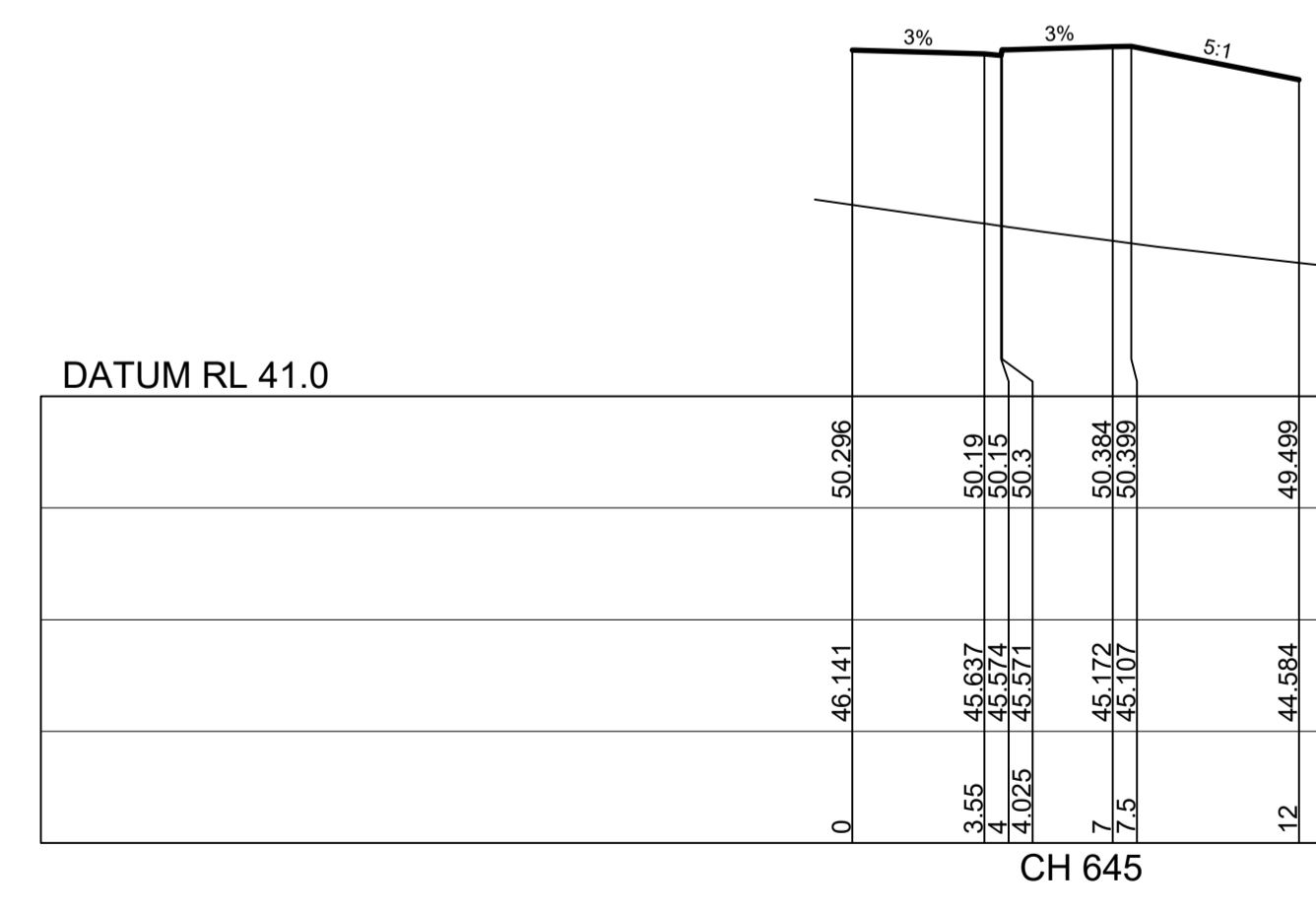
CH 510 L.O.C



CH 540

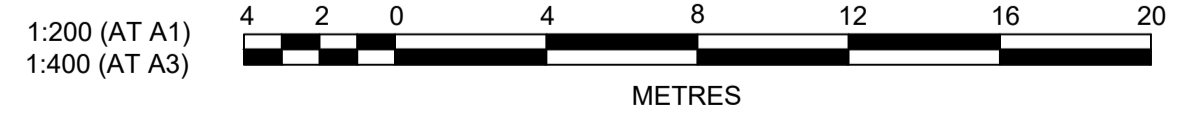


CH 600



CH 645

CROSS SECTIONS ROAD 30



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PRINCIPAL: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:  
  
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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

CROSS SECTIONS  
 SHEET 15 OF 19

PLAN No: 11018511/CC075 A  
 FILE No: 11018511CC075  
 SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



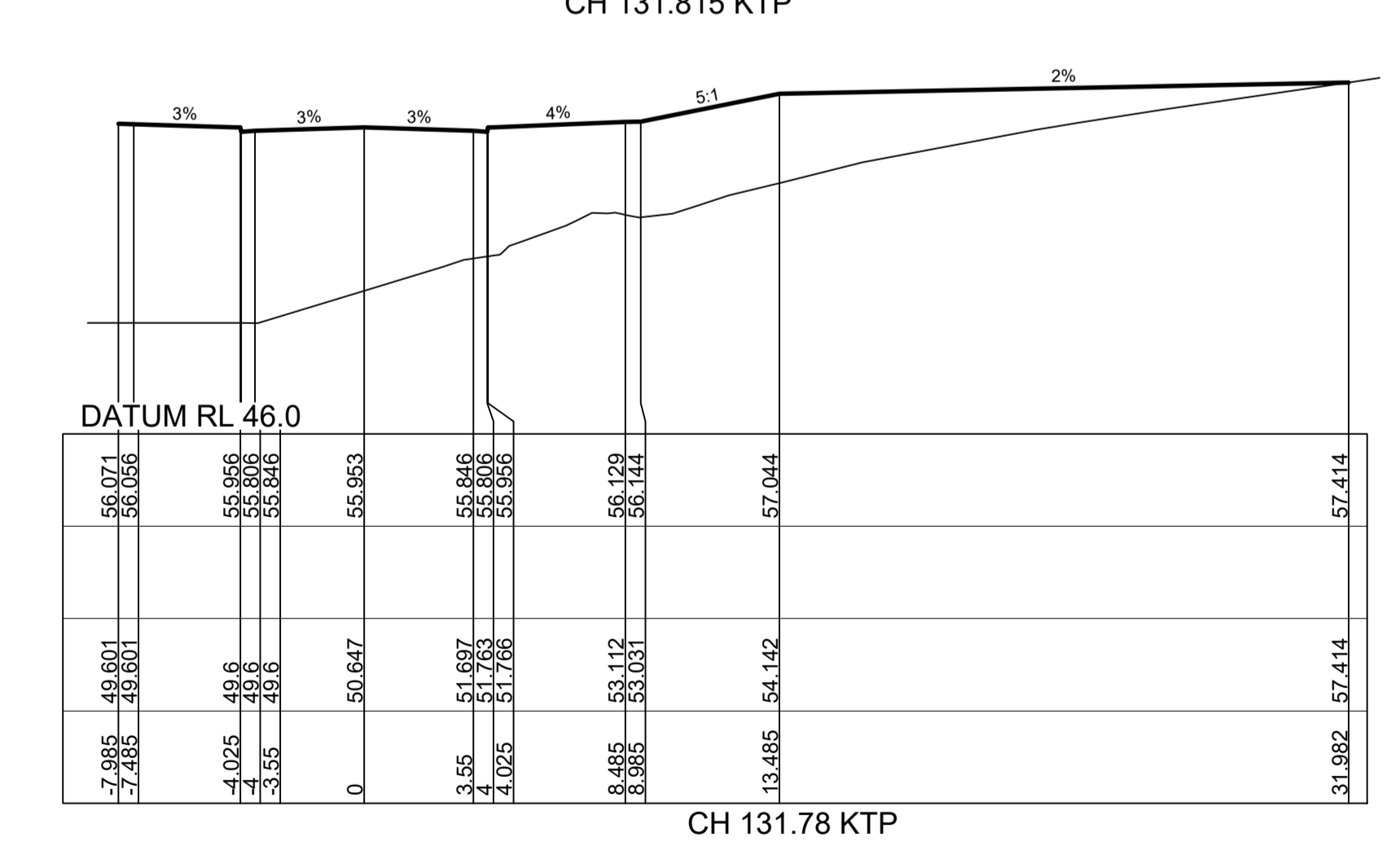
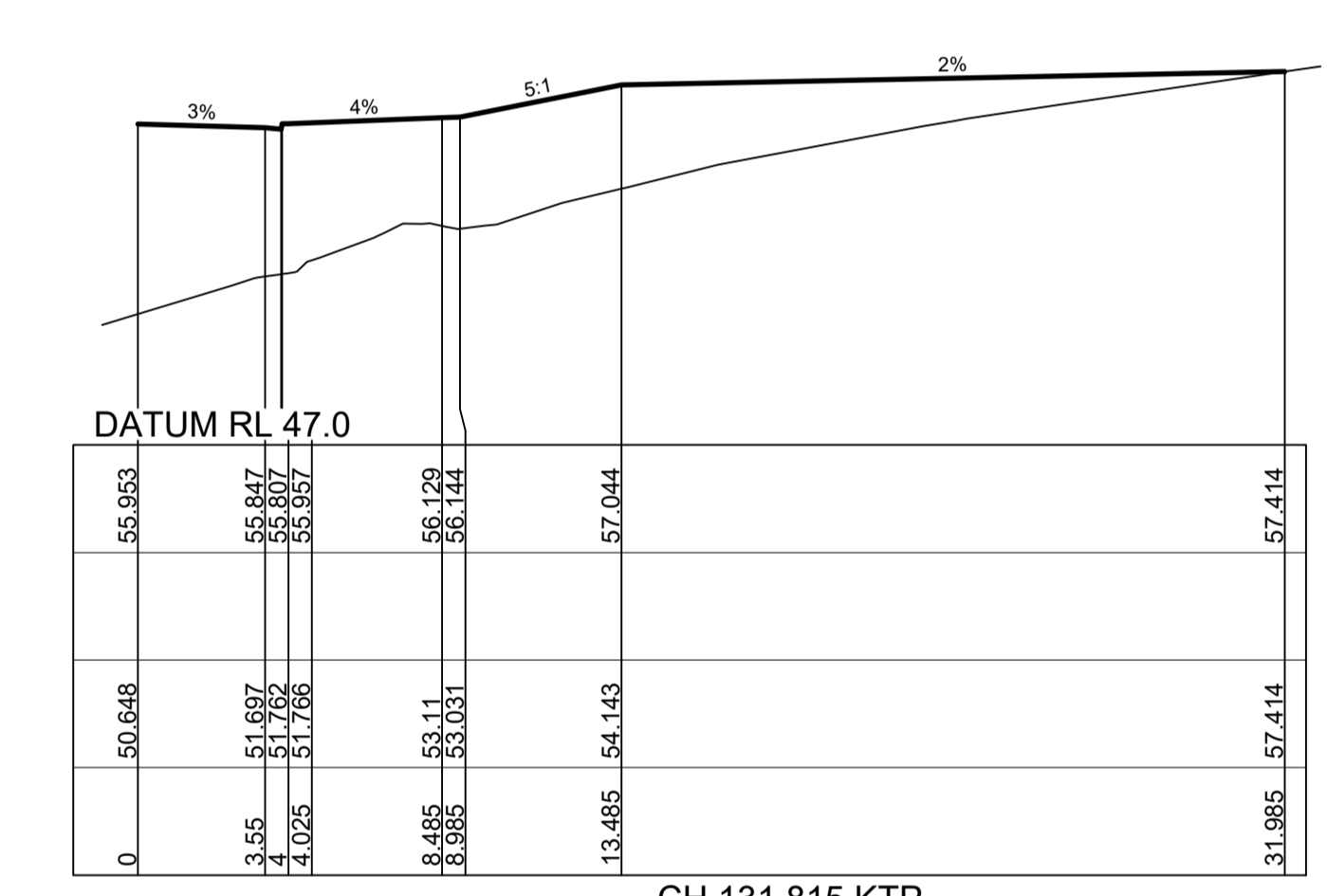
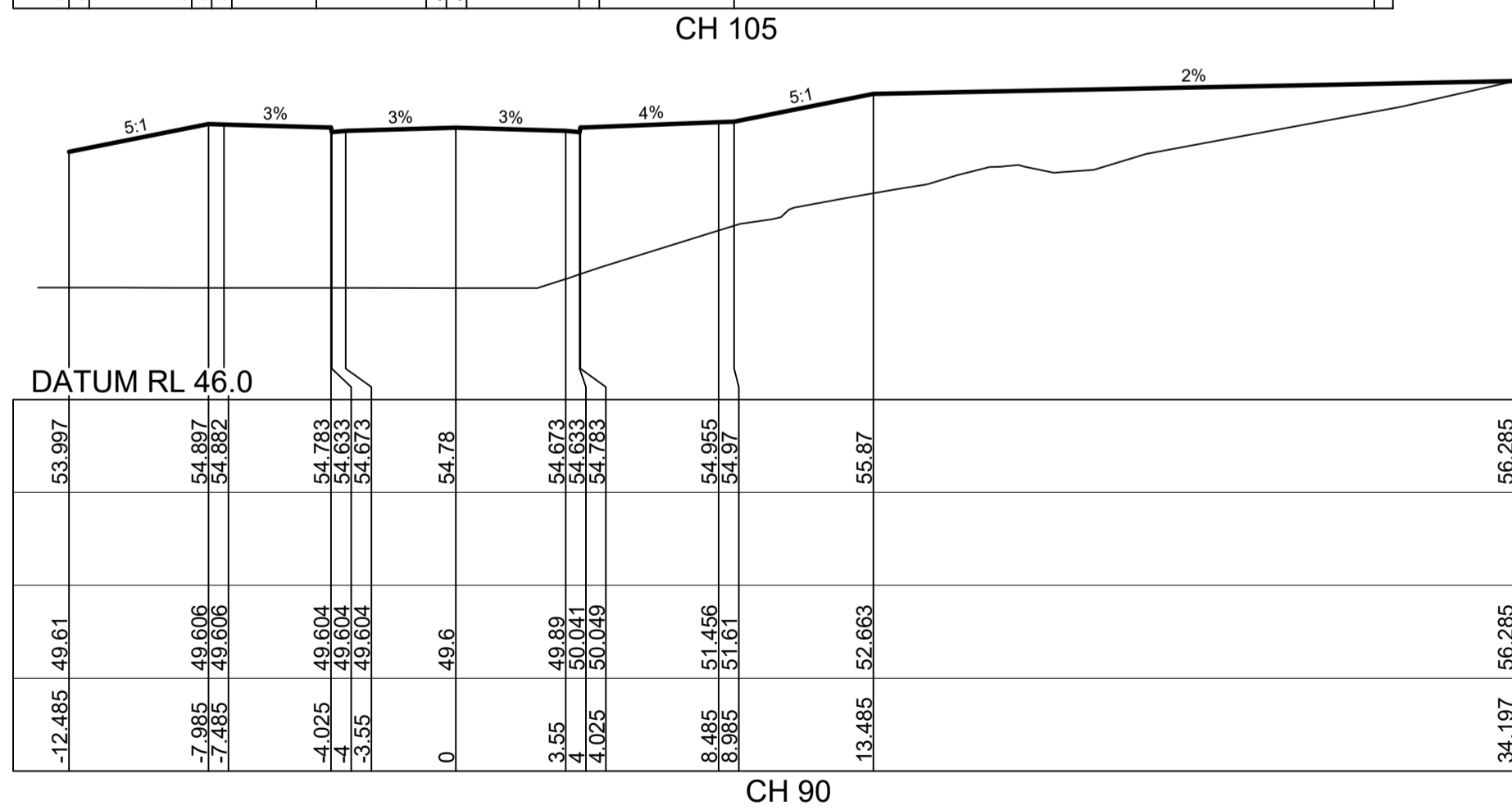
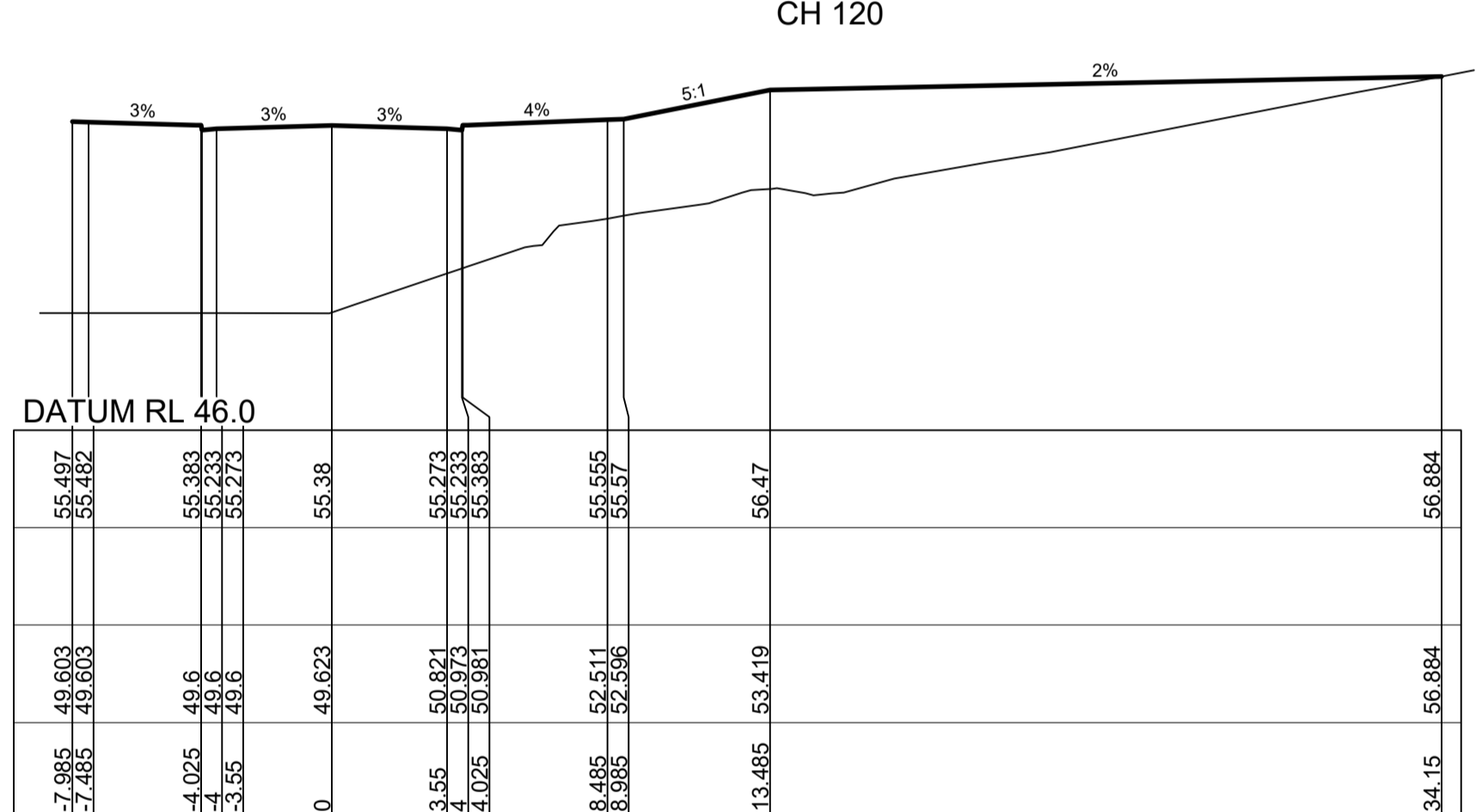
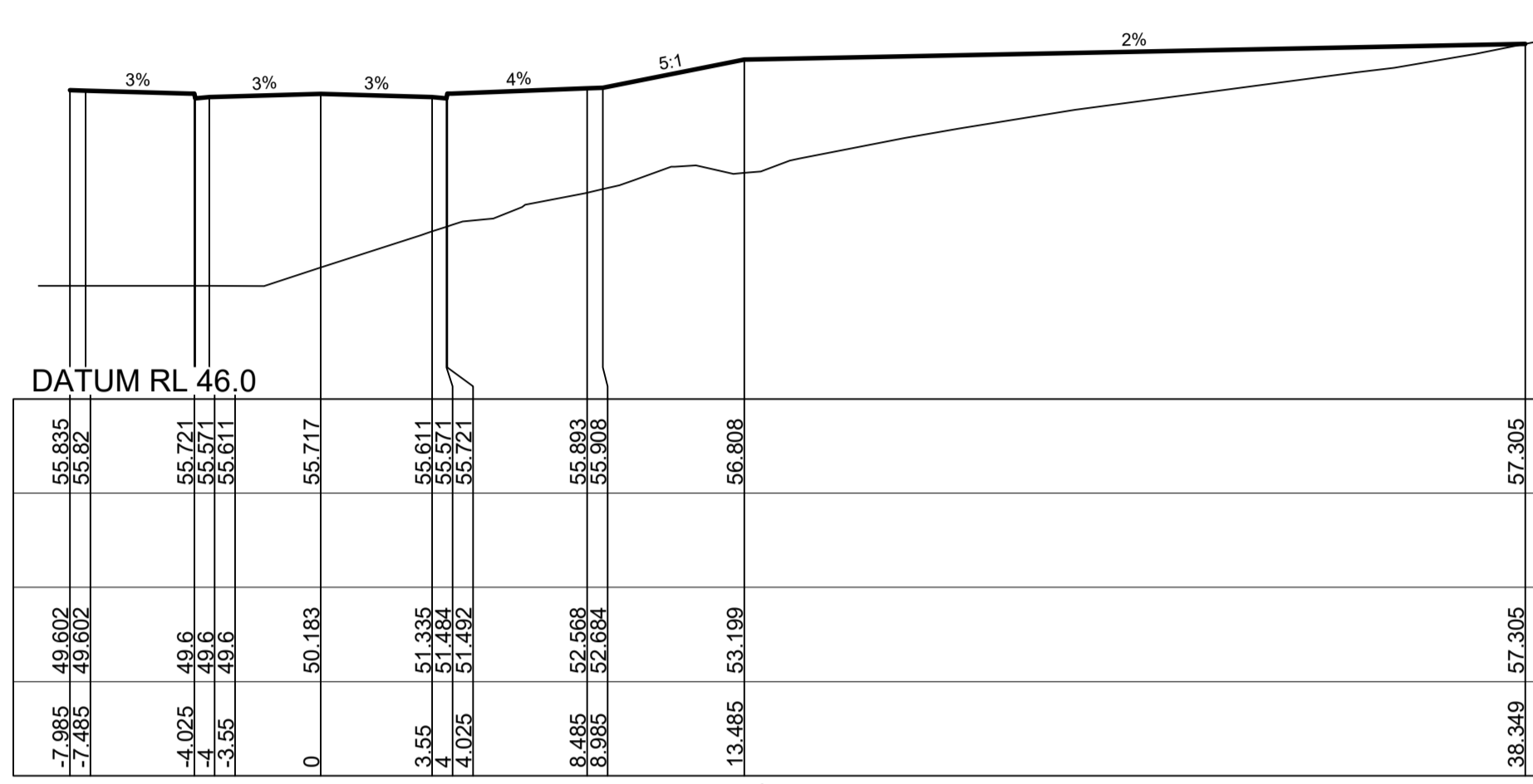
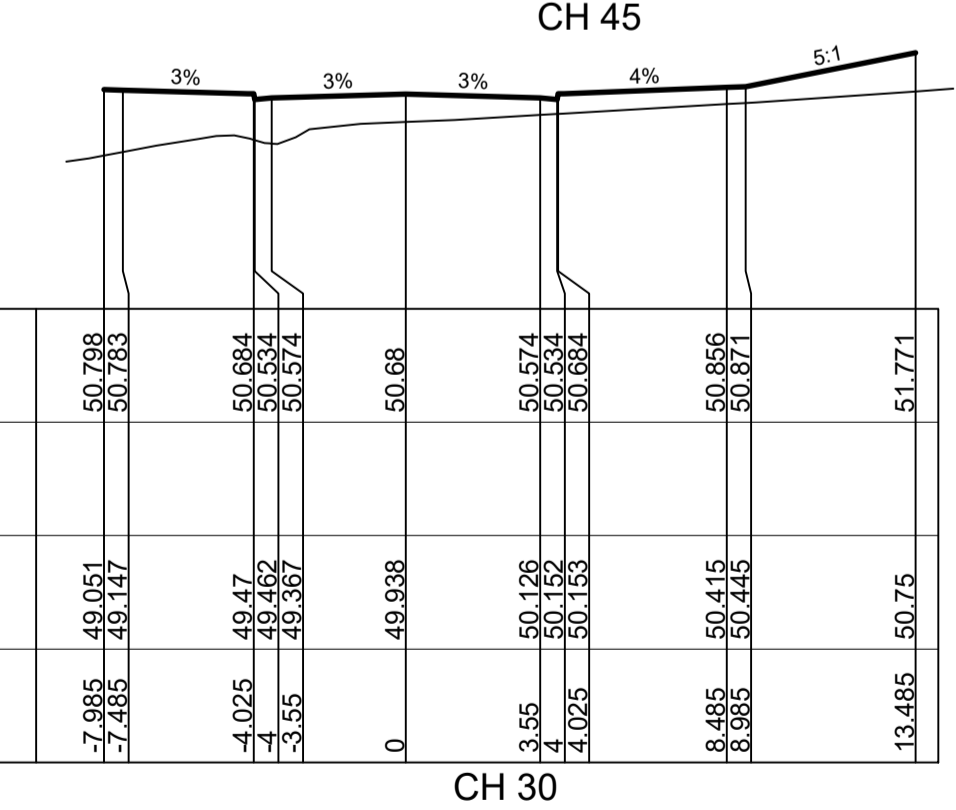
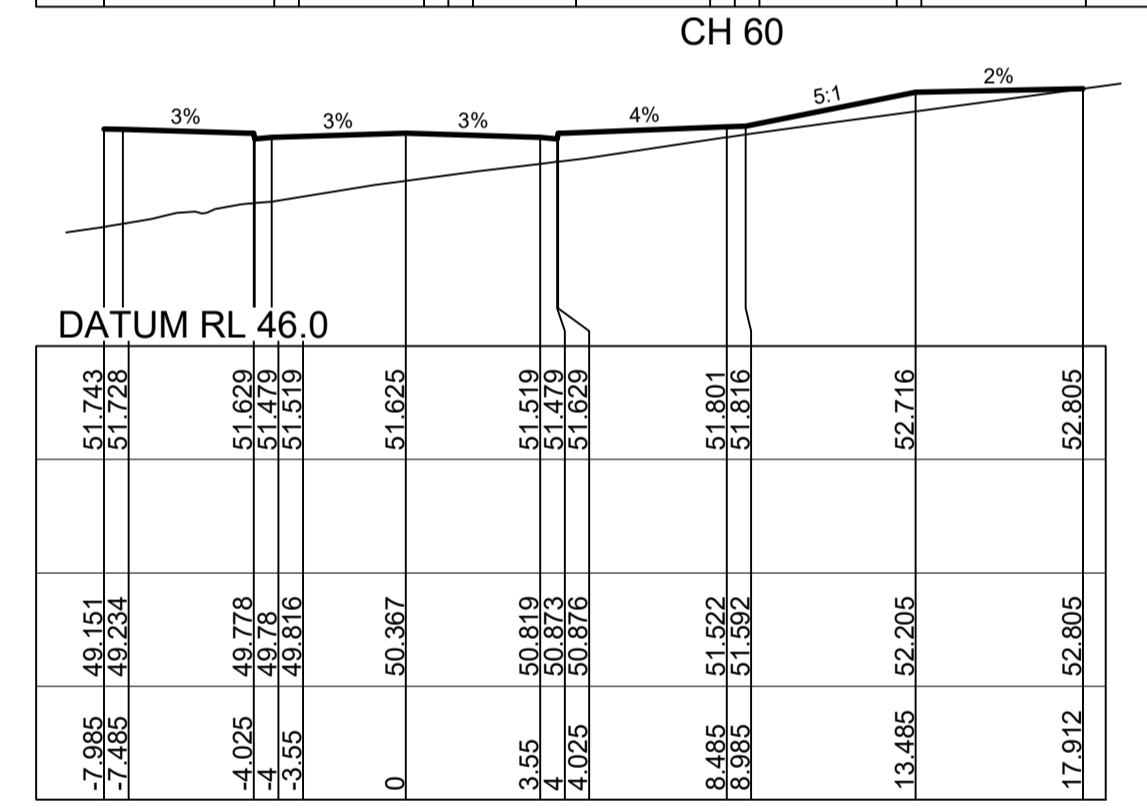
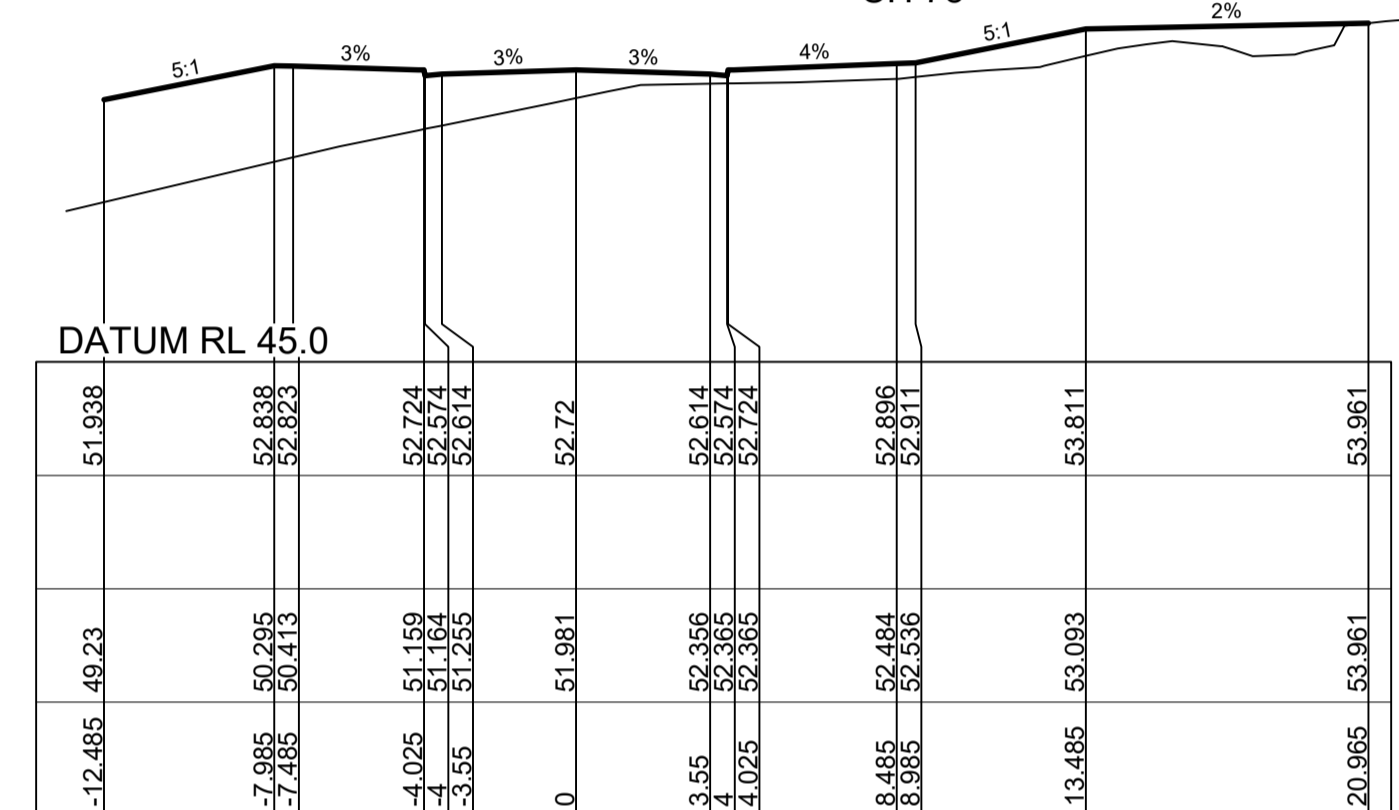
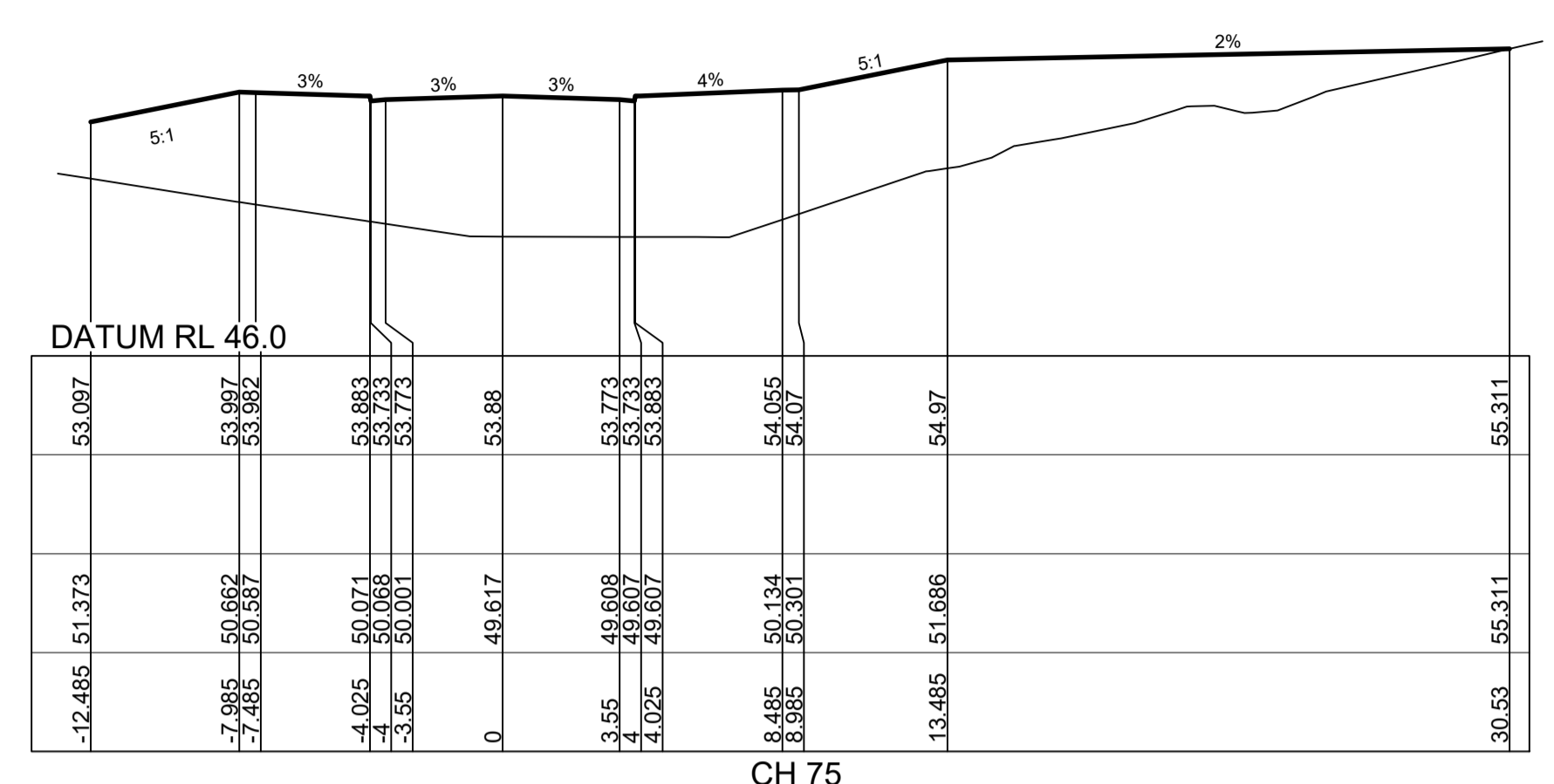




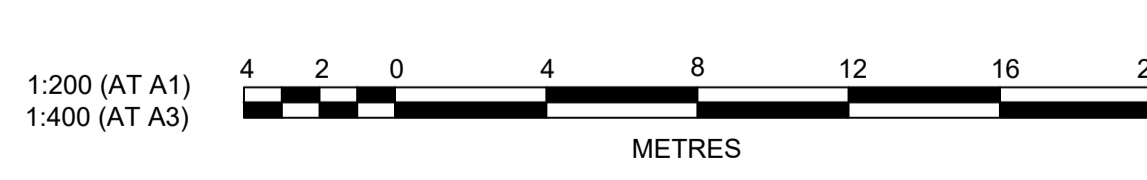
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C.42 .....  
 Date of Issue 5 March 2018 .....  
 Issuing Officer *Joey By* .....  
 Accreditation No. BPB0565 .....

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**CROSS SECTIONS ROAD 32**



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

CROSS SECTIONS  
 SHEET 18 OF 19

PLAN No: 11018511/CC078 **A**  
 FILE No: 11018511CC078  
 SHEET SIZE: A1 ORIGINAL

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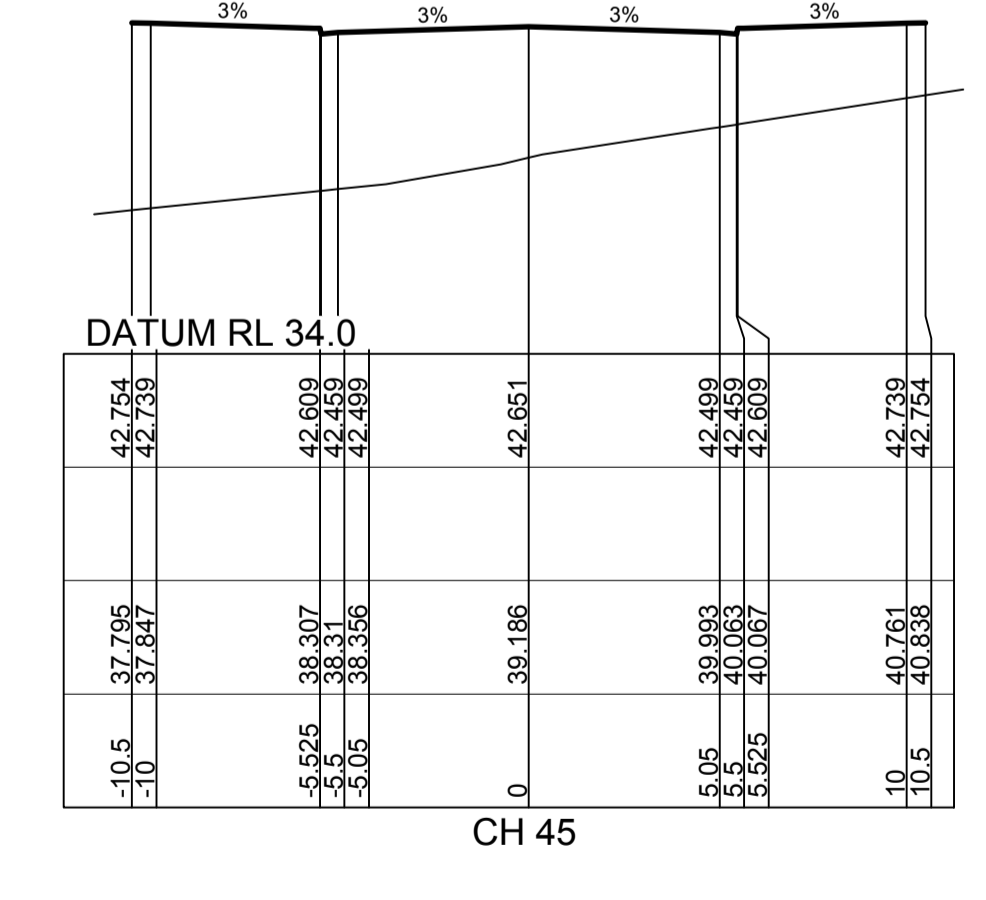
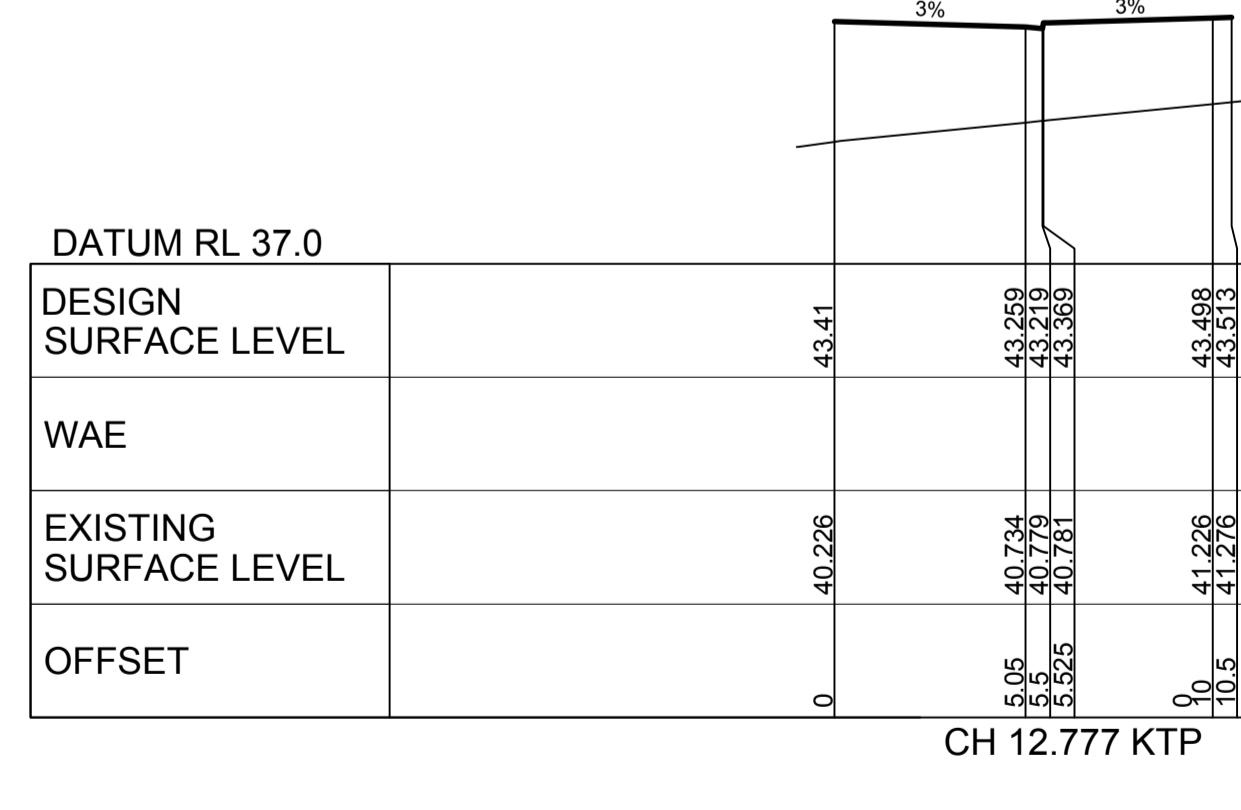
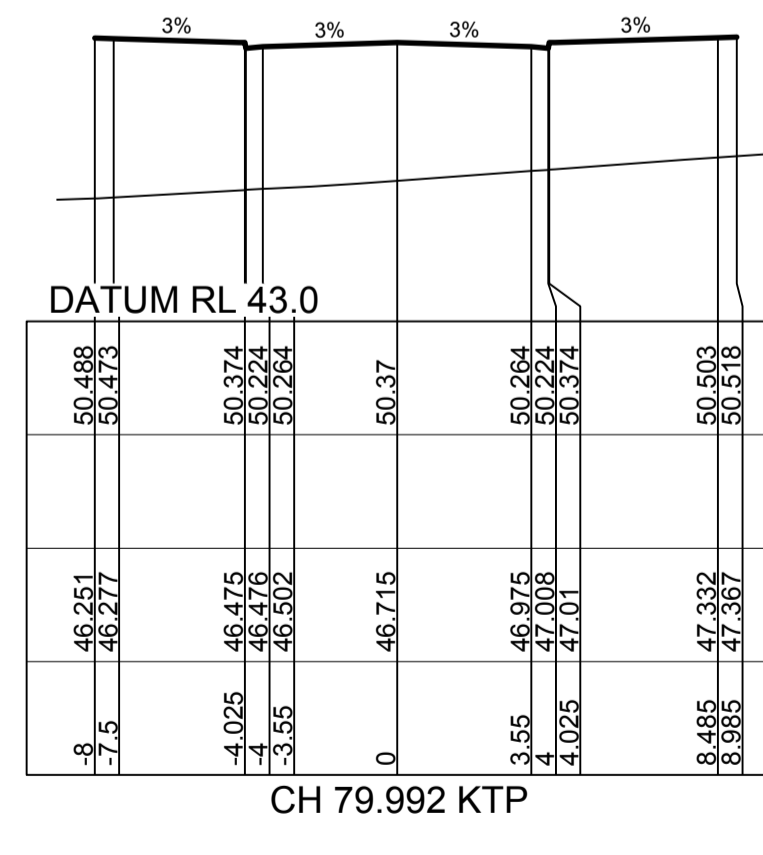
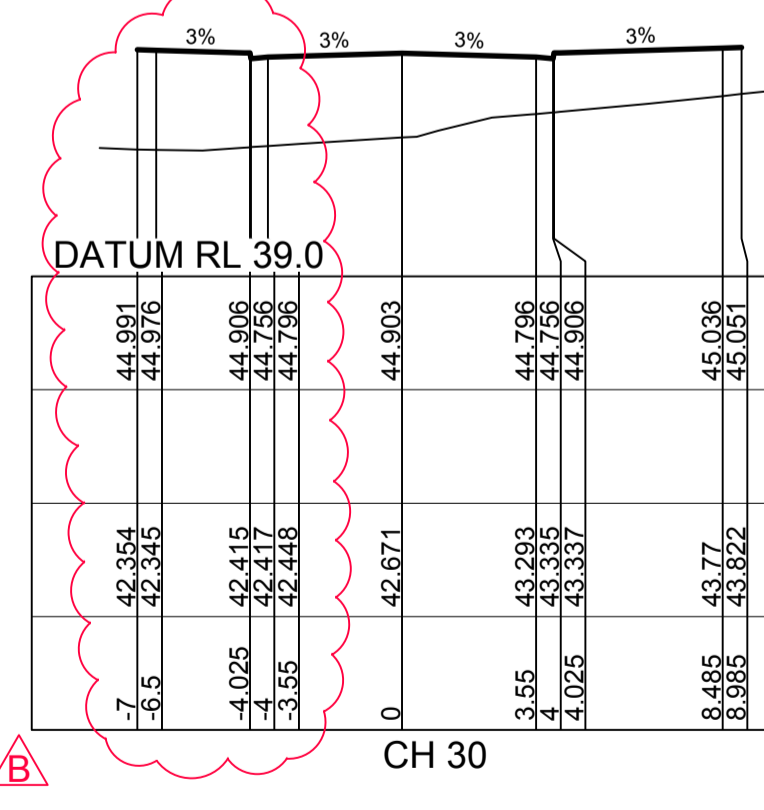
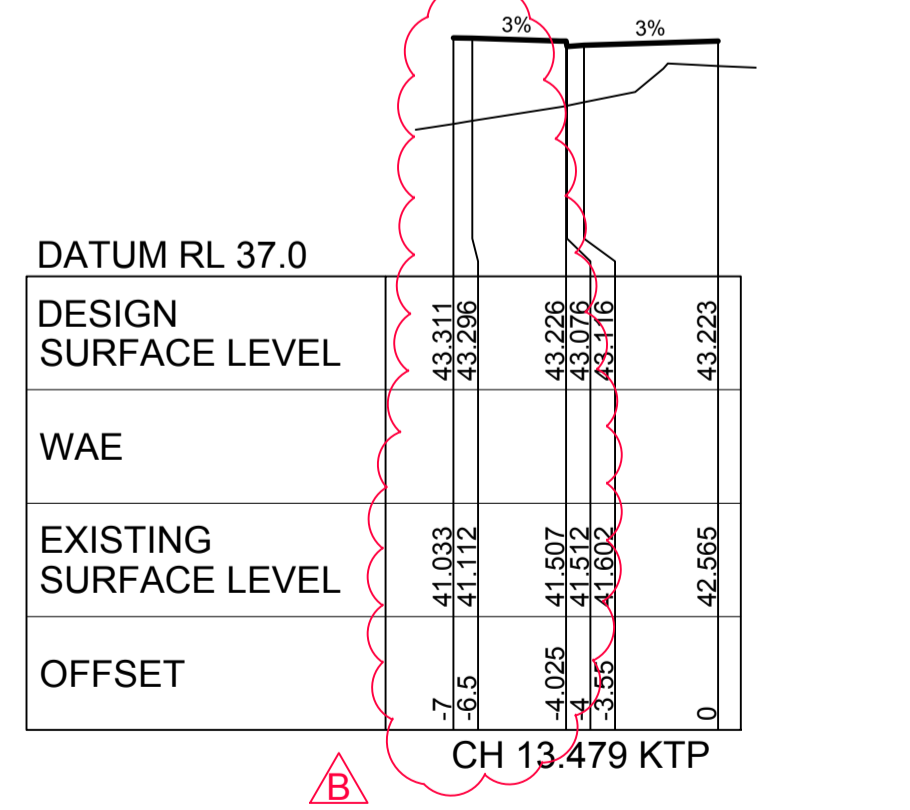
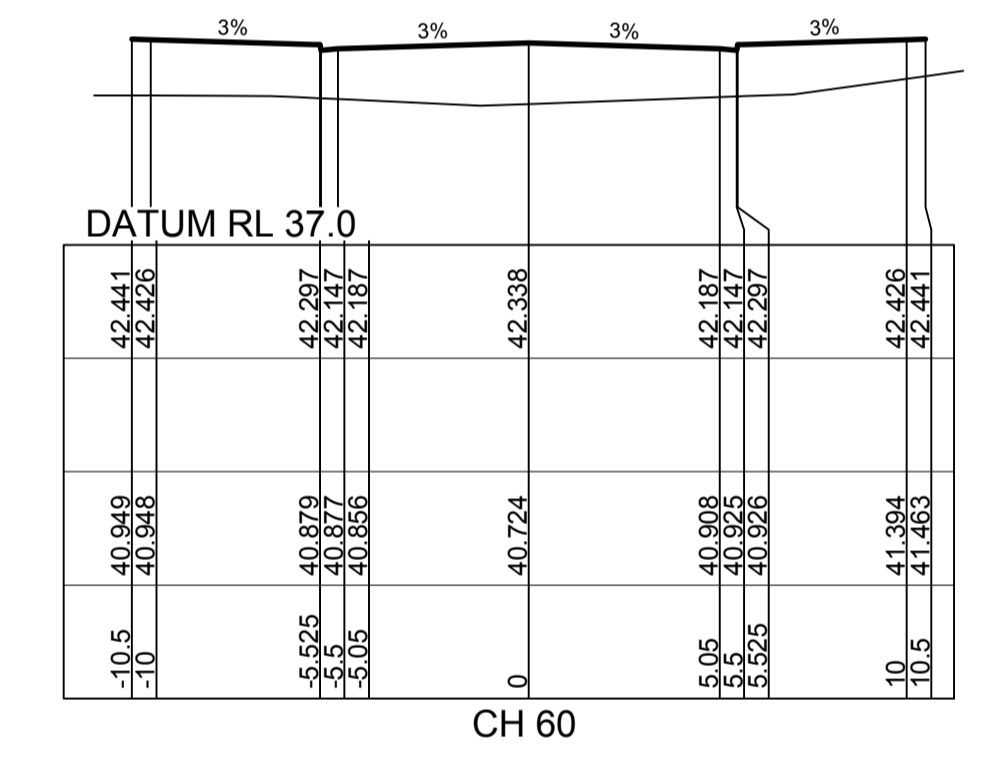
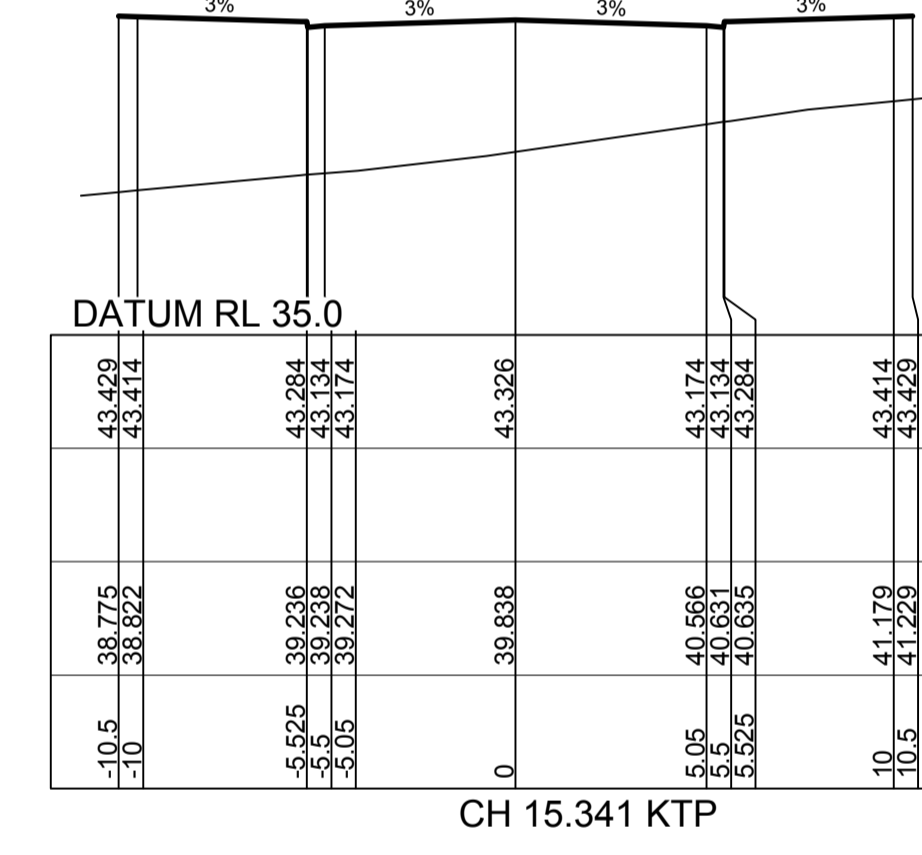
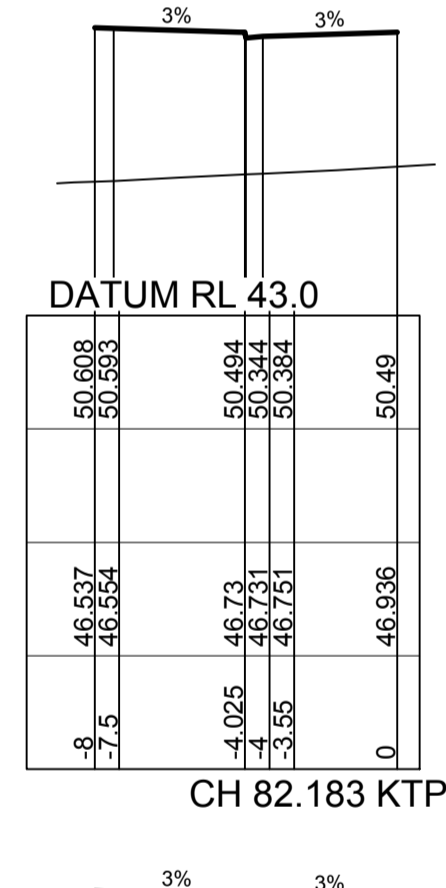
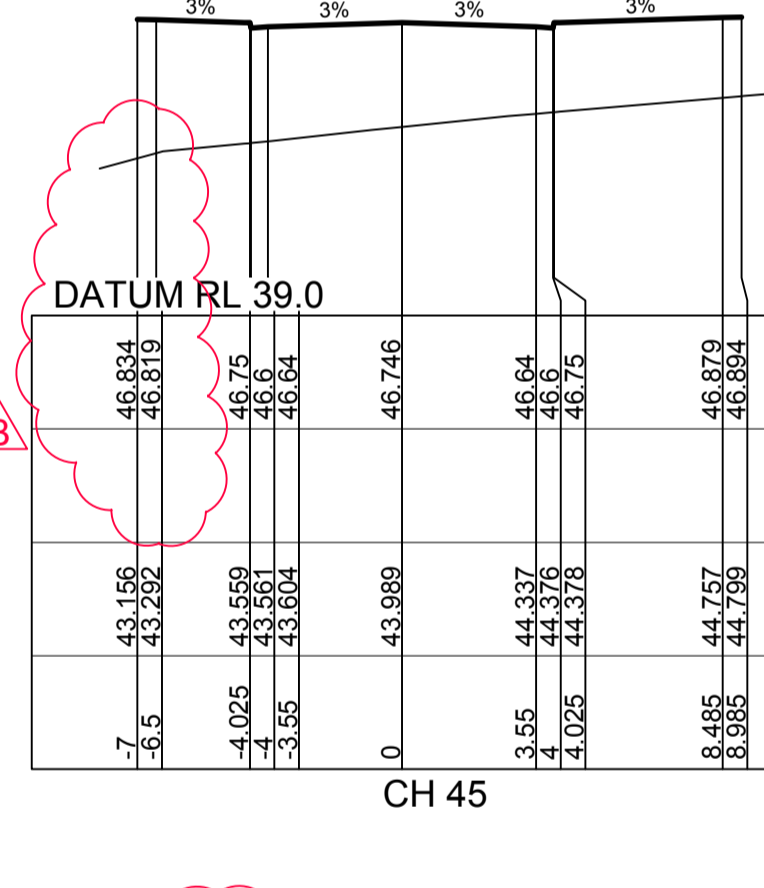
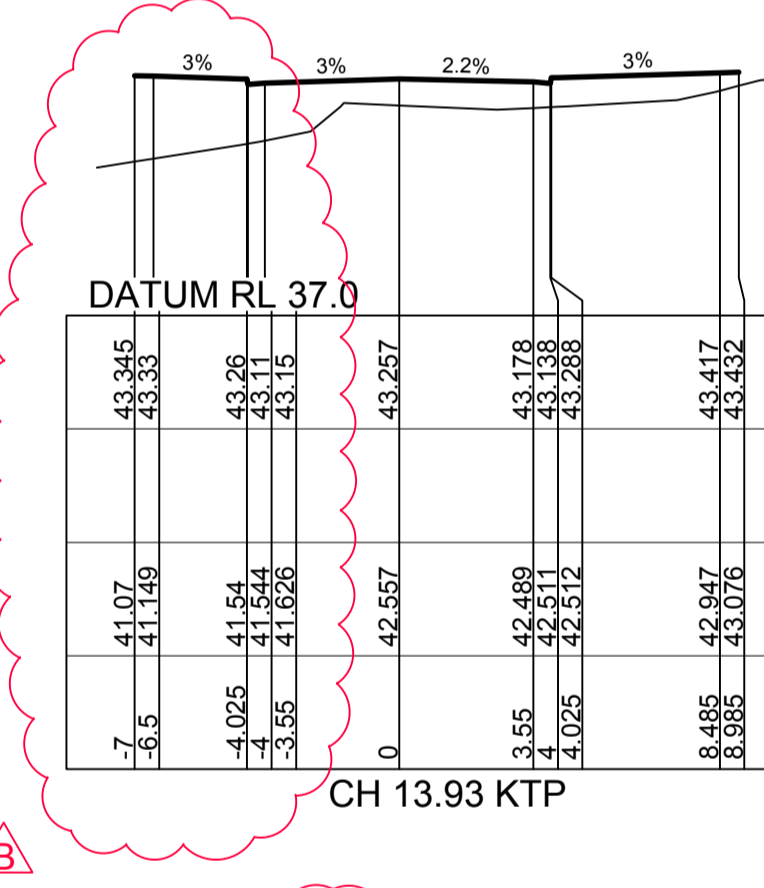
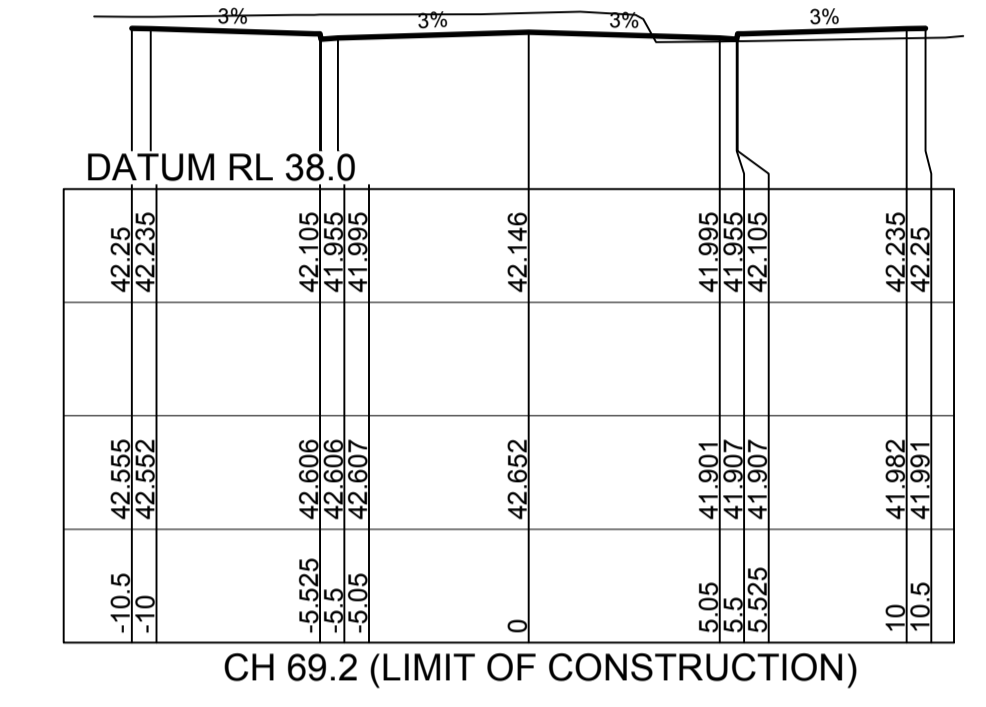
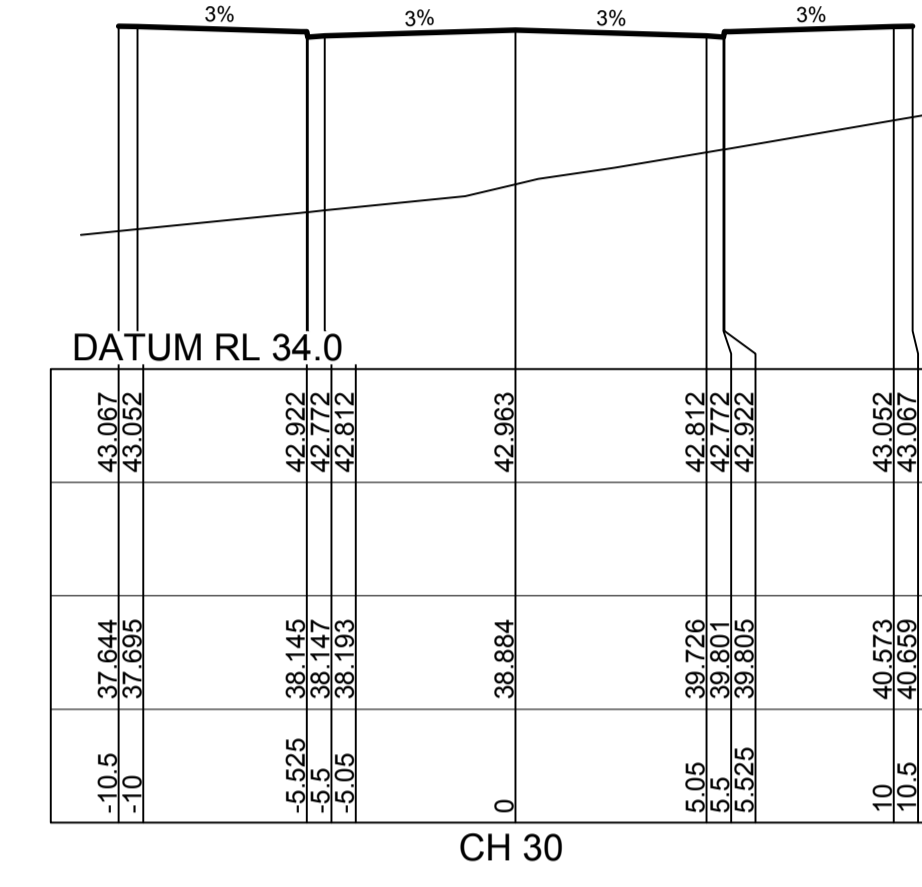
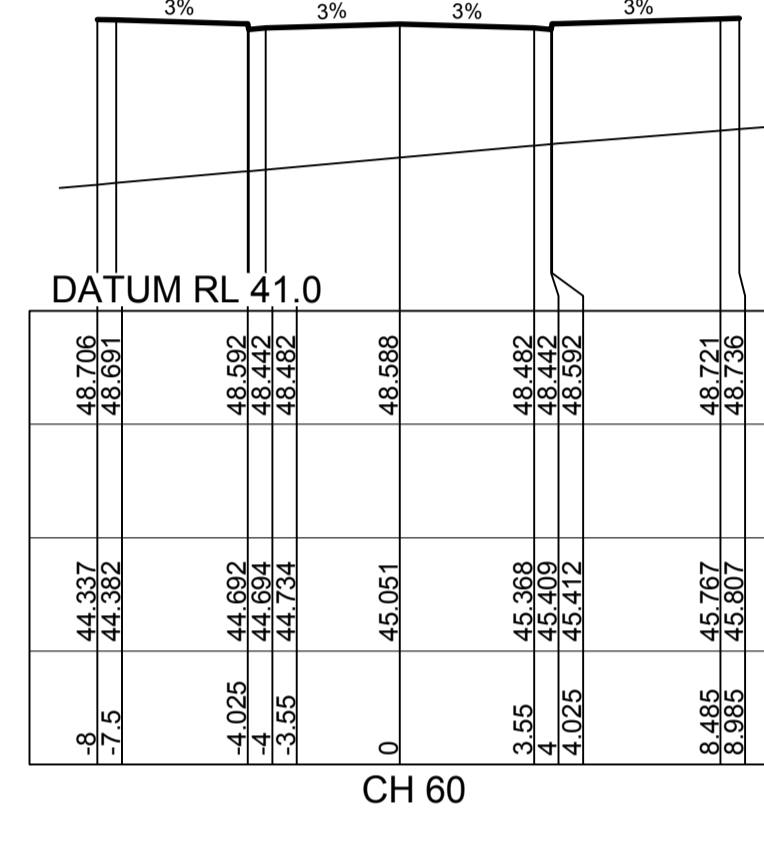
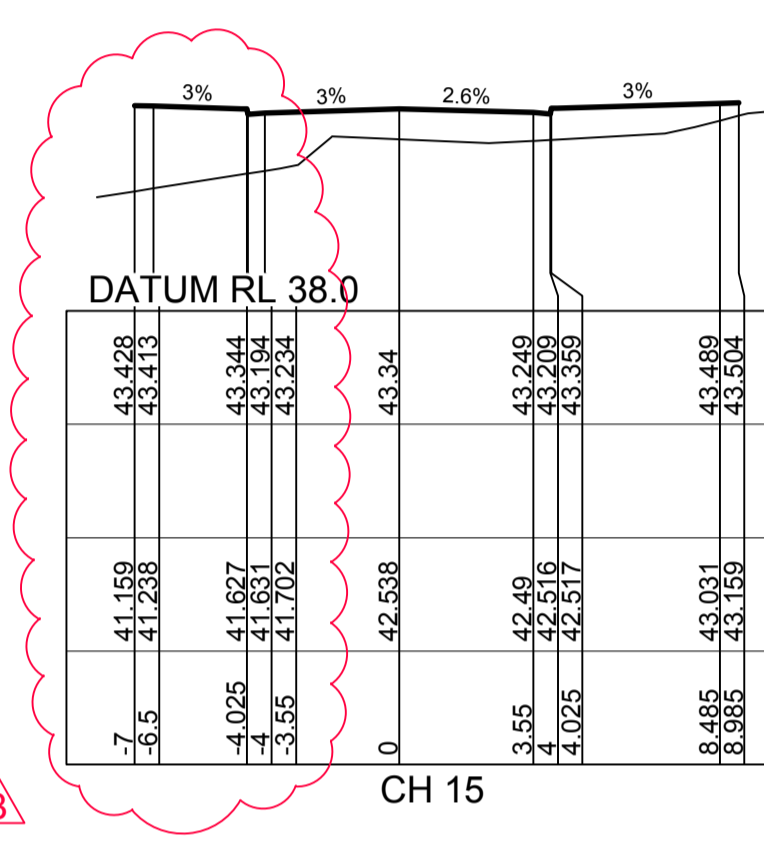
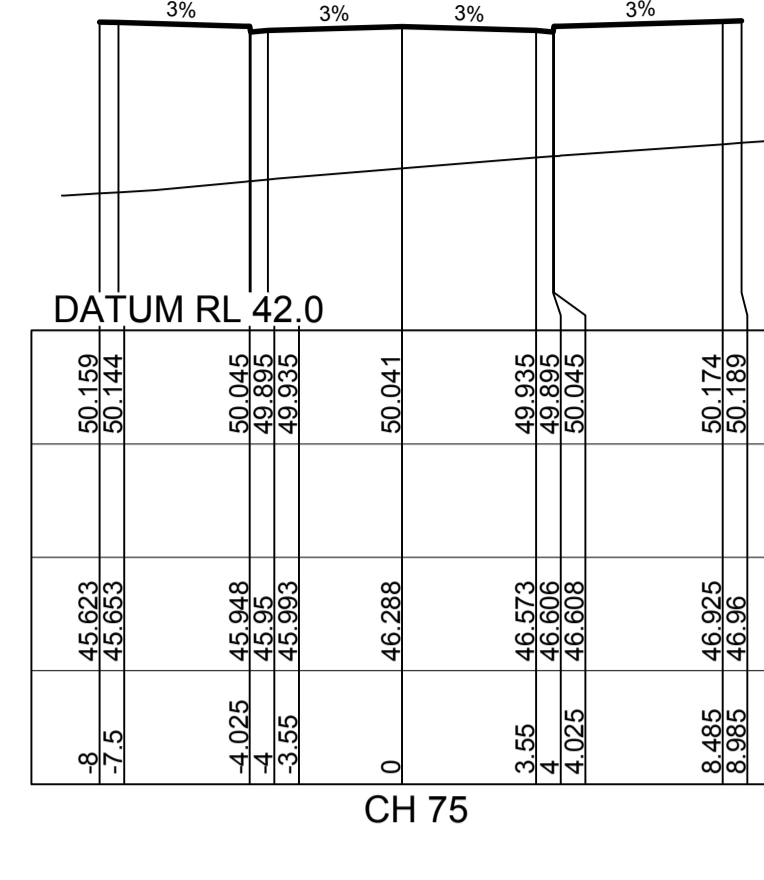
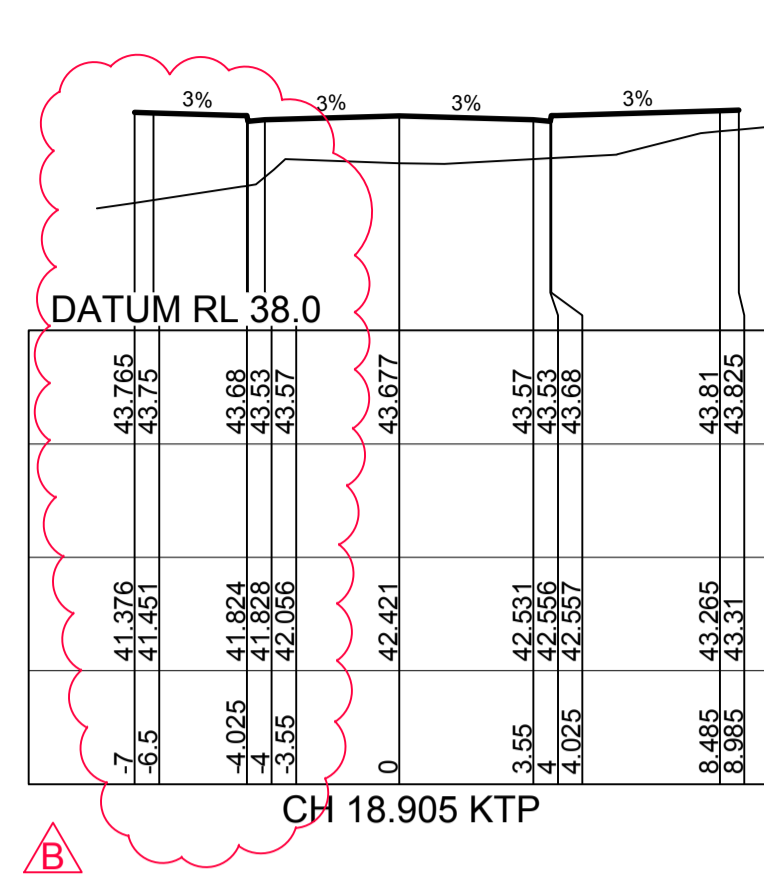
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	AMENDMENT					

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**CONSTRUCTION CERTIFICATE**

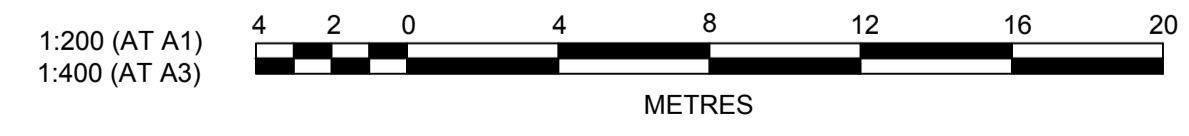
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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CROSS SECTIONS ROAD 34

CROSS SECTIONS ROAD Y02



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**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**

CROSS SECTIONS  
SHEET 19 OF 19

PLAN No: 11018511/CC079 **B**

FILE No: 11018511CC079

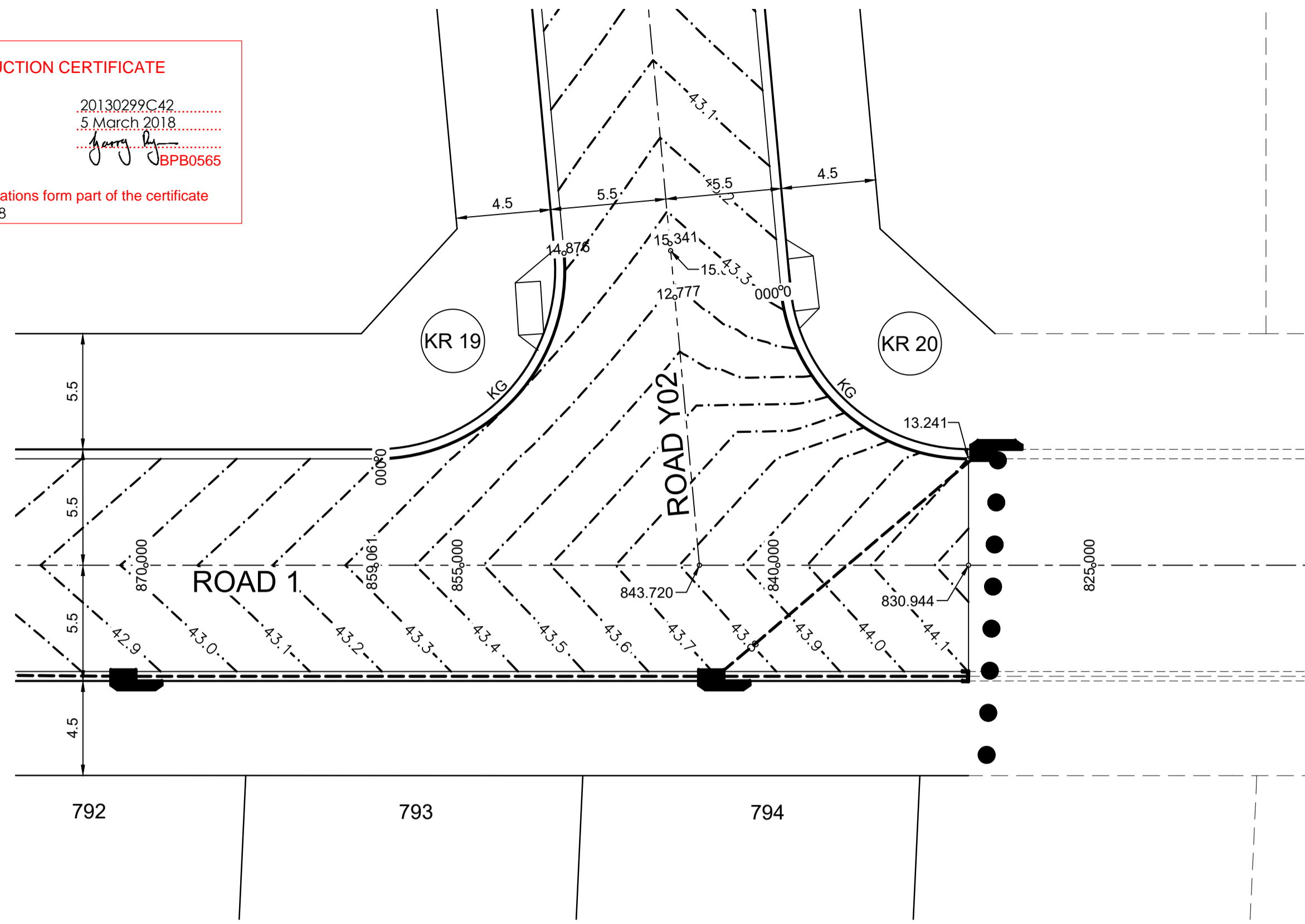
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NO.	DESCRIPTION	DATE	BY	CHECKED	APPROVED
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	AMENDMENT		DES	DRN	CKD

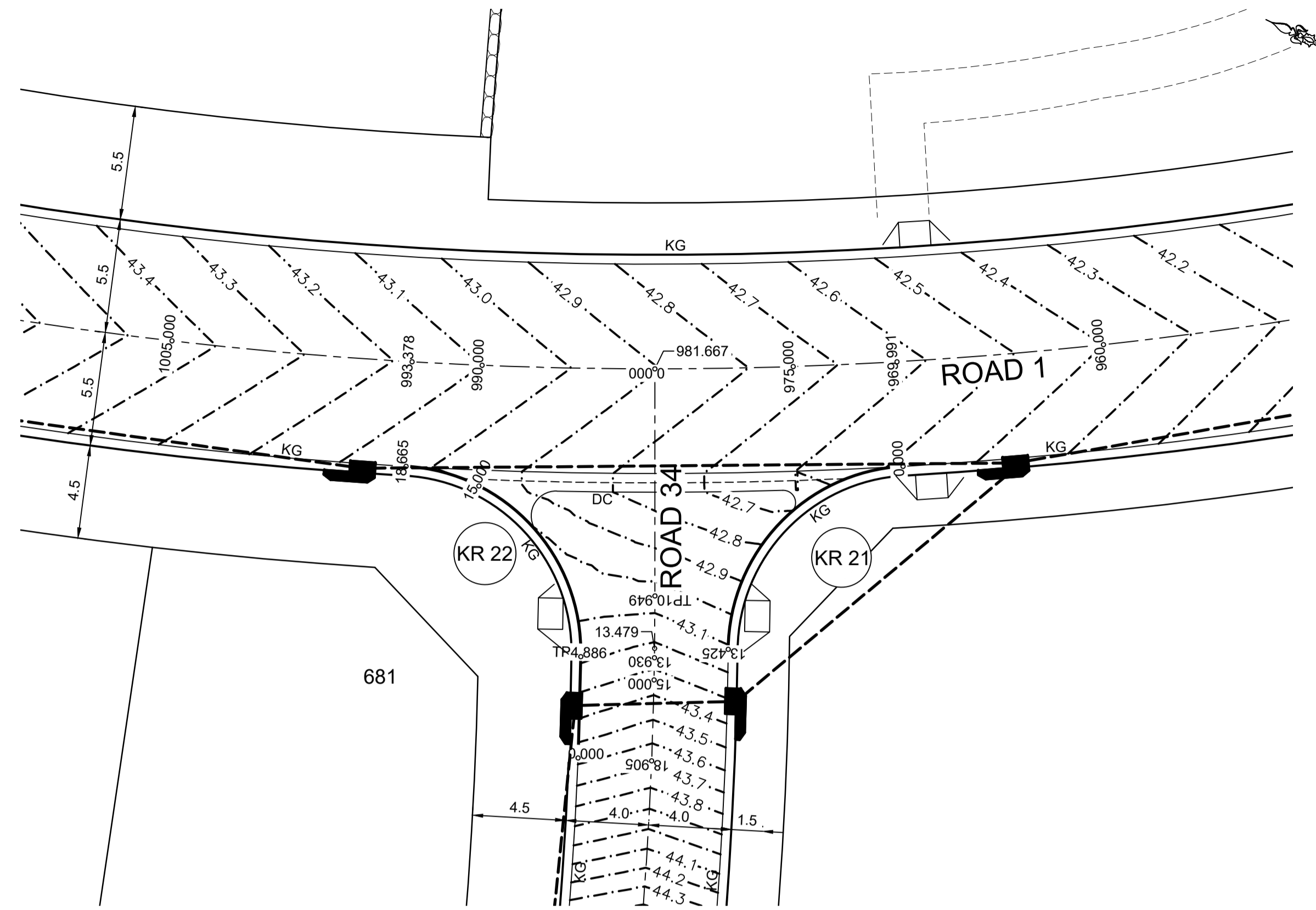
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPPB0565

These plans/specifications form part of the certificate issued 5 March 2018

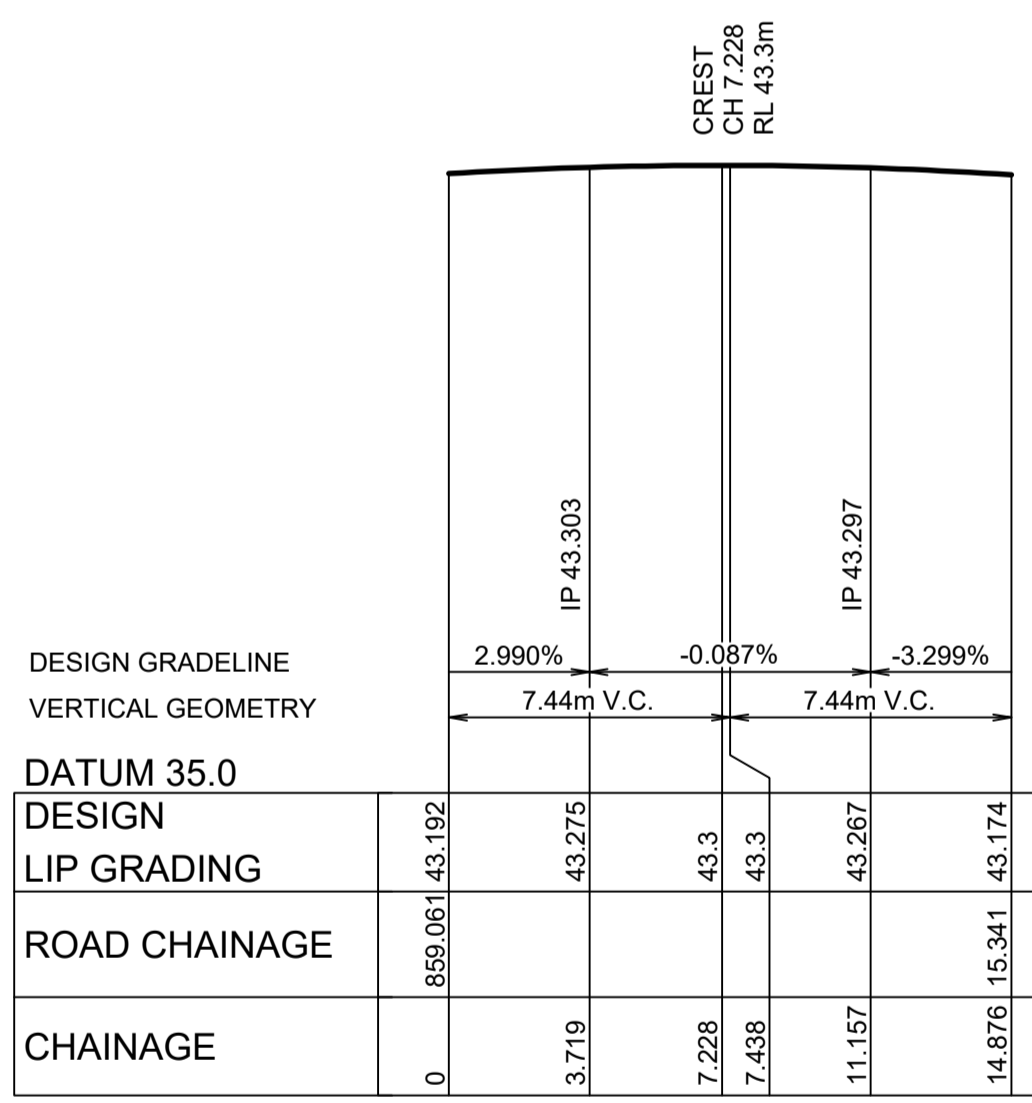


PLAN  
SCALE 1:200

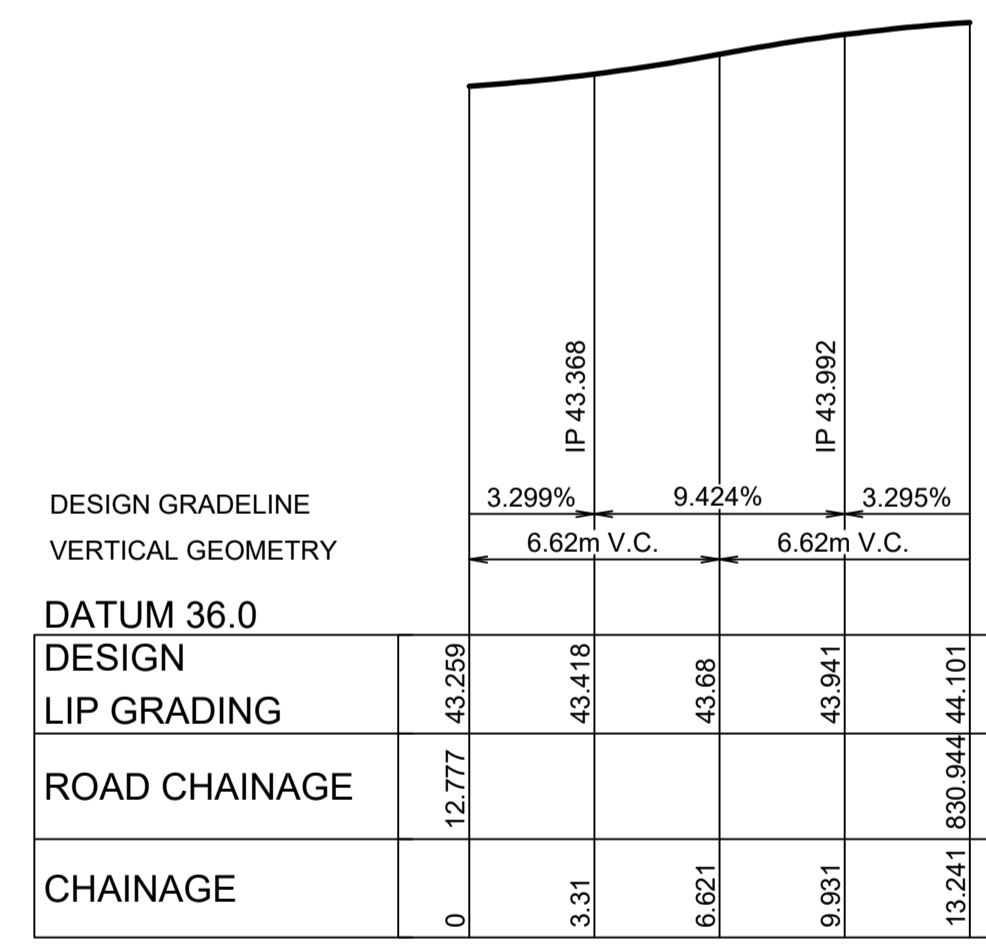


PLAN  
SCALE 1:200

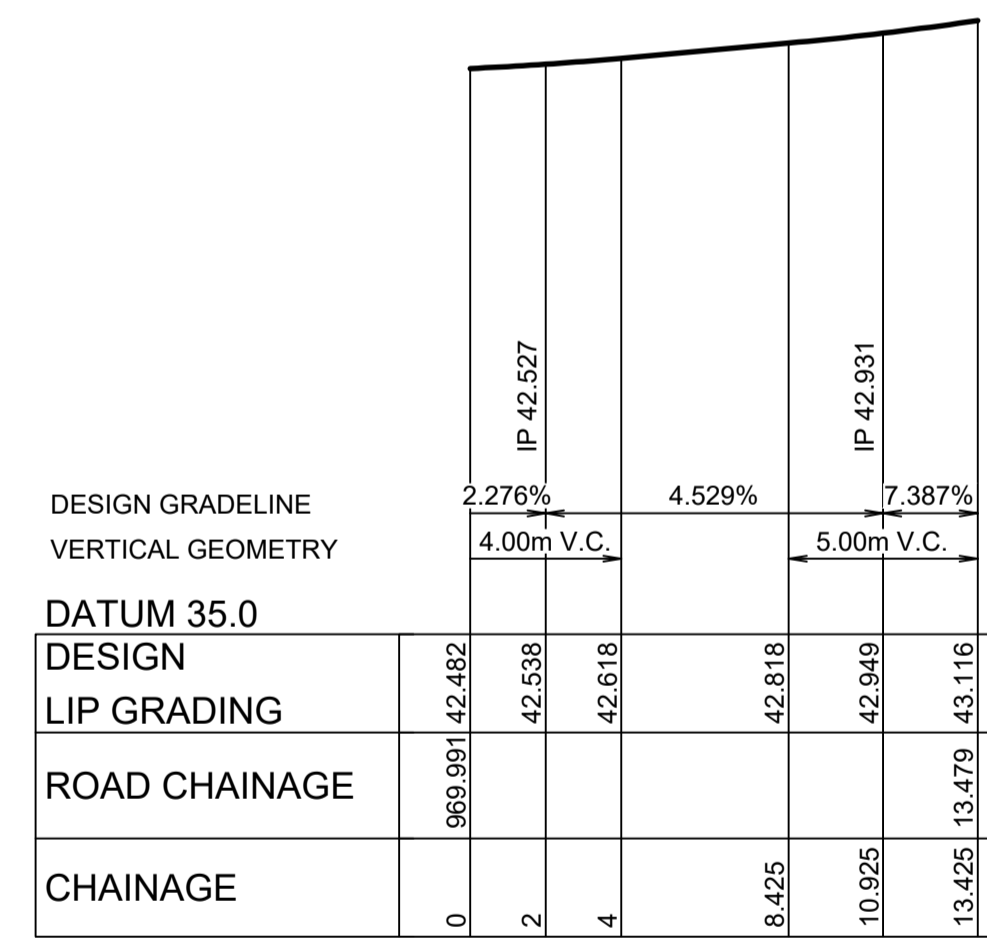
NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE



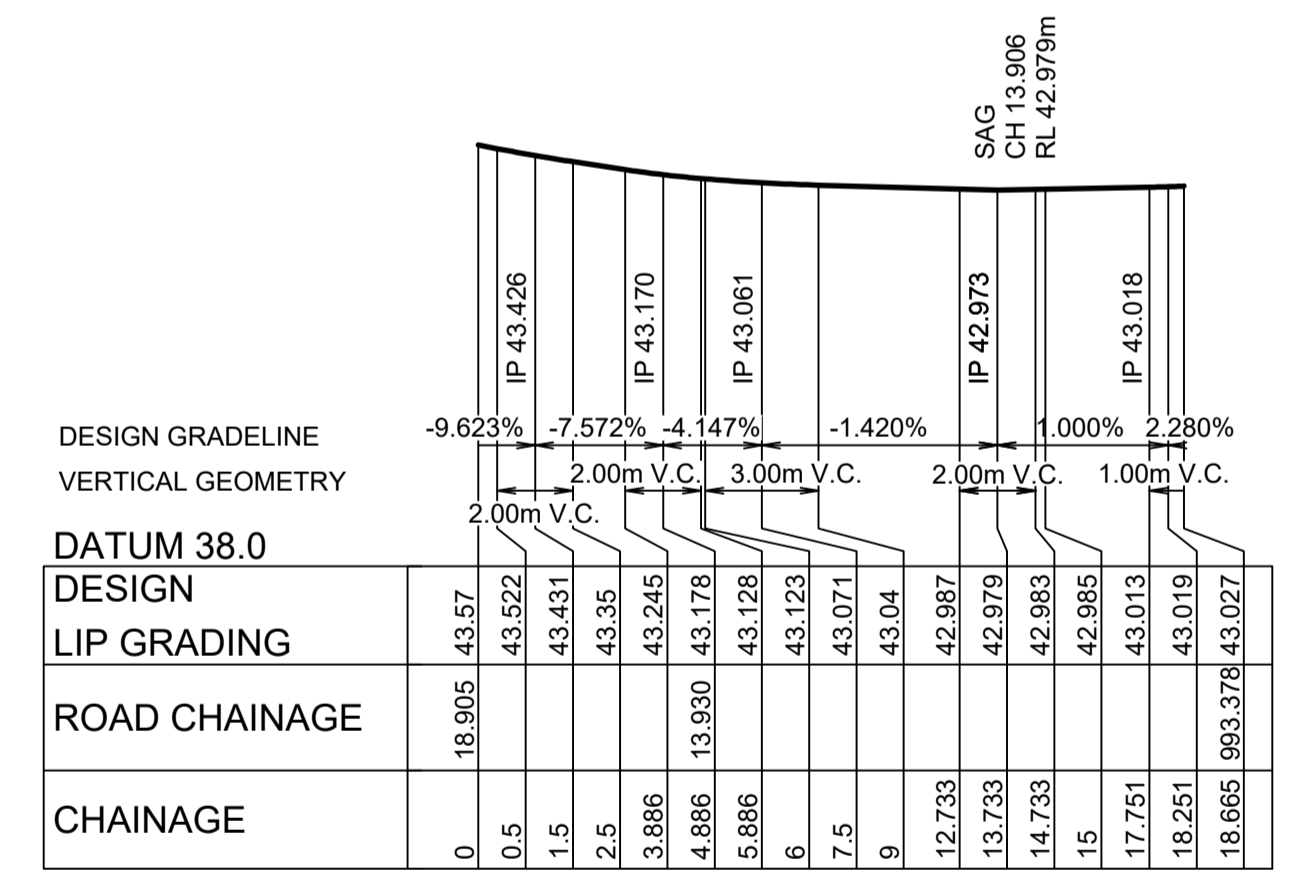
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HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 20  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 21  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 22  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

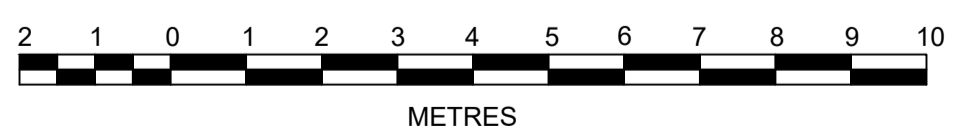
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7.44	286456.67	6281901.87		-8.95	14.88
14.88	286462.21	6281909.97	34°23'56.56"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286469.1	6281902.14	214°23'56.56"		
6.62	286464.48	6281895.4		-8.95	13.24
13.24	286470.77	6281890.19	129°37'51.36"		

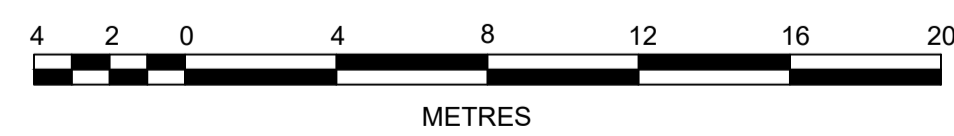
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0	286287.97	6281969.49	265°30'01.39"		
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12.46	286279.77	6281961.46	185°45'24.96"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286366.94	6281982.79	331°45'52.73"		
6.71	286362.99	6281990.14		-8.95	13.43
13.43	286355.39	6281986.72	245°49'05.12"		

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



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REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 1 OF 16

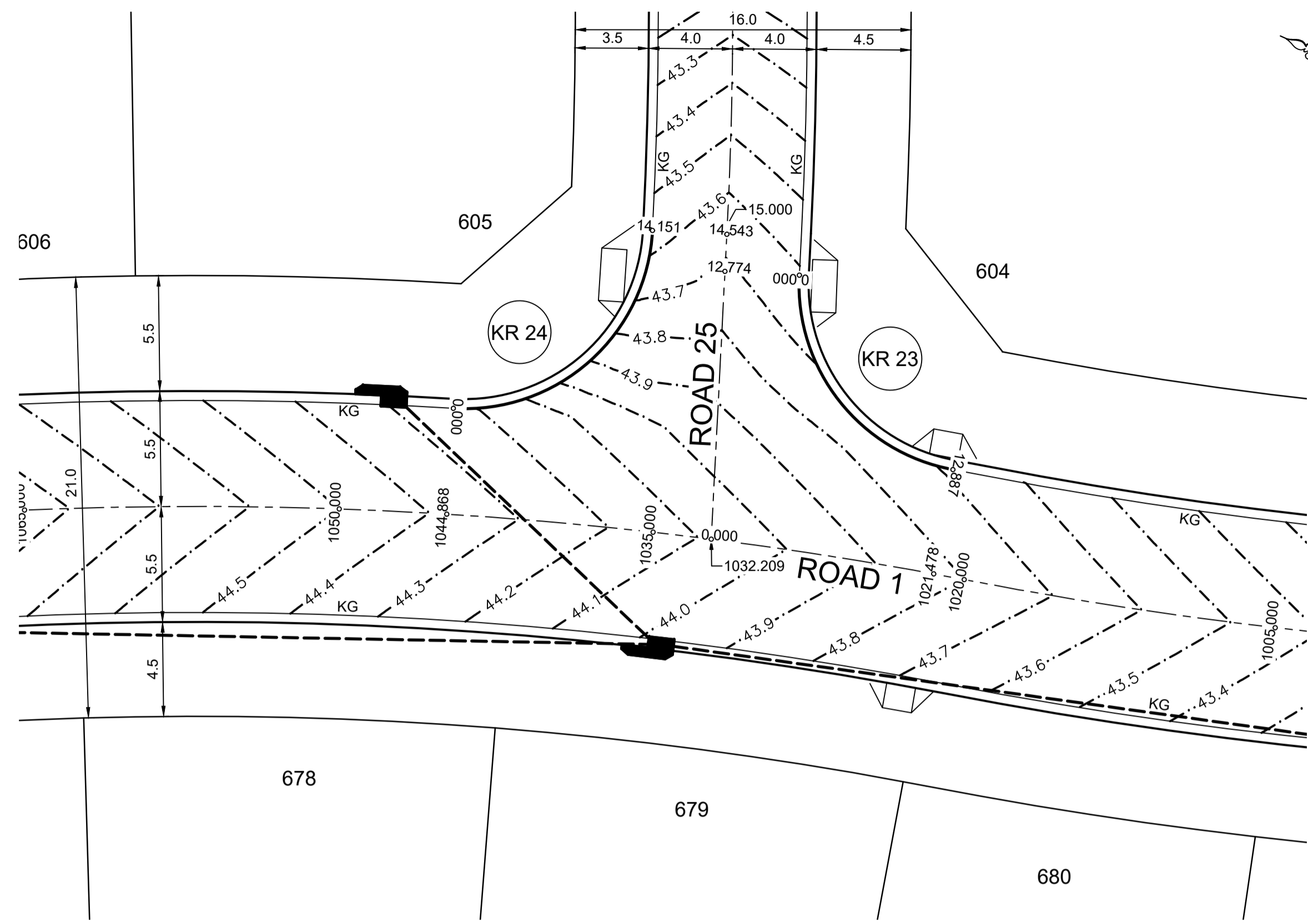
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**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

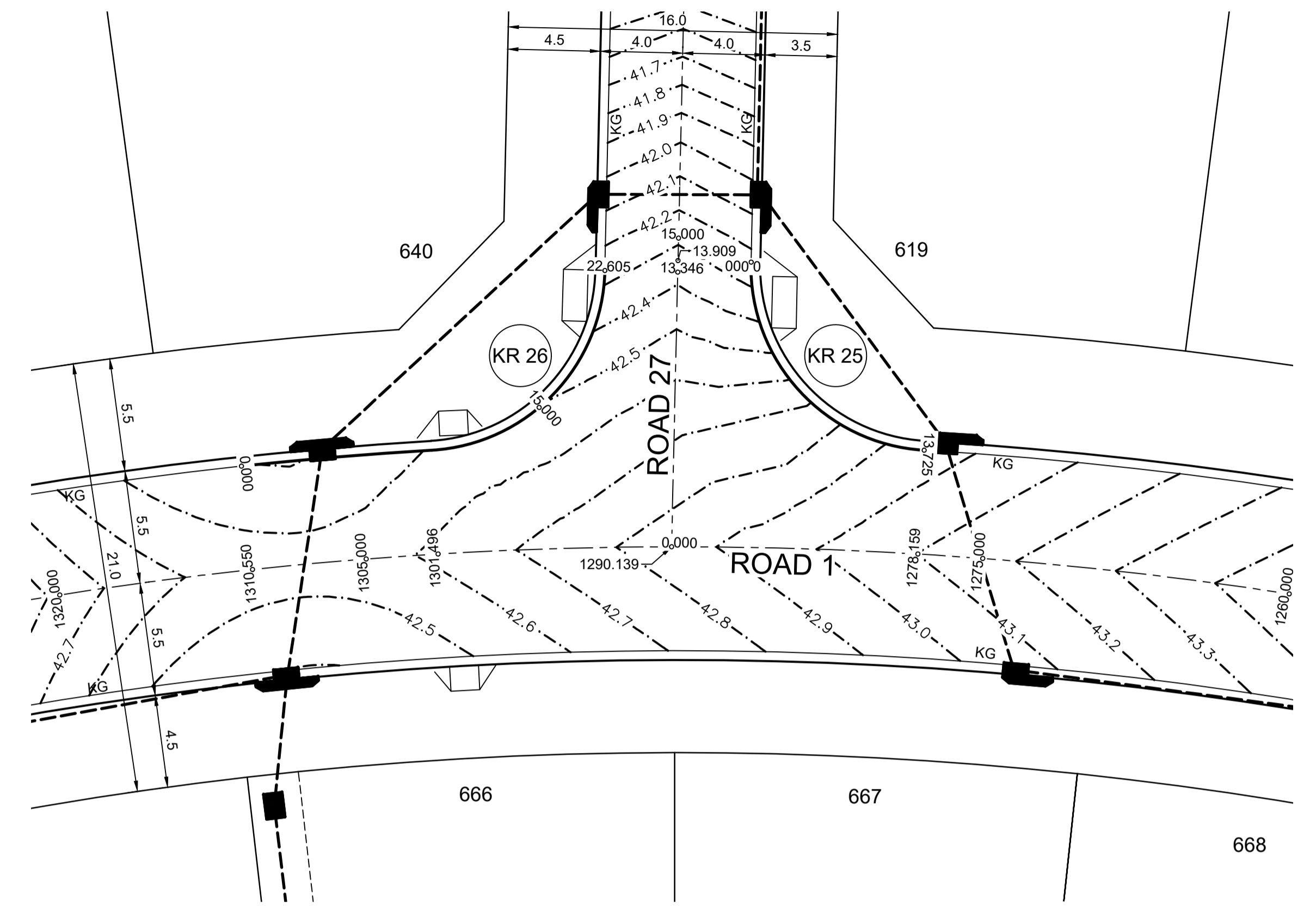
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 25 January, 2018 4:40:15 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC01\YEOMANS11018511CC081.dwg

NO.	DESCRIPTION	BY	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	15/06/17
	AMENDMENT	DES	
		MG	
		RO	
		MS	
		APR	



PLAN  
SCALE 1:200



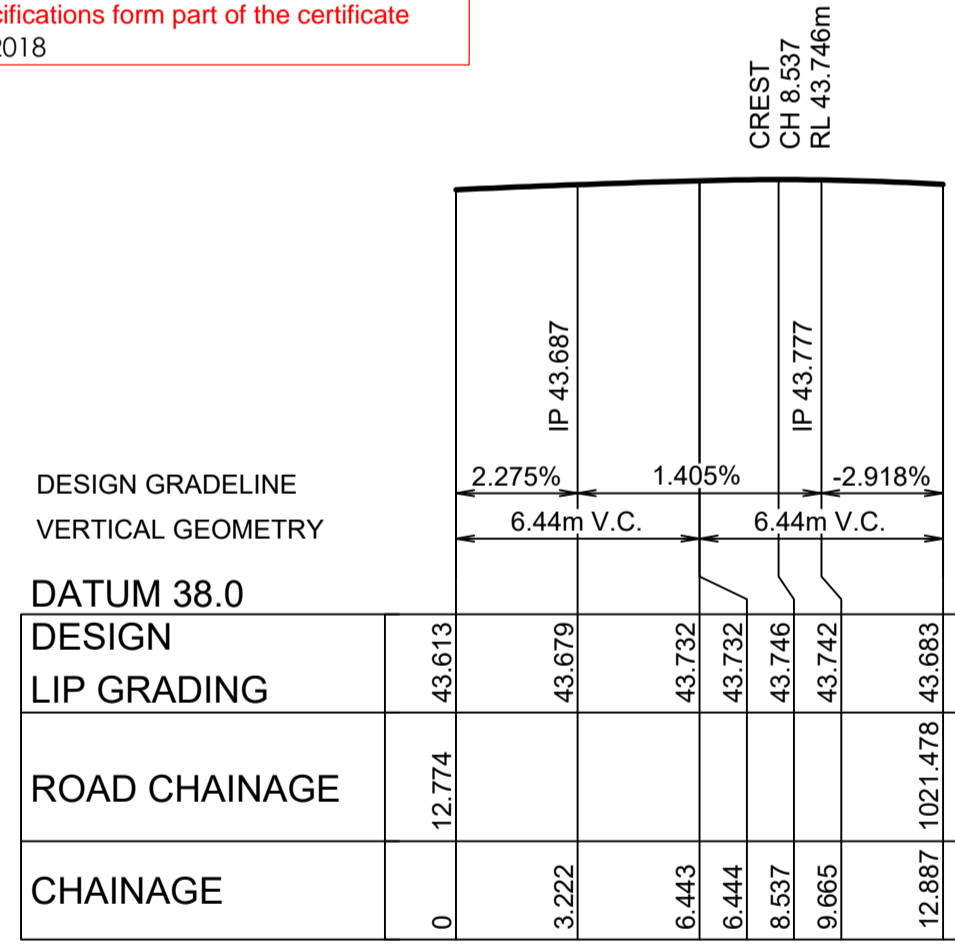
PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

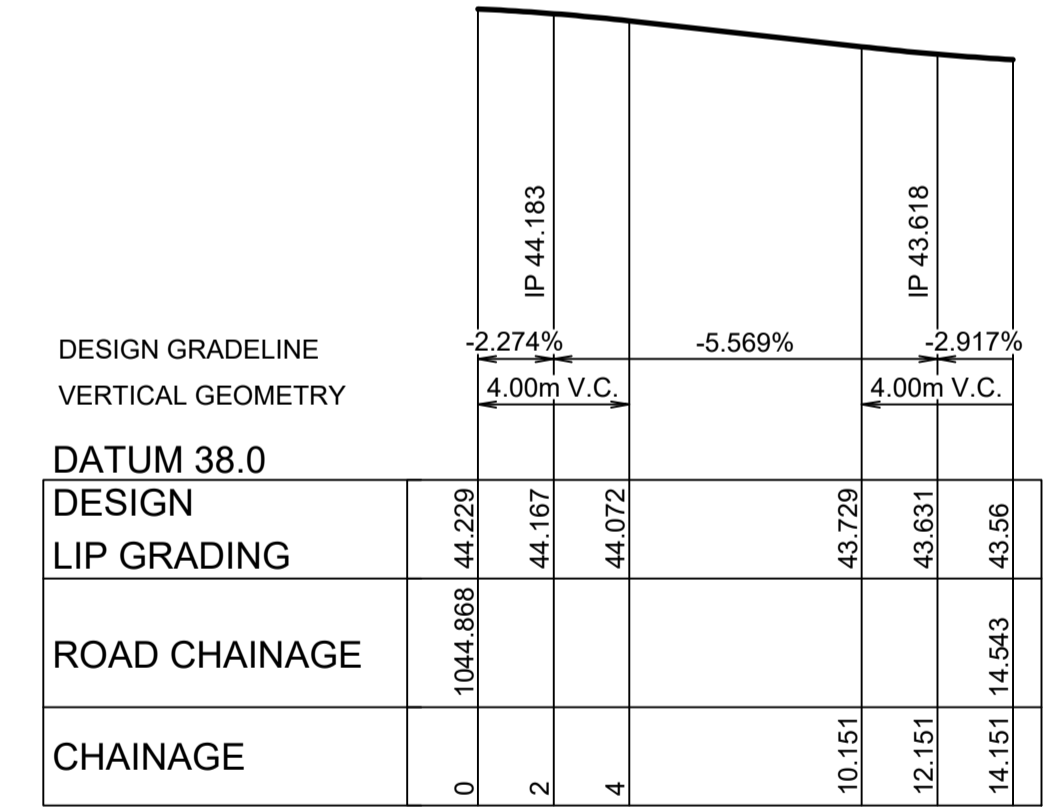
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565

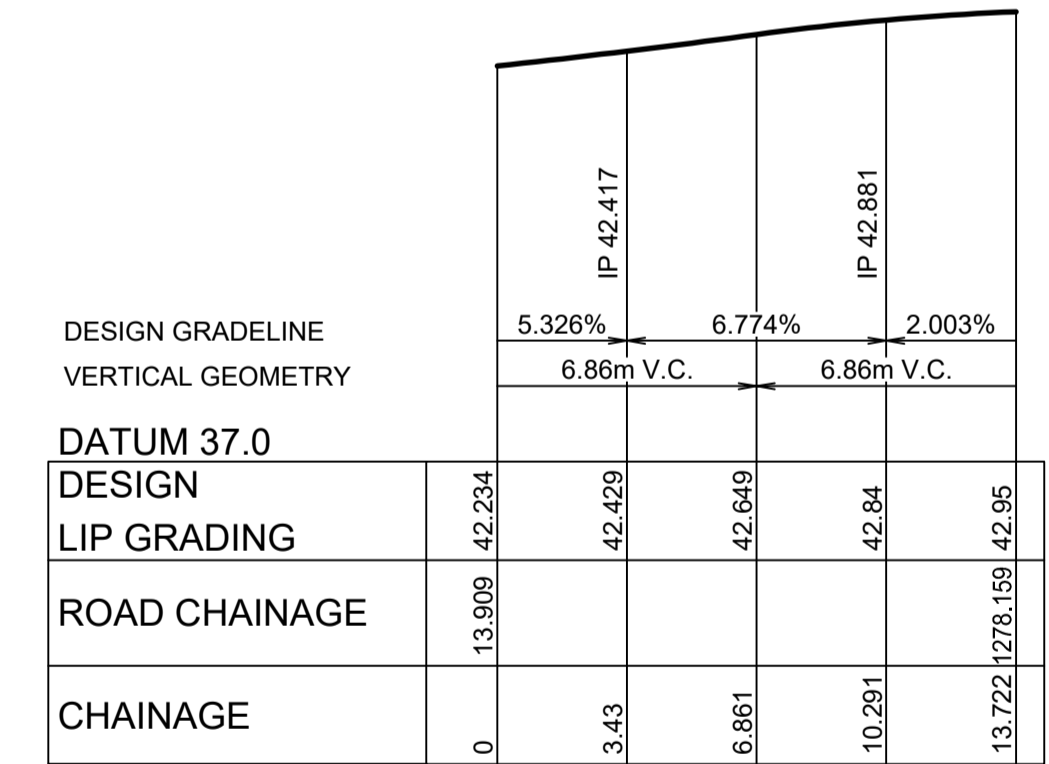
These plans/specifications form part of the certificate issued 5 March 2018



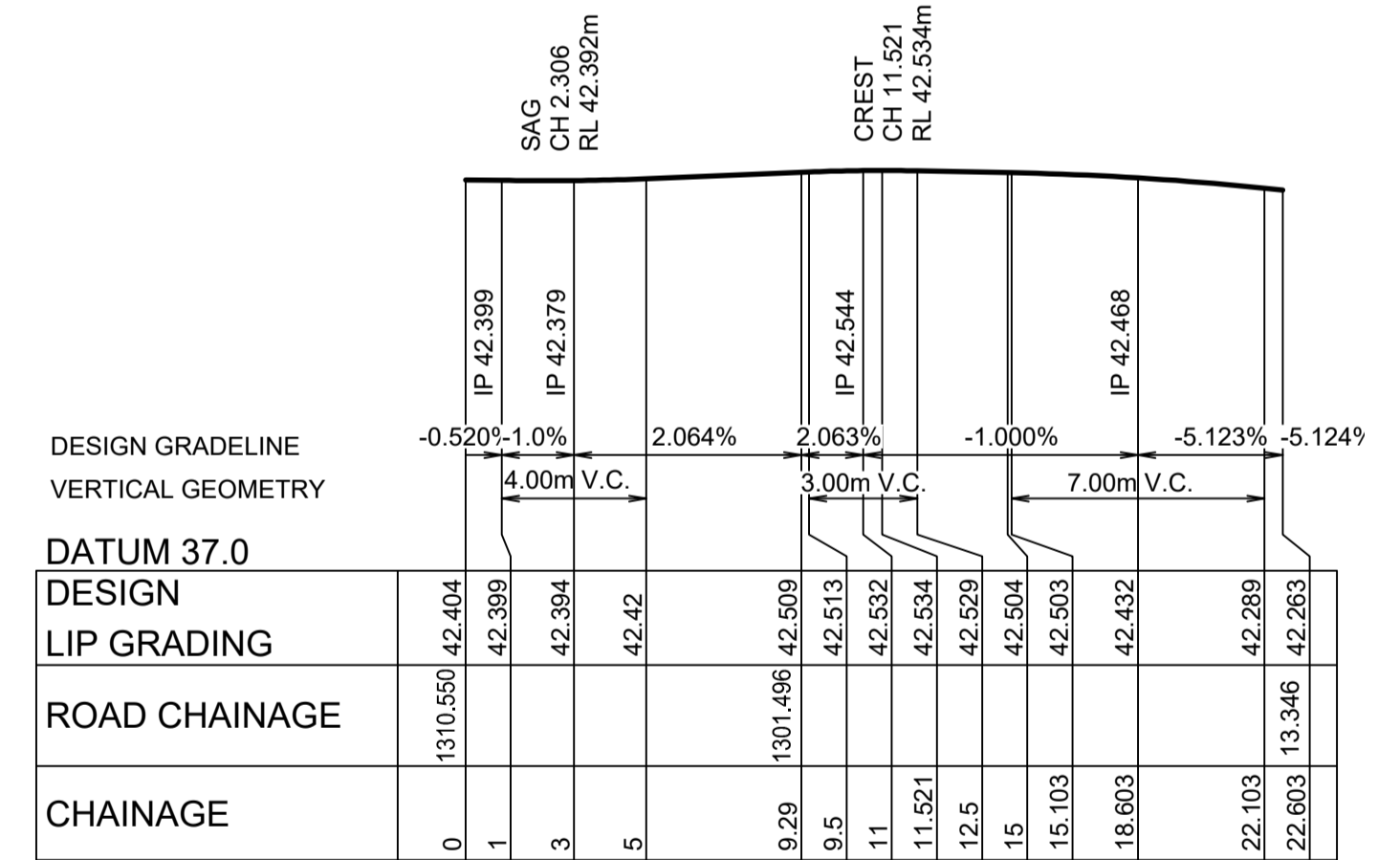
KR 23  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 24  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 25  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 26  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

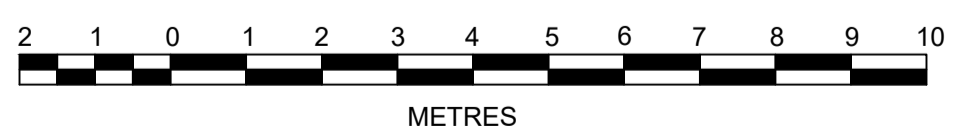
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286363.27	6282044.94	248°02'07.07"		
6.44	286355.99	6282042.01		-8.95	12.89
12.89	286357.95	6282034.41	165°32'15.14"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286350.57	6282057.23	158°37'46.63"		
7.08	286353.87	6282048.81		-8.95	14.15
14.15	286362.25	6282052.19	68°02'07.07"		

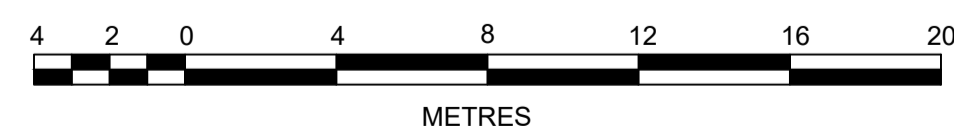
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286155.28	6282192.31	177°34'15.34"		
6.86	286155.64	6282183.7		-8.95	13.72
13.72	286164.26	6282183.74	89°43'41.40"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286131.2	6282180.82	80°09'47.82"		
4.64	286135.78	6282181.61		199.05	9.28
9.28	286140.38	6282182.19	82°50'08.72"		
15.94	286148.56	6282183.22		-8.95	13.32
22.6	286148.21	6282191.45	357°34'15.35"		

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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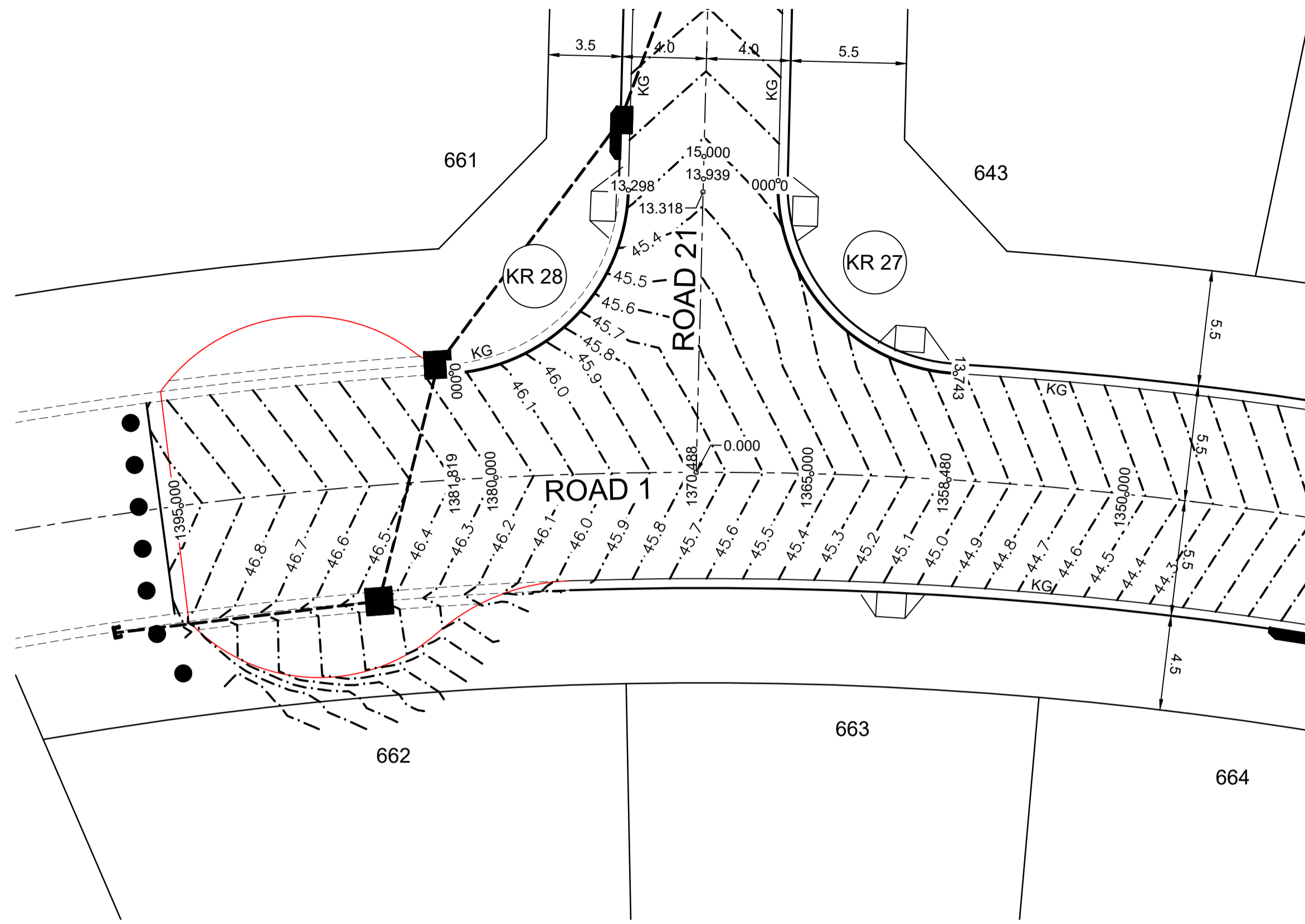
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 KERB RETURN PLANS AND SECTIONS  
 SHEET 2 OF 16

PLAN No: 11018511/CC082 **A**  
 FILE No: 11018511CC082  
 SHEET SIZE: A1 ORIGINAL

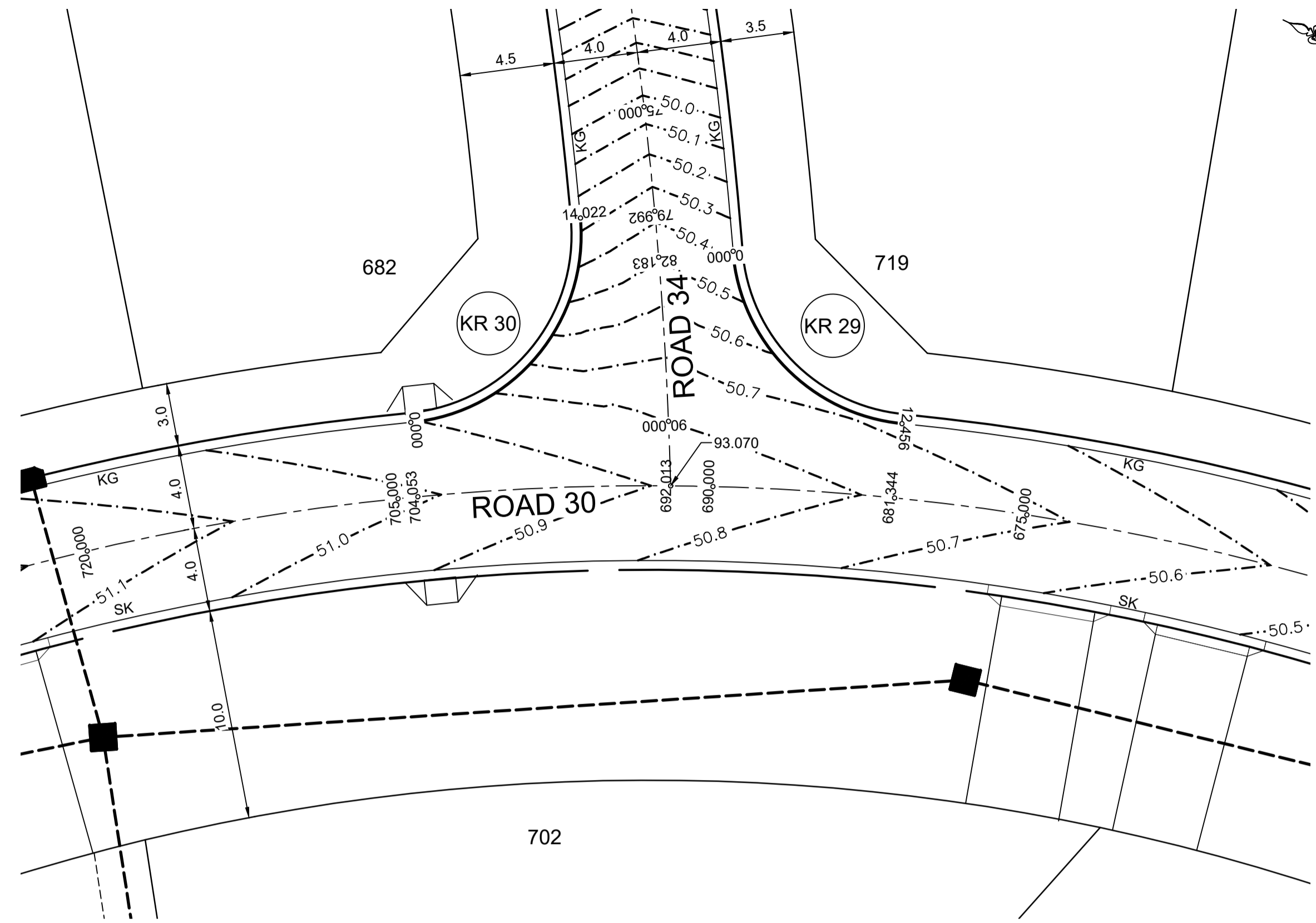
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NO.	DESCRIPTION	BY	CHKD	DATE		
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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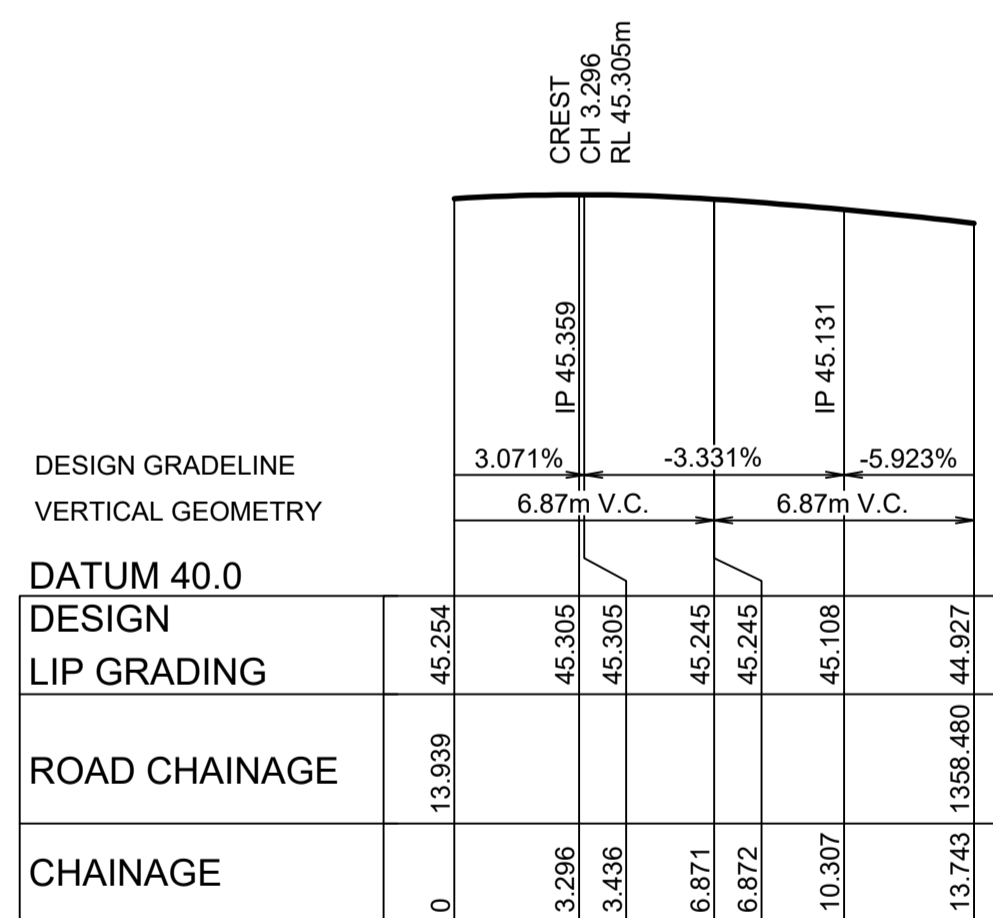


PLAN  
SCALE 1:200

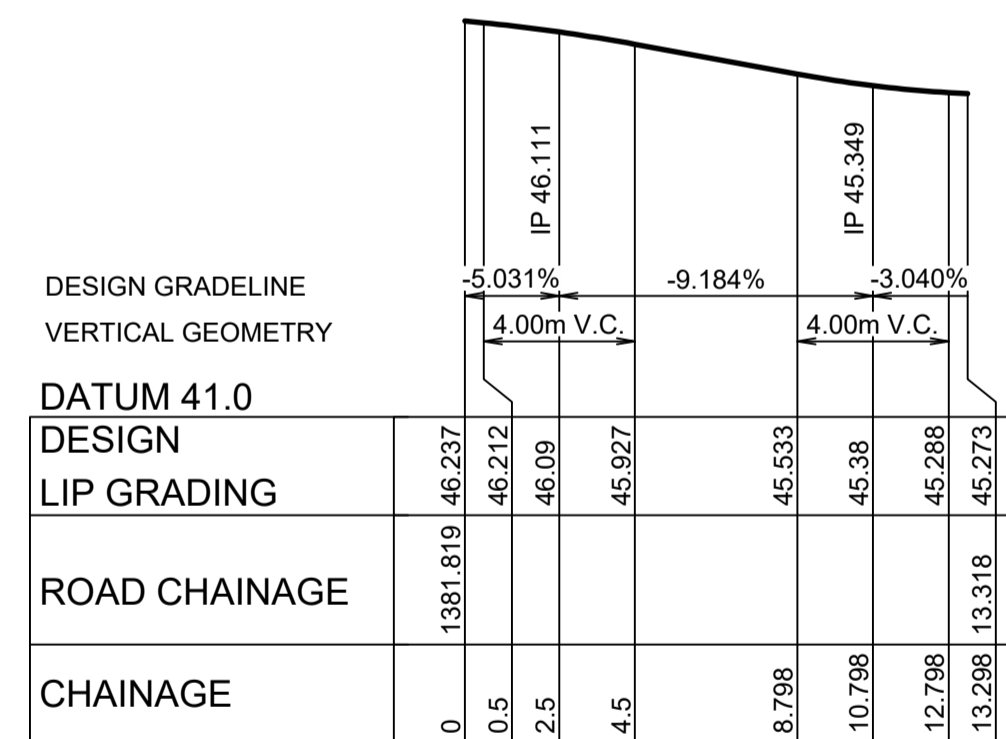


PLAN  
SCALE 1:200

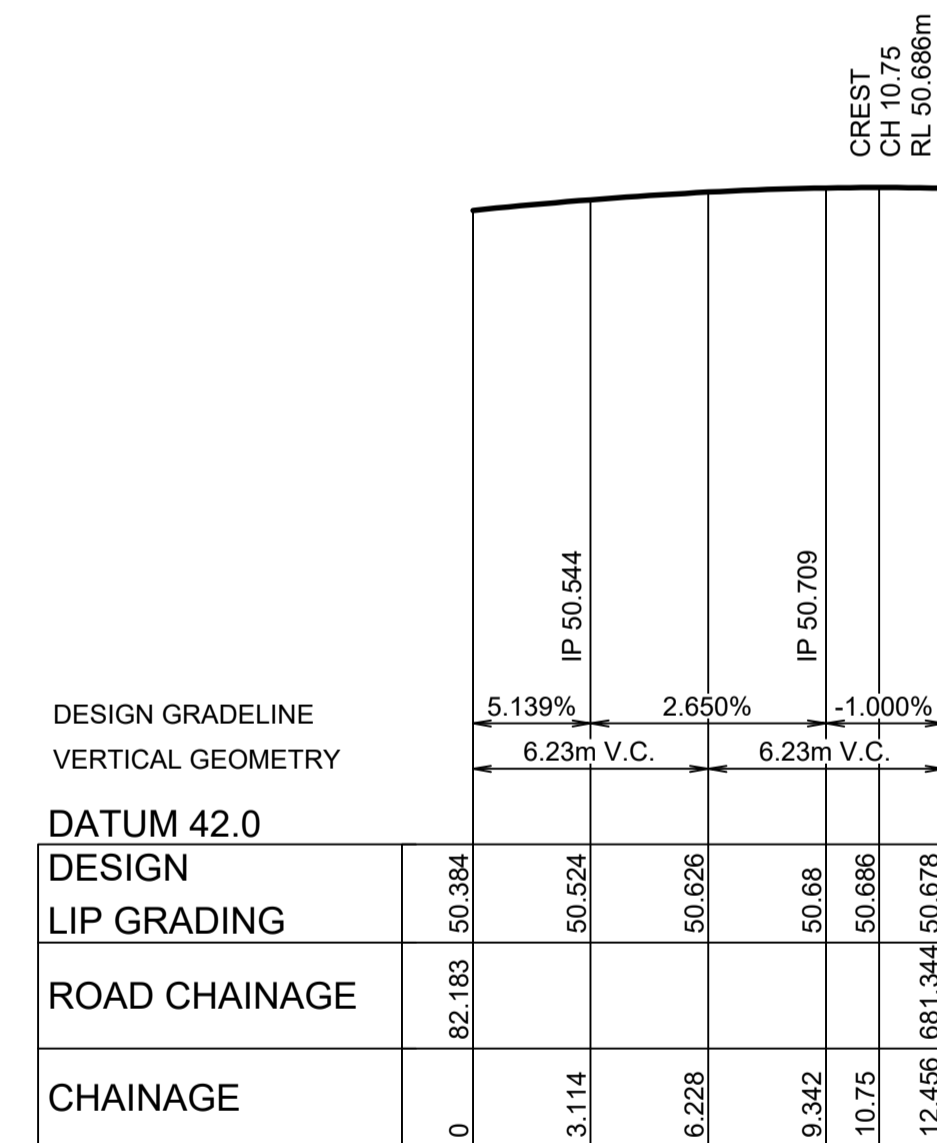
NOTE:  
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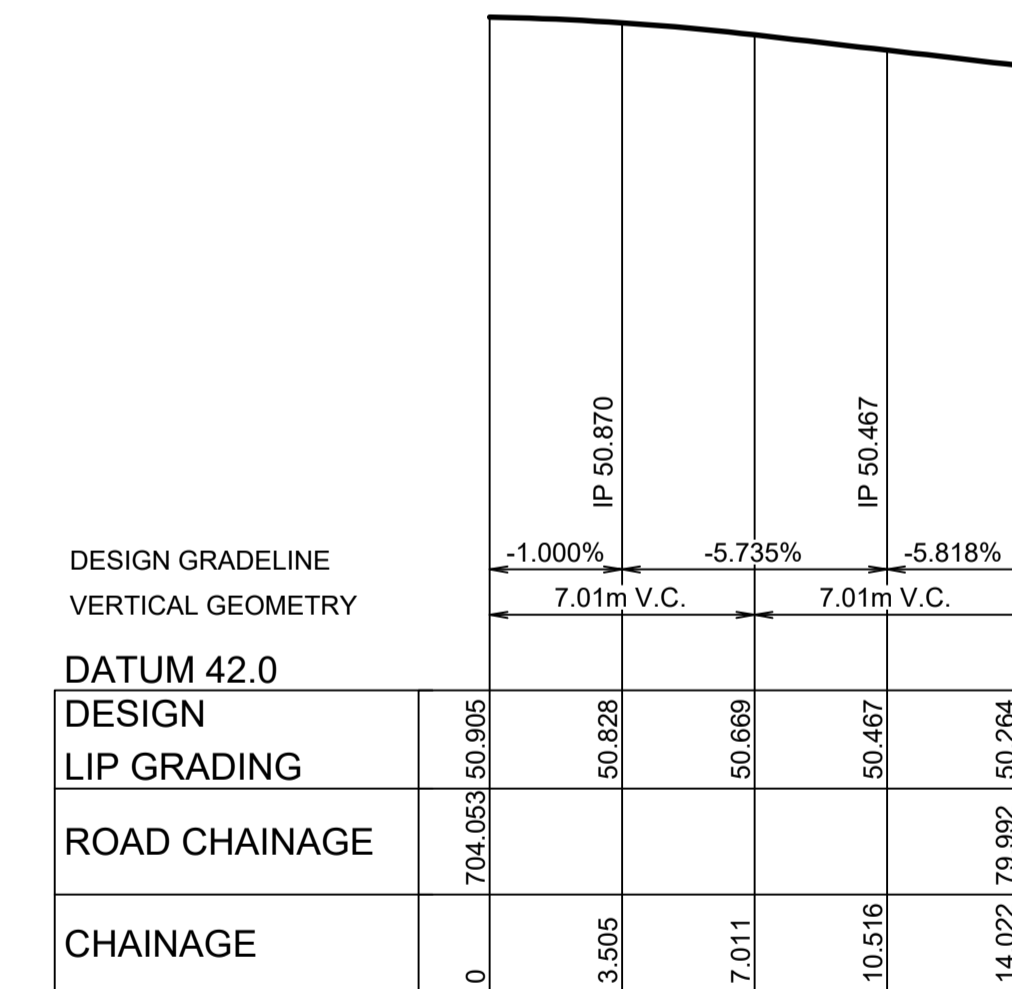
KR 27  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 28  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 29  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 30  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

KR 27					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A.LENGTH
0	286072.59	6282170.8	153°59'07.29"		
6.87	286076.38	6282163.04		-8.95	13.74
13.74	286084.27	6282166.55	66°00'27.89"		

KR 28					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A.LENGTH
0	286063.03	6282155.52	59°06'53.82"		
6.65	286070.09	6282159.74		-8.95	13.3
13.3	286066.48	6282167.13	333°59'07.29"		

KR 29					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A.LENGTH
0	286287.97	6281969.49	265°30'01.39"		
6.23	286280.52	6281968.9		-8.95	12.46
12.46	286279.77	6281961.46	185°45'24.96"		

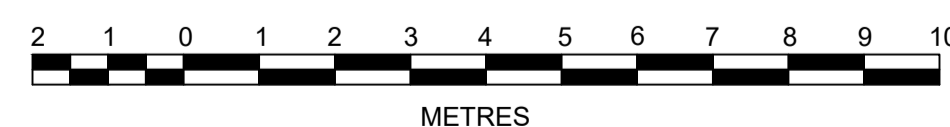
KR 30					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A.LENGTH
0	286279.85	6281984.82	174°38'10.56"		
7.01	286280.69	6281975.95		-8.95	14.02
14.02	286289.56	6281976.75	84°52'21.08"		

**CONSTRUCTION CERTIFICATE**

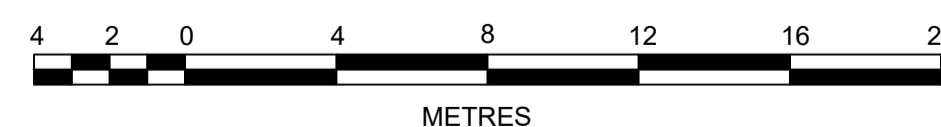
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BFPB0565

These plans/specifications form part of the certificate issued 5 March 2018

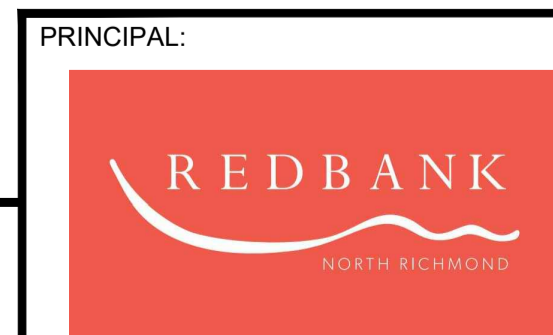
V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



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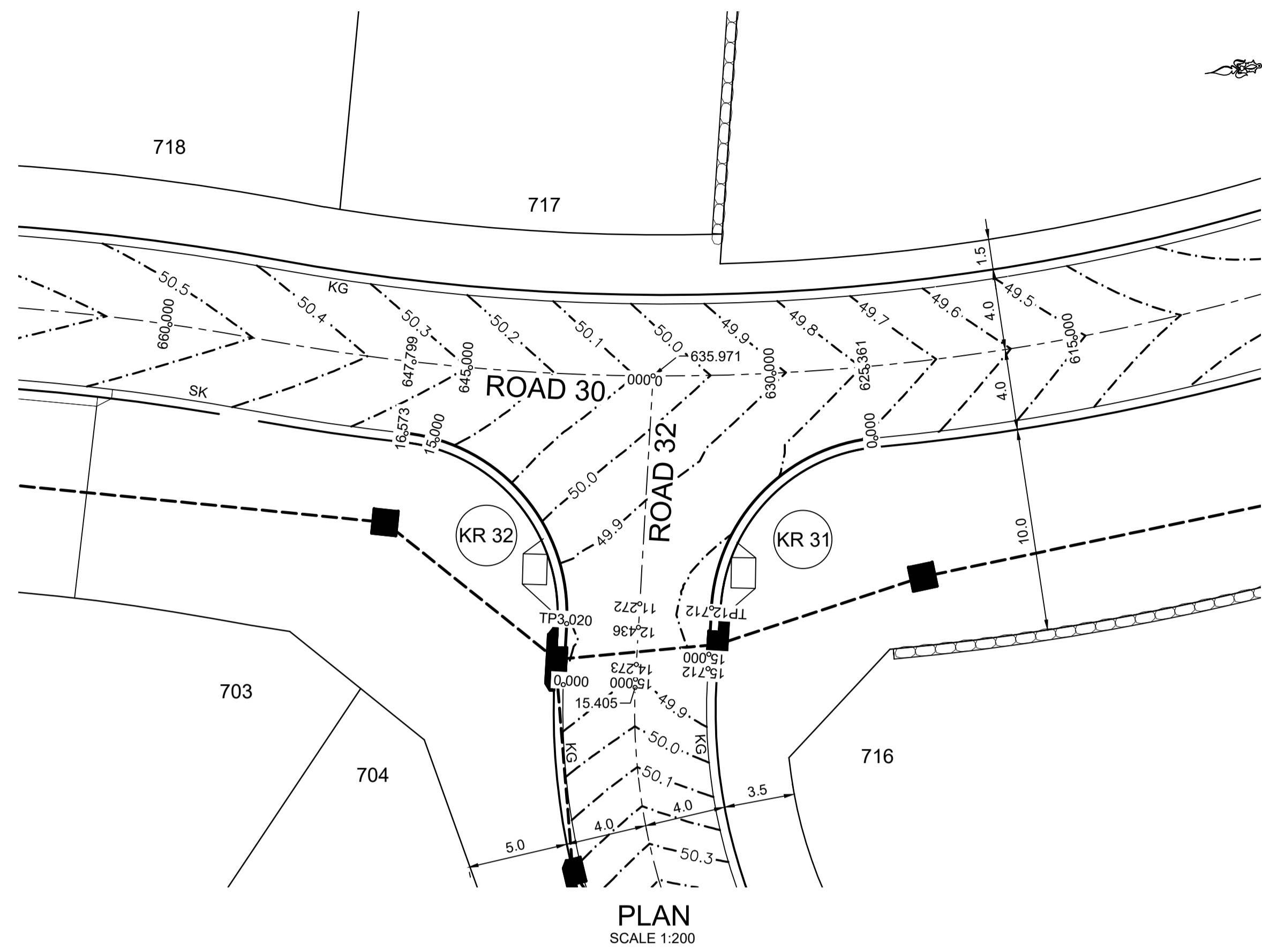
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 3 OF 16

PLAN No:  
**11018511/CC083 A**  
FILE No: 11018511CC083  
SHEET SIZE: A1 ORIGINAL

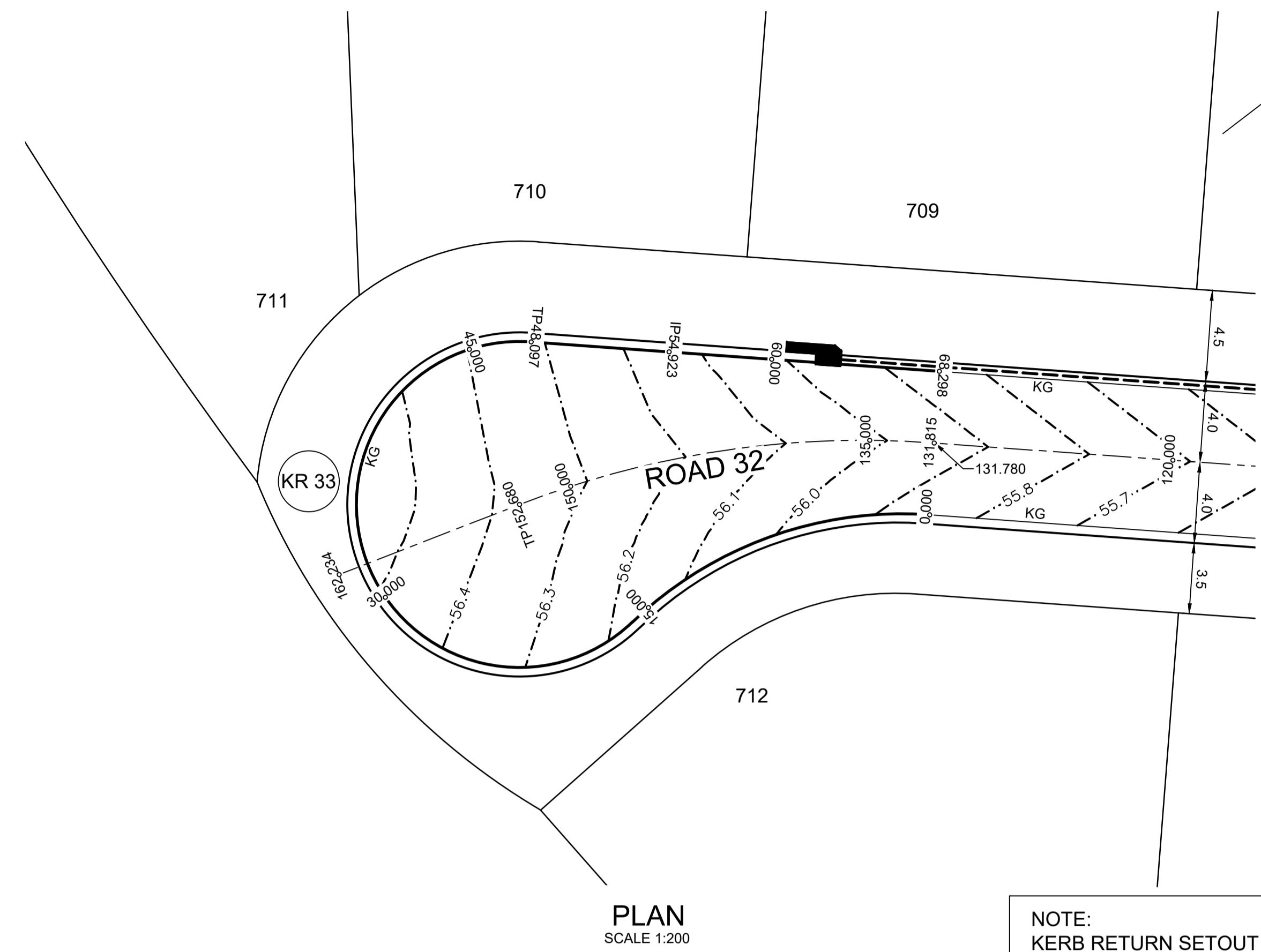
NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

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PLAN  
SCALE 1:200



PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE

DESIGN GRADELINE  
VERTICAL GEOMETRY

DATUM 42.0

DESIGN LIP GRADING	0	2.712	5.712	7.046	8.712	12.712	11.272	49.761	49.76	49.77	49.785
ROAD CHAINAGE	0	625.361	49.693	49.753	49.804	49.81	49.801	49.761	49.76	49.77	49.785
CHAINAGE	0	2.712	5.712	7.046	8.712	12.712	11.272	49.761	49.76	49.77	49.785

CREST  
CH 7.046  
RL 49.81m

SAG  
CH 13.555  
RL 49.757m

KR 31  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286261.71	6281907.18	2°49'31.09"		
6.36	286262.08	6281914.86		-8.95	12.71
12.71	286254.54	6281916.39	281°26'43.77"		
15.71	286251.6	6281916.98	281°26'43.77"		

DESIGN GRADELINE  
VERTICAL GEOMETRY

DATUM 42.0

DESIGN LIP GRADING	0	15.405	49.818	49.79	49.796	49.855	50.021	50.135	50.213	50.218	50.248
ROAD CHAINAGE	0	15.405	49.818	49.79	49.796	49.855	50.021	50.135	50.213	50.218	50.248
CHAINAGE	0	2.5	3.02	5	8.745	11.745	14.745	15	16.573	647.798	50.248

SAG  
CH 2.004  
RL 49.788m

KR 32  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286251.83	6281924.18	101°19'00.03"		
3.02	286254.79	6281923.58	101°19'00.03"		
9.8	286263.08	6281921.92		-8.95	13.55
16.57	286265.21	6281930.11	14°33'11.16"		

DESIGN GRADELINE  
VERTICAL GEOMETRY

DATUM 49.0

DESIGN LIP GRADING	0	131.780	55.846	56.146	56.147	56.189	56.234	56.489	56.535	56.58	56.579	56.576	56.397	56.088	56.016	55.951	55.846
ROAD CHAINAGE	0	131.780	55.846	56.146	56.147	56.189	56.234	56.489	56.535	56.58	56.579	56.576	56.397	56.088	56.016	55.951	55.846
CHAINAGE	0	15	15.067	17.067	19.067	30	32	35.805	36	40	45	57	60	63	68.298	131.815	55.846

CH 31.881m  
CL OF ROAD 32  
RL 56.532m

CREST  
CH 35.805  
RL 56.58m

KR 33  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

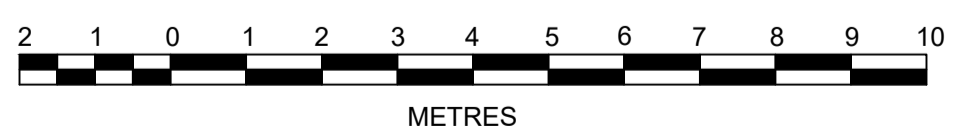
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286169.21	6281844.67	221°35'10.19"		
8.03	286163.54	6281838.28		-19.2	16.07
16.07	286164.49	6281829.8	173°37'55.16"		
24.08	286165.86	6281817.48		8.05	16.01
32.08	286154.05	6281821.23	287°36'32.67"		
40.09	286142.24	6281824.98		8.05	16.01
48.1	286150.47	6281834.25	41°35'10.19"		
54.92	286155	6281839.35			
68.3	286163.88	6281849.36	41°35'11.07"		

**CONSTRUCTION CERTIFICATE**

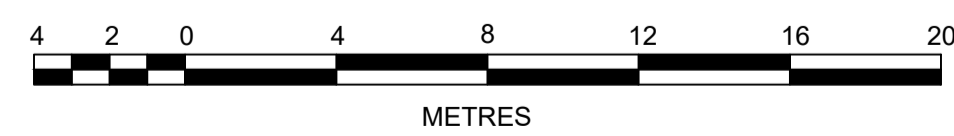
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

PRINCIPAL:

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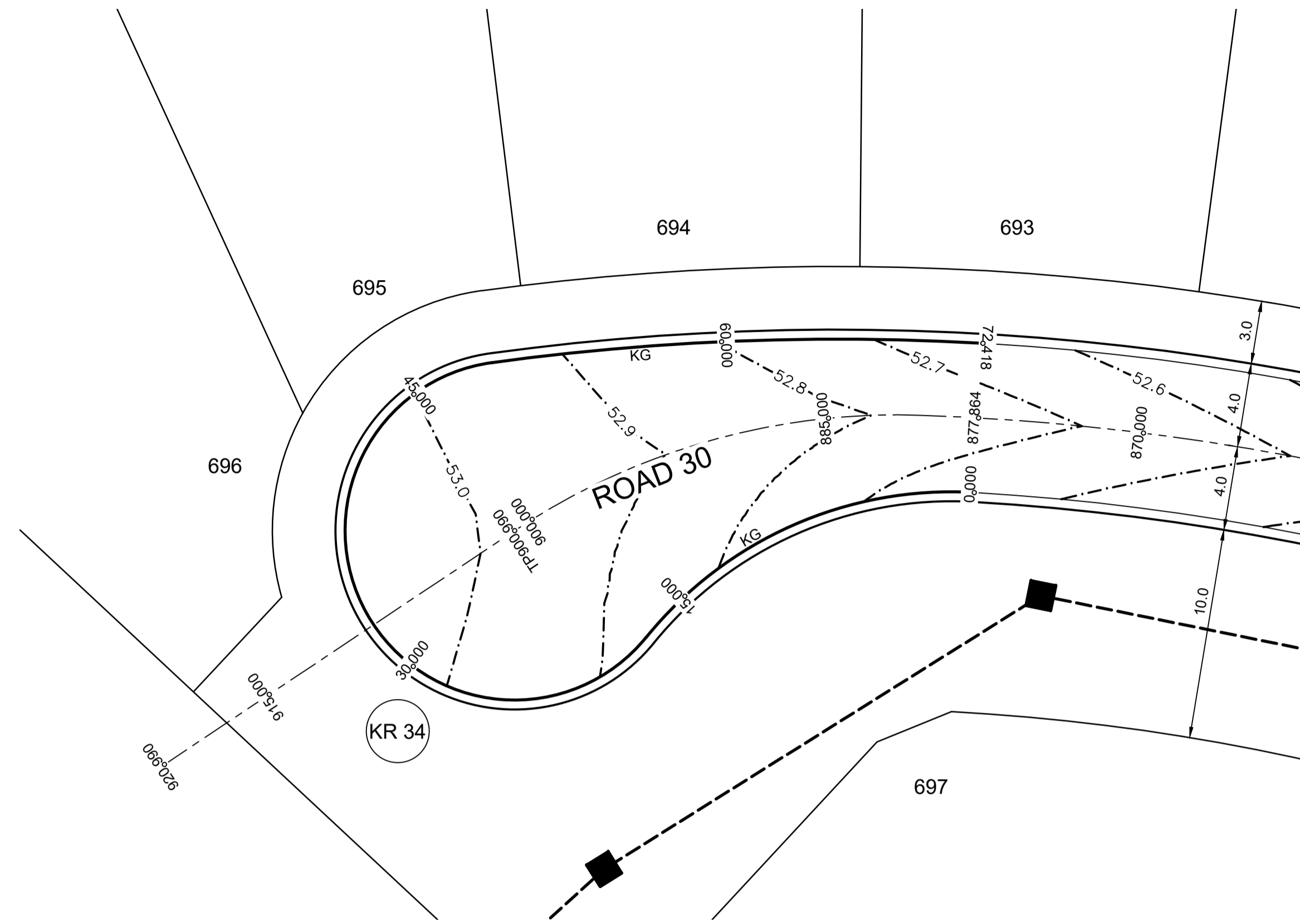
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 4 OF 16

PLAN No:  
**11018511/CC084 A**  
FILE No: 11018511CC084  
SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 25 January, 2018 4:43:05 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC01\YEOMANS11018511CC085.dwg



PLAN  
SCALE 1:200

CH 32.743m  
CL OF ROAD 30  
RL 53.061m

CREST  
CH 36.676  
RL 53.086m

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

DESIGN GRADELINE	1.000%		1.313%		-1.357%		-1.000%	
VERTICAL GEOMETRY	4.00m V.C.		8.00m V.C.		4.00m V.C.			
DATUM 47.0								
DESIGN LIP GRADING	877.864	52.663	52.684	52.709	52.827	53.024	53.066	53.086
ROAD CHAINAGE	0	2	4	6	15	30	32.743	36.676
CHAINAGE	877.864	877.864	877.864	877.864	877.864	877.864	877.864	877.864

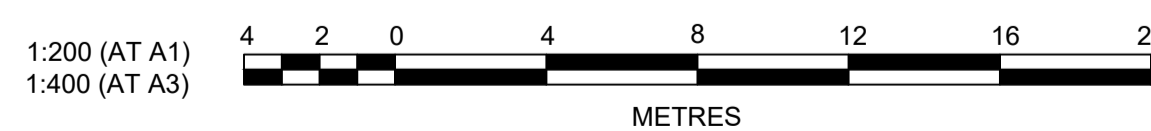
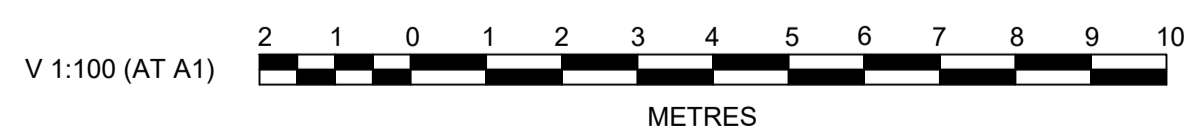
KR 34  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286158.88	6282087	269°31'10.38"		
8.84	286149.31	6282086.92		-18.67	17.68
17.68	286143.79	6282079.11	215°16'05.69"		
25.52	286136.96	6282069.45		8.05	15.68
33.36	286130.49	6282079.35	326°50'11.39"		
41.19	286124	6282089.26		8.05	15.68
49.03	286135.6	6282091.64	78°24'17.10"		
49.93	286136.48	6282091.83		120.55	1.8
50.83	286137.37	6282091.99	79°15'42.14"		
61.63	286148	6282094.01		120.55	21.58
72.42	286158.82	6282094.1	89°31'14.67"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

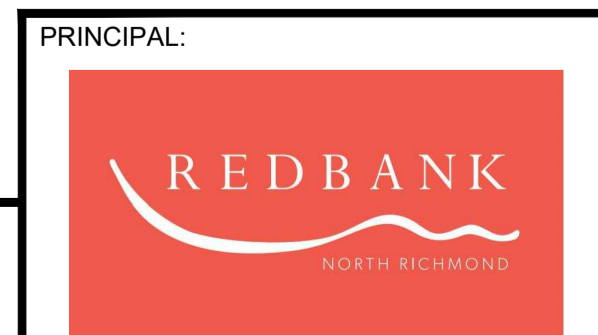
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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



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REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 5 OF 16

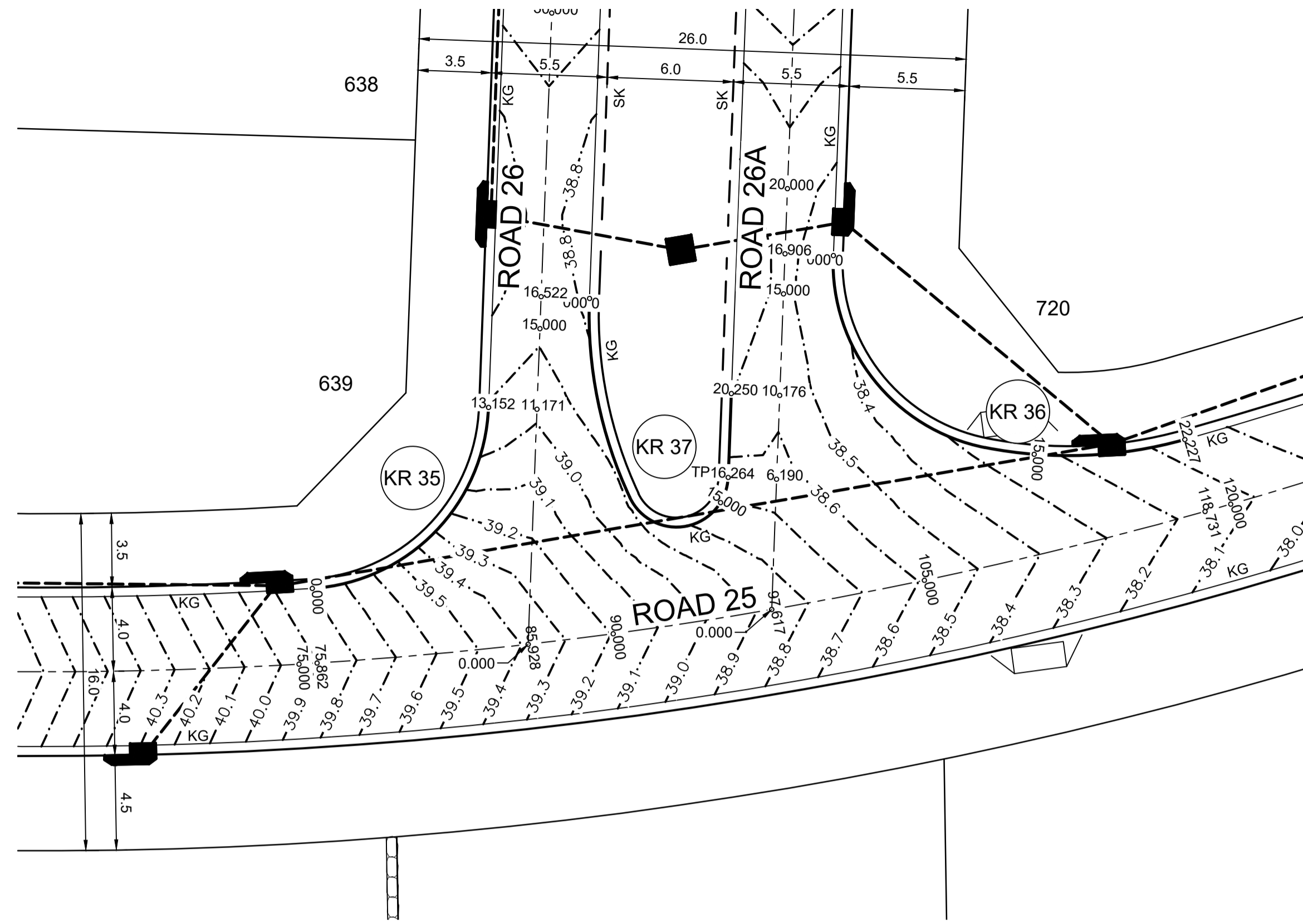
PLAN No:  
**11018511/CC085 A**

FILE No: 11018511CC085

SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE





PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

DESIGN GRADELINE VERTICAL GEOMETRY	-5.705%		-9.363%		-2.589%	
	6.58m V.C.		6.58m V.C.			
DATUM 34.0						
DESIGN LIP GRADING	39.796	39.579	39.301	39.049	38.906	
ROAD CHAINAGE	75.862				11.171	38.906
CHAINAGE	0	3.288	6.576	9.864	13.152	

KR 35  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE VERTICAL GEOMETRY	-0.752%		-1.559%		-2.714%	
	4.00m V.C.		11.11m V.C.			
DATUM 32.0						
DESIGN LIP GRADING	38.451	38.432	38.405	38.294	38.226	38.191
ROAD CHAINAGE	16.176			11.114	16.671	22.227
CHAINAGE	0	2	4	15	16.671	22.227

KR 36  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE VERTICAL GEOMETRY	0.769%		1.700%		-5.885%		-0.976%	
	4.00m V.C.		8.00m V.C.		4.00m V.C.			
DATUM 34.0								
DESIGN LIP GRADING	38.784	38.791	38.812	38.841	38.875	38.89	38.867	38.709
ROAD CHAINAGE	16.522			7.016	8.809	11.016	15	15.016
CHAINAGE	0	1	3	5	7.016	8.809	11.016	15

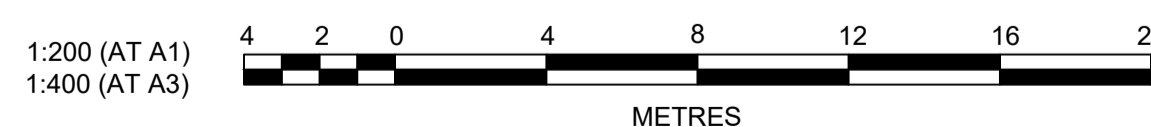
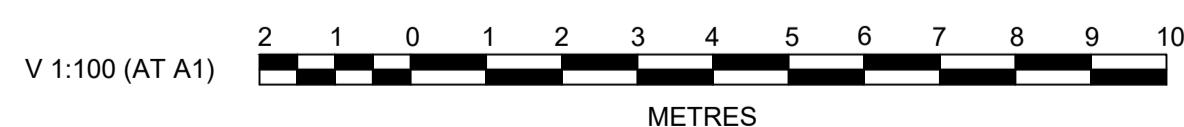
KR 37  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286413.97	6282082.66	50°52'51.24"		
6.58	286420.25	6282087.77		-8.95	13.15
13.15	286415.81	6282094.52	326°41'12.22"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286424.97	6282109.9	146°41'12.22"		
6.33	286429.17	6282103.51		-8.95	12.66
12.66	286436.14	6282106.66	65°39'00.41"		
17.44	286440.58	6282108.57		-20.45	9.57
22.23	286443.63	6282112.47	38°50'25.82"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286416.71	6282101.52	146°41'21.22"		
4.87	286419.43	6282097.38		-20.45	9.73
9.73	286423.76	6282094.94	119°25'06.60"		
11.37	286426.43	6282093.99		-2.45	3.27
13	286426.75	6282096.4	43°03'09.41"		
14.63	286428.06	6282096.81		-2.45	3.27
16.26	286427.01	6282098.42			
20.25	286424.82	6282101.75	326°41'12.24"		

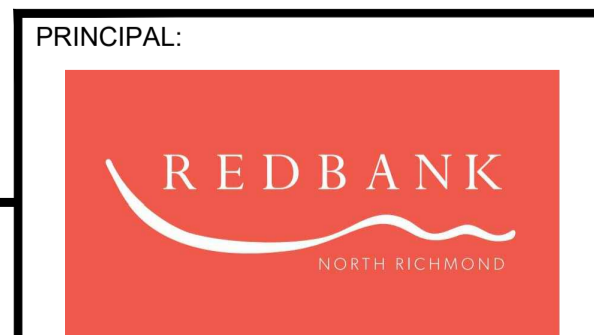
CONSTRUCTION CERTIFICATE  
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPP0565  
These plans/specifications form part of the certificate issued 5 March 2018



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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



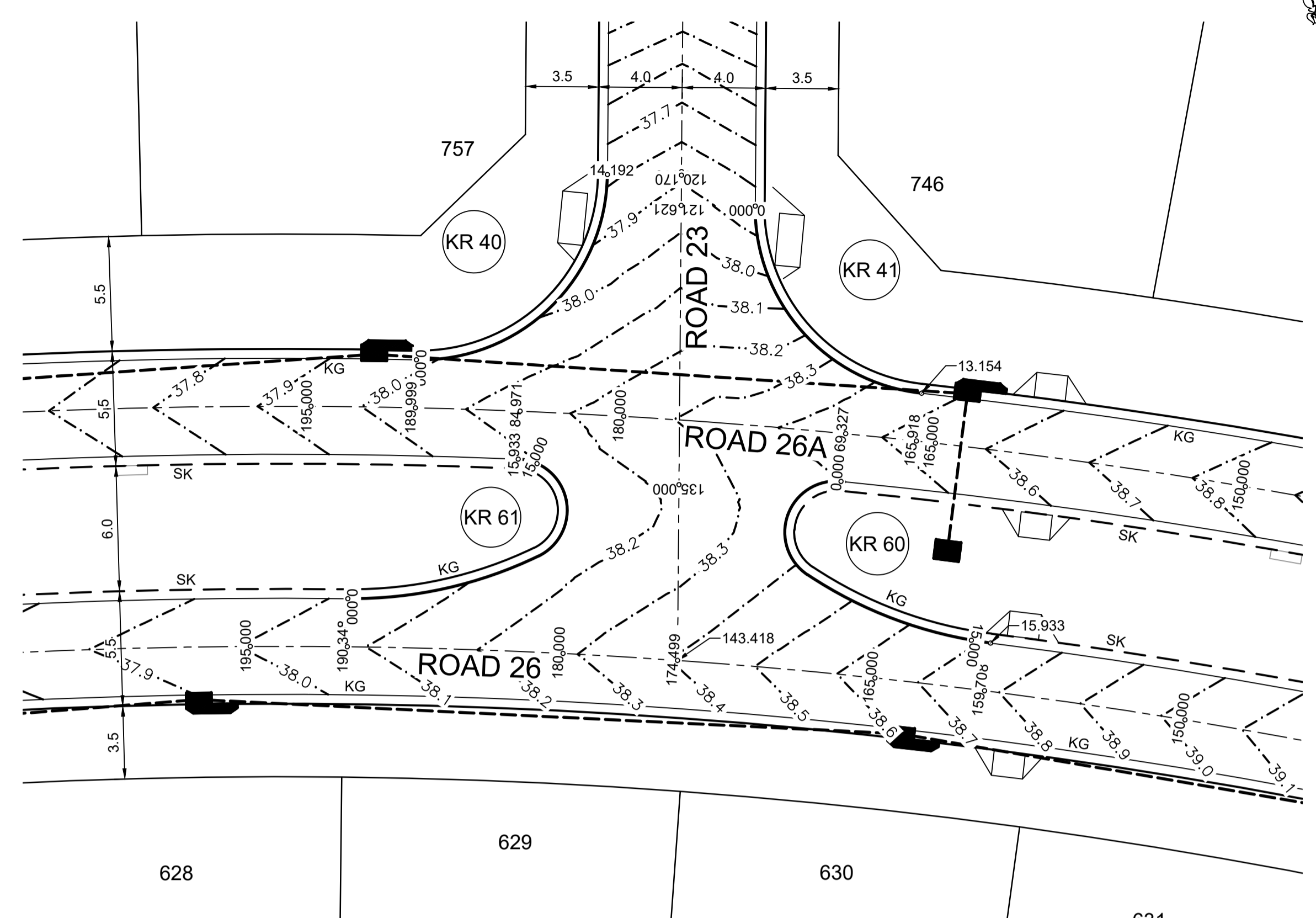
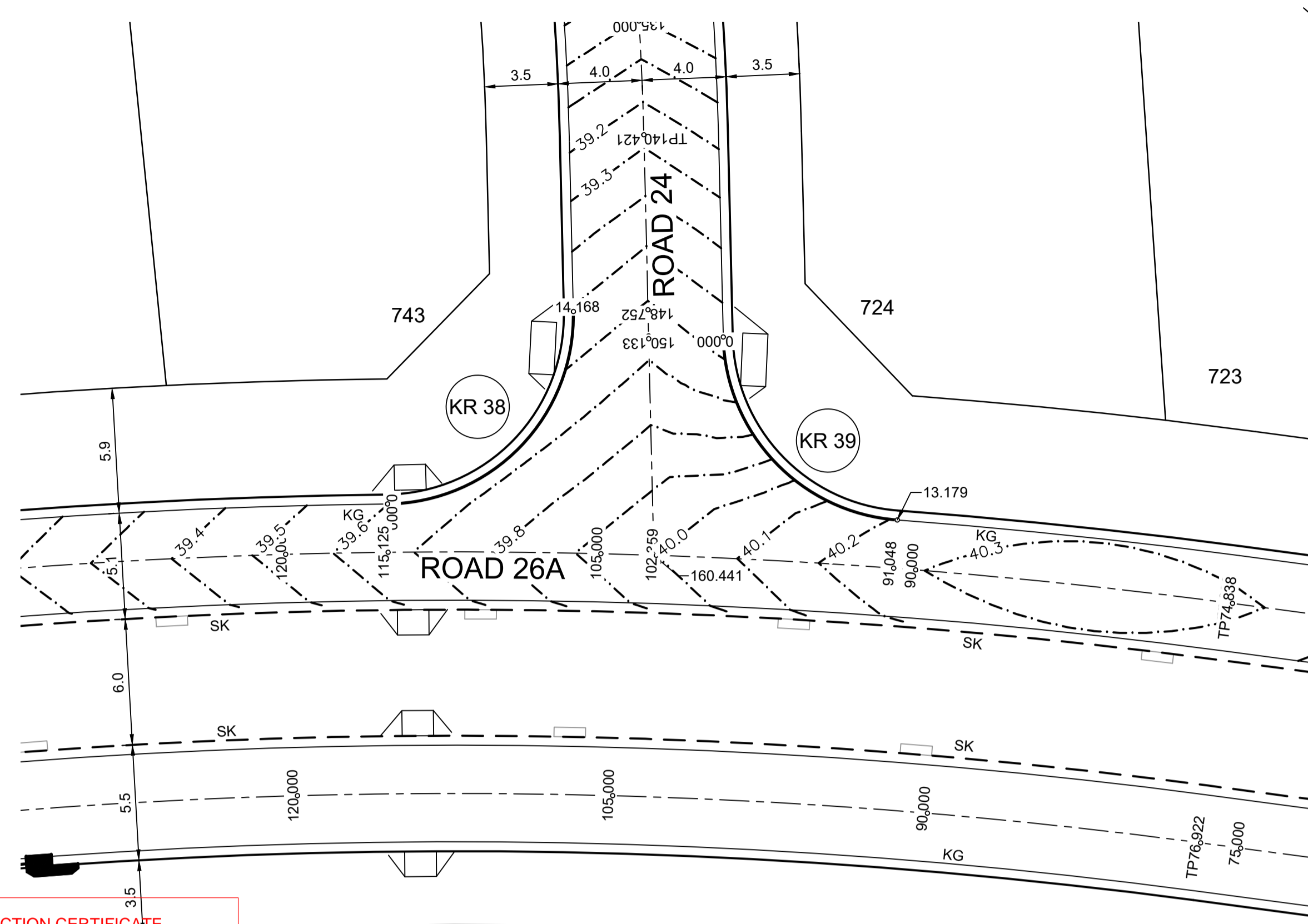
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 6 OF 16

PLAN No:  
**11018511/CC086 A**  
FILE No: 11018511CC086  
SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



**CONSTRUCTION CERTIFICATE**

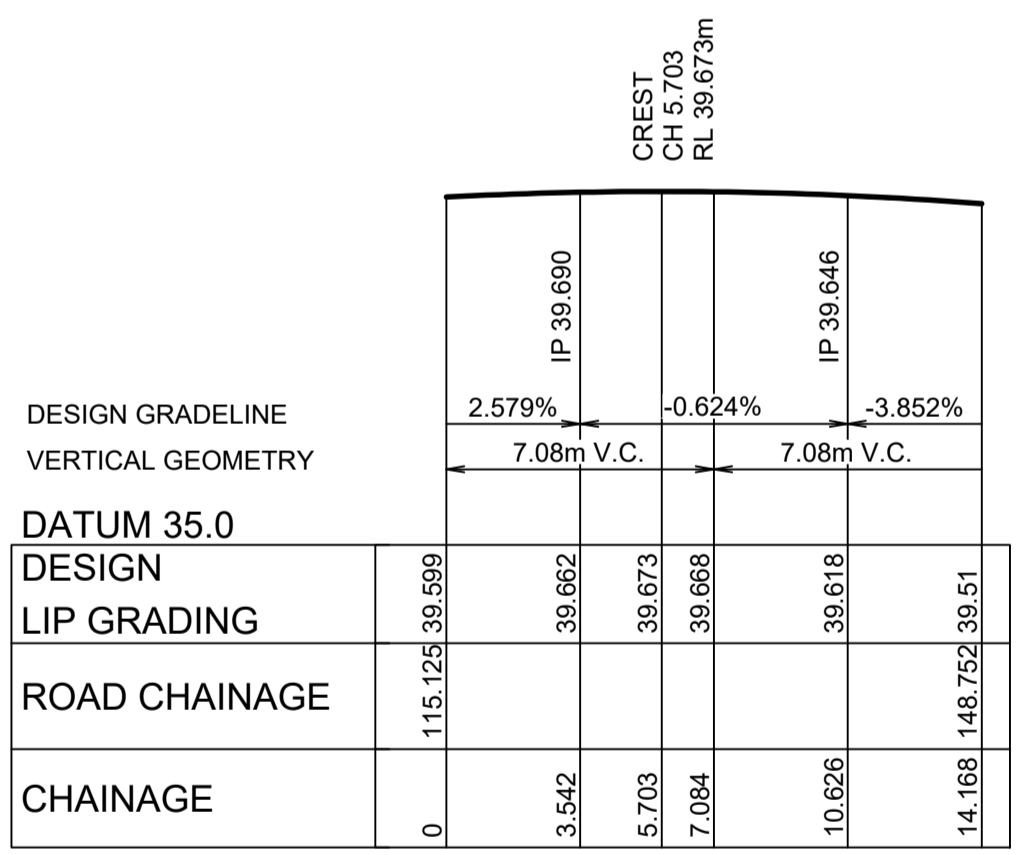
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565

These plans/specifications form part of the certificate issued 5 March 2018

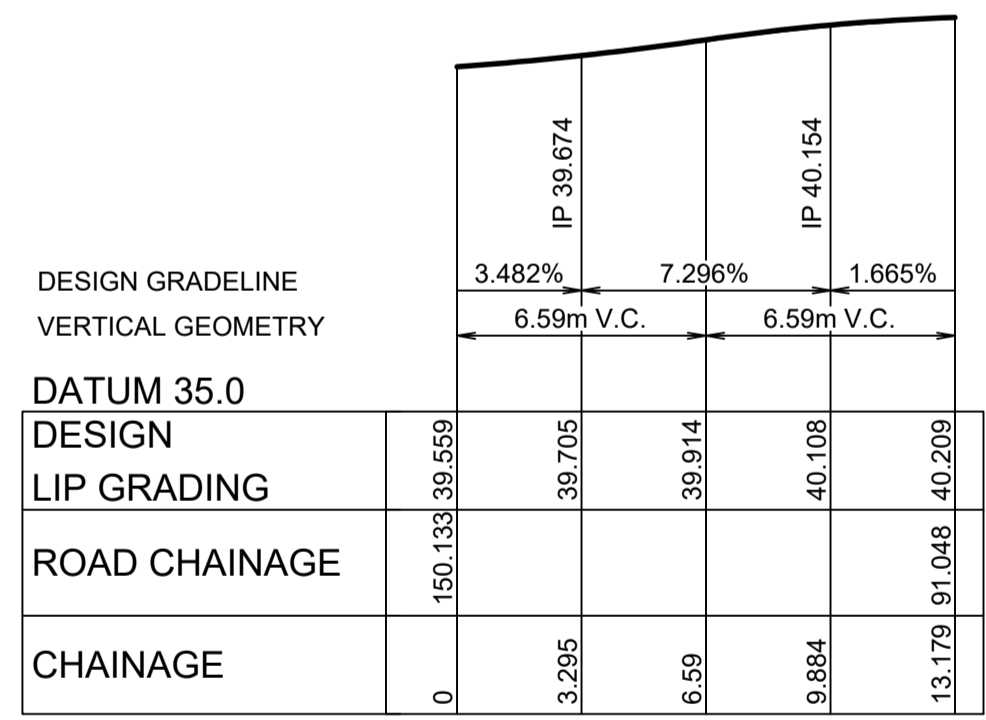
PLAN SCALE 1:200

PLAN SCALE 1:200

**NOTE:**  
 KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE



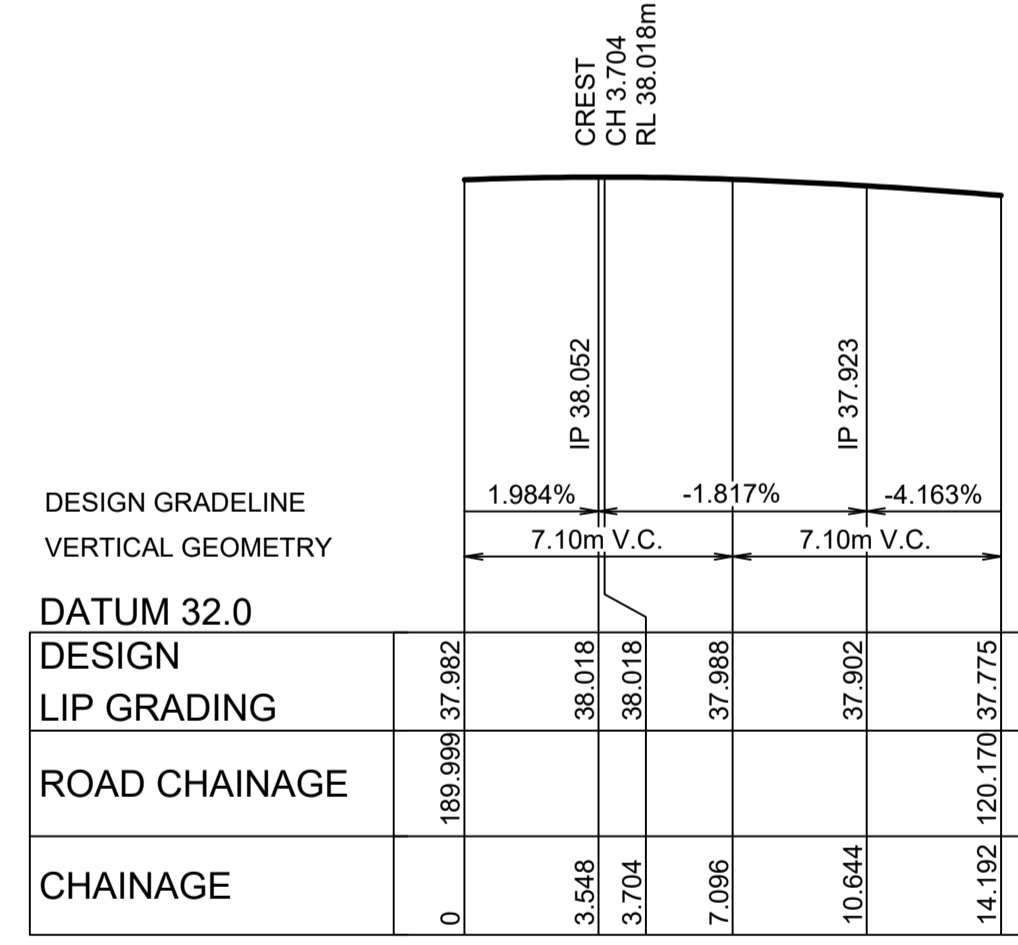
KR 38  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100



KR 39  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

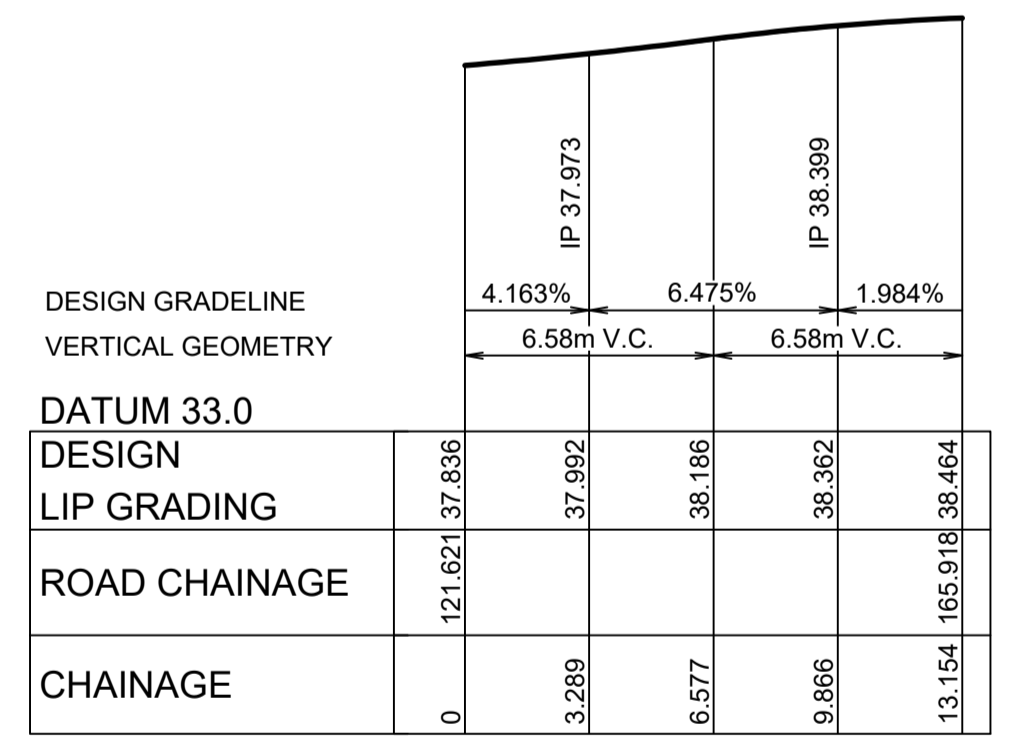
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286368.48	6282190.54	138°26'07.65"		
7.08	286374.49	6282183.76	-8.95		14.17
14.17	286381.19	6282189.85	47°44'15.09"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286384.94	6282183.67	227°44'15.09"		
6.59	286378.94	6282178.21	-8.95		13.18
13.18	286383.78	6282171.7	143°22'00.52"		



KR 40  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

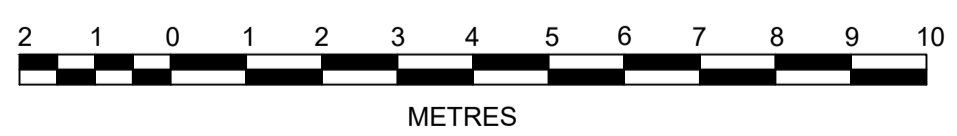
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286311.47	6282239.68	123°06'01.52"		
7.1	286319.08	6282234.72	-8.95		14.19
14.19	286323.93	6282242.41	32°14'39.94"		



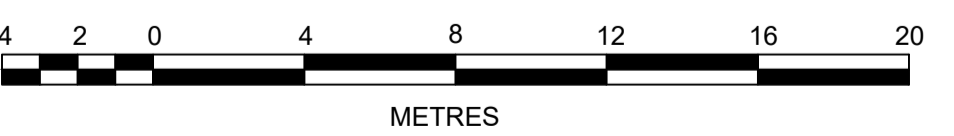
KR 41  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286329.16	6282237.39	212°14'39.94"		
6.58	286324.85	6282230.55	-8.95		13.15
13.15	286331.22	6282225.57	128°01'57.18"		

V 1:100 (AT A1)



1:200 (AT A1)  
 1:400 (AT A3)



PRINCIPAL:

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 KERB RETURN PLANS AND SECTIONS  
 SHEET 7 OF 16

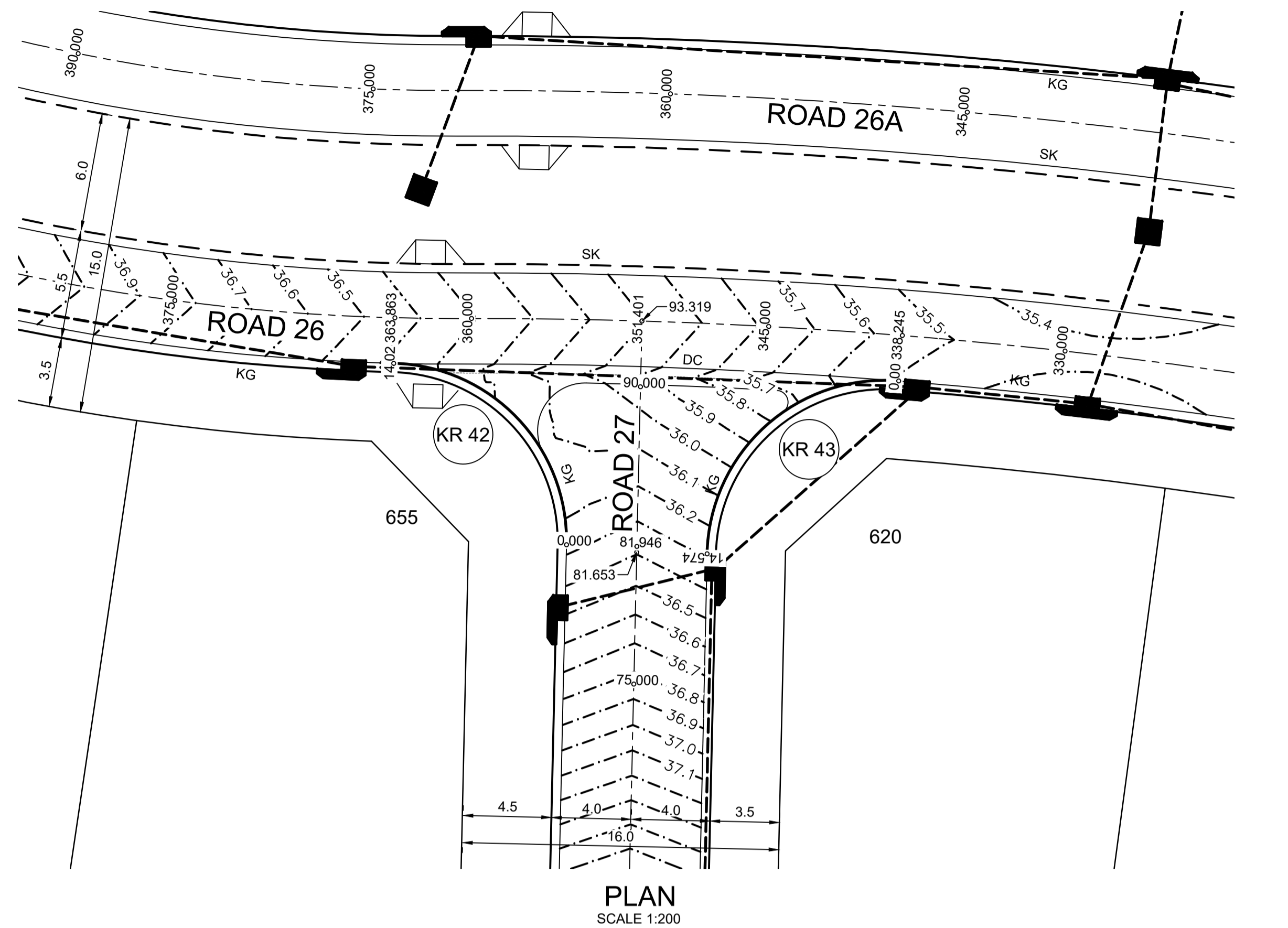
PLAN No:  
**11018511/CC087 A**  
 FILE No: 11018511CC087  
 SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 25 January, 2018 4:44:33 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC087\YEOMANS\11018511CC087.dwg

ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
AMENDMENT	DES	DRN	CKD	APR	DATE



PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

SAG  
CH 4.775  
RL 36.124m

DESIGN GRADELINE	-6.062%	2.842%	3.445%
VERTICAL GEOMETRY	7.01m V.C.		7.01m V.C.
DATUM 32.0			
DESIGN			
LIP GRADING	36.269	36.134	36.156
ROAD CHAINAGE	81.946		363.863
CHAINAGE	0	3.507	14.028

KR 42  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE	2.549%	6.597%	6.118%
VERTICAL GEOMETRY	7.29m V.C.		7.29m V.C.
DATUM 31.0			
DESIGN			
LIP GRADING	35.583	35.62	35.623
ROAD CHAINAGE	338.245		363.863
CHAINAGE	0	3.644	14.574

KR 43  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

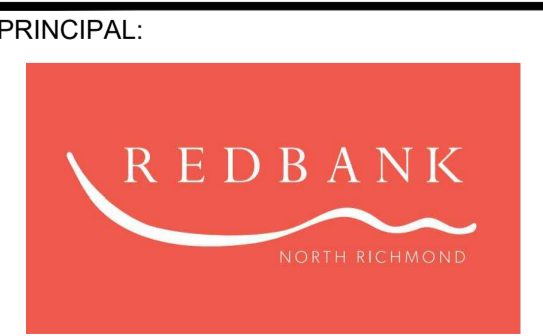
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286145.3	6282259.99	357°34'15.34"		
7.01	286144.92	6282268.91		-8.95	14.03
14.03	286136.01	6282268.56	267°46'03.99"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286161.49	6282269.33	270°52'14.52"		
7.29	286152.01	6282269.47		-8.95	14.57
14.57	286152.41	6282260	177°34'15.34"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. JBPB0565

These plans/specifications form part of the certificate issued 5 March 2018



**ISSUED FOR CONSTRUCTION APPROVAL**

MP	MG	RO	MS	15/06/17
DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

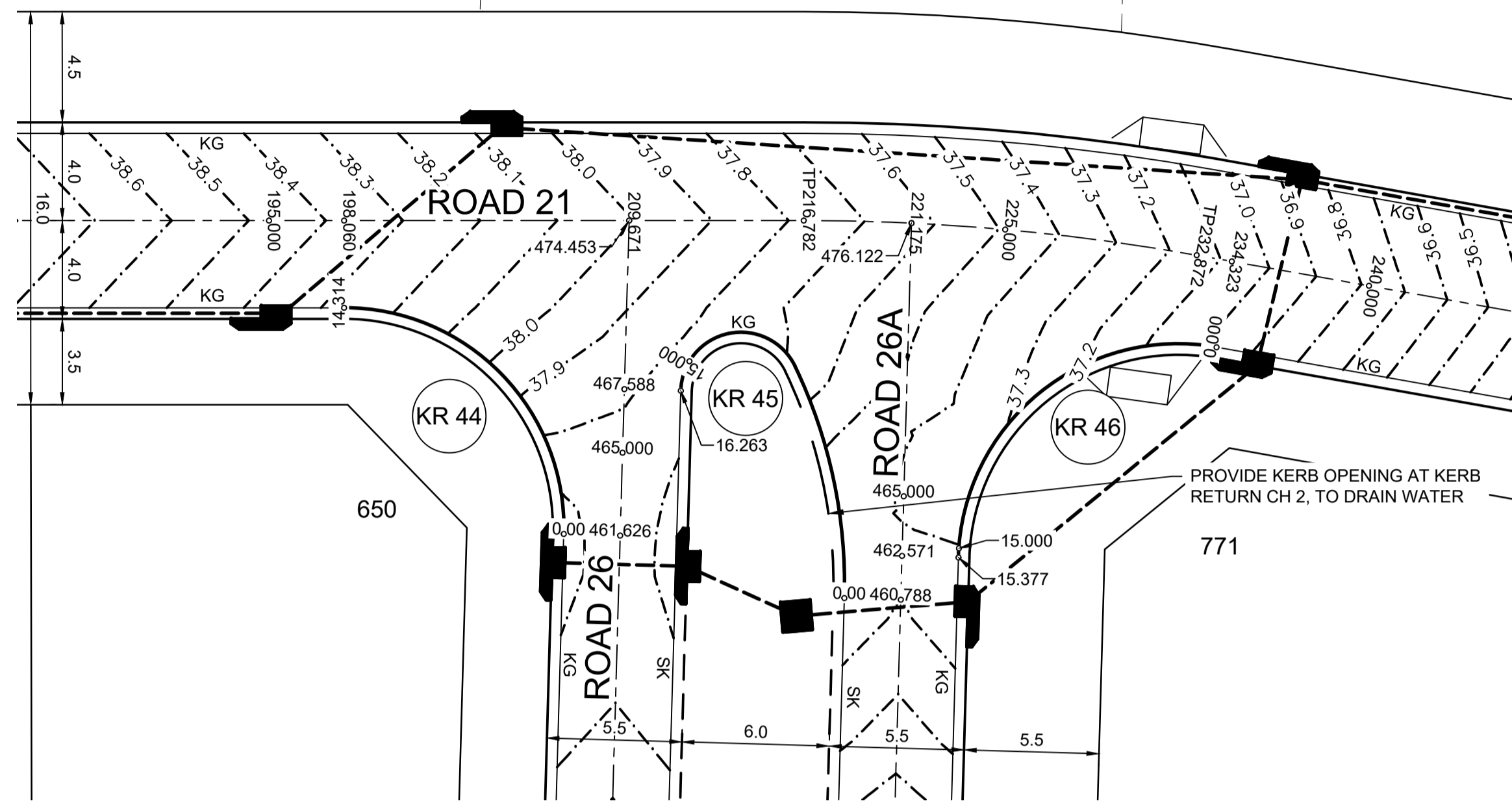
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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PLAN No:	11018511/CC088 A
FILE No:	11018511CC088
SHEET SIZE:	A1 ORIGINAL

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 KERB RETURN PLANS AND SECTIONS  
 SHEET 8 OF 16



PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

DESIGN GRADELINE	0.500%	5.393%	3.183%
VERTICAL GEOMETRY	4.00m V.C.		7.16m V.C.
DATUM	33.0		
DESIGN LIP GRADING	IP 37.675	IP 37.685	IP 38.156
ROAD CHAINAGE	0 461.626 37.675	37.709	37.963 38.136
CHAINAGE	0	2	7.157 10.736 14.314 198.060 38.27

KR 44  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE	-1.805%	5.806%	-2.056%
VERTICAL GEOMETRY	8.13m V.C.		8.13m V.C.
DATUM	33.0		
DESIGN LIP GRADING	IP 37.359	IP 37.831	
ROAD CHAINAGE	0 460.788 37.432	37.436	37.595 37.751 37.769 37.785
CHAINAGE	0	4.066	8.131 12.197 14.137 15 16.263 467.588 37.747

KR 45  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE	4.901%	2.535%	1.377%
VERTICAL GEOMETRY	7.69m V.C.		7.69m V.C.
DATUM	32.0		
DESIGN LIP GRADING	IP 37.159	IP 37.354	
ROAD CHAINAGE	0 234.323 36.971	37.137	37.257 37.343 37.402
CHAINAGE	0	3.844	7.688 11.533 15 15.377 462.574 37.407

KR 46  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	286046.88	6282305.99	309°05'47.80"		
7.16	286039.73	6282311.79		-8.95	14.31
14.31	286034.13	6282304.48	217°27'33.33"		

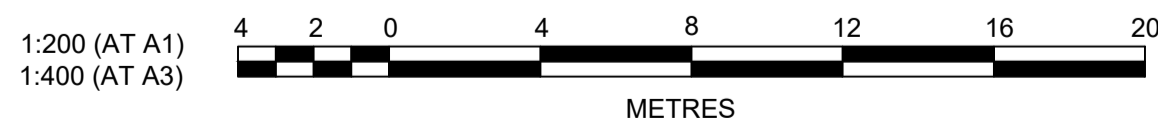
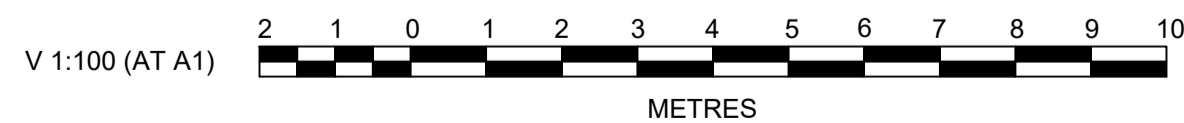
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	286055.51	6282313.47	309°05'47.80"		
4.87	286052.06	6282316.6		-20.45	9.73
9.73	286047.2	6282317.62	281°49'50.04"		
11.36	286045.32	6282318.01		-2.45	3.27
13	286044.49	6282316.27	205°27'48.92"		
14.63	286043.66	6282314.53		-2.45	3.27
16.26	286045.15	6282313.32	129°05'47.80"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPHAL	A LENGTH
0	286057.02	6282331.71	227°32'04.84"		
7.69	286049.37	6282324.71		-8.95	15.38
15.38	286057.42	6282318.17	129°05'47.80"		

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018



PRINCIPAL:



ISSUED FOR CONSTRUCTION APPROVAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

AZIMUTH: MGA 56

DATUM: A.H.D

ORIGIN:

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REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS

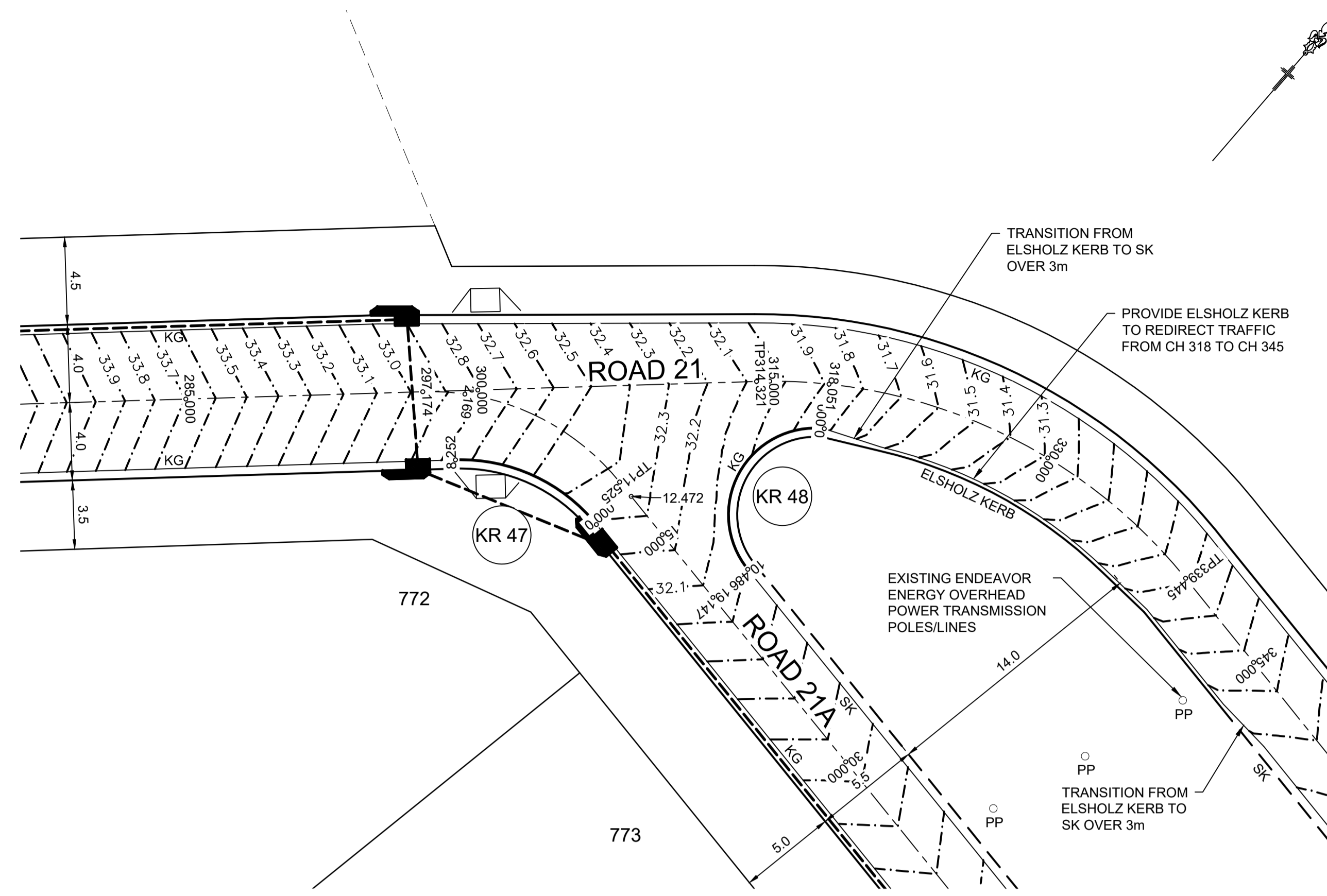
SHEET 9 OF 16

PLAN No: 11018511/CC089 A

FILE No: 11018511CC089

SHEET SIZE: A1 ORIGINAL

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE

DESIGN GRADELINE	4.496%	5.737%	6.602%
VERTICAL GEOMETRY	4.13m V.C., 4.13m V.C.		
DATUM 28.0			
DESIGN LIP GRADING	32.289	32.388	32.5
ROAD CHAINAGE	12.472		
CHAINAGE	0	2.063	4.126
		6.189	8.252
			10.315

KR 47  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE	5.461%	2.728%	4.158%
VERTICAL GEOMETRY	5.24m V.C., 5.24m V.C.		
DATUM 27.0			
DESIGN LIP GRADING	31.819	31.945	32.034
ROAD CHAINAGE	318.051		
CHAINAGE	0	2.622	5.243
		7.32	10.486
			15.729

KR 48  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

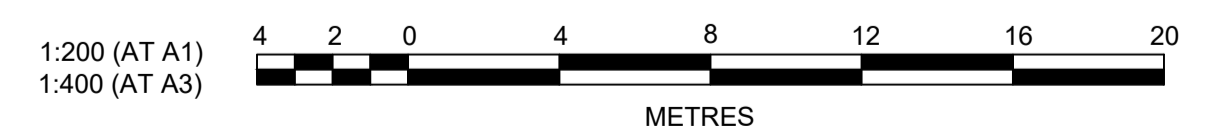
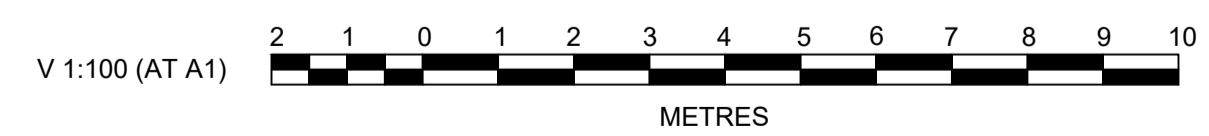
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286112.2	6282377.41	280°21'33.09"		
4.13	286107.83	6282378.21		-8.95	8.25
8.25	286104.55	6282375.21	227°32'04.84"		

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286117.86	6282388.77	235°22'34.44"		
2.62	286115.42	6282387.08		-4.45	5.24
5.24	286116.04	6282384.18	167°52'03.76"		
7.86	286116.67	6282381.27		-4.45	5.24
10.49	286119.59	6282380.73	100°21'33.09"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 10 OF 16

PLAN No: 11018511/CC090 **A**  
 FILE No: 11018511CC090  
 SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

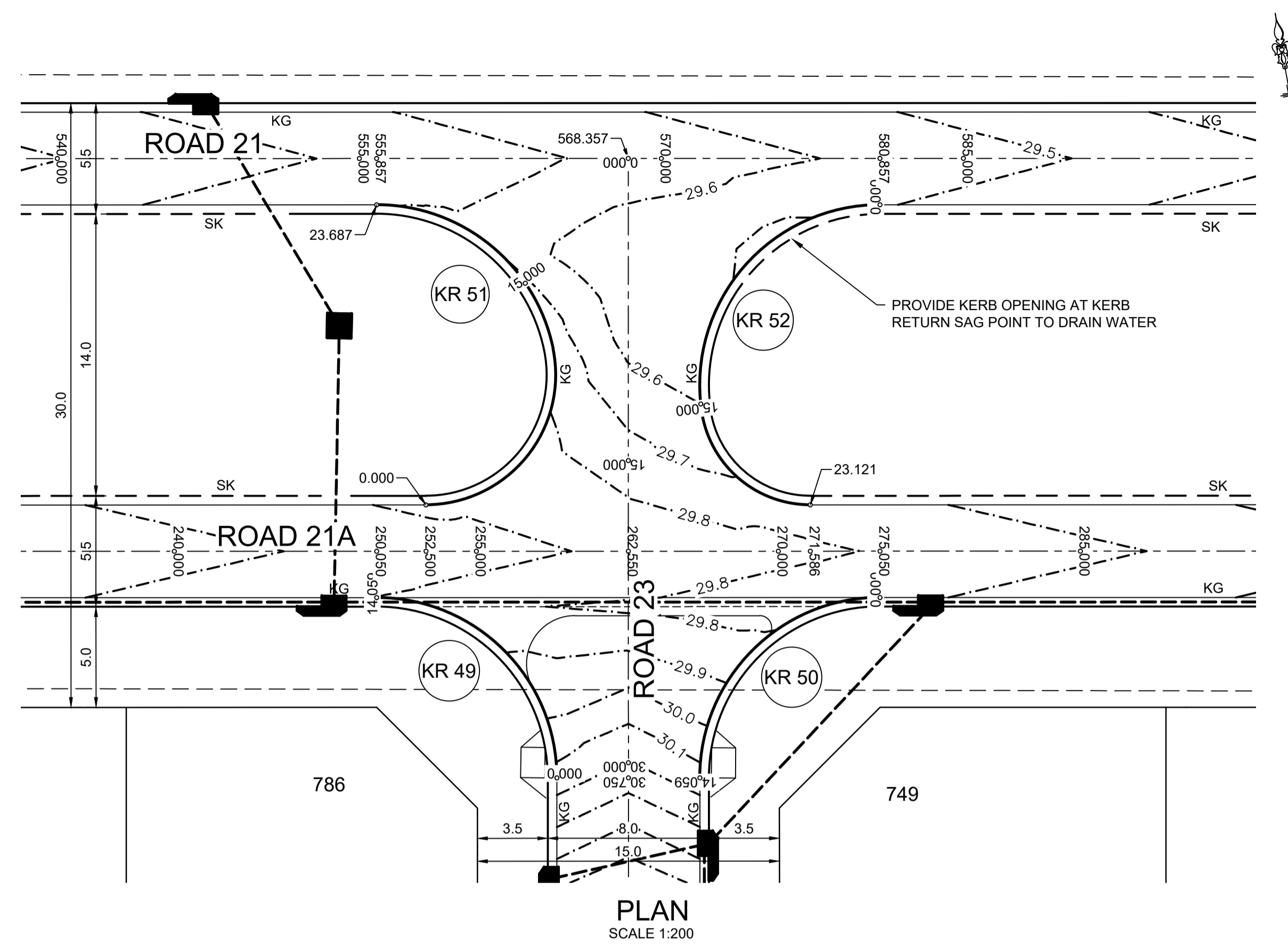
PO Box 4366 PENRITH WESTFIELD NSW 2750  
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NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

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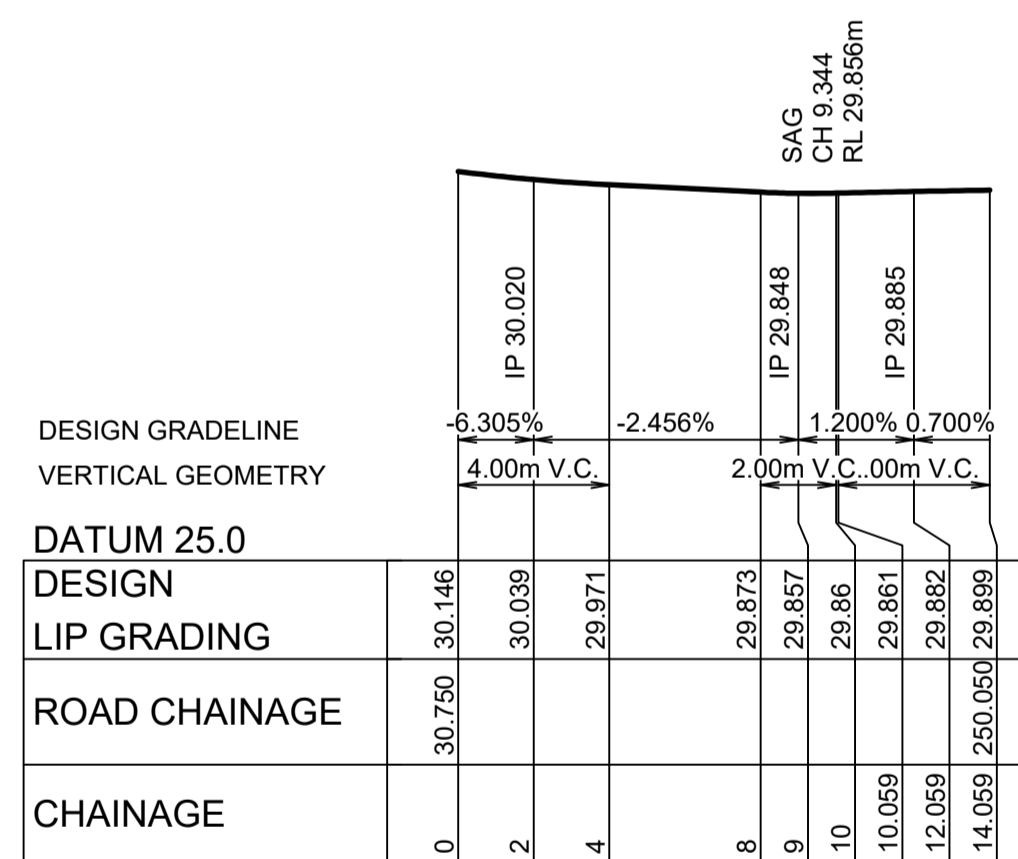
CONSTRUCTION CERTIFICATE

Certificate No. 20130279C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018

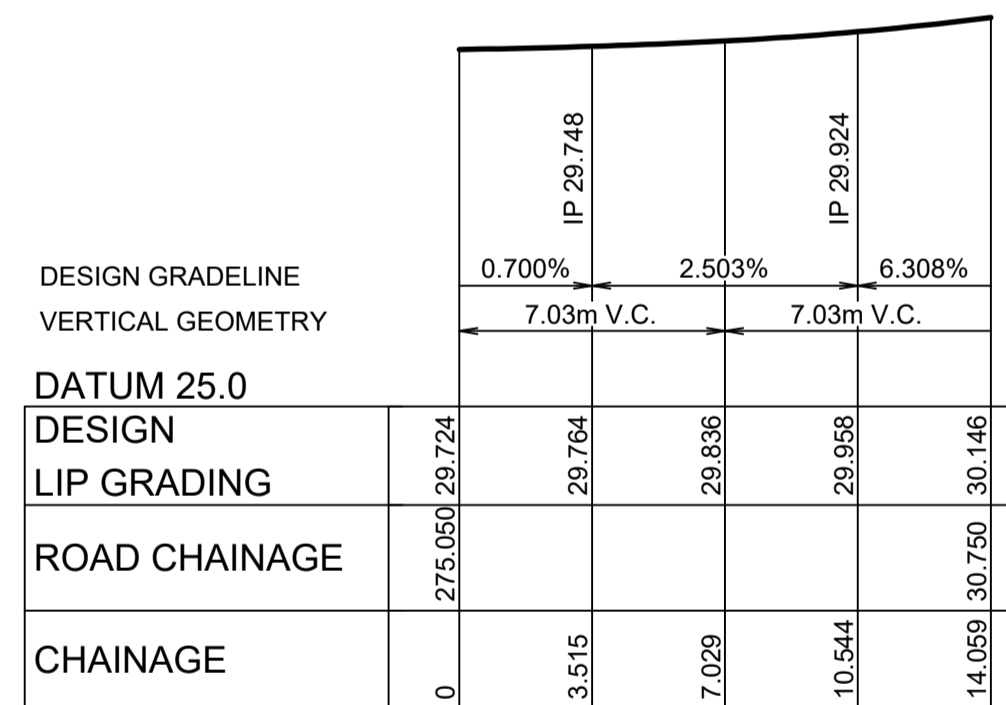


PLAN  
SCALE 1:200

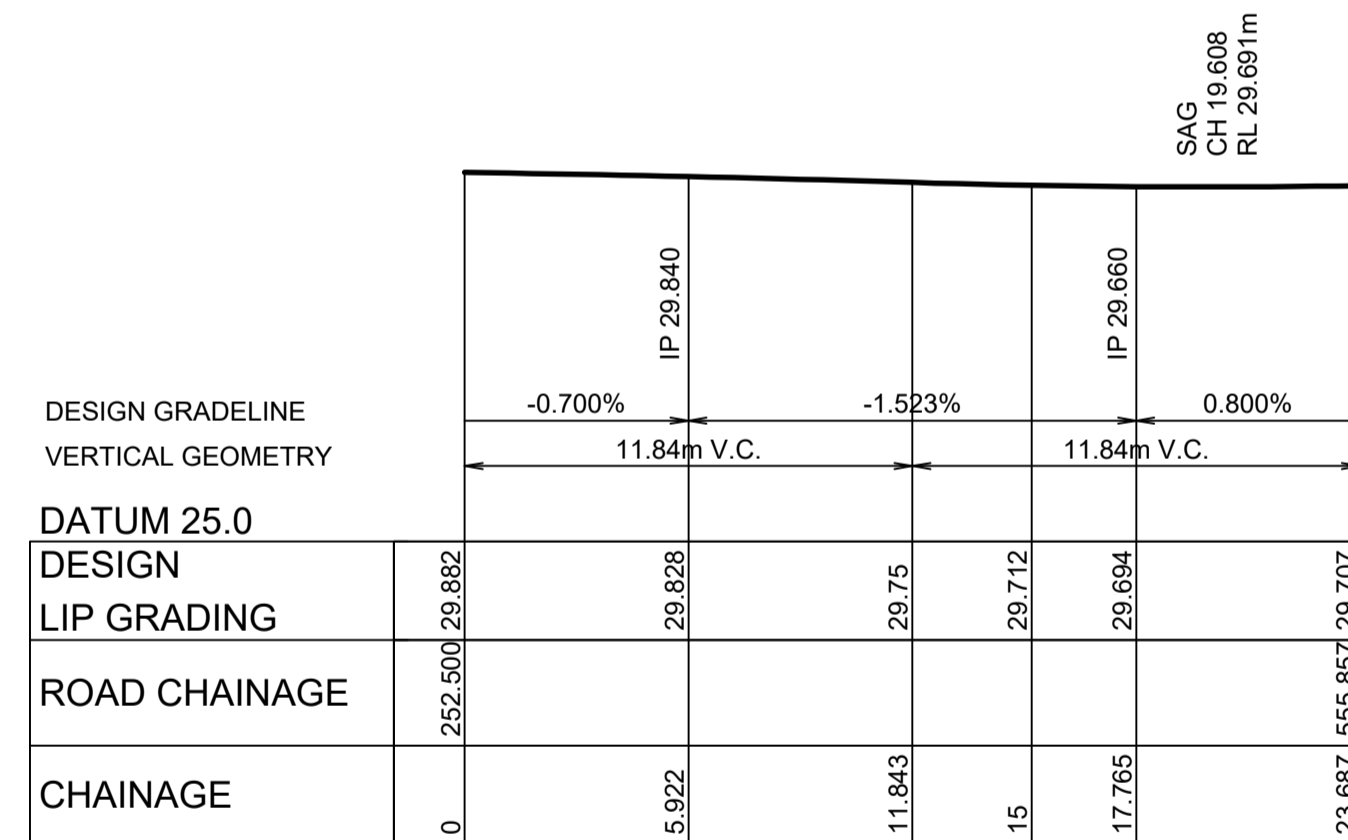
NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE



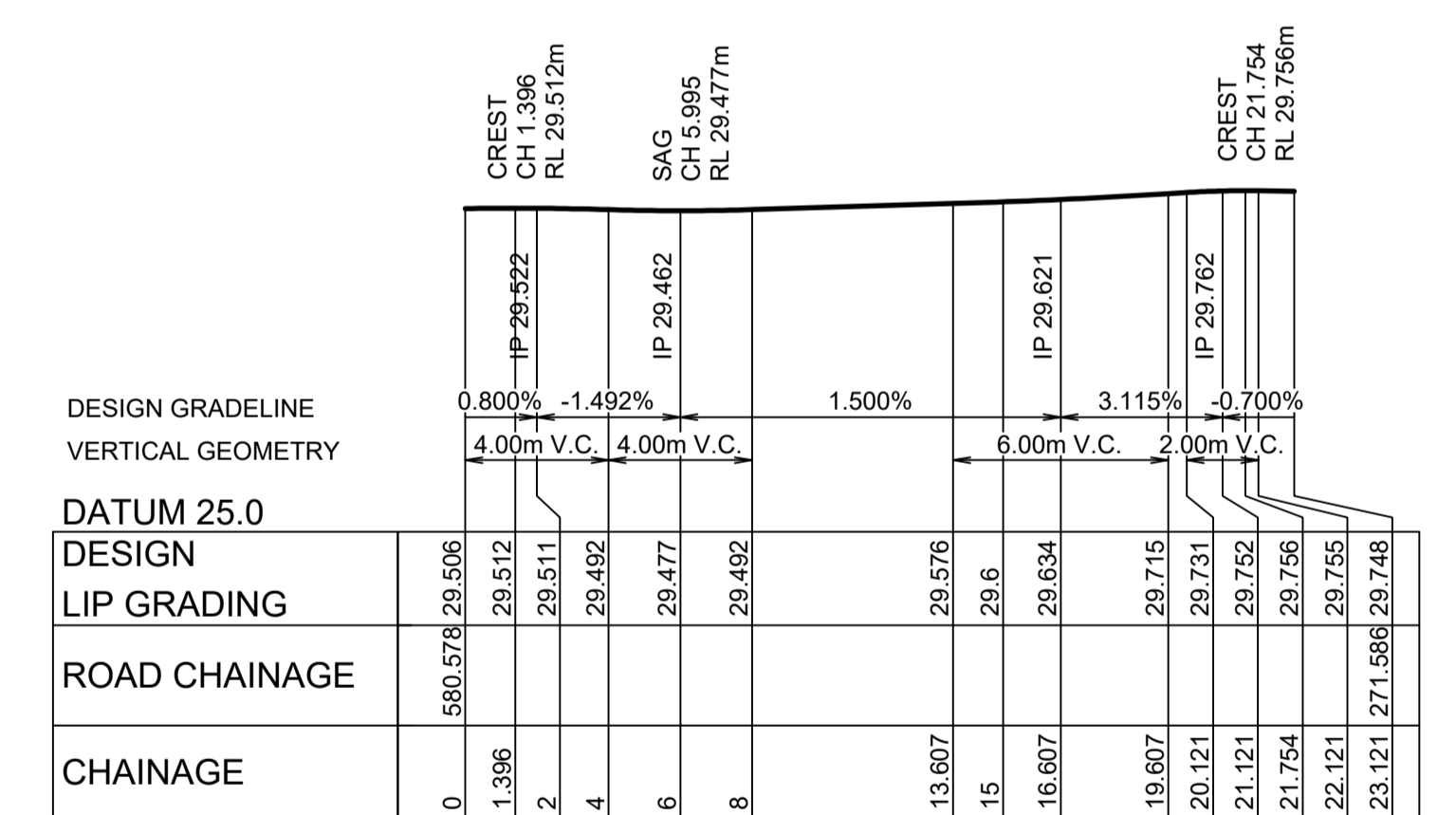
KR 49  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 50  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 51  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 52  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

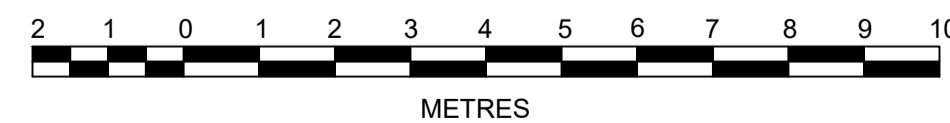
KR 49					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286353.1	6282324.27	10°21'33.10"		
7.03	286354.71	6282333.08		-8.95	14.06
14.06	286345.9	6282334.69	280°21'33.09"		

KR 50					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286370.5	6282330.19	280°21'33.09"		
7.03	286361.69	6282331.8		-8.95	14.06
14.06	286360.08	6282323	190°21'33.10"		

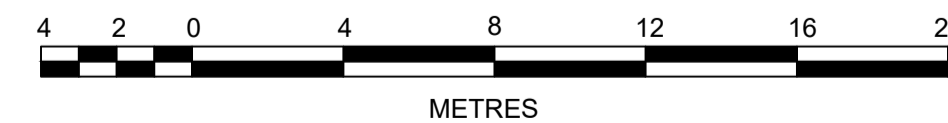
KR 51					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286349.14	6282338.77	100°21'33.09"		
5.72	286356.91	6282337.35		-6.45	11.43
11.43	286356.75	6282345.25	358°49'19.98"		
17.56	286356.6	6282352.56		-8.95	12.26
23.69	286349.41	6282353.87	280°21'33.04"		

KR 52					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286374	6282349.37	280°21'33.09"		
7.67	286363.84	6282351.23		-8.95	15.34
15.34	286363.45	6282340.91	182°08'45.52"		
19.23	286363.27	6282336.19		-5.45	7.78
23.12	286367.92	6282335.34	100°21'33.09"		

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



PRINCIPAL:



AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 11 OF 16

PLAN No:  
11018511/CC091 A  
FILE No: 11018511CC091  
SHEET SIZE: A1 ORIGINAL

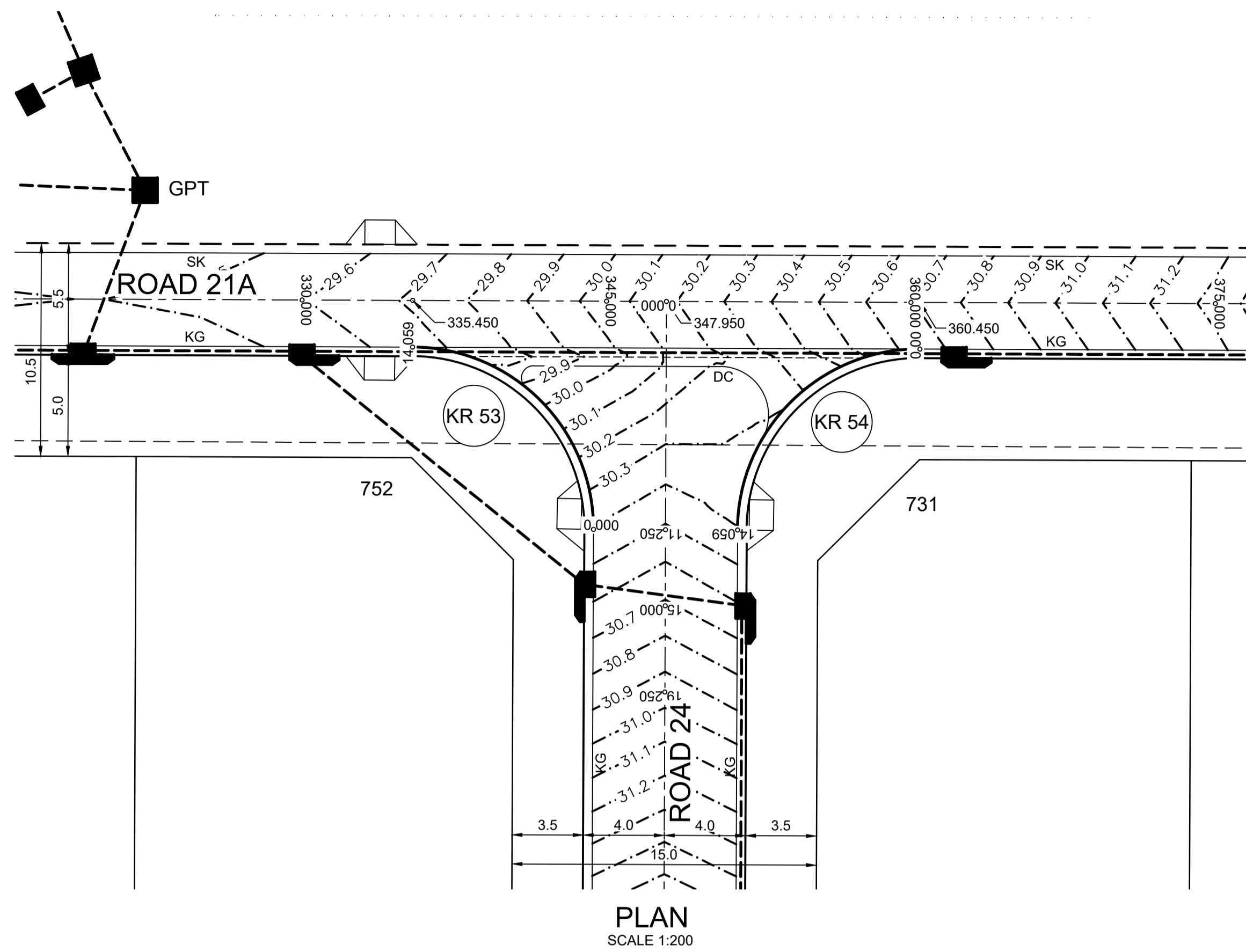
NO.	DESCRIPTION	BY	CHKD	DATE		
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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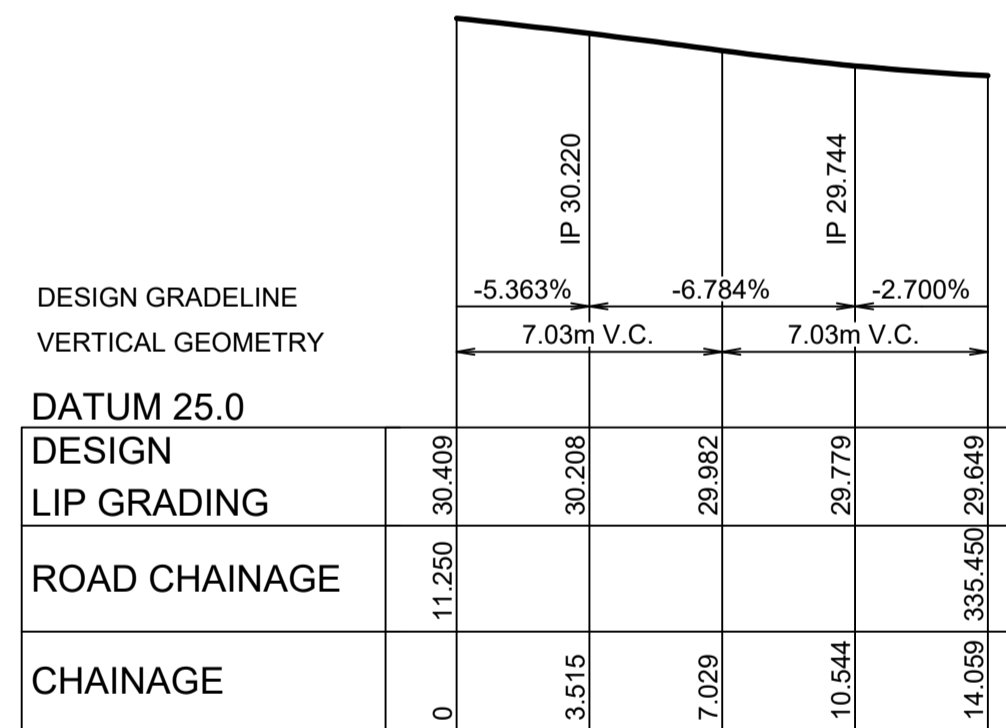
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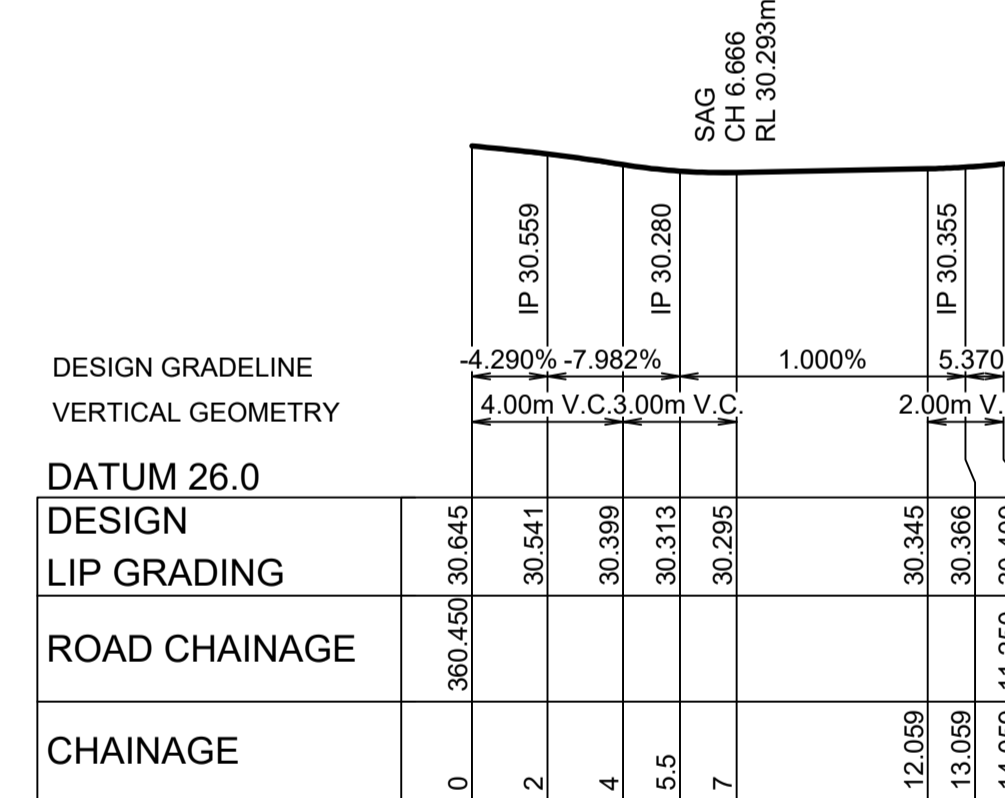


PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE



KR 53  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 54  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

KR 53					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286437.11	6282308.92	10°21'33.09"		
7.03	286438.72	6282317.72		-8.95	14.06
14.06	286429.91	6282319.33	280°21'33.09"		

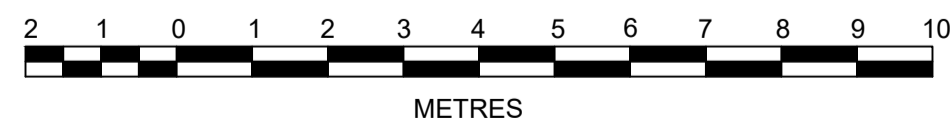
KR 54					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286454.5	6282314.84	280°21'33.09"		
7.03	286445.7	6282316.44		-8.95	14.06
14.06	286444.09	6282307.64	190°21'33.09"		

**CONSTRUCTION CERTIFICATE**

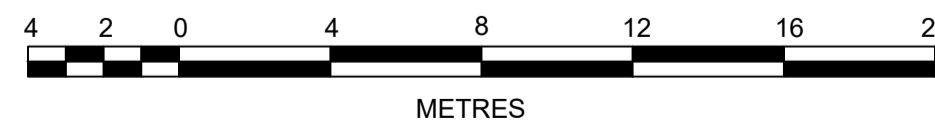
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)



PRINCIPAL:



AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 12 OF 16

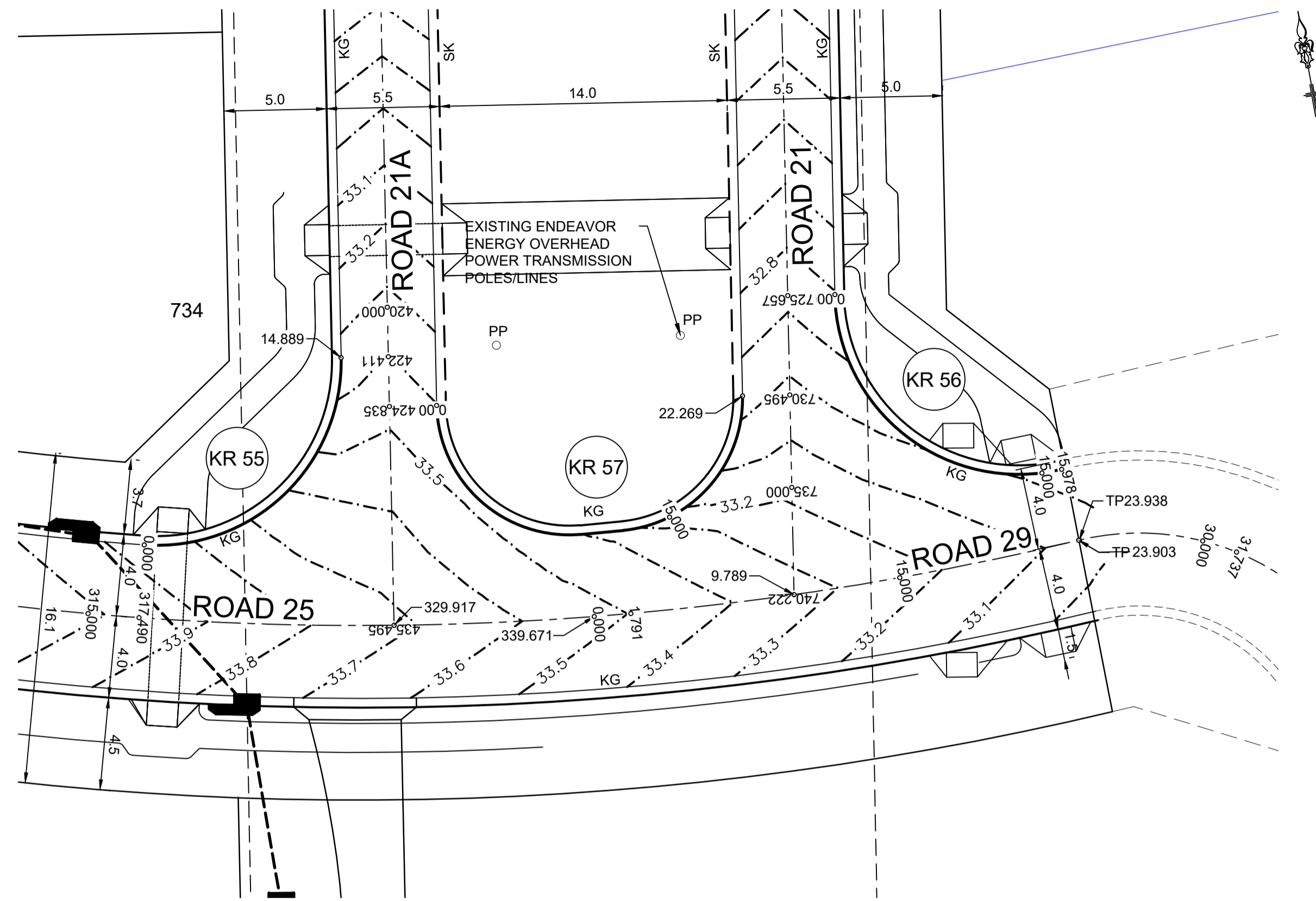
PLAN No: 11018511/CC092 [A]  
FILE No: 11018511CC092  
SHEET SIZE: A1 ORIGINAL

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

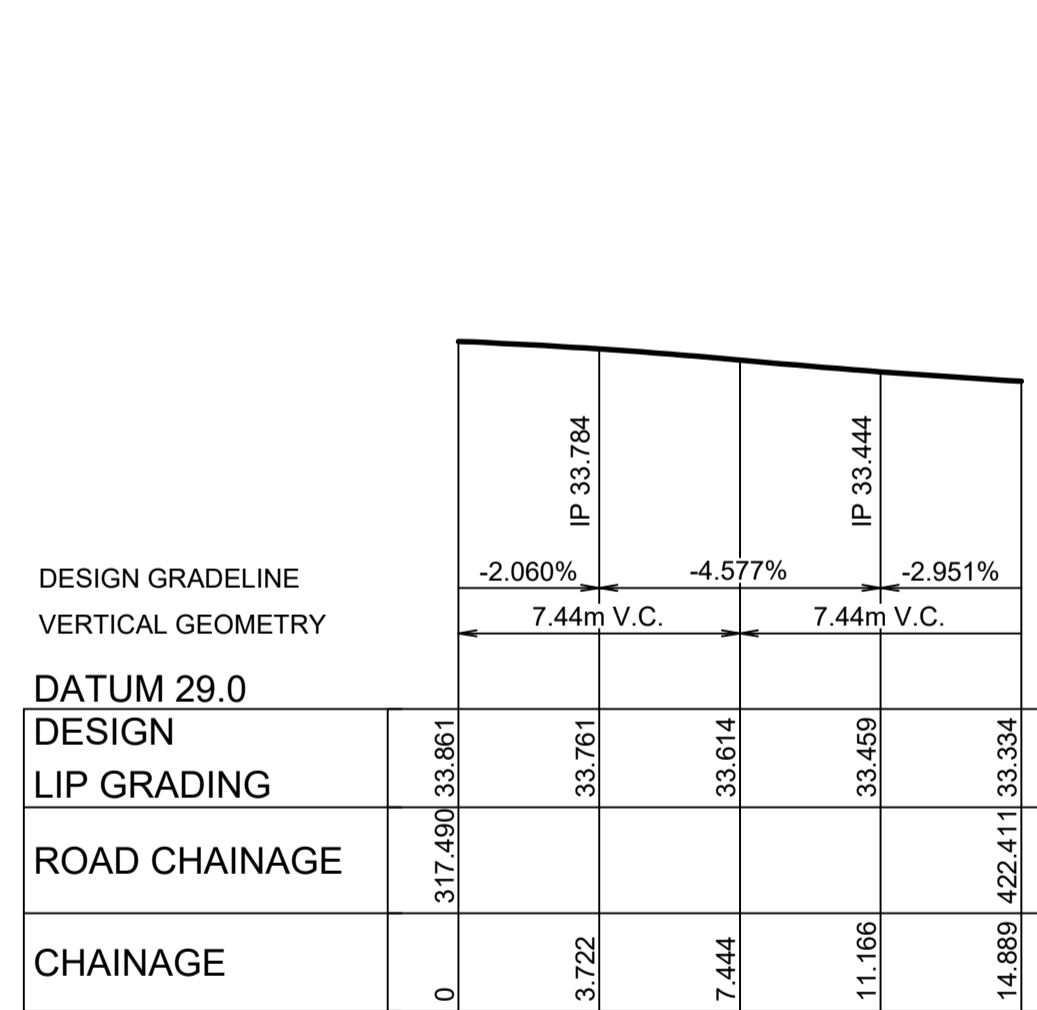
PO Box 4366 PENRITH WESTFIELD NSW 2750  
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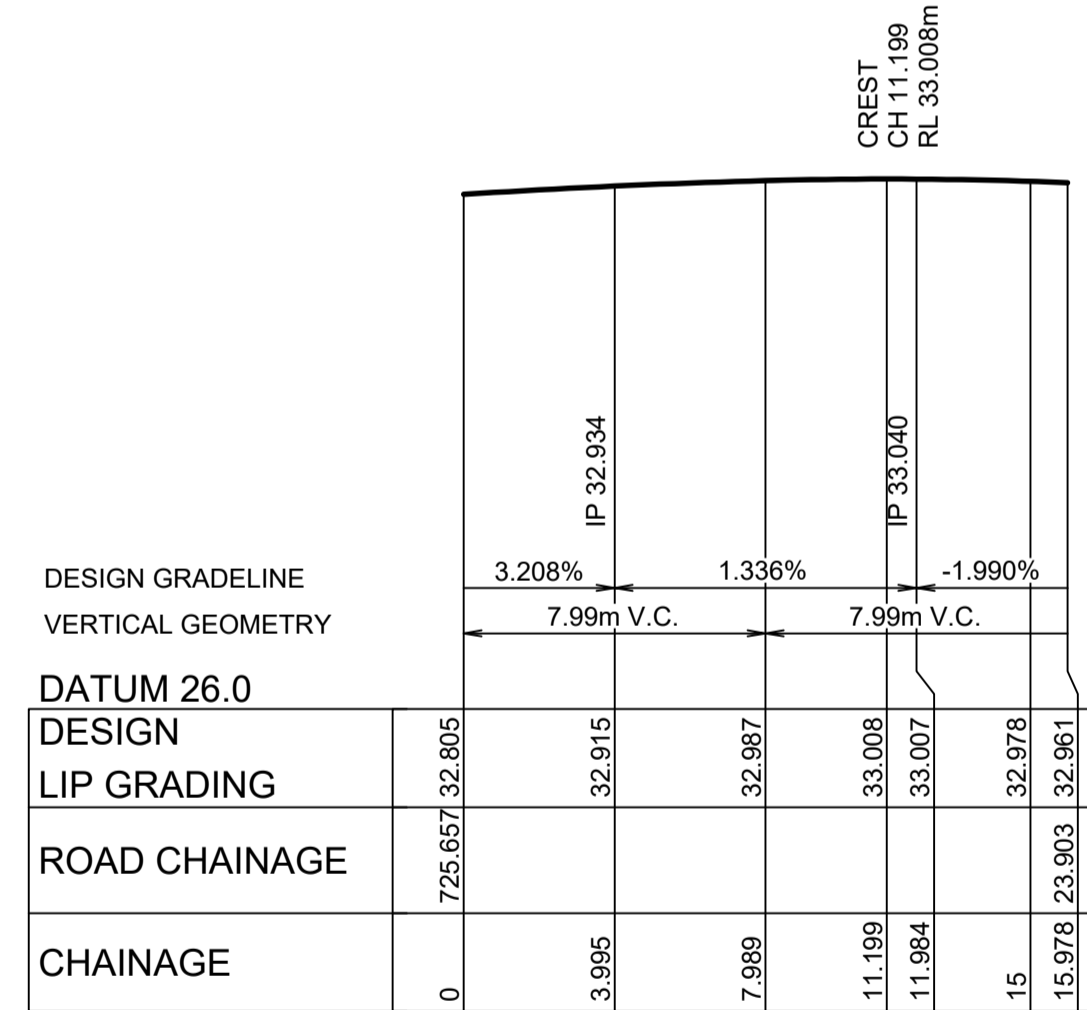
PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE



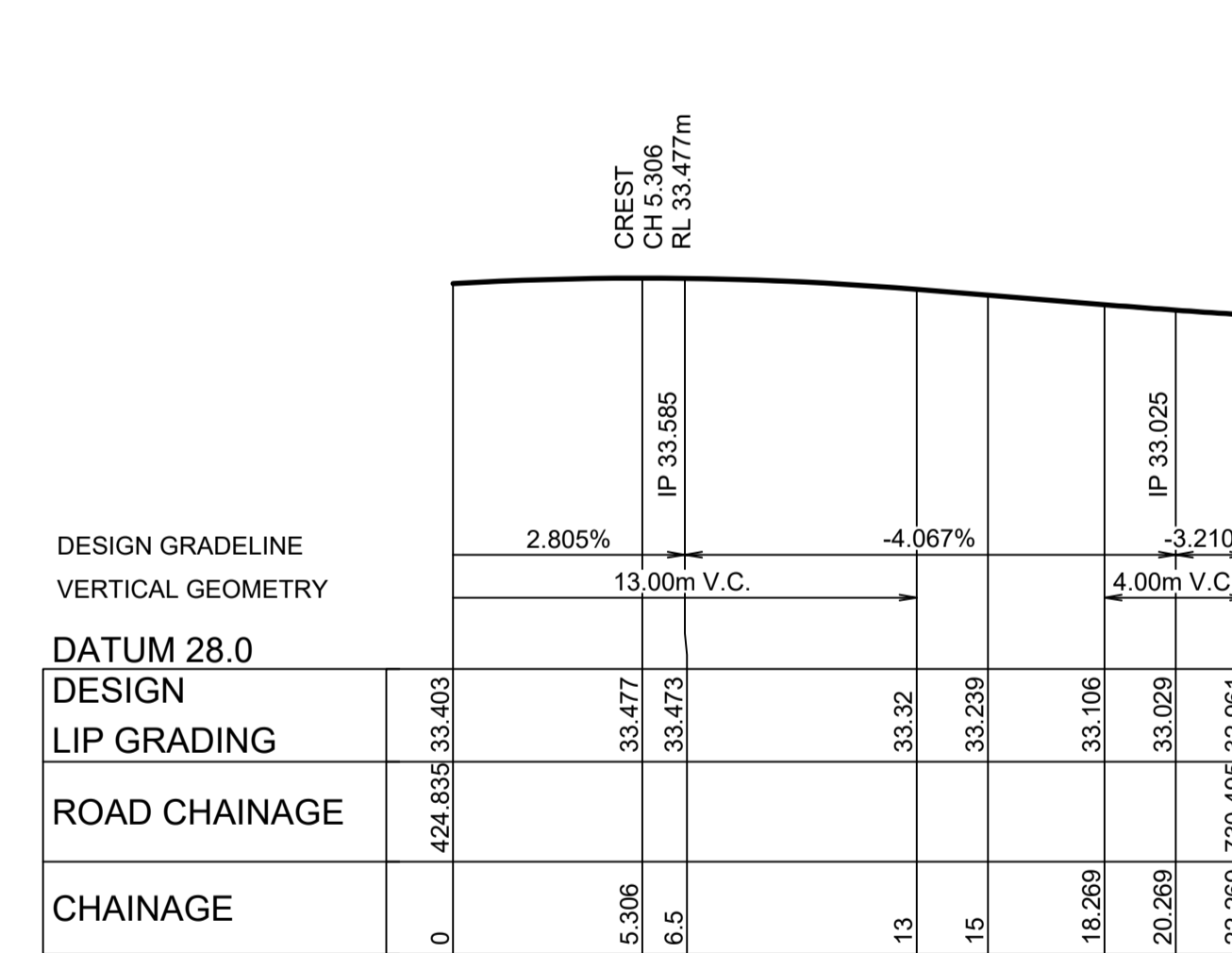
KR 55  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286522.46	6282292.47	15°40'20.77"		
7.44	286525.12	6282301.93		-8.95	14.89
14.89	286515.45	6282303.69	280°21'33.09"		



KR 56  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286517.27	6282327.86	100°21'33.09"		
7.99	286528.2	6282325.86		-8.95	15.98
15.98	286527.82	6282336.97	358°04'10.37"		



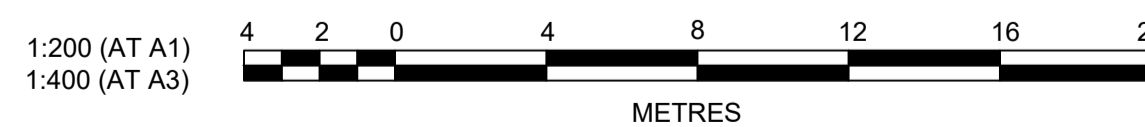
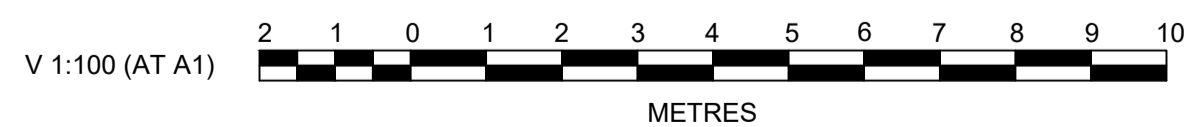
KR 57  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286518.67	6282307.73	100°21'33.09"		
5.28	286525.44	6282306.54		-6.45	10.56
10.56	286526.23	6282313.39	6°35'29.33"		2.1
11.6	286526.35	6282314.43		-146.45	2.1
12.65	286526.46	6282315.47	5°46'14.81"		
17.46	286527.06	6282321.4		-6.45	9.62
22.27	286521.2	6282322.47	280°21'33.09"		

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130292C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 13 OF 16

PLAN No:  
**11018511/CC093 A**

FILE No: 11018511CC093

SHEET SIZE: A1 ORIGINAL

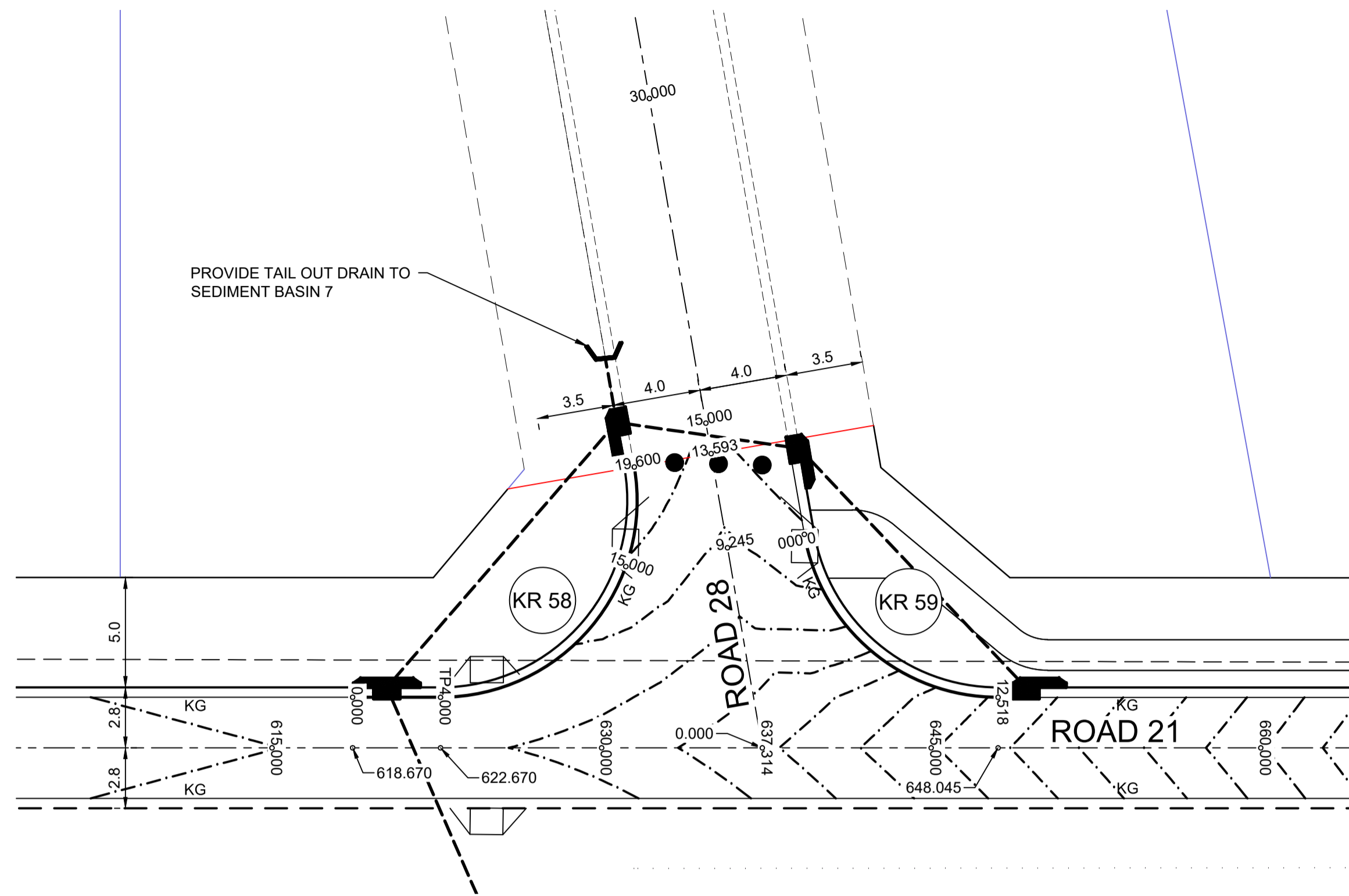
NO.	DESCRIPTION	MP	MG	RO	MS	15/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	DATE

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:





PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND  
LEVELS ARE LIP OF GUTTER  
UNLESS SHOWN OTHERWISE

SAG  
CH 1.333  
RL 29.211m

CREST  
CH 6.473  
RL 29.237m

DESIGN GRADELINE	0.50%	1.00%	-2.234%	-1.818%
VERTICAL GEOMETRY	4.00m V.C.		8.00m V.C.	5.00m V.C.
DATUM 25.0	IP 29.214	IP 29.204	IP 29.264	IP 29.115
DESIGN	29.212	29.224	29.237	29.175
LIP GRADING	29.212	29.224	29.237	29.175
ROAD CHAINAGE	618.670	622.670	622.670	637.314
CHAINAGE	0	2	4	6.473
				8
				12
				12.2
				14.7
				15
				17.2
				19.6

KR 58  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

DESIGN GRADELINE	2.235%	6.915%	3.088%
VERTICAL GEOMETRY	6.26m V.C.		6.26m V.C.
DATUM 25.0	IP 29.184	IP 29.617	
DESIGN	29.114	29.221	29.401
LIP GRADING	29.114	29.221	29.401
ROAD CHAINAGE	9.245	6.259	9.388
CHAINAGE	0	3.129	6.259
			9.388
			12.518

KR 59  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

KR 58

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286412.03	6282347.1	100°21'33.09"		
4	286415.96	6282346.38	100°21'33.09"		
11.8	286426.43	6282344.47		-8.95	15.6
19.6	286426.52	6282355.11	0°29'39.79"		

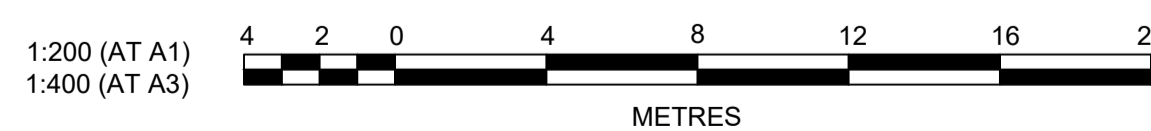
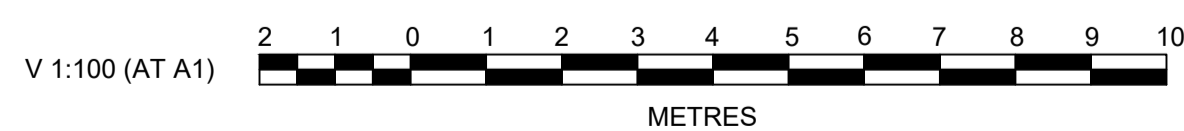
KR 59

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286433.58	6282350.7	180°29'40.64"		
6.26	286433.52	6282343.17		-8.95	12.52
12.52	286440.92	6282341.82	100°21'33.94"		

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42.....  
Date of Issue 5 March 2018.....  
Issuing Officer *[Signature]*.....  
Accreditation No. BP80565.....

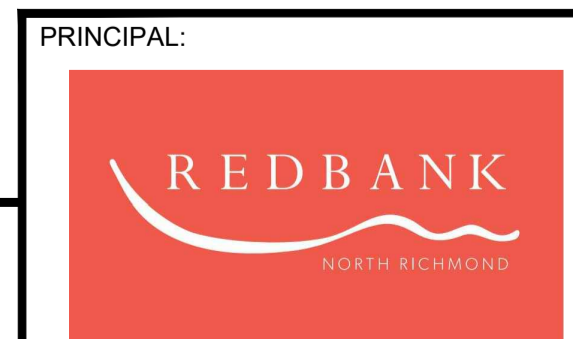
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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



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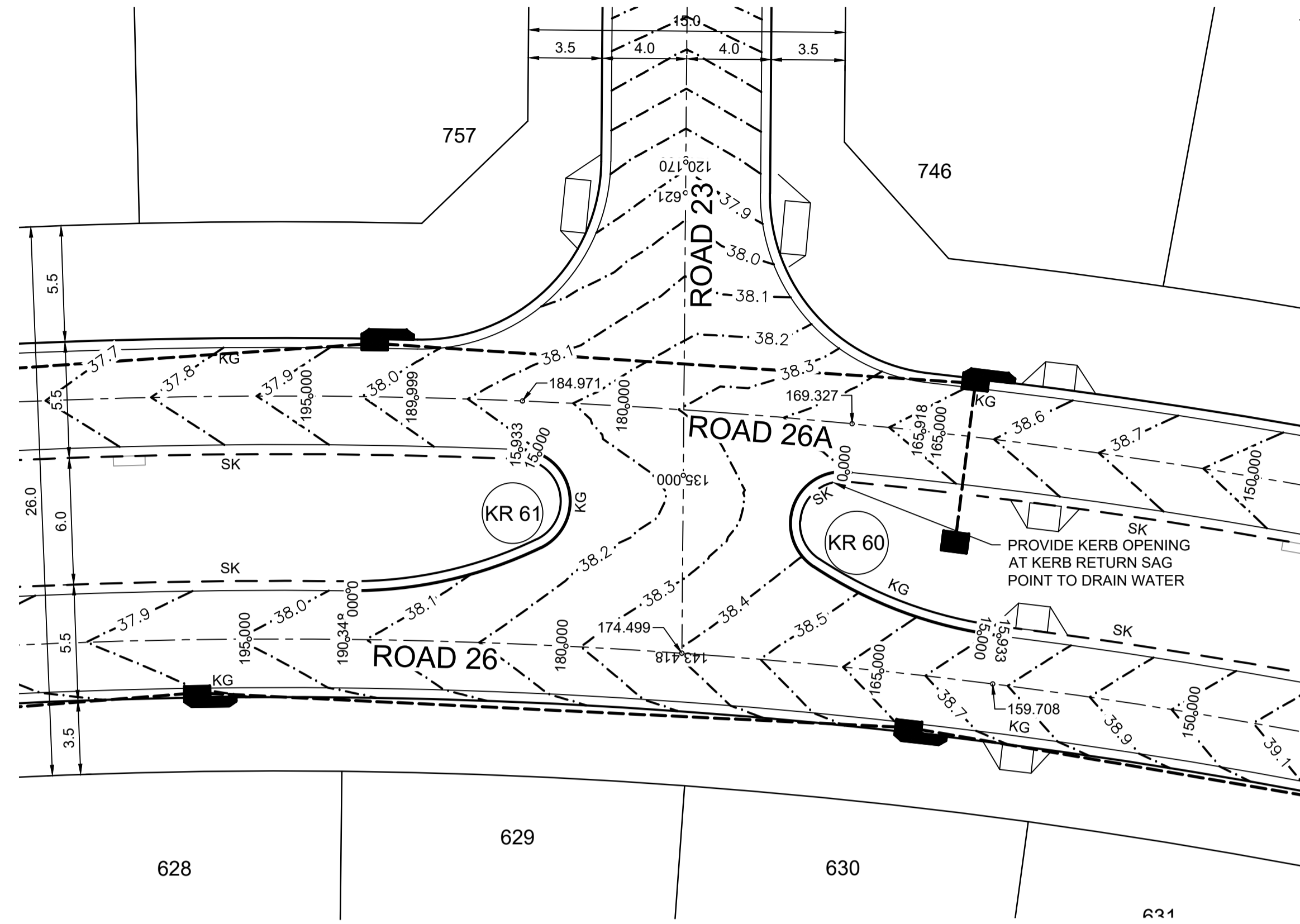
ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 14 OF 16

PLAN No: 11018511/CC094 **A**  
FILE No: 11018511CC094  
SHEET SIZE: A1 ORIGINAL

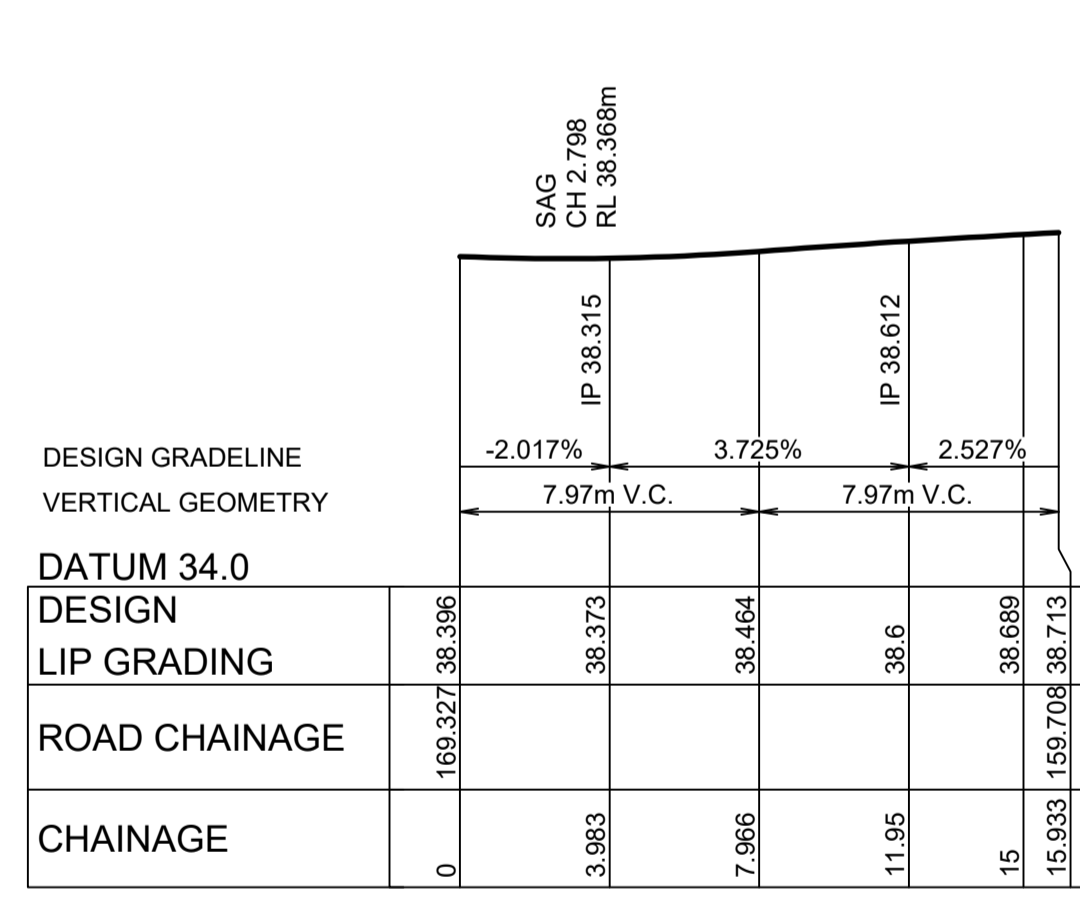
NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

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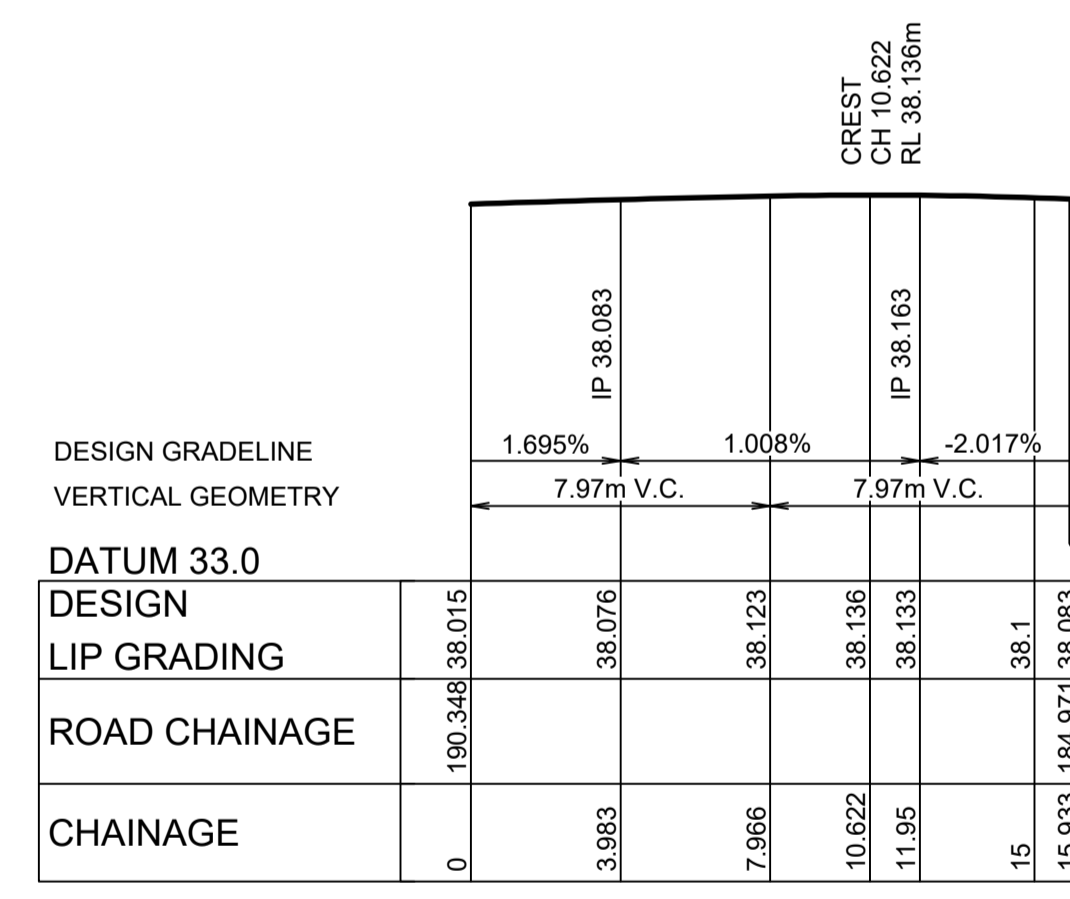


PLAN  
SCALE 1:200

NOTE:  
KERB RETURN SETOUT AND LEVELS ARE LIP OF GUTTER UNLESS SHOWN OTHERWISE



KR 60  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



KR 61  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

KR 60					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286325.71	6282224.01	307°20'04.84"		
1.62	286324.19	6282225.17		-2.45	3.25
3.25	286322.69	6282223.98	231°23'26.72"		
4.87	286321.2	6282222.78		-2.45	3.25
6.49	286321.99	6282221.04			
11.21	286323.99	6282216.67		-20.45	9.44
15.93	286327.72	6282213.65	129°00'16.25"		

KR 61					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A. LENGTH
0	286302.65	6282231.69	122°27'36.29"		
4.72	286306.71	6282229.11		-20.45	9.44
9.44	286311.48	6282228.6	96°01'02.46"		
11.06	286313.39	6282228.4		-2.45	3.25
12.69	286314.04	6282230.2	20°04'25.81"		
14.31	286314.7	6282232		-2.45	3.25
15.93	286313.12	6282233.07	304°07'49.16"		

**CONSTRUCTION CERTIFICATE**

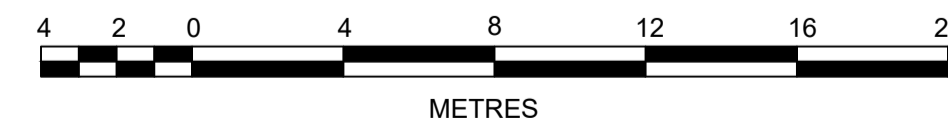
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

V 1:100 (AT A1)



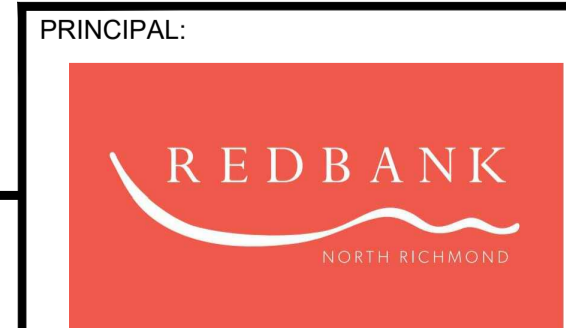
1:200 (AT A1)  
1:400 (AT A3)



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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



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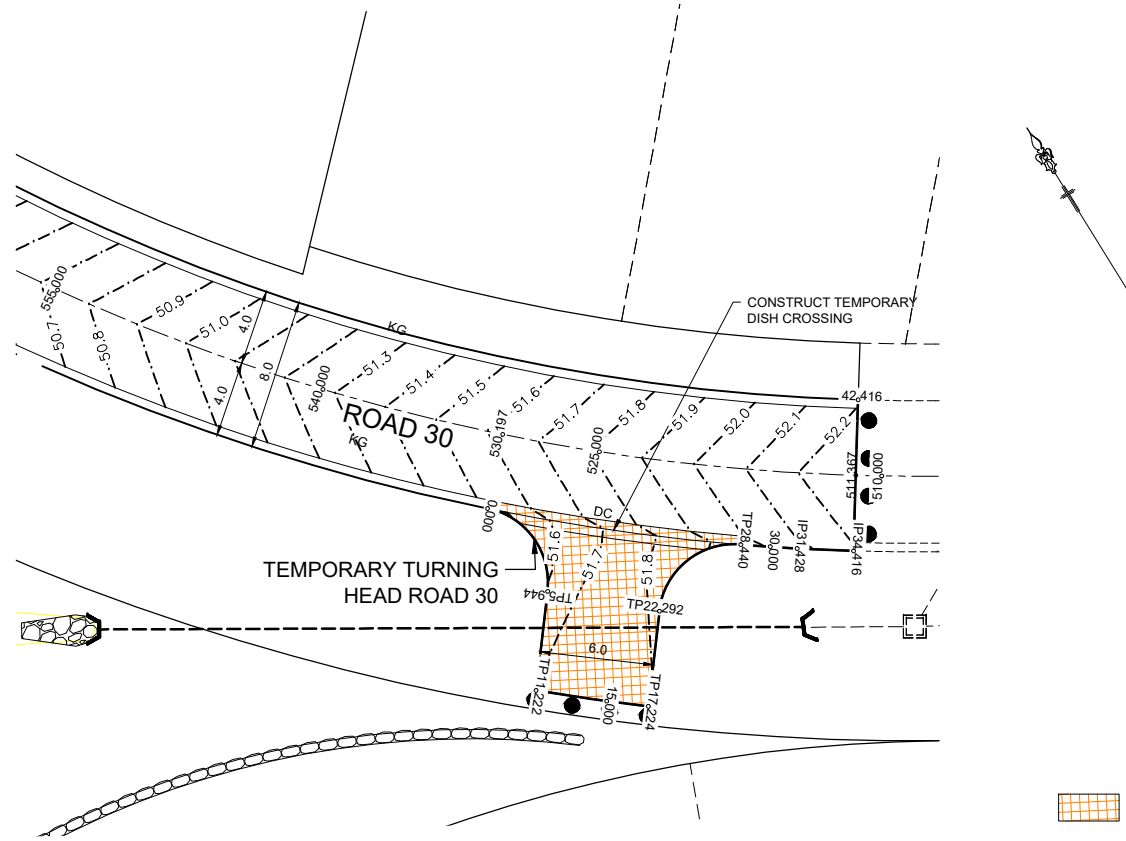
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
KERB RETURN PLANS AND SECTIONS  
SHEET 15 OF 16

PLAN No:  
**11018511/CC095 A**  
FILE No: 11018511CC095  
SHEET SIZE: A1 ORIGINAL

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

Plotted: 12 February 2018 2:15:58 PM File Name: J110185 - Redbank North Richmond Residential Precinct001 - Description\CC096\101851\CC096.dwg



PLAN  
SCALE 1:200

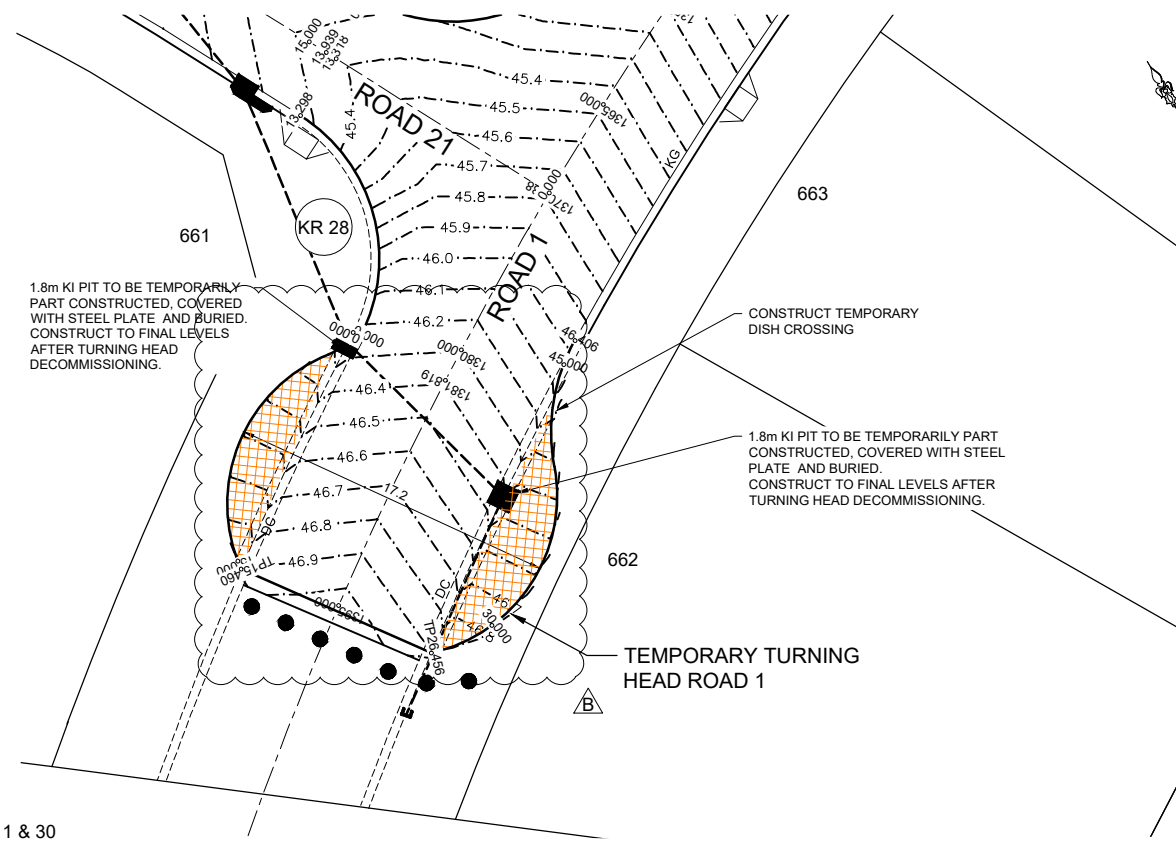
CH 38.416m  
CL OF ROAD 30  
RL 52.31m

- PAVEMENT NOTES**
- TEMPORARY TURNING HEAD - ROADS 1 & 30
  - 1. TWO COAT HOT BITUMEN FLUSH SEAL WITH 14mm & 10mm AGGREGATE
  - 2. 100mm COMPACTED THICKNESS DGB20 BASE COURSE
  - 3. 200mm COMPACTED THICKNESS CRUSHED SANDSTONE SUB-BASE COURSE

DESIGN GRADELINE	2.198%	2.000%	1.290%	1.000%	2.800%	4.55%	3.936%	3.001%	-3.030%
VERTICAL GEOMETRY									
DATUM 45.0									
DESIGN									
EDGE OF PAVEMENT	51.484	51.55	51.688	51.754	51.783	51.885	51.917	51.999	52.011
ROAD CHAINAGE	0	530.197	51.484						
CHAINAGE		2.982	9.923	15	17.224	25.458	27.305	29.69	30

TEMPORARY TURNING HEAD ROAD 30

HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



PLAN  
SCALE 1:200

DESIGN GRADELINE	7.256%	4.381%	3.036%	-2.972%	-4.755%	0.43%
VERTICAL GEOMETRY						
DATUM 41.0						
DESIGN						
EDGE OF PAVEMENT	46.197	46.308	46.89	46.871	46.913	46.197
ROAD CHAINAGE	0	1.528	14.808	15	15.445	15.906
CHAINAGE			20.956	139.00	47.066	26.006

TEMPORARY TURNING HEAD ROAD 1

HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286296.94	6281818.81	133°17'48.13"		
2.97	286299.61	6281816.09		4	5.94
5.94	286297.33	6281813.21	218°26'07.07"		
11.22	286294.05	6281809.08			
14.22	286296.31	6281807.1		-123	6
17.22	286298.66	6281805.23			
22.29	286301.81	6281809.2	38°26'07.07"		
25.37	286304.21	6281812.23		4	6.15
28.44	286307.32	6281809.93			
31.43	286309.74	6281808.19			
34.42	286312.21	6281806.5			
42.42	286316.63	6281813.18	33°29'19.88"		

**CONSTRUCTION CERTIFICATE**

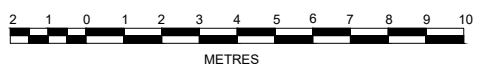
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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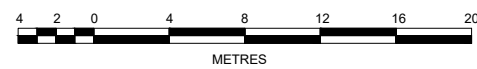
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286062.81	6282155.91	239°06'57.05"		
0.89	286062.01	6282155.43		2.5	1.79
1.79	286061.09	6282155.59	280°04'03.66"		
8.62	286052.4	6282157.14		-8.5	13.67
15.46	286051.18	6282148.39			
26.46	286057.4	6282139.32			
32.98	286065.15	6282136.61		-8.5	13.06
39.51	286068.13	6282144.26	21°16'00.31"		
42.96	286069.43	6282147.61		10	6.89
46.41	286072.56	6282149.36	60°45'36.73"		

**NOTE:**  
TURNING HEAD SETOUT AND LEVELS ARE THE EDGE OF PAVEMENT UNLESS SHOWN OTHERWISE

V 1:100 (AT A1)



1:200 (AT A1)  
1:400 (AT A3)

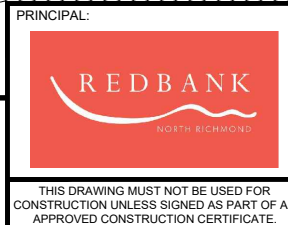


NO.	DESCRIPTION	MP	CC	RO	RO	DATE
B	TEMPORARY TURNING HEAD REDESIGNED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

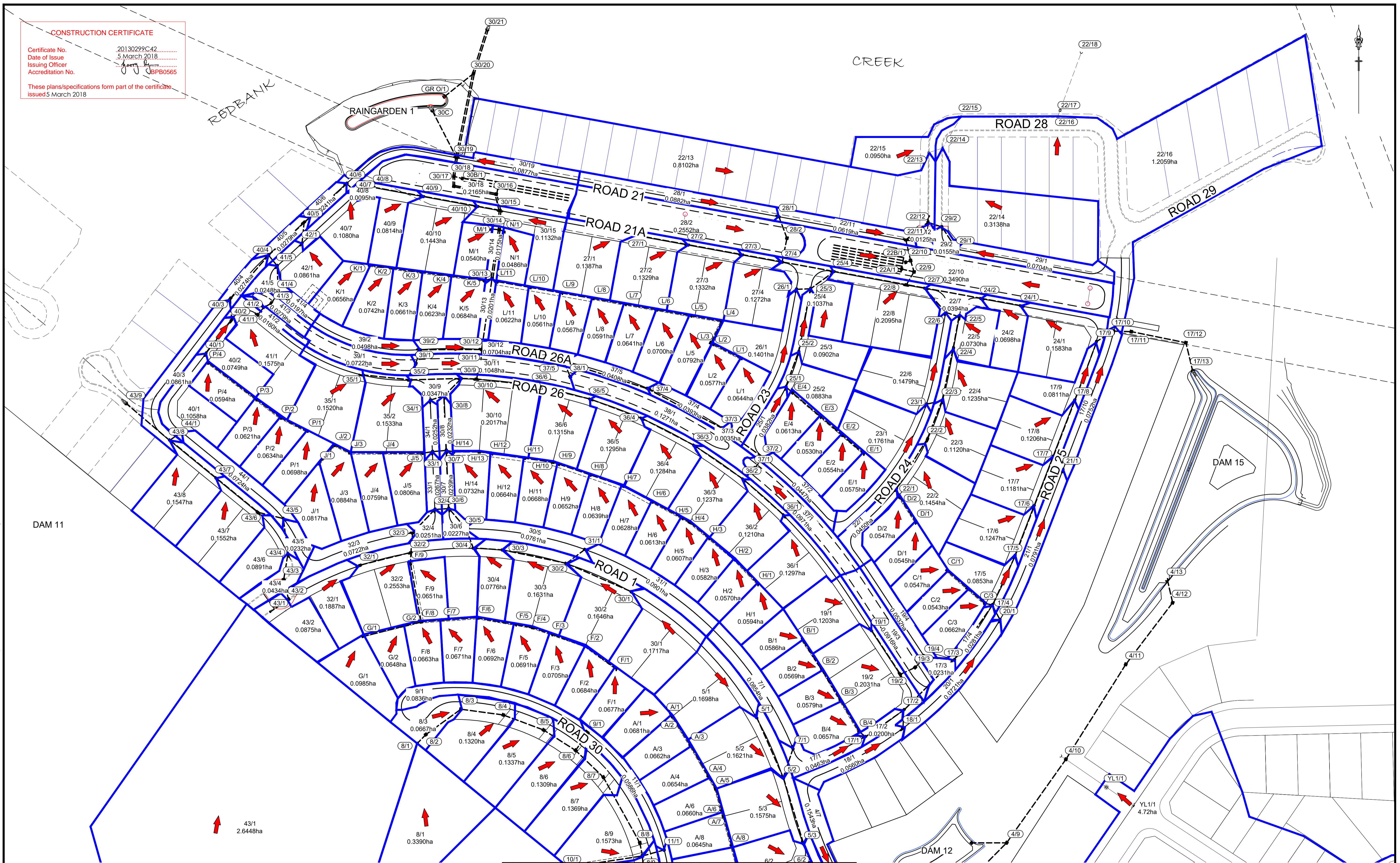
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11

KERB RETURN PLANS AND SECTIONS  
SHEET 16 OF 16

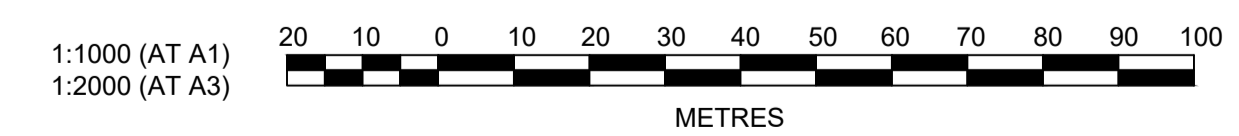
PLAN No:	11018511/CC096	B
FILE No:	11018511CC096	
SHEET SIZE:	A1 ORIGINAL	

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. JBPB0565  
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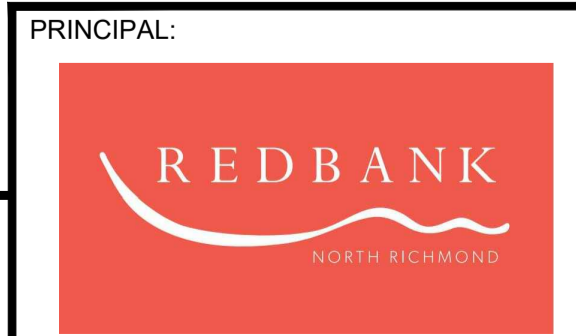
REFER TO DRAWING 11018511CC102 FOR CONTINUATION



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

CATCHMENT PLAN  
 SHEET 1 OF 2

PLAN No: 11018511/CC101 B

FILE No: 11018511CC101

SHEET SIZE: A1 ORIGINAL

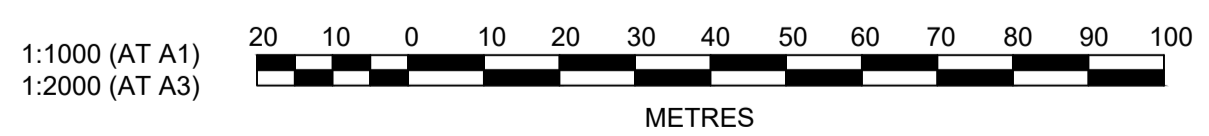
Plotted: 25 January, 2018 4:50:21 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC101\8511CC101.dwg

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING 11018511CC101 FOR CONTINUATION



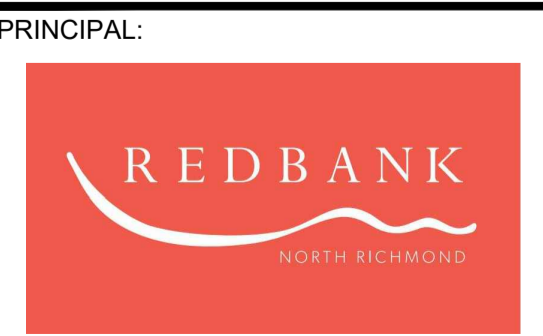
**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 CATCHMENT PLAN  
 SHEET 2 OF 2

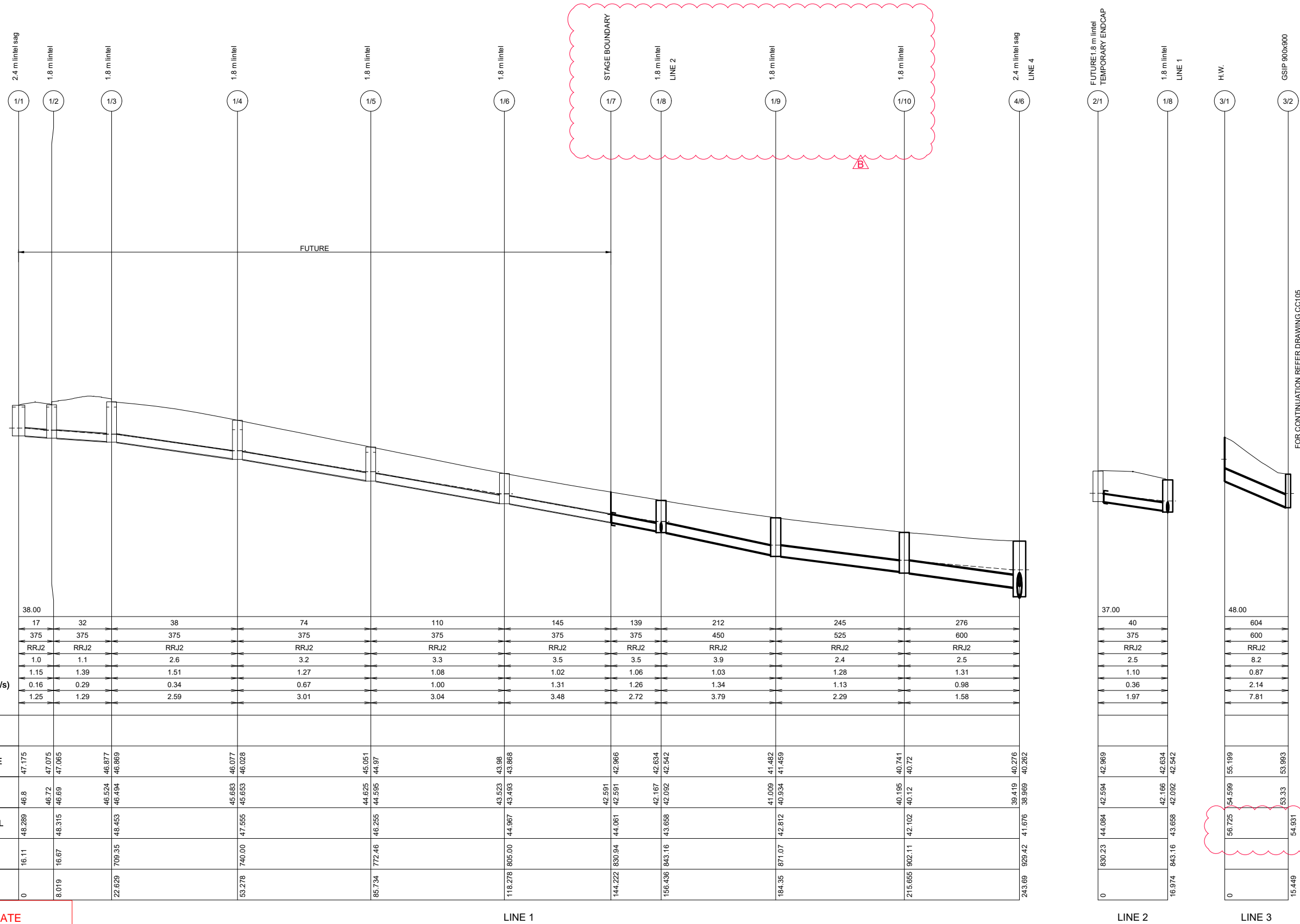
PLAN No:  
11018511/CC102 **B**  
 FILE No: 11018511CC102  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 4:50:34 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC102.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	MG	RO	MS	15/06/17



Plotted: 12 February 2018 12:23:42 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC104.dwg



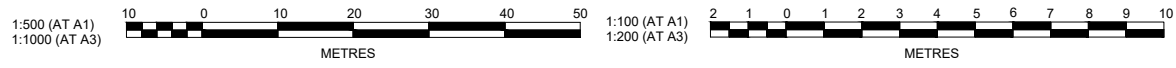
DATUM (m) 38.00  
 PEAK FLOW (L/s) 17, 32, 38, 74, 110, 145, 139, 212, 245, 276  
 PIPE SIZE (mm) 375, 375, 375, 375, 375, 375, 375, 450, 525, 600  
 PIPE CLASS RRJ2, RRJ2, RRJ2, RRJ2, RRJ2, RRJ2, RRJ2, RRJ2, RRJ2, RRJ2  
 PIPE GRADE (%) 1.0, 1.1, 2.6, 3.2, 3.3, 3.5, 3.5, 3.9, 2.4, 2.5  
 PIPE COVER MINIMUM 1.15, 1.39, 1.51, 1.27, 1.08, 1.02, 1.06, 1.03, 1.28, 1.31  
 FULL PIPE VELOCITY (m/s) 0.16, 0.29, 0.34, 0.67, 1.00, 1.31, 1.26, 1.34, 1.13, 0.98  
 HGL GRADE (%) 1.25, 1.29, 2.59, 3.01, 3.04, 3.48, 2.72, 3.79, 2.29, 1.58

WAE	17	32	38	74	110	145	139	212	245	276
HYDRAULIC GRADE LINE	47.175	47.075	46.877	46.028	45.051	43.988	42.966	41.482	40.741	40.276
INVERT LEVEL	46.8	46.72	46.524	45.683	44.625	43.523	42.591	41.009	40.195	39.419
DESIGN SURFACE LEVEL	48.289	48.315	48.453	47.555	46.255	44.987	44.061	42.812	42.102	41.676
ROAD CHAINAGE	16.11	16.67	709.35	740.00	772.46	805.00	830.94	871.07	902.11	929.42
PIPE CHAINAGE	0	8.019	22.629	52.278	85.734	118.278	144.222	164.35	215.655	243.69

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 1 OF 19

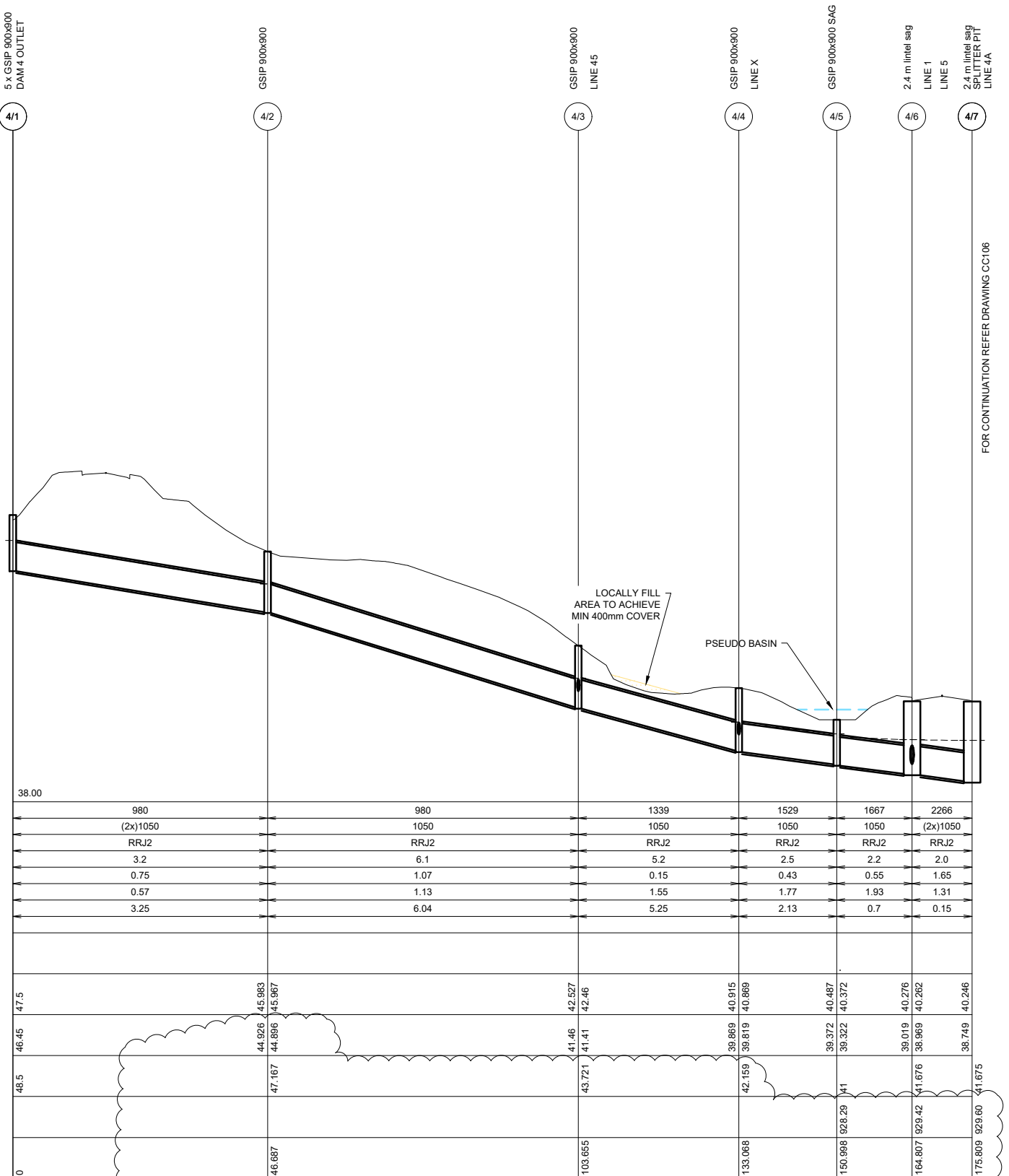
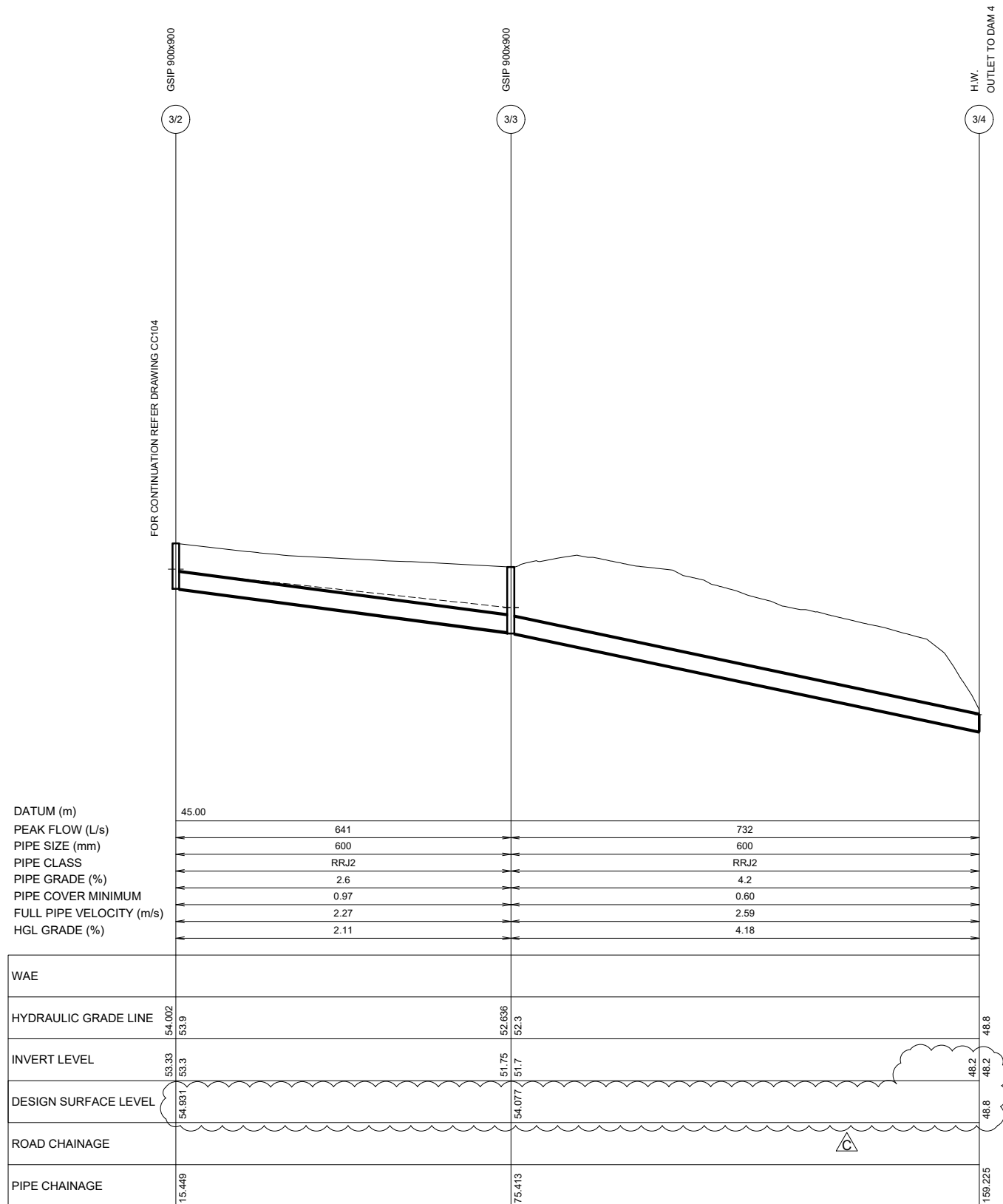
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 FILE No: 11018511CC104  
 SHEET SIZE: A1 ORIGINAL

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B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 12 February 2018 11:44:05 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC105.dwg

FOR CONTINUATION REFER DRAWING CC104

FOR CONTINUATION REFER DRAWING CC106



Parameter	Value
DATUM (m)	45.00
PEAK FLOW (L/s)	641
PIPE SIZE (mm)	600
PIPE CLASS	RRJ2
PIPE GRADE (%)	2.6
PIPE COVER MINIMUM	0.97
FULL PIPE VELOCITY (m/s)	2.27
HGL GRADE (%)	2.11

Parameter	Value
DATUM (m)	38.00
PEAK FLOW (L/s)	980
PIPE SIZE (mm)	(2x)1050
PIPE CLASS	RRJ2
PIPE GRADE (%)	3.2
PIPE COVER MINIMUM	0.75
FULL PIPE VELOCITY (m/s)	0.57
HGL GRADE (%)	3.25

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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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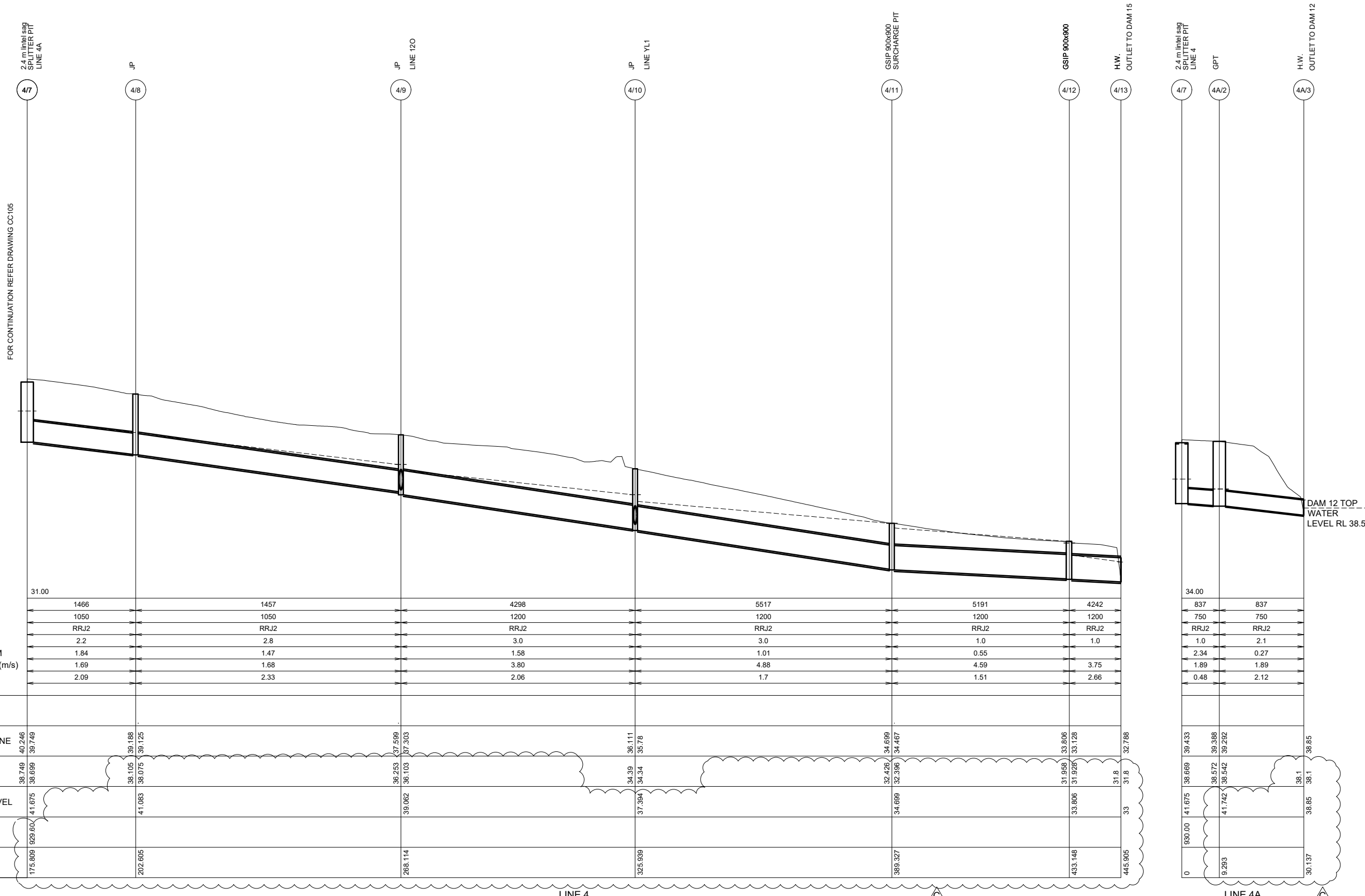
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 2 OF 19

PLAN No:	11018511/CC105	C
FILE No:	11018511CC105	
SHEET SIZE:	A1 ORIGINAL	

REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
C	STORMWATER REDESIGN	MP	MP	RO	RO	12/02/18
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



Plotted: 12 February 2018 12:02:23 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CC\YEOMANS\11018511CC106.dwg



DATUM (m)	31.00
PEAK FLOW (L/s)	1466
PIPE SIZE (mm)	1050
PIPE CLASS	RRJ2
PIPE GRADE (%)	2.2
PIPE COVER MINIMUM	1.84
FULL PIPE VELOCITY (m/s)	1.69
HGL GRADE (%)	2.09

WAE	175.809	202.605	268.114	325.939	389.327	433.148	445.905	0	9.293	30.137
HYDRAULIC GRADE LINE	40.246	39.188	37.599	36.111	34.699	33.806	32.788	39.433	39.388	38.85
INVERT LEVEL	38.749	38.075	36.103	34.39	32.426	31.959	31.8	38.669	38.572	38.1
DESIGN SURFACE LEVEL	41.675	41.083	39.082	37.394	34.699	33.806	33	41.675	41.742	38.85
ROAD CHAINAGE	929.60									
PIPE CHAINAGE		202.605	268.114	325.939	389.327	433.148	445.905		9.293	30.137

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130292C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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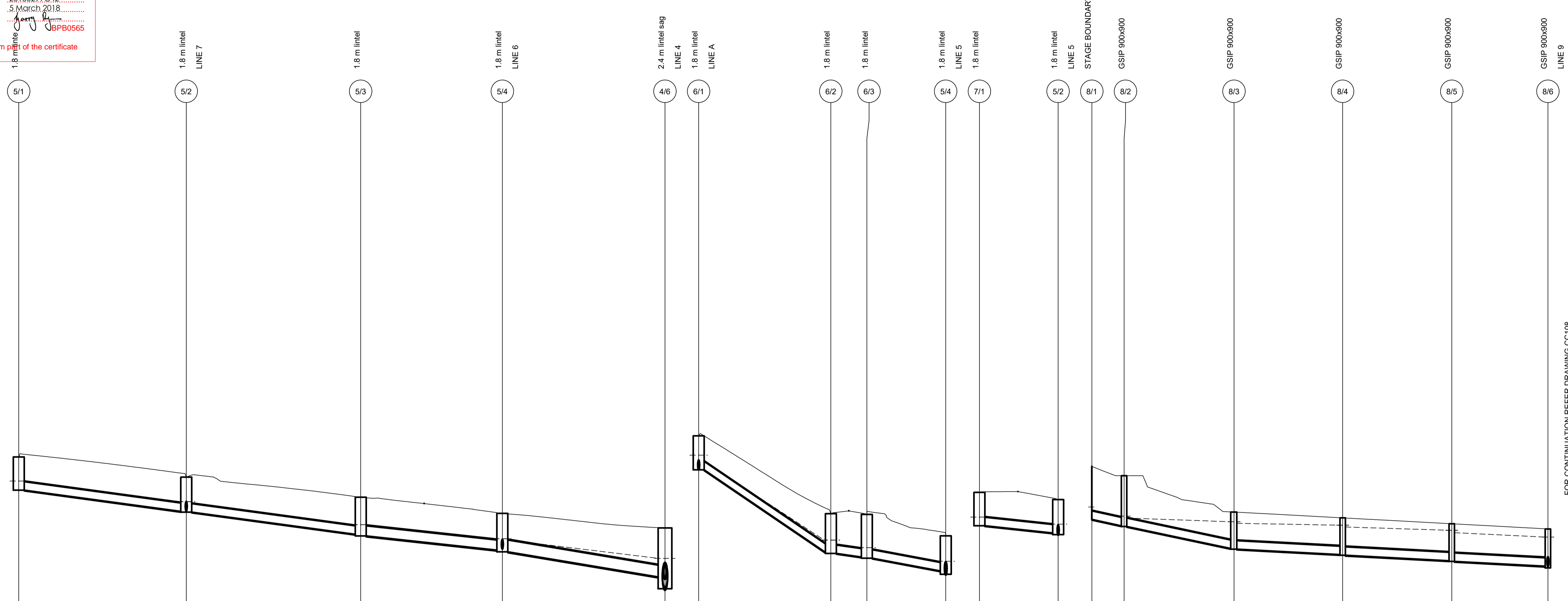
**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 3 OF 19

PLAN No: 11018511/CC106 **C**  
 FILE No: 11018511CC106  
 SHEET SIZE: A1 ORIGINAL

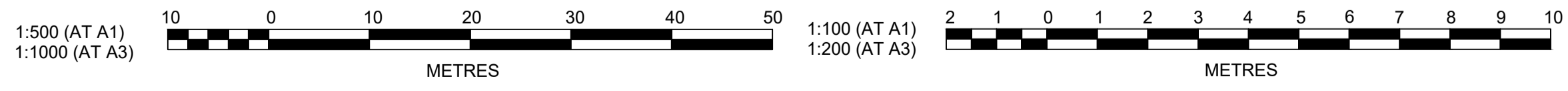
REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
C	STORMWATER REDESIGN	MP	MP	RO	RO	12/02/18
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. JBPB0565  
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PARAMETER	LINE 5	LINE 6	LINE 7	LINE 8	LINE 9
DATUM (m)	36.00	37.00	37.00	46.00	
PEAK FLOW (L/s)	41	121	24	80	181
PIPE SIZE (mm)	375	375	375	375	375
PIPE CLASS	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2
PIPE GRADE (%)	2.5	12.5	1.8	4.0	1.0
PIPE COVER MINIMUM	1.19	1.10	1.10	1.76	1.25
FULL PIPE VELOCITY (m/s)	0.37	1.10	0.22	0.00	1.64
HGL GRADE (%)	2.38	12.02	1.74	0	0.91
WAE					
HYDRAULIC GRADE LINE	43.732	45.635	43.148	52.201	51.268
INVERT LEVEL	43.357	45.26	42.773	52.057	49.972
DESIGN SURFACE LEVEL	44.832	46.772	44.257	54.416	51.63
ROAD CHAINAGE	1072.43	46.40	1047.64	54	796.89
PIPE CHAINAGE	0	0	0	7.183	101.518



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 4 OF 19

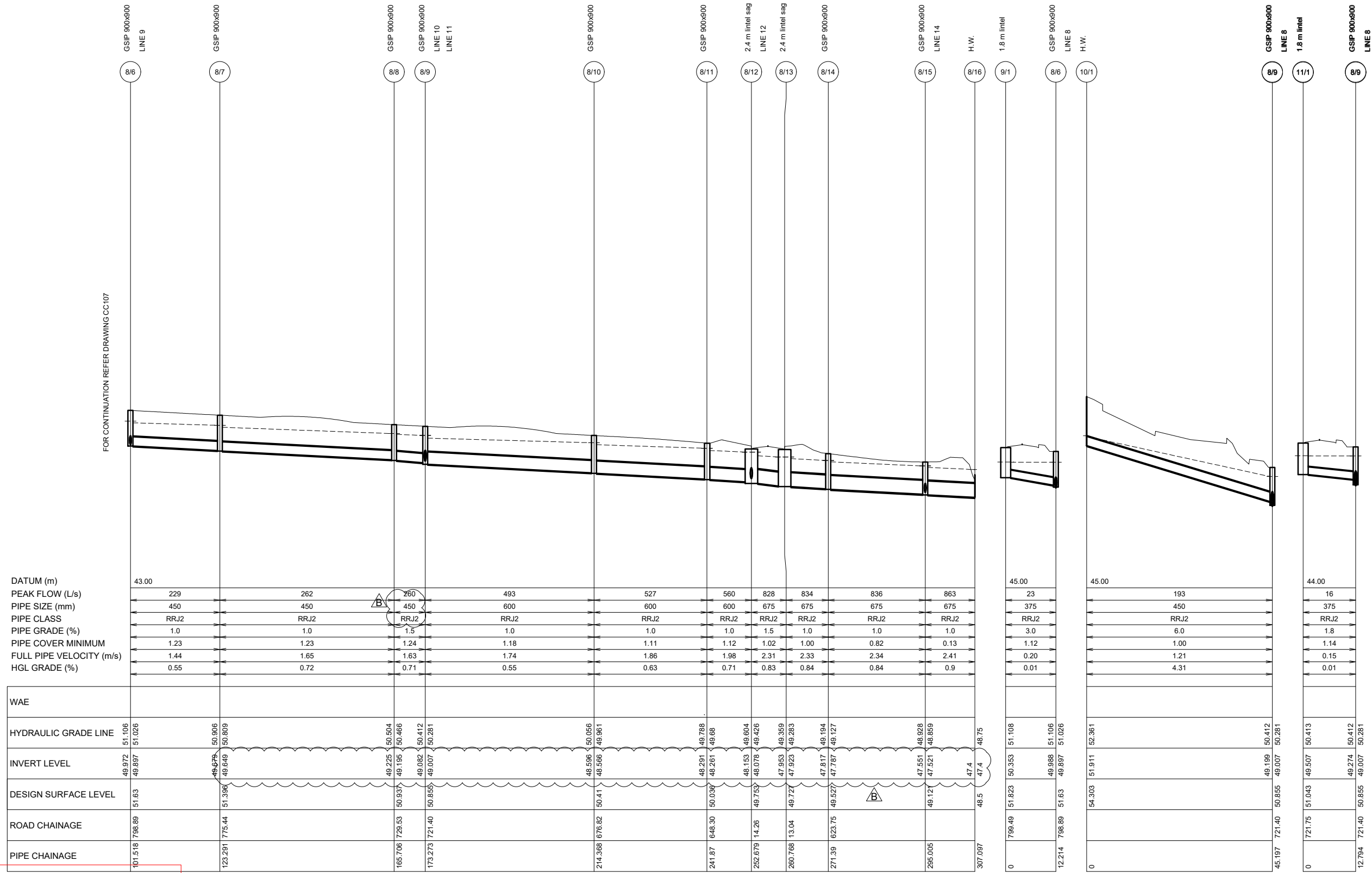
PLAN No: 11018511/CC107 **B**  
 FILE No: 11018511CC107  
 SHEET SIZE: A1 ORIGINAL

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FOR CONTINUATION REFER DRAWING CC108

Plotted: 12 February 2018 11:01:58 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\YEOMANS\11018511CC108.dwg

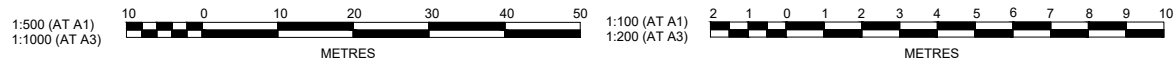
FOR CONTINUATION REFER DRAWING CC107



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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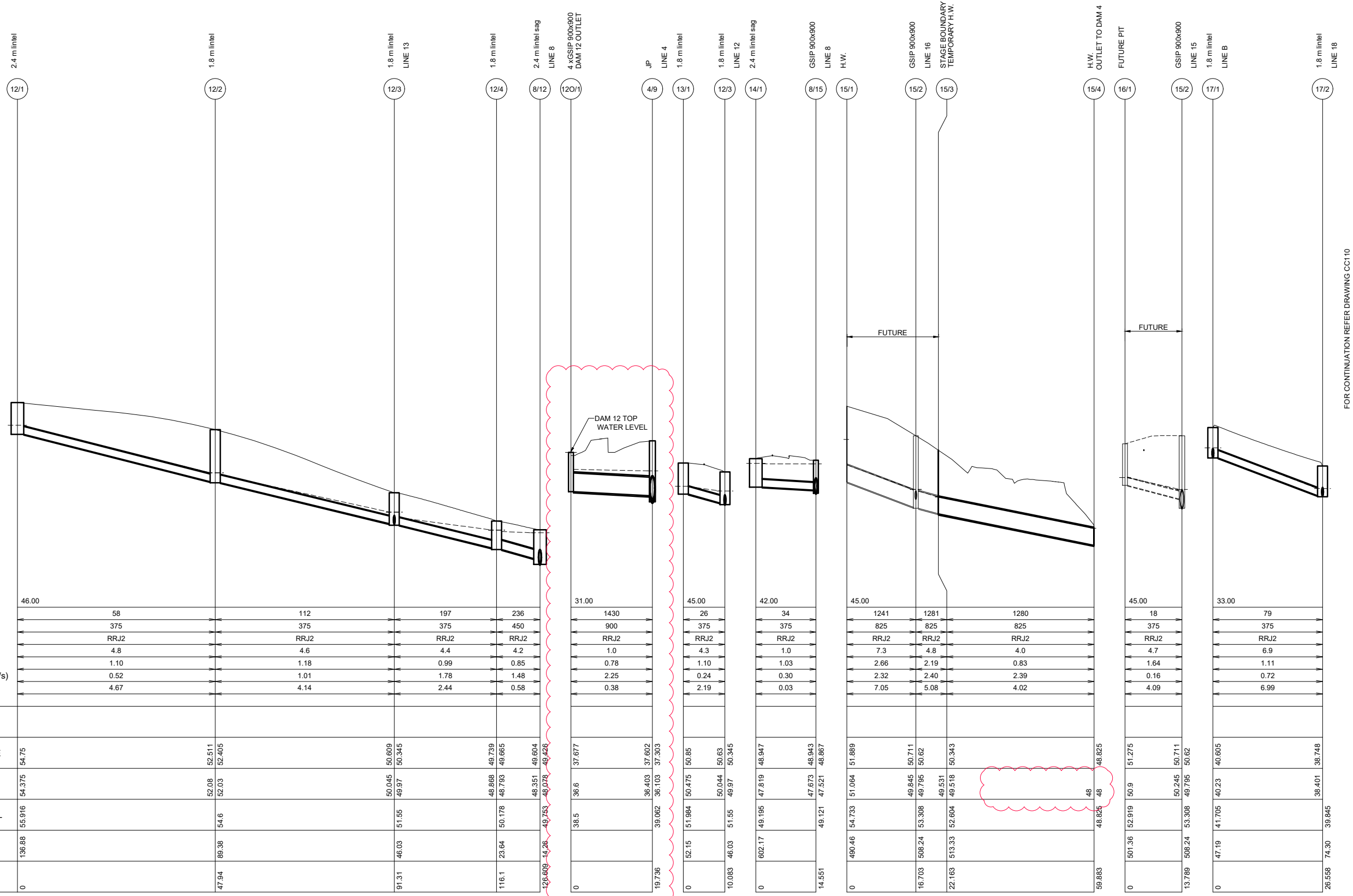
**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 5 OF 19**

PRINCIPAL: **REDBANK**  
 NORTH RICHMOND

PLAN No: 11018511/CC108 **B**  
 FILE No: 11018511CC108  
 SHEET SIZE: A1 ORIGINAL

DES	DRN	CKD	APR	DATE
MP	TG	RO	RO	25/01/18
MP	MG	RO	MS	15/06/17
AMENDMENT	DES	DRN	CKD	APR

Plotted: 12 February 2018 10:56:24 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC109.dwg



DATUM (m)	46.00
PEAK FLOW (L/s)	58
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	4.8
PIPE COVER MINIMUM	1.10
FULL PIPE VELOCITY (m/s)	0.52
HGL GRADE (%)	4.67

WAE	12/1	12/2	12/3	12/4	8/12	120/1	4/9	13/1	12/3	14/1	8/15	15/1	15/2	15/3	15/4	16/1	15/2	17/1	17/2
HYDRAULIC GRADE LINE	54.75	52.08	50.045	48.868	48.868	37.677	36.6	50.475	50.85	48.947	45.064	49.845	49.531	48.825	51.275	50.711	40.605	38.748	
INVERT LEVEL	54.375	52.03	49.97	48.793	48.793	37.602	36.403	50.444	50.63	47.819	51.064	49.795	49.518	48	50.245	50.711	40.23	38.401	
DESIGN SURFACE LEVEL	55.916	54.6	51.55	50.178	50.178	39.062	38.5	51.984	50.85	49.195	54.733	53.308	52.604	48.825	52.919	53.308	41.705	39.845	
ROAD CHAINAGE	136.88	89.38	46.03	23.64	23.64	19.736	19.736	52.15	602.17	602.17	490.46	508.24	513.33	508.83	501.36	508.24	47.19	74.30	
PIPE CHAINAGE	0	47.94	91.31	116.1	126.609	0	0	10.083	14.551	14.551	0	16.703	22.163	59.883	13.789	13.789	47.19	26.558	

**CONSTRUCTION CERTIFICATE**

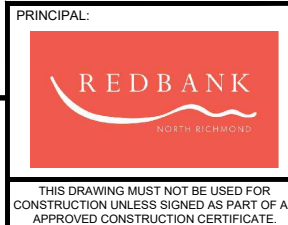
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 6 OF 19

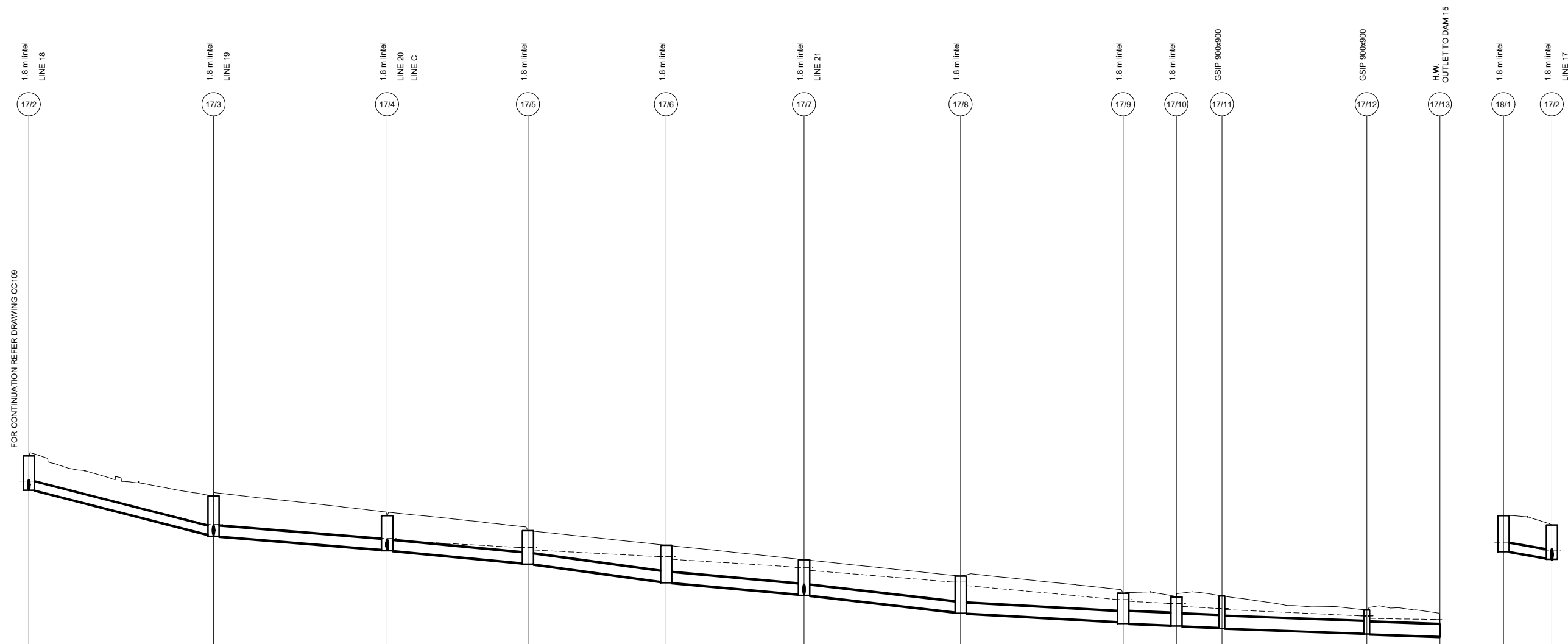
PLAN No: 11018511/CC109 **B**  
 FILE No: 11018511CC109  
 SHEET SIZE: A1 ORIGINAL

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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FOR CONTINUATION REFER DRAWING CC110

Plotted: 12 February 2018 10:32:17 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\YEOMANS\11018511CC110.dwg



WAE	17/2	17/3	17/4	17/5	17/6	17/7	17/8	17/9	17/10	17/11	17/12	17/13	18/1	17/2
DATUM (m)	30.00													33.00
PEAK FLOW (L/s)	96	216	285	303	331	379	406	424	440	438	432		16	
PIPE SIZE (mm)	375	450	450	450	450	450	450	525	525	525	525		375	
PIPE CLASS	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2	RRJ3	RRJ2	RRJ2	RRJ2		RRJ2	
PIPE GRADE (%)	4.8	1.5	1.8	2.5	1.7	2.1	1.0	0.7	0.7	0.7	0.7		2.7	
PIPE COVER MINIMUM	0.92	1.16	1.09	0.94	1.03	1.03	0.92	0.72	0.83	0.46	0.52		1.13	
FULL PIPE VELOCITY (m/s)	0.87	1.36	1.79	1.91	2.08	2.38	2.55	1.96	2.03	2.02	2.00		0.14	
HGL GRADE (%)	4.66	1.46	1.04	0.96	1.15	1.5	1.73	0.83	0.89	0.88	0.31		2.96	
HYDRAULIC GRADE LINE	38.746	36.659	36.249	35.86	35.468	35.099	34.36	33.605	33.495	33.322	32.894	32.74	32.525	32
INVERT LEVEL	38.401	36.426	35.779	35.191	34.386	33.859	33.059	32.646	32.49	32.391	32.141	32.088	31.683	31.401
DESIGN SURFACE LEVEL	39.845	38.104	37.254	36.598	35.987	35.337	34.622	33.88	33.714	33.76	33.15	32.79	32.525	32
ROAD CHAINAGE	74.30	115.29	153.83	185.00	215.00	244.95	278.96	314.56	435.49	435.49	435.49	435.49	67.50	74.30
PIPE CHAINAGE	26.558	66.656	104.355	134.944	164.944	194.988	228.901	264.168	275.76	285.64	317.09	332.965	10.469	74.30

**CONSTRUCTION CERTIFICATE**

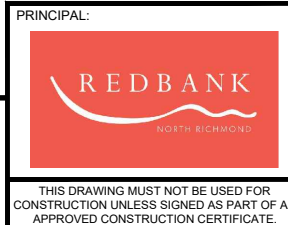
Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

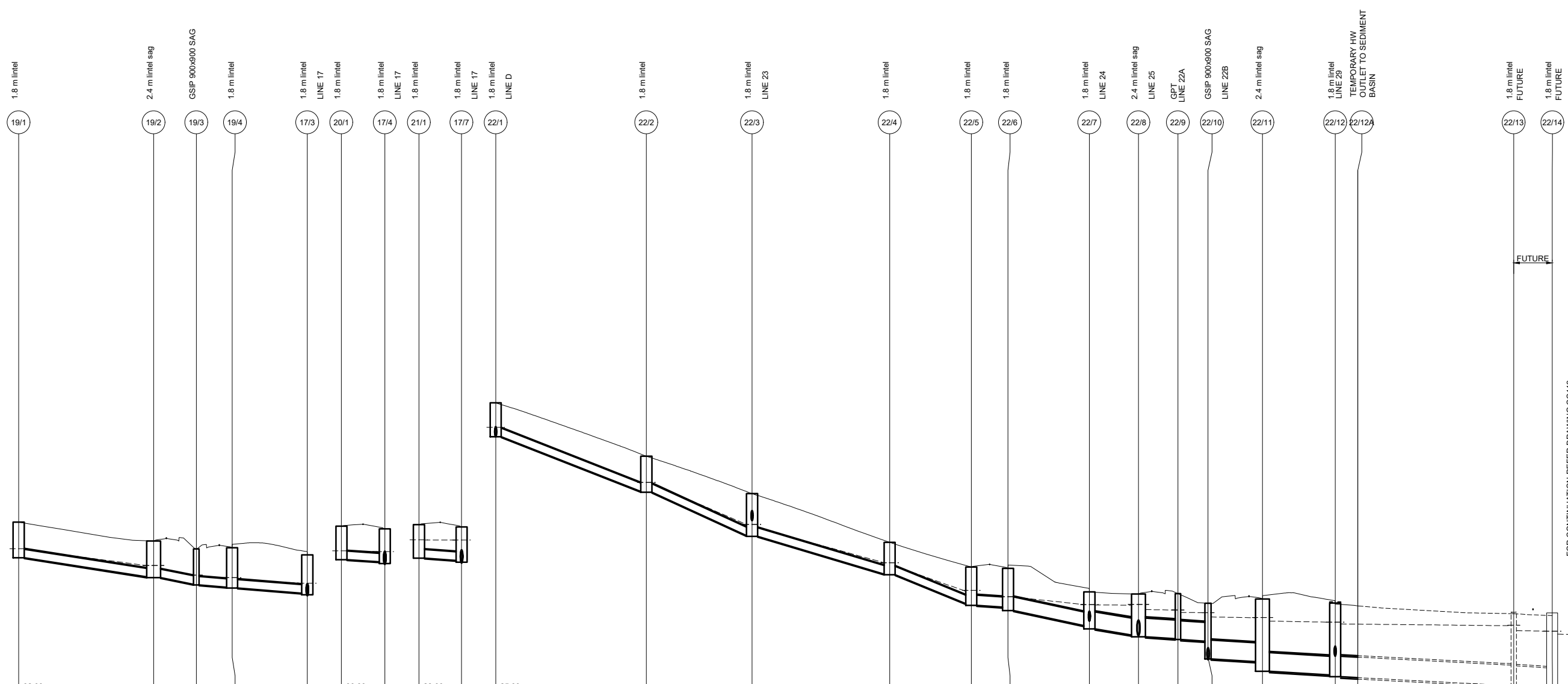
**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 7 OF 19**

PRINCIPAL:  
 PLAN No: 11018511/CC110 **C**  
 FILE No: 11018511CC110  
 SHEET SIZE: A1 ORIGINAL

DES	DRN	CKD	APR	DATE	
C	MP	MP	RO	RO	12/02/18
B	MP	TG	RO	RO	25/01/18
A	MP	MG	RO	MS	15/06/17
AMENDMENT					

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Plotted: 12 February 2018 10:34:14 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\YEOMANS\110185\11CC111.dwg



DATE	DESCRIPTION	BY	CHECKED	DATE
25/01/18	STORMWATER REDESIGN	MP	TG	RO
20/10/17	LINE 22 REVISED	MP	LS	RO
15/06/17	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
	AMENDMENT	DES	DRN	CKD

DATE	DESCRIPTION	BY	CHECKED	DATE
25/01/18	STORMWATER REDESIGN	MP	TG	RO
20/10/17	LINE 22 REVISED	MP	LS	RO
15/06/17	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
	AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

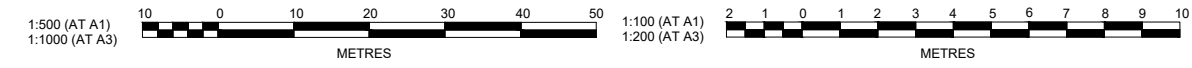
  

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

LINE	DATE	DESCRIPTION	BY	CHECKED	DATE
C		STORMWATER REDESIGN	MP	TG	RO
B		LINE 22 REVISED	MP	LS	RO
A		ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
		AMENDMENT	DES	DRN	CKD

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018



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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

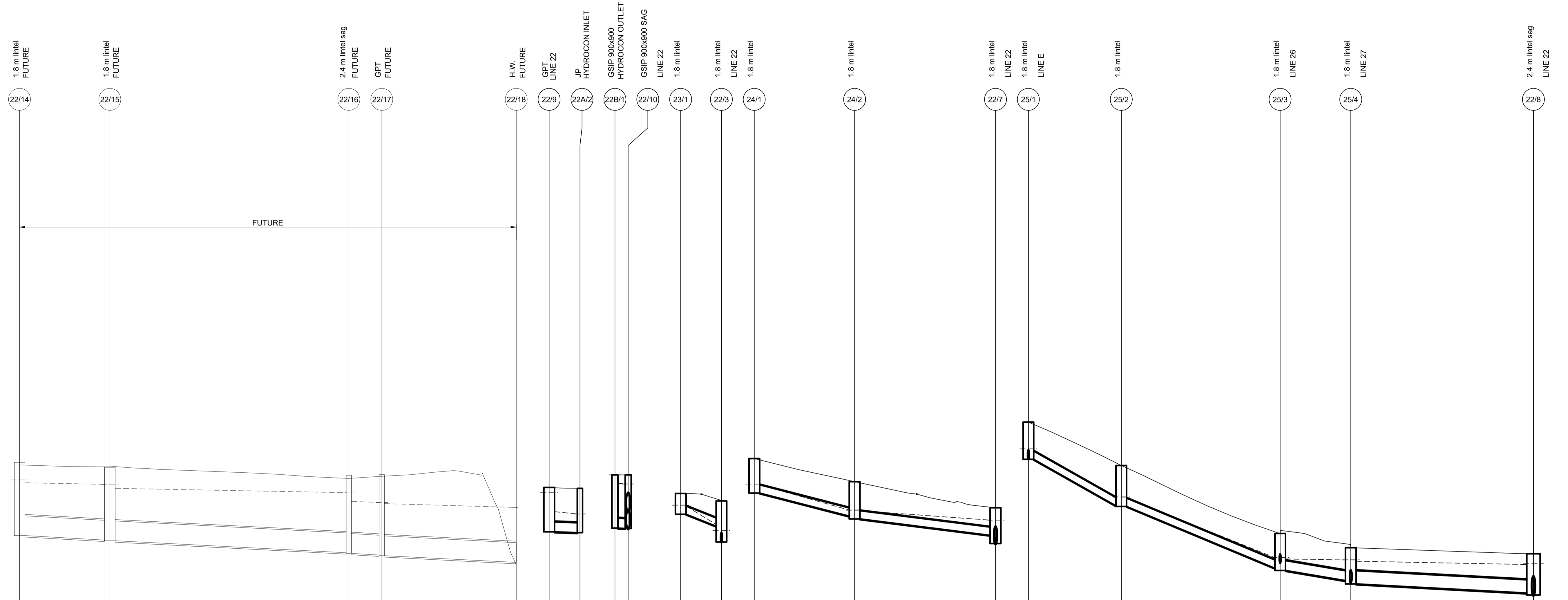
**REDBANK YEOMANS NORTH NORTH RICHMOND STAGE 11**  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 8 OF 19

PLAN No: 11018511/CC111 **B**  
 FILE No: 11018511CC111  
 SHEET SIZE: A1 ORIGINAL

FOR CONTINUATION REFER DRAWING CC112

Plotted: 25 January, 2018 4:52:55 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC11\YEOMANS\11018511CC112.dwg

FOR CONTINUATION REFER DRAWING CC111



DATE	DESCRIPTION	BY	CHKD	DATE
25/01/18	STORMWATER REDESIGN	MP	TG	RO
15/06/17	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO
	AMENDMENT	DES	DRN	CKD

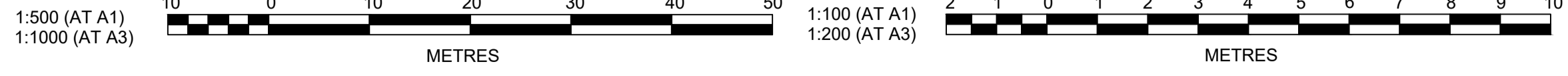
  

LINE	STATION	DATUM (m)	PEAK FLOW (L/s)	PIPE SIZE (mm)	PIPE CLASS	PIPE GRADE (%)	PIPE COVER MINIMUM	FULL PIPE VELOCITY (m/s)	HGL GRADE (%)	HYDRAULIC GRADE LINE	INVERT LEVEL	DESIGN SURFACE LEVEL	ROAD CHAINAGE	PIPE CHAINAGE
LINE 22	22/14	20.00	1161	900	RRJ2	1.0	2.25	1.82	0.35	27.755	25.248	26.557	57.72	232.282
	22/15	20.00	1480	900	RRJ2	1.0	2.39	1.86	0.36	27.552	25.218	26.329	80.51	252.867
	22/16	20.00	1483	900	RRJ2	1.0	2.46	2.33	0.57	27.174	24.408	27.966		307.362
	22/17	20.00	1480	900	RRJ2	1.0	0.90	2.33	0.57	26.731	24.332	28		314.874
LINE 22A	22/18	22.00	382	450	RRJ2	0.6	1.51	2.40	1.53	28.307	27.389	28.412		322.06
	22/19	22.00	382	450	RRJ2	0.7	1.93	2.40	1	27.35	27.35	28.372		315.05
	22A/2	22.00	45	375	RRJ2	0.6	1.51	2.40	1.53	28.307	27.389	28.412		322.06
LINE 22B	22B/1	21.00	42	375	RRJ2	0.7	1.93	2.40	1	28.601	26.66	28.985		622.37
	22/10	21.00	65	375	RRJ2	0.7	1.93	2.40	1	28.571	26.54	28.982		625.00
LINE 23	23/1	27.00	45	375	RRJ2	0.6	1.51	2.40	1.53	33.565	33.19	34.138		67.50
	22/3	27.00	45	375	RRJ2	0.6	1.51	2.40	1.53	32.724	32.645	32.724		9.282
LINE 24	24/1	23.00	42	375	RRJ2	0.6	1.51	2.40	1.53	30.53	30.155	31.729		385.00
	24/2	23.00	65	375	RRJ2	0.6	1.51	2.40	1.53	29.38	28.103	30.677		22.868
LINE 25	22/7	25.00	74	375	RRJ2	10.0	1.18	0.67	9.89	34.069	33.684	35.391		90.33
	25/1	25.00	98	375	RRJ2	7.8	1.15	0.88	7.47	31.974	31.576	33.412		21.18
	25/2	25.00	158	450	RRJ2	2.9	1.15	1.00	0.26	31.921	31.546	33.412		70.00
	25/3	25.00	399	600	RRJ2	1.0	1.00	1.41	0.36	28.214	28.731	30.311		57.404
LINE 25	25/4	25.00	399	600	RRJ2	1.0	1.00	1.41	0.36	28.151	28.626	29.151		73.508
	22/8	25.00	399	600	RRJ2	1.0	1.00	1.41	0.36	28.705	27.589	28.9		115.159

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018



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PRINCIPAL:

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

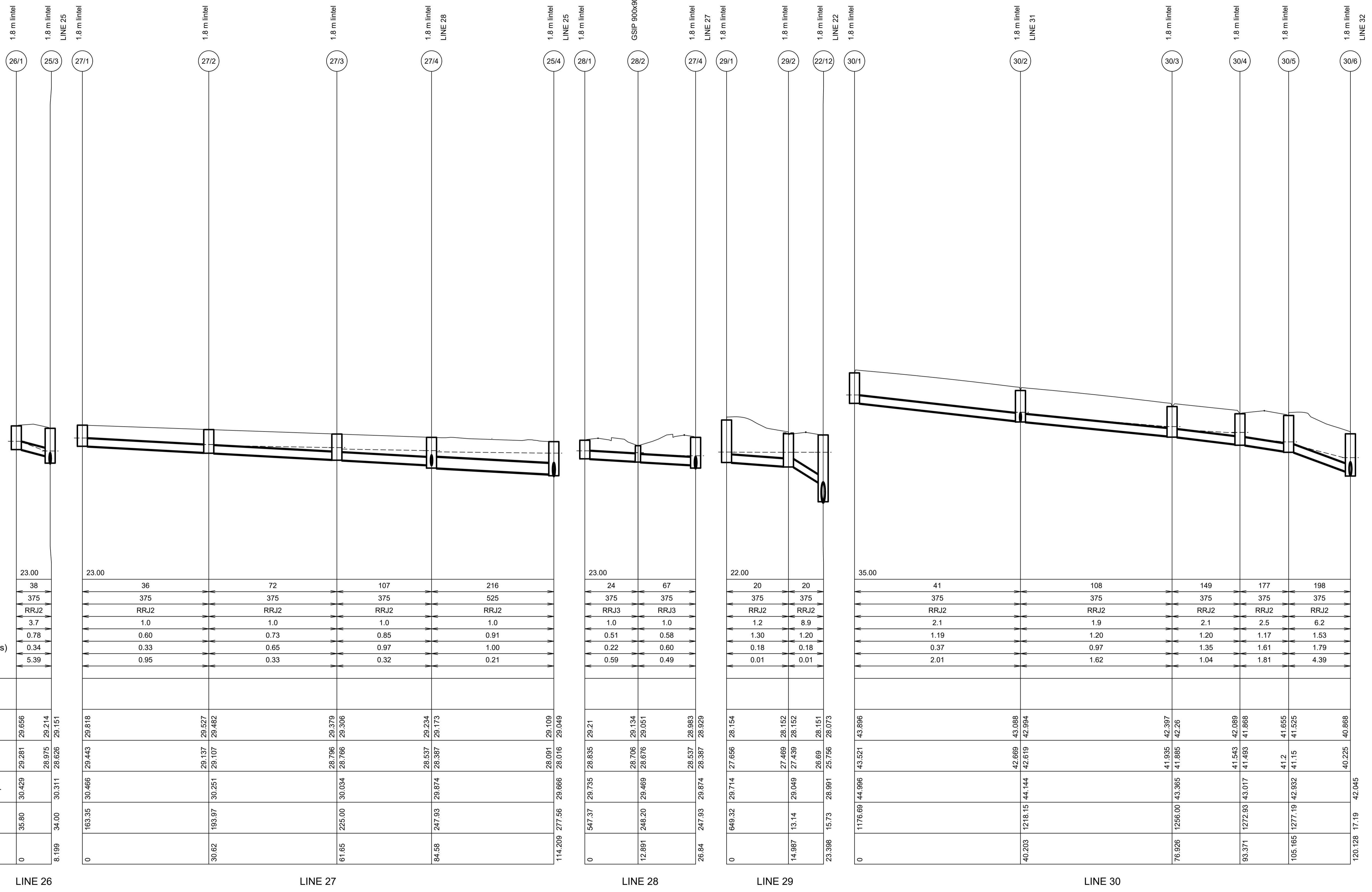
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 9 OF 19

PLAN No: 11018511/CC112 **B**  
 FILE No: 11018511CC112  
 SHEET SIZE: A1 ORIGINAL

Plotted: 12 March 2018 12:23:22 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC113.dwg



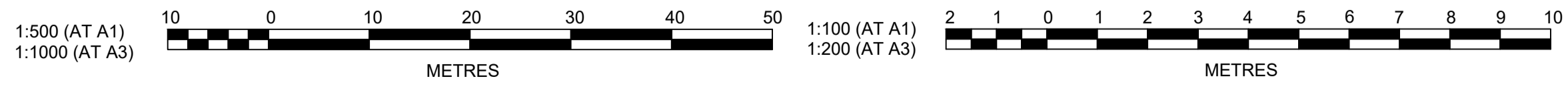
DATUM (m)	23.00
PEAK FLOW (L/s)	38
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	3.7
PIPE COVER MINIMUM	0.78
FULL PIPE VELOCITY (m/s)	0.34
HGL GRADE (%)	5.39

WAE	
HYDRAULIC GRADE LINE	29.656
INVERT LEVEL	29.281
DESIGN SURFACE LEVEL	30.429
ROAD CHAINAGE	35.80
PIPE CHAINAGE	0

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42 .....  
 Date of Issue 5 March 2018 .....  
 Issuing Officer *[Signature]* .....  
 Accreditation No. BPO0565 .....

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 10 OF 19

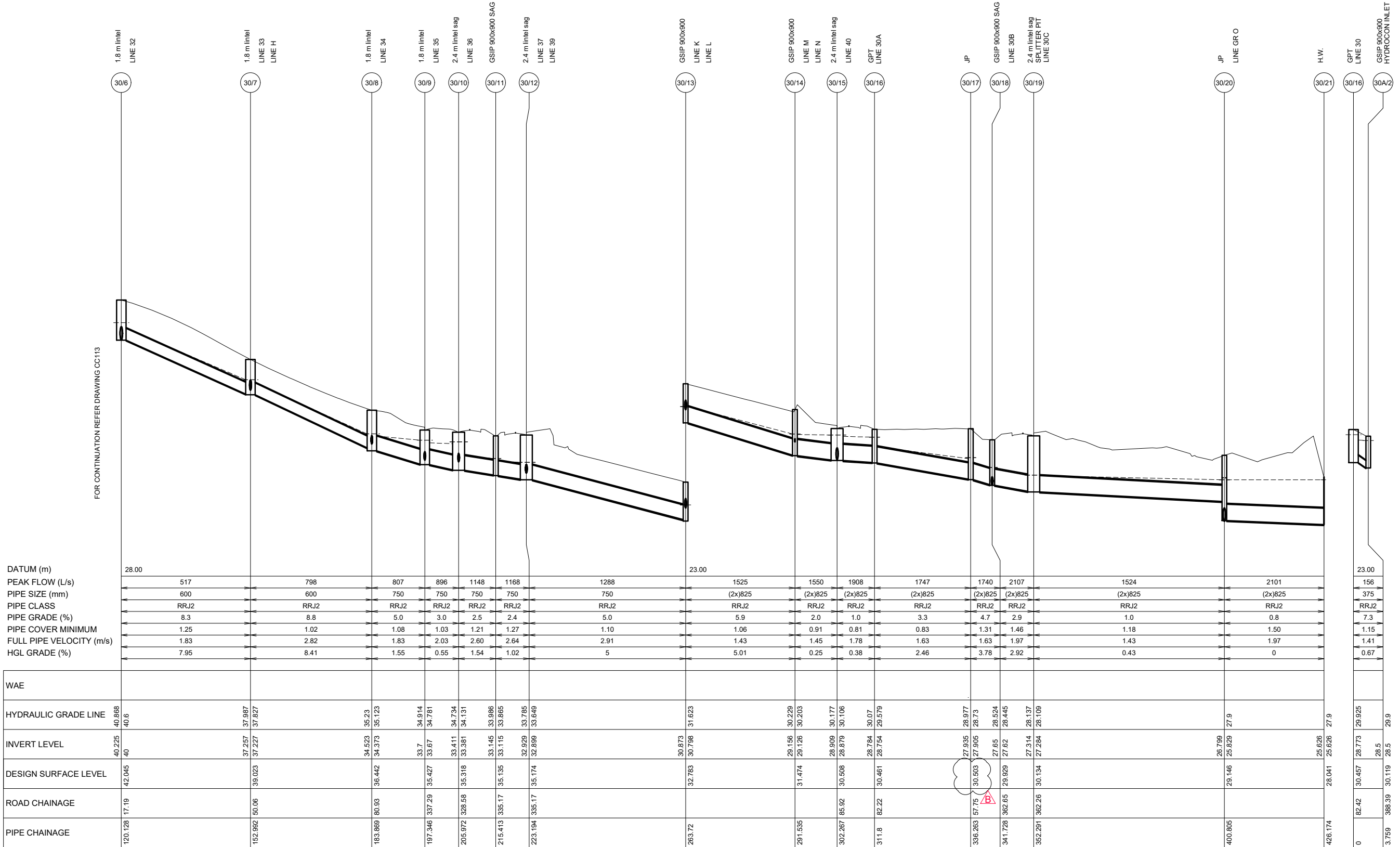
PLAN No:	11018511/CC113 <b>B</b>
FILE No:	11018511CC113
SHEET SIZE:	A1 ORIGINAL

FOR CONTINUATION REFER DRAWING CC114



Plotted: 12 February 2018 10:46:09 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\YEOMANS\11018511CC114.dwg

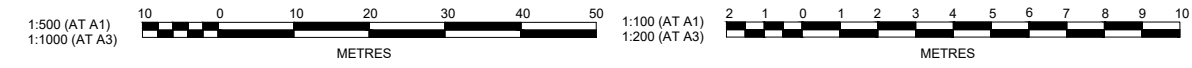
FOR CONTINUATION REFER DRAWING CC113



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry P.*  
 Accreditation No. BPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 11 OF 19

PLAN No: 11018511/CC114 **B**  
 FILE No: 11018511CC114  
 SHEET SIZE: A1 ORIGINAL

NO.	DESCRIPTION	MP	TG	RO	RO	DATE
B	STORMWATER REDESIGN					25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 25 January, 2018 4:53:36 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC11018511CC115.dwg

GSP 600x600  
HYDROCON OUTLET  
LINE 30

30B/1 30/18

GSP 900x900 SAG  
LINE 30

30/19

H.W.  
OUTLET TO RAINGARDEN

30C/2

1.8 m lintel

31/1

1.8 m lintel  
LINE 30

30/2

2.4 m lintel

32/1

2.4 m lintel sag  
LINE F

32/2

2.4 m lintel sag

32/3

1.8 m lintel

32/4

1.8 m lintel  
LINE 30

30/6

1.8 m lintel  
LINE J

33/1

1.8 m lintel  
LINE 30

30/7

1.8 m lintel

34/1

1.8 m lintel  
LINE 30

30/8

2.4 m lintel

35/1

1.8 m lintel

35/2

1.8 m lintel  
LINE 30

30/9

1.8 m lintel

36/1

1.8 m lintel

36/2

1.8 m lintel

36/3

1.8 m lintel

36/4

DATUM (m)	22.00
PEAK FLOW (L/s)	156
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	1.0
PIPE COVER MINIMUM	1.85
FULL PIPE VELOCITY (m/s)	1.41
HGL GRADE (%)	0.67

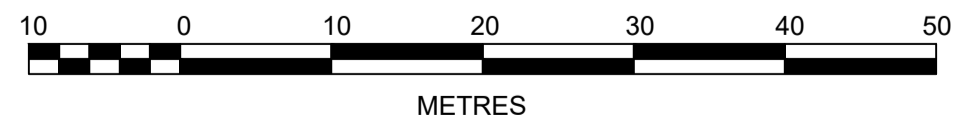
WAE	LINE 30B	LINE 30C	LINE 31	LINE 32	LINE 33	LINE 34	LINE 35	LINE 36
HYDRAULIC GRADE LINE	29.598	27.939	43.201	42.494	35.02	35.538	34.914	35.366
INVERT LEVEL	27.7	27.62	27.7	42.119	37.57	35.163	33.67	37.991
DESIGN SURFACE LEVEL	29.959	29.929	44.303	43.733	38.943	36.438	37.337	39.366
ROAD CHAINAGE	387.63	362.65	1210.60	1309.84	49.67	78.77	392.17	132.50
PIPE CHAINAGE	0	4.993	0	0	8.01	0	26.942	0

**CONSTRUCTION CERTIFICATE**

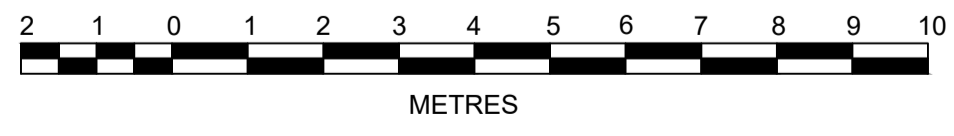
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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



1:100 (AT A1)  
1:200 (AT A3)



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 12 OF 19

PLAN No: 11018511/CC115 **B**  
 FILE No: 11018511CC115  
 SHEET SIZE: A1 ORIGINAL

FOR CONTINUATION REFER DRAWING CC116

Plotted: 12 February 2018 10:47:56 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\YEOMANS\11018511CC116.dwg

FOR CONTINUATION REFER DRAWING CC-15

DATUM (m)	29.00
PEAK FLOW (L/s)	130
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	2.0
PIPE COVER MINIMUM	1.12
FULL PIPE VELOCITY (m/s)	1.18
HGL GRADE (%)	1.67

WAE

HYDRAULIC GRADE LINE	36.045	36.488	36.015	36.39
INVERT LEVEL	35.397	35.874	35.387	35.742
DESIGN SURFACE LEVEL	37.409	36.95	36.103	35.318
ROAD CHAINAGE	231.25	262.50	296.25	325.58
PIPE CHAINAGE	97.676	128.588	161.87	193.948

LINE 36

PEAK FLOW (L/s)	21	32	33	42	78
PIPE SIZE (mm)	375	375	375	375	375
PIPE CLASS	RRJ2	RRJ2	RRJ2	RRJ2	RRJ2
PIPE GRADE (%)	1.2	1.5	1.9	1.9	2.5
PIPE COVER MINIMUM	1.11	1.12	1.10	1.10	1.10
FULL PIPE VELOCITY (m/s)	0.19	0.29	0.30	0.38	0.70
HGL GRADE (%)	1.45	1.6	1.96	1.93	2.2

LINE 37

HYDRAULIC GRADE LINE	35.274	33.785	32.899	33.649
INVERT LEVEL	34.556	34.931	34.46	34.841
DESIGN SURFACE LEVEL	36.043	35.967	34.44	34.815
ROAD CHAINAGE	283.09	288.75	306.68	316.07
PIPE CHAINAGE	180.724	235.17	283.17	325.58

LINE 38

HYDRAULIC GRADE LINE	35.111	35.014	36.057
INVERT LEVEL	34.736	34.653	35.014
DESIGN SURFACE LEVEL	36.112	36.112	36.057
ROAD CHAINAGE	372.50	369.68	360.07
PIPE CHAINAGE	325.58	369.68	360.07

LINE 39

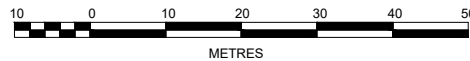
FOR CONTINUATION REFER DRAWING CC-17

**CONSTRUCTION CERTIFICATE**

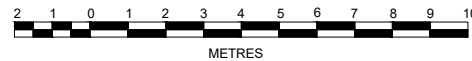
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Joery B*  
 Accreditation No. BPB0565

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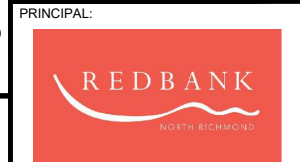


B	STORMWATER REDESIGN	MP	TG	RO	RO
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS
	AMENDMENT	DES	DRN	CKD	APR
					DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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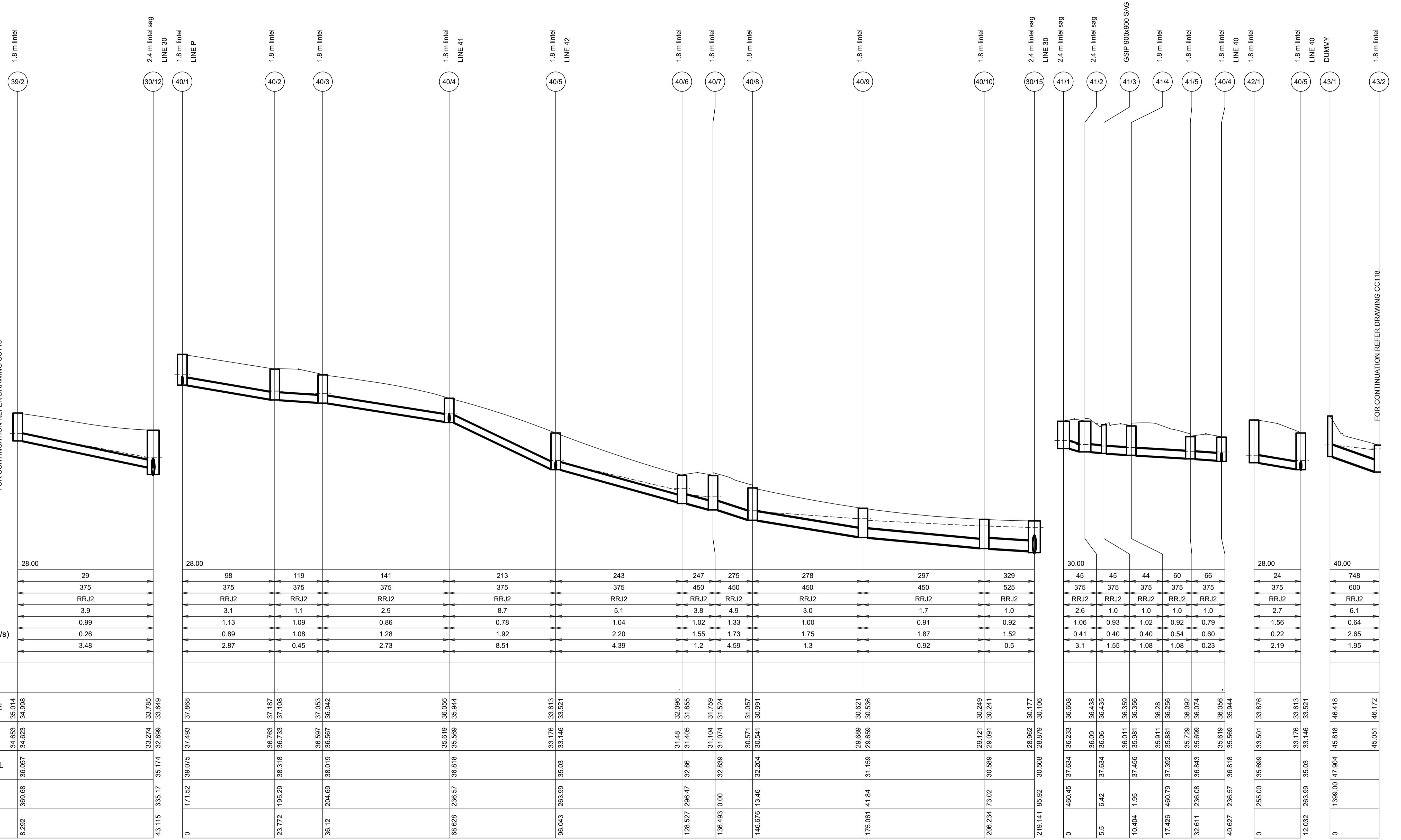
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 13 OF 19

PLAN No:	11018511/CC116	<b>B</b>
FILE No:	11018511CC116	
SHEET SIZE:	A1 ORIGINAL	

Plotted: 25 January, 2018 4:54:03 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC117\YEOMANS\11018511CC117.dwg

FOR CONTINUATION REFER DRAWING CC116

FOR CONTINUATION REFER DRAWING CC118



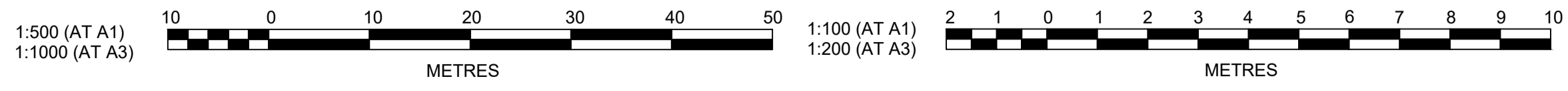
DATUM (m)	28.00
PEAK FLOW (L/s)	29
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	3.9
PIPE COVER MINIMUM	0.99
FULL PIPE VELOCITY (m/s)	0.26
HGL GRADE (%)	3.48

WAE	
HYDRAULIC GRADE LINE	34.653 35.014 33.274 33.785 33.274 33.785 33.649
INVERT LEVEL	34.653 34.623 34.998 36.057 35.174 35.174 35.174
DESIGN SURFACE LEVEL	36.057 36.057 36.057 36.057 36.057 36.057 36.057
ROAD CHAINAGE	369.68 369.68 369.68 369.68 369.68 369.68 369.68
PIPE CHAINAGE	8.292 8.292 8.292 8.292 8.292 8.292 8.292

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPPB0565

These plans/specifications form part of the certificate issued 5 March 2018



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 14 OF 19

PLAN No:	11018511/CC117	<b>B</b>
FILE No:	11018511CC117	
SHEET SIZE:	A1 ORIGINAL	

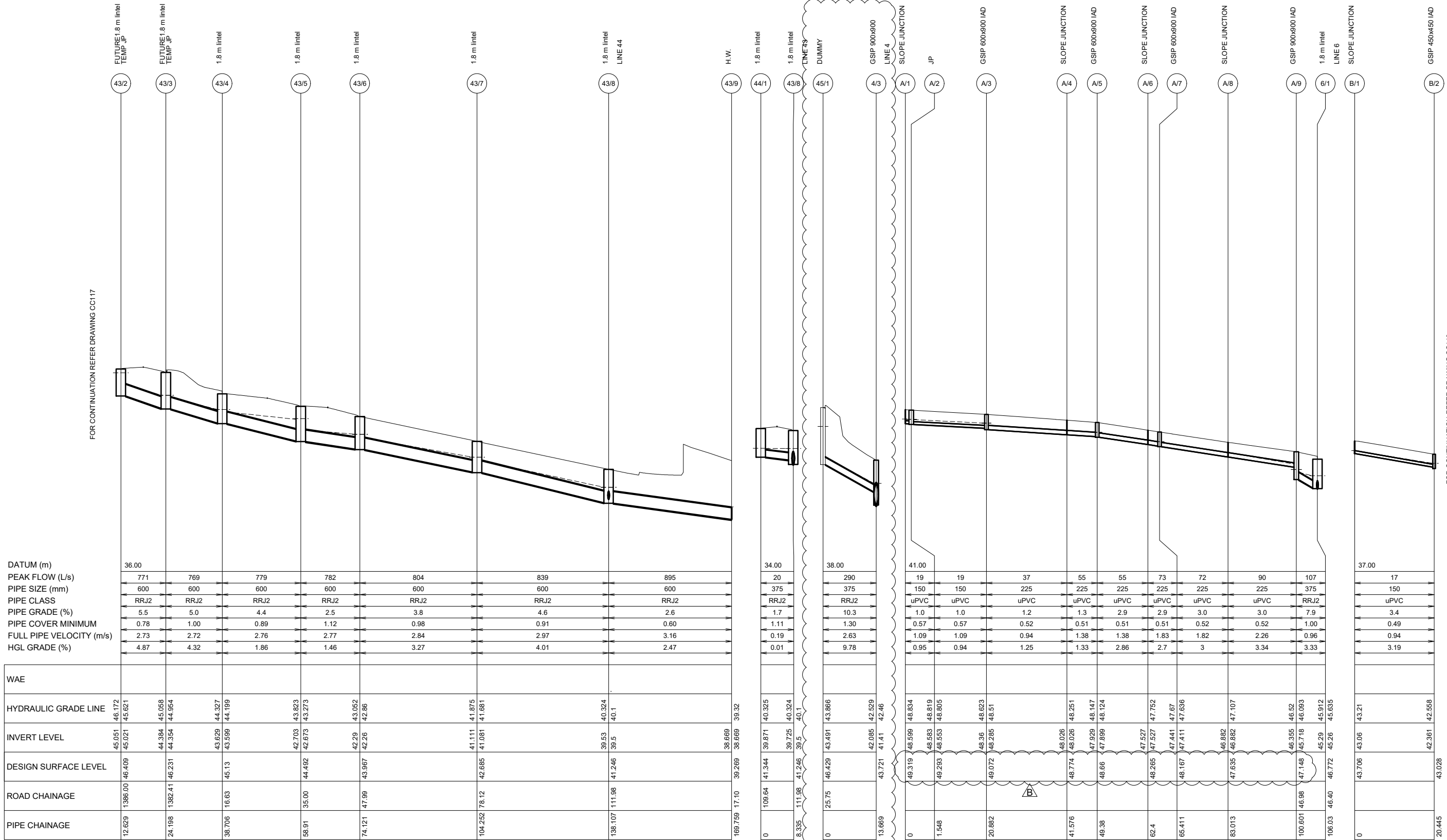
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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Plotted: 12 February 2018 10:49:44 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC1\YEOMANS\11018511CC118.dwg

FOR CONTINUATION REFER DRAWING CC117

FOR CONTINUATION REFER DRAWING CC119



LINE	43	44	45	A	B
DATUM (m)	36.00	34.00	38.00	41.00	37.00
PEAK FLOW (L/s)	771	20	290	19	17
PIPE SIZE (mm)	600	375	375	150	150
PIPE CLASS	RRJ2	RRJ2	RRJ2	uPVC	uPVC
PIPE GRADE (%)	5.5	1.7	10.3	1.0	3.4
PIPE COVER MINIMUM	0.78	1.11	1.30	0.57	0.49
FULL PIPE VELOCITY (m/s)	2.73	0.19	2.63	1.09	0.94
HGL GRADE (%)	4.87	0.01	9.78	0.95	3.19
WAE					
HYDRAULIC GRADE LINE	45.051 46.172 45.021 45.621	40.325 40.324 40.1	43.866 42.085 42.529 42.46	48.834 48.819 48.805 48.623 48.51 48.285 48.51 48.026 48.251 47.929 48.147 47.899 48.124 47.527 47.762 47.441 47.67 47.636 46.882 46.882 47.107	43.21 43.21 42.558 42.558
INVERT LEVEL	45.051 45.021 44.384 45.068 44.354 44.954	39.53 40.324 40.1	43.491 42.085 42.529 42.46	48.599 48.583 48.568 48.36 48.285 48.51 48.026 48.026 47.929 47.899 47.527 47.527 47.441 47.67 47.636 46.882 46.882 47.107	43.06 43.06 42.361 42.361
DESIGN SURFACE LEVEL	44.384 44.354 43.629 44.327 43.599 44.199	41.111 41.875 41.681	46.429 43.491 43.866	48.774 48.026 48.251 47.929 48.147 47.899 48.124 47.527 47.762 47.441 47.67 47.636 46.882 46.882 47.107	43.706 43.706 42.361 42.361
ROAD CHAINAGE	1396.00 46.409	35.00 44.492	78.12 42.685	48.774 48.026 48.251 47.929 48.147 47.899 48.124 47.527 47.762 47.441 47.67 47.636 46.882 46.882 47.107	43.706 43.706 42.361 42.361
PIPE CHAINAGE	12.629 1396.00 46.409	24.198 1382.41 46.231	38.706 16.63 45.13	58.91 35.00 44.492	74.121 47.99 43.967

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

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**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 15 OF 19

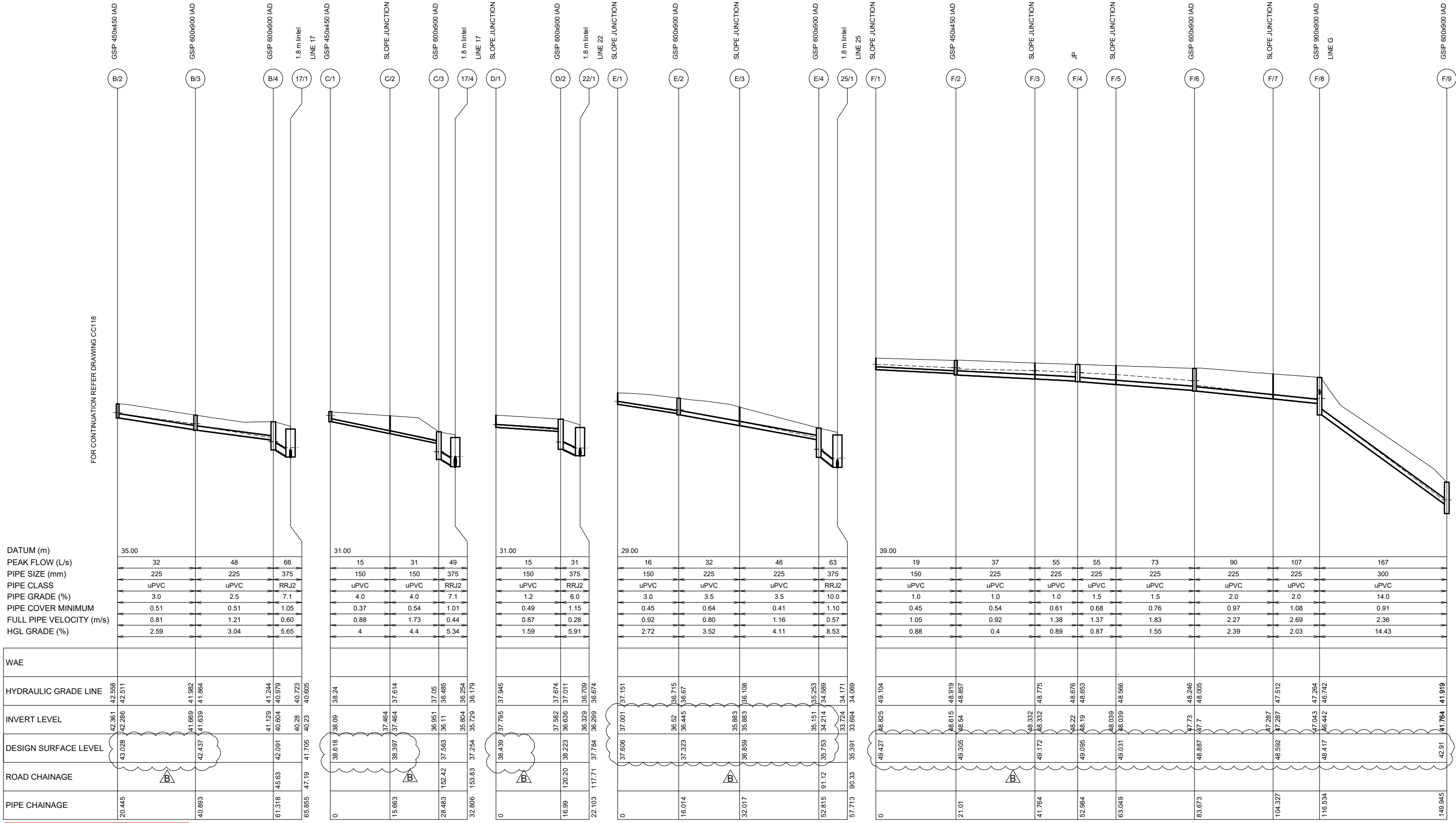
PLAN No: 11018511/CC118 **B**  
 FILE No: 11018511CC118  
 SHEET SIZE: A1 ORIGINAL

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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FOR CONTINUATION REFER DRAWING CC18

FOR CONTINUATION REFER DRAWING CC120



DATUM (m)	35.00
PEAK FLOW (L/s)	32
PIPE SIZE (mm)	225
PIPE CLASS	uPVC
PIPE GRADE (%)	3.0
PIPE COVER MINIMUM	0.51
FULL PIPE VELOCITY (m/s)	0.81
HGL GRADE (%)	2.59

DATUM (m)	31.00
PEAK FLOW (L/s)	15
PIPE SIZE (mm)	150
PIPE CLASS	uPVC
PIPE GRADE (%)	4.0
PIPE COVER MINIMUM	0.37
FULL PIPE VELOCITY (m/s)	0.88
HGL GRADE (%)	4

DATUM (m)	29.00
PEAK FLOW (L/s)	16
PIPE SIZE (mm)	150
PIPE CLASS	uPVC
PIPE GRADE (%)	3.0
PIPE COVER MINIMUM	0.45
FULL PIPE VELOCITY (m/s)	0.92
HGL GRADE (%)	2.72

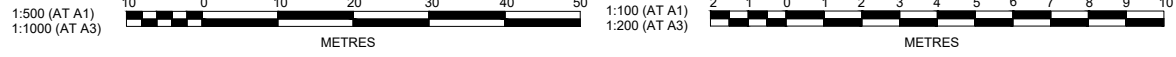
DATUM (m)	39.00
PEAK FLOW (L/s)	19
PIPE SIZE (mm)	150
PIPE CLASS	uPVC
PIPE GRADE (%)	1.0
PIPE COVER MINIMUM	0.45
FULL PIPE VELOCITY (m/s)	1.05
HGL GRADE (%)	0.88

WAE	HYDRAULIC GRADE LINE	INVERT LEVEL	DESIGN SURFACE LEVEL	ROAD CHAINAGE	PIPE CHAINAGE
	42.588	42.361	43.028	20.445	20.445
	42.511	42.286	43.028	40.893	40.893
	41.982	41.669	42.437	61.318	61.318
	41.864	41.639	42.437	65.855	65.855
	41.244	41.129	41.705	47.19	47.19
	40.979	40.604	41.705	47.19	47.19
	40.723	40.28	41.705	47.19	47.19
	40.605	40.23	41.705	47.19	47.19
	38.24	38.09	38.618	0	0
	37.614	37.464	37.464	15.663	15.663
	37.05	36.951	36.951	28.483	28.483
	36.254	36.11	37.563	152.42	152.42
	36.179	35.804	37.254	153.83	153.83
	36.794	36.729	37.254	153.83	153.83
	37.945	37.795	38.439	117.71	117.71
	37.674	37.582	37.582	120.20	120.20
	37.011	36.656	36.656	117.71	117.71
	36.709	36.529	36.529	117.71	117.71
	36.674	36.299	37.784	117.71	117.71
	37.151	37.001	37.606	0	0
	36.715	36.52	37.323	16.014	16.014
	36.67	36.445	37.323	32.017	32.017
	36.108	35.883	36.859	52.815	52.815
	35.253	35.151	35.753	91.12	91.12
	34.589	34.214	35.753	91.12	91.12
	34.171	33.724	33.724	90.33	90.33
	34.069	33.694	33.694	90.33	90.33
	49.104	48.825	49.427	0	0
	48.919	48.615	49.305	21.01	21.01
	48.657	48.54	49.305	41.764	41.764
	48.775	48.332	49.172	52.984	52.984
	48.676	48.332	48.332	63.049	63.049
	48.653	48.22	49.095	83.673	83.673
	48.566	48.19	49.095	104.327	104.327
	48.566	48.039	49.031	116.534	116.534
	47.512	48.039	49.031	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945
	47.287	47.287	47.287	149.945	149.945

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

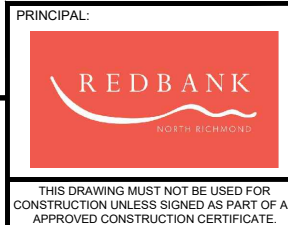
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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 16 OF 19

PLAN No: 11018511/CC119 **B**  
 FILE No: 11018511CC119  
 SHEET SIZE: A1 ORIGINAL

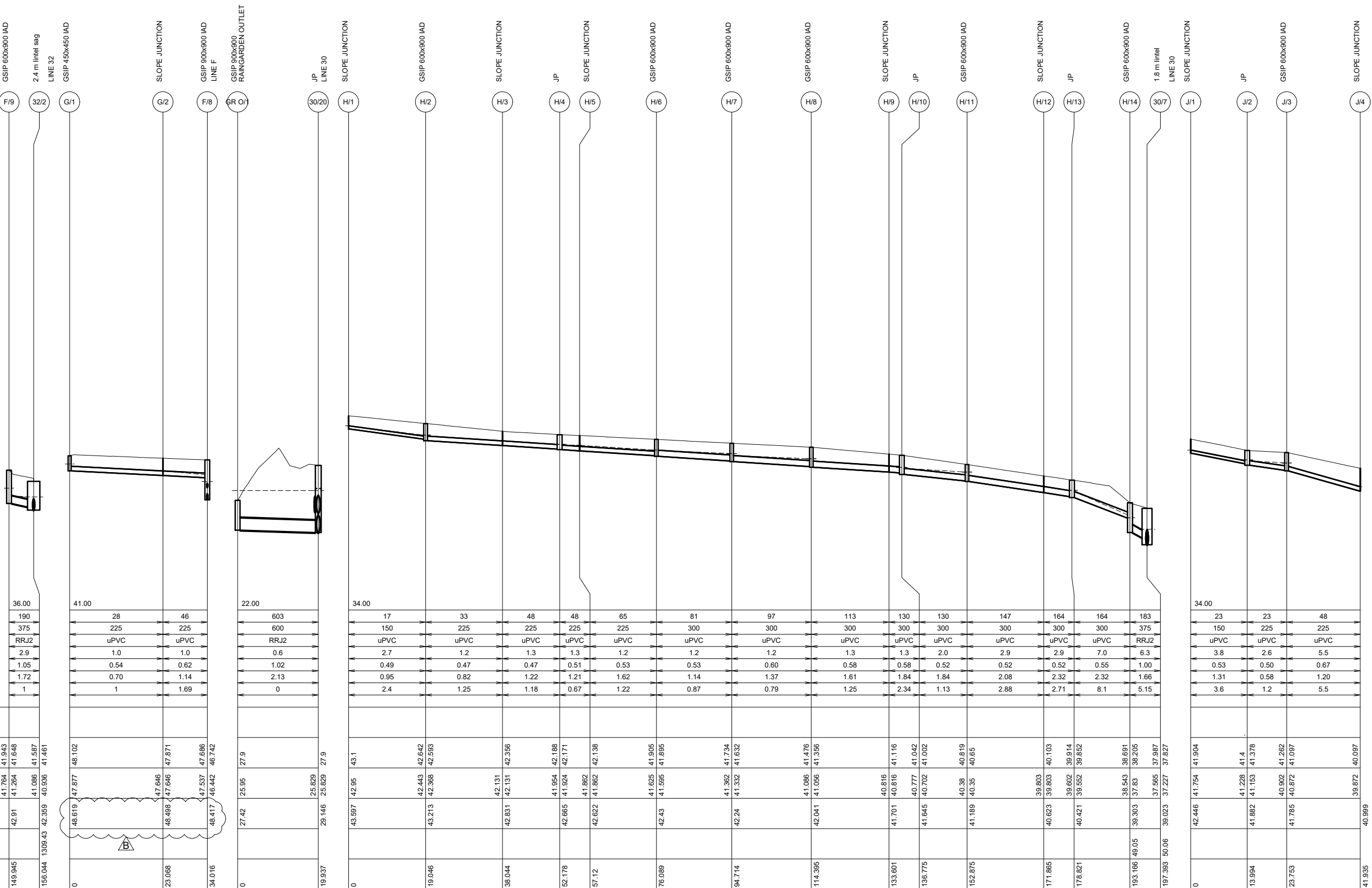
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

FOR CONTINUATION REFER DRAWING CC119

FOR CONTINUATION REFER DRAWING CC121

DATUM (m)	36.00
PEAK FLOW (L/s)	190
PIPE SIZE (mm)	375
PIPE CLASS	RRJ2
PIPE GRADE (%)	2.9
PIPE COVER MINIMUM	1.05
FULL PIPE VELOCITY (m/s)	1.72
HGL GRADE (%)	1

WAE	
HYDRAULIC GRADE LINE	41.764 41.943 41.264 41.648 41.086 41.587 42.359 41.461
INVERT LEVEL	47.877 48.102 47.646 47.871 47.537 47.686 46.442 46.742
DESIGN SURFACE LEVEL	42.91 48.619 48.498 48.417
ROAD CHAINAGE	1309.43 42.359 40.936 41.461
PIPE CHAINAGE	145.945 156.044



LINE F

LINE G

LINE GR O

LINE H

LINE J

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Certificate No. 20130299C.42  
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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 17 OF 19

PLAN No: 11018511/CC120 **B**  
 FILE No: 11018511CC120  
 SHEET SIZE: A1 ORIGINAL

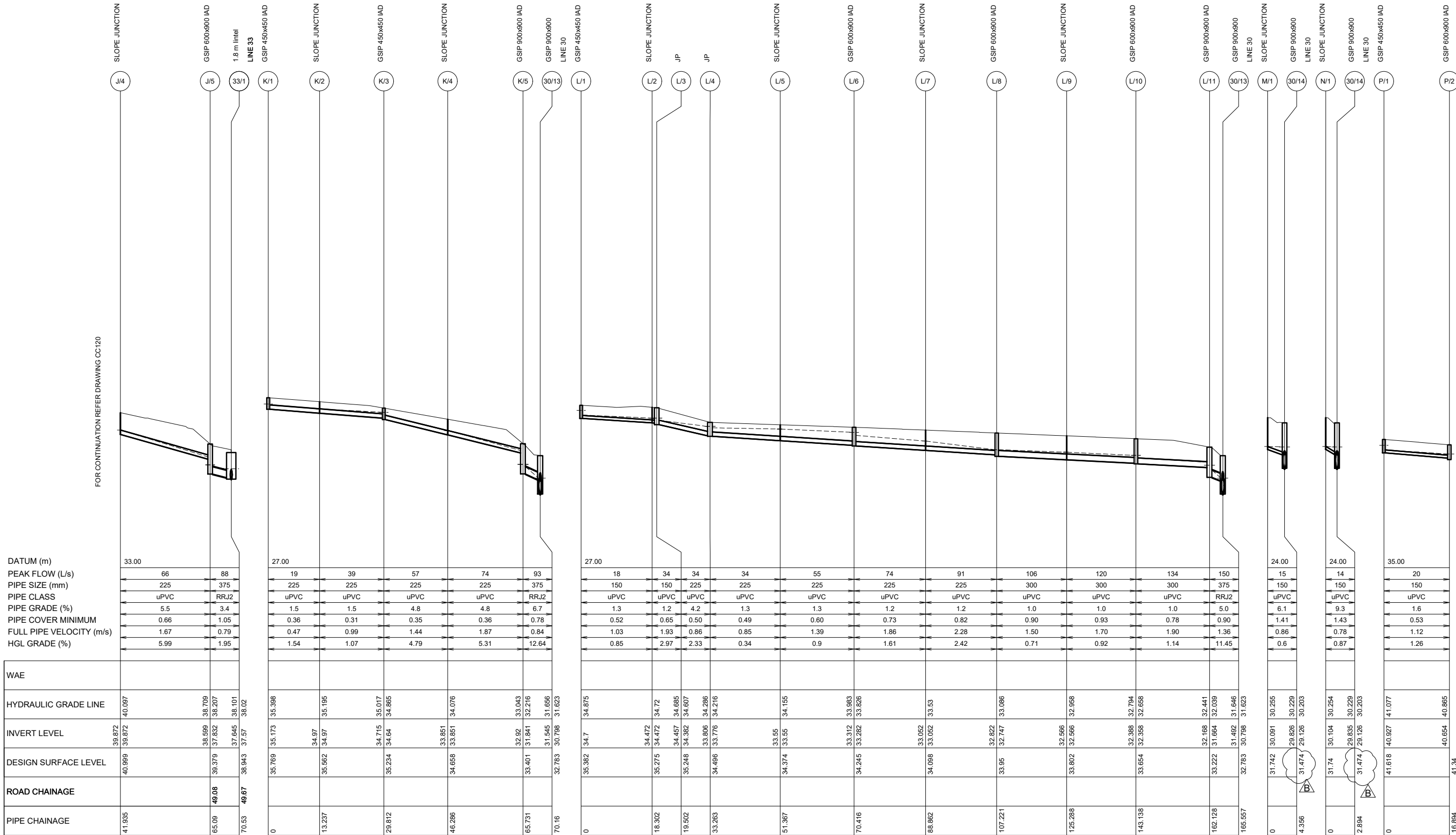
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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Plotted: 12 February 2018 10:54:27 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\YEOMANS\11018511CC121.dwg

FOR CONTINUATION REFER DRAWING CC120

FOR CONTINUATION REFER DRAWING CC122



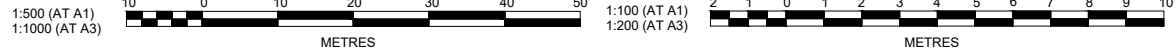
Parameter	Value
DATUM (m)	33.00
PEAK FLOW (L/s)	66
PIPE SIZE (mm)	225
PIPE CLASS	uPVC
PIPE GRADE (%)	5.5
PIPE COVER MINIMUM	0.66
FULL PIPE VELOCITY (m/s)	1.67
HGL GRADE (%)	5.99

WAE	Hydraulic Grade Line	Invert Level	Design Surface Level	Road Chainage	Pipe Chainage
0	35.769	35.173	35.769	41.935	0
13.237	35.562	34.97	35.562	49.08	65.09
29.812	34.715	34.64	35.234	49.87	70.53
46.286	33.851	33.851	34.658		
65.731	32.92	32.92	33.401		
70.16	31.545	31.545	32.783		
0	34.7	34.7	35.382		0
18.302	34.472	34.472	35.275		18.302
19.502	34.457	34.607	35.248		19.502
33.263	33.806	34.216	34.496		33.263
51.367	33.55	33.55	34.374		51.367
70.416	33.312	33.683	34.245		70.416
86.862	33.052	33.3	34.098		86.862
107.221	32.822	33.086	33.95		107.221
125.288	32.566	32.968	33.802		125.288
143.138	32.358	32.658	33.654		143.138
162.128	32.168	32.441	33.222		162.128
165.557	31.492	31.646	32.783		165.557
0	30.255	30.255	31.742		0
4.356	30.229	30.203	31.474		4.356
0	30.254	30.229	31.74		0
2.894	30.226	30.203	31.474		2.894
0	41.077	40.654	41.618		0
16.894	40.654	40.654	41.34		16.894

**CONSTRUCTION CERTIFICATE** LINE J

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565

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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 5 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 18 OF 19

PLAN No: 11018511/CC121 **B**  
 FILE No: 11018511CC121  
 SHEET SIZE: A1 ORIGINAL

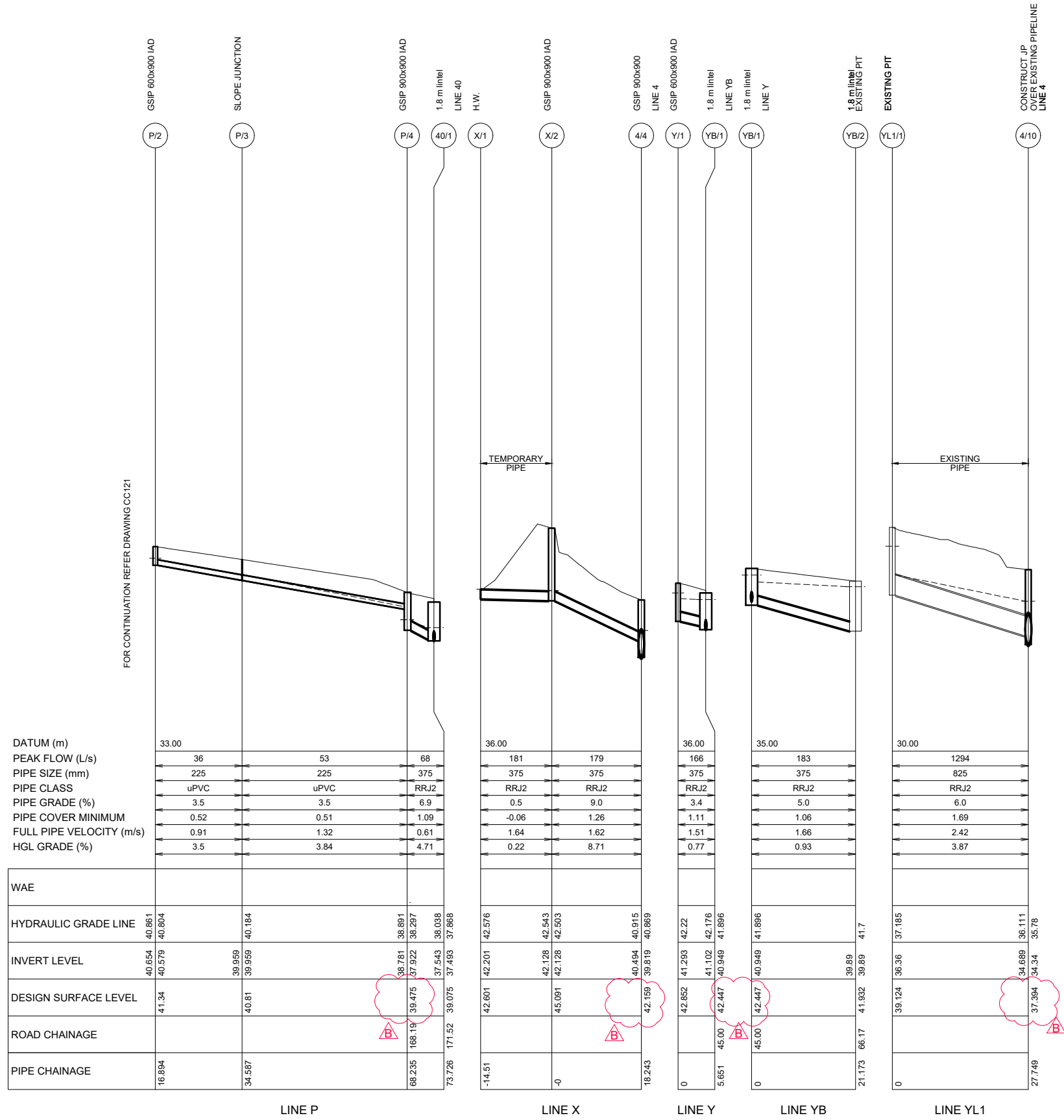
REV	DESCRIPTION	MP	TG	RO	RO	DATE
B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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Plotted: 12 February 2018 12:26:01 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CD\CC\YEOMANS\11018511CC122.dwg

FOR CONTINUATION REFER DRAWING CC121



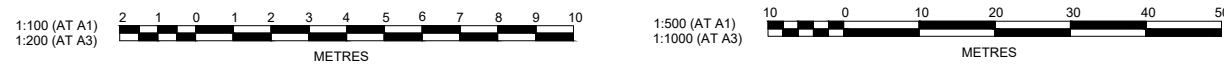
DATUM (m)	33.00		
PEAK FLOW (L/s)	36	53	68
PIPE SIZE (mm)	225	225	375
PIPE CLASS	uPVC	uPVC	RRJ2
PIPE GRADE (%)	3.5	3.5	6.9
PIPE COVER MINIMUM	0.52	0.51	1.09
FULL PIPE VELOCITY (m/s)	0.91	1.32	0.61
HGL GRADE (%)	3.5	3.84	4.71

WAE	LINE P			LINE X			LINE Y			LINE YB			LINE YL1			
HYDRAULIC GRADE LINE	40.654	40.861	40.804	40.184	38.891	38.297	42.576	42.201	42.576	42.22	41.293	42.176	41.896	37.185	36.111	35.78
INVERT LEVEL	40.654	40.579	39.959	40.184	39.959	37.922	42.201	42.201	42.201	42.22	41.293	42.176	41.896	37.185	36.111	35.78
DESIGN SURFACE LEVEL	41.34	40.81	40.81	40.81	39.475	37.543	42.601	42.601	42.601	42.447	42.447	42.447	42.447	39.124	34.680	34.34
ROAD CHAINAGE																
PIPE CHAINAGE	16.894	34.567			68.235	168.19	73.726	171.52	39.075	37.493	37.868					

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
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C	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
B	SHEET ADDED	MP	UF			
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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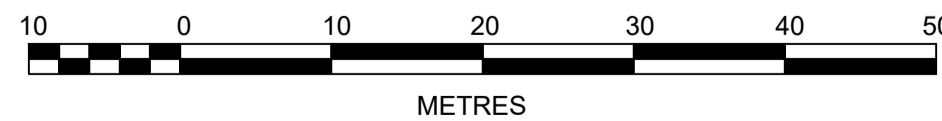
ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
5 YR DRAINAGE LONGITUDINAL SECTIONS  
SHEET 19 OF 19**

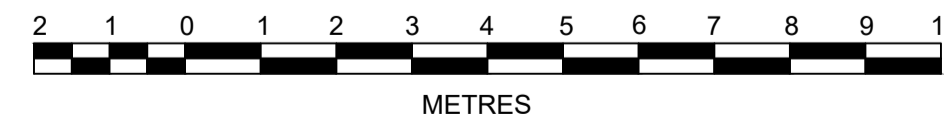
PLAN No: 11018511/CC122 **C**  
 FILE No: 11018511CC122  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 4:52:25 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC123.dwg

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



1:100 (AT A1)  
1:200 (AT A3)



	DES	DRN	CKD	APR	DATE
C	MP	TG	RO	RO	25/01/18
B	MP	MG	RO	MS	29/06/17
A	MP	MG	RO	MS	15/06/17
	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

PRINCIPAL:



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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**  
NOT IN USE

PLAN No: **11018511/CC123** **B**

FILE No: 11018511CC123

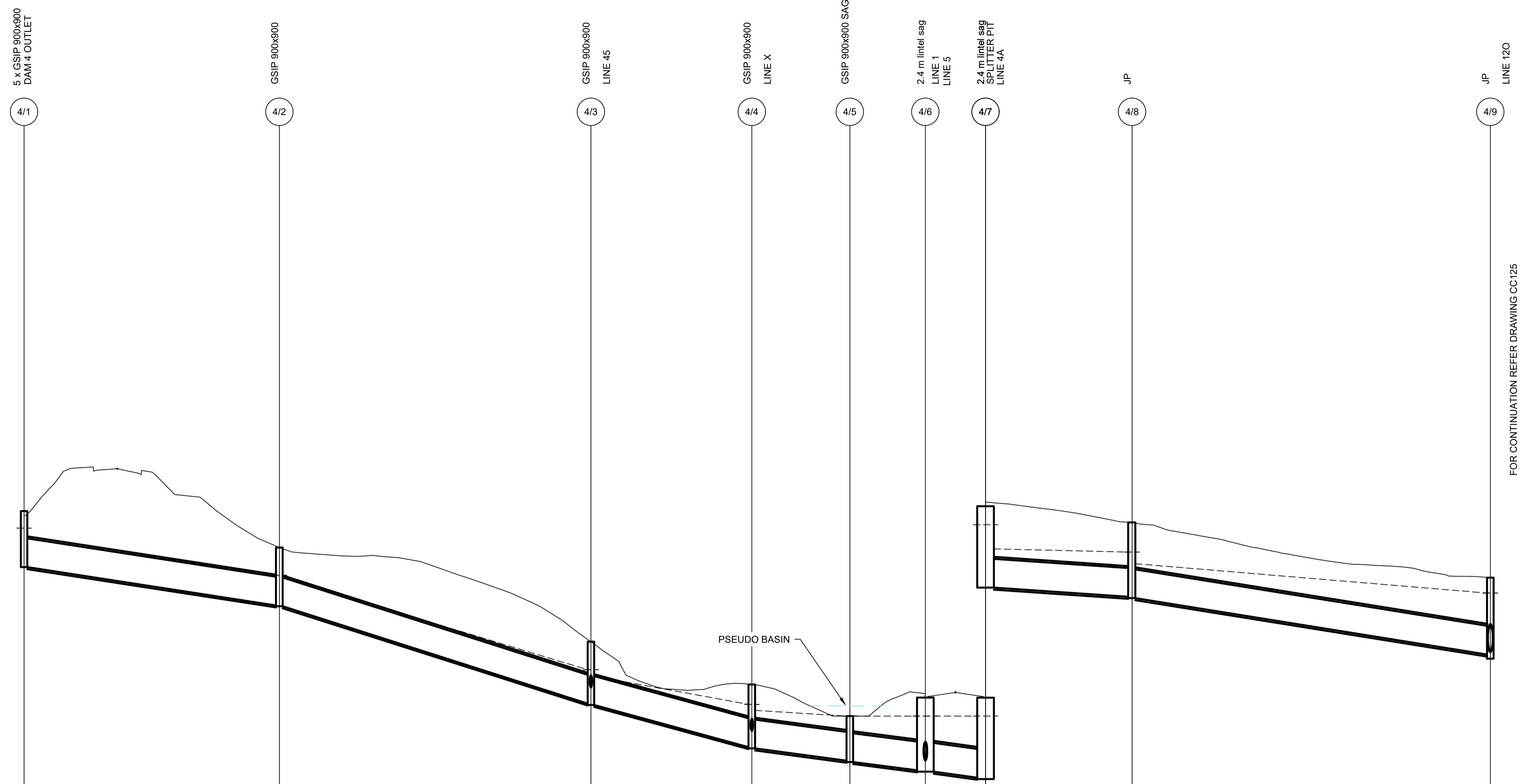
SHEET SIZE: A1 ORIGINAL

**CONSTRUCTION CERTIFICATE**

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Date of Issue 5 March 2018.....  
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Accreditation No. BPB0565.....

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Plotted: 25 January, 2018 4:55:39 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC124\YEOMANS\11018511CC124.dwg



PSEUDO BASIN

DATUM (m)	38.00									31.00						
PEAK FLOW (L/s)		2220		2220		2833		3205		3507		4571		3803		3787
PIPE SIZE (mm)		(2x)1050		1050		1050		1050		1050		(2x)1050		1050		1050
PIPE CLASS		RRJ2		RRJ2		RRJ2		RRJ2		RRJ2		RRJ2		RRJ2		RRJ2
PIPE GRADE (%)		3.0		6.2		5.2		2.5		2.2		2.0		1.3		3.1
PIPE COVER MINIMUM		0.75		0.97		0.15		0.43		0.55		1.65		1.60		1.36
FULL PIPE VELOCITY (m/s)		1.28		2.56		3.27		3.70		4.05		2.64		4.39		4.37
HGL GRADE (%)		2.89		5.92		3.5		1.17		0		0		0.44		1.64
WAE																
HYDRAULIC GRADE LINE	47.5		46.152	46.069		42.697	42.46		41.429	41.21		41.116		39.999	39.572	36.186
INVERT LEVEL	46.45		45.049	45.019		41.46	41.41		39.869	39.819		39.019	38.969	38.749	38.699	36.253
DESIGN SURFACE LEVEL	48.5		47.167			43.721			42.169	41		41.676		41.083	41.675	39.062
ROAD CHAINAGE										928.29	41		929.42	41.675	929.80	202.605
PIPE CHAINAGE	0		46.687			103.655			133.068			150.998	928.29	41		268.114

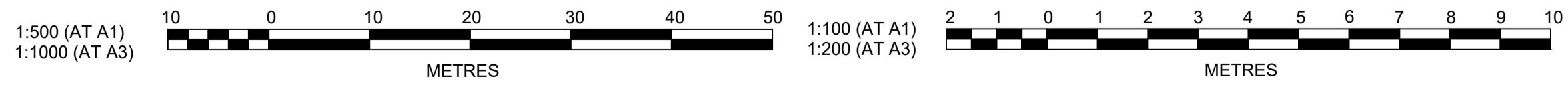
FOR CONTINUATION REFER DRAWING CC125

LINE 4

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



C	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
B	CERTIFIER COMMENTS	MP	MG	RO	MS	29/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL: [Signature]  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**REDBANK**  
NORTH RICHMOND

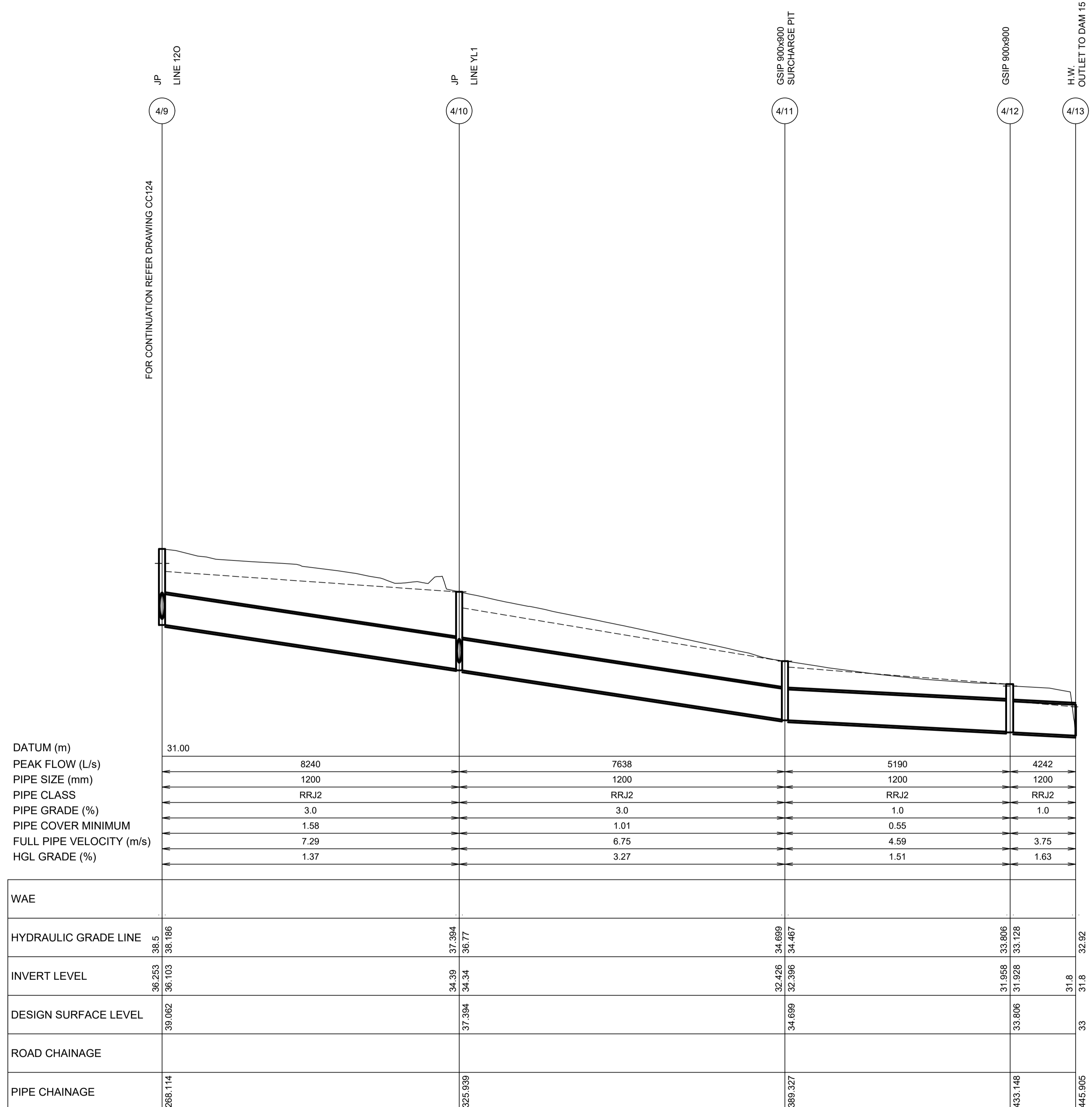
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
100 YR DRAINAGE LONGITUDINAL SECTIONS  
SHEET 1 OF 2**

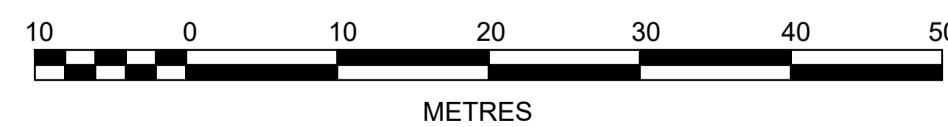
PLAN No: 11018511/CC124 C  
 FILE No: 11018511CC124  
 SHEET SIZE: A1 ORIGINAL

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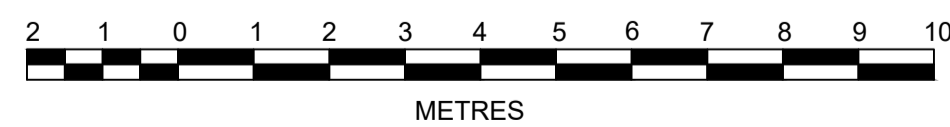


LINE 4

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



1:100 (AT A1)  
1:200 (AT A3)



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

100 YR DRAINAGE LONGITUDINAL SECTIONS  
 SHEET 2 OF 2

PLAN No: 11018511/CC125 **B**  
 FILE No: 11018511CC125  
 SHEET SIZE: A1 ORIGINAL

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT NAME	PIT TYPE	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (vxd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS	
1/1	2.4 m lintel sag	0.061	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17	0.03			2.7	3	1	17	0	1/2	FUTURE PIT	
1/2	1.8 m lintel	0.054	85	0.835	5	130.8	10	100.1	10	100.1	12	5	130.8	15	15	0	15	0.02	2.98	0	2.2	3	1	15	0	1/3	FUTURE PIT	
1/3	1.8 m lintel	0.022	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	6	6	0	6	0.04	0.6	0	2	3	1	6	0	1/4	FUTURE PIT	
1/4	1.8 m lintel	0.147	85	0.835	5	130.8	10	100.1	10	100.1	34	5	130.8	42	42	0	42	0.07	1.44	0	3	3	1	38	3	1/5	FUTURE PIT	
1/5	1.8 m lintel	0.136	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	38	38	0	42	0.07	1.44	0	3.3	3	1	38	3	1/6	FUTURE PIT	
1/6	1.8 m lintel	0.129	85	0.835	5	130.8	10	100.1	10	100.1	30	5	130.8	37	37	0	40	0.07	1.42	0	3.3	3	1	37	3	1/8	FUTURE PIT	
1/7	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0							0	0			
1/8	1.8 m lintel	0.137	85	0.835	5	130.8	10	100.1	10	100.1	32	5	130.8	39	39	0	42	0.07	1.5	0	3.3	3	1	38	3	1/9		
1/9	1.8 m lintel	0.128	85	0.835	5	130.8	10	100.1	10	100.1	30	5	130.8	36	36	0	40	0.07	1.55	0	2.7	3	1	37	3	1/10		
1/10	1.8 m lintel	0.132	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	37	37	0	40	0.07	1.73	0	2.1	3	1	37	3	4/6		
2/1	1.8 m lintel	0.159	85	0.835	5	130.8	10	100.1	10	100.1	37	5	130.8	45	45	0	45	0.06	2.15	0	3.2	3	1	41	4	YB/1		
3/1	H.W.	2.203	85	0.835	5	130.8	10	100.1	10	100.1	512	5	130.8	624	624	0	624							624	0		FUTURE EXTENSION	
3/2	GSIP 900x900	0.081	60	0.81	5	130.8	10	100.1	10	100.1	18	5	130.8	19	19	0	19							19	0			
3/3	GSIP 900x900	0.541	60	0.81	5	130.8	10	100.1	10	100.1	122	5	130.8	130	130	0	130	0.1	2.37	0			1	102	28	LOST		
3/4	H.W.																											
4/1	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						1	0	0	4/3	OUTLET TO DAM 4	
4/2	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0							0	0		5x900x900 DAM 4 OUTLET	
4/3	GSIP 900x900	0.343	85	0.835	5	130.8	10	100.1	10	100.1	80	5	130.8	97	97	0	97					1	81	16	4/4		SPECIAL STRUCTURE 0.9m x 3.0m	
4/4	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						1	16	0	4/5		SPECIAL STRUCTURE
4/5	GSIP 900x900 SAG	0.735	50	0.8	5	130.8	10	100.1	10	100.1	163	5	130.8	164	164	0	164	0.09					1	164	0			SPECIAL STRUCTURE
4/6	2.4 m lintel sag	0.115	85	0.835	5	130.8	10	100.1	10	100.1	27	5	130.8	32	32	0	36	0.05			0.2	3	1	36	0	4A/1		SPECIAL STRUCTURE
4/7	2.4 m lintel sag	0.154	85	0.835	5	130.8	10	100.1	10	100.1	36	5	130.8	44	44	0	44	0.05			0.2	3	1	44	0	4/8		SPLITTER PIT
4/8	JP	0	0						0	0	0	0	0	0	0	0	0						1	0	0	4/9		SPECIAL STRUCTURE
4/9	JP	0	0						0	0	0	0	0	0	0	0	0						1	0	0	4/10		SPECIAL STRUCTURE
4/10	JP	0	0						0	0	0	0	0	0	0	0	0						1	0	0	4/11		SPECIAL STRUCTURE
4/11	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						0	-405	405	4/12		
4/12	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						0	-930	1336	LOST		
4/13	H.W.																											
4A/2	GPT	0	0						0	0	0	0	0	0	0	0	0						1	0	0			OUTLET TO DAM 15
4A/3	H.W.																											
5/1	1.8 m lintel	0.17	85	0.835	5	130.8	10	100.1	10	100.1	39	5	130.8	48	48	0	48	0.08	1.74	0	2.4	3	1	41	7	5/2		
5/2	1.8 m lintel	0.162	85	0.835	5	130.8	10	100.1	10	100.1	38	5	130.8	46	46	0	53	0.08	1.79	0	2.4	3	1	44	10	5/3		
5/3	1.8 m lintel	0.157	85	0.835	5	130.8	10	100.1	10	100.1	37	5	130.8	45	45	0	54	0.08	1.92	0	2.3	3	1	47	7	5/4		
5/4	1.8 m lintel	0.028	85	0.835	5	130.8	10	100.1	10	100.1	7	5	130.8	8	8	0	15	0.06	0.95	0	2.3	3	1	15	0	4/6		
6/1	1.8 m lintel	0.055	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15	0.04	0.68	0	1.3	3	1	15	0	6/2		
6/2	1.8 m lintel	0.098	85	0.835	5	130.8	10	100.1	10	100.1	23	5	130.8	28	28	0	28	0.06	0.99	0	8.1	3	1	28	0	LOST		
6/3	1.8 m lintel	0.048	85	0.835	5	130.8	10	100.1	10	100.1	11	5	130.8	14	14	0	14	0.04	0.46	0	8.4	3	1	14	0	5/4		
7/1	1.8 m lintel	0.085	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	24	24	0	24	0.06	1.26	0	2.3	3	1	24	0	17/1		
8/1	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0						1	0	0	8/2		ENDCAP FOR FUTURE EXTENSION
8/2	GSIP 900x900	0.339	85	0.835	5	130.8	10	100.1	10	100.1	79	5	130.8	96	96	0	96						1	80	16	8/3		
8/3	GSIP 900x900	0.067	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	35	0.02	3.17	0	1.1	0	1	33	1	8/4		
8/4	GSIP 900x900	0.132	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	37	37	0	39	0.02	3.18	0	1.1	0	1	37	2	8/5		
8/5	GSIP 900x900	0.134	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	38	38	0	40	0.02	3.19	0	1.1	0	1	38	2	8/6		
8/6	GSIP 900x900	0.131	85	0.835	5	130.8	10	100.1	10	100.1	30	5	130.8	37	37	0	39	0.02	3.18	0	1.1	0	1	37	2	8/7		
8/7	GSIP 900x900	0.137	85	0.835	5	130.8	10	100.1	10	100.1	32	5	130.8	39	39	0	41	0.02	3.19	0	1.1	0	1	39	2	8/8		
8/8	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	2	0	3.04	0	1.1	0	1	2	0	8/9		
8/9	GSIP 900x900	0.157	85	0.835	5	130.8	10	100.1	10	100.1	37	5	130.8	45	45	0	45	0.03	3.2	0	1.1	0	1	42	3	8/10		
8/10	GSIP 900x900	0.162	85	0.835	5	130.8	10	100.1	10	100.1	38	5	130.8	46	46	0	49	0.03	3.23	0	1.1	0	1	45	4	8/11		
8/11	GSIP 900x900	0.145	85	0.835	5	130.8	10	100.1	10	100.1	34	5	130.8	41	41	0	45	0.02	3.17	0	1.8	0	1	42	3	8/15		
8/12	2.4 m lintel sag	0.151	85	0.835	5	130.8	10	100.1	10	100.1	35	5	130.8	43	43	0	47	0.05					1	47	0			
8/13	2.4 m lintel sag	0.027	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	8	8	0	8	0.02			1.5	3	1	8	0	LOST		
8/14	GSIP 900x900	0.018	85	0.835	5	130.8	10	100.1	10	100.1	4	5	130.8	5	5	0	5							5	0			
8/15	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0				0.4		1	3	0	LOST		
8/16	H.W.																											
9/1	1.8 m lintel	0.084	85	0.835	5	130.8	10	100.1	10	100.1	19	5	130.8	24	24	0	24	0.07	1.51	0	1	3	1	23	0	11/1		OUTLET TO DAM 4
10/1	H.W.	0.703	85	0.835	5	130.8	10	100.1	10	100.1	163	5	130.8	199	199	0	199						1	199	0	8/9		HEADWALL INLET
11/1	1.8 m lintel	0.059	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17	0.07	1.3	0	1	3	1	17	0	6/1		
12/1	2.4 m lintel	0.256	75	0.825	5	130.8	10	100.1	10	100.1	59	5	130.8	68	68	0	68	0.09	2.14	0	3	3	1	61	7	12/2		
12/2	1.8 m lintel	0.241	75	0.825	5	130.8	10	100.1	10	100.1	55	5	130.8	64	64	0	71											

**DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS**

PIT NAME	PIT TYPE	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (vx) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKO FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS	
18/1	1.8 m lintel	0.056	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16	0.05	0.65	0	6.2	3	1	16	0	20/1		
19/1	1.8 m lintel	0.12	85	0.835	5	130.8	10	100.1	10	100.1	28	5	130.8	34	34	0	34	0	0.15	0	3.4	3	1	32	2	19/2		
19/2	2.4 m lintel sag	0.203	85	0.835	5	130.8	10	100.1	10	100.1	47	5	130.8	57	57	0	59	0.06		0	0.8	3	1	59	0	19/3		
19/3	GSIP 900x900 SAG	0.092	40	0.79	5	130.8	10	100.1	10	100.1	20	5	130.8	19	20	0	20	0.02		0	0.8	17	1	20	0	19/4		
19/4	1.8 m lintel	0.053	85	0.835	5	130.8	10	100.1	10	100.1	12	5	130.8	15	15	0	15	0.03	1.13	0	0.8	3	1	15	0	17/3		
20/1	1.8 m lintel	0.072	85	0.835	5	130.8	10	100.1	10	100.1	17	5	130.8	20	20	0	20	0.06	1.23	0	2.1	3	1	20	0	21/1		
21/1	1.8 m lintel	0.079	85	0.835	5	130.8	10	100.1	10	100.1	18	5	130.8	22	22	0	22	0	0.15	0	2.1	3	1	22	0	17/10		
22/1	1.8 m lintel	0.045	85	0.835	5	130.8	10	100.1	10	100.1	10	5	130.8	13	13	0	13	0.04	0.45	0	6.9	3	1	13	0	22/2		
22/2	1.8 m lintel	0.145	85	0.835	5	130.8	10	100.1	10	100.1	34	5	130.8	41	41	0	41	0.07	1.11	0	7.1	3	1	39	2	22/3		
22/3	1.8 m lintel	0.112	85	0.835	5	130.8	10	100.1	10	100.1	26	5	130.8	32	32	0	34	0.06	1.3	0	7.1	3	1	33	1	22/4		
22/4	1.8 m lintel	0.124	85	0.835	5	130.8	10	100.1	10	100.1	29	5	130.8	35	35	0	36	0.06	1.26	0	6.6	3	1	35	1	22/5		
22/5	1.8 m lintel	0.073	85	0.835	5	130.8	10	100.1	10	100.1	17	5	130.8	21	21	0	22	0.05	0.93	0	5.6	3	1	22	0	22/7		
22/6	1.8 m lintel	0.148	85	0.835	5	130.8	10	100.1	10	100.1	34	5	130.8	42	42	0	47	0.07	1.37	0	5.5	3	1	43	3	22/7		
22/7	1.8 m lintel	0.039	85	0.835	5	130.8	10	100.1	10	100.1	9	5	130.8	11	11	0	15	0.06	0.97	0	2.2	3	1	15	0	22/8		
22/8	2.4 m lintel sag	0.21	85	0.835	5	130.8	10	100.1	10	100.1	49	5	130.8	59	59	0	61	0.06		0	0.5	3	1	61	0	22/10		
22/9	GPT	0	0						0	0	0	0	0	0	0	0	0							0	0			
22/10	GSIP 900x900 SAG	0.349	40	0.79	5	130.8	10	100.1	10	100.1	77	5	130.8	72	77	0	77	0.05		0	0.8	17	1	77	0	22/11		
22/11	2.4 m lintel sag	0.062	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	18	18	0	18	0.02		0	0.4	3	1	12	6	22/12		
22/12	1.8 m lintel	0.012	85	0.835	5	130.8	10	100.1	10	100.1	3	5	130.8	4	4	0	9	0.05	0.73	0	1	3	1	9	0	LOST	TEMPORARY HEADWALL	
22/13	DUMMY	0.81	85	0.835	5	130.8	10	100.1	10	100.1	188	5	130.8	229	229	0	229							229	0		FUTURE PIT	
22/14	1.8 m lintel	0.314	85	0.835	5	130.8	10	100.1	10	100.1	73	5	130.8	89	89	0	89							89	0		FUTURE PIT	
22/15	1.8 m lintel	0.095	85	0.835	5	130.8	10	100.1	10	100.1	22	5	130.8	27	27	0	27							27	0		FUTURE PIT	
22/16	Dummy Sag	1.206	85	0.835	5	130.8	10	100.1	10	100.1	280	5	130.8	341	341	0	341	0.02					1	341	0		FUTURE PIT	
22/17	GPT	0	0						0	0	0	0	0	0	0	0	0							0	0			
22/18	H.W.																											FUTURE HEADWALL
22A/2	JP																											HYDROCON PIPE INLET
22B/1	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0							0	0			HYDROCON PIPE OUTLET
23/1	1.8 m lintel	0.176	85	0.835	5	130.8	10	100.1	10	100.1	41	5	130.8	50	50	0	50	0.06	1.52	0	7.5	3	1	45	5	22/6		
24/1	1.8 m lintel	0.158	85	0.835	5	130.8	10	100.1	10	100.1	37	5	130.8	45	45	0	46	0.07	1.43	0	5	3	1	42	4	24/2		
24/2	1.8 m lintel	0.07	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	20	20	0	24	0.06	1.06	0	5.7	3	1	24	0	22/7		
25/1	1.8 m lintel	0.038	85	0.835	5	130.8	10	100.1	10	100.1	9	5	130.8	11	11	0	11	0.04	0.46	0				11	0			
25/2	1.8 m lintel	0.088	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	25	25	0	25	0.05	0.78	0	9.3	3	1	25	0	25/3		
25/3	1.8 m lintel	0.09	85	0.835	5	130.8	10	100.1	10	100.1	21	5	130.8	26	26	0	26	0.05	1.1	0	6.9	3	1	26	0	LOST		
25/4	1.8 m lintel	0.104	85	0.835	5	130.8	10	100.1	10	100.1	24	5	130.8	29	29	0	32	0.08	1.89	0	0.7	3	1	31	1	22/8		
26/1	1.8 m lintel	0.14	85	0.835	5	130.8	10	100.1	10	100.1	33	5	130.8	40	40	0	40	0.07	0.6	0	6.9	3	1	38	2	LOST		
27/1	1.8 m lintel	0.139	85	0.835	5	130.8	10	100.1	10	100.1	32	5	130.8	39	39	0	39	0.09	2.06	0	0.7	3	1	36	3	27/2		
27/2	1.8 m lintel	0.133	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	38	38	0	40	0.09	2.08	0	0.7	3	1	37	3	27/3		
27/3	1.8 m lintel	0.133	85	0.835	5	130.8	10	100.1	10	100.1	31	5	130.8	38	38	0	41	0.09	2.09	0	0.7	3	1	38	3	27/4		
27/4	1.8 m lintel	0.127	85	0.835	5	130.8	10	100.1	10	100.1	30	5	130.8	36	36	0	39	0.09	2.06	0	0.7	3	1	36	3	25/4		
28/1	1.8 m lintel	0.088	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	25	25	0	25	0.08	1.65	0	0.8	3	1	24	0	22/11		
28/2	GSIP 900x900	0.255	40	0.79	5	130.8	10	100.1	10	100.1	56	5	130.8	52	56	0	56							56	0			
29/1	1.8 m lintel	0.07	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	20	20	0	20	0.06	1.03	0	3.2	3	1	20	0	29/2		
29/2	1.8 m lintel	0.016	85	0.835	5	130.8	10	100.1	10	100.1	4	5	130.8	4	4	0	4	0.03	0.43	0				0	4	LOST		
30/1	1.8 m lintel	0.172	85	0.835	5	130.8	10	100.1	10	100.1	40	5	130.8	49	49	0	49	0.08	1.84	0	2.1	3	1	41	8	30/2		
30/2	1.8 m lintel	0.165	85	0.835	5	130.8	10	100.1	10	100.1	38	5	130.8	47	47	0	54	0.08	1.91	0	2.1	3	1	44	10	30/3		
30/3	1.8 m lintel	0.163	85	0.835	5	130.8	10	100.1	10	100.1	38	5	130.8	46	46	0	56	0.08	1.97	0	2.1	3	1	45	11	30/4		
30/4	1.8 m lintel	0.078	85	0.835	5	130.8	10	100.1	10	100.1	18	5	130.8	22	22	0	23	0.07	1.5	0	2.1	3	1	30	3	32/2		
30/5	1.8 m lintel	0.076	85	0.835	5	130.8	10	100.1	10	100.1	18	5	130.8	22	22	0	22	0.06	1.56	0	2	3	1	22	0	30/6		
30/6	1.8 m lintel	0.023	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	6	6	0	7	0.03	0.36	0	6.1	3	1	7	0	30/7		
30/7	1.8 m lintel	0.024	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	7	7	0	7	0.03	0.35	0	11	3	1	7	0	30/8		
30/8	1.8 m lintel	0.023	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	7	7	0	7	0.05	0.33	0	6.9	3	1	7	0	30/9		
30/9	1.8 m lintel	0.035	85	0.835	5	130.8	10	100.1	10	100.1	8	5	130.8	10	10	0	14	0.05	0.88	0	2.1	3	1	14	0	30/10		
30/10	2.4 m lintel sag	0.202	85	0.835	5	130.8	10	100.1	10	100.1	47	5	130.8	57	57	0	62	0.06		0	0.3	3	1	62	0	30/11		
30/11	GSIP 900x900 SAG	0.105	40	0.79	5	130.8	10	100.1	10	100.1	23	5	130.8	22	23	0	24	0.02		0	0.3	17	1	24	0	30/12		
30/12	2.4 m lintel sag	0.07	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	20	20	0	20	0.03		0	0.3	3	1	20	0	30/13		
30/13	GSIP 900x900	0.02	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	6	6	0	6	0.02	2.09	0				6	0	30/14	SPECIAL STRUCTURE	
30/14																												

### DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT NAME	PIT TYPE	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (vxd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS	
37/2	1.8 m lintel	0.045	85	0.835	5	130.8	10	100.1	10	100.1	10	5	130.8	13	13	0	13	0.05	0.92	0	2	3	1	13	0	25/1		
37/3	1.8 m lintel	0.004	85	0.835	5	130.8	10	100.1	10	100.1	1	5	130.8	1	1	0	1	0.02	0.23	0	2	3	1	1	0	37/4		
37/4	1.8 m lintel	0.039	85	0.835	5	130.8	10	100.1	10	100.1	9	5	130.8	11	11	0	11	0.05	0.83	0	2	3	1	11	0	37/5		
37/5	1.8 m lintel	0.041	85	0.835	5	130.8	10	100.1	10	100.1	9	5	130.8	12	12	0	12	0.05	0.88	0	2	3	1	12	0	30/12		
38/1	GSIP 900x900	0.127	40	0.79	5	130.8	10	100.1	10	100.1	28	5	130.8	28	28	0	28	0.04	0.89	0	2	17	1	27	1	30/11		
39/1	GSIP 900x900	0.072	40	0.79	5	130.8	10	100.1	10	100.1	16	5	130.8	16	16	0	16	0.03	0.86	0	3.3	17	1	16	0	LOST		
39/2	1.8 m lintel	0.05	85	0.835	5	130.8	10	100.1	10	100.1	12	5	130.8	14	14	0	14	0.05	0.8	0	3.4	3	1	14	0	30/12		
40/1	1.8 m lintel	0.106	85	0.835	5	130.8	10	100.1	10	100.1	25	5	130.8	30	30	0	30	0.06	1.35	0	3.2	3	1	29	1	40/2		
40/2	1.8 m lintel	0.075	85	0.835	5	130.8	10	100.1	10	100.1	17	5	130.8	21	21	0	22	0.06	1.1	0	3.2	3	1	22	0	41/1		
40/3	1.8 m lintel	0.086	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	24	24	0	24	0.06	1.13	0	3.2	3	1	24	0	40/4		
40/4	1.8 m lintel	0.027	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	8	8	0	8	0.04	0.43	0	5	3	1	8	0	40/5		
40/5	1.8 m lintel	0.028	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	8	8	0	8	0.03	0.4	0	7.8	3	1	8	0	40/6		
40/6	1.8 m lintel	0.024	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	7	7	0	7	0.03	0.39	0	5.7	3	1	7	0	LOST		
40/7	1.8 m lintel	0.108	85	0.835	5	130.8	10	100.1	10	100.1	25	5	130.8	31	31	0	31	0.06	1.15	0	5.7	3	1	29	1	40/8		
40/8	1.8 m lintel	0.01	85	0.835	5	130.8	10	100.1	10	100.1	2	5	130.8	3	3	0	4	0.03	0.32	0	4.5	3	1	4	0	40/9		
40/9	1.8 m lintel	0.081	85	0.835	5	130.8	10	100.1	10	100.1	19	5	130.8	23	23	0	23	0.06	1.2	0	2.8	3	1	23	0	40/10		
40/10	1.8 m lintel	0.144	85	0.835	5	130.8	10	100.1	10	100.1	34	5	130.8	41	41	0	41	0.08	1.95	0	1	3	1	38	3	30/15		
41/1	2.4 m lintel sag	0.157	85	0.835	5	130.8	10	100.1	10	100.1	37	5	130.8	45	45	0	45	0.05			1	3	1	45	0	41/2		
41/2	2.4 m lintel sag	0.016	85	0.835	5	130.8	10	100.1	10	100.1	4	5	130.8	5	5	0	5	0			1	1	1	0	5	41/3		
41/3	GSIP 900x900 SAG	0.028	40	0.79	5	130.8	10	100.1	10	100.1	6	5	130.8	6	6	0	11	0			2.8	-2	1	0	11	41/4		
41/4	1.8 m lintel	0.02	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	6	6	0	16	0.02	5.41	0	2.8	3	1	16	0	41/5		
41/5	1.8 m lintel	0.025	85	0.835	5	130.8	10	100.1	10	100.1	6	5	130.8	7	7	0	7	0.04	0.39	0	5	3	1	7	0	42/1		
42/1	1.8 m lintel	0.086	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	24	24	0	24	0.05	0.94	0	6.9	3	1	24	0	40/7		
43/1	DUMMY	2.645	85	0.835	5	130.8	10	100.1	10	100.1	614	5	130.8	748	748	0	748	0	0.51	3	5.1	3	1	748	0	43/2	ENDCAP FOR FUTURE EXTENSION	
43/2	1.8 m lintel	0.088	85	0.835	5	130.8	10	100.1	10	100.1	20	5	130.8	25	25	0	25	0.05	3.52	0	5.1	3	1	24	0	32/1	TEMPORARY JUNCTION PIT	
43/3	1.8 m lintel	0	0	0					0	0	0	0	0	0	0	0	0				4.9	3	1	0	0	43/4		
43/4	1.8 m lintel	0.043	85	0.835	5	130.8	10	100.1	10	100.1	10	5	130.8	12	12	0	12	0.05	0.89	0	3.1	3	1	12	0	43/6		
43/5	1.8 m lintel	0.023	85	0.835	5	130.8	10	100.1	10	100.1	5	5	130.8	7	7	0	7	0.04	0.41	0	3.5	3	1	7	0	44/1		
43/6	1.8 m lintel	0.089	85	0.835	5	130.8	10	100.1	10	100.1	21	5	130.8	25	25	0	25	0.06	1.09	0	4.5	3	1	25	1	43/7		
43/7	1.8 m lintel	0.155	85	0.835	5	130.8	10	100.1	10	100.1	36	5	130.8	44	44	0	44	0.07	1.48	0	4.3	3	1	41	3	43/8		
43/8	1.8 m lintel	0.155	85	0.835	5	130.8	10	100.1	10	100.1	36	5	130.8	44	44	0	47	0.07	1.51	0	4.2	3	1	43	4	LOST		
43/9	H.W.																										TEMPORARY OUTLET	
44/1	1.8 m lintel	0.072	85	0.835	5	130.8	10	100.1	10	100.1	17	5	130.8	20	20	0	20	0.06	1.01	0	4.2	3	1	20	0	40/1		
45/1	DUMMY	1.026	85	0.835	5	130.8	10	100.1	10	100.1	238	5	130.8	290	290	0	290							290	0	45/2	ENDCAP FOR FUTURE EXTENSION	
A/1	SLOPE JUNCTION	0.068	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	19	19	0	19							19	0			
A/2	JP	0	0						0	0	0	0	0	0	0	0	0							0	0		900x600	
A/3	GSIP 600x900 IAD	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19							19	0			
A/4	SLOPE JUNCTION	0.065	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19							19	0			
A/5	GSIP 600x900 IAD	0	0						0	0	0	0	0	0	0	0	0							0	0			
A/6	SLOPE JUNCTION	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19							19	0			
A/7	GSIP 600x900 IAD	0	0						0	0	0	0	0	0	0	0	0							0	0			
A/8	SLOPE JUNCTION	0.064	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	18	18	0	18							18	0			
A/9	GSIP 900x900 IAD	0.063	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	18	18	0	18							18	0			
B/1	SLOPE JUNCTION	0.059	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17							17	0			
B/2	GSIP 450x450 IAD	0.057	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16							16	0			
B/3	GSIP 600x900 IAD	0.058	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16							16	0			
B/4	GSIP 600x900 IAD	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19							19	0			
C/1	GSIP 450x450 IAD	0.055	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15							15	0			
C/2	SLOPE JUNCTION	0.054	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15							15	0			
C/3	GSIP 600x900 IAD	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19							19	0			
D/1	SLOPE JUNCTION	0.054	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15							15	0			
D/2	GSIP 600x900 IAD	0.055	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15							15	0			
E/1	SLOPE JUNCTION	0.058	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16							16	0			
E/2	GSIP 600x900 IAD	0.055	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16							16	0			
E/3	SLOPE JUNCTION	0.053	85	0.835	5	130.8	10	100.1	10	100.1	12	5	130.8	15	15	0	15							15	0			
E/4	GSIP 600x900 IAD	0.061	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17							17	0			
F/1	SLOPE JUNCTION	0.068	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	19	19	0	19							19	0			
F/2	GSIP 450x450 IAD	0.068	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	19	19	0	19											

DESIGN STORM 1:5yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (vx+d) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS		
J/1	SLOPE JUNCTION	0.082	85	0.835	5	130.8	10	100.1	10	100.1	19	5	130.8	23	23	0	23												
J/2	JP	0	0						0	0	0	0	0	0	0	0	0											450x450	
J/3	GSIP 600x900 IAD	0.088	85	0.835	5	130.8	10	100.1	10	100.1	21	5	130.8	25	25	0	25												
J/4	SLOPE JUNCTION	0.076	85	0.835	5	130.8	10	100.1	10	100.1	18	5	130.8	21	21	0	21												
J/5	GSIP 600x900 IAD	0.081	85	0.835	5	130.8	10	100.1	10	100.1	19	5	130.8	23	23	0	23												
K/1	GSIP 450x450 IAD	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19												
K/2	SLOPE JUNCTION	0.074	85	0.835	5	130.8	10	100.1	10	100.1	17	5	130.8	21	21	0	21												
K/3	GSIP 450x450 IAD	0.066	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	19	19	0	19												
K/4	SLOPE JUNCTION	0.062	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	18	18	0	18												
K/5	GSIP 900x900 IAD	0.068	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	19	19	0	19												
L/1	GSIP 450x450 IAD	0.064	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	18	18	0	18												
L/2	SLOPE JUNCTION	0.058	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16												
L/3	JP	0	0						0	0	0	0	0	0	0	0	0											600x900	
L/4	JP	0	0						0	0	0	0	0	0	0	0	0											450x450	
L/5	SLOPE JUNCTION	0.079	85	0.835	5	130.8	10	100.1	10	100.1	18	5	130.8	22	22	0	22												
L/6	GSIP 600x900 IAD	0.07	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	20	20	0	20												
L/7	SLOPE JUNCTION	0.064	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	18	18	0	18												
L/8	GSIP 600x900 IAD	0.059	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17												
L/9	SLOPE JUNCTION	0.057	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16												
L/10	GSIP 600x900 IAD	0.056	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	16	16	0	16												
L/11	GSIP 900x900 IAD	0.062	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	18	18	0	18												
M/1	SLOPE JUNCTION	0.054	85	0.835	5	130.8	10	100.1	10	100.1	13	5	130.8	15	15	0	15												
N/1	SLOPE JUNCTION	0.049	85	0.835	5	130.8	10	100.1	10	100.1	11	5	130.8	14	14	0	14												
P/1	GSIP 450x450 IAD	0.07	85	0.835	5	130.8	10	100.1	10	100.1	16	5	130.8	20	20	0	20												
P/2	GSIP 600x900 IAD	0.063	85	0.835	5	130.8	10	100.1	10	100.1	15	5	130.8	18	18	0	18												
P/3	SLOPE JUNCTION	0.062	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	18	18	0	18												
P/4	GSIP 900x900 IAD	0.059	85	0.835	5	130.8	10	100.1	10	100.1	14	5	130.8	17	17	0	17												
X/1	H.W.	0.66	85	0.835	5	130.8	10	100.1	10	100.1	153	5	130.8	187	187	0	187											TEMPORARY HEADWALL INLET	
X/2	GSIP 900x900 IAD	0	0						0	0	0	0	0	0	0	0	0						1	0	0	0	LOST		
Y/1	GSIP 600x900 IAD	0.607	85	0.835	5	130.8	10	100.1	10	100.1	141	5	130.8	172	172	0	172												
YB/1	1.8 m lintel	0.049	85	0.835	5	130.8	10	100.1	10	100.1	11	5	130.8	14	14	0	18	0.06	1.08	0	1	3							
YB/2	1.8 m lintel																												
YL/1/1	EXISTING PIT	4.72	85	0.835	5	130.8	10	100.1	10	100.1	1096	5	130.8	1336	1336	0	1336											EXISTING PIT	

CONSTRUCTION CERTIFICATE

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

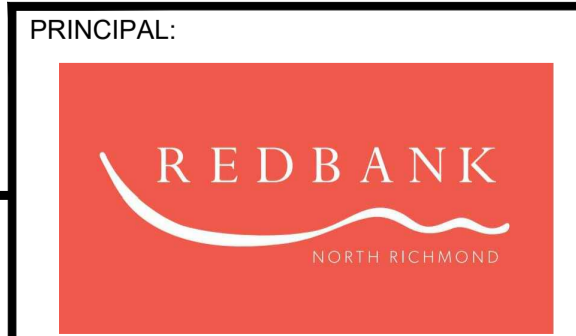
These plans/specifications form part of the certificate issued 5 March 2018

Plotted: 25 January, 2018 4:56:59 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC129.dwg

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

DRAINAGE CALCULATIONS  
 SHEET 4 OF 9

PLAN No: 11018511/CC129 **B**

FILE No: 11018511CC129

SHEET SIZE: A1 ORIGINAL

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE NAME (-)	PIPE TYPE (-)	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA (sq.m)	FULL AREA TIME Tc (min)	FULL INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL FLOW Qc (L/s)	PART-AREA A TIME Tc (min)	PART-AREA INTENSITY I (mm/hr)	PART-AREA SUM CA (ha)	PART-AREA FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qrat (L/s)	NET BYPASS FLOW Qb (L/s)	PIPE FLOW Q (L/s)	FLOW CAP. Qcap (L/s)	RATIO (-)	VELOCITY (m/s)	NORM. DEPTH (m/s)	CRIT. DEPTH (m/s)	U/S PIT (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	U/S PIT Ku (-)	U/S PIT Kw (-)	PIPE VHEAD (m)	PIT LOSS (Kw.Vhead) (m)	WSE LOSS (Kw.Vhead) (m)	TOTAL PIPE LOSS (m)	HGL (m)	HGL (m)	HGL (m)	GRADE (%)	COVER (m)	MIN. FREEBOARD (m)	U/S COMMENTS
1/1 to 1/2	RRJ2	375	8.02						17.3	0			17.3	0	17.3	0	17.3	190	0.09	0.03	4.5					0.03	4.5	0	0.01	0.01	0.1	47.181	47.175	47.075	1.25	1.15	1.02		
1/2 to 1/3	RRJ2	375	14.61						32.2	0			32.2	0	32.2	0	32.2	202.6	0.16	0.03	2.32					0.03	2.32	0	0.01	0.01	0.19	47.075	47.065	46.877	1.29	1.39	1.13		
1/3 to 1/4	RRJ2	375	30.85						37.8	0			37.8	0	37.8	-3.3	37.8	309	0.12	0.03	1.33	1.35				0.03	1.33	0.01	0.01	0.01	0.79	46.877	46.869	46.077	2.59	1.51	1.32		
1/4 to 1/5	RRJ2	375	32.46						77.8	0			77.8	0	77.8	-3.3	74.5	338.3	0.22	0.03	2.07					0.03	2.07	0.02	0.05	0.05	0.98	46.077	46.028	45.051	3.01	1.27	1.02		
1/5 to 1/6	RRJ2	375	32.54						113.8	0			113.8	0	113.8	-3.3	110.4	344.9	0.32	0.03	1.58					0.03	1.58	0.05	0.08	0.08	0.99	45.051	44.97	43.98	3.04	1.08	0.95		
1/6 to 1/7	RRJ2	375	25.94						147.8	0			147.8	0	147.8	-3	144.9	354.2	0.41	0	1.28					0	1.28	0.09	0.11	0.11	0.9	43.98	43.868	42.966	3.48	1.02	0.99		
1/7 to 1/8	RRJ2	375	12.21						146.5	0			146.5	0	146.5	-3	143.5	354.2	0.41	0.075	0					0.075	0	0.09	0	0	0.33	42.966	42.966	42.64	2.67	1.06	1.09		
1/8 to 1/9	RRJ2	450	27.91						226.8	0			226.8	0	226.8	-7.3	219.5	608.6	0.36	0.075	1.02					0.075	1.02	0.1	0.1	0.1	1.06	42.64	42.542	41.484	3.79	1.03	1.02		
1/9 to 1/10	RRJ2	525	31.31						259.7	0			259.7	0	259.7	-6.9	252.8	716.1	0.35	0.075	0.36					0.075	0.36	0.07	0.03	0.03	0.72	41.484	41.459	40.743	2.29	1.28	1.33		
1/10 to 4/6	RRJ2	600	28.03						292.6	0			292.6	0	292.6	-7.1	285.6	1052.2	0.27	0.45	0.44					0.45	0.44	0.05	0.02	0.02	0.4	40.743	40.72	40.322	1.42	1.31	1.36		
2/1 to 1/7	RRJ2	375	16.97						44.9	0			44.9	0	44.9	-4	41	301.5	0.14	0.075	4.5					0.075	4.5	0.01	0.03	0.03	0.33	43.001	42.969	42.64	1.94	1.1	1.08		
3/1 to 3/2	RRJ2	600	15.45						623.5	0			623.5	0	623.5	0	623.5	1907.2	0.33	0.03	2					0.03	2	0.25	0.5	0.5	1.2	55.695	55.199	54.002	7.75	0.87	1.03		
3/2 to 3/3	RRJ2	600	59.96						641.3	0			641.3	0	641.3	0	641.3	1069.8	0.6	0.05	0.39					0.05	0.39	0.26	0.1	0.1	1.26	54.002	53.9	52.636	2.11	0.97	0.93		
3/3 to 3/4	RRJ2	600	83.81						760.1	0			760.1	0	760.1	-27.9	732.2	1365.1	0.54		0.98						0.98	0.34	0.34	0.34	3.5	52.636	52.3	48.8	4.18	0.6	1.44		
4/1 to 4/2	RRJ2	(2x)1050	46.69						0	980			980	0	980	0	980	10252.8	0.1	0.03	4.5					0.03	4.5	0.02	0.07	0.07	1.41	47.574	47.5	46.085	3.03	0.75	0.93		
4/2 to 4/3	RRJ2	1050	56.97						0	980			980	0	980	0	980	7398	0.13	0.05	0.25					0.05	0.25	0.07	0.02	0.02	3.54	46.085	46.069	42.529	6.21	0.97	1.08		
4/3 to 4/4	RRJ2	1050	29.41						396.3	980			1366.3	-16.1	1350.2	6773.9	0.2	0.05	0.56						0.05	0.56	0.12	0.07	0.07	1.54	42.529	42.46	40.916	5.25	0.15	1.19			
4/4 to 4/5	RRJ2	1050	17.93						566.9	980			1546.9	0	1546.9	0	1546.9	4673.5	0.33	0.05	0.29					0.05	0.29	0.16	0.05	0.05	0.37	40.916	40.869	40.503	2.04	0.43	1.24		
4/5 to 4/6	RRJ2	1050	13.81						728.1	980			1708.1	0	1708.1	0	1708.1	4381	0.39	0.05	0.66					0.05	0.66	0.2	0.13	0.13	0.05	40.503	40.372	40.322	0.36	0.55	0.5		
4/6 to 4/7	RRJ2	(2x)1050	11						1352.9	980			2332.9	-4.4	2328.4	8370.3	0.28	0.05	0.16						0.05	0.16	0.09	0.01	0.01	0.02	40.322	40.307	40.29	0.15	1.65	1.35			
4/7 to 4/8	RRJ2	1050	26.8						1391.2	143			1534.2	-4.4	1529.8	3309.1	0.46	0.05	3.4						0.05	3.4	0.16	0.54	0.54	0.32	40.29	39.749	39.433	1.18	1.6	1.38			
4/8 to 4/9	RRJ2	1050	65.51						1380.2	143			1523.2	-4.4	1518.8	3309.1	0.29	0.15	0.44						0.15	0.44	0.16	0.07	0.07	1.76	39.433	39.364	37.602	2.69	1.36	1.65			
4/9 to 4/10	RRJ2	1200	57.83						1362.9	3003			4365.9	-4.4	4361.5	7271.7	0.6	0.05	0.4						0.05	0.4	0.76	0.3	0.3	1.13	37.602	37.303	36.169	1.96	1.58	1.46			
4/10 to 4/11	RRJ2	1200	63.39						2622.8	3003			5625.8	-4.4	5621.4	7342.8	0.77	0.03	0.28						0.03	0.28	1.26	0.35	0.35	1.12	36.169	35.821	34.699	1.77	1.01	1.23			
4/11 to 4/12	RRJ2	1200	43.82						2597.6	3003			5600.6	-409.7	5190.9	4225.4	1.23	0.03	0.22						0.03	0.22	1.07	0.23	0.23	0.66	34.699	34.467	33.806	1.51	0.55	0			
4/12 to 4/13	RRJ2	1200	12.76						2578.6	3003			5581.6	-1339.9	4241.6	4241.6	1									0.82	0.82	0.84	0.72	0.58	0.6	0.13	33.729	33.129	33	1.01		0.08	
4/7 to 4A/2	RRJ2	750	9.29						0	837			837	0	837	1233.8	0.68								0.03	2.46	0.18	0.45	0.45	0.04	39.884	39.433	39.388	0.48	2.34	1.74			
4A/2 to 4A/3	RRJ2	750	20.84						0	837			837	0	837	1763.8	0.47									0.03	0.53	0.18	0.1	0.1	0.44	39.388	39.292	38.85	2.12	0.27	2.35		
5/1 to 5/2	RRJ2	375	37.28						48.1	0			48.1	0	48.1	-7.4	40.6	302.9	0.13	0.03	4.5					0.03	4.5	0.01	0.03	0.03	0.89	43.763	43.732	42.843	2.38	1.19	1.07		
5/2 to 5/3	RRJ2	375	38.84						115.9	0			115.9	0	115.9	-10.1	105.8	303	0.35	0.075	1.9					0.075	1.9	0.05	0.09	0.09	0.93	42.843	42.755	41.821	2.4	1.14	1.09		
5/3 to 5/4	RRJ2	450	31.52						157.2	0			157.2	0	157.2	-7.7	149.6	437	0.34	0.075	1.18					0.075	1.18	0.05	0.05	0.05	0.57	41.821	41.767	41.193	1.82	1.17	1.22		
5/4 to 4/6	RRJ2	525	36.2						321.7	0			321.7	0	321.7	-0.4	321.3	819.1	0.39	0.525	0.5					0.525	0.5	0.11	0.06	0.06	0.82	41.193	41.137	40.322	2.25	1.12	1.13		
6/1 to 6/2	RRJ2	375	29.42						121.4	0			121.4	0	121.4	0	121.4	671.1	0.18	0.05	4.5					0.05	4.5	0.06	0.28	0.28	3.54	45.912	45.635	42.099	12.02	1.1	0.86		
6/2 to 6/3	RRJ2	375	8.01						147.3	0			147.3	0	147.3	0	147.3	268.7	0.55	0.05	2.02	2.41				0.05	2.02	0.09	0.18	0.22	0.11	42.134	41.915	41.8	1.43	1.42	1.18		
6/3 to 5/4	RRJ2	375	17.56						160	0			160	0	160	0	160	341.7	0.47	0.15	0.89					0.15	0.89	0.11	0.1	0.1	0.51	41.8	41.705	41.193	2.92	1.26	1.47		
7/1 to 5/2	RRJ2	375	17.52						24.2	0			24.2	-0.4	23.7	257.1	0.09								0.073	4.5	0	0.01	0.01	0.3	43.158	43.148	42.843	1.74	1.1	1.1			
8/1 to 8/2	RRJ2	375	7.18						0	0			0	0	0	0	380	0		0.03	0					0.03	0	0	0	0	52.201	52.201	52.201	0	1.76	2.22			
8/2 to 8/3	RRJ2	375	24.47						95.9	0			95.9	0	95.9	-15.8	80.1	380	0.21	0.03	3.2					0.03	3.2	0.03	0.09	0.09	0.16	52.201	52.115	51.95	0.67	1.16	1.8		
8/3 to 8/4	RRJ2	375	24.18						113.7	0			113.7	0	113.7	-1.5	112.3	190	0.59	0.03	1.3					0.03	1.3	0.05	0.07	0.07	0.08	51.95	51.881	51.797	0.35	1.23	0.43		
8/4 to 8/5	RRJ2	375	24.28						148.8	0			148.8	0	148.8	-1.9	146.9	190	0.77	0.03	0.9					0.03	0.9	0.09	0.08	0.08	0.15	51.797	51.716	51.571	0.6	1.24	0.33		
8/5 to 8/6																																							

### DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE TYPE	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA (sq.m)	FULL AREA (mm <sup>2</sup> )	FULL INTENSITY (mm/hr)	SUM CA (ha)	FULL FLOW Qc (L/s)	PART-ARE A TIME Tc (min)	PART-ARE A INTENSITY I (mm/hr)	PART-ARE A SUM CA (ha)	FULL FLOW Qc (L/s)	PEAK DIRECT PIPE FLOW Qp (L/s)	NET BYPASS FLOW Qb (L/s)	PIPE FLOW Qc (L/s)	FLOW Qc/qcap RATIO	VELOCITY (m/s)	NORM DEPTH (m)	CRIT DEPTH (m)	U/S PIT (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	Ku (-)	Kw (-)	VHEAD (m)	PIT LOSS (Kw.Vhead)	WSE LOSS (m)	TOTAL PIPE LOSS (m)	U/S PIT HGL (m)	U/S PIPE HGL (m)	D/S PIPE HGL (m)	GRADE (%)	MIN. COVER (m)	U/S FREEBOARD (m)	COMMENTS	
22/9 to 22/10	RRJ2	825	6.83						773.1	-382	391.1	-1.4	389.8	1599.9	0.24		0.779	4						0.03	0.11	0.11	0	0.04	0.11	0.11	0.04	28.683	28.575	28.571	0.06	0.79	0.73	

**CONSTRUCTION CERTIFICATE**


Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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PRINCIPAL:



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

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH NORTH RICHMOND STAGE 11 DRAINAGE CALCULATIONS SHEET 6 OF 9

PLAN No: 11018511/CC131 B  
 FILE No: 11018511CC131  
 SHEET SIZE: A1 ORIGINAL

B	STORMWATER REDESIGN	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotfile: 25 January, 2018 4:57:33 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts01 - Description\CD\CC11018511CC131.dwg

**DESIGN STORM 1:5yr ARI HYDRAULIC RESULTS**

PIPE NAME	PIPE TYPE	PIPE DIAMETER (mm)	PIPE LENGTH (m)	PIPE SLOPE (%)	PIPE AREA Af (sq.m)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA SUM CA (ha)	FULL AREA FLOW Qc (L/s)	PART-AREA A TIME Tc (min)	PART-AREA A INTENSITY I (mm/hr)	PART-AREA A SUM CA (ha)	PART-AREA A FLOW Qc (L/s)	DIRECT PIPE FLOW Qp (L/s)	PEAK FLOW Qp (L/s)	NET BYPASS FLOW Qb (L/s)	PIPE FLOW Q (L/s)	FLOW CAP. Qcap (L/s)	RATIO	VELOCITY (m/s)	NORM. VELOCITY (m/s)	CRIT. DEPTH (m/s)	U/S PIT (m)	PIPE U/S IL (m)	PIPE D/S IL (m)	PIPE D/S DROP (m)	Ku (-)	U/S PIT Kw (-)	PIPE VHEAD (m)	PIT LOSS (Kw.Vhead)(m)	WSE LOSS (m)	TOTAL PIPE LOSS (m)	HGL (m)	U/S PIPE HGL (m)	D/S PIPE HGL (m)	GRADE (%)	COVER (m)	U/S FREEBOA RD (m)	COMMENTS
43/3 to 43/4	RRJ2	600	14.51						769.6				769.6	0	769.6	-0.5	769.2	1488	0.52							0.03	0.27		0.38	0.1	0.1	0.63	45.058	44.954	44.327	4.32	1	1.17	
43/4 to 43/5	RRJ2	600	20.2						779.6				779.6	0	779.6	-0.5	779.1	1400.9	0.56							0.03	0.33		0.39	0.13	0.13	0.38	44.327	44.199	43.823	1.86	0.89	0.8	
43/5 to 43/6	RRJ2	600	15.21						782.8				782.8	0	782.8	-0.5	782.3	1055.9	0.74							0.03	1.41	1.5	0.39	0.55	0.58	0.22	43.857	43.273	43.052	1.46	1.12	0.63	
43/6 to 43/7	RRJ2	600	30.13						804.6				804.6	0	804.6	-1	803.6	1300	0.62							0.03	0.46		0.41	0.19	0.19	0.99	43.052	42.86	41.875	3.27	0.98	0.92	
43/7 to 43/8	RRJ2	600	33.85						842.4				842.4	0	842.4	-3.8	838.6	1423.9	0.59							0.03	0.43		0.45	0.19	0.19	1.36	41.875	41.681	40.324	4.01	0.91	0.81	
43/8 to 43/9	RRJ2	600	31.65						899.3				899.3	0	899.3	-4.6	894.7	1082.4	0.83								0.44		0.51	0.22	0.22	0.78	40.324	40.1	39.32	2.47	0.6	0.92	TEMPORARY OUTLET
44/1 to 43/8	RRJ2	375	8.34						20.5				20.5	0	20.5	0	20.5	251	0.08							0.225	4.5		0	0.01	0.01	0	40.333	40.325	40.324	0.01	1.11	1.01	
45/1 to 4/3	RRJ2	375	13.67						290.3				290.3	0	290.3	0	290.3	609.5	0.48							0.675	4.5		0.35	1.59	1.59	1.34	45.451	43.866	42.529	9.78	1.3	0.98	
A/1 to A/2	uPVC	150	1.55						19.3				19.3	0	19.3	0	19.3	19.8	0.97							0.03	0		0.06	0	0	0.01	48.834	48.834	48.819	0.95	0.57	0.48	
A/2 to A/3	uPVC	150	19.33						19.2				19.2	0	19.2	0	19.2	19.8	0.97							0.075	0.23		0.06	0.01	0.01	0.18	48.819	48.805	48.623	0.94	0.57	0.47	
A/3 to A/4	uPVC	225	20.69						37.4				37.4	0	37.4	0	37.4	65.3	0.57							0	2.5		0.05	0.11	0.11	0.26	48.623	48.51	48.251	1.25	0.52	0.45	
A/4 to A/5	uPVC	225	7.8						55				55	0	55	0	55	65.3	0.84							0.03	0		0.1	0	0	0.1	48.251	48.251	48.147	1.33	0.51	0.52	
A/5 to A/6	uPVC	225	13.02						54.7				54.7	0	54.7	0	54.7	98.7	0.55							0	0.25		0.1	0.02	0.02	0.37	48.147	48.124	47.752	2.86	0.51	0.51	
A/6 to A/7	uPVC	225	3.01						72.6				72.6	0	72.6	0	72.6	98.7	0.74							0.03	0		0.17	0	0	0.08	47.752	47.752	47.67	2.7	0.51	0.51	
A/7 to A/8	uPVC	225	17.6						72.5				72.5	0	72.5	0	72.5	101.2	0.72							0	0.2		0.17	0.03	0.03	0.53	47.67	47.636	47.107	3	0.52	0.5	
A/8 to A/9	uPVC	225	17.59						89.8				89.8	0	89.8	0	89.8	101.2	0.89							0.637	0		0.26	0	0	0.43	47.107	47.107	46.52	3.34	0.52	0.53	
A/9 to 6/1	RRJ2	375	5.43						106.6				106.6	0	106.6	0	106.6	533.6	0.2							0.03	2.17	3.14	0.05	0.1	0.15	0.18	46.242	46.093	45.912	3.33	1	0.91	
B/1 to B/2	uPVC	150	20.44						16.6				16.6	0	16.6	0	16.6	36.6	0.45							0.075	0		0.04	0	0	0.65	43.21	43.21	42.558	3.19	0.49	0.5	
B/2 to B/3	uPVC	225	20.45						32.4				32.4	0	32.4	0	32.4	101.4	0.32							0.03	1.39		0.03	0.05	0.05	0.53	42.558	42.511	41.982	2.59	0.51	0.47	
B/3 to B/4	uPVC	225	20.42						48.2				48.2	0	48.2	0	48.2	92.3	0.52							0.524	1.56		0.07	0.12	0.12	0.41	41.982	41.864	41.244	3.04	0.51	0.46	
B/4 to 17/1	RRJ2	375	4.54						66				66	0	66	0	66	508	0.13							0.05	2.22	3.08	0.02	0.04	0.06	0.26	41.036	40.979	40.723	5.65	1.05	1.06	
C/1 to C/2	uPVC	150	15.66						15.5				15.5	0	15.5	0	15.5	39.6	0.39							0	4.5		0.04	0.18	0.18	0.63	38.416	38.24	37.614	4	0.37	0.2	
C/2 to C/3	uPVC	150	12.82						30.6				30.6	0	30.6	0	30.6	39.6	0.77							0.841	0		0.15	0	0	0.4	37.614	37.614	37.05	4.4	0.54	0.78	
C/3 to 17/4	RRJ2	375	4.32						49				49	0	49	0	49	506	0.1							0.075	2.25	3.04	0.01	0.02	0.03	0.23	36.516	36.485	36.254	5.34	1.01	1.05	
D/1 to D/2	uPVC	150	16.99						15.4				15.4	0	15.4	0	15.4	22.1	0.7							0.946	0		0.04	0	0	0.22	37.945	37.945	37.674	1.59	0.49	0.49	
D/2 to 22/1	RRJ2	375	5.11						30.5				30.5	0	30.5	0	30.5	465.5	0.07							0.03	2.31	3	0	0.01	0.01	0.3	37.022	37.011	36.709	5.91	1.15	1.2	
E/1 to E/2	uPVC	150	16.01						16.3				16.3	0	16.3	0	16.3	34.3	0.47							0.075	0		0.04	0	0	0.44	37.151	37.151	36.715	2.72	0.45	0.46	
E/2 to E/3	uPVC	225	16						31.7				31.7	0	31.7	0	31.7	109.5	0.29							0	1.36		0.03	0.04	0.04	0.56	36.715	36.67	36.108	3.52	0.64	0.61	
E/3 to E/4	uPVC	225	20.8						46.3				46.3	0	46.3	0	46.3	109.5	0.42							0.937	0		0.07	0	0	0.57	36.108	36.108	35.253	4.11	0.41	0.75	
E/4 to 25/1	RRJ2	375	4.9						62.9				62.9	0	62.9	0	62.9	600.9	0.1							0.03	2.22	3.08	0.02	0.04	0.05	0.42	34.64	34.589	34.171	8.53	1.1	1.11	
F/1 to F/2	uPVC	150	21.01						19.2				19.2	0	19.2	0	19.2	19.8	0.97							0.075	0		0.06	0	0	0.2	49.193	49.193	48.997	0.94	0.45	0.23	
F/2 to F/3	uPVC	225	20.75						37.9				37.9	0	37.9	0	37.9	58.4	0.65							0	1.2		0.05	0.06	0.06	0.09	48.997	48.941	48.854	0.42	0.54	0.31	
F/3 to F/4	uPVC	225	11.22						56.9				56.9	0	56.9	0	56.9	58.4	0.97							0.03	0		0.1	0	0	0.11	48.854	48.854	48.747	0.95	0.61	0.32	
F/4 to F/5	uPVC	225	10.06						56.4				56.4	0	56.4	0	56.4	71.5	0.79							0	0.23		0.1	0.02	0.02	0.09	48.747	48.724	48.63	0.93	0.68	0.35	
F/5 to F/6	uPVC	225	20.62						75.1				75.1	0	75.1	0	75.1	71.5	1.05							0.03	0		0.18	0	0	0.34	48.63	48.63	48.288	1.66	0.76	0.4	
F/6 to F/7	uPVC	225	20.65						93.3				93.3	0	93.3	0	93.3	82.6	1.13							0	0.89		0.28	0.25	0.25	0.53	48.288	48.039	47.512	2.55	0.97	0.6	
F/7 to F/8	uPVC	225	12.21						110.7				110.7	0	110.7	0	110.7	82.6	1.34							0.601	0		0.4	0	0	0.25	47.512	47.512	47.265	2.02	1.08	1.08	
F/8 to F/9	uPVC	300	33.41						172.9				172.9	0	172.9	0	172.9	470.6	0.37							0.5	1.66	1.99	0.31	0.51	0.61	4.32	47.348	46.742	41.943	14.36	0.91	1.07	
F/9 to 32/2	RRJ2	375	6.1						189.6				189.6	0	189.6	0	189.6	324.5	0.58							0.15	1.97	2.47	0.15	0.3	0.37	0.06	42.019	41.648	41.587	1	1.05	0.89	
G/1 to G/2	uPVC	225	23.07						27.9				27.9	0	27.9	0	27.9	58.4	0.48							0	4.5		0.03	0.11	0.11	0.23	48.214	48.102	47.871	1	0.54	0.41	
G/2 to F/8	uPVC	225	10.95						45.5				45.5	0	45.5	0	45.5	58.4	0.78							1.095	0		0.07	0	0	0.12	47.871	47.871	47.686	1.69	0.62	0.63	
GR Q/1 to 30/20	RRJ2	600	19.94						603				603	0	603	0	603	518.8	1.16																				

DESIGN STORM 1:100yr ARI HYDROLOGIC RESULTS

PIT NAME (-)	PIT TYPE (-)	CATCHMENT AREA (ha)	IMPERVIOUS PERCENTAGE (%)	RUNOFF C (-)	IMPERVIOUS TIME Tc (min)	IMPERVIOUS INTENSITY I (mm/hr)	PERVIOUS TIME Tc (min)	PERVIOUS INTENSITY I (mm/hr)	FULL AREA TIME Tc (min)	FULL AREA INTENSITY I (mm/hr)	FULL AREA CATCHMENT FLOW Qc (L/s)	PARTIAL AREA TIME Tc (min)	PARTIAL AREA INTENSITY I (mm/hr)	PARTIAL AREA CATCHMENT FLOW Qc (L/s)	TOTAL CATCHMENT FLOW Qc (L/s)	DIRECT FLOW Qd (L/s)	APPROACH FLOW Qa (L/s)	FLOODED DEPTH d (m)	FLOODED WIDTH w (m)	FLOODED (vxd) (sq.m/s)	ROAD GRADE (%)	ROAD XFALL (%)	CHOKE FACTOR (-)	INLET FLOW Qg (L/s)	BYPASS FLOW Qb (L/s)	BYPASS PIT (-)	COMMENTS	
1/1	2.4 m lintel sag	0.061	85	0.878	5	219.1	10	167.3	10	167.3	25	5	219.1	30	30	0	30	0.06			2.7	3	0.5	30	0	1/2	FUTURE PIT	
1/2	1.8 m lintel	0.054	85	0.877	5	219.1	10	167.3	10	167.3	22	5	219.1	27	27	0	27	0.02	3.52	0.01	2.2	3	0.8	20	6	1/3	FUTURE PIT	
1/3	1.8 m lintel	0.022	85	0.878	5	219.1	10	167.3	10	167.3	9	5	219.1	11	11	0	11	0.06	1.21	0.04	2	3	0.8	14	3	1/4	FUTURE PIT	
1/4	1.8 m lintel	0.147	85	0.878	5	219.1	10	167.3	10	167.3	60	5	219.1	74	74	0	77	0.08	1.89	0.11	3	3	0.8	50	27	1/5	FUTURE PIT	
1/5	1.8 m lintel	0.136	85	0.878	5	219.1	10	167.3	10	167.3	55	5	219.1	68	68	0	95	0.09	2.07	0.12	3.3	3	0.8	58	37	1/6	FUTURE PIT	
1/6	1.8 m lintel	0.129	85	0.877	5	219.1	10	167.3	10	167.3	53	5	219.1	65	65	0	102	0.09	2.14	0.12	3.3	3	0.8	61	41	1/8	FUTURE PIT	
1/7	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0							0	0			
1/8	1.8 m lintel	0.137	85	0.877	5	219.1	10	167.3	10	167.3	56	5	219.1	68	68	0	110	0.09	2.28	0.12	3.3	3	0.8	64	46	1/9		
1/9	1.8 m lintel	0.128	85	0.877	5	219.1	10	167.3	10	167.3	52	5	219.1	64	64	0	110	0.1	2.39	0.12	2.7	3	0.8	63	47	1/10		
1/10	1.8 m lintel	0.132	85	0.878	5	219.1	10	167.3	10	167.3	54	5	219.1	66	66	0	113	0.1	2.68	0.11	2.1	3	0.8	64	48	4/6		
2/1	1.8 m lintel	0.159	85	0.877	5	219.1	10	167.3	10	167.3	65	5	219.1	79	79	0	79	0.08	2.75	0.08	3.2	3	0.8	51	28	YB/1		
3/1	H.W.	2.203	85	0.877	5	219.1	10	167.3	10	167.3	899	5	219.1	1101	1101	0	1101							1101	0		FUTURE EXTENSION	
3/2	GSIP 900x900	0.081	60	0.84	5	219.1	10	167.3	10	167.3	32	5	219.1	34	34	0	34							34	0			
3/3	GSIP 900x900	0.541	60	0.84	5	219.1	10	167.3	10	167.3	211	5	219.1	227	227	0	227	0.12	2.71	0.15			0.8	125	102	LOST		
3/4	H.W.																											OUTLET TO DAM 4
4/1	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						0.8	0	0	4/3	5x900x900 DAM 4 OUTLET	
4/2	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0							0	0		SPECIAL STRUCTURE 0.9m x 3.0m	
4/3	GSIP 900x900	0.343	85	0.877	5	219.1	10	167.3	10	167.3	140	5	219.1	171	171	0	171						0.8	101	70	4/4	SPECIAL STRUCTURE	
4/4	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	0						0.8	50	20	4/5	SPECIAL STRUCTURE	
4/5	GSIP 900x900 SAG	0.735	50	0.825	5	219.1	10	167.3	10	167.3	282	5	219.1	285	285	0	305	0.22					0.5	305	0		SPECIAL STRUCTURE	
4/6	2.4 m lintel sag	0.115	85	0.877	5	219.1	10	167.3	10	167.3	47	5	219.1	57	57	0	136	0.15			0.2	3	0.5	136	0	4A/1	SPECIAL STRUCTURE	
4/7	2.4 m lintel sag	0.154	85	0.878	5	219.1	10	167.3	10	167.3	63	5	219.1	77	77	0	77	0.1			0.2	3	0.5	77	0	4/8	SPLITTER PIT	
4/8	JP	0	0						0	0	0	0	0	0	0	0	0						0.8	0	0	4/9	SPECIAL STRUCTURE	
4/9	JP	0	0						0	0	0	0	0	0	0	0	0						0.8	0	0	4/10	SPECIAL STRUCTURE	
4/10	JP	0	0						0	0	0	0	0	0	0	0	0						0	-2847	2847	4/11	SPECIAL STRUCTURE	
4/11	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	2847						0	-2403	5250	4/12		
4/12	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	5250						0	-901	6151	LOST		
4/13	H.W.																										OUTLET TO DAM 15	
5/1	1.8 m lintel	0.17	85	0.877	5	219.1	10	167.3	10	167.3	69	5	219.1	85	85	0	85	0.09	2.22	0.1	2.4	3	0.8	48	37	5/2		
5/2	1.8 m lintel	0.162	85	0.877	5	219.1	10	167.3	10	167.3	66	5	219.1	81	81	0	118	0.1	2.49	0.12	2.4	3	0.8	60	58	5/3		
5/3	1.8 m lintel	0.157	85	0.877	5	219.1	10	167.3	10	167.3	64	5	219.1	79	79	0	136	0.1	2.8	0.12	2.3	3	0.8	74	63	5/4		
5/4	1.8 m lintel	0.028	85	0.878	5	219.1	10	167.3	10	167.3	12	5	219.1	14	14	0	82	0.09	2.11	0.1	2.3	3	0.8	51	31	4/6		
6/1	1.8 m lintel	0.055	85	0.878	5	219.1	10	167.3	10	167.3	22	5	219.1	27	27	0	38	0.05	1.3	0.09	12.5	2.9	0.8	30	8	6/2		
6/2	1.8 m lintel	0.098	85	0.877	5	219.1	10	167.3	10	167.3	40	5	219.1	49	49	0	57	0.07	1.46	0.11	8.1	3	0.8	40	17	LOST		
6/3	1.8 m lintel	0.048	85	0.878	5	219.1	10	167.3	10	167.3	20	5	219.1	24	24	0	24	0.05	0.77	0.08	8.4	3.1	0.8	19	5	5/4		
7/1	1.8 m lintel	0.085	85	0.878	5	219.1	10	167.3	10	167.3	35	5	219.1	43	43	0	43	0.08	1.64	0.07	2.3	3	0.8	31	12	17/1		
8/1	STAGE BOUNDARY	0	0						0	0	0	0	0	0	0	0	0						0.8	0	0	8/2	ENDCAP FOR FUTURE EXTENSION	
8/2	GSIP 900x900	0.339	85	0.878	5	219.1	10	167.3	10	167.3	138	5	219.1	169	169	0	169						0.8	101	69	8/3		
8/3	GSIP 900x900	0.067	85	0.878	5	219.1	10	167.3	10	167.3	27	5	219.1	33	33	0	102	0.04	3.33	0.03	1.1	0	0.526	44	58	8/4		
8/4	GSIP 900x900	0.132	85	0.877	5	219.1	10	167.3	10	167.3	54	5	219.1	66	66	0	124	0.05	3.37	0.04	1.1	0	0.134	13	111	8/5		
8/5	GSIP 900x900	0.134	85	0.877	5	219.1	10	167.3	10	167.3	55	5	219.1	67	67	0	177	0.06	3.45	0.06	1.1	0	0	-1	178	8/6		
8/6	GSIP 900x900	0.131	85	0.878	5	219.1	10	167.3	10	167.3	53	5	219.1	65	65	0	244	0.07	3.54	0.07	1.1	0	0.304	50	194	8/7		
8/7	GSIP 900x900	0.137	85	0.878	5	219.1	10	167.3	10	167.3	56	5	219.1	68	68	0	262	0.07	3.57	0.08	1.1	0	0.281	49	213	8/8		
8/8	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	213	0.06	3.51	0.07	1.1	0	0	-84	297	8/9		
8/9	GSIP 900x900	0.157	85	0.877	5	219.1	10	167.3	10	167.3	64	5	219.1	79	79	0	446	0.1	3.79	0.13	1.1	0	0.154	39	407	8/10		
8/10	GSIP 900x900	0.162	85	0.878	5	219.1	10	167.3	10	167.3	66	5	219.1	81	81	0	488	0.1	3.83	0.14	1.1	0	0.229	62	426	8/11		
8/11	GSIP 900x900	0.145	85	0.877	5	219.1	10	167.3	10	167.3	59	5	219.1	72	72	0	498	0.09	3.71	0.15	1.8	0	0.629	173	325	8/15		
8/12	2.4 m lintel sag	0.151	85	0.878	5	219.1	10	167.3	10	167.3	61	5	219.1	75	75	0	150	0.09					0.5	150	0			
8/13	2.4 m lintel sag	0.027	85	0.878	5	219.1	10	167.3	10	167.3	11	5	219.1	14	14	0	26	0.1			1.5	3	0	-285	310	LOST		
8/14	GSIP 900x900	0.018	85	0.878	5	219.1	10	167.3	10	167.3	7	5	219.1	9	9	0	9						0	9	0			
8/15	GSIP 900x900	0	0						0	0	0	0	0	0	0	0	325				0.4		0	-282	607	LOST		
8/16	H.W.																										OUTLET TO DAM 4	
9/1	1.8 m lintel	0.084	85	0.877	5	219.1	10	167.3	10	167.3	34	5	219.1	42	42	0	42	0.09	1.94	0.06	1	3	0.8	31	11	11/1		
10/1	H.W.	0.703	85	0.877	5	219.1	10	167.3	10	167.3	287	5	219.1	351	351	0	351						0.8	281	70	8/9	HEADWALL INLET	
11/1	1.8 m lintel	0.059	85	0.878	5	219.1	10	167.3	10	167.3	24	5	219.1	29	29	0	40	0.08	1.92	0.06	1	3	0.8	30	11	6/1		
12/1	2.4 m lintel	0.256	75	0.863	5	219.1	10	167.3	10	167.3	103	5	219.1	120	120	0	120	0.1	2.7	0.11	3	3	0.8	74	45	12/2		
12/2	1.8 m lintel	0.241	75	0.863	5	219.1	10	167.3	10	167.3	97	5	219.1	113	113	0	158	0.1	2.4	0.17	4.7	3	0.8	83	75	12/3		
12/3	1.8 m lintel	0.237	85	0.878																								

DESIGN STORM 1:100yr ARI HYDRAULIC RESULTS

PIPE NAME	PIPE TYPE	PIPE DIAMETER	PIPE LENGTH	PIPE SLOPE	PIPE AREA Af	FULL AREA TIME Tc	FULL AREA INTENSITY I	FULL AREA SUM CA	FULL AREA FLOW Qc	PART-AREA TIME Tc	PART-AREA INTENSITY I	PART-AREA SUM CA	PART-AREA FLOW Qc	DIRECT PIPE FLOW Qp	PEAK FLOW Qrat	NET BYPASS FLOW Qb	PIPE FLOW Q	FLOW CAP. Qcap	Q/Qcap	FULL PIPE VELOCITY	NORM. DEPTH VELOCITY	CRIT. DEPTH VELOCITY	U/S PIT GRATE RL	PIPE U/S IL	PIPE D/S IL	PIPE D/S DROP	U/S PIT Ku	U/S PIT Kw	PIPE V/HEAD	PIT LOSS (Ku.V/head)	WSE LOSS (Kw.V/head)	TOTAL PIPE LOSS	U/S PIT HGL	U/S PIPE HGL	D/S PIPE HGL	HGL GRADE	MIN. COVER	U/S FREEBOARD	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)		
1/1 to 1/2	RRJ2	375	8.02	1	0.11	10	167.3	0.054	24.9	5	219.1	0.05	30.5	0	30.5	0	30.5	190	0.16	0.28	1.26	0.95	48.2	46.8	46.72	0.03	4.5	0	0.02	0.02	0.02	0.09	47.193	47.175	47.088	1.09	1.15	1.01	
1/2 to 1/3	RRJ2	375	14.61	1.14	0.11	10.11	166.7	0.101	46.6	5.11	217.6	0.09	57	0	57	-6.5	50.5	202.6	0.25	0.46	1.52	1.1	48.2	46.69	46.524	0.03	2.13	0.01	0.02	0.02	0.17	47.088	47.065	46.895	1.16	1.39	1.11		
1/3 to 1/4	RRJ2	375	30.65	2.64	0.11	10.27	165.6	0.12	55	5.27	215.3	0.11	67	0	67	-3.4	63.5	309	0.21	0.58	2.2	1.18	48.2	46.494	45.683	0.03	1.54	1.56	0.02	0.03	0.03	0.74	46.895	46.869	46.125	2.43	1.51	1.3	
1/4 to 1/5	RRJ2	375	32.46	3.17	0.11	10.5	164.1	0.249	113.4	5.39	213.6	0.23	137.9	0	137.9	-27.3	110.7	338.3	0.33	1	2.74	1.45	47.1	45.653	44.625	0.03	1.88	0.05	0.1	0.1	0.88	46.125	46.028	45.15	2.71	1.27	0.98		
1/5 to 1/6	RRJ2	375	32.54	3.3	0.11	10.7	162.9	0.368	166.4	5.43	213.1	0.34	201.9	0	201.9	-37.4	164.5	344.9	0.48	1.49	3.09	1.75	46	44.595	43.523	0.03	1.59	0.11	0.18	0.18	0.84	45.15	44.97	44.126	2.59	1.08	0.85		
1/6 to 1/7	RRJ2	375	25.94	3.48	0.11	10.87	161.8	0.481	216.2	5.37	213.8	0.44	262.5	0	262.5	-41.2	221.3	354.2	0.62	2	3.38	2.12	44.967	43.493	42.591	0	1.26	0.2	0.26	0.26	0.9	44.126	43.868	42.966	3.48	1.02	0.84		
1/7 to 1/8	RRJ2	375	12.21	3.48	0.11	11	160.9	0.481	215.1	5.5	212.1	0.44	260.3	0	260.3	-41.2	219.1	354.2	0.62	1.98	3.38	2.1	44.061	42.591	42.167	0.075	0	0.2	0	0	0.19	42.966	42.966	42.776	1.56	1.06	1.09		
1/8 to 1/9	RRJ2	450	27.91	3.88	0.16	11.06	160.6	0.741	330.4	5.56	211.2	0.69	402.8	0	402.8	-74.4	328.3	608.6	0.54	2.06	3.9	2.22	43.658	42.092	41.009	0.075	1.08	0.22	0.23	0.23	1.01	42.776	42.542	41.534	3.61	1.03	0.88		
1/9 to 1/10	RRJ2	525	31.31	2.36	0.22	11.18	159.8	0.853	378.6	5.68	209.6	0.79	461.3	0	461.3	-75	386.3	716.1	0.54	1.78	3.37	2.08	42.812	40.934	40.195	0.075	0.46	0.16	0.07	0.07	0.28	41.534	41.459	41.181	0.89	1.28	1.28		
1/10 to 4/6	RRJ2	600	28.03	2.5	0.28	11.33	158.8	0.969	427.4	5.64	210.2	0.89	520.3	0	520.3	-76.6	443.6	1052.2	0.42	1.57	3.56	2.01	42.102	40.12	39.419	0.45	0.45	0.13	0.06	0.06	0.12	41.181	41.125	41	0.44	1.31	0.92		
2/1 to 1/7	RRJ2	375	16.97	2.52	0.11	10	167.3	0.139	64.8	5	219.1	0.13	79.4	0	79.4	-28.5	50.9	301.5	0.17	0.46	2.03	1.1	44.084	42.594	42.166	0.075	4.5	0.01	0.05	0.05	0.19	43.018	42.969	42.776	1.14	1.1	1.07		
3/1 to 3/2	RRJ2	600	15.45	8.21	0.28	10	167.3	1.934	898.7	5	219.1	1.81	1101.2	0	1101.2	0	1101.2	1907.2	0.58	3.89	6.98	3.92	56.725	54.599	53.33	0.03	2	0.7	1.41	1.41	0.39	56.725	55.316	54.931	2.49	0.87	0		
3/2 to 3/3	RRJ2	600	59.96	2.58	0.28	10.04	167.1	2.002	929.2	5.04	218.5	1.87	1132.7	0	1132.7	0	1132.7	1069.8	1.06	4.01	4.27	4.03	54.931	53.3	51.75	0.05	0.34	0.78	0.27	0.27	1.66	54.931	54.665	53.006	2.77	0.97	0		
3/3 to 3/4	RRJ2	600	83.81	4.18	0.28	10.27	165.6	2.457	1130	5.27	215.3	2.24	1341.8	0	1341.8	-102.4	1239.4	1365.1	0.91	4.38	5.45	4.4	54.077	51.7	48.2	0.05	0.72	0.98	0.71	0.71	3.37	53.006	52.3	48.93	4.02	0.6	1.07		
4/1 to 4/2	RRJ2	(2x)1050	46.69	3	1.73	5	219.1	0	0	5	219.1	0	0	2220	2220	0	2220	10252.8	0.22	1.28	4.73	2.19	48.5	46.45	45.049	0.03	4.5	0.08	0.38	0.38	1.35	47.877	47.5	46.152	2.89	0.75	0.62		
4/2 to 4/3	RRJ2	1050	56.97	6.25	0.87	5.16	216.8	0	0	5.16	216.8	0	0	2220	2220	0	2220	7398	0.3	2.56	7.47	2.97	47.167	45.019	41.46	0.05	0.25	0.34	0.08	0.08	3.37	46.152	46.069	42.697	5.92	0.97	1.01		
4/3 to 4/4	RRJ2	1050	29.41	5.24	0.87	10.04	167.1	1.201	557.4	5.04	218.5	1.12	682.4	2220	2902.4	-89.9	2832.5	6773.9	0.42	3.27	7.47	3.48	43.721	41.41	39.869	0.05	0.44	0.55	0.24	0.24	1.03	42.697	42.46	41.429	3.5	1.05	1.02		
4/4 to 4/5	RRJ2	1050	17.93	2.49	0.87	10.14	166.4	1.78	822.9	5.14	217.1	1.67	1005.1	2220	3225.1	-20.4	3204.8	4673.5	0.69	3.7	5.81	3.83	42.159	39.819	39.372	0.05	0.31	0.7	0.22	0.22	0.21	41.429	41.21	41	1.17	0.43	0.73		
4/5 to 4/6	RRJ2	1050	13.81	2.19	0.87	10.19	166.1	2.386	1101.1	5.19	216.4	2.14	1286.6	2220	3506.6	0	3506.6	4381	0.8	4.05	5.62	4.14	41	39.322	39.019	0.05	0.61	0	0	0	0	41	41	41	0	0.55	0		
4/6 to 4/7	RRJ2	(2x)1050	11	2	1.73	11.46	158	4.506	1977	5.54	211.5	4.08	2397.8	2220	4617.8	-46.6	4571.2	8370.3	0.55	2.64	4.94	3.02	41.676	38.969	38.749	0.05	0.15	0	0	0	0	41	41	41	0	1.65	0.68		
4/7 to 4/8	RRJ2	1050	26.8	1.25	0.87	11.5	157.7	4.641	2033.3	5.58	210.9	4.21	2466.7	1383	3849.7	-46.6	3803.1	3309.1	1.15	4.39	4.39	4.46	41.675	38.699	38.364	0.05	3.4	0.26	0.88	0.88	0.12	41	40.116	39.999	0.44	1.6	0.67		
4/8 to 4/9	RRJ2	1050	65.51	3.15	0.87	11.6	157.1	4.641	2024.9	5.68	209.5	4.21	2450.1	1383	3833.1	-46.6	3786.5	5250	0.72	4.37	6.6	4.44	41.083	38.314	36.253	0.15	0.44	0.98	0.43	0.43	1.07	39.999	39.572	38.5	1.64	1.36	1.08		
4/9 to 4/10	RRJ2	1200	57.83	2.96	1.13	11.77	156	4.641	2011.3	5.85	207.2	4.21	2423.1	5863	8286.1	-46.6	8239.5	7271.7	1.13	7.29	7.29	7.29	39.062	36.103	34.39	0.05	0.32	0.97	0.31	0.31	0.79	38.5	38.186	37.394	1.37	1.58	0.56		
4/10 to 4/11	RRJ2	1200	63.39	3.02	1.13	11.9	155.2	4.783	3785.7	5.67	209.7	8.01	4668.9	5863	10531.9	-2893.9	7638	7342.8	1.04	6.75	7.37	6.77	37.394	34.34	32.426	0.03	0.27	2.33	0.62	0.62	2.07	37.394	36.77	34.699	3.27	1.01	0		
4/11 to 4/12	RRJ2	1200	43.82	1	1.13	12.04	154.3	8.783	3764.8	5.81	207.7	8.01	4624.4	5863	10487.4	-5297	5190.4	4225.4	1.23	4.59	4.59	4.67	34.699	32.396	31.958	0.03	0.22	1.07	0.23	0.23	0.66	34.699	34.467	33.809	1.51	0.55	0		
4/12 to 4/13	RRJ2	1200	12.76	1	1.13	12.2	153.5	8.783	3745.4	6.14	203.7	8.09	4576.5	5863	10439.5	-6197.9	4241.6	4241.6	1	3.75	4.26	3.93	33.806	31.928	31.8	0.03	0.82	0.84	0.72	0.58	0.6	0.13	33.729	33.129	33	1.01	0.08		
4A/1 to 4A/2	RRJ2	750	9.29	1.05	0.44	5	219.1	0	0	5	219.1	0	0	837	837	0	837	1233.8	0.68	1.89	3	2.34	41.62	38.669	38.572	0.03	2.46	0.18	0.45	0.45	0.04	39.884	39.433	39.388	0.48	2.34	1.74		
4A/2 to 4A/3	RRJ2	750	20.84	2.12	0.44	5.05	218.3	0	0	5.05	218.3	0	0	837	837	0	837	1763.8	0.47	1.89	3.93	2.34	41.742	38.542	38.1	0.03	0.53	0.18	0.1	0.1	0.34	39.388	39.292	38.95	1.64	0.27	2.35		
5/1 to 5/2	RRJ2	375	37.28	2.54	0.11	10	167.3	0.149	69.3	5	219.1	0.14	84.9	0	84.9	-36.5	48.4	302.9	0.16	0.44	2.01	1.09	44.832																

## BLOCK RETAINING WALL NOTES

### GENERAL NOTES.

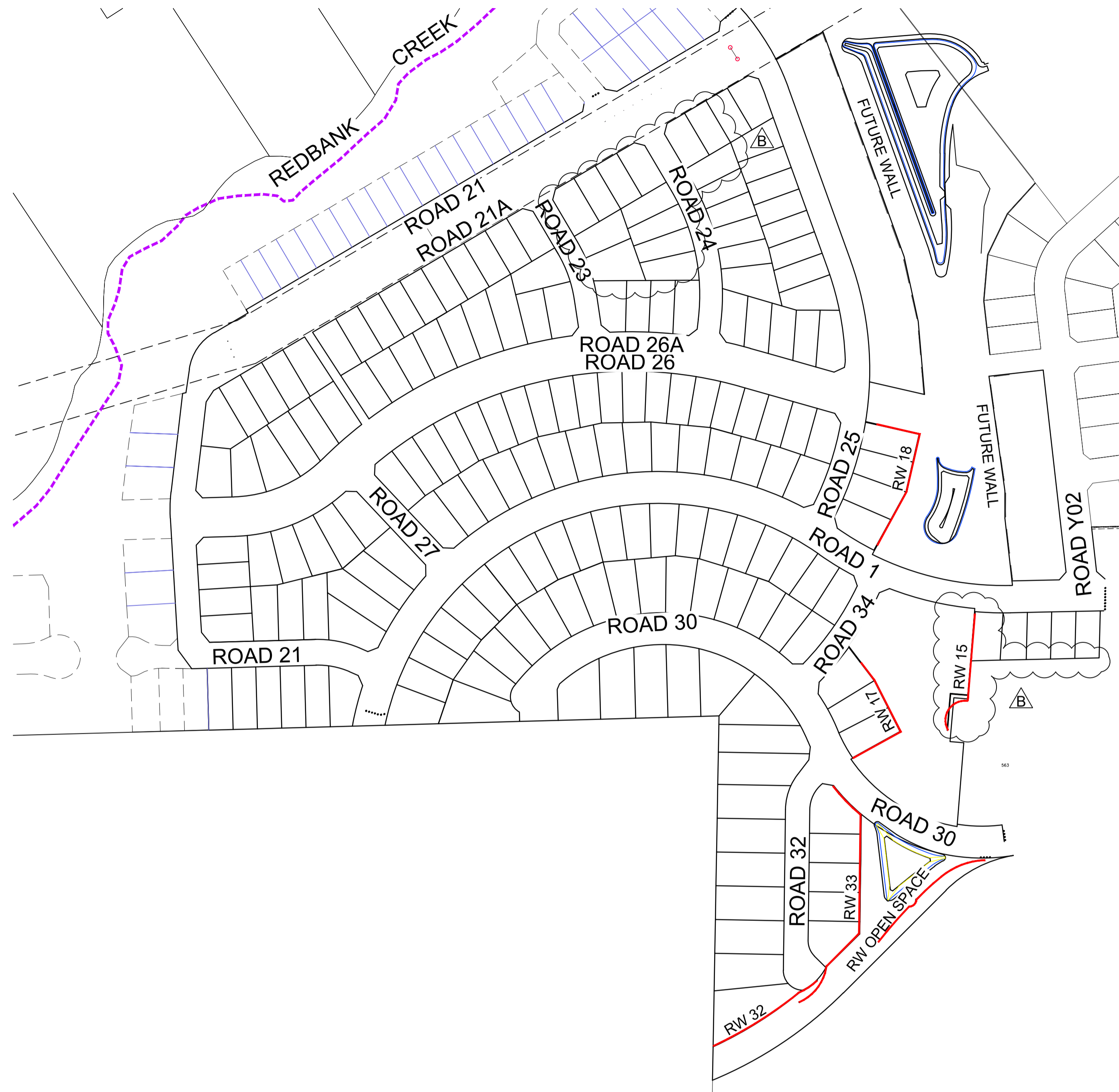
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND SPECIFICATIONS.
2. ALL CONCRETE AND WORKMANSHIP TO BE IN ACCORDANCE WITH AS 3600 AND ASSOCIATED AUSTRALIAN STANDARDS.
3. CHARACTERISTIC CONCRETE COMPRESSIVE STRENGTH IN ACCORDANCE WITH AS 3600 TO BE 25MPa.
4. CONCRETE SLUMP TO BE 80mm.
5. CONCRETE IN SLAB TO BE MECHANICALLY VIBRATED DURING PLACEMENT.
6. CURE CONCRETE BY KEEPING CONSTANTLY DAMP FOR AT LEAST 5 DAYS AFTER PLACING.
7. REINFORCEMENT TO BE SUPPORTED ON BAR CHAIRS SPACED AT EVERY 5TH WIRE IN BOTH DIRECTIONS.
8. GRADE FINISHED GROUND SURFACE TO DIVERT WATER AWAY FROM WALL ON ALL SIDES AND TO PREVENT PONDING.
9. AG DRAINS MUST HAVE A FALL TOWARDS AN OUTLET WHERE THEY CAN BE CONNECTED TO A SEALED STORMWATER SYSTEM. A CLEANING EYE MUST BE PLACED AT THE AG DRAIN CONNECTION AND AT THE UPHILL END OF DRAIN.

### CONCRETE NOTES.

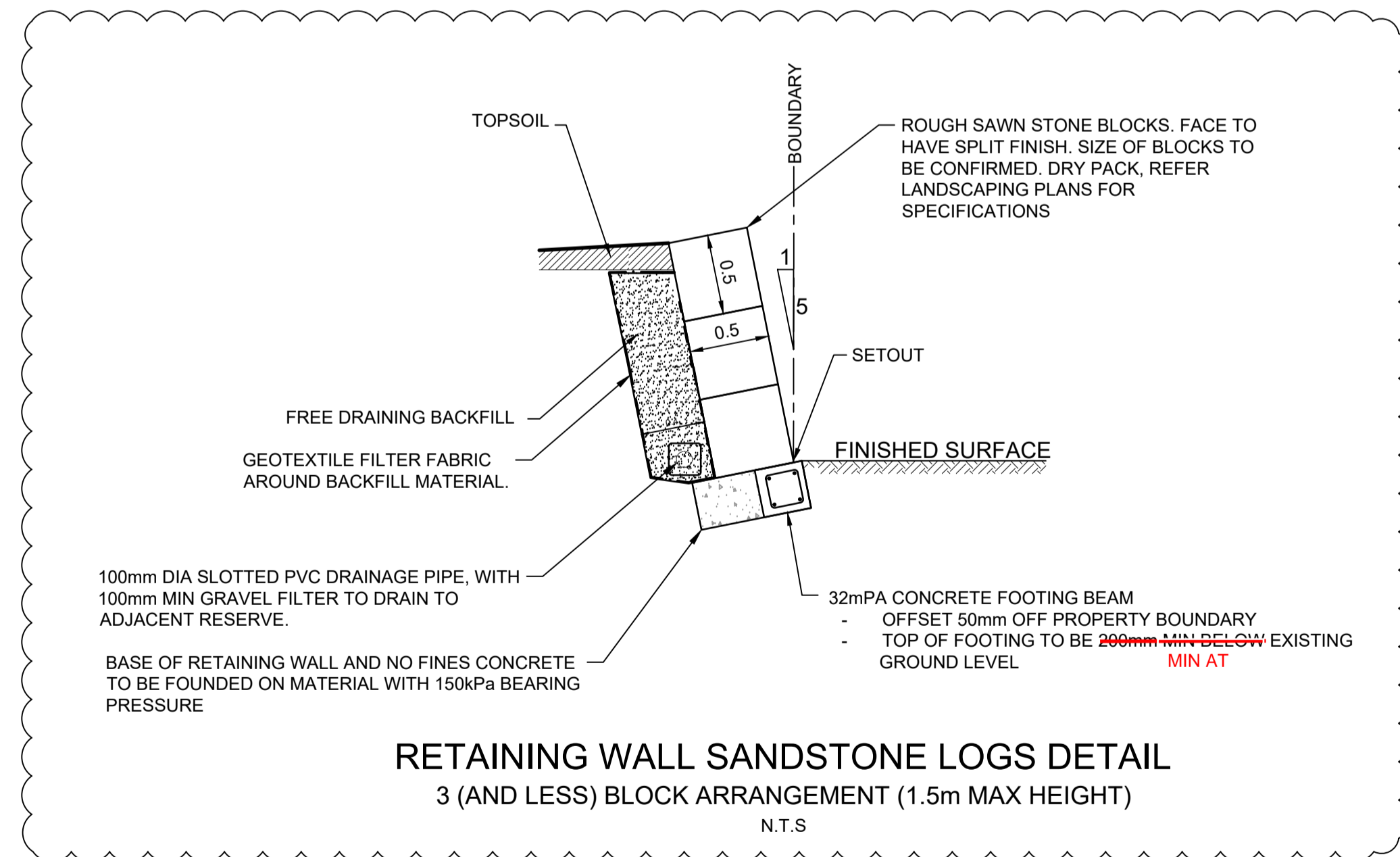
1. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
2. ALL CONCRETE TO BE COMPACTED BY A MECHANICAL VIBRATOR. THE VIBRATOR SHALL NOT BE USED TO SPREAD THE CONCRETE.
3. DO NOT PLACE CONDUITS, PIPES, ETC IN CONCRETE COVER.
4. ENSURE MINIMUM 50mm COVER TO ALL REINFORCEMENT.

### FOUNDATION NOTES

1. ALL BASE SLABS AND FOOTING ARE TO BEAR DIRECTLY ON FIRM, STABLE NATURAL GROUND HAVING A UNIFORM BEARING CAPACITY OF AT LEAST 200KPa.
2. PROVIDE PIERS, AS FOUND NECESSARY, TO MAINTAIN A UNIFORM SAFE BEARING CAPACITY. USE 450mm DIAMETER PIERS LOCATED AT ALL CORNERS AND AT 1.8m MAXIMUM SPACING. PIERS IN EXCESS OF 500mm DEEP MUST BE POURED SEPARATELY TO THE FOOTINGS.
3. IF ROCK OR SHALE IS ENCOUNTERED IN TRENCHES, ALL THE FOOTINGS MUST BE BEAR ON ROCK OR SHALE, BUT THE PIER DIAMETER MAY BE REDUCED TO 300mm.
4. WHERE THE BEARING STRATA CHANGES ALONG THE LENGTH OF THE FOOTING, PROVIDE CONSTRUCTION JOINTS CO-INCIDING WITH BLOCKWORK JOINTS AT THE POINTS OF CHANGE IN BEARING.



PLAN  
SCALE 1:2000



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

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018

1:2000 (AT A1)  
1:4000 (AT A3)



PRINCIPAL:



AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
OVERALL RETAINING WALL PLAN,  
NOTES & DETAILS

PLAN No:  
11018511/CC141 B  
FILE No: 11018511CC141  
SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

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

NO.	REVISION	DATE	BY	CHECKED	APPROVED
B	UCBC RETAINING WALLS REMOVED; STRUCTURAL DESIGN AMENDED	09/01/18	MP	CC	RO
A	ISSUE FOR CONSTRUCTION APPROVAL	15/06/17	MP	MG	RO
	AMENDMENT		DES	DRN	CKD
					APR
					DATE

Plotted: 25 January, 2018 4:58:41 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC142.dwg

NOT USED

B

	AMENDMENT	DES	DRN	CKD	APR	DATE
B	UCBC RETAINING WALLS REMOVED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH:  
MGA 56  
 DATUM:  
A.H.D  
 ORIGIN:

PRINCIPAL:



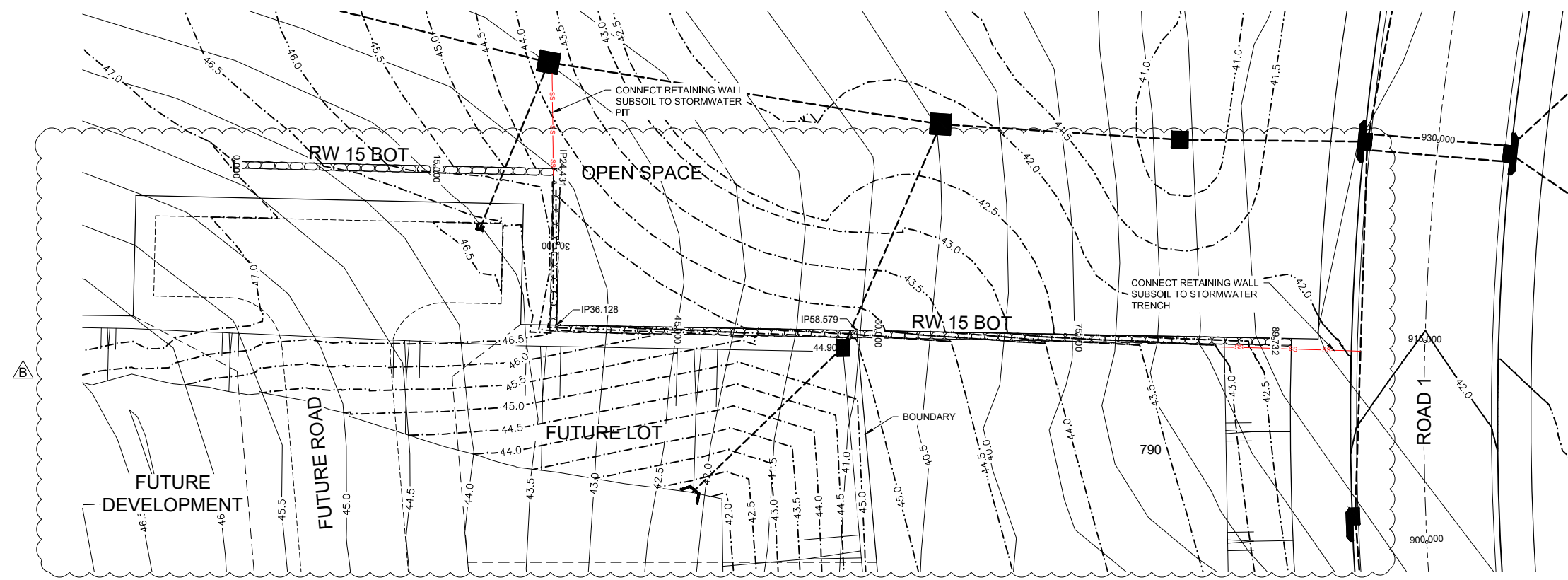
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
NOT USED

PLAN No: 11018511/CC142 **B**  
 FILE No: 11018511CC142  
 SHEET SIZE: A1 ORIGINAL

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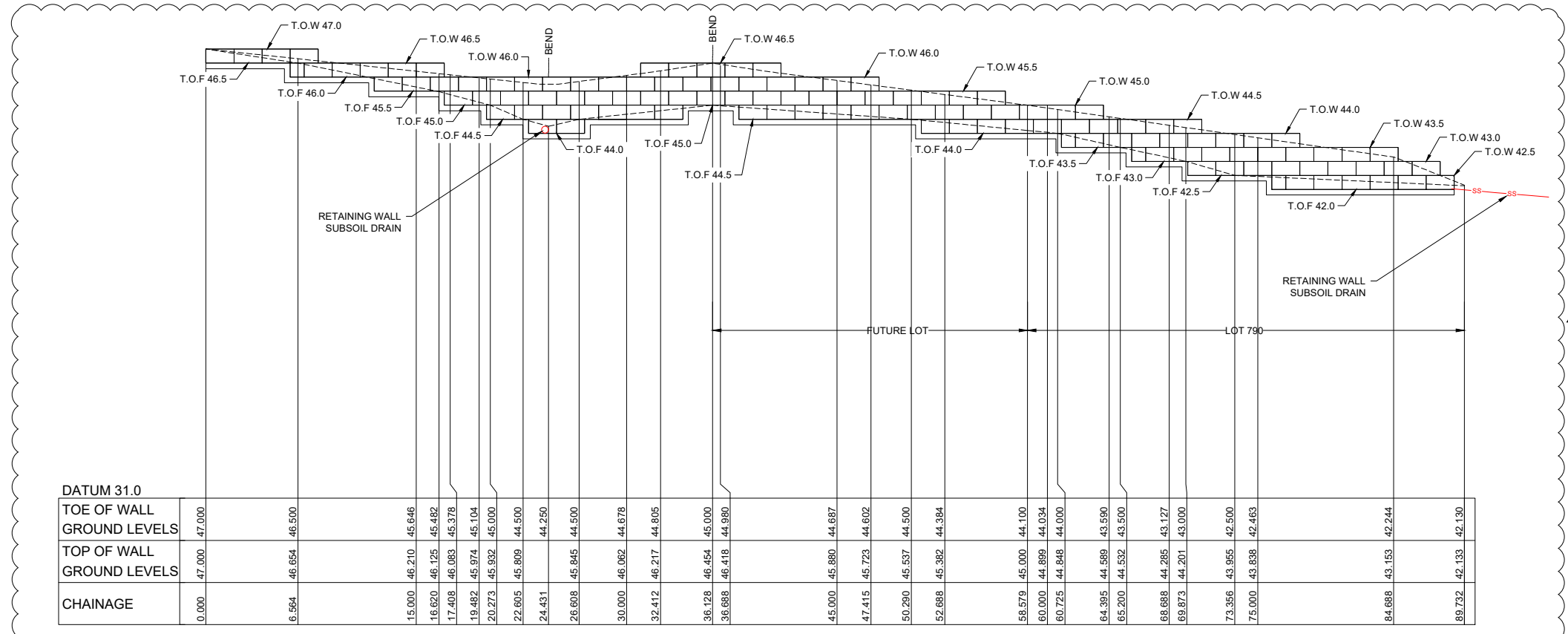


PLAN  
SCALE 1:200

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565

These plans/specifications form part of the certificate issued 5 March 2018



LONGITUDINAL SECTION RW 15 BOT  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

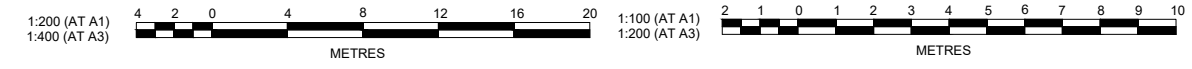
RW 15 BOT			
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0	286331.61	6281888.58	45°45'07.27"
24.43	286349.11	6281903.72	
36.13	286357.28	6281895.54	
58.58	286373.28	6281911.09	
89.73	286395.52	6281932.91	45°32'14.59"

REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

**LEGEND**  
TYPE 2 - SANDSTONE LOGS

DATUM 31.0	
TOE OF WALL GROUND LEVELS	47.000
TOP OF WALL GROUND LEVELS	47.000
CHAINAGE	0.000

6.564	46.654	46.500
15.000	46.210	45.646
16.620	46.125	45.462
17.408	46.083	45.378
19.482	45.974	45.104
20.273	45.932	45.000
22.605	45.809	44.500
24.431		44.250
26.608	45.845	44.500
30.000	46.062	44.678
32.412	46.217	44.805
36.128	46.454	45.000
36.688	46.418	44.980
45.000	45.880	44.687
47.415	45.723	44.602
50.290	45.537	44.500
52.688	45.382	44.384
58.579	45.000	44.100
60.000	44.899	44.034
60.725	44.848	44.000
64.395	44.589	43.590
65.200	44.532	43.500
68.688	44.285	43.127
69.873	44.201	43.000
73.356	43.955	42.500
75.000	43.838	42.463
84.688	43.153	42.244
89.732	42.133	42.130



AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	CC	RO	RO	09/01/18
A	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

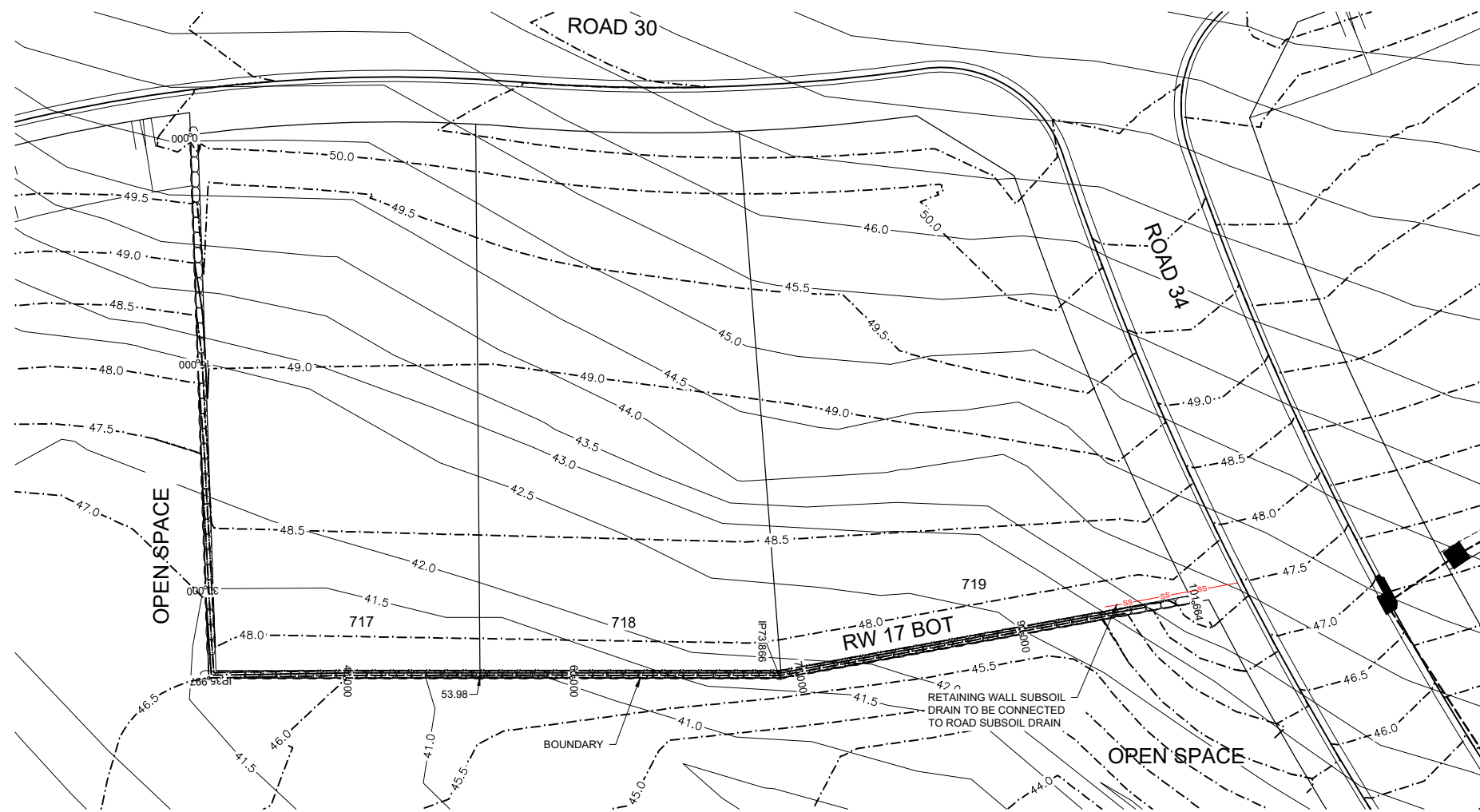
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 RETAINING WALL PLAN  
 AND SECTION SHEET 2 OF 10

PLAN No: 11018511/CC143 **B**  
 FILE No: 11018511CC143  
 SHEET SIZE: A1 ORIGINAL



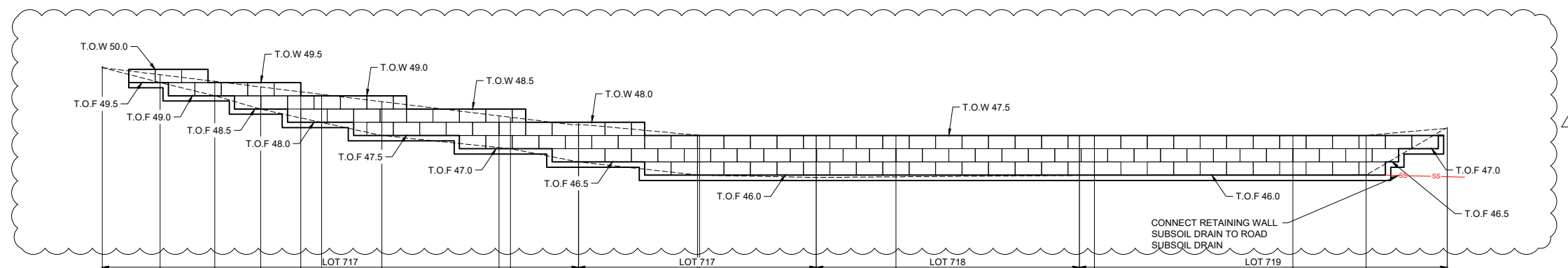
Plotted: 9 February, 2018 5:35:39 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC144.dwg



PLAN  
SCALE 1:200

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018

REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

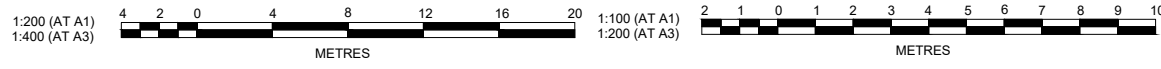


LONGITUDINAL SECTION RW 17  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

DATUM 40.0																																																																																																																																																																							
TOE OF WALL	50.065													GROUND LEVELS	49.500	49.500	49.000	48.998	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992	TOP OF WALL	49.500	49.500	49.000	48.998	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992	GROUND LEVELS	50.061	49.795	49.545	49.334	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992	CHAINAGE	0.000	4.379	9.505	11.980	15.000	16.575	21.133	30.000	30.849	35.997	45.000	45.141	53.975														60.000														73.886														75.000														90.000														95.548														101.664														101.664
GROUND LEVELS	49.500	49.500	49.000	48.998	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992																																																																																																																																																										
TOP OF WALL	49.500	49.500	49.000	48.998	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992																																																																																																																																																										
GROUND LEVELS	50.061	49.795	49.545	49.334	48.165	47.991	47.999	47.044	46.008	45.912	45.936	45.991	45.992																																																																																																																																																										
CHAINAGE	0.000	4.379	9.505	11.980	15.000	16.575	21.133	30.000	30.849	35.997	45.000	45.141	53.975																																																																																																																																																										
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**LEGEND**  
 TYPE 2 - SANDSTONE LOGS

RW 17 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286272.75	6281913.27	102°01'25.05"
36	286307.95	6281905.77	
73.87	286317.09	6281942.52	
101.66	286318.84	6281970.26	3°36'18.49"



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

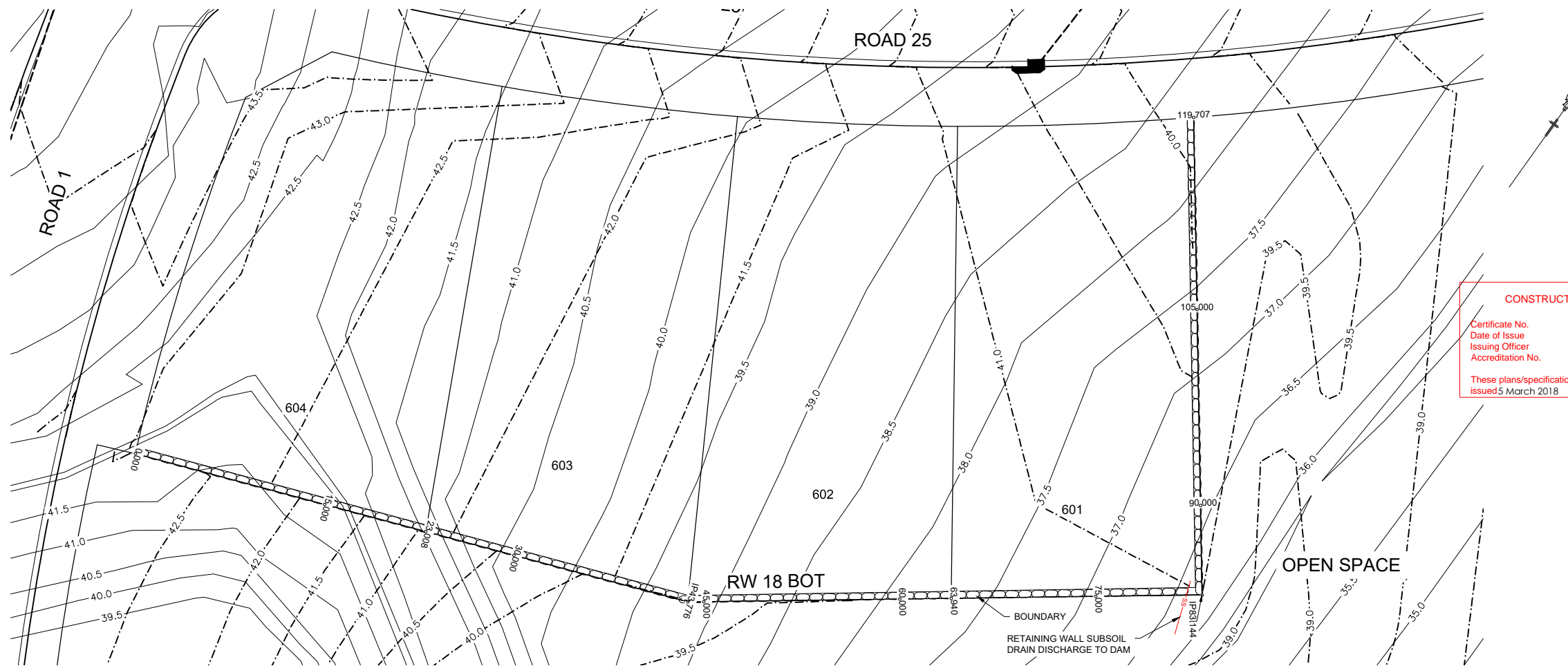
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 RETAINING WALL PLAN  
 AND SECTION SHEET 3 OF 10

PLAN No: 11018511/CC144 **B**  
 FILE No: 11018511CC144  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	CC	RO	RO	09/01/18
A	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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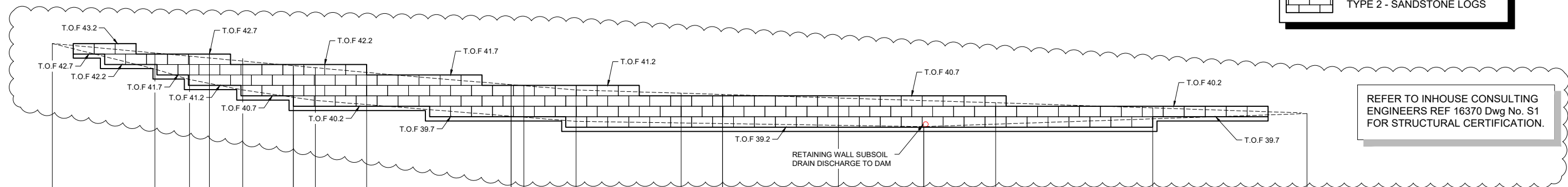
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

PLAN  
SCALE 1:200

**LEGEND**  
TYPE 2 - SANDSTONE LOGS



REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

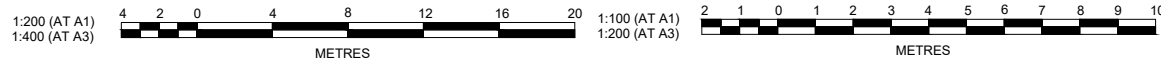
DATUM 33.0																		
TOE OF WALL GROUND LEVELS	CHAINAGE	9.791	13.103	15.000	18.170	23.008	25.097	30.000	43.776	45.000	49.973	60.000	63.940	75.000	83.144	90.000	105.000	119.707
43.220	0.000	42.769	42.616	42.529	42.383	42.161	42.064	40.903	39.748	41.205	41.001	39.424	40.786	39.311	39.250	39.367	39.621	39.871
TOP OF WALL GROUND LEVELS	CHAINAGE	42.719	42.769	42.519	42.529	42.383	42.064	40.903	39.748	41.205	41.001	39.424	40.786	39.311	39.250	39.367	39.621	39.871

**RW 18 BOT**

CHAINAGE	EASTING	NORTHING	BEARING
0	286372.961	6282007.5	69°38'17.38"
43.78	286414	6282022.73	
83.14	286445.78	6282045.96	
119.71	286424.08	6282075.39	323°35'37.02"

LONGITUDINAL SECTION RW 18

HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11

RETAINING WALL PLAN  
AND SECTION SHEET 4 OF 10

PLAN No: 11018511/CC145 **B**

FILE No: 11018511CC145

SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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REV	DESCRIPTION	MP	CC	RO	RO	DATE
B	STRUCTURAL DESIGN AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 25 January, 2018 4:59:53 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC146.dwg

NOT USED

B

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	CC	RO	RO	09/01/18
A	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:  
MGA 56

DATUM:  
A.H.D

ORIGIN:

PRINCIPAL:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
NOT USED

PLAN No: 11018511/CC146 **B**

FILE No: 11018511CC146

SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:00:02 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC147.dwg

NOT USED

B

	MP	CC	RO	RO	09/01/18
B	UCBC RETAINING WALLS REMOVED				
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS 15/06/17
	AMENDMENT	DES	DRN	CKD	APR DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
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AZIMUTH:  
MGA 56  
 DATUM:  
A.H.D  
 ORIGIN:

PRINCIPAL:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
NOT USED

PLAN No: 11018511/CC147 **B**  
 FILE No: 11018511CC147  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:00:11 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC148.dwg

NOT USED

B

	MP	CC	RO	RO	09/01/18
B	MP	CC	RO	RO	09/01/18
A	MP	MG	RO	MS	15/06/17
	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH:  
MGA 56  
 DATUM:  
A.H.D  
 ORIGIN:

PRINCIPAL:

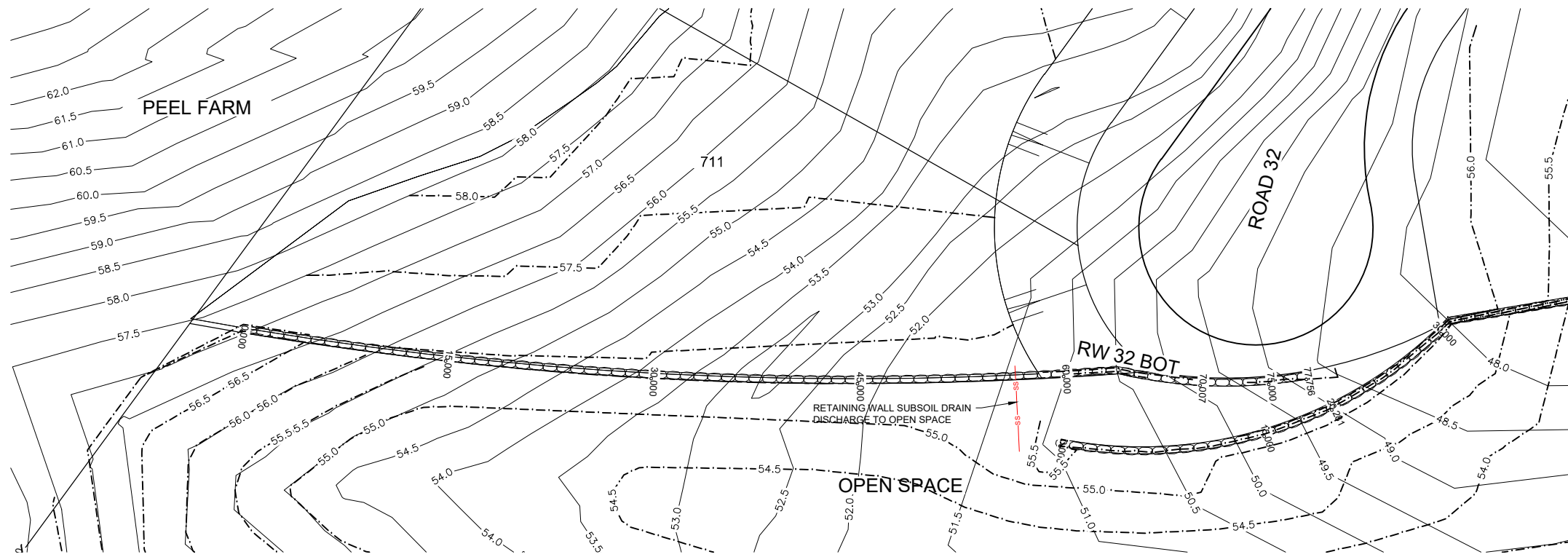


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**ISSUED FOR CONSTRUCTION APPROVAL**

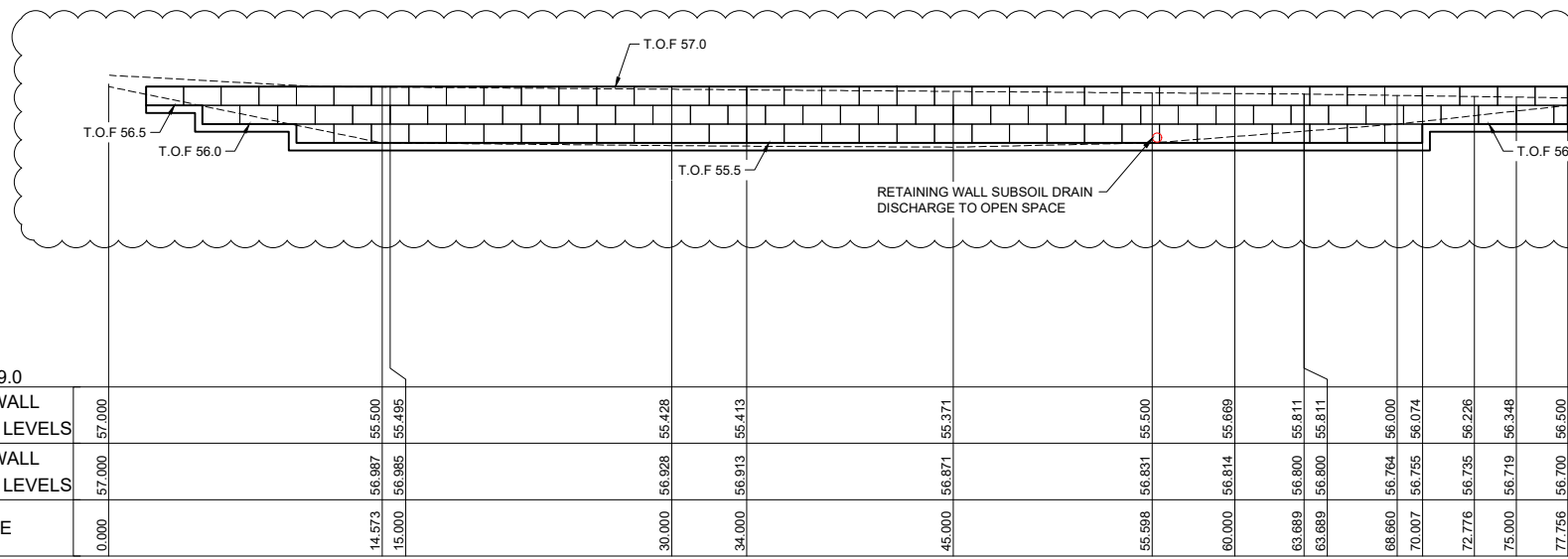
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
NOT USED

PLAN No: 11018511/CC148 **B**  
 FILE No: 11018511CC148  
 SHEET SIZE: A1 ORIGINAL



PLAN  
SCALE 1:200

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018



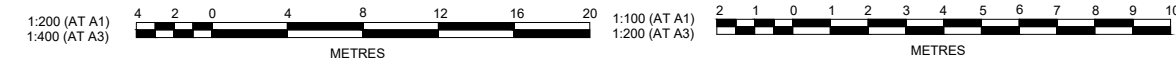
REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

DATUM 49.0	
TOE OF WALL	57.000
GROUND LEVELS	55.500 55.495
TOP OF WALL	56.987 56.985
GROUND LEVELS	56.928 56.871 56.831 56.814 56.800 56.794 56.755 56.735 56.719 56.700 56.500
CHAINAGE	0.000 14.573 15.000 30.000 34.000 45.000 55.596 60.000 63.689 63.689 68.660 70.007 72.776 75.000 77.756

LONGITUDINAL SECTION RW 32 BOT  
 HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100

**LEGEND**  
 TYPE 2 - SANDSTONE LOGS

RW 32 BOT					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPRAL	A LENGTH
0	286082.36	6281828.65	105°39'25.61"		
31.84	286113.19	6281820.01		-248.82	63.69
63.69	286145.21	6281819.45			
68.23	286149.52	6281817.94		-34.25	9.09
72.78	286154.08	6281817.61			
75.27	286156.57	6281817.42		-33.43	4.98
77.76	286159.06	6281817.61	85°39'12.87"		



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

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 RETAINING WALL PLAN  
 AND SECTION SHEET 8 OF 10

PLAN No:  
**11018511/CC149 B**  
 FILE No: 11018511CC149  
 SHEET SIZE: A1 ORIGINAL

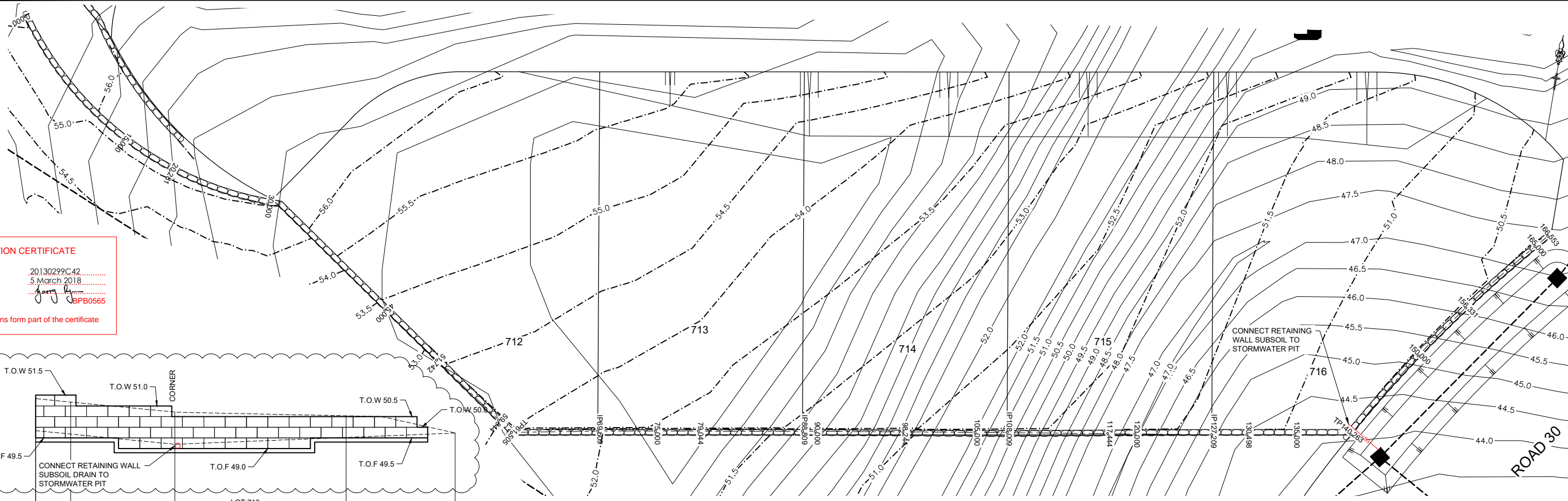
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
 PO Box 4366 PENRITH WESTFIELD NSW 2750  
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NO.	DESCRIPTION	MP	CC	RO	RO	DATE
B	STRUCTURAL DESIGN AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 9 February, 2018 5:34:51 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC150.dwg

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate issued 5 March 2018



PLAN  
SCALE 1:200

**LEGEND**  
 TYPE 2 - SANDSTONE LOGS

RW 33 BOT					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A LENGTH
0	286140.76	6281814.54	106°32'16.41"		
15.52	286156.98	6281809.72		-31.42	31.04
31.04	286169.93	6281820.61			
46.27	286185.13	6281821.6			
61.51	286200.31	6281822.85		-1826.66	30.47
69.61	286205.6	6281828.99			
88.81	286218.35	6281843.35			
108.01	286231.18	6281857.63			
127.21	286244.07	6281871.86			
140.26	286252.73	6281881.62			
153.41	286250.34	6281894.61			
166.55	286251.06	6281907.8	3°08'07.30"	110.93	26.29

DATUM 45.0

TOE OF WALL GROUND LEVELS	CHAINAGE
49.840	127.209
49.679	130.498
49.200	140.263
49.521	156.531
49.725	166.553

LONGITUDINAL SECTION RW 33

HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

TOE OF WALL GROUND LEVELS	CHAINAGE
55.500	0.000
55.432	6.758
55.300	10.636
55.158	20.281
55.000	31.036
53.500	43.998
52.878	51.742
52.500	56.453
52.500	59.844
52.500	61.505
52.016	69.609
52.000	70.146
51.722	79.044
51.500	86.128
51.400	88.809
51.050	98.244
51.000	99.588
50.985	100.000
50.703	108.009
50.437	114.764
50.303	117.444
50.000	123.513
49.840	127.209

LONGITUDINAL SECTION RW 33

HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:100

REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

NO.	DESCRIPTION	MP	CC	RO	RO	DATE
B	STRUCTURAL DESIGN AMENDED					09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

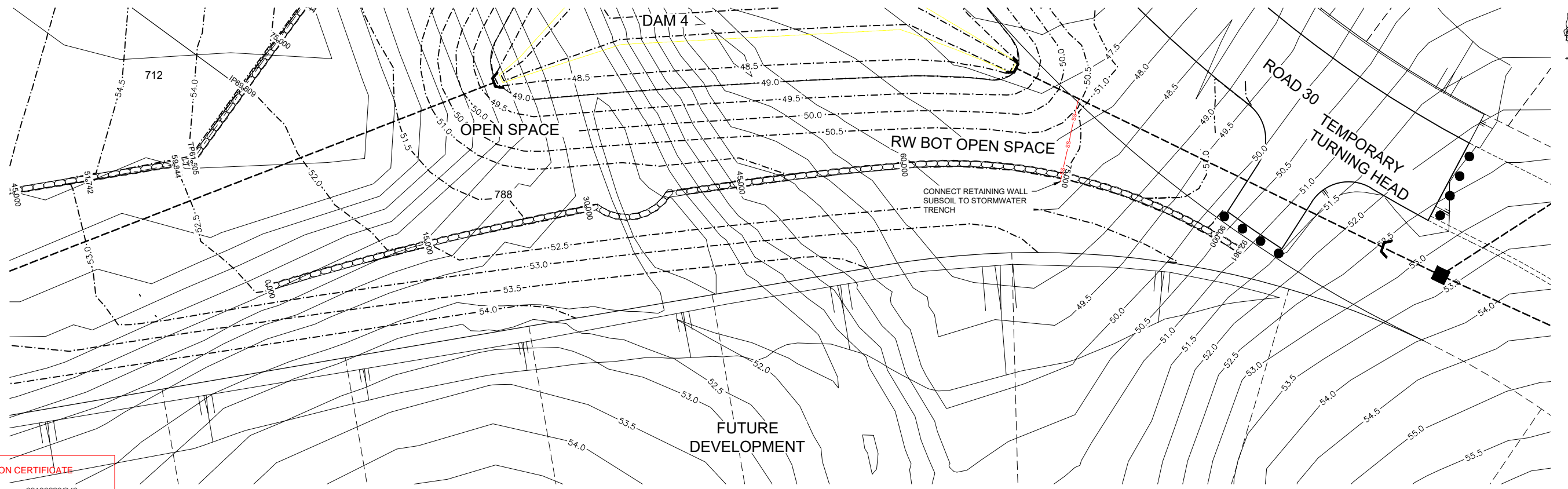
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
 PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
RETAINING WALL PLAN  
AND SECTION SHEET 9 OF 10

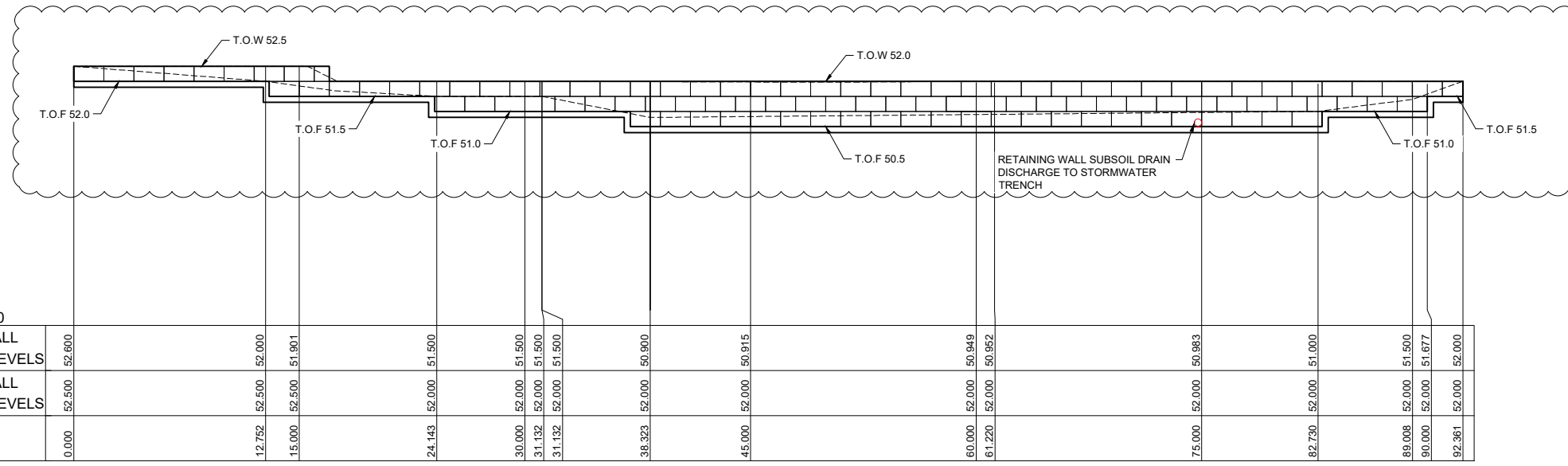
PLAN No: 11018511/CC150 **B**  
 FILE No: 11018511CC150  
 SHEET SIZE: A1 ORIGINAL



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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DATUM 44.0	
TOE OF WALL	0.000
GROUND LEVELS	52.600
TOP OF WALL	12.752
GROUND LEVELS	52.500
CHAINAGE	15.000
	24.143
	30.000
	31.132
	31.132
	38.323
	45.000
	60.000
	61.220
	75.000
	82.730
	89.008
	90.000
	92.361

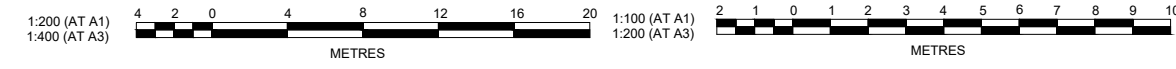
REFER TO INHOUSE CONSULTING ENGINEERS REF 16370 Dwg No. S1 FOR STRUCTURAL CERTIFICATION.

**LEGEND**  
 TYPE 2 - SANDSTONE LOGS

RW BOT OPEN SPACE					
CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
0	286206.05	6281810.92	78°34'18.06"		
15.57	286221.33	6281814.01		277.45	31.13
31.13	286236.85	6281815.37			
34.73	286240.29	6281812		-4.23	7.19
38.32	286243.19	6281815.85			
49.77	286254.62	6281816.59		277.45	22.9
61.22	286266.07	6281816.38			
76.79	286282.19	6281815.85		48.53	31.14
92.36	286294.79	6281805.78	128°37'53.62"		

LONGITUDINAL SECTION RW OPEN SPACE

HORIZONTAL SCALE 1:200  
 VERTICAL SCALE 1:100



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 RETAINING WALL PLAN  
 AND SECTION SHEET 10 OF 10

PLAN No:  
 11018511/CC151 **B**  
 FILE No: 11018511CC151  
 SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

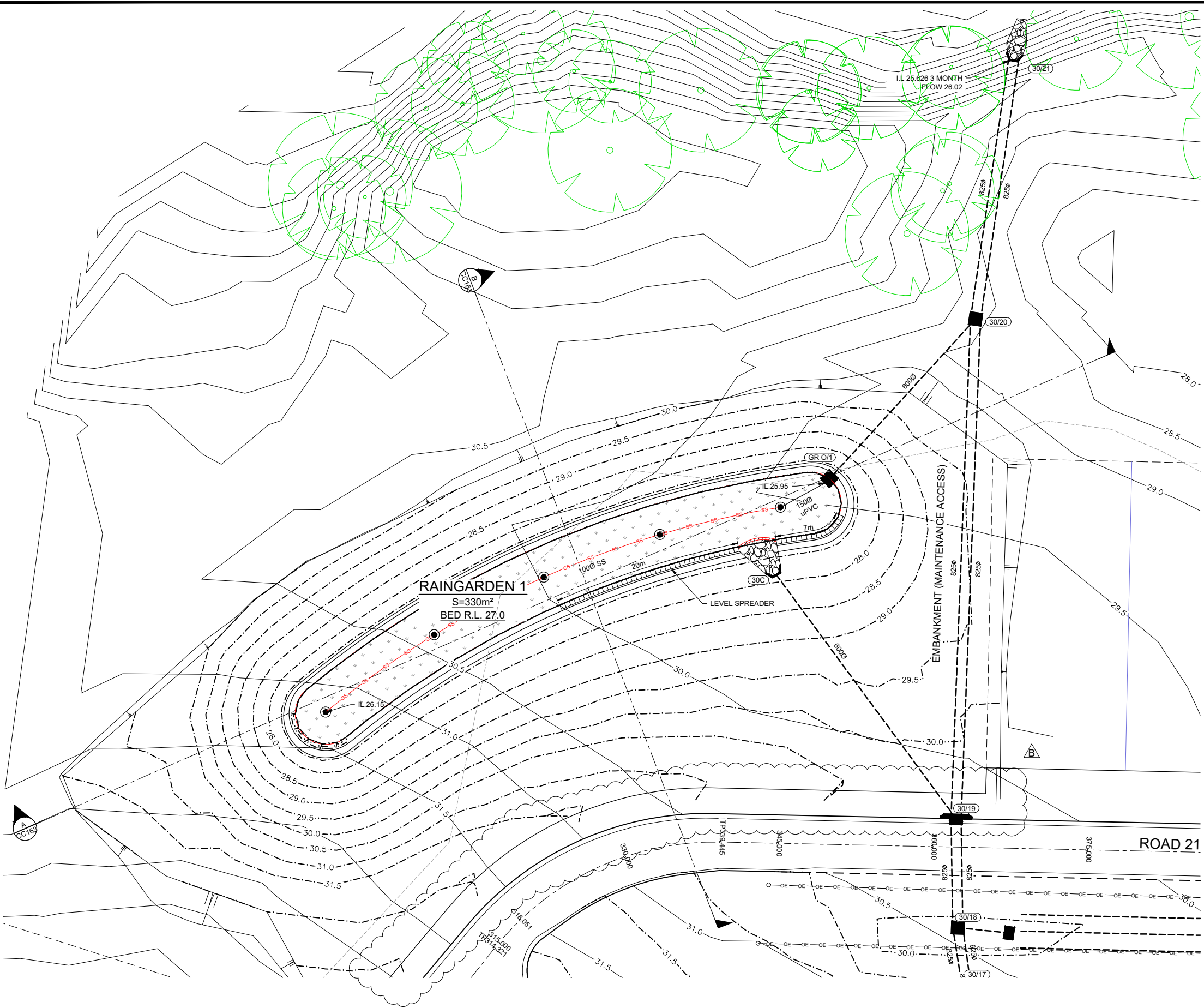
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REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	STRUCTURAL DESIGN AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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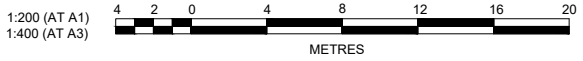


**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018

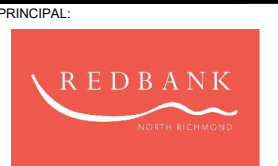
- NOTE**
- PROPOSED LOCATION / FOOTPRINT OF RAINGARDEN :
- BULK EARTHWORKS CONSTRUCTION TO BE UNDERTAKEN TO INVERT OF FILTER MEDIA OF RAINGARDEN WITH THIS CIVIL CONSTRUCTION CERTIFICATE, AS WELL AS INLET AND OUTLET STRUCTURES.
  - SUITABLE SAFETY PROTECTIONS AND VISUAL SCREENINGS TO BE APPLIED TO THE PERIMETER OF THIS WATER QUALITY LOCATION / FOOTPRINTS UNTIL THEY RECEIVE THEIR 'FINAL CONSTRUCTION'.
  - 'FINAL CONSTRUCTION' OF RAINGARDEN TO BE TARGETED WHEN 80% OF THE UPSTREAM LOTS HAVE THEIR DWELLINGS COMPLETED.
  - IT IS ANTICIPATED THAT THE PERIOD BETWEEN PRACTICAL COMPLETION BEING AWARDED BY EITHER AN ACCREDITED CERTIFIER OR COUNCIL FOR CIVIL WORKS, AND THE 'FINAL CONSTRUCTION' OF THESE ELEMENTS WILL BE BETWEEN 18 MONTHS TO 2 YEARS.
  - APPROPRIATE BONDS TO VALUE OF THE ESTABLISHED CONTRACT AMOUNT OF WORKS WITH THE APPOINTED CIVIL CONTRACTOR, TO BE LODGED BETWEEN DEVELOPER AND COUNCIL IN ORDER TO ATTAIN PRACTICAL COMPLETION / SUBDIVISION CERTIFICATE FROM COUNCIL, PRIOR TO THESE WATER QUALITY ELEMENTS RECEIVING THEIR 'FINAL CONSTRUCTION'.



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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 RAINGARDEN 1

PLAN No: 11018511/CC161 **B**  
 FILE No: 11018511CC161  
 SHEET SIZE: A1 ORIGINAL

REV	DESCRIPTION	MP	CC	RO	RO	DATE
B	ROAD BOUNDARY AMENDED	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**MEDIA MATERIAL IN BIO FILTRATION**

DEFINITION:  
THE MEDIA DESCRIPTION SHALL BE IN ACCORDANCE WITH AS1726-1993 AND SIMILAR TO M165 BY BENEDICTS SOIL AND SAND

SEDIMENT	SIZE(mm)
BOULDERS	>200
COBBLES	63-200
GRAVELS	COURSE 20-63
	MEDIUM 6-20
SANDS	FINE 2.36-6
	COURSE 0.6-2.36
SILTS	MEDIUM 0.2-0.6
	FINE 0.075-0.2
CLAYS	COURSE 0.02-0.075
	MEDIUM 0.006-0.02
	FINE 0.002-0.006
	COLLOIDAL <0.002

MIX:  
THE PREFERRED MEDIA MIX AND MIX PERCENTAGE SHALL BE ACCORDING TO TABLE 1.1

GRAVEL	<5%
SAND	>75%
SILT	<10%
CLAY	<5%
OM	5%-10%

IN REFERENCE TO TABLE 1.1 THE FOLLOWING PERFORMANCE PARAMETERS SHALL BE APPLIED.

- HYDRAULIC CONDUCTIVITY 100mm/HR (±20%)  
- DETERMINED BY THE McINTYRE AND JAKOBSEN TEST METHOD (1993) AND CARRIED OUT BY AN INDEPENDENT NATA REGISTERED SOIL LABORATORY
- ELECTRICAL CONDUCTIVITY <2ds/m
- PHOSPHORUS CONCENTRATION <20mg/kg
- NITROGEN DRAWDOWN >0.5
- CIRCUMNEUTRAL pH
- SANDY LOAM TO LOAMY SAND TEXTURE
- FREE OF STONES, STUMPS, ROOTS, OR OTHER WOODY MATERIAL OVER 25mm DIAMETER
- FREE OF BRUSH OR SEED FROM WEEDS

IMMEDIATELY PRIOR TO DELIVERY TO THE SITE THE MEDIA SHALL BE SUBJECTED TO A PARTICLE SIZE DISTRIBUTION TEST IN ACCORDANCE WITH AS1141 - SAMPLING AND TESTING AGGREGATES. TO CONFIRM COMPLIANCE WITH THE ABOVE PERCENTAGES OF SAND, SILT, CLAY AND ORGANIC MATTER. IF COMPLIANCE IS NOT ACHIEVED THEN THE MEDIA SHALL BE SUBJECTED TO A FURTHER HYDRAULIC CONDUCTIVITY TEST BY OTHERS AS DESCRIBED EARLIER. DELIVERY SHALL NOT PROCEED UNTIL THE SUPERINTENDENT IS SATISFIED THAT THE MEDIA ACHIEVES THE DESIRED HYDRAULIC CONDUCTIVITY STANDARD.

PLACEMENT:  
THE MEDIA SHALL BE PLACED IN MAX 300mm LIFTS AND LOOSELY COMPACTED.

**BRIDGING MATERIAL CRITERIA:**

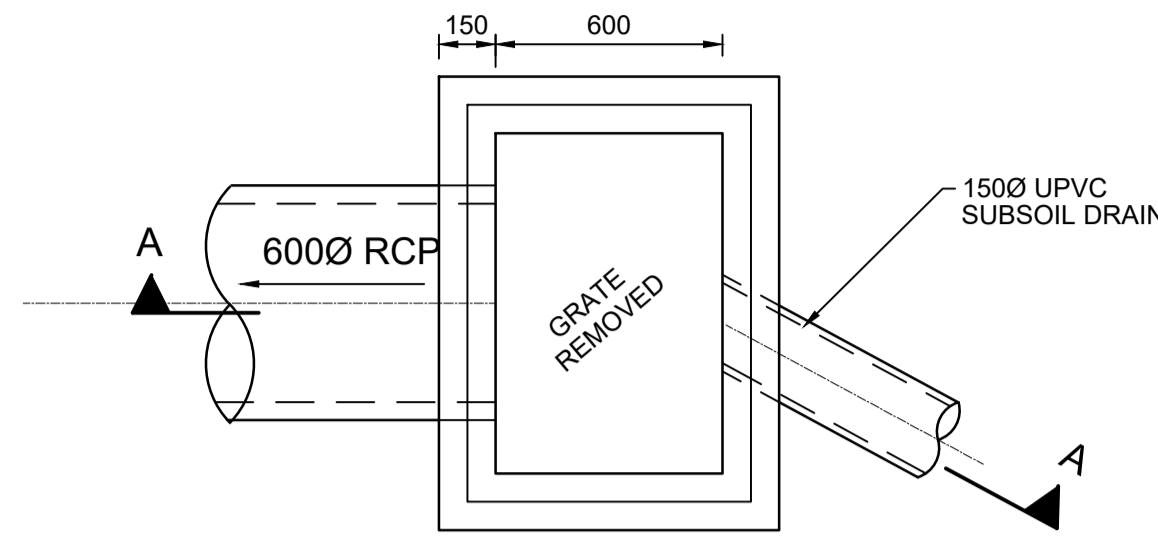
PRIOR TO PLACEMENT IN THE BIO RETENTION BASIN, CERTIFICATION IS TO BE PROVIDED THAT THE TRANSITION LAYER MATERIAL:  
I. IS A CLEAN, WASHED WELL-GRADED COARSE SAND OR COARSE SAND BLEND CONTAINING LITTLE OR NO FINES (<2%), AND  
II. SATISFIES THE BRIDGING CRITERIA D15 (TRANSITION LAYER) ≤ 5 X D85 (FILTER MEDIA)  
WHERE: D15 IS THE 15TH PERCENTILE PARTICLE SIZE IN THE TRANSITION LAYER MATERIAL (I.E., 15% OF THE SAND IS SMALLER THAN D15 MM), AND D85 IS THE 85TH PERCENTILE PARTICLE SIZE IN THE FILTER MEDIA

PRIOR TO PLACEMENT IN THE BIO RETENTION BASIN, CERTIFICATION IS TO BE PROVIDED THAT THE DRAINAGE LAYER MATERIAL:  
I. IS A CLEAN WASHED 5 MM GRAVEL, SUCH AS A 2-5 MM WASHED SCREENINGS,  
II. SATISFIES THE BRIDGING CRITERIA D15 (DRAINAGE LAYER) ≤ 5 X D85 (TRANSITION LAYER)  
WHERE: D15 (DRAINAGE LAYER) IS THE 15TH PERCENTILE PARTICLE SIZE IN THE DRAINAGE LAYER MATERIAL (I.E., 15% OF THE GRAVEL IS SMALLER THAN D15 MM), AND D85 (TRANSITION LAYER) IS THE 85TH PERCENTILE PARTICLE SIZE IN THE TRANSITION LAYER MATERIAL.

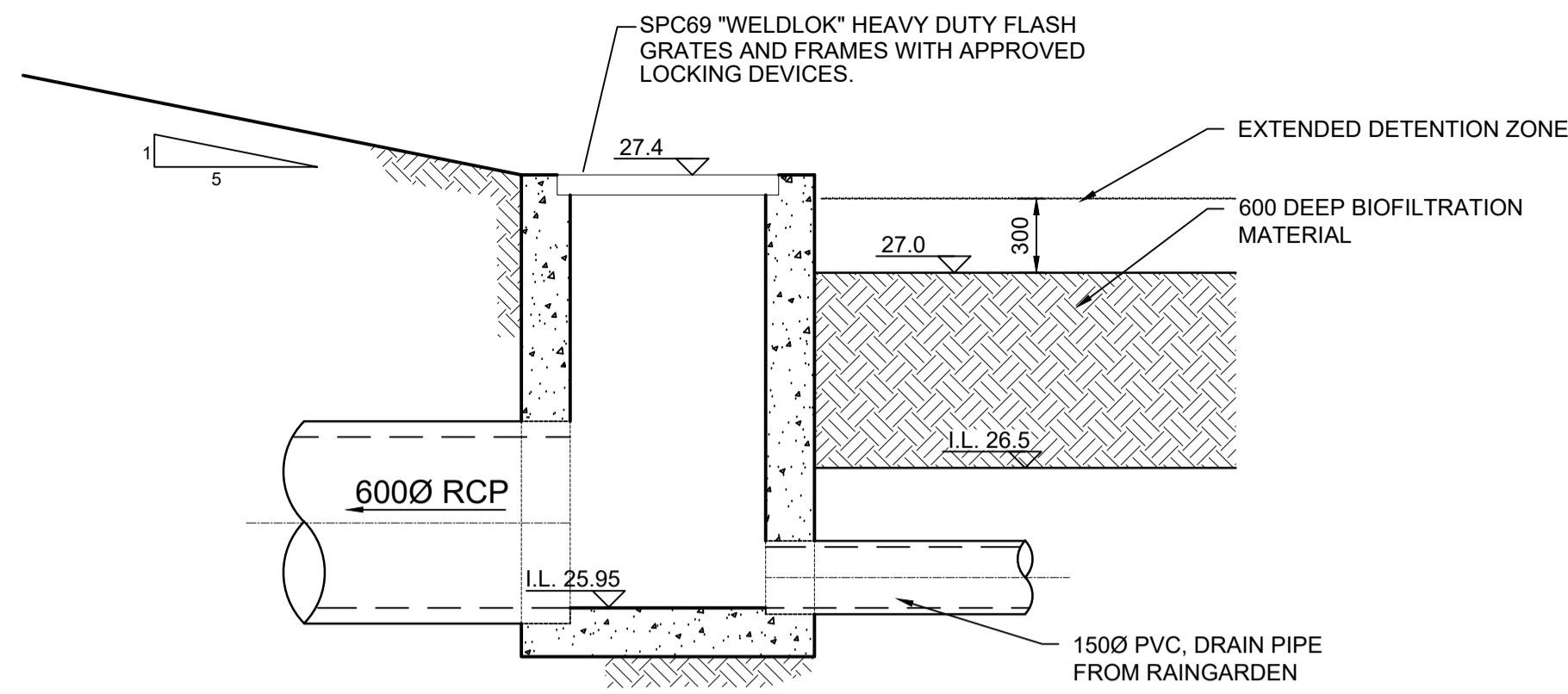
**INSPECTION/HOLD POINTS**

DURING CONSTRUCTION, IT IS CRITICAL THAT THE DESIGNER UNDERTAKE INSPECTIONS AT KEY POINTS, TO ENSURE THAT BIORETENTION SYSTEMS ARE INSTALLED ACCORDING TO THEIR DESIGN INTENT. THE FOLLOWING HOLD POINTS ARE REQUIRED:

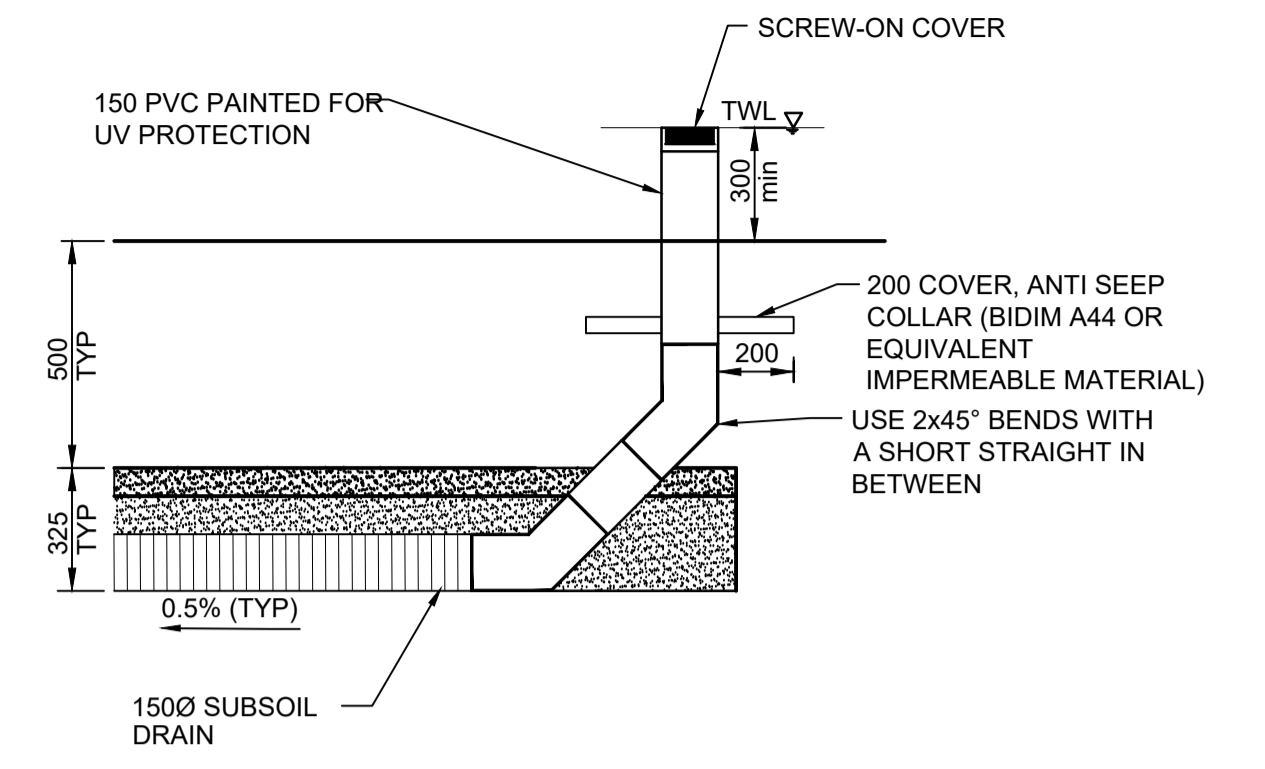
- COMPLETION OF BASIN BULK EARTHWORKS AND INSPECTION OF SUBGRADE INCLUDING REMOVAL OF ALL SEDIMENT.
- INSTALLATION OF HDPE LINER.
- INSTALLATION OF INLET PITS AND PIPES.
- INSTALLATION OF OUTLET PITS AND PIPES.
- INSTALLATION OF SLOTTED PIPES AND FLUSHING POINTS.
- VALIDATION/MANUFACTURER SPECIFICATION OF BIORETENTION MEDIA, TRANSITION AND DRAINAGE LAYER SHALL BE SUPPLIED PRIOR TO INSTALLATION.
- INSTALLATION OF DRAINAGE LAYER
- INSTALLATION OF TRANSITION LAYER (100mm).
- INSTALLATION OF FILTER MEDIA (500mm).
- COMPLETED WORKS, INCLUDING SCOUR PADS.
- PLACEMENT OF JUTE MAT AND PLANTING.
- CERTIFICATION OF PLANT SPECIES AND DENSITY BY HORTICULTURIST / ECOLOGIST/ LANDSCAPE ARCHITECT / ENVIRONMENTAL ENGINEER.



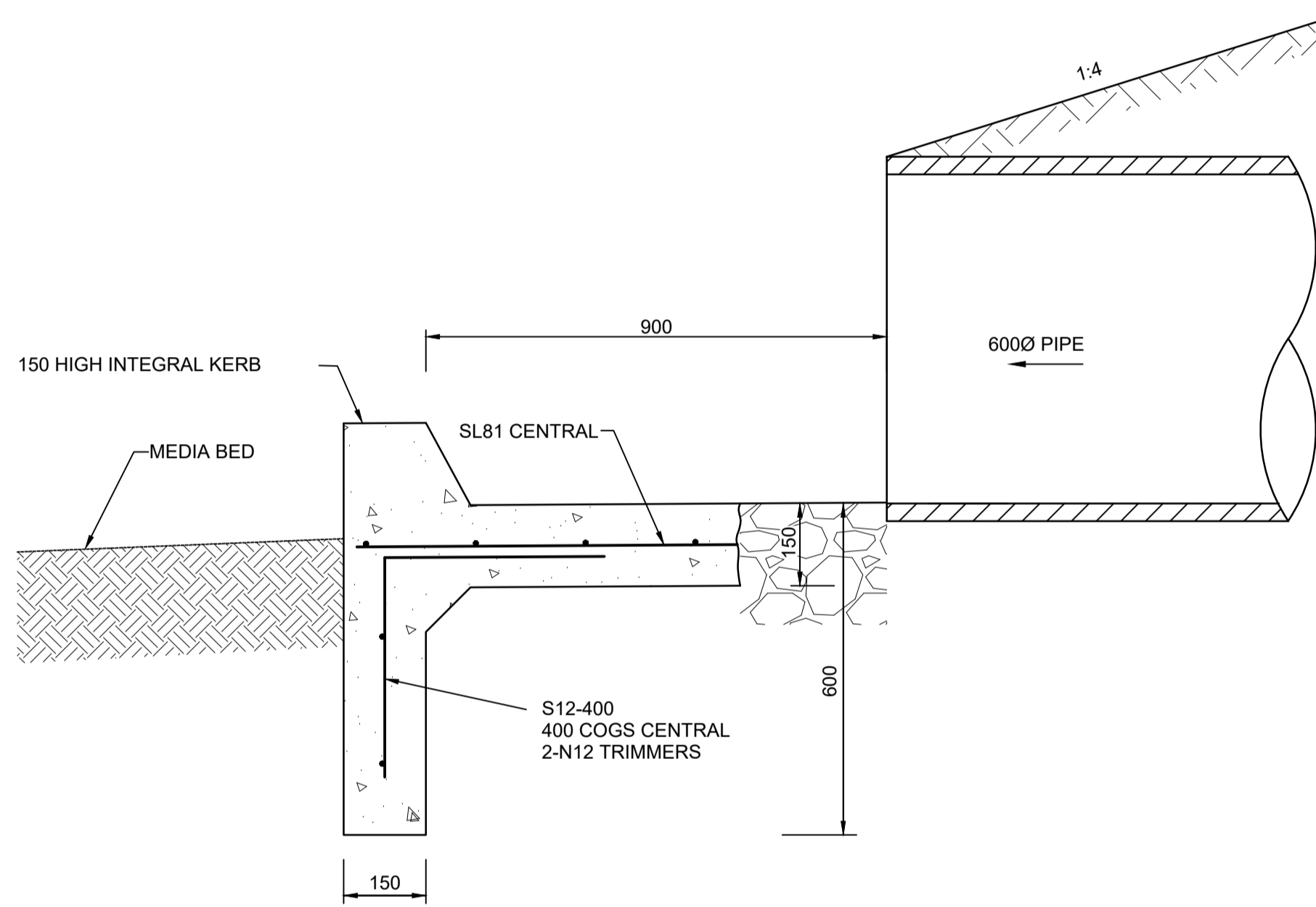
**RAINGARDEN OUTLET JUNCTION PIT GR O/1 PLAN**  
SCALE 1:20



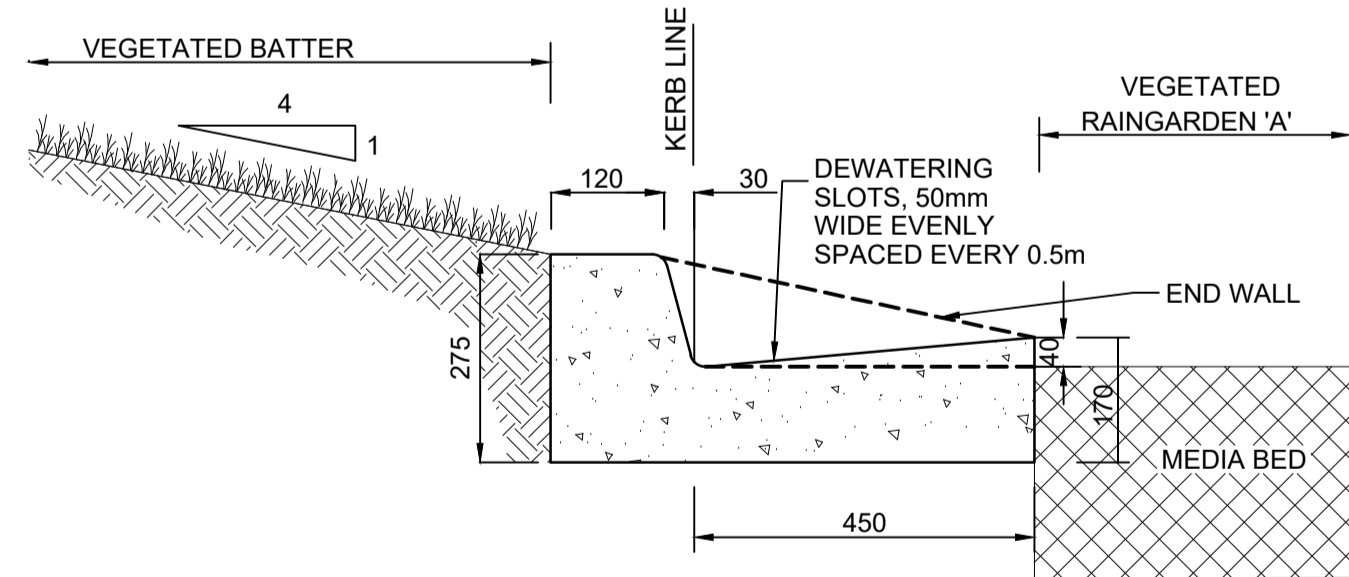
**SECTION A**  
SCALE 1:20



**RODDING EYE/SUBSOIL DETAIL**  
SCALE 1:20



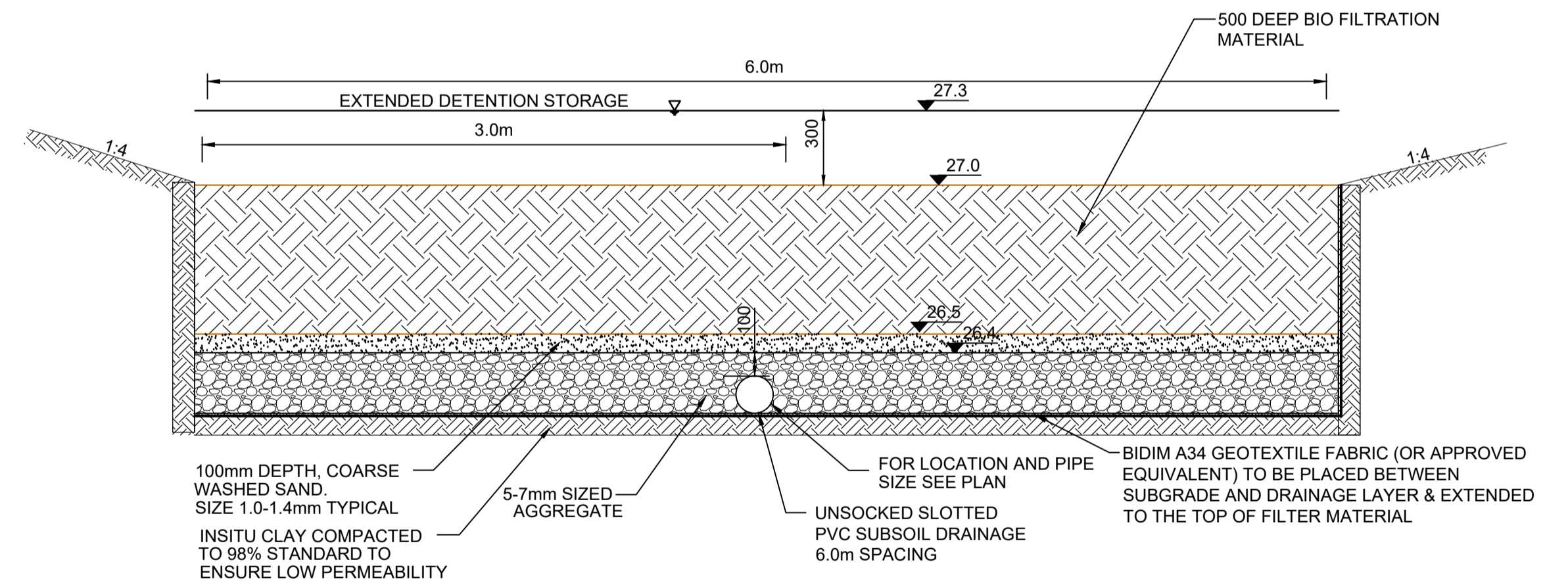
**SECTION C**  
SCALE N.T.S.



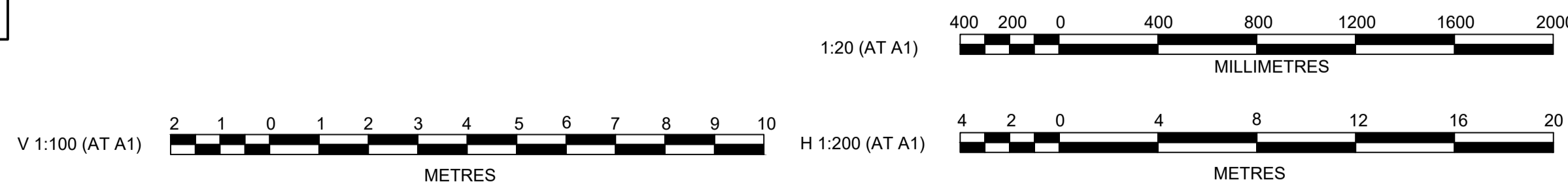
**LEVEL SPREADER KERB PROFILE**  
SCALE 1:10

**NOTE - TREATMENT OF SOILS**

- COMPACT EXISTING CLAY SUB-GRADE AND WALLS TO 98% STANDARD TO ENSURE LOW PERMEABILITY.
- ANY UNSUITABLE (POROUS) MATERIAL ENCOUNTERED DURING RAINGARDEN EXCAVATIONS SHALL BE OVER EXCAVATED MIN 300mm AND BACKFILLED WITH SELECTED CLAY AND COMPACTED TO 98% STANDARD COMPACTION.



**RAINGARDEN MEDIA BED DETAIL**  
SCALE 1:20



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

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Plotted: 25 January, 2018 5:01:45 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC1\YEOMANS\11018511CC162.dwg

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

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PRINCIPAL:  
**REDBANK**  
NORTH RICHMOND

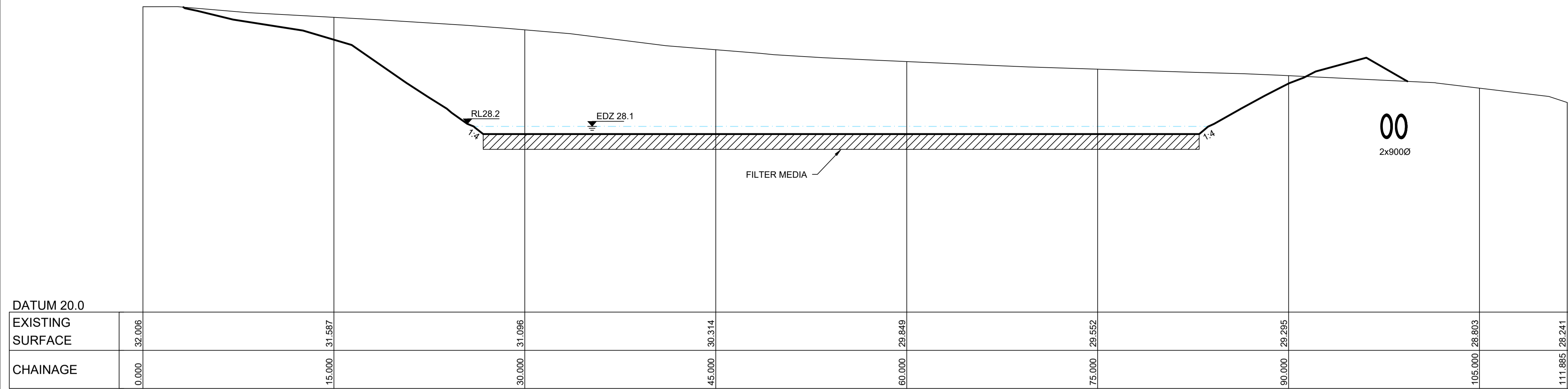
AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

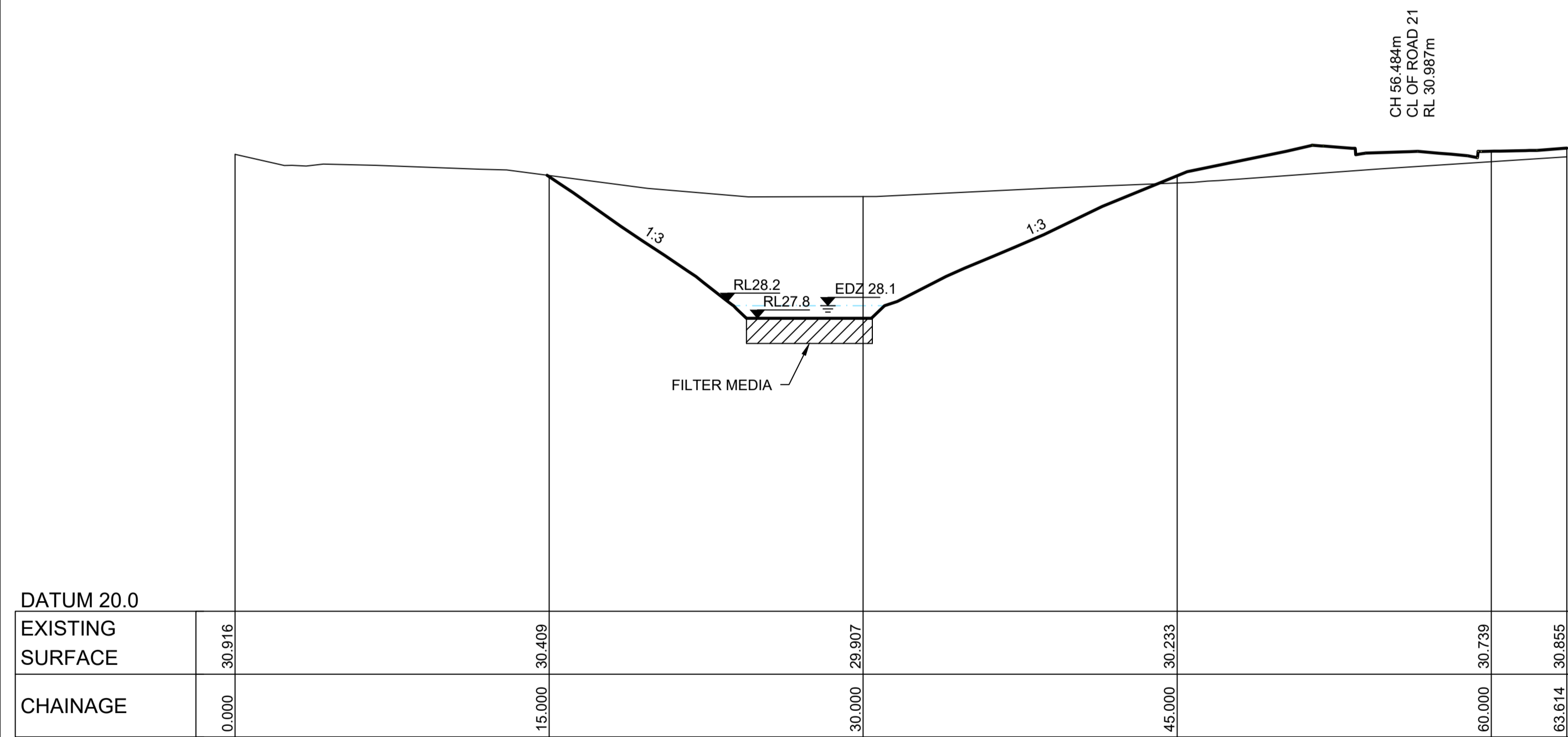
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
RAINGARDEN 1 NOTES AND DETAILS

PLAN No: 11018511/CC162 A  
FILE No: 11018511CC162  
SHEET SIZE: A1 ORIGINAL

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**SECTION A**  
SCALE H 1:200  
V 1:100  
CC161



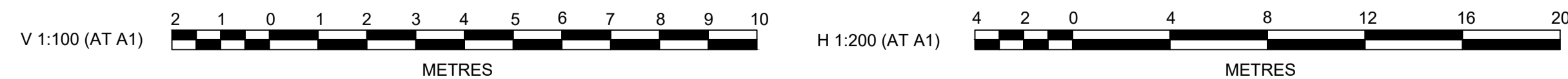
**SECTION B**  
SCALE H 1:200  
V 1:100  
CC161

CH 56.484m  
CL OF ROAD 21  
RL 30.887m

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PRINCIPAL:

RED BANK  
NORTH RICHMOND

AZIMUTH: MGA 56  
DATUM: A.H.D.  
ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
RAINGARDEN 1 SECTIONS

PLAN No: 11018511/CC163 **A**

FILE No: 11018511CC163

SHEET SIZE: A1 ORIGINAL

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

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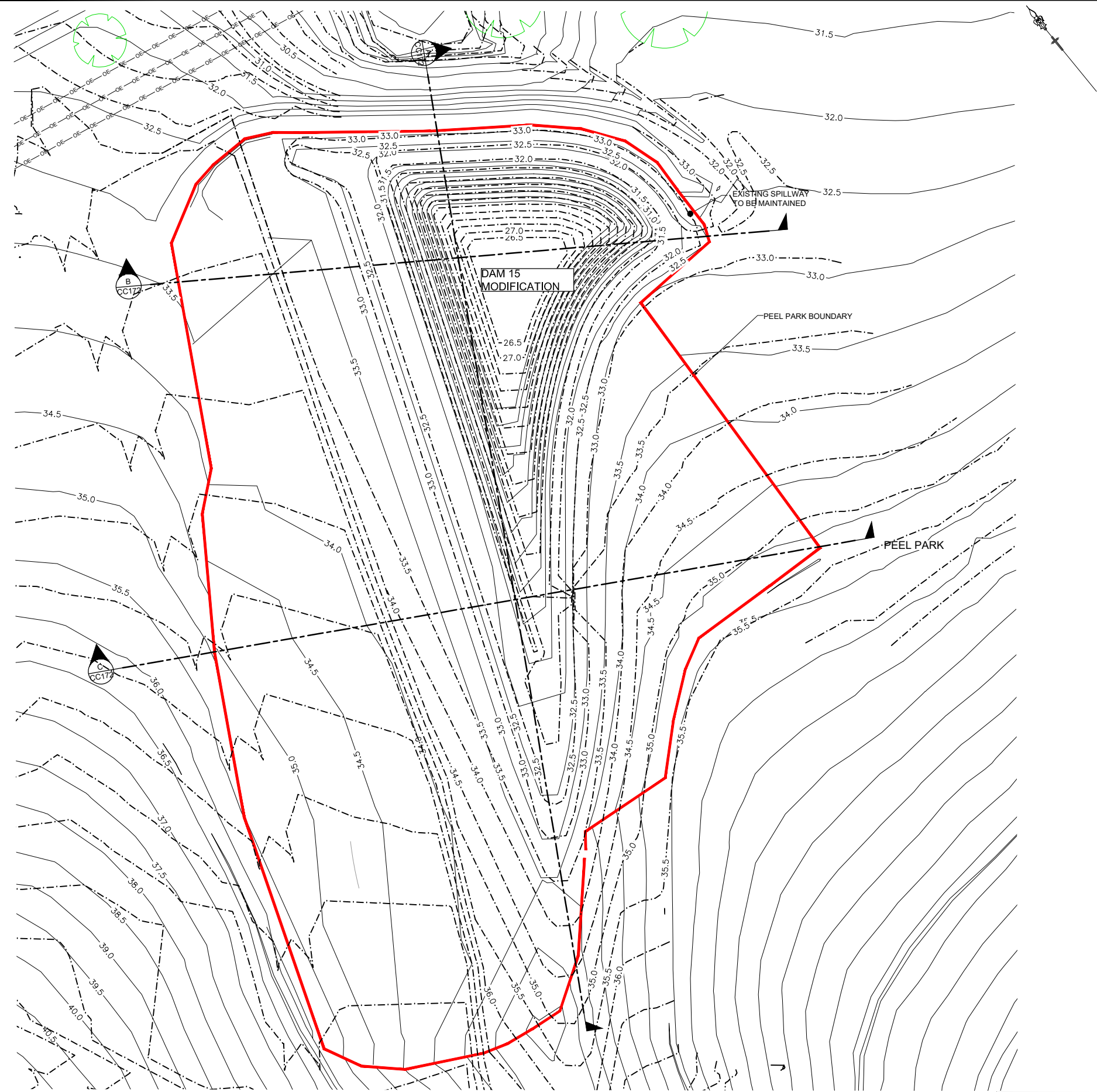
**DAM DECOMMISSIONING - DAM 15 PROCESS (REF DAM DECOMMISSIONING & HERITAGE IMPACT STATEMENT)**

1. INSTALL PUMP AND FLOATING INLET & OUTLET HOSE WITH DISCHARGE (OUTLET) POINT TO BE DIRECTED ACROSS LANDFORM CONTOUR AND INTO AREA OF THICK EXISTING GRASS WITHIN 10m OF DAM DOWNSTREAM FACE WITH OUTLET TO CAGE WRAPPED IN SILT FENCE
2. START ARCHIVAL RECORDING OF DAM AT THIS POINT. ALL RECORDING TO BE UNDERTAKEN WITH REFERENCE TO NSW HERITAGE OFFICE ARCHIVAL RECORDING GUIDELINE, DATED JUNE 1998. ALL SIGNIFICANT INFRASTRUCTURE (INCLUDING BUT NOT LIMITED TO VALVES, PIPES, STRUCTURES) TO BE CAREFULLY REMOVED IN AS LARGE SECTIONS AS POSSIBLE, LABELLED AND STORED IN A SECURE CONTAINER ONSITE FOR SEPARATE ASSESSMENT BY HERITAGE CONSULTANT.
3. CHECK MIN DEPTH OF WATER IN DAM. IF OVER 1m TURN ON PUMP UNTIL MIN DEPTH OF 1m ACHIEVED. IF AT OR UNDER 1m MIN DEPTH CONTACT ECOLOGIST TO BE PRESENT FOR IDENTIFYING AND RELOCATION OF FAUNA.
4. ALL SOIL AND EROSION CONTROLS TO BE CHECKED IN PLACE AND FUNCTIONAL BY CONTRACTOR / SUPERINTENDENT AND PRINCIPAL. SEE SOIL & EROSION CONTROLS - PHASE 1.
5. BULK EARTHWORKS APPROVED TO START BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT TO REMOVE 1m OF DAM WALL.
6. ARCHIVAL PHOTO RECORDING.
7. BULK EARTHWORKS TO REMOVE A FURTHER 1m.
8. ARCHIVAL PHOTO RECORDING.
9. REPEAT (7) & (8) UNTIL LANDFORM DESIGN CONTOURS ACHIEVED, WITH AT ALL TIMES UNEXPECTED FINDS PROTOCOL TO BE COMPLIED WITH FOR EUROPEAN AND ECOLOGY.
  - a. PIPE / VALVE / DAM CORE FOR EXAMPLE, MATERIAL DISCOVERED.
  - b. STOP ALL WORK, SUPERVISOR CONTACTED, WITHIN 1 HOUR.
  - c. SITE SUPERVISOR TO NOTIFY CONTRACTOR SYSTEMS OFFICER AND PM, WITHIN 1 HOUR.
  - d. IF ECOLOGICAL SUPERINTENDENT / PRINCIPLE / CONSULTANT TO INSPECT SAME DAY AND IF NECESSARY FIND RECOVERED AND RELOCATED.
  - e. IF HERITAGE SUPERINTENDENT / PRINCIPAL / CONSULTANT TO INSPECT WITH 24 HOURS AND IF NECESSARY FIND EXTRACTED, LABELLED AND STORED.
  - f. ALL OTHER PROTOCOLS AS PER CONTRACTOR 'EMERGENCY AND INCIDENT PREPAREDNESS AND RESPONSE - ON SITE' REQUIREMENTS
10. FINAL ARCHIVAL PHOTO RECORDING.
11. INSPECTION BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT.

**NOTES**

1. DAM 15 MODIFICATION SHOULD BE UNDERTAKEN FOLLOWING THE TASKS AS PER "NORTH RICHMOND - IMPACT ASSESSMENT PROPOSED DAM No. 12 REMOVAL" REPORT PREPARED BY BIO ENGINEERED SOLUTIONS, DATED 25TH FEBRUARY 2015, REFERENCE 1573 DAM 15 D.

AMENDMENTS TO THE BULK EARTHWORK DAM 15 MODIFICATIONS



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

PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 DAM MODIFICATION - DAM 15  
 PLAN

PLAN No:  
 11018511/CC171 **B**  
 FILE No: 11018511CC171  
 SHEET SIZE: A1 ORIGINAL

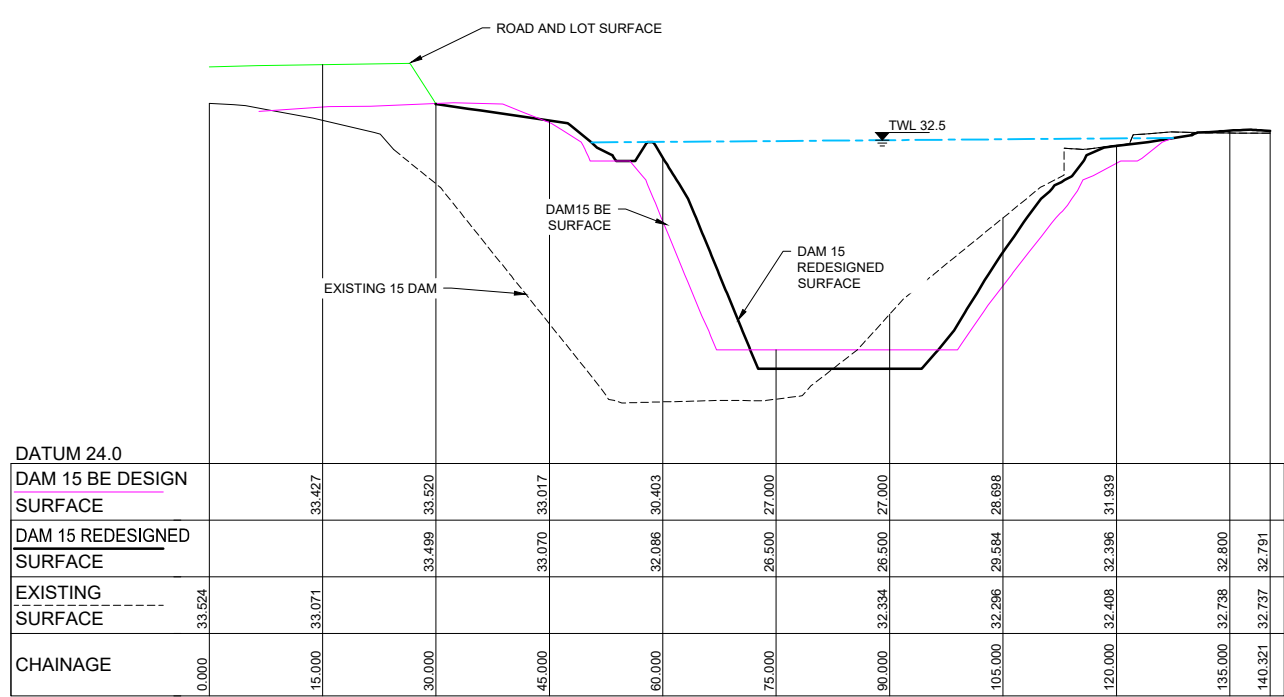
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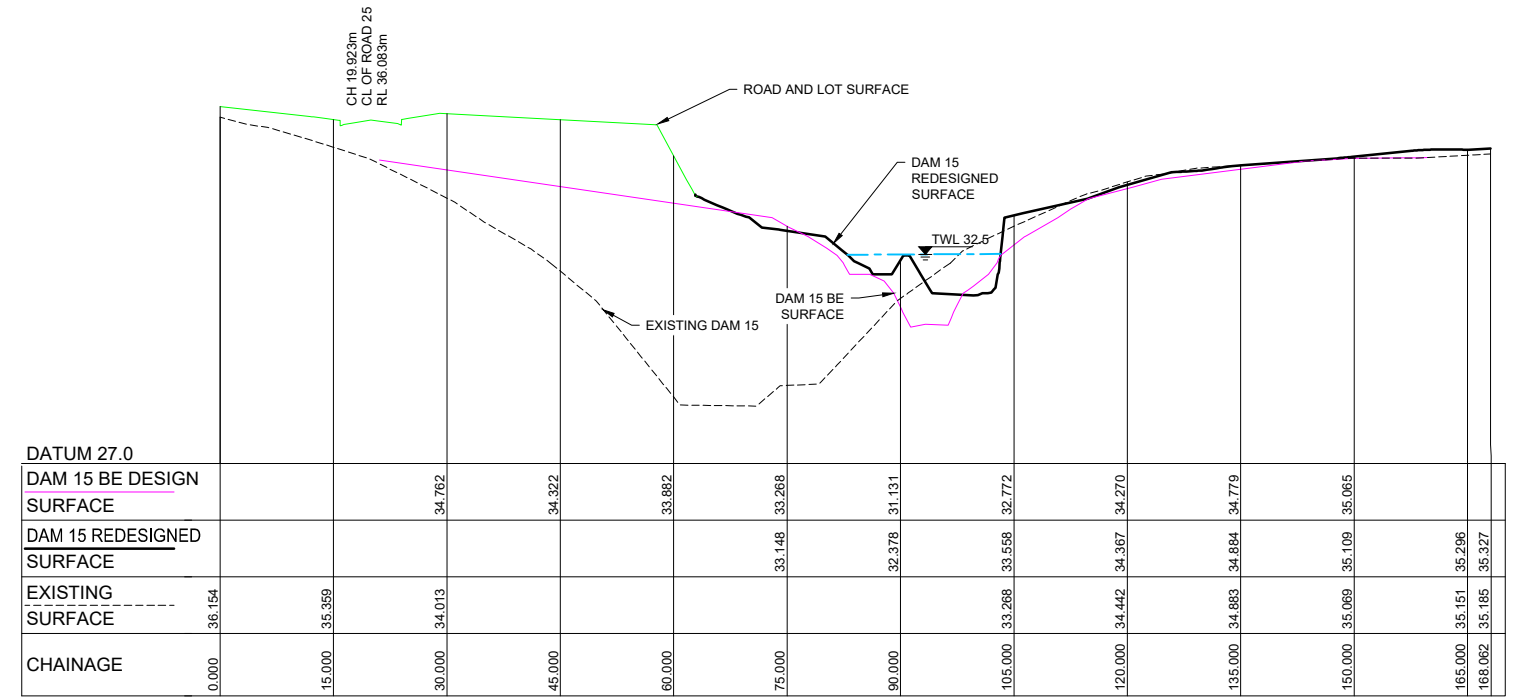
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AMENDMENT	DES	DRN	CKD	APR	DATE
B AMENDMENTS TO DAM 15 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

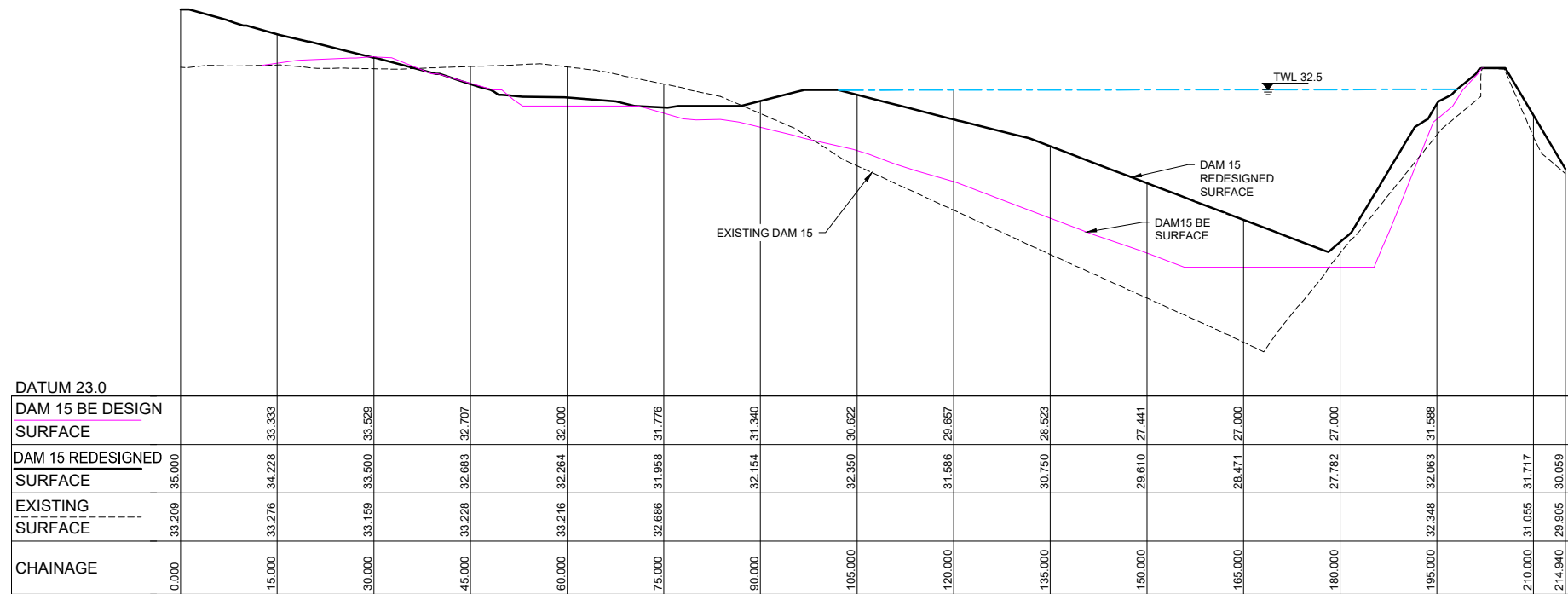
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**SECTION B**  
SCALE H 1:500 V 1:100  
CC171



**SECTION C**  
SCALE H 1:500 V 1:100  
CC171



**SECTION A**  
SCALE H 1:500 V 1:100  
CC171

AMENDMENTS TO THE BULK EARTHWORK DAM 15 MODIFICATIONS

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AMENDMENT	DES	DRN	CKD	APR	DATE
B AMENDMENTS TO DAM 15 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

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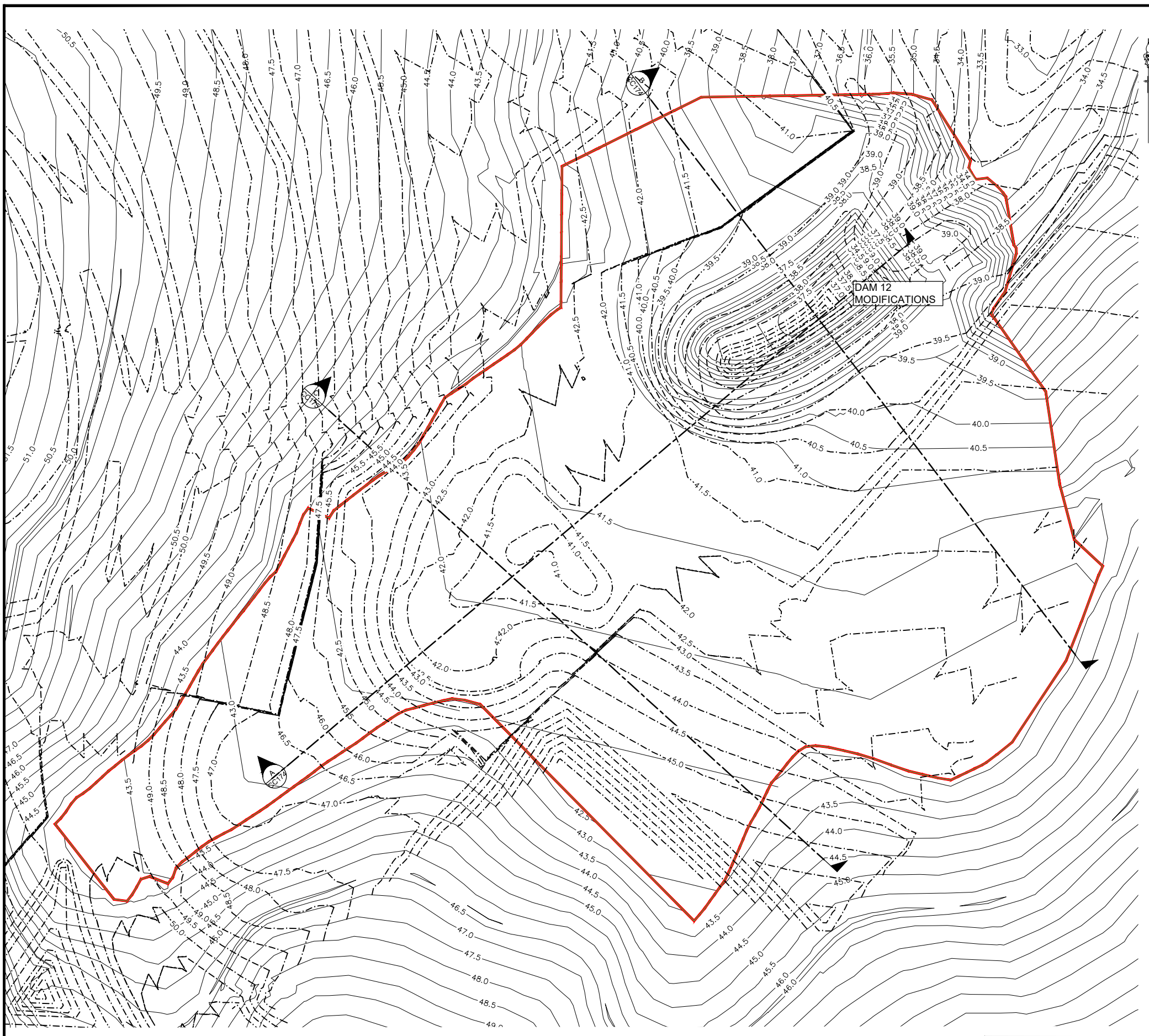
AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:  
**REDBANK**  
NORTH RICHMOND  
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**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
DAM MODIFICATION - DAM 15  
SECTIONS

PLAN No: 11018511/CC172 **B**  
FILE No: 11018511CC172  
SHEET SIZE: A1 ORIGINAL

Plotted: 12 February 2018 8:15:34 AM File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC173\CC173.dwg



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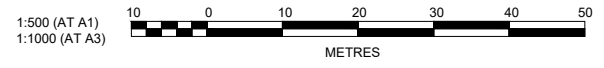
**DAM DECOMMISSIONING - DAM 12 PROCESS (REF DAM DECOMMISSIONING & HERITAGE IMPACT STATEMENT)**

1. INSTALL PUMP AND FLOATING INLET & OUTLET HOSE WITH DISCHARGE (OUTLET) POINT TO BE DIRECTED ACROSS LANDFORM CONTOUR AND INTO AREA OF THICK EXISTING GRASS WITHIN 10m OF DAM DOWNSTREAM FACE WITH OUTLET TO CAGE WRAPPED IN SILT FENCE
2. START ARCHIVAL RECORDING OF DAM AT THIS POINT. ALL RECORDING TO BE UNDERTAKEN WITH REFERENCE TO NSW HERITAGE OFFICE ARCHIVAL RECORDING GUIDELINE, DATED JUNE 1998. ALL SIGNIFICANT INFRASTRUCTURE (INCLUDING BUT NOT LIMITED TO VALVES, PIPES, STRUCTURES) TO BE CAREFULLY REMOVED IN AS LARGE SECTIONS AS POSSIBLE, LABELLED AND STORED IN A SECURE CONTAINER ONSITE FOR SEPARATE ASSESSMENT BY HERITAGE CONSULTANT.
3. CHECK MIN DEPTH OF WATER IN DAM. IF OVER 1m TURN ON PUMP UNTIL MIN DEPTH OF 1m ACHIEVED. IF AT OR UNDER 1m MIN DEPTH CONTACT ECOLOGIST TO BE PRESENT FOR IDENTIFYING AND RELOCATION OF FAUNA.
4. ALL SOIL AND EROSION CONTROLS TO BE CHECKED IN PLACE AND FUNCTIONAL BY CONTRACTOR / SUPERINTENDENT AND PRINCIPAL. SEE SOIL & EROSION CONTROLS - PHASE 1.
5. BULK EARTHWORKS APPROVED TO START BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT TO REMOVE 1m OF DAM WALL.
6. ARCHIVAL PHOTO RECORDING.
7. BULK EARTHWORKS TO REMOVE A FURTHER 1m.
8. ARCHIVAL PHOTO RECORDING.
9. REPEAT (7) & (8) UNTIL LANDFORM DESIGN CONTOURS ACHIEVED, WITH AT ALL TIMES UNEXPECTED FINDS PROTOCOL TO BE COMPLIED WITH FOR EUROPEAN AND ECOLOGY.
  - a. PIPE / VALVE / DAM CORE FOR EXAMPLE, MATERIAL DISCOVERED.
  - b. STOP ALL WORK, SUPERVISOR CONTACTED, WITHIN 1 HOUR.
  - c. SITE SUPERVISOR TO NOTIFY CONTRACTOR SYSTEMS OFFICER AND PM, WITHIN 1 HOUR.
  - d. IF ECOLOGICAL SUPERINTENDENT / PRINCIPLE / CONSULTANT TO INSPECT SAME DAY AND IF NECESSARY FIND RECOVERED AND RELOCATED.
  - e. IF HERITAGE SUPERINTENDENT / PRINCIPAL / CONSULTANT TO INSPECT WITH 24 HOURS AND IF NECESSARY FIND EXTRACTED, LABELLED AND STORED.
  - f. ALL OTHER PROTOCOLS AS PER CONTRACTOR "EMERGENCY AND INCIDENT PREPAREDNESS AND RESPONSE - ON SITE" REQUIREMENTS
10. FINAL ARCHIVAL PHOTO RECORDING.
11. INSPECTION BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT.

**NOTES**

1. DAM 12 MODIFICATION SHOULD BE UNDERTAKEN FOLLOWING THE TASKS AS PER "NORTH RICHMOND - IMPACT ASSESSMENT PROPOSED DAM No. 12 REMOVAL" REPORT PREPARED BY BIO ENGINEERED SOLUTIONS, DATED 25TH FEBRUARY 2015, REFERENCE 1573 DAM 12 D.

AMENDMENTS TO THE BULK EARTHWORK DAM 12 MODIFICATIONS



REV	DESCRIPTION	MP	TG	RO	RO	DATE
B	AMENDMENTS TO DAM 12 MODIFICATIONS					25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

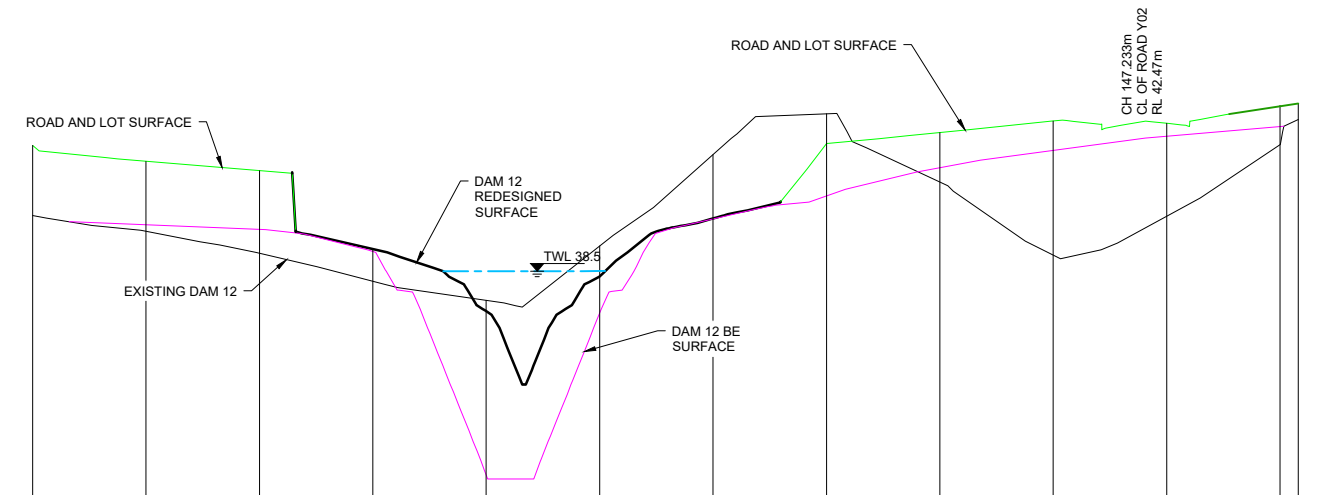
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 DAM MODIFICATION - DAM 12  
 PLAN

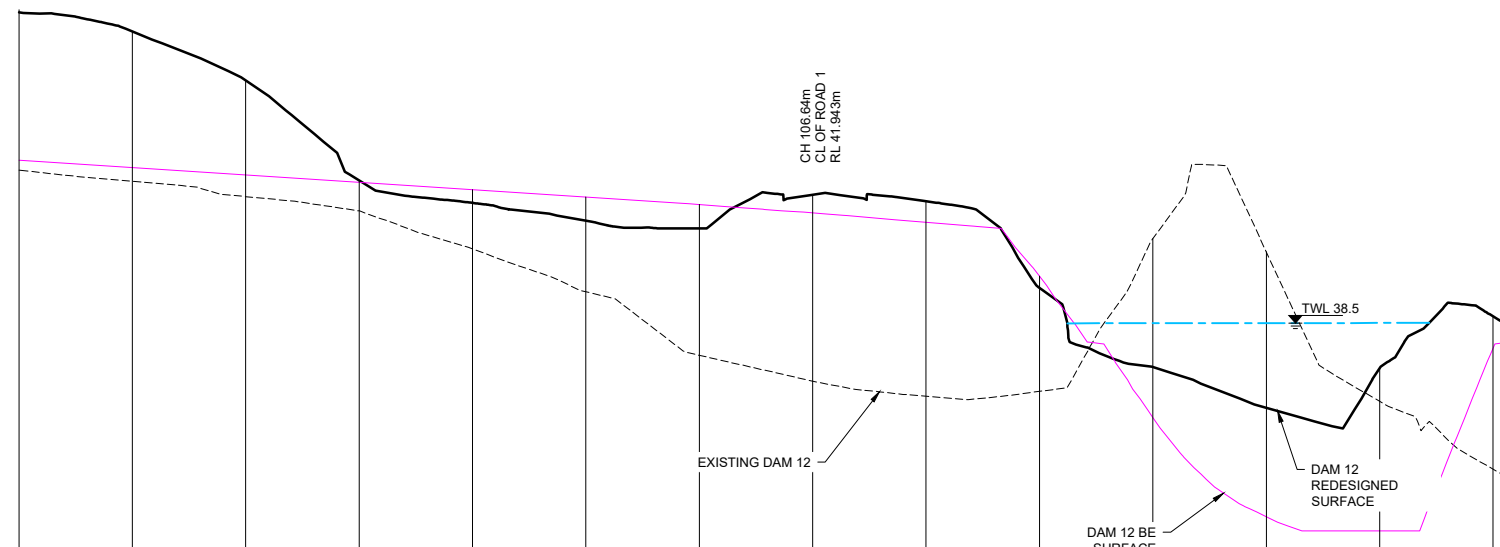
PLAN No: <b>11018511/CC173</b> B	FILE No: 11018511CC173
SHEET SIZE: A1 ORIGINAL	

Plotted: 12 February 2018 8:15:56 AM File Name: J110185 - Redbank North Richmond Residential Precinct01 - Description\CC173\CC174.dwg



DATUM 31.0													
DAM 12 BE DESIGN SURFACE		39.727	39.607		39.021	33.104	37.395	39.880	40.487	41.234	41.692	42.064	42.321
DAM 12 REDESIGNED SURFACE				39.086	37.440	38.359	39.880	39.880					
EXISTING SURFACE	39.970	39.552	38.970	38.228	37.729	39.167	41.582	42.659	40.955	38.926	39.949	41.844	42.513
CHAINAGE	0.000	15.000	30.000	45.000	60.000	75.000	90.000	105.000	120.000	135.000	150.000	165.000	167.431

**SECTION B**  
SCALE H 1:500  
V 1:100

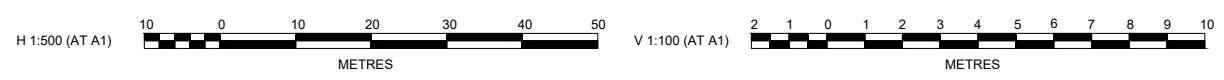


DATUM 31.0															
DAM 12 BE DESIGN SURFACE		42.808	42.614	42.419	42.224	42.029	41.834	41.634	41.412	41.163	39.745	35.992	33.379	33.000	37.834
DAM 12 REDESIGNED SURFACE		46.719	46.216	44.914	42.270	41.679	41.208	41.000	41.893	41.724	39.427	37.342	36.259	37.307	38.676
EXISTING SURFACE	42.547	42.251	41.844	41.468	40.462	39.329	37.647	36.963	40.384	36.692	39.427	37.342	36.259	34.635	34.415
CHAINAGE	0.000	15.000	30.000	45.000	60.000	75.000	90.000	105.000	120.000	135.000	150.000	165.000	180.000	195.000	196.903

**SECTION A**  
SCALE H 1:500  
V 1:100

AMENDMENTS TO THE BULK EARTHWORK DAM 12 MODIFICATIONS

**CONSTRUCTION CERTIFICATE**  
Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565  
These plans/specifications form part of the certificate issued 5 March 2018



REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	AMENDMENTS TO DAM 12 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

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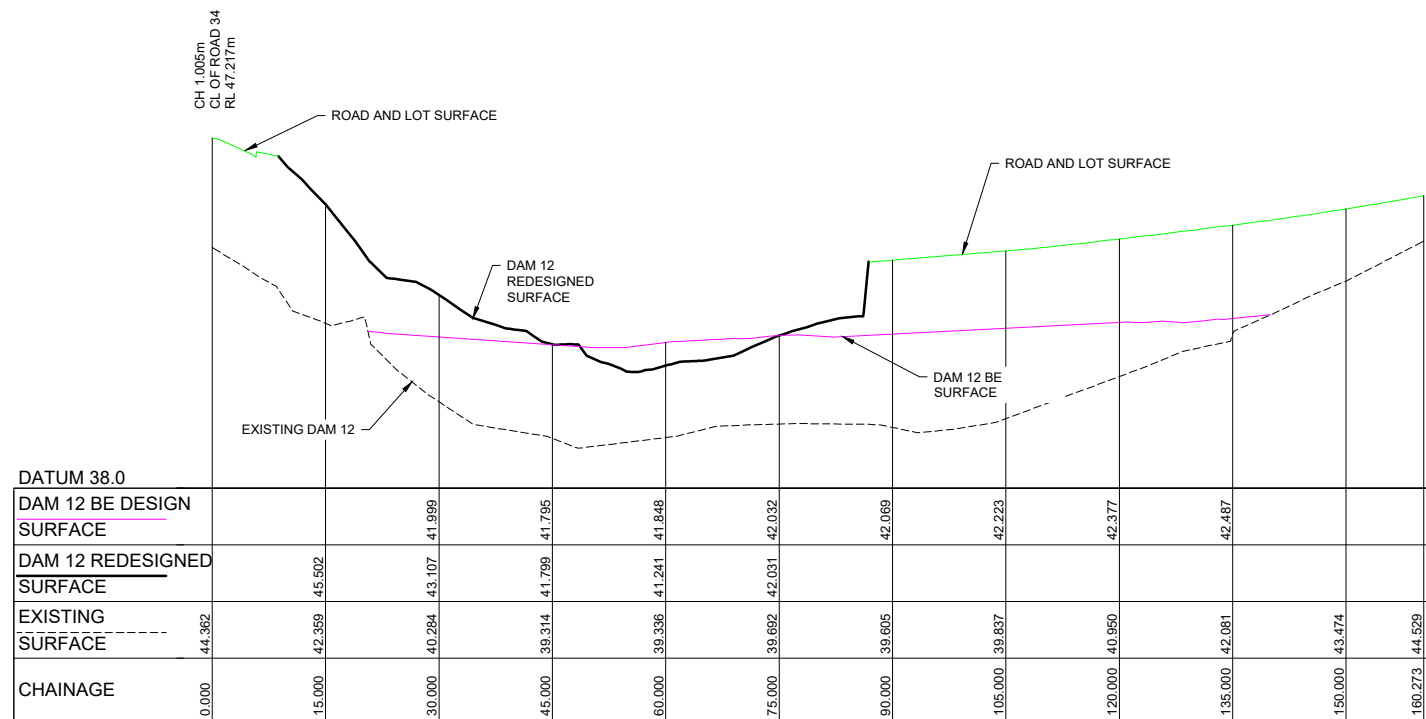
AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:  
**REDBANK**  
NORTH RICHMOND  
THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

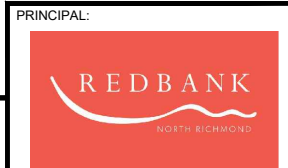
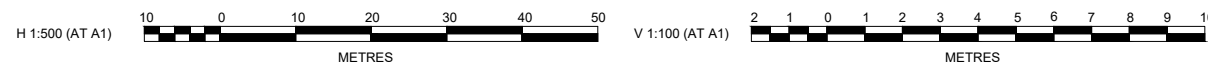
**ISSUED FOR CONSTRUCTION APPROVAL**  
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
DAM MODIFICATION - DAM 12  
SECTIONS SHEET 1 OF 2

PLAN No: 11018511/CC174 **B**  
FILE No: 11018511CC174  
SHEET SIZE: A1 ORIGINAL

Plotted: 12 February 2018 8:16:13 AM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC175\CC175.dwg



**SECTION C**  
SCALE H 1:500  
V 1:100  
CC173



**ISSUED FOR CONSTRUCTION APPROVAL**

NO.	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	AMENDMENTS TO DAM 12 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:  
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REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
DAM MODIFICATION - DAM 12  
SECTIONS SHEET 2 OF 2

PLAN No:	11018511/CC175 <b>B</b>
FILE No:	11018511CC175
SHEET SIZE:	A1 ORIGINAL

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018



Plotted: 12 February 2018 8:16:37 AM. File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC176\CC176.dwg



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

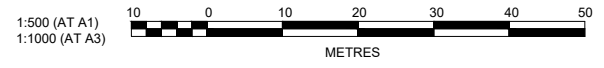
**DAM DECOMMISSIONING - DAM 4 PROCESS (REF DAM DECOMMISSIONING & HERITAGE IMPACT STATEMENT)**

1. INSTALL PUMP AND FLOATING INLET & OUTLET HOSE WITH DISCHARGE (OUTLET) POINT TO BE DIRECTED ACROSS LANDFORM CONTOUR AND INTO AREA OF THICK EXISTING GRASS WITHIN 10m OF DAM DOWNSTREAM FACE WITH OUTLET TO CAGE WRAPPED IN SILT FENCE
2. START ARCHIVAL RECORDING OF DAM AT THIS POINT. ALL RECORDING TO BE UNDERTAKEN WITH REFERENCE TO NSW HERITAGE OFFICE ARCHIVAL RECORDING GUIDELINE, DATED JUNE 1998. ALL SIGNIFICANT INFRASTRUCTURE (INCLUDING BUT NOT LIMITED TO VALVES, PIPES, STRUCTURES) TO BE CAREFULLY REMOVED IN AS LARGE SECTIONS AS POSSIBLE, LABELLED AND STORED IN A SECURE CONTAINER ONSITE FOR SEPARATE ASSESSMENT BY HERITAGE CONSULTANT.
3. CHECK MIN DEPTH OF WATER IN DAM. IF OVER 1m TURN ON PUMP UNTIL MIN DEPTH OF 1m ACHIEVED. IF AT OR UNDER 1m MIN DEPTH CONTACT ECOLOGIST TO BE PRESENT FOR IDENTIFYING AND RELOCATION OF FAUNA.
4. ALL SOIL AND EROSION CONTROLS TO BE CHECKED IN PLACE AND FUNCTIONAL BY CONTRACTOR / SUPERINTENDENT AND PRINCIPAL. SEE SOIL & EROSION CONTROLS - PHASE 1.
5. BULK EARTHWORKS APPROVED TO START BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT TO REMOVE 1m OF DAM WALL.
6. ARCHIVAL PHOTO RECORDING.
7. BULK EARTHWORKS TO REMOVE A FURTHER 1m.
8. ARCHIVAL PHOTO RECORDING.
9. REPEAT (7) & (8) UNTIL LANDFORM DESIGN CONTOURS ACHIEVED, WITH AT ALL TIMES UNEXPECTED FINDS PROTOCOL TO BE COMPLIED WITH FOR EUROPEAN AND ECOLOGY.
  - a. PIPE / VALVE / DAM CORE FOR EXAMPLE, MATERIAL DISCOVERED.
  - b. STOP ALL WORK, SUPERVISOR CONTACTED, WITHIN 1 HOUR.
  - c. SITE SUPERVISOR TO NOTIFY CONTRACTOR SYSTEMS OFFICER AND PM, WITHIN 1 HOUR.
  - d. IF ECOLOGICAL SUPERINTENDENT / PRINCIPLE / CONSULTANT TO INSPECT SAME DAY AND IF NECESSARY FIND RECOVERED AND RELOCATED.
  - e. IF HERITAGE SUPERINTENDENT / PRINCIPAL / CONSULTANT TO INSPECT WITH 24 HOURS AND IF NECESSARY FIND EXTRACTED, LABELLED AND STORED.
  - f. ALL OTHER PROTOCOLS AS PER CONTRACTOR 'EMERGENCY AND INCIDENT PREPAREDNESS AND RESPONSE - ON SITE' REQUIREMENTS
10. FINAL ARCHIVAL PHOTO RECORDING.
11. INSPECTION BY ECOLOGIST / HERITAGE / CONTAMINATION CONSULTANT.

**NOTES**

1. DAM 4 MODIFICATION SHOULD BE UNDERTAKEN FOLLOWING THE TASKS AS PER "NORTH RICHMOND - IMPACT ASSESSMENT PROPOSED DAM No. 4 REMOVAL" REPORT PREPARED BY BIO ENGINEERED SOLUTIONS, DATED 25TH FEBRUARY 2015, REFERENCE 1573 DAM 4 C.

AMENDMENTS TO THE BULK EARTHWORK DAM 4 MODIFICATIONS



REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	AMENDMENTS TO DAM 2 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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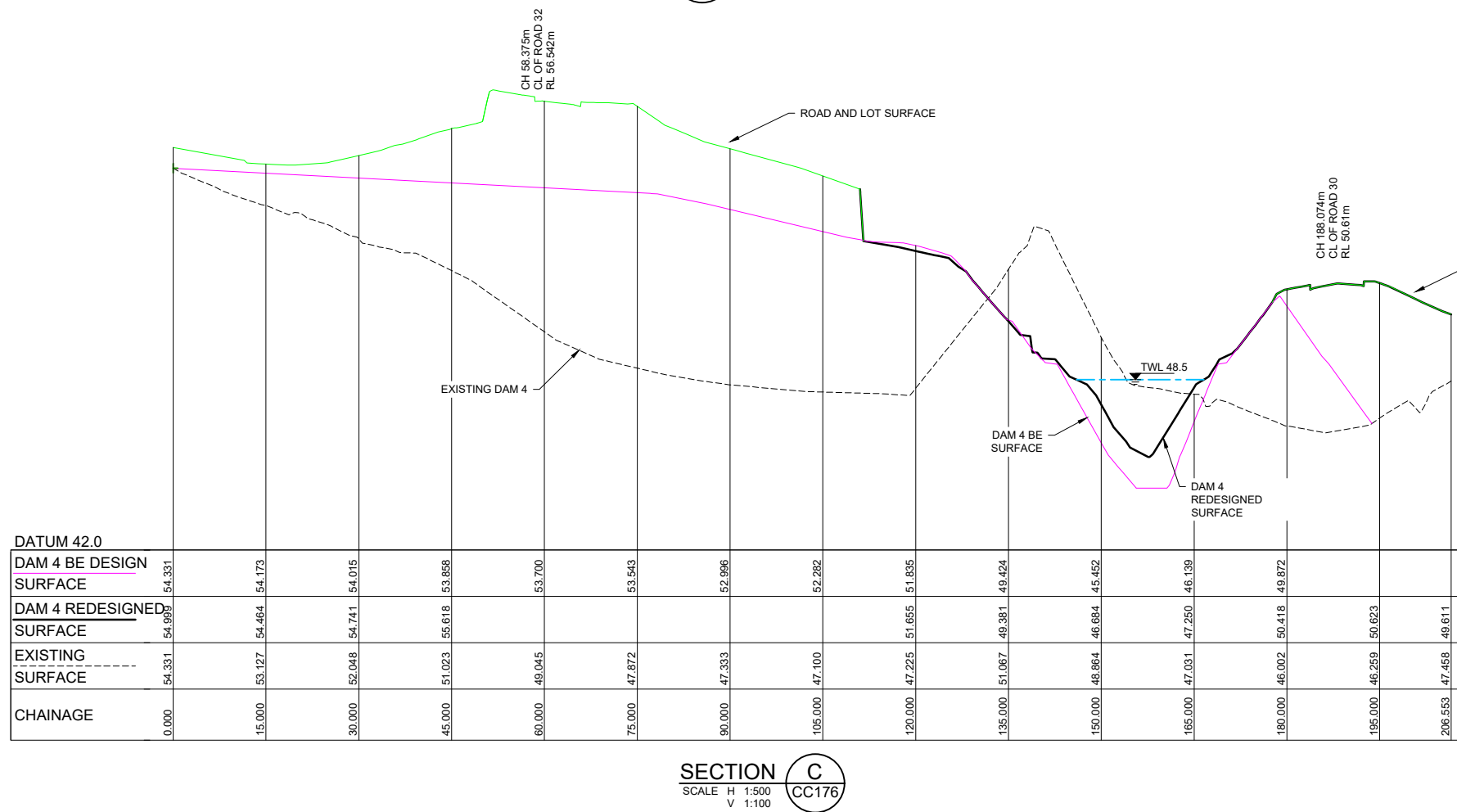
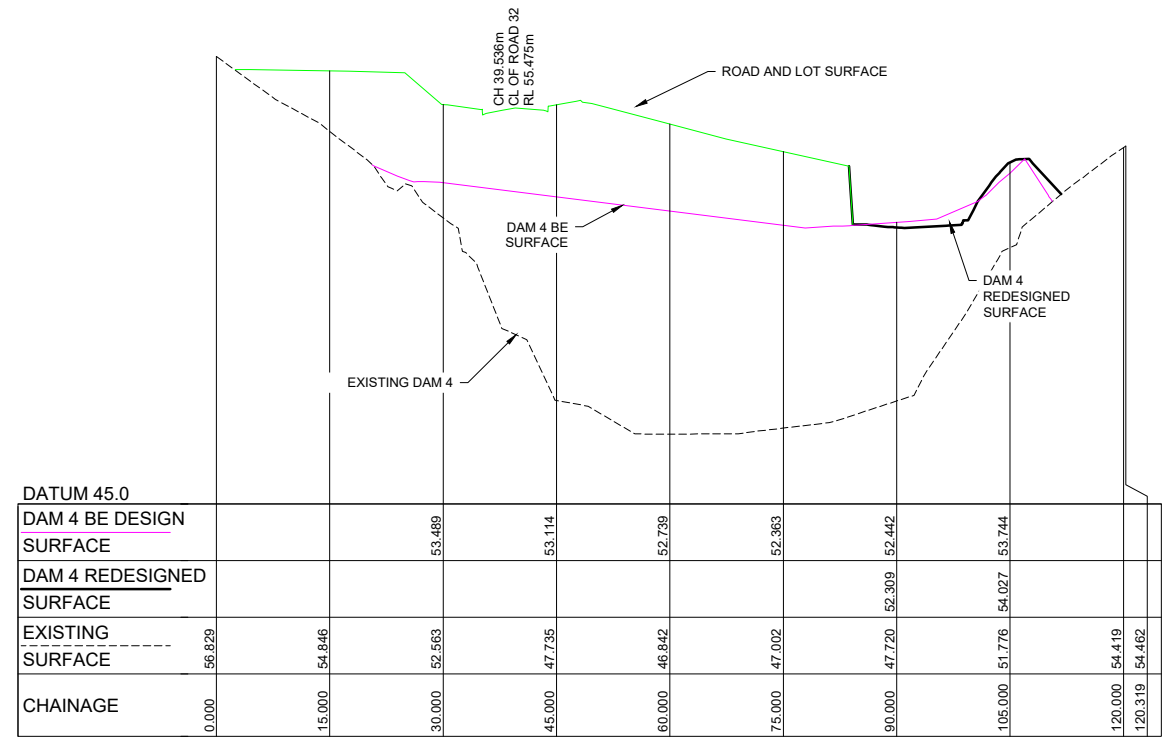
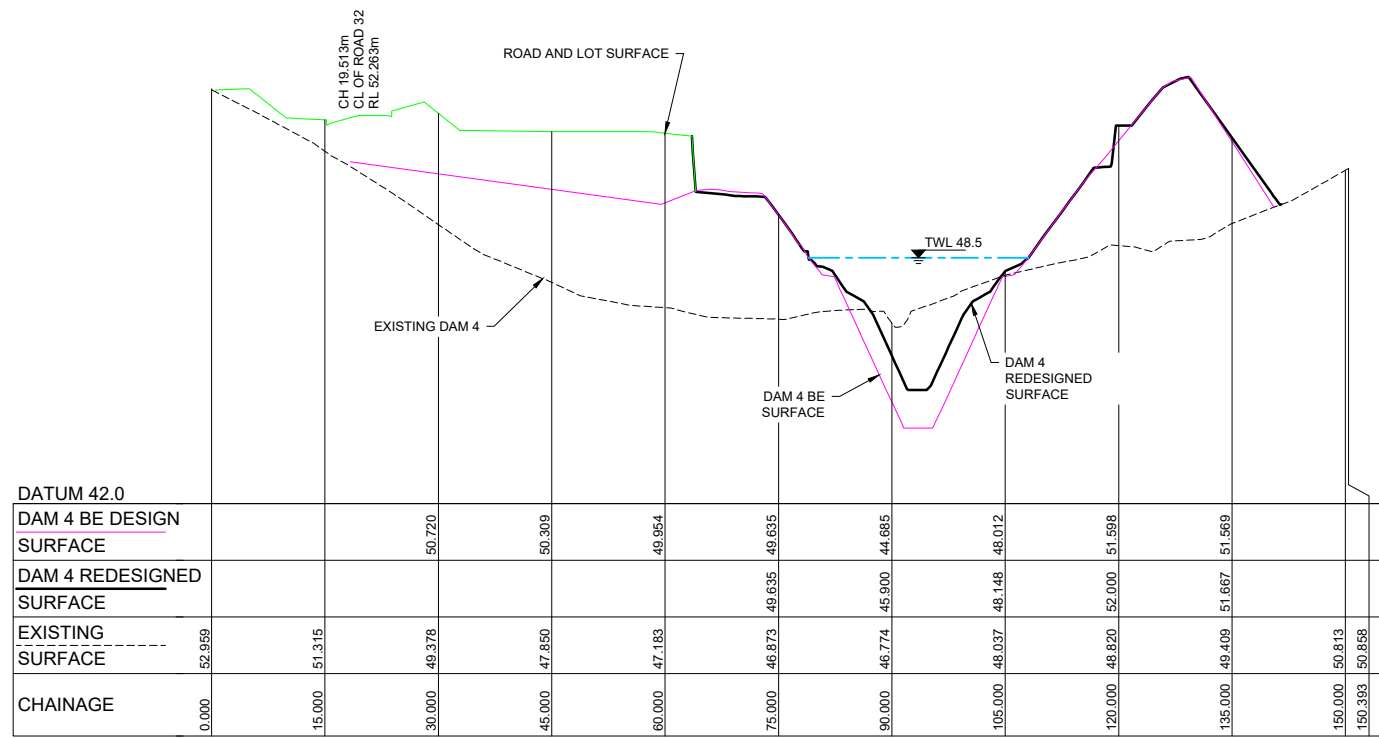
ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

DAM MODIFICATION - DAM 4  
 PLAN

PLAN No: <b>11018511/CC176</b>	<b>B</b>
FILE No: 11018511CC176	
SHEET SIZE: A1 ORIGINAL	

Plotted: 12 February 2018 8:17:13 AM File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC176\CC176.dwg

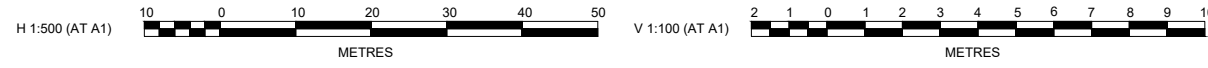


**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer  
 Accreditation No. BPB0565

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AMENDMENTS TO THE BULK EARTHWORK DAM 4 MODIFICATIONS



PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 DAM MODIFICATION - DAM 4  
 SECTIONS

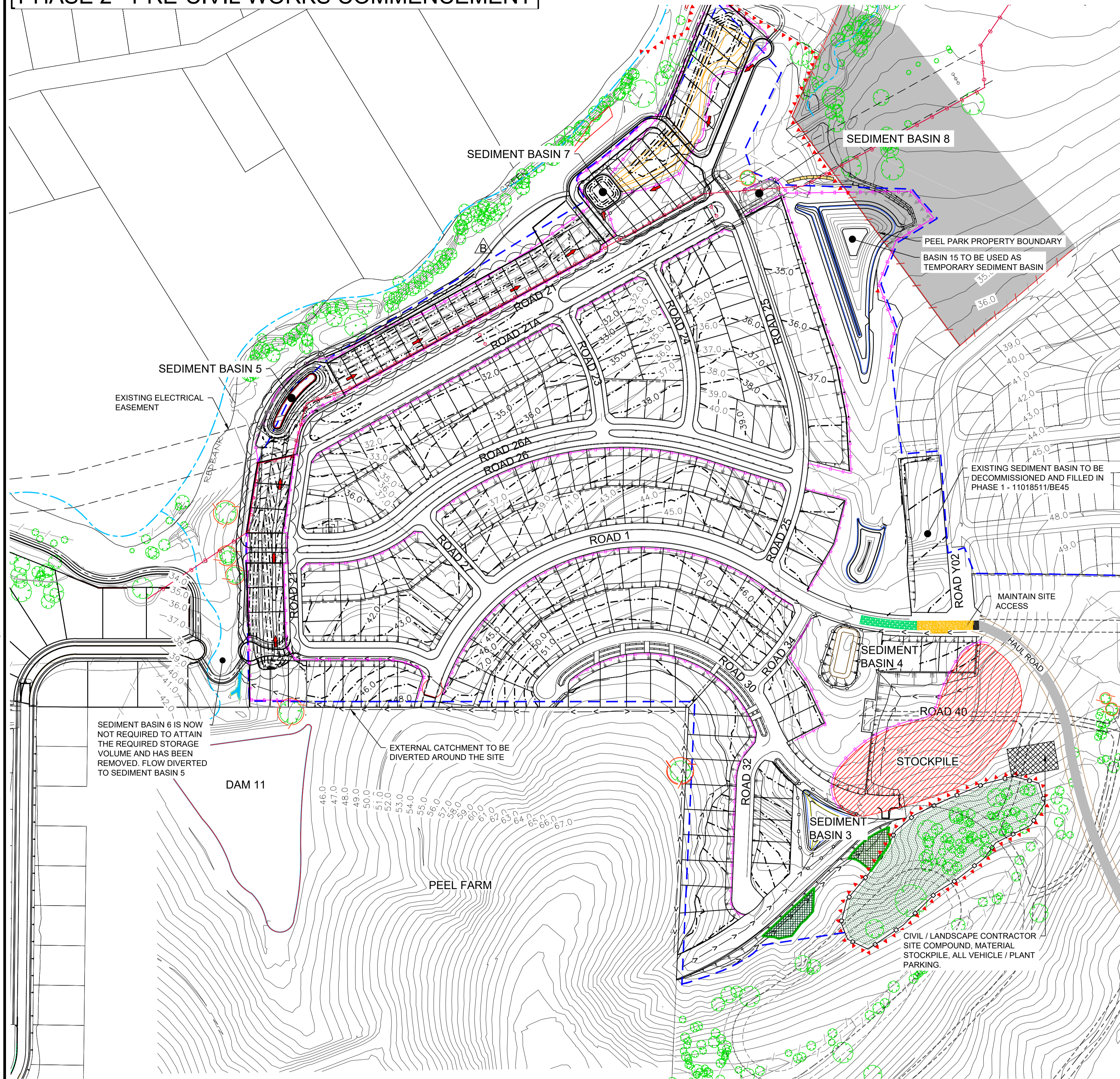
PLAN No: 11018511/CC177 **B**  
 FILE No: 11018511CC177  
 SHEET SIZE: A1 ORIGINAL

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REV	DESCRIPTION	DES	DRN	CKD	APR	DATE
B	AMENDMENTS TO DAM 2 MODIFICATIONS	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

# PHASE 2 - PRE-CIVIL WORKS COMMENCEMENT

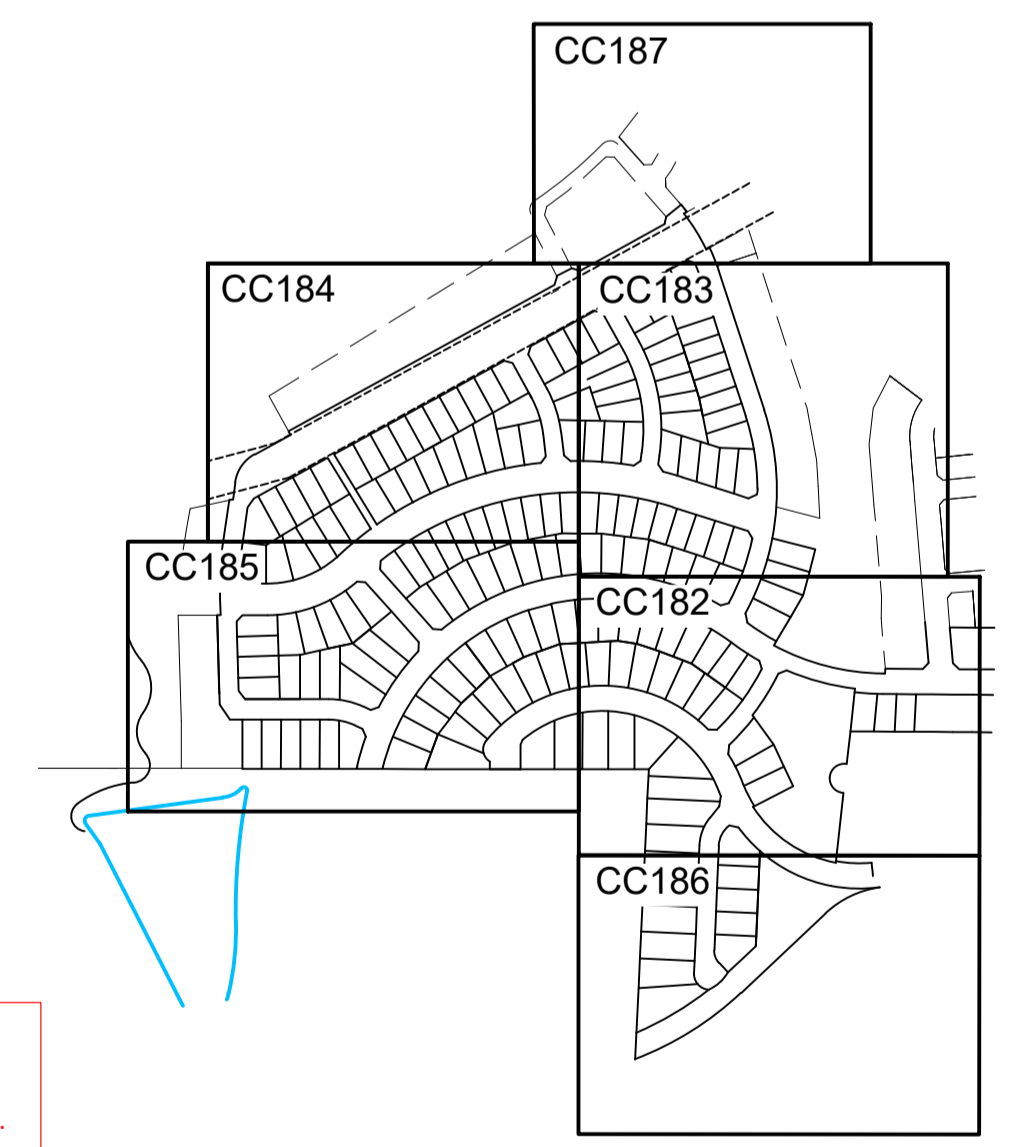


LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	47.0
DESIGN CONTOURS	48.0
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES	
SEDIMENT BASIN	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	
REFER TO SEPARATE DA PACKAGE FOR PEEL FARM WORKS	

**NOTE**

**PHASE 2 - SOIL & WATER MANAGEMENT**

1. MAINTAIN PROTECTIVE FENCING AND SITE ACCESS AS INSTALLED ON BULK EARTHWORKS PHASE.
2. MAINTAIN EXISTING SEDIMENT BASINS.
3. MAINTAIN SEDIMENT FENCES AS INSTALLED.

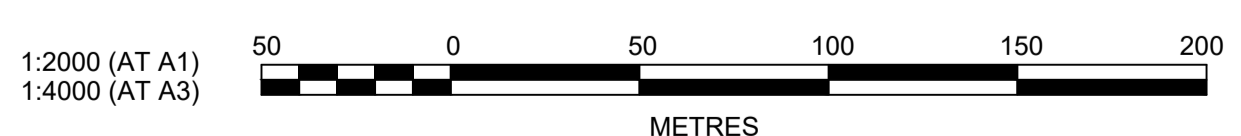


LAYOUT KEY  
SCALE : N.T.S

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 2  
 PRE-CIVIL WORKS COMMENCEMENT

PLAN No: 11018511/CC181 **B**  
 FILE No: 11018511CC181  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:03:10 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC181.dwg

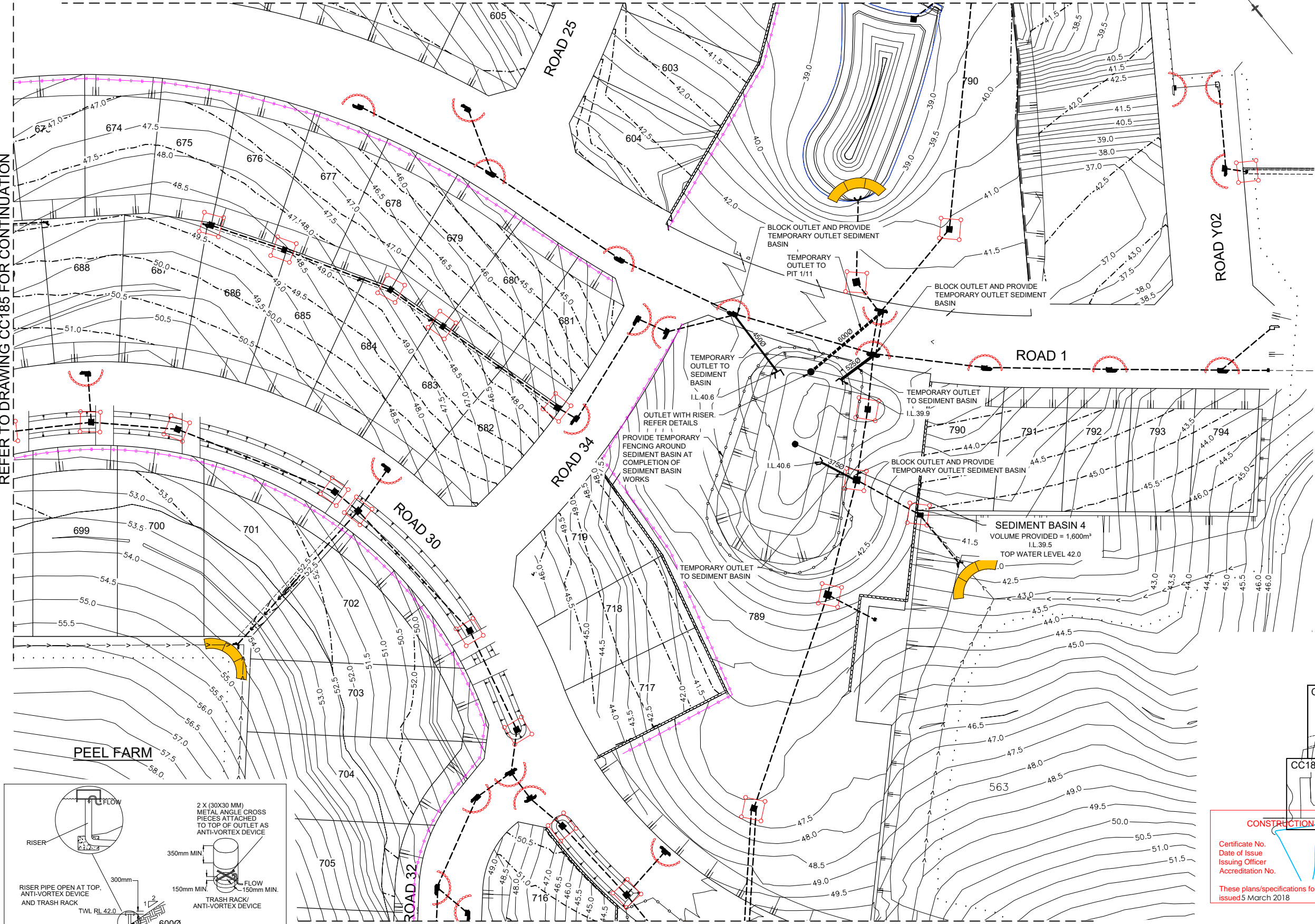
REV	DESCRIPTION	MP	LS	RO	MS	DATE
B	SEDIMENT BASINS REVISION	MP	LS	RO	MS	26/07/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

# PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

REFER TO DRAWING CC183 FOR CONTINUATION

REFER TO DRAWING CC185 FOR CONTINUATION

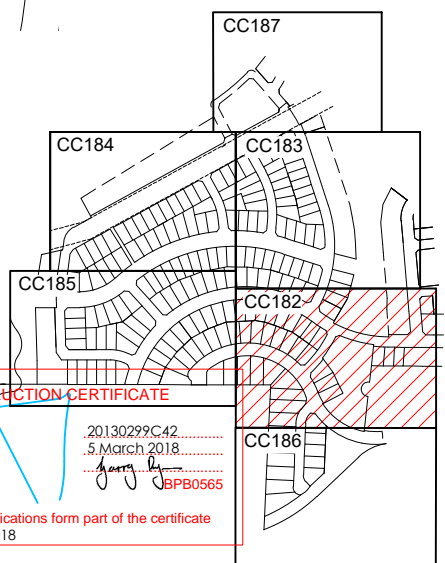
Plotted: 12 February 2018 8:37:00 AM. File Name: J1110185 - Redbank North Richmond Residential Precinct001 - Description:CC182/CC183/CC184/CC185/CC186/CC187/CC188/CC189/CC190/CC191/CC192.dwg



LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

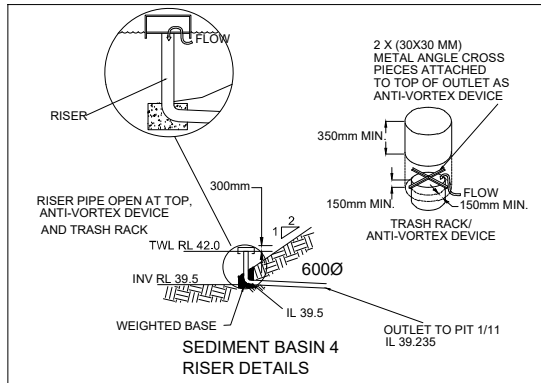
## PHASE 3 SOIL AND WATER MANAGEMENT

1. MAINTAIN SEDIMENT FENCE.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN.

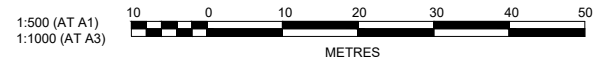


**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
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LAYOUT KEY  
SCALE: N.T.S.



REFER TO DRAWING CC186 FOR CONTINUATION



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AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

PRINCIPAL:

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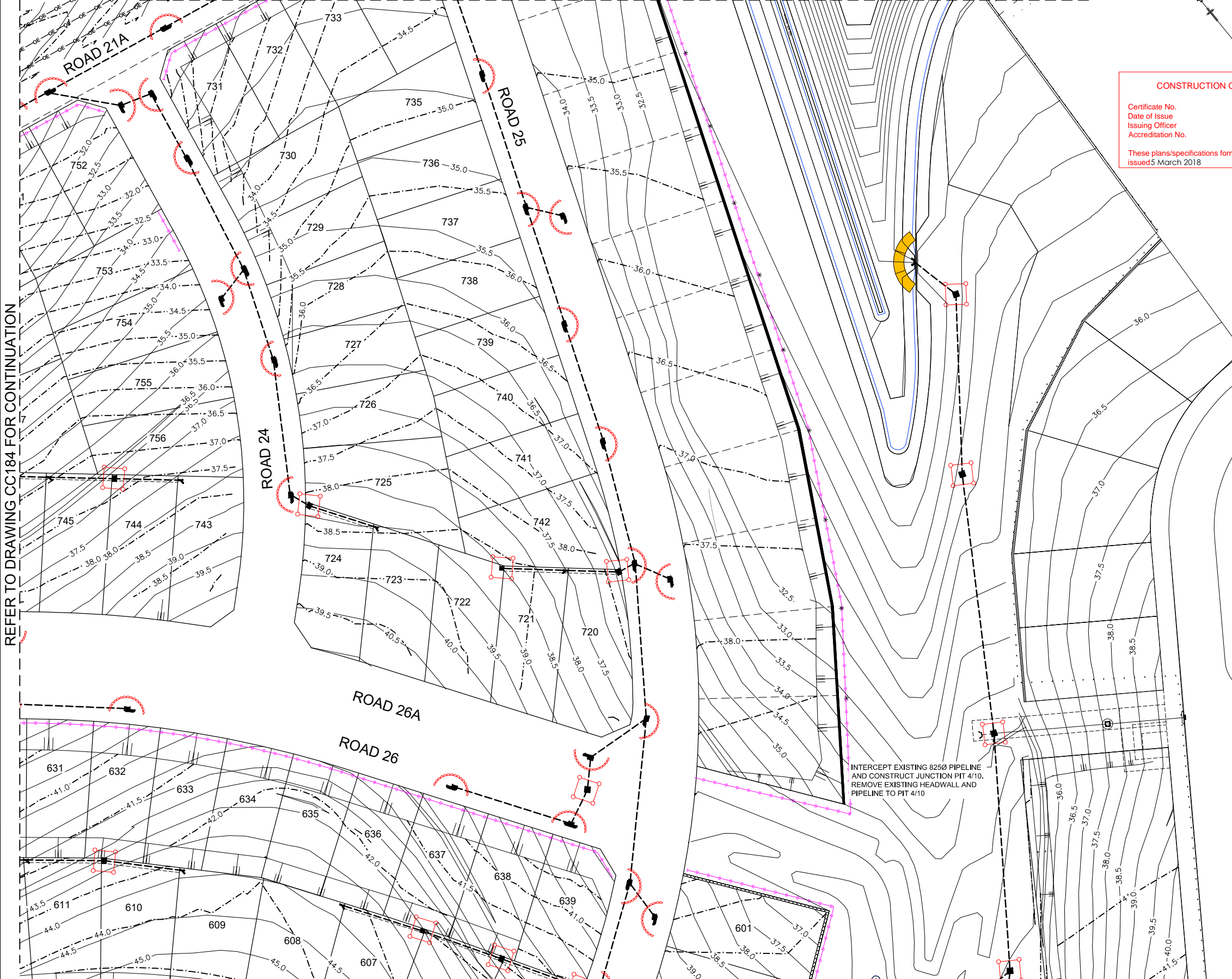
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 1 OF 6

PLAN No:	11018511/CC182 B
FILE No:	11018511CC182
SHEET SIZE:	A1 ORIGINAL

REV	DESCRIPTION	MP	CC	RO	RO	DATE
B	OPEN SPACE AND STORMWATER AMENDMENTS	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION** REFER TO DRAWING CC187 FOR CONTINUATION



**CONSTRUCTION CERTIFICATE**

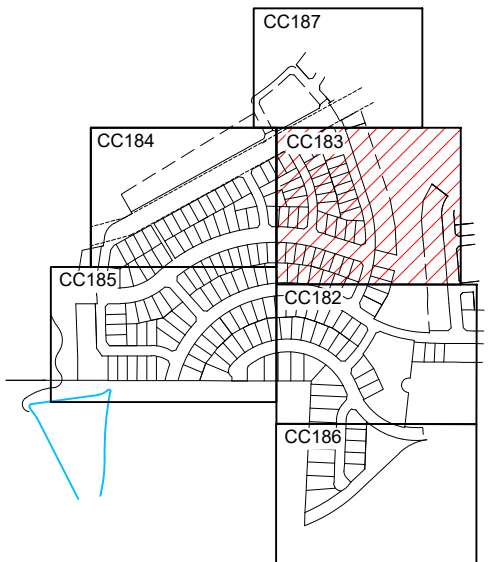
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018

LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

**PHASE 3 SOIL AND WATER MANAGEMENT**

1. MAINTAIN SEDIMENT FENCE.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN



LAYOUT KEY  
SCALE : N.T.S

REFER TO DRAWING CC184 FOR CONTINUATION

REFER TO DRAWING CC182 FOR CONTINUATION

INTERCEPT EXISTING 825Ø PIPELINE AND CONSTRUCT JUNCTION PIT 4/10. REMOVE EXISTING HEADWALL AND PIPELINE TO PIT 4/10



AMENDMENT	DES	DRN	CKD	APR	DATE
B OPEN SPACE AND STORMWATER AMENDMENTS	MP	CC	RO	RO	09/01/18
A ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

PRINCIPAL: **REDBANK** NORTH RICHMOND

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 2 OF 6

PLAN No: 11018511/CC183 **B**  
 FILE No: 11018511CC183  
 SHEET SIZE: A1 ORIGINAL

Plotted: 12 February 2018 8:37:32 AM File Name: J110185 - Redbank North Richmond Residential Precinct001 - Description\CC\CC\YEOMANS\11018511CC183.dwg

# PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
EXISTING OVERHEAD ELECTRICAL LINE	
STABILISED SITE ACCESS	
STRAW BALES	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (i.e. CPW)	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

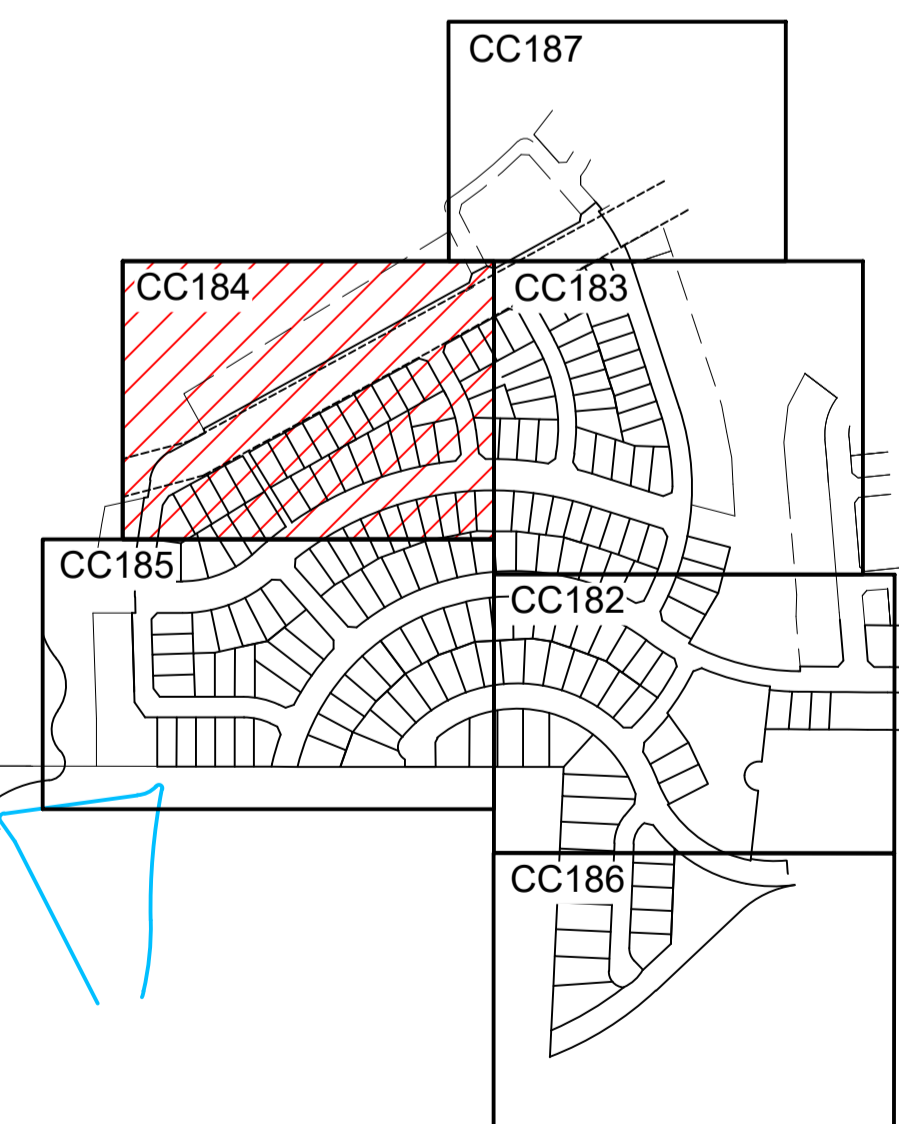
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

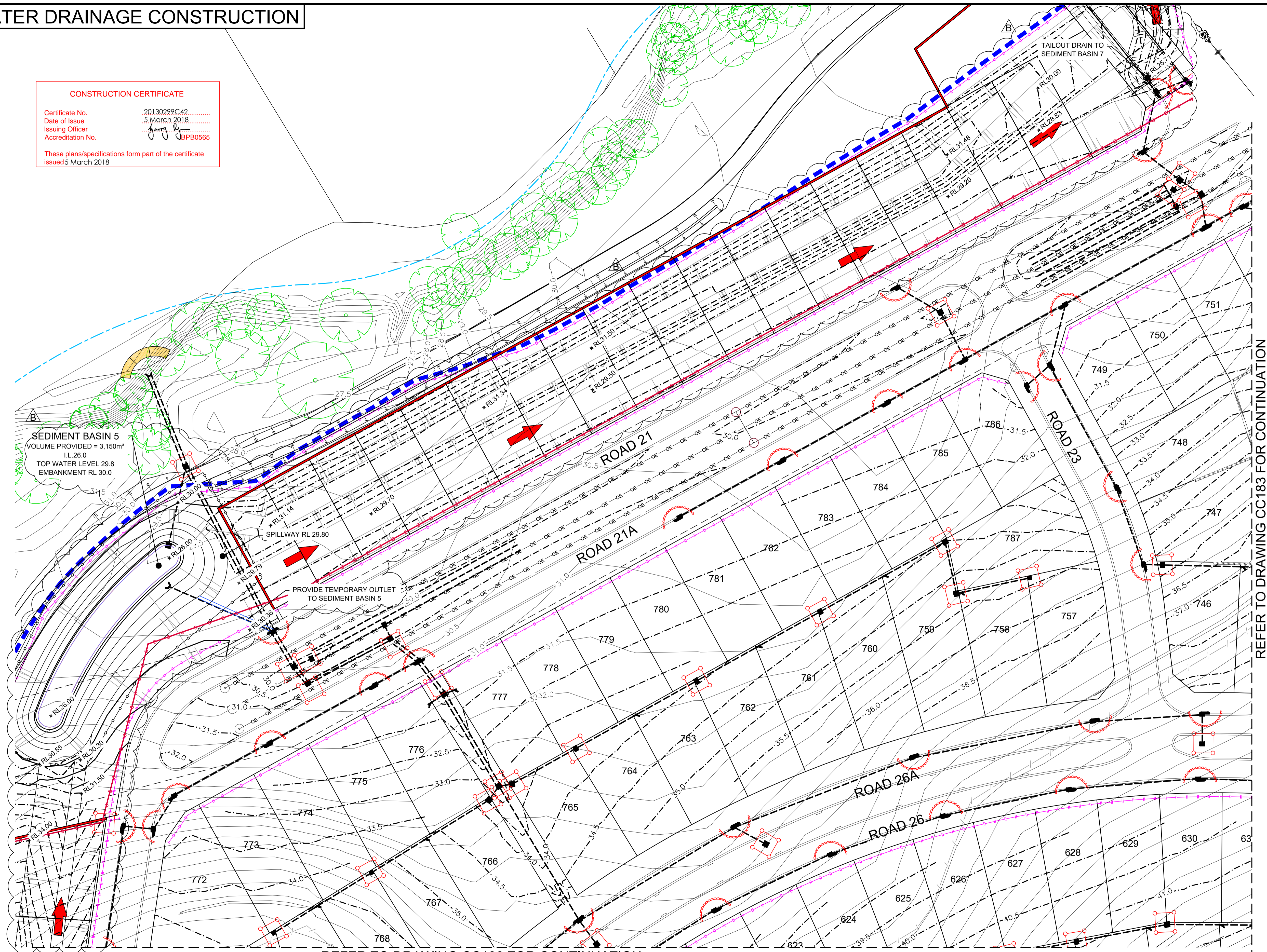
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## PHASE 3 SOIL AND WATER MANAGEMENT

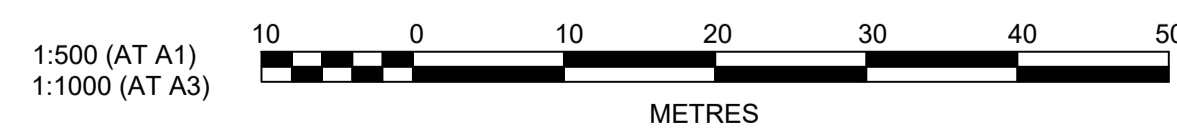
1. MAINTAIN SEDIMENT FENCE.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN



LAYOUT KEY  
SCALE: N.T.S



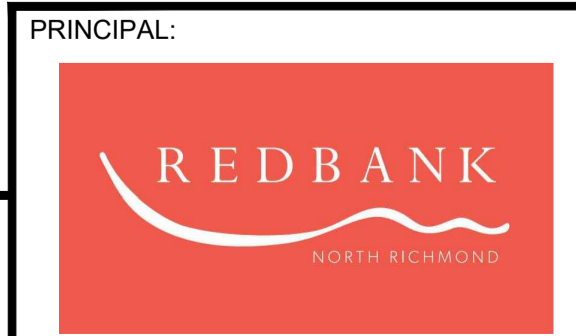
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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 3 OF 6

PLAN No: 1101851/CC184 B

FILE No: 1101851CC184

SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:04:18 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC184.dwg

REFER TO DRAWING CC183 FOR CONTINUATION

# PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

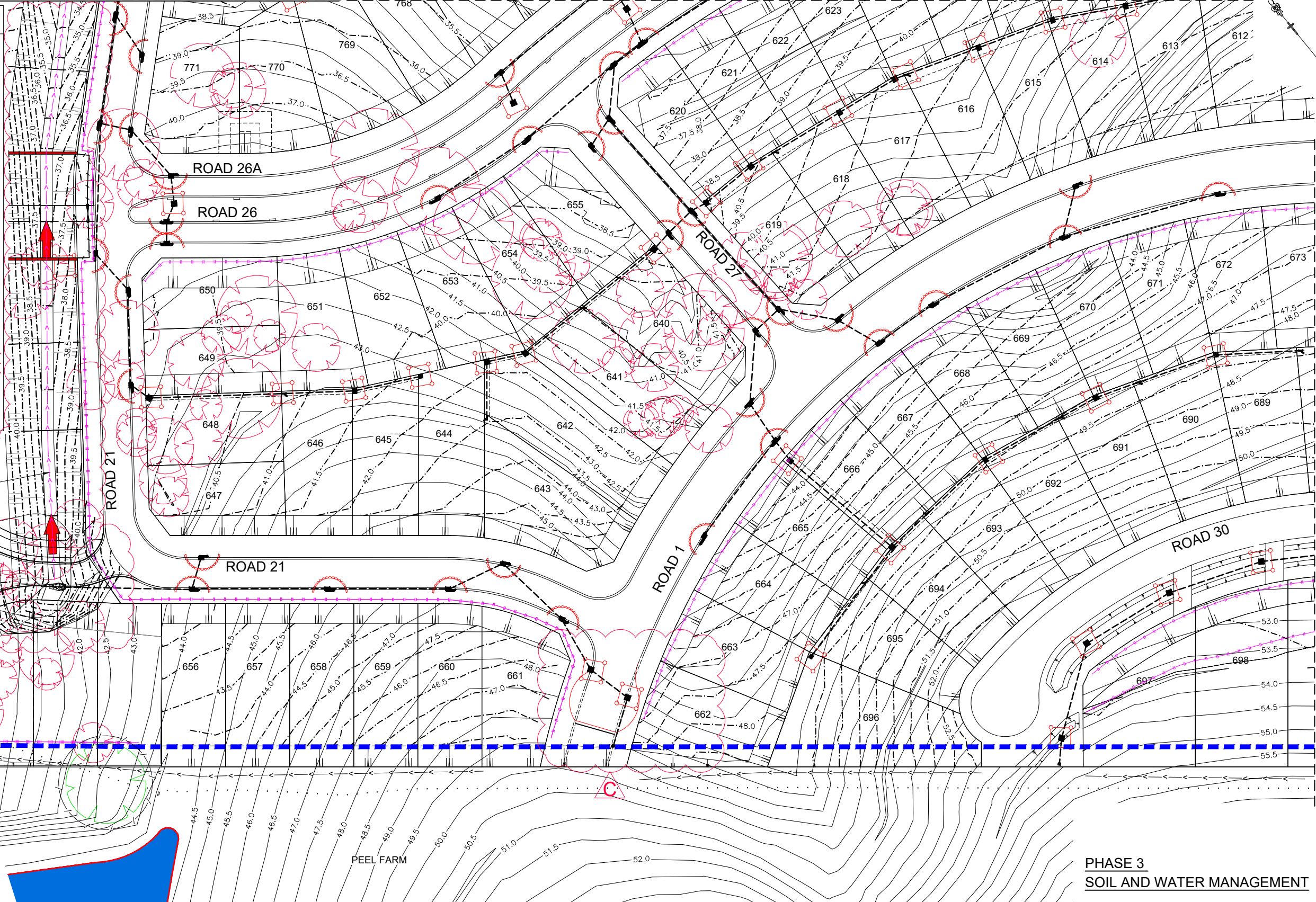
REFER TO DRAWING CC184 FOR CONTINUATION

### LEGEND

- SEDIMENT FENCE
- EXISTING CONTOURS
- DESIGN CONTOURS
- ATF FENCE
- CATCH DRAIN
- STABILISED SITE ACCESS
- STRAW BALES
- PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND
- STAR PICKET / FLAGGING
- TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)
- STOCKPILE
- SITE COMPOUND
- CUMBERLAND PLAIN WOODS (CPW)
- FILTER ROLLS (AT KERB INLET PIT)
- SURFACE INLET SEDIMENT TRAP

### LAYOUT KEY

SCALE: N.T.S

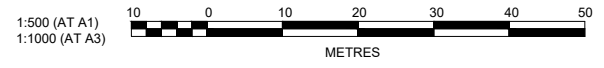


REFER TO DRAWING CC182 FOR CONTINUATION

### CONSTRUCTION CERTIFICATE

Certificate No. 20130229C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BFP0565

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## PHASE 3 SOIL AND WATER MANAGEMENT

1. MAINTAIN SEDIMENT FENCE.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN

DES	DRN	CKD	APR	DATE	
C	MP	CC	RO	RO	09/01/18
B	MP	LS	RO	MS	26/07/17
A	MP	MG	RO	MS	15/06/17
AMENDMENT					

## J. WYNDHAM PRINCE

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PRINCIPAL:

REDBANK NORTH RICHMOND

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## ISSUED FOR CONSTRUCTION APPROVAL

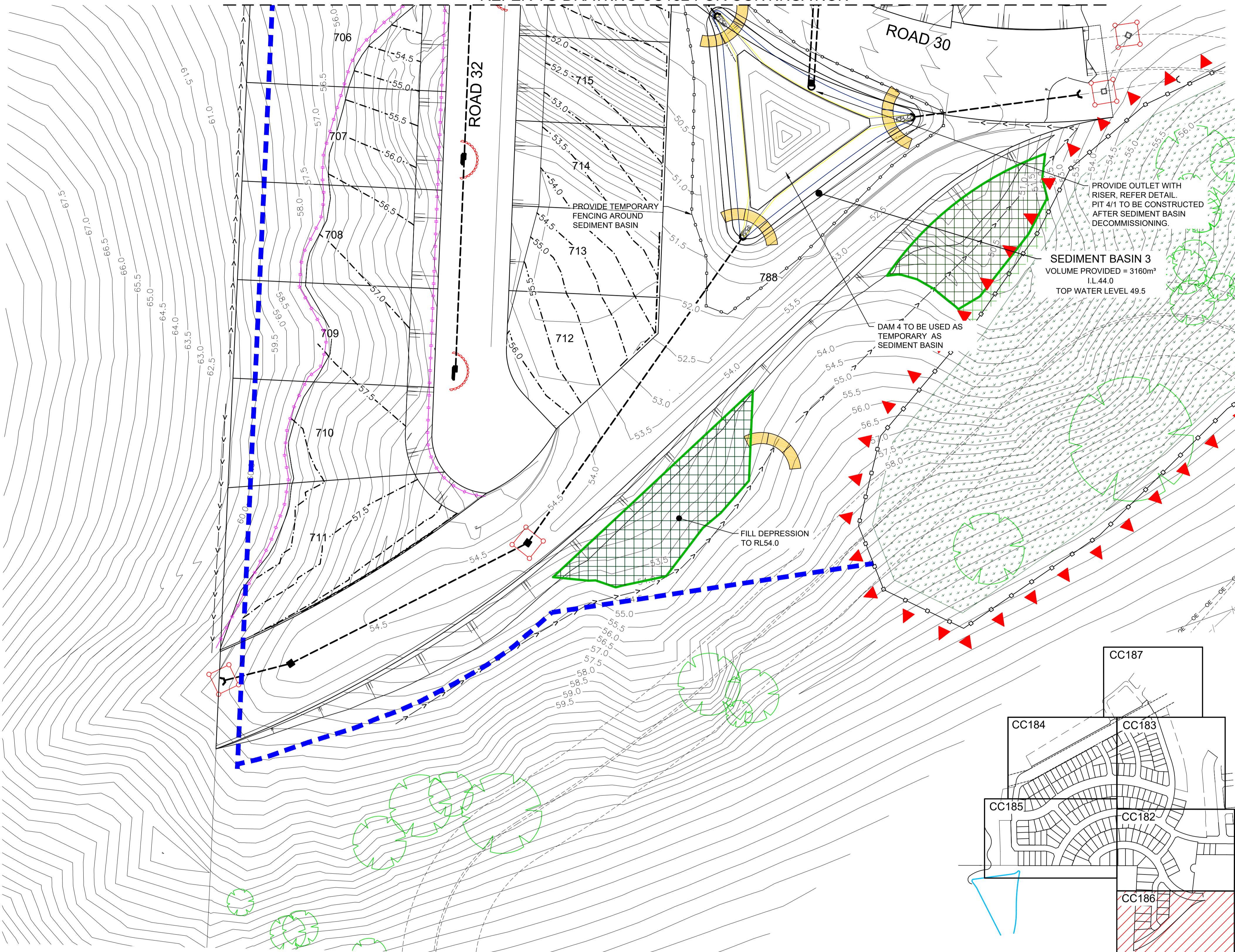
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 4 OF 6

PLAN No: 1101851/CC185 C  
 FILE No: 1101851CC185  
 SHEET SIZE: A1 ORIGINAL

Plotted: 12 February 2018 8:49:29 AM. File Name: J1110185 - Redbank North Richmond Residential Precinct001 - Description\CC185\CC185.dwg

# PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION

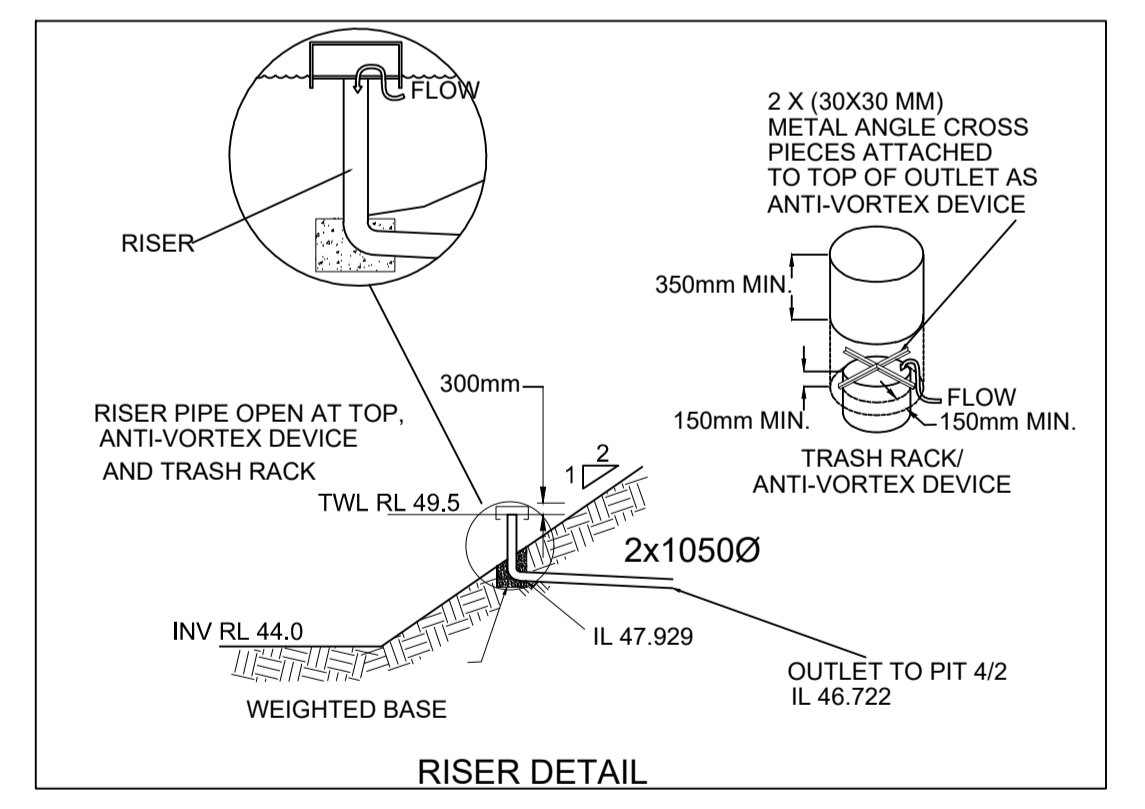
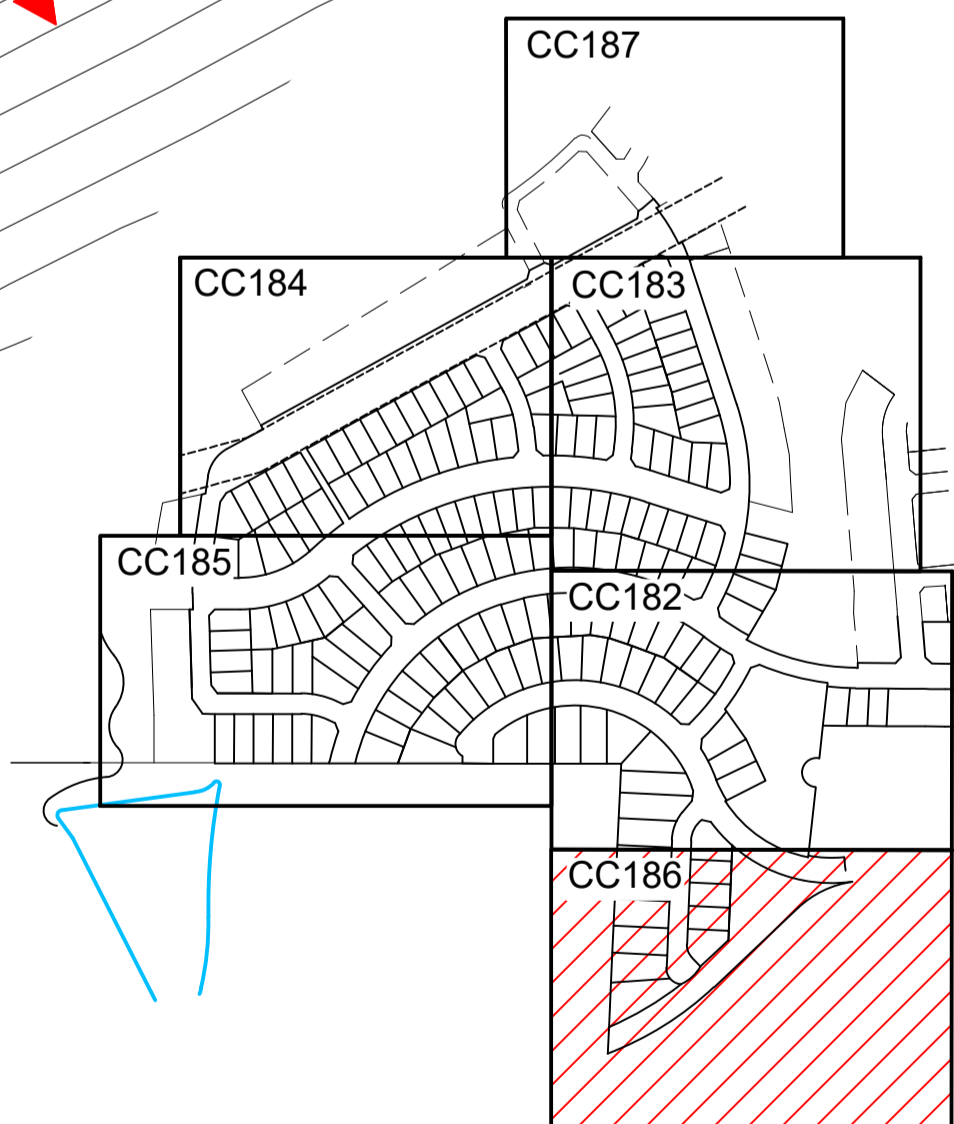
REFER TO DRAWING CC182 FOR CONTINUATION



LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
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CUMBERLAND PLAIN WOODS (CPW)	
FILTER ROLLS (AT KERB INLET PIT)	
SURFACE INLET SEDIMENT TRAP	

## PHASE 3 SOIL AND WATER MANAGEMENT

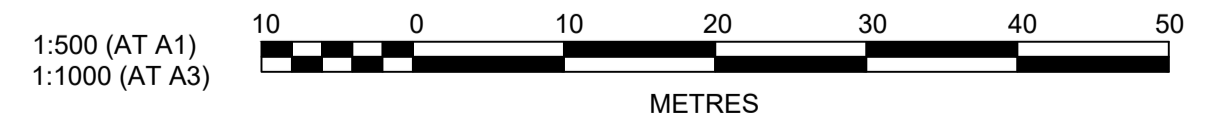
1. MAINTAIN SEDIMENT FENCE.
2. PLACE STRAW BALE FILTER TO HEADWALL INLET & OUTLETS.
3. PLACE FILTER ROLL AT KI PITS.
4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN.



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C42  
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 Issuing Officer [Signature]  
 Accreditation No. BPP0565

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 5 OF 6

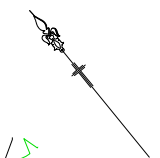
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FILE No:	11018511CC186
SHEET SIZE:	A1 ORIGINAL

Plotted: 25 January, 2018 5:04:59 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC186\11018511CC186.dwg

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	



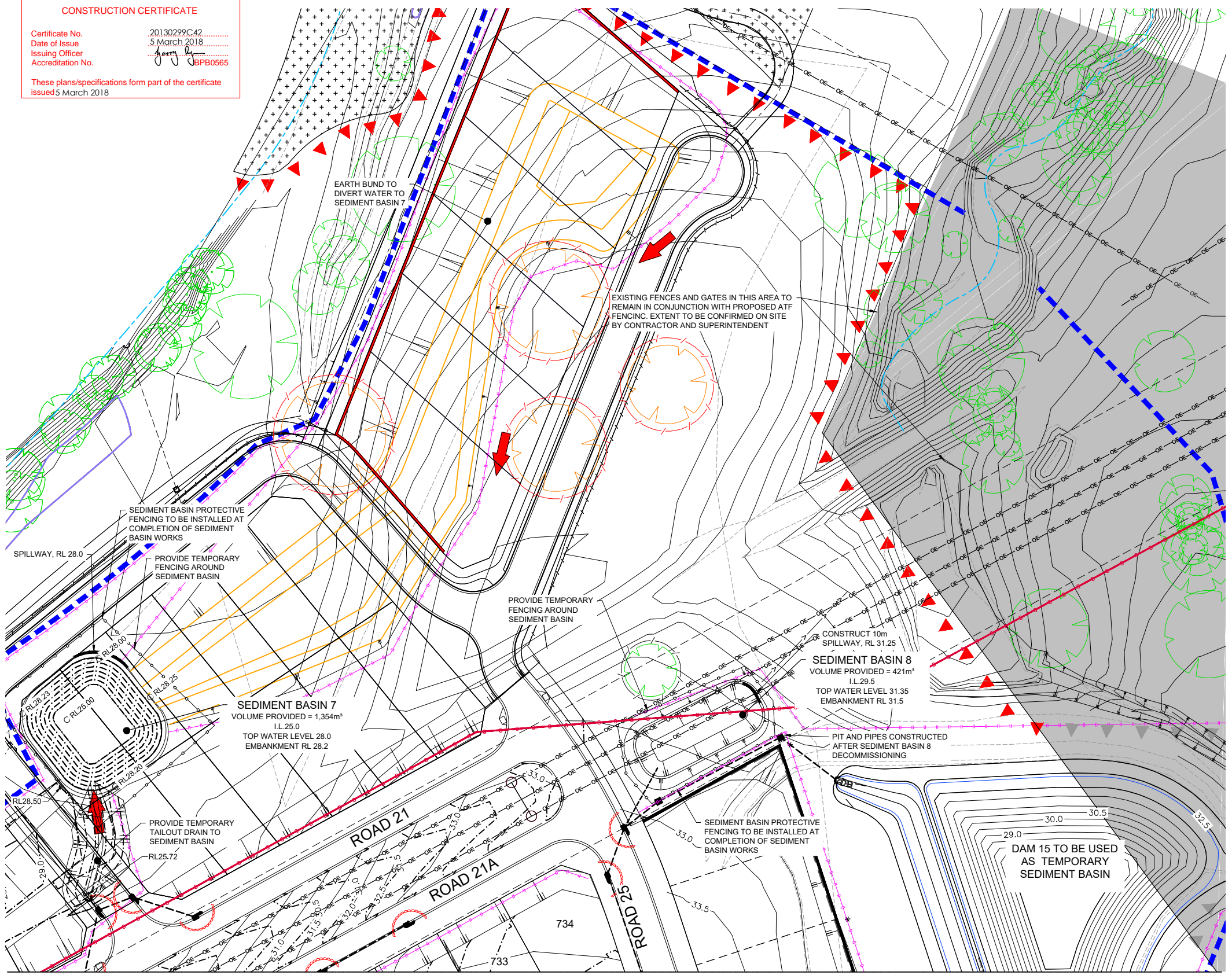
# PHASE 3 POST STORMWATER DRAINAGE CONSTRUCTION



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. JBPB0565

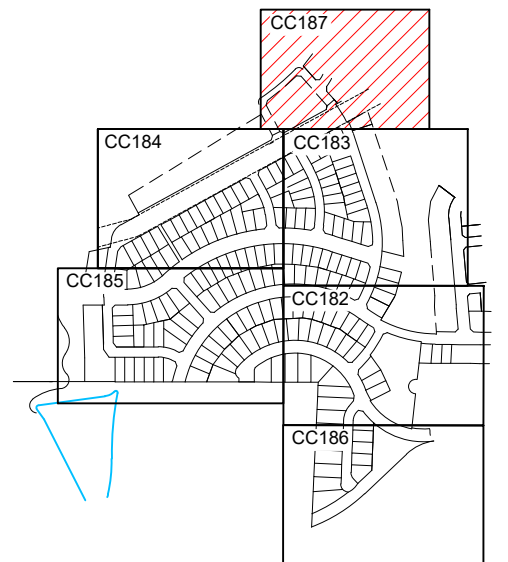
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LEGEND	
SEDIMENT FENCE	
EXISTING CONTOURS	
DESIGN CONTOURS	
ATF FENCE	
CATCH DRAIN	
STABILISED SITE ACCESS	
STRAW BALES	
SEDIMENT BASIN	
PROTECTIVE FENCE TO CPW, RIPARIAN CORRIDOR AND UNDISTURBED LAND	
STAR PICKET / FLAGGING	
TREES TO BE RETAINED AND PROTECTED WITH SUITABLE STAR PICKET & PARAWEB UNLESS WITHIN AREAS EXCLUDED BY OTHER PROTECTIVE FENCE (ie. CPW)	
TREES TO BE PROTECTED DURING CURRENT WORKS	
STOCKPILE	
SITE COMPOUND	
CUMBERLAND PLAIN WOODS (CPW)	
REFER TO SEPARATE DA PACKAGE FOR PEEL FARM WORKS	

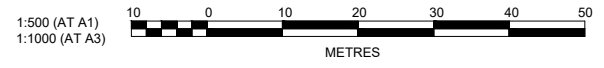
## PHASE 3 SOIL AND WATER MANAGEMENT

1. MAINTAIN SEDIMENT FENCE.
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4. PLACE SURFACE INLET SEDIMENT TRAP AT GSIP.
5. MAINTAIN SEDIMENT BASIN AND CATCH DRAINS TO SEDIMENT BASIN.



LAYOUT KEY  
SCALE: N.T.S.

REFER TO DRAWING CC183 FOR CONTINUATION



REV	DESCRIPTION	MP	CC	RO	MS	DATE
C	DAM 15 AND STORMWATER REDESIGN	MP	CC	RO	MS	09/01/18
B	SEDIMENT BASINS REVISION	MP	LS	RO	MS	26/07/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PRINCIPAL:

AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

PRINCIPAL:

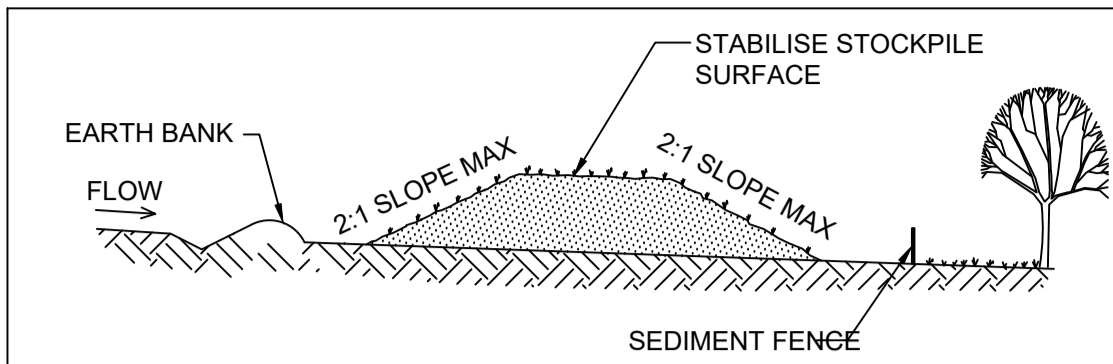
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PHASE 3 POST STORMWATER  
 DRAINAGE CONSTRUCTION SHEET 6 OF 6

PLAN No:	11018511/CC187
FILE No:	11018511CC187
SHEET SIZE:	A1 ORIGINAL

Plotted: 12 February 2018 9:00:39 AM. File Name: J1110185 - Redbank North Richmond Residential Precinct001 - Description\CC\CC187.dwg

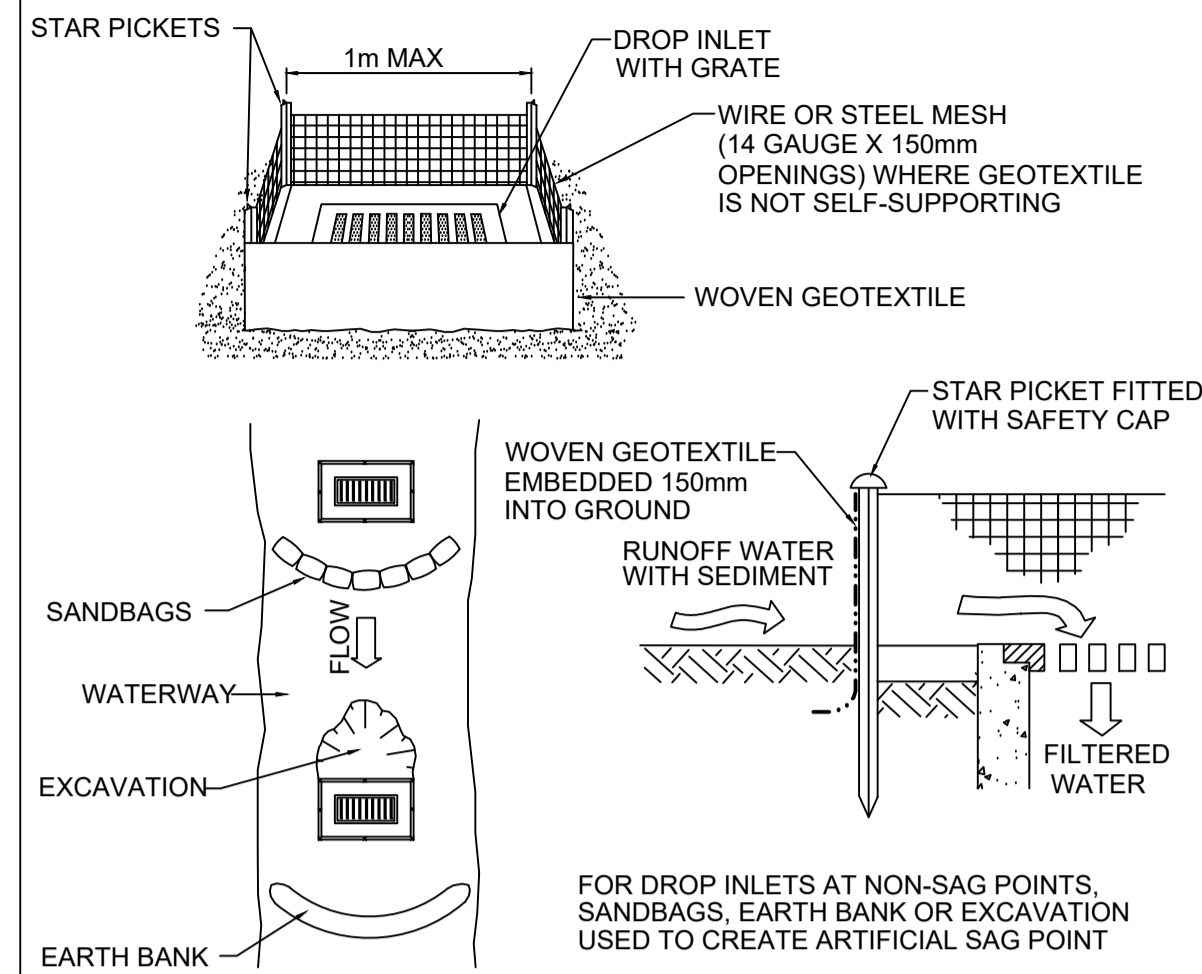


**CONSTRUCTION NOTES**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10, EQUALS 60% GROUND COVER.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METRES DOWNSLOPE.

**STOCKPILE SD4-1**

N.T.S.

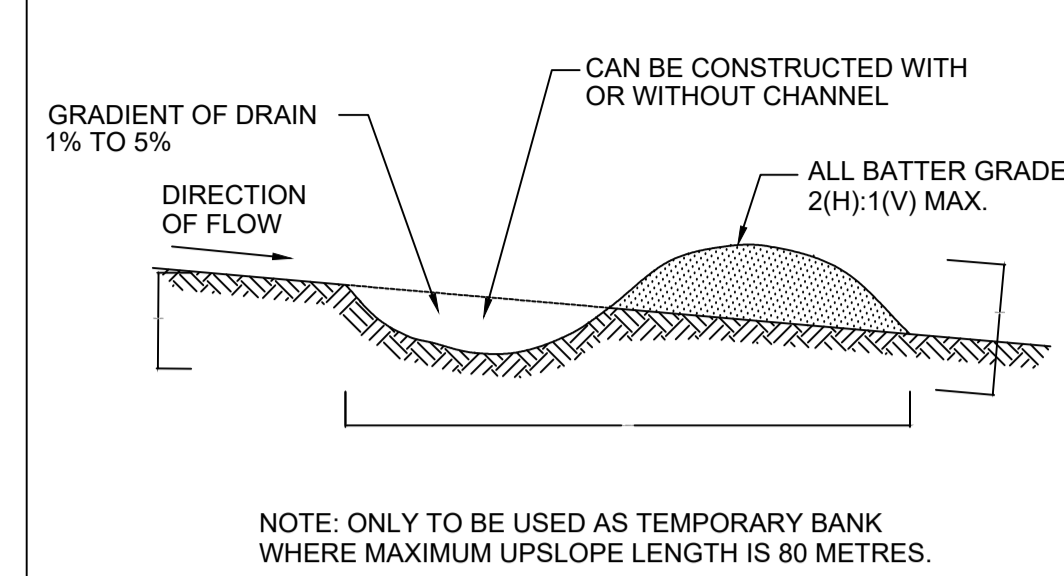


**CONSTRUCTION NOTES**

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

**GEOTEXTILE INLET FILTER SD6-12**

N.T.S.

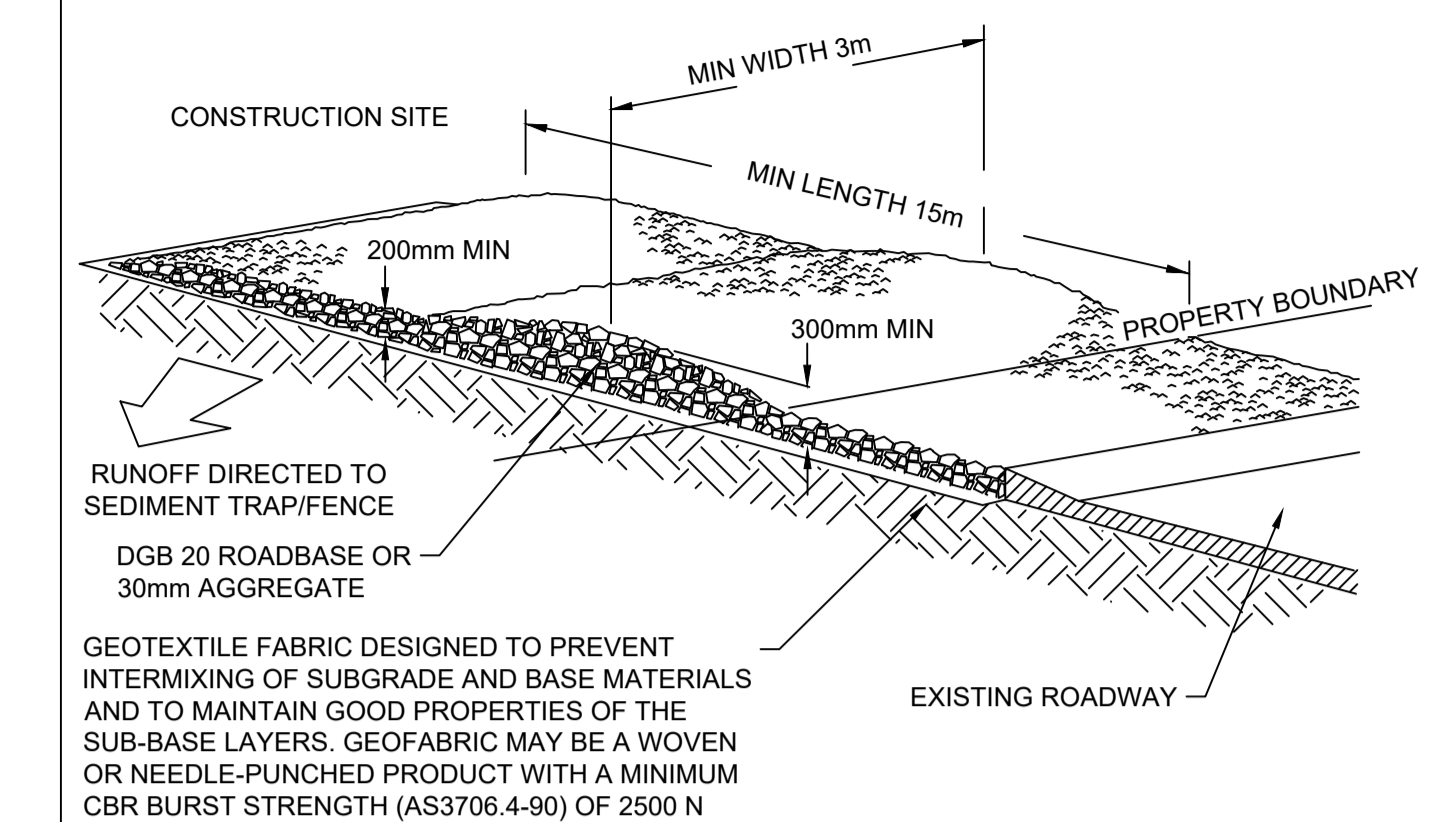


**CONSTRUCTION NOTES**

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION, LINE WITH TURF OR GEOFABRIC.

**EARTH BANK (LOW FLOW) SD5-5**

N.T.S.

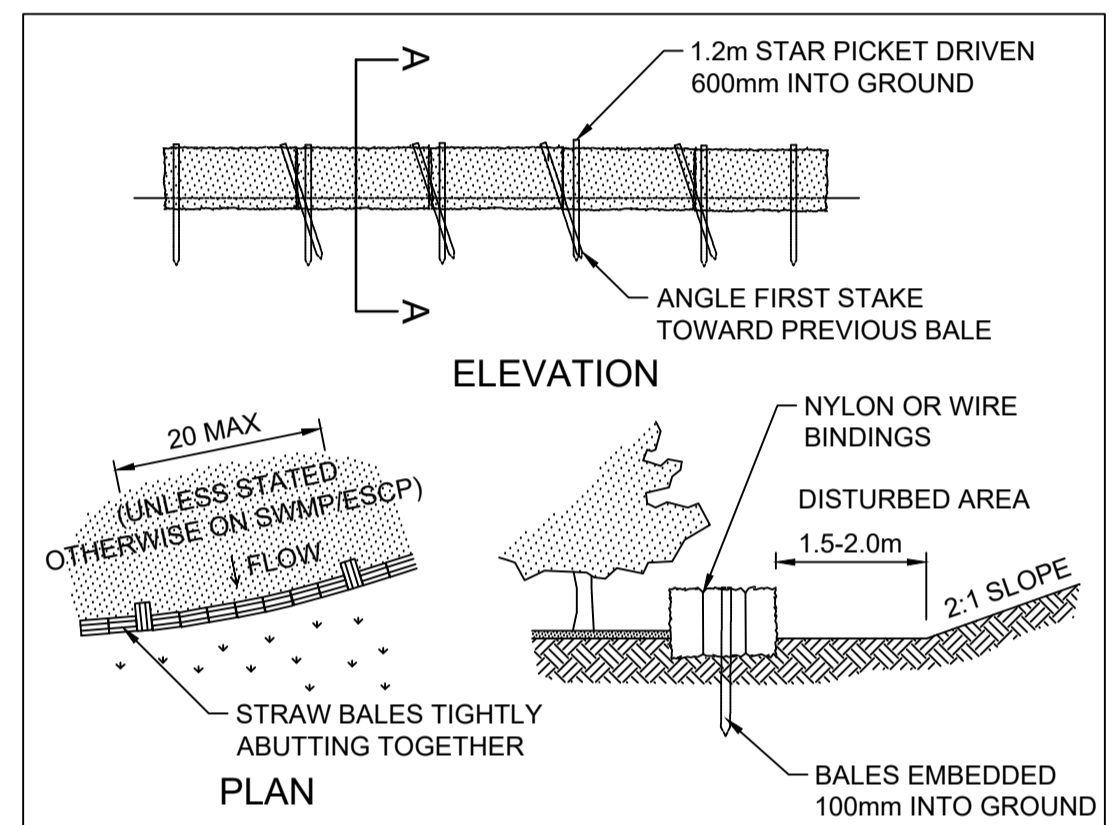


**CONSTRUCTION NOTES**

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

**STABILISED SITE ACCESS SD6-14**

N.T.S.

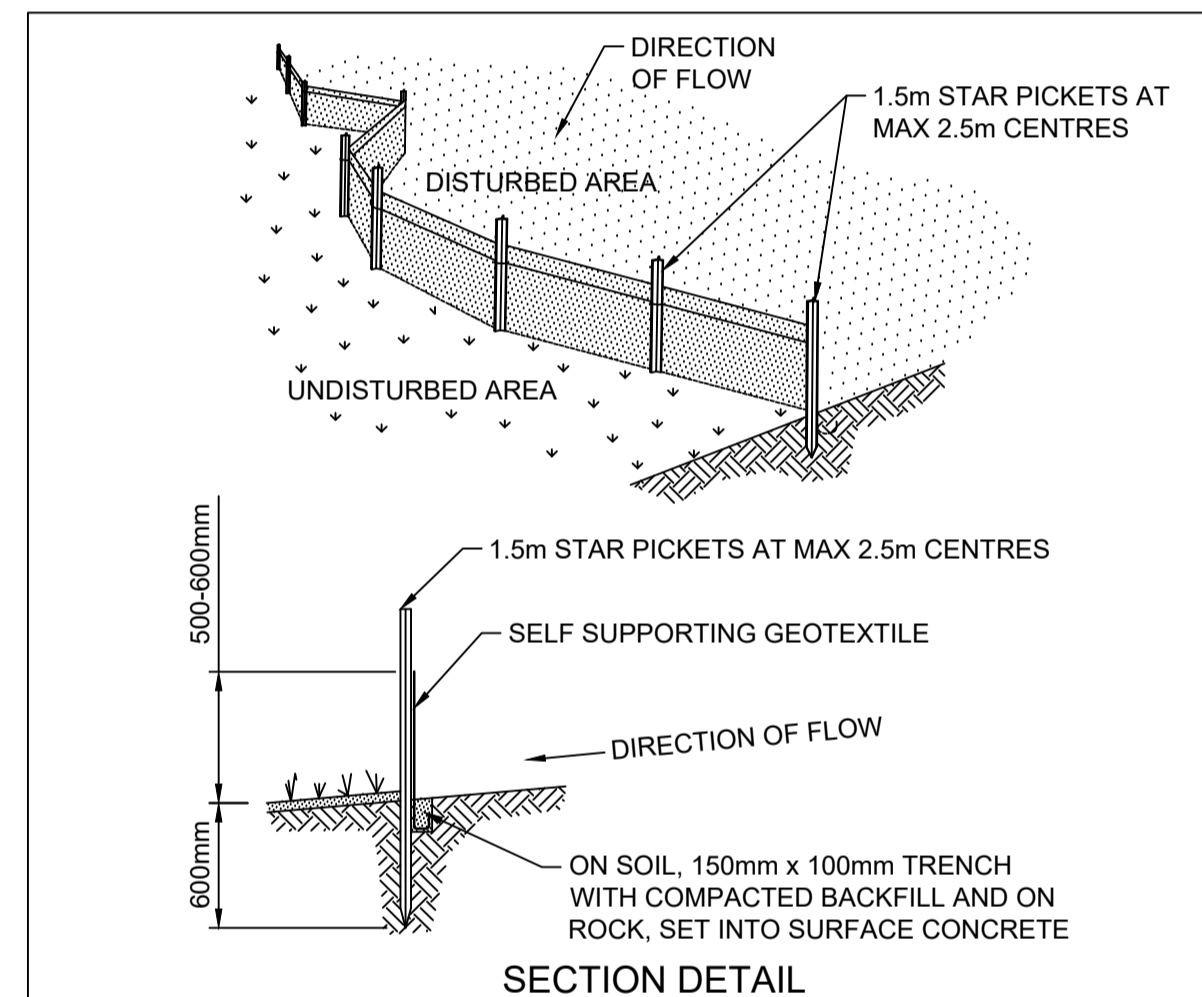


**CONSTRUCTION NOTES**

1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2m STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1m TO 2m DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.

**STRAW BALE FILTER SD6-7**

SCALE N.T.S.

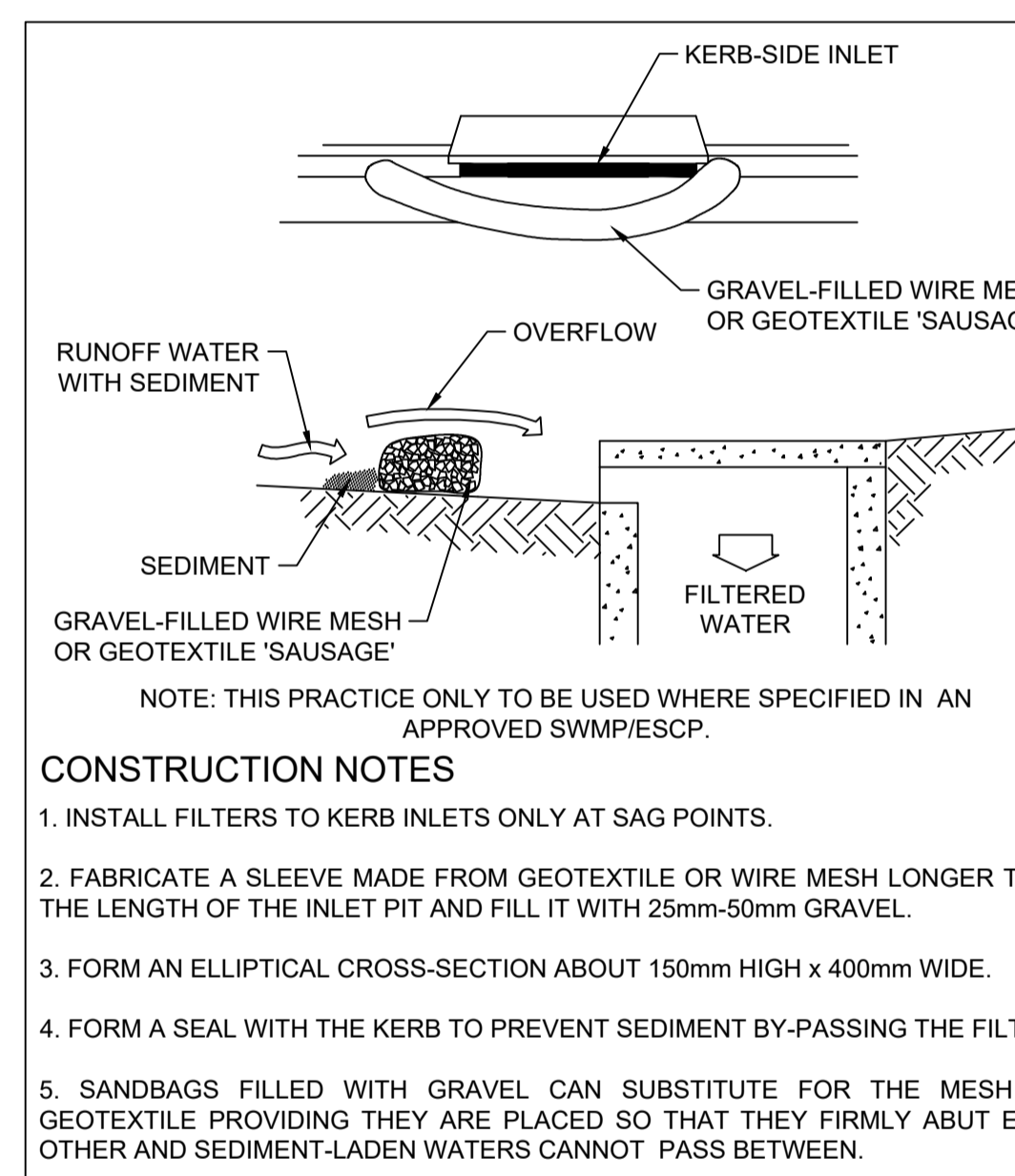


**CONSTRUCTION NOTES**

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

**SEDIMENT FENCE SD6-8**

SCALE: N.T.S.

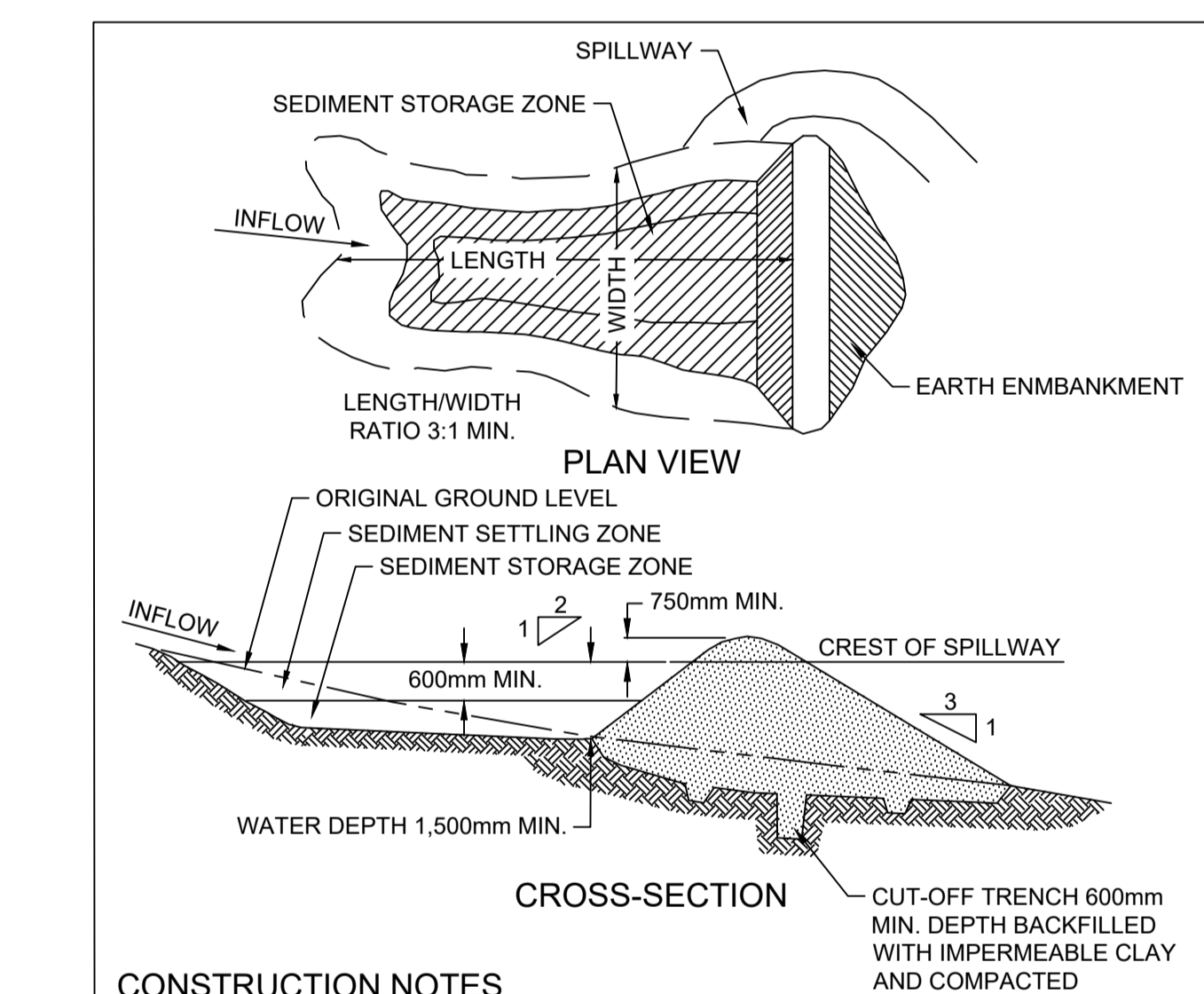


**CONSTRUCTION NOTES**

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm-50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BY-PASSING THE FILTER.
5. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

**MESH & GRAVEL INLET FILTER SD6-11**

SCALE N.T.S.



**CONSTRUCTION NOTES**

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1,200mm WIDE ALONG THE CENTRELINE OF THE ENBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE ENBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

**EARTH BASIN - WET SD6-4**

(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)  
SCALE N.T.S.

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

Plotted: 25 January, 2018 5:05:26 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC1\YEOMANS11018511CC188.dwg

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SOIL AND WATER MANAGEMENT DETAILS

PLAN No:	11018511/CC188	A
FILE No:	11018511CC188	
SHEET SIZE:	A1 ORIGINAL	

# 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 BLUE BOOK (CHECK DENOTE & DATE)
- 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. STAKED 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 SITE SUPERINTENDENT.
- 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) 6-7.
  - 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) 4-1.
  - 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:-
  - 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.
- 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.
- 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 450mm INTO THE GROUND AND LOCKED ON THE BALE CENTRELINE.
- 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 MIN. 300mm WIDE BEHIND KERB + 1m WIDE AROUND ALL SURFACE INLET PITS

## SITE INSPECTION AND MAINTENANCE

- A SELF-AUDITING PROGRAM SHALL BE ESTABLISHED BASED ON A CHECK SHEET. A SITE INSPECTION USING THE CHECK SHEET SHALL BE MADE BY THE SITE SUPERVISOR / PROJECT 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.

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:-
    - AREAS OF EROSION ARE REPAIRED (e.g LINED WITH SUITABLE MATERIAL) AND/OR VELOCITY OF FLOW IS REDUCED APPROPRIATELY THROUGH CONSTRUCTION OF SMALL CHECK DAMS OR INSTALLING ADDITIONAL DIVERSIONS UPSLOPE
    - BLOCKAGES 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 INSTALLED 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.

CONSTRUCTION CERTIFICATE	
Certificate No.	20130299C42
Date of Issue	5 March 2018
Issuing Officer	<i>Jerry Prince</i>
Accreditation No.	JBPB0565
These plans/specifications form part of the certificate issued 5 March 2018	

PRINCIPAL:



AZIMUTH:  
MGA 56  
DATUM:  
A.H.D  
ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
SOIL AND WATER MANAGEMENT NOTES

PLAN No:  
11018511/CC189 **A**  
FILE No: 11018511CC189  
SHEET SIZE: A1 ORIGINAL

	MP	MG	RO	MS	15/06/17
A	ISSUE FOR CONSTRUCTION APPROVAL				
	AMENDMENT	DES	DRN	CKD	APR

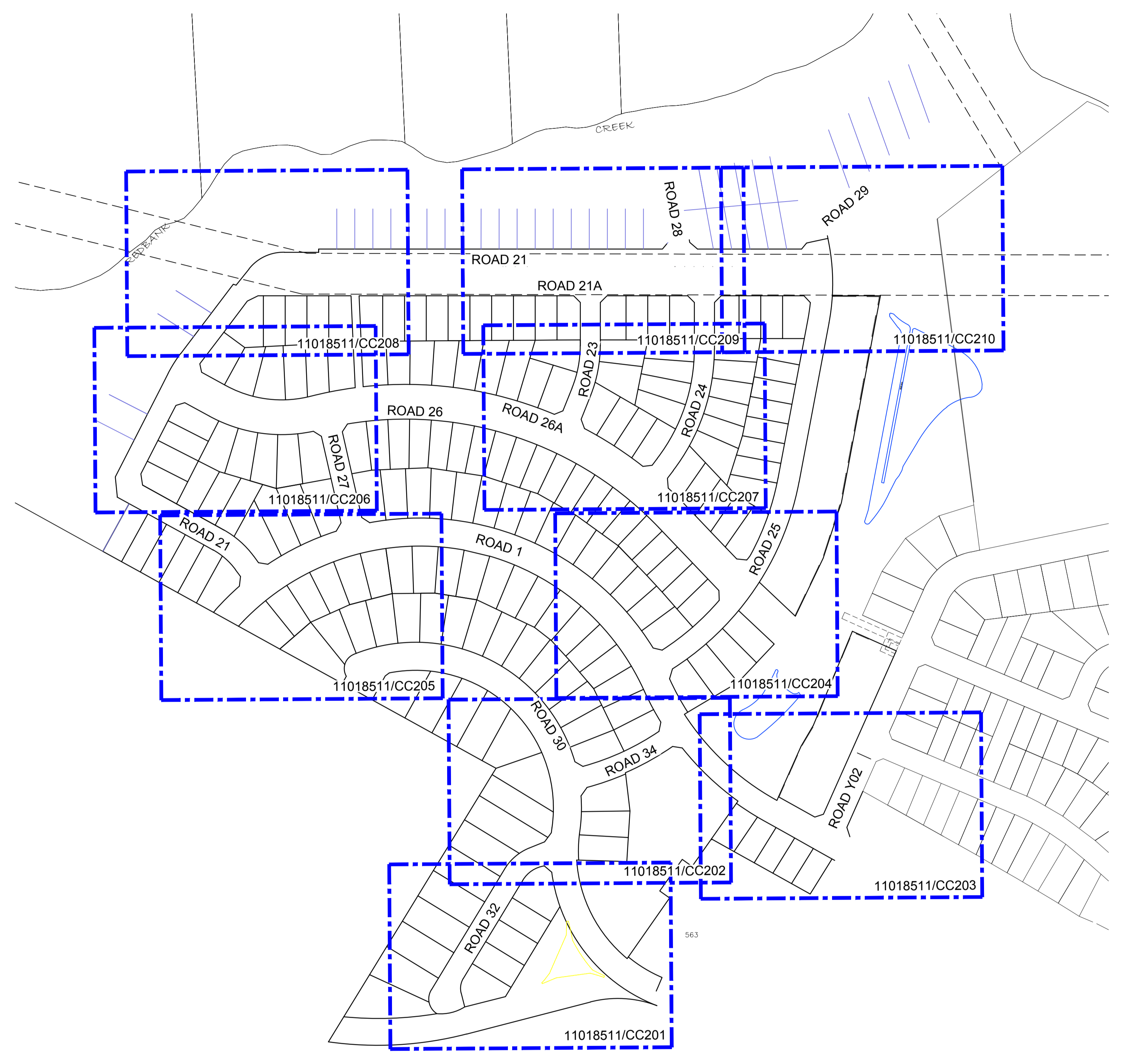
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

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**PAVEMENT MARKING & SIGNPOSTING NOTES**

- ALL PAVEMENT MARKINGS, CHEVRONS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH AUST ROAD GUIDE (GUIDE TO TRAFFIC MANAGEMENT) AND AUSTRALIAN STANDARD AS1742, AS1743 AND AS2890.
- ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD AS 1743 - ROAD SIGNS, RMS SUPPLEMENTS AND COUNCIL'S SPECIFICATIONS UNLESS STATED OTHERWISE.
- ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
- ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE REFLECTIVE, THERMOPLASTIC PAINT.
- ALL MEASUREMENTS ARE IN METRES UNLESS SHOWN OTHERWISE. KERBSIDE LANE WIDTH MEASURED FROM FACE OF KERB. NO INFORMATION IS TO BE SCALED FROM THESE DRAWINGS.
- REFER TO RD-001 FOR SAFETY BARRIER MODEL DRAWINGS.



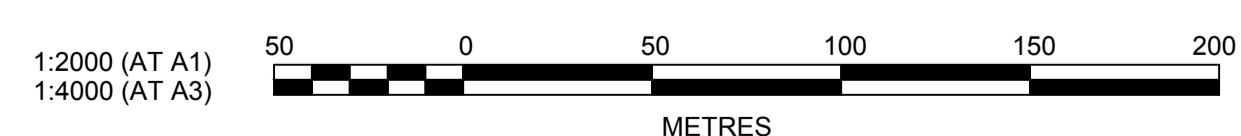
**PAVEMENT MARKING SCHEDULE**

CODE	USE	STYLE	COLOUR & TYPE
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white
TF	Stop line at traffic signals		Reflectorised white
E1	Left hand edge line on general purpose road		Reflectorised white type 'R' pavement markers mono-directional reflective red
E5	Outline of painted median		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
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
S1	Dividing (separation) line in 2 lane road		Reflectorised white
YY	Bi-directional raised reflective pavement marker		Reflectorised white pavement markers bi-directional reflective yellow
RPG	Reflective guide posts		

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Certificate No. 20130279C42  
 Date of Issue 5 March 2018  
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 Accreditation No. BPB0565

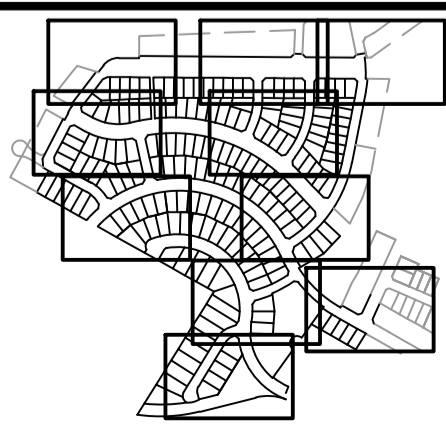
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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 LAYOUT PLAN

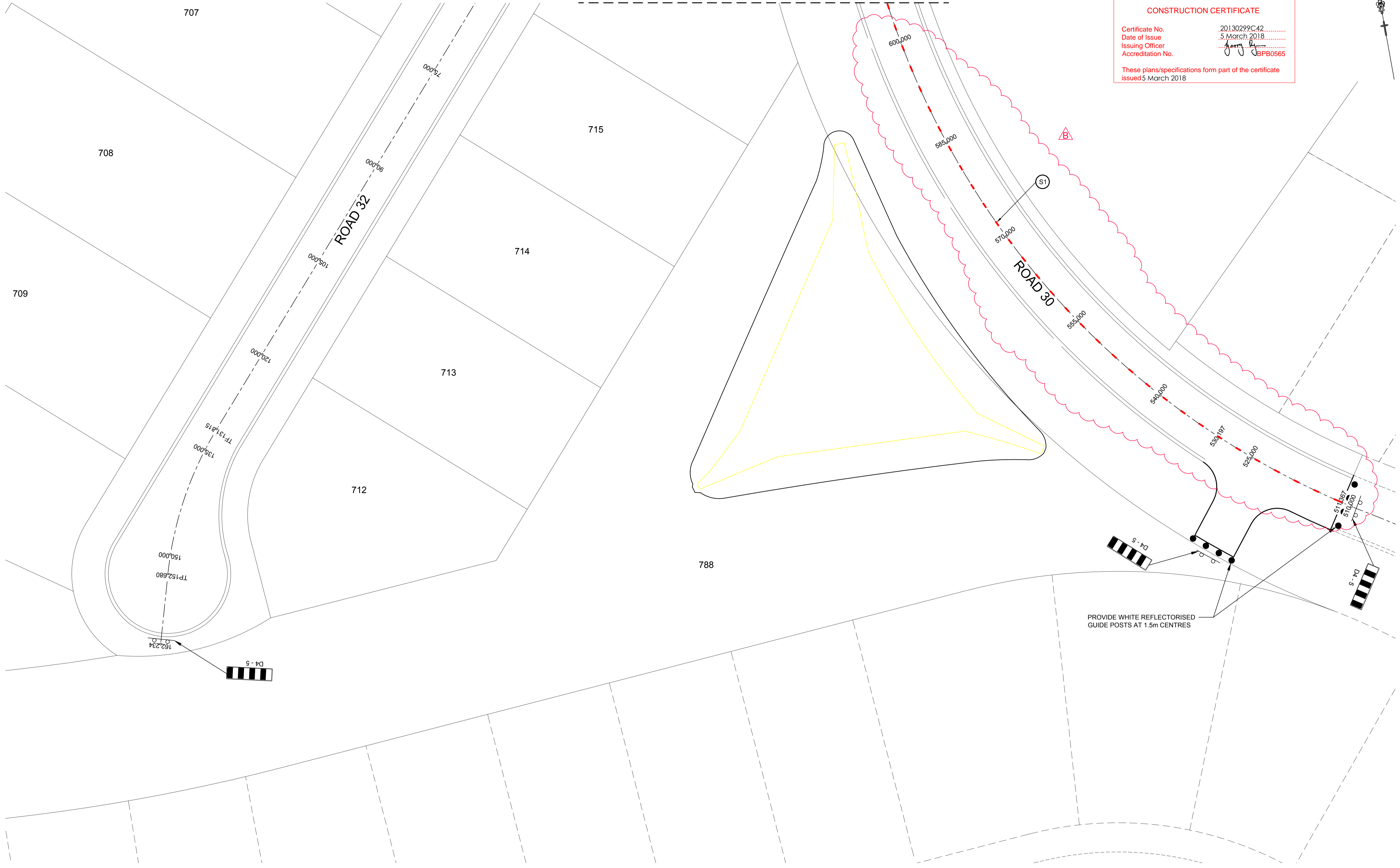
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NO.	REVISION	DATE	BY	CHECKED	APPROVED
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A	ISSUE FOR CONSTRUCTION APPROVAL	15/06/17	MP	JG	RO
	AMENDMENT		DES	DRN	CKD
					APR

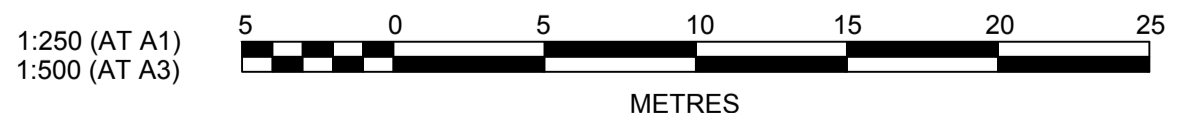
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 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
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PROVIDE WHITE REFLECTORISED GUIDE POSTS AT 1.5m CENTRES

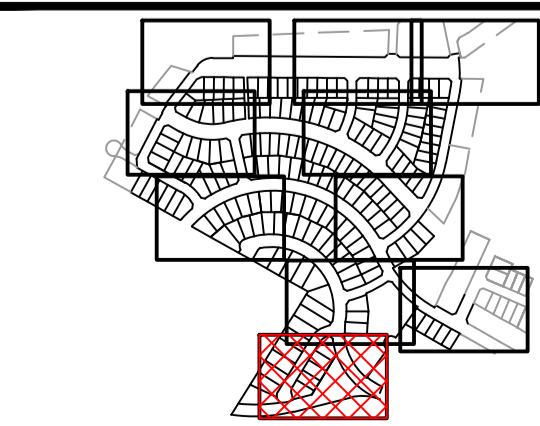
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AZIMUTH: MGA 56  
 DATUM: A.H.D.  
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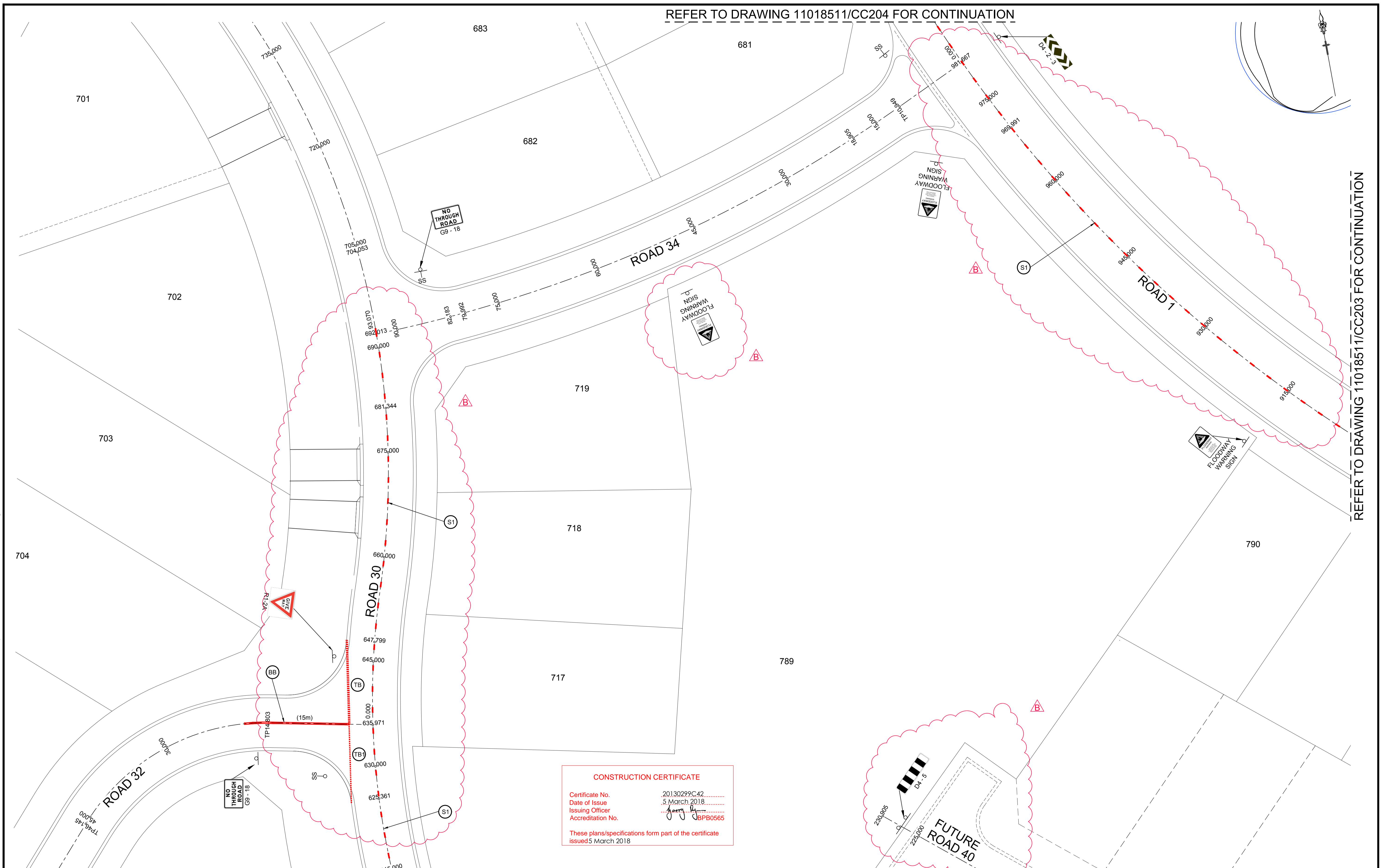
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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 1 OF 10

PLAN No: 11018511/CC201 **B**  
 FILE No: 11018511CC201  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
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A ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17

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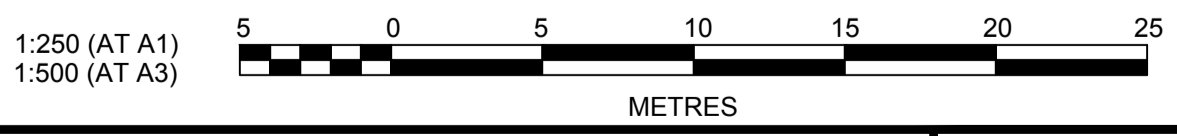


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REFER TO DRAWING 1101851/CC203 FOR CONTINUATION

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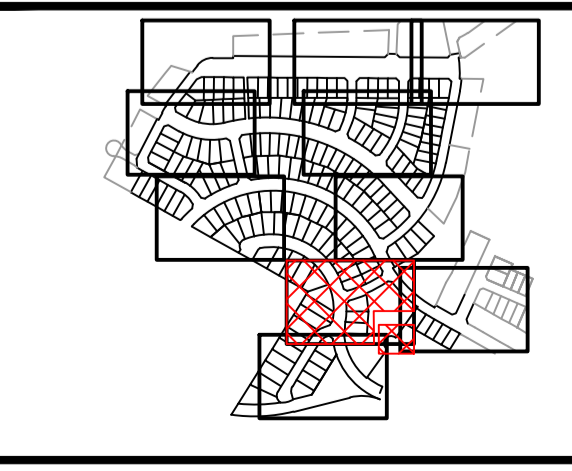
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 Certificate No. 20130299C42  
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B	COUNCIL'S COMMENTS	MP	CC	RO	RO	09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 2 OF 10

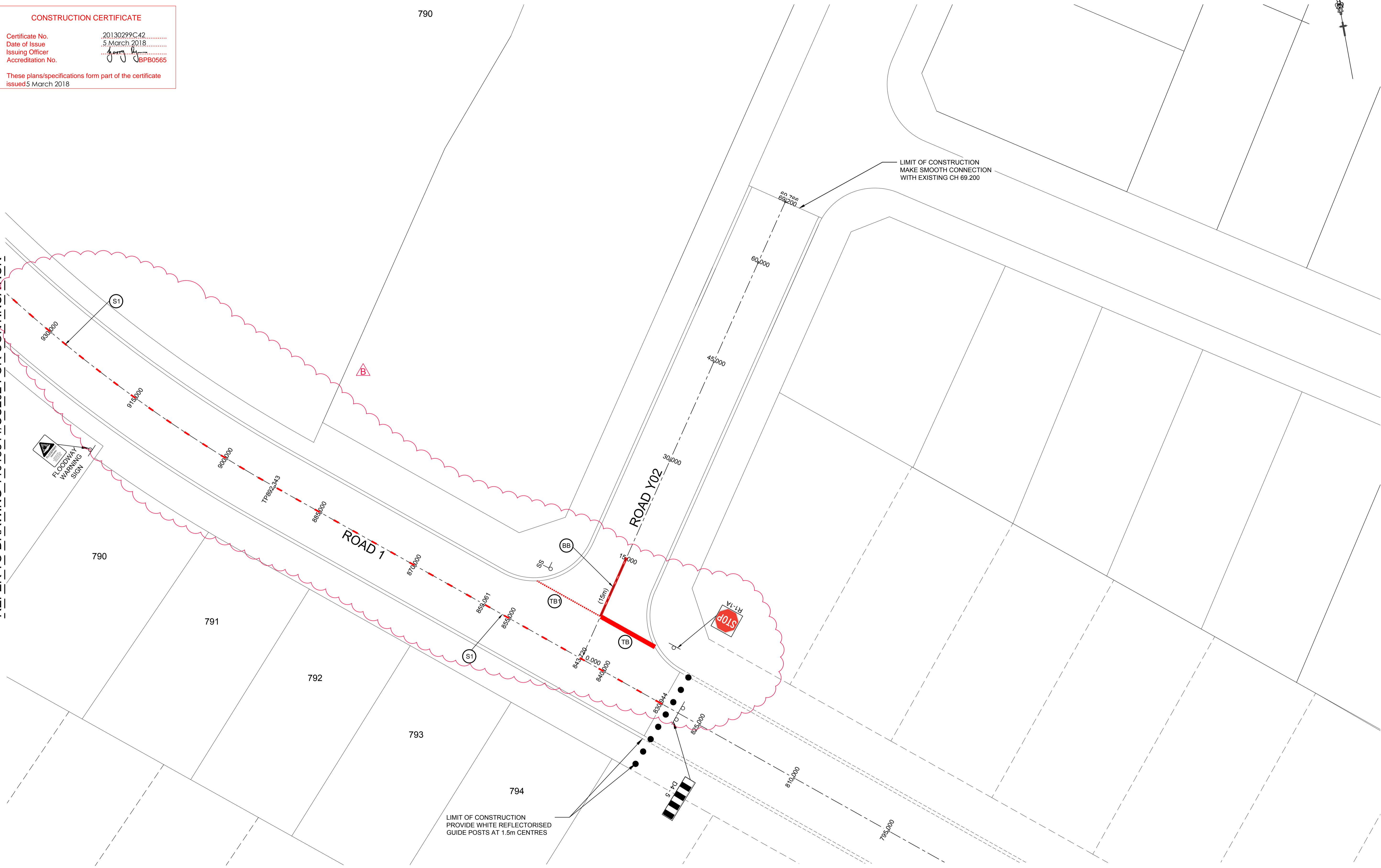
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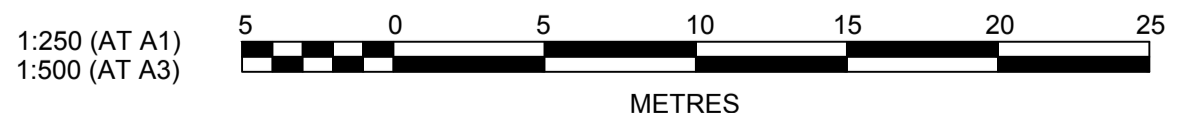
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LIMIT OF CONSTRUCTION  
 MAKE SMOOTH CONNECTION  
 WITH EXISTING CH 69.200

LIMIT OF CONSTRUCTION  
 PROVIDE WHITE REFLECTORISED  
 GUIDE POSTS AT 1.5m CENTRES

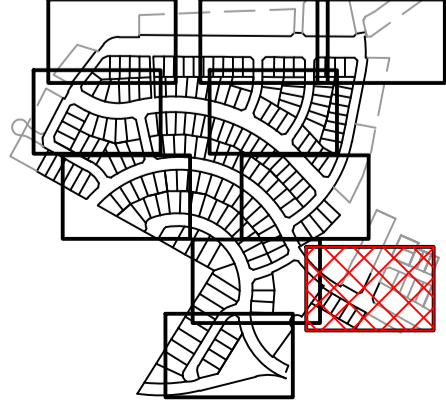
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 ORIGIN:



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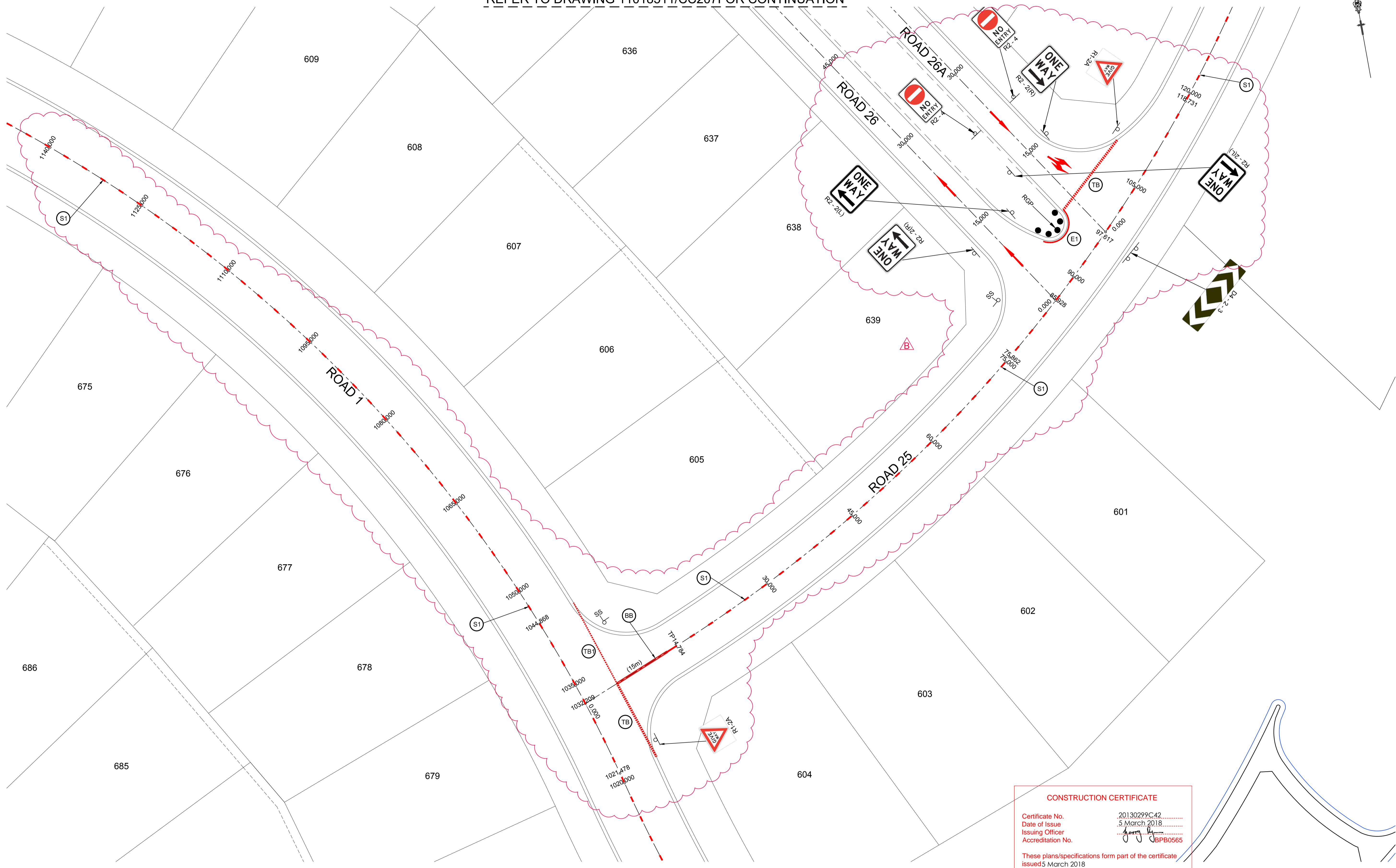
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 3 OF 10

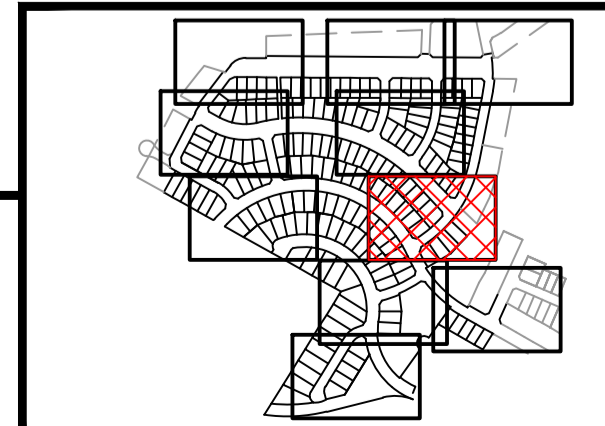
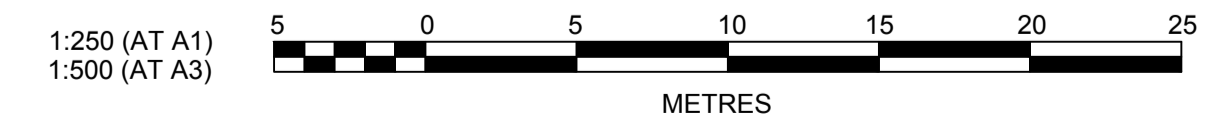
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING 1101851/CC207 FOR CONTINUATION



**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPPB0565  
 These plans/specifications form part of the certificate  
 Issued 5 March 2018



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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 4 OF 10

PLAN No: 1101851/CC204 **B**  
 FILE No: 1101851CC204  
 SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	CC	RO	RO	09/01/18
A	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE**  
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

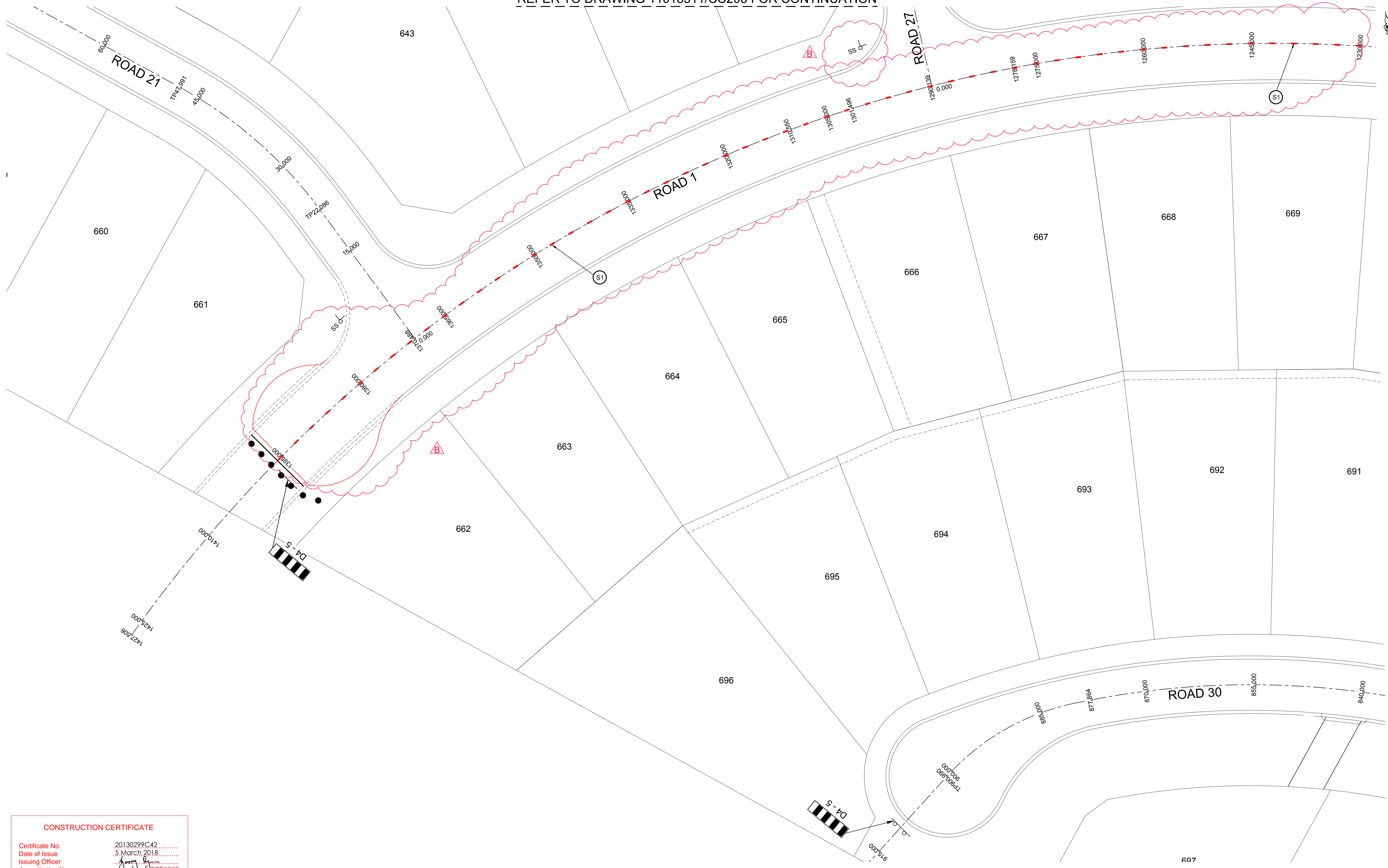
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

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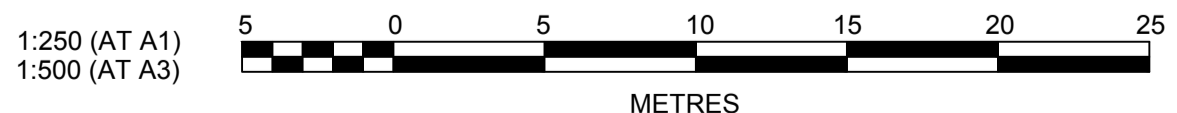
REFER TO DRAWING 11018511/CC206 FOR CONTINUATION



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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Georgy By...*  
 Accreditation No. BPB0565

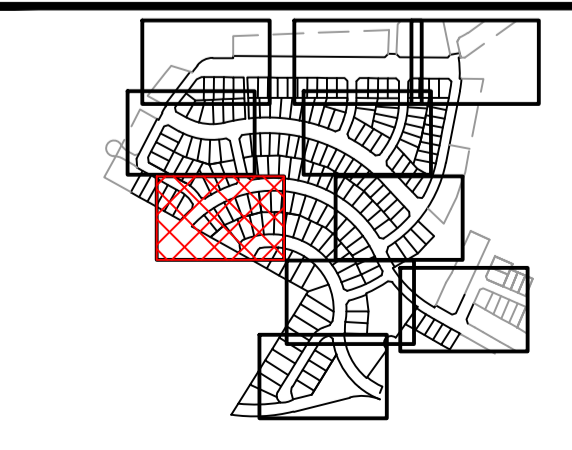
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AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:



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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 5 OF 10

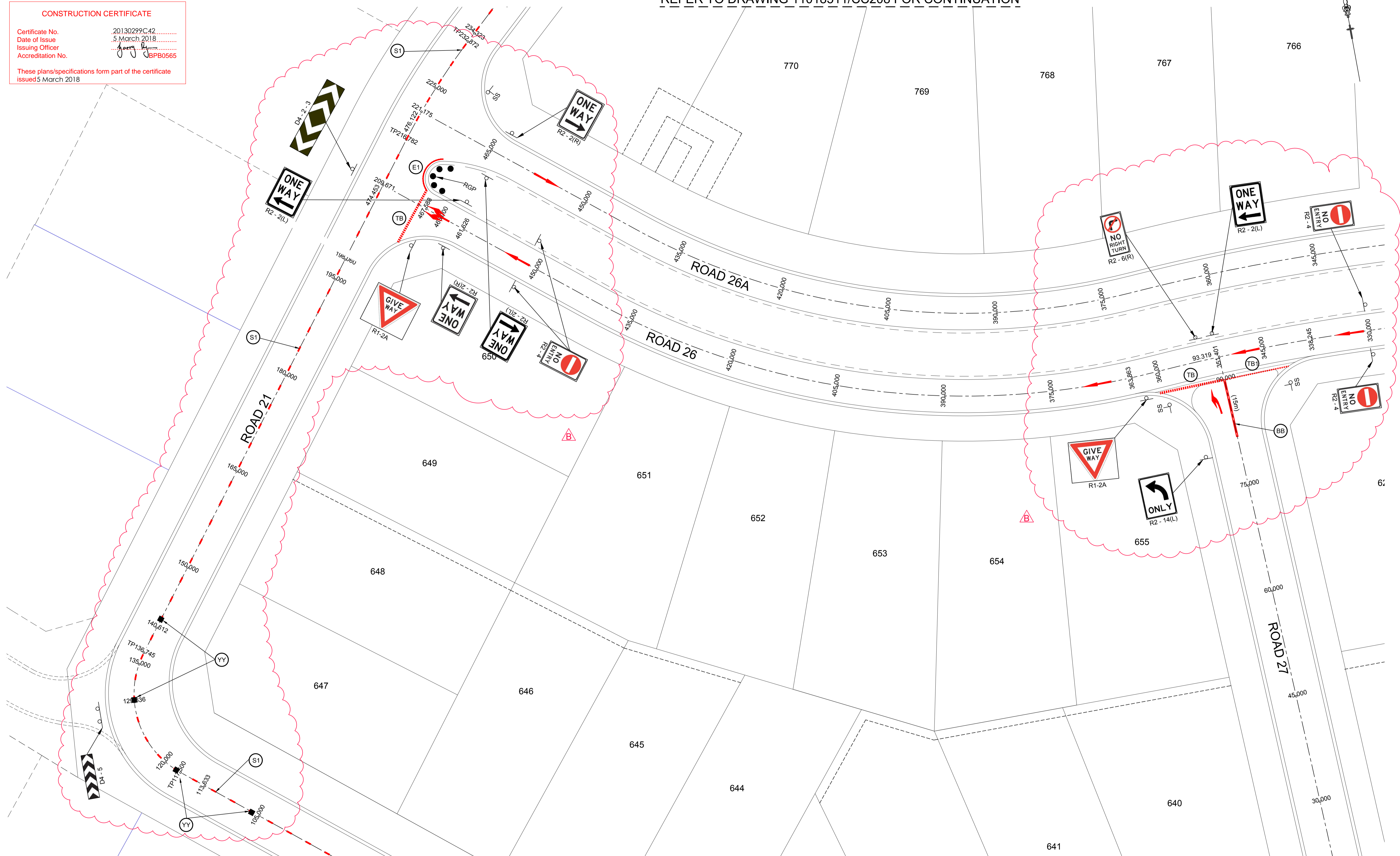
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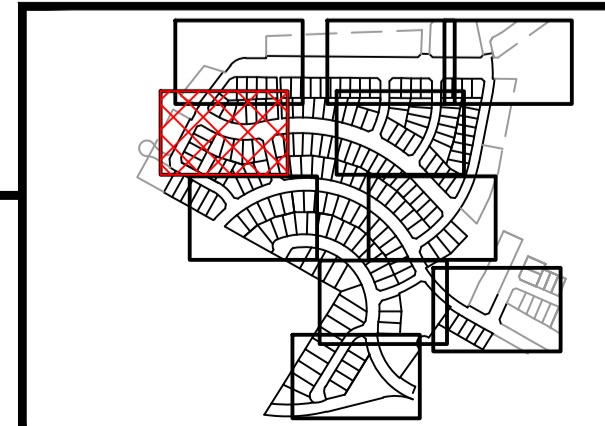
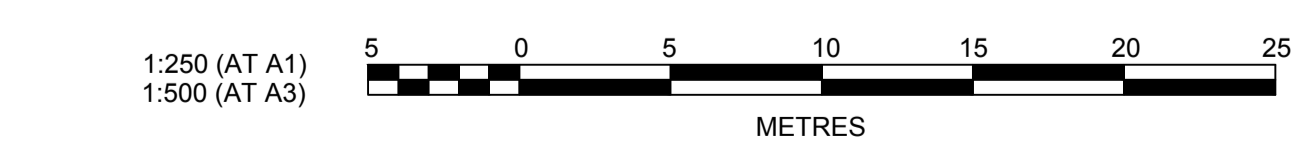
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

REFER TO DRAWING 11018511/CC208 FOR CONTINUATION

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 Date of Issue 5 March 2018  
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 REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 6 OF 10

PLAN No: 11018511/CC206 **B**  
 FILE No: 11018511CC206  
 SHEET SIZE: A1 ORIGINAL

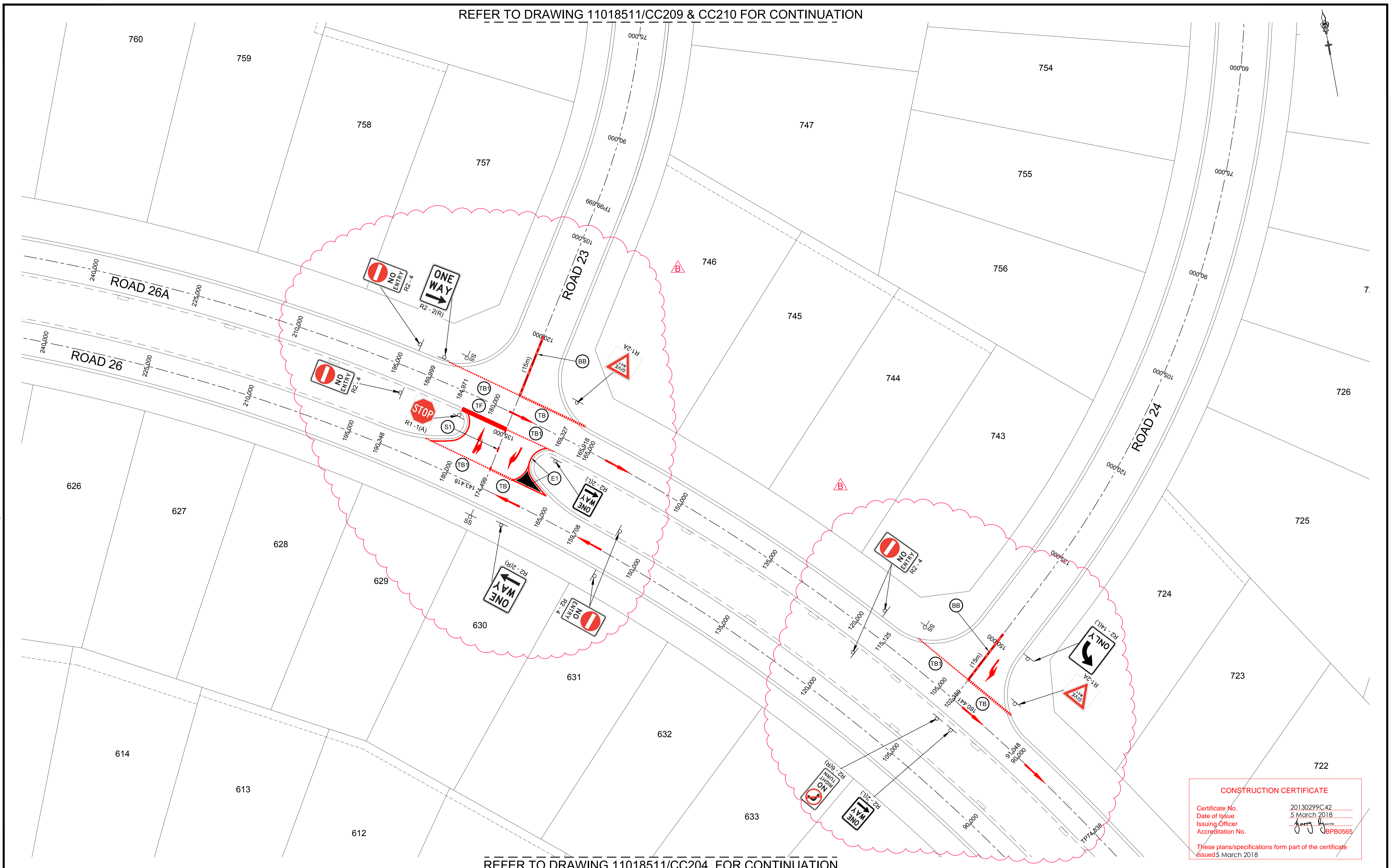
**J. WYNDHAM PRINCE**  
 CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS  
 PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

NO.	DESCRIPTION	MP	CC	RO	RO	DATE
B	COUNCIL'S COMMENTS					09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

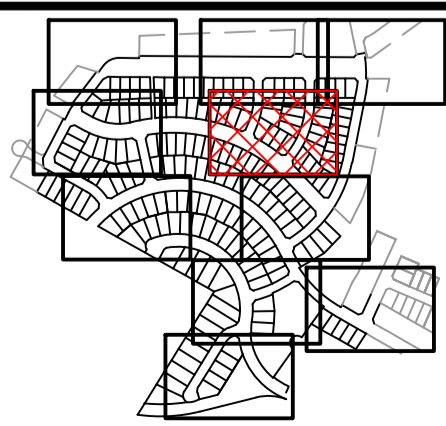
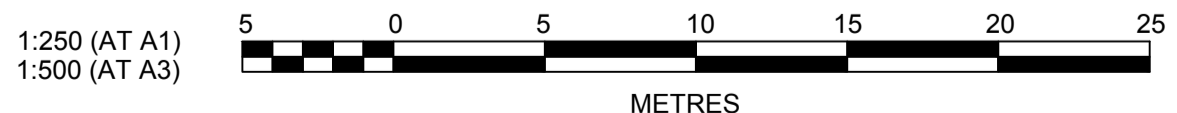
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REFER TO DRAWING 11018511/CC209 & CC210 FOR CONTINUATION



REFER TO DRAWING 11018511/CC204 FOR CONTINUATION

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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 7 OF 10

PLAN No: 11018511/CC207 **B**  
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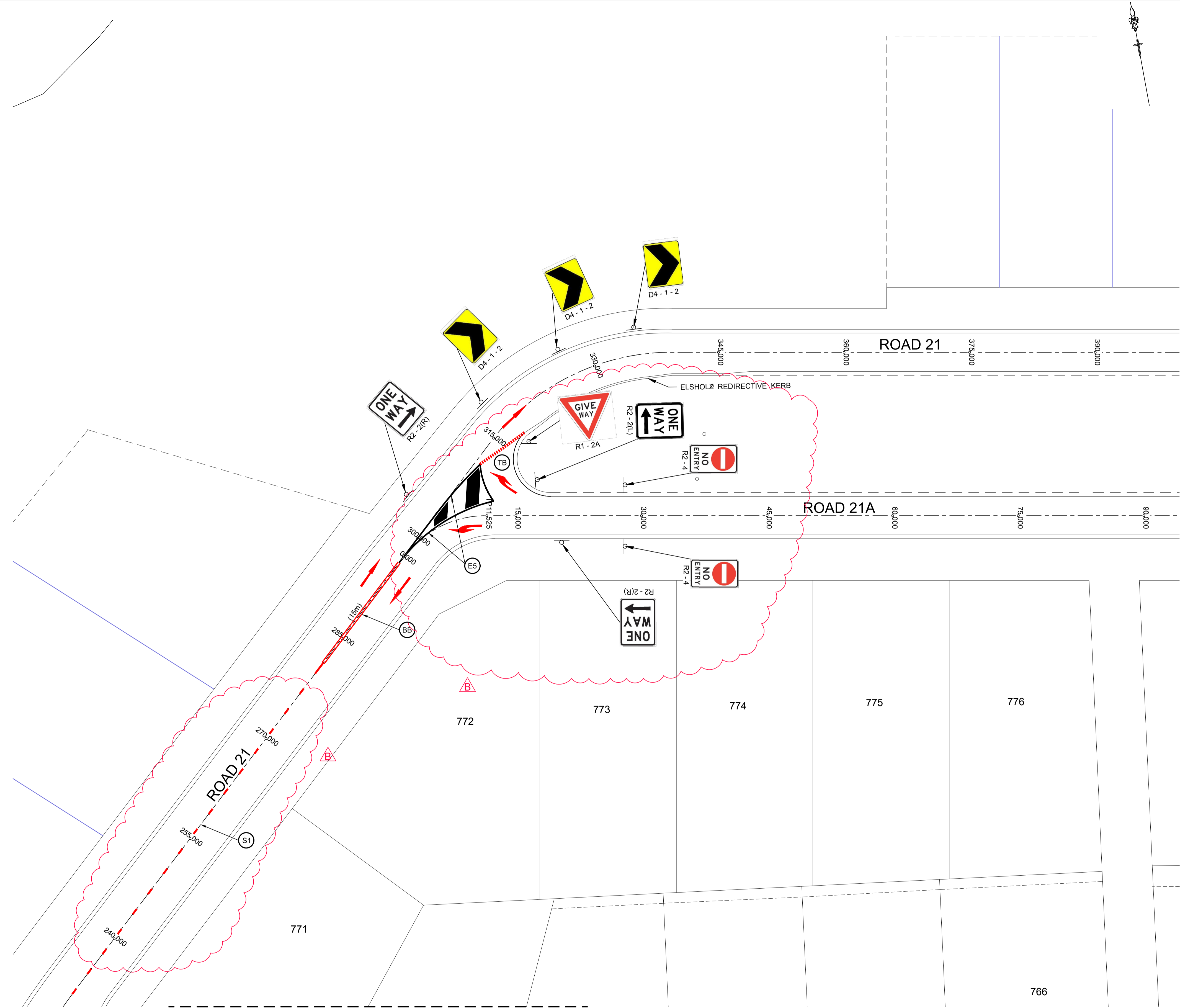
**J. WYNDHAM PRINCE**  
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AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

NO.	DESCRIPTION	MP	CC	RO	RO	DATE
B	COUNCIL'S COMMENTS					09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
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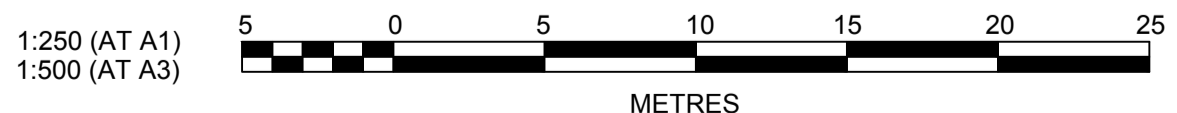


REFER TO DRAWING 1101851/CC206 FOR CONTINUATION

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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

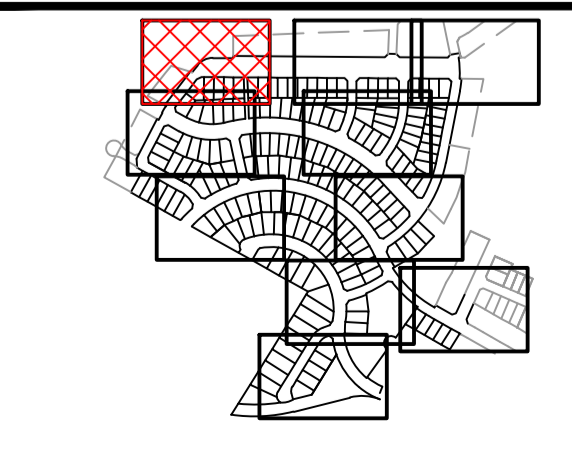
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 DATUM: A.H.D.  
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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SIGN POSTING AND LINEMARKING  
 SHEET 8 OF 10

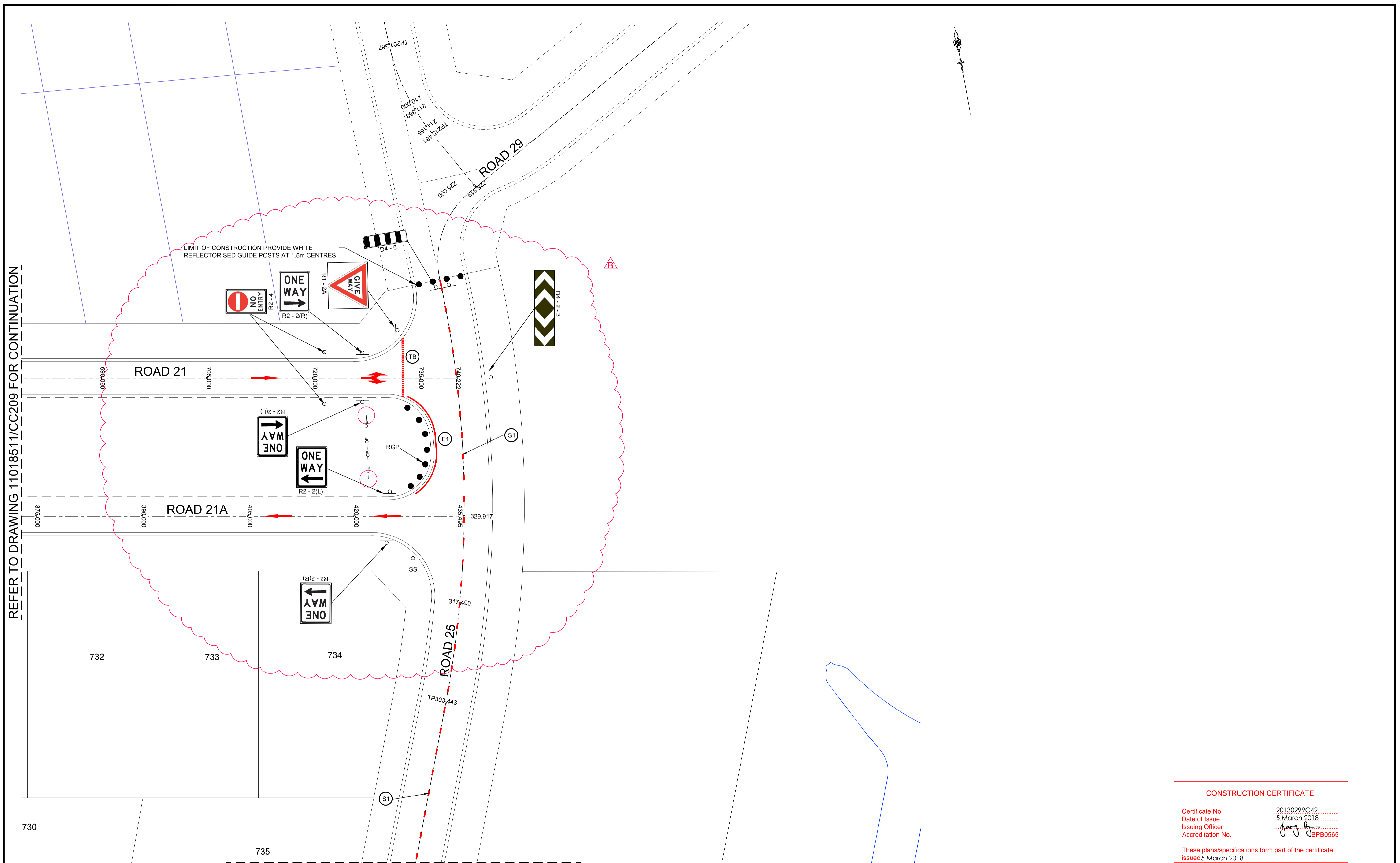
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

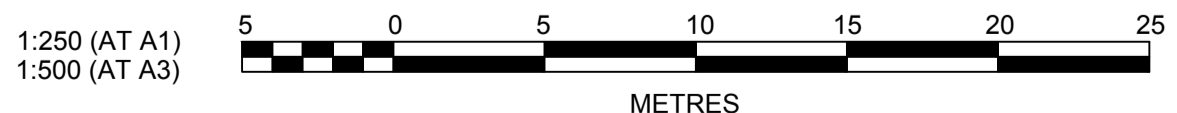


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REFER TO DRAWING 1101851/CC209 FOR CONTINUATION



REFER TO DRAWING 1101851/CC207 FOR CONTINUATION



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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

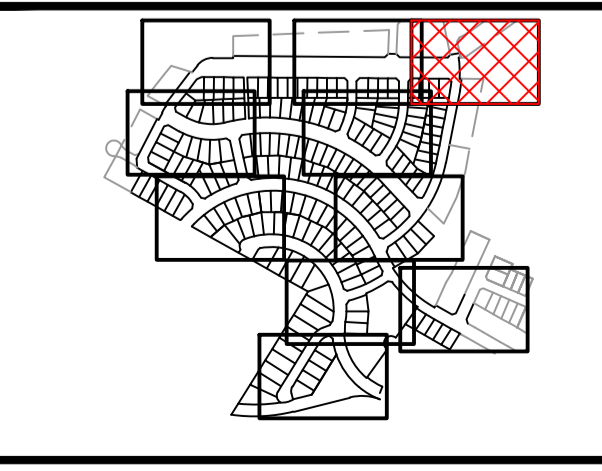
These plans/specifications form part of the certificate issued 5 March 2018

NO.	REVISION	DATE	BY	CHKD	APR	DATE
B	COUNCIL'S COMMENTS					09/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT					

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AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:



CLIENT:

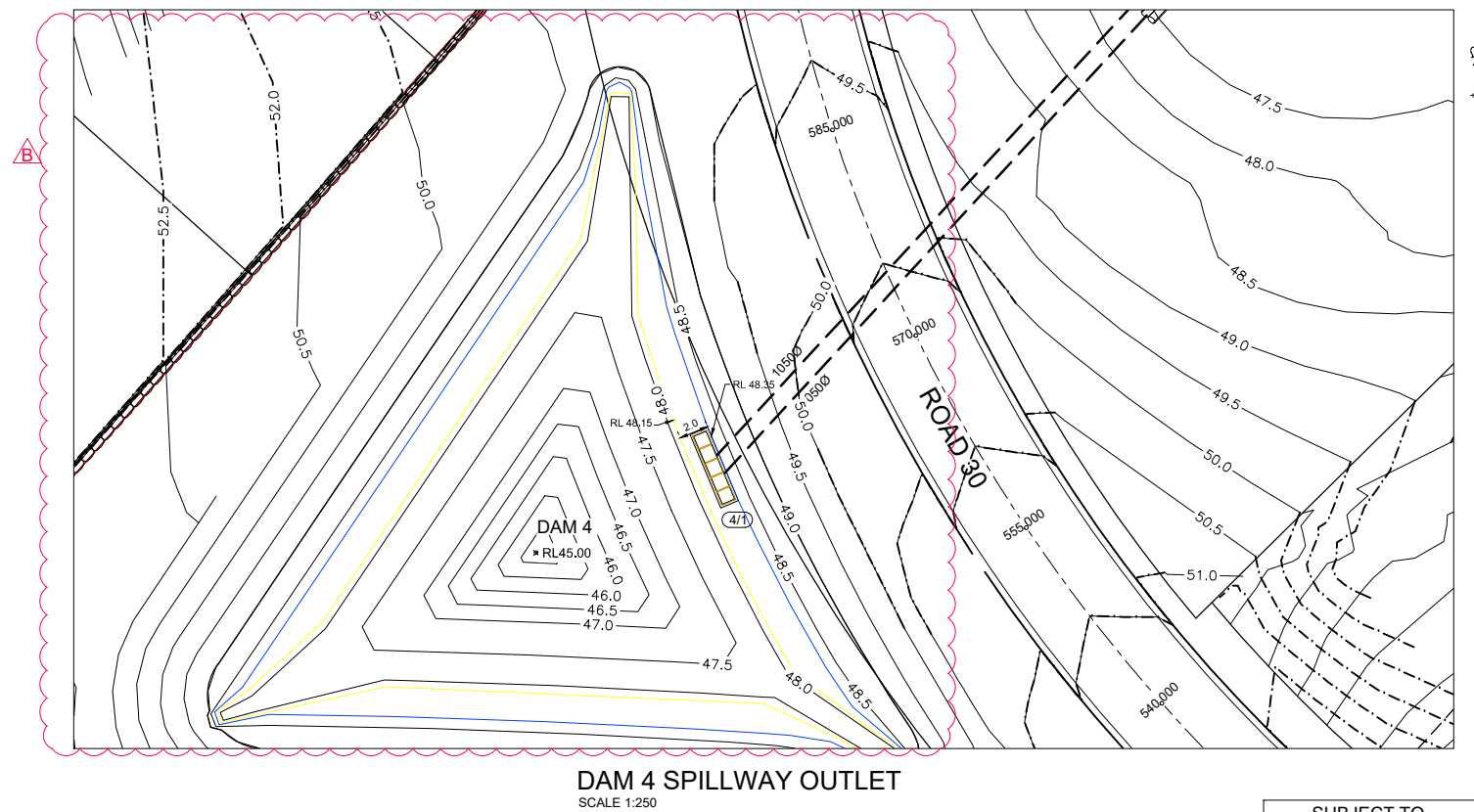
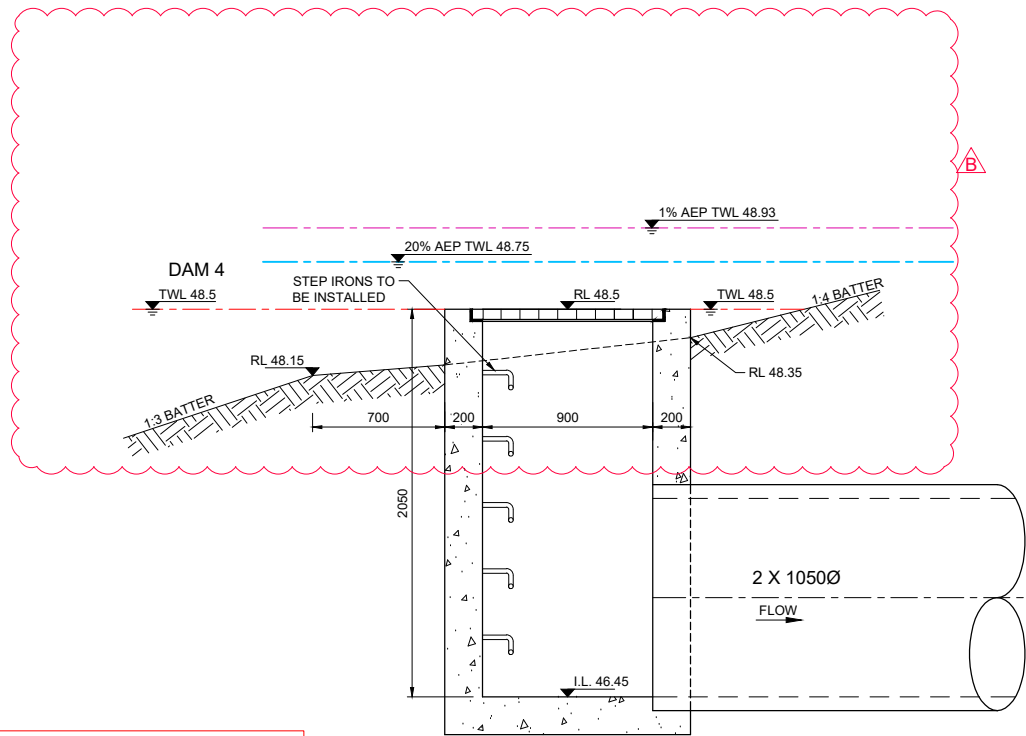
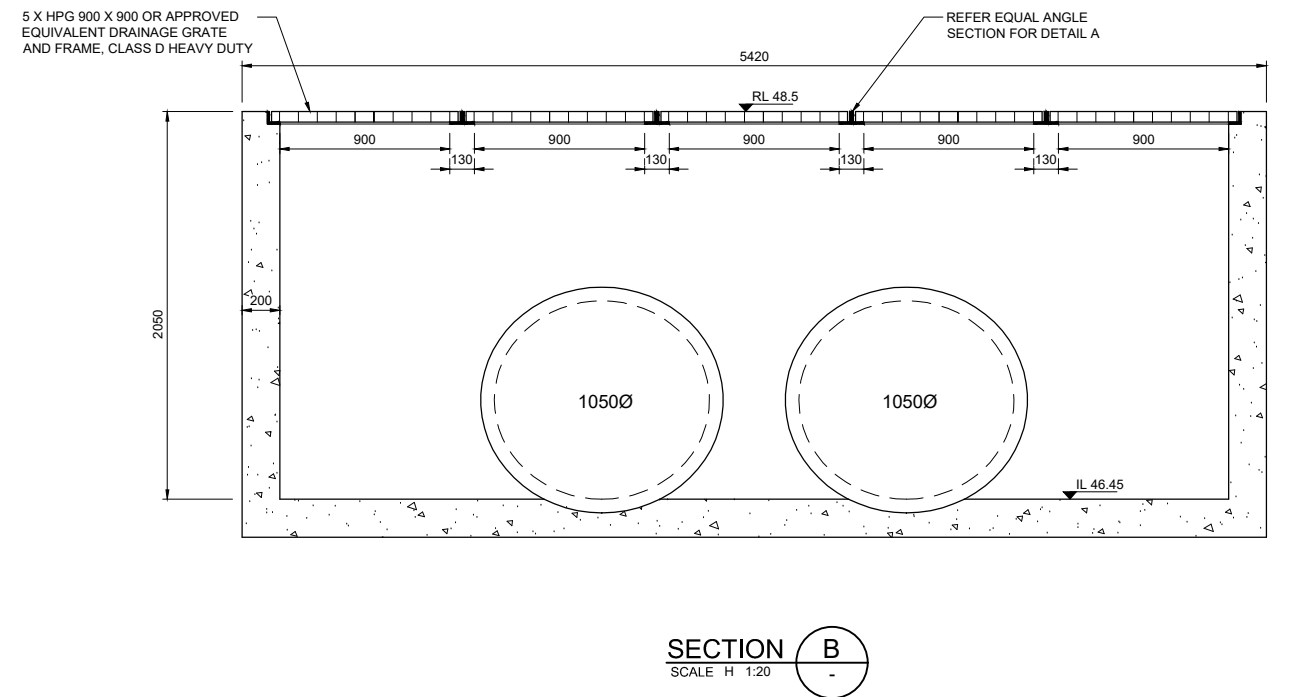
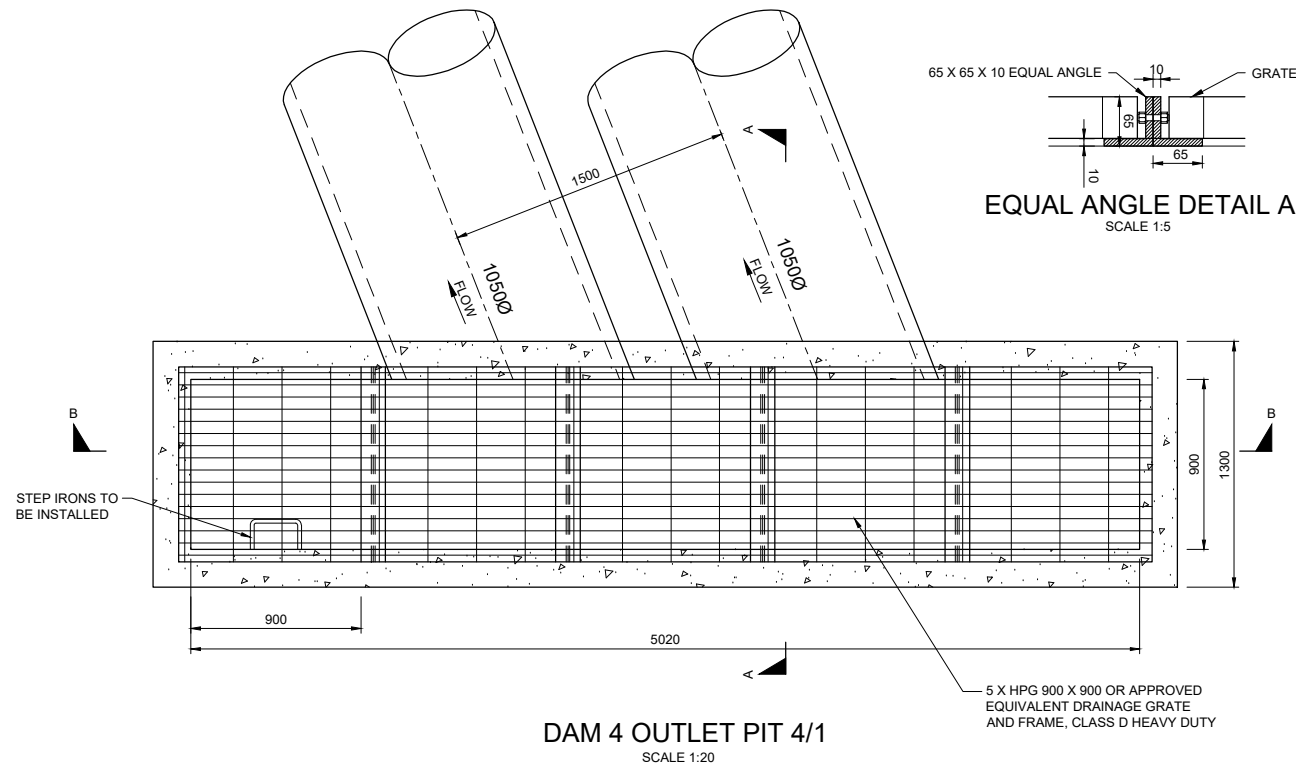
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**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11**

SIGN POSTING AND LINEMARKING  
 SHEET 10 OF 10

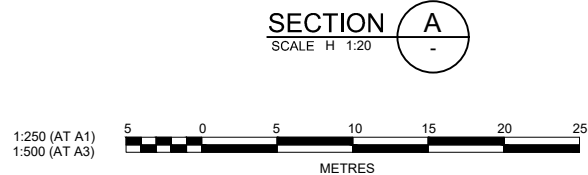
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 FILE No: 1101851/CC210  
 SHEET SIZE: A1 ORIGINAL



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

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STRUCTURAL DESIGN  
AND CERTIFICATION

PRINCIPAL:

RED BANK  
NORTH RICHMOND

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
DAM 4 OUTLET PIT 4/1 PLAN,  
DETAIL AND SECTIONS

PLAN No: 1101851/CC220 **B**  
FILE No: 1101851CC220  
SHEET SIZE: A1 ORIGINAL

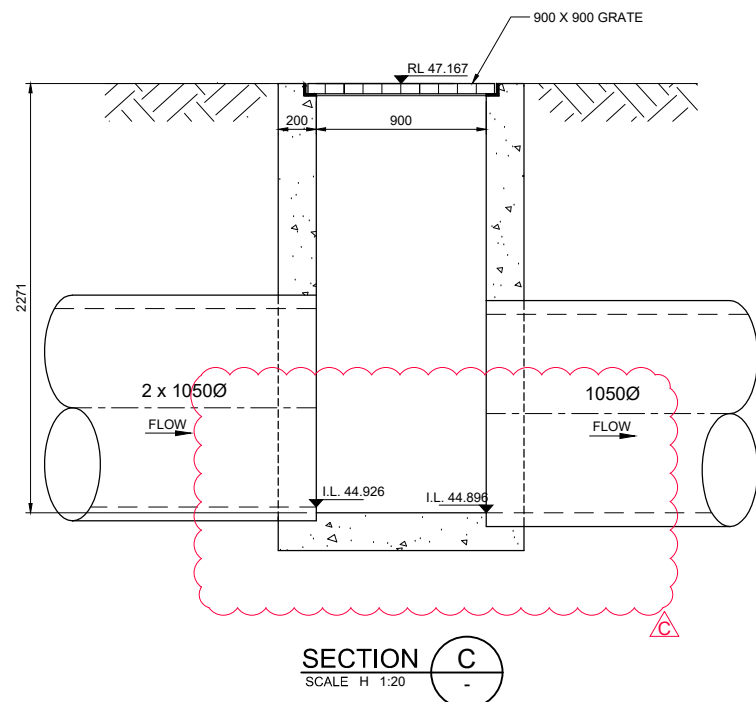
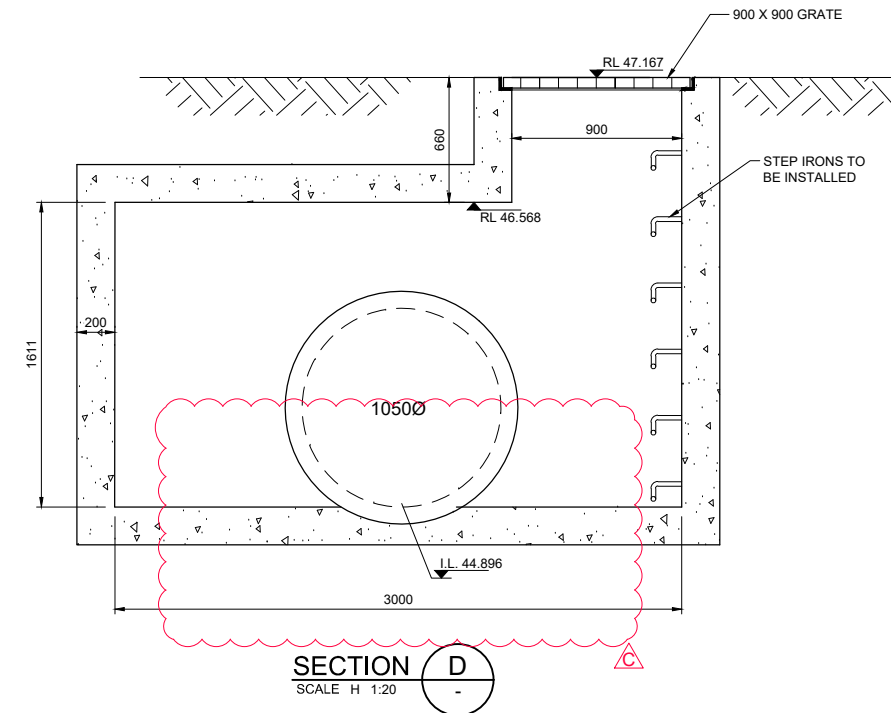
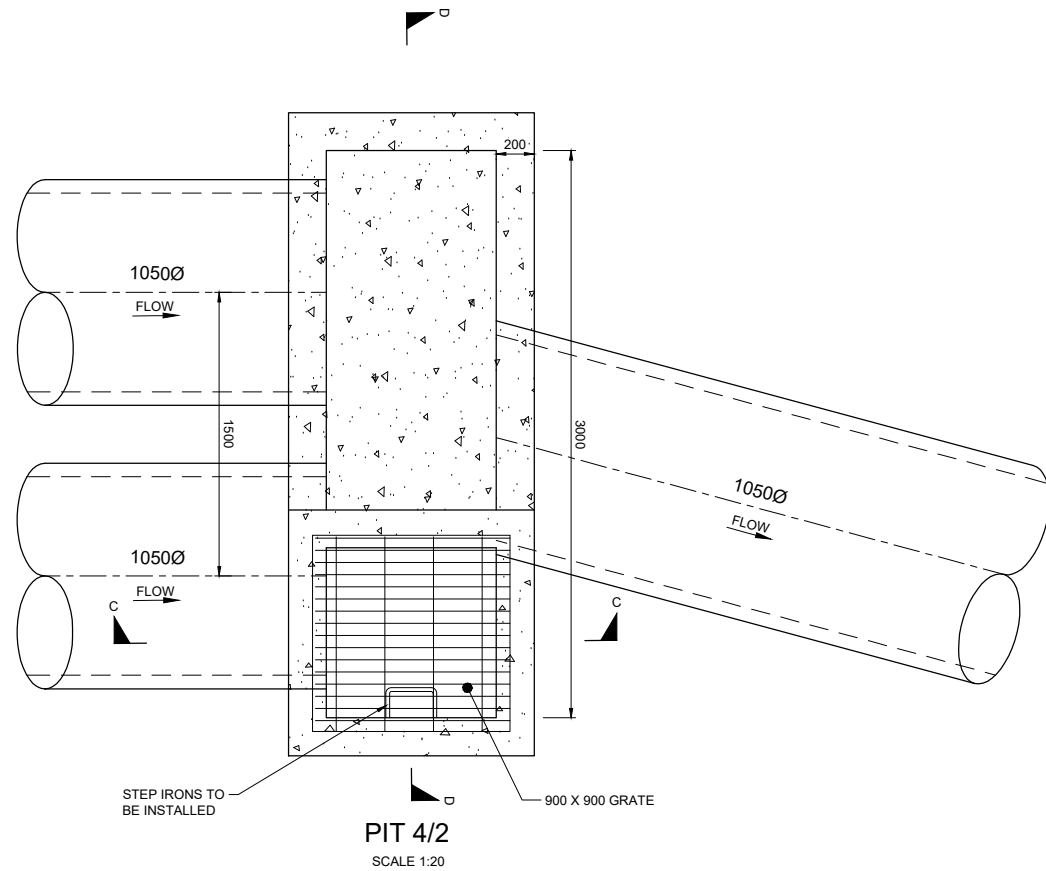
**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

Plotted: 12 February 2018 10:04:05 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\1101851\CC220.dwg

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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 12 February 2018 11:41:51 AM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC221.dwg



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 Date of Issue 5 March 2018 .....  
 Issuing Officer *Joery By* .....  
 Accreditation No. BPB0565 .....

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AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	12/01/18
B	MP	TG	RO	RO	25/01/18
A	MP	MG	RO	MS	15/06/17

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:



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ISSUED FOR CONSTRUCTION APPROVAL

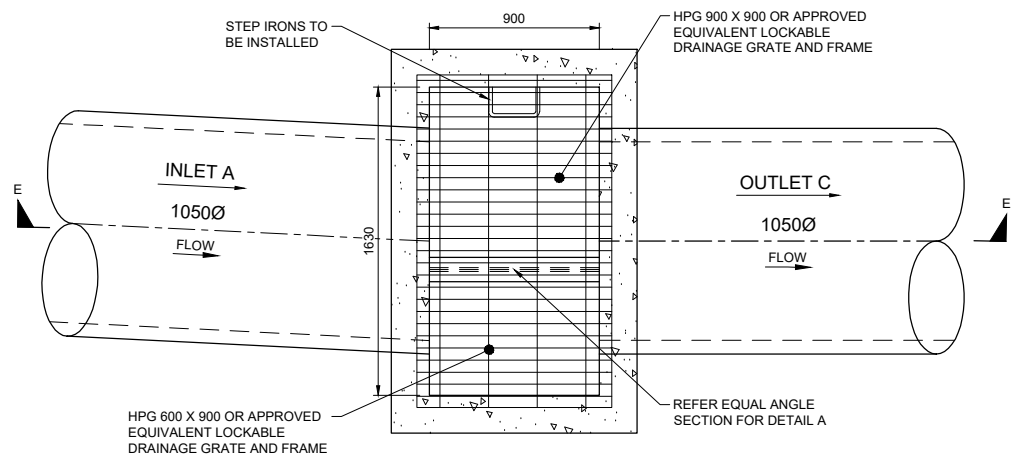
**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**

PIT 4/2 PLAN  
AND SECTIONS

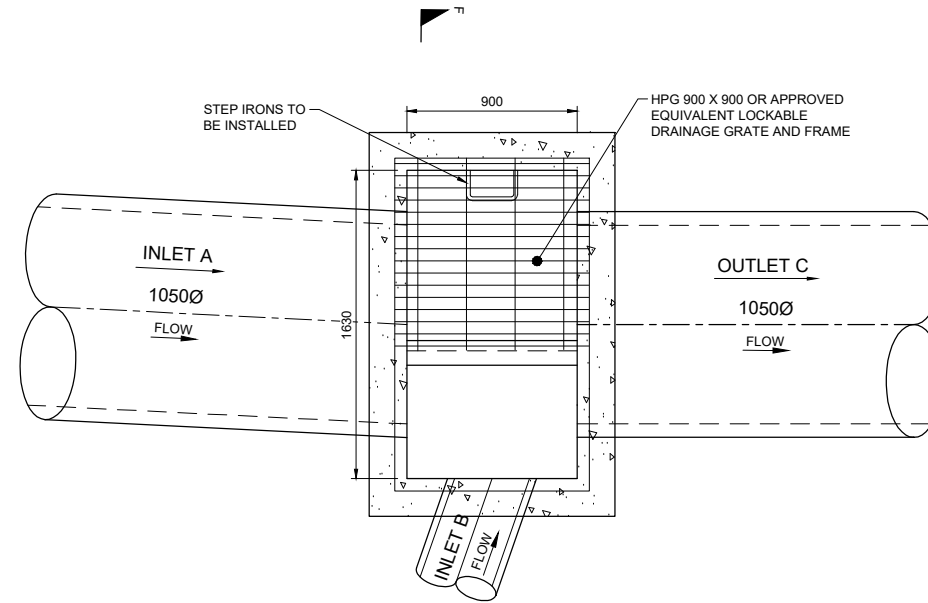
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SHEET SIZE:	A1 ORIGINAL



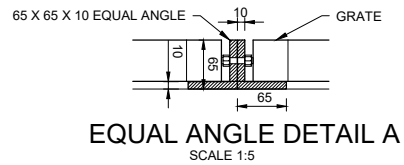
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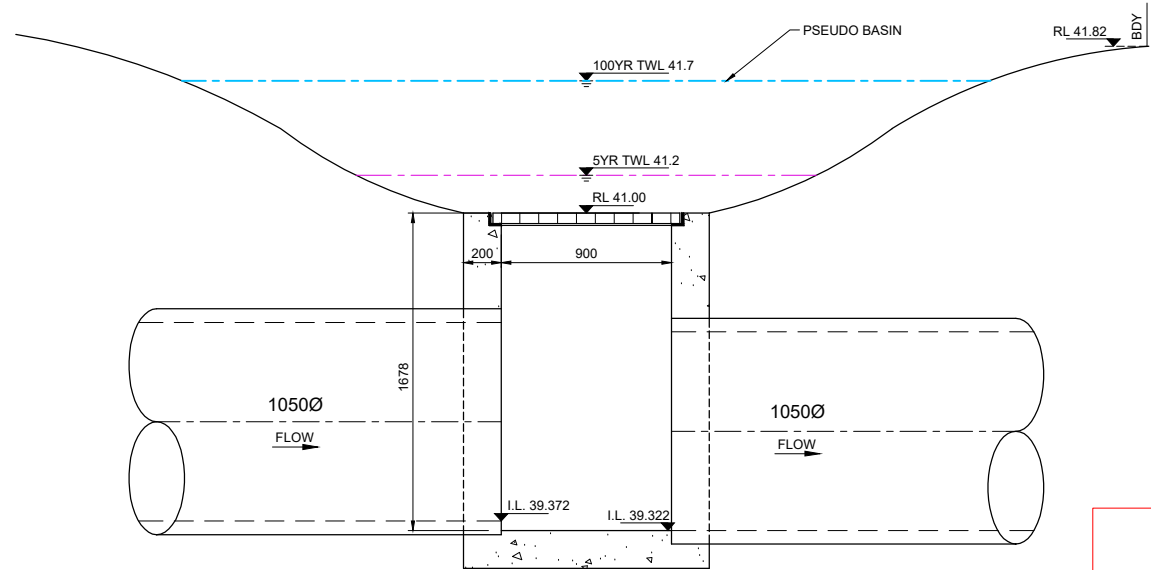
**SURCHARGE PIT 4/5**  
SCALE 1:20



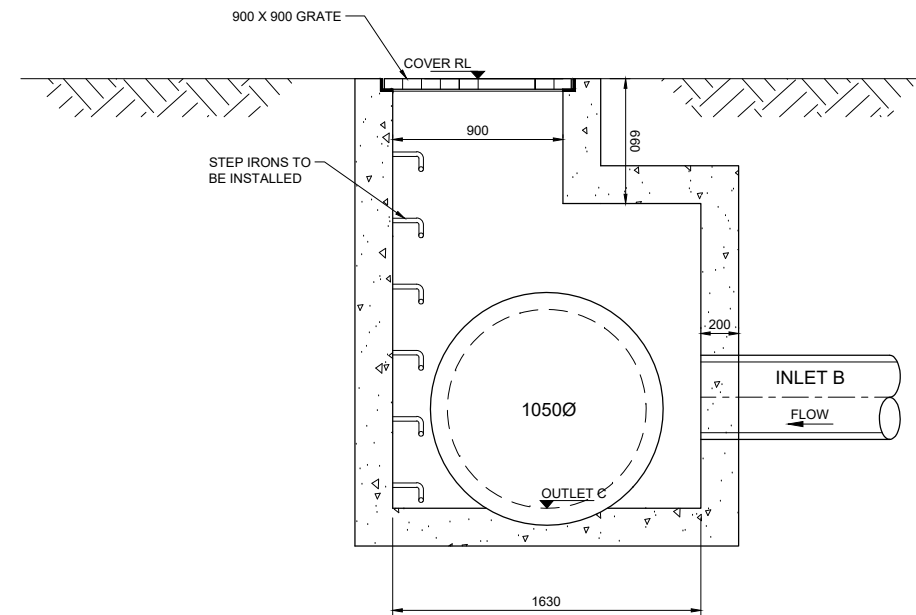
**PIT 4/3 & 4/4**  
SCALE 1:20



**EQUAL ANGLE DETAIL A**  
SCALE 1:5



**SECTION E**  
SCALE H 1:20



**SECTION F**  
SCALE H 1:20

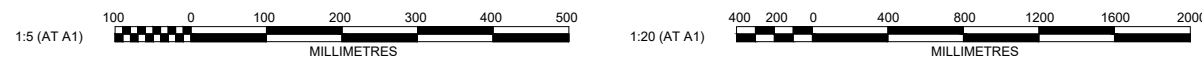
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

PIT NO.	COVER RL	INLET INV 'A'	INLET INV 'B'	OUTLET INV 'C'	INLET 'A' Ø (MM)	INLET 'B' Ø (MM)	OUTLET 'C' Ø (MM)
PIT 4/3	43.721	41.46	42.085	41.410	1050	375	1050
PIT 4/4	42.159	39.869	40.494	39.819	1050	375	1050

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

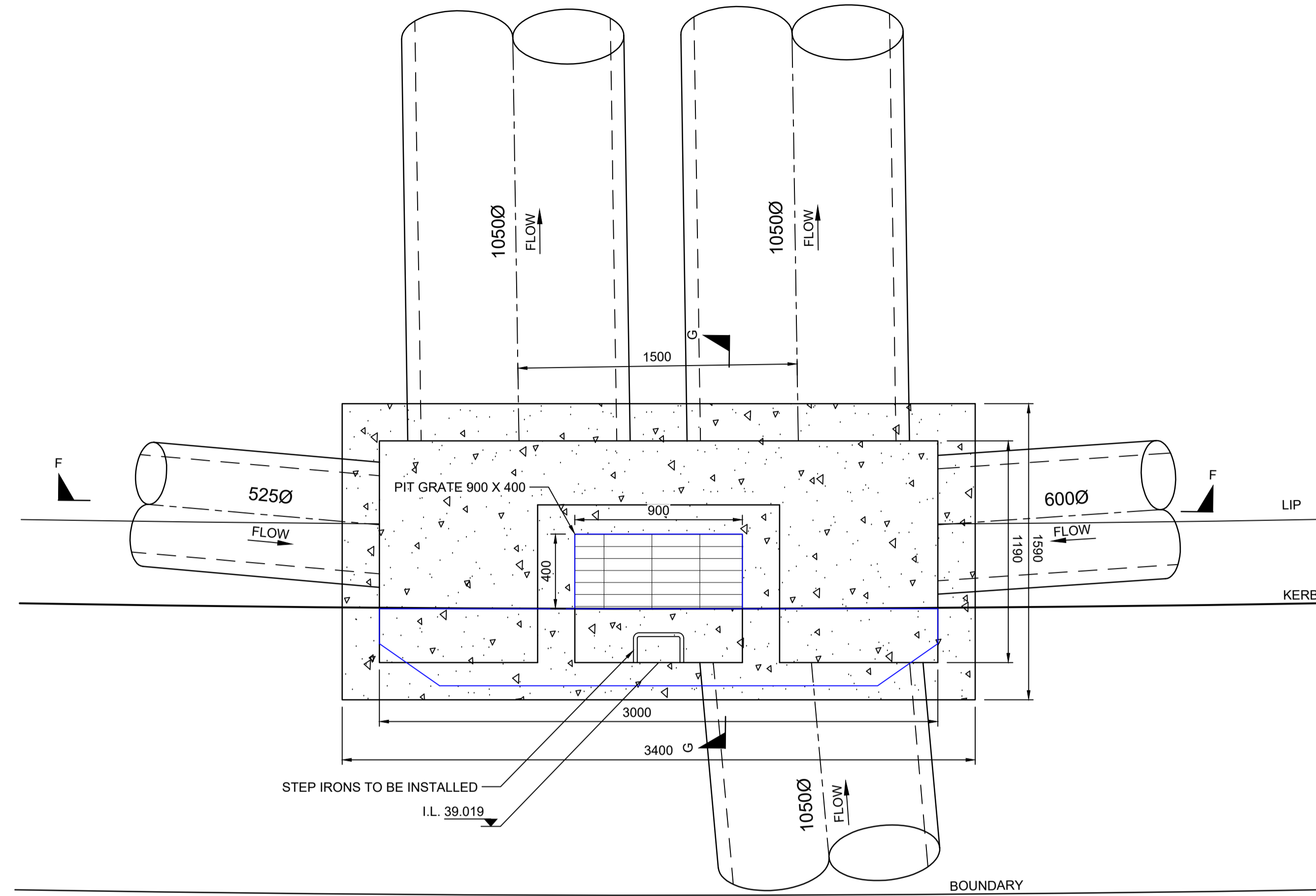
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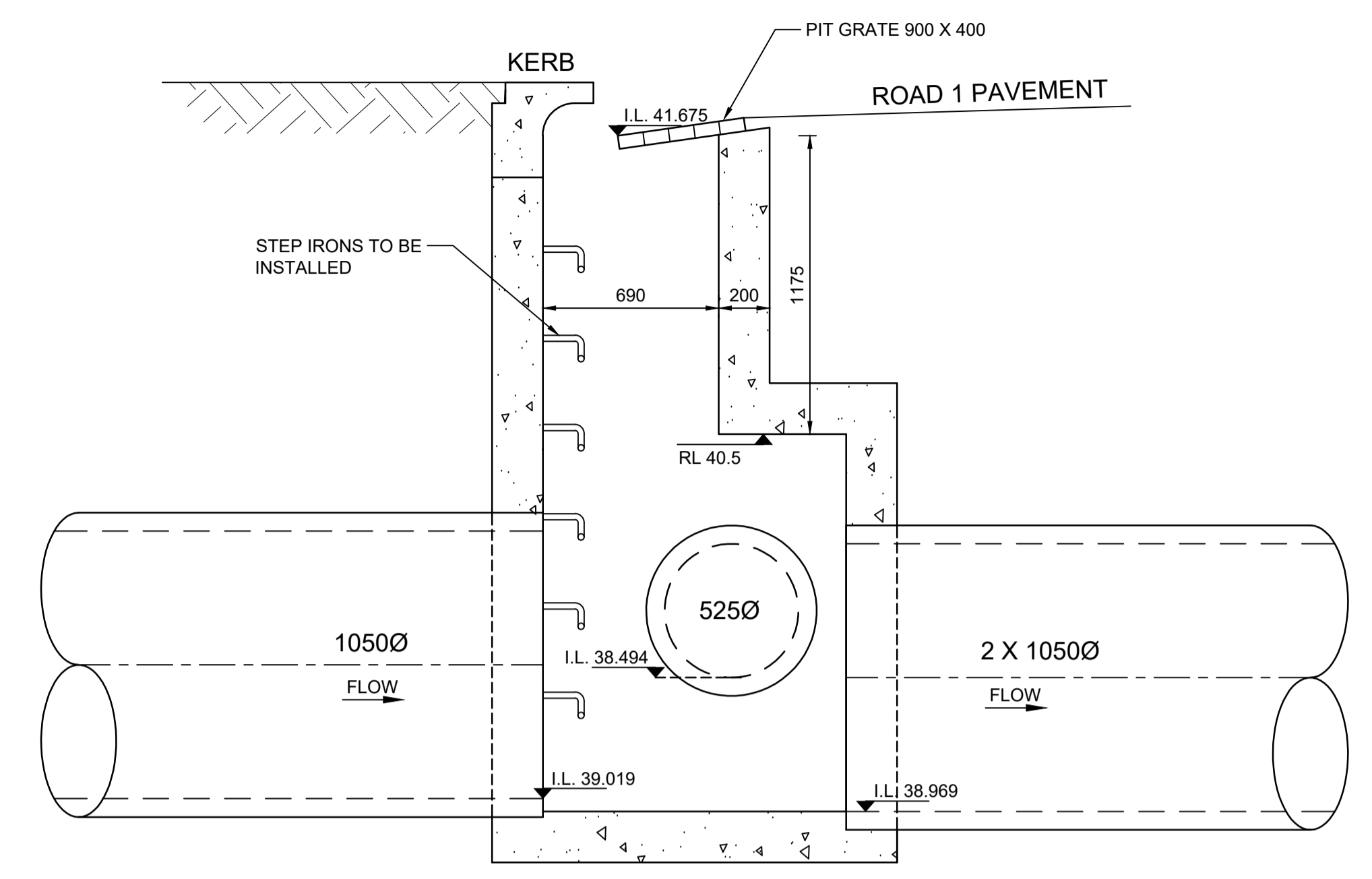
**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 SURCHARGE PIT 4/3, 4/4 AND 4/5 PLAN  
 AND SECTIONS

PLAN No: 11018511/CC222 **B**  
 FILE No: 11018511CC222  
 SHEET SIZE: A1 ORIGINAL

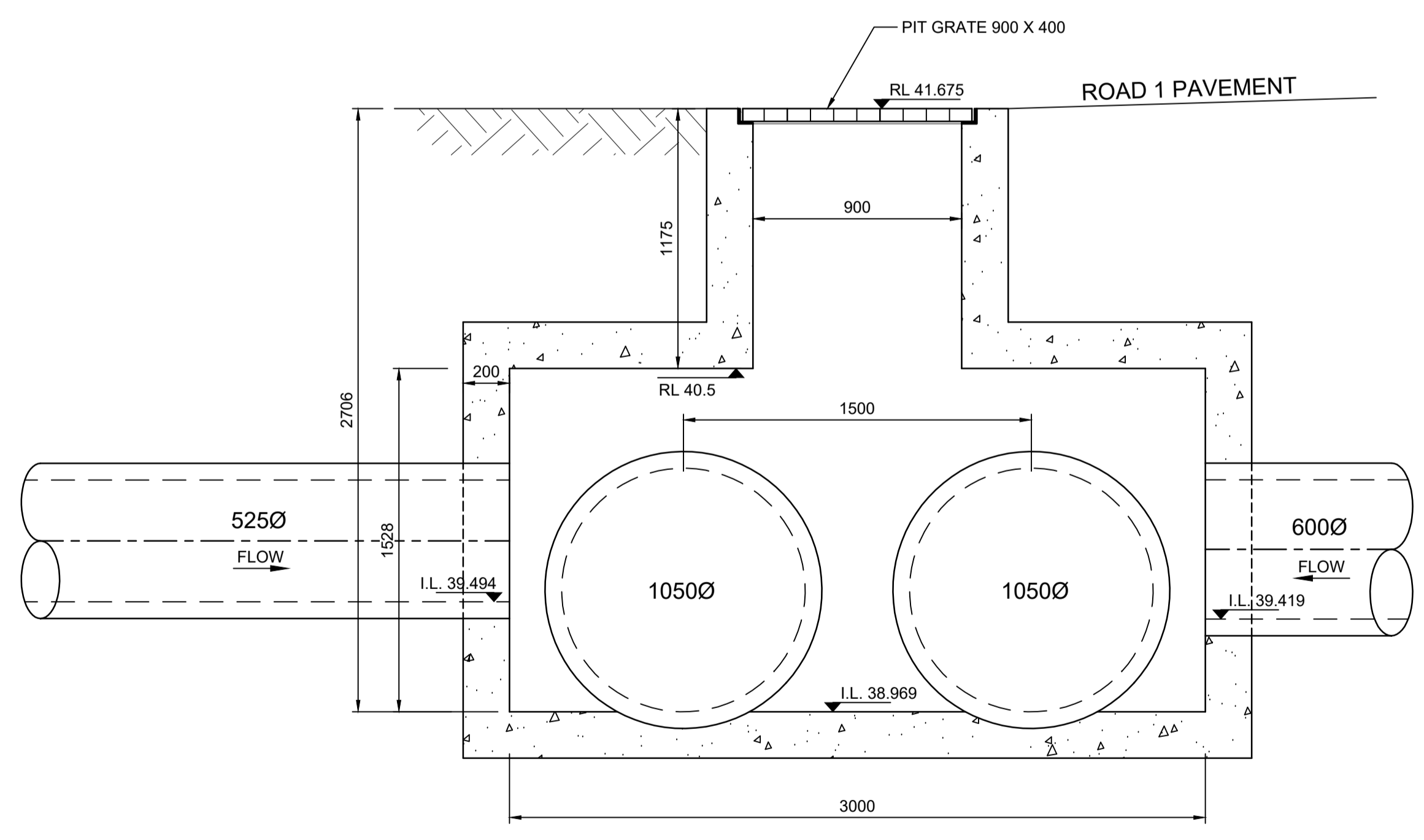
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A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE



PIT 4/6  
SCALE 1:20



SECTION G  
SCALE H 1:20



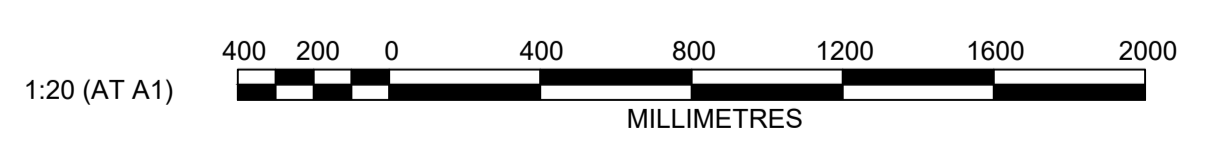
SECTION F  
SCALE H 1:20

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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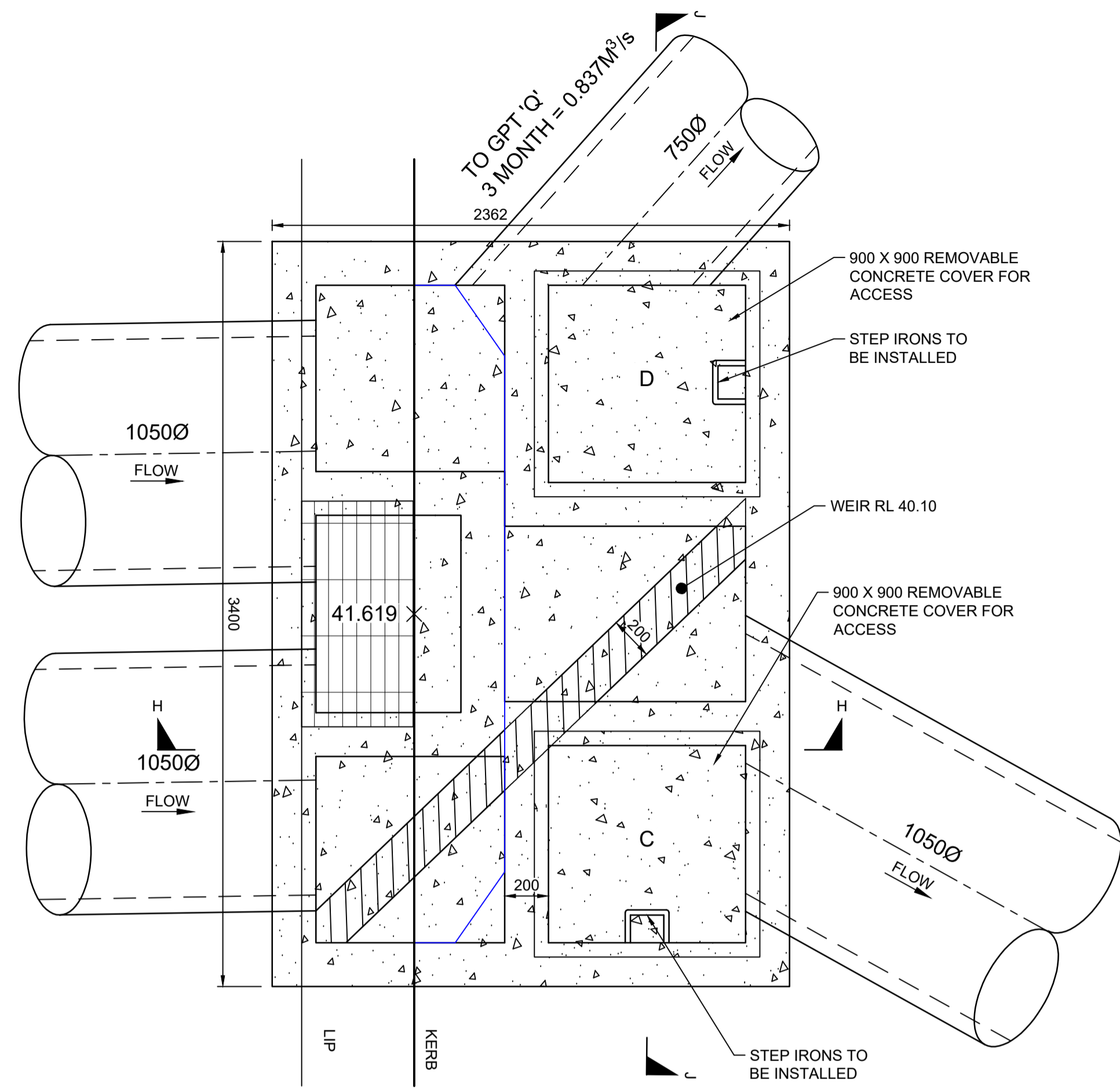
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
PIT 4/6 PLAN  
AND SECTIONS

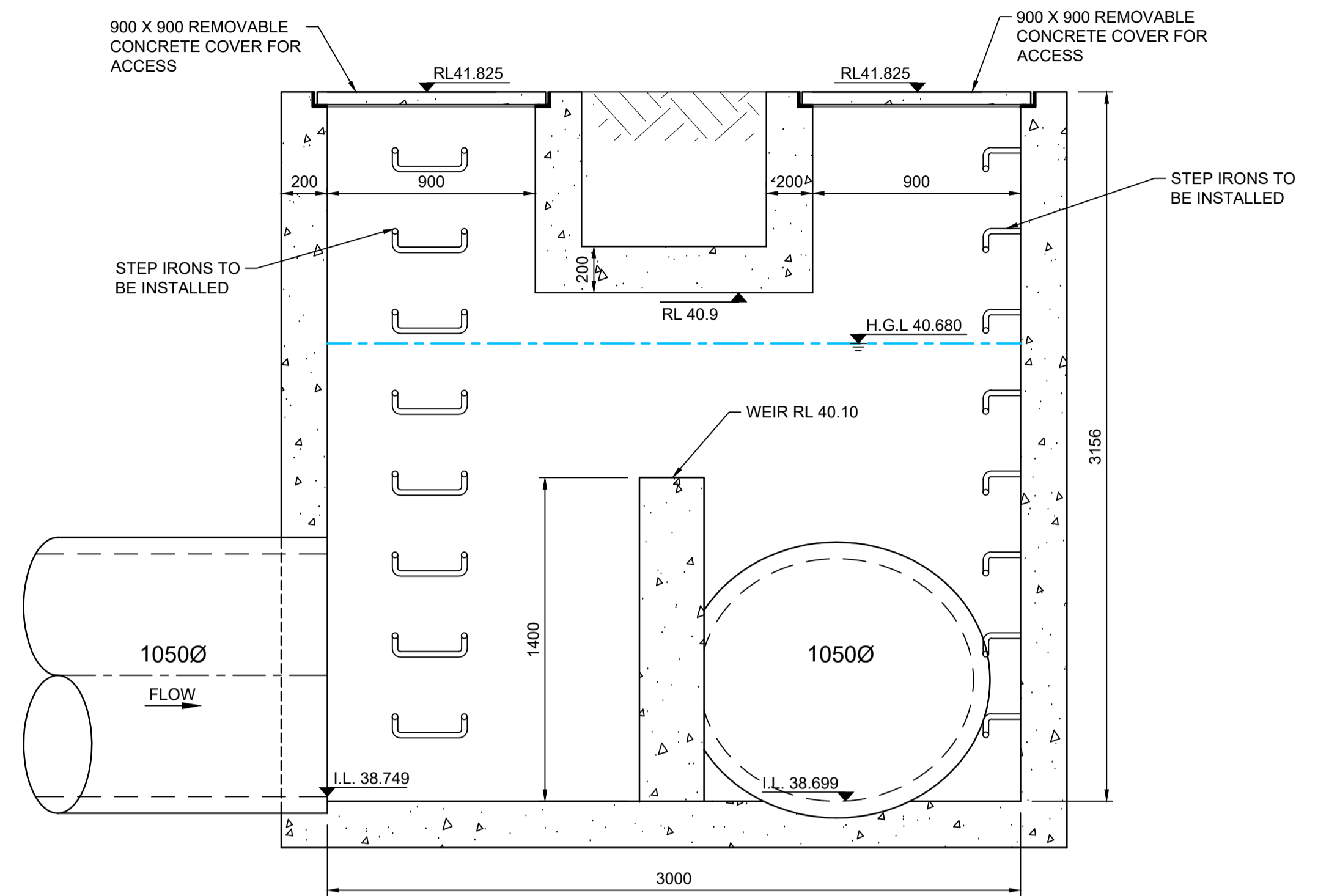
PLAN No: 11018511/CC223 **A**  
 FILE No: 11018511CC223  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:09:00 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC223.dwg

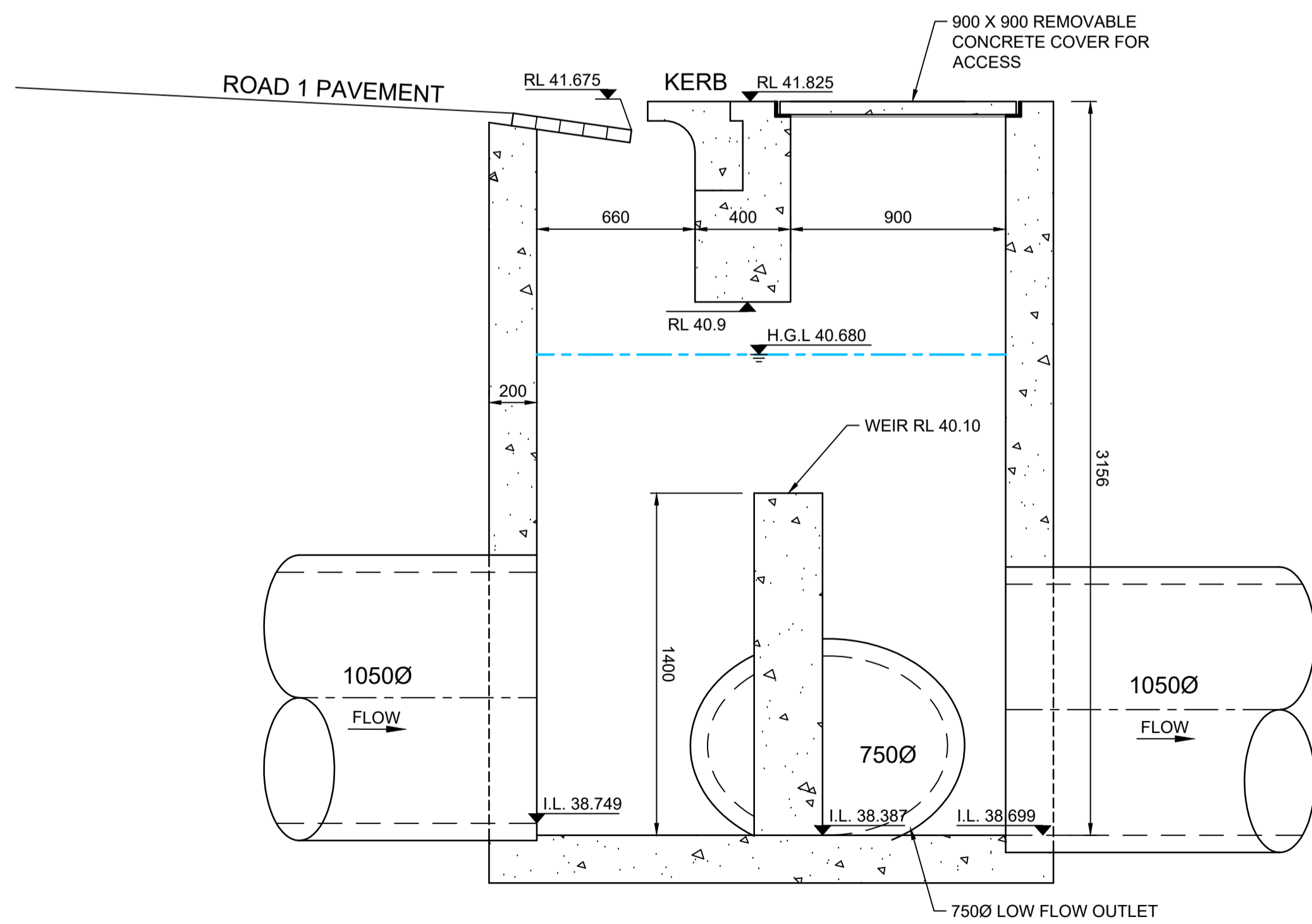
NO.	DESCRIPTION	BY	CHKD	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	15/06/17
	AMENDMENT	DES	DRN	APR



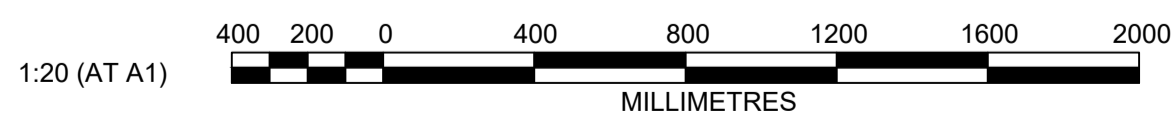
**SPLITTER PIT 4/7**  
SCALE 1:20



**SECTION J**  
SCALE H 1:20



**SECTION H**  
SCALE H 1:20



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

**SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION**

**ISSUED FOR CONSTRUCTION APPROVAL**

PRINCIPAL:

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**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
SPLITTER PIT 4/7 PLAN  
AND SECTIONS**

PLAN No: **11018511/CC224 A**  
 FILE No: 11018511CC224  
 SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:09:14 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC224.dwg

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

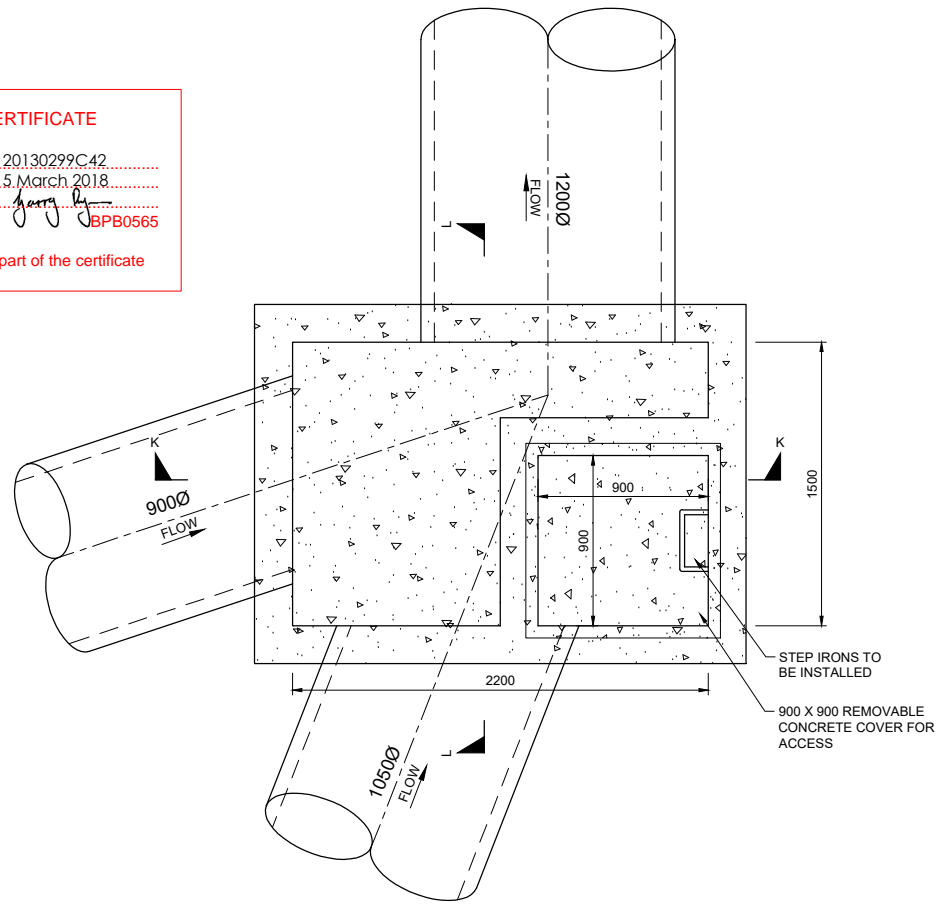
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

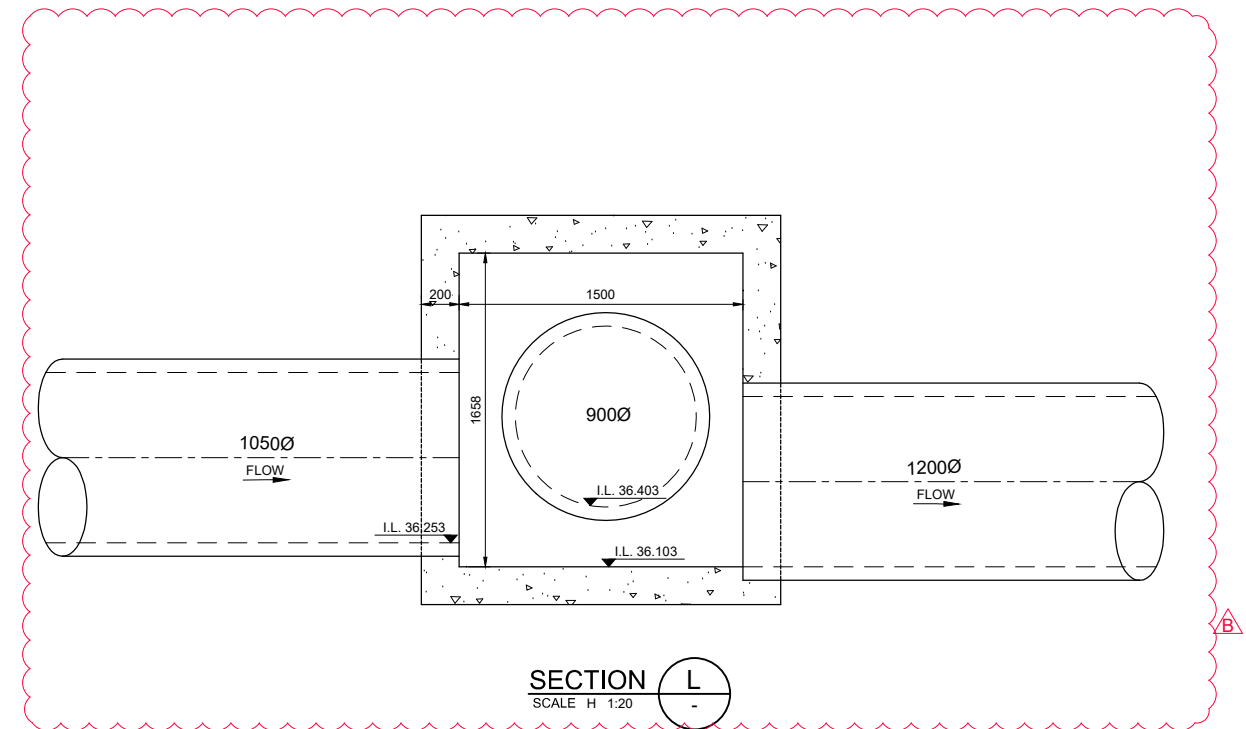
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry Prince*  
 Accreditation No. BPB0565

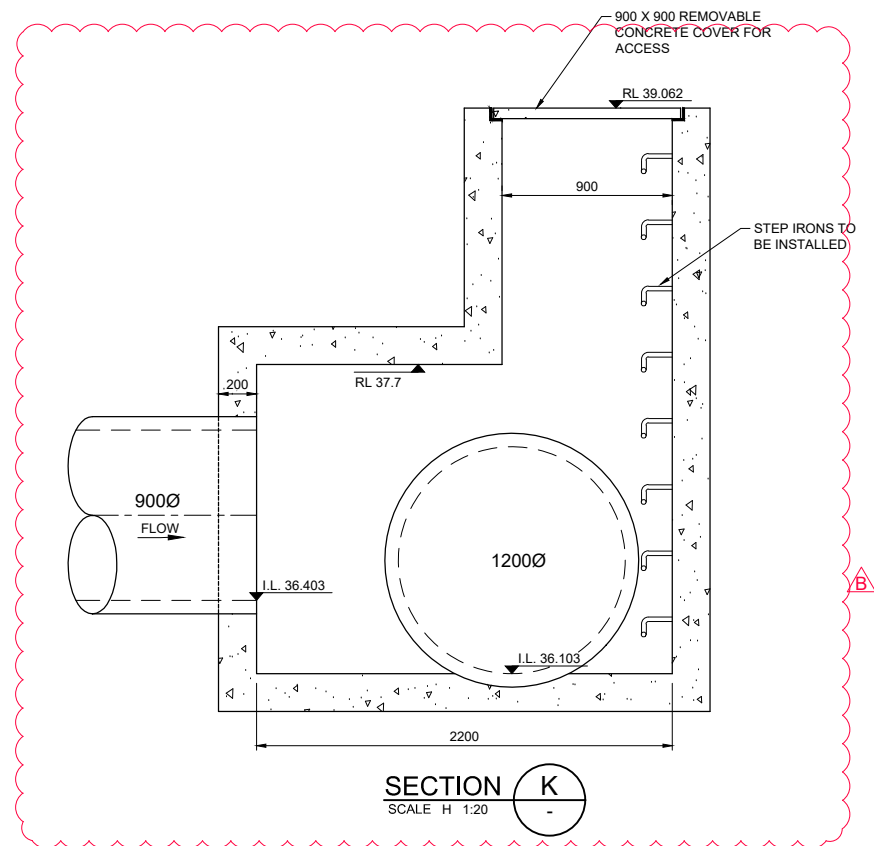
These plans/specifications form part of the certificate issued 5 March 2018



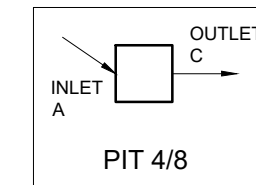
**PIT 4/9**  
SCALE 1:20



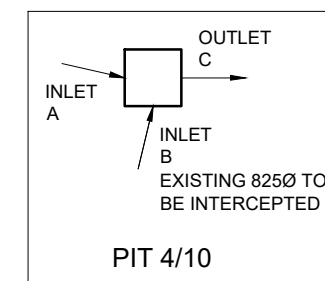
**SECTION L**  
SCALE H 1:20



**SECTION K**  
SCALE H 1:20



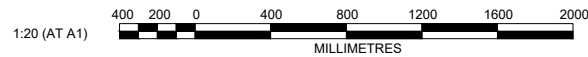
**PIT 4/8**



**PIT 4/10**

PIT NO.	COVER RL	INLET INV 'A'	INLET INV 'B'	OUTLET INV 'C'	INLET 'A' Ø (MM)	INLET 'B' Ø (MM)	OUTLET 'C' Ø (MM)	
PIT 4/8	41.083	38.105		38.075	1050	825	1050	CONCRETE COVER
PIT 4/10	37.394	34.390	34.689	34.340	1200	825	1200	CONCRETE COVER

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AND CERTIFICATION



Plotted: 12 February 2018 12:21:15 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC225.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	MP	RO	RO	12/01/18
B	MP	TG	RO	RO	25/01/18
A	MP	MG	RO	MS	15/06/17

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

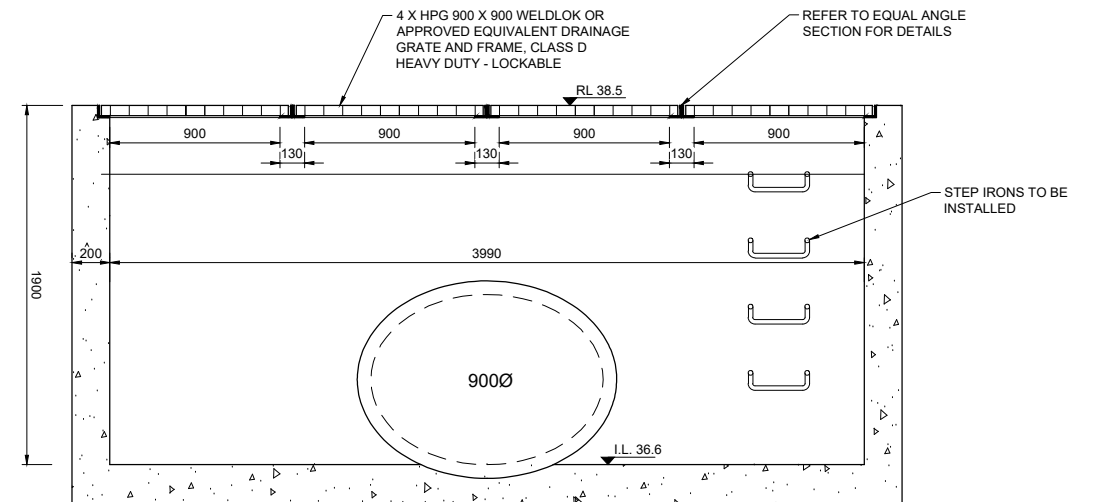
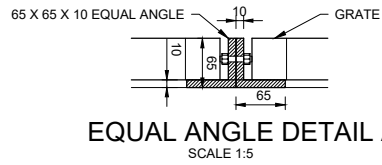
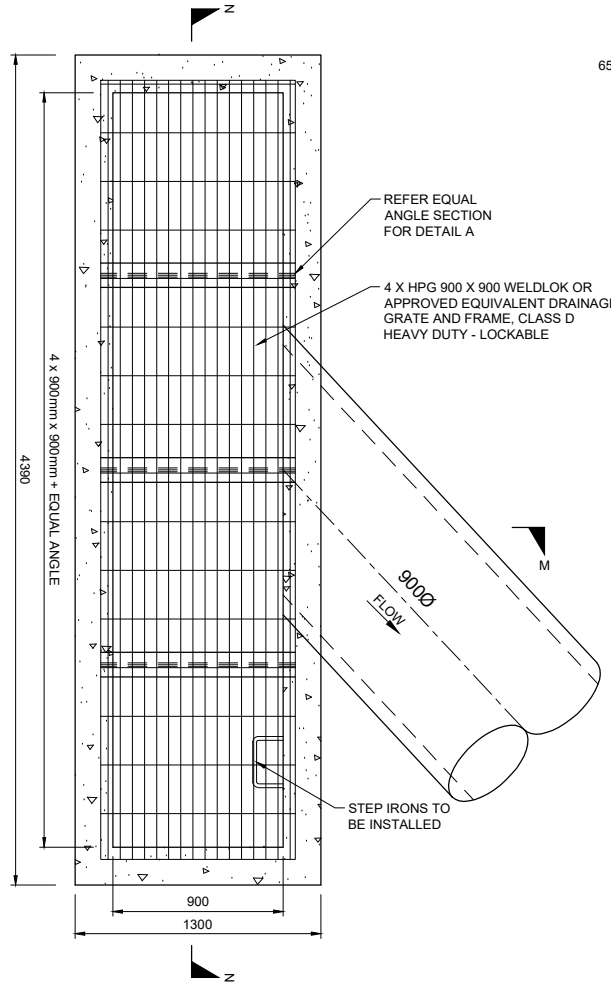
**REDBANK YEOMANS NORTH**  
 NORTH RICHMOND STAGE 11  
 PIT 4/8, 4/9 AND 4/10 PLAN  
 AND SECTIONS

PLAN No: 11018511/CC225 **C**  
 FILE No: 11018511CC225  
 SHEET SIZE: A1 ORIGINAL

**CONSTRUCTION CERTIFICATE**

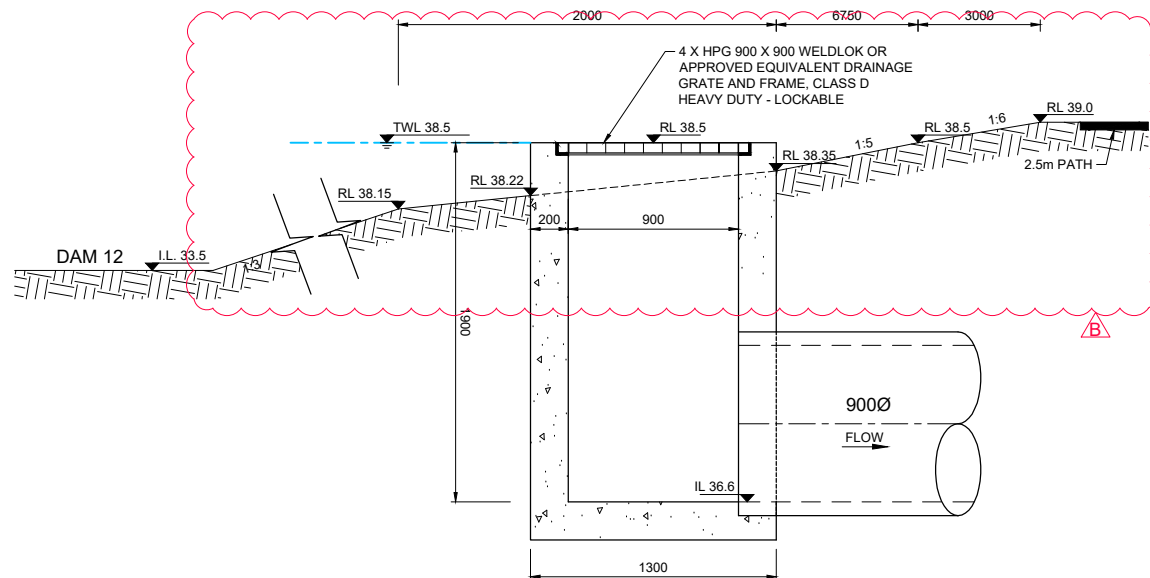
Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

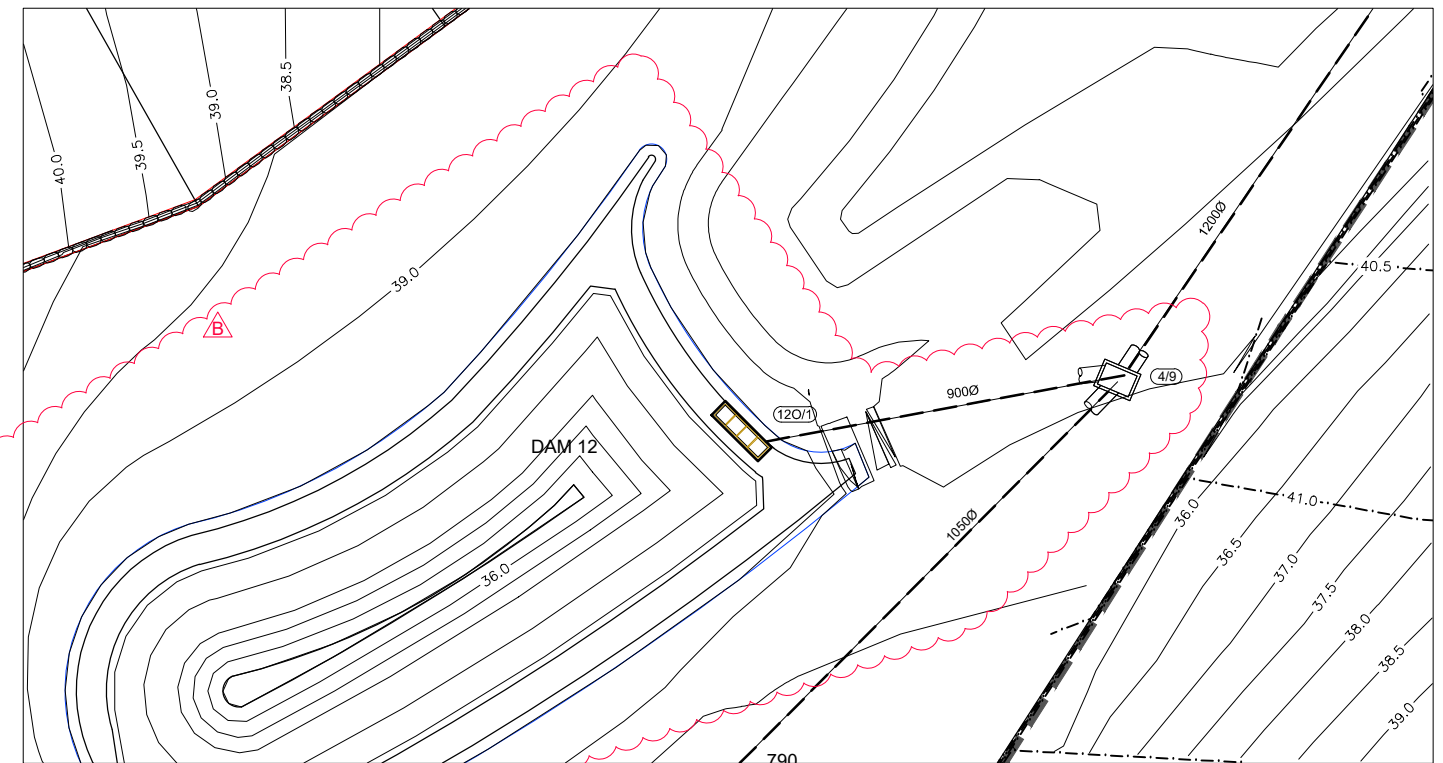


SECTION N  
SCALE H 1:20

DAM 12 OUTLET PIT 12/01  
SCALE 1:20

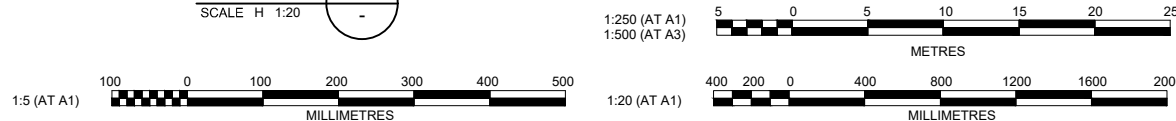


SECTION M  
SCALE H 1:20



DAM 12 SPILLWAY OUTLET  
SCALE 1:250

SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION



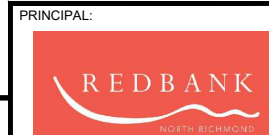
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NO.	DESCRIPTION	MP	TG	RO	RO	DATE
B	DAM 12 OUTLET PIT 12/1 MOVED	MP	TG	RO	RO	25/01/18
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

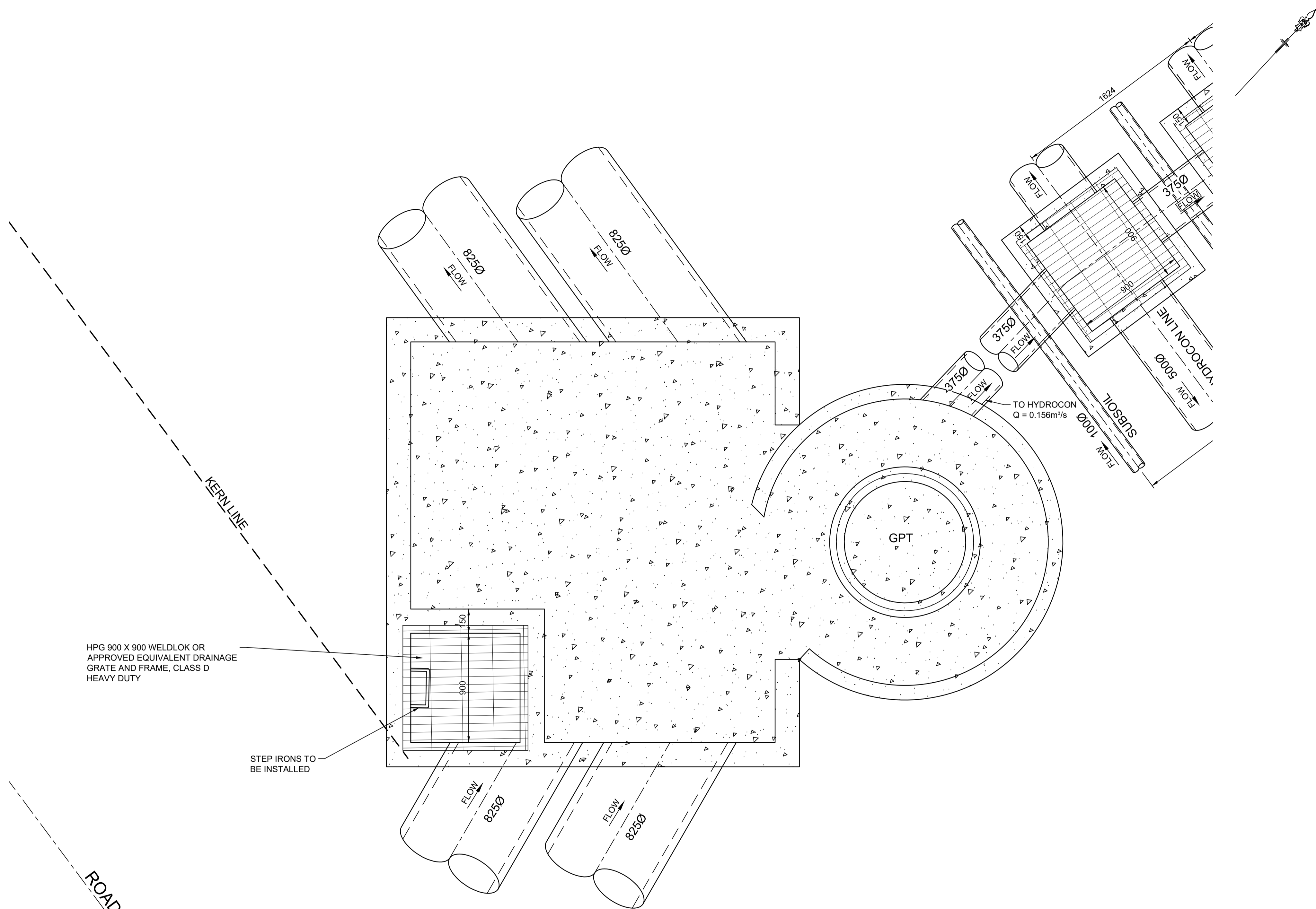
DAM 12 OUTLET PIT 12/01 PLAN,  
 DETAIL AND SECTIONS

PLAN No: 11018511/CC226 **B**

FILE No: 11018511CC226

SHEET SIZE: A1 ORIGINAL

Plotted: 25 January, 2018 5:10:35 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC227.dwg



HPG 900 X 900 WELDLOK OR APPROVED EQUIVALENT DRAINAGE GRATE AND FRAME, CLASS D HEAVY DUTY

STEP IRONS TO BE INSTALLED

**PIT 30/16 / GPT LAYOUT PLAN**  
SCALE 1:20

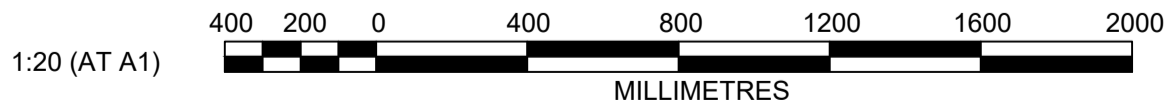
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42.....  
 Date of Issue 5 March 2018.....  
 Issuing Officer *[Signature]*.....  
 Accreditation No. BPB0565.....

These plans/specifications form part of the certificate issued 5 March 2018

REFER TO DETAIL DRAWINGS BY ROCLA

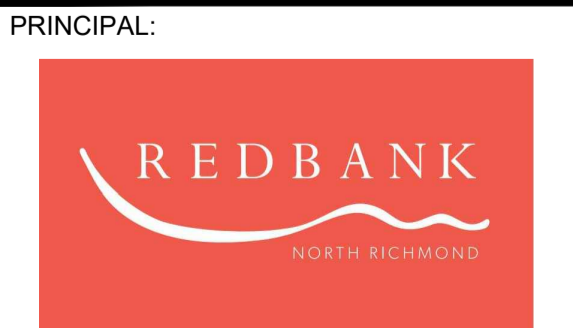
SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 OUTLET PIT 30/16 AND GPT PLAN**

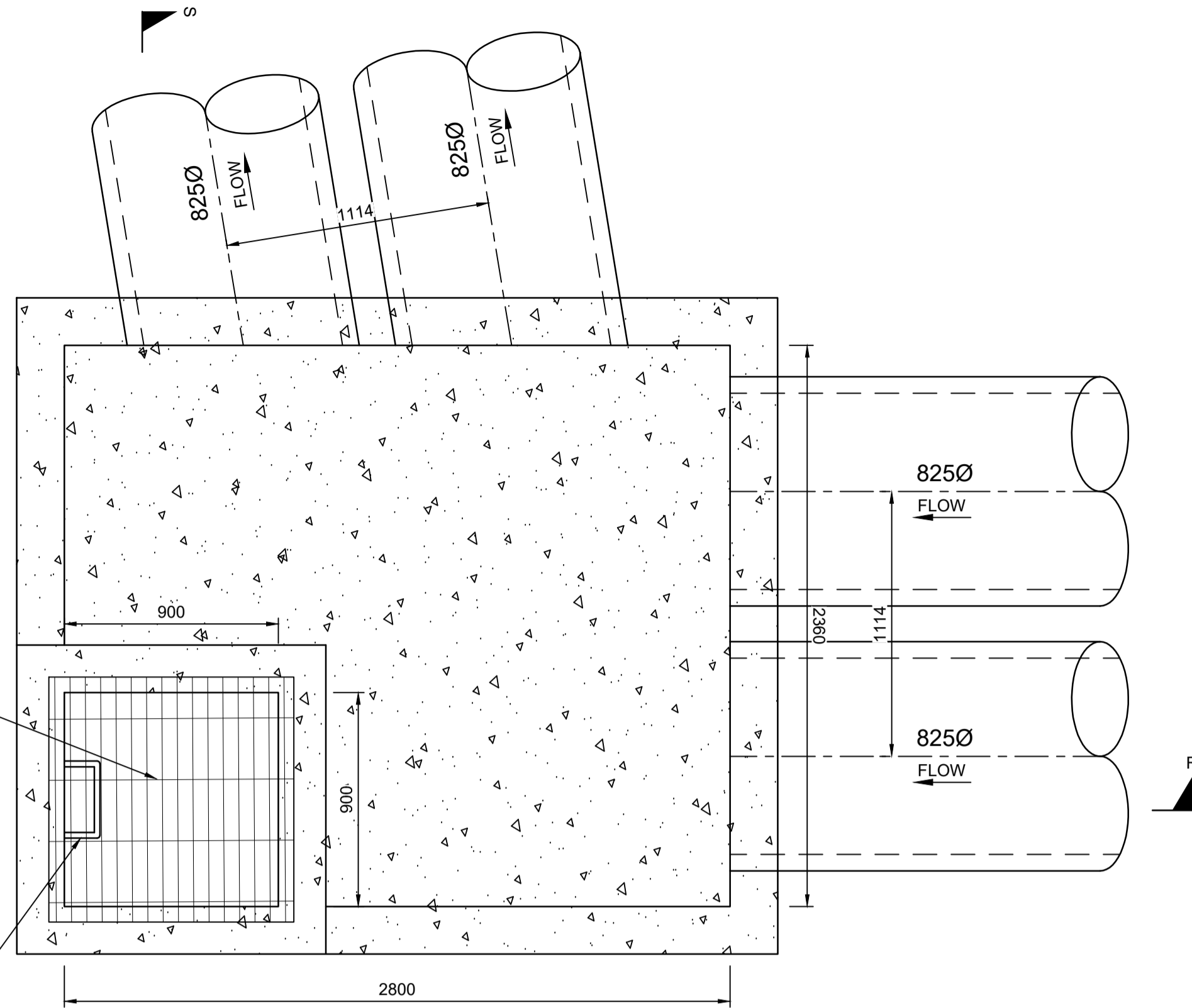
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 FILE No: 11018511CC227  
 SHEET SIZE: A1 ORIGINAL

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

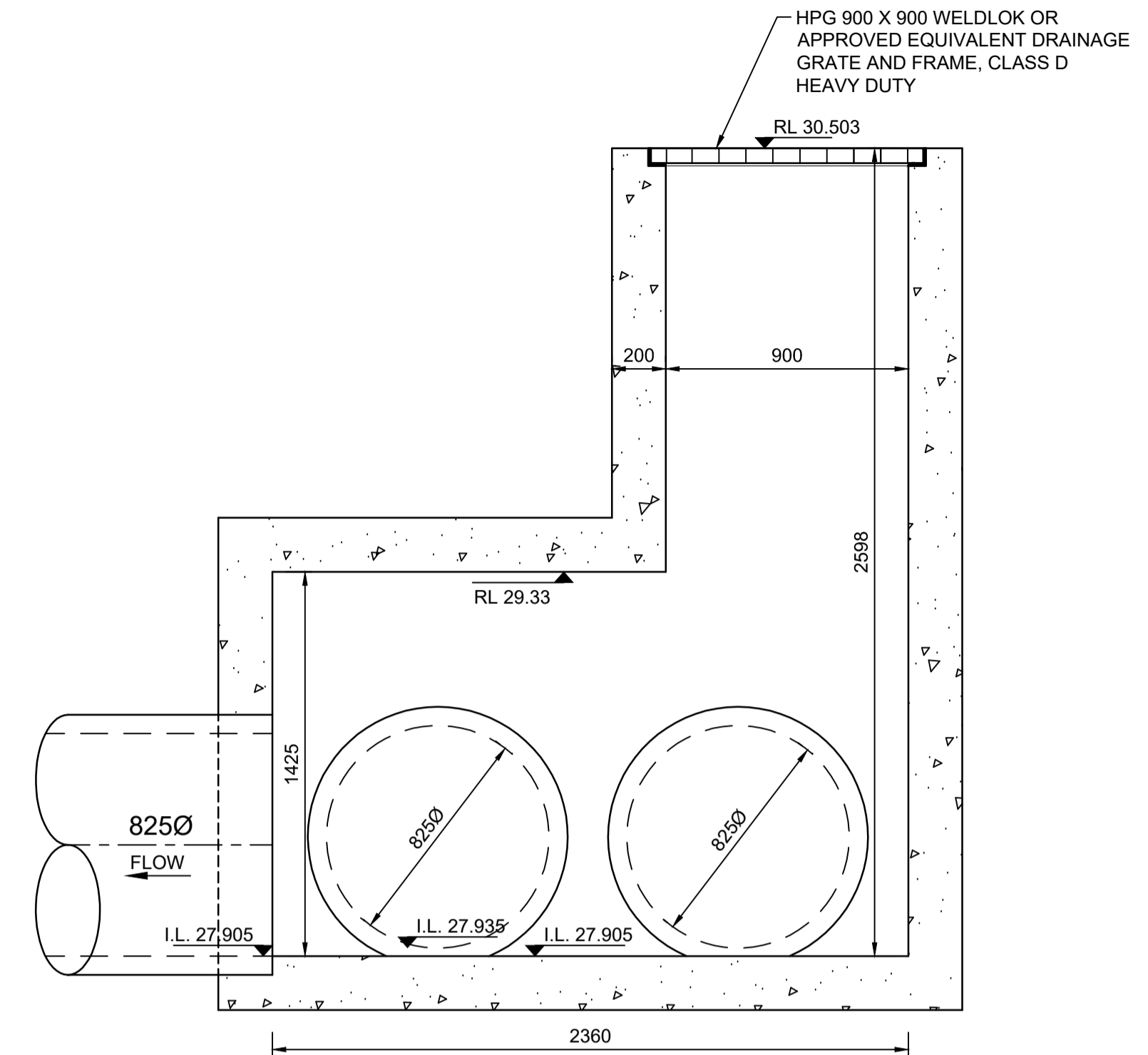
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HPG 900 X 900 WELDLOK OR APPROVED EQUIVALENT DRAINAGE GRATE AND FRAME, CLASS D HEAVY DUTY

STEP IRONS TO BE INSTALLED



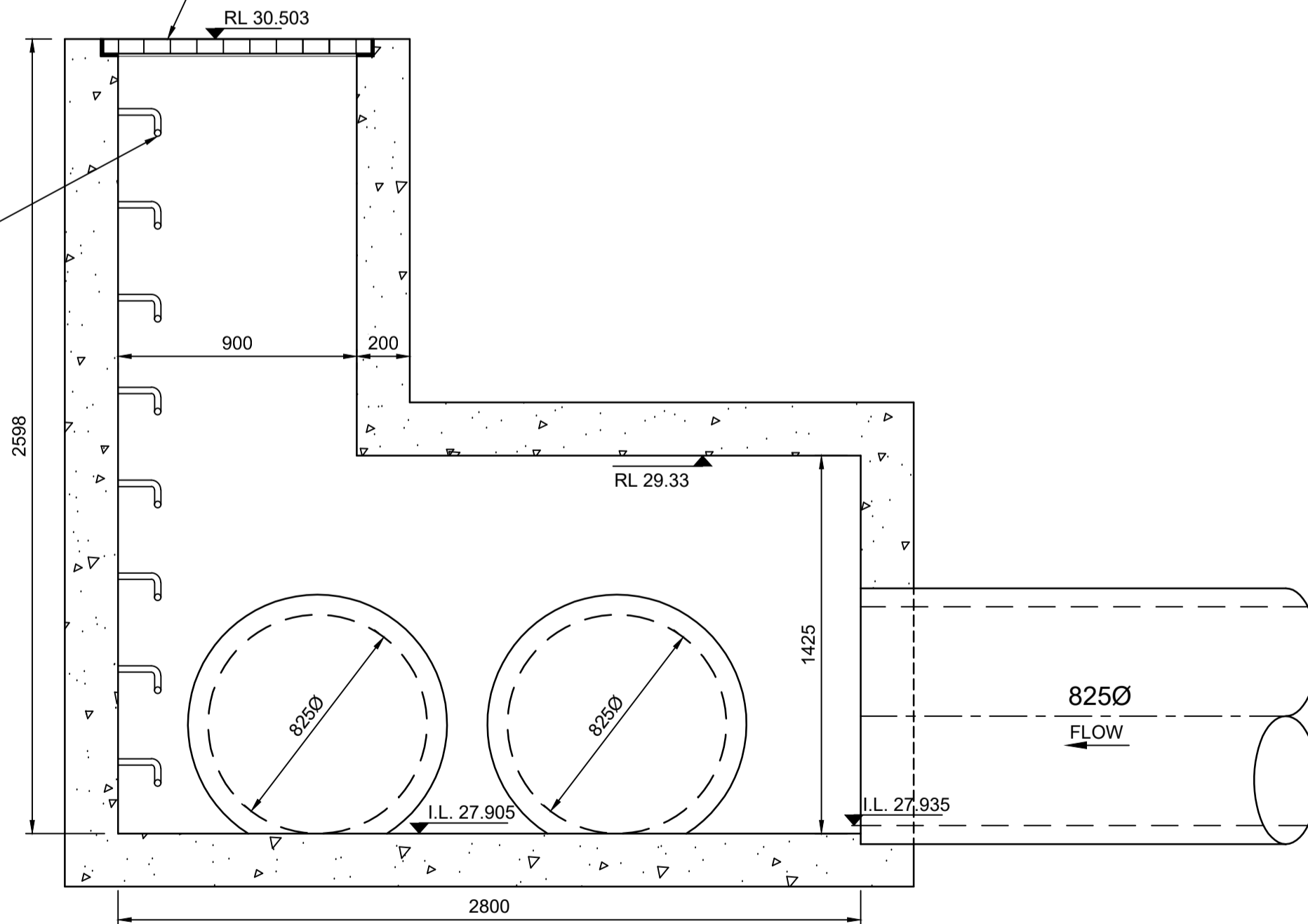
**PIT 30/17**  
SCALE 1:20



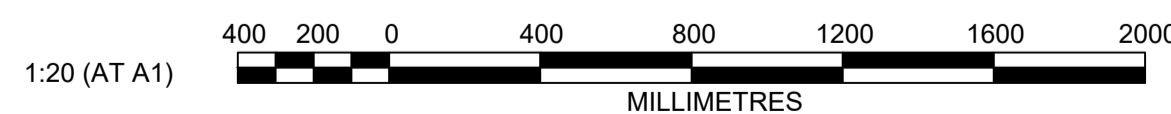
**SECTION S**  
SCALE H 1:20

HPG 900 X 900 WELDLOK OR APPROVED EQUIVALENT DRAINAGE GRATE AND FRAME, CLASS D HEAVY DUTY

STEP IRONS TO BE INSTALLED



**SECTION R**  
SCALE H 1:20



**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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AND CERTIFICATION

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS
	AMENDMENT	DES	DRN	CKD	APR
					15/06/17
					DATE

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

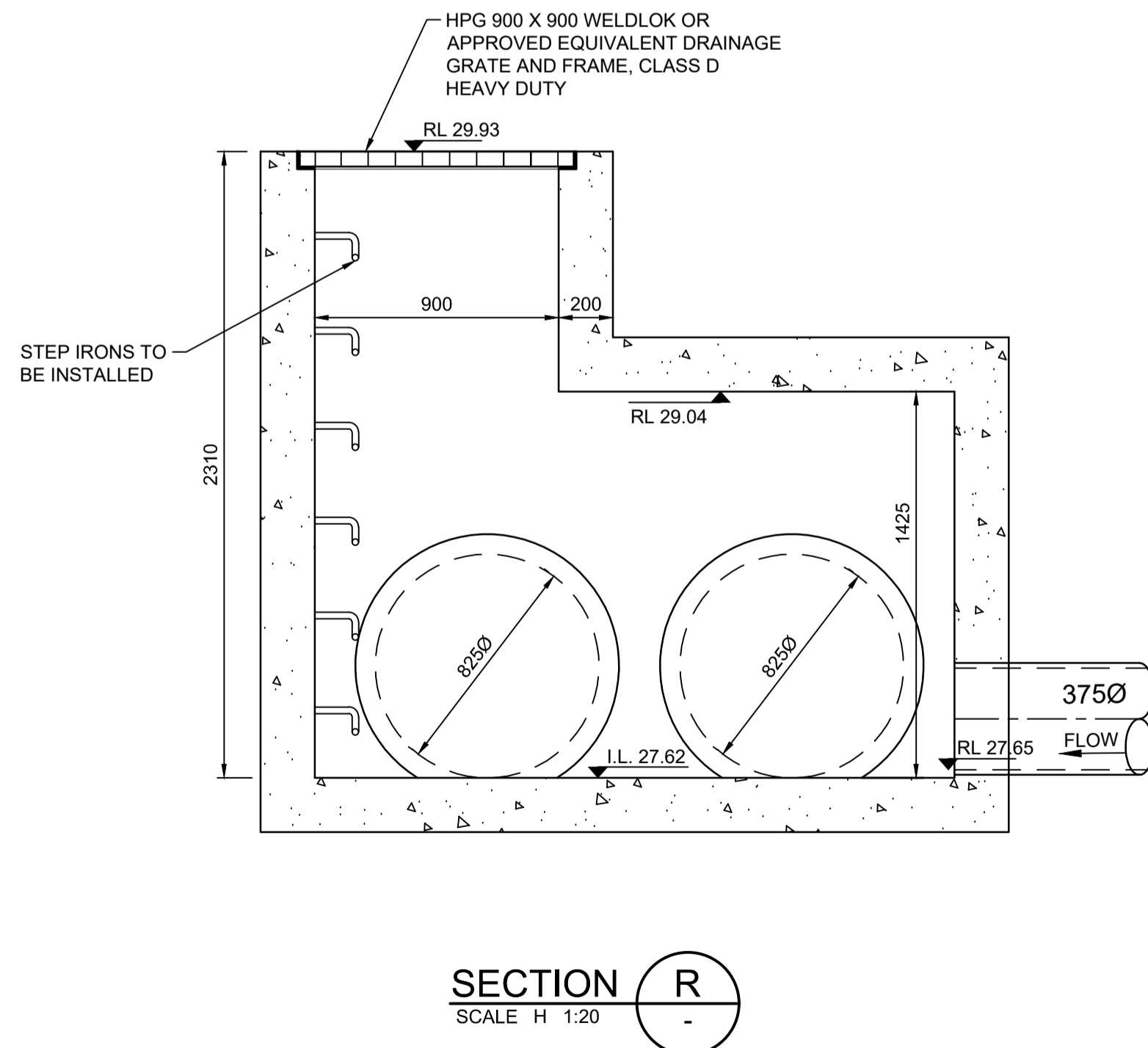
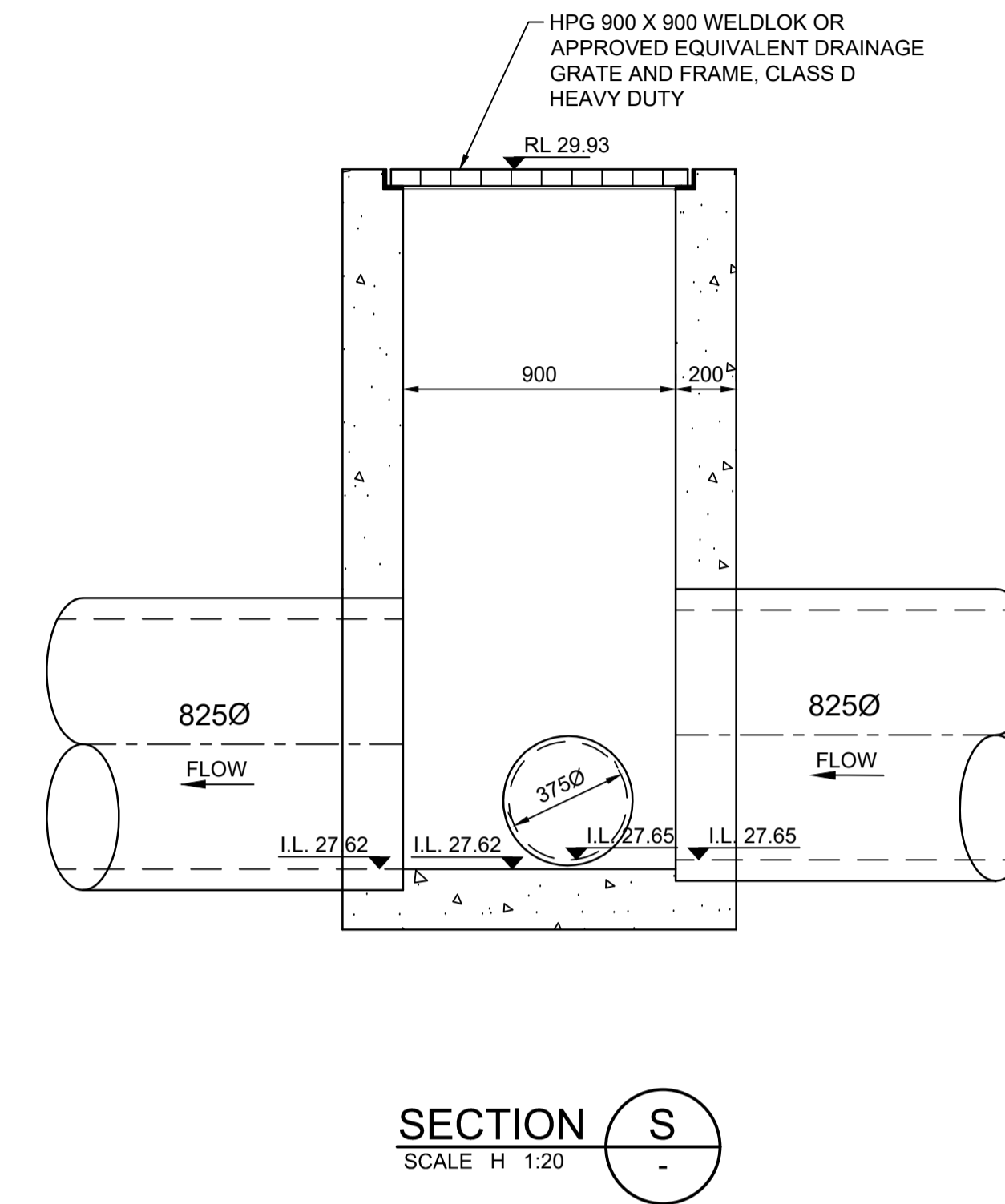
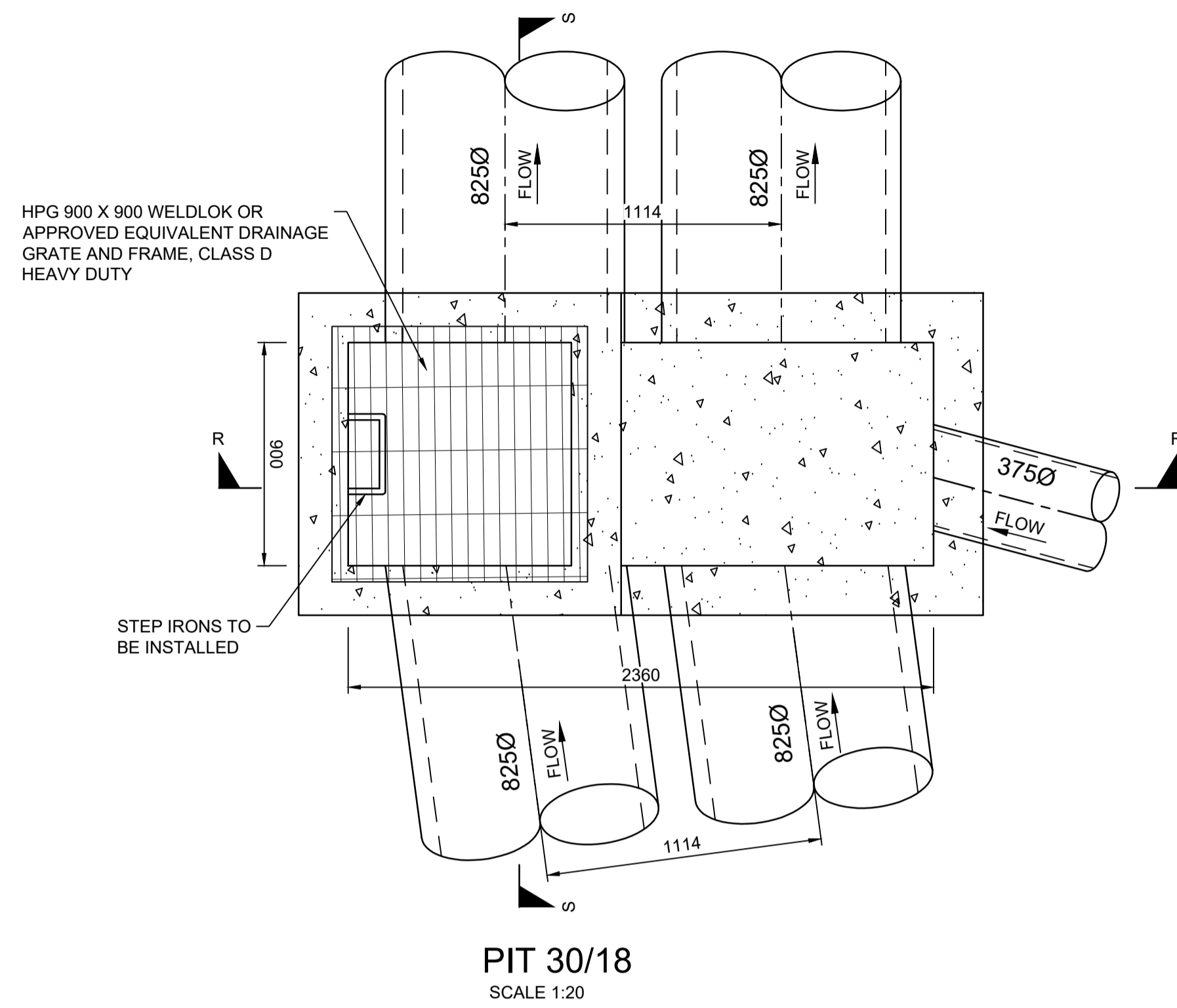
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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**

OUTLET PIT 30/17 PLAN  
AND SECTIONS

PLAN No: 11018511/CC228 **A**  
 FILE No: 11018511CC228  
 SHEET SIZE: A1 ORIGINAL

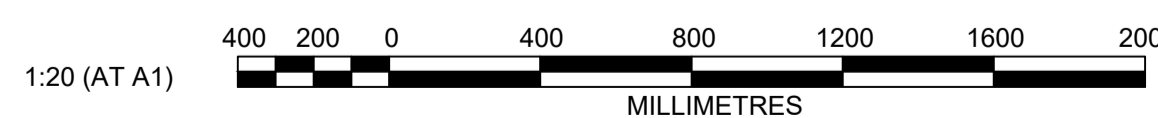


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Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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AND CERTIFICATION



PRINCIPAL:

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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
OUTLET PIT 30/18 PLAN  
AND SECTIONS

PLAN No: 11018511/CC229 **A**  
 FILE No: 11018511CC229  
 SHEET SIZE: A1 ORIGINAL

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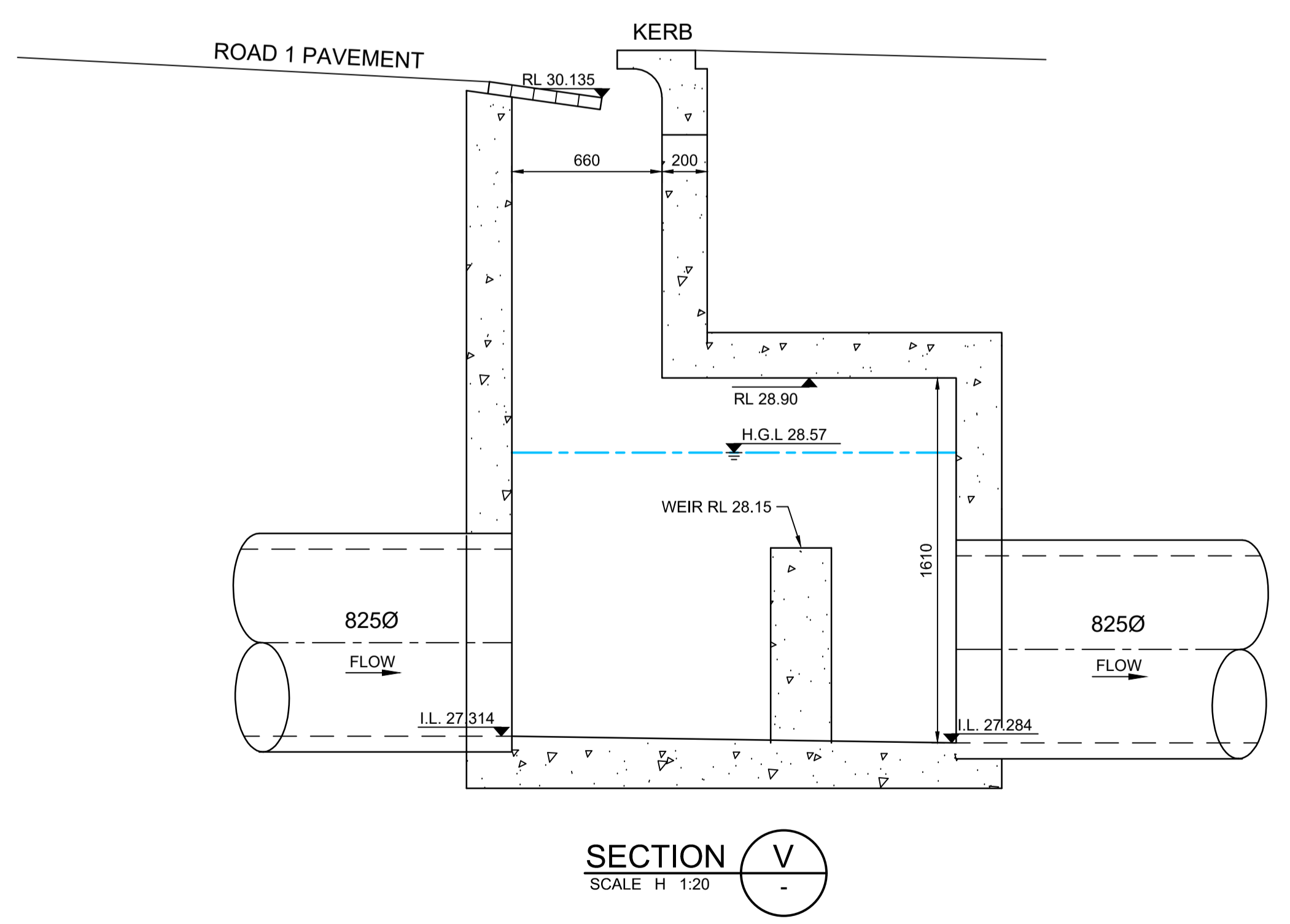
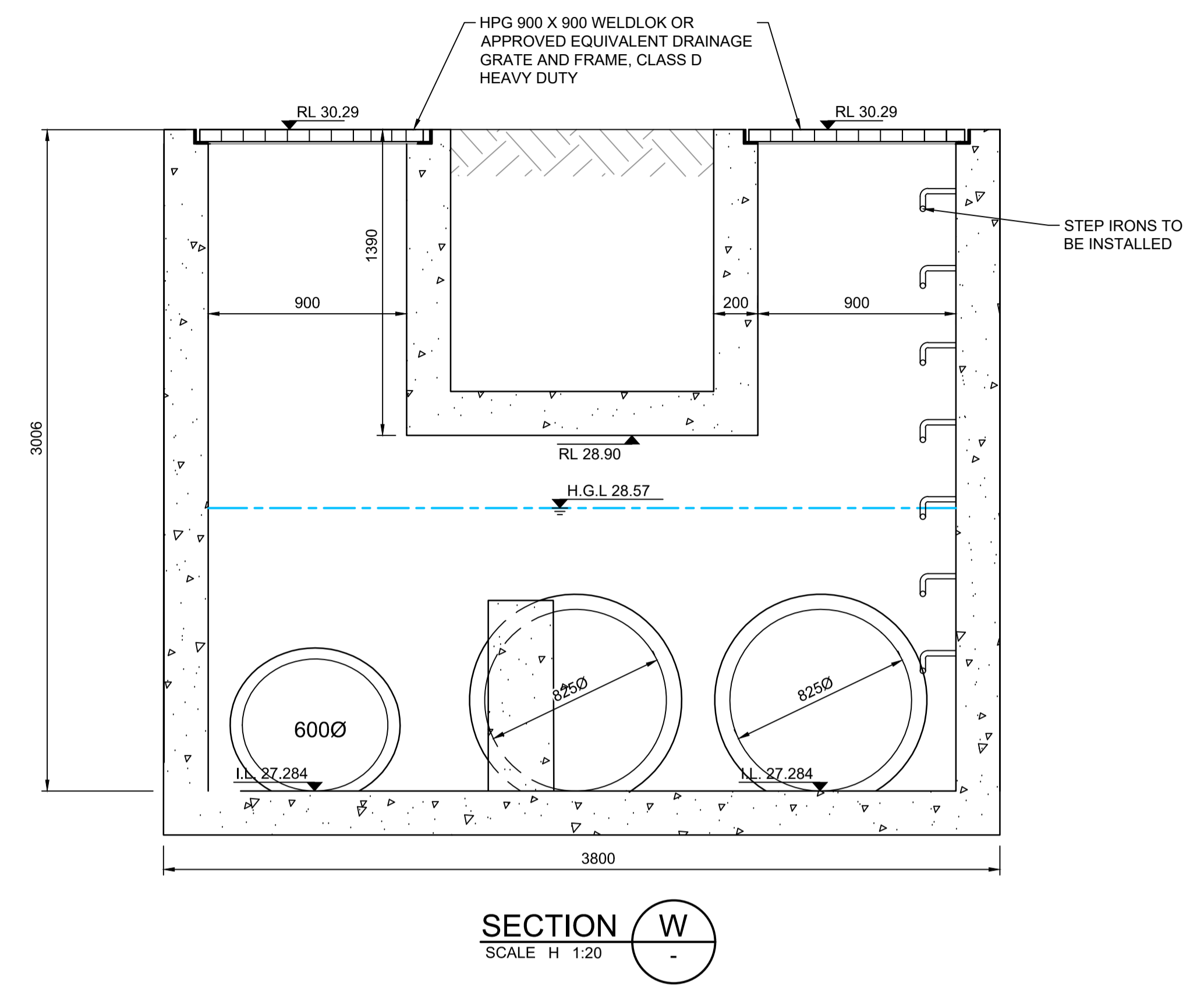
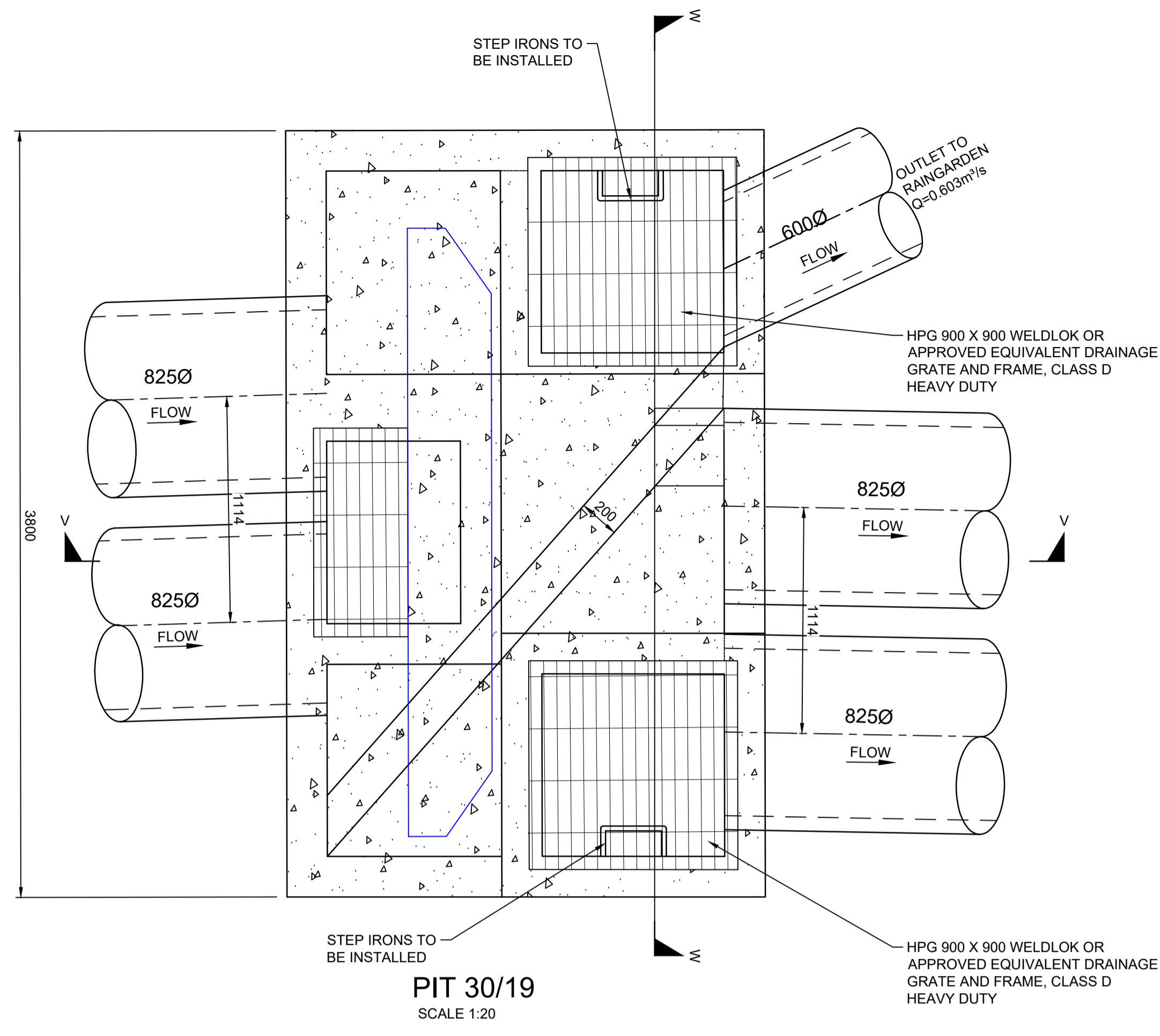
NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:



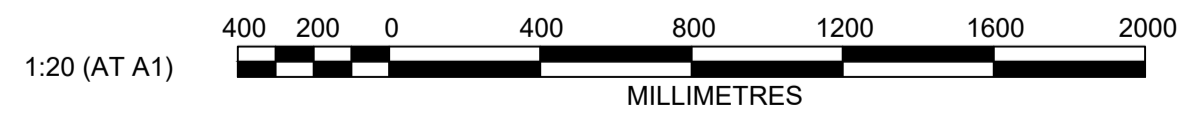


**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42.....  
 Date of Issue 5 March 2018.....  
 Issuing Officer *Jerry By...*  
 Accreditation No. BPB0565

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**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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PRINCIPAL:  
AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

PRINCIPAL:

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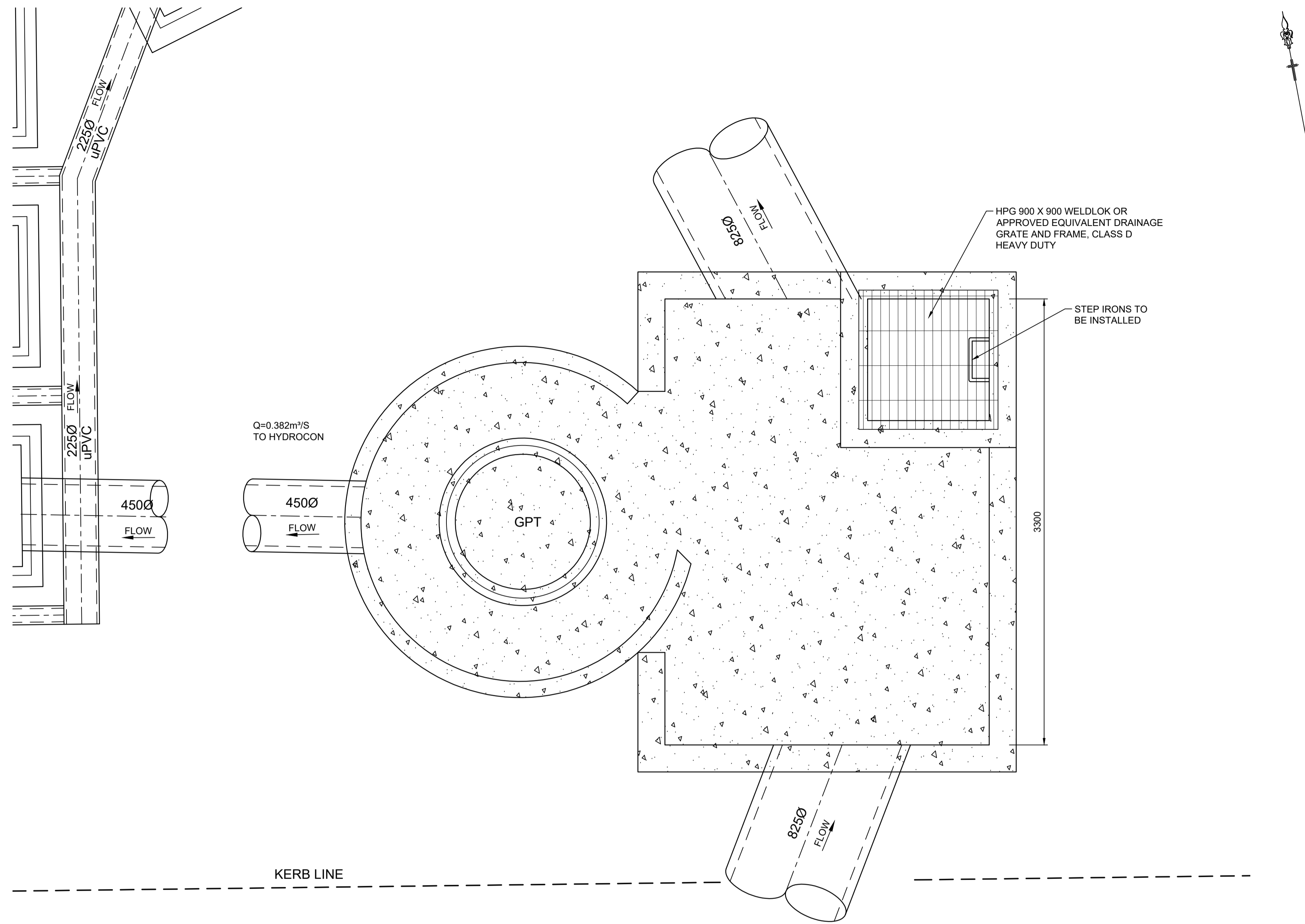
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
OUTLET PIT 30/19 PLAN  
AND SECTIONS

PLAN No:	11018511/CC230 <b>A</b>
FILE No:	11018511CC230
SHEET SIZE:	A1 ORIGINAL

Plotted: 25 January, 2018 5:11:29 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC230.dwg

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

Plotted: 25 January, 2018 5:11:47 PM. File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC\YEOMANS\11018511CC231.dwg



GPT 22/9 LAYOUT PLAN  
SCALE 1:20

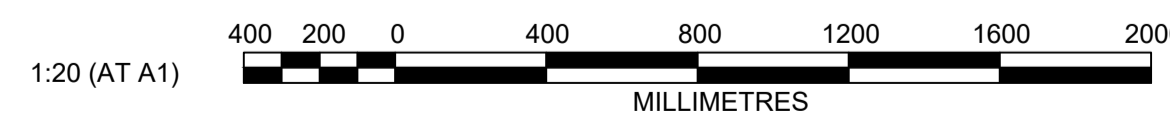
REFER TO DETAIL DRAWINGS BY ROCLA

SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer *[Signature]*  
Accreditation No. BPB0565

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PRINCIPAL:

RED BANK  
NORTH RICHMOND

AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

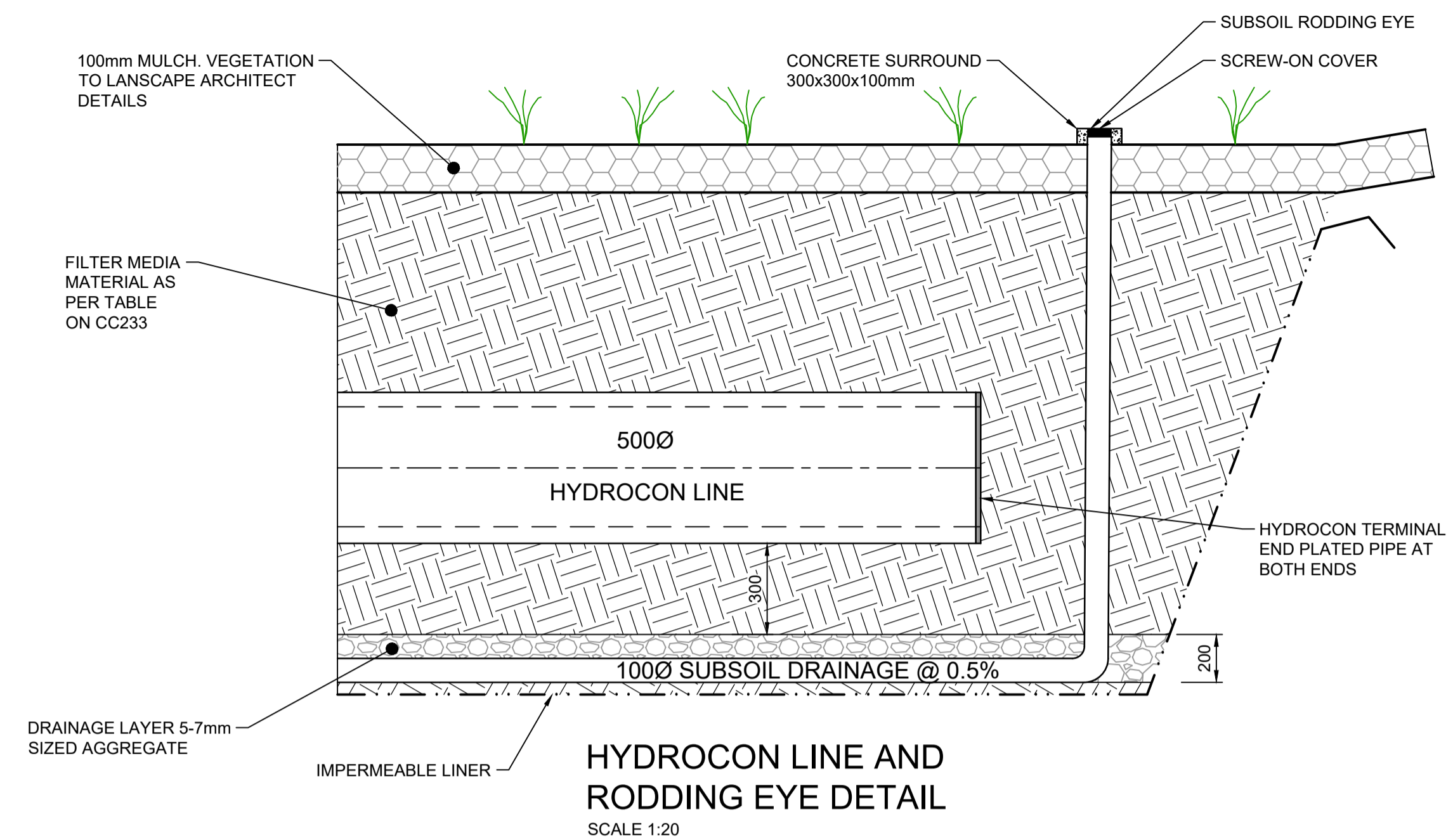
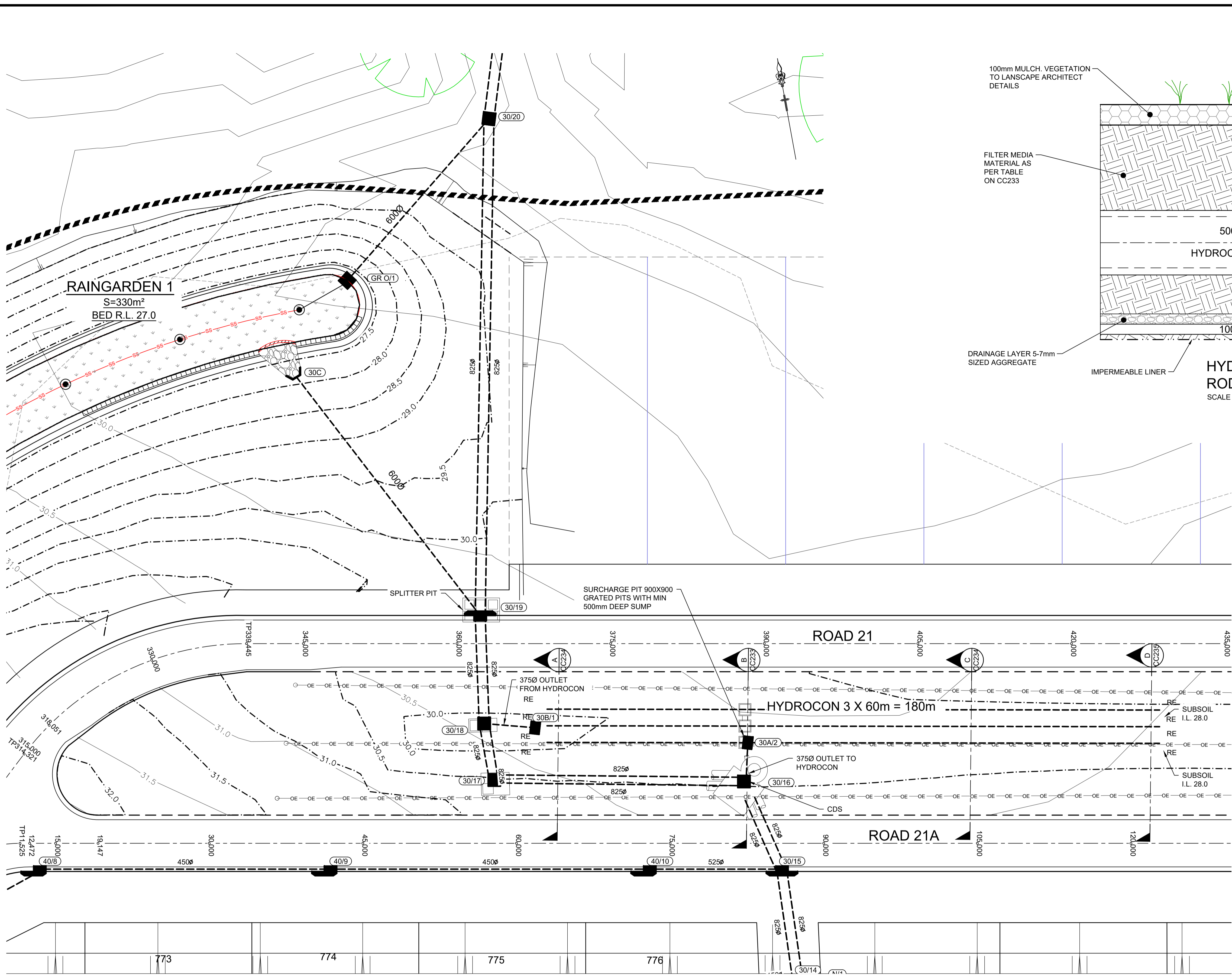
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
OUTLET PIT 22/9 AND GPT PLAN

PLAN No: 11018511/CC231 **A**  
FILE No: 11018511CC231  
SHEET SIZE: A1 ORIGINAL

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NO.	DESCRIPTION	MP	MG	RO	MS	15/06/17
DES	DRN	CKD	APR	DATE		
A	ISSUE FOR CONSTRUCTION APPROVAL					
	AMENDMENT					



LEGEND	
SUBSOIL DRAINAGE	
EXISTING CONTOURS	
DESIGN CONTOURS	
RODDING EYE	

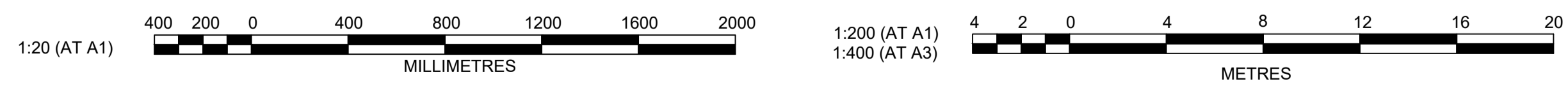
- NOTE**
- PROPOSED LOCATION / FOOTPRINT OF HYDROCON PIPE :
- BULK EARTHWORKS CONSTRUCTION TO BE UNDERTAKEN TO INVERT OF FILTER MEDIA OF HYDROCON PIPE WITH THIS CIVIL CONSTRUCTION CERTIFICATE, AS WELL AS INLET AND OUTLET STRUCTURES.
  - SUITABLE SAFETY PROTECTIONS AND VISUAL SCREENINGS TO BE APPLIED TO THE PERIMETER OF THIS WATER QUALITY LOCATION / FOOTPRINTS UNTIL THEY RECEIVE THEIR 'FINAL CONSTRUCTION'.
  - 'FINAL CONSTRUCTION' OF HYDROCON PIPE TO BE TARGETED WHEN 80% OF THE UPSTREAM LOTS HAVE THEIR DWELLINGS COMPLETED.
  - IT IS ANTICIPATED THAT THE PERIOD BETWEEN PRACTICAL COMPLETION BEING AWARDED BY EITHER AN ACCREDITED CERTIFIER OR COUNCIL FOR CIVIL WORKS, AND THE 'FINAL CONSTRUCTION' OF THESE ELEMENTS WILL BE BETWEEN 18 MONTHS TO 2 YEARS.
  - APPROPRIATE BONDS TO VALUE OF THE ESTABLISHED CONTRACT AMOUNT OF WORKS WITH THE APPOINTED CIVIL CONTRACTOR, TO BE LODGED BETWEEN DEVELOPER AND COUNCIL IN ORDER TO ATTAIN PRACTICAL COMPLETION / SUBDIVISION CERTIFICATE FROM COUNCIL, PRIOR TO THESE WATER QUALITY ELEMENTS RECEIVING THEIR 'FINAL CONSTRUCTION'.

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry B*  
 Accreditation No. BPP0565

These plans/specifications form part of the certificate issued 5 March 2018

**HYDROCON WEST LAYOUT**



Plotfile: 25 January, 2018 5:12:19 PM File Name: J:\110185 - Redbank North Richmond Residential Precincts\01 - Description\CD\CC232\YEOMANS\11018511CC232.dwg

A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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PRINCIPAL:

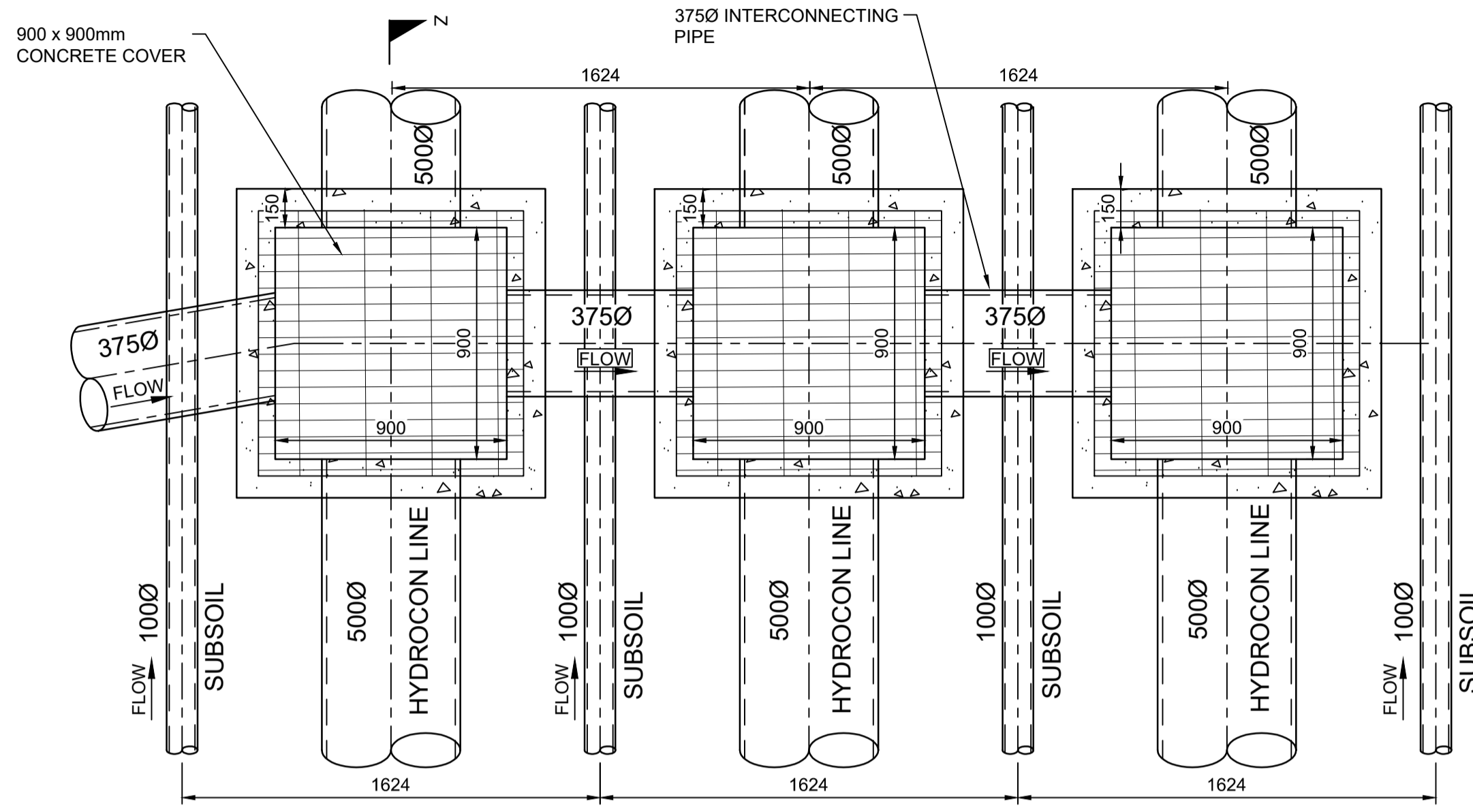
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 DATUM: A.H.D  
 ORIGIN:

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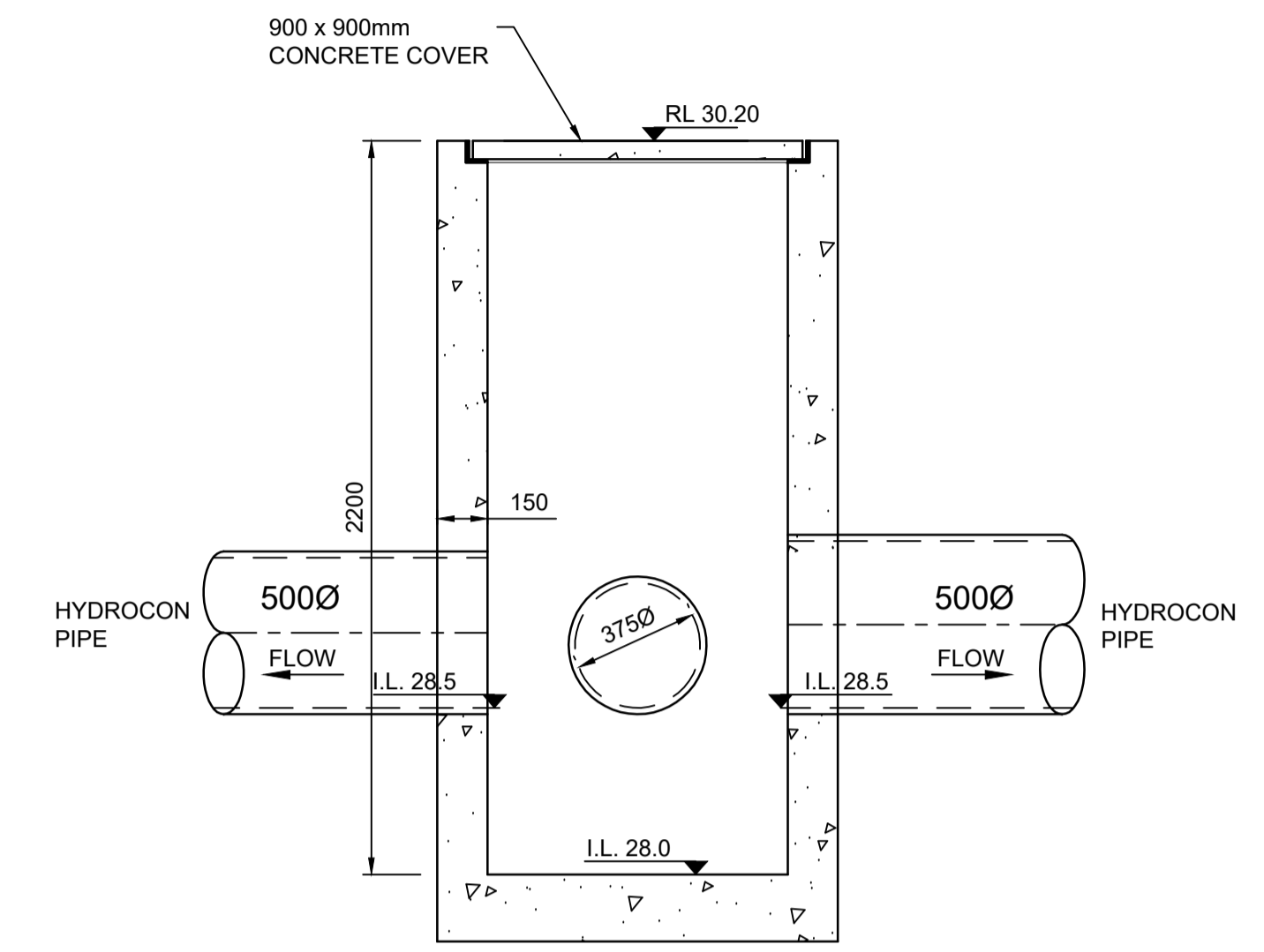
**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 HYDROCON WEST LAYOUT  
 PLAN AND DETAIL**

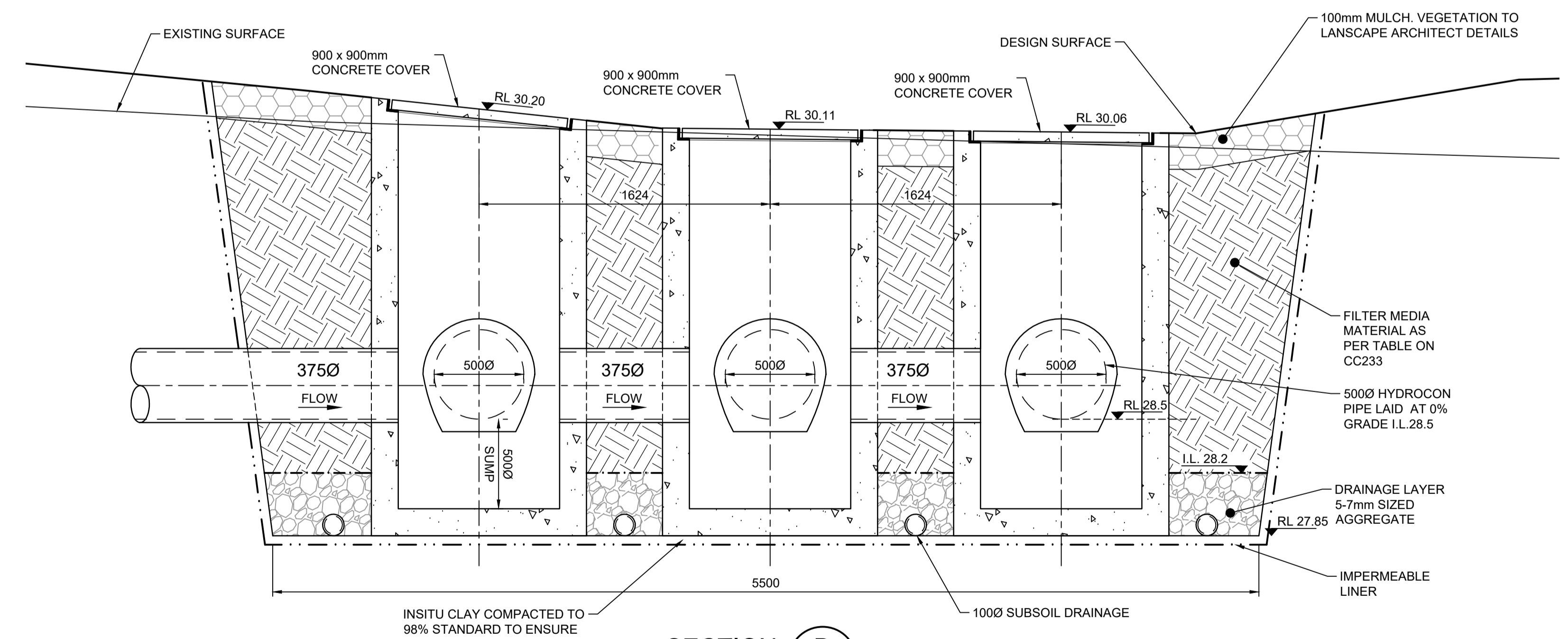
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 FILE No: 11018511CC232  
 SHEET SIZE: A1 ORIGINAL



**HYDROCON PIT 30A**  
SCALE 1:20



**SECTION Z**  
SCALE H 1:20

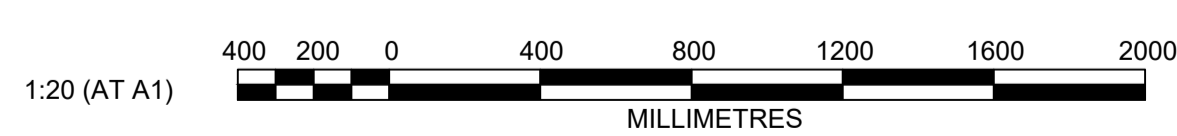


**SECTION B**  
SCALE H 1:20

FILTER MEDIA GRADING TABLE		
DESCRIPTION	GRADING	PROPORTION
CLAY AND SILT	<0.05mm	<3%
VERY FINE SAND	0.05 - 0.15mm	5 - 10%
FINE SAND	0.15 - 0.25mm	10 - 30%
MEDIUM TO COARSE SAND	0.25 - 1.0mm	40 - 60%
COARSE SAND	1.0 - 2.0mm	7 - 10%
FINE GRAVEL	2.0 - 3.4mm	<3%

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
 These plans/specifications form part of the certificate  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
HYDROCON PIT 30A,  
PIPES AND SECTION

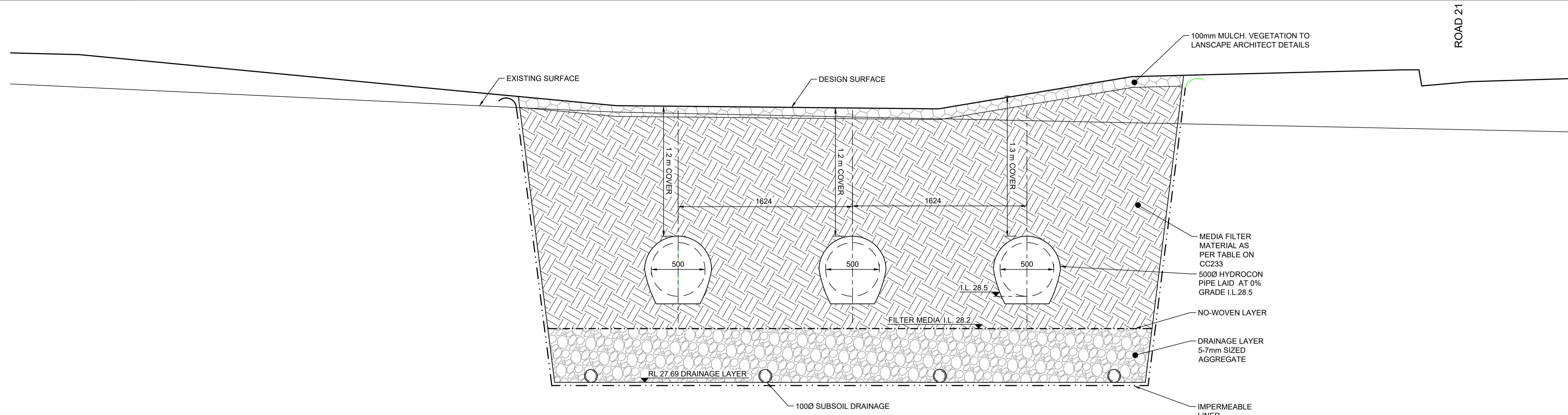
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 FILE No: 11018511CC233  
 SHEET SIZE: A1 ORIGINAL

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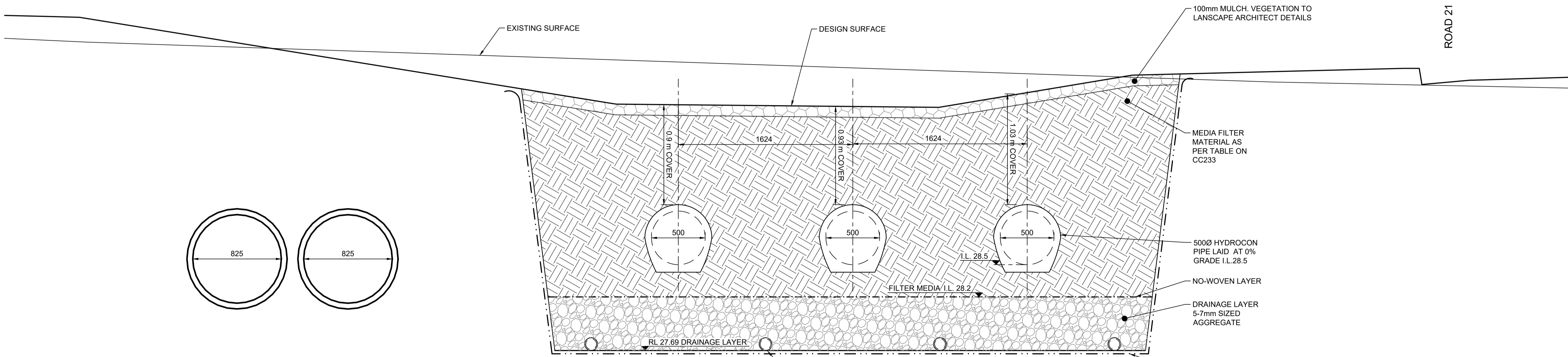
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NO.	DESCRIPTION	BY	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	15/06/17
	AMENDMENT	DES	APR

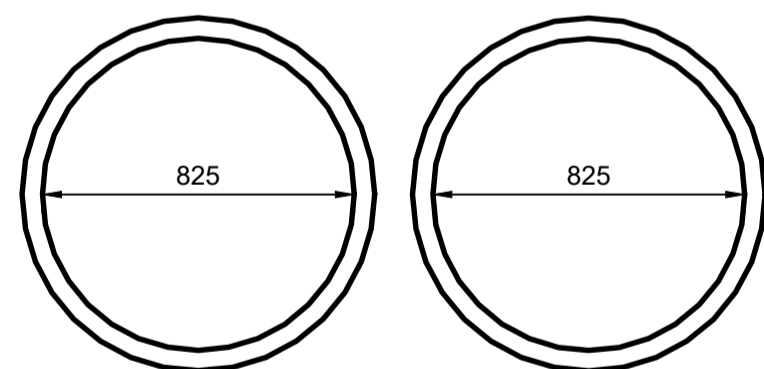
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**SECTION C**  
SCALE H 1:20  
CC232



**SECTION A**  
SCALE H 1:20  
CC232

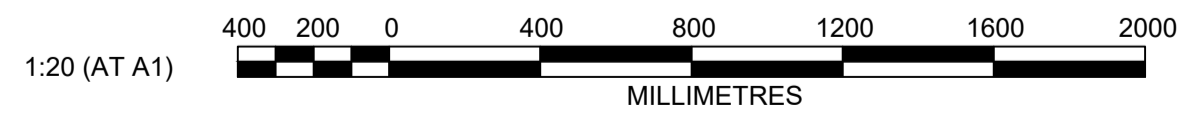


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 Accreditation No. BPB0565

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AND CERTIFICATION



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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
HYDROCON WEST SECTIONS  
SHEET 1 OF 2

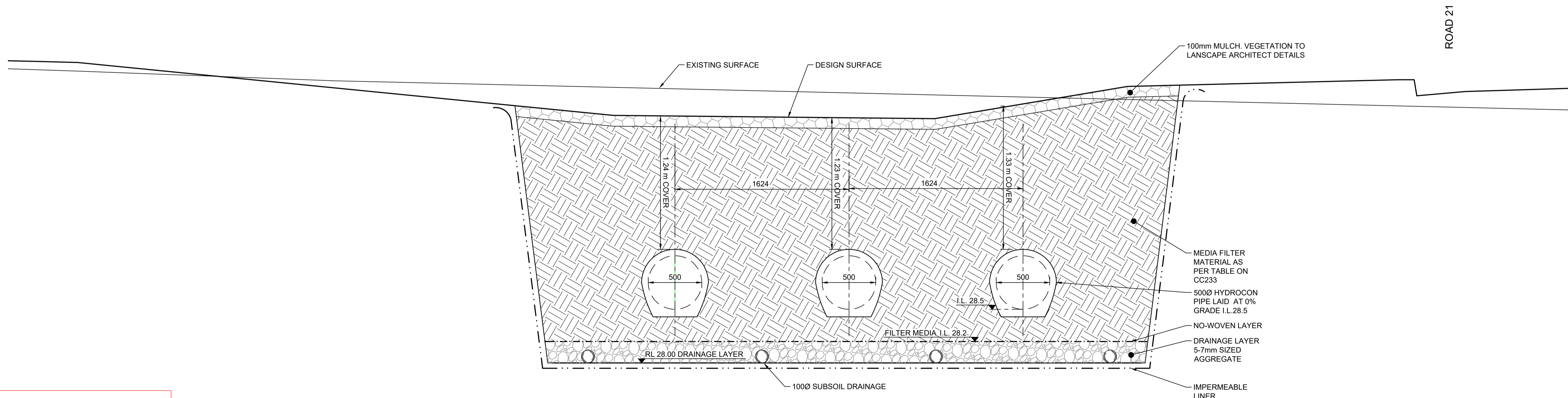
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NO.	DESCRIPTION	MP	MG	RO	MS	DATE
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	AMENDMENT					

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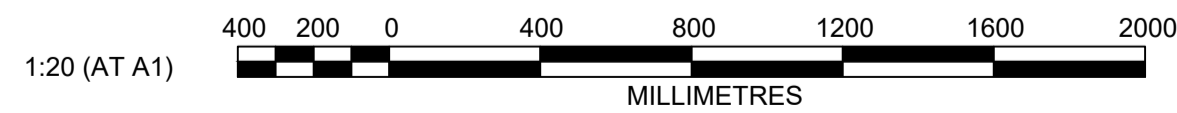
**SECTION D**  
SCALE H 1:20  
CC232

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
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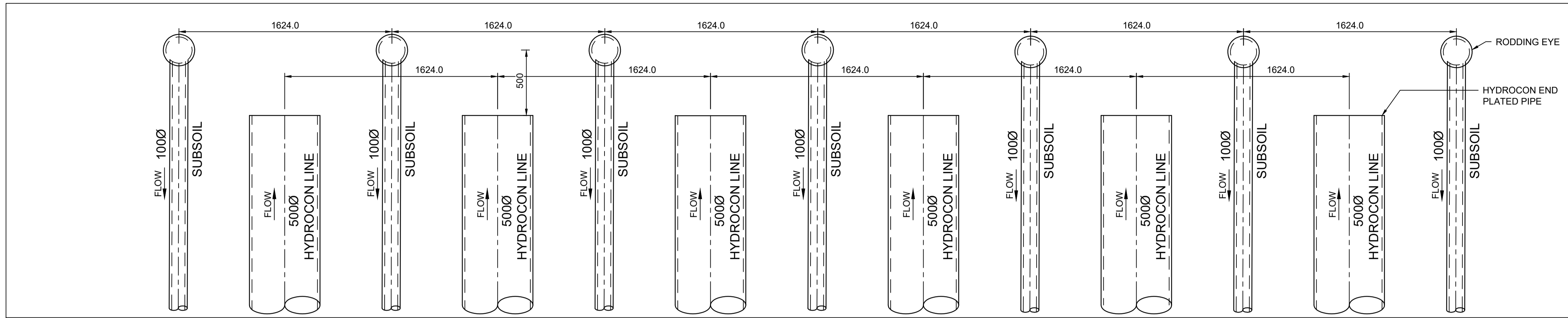
REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
HYDROCON WEST SECTIONS  
SHEET 2 OF 2

PLAN No: 11018511/CC235 **A**  
 FILE No: 11018511CC235  
 SHEET SIZE: A1 ORIGINAL

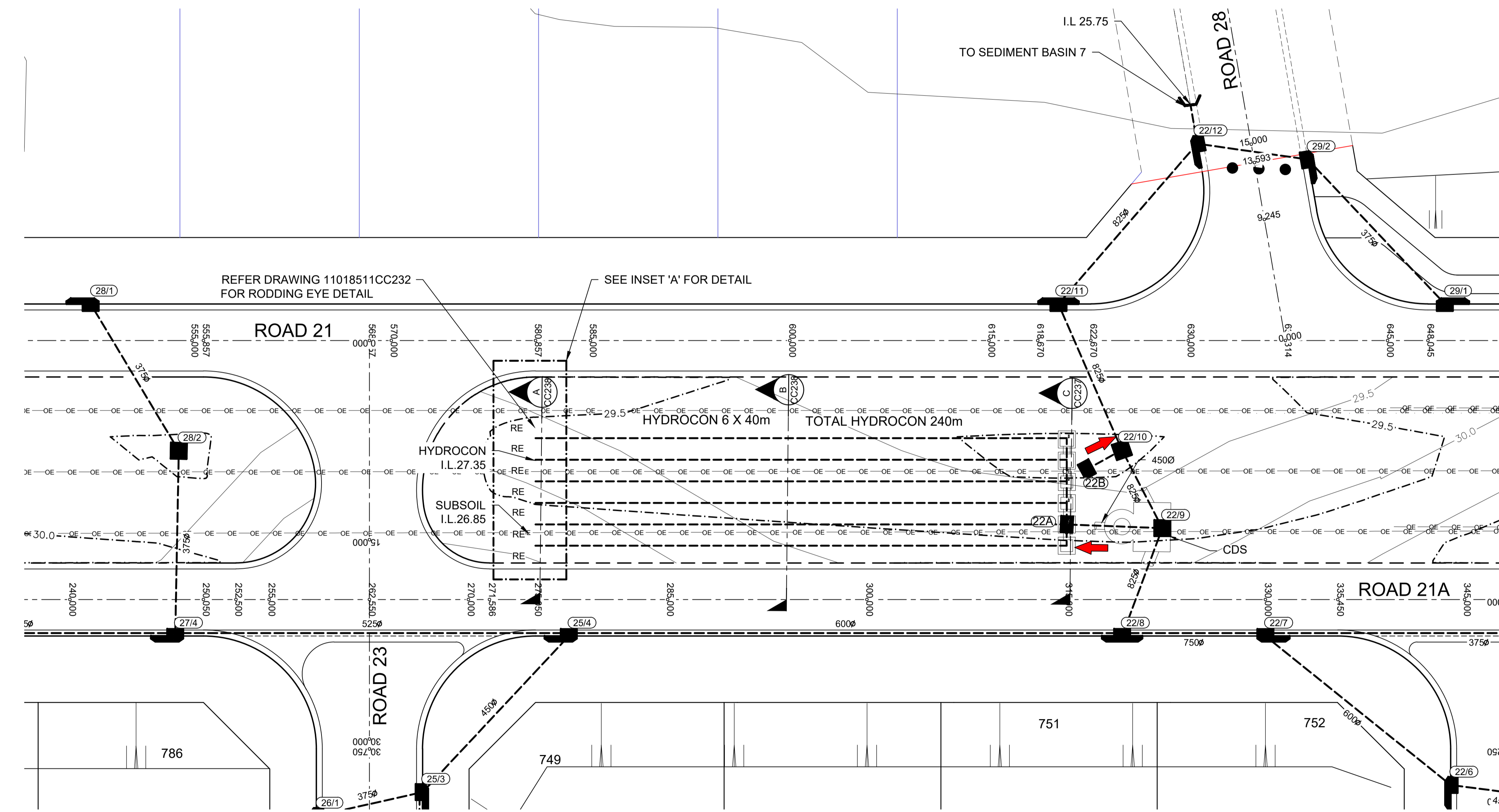
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NO.	DESCRIPTION	MP	MG	RO	MS	DATE
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	AMENDMENT					



INSET A  
SCALE 1:20



HYDROCON EAST LAYOUT

LEGEND	
SUBSOIL DRAINAGE	
EXISTING CONTOURS	
DESIGN CONTOURS	
RODDING EYE	

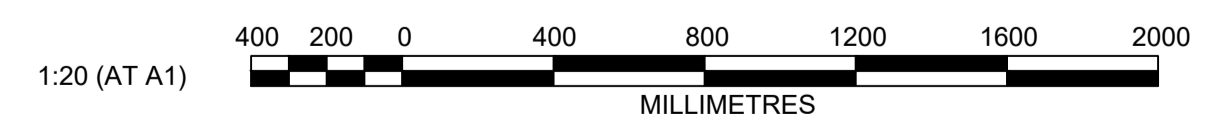
NOTE

- PROPOSED LOCATION / FOOTPRINT OF HYDROCON PIPE :
1. BULK EARTHWORKS CONSTRUCTION TO BE UNDERTAKEN TO INVERT OF FILTER MEDIA OF HYDROCON PIPE WITH THIS CIVIL CONSTRUCTION CERTIFICATE, AS WELL AS INLET AND OUTLET STRUCTURES.
  2. SUITABLE SAFETY PROTECTIONS AND VISUAL SCREENINGS TO BE APPLIED TO THE PERIMETER OF THIS WATER QUALITY LOCATION / FOOTPRINTS UNTIL THEY RECEIVE THEIR 'FINAL CONSTRUCTION'.
  3. 'FINAL CONSTRUCTION' OF HYDROCON PIPE TO BE TARGETED WHEN 80% OF THE UPSTREAM LOTS HAVE THEIR DWELLINGS COMPLETED.
  4. IT IS ANTICIPATED THAT THE PERIOD BETWEEN PRACTICAL COMPLETION BEING AWARDED BY EITHER AN ACCREDITED CERTIFIER OR COUNCIL FOR CIVIL WORKS, AND THE 'FINAL CONSTRUCTION' OF THESE ELEMENTS WILL BE BETWEEN 18 MONTHS TO 2 YEARS.
  5. APPROPRIATE BONDS TO VALUE OF THE ESTABLISHED CONTRACT AMOUNT OF WORKS WITH THE APPOINTED CIVIL CONTRACTOR, TO BE LODGED BETWEEN DEVELOPER AND COUNCIL IN ORDER TO ATTAIN PRACTICAL COMPLETION / SUBDIVISION CERTIFICATE FROM COUNCIL, PRIOR TO THESE WATER QUALITY ELEMENTS RECEIVING THEIR 'FINAL CONSTRUCTION'.

**CONSTRUCTION CERTIFICATE**

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 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
HYDROCON EAST LAYOUT  
PLAN**

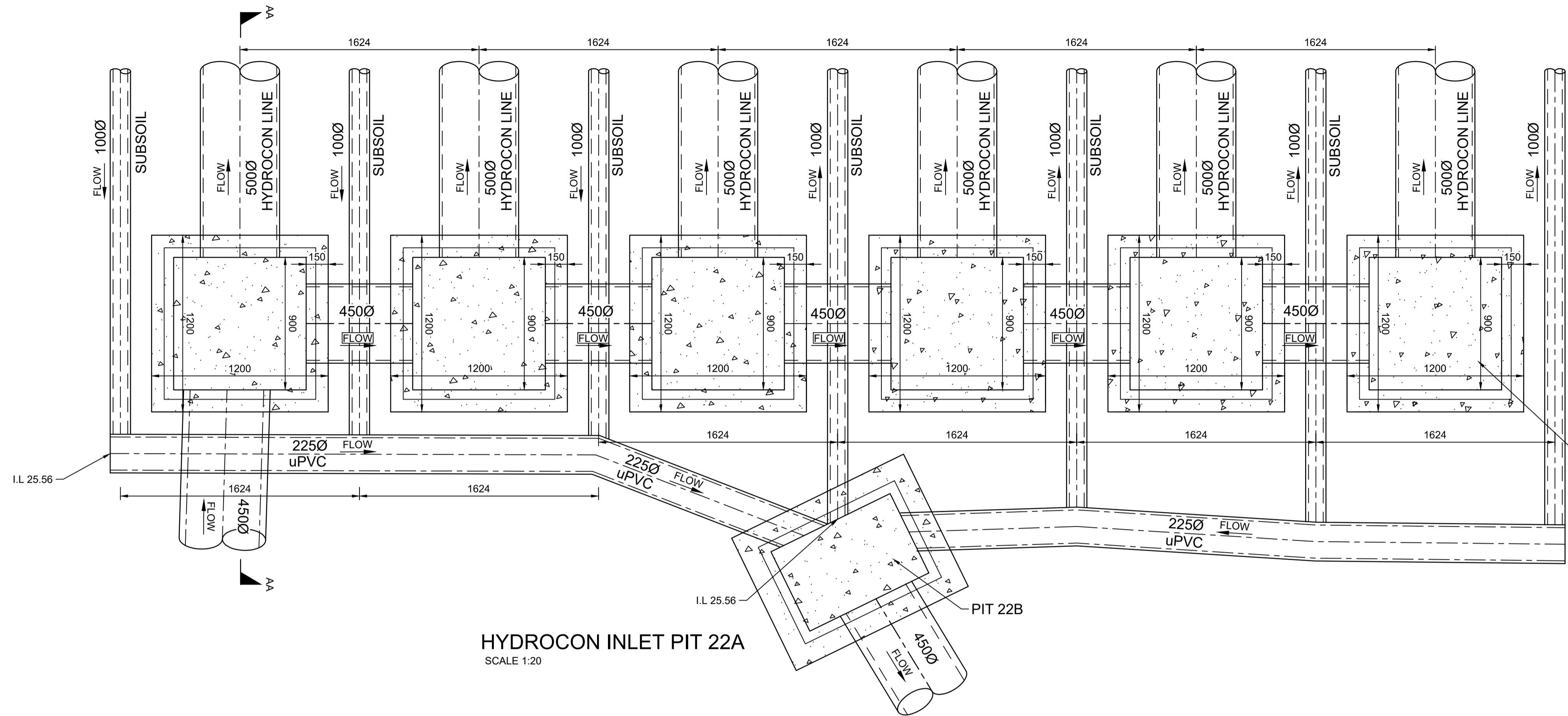
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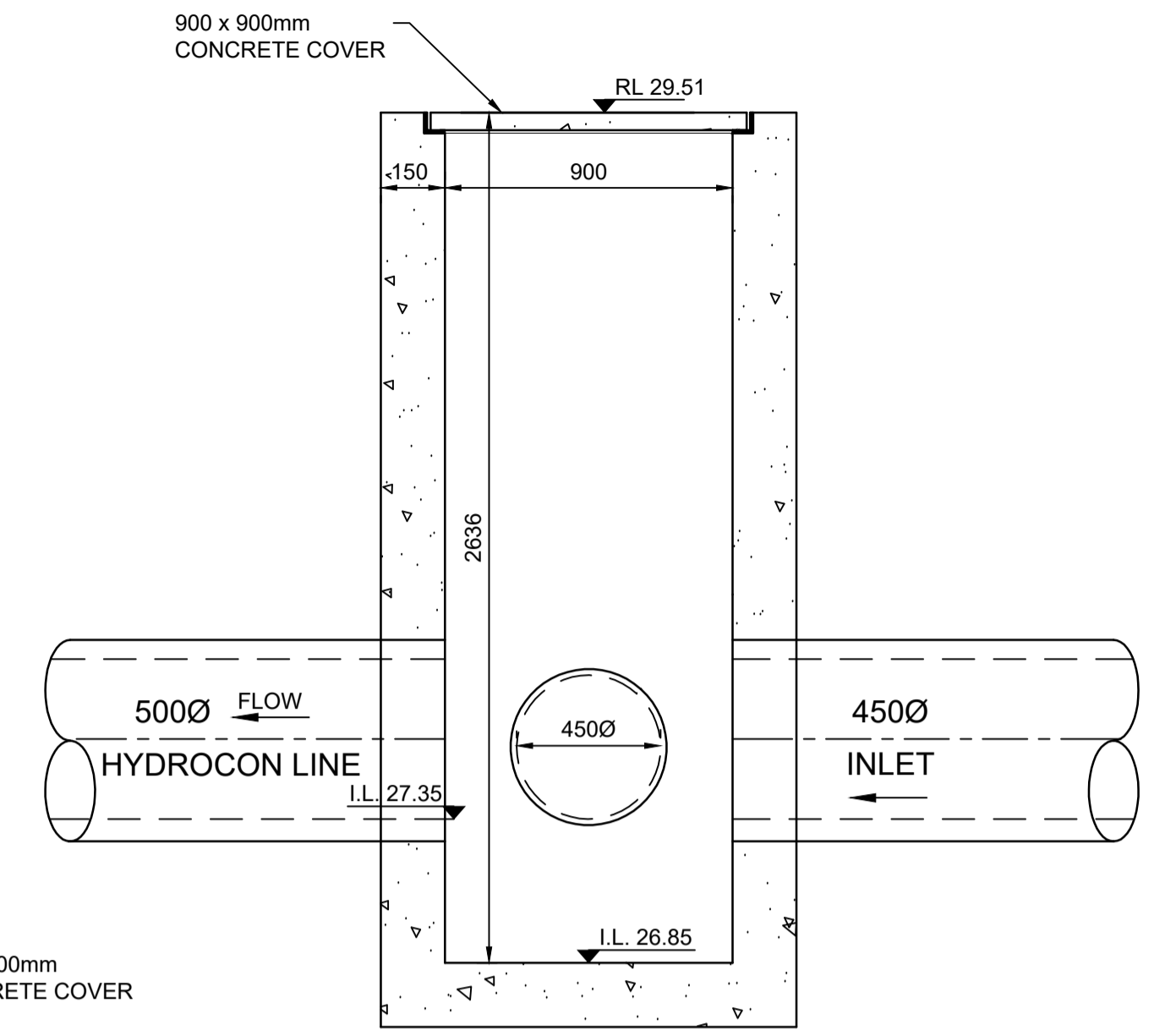
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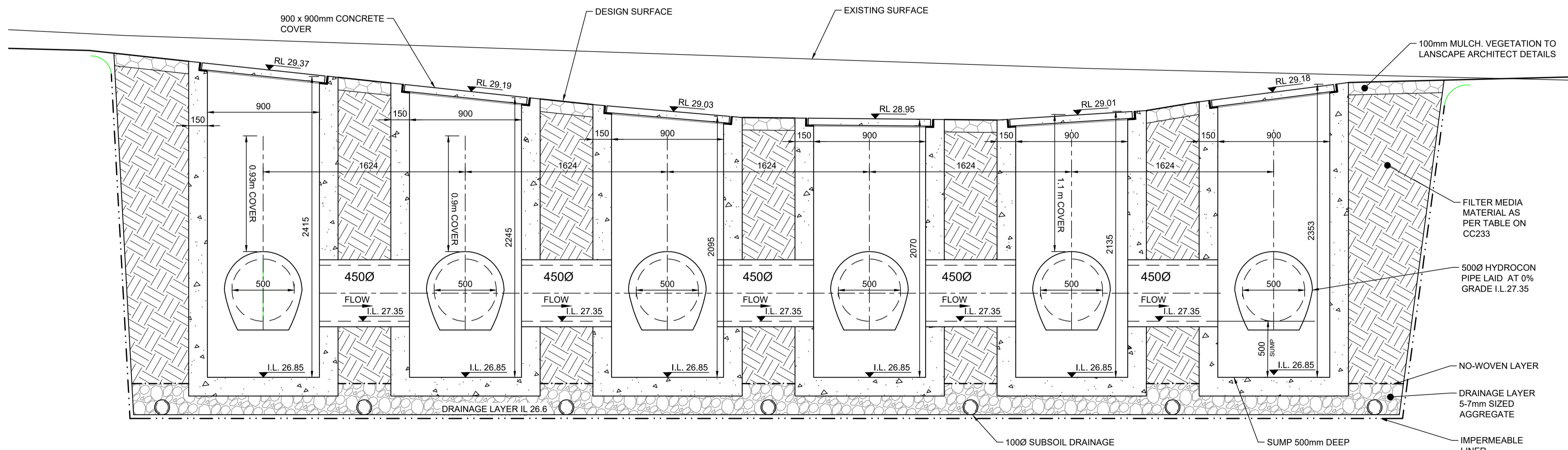
NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	



**HYDROCON INLET PIT 22A**  
SCALE 1:20



**SECTION AA**  
SCALE H 1:20



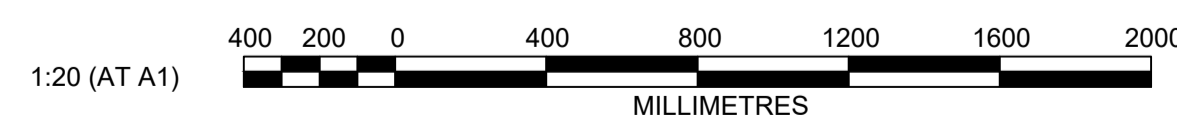
**SECTION C**  
SCALE H 1:20  
CC236

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130229C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPP0565

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STRUCTURAL DESIGN  
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PRINCIPAL:

RED BANK  
NORTH RICHMOND

AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

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**ISSUED FOR CONSTRUCTION APPROVAL**

**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**  
HYDROCON PIT 22A,  
PIPES AND SECTION

PLAN No:  
**11018511/CC237 A**

FILE No: 11018511CC237

SHEET SIZE: A1 ORIGINAL

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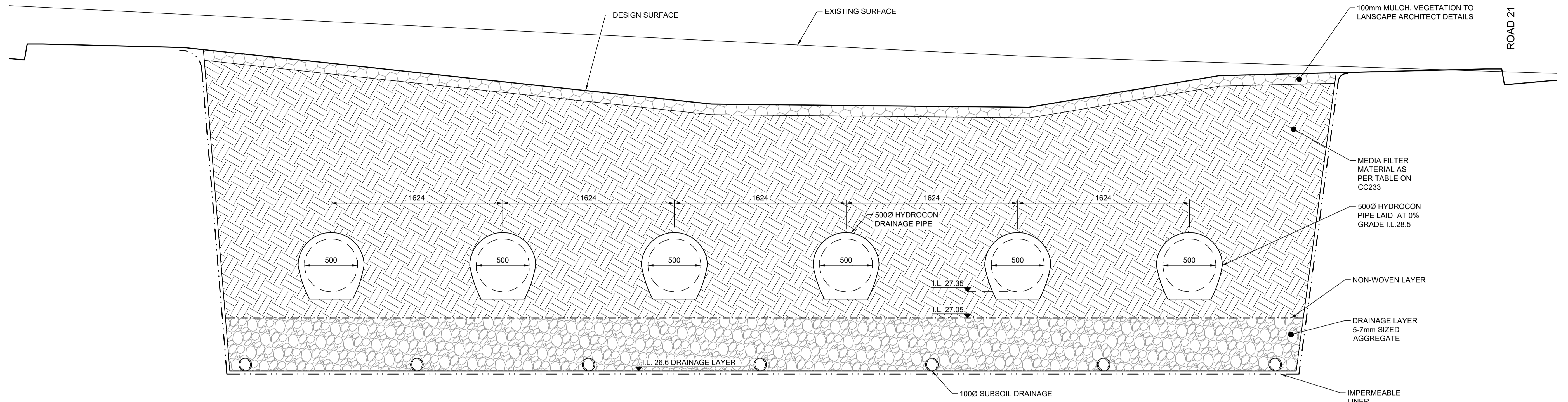
NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

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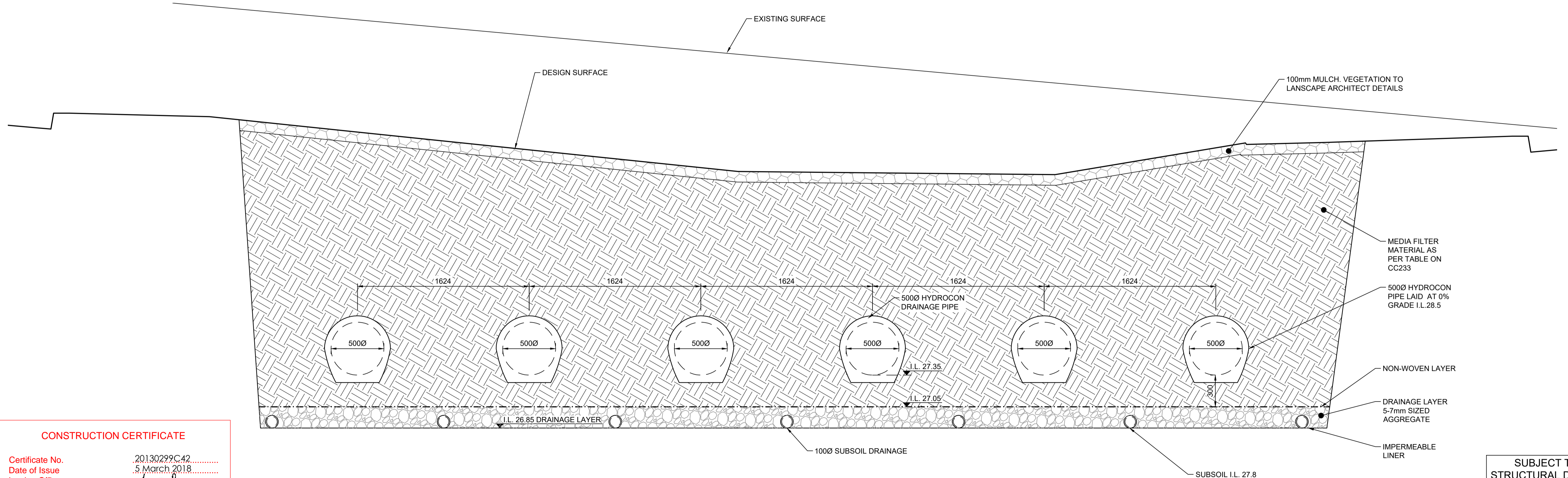
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**SECTION B**  
SCALE H 1:20  
CC236



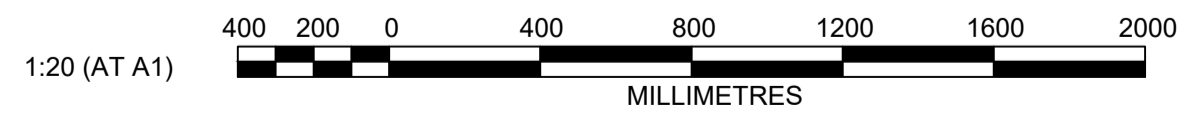
**SECTION A**  
SCALE H 1:20  
CC236

**CONSTRUCTION CERTIFICATE**

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 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565

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 DATUM: A.H.D  
 ORIGIN:

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REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
HYDROCON EAST SECTION

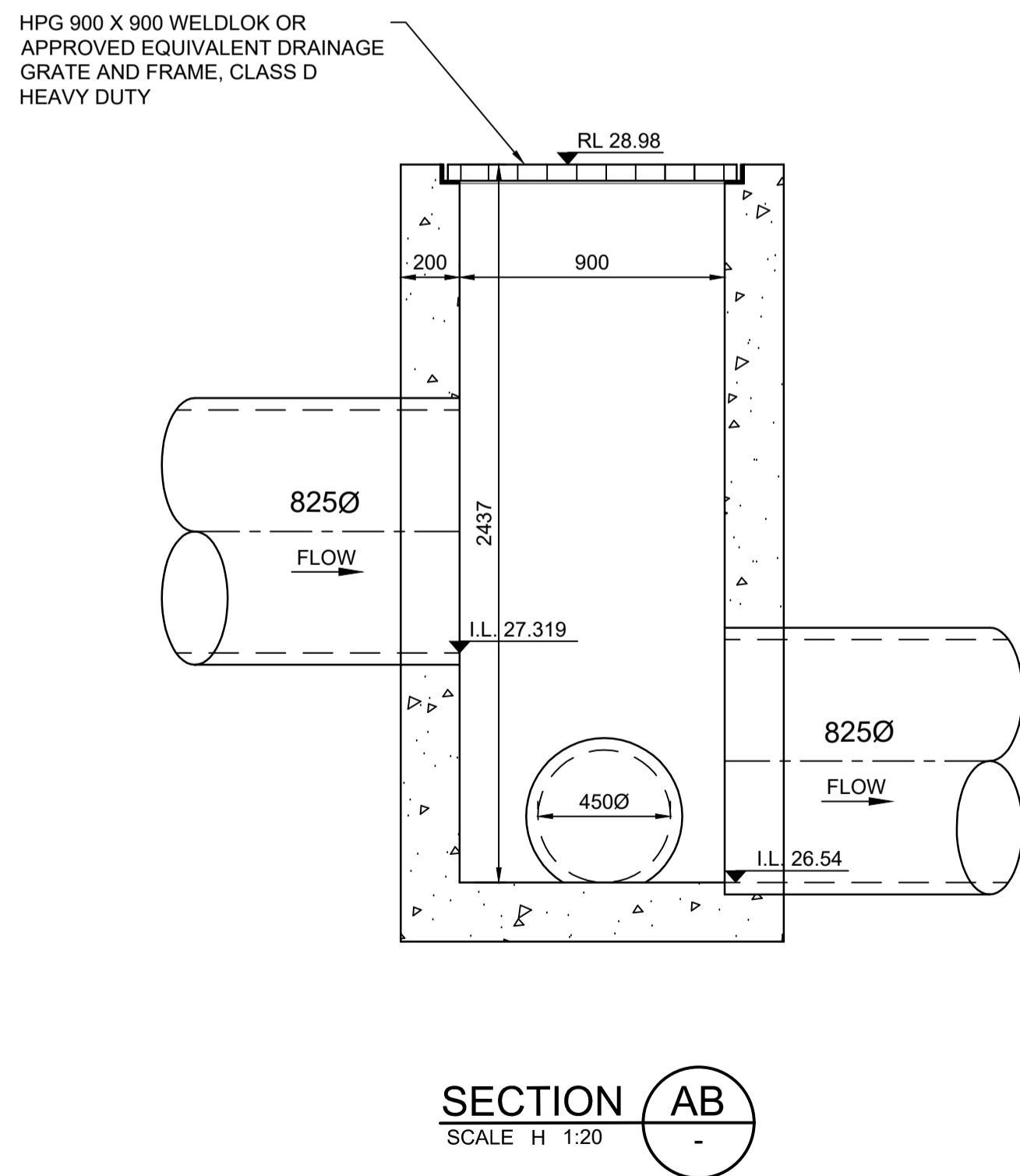
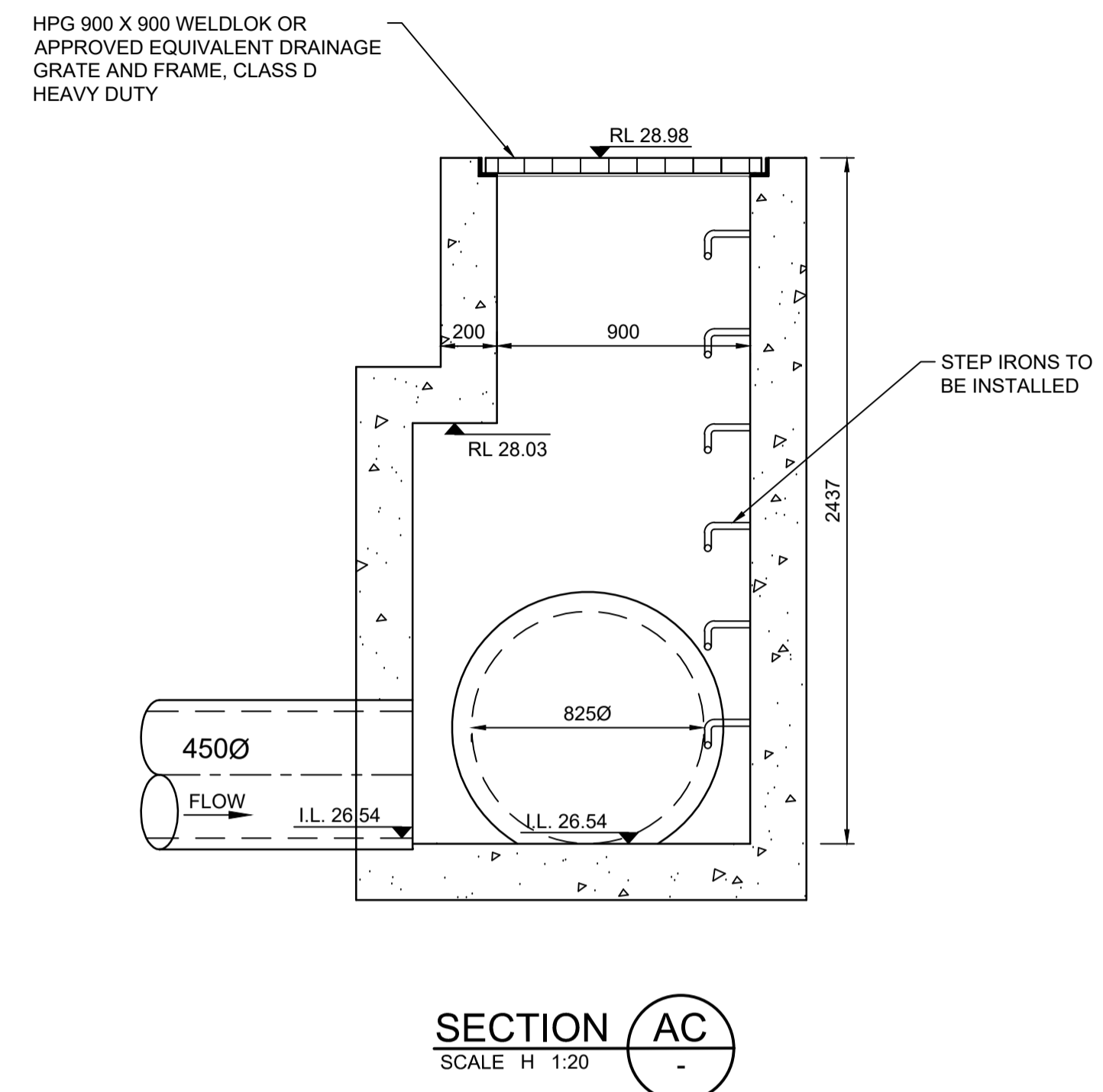
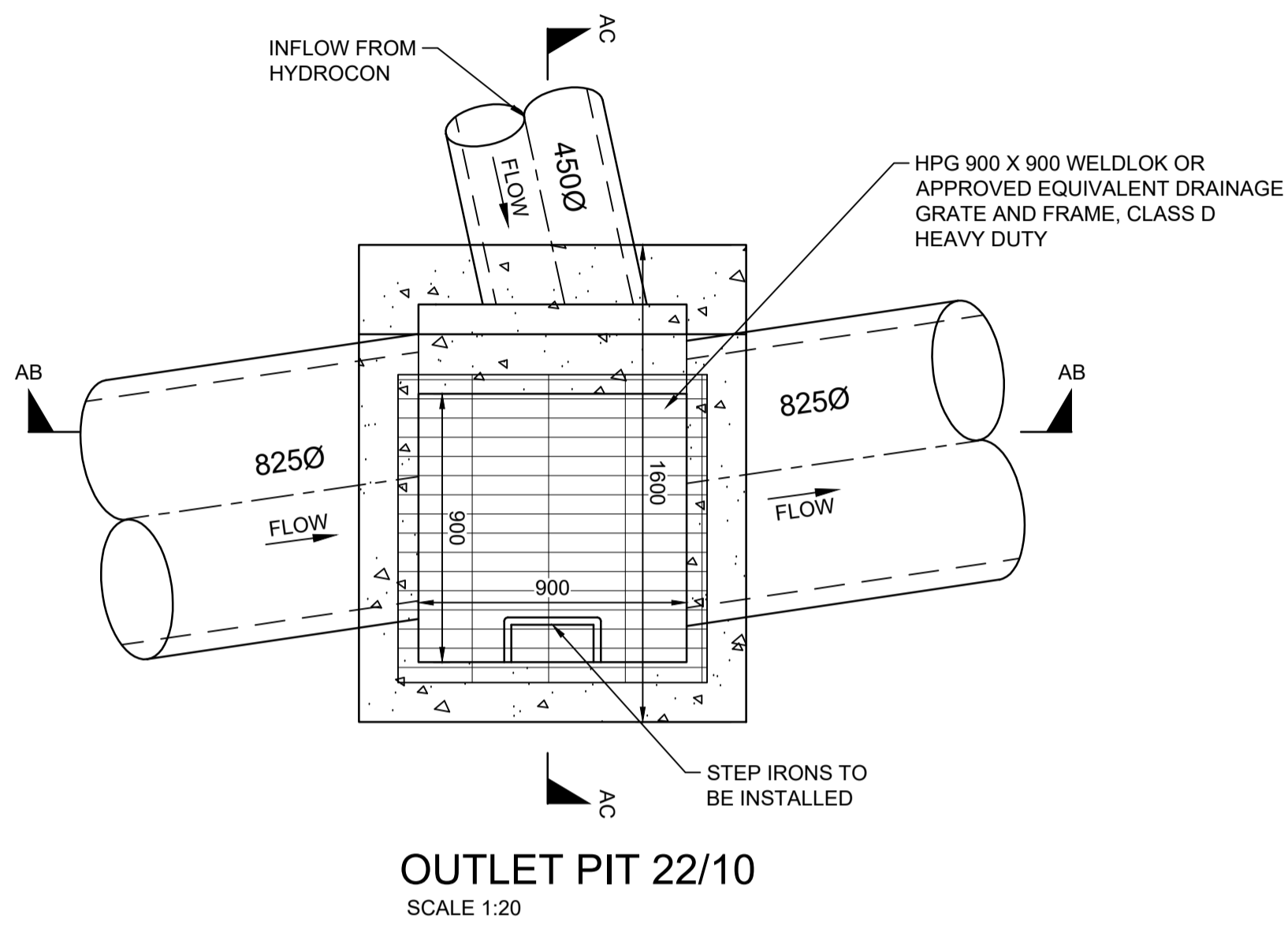
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A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
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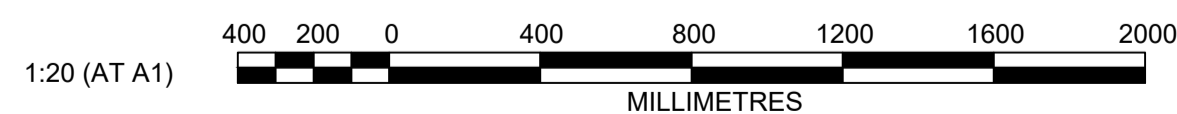


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**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11**  
OUTLET PIT 22/10 PLAN  
AND SECTIONS

PLAN No: 11018511/CC239 **A**  
 FILE No: 11018511CC239  
 SHEET SIZE: A1 ORIGINAL

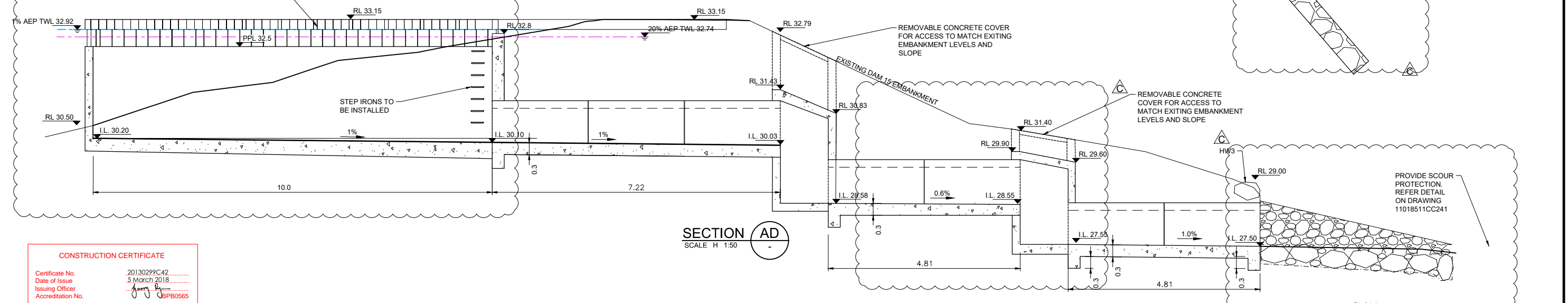
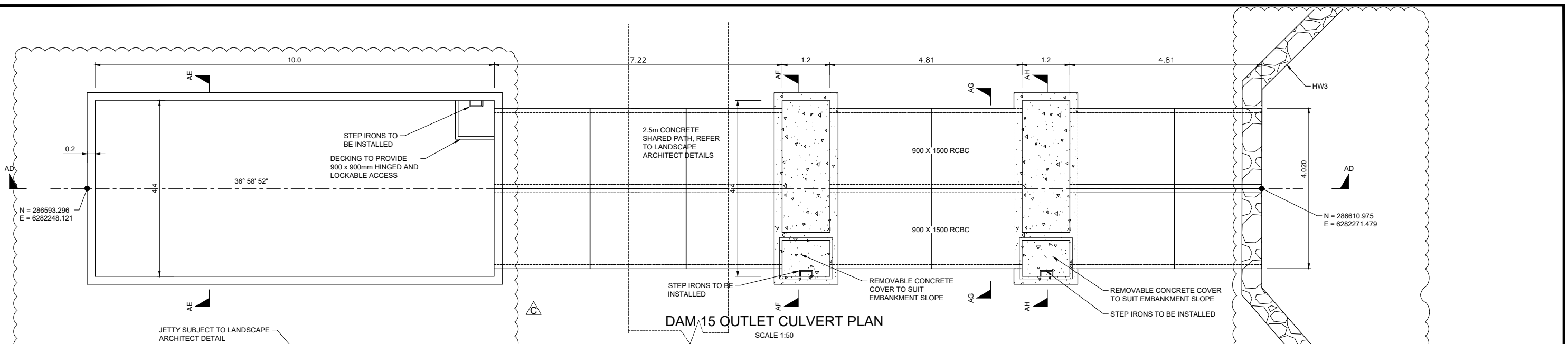
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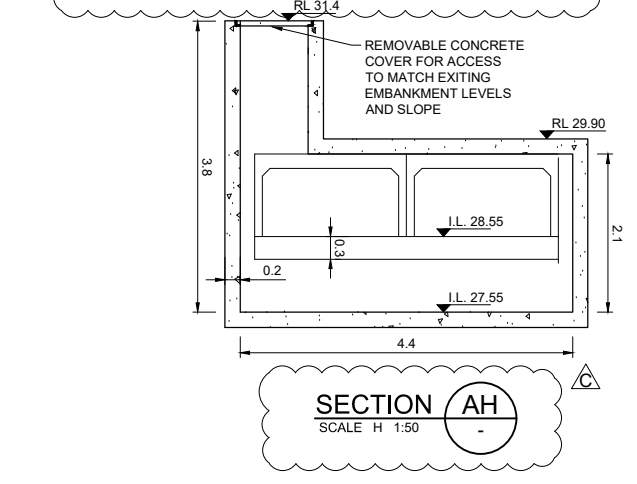
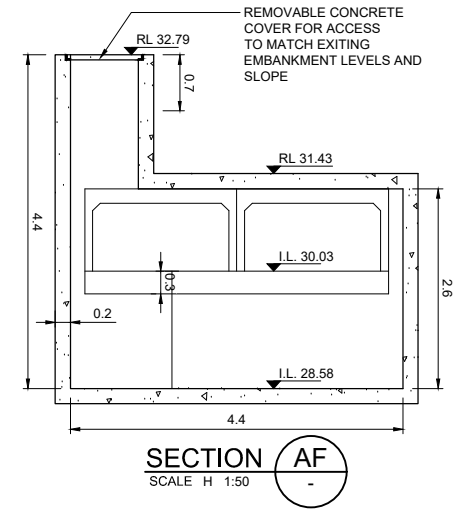
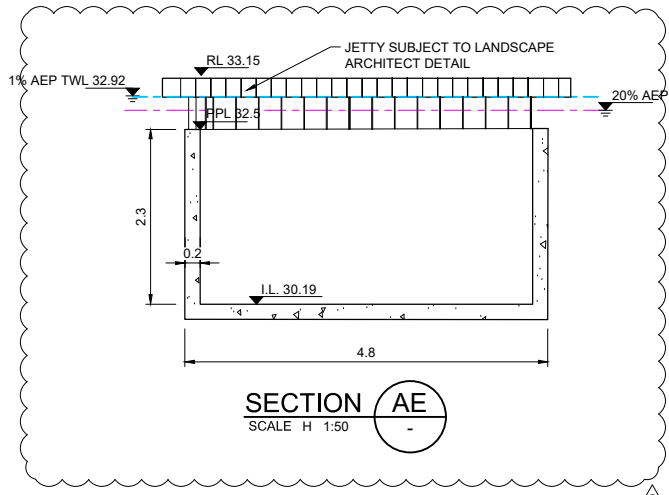
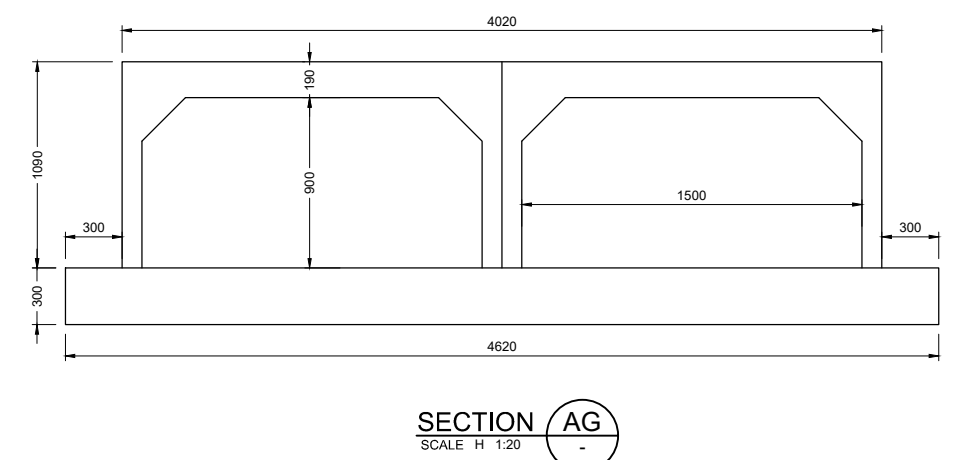
AZIMUTH: MGA 56  
 DATUM: A.H.D.  
 ORIGIN:

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
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Plotted: 12 February 2018 12:34:02 PM File Name: J:\110185 - Redbank North Richmond Residential Precinct\01 - Description\CC\YEOMANS\11018511CC240.dwg



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**NOTE**  
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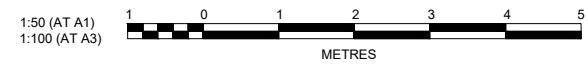
SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION

**SECTION AG**  
 SCALE H 1:20  
**DAM 15 CULVERT**

**SECTION AE**  
 SCALE H 1:50

**SECTION AF**  
 SCALE H 1:50

**SECTION AH**  
 SCALE H 1:50



AMENDMENT	DES	DRN	CKD	APR	DATE
C	MP	CC	RO	RO	09/01/18
B	MP	MG	RO	RO	04/07/17
A	MP	MG	RO	MS	15/06/17

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PRINCIPAL:  
  
 AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

ISSUED FOR CONSTRUCTION APPROVAL

**REDBANK YEOMANS NORTH**  
**NORTH RICHMOND STAGE 11**  
 DAM 15 CULVERT PLAN  
 AND SECTIONS SHEET 1 OF 2

PLAN No: 11018511/CC240 **C**  
 FILE No: 11018511CC240  
 SHEET SIZE: A1 ORIGINAL

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**NOTES**

- DESIGN BASED ON FLOW VELOCITIES FROM 12D DRAINAGE OUTPUTS FOR 100 YEAR ARI STORM EVENT
- RIP-RAP SCOUR PROTECTION DIMENSIONS CALCULATED FROM "ROCK SIZING FOR SINGLE PIPE OUTLETS - STORMWATER MANAGEMENT PRACTICES" BY CATCHMENTS AND CREEKS, VERSION 2 DATED NOVEMBER 2014
- ROCK HEADWALL ARRANGEMENT SHOWN ON PLANS, PRECAST CONCRETE OUTLET ARRANGEMENT CAN BE ADOPTED, HOWEVER RIP-RAP LENGTH SHALL COMMENCE AT THE END OF THE PRECAST CONCRETE APRON SLAB
- MINIMUM RIP-RAP DIMENSIONS ARE DENOTED ON BOTH TABLE AND PLANS
- ALL RIP-RAP TO CONSIST OF ANGULAR DURABLE QUARRY ROCK PLACED OVER A LAYER OF ANGULAR COBBLES (D50=50mm)
- RIP-RAP IS TO BE PLACED BY HAND AND PACKED INTO PLACE WITH A CROW-BAR TO ENSURE UNIFORM FIT WITH MINIMUM VOIDS

OUTLET HEADWALL RIP-RAP SCOUR PROTECTION (MINIMUM RECOMMENDED DIMENSIONS)								
OUTLET	CULVERT DIAMETER (mm)	NUMBER OF	VELOCITY (m/s)	DESIGN VELOCITY	MEAN ROCK SIZE	APRON LENGTH L	APRON WIDTH W	BED THICKNESS
3/4	600Ø	1	5.0	5.0	400	2400	1600	720
4/11	1200Ø	1	8.52	8.75	400	3600	3000	360
4A/HW	750Ø	1	3.0	3.0	200	2250	1700	360
8/16	675Ø	1	2.75	2.75	200	2000	1500	360
30/21	825Ø	2	2.9	3.0	300	2500	3500	540
15/3	825Ø	1	6.93	7.00	500	2000	1500	540
17/12	525Ø	1	2.42	2.50	200	1600	1200	360
43/9	600Ø	1	4.23	4.25	300	2400	1500	540
30/C	600Ø	1	2.64	2.75	200	1800	1300	360
DAM 15 OUTLET	1500x900	2	2.4	2.5	200	8000	10000	360
PANSY INLET	1500x900	3	1.6	1.75	200	9700	10000	360
PANSY OUTLET	1500x900	3	1.6	1.75	200	7200	7800	360

DATUM 15.0

TOE OF WALL GROUND LEVELS	27.700	27.500	27.500	27.850
TOP OF WALL GROUND LEVELS	27.700	28.344	28.708	27.850
CHAINAGE	0.000	2.449	11.686	15.669

**LONGITUDINAL SECTION HW3 BOT**  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:200

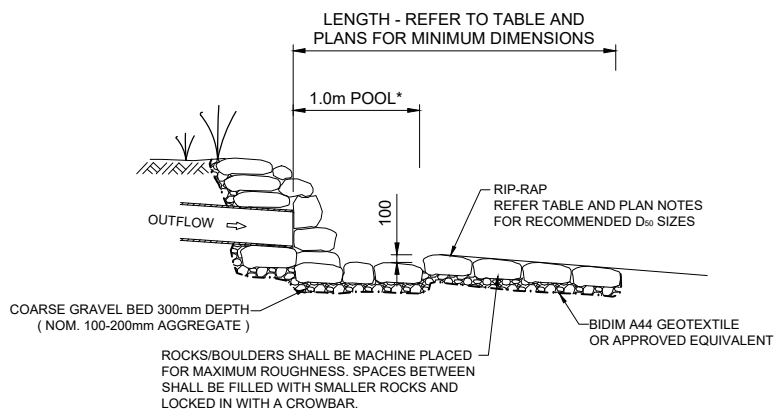
**HW3 BOT**

CHAINAGE	EASTING	NORTHING	BEARING
0	286608.02	6282278.4	171°58'51.64"
5.3	286608.76	6282273.14	
10.61	286613	6282269.95	
14.57	286616.95	6282270.26	85°34'24.64"

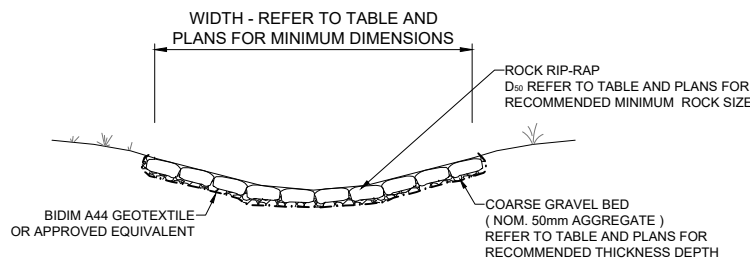
**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

These plans/specifications form part of the certificate issued 5 March 2018

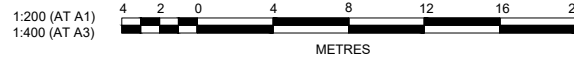


**TYPICAL OUTLET DETAIL SECTION A-A**  
1:50



**TYPICAL OUTLET DETAIL SECTION B-B**  
1:50

**SUBJECT TO STRUCTURAL DESIGN AND CERTIFICATION**



**DAM 15 CULVERT**  
SCALE 1:100

**NOTE**  
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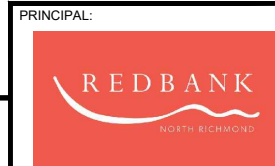
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NO.	DESCRIPTION	DES	DRN	CKD	APR	DATE
C	LANDSCAPE ARCHITECT INPUT	MP	CC	RO	RO	09/01/18
B	STRUCTURAL DESIGN INPUT	MP	MG	RO	RO	04/07/17
A	ISSUE FOR CONSTRUCTION APPROVAL	MP	MG	RO	MS	15/06/17
	AMENDMENT	DES	DRN	CKD	APR	DATE

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AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:



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**ISSUED FOR CONSTRUCTION APPROVAL**

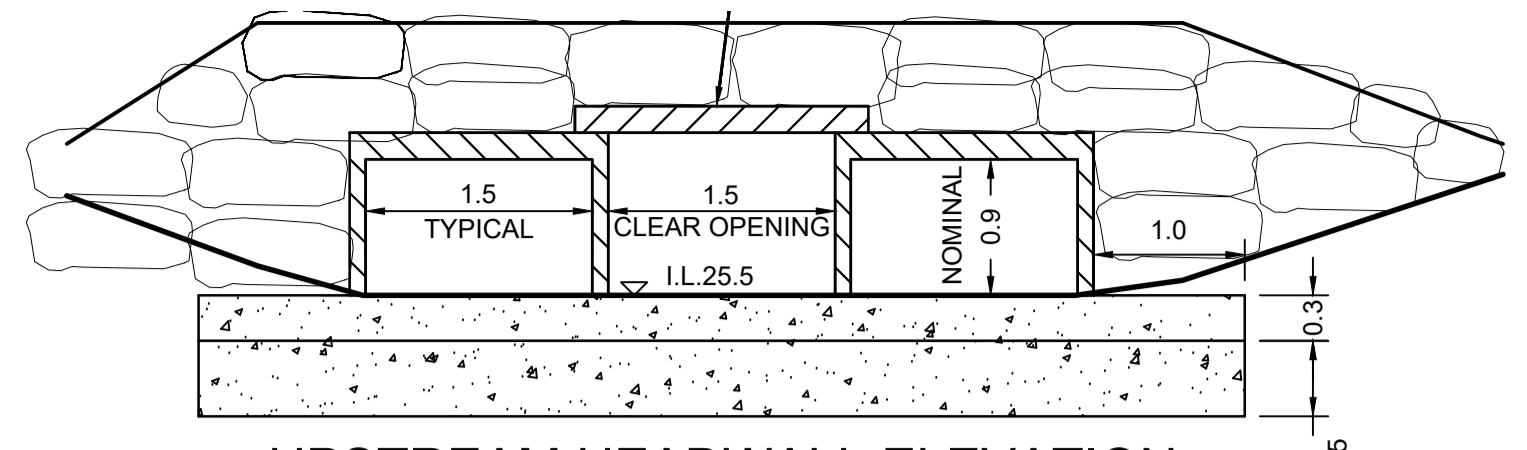
**REDBANK YEOMANS NORTH NORTH RICHMOND STAGE 11**

DAM 15 CULVERT PLAN AND SECTIONS SHEET 2 OF 2

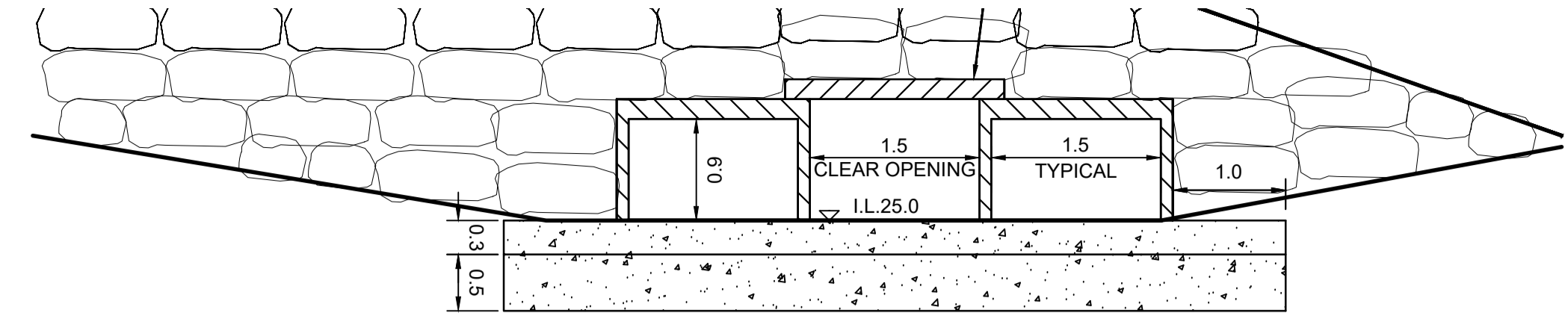
PLAN No: 11018511/CC241 C

FILE No: 11018511CC241

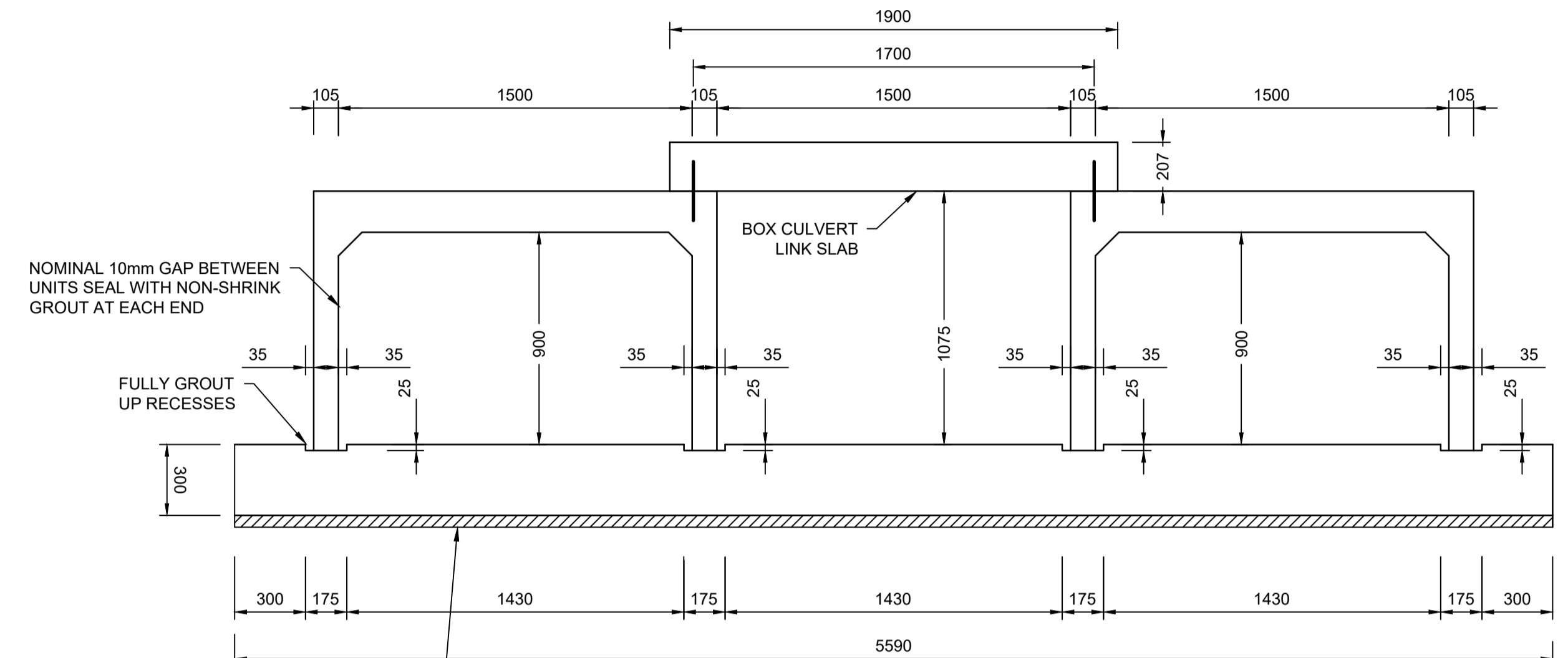
SHEET SIZE: A1 ORIGINAL



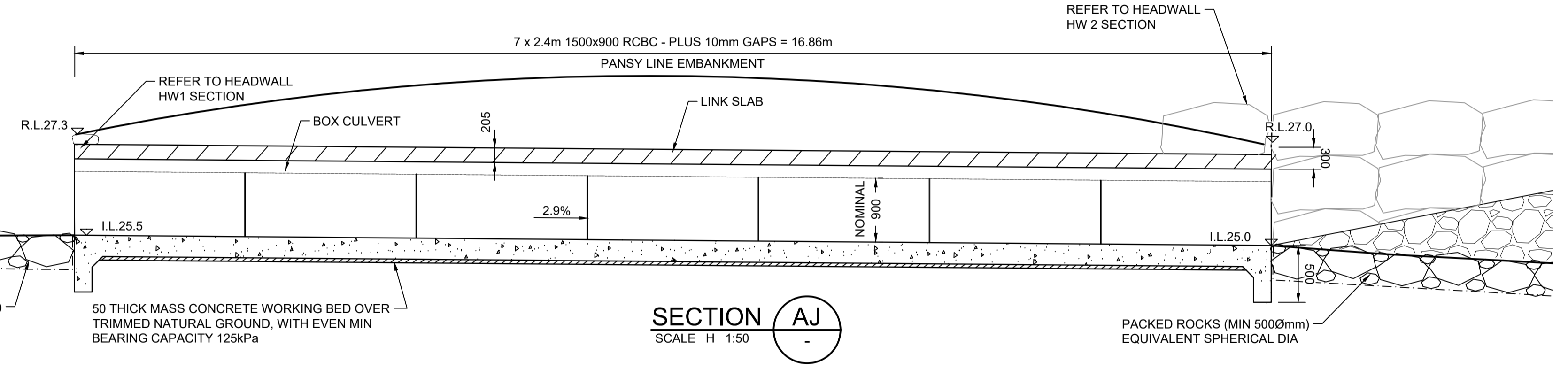
UPSTREAM HEADWALL ELEVATION  
HW1  
SCALE 1:50



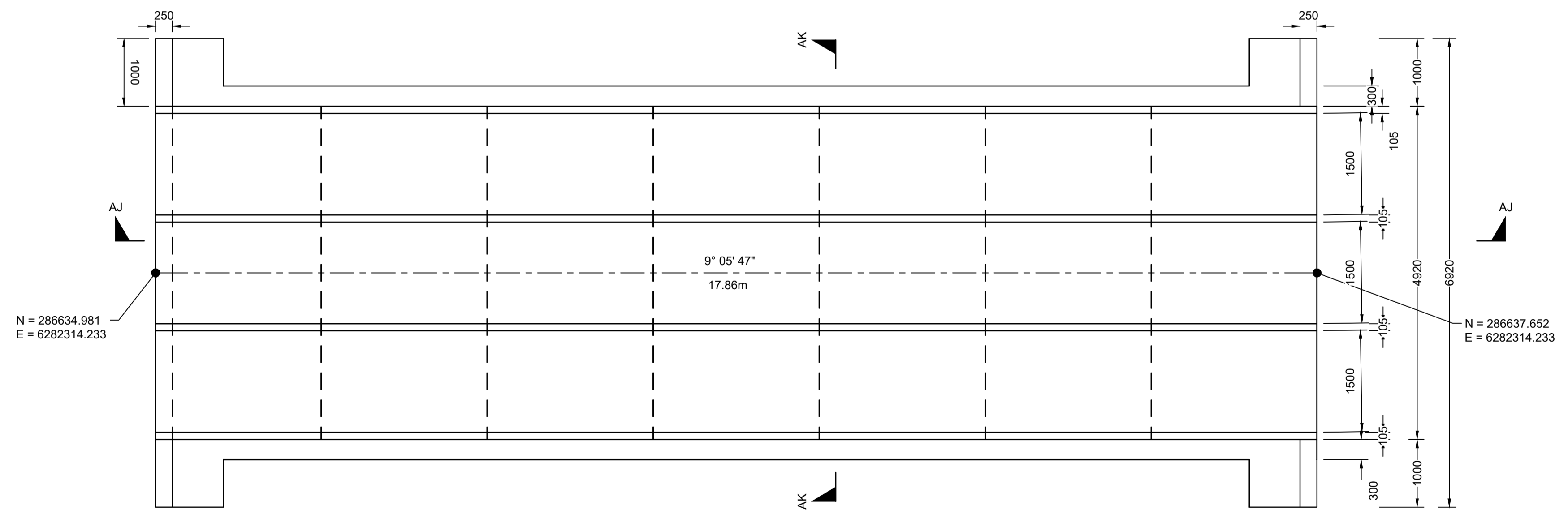
DOWNSTREAM HEADWALL ELEVATION  
HW2  
SCALE 1:50



SECTION AK  
SCALE H 1:20  
CULVERT BASE SLAB



SECTION AJ  
SCALE H 1:50

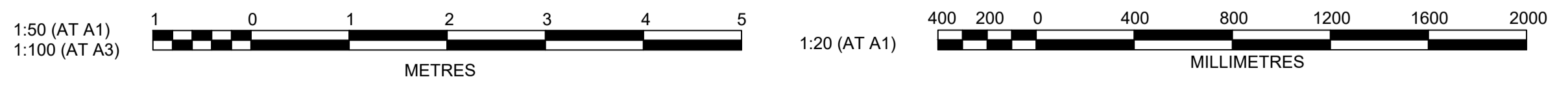


PANSY LINE CULVERT PLAN  
SCALE 1:50

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer [Signature]  
 Accreditation No. BPB0565  
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AZIMUTH: MGA 56  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**

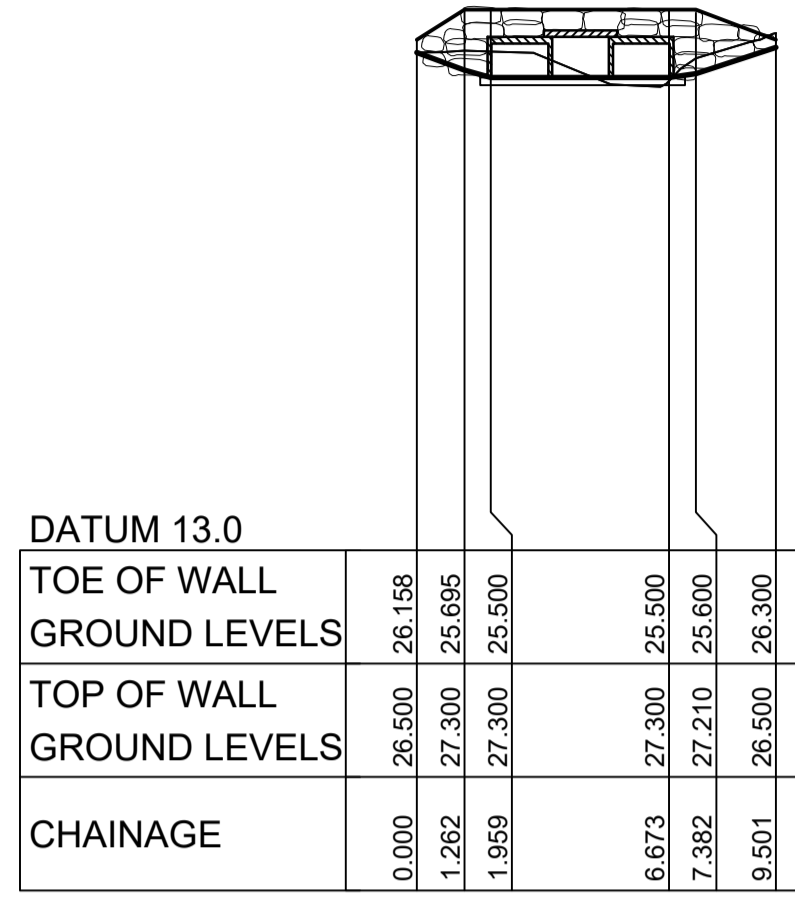
REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PANSY LINE CULVERT PLAN  
 AND SECTIONS SHEET 1 OF 2

PLAN No: 11018511/CC242 A  
 FILE No: 11018511CC242  
 SHEET SIZE: A1 ORIGINAL

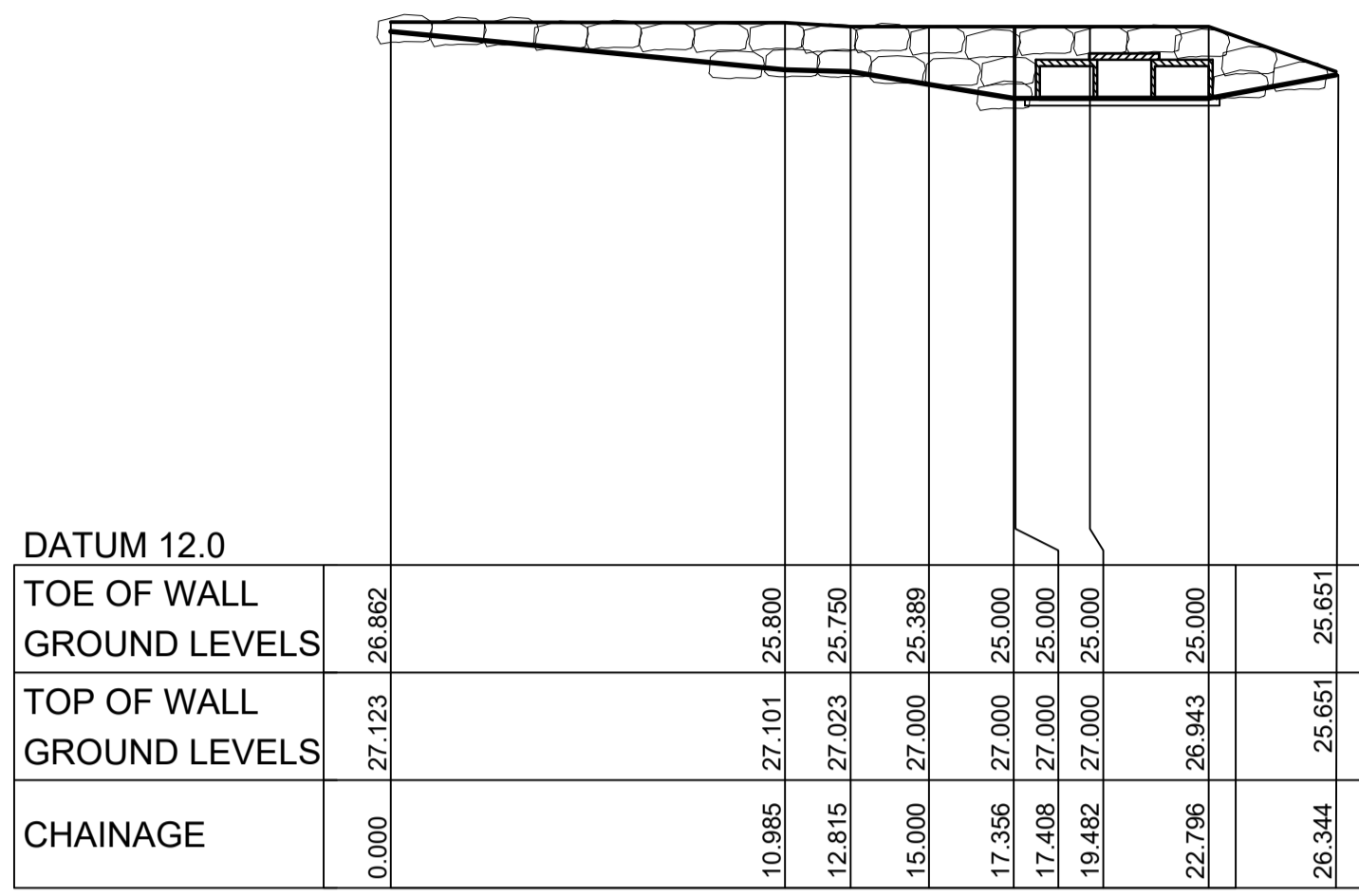
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NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL	DES	DRN	CKD	APR	15/06/17
	AMENDMENT					

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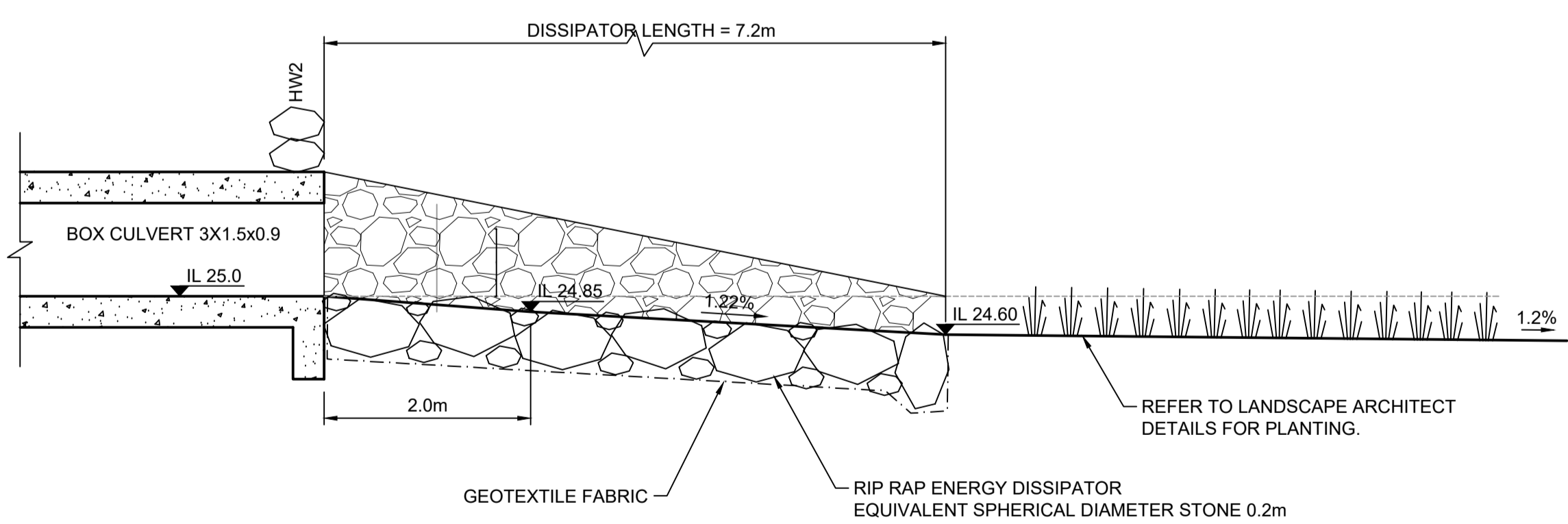
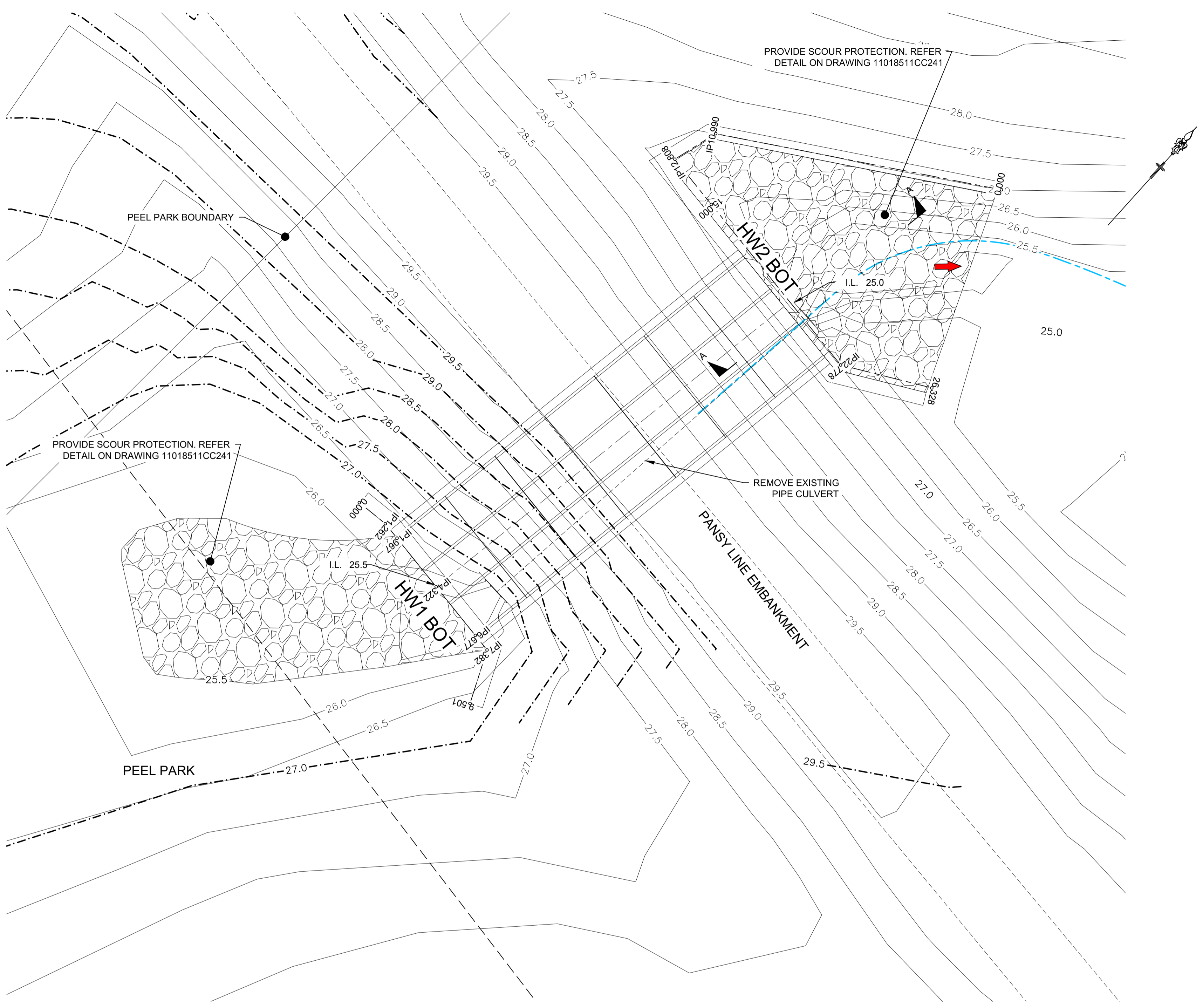
**LONGITUDINAL SECTION HW1 BOT**  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:200



**LONGITUDINAL SECTION HW2 BOT**  
HORIZONTAL SCALE 1:200  
VERTICAL SCALE 1:200

HW2 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286640.75	6282339.37	239°03'34.32"
10.98	286631.33	6282333.72	
12.82	286630.82	6282331.97	
22.8	286640.68	6282330.4	
26.34	286643.81	6282332.06	61°59'23.06"

HW1 BOT			
CHAINAGE	EASTING	NORTHING	BEARING
0	286630.7	6282314.65	86°51'01.74"
1.26	286631.96	6282314.72	
7.38	286638	6282313.75	
9.5	286638.88	6282311.82	155°33'23.37"

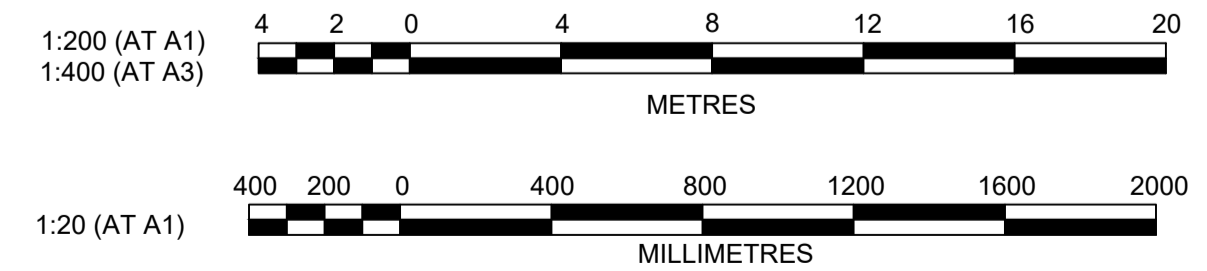
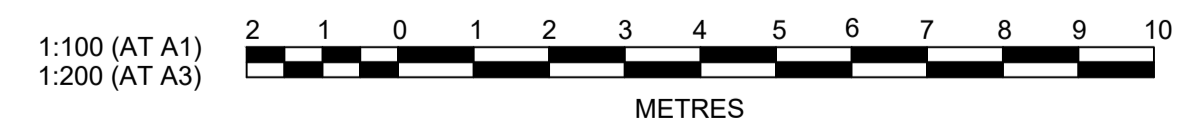


**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C42  
Date of Issue 5 March 2018  
Issuing Officer [Signature]  
Accreditation No. BPB0565

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**SECTION A**  
SCALE 1:50



SUBJECT TO  
STRUCTURAL DESIGN  
AND CERTIFICATION

**NOTE**  
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HAWKESBURY CITY COUNCIL FOR  
SEPARATE APPROVAL.

NO.	DESCRIPTION	MP	MG	RO	MS	DATE
A	ISSUE FOR CONSTRUCTION APPROVAL					15/06/17
	AMENDMENT	DES	DRN	CKD	APR	

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AZIMUTH: MGA 56  
DATUM: A.H.D  
ORIGIN:

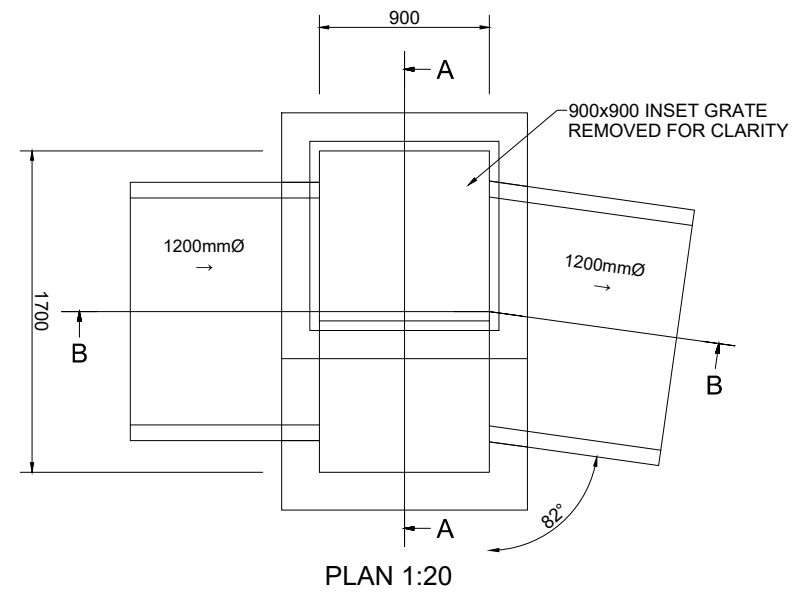
PRINCIPAL:

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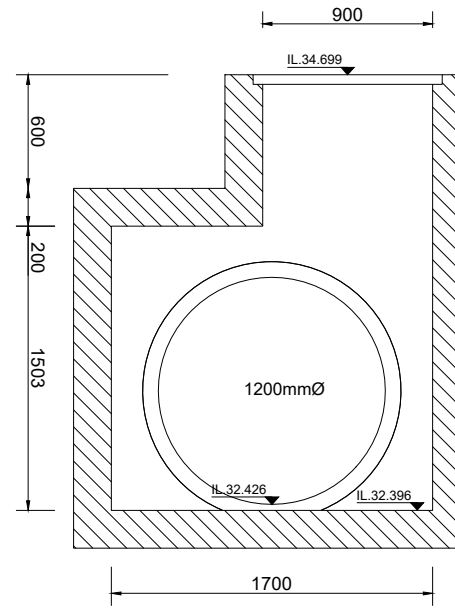
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
PANSY LINE CULVERT PLAN  
AND SECTIONS SHEET 2 OF 2

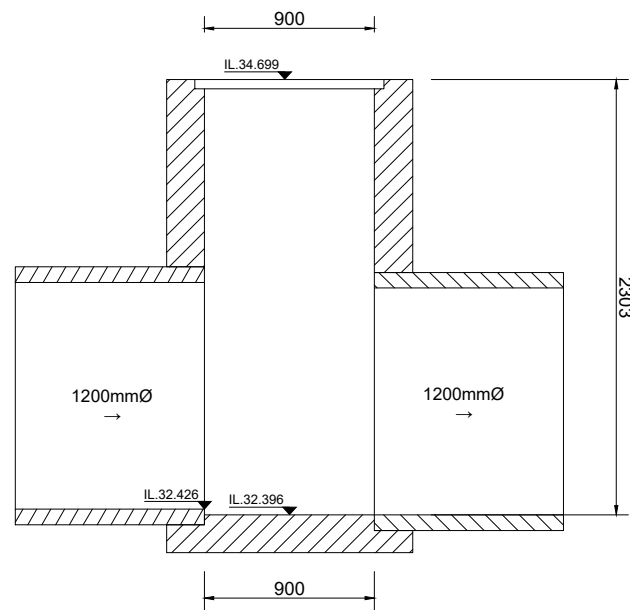
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FILE No: 11018511CC243  
SHEET SIZE: A1 ORIGINAL



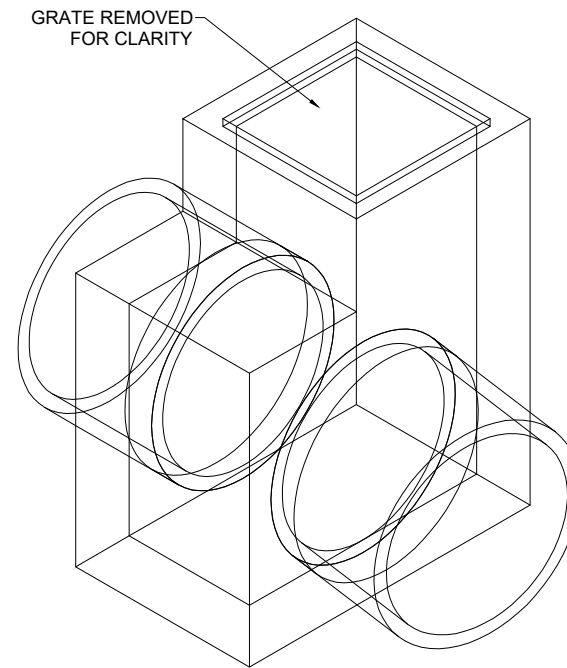
PLAN 1:20



A-A ( 1:20 )



B-B ( 1:20 )

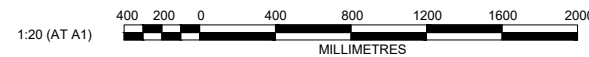


SURCHARGE PIT 4/11

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 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 SURCHARGE PIT 4/11

PLAN No: 11018511/CC244 **A**  
 FILE No: 11018511CC244  
 SHEET SIZE: A1 ORIGINAL

**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

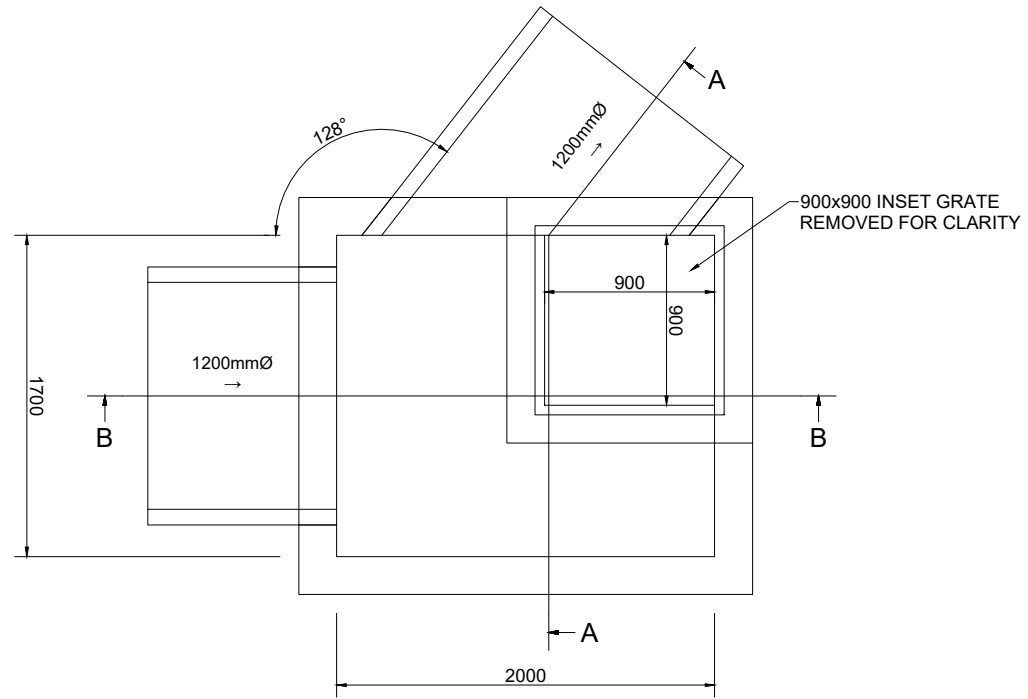
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AZIMUTH: MGA 57  
 DATUM: A.H.D  
 ORIGIN:

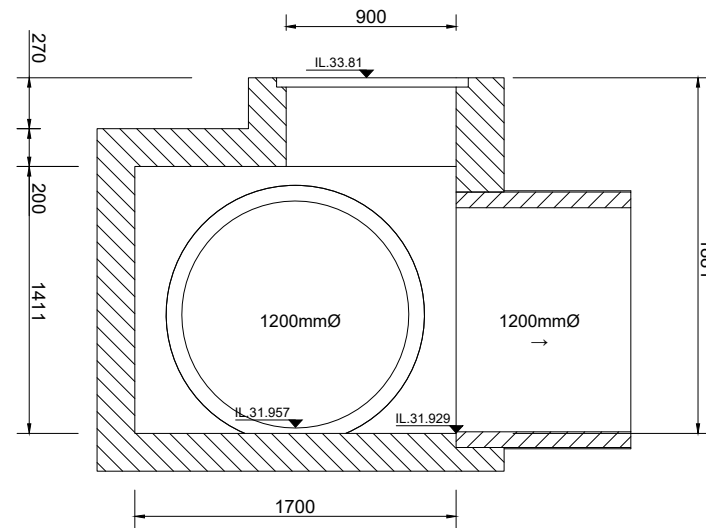
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NO.	DESCRIPTION	MP	TG	RO	RO	DATE
A	ADDITIONAL PIT	DES	DRN	CKD	APR	DATE

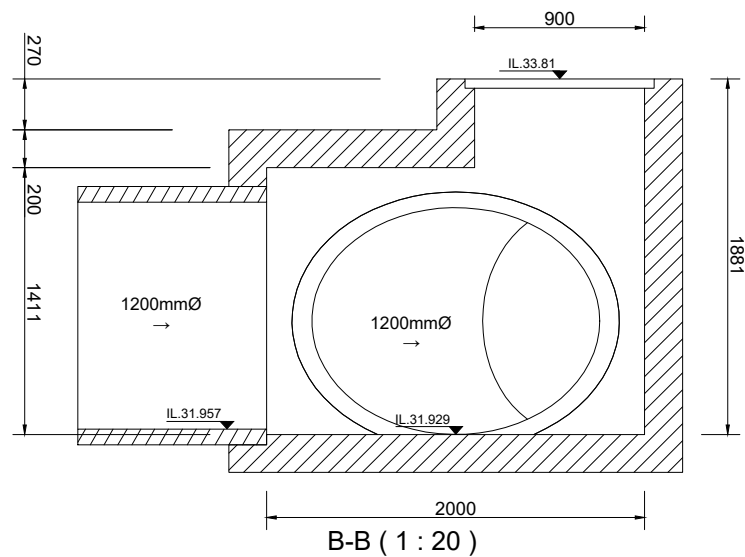
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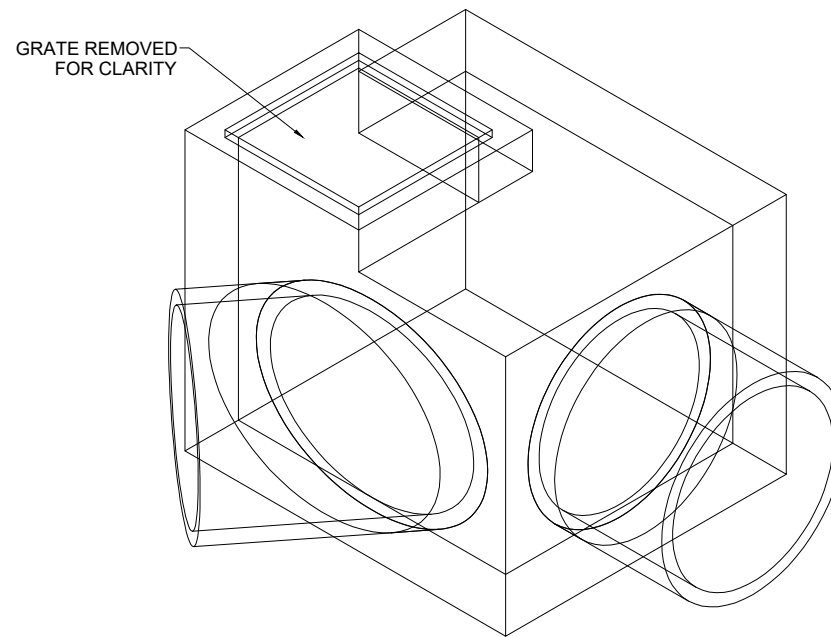
PLAN 1:20



A-A ( 1 : 20 )



B-B ( 1 : 20 )

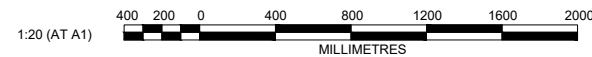


SURCHARGE PIT 4/12

**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299C.42  
 Date of Issue 5 March 2018  
 Issuing Officer *Jerry B...*  
 Accreditation No. BPB0565

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**REDBANK YEOMANS NORTH  
NORTH RICHMOND STAGE 11  
SURCHARGE PIT 4/12**

PLAN No: 11018511/CC245 **A**  
 FILE No: 11018511CC245  
 SHEET SIZE: A1 ORIGINAL

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AZIMUTH: MGA 58  
 DATUM: A.H.D  
 ORIGIN:

NO.	DESCRIPTION	MP	TG	RO	RO	DATE
A	ADDITIONAL PIT	DES	DRN	CKD	APR	DATE



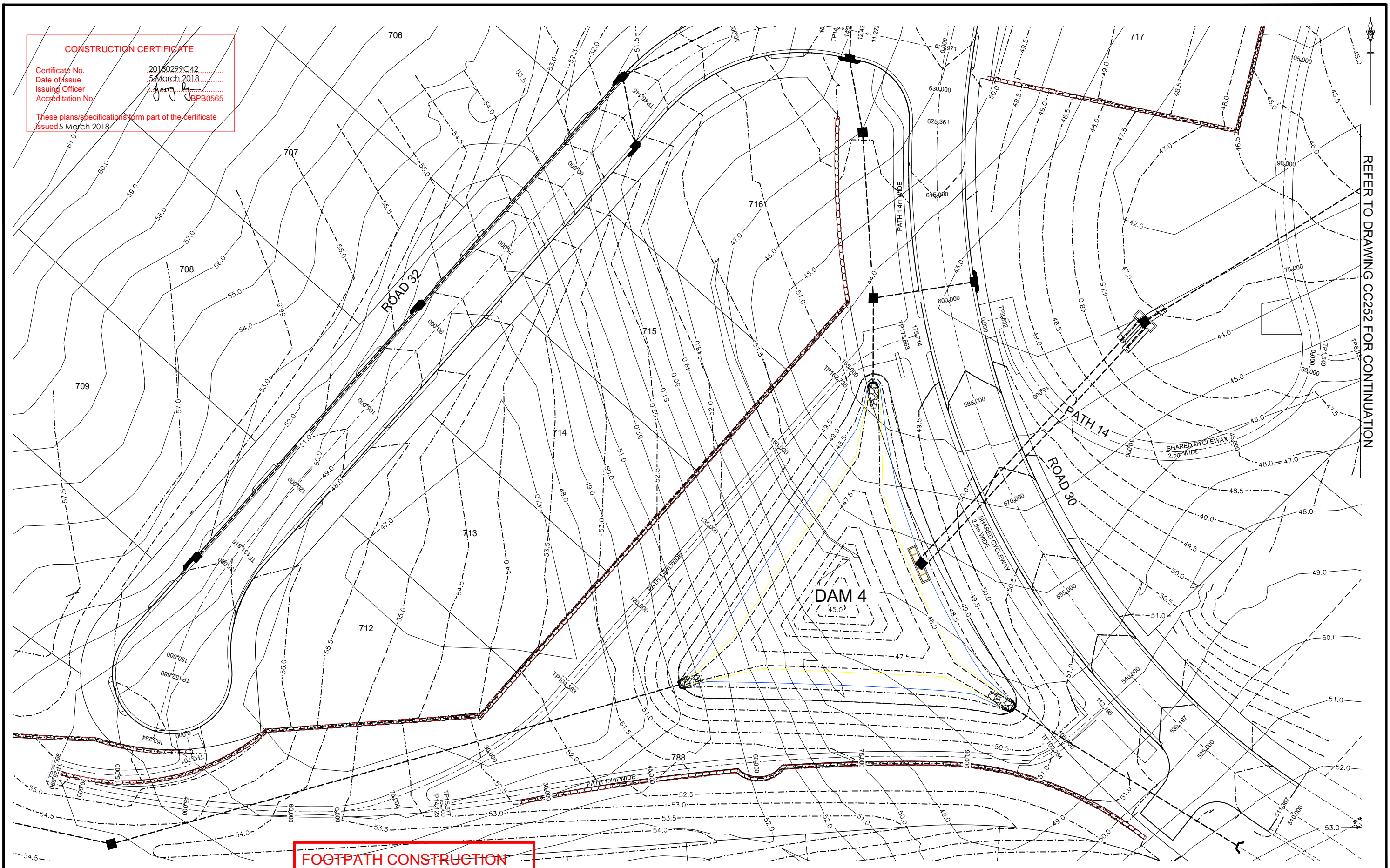


**CONSTRUCTION CERTIFICATE**

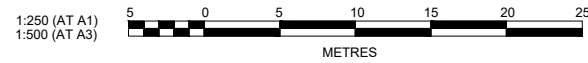
Certificate No. 20180299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565

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REFER TO DRAWING CC252 FOR CONTINUATION



**FOOTPATH CONSTRUCTION  
 SUBJECT TO SEPARATE  
 CONSTRUCTION CERTIFICATE**



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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PATH LOCATION AND SETOUT  
 SHEET 1

PLAN No: 11018511/CC251 **B**  
 FILE No: 11018511CC251  
 SHEET SIZE: A1 ORIGINAL

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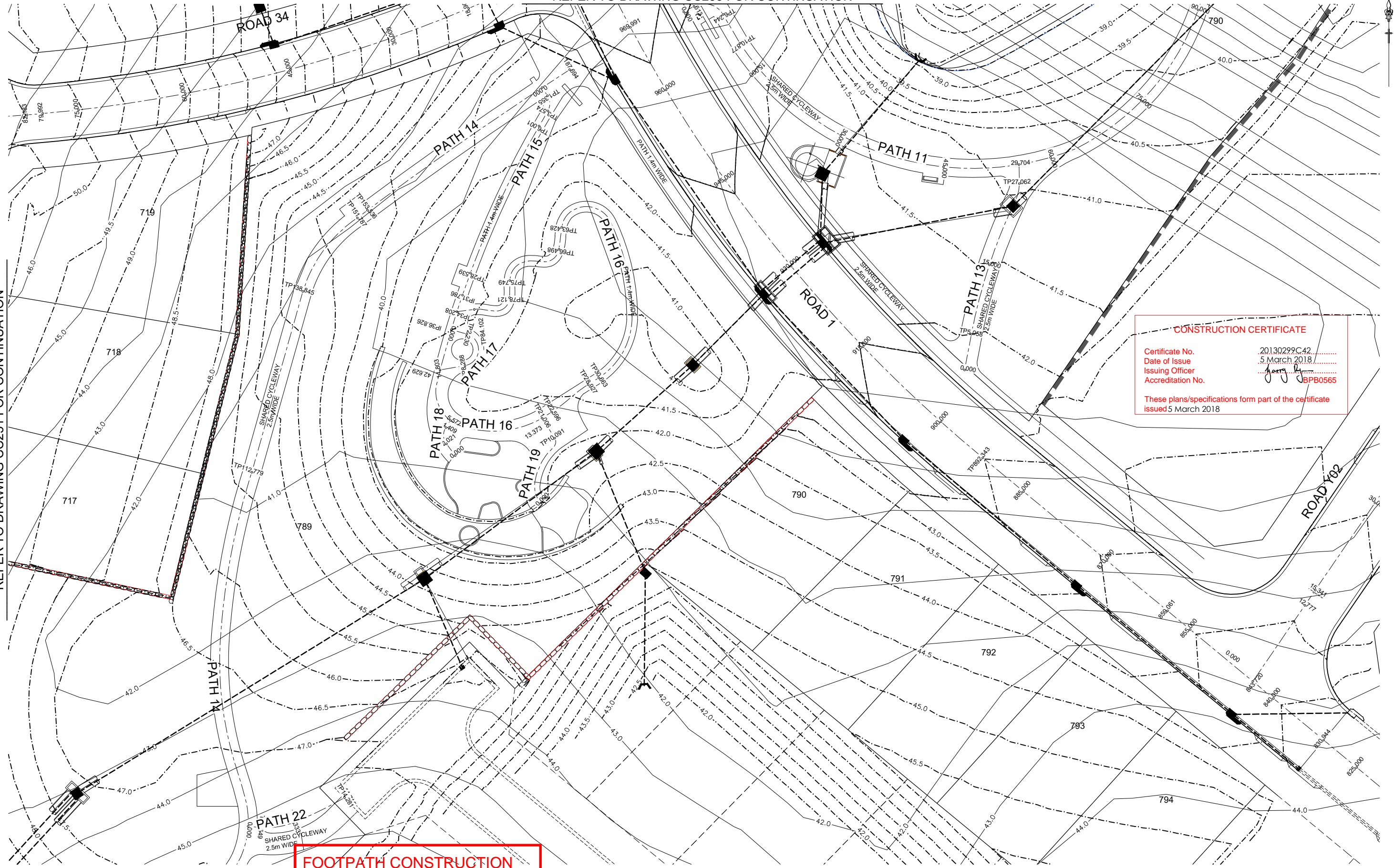
PO Box 4366 PENRITH WESTFIELD NSW 2750  
 P 02 4720 3300 F 02 4720 3399 W www.jwprince.com.au E jwp@jwprince.com.au

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	JG			10/01/18

Plotted: 12 February 2018 1:58:33 PM. File Name: J1101851 - Redbank North Richmond Residential Precinct001 - Description\CC252\1101851\CC251.dwg

REFER TO DRAWING CC253 FOR CONTINUATION

REFER TO DRAWING CC251 FOR CONTINUATION

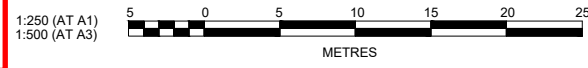


**CONSTRUCTION CERTIFICATE**

Certificate No. 20130299CC42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. JBP0565

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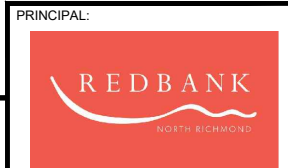
**FOOTPATH CONSTRUCTION  
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AZIMUTH: MGA 61  
 DATUM: A.H.D  
 ORIGIN:



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REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

PATH LOCATION AND SETOUT  
 SHEET 2

PLAN No: 11018511/CC252 **B**

FILE No: 11018511CC252

SHEET SIZE: A1 ORIGINAL

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	JG			TBU

Plotted: 12 February 2018 1:58:05 PM. File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC\CC\YEOMANS\11018511\CC252.dwg

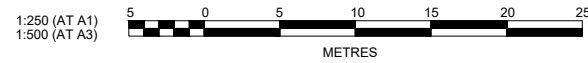
REFER TO DRAWING CC254 FOR CONTINUATION

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 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *[Signature]*  
 Accreditation No. BPB0565  
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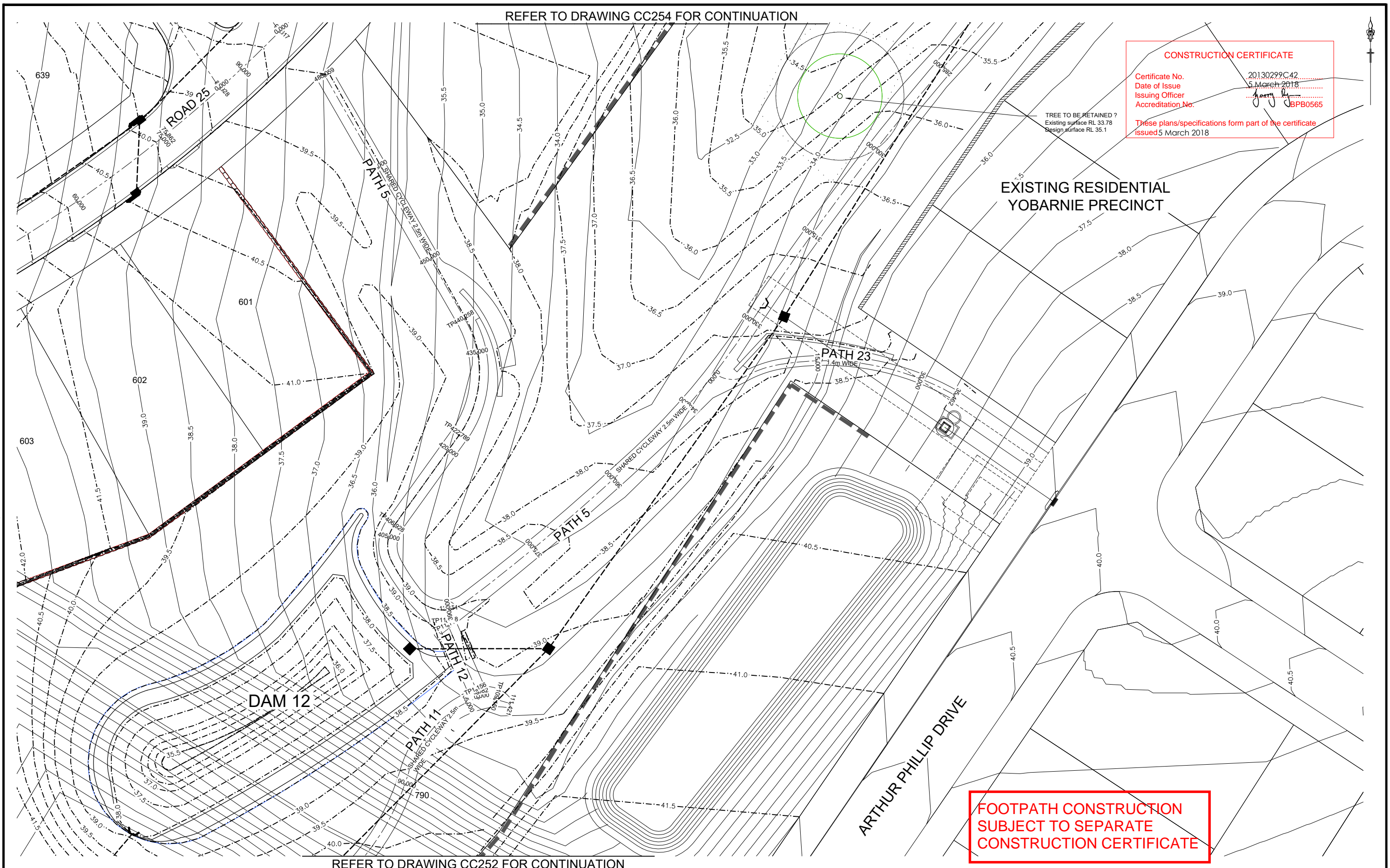
EXISTING RESIDENTIAL  
 YOBARNIE PRECINCT

**FOOTPATH CONSTRUCTION  
 SUBJECT TO SEPARATE  
 CONSTRUCTION CERTIFICATE**

REFER TO DRAWING CC252 FOR CONTINUATION



Plotted: 12 February 2018 1:57:03 PM. File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC253.dwg



AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	JG			10/01/18

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PRINCIPAL:  
  
 AZIMUTH: MGA 62  
 DATUM: A.H.D.  
 ORIGIN:  
 THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION UNLESS SIGNED AS PART OF AN APPROVED CONSTRUCTION CERTIFICATE.

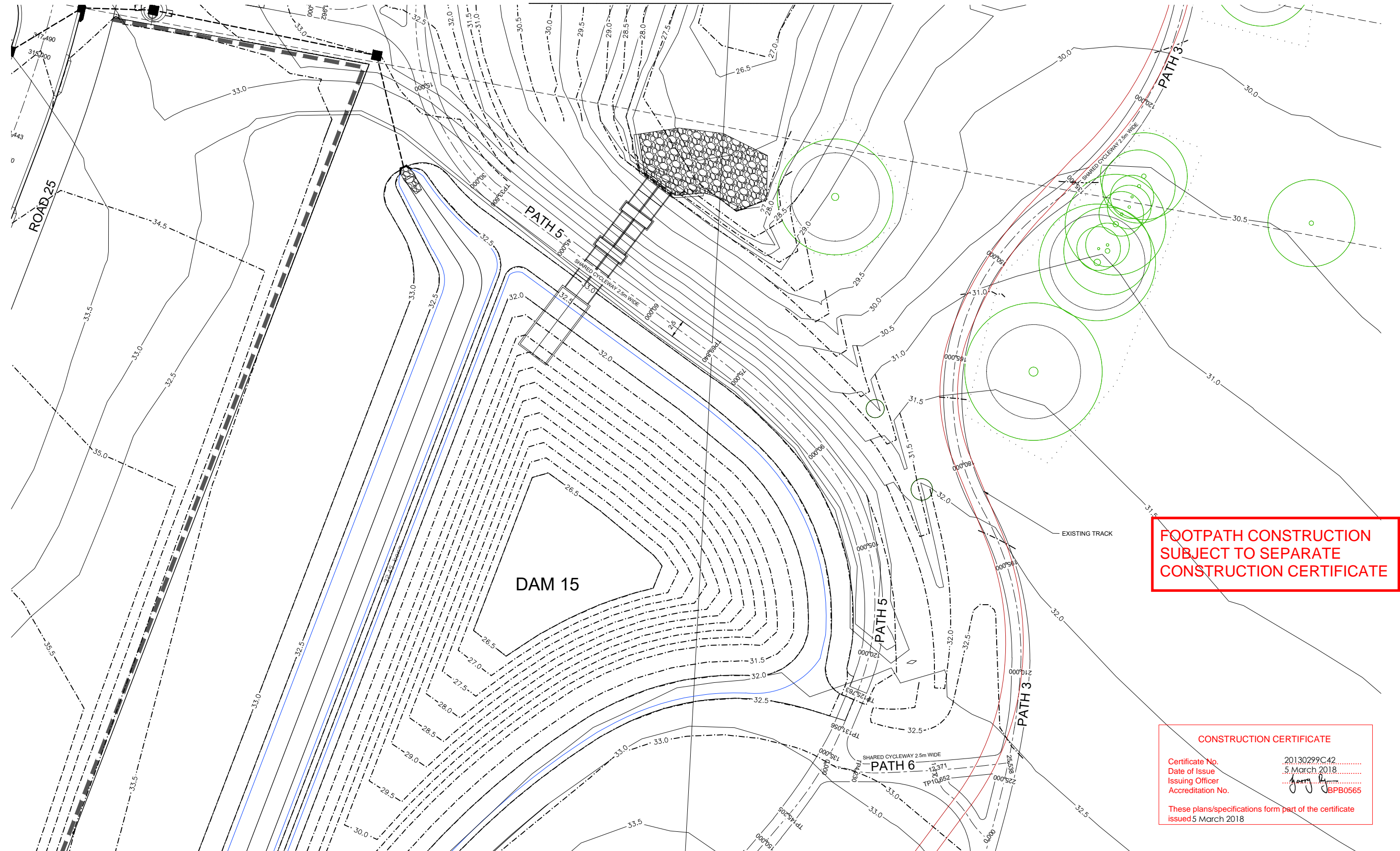
**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PATH LOCATION AND SETOUT  
 SHEET 3

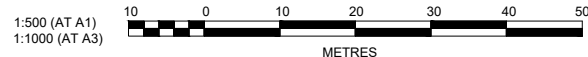
PLAN No: 11018511/CC253 **B**  
 FILE No: 11018511CC253  
 SHEET SIZE: A1 ORIGINAL



REFER TO DRAWING CC256 FOR CONTINUATION



REFER TO DRAWING CC254 FOR CONTINUATION



**FOOTPATH CONSTRUCTION  
SUBJECT TO SEPARATE  
CONSTRUCTION CERTIFICATE**

**CONSTRUCTION CERTIFICATE**  
 Certificate No. 20130299C42  
 Date of Issue 5 March 2018  
 Issuing Officer *Garry B*  
 Accreditation No. BPB0565  
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Plotted: 12 February 2018 1:55:47 PM. File Name: J110185 - Redbank North Richmond Residential Precinct01 - Description\CC255.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	JG			10/01/18

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PRINCIPAL:  
 AZIMUTH: MGA 64  
 DATUM: A.H.D  
 ORIGIN:

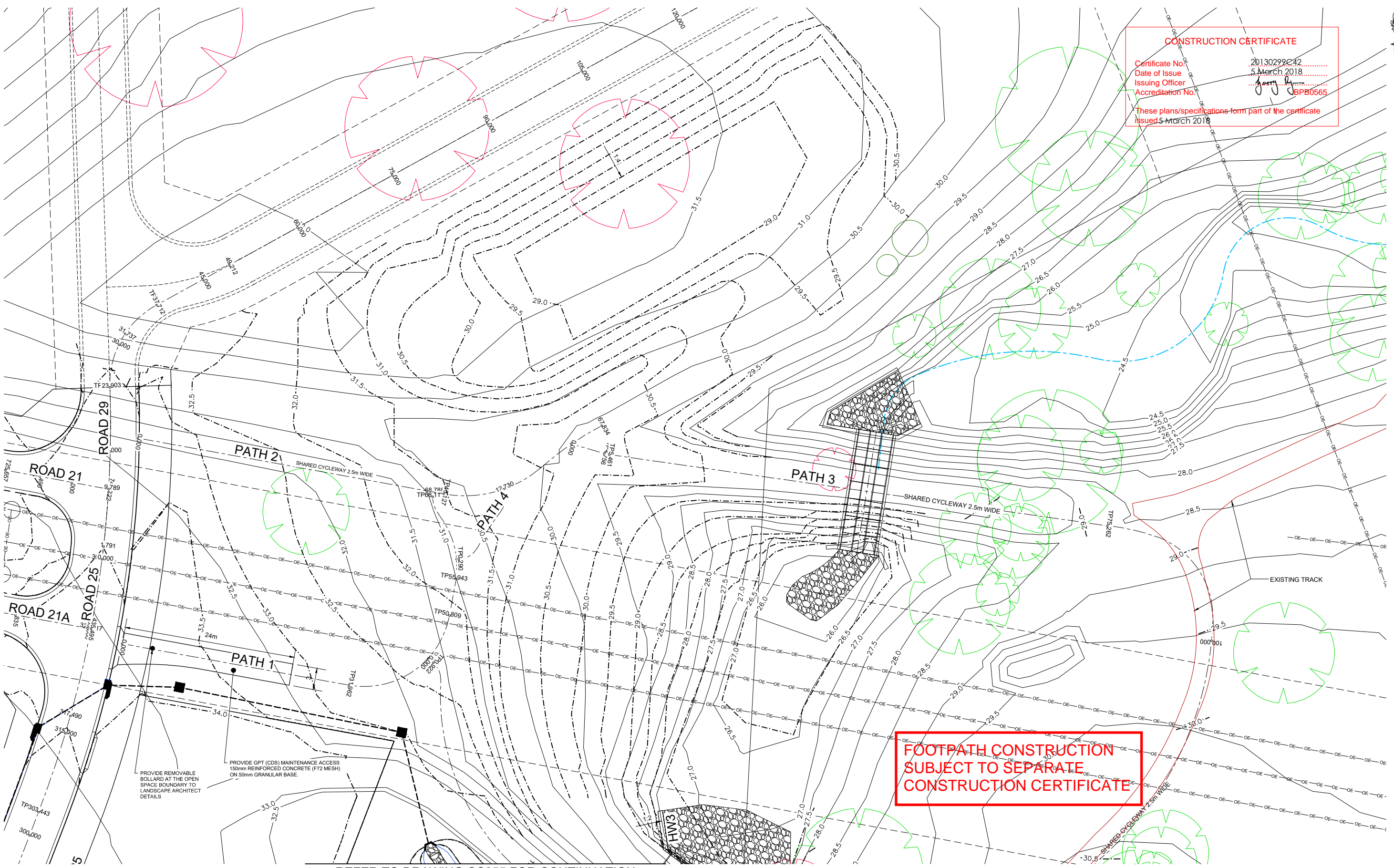
PRINCIPAL:  
  
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**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11  
 PATH LOCATION AND SETOUT  
 SHEET 5

PLAN No: 11018511/CC255 **B**  
 FILE No: 11018511CC255  
 SHEET SIZE: A1 ORIGINAL

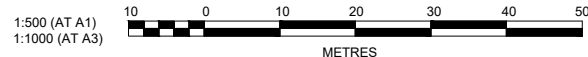
**CONSTRUCTION CERTIFICATE**  
 Certificate No: 20130299C42  
 Date of Issue: 5 March 2018  
 Issuing Officer: *Harry By*  
 Accreditation No: BP0565  
 These plans/specifications form part of the certificate issued 5 March 2018



**FOOTPATH CONSTRUCTION  
 SUBJECT TO SEPARATE  
 CONSTRUCTION CERTIFICATE**

PROVIDE REMOVABLE BOLLARD AT THE OPEN SPACE BOUNDARY TO LANDSCAPE ARCHITECT DETAILS  
 PROVIDE GPT (CDS) MAINTENANCE ACCESS 150mm REINFORCED CONCRETE (F72 MESH) ON 50mm GRANULAR BASE.

REFER TO DRAWING CC255 FOR CONTINUATION



**J. WYNDHAM PRINCE** CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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AZIMUTH: MGA 65  
 DATUM: A.H.D  
 ORIGIN:

PRINCIPAL:

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

**ISSUED FOR CONSTRUCTION APPROVAL**

REDBANK YEOMANS NORTH  
 NORTH RICHMOND STAGE 11

PATH LOCATION AND SETOUT  
 SHEET 6

PLAN No: 1101851/CC256 **B**

FILE No: 1101851CC256

SHEET SIZE: A1 ORIGINAL

Plotted: 12 February 2018 2:01:44 PM. File Name: J1110185 - Redbank North Richmond Residential Precinct01 - Description\CC255\COMANS\1101851\CC256.dwg

AMENDMENT	DES	DRN	CKD	APR	DATE
B	MP	TG	RO	RO	25/01/18
A	MP	JG			10/01/18