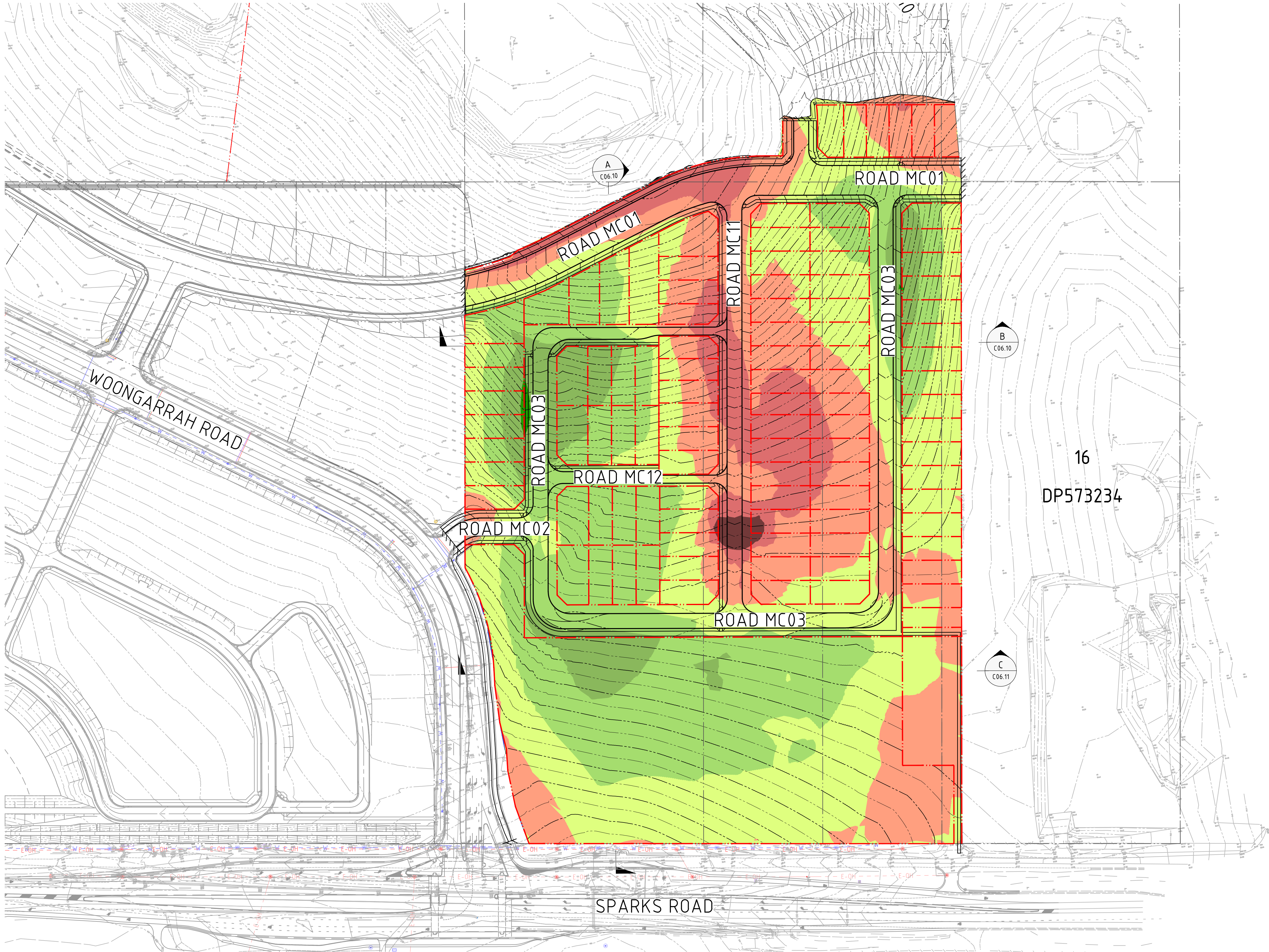


DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LEGEND

PROPOSED LOT BOUNDARY
EXISTING BOUNDARY LINE
EXISTING CONTOURS
PROPOSED BULK EARTHWORKS CONTOURS
PROPOSED BATTERS

DEPTH OF CUT

99.0m TO -7.0m
-7.0m TO -6.0m
-6.0m TO -5.0m
-5.0m TO -4.0m
-4.0m TO -3.0m
-3.0m TO -2.0m
-2.0m TO -1.0m
-1.0m TO -0.0m

DEPTH OF FILL

0.0m TO 1.0m
1.0m TO 2.0m
2.0m TO 3.0m
3.0m TO 4.0m
4.0m TO 5.0m
5.0m TO 99.0m

LIMIT OF WORKS

- GENERAL NOTES:**
- REFER SPECIFICATIONS NOTES FOR EARTHWORKS GENERAL REQUIREMENTS.
 - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
 - CAD FILES / DTM FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
 - STRIP EXISTING TOPSOIL IN CONSULTATION WITH THE GEOTECHNICAL ENGINEER / REPORT. FOR THE PURPOSES OF EARTHWORKS CALCULATIONS A TOPSOIL STRIPPING DEPTH ASSUMED.
 - NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.
 - NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS, ie SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALLS AND THE LIKE.
 - THE CONTRACTOR SHALL USE FINAL SURFACE LEVELS AND TYPICAL PAVEMENT DETAILS FOR ACTUAL EARTHWORKS LEVELS.
 - APPROXIMATE EARTHWORK VALUES AS FOLLOWS:
8.1 CUT -16,252cu.m
8.2 FILL 59,785cu.m
8.3 BALANCE 43,533cu.m (IMPORT)
8.4 NOTE: SITE STRIPPING VOLUMES HAVE NOT BEEN INCLUDED IN ABOVE CALCULATIONS.



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3	RE-ISSUED FOR DA	UM	-	PC	27.02.20

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SCALE 1:1000 @ A1

0 10 20 30 40 50m

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

EARTHWORKS CUT AND FILL
PLAN

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC06.01

REVISION

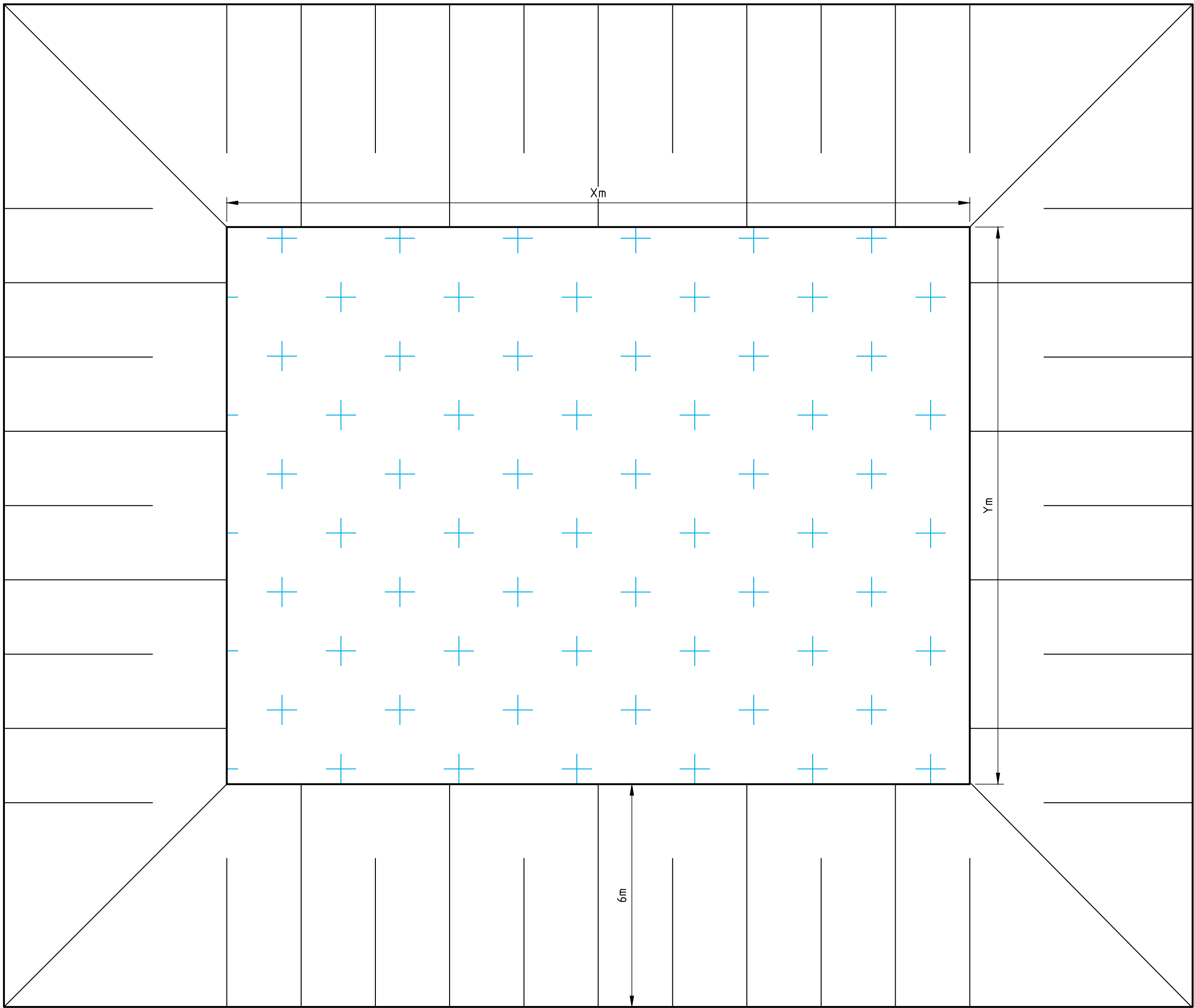
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DATE: 26-2-20 9:24pm

Plotted By: umandal

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DRAWN: J. TAI
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



PLAN
SCALE 1:100

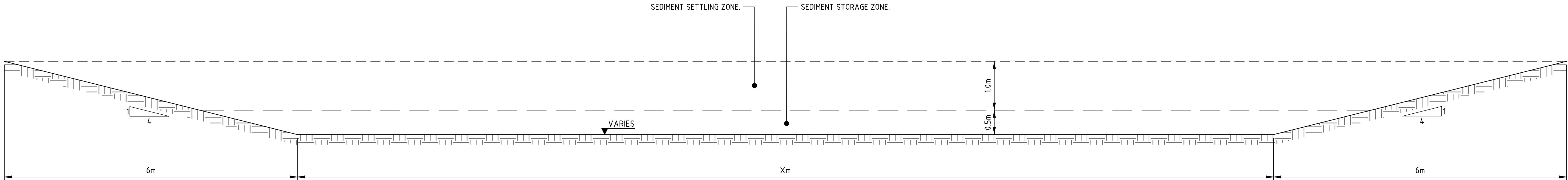
SEDIMENT BASIN CALCULATIONS:

SOIL TYPE D
 $V_{sz} = 10 \times C_v \times A \times R$
 $= 10 \times 0.35 \times 21.88 \times 29.5$
 $= 2259m^3$
 $V_{ss} = 763m^3$ (RUSLE)
 $V_{REQUIRED, V_{SB}} = 3022m^3$
 $V_{PROVIDED} = 3024m^3$

NOTES:

1. TEST ANY EXISTING STORED WATER AND FLOCCULATE AS REQUIRED TO ENSURE WATER QUALITY MEETS THE REQUIREMENTS OF COUNCIL PRIOR TO PUMPING FOR DUST CONTROL. REFER TO APPENDIX 'E' OF 'BLUEBOOK' FLOCCULATION DETAILS.

SEDIMENT BASIN CALCULATIONS									
BASIN	CATCHMENT AREA (ha)	SOIL TYPE	C _v	R x-day y-%ile	V _{sz} (m ³)	V _{ss} (m ³)	V _{required} (m ³)	V _{provided} (m ³)	DIMENSION (m)
1	3.7532	F	0.64	33.8	812	406	1218	1233	27 x 20x 1.5
2	5.3058	F	0.64	33.8	1148	574	1722	1728	30 x 27 x 1.5



SECTION
SCALE 1:50

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SCALE VARIES

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STAGE 6 - 7
RESIDENTIAL PRECINCT
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DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

TYPICAL SEDIMENT BASIN PLAN
AND SECTION

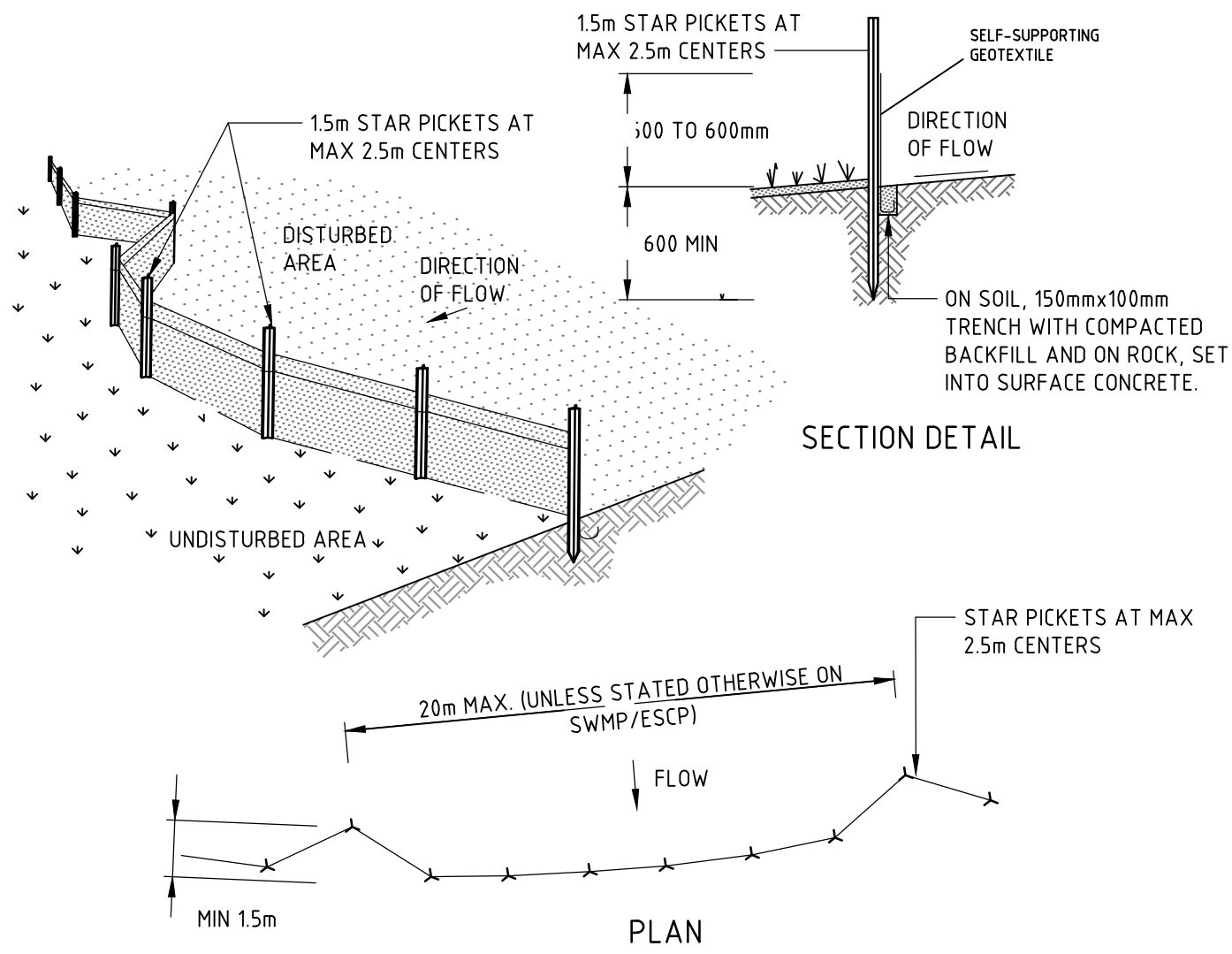
JOB NUMBER
171245 - 01

DRAWING NUMBER
DAC05.11

REVISION
3

DRAWING SHEET SIZE = A1

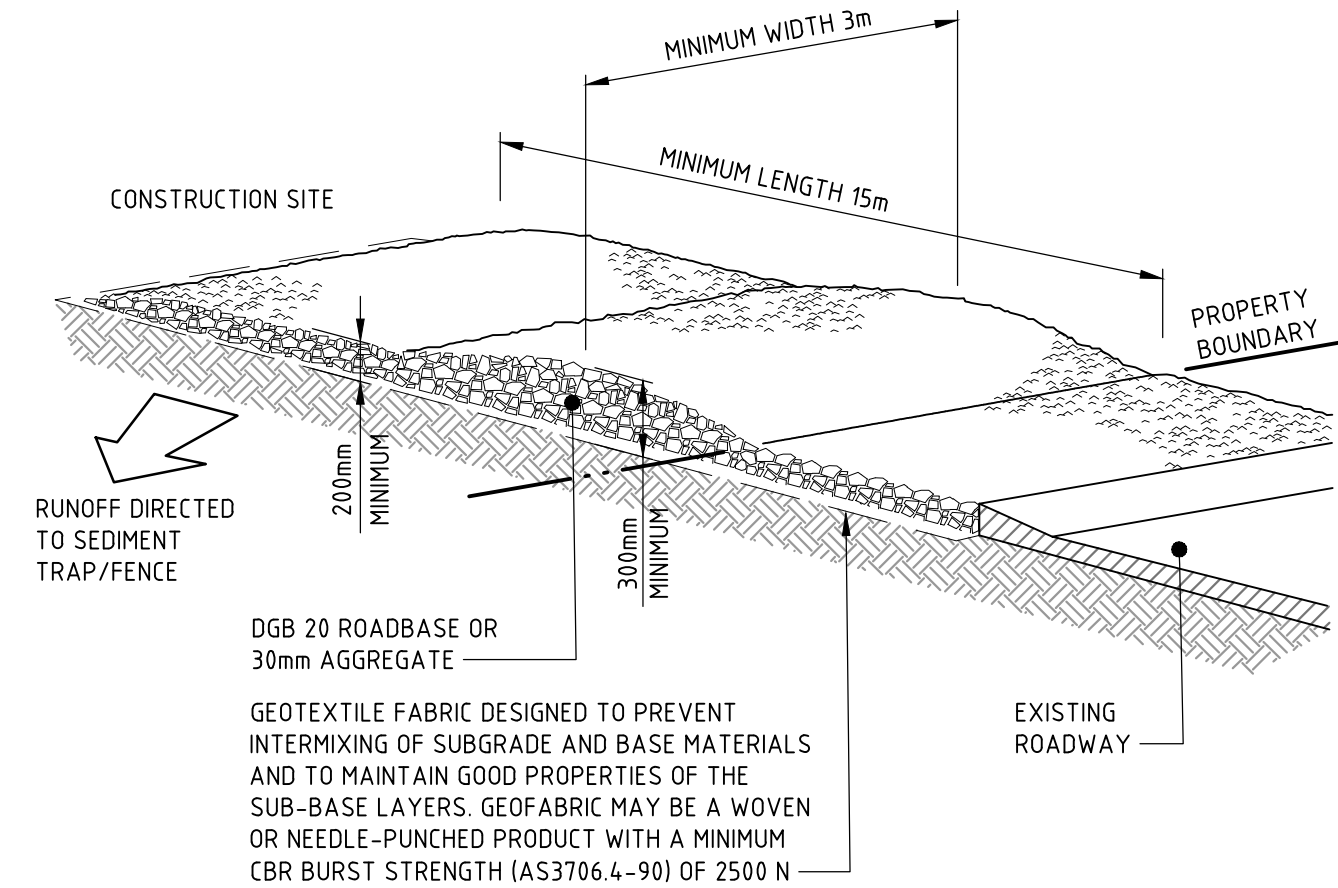
DESIGNED: J.TAI
DRAWN: J.TAI
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

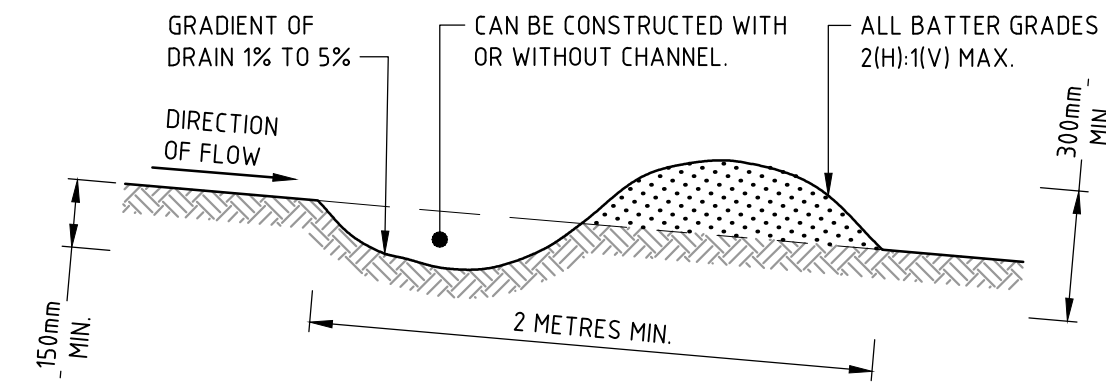
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

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

STABILISED SITE ACCESS

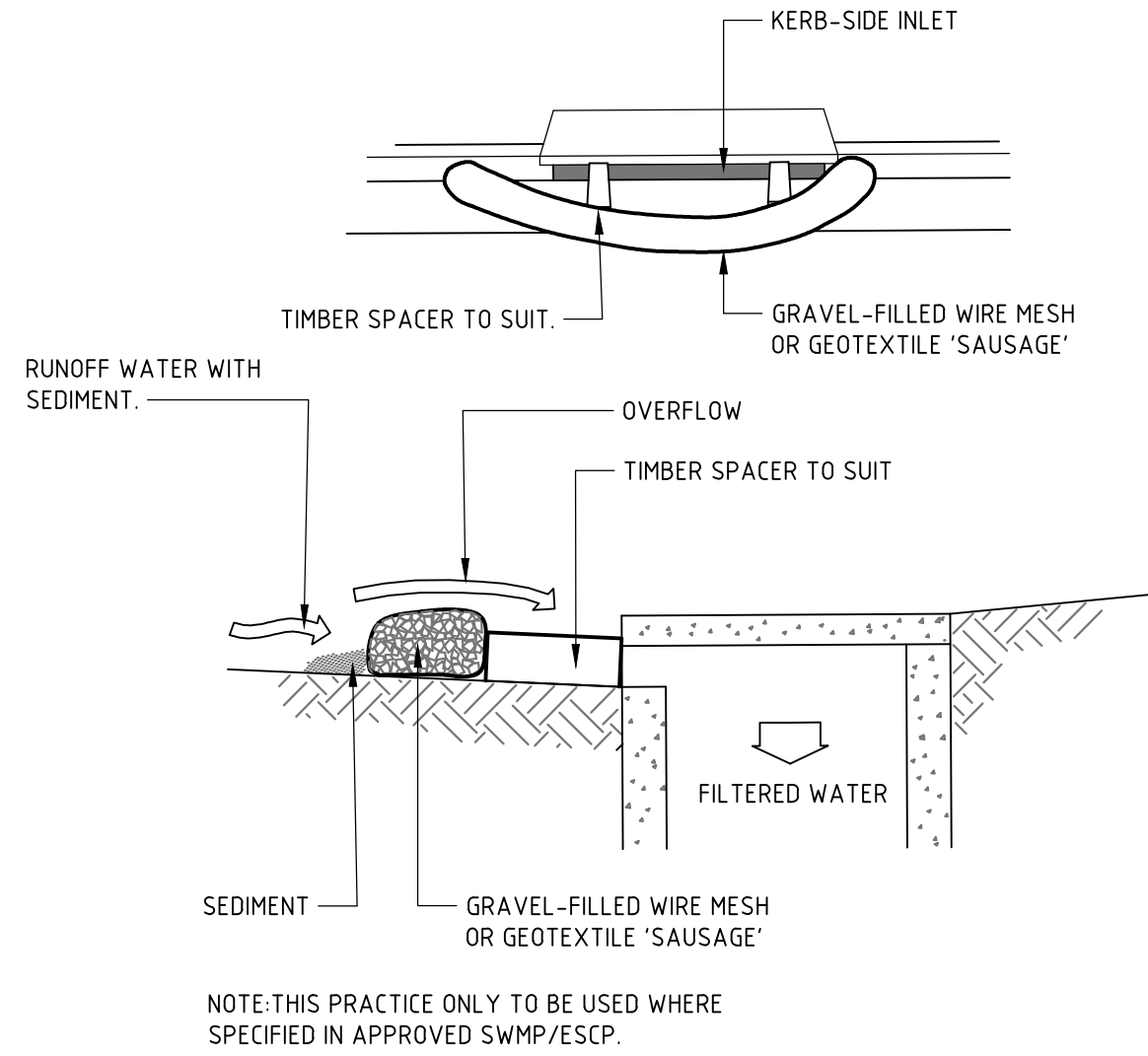


CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 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.

NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

DIVERSION DRAIN

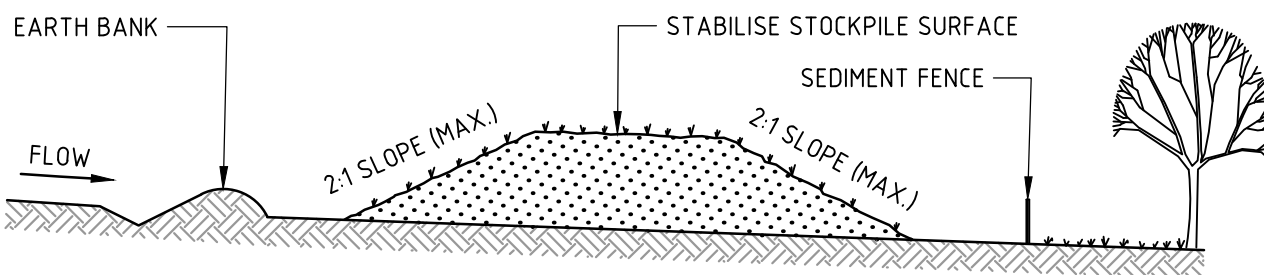


NOTE: THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

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 TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. 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.

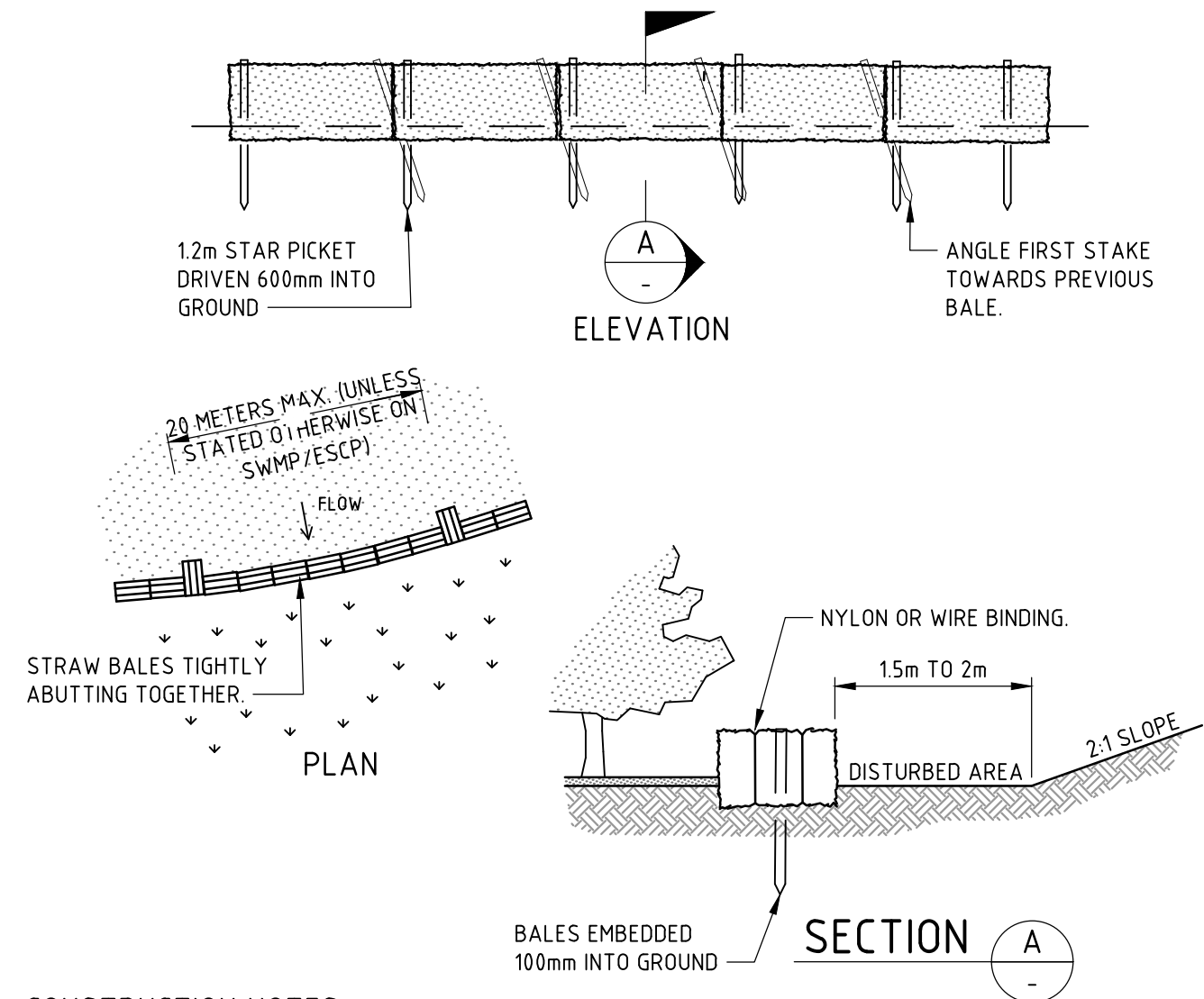
WIRE MESH AND GRAVEL INLET FILTER



CONSTRUCTION NOTES

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

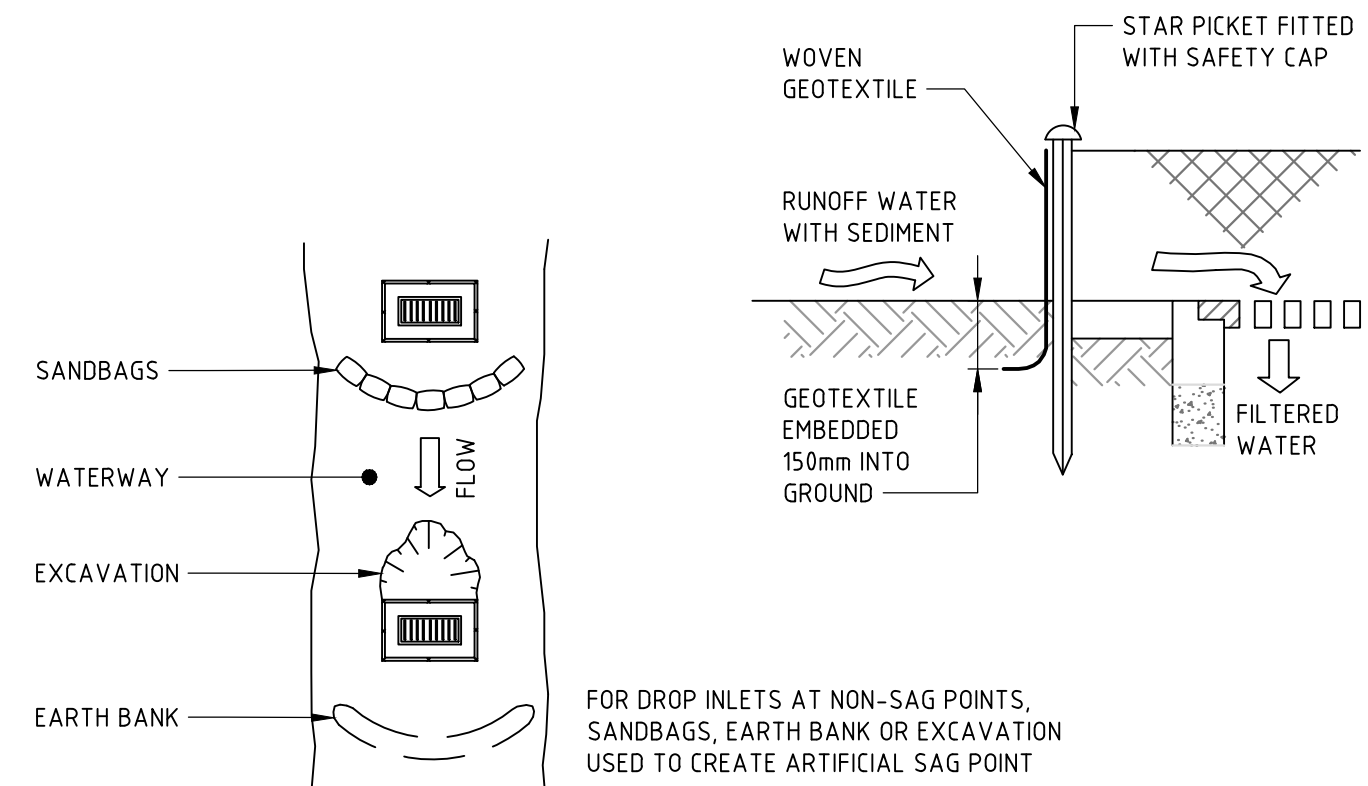
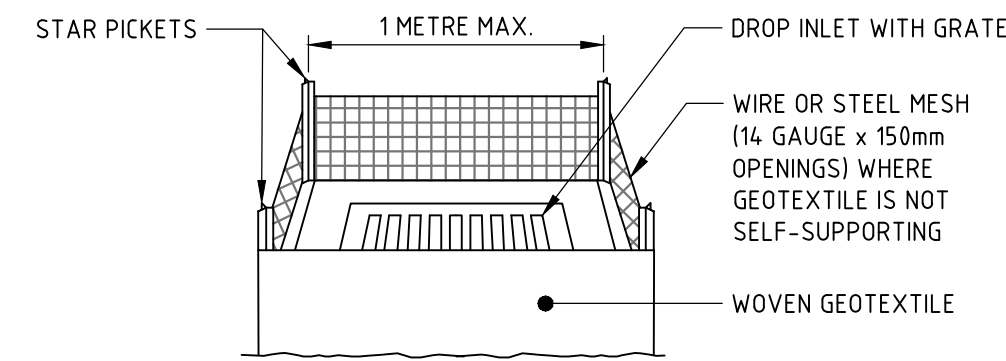
STOCKPILES



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. EMBE EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE 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 1 TO 2 METRES 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 SEDIMENT FILTER



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 GEOTEXTILE. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

DROP INLET SEDIMENT TRAP

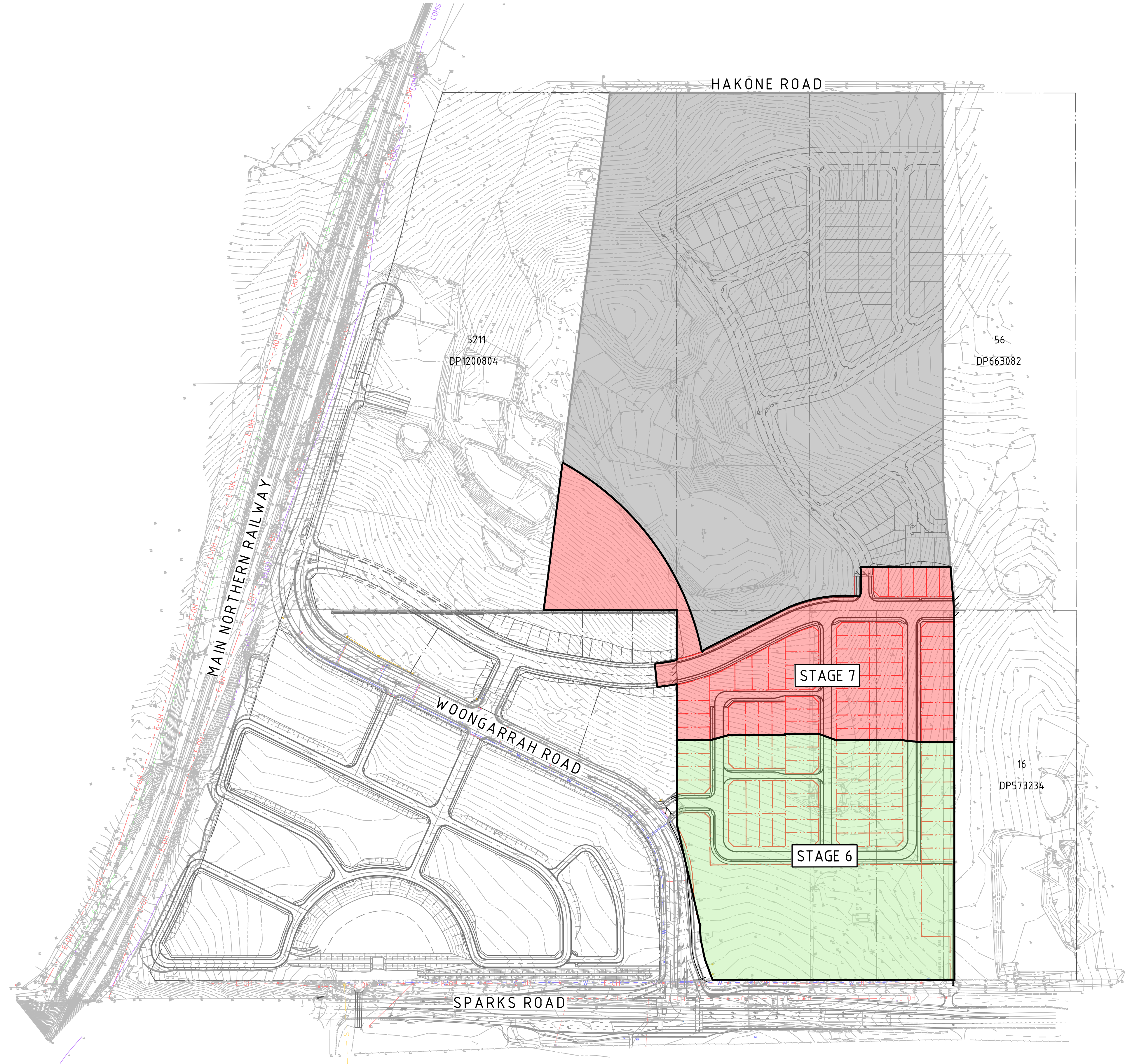
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2	RE-ISSUED FOR DA	AW	-	PC	15.10.18					
3	RE-ISSUED FOR DA	UM		PC	27.02.20					
								WARNERVALE TOWN CENTRE	SEDIMENT AND EROSION CONTROL DETAILS	
								STAGE 6 - 7 RESIDENTIAL PRECINCT SUBDIVISION		
										DRAWING NUMBER
										REVISION
										DAC05.10
										3
										DRAWING SHEET SIZE = A1

DESIGNED: VERIFIER: M. RICHARDS

JOB MANAGER:

DRAWN:



LEGEND	
	PROPOSED LOT BOUNDARY
	EXISTING BOUNDARY LINE
	PROPOSED EASEMENT LINE
	EXISTING EASEMENT LINE
	STAGE 6 - LOT 72
	STAGE 7 - LOT 88
	STAGE 8-10
	EXISTING CONTOURS

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

STAGING PLAN

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC03.10

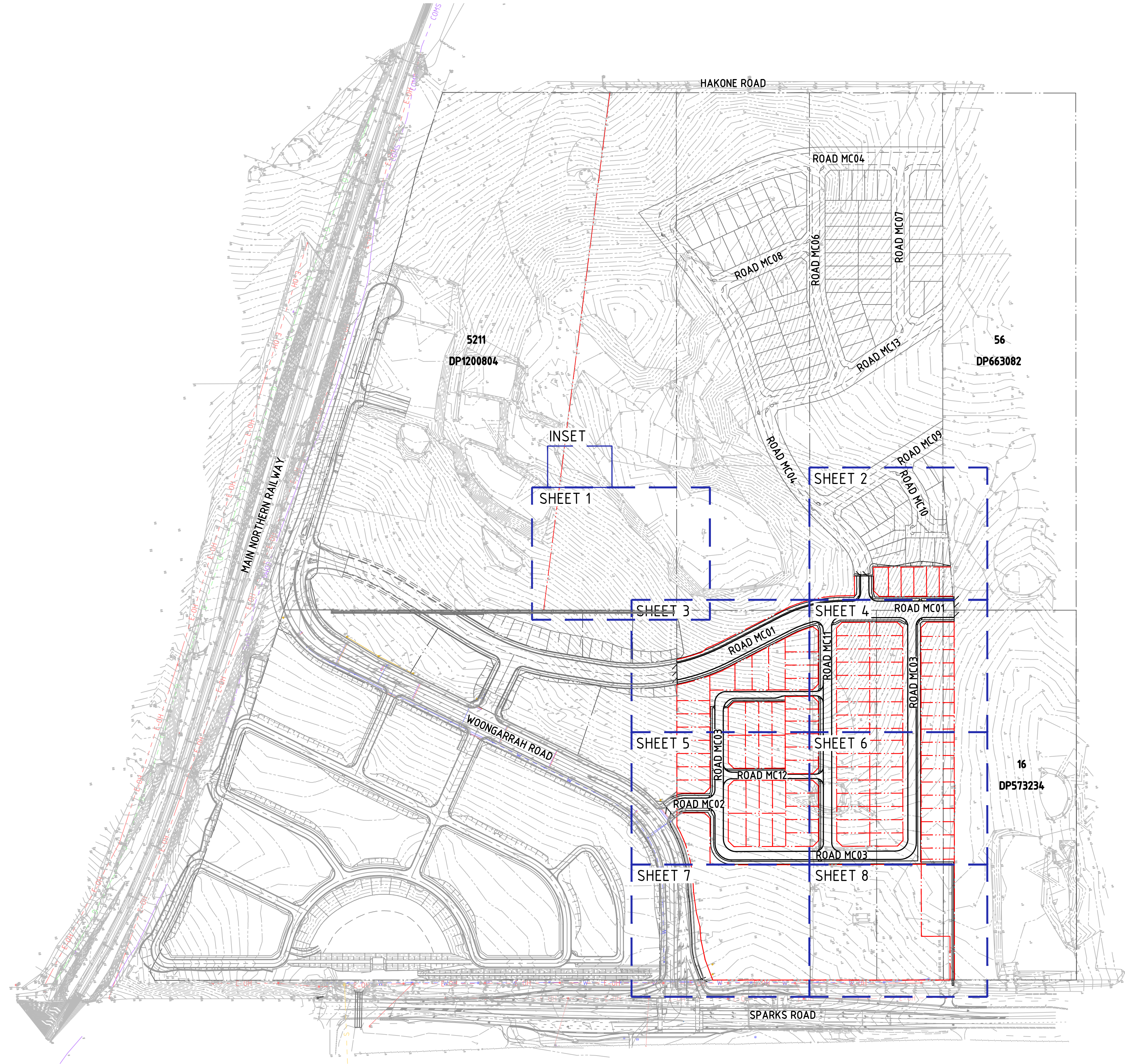
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DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LEGEND	
	PROPOSED BOUNDARY LINE
	EXISTING BOUNDARY LINE
	EXISTING EASEMENT LINE

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WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
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CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

GENERAL ARRANGEMENT PLAN

JOB NUMBER

171245 - 01

DRAWING NUMBER

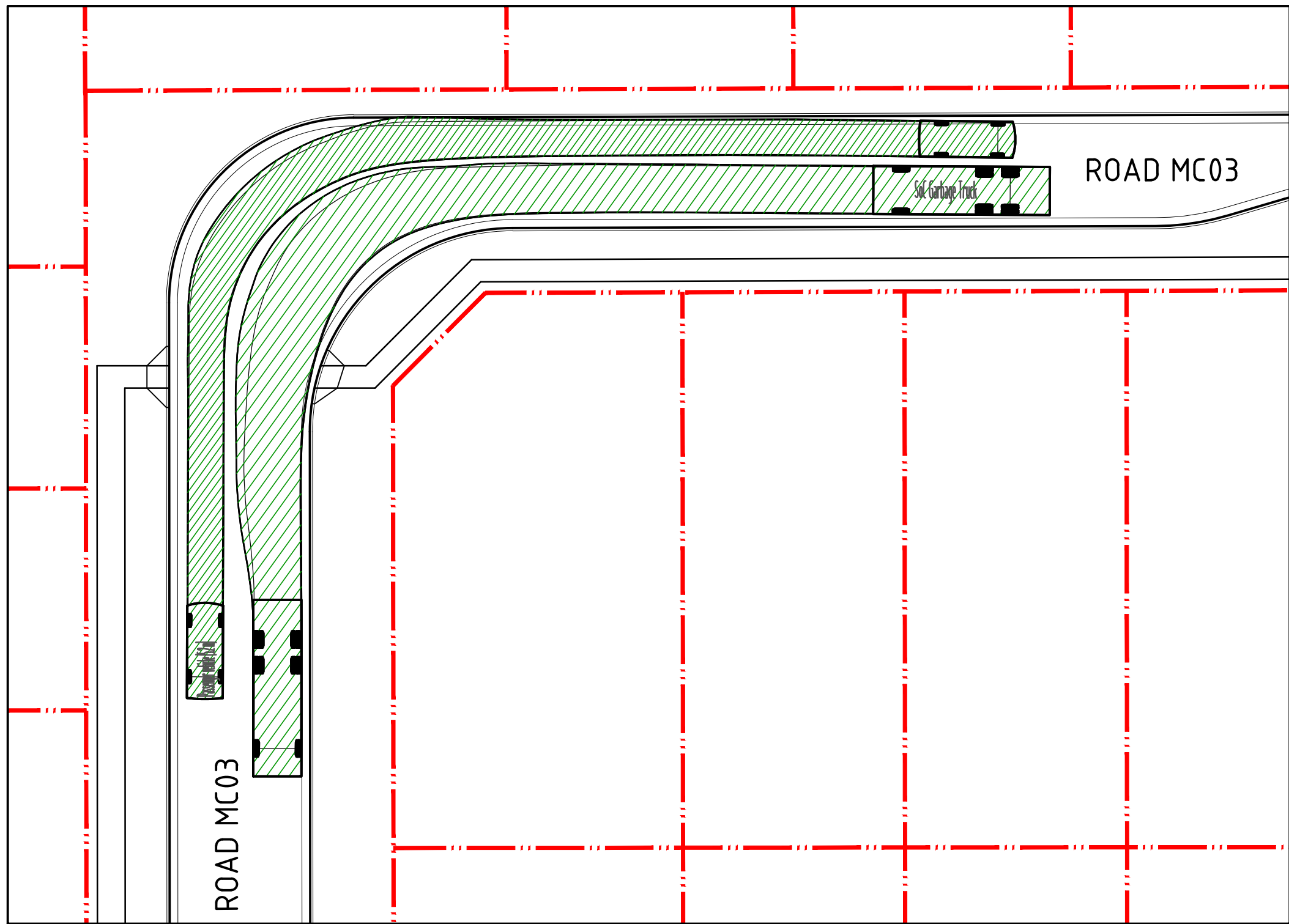
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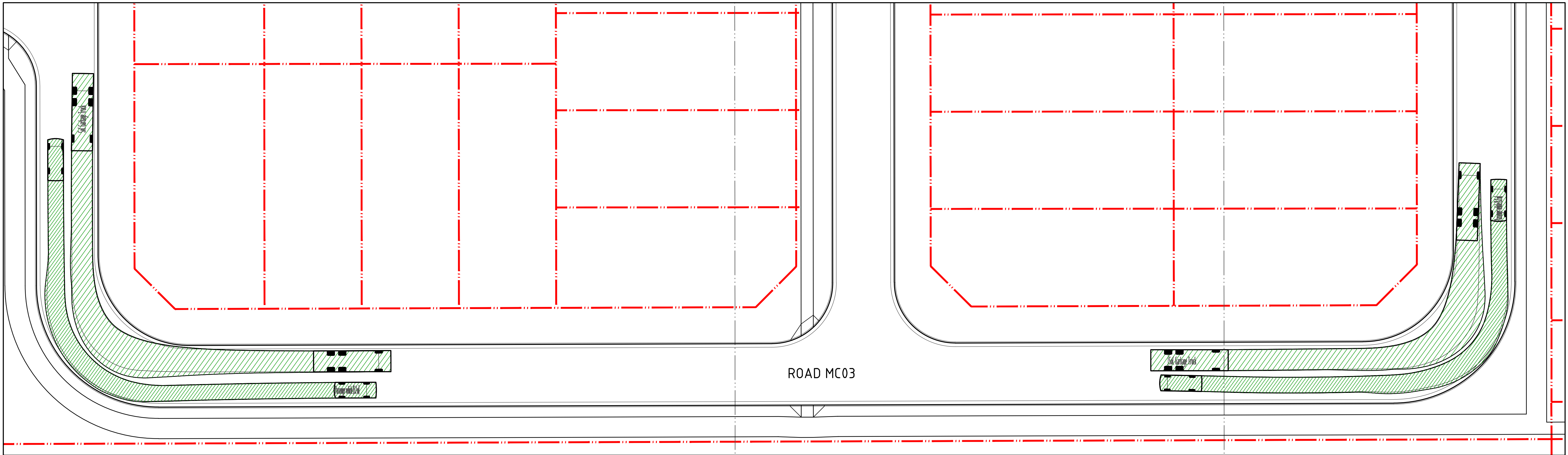
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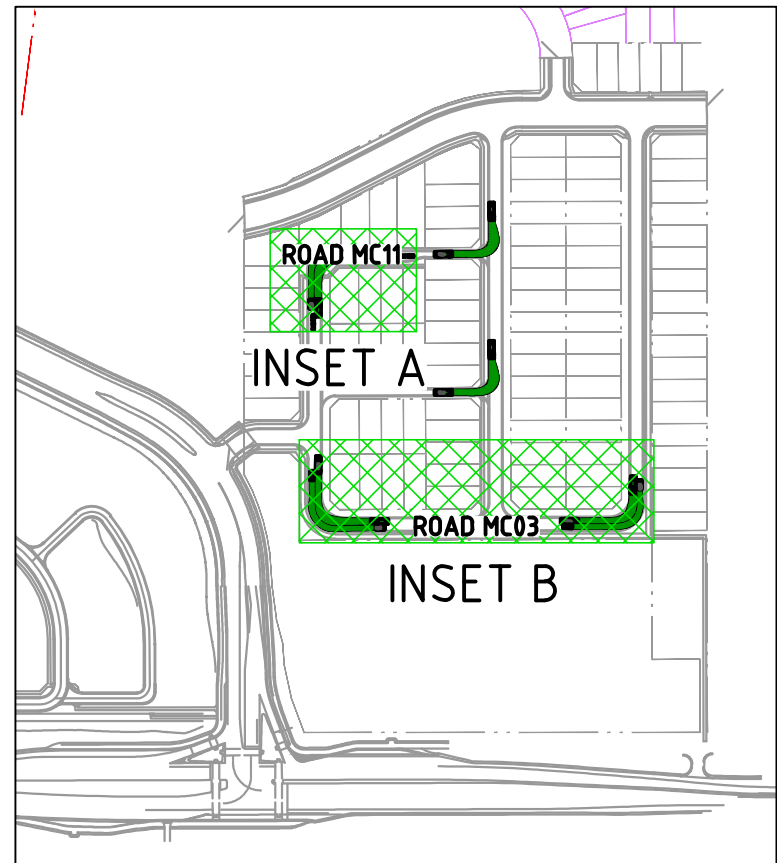
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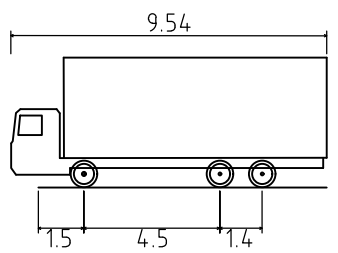
INSET A



INSET B

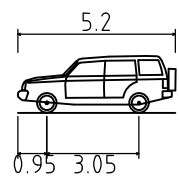


VEHICLE PROFILE



GARBAGE TRUCK

OVERALL LENGTH	9.540m
OVERALL WIDTH	2.600m
OVERALL BODY HEIGHT	4.300m
MIN BODY GROUND CLEARANCE	0.417m
TRACK WIDTH	2.500m
LOCK-TO-LOCK TIME	6.00s
MAX STEERING ANGLE (VIRTUAL)	37.00°



B99 VEHICLE (REALISTIC MIN RADIUS) (2004)

OVERALL LENGTH	5.200m
OVERALL WIDTH	1.940m
OVERALL BODY HEIGHT	1.878m
MIN BODY GROUND CLEARANCE	0.272m
TRACK WIDTH	1.840m
LOCK-TO-LOCK TIME	4.00s
CURB TO CURB TURNING RADIUS	6.250m

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SCALE 1:250@A1

0 2 4 6 8 10 12m

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT

SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

DEVELOPMENT APPLICATION

TURNING PATH PLAN

JOB NUMBER

171245 - 01

DRAWING NUMBER

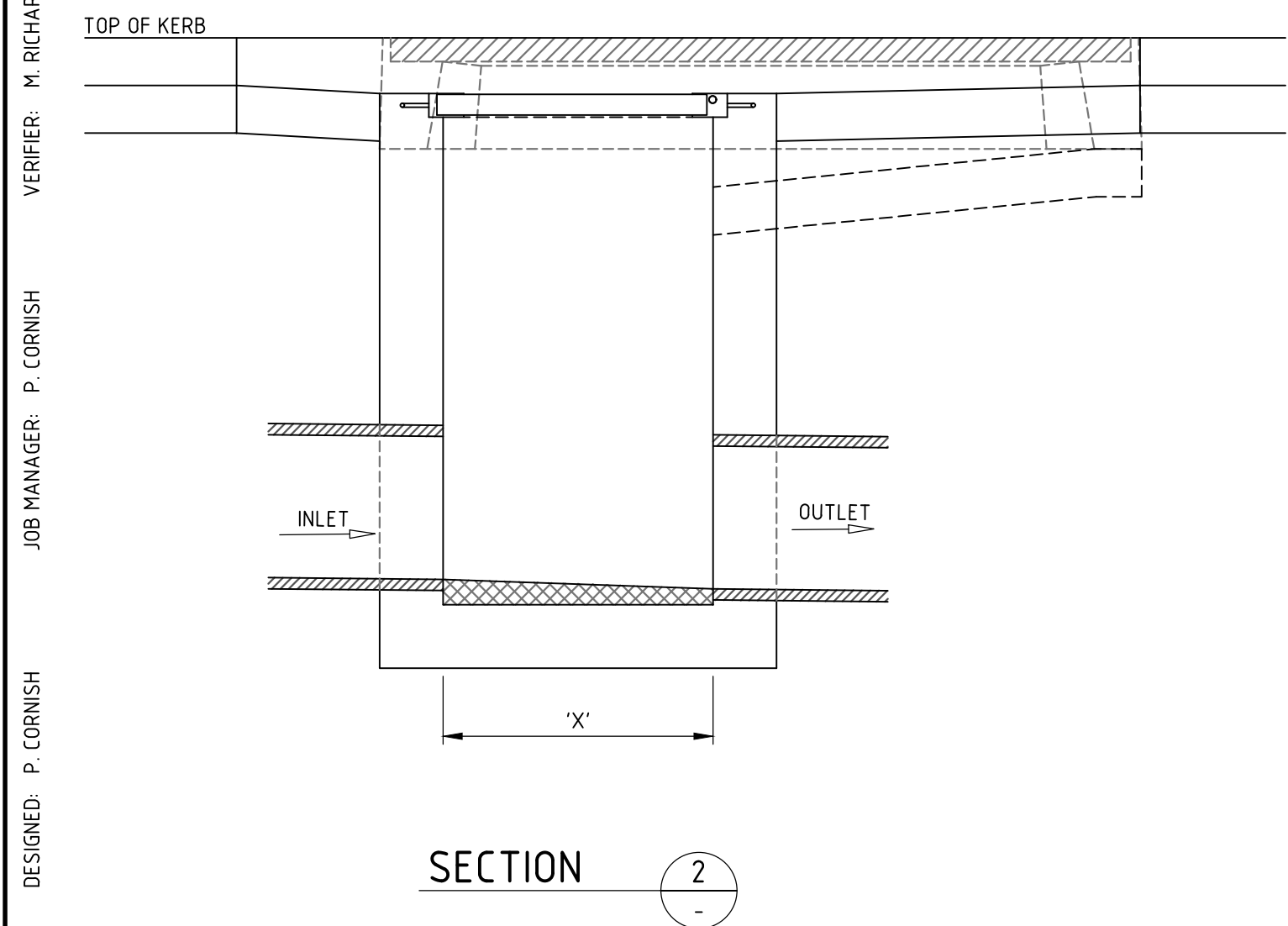
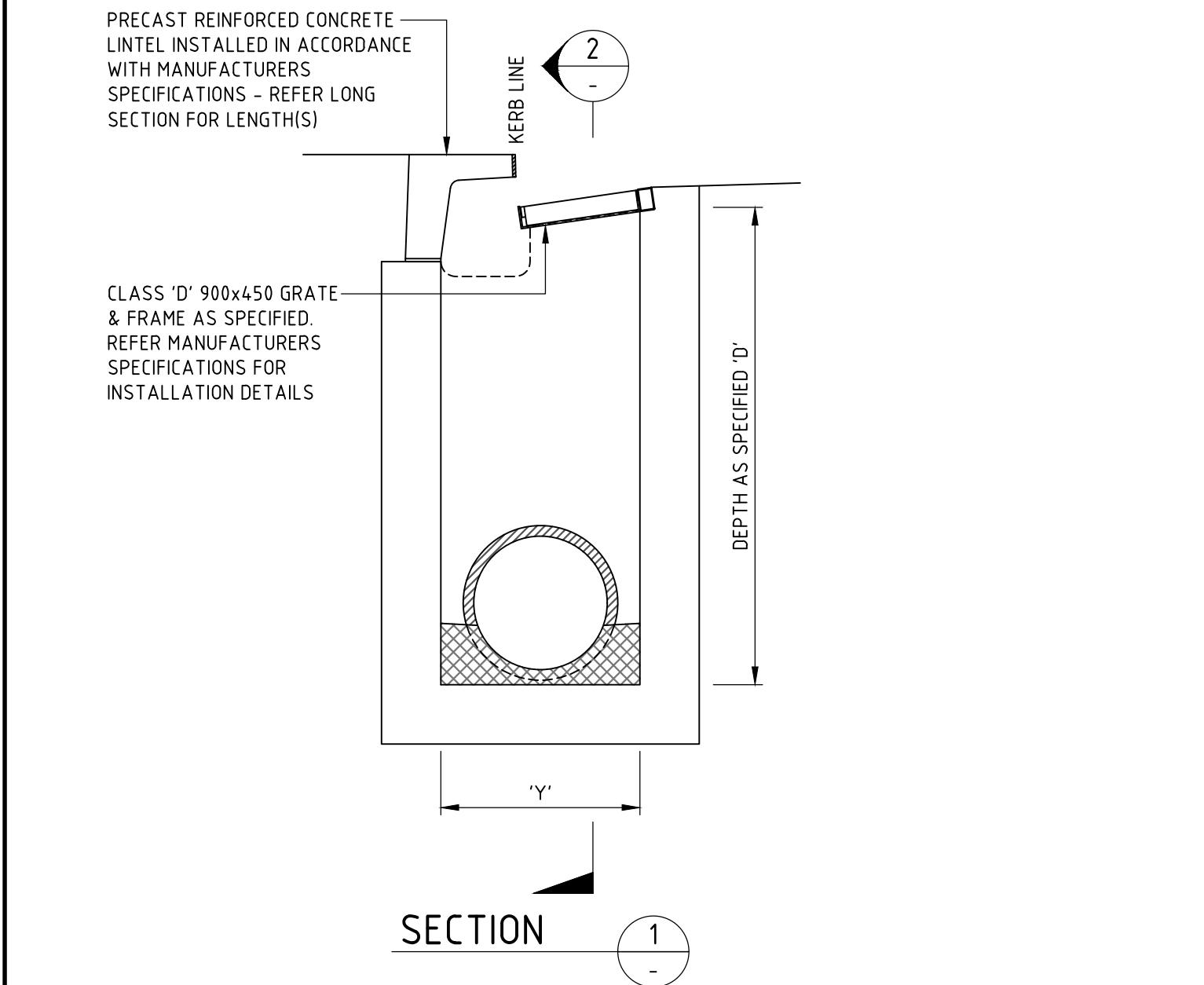
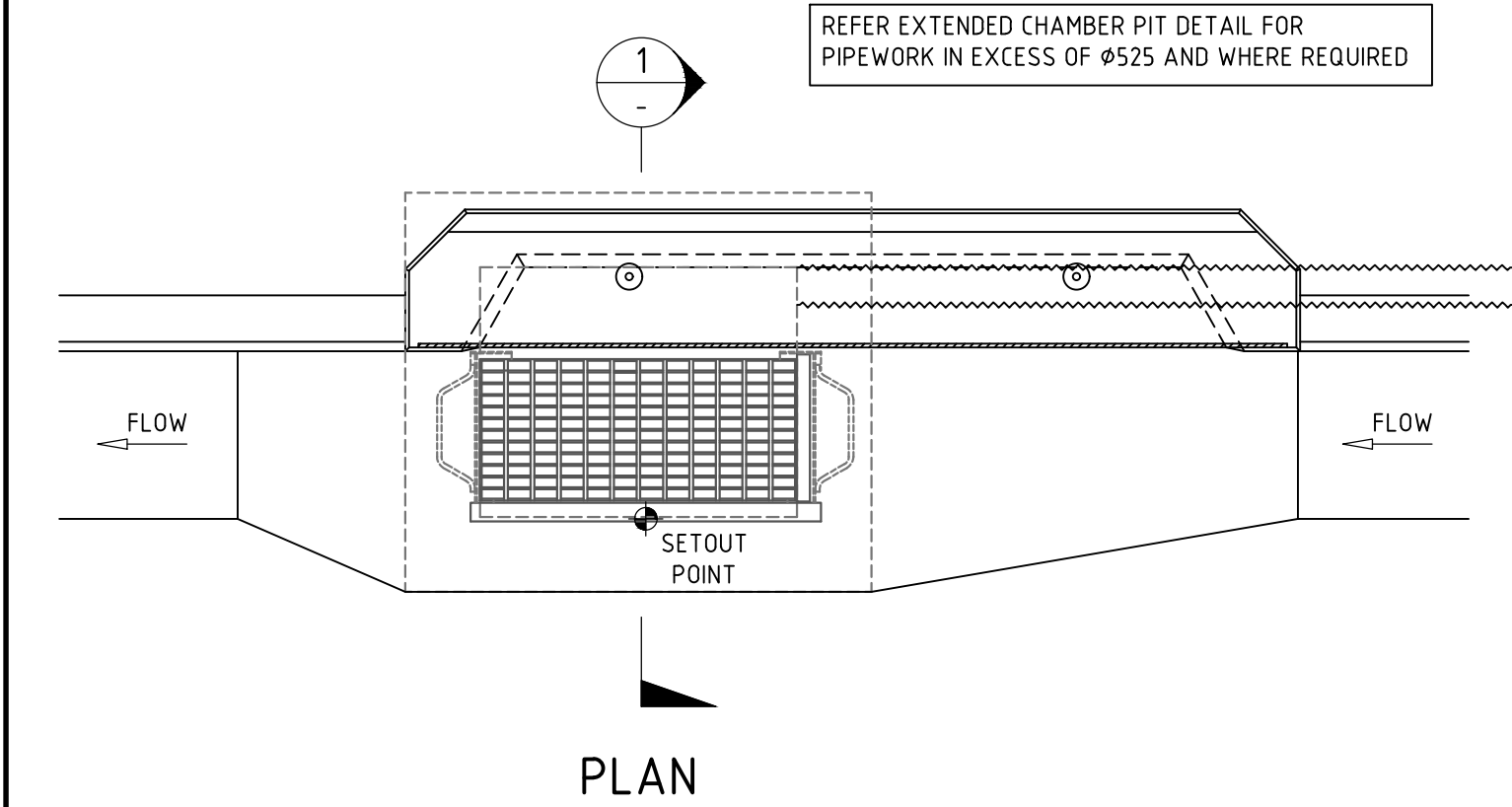
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REVISION

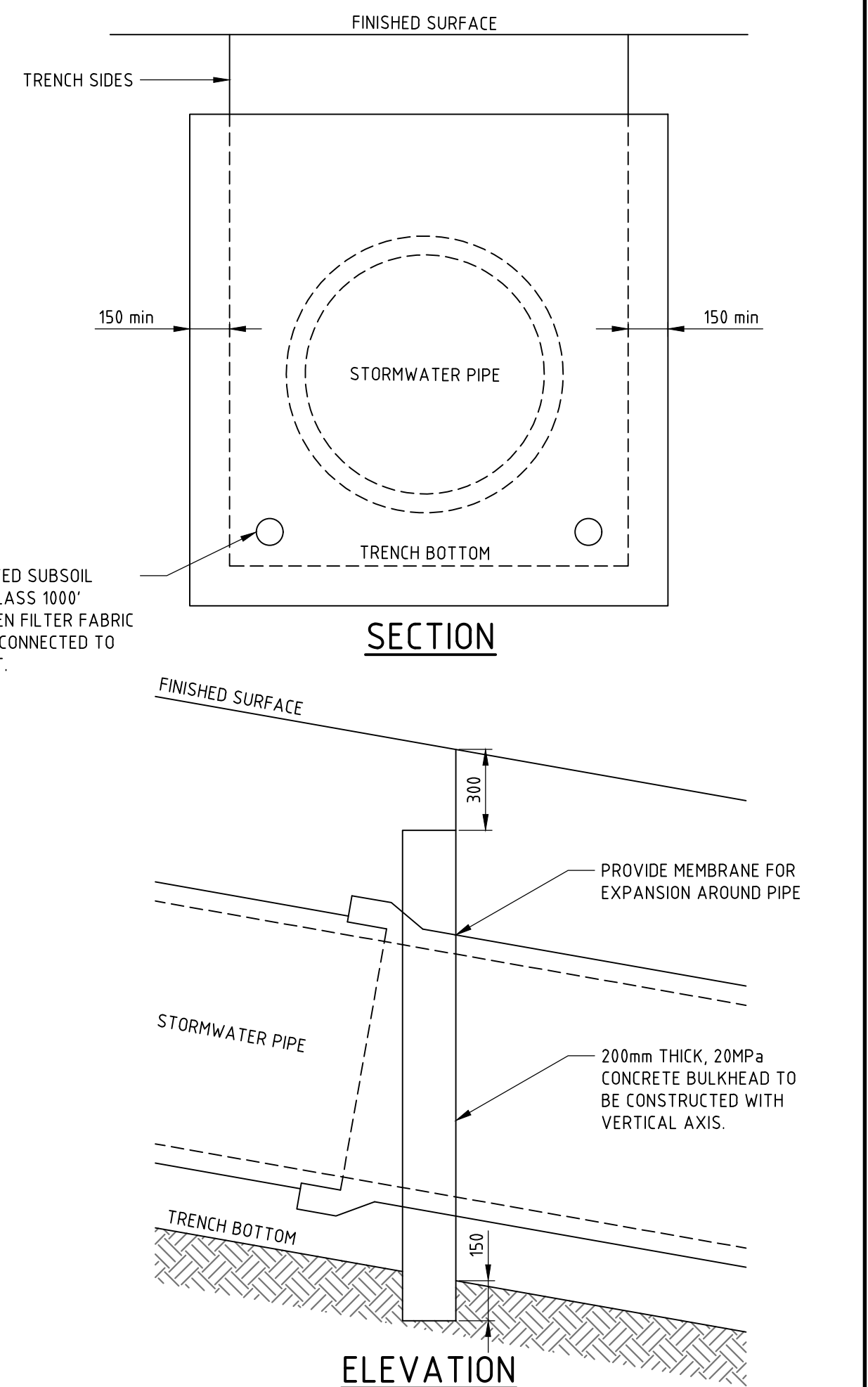
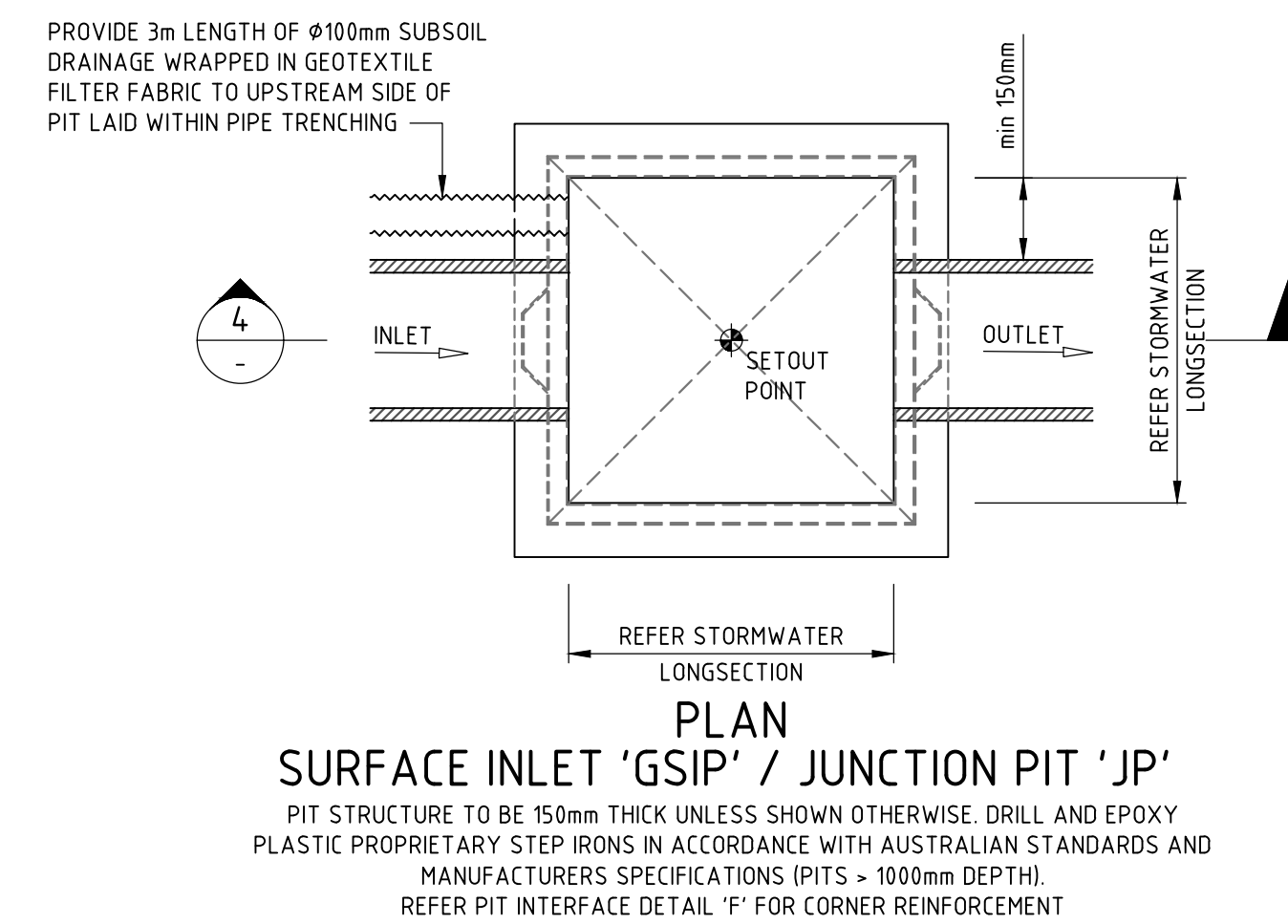
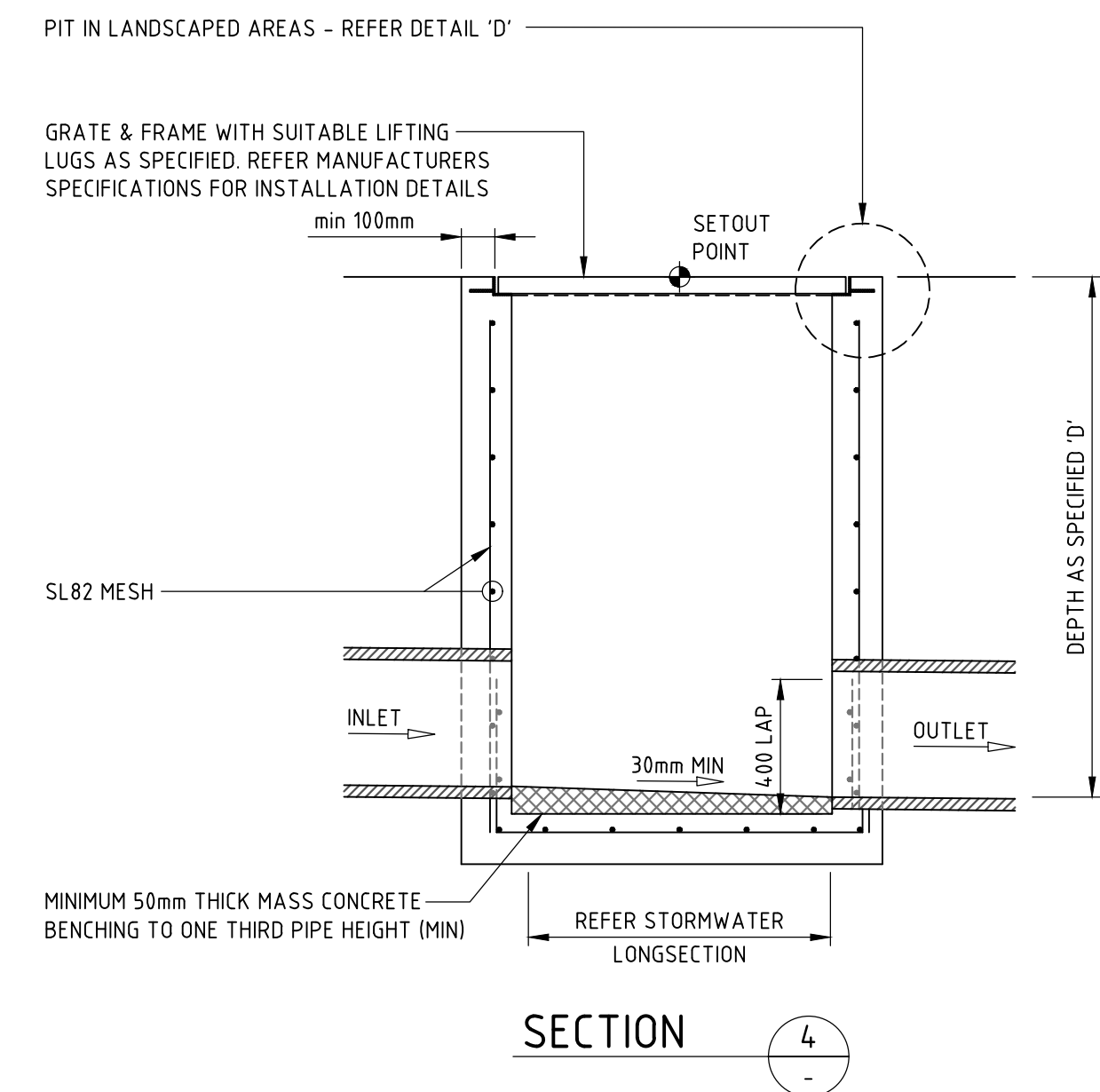
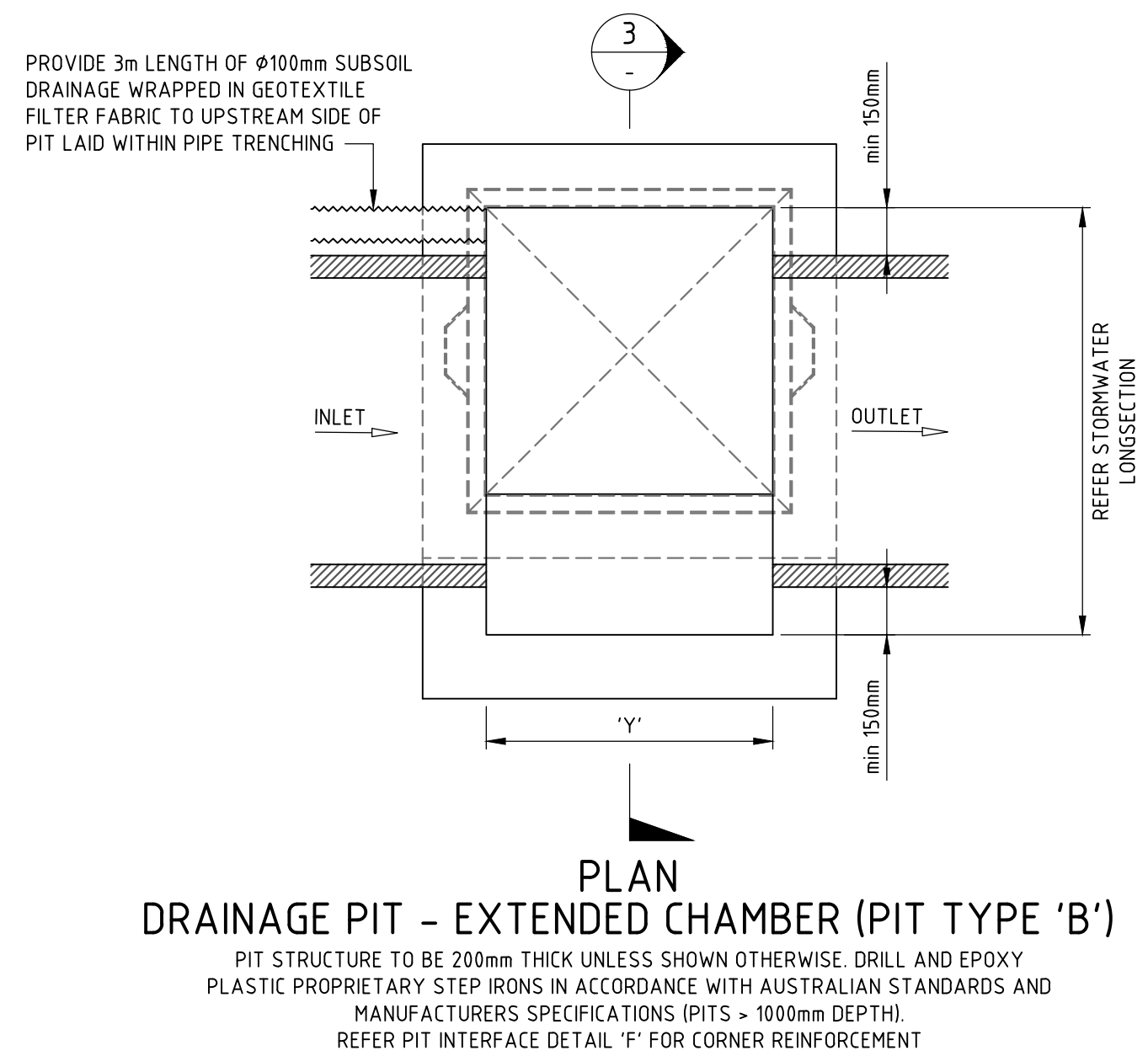
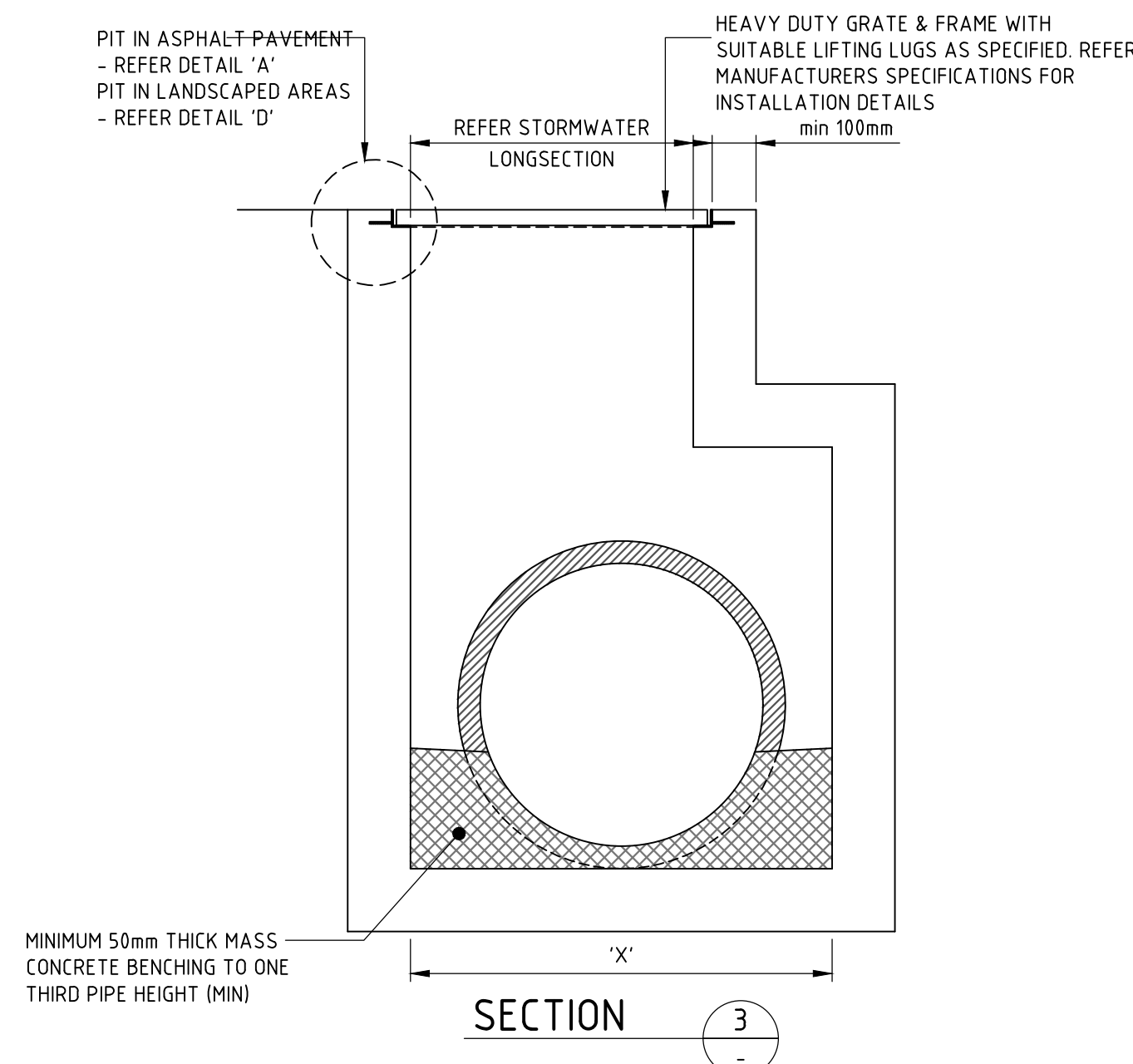
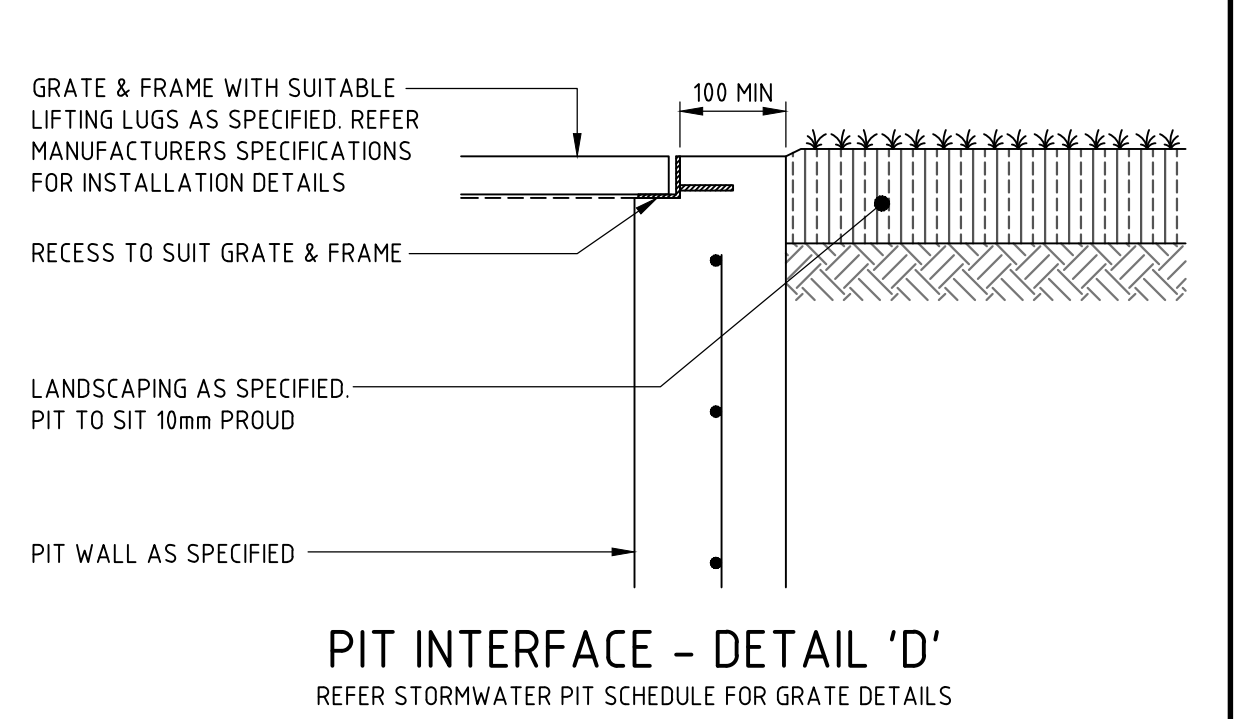
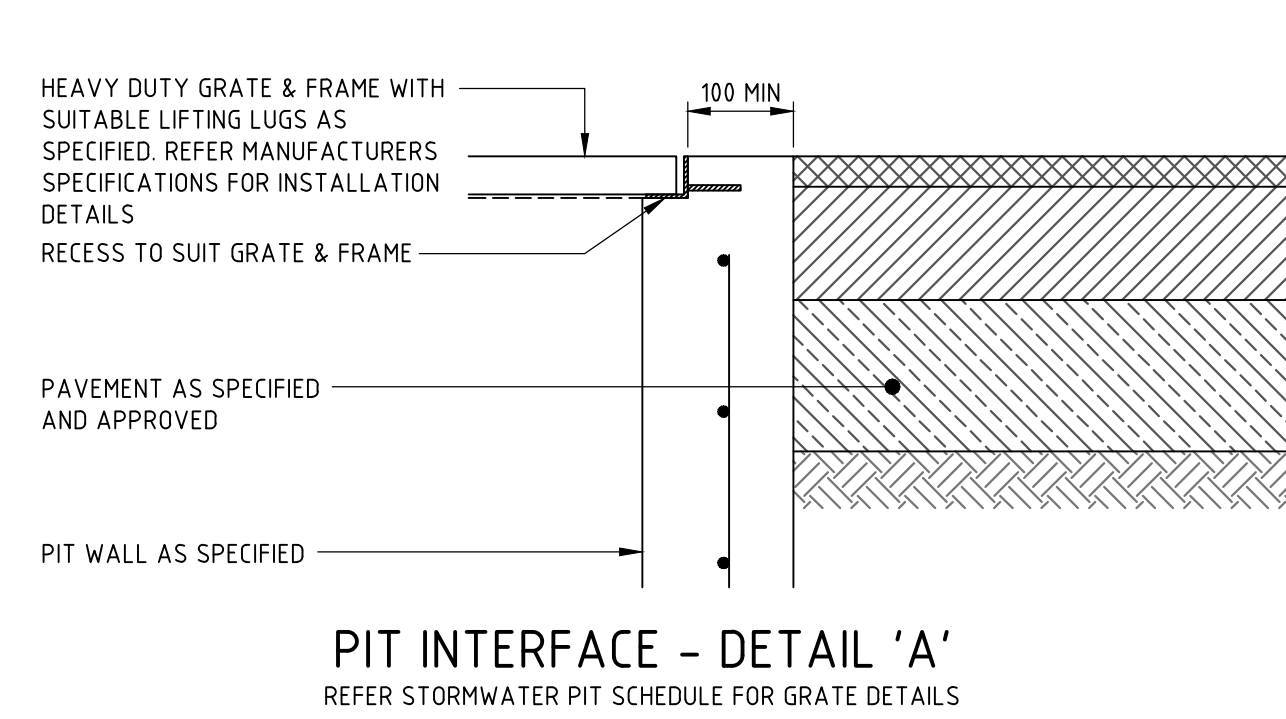
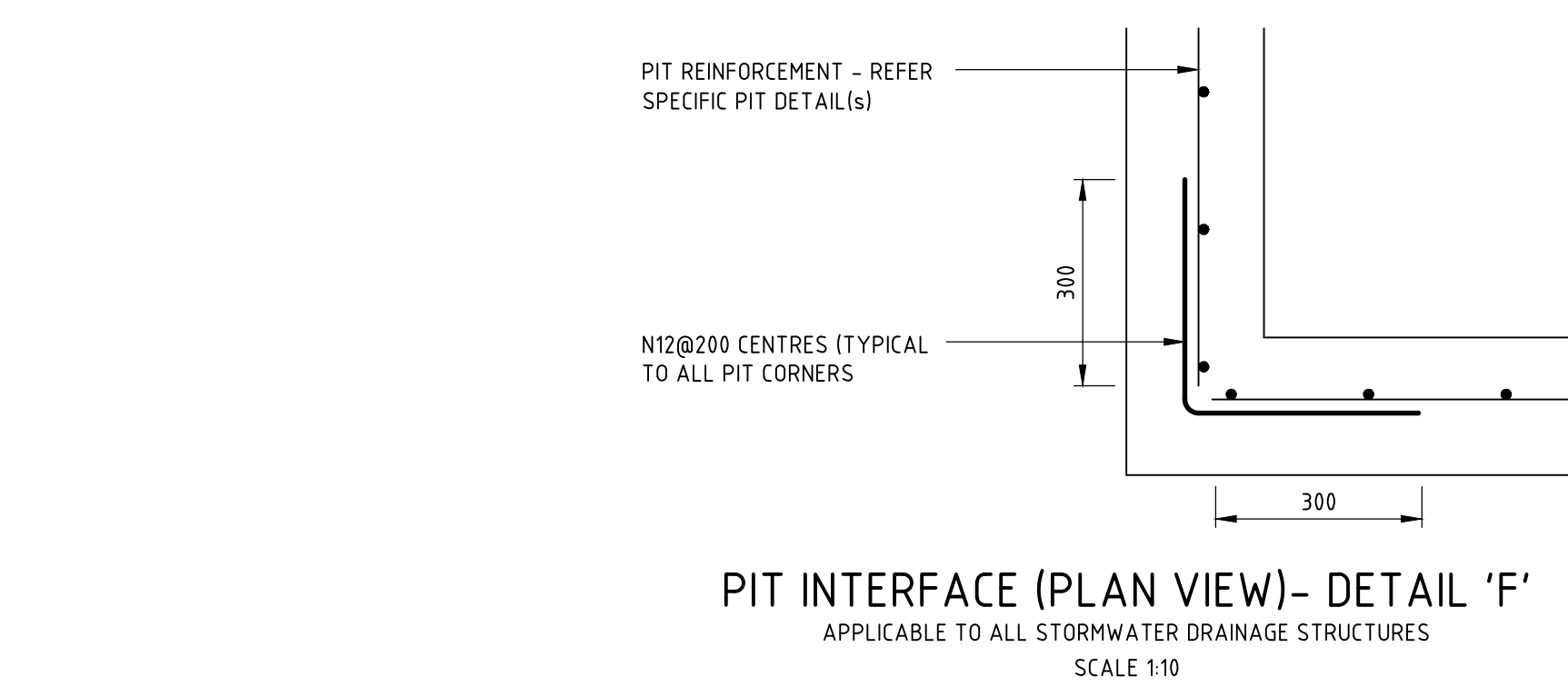
3

DRAWING SHEET SIZE = A1

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



KERB INLET PIT 'G.G.P.' (PIT TYPE 'A')
REFER TO COUNCIL STANDARD DRAWING SD.4&E (SHEETS 1-3)



STORMWATER DRAINAGE BULKHEAD
BULKHEAD ARE TO BE INSTALLED AT EVERY SECOND JOINT WHERE PIPE GRADE EXCEEDS 7% THE TOP OF THE BULKHEAD SHALL EXTEND TO WITHIN 300mm OF THE FINISHED SURFACE LEVEL OR THE SUBGRADE LEVEL WHERE THE PIPELINE IS UNDER ROAD PAVEMENT.

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
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SCALE 1:20 @ A1

0.0 0.2 0.4 0.6 0.8 1.0m

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: **WARNERVALE TOWN CENTRE**

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE: **CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION**

DETAILS - SHEET 02

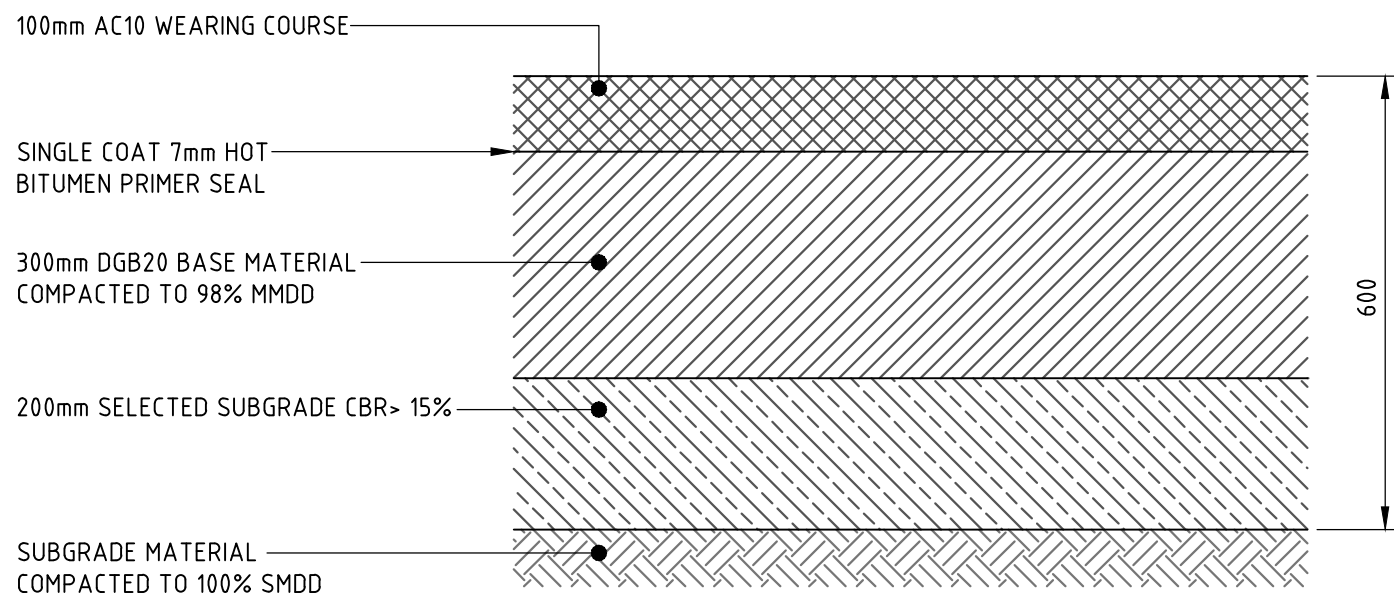
JOB NUMBER: **171245 - 01**

DRAWING NUMBER: **DAC20.02**

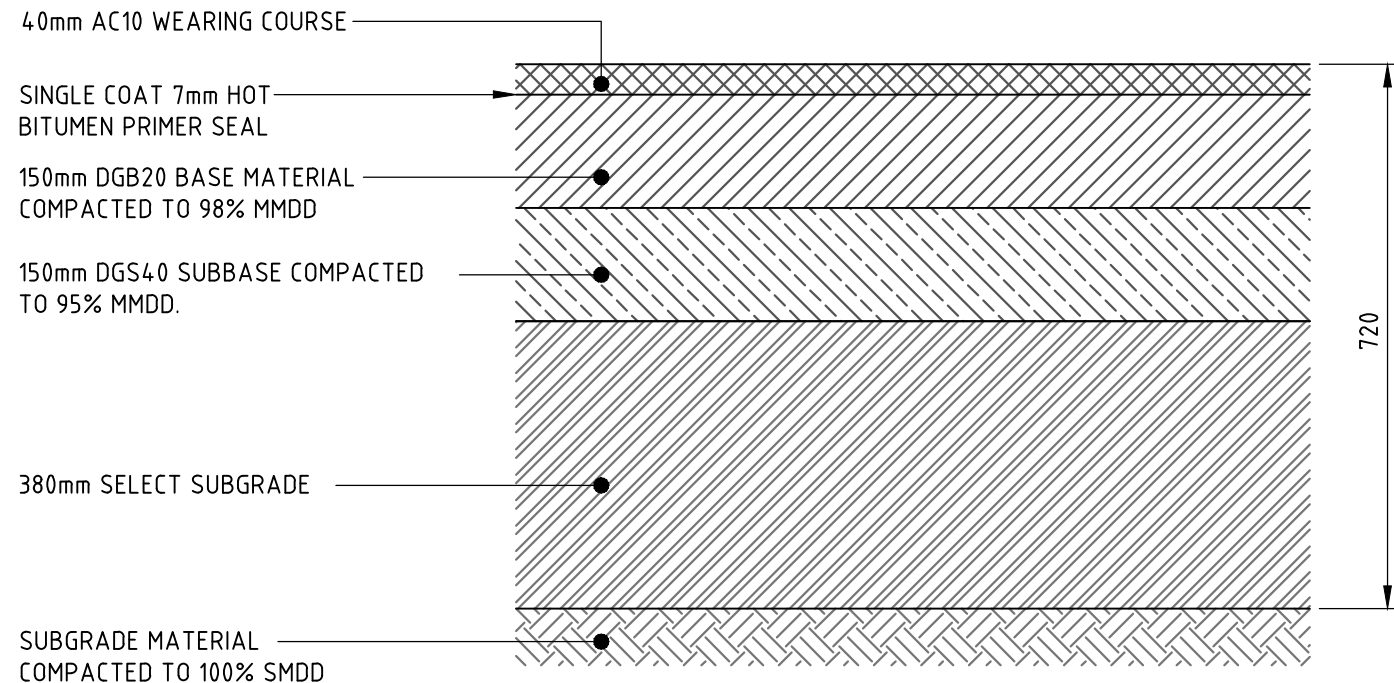
REVISION: **3**

DRAWING SHEET SIZE = A1

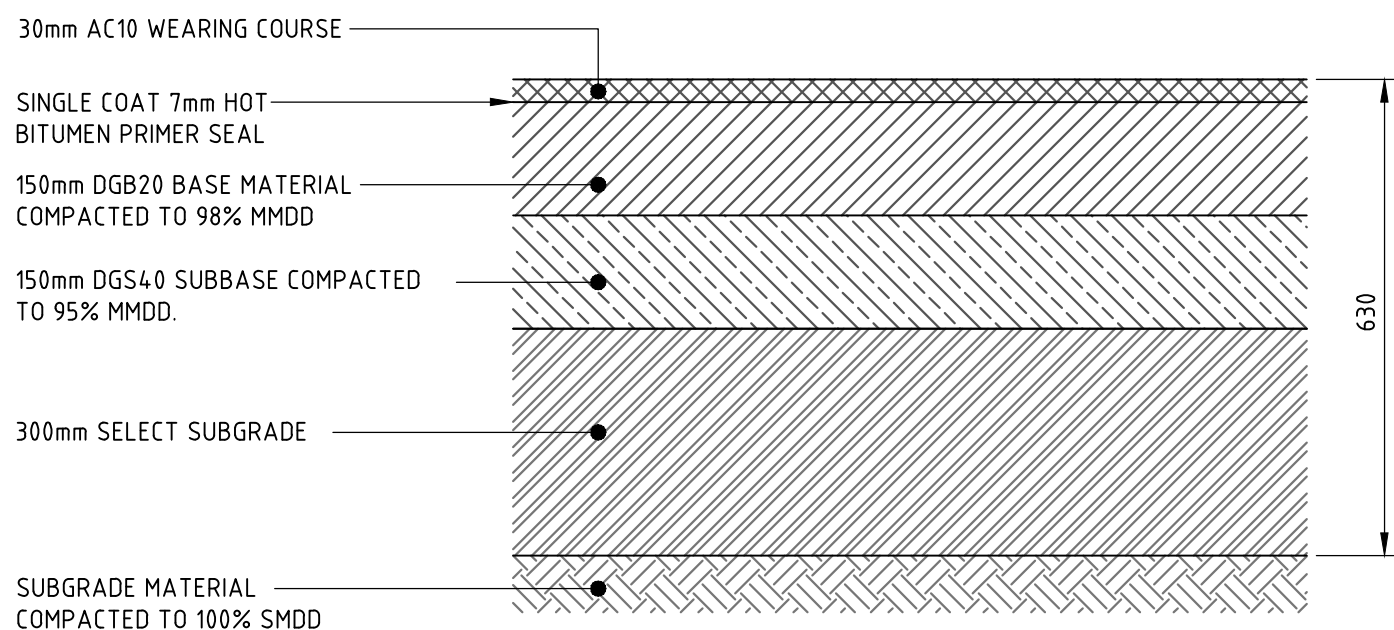
VERIFIER: M. RICHARDS
JOB MANAGER: P. CORNISH
DESIGNED: P. CORNISH
DRAWN: J. TAI



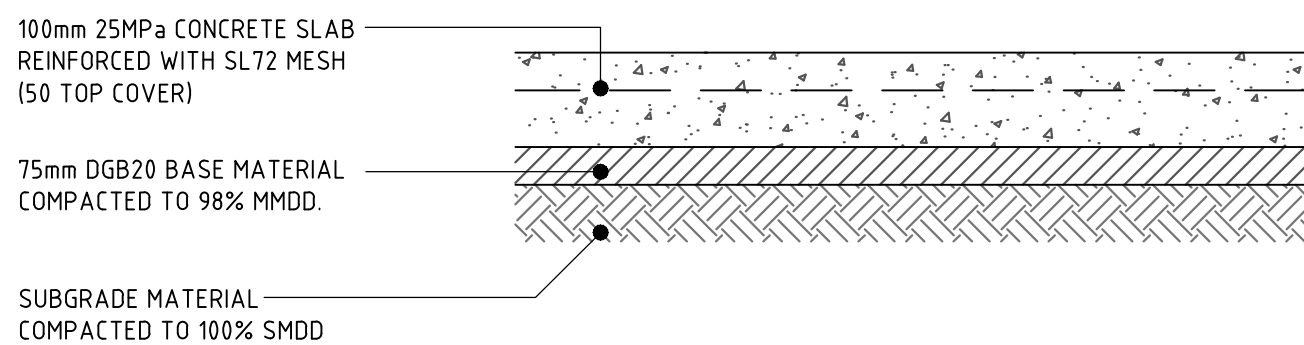
ASPHALT ROAD PAVEMENT - TYPE 1
MIN CBR 2% (CONTRACTOR TO CONFIRM ONSITE) DESIGN
LOADING = 2x10⁶ ESA's (DISTRIBUTOR STREET)



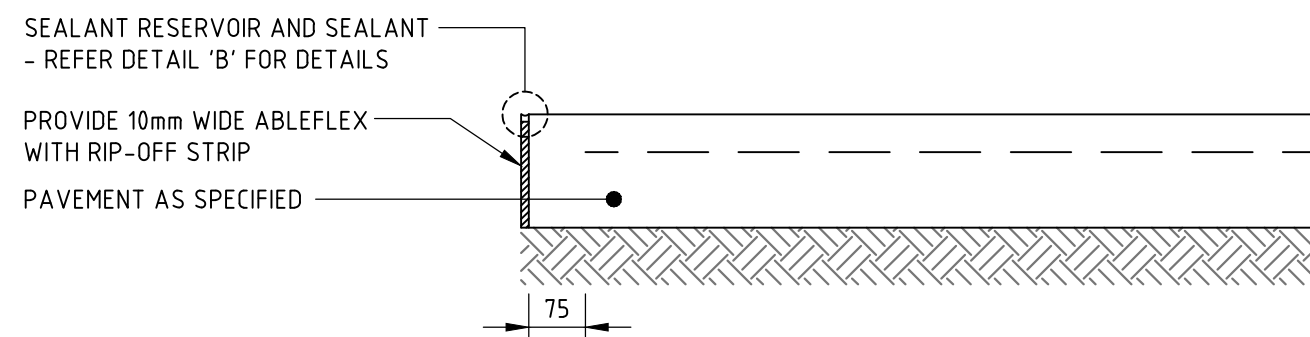
ASPHALT ROAD PAVEMENT - TYPE 2
MIN CBR 2.5% (CONTRACTOR TO CONFIRM ONSITE)
DESIGN LOADING = 1.9x10⁶ ESA's (COLLECTOR STREET)



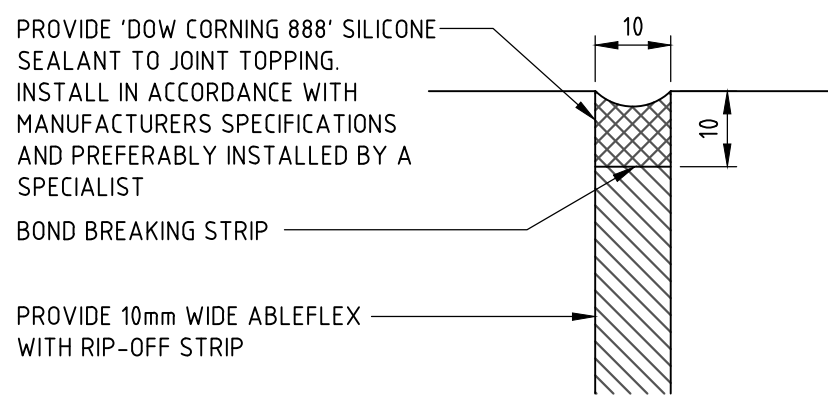
ASPHALT ROAD PAVEMENT - TYPE 3
MIN CBR 2.5% (CONTRACTOR TO CONFIRM ONSITE)
DESIGN LOADING = 1.9x10⁶ ESA's (LOCAL STREET)



CONCRETE FOOTPATH PAVEMENT
SCALE 1:10
MIN CBR 10% (CONTRACTOR TO CONFIRM ONSITE).
CONTRACTOR TO ALLOW FOR JOINTS - REFER JOINT DETAILS

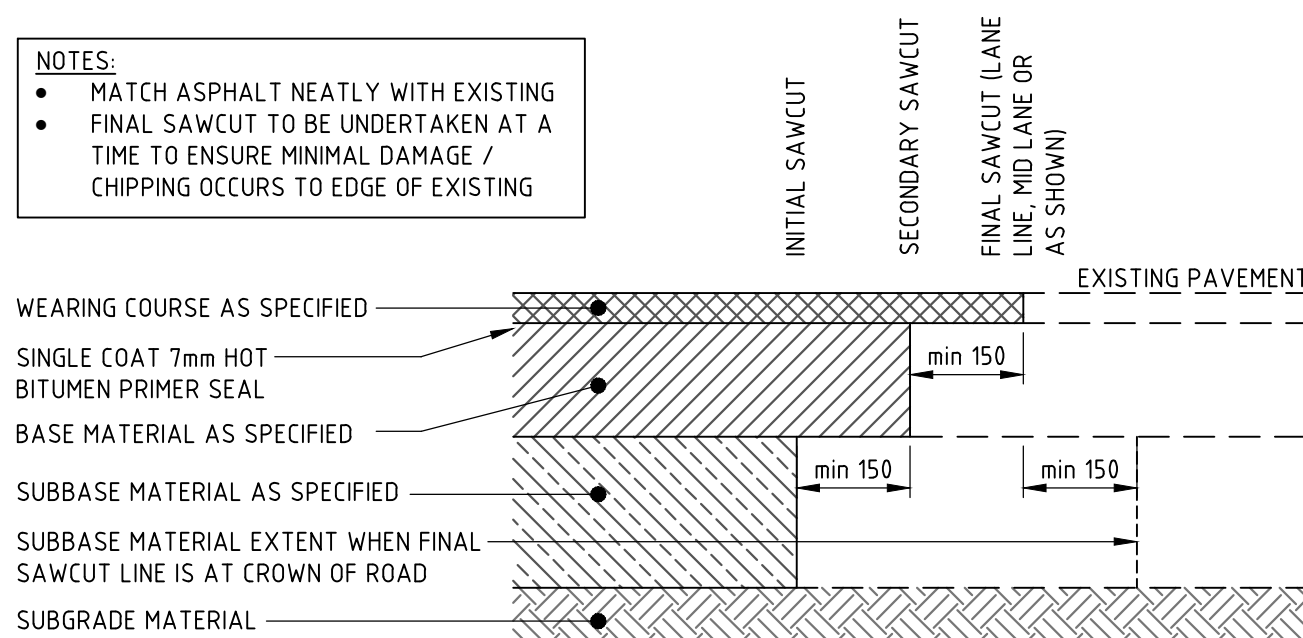


ISOLATION JOINT 'IJ'
SCALE 1:10
• PROVIDE JOINT BETWEEN ALL NEW CONCRETE AND EXISTING STRUCTURES
• JOINT TO BE USED AGAINST ALL WALLS, FOOTINGS, COLUMNS, BACK OF KERB, SERVICE PITS, DRAINAGE PITS AND ALL SLAB PENETRATIONS

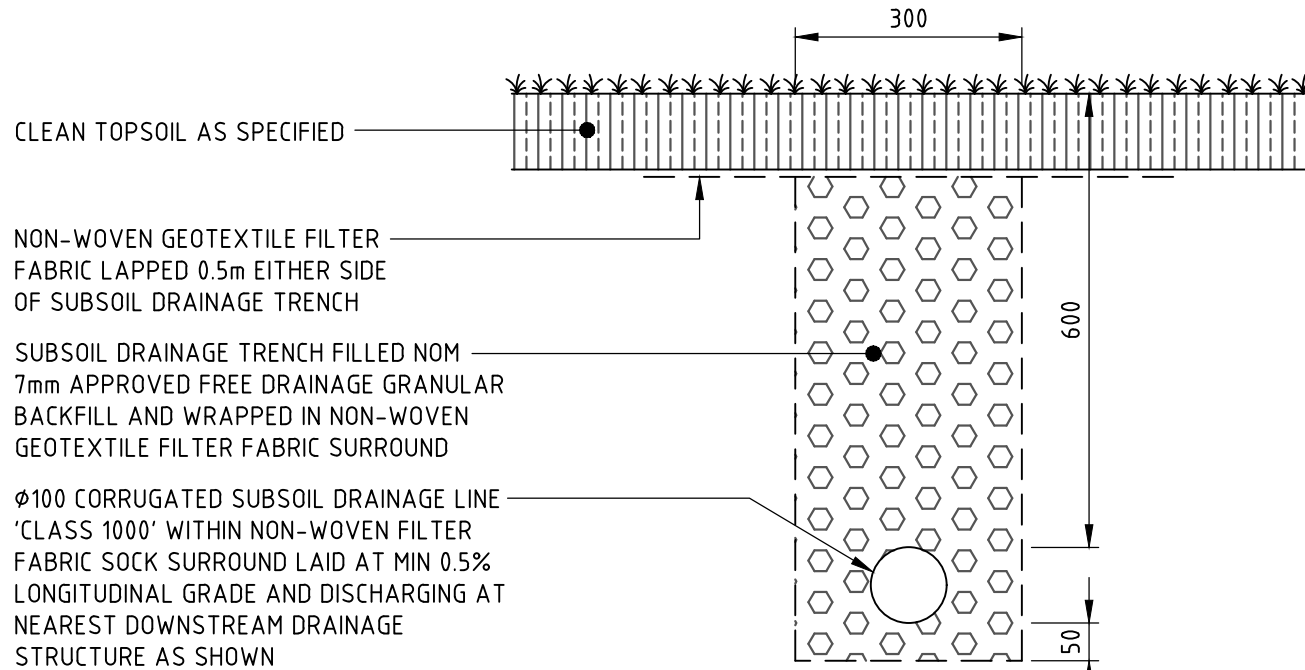


DETAIL 'B'
SCALE 1:10

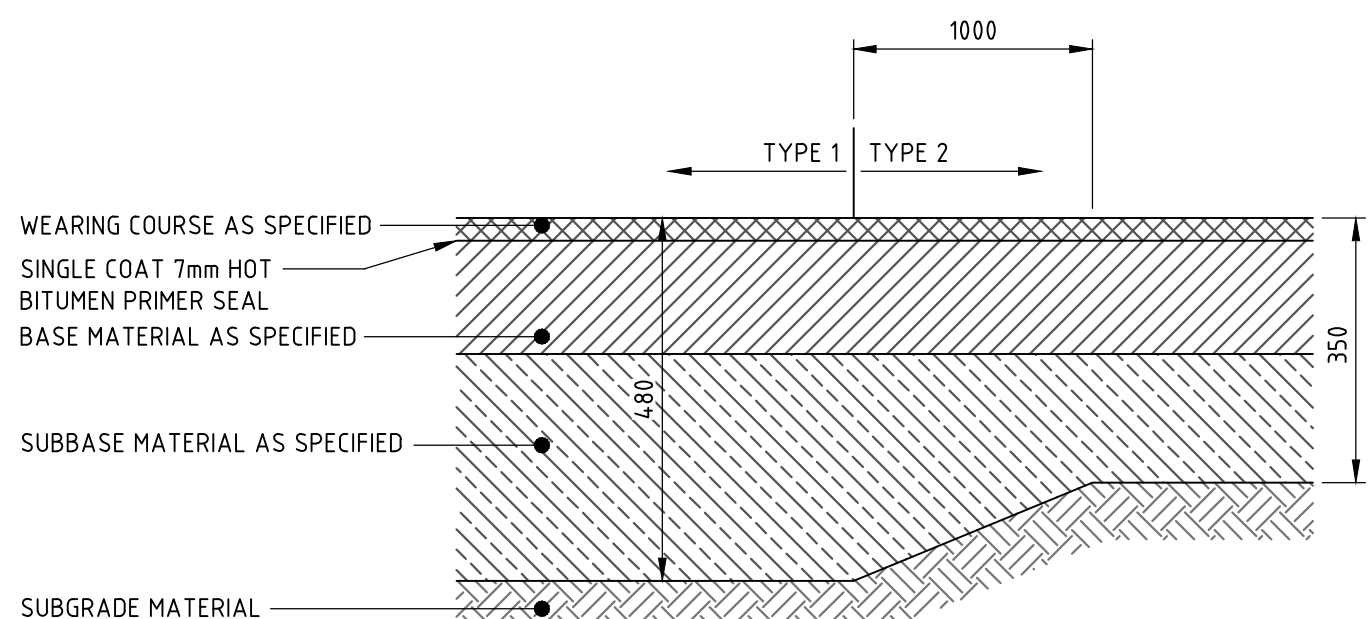
- NOTES:
- MATCH ASPHALT NEATLY WITH EXISTING
 - FINAL SAWCUT TO BE UNDERTAKEN AT A TIME TO ENSURE MINIMAL DAMAGE / CHIPPING OCCURS TO EDGE OF EXISTING



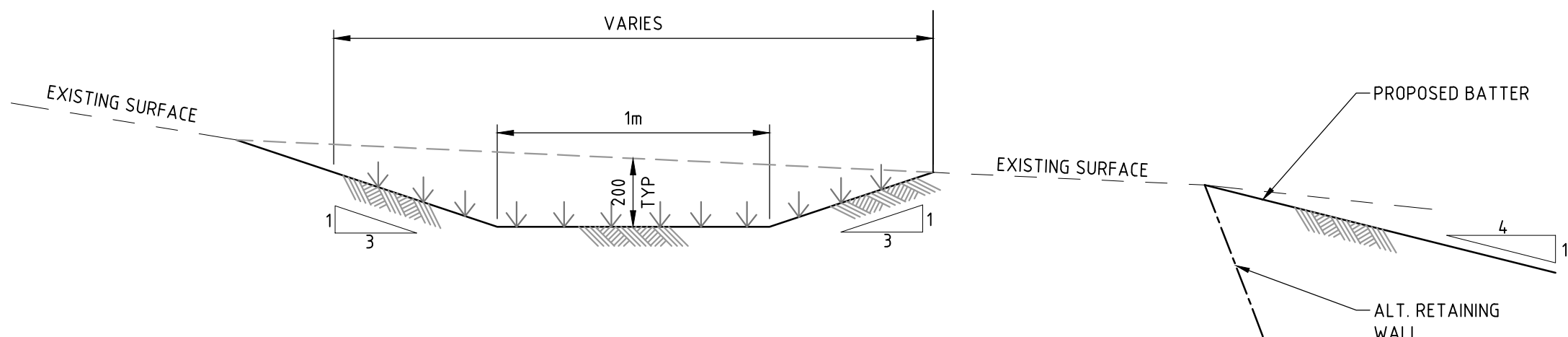
PAVEMENT INTERFACE 1 'INT1'
SCALE 1:10



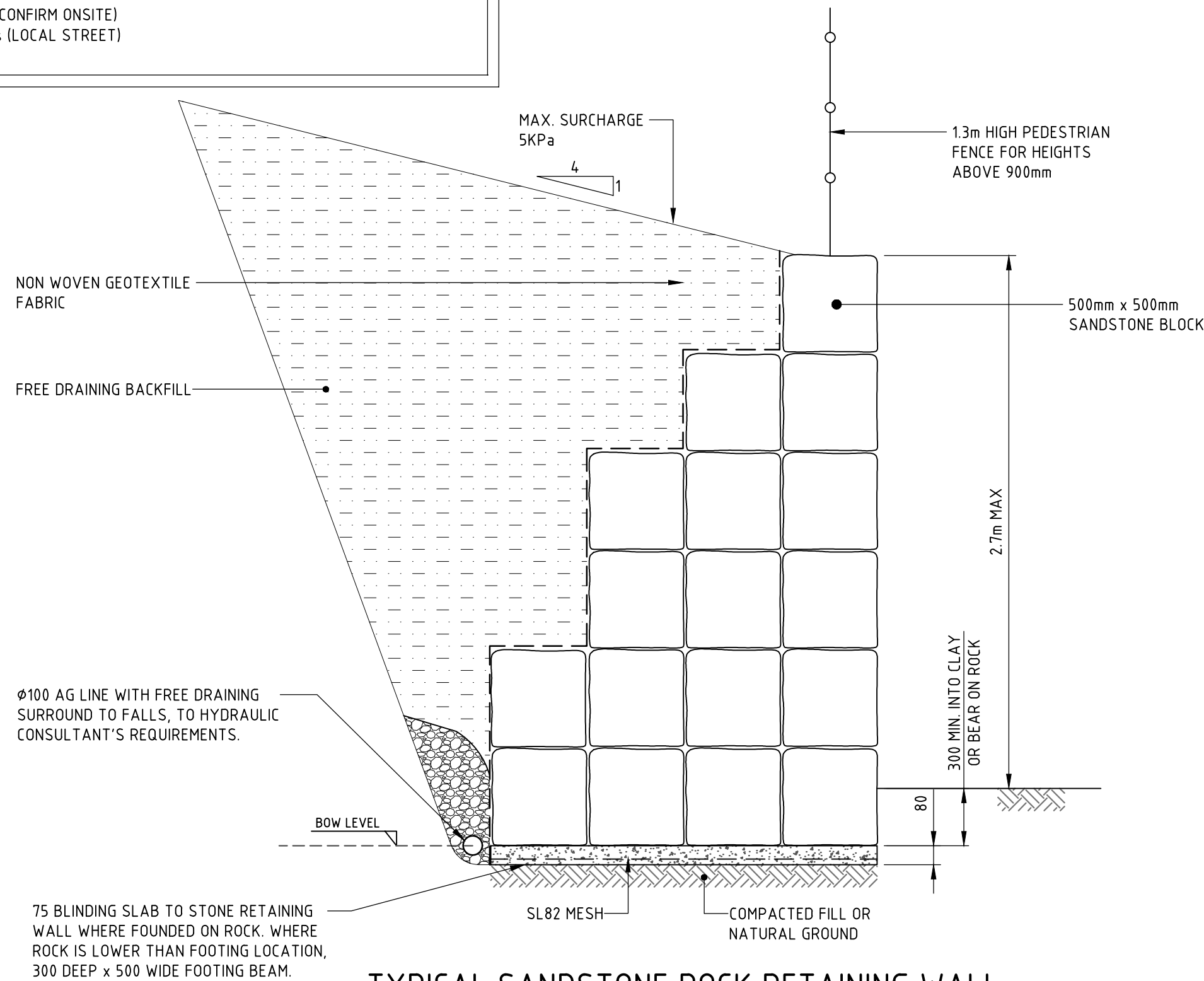
SUBSOIL DRAINAGE TRENCH - LANDSCAPING 'SSD'
SCALE 1:10
CLEAROUT TO BE INSTALLED @ MAX 30m CENTRES AND DISCHARGING TO DRAINAGE STRUCTURES @ MAX 60m CENTRES.



PAVEMENT INTERFACE 2 'INT2'
(TYPE 1 TO TYPE 2)
SCALE 1:10

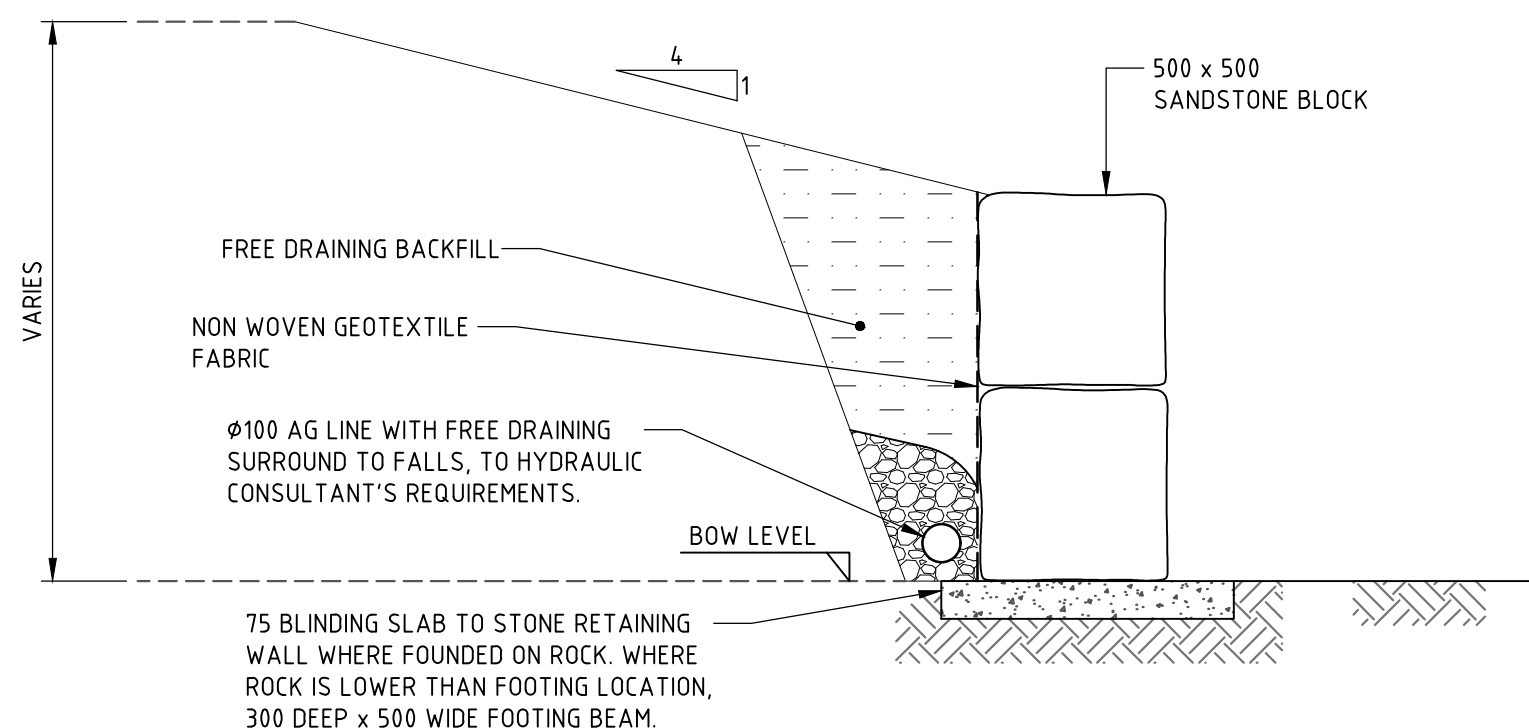


TYPICAL GRASS LINED CUT OFF DRAIN
SCALE 1:20



TYPICAL SANDSTONE ROCK RETAINING WALL
DETAIL (WALL FROM 0.9m TO 2.7m MAX. HIGH)
NTS

- BUILDER TO MAINTAIN STABILITY OF WALL DURING BACKFILLING. INCREASE WIDTH OF WALL ONE BRICK'S WIDTH FOR EVERY 3 COURSES IN HEIGHT. INCREASE FOOTING TO SUIT.
- PROVIDE WEEPHOLES AT 1000 CENTRES OR ALTERNATELY USE AGRICULTURAL PIPE DRAIN BEHIND WALL.
- ALL BLOCKWORK SHALL BE INTERLOCKED USING HEADER COURSES. SO THAT THE WALLS ACT AS AN INTEGRAL UNIT.
- MAX SURCHARGE 5KPa



TYPICAL SANDSTONE ROCK RETAINING
WALL DETAIL (WALL UPTO 0.9m HIGH)
NTS

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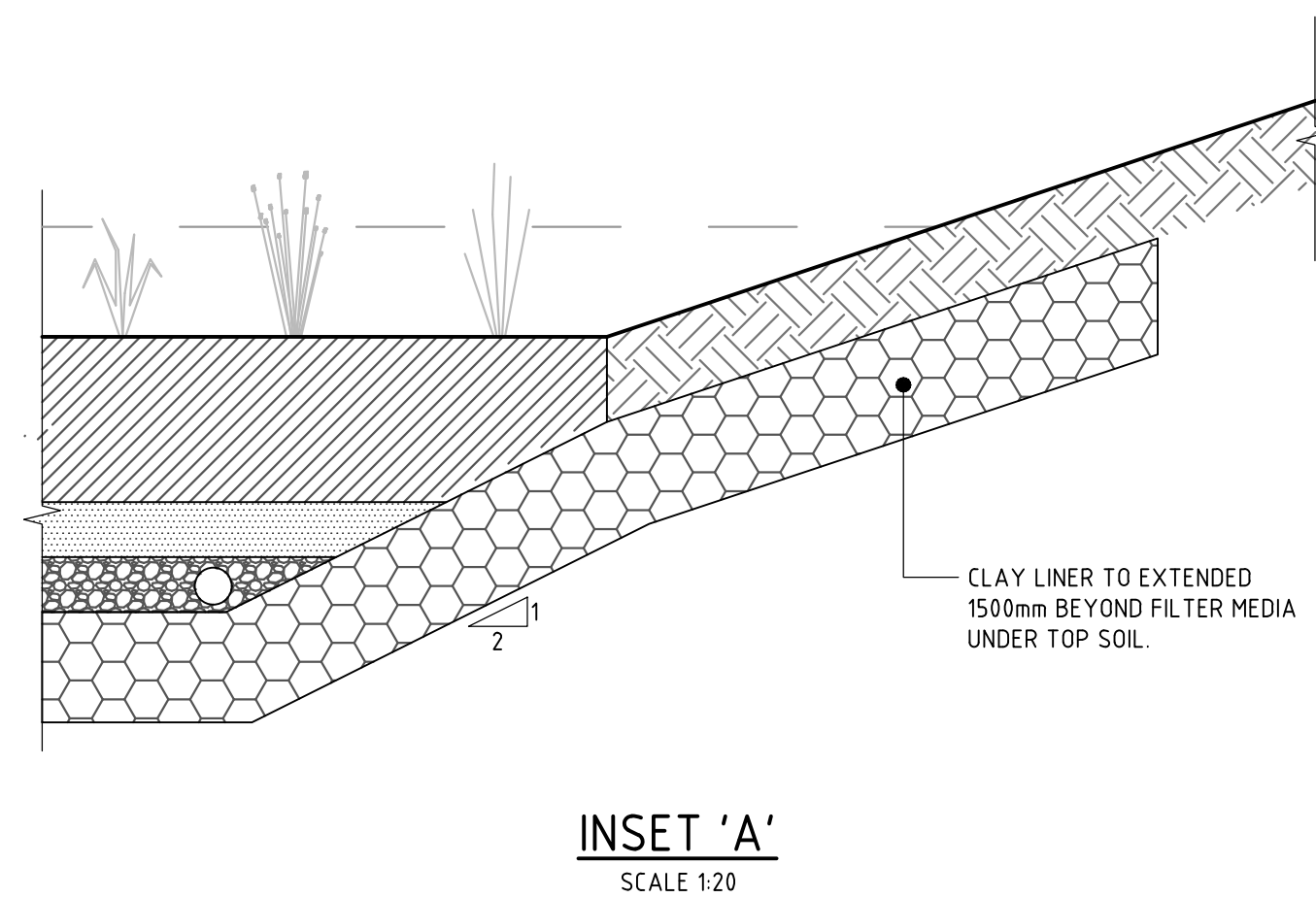
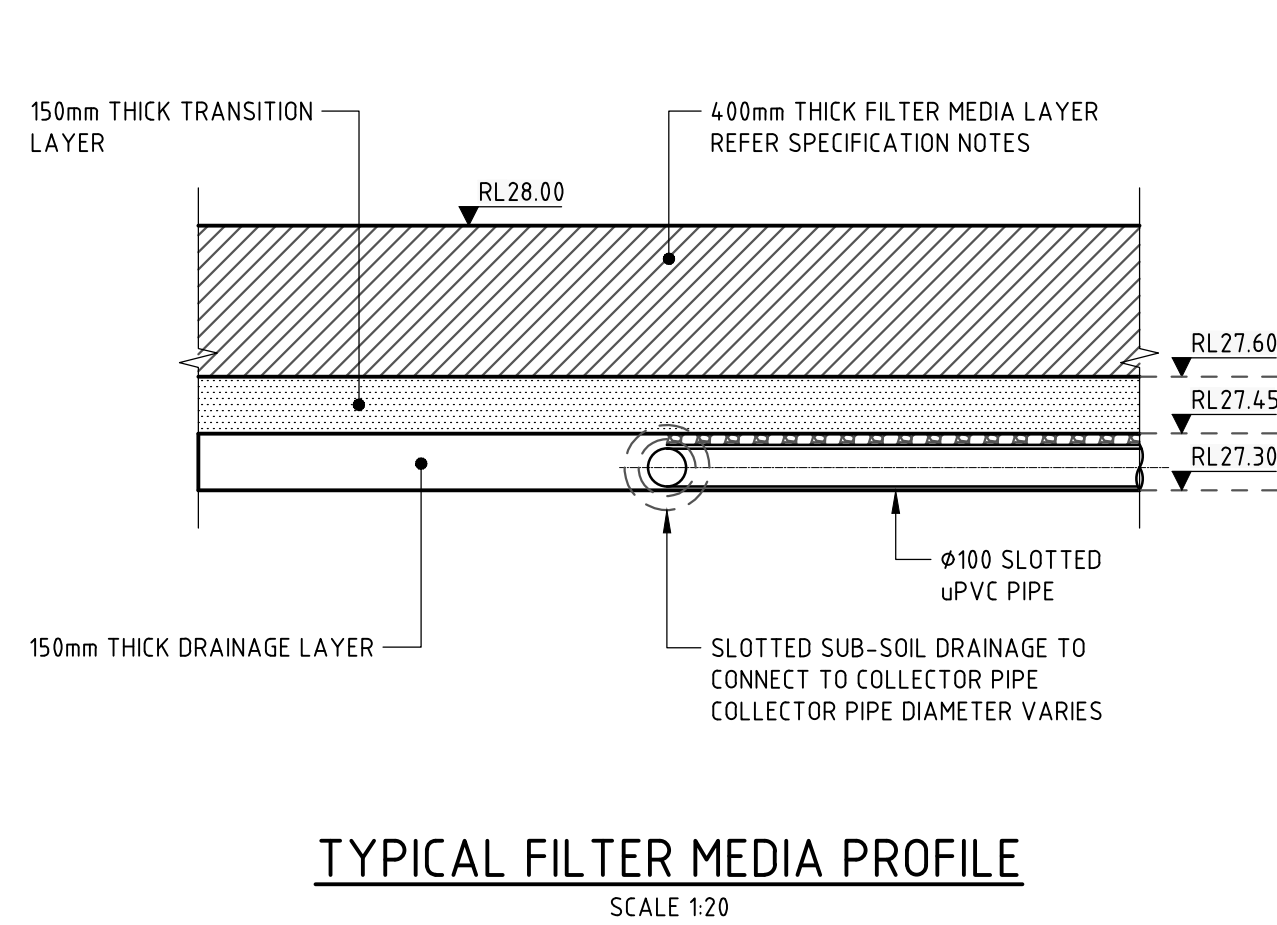
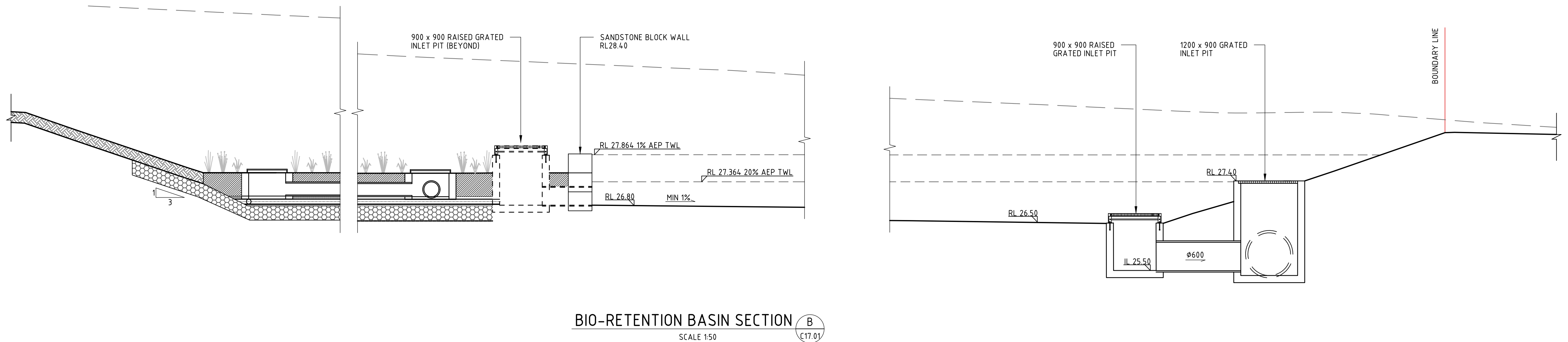
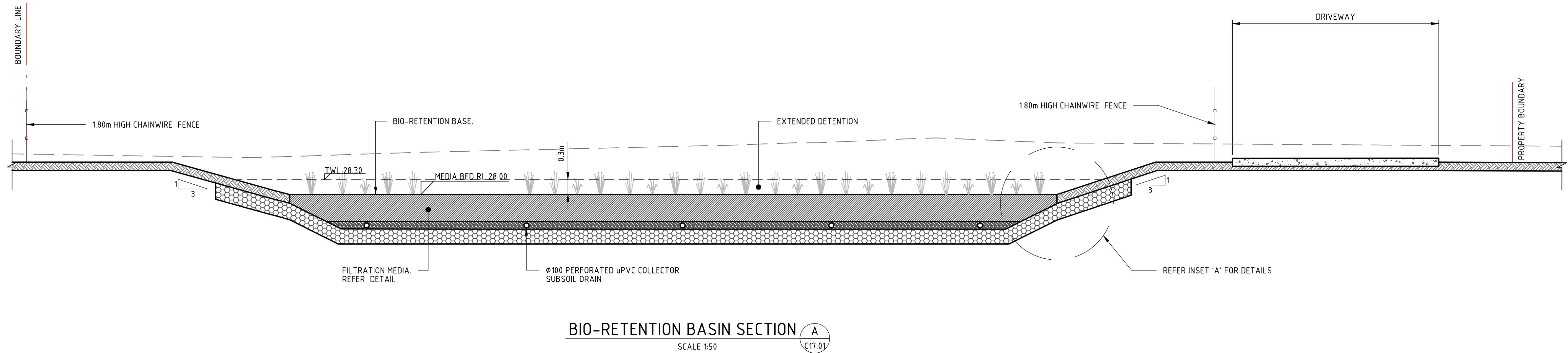
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SCALE VARIES



PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION
DETAILS - SHEET 01

JOB NUMBER 171245 - 01	REVISION
DRAWING NUMBER DAC20.01	3
DRAWING SHEET SIZE = A1	



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4	RE-ISSUED FOR DA	MM		PC	28.02.20

CLIENT

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SCALE 1:50 @ A1
SCALE 1:20 @ A1

0.0 0.5 1.0 1.5 2.0 2.5m
0.0 0.2 0.4 0.6 0.8 1.0m

NORTHROP

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION

BIO RETENTION BASIN 1 SECTIONS AND DETAILS

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC17.10

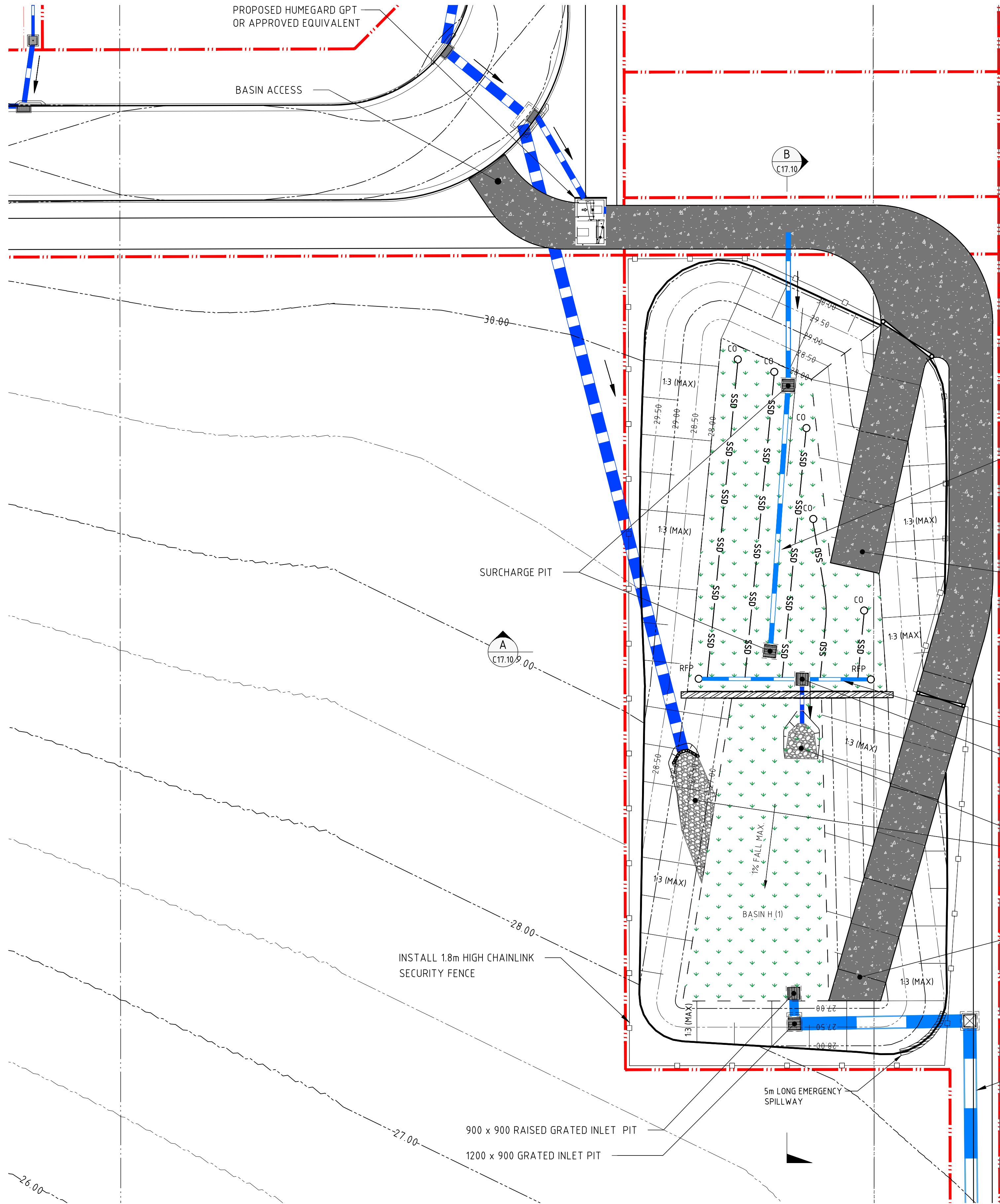
REVISION

4

DRAWING SHEET SIZE = A1

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



Ø300 PERFORATED PIPE

BASIN ACCESS RAMP.
MAX. GRADE 1:8.

Ø225 UPVC SEWER GRADE
COLLECTOR
900X900 RAISED GRATED
SURFACE INLET COLLECTION PIT

ROCK RIP-RAP

BASIN ACCESS RAMP.
MAX. GRADE 1:8.

CONNECT Ø900 PIPE TO
DOWNSTREAM EXISTING
HEADWALLS

LEGEND	
	PROPOSED BOUNDARY LINE
	PROPOSED KERB
	PROPOSED SPOT HEIGHT
	STORMWATER COLLECTOR PIPE
	GRATED INLET PIT (NEW / EXTG)
	KERB INLET PIT (NEW / EXTG)
	JUNCTION PIT (NEW / EXTG)
	STORMWATER PIT TAG STRUCTURE No / LINE ID
	CONCRETE HEADWALL
	ROCK HEADWALL
	BIORETENTION FILTER
	RIP RAP ENERGY DISSIPATER
	SUBSOIL DRAINAGE LINE
	SUBSOIL DRAINAGE CLEAROUT
	RAISED FLUSHING POINT
	RETAINING WALL
	CONTOURS
	EXISTING CONTOURS

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SCALE 1:200@A1

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

BIO RETENTION BASIN 1 PLAN

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC17.01

REVISION

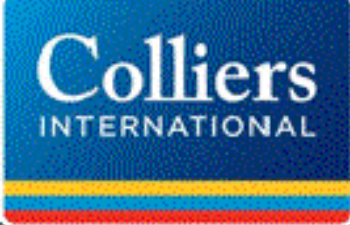
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DRAWING SHEET SIZE = A1

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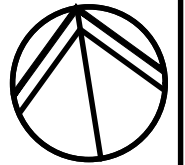
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1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
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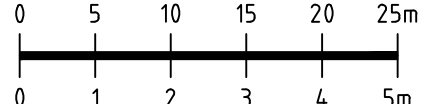
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SCALE 1:500 @ A1

SCALE 1:100 @ A1





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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

ROAD LONGITUDINAL SECTIONS
- SHEET 07

JOB NUMBER

171245 - 01

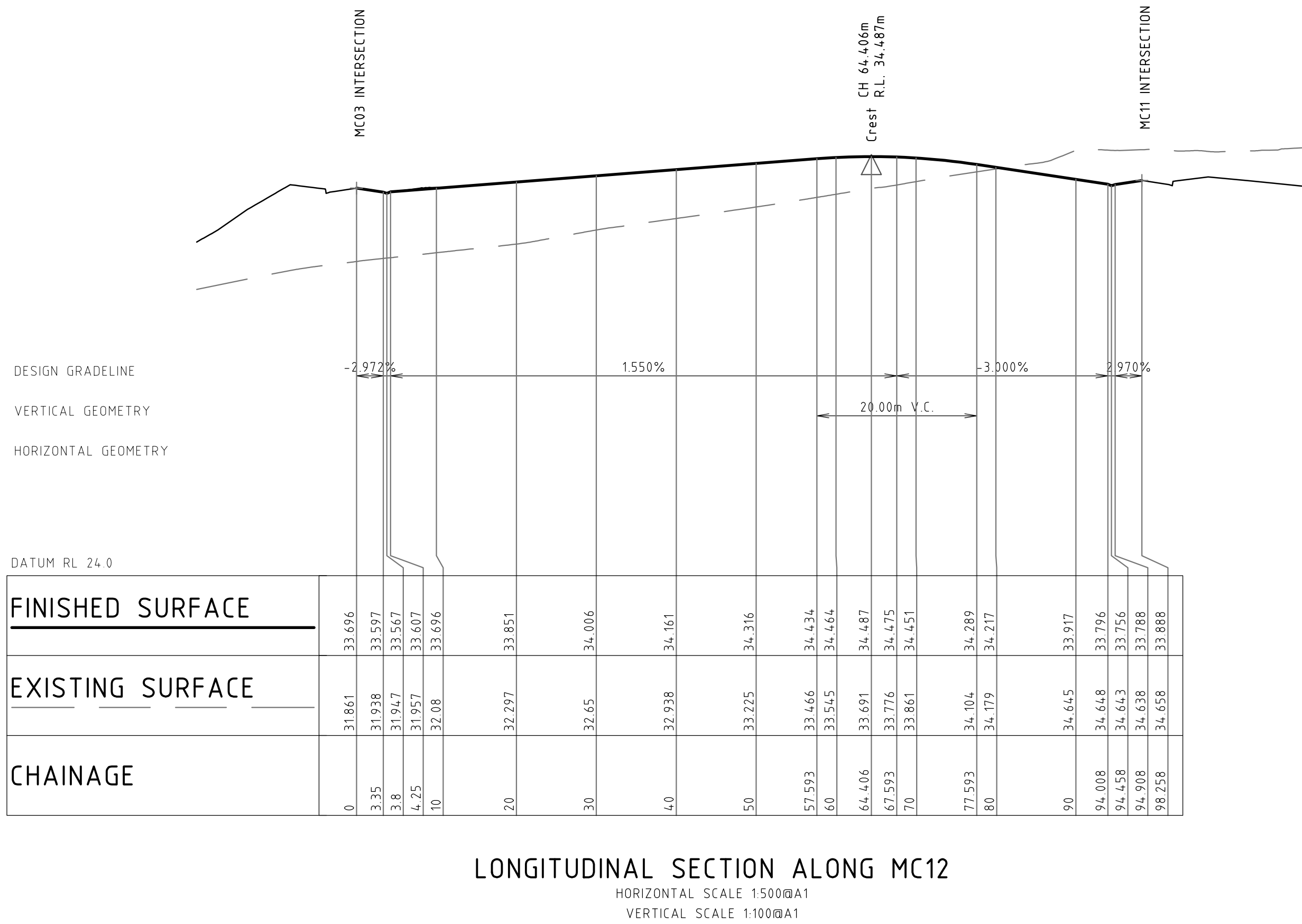
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REVISION

DAC14.07

3

DRAWING SHEET SIZE = A1



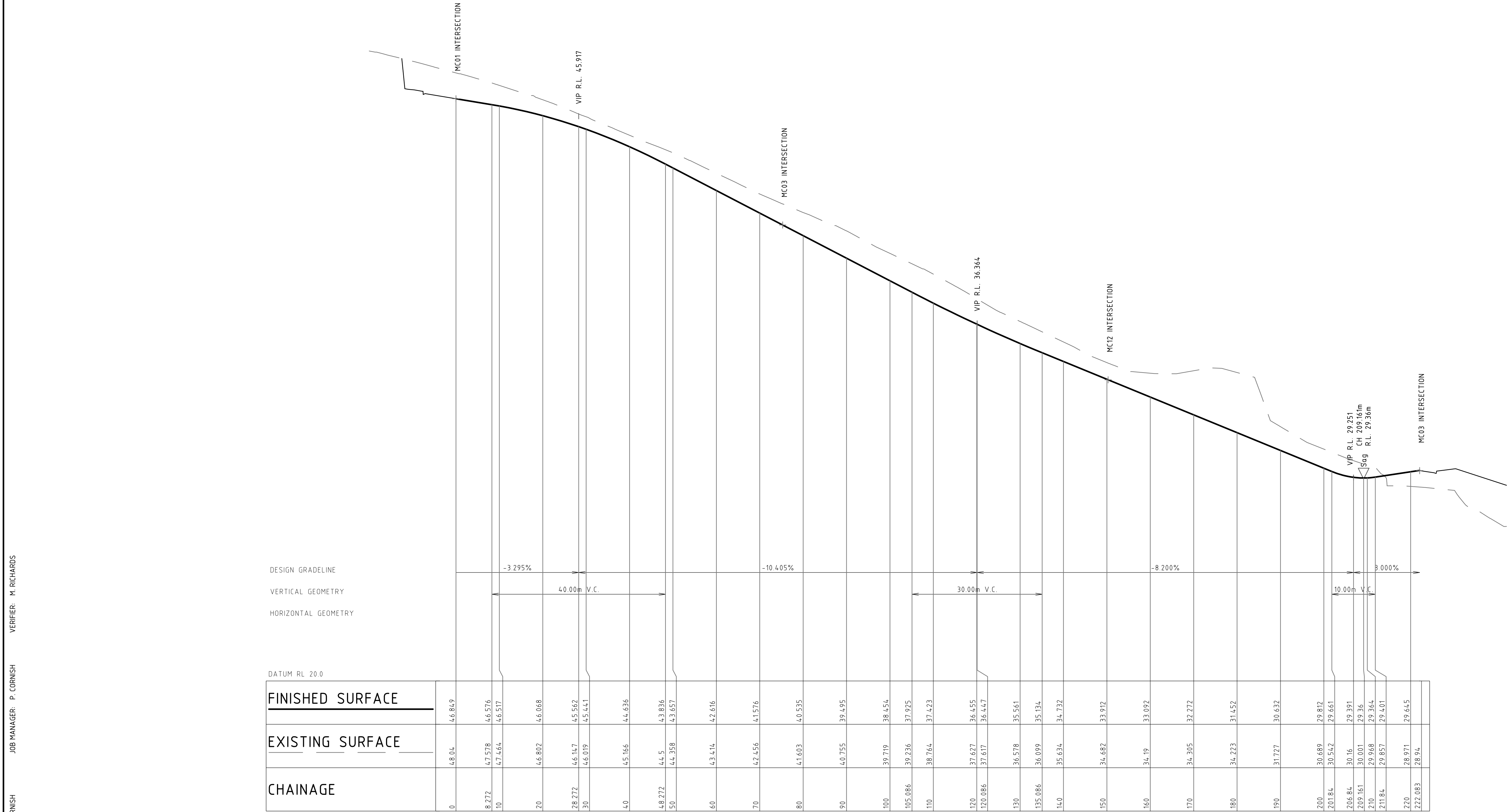
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DRAWN: J.TAI

DESIGNED: P. CORNISH

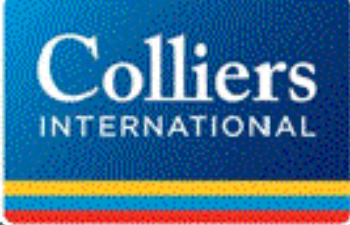
JOB MANAGER: P. CORNISH

VERIFIER: M. RICHARDS

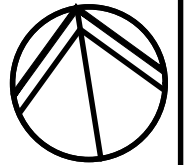


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SCALE 1:500 @ A1

SCALE 1:100 @ A1

0 5 10 15 20 25m

0 1 2 3 4 5m



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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

ROAD LONGITUDINAL SECTIONS
- SHEET 06

JOB NUMBER

171245 - 01

DRAWING NUMBER

REVISION

DAC14.06

3

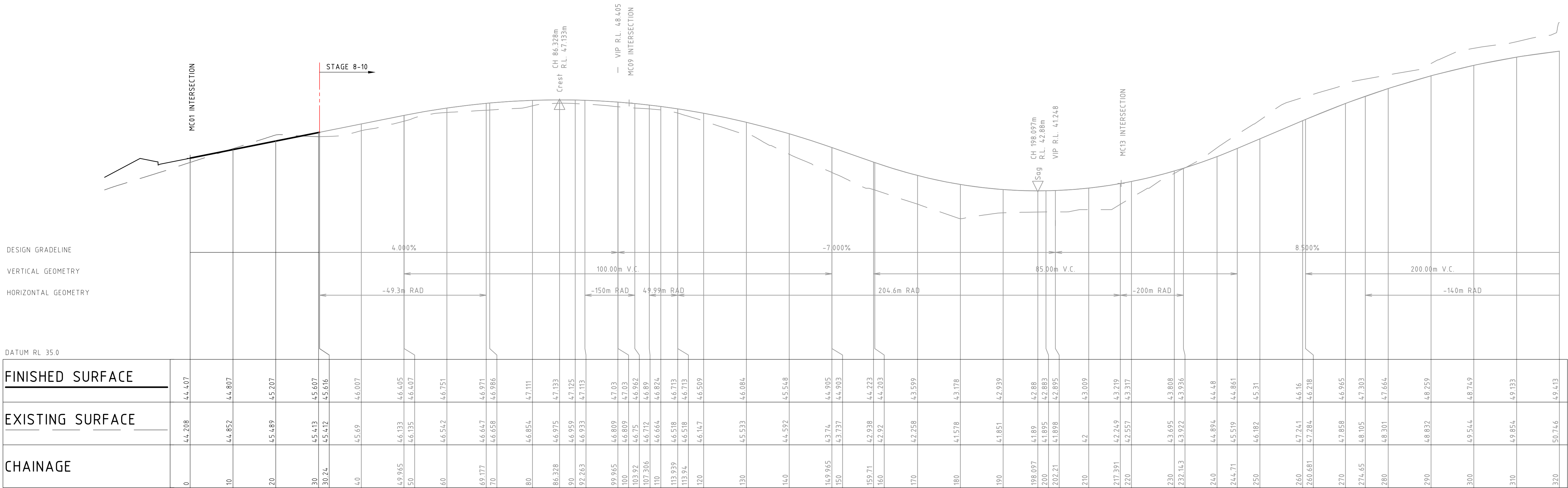
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Date : 26-2-20 9:32pm

Plotted By : umantal

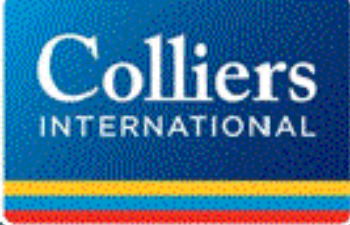
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DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LONGITUDINAL SECTION ALONG MC04
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1

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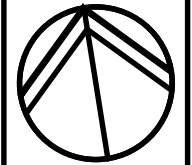


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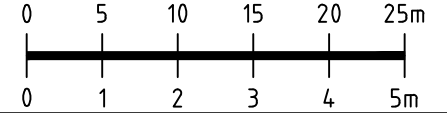
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0 5 10 15 20 25m
0 1 2 3 4 5m



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PROJECT

WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION
ROAD LONGITUDINAL SECTIONS
- SHEET 05

JOB NUMBER
171245 - 01

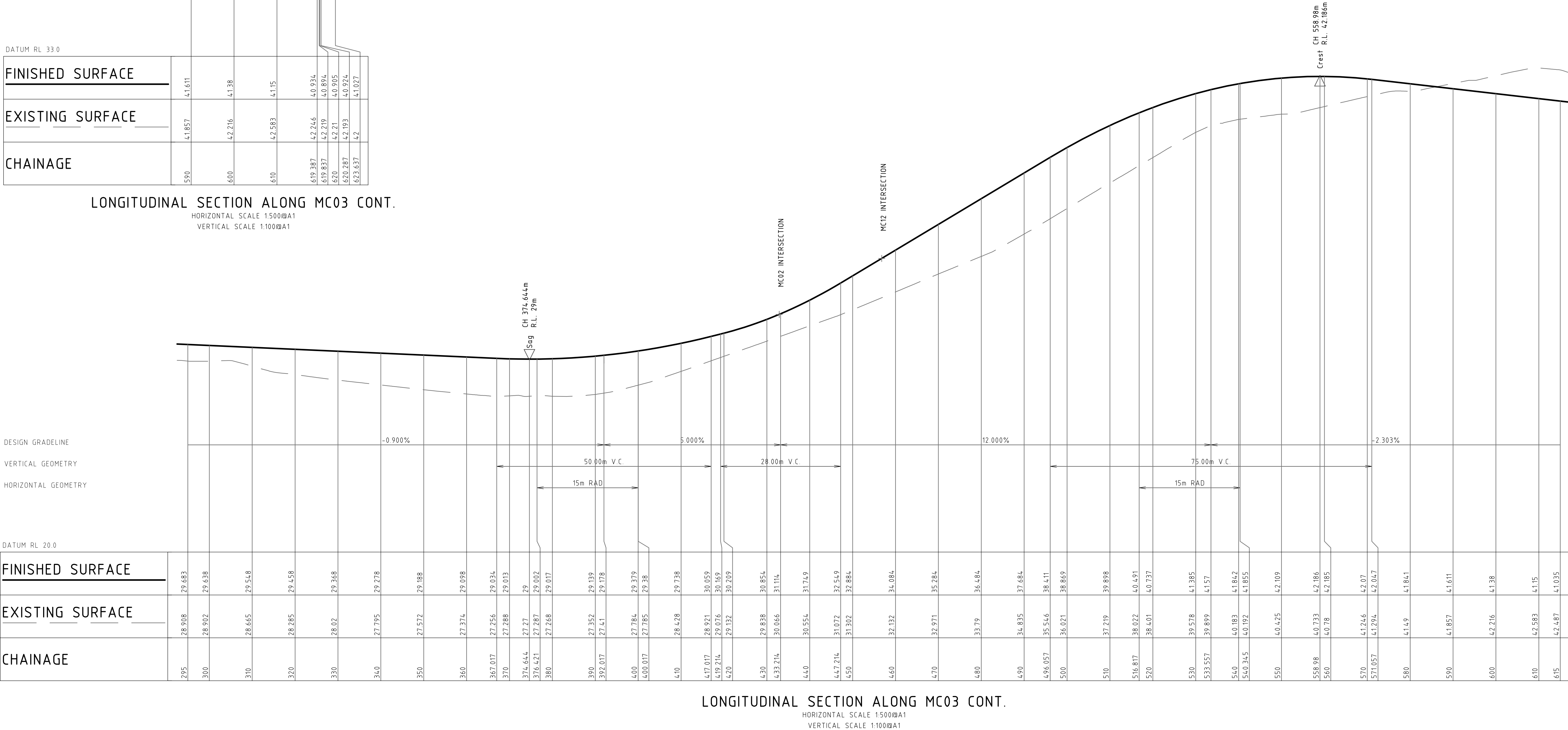
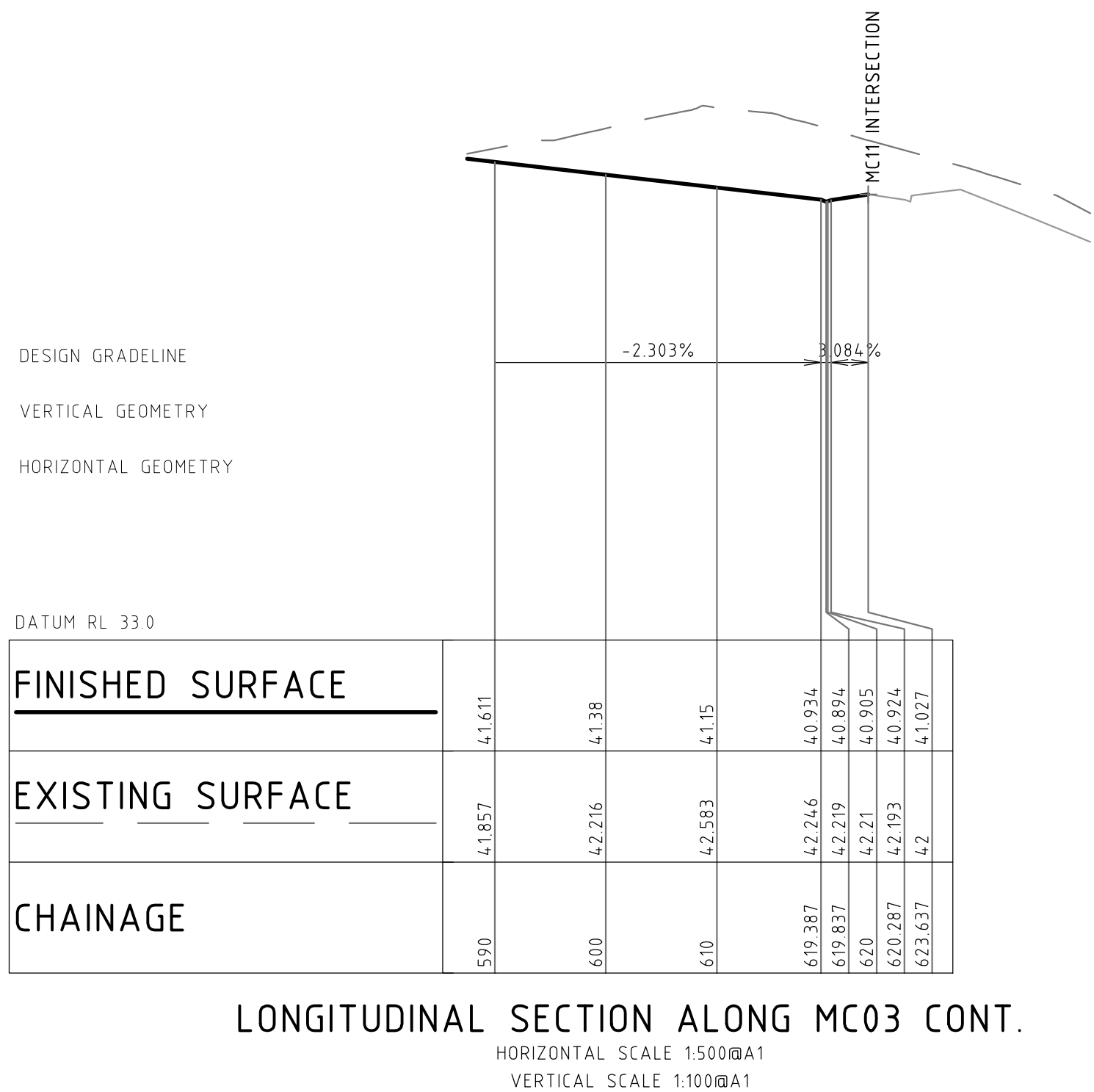
DRAWING NUMBER
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3

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DESIGNED: P. CORNISH JOB MANAGER: P. CORNISH VERIFIER: M. RICHARDS DRAWN: J.TAI



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2	RE-ISSUED FOR DA	AW	-	PC	15.10.18
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SCALE 1:100@A1

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PROJECT

WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION
ROAD LONGITUDINAL SECTIONS
- SHEET 04

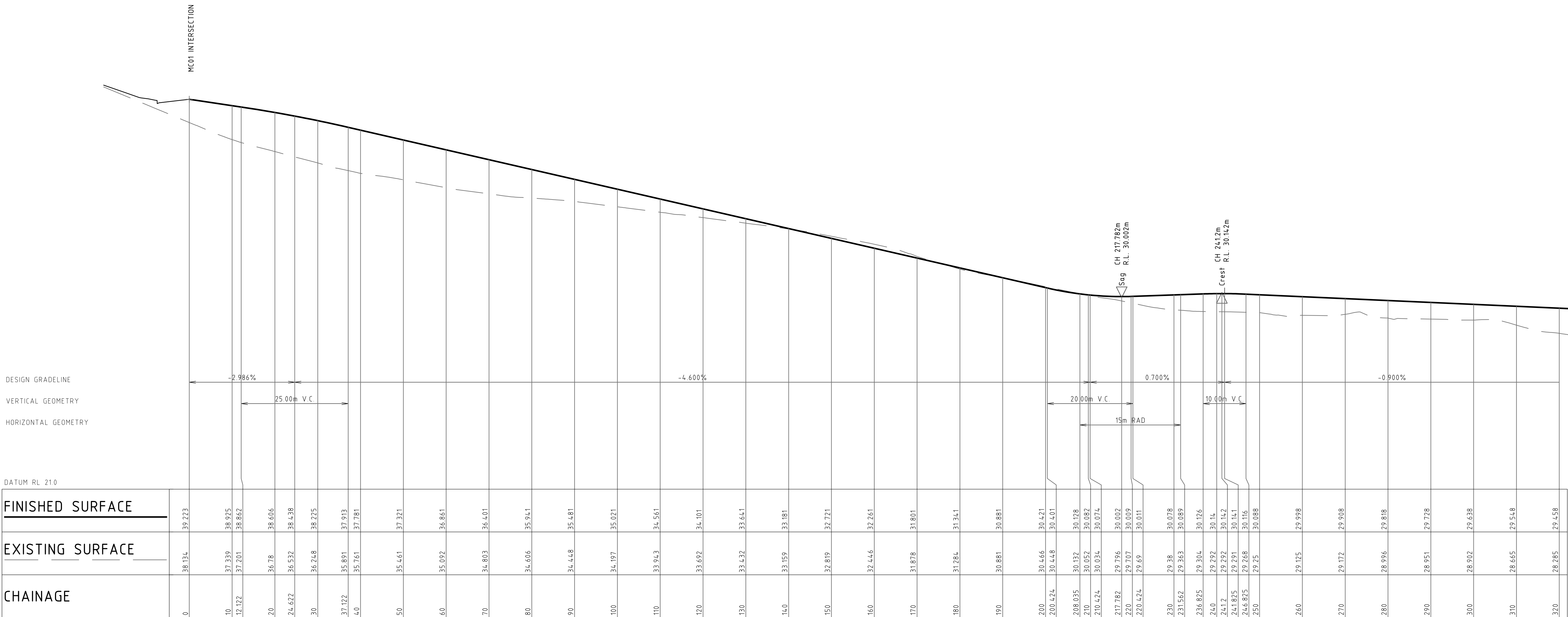
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DRAWING NUMBER
DAC14.04

REVISION
3

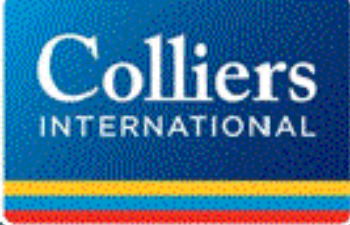
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LONGITUDINAL SECTION ALONG MC03
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1

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1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
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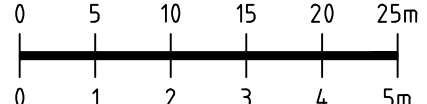
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SCALE 1:100@A1





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WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

ROAD LONGITUDINAL SECTIONS
- SHEET 03

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC14.03

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3

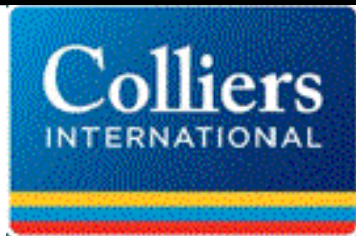
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2	RE-ISSUED FOR DA	AW	-	PC	15.10.18
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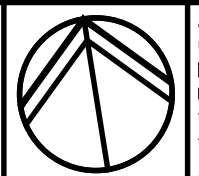
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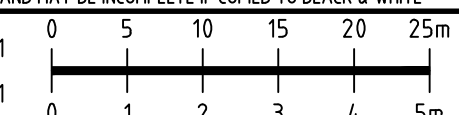
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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT

SUBDIVISION

DRAWING TITLE

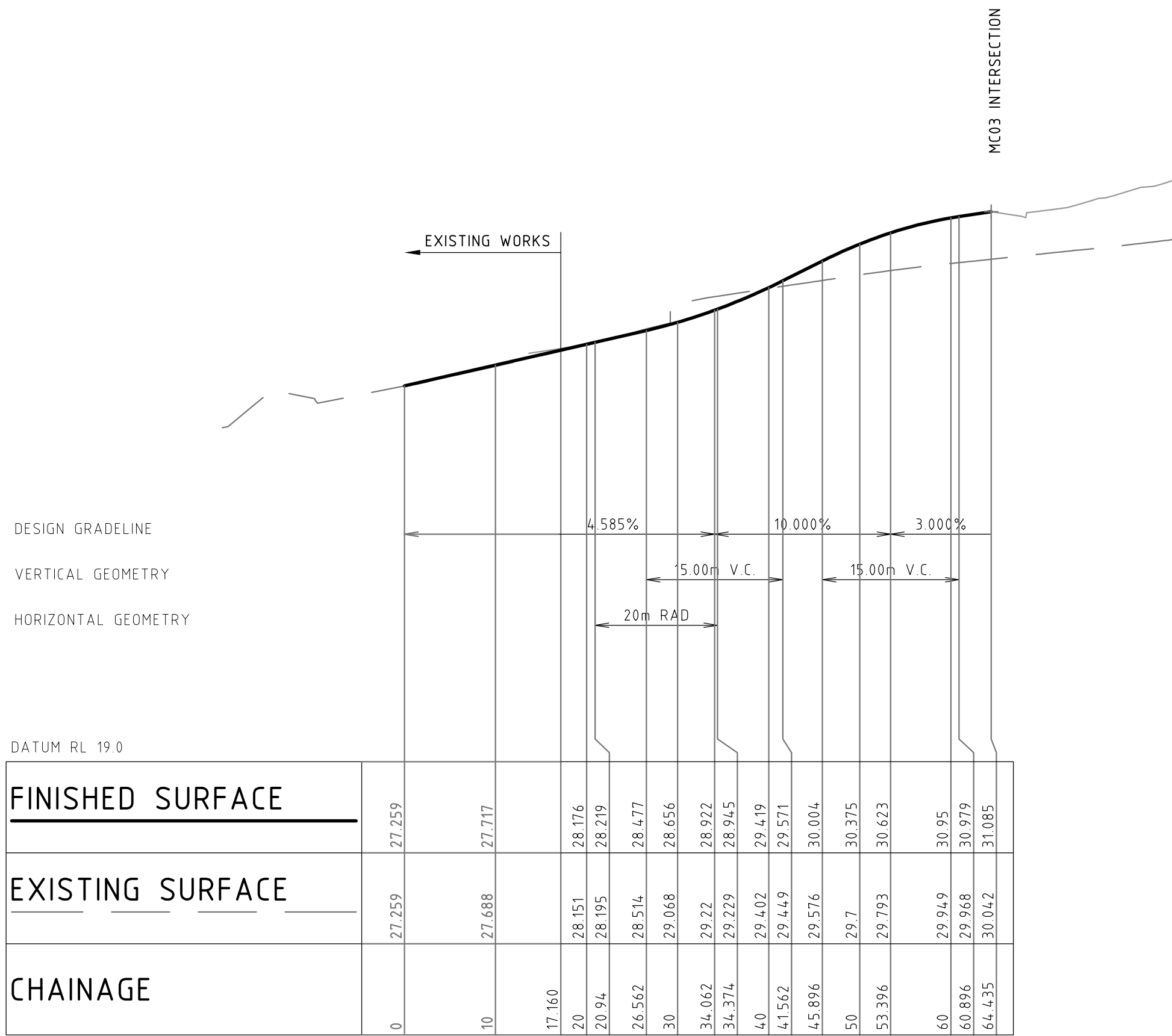
CIVIL ENGINEERING PACKAGE

DEVELOPMENT APPLICATION

ROAD LONGITUDINAL SECTIONS

- SHEET 02

JOB NUMBER	
171245 - 01	
DRAWING NUMBER	REVISION
DAC14.02	3
DRAWING SHEET SIZE = A1	



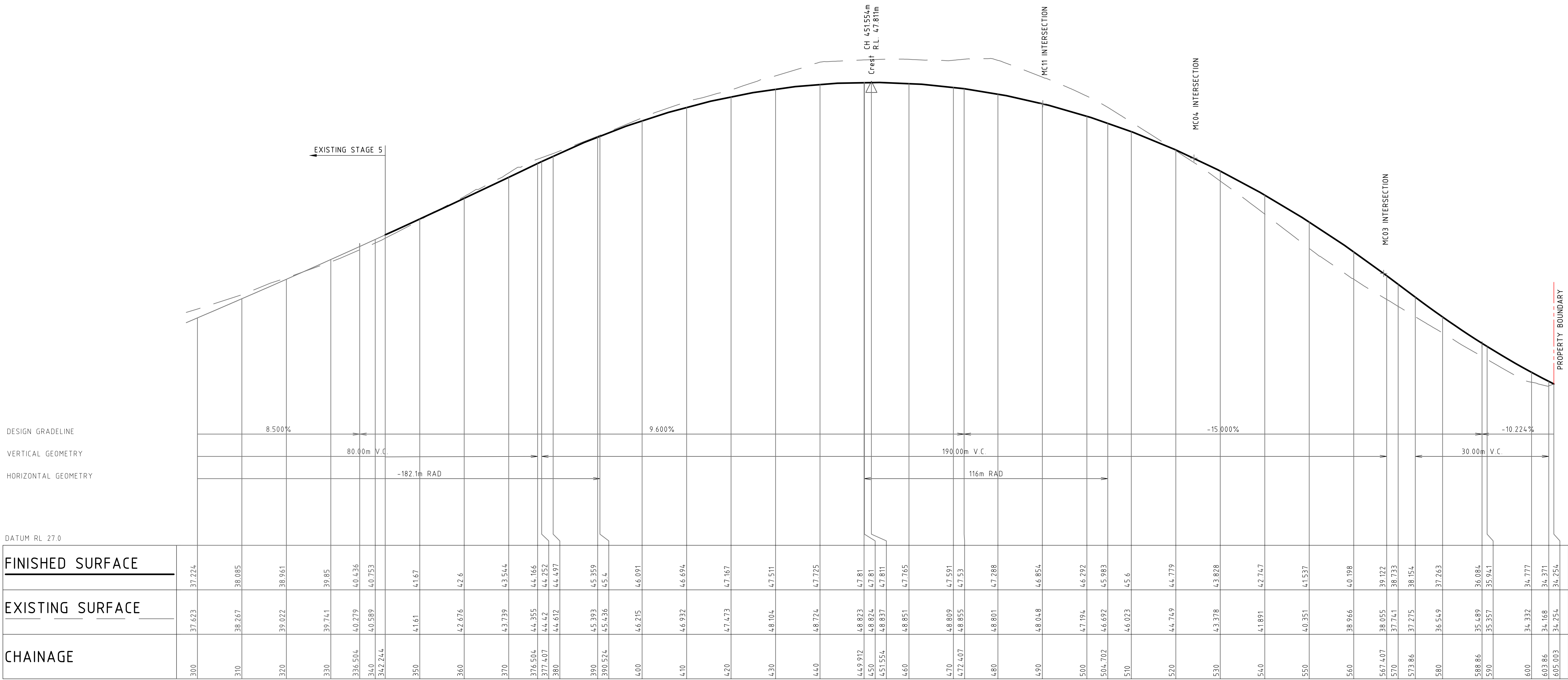
LONGITUDINAL SECTION ALONG MC02

HORIZONTAL SCALE 1:500@A1

VERTICAL SCALE 1:100@A1

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DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LONGITUDINAL SECTION ALONG MC01
HORIZONTAL SCALE 1:500@A1
VERTICAL SCALE 1:100@A1

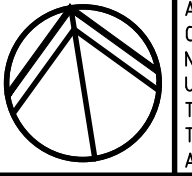
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0 5 10 15 20 25m
0 1 2 3 4 5m

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT

SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

DEVELOPMENT APPLICATION

ROAD LONGITUDINAL SECTIONS

- SHEET 01

JOB NUMBER

171245 - 01

DRAWING NUMBER

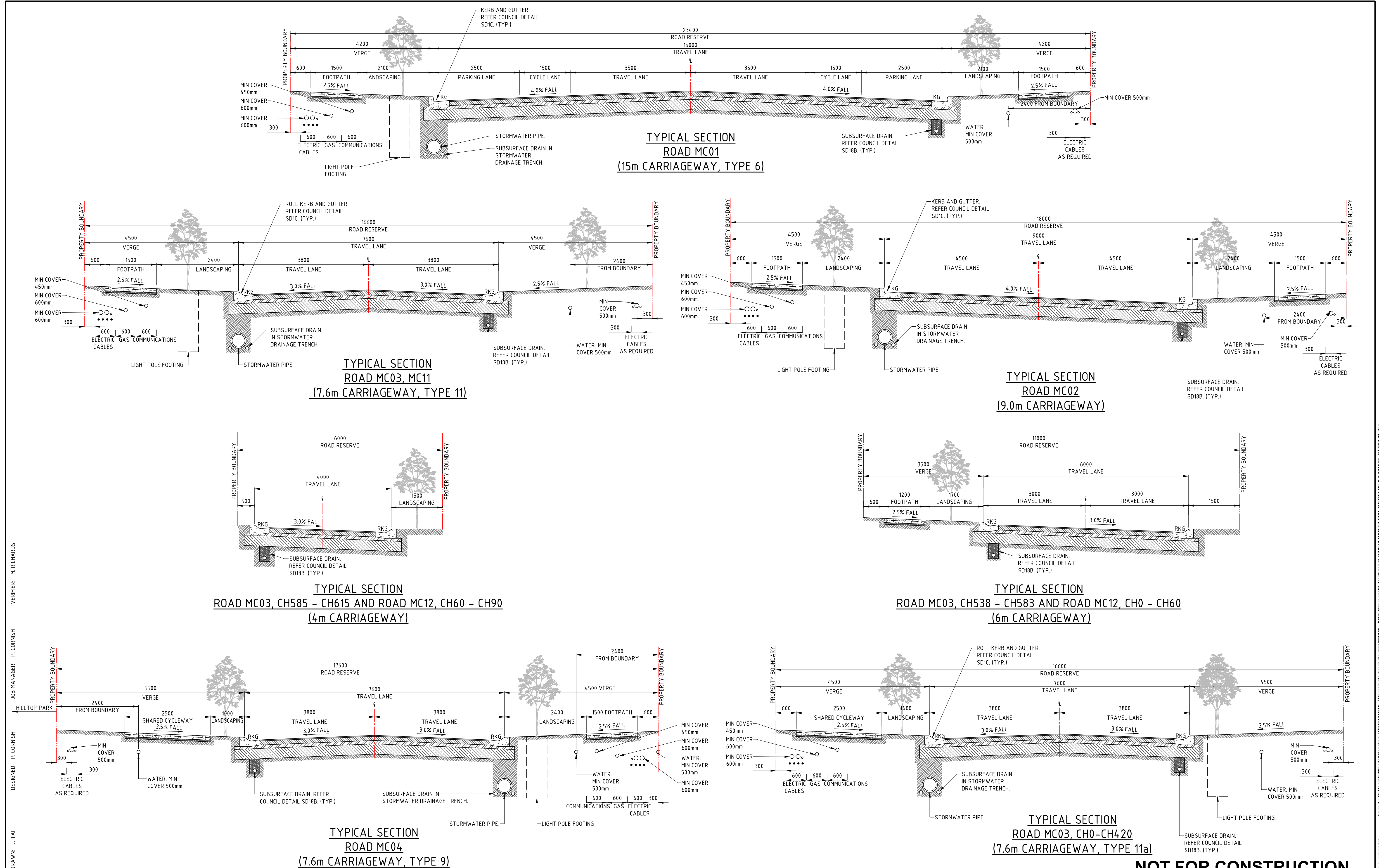
DAC14.01

REVISION

3

DRAWING SHEET SIZE = A1

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VERIFIER: M. RICHARDS

JOB MANAGER: P. CORNISH

DESIGNED: P. CORNISH

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Scale: 1:50 @ A1	Northrop Sydney
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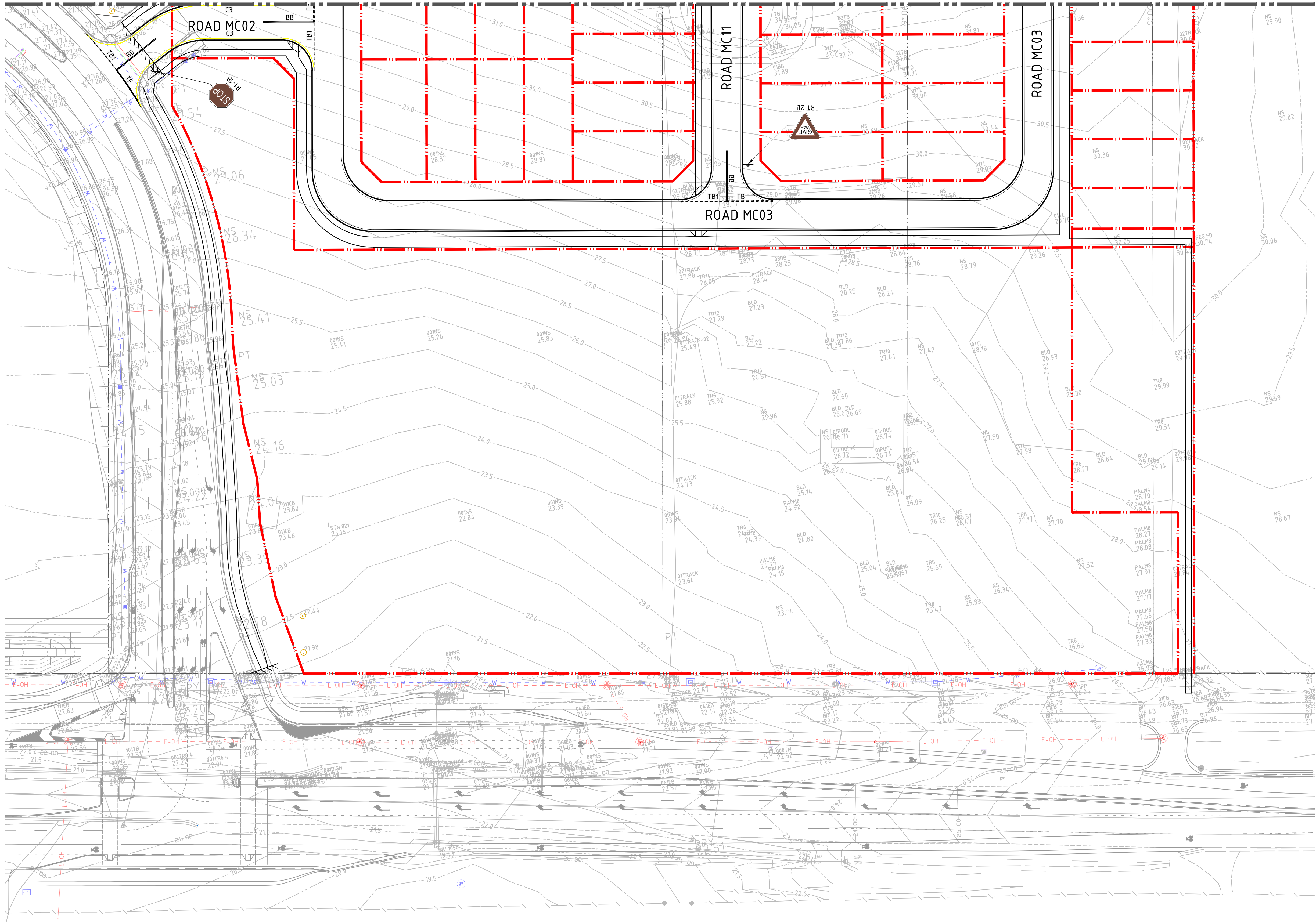
Project: WARNERVILLE TOWN CENTRE

Drawing Title: CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION
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Job Number: 171245 - 01	Drawing Number: DAC13.01	Revision: 3
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FOR CONTINUATION REFER TO SHEET 01



LEGEND	
	PROPOSED LOT BOUNDARY
	EXISTING BOUNDARY
	LIMIT OF WORKS
	STREET SIGNS
	ROAD NAME STREET SIGNS
	GIVE WAY LINE
	STOP LINE
	EDGE LINE
	BARRIER LINES WITH WHITE RAISED PAVEMENT MARKERS AT 3m CENTRES AS PER COUNCIL GUIDELINES.
	C3 - NO STOPPING LINE

VERIFIER: M. RICHARDS

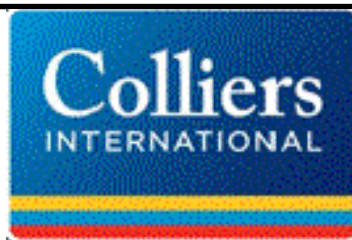
JOB MANAGER:

DESIGNED:

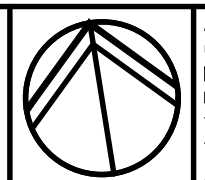
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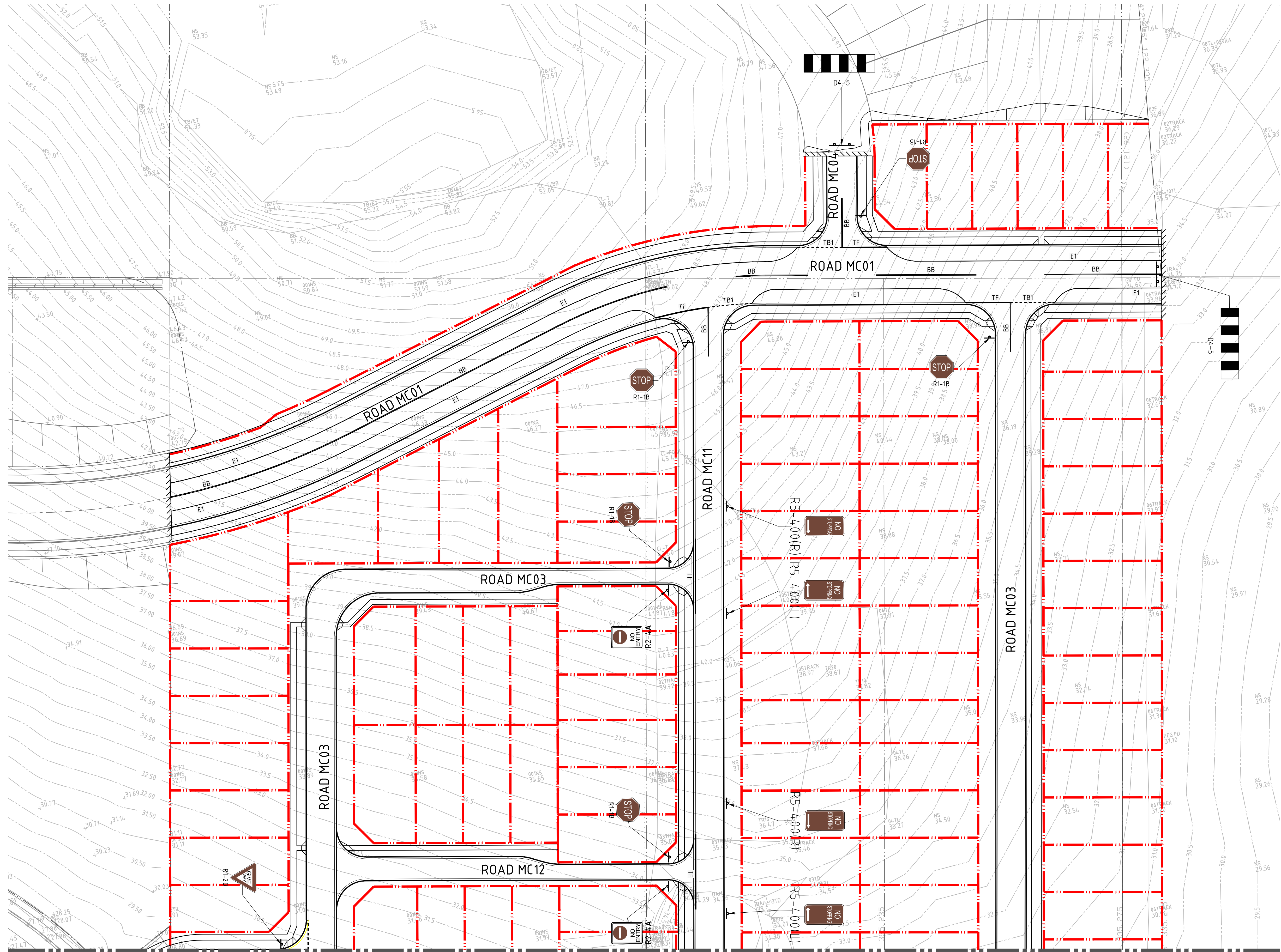
PROJECT	DRAWING TITLE	JOB NUMBER
WARNERVALE TOWN CENTRE	CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION	171245 - 01
STAGE 6 - 7 RESIDENTIAL PRECINCT SUBDIVISION	SIGNAGE AND LINEMARKING PLAN - SHEET 02	DRAWING NUMBER DA09.02
		REVISION 3
		DRAWING SHEET SIZE = A1

VERIFIER: M. RICHARDS

JOB MANAGER:

DESIGNED:

DRAWN:



FOR CONTINUATION REFER TO SHEET 02

LEGEND	
	PROPOSED LOT BOUNDARY
	EXISTING BOUNDARY
	LIMIT OF WORKS
	STREET SIGNS
	ROAD NAME STREET SIGNS
	GIVE WAY LINE
	GIVE WAY LINE
	STOP LINE
	EDGE LINE
	BARRIER LINES WITH WHITE RAISED PAVEMENT MARKERS AT 3m CENTRES AS PER COUNCIL GUIDELINES.
	C3 - NO STOPPING LINE

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT

SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

DEVELOPMENT APPLICATION

SIGNAGE AND LINEMARKING PLAN

- SHEET 01

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC09.01

REVISION

3

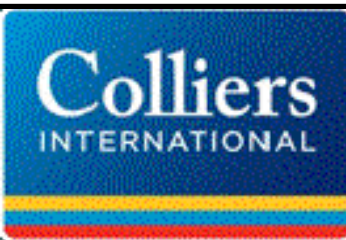
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	PROPOSED LOT BOUNDARY
	PROPOSED 8-10 LOT BOUNDARY
	EXISTING BOUNDARY LINE
	EXISTING EASEMENT LINE
	ROLL KERB AND GUTTER
	KERB AND GUTTER
	DISH DRAIN
	RETAINING WALL
	PROPOSED CONTOURS
	EXISTING CONTOURS
	KERB RAMP
	BATTERS
	FENCE
	LIMIT OF WORKS
	GRASS-LINED CUTOFF DRAIN
	STORMWATER FLOW ARROW
	STORMWATER PIPE
	STORMWATER PIPE CAPPING
	EXISTING STORMWATER PIPE
	NEW DRAINAGE STRUCTURE
	EXISTING DRAINAGE STRUCTURE
	CONCRETE HEADWALL

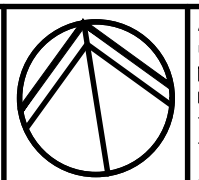
DRAWN: J. TAI DESIGNED: P. CORNISH JOB MANAGER: P. CORNISH VERIFIER: M. RICHARDS

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
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**STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION**

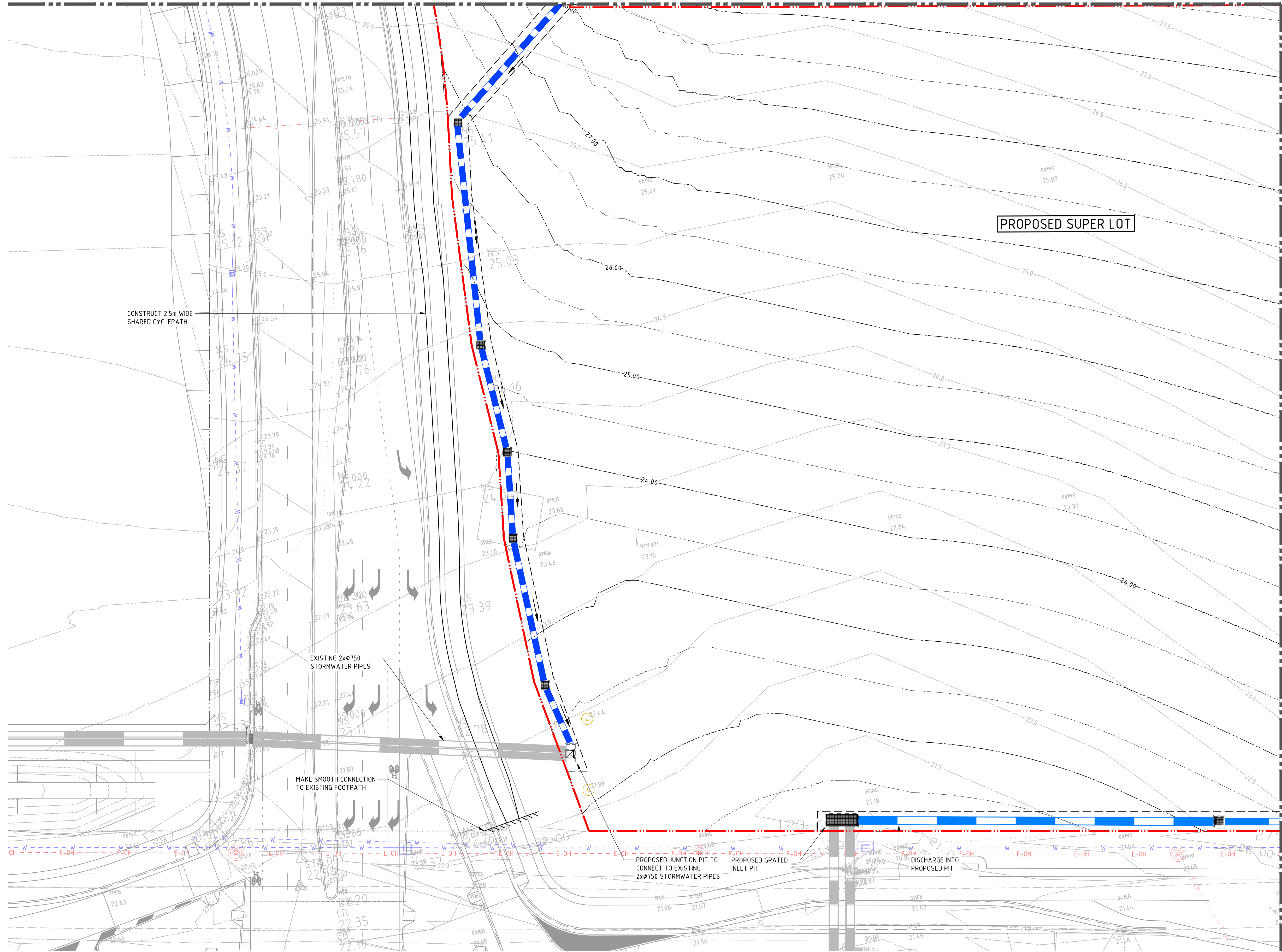
SITEWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 08

DAC07.08

DRAWING SHEET SIZE = A1

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FOR CONTINUATION REFER TO SHEET 05

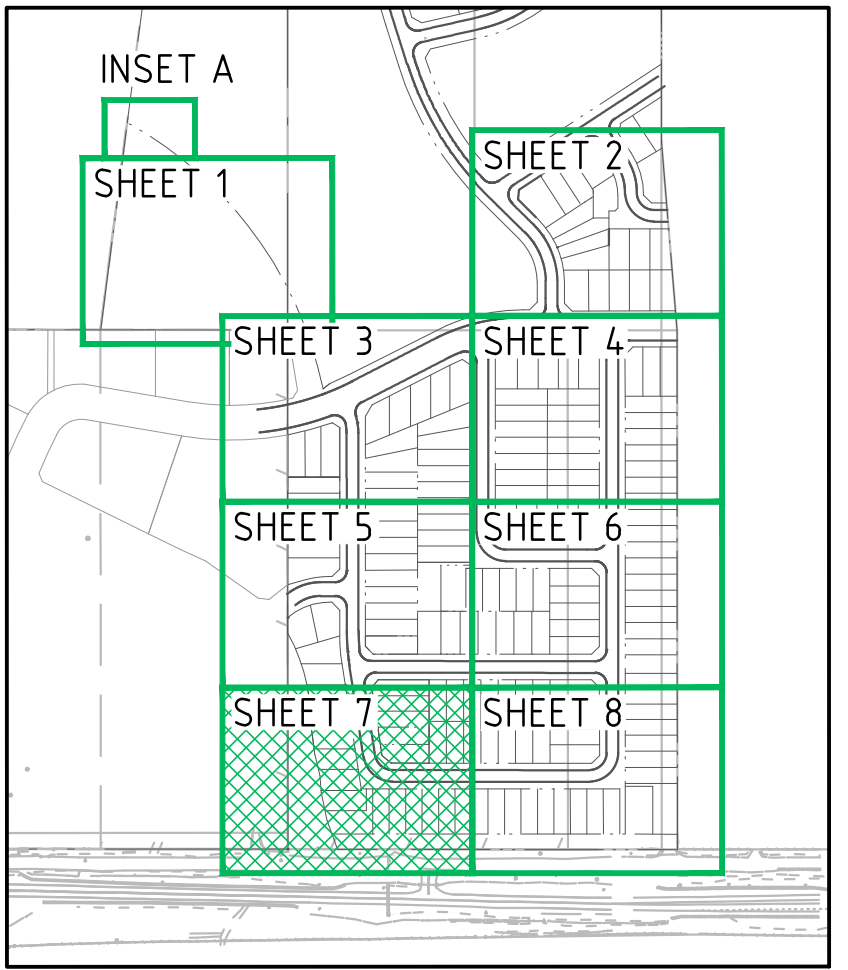


FOR CONTINUATION REFER TO SHEET 08

LEGEND

- PROPOSED LOT BOUNDARY
- PROPOSED 8-10 LOT BOUNDARY
- EXISTING BOUNDARY LINE
- EXISTING EASEMENT LINE
- RKG
- KG
- DD
- RETAINING WALL
- PROPOSED CONTOURS
- EXISTING CONTOURS
- KERB RAMP
- BATTERS
- FENCE
- LIMIT OF WORKS
- GRASS-LINED CUTOFF DRAIN
- STORMWATER FLOW ARROW
- STORMWATER PIPE
- STORMWATER PIPE CAPPING
- EXISTING STORMWATER PIPE
- NEW DRAINAGE STRUCTURE
- EXISTING DRAINAGE STRUCTURE
- CONCRETE HEADWALL

KEY PLAN



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DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

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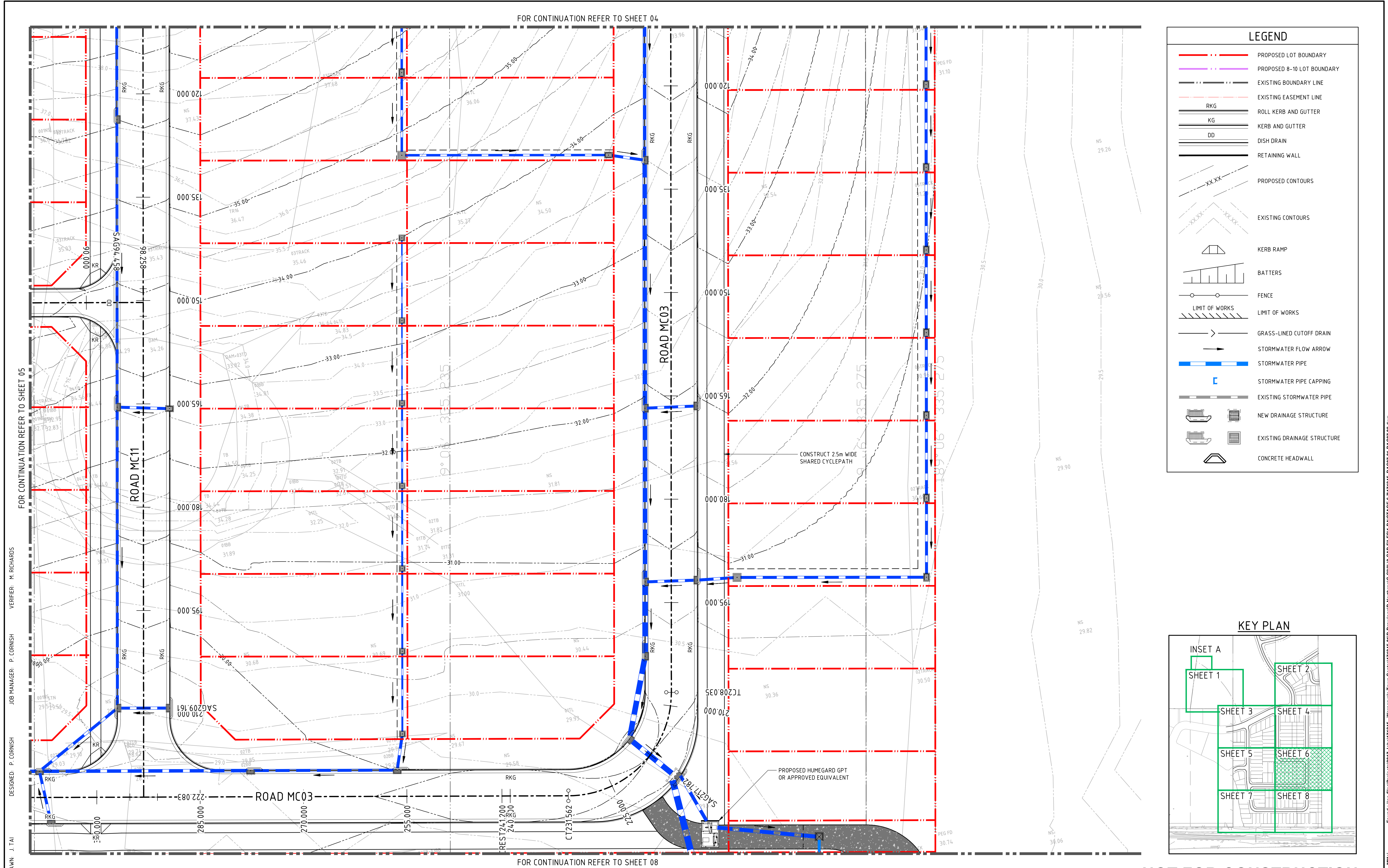
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PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE
CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION
SITeworks AND STORMWATER
MANAGEMENT PLAN - SHEET 07

JOB NUMBER
171245 - 01
DRAWING NUMBER
DAC07.07
REVISION
3
DRAWING SHEET SIZE = A1



FOR CONTINUATION REFER TO SHEET 05

DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS

DRAWN: J.TAI

DATE: 28.02.20

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1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18	
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WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION

SITeworks AND STORMWATER MANAGEMENT PLAN - SHEET 06

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC07.06

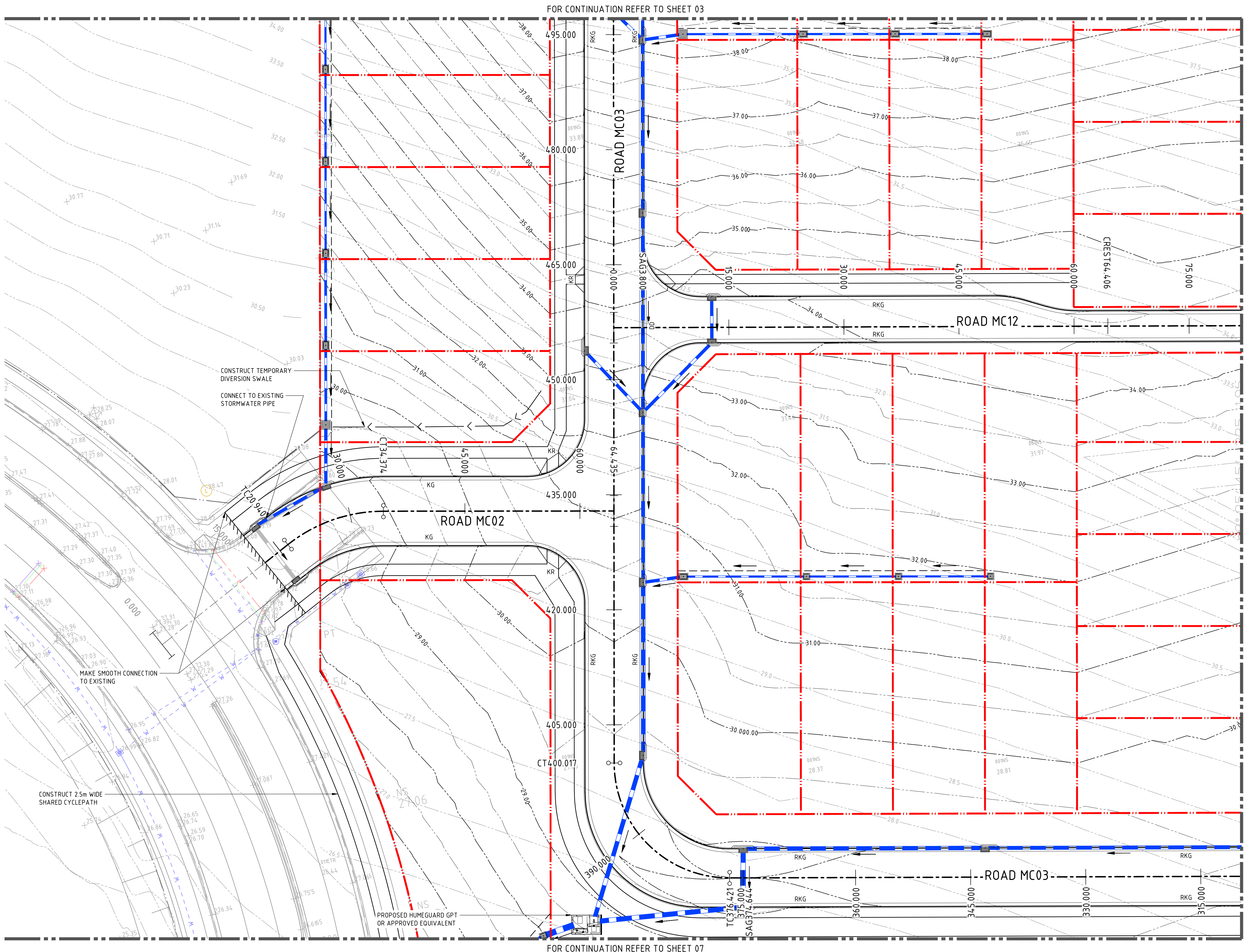
REVISION

4

DRAWING SHEET SIZE = A1

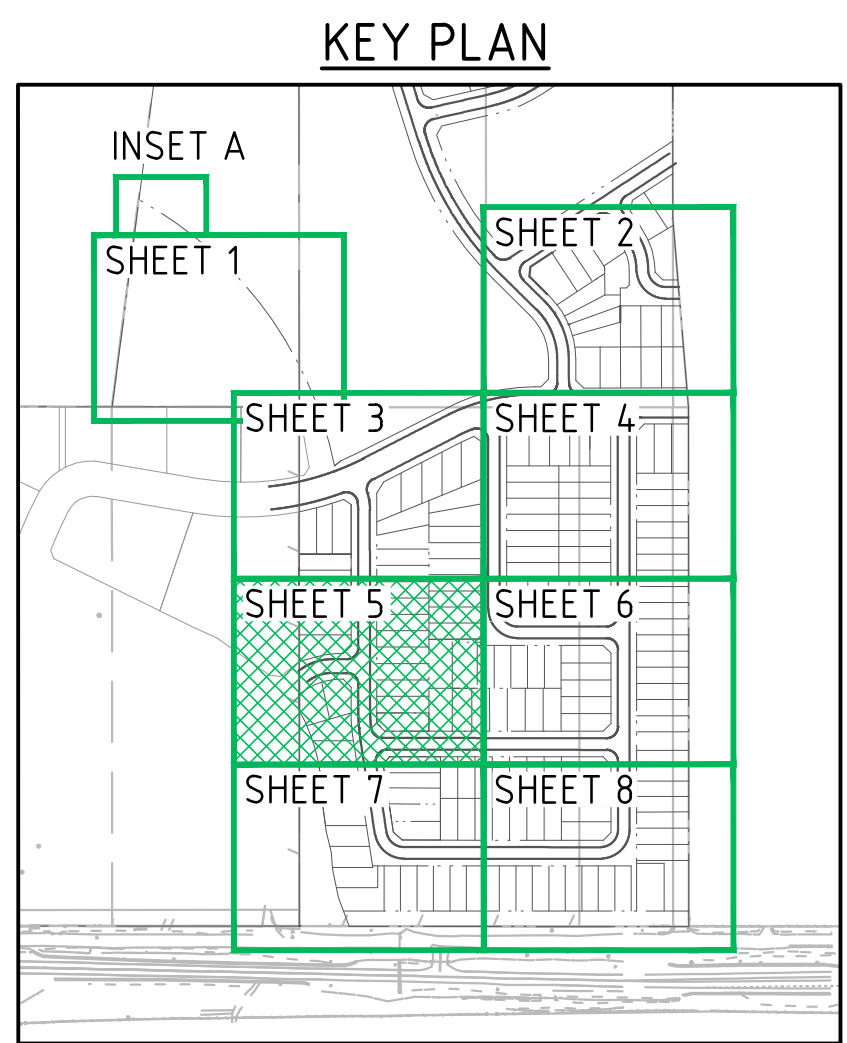
NOT FOR CONSTRUCTION

DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LEGEND

- PROPOSED LOT BOUNDARY
- PROPOSED 8-10 LOT BOUNDARY
- EXISTING BOUNDARY LINE
- EXISTING EASEMENT LINE
- RKG
- KG
- DD
- RETAINING WALL
- PROPOSED CONTOURS
- EXISTING CONTOURS
- KERB RAMP
- BATTERS
- FENCE
- LIMIT OF WORKS
- GRASS-LINED CUTOFF DRAIN
- STORMWATER FLOW ARROW
- STORMWATER PIPE
- STORMWATER PIPE CAPPING
- EXISTING STORMWATER PIPE
- NEW DRAINAGE STRUCTURE
- EXISTING DRAINAGE STRUCTURE
- CONCRETE HEADWALL



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3	RE-ISSUED FOR DA	UM	-	PC	27.02.20	

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0 2 4 6 8 10 12m

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PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION

SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 05

JOB NUMBER

171245 - 01

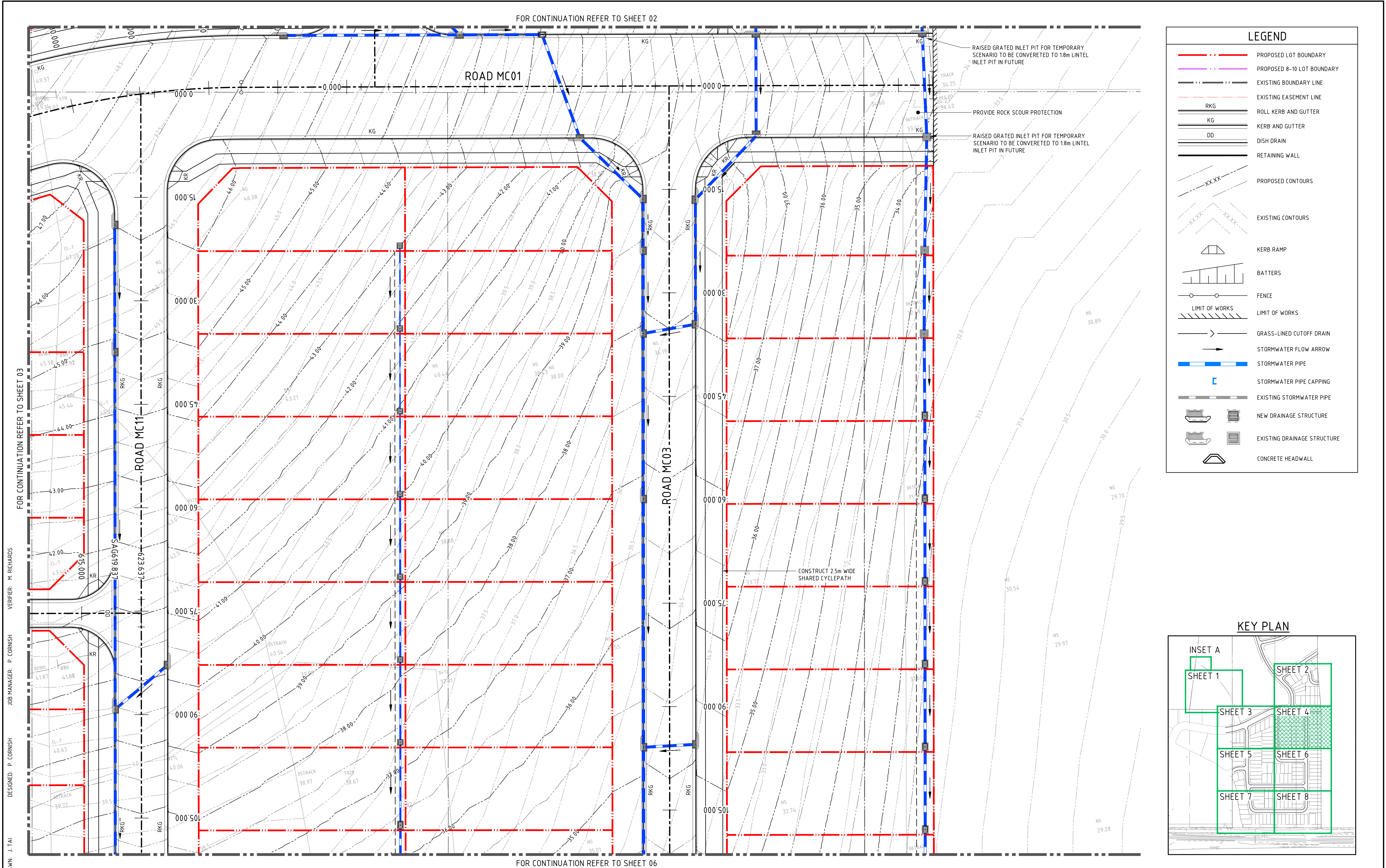
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DAC07.05

REVISION

3

DRAWING SHEET SIZE = A1



REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
2	RE-ISSUED FOR DA	AW	-	PC	15.10.18
3	RE-ISSUED FOR DA	UM	-	PC	27.02.20

CLIENT

Colliers
INTERNATIONAL

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SCALE 1:250 @ A1

0 2 4 6 8 10 12m

NORTHROP

Sydney

Level 11 345 George Street, Sydney NSW 2000
Ph (02) 9241 4188 Fax (02) 9241 4324
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION

SITWORKS AND STORMWATER
MANAGEMENT PLAN - SHEET 04

JOB NUMBER

171245 - 01

DRAWING NUMBER

DAC07.04

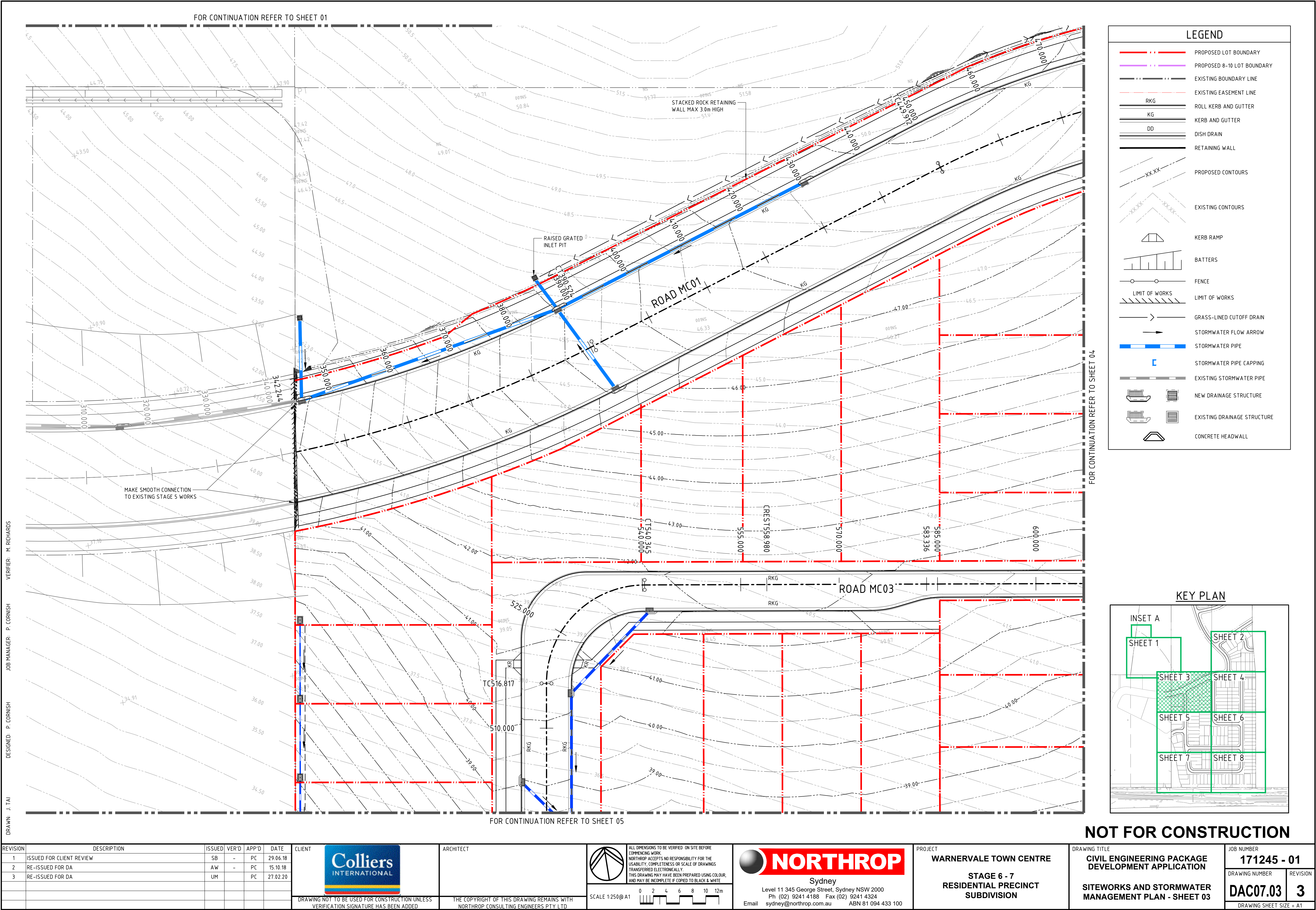
REVISION

3

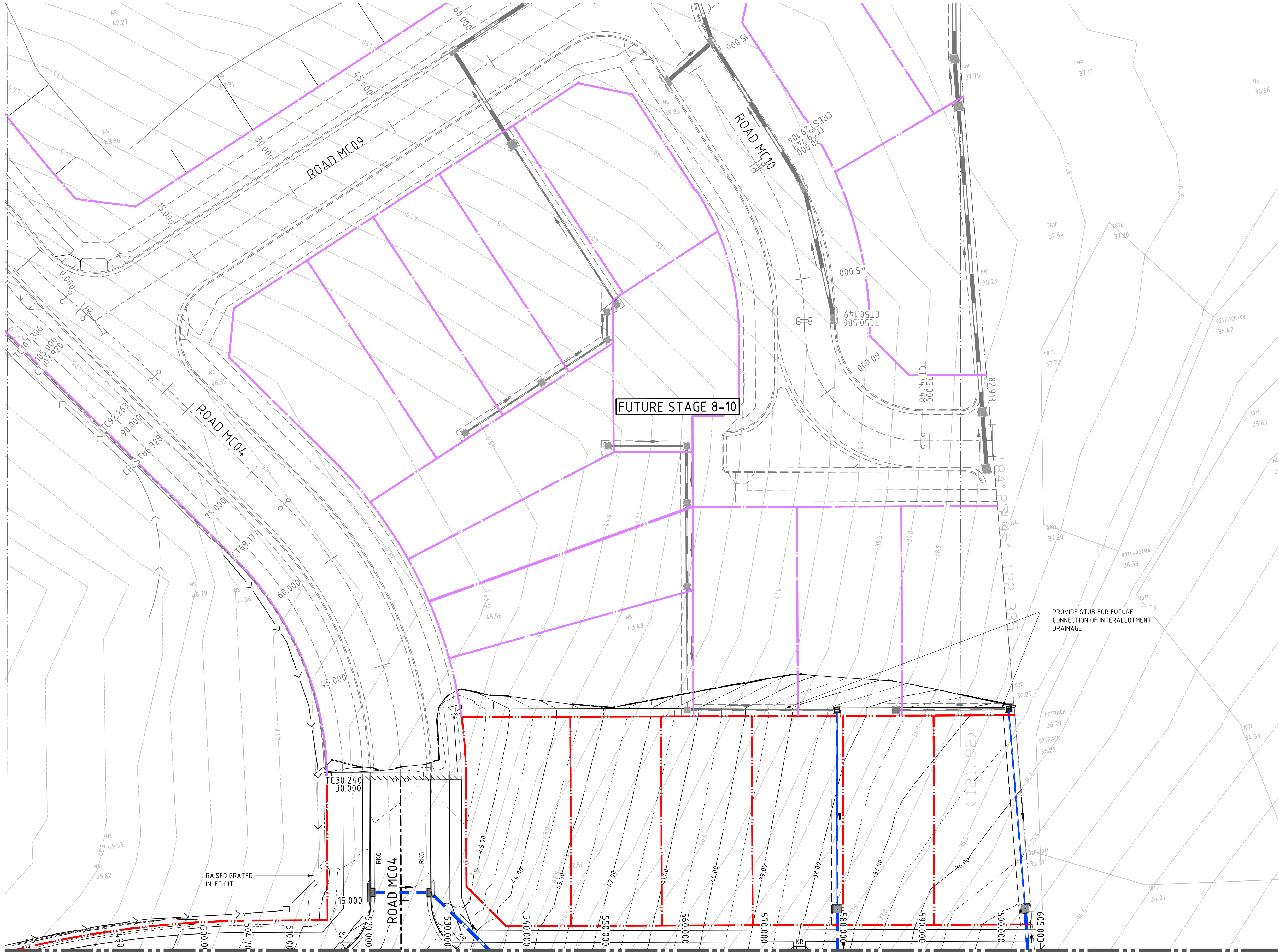
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Plotted By: MMH

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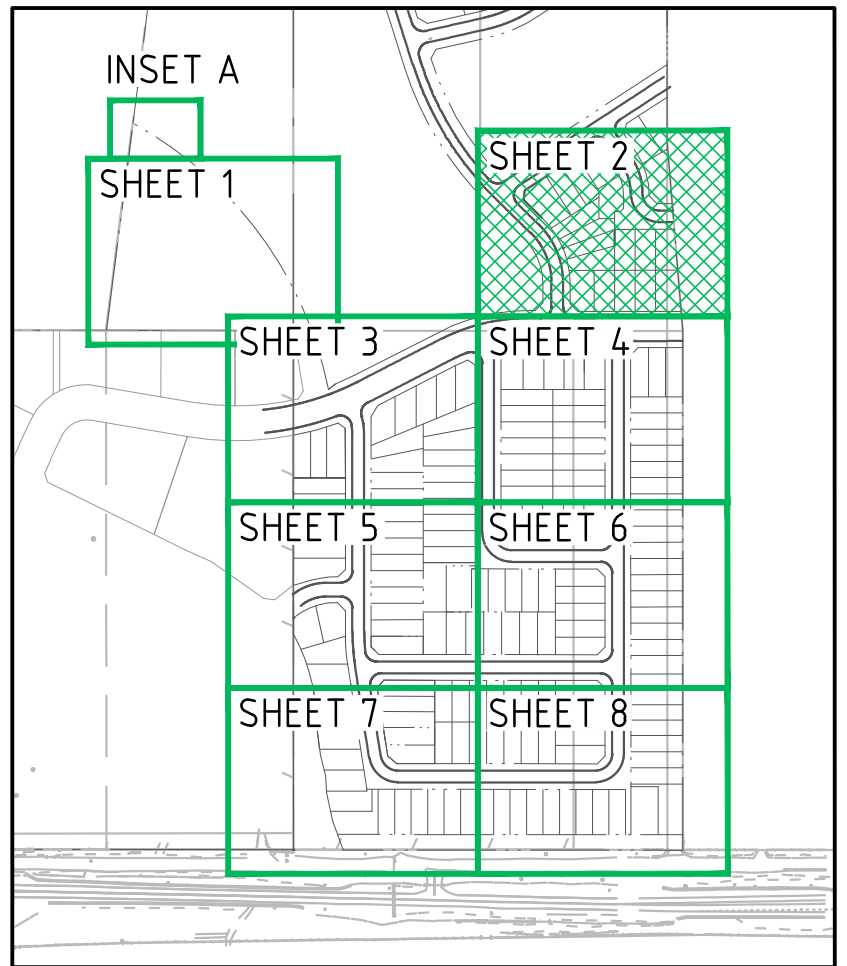


DRAWN: J.TAI
DESIGNED: P. CORNISH
JOB MANAGER: P. CORNISH
VERIFIER: M. RICHARDS



LEGEND	
	PROPOSED LOT BOUNDARY
	PROPOSED 8-10 LOT BOUNDARY
	EXISTING BOUNDARY LINE
	EXISTING EASEMENT LINE
	ROLL KERB AND GUTTER
	KERB AND GUTTER
	DISH DRAIN
	RETAINING WALL
	PROPOSED CONTOURS
	EXISTING CONTOURS
	KERB RAMP
	BATTERS
	FENCE
	LIMIT OF WORKS
	GRASS-LINED CUTOFF DRAIN
	STORMWATER FLOW ARROW
	STORMWATER PIPE
	STORMWATER PIPE CAPPING
	EXISTING STORMWATER PIPE
	NEW DRAINAGE STRUCTURE
	EXISTING DRAINAGE STRUCTURE
	CONCRETE HEADWALL

KEY PLAN



NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18
2	RE-ISSUED FOR DA	AW	-	PC	15.10.18
3	RE-ISSUED FOR DA	UM	-	PC	27.02.20

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SCALE 1:250 @ A1

0 2 4 6 8 10 12m

NORTHROP

Sydney

Level 11 345 George Street, Sydney NSW 2000

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Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT

WARNERVALE TOWN CENTRE

STAGE 6 - 7

RESIDENTIAL PRECINCT

SUBDIVISION

DRAWING TITLE

CIVIL ENGINEERING PACKAGE

DEVELOPMENT APPLICATION

SITeworks AND STORMWATER

MANAGEMENT PLAN - SHEET 02

JOB NUMBER

171245 - 01

DRAWING NUMBER

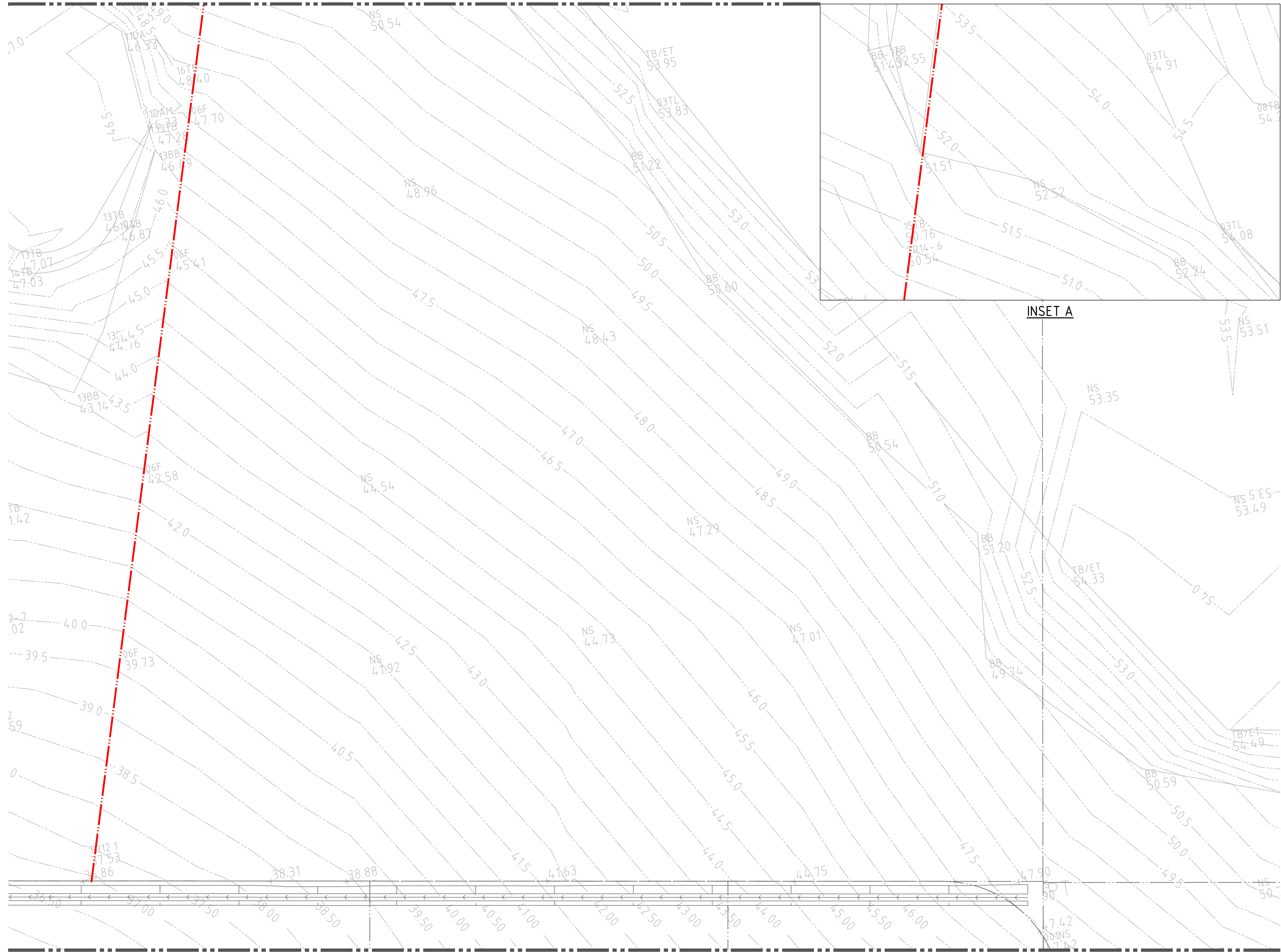
DAC07.02

REVISION

3

DRAWING SHEET SIZE = A1

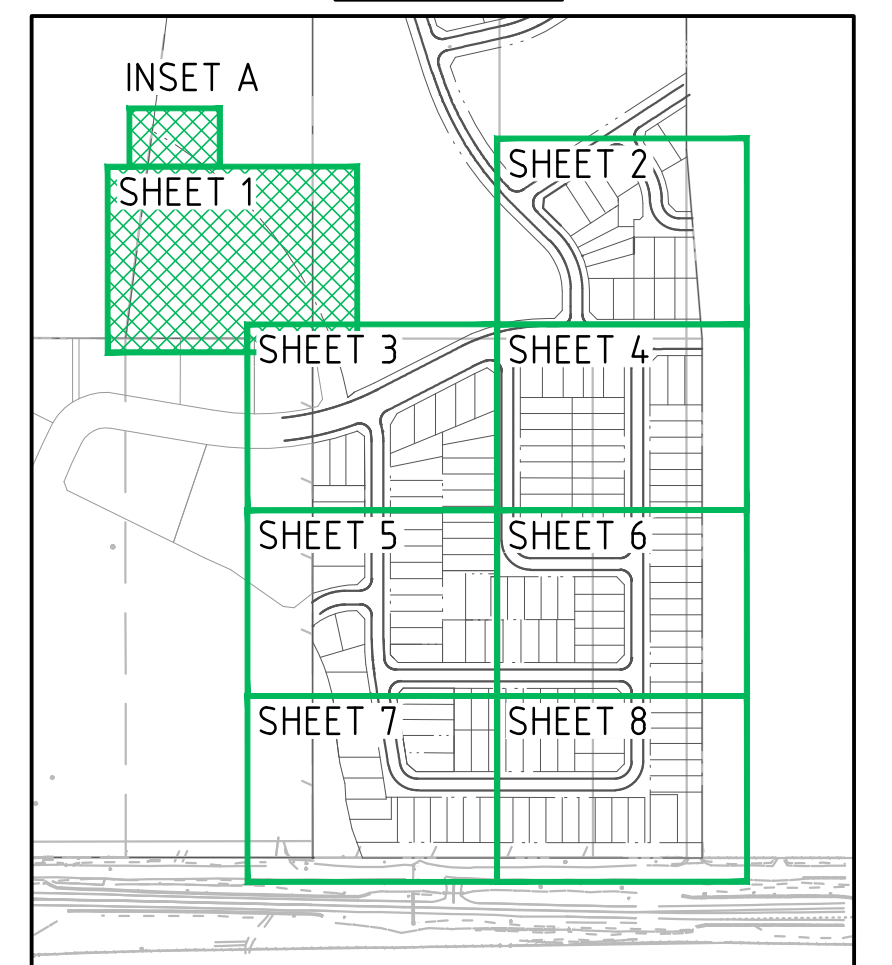
FOR CONTINUATION REFER TO INSET A



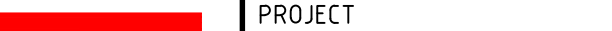
INSET A

- | LEGEND | |
|--------|-----------------------------|
| | PROPOSED LOT BOUNDARY |
| | PROPOSED 8-10 LOT BOUNDARY |
| | EXISTING BOUNDARY LINE |
| | EXISTING EASEMENT LINE |
| | ROLL KERB AND GUTTER |
| | KERB AND GUTTER |
| | DISH DRAIN |
| | RETAINING WALL |
| | PROPOSED CONTOURS |
| | EXISTING CONTOURS |
| | KERB RAMP |
| | BATTERS |
| | FENCE |
| | LIMIT OF WORKS |
| | GRASS-LINED CUTOFF DRAIN |
| | STORMWATER FLOW ARROW |
| | STORMWATER PIPE |
| | STORMWATER PIPE CAPPING |
| | EXISTING STORMWATER PIPE |
| | NEW DRAINAGE STRUCTURE |
| | EXISTING DRAINAGE STRUCTURE |
| | CONCRETE HEADWALL |

KEY PLAN

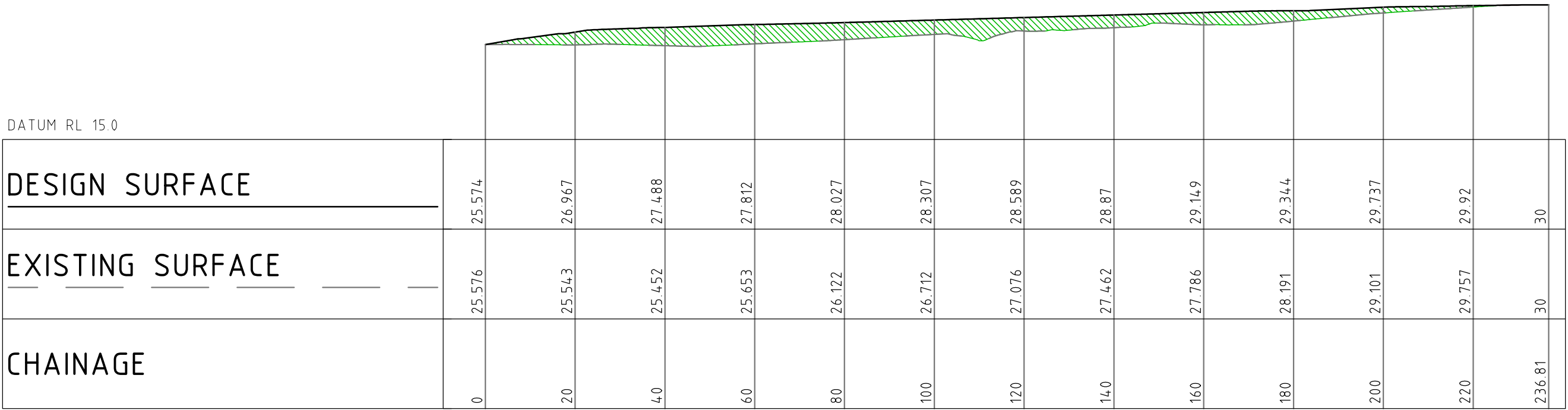


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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER					
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18		 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	WARNERVALE TOWN CENTRE	CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION	171245 - 01					
2	RE-ISSUED FOR DA	AW	-	PC	15.10.18						 SCALE 1:250@A1	STAGE 6 - 7 RESIDENTIAL PRECINCT SUBDIVISION	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01	DRAWING NUMBER	REVISION
3	RE-ISSUED FOR DA	UM	-	PC	27.02.20									DAC07.01	3
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD								

Found : \nne-11ies1Project\2017_J005\1171245 - Warnervale Town Centre\1171245-011D-Drawings\U-Norm\ropic-Civil\2-CAU FILES\11-JA\51-AGE 6-7\1171245_JACU\7_01-JACU\7_08.DWG
 Date : 21-2-20 11:32am
 Plotted By : MIMAI

DRAWN: J.TAI DESIGNED: P. CORNISH JOB MANAGER: P. CORNISH VERIFIER: M. RICHARDS



SITE SECTION C
HORIZONTAL SCALE 1:1000@A1
VERTICAL SCALE 1:500@A1

LEGEND

CUT AREA

FILL AREA

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER		
1	ISSUED FOR CLIENT REVIEW	SB	-	PC	29.06.18	 DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	WARNERVALE TOWN CENTRE	CIVIL ENGINEERING PACKAGE DEVELOPMENT APPLICATION	171245 - 01		
2	RE-ISSUED FOR DA	AW	-	PC	15.10.18						DRAWING NUMBER	REVISION
3	RE-ISSUED FOR DA	UM		PC	27.02.20						DAC06.11	3
								STAGE 6 - 7 RESIDENTIAL PRECINCT SUBDIVISION	EARTHWORKS CUT AND FILL SECTIONS - SHEET 02	DRAWING SHEET SIZE = A1		

CHAINAGE	EXISTING SURFACE	DESIGN SURFACE
0	51.235	
20	48.204	47.315
40	45.609	46.669
60	42.715	43.978
80	40.264	42.222
100	37.986	40.059
120	35.629	37.475
140	33.758	34.788
160	31.94	33.63
180	30.491	32.035
200	29.065	30.381
220	27.624	29.073
240	26.143	28.496
260	24.952	26.946
280	23.818	25.395
300	22.708	23.844
320	21.785	22.294
335.048	21.096	21.127

CHAINAGE	EXISTING SURFACE	DESIGN SURFACE
0	37.472	37.476
20	38.374	39.889
40	39.034	41.111
60	39.443	42.142
80	40.329	42.273
100	41.159	41.588
120	41.936	40.782
140	41.272	40.461
160	39.924	39.31
180	37.845	37.793
200	35.83	36.287
220	33.92	35.692
240	32.223	33.071
251.511	31.292	31.293

DRAWN: J. TAI DESIGNED: P. CORNISH JOB MANAGER: P. CORNISH VERIFIER: M. RICHARDS



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SCALE 1:1000 @ A
SCALE 1:200 @ A1



PROJECT
WARNERVALE TOWN CENTRE
STAGE 6 - 7
RESIDENTIAL PRECINCT
SUBDIVISION

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE
DEVELOPMENT APPLICATION**

**EARTHWORKS CUT AND FILL
SECTIONS - SHEET 01**

JOB NUMBER	
171245 - 01	
DRAWING NUMBER	REVISION
DAC06.10	3
DRAWING SHEET SIZE = A1	

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