





NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL DEVELOPMENT GUIDELINES .THE AFOREMENTIONED GUIDELINES INCLUSIVE OF ALL SPECIFICATIONS TAKE PRECEDENCE OVER NOTES PROVIDED BELOW.

### STORMWATER DRAINAGE

- ALL DRAINAGE LINES SHALL BE UPVC (CLASS SN4) SEWER GRADE DRAINAGE PIPE, U.N.O.
- ALL DRAINAGE LINES SHALL BE LAID AT 1% MIN. FALL, UNO.
- ALL LEVELS ARE AUSTRALIAN HEIGHT DATUM (AHD).
- ALL DOWNPIPES GUTTERS TO BE DESIGNED IN ACCORDANCE WITH AS/NZS 3500.3.2 - 2003 'STORMWATER' DRAINAGE.
- THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3.2-2003 'STORMWATER' DRAINAGE.
- ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.
- SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.
- ALL GRATES TO BE GALVANISED STEEL WITH HINGES AND CHILD PROOF LOCK.
- ALL GRATES TO BE HEEL SAFE WITHIN AGED CARE DEVELOPMENTS.
- THE STORMWATER DRAINAGE IS DESIGNED IN ACCORDANCE WITH COUNCILS STORMWATER CODE.

### RAINWATER RE-USE

- PROVIDE RAINWATER RE-USE SYSTEM TO SUPPLY WATER FOR TOILET FLUSHING.
- GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.
- A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
- PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.
- ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELLED WITH SAFETY SIGNS TO COMPLY WITH AS1319.
- RAINWATER TANK RETICULATION SYSTEM AND MAINS WATER BYPASS ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.1.2-2003 AND THE NSW CODE OF PRACTICE : PLUMBING AND DRAINING.
- A FIRST FLUSH FILTRATION DEVICE IS TO BE PROVIDED AT RAINWATER TANK.
- FOR PUMPING AND TREATMENT SYSTEM, REFER TO HYDRAULIC ENGINEER'S SPECIFICATION

### GENERAL NOTES

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

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

NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.

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

DETAIL SURVEY DATA WAS SUPPLIED BY PENRITH CITY COUNCIL, HEADING : DETAIL SURVEY OVER FOLIO IDENTIFIERS 1/526304, E/163176, 3/1200790, 2/556075, 10/553665, 11/553665, 1/164798 & 1/252457 & CARPARK LOCATED WITHIN ALLEN PLACE PENRITH  
DRAWING DATED : 10.12.2019  
REV : 00  
JOB REFERENCE : 004  
MGA : 2020  
DATE OF SURVEY : 02.12.2019

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

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

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.

### DESIGN SUMMARY

COUNCIL: PENRITH CITY COUNCIL

#### CATCHMENT CALCULATIONS:

	PRE-DEVELOPMENT	POST-DEVELOPMENT
TOTAL AREA*	7517m <sup>2</sup>	7517m <sup>2</sup>
IMPERVIOUS AREA	7123m <sup>2</sup> (94.76%)	3378m <sup>2</sup> (44.94%)
PERVIOUS AREA	394m <sup>2</sup> (5.24%)	4139m <sup>2</sup> (55.06%)

\* AREAS IN TABLE PERTAIN TO THE PARK AREA ONLY (EXCLUDING SURROUNDING CATCHMENTS AND ROADS). REFER TO SHEET DAC12.01 FOR CATCHMENT PLAN, INCLUDING ROAD AREAS AND EXTERNAL CATCHMENTS RAINWATER RE-USE:

IN ACCORDANCE WITH COUNCIL REQUIREMENTS.  
RAINWATER RE-USE STORAGE PROVIDED = 25kL  
PERCENTAGE OF DEMAND MET = 90%

RAINWATER RE-USE TO BE USED FOR THE FOLLOWING:  
• TOILET FLUSHING, IN AMENITIES BUILDING (5 TOILETS WITH ASSUMED DEMAND OF 100L/DAY)

#### WATER QUALITY TREATMENT MEASURES:




- 383m<sup>2</sup> RAINGARDEN TO TREAT SOME ROAD RUNOFF FROM HENRY ST AND INTERNAL PARK AREA
- 150m<sup>2</sup> PASSIVE IRRIGATION TO TREAT SOME ROAD RUNOFF FROM PROPOSED GAYMARK LANE, EASTERN CARPARK AND INTERNAL PARK AREAS.
- RAINWATER TANK

WATER QUALITY OUTCOME	PRE-DEVELOPMENT	POST-DEVELOPMENT	%REDUCTION PRE TO POST	TREATMENT TRAIN EFFECTIVENESS*
TOTAL SUSPENDED SOLIDS (TSS) (kg/yr)	1260	98.2	92	87
TOTAL NITROGEN (TN) (kg/yr)	2.12	0.415	80	66
TOTAL PHOSPHORUS (TP) (kg/yr)	14	3.28	77	55
GROSS POLLUTANTS (GP) (kg/yr)	171	8.95	95	89

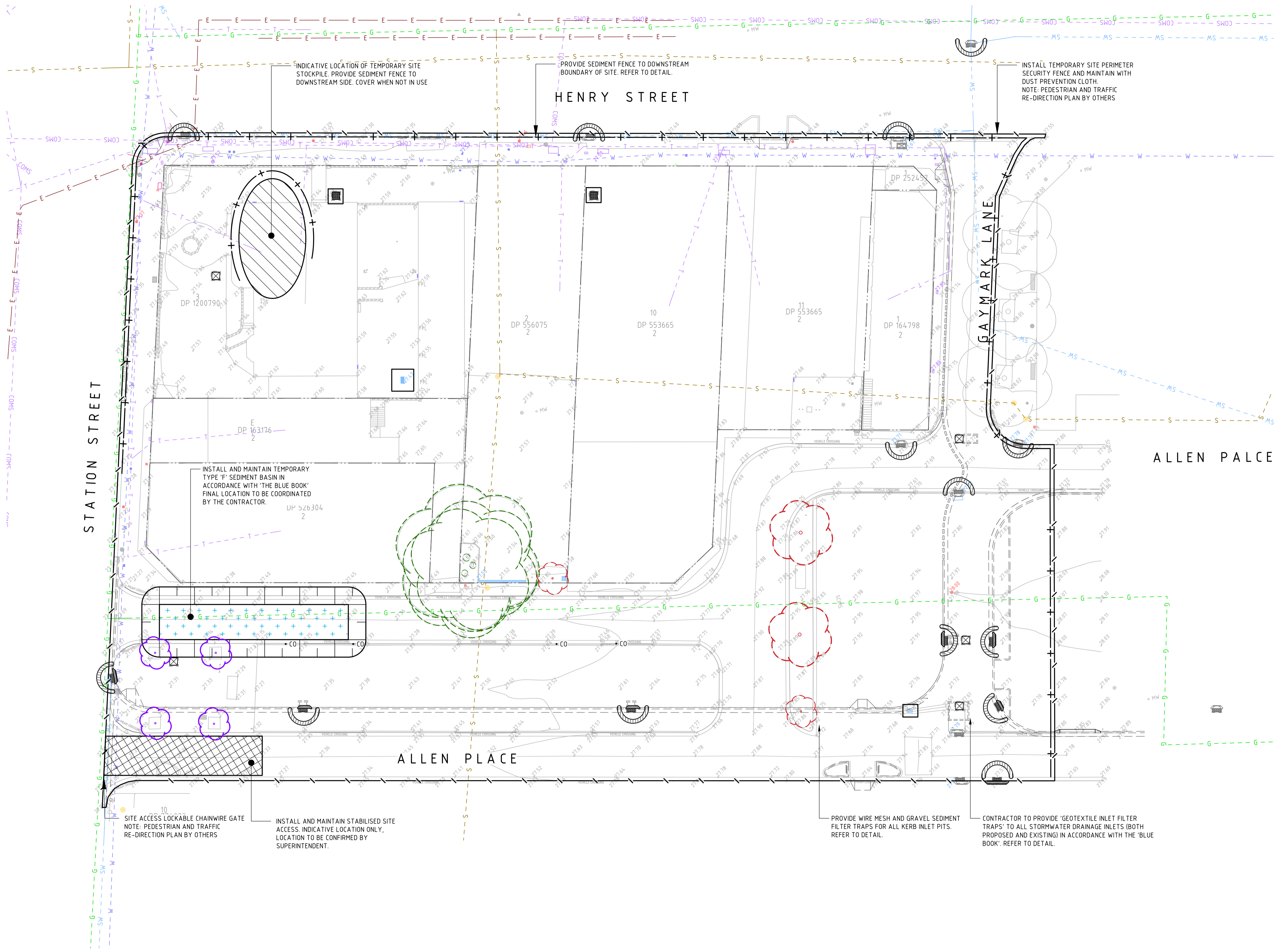
\*NOTE: ONLY ROAD AREAS THAT FALL TO TREATMENT (RAINGARDEN OR PASSIVE IRRIGATION) ARE INCLUDED IN CATCHMENT CALCULATIONS (FOR BOTH PRE AND POST DEVELOPMENT). ALL OTHER ROAD AREAS (INCLUDING WHERE CHANGES ARE PROPOSED) HAVE BEEN EXCLUDED FROM THE MODELLING AS THEY ARE OUTSIDE THE PARK BOUNDARY.

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A. CARVALHAES JOB MANAGER: A. CARVALHAES VERIFIER:

## NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER					
01	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	CP		AC	25.09.20				<b>PENRITH CITY PARK 114-146 HENRY STREET, 42-50 STATION STREET AND ALLEN PLACE CARPARK</b>	<b>192968</b>					
02	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21						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	CIVIL ENGINEERING PACKAGE  SPECIFICATION NOTES	DRAWING NUMBER <b>DAC01.11</b>	REVISION <b>03</b>
03	RE-ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	18.01.21										





### LEGEND

- EXISTING BOUNDARY LINE
- EXISTING KERB
- PROPOSED KERB
- EXISTING ELECTRICITY
- EXISTING GAS
- EXISTING TELECOMMUNICATIONS
- EXISTING TELSTRA
- EXISTING OPTUS
- EXISTING WATER
- EXISTING STORMWATER
- EXISTING SEWER
- GRATED INLET PIT (NEW / EXTG)
- KERB INLET PIT (NEW / EXTG)
- EXISTING CONTOURS
- SEDIMENT FENCE
- SECURITY FENCE
- WIRE MESH AND GRAVEL SEDIMENT FILTER
- GEOTEXTILE INLET FILTER TRAPS
- SITE ACCESS GATE
- STABILISED SITE ACCESS
- STOCKPILE
- SEDIMENT BASIN
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO BE RETAINED
- EXISTING TREE TO BE RELOCATED (TBC)

- ### GENERAL NOTES:
- REFER SPECIFICATIONS NOTES FOR SEDIMENT AND SOIL EROSION CONTROL GENERAL REQUIREMENTS.
  - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
  - ALL SEDIMENT AND SOIL EROSION CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH THE 'BLUE BOOK'. CONTRACTOR TO ENSURE THESE MEASURES ARE IN PLACE AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION WORKS.
  - CONTRACTOR TO PROVIDE 'WIRE MESH AND GRAVEL SEDIMENT FILTER' TO ALL PAVED / ROAD AREAS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.
  - CONTRACTOR TO PROVIDE 'GEOTEXTILE INLET FILTER TRAPS' TO ALL STORMWATER DRAINAGE INLETS (BOTH PROPOSED AND EXISTING) IN ACCORDANCE WITH THE 'BLUE BOOK'.

PARAMETER	ADOPTED VALUE
TOTAL AREA (Ha)	0.9141
SOIL TEXTURE GROUP	F
DESIGN RAINFALL DEPTH (DAYS)	5
DESIGN RAINFALL DEPTH (PERCENTILLE)	80
X-DAY, Y-PERCENTILE RAINFALL EVENT	27.4
CV	0.560
SETTLING ZONE VOLUME (m³)	140.26
SEDIMENT STORAGE VOLUME (m³)	70.130
<b>TOTAL BASIN VOLUME (m³)</b>	<b>210.389</b>

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES VERIFIER: A.CARVALHAES

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	CP	AC	25.09.20		
02	ISSUED FOR INFORMATION	AS	SN	08.01.21		
03	ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	13.01.21		
04	RE-ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	18.01.21		

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ARCHITECT  
**JMD design**

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SCALE 1:250@A1

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PROJECT  
**PENRITH CITY PARK**  
114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK

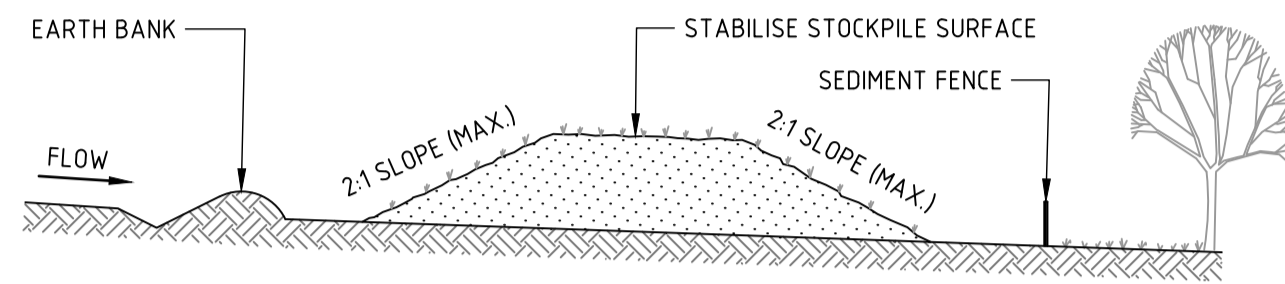
DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE**

**CONCEPT SEDIMENT AND EROSION CONTROL PLAN**

JOB NUMBER <b>192968</b>	
DRAWING NUMBER <b>DAC02.01</b>	REVISION <b>04</b>
DRAWING SHEET SIZE = A1	

**NOT FOR CONSTRUCTION**

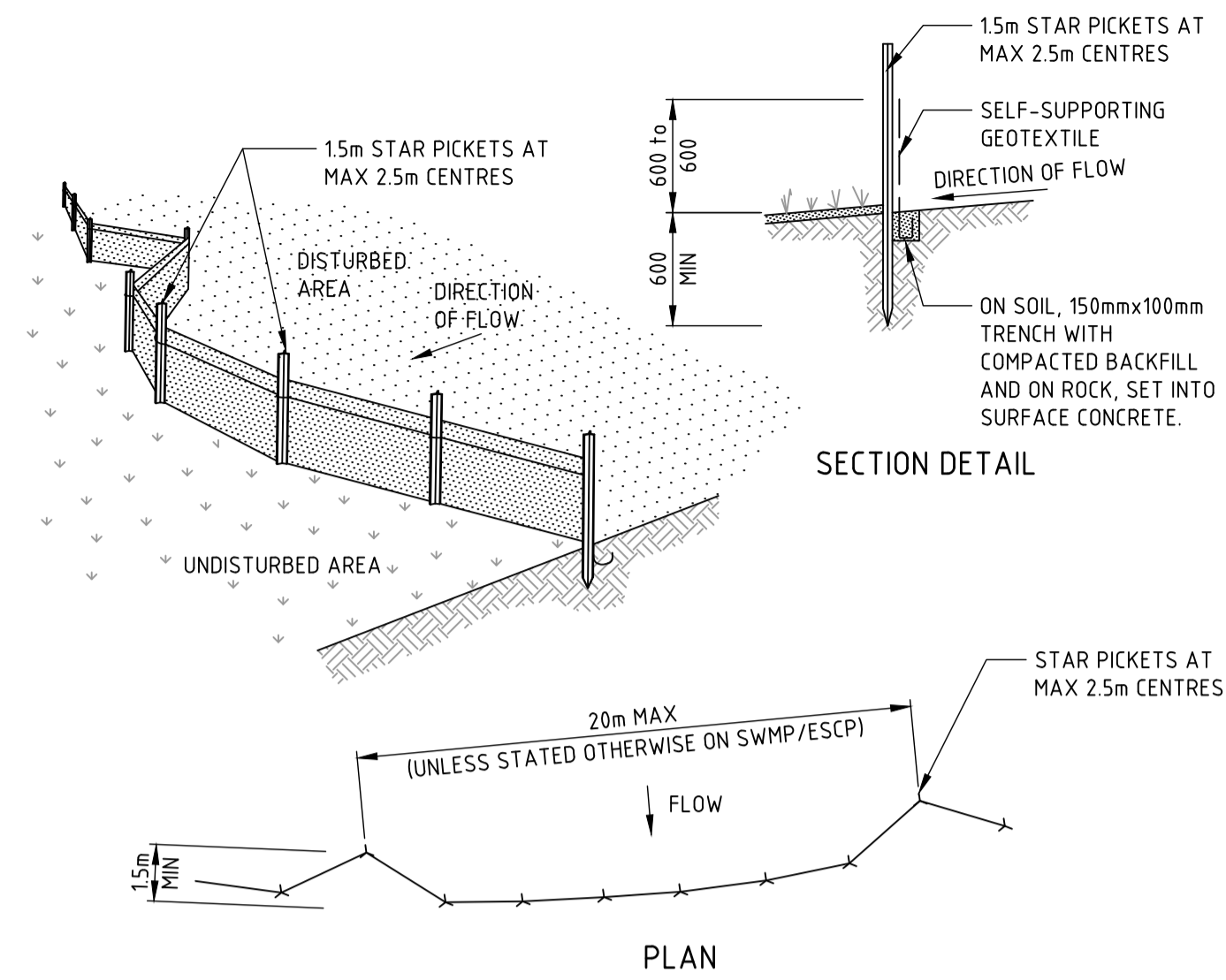




**CONSTRUCTION NOTES**

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.

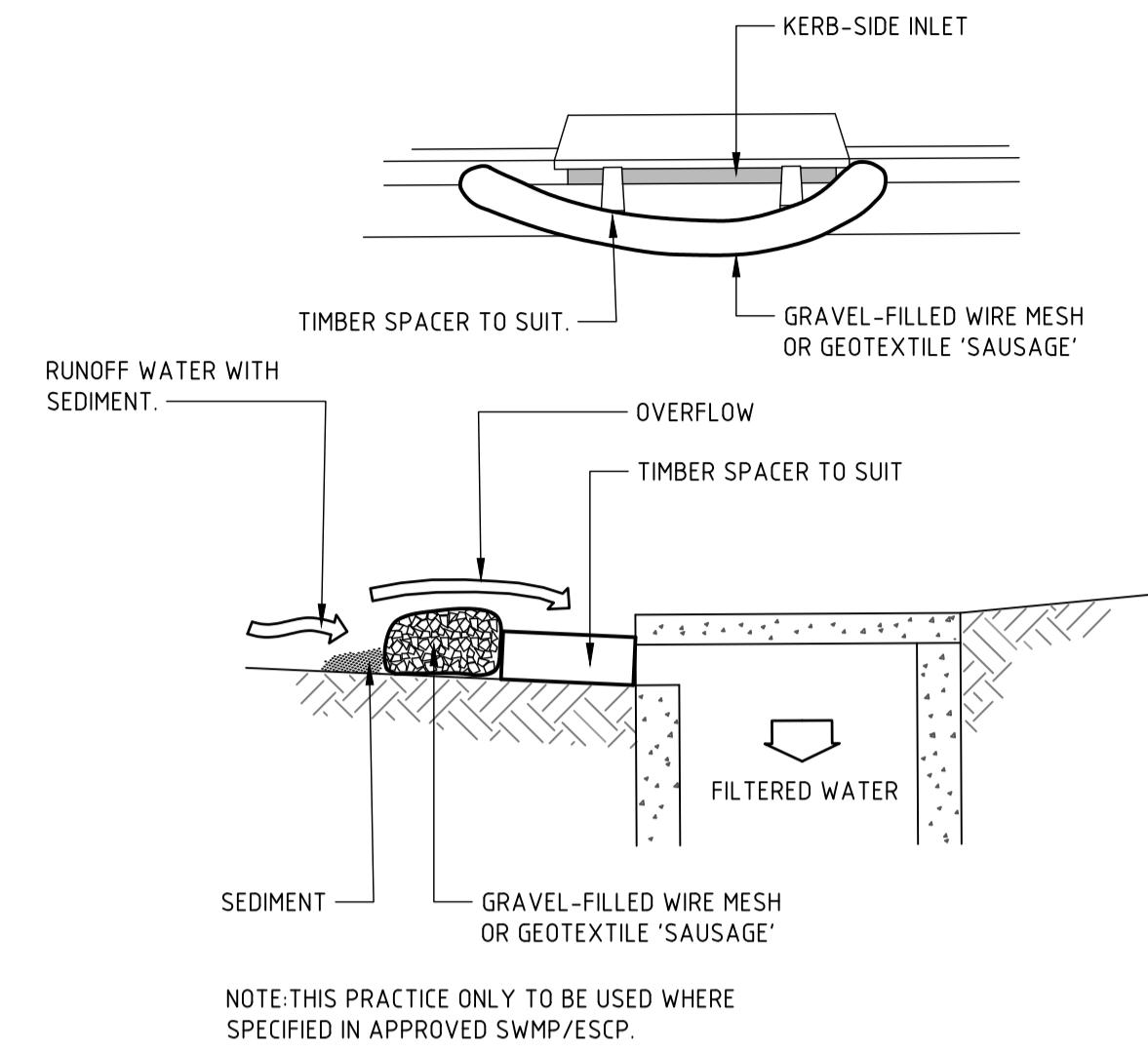
**STOCKPILES**



**CONSTRUCTION NOTES**

1. CONSTRUCT 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.

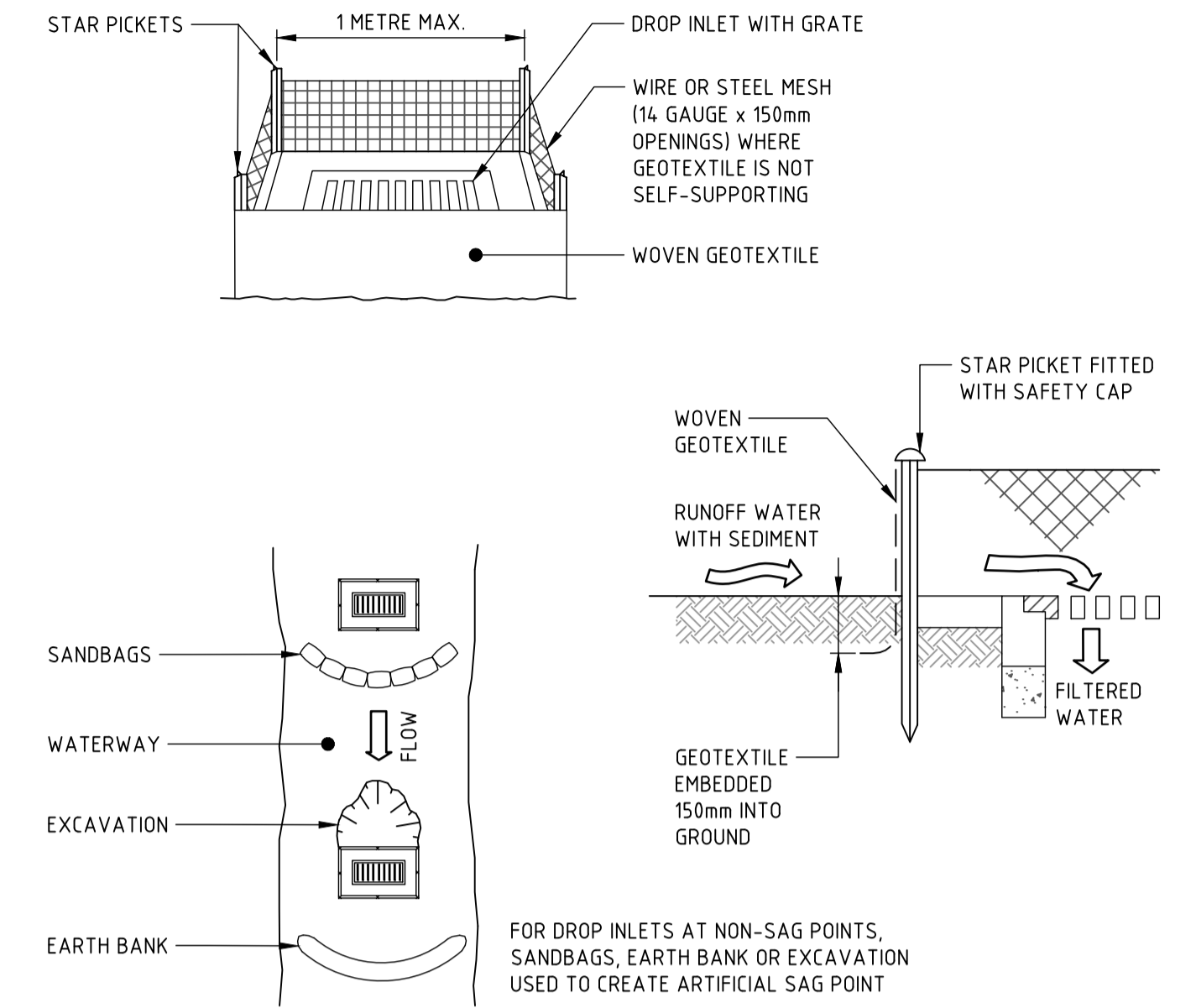
**SEDIMENT FENCE**



**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.

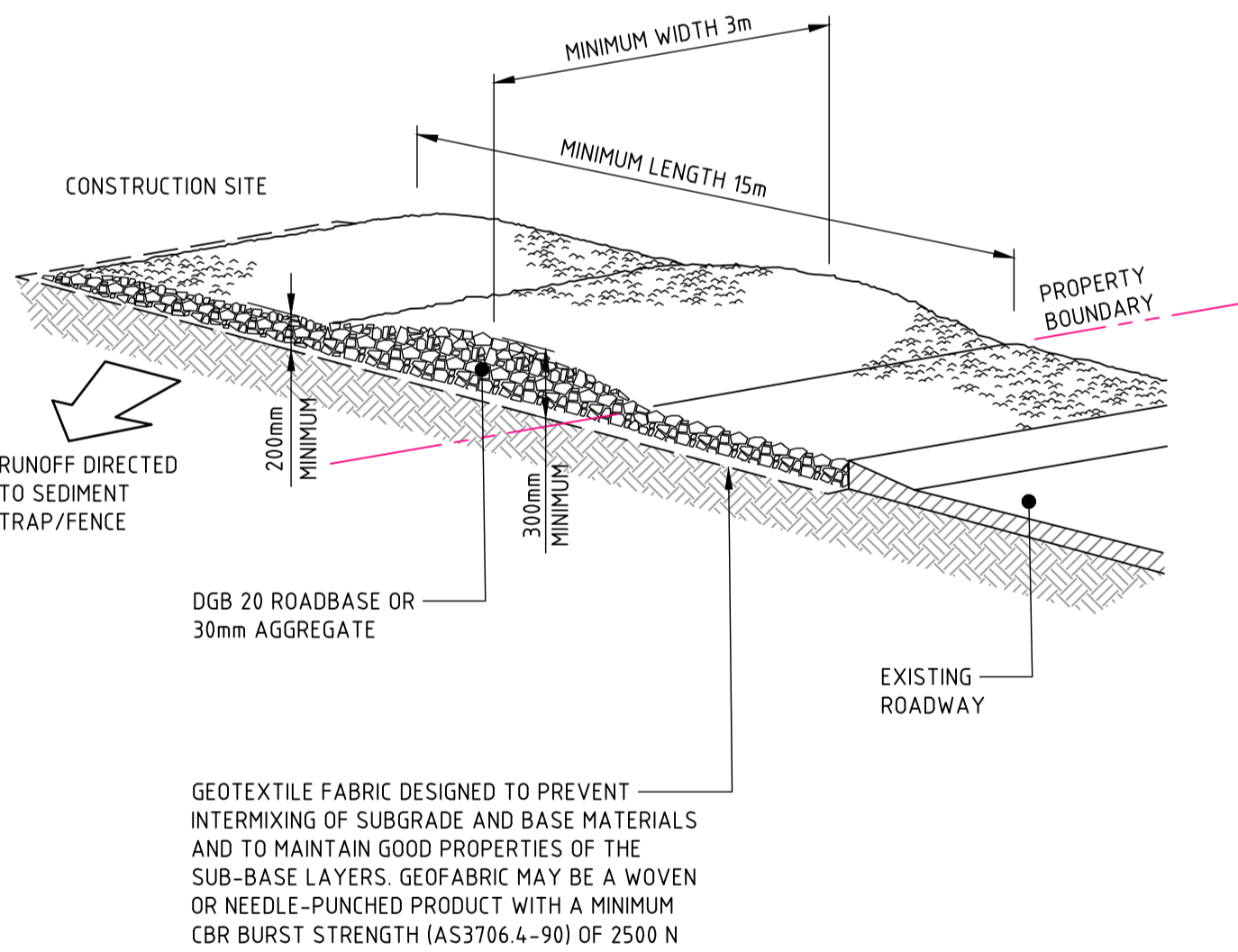
**WIRE MESH AND GRAVEL SEDIMENT FILTER**



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

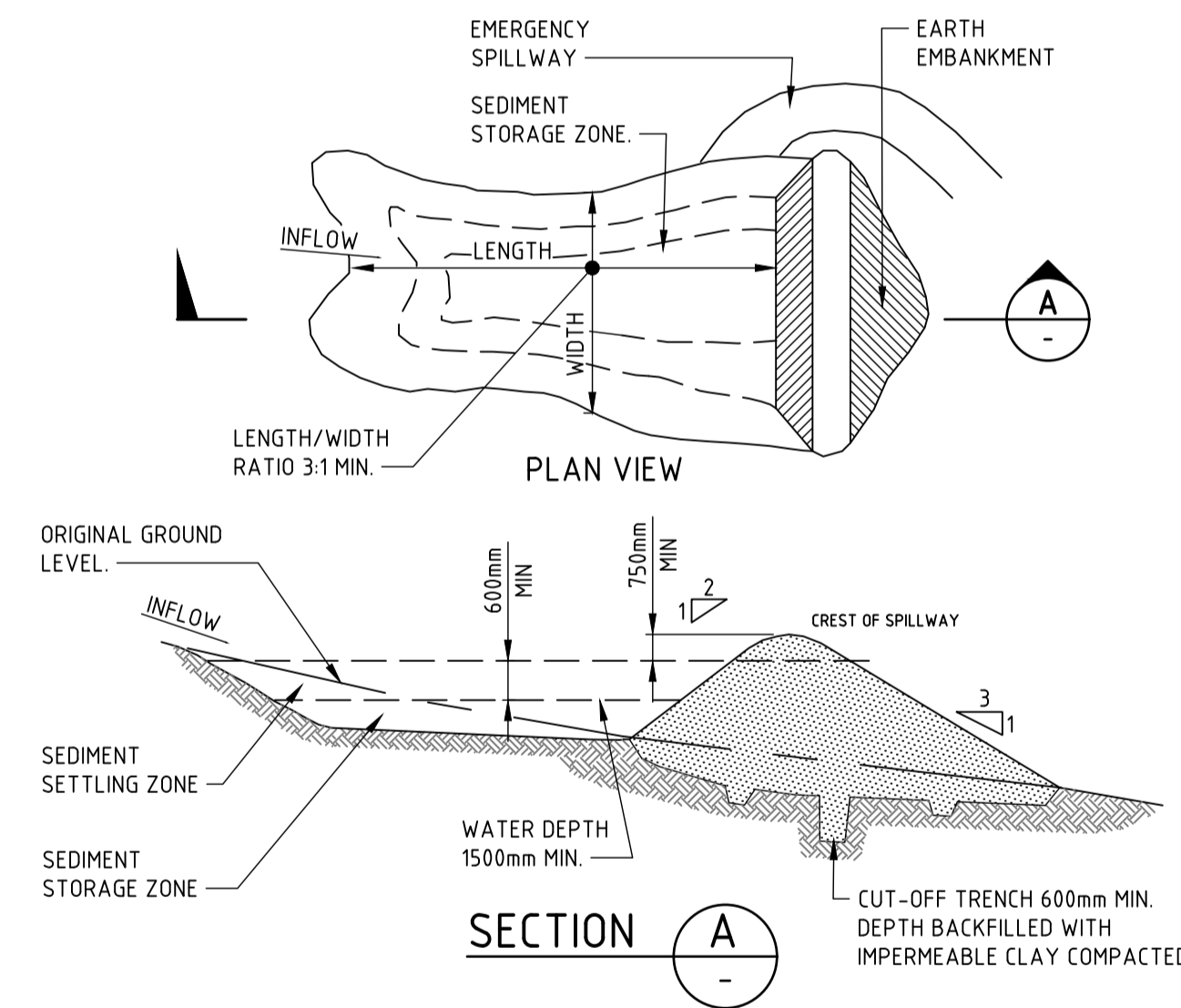
**GEOTEXTILE INLET FILTER TRAPS**



**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. 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 1200mm WIDE ALONG THE CENTRELINE OF THE EMBANKMENT 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 EMBANKMENT 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.

**(APPLIES TO TYPE D' AND TYPE F' SOILS ONLY)  
EARTH BASIN - WET**

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A. CARVALHAES JOB MANAGER: A. CARVALHAES VERIFIER: A. CARVALHAES

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	CP		AC	25.09.20	PENRITH CITY COUNCIL
02	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21	

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**NOT TO SCALE**

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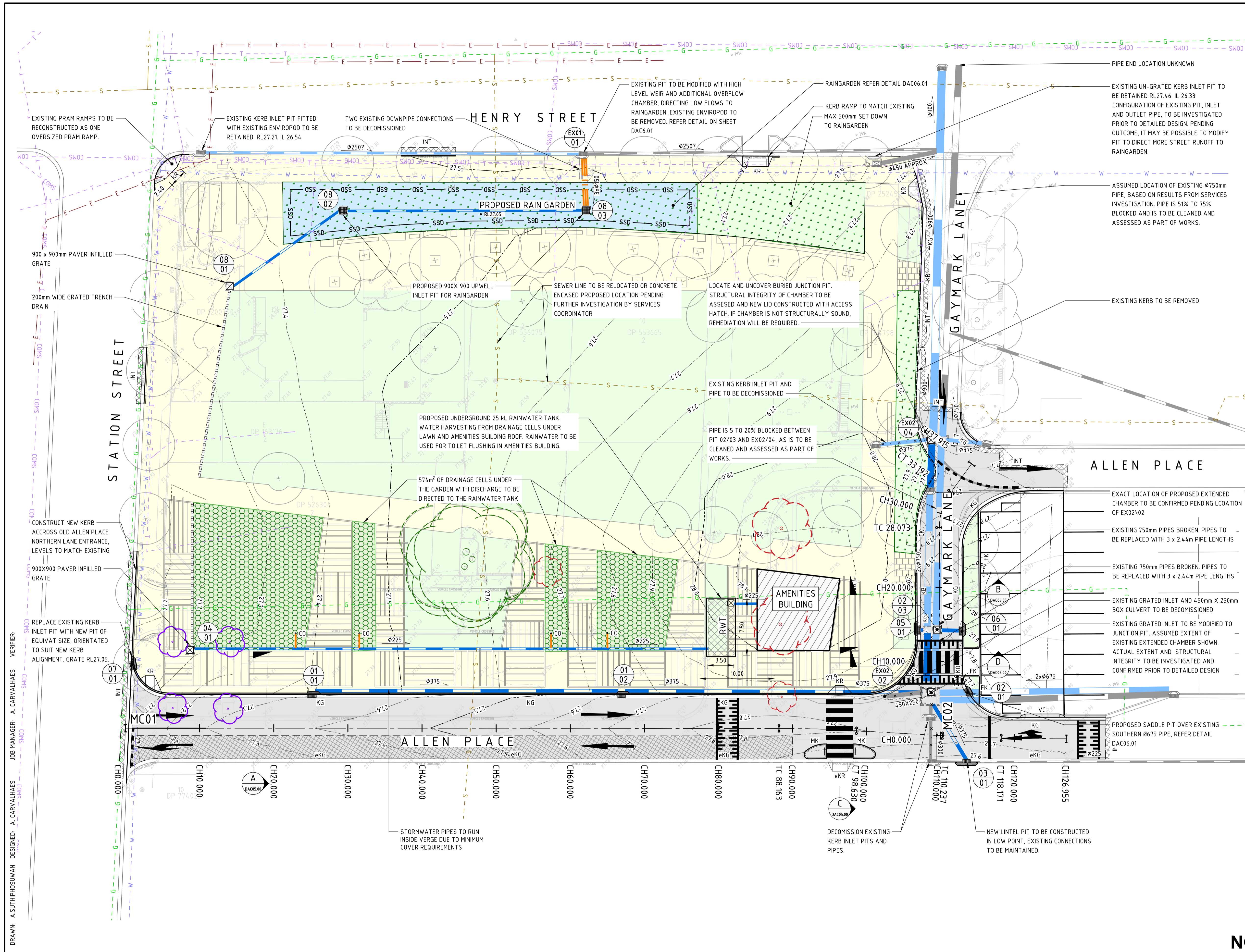
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114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE  
SEDIMENT AND EROSION  
CONTROL DETAILS**

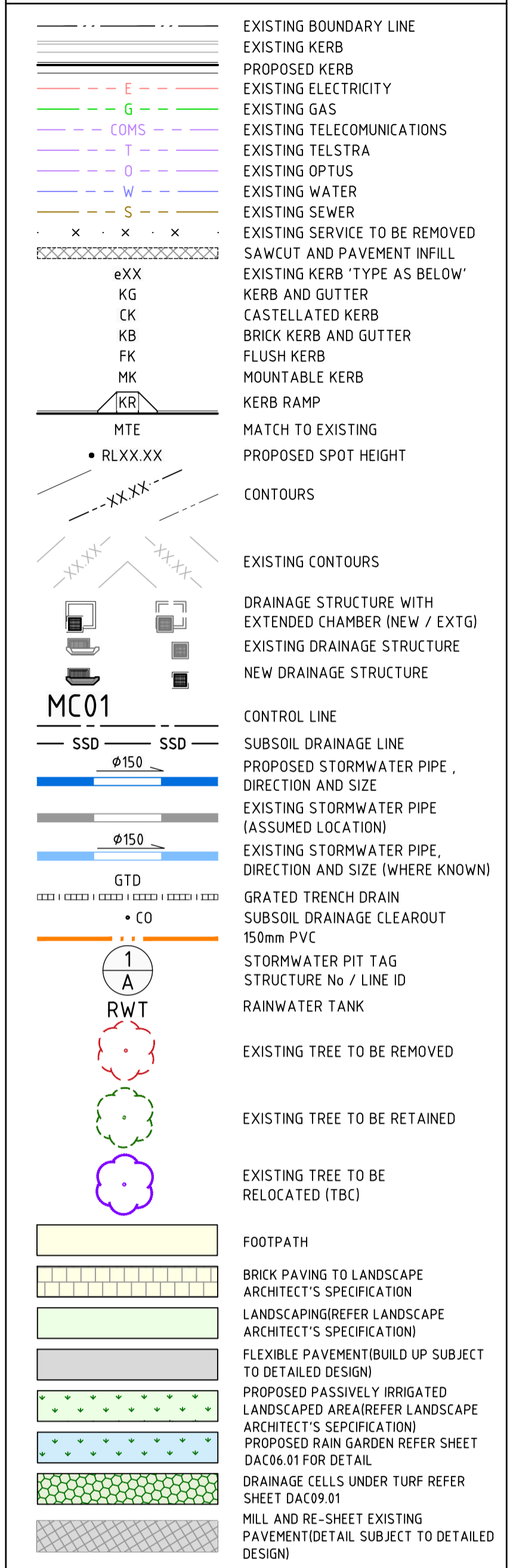
JOB NUMBER <b>192968</b>	
DRAWING NUMBER <b>DAC02.11</b>	REVISION <b>02</b>
DRAWING SHEET SIZE = A1	

**NOT FOR CONSTRUCTION**





**LEGEND**



**GENERAL NOTES:**

- REFER SPECIFICATIONS NOTES FOR STORMWATER AND SITEWORKS GENERAL REQUIREMENTS.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
- CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATIONS.
- EXISTING STORMWATER ALIGNMENTS AND SIZES ARE DERIVED FROM A COMBINATION OF SURVEY INFORMATION, CCTV INVESTIGATION RESULTS, GIS DATA SUPPLIED BY COUNCIL, AND OTHER COUNCIL DRAINAGE MARKUPS SUPPLIED. ACCURACY IS TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION.
- ALL EXISTING SERVICES INDICATED ON THE DRAWINGS ORIGINATE FROM SUPPLIED DATA OR DIAL BEFORE YOU DIG SEARCHES, THEREFORE THEIR ACCURACY AND COMPLETENESS IS NOT GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AND CONFIRM THE LOCATION AND LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES SHALL BE REPORTED TO THE SUPERINTENDENT. CLEARANCES SHALL BE OBTAINED FROM THE RELEVANT SERVICE AUTHORITY. NOTE SERVICE AUTHORITY REQUIREMENTS FOR LOCATING OF SERVICES PRIOR TO COMMENCEMENT OF WORKS.
- CONTRACTOR TO ALLOW TO ADJUST AND LIAISE WITH RELEVANT SERVICE AUTHORITIES IN RELATION TO EXISTING SERVICE ADJUSTMENT AND MODIFICATION.

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03	RE-ISSUED FOR COORDINATION	AS	SN	17.12.20		
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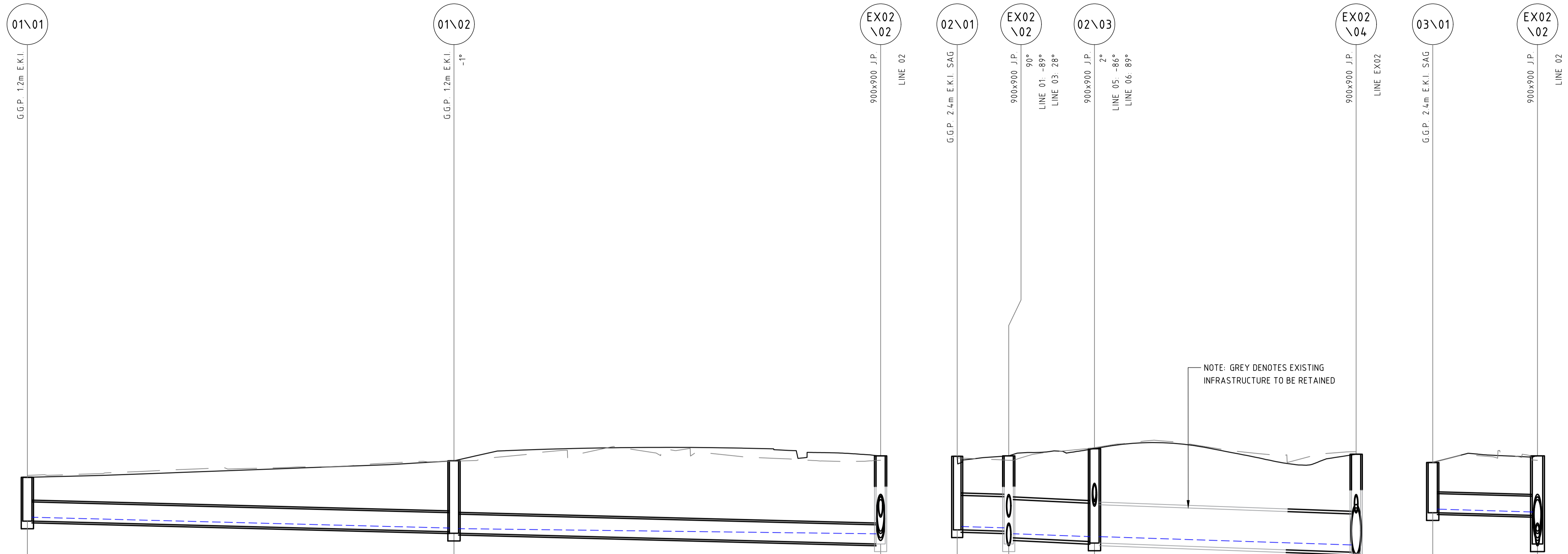
PROJECT  
**PENRITH CITY PARK**  
**114-146 STATION STREET,**  
**42-50 HENRY STREET AND**  
**ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE**  
**SITEWORKS AND STORMWATER**  
**MANAGEMENT PLAN**

JOB NUMBER	<b>192968</b>
DRAWING NUMBER	<b>DAC04.01</b>
REVISION	<b>06</b>
DRAWING SHEET SIZE = A1	



DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES JOB MANAGER: A.CARVALHAES VERIFIER:



PIPE CLASS	RRJ2	RRJ2
PIPE GRADE (%)	0.5%	0.5%
PIPE SIZE (mm)	375	375
MINIMUM COVER (m)	0.45	1.03
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.75	Vf=0.49
Q - PIPE FLOW (L/s)	Q=12	Q=18

DATUM RL	20.0	
H.G.L. 20%AEP	26.494	26.170
FINISHED SURFACE	27.276	27.697
NATURAL SURFACE	27.314	27.610
PIPE INVERT LEVEL	26.419	25.971
DEPTH TO INVERT	0.858	1.726
CO-ORDINATED SETOUT	E286550.914 N6262890.293	E286591.527 N6262880.505
CHAINAGE	0.000	83.549

SCALE 1:250(H), 1:50(V) LINE 01

PIPE CLASS	RRJ2	RRJ2	RRJ2
PIPE GRADE (%)	0.5%	0.8%	0.7%
PIPE SIZE (mm)	(2x)675	(2x)750	750
MINIMUM COVER (m)	0.60	0.80	0.87
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.70	Vf=0.90	Vf=1.18
Q - PIPE FLOW (L/s)	Q=25	Q=53	Q=63

DATUM RL	20.0		
H.G.L. 20%AEP	26.312	26.171	26.115
FINISHED SURFACE	27.688	27.697	27.837
NATURAL SURFACE	27.655	27.610	27.857
PIPE INVERT LEVEL	26.247	26.090	25.989
DEPTH TO INVERT	1.442	1.475	1.819
CO-ORDINATED SETOUT	E286637.136 N6262869.926	E286632.228 N6262871.103	E286634.233 N6262879.254
CHAINAGE	0.000	5.047	13.441

LINE 02

PIPE CLASS	RRJ2
PIPE GRADE (%)	0.5%
PIPE SIZE (mm)	375
MINIMUM COVER (m)	0.60
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.66
Q - PIPE FLOW (L/s)	Q=9

DATUM RL	20.0	
H.G.L. 20%AEP	26.653	26.597
FINISHED SURFACE	27.567	27.697
NATURAL SURFACE	27.567	27.610
PIPE INVERT LEVEL	26.582	26.531
DEPTH TO INVERT	0.985	1.166
CO-ORDINATED SETOUT	E286634.758 N6262861.161	E286632.228 N6262871.103
CHAINAGE	0.000	10.258

LINE 03

NOTE: GREY DENOTES EXISTING INFRASTRUCTURE TO BE RETAINED

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	AS		SN	08.01.21
02	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21

CLIENT  
 PENRITH CITY COUNCIL

ARCHITECT  
 JMD design

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SCALE 1:50@A1  
 SCALE 1:250@A1

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 Level 11 345 George Street, Sydney NSW 2000  
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 Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT  
**PENRITH CITY PARK**  
**114-146 HENRY STREET,**  
**42-50 STATION STREET AND**  
**ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE**  
**STORMWATER LONGITUDINAL**  
**SECTIONS - SHEET 01**

JOB NUMBER  
**192968**

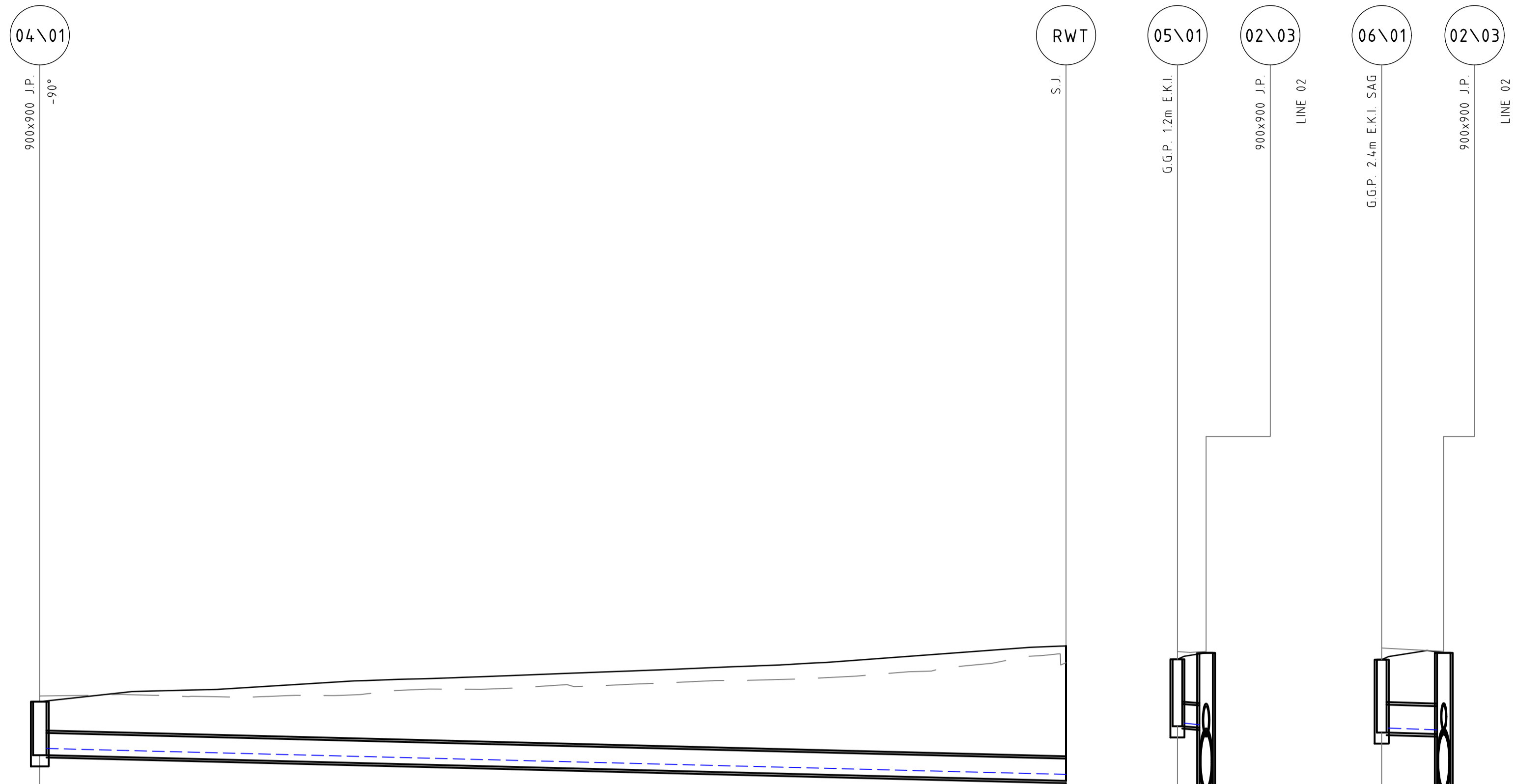
DRAWING NUMBER  
**DAC04.21**

REVISION  
**02**

DRAWING SHEET SIZE = A1



DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES JOB MANAGER: A.CARVALHAES VERIFIER:



PIPE CLASS	RRJ2
PIPE GRADE (%)	0.5%
PIPE SIZE (mm)	300
MINIMUM COVER (m)	0.40
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.81
Q - PIPE FLOW (L/s)	Q=14

DATE	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	SCALE
01	ISSUED FOR INFORMATION	AS		SN	08.01.21			SCALE 1:50@A1
02	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21			SCALE 1:250@A1

SCALE 1:250(H), 1:50(V) LINE 04

LINE 05 LINE 06

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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SCALE 1:50@A1  
 SCALE 1:250@A1

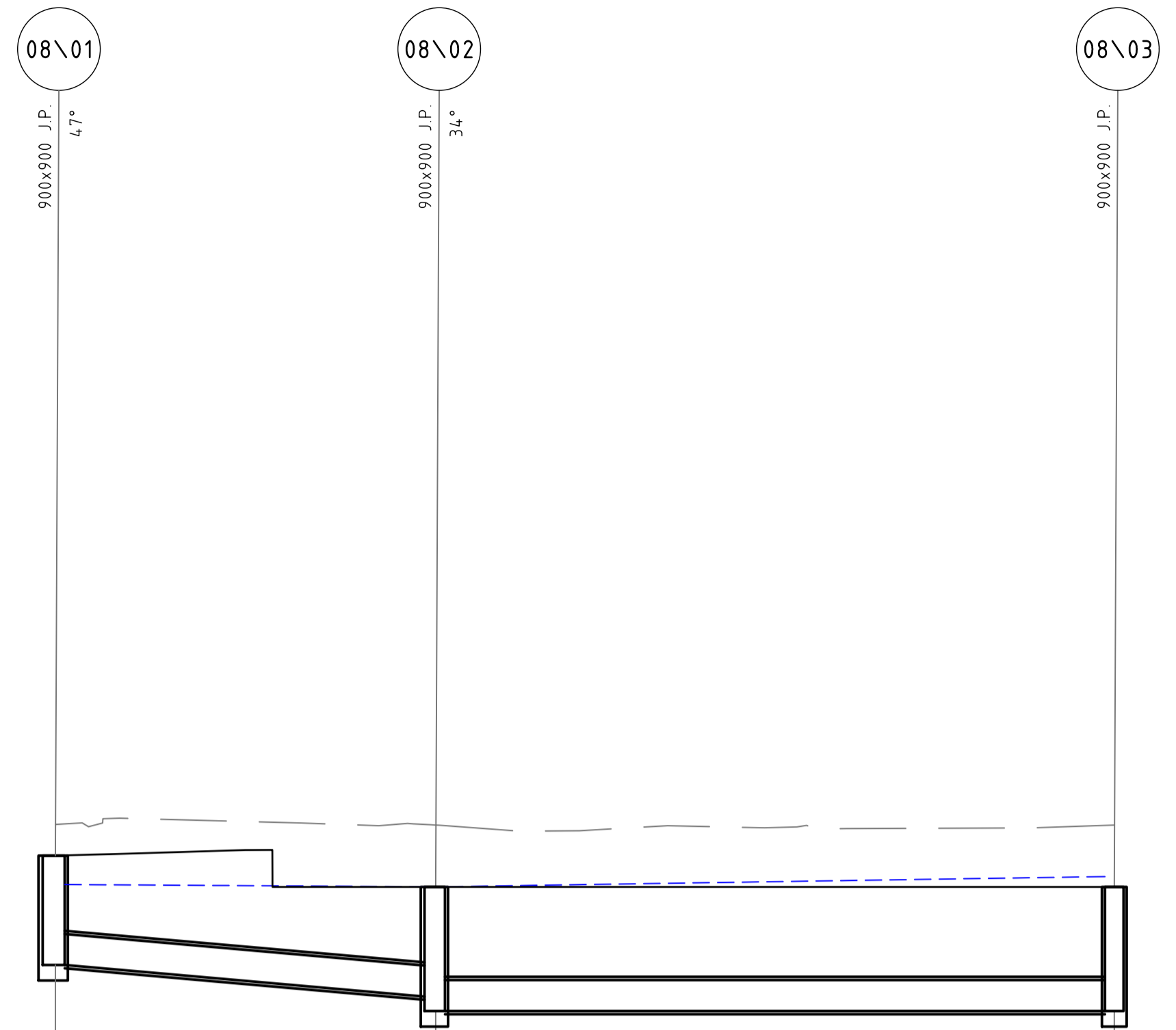
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DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE**  
**STORMWATER LONGITUDINAL SECTIONS - SHEET 02**

JOB NUMBER	192968
DRAWING NUMBER	DAC04.22
REVISION	02
DRAWING SHEET SIZE = A1	





PIPE CLASS	RRJ2	RRJ2
PIPE GRADE (%)	1.7%	-0.0%
PIPE SIZE (mm)	300	300
MINIMUM COVER (m)	0.60	0.87
Vf - FULL PIPE VELOCITY (m/s)	Vf=0.52	Vf=1.08
Q - PIPE FLOW (L/s)	Q=37	Q=-76

	19.0					
DATUM RL	19.0					
H.G.L.	27.131	27.073	27.052	27.052	27.150	27.150
FINISHED SURFACE	27.353		27.050		27.050	
NATURAL SURFACE	27.653		27.648		27.648	
PIPE INVERT LEVEL	26.358	26.395	25.990	25.850	25.850	25.850
DEPTH TO INVERT	0.995	1.058	1.060	1.200	1.200	1.200
CO-ORDINATED SETOUT	E288553.013 N6282946.447		E288570.263 N6282952.794		E288602.162 N6282945.149	
CHAINAGE	26.107		44.487		77.290	

LINE 08

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES JOB MANAGER: A.CARVALHAES VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21

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SCALE 1:50@A1

SCALE 1:250@A1

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ALLEN PLACE CARPARK

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE**

**STORMWATER LONGITUDINAL SECTIONS - SHEET 03**

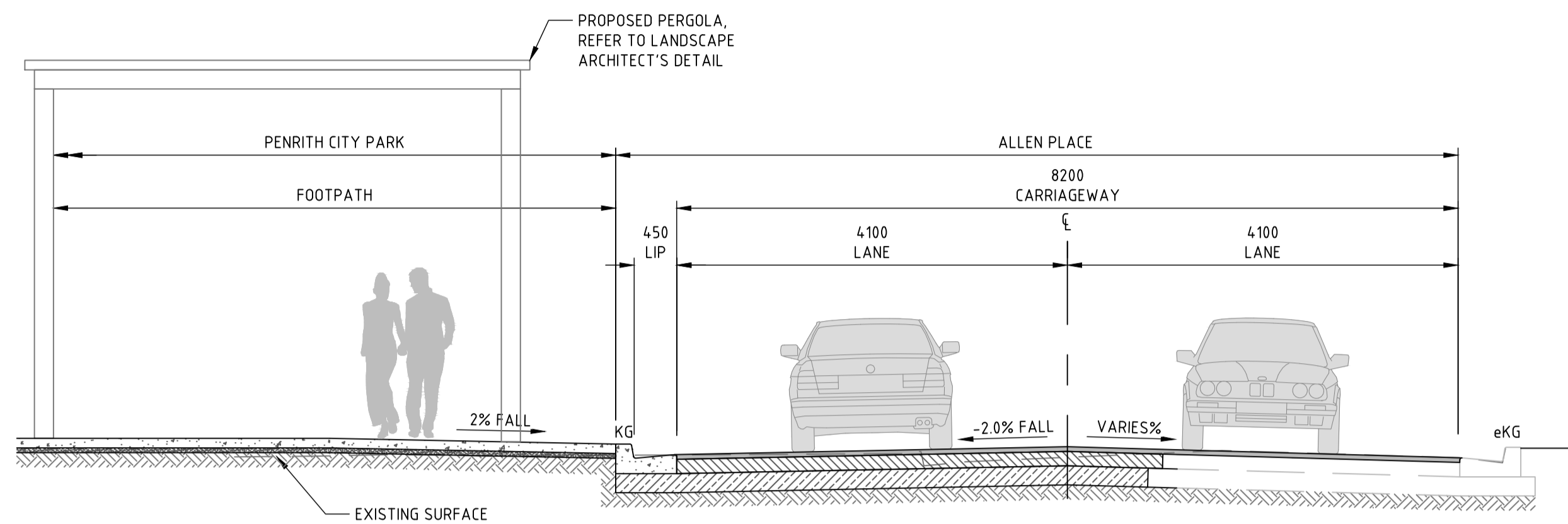
JOB NUMBER

**192968**

DRAWING NUMBER	REVISION
<b>DAC04.23</b>	<b>01</b>

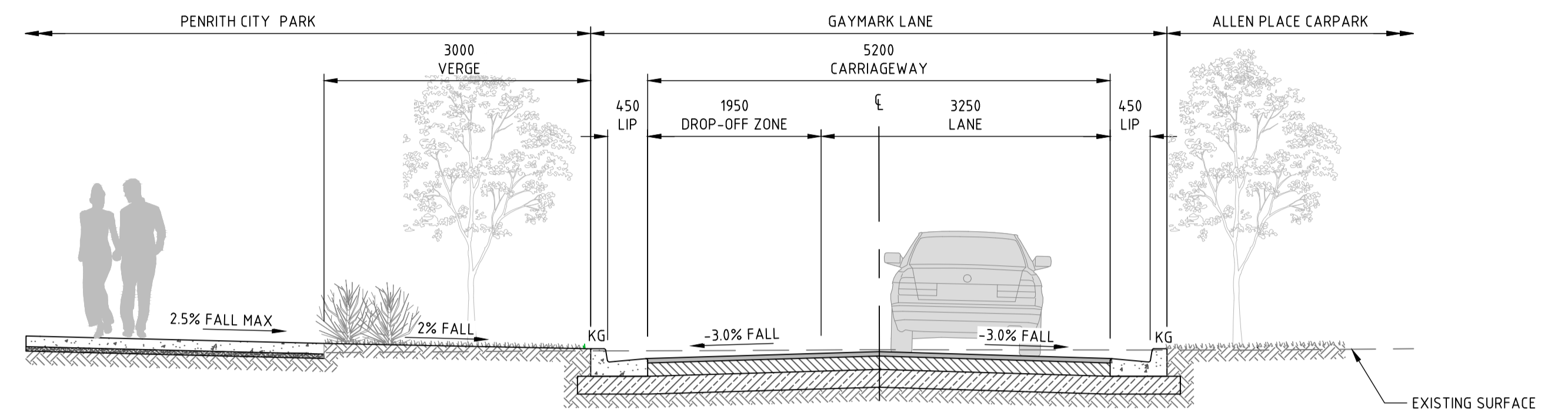
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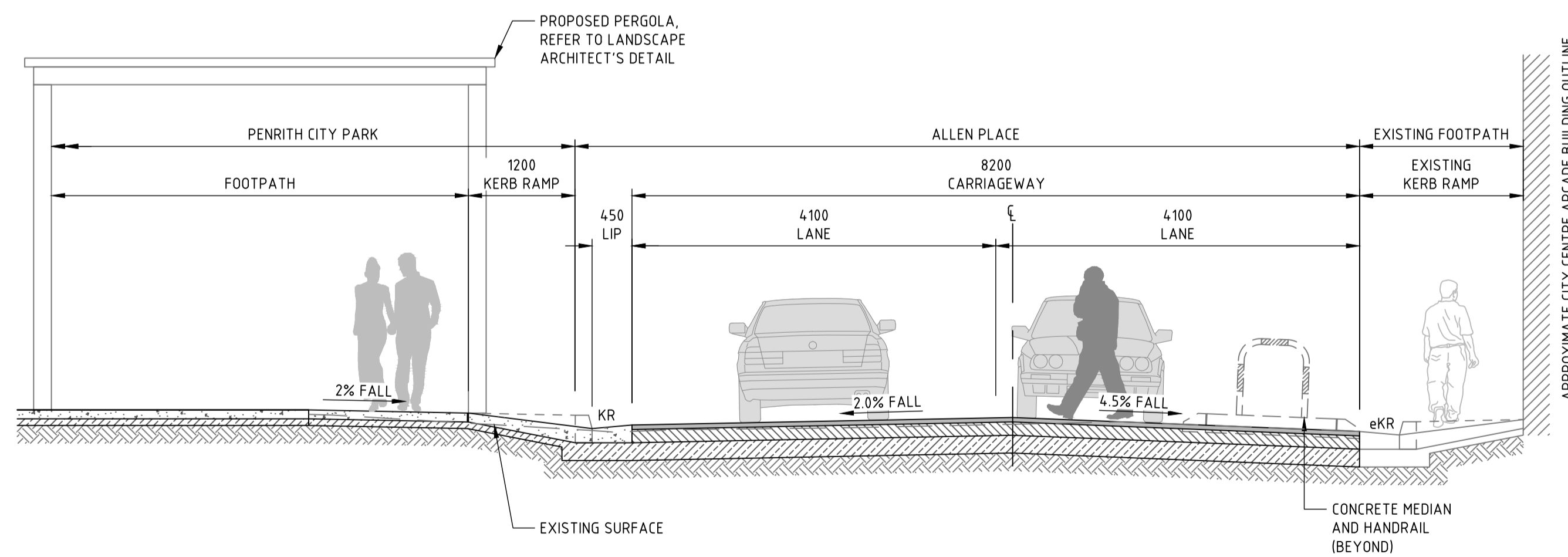
TYPICAL ROAD CROSS SECTION - MC01

SECTION A  
SCALE 1:50  
DAC04.01

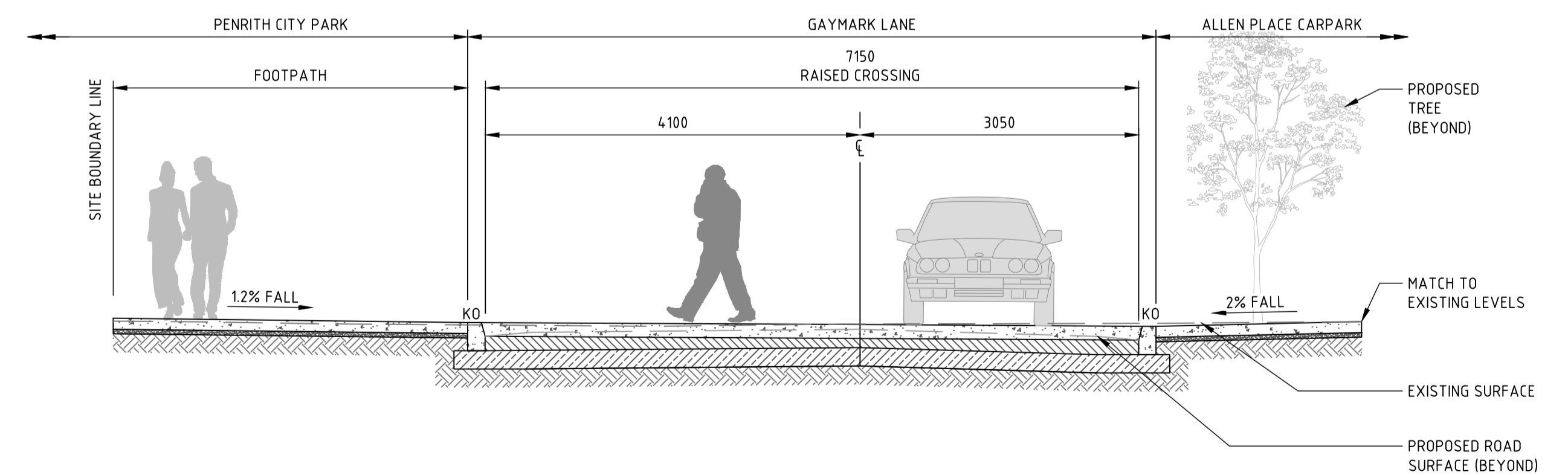


TYPICAL ROAD CROSS SECTION - MC02

SECTION B  
SCALE 1:50  
DAC04.01



SECTION C  
SCALE 1:50  
DAC04.01



SECTION D  
SCALE 1:50  
DAC04.01

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES VERIFIED: A.CARVALHAES

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	AS		SN	08.01.21
02	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21
03	RE-ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	18.01.21

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PROJECT  
**PENRITH CITY PARK  
114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE  
TYPICAL ROAD CROSS SECTIONS**

JOB NUMBER  
**192968**

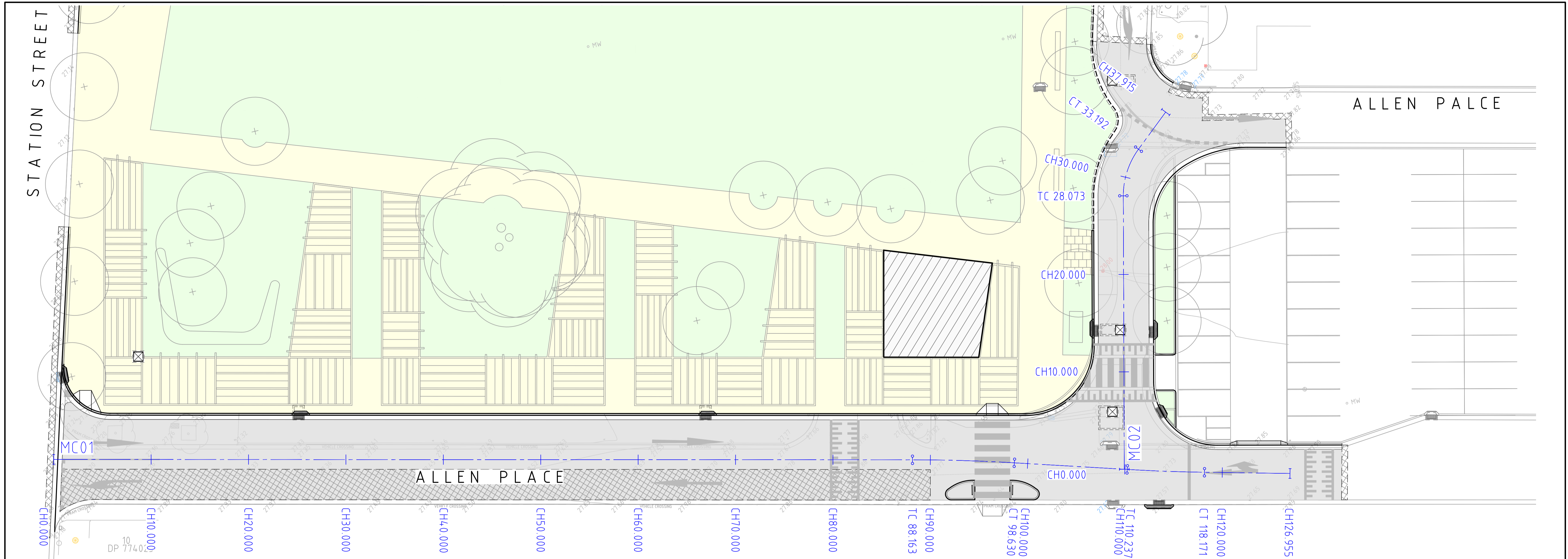
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**DAC05.00**

REVISION  
**03**

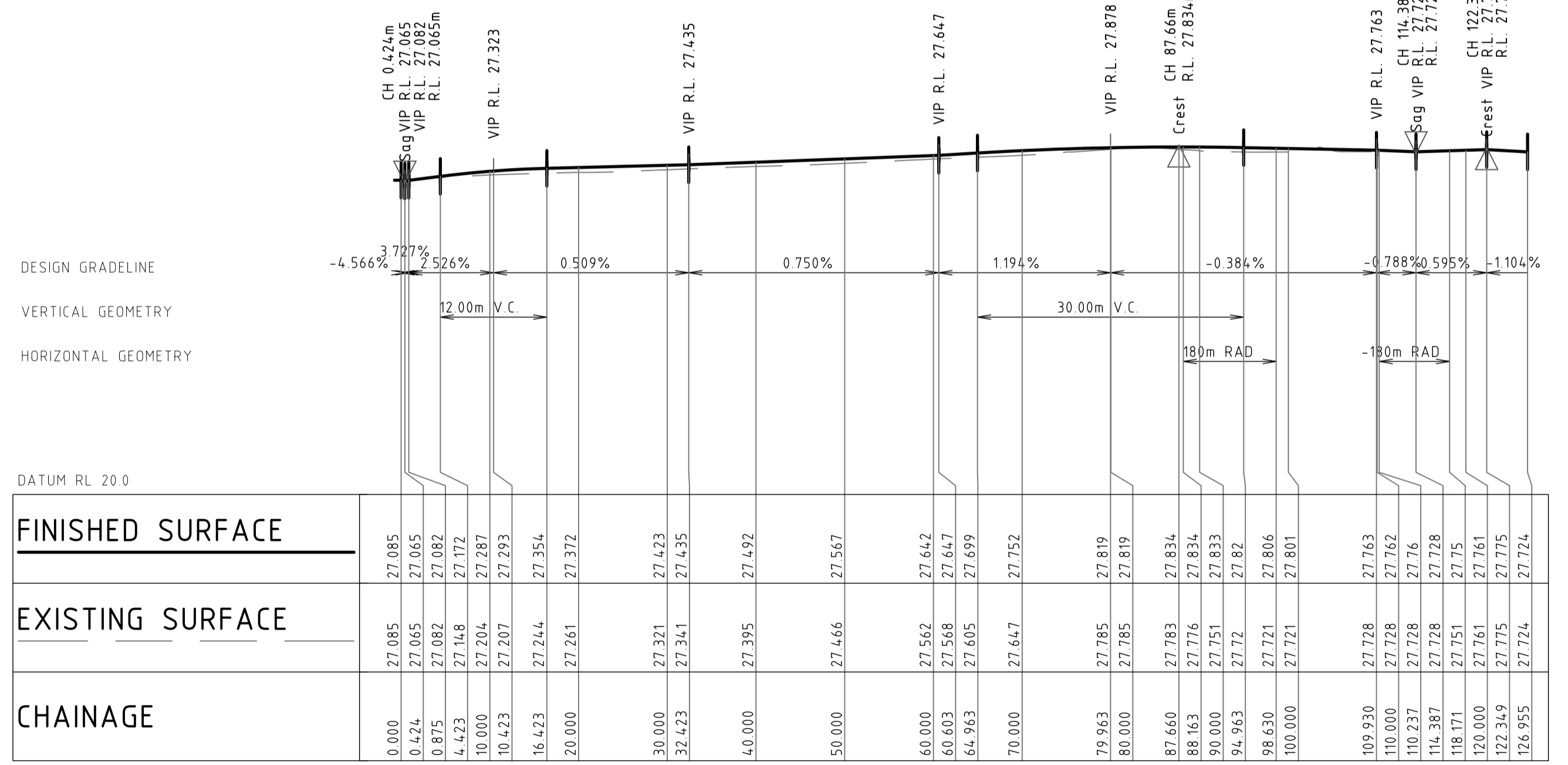
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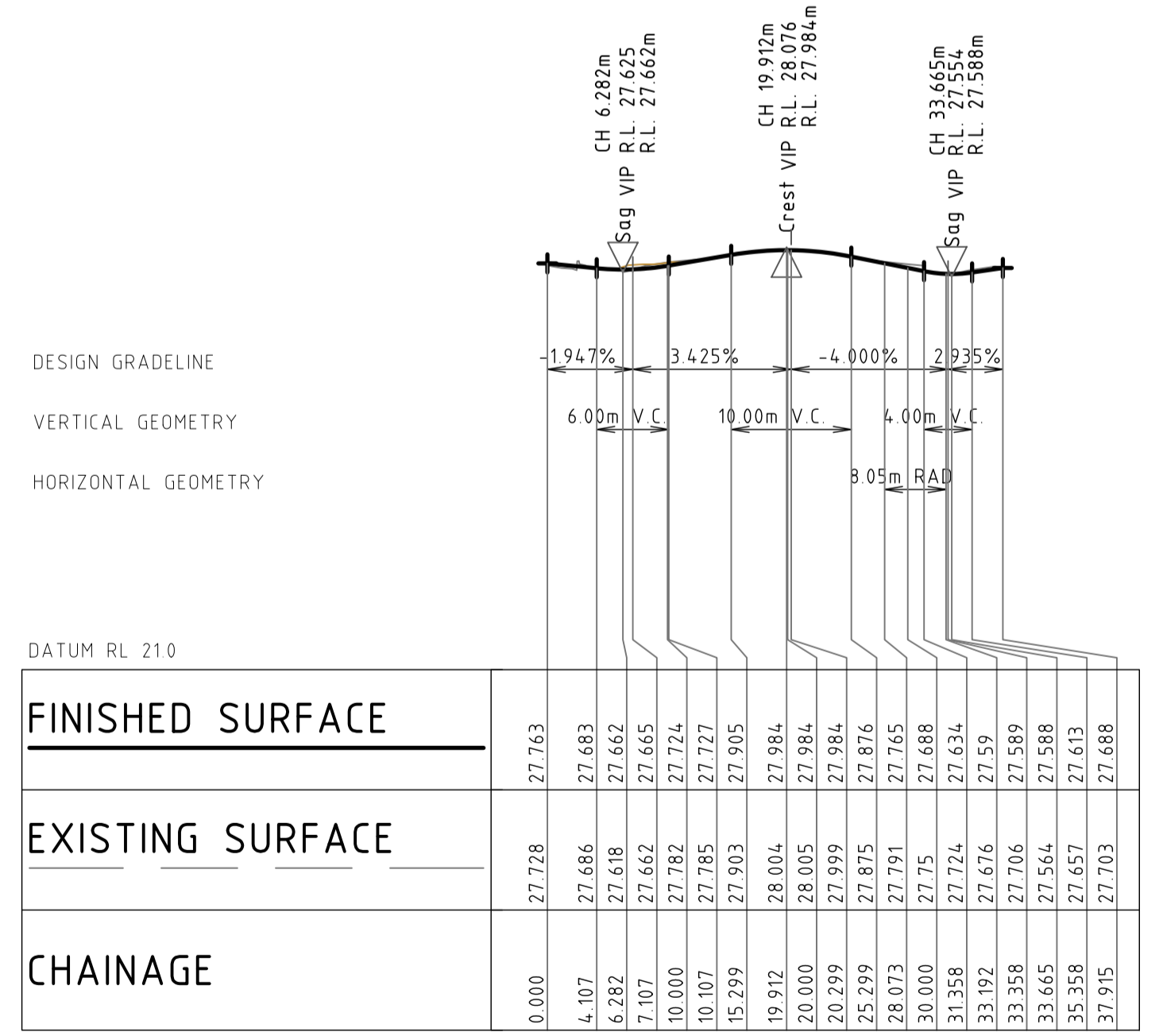




PLAN  
SCALE 1:200



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



LONGITUDINAL SECTION ALONG MC02  
HORIZONTAL SCALE 1:500@A1  
VERTICAL SCALE 1:100@A1

LEGEND	
	PROPOSED BOUNDARY LINE
	EXISTING BOUNDARY LINE
	CONTROL LINE
	CHAINAGE
	TANGENT POINT

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01	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	CP		AS	25.09.20
02	ISSUED FOR INFORMATION	AS		SN	08.01.21
03	ISSUED FOR DEVELOPMENT APPLICATION	AS		SN	13.01.21

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**PENRITH CITY PARK  
114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE  
ROAD LONGITUDINAL SECTIONS**

JOB NUMBER  
**192968**

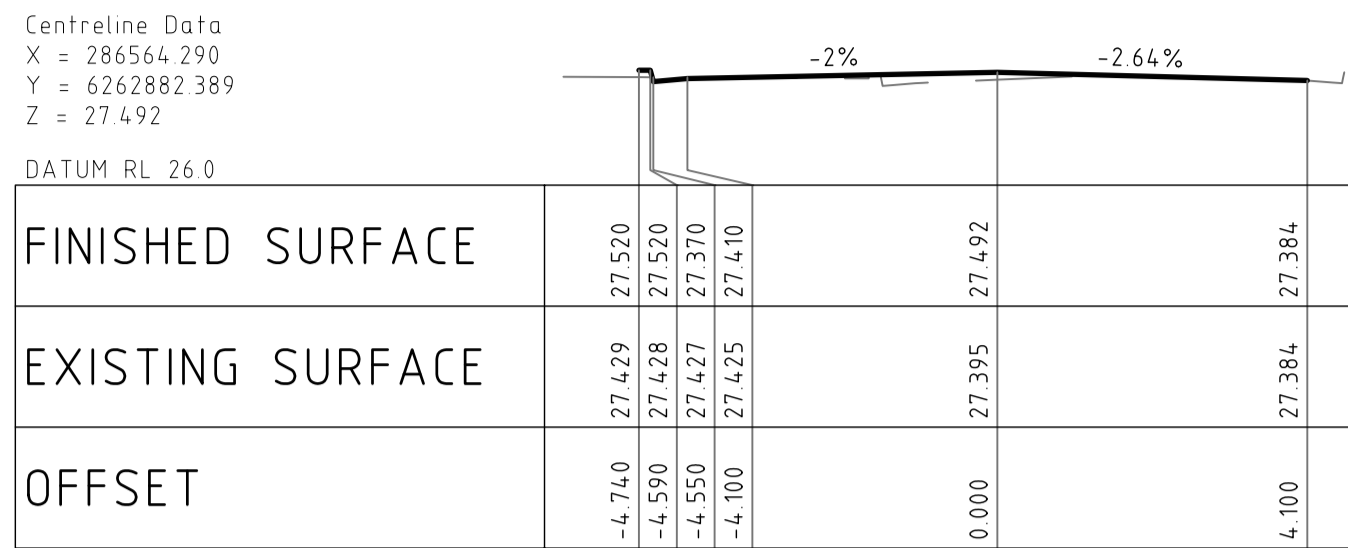
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REVISION  
**03**

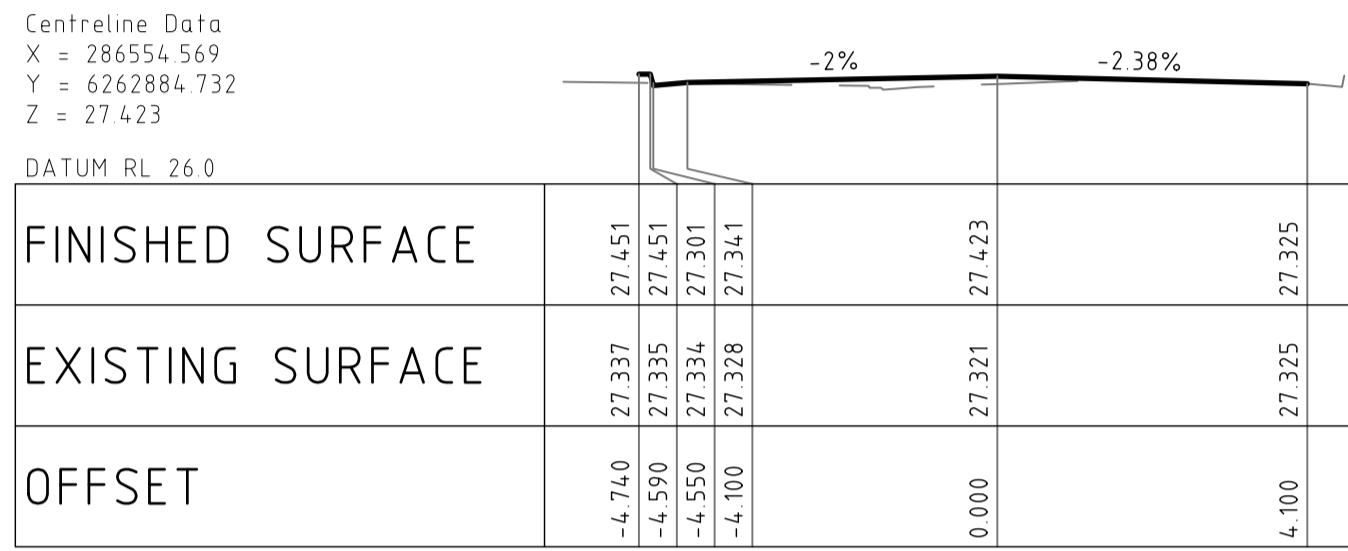
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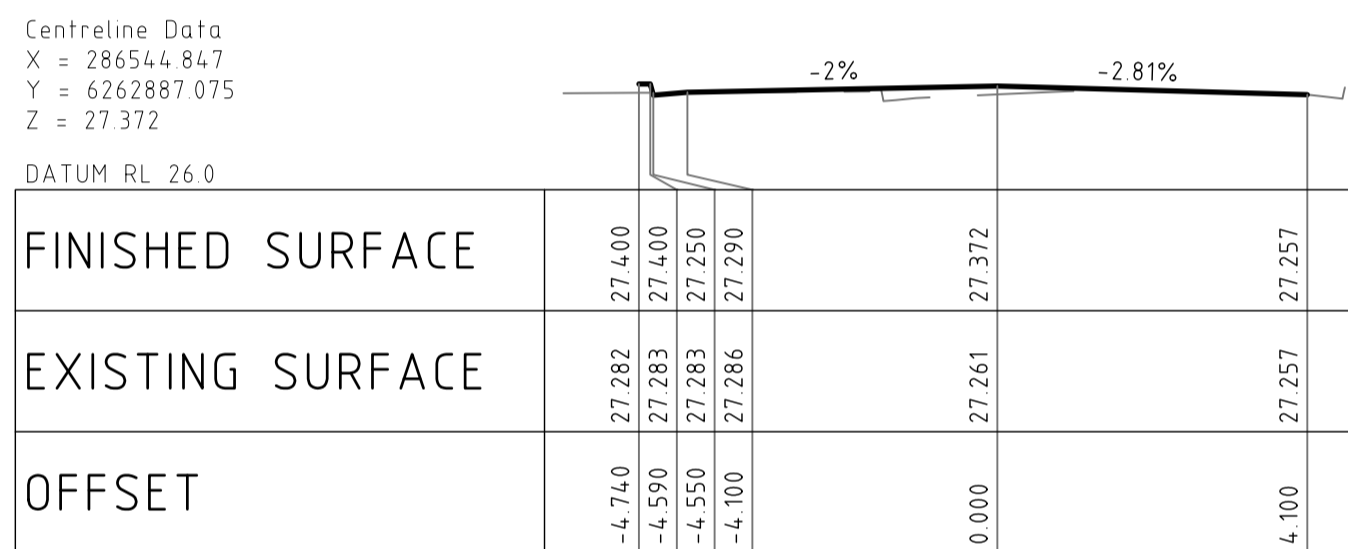
DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES VERIFIER: A.CARVALHAES JOB MANAGER: A.CARVALHAES



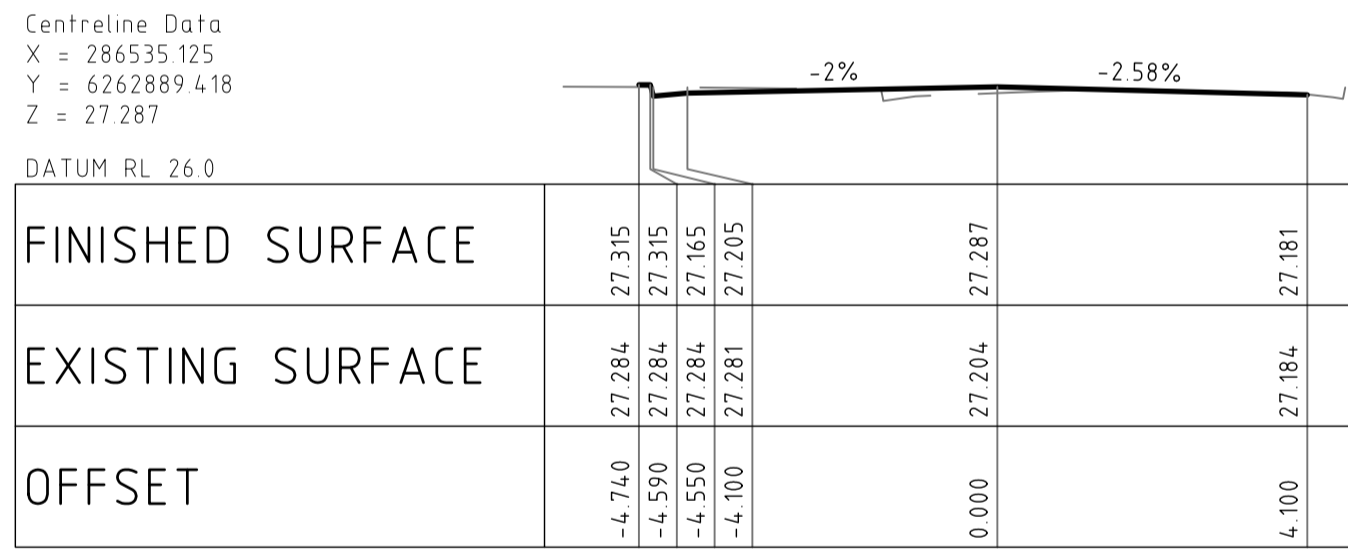
MC01 - CHAINAGE 40.000



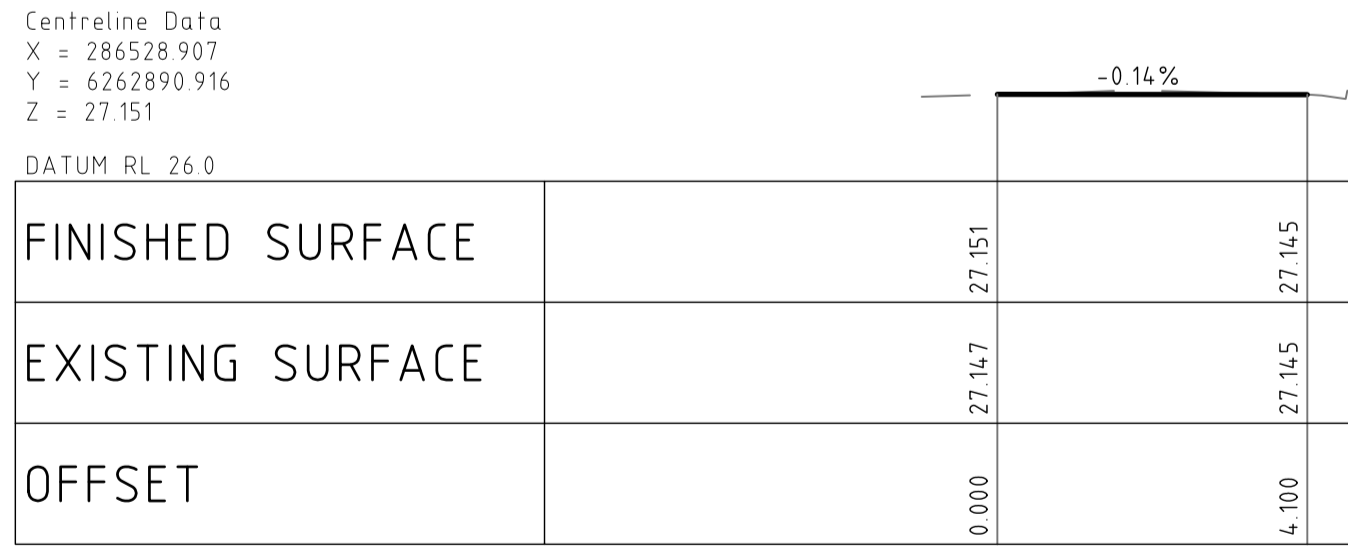
MC01 - CHAINAGE 30.000



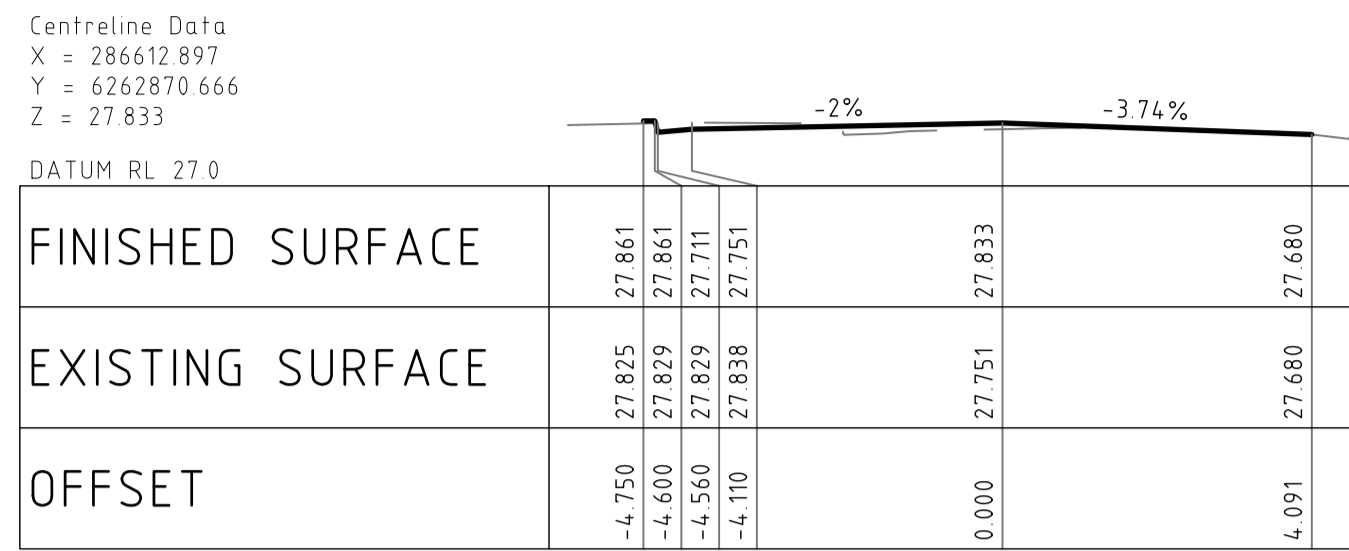
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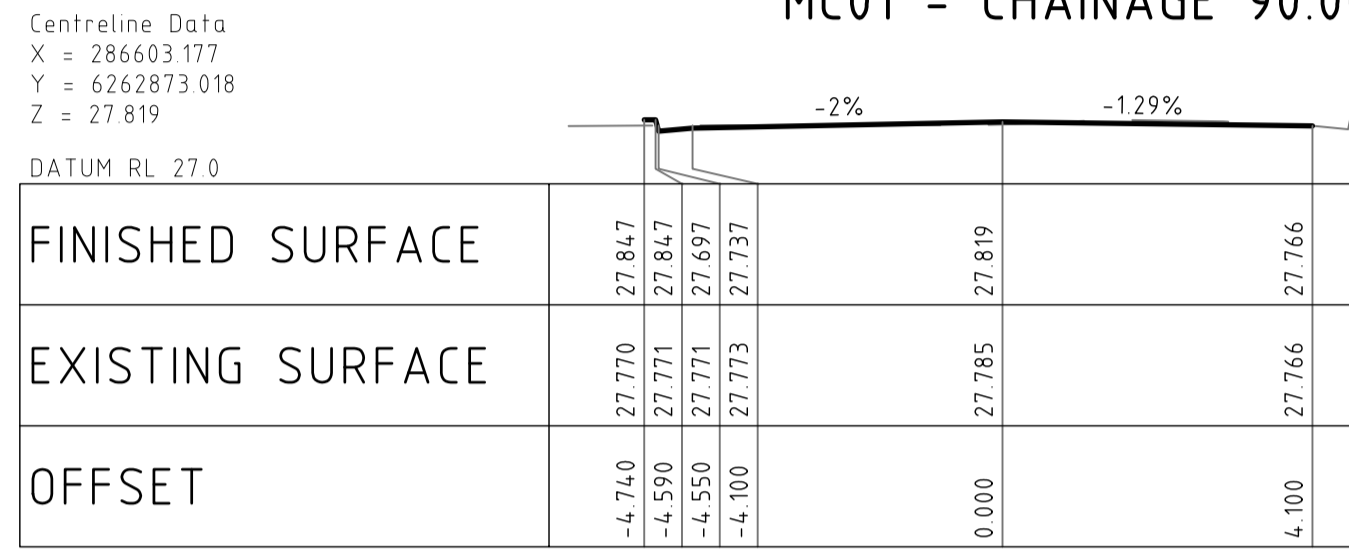
MC01 - CHAINAGE 10.000



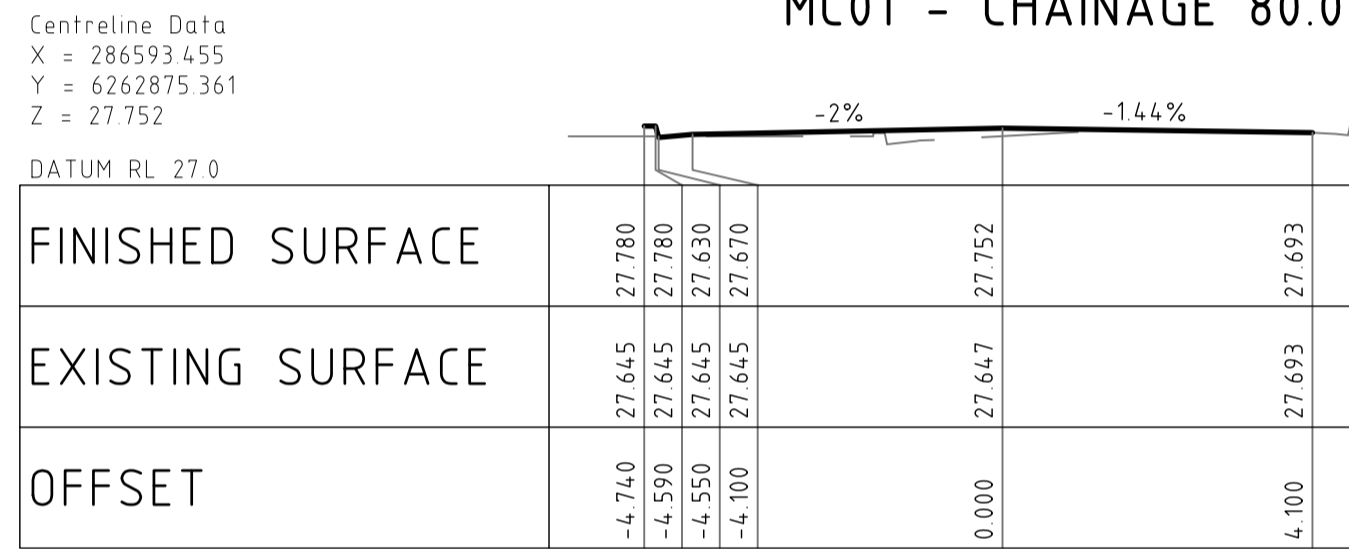
MC01 - CHAINAGE 3.603



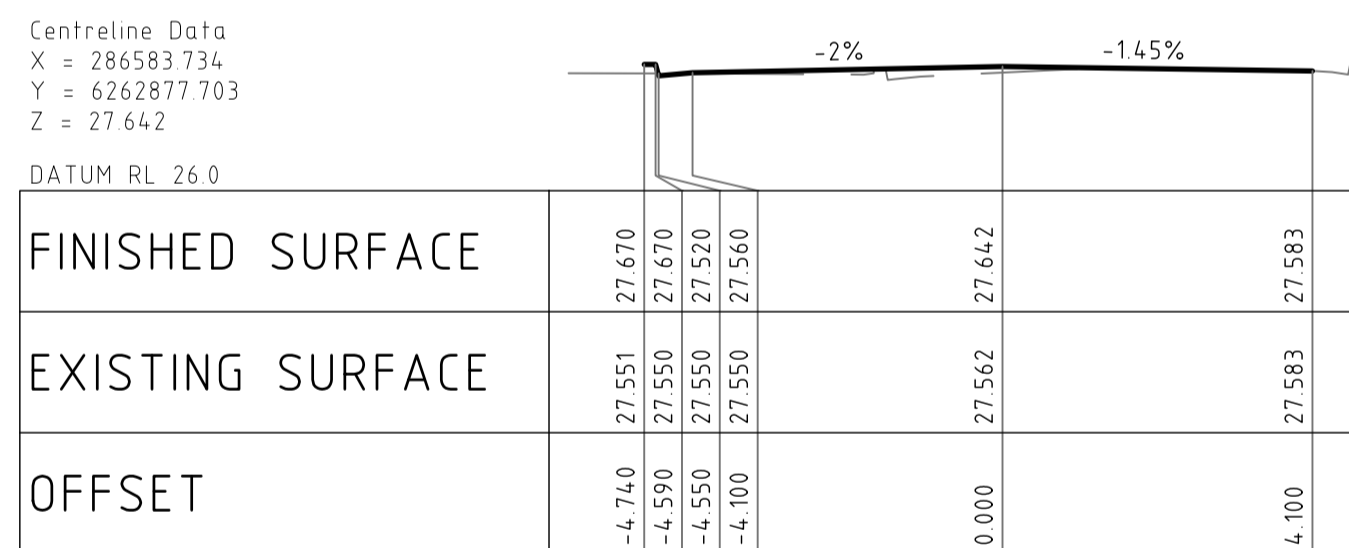
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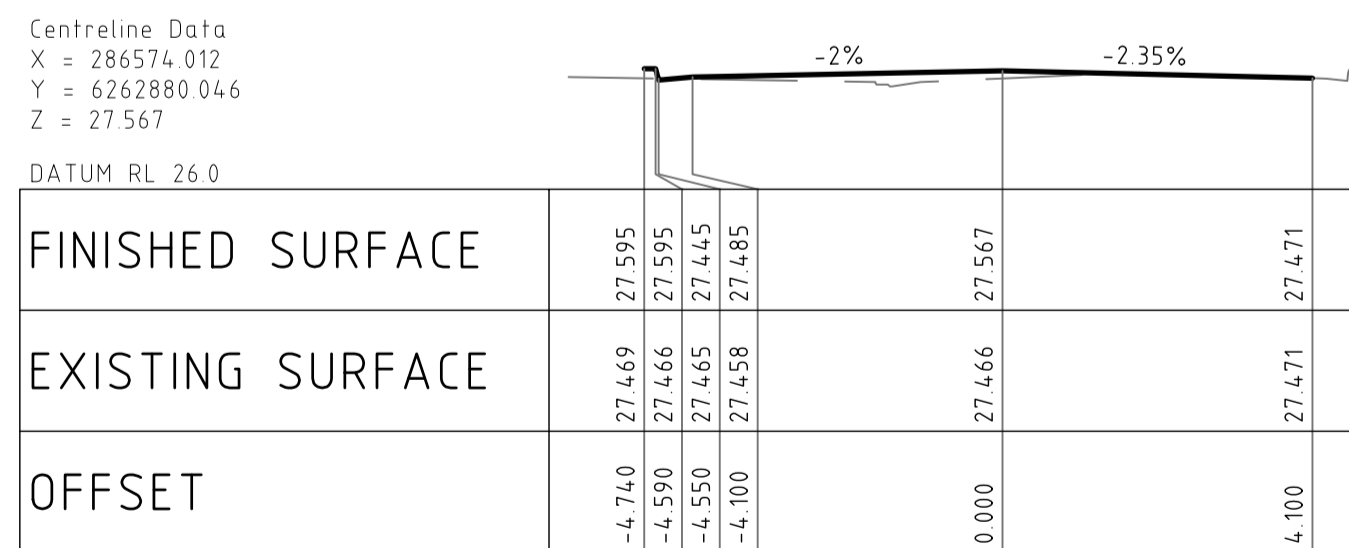
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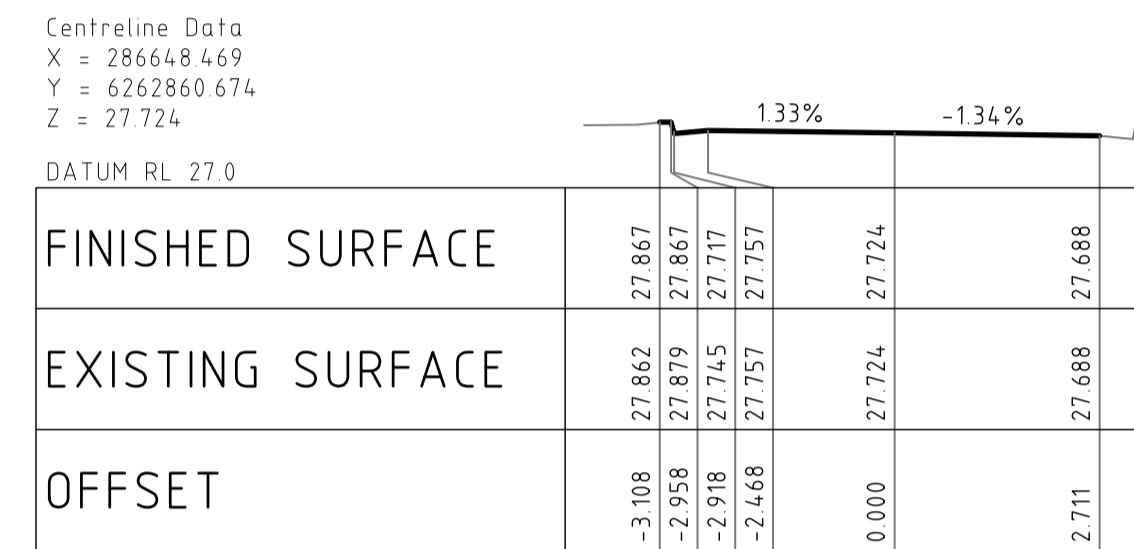
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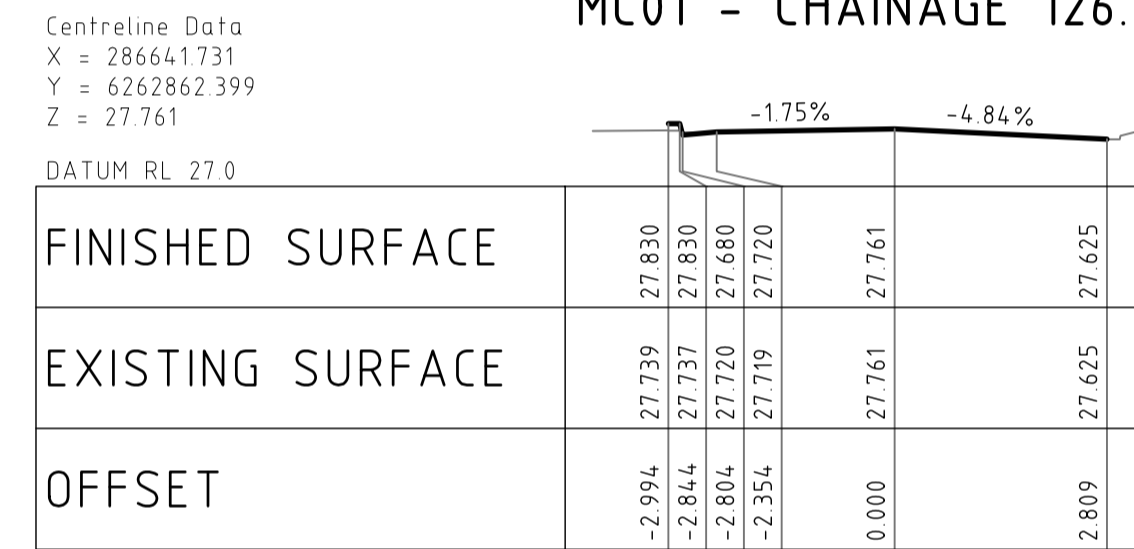
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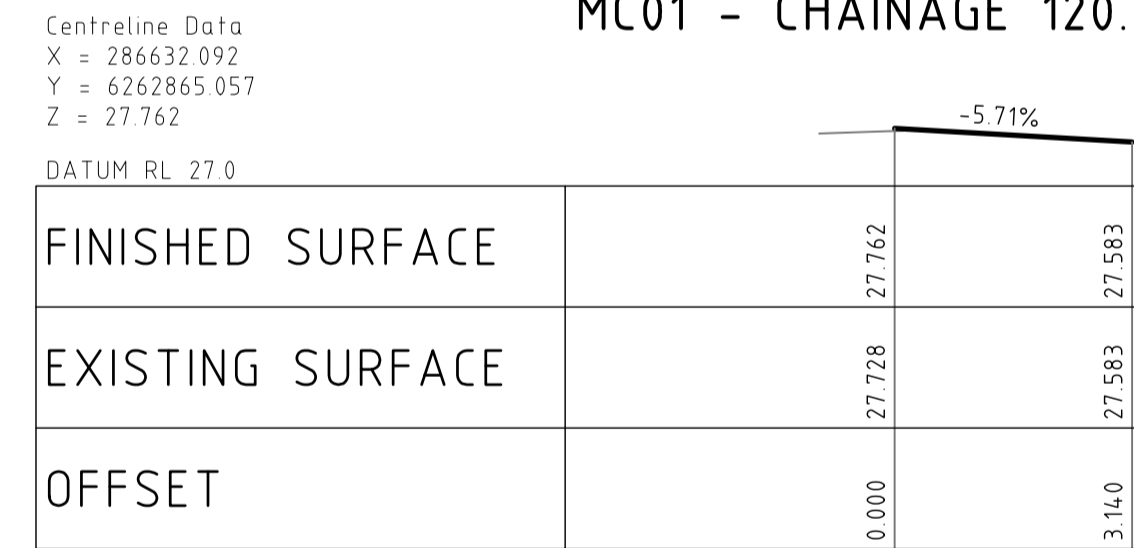
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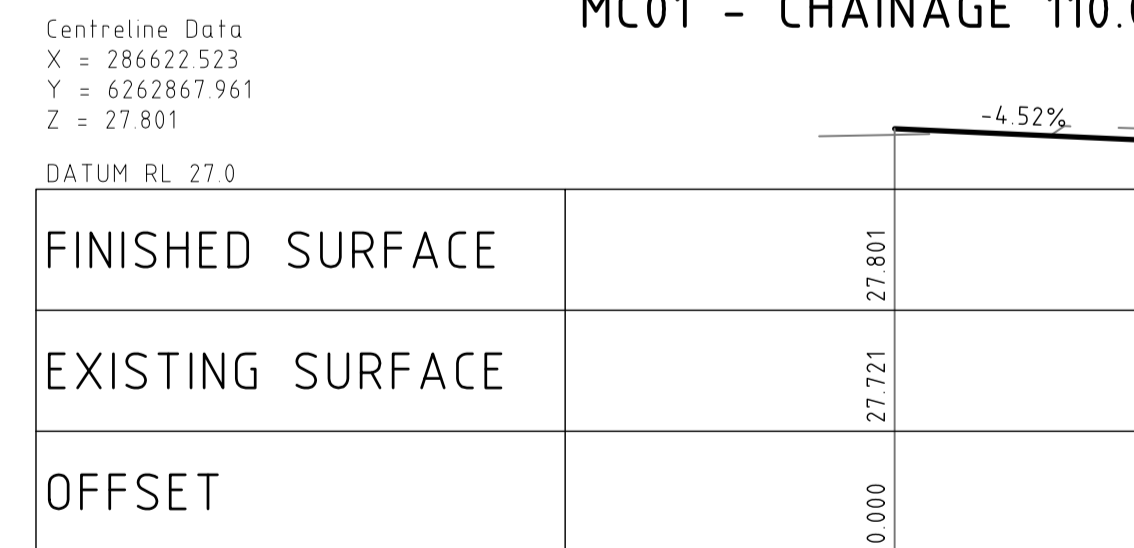
MC01 - CHAINAGE 126.955



MC01 - CHAINAGE 120.000



MC01 - CHAINAGE 110.000



MC01 - CHAINAGE 100.000

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR DRAFT DEVELOPMENT APPLICATION	CP		AC	25.09.20
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SCALE 1:100 @ A1

SCALE 1:100 @ A1

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PROJECT

**PENRITH CITY PARK  
114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE  
ROAD CROSS SECTIONS - SHEET 01**

JOB NUMBER <b>192968</b>	
DRAWING NUMBER <b>DAC05.11</b>	REVISION <b>03</b>
DRAWING SHEET SIZE = A1	

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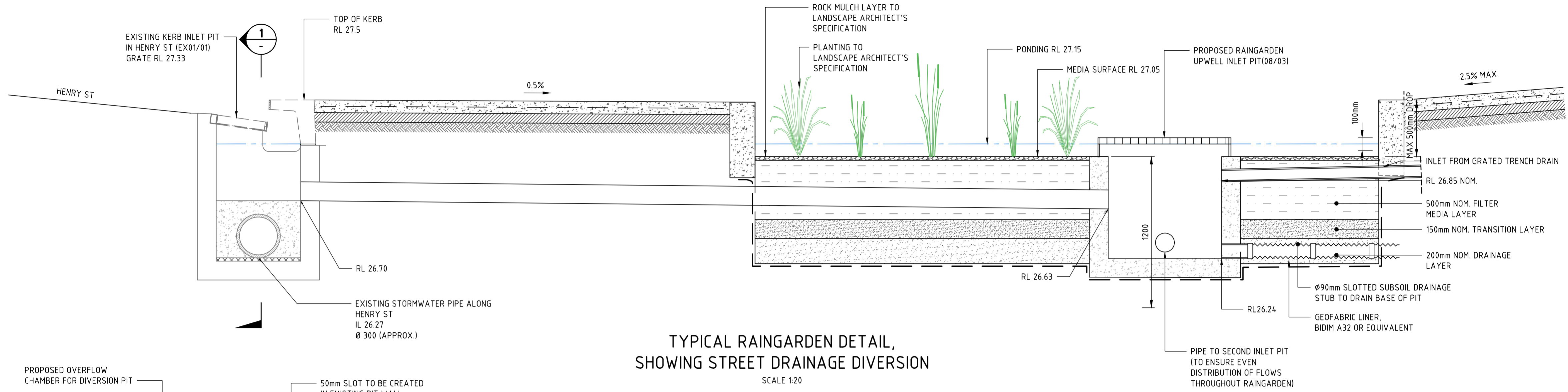
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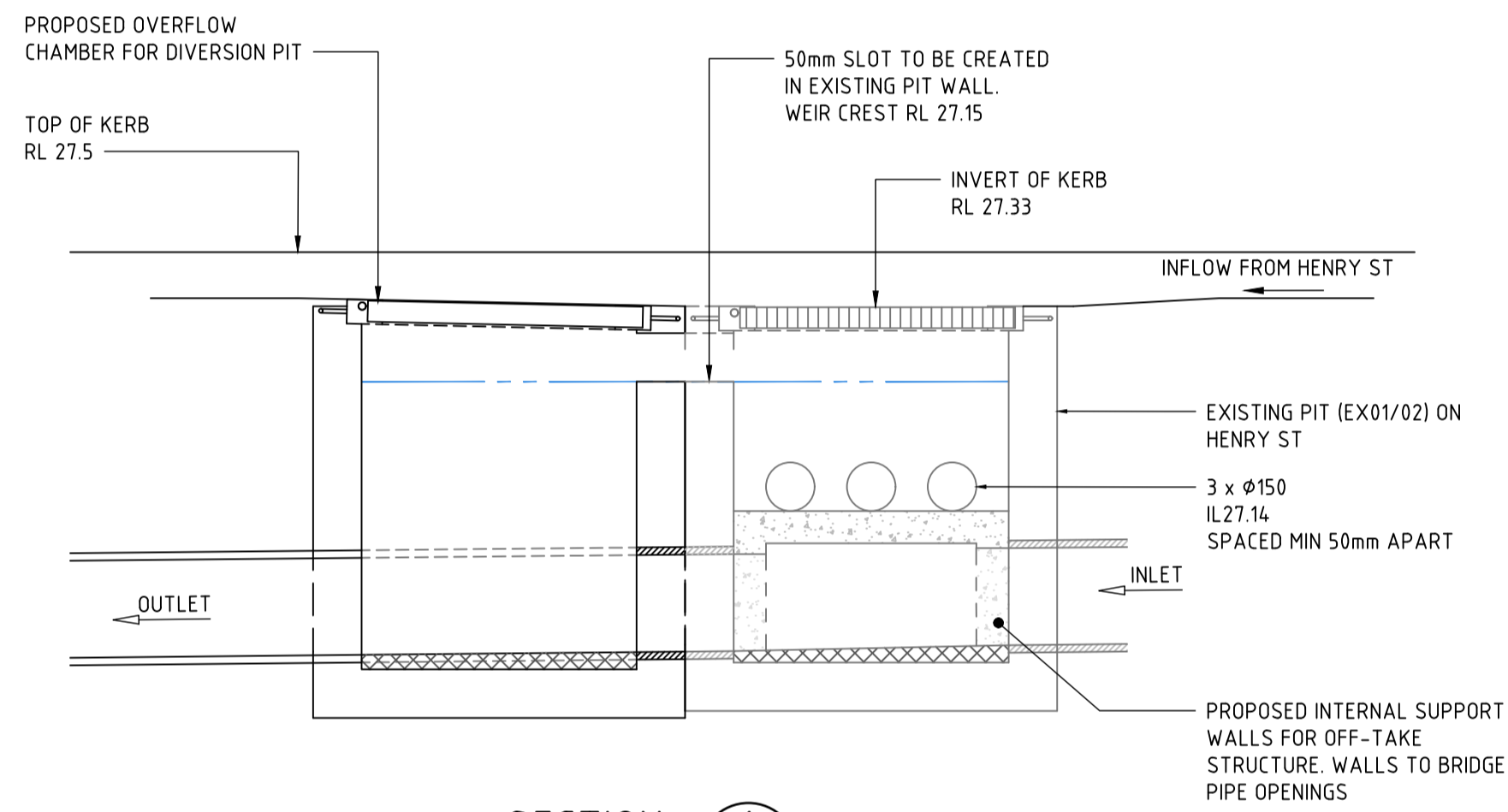




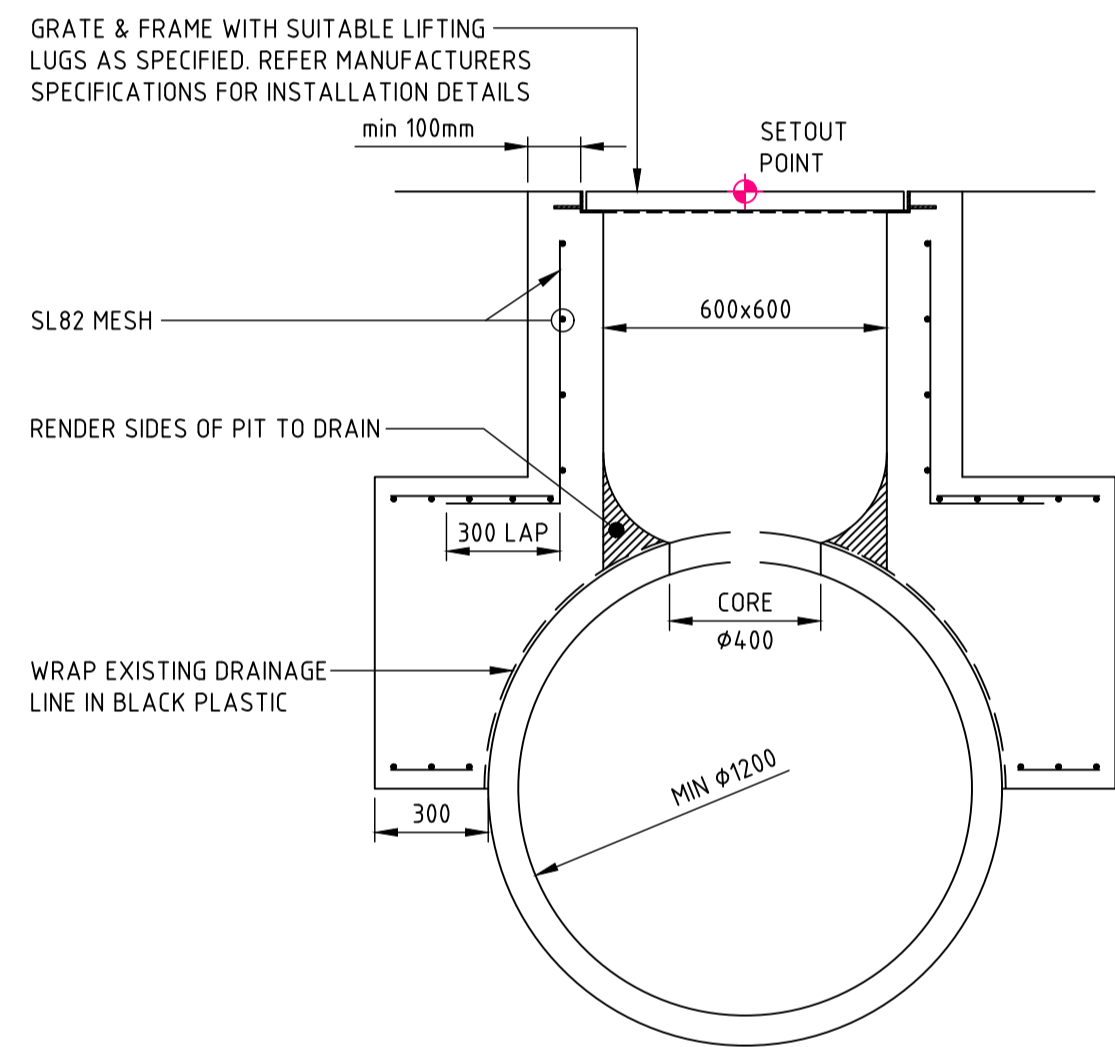




TYPICAL RAINGARDEN DETAIL,  
SHOWING STREET DRAINAGE DIVERSION  
SCALE 1:20

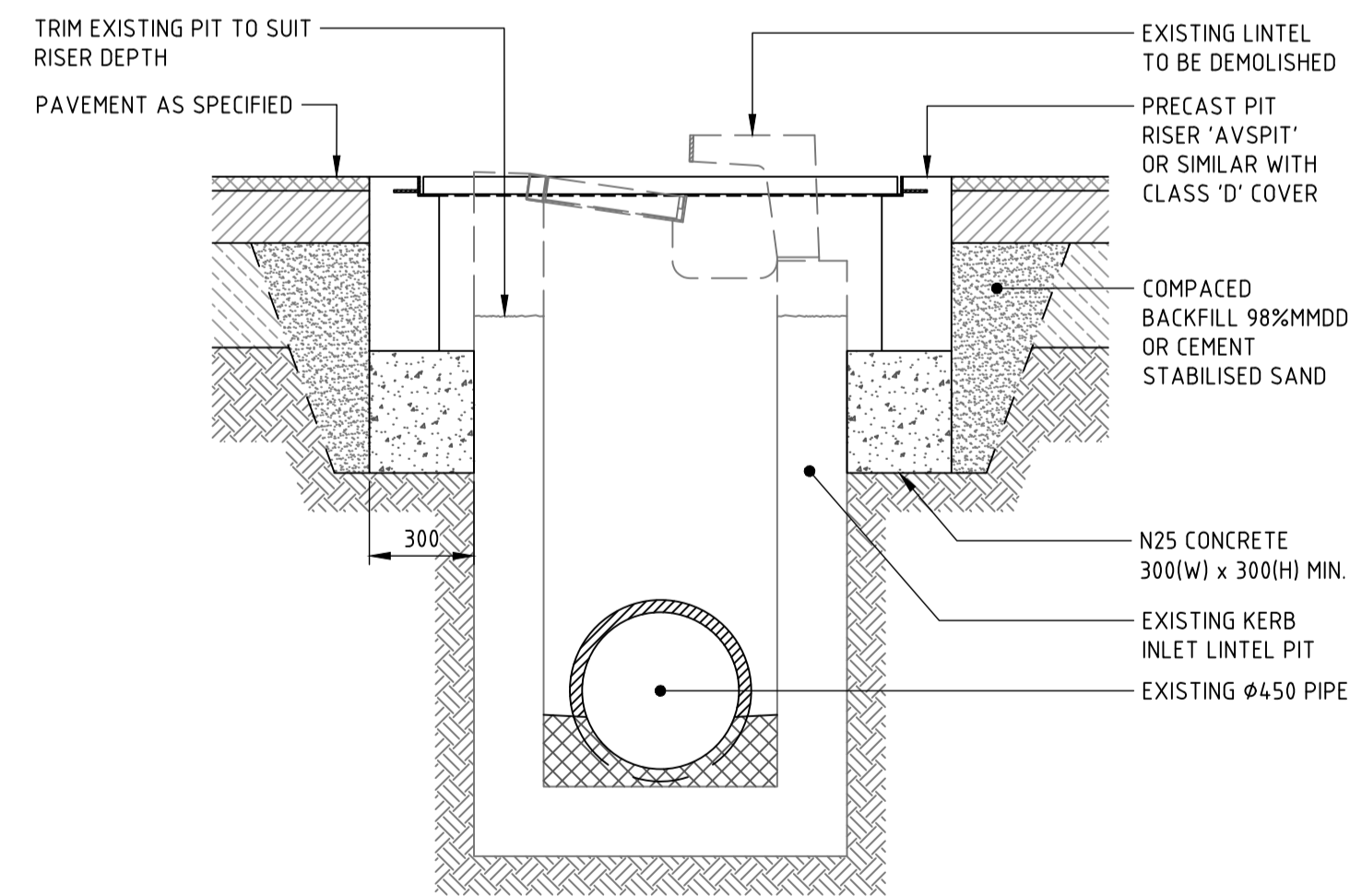


SECTION 1

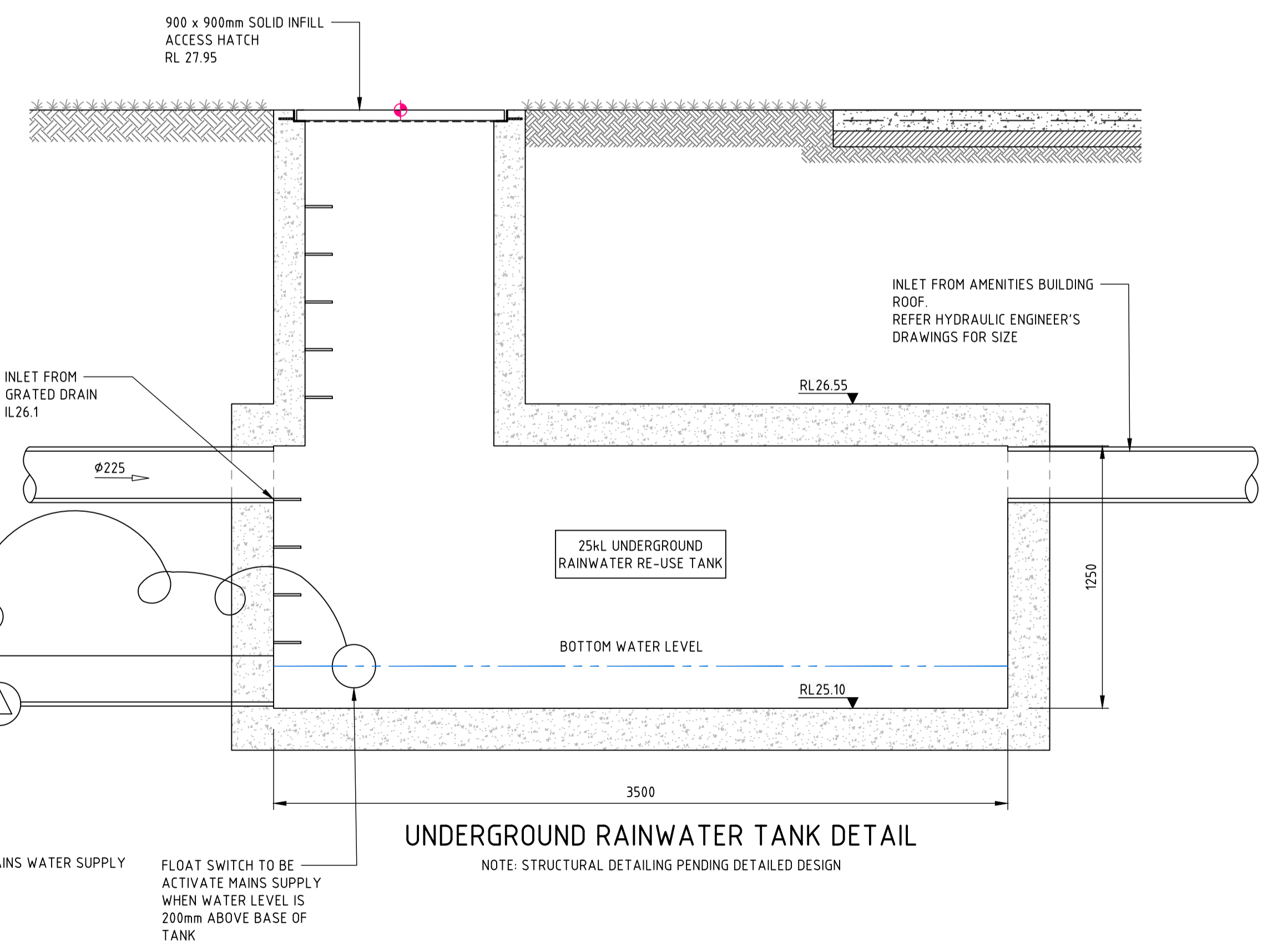


SADDLE PIT

PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE



LINTEL PIT CONVERSION TO SOLID COVER DETAIL



UNDERGROUND RAINWATER TANK DETAIL

NOTE: STRUCTURAL DETAILING PENDING DETAILED DESIGN

**NOT FOR CONSTRUCTION**

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES VERIFIED: A.CARVALHAES

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
01	ISSUED FOR INFORMATION	AS	SN	08.01.21		
02	ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	13.01.21		
03	RE-ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	18.01.21		

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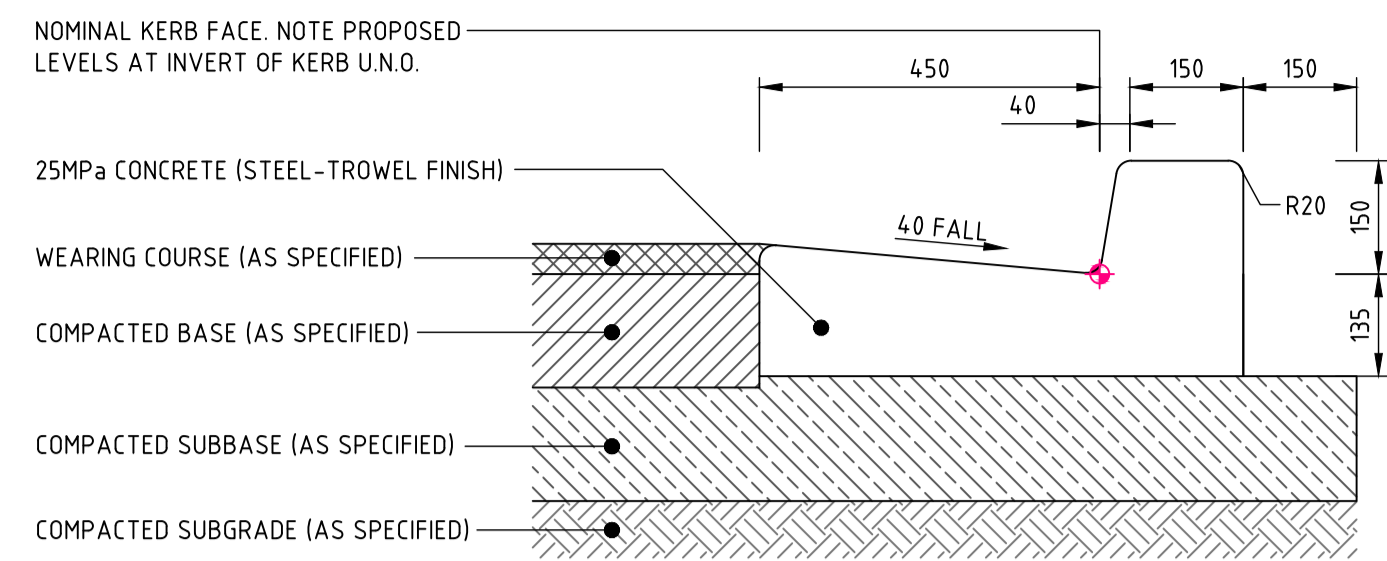
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PROJECT  
**PENRITH CITY PARK  
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42-50 STATION STREET AND  
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DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE  
STORMWATER DETAILS**

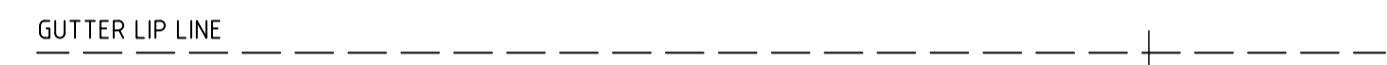
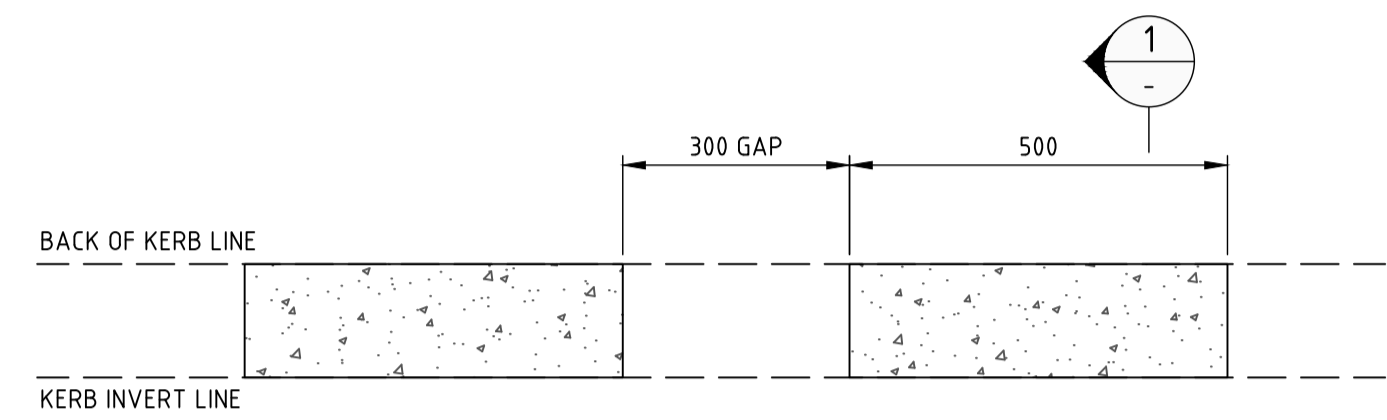
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DRAWING NUMBER <b>DAC06.01</b>	DRAWING SHEET SIZE = A1





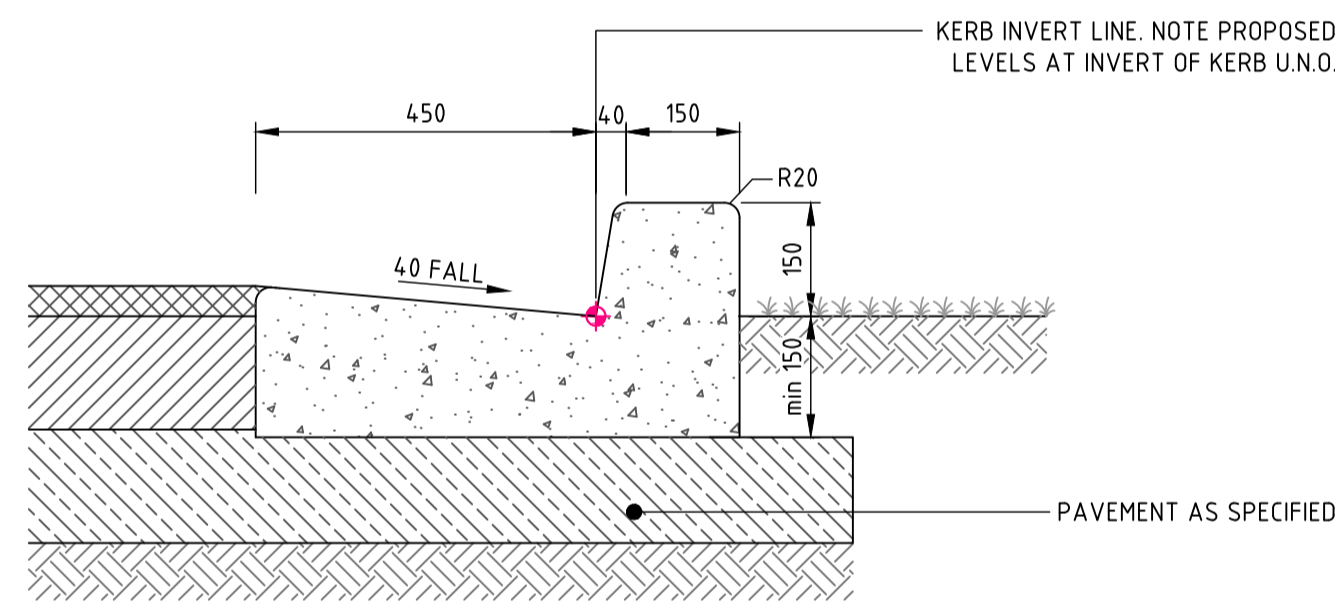
**KERB & GUTTER 'KG'**

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS  
ALL RADII TO BE 20mm U.N.O.

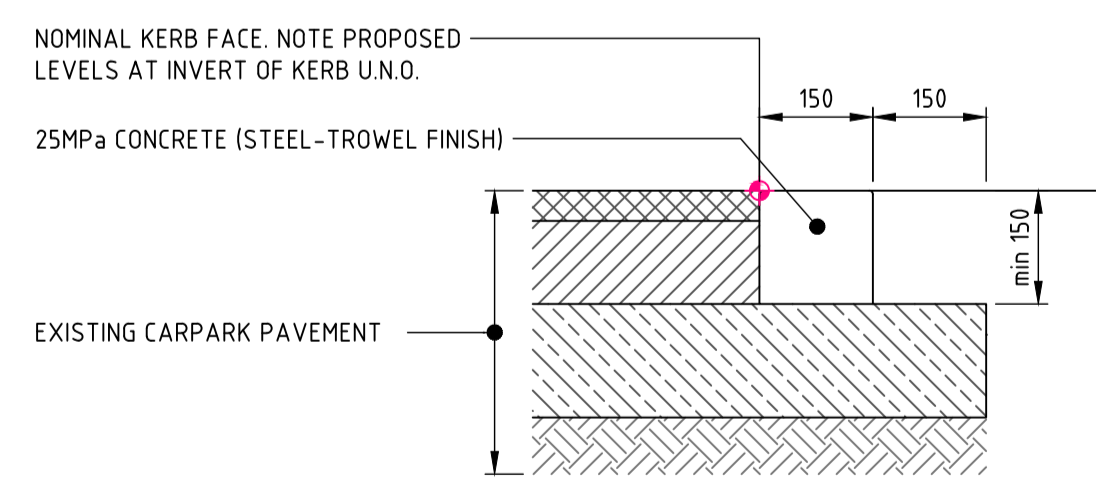


**PLAN CASTELLATED KERB 'CK'**

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS  
ALL RADII TO BE 20mm U.N.O.

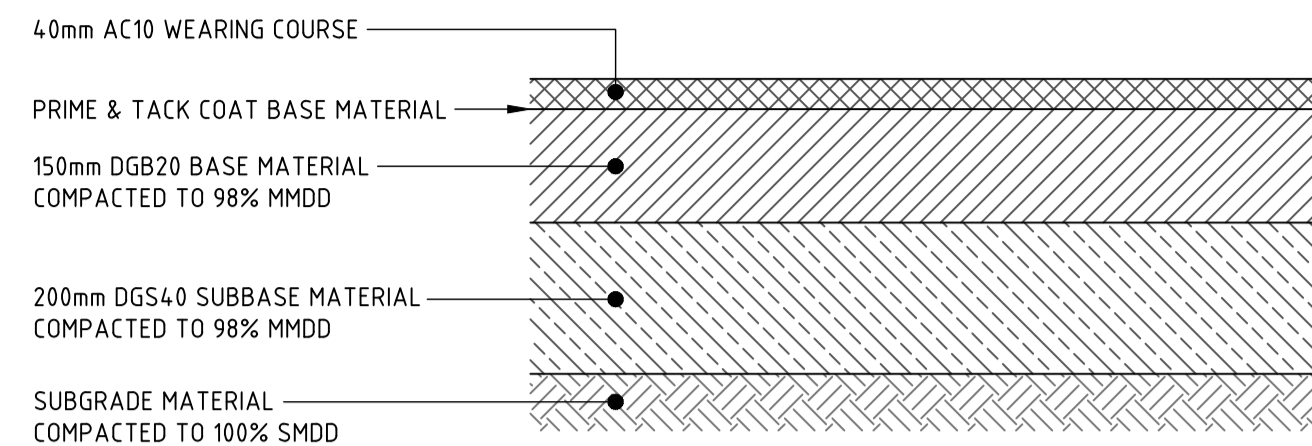


**SECTION 1**



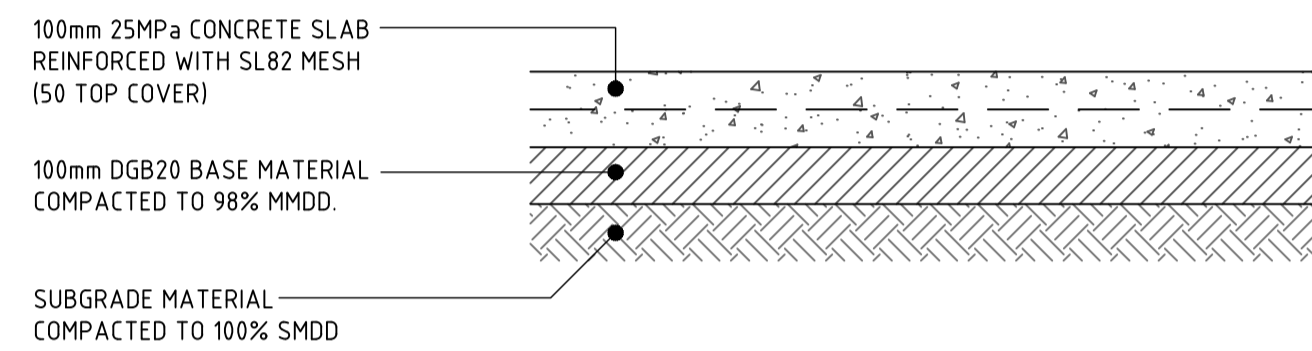
**FLUSH KERB 'FK'**

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS  
ALL RADII TO BE 5mm U.N.O.



**FLEXIBLE PAVEMENT DETAIL**

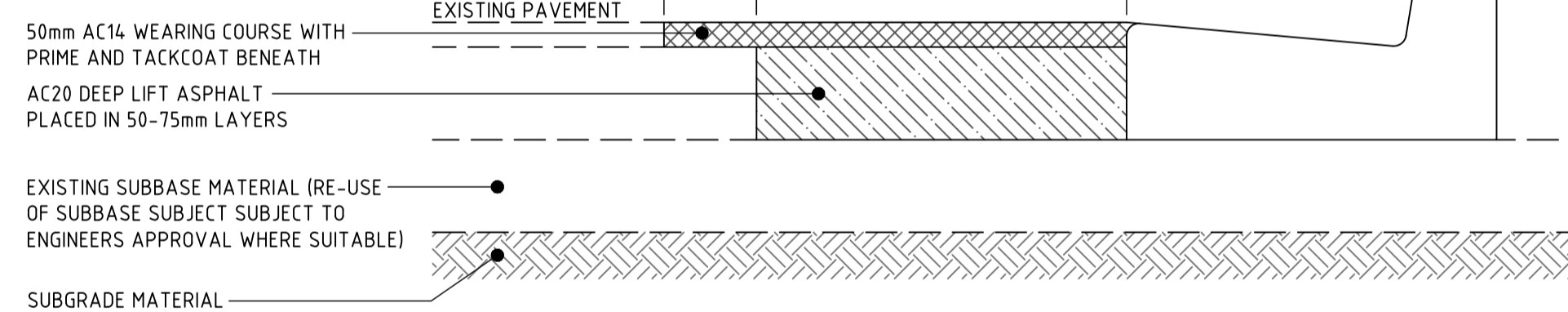
PAVEMENT BUILD UP SHOWN IS INDICATIVE AND SUBJECT TO DETAILED DESIGN



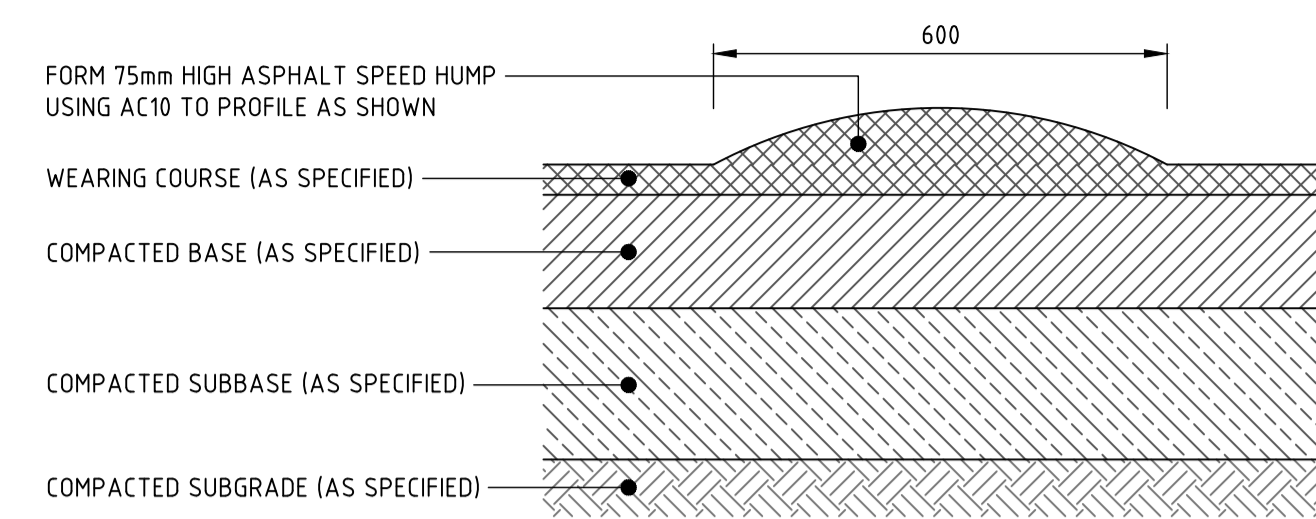
**FOOTPATH PAVEMENT DETAIL**

PAVEMENT BUILD UP SHOWN IS INDICATIVE AND SUBJECT TO DETAILED DESIGN

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

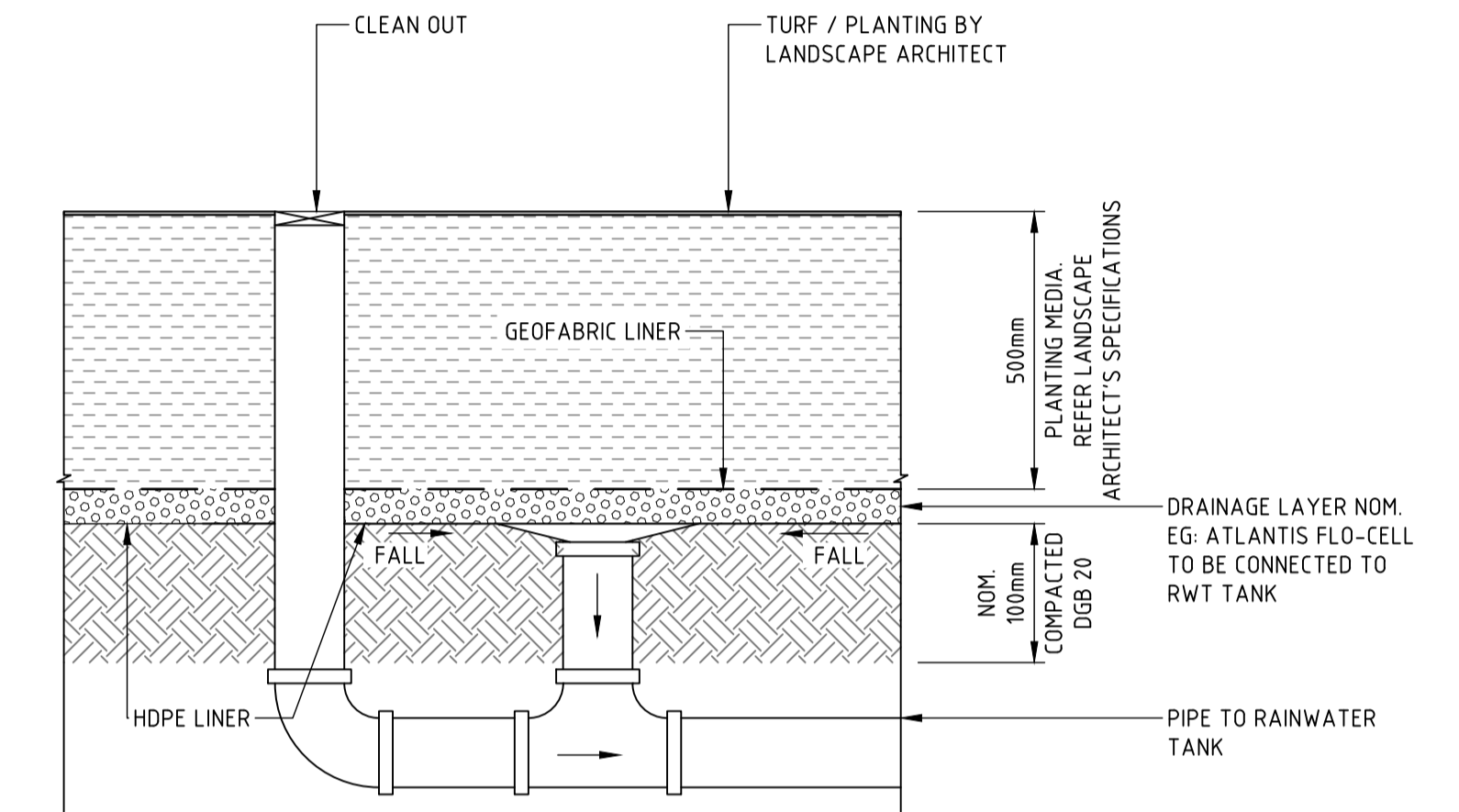


**SAW CUT AND PAVEMENT INFILL DETAIL 'INT'**



**SPEED HUMPS 'SH'**

ENSURE PLACEMENT OF SPEED HUMPS DO NOT DISRUPT SURFACE FLOWS  
PROVIDE SIGNAGE AND/OR PAINTED MARKINGS PROVIDING COLOUR  
CONTRAST TO ENSURE NO VISIBILITY ISSUES



**UNDER-TURF/MASS PLANTING DRAINAGE CELL DETAIL**

SCALE 1:10

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES JOB MANAGER: A.CARVALHAES VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
01	ISSUED FOR INFORMATION	AS	SN	08.01.21	
02	ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	13.01.21	
03	RE-ISSUED FOR DEVELOPMENT APPLICATION	AS	SN	18.01.21	

CLIENT  
**PENRITH CITY COUNCIL**

ARCHITECT  
**JMD design**

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PROJECT  
**PENRITH CITY PARK  
114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE  
**CIVIL ENGINEERING PACKAGE**

DETAILS - SHEET 01

JOB NUMBER  
**192968**

DRAWING NUMBER  
**DAC09.01**

REVISION  
**03**

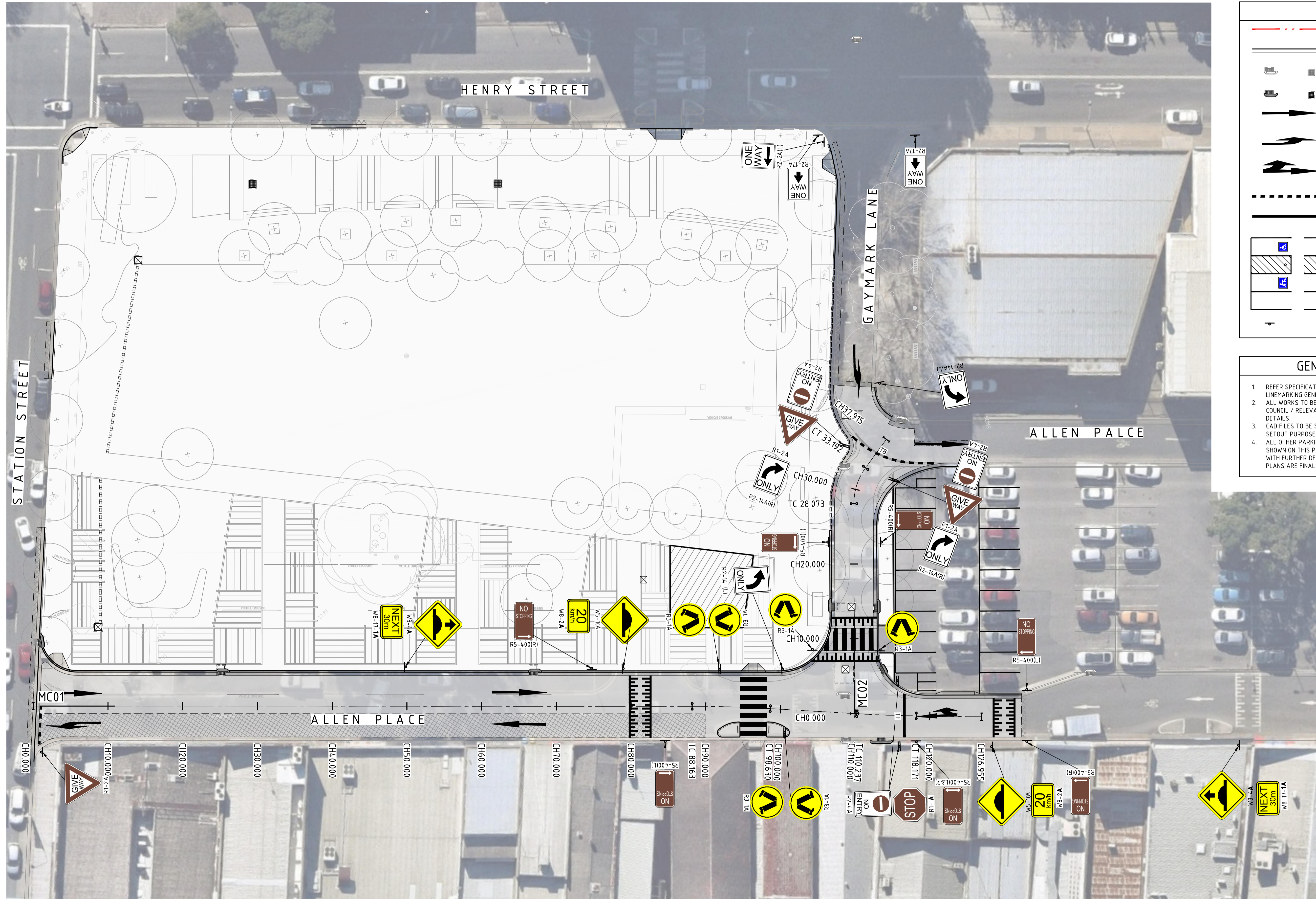
DRAWING SHEET SIZE = A1

**NOT FOR CONSTRUCTION**









### LEGEND

- PROPOSED BOUNDARY LINE
- PROPOSED KERB
- Existing Drainage Structure
- New Drainage Structure
- RA1 - PAVEMENT MARKING
- RA2(L/R) - PAVEMENT MARKING
- (L/R) - PAVEMENT ARROW
- TB - GIVE WAY LINE
- TF - STOP LINE
- PARKING BAYS - PAVEMENT MARKING
- STREET SIGNS

- ### GENERAL NOTES:
- REFER SPECIFICATIONS NOTES FOR SIGNAGE AND LINEMARKING GENERAL REQUIREMENTS.
  - ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
  - CAD FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
  - ALL OTHER PARKING RESTRICTIONS (OTHER THAN THOSE SHOWN ON THIS PLAN) ARE TO REMAIN AS PER EXISTING WITH FURTHER DETAILS TO BE SHOWN ONCE DETAILED PLANS ARE FINALISED.

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES VERIFIER: A.CARVALHAES

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ALLEN PLACE CARPARK

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE**

**SIGNAGE AND LINEMARKING PLAN**

JOB NUMBER

**192968**

DRAWING NUMBER

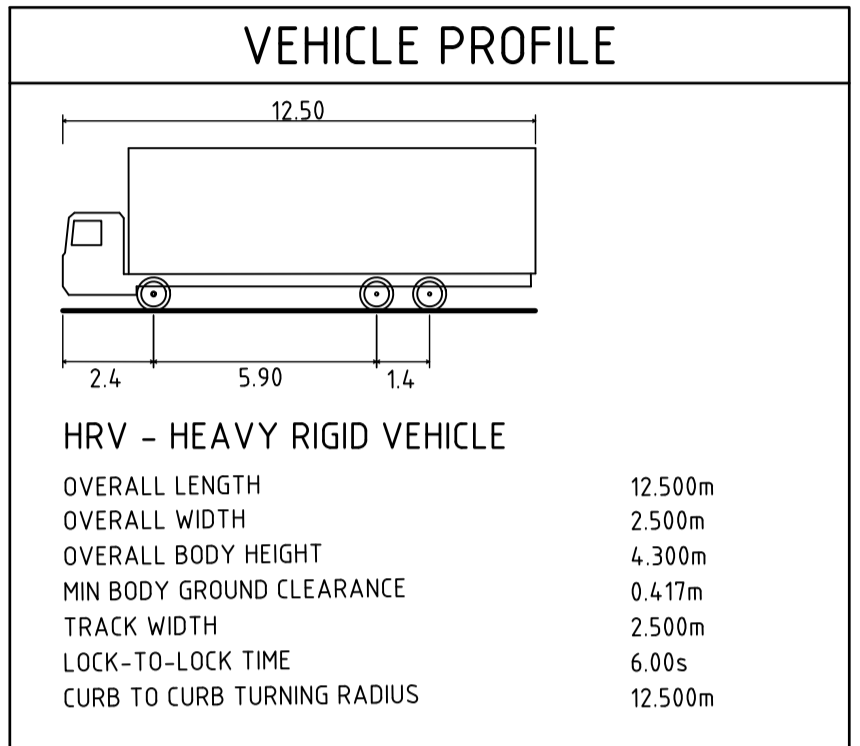
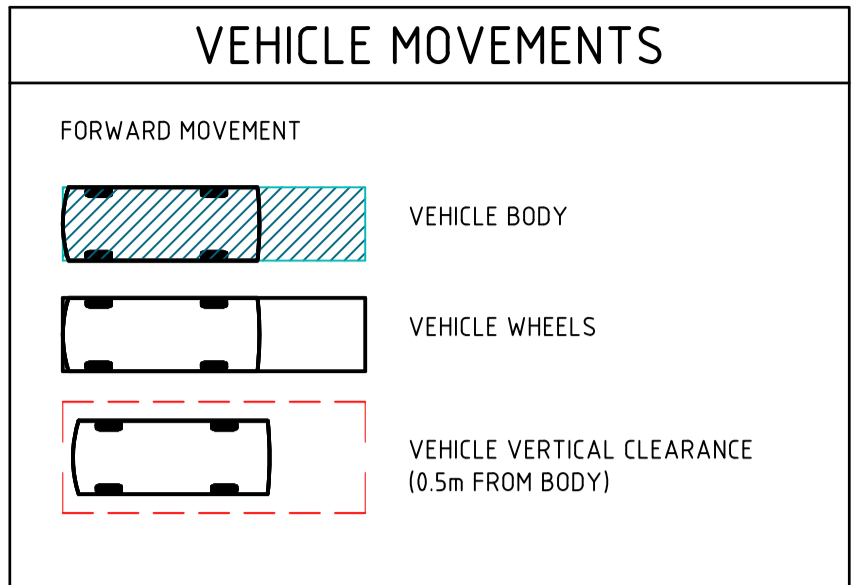
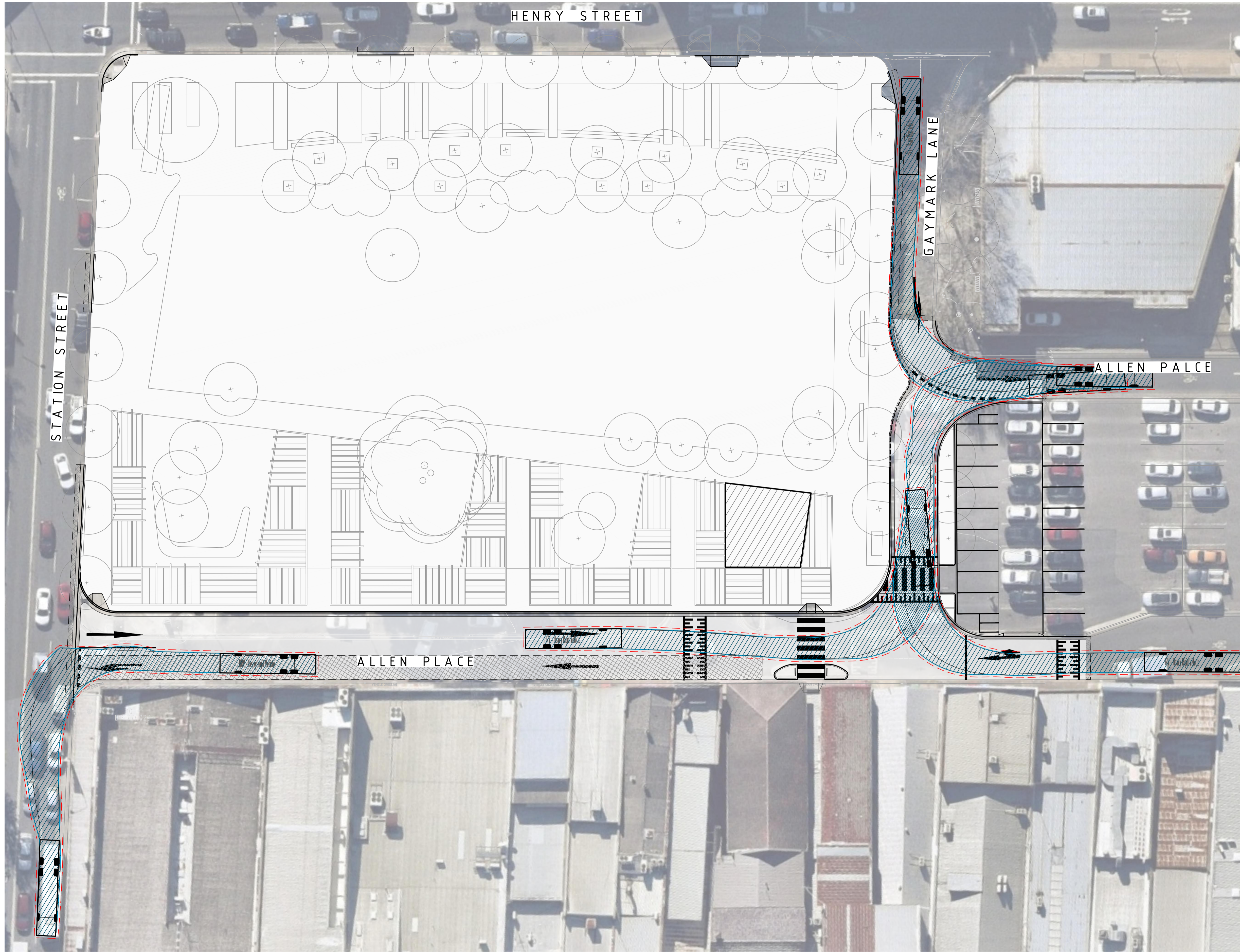
**DAC10.01**

REVISION

**03**

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114-146 HENRY STREET,  
42-50 STATION STREET AND  
ALLEN PLACE CARPARK

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE**

**TURNING PATH PLAN**

JOB NUMBER

**192968**

DRAWING NUMBER	REVISION
<b>DAC11.01</b>	<b>02</b>

DRAWING SHEET SIZE = A1





LEGEND	
	EXISTING BOUNDARY LINE
	PROPOSED CONTOURS
	LANDSCAPE BYPASS TOTAL AREA = 223m <sup>2</sup>
	LANDSCAPE TO TREATMENT TOTAL AREA = 2,759m <sup>2</sup>
	LANDSCAPE TO RAINWATER TANK VIA DRAINAGE CELLS TOTAL AREA = 574m <sup>2</sup>
	ROAD TO TREATMENT TOTAL AREA = 1,619m <sup>2</sup>
	FOOTPATH BYPASS TOTAL AREA = 535m <sup>2</sup>
	FOOTPATH TO RAINWATER TANK TOTAL AREA = 670m <sup>2</sup>
	FOOTPATH TO TREATMENT TOTAL AREA = 1,665m <sup>2</sup>
	FOOTPATH TO RAINWATER TANK VIA DRAINAGE CELLS TOTAL AREA = 365m <sup>2</sup>
	ROOF TO RAINWATER TANK TOTAL AREA = 106m <sup>2</sup>
	STORMWATER PIT TAG CATCHMENT AREA (ha)
	CATCHMENT BOUNDARY
	OVERLAND FLOW
	EXISTING DRAINAGE STRUCTURE
	NEW DRAINAGE STRUCTURE

DRAWN: A.SUTHIPHOSUWAN DESIGNED: A.CARVALHAES JOB MANAGER: A.CARVALHAES VERIFIER:

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42-50 STATION STREET AND  
ALLEN PLACE CARPARK**

DRAWING TITLE

**CIVIL ENGINEERING PACKAGE  
CATCHMENT PLAN**

JOB NUMBER	<b>192968</b>
DRAWING NUMBER	<b>DAC12.01</b>
REVISION	<b>02</b>
DRAWING SHEET SIZE = A1	