

CLIENT: MINARAH COLLEGE



LOCALITY PLAN  
NOT TO SCALE


# CAMDEN COUNCIL

268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW  
LOT 11 DP833983 & LOT 12 DP833784

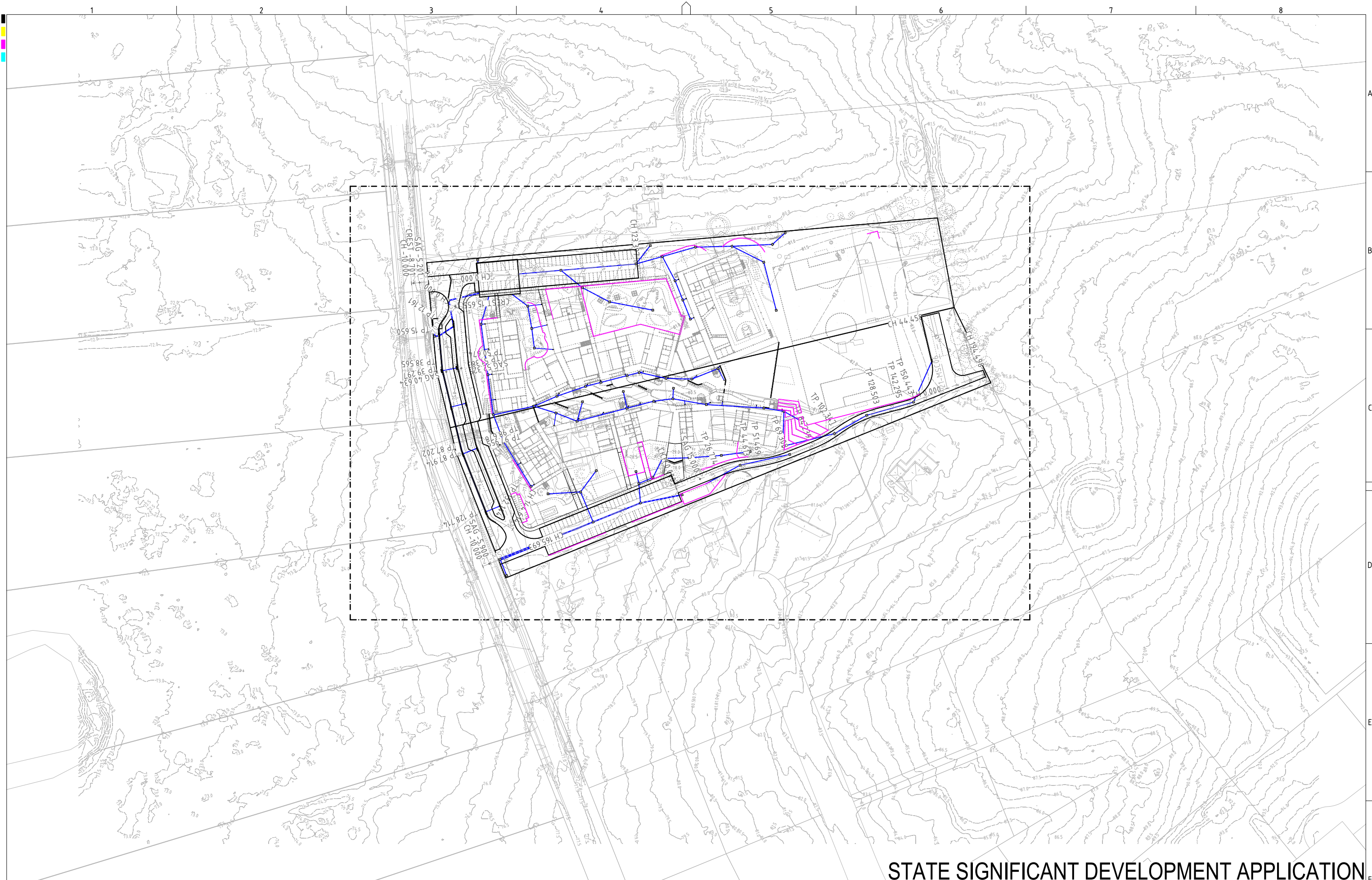
DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS02-A000	C	COVER SHEET
PS02-A050	B	DEVELOPMENT OVERVIEW PLAN
CONSTRUCTION MANAGEMENT WORKS		
PS02-B300	B	SOIL AND WATER MANAGEMENT PLAN
PS02-B310	B	SOIL AND WATER MANAGEMENT DETAILS - SHEET 1
PS02-B311	A	SOIL AND WATER MANAGEMENT DETAILS - SHEET 2
PS02-B320	A	SOIL AND WATER MANAGEMENT DETAILS - RUSSLE CALCULATION
EARTHWORKS		
PS02-C100	B	EARTHWORKS GRADING PLAN - (ULTIMATE DEVELOPMENT)
PS02-C110	B	EARTHWORKS GRADING PLAN - (STAGE 1)
PS02-C500	C	EARTHWORKS CUT & FILL PLAN - (ULTIMATE DEVELOPMENT)
PS02-C510	C	EARTHWORKS CUT & FILL PLAN - (STAGE 1)
PS02-C600	B	EARTHWORKS SITE SECTION - SHEET 1
PS02-C601	B	EARTHWORKS SITE SECTION - SHEET 2
PS02-C602	B	EARTHWORKS SITE SECTION - SHEET 3
PS02-C603	B	EARTHWORKS SITE SECTION - SHEET 4
PS02-C604	B	EARTHWORKS SITE SECTION - SHEET 5
ROADWORK		
PS02-D100	B	ROADWORKS PLAN - (ULTIMATE DEVELOPMENT)
PS02-D110	B	ROADWORKS PLAN - (STAGE 1)
PS02-D200	B	LONGITUDINAL AND TYPICAL SECTION - SHEET 1
PS02-D201	B	LONGITUDINAL AND TYPICAL SECTION - SHEET 2
PS02-D202	B	LONGITUDINAL AND TYPICAL SECTION - SHEET 3
PS02-D203	B	LONGITUDINAL AND TYPICAL SECTION - SHEET 4
INTEGRATED WATER MANAGEMENT PLAN		
PS02-E100	B	DRAINAGE PLAN - (ULTIMATE DEVELOPMENT)
PS02-E110	B	DRAINAGE PLAN - (STAGE 1)
PS02-E200	B	DRAINAGE DETAILS - SHEET 1
PS02-E201	B	DRAINAGE DETAILS - SHEET 2
PS02-E600	B	ON SITE DETENTION CATCHMENT PLAN, MODELS & RESULTS - (ULTIMATE DEVELOPMENT)
PS02-E610	B	ON SITE DETENTION CATCHMENT PLAN, MODELS & RESULTS - (STAGE 1)
PS02-E700	B	WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS - (ULTIMATE DEVELOPMENT)
PS02-E710	B	WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS - (STAGE 1)
FINAL CIVIL WORKS		
PS02-G450	B	CONCEPT PAVEMENT PLAN - (ULTIMATE DEVELOPMENT)
PS02-G451	B	CONCEPT PAVEMENT PLAN - (STAGE 1)

GENERAL NOTES:

1. THIS PLAN IS FOR DEVELOPMENT APPLICATION PURPOSE AND NOT FOR CONSTRUCTION DESIGN. IT SHOULD BE REVIEWED AND UPDATED FOR CONSTRUCTION CERTIFICATE.
2. ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH, AND THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE RELEVANT AUSTRALIAN STANDARDS, COUNCIL SPECIFICATIONS, AND ALL PROJECT CONSULTANT'S PLANS AND REPORTS.
3. INTERNAL SURVEY INFORMATION AND EXTERNAL SITE BOUNDARY SHOWN BASED ON SURVEY INFORMATION PROVIDED BY C.M.S SURVEYORS 17/03/2021.
4. ADJACENT CULTRURAL INFORMATION SHOWN BASED ON DESIGN BY TONKIN ZILANKHA GREER ARCHITECTS 7/03/2022.
5. LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
6. FINAL SURFACE CONTOURS ARE BASED ON DESIGN AND EXISTING SURVEY AND LIDAR SURFACES.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	STATE SIGNATORY DECLARATION						
C	FURTHER EARTHWORKS DETAILS ADDED	19/05/2022	NN	RL/BN	CG/AVG	TH		---	---	TH	MINARAH COLLEGE	 <div>Consulting Engineers Environment Water Geotechnical Civil</div>	DRAWING TITLE					
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH					PROJECT NAME/PLANSET TITLE MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN  268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW		COVER SHEET					
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH												
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A1 / A3 LANDSCAPE (A3, L v02.00)												DRAWING ID: P2108320-PS02-R03-A000						



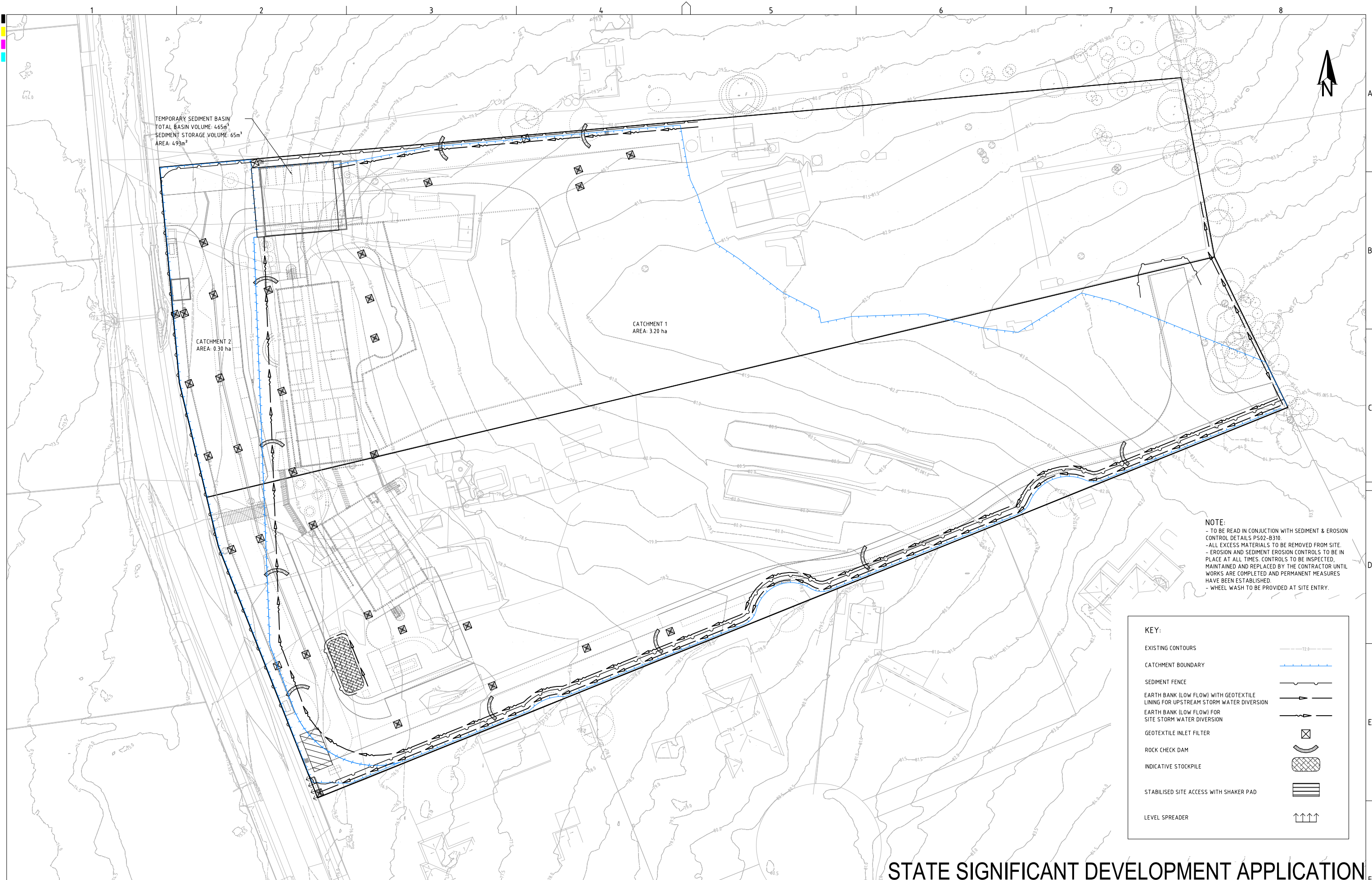


REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE 	GRID	DATUM	PROJECT MANAGER	CLIENT	DRAWING TITLE					
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH		MGA	mAHD	TH	MINARAH COLLEGE	 Consulting Engineers Environment Water Geotechnical Civil  Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au	DEVELOPMENT OVERVIEW PLAN				
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH		PROJECT NAME/PLANSET TITLE					PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
								MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN					P2108320	PS02	R03	PS02-A050	B
								268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW					DRAWING ID: P2108320-PS02-R03-A050				
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A1 / A3 LANDSCAPE (A1/LC\_v02.0.0)





NOTE:  
- TO BE READ IN CONJUNCTION WITH SEDIMENT & EROSION CONTROL DETAILS PS02-B310  
- ALL EXCESS MATERIALS TO BE REMOVED FROM SITE.  
- EROSION AND SEDIMENT EROSION CONTROLS TO BE IN PLACE AT ALL TIMES. CONTROLS TO BE INSPECTED, MAINTAINED AND REPLACED BY THE CONTRACTOR UNTIL WORKS ARE COMPLETED AND PERMANENT MEASURES HAVE BEEN ESTABLISHED.  
- WHEEL WASH TO BE PROVIDED AT SITE ENTRY.

KEY:	
EXISTING CONTOURS	
CATCHMENT BOUNDARY	
SEDIMENT FENCE	
EARTH BANK (LOW FLOW) WITH GEOTEXTILE LINING FOR UPSTREAM STORM WATER DIVERSION	
EARTH BANK (LOW FLOW) FOR SITE STORM WATER DIVERSION	
GEOTEXTILE INLET FILTER	
ROCK CHECK DAM	
INDICATIVE STOCKPILE	
STABILISED SITE ACCESS WITH SHAKER PAD	
LEVEL SPREADER	

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	RK	RK	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	TH	MINARAH COLLEGE
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PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

Consulting Engineers  
Environment  
Water  
Geotechnical  
Civil

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DRAWING TITLE				
SOIL AND WATER MANAGEMENT PLAN				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-B300	B

# STATE SIGNIFICANT DEVELOPMENT APPLICATION

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A1 / A3 LANDSCAPE (A1LC\_02.0.0)

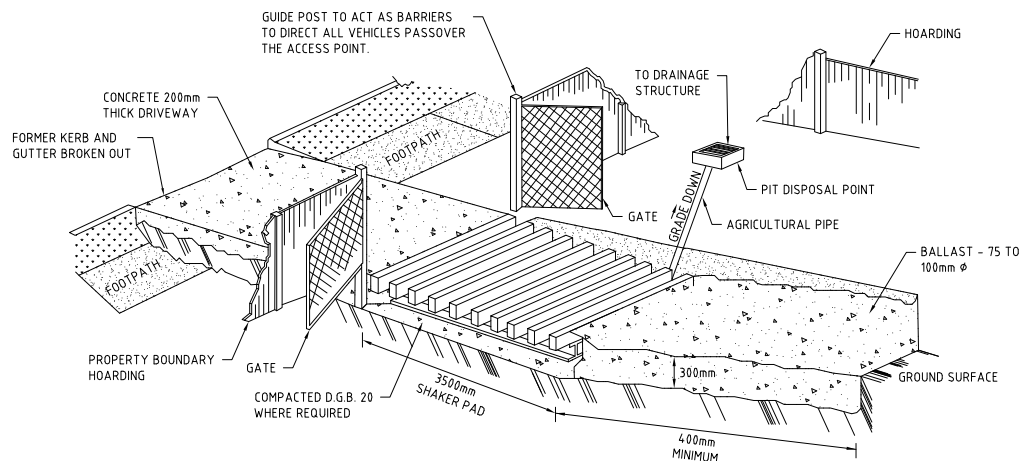
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## TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD; ADJACENT THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

## STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:  
 CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST) . IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST  
 BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.  
 CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST) . IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE  
 WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

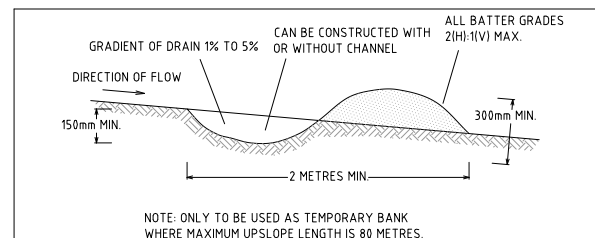
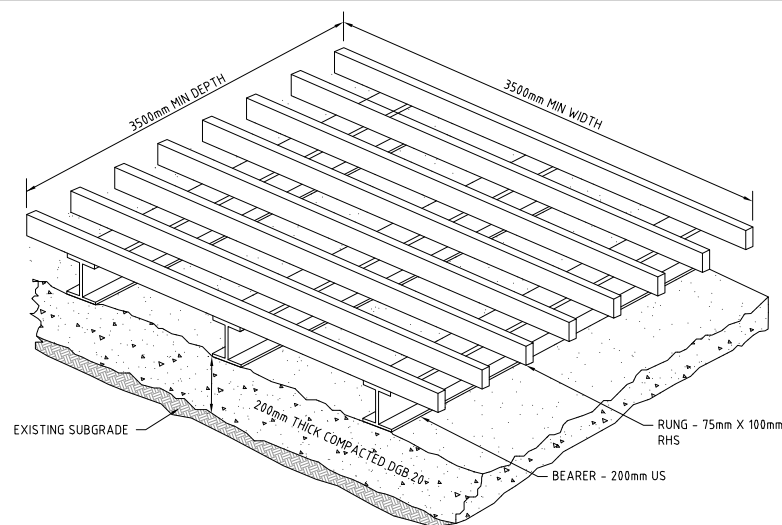
IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.

A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSOPRY IN TYPE II SAP'S)

SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.  
THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION.
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL.
- CAN BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL.
- MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE.
- MUST BE A MINIMUM OF 35M IN LENGTH.
- MUST BE A MINIMUM OF 35M IN WIDTH.
- MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 ± 250mm.
- RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75mm.
- MUST HAVE A MINIMUM CLEAR DEPTH OF 300mm IE FORM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL.

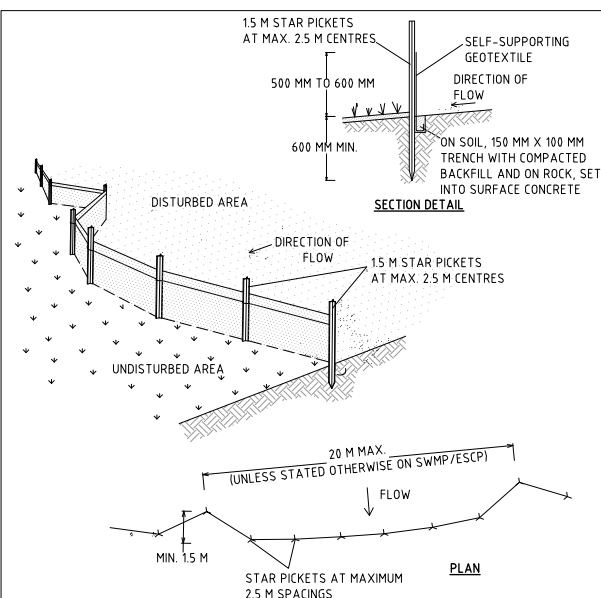
THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYERS OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE



## 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.

EARTH BANK (LOW FLOW)  SD 5-5

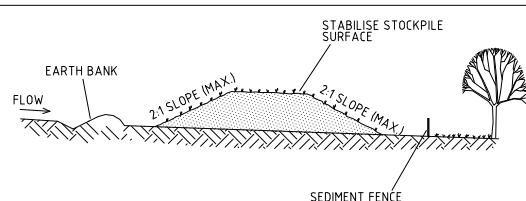


## CONSTRUCTION NOTES

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 500 MM 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. UNFOLD THE FABRIC AT A SUPPORT POST WITH A 100 MM OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

## SEDIMENT FENCE

SD 6-8

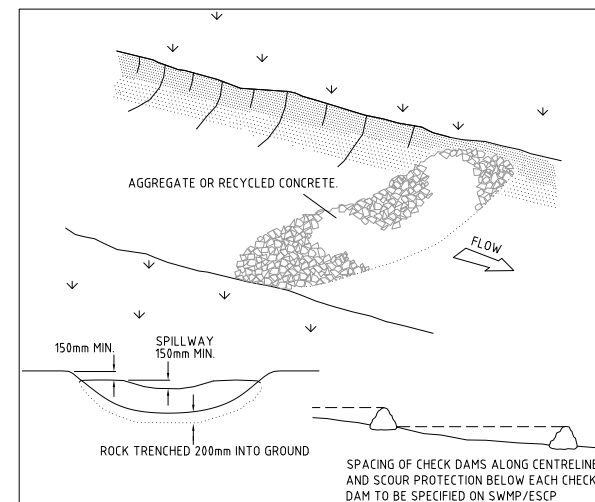


## CONSTRUCTION NOTES

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

## STOCKPILES

SD 4-1

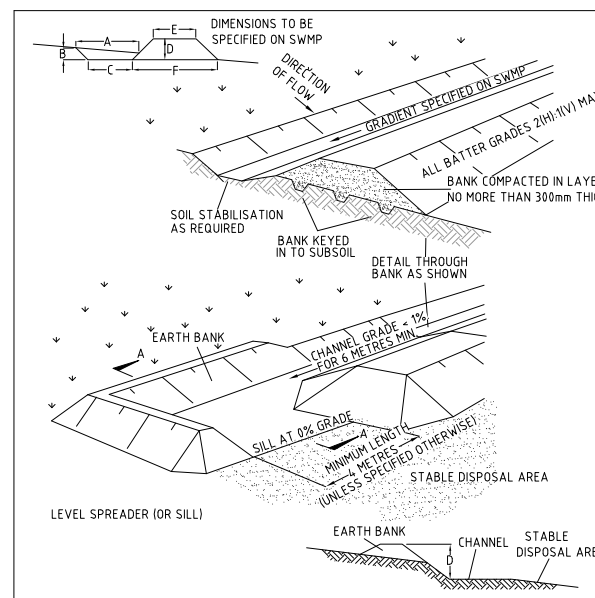


### CONSTRUCTION NOTES

1. CHECK DAMS CAN BE BUILT WITH VARIOUS MATERIALS, INCLUDING ROCKS, LOGS, SANDBAGS AND STRAW BALES. THE MAINTENANCE PROGRAM SHOULD ENSURE THEIR INTEGRITY IS RETAINED, ESPECIALLY WHERE CONSTRUCTED WITH STRAW BALES. IN THE CASE OF BALES, THIS MIGHT REQUIRE THEIR REPLACEMENT EACH TWO TO FOUR MONTHS.
2. TRENCH THE CHECK DAM 200mm INTO THE GROUND ACROSS ITS WHOLE WIDTH. WHERE ROCK IS USED, FILL THE TRENCHES TO AT LEAST 100mm ABOVE THE GROUND SURFACE TO REDUCE THE RISK OF UNDERCUTTING.
3. NORMALLY THEIR MAXIMUM HEIGHT SHOULD NOT EXCEED 600mm ABOVE THE GULLY FLOOR. THE CENTRE SHOULD ACT AS A SPILLWAY, BEING AT LEAST 150mm LOWER THAN THE OUTER EDGES.
4. SPACE THE DAMS SO THE TOE OF THE UPSTREAM DAM IS LEVEL WITH THE SPILLWAY OF THE NEXT DOWNSTREAM DAM.

ROCK CHECK DAM

SD 5-4



### CONSTRUCTION NOTES

1. CONSTRUCT AT THE GRADIENT SPECIFIED ON THE ESCP OR SWMP, NORMALLY 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, AT THE DIMENSIONS SHOWN ON THE SWMP.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION FOLLOWING TABLE 5.2 IN LANDCOM (2004).
7. WHERE DISCHARGING TO ERODIBLE LANDS, ENSURE THEY OUTLET THROUGH A PROPERLY CONSTRUCTED LEVEL SPREADER.
8. CONSTRUCT THE LEVEL SPREADER AT THE GRADIENT SPECIFIED ON THE ESCP OR SWMP, NORMALLY LESS THAN 1 PERCENT OR LEVEL.
9. WHERE POSSIBLE, ENSURE THEY DISCHARGE WATERS ONTO EITHER STABILISED OR UNDISTURBED DISPOSAL SITES WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED. APPROVAL MIGHT BE REQUIRED TO DISCHARGE INTO OTHER SUBCATCHMENTS.

EARTH BANK (HIGH FLOWS)  SD 5-6

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B	MINOR AMENDMENTS	14/04/2022	RK	RK	CG/AVG	TH
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GRID ---	DATUM ---	PROJECT MANAGER TH	CLIENT <b>MINARAH COLLEGE</b>
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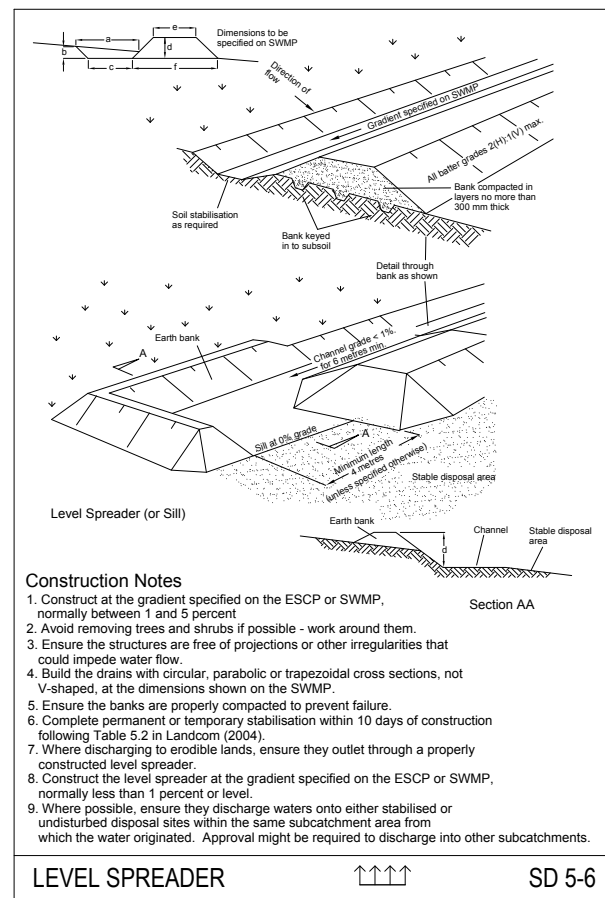
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Consulting Engineers  
Environment  
Water  
Geotechnical  
Civil

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Email: [mail@martens.com.au](mailto:mail@martens.com.au) Internet: [www.martens.com.au](http://www.martens.com.au)

DRAWING TITLE				
SOIL AND WATER MANAGEMENT DETAILS SHEET 1				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-B310	B





REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROVED	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	Consulting Engineers		DRAWING TITLE				
A	INITIAL RELEASE	14/04/2022	RK	RK	CG/AVG	TH				TH	MINARAH COLLEGE	Environment Water Geotechnical Civil		SOIL AND WATER MANAGEMENT DETAILS SHEET 2				
								DISCLAIMER & COPYRIGHT This plan must not be used for construction unless signed as approved by principal certifying authority. All measurements in millimetres unless otherwise specified. This drawing must not be reproduced in whole or part without prior written consent of Martens & Associates Pty Ltd (C) Copyright Martens & Associates Pty Ltd			PROJECT NAME/PLANSET TITLE MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN 268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW	Suite 2011, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au		PROJECT NO. P2108320	PLANSET NO. PS02	RELEASE NO. R03	DRAWING NO. PS02-B311	REVISION A
A1 / A3 LANDSCAPE (A/LC_v02.0.0)																		



Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: MINARAH COLLEGE

Site Location: 268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

Precinct: CATHERINE FIELDS

Description of Site: MINARAH COLLEGE

Site area	Site					Remarks
	CAT 1	CAT 2				
Total catchment area (ha)	3.2	0.3				
Disturbed catchment area (ha)	1.6	0.3				

Soil analysis

% sand (fraction 0.02 to 2.00 mm)	10	10				Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% silt (fraction 0.002 to 0.02 mm)	15	15				
% clay (fraction finer than 0.002 mm)	75	75				
Dispersion percentage	10.0	10.0				E.g. enter 10 for dispersion of 10%
% of whole soil dispersible	8.25	8.25				See Section 6.3.3(e)
Soil Texture Group	F	F				See Section 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5	5				See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	75	75				See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	25	25				See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	8.54	8.54				See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	1700	1700				Automatic calculation from above data
Soil erodibility (K-factor)	0.07	0.07				RUSLE data can be obtained from Appendixes A, B and C
Slope length (m)	200	25				
Slope gradient (%)	5	3				
Length/gradient (LS-factor)	2	0.41				
Erosion control practice (P-factor)	1.3	1.3				
Ground cover (C-factor)	1	1				

Calculations

Soil loss (t/ha/yr)	309	63				
Soil Loss Class	3	1				See Section 4.4.2(b)
Soil loss (m <sup>3</sup> /ha/yr)	238	49				
Sediment basin storage volume, m <sup>3</sup>	65	2				See Sections 6.3.4(i) and 6.3.5 (e)

4. Volume of Sediment Basins, Type D and Type F Soils

Basin volume = settling zone volume + sediment storage zone volume

Settling Zone Volume

The settling zone volume for Type F and Type D soils is calculated to provide capacity to contain all runoff expected from up to the y-percentile rainfall event. The volume of the basin's settling zone (V) can be determined as a function of the basin's surface area and depth to allow for particles to settle and can be determined by the following equation:

$$V = 10 \times C_v \times A \times R_{x\text{-day}, y\text{-}\%ile} \text{ (m}^3\text{)}$$

where:

10 = a unit conversion factor

C<sub>v</sub> = the volumetric runoff coefficient defined as that portion of rainfall that runs off as stormwater over the x-day period

R<sub>x-day, y-%ile</sub> = is the x-day total rainfall depth (mm) that is not exceeded in y percent of rainfall events. (See Sections 6.3.4(d), (e), (f), (g) and (h)).

A = total catchment area (ha)

Sediment Storage Zone Volume

In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 50 percent of the settling zone capacity. Alternately designers can design the zone to store the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(ii)). However, on Soil Loss Classes 5, 6 and 7 lands, the zone must contain the 2-month soil loss as calculated by the RUSLE (Section 6.3.4(i)(iii)).

Place an "X" in the box below to show the sediment storage zone design parameters used here:

50% of settling zone capacity,

X2 months soil loss calculated by RUSLE

Total Basin Volume

Site	C <sub>v</sub>	R <sub>x-day, y-%ile</sub>	Total catchment area (ha)	Settling zone volume (m <sup>3</sup> )	Sediment storage volume (m <sup>3</sup> )	Total basin volume (m <sup>3</sup> )
CAT1	0.50	25	3.2	400	65	465
CAT2	0.50	25	0.3	37.5	2	39.5

NOTES:

- SEDIMENT BASIN IS REQUIRED FOR CATCHMENT 1, AS TOTAL SOIL LOSS IS GREATER THAN 150m<sup>3</sup>/yr (238m<sup>3</sup>/ha/yr x 1.6ha = 380m<sup>3</sup>/yr > 150m<sup>3</sup>/yr).
- SEDIMENT BASIN IS NOT REQUIRED FOR CATCHMENT 2, AS TOTAL SOIL LOSS IS LESS THAN 150m<sup>3</sup>/yr (49m<sup>3</sup>/ha/yr x 0.3ha = 14.7m<sup>3</sup>/yr < 150m<sup>3</sup>/yr).

REVDESCRIPTIONDATEDRAWNDRAWNDDESIGNEDCHECKEDAPPRVDTH

AINITIAL RELEASE14/04/2022RKRKCG/AVGTH

SCALE

GRIDDATUMPROJECT MANAGERCLIENT

THMINARAH COLLEGE

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PROJECT NAME/PLANSET TITLE

MINARAH COLLEGE - CATHERINE FIELD

CIVIL WORKS PLAN

268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

Consulting Engineers

Environment

Water

Geotechnical

Civil

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DRAWING TITLE

SOIL AND WATER MANAGEMENT DETAILS

RUSLE CALCULATION

PROJECT NO.

P2108320

PLANSET NO.

PS02

RELEASE NO.

R03

DRAWING NO.

PS02-B320

REVISION

A

AT / A3 LANDSCAPE (A1LC\_v02.0.0)

DRAWING ID: P2108320-PS02-R03-B320

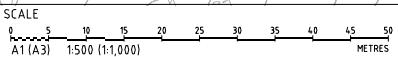




NOTE:  
1. BATTERS TO BE MAXIMUM 1IN4 EXCEPT WHERE NOTED.

KEY	
EXISTING CONTOURS	---
PROPOSED CONTOURS	- - - -
EARTHWORKS HINGE	---
INTERFACE	---
EDGE OF RETAINING WALL	---
LIMIT OF WORKS	
SITE BOUNDARY	---

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW  
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PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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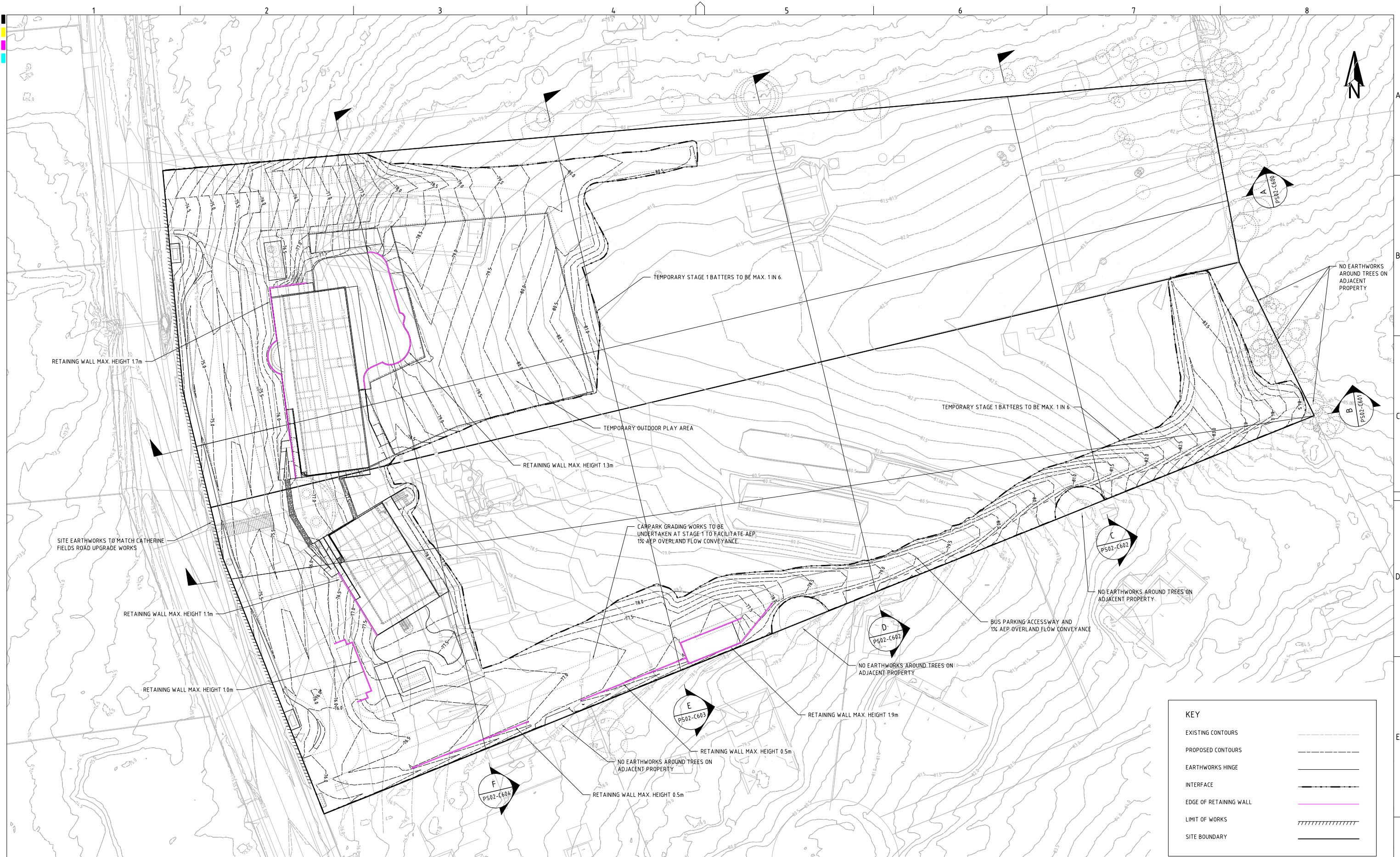
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DRAWING TITLE				
EARTHWORKS GRADING PLAN (ULTIMATE DEVELOPMENT)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-C100	B

# STATE SIGNIFICANT DEVELOPMENT APPLICATION





NOTE:  
1. BATTERS TO BE MAXIMUM 1IN4 EXCEPT WHERE NOTED.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE  
0 5 10 15 20 25 30 35 40 45 50  
A1 (A3) 1:500 (1:1,000) METRES

GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
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DRAWING TITLE				
EARTHWORKS GRADING PLAN (STAGE 1)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-C110	B

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A1 / A3 LANDSCAPE (A1LC\_02.0.0)

DRAWING ID: P2108320-PS02-R03-C110





EARTHWORKS SUMMARY (m³)		
	CUT	FILL
EARTHWORKS VOLUME	-12199	10736
BALANCE	-1463	-

- NOTES:
- CUT-FILL DEPTHS SHOWN FROM EXISTING SURFACE LEVELS (AS SURVEYED) TO FINISHED DESIGN SURFACE LEVELS.
  - EARTHWORKS VOLUMES MEASURED FROM EXISTING SURFACE LEVELS MINUS TOPSOIL STRIPPING (ASSUMED 0.3M DEPTH) TO BULK EARTHWORKS SURFACE LEVELS.
  - BULK EARTHWORKS SURFACE LEVELS MEASURED FROM FINISHED DESIGN SURFACE LEVELS MINUS 200MM FOR BUILDING SLABS, 150MM FOR FOOTPATH AREAS, 500MM FOR CARPARK AREAS AND 300MM FOR LANDSCAPING & PLANTING AREAS.
  - BOXING DEPTHS ARE PRELIMINARY AND ARE TO BE CONFIRMED AT CONSTRUCTION CERTIFICATE STAGE.
  - ALL EARTHWORK MATERIAL ASSUMED TO BE RE-USED ON SITE, SUBJECT TO FURTHER LABORATORY TESTING (REFER TO GEOTECHNICAL ASSESSMENT REPORT FOR DETAILS, REF: P2108320/R04 V01, DATED MARCH 2022).
  - SITE WORKS EARTHWORKS VOLUMES BASED ON PRELIMINARY CALCULATIONS:
    - 117M³ OF EARTHWORKS TO BE IMPORTED FOR STAGE 1 WORKS.
    - 1463M³ OF EARTHWORKS TO BE REMOVED FROM SITE AT COMPLETION OF DEVELOPMENT (SUBJECT TO FURTHER STAGING WORKS).

CUT-FILL DEPTH DESIGN TO EXISTING	
LOWER THAN	-3.000 m
-3.000 to	-2.250 m
-2.250 to	-1.500 m
-1.500 to	-0.750 m
-0.750 to	-0.150 m
-0.150 to	0.150 m
0.150 to	0.750 m
0.750 to	1.500 m
1.500 to	2.250 m
2.250 to	3.000 m
GRETATER THAN	3.000 m

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FURTHER EARTHWORKS DETAILS ADDED	19/05/2022	NN	RL/BN	CG/AVG	TH
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID  
MGA

DATUM  
mAHD

PROJECT MANAGER  
TH

CLIENT  
MINARAH COLLEGE

PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN

268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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DRAWING TITLE				
EARTHWORKS CUT & FILL PLAN (ULTIMATE DEVELOPMENT)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-C500	C

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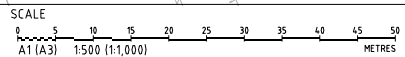


EARTHWORKS SUMMARY (m³)		
	CUT	FILL
EARTHWORKS VOLUME	-5252	5369
BALANCE	-	117

NOTES:  
1. CUT-FILL DEPTHS SHOWN FROM EXISTING SURFACE LEVELS (AS SURVEYED) TO FINISHED DESIGN SURFACE LEVELS.  
2. EARTHWORKS VOLUMES MEASURED FROM EXISTING SURFACE LEVELS MINUS TOPSOIL STRIPPING (ASSUMED 0.3M DEPTH) TO BULK EARTHWORKS SURFACE LEVELS.  
3. BULK EARTHWORKS SURFACE LEVELS MEASURED FROM FINISHED DESIGN SURFACE LEVELS MINUS 200MM FOR BUILDING SLABS, 150MM FOR PAVED & FOOTPATH AREAS, 500MM FOR CARPARK AREAS AND 300MM FOR LANDSCAPING & PLANTING AREAS.  
4. BOXING DEPTHS ARE PRELIMINARY AND ARE TO BE CONFIRMED AT CONSTRUCTION CERTIFICATE STAGE.  
5. ALL EARTHWORK MATERIAL ASSUMED TO BE RE-USED ON SITE, SUBJECT TO FURTHER LABORATORY TESTING (REFER TO GEOTECHNICAL ASSESSMENT REPORT FOR DETAILS, REF: P2108320JR04 V01, DATED MARCH 2022).  
6. SITE WORKS EARTHWORKS VOLUMES BASED ON PRELIMINARY CALCULATIONS:  
- 117M³ OF EARTHWORKS TO BE IMPORTED FOR STAGE 1 WORKS.  
- 1463M³ OF EARTHWORKS TO BE REMOVED FROM SITE AT COMPLETION OF DEVELOPMENT (SUBJECT TO FURTHER STAGING WORKS).

CUT-FILL DEPTH DESIGN TO EXISTING		
LOWER THAN	-3.000 m	
-3.000 to	-2.250 m	
-2.250 to	-1.500 m	
-1.500 to	-0.750 m	
-0.750 to	-0.150 m	
-0.150 to	0.150 m	
0.150 to	0.750 m	
0.750 to	1.500 m	
1.500 to	2.250 m	
2.250 to	3.000 m	
GREATER THAN	3.000 m	

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FURTHER EARTHWORKS DETAILS ADDED	19/05/2022	NN	RL/BN	CG/AVG	TH
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH
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CLIENT
MINARAH COLLEGE
PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD
CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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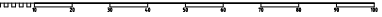
DRAWING TITLE				
EARTHWORKS CUT & FILL PLAN (STAGE 1)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-C510	C

# STATE SIGNIFICANT DEVELOPMENT APPLICATION

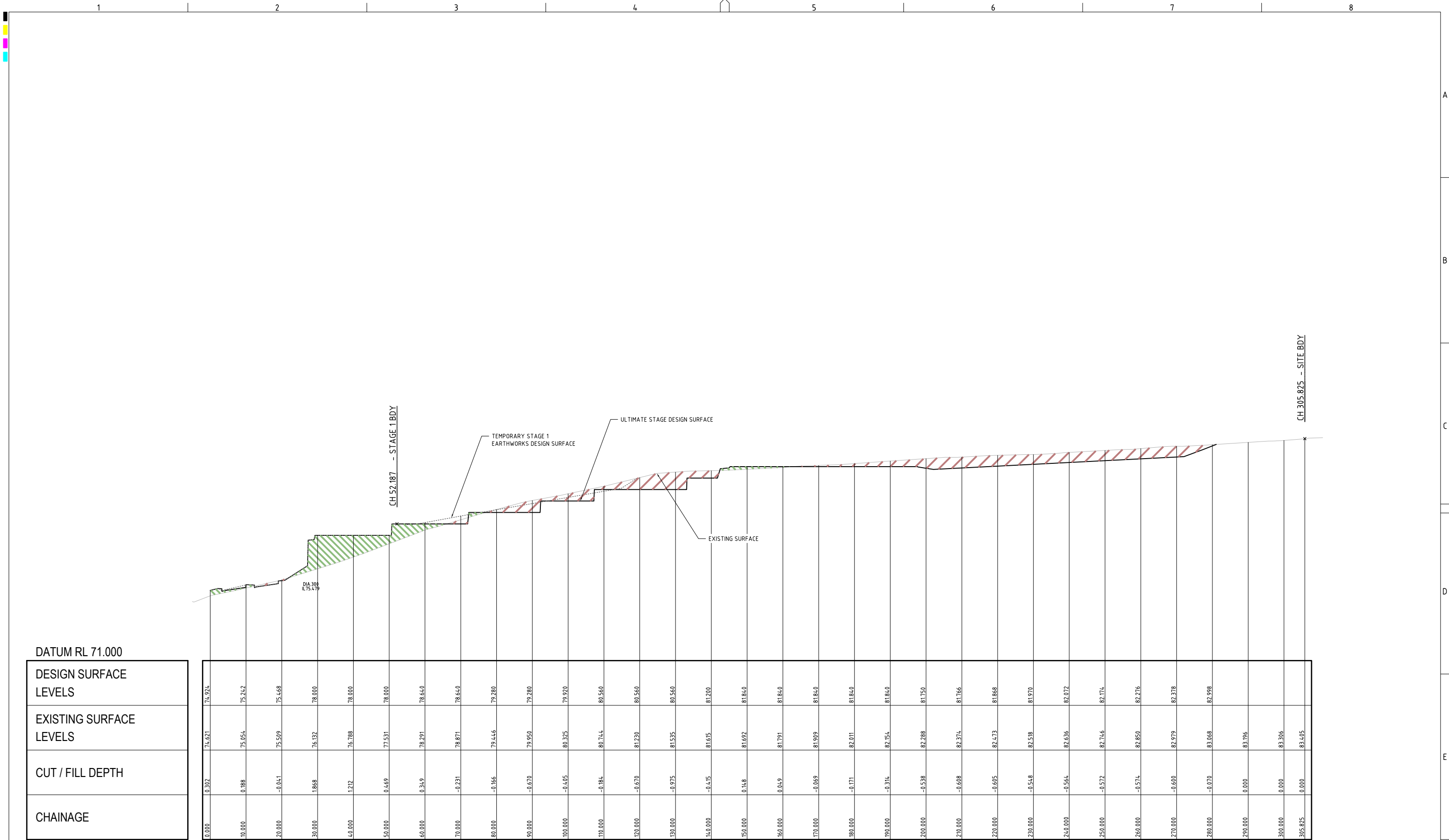
PRINTED: 19/05/2022 - USER: NNWZ02

A1 / A3 LANDSCAPE (A1/C\_02.0.01)

DRAWING ID: P2108320-PS02-R03-C510





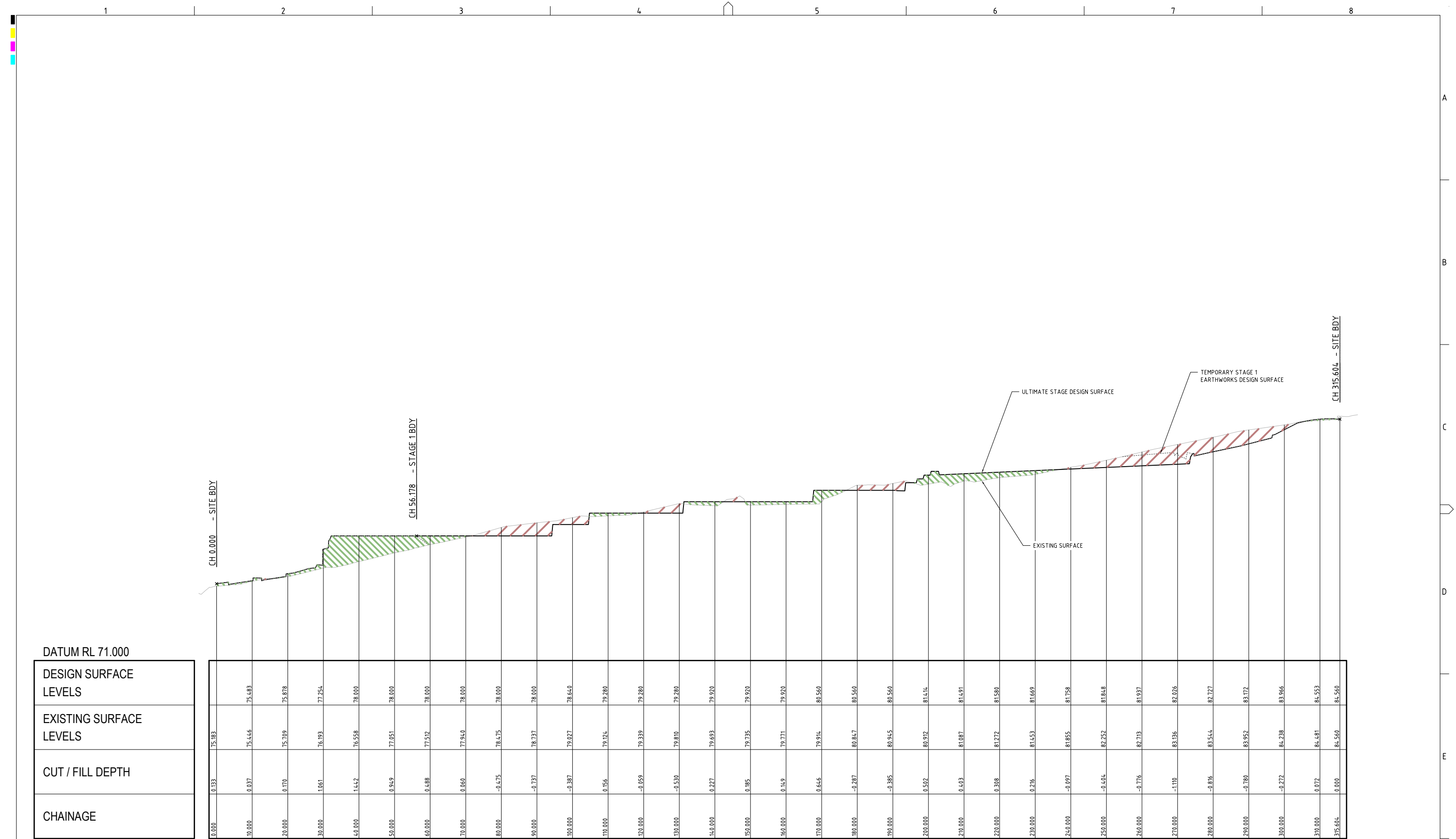


SECTION A

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

STATE SIGNIFICANT DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	<div><div><div></div><div><b>martens</b></div><div>&amp; Associates Pty Ltd</div></div><div>Consulting Engineers Environment Water Geotechnical Civil</div></div> <div>Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au</div>	DRAWING TITLE					
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH	<div><div><div>05101520253035404550</div><div>A1 (A3) 1:500 (1:1,000)</div><div>METRES</div></div></div>	MGA	mAHD	TH	MINARAH COLLEGE		PROJECT NAME/PLANSET TITLE	EARTHWORKS SITE SECTION SHEET 1				
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH	<div><div><div>012345678910</div><div>A1 (A3) 1:100 (1:200)</div><div>METRES</div></div></div>	DISCLAIMER & COPYRIGHT This plan must not be used for construction unless signed as approved by principal certifying authority. All measurements in millimetres unless otherwise specified. This drawing must not be reproduced in whole or part without prior written consent of Martens & Associates Pty Ltd. (C) Copyright Martens & Associates Pty Ltd			MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN		268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW	DRAWING NO. PS02-C600 REVISION B				
														PROJECT NO. P2108320	PLANSET NO. PS02	RELEASE NO. R03	DRAWING NO. PS02-C600	REVISION B
														DRAWING ID: P2108320-PS02-R03-C600				
														A1 / A3 LANDSCAPE (A1LC_v02.0.0)				

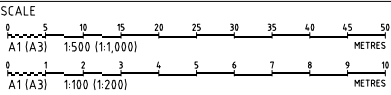


SECTION B

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

STATE SIGNIFICANT DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	TH	MINARAH COLLEGE
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PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

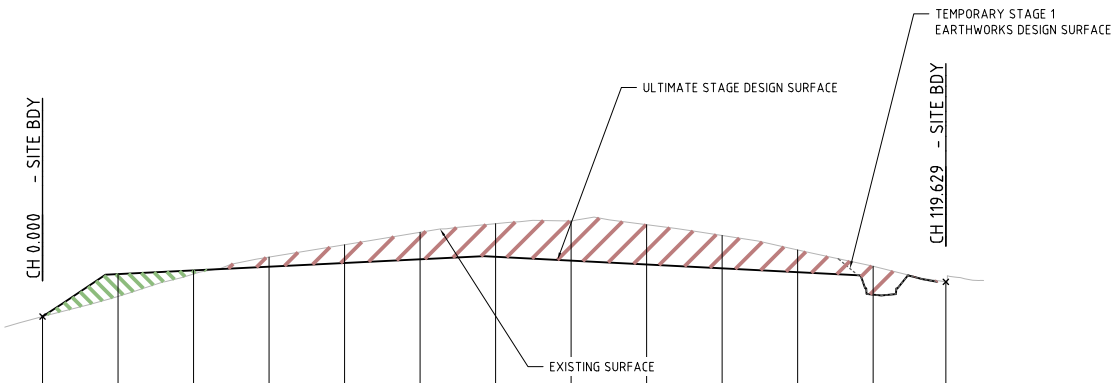


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DRAWING TITLE				
EARTHWORKS SITE SECTION SHEET 2				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-C601	B



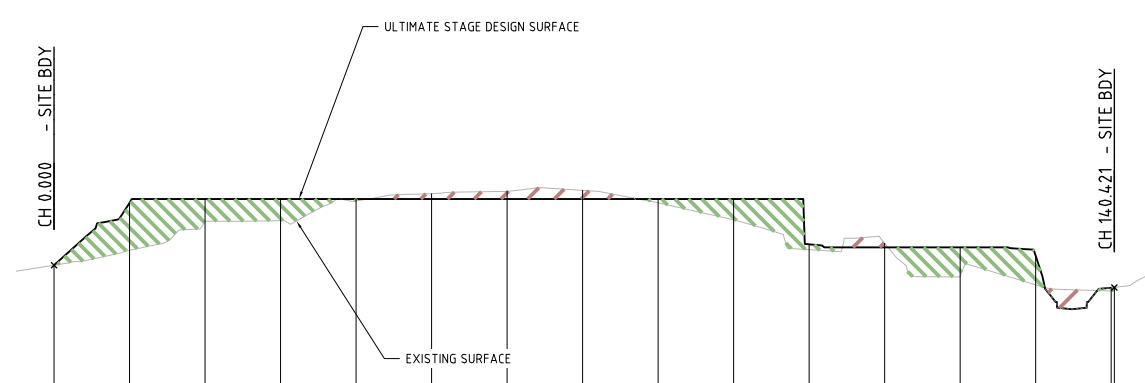


DATUM RL 77.000

DESIGN SURFACE LEVELS	80.728	81.852	81.950	82.048	82.146	82.244	82.311	82.209	82.107	82.005	81.903	81.309
EXISTING SURFACE LEVELS	80.728	81.261	81.855	82.303	82.629	82.959	83.187	83.258	83.161	82.875	82.492	82.060
CUT / FILL DEPTH	0.000	0.591	0.096	-0.254	-0.482	-0.715	-0.877	-1.049	-1.054	-0.870	-0.589	-0.751
CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000
												119.629

SECTION C

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100



DATUM RL 75.000

DESIGN SURFACE LEVELS	80.087	81.740	81.840	81.840	81.840	81.840	81.840	81.840	81.840	80.640	80.560	80.337
EXISTING SURFACE LEVELS	80.087	80.481	81.227	81.266	81.791	81.980	82.042	82.069	81.743	81.290	80.501	79.406
CUT / FILL DEPTH	0.000	1.258	0.613	0.574	0.049	-0.140	-0.202	-0.229	0.097	0.550	0.140	0.083
CHAINAGE	0.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000
												140.421

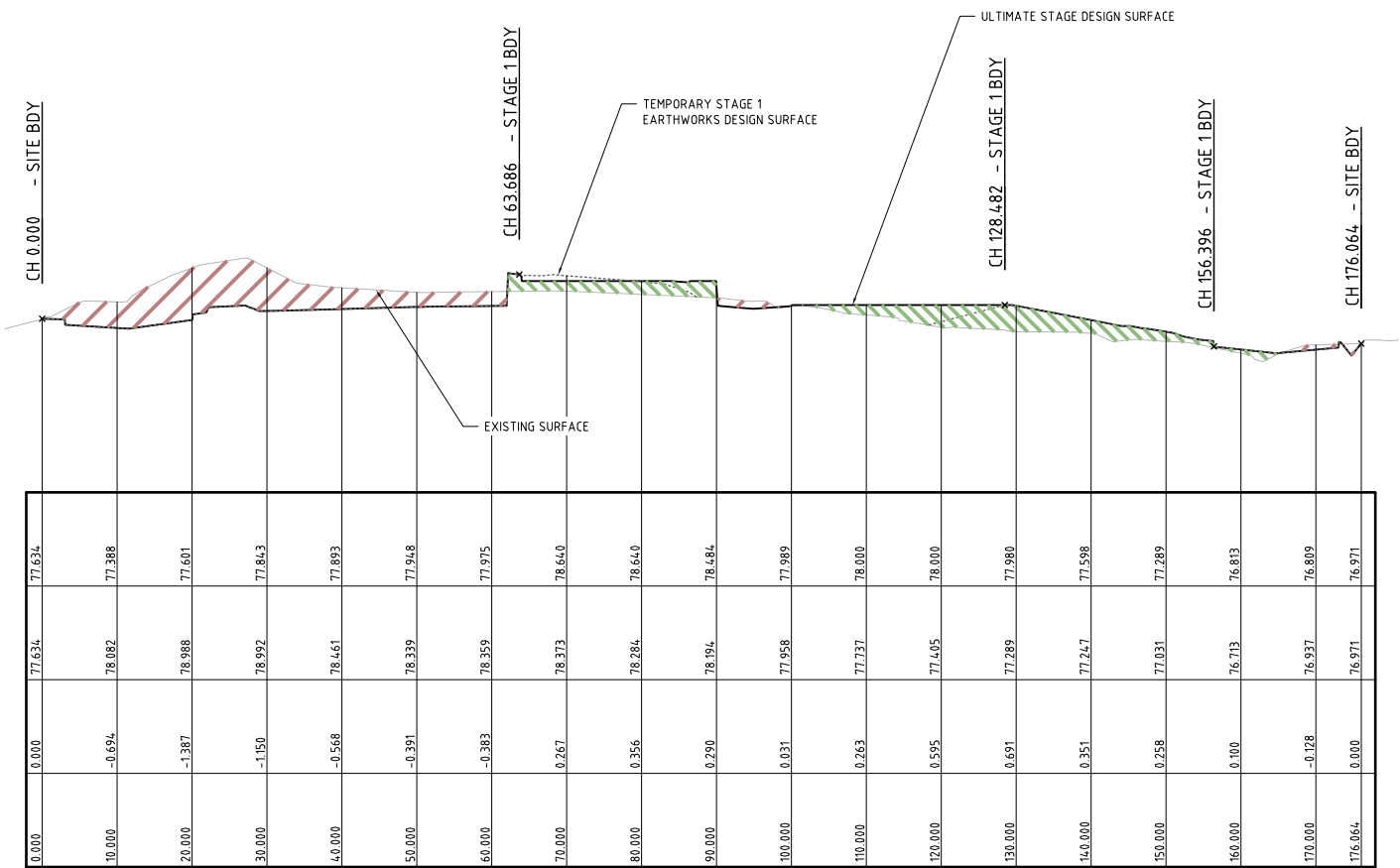
SECTION D

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

STATE SIGNIFICANT DEVELOPMENT APPLICATION







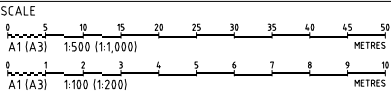
SECTION F

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

DATUM RL 73.000

DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
CUT / FILL DEPTH
CHAINAGE

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



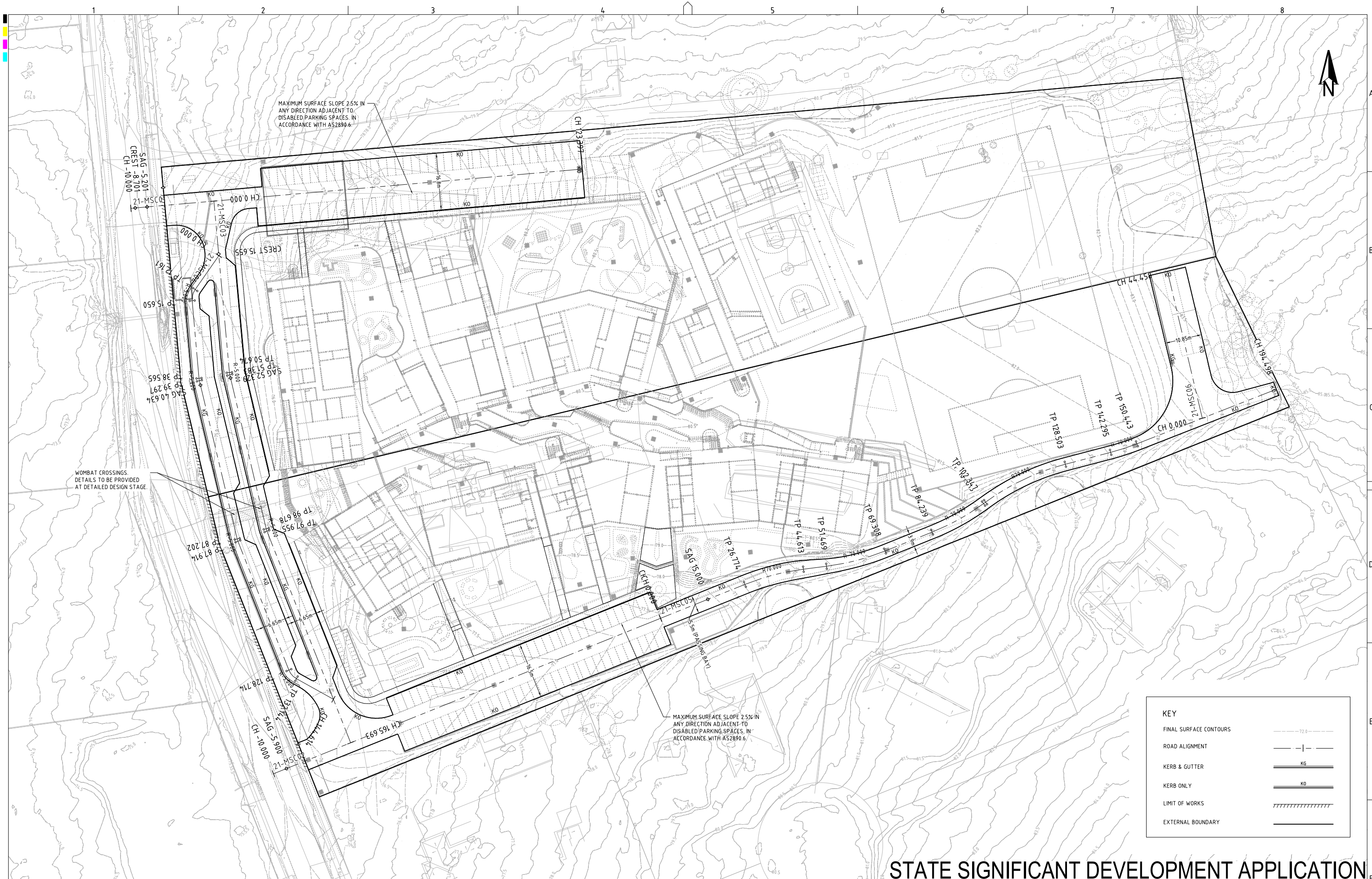
GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
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DRAWING TITLE				
EARTHWORKS SITE SECTION SHEET 5				
PROJECT NO. P2108320	PLANSET NO. PS02	RELEASE NO. R03	DRAWING NO. PS02-C604	REVISION B



# STATE SIGNIFICANT DEVELOPMENT APPLICATION

[illegible]

SCALE

0 5 10 15 20 25 30 35 40 45 50  
A1 (A3) 1:500 (1:1000) METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH
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CLIENT	MINARAH COLLEGE
PROJECT NAME/PLANSET TITLE	MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN
	268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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DRAWING TITLE				
ROADWORKS PLAN (ULTIMATE DEVELOPMENT)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-D100	B





# STATE SIGNIFICANT DEVELOPMENT APPLICATION

[illegible]

SCALE

0 5 10 15 20 25 30 35 40 45 50  
A1 (A3) 1:500 (1:1000) METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH
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CLIENT  
**MINARAH COLLEGE**

PROJECT NAME/PLANSET TITLE  
**MINARAH COLLEGE - CATHERINE FIELD**  
**CIVIL WORKS PLAN**

268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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DRAWING TITLE				
ACCESSWAY PLAN (STAGE 1)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-D110	B

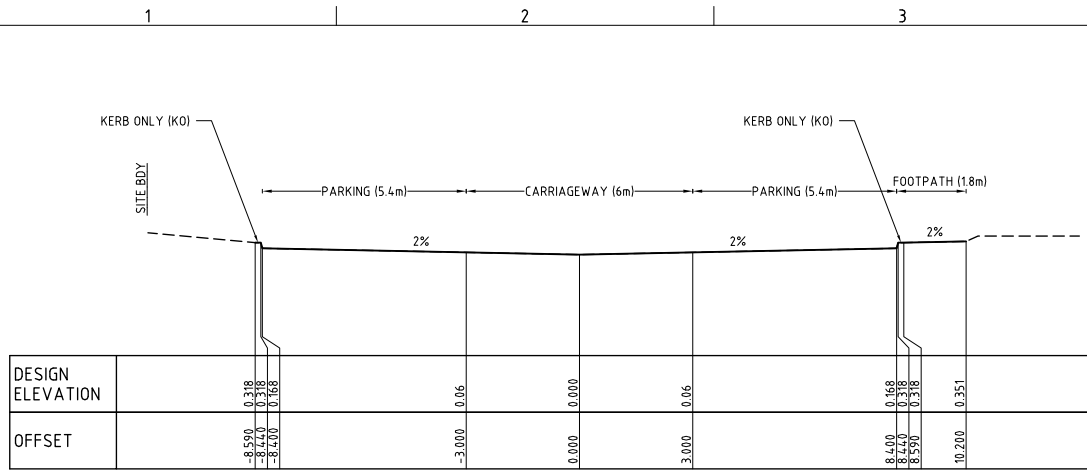
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A1 / A3 LANDSCAPE (A1LC v02.0.01)

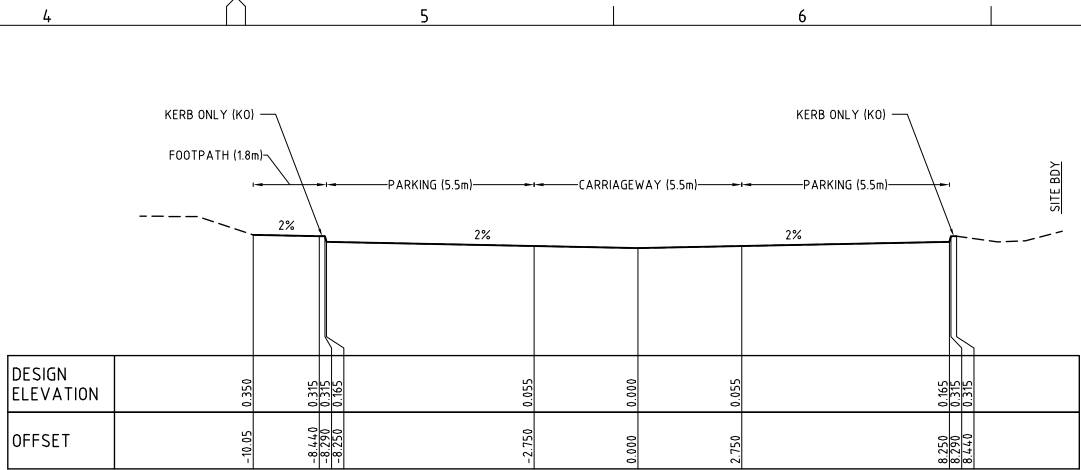
DRAWING ID: P2108320-PS02-R03-D110

The diagram shows a horizontal beam of length \$L\$ supported by a pin support at the left end and a roller support at the right end. A uniformly distributed load of intensity \$w\$ is applied downwards along the entire length of the beam. The beam is divided into four equal segments of length \$L/4\$ by three vertical dashed lines. At the left end, there is a pin support with a vertical reaction force \$R\_L\$ acting upwards. At the right end, there is a roller support with a vertical reaction force \$R\_R\$ acting upwards. The total load is represented by a horizontal line with diagonal hatching underneath, labeled \$w\$.

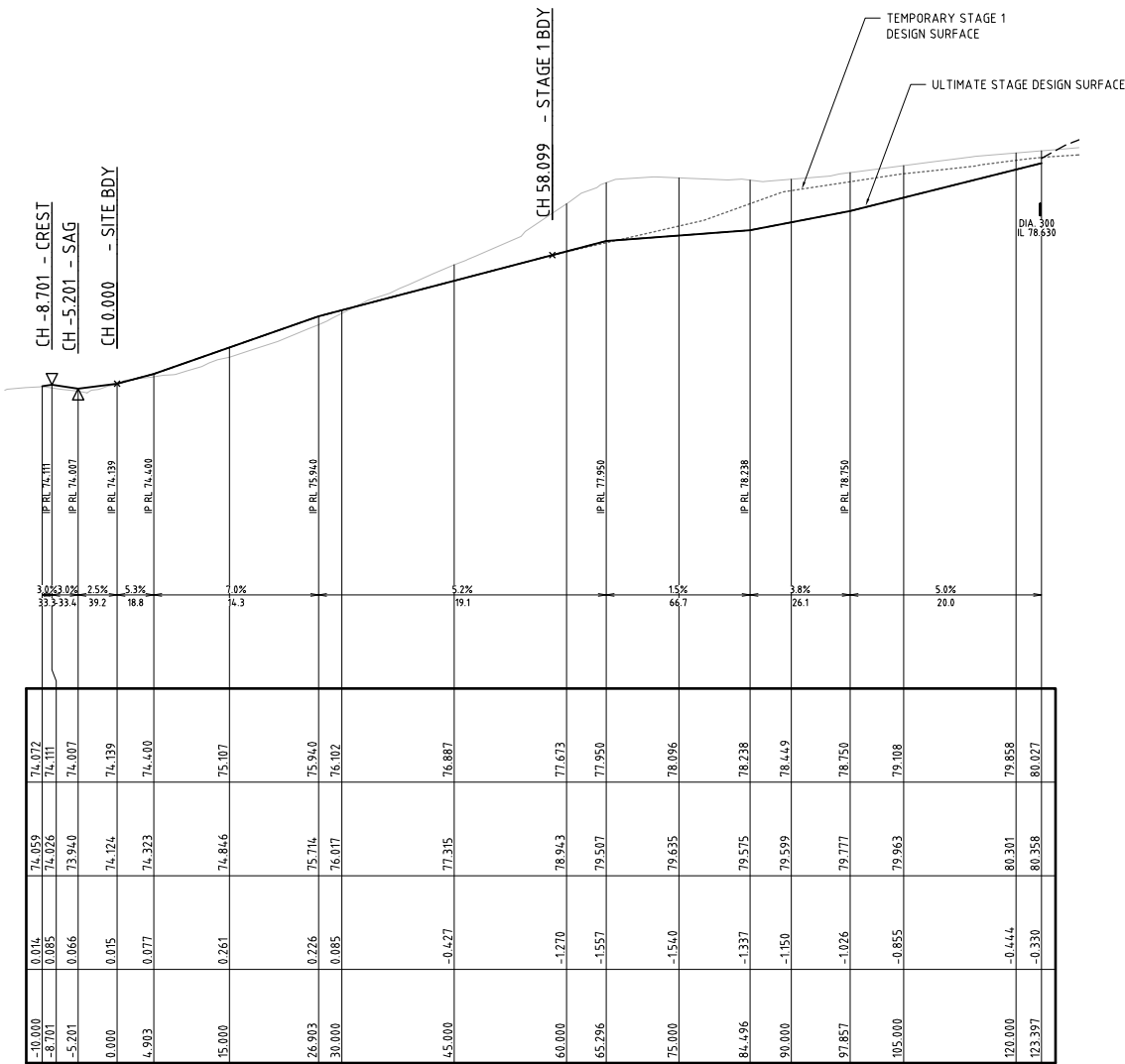
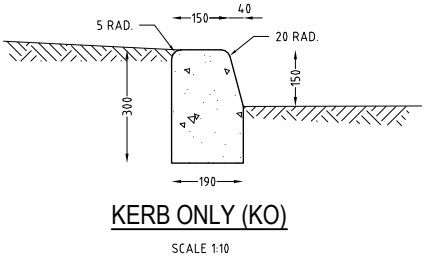
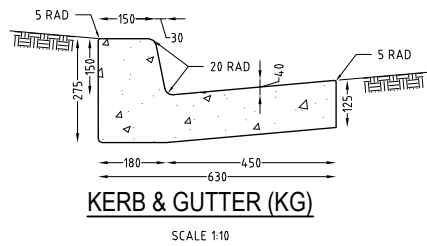




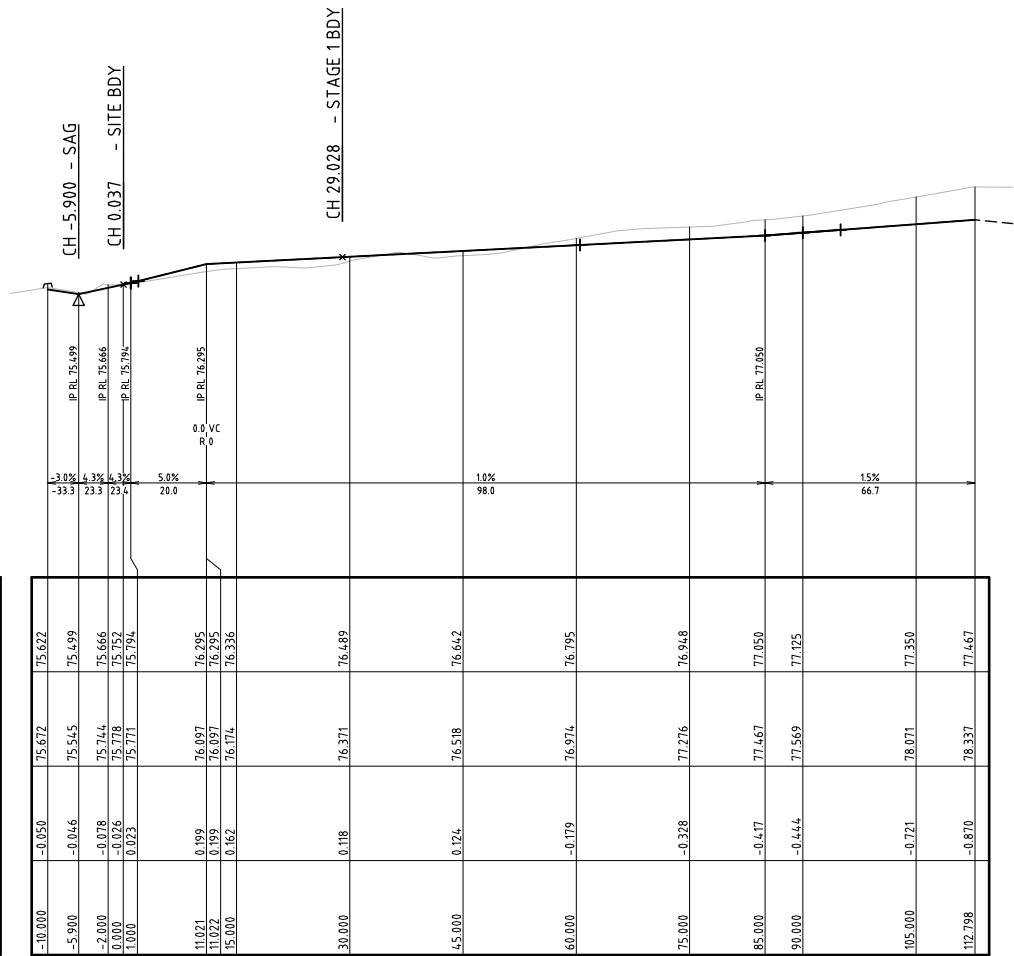
ENTRY ACCESSWAY (21-MSC01) TYPICAL CROSS SECTION  
SCALE 1:100



EXIT ACCESSWAY (21-MSC02) TYPICAL CROSS SECTION  
SCALE 1:100



ENTRY ACCESSWAY ( 21-MSC01 ) LONG. SECTION  
SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100



EXIT ACCESSWAY ( 21-MSC02 ) LONG. SECTION  
SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

VERTICAL CURVE LENGTH (m)  
VERTICAL CURVE RADIUS (m)  
VERTICAL GRADE (%)  
VERTICAL GRADE (1 IN ...)  
HORIZONTAL CURVE RADIUS (m)  
DATUM RL 66.000

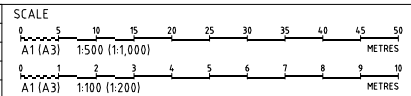
DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
CUT / FILL DEPTH
CHAINAGE

VERTICAL CURVE LENGTH (m)  
VERTICAL CURVE RADIUS (m)  
VERTICAL GRADE (%)  
VERTICAL GRADE (1 IN ...)  
HORIZONTAL CURVE RADIUS (m)  
DATUM RL 68.000

DESIGN SURFACE LEVELS
EXISTING SURFACE LEVELS
CUT / FILL DEPTH
CHAINAGE

## STATE SIGNIFICANT DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	TH	MINARAH COLLEGE

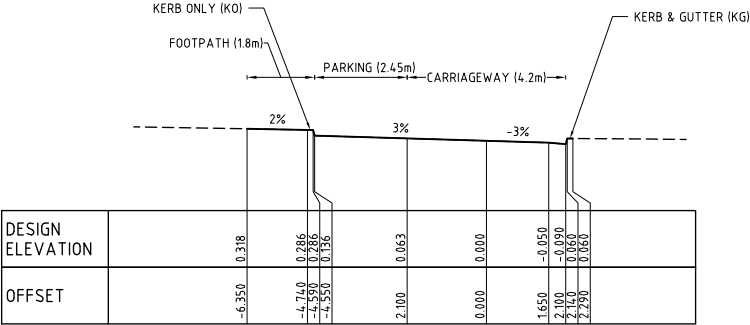
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PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

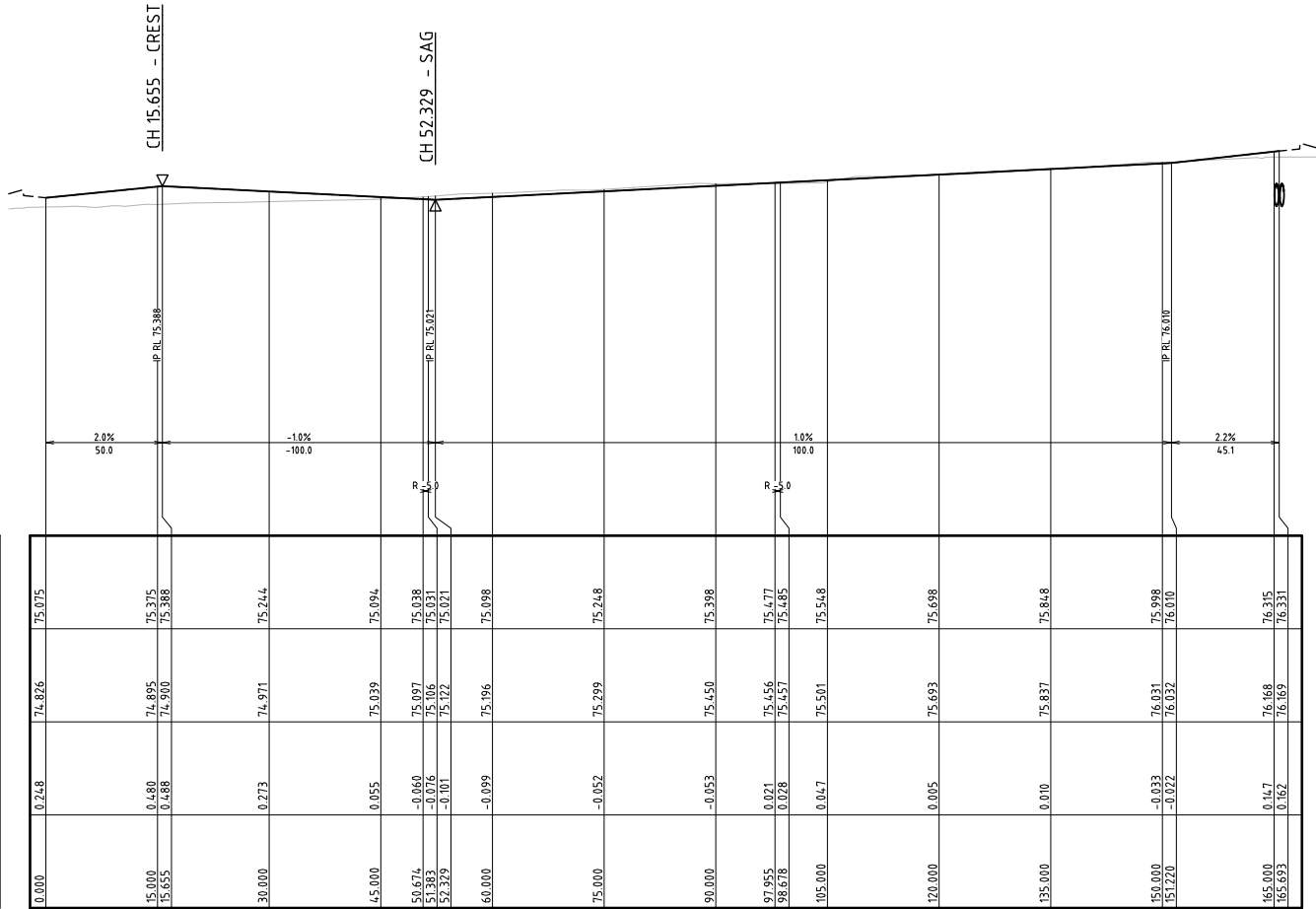
	Consulting Engineers Environment Water Geotechnical Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au	

DRAWING TITLE				
ACCESSWAY LONGITUDINAL AND TYPICAL SECTIONS SHEET 1				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-D200	B

DRAWING ID: P2108320-PS02-R03-D200



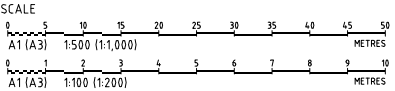
KISS AND DROP ACCESSWAY 1 ( 21-MSC03 ) TYPICAL CROSS SECTION  
SCALE 1:100



KISS AND DROP ACCESSWAY 1 ( 21-MSC03 ) LONG. SECTION

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

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B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



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PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD
CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

# STATE SIGNIFICANT DEVELOPMENT APPLICATION

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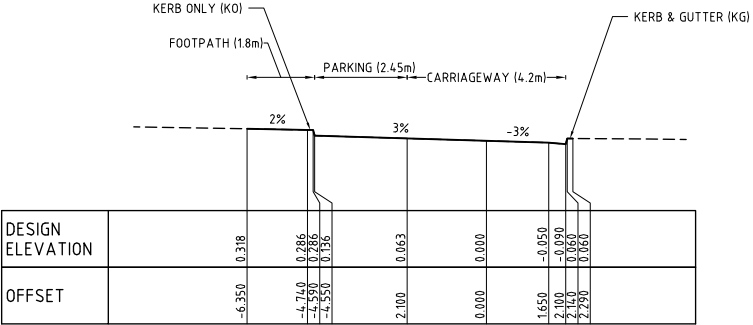
PROJECT NO. P2108320

PLANSET NO. PS02

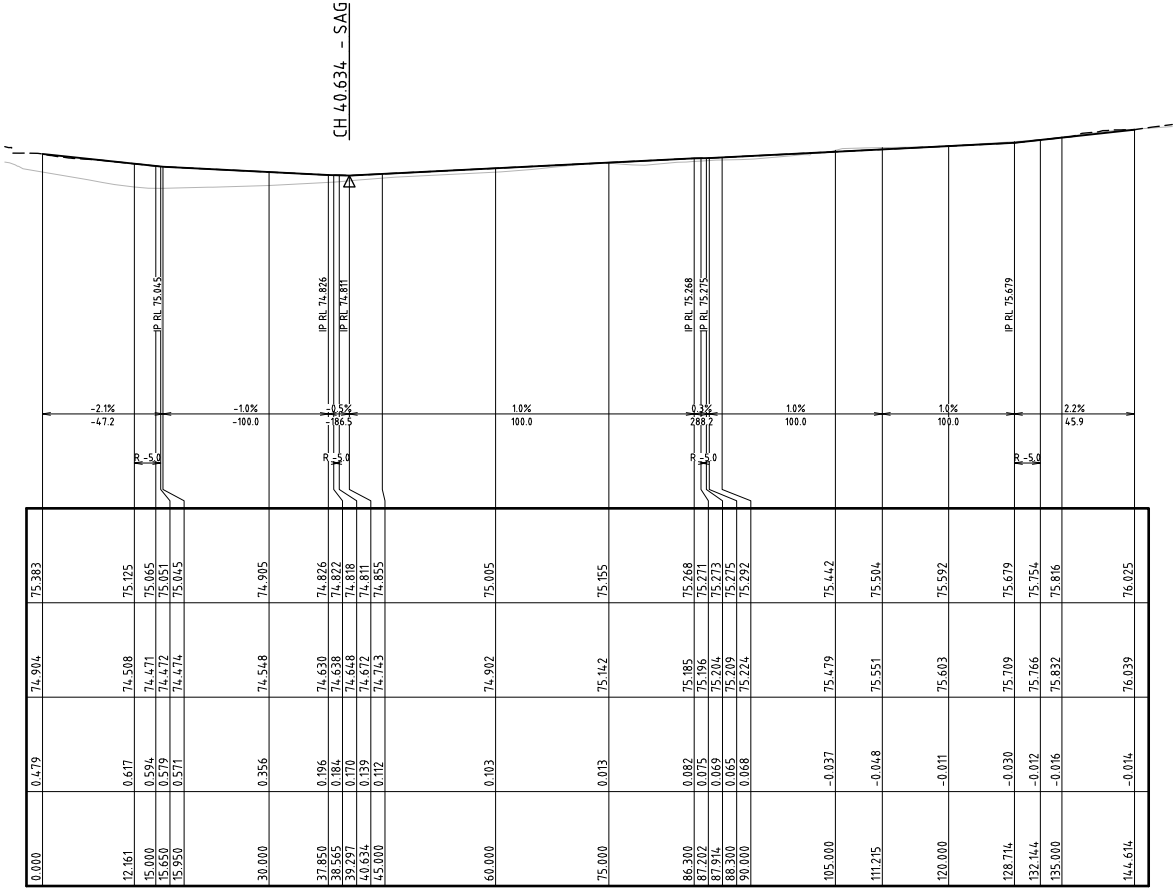
RELEASE NO. R03

DRAWING NO. PS02-D201

REVISION B



KISS AND DROP ACCESSWAY 2 ( 21-MSC04 ) TYPICAL CROSS SECTION  
SCALE 1:100



KISS AND DROP ACCESSWAY 2 ( 21-MSC04 ) LONG. SECTION

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROV
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT
A1 (A3) 1:500 (1:1,000)	MGA	mAHD	TH	MINARAH COLLEGE
A1 (A3) 1:100 (1:200)				MINARAH COLLEGE - CATHERINE FIELD
				CIVIL WORKS PLAN
				268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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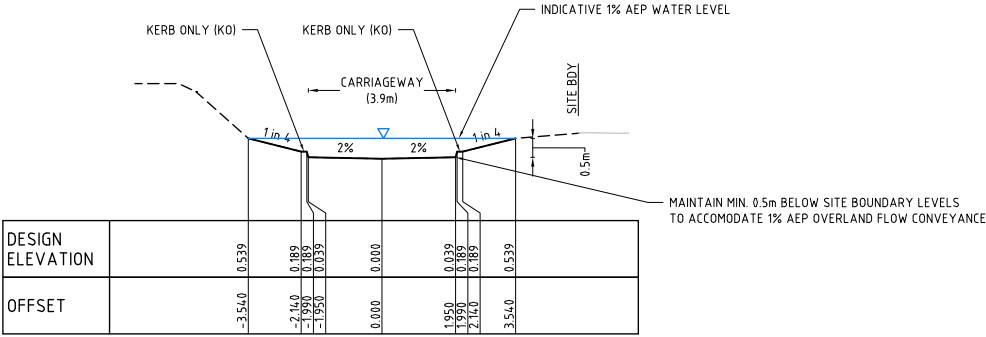
PROJECT NAME/PLANSET TITLE	CLIENT
MINARAH COLLEGE - CATHERINE FIELD	MINARAH COLLEGE
CIVIL WORKS PLAN	
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW	

# STATE SIGNIFICANT DEVELOPMENT APPLICATION

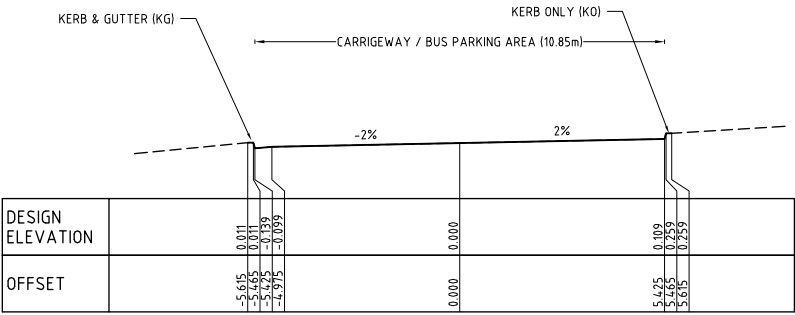
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DRAWING TITLE				
ACCESSWAY LONGITUDINAL AND TYPICAL SECTIONS SHEET 3				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-D202	B

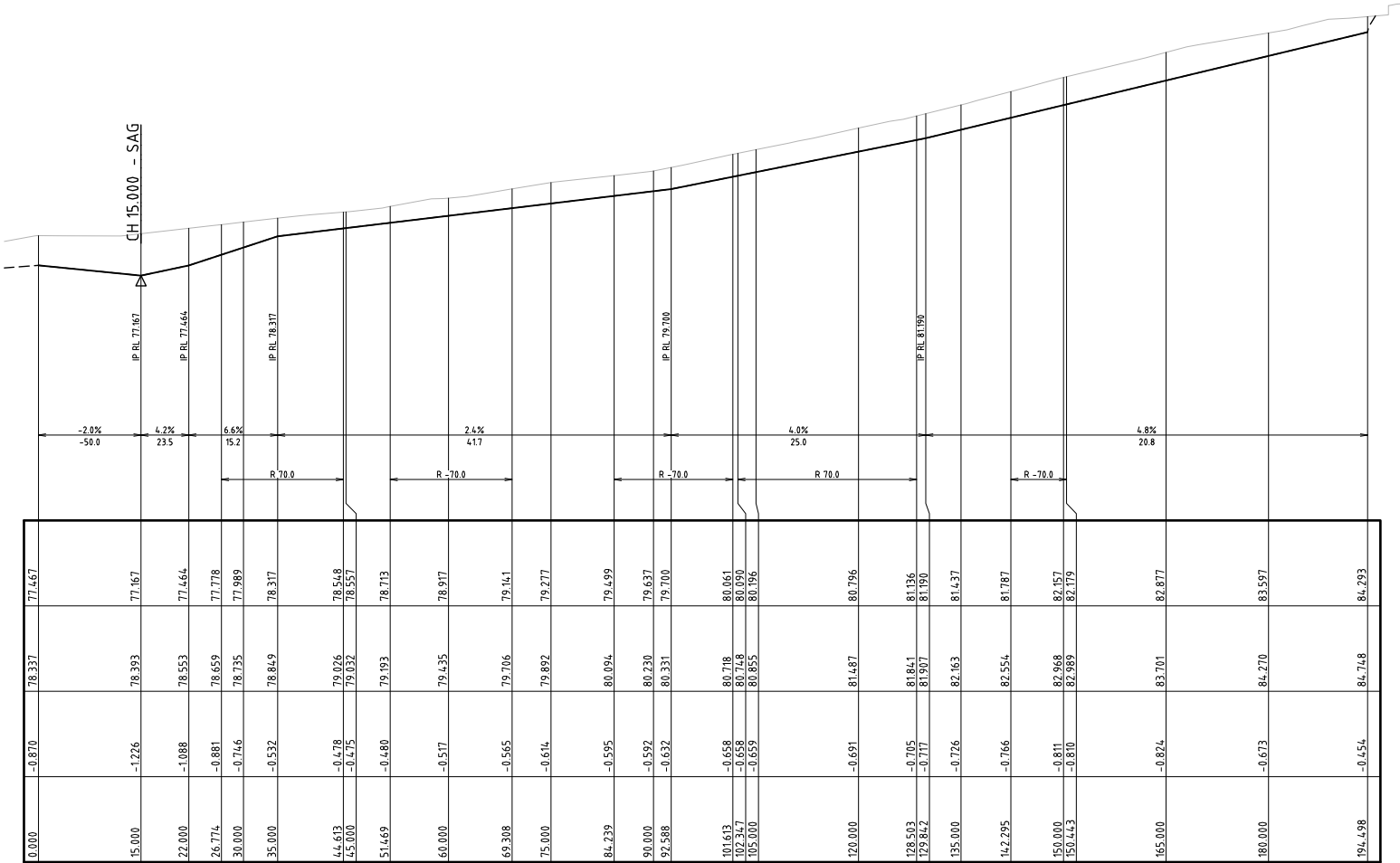




BUS PARKING ACCESSWAY 1 ( 21-MSC05 ) TYPICAL CROSS SECTION  
SCALE 1:100

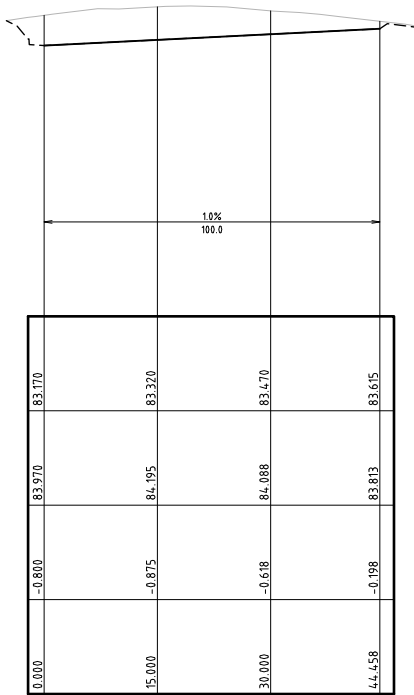


BUS PARKING ACCESSWAY 2 ( 21-MSC06 ) TYPICAL CROSS SECTION  
SCALE 1:100



BUS PARKING ACCESSWAY 1 ( 21-MSC05 ) LONG. SECTION

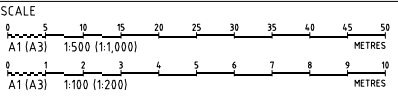
SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100



BUS PARKING ACCESSWAY 2 ( 21-MSC06 ) LONG. SECTION

SCALE: HORIZONTAL - 1:500  
VERTICAL - 1:100

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROV
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID	DATUM	PROJECT MANAGER	CLIENT
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MINARAH COLLEGE - CATHERINE FIELD			
CIVIL WORKS PLAN			
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW			

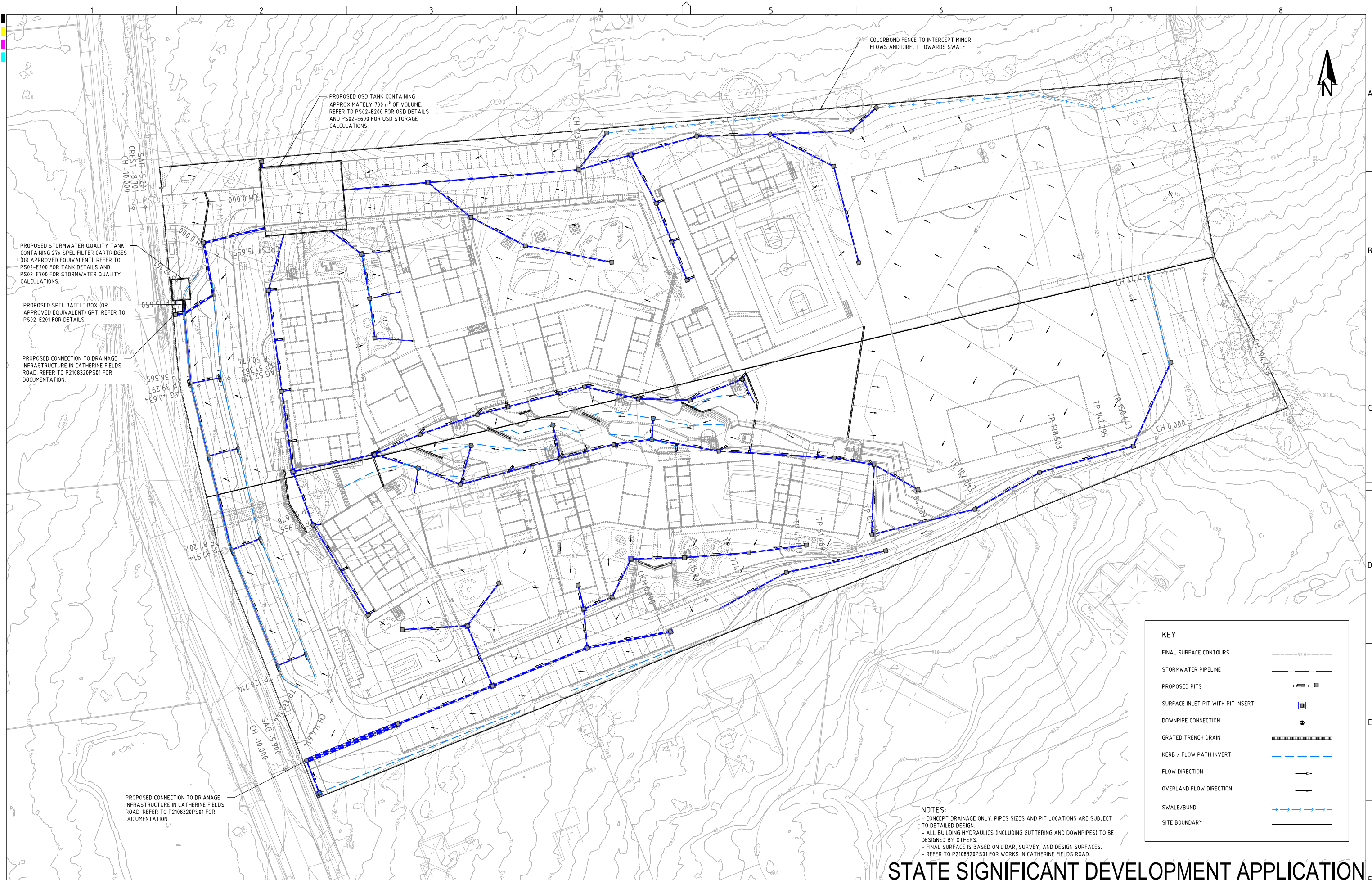
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DRAWING TITLE				
ACCESSWAY LONGITUDINAL AND TYPICAL SECTIONS SHEET 4				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-D203	B

# STATE SIGNIFICANT DEVELOPMENT APPLICATION



PROPOSED STORMWATER QUALITY TANK CONTAINING 27x SPEL FILTER CARTRIDGES (OR APPROVED EQUIVALENT). REFER TO PS02-E200 FOR TANK DETAILS AND PS02-E700 FOR STORMWATER QUALITY CALCULATIONS.

PROPOSED SPEL BAFFLE BOX (OR APPROVED EQUIVALENT) GPT. REFER TO PS02-E201 FOR DETAILS.

PROPOSED CONNECTION TO DRAINAGE INFRASTRUCTURE IN CATHERINE FIELDS ROAD. REFER TO P2108320PS01 FOR DOCUMENTATION.

PROPOSED OSD TANK CONTAINING APPROXIMATELY 700 m<sup>3</sup> OF VOLUME. REFER TO PS02-E200 FOR OSD DETAILS AND PS02-E600 FOR OSD STORAGE CALCULATIONS.

COLORBOND FENCE TO INTERCEPT MINOR FLOWS AND DIRECT TOWARDS SWALE

PROPOSED CONNECTION TO DRAINAGE INFRASTRUCTURE IN CATHERINE FIELDS ROAD. REFER TO P2108320PS01 FOR DOCUMENTATION.

KEY

FINAL SURFACE CONTOURS

STORMWATER PIPELINE

PROPOSED PITS

SURFACE INLET PIT WITH PIT INSERT

DOWNPIPE CONNECTION

GRATED TRENCH DRAIN

KERB / FLOW PATH INVERT

FLOW DIRECTION

OVERLAND FLOW DIRECTION

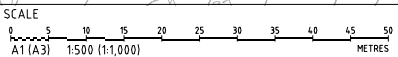
SWALE/BUND

SITE BOUNDARY

NOTES:

- CONCEPT DRAINAGE ONLY. PIPES SIZES AND PIT LOCATIONS ARE SUBJECT TO DETAILED DESIGN.
- ALL BUILDING HYDRAULICS (INCLUDING GUTTERING AND DOWNPIPES) TO BE DESIGNED BY OTHERS.
- FINAL SURFACE IS BASED ON LIDAR, SURVEY, AND DESIGN SURFACES.
- REFER TO P2108320PS01 FOR WORKS IN CATHERINE FIELDS ROAD.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID  
MGA

DATUM  
mAHD

PROJECT MANAGER  
TH

CLIENT  
MINARAH COLLEGE

PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN

268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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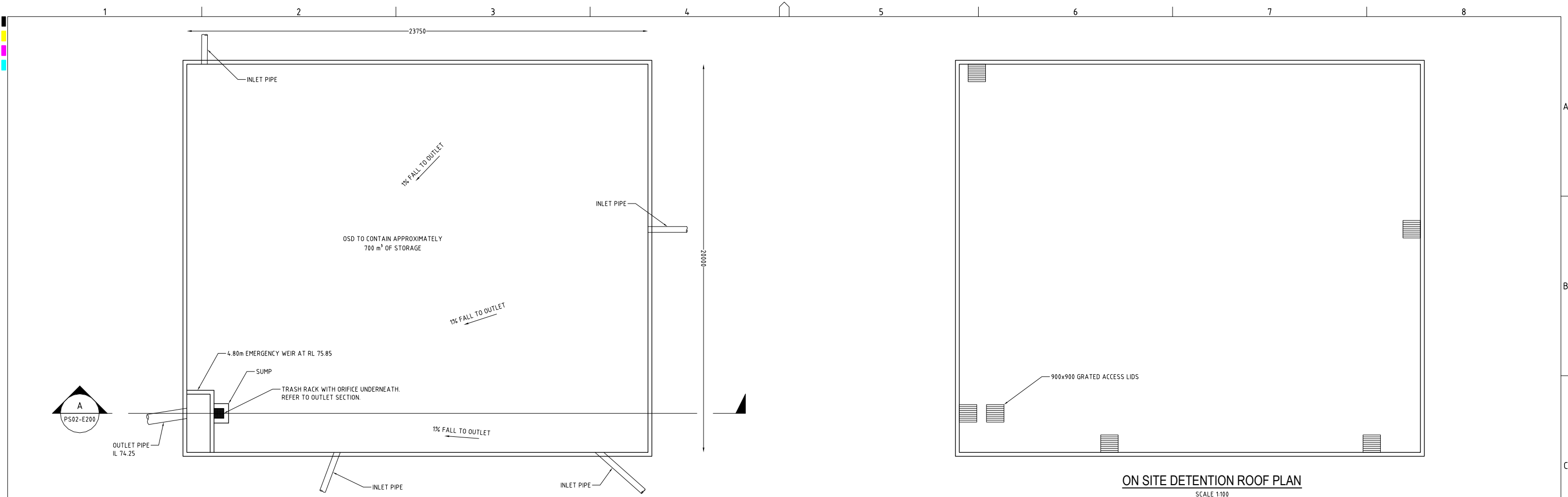
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Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE				
DRAINAGE PLAN (ULTIMATE DEVELOPMENT)				
PROJECT NO. P2108320	PLANSET NO. PS02	RELEASE NO. R03	DRAWING NO. PS02-E100	REVISION B



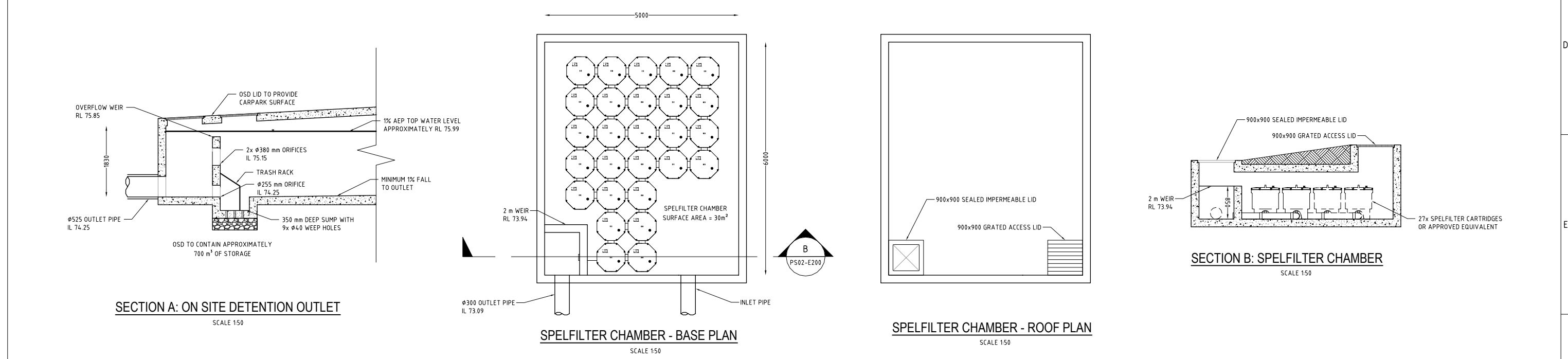






ON SITE DETENTION BASE PLAN  
SCALE 1:100

ON SITE DETENTION ROOF PLAN  
SCALE 1:100



SECTION A: ON SITE DETENTION OUTLET  
SCALE 1:50

SPELFILTER CHAMBER - BASE PLAN  
SCALE 1:50

SPELFILTER CHAMBER - ROOF PLAN  
SCALE 1:50

SECTION B: SPELFILTER CHAMBER  
SCALE 1:50

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	DRAWING TITLE
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH	0 1 2 3 4 5 6 7 8 9 10 A1 (A3) 1:100 (1:200) METRES	MGA	mAHD	TH	MINARAH COLLEGE	DRAINAGE DETAILS (SHEET 1)
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH	0 0.5 1 1.5 2 2.5 3 3.5 4 4.5 5 A1 (A3) 1:50 (1:100) METRES				PROJECT NAME/PLANSET TITLE MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN	PROJECT NO. P2108320
											268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW	PLANSET NO. PS02
												RELEASE NO. R03
												DRAWING NO. PS02-E200
												REVISION B

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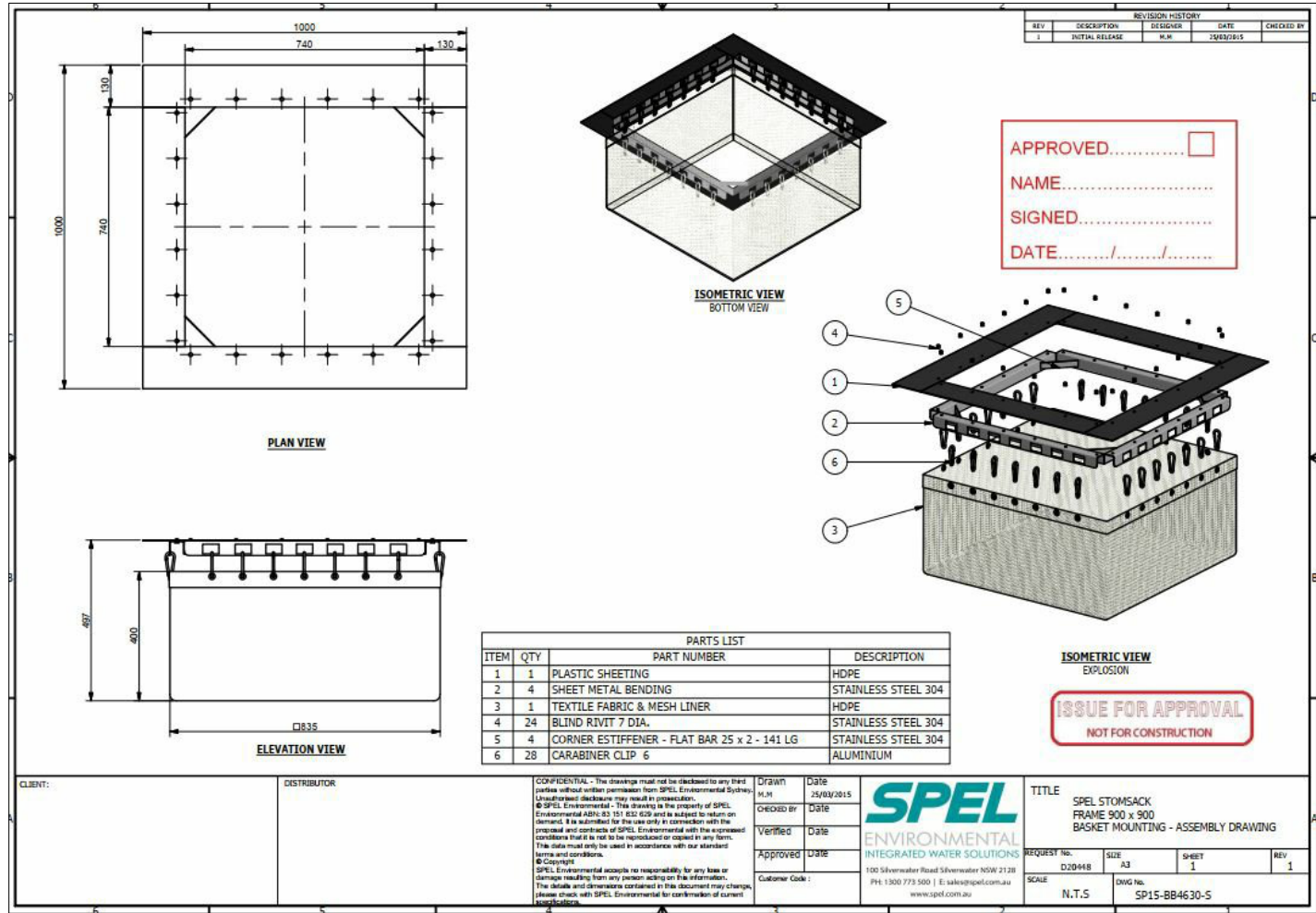
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Water  
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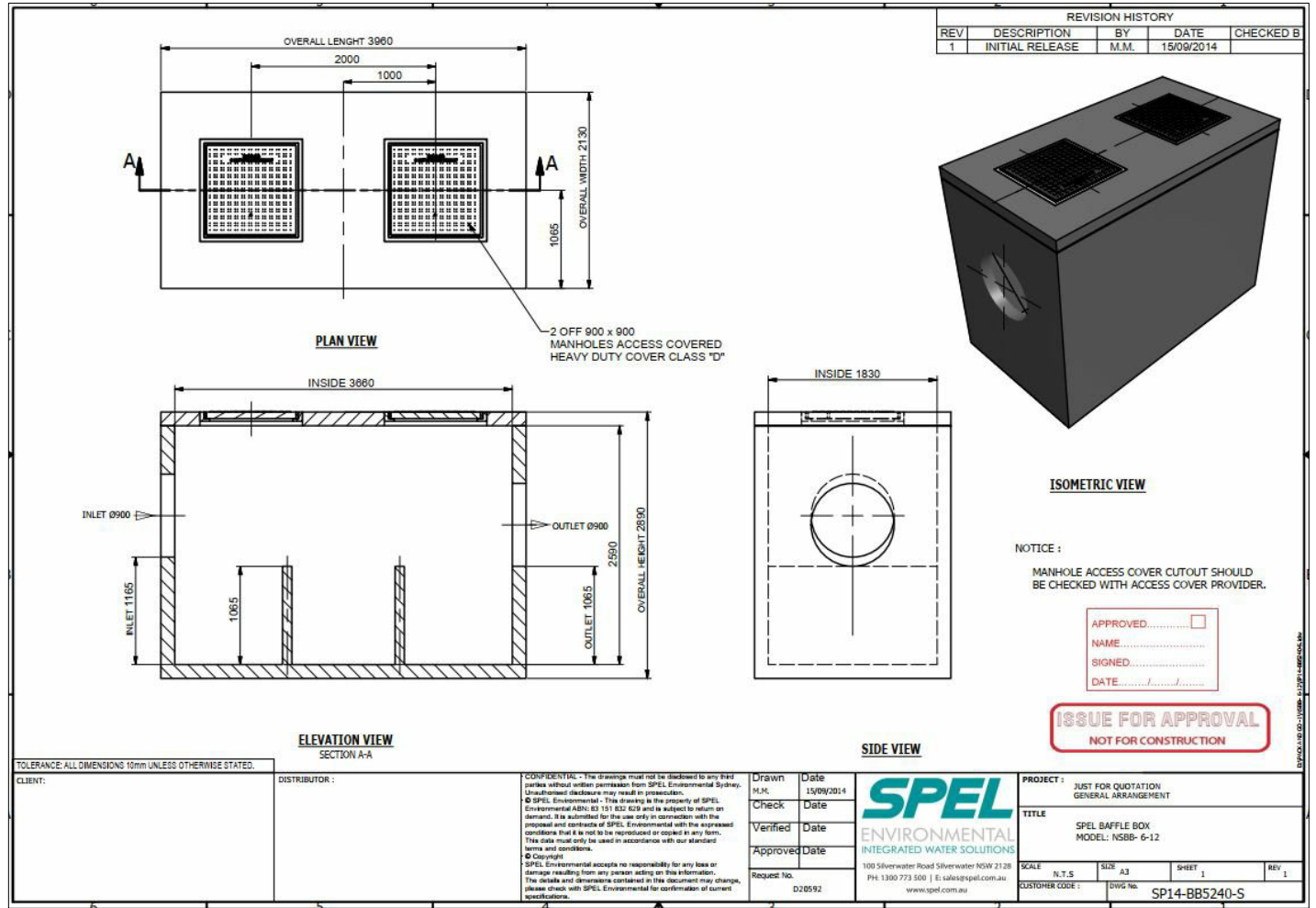
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DRAWING ID: P2108320-PS02-R03-E200

PRINTED: A1 / A3 LANDSCAPE (A1LC\_v02.0.0)



SPEL STORMSACK DETAILS  
NOT TO SCALE



SPEL BAFFLE BOX DETAILS  
NOT TO SCALE

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROVED	SCALE
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH	
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH	

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH
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PROJECT NAME/PLANSET TITLE
MINARAH COLLEGE - CATHERINE FIELD CIVIL WORKS PLAN
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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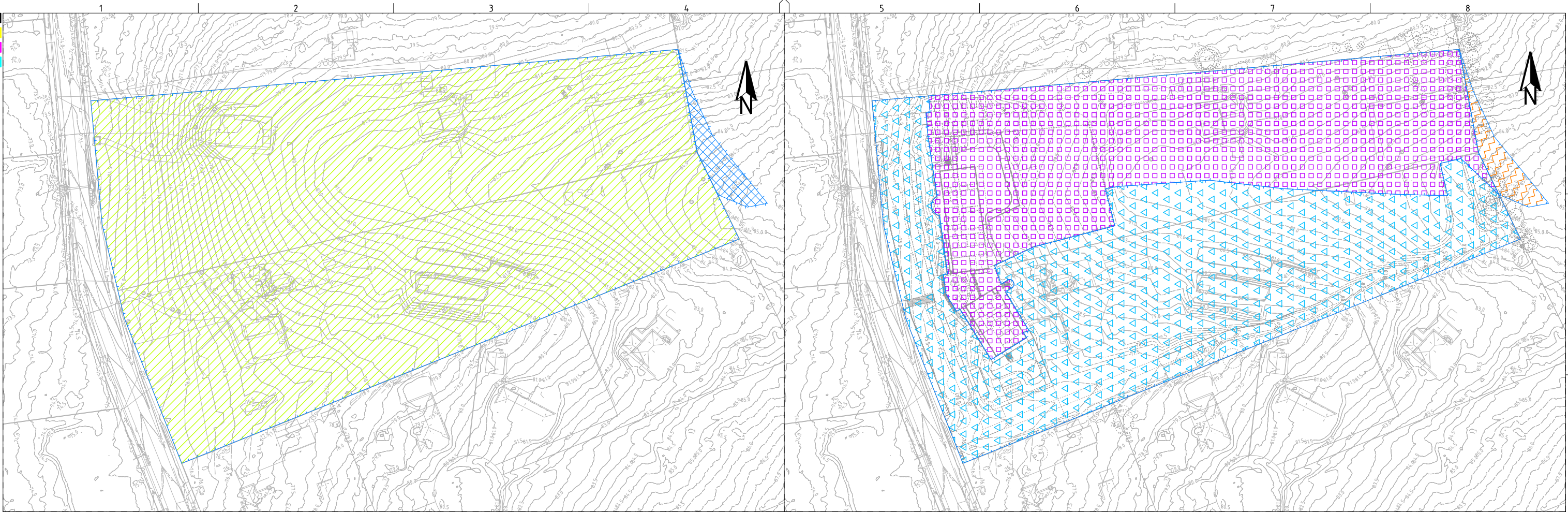
DRAWING TITLE				
DRAINAGE DETAILS (SHEET 2)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-E201	B

## STATE SIGNIFICANT DEVELOPMENT APPLICATION



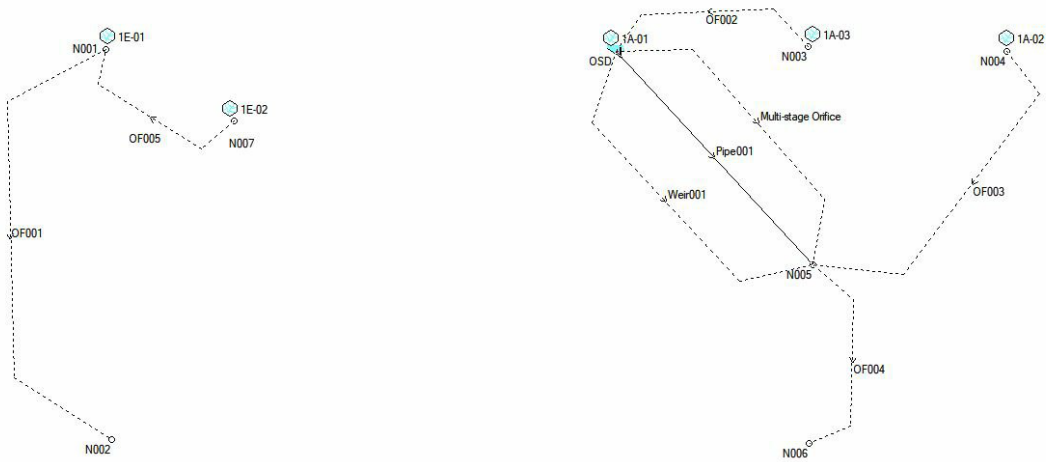






PREDEVELOPMENT CATCHMENT PLAN  
SCALE 1:1000

POSTDEVELOPMENT CATCHMENT PLAN - STAGE 1  
SCALE 1:1000



DRAINS MODELLING LAYOUT

PREDEVELOPMENT CATCHMENTS TABLE				
KEY	DRAINS NODE		AREA (ha)	% PAVED
	1E-01		4.50	7%
	1E-02		0.08	5%
		TOTAL AREA	4.58	= 100% OF TOTAL AREA
		TOTAL IMPERVIOUS AREA	0.32	= 7% OF TOTAL AREA
		TOTAL PERVIOUS AREA	4.26	= 93% OF TOTAL AREA

POSTDEVELOPMENT CATCHMENTS TABLE - STAGE 1				
KEY	DRAINS NODE		AREA (ha)	% PAVED
	1A-01		2.03	27%
	1A-02		2.47	12%
	1A-03		0.08	5%
		TOTAL AREA	4.58	= 100% OF TOTAL AREA
		TOTAL IMPERVIOUS AREA	0.85	= 19% OF TOTAL AREA
		TOTAL PERVIOUS AREA	3.73	= 81% OF TOTAL AREA

MODEL NAME: P2108320DRN03V02 RESULTS TABLE - STAGE 1																		
	0.5 EY			0.2 EY			10% AEP			5% AEP			2% AEP			1% AEP		
	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference	Pre	Post	Difference
Peak Flow Rate (m³/s)	0.301	0.247	0.054	0.556	0.401	0.155	0.744	0.528	0.216	0.97	0.668	0.302	1.292	0.820	0.472	1.500	1.014	0.486

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE  
0 10 20 30 40 50 60 70 80 90 100  
A1 (A3) 1:1,000 (1:2,000) METRES

GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW  
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STATE SIGNIFICANT DEVELOPMENT APPLICATION

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Civil

DRAWING TITLE  
ON SITE DETENTION CATCHMENT PLAN, MODELS & RESULTS  
(STAGE 1)

PROJECT NO.  
P2108320

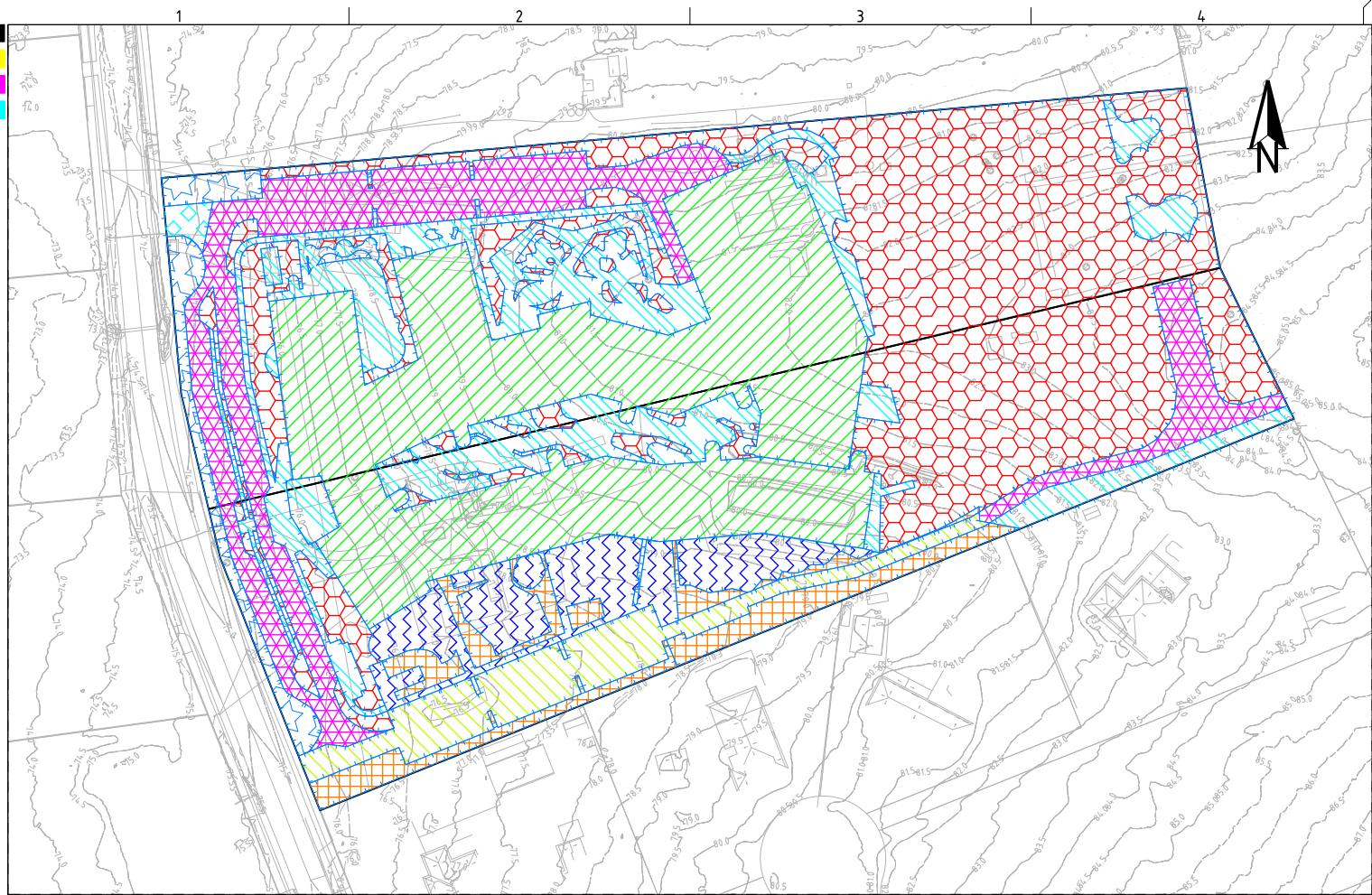
PLANSET NO.  
PS02

RELEASE NO.  
R03

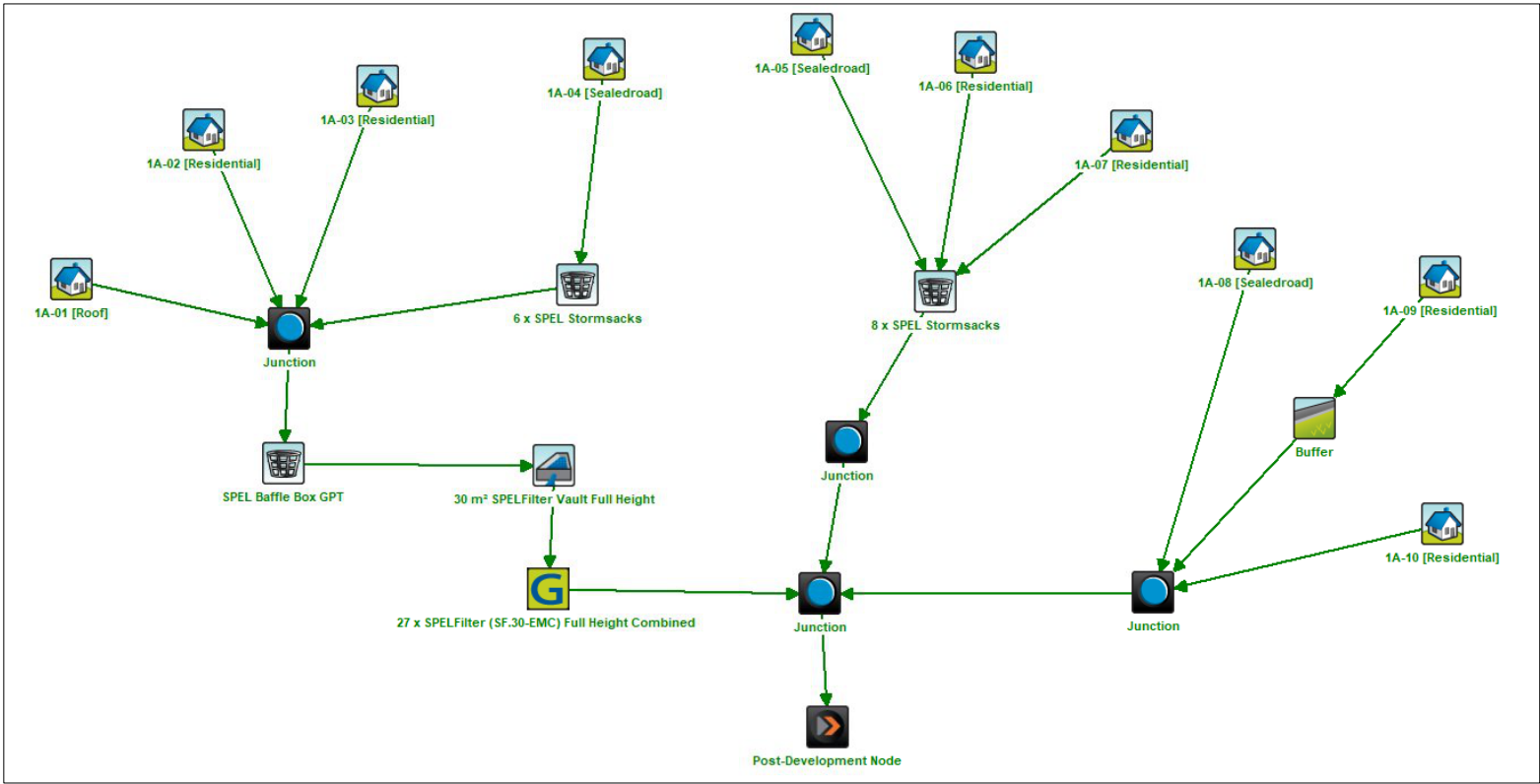
DRAWING NO.  
PS02-E610

REVISION  
B





MASTERPLAN MUSIC CATCHMENT DETAILS (P2108320MUS01V02)				
KEY	MUSIC NODE	DESCRIPTION	AREA (ha)	% PAVED
	1A-01	ROOF	1.19	100%
	1A-02	IMPERVIOUS TO OSD	0.55	100%
	1A-03	PERVIOUS TO OSD	1.51	0%
	1A-04	ROAD TO OSD	0.50	100%
	1A-05	ROAD TO STORMFILTER CHAMBER	0.20	100%
	1A-06	IMPERVIOUS TO STORMFILTER CHAMBER	0.25	100%
	1A-07	PERVIOUS TO STORMFILTER CHAMBER	0.19	0%
	1A-08	ROAD BYPASS	0.01	100%
	1A-09	IMPERVIOUS BYPASS	0.001	100%
	1A-10	PERVIOUS BYPASS	0.09	0%
		TOTAL AREA	4.50	= 100% OF TOTAL AREA
		TOTAL IMPERVIOUS AREA	2.71	= 60% OF TOTAL AREA
		TOTAL PERVIOUS AREA	1.79	= 40% OF TOTAL AREA



P2108320MUS01V02 - MUSIC MODELLING LAYOUT

Treatment Train Effectiveness - Post-Development Node			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	23.2	23.2	0
Total Suspended Solids (kg/yr)	3680	543	85.3
Total Phosphorus (kg/yr)	6.91	2.41	65.1
Total Nitrogen (kg/yr)	51.5	26.9	47.8
Gross Pollutants (kg/yr)	533	1.99	99.6

P2108320MUS01V02 - MUSIC MODELLING RESULTS

## STATE SIGNIFICANT DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE  
0 10 20 30 40 50 60 70 80 90 100  
A1 (A3) 1:1,000 (1:2,000) METRES

GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
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PROJECT NAME/PLANSET TITLE  
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268 & 278 CATHERINE FIELDS ROAD, CATHERINE FIELDS, NSW

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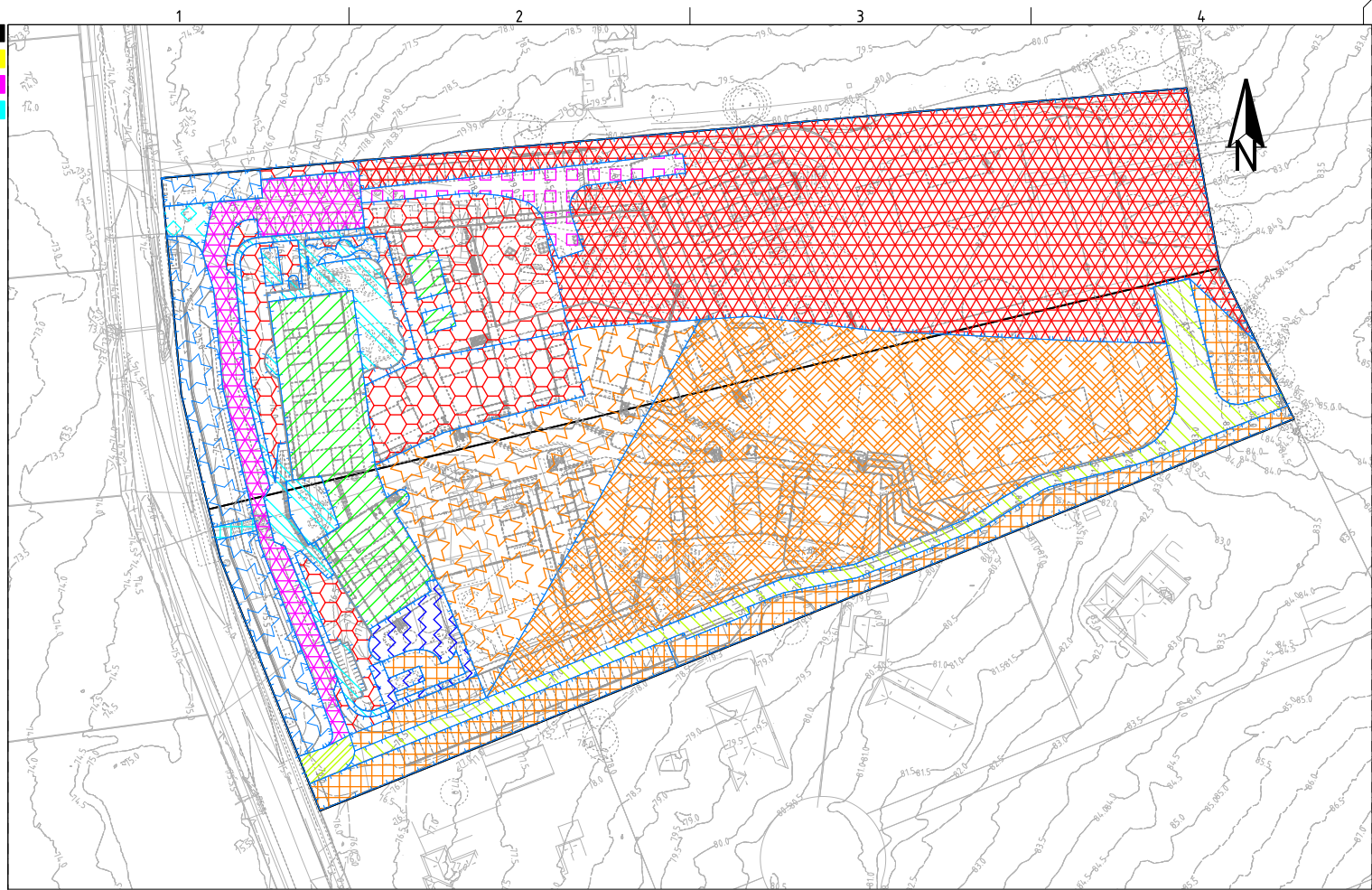
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Environment  
Water  
Geotechnical  
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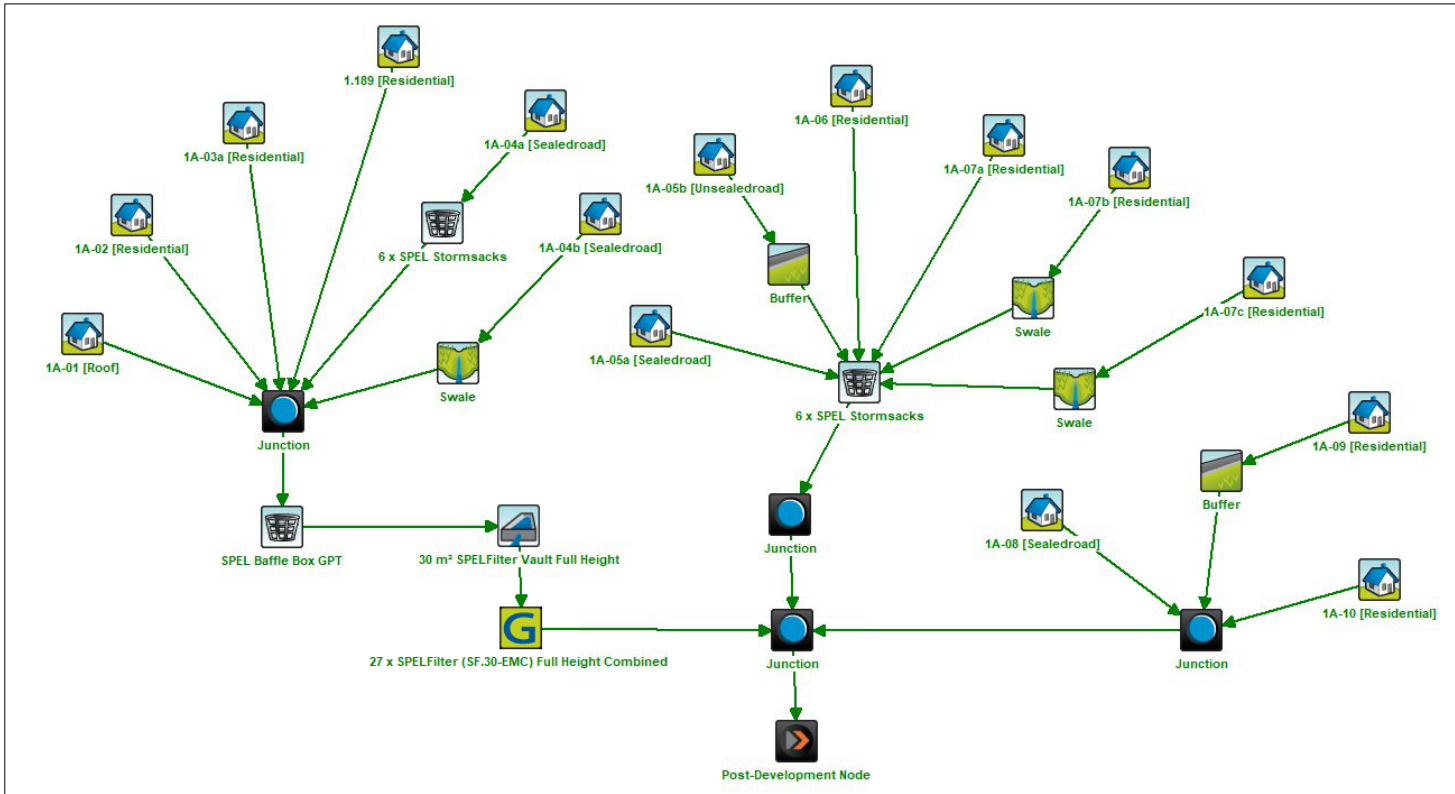
DRAWING TITLE				
WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS (ULTIMATE DEVELOPMENT)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-E700	B

DRAWING ID: P2108320-PS02-R03-E700





STAGE 1 MUSIC CATCHMENT DETAILS (P2108320MUS02V02)				
KEY	MUSIC NODE	DESCRIPTION	AREA (ha)	% PAVED
	1A-01	ROOF	0.24	100%
	1A-02	IMPERVIOUS TO OSD	0.15	100%
	1A-03	PERVIOUS TO OSD	0.46	0%
	1A-03b	PERVIOUS TO SWALE AND OSD	1.20	0%
	1A-04	ROAD TO OSD	0.16	100%
	1A-04b	ROAD TO SWALE AND OSD	0.07	100%
	1A-05	ROAD TO STORMFILTER CHAMBER	0.01	100%
	1A-05b	UNSEALED ROAD TO STORMFILTER CHAMBER	0.18	100%
	1A-06	IMPERVIOUS TO STORMFILTER CHAMBER	0.05	100%
	1A-07	PERVIOUS TO STORMFILTER CHAMBER	0.29	0%
	1A-07b	PERVIOUS TO SWALE AND STORMFILTER CHAMBER	0.40	0%
	1A-07c	PERVIOUS TO SWALE AND STORMFILTER CHAMBER	1.05	0%
	1A-08	ROAD BYPASS	0.01	100%
	1A-09	IMPERVIOUS BYPASS	0.005	100%
	1A-10	PERVIOUS BYPASS	0.21	0%
		TOTAL AREA	4.50	= 100% OF TOTAL AREA
		TOTAL IMPERVIOUS AREA	0.88	= 20% OF TOTAL AREA
		TOTAL PERVIOUS AREA	3.61	= 80% OF TOTAL AREA



P2108320MUS02V02 - MUSIC MODELLING LAYOUT

Treatment Train Effectiveness - Post-Development Node			
	Sources	Residual Load	% Reduction
Flow (ML/yr)	14.3	14.3	0
Total Suspended Solids (kg/yr)	3900	463	88.1
Total Phosphorus (kg/yr)	4.79	1.55	67.7
Total Nitrogen (kg/yr)	31.9	16.1	49.4
Gross Pollutants (kg/yr)	168	3.46	97.9

P2108320MUS02V02 - MUSIC MODELLING RESULTS

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH

SCALE  
0 10 20 30 40 50 60 70 80 90 100  
A1 (A3) 1:1,000 (1:2,000) METRES

GRID  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
TH  
CLIENT  
MINARAH COLLEGE  
PROJECT NAME/PLANSET TITLE  
MINARAH COLLEGE - CATHERINE FIELD  
CIVIL WORKS PLAN  
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## STATE SIGNIFICANT DEVELOPMENT APPLICATION

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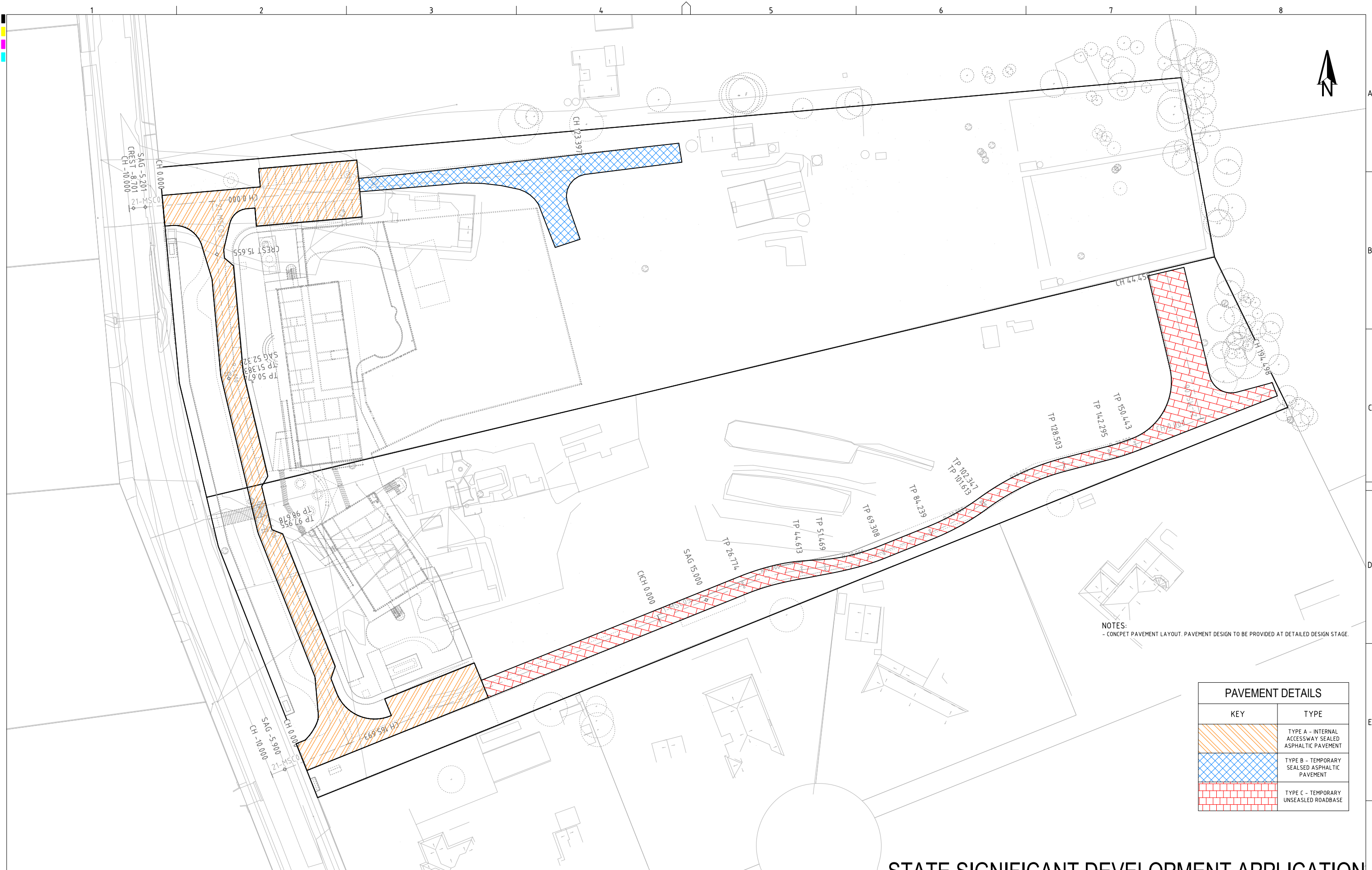
DRAWING TITLE				
WATER QUALITY CATCHMENT PLAN, MODEL & RESULTS (STAGE 1)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-E710	B

DRAWING ID: P2108320-PS02-R03-E710





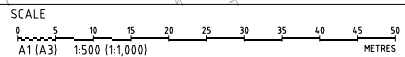




NOTES:  
- CONCEPT PAVEMENT LAYOUT. PAVEMENT DESIGN TO BE PROVIDED AT DETAILED DESIGN STAGE.

PAVEMENT DETAILS	
KEY	TYPE
	TYPE A - INTERNAL ACCESSWAY SEALED ASPHALTIC PAVEMENT
	TYPE B - TEMPORARY SEALED ASPHALTIC PAVEMENT
	TYPE C - TEMPORARY UNSEALED ROADBASE

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	14/04/2022	NN/JS	RL/BN	CG/AVG	TH
A	INITIAL RELEASE	17/03/2022	JS/NN	RL/BN	CG/AVG	TH



GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH
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DRAWING TITLE				
CONCEPT PAVEMENT PLAN (STAGE 1)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P2108320	PS02	R03	PS02-G451	B

STATE SIGNIFICANT DEVELOPMENT APPLICATION

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A1 / A3 LANDSCAPE (A1LC\_v02.0.0)

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