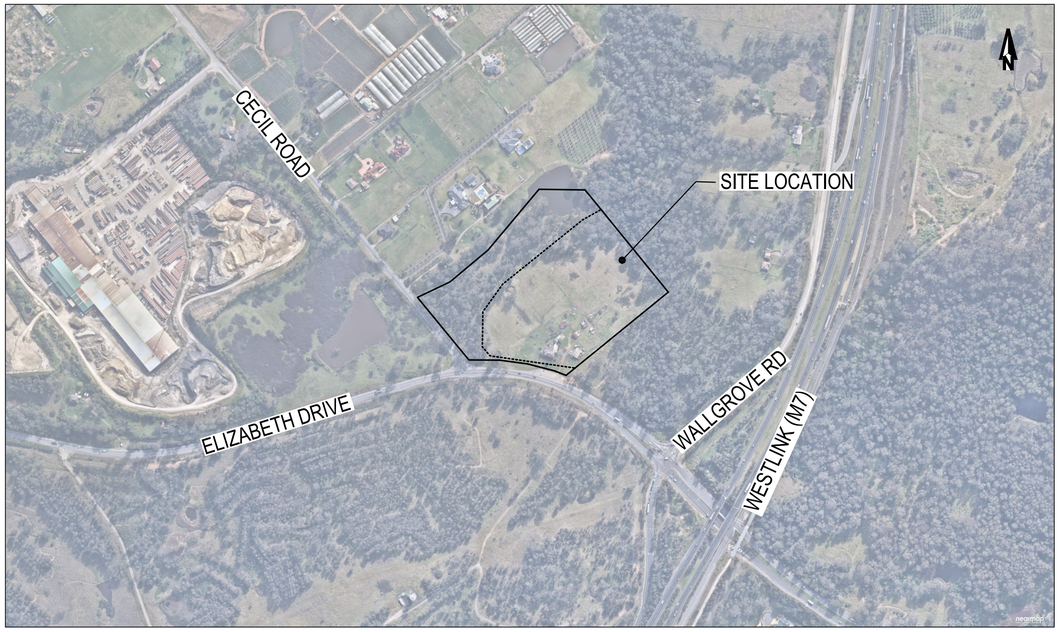
PROJECT: PROPOSED COMMERCIAL DEVELOPMENT

PLANSET: CONCEPT CIVIL DESIGN

CLIENT: AE DESIGN PARTNERSHIP



LOCALITY PLAN
NOT TO SCALE

LGA: FAIRFIELD CITY COUNCIL

1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

DRAWING LIST		
DWG NO.	REV	DWG TITLE
GENERAL		
PS03-A000	D	COVER SHEET
PS03-A050	D	DEVELOPMENT OVERVIEW PLAN
CONSTRUCTION MANAGEMENT WORKS		
PS03-B300	D	SEDIMENT & EROSION CONTROL PLAN
PS03-B310	B	SEDIMENT & EROSION CONTROL DETAILS
PS03-B350	A	SEDIMENT & EROSION CONTROL RUSLE CALCULATION
EARTHWORKS		
PS03-C100	D	EARTHWORKS GRADING PLAN
PS03-C500	D	EARTHWORKS CUT-FILL PLAN
PS03-C600	B	EARTHWORKS SITE SECTION (SHEET 01)
PS03-C601	A	EARTHWORKS SITE SECTION (SHEET 02)
ROADWORKS		
PS03-D100	D	ROADWORKS PLAN
PS03-D200	B	ROAD 1 (21-MRC01) LONGITUDINAL SECTION & TYPICAL SECTIONS
DRAINAGE		
PS03-E100	D	DRAINAGE PLAN
PS03-E200	B	DRAINAGE DETAILS
PS03-E600	D	OSD CATCHMENT PLAN, MODEL AND RESULTS
PS03-E700	D	WATER QUALITY CATCHMENT PLAN, MODEL AND RESULTS
STRUCTURE AND PAVEMENTS		
PS03-G210	B	RETAINING WALL SECTION (SHEET 01)
PS03-G211	A	RETAINING WALL SECTION (SHEET 02)
PS03-G220	B	CONCEPT RETAINING WALL DETAILS
PS03-G400	D	PAVEMENT PLAN

GENERAL NOTES

1 THIS PLAN IS FOR DEVELOPMENT APPLICATION PURPOSE AND NOT FOR CONSTRUCTION. DESIGN TO 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 SHOWN BASED ON SURVEY PROVIDED BY PROJECT SURVEYOR AND LIDAR DATA FROM NSW SPATIAL SERVICES.
4 SITE BOUNDARY BASED ON INFORMATION PROVIDED BY PROJECT SURVEYOR.
5 LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).
6 FINAL SURFACE CONTOURS ARE BASED ON PROPOSED AND EXISTING SURFACE.
7 THIS PLANSET HAS BEEN PREPARED IN RESPONSE TO THE PROPOSED ACQUISITION OF PART OF THE SITE WHICH WILL REDUCE THE SITE AREA BY 26,617SQM. THE ACQUISITION OF THE AREA OF THE SITE PROPOSED BY TFNSW HAS REQUIRED AMENDMENTS TO BE MADE TO THE PROPOSED DEVELOPMENT AND DEVELOPMENT FOOTPRINT WHICH REQUIRE A RE-ASSESSMENT OF THE IMPACTS AND DESIGN WHICH RESPONDS TO THE NEW DEVELOPMENT SITE.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

SCALE

GRID: ---
DATUM: ---
PROJECT MANAGER: TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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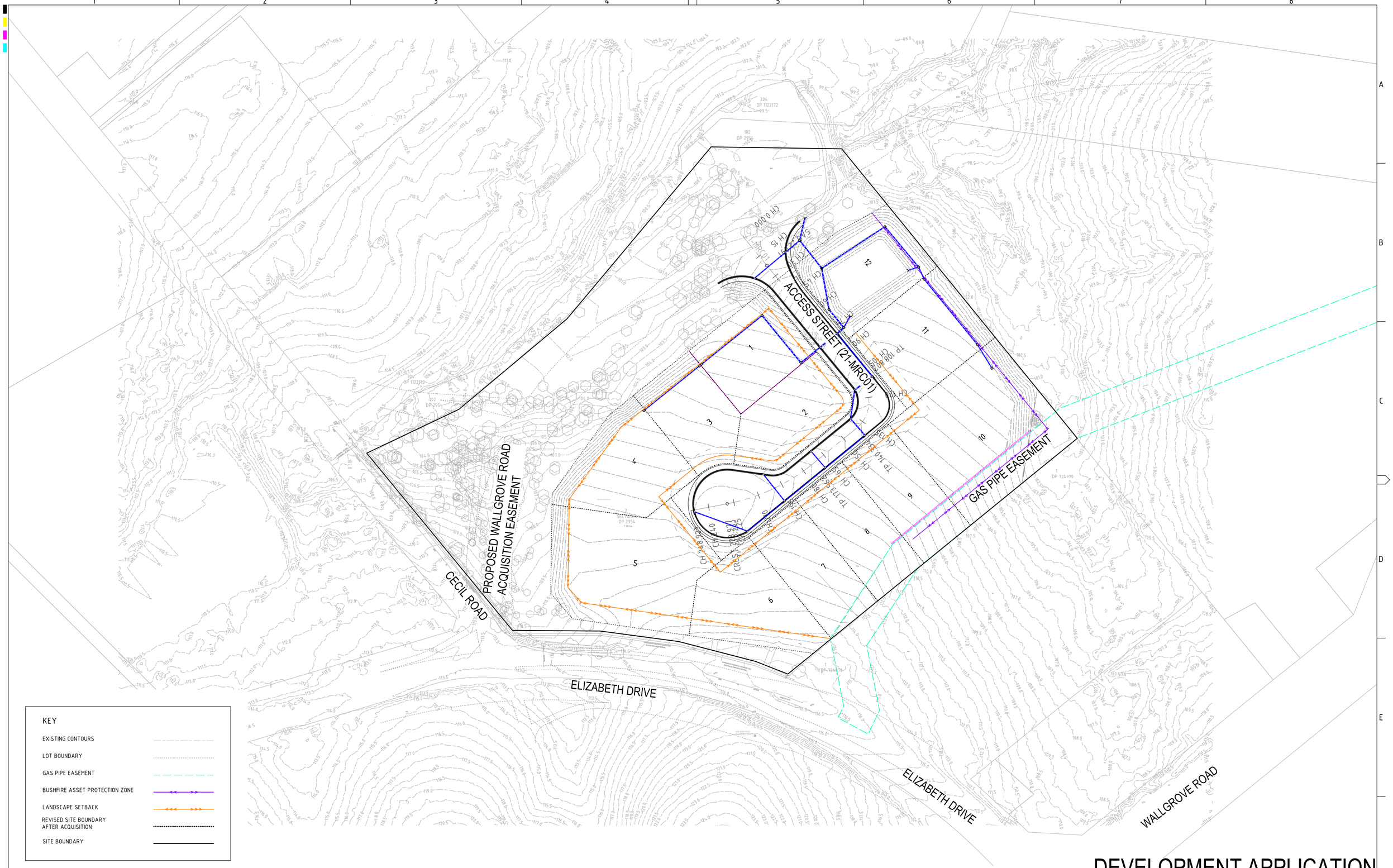
DRAWING TITLE: COVER SHEET

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-A000	D

PRINTED ---- USER: JSQUAREZ
A1 / A3 LANDSCAPE (A1LC_v02.0.01)
DRAWING ID: P1706121-PS03-R04-A000



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG/BN	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/BN	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

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

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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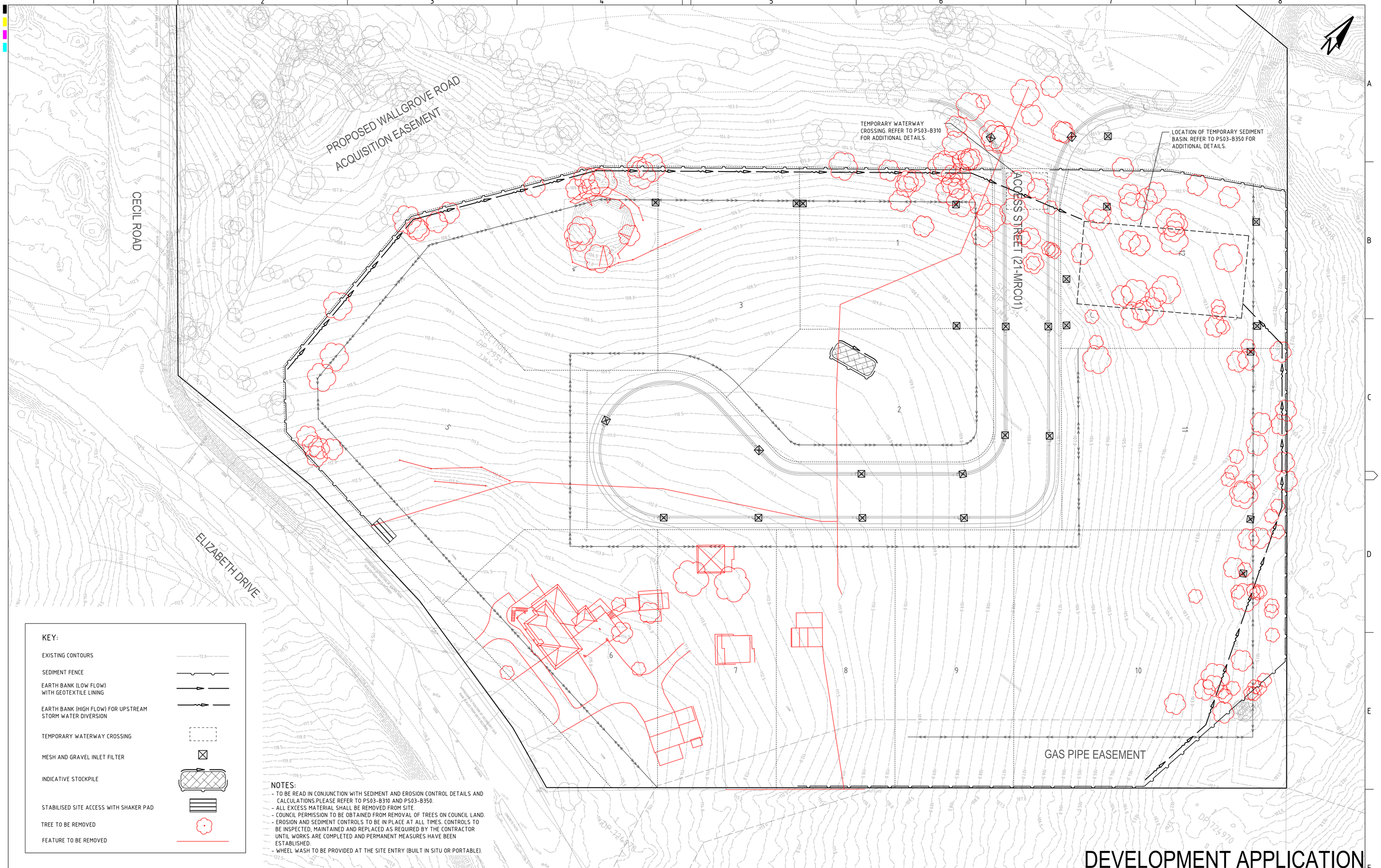
DRAWING TITLE
DEVELOPMENT OVERVIEW PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-A050	D

PRINTED: ---- USER: JSUAREZ
A1 / A3 LANDSCAPE (A1LC__v02.0.01)
DRAWING ID: P1706121-PS03-R04-A050



KEY:

- EXISTING CONTOURS
- SEDIMENT FENCE
- EARTH BANK (LOW FLOW) WITH GEOTEXTILE LINING
- EARTH BANK (HIGH FLOW) FOR UPSTREAM STORM WATER DIVERSION
- TEMPORARY WATERWAY CROSSING
- MESH AND GRAVEL INLET FILTER
- INDICATIVE STOCKPILE
- STABILISED SITE ACCESS WITH SHAKER PAD
- TREE TO BE REMOVED
- FEATURE TO BE REMOVED

NOTES:

- TO BE READ IN CONJUNCTION WITH SEDIMENT AND EROSION CONTROL DETAILS AND CALCULATIONS.PLEASE REFER TO PS03-B310 AND PS03-B350.
- ALL EXCESS MATERIAL SHALL BE REMOVED FROM SITE.
- COUNCIL PERMISSION TO BE OBTAINED FROM REMOVAL OF TREES ON COUNCIL LAND.
- EROSION AND SEDIMENT CONTROLS TO BE IN PLACE AT ALL TIMES. CONTROLS TO BE INSPECTED, MAINTAINED AND REPLACED AS REQUIRED BY THE CONTRACTOR UNTIL WORKS ARE COMPLETED AND PERMANENT MEASURES HAVE BEEN ESTABLISHED.
- WHEEL WASH TO BE PROVIDED AT THE SITE ENTRY (BUILT IN SITU OR PORTABLE).

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	**MINOR AMENDMENTS**	**10/06/2021**	**LL**	**CG**	**SA**	**TH**
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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DRAWING TITLE: SEDIMENT & EROSION CONTROL PLAN

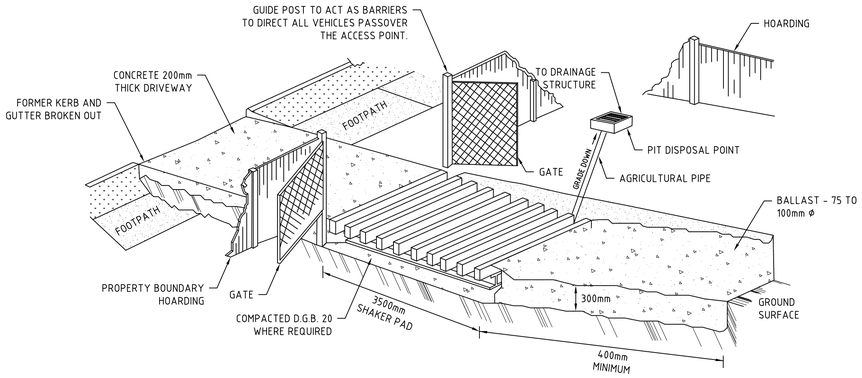
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-B300	D

STABILISED ACCESS POINT

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 ADJCENT 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.

SHAKER PAD (CATTLE GRID)

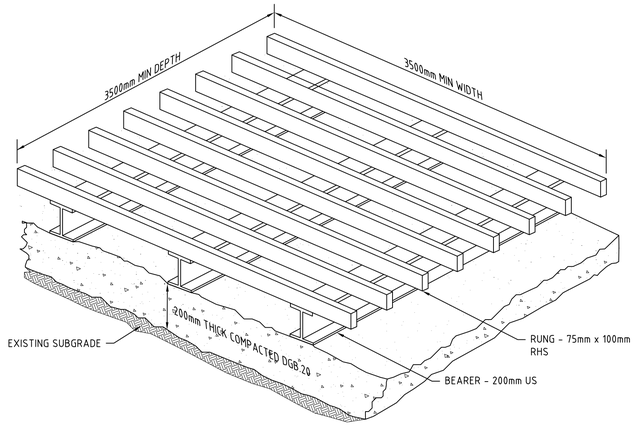
A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFERE FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSOPRY IN TYPE II SAP'S)

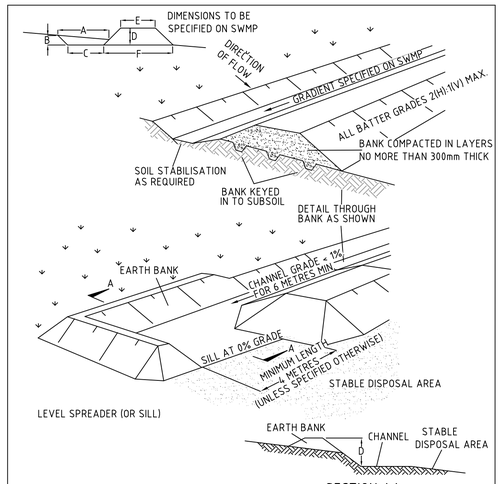
SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.

THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY A PRACTICING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVENT APPLICATION.
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL.
- MUST 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 3.5m IN LENGTH.
- MUST BE A MINIMUM OF 3.5m 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 ROP 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.

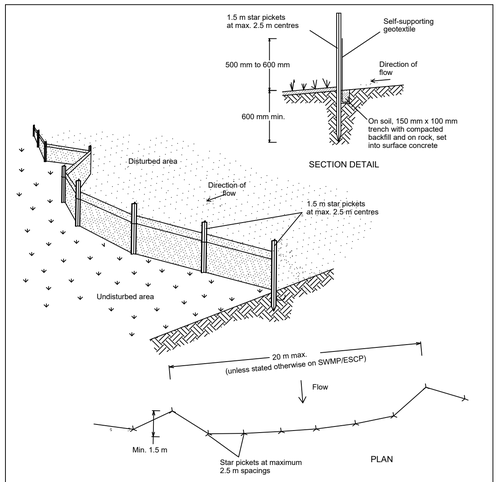




CONSTRUCTION NOTES

1. 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.

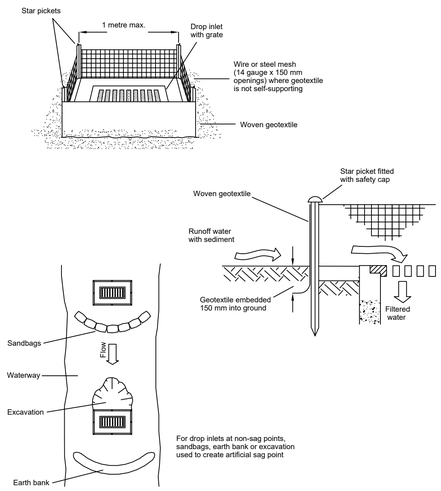
EARTH BANK (HIGH FLOWS) SD 5-6



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 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
3. Drive 1.5 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
4. Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
5. Join sections of fabric at a support post with a 150-mm overlap.
6. Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

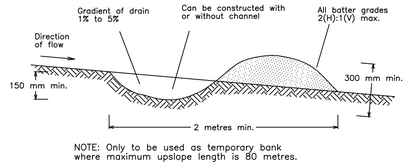
SEDIMENT FENCE SD 6-8



Construction Notes

1. 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.

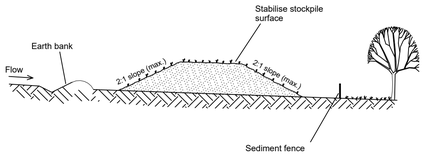
GEOTEXTILE INLET FILTER SD 6-12



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.

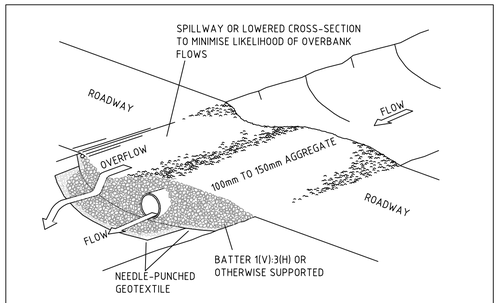
EARTH BANK (LOW FLOW) SD 5-5



Construction Notes

1. 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 Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES SD 4-1



CONSTRUCTION NOTES

1. PROHIBIT ALL TRAFFIC UNTIL THE ACCESS WAY IS CONSTRUCTED.
2. STRIP ANY TOPSOIL AND PLACE A NEEDLE-PUNCHED TEXTILE OVER THE BASE OF THE CROSSING.
3. PLACE CLEAN, RIGID, NON POLLUTING AGGREGATE OR GRAVEL IN THE 100mm TO 150mm SIZE CLASS OVER THE FABRIC TO A MINIMUM DEPTH OF 200mm.
4. PROVIDE A 3-METRE WIDE CARRIAGEWAY WITH SUFFICIENT LENGTH OF CULVERT PIPE TO ALLOW LESS THAN A 3(H): 1(V) SLOPE ON SIDE BATTERS.
5. INSTALL A LOWER SECTION TO ACT AS AN EMERGENCY SPILLWAY IN GREATER THAN DESIGN STORM EVENTS.
6. ENSURE THAT CULVERT OUTLETS EXTEND BEYOND THE TOE OF FILL EMBANKMENTS.

TEMPORARY WATERWAY CROSSING SD 5-1

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	INITIAL RELEASE	04/06/2021	LL	CG/AVG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

SCALE

GRID	DATUM	PROJECT MANAGER
---	---	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN

1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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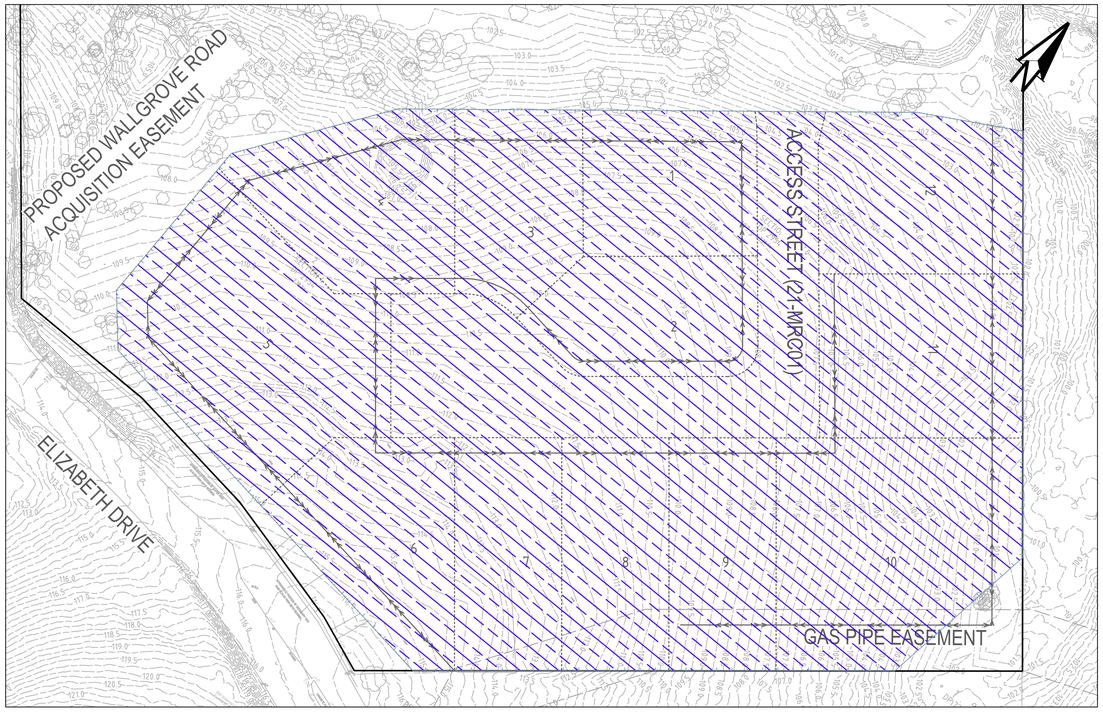
DRAWING TITLE: SEDIMENT & EROSION CONTROL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-B310	B



RUSLE CALCULATION CATCHMENT OVERVIEW PLAN

SCALE 1:1000

SWMP Commentary, Detailed Calculations

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: P1907216

Site Location: 115 Mount View Close, Razorback, NSW

Precinct: N/A

Description of Site: Blacktown (9029bt) & Picton (9029pn) - Wollongong - Port Hacking Soil Landscape

Site area	Site						Remarks
	CAT1						
Total catchment area (ha)	4.71						
Disturbed catchment area (ha)	4.71						

Soil analysis

% sand (fraction 0.02 to 2.00 mm	60						Soil texture should be assessed through
% silt (fraction 0.002 to 0.02 mm)	15						mechanical dispersion only. Dispersing
% clay (fraction finer than 0.002 mm)	25						agents (e.g. Calgon) should not be used
Dispersion percentage	30						E.g. enter 10 for dispersion of 10%
% of whole soil dispersible	9.75						See Section 6.3.3(e)
Soil Texture Group	C						See Section 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5						See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	75						See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	19.2						See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	8.5						See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	1690						Automatic calculation from above data
Soil erodibility (K-factor)	0.05						
Slope length (m)	165						
Slope gradient (%)	6						RUSLE data can be obtained from
Length/gradient (LS-factor)	2.26						Appendices A, B and C
Erosion control practice (P-factor)	1.3						
Ground cover (C-factor)	1						

Calculations

Soil loss (t/ha/yr)	248						
Soil Loss Class	3						See Section 4.4.2(b)
Soil loss (m^3/ha/yr)	191						
Sediment basin storage volume, m^3	153						See Sections 6.3.4(i) and 6.3.5 (e)

P1706121JS03V01 1

SWMP Commentary, Detailed Calculations

2. Storm Flow Calculations

Peak flow is given by the Rational Formula:

$$Q_{Y} = 0.00278 \times C_{10} \times F_{Y} \times I_{Y,\,tc} \times A$$

where:
- Q_Y is peak flow rate (m^3/sec) of average recurrence interval (ARI) of "Y" years
- C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years. Rural runoff coefficients are given in Volume 2, figure 5 of Pilgrim (1996), while urban runoff coefficients are given in Volume 1, Book VIII, figure 1.13 of Pilgrim (1996) and construction runoff coefficients are given in Appendix F
- F_Y is a frequency factor for "Y" years. Rural values are given in Volume 1, Book IV, Table 1.1 of Pilgrim (1996) while urban coefficients are given in Volume 1, Book VIII, Table 1.6 of Pilgrim (1996)
- A is the catchment area in hectares (ha)
- $I_{Y,\,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs (Volume 1, Book IV of Pilgrim, 1996)

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent.

Peak flow calculations, 1

Site	A (ha)	tc (mins)	Rainfall intensity, I, mm/hr						C_{10}
			$I_{1,tc}$	$I_{5,tc}$	$I_{10,tc}$	$I_{20,tc}$	$I_{50,tc}$	$I_{100,tc}$	
CAT1	4.7103	14	66.6	105	124.8	144.6	171	191.4	0.83

Peak flow calculations, 2

ARI (yrs)	Frequency factor (F_Y)	Peak flows						Comment
		CAT1				5		
		(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m^3/s)	(m3/s)	
1 yr,tc	0.8	0.579						
5 yr,tc	0.95	1.084						
10 yr,tc	1	1.356						
20 yr,tc	1.05	1.650						
50 yr,tc	1.15	2.137						
100 yr,tc	1.2	2.496						

P1706121JS03V01 1

SWMP Commentary, Detailed Calculations

3. Volume of Sediment Basins: *Type C* Soils

Basin volume = settling zone volume + sediment storage volume

Settling Zone Volume

The settling zone volume for *Type C* soils is calculated to provide capacity to allow the design particle (e.g. 0.02 mm in diameter) to settle in the peak flow expected from the design storm (e.g. 0.25-year ARI). 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. Peak flow/discharge for the 0.25-year, ARI storm is given by the Rational Formula:

$$Q_{tc,0.25} = 0.5 \times [0.00278 \times C10 \times Fy \times I\,1yr,\ tc \times A]\ (m3/sec)$$

where:
- $Q_{tc,0.25}$ = flow rate (m^3/sec) for the 0.25 ARI storm event
- C_{10} = runoff coefficient (dimensionless for ARI of 10 years)
- F_Y = frequency factor for 1 year ARI storm
- $I_{1yr,tc}$ = average rainfall intensity (mm/hr) for the 1-year ARI storm
- A = area of catchment in hectares (ha)

Basin surface area (A) = area factor x $Q_{tc,0.25}$ m2

Particle settling velocities under ideal conditions (Section 6.3.5(e))

Particle Size	Area Factor
0.100	170
0.050	635
0.020	4100

Volume of settling zone = basin surface area x depth (Section 6.3.5(e)(ii))

Sediment Storage Zone Volume

In the detailed calculation on Soil Loss Classes 1 to 4 lands, the sediment storage zone can be taken as 100 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 6.3.5(e)(iv)). 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 6.3.5(e)(v)).

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

	100% of settling zone capacity,
X	2 months soil loss calculated by RUSLE

Total Basin Volume

Site	$Q_{tc,0.25}$ (m^3/s)	Area factor	Basin surface area (m^2)	Depth of settling zone (m)	Settling zone volume (m^3)	Sediment storage volume (m^3)	Total basin volume (m^3)	Basin shape		
								L:W Ratio	Length (m)	Width (m)
CAT1	0.290	4100	1187	0.6	712	153	865	2	48.7	24.4

P1706121JS03V01 1

NOTE: SOURCED FROM LANDCOM BLUE BOOK.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	04/06/2021	LL	CG	SA	TH

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

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

martens & Associates Pty Ltd
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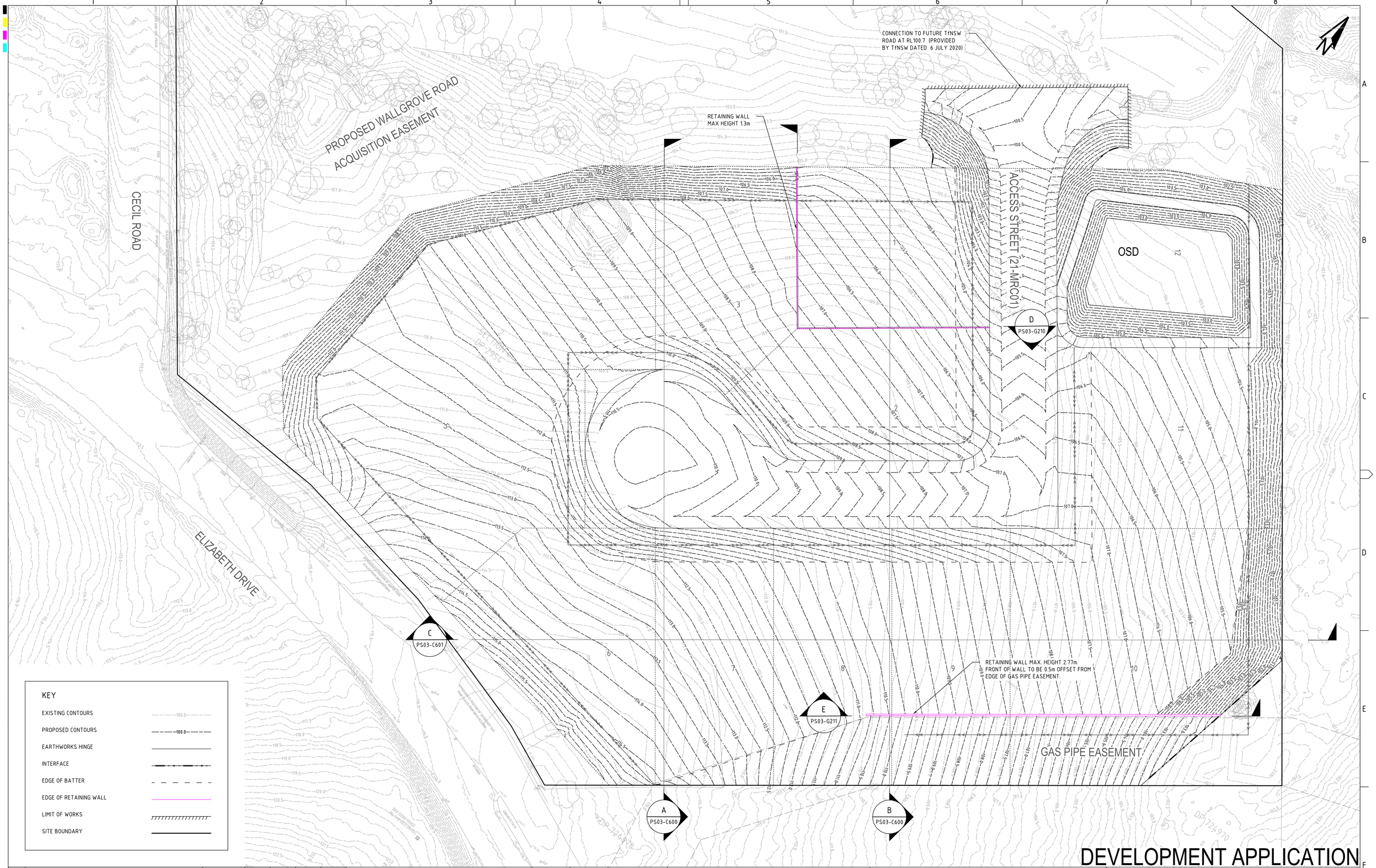
Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: SEDIMENT & EROSION CONTROL RUSLE CALCULATION

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-B350	A

DRAWING ID: P1706121-PS03-R04-B350



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	**MINOR AMENDMENTS**	**10/06/2021**	**LL**	**CG**	**SA**	**TH**
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

CLIENT
AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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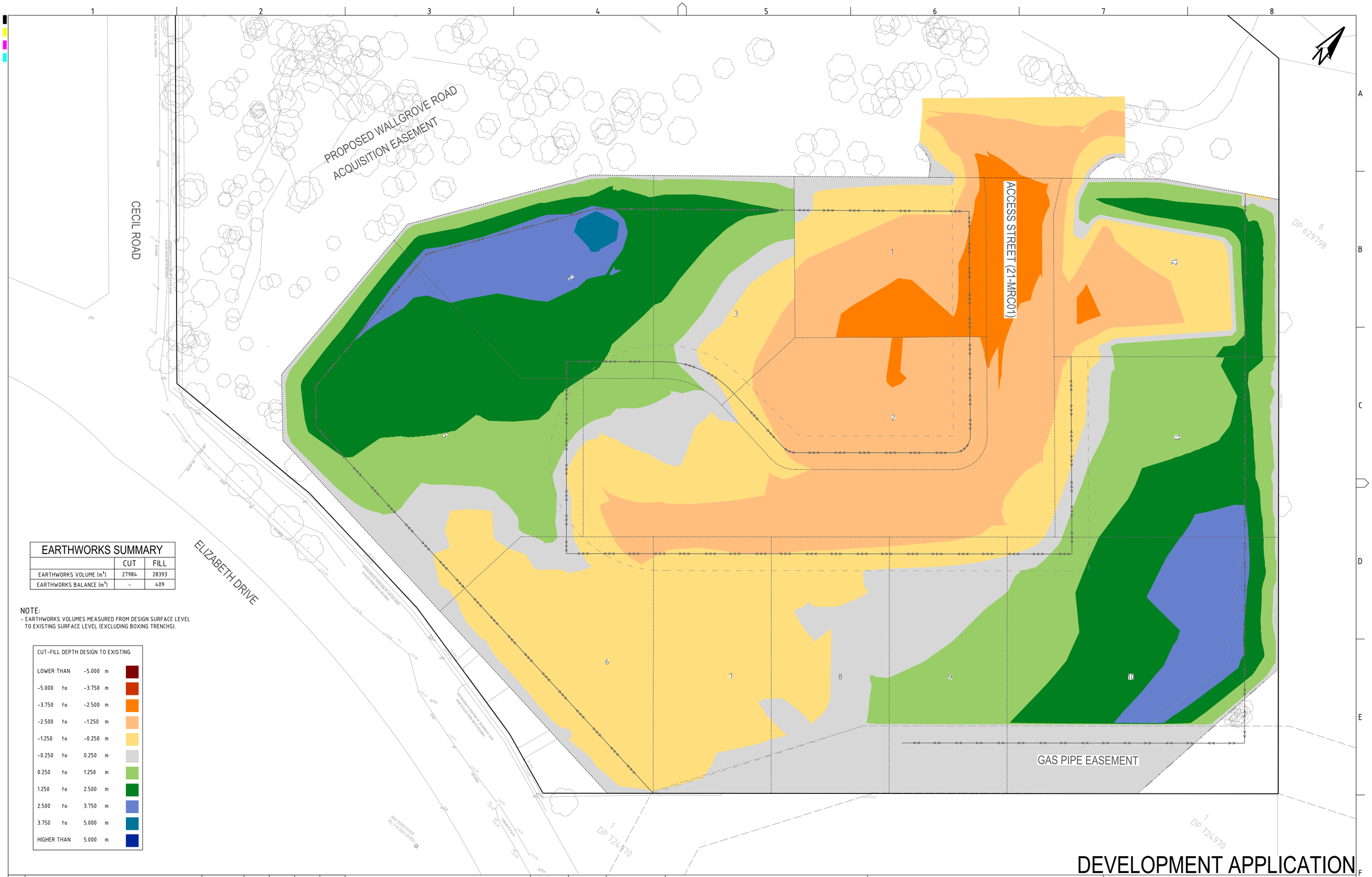
DRAWING TITLE
EARTHWORKS GRADING PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-C100	D



EARTHWORKS SUMMARY

	CUT	FILL
EARTHWORKS VOLUME (m^3)	27984	28393
EARTHWORKS BALANCE (m^3)	-	409

NOTE:
- EARTHWORKS VOLUMES MEASURED FROM DESIGN SURFACE LEVEL TO EXISTING SURFACE LEVEL (EXCLUDING BOXING TRENCHES).

CUT-FILL DEPTH DESIGN TO EXISTING

LOWER THAN		-5.000	m	
-5.000	to	-3.750	m	
-3.750	to	-2.500	m	
-2.500	to	-1.250	m	
-1.250	to	-0.250	m	
-0.250	to	0.250	m	
0.250	to	1.250	m	
1.250	to	2.500	m	
2.500	to	3.750	m	
3.750	to	5.000	m	
HIGHER THAN		5.000	m	

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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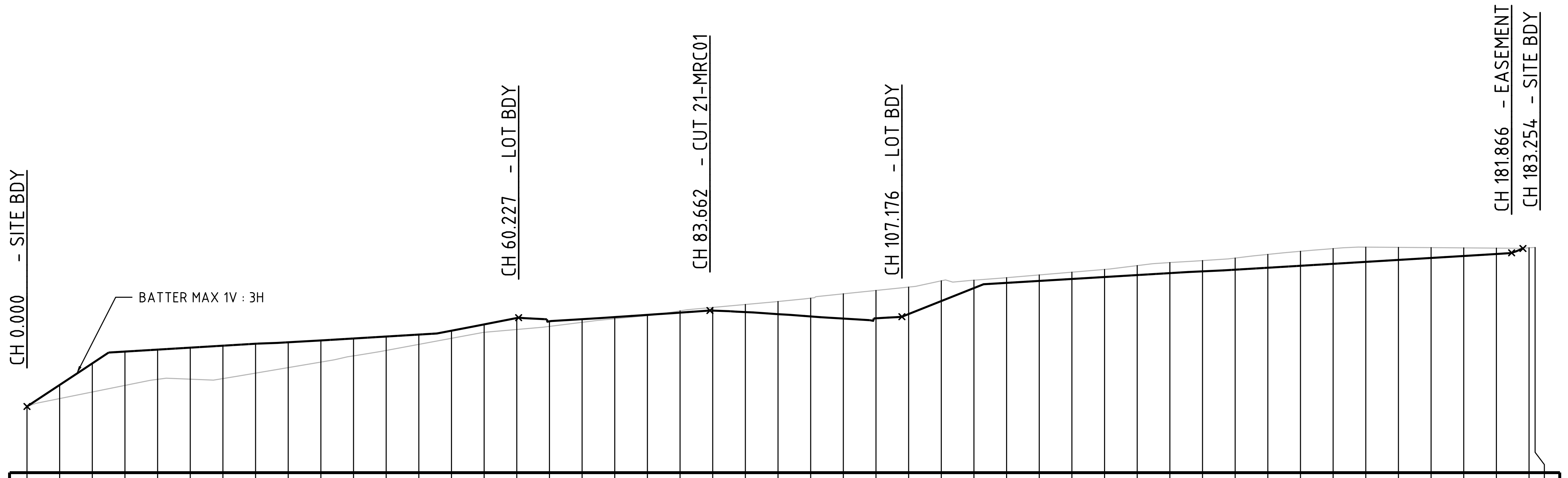
DRAWING TITLE: EARTHWORKS CUT-FILL PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-C500	D

DRAWING ID: P1706121-PS03-R04-C500

PRINTED: ---- USER: JSUAREZ

A1 / A3 LANDSCAPE (A1LC__v02.0.01)



DATUM RL 101.000

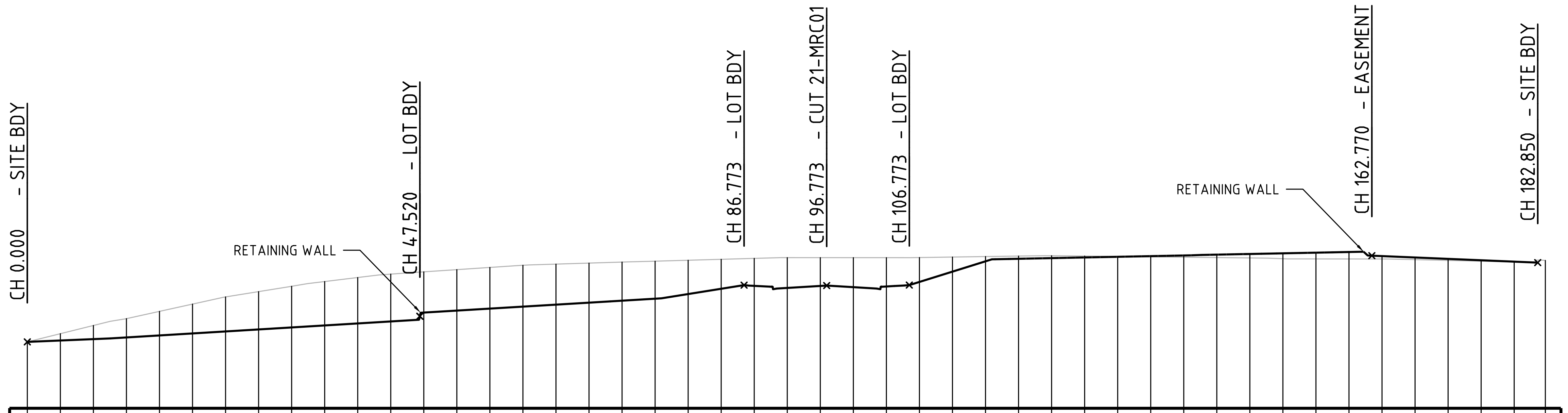
DESIGN SURFACE LEVELS	105.057	106.375	107.695	108.419	108.539	108.659	108.779	108.899	108.988	109.100	109.220	109.340	109.460	109.697	110.083	110.474
EXISTING SURFACE LEVELS	105.057	105.541	105.944	106.347	106.720	106.729	106.765	107.099	107.437	107.775	108.156	108.488	108.860	109.231	109.599	109.772
CUT / FILL DEPTH	0.000	0.834	1.751	2.072	1.820	1.930	2.014	1.800	1.551	1.325	1.064	0.852	0.600	0.467	0.484	0.702
CHAINAGE	0.000	4.000	8.000	12.000	16.000	20.000	24.000	28.000	32.000	36.000	40.000	44.000	48.000	52.000	56.000	60.000

DESIGN SURFACE LEVELS	110.272	110.402	110.531	110.666	110.803	110.927	110.837	110.709	110.570	110.440	110.456	110.717	111.512	112.307	112.626	112.745
EXISTING SURFACE LEVELS	109.961	110.210	110.428	110.620	110.911	111.122	111.302	111.484	111.689	111.955	112.161	112.367	112.751	112.790	112.943	113.112
CUT / FILL DEPTH	0.311	0.192	0.103	0.046	-0.108	-0.195	-0.465	-0.775	-1.120	-1.515	-1.705	-1.650	-1.239	-0.483	-0.318	-0.367
CHAINAGE	64.000	68.000	72.000	76.000	80.000	84.000	88.000	92.000	96.000	100.000	104.000	108.000	112.000	116.000	120.000	124.000

DESIGN SURFACE LEVELS	112.865	112.984	113.104	113.223	113.331	113.433	113.552	113.672	113.792	113.911	114.031	114.151	114.272	114.394		
EXISTING SURFACE LEVELS	113.280	113.449	113.683	113.870	113.990	114.145	114.368	114.559	114.724	114.814	114.799	114.784	114.769	114.754	114.772	114.792
CUT / FILL DEPTH	-0.415	-0.465	-0.579	-0.647	-0.659	-0.712	-0.816	-0.887	-0.933	-0.903	-0.768	-0.633	-0.497	-0.360	0.112	0.244
CHAINAGE	128.000	132.000	136.000	140.000	144.000	148.000	152.000	156.000	160.000	164.000	168.000	172.000	176.000	180.000	184.000	184.742

SECTION A

SCALE: HORIZONTAL - 1:500
VERTICAL - 1:250



DATUM RL 101.000

DESIGN SURFACE LEVELS	105.025	105.109	105.193	105.295	105.416	105.537	105.658	105.779	105.900	106.022	106.143	106.264	106.801	106.921	107.041	107.161
EXISTING SURFACE LEVELS	105.025	105.522	106.018	106.432	106.873	107.314	107.749	108.070	108.393	108.681	108.924	109.130	109.268	109.401	109.535	109.665
CUT / FILL DEPTH	0.000	-0.412	-0.825	-1.138	-1.457	-1.777	-2.090	-2.291	-2.493	-2.659	-2.781	-2.866	-2.466	-2.480	-2.493	-2.504
CHAINAGE	0.000	4.000	8.000	12.000	16.000	20.000	24.000	28.000	32.000	36.000	40.000	44.000	48.000	52.000	56.000	60.000

DESIGN SURFACE LEVELS	107.281	107.401	107.521	107.641	107.923	108.243	108.418	108.293	108.413	108.340	108.381	108.656	109.281	109.906	110.059	110.099
EXISTING SURFACE LEVELS	109.736	109.798	109.859	109.913	109.970	110.026	110.083	110.128	110.127	110.127	110.126	110.134	110.164	110.194	110.223	110.244
CUT / FILL DEPTH	-2.455	-2.396	-2.338	-2.272	-2.047	-1.784	-1.665	-1.834	-1.714	-1.787	-1.745	-1.478	-0.883	-0.288	-0.165	-0.145
CHAINAGE	64.000	68.000	72.000	76.000	80.000	84.000	88.000	92.000	96.000	100.000	104.000	108.000	112.000	116.000	120.000	124.000

DESIGN SURFACE LEVELS	110.139	110.179	110.219	110.259	110.310	110.349	110.389	110.429	110.469	110.221	110.137	110.053	109.969	109.886	
EXISTING SURFACE LEVELS	110.223	110.200	110.177	110.154	110.132	110.109	110.062	110.050	110.048	110.045	110.007	109.960	109.914	109.867	109.959
CUT / FILL DEPTH	-0.084	-0.021	0.042	0.104	0.178	0.240	0.327	0.380	0.422	0.176	0.130	0.093	0.056	0.018	-0.153
CHAINAGE	128.000	132.000	136.000	140.000	144.000	148.000	152.000	156.000	160.000	164.000	168.000	172.000	176.000	180.000	183.773

SECTION B

SCALE: HORIZONTAL - 1:500
VERTICAL - 1:250

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**REVISED SUBDIVISION LAYOUT**	**04/06/2021**	**LL**	**CG/AVG**	**SA**	**TH**
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

PRINTED: ---- - USER: JSUAREZ

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID: MGA
DATUM: mAHD
PROJECT MANAGER: TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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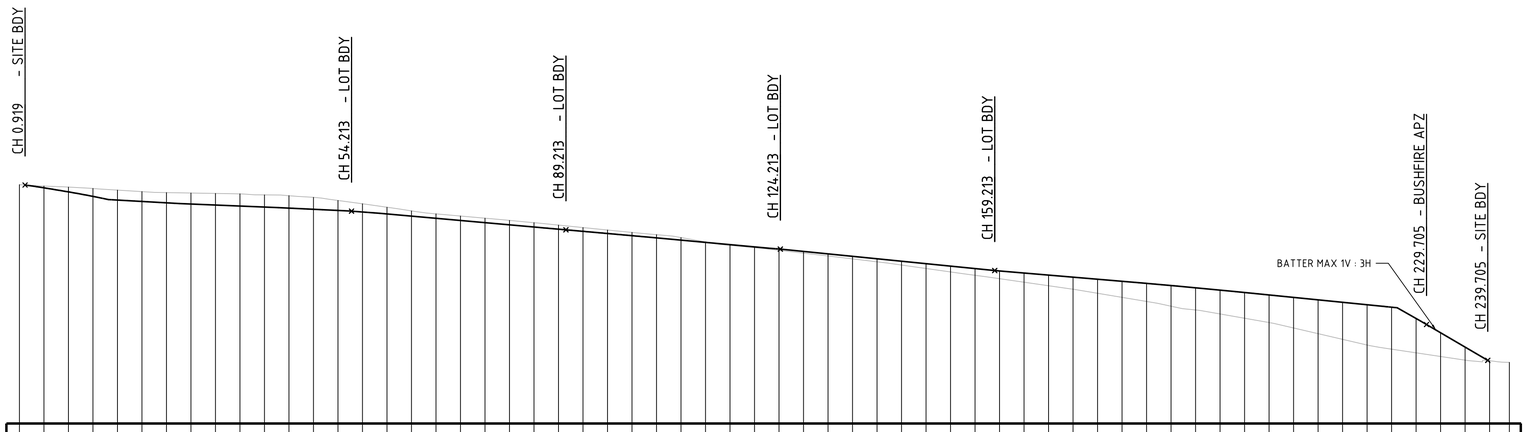
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
EARTHWORKS SITE SECTIONS
(SHEET 01)

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-C600	B

A1 / A3 LANDSCAPE (A1LC__v02.0.01)

DRAWING ID: P1706121-PS03-R04-C600



DATUM RL 96.000

CHAINAGE	0.000	4.000	8.000	12.000	16.000	20.000	24.000	28.000	32.000	36.000	40.000	44.000	48.000	52.000	56.000	60.000
DESIGN SURFACE LEVELS		115.232	114.902	114.529	114.231	114.119	114.006	113.908	113.826	113.744	113.662	113.574	113.479	113.385	113.258	113.100
EXISTING SURFACE LEVELS	115.488	115.373	115.291	115.179	115.044	114.921	114.841	114.807	114.773	114.738	114.654	114.588	114.453	114.199	113.929	113.647
CUT / FILL DEPTH	0.000	-0.141	-0.390	-0.650	-0.813	-0.803	-0.835	-0.898	-0.946	-0.994	-0.992	-1.013	-0.973	-0.815	-0.671	-0.548

CHAINAGE	64.000	68.000	72.000	76.000	80.000	84.000	88.000	92.000	96.000	100.000	104.000	108.000	112.000	116.000	120.000	124.000
DESIGN SURFACE LEVELS	112.922	112.744	112.566	112.389	112.211	112.033	111.857	111.681	111.504	111.327	111.147	110.963	110.779	110.595	110.411	110.240
EXISTING SURFACE LEVELS	113.347	113.105	112.929	112.753	112.574	112.386	112.190	111.988	111.787	111.593	111.408	111.172	110.818	110.538	110.348	110.131
CUT / FILL DEPTH	-0.426	-0.361	-0.362	-0.364	-0.363	-0.353	-0.333	-0.307	-0.283	-0.267	-0.261	-0.209	-0.039	0.057	0.063	0.109

CHAINAGE	128.000	132.000	136.000	140.000	144.000	148.000	152.000	156.000	160.000	164.000	168.000	172.000	176.000	180.000	184.000	188.000
DESIGN SURFACE LEVELS	110.041	109.841	109.641	109.441	109.241	109.041	108.841	108.641	108.447	108.278	108.109	107.941	107.772	107.603	107.434	107.257
EXISTING SURFACE LEVELS	109.902	109.673	109.433	109.194	108.930	108.649	108.367	108.093	107.816	107.529	107.242	106.954	106.626	106.292	105.958	105.571
CUT / FILL DEPTH	0.139	0.168	0.208	0.248	0.311	0.393	0.474	0.548	0.630	0.749	0.868	0.987	1.146	1.311	1.476	1.687

CHAINAGE	192.000	196.000	200.000	204.000	208.000	212.000	216.000	220.000	224.000	228.000	232.000	236.000	240.000	243.228
DESIGN SURFACE LEVELS	107.071	106.882	106.689	106.489	106.289	106.089	105.890	105.690	105.490	104.568	103.405	102.234		
EXISTING SURFACE LEVELS	105.264	104.938	104.589	104.238	103.794	103.330	102.867	102.403	102.065	101.766	101.468	101.169	101.121	100.988
CUT / FILL DEPTH	1.807	1.943	2.100	2.251	2.495	2.759	3.023	3.287	3.425	2.802	1.937	1.065	-0.059	-0.892

SECTION C

SCALE: HORIZONTAL - 1:500
VERTICAL - 1:250

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	04/06/2021	LL	CG/AVG	SA	TH

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)
0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0 METRES
A1 (A3) 1:250 (1:500)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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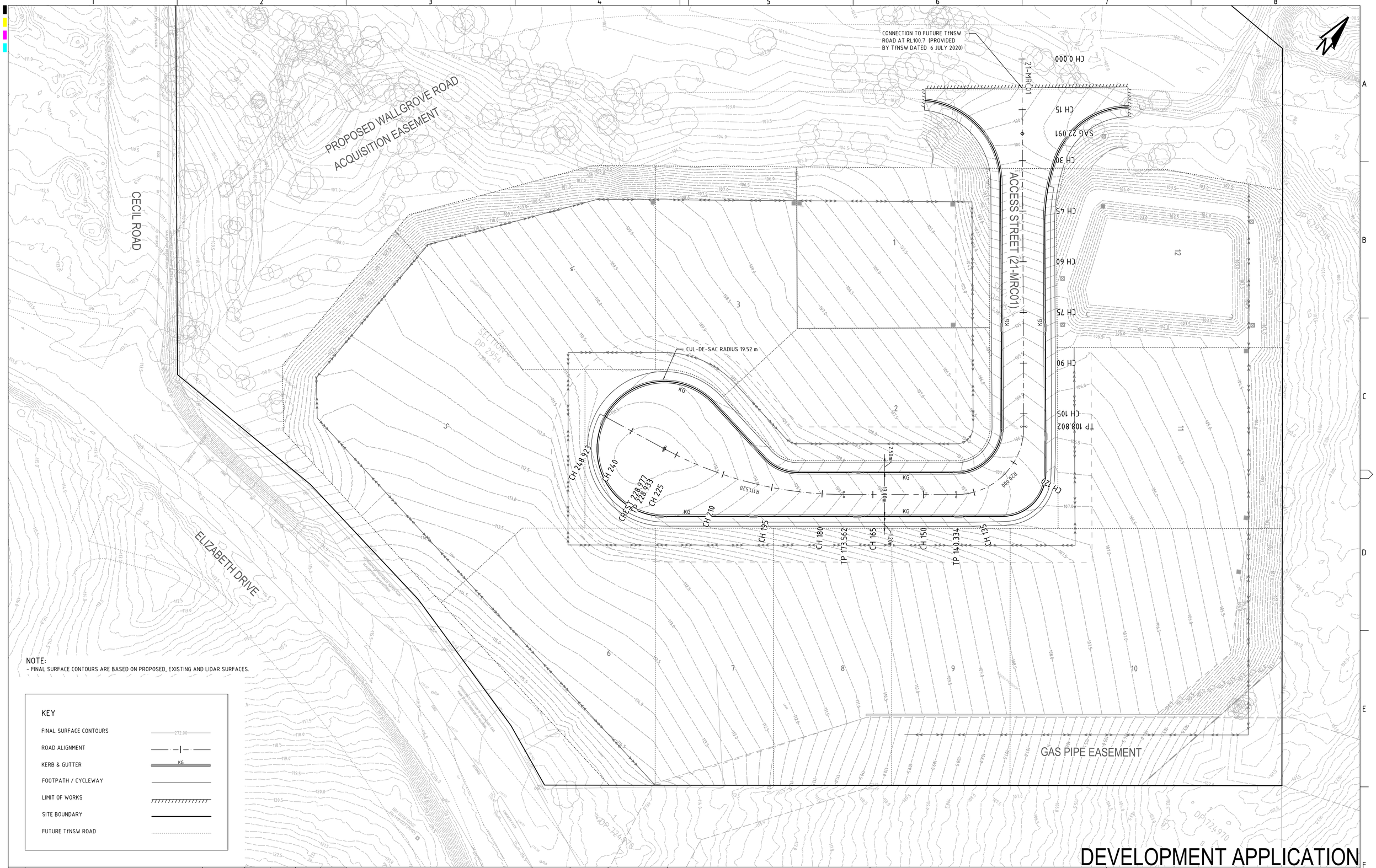
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE
EARTHWORKS SITE SECTIONS
(SHEET 02)

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-C601	A



NOTE:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.

KEY

FINAL SURFACE CONTOURS	272.00
ROAD ALIGNMENT	
KERB & GUTTER	KG
FOOTPATH / CYCLEWAY	
LIMIT OF WORKS	
SITE BOUNDARY	
FUTURE TfNSW ROAD	

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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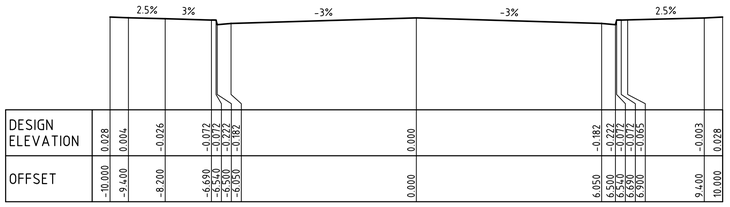
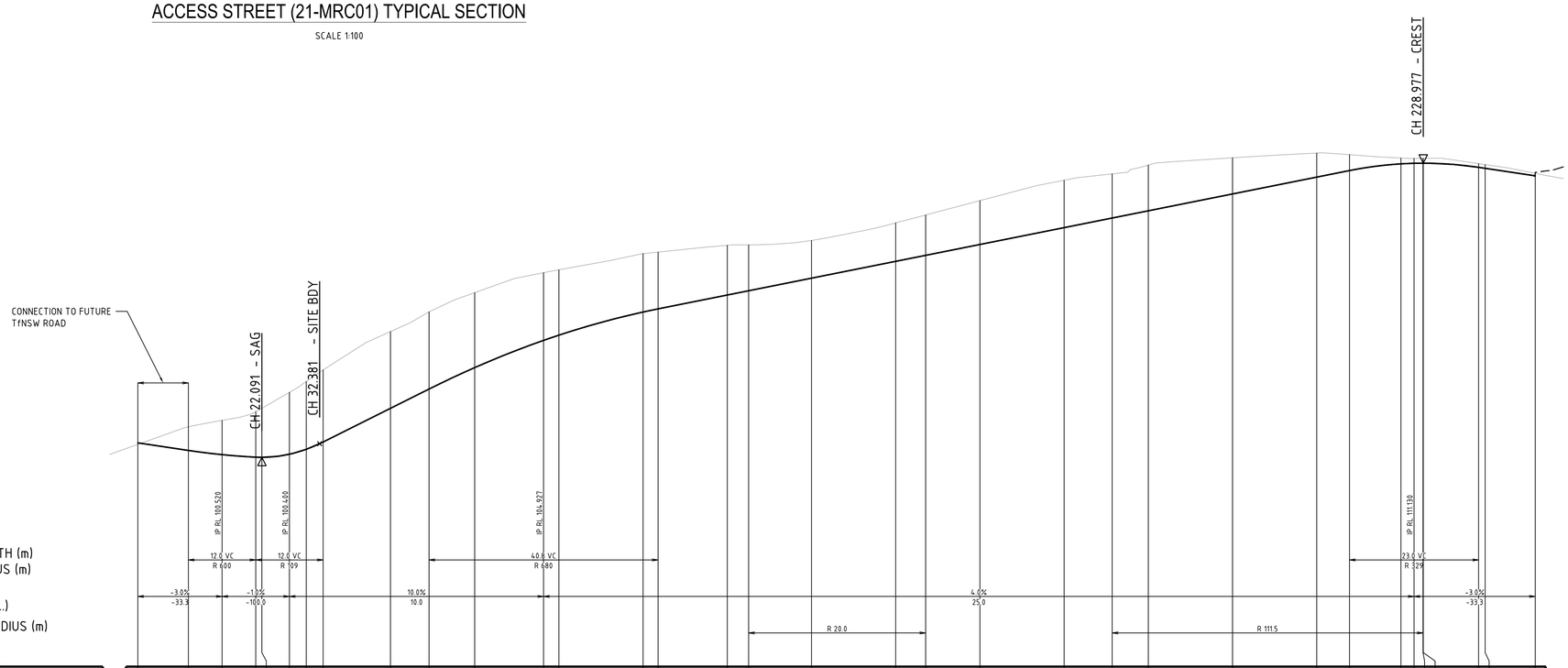
DRAWING TITLE
ROADWORKS PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-D100	D

DRAWING ID: P1706121-PS03-R04-D100

PRINTED: ---- USER: PGAMEZ
A1 / A3 LANDSCAPE (A1LC_v02.0.01)





DESIGN ELEVATION	0.028	0.004	-0.026	-0.072	-0.072	-0.222	-0.182	0.000	-0.182	-0.222	-0.072	-0.072	-0.065	-0.003	0.028
OFFSET	-10.000	-9.400	-8.200	-6.690	-6.540	-6.500	-6.050	0.000	6.050	6.500	6.540	6.690	6.900	9.400	10.000

ACCESS STREET (21-MRC01) TYPICAL SECTION

SCALE 1:100

DATUM RL 93.000

DESIGN SURFACE LEVELS	100.970	100.700	100.550	100.460	100.455	100.565	100.742	101.000	102.200	102.887	103.652	104.621	104.807	105.631	105.743	106.237	106.389
EXISTING SURFACE LEVELS	100.917	101.541	101.771	102.083	102.202	102.769	103.156	103.567	104.935	105.636	106.321	107.033	107.135	107.710	107.765	108.008	108.024
CUT / FILL DEPTH	0.054	-0.840	-1.221	-1.623	-1.747	-2.204	-2.414	-2.566	-2.735	-2.749	-2.669	-2.411	-2.328	-2.078	-2.022	-1.771	-1.635
CHAINAGE	0.000	9.000	15.000	21.000	22.091	27.000	30.000	33.000	45.000	51.870	60.000	72.270	75.000	90.000	92.670	105.000	108.802

DESIGN SURFACE LEVELS	106.837	107.437	107.650	108.037	108.637	108.979	109.237	109.837	110.437	110.670	110.909	110.929	110.933	110.933	110.785	110.750	110.482
EXISTING SURFACE LEVELS	108.179	108.805	109.086	109.598	110.324	110.552	110.865	111.126	111.293	111.237	111.117	111.103	111.106	111.106	110.917	110.882	110.571
CUT / FILL DEPTH	-1.343	-1.369	-1.436	-1.562	-1.687	-1.572	-1.628	-1.289	-0.856	-0.567	-0.209	-0.175	-0.174	-0.174	-0.132	-0.132	-0.089
CHAINAGE	120.000	135.000	140.334	150.000	165.000	173.562	180.000	195.000	210.000	215.834	225.000	227.334	228.933	228.977	238.834	240.000	248.923

ACCESS STREET (21-MRC01) LONG. SECTION

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

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	**INITIAL RELEASE**	**04/06/2021**	**LL**	**CG/AVG**	**SA**	**TH**
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

PRINTED: ---- - USER: JSUAREZ

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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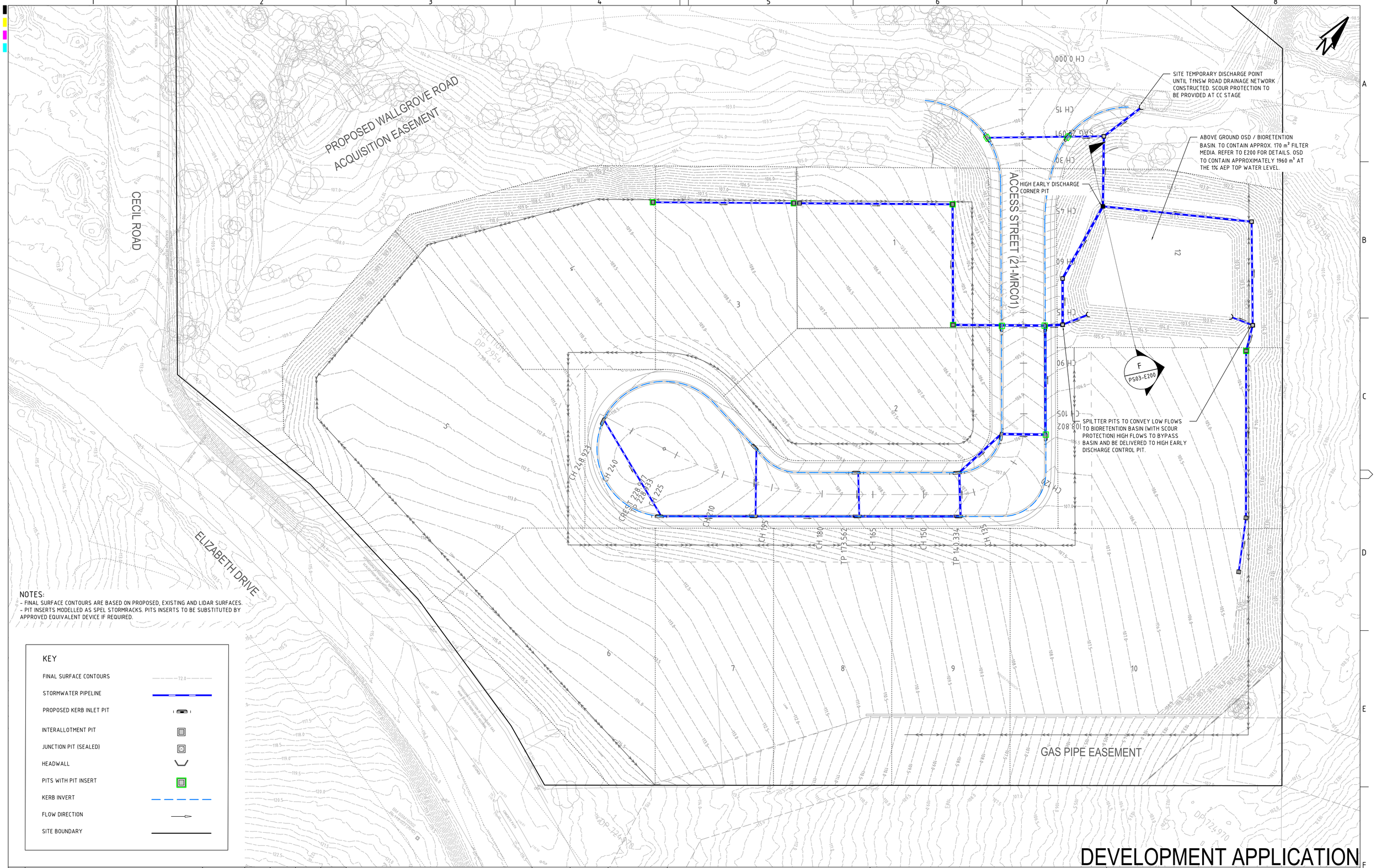
DRAWING TITLE
ACCESS STREET (21-MRC01) LONGITUDINAL SECTION
& TYPICAL SECTION

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-D200	B



NOTES:
- FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.
- PIT INSERTS MODELLED AS SPEL STORMRACKS. PITS INSERTS TO BE SUBSTITUTED BY APPROVED EQUIVALENT DEVICE IF REQUIRED.

KEY

- FINAL SURFACE CONTOURS (72.0)
- STORMWATER PIPELINE
- PROPOSED KERB INLET PIT
- INTERALLOTMENT PIT
- JUNCTION PIT (SEALED)
- HEADWALL
- PITS WITH PIT INSERT
- KERB INVERT
- FLOW DIRECTION
- SITE BOUNDARY

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	**MINOR AMENDMENTS**	**10/06/2021**	**LL**	**CG/BN**	**SA**	**TH**
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/BN	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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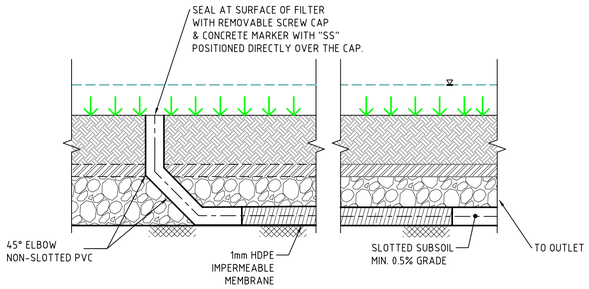
DRAWING TITLE: DRAINAGE PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-E100	D

DRAWING ID: P1706121-PS03-R04-E100

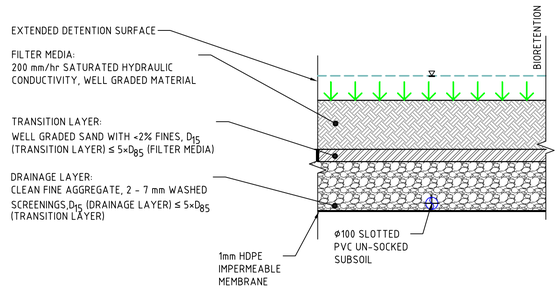
PRINTED: ---- USER: PGAMEZ

A1 / A3 LANDSCAPE (A1LC_v02.0.01)



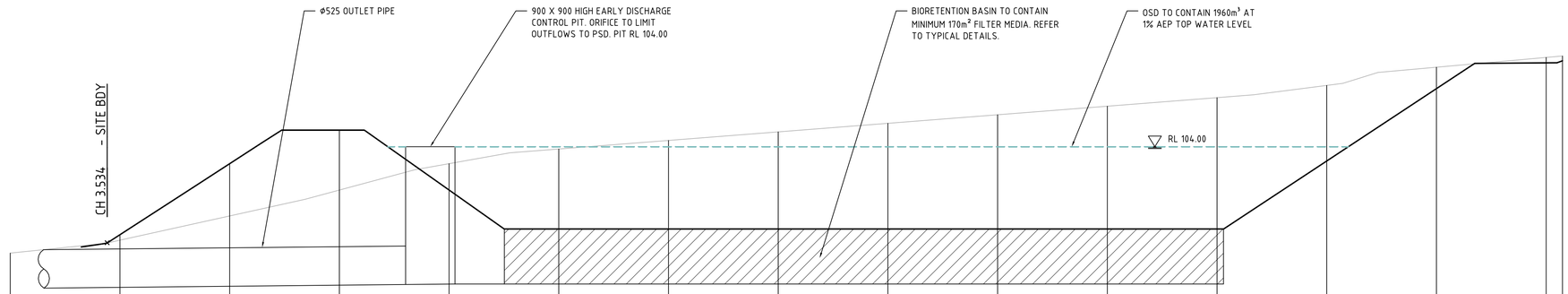
TYPICAL BIORETENTION SECTION

NOT TO SCALE



TYPICAL BIORETENTION DETAIL

NOT TO SCALE



DATUM RL 101.000

DESIGN SURFACE LEVELS		102.397	103.691	104.300	103.211	102.500	102.500	102.500	102.500	102.500	102.500	102.500	103.740	105.057	105.527	105.565
EXISTING SURFACE LEVELS	102.063	102.298	102.739	103.211	103.691	103.958	104.114	104.270	104.426	104.581	104.737	104.893	105.116	105.447	105.625	105.652
CUT / FILL DEPTH	0.000	0.099	0.951	1.089	-0.480	-1.458	-1.614	-1.770	-1.926	-2.081	-2.237	-2.393	-1.376	-0.390	-0.099	-0.087
CHAINAGE	0.000	4.000	8.000	12.000	16.000	20.000	24.000	28.000	32.000	36.000	40.000	44.000	48.000	52.000	56.000	56.595

COMBINED OSD / BIORETENTION BASIN - SECTION F

SCALE: HORIZONTAL - 1:100
VERTICAL - 1:50

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/BN	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

SCALE
A1 (A3) 1:100 (1:200) — 0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:50 (1:100) — 0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
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LOT 2 SECTION 4 DP 2954

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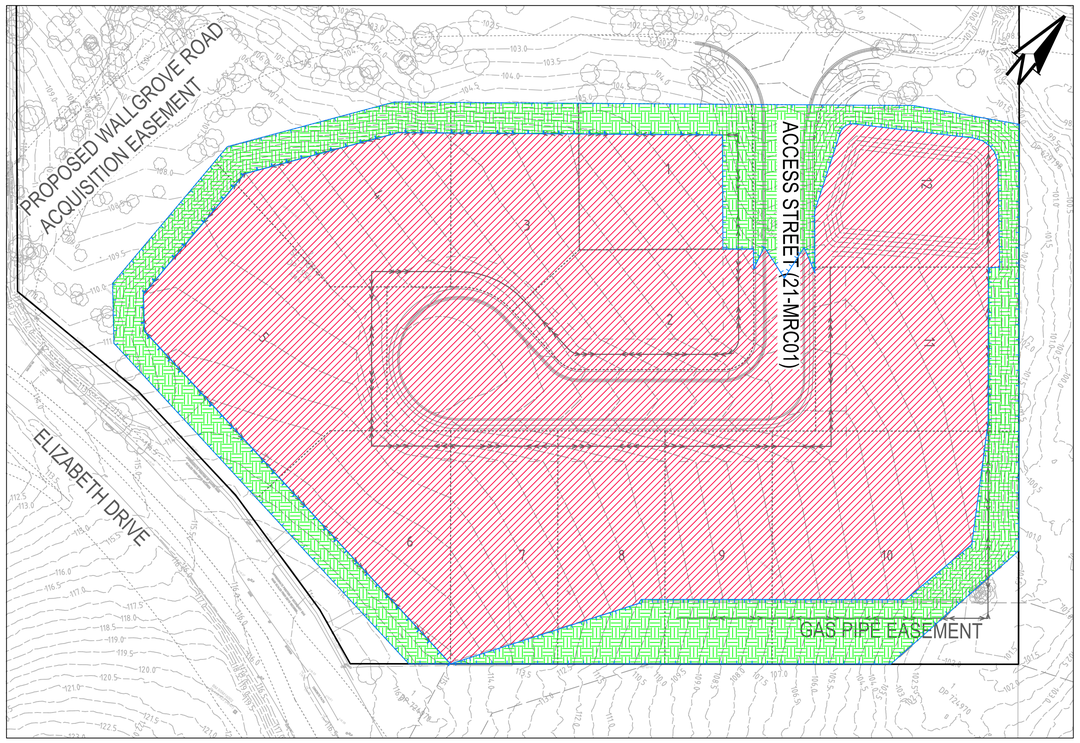
DRAWING TITLE
DRAINAGE DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-E200	B

A1 / A3 LANDSCAPE (A:\LC_v02.0.01)

DRAWING ID: P1706121-PS03-R04-E200



POST-DEVELOPMENT OSD CATCHMENT PLAN

SCALE 1:1000

KEY	CATCHMENT	AREA (ha)
	OSD	3.63
	BYPASS	1.01
	TOTAL AREA	4.64

OSD CALCULATIONS - SIMPLIFIED METHOD (FAIRFIELD STORMWATER MANAGEMENT POLICY)

$V = 4.09 \times A/100$

V = VOLUME (m^3)

A = DEVELOPMENT SITE AND OSD CATCHMENT (m^2)

DEVELOPMENT SITE AND OSD CATCHMENT:

AREA DRAINING TO OSD = 36312 m^2

AREA BYPASSING OSD = 10093 m^2

ADDITIONAL AREA TO BE CONSIDERED (15%) TO OFFSET BYPASS

OFFSET AREA = 10093 x 1.15

= 11607 m^2

A = 36312 + 11607

= 47920 m^2

V = 4.09 x (47920)/100

= 1960 m^3

MINIMUM REQUIRE OSD STORAGE = 1960 m^3

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG/BN	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/BN	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

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

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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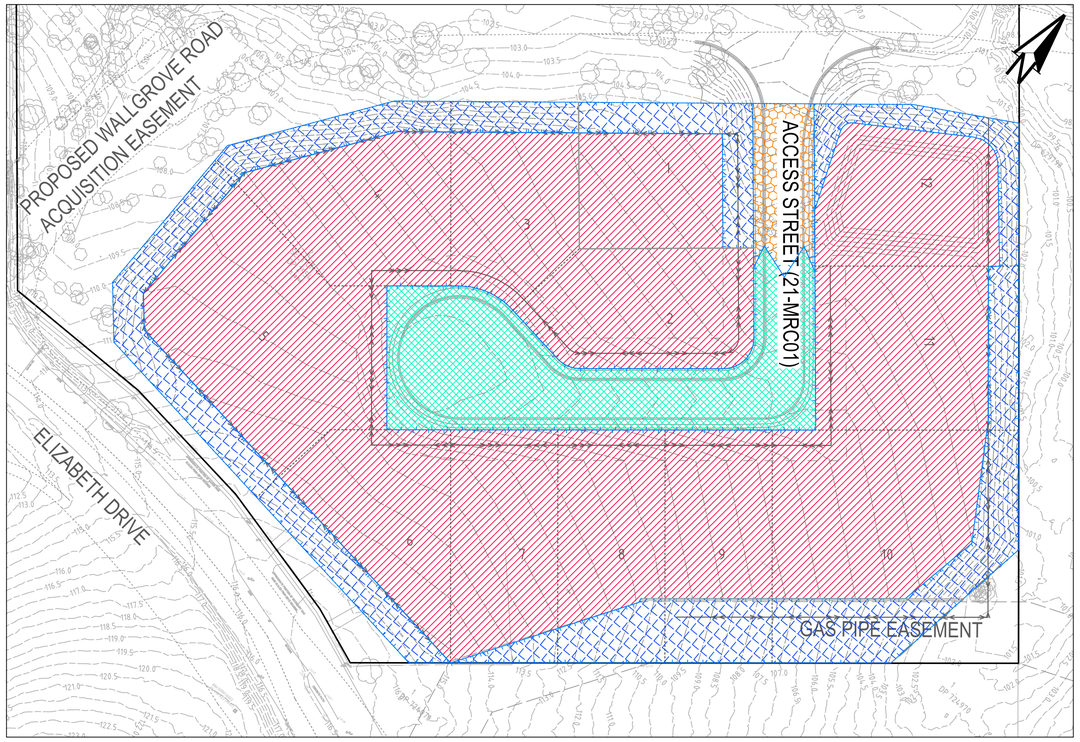
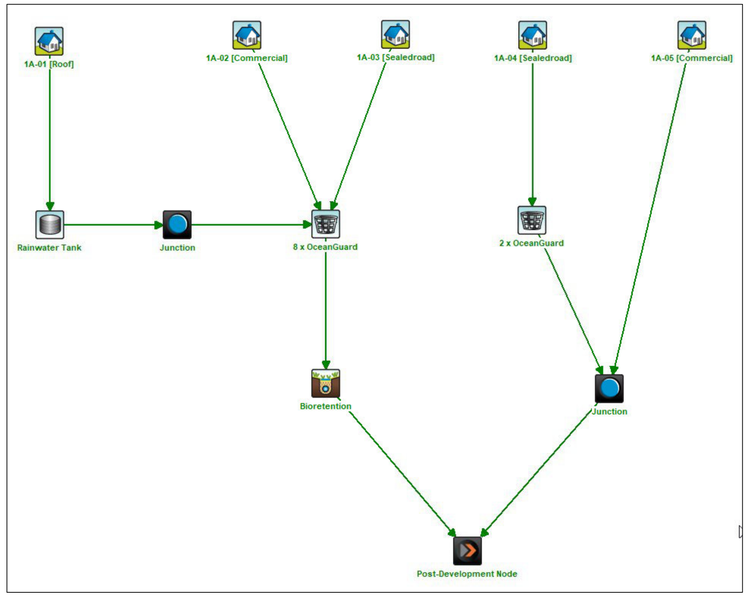
DRAWING TITLE: OSD CATCHMENT PLAN, MODEL AND RESULTS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-E600	D



POST-DEVELOPMENT DRAINS CATCHMENT PLAN

SCALE 1:1000



POST-DEVELOPMENT MUSIC MODEL LAYOUT
(P1706121MUS02V01)

Treatment Train Effectiveness - Post-Development Node

	Sources	Residual Load	% Reduction
Flow (ML/yr)	29	24.6	15.1
Total Suspended Solids (kg/yr)	4010	718	82.1
Total Phosphorus (kg/yr)	7.99	3.53	55.8
Total Nitrogen (kg/yr)	63.7	33.6	47.2
Gross Pollutants (kg/yr)	708	5.54E-7	100

POST-DEVELOPMENT MUSIC MODEL RESULT
(P1706121MUS02V01)

KEY	MUSIC NODE	DESCRIPTION	AREA (ha)	% PAVED
	1A-01	ROOF TO RAINWATER TANK	1.577	100%
	1A-02	50% OF LOT AREA	1.577	100%
	1A-03	ROAD	0.476	95%
	1A-04	OSD ROAD BYPASS	0.102	95%
	1A-05	OSD LOT AREA BYPASS	0.907	0%
		TOTAL AREA	4.64	= 100% OF TOTAL AREA
		TOTAL IMPERVIOUS AREA	3.7	= 80% OF TOTAL AREA
		TOTAL PERVIOUS AREA	0.94	= 20% OF TOTAL AREA

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	MINOR AMENDMENTS	10/06/2021	LL	CG/BN	SA	TH
C	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/BN	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

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

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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DRAWING TITLE
WATER QUALITY CATCHMENT PLAN, MODEL AND RESULTS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-E700	D

DRAWING ID: P1706121-PS03-R04-E700

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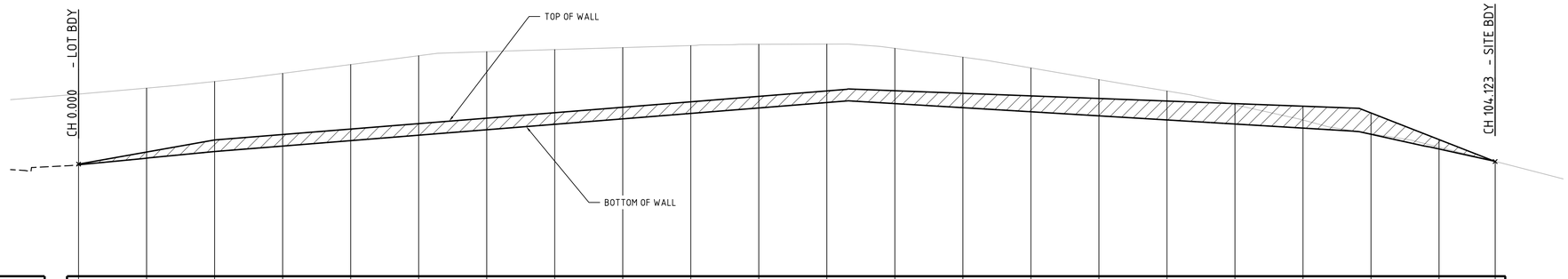
A1 / A3 LANDSCAPE (A1LC__v02.0.01)



DATUM RL 101.000

TOP OF WALL LEVELS	105.119	105.563	106.007	106.207	106.407	106.607	106.807	107.007	107.208	107.408	107.608	107.808	107.815	107.720	107.625	107.531	107.436	107.341	107.247	106.998	106.020	105.214
BOTTOM OF WALL LEVELS	105.095	105.338	105.582	105.782	105.982	106.182	106.382	106.581	106.782	106.982	107.182	107.382	107.342	107.192	107.042	106.892	106.742	106.592	106.442	106.215	105.675	
WALL HEIGHT	0.024	0.225	0.425	0.425	0.425	0.426	0.426	0.426	0.426	0.426	0.426	0.426	0.473	0.528	0.583	0.639	0.694	0.749	0.805	0.782	0.345	
EXISTING SURFACE LEVELS	107.691	107.910	108.155	108.453	108.777	109.101	109.250	109.327	109.400	109.473	109.521	109.528	109.373	109.049	108.652	108.224	107.805	107.298	106.740	106.237	105.742	105.220
CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	104.128

RETAINING WALL (SECTION D) LONG. SECTION

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:100

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/AVG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

SCALE
0 2 4 6 8 10 12 14 16 18 20 METRES
A1 (A3) 1:200 (1:400)
0 1 2 3 4 5 6 7 8 9 10 METRES
A1 (A3) 1:100 (1:200)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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DRAWING TITLE
RETAINING WALL SECTION (SHEET 01)

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-G210	B

DRAWING ID: P1706121-PS03-R04-G210

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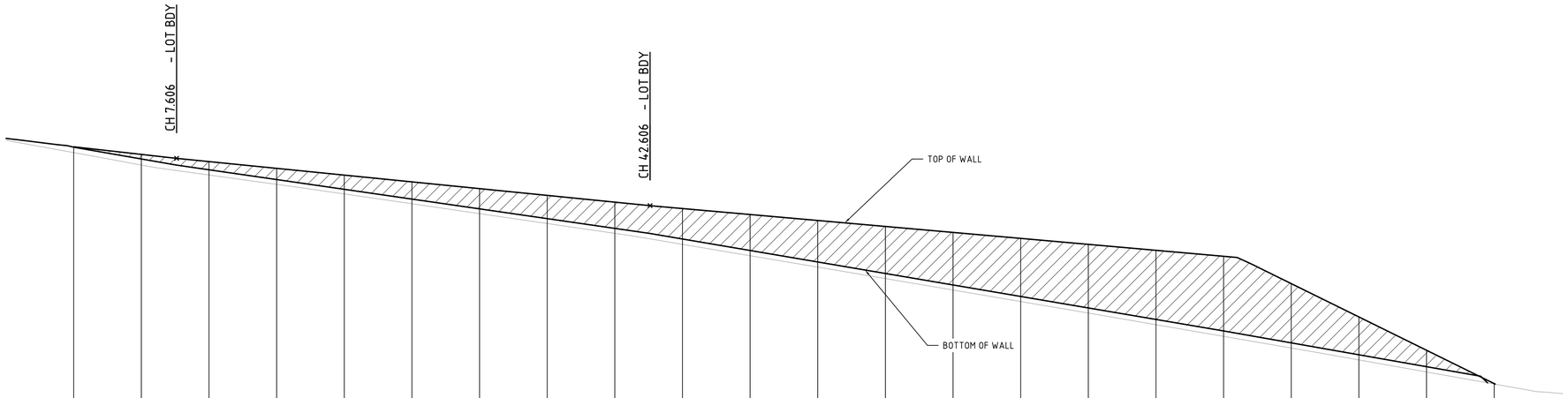
A1 / A3 LANDSCAPE (A1LC_v02.0.01)



DATUM RL 98.000

TOP OF WALL LEVELS	110.879	110.597	110.331	110.081	109.831	109.581	109.331	109.081	108.831	108.594	108.374	108.153	107.932	107.712	107.491	107.270	107.049	106.829	105.818	104.585	103.353	102.121
BOTTOM OF WALL LEVELS	110.864	110.478	110.028	109.667	109.306	108.944	108.583	108.222	107.860	107.468	107.043	106.618	106.193	105.768	105.343	104.918	104.493	104.067	103.627	103.186	102.745	102.102
WALL HEIGHT	0.015	0.169	0.303	0.414	0.525	0.637	0.748	0.859	0.971	1.126	1.330	1.535	1.739	1.944	2.148	2.352	2.557	2.761	2.191	1.399	0.608	0.000
EXISTING SURFACE LEVELS	110.664	110.204	109.835	109.489	109.135	108.772	108.407	108.041	107.677	107.270	106.850	106.429	106.005	105.580	105.155	104.730	104.299	103.867	103.436	102.996	102.550	102.104
CHAINAGE	0.000	5.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	105.000

RETAINING WALL (SECTION E) LONG. SECTION

SCALE: HORIZONTAL - 1:200
VERTICAL - 1:100

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	REVISED SUBDIVISION LAYOUT	04/06/2021	LL	CG/AVG	SA	TH

SCALE
A1 (A3) 1:200 (1:400) 0 2 4 6 8 10 12 14 16 18 20 METRES
A1 (A3) 1:100 (1:200) 0 1 2 3 4 5 6 7 8 9 10 METRES

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT
AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
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LOT 2 SECTION 4 DP 2954

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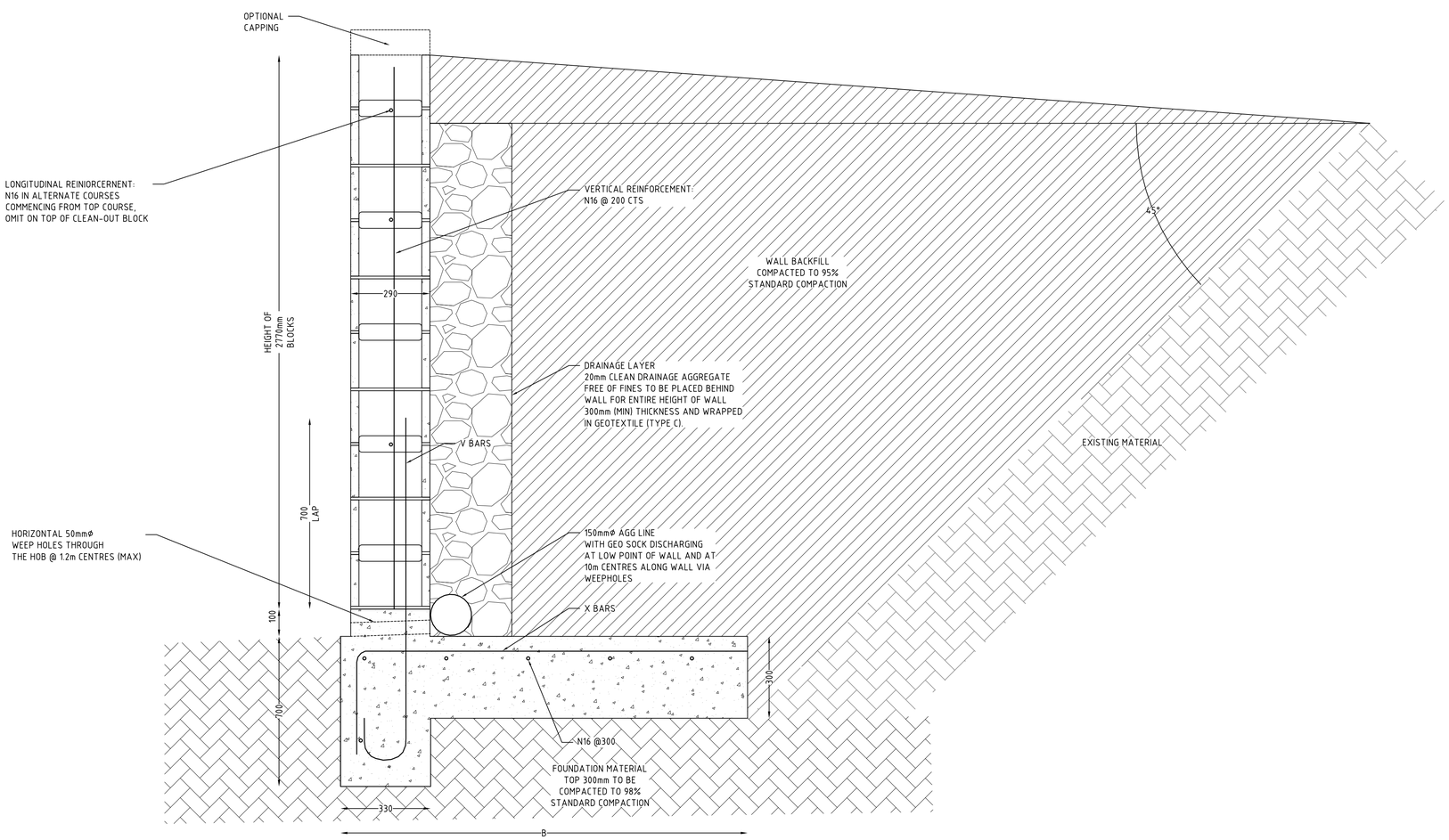
DRAWING TITLE
RETAINING WALL SECTION (SHEET 02)

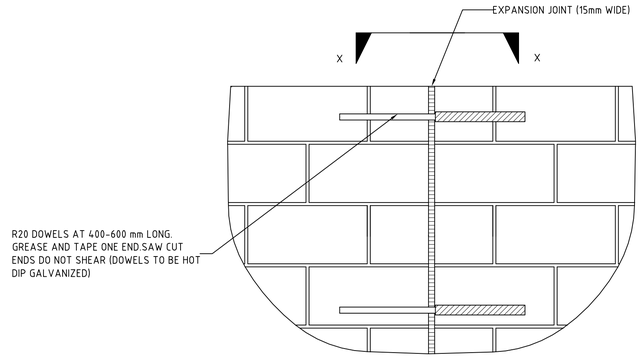
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-G211	A

PRINTED: --- USER: JSUAREZ
A1 / A3 LANDSCAPE (A:\LC_v02.0.01)
DRAWING ID: P1706121-PS03-R04-G211



TYPICAL RETAINING WALL DETAILS

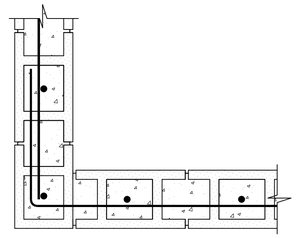
NOT TO SCALE



LOCATE JOINTS AT 6 m MAXIMUM CENTRES OR IN ACCORDANCE WITH AS 3700

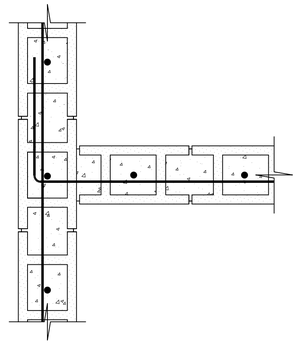
ELEVATION

NOT TO SCALE



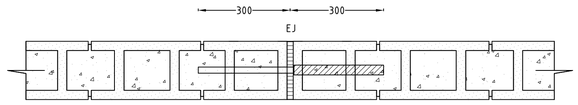
TYPICAL CORNER DETAIL

NOT TO SCALE



TYPICAL 'T' INTERSECTION

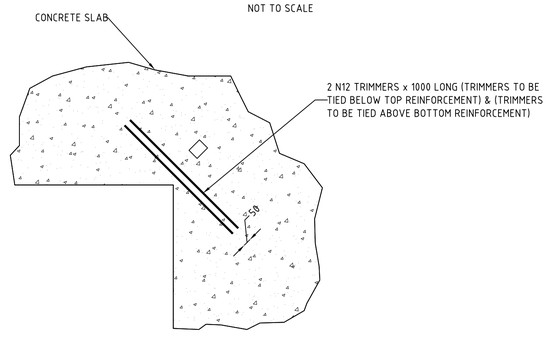
NOT TO SCALE



SECTION X-X

TYPICAL EXPANSION

JOINT DETAILS
NOT TO SCALE



TYPICAL TRIMMER DETAIL

NOT TO SCALE

REINFORCED & CORE FILLED RETAINING WALLS WITH BASE TYPE 1

WALL HEIGHT			REINFORCEMENT	BASE DIMENSIONS
Total Height (mm) H	Height of Blockwork		X-Bars and V-Bars	Width, B (mm) with 20KPa SURCHARGE
	200 Series	300 Series		
800	-	800	N16 @ 200	1400
1000	-	1000	N16 @ 200	1500
1200	-	1200	N16 @ 200	1500
1400	-	1400	N16 @ 200	1700
1600	-	1600	N16 @ 200	2000
1800	-	1800	N16 @ 200	2200
2770	-	TBC	N16 @ 200	TBC

NOTES:
1. WALL DESIGN IS BASED ON THE BACKFILL BEING LEVEL WITH A MAXIMUM IMPOSED (LIVE) LOADING OF 20KPa BEHIND THE WALL.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	INITIAL RELEASE	04/06/2021	LL	CG/AVG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	TH

SCALE: 0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 METRES — A1 (A3) 1:10 (1:20)

GRID	DATUM	PROJECT MANAGER
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

PROJECT NAME/PLANSET TITLE: PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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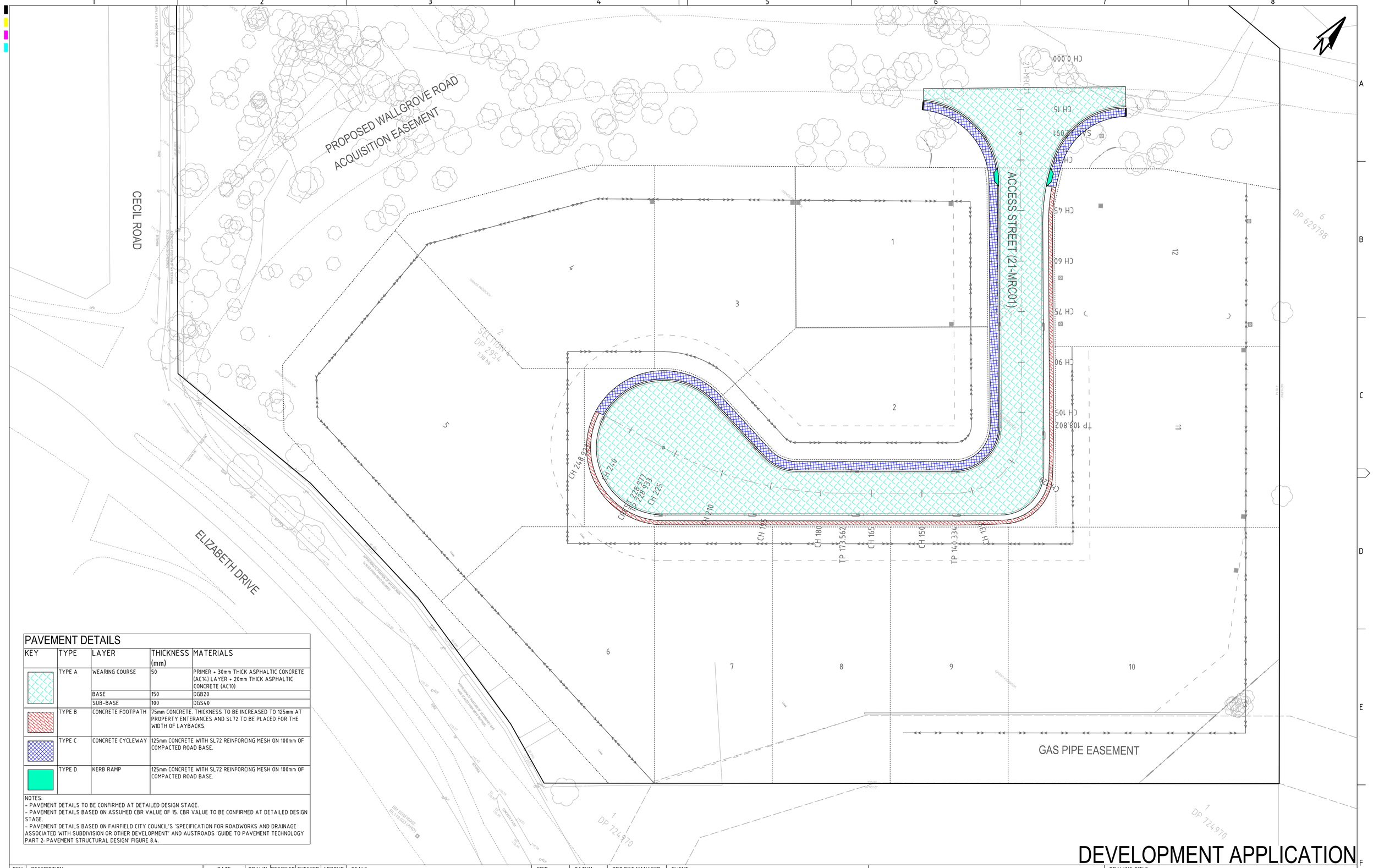
Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE: CONCEPT RETAINING WALL DETAILS

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-G220	B



PAVEMENT DETAILS

KEY	TYPE	LAYER	THICKNESS (mm)	MATERIALS
	TYPE A	WEARING COURSE	50	PRIMER + 30mm THICK ASPHALTIC CONCRETE (AC14) LAYER + 20mm THICK ASPHALTIC CONCRETE (AC10)
		BASE	150	DGB20
		SUB-BASE	100	DGS40
	TYPE B	CONCRETE FOOTPATH	75mm CONCRETE. THICKNESS TO BE INCREASED TO 125mm AT PROPERTY ENTERANCES AND SL72 TO BE PLACED FOR THE WIDTH OF LAYBACKS.	
	TYPE C	CONCRETE CYCLEWAY	125mm CONCRETE WITH SL72 REINFORCING MESH ON 100mm OF COMPACTED ROAD BASE.	
	TYPE D	KERB RAMP	125mm CONCRETE WITH SL72 REINFORCING MESH ON 100mm OF COMPACTED ROAD BASE.	

NOTES:
- PAVEMENT DETAILS TO BE CONFIRMED AT DETAILED DESIGN STAGE.
- PAVEMENT DETAILS BASED ON ASSUMED CBR VALUE OF 15. CBR VALUE TO BE CONFIRMED AT DETAILED DESIGN STAGE.
- PAVEMENT DETAILS BASED ON FAIRFIELD CITY COUNCIL'S 'SPECIFICATION FOR ROADWORKS AND DRAINAGE ASSOCIATED WITH SUBDIVISION OR OTHER DEVELOPMENT' AND AUSTROADS 'GUIDE TO PAVEMENT TECHNOLOGY PART 2: PAVEMENT STRUCTURAL DESIGN' FIGURE 8.4.

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	**MINOR AMENDMENTS**	**10/06/2021**	**LL**	**CG**	**SA**	**TH**
C	MINOR AMENDMENTS	04/06/2021	LL	CG	SA	TH
B	MINOR AMENDMENTS	14/08/2020	JS	CG	SA	TH
A	INITIAL RELEASE	06/08/2020	JS/GM	CG/AVG	SA	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
MGA	mAHD	TH

CLIENT: AE DESIGN PARTNERSHIP

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PROJECT NAME/PLANSET TITLE
PROPOSED COMMERCIAL DEVELOPMENT
CONCEPT CIVIL DESIGN
1111-1141 ELIZABETH DRIVE, CECIL PARK, NSW-2573
LOT 2 SECTION 4 DP 2954

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DRAWING TITLE: PAVEMENT PLAN

PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706121	PS03	R04	PS03-G400	D

DRAWING ID: P1706121-PS03-R04-G400

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A1 / A3 LANDSCAPE (A1LC_v02.0.01)