

ENGINEERING PLANS OF
INFRASTRUCTURE WORKS - STAGE 1A
LOT 5 D.P.740753, LOTS 6-20 D.P.861433 &
LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD,
MACQUARIE PARK

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LOCALITY SKETCH
NOT TO SCALE

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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100mm AT FULL SIZE
This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.	
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.	
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	

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ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

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Central Coast
5 Pioneer Avenue,
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Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED

ADWJ

DATUM

AHD GDA 94

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

COVER SHEET, INDEX OF DRAWINGS
& LOCALITY SKETCH

PROJECT No.

300001(1) -

DISCIPLINE

ENG -

NUMBER

001

REV.

H



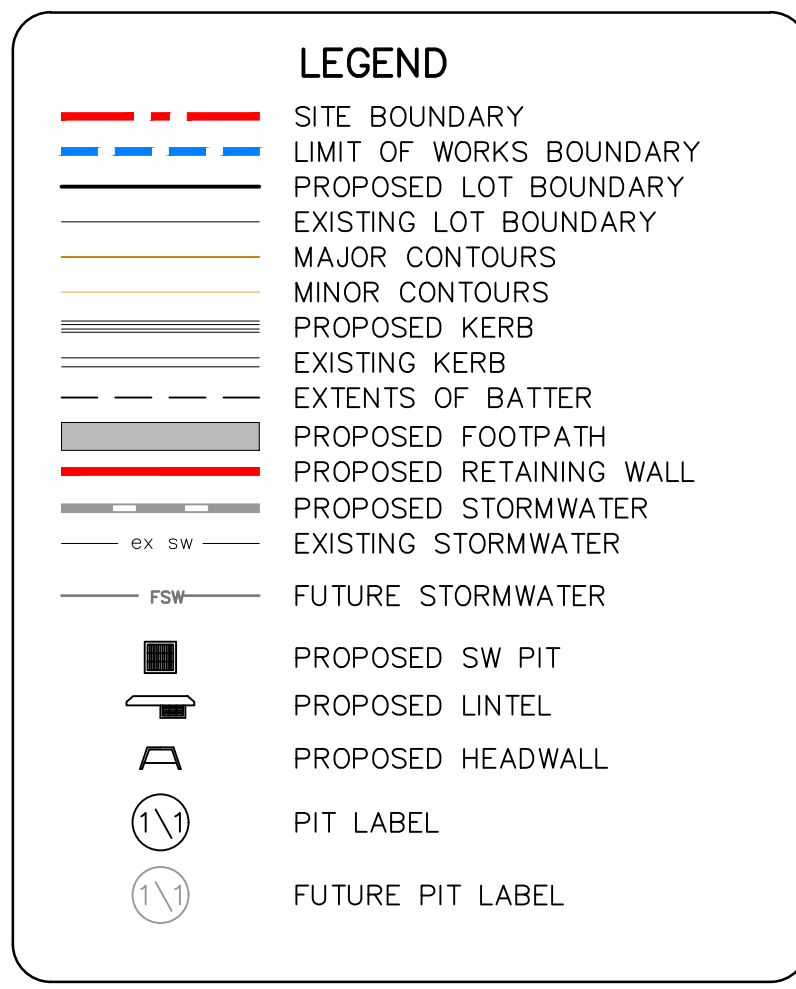
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HERRING



- ### GENERAL NOTES: -
1. FOR TYPICAL ROAD CROSS SECTIONS, KERB PROFILES REFER SHEET 201 AND PAVEMENT DETAILS REFER TO SHEET 151.
 2. SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE PLAN VIEW, LONGITUDINAL SECTIONS AND ELECTRONIC 12D DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.
 3. REFER TO SHEET 901 FOR COMBINED SERVICES PLAN.
 4. REFER DRAWINGS PREPARED BY R.A.R.I. FOR SEWER AND WATER DETAILS.

CAUTION:

1. IT IS THE RESPONSIBILITY OF THE CIVIL WORKS CONTRACTOR TO DETERMINE THE LOCATION & LEVEL OF EXISTING SERVICES USING NON DESTRUCTIVE METHODS PRIOR TO COMMENCING WORKS ON SITE.



EPPING



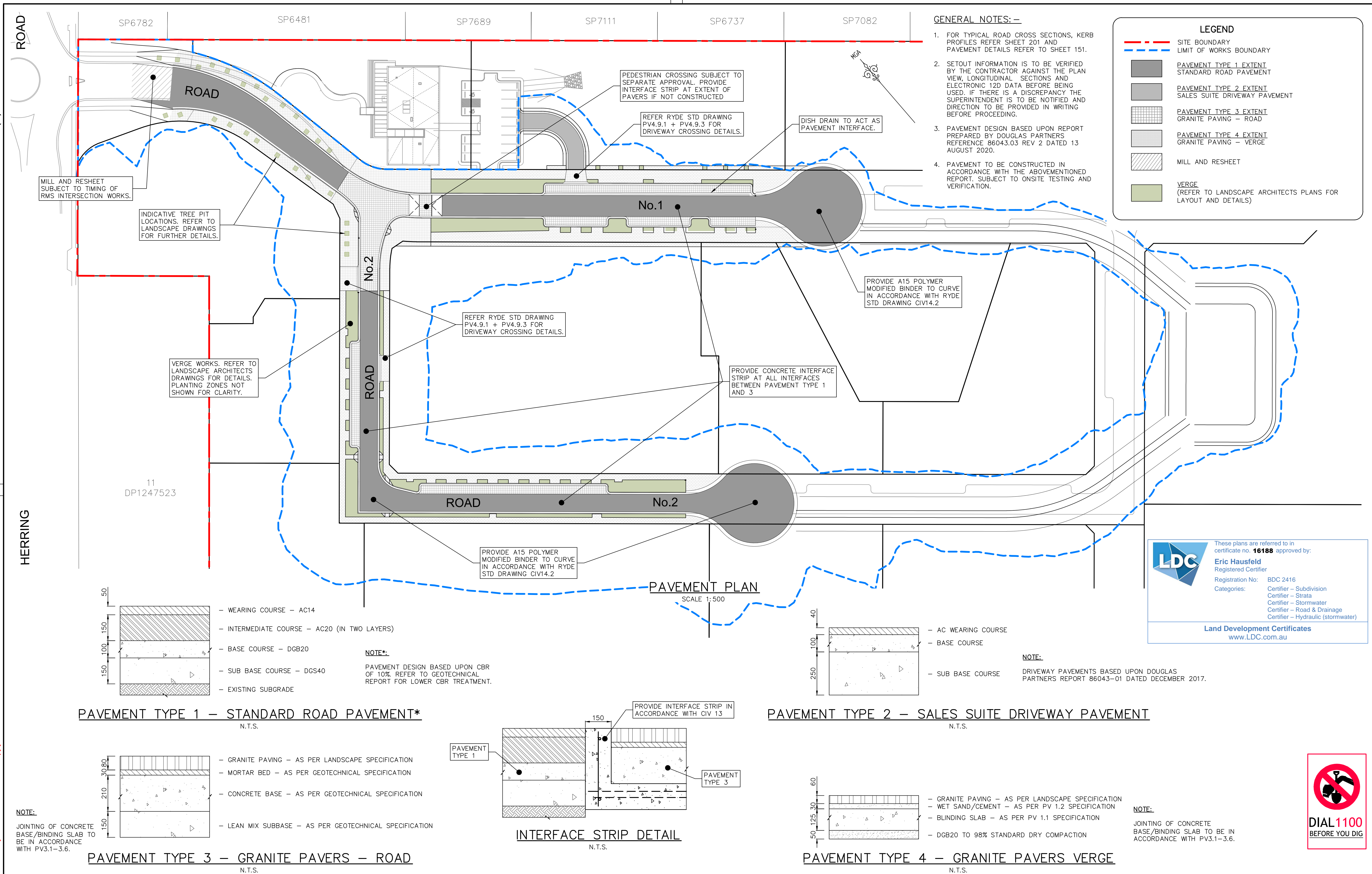
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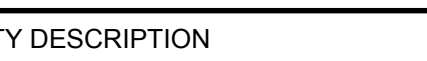



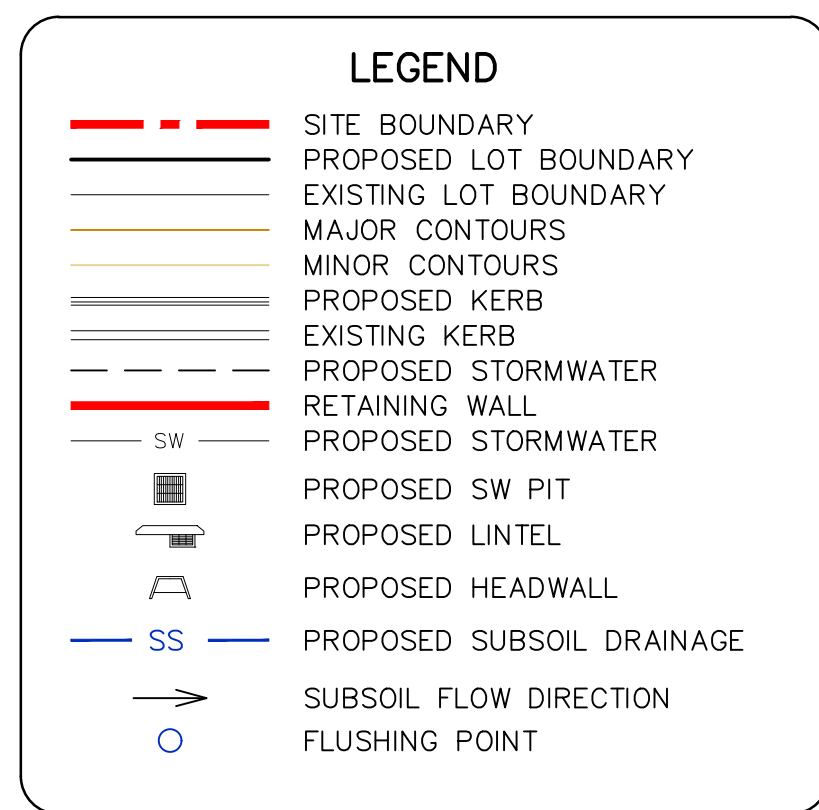
PROPERTY DESCRIPTION	
<p>LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322</p>	
SURVEYED	DATUM

PROJECT	PROPOSED SUBDIVISION		
PLAN TITLE	DETAIL PLAN		
PROJECT No.	DISCIPLINE	NUMBER	REV.

100mm AT FULL SIZE



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION		PROJECT							
A B C D E F G H	21.02.2020 13.03.2020 03.04.2020 02.05.2020 05.06.2020 03.09.2020 14.09.2020 29.10.2020	PRELIMINARY DRAFT ISSUE TURNING HEAD & BASIN MOVED FOR TENDER MINOR AMENDMENTS MINOR NOTE AMENDMENTS PCA COMMENTS PCA COMMENTS PCA COMMENTS	B.M. J.J. B.M. M.F. B.M. B.M. B.M. B.M.	P.B. J.J. M.H. M.F. M.F. M.H. M.H. M.H.	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	B.M. N.D. N.D. N.D. N.D. N.D. N.D. N.D.					LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PROPOSED SUBDIVISION PLAN TITLE PAVEMENT PLAN							
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1. THIS PLAN SHOWS LANDSCAPE AND RETAINING WALL SUBSOIL LOCATIONS ONLY. CONTRACTOR TO PROVIDE SUBSOIL DRAINAGE UNDER KERBS IN ACCORDANCE WITH RYDE COUNCIL STANDARD DRAWINGS SWD.2.
2. FLUSHING POINTS THROUGH CENTRE OF ALL PLANTING AREAS TO BE PROVIDED IN ACCORDANCE WITH SWD.2.

NOTE: —

LANDSCAPE AREAS SHOWN INDICATIVELY ONLY. SUBSOIL TO BE PROVIDED UNDER CENTRE OF ALL LANDSCAPE AREAS IN ACCORDANCE WITH LANDSCAPE DRAWINGS.



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416




Categories: Certifier – Subdivision
 Certifier – Strata
 Certifier – Stormwater
 Certifier – Road & Drainage
 Certifier – Hydraulic (stormwater)

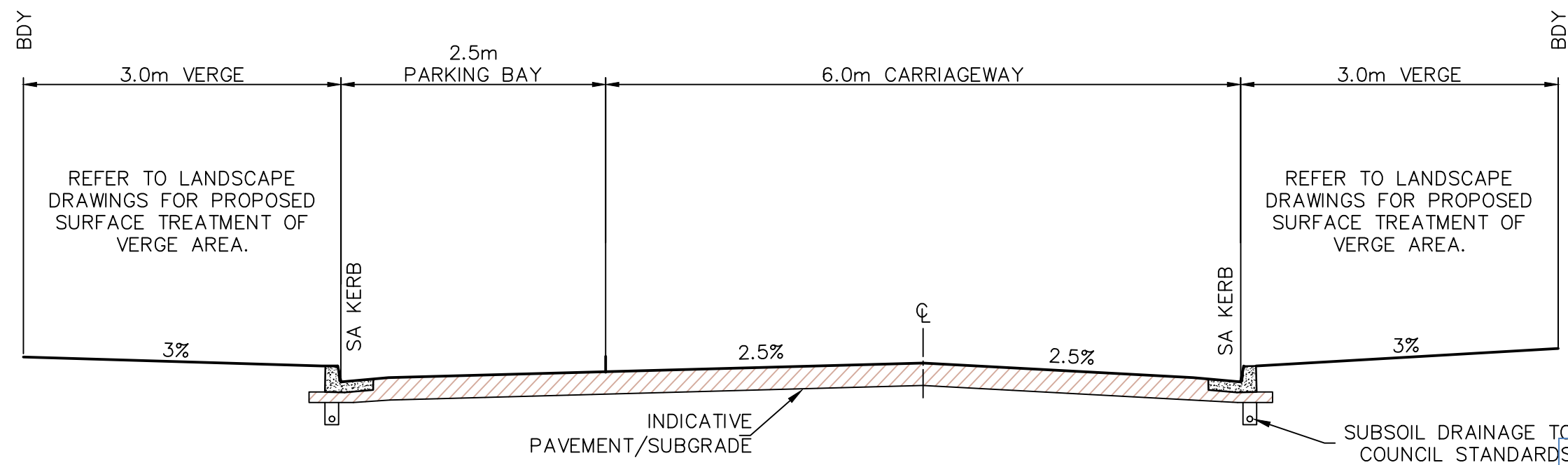
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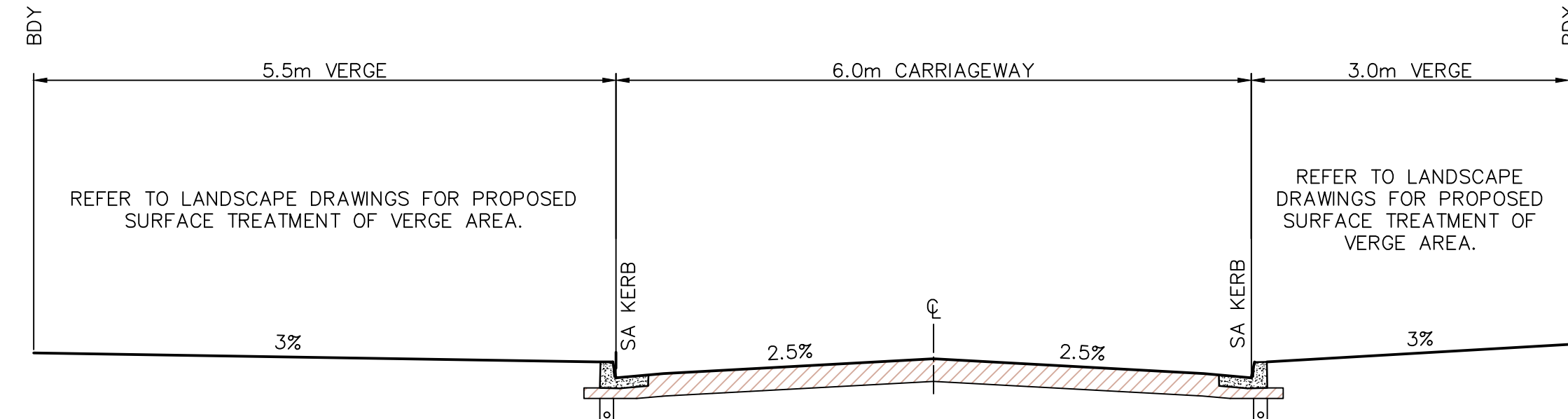
SUBSOIL PLAN
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		<div>Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398</div>	<div>CLIENT </div>	PROPERTY DESCRIPTION		PROJECT			
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											ADWJ	AHD GDA 94	300001(1) -	ENG	- 181	H



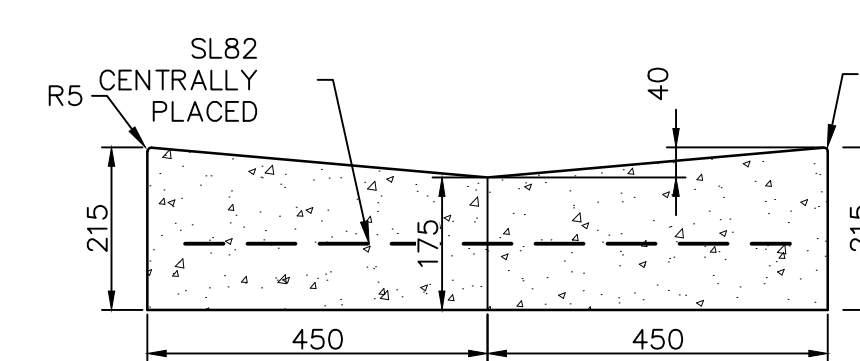
TYPICAL ROAD SECTION – ROAD NO.2 (WITH PARKING BAYS)

SCALE 1 : 50



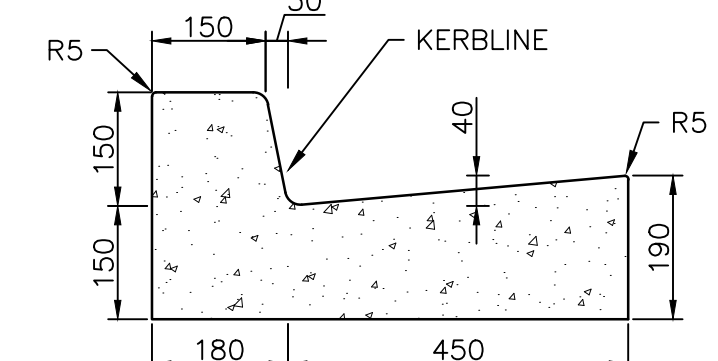
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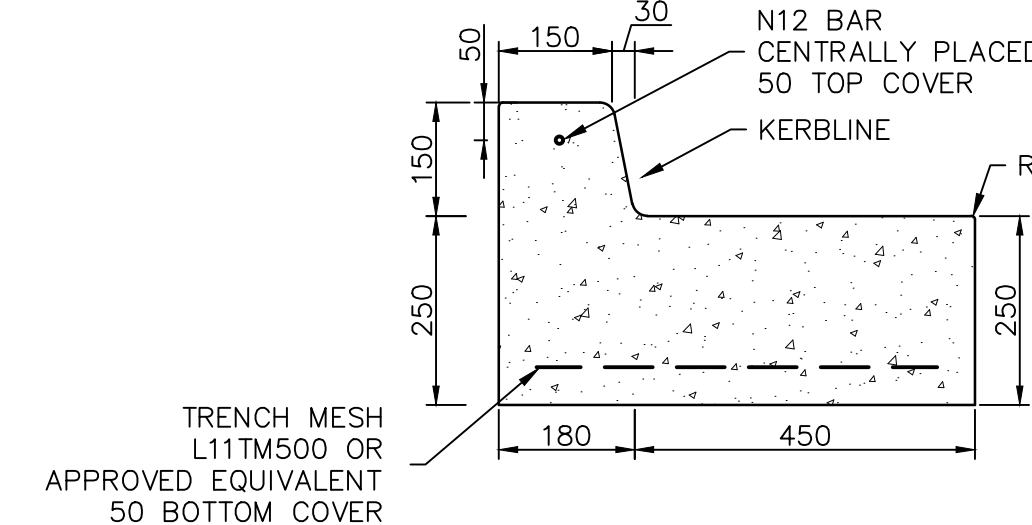
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NOT TO SCALE



KERB AND GUTTER (SA)

NOT TO SCALE

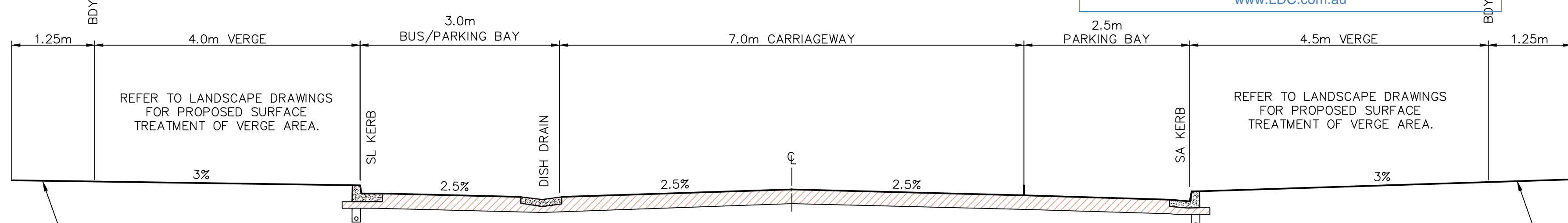


BUS BAY KERB AND GUTTER (SL)

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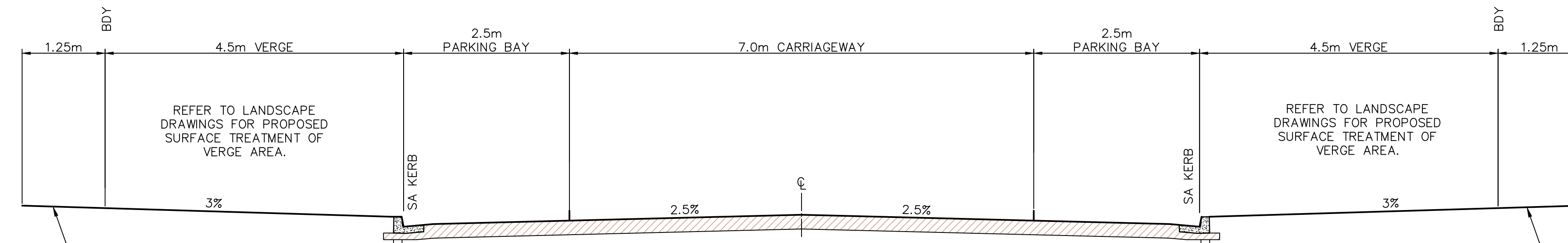
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REINFORCEMENT DETAILS TAKEN FROM RYDE CITY COUNCIL STANDARD DRAWINGS CIV.1.1.2.



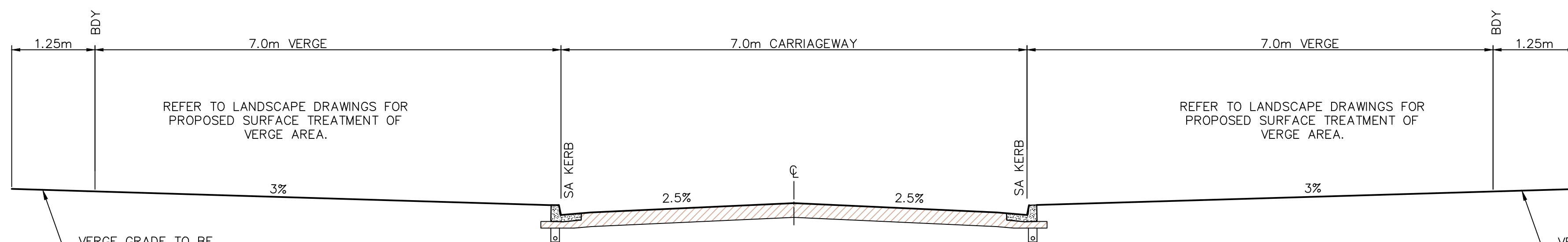
TYPICAL ROAD SECTION – ROAD NO.1 (WITH BUS/PARKING BAYS)

SCALE 1 : 50



TYPICAL ROAD SECTION – ROAD NO.1 (WITH PARKING BAYS)

SCALE 1 : 50



TYPICAL ROAD SECTION – ROAD NO.1 (WITHOUT PARKING BAYS)

SCALE 1 : 50

SETOUT TABLE – ROAD 1							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325483.186	6260622.645	134°34'31.27"			
TC	41.150	325512.499	6260593.763	134°34'31.27"			
IP 2	56.561	325523.837	6260582.592		R = 50.000	30.821	35°19'05.69"
CT	71.971	325526.630	6260566.921	169°53'36.96"			
TC	96.550	325530.943	6260542.724	169°53'36.96"			
IP 3	110.062	325533.409	6260528.890		R = -40.000	27.026	38°42'41.71"
CT	123.575	325543.985	6260519.638	131°10'55.25"			
TC	379.698	325736.748	6260350.993	131°10'55.25"			
IP 4	389.748	325744.383	6260344.313		R = -60.000	20.100	19°11'39.20"
CT	399.798	325753.791	6260340.515	111°59'16.05"			
TC	424.064	325776.292	6260331.429	111°59'16.05"			
IP 5	433.888	325785.483	6260327.718		R = 60.000	19.647	18°45'39.78"
CT	443.711	325792.992	6260321.248	130°44'55.83"			
TC	470.403	325813.213	6260303.825	130°44'55.83"			
IP 6	485.201	325824.438	6260294.154		R = -250.000	29.598	6°46'59.71"
CT	500.000	325836.726	6260285.876	123°57'56.12"			
IP 7	514.799	325849.014	6260277.599		R = 250.000	29.598	6°46'59.94"
CT	529.598	325860.238	6260267.927	130°44'56.06"			
IP 8	584.663	325901.954	6260231.984	130°44'56.06"			

SETOUT TABLE – ROAD 2							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325535.758	6260529.611	235°47'30.28"			
TC	6.694	325530.222	6260525.847	235°47'30.28"			
IP 2	9.244	325528.102	6260524.406		R = -20.000	5.099	14°36'32.07"
CT	11.793	325526.414	6260522.477	221°10'58.21"			
TC	82.361	325479.948	6260469.367	221°10'58.21"			
IP 3	87.073	325475.998	6260464.851		R = -6.000	9.425	90°00'00.24"
CT	91.785	325480.513	6260460.901	131°10'57.97"			
TC	298.535	325636.116	6260324.763	131°10'57.97"			
IP 4	303.248	325640.632	6260320.813		R = -6.000	9.425	89°59'59.46"
CT	307.960	325644.582	6260325.328	41°10'58.51"			
IP 5	387.963	325697.261	6260385.539	41°10'58.51"			

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CLIENT
FRASERS PROPERTY

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LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
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MACQUARIE PARK 2322

PROJECT
PROPOSED SUBDIVISION

PLAN TITLE
TYPICAL ROAD PROFILES,
KERB DETAILS & ROAD SETOUT TABLES

SURVEYED
ADWJ

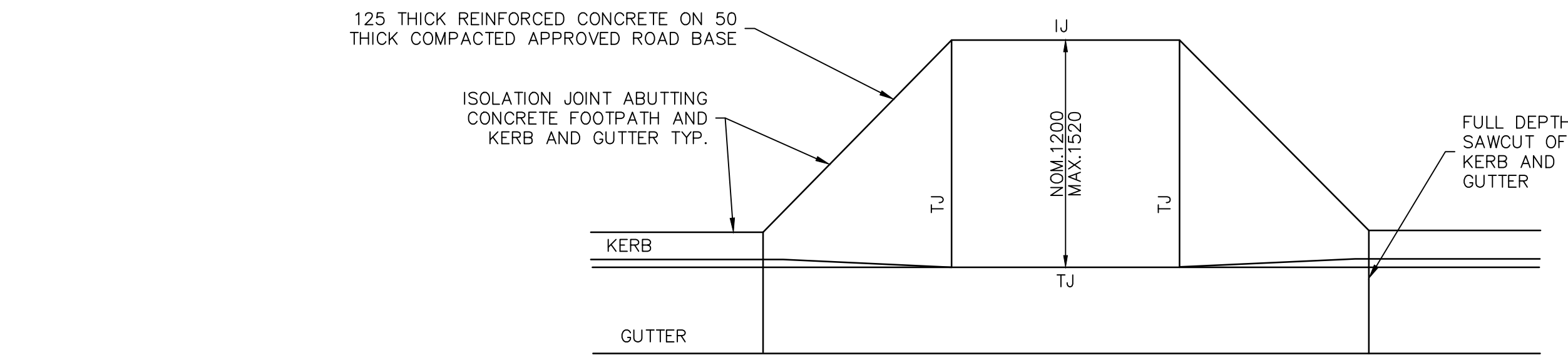
DATUM
AHD GDA 94

PROJECT No.
300001(1) -

DISCIPLINE
ENG

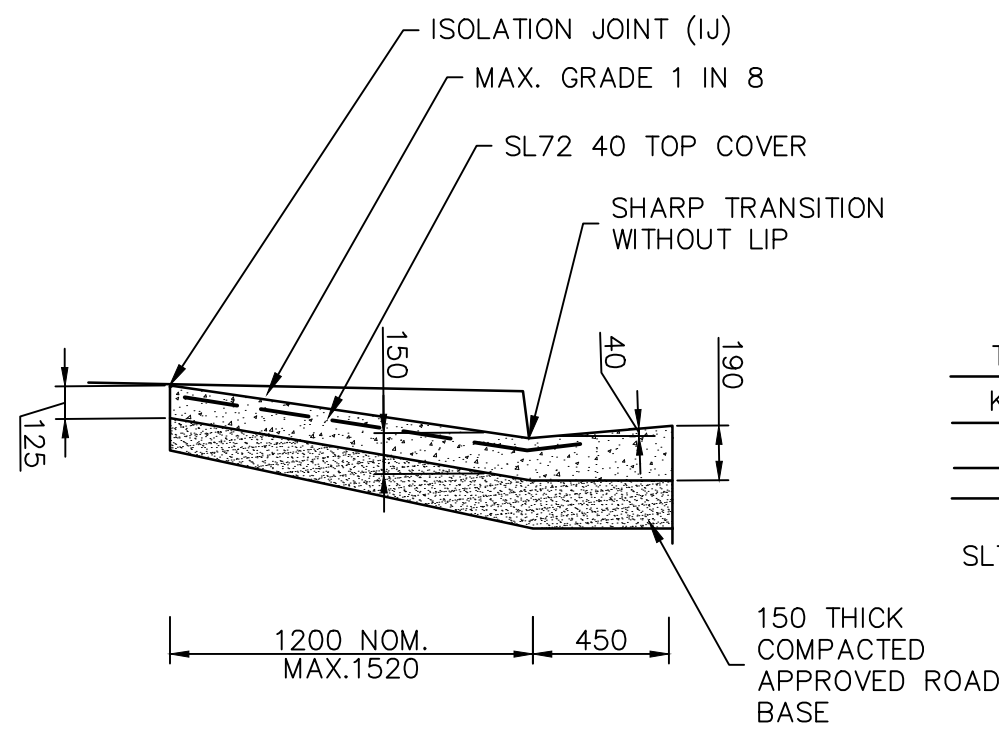
NUMBER
201

REV.
H



KERB RAMP FOOTPATH DETAIL – PLAN

NOT TO SCALE



KERB RAMP FOOTPATH DETAIL – ELEVATION

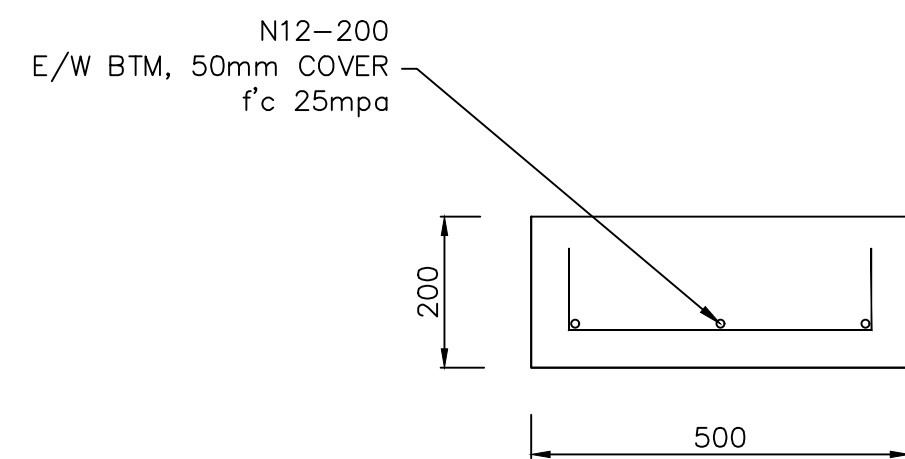
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SECTION 1

NOT TO SCALE

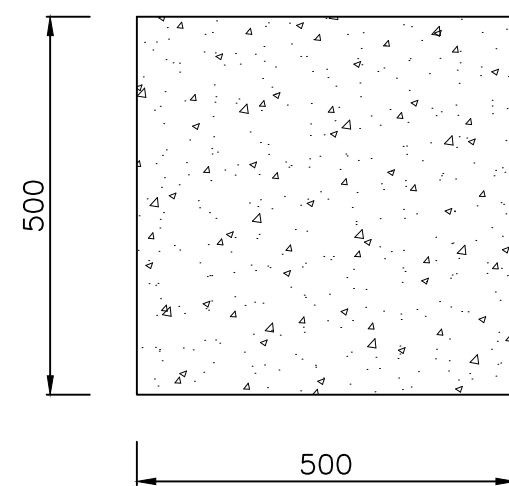
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PRAM RAMPS TO CIV 2.1.2 EXCEPT WHERE MODIFIED BY LANDSCAPE DRAWINGS.



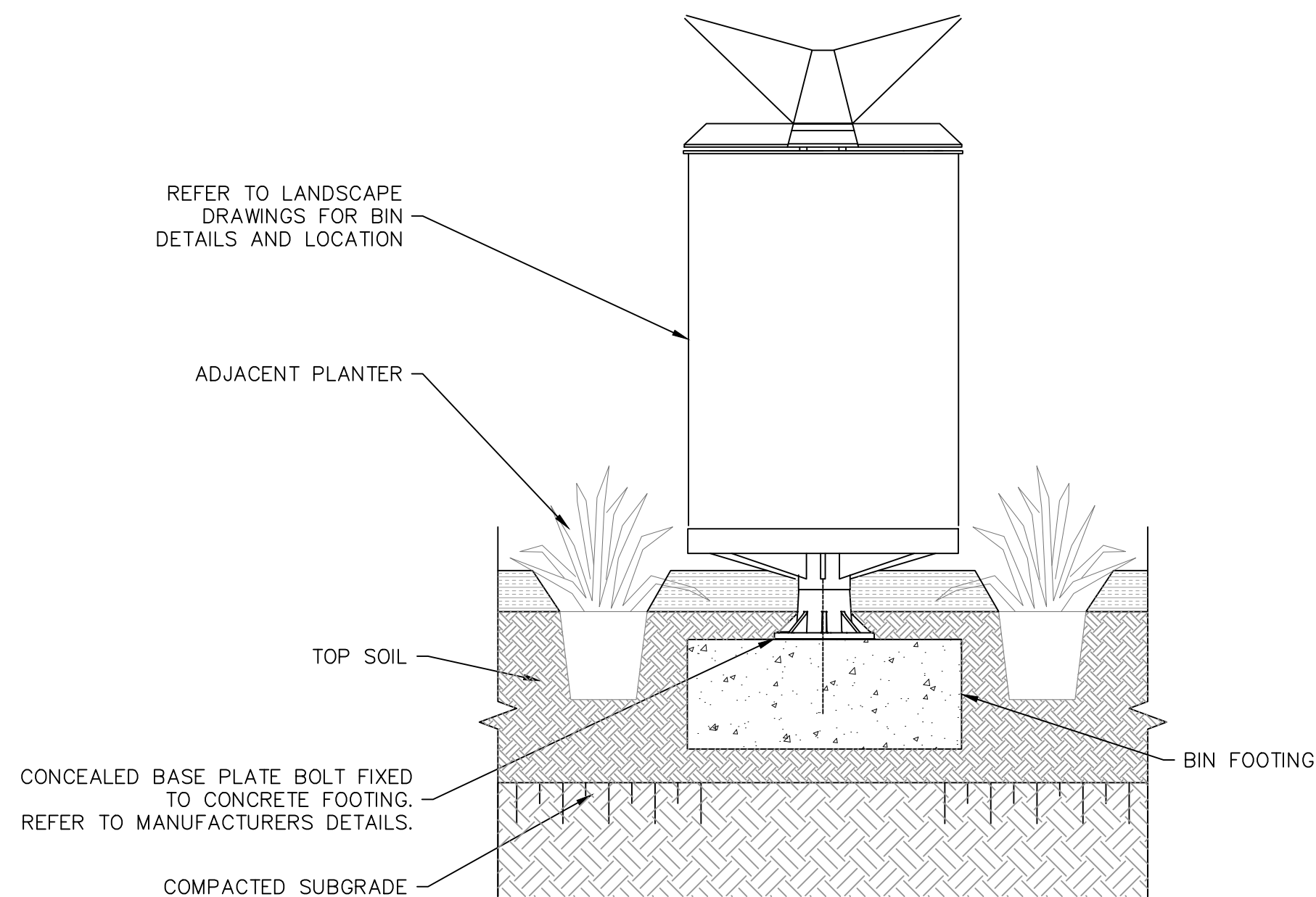
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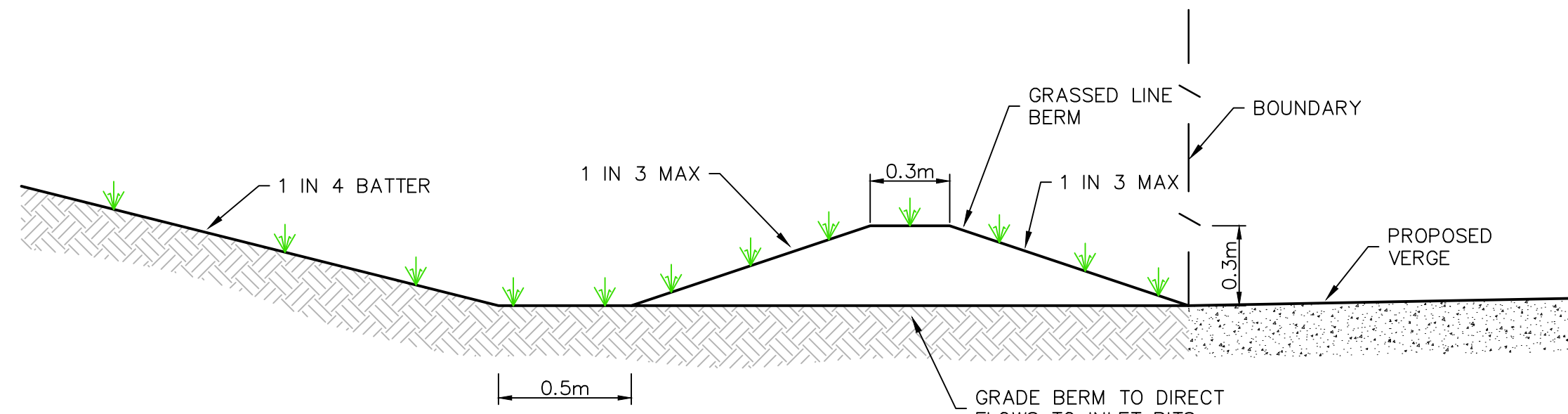
BIN FOOTING DETAIL – PLAN

SCALE 1:10



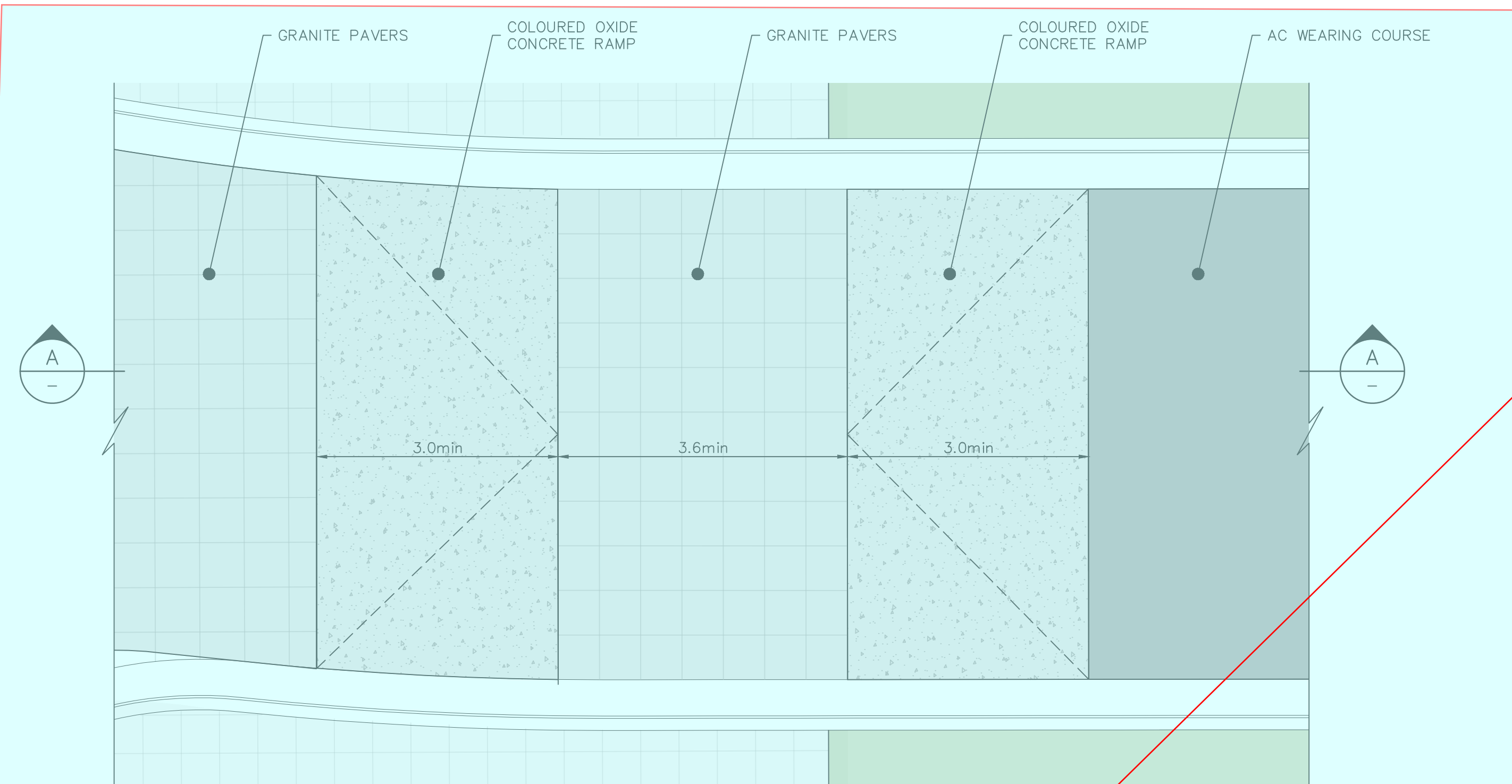
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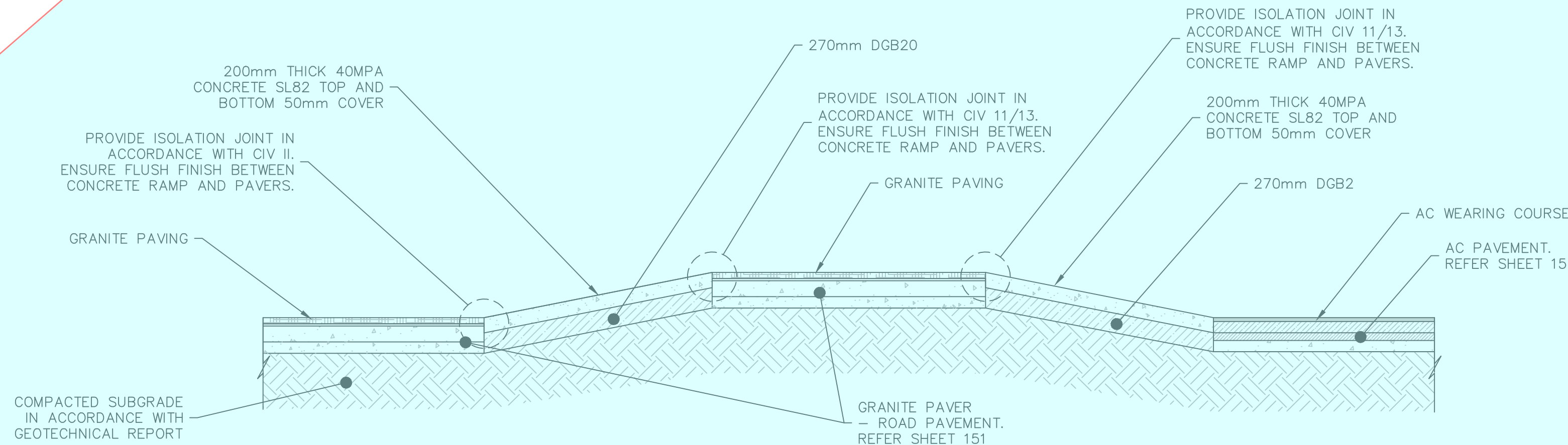
TYPICAL BERM SECTION

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RAISED PEDESTRIAN CROSSING DETAIL – PLAN

SCALE 1:50



RAISED PEDESTRIAN CROSSING DETAIL – SECTION A

SCALE 1:50

NOTE:

PROVISION OF RAISED PEDESTRIAN CROSSING SUBJECT TO SEPARATE APPROVAL.

NOTE:

PEDESTRIAN CROSSING DIMENSIONS TO TM.13. FINISH TO LANDSCAPE PLANS.

Not Approved



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A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.	
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.	
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	

adw
Johnson

Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

FRASERS
PROPERTY

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED ADWJ DATUM AHD GDA 94

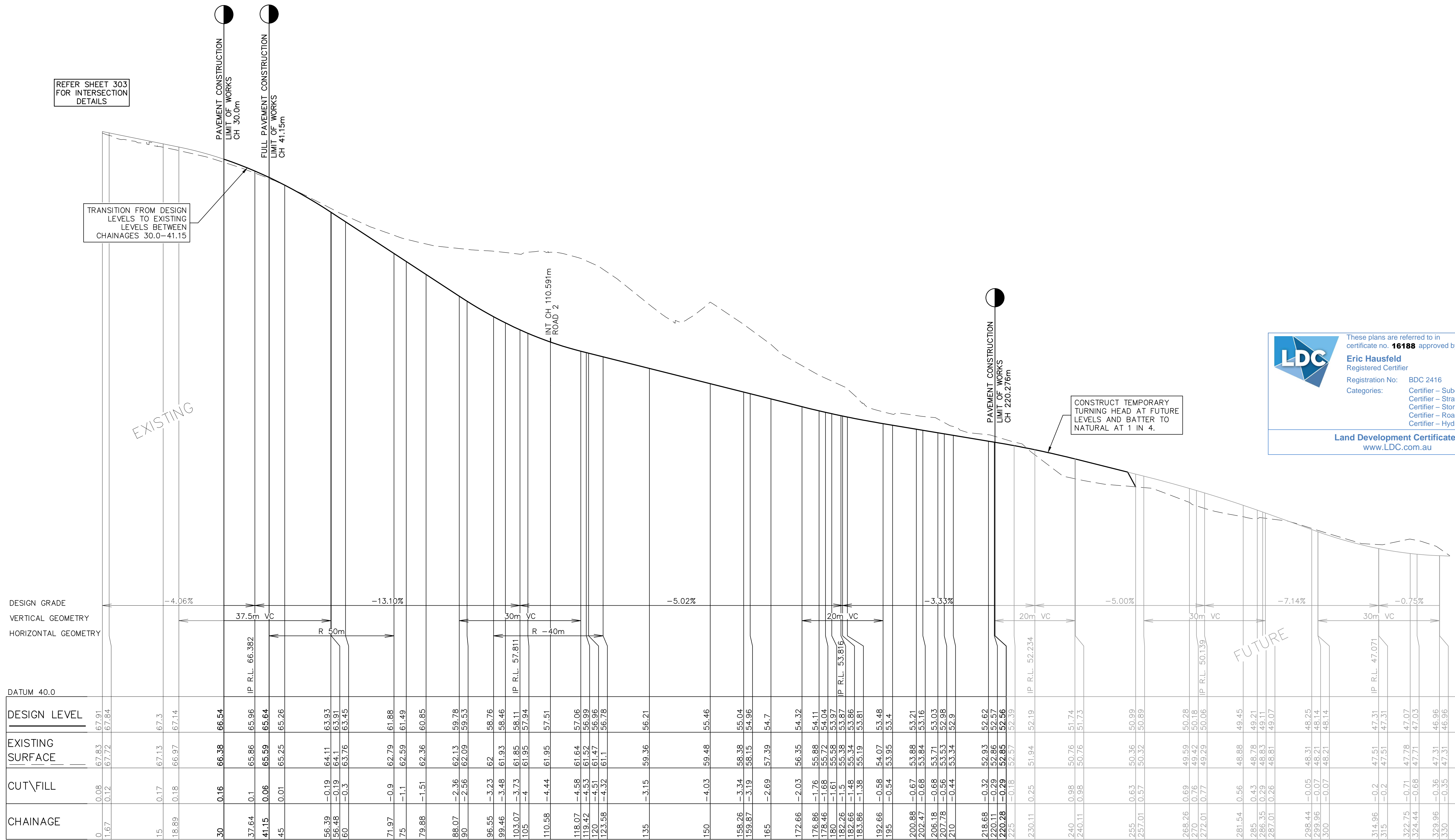
PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

RAISED PEDESTRIAN CROSSING,
TEMPORARY BERM & BIN FOOTING DETAILS

PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 202 - REV. H



These plans are referred to in certificate no. **16188** approved by:

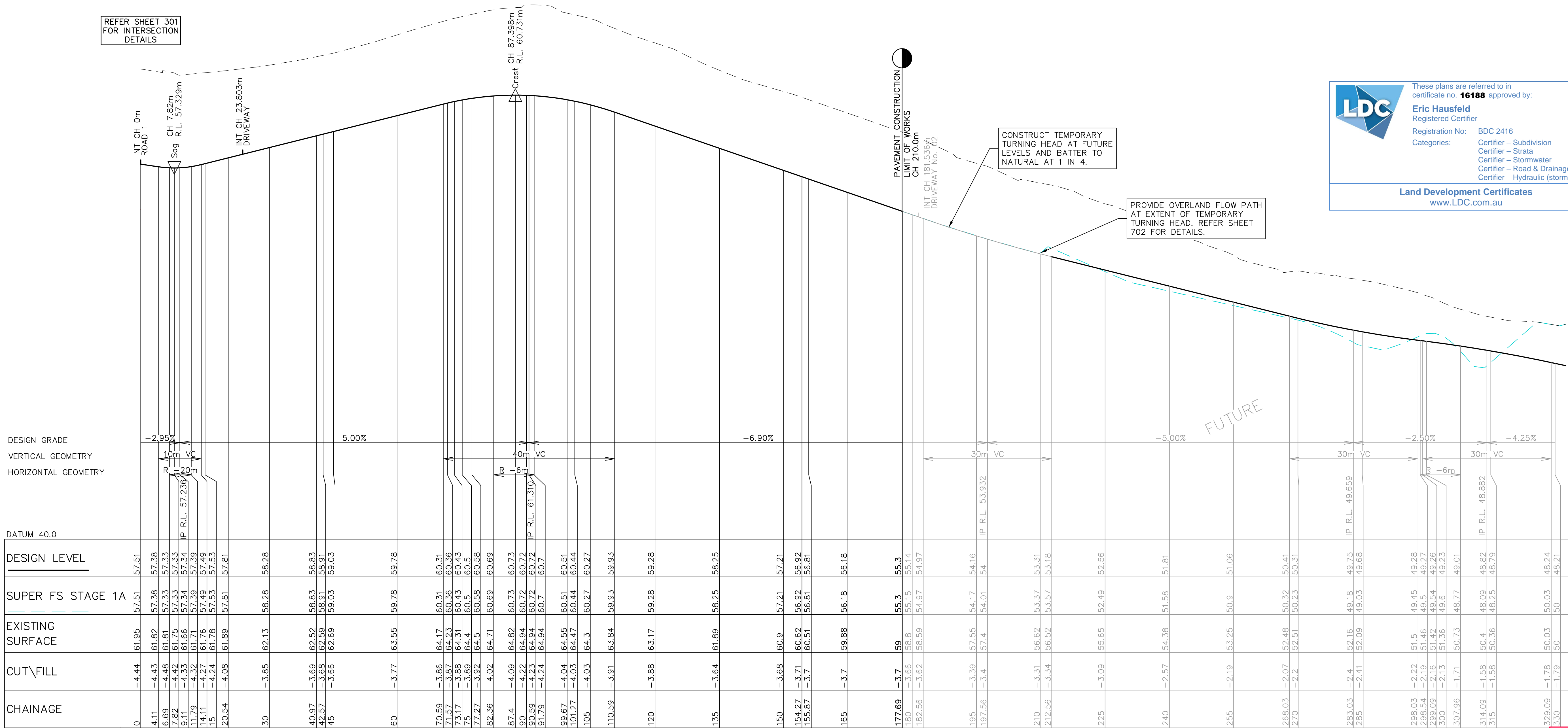
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	0 25 50m A3 1:1000	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION	ROAD LONGITUDINAL SECTIONS ROAD No.1	ADWJ	AHD GDA 94	300001(1) -	ENG	211	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.	0 12.5 25.0m A3 1:1000	FRASERS PROPERTY									
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.											
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:02:54AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-211.DWG



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:1000	Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION		ADWJ	AHD GDA 94	300001(1) -	ENG	212	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.H.	B.M.	N.D.	A3 1:2000	5 Pioneer Avenue,	& LOT 100 D.P.1223787								
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.	A1 1:500	P.O. Box 3717,	HERRING ROAD & EPPING ROAD	ROAD LONGITUDINAL SECTIONS							
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322	ROAD No.2							
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300									
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399									
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au									
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au									

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ALL DIMENSIONS ARE IN METRES. DO NOT SCALE
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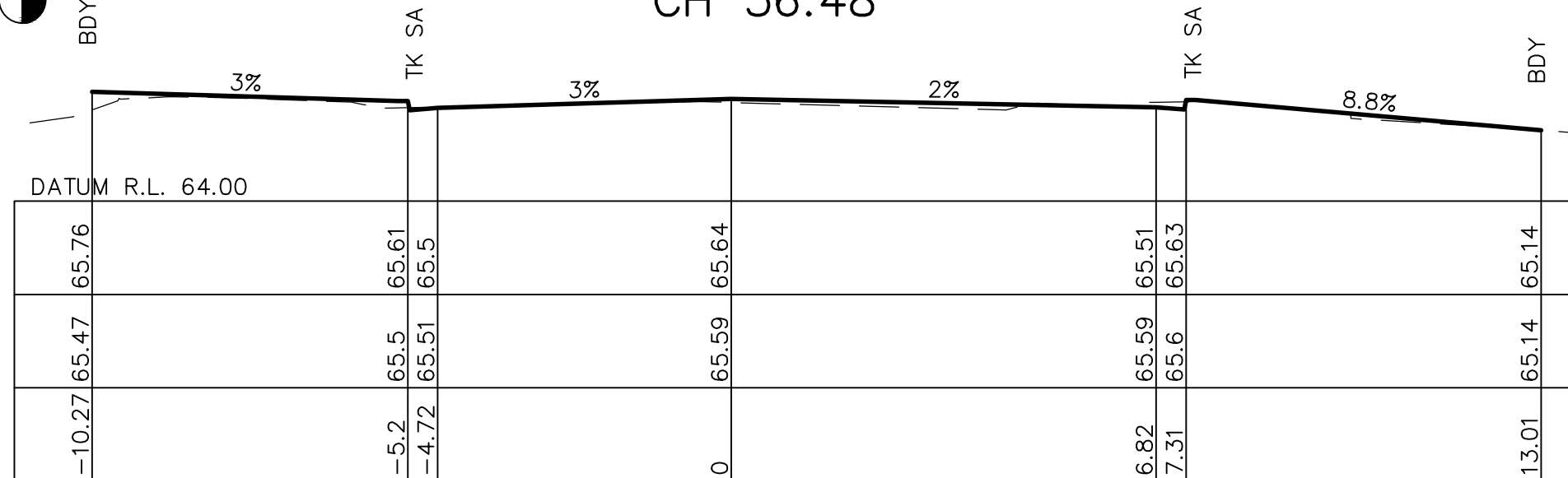
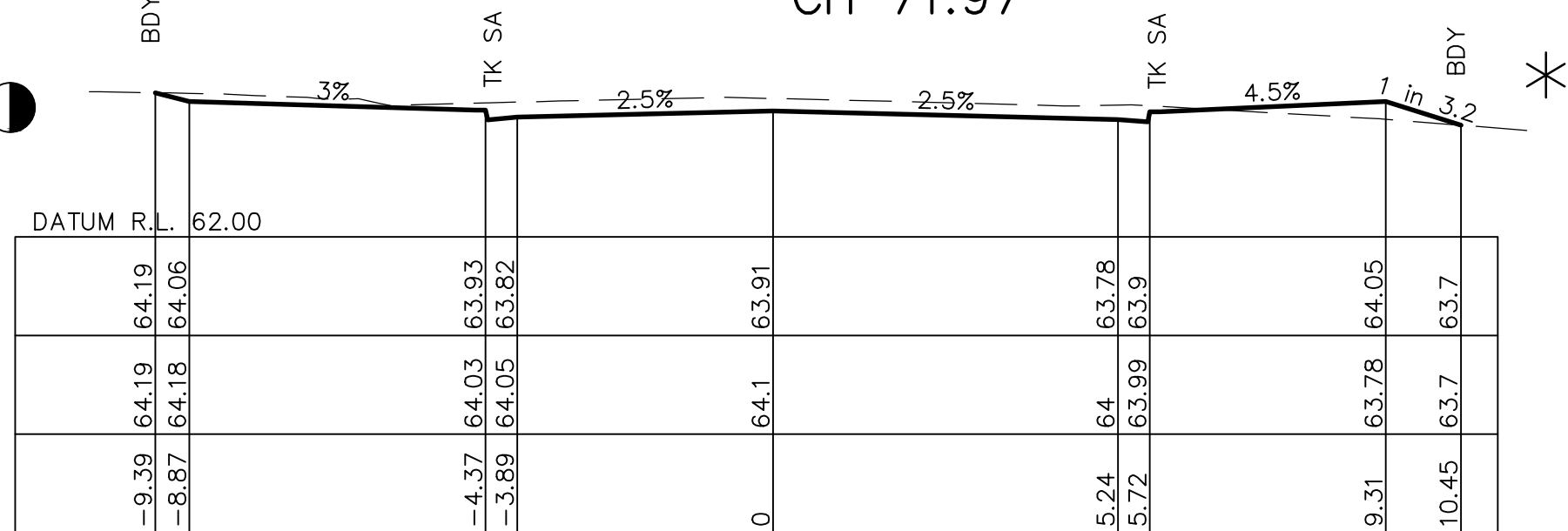
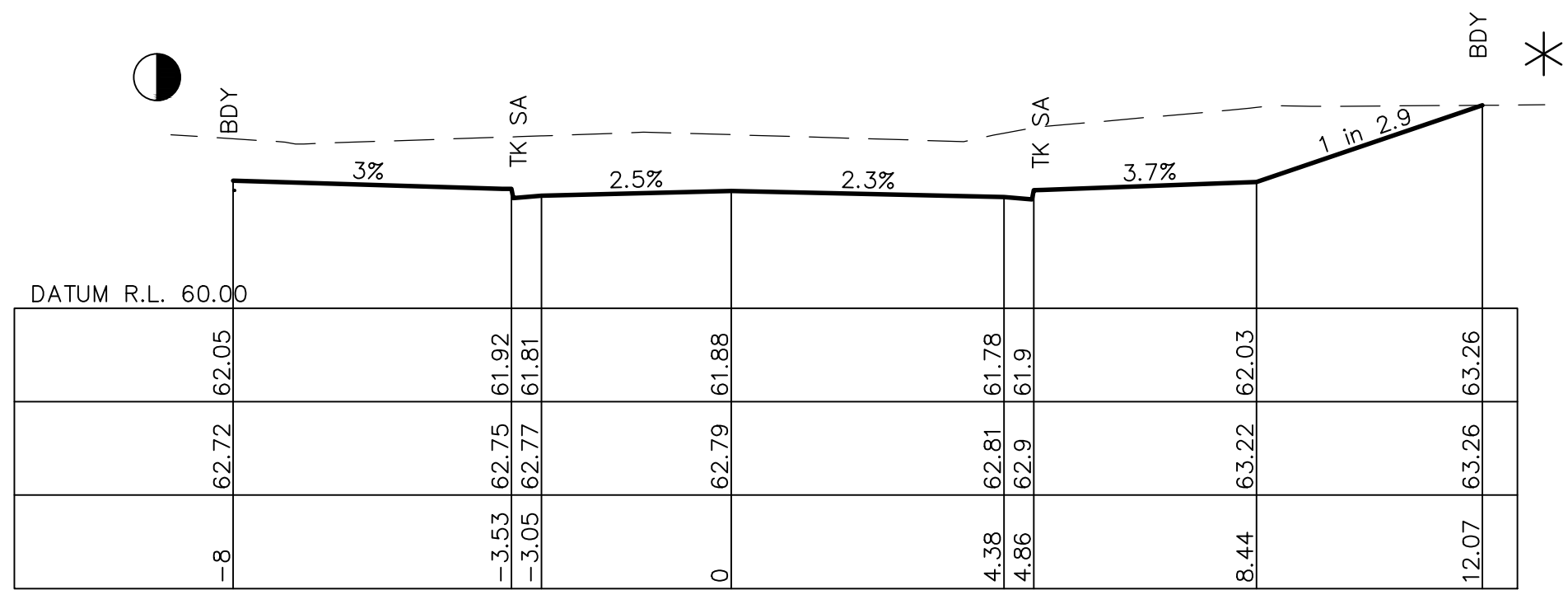
NOTE:

RHS LANE AND VERGE GRADE VARY DUE TO SECTION HORIZONTAL LAYOUT. ROAD TO BE CONSTRUCTED TO COUNCIL STANDARD GRADES.

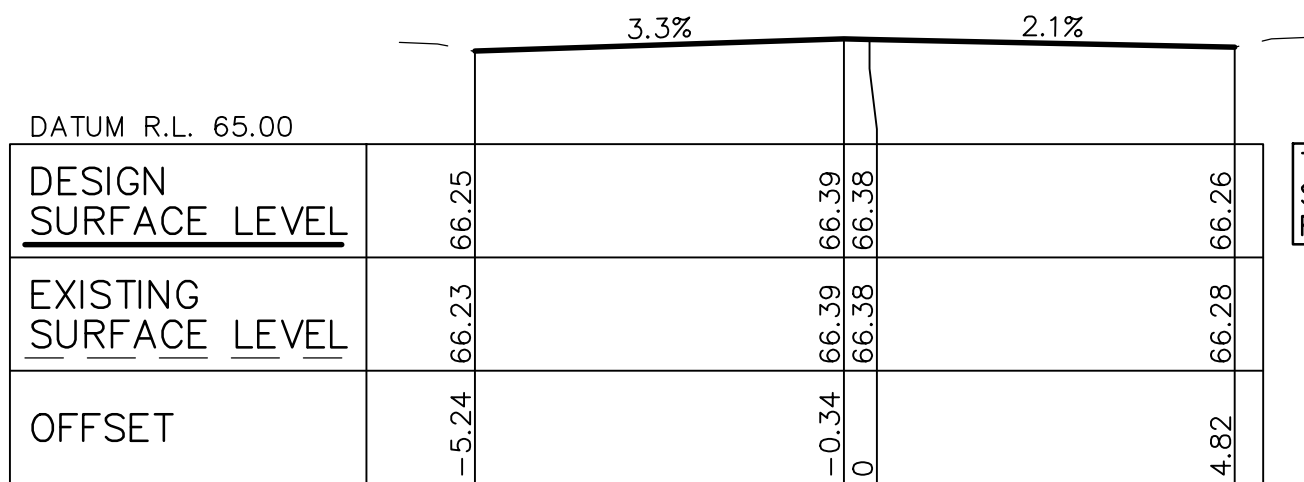
REFER SHEET 501 FOR SITE REGRADE DETAILS

REFER SHEET 303 & 304 FOR DETAILS

BERM TO BE PROVIDED AT BASE OF ALL BATTERS. REFER SHEET 202 FOR DETAILS.

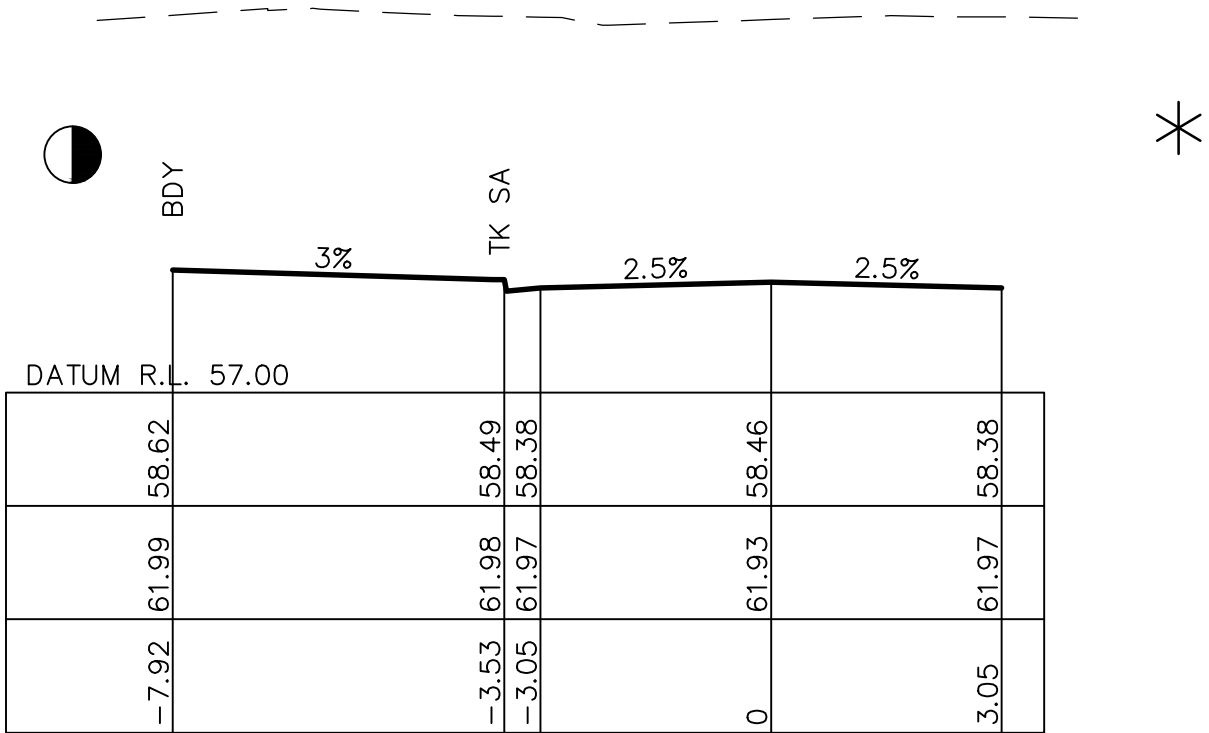


CH 41.15—LIMIT OF PERMANENT PAVEMENT CONSTRUCTION/RMS WORKS

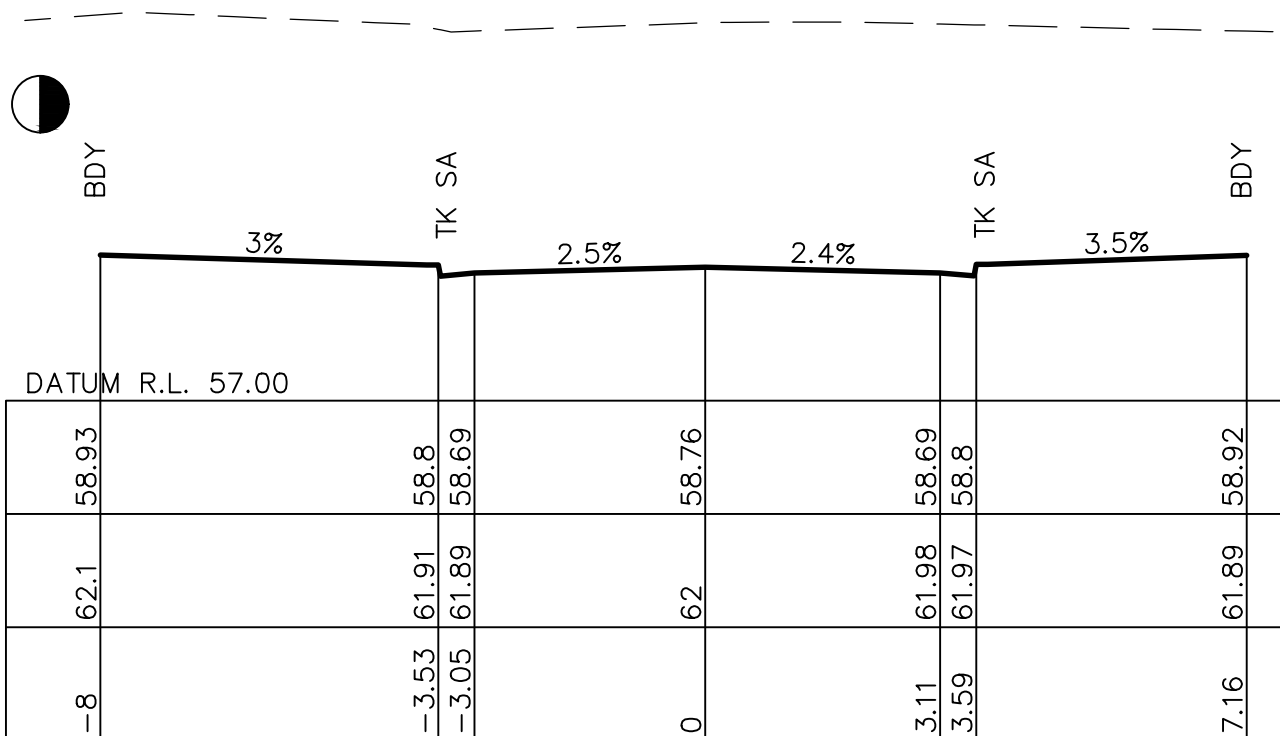


LIMIT OF PAVEMENT WORKS – CH 30

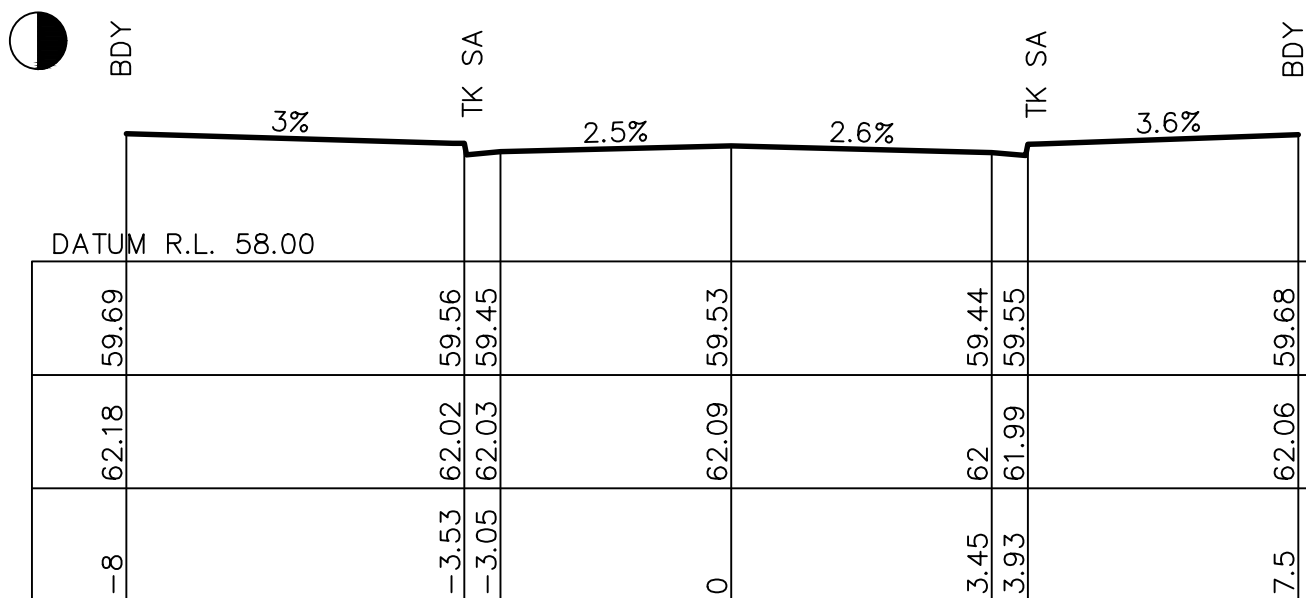
TEMPORARY WORKS
SUBJECT TO TIMING OF
RMS INTERSECTION WORKS



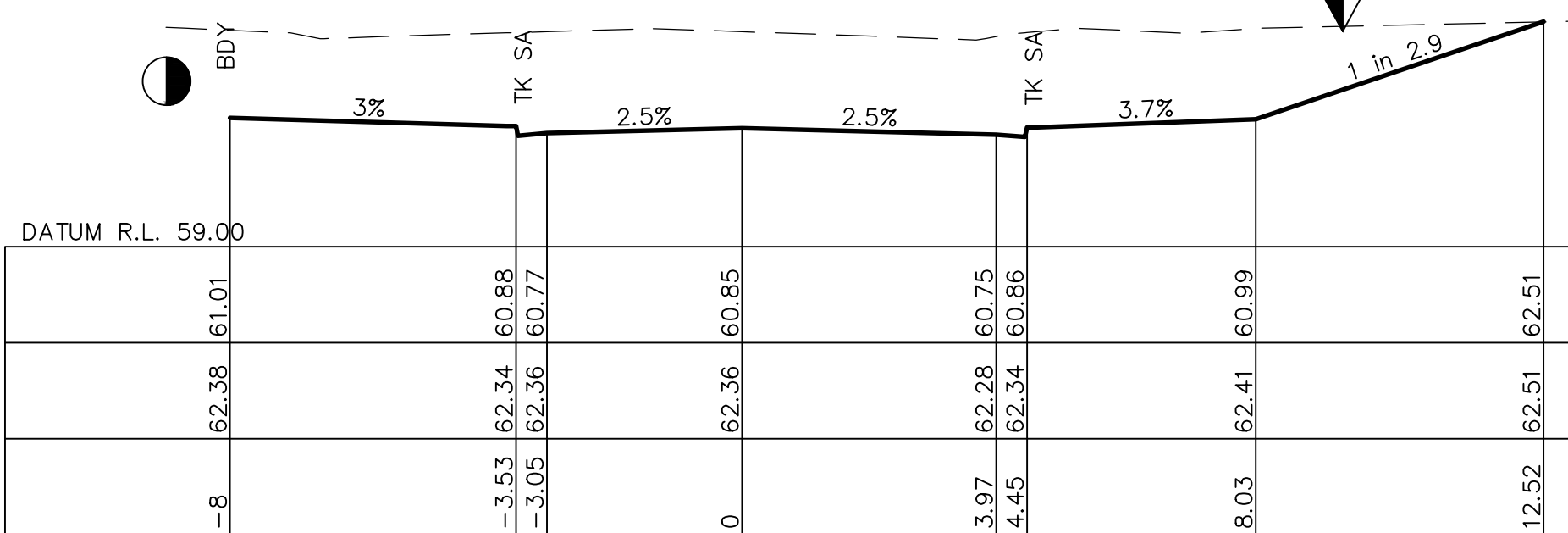
CH 99.46



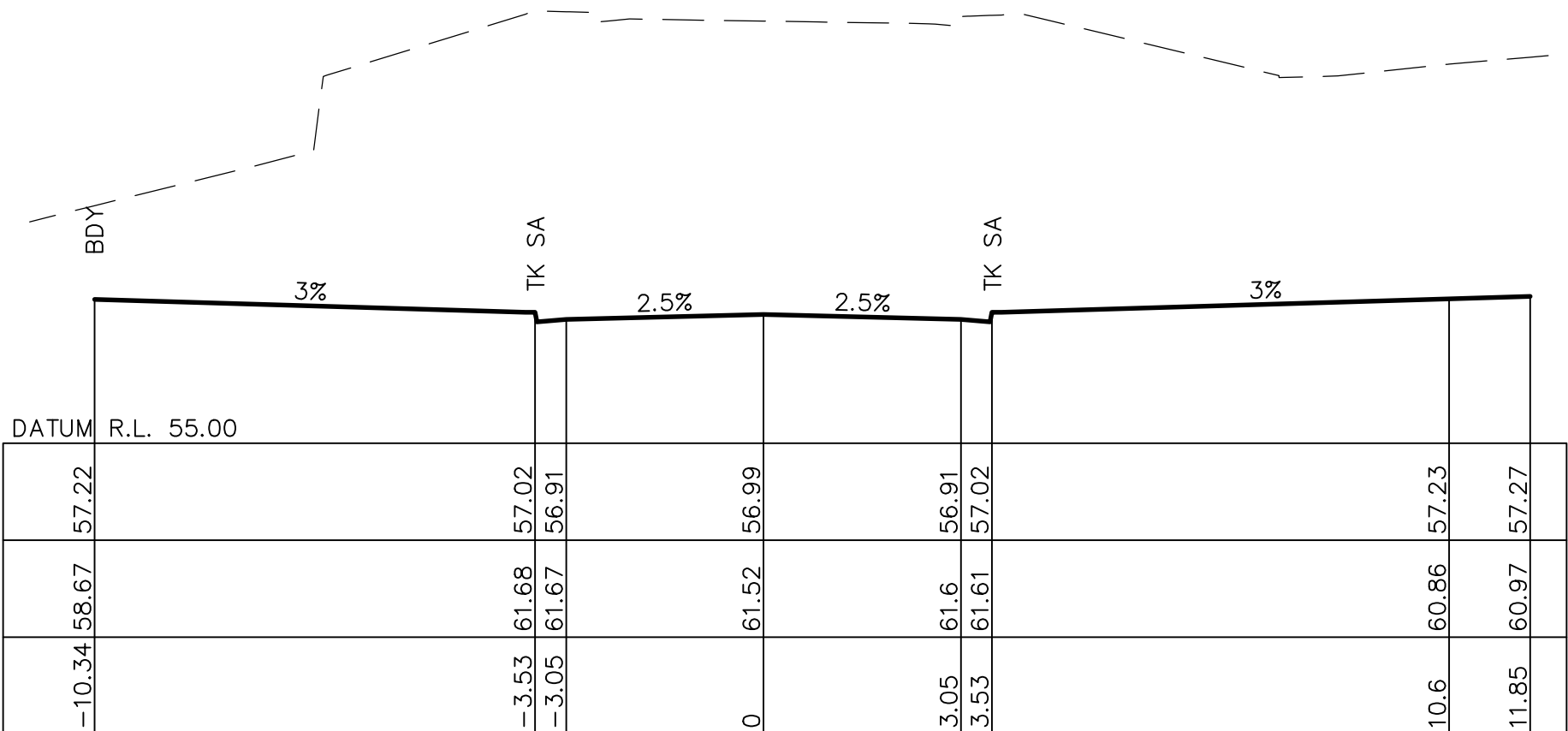
CH 96.55



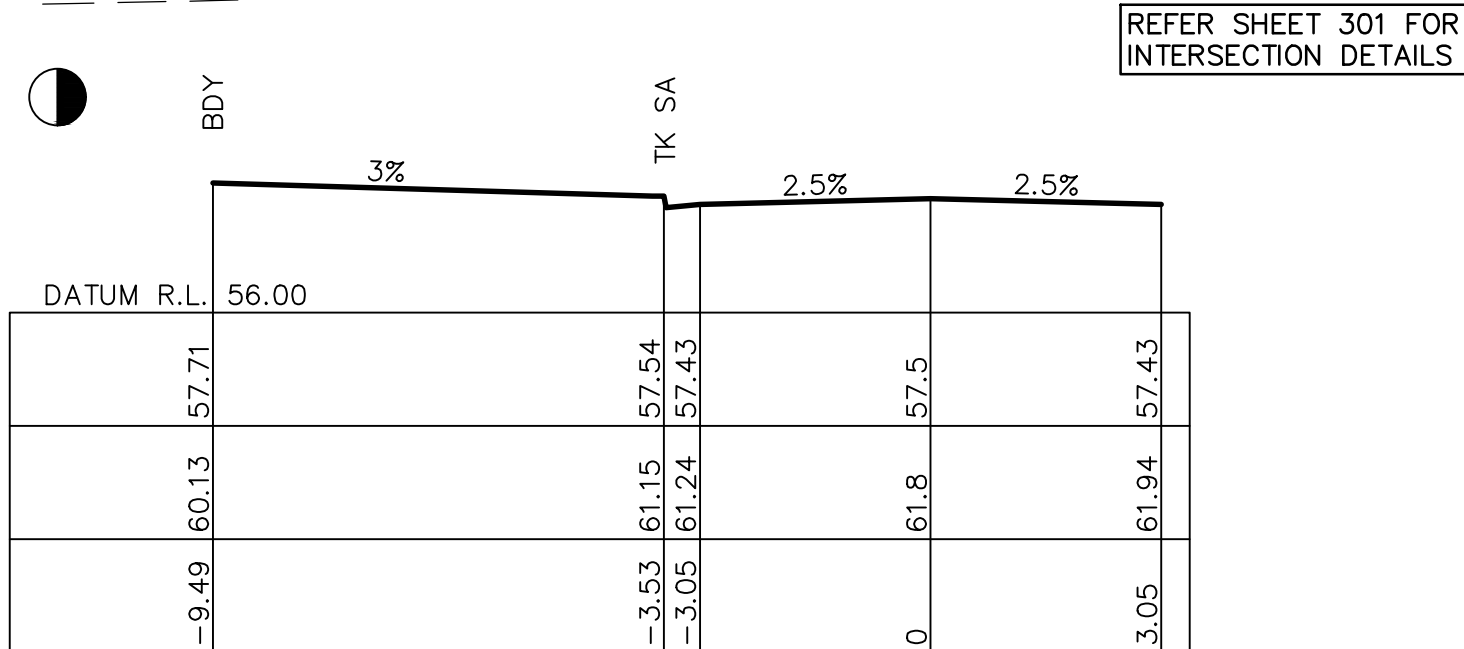
CH 90



CH 79.88



CH 119.42



CH 110.58

REFER SHEET 301 FOR INTERSECTION DETAILS

LDC Land Development Certificates
These plans are referred to in certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)
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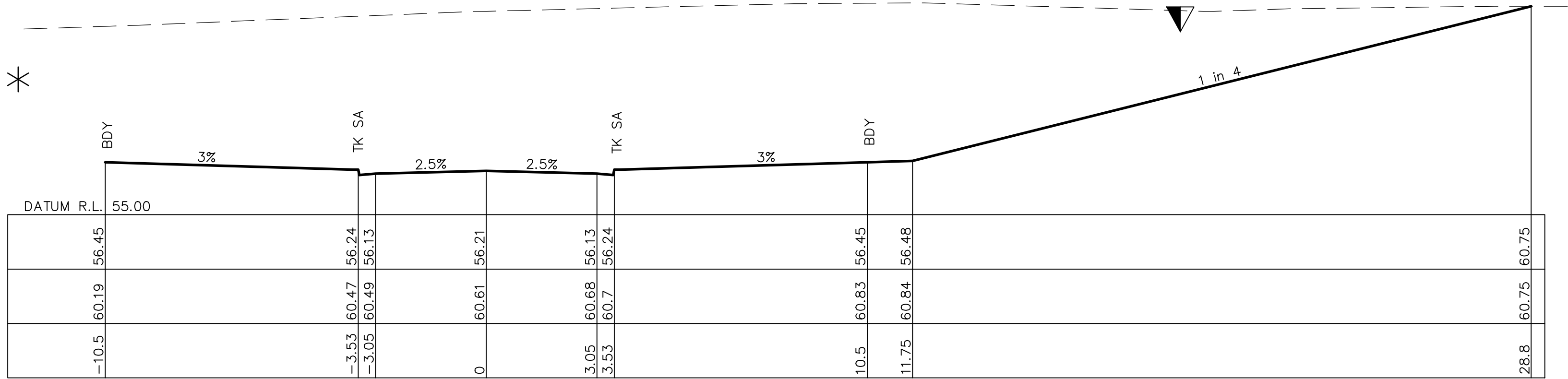
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:100	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION	ROAD CROSS SECTIONS ROAD No.1 SHEET 1	ADWJ	AHD GDA 94	300001(1) -	ENG	231	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.											
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.											
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:03:12AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-231.DWG

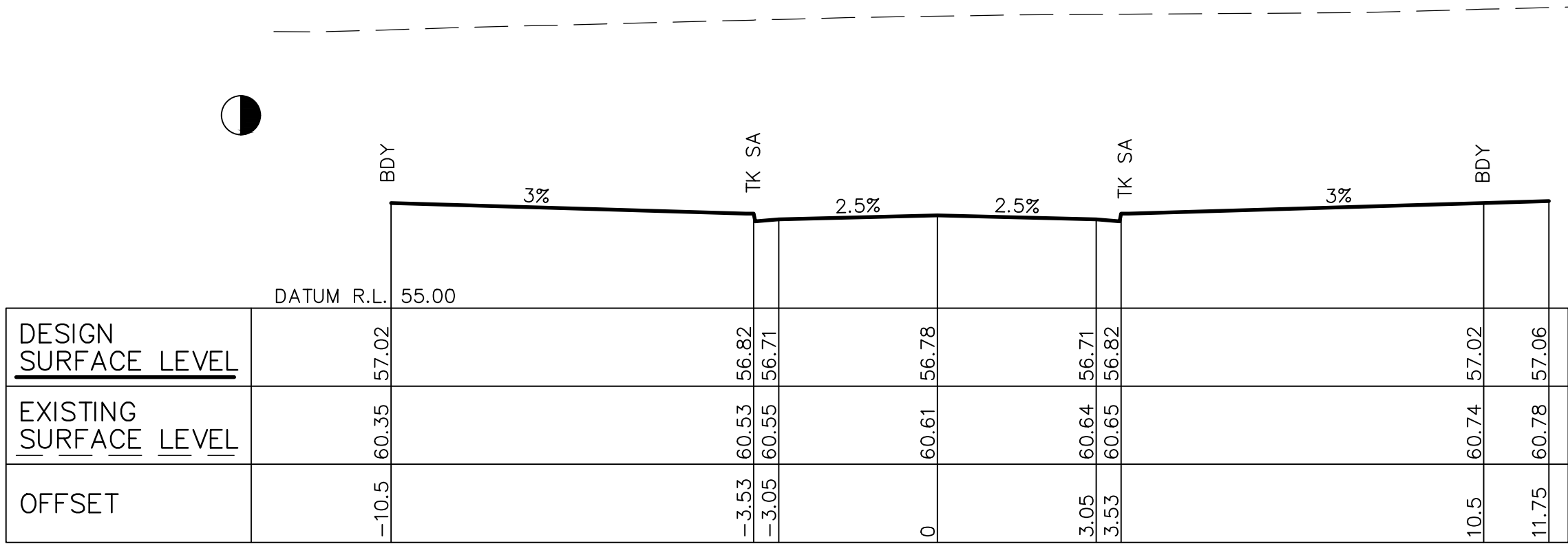
- REFER SHEET 501 FOR
SITE REGRADE DETAILS
- *

REFER SHEET 306 FOR
SALES SUITE DETAILS
- ▽

BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



CH 135



CH 123.58

These plans are referred to in certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

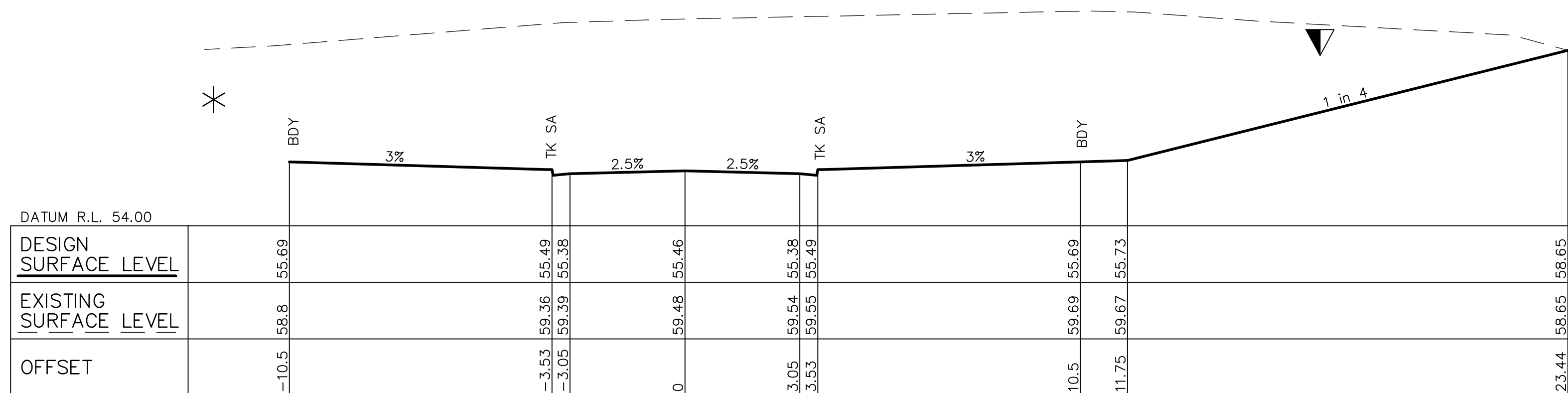
Land Development Certificates
www.LDC.com.au





REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.		5 Pioneer Avenue,	& LOT 100 D.P.1223787	
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		P.O. Box 3717,	HERRING ROAD & EPPING ROAD	
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322	
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300		
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399		
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au		
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au		
								ABN 62 129 445 398		
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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:03:21AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-232.DWG										

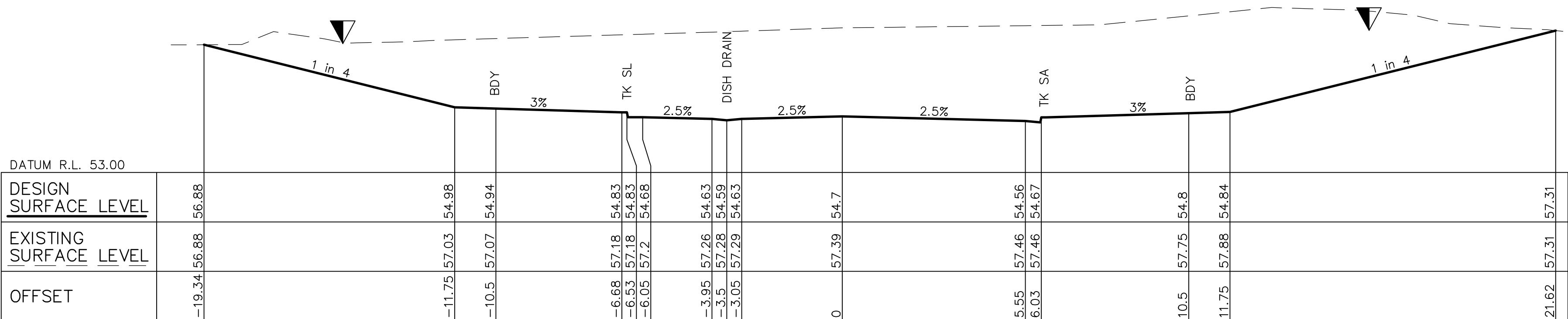
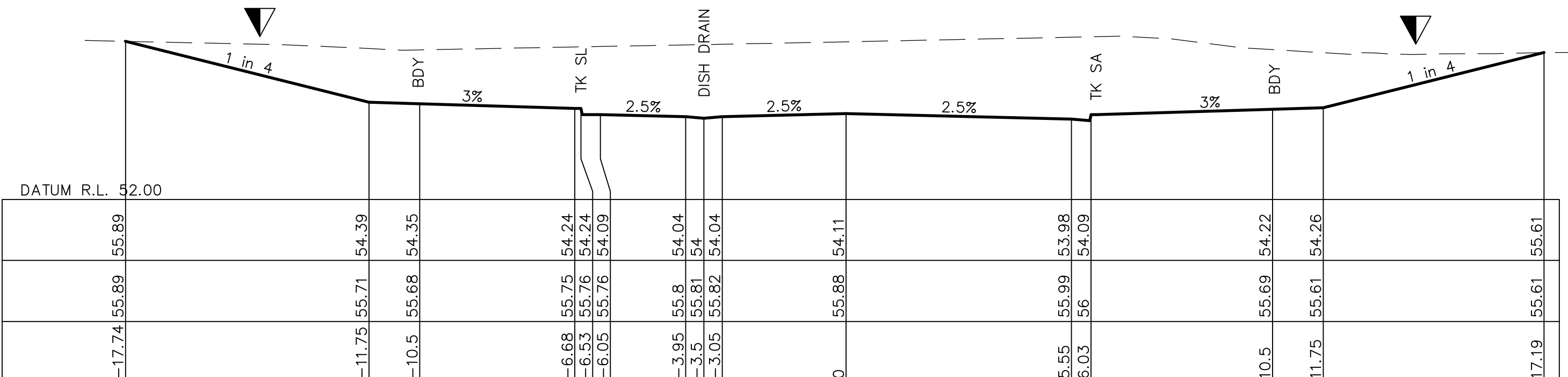
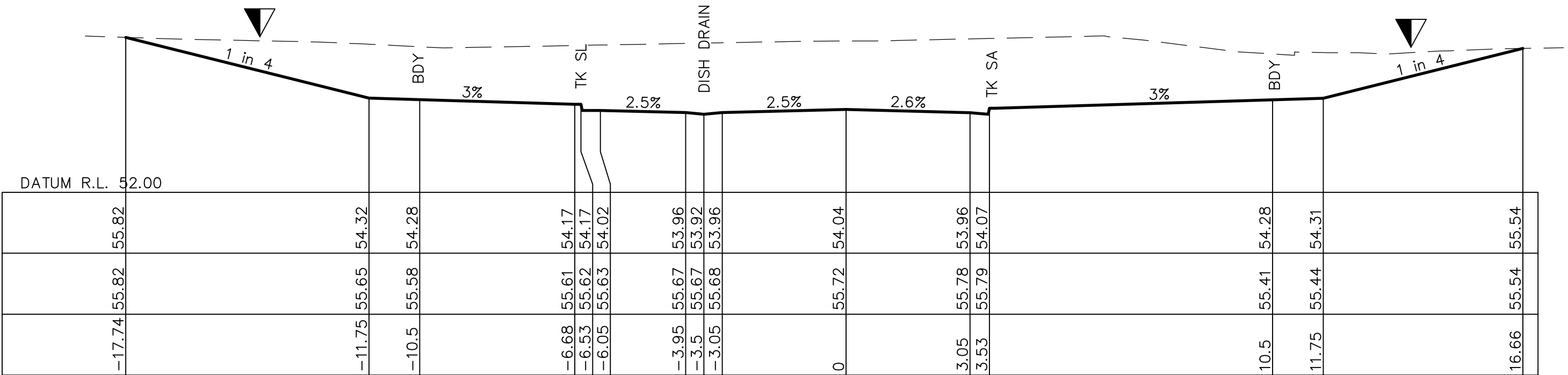
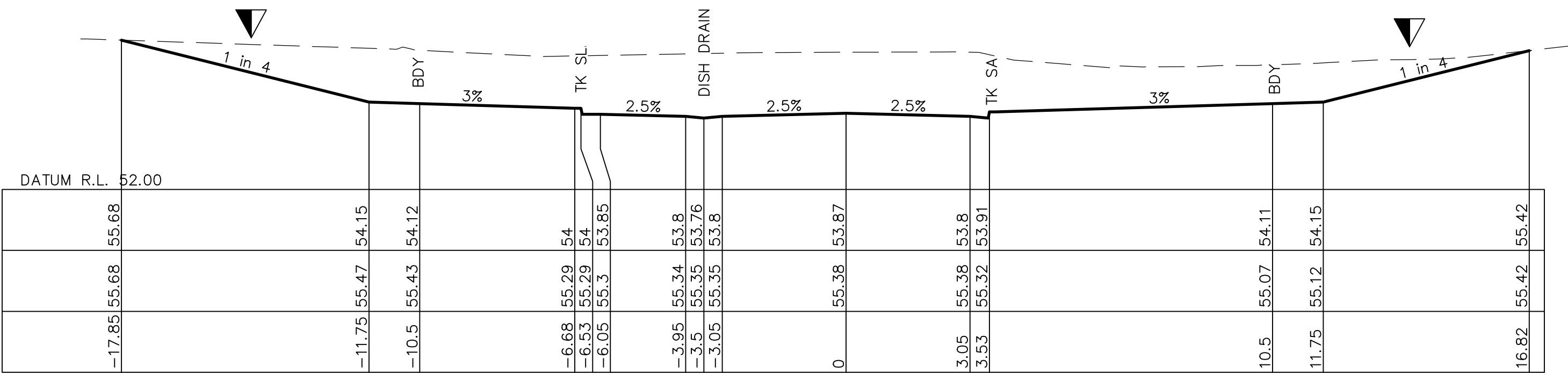
A red circle with a diagonal slash over a black silhouette of a shovel and a hard hat.

DIAL 1100
BEFORE YOU DIG



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED			Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PROJECT PROPOSED SUBDIVISION			
	PLAN TITLE ROAD CROSS SECTIONS ROAD No.1 SHEET 3															
	DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project										ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		SURVEYED ADWJ		DATUM AHD GDA 94	PROJECT No. 300001(1) -

BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



DESIGN SURFACE LEVEL	56.88	54.98	54.94	54.83	54.83	54.68	54.63	54.59	54.63	54.7	54.56	54.67	54.8	54.84	57.31
EXISTING SURFACE LEVEL	56.88	57.03	57.07	57.18	57.18	57.2	57.26	57.28	57.29	57.39	57.46	57.46	57.75	57.88	57.31
OFFSET	-19.34	-11.75	-10.5	-6.68	-6.53	-6.05	-3.95	-3.5	-3.05	0	5.55	6.03	10.5	11.75	21.62



These plans are referred to in
certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		<p>Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398</p>		CLIENT	<p>PROPERTY DESCRIPTION LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322</p>	PROJECT PROPOSED SUBDIVISION					
													PLAN TITLE ROAD CROSS SECTIONS ROAD No.1 SHEET 4					
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.												
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.												
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.												
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.												
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.												
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.												
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.												
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.												
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED ADWJ		DATUM AHD GDA 94		PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 234		REV. H

A red circle with a diagonal slash over a black silhouette of a person digging with a shovel.

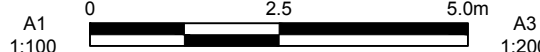
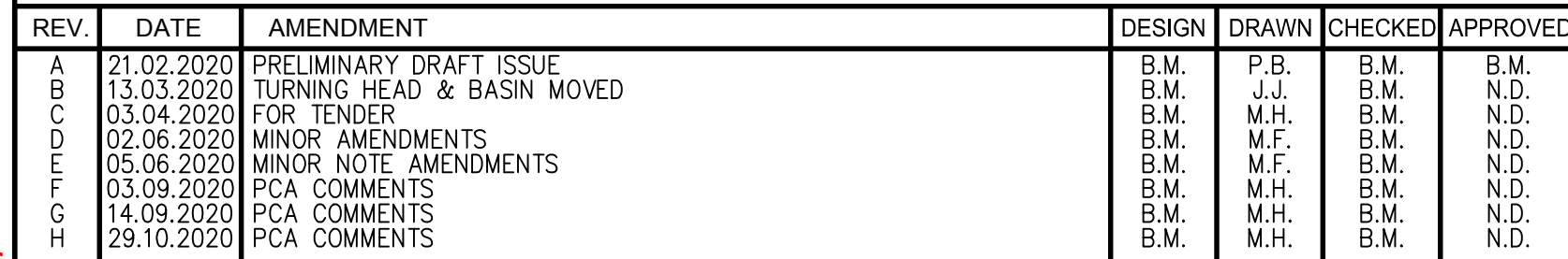
DIAL 1100
BEFORE YOU DIG



Plotted By: Mark Hoyland Plot Date: 29/10/20 9:03:49AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-235.DWG

A red circle with a diagonal slash over a black silhouette of a shovel and a wheelbarrow.

DIAL 1100
BEFORE YOU DIG



PROPERTY DESCRIPTION

SURVEYED

AHD GDA 94

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

ROAD CROSS SECTIONS
ROAD No.1
SHEET 6

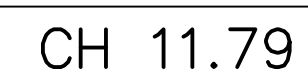
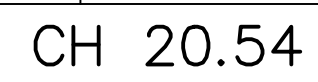
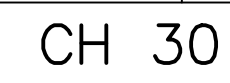
PROJECT No.

DISCIPLINE
FNG

NUMBER
236REV.
H




Plotted By: Mark Hoyland Plot Date: 29/10/20 9:03:58AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-236.DWG

 BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



DESIGN SURFACE LEVEL	EXISTING SURFACE LEVEL	OFFSET
57.44	61.86	-3.03
57.33	61.84	-2.55
57.39	61.71	0
57.33	61.85	2.55
57.44	61.85	3.03
57.6	61.72	8.5
62.3	62.3	27.32



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION	PROJECT			
A B C D E F G H	21.02.2020 13.03.2020 03.04.2020 02.06.2020 05.06.2020 03.09.2020 14.09.2020 29.10.2020	PRELIMINARY DRAFT ISSUE TURNING HEAD & BASIN MOVED FOR TENDER MINOR AMENDMENTS MINOR NOTE AMENDMENTS PCA COMMENTS PCA COMMENTS PCA COMMENTS	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	P.B. J.J. M.H. M.F. M.F. M.H. M.H. M.H.	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	A1 1:100					LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION PLAN TITLE ROAD CROSS SECTIONS ROAD No.2 SHEET 1			
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		SURVEYED ADWJ ABN 62 129 445 398		DATUM AHD GDA 94	PROJECT No. 300001(1) -	DISCIPLINE ENG -	NUMBER 237	REV. H



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

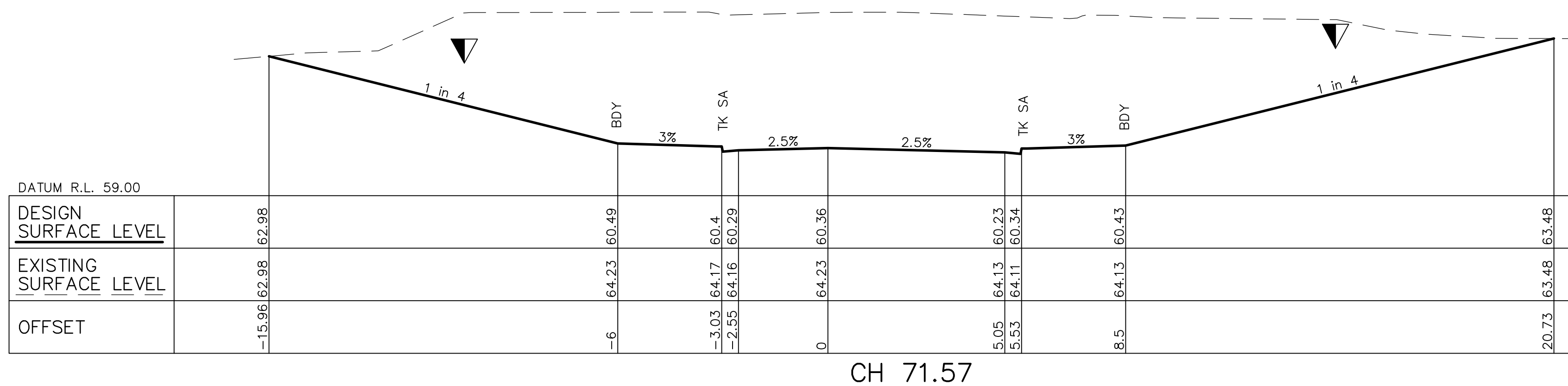
Categories: Certifier – Subdivision
 Certifier – Strata
 Certifier – Stormwater
 Certifier – Road & Drainage
 Certifier – Hydraulic (stormwater)

Land Development Certificates
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A red circle with a diagonal slash over a black silhouette of a shovel and a hard hat.

DIAL 1100
BEFORE YOU DIG





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Eric Hausfeld
Registered Certifier

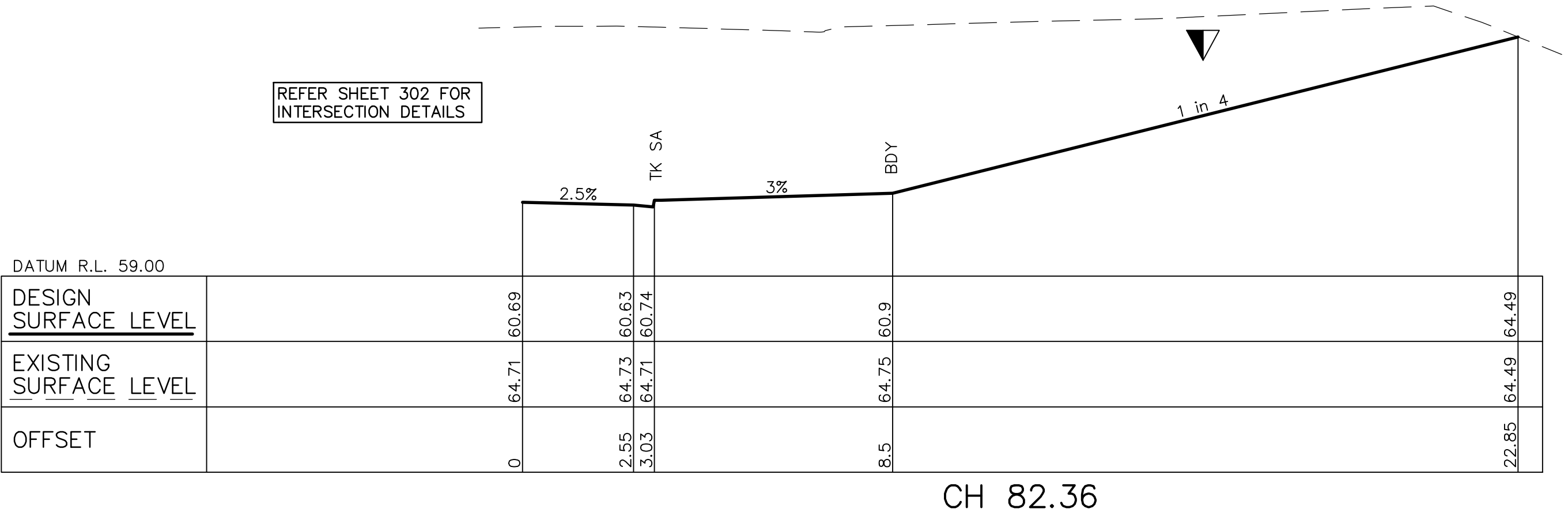
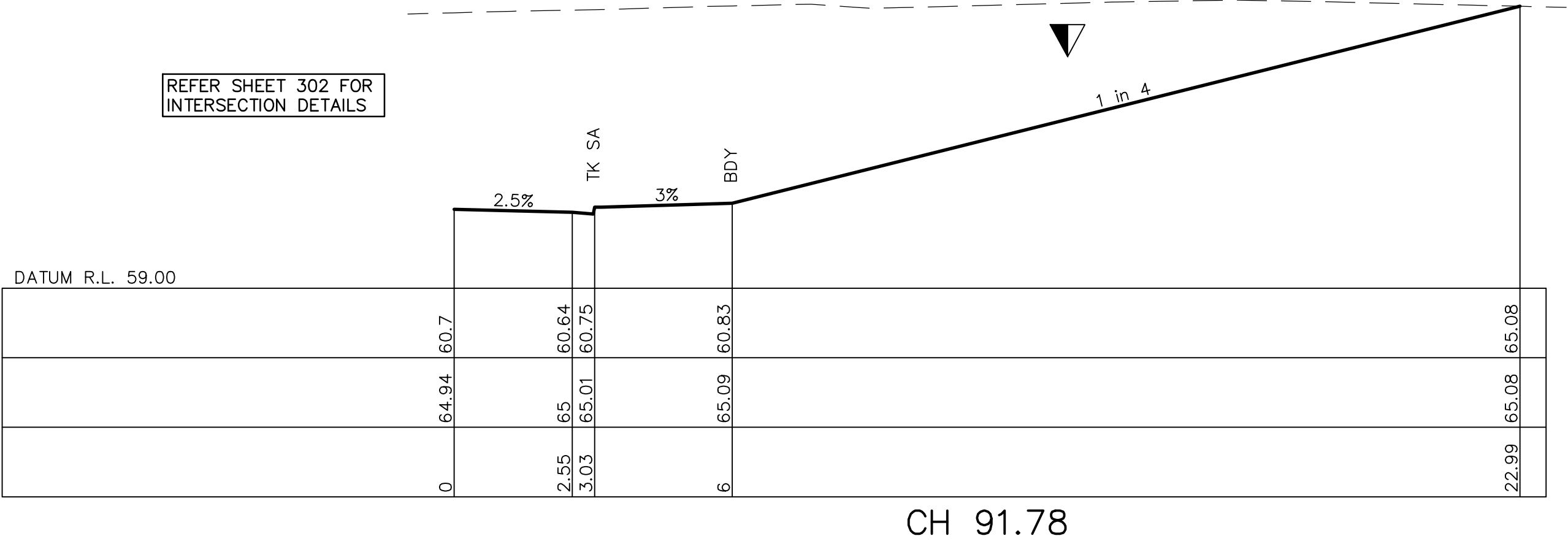
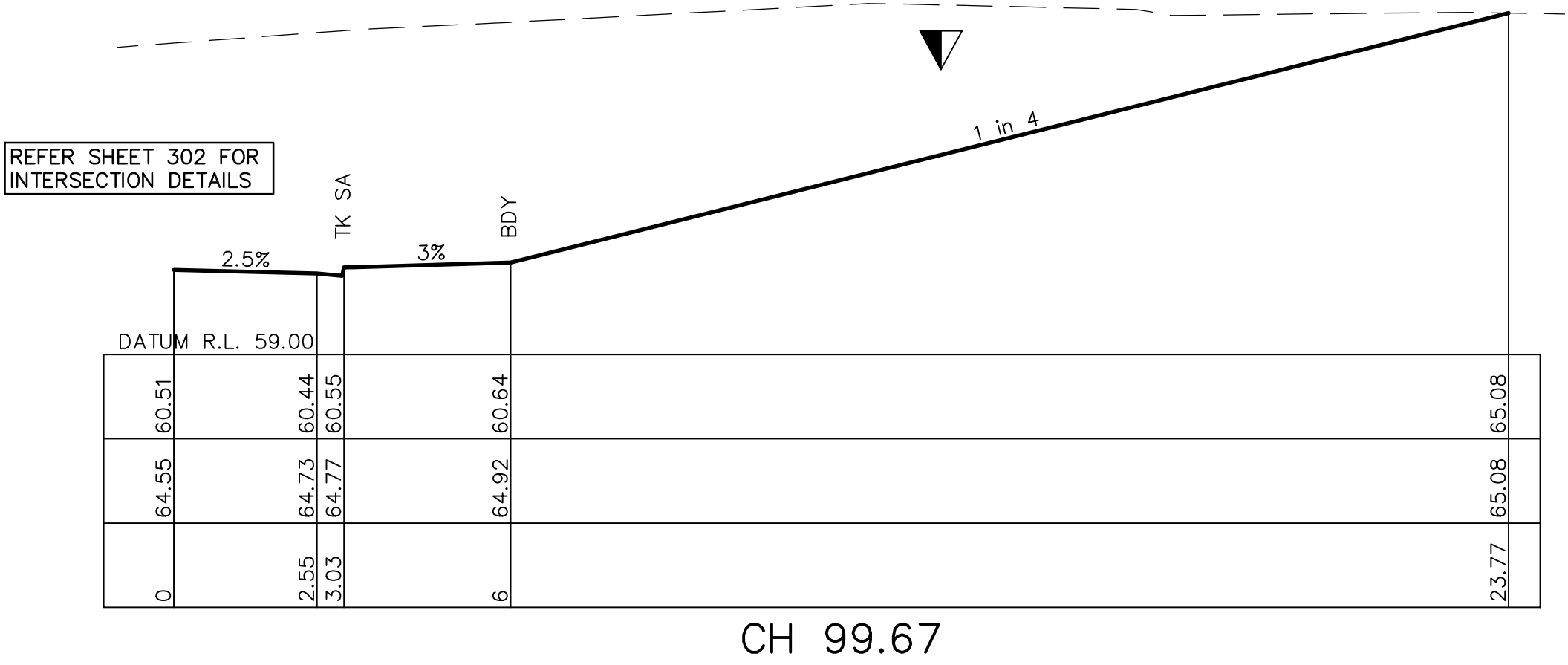
Registration No: **BDC 2416**

Categories: **Certifier – Subdivision**
 Certifier – Strata
 Certifier – Stormwater
 Certifier – Road & Drainage
 Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au

Plotted By: Mark Hoyland Plot Date: 29/10/20 9:04:25AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-239.DWG

BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.





These plans are referred to in
certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

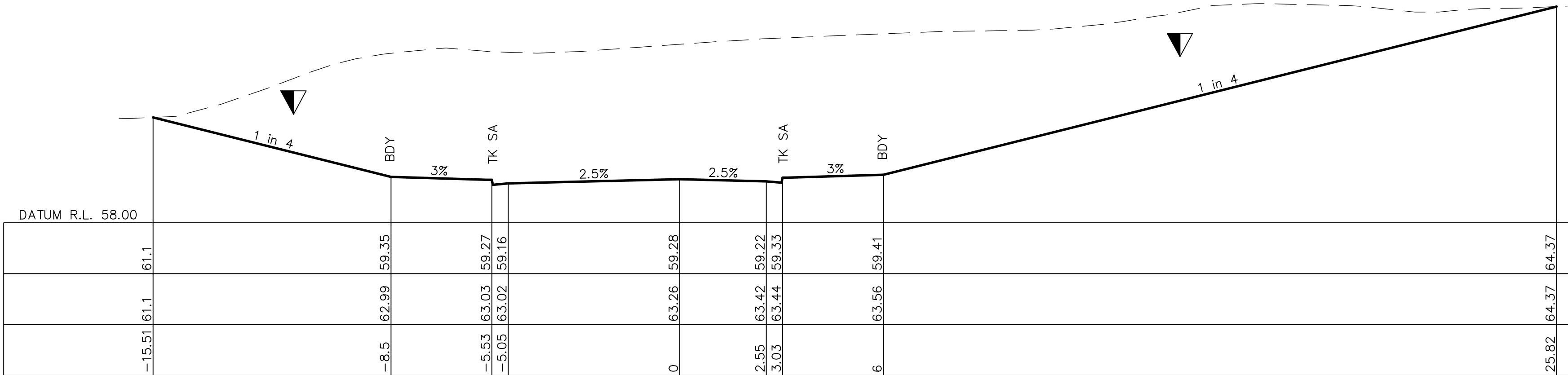
Land Development Certificates
www.LDC.com.au



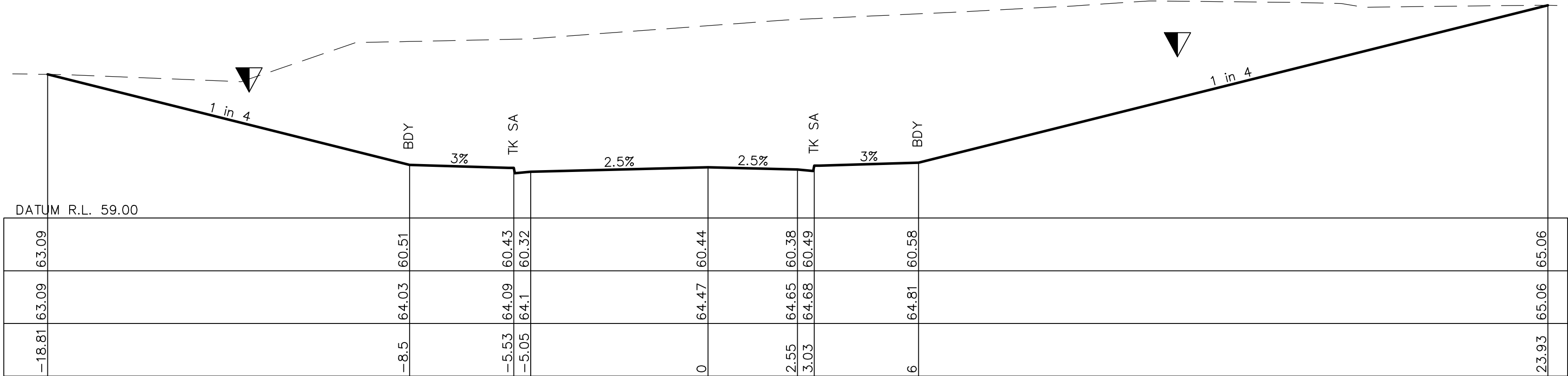
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.		5 Pioneer Avenue,	& LOT 100 D.P.1223787	PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		P.O. Box 3717,	HERRING ROAD & EPPING ROAD	ROAD No.2
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322	SHEET 4
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300		
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399		
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au		
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au		
								ABN 62 129 445 398		
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE			
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:04:35AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-240.DWG										

REFER SHEET 501 FOR
SITE REGRADE DETAILS

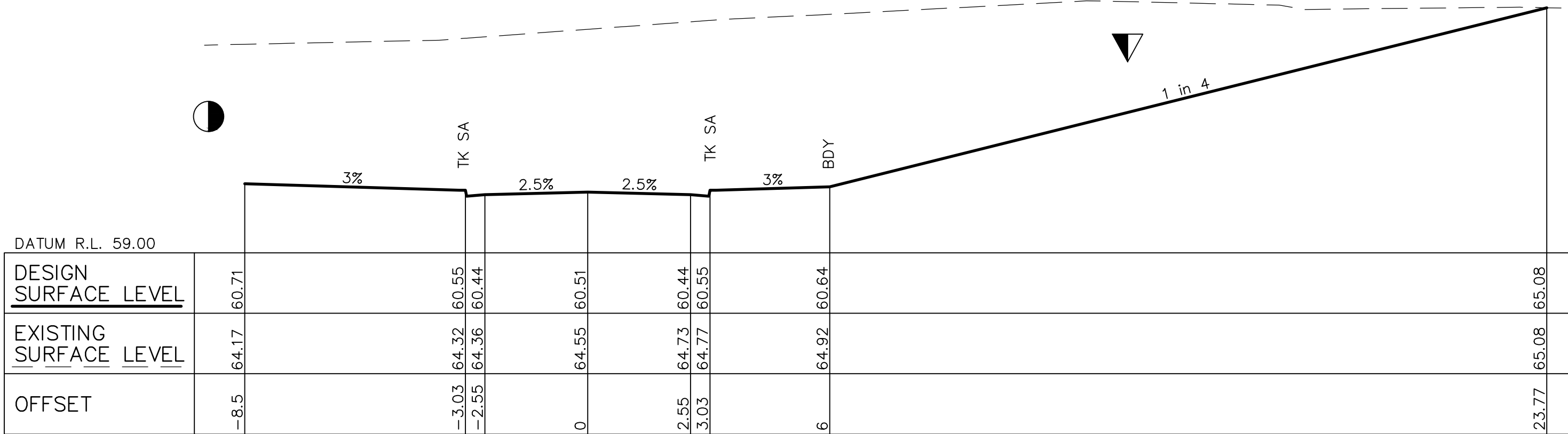
BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



CH 120



CH 101.27



CH 99.67



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

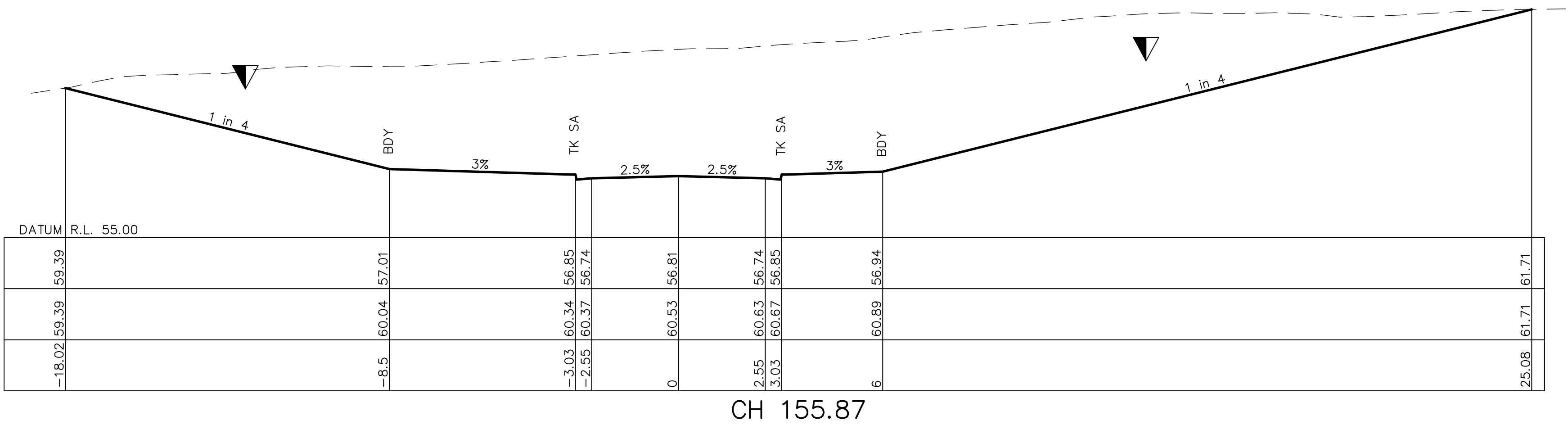
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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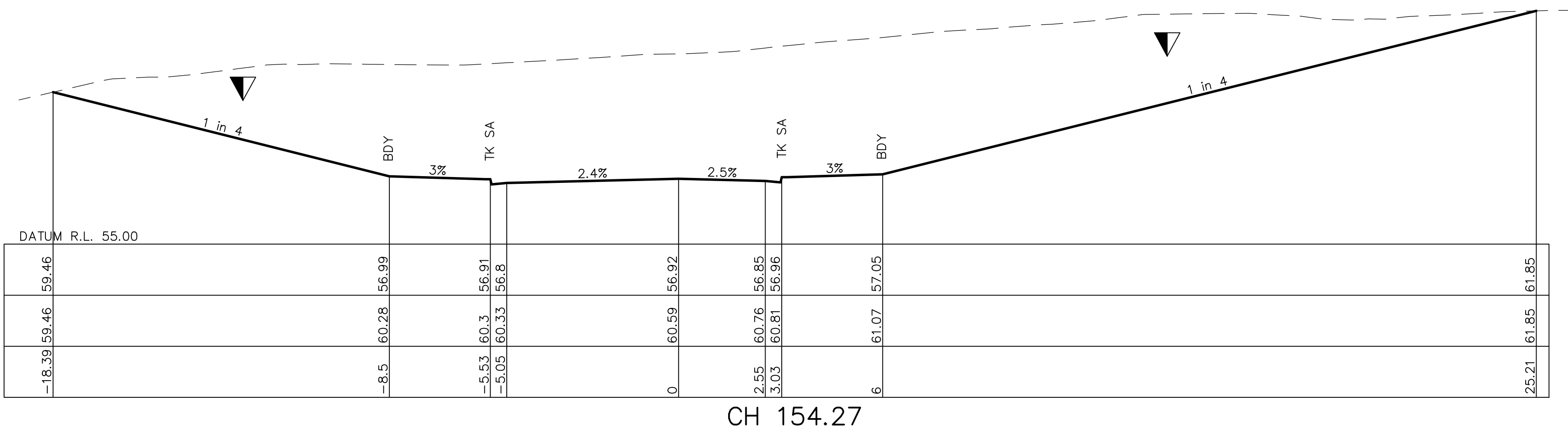


REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION							
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.		5 Pioneer Avenue,	& LOT 100 D.P.1223787		ROAD CROSS SECTIONS						
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		P.O. Box 3717,	HERRING ROAD & EPPING ROAD		ROAD No.2						
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322		SHEET 5						
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300									
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399									
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au									
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au									
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		PROJECT No. 300001(1) -		DISCIPLINE ENG		NUMBER 241		REV. H	

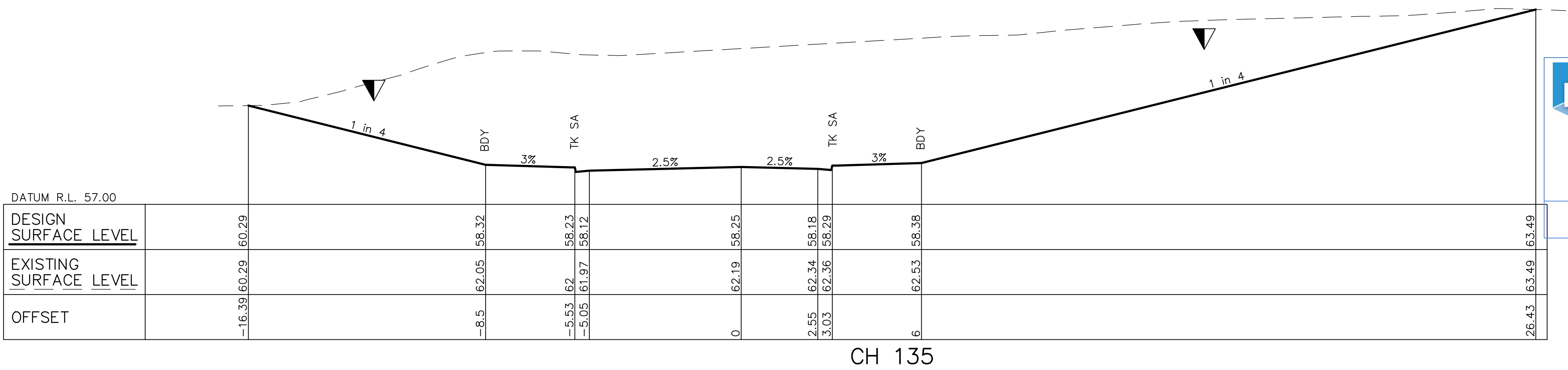
BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



CH 155.87



CH 154.27



CH 135

These plans are referred to in
certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

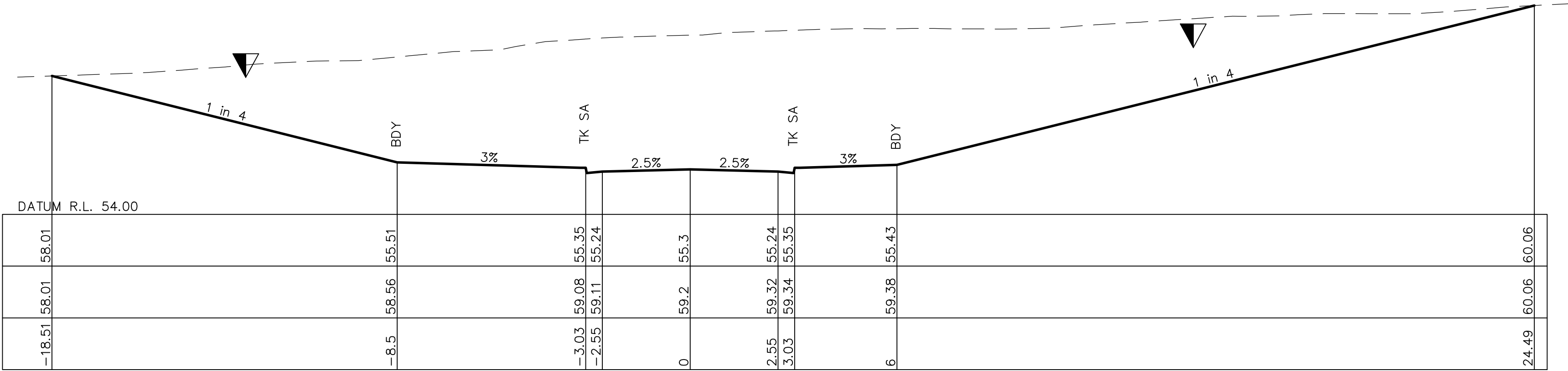
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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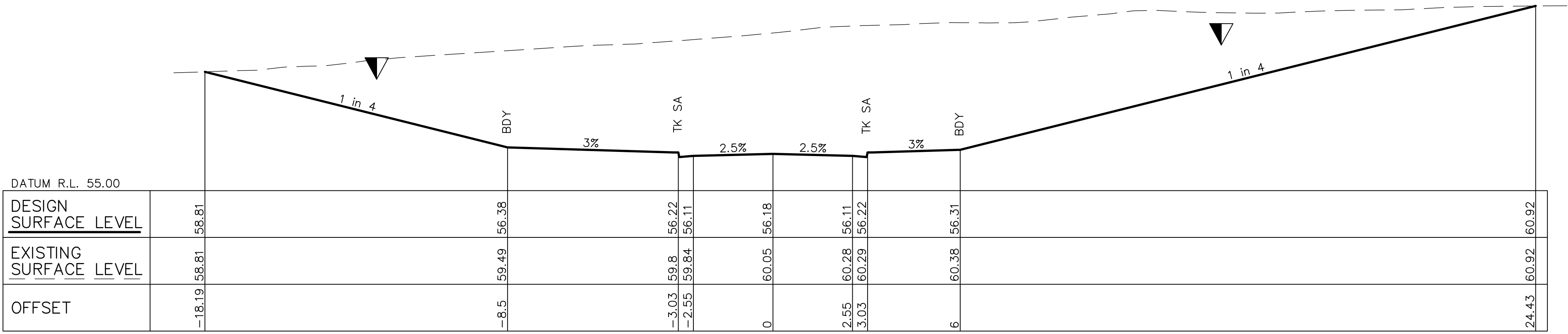


REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.		5 Pioneer Avenue,	& LOT 100 D.P.1223787	PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		P.O. Box 3717,	HERRING ROAD & EPPING ROAD	ROAD CROSS SECTIONS
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322	ROAD No.2
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300		SHEET 6
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399		
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au		
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au		
								ABN 62 129 445 398		
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE			
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:04:53AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-242.DWG										

BERM TO BE PROVIDED AT
BASE OF ALL BATTERS. REFER
SHEET 202 FOR DETAILS.



CH 177.69



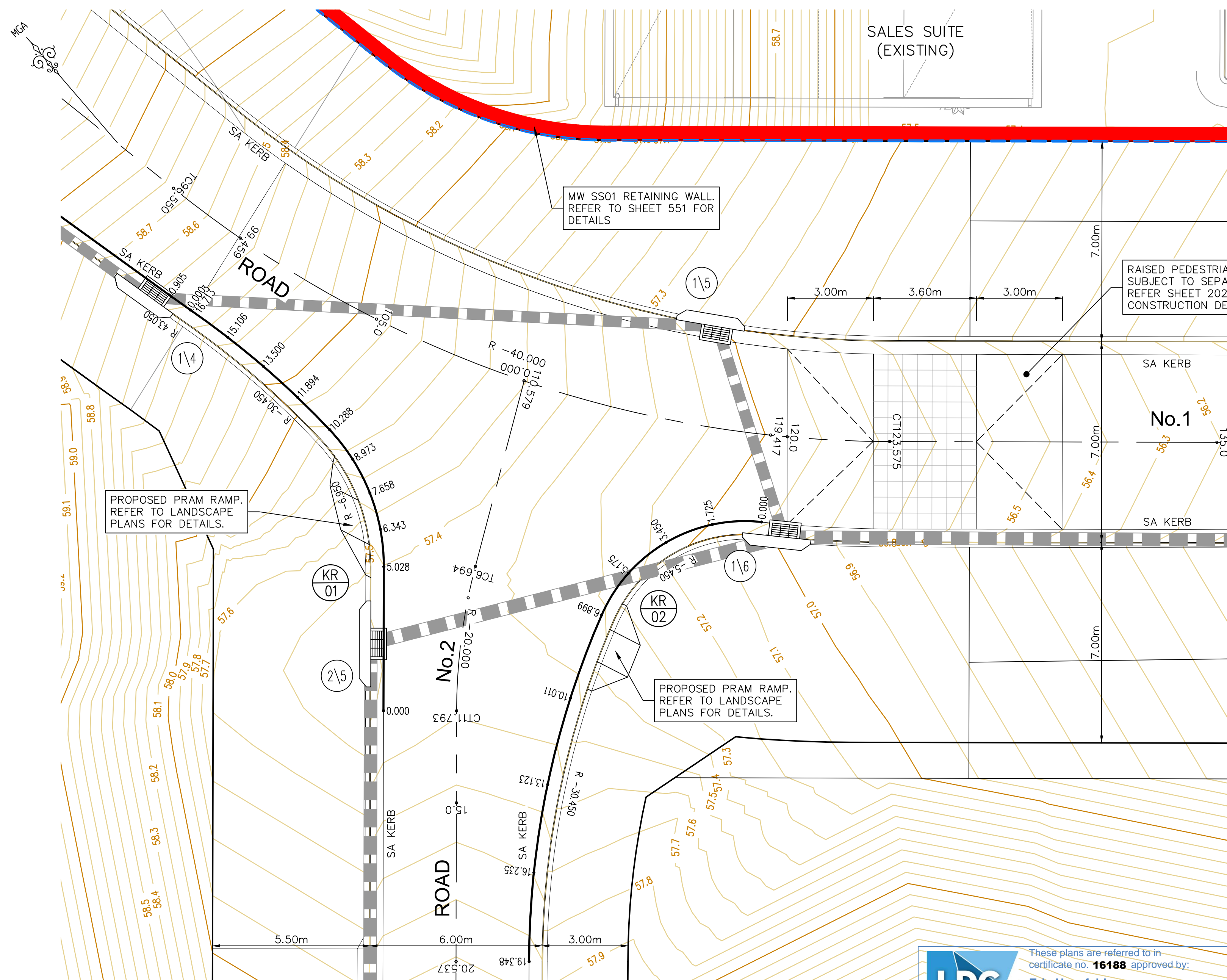
CH 165



These plans are referred to in
certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)
Land Development Certificates
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		<p>Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398</p>		CLIENT	PROPERTY DESCRIPTION		PROJECT												
A B C D E F G H	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.						LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787		PROPOSED SUBDIVISION												
	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.						HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		ROAD CROSS SECTIONS ROAD No.2 SHEET 7												
	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.																				
	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.																				
	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.																				
	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																				
	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																				
	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																				
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE																		
											SURVEYED		ADWJ		DATUM		AHD GDA 94		PROJECT No. 300001(1) -		DISCIPLINE ENG -		NUMBER 243		REV. H	



INTERSECTION PLAN

SCALE 1:100

SETOUT TABLE - KR01						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH\DEFL.ANGLE
IP 1	0.000	325524.495	6260524.156	41°10'59.68"		
TC	5.028	325527.805	6260527.940	41°10'59.68"		
IP 2	7.658	325529.625	6260530.019		R = -6.950	5.261 43°22'03.87"
CC	10.288	325529.520	6260532.781	357°48'55.81"		
IP 3	13.501	325529.397	6260536.003		R = -30.450	6.425 12°05'23.40"
P 4	16.713	325528.602	6260539.128	345°43'32.42"		

SETOUT TABLE - KR02						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH\DEFL.ANGLE
IP 1	0.000	325538.767	6260520.459	317°08'12.53"		
IP 2	3.450	325536.047	6260523.390		R = -5.450	6.899 72°31'49.91"
CC	6.899	325532.435	6260521.675	244°36'22.62"		
IP 3	13.124	325526.733	6260518.968		R = -30.450	12.449 23°25'24.95"
P 4	19.348	325522.576	6260514.217	221°10'57.67"		

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Registered Certifier

Registration No: BDC 2416

Categories:
Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)Land Development Certificates
www.LDC.com.auDESIGN GRADE
VERTICAL GEOMETRY
HORIZONTAL GEOMETRY

DATUM 55.0

DESIGN LEVEL LIP

CHAINAGE

LONGITUDINAL SECTION KR01

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20DESIGN GRADE
VERTICAL GEOMETRY
HORIZONTAL GEOMETRY

DATUM 55.0

DESIGN LEVEL LIP

CHAINAGE

LONGITUDINAL SECTION KR02

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20

LEGEND	
	SITE BOUNDARY
	LIMIT OF WORKS BOUNDARY
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	FUTURE LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	EXISTING KERB
	PROPOSED KERB
	EXTENTS OF BATTER
	PROPOSED RETAINING WALL
	PROPOSED STORMWATER
	PROPOSED SW PIT
	PROPOSED LINTEL
	PROPOSED HEADWALL
	PIT LABEL
	KERB RETURN No.

CONTOUR INTERVAL = 0.1m

GENERAL NOTES: -

- FOR TYPICAL ROAD CROSS SECTIONS AND KERB PROFILES REFER SHEET 201
- REFER TO SHEET 202 FOR PRAM RAMP DETAILS.

DESIGN R.L. ON
LIP OF KERB

REV.	DATE	AMENDMENT
A	21.02.2020	PRELIMINARY DRAFT ISSUE
B	13.03.2020	TURNING HEAD & BASIN MOVED
C	03.04.2020	FOR TENDER
D	02.06.2020	MINOR AMENDMENTS
E	05.06.2020	MINOR NOTE AMENDMENTS
F	03.09.2020	PCA COMMENTS
G	14.09.2020	PCA COMMENTS
H	29.10.2020	PCA COMMENTS

DESIGN	DRAWN	CHECKED	APPROVED
B.M.	P.B.	B.M.	B.M.
B.M.	J.J.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.
B.M.	M.F.	B.M.	N.D.
B.M.	M.F.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.

SCALES
A1 1:100
A3 1:200

0 2.5 5.0m
0 0.5 1.0m

Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: cc@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

PROPERTY DESCRIPTION
LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED

ADWJ

DATUM

AHD GDA 94

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

INTERSECTION DETAILS
KERB RETURNS KR 01 AND KR02

PROJECT No.

300001(1) -

DISCIPLINE

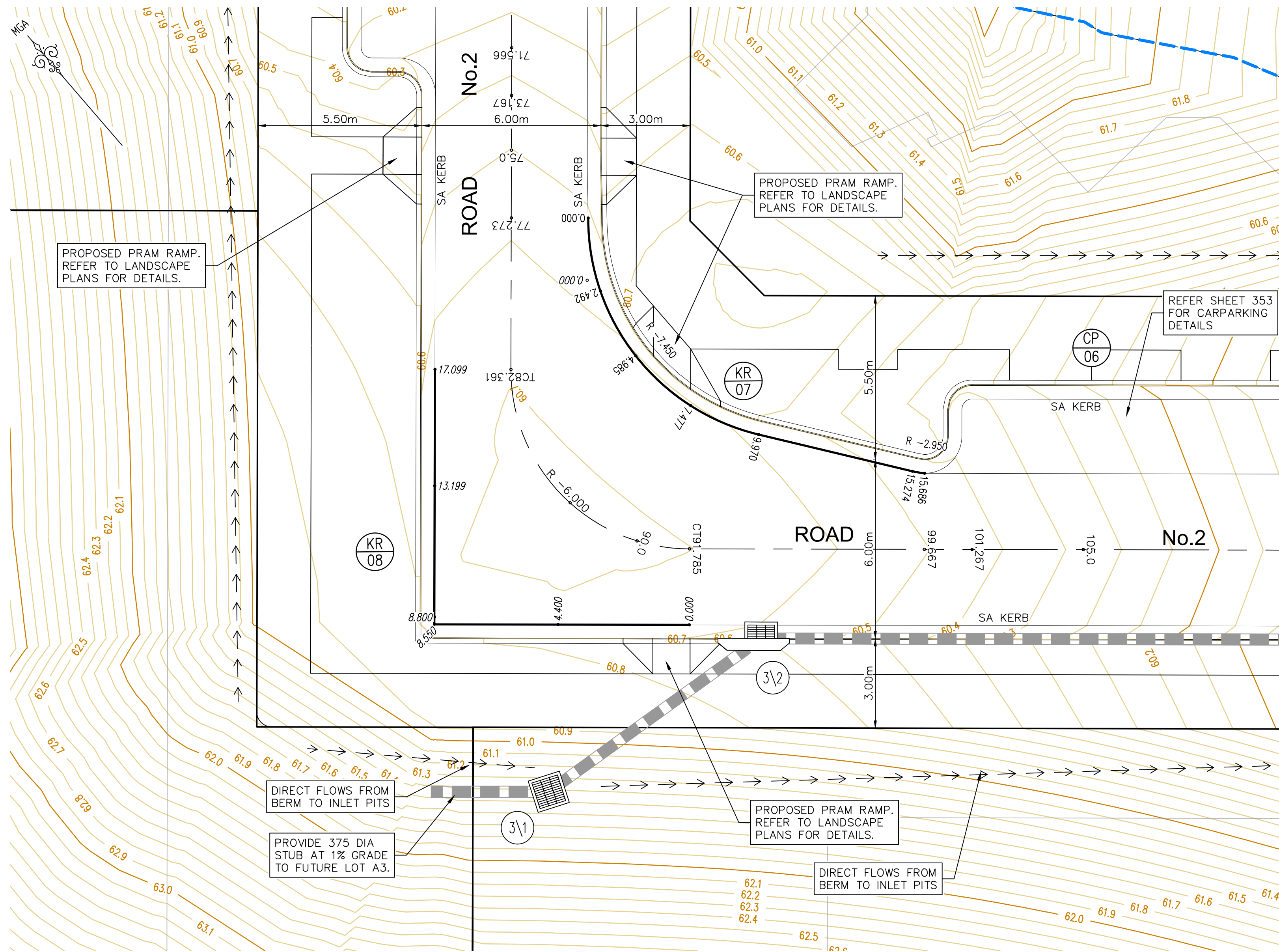
ENG

NUMBER

301

REV.

H

INTERSECTION PLAN
SCALE 1:100

SETOUT TABLE - KR07						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
IP 1	0.000	325485.240	6260471.497	221°10'53.25"		
IP 2	4.985	325481.361	6260467.063		R = -7.450	9.970
CT	9.970	325484.782	6260462.266	144°30'09.85"		
TC	15.274	325487.862	6260457.948	144°30'09.85"		
IP 3	15.480	325487.982	6260457.780		R = -2.950	0.413
IP 4	15.686	325488.124	6260457.630	136°29'10.45"		

SETOUT TABLE - KR08				
PT	CHAINAGE	EASTING	NORTHING	BEARING
IP 1	0.000	325478.834	6260458.982	311°10'58.89"
	4.400	325475.522	6260461.879	311°10'58.89"
IP 2	8.550	325472.399	6260464.611	
	8.800	325472.564	6260464.800	41°10'59.68"
	13.200	325475.461	6260468.111	41°10'59.68"
IP 3	17.099	325478.029	6260471.045	41°10'59.68"

These plans are referred to in
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Registered Certifier

Registration No: BDC 2416

Categories: Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)Land Development Certificates
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.

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ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

Plotted By: Mark Hoyland Plot Date: 29/10/20 9:05:40AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-302.DWG

Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

PROPERTY DESCRIPTION
LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED ADWJ DATUM AHD GDA 94

PROJECT
PROPOSED SUBDIVISIONPLAN TITLE
INTERSECTION DETAILS
KERB RETURNS KR 07 AND KR08

PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 302 - REV. H

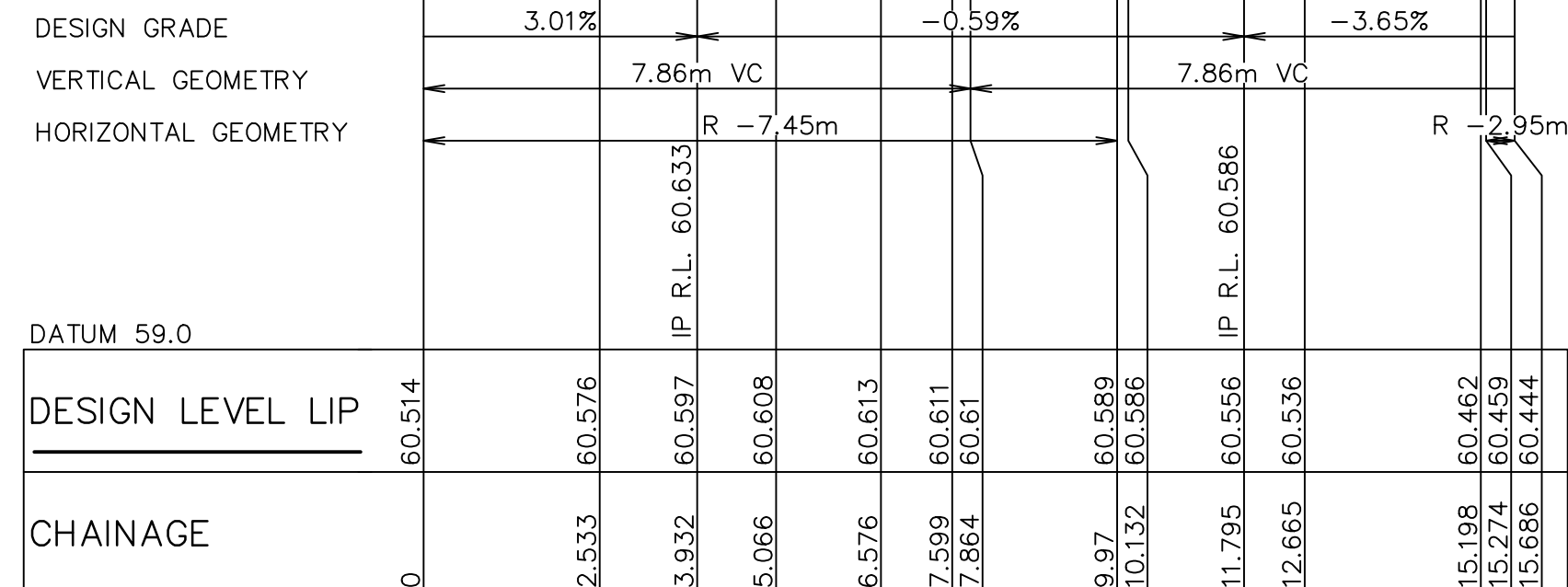
LEGEND

	SITE BOUNDARY
	LIMIT OF WORKS BOUNDARY
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	FUTURE LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	PROPOSED KERB
	EXISTING KERB
	EXTENTS OF BATTER
	PROPOSED RETAINING WALL
	PROPOSED STORMWATER
	PROPOSED SW PIT
	PROPOSED LINTEL
	PROPOSED HEADWALL
	PIT LABEL
	KERB RETURN No.

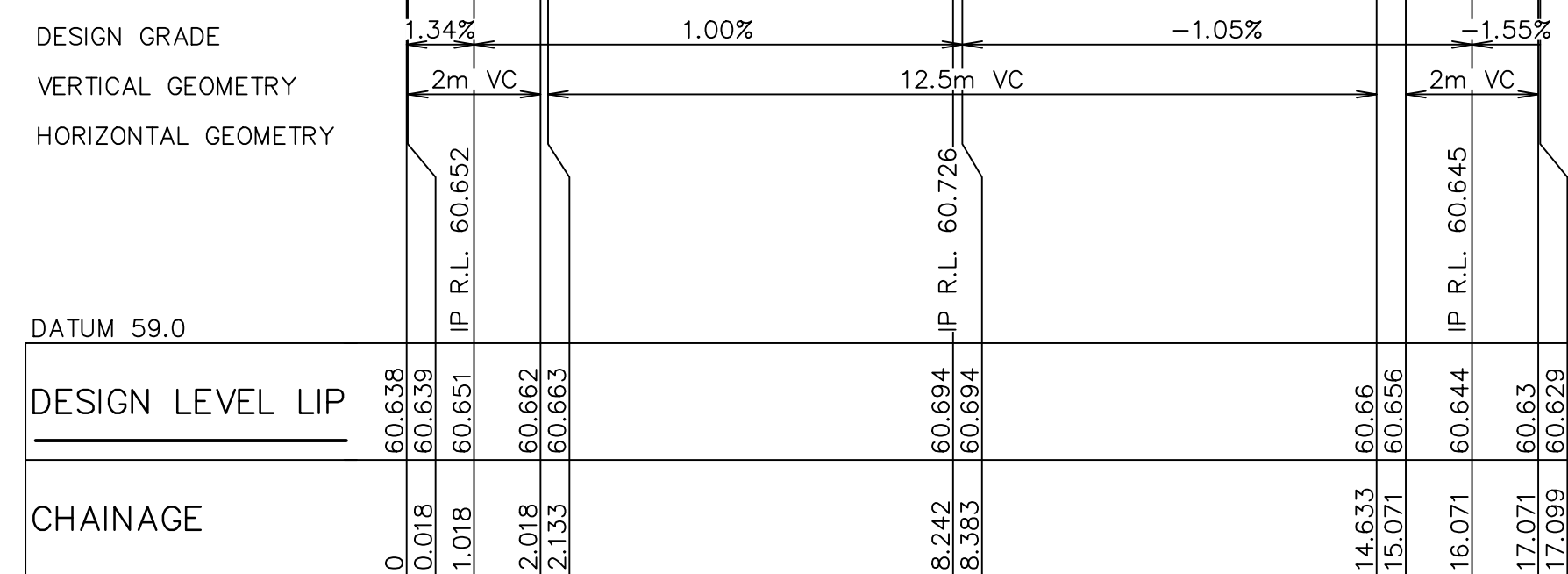
CONTOUR INTERVAL = 0.2m

GENERAL NOTES:-

- FOR TYPICAL ROAD CROSS SECTIONS AND KERB PROFILES REFER SHEET 201.
- REFER TO SHEET 202 FOR PRAM RAMP DETAILS.

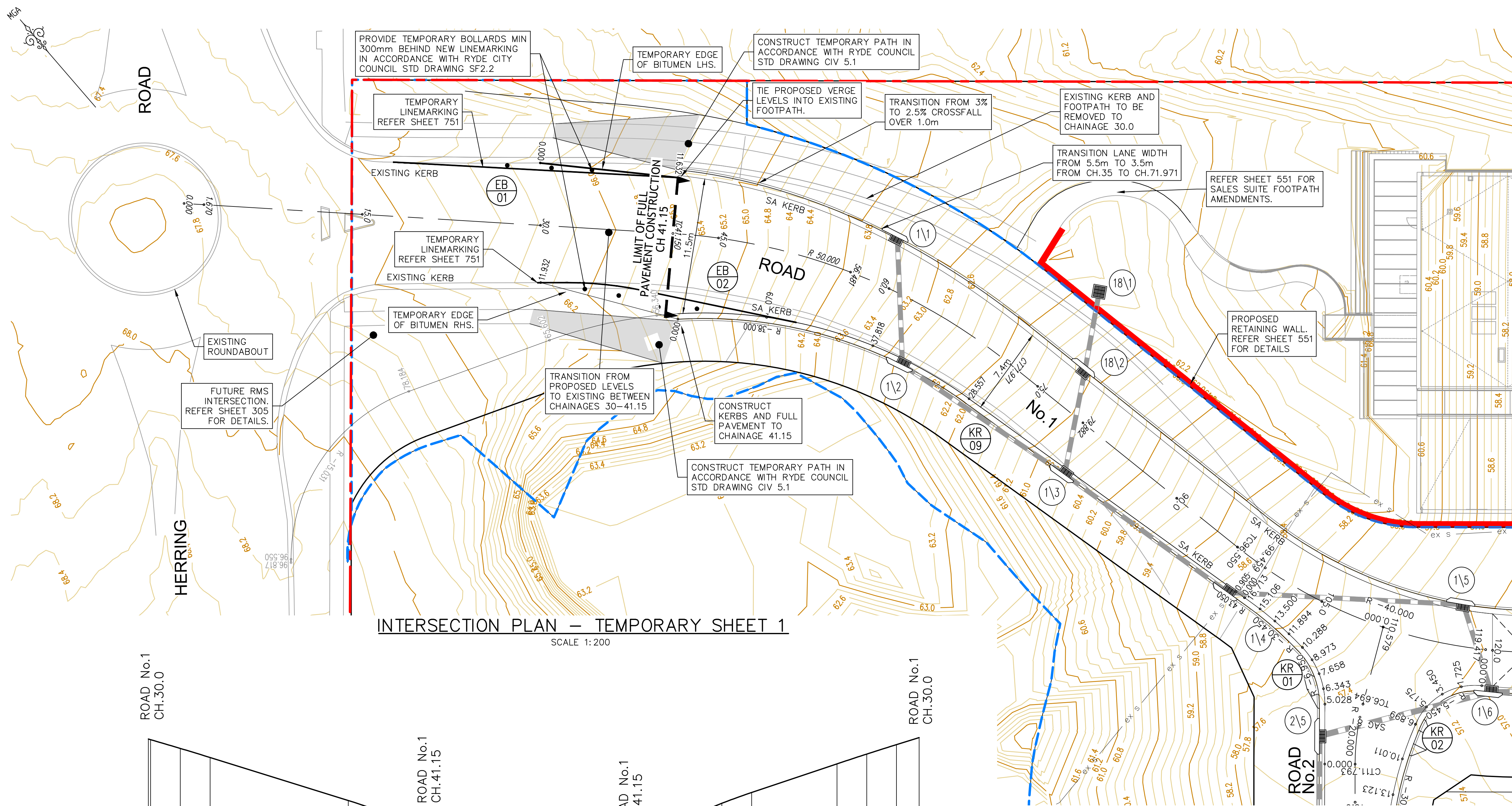
DESIGN R.L. ON
LIP OF KERB

LONGITUDINAL SECTION KR07

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20

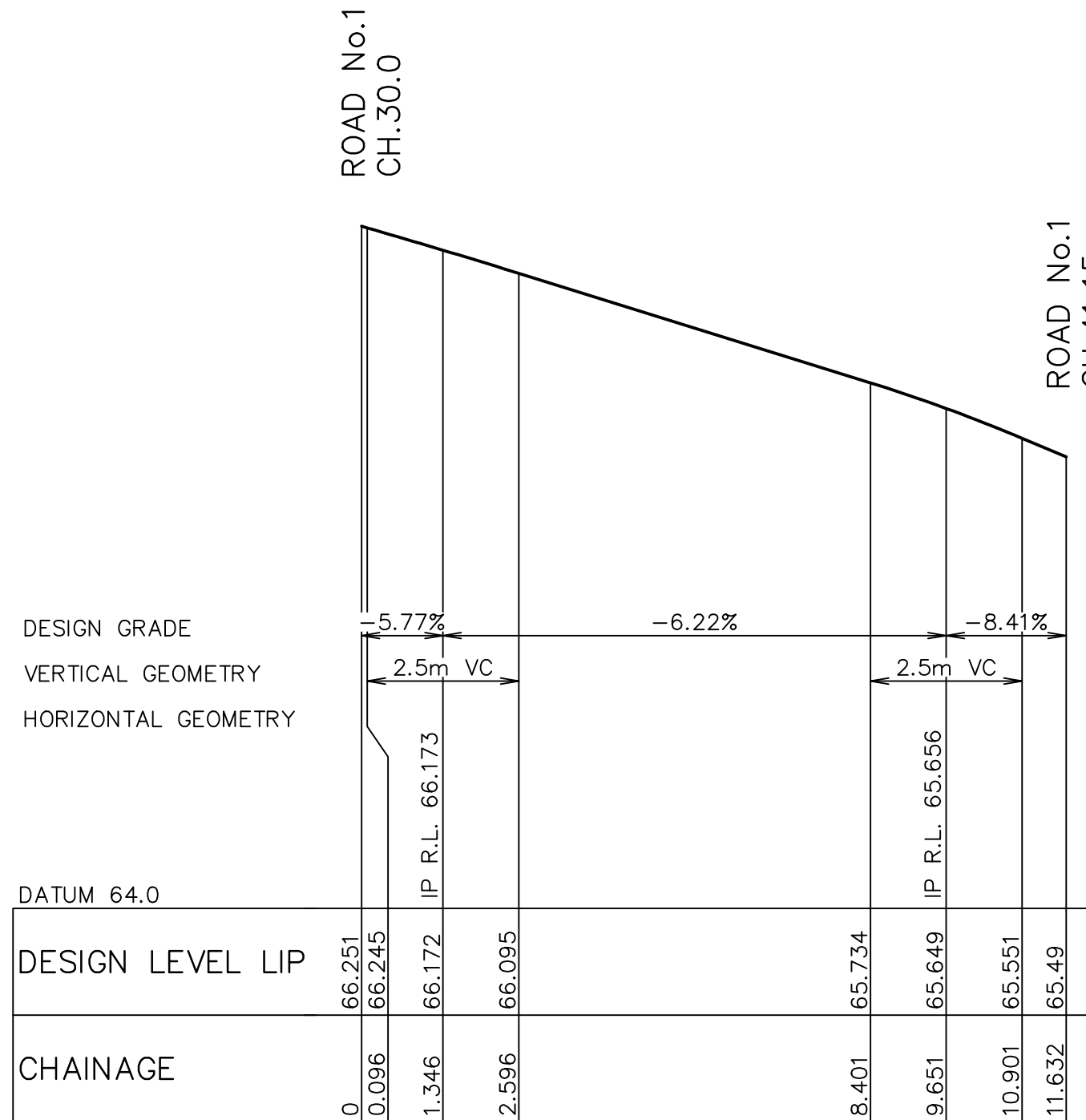
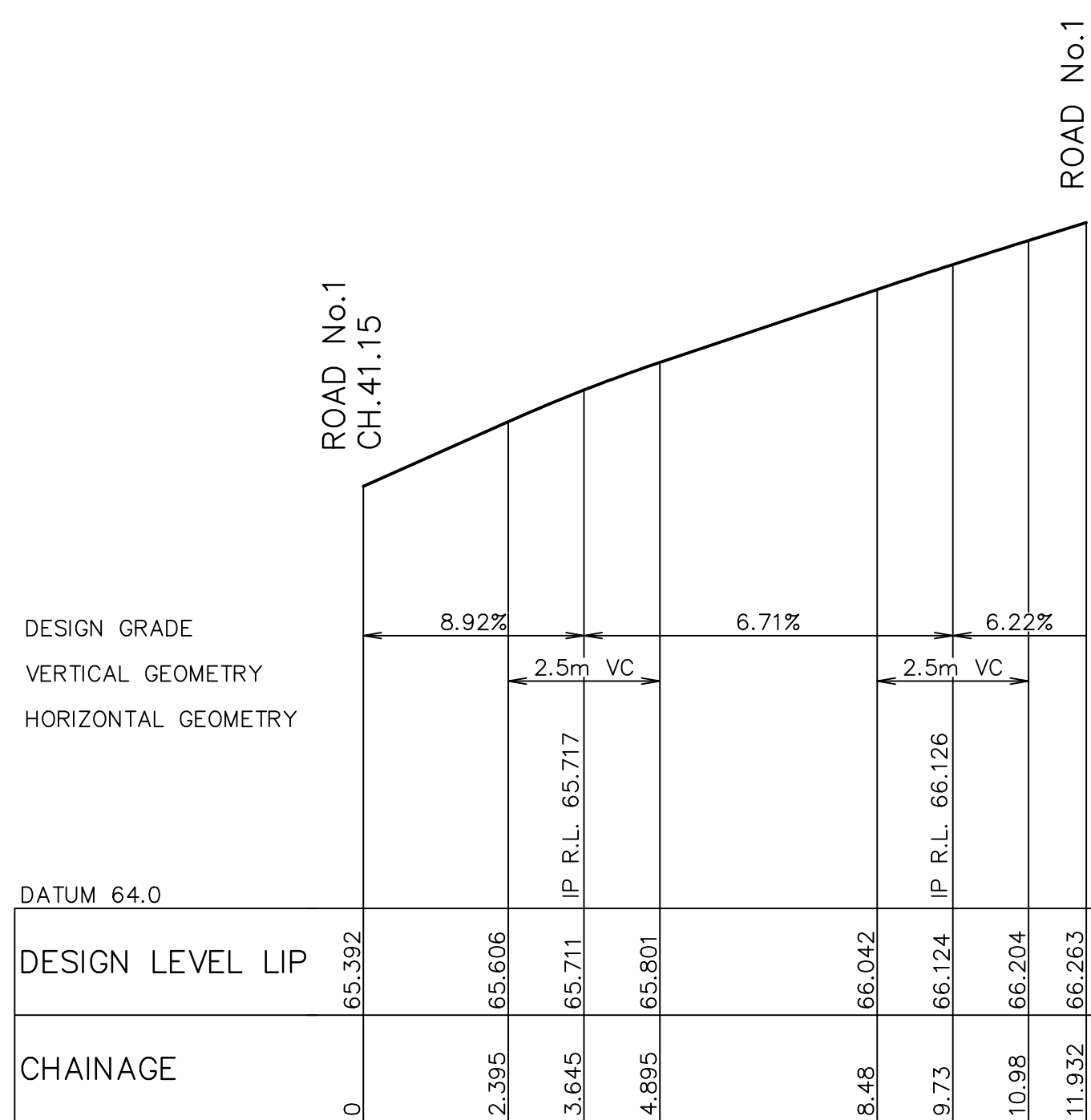
LONGITUDINAL SECTION KR08

HORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20DIAL 1100
BEFORE YOU DIG



INTERSECTION PLAN – TEMPORARY SHEET 1

SCALE 1:200

LONGITUDINAL SECTION –
TEMPORARY EDGE OF BITUMEN LHSHORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20LONGITUDINAL SECTION –
TEMPORARY EDGE OF BITUMEN RHSHORIZONTAL SCALE 1:100
VERTICAL SCALE 1:20

NOTE: –

WORKS SHOWN PAST L.O.W ARE TEMPORARY
ONLY AND SUBJECT TO TIMING OF TfNSW
UPGRADE OF HERRING ROAD.

SETOUT TABLE – KR09							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325528.602	6260539.128	345°43'32.50"			
IP 2	0.452	325528.490	6260539.567		R = 43.050	0.905	1°12'14.41"
CT	0.905	325528.388	6260540.007	346°55'46.91"			
TC	28.557	325522.135	6260566.943	346°55'46.91"			
IP 3	47.080	325517.579	6260586.565		R = -38.000	37.045	55°51'21.17"
CT	65.602	325498.783	6260593.808	291°04'25.74"			
TC	78.184	325487.042	6260598.332	291°04'25.74"			
IP 4	87.367	325477.220	6260602.117		R = -15.031	18.366	70°00'25.75"
CT	96.550	325470.305	6260594.181	221°04'00.00"			
IP 5	96.817	325470.129	6260593.979	221°04'00.00"			

SETOUT TABLE – EB01			
PT	CHAINAGE	EASTING	NORTHING
IP 1	0.000	325507.989	6260605.553
IP 2	11.632	325515.900	6260597.024

SETOUT TABLE – EB02			
PT	CHAINAGE	EASTING	NORTHING
IP 1	0.000	325508.087	6260588.057
IP 2	11.932	325501.405	6260597.943

LEGEND	
	SITE BOUNDARY
	LIMIT OF WORKS BOUNDARY
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	FUTURE LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	PROPOSED KERB
	EXISTING KERB
	EXTENTS OF BATTER
	TEMPORARY FOOTPATH
	PROPOSED RETAINING WALL
	PROPOSED STORMWATER
	PROPOSED SW PIT
	PROPOSED LINTEL
	PROPOSED HEADWALL
	PIT LABEL
	KERB RETURN No.

CONTOUR INTERVAL = 0.2m

GENERAL NOTES: –

- FOR TYPICAL ROAD CROSS SECTIONS AND KERB PROFILES REFER SHEET 201.
- REFER TO SHEET 202 FOR PRAM RAMP DETAILS.

DESIGN R.L. ON
LIP OF KERB

LDC These plans are referred to in certificate no. **16188** approved by:

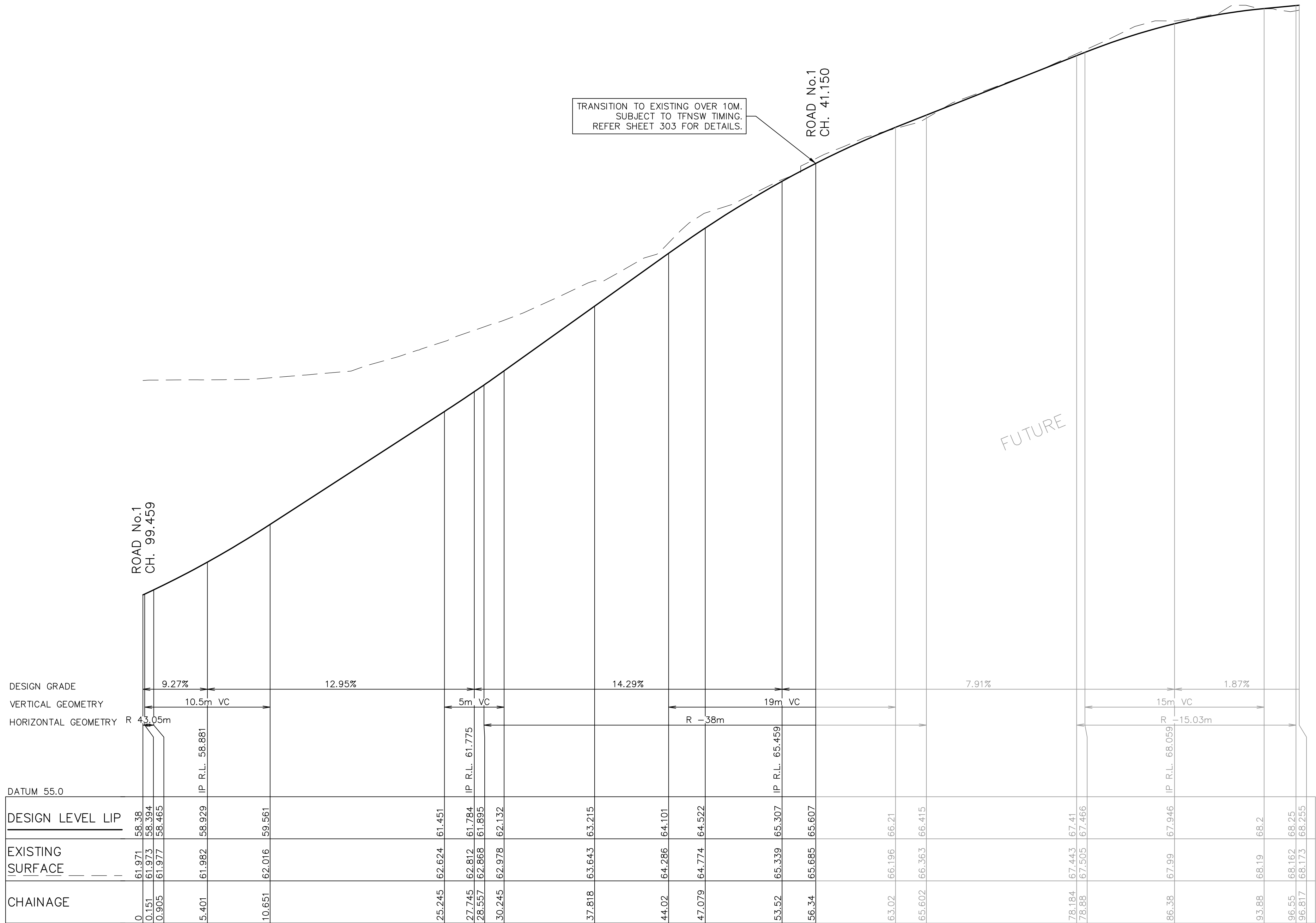
Eric Hausfeld
Registered Certifier

Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.				PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				INTERSECTION DETAILS
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				HERRING ROAD TEMPORARY SHEET 1
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								PROJECT No. 300001(1) – DISCIPLINE ENG – NUMBER 303 – REV. H		
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:05:55AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-303.DWG										



LONGITUDINAL SECTION KR09
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:40

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

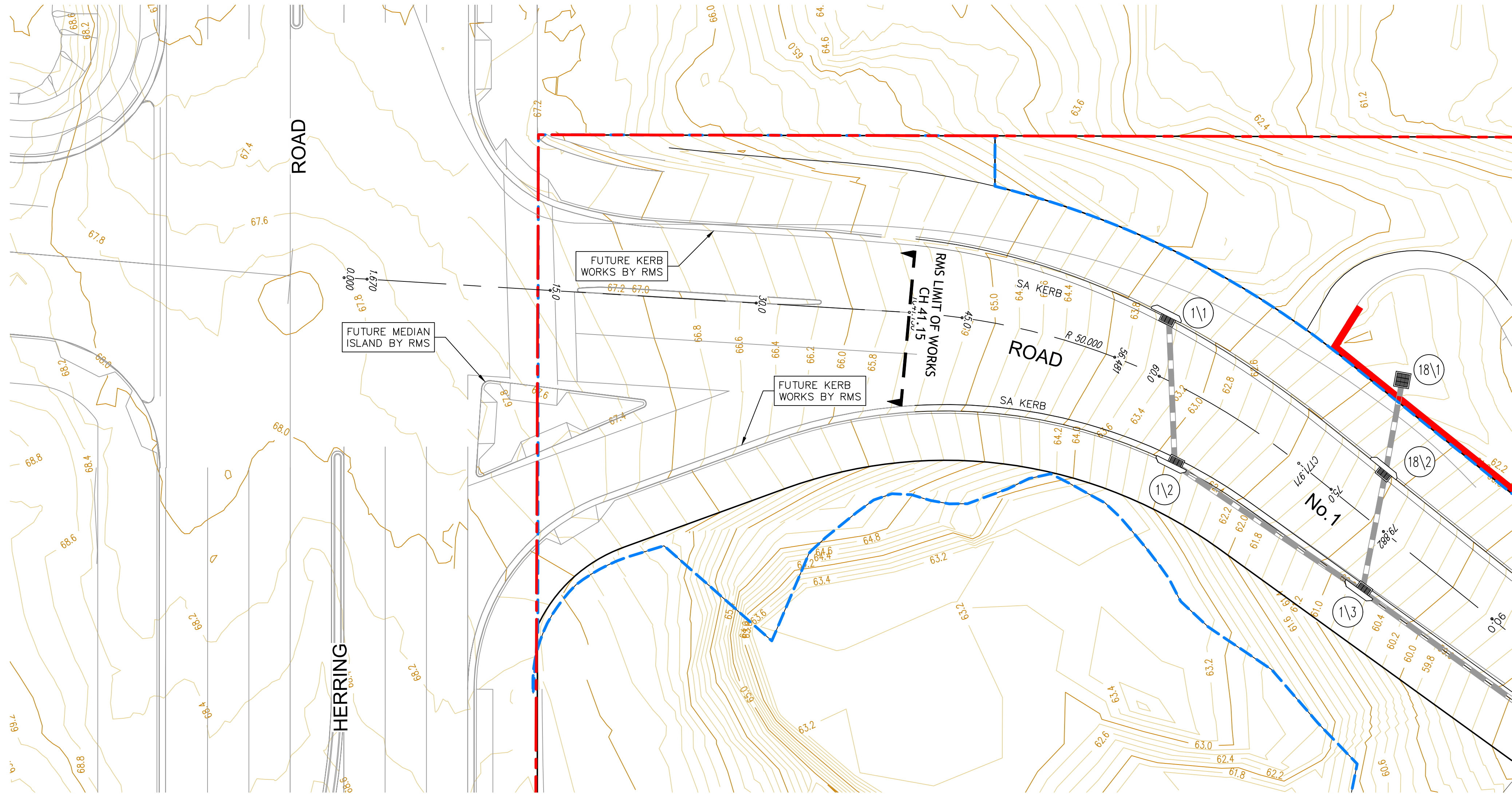
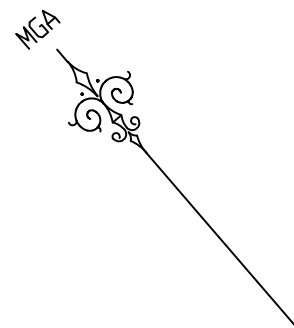
Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION		PROJECT	
A B C D E F G H	21.02.2020 13.03.2020 03.04.2020 02.06.2020 05.06.2020 03.09.2020 14.09.2020 29.10.2020	PRELIMINARY DRAFT ISSUE TURNING HEAD & BASIN MOVED FOR TENDER MINOR AMENDMENTS MINOR NOTE AMENDMENTS PCA COMMENTS PCA COMMENTS PCA COMMENTS	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	P.B. J.U. M.H. M.F. M.F. M.H. M.H. M.H.	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	B.M. N.D. N.D. N.D. N.D. N.D. N.D. N.D.	A1 1:200 A3 1:400 A1 1:40 A3 1:80				LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	SURVEYED ADWJ	DATUM AHD GDA 94	PROPOSED SUBDIVISION
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		PROJECT No. 300001(1) -		DISCIPLINE ENG	NUMBER 304	REV. H



INTERSECTION PLAN – FUTURE RMS WORKS

SCALE 1:200

NOTE: –

PLAN IS SHOWN FOR INFORMATION PURPOSES ONLY.
WORKS TO BE DOCUMENTED AND CONSTRUCTED BY RMS.

LEGEND	
	SITE BOUNDARY
	LIMIT OF WORKS BOUNDARY
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	FUTURE LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	PROPOSED KERB
	EXISTING KERB
	EXTENTS OF BATTER
	PROPOSED RETAINING WALL
	PROPOSED STORMWATER
	PROPOSED SW PIT
	PROPOSED LINTEL
	PROPOSED HEADWALL
	PIT LABEL
	KERB RETURN No.

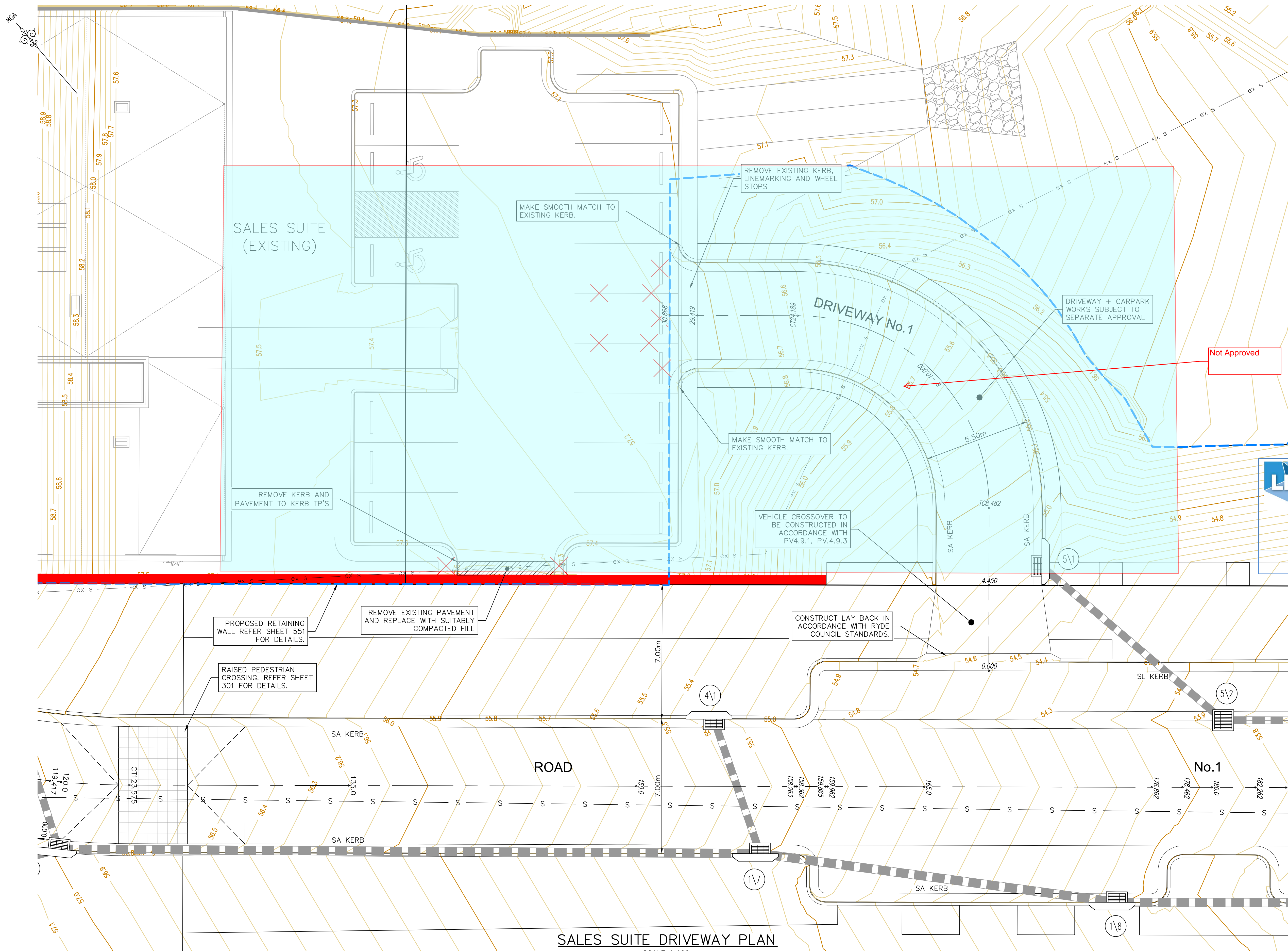
CONTOUR INTERVAL = 0.2m

GENERAL NOTES: –

- FOR TYPICAL ROAD CROSS SECTIONS AND KERB PROFILES REFER SHEET 201.
- REFER TO SHEET 202 FOR PRAM RAMP DETAILS.



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES			CENTRAL COAST 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT	PROPERTY DESCRIPTION		PROJECT									
A B C D E F G H	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.						LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PROPOSED SUBDIVISION									
	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.								PLAN TITLE									
	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.								INTERSECTION DETAILS									
	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.								HERRING ROAD - FUTURE RMS INTERSECTION									
	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.																	
	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																	
	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																	
	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.																	
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LEGEND

- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- FUTURE LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED STORMWATER
- PROPOSED SW PIT
- PROPOSED LINTEL
- PROPOSED HEADWALL
- PIT LABEL
- KERB RETURN No.

CONTOUR INTERVAL = 0.1m

GENERAL NOTES: -

- FOR TYPICAL ROAD CROSS SECTIONS, KERB PROFILES REFER SHEET 201
- REFER TO ARCHITECTURAL DRAWINGS FOR PRAM RAMP DETAILS.

DESIGN R.L. ON LIP OF KERB

LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)

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REV.	DATE	AMENDMENT
A	21.02.2020	PRELIMINARY DRAFT ISSUE
B	13.03.2020	TURNING HEAD & BASIN MOVED
C	03.04.2020	FOR TENDER
D	02.06.2020	MINOR AMENDMENTS
E	05.06.2020	MINOR NOTE AMENDMENTS
F	03.09.2020	PCA COMMENTS
G	14.09.2020	PCA COMMENTS
H	29.10.2020	PCA COMMENTS

DESIGN	DRAWN	CHECKED	APPROVED
B.M.	P.B.	B.M.	B.M.
B.M.	J.U.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.
B.M.	M.F.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.
B.M.	M.H.	B.M.	N.D.

SCALES
A1 1:100
A3 1:200
A1 1:20
A3 1:40

adw Johnson

Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

FRASERS PROPERTY

CLIENT

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED ADWJ DATUM AHD GDA 94

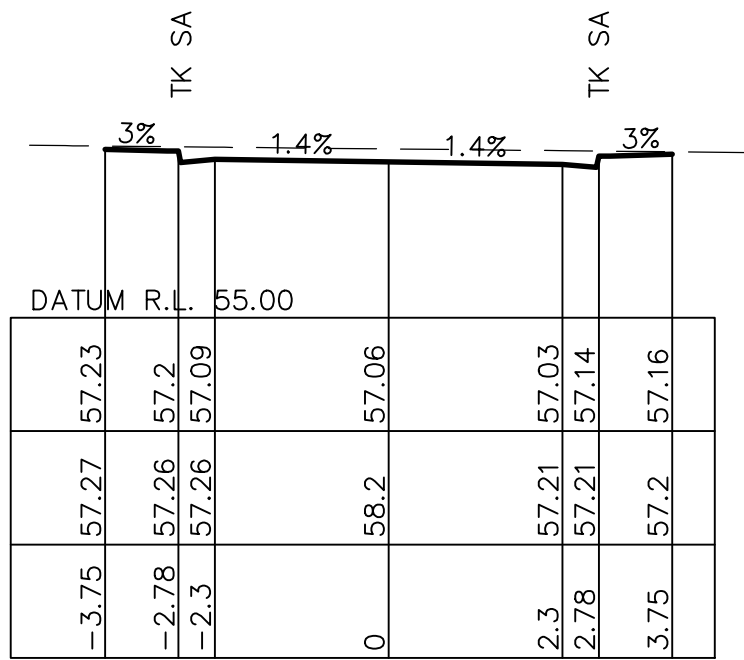
PROJECT

PROPOSED SUBDIVISION

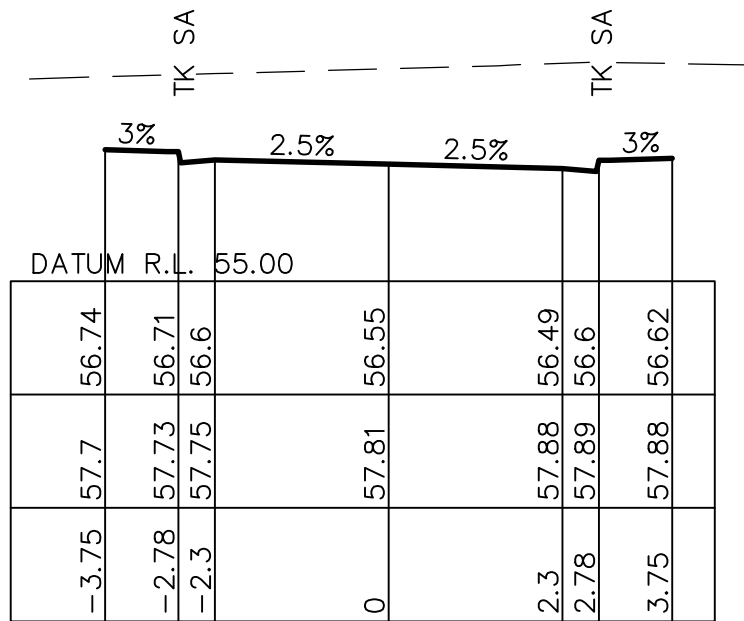
PLAN TITLE

**INTERSECTION DETAILS
SALES SUITE DRIVEWAY**

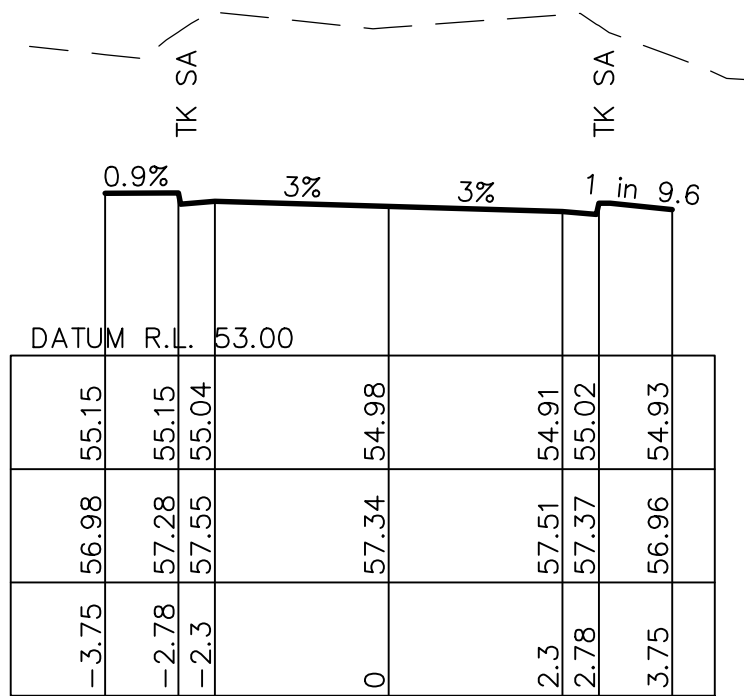
PROJECT No. **300001(1)** - DISCIPLINE **ENG** - NUMBER **306** REV. **H**



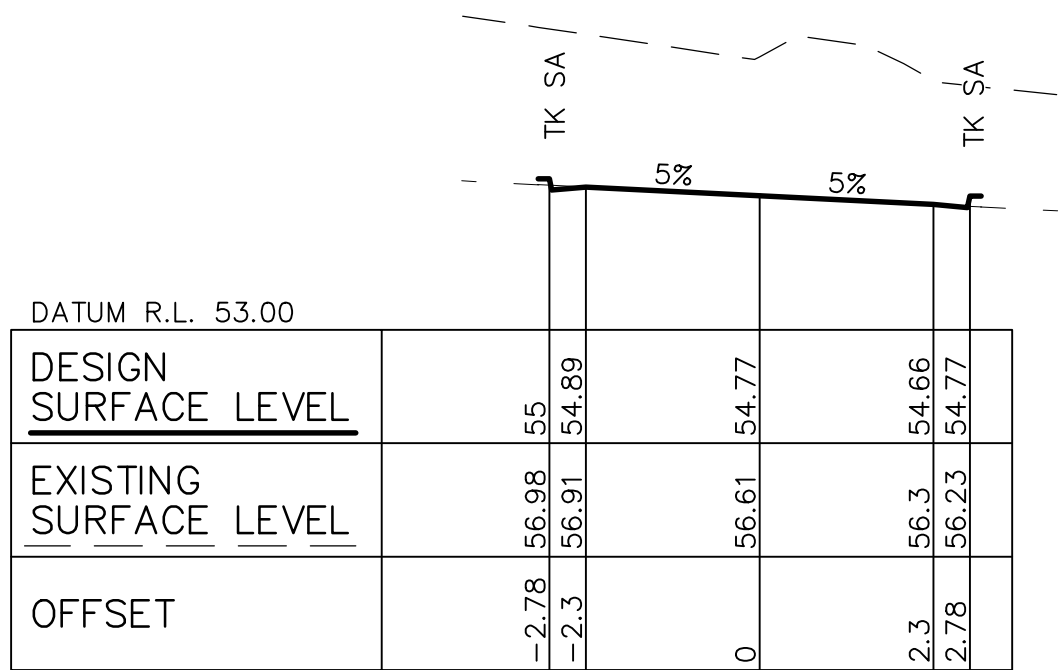
CH 29.42



CH 24.19

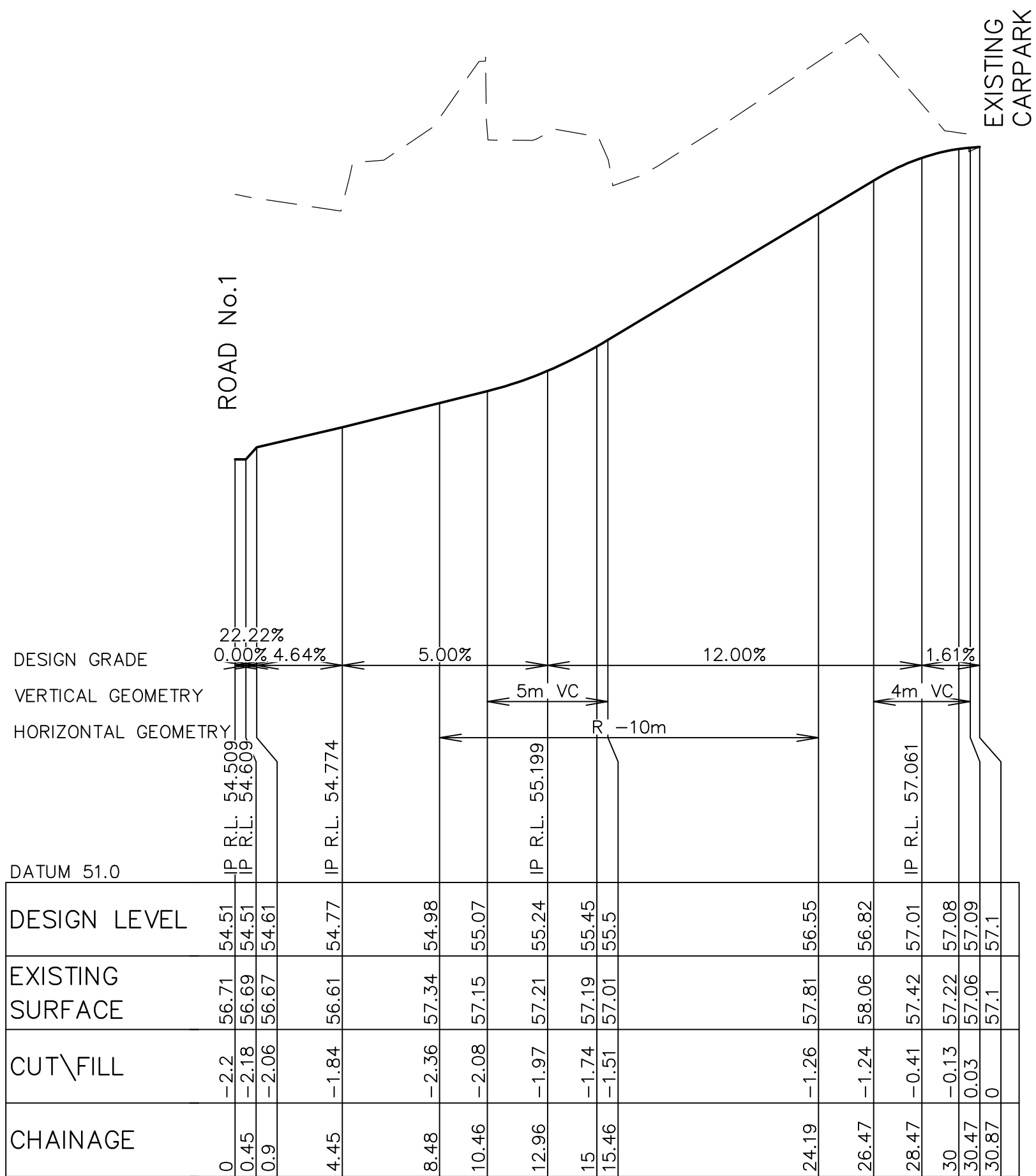


CH 8.48



CH 4.45

WORKS SUBJECT TO
SEPARATE APPROVAL




LONGITUDINAL SECTION DRIVEWAY SALES SUITE

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:40

SETOUT TABLE - DRIVEWAY SALES SUITE						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH\DEFL.ANGLE
IP 1	0.000	325581.677	6260494.701	41°10'55.28"		
TC	8.482	325587.261	6260501.084	41°10'55.28"		
IP 2	16.335	325593.846	6260508.610		R = -10.000	15.708 89°59'52.29"
CT	24.189	325586.320	6260515.194	311°11'02.99"		
IP 3	30.868	325581.293	6260519.592	311°11'02.99"		

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.F.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.



Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398



CLIENT

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED
ADWJ

DATUM
AHD GDA 94

PROJECT
PROPOSED SUBDIVISION

PLAN TITLE
SALES SUITE DRIVEWAY LONGITUDINAL SECTION
CROSS SECTIONS & SETOUT TABLE

PROJECT No.
300001(1) -

DISCIPLINE
ENG -

NUMBER
307

REV.
H




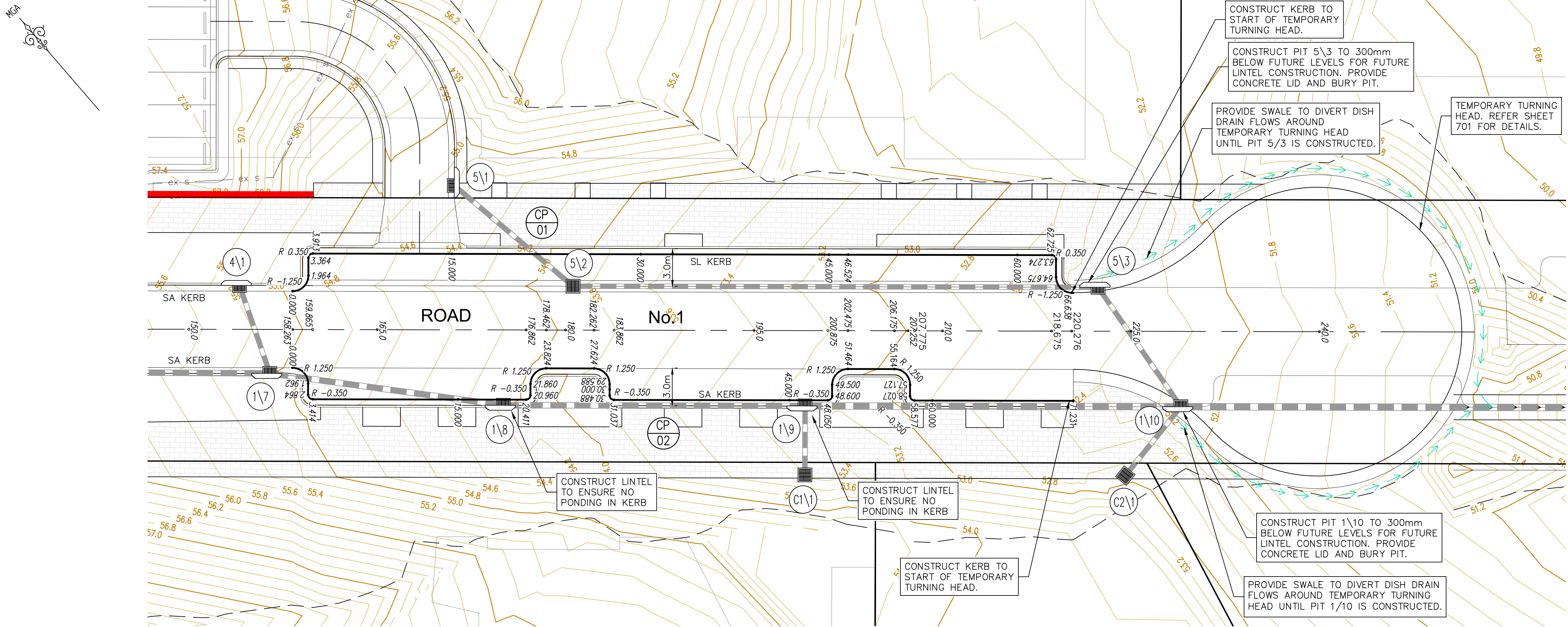
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Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 34.0



	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.0
Steering Angle	: 37.2



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398		CLIENT	PROPERTY DESCRIPTION		PROJECT	PROPOSED SUBDIVISION					
A B C D E F G H	21.02.2020 13.03.2020 03.04.2020 02.06.2020 05.06.2020 03.09.2020 14.09.2020 29.10.2020	PRELIMINARY DRAFT ISSUE TURNINGS HEAD & BASIN MOVED FOR TENDER MINOR AMENDMENTS MINOR NOTE AMENDMENTS PCA COMMENTS PCA COMMENTS PCA COMMENTS	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	P.B. J.J.L M.H. M.F. M.F. M.H. M.H. M.H.	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	B.M. N.D. B.M. N.D. B.M. N.D. B.M. N.D.						LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PLAN TITLE	MRV TURNING PATHS DETAIL PLANS					
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				SURVEYED		ADWJ	DATUM	AHD GDA 94	PROJECT No.	DISCIPLINE	NUMBER	REV.	
																300001(1) -	ENG	-	310	H



LEGEND

- SITE BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- FUTURE LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED TURNING HEAD
- EXISTING KERB
- EXTENTS OF BATTER
- PROPOSED RETAINING WALL
- PROPOSED SWALE
- PROPOSED STORMWATER
- PROPOSED SW PIT
- PROPOSED LINTEL
- PROPOSED HEADWALL
- PIT LABEL
- CARPARK KERB No.

CONTOUR INTERVAL = 0.2m

GENERAL NOTES: --

1. FOR TYPICAL ROAD CROSS SECTIONS, KERB PROFILES REFER SHEET 201.

DESIGN R.L. ON LIP OF KERB

CARPARK PLAN-CP01 AND CP02
SCALE 1:200

LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

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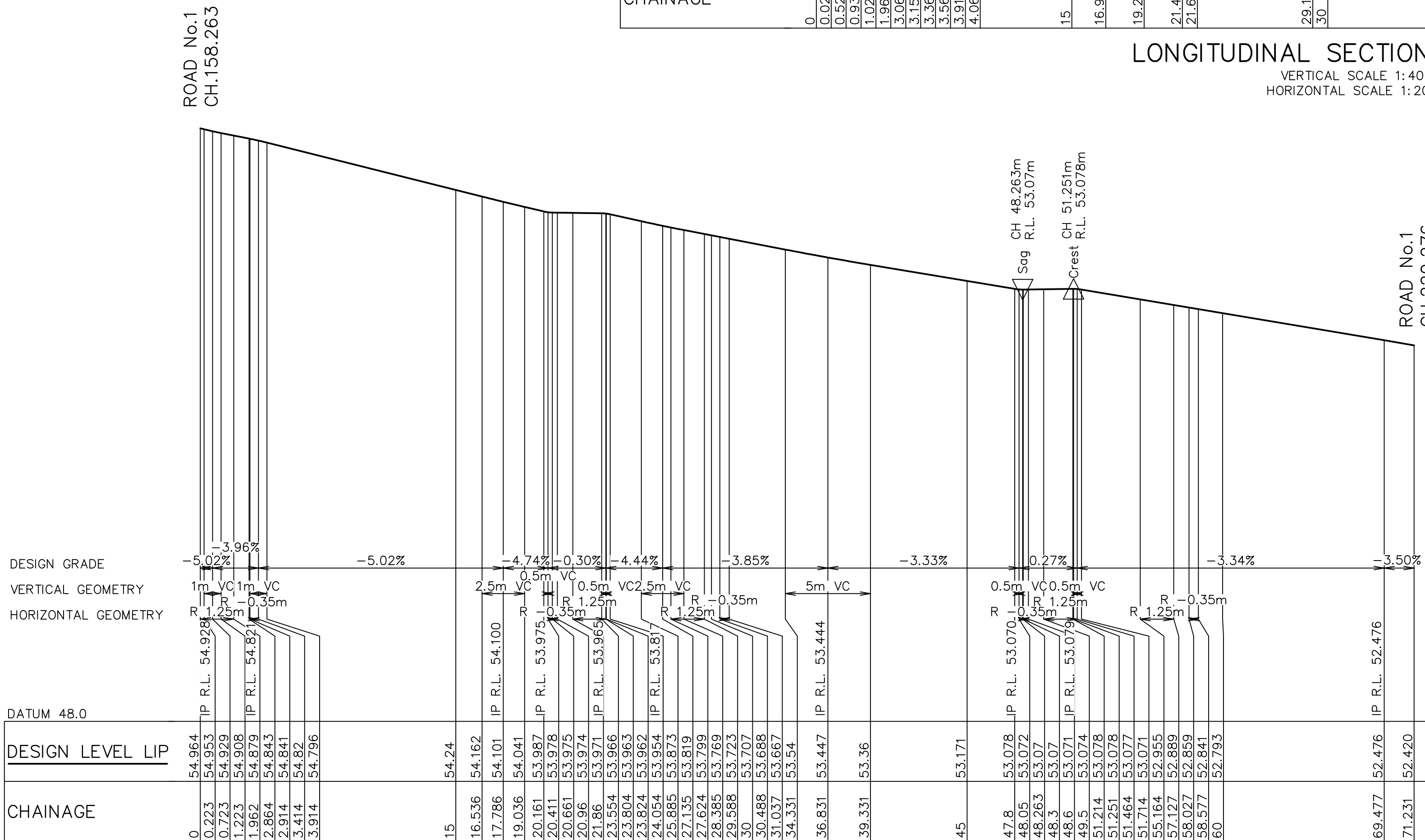
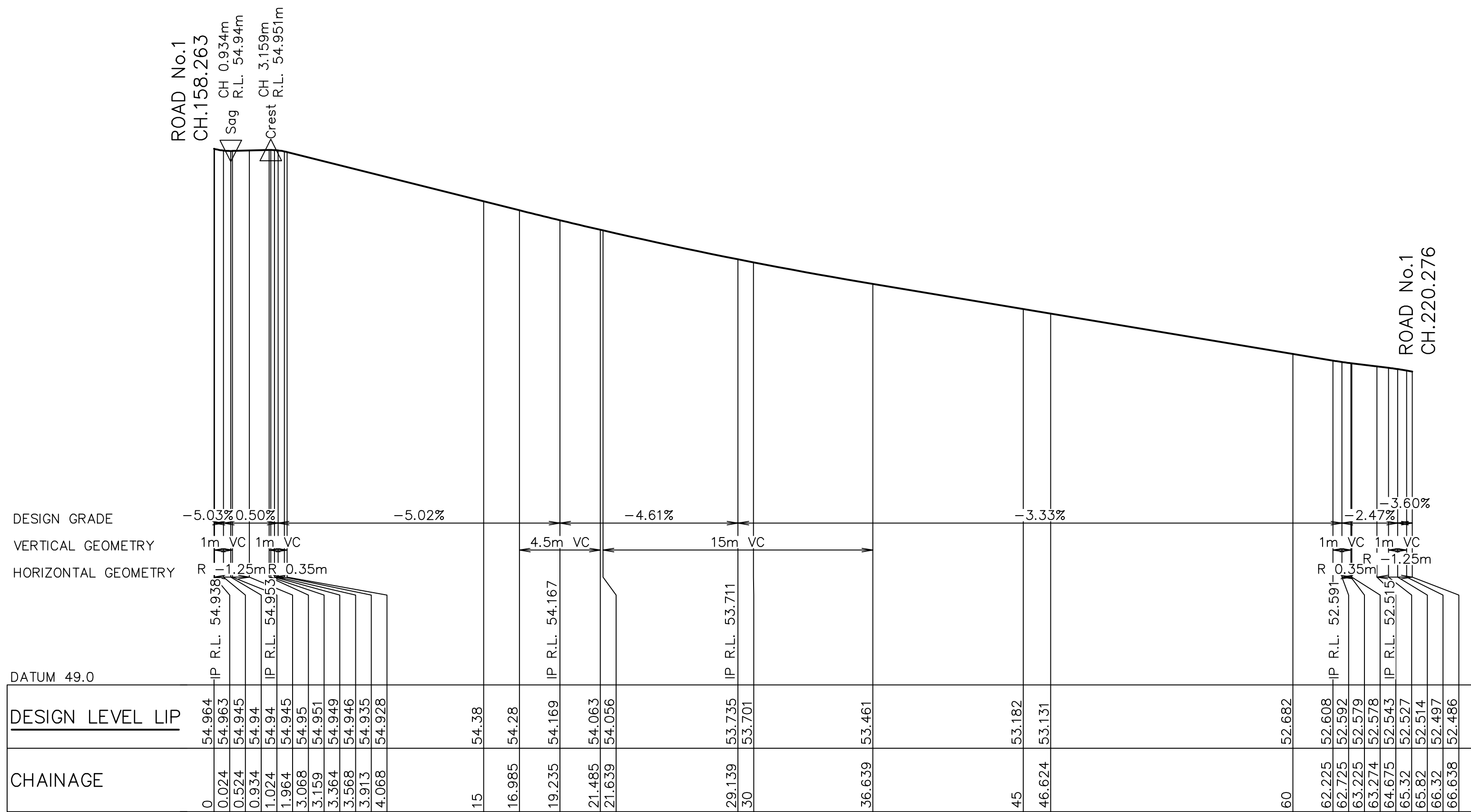
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:200	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.				PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				CARPARK DETAILS PLAN
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				SHEET 1
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:07:05AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-351.DWG										

10mm AT FULL SIZE
This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

300001(1)-ENG-352

SETOUT TABLE – KR CARPARK 1						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
IP 1	0.000	325572.100	6260499.093	131°10'48.79"		
IP 2	0.000	325572.100	6260499.093			
IP 3	0.982	325573.041	6260498.270		R = -1.250	1.964
CT	1.964	325573.864	6260499.211	41°10'55.25"		
TC	3.364	325574.786	6260500.264	41°10'55.25"		
IP 4	3.638	325575.016	6260500.528		R = 0.350	0.550
CT	3.913	325575.280	6260500.297	131°10'55.39"		
TC	62.725	325619.542	6260461.573	131°10'55.39"		
IP 5	63.000	325619.806	6260461.342		R = 0.350	0.550
CT	63.274	325619.575	6260461.079	221°09'30.17"		
TC	64.675	325618.654	6260460.024	221°09'30.17"		
IP 6	65.656	325617.831	6260459.084		R = -1.250	1.963
IP 7	66.638	325618.772	6260458.261			
IP 8	66.638	325618.772	6260458.261	131°10'54.76"		

SETOUT TABLE – KR CARPARK 2						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH
IP 1	0.000	325568.083	6260494.502	131°10'56.81"		
IP 2	0.000	325568.084	6260494.502			
IP 3	0.981	325569.023	6260493.680		R = 1.250	1.962
CT	1.962	325568.202	6260492.739	221°06'31.58"		
TC	2.864	325567.609	6260492.060	221°06'31.58"		
IP 4	3.139	325567.379	6260491.796		R = -0.350	0.549
CT	3.414	325567.643	6260491.566	131°10'55.20"		
TC	20.411	325580.435	6260480.374	131°10'55.20"		
IP 5	20.685	325580.698	6260480.144		R = -0.350	0.550
CT	20.960	325580.929	6260480.407	41°11'11.52"		
TC	21.860	325581.521	6260481.085	41°11'11.52"		
IP 6	22.842	325582.344	6260482.025		R = 1.250	1.963
CT	23.824	325583.285	6260481.202	131°10'55.31"		
TC	27.624	325586.145	6260478.700	131°10'55.31"		
IP 7	28.606	325587.086	6260477.877		R = 1.250	1.964
CT	29.588	325586.263	6260476.936	221°11'11.52"		
TC	30.488	325585.670	6260476.259	221°11'11.52"		
IP 8	30.762	325585.440	6260475.995		R = -0.350	0.550
CT	31.037	325585.703	6260475.765	131°10'55.31"		
TC	48.050	325598.508	6260464.563	131°10'55.31"		
IP 9	48.325	325598.771	6260464.332		R = -0.350	0.550
CT	48.600	325599.001	6260464.596	41°11'11.52"		
TC	49.500	325599.594	6260465.273	41°11'11.52"		
IP 10	50.482	325600.417	6260466.214		R = 1.250	1.963
CT	51.464	325601.358	6260465.391	131°10'55.31"		





These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

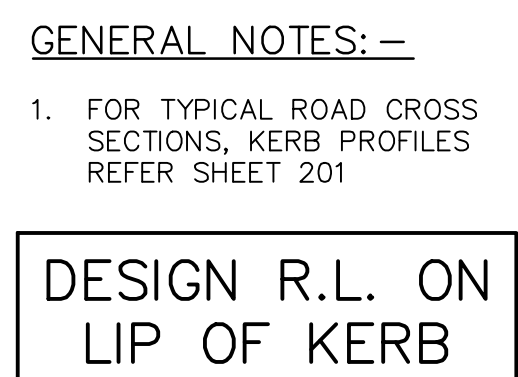
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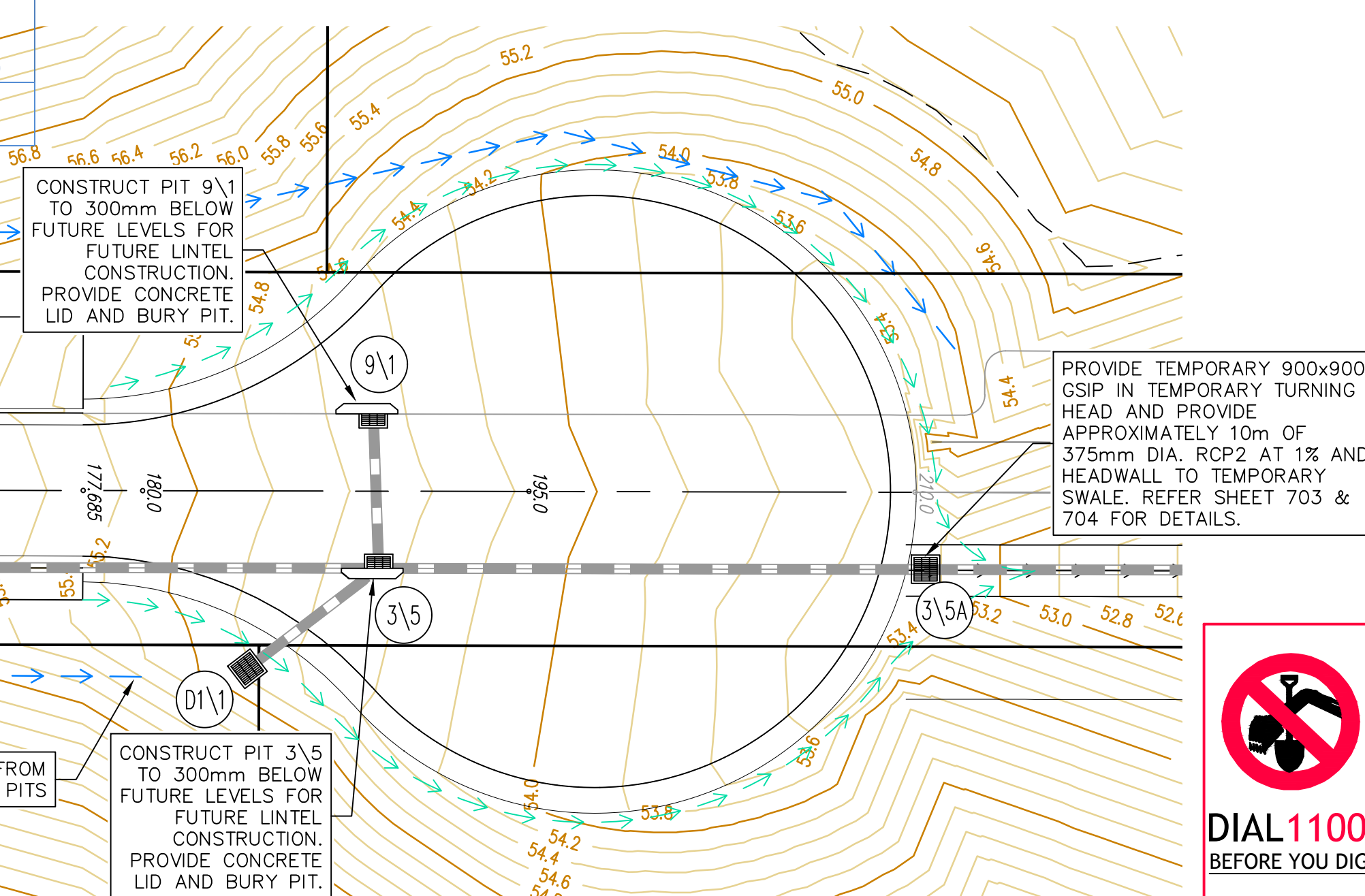
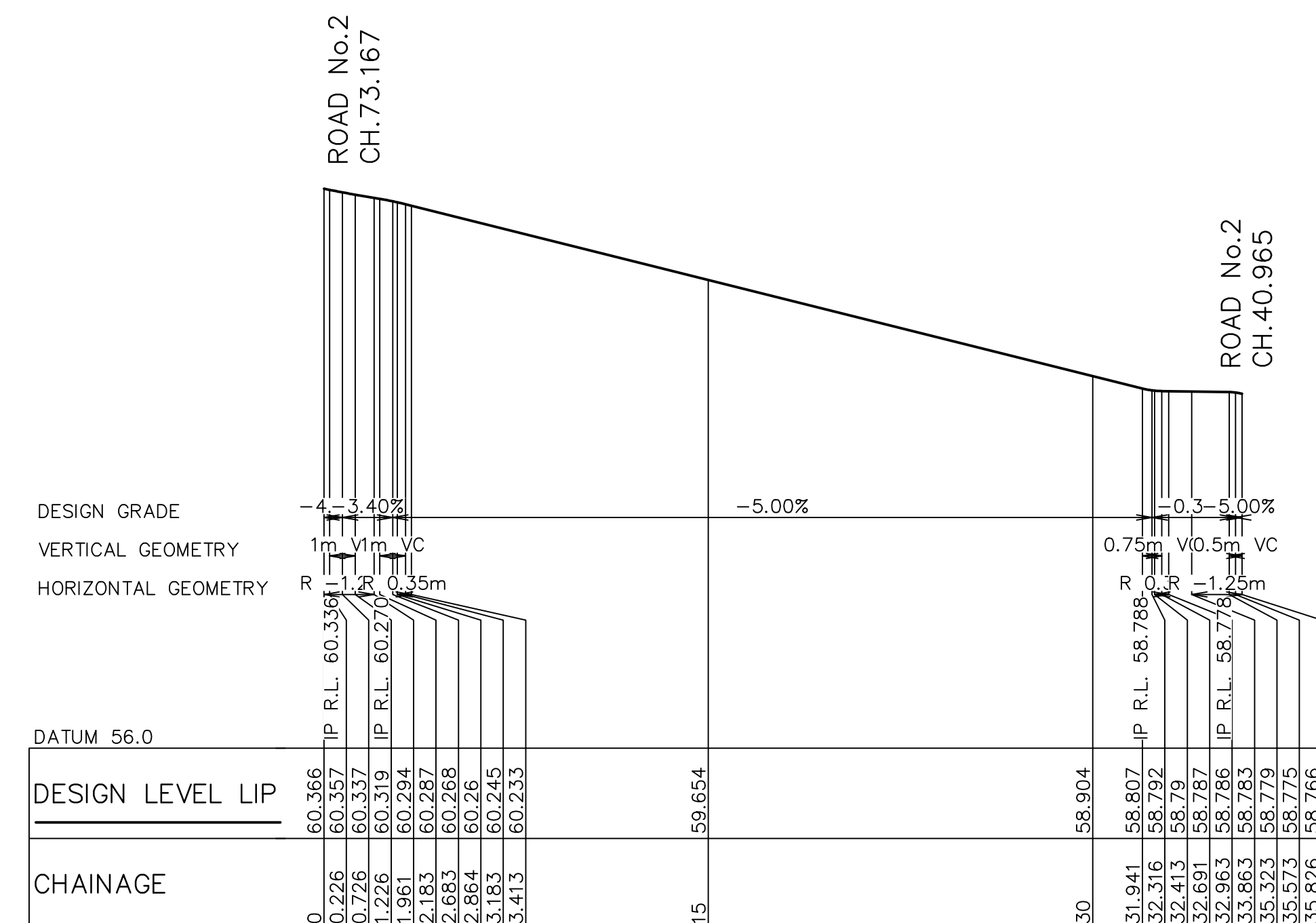
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:200 A3 1:400	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION	CARPARK DETAILS PLAN SHEET 2	ADWJ	AHD GDA 94	300001(1)	ENG	352	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.											
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.											
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project ALL DIMENSIONS ARE IN METRES. DO NOT SCALE Plotted By: Mark Hoyland Plot Date: 29/10/20 9:07:12AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-352.DWG

100mm AT FULL SIZE
white copy you do not

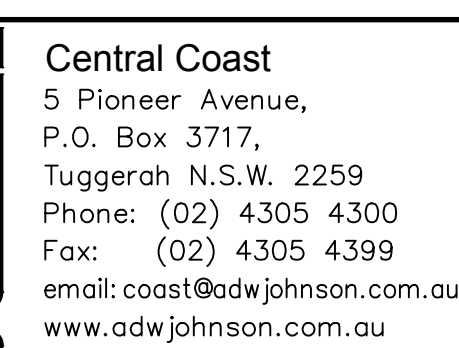
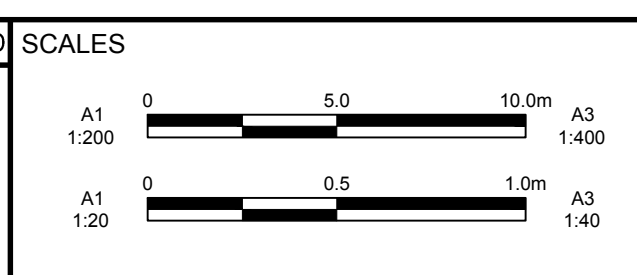


SETOUT TABLE - KR CARPARK 9							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325484.083	626047.965	41°10'58.21"			
IP 2	0.981	325484.904	6260476.904		R = -1.250	1.961	89°54'02.8"
CT	1.961	325483.966	6260479.727	311°16'55.33"			
IP 3	2.864	325483.288	6260480.323	311°16'55.33"			
CT	3.139	325483.025	6260480.554		R = 0.350	0.549	89°54'02.8"
IP 4	3.413	325483.251	6260480.811	41°10'58.21"			
CT	32.413	325502.351	6260502.642	41°10'58.21"			
IP 4	32.688	325502.581	6260502.906		R = 0.350	0.550	89°58'36.3"
CT	32.963	325502.845	6260502.675	131°09'34.53"			
IP 5	32.863	325503.523	6260502.082	131°09'34.53"			
CT	32.863	325503.523	6260502.082		R = -1.250	1.963	89°58'36.3"
IP 6	35.820	325505.266	6260502.700	41°10'58.21"			



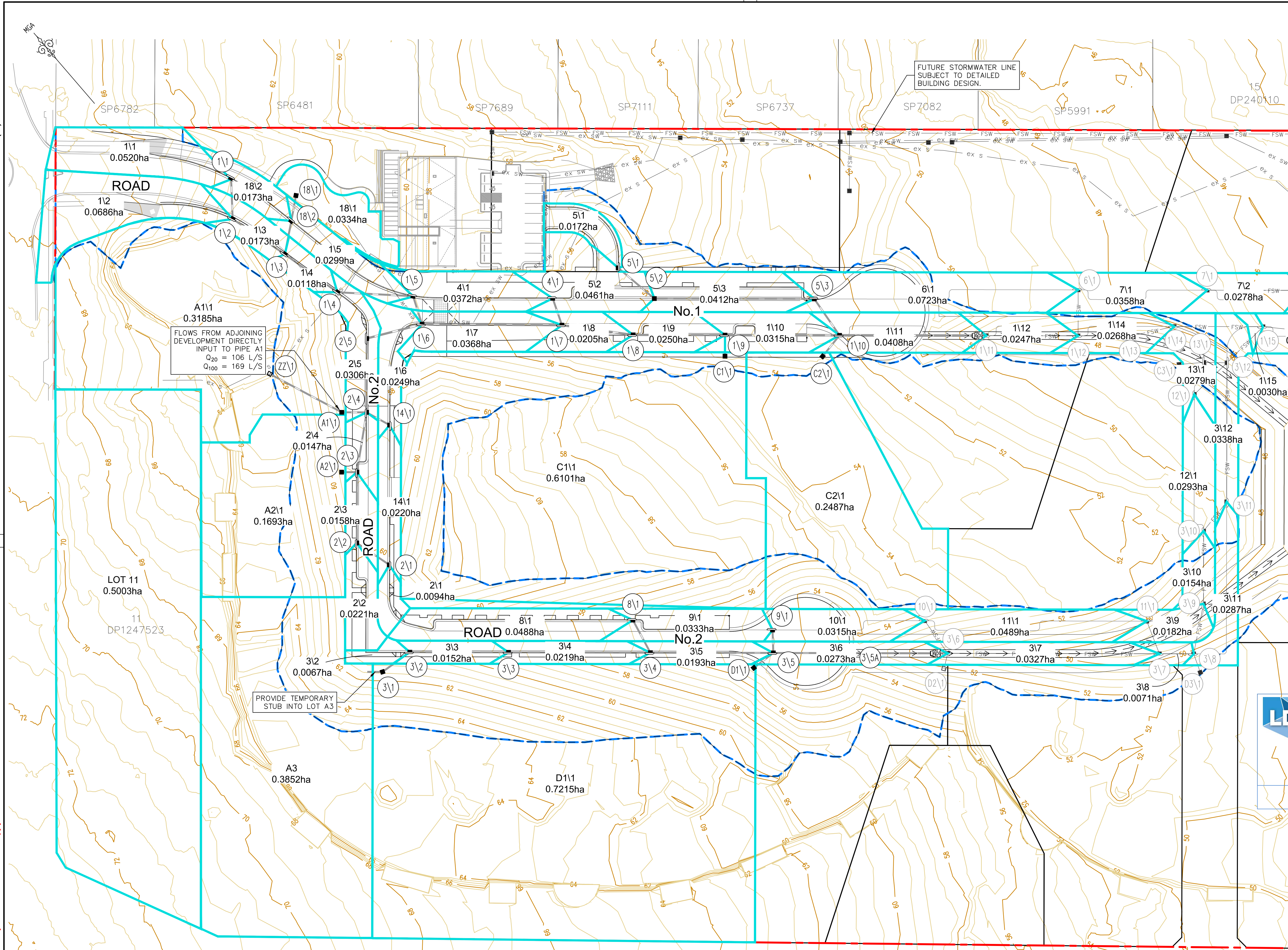
DIAL 1100
BEFORE YOU DIG

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.
C	03.04.2020	FOR TENDER	M.H.	B.M.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.



SURVEYED	DATUM
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PROJECT No.	DISCIPLINE	NUMBER	REV
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LEGEND

- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER
- CATCHMENT BOUNDARY
- PROPOSED STORMWATER
- FUTURE STORMWATER
- PROPOSED SW PIT
- ▭ PROPOSED LINTEL
- ▭ PROPOSED HEADWALL
- PIT LABEL
- FUTURE PIT LABEL

CONTOUR INTERVAL = 0.5m

GENERAL NOTES: --

- FOR TYPICAL ROAD CROSS SECTIONS, KERB PROFILES REFER SHEET 201 & PAVEMENT DETAILS REFER TO SHEET 151.
- SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE PLAN VIEW, LONGITUDINAL SECTIONS AND ELECTRONIC 12D DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.
- FUTURE BUILDINGS FLOWS DIRECTLY INPUT TO PITS A\1, A\2, C\1, C\2 AND D\1 FROM RAFTS MODEL. REFER TO DA SWMP PREPARED BY ADW JOHNSON AND CALC. CHARTS FOR DETAILS.

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These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

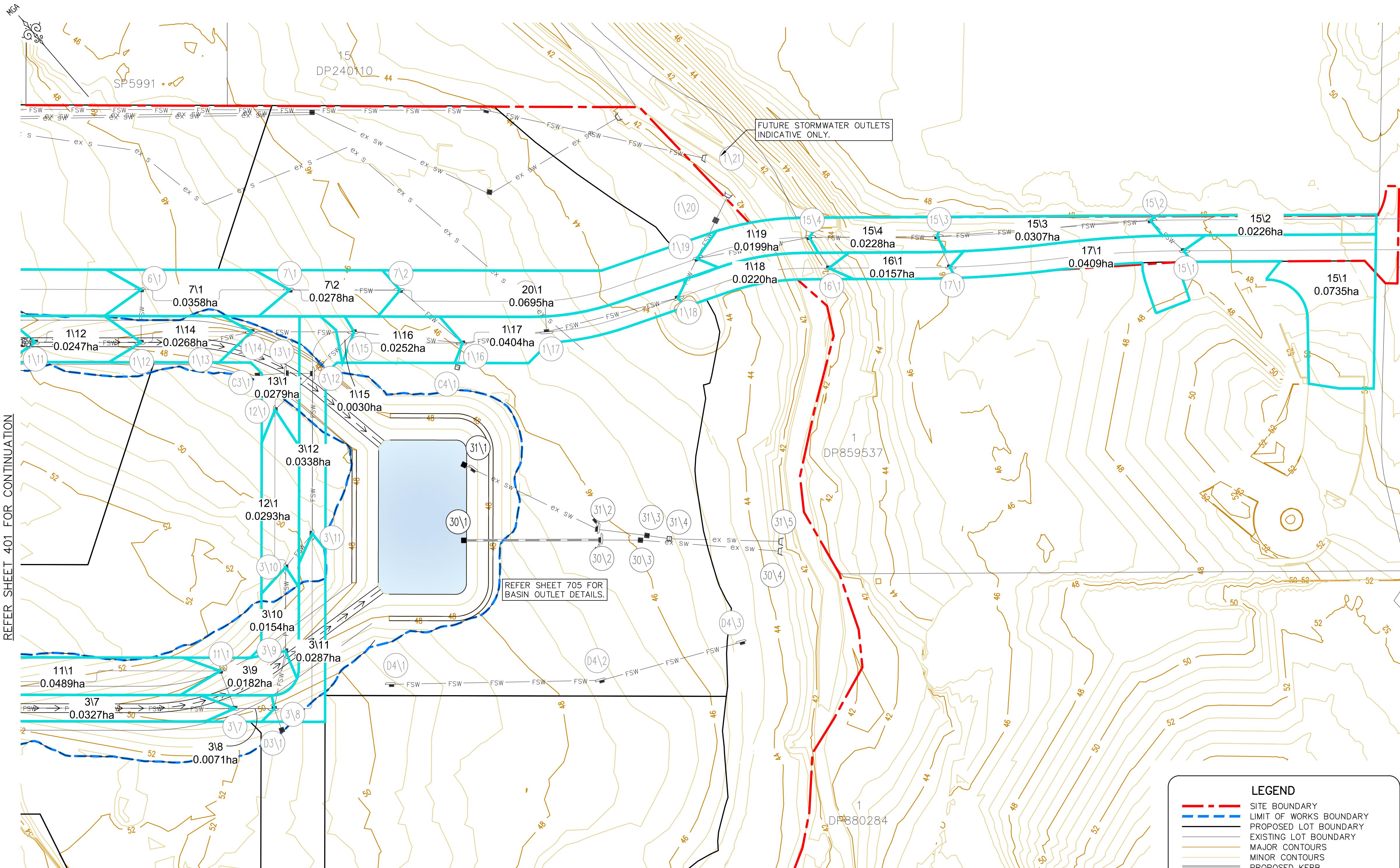
Registration No: BDC 2416
Categories: Certifier - Subdivision
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION	STORMWATER CATCHMENT PLAN SHEET 1	ADWJ	AHD GDA 94	300001(1) -	ENG	401	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.											
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.											
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:07:38AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-401.DWG



STORMWATER CATCHMENT PLAN

SCALE 1:500

NOTE: -

PLAN HAS BEEN SHOWN FOR INFORMATION ONLY.
FUTURE STORMWATER SUBJECT TO DETAILED DESIGN.



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Registration No: BDC 2416

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GENERAL NOTES:-

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- FUTURE BUILDINGS FLOWS DIRECTLY INPUT TO PITS A\1, A\2, C\1, C\2 AND D\1 FROM RAFTS MODEL. REFER TO DA SWMP PREPARED BY ADW JOHNSON AND CALC. CHARTS FOR DETAILS.

LEGEND


- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER
- CATCHMENT BOUNDARY
- PROPOSED STORMWATER
- FUTURE STORMWATER
- PROPOSED SW PIT
- PROPOSED LINTEL
- PROPOSED HEADWALL
- PIT LABEL
- EXISTING PIT LABEL
- FUTURE PIT LABEL

CONTOUR INTERVAL = 0.5m

STORMWATER SETOUT			
PIT NAME	PIT TYPE	EASTING	NORTHING
		m	m
1\1	1.8m LINTEL	325526.5	6260581.128
1\2	1.8m LINTEL	325519.789	6260572.772
1\3	1.8m LINTEL	325524.011	6260556.871
1\4	1.8m LINTEL	325527.843	6260540.363
1\5	1.8m LINTEL	325542.088	6260526.612
1\6	1.8m LINTEL	325539.014	6260519.544
1\7	1.8m LINTEL	325566.432	6260495.349
1\8	1.8m LINTEL	325578.784	6260481.221
1\9	1.8m LINTEL	325596.857	6260465.409
1\10	1.8m LINTEL	325619.37	6260445.713
1\11	1.8m LINTEL	325648.216	6260420.476
1\12	1.8m LINTEL	325666.28	6260404.672
1\13	900 x 900 JUNCTION	325676.635	6260395.613
1\14	1.8m LINTEL	325686.828	6260390.017
1\15	1.8m LINTEL	325704.289	6260374.74
1\16	1.8m LINTEL	325721.158	6260356.661
1\17	2.4m LINTEL SAG	325737.209	6260346.074
1\18	1.8m LINTEL	325764.722	6260332.326
1\19	1.8m LINTEL	325773.834	6260336.196
1\20	900 x 900 VGRATE	325782.771	6260339.939
1\21	HEADWALL OUTLET	325788.107	6260342.213
2\1	1.8m LINTEL	325491.299	6260477.785
2\2	1.8m LINTEL	325488.654	6260487.67
2\3	1.8m LINTEL	325500.827	6260501.584
2\4	1.8m LINTEL	325512.997	6260511.697
2\5	2.4m LINTEL SAG	325525.692	6260526.208
3\1	900 x 900 GSIP	325471.604	6260457.855
3\2	1.8m LINTEL	325480.356	6260457.052
3\3	1.8m LINTEL	325499.773	6260440.064
3\4	1.8m LINTEL	325527.657	6260415.668
3\5	1.8m LINTEL	325551.836	6260394.514
3\6	1.8m LINTEL	325586.146	6260364.496
3\7	1.8m LINTEL	325627.755	6260328.092
3\8	1.2m LINTEL	325634.491	6260322.198
3\9	1.8m LINTEL	325645.001	6260330.362
3\10	1.8m LINTEL	325657.529	6260344.682
3\11	1.8m LINTEL	325667.082	6260346.489
3\12	2.4m LINTEL SAG	325690.984	6260373.808
4\1	1.8m LINTEL	325569.213	6260502.217
5\1	1.2m LINTEL	325587.335	6260496.992
5\2	900 x 900 VGRATE	325589.198	6260484.733
5\3	1.8m LINTEL	325620.648	6260457.217
6\1	1.8m LINTEL	325674.181	6260413.704
7\1	1.8m LINTEL	325699.552	6260391.503
7\2	1.8m LINTEL	325718.402	6260375.013
8\1	1.8m LINTEL	325529.804	6260425.083
9\1	1.8m LINTEL	325555.622	6260399.178
10\1	1.8m LINTEL	325587.18	6260374.885
11\1	1.8m LINTEL	325630.856	6260336.674
12\1	1.8m LINTEL	325679.153	6260373.195
13\1	2.4m LINTEL SAG	325686.532	6260377.832
14\1	1.8m LINTEL	325515.333	6260505.255
15\1	1.8m LINTEL	325858.258	6260265.014
15\2	1.8m LINTEL	325857.098	6260275.123
15\3	1.8m LINTEL	325818.201	6260304.181
15\4	1.8m LINTEL	325796.253	6260323.058
16\1	1.8m LINTEL	325794.99	6260314.907
17\1	1.8m LINTEL	325815.831	6260297.056
18\1	900 x 900 GSIP	325536.288	6260566.535
18\2	1.8m LINTEL	325531.007	6260562.315
20\1	2.4m LINTEL SAG	325741.514	6260351.594
30\1	900 x 900 GSIP	325691.983	6260322.721
30\2	EX 900 x 900 GSIP	325715.504	6260302.357
30\3	EX 900 x 900 GSIP	325722.235	6260296.435
30\4	HW OUT	325744.306	6260274.355
31\1	900 x 900 GSIP	325703.285	6260335.619
31\2	EX 900 x 900 GSIP	325716.541	6260304.657
31\3	EX 900 x 900 GSIP	325724.037	6260296.267
31\4	EX 900 x 900 JUNCTION	325727.379	6260292.367
31\5	EX HW OUT	325744.868	6260274.903
A1\1	900 x 900 GSIP	325508.105	6260515.977
A2\1	900 x 900 GSIP	325497.816	6260504.217
C1\1	900 x 900 GSIP	325593.235	6260461.27
C2\1	900 x 900 GSIP	325612.426	6260444.48
C3\1	900 x 900 GSIP	325681.279	6260381.699
C4\1	900 x 900 GSIP	325716.676	6260353.274
D1\1	900 x 900 GSIP	325545.43	6260394.924
D2\1	900 x 900 GSIP	325582.76	6260362.144
D3\1	900 x 900 GSIP	325632.595	6260317.398
zz\1	900 x 900 JUNCTION	325500.497	6260535.936

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.	
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.	
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.	
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	





Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398



**FRASERS
PROPERTY**

CLIENT

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

SURVEYED ADWJ DATUM AHD GDA 94

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

STORMWATER CATCHMENT PLAN
SHEET 2

PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 402 - REV. H



LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld

Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates

MAJOR DRAINAGE NOTES

20 YEAR HYDROLOGICAL DESIGN																								
PIT	PIT	AREA	IMPER.	PER.	tc IMPER.	tc PER.	INTENSITY	RUNOFF	RUNOFF	CRITICAL SUM	CATCHMENT	BYPASS	TOTAL FLOW	PIT INLET	PIT BYPASS	BYPASS	Ku	GUTTER	FLOODED	FLOW	VELOCITY	MAX POND DEPTH	CHOKE	NOTES
NAME	DETAILS	ha	%	%	min	min	mm/hr	C IMPER.	C PER.	CA	FLOW	ARRIVING	@ PIT	FLOW	FLOW	PIT		SLOPE	DEPTH	WIDTH	DEPTH	DEPTH	FACTOR	
											L/s	L/s	L/s	L/s	L/s	L/s		%	m	m	m	m	1=NONE	
1\1	1.8m LINTEL	0.052	90	10	5	5	195	0.945	0.5362	0.047	25	0	25	25	0	18\2	3.6	11.9	0.05	0.79	0.08		1	
1\2	1.8m LINTEL	0.0686	90	10	5	5	195	0.945	0.5362	0.062	34	0	34	33	1	1\3	2.8	14.5	0.05	0.85	0.1		1	
1\3	1.8m LINTEL	0.0173	90	10	5	5	195	0.945	0.5362	0.016	8	1	9	9	0	1\4	0.8	13	0.03	0.38	0.05		1	
1\4	1.8m LINTEL	0.0118	90	10	5	5	195	0.945	0.5362	0.011	6	0	6	6	0	2\5	0.8	10.1	0.03	0.33	0.03		1	
1\5	1.8m LINTEL	0.0299	90	10	5	5	195	0.945	0.5362	0.027	15	0	15	15	0	4\1	1.7	6.3	0.05	0.75	0.05		1	
1\6	1.8m LINTEL	0.0249	90	10	5	5	195	0.945	0.5362	0.023	12	0	12	12	0	1\7	0.6	5	0.05	0.72	0.04		1	
1\7	1.8m LINTEL	0.0368	90	10	5	5	195	0.945	0.5362	0.033	18	0	18	18	0	1\8	0.4	5	0.05	0.94	0.05		1	
1\8	1.8m LINTEL	0.0205	90	10	5	5	195	0.945	0.5362	0.019	10	0	10	10	0	1\9	0.4	4.9	0.04	0.59	0.04		1	
1\9	1.8m LINTEL	0.025	90	10	5	5	195	0.945	0.5362	0.023	12	0	12	12	0	1\10	0.4	3.3	0.05	0.85	0.04		1	
1\10	1.8m LINTEL	0.0315	90	10	5	5	195	0.945	0.5362	0.028	15	0	15	15	0	1\11	0.3	4	0.05	0.91	0.05		1	
1\11	1.8m LINTEL	0.0408	90	10	5	5	195	0.945	0.5362	0.037	20	0	20	20	0	1\12	0.3	5.7	0.05	1.1	0.05		1	
1\12	1.8m LINTEL	0.0247	90	10	5	5	195	0.945	0.5362	0.022	12	0	12	12	0	1\14	0.6	7.1	0.04	0.69	0.05		1	
1\13	900 x 900 JUNCTION		90	10	5	5	0				0	0	0	0	0		0.2							
1\14	1.8m LINTEL	0.0268	90	10	5	5	195	0.945	0.5362	0.024	13	0	13	13	0	1\3\1	0	3.8	0.05	0.84	0.04		1	
1\15	1.8m LINTEL	0.003	90	10	5	5	195	0.945	0.5362	0.003	1	0	1	1	0	1\16	0.3	0.8	0.03	0.32	0.01		1	
1\16	1.8m LINTEL	0.0252	90	10	5	5	195	0.945	0.5362	0.023	12	0	12	12	0	1\17	0.4	0.8	0.06	1.32	0.03		1	
1\17	2.4m LINTEL SAG	0.0404	90	10	5	5	195	0.945	0.5362	0.037	20	0	20	20	0	20\1	0.2	0.1	0.03			0.25	1	
1\18	1.8m LINTEL	0.022	90	10	5	5	195	0.945	0.5362	0.02	11	0	11	11	0	1\17	0.6	1.3	0.05	1.05	0.03		1	
1\19	1.8m LINTEL	0.0199	90	10	5	5	195	0.945	0.5362	0.018	10	0	10	10	0	20\1	0.2	1.1	0.05	1.04	0.03		1	
1\20	900 x 900 VGRATE		90	10	5	5	0				0	0	0	0	0		1.7						1	
1\21	HEADWALL OUTLET		90																					
2\1	1.8m LINTEL	0.0094	90	10	5	5	195	0.945	0.5362	0.009	5	0	5	5	0	14\1	3.6	5	0.03	0.35	0.03		1	
2\2	1.8m LINTEL	0.0221	90	10	5	5	195	0.945	0.5362	0.02	11	0	11	11	0	2\3	4.1	5	0.04	0.59	0.04		1	
2\3	1.8m LINTEL	0.0158	90	10	5	5	195	0.945	0.5362	0.014	8	0	8	8	0	2\4	2	5	0.04	0.42	0.04		1	
2\4	1.8m LINTEL	0.0147	90	10	5	5	195	0.945	0.5362	0.013	7	0	7	7	0	2\5	1.6	5	0.04	0.41	0.04		1	
2\5	2.4m LINTEL SAG	0.0306	90	10	5	5	195	0.945	0.5362	0.028	15	0	15	15	0		1.7	3	0.03			0.05	1	
3\1	900 x 900 GSIP		90	10	5	5	0				0	0	0	0	0		0						1	
3\2	1.8m LINTEL	0.0067	90	10	5	5	195	0.945	0.5362	0.006	3	0	3	3	0	3\3	0.7	1.8	0.03	0.36	0.02		1	
3\3	1.8m LINTEL	0.0152	90	10	5	5	195	0.945	0.5362	0.014	7	0	7	7	0	3\4	0.6	6.9	0.03	0.39	0.04		1	
3\4	1.8m LINTEL	0.0219	90	10	5	5	195	0.945	0.5362	0.02	11	0	11	11	0	3\5	0.7	6.9	0.04	0.45	0.05		1	
3\5	1.8m LINTEL	0.0193	90	10	5	5	195	0.945	0.5362	0.017	9	0	9	9	0	3\6	0.6	6.5	0.04	0.43	0.04		1	
3\6	1.8m LINTEL	0.0273	90	10	5	5	195	0.945	0.5362	0.025	13	0	13	13	0	3\7	0.4	5	0.05	0.75	0.05		1	
3\7	1.8m LINTEL	0.0327	90	10	5	5	195	0.945	0.5362	0.03	16	0	16	16	0	3\8	0.4	3.2	0.05	1.02	0.04		1	
3\8	1.2m LINTEL	0.0071	90	10	5	5	195	0.945	0.5362	0.006	3	0	3	3	0	3\11	1.5	1.6	0.03	0.39	0.02		1	
3\9	1.8m LINTEL	0.0182	90	10	5	5	195	0.945	0.5362	0.016	9	0	9	9	0	3\10	0.3	3.3	0.04	0.64	0.04		1	
3\10	1.8m LINTEL	0.0154	90	10	5	5	195	0.945	0.5362	0.014	8	0	8	8	0	12\1	0.7	4.3	0.04	0.43	0.03		1	
3\11	1.8m LINTEL	0.0287	90	10	5	5	195	0.945	0.5362	0.026	14	0	14	14	0	3\12	0.4	4.3	0.05	0.84	0.05		1	
3\12	2.4m LINTEL SAG	0.0338	90	10	5	5	195	0.945	0.5362	0.031	17	0	17	17	0	1\15	0.8	0.6	0.03			0.1	1	
4\1	1.8m LINTEL	0.0372	90	10	5	5	195	0.945	0.5362	0.034	18	0	18	18	0	5\2	3.6	5	0.05	0.95	0.05		1	
5\1	1.2m LINTEL	0.0172	90	10	5	5	195	0.945	0.5362	0.016	8	0	8	8	0		3.6	6.2					1	
5\2	900 x 900 VGRATE	0.0461	90	10	5	5	195	0.945	0.5362	0.042	23	0	23	16	7	5\3	3.7	4.4	0.05	1.31	0.04		1	
5\3	1.8m LINTEL	0.0412	90	10	5	5	195	0.945	0.5362	0.037	20	7	27	26	1	6\1	2.4	3.4	0.06	1.33	0.06		1	
6\1	1.8m LINTEL	0.0723	90	10	5	5	195	0.945	0.5362	0.065	35	1	36	35	1	7\1	3.6	7.1	0.06	1.63	0.07		1	
7\1	1.8m LINTEL	0.0358	90	10	5	5	195	0.945	0.5362	0.032	18	0	18	18	0	7\2	3.6	2	0.06	1.32	0.04		1	
7\2	1.8m LINTEL	0.0278	90	10	5	5	195	0.945	0.5362	0.025	14	0	14	14	0	20\1	2	0.8	0.06	1.56	0.03		1	
8\1	1.8m LINTEL	0.0488	90	10	5	5	195	0.945	0.5362	0.044	24	0	24	24	0	9\1	3.6	6.9	0.05	1.19	0.06		1	
9\1	1.8m LINTEL	0.0333	90	10	5	5	195	0.945	0.5362	0.03	16	0	16	16	0	10\1	3.6	6.6	0.05	0.79	0.05		1	
10\1	1.8m LINTEL	0.0315	90	10	5	5	195	0.945	0.5362	0.029	15	0	15	15	0	11\1	3.6	5	0.05	0.84	0.05		1	
11\1	1.8m LINTEL	0.0489	90	10	5	5	195	0.945	0.5362	0.044	24	0	24	24	0	3\9	3.6	3.5	0.06	1.26	0.05		1	
12\1	1.8m LINTEL	0.0293	90	10	5	5	195	0.945	0.5362	0.026	14	0	14	14	0	13\1	3.6	2.3	0.06	1.06	0.04		1	
13\1	2.4m LINTEL SAG	0.0279	90	10	5	5	195	0.945	0.5362	0.025	14	0	14	14	0	3\12	0	0.6	0.02			0.06	1	
14\1	1.8m LINTEL	0.022	90	10	5	5	195	0.945	0.5362	0.02	11	0	11	11	0		3.6	5	0.04	0.58	0.04		1	
15\1	1.8m LINTEL	0.0735	90	10	5	5	195	0.945	0.5362	0.066	36	0	36	34	2	17\1	9.7	1.1	0.08	2.01	0.05		1	
15\2	1.8m LINTEL	0.0226	90	10	5	5	195	0.945	0.5362	0.02	11	0	11	11	0	15\3	1.6	1	0.06	1.17	0.03		1	
15\3	1.8m LINTEL	0.0307	90	10	5	5	195	0.945	0.5362	0.028	15	0	15	15	0	15\4	1.2	0.8	0.06	1.46	0.03		1	
15\4	1.8m LINTEL	0.0228	90	10	5	5	195	0.945	0.5362	0.021	11	0	11	11	0	1\19	0.8	0.8	0.06	2.46	0.02		1	
16\1	1.8m LINTEL	0.0157	90	10	5	5	195	0.945	0.5362	0.014	8	0	8	8	0	1\18	9.7	0.8	0.05	1.03	0.02		1	
17\1	1.8m LINTEL	0.0409	90	10	5	5	195	0.945	0.5362	0.037	20	2	22	22	0	16\1	9.7	0.7	0.07	1.77	0.04		1	
18\1	900 x 900 GSIP	0.0334	50	50	5	5	195	0.945	0.5362	0.025	13	0	13	13	0		3.6						1	
18\2	1.8m LINTEL	0.0173	90	10	5	5	195																	

LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld

Registered Certifier

Registration No: BDC 2416

Categories:

Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates

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100 YEAR HYDROLOGICAL DESIGN																			
PIT	PIT	AREA	IMPER.	PER.	tc IMPER.	tc PER.	INTENSITY	RUNOFF	RUNOFF	CRITICAL SUM	CATCHMENT	BYPASS	TOTAL FLOW	PIT INLET	PIT BYPASS	BYPASS	Ku	GUTTER	FLOODED
NAME	DETAILS	ha	%	%	min	min	mm/hr	C IMPER.	C PER.	CA	FLOW	ARRIVING	@ PIT	FLOW	FLOW	PIT		SLOPE	DEPTH
											L/s	L/s	L/s	L/s	L/s			%	m
																			m
																			1-NONE
1\1	1.8m LINTEL	0.052	90	10	5	5	247	1	0.6128	0.05	34	0	34	27	8	18\2	3.6	11.9	0.06
1\2	1.8m LINTEL	0.0686	90	10	5	5	247	1	0.6128	0.066	45	0	45	34	12	1\3	2.7	14.5	0.06
1\3	1.8m LINTEL	0.0173	90	10	5	5	247	1	0.6128	0.017	11	12	23	18	5	1\4	1.1	13	0.05
1\4	1.8m LINTEL	0.0118	90	10	5	5	247	1	0.6128	0.011	8	4	12	10	2	2\5	0.8	10.1	0.04
1\5	1.8m LINTEL	0.0299	90	10	5	5	247	1	0.6128	0.029	20	4	24	19	5	4\1	1.7	6.3	0.06
1\6	1.8m LINTEL	0.0249	90	10	5	5	247	1	0.6128	0.024	16	0	16	13	3	1\7	0.5	5	0.05
1\7	1.8m LINTEL	0.0368	90	10	5	5	247	1	0.6128	0.035	24	4	28	22	6	1\8	0.4	5	0.06
1\8	1.8m LINTEL	0.0205	90	10	5	5	247	1	0.6128	0.02	14	5	19	15	4	1\9	0.3	4.9	0.05
1\9	1.8m LINTEL	0.025	90	10	5	5	247	1	0.6128	0.024	17	3	20	16	4	1\10	0.4	3.3	0.06
1\10	1.8m LINTEL	0.0315	90	10	5	5	247	1	0.6128	0.03	21	4	25	20	5	1\11	0.3	4	0.06
1\11	1.8m LINTEL	0.0408	90	10	5	5	247	1	0.6128	0.039	27	5	32	25	7	1\12	0.3	5.7	0.06
1\12	1.8m LINTEL	0.0247	90	10	5	5	247	1	0.6128	0.024	16	7	23	19	5	1\14	0.5	7.1	0.05
1\13	900 x 900 JUNCTION		90	10	5	5	0			0	0	0	0	0	0		0.2		
1\14	1.8m LINTEL	0.0268	90	10	5	5	247	1	0.6128	0.026	18	4	22	18	5	13\1	0	3.8	0.06
1\15	1.8m LINTEL	0.003	90	10	5	5	247	1	0.6128	0.003	2	192	194	96	98	1\16	0.5	0.8	0.12
1\16	1.8m LINTEL	0.0252	90	10	5	5	247	1	0.6128	0.024	17	98	115	66	48	1\17	0.4	0.8	0.12
1\17	2.4m LINTEL SAG	0.0404	90	10	5	5	247	1	0.6128	0.039	27	51	78	78	0	20\1	0.2	0.1	0.11
1\18	1.8m LINTEL	0.022	90	10	5	5	247	1	0.6128	0.021	15	4	19	15	4	1\17	0.6	1.3	0.06
1\19	1.8m LINTEL	0.0199	90	10	5	5	247	1	0.6128	0.019	13	4	17	14	3	20\1	0.2	1.1	0.06
1\20	900 x 900 VGRATE		90	10	5	5	0			0	0	0	0	0	0		1.6		
1\21	HEADWALL OUTLET		90																
2\1	1.8m LINTEL	0.0094	90	10	5	5	247	1	0.6128	0.009	6	0	6	5	1	14\1	3.6	5	0.03
2\2	1.8m LINTEL	0.0221	90	10	5	5	247	1	0.6128	0.021	15	0	15	12	3	2\3	4.1	5	0.05
2\3	1.8m LINTEL	0.0158	90	10	5	5	247	1	0.6128	0.015	10	3	13	11	3	2\4	1.5	5	0.05
2\4	1.8m LINTEL	0.0147	90	10	5	5	247	1	0.6128	0.014	10	2	12	10	2	2\5	1.3	5	0.05
2\5	2.4m LINTEL SAG	0.0306	90	10	5	5	247	1	0.6128	0.029	20	3	23	22	1		1.5	3	0.05
3\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
3\2	1.8m LINTEL	0.0067	90	10	5	5	247	1	0.6128	0.006	4	0	4	4	1	3\3	0.7	1.8	0.04
3\3	1.8m LINTEL	0.0152	90	10	5	5	247	1	0.6128	0.015	10	1	11	9	2	3\4	0.5	6.9	0.04
3\4	1.8m LINTEL	0.0219	90	10	5	5	247	1	0.6128	0.021	14	3	17	13	3	3\5	0.6	6.9	0.05
3\5	1.8m LINTEL	0.0193	90	10	5	5	247	1	0.6128	0.019	13	3	16	13	3	3\6	0.5	6.5	0.05
3\6	1.8m LINTEL	0.0273	90	10	5	5	247	1	0.6128	0.026	18	3	21	17	4	3\7	0.4	5	0.05
3\7	1.8m LINTEL	0.0327	90	10	5	5	247	1	0.6128	0.031	22	4	26	-90	116	3\8	0.2	3.2	0.06
3\8	1.2m LINTEL	0.0071	90	10	5	5	247	1	0.6128	0.007	5	115	120	60	60	3\11	1.3	1.6	0.08
3\9	1.8m LINTEL	0.0182	90	10	5	5	247	1	0.6128	0.017	12	9	21	17	4	3\10	0.3	3.3	0.06
3\10	1.8m LINTEL	0.0154	90	10	5	5	247	1	0.6128	0.015	10	4	14	12	3	12\1	0.6	4.3	0.05
3\11	1.8m LINTEL	0.0287	90	10	5	5	247	1	0.6128	0.028	19	60	79	52	27	3\12	0.5	4.3	0.08
3\12	2.4m LINTEL SAG	0.0338	90	10	5	5	247	1	0.6128	0.033	22	167	189	-4	192	1\15	0.7	0.6	0.1
4\1	1.8m LINTEL	0.0372	90	10	5	5	247	1	0.6128	0.036	25	4	29	23	6	5\2	3.6	5	0.06
5\1	1.2m LINTEL	0.0172	90	10	5	5	247	1	0.6128	0.016	11	0	11	11	0		3.6	6.2	
5\2	900 x 900 VGRATE	0.0461	90	10	5	5	247	1	0.6128	0.044	30	6	36	19	17	5\3	3.4	4.4	0.05
5\3	1.8m LINTEL	0.0412	90	10	5	5	247	1	0.6128	0.04	27	18	45	33	12	6\1	2.5	3.4	0.07
6\1	1.8m LINTEL	0.0723	90	10	5	5	247	1	0.6128	0.07	48	11	59	13	47	7\1	3.6	7.1	0.06
7\1	1.8m LINTEL	0.0358	90	10	5	5	247	1	0.6128	0.034	24	46	70	46	24	7\2	3.6	2	0.09
7\2	1.8m LINTEL	0.0278	90	10	5	5	247	1	0.6128	0.027	18	24	42	31	11	20\1	1.4	0.8	0.08
8\1	1.8m LINTEL	0.0488	90	10	5	5	247	1	0.6128	0.047	32	0	32	26	7	9\1	3.6	6.9	0.06
9\1	1.8m LINTEL	0.0333	90	10	5	5	247	1	0.6128	0.032	22	7	29	23	6	10\1	3.6	6.6	0.06
10\1	1.8m LINTEL	0.0315	90	10	5	5	247	1	0.6128	0.03	21	6	27	21	5	11\1	3.6	5	0.06
11\1	1.8m LINTEL	0.0489	90	10	5	5	247	1	0.6128	0.047	32	6	38	29	9	3\9	3.6	3.5	0.07
12\1	1.8m LINTEL	0.0293	90	10	5	5	247	1	0.6128	0.028	19	3	22	18	5	13\1	3.6	2.3	0.06
13\1	2.4m LINTEL SAG	0.0279	90	10	5	5	247	1	0.6128	0.027	18	10	28	-112	139	3\12	0	0.6	0.06
14\1	1.8m LINTEL	0.022	90	10	5	5	247	1	0.6128	0.021	15	1	16	13	3		3.6	5	0.05
15\1	1.8m LINTEL	0.0735	90	10	5	5	247	1	0.6128	0.071	49	0	49	34	14	17\1	9.7	1.1	0.09
15\2	1.8m LINTEL	0.0226	90	10	5	5	247	1	0.6128	0.022	15	0	15	12	3	15\3	1.6	1	0.06
15\3	1.8m LINTEL	0.0307	90	10	5	5	247	1	0.6128	0.03	20	3	23	18	5	15\4	1.2	0.8	0.07
15\4	1.8m LINTEL	0.0228	90	10	5	5	247	1	0.6128	0.022	15	5	20	16	4	1\19	0.9	0.8	0.06
16\1	1.8m LINTEL	0.0157	90	10	5	5	247	1	0.6128	0.015	10	11	21	17	4	1\18	9.7	0.8	0.07
17\1	1.8m LINTEL	0.0409	90	10	5	5	247	1	0.6128	0.039	27	14	41	30	11	16\1	9.7	0.7	0.09
18\1	900 x 900 GSIP	0.0334	50	50	5	5	247	1	0.6128	0.027	18	0	18	18	0		3.6		
18\2	1.8m LINTEL	0.0173	90	10	5	5	247	1	0.6128	0.017	11	8	19	15	4	1\5	1.9	13.1	0.04
20\1	2.4m LINTEL SAG	0.0695	90	10	5	5	247	1	0.6128	0.067	46	15	61	61	0		3.6	0.1	0.09
30\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
30\2	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
30\3	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0.2		
30\4	HW OUT		90																
31\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
31\2	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0.3		
31\3	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0.2		
31\4	900 x 900 JUNCTION		90	10	5	5	0			0	0	0	0	0	0		0.2		
31\5	HW OUT		90																
A1\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		1.5		
A2\1	900 x 900 GSIP		0	100	5	5	0			0	0	0	0	0	0		0		
C1\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
C2\1	900 x 900 GSIP		90	10	5	5	0			0	0	0	0	0	0		0		
C3\1	900 x 900 GSIP		90	10	5	5	0												



These plans are referred to in certificate no. **16188** approved by:

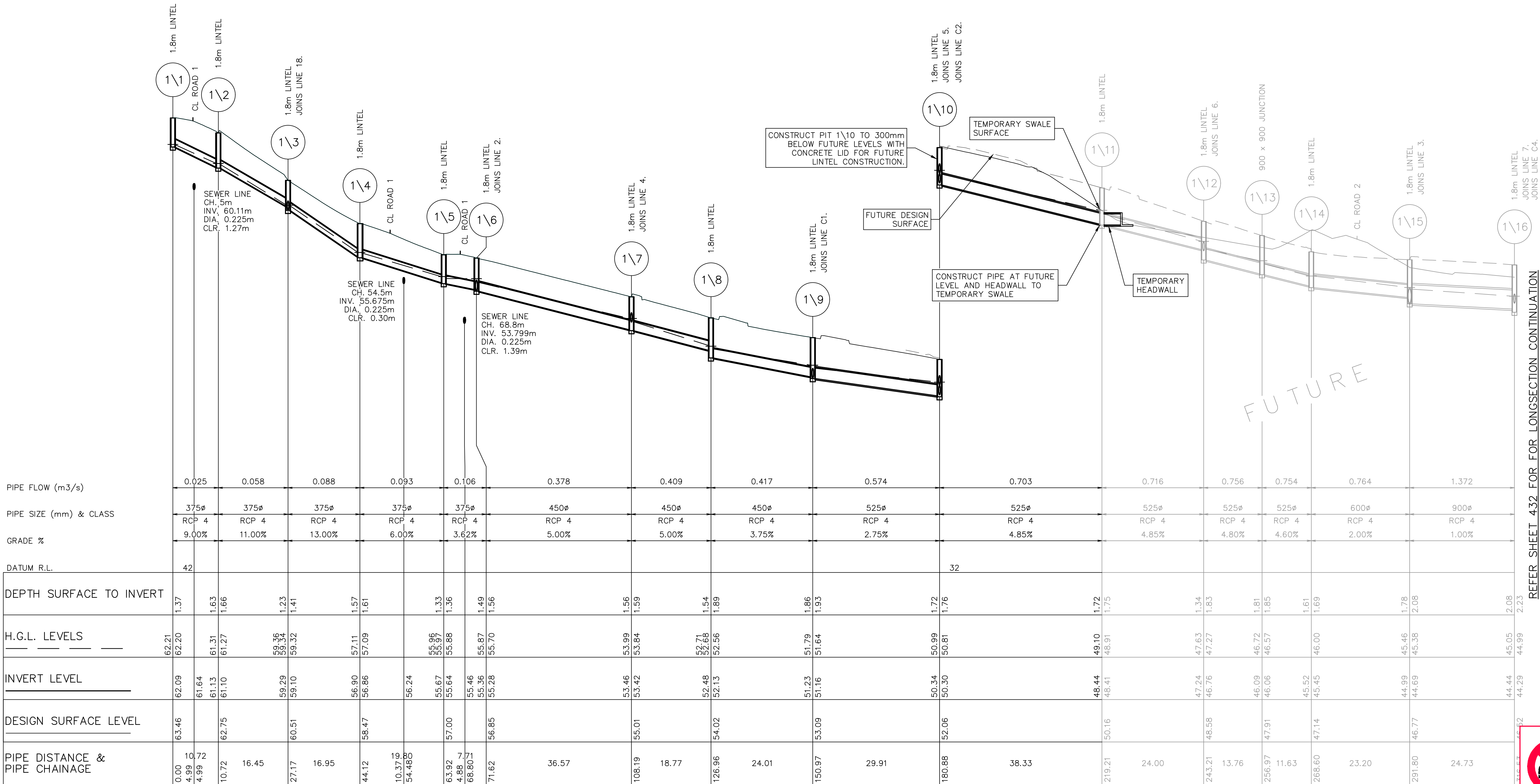
Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

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- NOTES: –
- ALL STORMWATER PITS TO BE CONSTRUCTED IN ACCORDANCE WITH RYDE COUNCILS ENGINEERING CONSTRUCTION SPECIFICATION.
 - ALL PITS DEEPER THAN 1.0m TO HAVE STEP IRONS.
 - ALL STORMWATER PIPE CLASSES ARE TO COMPLY WITH COUNCILS DESIGN AND CONSTRUCTION SPECIFICATIONS. IF THERE ARE DISCREPANCIES BETWEEN COUNCILS' SPECIFICATIONS AND THE APPROVED CONSTRUCTION CERTIFICATE PLANS PLEASE NOTIFY THE SUPERINTENDENT IMMEDIATELY. IT IS THE CONTRACTORS RESPONSIBILITY TO USE THE APPROPRIATE CONSTRUCTION METHODOLOGY TO COMPACT AROUND/OVER STORMWATER PIPES AND ENSURE NO CRACKING OF THE STORMWATER PIPES OCCURS.
 - PITS DEEPER THAN 2.5m TO BE CONSTRUCTED IN ACCORDANCE WITH STRUCTURAL ENGINEERS DESIGN.
 - REFER TO DRAWINGS PREPARED BY RARI FOR SEWER DETAILS.
 - ALL GRATES TO HAVE CHILD PROOF LOCK DOWN SYSTEM INSTALLED.

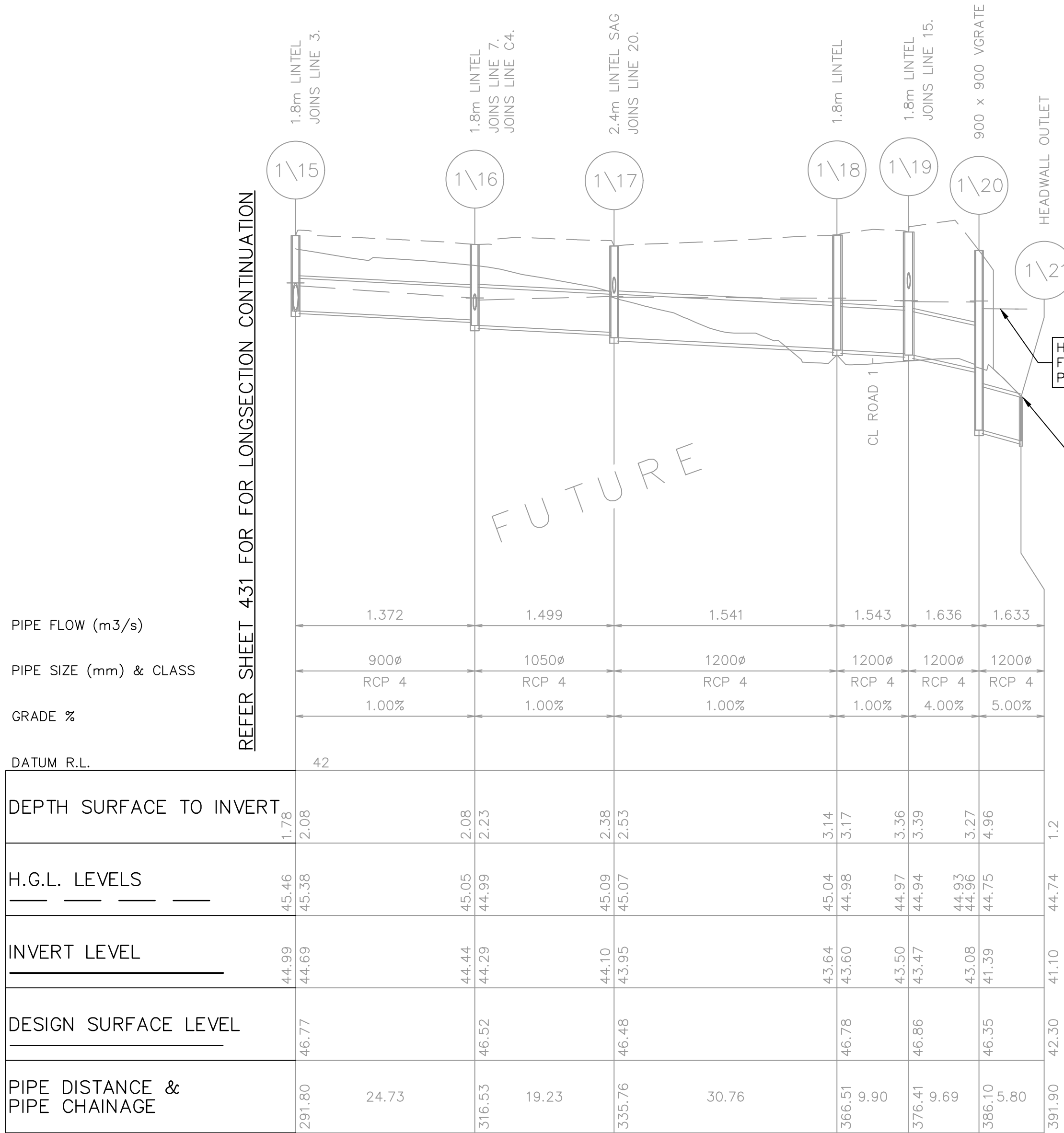


LINE 1

REFER SHEET 432 FOR LONGSECTION CONTINUATION

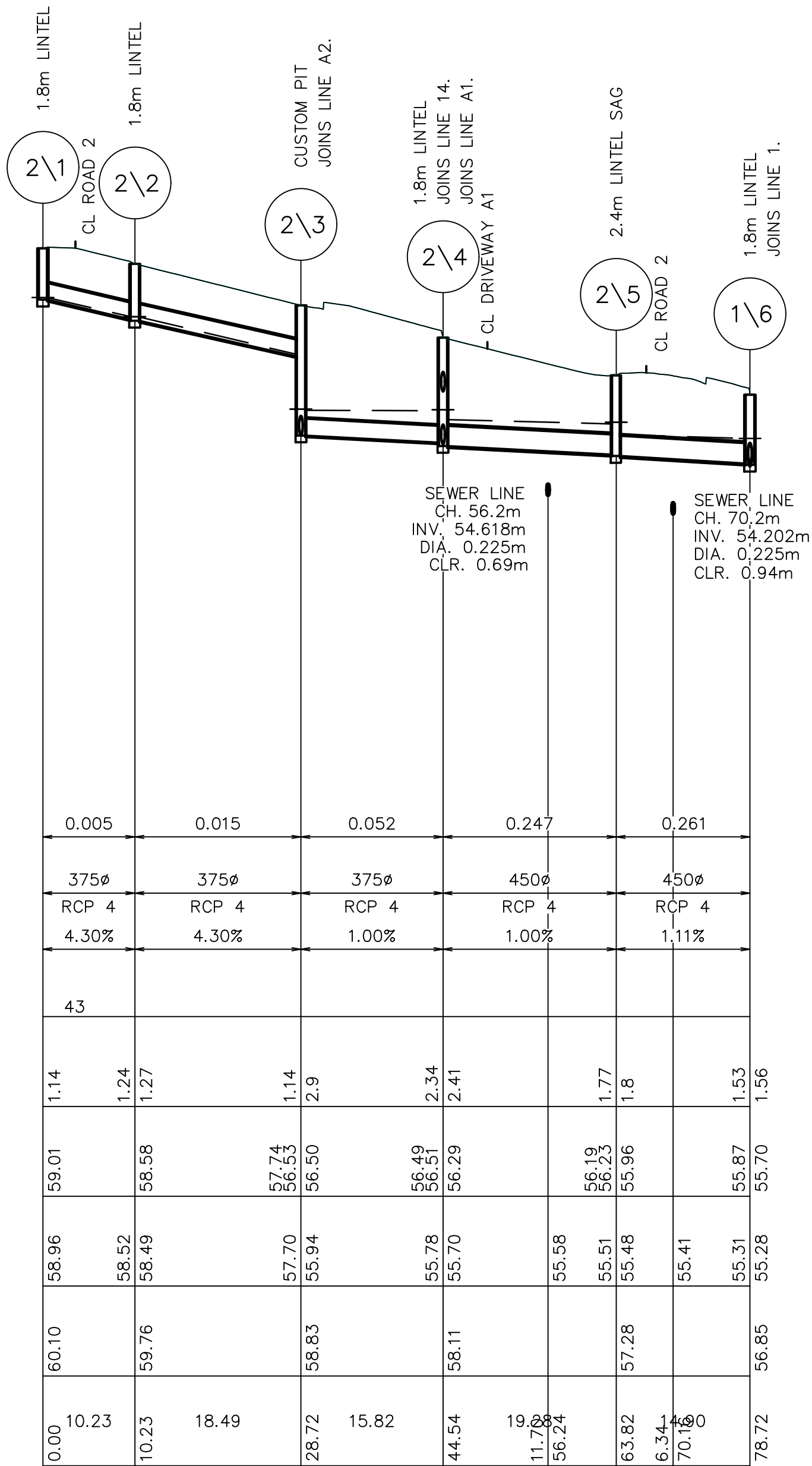
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		<p>Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398</p>		CLIENT	PROPERTY DESCRIPTION		PROJECT																					
							LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322					PROPOSED SUBDIVISION																							
												PLAN TITLE																							
												STORMWATER LONGITUDINAL SECTIONS SHEET 1																							
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project								ALL DIMENSIONS ARE IN METRES.		DO NOT SCALE		SURVEYED		ADWJ		DATUM		AHD GDA 94		PROJECT No.		300001(1) -		DISCIPLINE		ENG -		NUMBER		431		REV.		H	

REFER SHEET 431 FOR LONGSECTION CONTINUATION



NOTES: -

1. ALL STORMWATER PITS TO BE CONSTRUCTED IN ACCORDANCE WITH RYDE COUNCILS ENGINEERING CONSTRUCTION SPECIFICATION.
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LINE 2

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

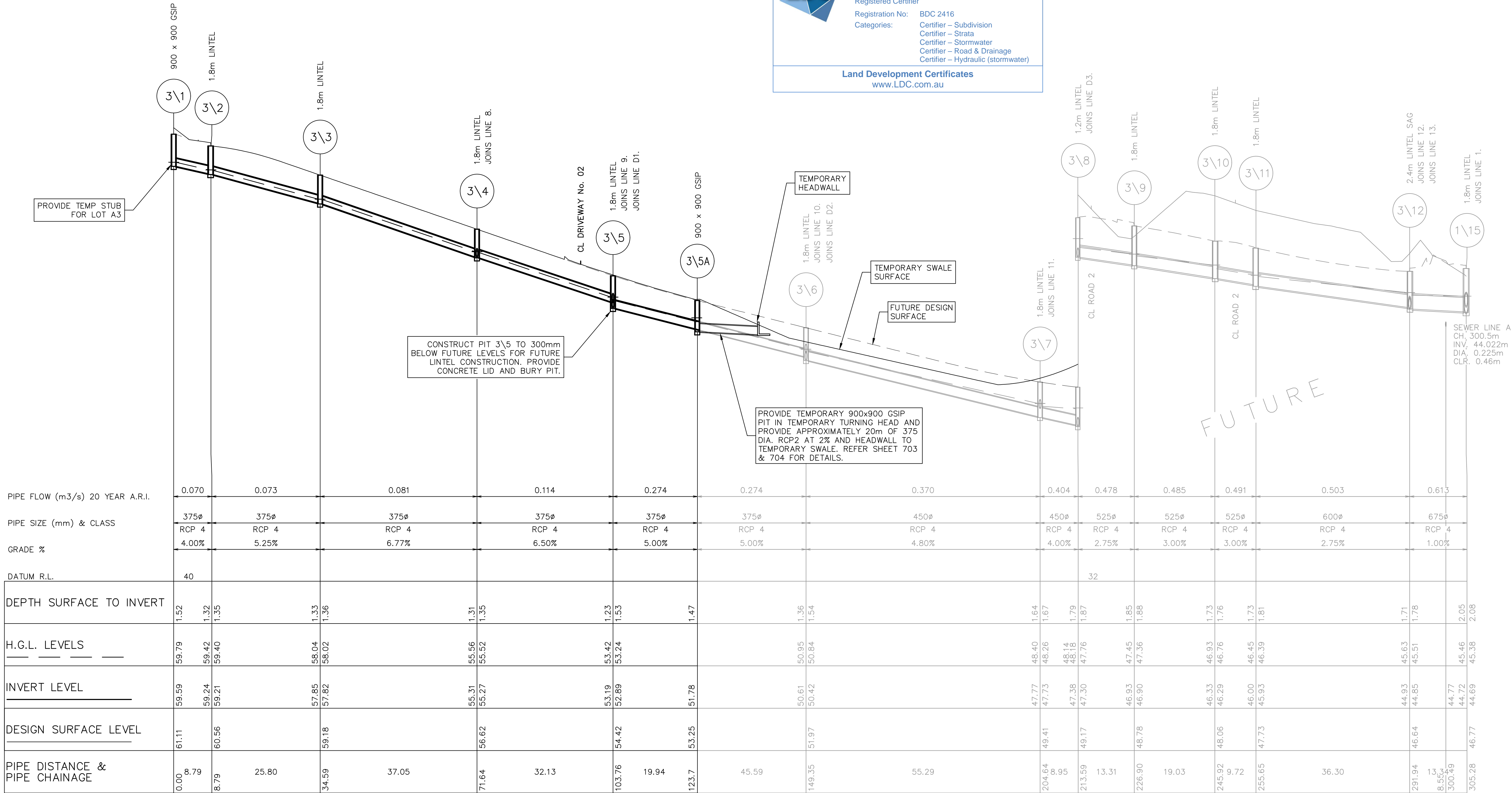
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES				
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.					
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.					
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.					
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.					
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.					
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					

DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROJECT PROPOSED SUBDIVISION PLAN TITLE STORMWATER LONGITUDINAL SECTIONS SHEET 2	SURVEYED ADWJ	DATUM AHD GDA 94	PROJECT No. 300001(1) -	DISCIPLINE ENG	NUMBER 432	REV. H
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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:08:33AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-432.DWG



LINE 3

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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NOTES: –

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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.

SCALES
A1 1:500 0 12.5 25.0m A3 1:1000
A1 1:100 0 2.5 5.0m A3 1:200

adw Johnson

Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

FRASERS PROPERTY

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

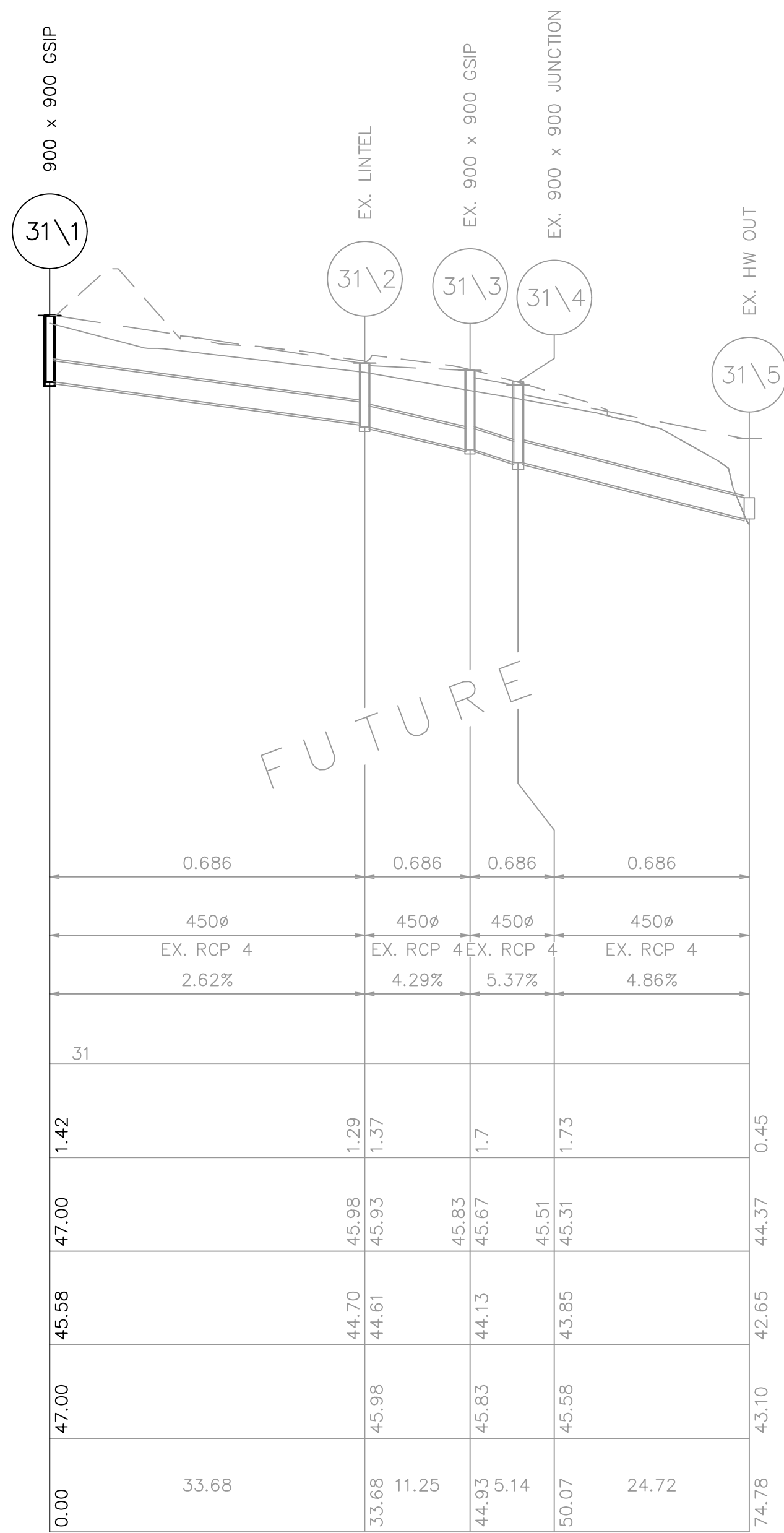
STORMWATER LONGITUDINAL SECTIONS
SHEET 3



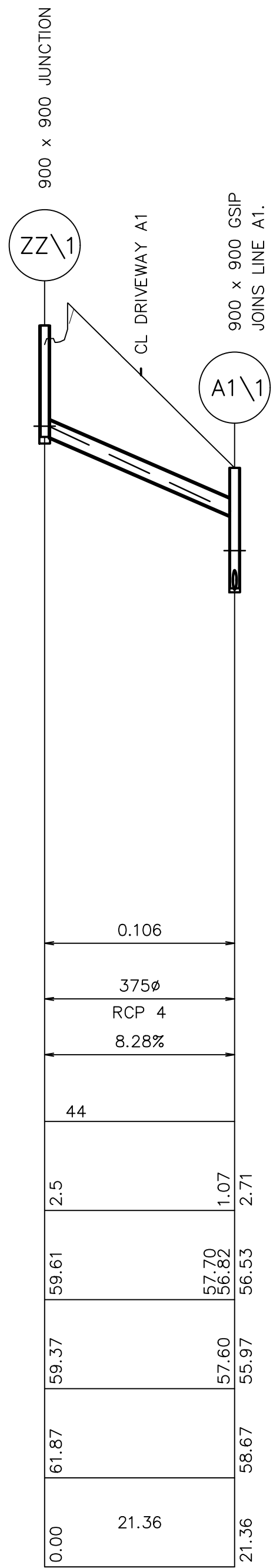


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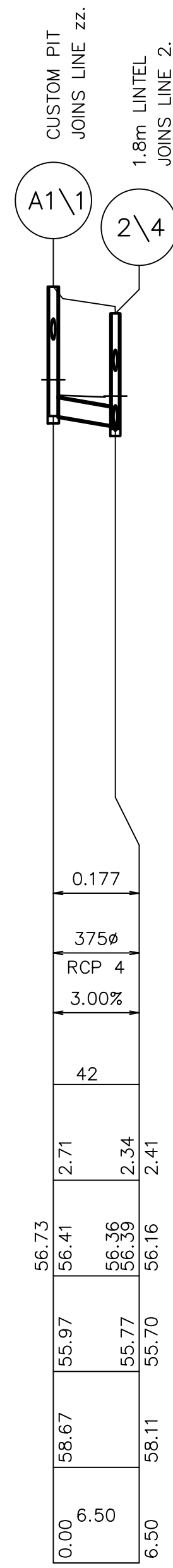
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398		CLIENT	PROPERTY DESCRIPTION		PROJECT	PROPOSED SUBDIVISION		
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z AA AB AC AD AE AF AG AH AI AJ AK AL AM AN AO AP AQ AR AS AT AU AV AW AX AY AZ BA BB BC BD BE BF BG BH BI BJ BK BL BM BN BO BP BQ BR BS BT BU BV BW BX BY BZ CA CB CC CD CE CF CG CH CI CJ CK CL CM CN CO CP CQ CR CS CT CU CV CW CX CY CZ DA DB DC DD DE DF DG DH DI DJ DK DL DM DN DO DP DQ DR DS DT DU DV DW DX DY DZ EA EB EC ED EE EF EG EH EI EJ EK EL EM EN EO EP EQ ER ES ET EU EV EW EX EY EZ FA FB FC FD FE FF FG FH FI FJ FK FL FM FN FO FP FQ FR FS FT FU FV FW FX FY FZ GA GB GC GD GE GF GG GH GI GJ GK GL GM GN GO GP GQ GR GS GT GU GV GW GX GY GZ HA HB HC HD HE HF HG HH HI HJ HK HL HM HN HO HP HQ HR HS HT HU HV HW HX HY HZ IA IB IC ID IE IF IG IH II IJ IK IL IM IN IO IP IQ IR IS IT IU IV IW IX IY IZ JA JB JC JD JE JF JG JH JI JJ JK JL JM JN JO JP JQ JR JS JT JU JV JW JX JY JZ KA KB KC KD KE KF KG KH KI KJ KK KL KM KN KO KP KQ KR KS KT KU KV KW KX KY KZ LA LB LC LD LE LF LG LH LI LJ LK LM LN LO LP LQ LR LS LT LU LV LW LX LY LZ MA MB MC MD ME MF MG MH MI MJ MK ML MM MN MO MP MQ MR MS MT MU MV MW MX MY MZ NA NB NC ND NE NF NG NH NI NJ NK NL NM NN NO NP NQ NR NS NT NU NV NW NX NY NZ OA OB OC OD OE OF OG OH OI OJ OK OL OM ON OO OP OQ OR OS OT OU OV OW OX OY OZ PA PB PC PD PE PF PG PH PI PJ PK PL PM PN PO PP PQ PR PS PT PU PV PW PX PY PZ QA QB QC QD QE QF QG QH QI QJ QK QL QM QN QO QP QQ QR QS QT QU QV QW QX QY QZ RA RB RC RD RE RF RG RH RI RJ RK RL RM RN RO RP RQ RR RS RT RU RV RW RX RY RZ SA SB SC SD SE SF SG SH SI SJ SK SL SM SN SO SP SQ SR SS ST SU SV SW SX SY SZ TA TB TC TD TE TF TG TH TI TJ TK TL TM TN TO TP TQ TR TS TT TU TV TW TX TY TZ UA UB UC UD UE UF UG UH UI UJ UK UL UM UN UO UP UQ UR US UT UU UV UW UX UY UZ VA VB VC VD VE VF VG VH VI VJ VK VL VM VN VO VP VQ VR VS VT VU VV VW VX VY VZ WA WB WC WD WE WF WG WH WI WJ WK WL WM WN WO WP WQ WR WS WT WU WV WW WX WY WZ XA XB XC XD XE XF XG XH XI XJ XK XL XM XN XO XP XQ XR XS XT XU XV XW XX XY XZ YA YB YC YD YE YF YG YH YI YJ YK YL YM YN YO YP YQ YR YS YT YU YV YW YX YY YZ ZA ZB ZC ZD ZE ZF ZG ZH ZI ZJ ZK ZL ZM ZN ZO ZP ZQ ZR ZS ZT ZU ZV ZW ZX ZY ZZ	21.02.2020 13.03.2020 03.04.2020 02.05.2020 05.06.2020 03.09.2020 14.09.2020 29.10.2020	PRELIMINARY DRAFT ISSUE TURNING HEAD & BASIN MOVED FOR TENDER MINOR AMENDMENTS MINOR NOTE AMENDMENTS PCA COMMENTS PCA COMMENTS PCA COMMENTS	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	P.B. J.J. M.H. M.F. M.F. M.H. M.H. M.H.	B.M. B.M. B.M. B.M. B.M. B.M. B.M. B.M.	B.M. N.D. N.D. N.D. N.D. N.D. N.D. N.D.	A1 1:500 0 12.5 25.0m A3 1:1000					A1 1:100 0 2.5 5.0m A3 1:2000	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE	SURVEYED ADWJ	DATUM AHD GDA 94	PROJECT No. 300001(1) -	DISCIPLINE ENG -
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project																	



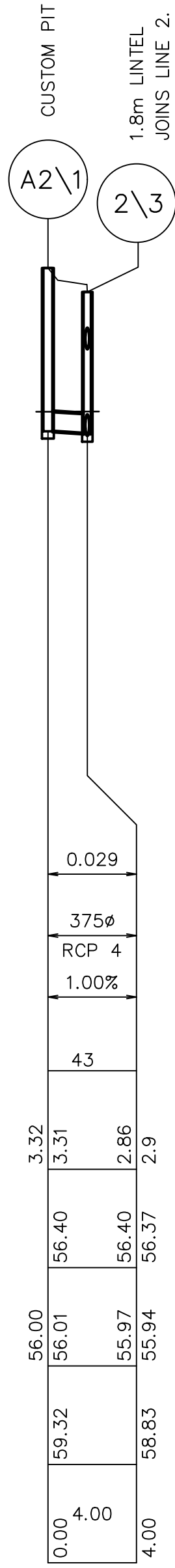
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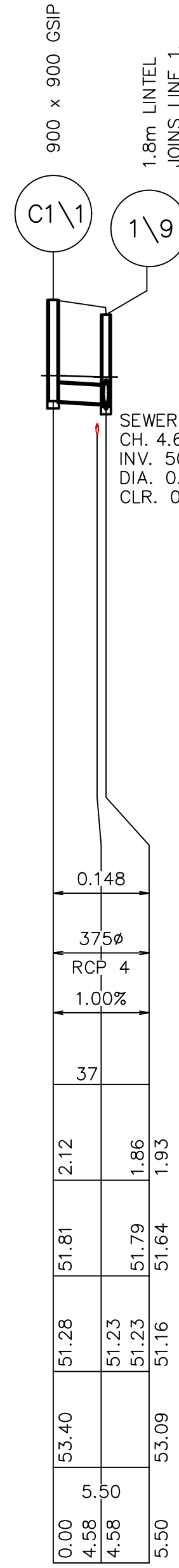
LINE zz



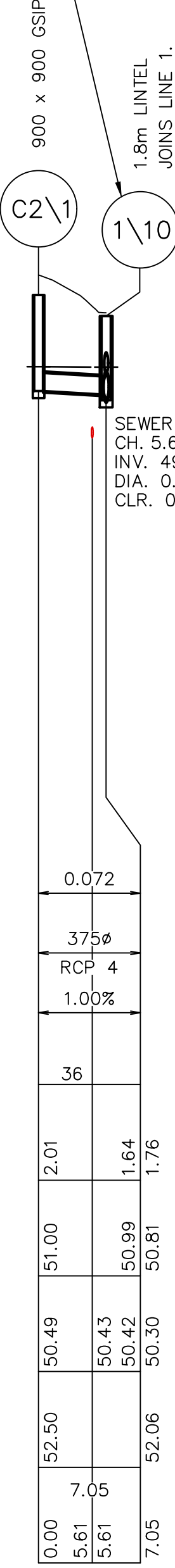
LINE A1



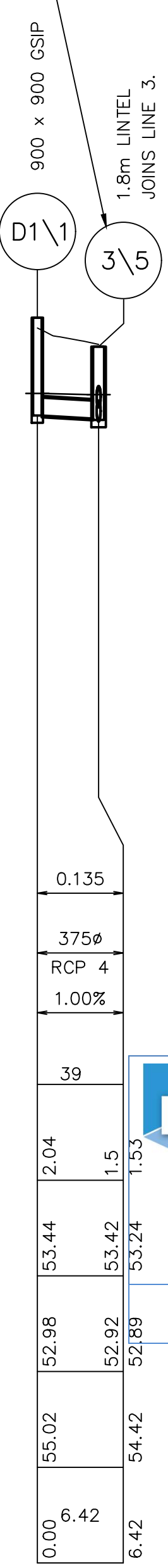
LINE A2



LINE C1



LINE C2



LINE D1

NOTES: -

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CONSTRUCT PIT 1\10 TO 300mm BELOW FUTURE LEVELS FOR FUTURE LINTEL CONSTRUCTION. PROVIDE CONCRETE LID AND BURY PIT.

CONSTRUCT PIT 3\5 TO 300mm BELOW FUTURE LEVELS FOR FUTURE LINTEL CONSTRUCTION. PROVIDE CONCRETE LID AND BURY PIT.

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Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

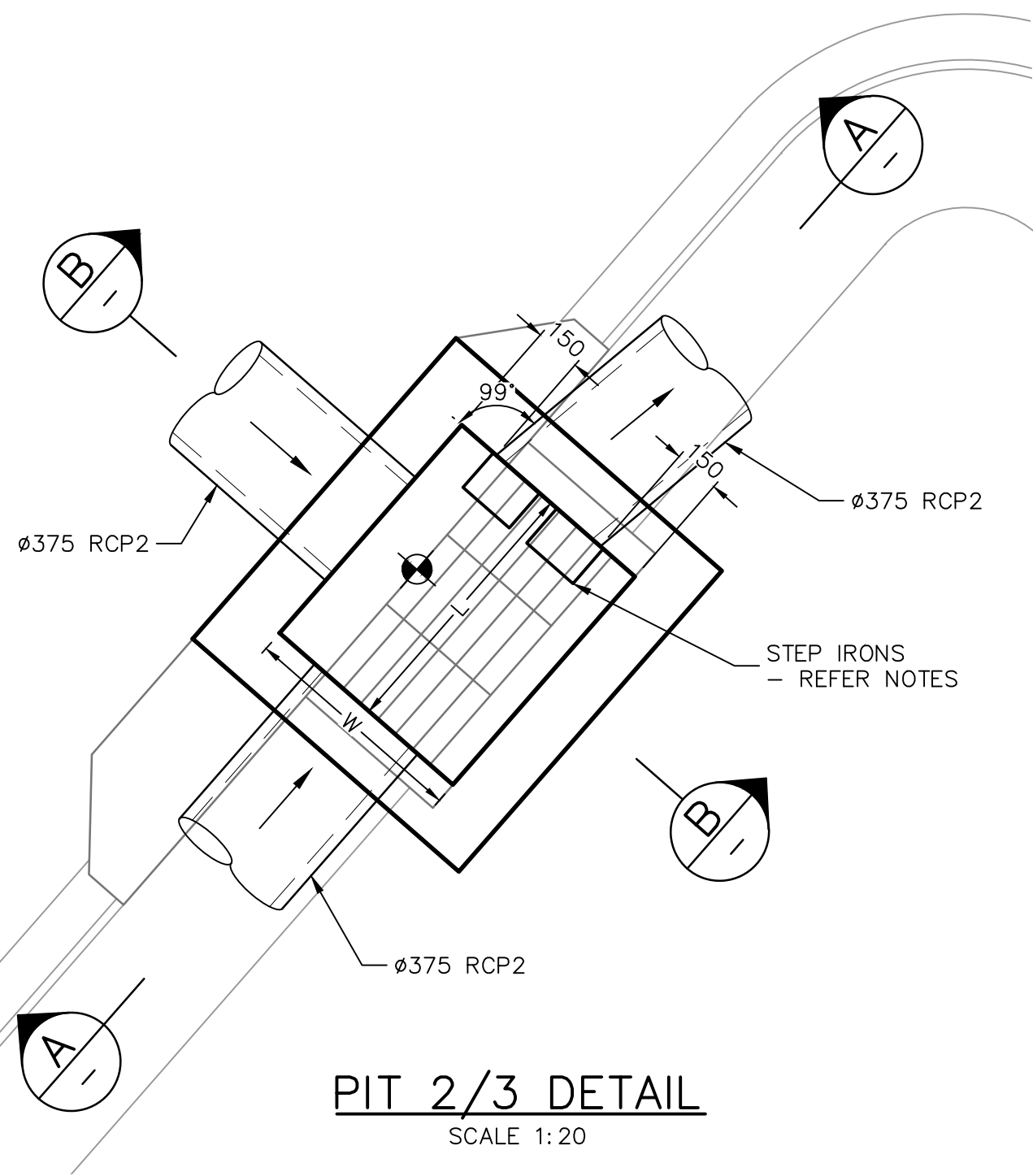
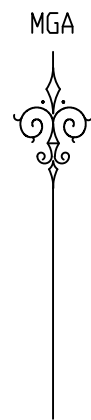
Categories: Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)

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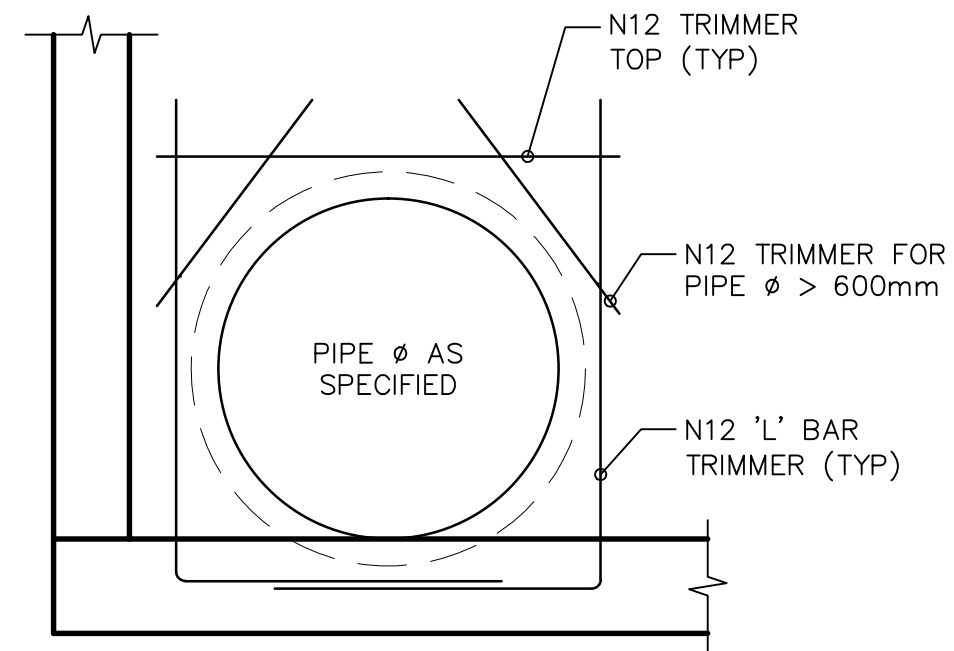


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B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.					
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.					
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.					
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.					
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.					

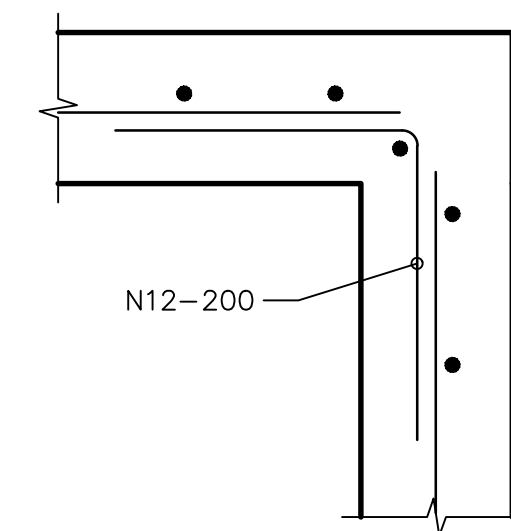
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	CLIENT 	PROPERTY DESCRIPTION LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROJECT PROPOSED SUBDIVISION PLAN TITLE STORMWATER LONGITUDINAL SECTIONS SHEET 5	PROJECT No. 300001(1) -	DISCIPLINE ENG -	NUMBER 435	REV. H
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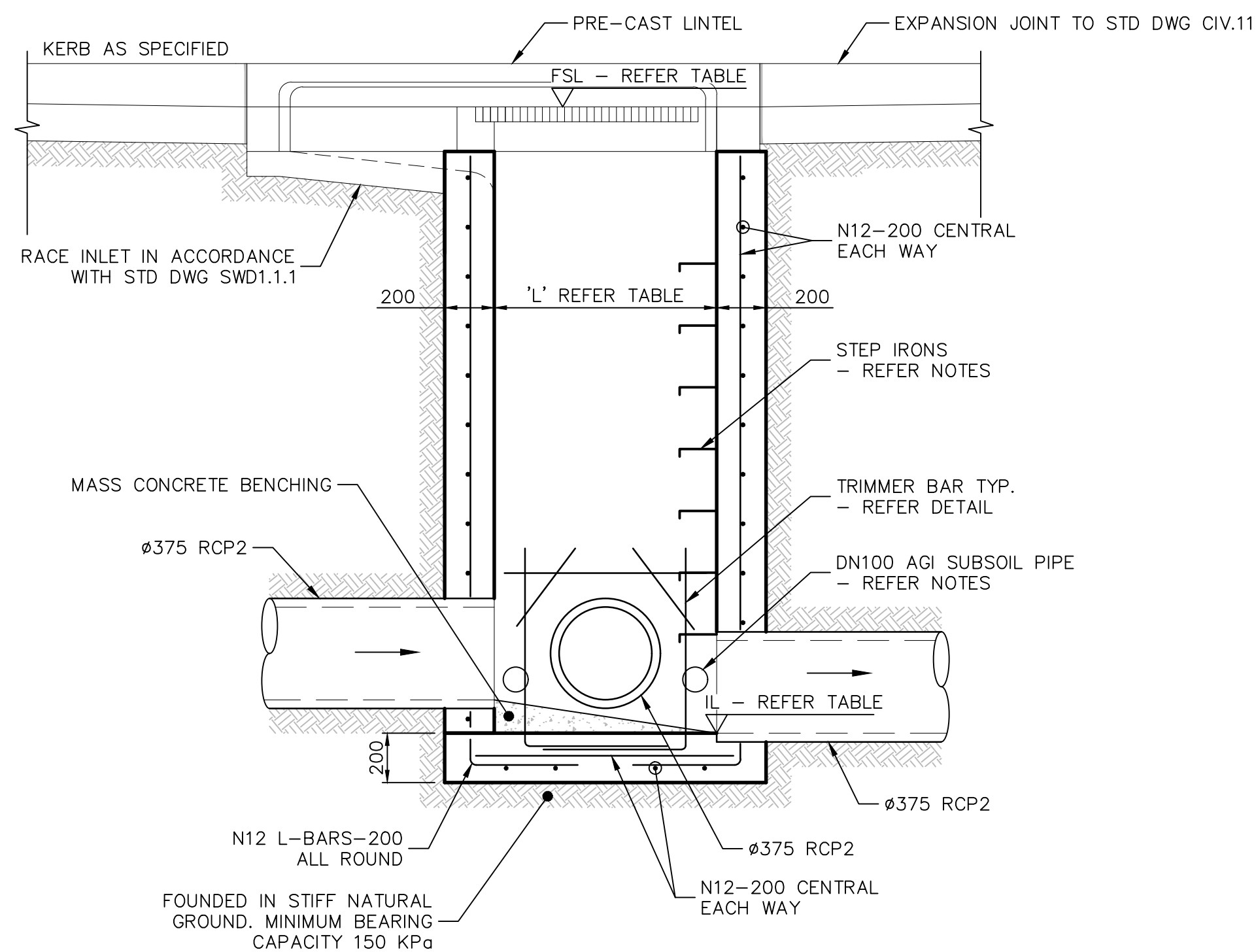
PIT 2/3 DETAIL
SCALE 1:20



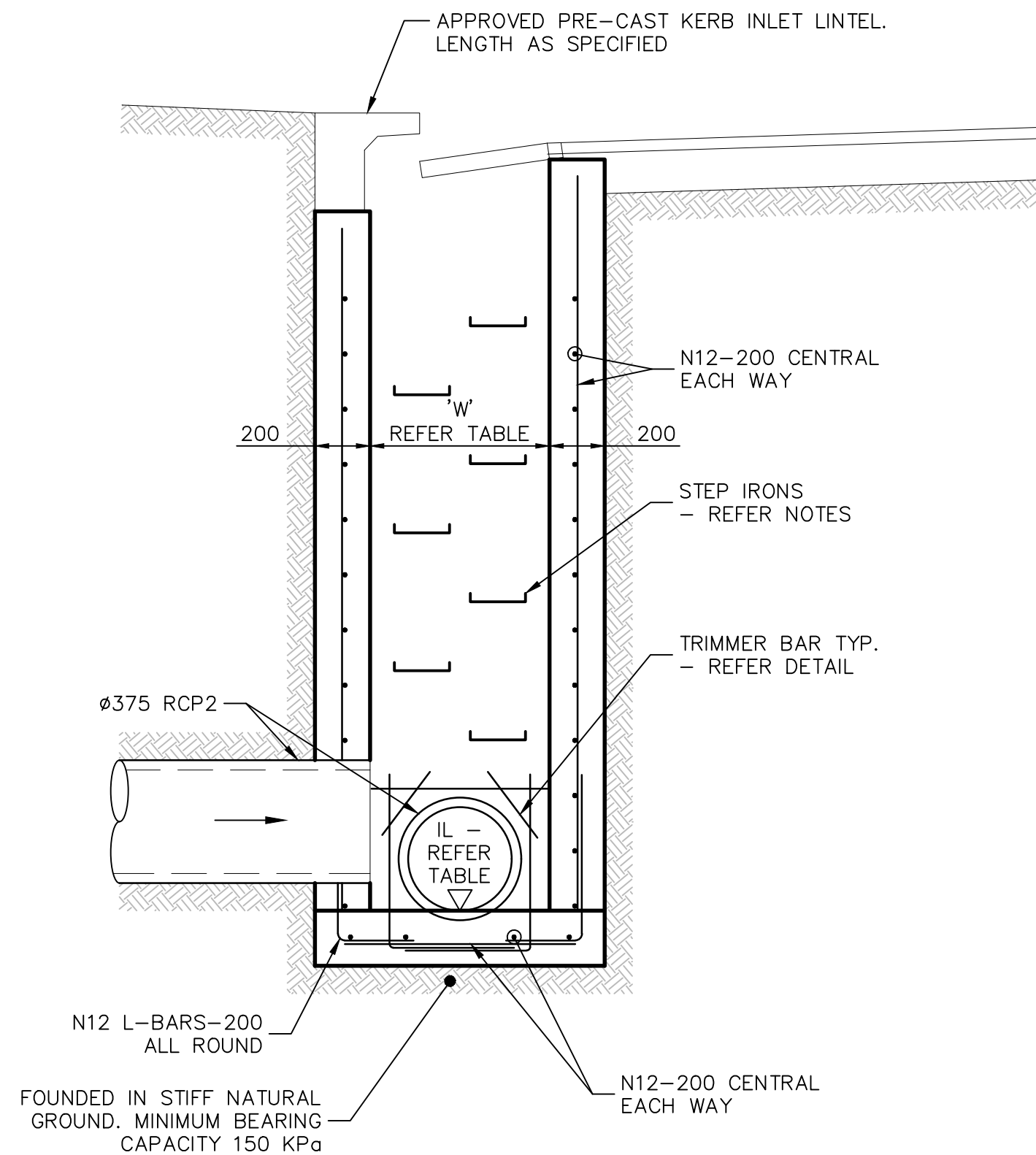
TYPICAL PIPE
PENETRATION DETAIL
SCALE 1:20



TYPICAL CORNER BAR DETAIL
SCALE 1:10



SECTION A
SCALE 1:20



SECTION B
SCALE 1:20

ALL DIMENSIONS IN mm
AND ALL LEVELS IN m AHD
UNLESS NOTED OTHERWISE

PIT SCHEDULE

PIT	L (mm)	W (mm)	I.L. (m AHD)	FSL (m AHD)	DEPTH (m)
2/3	900	900	55.94	58.83	2.89
18/1	900	900	59.79	62.67	2.88
A1/1	900	900	55.97	58.67	2.70
A2/1	900	900	56.01	59.10	3.09

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Eric Hausfeld
Registered Certifier

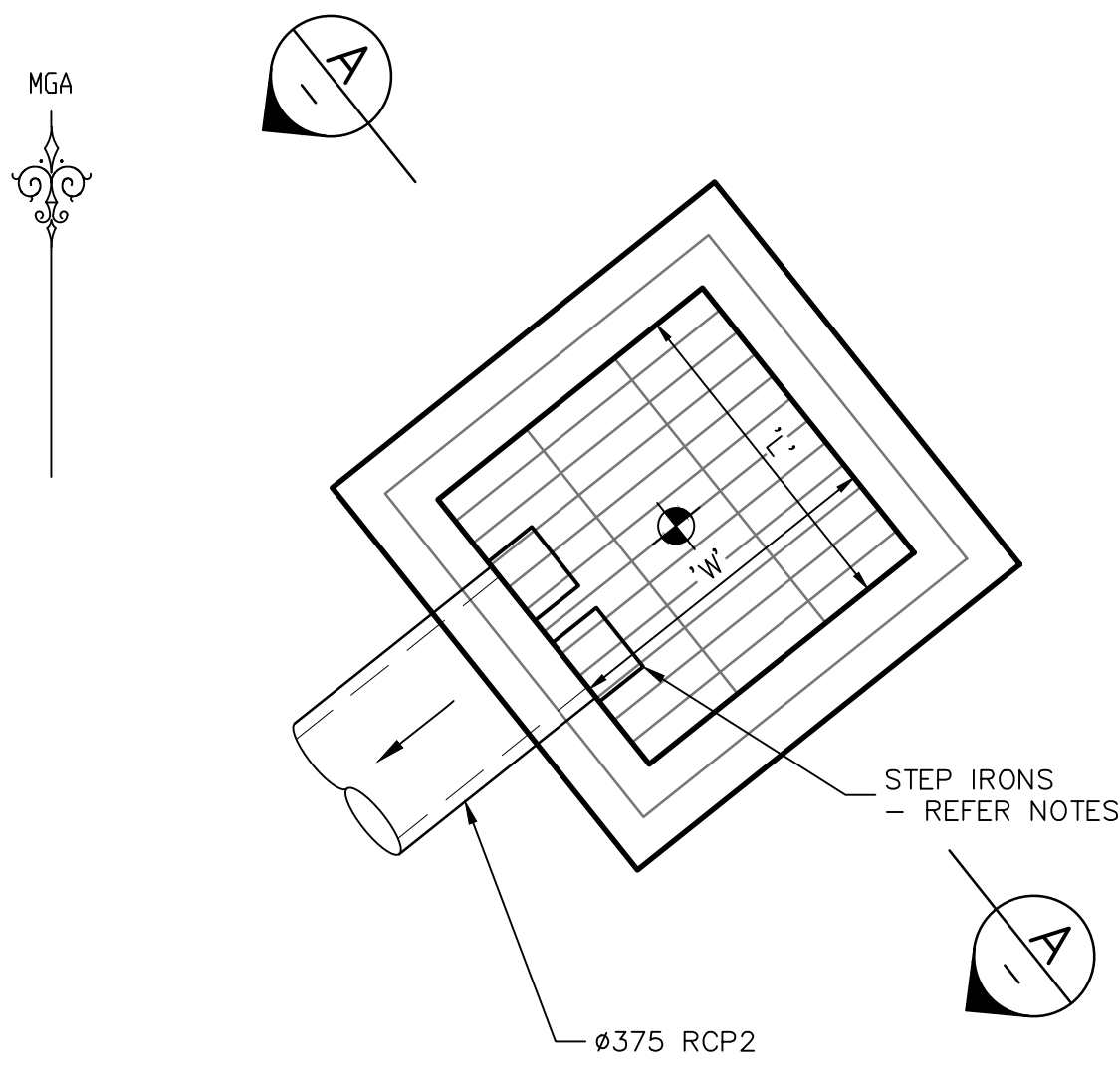
Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
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Certifier – Hydraulic (stormwater)

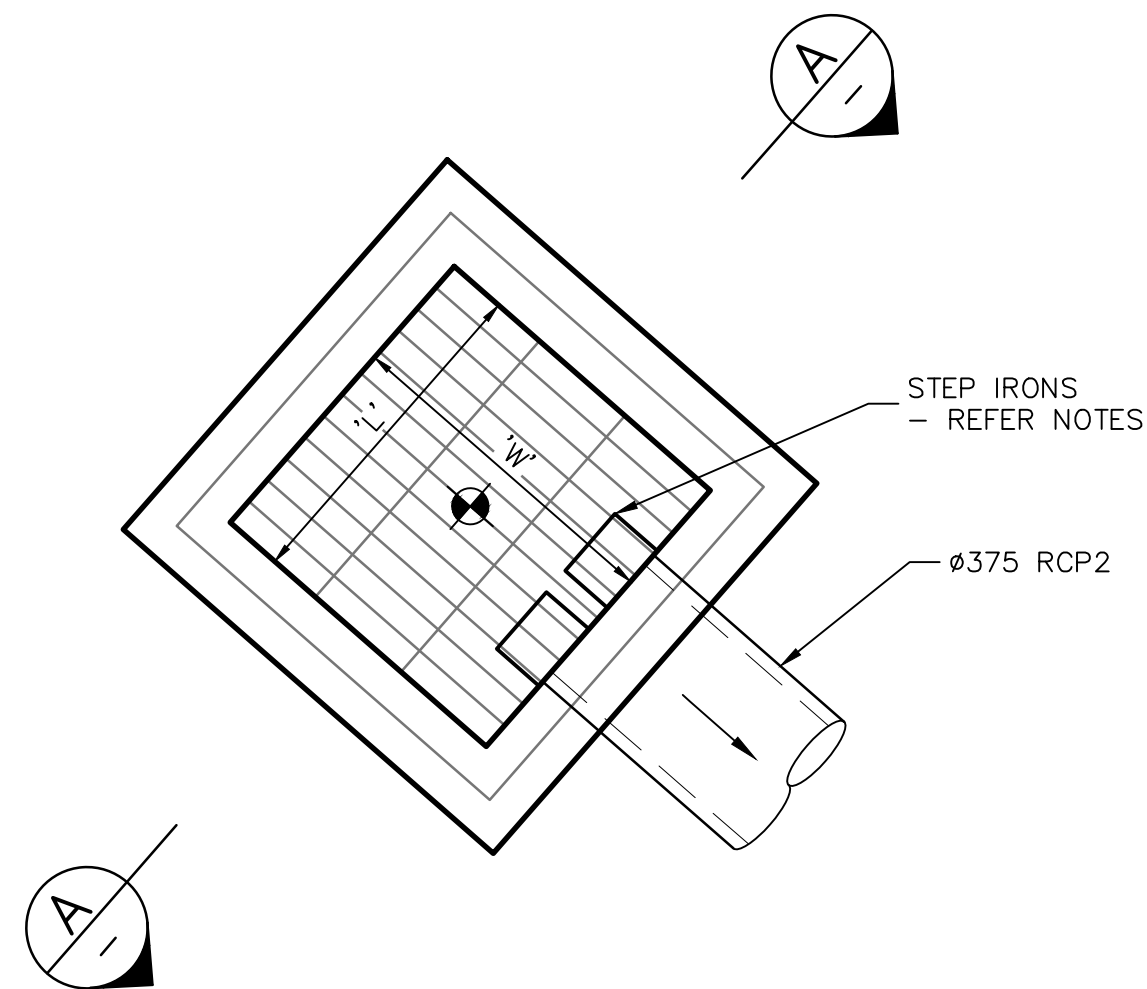
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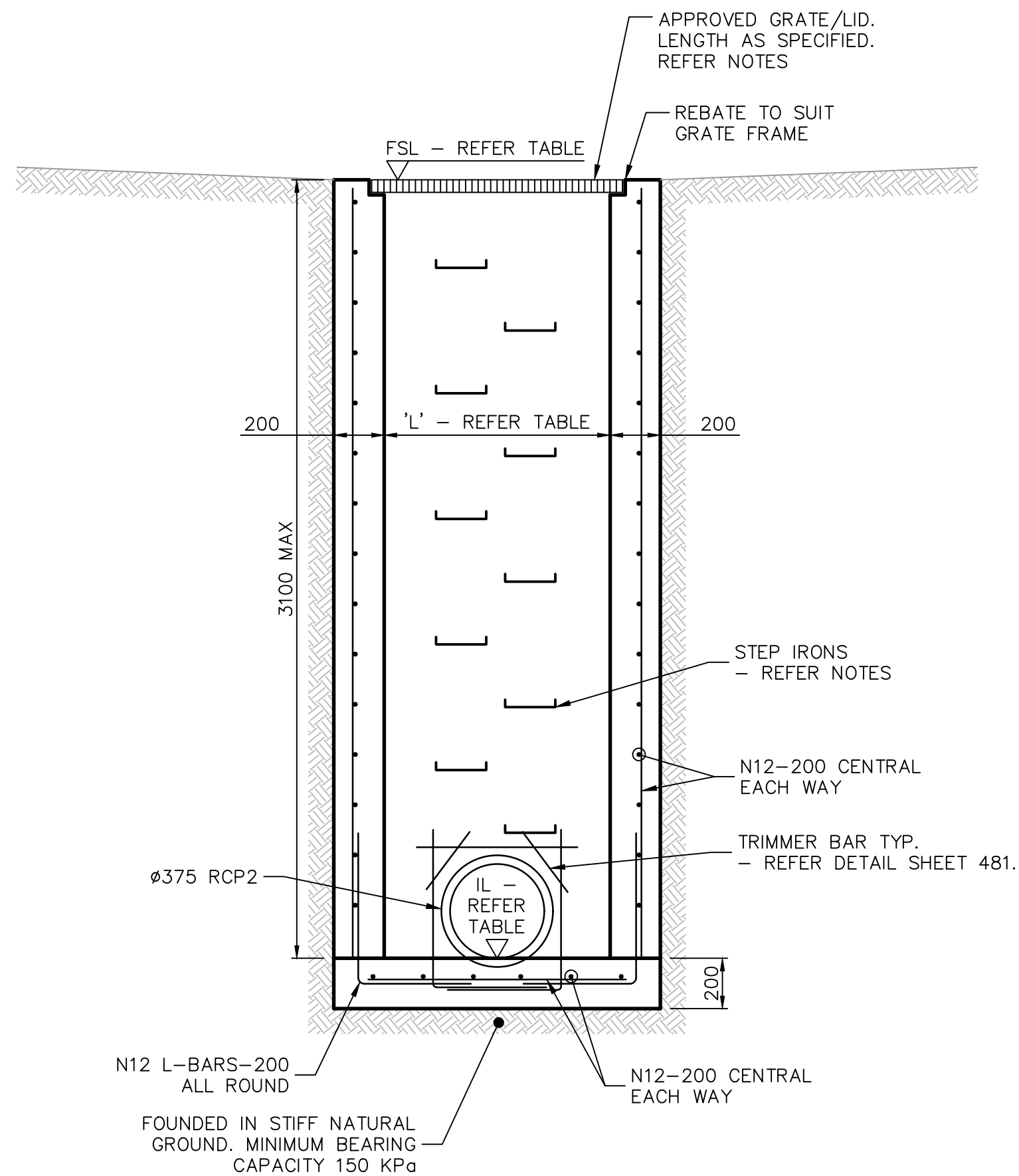
REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:20	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.	A3 1:40			PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.	A1 1:10			CUSTOM STORMWATER PIT DETAILS PIT No.2/3 & TYPICAL DETAILS
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 481 - REV. H



PIT 18/1 DETAIL
SCALE 1:20

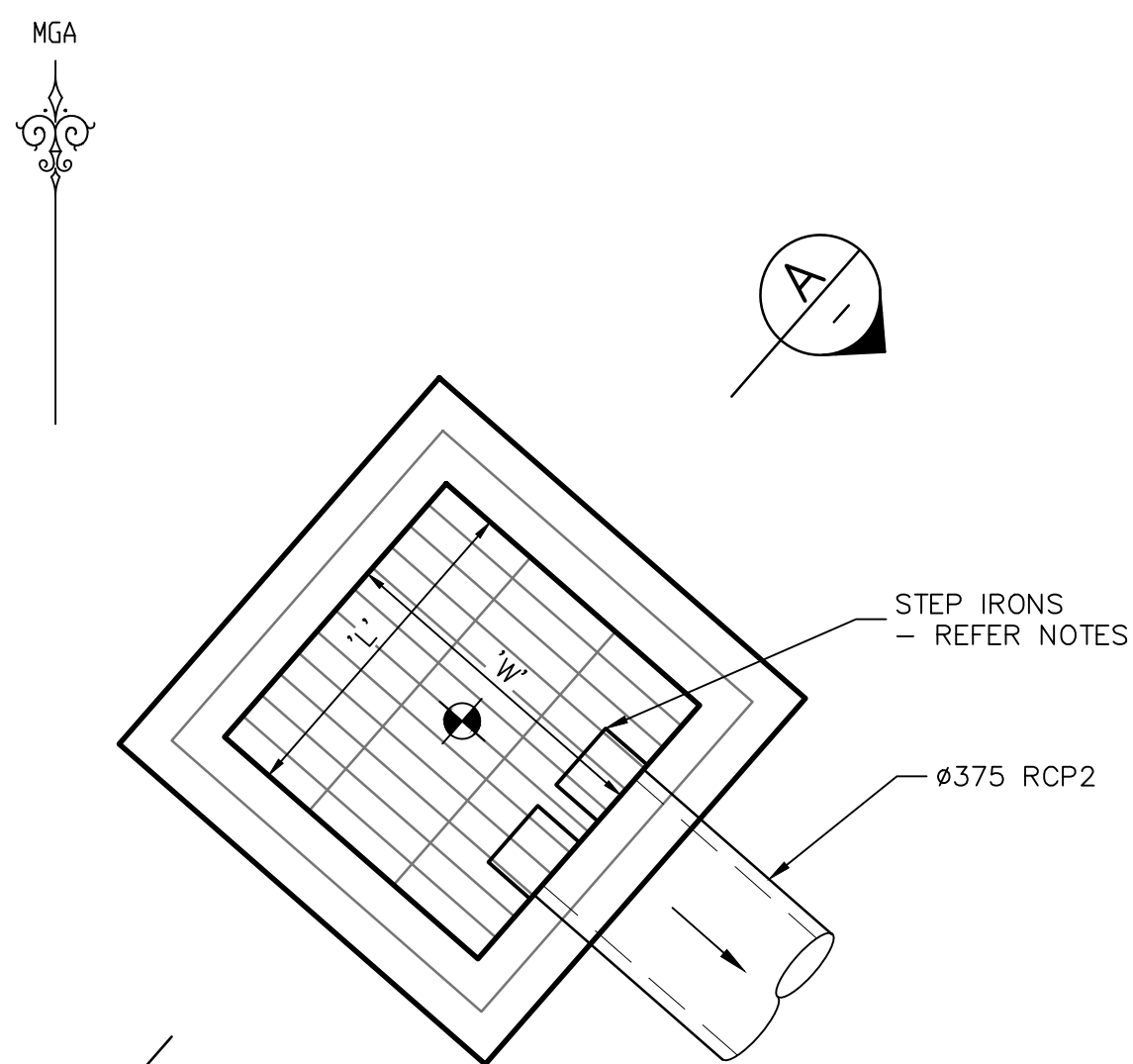


PIT A1/1 DETAIL
SCALE 1:20



SECTION A
SCALE 1:20

ALL DIMENSIONS IN mm
AND ALL LEVELS IN m AHD
UNLESS NOTED OTHERWISE



PIT A2/1 DETAIL
SCALE 1:20

REFER SHEET 481 FOR
TYPICAL DETAILS & PIT
DIMENSION TABLE

GENERAL

- THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK. CONSTRUCTION FROM THESE DRAWINGS, AND THEIR ASSOCIATED CONSULTANTS' DRAWINGS IS NOT TO COMMENCE UNTIL APPROVED BY THE LOCAL AUTHORITIES.
- ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT AND CURRENT STANDARDS AUSTRALIA CODES AND WITH THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES EXCEPT WHERE VARIED BY THE PROJECT SPECIFICATION.
- ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. ENGINEERS' DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS.
- DURING CONSTRUCTION STRUCTURES SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED. TEMPORARY BRACING SHALL BE PROVIDED BY THE BUILDER TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES.
- ALL PITS TO BE ADEQUATELY STREAMLINED AND BENCHED.
- DN100 AGI PIPE 3.0m LONG WRAPPED IN FABRIC SOCK TO BE PLACED ADJACENT TO INLET PIPES ON BOTH SIDES AND 100mm ABOVE PIT FLOOR.
- KERB INLET GRATES AND FRAMES TO BE "HEAVY DUTY TRAFFICABLE" BIKE SAFE COMPLIANT TO CLASS D. WELDLK GG 78/51 OR APPROVED EQUIVALENT.
- SURFACE INLET GRATES AND FRAMES TO BE "LIGHT DUTY TRAFFICABLE" COMPLIANT TO CLASS B. WELDLK HPG9090B OR EQUIVALENT.
- ALL GRATES ARE TO BE HINGED AND LOCKABLE.

CONCRETE

- ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH AS 3600 CURRENT EDITION WITH AMENDMENTS, EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- READYMIX CONCRETE SUPPLY SHALL COMPLY WITH AS 1379.
- CONCRETE QUALITY ALL THE REQUIREMENTS OF THE ACSE CONCRETE SPECIFICATION DOCUMENT 1 (EDITION 6) SHALL APPLY TO THE FORMWORK, REINFORCEMENT AND CONCRETE UNLESS NOTED OTHERWISE.

STRUCTURAL ELEMENT	PITS
EXPOSURE CLASSIFICATION	A2
STRENGTH GRADE DESIGNATION F'c (MPa)	25
f'cf (28 DAYS) (MPa)	
MAXIMUM AGGREGATE SIZE (mm)	20
SLUMP (mm)	80 ± 15
CEMENT TYPE	
MAXIMUM W/C RATIO	
MIN. CEMENT CONTENT (kg/m) ³	
MAXIMUM SHRINKAGE STRAIN ε _{sh}	
ADMIXTURES	NONE

- PROJECT CONTROL TESTING SHALL BE CARRIED OUT IN ACCORDANCE WITH AS 1012.
- NO ADMIXTURES SHALL BE USED IN CONCRETE UNLESS APPROVED IN WRITING.
- CLEAR CONCRETE COVER TO ALL REINFORCEMENT FOR DURABILITY SHALL BE AS FOLLOWS UNLESS SHOWN OTHERWISE.

EXPOSURE CLASSIFICATION TO AS3600	CONCRETE GRADE	CAST AGAINST GROUND	CAST IN FORMS AND EXPOSED
A2	25	50mm	30mm

NOTE:

- EXPOSURE CLASSIFICATION SHALL BE AS INDICATED ON THE DRAWINGS.
- ALL REINFORCEMENT SHALL BE FIRMLY SUPPORTED ON MILD STEEL PLASTIC TIPPED CHAIRS, PLASTIC CHAIRS OR CONCRETE CHAIRS AT NOT GREATER THAN 1 METRE CENTRES BOTH WAYS. BARS SHALL BE TIED AT ALTERNATE INTERSECTIONS. IN EXPOSURE CONDITIONS GREATER THAN B1 USE ONLY PLASTIC CHAIRS.
- CONCRETE SIZES SHOWN DO NOT INCLUDE THICKNESSES OF APPLIED FINISHES.
- NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ENGINEER.
- CONSTRUCTION JOINTS WHERE NOT SHOWN SHALL BE LOCATED TO THE APPROVAL OF THE ENGINEER.
- THE FINISHED CONCRETE SHALL BE A DENSE HOMOGENEOUS MASS, COMPLETELY FILLING THE FORMWORK THOROUGHLY EMBEDDING THE REINFORCEMENT AND FREE OF STONE POCKETS. ALL CONCRETE INCLUDING SLABS ON GROUND AND FOOTINGS SHALL BE COMPACTED WITH MECHANICAL VIBRATORS.

CONCRETE CONT'

- CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 3 DAYS, AND PREVENTION OF LOSS OF MOISTURE FOR A TOTAL OF 7 DAYS FOLLOWED BY A GRADUAL DRYING OUT. APPROVED SPRAYED ON CURING COMPOUNDS THAT COMPLY WITH AS 3799 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED (REFER MANUFACTURER'S SPECIFICATION). POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE NOT PROTECTED FROM WIND AND TRAFFIC.
- THE ENGINEER SHALL BE GIVEN 24 HOURS NOTICE FOR REINFORCEMENT INSPECTION AND CONCRETE SHALL NOT BE DELIVERED UNTIL FINAL APPROVAL OBTAINED.
- REINFORCEMENT SYMBOLS:
 - N DENOTES DEFORMED RIBBED BARS, GRADE 500MPa, NORMAL DUCTILITY, NOMINATED BAR SIZE TO AS 4671 U.N.O. eg. N16
 - R DENOTES ROUND BARS, GRADE 250MPa, NORMAL DUCTILITY, NOMINATED BAR SIZE TO AS 4671 eg. R10
 - SL DENOTES SQUARE MESH, DEFORMED RIBBED BARS, GRADE 500MPa, LOW DUCTILITY, NOMINATED BAR SIZE AND SPACING TO AS 4671. U.N.O. eg. SL92 - 9mm BARS @ 200mm CENTRES
 - RL DENOTES RECTANGULAR MESH, DEFORMED RIBBED BARS, GRADE 500MPa, LOW DUCTILITY, NOMINATED BAR SIZE AND SPACING TO AS 4671 U.N.O. eg. RL1018 - 10mm BARS @ 100mm CENTRES, 8mm BARS @ 200mm CENTRES
 - TM DENOTES TRENCH MESH, DEFORMED RIBBED BARS, GRADE 500MPa, LOW DUCTILITY, NOMINATED BAR SIZE TO AS 4671 U.N.O. eg. 3-L11TM - 3 11mm BARS @100mm CENTRES LONGITUDINALLY AND CROSS BARS @ 300mm CENTRES
- NUMBER OF BARS IN GROUP $\begin{matrix} \nearrow 17 \\ \searrow 20 \end{matrix}$ BAR GRADE AND TYPE
NOMINAL BAR SIZE IN mm $\begin{matrix} \nearrow N \\ \searrow 20 \end{matrix}$ SPACING IN mm
- REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY IN TRUE PROJECTION.
- SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN OR OTHERWISE APPROVED IN WRITING BY THE ENGINEER. LAPS SHALL BE IN ACCORDANCE WITH AS 3600 AND NOT LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR.
- SITE BENDING OF DEFORMED REINFORCING BARS SHALL BE DONE WITHOUT HEATING USING MECHANICAL BENDING TOOLS.
- WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY THE ENGINEER.
- FABRIC SHALL BE LAPPED 2 TRANSVERSE WIRES PLUS 50mm. BUNDLED BARS SHALL BE TIED TOGETHER AT 30 BAR DIAMETER CENTRES WITH 3 WRAPS OF THE WIRE.
- REINFORCING LAP/COG LENGTHS

BARØ	LAP(mm)	COG
N12	500	
N16	600	IN
N20	900	ACCORDANCE
N24	1200	WITH AS 3600
N28	1500	

UNLESS NOTED OTHERWISE

- GROUT TO BE 30MPa NON-SHRINK POURABLE GROUT. ALL BLOCKOUTS TO BE REMOVED PRIOR TO INSTALLING GROUT. GROUT AS PART OF BASE PLATE GROUTING.
- ALL SLABS TO BE POURED ON WATERPROOF MEMBRANE UNO. WATERPROOF MEMBRANE TO BE 0.2mm THK PLASTIC MEMBRANE UNO.

STEP IRONS

- STEP IRONS TO COMPLY WITH AS1657.
- STEP IRONS ARE TO BE HOT DIPPED GALVANISED OR PLASTIC.
- STEP IRONS ARE TO BE FIXED INTO THE PIT WALL WITH AN EPOXY RESIN COMPOUND.



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier


Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)


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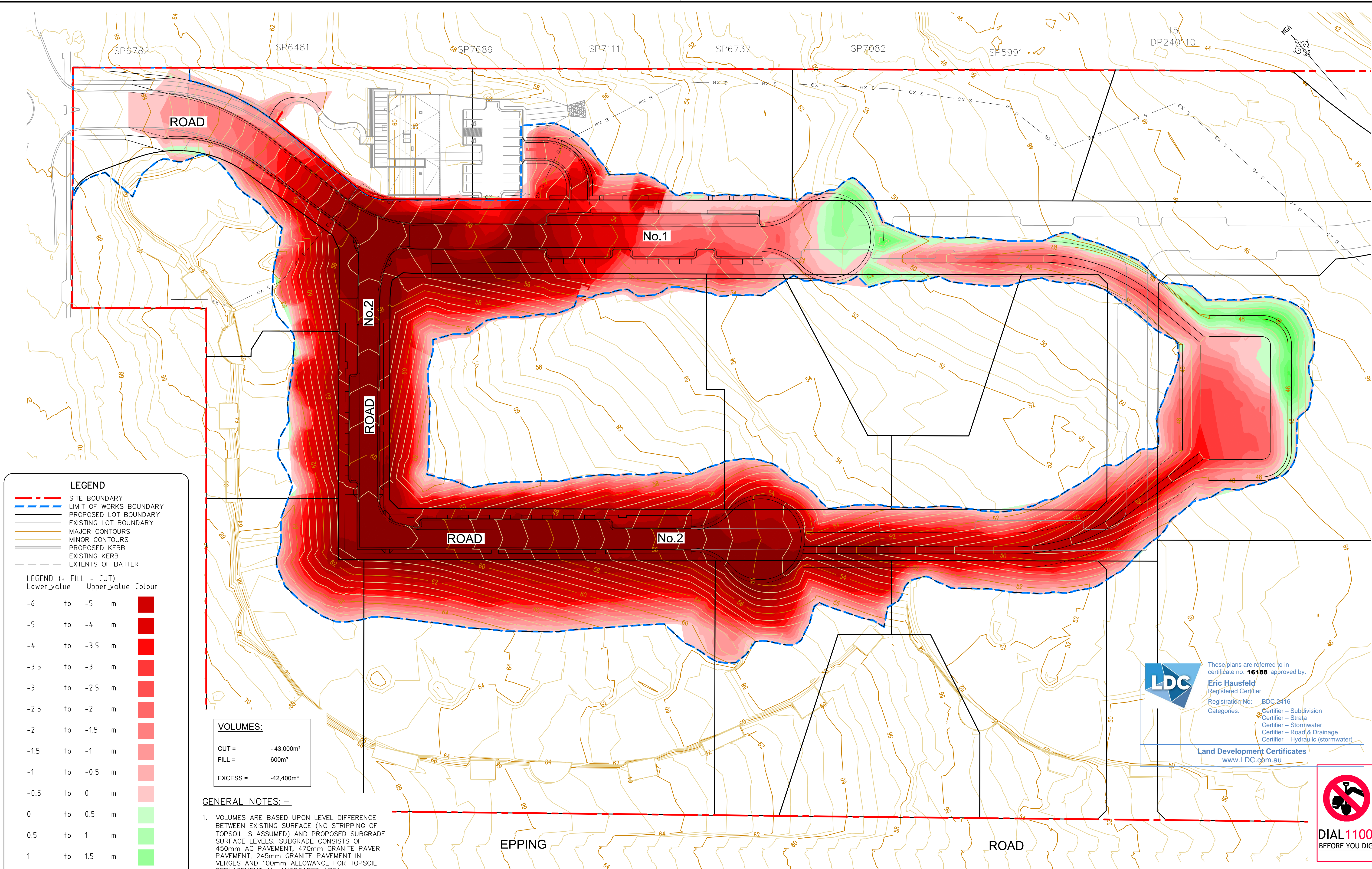


REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.



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ABN 62 129 445 398

CLIENT		PROPERTY DESCRIPTION		PROJECT	
		LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PROPOSED SUBDIVISION	
				PLAN TITLE CUSTOM STORMWATER PIT DETAILS PIT No.18/1, A1/1 & A2/1 & NOTES	
SURVEYED	ADWJ	DATUM	AHD GDA 94	PROJECT No.	DISCIPLINE
300001(1) -		ENG -		NUMBER	REV.
				482	H



LEGEND

- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER

LEGEND (+ FILL - CUT)

Lower_value	Upper_value	Colour	
-6	to -5	m	Red
-5	to -4	m	Red
-4	to -3.5	m	Red
-3.5	to -3	m	Red
-3	to -2.5	m	Red
-2.5	to -2	m	Red
-2	to -1.5	m	Red
-1.5	to -1	m	Red
-1	to -0.5	m	Red
-0.5	to 0	m	Red
0	to 0.5	m	Green
0.5	to 1	m	Green
1	to 1.5	m	Green

VOLUMES:

CUT =	-43,000m³
FILL =	600m³
EXCESS =	-42,400m³

- GENERAL NOTES: -**
- VOLUMES ARE BASED UPON LEVEL DIFFERENCE BETWEEN EXISTING SURFACE (NO STRIPPING OF TOPSOIL IS ASSUMED) AND PROPOSED SUBGRADE SURFACE LEVELS. SUBGRADE CONSISTS OF 450mm AC PAVEMENT, 470mm GRANITE PAVER PAVEMENT, 245mm GRANITE PAVEMENT IN VERGES AND 100mm ALLOWANCE FOR TOPSOIL REPLACEMENT IN LANDSCAPED AREA.
 - NO ALLOWANCE HAS BEEN MADE FOR LANDSCAPE OR TO TRENCHSPOIL VOLUMES.

LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories:

- Subdivision
- Strata
- Stormwater
- Road & Drainage
- Hydraulic (stormwater)

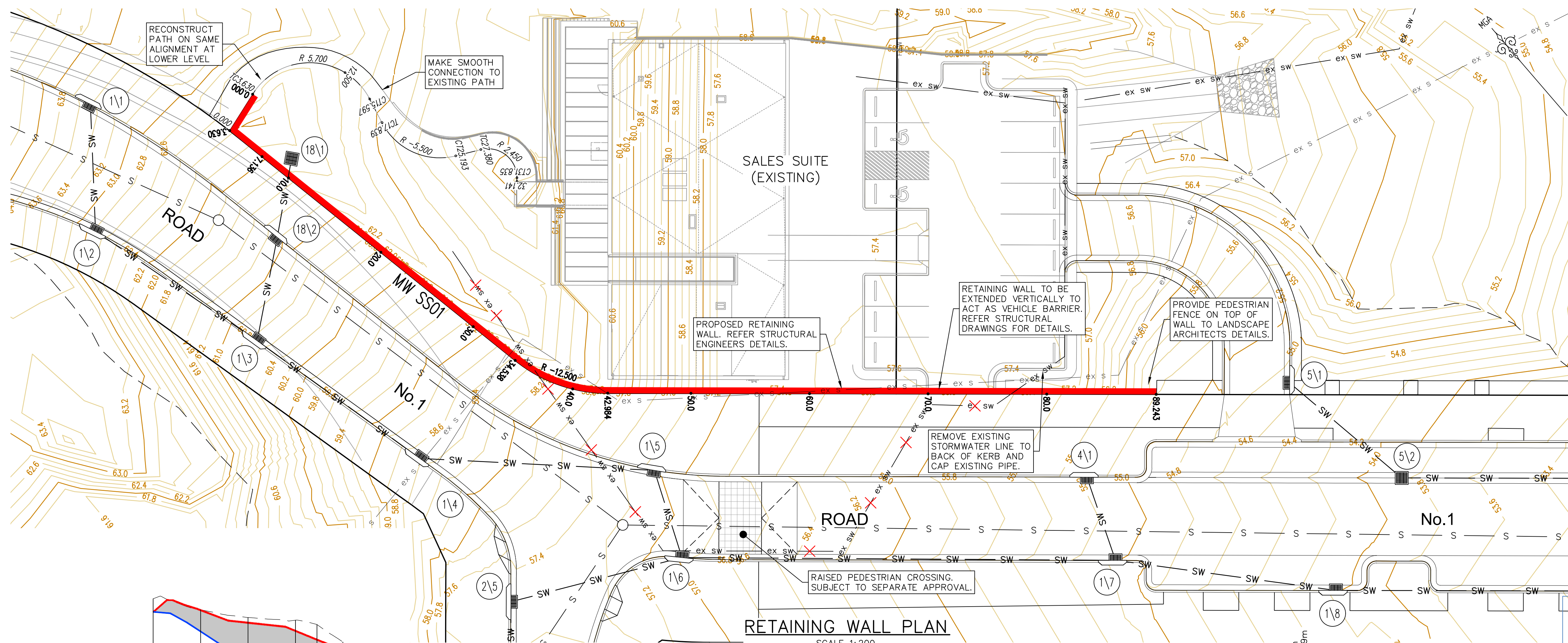
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SITE REGRADE PLAN - ROADWORKS
SCALE 1:500

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:500	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.	A3 1:1000	FRASERS PROPERTY		PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				SITE REGRADE PLAN ROADWORKS
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				

DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE	ADW Johnson	CLIENT	PROPERTY DESCRIPTION	PROJECT
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:09:26AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-501.DWG					



LEGEND	
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	PROPOSED KERB
	EXISTING KERB
	EXTENTS OF BATTER
	PROPOSED RETAINING WALL
	PROPOSED STORMWATER
	EXISTING STORMWATER
	PROPOSED SEWER
	PROPOSED SW PIT
	PROPOSED LINEL
	PIT LABEL

CONTOUR INTERVAL = 0.2m

GENERAL NOTES:—

- FOR TYPICAL ROAD CROSS SECTIONS AND KERB PROFILES REFER SHEET 201, PAVEMENT DETAILS REFER TO SHEET 151
- SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE PLAN VIEW, LONGITUDINAL SECTIONS AND ELECTRONIC 12D DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.

These plans are referred to in certificate no. **16188** approved by:**Eric Hausfeld**
Registered Certifier
 Registration No: BDC 2416
 Categories:
 Certifier – Subdivision
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 Certifier – Stormwater
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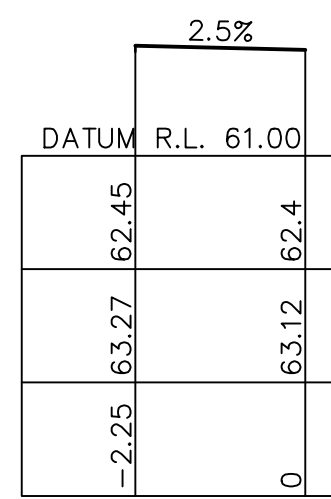
SETOUT TABLE – MW SS01 (TOE OF WALL)						
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH DEFL.ANGLE
IP 1	0.000	325537.373	6260572.791	253°18'14.51"		
IP 2	3.630	325533.896	6260571.748			
IP 3	7.136	325534.511	6260568.296			
TC	34.538	325539.320	6260541.319	169°53'34.89"		
IP 4	38.761	325540.090	6260536.996		R = -12.500	8.445 38°42'39.59"
CT	42.984	325543.395	6260534.105	131°10'55.31"		
IP 5	89.243	325578.211	6260503.645	131°10'55.31"		

HORIZONTAL GEOMETRY

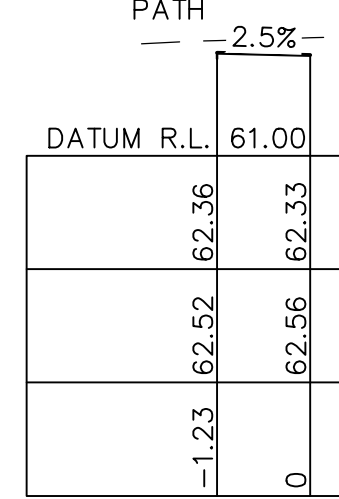
DATUM 48.0

	0	10	20	30	34.54	40	42.98	50	60	70	80	89.24
TOP OF WALL	62.49	62.57	62.04	61.7	61.32	60.89	60.66	58.34	57.59	57.6	57.43	55.23
WALL HEIGHT	-0.01	0.9	1.68	2.58	2.77	2.94	2.96	1.12	0.92	1.43	1.77	0.03
EXISTING	63.05	62.58	62.26	62.15	61.96	61.23	60.78	58.63	58.02	57.6	57.67	57.73
TOE OF WALL	62.5	61.67	60.36	59.11	58.55	57.96	57.7	57.21	56.67	56.16	55.66	55.2
CHAINAGE	0	10	20	30	34.54	40	42.98	50	60	70	80	89.24

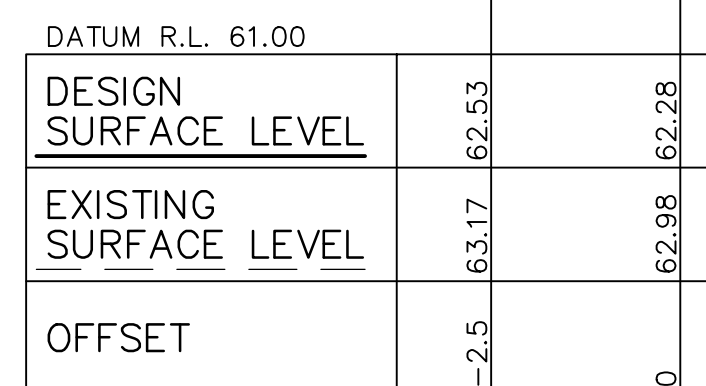
LONGITUDINAL SECTION MW SS01

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:100

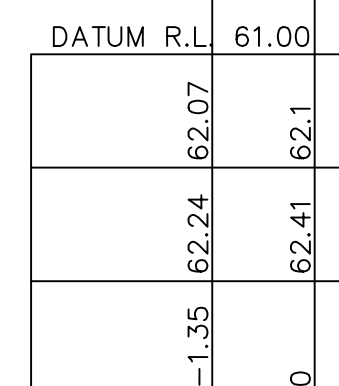
CH 3.63



CH 12.5



CH 0.18



CH 15.6

DESIGN GRADE
VERTICAL GEOMETRY
HORIZONTAL GEOMETRY

DATUM 58.0

	0	3.63	4.29	6.14	9.29	14.29	15	17.84	25.19	27.38	29.21	30	31.83
DESIGN LEVEL	62.44	62.5	62.51	62.53	62.48	62.21	62.15	62.1	61.93	61.35	61.18	61.03	60.82
EXISTING SURFACE	62.97	63.05	63.05	62.85	62.6	62.21	62.15	62.1	61.93	61.35	61.18	61.03	60.82
CUT\FILL	-0.54	-0.55	-0.48	-0.32	-0.12	0	0	0	0	0	0	0	0
CHAINAGE	0	3.63	4.29	6.14	9.29	14.29	15	17.84	25.19	27.38	29.21	30	31.83

LONGITUDINAL SECTION UPPER PATH

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:40

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	
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H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.	

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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:09:41AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-551.DWG

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE


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 www.adwjohnson.com.au
 ABN 62 129 445 398

CLIENT



PROPERTY DESCRIPTION

 LOT 5 D.P.740753, LOTS 6-20 D.P.861433
 & LOT 100 D.P.1223787
 HERRING ROAD & EPPING ROAD
 MACQUARIE PARK 2322

SURVEYED

ADWJ

DATUM

AHD GDA 94

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

RETAINING WALL PLAN
& UPPER PATH DETAILS

PROJECT No.

300001(1) -

DISCIPLINE

ENG

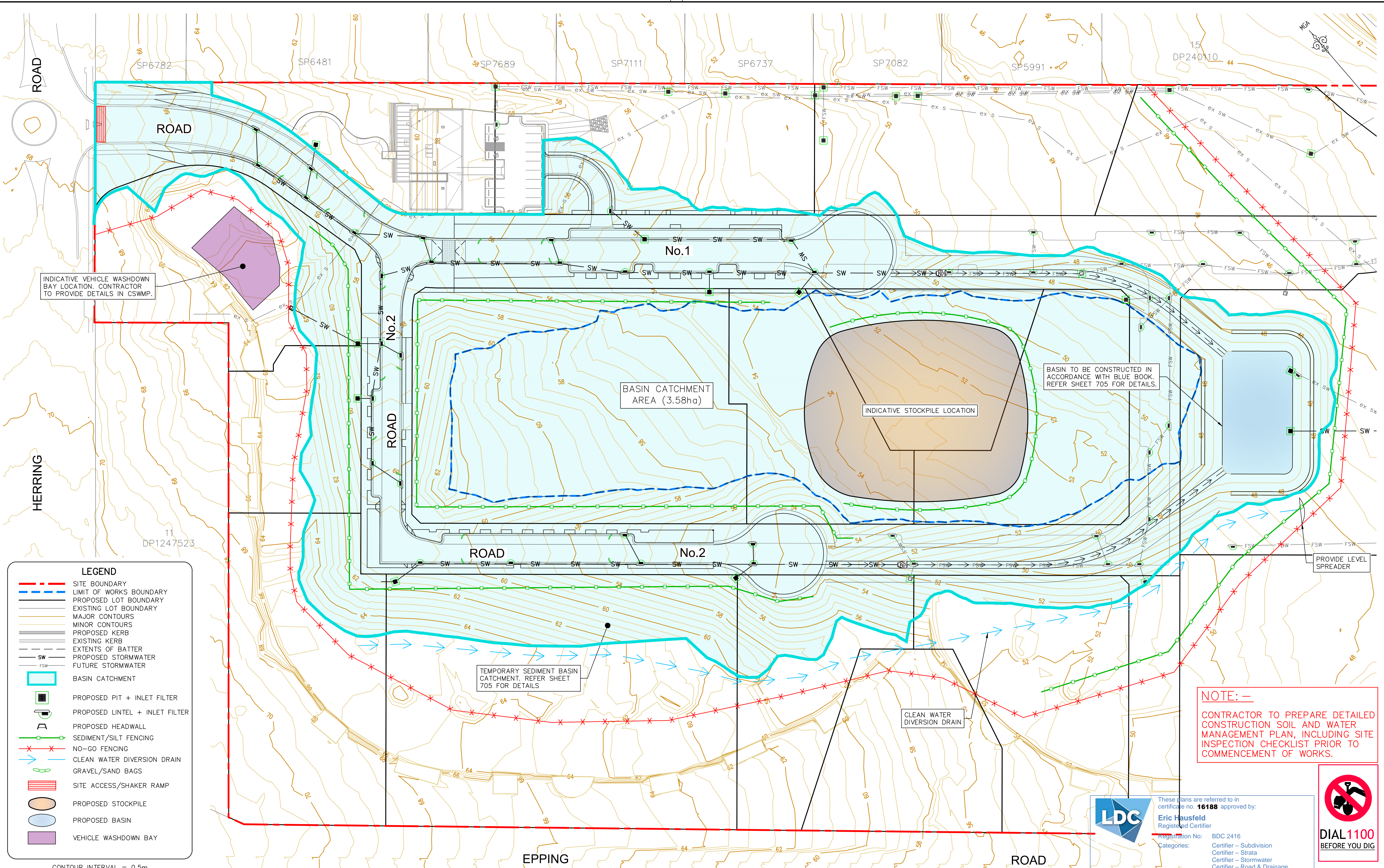
NUMBER

551

REV.

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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
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H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.

DESIGN	SCALE
FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

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www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT

FRASERS PROPERTY

PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

EROSION & SEDIMENT CONTROL PLAN

SURVEYED

ADWJ

DATUM

AHD GDA 94

PROJECT No.

300001(1) -

DISCIPLINE

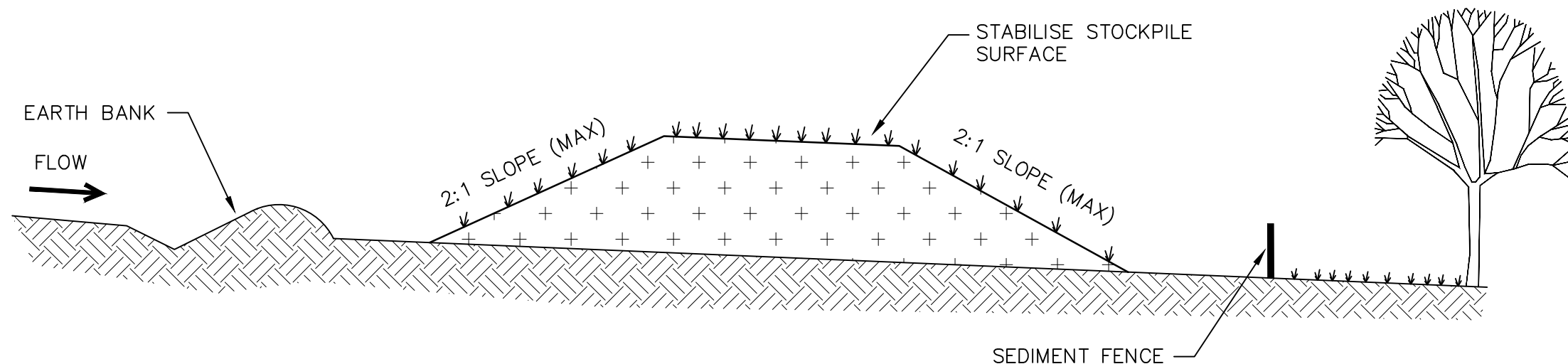
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NUMBER

601

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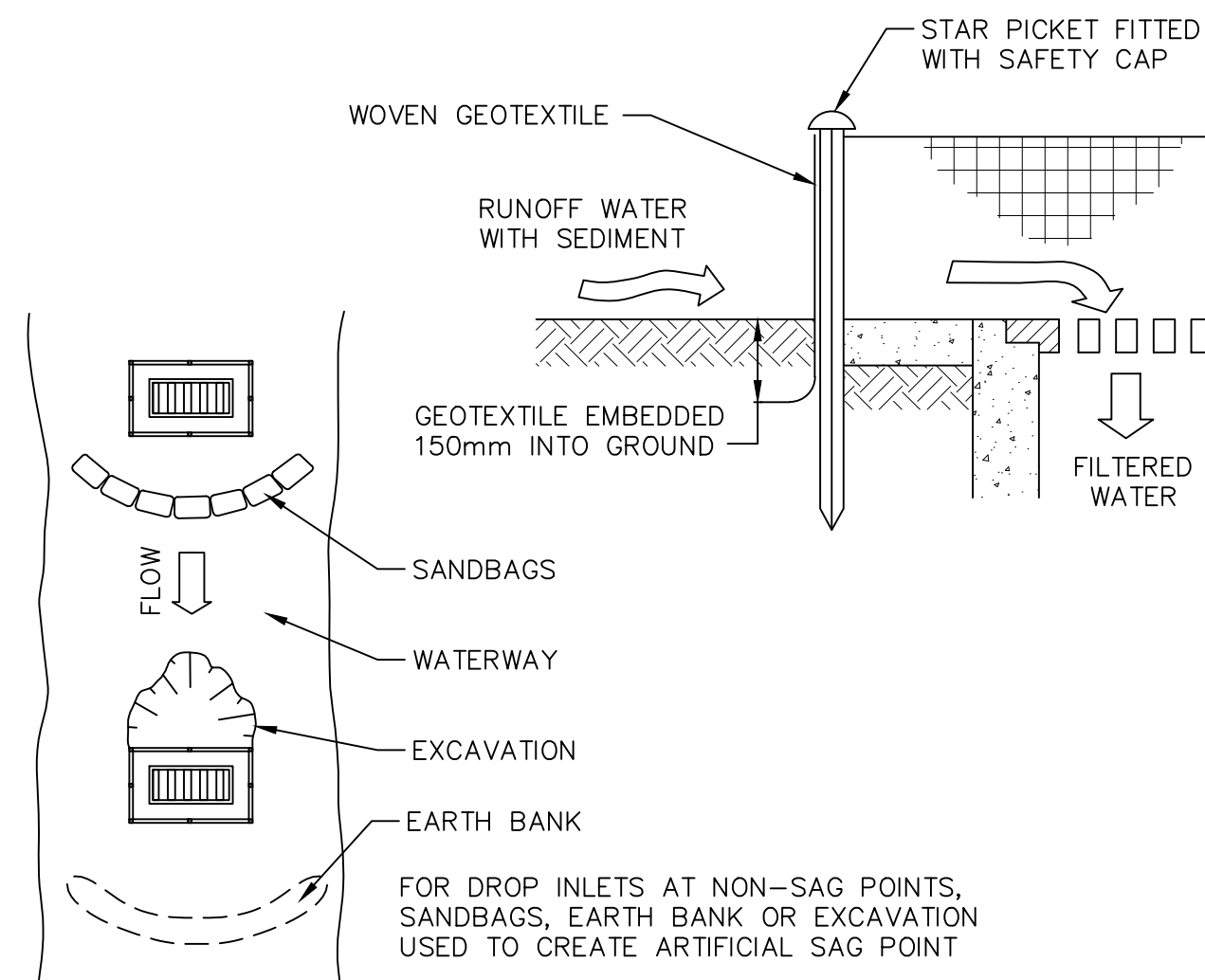
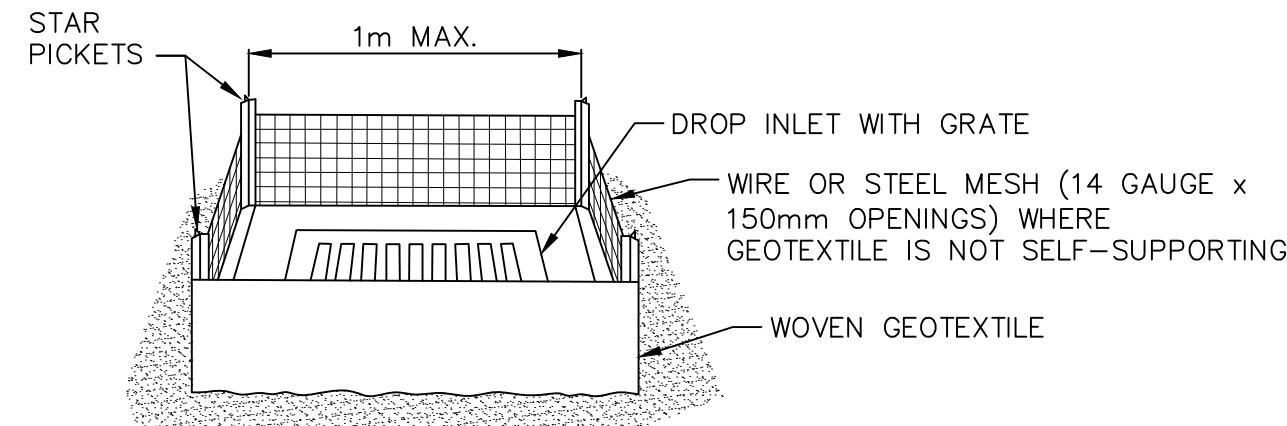
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STOCKPILES (SD4-1)
N.T.S.

CONSTRUCTION NOTES:

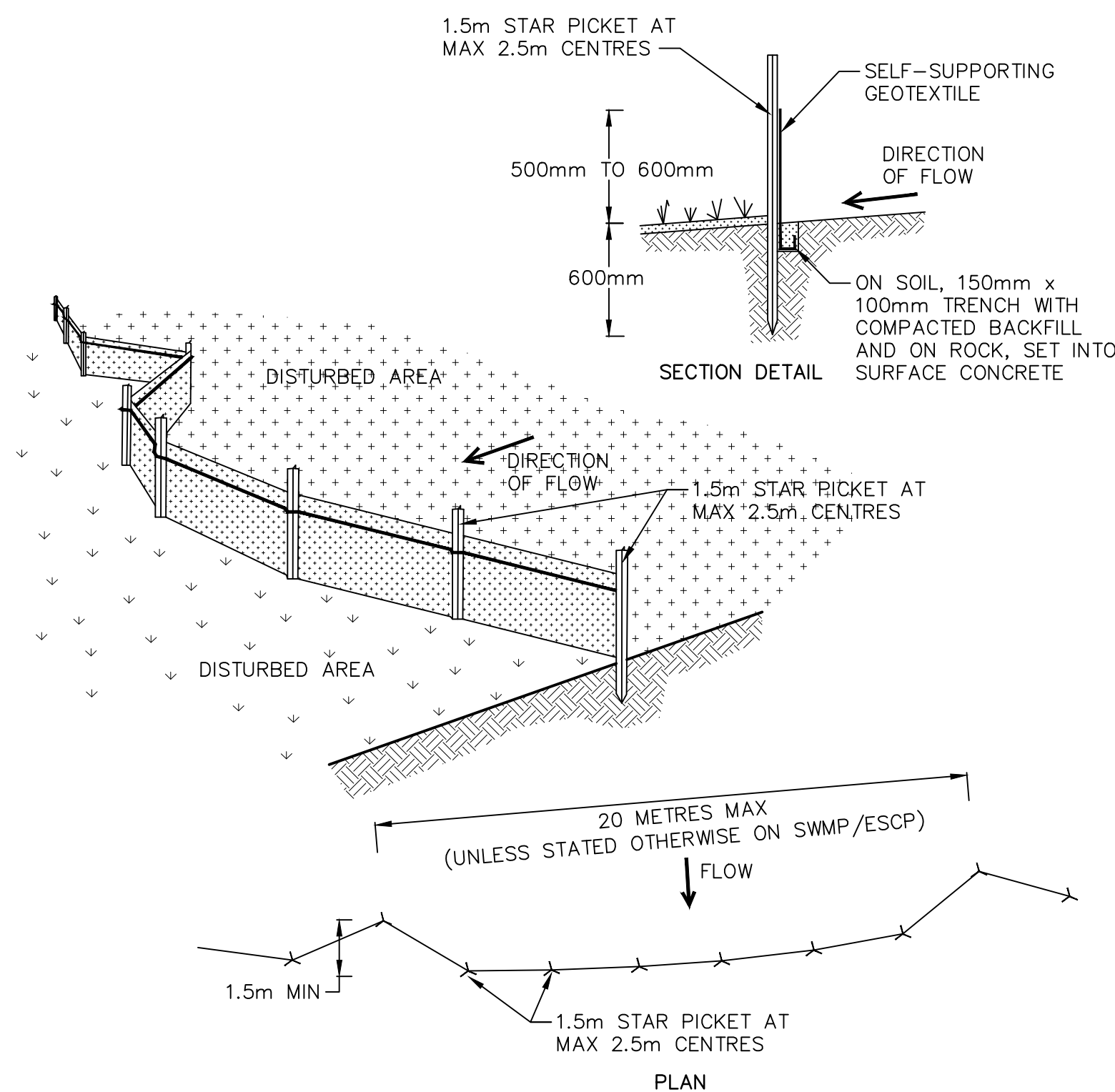
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO 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.



GEOTEXTILE INLET FILTER (SD6-12)
N.T.S.

CONSTRUCTION NOTES:

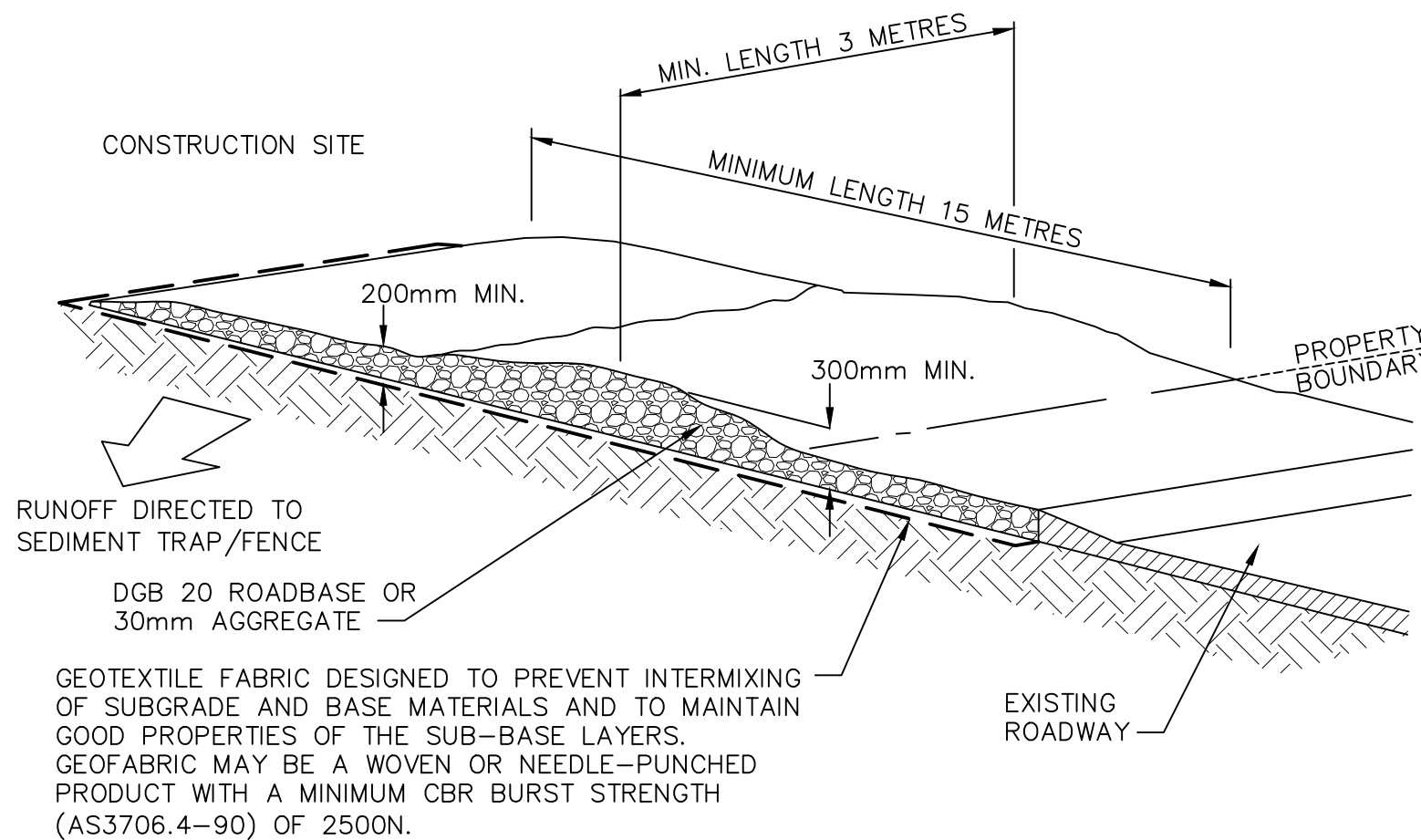
1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. REFER STANDARD DRAWINGS 6-7 & 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.



SEDIMENT FENCE (SD6-8)
N.T.S.

CONSTRUCTION NOTES:

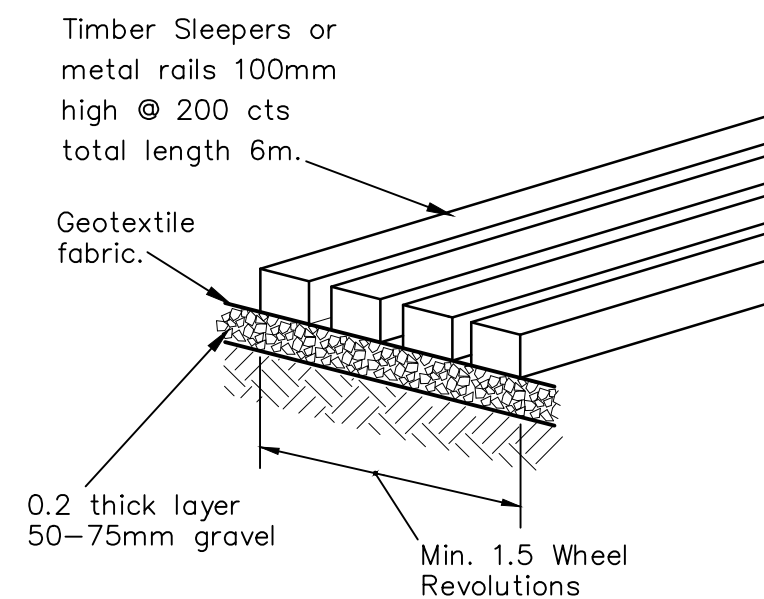
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5m LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.



STABILISED SITE ACCESS (SD6-14)
N.T.S.

CONSTRUCTION NOTES:

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



SHAKER RAMP

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

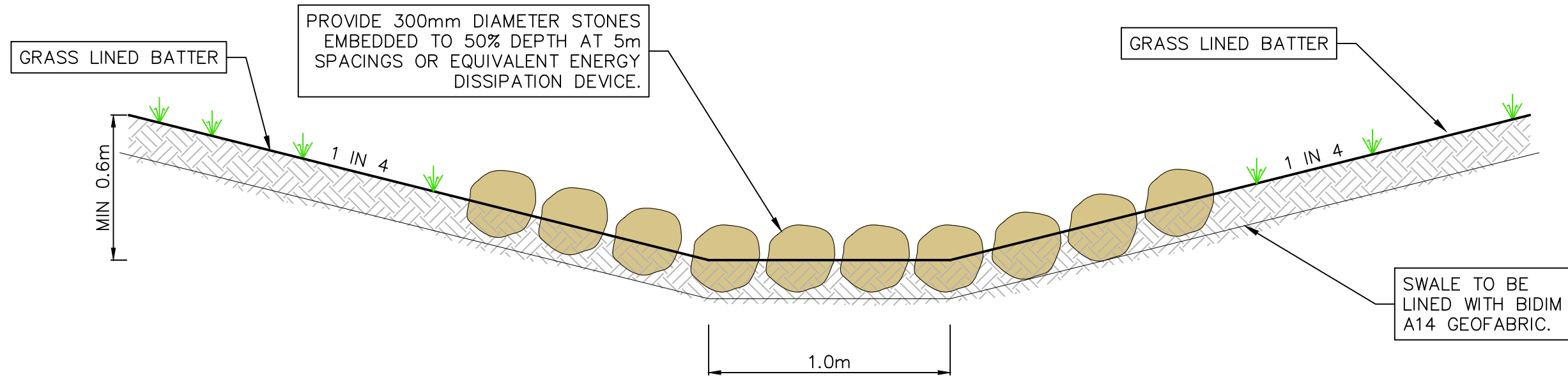
Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.				PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				EROSION & SEDIMENT CONTROL DETAILS & NOTES
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:10:00AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-611.DWG										
PROJECT No. 300001(1) -			DISCIPLINE ENG -			NUMBER 611			REV. H	



TYPICAL SWALE SECTION
NOT TO SCALE

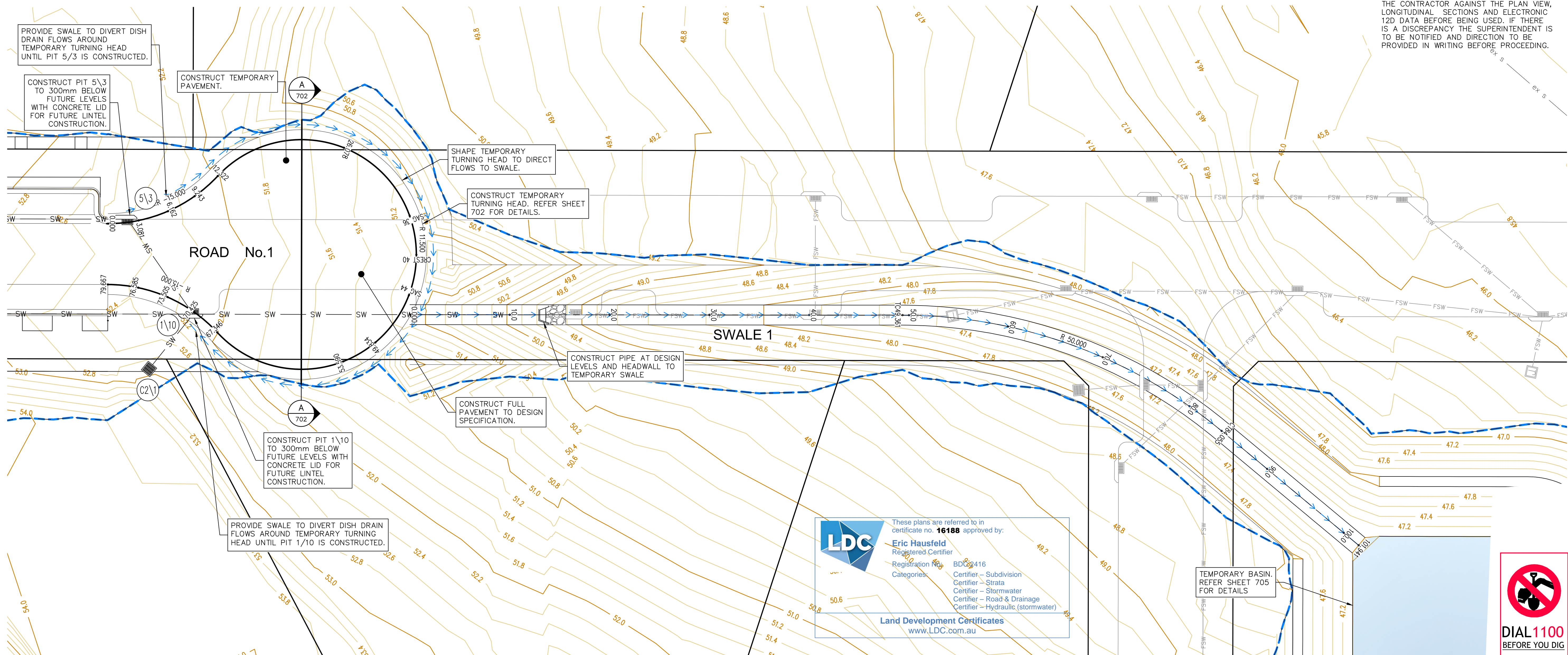
LEGEND

- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER
- PROPOSED SWALE
- PROPOSED STORMWATER
- FUTURE STORMWATER
- PROPOSED SW PIT
- PROPOSED LINTEL
- PROPOSED HEADWALL
- PIT LABEL

CONTOUR INTERVAL = 0.2m

GENERAL NOTES: -

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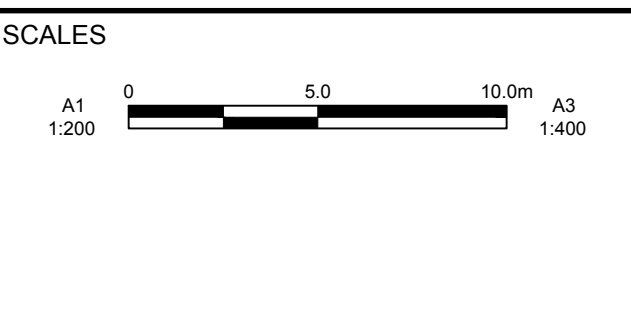
LDC
These plans are referred to in certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No. 822416
Categories:
Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)
Land Development Certificates
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REFER SHEET 703 FOR CONTINUATION
TEMPORARY WORKS PLAN - ROAD No. 1

SCALE 1:200

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.



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ABN 62 129 445 398

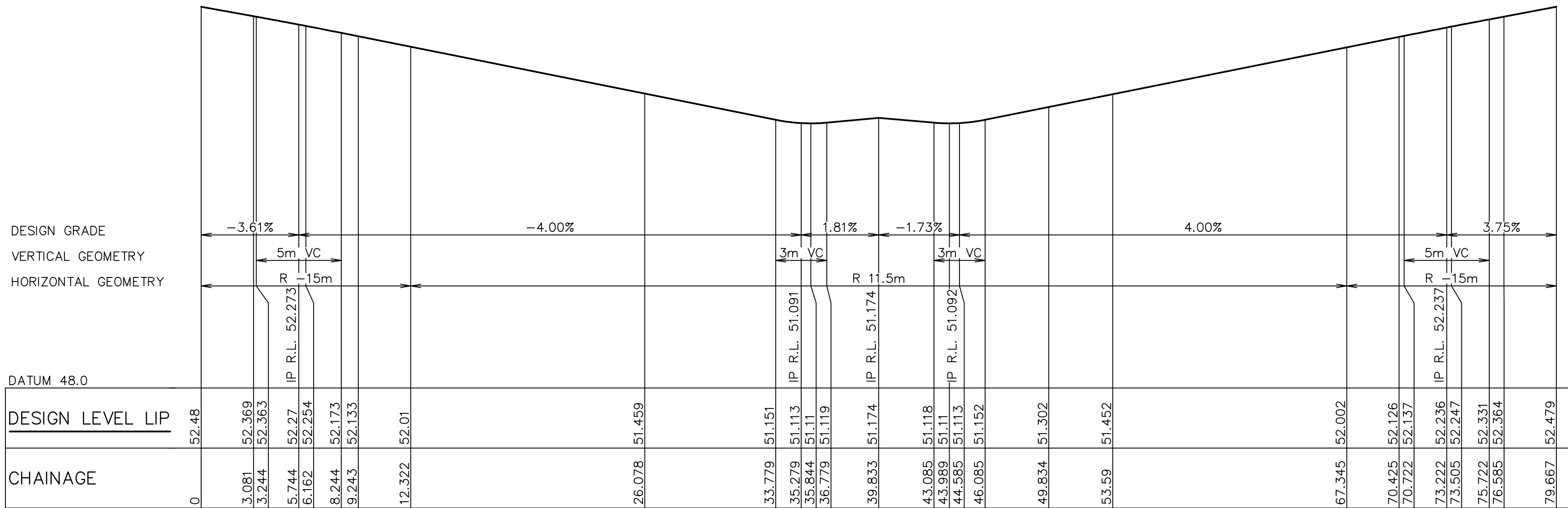
CLIENT
FRASERS PROPERTY

PROPERTY DESCRIPTION
LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

PROJECT
PROPOSED SUBDIVISION

PLAN TITLE
**TEMPORARY WORKS PLAN
ROAD No.1**

SURVEYED ADWJ	DATUM AHD GDA 94	PROJECT No. 300001(1) -	DISCIPLINE ENG	NUMBER 701	REV. H
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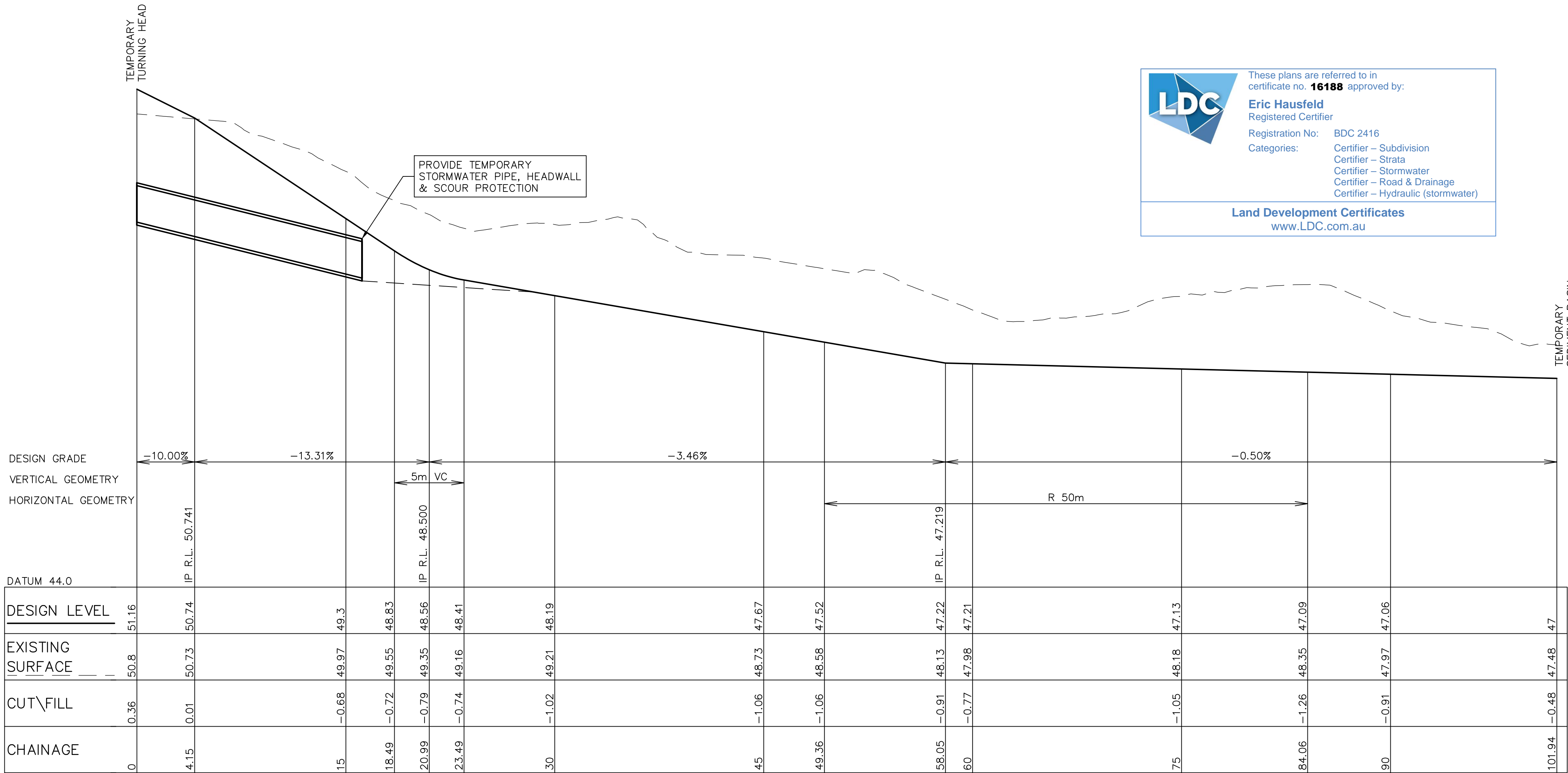


GENERAL NOTES: -

1. SETOUT INFORMATION IS TO BE VERIFIED BY THE CONTRACTOR AGAINST THE PLAN VIEW, LONGITUDINAL SECTIONS AND ELECTRONIC 12D DATA BEFORE BEING USED. IF THERE IS A DISCREPANCY THE SUPERINTENDENT IS TO BE NOTIFIED AND DIRECTION TO BE PROVIDED IN WRITING BEFORE PROCEEDING.

SETOUT TABLE - TEMPORARY TURNING HEAD No.1							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325618.886	6260458.161	131°10'55.25"			
IP 2	6.161	325623.803	6260453.859		R = -15.000	12.322	47°04'04.46"
CC	12.322	325630.301	6260454.529	84°06'50.79"			
IP 3	21.493	325642.019	6260455.737		R = 11.500	18.341	91°22'42.84"
CC	30.663	325642.945	6260443.993	175°29'33.63"			
IP 4	39.834	325643.871	6260432.250		R = 11.500	18.341	91°22'42.84"
CC	49.004	325632.108	6260431.607	266°52'16.47"			
IP 5	58.174	325620.346	6260430.964		R = 11.500	18.341	91°22'42.84"
CC	67.345	325619.986	6260442.738	358°14'59.31"			
IP 6	73.506	325619.786	6260449.268		R = -15.000	12.322	47°04'04.01"
IP 7	79.667	325614.870	6260453.570	311°10'55.31"			

SETOUT TABLE - SWALE 1							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325635.712	6260431.416	131°07'11.92"			
TC	49.361	325672.897	6260398.954	131°07'11.92"			
IP 2	66.708	325686.516	6260387.065		R = 50.000	34.695	39°45'25.21"
CC	84.055	325689.382	6260369.215	170°52'37.13"			
IP 3	101.941	325692.218	6260351.556	170°52'37.13"			



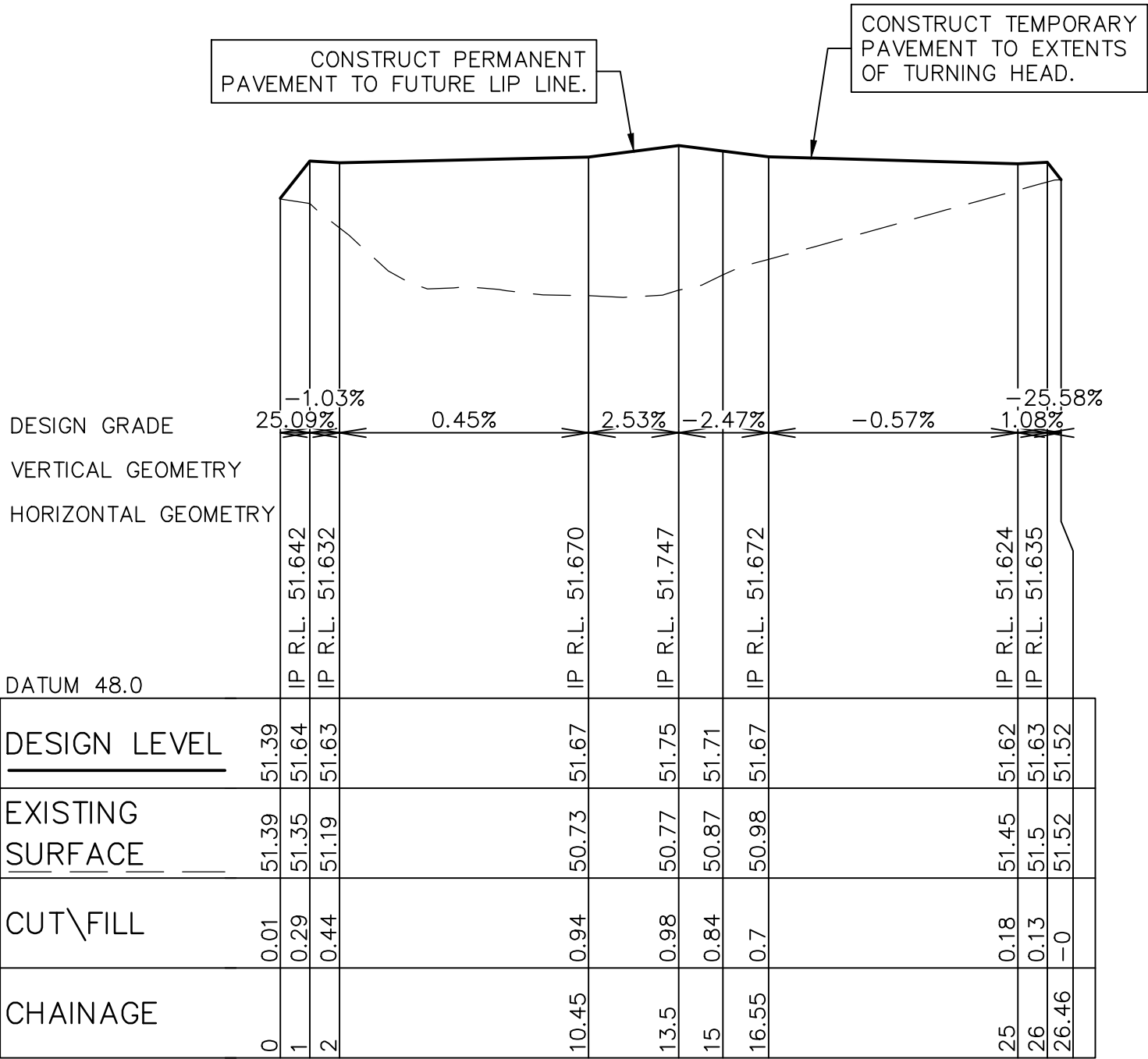
These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)

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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION		ADWJ	AHD GDA 94	300001(1)	ENG	702	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.		5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259									
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		Phone: (02) 4305 4300									
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Fax: (02) 4305 4399									
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		email: coast@adwjohnson.com.au									
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au									
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		ABN 62 129 445 398									
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

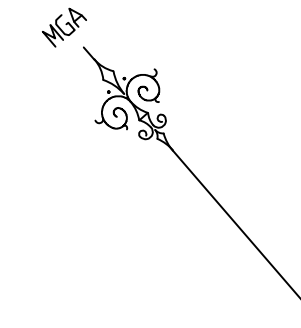
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ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

Plotted By: Mark Hoyland Plot Date: 29/10/20 9:10:21AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-702.DWG

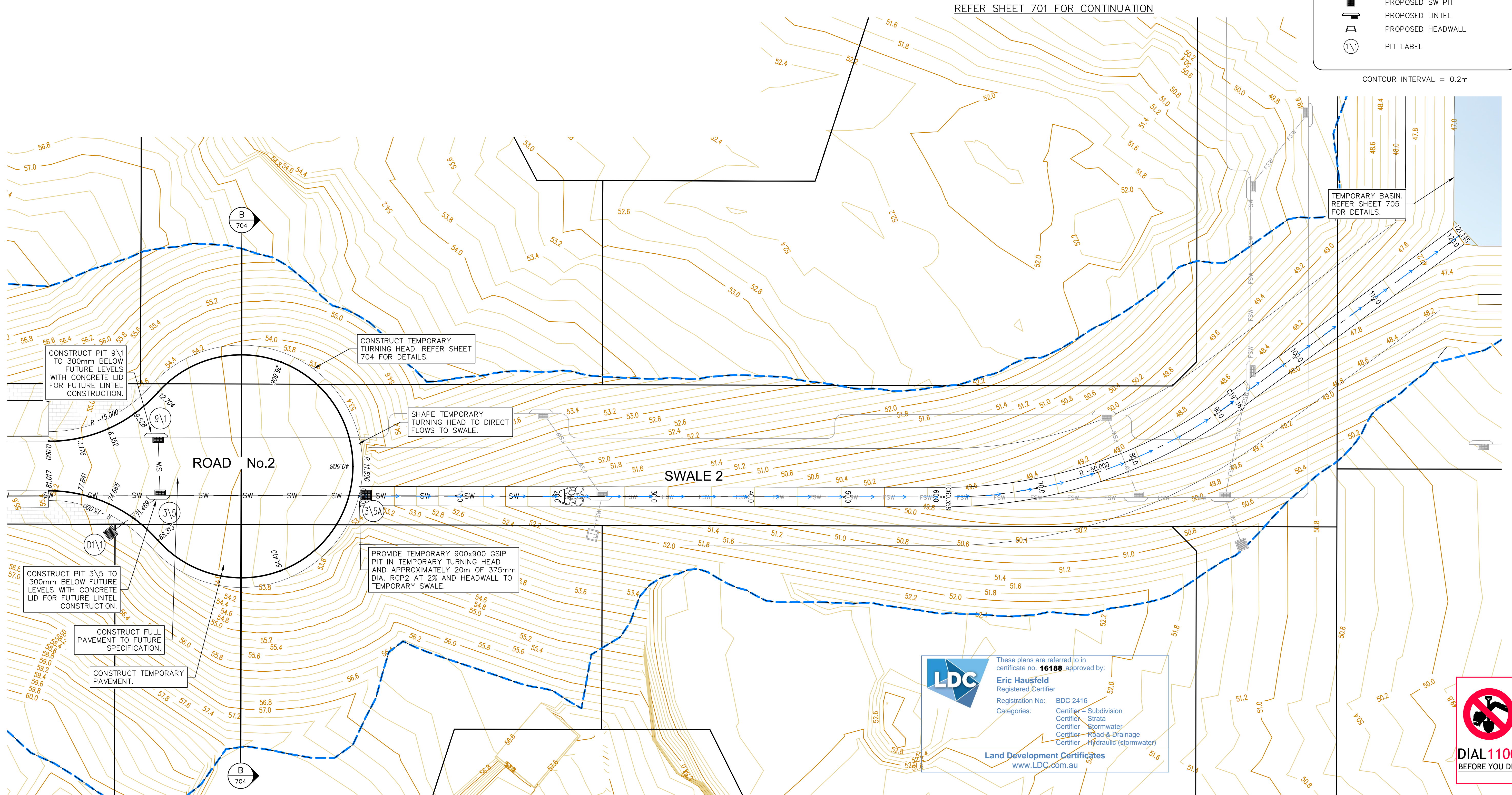
GENERAL NOTES: -

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LEGEND	
	SITE BOUNDARY
	LIMIT OF WORKS BOUNDARY
	PROPOSED LOT BOUNDARY
	EXISTING LOT BOUNDARY
	MAJOR CONTOURS
	MINOR CONTOURS
	PROPOSED KERB
	EXISTING KERB
	EXTENTS OF BATTER
	PROPOSED SWALE
	PROPOSED STORMWATER
	FUTURE STORMWATER
	PROPOSED SW PIT
	PROPOSED LINTEL
	PROPOSED HEADWALL
	PIT LABEL

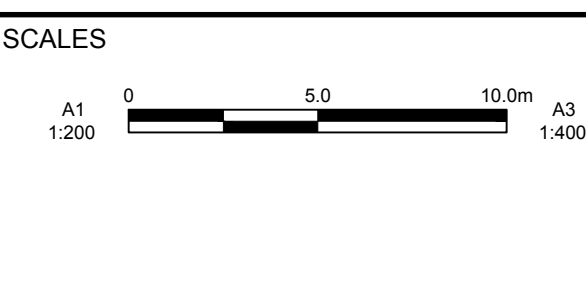
CONTOUR INTERVAL = 0.2m



TEMPORARY WORKS PLAN - ROAD No.2

SCALE 1:200

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.



Central Coast
5 Pioneer Avenue,
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www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT



PROPERTY DESCRIPTION
LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

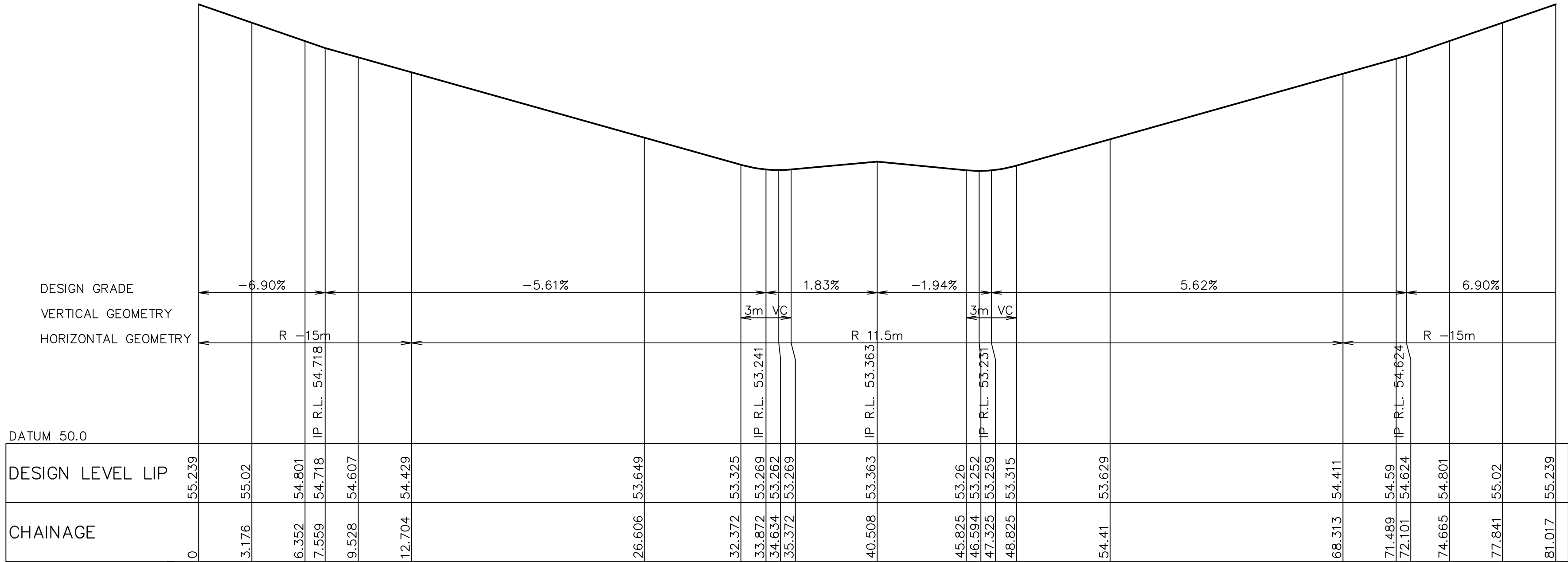
PROJECT
PROPOSED SUBDIVISION

PLAN TITLE
TEMPORARY WORKS PLAN
ROAD No.2

SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
ADWJ	AHD GDA 94	300001(1) -	ENG -	703	H

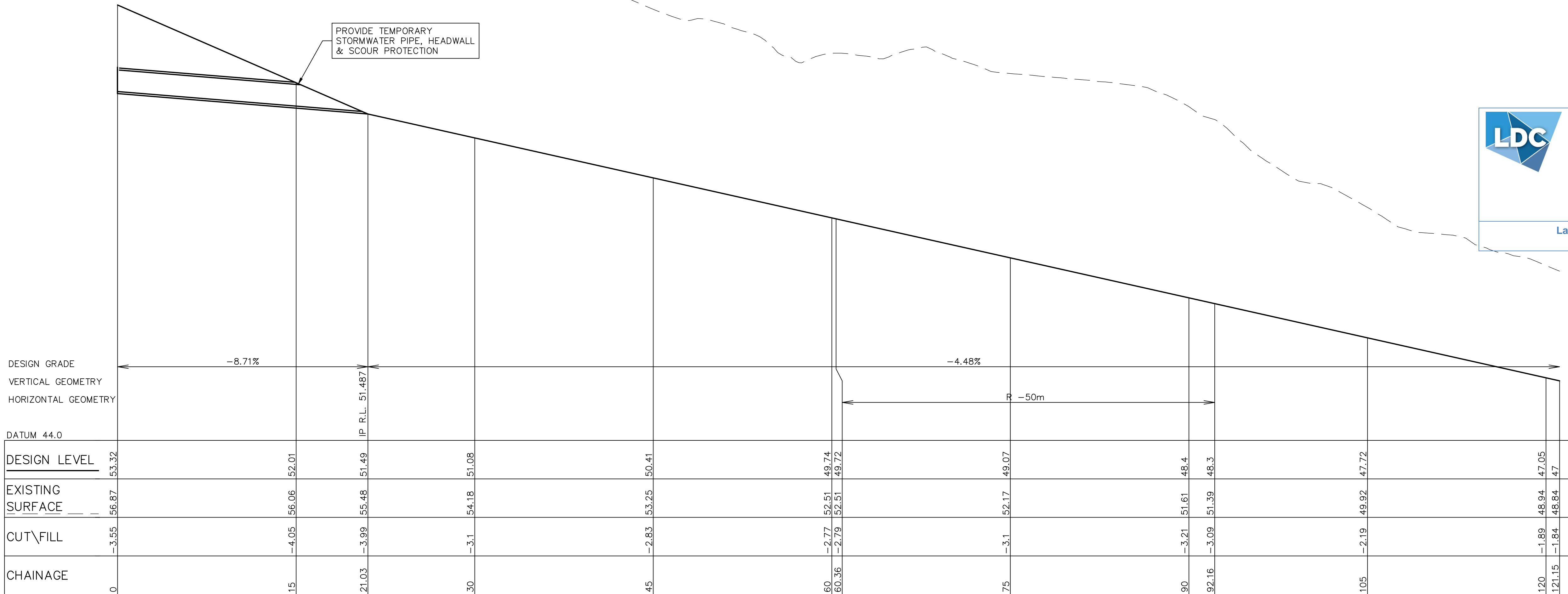
SETOUT TABLE -- TEMPORARY TURNING HEAD No.2							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325546.841	6260406.258	131°10'57.97"	R = -15.000	12.704	48°31'38.47"
IP 2	6.352	325551.930	6260401.806				
CC	12.704	325558.636	6260402.670	82°39'19.50"	R = 11.500	18.536	92°21'05.33"
IP 3	21.972	325570.520	6260404.202				
CC	31.241	325571.562	6260392.266	175°00'24.83"	R = 11.500	18.536	92°21'05.33"
IP 4	40.509	325572.605	6260380.329				
CC	49.777	325560.636	6260379.777	267°21'30.16"	R = 11.500	18.536	92°21'05.33"
IP 5	59.045	325548.667	6260379.225				
CC	68.313	325548.606	6260391.206	359°42'35.49"	R = -15.000	12.704	48°31'37.52"
IP 6	74.665	325548.572	6260397.968				
IP 7	81.017	325543.483	6260402.420	311°10'57.97"			

SETOUT TABLE -- SWALE 2							
PT	CHAINAGE	EASTING	NORTHING	BEARING	RAD/SPIRAL	A.LENGTH	DEFL.ANGLE
IP 1	0.000	325567.230	6260380.993	131°09'11.96"	R = -50.000	31.805	36°26'46.77"
TC	60.358	325612.677	6260341.273	131°09'11.96"			
IP 2	76.261	325625.071	6260330.440				
CT	92.164	325641.478	6260329.089	94°42'25.19"			
IP 3	121.145	325670.361	6260326.711	94°42'25.19"			



GENERAL NOTES: --

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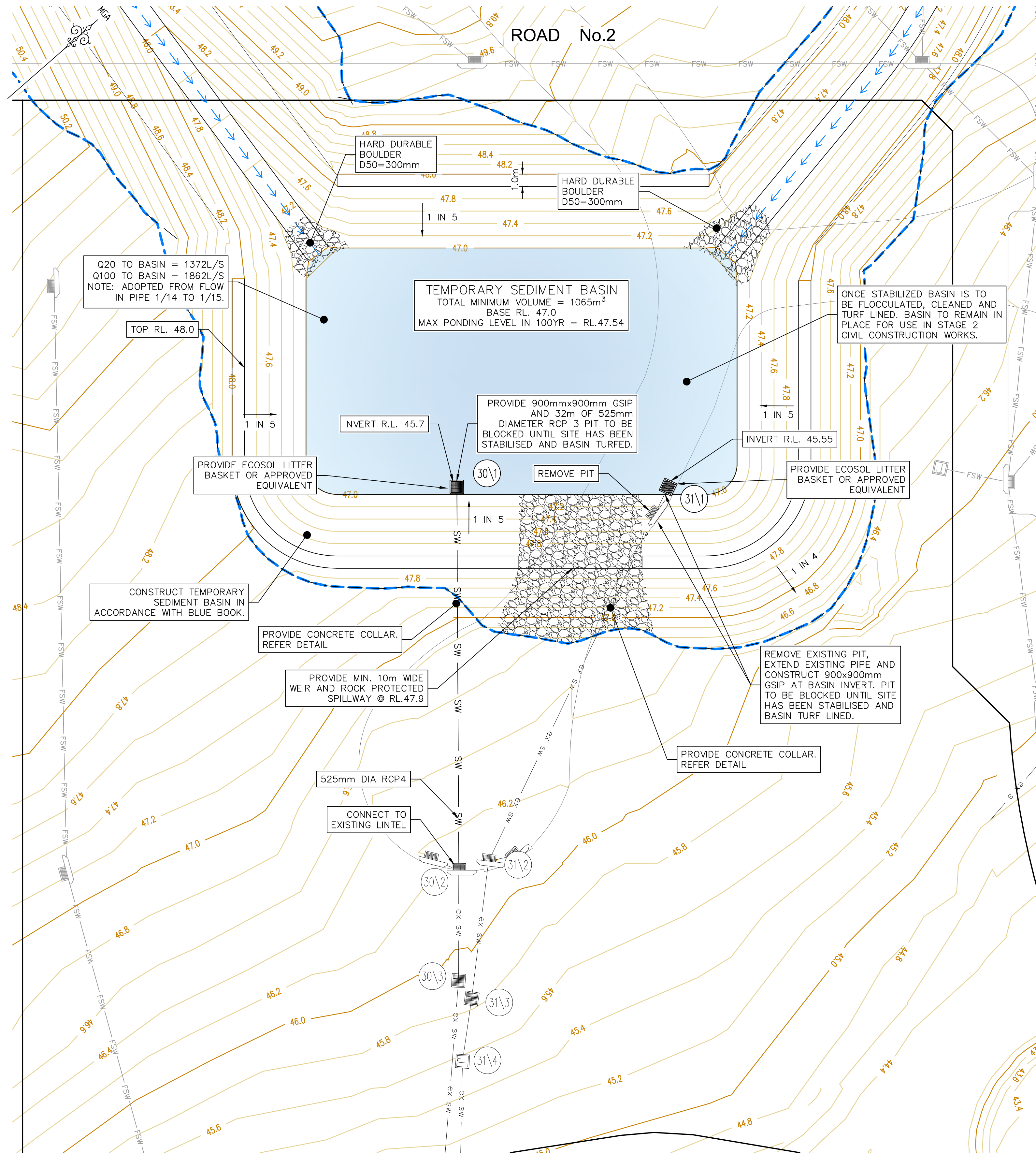




These plans are referred to in certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
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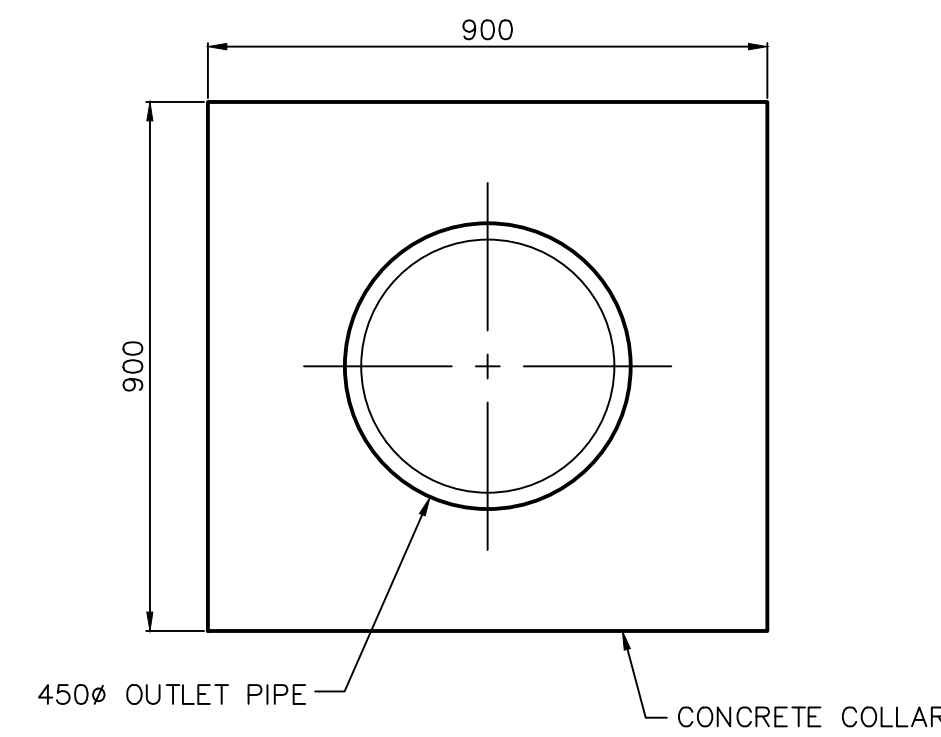


REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT		PROPERTY DESCRIPTION		PROJECT		
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		 Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398		LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		PROPOSED SUBDIVISION		
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.U.	B.M.	N.D.						PLAN TITLE		
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322		TEMPORARY WORKS PLAN ROAD No.2 DETAILS		
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.								
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.								
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.								
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.								
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.								
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE				PROJECT No.	DISCIPLINE	NUMBER
Plotted By: Mark Hoyland Plot Date: 29/10/20 9:10:42AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-704.DWG												300001(1) -	ENG	704
														REV.
														H

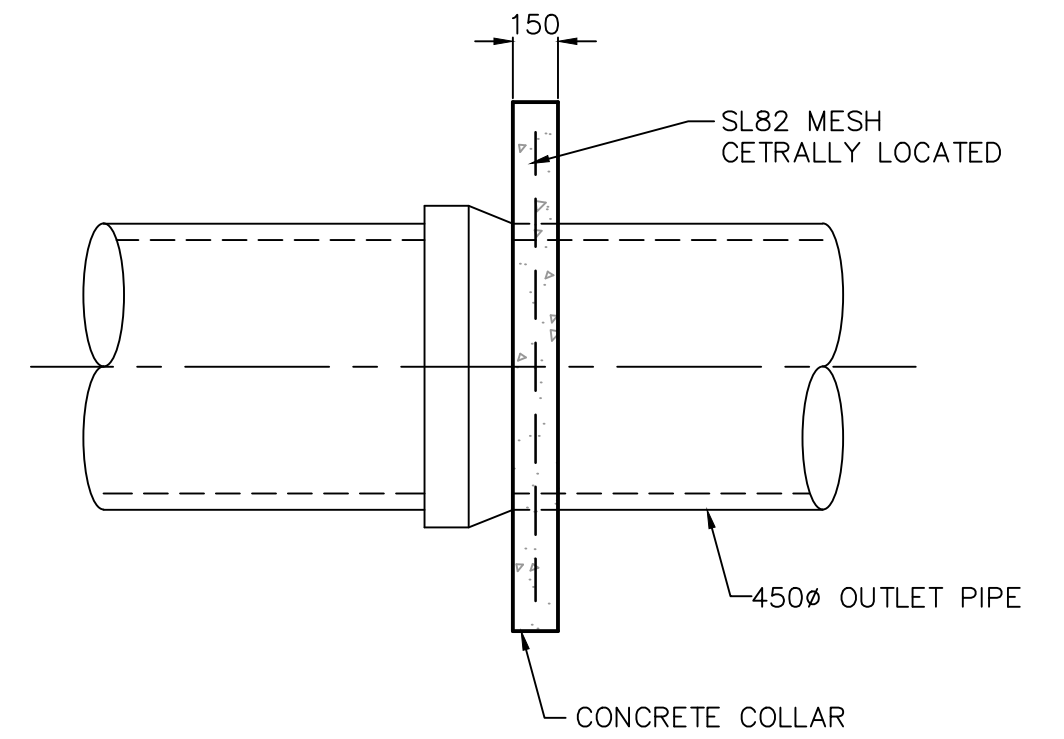


REFER RIGHT FOR CONTINUATION
BASIN DETAIL PLAN
SCALE 1:200

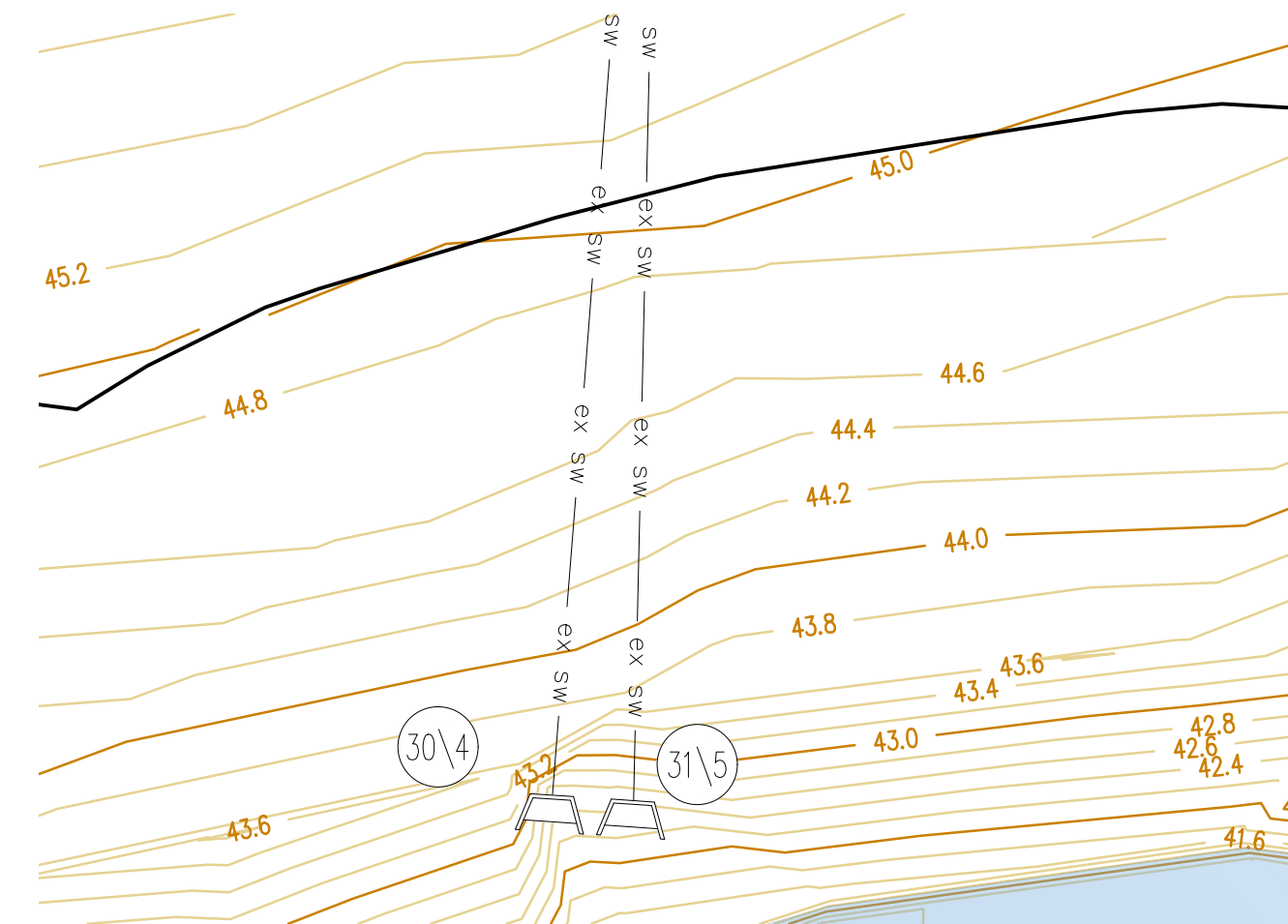
Revised Universal Soil Loss Equation (RUSLE)	
Catchment Area (A)	3.58 ha
Settling Zone	
Runoff Coefficient (Cv)	0.5
85th %, 5 day Rainfall Event (R)	38.8
Settling Zone Volume	695 m³
Sediment Zone	
Disturbed Site Area (hectares)	2.00 ha
Rainfall Erosivity Factor, R	3482
Soil Erodibility Factor, K	0.1
Slope Length Gradient Factor, LS	3.12
Erosion Control Practice Factor, P	1.3
Cover Factor, C	1
Sediment Zone Volume	369 m³
Total Storage Required (Settling + Sediment)	1064 m³



CONCRETE COLLAR DETAIL
NOT TO SCALE



REFER LEFT FOR CONTINUATION



BASIN DETAIL PLAN
SCALE 1:200

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
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REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT	PLAN TITLE	SURVEYED	DATUM	PROJECT No.	DISCIPLINE	NUMBER	REV.
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	A1 1:200	Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION	BASIN DETAIL PLAN	ADWJ	AHD GDA 94	300001(1) -	ENG	705	H
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.											
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.											
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.											
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.											

DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project

ALL DIMENSIONS ARE IN METRES. DO NOT SCALE

Plotted By: Mark Hoyland Plot Date: 29/10/20 9:11:02AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-705.DWG

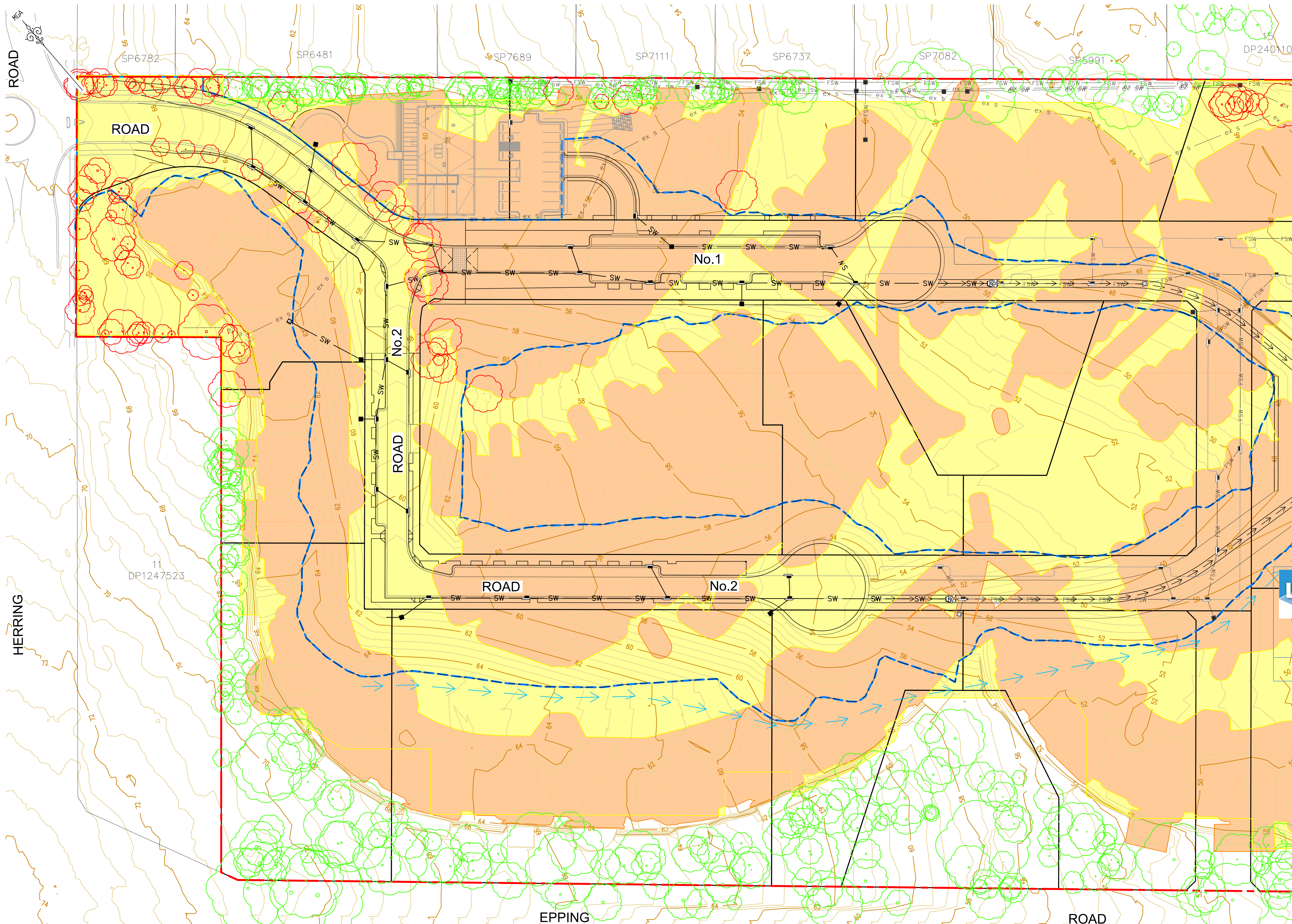


 SITE BOUNDARY
 LIMIT OF WORKS BOUNDARY
 PROPOSED LOT BOUNDARY
 EXISTING LOT BOUNDARY
 PROPOSED KERB
 PROPOSED SIGN POST

1. ALL SIGNAGE AND LINEMARKING TO BE PROVIDED IN ACCORDANCE WITH AS1742.
2. TRAFFIC CONTROL DEVICES, LINEMARKING AND SIGNAGE ARE SUBJECT TO SEPARATE APPROVAL OF RYDE CITY COUNCIL FOLLOWING RECOMMENDATION OF THE LOCAL TRAFFIC COMMITTEE.

SCALE 1: 500

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES		Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398		CLIENT	PROPERTY DESCRIPTION		PROJECT	PROPOSED SUBDIVISION	
PLAN TITLE		SIGNAGE & LINEMARKING PLAN														
LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322																
DESIGN FILE S:\300001\DESIGN\12D\STAGE 1 CC.project							ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		SURVEYED ADWJ		DATUM AHD GDA 94		PROJECT No. 300001(1) -	DISCIPLINE ENG -	NUMBER 751	REV. H



LEGEND

- SITE BOUNDARY
- LIMIT OF WORKS BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- MAJOR CONTOURS
- MINOR CONTOURS
- PROPOSED KERB
- EXISTING KERB
- EXTENTS OF BATTER
- PROPOSED STORMWATER
- PROPOSED SW PIT
- PROPOSED LINTEL
- PROPOSED HEADWALL
- TREES TO BE RETAINED
- TREES TO BE REMOVED
- DEMOLITION FOOTPRINT
- DEVELOPMENT FOOTPRINT

- CONTOUR INTERVAL = 0.5m
- GENERAL NOTES: -**
- ALL TREES WITHIN WORKS FOOTPRINT TO BE REMOVED IN ACCORDANCE WITH APPROVED ARBORIST REPORT.
 - ALL TREES OUTSIDE OF WORKS ZONE TO BE PROTECTED.
 - NO TREES TO BE REMOVED UNTIL AUTHORISED BY THE PROJECT ECOLOGIST.
 - TREE REMOVAL AND RETENTION/PROTECTION WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH THE ARBORCULTURAL IMPACT ASSESSMENT 19NEW-13891 DATED FEBRUARY 2020 AND UNDER SUPERVISION OF THE PROJECT ECOLOGIST.

LDC

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier - Subdivision
Certifier - Strata
Certifier - Stormwater
Certifier - Road & Drainage
Certifier - Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au

NOTE: -

THIS PLAN IS PROVIDED FOR INFORMATION PURPOSES ONLY. CONTRACTOR IS TO ONLY REMOVE TREES APPROVED TO BE REMOVED IN THE APPROVED ARBORCULTURAL IMPACT ASSESSMENT.



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.	0 12.5 25.0m A3	Central Coast	LOT 5 D.P.740753, LOTS 6-20 D.P.861433	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.	A1 1:500	5 Pioneer Avenue,	& LOT 100 D.P.1223787	PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.		P.O. Box 3717,	HERRING ROAD & EPPING ROAD	TREE RETENTION PLAN
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Tuggerah N.S.W. 2259	MACQUARIE PARK 2322	
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.		Phone: (02) 4305 4300		
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		Fax: (02) 4305 4399		
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		email: coast@adwjohnson.com.au		
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.		www.adwjohnson.com.au		
								ABN 62 129 445 398		

DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project	ALL DIMENSIONS ARE IN METRES. DO NOT SCALE	Plotted By: Mark Hoyland Plot Date: 29/10/20 9:11:29AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-801.DWG
--	--	--

300001(1)-ENG-901

This plan includes coloured information. If you have a black and white copy you do not have all of the information. This note is coloured RED.

100mm AT FULL SIZE

ROAD

HERRING

SP6782

SP6481

SP7689

SP7111

SP6737

SP7082

GENERAL NOTES: -

1. SERVICES SHOWN FOR INFORMATION ONLY. ALL SERVICES TO BE CONSTRUCTED IN ACCORDANCE WITH APPROVED CONSTRUCTION DOCUMENTATION, RYDE CITY COUNCIL STANDARDS AND THE RELEVANT SERVICE AUTHORITY STANDARDS.

LEGEND

- SITE BOUNDARY
- PROPOSED LOT BOUNDARY
- EXISTING LOT BOUNDARY
- PROPOSED KERB
- SW --- PROPOSED STORMWATER
- S --- PROPOSED SEWER
- W --- PROPOSED WATER
- NBN --- PROPOSED NBN
- E --- PROPOSED ELECTRICITY
- HV --- PROPOSED HIGH VOLTAGE
- SL --- PROPOSED STREET LIGHT CABLING
- PROPOSED STREET LIGHT
- PROPOSED SW PIT
- PROPOSED LINTEL
- A --- PROPOSED HEADWALL

WHERE NBN CROSSES UNDER TREES CONDUIT/CABLES TO BE LAID DEEPER THAN FUTURE ROOT BALL.

WHERE NBN CROSSES UNDER TREES CONDUIT CABLES TO BE LAID DEEPER THAN FUTURE ROOT BALL.

EXISTING HV UNDER SEPARATE APPROVAL

STREET LIGHT CABINET

STREET LIGHT TO BE CONSTRUCTED IN STAGE 2 WORKS

No.1

No.2

ROAD

No.2

11
DP1247523

NOTE: -

WATERMAIN REQUIRED TO BE LOCALLY DIVERTED AROUND STORMWATER PITS AND STREET LIGHT FOOTINGS. ENSURE ADEQUATE CLEARANCE BETWEEN WATERMAIN AND STRUCTURES. CLEARANCES TO ALLOW FOR WORKING SPACE FOR BORING OF STREET LIGHT FOOTINGS.

NOTE: -

CONTRACTOR TO UNDERTAKE CLASH CHECK OF ALL SERVICES PRIOR TO COMMENCEMENT.

NOTE: -

TEMPORARY WORKS NOT SHOWN. REFER TENDER SET OF DRAWINGS PREPARED BY ADWJ FOR FURTHER DETAILS.

NOTE: -

CONTRACTOR TO CONFIRM SERVICES AGAINST LANDSCAPE DRAWINGS PRIOR TO COMMENCEMENT

EPPING

ROAD

COMBINED SERVICES PLAN

SCALE 1:500

REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.

DESIGN	DRAWN	CHECKED	APPROVED	SCALES
B.M.	P.B.	B.M.	B.M.	A1 1:500
B.M.	J.J.	B.M.	N.D.	A3 1:1000
B.M.	M.H.	B.M.	N.D.	
B.M.	M.F.	B.M.	N.D.	
B.M.	M.H.	B.M.	N.D.	
B.M.	M.H.	B.M.	N.D.	



Central Coast
5 Pioneer Avenue,
P.O. Box 3717,
Tuggerah N.S.W. 2259
Phone: (02) 4305 4300
Fax: (02) 4305 4399
email: coast@adwjohnson.com.au
www.adwjohnson.com.au
ABN 62 129 445 398

CLIENT



PROPERTY DESCRIPTION

LOT 5 D.P.740753, LOTS 6-20 D.P.861433
& LOT 100 D.P.1223787
HERRING ROAD & EPPING ROAD
MACQUARIE PARK 2322

PROJECT

PROPOSED SUBDIVISION

PLAN TITLE

COMBINED SERVICES PLAN

SURVEYED

ADWJ

DATUM

AHD GDA 94

PROJECT No.

DISCIPLINE

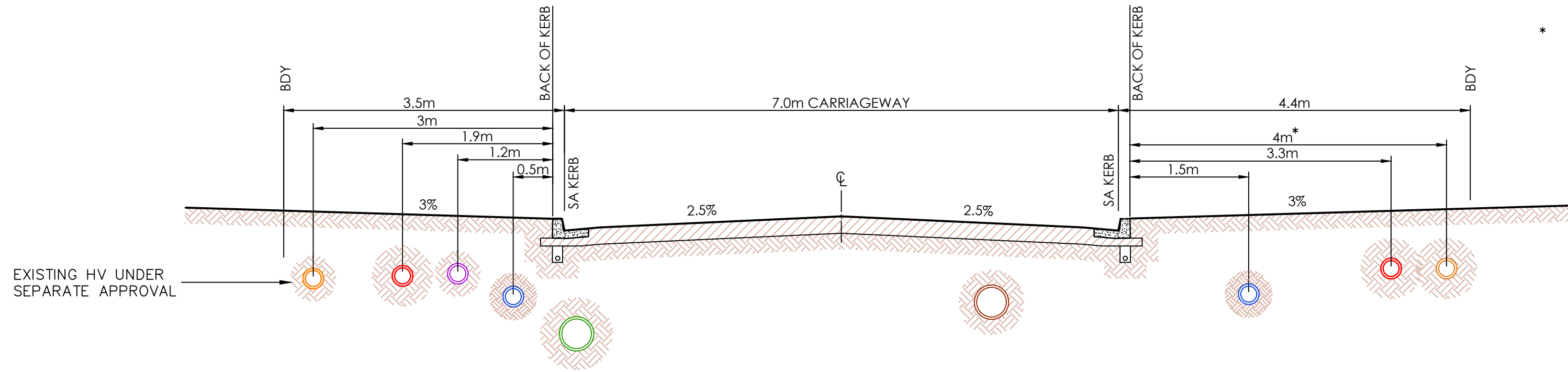
NUMBER

REV.

300001(1) - ENG - 901 H

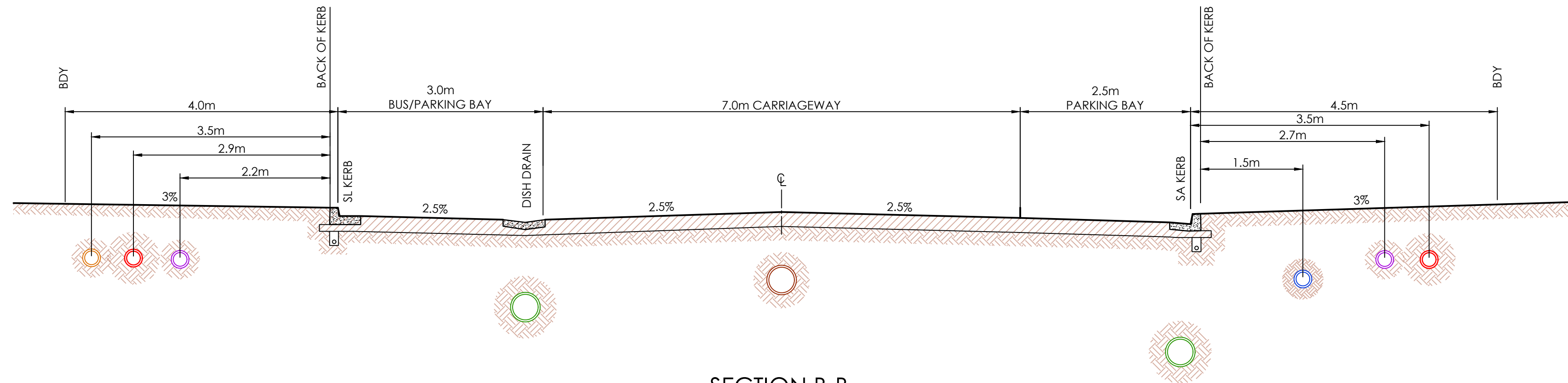
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Plotted By: Mark Hoyland Plot Date: 29/10/20 9:11:39AM Cad File: S:\300001\DRAWINGS\ENGINEERING\CIVIL\STAGE 1 CC ENG\300001(1)-ENG-901.DWG





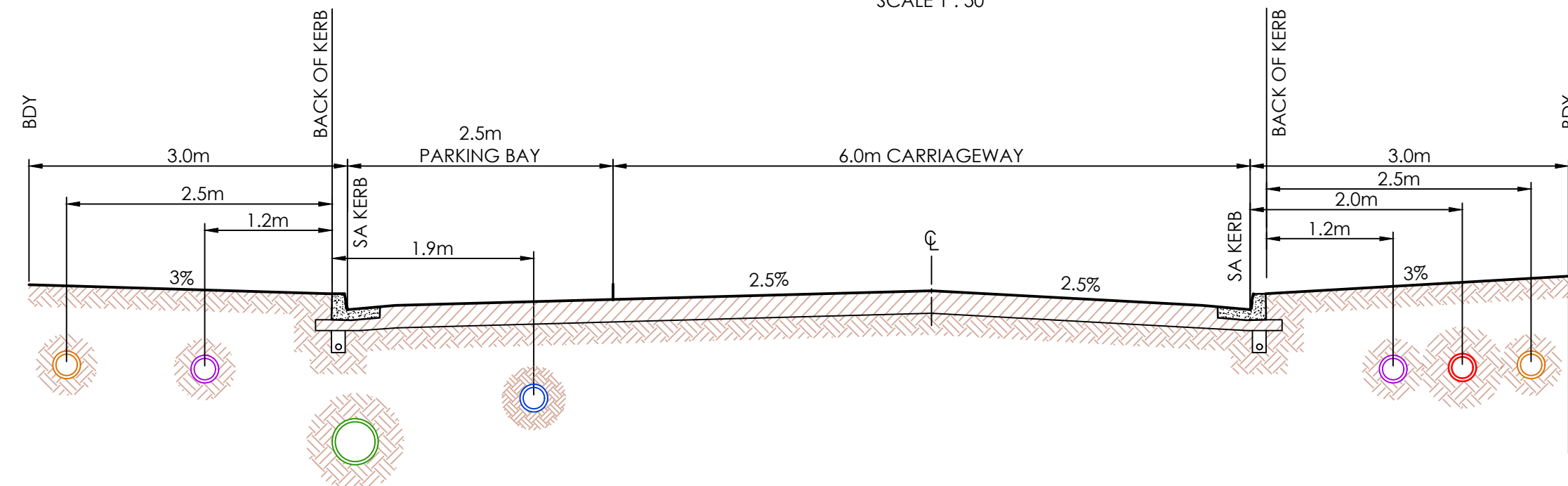
SECTION A-A

SCALE 1 : 50



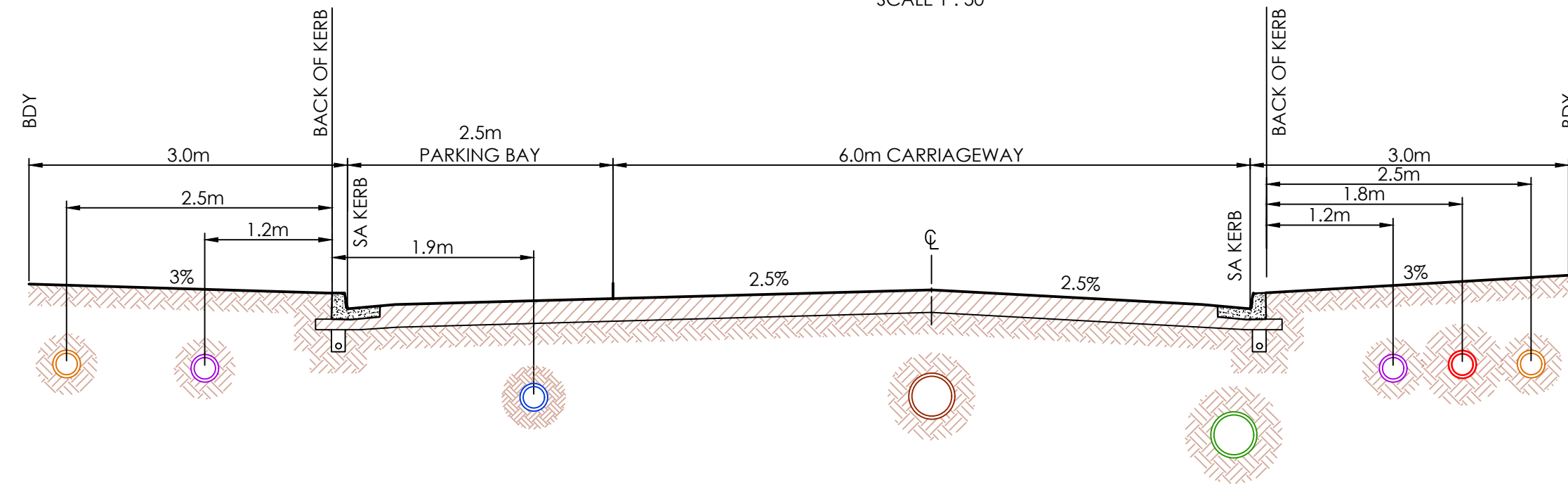
SECTION B-B

SCALE 1 : 50



SECTION C-C

SCALE 1 : 50



SECTION D-D

SCALE 1 : 50

* DIMENSIONS INDICATIVE ONLY.
TO BE CONFIRMED AGAINST
APPROVED SERVICES DESIGNS

LEGEND	
	PROPOSED STORMWATER
	PROPOSED WATER
	PROPOSED SEWER
	PROPOSED NBN
	PROPOSED ELECTRICAL
	EXISTING HIGH VOLTAGE
	PROPOSED STREET LIGHTING

GENERAL NOTES: —

- SERVICES SHOWN FOR INFORMATION ONLY.
ALL SERVICES TO BE CONSTRUCTED IN
ACCORDANCE WITH APPROVED
CONSTRUCTION DOCUMENTATION, RYDE CITY
COUNCIL STANDARDS AND THE RELEVANT
SERVICE AUTHORITY STANDARDS.

NOTE: —

WATERMAIN REQUIRED TO BE LOCALLY DIVERTED
AROUND STORMWATER PITS AND STREET LIGHT
FOOTINGS. ENSURE ADEQUATE CLEARANCE
BETWEEN WATERMAIN AND STRUCTURES.
CLEARANCES TO ALLOW FOR WORKING SPACE FOR
BORING OF STREET LIGHT FOOTINGS.

NOTE: —

CONTRACTOR TO UNDERTAKE CLASH CHECK OF
ALL SERVICES PRIOR TO COMMENCEMENT.



REV.	DATE	AMENDMENT	DESIGN	DRAWN	CHECKED	APPROVED	SCALES	CLIENT	PROPERTY DESCRIPTION	PROJECT
A	21.02.2020	PRELIMINARY DRAFT ISSUE	B.M.	P.B.	B.M.	B.M.		 Central Coast 5 Pioneer Avenue, P.O. Box 3717, Tuggerah N.S.W. 2259 Phone: (02) 4305 4300 Fax: (02) 4305 4399 email: coast@adwjohnson.com.au www.adwjohnson.com.au ABN 62 129 445 398	LOT 5 D.P.740753, LOTS 6-20 D.P.861433 & LOT 100 D.P.1223787 HERRING ROAD & EPPING ROAD MACQUARIE PARK 2322	PROPOSED SUBDIVISION
B	13.03.2020	TURNING HEAD & BASIN MOVED	B.M.	J.J.	B.M.	N.D.				PLAN TITLE
C	03.04.2020	FOR TENDER	B.M.	M.H.	B.M.	N.D.				TYPICAL ROAD PROFILES, SERVICE LOCATIONS
D	02.06.2020	MINOR AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
E	05.06.2020	MINOR NOTE AMENDMENTS	B.M.	M.F.	B.M.	N.D.				
F	03.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
G	14.09.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
H	29.10.2020	PCA COMMENTS	B.M.	M.H.	B.M.	N.D.				
DESIGN FILE: S:\300001\DESIGN\12D\STAGE 1 CC\project								ALL DIMENSIONS ARE IN METRES. DO NOT SCALE		PROJECT No. 300001(1) - DISCIPLINE ENG - NUMBER 902 - REV. H

MIDTOWN AT MACQUARIE PARK, IVANHOE

STAGE 1 LANDSCAPE WORKS
TENDER DOCUMENTATION



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au

REFERENCE MAP	NORTH	NOTES			04 03 REV	SUBDIVISION WORKS CERTIFICATE COORDINATION FOR TENDER DESCRIPTION	29 07 2020 21 05 2020 DATE	REV	DESCRIPTION	DATE	CLIENT <div>FRASERS PROPERTY</div> ARCHITECTS BATESSMART	CONSULTANT HASSELL LIMITED ACN 007 711 435 LEVEL 2 PIER 8/9 23 HICKSON ROAD SYDNEY NSW 2000 AUSTRALIA SYDNEY@HASSELLSTUDIO.COM T 61 2 9101 2000 Nominated architects NSW: Tony Grist 5350 Ross de la Motte 7398 <div>Hassell</div> PROJECT MIDTOWN AT MACQUARIE PARK, IVANHOE STAGE 1 & 1A TENDER DOCUMENTATION MACQUARIE PARK, NSW, 2113	DRAWING TITLE COVER SHEET				
		1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN. 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. 3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK. HASSELL SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES. 4. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS. © COPYRIGHT OF THIS DRAWING IS VESTED IN HASSELL. LTD. 2020 HASSELL. LTD. THIS DRAWING IS AN UNCONTROLLED COPY. UNLESS NOTED OTHERWISE.											STATUS FOR TENDER				
													SCALE @ A1	DRAWN	CO-ORD GD	REVIEWED AE	APPROVED AE
						PROJECT NUMBER 012092.006		DRAWING NUMBER L-S1_0001-1		REV 04							

LEGEND

REFER TO 'SH_L-S1-6001 MATERIALS & FINISHES SCHEDULE' FOR SPECIFICATIONS

SITE

DRAWING	DETAIL REF	CODE	SYMBOL	
-	-	-		IVANHOE ESTATE S SITE BOUNDARY
-	-	-		STAGE 1 & 1A LOT BOUNDARY
-	-	-		IVANHOE ESTATE LOT BOUNDARIES
-	-	-		STAGE 1 INTERFACE EXTENT OF WORKS
-	-	-		INDICATIVE FINISHED LEVEL REFER TO ARCHITECTURAL DRAWINGS
-	-	-		INDICATIVE RELATIVE LEVEL REFER TO CIVIL ENGINEERS DRAWINGS
-	-	-		INDICATIVE TOP OF WALL BOTTOM OF WALL LEVEL. REFER TO CIVIL ENGINEERS DRAWINGS
-	-	-		PROPOSED CONTOURS. REFER TO CIVIL ENGINEERS DRAWINGS

PL - SOFTWORKS

DRAWING	DETAIL REF	CODE	SYMBOL	
L-S1_5402	02 03	PL01		PLANTING MIX 01 MAIN STREET ENTRY
L-S1_5402	03 04	PL02		PLANTING MIX 02 MAIN STREET
L-S1_5402	03 04	PL03		PLANTING MIX 03 NEIGHBOURHOOD STREET
L-S1_5402	02 03	PL04		PLANTING MIX 04 NEIGHBOURHOOD GARDEN
L-S1_5402	01 05	PL08		PLANTING MIX 08 TURF

TREES

DRAWING	DETAIL REF	CODE	SYMBOL	DESCRIPTION
L-S1_5401	01 02	-		PROPOSED TREE 1000LTR
L-S1_5401	01 02	-		PROPOSED TREE 750LTR
L-S1_5401	01 03	-		PROPOSED TREE 400LTR
L-S1_5401	01	-		PROPOSED PALM TREE

WA - WALLS

DRAWING	DETAIL REF	CODE	SYMBOL	DESCRIPTION
L-S1_5103	01 02 03 04	WA01		STREET WALL - STONE BLOCK WORK LOCATION: A1 STREET WALLS

FN - FURNITURE

DRAWING	DETAIL REF	CODE	SYMBOL	
L-S1_5201	01 02 04	FN01		SINGLE SEAT 'PRECINCT SEAT' LOCATION: PUBLIC DOMAIN
L-S1_5201	01 03	FN02		BENCH WITH BACKREST 'PRECINCT SEAT' LOCATION: PUBLIC DOMAIN
L-S1_5201	04	FN03		FIXED CHESS TABLE LOCATION: MAIN STREET

FI - FIXTURES

DRAWING	DETAIL REF	CODE	SYMBOL	
L-S1_5202	01 02	FI01		CAST ALUMINIUM TREE SURROUNDS LOCATION: PUBLIC DOMAIN
L-S1_5201	05	FI02 A		80L BIN - GENERAL WASTE LOCATION: PUBLIC DOMAIN
L-S1_5201	05	FI02 B		80L BIN - RECYCLING' LOCATION: PUBLIC DOMAIN
L-S1_5202	03	FI03		HOPSCOTCH - ETCHED INTO PV02

PV - HARDWORKS

DRAWING	DETAIL REF	CODE	SYMBOL	
L-S1_5301	01	PV01 A		GRANITE PAVING LOCATION: FOOTPATH - MAIN STREET
L-S1_5301	01	PV01 B		GRANITE PAVING LOCATION: FOOTPATH - MAIN STREET
L-S1_5301	02 01	PV02		GRANITE PAVING LOCATION: NEIGHBOURHOOD STREETS
L-S1_5301	01 02	PV03		GRANITE PAVER - HEADER LOCATION: MAIN & NEIGHBOURHOOD STREETS
L-S1_5301	03	PV04 A		GRANITE PAVING - SQUARE LOCATION: MAIN STREET FOOTPATHS
L-S1_5301	03	PV04 B		GRANITE PAVING - SQUARE LOCATION: MAIN STREET CARRIAGEWAY (TRAFFICABLE)
L-S1_5301	06	PV05 A		GRANITE PAVING - PARKING BAYS LOCATION: MAIN & NEIGHBOURHOOD STREETS (TRAFFICABLE)
L-S1_5301	06	PV05 B		GRANITE PAVING - PARKING BAY DIVIDERS LOCATION: MAIN & NEIGHBOURHOOD STREETS (TRAFFICABLE)
L-S1_5301	04	PV06		GRANITE PAVING - ENTRY LOCATION: MAIN STREET (IVANHOE PLACE)
L-S1_5302	06	PV07		CONCRETE FOOTPATH LOCATION: DISPLAY SUITE INTERFACE

LI - LIGHTING

DRAWING	DETAIL REF	CODE	SYMBOL	
-	-	LI01		POLE TOP STREET LIGHTING COLOUR: BLACK RAL 9004 REFER ELECTRICAL ENGINEER DOCUMENTATION FOR SPECIFICATION



These plans are referred to in
certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

Land Development Certificates
www.LDC.com.au

DRAWING NOTES

- INFORMATION, OTHER THAN LANDSCAPE ARCHITECTURAL WORKS, HAS BEEN PROVIDED BY VARIOUS CONSULTANTS AND IS INCLUDED FOR INFORMATION ONLY.
- FINAL COORDINATION OF ALL TREES, LIGHT POLES AND STREET FURNITURE LOCATIONS TO BE CONFIRMED POST TENDER FOLLOWING TRAFFIC SAFETY AUDIT
- FINAL COORDINATION OF ALL TREES AND LOCATION OF PITS AND SERVICES TO BE CONFIRMED POST TENDER
- PLANTING SCHEDULES ARE INDICATIVE ONLY AND SUBJECT TO REFINEMENT POST AWARD OF TENDER
- ALL SITE LEVELS TO ADWJ DOCUMENTATION

REFERENCE MAP

NORTH

NOTES
1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK. HASSELL SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES.
4. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS.

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04
03
REV

SUBDIVISION WORKS CERTIFICATE COORDINATION
FOR TENDER
DESCRIPTION


29 07 2020
21 05 2020
DATE

REV

DESCRIPTION

DATE

CLIENT




ARCHITECTS

BATESSMART

CONSULTANT

HASSELL LIMITED ACN 007 711 435
LEVEL 2 PIER 8/9 23 HICKSON ROAD
SYDNEY NSW 2000 AUSTRALIA
SYDNEY@HASSELLSTUDIO.COM
T 61 2 9101 2000
Nominated architects NSW: Tony Grist 5350 Ross de la Motte 7398



PROJECT

MIDTOWN AT MACQUARIE PARK, IVANHOE
STAGE 1 & 1A TENDER DOCUMENTATION
MACQUARIE PARK, NSW, 2113

DRAWING TITLE

DRAWING LEGEND

STATUS

FOR TENDER

SCALE @ A1

DRAWN

CO-ORD

REVIEWED

APPROVED

PROJECT NUMBER

DRAWING NUMBER

REV

-

GD

GD

AE

AE

012092.006

L-S1_0003_1

04

PLANTING SCHEDULE - STAGE 1 PUBLIC DOMAIN

CODE	BOTANIC NAME	COMMON NAME	POT SIZE	MIX %	QUANTITY
TREES					
Aj	Acer japonica 'Vitifolium'	Japanese Maple	400ltr	-	4
Bn	Betula nigra 'Dura Heat'	River Birch	750ltr	-	9
Er	Eucalyptus reticulatus 'Prima Donna'	Blueberry Ash	400ltr	-	15
Es	Eucalyptus saligna	Sydney Blue Gum	750ltr	-	6
Fm	Ficus microcarpa var. hillii 'Flash'	Hills Fig	750ltr	-	14
Ms	Ficus microcarpa var. hillii 'Flash'	Hills Fig	400ltr	-	6
Ms	Melaleuca styphelioides	Prickly-Leaved Paperbark	1000ltr	-	24
Pb	Pyrus betulaeifolia 'Southworth Dancer'	Ornamental Pear	400ltr	-	6
Wf	Waterhousia floribunda 'Amaroo'	Weeping Lily Pilly	400ltr	-	32
GROUNDCOVER MIXES					
PL 01	MAIN STREET ENTRY (159m²)				
	Alpinia nutans	Dwarf Cardamon	300mm	20	127
	Zamia fufuracea	Cardboard Palm	300mm	20	127
	Aspidistra elatior	Cast Iron Plant	200mm	20	286
	Liriope spicata	Lilyturf	200mm	20	286
	Pogonanthelum paniceum	Baby Panda Grass	150mm	10	254
	Myoporum parvifolium	Creeping Boobialla	150mm	10	254
PL 02	MAIN STREET (102m²)				
	Lomandra hystrix 'Katie Belles'	Spiny Head Mat Rush	200mm	25	102
	Pennisetum alopecuroidesa 'Nafray'	Swamp Foxtail Grass	200mm	25	102
	Liriope spicata	Lilyturf	150mm	20	184
	Myoporum parvifolium	Creeping Boobialla	150mm	10	92
	Ophiopogon japonicus	Dwarf Turf Lily	150mm	20	245
PL 03	NEIGHBOURHOOD STREET (391m²)				
	Lomandra longifolia 'Verday'	Spiny Head Mat Rush	200mm	18	391
	Tulbaghia violacea	Pink Agapanthis	200mm	18	391
	Liriope muscari 'Amethyst'	Lilyturf	150mm	21	704
	Pratia pedunculata	Pratia	150mm	21	1251
	Trachelospermum asiaticum 'Flat Mat'	Chinese Star Jasmine	150mm	22	352
PL 04	NEIGHBOURHOOD GARDEN (277m²)				
	Alpinia caerulea	Native Ginger	300mm	14	155
	Dichorisantra thyrsiflora	Blue Ginger	300mm	13	144
	Philodenron 'Xanadu'	Philodendron	300mm	13	144
	Iris sibirica	Siberina Ibis	200mm	20	499
	Sarcococca confusa	Sweet Box	200mm	20	499
	Plectranthus 'Mona Lavender'	Mona Lavendar	150mm	6	150
	Dichondra 'Silver Falls'	Kidney Weed	150mm	7	310
	Viola hederacea	Native Violet	150mm	7	310
PL 08	TURF (457m²)				
	Turf				



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories: Certifier – Subdivision
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REFERENCE MAP

NORTH

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03
02

SUBDIVISION WORKS CERTIFICATE COORDINATION
FOR TENDER

29 07 2020
08 04 2020

REV

DESCRIPTION


DATE

REV

DESCRIPTION

DATE

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Nominated architects NSW: Tony Grist 5350 Ross de la Motte 7398

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PROJECT

MIDTOWN AT MACQUARIE PARK, IVANHOE
STAGE 1 & 1A TENDER DOCUMENTATION
MACQUARIE PARK, NSW, 2113

DRAWING TITLE

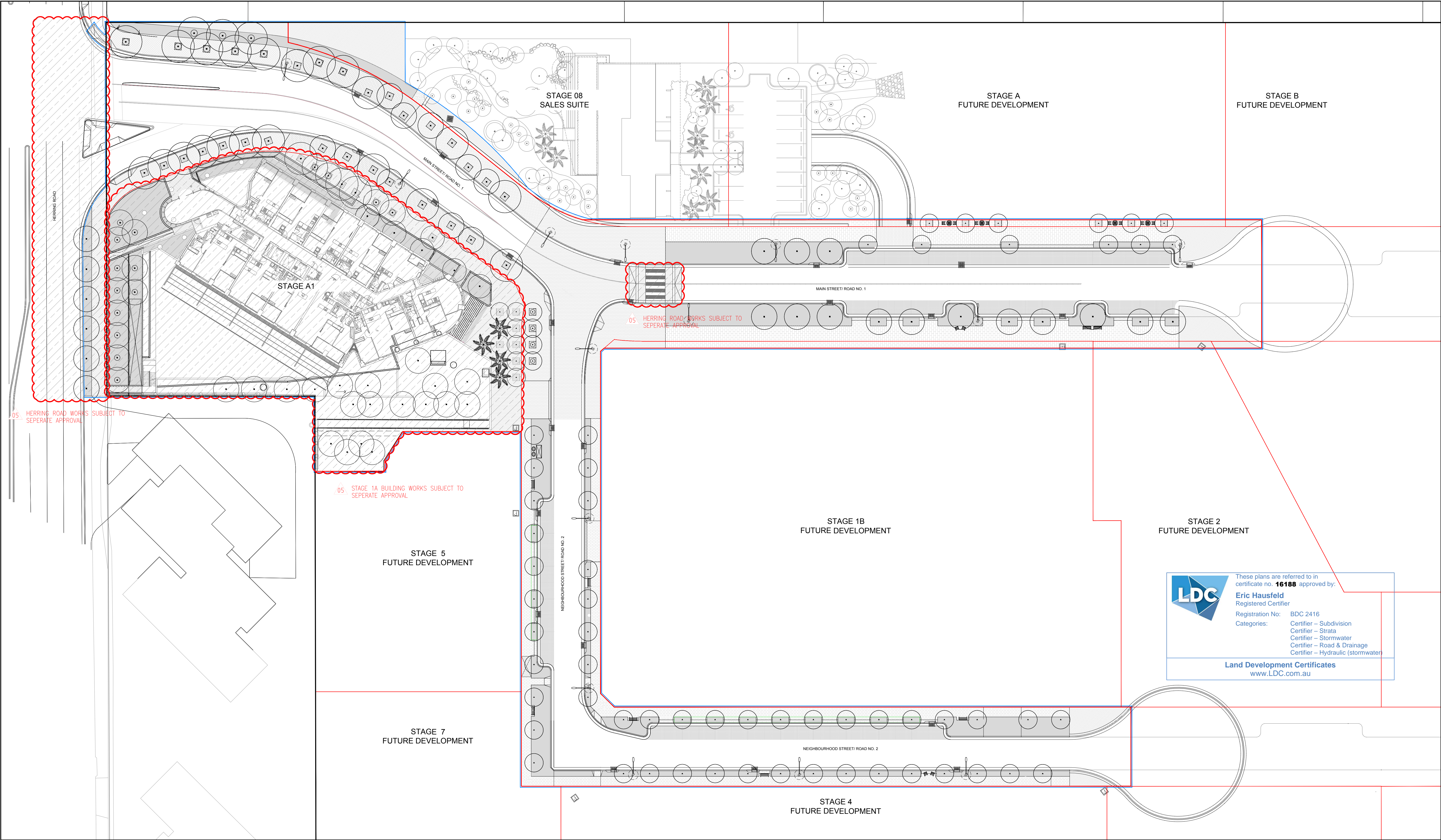
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STATUS

FOR TENDER

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PROJECT NUMBER	DRAWING NUMBER	REV
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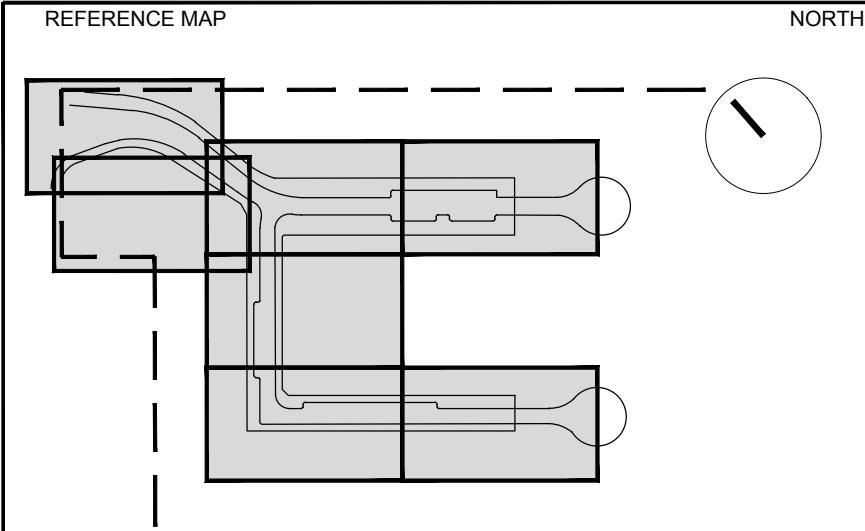
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05	SUBDIVISION WORKS CERTIFICATE COORDINATION	29 07 2020
04	FOR TENDER	17 06 2020
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02	FOR TENDER	08 04 2020
01	PRELIMINARY FOR REVIEW	31 01 2020
REV	DESCRIPTION	DATE

REV	DESCRIPTION	DATE
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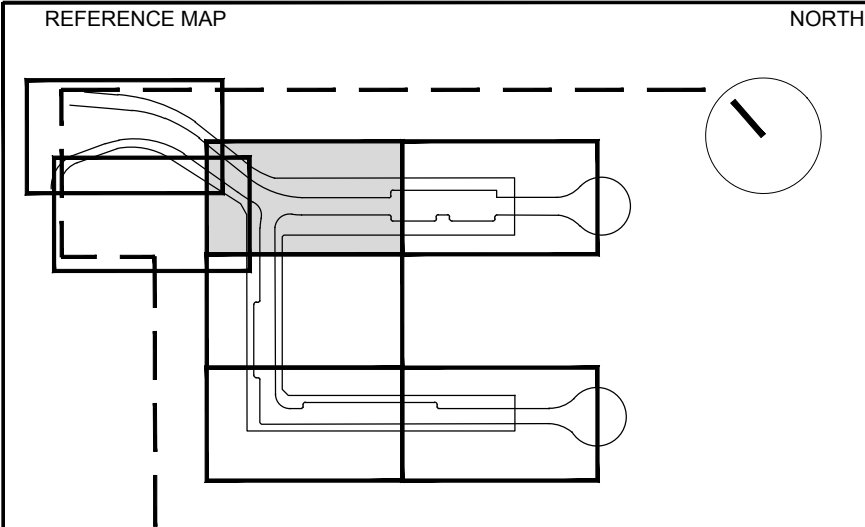
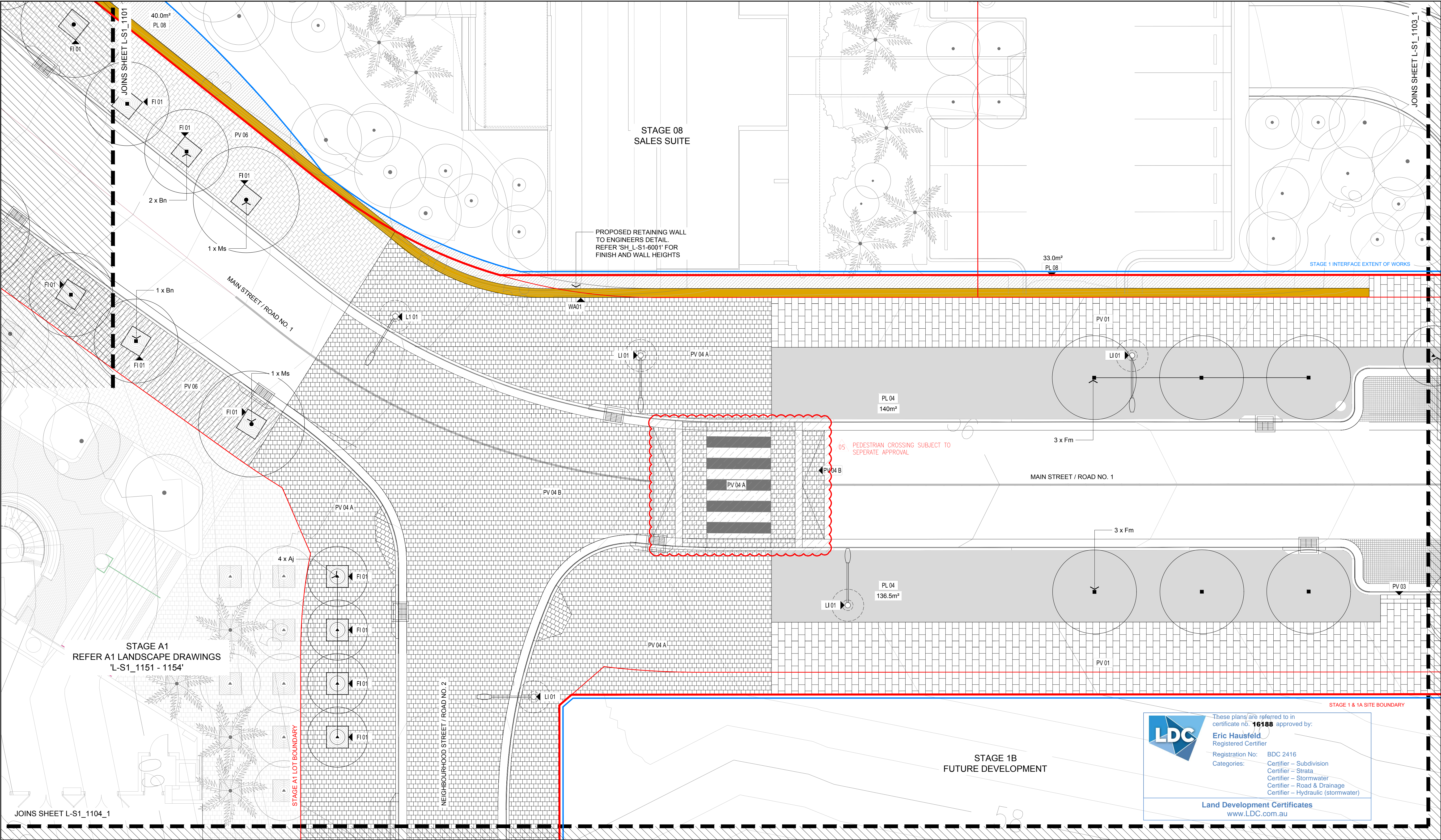
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STAGE 1 & 1A TENDER DOCUMENTATION
MACQUARIE PARK, NSW, 2113

DRAWING TITLE
SITE PLAN

STATUS
FOR TENDER

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PROJECT NUMBER	DRAWING NUMBER	REV
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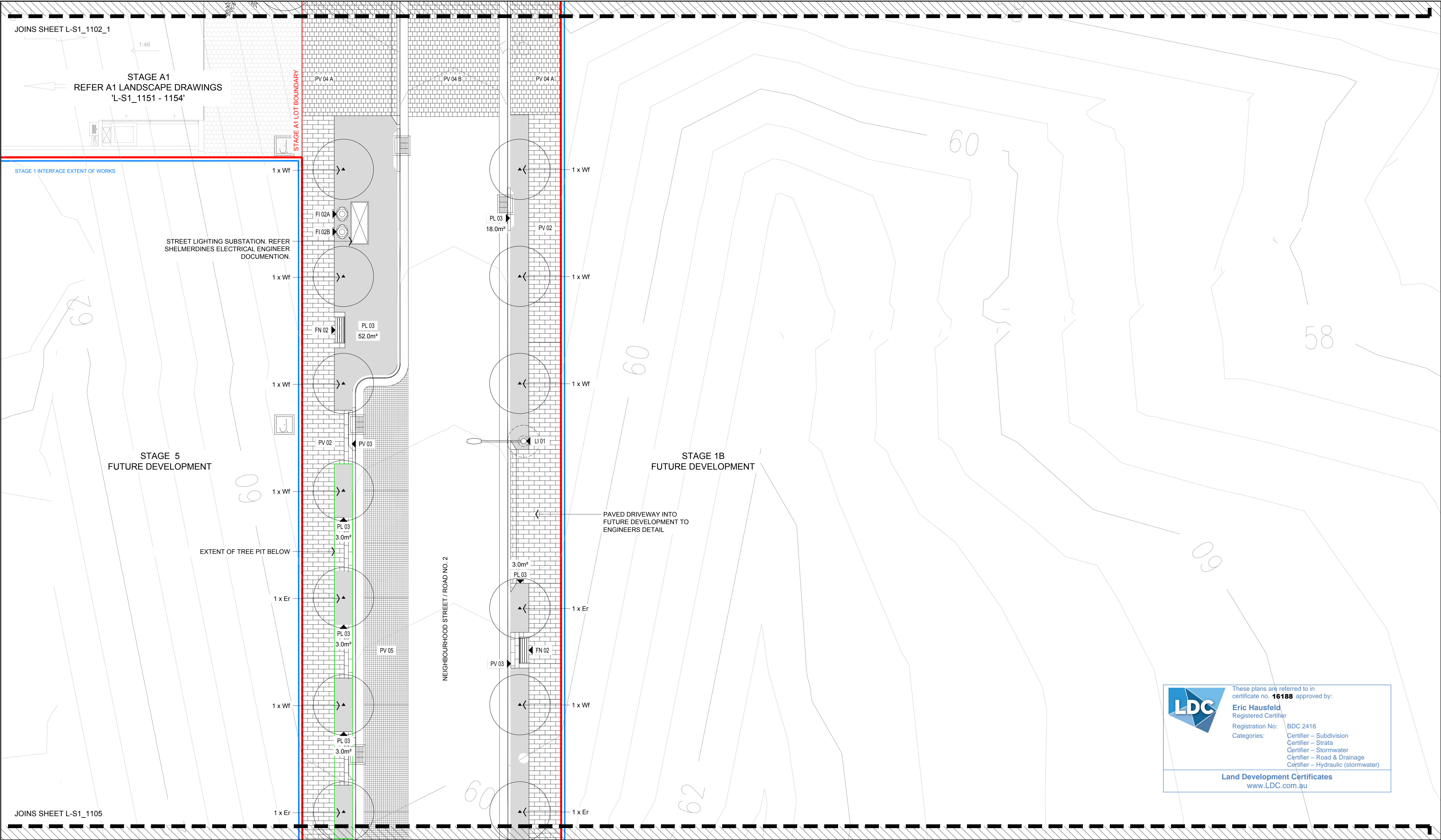
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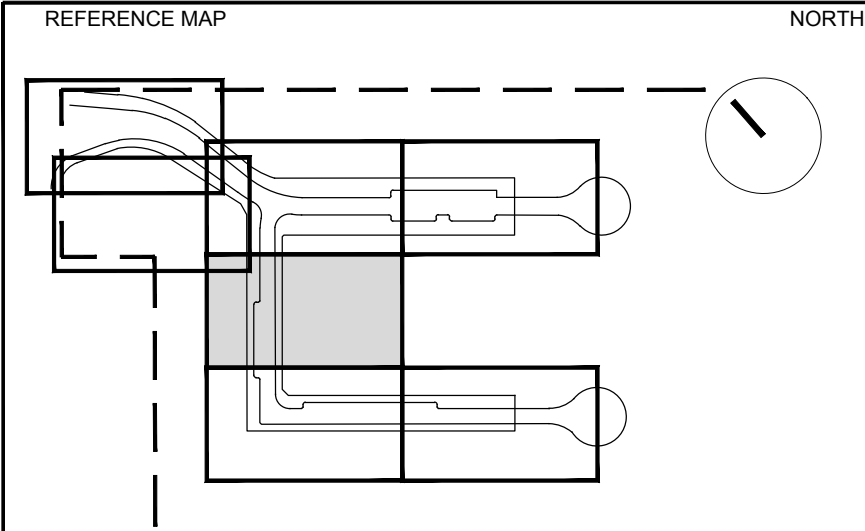
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STAGE 1 & 1A TENDER DOCUMENTATION
MACQUARIE PARK, NSW, 2113

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STATUS				
FOR TENDER				
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PROJECT NUMBER	DRAWING NUMBER		REV	
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Registered Certifier
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REV	DESCRIPTION	DATE
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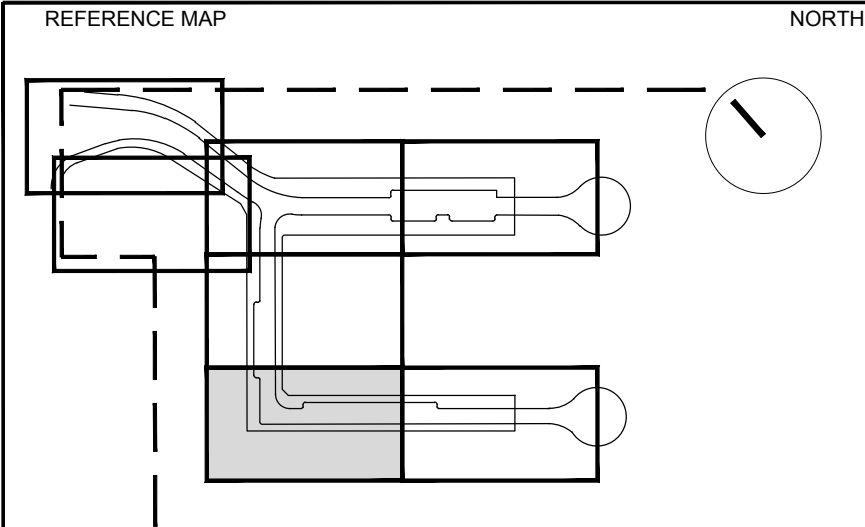
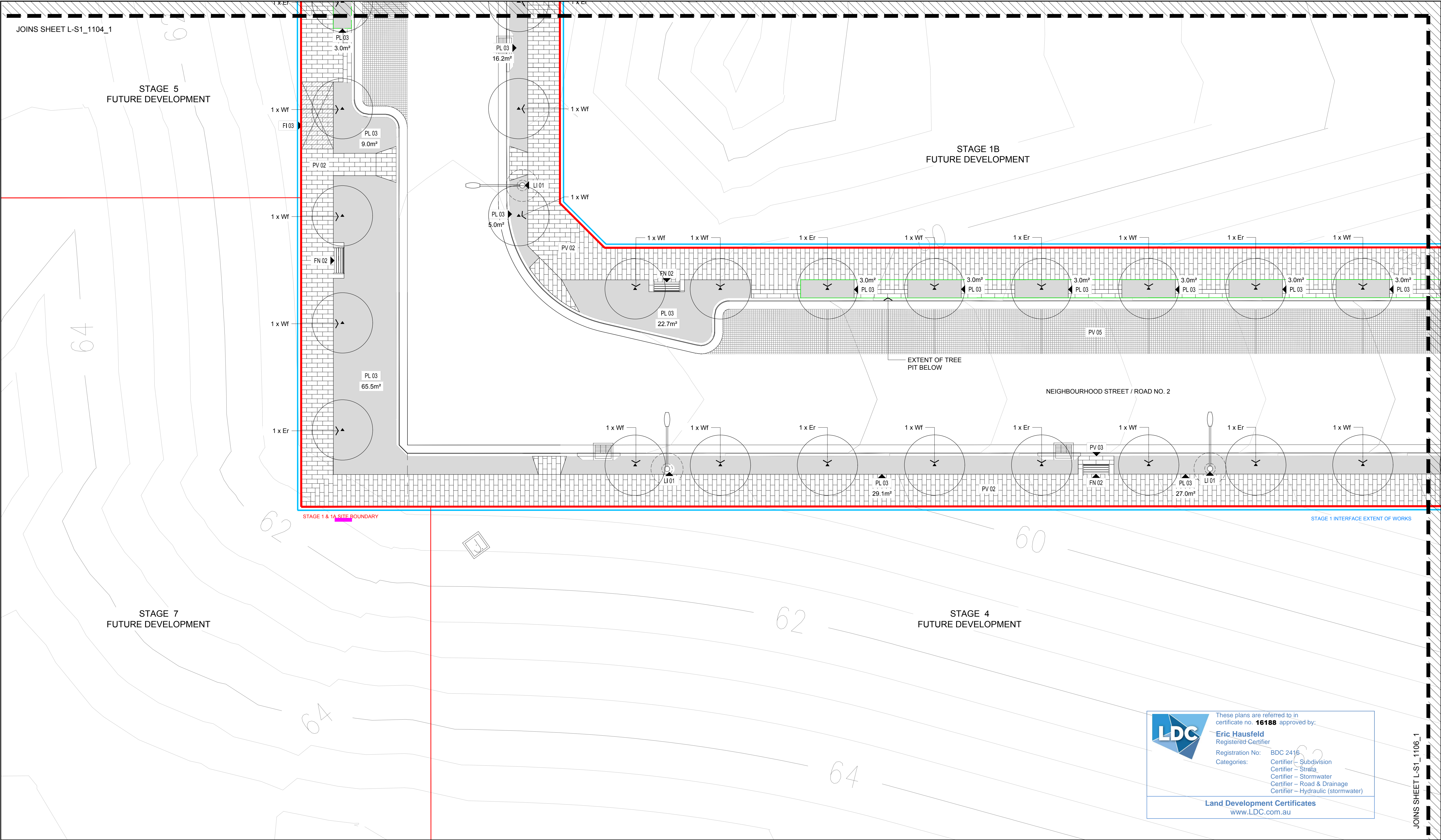
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MACQUARIE PARK, NSW, 2113

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GENERAL ARRANGEMENT				
STATUS				
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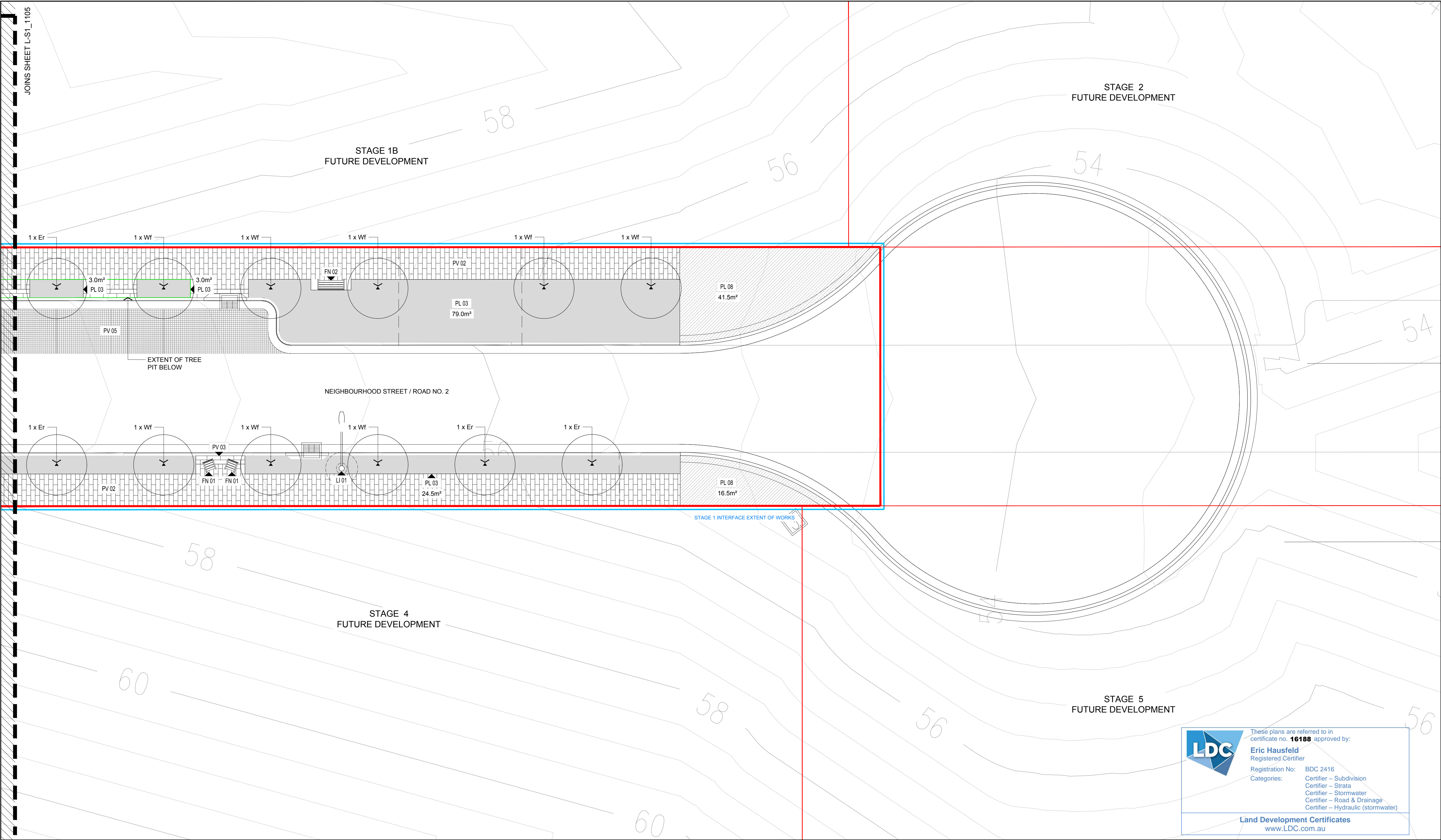
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MACQUARIE PARK, NSW, 2113

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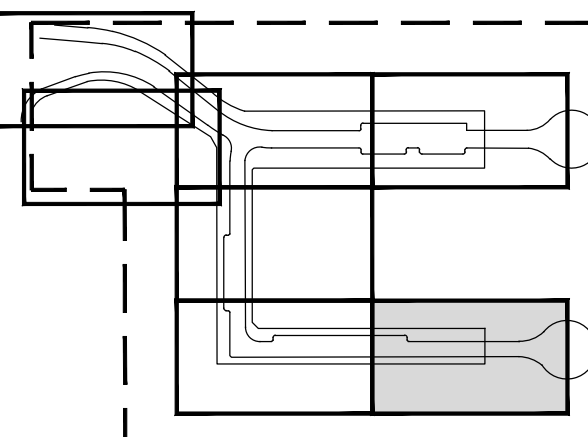
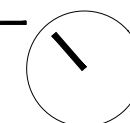


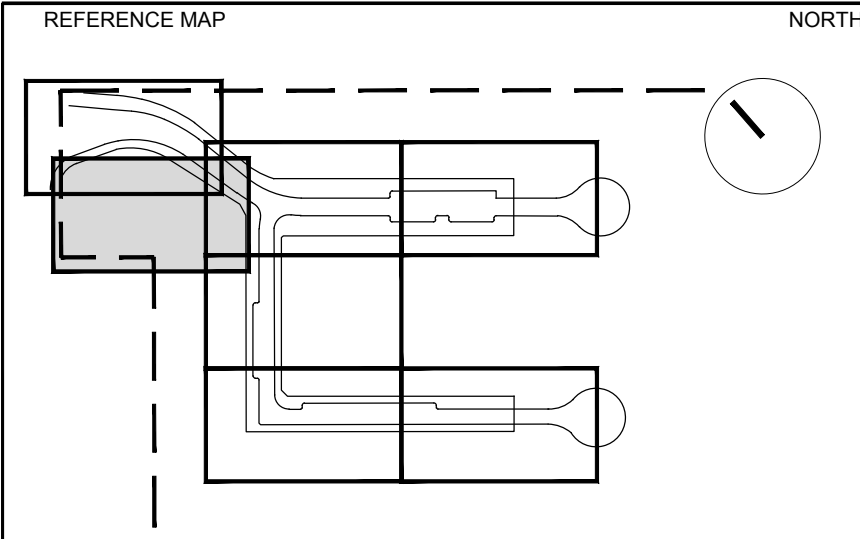
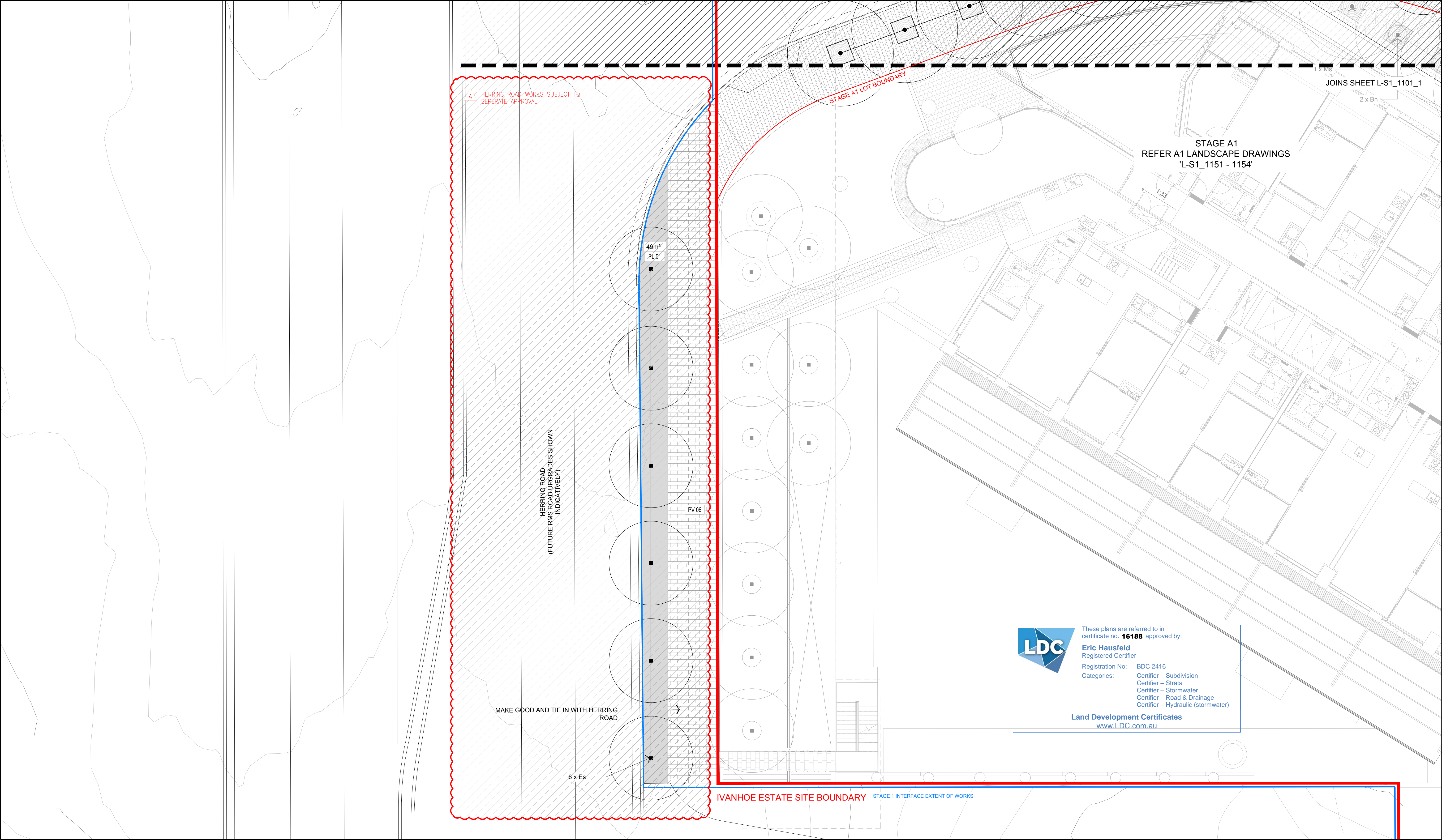
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03	FOR TENDER	10 06 2020
02	FOR TENDER	08 04 2020

REV	DESCRIPTION	DATE

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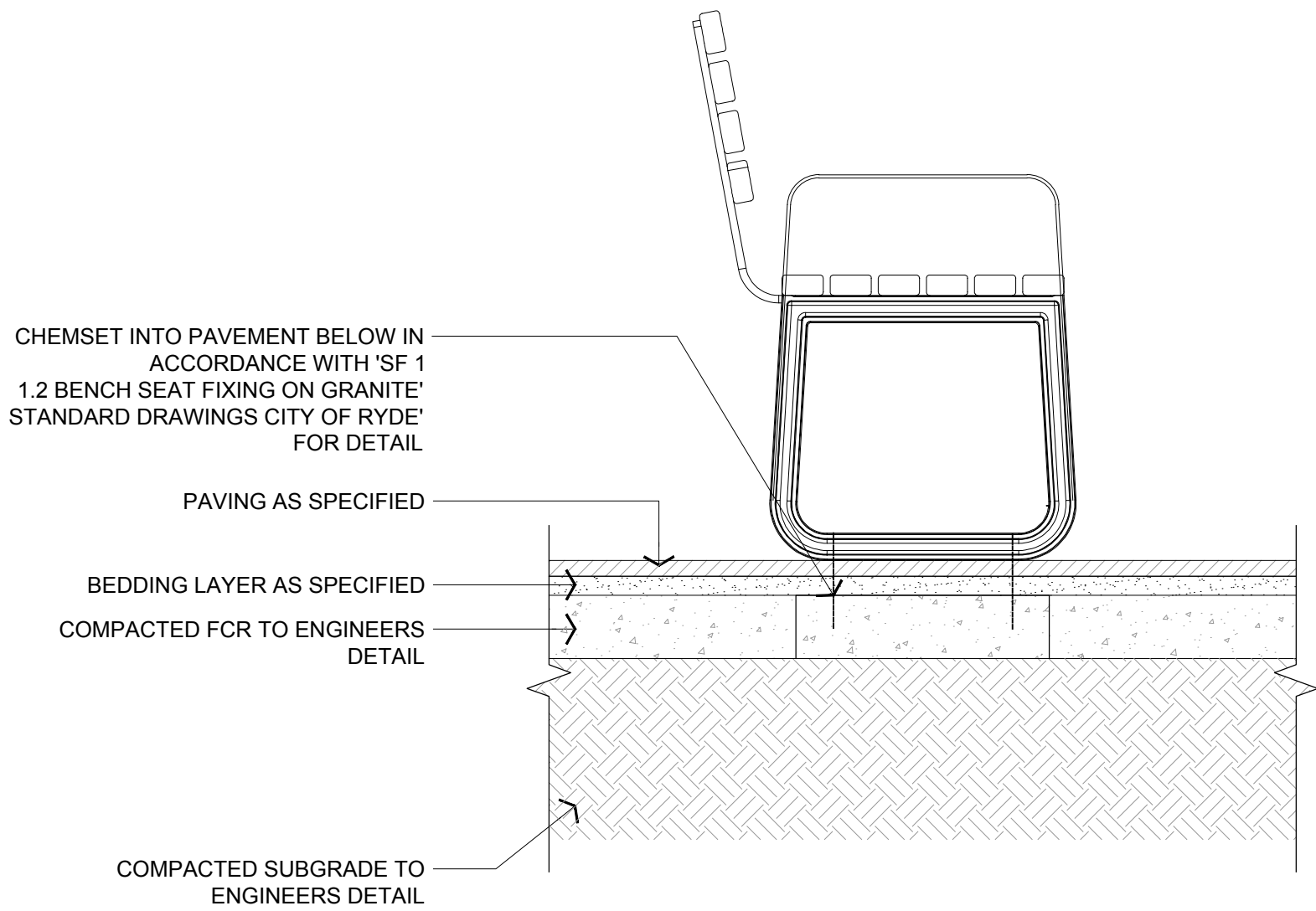
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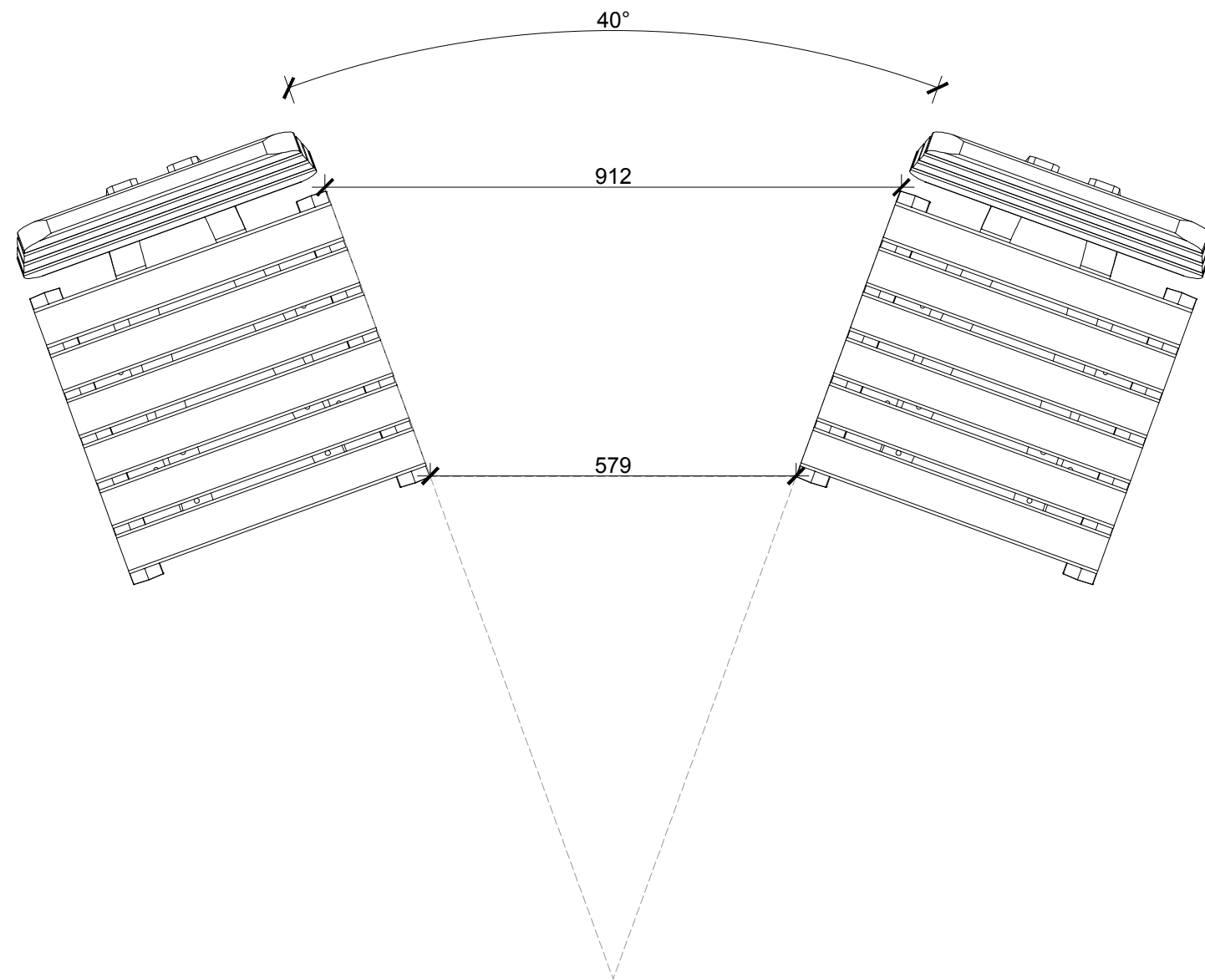
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STAGE 1 & 1A TENDER DOCUMENTATION
MACQUARIE PARK, NSW, 2113

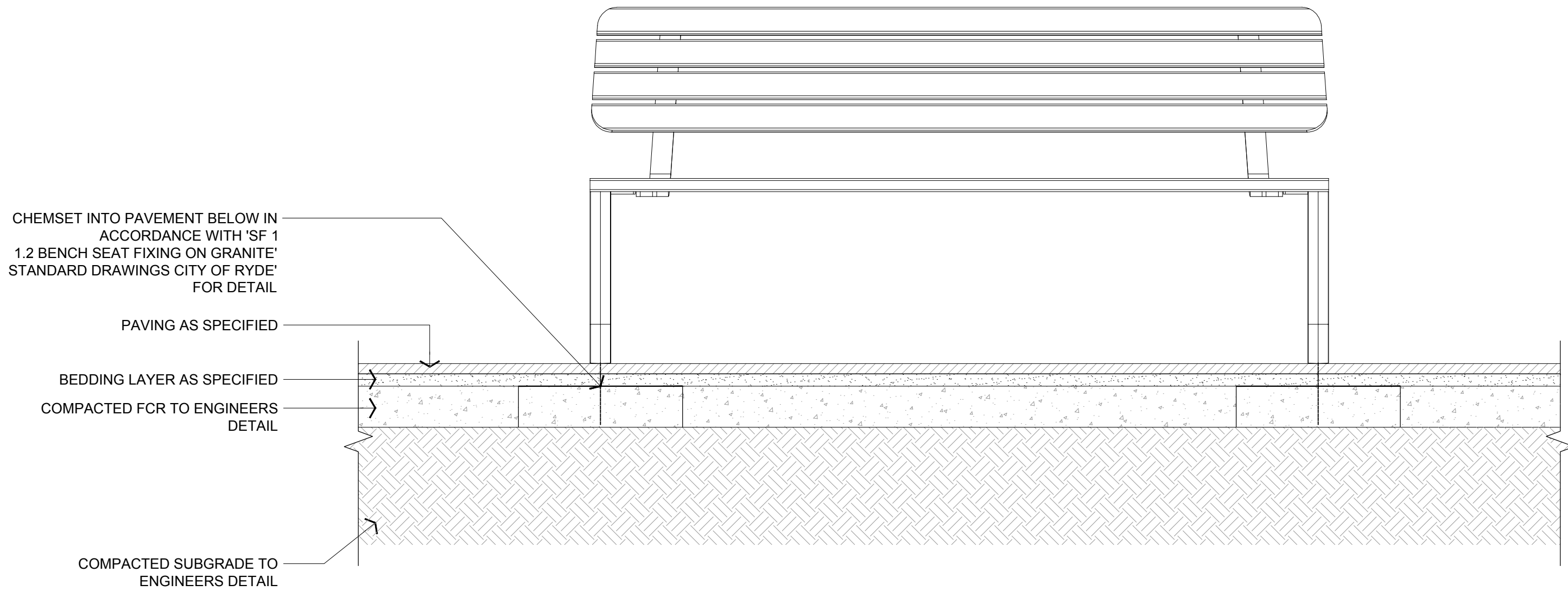
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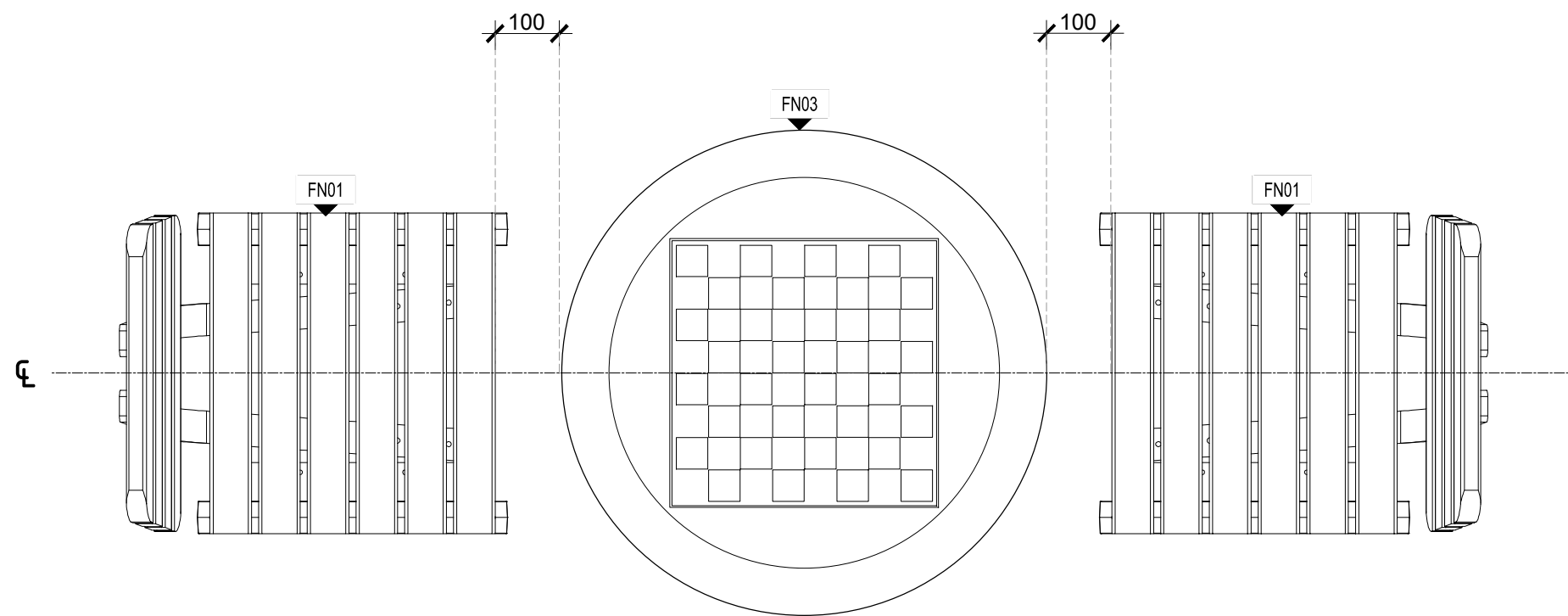
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ELEVATION - Scale: 1:10@A1



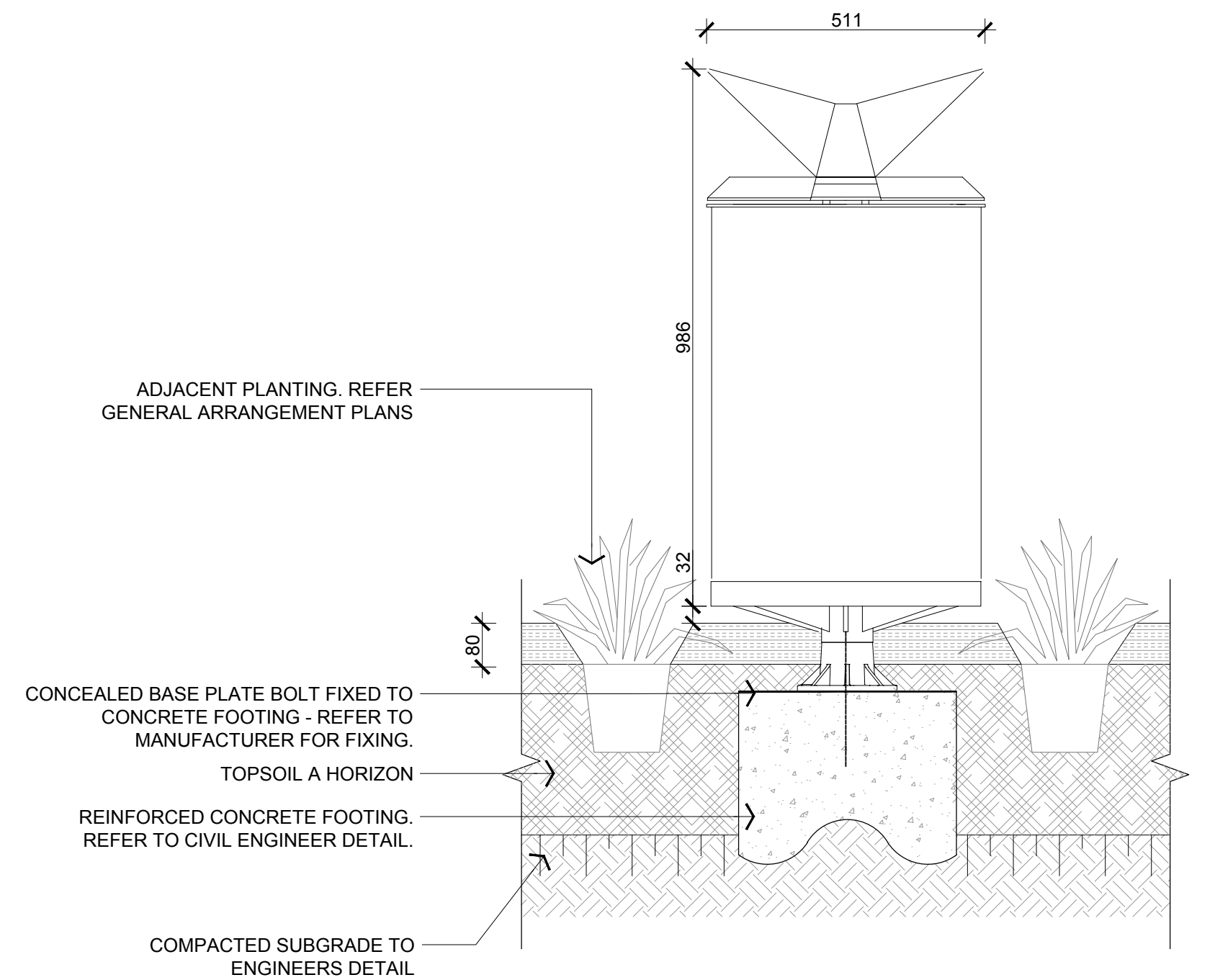
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PLAN - Scale: 1:10@A1



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SECTION - Scale: 1:10@A1



04 FN03 - CHESS SETTING SETOUT
PLAN - Scale: 1:10@A1




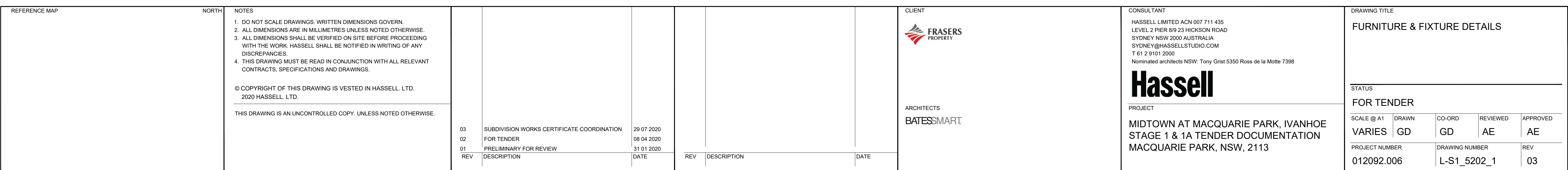
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PLAN - Scale: 1:10@A1

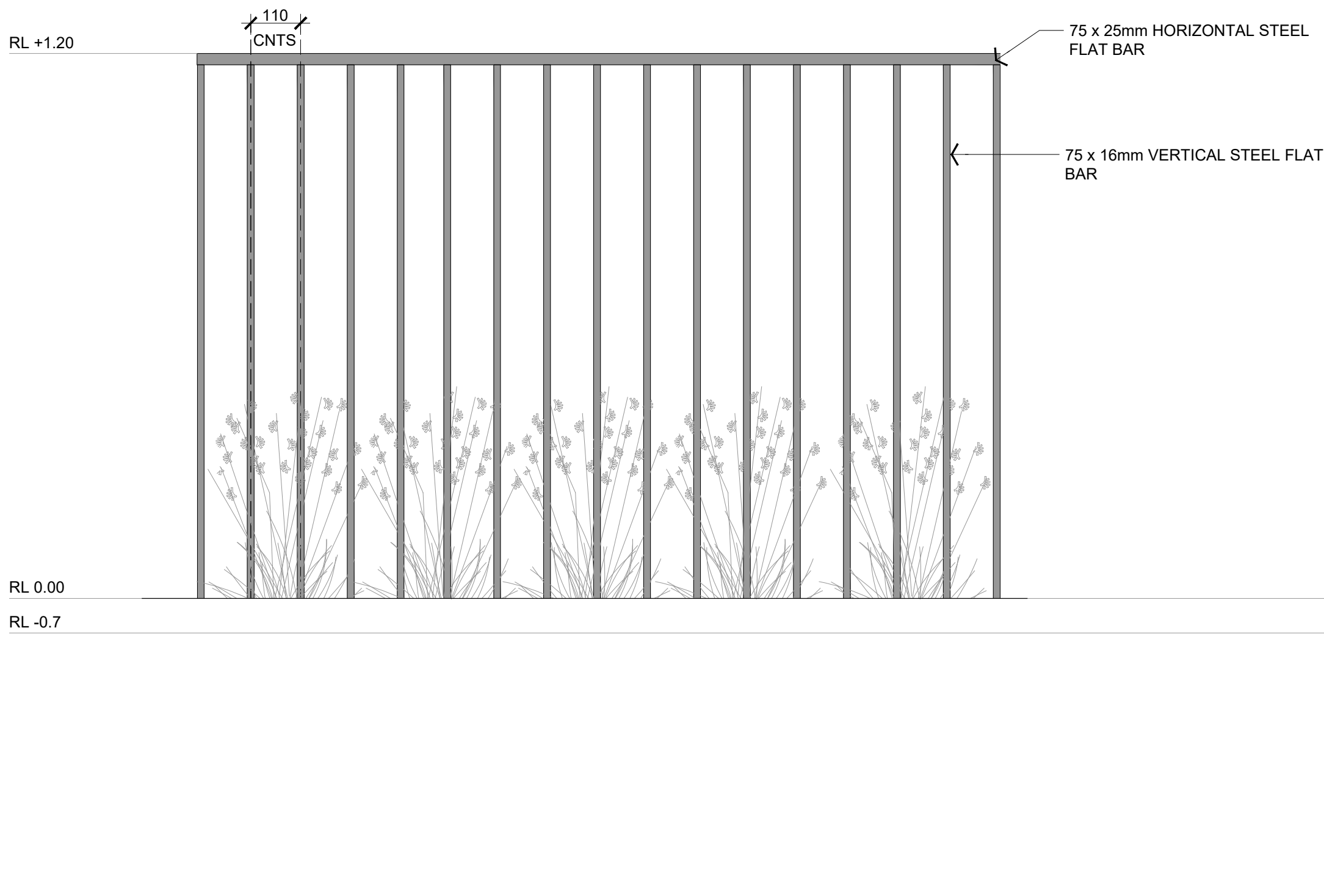


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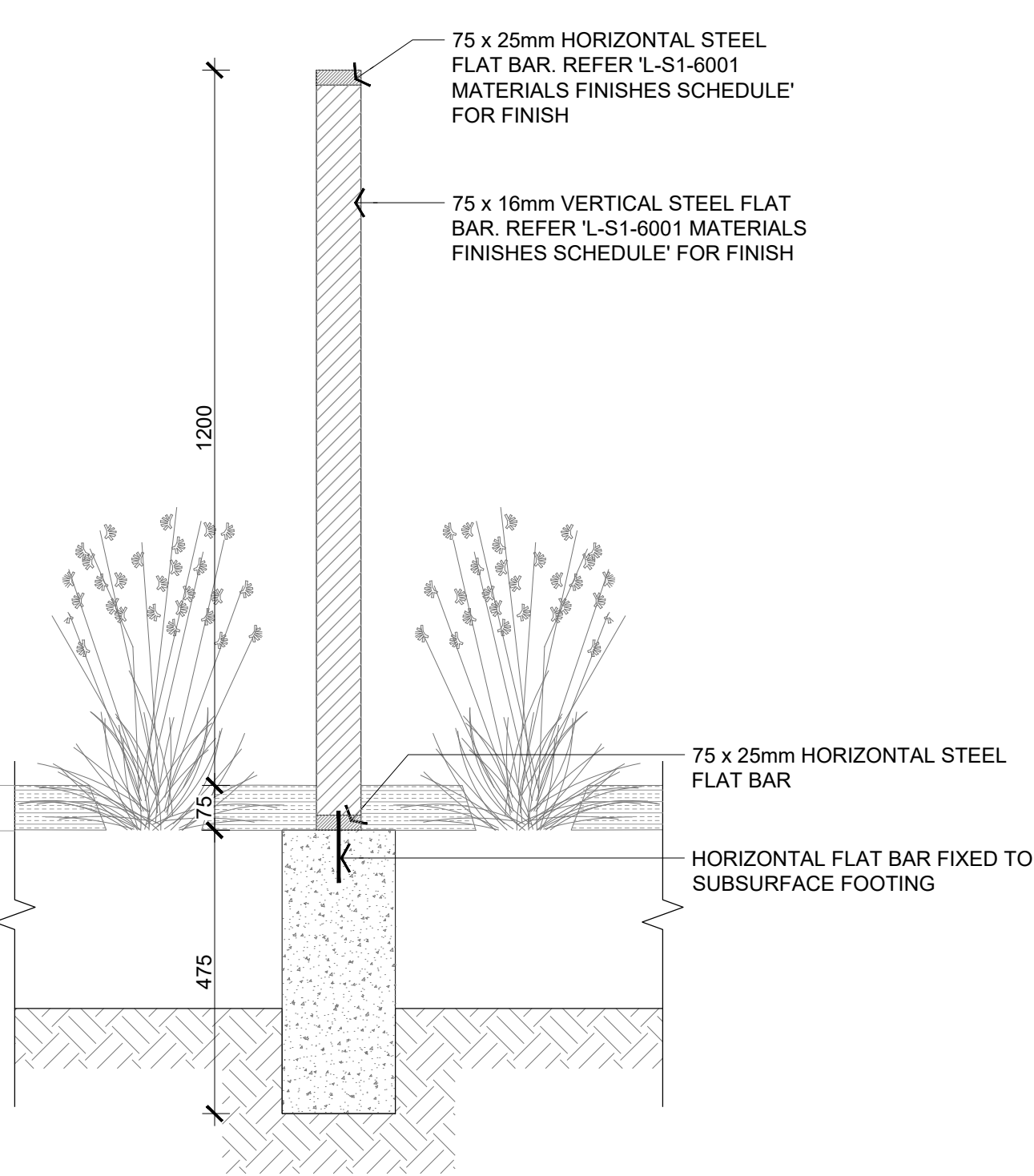
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												012092.006	L-S1_5201_1		04	





ELEVATION



SECTION - AA

01 FN01 - VERTICAL PALISADE FENCE

SECTION - Scale: 1:10@A1





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Eric Hausfeld
Registered Certifier

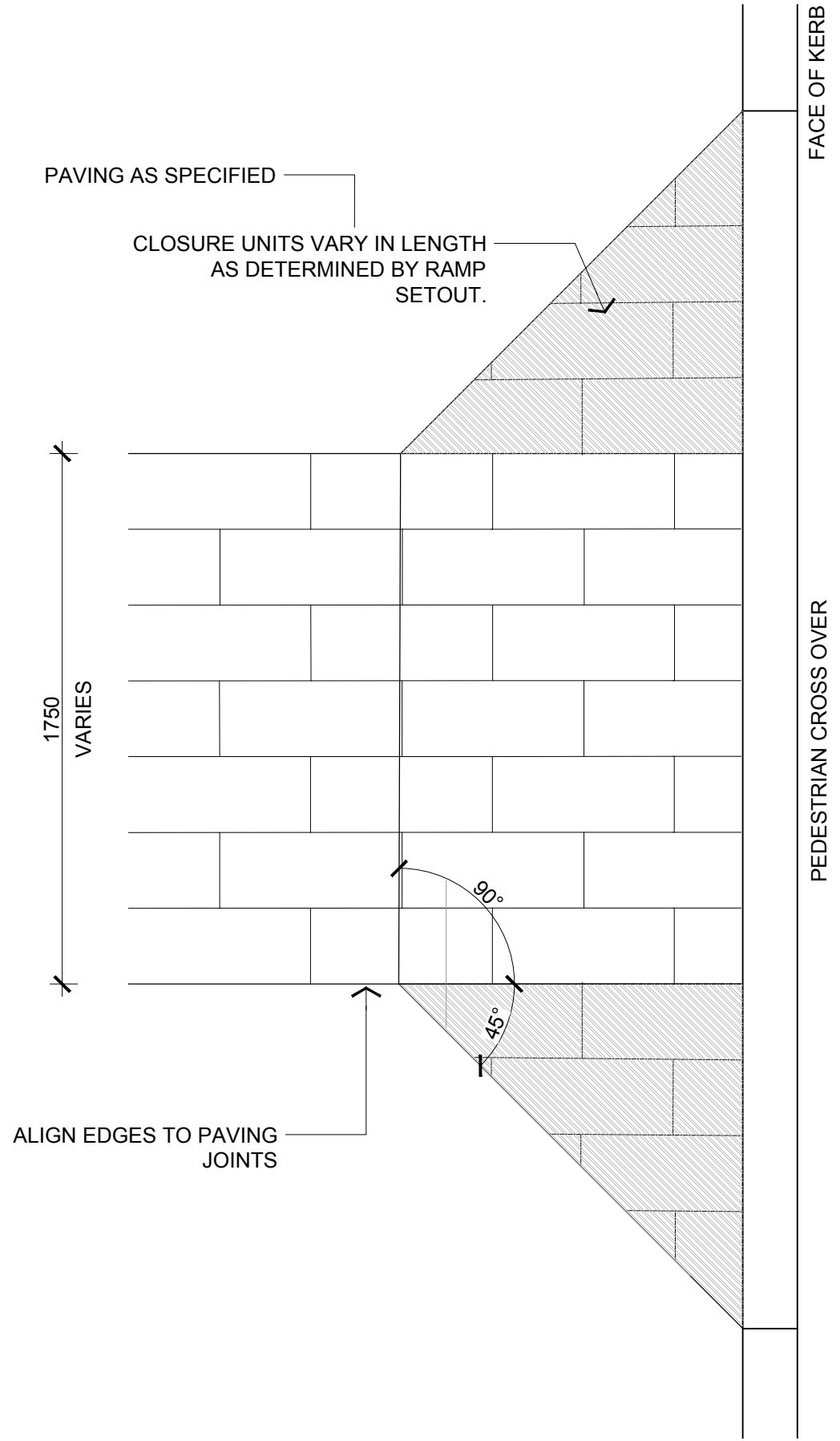
Registration No: BDC 2416

Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

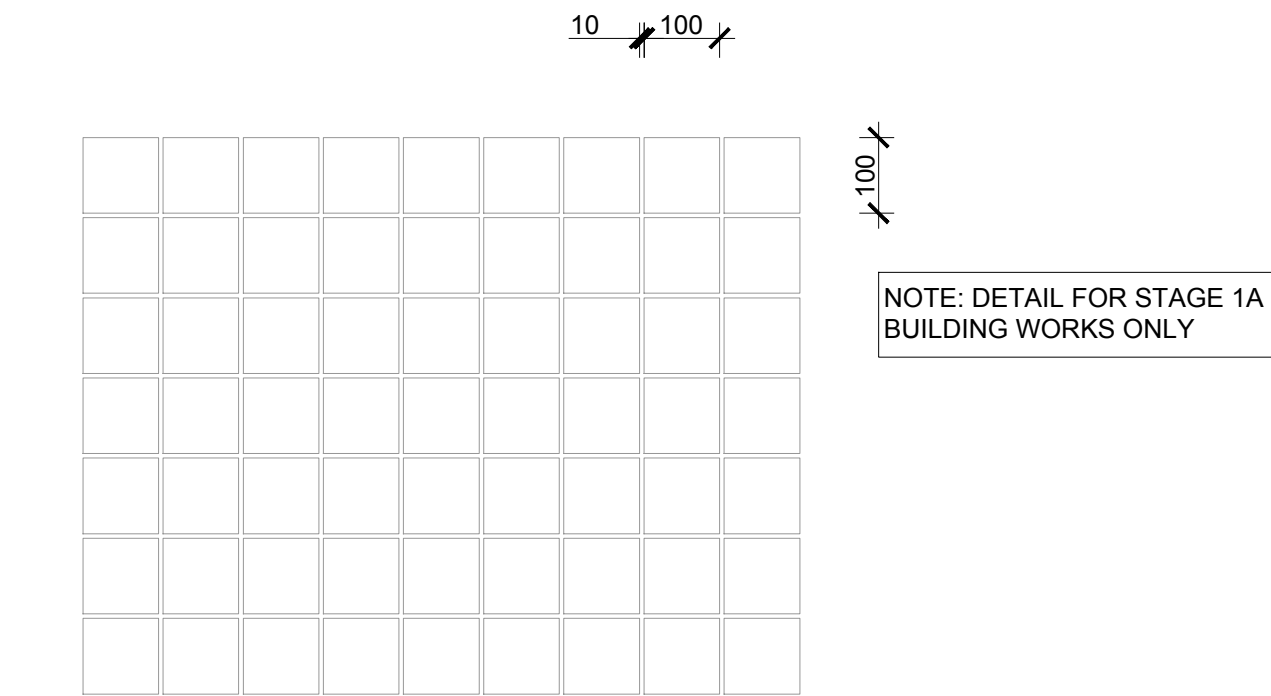
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REFERENCE MAP		NORTH		NOTES						CLIENT		CONSULTANT		DRAWING TITLE	
				1. DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS GOVERN. 2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE. 3. ALL DIMENSIONS SHALL BE VERIFIED ON SITE BEFORE PROCEEDING WITH THE WORK. HASSELL SHALL BE NOTIFIED IN WRITING OF ANY DISCREPANCIES. 4. THIS DRAWING MUST BE READ IN CONJUNCTION WITH ALL RELEVANT CONTRACTS, SPECIFICATIONS AND DRAWINGS.								HASSELL LIMITED ACN 007 711 435 LEVEL 2 PIER 8/9 23 HICKSON ROAD SYDNEY NSW 2000 AUSTRALIA SYDNEY@HASSELLSTUDIO.COM T 61 2 9101 2000 Nominated architects NSW: Tony Grist 5350 Ross de la Motte 7398		FURNITURE & FIXTURE DETAILS WALLS, STAIRS, FENCES & HANDRAILS	
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				THIS DRAWING IS AN UNCONTROLLED COPY. UNLESS NOTED OTHERWISE.						BATESSMART		PROJECT		FOR TENDER	
												MIDTOWN AT MACQUARIE PARK, IVANHOE STAGE 1 & 1A TENDER DOCUMENTATION MACQUARIE PARK, NSW, 2113		SCALE @ A1	
														DRAWN	
														CO-ORD	
														REVIEWED	
														APPROVED	
														PROJECT NUMBER	
														DRAWING NUMBER	
														REV	
														012092.006	
														L-S1_5203-A1	
														03	

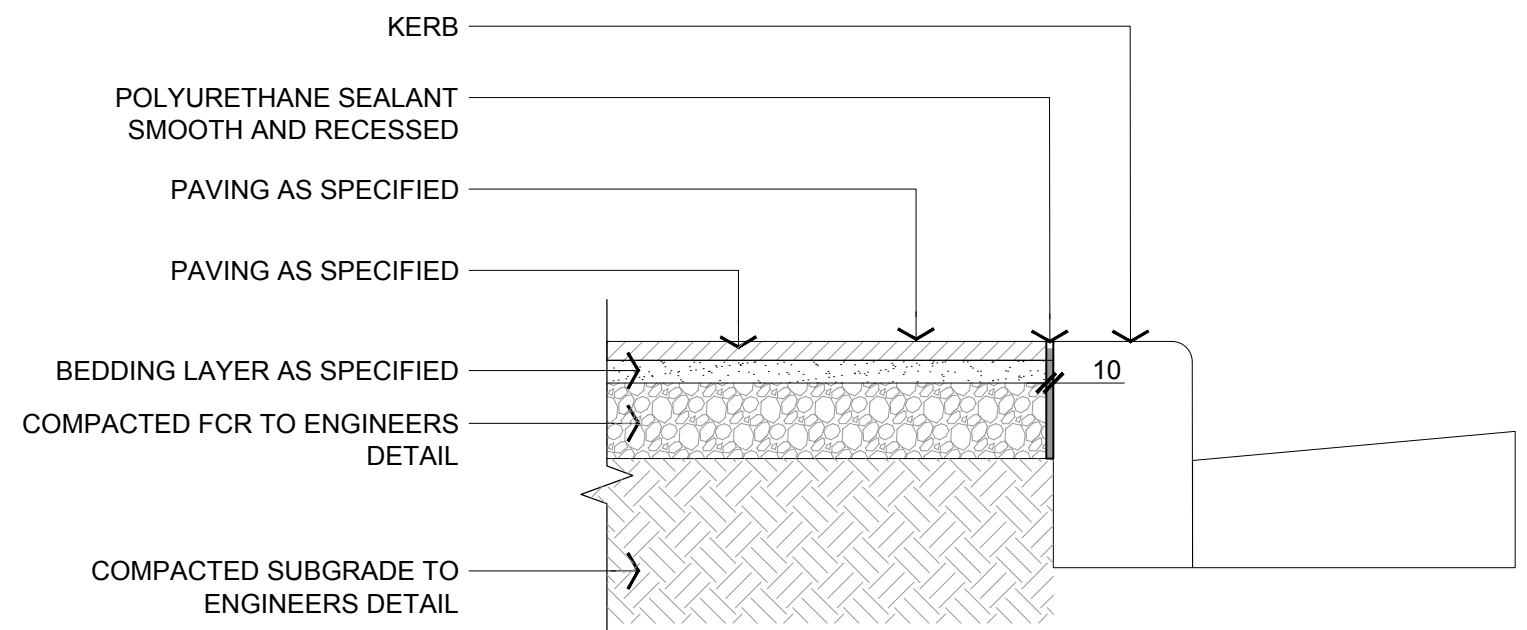
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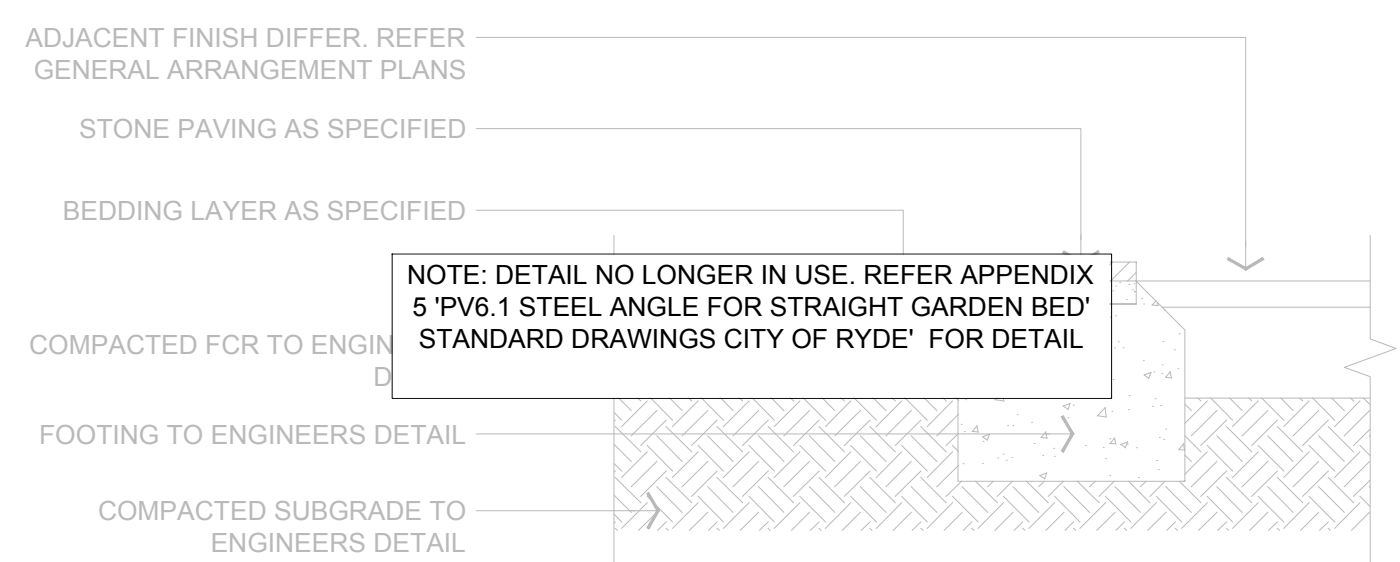
01 STONE PAVING - PEDESTRIAN RAMP
PLAN - Scale: 1:20@A1



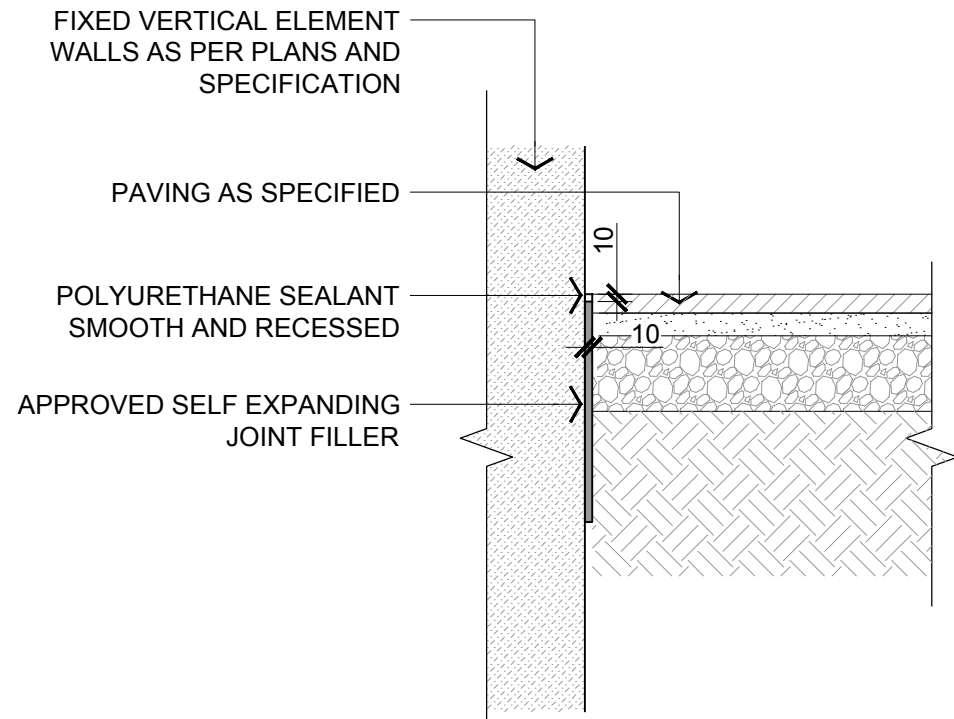
02 PV51 - COBBLESTONE PAVER
PLAN - Scale: 1:10@A1



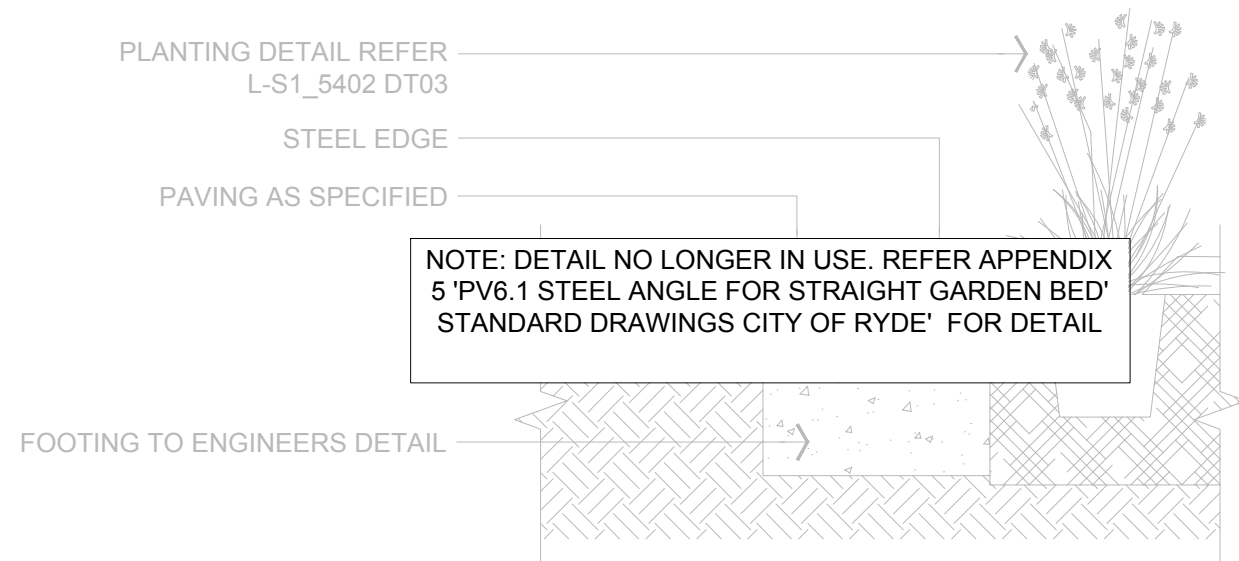
03 JUNCTION - STONE PAVING & KERB
PLAN - Scale: 1:10@A1



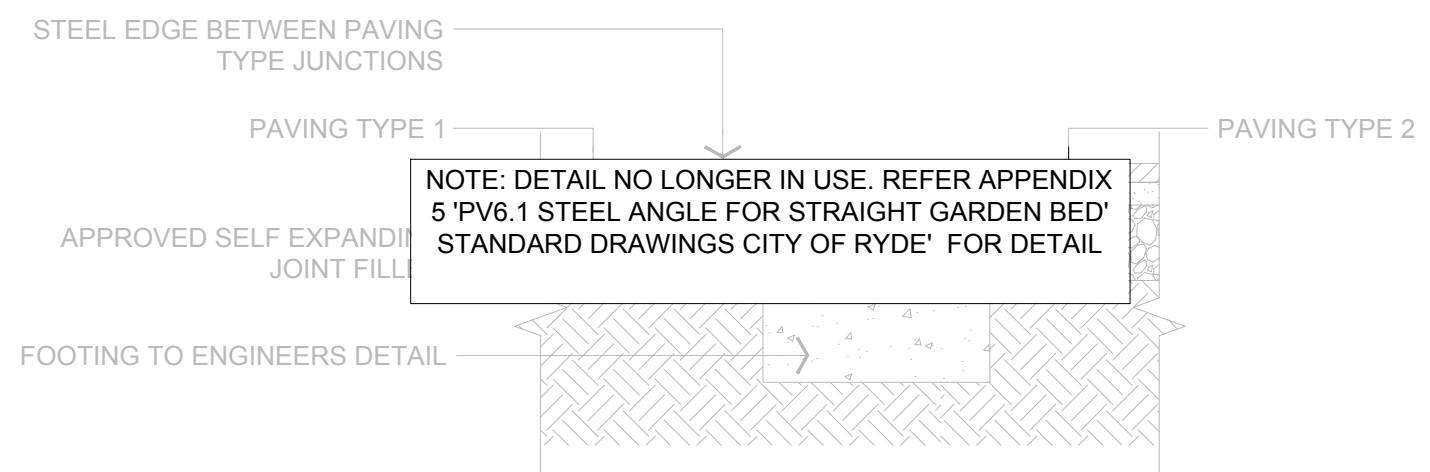
04 JUNCTION - STONE PAVING & TURF
SECTION - Scale: 1:10@A1



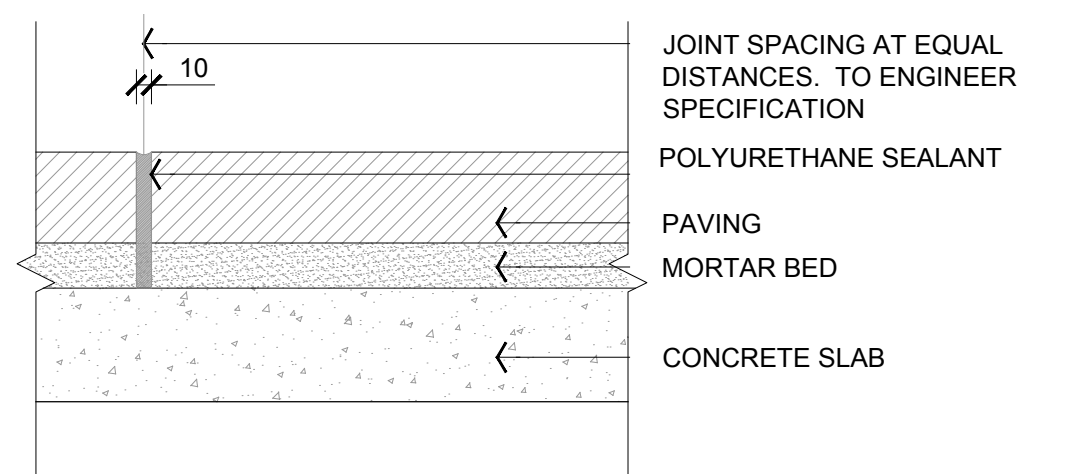
05 JUNCTION - STONE PAVING & WALL
PLAN - Scale: 1:10@A1



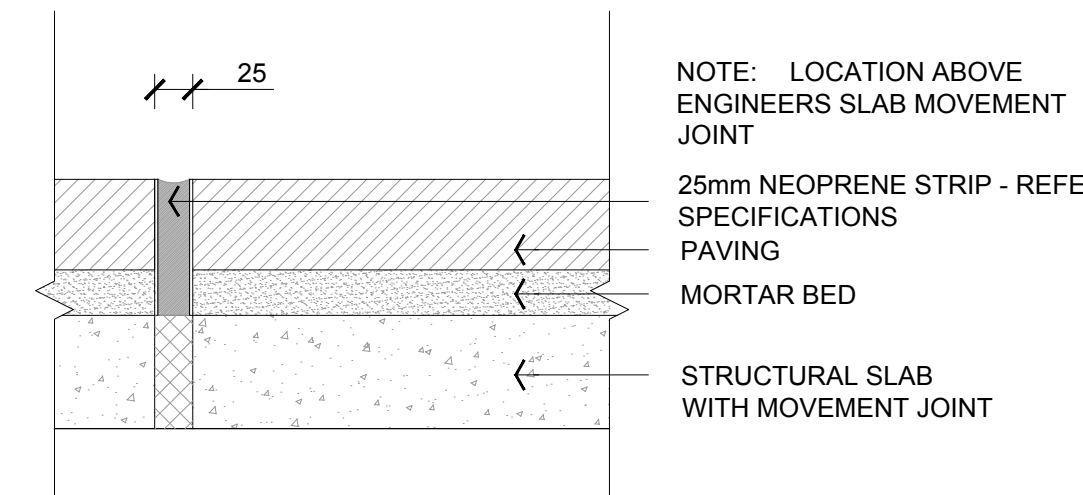
06 JUNCTION - STONE PAVING & PLANTING
PLAN - Scale: 1:10@A1



07 JUNCTION - PAVING & PAVING
PLAN - Scale: 1:10@A1



08 JOINTING - EXPANSION JOINT
PLAN - Scale: 1:5@A1






09 JOINTING - MOVEMENT JOINT
PLAN - Scale: 1:5@A1



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Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
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REFERENCE MAP	NORTH	NOTES										CLIENT			CONSULTANT			DRAWING TITLE										
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			04	SUBDIVISION WORKS CERTIFICATE COORDINATION	01 09 2020										PROJECT			MIDTOWN AT MACQUARIE PARK, IVANHOE STAGE 1 & 1A TENDER DOCUMENTATION MACQUARIE PARK, NSW, 2113			SCALE @ A1	DRAWN	CO-ORD	REVIEWED	APPROVED			
			03	SUBDIVISION WORKS CERTIFICATE COORDINATION	29 07 2020																VARIES	GD	GD	AE	AE			
			02	FOR TENDER	08 04 2020																PROJECT NUMBER					DRAWING NUMBER		REV
			01	PRELIMINARY FOR REVIEW	31 01 2020																012092.006					L-S1_5302_1-A1		04
			REV	DESCRIPTION	DATE				REV	DESCRIPTION	DATE																	

LDC

L-S1_5403

These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld

Registered Certifier

Registration No:

BDC 2416

Categories:

Certifier – Subdivision

Certifier – Strata

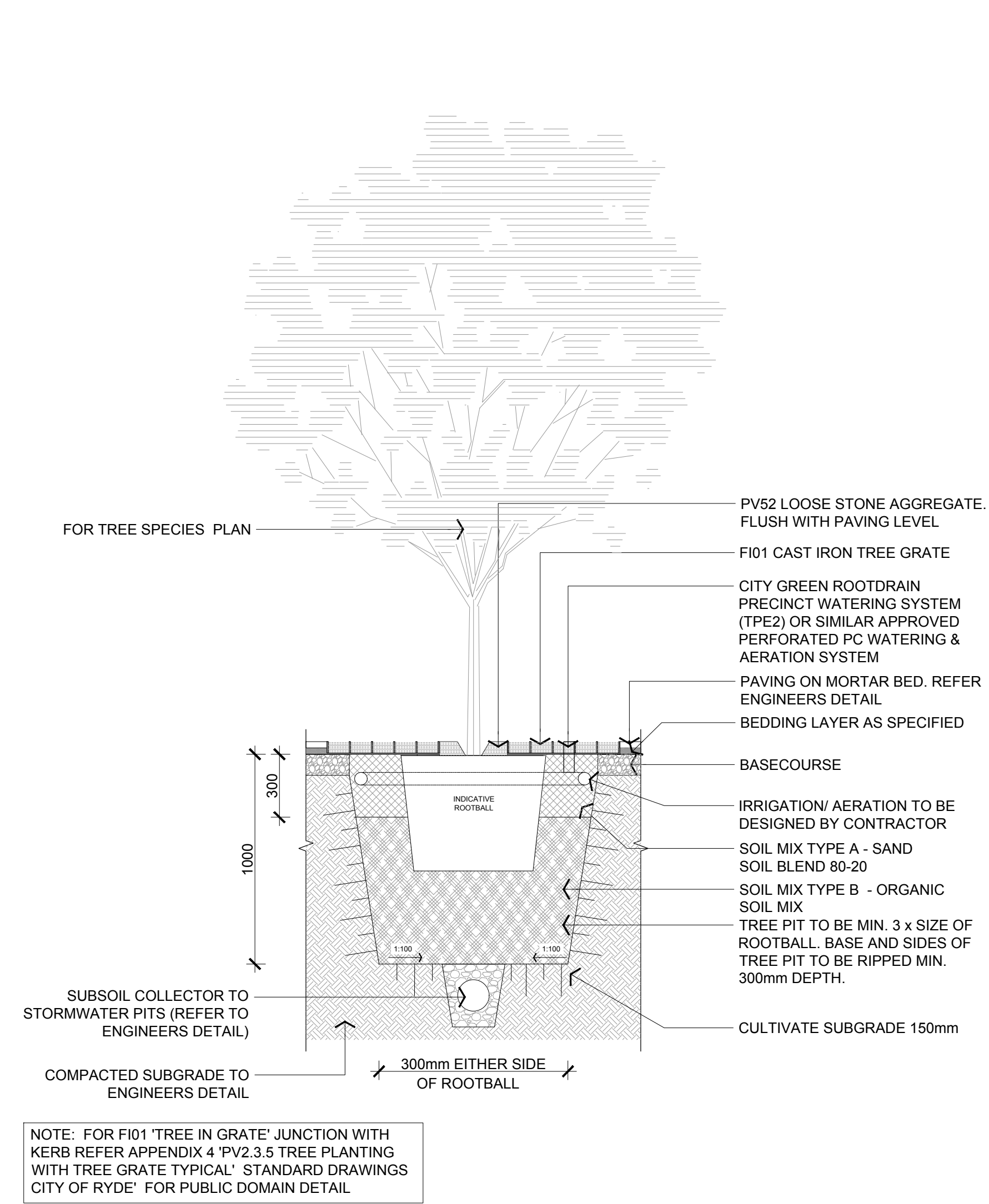
Certifier – Stormwater

Certifier – Road & Drainage

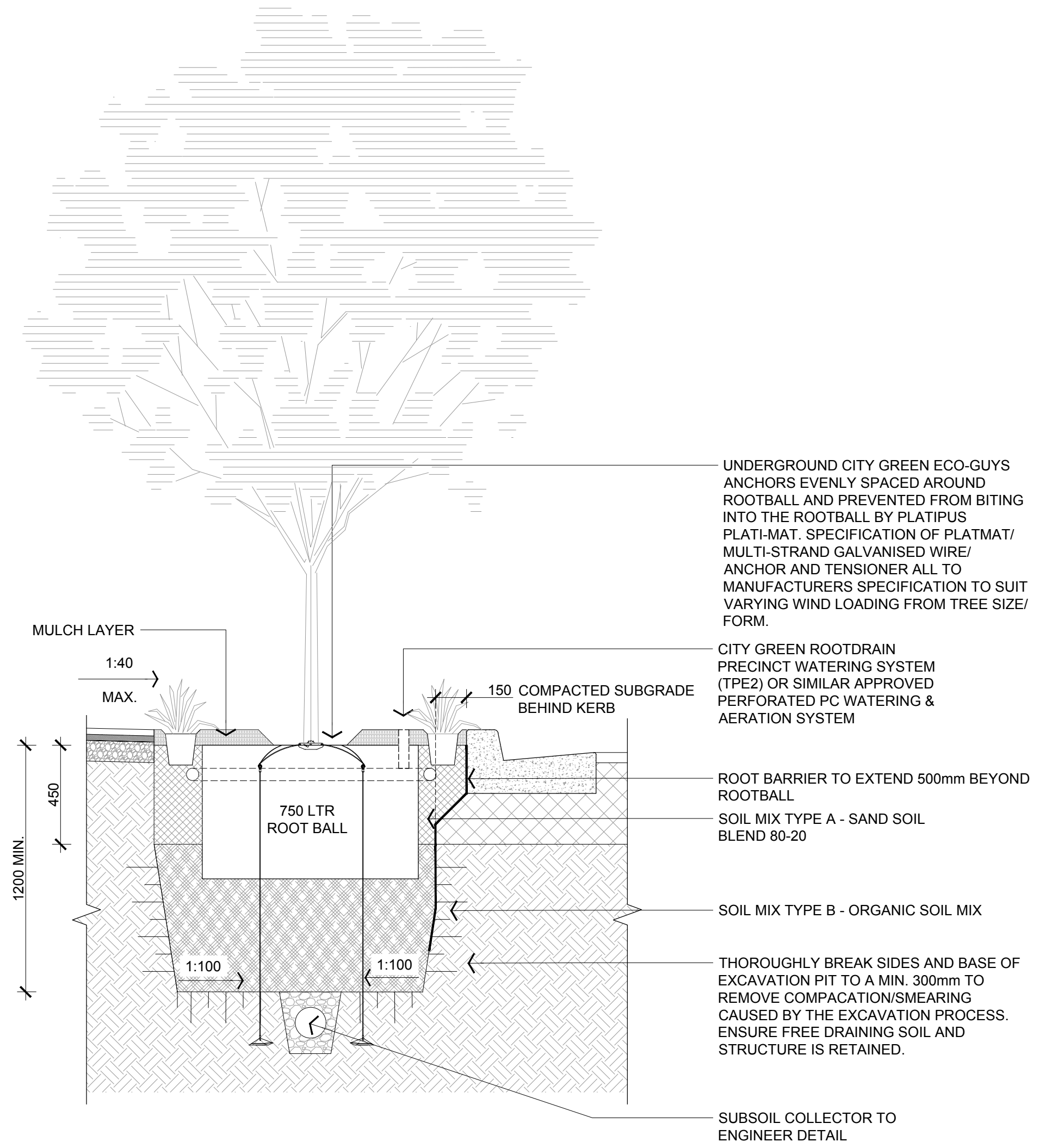
Certifier – Hydraulic (stormwater)

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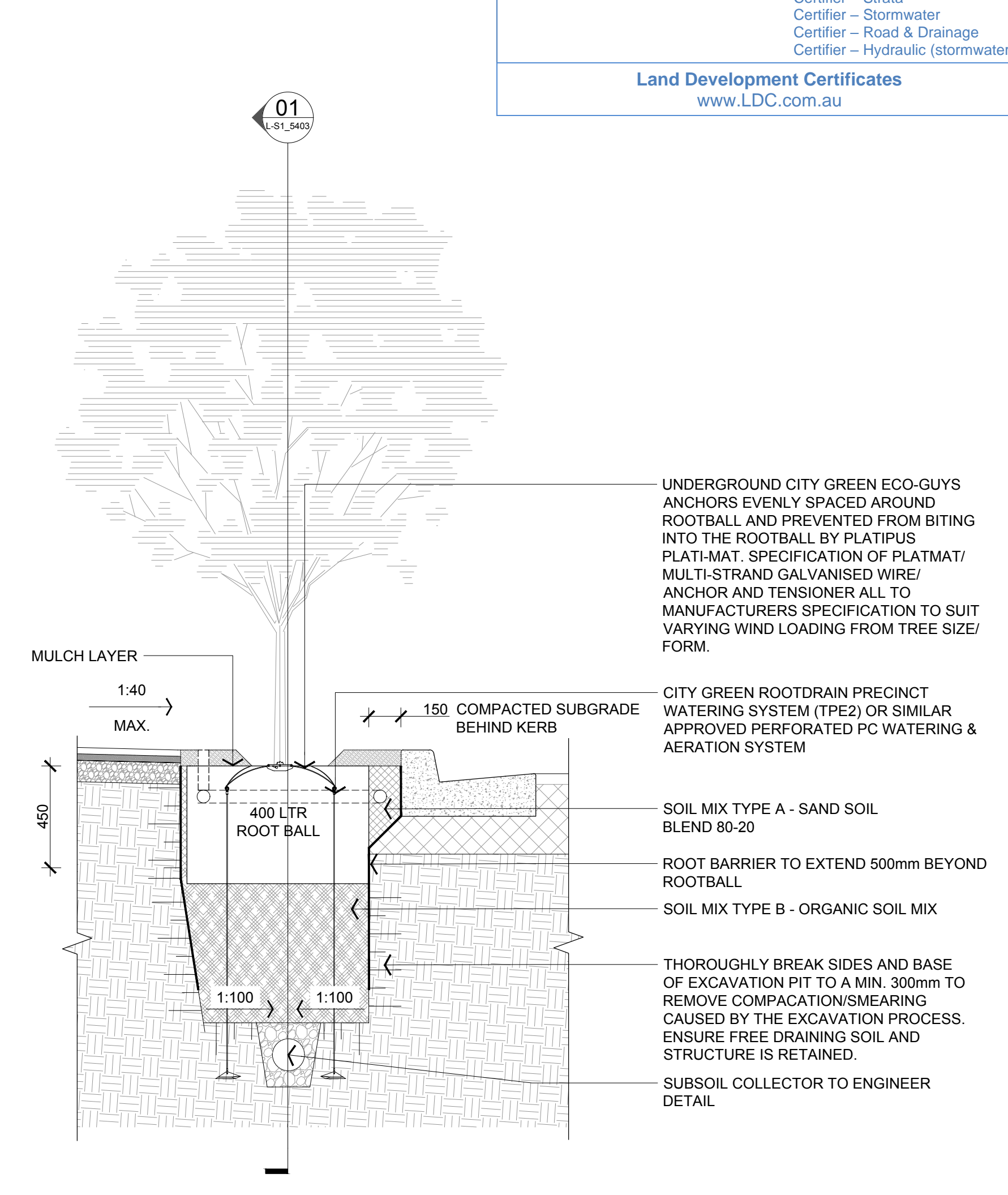
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01 TREE / FI01 - TREE IN GRATE
SECTION - Scale: 1:20@A1





02 TREE - 750LTR STREET TREE
SECTION - Scale: 1:20@A1



03 TREE - 400LTR STREET TREE
SECTION - Scale: 1:20@A1

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		THIS DRAWING IS AN UNCONTROLLED COPY. UNLESS NOTED OTHERWISE.					PROJECT	FOR TENDER					
			04	SUBDIVISION WORKS CERTIFICATE COORDINATION	02 09 2020				SCALE @ A1	DRAWN	CO-ORD	REVIEWED	APPROVED
			03	SUBDIVISION WORKS CERTIFICATE COORDINATION	29 07 2020				1:20	GD	GD	AE	AE
			02	FOR TENDER	08 04 2020								
			01	PRELIMINARY FOR REVIEW	31 01 2020				PROJECT NUMBER	DRAWING NUMBER		REV	
			REV	DESCRIPTION	DATE		REV	DESCRIPTION	DATE	012092.006	L-S1_5401_1		04



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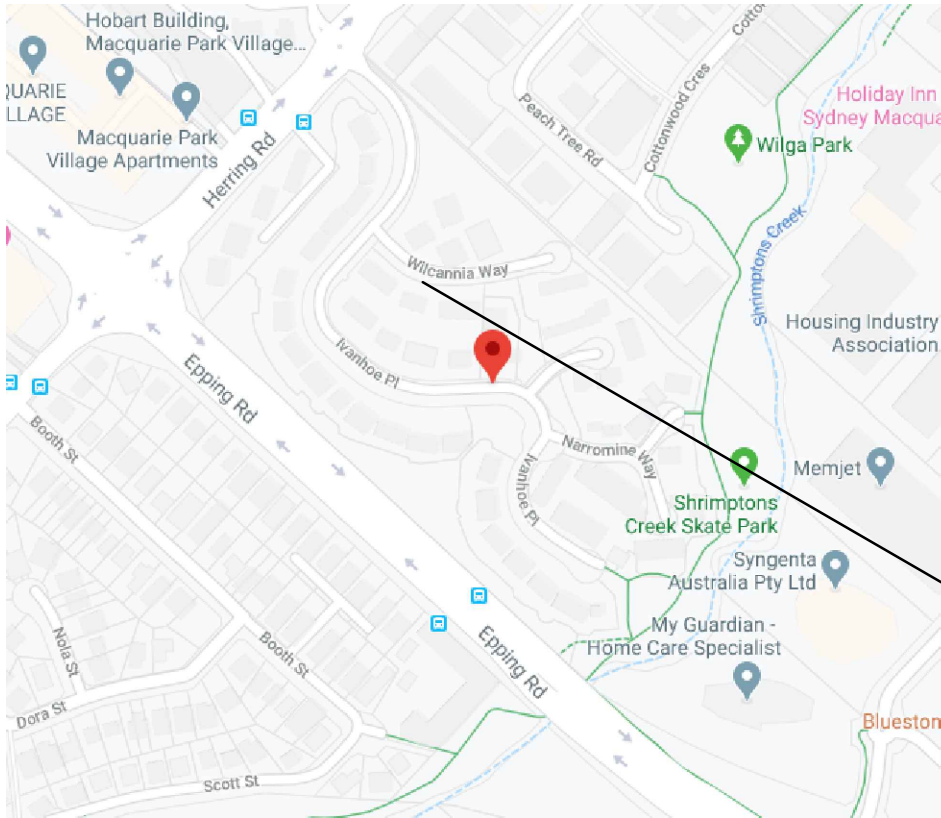
IVANHOE ESTATE

PROPOSED RETAINING WALL, HERRING ROAD & EPPING ROAD - MACQUARIE PARK 2322 STRUCTURAL ENGINEERING WORKS PACKAGE



DRAWING LIST

DRG No.	DRAWING TITLE
S01.1	COVER SHEET, LOCALITY PLAN AND DRAWING LIST
S01.2	STRUCTURAL NOTES - SHEET 1
S10.1	RETAINING WALL PLAN & ELEVATION
S20.1	DETAILS - SHEET 1
S20.1	DETAILS - SHEET 2



APPROXIMATE
LOCATION OF WORKS

LOCALITY PLAN



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DRAWN: PAUL TIMEWELL DESIGNED: CASEY O'SULLIVAN JOB MANAGER: TREVOR CLACK VERIFIER: TREVOR CLACK

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	CIVIL ENGINEER			PROJECT	DRAWING TITLE	JOB NUMBER
1	PRELIMINARY	PT		COS	09.04.20	 DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	 THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.	 Central Coast Suite 4, 257-259 Central Coast Hwy, Erina, NSW 2250 Ph (02) 4365 1668 Email centralcoast@northrop.com.au ABN 81 094 433 100	 IVANHOE ESTATE PROPOSED RETAINING WALL HERRING ROAD & EPPING ROAD MACQUARIES PARK 2322	COVER SHEET, LOCALITY PLAN & DRAWING LIST	NL200538	
2	PRELIMINARY	PT		COS	14.04.20						DRAWING NUMBER	REVISION
A	FOR CONSTRUCTION	TS		COS	28.08.20						S01.1	A
											DRAWING SHEET SIZE = A1	

GENERAL

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND OTHER CONSULTANT'S DRAWINGS.
- G2. THE WEATHER PROOFING OF THE BUILDING IS THE ARCHITECT'S/BUILDER'S RESPONSIBILITY. THIS INCLUDES (BUT IS NOT LIMITED TO) THE SPECIFICATION AND FIXING DETAILS OF CLADINGS, SHEETING, FLASHING, MEMBRANES, STEPS, SETDOWNS & RECESSES.
- G3. ALL DISCREPANCIES SHALL BE REFERRED TO THE PROJECT MANAGER AND RESOLVED BEFORE PROCEEDING WITH THE WORK.
- G4. ALL DIMENSIONS SHOWN SHALL BE VERIFIED BY THE BUILDER ON SITE. THESE STRUCTURAL DRAWINGS SHALL NOT BE SCALED FOR DIMENSIONS. THE RL'S SHOWN ON THESE DRAWINGS ARE APPROXIMATE AND ARE FOR THE SOLE PURPOSE OF ASSISTING THE STRUCTURAL DOCUMENTATION. THEY ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES. REFER TO ARCHITECTURAL DRAWINGS FOR CONFIRMATION OF ALL RL'S, ALL LEVELS ARE IN METRES (m) AND DIMENSIONS ARE IN MILLIMETRES (mm)
- G5. ALL WORKMANSHIP, TESTING, MATERIALS AND SUPERVISION ARE TO BE IN ACCORDANCE WITH THESE SPECIFICATIONS, THE WORK HEALTH AND SAFETY ACT 2011. ENFORCED BY THE WORKCOVER AUTHORITY AND CURRENT RELEVANT AUSTRALIAN STANDARDS.
- G6. PROPRIETARY ITEMS SPECIFIED SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN RECOMMENDATIONS. DO NOT VARY SPECIFIED PROPRIETARY PRODUCTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
- G7. THESE DRAWINGS AND ISSUED WRITTEN INSTRUCTIONS DURING THE COURSE OF THE CONTRACT DEPICT THE COMPLETE STRUCTURE. THEY DO NOT DESCRIBE A WORK METHOD. THE ARRANGEMENT, DESIGN AND INSTALLATION OF TEMPORARY WORKS REMAINS THE RESPONSIBILITY OF THE CONTRACTOR.
- G8. THE DETERMINATION OF A SAFE WORK METHOD REMAINS THE RESPONSIBILITY OF THE CONTRACTOR. ANY ELEMENT WHICH POSES AN UNACCEPTABLE LEVEL OF SAFETY RISK TO CONSTRUCT SHALL BE REFERRED TO THE STRUCTURAL ENGINEER. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- G9. NOTES ON ANY DRAWING APPLY TO ALL DRAWINGS IN THE SET UNLESS NOTED OTHERWISE.
- G10. ALL ARCHITECTURAL FITMENTS SUCH AS GLAZING, PARTITIONS, CEILINGS ETC. SHOULD ALLOW FOR THE SHORT AND LONG TERM MOVEMENT OF STRUCTURAL ELEMENTS. FOR BEAMS AND SLABS SPANNING LESS THAN 8m AN ALLOWANCE OF AT LEAST 20mm SHOULD BE MADE (CONSULT ENGINEER WHERE SPANS EXCEED 8m).
- G11. THE BUILDER SHALL PROVIDE CERTIFICATION ON ANY DESIGN AND CONSTRUCT COMPONENT BY A CHARTERED PROFESSIONAL ENGINEER (NPER).
- G12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION OF ALL SERVICES IN THE VICINITY OF THE WORKS. ANY SERVICES SHOWN ARE PROVIDED FOR INFORMATION ONLY. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL SERVICES PRIOR TO COMMENCING AND SHALL BE RESPONSIBLE FOR THE REPAIR OF ANY DAMAGE CAUSED TO SERVICES, AS WELL AS ANY LOSS INCURRED AS A RESULT OF THE DAMAGE TO ANY SERVICE.
- G13. THE STRUCTURAL COMPONENTS DETAILED ON THESE STRUCTURAL DRAWINGS ARE JOB SPECIFIC AND HAVE BEEN DESIGNED IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND BUILDING CODE OF AUSTRALIA FOR THE FOLLOWING FIRE RATINGS, WIND LOADS, FLOOR USAGE AND EARTHQUAKE LOADS.
- WIND LOADS:
- IMPORTANCE LEVEL = 2
 - REGION = A2
 - ANNUAL PROBABILITY OF EXCEEDENCE = 1500
 - REGIONAL WIND SPEED V = 45 m/s
 - TERRAIN CATEGORY = 3
 - TERRAIN MULTIPLIER Mz, cat = 0.83
 - WIND DIRECTION MULTIPLIER Md = 1.0
 - SHIELDING MULTIPLIER Ms = 1.0
 - TOPOGRAPHIC MULTIPLIER Mt = 1.0
 - SITE WIND SPEED = 37.35 m/s
- EARTHQUAKE LOADS:
- IMPORTANCE LEVEL = 2
 - ANNUAL PROBABILITY OF EXCEEDENCE (P) = 1500
 - PROBABILITY FACTOR (kp) = 1.0
 - HAZARD FACTOR (Z) = 0.8
 - DOMESTIC STRUCTURE = N
 - SITE SUB-SOIL CLASS = Ae - STRONG ROCK
 - EARTHQUAKE DESIGN CATEGORY (EDC) = II
 - DESIGN REQUIRED = SIMPLE STATIC CHECK
- G14. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE BUILDER. IF ANY STRUCTURAL ELEMENT PRESENTS DIFFICULTY IN RESPECT TO SAFETY THE MATTER SHALL BE REFERRED TO NORTHPROP CONSULTING ENGINEERS FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
- G15. NO CHANGES IN ANY STRUCTURAL ELEMENT SHALL BE MADE WITHOUT WRITTEN APPROVAL FROM NORTHPROP CONSULTING ENGINEERS. IF THERE IS A DISCREPANCY THEN FOR TENDER PURPOSES ALLOW FOR THE MOST EXPENSIVE OPTION. NORTHPROP CONSULTING ENGINEERS SHALL BE CONTACTED TO CONFIRM PRIOR TO CONSTRUCTION.
- G16. CONSTRUCTION USING THESE DRAWINGS SHALL NOT COMMENCE UNTIL A CONSTRUCTION CERTIFICATE HAS BEEN ISSUED AND ONLY IF THE DRAWINGS ARE DESIGNATED "ISSUED FOR CONSTRUCTION".
- G17. NORTHPROP CONSULTING ENGINEERS ACCEPTS NO RESPONSIBILITY FOR ANY WORK NOT INSPECTED OR NOT APPROVED BY NORTHPROP CONSULTING ENGINEERS DURING CONSTRUCTION.
- G20. ANY PRODUCTS SPECIFIED OR USED ARE TO BE VERIFIED BY THE CONTRACTOR AS BEING SAFE AND APPROPRIATE FOR USE. NORTHPROP CONSULTING ENGINEERS DO NOT TAKE ANY RESPONSIBILITY FOR THE USE OF UNSAFE PRODUCTS.

CONSTRUCTION PHASE SERVICES (WITNESS POINTS)

- WP1. OBTAIN NORTHPROP CONSULTING ENGINEERS WRITTEN INSTRUCTION AT THE FOLLOWING HOLD POINTS:
- PREPARATION OF FOUNDING MATERIAL, INCLUDING PIER BORE HOLES.
 - REINFORCEMENT PRIOR TO PLACEMENT OF CONCRETE OR COREFILLING OF BLOCKWORK.
- WP2. PROVIDE MINIMUM 48 HOURS NOTICE FOR ANY REQUIRED INSPECTIONS.

TEMPORARY WORKS

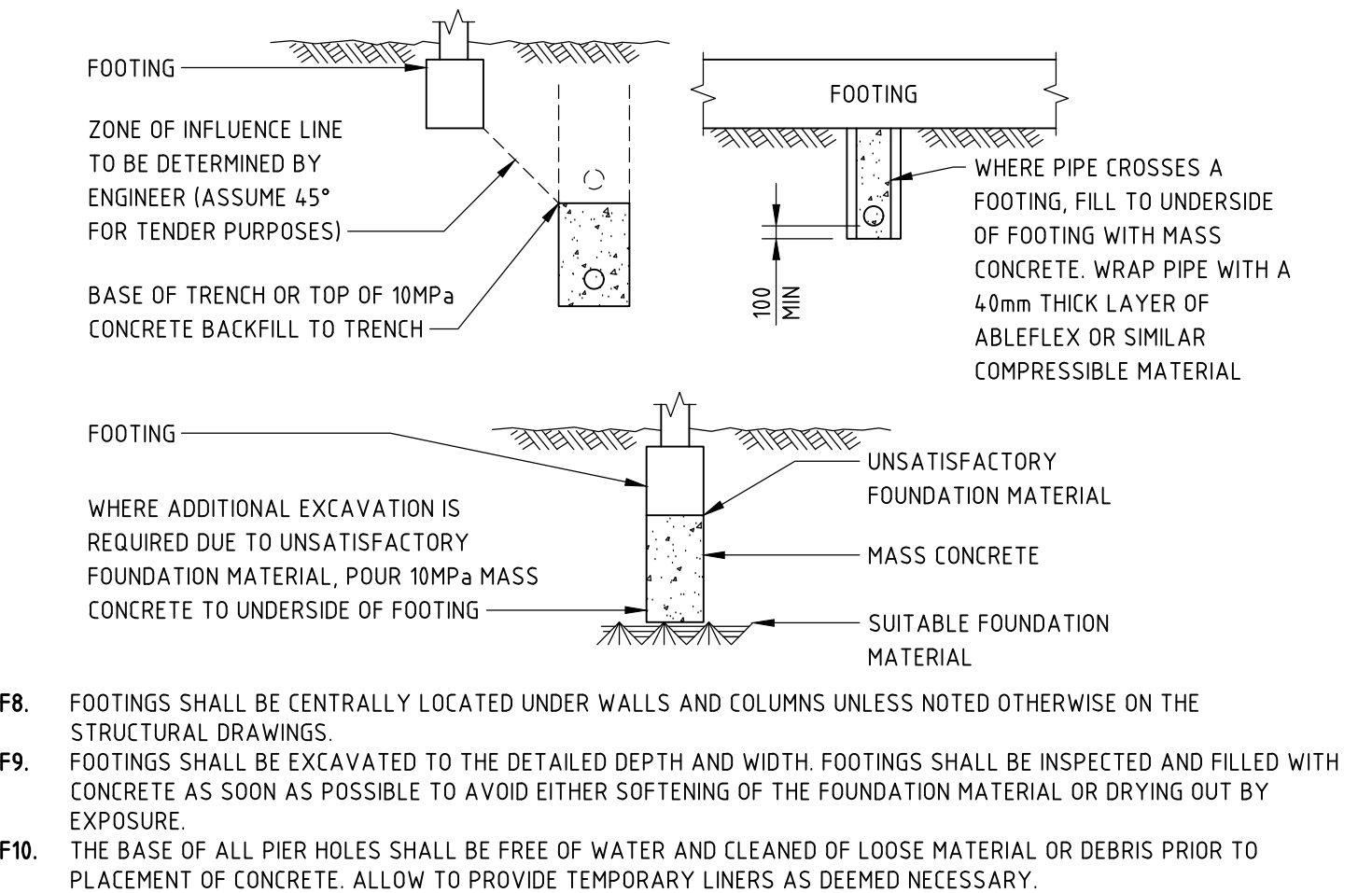
- TW1. THESE DRAWINGS DEPICT THE "PERMANENT" STRUCTURE, TEMPORARY WORKS REMAIN THE RESPONSIBILITY OF THE CONTRACTOR.
- TW2. BUILDER MUST ENGAGE (NPER) QUALIFIED STRUCTURAL ENGINEER FOR THE DESIGN OF ALL TEMPORARY WORKS NECESSARY TO SAFELY ERECT THIS STRUCTURE. AS A MINIMUM THE FOLLOWING WORKS REQUIRE ATTENTION:
- FORMWORK / TEMPORARY PROPPING / NEEDLE BEAMS / SCAFFOLDING / UNDERPINNING
- TW3. BUILDER SHALL CONTACT NORTHPROP CONSULTING ENGINEERS IF THEY CONSIDER ANY PART OF THIS STRUCTURE IS UNSAFE TO ERECT.

TRENCH BACKFILL AND UNDERGROUND SERVICES

- TB1. ALLOW FOR EXCAVATION IN ALL MATERIALS AS FOUND ON SITE AND AS DETAILED IN GEOTECHNICAL REPORT U.N.O.
- TB2. PRIOR TO COMMENCING EXCAVATION VERIFY LEVELS OF ALL EXISTING SERVICES. IF ANY DISCREPANCIES CHECK WITH THE RELEVANT ENGINEER.
- TB3. BACKFILL ALL TRENCHES UNDER SLABS, PATHS AND ROADS BELOW SUB-BASE LEVEL WITH ORIGINAL GROUND OR COMPACTED IMPORTED FILL.
- TB4. IMPORTED FILL PROPERTIES:
- PASSING 50mm SIEVE = 100%
 - PASSING 75micron SIEVE = LESS THAN 25%
 - PLASTICITY INDEX = LESS THAN 15% BUT MORE THAN 2%
- TB5. COMPACT FILL TO 95% MAXIMUM MODIFIED DRY DENSITY EXCEPT LANDSCAPED AREAS WHICH SHALL BE 85% MAXIMUM MODIFIED DRY DENSITY. COMPACT IN LAYERS OF 300 mm MAXIMUM LOOSE THICKNESS.
- TB6. ALLOW FOR 1 SUCCESSFUL COMPACTION TEST PER 20 METRES LENGTH OF TRENCH IN THE MIDDLE LAYER.

FOUNDATIONS

- F1. ASSUMED ALLOWABLE BEARING CAPACITY:
- STRIP FOOTINGS = 200 kPa
 - BORED PIERS = 450 kPa END BEARING, 25 kPa SKIN FRICTION.
- F2. REFER TO RETAINING WALL AND SHORING DETAILS FOR LATERAL EARTH PRESSURE ASSUMPTIONS. A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 86043.01R.002.REV0.STAGE1 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL.
- F4. THE CONTRACTOR SHALL ALLOW TO ENGAGE A QUALIFIED (NPER) GEOTECHNICAL ENGINEER TO APPROVE THE FOUNDATION MATERIAL. OBTAIN GEOTECHNICAL ENGINEERS APPROVAL AND SUBMIT CERTIFICATE IN WRITING TO NORTHPROP CONSULTING ENGINEERS PRIOR TO CONCRETING FOUNDATIONS.
- F5. ENSURE STABILITY OF ADJACENT BUILDINGS AND PATHS IS MAINTAINED DURING ALL STAGES OF CONSTRUCTION. DO NOT ALLOW EXCAVATED MATERIAL TO BE STOCKPILED WITHIN 500mm OF FOOTING TRENCHES OR PITS. NO EARTH OR DETRITUS IS TO FALL INTO THE FOOTING TRENCHES BEFORE OR DURING CONCRETE PLACEMENT.
- F7. THE UNDERSIDE OF FOUNDATIONS SHALL CONFORM TO THE FOLLOWING REGARDLESS OF NOMINATED LEVELS:



- F8. FOOTINGS SHALL BE CENTRALLY LOCATED UNDER WALLS AND COLUMNS UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- F9. FOOTINGS SHALL BE EXCAVATED TO THE DETAILED DEPTH AND WIDTH. FOOTINGS SHALL BE INSPECTED AND FILLED WITH CONCRETE AS SOON AS POSSIBLE TO AVOID EITHER SOFTENING OF THE FOUNDATION MATERIAL OR DRYING OUT BY EXPOSURE.
- F10. THE BASE OF ALL PIER HOLES SHALL BE FREE OF WATER AND CLEANED OF LOOSE MATERIAL OR DEBRIS PRIOR TO PLACEMENT OF CONCRETE. ALLOW TO PROVIDE TEMPORARY LINERS AS DEEMED NECESSARY.

SHORING (GENERAL)

- GS1. THE NORTHPROP DRAWINGS, OTHER CONSULTANTS DRAWINGS, THESE NOTES AND REFERENCED REPORTS FORM THE TECHNICAL SPECIFICATION FOR THE CONSTRUCTION OF THE EXCAVATION.
- GS2. ALL WORK ON SITE IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE RELEVANT CONDITIONS OF A DEVELOPMENT CONSENT.
- GS3. ALL WORK ON SITE TO BE UNDERTAKEN IN ACCORDANCE WITH THE NSW OH&S ACT AND REGULATION, AND NSW WORKCOVER SAFE WORK CODES AND GUIDELINES. THE DETERMINATION OF A SAFE WORK METHOD IS THE RESPONSIBILITY OF THE CONTRACTOR.
- GS4. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL IN GROUND SERVICES.
- GS5. PROVIDE EROSION AND SEDIMENTATION CONTROL IN ACCORDANCE WITH THE APPROVED DRAWINGS AND COUNCIL'S REQUIREMENTS.
- GS6. THE SITE RETENTION DETAILS HAVE BEEN DEVELOPED WITH REFERENCE TO THE SITE GEOTECHNICAL INVESTIGATION REPORT No. 86043.01R.002.REV0.STAGE1 BY DOUGLAS PARTNERS INFERRED LEVELS OF SAND, CLAY AND ROCK HAVE BEEN BASED ON THE BORE HOLE LOGS CONTAINED IN THESE REPORTS. HOWEVER, THE DETAILS WILL BE DEPENDENT ON THE ACTUAL LEVELS OF THE VARIOUS MATERIALS ACROSS THE EXTENT OF THE SITE. THE ACTUAL LEVEL AND STRENGTH OF THE ROCK AND THE EXTENT OF EXCAVATION THROUGH MATERIALS OF VARIOUS TYPES AND STRENGTHS IS A RISK THAT SHALL BE BORNE BY THE CONTRACTOR. IT IS THE CONSTRUCTOR'S RESPONSIBILITY TO REVIEW THE AVAILABLE GROUND INFORMATION SEEKING ADDITIONAL INFORMATION IF CONSIDERED NECESSARY BY THE CONTRACTOR AND PRICE THE RISK ACCORDINGLY.
- GS7. THE PLAN LAYOUT OF THE SHORING IS TO BE DETERMINED FROM THE SETOUT DRAWINGS (PREPARED BY OTHERS).
- GS8. DO NOT COMMENCE CONSTRUCTION OF THE SHORING WALL WITHOUT ALL NECESSARY APPROVALS INCLUDING A CONSTRUCTION CERTIFICATE FOR THE WORK.
- GS9. DO NOT COMMENCE SITE WORK WITHOUT THE FOLLOWING IN PLACE:
1. DILAPIDATION SURVEYS OF ADJACENT STRUCTURES AND PUBLIC DOMAIN INFRASTRUCTURE.
 2. A VIBRATION MONITORING PLAN IN PLACE.
 3. MONITORING PLAN OF GROUND MOVEMENTS.
 4. A SAFE WORK METHOD PLAN.
 5. TREE PROTECTION PLAN.
- GS10. DEWATERING IF REQUIRED IS TO BE UNDERTAKEN IN ACCORDANCE WITH THE PROCEDURE AND RECOMMENDATIONS PROVIDED BY DOUGLAS PARTNERS REPORT - No. 86043.01R.002.REV0.STAGE1.
- GS13. THE TESTING AND DISPOSAL OF THE EXCAVATED MATERIAL TO BE ACCORDANCE WITH THE RECOMMENDATION OF THE GEOTECHNICAL REPORT.

CONCRETE

- C1. CARRY OUT ALL CONCRETE WORK IN ACCORDANCE WITH AS3600-2018 AND NATSPEC CONCRETE STANDARDS.
- C2. CONCRETE PROPERTIES AND COVER TO REINFORCING:
- | COVER TO REINFORCEMENT | | | |
|--|-----------------------------|------------------------------|------------|
| ELEMENT | CONCRETE STRENGTH f'c (MPa) | MAXIMUM 56 DAY DRY SHRINKAGE | COVER (mm) |
| BORED PIERS (SHORING, PILES) | 40 | 850um | 60 |
| STRIP FOOTINGS/RETAINING WALL FOOTINGS/ CAPPING BEAMS. | 32 | 850um | 50 |
- MAXIMUM AGGREGATE SIZE = 20mm U.N.O.
SLUMP DURING PLACING = 80mm ±10mm.
EXPOSURE CLASSIFICATION = B1 (EXTERNAL CONCRETE ELEMENTS).
NO ADMIXTURES SHALL BE USED IN THE CONCRETE MIX UNLESS APPROVED BY NORTHPROP CONSULTING ENGINEERS IN WRITING.
- C3. CONCRETE PROPERTIES FOR SLABS AND BEAMS SHALL BE VARIED FROM NORMAL CLASS AS FOLLOWS:
- MINIMUM CEMENT CONTENT 250kg/m³.
 - MAXIMUM 56 DAY SHRINKAGE STRAIN = AS NOMINATED ABOVE.
 - PRIOR TO COMMENCEMENT CONCRETE SUPPLIER TO PROVIDE DRYING SHRINKAGE TEST RESULTS FROM PRODUCTION ASSESSMENT AS EVIDENCE THAT SPECIFIED DRYING SHRINKAGE LIMITS CAN BE ACHIEVED USING NORMAL MIX DESIGN.
 - PERCENTAGE OF ENTRAPPED AIR TO BE AS FOLLOWS:
 - FOR AGGREGATE 10mm-20mm NORMAL SIZE 8-1.1% IN ACCORDANCE WITH AS3600-2018 AND AS1012.4-2014 (SUBMIT TEST RESULTS) FOR ALPINE OR SUB-ALPINE AREAS.
- C4. SUBMIT FOR APPROVAL THE FOLLOWING TO THE ENGINEER:
- CURING PROCEDURE (PVA MEMBRANES NOT PERMITTED).
 - STRIPPING AND BACK PROPPING PROCEDURE.
 - DETAILS AND LOCATION OF CONDUITS AND PENETRATIONS.
 - CONSTRUCTION JOINT LOCATIONS.
- C6. FORMWORK FINISH CLASSIFICATION TO AS3610.1-2018:
- | ELEMENT | CLASS |
|---------------------|-------|
| - INGROUND FOOTINGS | 5 |
- C7. SURFACE FINISHES:
- COLUMNS & WALLS OFF FORM
- C8. COMPACT ALL CONCRETE, INCLUDING FOOTINGS AND SLABS USING MECHANICAL VIBRATORS.
- C9. PLACE CONCRETE CONTINUOUSLY BETWEEN CONSTRUCTION JOINTS SHOWN ON PLAN. DO NOT BREAK OR INTERRUPT SUCCESSIVE POURS SUCH THAT COLD JOINTS OCCUR. ANY REVISIONS OR ADDITIONS TO CONSTRUCTION JOINTS SHOWN ON PLAN REQUIRE APPROVAL FROM THE NORTHPROP CONSULTING ENGINEERS.
- C10. CONCRETE PROFILES:
- SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF APPLIED FINISHES.
 - NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN SHOWN IN THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT THE PRIOR WRITTEN APPROVAL OF NORTHPROP CONSULTING ENGINEERS.
 - PROVIDE DRIP GROOVES AT ALL EXPOSED EDGES. CHAMFERS, DRIP GROOVES, REGLETS ETC TO ARCHITECT'S DETAILS.
- C11. ALL PENETRATIONS TO HAVE 2/N16 TRIMMER BARS TOP AND BOTTOM TO EACH FACE. U.N.O. EXTEND TRIMMERS 600 BEYOND PENETRATION.
- C13. REINFORCEMENT QUALITY AND NOTATION:
- | REINFORCEMENT NOTATION | | | | |
|------------------------|---------------------------------|----------------------|-----------------|------------------------------------|
| SYMBOL | BAR TYPE | STRENGTH GRADE (MPa) | DUCTILITY CLASS | TO COMPLY WITH AUSTRALIAN STANDARD |
| N | HOT ROLLED DEFORMED RIB BAR | 500 | NORMAL | AS/NZS 4671-2001 |
| R | PLAIN ROUND BAR | 250 | NORMAL | AS/NZS 4671-2001 |
| SL | SQUARE MESH OF DEFORMED RIB BAR | 500 | LOW | AS/NZS 4671-2001 |
- ALL REINFORCING BARS SHALL BE GRADE D500N TO AS/NZS 4671-2001 AND ALL MESH SHALL BE GRADE 500L TO AS/NZS 4671-2001. UNLESS NOTED OTHERWISE CLASS L REINFORCEMENT SHALL NOT BE USED.
- REINFORCEMENT LABELS:
- N12-300 ← SPACING (mm) 3/N20 ← BAR SIZE (mm) SL92 ← BAR SPACING IN 100mm
- ← BAR SIZE (mm) ← TYPE OF REINFORCEMENT ← BAR SIZE (mm) ← TYPE OF REINFORCEMENT ← DUCTILITY CLASS ← SQUARE MESH
- C14. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY, AND NOT NECESSARILY IN TRUE PROJECTION. BARS SHOWN ARE INDICATIVE ONLY AND LENGTHS MAY VARY. BEAM ELEVATIONS TAKE PRECEDENCE OVER SECTIONS. SLAB PLANS TAKE PRECEDENCE OVER SECTIONS. REFER TO SECTIONS FOR EXTRA BARS THAT MAY BE REQUIRED.
- C15. USE ONLY PLASTIC OR CONCRETE CHAIRS AT EXTERNAL SURFACES.
- C16. SITE BENDING OF REINFORCEMENT BARS SHALL BE DONE WITHOUT HEATING USING A RE-BENDING TOOL. THE BARS SHALL BE RE-BENT AGAINST A FLAT SURFACE OR A PIN WITH A DIAMETER NOT LESS THAN THE MINIMUM PIN SIZE PRESCRIBED IN AS3600-2018.
- C17. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN POSITIONS SHOWN ON THE STRUCTURAL DRAWINGS OR IN POSITIONS OTHERWISE APPROVED IN WRITING BY NORTHPROP CONSULTING ENGINEERS. LAPS SHALL NOT BE LESS THAN THE DEVELOPMENT LENGTH FOR EACH BAR AND IN ACCORDANCE WITH AS3600-2018 SECTION 13.
- C18. LAPS IN MESH SHALL BE IN ACCORDANCE WITH AS3600-2018 SECTION 13.
- C19. WELDING OF REINFORCEMENT SHALL NOT BE PERMITTED UNLESS SHOWN ON THE STRUCTURAL DRAWINGS OR APPROVED BY NORTHPROP CONSULTING ENGINEERS.
- C20. AT EXTERNALLY EXPOSED SURFACES NO METALLIC ITEMS INCLUDING FORM BOLTS, FORM SPACERS, METALLIC BAR CHAIRS AND TIE-WIRE ARE TO BE PLACED IN THE COVER ZONE.
- C21. ALL REINFORCEMENT, ANCHOR BOLTS AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION AND INSPECTED BY NORTHPROP CONSULTING ENGINEERS PRIOR TO PLACING CONCRETE.
- C22. HOLD DOWN BOLTS SHALL BE HOT DIPPED GALVANISED.
- C23. U.N.O., ALL MASONRY ANCHORS INTO CONCRETE SHALL BE RAMSET TRUBOLTS (LONGEST VERSION) OR APPROVED EQUIVALENT. BOLTS SHALL BE GALVANISED WHERE THEY ARE ADJOINING NON FERROUS OR PREPAINTED MEMBERS. PROVIDE STAINLESS STEEL BOLTS FOR ALL EXTERNAL CONDITIONS, OR WHERE EXPOSED TO THE WEATHER.
- C24. ALL CONCRETE MIXES SHALL BE DESIGNED BY A RECOGNISED TESTING LAB AND SUBMITTED FOR REVIEW BY NORTHPROP CONSULTING ENGINEERS.
- C25. ALL COMPRESSIVE STRENGTH TEST REPORTS SHALL BE SUBMITTED TO NORTHPROP CONSULTING ENGINEERS FOR REVIEW.
- C26. PROJECT CONTROL TESTING SHALL BE CARRIED OUT ON ALL CONCRETE IN ACCORDANCE WITH AS1319-2007. TEST CYLINDERS ARE TO BE KEPT ON SITE.
- C27. CURING OF ALL CONCRETE IS TO BE ACHIEVED BY KEEPING SURFACES CONTINUOUSLY WET FOR A PERIOD OF 7 DAYS, UNLESS SPECIFIED OTHERWISE. APPROVED SPRAY ON CURING COMPOUNDS THAT COMPLY WITH AS3799-1998 MAY BE USED WHERE FLOOR FINISHES WILL NOT BE AFFECTED. POLYTHENE SHEETING OR WET HESSIAN MAY BE USED TO RETAIN CONCRETE MOISTURE WHERE PROTECTED FROM WIND AND TRAFFIC. CURING IS TO COMMENCE IMMEDIATELY AFTER CONCRETE PLACEMENT.
- C28. FOR ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX, REFER TO CONCRETE - ELAPSED DELIVERY TIMES NOTE.

CONCRETE (ELAPSED DELIVERY TIMES)

- CE1. ELAPSED TIME BETWEEN THE WETTING OF THE MIX AND THE DISCHARGE OF THE MIX AT THE SITE MUST NOT EXCEED THE CRITERIA IN THE ELAPSED DELIVERY TIMETABLE BELOW:
- | ELAPSED DELIVERY TIME TABLE | |
|--|------------------------------|
| CONCRETE TEMPERATURE AT TIME OF DISCHARGE (°C) | MAXIMUM ELAPSED TIME (HOURS) |
| ~ 24 | 2.00 |
| 24 to 27 | 1.50 |
| 27 to 30 | 1.00 |
| 30 to 32 | 0.75 |
| 32 to 35 | 0.50 |
- IF THE ELAPSED TIME IS LONGER THAN THE CORRESPONDING TIME IN THE TABLE ABOVE, OR THE TEMPERATURE IS GREATER THAN 35°C, EITHER NORTHPROP CONSULTING ENGINEERS OR THE CONCRETE MIX DESIGN ENGINEER ARE TO BE CONTACTED TO CONFIRM WHETHER PLACEMENT IS TO PROCEED OR IF THE POUR IS TO BE STOPPED. IF THE POUR IS STOPPED, PRIOR TO ANY FURTHER CONCRETE PLACEMENT NORTHPROP CONSULTING ENGINEERS ARE TO BE CONTACTED TO INSPECT THE WORKS AND DETERMINE WHAT, IF ANY, RECTIFICATION WORKS ARE REQUIRED. IF THE CONCRETE TEMPERATURE AT THE TIME OF DISCHARGE IS NOT ≥ 5°C, CONCRETE SHALL BE REJECTED. IF AIR TEMPERATURE IS ≤ 10°C, (FOR ≥ A 12 HOUR PERIOD) SUBMIT "COLD WEATHER CONCRETING PROCEDURES" FOR APPROVAL.

CHEMICAL ANCHORS

- CA01. UNLESS NOTED OTHERWISE, CHEMICAL ANCHORS SPECIFIED IN THESE DRAWINGS REFER TO HILTI HIT-HY 200 - HIT-V CHEMICAL INJECTION ANCHORS.
- CA02. ALTERNATIVE CHEMICAL ANCHORS MAY BE SUBSTITUTED WITH PRIOR PERMISSION FROM THE SUPERINTENDENT.
- CA03. MINIMUM EDGE DISTANCE AND SPACING SETOUT OF THE ANCHORS ARE SPECIFIED ON THESE DRAWINGS. IF THE INSTALLED DISTANCES ARE LESS THAN THAT SPECIFIED NOTIFY THE SUPERINTENDENT FOR INSTRUCTION.
- CA04. CHEMICAL ANCHORS ARE TO BE STRICTLY INSTALLED TO MANUFACTURERS INSTALLATION PROCEDURE.
- CA05. DIAMETER OF HOLES TO MANUFACTURES SPECIFICATION FOR NOMINATED BOLT/BAR DIAMETER. DRILL HOLES USING A ROTARY PERCUSSION DRILL. DO NOT CORE DRILL HOLES.
- CA06. CLEAN AND DEGREASE BOLT/BARS PRIOR INSTALLATION.
- CA07. ENSURE CHEMICAL IS ALLOWED TO FULLY CURE IN ACCORDANCE WITH MANUFACTURE'S DETAILS PRIOR TO LOADING BOLTS/BARS.

CONCRETE MASONRY

- CM1. MASONRY CONSTRUCTION IS TO CONFORM TO AS3700-2001.
- MORTAR CLASSIFICATION = M3
 - DURABILITY CLASSIFICATION OF BUILT IN COMPONENTS = R1
 - DURABILITY GRADE OF EXTERNAL MASONRY UNITS = PROTECTED
- CM2. THE CHARACTERISTIC UNFINISHED COMPRESSIVE STRENGTH OF THE MASONRY UNITS SHALL BE 15MPa OR GREATER.
- CM3. BED UNITS IN FRESHLY PREPARED MORTAR, UNIFORMLY MIXED CEMENT, LIME AND SAND IN THE RATIO OF 1:16 OR 1:0.5 CONFORMING TO AS3700-2001.
- CM4. GROUT FILL FOR BLOCKWORK:
- COMPRESSIVE STRENGTH = N20MPa
 - MAXIMUM AGGREGATE SIZE = 10mm
 - SLUMP = 225mm
 - MINIMUM PORTLAND CEMENT CONTENT = 300kg/m³
- CM7. CONTROL JOINTS IN REINFORCED WALLS SHALL BE PROVIDED AT 12.0m CENTRES, PROVIDE R16-400 (600 LONG) DOWELS, PAINT ONE END WITH BITUMEN & PROVIDED EXPANSION CAP.
- CM8. THE BOTTOM COURSE OF ALL REINFORCED BLOCKWORK SHALL CONSIST OF E-SHAPED BLOCKS TO ENABLE CLEANOUT AND TYING OF STEEL.
- FULLY BED FACE SHELLS ONLY.
 - CLEAN OUT ALL CORES AFTER EACH DAY'S LAYING
 - ENSURE STARTER BARS ARE CORRECTLY LOCATED IN FOOTINGS.
- CM15. MINIMUM COVER TO REINFORCEMENT FROM THE INSIDE FACE OF THE FACE SHELL IS TO BE 25mm.
- CM16. NO AIR ENTRAINING AGENTS (IBYCOL, ETC.) ARE TO BE USED WITHOUT PRIOR WRITTEN PERMISSION FROM NORTHPROP CONSULTING ENGINEERS.
- CM17. MATERIALS INCLUDING MORTAR, CONCRETE, GROUT SHALL COMPLY WITH SECTION 10 OF AS3700-2001. MASONRY UNITS SHALL COMPLY WITH AS/NZS 4455-1:2008. WALL TIES SHALL COMPLY WITH AS/NZS 2699-1-2000.
- CM18. MASONRY SHALL BE CONSTRUCTED IN ACCORDANCE WITH SECTION 11 OF AS3700-2001.

WORKPLACE HEALTH AND SAFETY





- WHS1. THE CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR CONSTRUCTING THE WORK IN ACCORDANCE WITH THE WORK HEALTH AND SAFETY (WHS) ACT 2011; WHS REGULATIONS 2017; RELEVANT CODES OF PRACTICE, AUSTRALIAN STANDARDS AND OTHER REGULATORY REQUIREMENTS. THE PRINCIPLE CONTRACTOR MUST INFORM ALL STAKEHOLDERS, INCLUDING NORTHPROP, OF NEW HAZARDS IDENTIFIED IN THE COURSE OF PLANNING AND UNDERTAKING THE WORKS.
- WHS2. DURING THE DESIGN OF THE STRUCTURE NORTHPROP HAS IDENTIFIED RESIDUAL HAZARDS RELATING TO THE DESIGN OF THE STRUCTURAL WORKS THAT WE CONSIDER TO BE UNUSUAL OR NON-TYPICAL. HAZARDS WHICH ARE NORMAL WORKPLACE HAZARDS, ARE TO BE MANAGED BY PERSONS IN CONTROL OF THE WORKPLACE THROUGH A WHS SYSTEM TO MANAGE THE NORMAL HAZARDS ASSOCIATED WITH CONSTRUCTION, USE AND MAINTENANCE OF THE STRUCTURE. THE RESIDUAL HAZARDS IDENTIFIED ON THE NORTHPROP DRAWINGS ARE NOT AN ENTIRE ASSESSMENT OF HAZARDS, AND DO NOT RELIEVE OTHER PARTIES OR STAKEHOLDERS OF THE THEIR RESPONSIBILITY UNDER THE WHS ACT 2011, WHS REGULATIONS 2017, AND THE CODE OF PRACTICE FOR SAFE DESIGN OF STRUCTURES.
- WHS3. TEMPORARY BRACING AND SUPPORT OF STRUCTURE IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE MAINTAINED DURING ALL STAGES OF CONSTRUCTION.
- WHS4. RESIDUAL HAZARDS ARE SHOWN ON THE NORTHPROP DRAWINGS. IDENTIFIED BY: S1



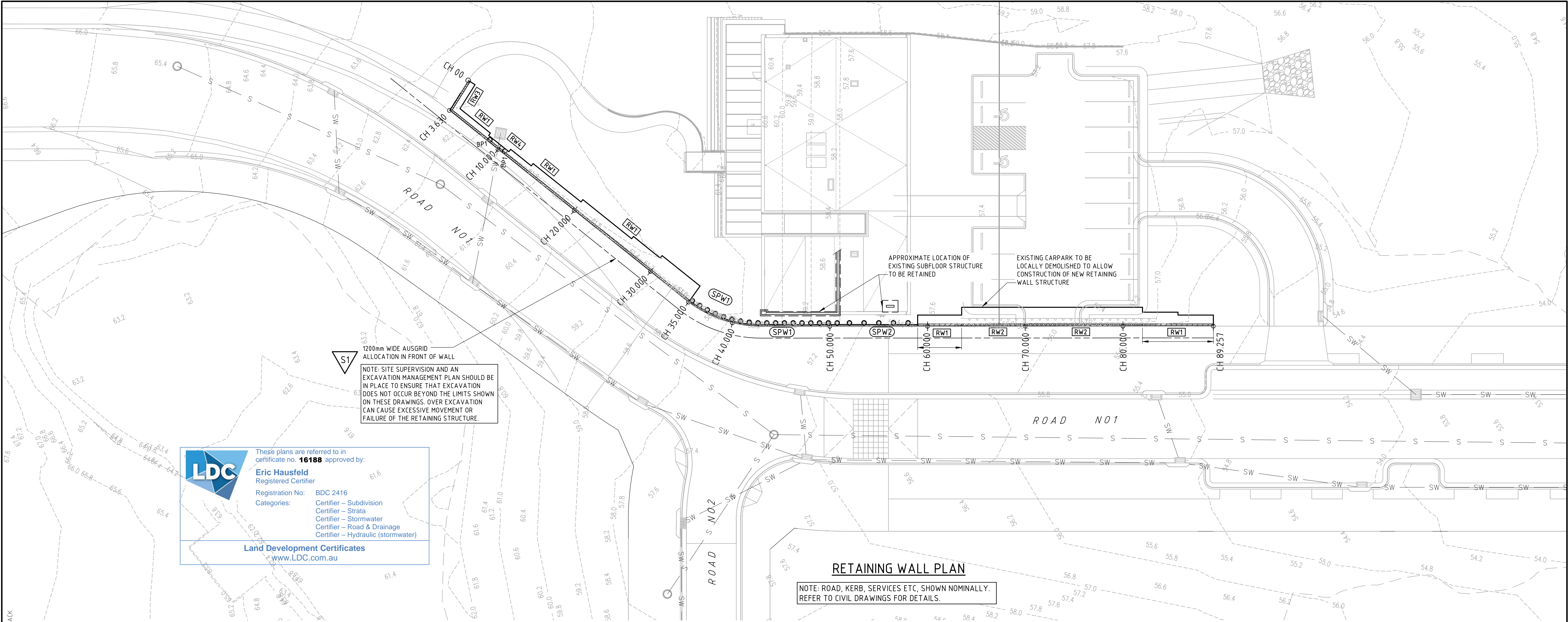
These plans are referred to in certificate no. **16188** approved by:
Eric Hausfeld
Registered Certifier
Registration No: BDC 2416
Categories: Certifier – Subdivision
Certifier – Strata
Certifier – Stormwater
Certifier – Road & Drainage
Certifier – Hydraulic (stormwater)

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VERIFIER: TREVOR CLACK
JOB MANAGER: TREVOR CLACK
DESIGNED: CASEY O'SULLIVAN
DRAWN: PAUL TIMEWELL

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	CIVIL ENGINEER		ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHPROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.		PROJECT	DRAWING TITLE	JOB NUMBER	
1	PRELIMINARY	PT		COS	09.04.20					Central Coast Suite 4, 257-259 Central Coast Hwy, Erina, NSW 2260 Ph (02) 4365 1668 Email: centralcoast@northrop.com.au ABN 81 094 433 100	IVANHOE ESTATE PROPOSED RETAINING WALL HERRING ROAD & EPPING ROAD MACQUARIES PARK 2322	STRUCTURAL NOTES SHEET 1	NL200538	
2	PRELIMINARY	PT		COS	14.04.20								DRAWING NUMBER	REVISION
A	FOR CONSTRUCTION	TS		COS	28.08.20								S01.2	A
													DRAWING SHEET SIZE = A1	
						DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHPROP CONSULTING ENGINEERS PTY LTD.							

DESIGNED: CASEY O'SULLIVAN
DRAWN: PAUL TIMWELL
JOB MANAGER: TREVOR CLACK
VERIFIER: TREVOR CLACK



These plans are referred to in certificate no. **16188** approved by:

Eric Hausfeld
Registered Certifier

Registration No: BDC 2416

Categories:

- Certifier – Subdivision
- Certifier – Strata
- Certifier – Stormwater
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RETAINING WALL PLAN

NOTE: ROAD, KERB, SERVICES ETC, SHOWN NOMINALLY.
REFER TO CIVIL DRAWINGS FOR DETAILS.

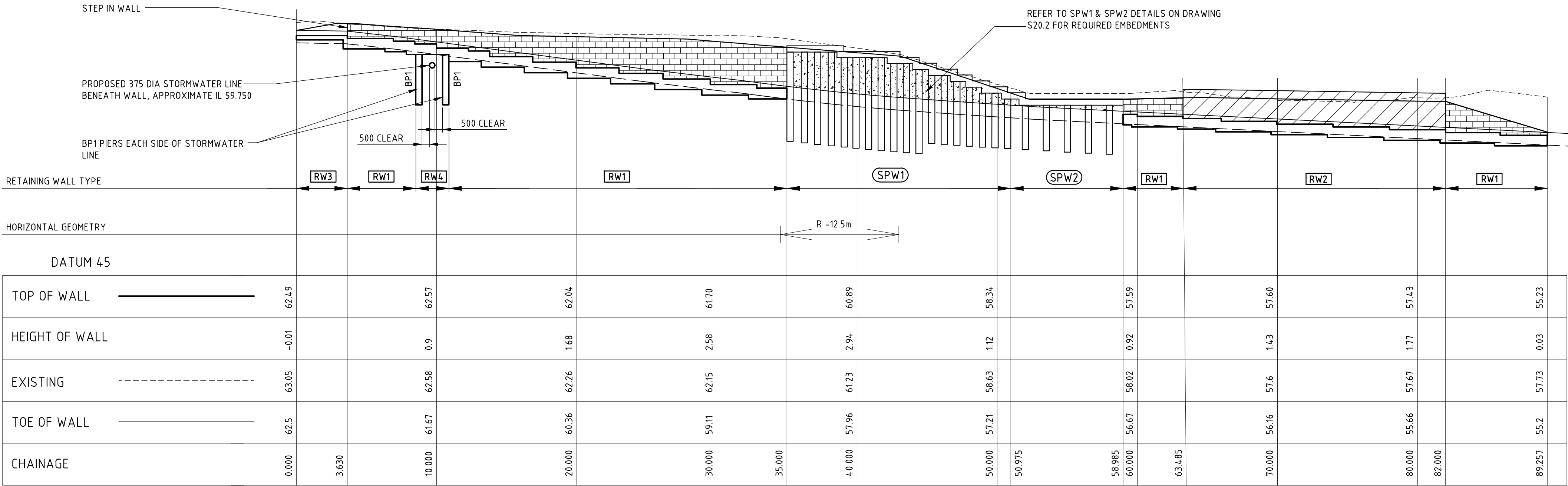
LEGEND / NOTES

THE PROPOSED SHORING AND RETAINING WALL DESIGN HAS BEEN DESIGNED IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL REPORT 86043.01R.002.REV0 PREPARED BY DOUGLAS PARTNERS.

THIS REPORT IS FOR INFORMATION ONLY AND IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL.

THE BUILDER MUST ENGAGE A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO INSPECT THE BORED PIERS AND FOUNDATION EXCAVATION PRIOR TO PLACING REINFORCEMENT TO CONFIRM THE FOUNING CONDITIONS MATCH THE ASSUMPTIONS OUTLINED ON THESE DRAWINGS.

- DENOTES CORE FILLED REINFORCED BLOCKWORK OVER (& WALL TYPE)
- DENOTES 450 DIA BORED CONCRETE PIERS
- DENOTES SHOTCRETE PILED WALL
- DENOTES 900 DEEP x 1200mm WIDE AUSGRID ALLOCATION IN FRONT OF THE RETAINING WALL



LONGITUDINAL SECTION ALONG NEW RETAINING WALL

HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:200

ALL DIMENSIONS & CHAINAGES AS PER CIVIL ENGINEERS DRAWINGS, IF WALL HEIGHT or EXTENTS DIFFER ON SITE CONTACT NORTHROP ENGINEERS IMMEDIATELY

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
1	PRELIMINARY	PT		COS	09.04.20	
2	PRELIMINARY	PT		COS	14.04.20	
A	FOR CONSTRUCTION	TS		COS	28.08.20	
B	FOR CONSTRUCTION	JD		COS	02.09.20	
C	FOR CONSTRUCTION	TS		COS	04.09.20	

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED

CIVIL ENGINEER

THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.

PLANS 1:200@A1

Central Coast
Suite 4, 257-259 Central Coast Hwy, Erina, NSW 2250
Ph (02) 4365 1668
Email centralcoast@northrop.com.au ABN 81 094 433 100

PROJECT

**IVANHOE ESTATE
PROPOSED RETAINING WALL
HERRING ROAD & EPPING ROAD
MACQUARIES PARK 2322**

DRAWING TITLE

**RETAINING WALL
PLAN & LONG SECTION**

JOB NUMBER

NL200538

DRAWING NUMBER

S10.1

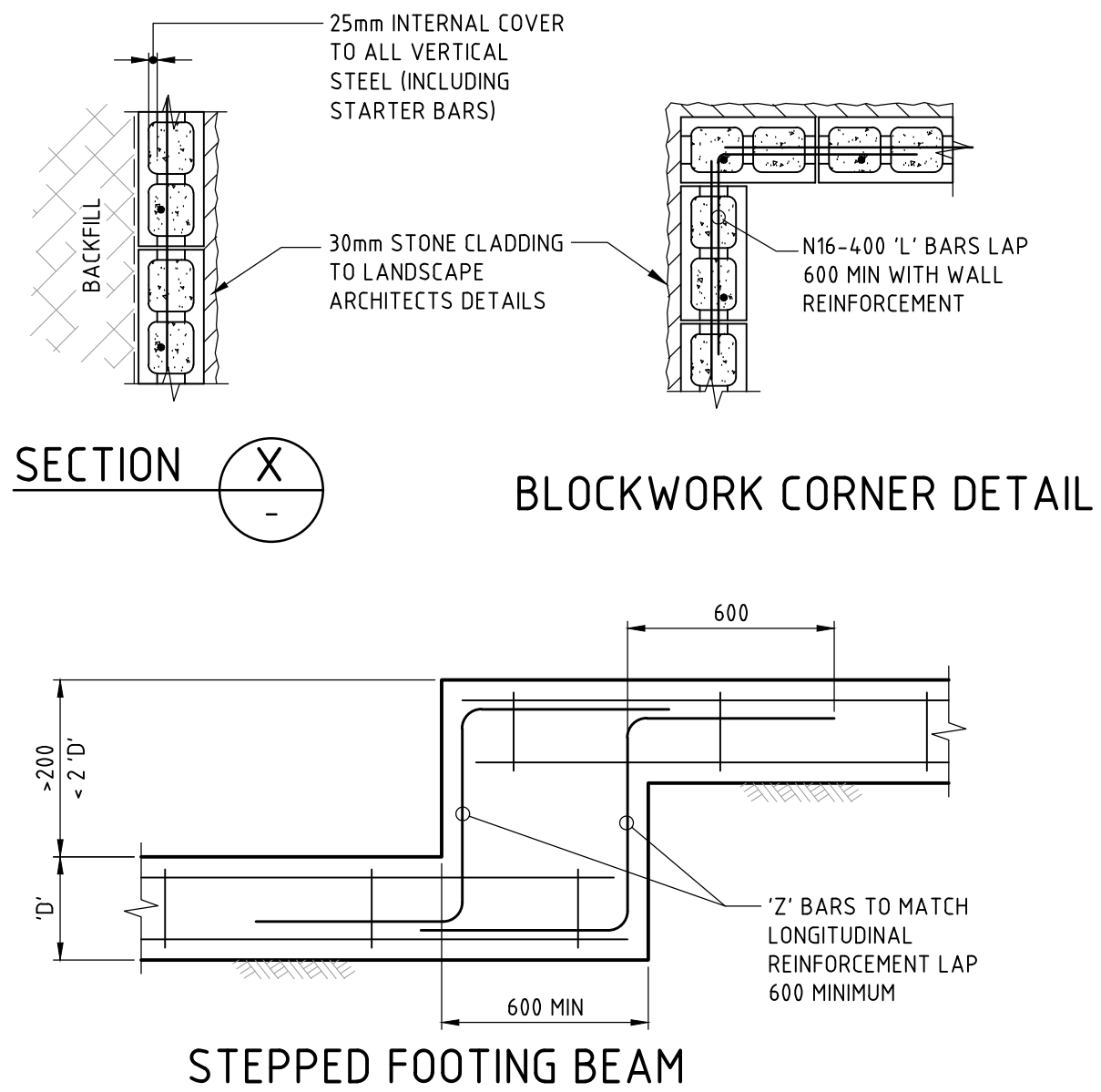
REVISION

C

DRAWING SHEET SIZE = A1

VERIFIER: TREVOR CLACK
JOB MANAGER: TREVOR CLACK
DESIGNED: CASEY O'SULLIVAN
DRAWN: PAUL TIMEWELL

- RETAINING WALL NOTES:**
A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 86043.01R.002.REVO.STAGE 1 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL.
- THE BUILDER IS TO ENGAGE A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO CONFIRM THE FOLLOWING REQUIREMENTS PRIOR TO PLACING OF REINFORCEMENT:
- EXISTING FILL BEHIND WALL (15m MAX):
 - UNIT WEIGHT OF SOIL = 20kN/m³
 - ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.4
 - EXISTING LOW STRENGTH ROCK BEHIND WALL:
 - UNIT WEIGHT OF MATERIAL = 24kN/m³
 - ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.25
- FOUNDING PARAMETERS, (UNITS 3b, 3c, 4b AS PER THE PROJECT GEOTECHNICAL REPORT):
- UNIT WEIGHT OF SOIL = 24kN/m³
 - ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.2
 - ULTIMATE PASSIVE PRESSURE = 400kPa
 - ALLOWABLE BEARING CAPACITY UNDER FOOTING (qa) = 100kPa
- BUILDER TO OBTAIN GEOTECHNICAL APPROVAL OF THE ABOVE PARAMETERS AND SUBMIT IN WRITING TO NORTHPROP CONSULTING ENGINEERS PRIOR TO PLACEMENT OF ANY REINFORCEMENT. CONTACT NORTHPROP ENGINEERS IF ANY OF THE ABOVE REQUIREMENTS ARE NOT ACHIEVED.
- TEMPORARY BATTERS FOR ALL RETAINING WALLS ARE NOT TO EXCEED THE MAXIMUM'S SPECIFIED IN THE GEOTECHNICAL REPORT.
 - BUILDER IS TO MAINTAIN STABILITY OF WALL DURING BACKFILLING PROCEDURE.
 - BUILDER IS TO ENSURE THAT THE STABILITY OF THE TEMPORARY EXCAVATION IS MAINTAINED DURING THE CONSTRUCTION OF THE WALL & THAT NO ADJACENT FOOTINGS / STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF THE EXCAVATION, CONTACT NORTHPROP ENGINEERS OR A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER IF THERE ARE ANY CONCERNS.
 - BACKFILL MATERIAL IS TO CONSIST OF FREE DRAINING GRANULAR MATERIAL (CRUSHED ROCK, ASK OR SIMILAR) WITH PARTICLE SIZE <2mm & >100mm
 - PROVIDE CLEANOUT BLOCKS IN BOTTOM COURSE.
 - LOADINGS FOR HANDRAILS, BALUSTRADES & FENCES HAVE NOT BEEN INCLUDED IN DESIGN OF WALL. EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE

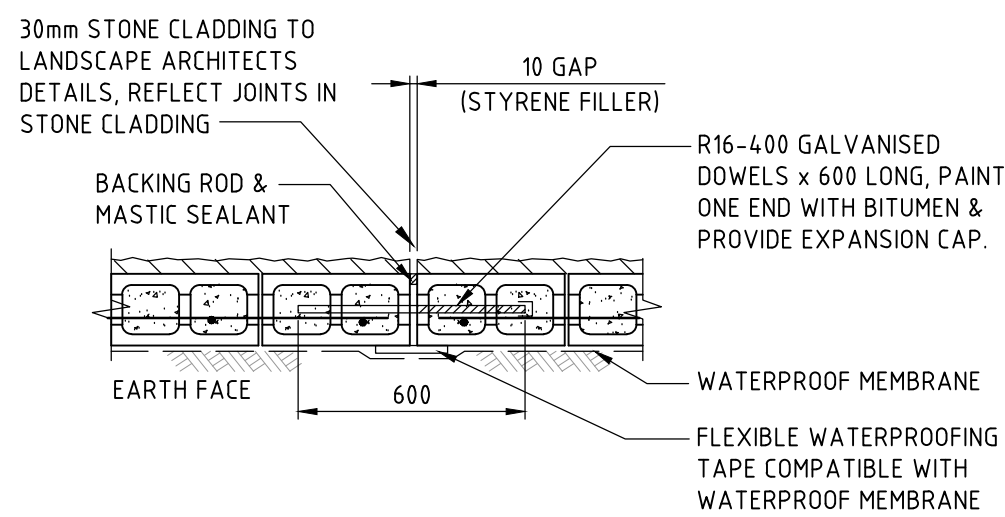


HEIGHT 800 to 1000

RETAINING WALL RW3 SCHEDULE	
HEIGHT 'H'	FOOTING WIDTH 'B'
800	550
1000	700

BLOCKWORK DOWEL JOINT for RETAINING WALL

PROVIDE JOINTS AT 8m MAXIMUM CTS. CONFIRM ALL JOINT LOCATIONS WITH CIVIL ENGINEERS



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Eric Hausfeld
Registered Certifier
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Categories: Certifier – Subdivision
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TYPICAL RETAINING WALL NOTES:

- WATERPROOFING AS NOMINATED BY ARCHITECT. IF NOT NOMINATED PROVIDE EMERPROOF 750 INSTALLED TO MANUFACTURERS SPECIFICATION. PROVIDE PROTECTION TO MEMBRANE (IE SHOCKMAT OR EQUIVALENT)
- BIDIM A24 GEOTEXTILE BETWEEN CUT FACE & FREE DRAINING MATERIAL
- CRUSHED ROCK PLUG OF SINGLE SIZED 10mm AGGREGATE, 100 MINIMUM ABOVE SUBSOIL LINE
- 90° SUBSOIL HYDRAULICALLY CONNECTED TO STORMWATER SYSTEM THROUGH WALL TO CIVIL ENGINEERS DETAILS
- SWALE (or SIMILAR) TO COLLECT SURFACE RUNOFF, REFER TO CIVIL DRAWINGS FOR DETAILS
- TOPSOIL
- 300
- 190
- BOUNDARY
- CAPPING (WHERE REQUIRED)
- 190 REINFORCED COREFILLED BLOCKWORK ('H' TYPE BLOCKS MAY BE USED)
- N16-400 HORIZONTAL BARS, LAP 600mm & COG AT CORNERS
- 30mm STONE CLADDING TO LANDSCAPE ARCHITECTS DETAILS
- 'V2' BARS
- 500 LAP FOR N12 BARS
700 LAP FOR N16 BARS
- CLEAN OUT BLOCK
- 150 MIN
- HEIGHT OF RETAINING WALL 'H'
- CIVIL PAVEMENT, REFER TO CIVIL DRAWINGS FOR DETAILS
- 'V1' BARS WITH 100 COG INTO BOTTOM OF FOOTING
- 900 MAX
- 1200
- 2N12 SIDE FACE IN KEY
- 'V1' BARS. ENSURE FOOTING V1 BARS EXTEND THROUGHOUT TOP OF FOOTING
- 900 DEEP x 1200 WIDE AUSGRID ALLOCATION. DO NOT ALLOW ANY OVER EXCAVATION IN FRONT OF WALL.
- 2N12 AT TOP & BTM OF KEY
- N12-300
- 300
- 300
- 300

HEIGHT 1200 to 2000

RETAINING WALL RW1 SCHEDULE				
HEIGHT 'H'	'B'	'K'	'V1' BARS	'V2' BARS
1200	1100	450	N12 @ 400	N12 @ 400
1600	1400	450	N16 @ 400	N16 @ 400
2000	1600	450	N16 @ 400	N16 @ 400

NOTE: RETAINING WALL KEY (K) MUST EXTEND AS PER THE TABLE OR TO THE BOTTOM OF AUSGRID ALLOCATIONS (WHICHEVER IS DEEPER).

FOR TYPICAL RETAINING WALL NOTES REFER TO RW1 DETAIL (1200-2000mm)

HEIGHT 2400 to 3200

RETAINING WALL RW1 SCHEDULE					
HEIGHT 'H'	COURSES OF 290 BLOCK	'B'	'K'	'V1' BARS	'V2' BARS
2400	4	1800	450	N16 @ 400	N16 @ 400
2800	4	2000	450	N20 @ 400	N16 @ 400
3200	6	2200	450	N24 @ 400	N16 @ 400

NOTE: RETAINING WALL KEY (K) MUST EXTEND AS PER THE TABLE OR TO THE BOTTOM OF AUSGRID ALLOCATIONS (WHICHEVER IS DEEPER).

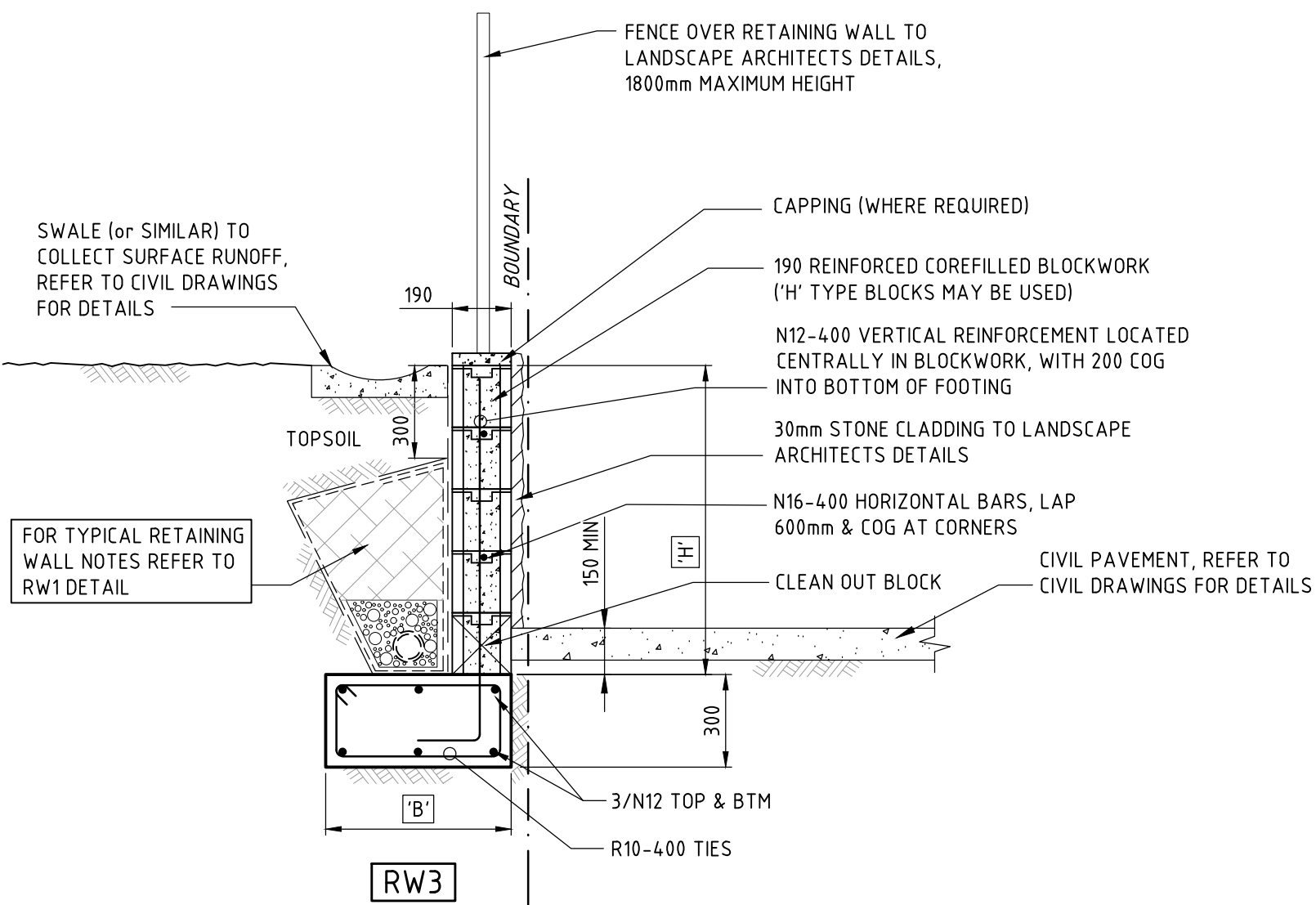
FOR TYPICAL RETAINING WALL NOTES REFER TO RW1 DETAIL (1200-2000mm)

HEIGHT 2000 to 2400

RETAINING WALL RW2 SCHEDULE					
HEIGHT 'H'	COURSES OF 290 BLOCK	'B'	'K'	'V1' BARS	'V2' BARS
2000	4	1600	450	N20 @ 400	N20 @ 400
2400	6	1800	450	N20 @ 400	N20 @ 400

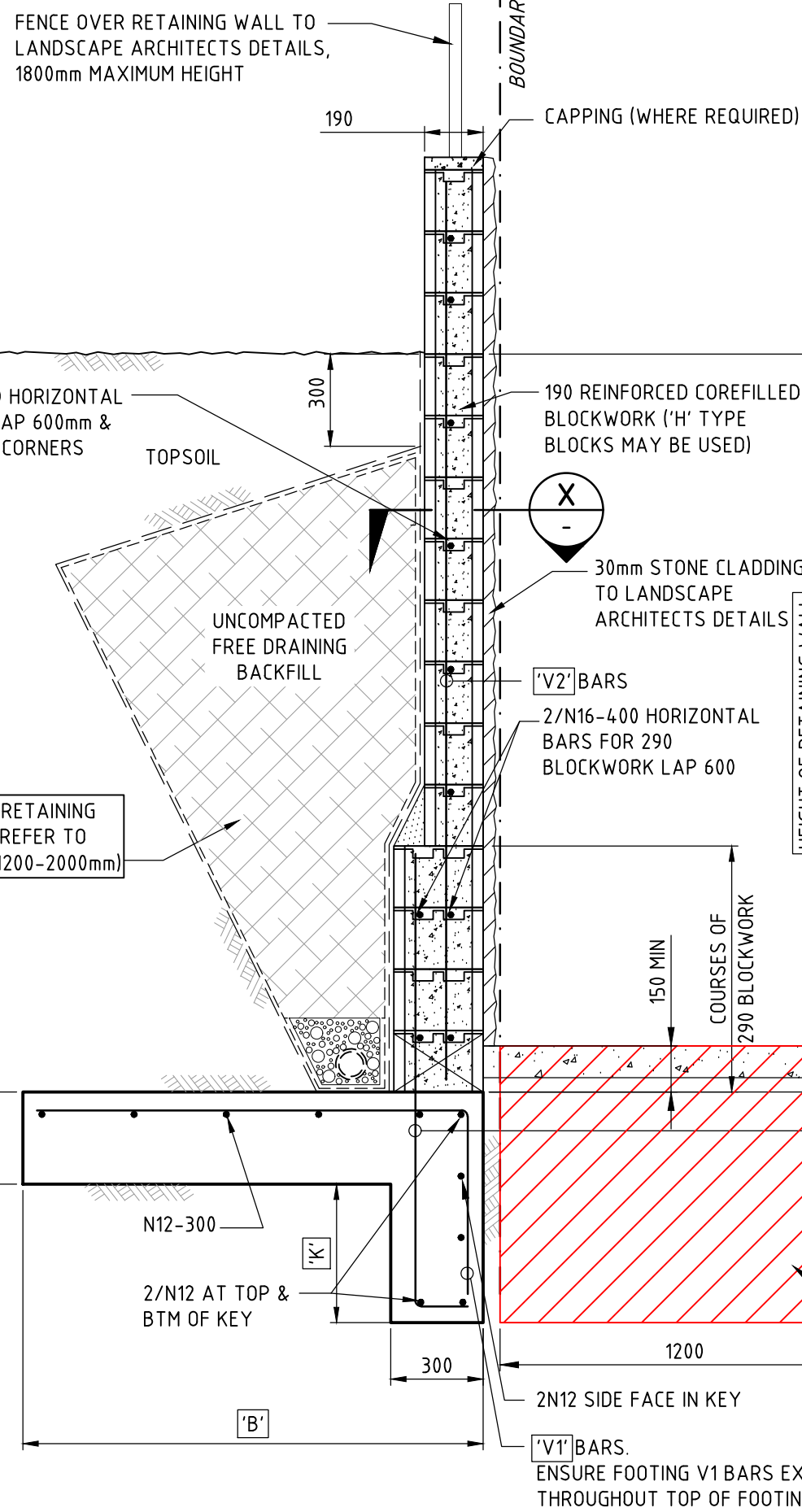
NOTE: RETAINING WALL KEY (K) MUST EXTEND AS PER THE TABLE OR TO THE BOTTOM OF AUSGRID ALLOCATIONS (WHICHEVER IS DEEPER).

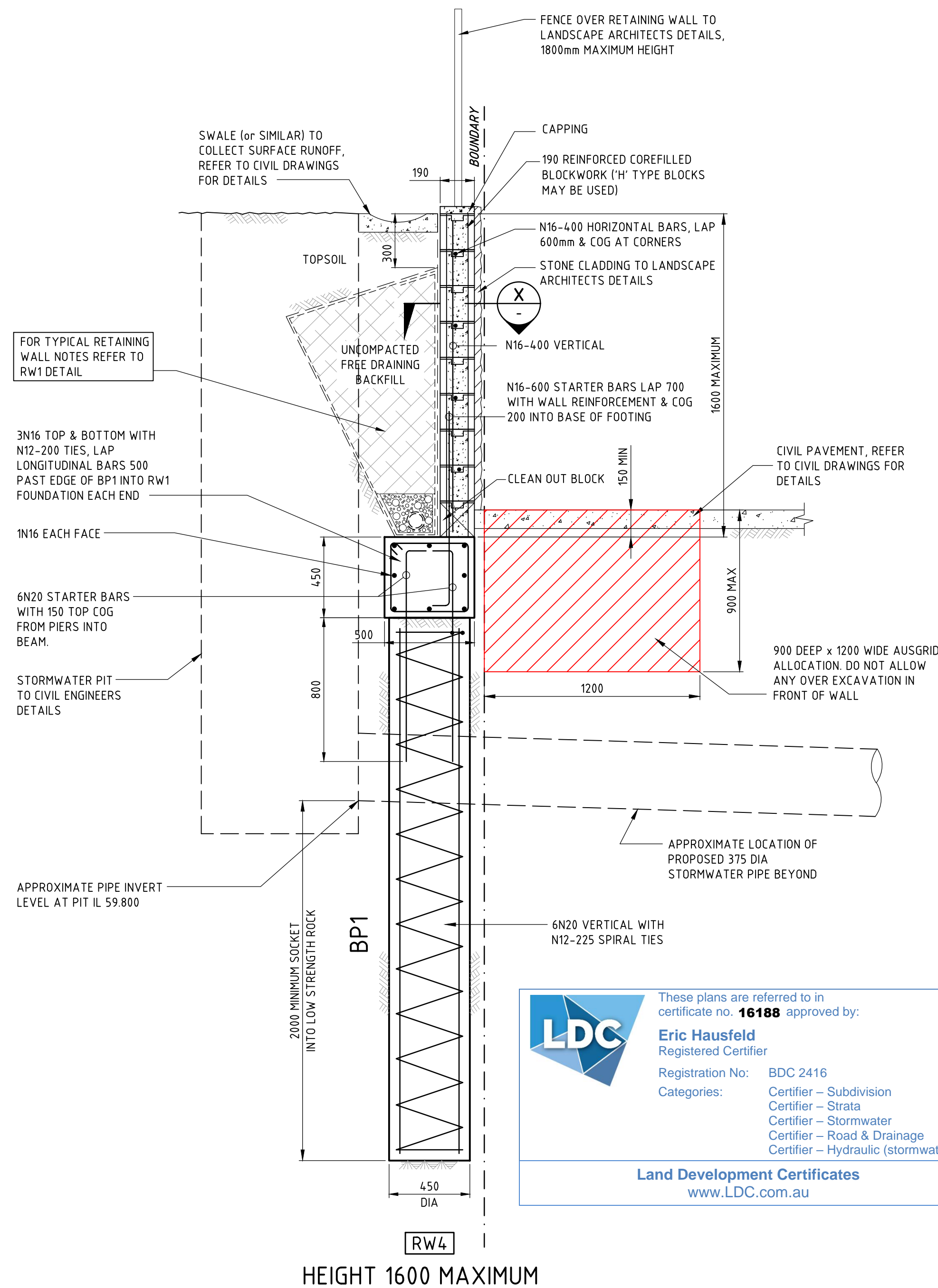
FOR TYPICAL RETAINING WALL NOTES REFER TO RW1 DETAIL (1200-2000mm)



HEIGHT 800 to 1000

RETAINING WALL RW3 SCHEDULE	
HEIGHT 'H'	FOOTING WIDTH 'B'
800	550
1000	700





HEIGHT 1600 MAXIMUM

SHORING NOTES:

A GEOTECHNICAL REPORT HAS BEEN CARRIED OUT, REFER TO REPORT No. 86043.01R.002.REVO.STAGE 1 PREPARED BY DOUGLAS PARTNERS. THIS REPORT IS FOR INFORMATION ONLY, IT IS NOT A COMPLETE DESCRIPTION OF CONDITIONS AT OR BELOW GROUND LEVEL.

THE BUILDER IS TO ENGAGE A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER TO CONFIRM THE FOLLOWING REQUIREMENTS PRIOR TO PLACING OF REINFORCEMENT:

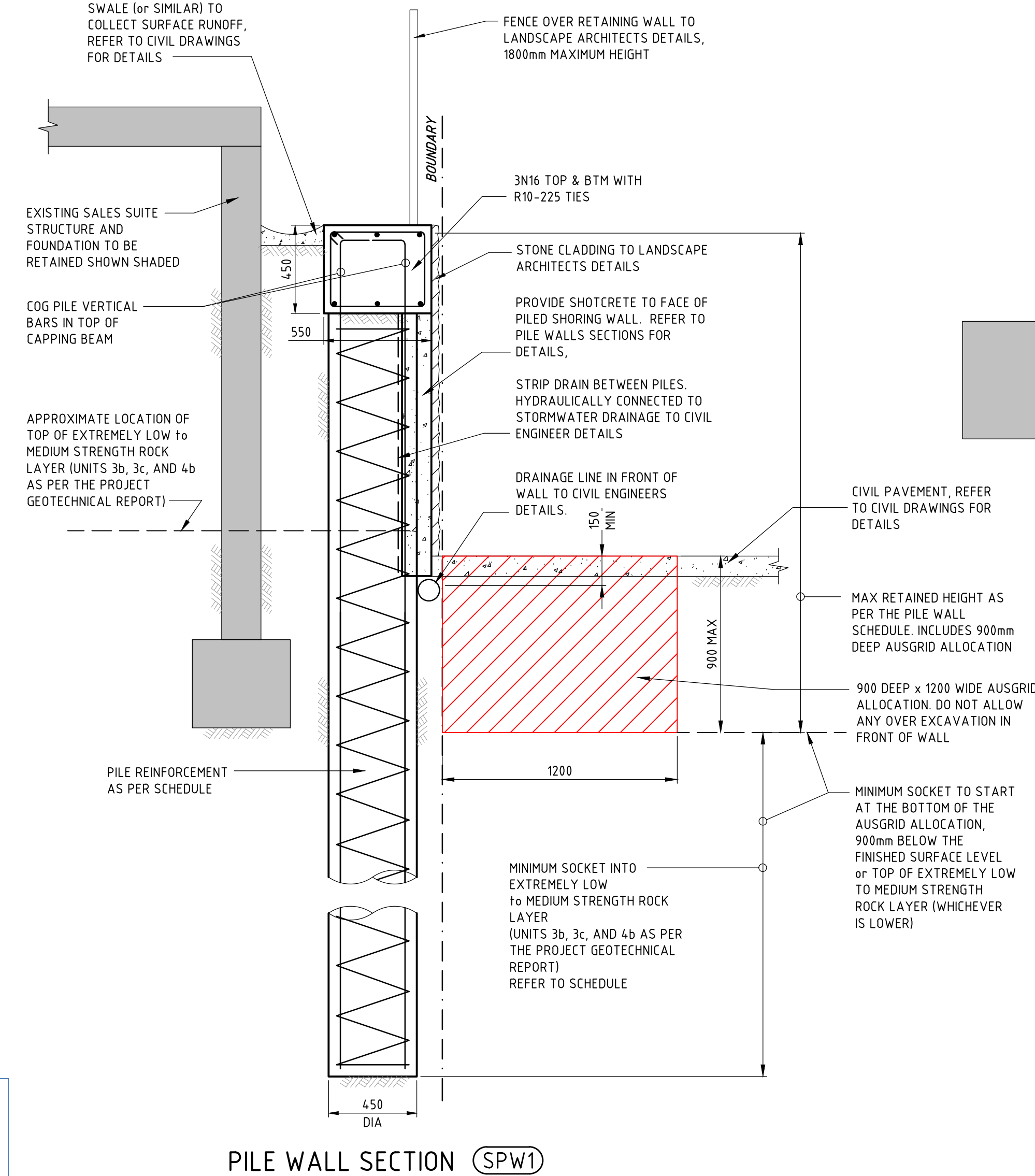
- EXISTING FILL BEHIND WALL (1.5m MAX):
 - UNIT WEIGHT OF SOIL = 20kN/m³
 - ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.4
- EXISTING LOW STRENGTH ROCK BEHIND WALL:
 - UNIT WEIGHT OF MATERIAL = 24kN/m³
 - ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.25

FOUNDING PARAMETERS, (UNITS 3b, 3c, 4b AS PER THE PROJECT GEOTECHNICAL REPORT):

- UNIT WEIGHT OF SOIL = 24kN/m³
- ACTIVE EARTH PRESSURE COEFFICIENT (ka) = 0.2
- ULTIMATE PASSIVE PRESSURE = 400kPa
- ALLOWABLE BEARING CAPACITY UNDER FOOTING (qa) = 100kPa

BUILDER TO OBTAIN GEOTECHNICAL APPROVAL OF THE ABOVE PARAMETERS AND SUBMIT IN WRITING TO NORTHPROP CONSULTING ENGINEERS PRIOR TO PLACEMENT OF ANY REINFORCEMENT. CONTACT NORTHPROP ENGINEERS IF ANY OF THE ABOVE REQUIREMENTS ARE NOT ACHIEVED.

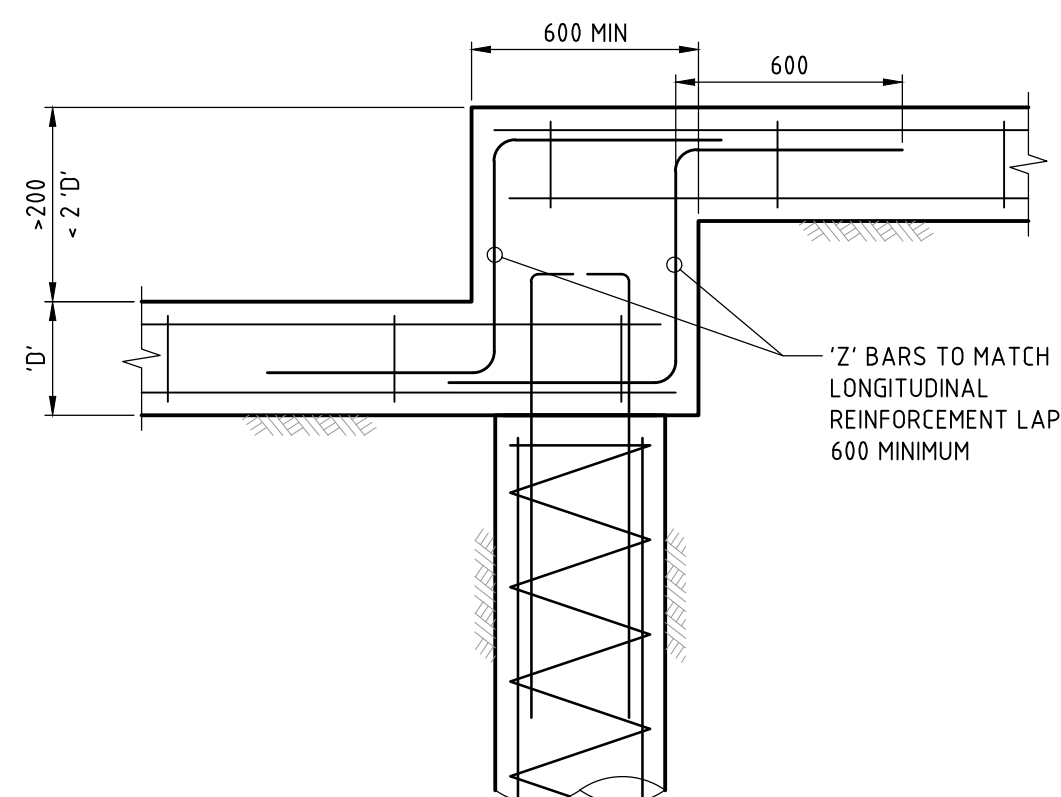
- TEMPORARY BATTERS FOR ALL RETAINING WALLS ARE NOT TO EXCEED THE MAXIMUM'S SPECIFIED IN THE GEOTECHNICAL REPORT.
- BUILDER IS TO ENSURE THAT THE STABILITY OF THE TEMPORARY EXCAVATION IS MAINTAINED DURING THE CONSTRUCTION OF THE WALL & THAT NO ADJACENT FOOTINGS / STRUCTURES ARE WITHIN THE ZONE OF INFLUENCE OF THE EXCAVATION, CONTACT NORTHPROP ENGINEERS OR A SUITABLY QUALIFIED GEOTECHNICAL ENGINEER IF THERE ARE ANY CONCERNS.
- LOADINGS FOR HANDRAILS, BALUSTRADES & FENCES HAVE NOT BEEN INCLUDED IN DESIGN OF WALL. EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE



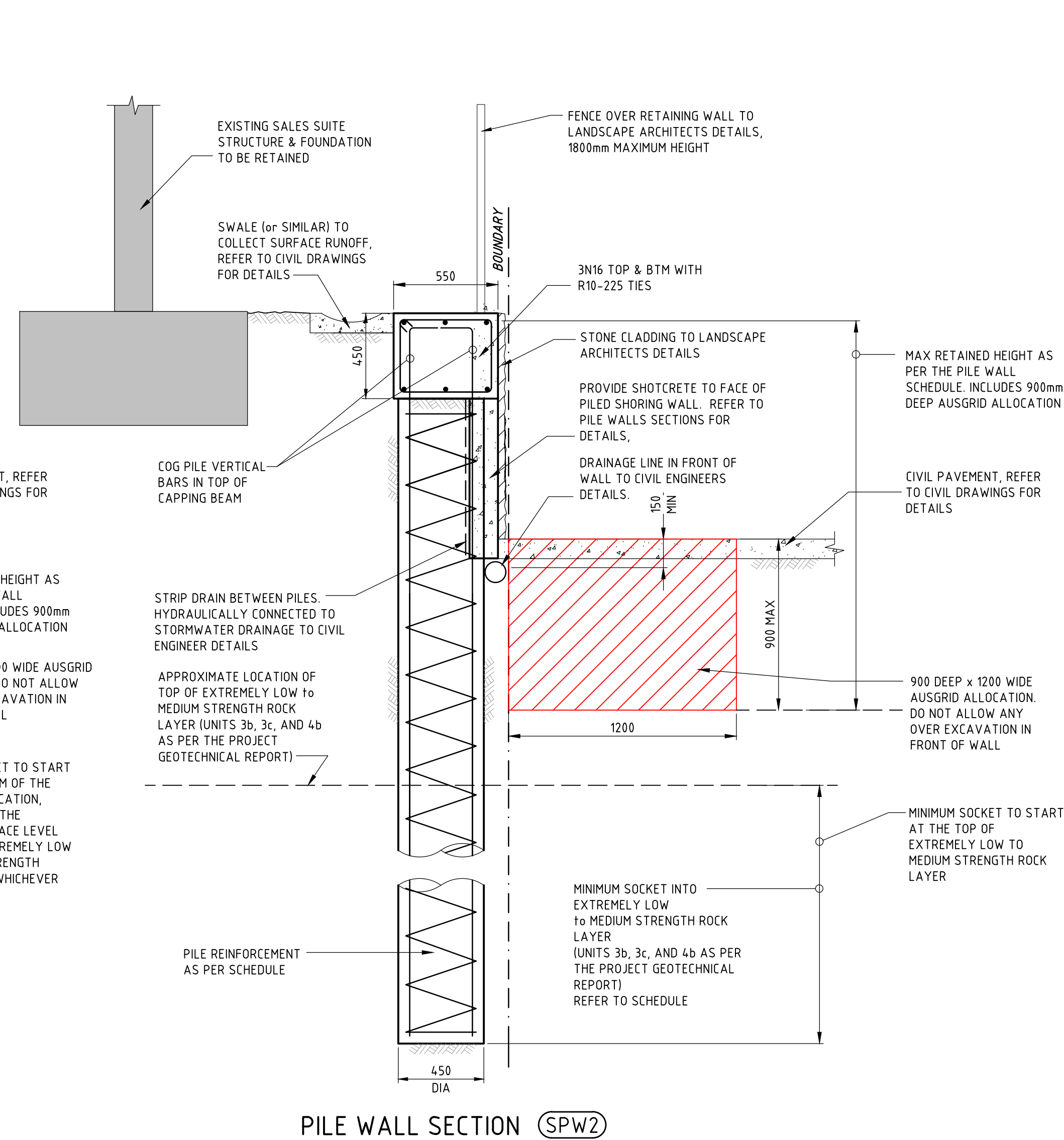
PILE WALL SECTION (SPW1)

SPW1 PILE WALL SCHEDULE				
MAXIMUM RETAINED HEIGHT (mm)	PILE SIZE	PILE SPACING (mm)	MINIMUM SOCKET INTO EXTREMELY LOW TO MEDIUM STRENGTH ROCK LAYER (UNITS 3b, 3c AND 4b AS PER THE PROJECT GEOTECHNICAL REPORT)	REINFORCEMENT
2700	450 DIA BORED PIER	900	2200mm	6/N20 VERTICAL, R10-225 HELIX TIES
3300	450 DIA BORED PIER	900	2600mm	6/N24 VERTICAL, R10-225 HELIX TIES
3900	450 DIA BORED PIER	900	3000mm	6/N24 VERTICAL, R10-225 HELIX TIES

NOTE: CERTIFICATION FROM AN NPFR GEOTECHNICAL ENGINEER IS REQUIRED TO VERIFY THAT THE REQUIRED SOCKET LENGTHS HAVE BEEN ACHIEVED. NORTHPROP ENGINEERS ARE NOT ABLE TO PROVIDE THIS CERTIFICATION. THE BUILDER IS TO ARRANGE FOR GEOTECHNICAL INSPECTIONS PRIOR TO COMMENCEMENT OF DRILLING



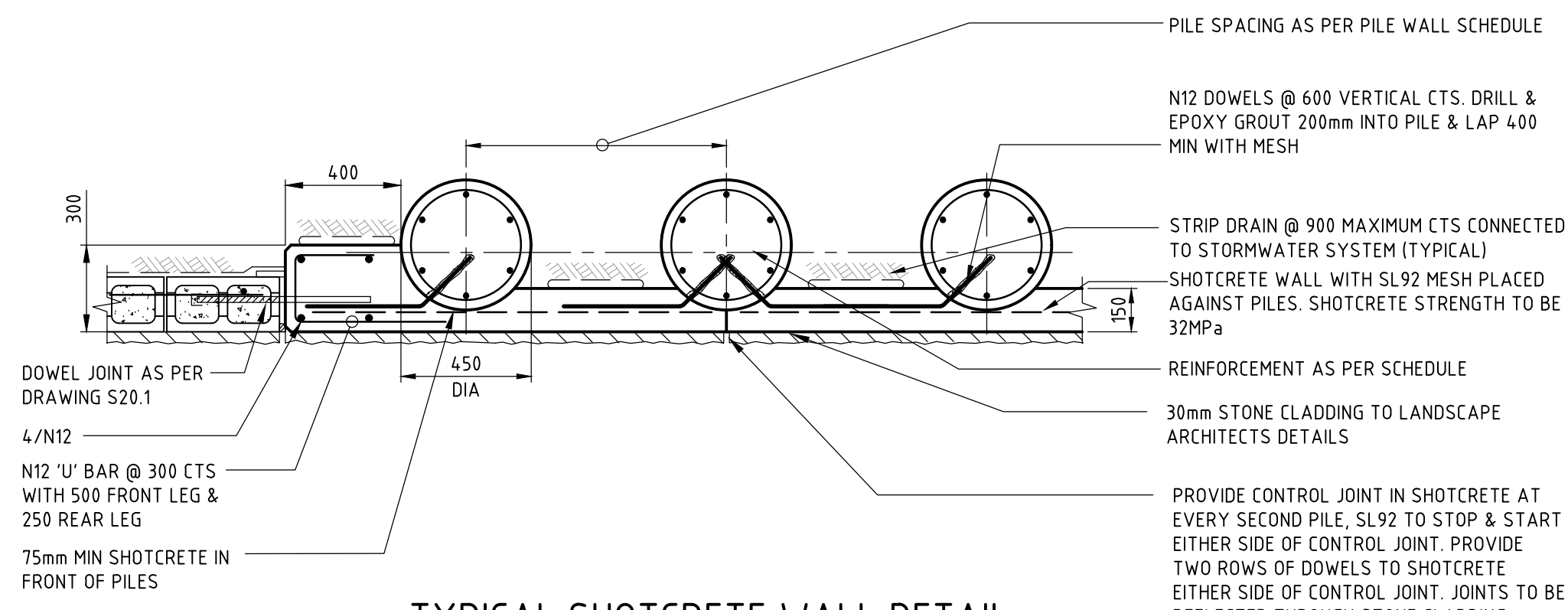
TYPICAL CAPPING BEAM STEP DETAIL



PILE WALL SECTION (SPW2)

SPW2 PILE WALL SCHEDULE				
MAXIMUM RETAINED HEIGHT (mm)	PILE SIZE	PILE SPACING (mm)	MINIMUM SOCKET INTO EXTREMELY LOW TO MEDIUM STRENGTH ROCK LAYER (UNITS 3b, 3c AND 4b AS PER THE PROJECT GEOTECHNICAL REPORT)	REINFORCEMENT
1800	450 DIA BORED PIER	1500	2200mm	6/N16 VERTICAL, R10-225 HELIX TIES

NOTE: CERTIFICATION FROM AN NPFR GEOTECHNICAL ENGINEER IS REQUIRED TO VERIFY THAT THE REQUIRED SOCKET LENGTHS HAVE BEEN ACHIEVED. NORTHPROP ENGINEERS ARE NOT ABLE TO PROVIDE THIS CERTIFICATION. THE BUILDER IS TO ARRANGE FOR GEOTECHNICAL INSPECTIONS PRIOR TO COMMENCEMENT OF DRILLING



TYPICAL SHOTCRETE WALL DETAIL

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
1	PRELIMINARY	PT		COS	14.04.20
A	FOR CONSTRUCTION	TS		COS	28.08.20

DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED	
--	--

CIVIL ENGINEER	
THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHPROP CONSULTING ENGINEERS PTY LTD.	

ALL SETOUT TO ARCHITECT'S DRAWINGS. DIMENSIONS TO BE VERIFIED WITH THE ARCHITECT AND ON SITE BEFORE MAKING SHOP DRAWINGS OR COMMENCING WORK. NORTHPROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY.	
DETAILS: 1:20@A1	

NORTHPROP	
Central Coast	
Suite 4, 257-259 Central Coast Hwy, Erina, NSW 2250	
Ph (02) 4365 1668	
Email: centralcoast@northprop.com.au	
ABN 81 094 433 100	

PROJECT	
IVANHOE ESTATE	
PROPOSED RETAINING WALL	
HERRING ROAD & EPPING ROAD	
MACQUARIES PARK 2322	

DRAWING TITLE	
DETAILS SHEET 2	
JOB NUMBER	NL200538
DRAWING NUMBER	S20.2
REVISION	A
DRAWING SHEET SIZE	A1

19 November 2020

Our Ref: 41/080/1

Your Ref: SSD 8903

The General Manager
City of Ryde Council
Locked Bag 2069
NORTH RYDE, NSW 1670

Dear Sir,

Notification of Certificate Issue

Site Address:	Lot 100 DP 1262209 Ivanhoe Estate comprising Ivanhoe Place, Wilcannia Way, Nyngan Way, Narromine Way and Cobar Way
Subdivision Works Certificate:	16188

In accordance with the Environmental Planning and Assessment Regulation 2000, please accept notice of our certificate issued under Part 6 Environmental Planning and Assessment Act, 1979.

The following information accompanies our notification:

- An electronic copy of our Subdivision Works Certificate and associated documentation; and
- One cheque for payment of the Subdivision Works Certificate registration fee.

Please do not hesitate to contact our office should you require any further information relating to the certification work undertaken or the documentation accompanying this notification.

Yours faithfully



Colette Murray
Office Coordinator

19 November 2020

Our Ref: 41/080/1
Your Ref: SSD 8903

The Minister for Planning and Public Places
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Dear Sir,

Notification of Certificate Issue

Site Address:	Lot 100 DP 1262209 Ivanhoe Estate comprising Ivanhoe Place, Wilcannia Way, Nyngan Way, Narromine Way and Cobar Way
Subdivision Works Certificate:	16188

In accordance with the Environmental Planning and Assessment Regulation 2000, please accept notice of our certificate issued under Part 6 Environmental Planning and Assessment Act, 1979.

The following information accompanies our notification:

- An electronic copy of our Subdivision Works Certificate and associated documentation; and
- One cheque for payment of the Subdivision Works Certificate registration fee.

Please do not hesitate to contact our office should you require any further information relating to the certification work undertaken or the documentation accompanying this notification.

Yours faithfully



Colette Murray
Office Coordinator

19 November 2020

Our Ref: 41/080/1

Your Ref:

NSW Land and Housing Corporation

219-241 Cleveland Street

STRAWBERRY HILLS NSW 2012

via email: Richard.wood@fac.s.nsw.gov.au

Attention: Mr Richard Wood

Notification of Certificate Issue

Site Address:

Lot 100 DP 1262209

Ivanhoe Estate comprising Ivanhoe Place, Wilcannia Way, Nyngan Way, Narromine Way and Cobar Way

Subdivision Works Certificate:

16188


The Subdivision Works Certificate for Stage 1A subdivision works for the subject project has now been issued and an electronic copy of the certificate and associated documentation has been provided under separate cover. A copy of this information has also been sent to the Minister for Planning and Public Spaces and Ryde City Council as required by legislation.

Please note that prior to commencement of the subdivision works the following is to be undertaken in accordance with the Environmental Planning and Assessment Act 1979:

- A Principal Certifier for the subdivision work is required to be formally appointed; and
- The person having the benefit of the development consent must give at least two days notice to Council and the Principal Certifier of the intention to commence the subdivision work.

We trust the above is satisfactory, however please contact us if you require any further information.

Yours faithfully



Colette Murray
Office Coordinator

Subdivision Works Certificate

Environmental Planning and Assessment Act, 1979, Section 6.4 (b)

Determination:	Approved	
Determination Date:	19/11/2020	
Applicant:	Mr Richard Wood NSW Land and Housing Corporation	
Applicant Address:	219-241 Cleveland Street, Strawberry Hills	
Consent Authority:	Minister for Planning and Public Spaces	
Development Consent:	SSD-8903	Dated: 30/04/2020
Modification:	SSD-8903 MOD 1	Dated: 10/11/2020
Subject Land:	Lot 100 DP 1262209	
Site Address:	Ivanhoe Estate comprising Ivanhoe Place, Wilcannia Way, Nyngan Way, Narromine Way and Cobar Way	
Description of Works:	Subdivision Work – Ivanhoe Stage 1A – Tree Removal, earthworks, roads, drainage, landscaping and public domain works.	
Approved Documents:	Refer to Schedule 1 (attached) for a listing of the Approved Documents.	
Supporting Documents:	Refer to Schedule 2 (attached) for Supporting Documents applying to this certificate.	
Notes:	Refer to Schedule 3 (attached) for Notes applying to this certificate.	
Certification Statement:	I certify that the subdivision works, as more fully detailed in the approved documents attached to this certificate, if completed strictly in accordance with these approved documents, will comply with the requirements of the Environmental Planning & Assessment Regulation 2000.	

**Eric Hausfeld****Accredited Certifier****BPB Accreditation No. 2416**

Schedule 1

Approved Documents: ADW Johnson
Project Reference: 300001(1)

Drawing	Revision	Date	Description
001	H	29/10/2020	Cover Sheet, Index of Drawings & Locality Sketch
002	H	29/10/2020	General Notes
003	H	29/10/2020	Overall Site Plan
101	H	29/10/2020	Detail Plan
151	H	29/10/2020	Pavement Plan
181	H	29/10/2020	Subsoil Plan
201	H	29/10/2020	Typical Road Profiles, Kerb Details & Road Setout Tables
202	H	29/10/2020	Raised Pedestrian Crossing, Temporary Berm & Bin Footing Details
211	H	29/10/2020	Road Longitudinal Sections – Road No. 1
212	H	29/10/2020	Road Longitudinal Sections – Road No. 2
231	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 1
232	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 2
233	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 3
234	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 4
235	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 5
236	H	29/10/2020	Road Cross Sections – Road No. 1 – Sheet 6
237	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 1
238	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 2
239	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 3
240	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 4
241	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 5
242	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 6
243	H	29/10/2020	Road Cross Sections – Road No. 2 – Sheet 7
301	H	29/10/2020	Intersection Details – Kerb Returns KR01 & KR02
302	H	29/10/2020	Intersection Details – Kerb Returns KR07 & KR08
303	H	29/10/2020	Intersection Details – Herring Road – Temporary Sheet 1
304	H	29/10/2020	Intersection Details – Herring Road – Temporary Sheet 2
306	H	29/10/2020	Intersection Details – Sales Suite Driveway
351	H	29/10/2020	Carpark Details Plan – Sheet 1
352	H	29/10/2020	Carpark Details Plan – Sheet 2
353	H	29/10/2020	Carpark Details Plan – Sheet 3
401	H	29/10/2020	Stormwater Catchment Plan – Sheet 1
402	H	29/10/2020	Stormwater Catchment Plan – Sheet 2
421	H	29/10/2020	Stormwater Calculation Charts – 20 Year A.R.I.
422	H	29/10/2020	Stormwater Calculation Charts – 100 Year A.R.I.

Eric Hausfeld

Eric Hausfeld

Accredited Certifier

BPB Accreditation No. 2416

Schedule 1

Approved Documents: ADW Johnson
Project Reference: 300001(1)

Drawing	Revision	Date	Description
431	H	29/10/2020	Stormwater Longitudinal Sections – Sheet 1
432	H	29/10/2020	Stormwater Longitudinal Sections – Sheet 2
433	H	29/10/2020	Stormwater Longitudinal Sections – Sheet 3
434	H	29/10/2020	Stormwater Longitudinal Sections – Sheet 4
435	H	29/10/2020	Stormwater Longitudinal Sections – Sheet 5
481	H	29/10/2020	Custom Stormwater Pit Details – Pit No. 2/3 & Typical Details
482	H	29/10/2020	Custom Stormwater Pit Details – Pit No. 18/1, A1/1 & A2/1 & Notes
501	H	29/10/2020	Site Regrade Plan – Roadworks
551	H	29/10/2020	Retaining Wall Plan & Upper Path Details
601	H	29/10/2020	Erosion & Sediment Control Plan
611	H	29/10/2020	Erosion & Sediment Control Details & Notes
701	H	29/10/2020	Temporary Works Plan – Road No. 1
702	H	29/10/2020	Temporary Works Plan – Road No. 1 Details
703	H	29/10/2020	Temporary Works Plan Road No. 2
704	H	29/10/2020	Temporary Works Plan Road No. 2 – Details
705	H	29/10/2020	Basin Detail Plan
801	H	29/10/2020	Tree Retention Plan

Approved Documents: Northrop
Job Number: NL200538

Drawing	Revision	Date	Description
S01.1	A	28/08/20	Cover Sheet, Locality Plan & Drawing List
S01.2	A	28/08/20	Structural Notes – Sheet 1
S10.1	C	04/09/20	Retaining Wall Plan & Long Section
S20.1	A	28/08/20	Details – Sheet 1
S20.1	A	28/08/20	Details – Sheet 1



Eric Hausfeld

Accredited Certifier

BPB Accreditation No. 2416

Schedule 1

Approved Documents: Hassell
Project Number: 012092.006

Drawing	Revision	Date	Description
L-S1_0001-1	4	29/07/2020	Cover Sheet
L-S1_0003-1	4	29/07/2020	Drawing Legend
L-S1_0004-1	3	29/07/2020	Planting Schedule
L-S1_1001_1-A1	6	02/09/2020	Site Plan
L-S1_1101_1	6	02/09/2020	General Arrangement
L-S1_1102_1	6	02/09/2020	General Arrangement
L-S1_1103_1	6	02/09/2020	General Arrangement
L-S1_1104_1	6	02/09/2020	General Arrangement
L-S1_1105_1	6	02/09/2020	General Arrangement
L-S1_1106_1	6	31/08/2020	General Arrangement
L-S1_1107_1	5	29/07/2020	General Arrangement
L-S1_5103_A1	3	29/07/2020	Wall & Stair Details
L-S1_5201_1	4	02/09/2020	Furniture & Fixture Details
L-S1_5202_1	3	29/07/2020	Furniture & Fixture Details
L-S1_5203-A1	3	29/07/2020	Furniture & Fixture Details Walls, Stairs, Fences & Handrails
L-S1_5301_1-A1	3	29/07/2020	Paving Details
L-S1_5302_1-A1	4	01/09/2020	Paving Details
L-S1_5401_1	4	02/09/2020	Planting Details Street Tree Planting
L-S1_5402_1	3	29/07/2020	Planting Details
L-S1_5403_1	4	02/09/2020	Planting Details

Eric Hausfeld

Accredited Certifier

BPB Accreditation No. 2416`

Schedule 2

Supporting Documents

- City of Ryde Development Control Plan 2014 Part 8.5
<https://www.ryde.nsw.gov.au/files/assets/public/development/dcp/dcp-2014-8.5-public-civil-works.pdf>
- Structural Certification, dated 7/09/2020 as issued by Casey O'Sullivan of Northrop
- Bin Footing Structural Design Statement, dated 03/09/2020 as issued by Mark Kelly of ADW Johnson
- Stormwater Pits Structural Design Statement, dated 03/08/2020 as issued by Richard Kerr of ADW Johnson
- Civil Design Statement (Coli Easement), dated 09/11/2020 as issued by Nathan Delaney of ADW Johnson
- Long Service Levy Receipt No. 00441550
- Letter (Condition B36 – Environmental Sustainability), dated 11/11/2020 as issued by Sean Kahn of Frasers Property Australia Pty Limited
- Letter (Condition B74 – Access Compliance), dated 17/07/2020 as issued by Peter Statham of Frasers Property Australia Pty Limited
- Landscape Architectural Statement, dated 19/11/2020 as issued by Georgia darling of Hassell
- Civil Design Statement, dated 09/11/2020 as issued by Nathan Delaney of ADW Johnson
- Bond Documents receipted 12/10/2020
- Submission to Ryde City Council (Condition B97) – email dated 13/11/2020
- Ryde City Council Concurrence (Condition 102) – email dated 9/10/2020
- Revised Pavement Thickness Design Advice, dated 13/08/2020 as issued by Douglas Partners



Eric Hausfeld

Accredited Certifier

BPB Accreditation No. 2416

Schedule 3

Notes

- This certificate does not approve or authorise any proposed works within existing public roads which require the separate approval of the Roads Authority.
- This certificate excludes the proposed raised pedestrian crossing and alterations to the Sales Centre car park which are subject to separate approvals.



Eric Hausfeld

Accredited Certifier

BPB Accreditation No. 2416

September 7, 2020

Mr Ben Myles

ADW Johnson Pty Ltd
5 Pioneer Avenue
TUGGERAH NSW 2259

Dear Ben,

RE: NL200538 – Cnr Herring Road and Epping Road, Macquarie Park – Structural Certification

We, Northrop Consulting Engineers Pty Ltd, being professional engineers, certify the Structural Drawings NL200538_S01.1(A), S01.2(A), S10.1(C), S20.1(A) and S20.2(A) were prepared:

- (a) under the supervision of a professional structural engineer registered under NPER;
- (b) and in accordance with the relevant structural requirements of the Building Code of Australia;
- (c) and in accordance with the following Australian Standards:
 - AS/NZS 1170 – Structural Design Actions:
 - AS/NZS 1170.0:2002 – General Principals;
 - AS/NZS 1170.1:2002 – Permanent, imposed and other actions;
 - AS 2159:2009 – Piling - Design and Installation;
 - AS 3600:2009 – Concrete Structures;
 - AS 3700:2011 – Masonry Structures;
 - AS 4678:2002 – Earth Retaining Structures.
- (d) and in accordance with the relevant structural requirements of the development consent.

This certificate shall not be construed as relieving any other party of their responsibilities.

Yours Sincerely,



Casey O'Sullivan
Structural Engineer
BE Civil (Hons) MIEAust, CPEng, NER

This certificate is provided to you for your sole benefit and only for the purpose of the NL200538 project. You may not provide this certificate to any third party. A third party may not rely on this certificate unless otherwise agreed in writing by us, or required by law. To the extent permitted by law, we disclaim and exclude all liability for any loss, damage, cost or expense suffered by any third party relating to or resulting from the unauthorised use of, or reliance on, any information contained in this certificate



CIVIL



STRUCTURAL



BUILDING
SERVICES



SUSTAINABILITY



Ref: MK/LF 300001(1)

3rd September 2020

Frasers Property Limited
Level 3, Building C, 1 Homebush Bay Drive
RHODES NSW 2138

Attention: Chris Koukoutaris

Dear Chris,

**IVANHOE ESTATE STAGE 1A, MACQUARIE PARK
BIN FOOTING STRUCTURAL DESIGN STATEMENT**

Geotechnical Report: 86043.01 prepared by Douglas Partners dated December 2019
ADW Johnson Drawings: 300001(1)-ENG-202 Revision F dated September 2020
Footing Design Loads: Dead Load
13kN Vehicle Impact Load

We hereby certify that the design shown on the referenced ADW Johnson drawings for the subject development is in accordance with normal sound engineering practices and has been carried out with reference to the following Australian Standards and the referenced geotechnical report.

AS1170 – Structural Design Actions
AS3600 – Concrete Structures

We are an appropriately qualified and competent company in this area and as such can certify that the subject structural elements will perform within their design intent under the loading specified above.

Regards,

A handwritten signature in black ink, appearing to read 'Melissa-Paige Cooper'.

MELISSA-PAIGE COOPER
CIVIL ENGINEER
BE(Civil) MIEAUST
ADW JOHNSON PTY LTD

A handwritten signature in blue ink, appearing to read 'Mark Kelly'.

MARK KELLY
SENIOR CIVIL ENGINEER
BE(Civil), ME(Sci) MIEAUST CPENG NER
ADW JOHNSON PTY LTD

ADW JOHNSON PTY LIMITED

ABN 62 129 445 398

Sydney

Level 35 One International Towers
100 Barangaroo Avenue
Sydney NSW 2000
02 8046 7411

sydney@adwjohnson.com.au

Central Coast

5 Pioneer Avenue, Tuggerah NSW 2259
PO Box 3717, Tuggerah NSW 2259
02 4305 4300

coast@adwjohnson.com.au

www.adwjohnson.com.au

Hunter

7/335 Hillsborough Road,
Warners Bay NSW 2282
02 4978 5100

hunter@adwjohnson.com.au



Ref: MK:300001(1)

3rd August 2020

Frasers Property Limited
Level 3, Building C, 1 Homebush Bay Drive
RHODES NSW 2138

ATTENTION: CHRIS KOUKOUTARIS

Dear Chris,

**IVANHOE ESTATE STAGE 1A, MACQUARIE PARK
STORMWATER PITS STRUCTURAL DESIGN STATEMENT**

Geotechnical Report:	86043.01 prepared by Douglas Partners dated December 2019
ADW Johnson Drawings:	300001(1)-ENG-481 & 482 Revision E dated August 2020
Pit Design Loads:	Dead Load 5kPa Live Load Surcharge 80kN Wheel Load

We hereby certify that the design shown on the referenced ADW Johnson drawings for the subject development is in accordance with normal sound engineering practices and has been carried out with reference to the following Australian Standards and the referenced geotechnical report.

AS1170 – Structural Design Actions
AS4678 – Earth Retaining Structures
AS3600 – Concrete Structures

We are an appropriately qualified and competent company in this area and as such can certify that the subject structural elements will perform within their design intent under the loading specified above.

Regards,

A handwritten signature in black ink, appearing to read 'R. Kerr'.

RICHARD KERR
SENIOR STRUCTURAL ENGINEER
BE MIEAUST CPENG 2987478
ADW JOHNSON PTY LTD
HUNTER OFFICE

ADW JOHNSON PTY LIMITED
ABN 62 129 445 398

Sydney
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02 8046 7411
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7/335 Hillsborough Road,
Warners Bay NSW 2282
02 4978 5100
hunter@adwjohnson.com.au

www.adwjohnson.com.au



Ref: BMY/LF 300001(1)

9th November 2020

Frasers Property Limited
Level 3, Building C, 1 Homebush Bay Drive
RHODES NSW 2138

Attention: Chris Koukoutaris

Dear Chris,

IVANHOE ESTATE STAGE 1A – CIVIL DESIGN STATEMENT

We hereby certify that the civil design works depicted on the drawings prepared by ADW Johnson reference 300001(1)-ENG-001-902 revision H, will ensure, with the exception of minor and temporary disruption during physical works, that the current drainage capacity of the drainage infrastructure servicing Lot 44 DP1247523 will be maintained.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'N Delaney'.

Nathan Delaney
Senior Civil Engineer
MIEAust CPENG NER
ADW Johnson Pty Ltd
Central Coast

ADW JOHNSON PTY LIMITED

ABN 62 129 445 398

Central Coast

5 Pioneer Avenue, Tuggerah NSW 2259
PO Box 3717, Tuggerah NSW 2259
Ph. 02 4305 4300
Fax. 02 4305 4399
Video. 02 43054374
Email. coast@adwjohnson.com.au

Hunter Region

7/335 Hillsborough Road, Warners Bay NSW 2282
Ph. 02 4978 5100
Fax. 02 4978 5199
Video. 02 4954 3948
Email. hunter@adwjohnson.com.au

www.adwjohnson.com.au

7 September 2020

FRASERS PROPERTY IVANHOE P/L
PO BOX 3307
RHODES NSW 2138

Levy Receipt

Receipt No.

00441550

Received from: (Name of person or organisation paying for levy)

the amount of

FRASERS PROPERTY IVANHOE P/L

\$108,329.00

Payment details:

Cheque 110796 \$108,329.00 FRASERS PROPERTY AHL LIMITED

being payment for Long Service Levy as detailed below

Levy Payment Form number	0359971
Council/Department/Authority	RYDE COUNCIL, CITY OF
C.C. Number	SSD 8903
Work address	LOT 100 DP1262209 1 IVANHOE PLACE MACQUARIE PARK NSW 2113
Estimated value of work	\$30,951,250.00
Levy payable (No exemption)	\$108,329.00
Total levy paid	\$108,329.00
Credit Card Surcharge (non-refundable)	\$0.00
Total Amount Paid	\$108,329.00

Signed: (Signature of authorised person)

Date

7/9/2020

454584

17 July 2020

Eric Hausfield
Land Development Certificates
Suite 7, 76 Henry Street,
Penrith 2751

CONDITION B36 ENVIRONMENTAL SUSTAINABILITY

Dear Eric

In accordance with Planning Condition B36: I confirm that the detailed design of the development incorporates the environmental sustainability objectives, measures and initiatives outlined in Ivanhoe Sustainability Strategy Stage 1, prepared by Frasers Property, dated August 2018.

Itemized below are Details demonstrating compliance with this condition. Frasers Property are making a commitment to achieve the following:

- 5 Star Green Star Design & As-Built rating for all residential buildings
- 6 Star Green Star Communities rating for the precinct
- Delivery of an integrated solution integrated infrastructure solution via Real Utilities which will allow all buildings to be carbon neutral in operation

For any queries feel free to contact me on the details below.

Kind Regards,



Sean Kahn
Sustainability
Frasers Property Australia Pty Limited
T +61 2 9767 2071
E Sean.khan@frasersproperty.com.au

11 November 2020

Eric Hausfield
Suite 7, 76 Henry Street,
Penrith NSW 2751
Land Development Certificates

CONDITION B74 PROVIDE AN ACCESS COMPLIANCE CERTIFICATE FROM AN APPROPRIATELY QUALIFIED PERSON

Access and facilities for people with disabilities must be designed in accordance with the BCA. Prior to the commencement of the relevant works, a certificate certifying compliance with this condition from an appropriately qualified person must be provided to the Certifier.

Dear Eric

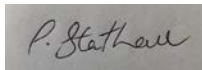
In accordance with Planning Condition B74: Frasers Ivanhoe Pty Ltd confirm that Condition B74 will be complied with.

However, for the Ivanhoe Estate – Stage 1 Subdivision Works Certificate the access compliance certificate is not required for these works. This has been reviewed with the consultant team Hassell Landscapes and ADW Johnson who have advised that there are no DDA compliance issues or requirements for the Stage 1A subdivision works.

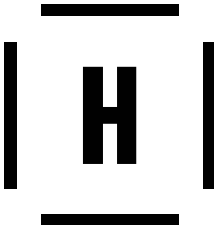
The DDA compliance requirements will be addressed as part of the Building A1 and C1 works.

For any queries feel free to contact me on the details below.

Kind Regards,



Peter Statham
Project Manager
Frasers Property Australia Pty Limited
T +61 2 9767 2071
E Peter.Statham@frasersproperty.com.au



LEVEL 2
PIER 8/9, 23 HICKSON ROAD
SYDNEY NSW AUSTRALIA 2000
+61 2 9101 2000

AUSTRALIA / ASIA /
UNITED KINGDOM / UNITED STATES

HASELL LIMITED
ABN 24 007 711 435

NOMINATED ARCHITECTS NSW:
TONY GRIST 5350
GLENN SCOTT 6842
ROSS DE LA MOTTE 7398

19 November 2020

Mr Chris Koukoutaris
Senior Development Manager
Fraser's Property Australia
Level 2, 1C Homebush Bay Drive
Rhodes NSW 2138
Australia

Dear Chris,

**IVANHOE ESTATE – STAGE 1 PUBLIC DOMAIN LANDSCAPE WORKS
LANDSCAPE ARCHITECTURAL STATEMENT**

Hassell hereby confirm that the landscape architectural 'For Tender' documentation for the Stage 1 Public Domain scope of works at Ivanhoe Estate are consistent with the below conditions of consent.

CONDITIONS

B30 – Tree Planting

A minimum of 381 new trees are planted compromising quantities as noted in B30 a) b) c).

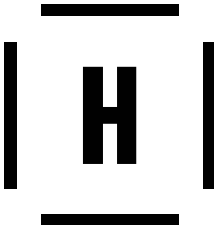
Stage 1 Public Domain landscape works provides trees in compliance with quantities and sizes listed in this clause. Stage 1A contributes to a portion of these species, the balance shall be delivered in future stages of the project.

B31- Street Tree Plan

A Street Tree Plan is to be prepared by a certified Landscape Architect in accordance with Council's relevant Technical Manual. The Plan must show all services and planting detail in accordance with Council's minimum requirements. Details demonstrating compliance with this requirement are to be submitted to the Certifier prior to the issuing of Subdivision Works Certificate.

Hassell Subdivision Works Certificate documentation incorporate the street tree planting layout and accompanying details, along with the location of street light poles and stormwater services (with more detailed underground services detail information available on ADWJ documentation). Please refer to the following Hassell documentation:

- L-S1_0001 – 5402 Ivanhoe Midtown Stage 1 & 1A Tender Documentation



B32 - Schedule of Materials

Prior to the commencement of works for each building, a list of the final schedule of materials shall be submitted to the Planning Secretary. The Applicant shall also submit a copy of the schedule of materials to the Certifier with the application for the relevant Crown Building Works Certificate for each building.

Hassell tender documentation incorporate the landscape architectural materials schedule. Please refer to the following Hassell documentation:

- L-S1_6001 Ivanhoe Midtown Materials & Finishes Schedule

B82 – Bicycle parking

The layout, design and security of bicycle facilities either on-street or off-street must comply with the minimum requirements of Australian Standards AS 2890.3 – 2015. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate for each building.

All bicycle parking facilities are included in the architectural (Bates Smart) scope, with no on-street bicycle parking facilities being provided in the public domain until future project phases when public domain open space is delivered. Please refer to the architect for certification of this clause.

D47 – Bus stops & shelters

Prior to the commencement of any bus services utilising Main Street, the Applicant shall provide details of any proposed bus stop and provide illuminated bus shelters to meet Disability Discrimination Act standards. Bus stop and bus shelters shall be provided at no cost to Council.

No public bus stops are provided along Main Street in Stage 1A works. As such this clause is not applicable.

B90 – Public Domain

All public domain areas are subject to the standards requirements of Council's SCP 2014 Part 4.5 Macquarie Park Corridor, and Council's Public Domain Technical Manual Section 6- Macquarie Park Corridor. In the event of any inconsistency, the approved Landscape Plans are to prevail. Details demonstrating compliance must be submitted to the Certifier prior to the issue of the relevant Crown Building Works Certificate for each building of Subdivision Works Certificate.

Hassell Subdivision Works Certificate documentation are consistent with the landscape architectural DA plans (as approved by NSW Planning, Industry & Environment and in accordance with Council's SCP and Public Domain Technical Manual). Please refer to the following Hassell documentation:

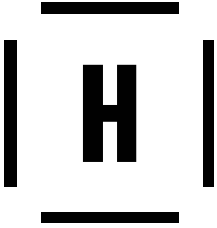
- L-S1_0001 – 5402 Ivanhoe Midtown Stage 1 & 1A Tender Documentation
- L-S1_6001 Ivanhoe Midtown Materials & Finishes Schedule
- L-S1_6003 Landscape Specification

D45 – Design of Public Domain and Public Infrastructure Works

Details confirming all public domain works have been designed in accordance with Council's DCP 2014 Part 4.5 Macquarie Park Corridor and Public Domain Technical Manual Section 6 – Macquarie Park Corridor, must be provided to Council and Certifier prior to the commencement of each road.

Hassell tender documentation are consistent with the landscape architectural DA plans (as approved by NSW Planning, Industry & Environment and in accordance with Council's SCP and Public Domain Technical Manual). Please refer to the following Hassell documentation:

- L-S1_0001 – 5402 Ivanhoe Midtown Stage 1 & 1A Tender Documentation
- L-S1_6001 Ivanhoe Midtown Materials & Finishes Schedule
- L-S1_6003 Landscape Specification



I am an experienced, qualified and competent landscape architect.

Name: Georgia Darling

Company: Hassell

Qualifications: BLArch Hons

Address: Level 2 Pier 8/9 23 Hickson Road Sydney Australia 2020

Phone: +61 9101 2000

Yours sincerely

A handwritten signature in black ink, appearing to read 'GDarling', with a stylized, cursive script.

Georgia Darling
Associate

Mobile +61 409 524 575

Email gdarling@hassellstudio.com

cc Andrew Ewington, Hassell



Ref: BMY/LF 300001(1)

9th November 2020

Frasers Property Limited
Level 3, Building C, 1 Homebush Bay Drive
RHODES NSW 2138

Attention: Chris Koukoutaris

Dear Chris,

IVANHOE ESTATE STAGE 1A – CIVIL DESIGN STATEMENT

We hereby certify that the civil design depicted on the drawings prepared by ADW Johnson reference 300001(1)-ENG-001-902 revision H, complies with all conditions of consent SSD 8903 and is generally in accordance with Council's DCP 2014 Part 4.5 Macquarie Park Corridor, Part 8.5 Public civil Works, Part 8.2 Stormwater Management and the Public Domain Technical Manual Section 6 – Macquarie Park Corridor.

Should you have any queries, please do not hesitate to contact the undersigned.

Yours faithfully,

A handwritten signature in dark ink, appearing to read 'N Delaney'.

Nathan Delaney
Senior Civil Engineer
MIEAust CPENG NER
ADW Johnson Pty Ltd
Central Coast

ADW JOHNSON PTY LIMITED

ABN 62 129 445 398

Central Coast

5 Pioneer Avenue, Tuggerah NSW 2259
PO Box 3717, Tuggerah NSW 2259
Ph. 02 4305 4300
Fax. 02 4305 4399
Video. 02 43054374
Email. coast@adwjohnson.com.au

Hunter Region

7/335 Hillsborough Road, Warners Bay NSW 2282
Ph. 02 4978 5100
Fax. 02 4978 5199
Video. 02 4954 3948
Email. hunter@adwjohnson.com.au

www.adwjohnson.com.au



12th October 2020

Wayne Rylands
Ryde Council City Works Directorate
1 Pope Street, Ryde
NSW 2112

CONDITION B96 Temporary Stormwater Works Bank Guarantee

Dear Ryde Council City Works Directorate

In accordance with the Development Consent SSD 8903 Planning Condition B96: Frasers Ivanhoe Pty Ltd is providing a Bank Guarantee for \$200,000.

The Bank Guarantee Number is DG894823416 and Provided by ANZ .

The Details of the Condition are as follows:

- B96. All temporary stormwater works must be designed and undertaken in accordance with the relevant aspects of the Council's DCP 2014 Part 8.2, Australian Rainfall and Runoff (ARR) 2019, NSW Floodplain Development Manual 2005 and any other relevant Australian Standards.

Detailed design plans of the temporary works stormwater design, calculations and other supporting documentations prepared by a Chartered Civil Engineer (registered on the NER of Engineers Australia) must be submitted to, and approved by, the Certifier prior to the commencement of the relevant works. A copy of the approved plans and documentation must be provided to Council prior to the commencement of the relevant works.

The detailed design of temporary works drainage shall be subject to any amendments warranted by Council's City Works Directorate as a result of the review and approval of the temporary works design plans.

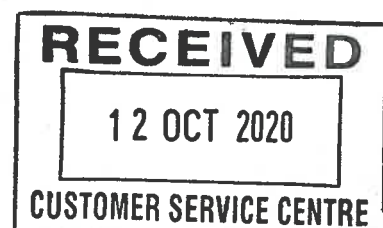
To ensure satisfactory performance of the excavation, laying of pipes, back filling, disposal of excess soil and restoration including new kerb and gutter works, the Applicant must maintain all trunk drainage works until dedication to Council.

A bond in the form of a cash deposit or Bank Guarantee of \$200,000 shall be lodged with Council prior to the issue of any Crown Building Works Certificate to guarantee this requirement will be met. The bond will be released on dedication to Council.

For any queries feel free to contact me on the details below. Kind Regards,

A handwritten signature in black ink, appearing to read "P. Statham", on a grey rectangular background.

Peter Statham
Project Manager
Fraser's Property Australia Pty Limited
T +61 2 9767 2071
E Peter.Statham@frasersproperty.com.au





ORIGINAL

ANZ

ABN 11 005 357 522

TSC Operations-Australia Guarantees
Level 5, Core AB, 833 Collins St
Docklands, VIC 3008
Tel: 1300 091 233
Fax: 1300 072 851
SWIFT: ANZBAU3MXXX
www.anz.com

Guarantee
No. DG894823418

Beneficiary:
Ryde City Council
ABN 81 621 292 610 Australia

Applicant:
Fraser Property AHL Limited
ABN 12 008 443 696
Level 2, Building C, 1 Homebush
Bay Drive, Rhodes NSW 2138 Australia
Ref: P-510

Date of issue:
September 22, 2020

Guarantee Amount:
Not Exceeding AUD 200,000.00
Two Hundred Thousand
Australian Dollars

Special Conditions:

Description of Contract / Agreement:
Australia and New Zealand Banking Group Limited ('ANZ') asks the Beneficiary to accept this bank guarantee ('Undertaking') in connection with a contract or agreement between the Beneficiary and Applicant for:
Project Name: Ivanhoe - Midtown
Stage: Stage 1
Purpose: Condition B96 - SSD 8903 - Stormwater Drainage
DA No: SSD 8903.

Guarantee Amount

In consideration of the Beneficiary accepting this Undertaking and its terms, ANZ undertakes unconditionally to pay the Beneficiary on written demand from time to time any sum or sums up to an aggregate amount not exceeding: Australian Dollars Two Hundred Thousand Only (AUD 200,000.00) ('Amount').

Undertaking:

ANZ will pay the Amount or any part of it to the Beneficiary upon presentation of this original Undertaking (accompanied by a written demand) at ANZ Trade and Supply Chain, Level 18, 242 Pitt Street, Sydney, NSW, 2000 without reference to the Applicant and even if the Applicant has given ANZ notice not to pay the money, and without regard to the performance or non-performance of the Applicant or Beneficiary under the terms of the contract or agreement.



ORIGINAL

By accepting this Undertaking, the Beneficiary acknowledges and agrees that ANZ may rely entirely on any demand or notice as presented to it and has no responsibility or obligation to investigate the authenticity or correctness of the matters stated in a demand or notice, the signatures on the same, the positions of such signatories or the capacity or entitlement of the Beneficiary to give and execute the demand or notice.

Any alterations to the terms of the contract or agreement or any extensions of time or any other forbearance by the Beneficiary or Applicant will not impair or discharge ANZ's liability under the Undertaking.

This Undertaking remains in force until the first to occur of:

- The Beneficiary notifies ANZ in writing that the Undertaking is no longer required.
- This original Undertaking is returned to ANZ Trade and Supply Chain, Level 5, Core AB, 833 Collins Street, Docklands VIC 3008.
- ANZ has paid to the Beneficiary the Amount or the balance outstanding of the Amount.
- 4.00pm on the September 23, 2024, in the State or Territory of presentation ('Expiry date'). If the Expiry date is not a business day in the State or Territory, then the Expiry date shall be deemed to occur on the next business day.

Notwithstanding anything stated in this Undertaking, ANZ has the right to terminate it at any time by paying the Beneficiary the Amount or the balance outstanding of the Amount, or any lesser amount that the Beneficiary may require.

This Undertaking is personal to the Beneficiary. The Beneficiary cannot assign, transfer, charge or otherwise deal with its rights under this Undertaking and ANZ will not recognize any purported assignment, transfer, charge or other dealing.

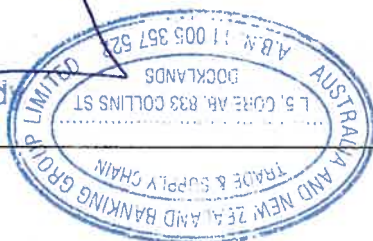
This Undertaking will be governed by the laws of the place of presentation.

Executed at Melbourne for and on behalf of Australia and New Zealand Banking Group Limited ABN 11 005 357 522

Regards,

Authorised Signature(s)

Anandan Reddi



May Zheng



ANZ

ABN 11 005 357 522
TSC Operations-Australia Guarantees
Level 5, Core AB, 833 Collins St
Docklands, VIC 3008
Tel: 1300 091 233
Fax: 1300 072 851
SWIFT: ANZBAU3MXXX
www.anz.com

Frasers Property AHL Limited
ABN 12 008 443 696
Level 2, Building C, 1 Homebush
Bay Drive, Rhodes NSW 2138 Australia

September 22, 2020

Re: Our Guarantee No.: DG894823418
Your Reference: P-510
Beneficiary: Ryde City Council

Dear Customer,

We enclose a copy of the above-mentioned Guarantee issued in accordance with your instructions.

Please review the content of this document carefully and notify us within 2 working days if you have any concerns as to the terms and conditions thereof.

Guarantee No.: DG894823418
Amount: Australian Dollars Two Hundred Thousand
Beneficiary: Ryde City Council
Effective Date: September 22, 2020
Expiry Date: September 23, 2024

Unless otherwise instructed herein, all correspondence and enquiries regarding this transaction should be directed to our Customer Service Centre at the above address, telephone: 1300 091 233. Please indicate our reference number in all your correspondence or telephone enquiries.

This document is computer-generated, and requires no signature.

Guarantee
No. DG894823418

Beneficiary:
Ryde City Council
ABN 81 621 292 610 Australia

Applicant:
Fraser's Property AHL Limited
ABN 12 008 443 696
Level 2, Building C, 1 Homebush
Bay Drive, Rhodes NSW 2138 Australia
Ref: P-510

Date of issue:
September 22, 2020

Guarantee Amount:
Not Exceeding AUD 200,000.00
Two Hundred Thousand
Australian Dollars

Special Conditions:

Description of Contract / Agreement:

Australia and New Zealand Banking Group Limited ('ANZ') asks the Beneficiary to accept this bank guarantee ('Undertaking') in connection with a contract or agreement between the Beneficiary and Applicant for:

Project Name: Ivanhoe - Midtown

Stage: Stage 1

Purpose: Condition B96 - SSD 8903 - Stormwater Drainage

DA No: SSD 8903.

Guarantee Amount

In consideration of the Beneficiary accepting this Undertaking and its terms, ANZ undertakes unconditionally to pay the Beneficiary on written demand from time to time any sum or sums up to an aggregate amount not exceeding: Australian Dollars Two Hundred Thousand Only (AUD 200,000.00) ('Amount').

Undertaking:

ANZ will pay the Amount or any part of it to the Beneficiary upon presentation of this original Undertaking (accompanied by a written demand) at ANZ Trade and Supply Chain, Level 18, 242 Pitt Street, Sydney, NSW, 2000 without reference to the Applicant and even if the Applicant has given ANZ notice not to pay the money, and without regard to the performance or non-performance of the Applicant or Beneficiary under the terms of the contract or agreement.

By accepting this Undertaking, the Beneficiary acknowledges and agrees that ANZ may rely entirely on any demand or notice as presented to it and has no responsibility or obligation to investigate the authenticity or correctness of the matters stated in a demand or notice, the signatures on the same, the positions of such signatories or the capacity or entitlement of the Beneficiary to give and execute the demand or notice.

Any alterations to the terms of the contract or agreement or any extensions of time or any other forbearance by the Beneficiary or Applicant will not impair or discharge ANZ's liability under the Undertaking.

This Undertaking remains in force until the first to occur of:

- The Beneficiary notifies ANZ in writing that the Undertaking is no longer required.
- This original Undertaking is returned to ANZ Trade and Supply Chain, Level 5, Core AB, 833 Collins Street, Docklands VIC 3008.
- ANZ has paid to the Beneficiary the Amount or the balance outstanding of the Amount.
- 4.00pm on the September 23, 2024, in the State or Territory of presentation ('Expiry date'). If the Expiry date is not a business day in the State or Territory, then the Expiry date shall be deemed to occur on the next business day.

Notwithstanding anything stated in this Undertaking, ANZ has the right to terminate it at any time by paying the Beneficiary the Amount or the balance outstanding of the Amount, or any lesser amount that the Beneficiary may require.

This Undertaking is personal to the Beneficiary. The Beneficiary cannot assign, transfer, charge or otherwise deal with its rights under this Undertaking and ANZ will not recognize any purported assignment, transfer, charge or other dealing.

This Undertaking will be governed by the laws of the place of presentation.

Executed at Melbourne for and on behalf of Australia and New Zealand Banking Group Limited ABN 11 005 357 522

Regards,

COPY

Authorised Signature(s)

YCC.

Eric Hausfeld

From: Peter Statham <Peter.Statham@frasersproperty.com.au>
Sent: Friday, 13 November 2020 10:07 AM
To: Eric Hausfeld; Alex Ciecko
Cc: Chris Koukoutaris; Joe Avgoustis
Subject: FW: Condition B97 - SSD8903
Attachments: Ivanhoe drainage.zip; 300001 STAGE 1 DOWNSTREAM PIPE CAPACITY 200804.drn

Hi Eric & Alex

Please find attached B97 Condition – Input and output Files (Being sent to Ryde Council).

Evidence Below.

In addition Hard Copies will be posted today and I will forward the registered Mail number for reference.

Kind regards

Peter Statham
Project Manager
Frasers Property Australia

T +61 2 9767 2071 M +61 416 715 491

E Peter.Statham@frasersproperty.com.au

Suite 11, Lumiere Commercial Level 12, 101 Bathurst Street,, Sydney NSW 2000 Australia

www.frasersproperty.com.au | [LinkedIn](#) | [YouTube](#)

We've changed the way we work to accommodate COVID-19. For details visit our [website](#).



From: Peter Statham
Sent: Friday, 13 November 2020 10:05 AM
To: 'cityofryde@ryde.nsw.gov.au' <cityofryde@ryde.nsw.gov.au>
Subject: Condition B97 - SSD8903

Dear Ryde Council

In Accordance with Condition B97 -

dedication to Council.

B97. Electronic copies of the input and output files of the design software use compatible with Council's computer software along with the plan and a l to the issue of the relevant Crown Building Works Certificate.

Please find attached the input and Output files of the Design Software.

These are 12D drainage files (the zip folder) which was used to design the drainage network and a Drains file which was used to confirm the capacity of the downstream infrastructure to convey flows from the basin.

Kind regards

Peter Statham
Project Manager
Frasers Property Australia

T +61 2 9767 2071 **M** +61 416 715 491

E Peter.Statham@frasersproperty.com.au

Suite 11, Lumiere Commercial Level 12, 101 Bathurst Street,, Sydney NSW 2000 Australia

www.frasersproperty.com.au | [LinkedIn](#) | [YouTube](#)

We've changed the way we work to accommodate COVID-19. For details visit our [website](#).



Eric Hausfeld

From: Chris Koukoutaris <Chris.Koukoutaris@frasersproperty.com.au>
Sent: Friday, 9 October 2020 11:05 AM
To: Eric Hausfeld
Cc: Peter Statham
Subject: Fwd: Flooding - We-transfer link - 24.9.20 Ivanhoe Place Macquarie Park

FYI from Council
Condition closed

Thanks

Regards
Chris Koukoutaris
Frasers Property Australia

Begin forwarded message:

From: Manel Mariner <ManelM@ryde.nsw.gov.au>
Date: 9 October 2020 at 10:27:33 am AEDT
To: Chris Koukoutaris <Chris.Koukoutaris@frasersproperty.com.au>
Subject: FW: RE: Flooding - We-transfer link - 24.9.20 Ivanhoe Place Macquarie Park

CAUTION: External email. Do not click links or open attachments unless you recognise the sender and know the content is safe.

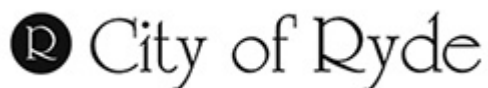
Hi Chris,

Just writing to confirm that Condition B102 is satisfied.

Kind regards,

Manel Mariner
Senior Engineer - Stormwater and Floodplain Management
ASSETS & INFRASTRUCTURE

P (02) 9952 8289
M 0434 859 371
E ManelM@ryde.nsw.gov.au
W www.ryde.nsw.gov.au



Customer Service Centre 1 Pope Street, Ryde (Within Top Ryde City shopping centre)
North Ryde Office Riverview Business Park, Building 0, Level 1, 3 Richardson Place, North Ryde

Let's Connect [Facebook](#) | [Twitter](#) | [Instagram](#) | [YouTube](#) | [eNews](#)

From: Chris Koukoutaris <Chris.Koukoutaris@frasersproperty.com.au>
Sent: Thursday, 24 September 2020 1:38 PM
To: City of Ryde <CityofRyde@ryde.nsw.gov.au>
Cc: 'Eric Hausfeld' <Eric@LDC.com.au>; Alex Ciecko <aciecko@mckenzie-group.com.au>; Peter Statham <Peter.Statham@frasersproperty.com.au>
Subject: [SUSPICIOUS MESSAGE] RE: Flooding - We-transfer link - 24.9.20 Ivanhoe Place Macquarie Park

This Message contains suspicious characteristics and has originated outside your organization.

Hi Ryde Council

In complying with the conditions of consent for approval SSD 8903 – Condition B102

Please find the we-transfer link which includes the TUFLOW models.

<https://we.tl/t-UYW1bwEqLY>

If you have any queries feel free to contact me.

Kind regards

Chris Koukoutaris
Senior Development Manager
Frasers Property Australia

T +61 2 9767 2223 M +61 434 034 371
E Chris.Koukoutaris@frasersproperty.com.au
Level 2, 1C Homebush Bay Drive, Rhodes NSW 2138 Australia
www.frasersproperty.com.au | [LinkedIn](#) | [YouTube](#)

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**Frasers Property Ivanhoe Pty Ltd
Level 2, 1C Homebush Bay Drive
Rhodes NSW 2138**

**Project 86043.03
13 August 2020
R.001.Rev2
SCP**

Attention: Chris Koukoutaris

Email: Chris.Koukoutaris@frasersproperty.com.au

**Revised Pavement Thickness Design Advice
Proposed Residential Development
Ivanhoe Estate, Macquarie Park**

1. Introduction

This report presents the results of a revised pavement thickness design undertaken by Douglas Partners Pty Ltd (DP) for proposed civil construction works as part of the proposed Ivanhoe Estate development. The work was commissioned by Frasers Property Ivanhoe Pty Ltd.

This revision includes allowance for stone-paved road sections and parking areas, in addition to the deep lift asphaltic concrete pavement design, and assuming the full design traffic loading applies in all areas, and comments raised in discussion with the Civil Engineers (ADW Johnson) for the project.

The proposed Ivanhoe Estate development is primarily high density residential and mixed use. New roads within the site are expected to be managed by the City of Ryde Council following the completion of the development.

Based on information provided by the civil engineers for the project (ADW Johnson), it is understood that the infrastructure works for Stage 1A will comprise two roads. In addition, it is noted that:

- Granite pavers have been specified for parking bays, and for the area associated with the intersection of the two internal roads; and,
- Long-sections provided by ADW Johnson indicate that the roads pass through significant areas of high strength rock (sandstone), based on the existing geotechnical investigation information.

2. Background

2.1 Previous Investigation

Previous, preliminary geotechnical investigation at the greater Ivanhoe Estate site was separately reported in DP's Report 86043.01.R.001.Rev1. The investigation included sampling and testing for

California bearing ratio (CBR) of the various materials, and preliminary advice in relation to pavements.

Preliminary pavement thicknesses were provided in DP's Report 86043.01.R.001.Rev1 for light traffic only.

2.2 City of Ryde Standard Drawings

Subsequent to the preliminary geotechnical investigation report, the City of Ryde has issued standard drawings for typical pavement structure, including for 'Commercial, Industrial, High Density Residential and Mixed Developments' (Drawing CIV.14.2, dated 14 August 2019). Given the high density residential and mixed use proposed for Ivanhoe Estate, this drawing is considered applicable to the site.

The drawings indicate a 'deep lift' pavement profile, and design traffic (DESA) of 1×10^7 , together with layer thicknesses and a minimum 450 mm total pavement profile for pavements over a subgrade with CBR of at least 10%.

The drawing indicates that pavement design is to be carried out in accordance with Austroads Guide to Pavement Technology – Part 2: Pavement Structural Design (2017), referred to as Austroads (2017) in this report.

The City of Ryde also has prepared standard drawing 'Porphyry Setts Vehicular Pavement' (Drawing CIV.13 dated 18/7/2018). This drawing is not considered directly applicable to the subject pavement areas as:

- The thickness of the porphyry setts is considered potentially insufficient for the proposed 1×10^7 DESAs;
- The pavement detailing does not include appropriate subbase material, as would be expected for a pavement subject to 1×10^7 DESAs, to inhibit erosion, pumping and similar issues relating to the use of a concrete basecourse.
- The subgrade compaction of 95% is unacceptable.

Drawing CIV.13 has nonetheless been considered to inform the design of the stone-paved areas, as discussed in further detail within this report.

The City of Ryde Drawing PV1.2 for 'Pavement Type Granite' (dated 15/12/17) is relevant to verge areas that will be stone paved, but will not experience any heavy vehicle loads. It also references Drawing PV1.1 for 'Pavement Town Centre Type Concrete' (dated 15/12/17), which indicates a similar pavement.

3. Comments

3.1 Subgrade Conditions

DP's preliminary investigation report 86043.01.R.001.Rev1 suggested design CBR values of 4% to 10% at the site, noting that:

"The results of testing have indicated CBR values of 4.5% to 45% from samples obtained in the various soils and extremely weathered rocks. Past DP experience has indicated that CBR values of 3% to 10% are generally observed in the natural soils developed from the Mittagong Formation and Hawkesbury Sandstone." and,

"Care must be taken in considering the raw CBR results, which may not represent the behaviour of the soil as a whole, particularly when considering fill materials."

Based on the above recommendations, the adopted design CBR values for Stage 1A are given in Table 1.

Table 1: Design CBR Values

Design CBR Value	Comment
6%	For natural, residual clay soils and clayey filling; and, On soils derived from interbedded shale laminite and sandstone, and low strength sandstone, or underlain by these materials, as these materials may degrade significantly under cyclic loading.
10%	For filling derived from medium or high strength sandstone from the site; and, For subgrades of pavements cut into medium and high strength sandstone bedrock

Higher CBRs are not considered appropriate, as small variations in the condition of the materials, presence of minor defects and changes in construction control can have a significant influence on their behaviour under cyclic loading, whereas improved parameters have limited influence on the pavement design.

During construction, verification CBR testing should be undertaken on the actual subgrade materials to confirm that the conditions are consistent with the design requirements. The suggested CBRs are intended to control, but not eliminate possible areas of weaker subgrade, which would require treatment if encountered.

A CBR value of 4% was recommended in DP's Report 86043.01.R.001.Rev1 for the alluvial clays towards Shrimpton's Creek (below RL 45, south-east of the Stage 1A area). Similar CBRs may possibly be obtained in natural clays derived from the Mittagong Formation, within 70 m of Herring Road, and supported by more recent test information provided to DP in the Macquarie Park area. Such material was not generally identified at the relevant test locations in the Ivanhoe site, where filling was generally underlain by bedrock, although possible natural soil was encountered within 0.5 m

of bedrock level at Bores 31 and 02. These materials may indicate possible areas of subgrade treatment (refer Section 3.4) but are not expected to be extensive within the Stage 1A area.

3.2 Pavement Thickness Design Methodology

Following review of the City of Ryde drawings and discussions with the Client, the design traffic (DESA) of 1×10^7 was adopted for the design thickness assessment.

The following general methodology was then adopted for the design of the deep lift pavements:

- The 'typical pavement profile' from Council drawings was adopted in a mechanistic-empirical model, and relevant parameters adopted for the various pavement layers based on experience and guidance provided in Austroads (2017). Two layers of AC20 were adopted for the 'intermediate' course, rather than AC28, for ease of sourcing and construction.
- A design traffic distribution was adopted based on existing survey data provided in Austroads (2017) Appendix E;
- Mechanistic-empirical modelling was undertaken of the design pavement thicknesses for the various design CBRs, together with minimum treatments required by Council.

Where a cumulative damage factor (CDF) indicated failure before the design life for a given layer, the layer thickness was adjusted to decrease the CDF to an acceptable level.

The design of the proposed roads surfaced with stone pavers (i.e. granite porphyry setts) required further assessment. The following issues were noted:

- Drawing CIV.13 by Council is not considered appropriate for the adopted traffic volume and it is considered likely that it is intended for lower volume, local traffic roads.
- The design of the pavement has therefore been guided by the City of Ryde Council's Drawing CIV.13, adopting a jointed reinforced concrete pavement (JRC) design without integrated shoulders, but modified based on Austroads (2017).
- The surface paving type is driven by the landscaping plan and is not subject to DP specification. A minimum paver thickness of 80 mm is recommended for the 1×10^7 DESA traffic loading, noting that DP also recommends a concrete segmental paver design for this traffic loading.
- Given the proposed stone pavers, the interlock is likely to be heavily influenced by the mortared joints between the pavers. Careful attention should be paid to the construction of joints to improve interlock, and to the surface finish to ensure that it is suitable for the vehicular traffic. As movement of pavers over a flexible road structure would result in earlier cracking of the mortar bed resulting in degradation of the pavement, a rigid (concrete) pavement is considered necessary.
- The design of a concrete base in accordance with Austroads (2017) requires detailed information on the traffic load distribution as well as the traffic volumes, as the performance of concrete pavements can be highly sensitive to variations in (heavy vehicle) traffic loadings. On the subject pavements there is significant uncertainty in relation to the traffic load distribution given both the short to medium term loading during construction of the Ivanhoe Estate, and medium to long term

loading as the road system is developed as part of the staged development. The design has been based on the traffic load distribution information in Appendix E of Austroads (2017) for Pennant Hills Road.

3.3 Pavement Thickness Analysis Results

The pavement thicknesses resulting from the above design methodology and analysis are summarised in Table 2 for the deep lift asphaltic concrete pavement and Table 3 for the stone paved roads.

Table 2: Pavement Thickness – Deep Lift Asphaltic Concrete

Subgrade CBR	6%	10%
Wearing Course thickness (mm) (AC14)	50	50
Intermediate Course thickness (mm) (AC20)	170 (85+85)	150 (75+75)
Base Course thickness (mm) (DGB20)	100	100
Subbase Course thickness (mm) (DGS40)	150	150
Treatment layer thickness (mm) (DGS40)	200	-

The pavement thickness assessment for the deep lift pavement design indicated that tensile cracking at the base of the intermediate course (base of the lower layer) is the governing failure mode.

Table 3: Pavement Thickness – Stone pavers

Subgrade CBR	6% - 10%*
Stone pavers (mm)	80
Mortar bed (mm)	30
Concrete (mm) ($f_c=32\text{MPa}$)	210
Lean-mix concrete subbase** (mm) ($f_c = 5\text{MPa}$, low shrinkage)	150

Note: *subbase requirements are governed by the traffic load and erosion performance requirements, not by the expected 6% to 10% subgrade range.

** The lean-mix concrete subbase replaces the DGB20 subbase nominated in Drawing CIV.13

The pavement thickness assessment for the concrete pavement design indicated that concrete fatigue, rather than erosion, is the governing failure mode for the pavement.

3.4 Pavement Design and Construction Comments

The pavement materials considered in the pavement thickness design have been based on the material specifications, compactions, testing and treatments given in the City of Ryde Drawings CIV.14 (for deep lift) and CIV.13 (for stone paved pavements) except where specifically noted otherwise. This includes the modified binder requirements at intersections and curves, which are considered reasonable and appropriate.

The proposed design thicknesses are suitable for grades of up to 15%.

Interface treatment (i.e. prime, geofabric, adhesives, coats) are not specifically considered within the analysis to determine layer thicknesses and have not been outlined in Tables 2 and 3, above. Those given in the City of Ryde drawings are considered appropriate to include within the pavement design.

For the concrete pavement, a wax emulsion should be applied to the lean-mix concrete subbase to assist with curing, and a bitumen seal with 5-7mm aggregate placed to debond the subbase from the concrete slab.

Interfaces between the pavements will require 150 mm wide concrete edge strips at transverse or longitudinal joints, with dish drains proposed at longitudinal interfaces within bus bays. The interface details shown in CIV.13 are considered suitable.

The SL82 mesh indicated by CIV.13 is suitable for distances of up to 6.0 m to untied joints or edges of the base (i.e. tied widths of up to 12 m). An increased steel area would be required for larger lengths. Joint details for the concrete slab below the pavers are included in Drawing CIV.11, with the following modifications/clarifications:

- At longitudinal joints, tie-bars are to be 12 mm Grade 500N deformed steel bars, 1 m long, placed centrally in the joint;
- Dowels at expansion/contraction joints are to be plain, round 32 mm diameter, grade 250N and 450 mm long

If longitudinal joints are required in the lean concrete subbase for construction purposes, these should be located at a 100 mm to 400 mm offset from longitudinal joints in the base concrete, to reduce the risk of reflective cracking.

3.4.1 Subgrade and Subsurface Drainage

The analysis has considered subgrade materials of CBR of 6% and 10%, which are likely to be extensive at the site. In practice, the 1.0 m of material below the pavement construction influences the design CBR. Assessment of subgrade improvement after Austroads (2017), based on methods from the Japan Road Association (1989) indicates that if material with a CBR of 4% is encountered along

the road alignment, then placement of 0.4 m depth of 10% CBR fill would improve the new surface level to an effective CBR of 6%. The overlying pavement thickness (including the DGS40 treatment layer, for deep lift pavement types) may then be based on the CBR of 6%.

In order to achieve these design CBRs, subgrade materials must be compacted to 100% Standard compaction, within 2% of the Standard optimum moisture content. (The 95% compaction indicated by Drawing CIV.13 is considered inadequate.)

For cuts within rock, sudden changes in rock or fill strength at subgrade level, and possible concentrated (perched) seepage through defects in the rock can adversely affect pavement performance. Where excavation into rock is required for the proposed road alignment, it is appropriate to rip and tyne to a depth of 300 mm below the subgrade level, breaking the rock down to a maximum size of 150 mm, with the ripped material re-compacted in situ to 100% Standard compaction to form the road subgrade. Drainage of the rock cut surface should be provided at regular intervals to alleviate possible seepage into the formation, and specific drainage should be provided where seepage is specifically observed, directing seepage out of the pavement. Such seepage flows may be ephemeral, given the significant depth to groundwater observed in groundwater wells at the site, but nonetheless require drainage to avoid excess moisture levels developing within the subgrade. Consideration should also be given to the location of interfaces between the two pavement types, where subsurface drainage is appropriate to ensure that drainage is not obstructed by the change in materials.

If encountered, significant bands of clay or low strength sandstone within otherwise medium or high strength sandstone should be stockpiled separately and treated as a lower CBR (likely 6%) material.

3.4.2 Pavers

The proposed pavers have been dictated by the landscaping plan and are not the subject of DP design. DP has some concern over the use of porphyry setts under the high design traffic load of 1×10^7 DESAs and cannot guarantee their performance in terms of serviceability even when the structural performance of the pavement is adequate. A minimum paver thickness of 80 mm would generally be adopted for segmental pavers in these traffic conditions, and this is suggested as a minimum thickness for porphyry setts in areas under the full design traffic, unless the supplier is willing to assure the performance of a reduced paver thickness under the proposed design traffic. Nonetheless, DP accepts no responsibility for the performance of the pavers, nor their impact on the actual pavement life.

While it is understood that the pavers will continue away from the road, the design has only been undertaken for the nominated road traffic. Where pavements are not subjected to heavy vehicle traffic, the above structural pavement may be excessive.

DP understand that a modified Drawing PV1.2 is proposed in verge areas that are not subject to heavy traffic, with a paver thickness reduced from 60 mm to 40 mm. The design of such pavements is not dictated by the cyclic loading conditions that govern road design, and is often based on previously established practice rather than formal design procedures. As per the road design, the pavers would not be expected to be a structural component of these pavements (this is supported by the Drawing

PV1.1, which indicates similar pavement thicknesses to PV1.2, less the paver and bedding layers). Therefore reducing the paver thickness of Drawing PV1.2 to 40 mm is not expected to have any influence on the structural performance of the verge pavement, though again it is suggested that the serviceability of the paver thickness be assured by the supplier.

3.4.3 Construction

In practice, the performance of the pavements is often governed by construction control and by the moisture regimes within the subgrade and pavement layers, with pavement design assuming that conditions remain at equilibrium levels over the life of the pavement. Therefore, the design of suitable surface and subsurface drainage for the site, including drainage of cut surfaces, will be important to ensuring suitable pavement performance. The design, construction and maintenance of surface and subsurface drainage systems should be undertaken in accordance with the relevant Austroads guides.

4. Limitations

Douglas Partners (DP) has prepared this letter report for this project at Ivanhoe Estate in accordance with DP's email proposal dated 12 February 2020, acceptance received from Chris Koukoutaris dated 12 February 2020, and subsequent email requests for additional work. This report is provided for the exclusive use of Frasers Property Ivanhoe Pty Ltd for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice is based upon the conditions encountered during previous site investigations, and the relevant limitations outlined in the relevant report. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent

upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the geotechnical components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully

Douglas Partners Pty Ltd



Sally Peacock

Geotechnical Engineer/Associate

Reviewed by



Ray Blinman

Principal

Attachments: About this Report

About this Report

Douglas Partners



Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.