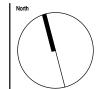








SITE PLAN
SCALE 1:1000







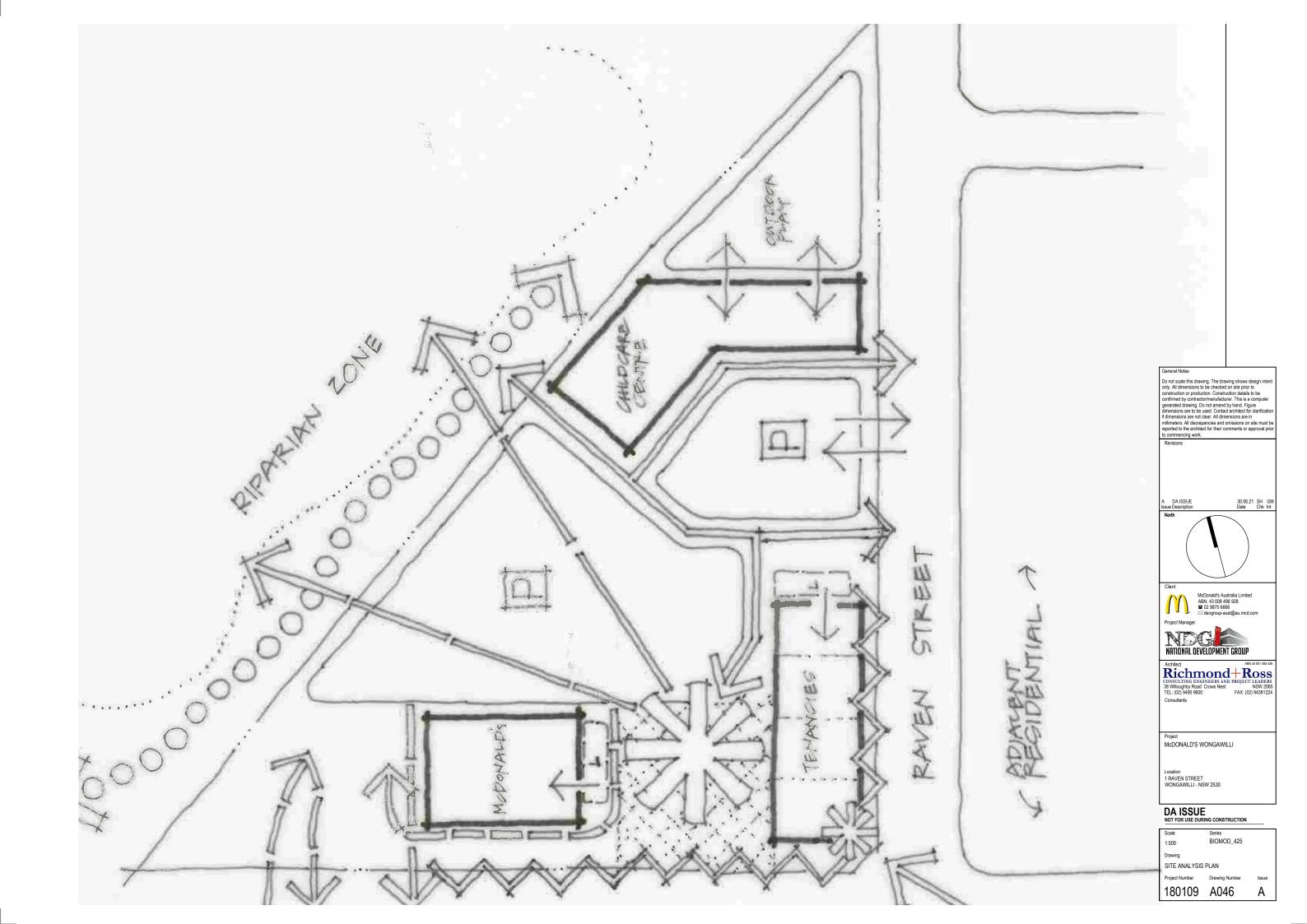
McDONALD'S WONGAWILLI

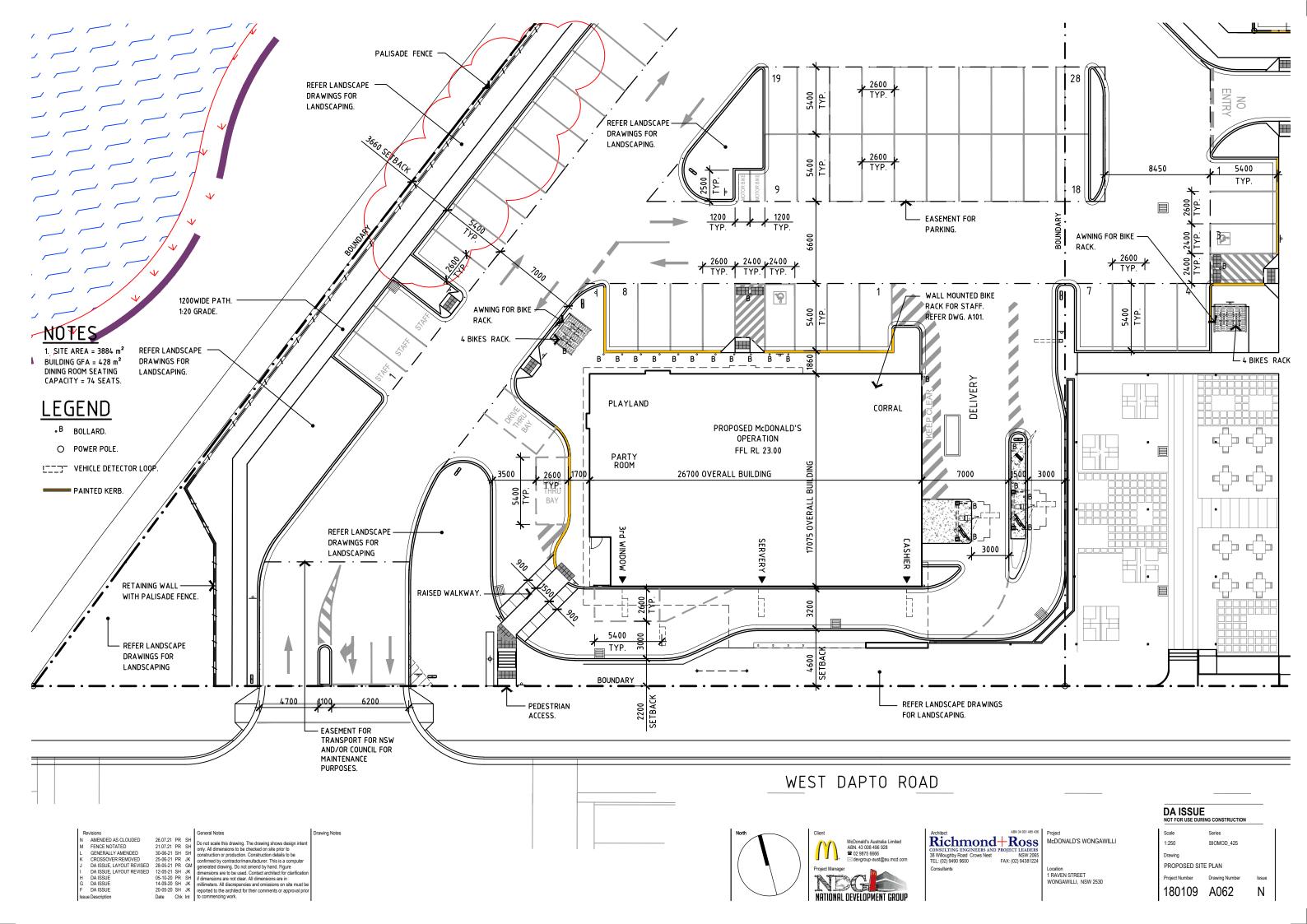
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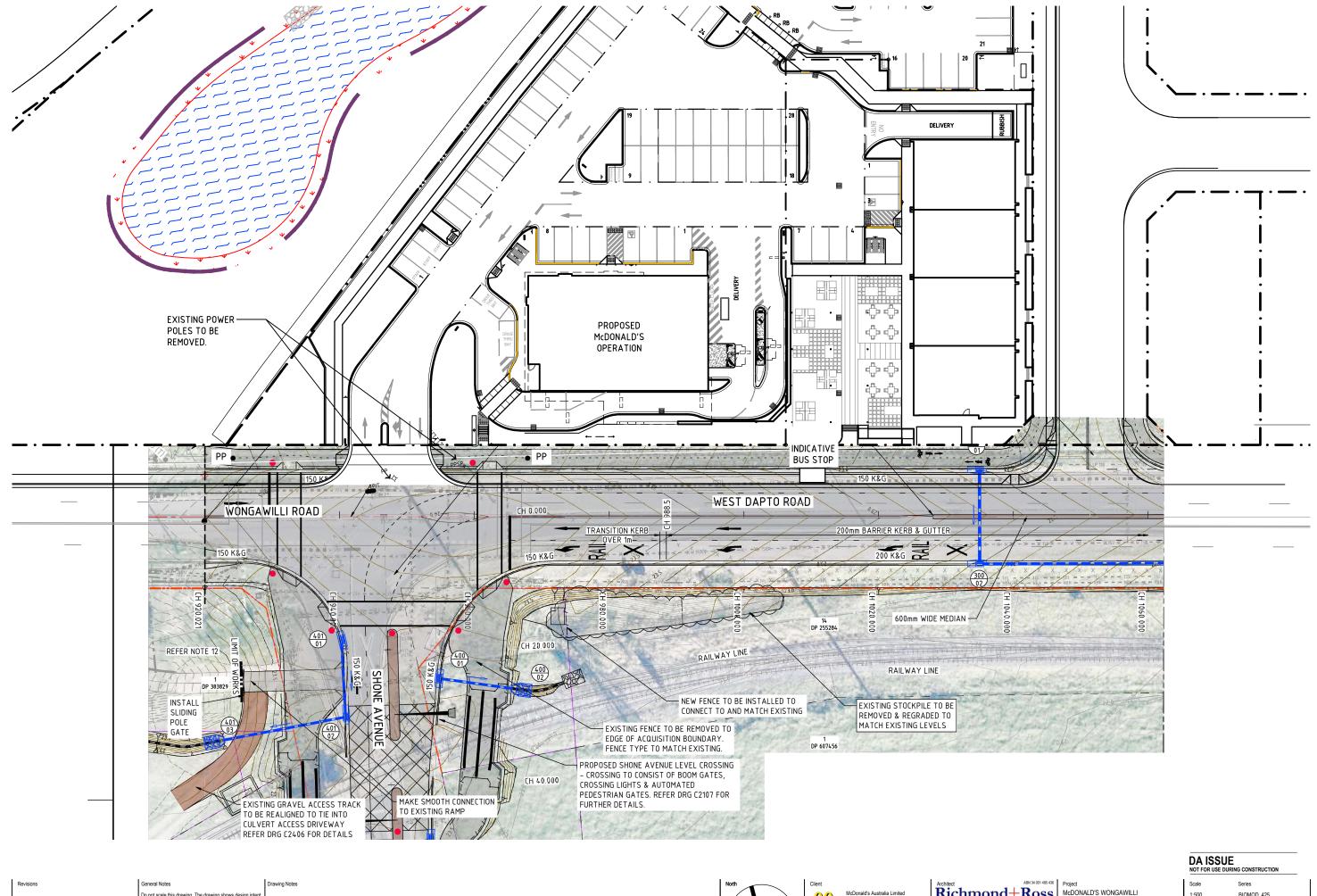
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BIOMOD_425

DA ISSUE NOT FOR USE DURING CONSTRUCTION







construction or production. Construction details to be confirmed by contractorimanufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work. DA ISSUE



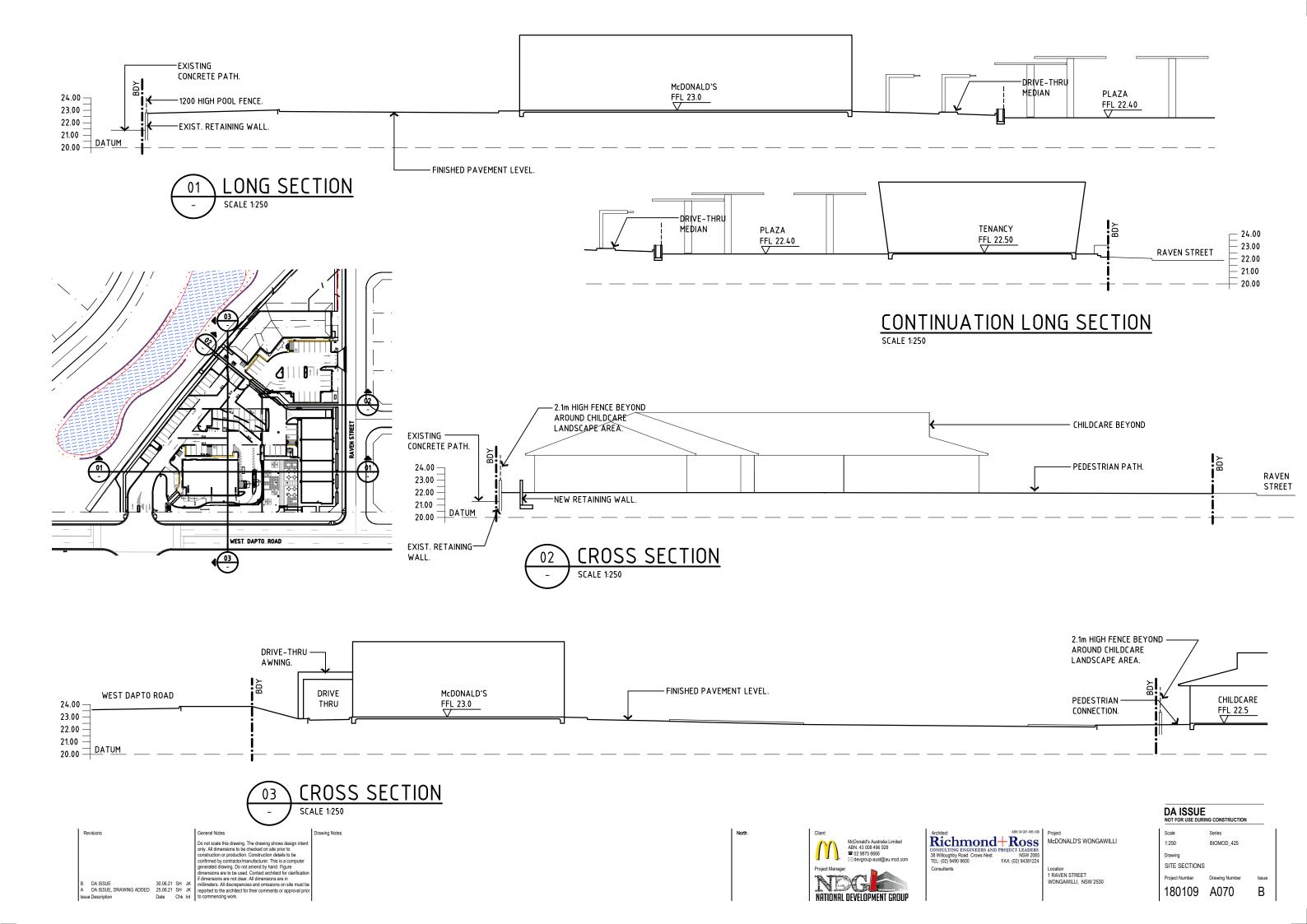


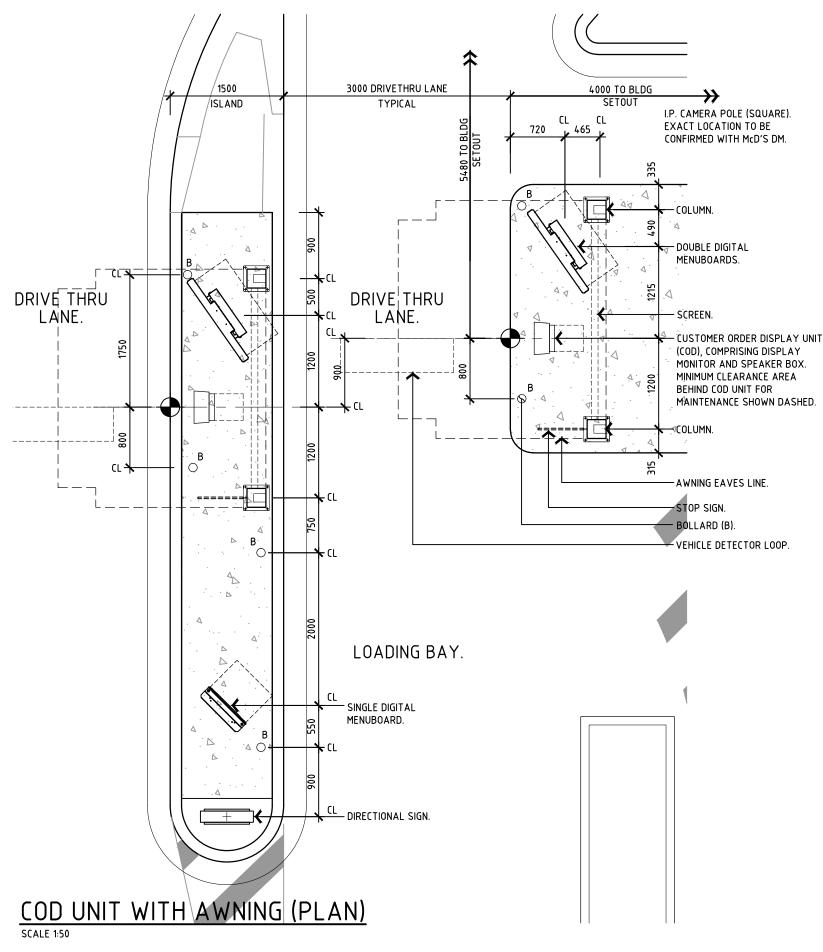


McDONALD'S WONGAWILLI

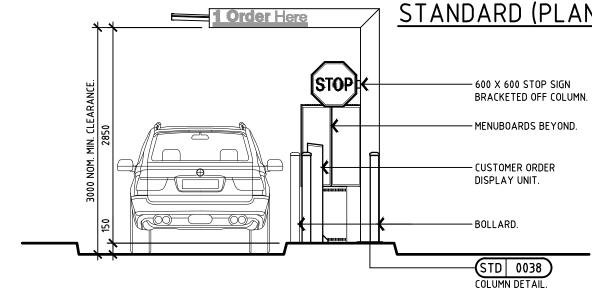
Location 1 RAVEN STREET WONGAWILLI, NSW 2530

1:500 BIOMOD_425 Drawing PROPOSED WEST DAPTO ROAD 180109 A063



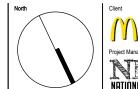


STRUCTURAL STEEL-FRAME. SINGLE DIGITAL -DOUBLE DIGITAL MENUBOARD. MENUBOARD. CUSTOMER ORDER DISPLAY UNIT. BOLLARD. TOP OF KERB COD UNIT WITH AWNING (FRONT ELEVATION) ONDUIT ENTRY **BASE PLATE** STANDARD (PLAN) 1 Order Here



COD UNIT WITH AWNING (APPROACH SIDE ELEVATION)

SCALE 1:5







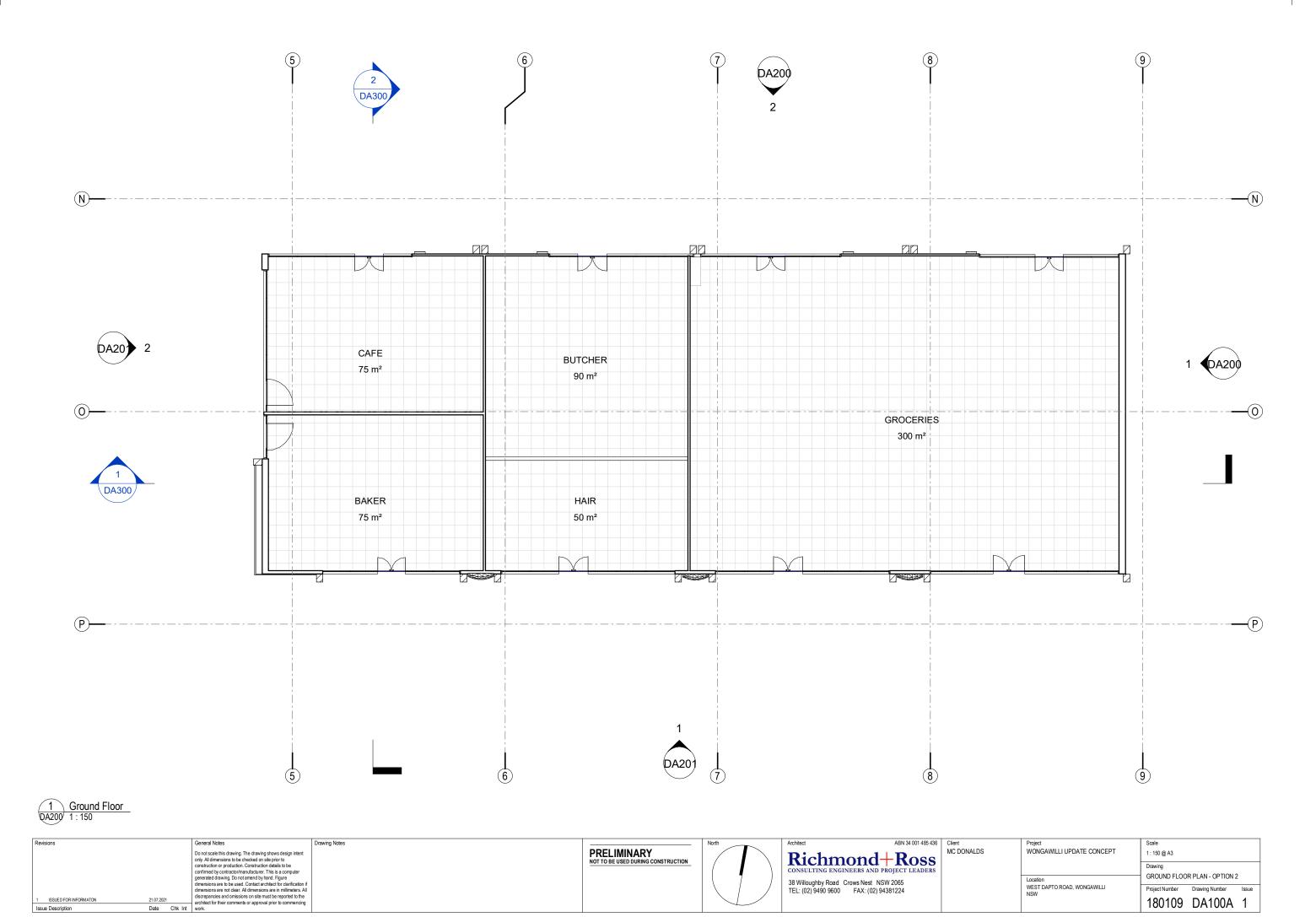
DA ISSUE
NOT FOR USE DURING CONSTRUCTION

Scale Series
1:50 BIOMOD_425

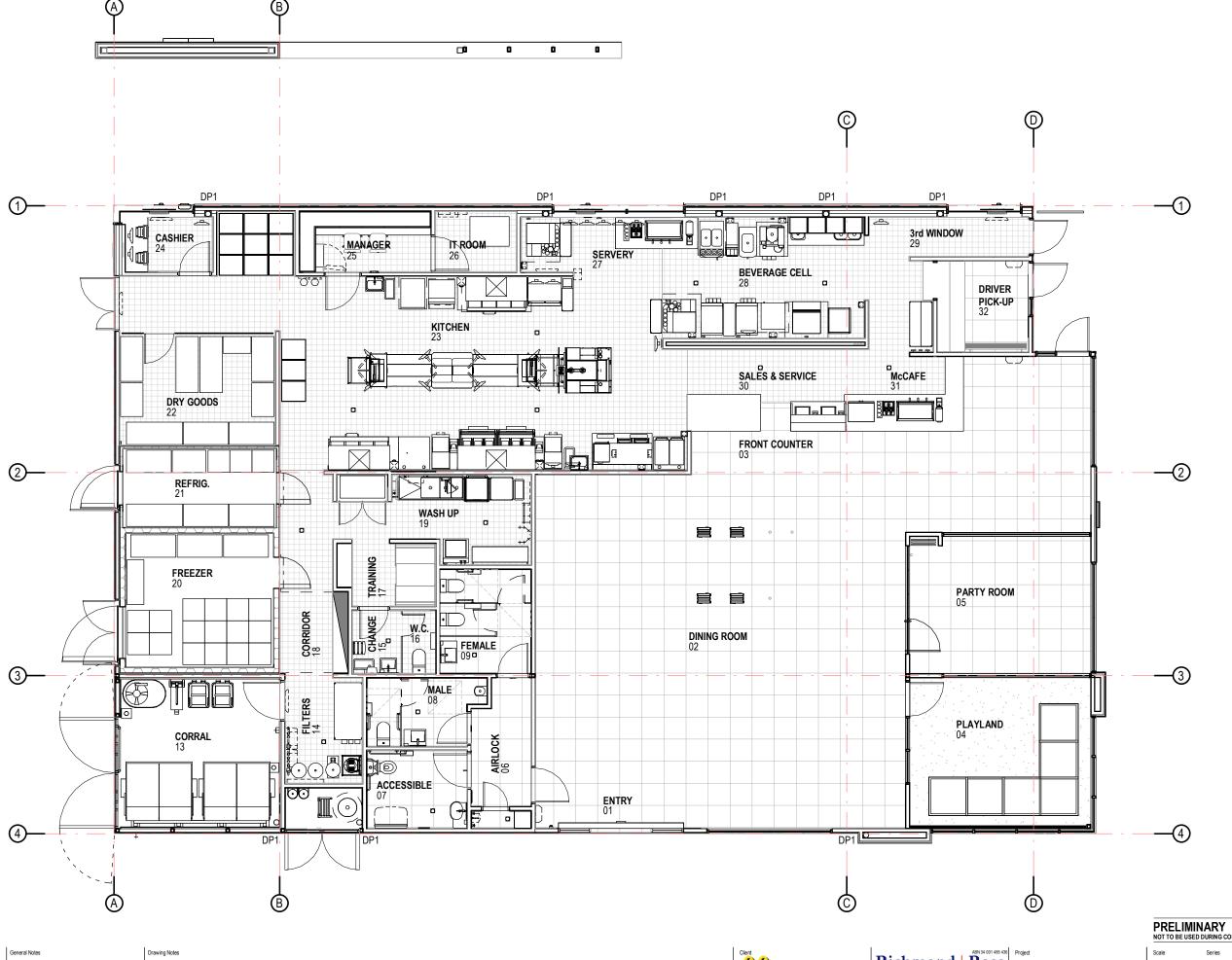
Drawing
COD UNIT DETAILS
Project Number Drawing Number Issue

180109 A082 B

Revisions General Notes Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/marufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for darification if the management of the confirmed by contractor/marufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for darification if millimeters. All discrepancies and omissions ore in millimeters. All discrepancies and omissions on site must be reacted to the architect for their comments or a general prior of the contraction of the properties.



Issue Description



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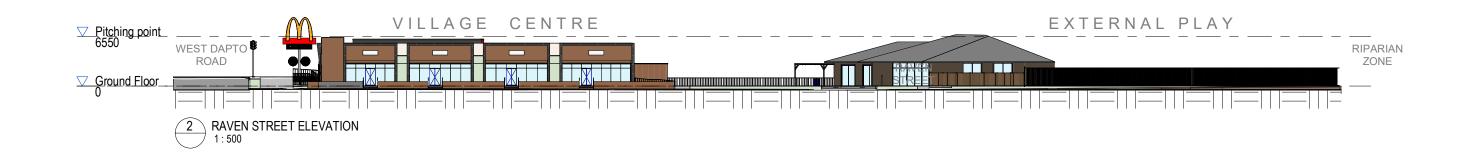
NATIONAL DEVELOPMENT GROUP

Richmond ROSS
CONSULTING ENGINEERS AND PROJECT LEADERS
38 Willoughby Road Crows Nest NSW 2065
TEL: (20) 9490 99000
FAX: (02) 9439 9800

Location WEST DAPTO ROAD WONGAWILLI NSW 2530 180109 A101

1:100 @ A3 BIOMOD PROPOSED FLOOR PLAN Ρ







RIPARIAN CORRIDOR ELEVATION 1:500

Revisions	General Notes	Drawing Notes	Architect ABN 34 001 485 436	Client	Project	Scale
	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to	PRELIMINARY	Richmond+Ross	MC DONALDS	WONGAWILLI UPDATE CONCEPT	1:500 @ A3
	construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer	NOT TO BE USED DURING CONSTRUCTION	CONSULTING ENGINEERS AND PROJECT LEADERS			Drawing
	generated drawing. Do not amend by hand. Figure		38 Willoughby Road Crows Nest NSW 2065		Location	SITE ELEVATION
	dimensions are not clear. All dimensions are in millimeters. All		TEL: (02) 9490 9600 FAX: (02) 94381224		WEST DAPTO ROAD, WONGAWILLI NSW	Project Number Drawing Number Issue
Issue Description	discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.					180109 A200



Drawing Notes
1. REFER TO MASTER LEGENDS ON DA021, FINISHES LEGENDS ON DA205. SIGNAGE PLAN ON DA801 General Notes Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be construction or production. Construction details to be construction or production. Construction details to be constructed by production or production. Construction details to be constructed by production or production. Construction details to be constructed by and. Figure 32.10.2019 PR GM discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work. P REVISED DA ISSUE
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Richmond Rens 4001 485 438

CONSULTING ENGINEERS AND PROJECT LEADERS
38 Willoughby Road Crows Nest NSW 2065
TEL: (02) 9490 96000

FAX: (02) 9430 81224

Consultants

Location WEST DAPTO ROAD WONGAWILLI NSW 2530

1:100 @ A3 BIOMOD FRONT & SIDE BUILDING ELEVATIONS 180109 A201

PRELIMINARY NOT TO BE USED DURING COM

Ρ





VIEW 01



VIEW 02

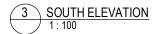


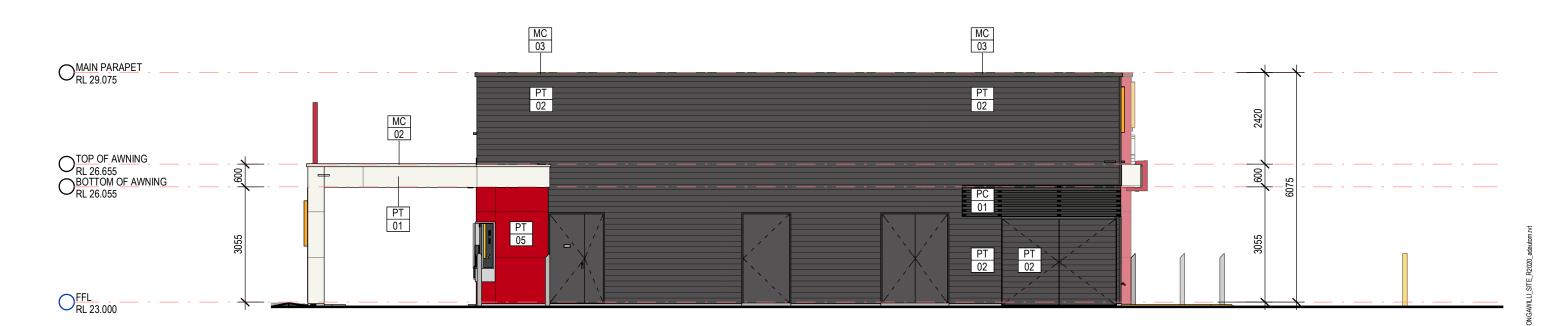




VIEW 03 VIEW 04 VIEW 05

Revisions	General Notes	Drawing Notes	Architect	ABN 34 001 485 436	Client	Project	Scale	
	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to		MINARY	chmond+Ross	MC DONALDS	WONGAWILLI UPDATE CONCEPT	1:1000 @ A3	
	construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer	NOT TO BE		Chmond+Ross ULTING ENGINEERS AND PROJECT LEADERS			Drawing	
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	dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on site must be reported to the		TEL: (0)2) 9490 9600 FAX: (02) 94381224		WEST DAPTO ROAD, WONGAWILLI NSW	Project Number Drawing Number	Issue
A PEDESTRIAN PATH REINSTATED Issue Description	26.07.2021 SH AC Date Chk Int Date Chk Int						180109 A201	Α





4 EAST ELEVATION 1:100

Revisions				General Notes	Drawing Notes
P REVISED DA ISSUE N REVISED DA ISSUE E DA ISSUE C DA ISSUE B PRELIMINARY A PRELIMINARY ISSUE DESCription	12.05.2021 06.05.2021 14.09.2020 23.10.2019 18.10.2019 25.07.2019 Date	PR PR PR PR PR PR	AC PK PK GM GM GM	Do not scale this drawing. The drawing shows design intent only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/imanufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if dimensions are not clear. All dimensions are in millimeters. All disrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing work.	1. REFER TO MASTER LEGEND

ENDS ON DA021, FINISHES LEGENDS ON DA205. SIGNAGE PLAN ON DA801



Richmond CONSULTING ENGINEERS AND 38 Willoughby Road Crows Nest TEL: (02) 9490 9600	ABN 34 001 485 436 ROSS PROJECT LEADERS NSW 2065 FAX: (02) 94381224	
Consultants	FAX: (U2) 94381224	

McDONALDS WONGAWILLI

Location WEST DAPTO ROAD WONGAWILLI NSW 2530

PRELIMINARY
NOT TO BE USED DURING CON 1:100 @ A3 BIOMOD DRIVE THRU & REAR ELEVATIONS

180109 A202



PERSPECTIVE 01



PERSPECTIVE 02



PERSPECTIVE 03



PERSPECTIVE 04

CODE	No.	AREA	DESCRIPTION	MANUFACTURER	COLOUR	IMAGE
AN	01	ALUMINIUM WINDOWS & DOOR FRAMES	PREFABRICATED ALUMINIUM FRAMING	CAPRAL	NATURAL FINISH CLEAR ANODISED	
MC	01	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	JASPER	
MC	02	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	SURFMIST	
MC	03	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	WOODLAND GREY	
МС	04	PARAPET CAPPING	PREFINISHED METAL CAPPING / FLASHING	COLORBOND	MANOR RED	
MWC	01	PLAYPLACE & PARAPETS	TIMBER LOOK ALUMINIUM CLADDING SYSTEM USING KNOTWOOD 200mm CLADDING PROFILE	KNOTWOOD	LIGHT OAK	
MWC	02	ROOF WELL (INTERNAL PARAPET LINING)	CUSTOM ORB CORRUGATED STEEL RIVET FIXED VERTICALLY TO FRAMES	LYSAGHT	ZINCALUME	
MWC	03	ROOF WELL (PLAYPLACE WALL LINING)	CUSTOM ORB CORRUGATED STEEL RIVET FIXED VERTICALLY TO FRAMES	LYSAGHT	WOODLAND GREY	

CODE	No.	AREA	DESCRIPTION	MANUFACTURER	COLOUR	IMAGE
PC	01	CORRAL BATTENS & ROOF ACCESS, ELEC. ROOM DOORS	POWDERCOAT FINISH	DULUX DURALLOY	MONUMENT SATIN (COLORBOND)	
PT	01	FASCIAS (RIBBON)	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	VIVID WHITE PW1H9	
PT	02	MAIN BUILDING WALLS	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	WAYWARD GREY PG1G8	
PT	05	BLADE WALL & DRIVETHRU WINDOWS	PAINT FINISH. REFER SPECIFICATION FOR DETAILS ON PAINT TYPE & APPLICATION	DULUX	McDONALDS RED RGB Value: R189 G0 B22.	
STN	01	DRIVETHRU WINDOW SILL & SURROUND	RECONSTITUTED STONE. REFER TO DECOR DOCUMENTS	REFER DECOR	REFER DECOR	



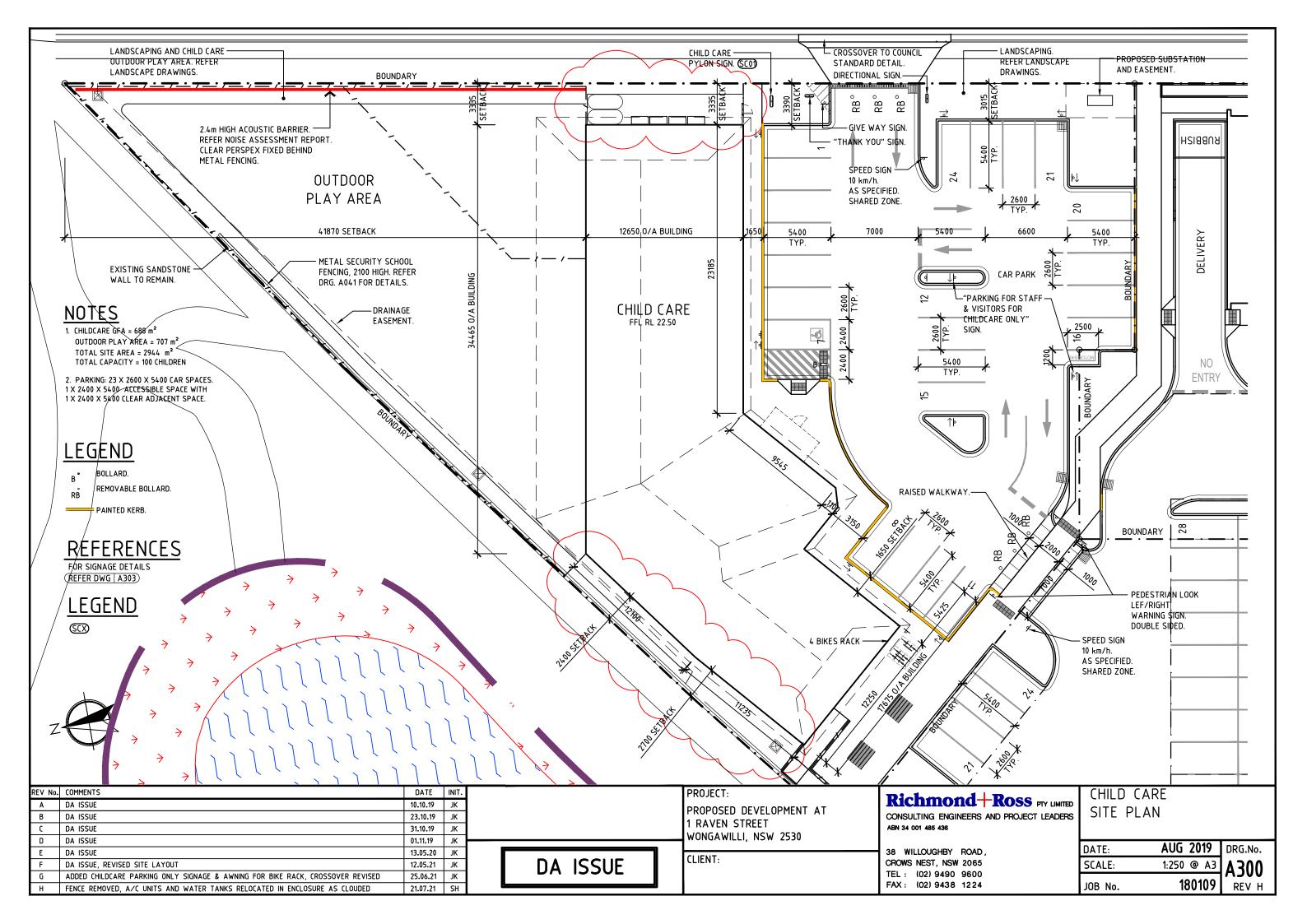
Location WEST DAPTO ROAD WONGAWILLI NSW 2530

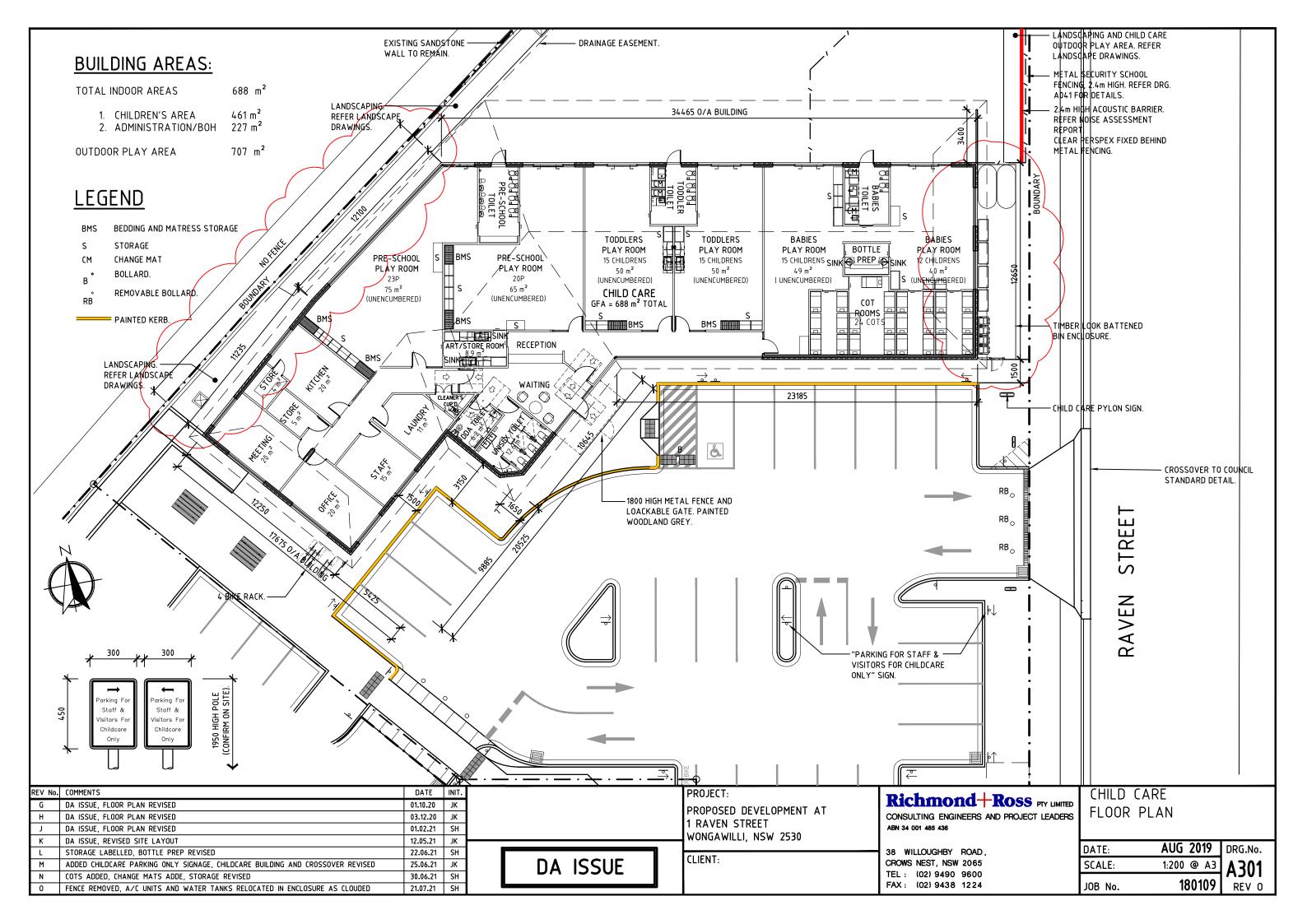
PRELIMINARY
NOT TO BE USED DURING CONSTRUCTION 1:100 @ A3 BIOMOD FINISHES SCHEDULE 180109 A205 Ρ

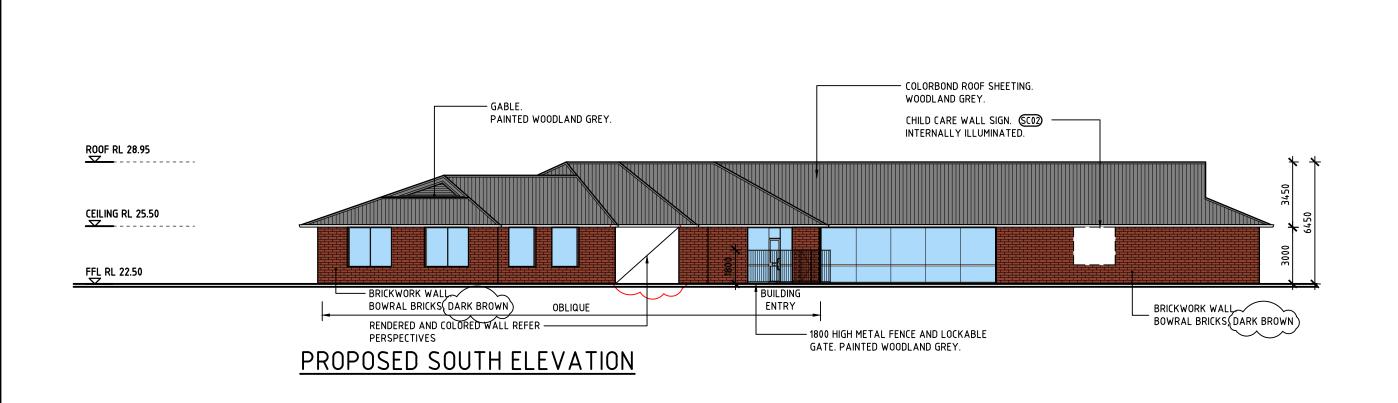
Project Manager
NATIONAL DEVELOPMENT GROUP

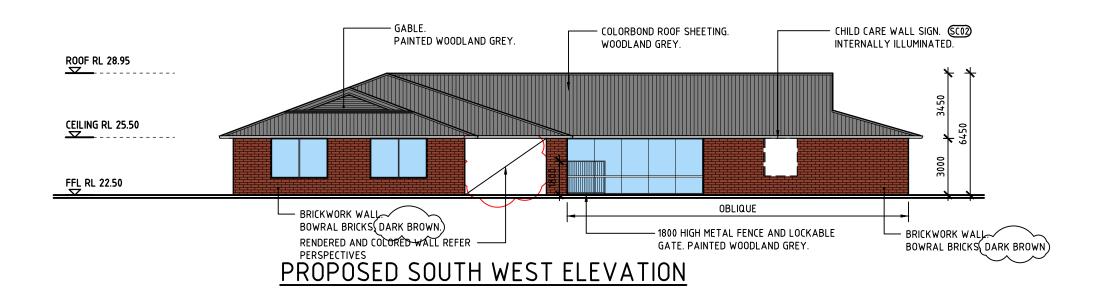
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A PRELIMINARY

Drawing Notes
1. FOR BUILDING ELEVATIONS REFER A201-A203









LEGEND

(SCX)

REFERENCES
FOR SIGNAGE DETAILS
(REFER DWG | CH801)

REV No.	COMMENTS	DATE	INIT.	
Α	DA ISSUE	16.08.19	JK	
В	DA ISSUE	10.10.19	JK	1
C	DA ISSUE	23.10.19	JK	l
D	DA ISSUE	20.05.20	JK	┝
E	DA ISSUE	12.05.21	JK	l
F	DA ISSUE	30.06.21	JK	
G	WALL COLOURS REVISED	21.07.21	SH	
				I

PROPOSED DEVELOPMENT AT 1 RAVEN STREET WONGAWILLI, NSW 2530

CLIENT:

DA ISSUE

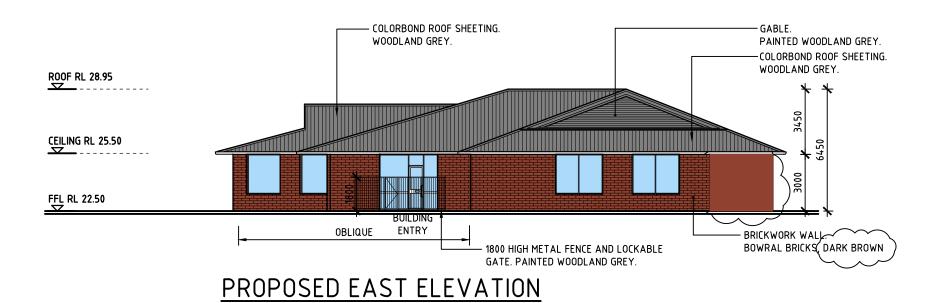
PROJECT:

Richmond+Ross PTY LIMITED CONSULTING ENGINEERS AND PROJECT LEADERS ABN 34 001 485 436

38 WILLOUGHBY ROAD, CROWS NEST, NSW 2065 TEL: (02) 9490 9600 FAX: (02) 9438 1224 CHILD CARE ELEVATIONS

DATE:	AUG 2019	
SCALE:	1:200 @ A3	Δ302
JOB No.	180109	REV G





REV	No.	COMMENTS	DATE	INIT.	
Α		DA ISSUE	16.08.19	JK	1
В		DA ISSUE	10.10.19	JK	
C		DA ISSUE	23.10.19	JK	
D		DA ISSUE	20.05.20	JK	┝
Ε		DA ISSUE	12.05.21	JK	
F		DA ISSUE	30.06.21	JK	
G		WALL COLOURS REVISED, WINDOWS REVISED, WALL ADDED	21.07.21	SH	

DA ISSUE

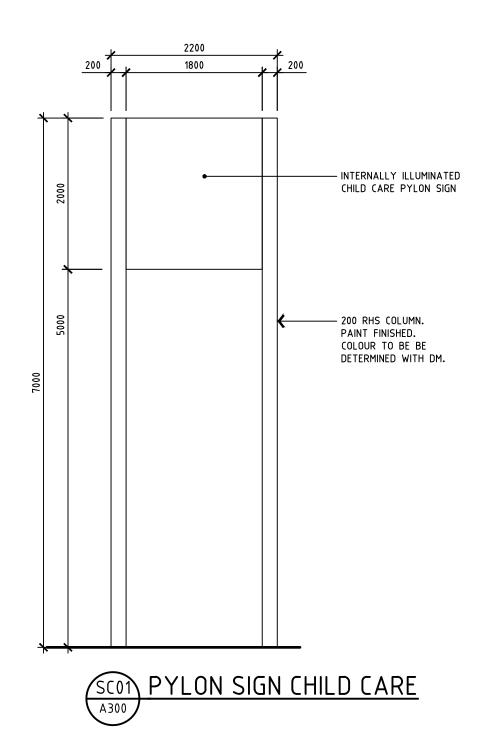
PROJECT:
PROPOSED DEVELOPMENT AT
1 RAVEN STREET
WONGAWILLI, NSW 2530

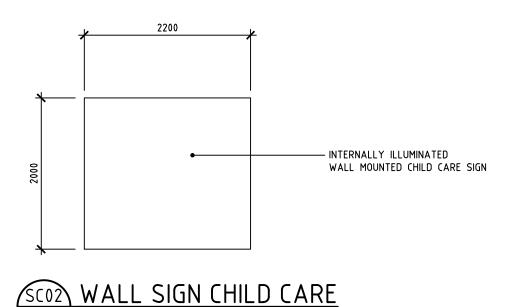
CLIENT:

Richmond Ross PTY LIMITED CONSULTING ENGINEERS AND PROJECT LEADERS ABN 34 001 485 436

38 WILLOUGHBY ROAD, CROWS NEST, NSW 2065 TEL: (02) 9490 9600 FAX: (02) 9438 1224

DATE:	AUG 2019	DRG.N
SCALE:	1:200 @ A3	V3 (
JOB No.	180109	RFV





REV No. COMMENTS

A DA ISSUE

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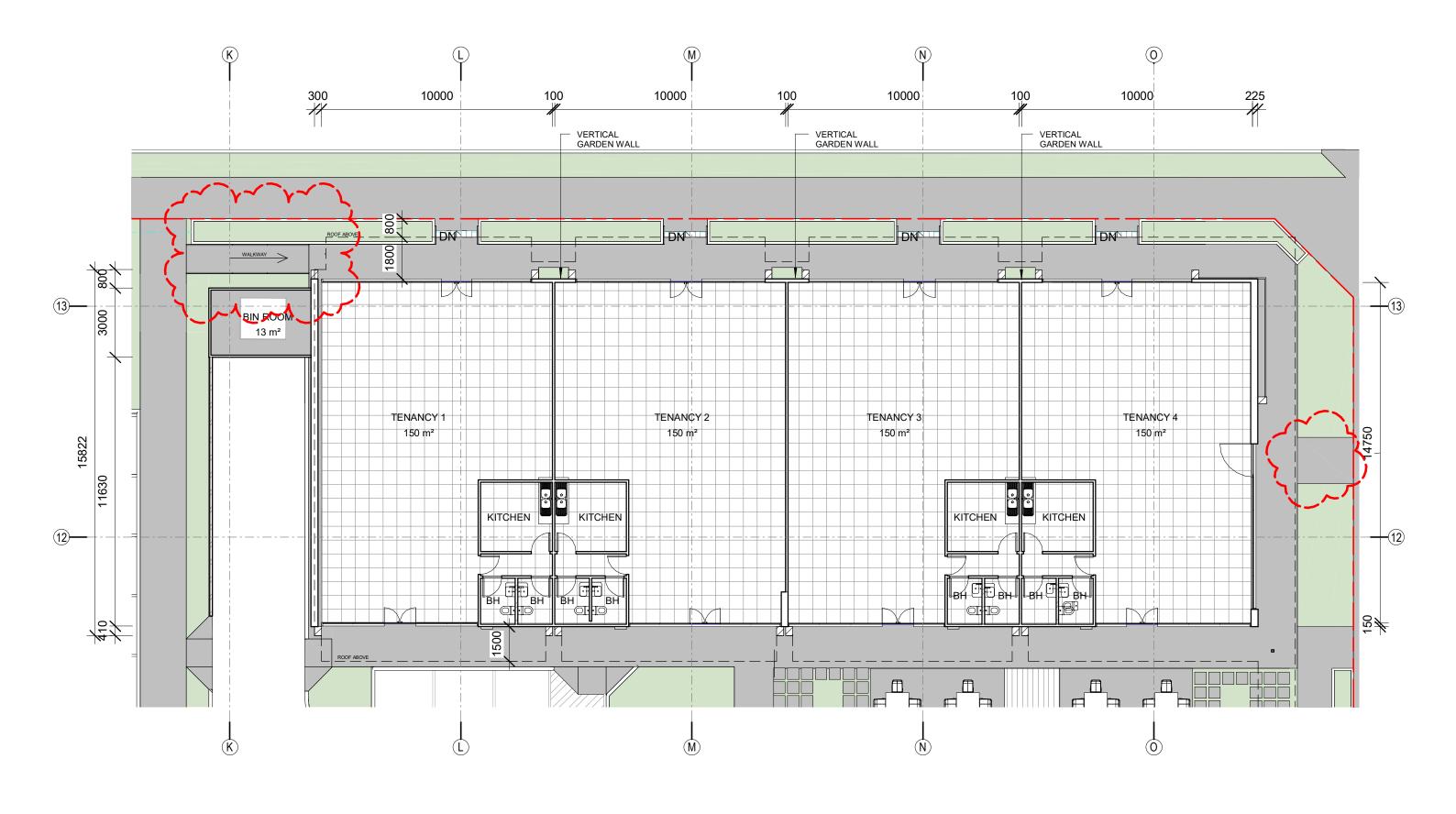
PROJECT:
PROPOSED DEVELOPMENT AT
1 RAVEN STREET
WONGAWILLI, NSW 2530

CLIENT:

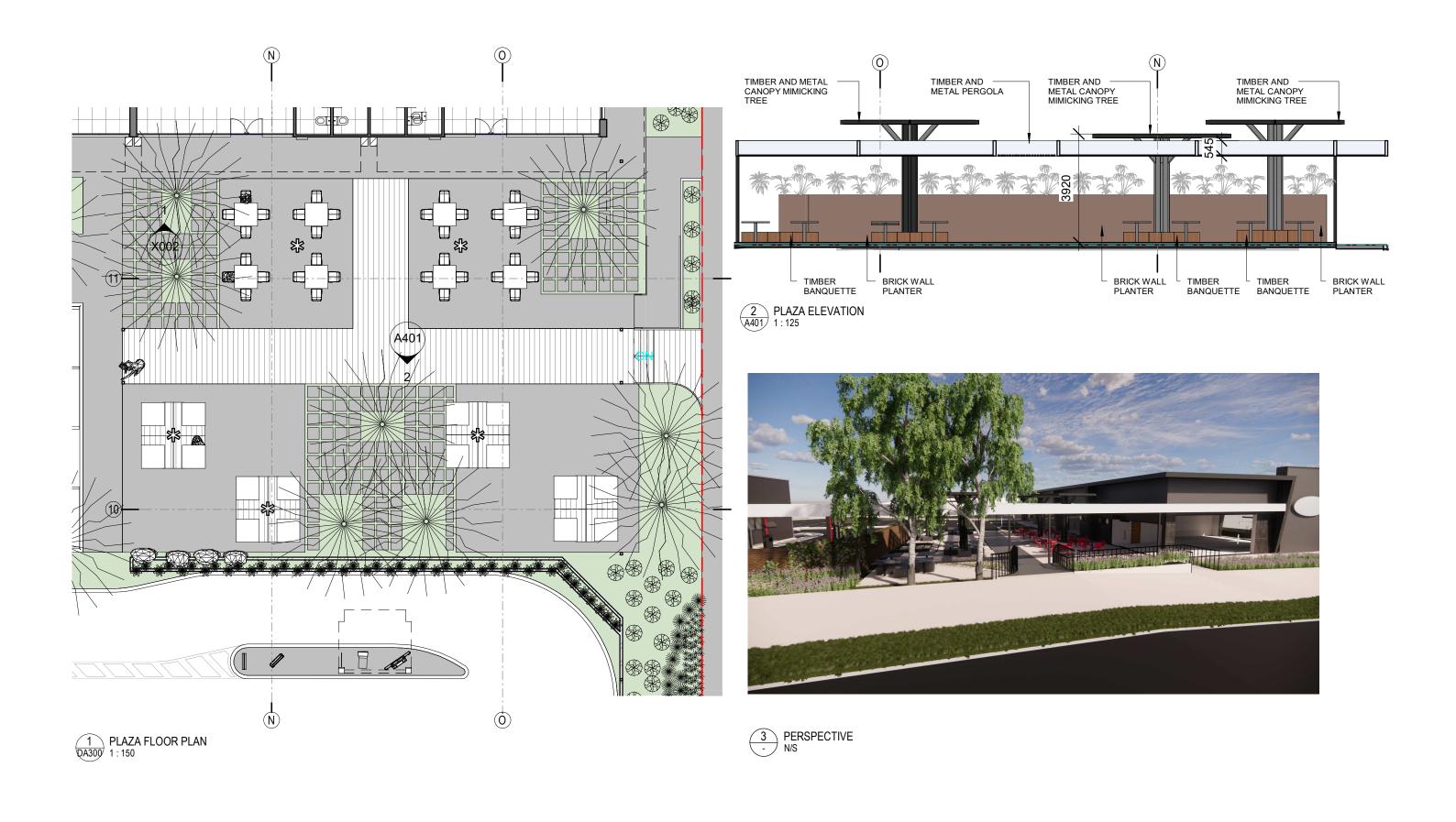
Richmond + Ross PTY LIMITED CONSULTING ENGINEERS AND PROJECT LEADERS ABN 34 001 485 436

38 WILLOUGHBY ROAD, CROWS NEST, NSW 2065 TEL: (02) 9490 9600 FAX: (02) 9438 1224 CHILD CARE SIGNAGE DETAILS

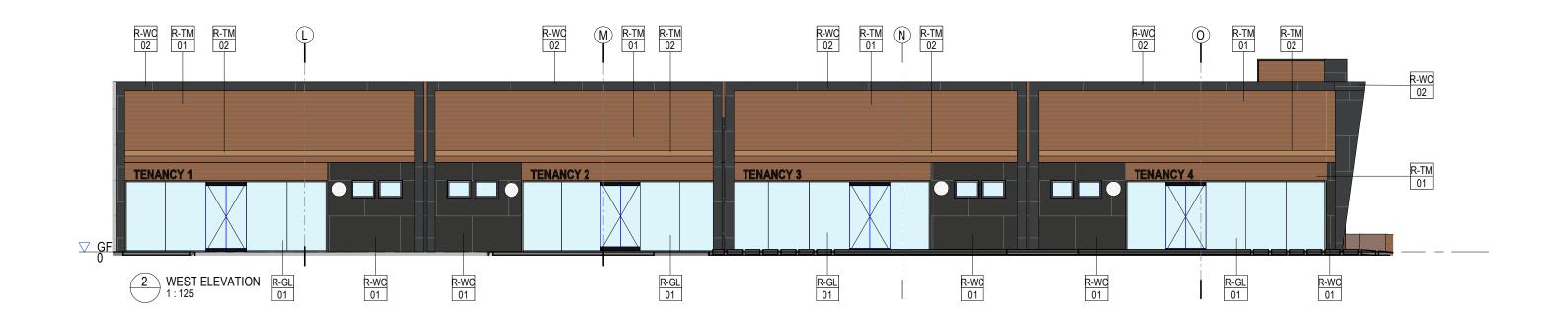
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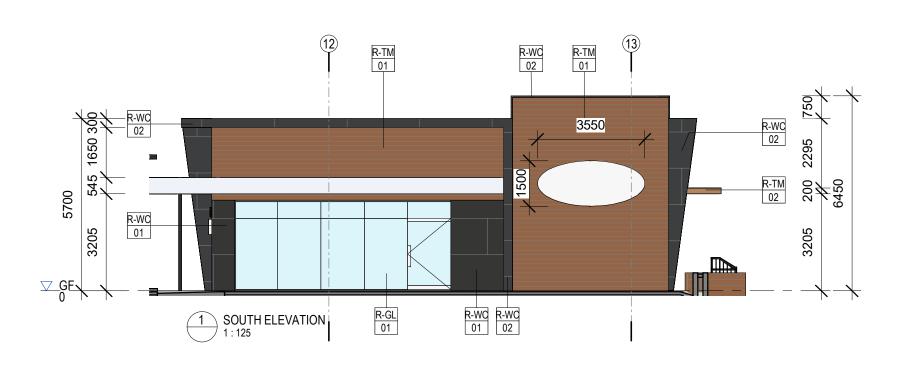


Revisions		General Notes	Drawing Notes		Architect ABN 34 001 485 436	Client	Project	Scale	
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		only. All dimensions to be checked on site prior to construction or production. Construction details to be		NOT TO BE USED FOR CONSTRUCTION	Richmond+Ross			Drawing	
		confirmed by contractor/manufacturer. This is a computer			CONSULTING ENGINEERS AND PROJECT LEADERS			TENANCY FLOOR PLAN	
4 DA ISSUE	30.06.2021 PR AC	generated drawing. Do not amend by hand. Figure			38 Willoughby Road Crows Nest NSW 2065		Location	TENANCT FLOOR FLAN	
3 DA ISSUE 2 DA ISSUE	31.05.2021 PR AC 12.05.2021 PR AC	dimensions are not clear. All dimensions are in millimeters. All			TEL: (02) 9490 9600 FAX: (02) 94381224		WEST DAPTO ROAD, WONGAWILLI	Project Number Drawing Number	Issue
1 PRE DA ISSUE	25.04.2021 PR AC	discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing					NSW	180109 A400	1
Issue Description	Date Chk Int							100109 A400	4

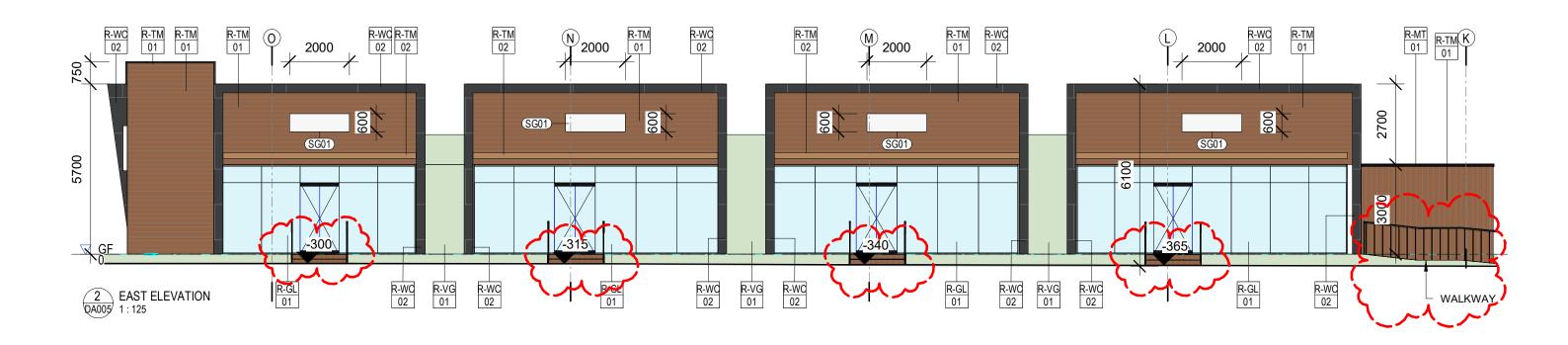


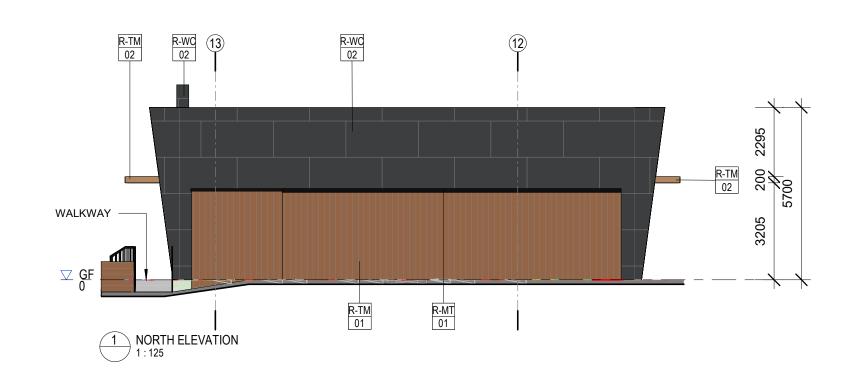
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		Do not scale this drawing. The drawing shows design intent		DA ISSUE	D: 1 1 D	MC DONALDS	WONGAWILLI UPDATE CONCEPT	As indicated @ A3	
		only. All dimensions to be checked on site prior to construction or production. Construction details to be		NOT TO BE USED FOR CONSTRUCTION	Richmond+Ross			Drawing	\dashv
		confirmed by contractor/manufacturer. This is a computer			CONSULTING ENGINEERS AND PROJECT LEADERS			PLAZA FLOOR PLAN	
4 DA ISSUE	30.06.2021 PR AC	generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if			38 Willoughby Road Crows Nest NSW 2065		Location		_
3 DA ISSUE 2 DA ISSUE	31.05.2021 PR AC 12.05.2021 PR AC	dimensions are not clear. All dimensions are in millimeters. All			TEL: (02) 9490 9600 FAX: (02) 94381224		WEST DAPTO ROAD, WONGAWILLI	Project Number Drawing Number Iss	ue
1 PRE DA ISSUE	25.04.2021 PR AC	discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing						180109 A401 4	.
Issue Description	Date Chk Int							100103 A401 4	





Revisions	General Notes	Drawing Notes		Architect ABN 34 001 485 436 Client	Project	Scale
	Do not scale this drawing. The drawing shows design intent		DA ISSUE	MC DONALDS	WONGAWILLI UPDATE CONCEPT	1:125@A3
	only. All dimensions to be checked on site prior to construction or production. Construction details to be		NOT TO BE USED FOR CONSTRUCTION	Richmond+Ross		Drawing
	confirmed by contractor/manufacturer. This is a computer			CONSULTING ENGINEERS AND PROJECT LEADERS		ELEVATIONS
	generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarification if			38 Willoughby Road Crows Nest NSW 2065	Location WEST DAPTO ROAD, WONGAWILLI	
3 DA ISSUE 2 DA ISSUE	13.05.2021 PR AC dimensions are not clear. All dimensions are in millimeters. All dimensions are in millimeters. All dimensions are in millimeters.			TEL: (02) 9490 9600 FAX: (02) 94381224	NSW WEST DAPTO ROAD, WONGAWILLI	Project Number Drawing Number Issue
1 PRE DA ISSUE	25.04.2021 PR AC discrepancies and omissions on site must be reported to the architect for their comments or approval prior to commencing				1	180109 A403 3
Issue Description	Date Chk Int work.					100103 /1400 0

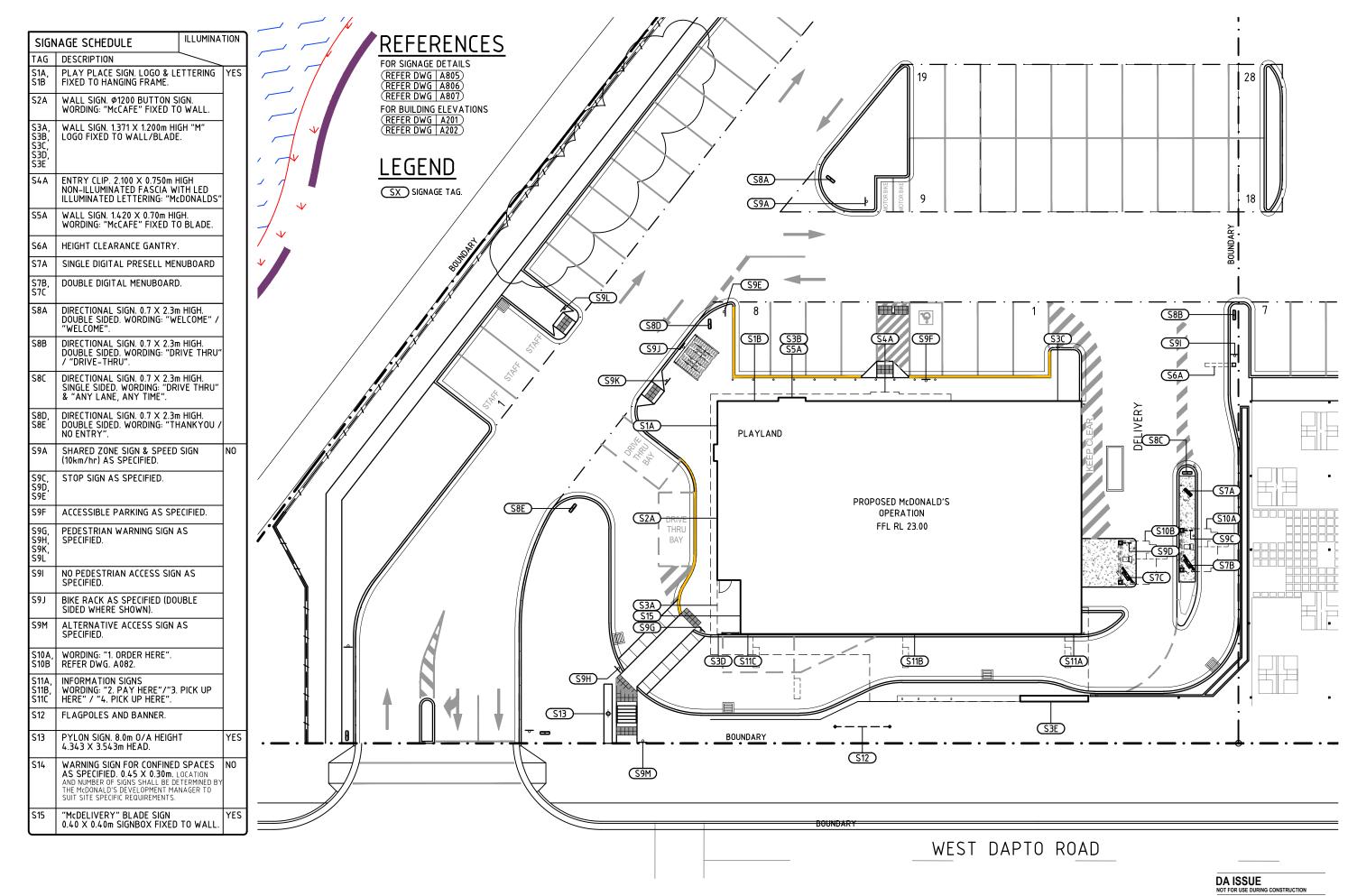




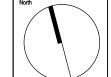
Revisions	General Notes Do not scale this drawing. The drawing shows design intent only, All dimensions to be checked on site prior to construction or production. Construction deals to be confirmed by contractor/manufacturer. This is a computer operated drawing. Do not alrend by hand. Foure	Drawing Notes	DA ISSUE NOT TO BE USED FOR CONSTRUCTION	Richmond Ross CONSULTING ENGINEERS AND PROJECT LEADERS CONSULTING ENGINEERS AND PROJECT LEADERS CIENT MC DONALDS	Project WONGAWILLI UPDATE CONCEPT	Scale 1:125 @ A3 Drawing ELEVATIONS	
4 DA ISSUE 30.0 2 DA ISSUE 12.0 11 PRE DA ISSUE 25.0 Issue Description Dal	08.2021 PR AC 55.2021 PR AC 55			38 Willoughby Road Crows Nest NSW 2065 TEL: (02) 9490 9600 FAX: (02) 94381224	Location WEST DAPTO ROAD, WONGAWILLI NSW	Project Number Drawing Number Is 180109 A404 4	ssue 4

EXTERNAL FINISHES SCHEDULE								
CODE	TYPE	MANUFACTURER	COLOUR	IMAGE				
R-GL	01	TBC	CLEAR TRANSPARENT					
R-MT	02	TBC	POWDERCOATED BLACK MATTE FINISH					
R-TM	01	TBC	TIMBER BATTENS CLADDING TO WALL					
R-TM	02	TBC	AMERICAN WALLNUT SOLID TIMBER					
R-TM	03	TBC	TIMBER BATTENS FOR EXTERNAL AREAS					
R-VG	01	TBC	VERTICAL GARDEN					
R-WC	01	EXOTEC	DARK GREY					
R-WC	02	EXOTEC	DARK GREY					

Revisions	Ge	eneral Notes	Drawing Notes		Architect	ABN 34 001 485 436	Client	Project	Scale		
		o not scale this drawing. The drawing shows design intent		PRELIMINARY NOT TO BE USED DURING CONSTRUCTION	Richmond+Ross MC DONALDS		MC DONALDS	WONGAWILLI UPDATE CONCEPT	@ A3		
	con	instruction or production. Construction details to be		NOT TO BE USED DURING CONSTRUCTION					Drawing		
		onfirmed by contractor/manufacturer. This is a computer enerated drawing. Do not amend by hand. Figure			CONSULTING ENGINEERS AND PRO	OJECT LEADERS			EXTERNAL MA	TERIALS	
		mensions are to be used. Contact architect for clarification if			38 Willoughby Road Crows Nest NSW	2065		Location			
2 DA ISSUE 12.05.202		mensions are not clear. All dimensions are in millimeters. All			TEL: (02) 9490 9600 FAX: (02) 9438	81224		WEST DAPTO ROAD, WONGAWILLI	Project Number	Drawing Number	Issue
1 PRE DA ISSUE 25.04.202	, also	screpancies and omissions on site must be reported to the						NOW	100100	A 40E	2
Issue Description Date	Chk Int wor	chitect for their comments or approval prior to commencing ork.							180109	A405	2



evisions ALCUUDED 26.07.21 PR SH
FENCE AND PATH REVISED 20.07.21 PR SH
DA ISSUE, DRAWING REVISED 30.06.21 SH GM
DA ISSUE, DRAWING REVISED 25.06.21 SH GM
DA ISSUE, LAVOUT REVISED 26.06.21 SH GM
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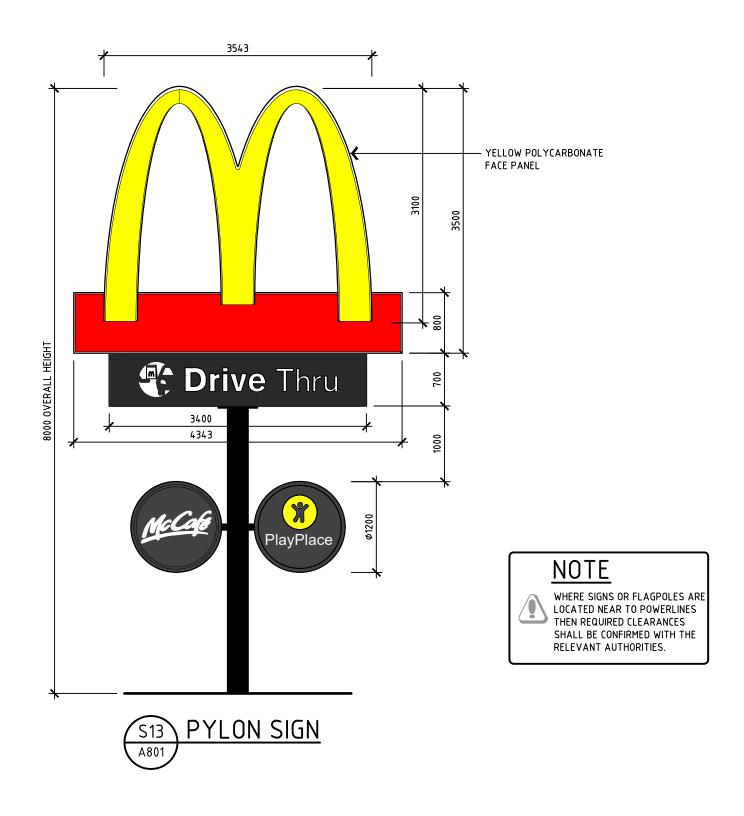




McDONALD'S WONGAWILLI

1:250 BIOMOD_425 Drawing PROPOSED SIGNAGE PLAN Location 1 RAVEN STREET WONGAWILLI, NSW 2530

180109 A801 M



Revisions

General Notes

Drawing Notes

Client

McDonald's Australia Limited
ABN. 43 008 496 928

20 29875 6666

devgroup-aus@au.mcd.com

Project Manager

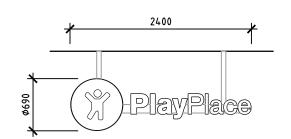


101 485 436 Project McDONALD'S WONGAWILLI ADERS W 2065

Location 1 RAVEN STREET WONGAWILLI, NSW 2530 DA ISSUE NOT FOR USE DURING CONSTRUCTION

| Scale | Series | 1:50 U.N.O. | BIOMOD_425 | Drawing | SIGNAGE DETAILS |

180109 A805 C

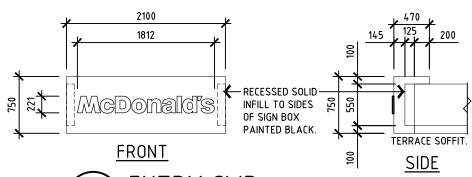


S1 A801

A801

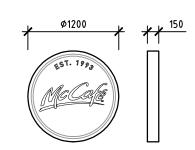
HANGING SIGN

YELLOW LOGO WITH INDIVIDUAL POLYCARBONATE LETTERING FIXED TO FRAME. INTERNALLY ILLUMINATED. WHITE LETTERS.



\ ENTRY CLIP

LED ILLUMINATED WORDMARK ONLY.
RED CLIP TO BE CONSTRUCTED BY THE BUILDER.





\ WALL SIGN

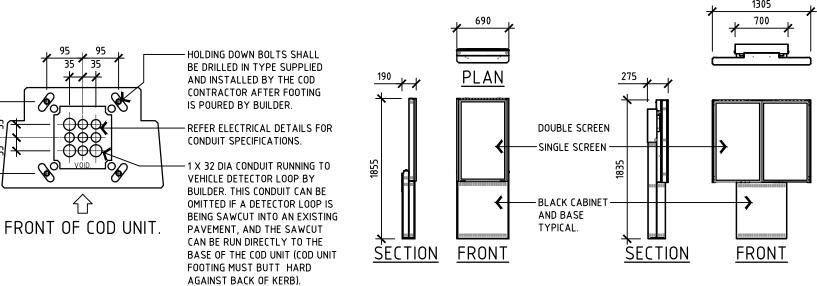
FABRICATED METAL BUTTON SIGN.
OPAL FACES WITH BLACK VINYL
GRAPHICS. LED ILLUMINATION.



S15 (A801)

\ WALL SIGN

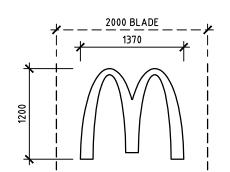
FABRICATED METAL BUTTON SIGN.
OPAL FACES WITH BLACK VINYL
GRAPHICS. YELLOW 'M'.
LED ILLUMINATION.



COD UNIT BASE PLATE DETAIL

SCALE 1:10

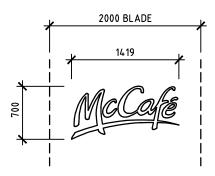






WALL/BLADE SIGN

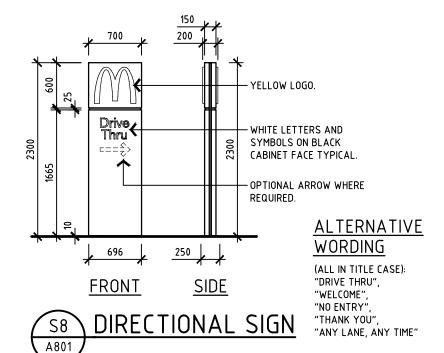
YELLOW FLAT FACE POLYCARBONATE LOGO. INTERNALLY ILLUMINATED. YELLOW LOGO ON SOLID RED BACKGROUND.



(S5)

BLADE SIGN

A801 INDIVIDUAL HALO ILLUMINATED REVERSE PAN FABRICATED ALUMINIUM CHANNEL LETTERS. BRUSHED ALUMINIUM FINISH.



Client

McDonald's Australia Limited

ABN. 43 008 496 928

⊉ 02 9975 6666

⊇ deygroup-aust@au.mcd.com

Project Manager



McDONALD'S WONGAWILLI

Location 1 RAVEN STREET WONGAWILLI, NSW 2530

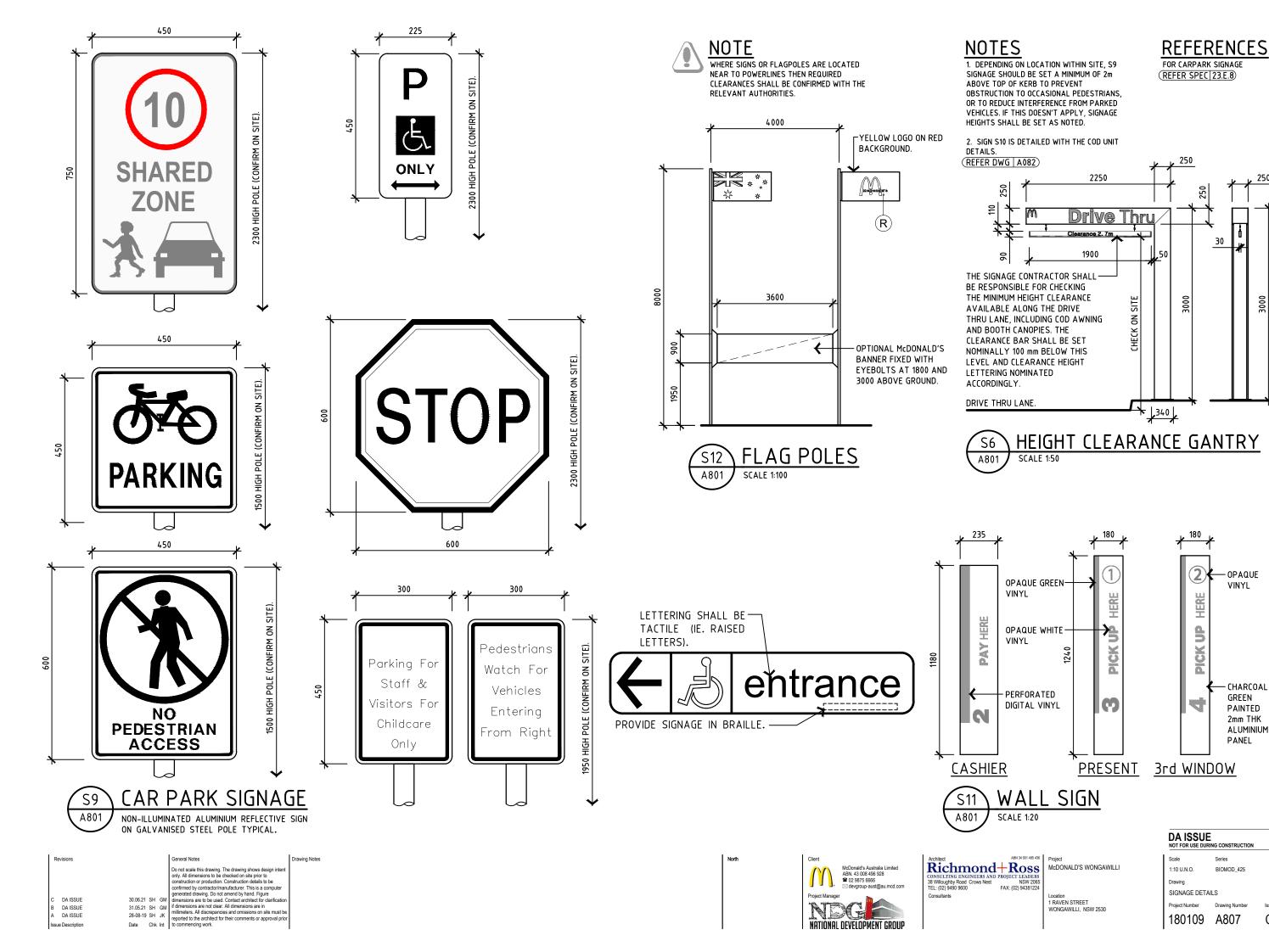
DA ISSUE NOT FOR USE DURING CONS

1:50 U.N.O. BIOMOD_425
Drawing
SIGNAGE DETAILS

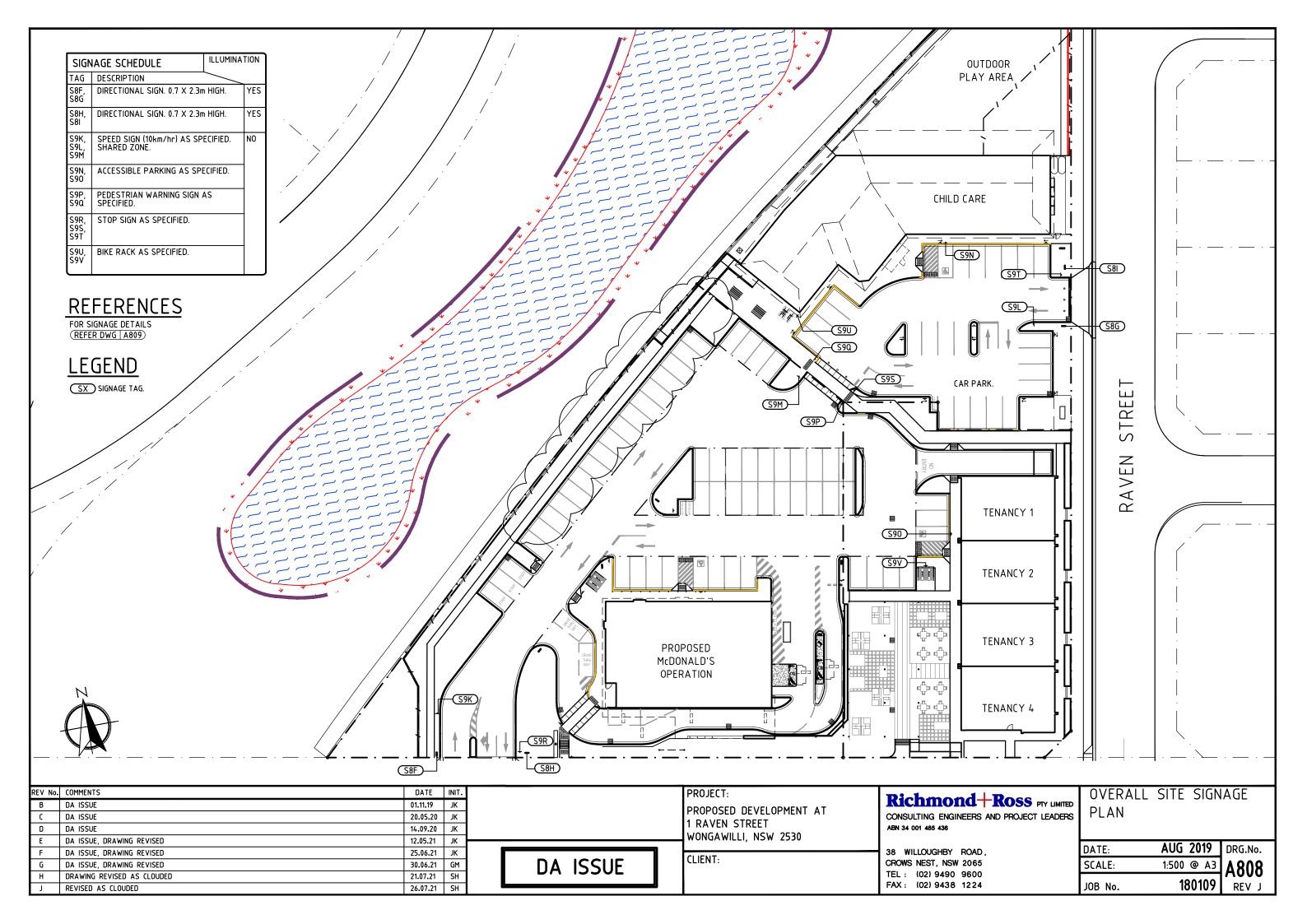
180109 A806 B

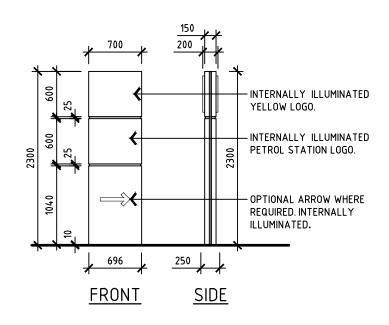
B DA ISSUE, SIGN S15 ADDED 12-05-21 SH J A DA ISSUE 28-08-19 SH J

Do not scale this drawing. The drawing shows design inte only. All dimensions to be checked on site prior to construction or production. Construction details to be confirmed by contractor/manufacturer. This is a computer generated drawing. Do not amend by hand. Figure dimensions are to be used. Contact architect for clarifical if dimensions are not claer. All dimensions are in millimeters. All discrepancies and omissions on site must reported to the architect for their comments or approval pri to commencing work.



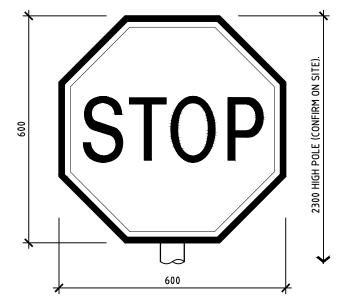
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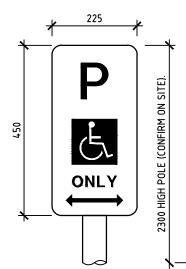
S8 DIRECTIONAL SIGN

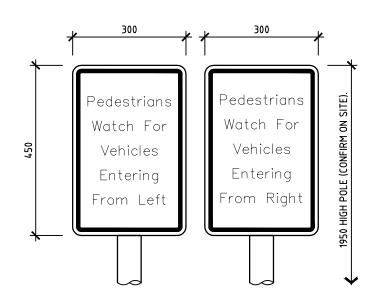






1500 HIGH POLE (CONFIRM ON SITE)





S9 CAR PARK SIGNAGE

NON-ILLUMINATED ALUMINIUM REFLECTIVE SIGN
ON GALVANISED STEEL POLE TYPICAL.

REV	No.	COMMENTS	DATE	INIT.	
Α		DA ISSUE	31.10.19	JK	1
Ε		DA ISSUE, DRAWING REVISED	12.05.21	JK	1
					ı

DA ISSUE

PROJECT: PROPOSED [

PROPOSED DEVELOPMENT AT 1 RAVEN STREET WONGAWILLI, NSW 2530

CLIENT:

Richmond+Ross PTY LIMITED

CONSULTING ENGINEERS AND PROJECT LEADERS ABN 34 001 485 436

38 WILLOUGHBY ROAD, CROWS NEST, NSW 2065 TEL: (02) 9490 9600 FAX: (02) 9438 1224 SITE SIGNAGE DETAILS

DATE: AUG 2019 DRG.No. SCALE: 1:50 @ A3 A809

JOB No. 180109 REV B

















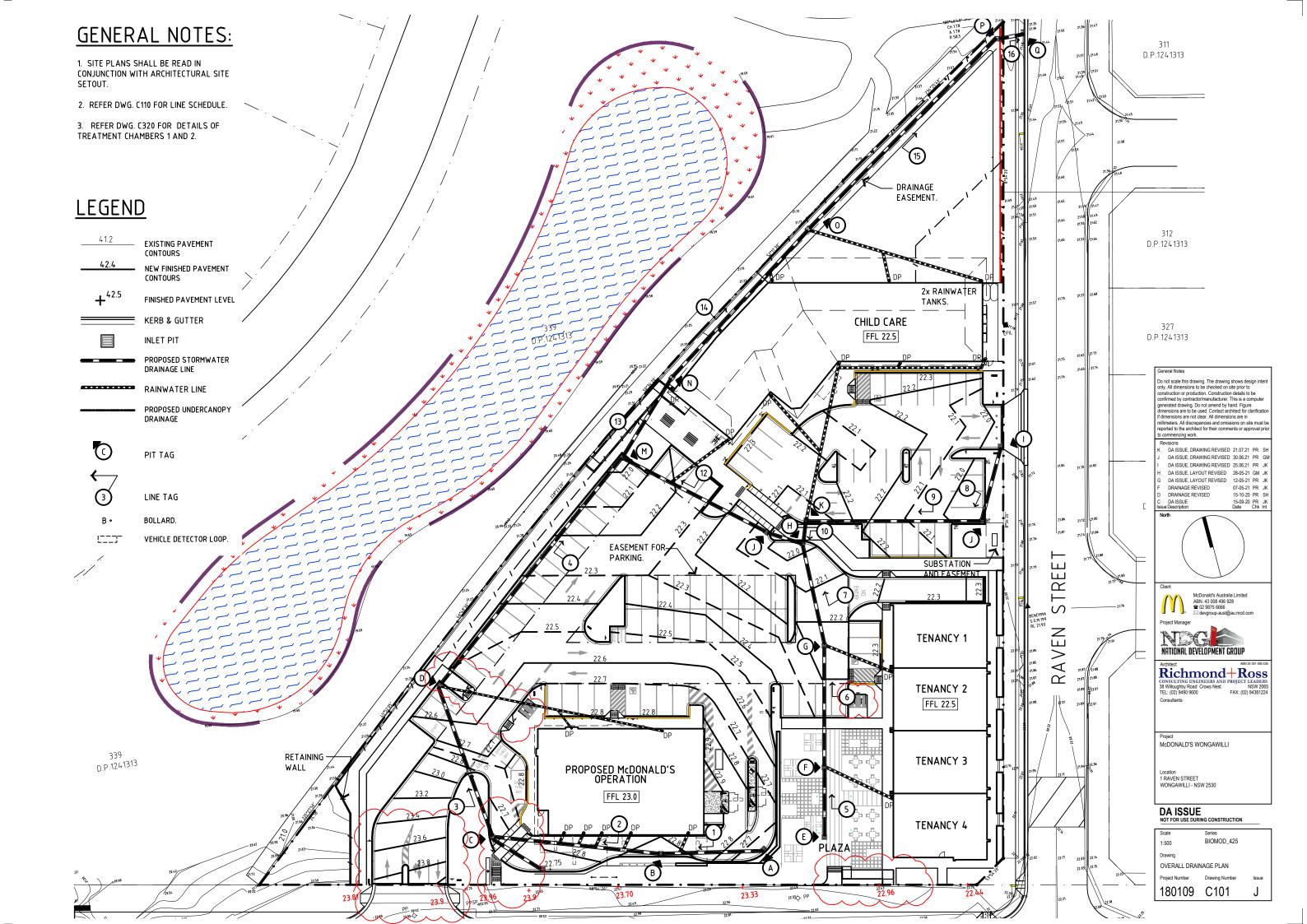












STORMWATER RUNOFF CALCULATIONS

LINE ROO 1 75 2 250 3 - 4 100 5 - 6 250	5 70	L'SCAPE	ROOF	PAVE'T		FLOW			
2 250 3 - 4 100 5 -		1	C=1.0	C=0.95	L'SCAPE C=0.65	FLOW (L/S)	SIZE (MM)	GRADE (V:H)	CAPACITY (L/S)
3 - 4 100 5 -	50 50	30	4.5	2.0	1.2	7.7	150	1:120	23
4 100 5 -	JU JU	20	14.8	2.8	0.8	26.1	225	1:200	46
5 -	100	100	-	5.6	4.0	35.7	225	1:200	46
	00 450	100	5.9	25.4	4.0	71	300	1:250	90
4 250	150	20	-	8.5	0.8	9.3	150	1:120	23
0 250	50 150	20	14.8	8.5	0.8	33.4	225	1:200	46
7 250	50 350	-	14.8	19.7	-	67.9	300	1:250	90
8 –	350	20	-	19.7	0.8	20.5	225	1:200	46
9 –	350	40	-	19.7	1.6	41.8	225	1:200	46
10 300	00 250	30	17.8	14.1	0.8	74.5	300	1:250	90
11 –	200	-	-	11.3	-	153.7	375	1:140	160
12 –	750	20	-	42.3	0.8	196.8	375	1:100	200
13 70	0 900	40	4.2	50.7	1.6	324.3	450	1:300	350
14 100	00 –	40	5.9	-	1.6	331.8	450	1:300	350
15 250	50 –	40	14.8	-	1.6	348.2	450	1:300	350
16									

STORMWATER RUNOFF CALCULATIONS

USING FORMULA Q = 0.00028 CAI

WHERE Q = DISCHARGE IN LITRES PER SECOND

C = A RUNOFF COEFFICIENT (SEE TABLE)

A = CATCHMENT AREA IN SQ.M.

I = RAINFALL INTENSITY IN MILLIMETRES PER HOUR

 20 I $_{5}$ = 212 MM/HR FOR 20 YEAR RETURN PERIOD 5 MINUTE DURATION STORM

NOTE:

1. IL OF STREET CONNECTION PIT DOWNSTREAM OF LINE 16 IS RL. 18.96.

PIT SCHEDULE

INUET		RL TOP (mAHD)	IL (mAHD)	COVER	NOTES
INLET	600x600	22.65	22.0	HEAVY DUTY GRATE	
INLET	600x600	22.70	21.90	HEAVY DUTY GRATE	
INLET	600x600	22.65	21.86	HEAVY DUTY GRATE	
INLET	600x600	(22.50)	21.65	HEAVY DUTY GRATE	
INLET	600x600	22.20	21.55	HEAVY DUTY GRATE	
INLET	600x600	22.20	21.45	HEAVY DUTY GRATE	
INLET	600x600	22.10	21.30	HEAVY DUTY GRATE	
INLET	600x900	21.95	20.90	HEAVY DUTY GRATE	
INLET	600x600	21.95	21.10	HEAVY DUTY GRATE	
INLET	600x600	21.90	21.10	HEAVY DUTY GRATE	
INLET	600x900	22.0	20.94	HEAVY DUTY GRATE	
INLET	900x900	22.05	20.85	HEAVY DUTY GRATE	
INLET	900x900	22.0	20.6	HEAVY DUTY GRATE	
JUNCTION	900x900	22.30	20.45	CONCRETE LID	
JUNCTION	900x900	22.0	20.30	CONCRETE LID	
JUNCTION	900x900	21.50	19.10		EXISTING
JUNCTION					EXISTING COUNCIL SW PIT
	NLET NLET NLET NLET NLET NLET NLET NLET	NLET 600x600 NLET 600x600 NLET 600x600 NLET 600x600 NLET 600x600 NLET 600x600 NLET 600x900 NLET 600x600 NLET 600x900 NLET 600x900 NLET 900x900 NLET 900x900	NLET 600x600 22.70 NLET 600x600 22.65 NLET 600x600 22.20 NLET 600x600 22.20 NLET 600x600 22.10 NLET 600x600 21.95 NLET 600x600 21.95 NLET 600x600 21.90 NLET 600x600 21.90 NLET 600x900 22.0 NLET 900x900 22.05 NLET 900x900 22.0 UNCTION 900x900 22.30 UNCTION 900x900 22.0 UNCTION 900x900 21.50	NLET	NLET

LINE SCHEDULE

TAG	UPSTREAM INVERT (mAHD)	SIZE Ø (mm)	MATERIAL	LENGTH (M)	GRADE (ACTUAL)	DOWN- STREAM INVERT (mAHD)	NOTES
1	22.0	225	UPVC	15	1:120	21.91	
2	21.90	225	UPVC	26	1:200	21.86	
3	21.85	225	UPVC	(25)	1:200	(21.72)	
4	(21.70)	300	UPVC	(47)	1:250	21.11	
5	21.55	150	UPVC	10	1:120	21.46	
6	21.45	225	UPVC	20	1:200	21.35	
7	21.30	300	UPVC	19	1:250	21.21	
8	21.25	225	UPVC	11	1:200	21.11	
9	21.10	225	UPVC	30	1:200	20.95	
10	20.94	300	UPVC	2	1:250	20.91	
11	20.90	375	RRJ RCP	3	1:140	20.86	
12	20.85	375	RRJ RCP	26	1:100	20.61	
13	20.60	450	RRJ RCP	32	1:300	20.46	
14	20.45	450	RRJ RCP	42	1:300	20.31	
15	20.30	450	RRJ RCP	42	1:300	20.16	
16	20.15	450	RRJ RCP	4		20.10	

Revisions

C DRAWING REVISED B DRAWING REVISED A DA ISSUE construction confirm genera dimensification dimensification and construction confirmation construction constr

Do not scale this drawing. The drawing shows desi only. All dimensions to be checked on sile prior to construction or production. Construction details to confirmed by contractorimanufacturer. This is a cogenerated drawing. Do not amend by hand. Figure Millerations are to be used. Contact architect for cliif dimensions are not clear. All dimensions are in millimeters. All discrepancies and omissions on sits reported to the architect for their comments or ason North



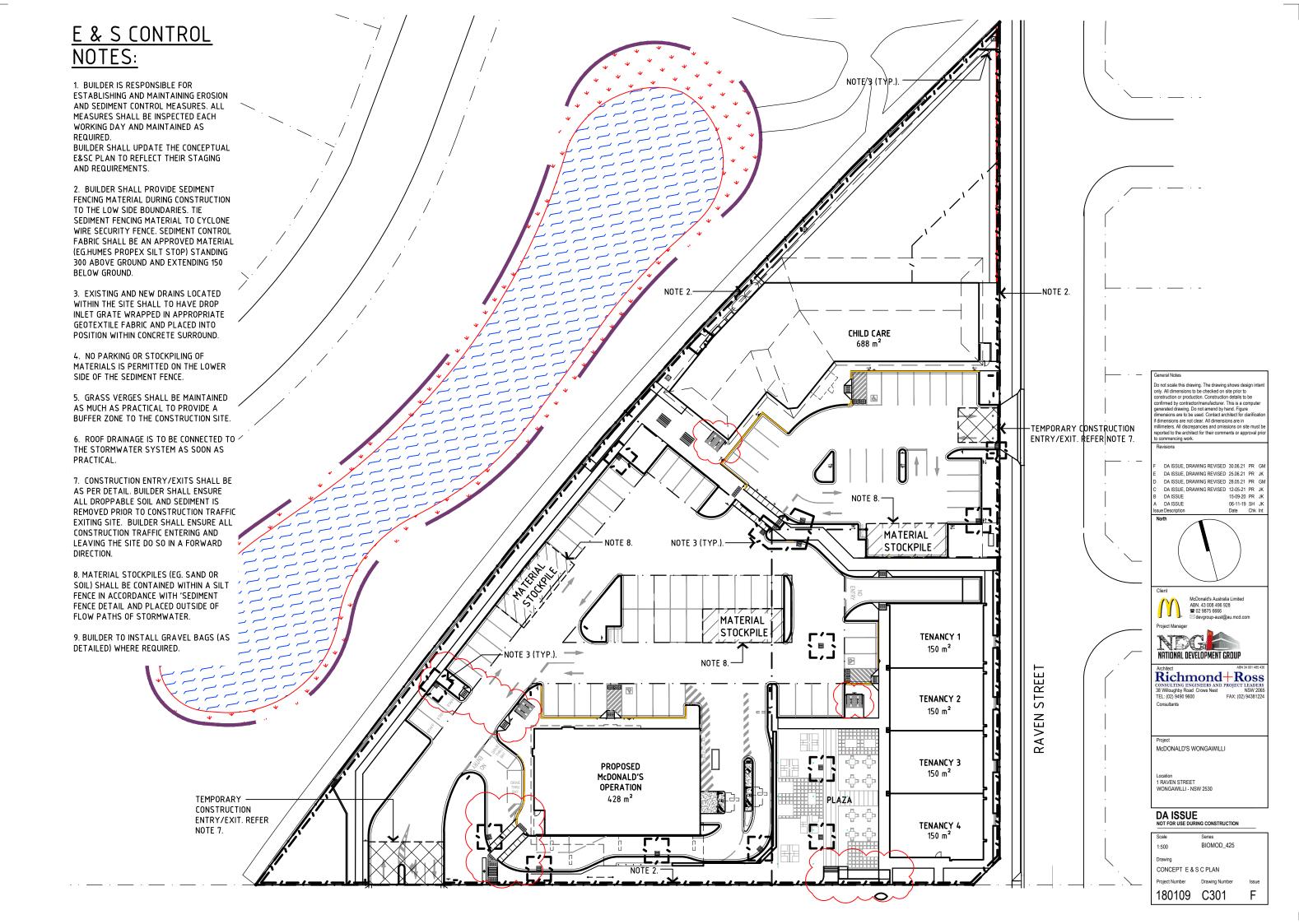


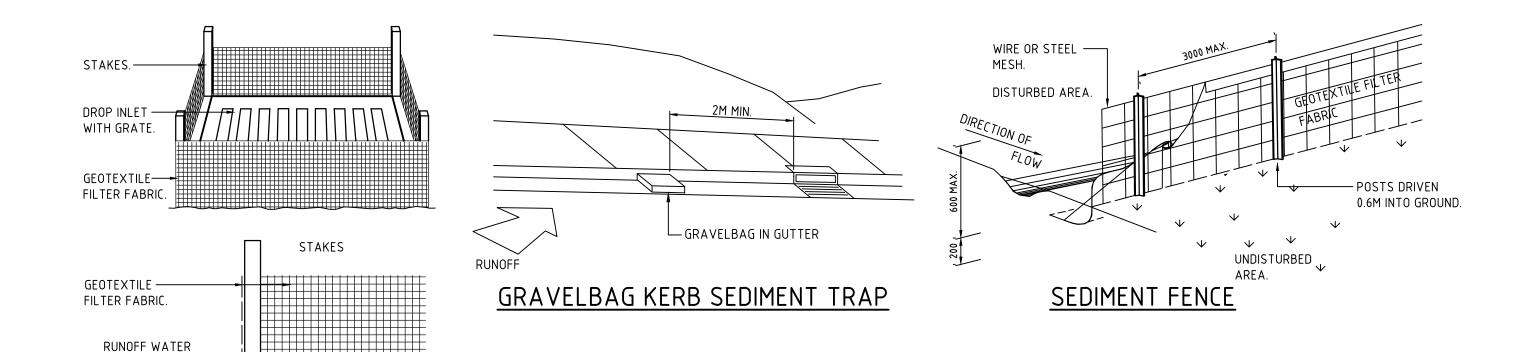
S McDONALD'S WONGAWILI

Location 1 RAVEN STREET WONGAWILLI, NSW 2530 DA ISSUE
NOT FOR USE DURING CONSTRUCTION

Scale Series
N/A BIOMOD_425

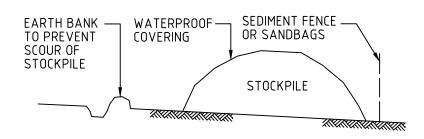
Drawing
NOTES AND SCHEDULES
Project Number Drawing Number Issue
180109 C110 C



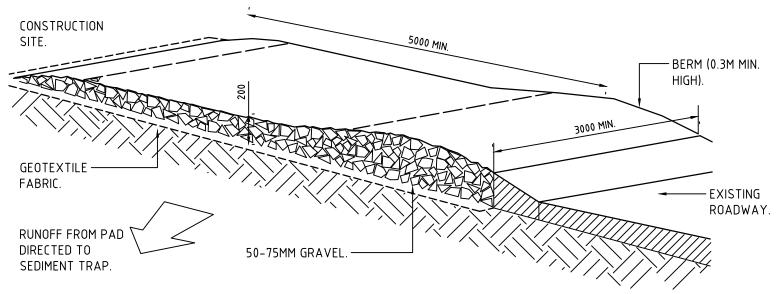


SEDIMENT TRAP TO STORMWATER SUMP

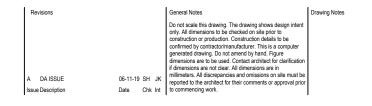
FILTERED WATER.



BUILDING MATERIAL STOCKPILES



TEMPORARY CONSTRUCTION EXIT



WITH SEDIMENT

BURIED FABRIC.





NOT FOR USE DUR	ING CONSTRUCTION	
Scale	Series	
N/A	BIOMOD_425	
Drawing		
EROSION & SE	DIM. CONTROL DE	TAILS
Project Number	Drawing Number	Issue
180109	C310	Α

The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

ARCHITECTURAL COORDINATION

ARCHITECTURAL COORDINATION
ARCHITECTURAL COORDINATION

ARCHITECTURAL COORDINATION

PLAYGROUND COORDINATION
ARCHITECTURAL COORDINATION

FOR COMMENT

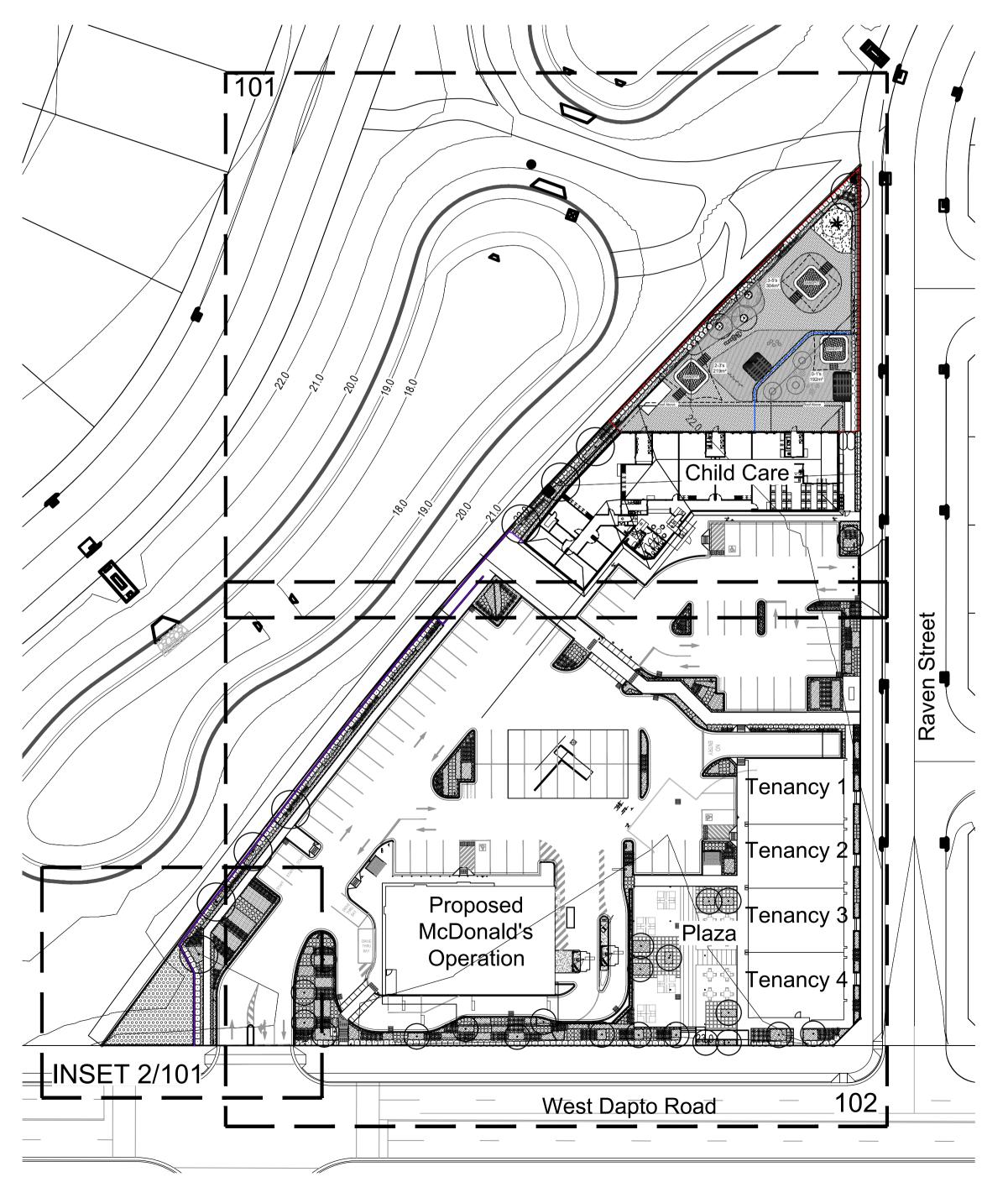
McDonald's Wongawilli

West Dapto Road, Wongawilli NSW 2530 Development Application

Drawing Schedule

Drawing Number	Drawing Title	Scale
000	Landscape Coversheet	N/A
101	Landscape Plan 1	1:150
102	Landscape Plan 2	1:150
501	Landscape Specification & Details	As Showr

	E				_	_
Symbol	Botanic Name	Common Name	Mature H x W (m)	Pot Size	Spacing	Quantity
	TREES		(1117)			
Ac	Angophora costata	Smooth Barked Apple	20 x 8	100L	As shown	4
Cm	Corymbia maculata	Spotted Gum	30 x 12	100L	As shown	3
FR	Fraxinus 'Raywood'	Claret Ash	15 x 7	100L	As shown	11
TL	Tristaniopsis 'Luscious'	Water Gum	9 x 7	100L	As shown	11
	SHRUBS AND ACCENTS					
CR	Cordyline fruticosa 'Rubra'	Cordyline	1 x 0.6	300mm	As shown	213
De	Doryanthes excelsa	Gymea Lily	3 x 2	500mm	As shown	94
PBB	Phormium 'Bronze Baby'	Bronze NZ Flax	0.7×0.7	300mm	As shown	330
RAB	Rhaphiolepsis 'Apple Blossom'	Apple Blossom	0.8×0.7	300mm	As shown	171
ROP	Rhaphiolepis 'Oriental Pearl'	Oriental Pearl	1 x 1	300mm	As shown	224
sc	Syzygium 'Cascade'	Cascade' Lilly Pilly	3 x 2	300mm	As shown	179
Wf	Westringia fruticosa 'Zena	Coastal Rosemary	2 x 2	300mm	As shown	89
	GROUNDCOVERS AND GRASSES					
Ad	Alternanthera dentata 'Little Ruby'	Ruby Leaf Alternanthera	0.45 x spreading	TJ	5/m2	167
Cg	Carpobrotus glaucascens	Pig Face	0.2 x 1.0	200mm	5/m2	167
DLJ	Dianella 'Little Jess'	Little Jess Flax Lily	0.6 x 0.6	150mm	5/m2	262
LEG	Liriope muscari 'Evergreen Giant'	Lily Turf	0.6 x 0.5	200mm	5/m2	176
LT	Lomandra longifolia 'Tanika'	Tanika Mat Rush	0.6 x 0.65	200mm	5/m2	275
Mp	Myoporum parvifolium	Myoporum	0.1 x 1	200mm	5/m2	105
PK	Poa labillardieri 'Kingsdale'	Blue Tussock Grass	0.5 x 0.5	150mm	5/m2	411
Tj	Trachelospermum jasminoides	Star Jasmine	0.2 x 0.5	150mm	5/m2	884
CHILDCARE PLAN	IT COUEDIN E					CD.
Symbol	Botanic Name	Common Name	Mature H x W	Pot Size	Spacing	CR Quantity
	TREES					
Са	Cupaniopsis anacardioides	Tuckeroo	10 x 5	100L	As shown	1
CI	Citrus limon	Lemondae	16 % 6	75L	As shown	1
Crl	Citrus reticulata 'Imperial'	Imperial Mandarin		75L	As shown	1
Cs	Citrus sinensis	Navel Orange		75L	As shown	1
	SHRUBS AND ACCENTS					
MCT	Melalueca 'Claret Tops'	Claret Top	1 x 1	300mm	As shown	32
SC	Syzygium 'Cascade'	Cascade' Lilly Pilly	3 x 2	300mm	As shown	107
Sr	Salvia rosmarinus	Rosemary	0.5 x 0.5	300mm	As shown	25
	GROUNDCOVERS AND GRASSES					
1.7	Lomandra longifolia 'Tanika'	Tanika Mat Rush	0.6 x 0.65	200mm	5/m2	104
LT	Lomanara longilona Tanika					



McDonald's Australia Limited

McDonald's Wongawilli
West Dapto Road,
Wongawilli NSW

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia Tel: (61 2) 8332 5600

Redfern NSW 2016
Australia

Tel: (61 2) 8332 5600
Fax: (61 2) 9698 2877
www.siteimage.com.au

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ABN 44 801 262 380



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SITE IMAGE

DEVELOPMENT APPLICATION

Drawing Name:

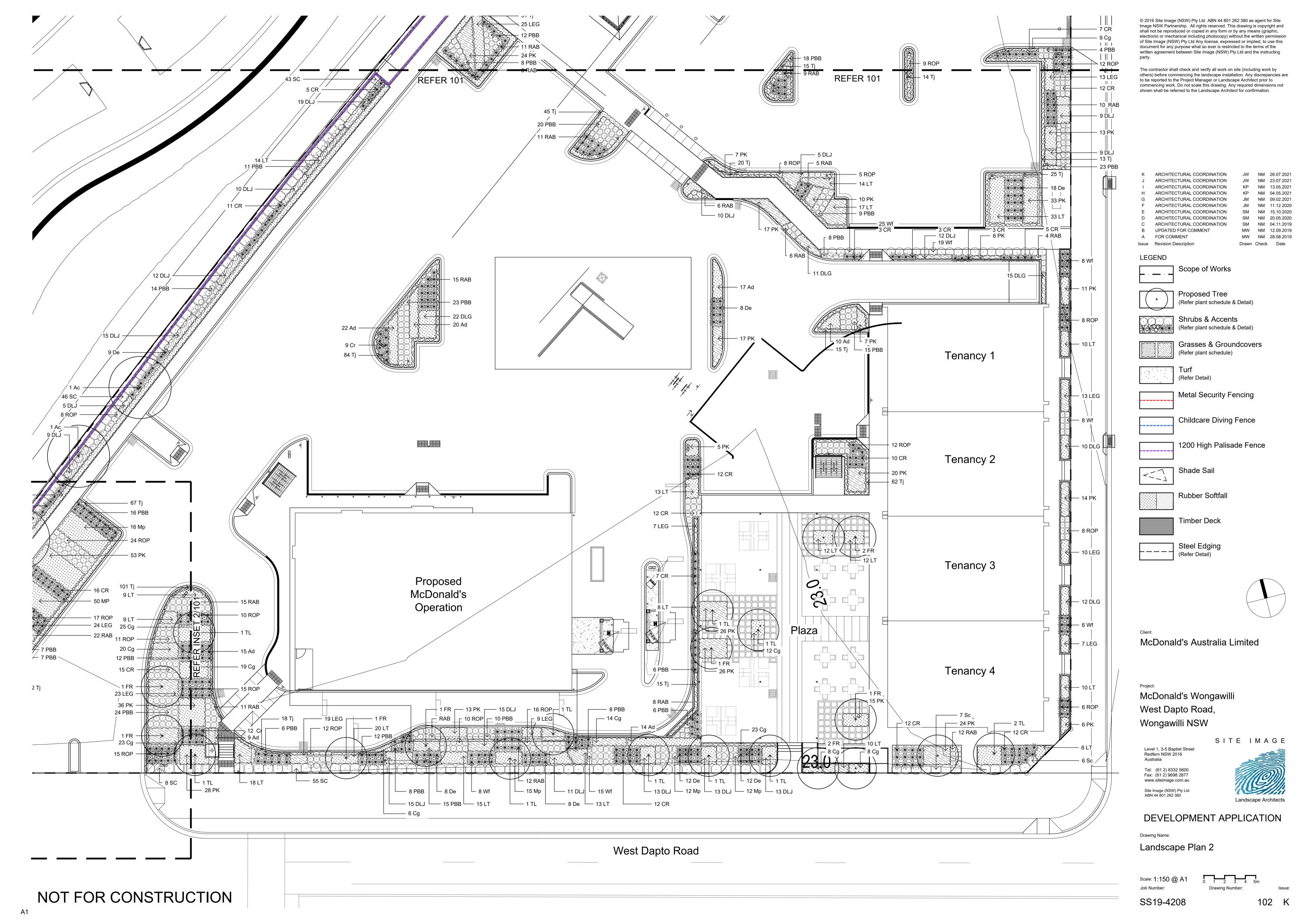
Landscape Coversheet

cale:

Drawing Number:

SS19-4208





Refer plans for adjacent surfaces. Concrete footing to Engineer's specification. Compacted - subgrade to Engineer's specification. Typical Security Fence Detail

Tree planting as plan

Hession ties above

lowest limb to

prevent slipping

Hardwood timber

stakes. refer to

into ground and avoid root ball

specification for no.

& size drive securely

Mulch as specified

Fertiliser as specified

Topsoil mix type A

Topsoil mix type B

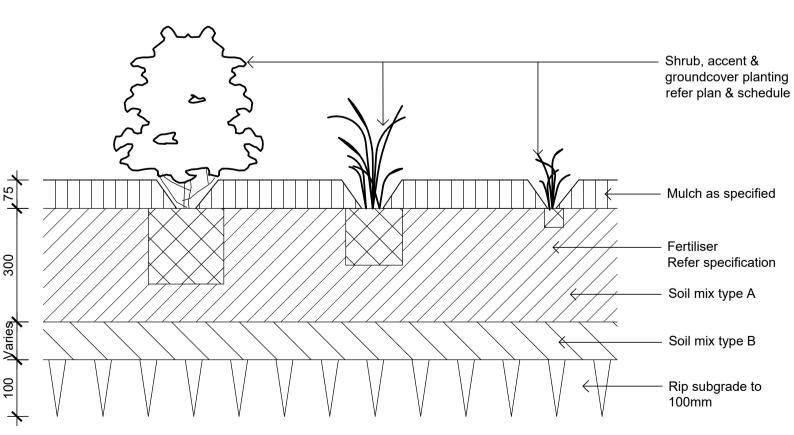
Refer specification

Rip subgrade

Refer specification

Install root barrier as required.

Turf as specified Soil mix type B and fertiliser as specified Rip subgrade to 100mm Detail Turf on Even Grade



Detail Shrub Accent & Groundcover Planting on Grade

GENERAL NOTES

conjunction with this specification. All structural and civil works components of the landscape design shall be referenced to engineers' • Ready for planting. details and specifications. Read this specification in conjunction with the plant and materials schedule on this drawing. If in doubt about any Compost detail or if conflicts are found in the documents, seek advice.

Workmanship and Materials

The whole of the landscape works shall be carried out by a competent, Fertilise trained and qualified landscape contractor who is experienced in Provide proprietary fertilisers, delivered to the site in sealed bags horticultural practices, landscape construction and planting techniques. marked to show manufacturer or vendor, weight, fertiliser type, N:P:K

Maintaining mulch; The landscape contractor shall hold a current Building Contractors License and/or be a financial member of LNA Landscape Association NSW & ACT or equivalent organisations in other states.

EXISTING TREES

Trees to be Retained and Protected

Identify and mark trees and shrubs to be retained using a suitable non-injurious, easily visible and removable means of identification. Protect from damage the trees and shrubs to be retained, including those beyond the site area, both above and below the ground. If a tree becomes damaged during the works or it is proposed to perform work on a tree, give written notice immediately and obtain instructions.

Work near Trees

Keep the area of the drip-line free from construction material and debris. Do not place bulk materials and harmful materials under or near trees. Do not place spoil from excavations against tree trunks. Prevent wind-blown materials such as cement from harming trees and plants. Do not remove topsoil from, or add topsoil to, the area within the drip-line of trees.

EARTHWORKS

Excavation, Trimming and Filling

as it was above the soil in the container. Apply fertiliser, as Except as otherwise note in the contract, bulk excavation is excluded from the landscape works. Trim and fill the excavated ground surfaces recommended in the soil testing results or in accordance with the manufacturer's recommendations around the plants in the soil at the to achieve design levels to accommodate finish materials as detailed. Compact the finished surface as required for the finished ground treatment.

Sub-soil Drainage

Keep the excavated works drained and free of standing water. Allow to embankments. As a minimum this should be on slopes ≥1:3. Stabilise supply and install sub-soil drainage pipes as required for the new works to ensure that all gardens are well drained. Connect the sub-soil polymer mesh. Lay mesh from top to bottom of slope. Install in drainage pipes to the nearest downstream stormwater pits. Include pipe filter socks.

HARDWORKS

Furniture, Handrails, Balustrades

Supply and install the scheduled items in accordance the manufacturer's recommendations, as detailed and in the locations shown on plan. Provide all footings and fixings required for the items to be stable and in accordance with applicable codes and standards.

Garden Walls, Fences, Steps, TGSI and Edging Construct garden walls as shown on plan, as detailed and of the material scheduled. Provide footings, step nosings, tactile surfaces to Mulch shall be approved horticultural grade pine bark, 15mm as

comply with standards and applicable legislation.

Continuous, Unit and Loose Pavement

Install the scheduled material pavement to the locations shown on plan. evenly graded between design surface levels. Over fill to allow mulch Ensure that all subgrade/subsurface works are complete prior to commencing paving. Confer with the engineer to ensure the structural integrity of the installation.

SOFTWORKS

Undertake at least two (2) soil tests, in locations as advised by Project • Semi-advanced plants (>75 lt): 2 off 50x50x 1800mm;

Manager, and provide results and recommendations for the improvement of plant growth and to adjust the soil to achieve appropriate planting medium (including pit levels) for successful plant

Excavate all garden beds to bring the subsoil to at least 300mm below 📉 site within 24 hours of being cut, and lay it within 24 hours of delivery finished design levels. Shape the subsoil to fall to subsoil drains where Prevent it form drying out between cutting and laying. Lay the turf in the applicable. Do not excavate within the drip line of trees to be retained. following manner: Excavate all turf areas to bring the subsoil to at least 100mm below finished design levels. Shape the subsoil to fall to subsoil drains where • applicable. Do not excavate within the drip line of trees to be retained. Cultivate the subsoil to a further depth of 100mm. Remove stones exceeding 25mm, clods of earth exceeding 50mm, and weeds, rubbish or other deleterious material brought to the surface during cultivation. Do not disturb services or tree roots, if necessary cultivate these areas by hand. During cultivation, thoroughly mix in materials required to be incorporated into the subsoil, as recommended in the soil testing results and to manufacturer's recommendations. Trim the surface to design levels after cultivation.

Import topsoil for the garden and turf areas, unless the topsoil can be provided from material recovered from the site, as recommended in the soil testing results. Spread the topsoil on the prepared subsoil and grade evenly, compact lightly and uniformly in 150mm layers. Avoid differential subsidence and excess compaction and produce a finished topsoil surface which has the following characteristics:

Finished to design levels, allowing for mulch or turf, which is to LANDSCAPE MAINTENANCE finish flush with adjoining hard surfaces such as paths and edge;

Smooth and free from stones or lumps of soil; The Landscape Contractor shall rectify defects during installation and All plans and details included in the project documents shall be read in • Graded to drain freely, without ponding, to catchment points; that become apparent in the works under normal use for the duration of the contract Defects Liability Period. The Landscape Contractor shall Graded evenly to adjoining surfaces; and maintain the contract areas by the implementation of industry accepted horticultural practices for 4 weeks. The landscape maintenance works

shall include, but not be limited to, the following: Provide, in accordance with AS 4454, well rotted vegetative material or • Replacing failed plants;

ratio, recommended uses and application rates.

restriction or damage;

shade conditions:

leading shoot; and

Embankment Stabilisation

to settle to the specified depth.

Plants (>25 lt): 1 off 38 x 38 x 1200mm;

Advanced (>100 lt): 3 off 50 x 50 x 2400mm.

In stretcher pattern, joints staggered and close butted;

Stakes and Ties

various plant pot sizes:

installed.

Root Barrier

relation to their container.

schedules, which have the following characteristics:

form consistent with the species or variety;

Supply plants in accordance with the landscape drawings and

• Large healthy root systems, with no evidence of root curl,

Vigorous, well established, free from disease and pests, of good

Hardened off, not soft or forced, and suitable for planting in the

Trees, unless required to be multi-stemmed, shall have a single

Grown in final containers for not less than twelve weeks;

Containers shall be free from weeds and of appropriate size in

Following excavation of the planting hole place and spread 15gms of

wetting agent pre-mixed with one (1) litre of water. Place the plant

planting holes with specified topsoil mixture. Lightly tamp and water to

eliminate air pockets. Ensure the topsoil is not placed over the top of

Where necessary to prevent soil erosion or soil movement, stabilise

embankments using biodegradable fibre reinforced with heavy weight

accordance with manufacturer's specification, including 300 x 300 mm

anchor trenches at top and bottom, backfilled with soil over the mesh

and compacted, and U-shaped galvanised steel pegs at 1000 mm

centres and 250mm centres at edge overlaps. Plant after matting is

Supply and install root control barriers to all new tree plantings

accordance with manufacturer's recommendations.

adjacent to walls, paths and all trunk service trenches, where their

proximity poses a threat to the stability of the infrastructure. Install in

supplied by ANL. Place mulch in all garden beds to a depth of 75mm,

stems and rake to an even surface flush with the surrounding surfaces

after all specified plants are installed. Keep mulch clear of all plant

Stakes shall be durable hardwood, straight, free of knots and twists,

pointed at one end, in the following quantities and sizes for each of the

Turf shall be delivered to site as 25mm minimum thick cut rolls. Obtain

Parallel long sides of level areas, with contours on slopes; &

Turf side

To finish flush, after tamping, with adjacent finished surfaces of

correctly orientated to north or for best presentation. Backfill the

- animal manure, free from harmful chemicals, grass and weed growth. Pruning;
 - Insect and pest control: Fertilising;
 - Stakes and ties;
 - Mowing and top dressing;
 - Irrigation and watering; Erosion control; and Weeding and rubbish removal.

Maintenance Activities

Schedule the following activities to occur on a timely basis.

• Plant replacement - Replace plants that have failed to mature, die or are damaged. Replacement plants shall be in a similar size

- natural climatic conditions prevailing at the site, and in particular quality and identical species or variety to the plant that has failed.
 - Replacement of plants shall be at the cost of the landscape
 - unless advised otherwise. If the cause of the failure is due to a controllable situation then correct the situation prior to replacing
 - Pruning Prune dead wood, broken limbs, dead or infected foliage and as needed to develop strong, healthy plants to achieve

shape and form expected of the plant type. • Insect and pest control - Avoid spraying:

- if ever possible; in wet weather or if wet weather is imminent;
- the rootball. Keep the plant stem at the same height above the ground if target plants are still wet after rain; in windy weather: and
 - if non-target species are too close. Immediately report to the Project Manager any evidence of intensive weed infestation, insect attack or disease amongst plant material. Submit all proposals to apply chemicals and obtain approval before
 - starting this work. When approved, spray with herbicide, insecticide, fungicide as appropriate in accordance with the manufacturers' recommendations. Record in the logbook all relevant details of
 - spraying activities including: Product brand / manufacturer's name, Chemical / product name,
 - Chemical contents, Application quantity and rate,
 - Date of application and location, Results of application, and Use approval authority.
 - Fertilising Fertilise gardens with a proprietary slow release fertiliser applied in accordance with the manufacturer's directions and recommendations. Record in the logbook all relevant details of fertilising including:
 - Product brand / manufacturer's name, Fertiliser / product name.

necessarv

Garden bed side

TYPICAL MILD STEEL EDGE

SCALE 1:10

- Application quantity and rate, and Date of application and location.
- Stakes and ties Adjust and replace as required to ensure plants remain correctly staked. Remove those not required at the end of the planting establishment period (Defects Liability Period). Maintaining mulch - Maintain the surface in a clean, tidy and weed free condition and reinstate the mulch as necessary to ensure
- correct depth as specified. • Mowing and top dressing - Mow the turf to maintain a grass height of between 30-50mm. Do not remove more than one third of the grass height at any one time. Remove grass clippings from the
- after each mowing. Top dress to a maximum of 10mm to fill depressions and hollows in the surface. • Irrigation and watering - Maintain the irrigation system to sure that each individual plant receives the required amount of water to maintain healthy and vigorous growth, adjust and rectify as required.
- Provide additional watering, if necessary turf from a specialist grower of cultivated turf. Provide turf of even

 • Erosion control - Where necessary, maintain the erosion thickness, free from weeds and other foreign matter. Deliver turf to the control devices in a tidy and weed free condition and reinstate as
 - Weeding and rubbish removal During the plant establishment period remove by hand, rubbish and weed growth that may occur or re-occur throughout all planted, mulched and paved areas. The contractor shall target weeds that are capable of producing a major infestation of unwanted plants by seed distribution. Whenever possible, time weed removal to precede flowering and seed set.

Turf as specified

Mild steel edge Refer specification

Mulch as specified

Nom. 10mm x 10mm x

Spot weld to edge at 1.0m

200mm steel peg

junctions

centres or at central

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The contractor shall check and verify all work on site (including work by others) before commencing the landscape installation. Any discrepancies are to be reported to the Project Manager or Landscape Architect prior to commencing work. Do not scale this drawing. Any required dimensions not shown shall be referred to the Landscape Architect for confirmation.

ARCHITECTURAL COORDINATION KP NM 13.05.2021 ARCHITECTURAL COORDINATION KP NM 04.05.2021 ARCHITECTURAL COORDINATION JM NM 09.02.2021 ARCHITECTURAL COORDINATION SM NM 15.10.2020 A FOR COMMENT MW NM 28.08.2019 Issue Revision Description

Drawn Check Date

LEGEND

McDonald's Australia Limited

McDonald's Wongawilli West Dapto Road, Wongawilli NSW

SITE IMAGE

Level 1, 3-5 Baptist Street Redfern NSW 2016 Australia

Tel: (61 2) 8332 5600 Fax: (61 2) 9698 2877 www.siteimage.com.au Site Image (NSW) Pty Ltd ABN 44 801 262 380



DEVELOPMENT APPLICATION

Landscape Specification & Details

Job Number:

SS19-4208

NOT FOR CONSTRUCTION

Detail 75-200L Tree Planting on Grade

501 E



30012599 - 1 Raven Street Hydraulics - Variation 03

5 July 2021

Kate Young
Principal - Planning
SLR
https://www.slrconsulting.com/
30012599 - 1 Raven Street Hydraulics-Variation 03

Dear Kate,

RE: 1 Raven Street -Response to Council Contention 5 - Variation 03

1.1 Introdution

This letter provides a further hydraulic study to assess flood impacts of the proposed development in response to Council's Contention 5 (refer to Appendix A for full detail). This study also considered the proposed road upgrade work, provided by the council, which included:

- 1. Road widening of the West Dapto Road, and
- 2. Vertical realignment of the West Dapto Road.

The scope of works is outlined in the approved proposal, dated 27th May 2021, to asses potential flood impacts of the proposed civil design within the site due to the proposed West Dapto road upgrade.

The results of the work undertaken in this letter are consistent with the results detailed in the previous submissions (7 November 2019 and 17 May 2021) and further addresses Council's comments regarding potential flood impacts to Wongawilli/West Dapto Road associated with the proposed development.

1.2 Objectives

The objective of this letter is to assess potential flood impacts of the proposed design on adjacent developments and watercourse for the 1% Annual Exceedance Probability (AEP) and Probable Maximum Flood (PMF) storms.







1.3 Methodology

The TUFLOW hydraulic model (owned and provided by Council) was modified to reflect the developed scenario by incorporating the proposed design TIN for the West Dapto Road upgrade (provided to SMEC on the 4th June 2021), the related culvert crossing upgrade information (supplied 24th June 2021), and the updated civil design within the lot (provided 3rd June2021) which are shown in Figure 1. Further details regarding the proposed civil design can be found in Appendix B.

As shown in Figure 1, the proposed design changes includes raising and widening the West Dapto Road at the intersection, culvert crossing upgrade, and re-grading of the driveway design levels (due to the West Dapto road upgrade) within the lot boundary. These modifications were applied to the hydraulic model produced for the previous design. Hence, the current model for the proposed scenario, in addition to the above-mentioned changes, also incorporates the minimum proposed pad level of 22.5m AHD for the lot, Finish Floor Level (FFL) of 23.0 m AHD for the proposed McDonald building, the proposed retaining wall, and the swale to the south west of the site which is designed to mitigate flows during storm events and divert floodwater north to the ponds.



Figure 1. Proposed design

The provided Council's TUFLOW model has 5m cell size resolution which has been retained for this assessment.

Based on SMEC's earlier report (dated 7 November 2019), it was found that 120 minutes for the 1% AEP event and 90 minutes for the PMF event will be critical durations, respectively. Council's flood model includes considerations for 2016 Council Conduit Blockage Policy. For this assessment, the unblocked scenario was found to be the critical scenario at the Site (SMEC 2019). Hence, the TUFLOW model of the proposed design was run for 1% AEP and PMF events (only for the critical durations) under unblocked drainage network scenario. Further, flood maps including flood depth and water level changes (afflux maps) were produced.

1.4 Results and Discussion

Flood maps are provided in Appendix C. As it can be seen in the flood depth maps provided in Appendix C, the site will not be impacted in 1% AEP and PMF storm events for the proposed conditions. Whereas, as shown in Appendix C of the previous submitted memo (dated 17th May 2021), the lot is impacted by PMF and 1% AEP storms for the existing scenario (without the proposed West Dapto Road upgrade) although 1% AEP flood extent is only slightly encroaching the site at the south west corner where there is an existing swale. The extended flood immunity of the site (lot) in PMF storm for proposed conditions is due to proposed raised levels of the West Dapto road upgrade as it allows more ponding upstream of the West Dapto Road culvert crossing and letting less runoff to overtop the road, which could traverse the lot.

The afflux (change in flood levels) maps between the proposed and existing scenarios for PMF and 1% AEP storm are shown in Figure 2 and Figure 4. As shown in Figure 2, 1% AEP water level decreases by approximately 0.5 m immediately upstream of the West Dapto Road, which is caused by proposed raised road levels and enhanced conveyance capacity of the upgraded culvert crossing.

However, an increase in water level up to 50mm immediately downstream of the proposed road can be seen. This local afflux is produced by adjacent terrain modifications due to the proposed road upgrade. It is noted that increase in water levels within the road upgrade extent, shown in yellow in the figures, should not be considered as terrain is different for the proposed scenario compared to existing conditions. The profile shown in Figure 3 clarifies this matter. Hence, results show that the proposed civil design within the lot does not create increase in afflux for 1% AEP storm event. Further, Figure 2 confirms that there is no overland flow affecting the south west corner of the lot as this area becomes dry for proposed scenario compared to existing conditions in 1% AEP storm.

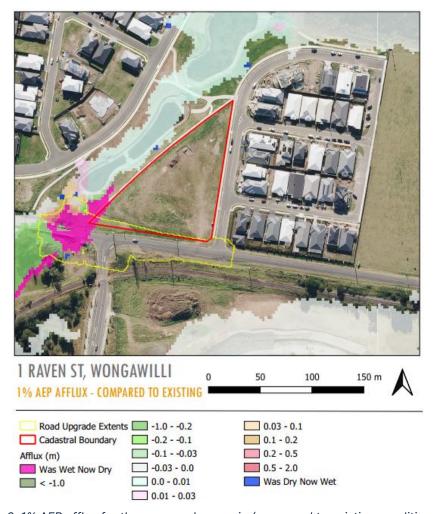


Figure 2. 1% AEP afflux for the proposed scenario (compared to existing conditions)

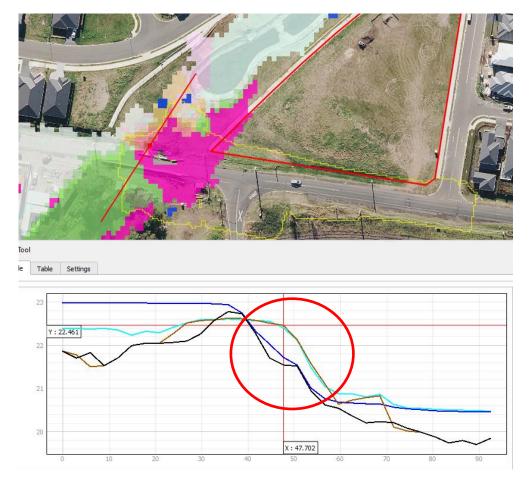


Figure 3. 1% AEP flood level comparison between existing and proposed scenarios. Existing terrain in black; proposed terrain in brown; existing water level in blue; and water level for proposed conditions in cyan. Increase in flood levels in the marked area in red is due to the terrain difference for the road between proposed and existing conditions.

It is noted that according to Table 2 in Chapter E of Council's Development control Plan (DCP), the permissible afflux for residential and commercial developments is 20mm for up to the 1% AEP flood. However, the observed afflux in the present study is due to the road upgrade rather the proposed development for the lot.

As shown in Figure 4, flood extent near the lot is improved for PMF storm as the previously affected area within the lot in the existing conditions now becomes dry. There is up to 300mm decrease in flood levels immediately upstream of the road culvert crossing for the proposed scenario compared to existing conditions; this is due to increased culvert capacity. However, there is localised increase (up to 300mm) in afflux immediately downstream which is due to the change in the road geometry (proposed West Dapto road upgrade extent shown in yellow in the figures).

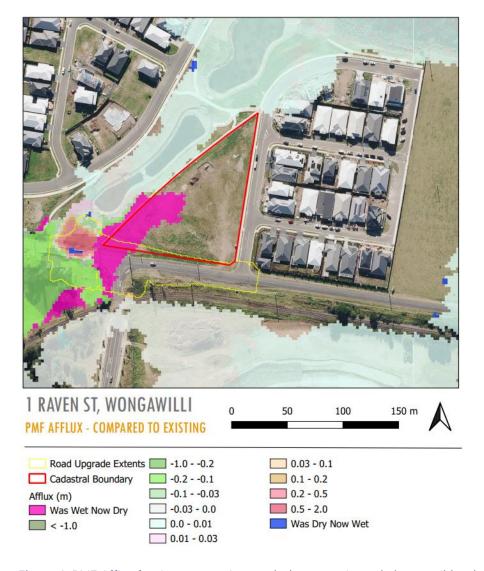


Figure 4. PMF Afflux for the proposed scenario (compared to existing conditions)

1.5 Conclusion

Based on flood impact assessment results for the proposed design, we conclude that:

- 1. The proposed development for the lot doesn't create any afflux for 1% AEP and PMF storm events.
- Results show that there is a significant decrease in water levels immediately upstream of the West Dapto
 culvert crossing for the proposed scenario compared to existing conditions for both 1% AEP and PMF
 storm events.
- 3. Results show a localised afflux up to 50mm and 300mm immediately downstream of the culvert crossing and within the creek for 1% AEP and PMF storm events, respectively. These increases in flood levels are due to the proposed West Dapto road upgrade and it is not related to the proposed site development.
- 4. Also, the lowest proposed finished floor level (22.5m AHD) for habitable area has a freeboard more than 0.5m (minimum as required by Council's DCP) for 1%AEP flood event.
- 5. As required by Council, the existing swale located at the south-western corner of the site is kept untouched to acts as a flood mitigation measure, as required for approval of the parent subdivision (Sanctuary Ponds), and further to meet the requirement of Chapter E13/E14 of Council's DCP.

It is noted that the current study does not aim at providing flood impacts of the proposed West Dapto road upgrade.

If you have any further queries regarding these results, please do not hesitate to contact myself on (02) 9925 5587 or Gus.naghib@smec.com.

Yours sincerely,

Gus Naghib

Experienced Engineer - Water Resources

Appendix A – Council's Contention 5

Provided by Client Dated 28th September 2020

CONTENTION 5

1 The proposed development does not adequately reduce the risk and impact of flooding and stormwater and fails to comply with clause 7.3 of the WLEP 2009, and relevant Chapters of the WDCP 2009.

Particulars:

The proposal does not meet the objectives of clause 7.3 of the WLEP 2009

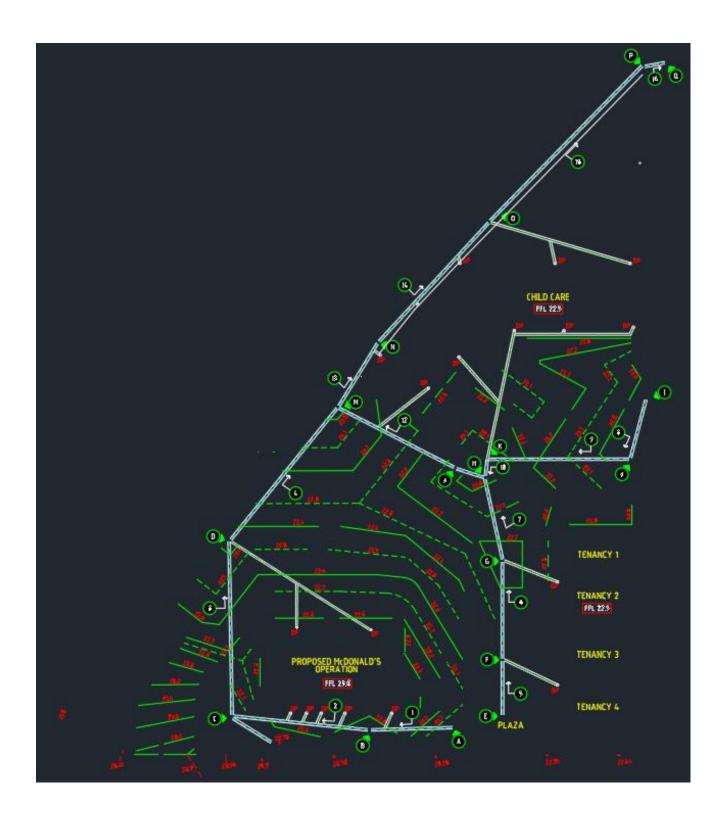
- (a) to maintain the existing flood regime and flow conveyance capacity,
- (c) to avoid significant adverse impacts on flood behaviour,
- (d) to avoid significant effects on the environment that would cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses and
- (e) to limit uses to those compatible with flow conveyance function and flood hazard.

The proposal shows an increase in flood levels of up to 0.2m in the 1 % AEP and up to 0.5m in the PMF within the road reserve of Wongawilli Road due to the proposed filling of the south-west corner of the Site. These increases in flood levels, both individually and cumulatively, are considered to be a detrimental increase and thus contrary to section 6.4.2(b) of the updated Chapter E13 of the Wollongong DCP 2009.

The proposed filling of the existing swale at the south-west corner of the Site is not supported as it has an adverse impact on flood level increases and flood impacts. This existing swale was created as part of the parent subdivision (Sanctuary Ponds) to act as a flood mitigation measure and divert floodwaters into the ponds for the 1 % AEP and PMF events. The proposed filling of the existing swale is contrary to sections 7(1) and 7(2) of Chapter E13 of the updated Wollongong DCP 2009

The omission of the as-constructed Sanctuary Ponds development in the flood modelling is unorthodox and contrary to the requirements of Chapters E13/E14 of the Wollongong DCP 2009.

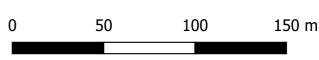
Appendix B – Proposed Civil Design Plan



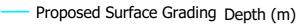
Appendix C – Flood Maps

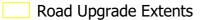


1 RAVEN ST, WONGAWILLI 1% AEP DEPTH - PROPOSED CASE









<= 0.05 0.05 - 0.1

Cadastral Boundary 0.05 - 0

2 - 6

0.5 - 1.0 1.0 - 1.5

1.5 - 2.0

0.1 - 0.2



1 RAVEN ST, WONGAWILLI
1% AEP WATER LEVEL - PROPOSED

0 50 100 150 m



Road Upgrade Extents

Cadastral Boundary

1% AEP Water Level Contour



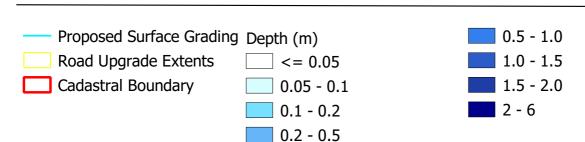
50

100

150 m

1 RAVEN ST, WONGAWILLI

PMF DEPTH - PROPOSED CASE

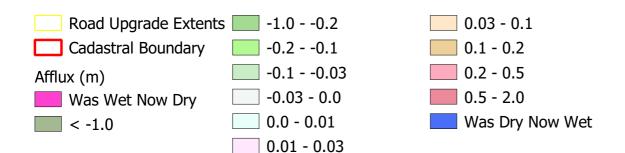




1 RAVEN ST, WONGAWILLI

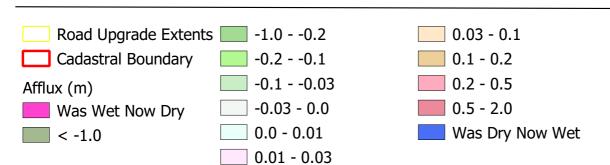
1% AEP AFFLUX - COMPARED TO EXISTING







1 RAVEN ST, WONGAWILLI PMF AFFLUX - COMPARED TO EXISTING



0

50

100

150 m