

Environmental Noise Assessment - Car Wash and Restaurant

**Lots 28 (#16) & 29 (#14) Canning Road & Lot 3 (#5) Heath Road,
Kalamunda**

Reference: 24059028-01

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McDonald's Australia Ltd

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EXECUTIVE SUMMARY

Lloyd George Acoustics was engaged by McDonald's Australia Ltd to undertake an environmental noise assessment for a proposed fast food restaurant and car wash to be located at Lots 28 (#16) & 29 (#14) Canning Road & Lot 3 (#5) Heath Road, Kalamunda. The assessment has demonstrated compliance at nearby noise sensitive receivers, as determined in accordance with the *Environmental Protection (Noise) Regulations 1997*.

The restaurant and carwash are both proposed to operate 24/7 and nearest noise sensitive premises include residences. Therefore, the most critical assessment period is during the night time; 7.00pm to 7.00am Monday to Saturday.

A compliant outcome is expected based on noise modelling of conservative scenarios of operation noting the following assumptions included in the design:

- 1-metre high solid screening (*Colorbond*) to the rooftop condenser unit deck;
- 2.1m high double skinned (minimum surface mass of 8 kg/m²) *Colorbond* fencing atop new retaining walls on the south and west boundaries; and
- Auto wash bays to be fitted with automated RL3000 doors with 2.5mm PVC panels, at entry and exit achieving acoustic performances of R_w 20 dB or greater.

1. INTRODUCTION

Lloyd George Acoustics was engaged by McDonald's Australia Ltd to undertake an environmental noise assessment for a proposed restaurant and car wash to be located at Lots 28 (#16) & 29 (#14) Canning Road & Lot 3 (#5) Heath Road, Kalamunda - (refer *Figure 1-1*) with the site plan shown in *Figure 1-2* and full Development Application (DA) plans provided in *Appendix A*.



Figure 1-1: Subject Site Location (Source: DPLH PlanWA)

With regard to noise emissions, consideration is given to noise from mechanical services, automatic wash bays, vacuums, deliveries, ordering speakers and vehicles at neighbouring properties, against the prescribed standards of the *Environmental Protection (Noise) Regulations 1997*.

Appendix C contains a description of some of the terminology used throughout this report.

2. CRITERIA

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

2.1. Regulations 7, 8 & 9

This group of regulations provide the prescribed standard for noise as follows:

“7. Prescribed standard for noise emissions

- (1) *Noise emitted from any premises or public place when received at other premises –*
 - (a) *must not cause, or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and*
 - (b) *must be free of –*
 - (i) *tonality; and*
 - (ii) *impulsiveness; and*
 - (iii) *modulation,**when assessed under regulation 9.*
- (2) *For the purposes of subregulation (1)(a), a noise emission is taken to significantly contribute to a level of noise if the noise emission ... exceeds a value which is 5 dB below the assigned level at the point of reception.”*

Tonality, impulsiveness and modulation are defined in regulation 9 (refer Appendix C). Under regulation 9(3), “Noise is taken to be free of the characteristics of tonality, impulsiveness and modulation if -

- (a) *the characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and*
- (b) *the noise emission complies with the standard prescribed under regulation 7(1)(a) after the adjustments in the table [Table 2-1] ... are made to the noise emission as measured at the point of reception.”*

Table 2-1: Adjustments Where Characteristics Cannot Be Removed

Where Noise Emission is Not Music*			Where Noise Emission is Music	
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

* These adjustments are cumulative to a maximum of 15 dB.

The assigned levels (prescribed standards) for all premises are specified in regulation 8(3) and are shown in Table 2-2. The L_{A10} assigned level is applicable to noises present for more than 10% of a representative assessment period, generally applicable to “steady-state” noise sources. The L_{A1} is for short-term noise sources present for less than 10% and more than 1% of the time. The L_{Amax} assigned level is applicable for incidental noise sources, present for less than 1% of the time.

Table 2-2: Baseline Assigned Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
Noise sensitive premises: highly sensitive area ¹	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial Premises	All hours	60	75	80
Industrial and Utility Premises	All hours	65	80	90

1. **highly sensitive area** means that area (if any) of noise sensitive premises comprising —

- (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
- (b) any other part of the premises within 15 metres of that building or that part of the building.

The influencing factor (IF), in relation to noise received at noise sensitive premises, has been calculated as 5 dB, as determined in *Appendix B*. *Table 2-3* shows the assigned levels including the influencing factor and transport factor at the receiving locations.

The site is in close proximity to a place of worship to the west, which would be noise sensitive when occupied.

Table 2-3: Assigned Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L _{A10}	L _{A1}	L _{Amax}
+5 dB IF Noise sensitive premises: highly sensitive area ¹	0700 to 1900 hours Monday to Saturday (Day)	50	60	70
	0900 to 1900 hours Sunday and public holidays (Sunday)	45	55	70
	1900 to 2200 hours all days (Evening)	45	55	60
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	40	50	60
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial Premises	All hours	60	75	80

It must be noted the assigned levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces.

The assigned levels are statistical levels and therefore the period over which they are determined is important. The Regulations define the Representative Assessment Period (RAP) as “*a period of time of not less than 15 minutes, and not exceeding 4 hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission*”. An inspector or authorised person is a person appointed under Sections 87 & 88 of the *Environmental Protection Act 1986* and include Local Government Environmental Health Officers and Officers from the Department of Water Environmental Regulation. Acoustic consultants or other environmental consultants are not appointed as an inspector or authorised person. Therefore, whilst this assessment is based on a 4-hour RAP, which is assumed to be appropriate given the nature of the operations, this is to be used for guidance only.

2.2. Regulation 3

“3. Regulations do not apply to certain noise emissions

- (1) *Nothing in these regulations applies to the following noise emissions –*
- (a) *Noise emissions from the propulsion and braking systems of motor vehicles operating on a road;”*

The car wash and restaurant car park, as well as the internal driveways are all open to the public. Therefore, these are considered a road and vehicle noise (propulsion and braking) is not assessed. However, vehicle noise in the drive-through area has been considered assessable in this report due to the lanes being solely for ordering

purposes and not road access. The noise from vehicle car doors and refrigeration units on delivery trucks are also assessed, since these are not part of the propulsion or braking system.

2.3. Regulation 14A

“14A. Waste Collection and Other Works

- (2) Regulation 7 does not apply to noise emitted in the course of carrying out class 1 works if –*
- (a) The works are carried out in the quietest reasonable and practicable manner; and*
 - (b) The equipment used to carry out the works is the quietest reasonably available;*

class 1 works means specified works carried out between -

- (a) 0700 hours and 1900 hours on any day that is not a Sunday or a public holiday; or*
- (b) 0900 hours and 1900 hours on a Sunday or public holiday.*

specified works means -

- (a) The collection of waste; or*
- (b) The cleaning of a road or the drains for a road; or*
- (c) The cleaning of public places, including footpaths, cycle paths, car parks and beaches;”*

In the case where specified works are to be carried out outside of class 1, a noise management plan is to be prepared and approved by the CEO.

2.4. Regulation 3 – Reversing Alarms

“3. Regulations do not apply to certain noise emissions

- (3) Nothing in these regulations applies to the following noise emissions –*
- (h) Noise emissions from –*
 - (i) A reversing alarm fitted to a motor vehicle, mobile plant, or mining or earthmoving equipment;*
- If -*
- (iii) It is a requirement under another written law that such an alarm be fitted;*
 - (iv) It is not practicable to fit an alarm that complies with the written law under which it is required to be fitted and emits noise that complies with these regulations;”*

It is considered that any reversing alarms fitted to commercial vehicles (e.g. delivery or rubbish trucks) are not necessarily exempt under the Regulations, since they are not specifically required under another written law. That is only a safe workplace must be provided, which can be undertaken in a variety of ways.

The commonly used fixed noise output tonal reversing alarms also known as 'reversing beeper' emit, by their very nature, tonal and modulating noise at high levels. Alternative alarms such as broadband alarms are commonly used to minimise the impact.

3. METHODOLOGY

Computer modelling has been used to predict the noise emissions from the development to all nearby receivers. The software used was *SoundPLAN 9.0* with the ISO 9613 algorithms (ISO 17534-3 improved method) selected, as they include the influence of meteorological conditions. Input data required in the model are listed below and discussed in *Section 3.1* to *Section 3.4*:

- Meteorological Information;
- Topographical data;
- Ground Absorption; and
- Source sound power levels.

3.1. Meteorological Conditions

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

Table 3-1: Modelling Meteorological Conditions

Parameter	Day (7.00am to 7.00pm)	Night (7.00pm to 7.00am)
Temperature (°C)	20	15
Humidity (%)	50	50
Wind Speed (m/s)	Up to 5	Up to 5
Wind Direction*	All	All

* The modelling package allows for all wind directions to be modelled simultaneously.

Alternatives to the above default conditions can be used where one year of weather data is available and the analysis considers the worst 2% of the day and night for the month of the year in which the worst-case weather conditions prevail (source: *Draft Guideline on Environmental Noise for Prescribed Premises*, May 2016). In most cases, the default conditions occur for more than 2% of the time and therefore must be satisfied.

3.2. Topographical Data

Topographical data was adapted from publicly available information (e.g. *Google*) in the form of spot heights and combined with the site plan.

Surrounding existing buildings were also incorporated in the noise model, as these can provide noise shielding as well as reflection paths. Single storey residential buildings are modelled with a height of 3.5 metres and commercial buildings are modelled with a height of 4.0 metres, with receivers 1.4 metres above ground. The buildings were modelled as per the *Appendix A* plans, which includes a 1.2m high parapet on the roof of the building. 2.1m high fencing atop new retaining walls on the south and west boundaries is included.

The plant deck is also modelled with the proposed 1.0m solid *Colorbond* screening on the south rail, which further mitigates plant noise.

Figure 3-1 shows a 2D overview of the noise model with the location of all relevant receivers identified.

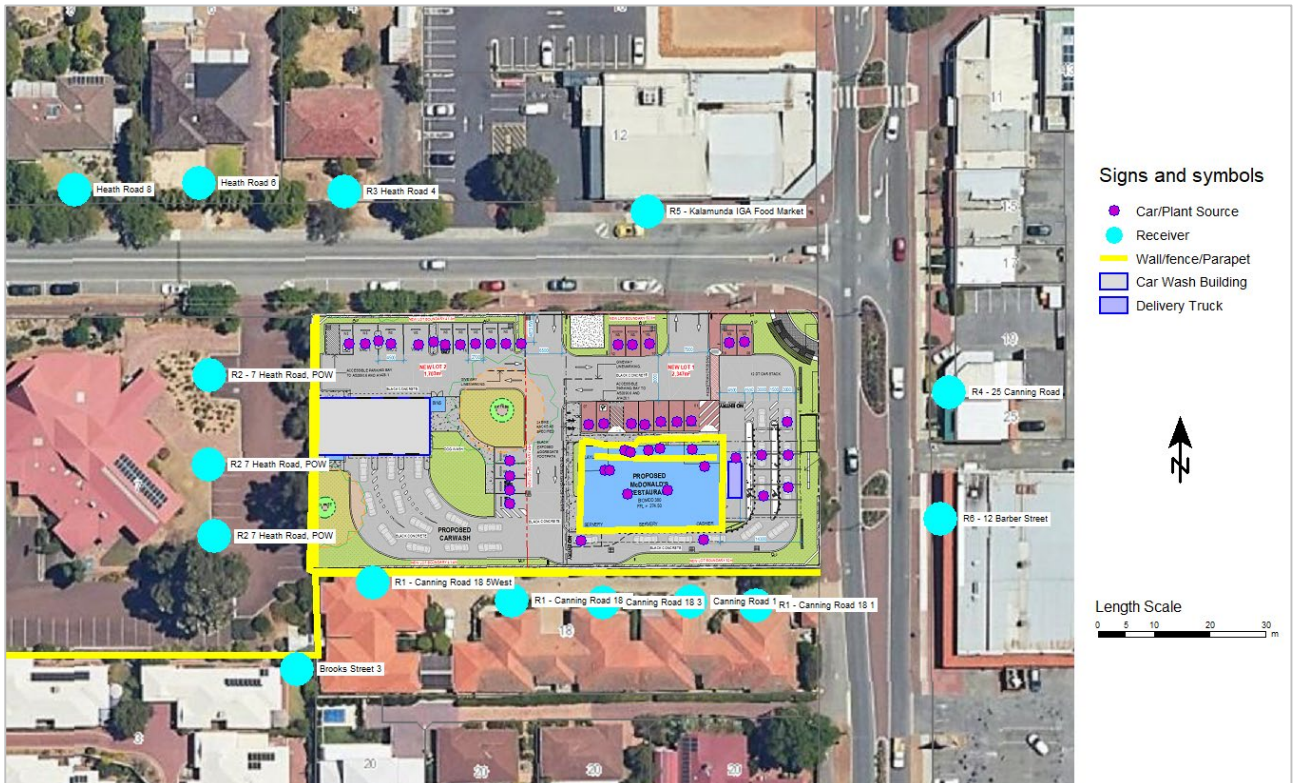


Figure 3-1: Overview of Noise Model

3.3. Ground Absorption

The ground absorption has been assumed to be 0.1 (10%) for the roads and 0.5 (50%) elsewhere, noting that 0.0 represents hard reflective surfaces such as water and 1.0 represents absorptive surfaces such as grass.

3.4. Source Sound Levels

The source sound power levels used in the modelling are provided in Table 3-2.

Table 3-2: Source Sound Power Levels, dB

Description	Octave Band Centre Frequency (Hz)								Overall dB(A)
	63	125	250	500	1k	2k	4k	8k	
Condenser Package MAC90RP – L _{A10}	88	87	85	81	76	70	64	59	82
AC-1 Actron PKY960T Low Speed – L _{A10}	-	84	78	75	73	69	60	54	78
AC-1 Actron PKY960T High Speed – L _{A10}	-	89	83	80	78	74	64	60	83
AC-2&3 Actron PCG340 – L _{A10}	-	75	74	73	71	67	65	60	76
AC-2&3 Actron PCG340 High Speed – L _{A10}	-	78	78	77	75	71	69	64	80
AC-4 Actron PCA233U Low Speed – L _{A10}	-	71	71	70	67	62	61	56	69
AC-4 Actron PCA233U High Speed – L _{A10}	-	76	75	74	71	66	65	60	71
Fan 1 Fantech TCE354, Toilet – L _{A10}	80	78	74	71	62	64	63	53	73
Fan 2&3 Fantech CGD354, Fry/fillet EF – L _{A10}	80	78	74	71	62	64	63	53	73
Fan 4 Fantech CGD404, Grille EF – L _{A10}	83	81	77	74	65	67	66	56	76
Fan 5 Fantech CE192V, Wash-up EF – L _{A10}	78	77	68	65	60	58	56	52	68
Fan 6 Fantech CE406D, IT Room EF – L _{A10}	78	77	68	65	60	58	56	52	68
Car Idling/moving slowly, L _{A10}	81	78	74	72	74	74	67	64	79
Refrigerated Truck delivery – L _{A1}	100	91	87	88	83	81	79	75	90
Closing Car Door - L _{Amax}	71	74	77	81	80	78	72	61	84
Auto wash bay Entry/exit R _w 20 door -L _{A10}	74	71	70	72	72	74	72	70	79
Auto Entry/Exit (open) - L _{A10}	85	83	85	83	80	88	85	81	92
Drive-Through Speaker – L _{A1}	62	64	66	77	80	73	57	42	82
Vacuum Silenced x3 – L _{A10}	66	63	67	72	66	69	68	67	75

The following is noted in relation to *Table 3-2*:

- Mechanical plant noise sources were based on file data and manufacturer specifications provided from previous McDonald's Restaurants. Mechanical plant is modelled at 0.5 metres above roof level.
- 7 to 14 cars idling in the drive-through were modelled as point sources located 0.5 metres above ground, depending on the calculation scenario;
- Closing car doors were modelled as point sources located 1.0 metre above ground. A small refrigerated delivery truck was modelled as a point source located 2.0 metres above ground in the loading bay.
- The car door noise is modelled as a point source, with the results showing the total sound power located in the 'worst-case' location for each receiver;

4. RESULTS & ASSESSMENT

To the west of the site is a place of worship, which is considered noise sensitive. It is noted that they advertise an 8.00am service on Sundays and therefore night time would be the critical time period, as well as Sundays during the day. Noise modelling was undertaken for the following scenarios:

- Scenario 1: L_{A10} Night Operations – Includes night (low speed) plant L_{A10} noise sources of *Table 3-2* and 7 cars idling in the drive through lanes;
- Scenario 2: L_{A10} Sunday Operations – Includes a refrigerated delivery truck in the nominated loading bay (cold deliveries) and 14 cars in the drive through lanes;
- Scenario 3: L_{A1} Operations – Includes all sources of Scenario 1, with day time (high speed) plant running and 14 cars in the drive through lanes;
- Scenario 4: L_{Amax} Car Park – Considers car door closings.

4.1. Scenario 1 - L_{A10} Night Operations

Table 4-1 provides the results for the Night time L_{A10} scenario with all mechanical plant, vacuums and car wash bays in use. *Figure 4-1* provides the noise contour plots for this L_{A10} Scenario. It should be noted that the assessment has assumed night plant L_{10} sources of noise in *Table 3-2* will be used simultaneously, which is conservative as in reality, they will be used more intermittently. Furthermore, the carwash is assumed to utilise a door at both entry and exit.

Table 4-1: Scenario 1 Predicted Levels and Assessment, dB L_{A10}

Receiver*	Mech Plant	Vacuum Units	Auto Bay	Cars Idling	Total	Night Assigned Noise Level	Assessment
R1 – 18 Canning Road	26	14	39	33	39	40	Complies
R2 – 7 Heath Road	22	25	37	28	38	40	Complies
R3 – 4 Heath Road	26	31	39	32	40	40	Complies
R4 – 25 Canning Road (Commercial)	29	21	32	42	43	60	Complies
R5 – 12 Canning Road (IGA)	29	26	38	36	41	60	Complies
R6 – 12 Barber Street (Commercial)	30	16	24	44	44	60	Complies

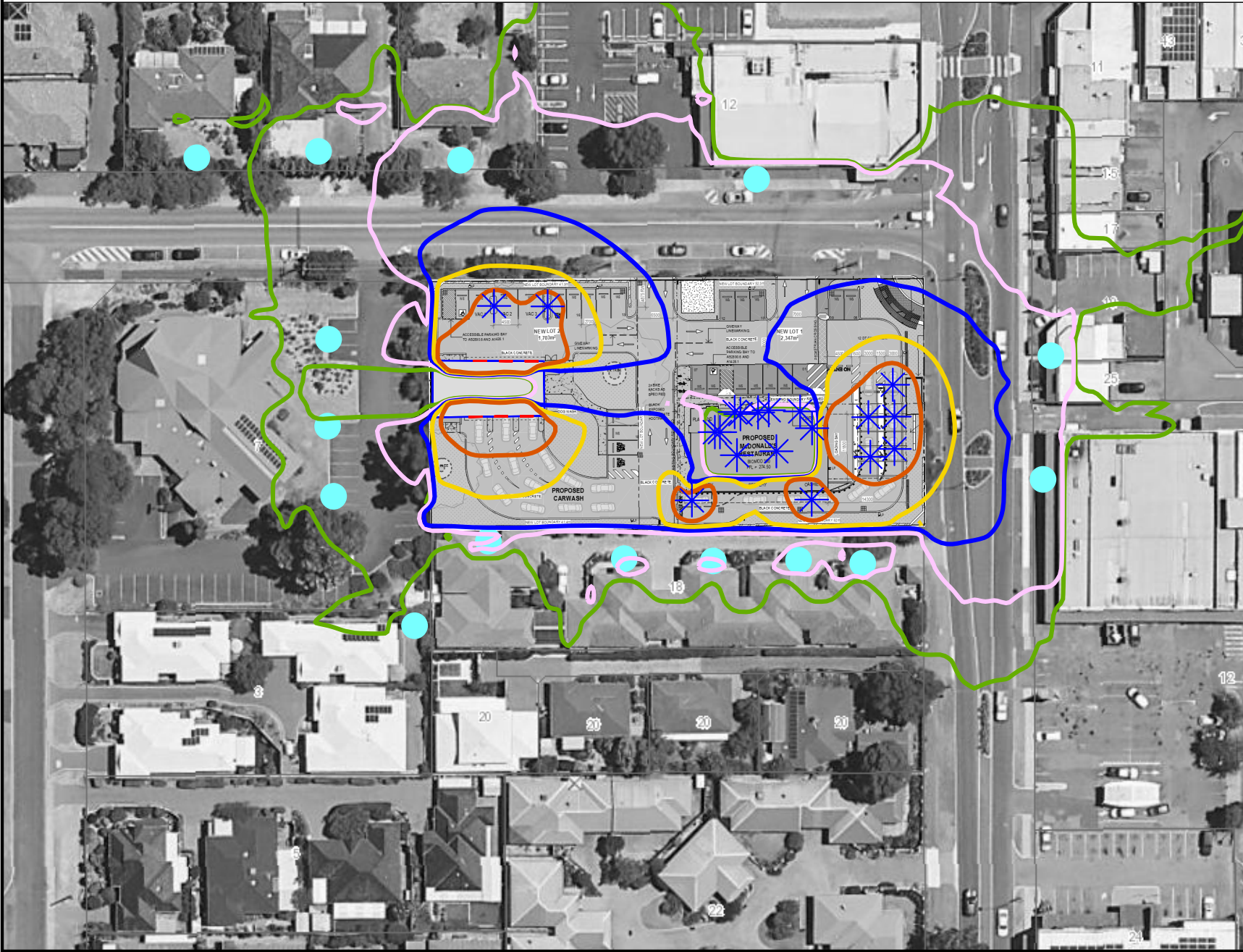
*The highest noise level from predictions at multiple receivers were used in the assessment

The most critical receiving premises are at 18 Canning Road and 4 Heath Road, both complying with night assigned levels however.

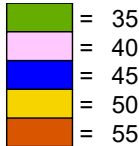
The carwash Auto bays are the dominant noise source, and given the number and range of sources assumed operating simultaneously, tonality is not considered detectable.

Figure 4-1 Scenario 1: Night Time Noise Ground Floor (1.5m AGL), dB LA10

Lots 28 (#16) & 29 (#14) Canning Road & 3 (#5) Heath Road, Kalamunda



Predicted Noise level



Legend

- Receiver
- Mech/Car Source
- Car Wash Building
- Car Wash Door



Scale 1:1000



Project No: 24059028
Consultant: MM
Date: 6/12/2024
Algorithm: ISO 9613
SoundPLAN Version: 9.0



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4.2. Scenario 2 – Sunday L_{A10} Operations

The predicted noise levels from peak car wash and drive through use during Sunday daytime are provided in *Table 4-2*. A noise contour plot is also provided in *Figure 4-2* showing noise levels at ground floor. This scenario assumes a full drive through, car wash and day time mechanical plant (higher speeds) in operation.

Table 4-2: Scenario 2 Predicted Levels and Assessment, dB L_{A10}

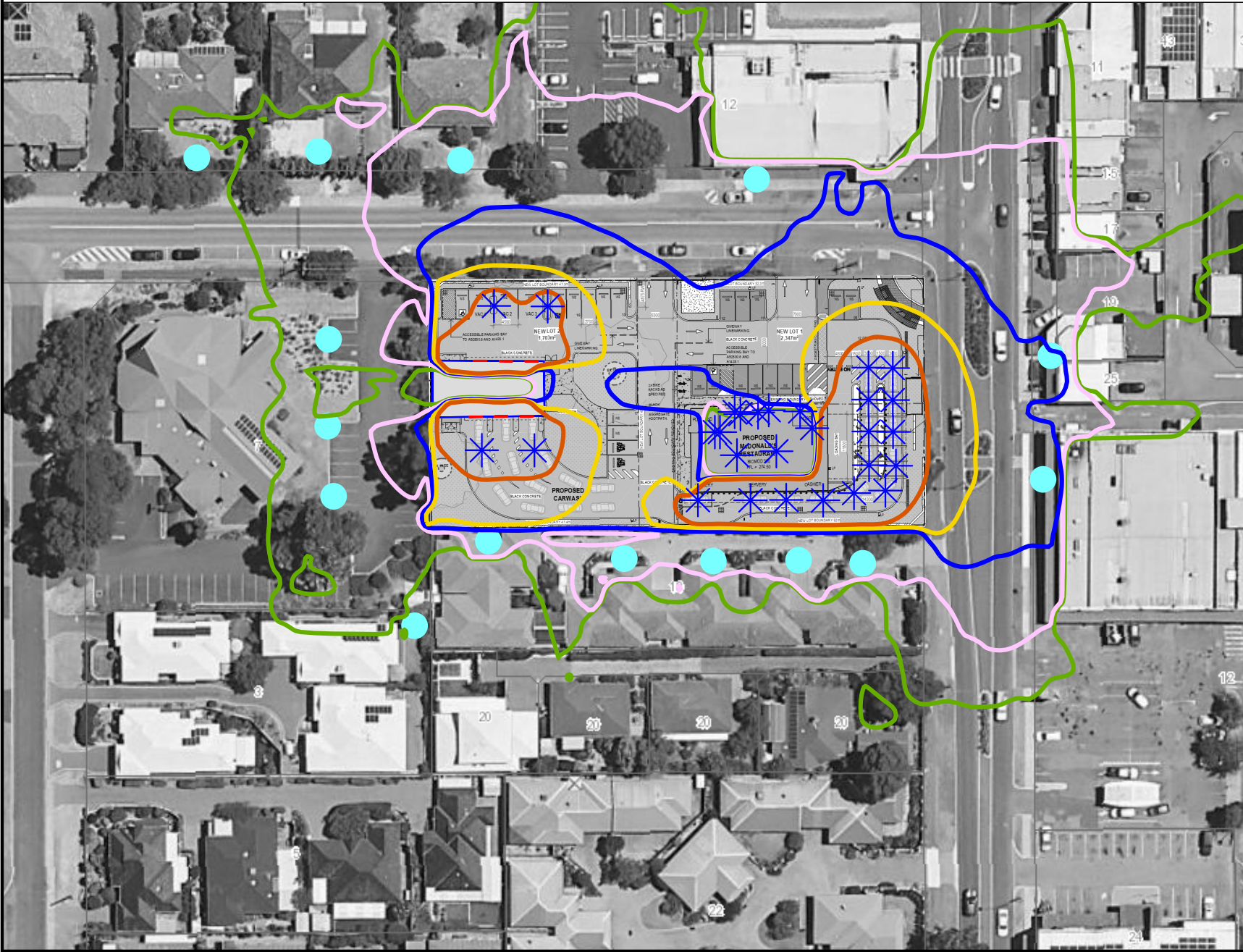
Receiver*	Mech Plant	Vacuum Units	Auto Bay	Cars Idling	Total	Sunday Assigned Noise Level	Assessment
R1 – 18 Canning Road	27	14	39	36	41	45	Complies
R2 – 7 Heath Road	28	20	38	31	39	45	Complies
R3 – 4 Heath Road	29	31	41	34	43	45	Complies
R4 – 25 Canning Road (Commercial)	30	21	32	44	44	60	Complies
R5 – 12 Canning Road (IGA)	30	26	38	38	41	60	Complies
R6 – 12 Barber Street (Commercial)	31	16	24	47	47	60	Complies

*The highest noise level from predictions at multiple receivers were used in the assessment

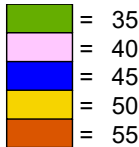
Compliance at all receivers is predicted on Sundays when operations are considered to be at peak capacity for both the restaurant and car wash.

Figure 4-2 Scenario 2: Sunday Noise Ground Floor (1.5m AGL), dB LA10

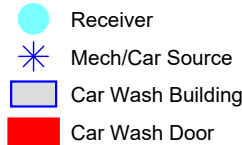
Lots 28 (#16) & 29 (#14) Canning Road & 3 (#5) Heath Road, Kalamunda



Predicted Noise level



Legend



Scale 1:1000



Project No: 24059028
Consultant: MM
Date: 6/12/2024
Algorithm: ISO 9613
SoundPLAN Version: 9.0



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4.3. Scenario 3 – Night L_{A1} Operations

The results for the night time L_{A1} scenario which includes delivery trucks, drive through speakers and full capacity drive through, are provided in *Table 4-3*. A noise contour plot is also provided in *Figure 4-3* showing noise levels at ground floor.

Table 4-3: Scenario 3 Predicted Levels and Assessment, dB L_{A1}

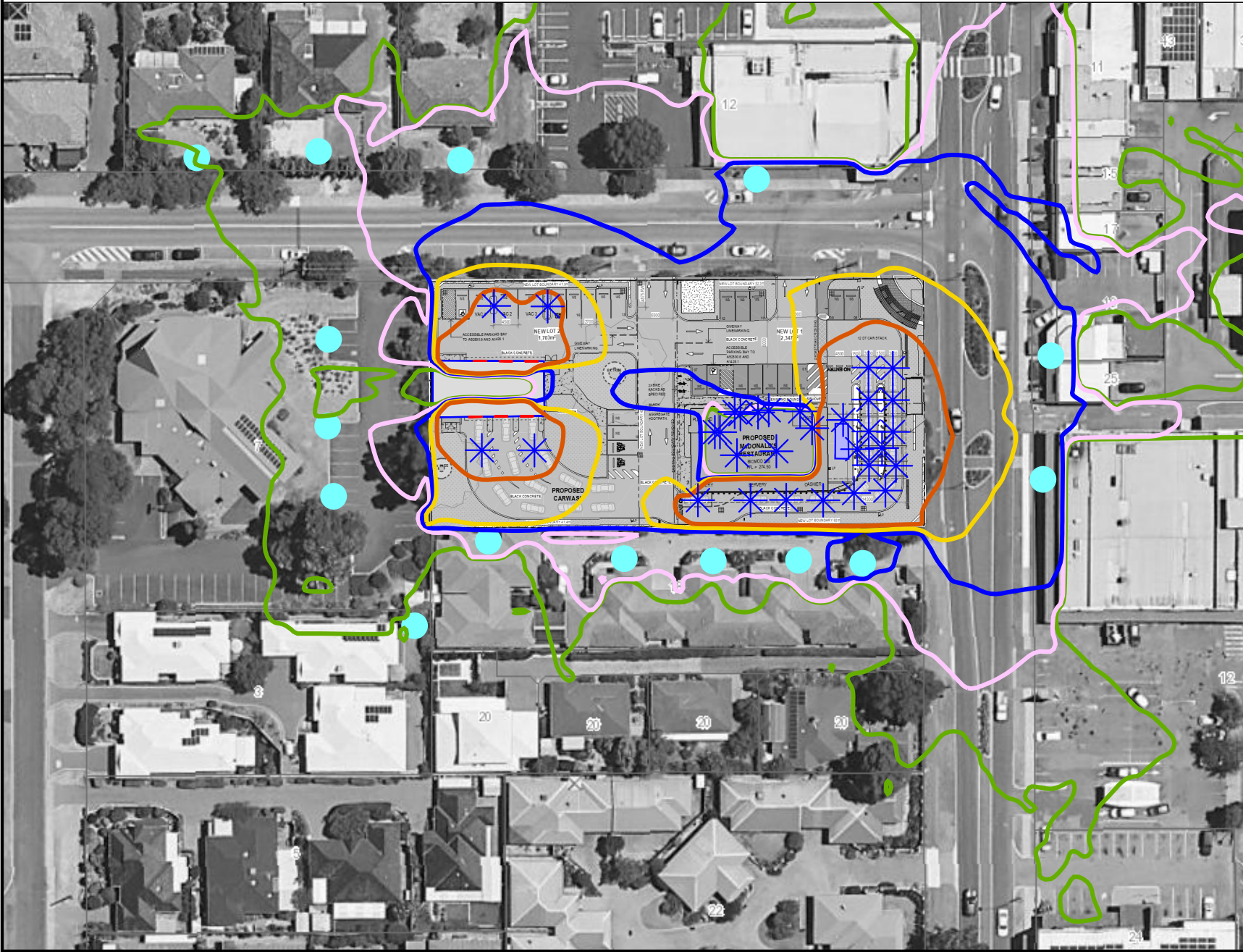
Receiver*	Mech Plant	Carwash Doors and Plant	Delivery Truck	Drive Thru Speaker	Cars Idling	Total	Night Assigned Noise Level	Assessment
R1 – 18 Canning Road	32	29	44	28	41	46	50	<i>Complies</i>
R2 – 7 Heath Road	27	38	16	12	32	39	50	<i>Complies</i>
R3 – 4 Heath Road	22	42	30	18	34	43	50	<i>Complies</i>
R4 – 25 Canning Road (Commercial)	29	32	45	32	44	48	60	<i>Complies</i>
R5 – 12 Canning Road (IGA)	29	38	41	18	38	44	60	<i>Complies</i>
R6 – 12 Barber Street (Commercial)	30	25	41	39	47	48	60	<i>Complies</i>

*The highest noise level from predictions at multiple receivers were used in the assessment

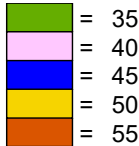
Noise levels from the night operations including deliveries are predicted to comply at all nearby receivers.

Figure 4-3 Scenario 3: Night Noise Ground Floor (1.5m AGL), dB LA1

Lots 28 (#16) & 29 (#14) Canning Road & 3 (#5) Heath Road, Kalamunda



Predicted Noise level



Legend

- Receiver
- Mech/Car Source
- Car Wash Building
- Car Wash Door
- Delivery Truck



Scale 1:1000



Project No: 24059028
Consultant: MM
Date: 6/12/2024
Algorithm: ISO 9613
SoundPLAN Version: 9.0



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4.4. Scenario 4 – Night L_{Amax} Car park noise

The results for the night time L_{Amax} scenario (car doors) are provided in *Table 4-4*. A noise contour plot (non-cumulative) is also provided in *Figure 4-4* showing noise levels at ground floor. Car door closing noise levels are adjusted by + 10 dB for impulsiveness and assessed against the night time L_{Amax} assigned level.

Table 4-4: Scenario 4 Predicted Levels and Assessment, dB L_{Amax}

Receiver*	Car Doors [#]	Night Assigned Noise Level	Assessment
R1 – 18 Canning Road	49	60	Complies
R2 – 7 Heath Road	47	60	Complies
R3 – 4 Heath Road	54	60	Complies
R4 – 25 Canning Road (Commercial)	50	80	Complies
R5 – 12 Canning Road (IGA)	55	80	Complies
R6 – 12 Barber Street (Commercial)	48	80	Complies

*The highest noise level from predictions at multiple receivers were used in the assessment

[#] Adjusted by + 10 dB for impulsiveness when a car door is highest

Noise levels from the car doors are predicted to comply at all nearby receivers.

Figure 4-4 Scenario 4: Car Door Noise Ground Floor (1.5m AGL), dB L_{Amax}

Lots 28 (#16) & 29 (#14) Canning Road & 3 (#5) Heath Road, Kalamunda



Predicted Noise level

- = 45
- = 50
- = 55
- = 60
- = 65

Legend

- Receiver
- Car Door Source
- Car Wash Building
- Car Wash Door
- Delivery Truck



Scale 1:1000



Project No: 24059028
Consultant: MM
Date: 6/12/2024
Algorithm: ISO 9613
SoundPLAN Version: 9.0



Lloyd George Acoustics
PO Box 717
HILLARYS WA 6923
(08) 9401 7770

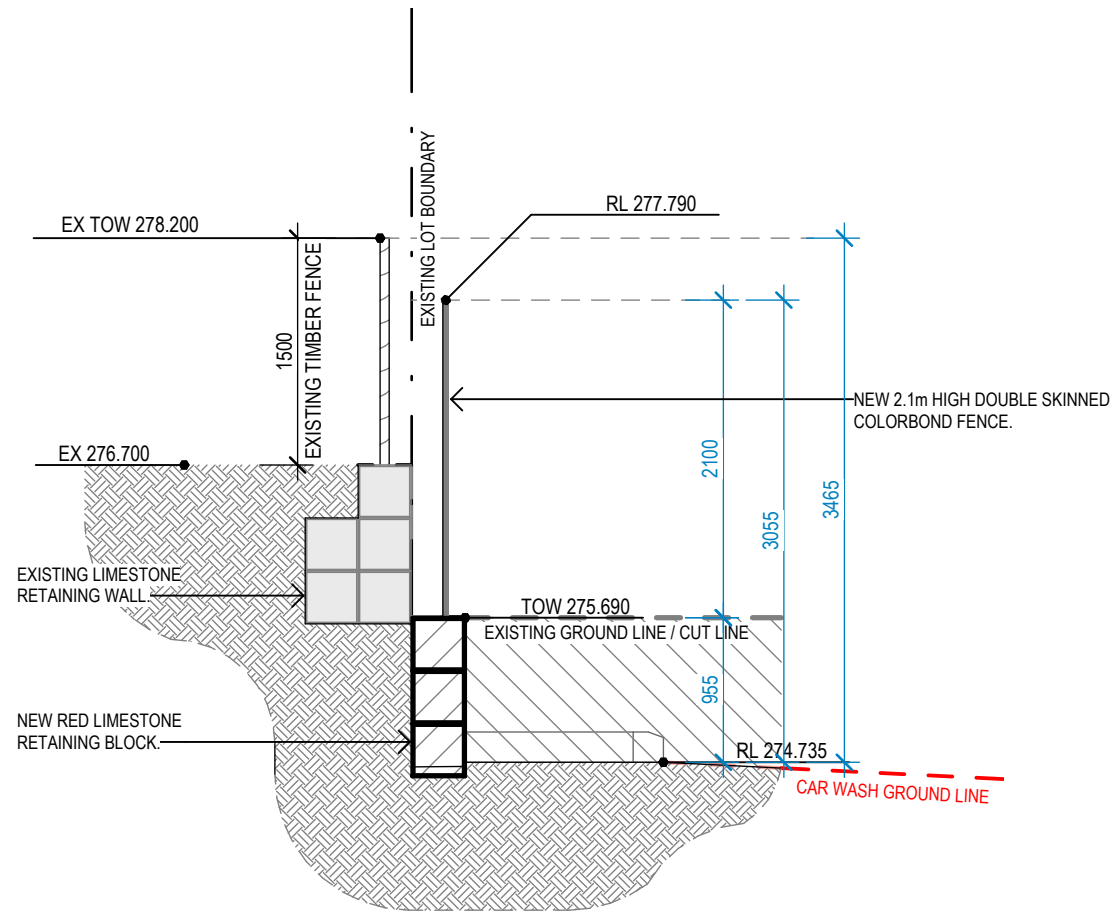
5. CONCLUSION

The assessment has demonstrated that noise from the proposed restaurant and carwash is expected to comply with assigned levels at neighbouring premises, as determined in accordance with the *Environmental Protection (Noise) Regulations 1997*.

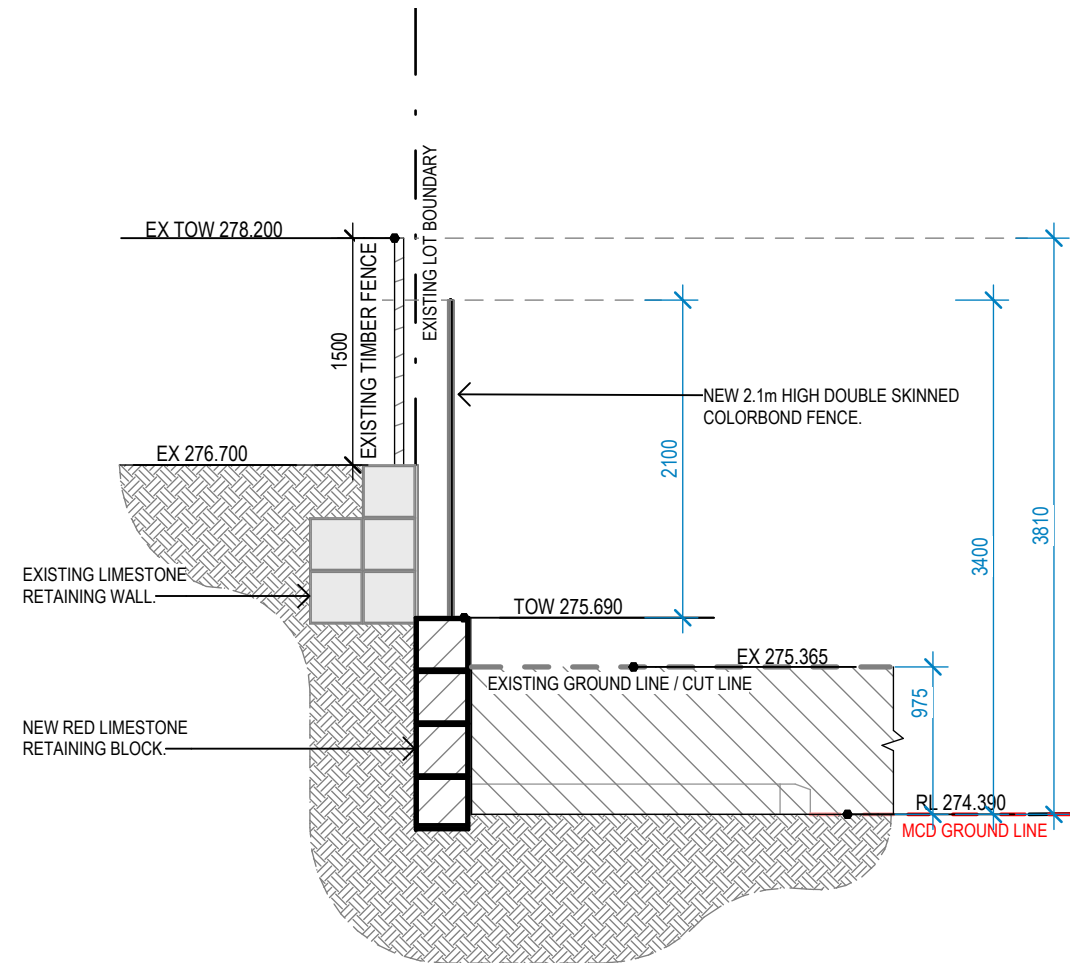
Reviewing the DA designs, and incorporating into the noise modelling and assessment, the following noise mitigation measures were shown to achieve compliance at all nearby receivers:

- 1-metre high solid screening (*colorbond*) to the rooftop condenser unit deck;
- 2.1m high double skinned (minimum surface mass of 8 kg/m²) *colorbond* fencing atop new retaining walls on the south and west boundaries; and
- Auto wash bays to be fitted with automated RL3000 doors with 2.5mm PVC panels, at entry and exit achieving acoustic performances of R_w 20 dB or greater.

Appendix A – Development Plans



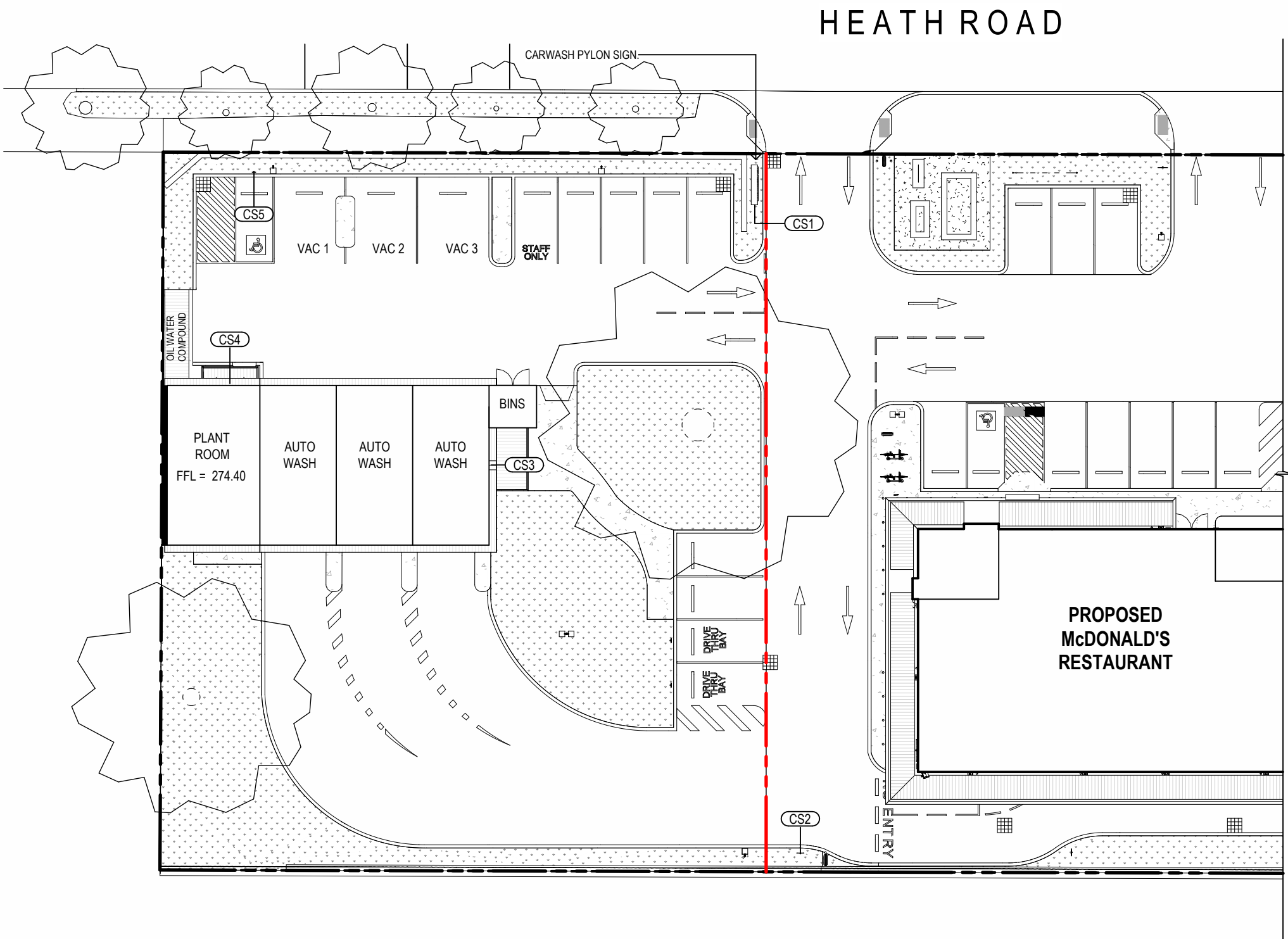
1 SECTION 1 - CARWASH
DA03 1 : 50



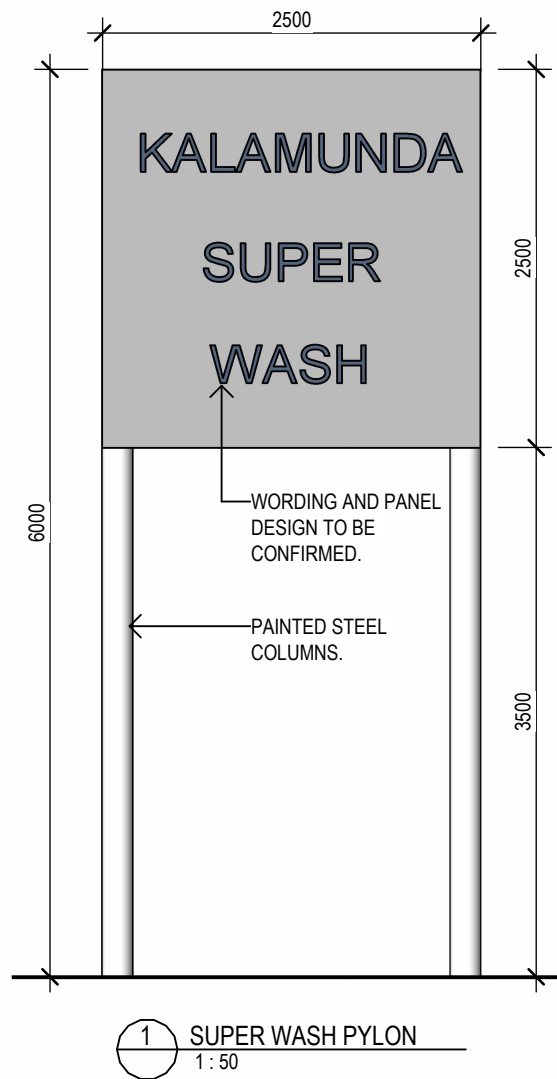
2 SECTION 2 - McDONALD'S
DA03 1 : 50

Revisions	General Notes	Drawing Notes
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Client	Architect	Project	Scale
McDonald's Australia Limited ABN: 43 008 496 928 02 9875 6666 Project Manager	Hindley and Associates Pty Ltd Building Designers Unit 4/166 Stirling Highway Nedlands WA 6009 PO Box 199 Nedlands WA 6909 08 9386 6699 www.hindley.com.au	McDONALDS STANDARD DOCUMENTS Location LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA	1 : 50 @ A3
DEVELOPMENT APPLICATION			
RETAINING WALL SECTIONS			
Project Number	Drawing Number	Issue	
0882	DA04	0	



SIGNAGE SCHEDULE		
Tag	Description	Illuminated
CS1	Carwash Pylon Sign	Yes
CS2	Directional Sign	Yes
CS3	Superwash Wall Sign	Yes
CS4	Superwash Wall Sign	Yes
CS5	Accessible Parking Sign	No



Revisions		General Notes		Drawing Notes
0	DA ISSUE	DEC 2024	AJJ NR	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/manufacturer. 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.
	Issue Description	Date	Chk Int	

North

Client

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Project

McDONALDS STANDARD DOCUMENTS

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

As indicated @ A3

Drawing

CARWASH SITE SIGNAGE PLAN

Project Number

0882

Drawing Number

DA07

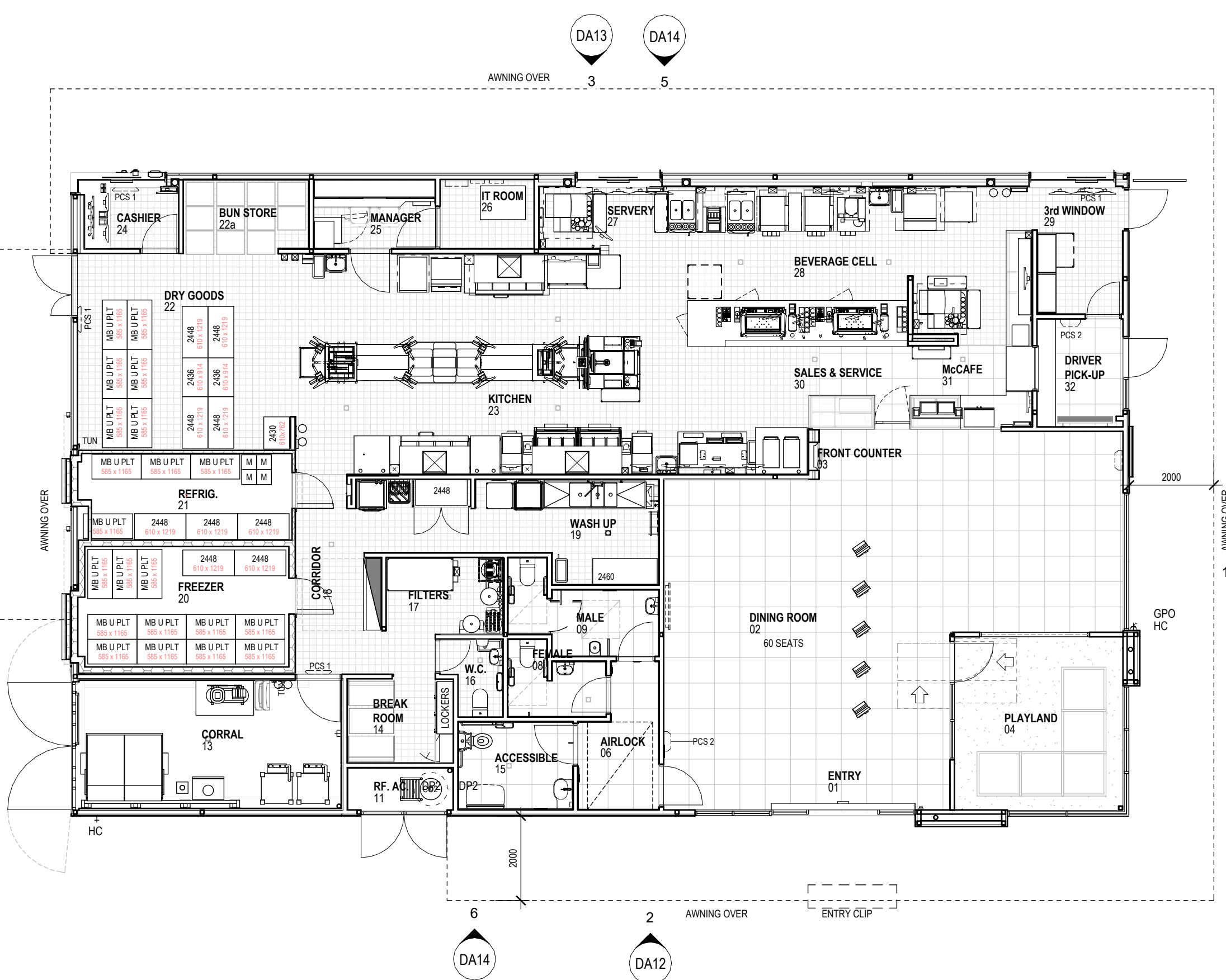
Issue

0

DA15 7

DA13 4

REFER DA09 FOR CANOPY
ROOF AND TIMBER POSTS.



DA12 1

Revisions

0	DA ISSUE
Issue	Description

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/manufacturer. 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.

Drawing Notes

North

Client

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Project

NEW McDONALDS RESTAURANT

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND
LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

1:100 @ A3

Drawing

FLOORPLAN

Project Number

0882

Drawing Number

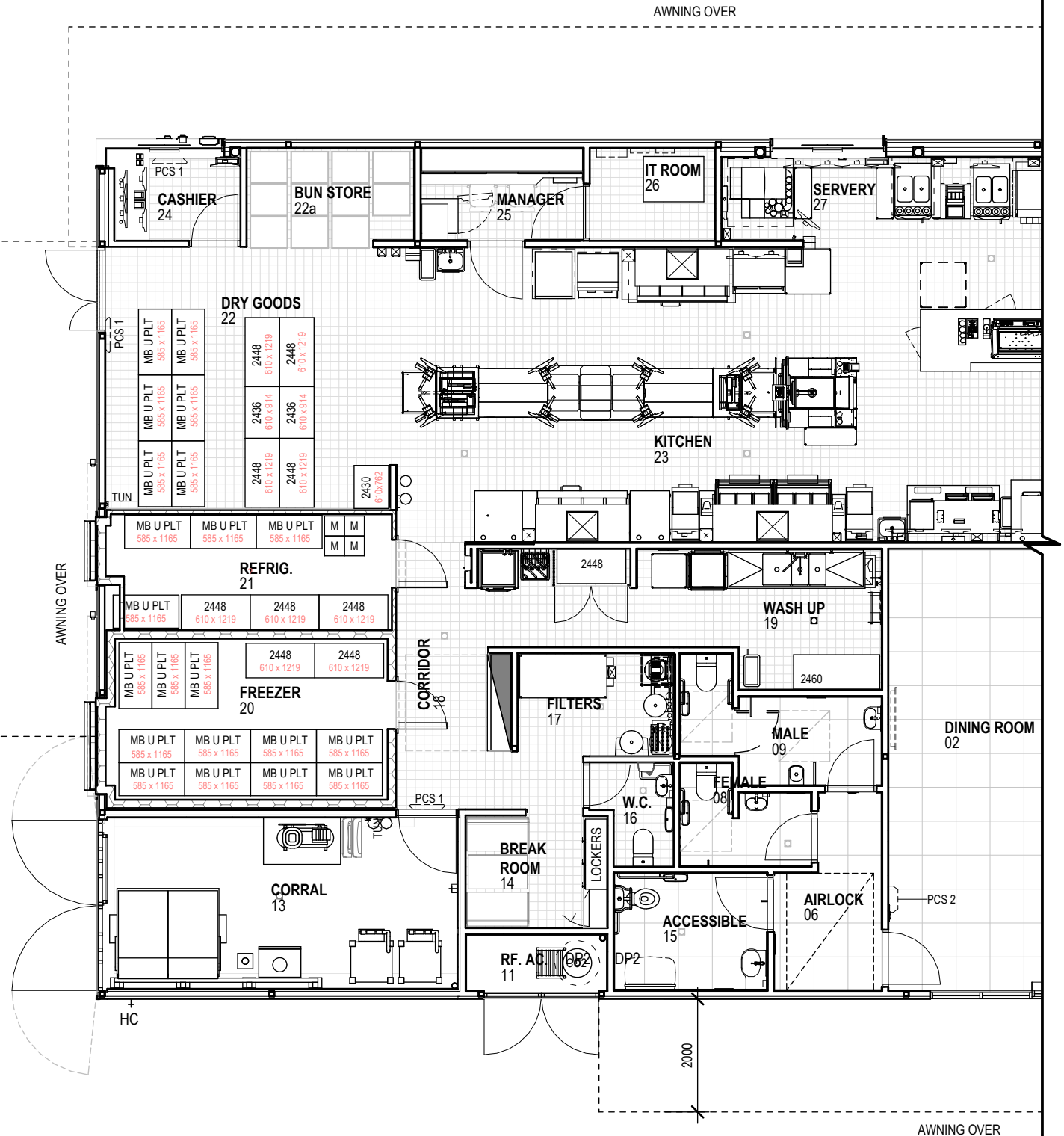
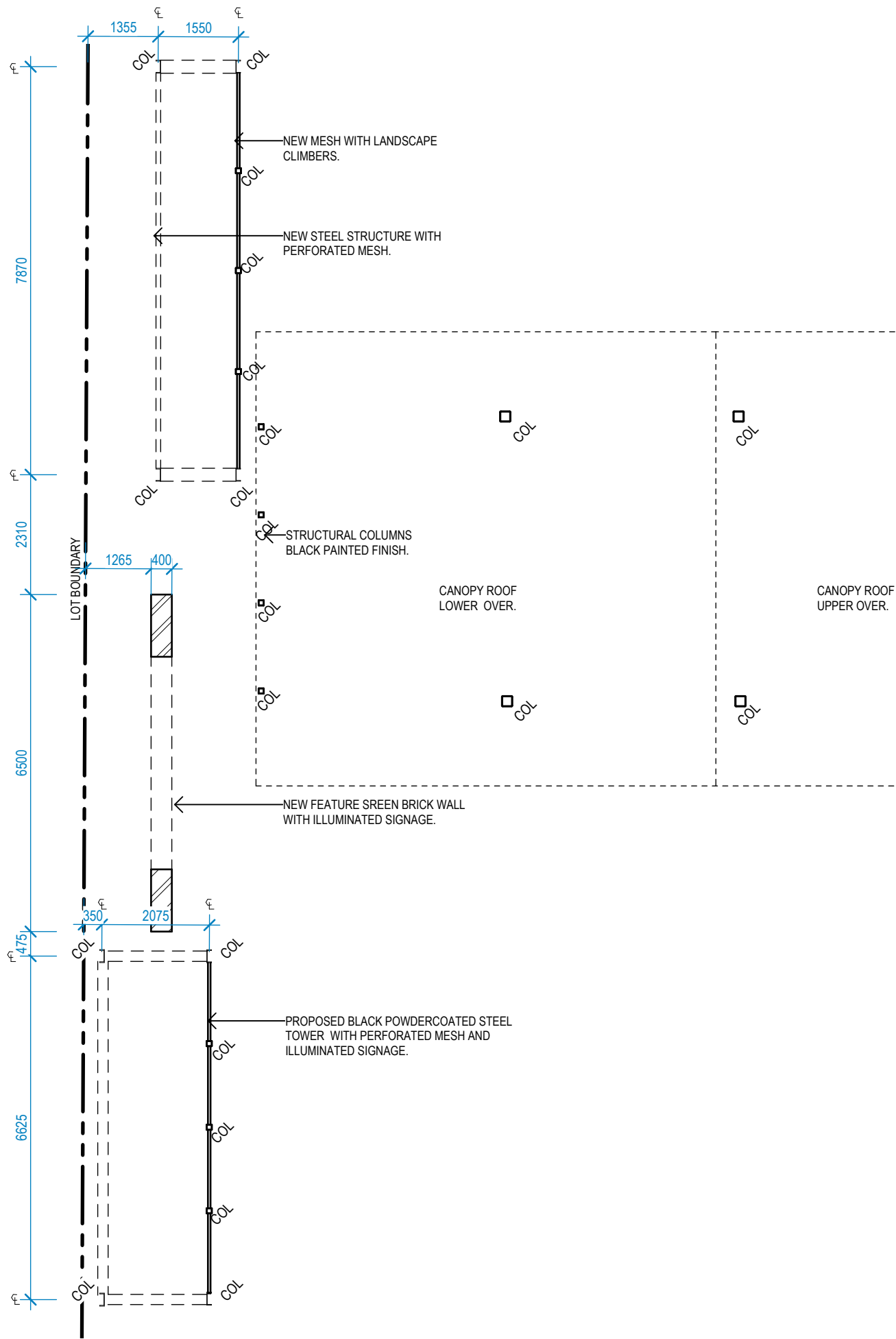
DA08

Issue

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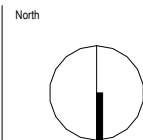
DEVELOPMENT APPLICATION

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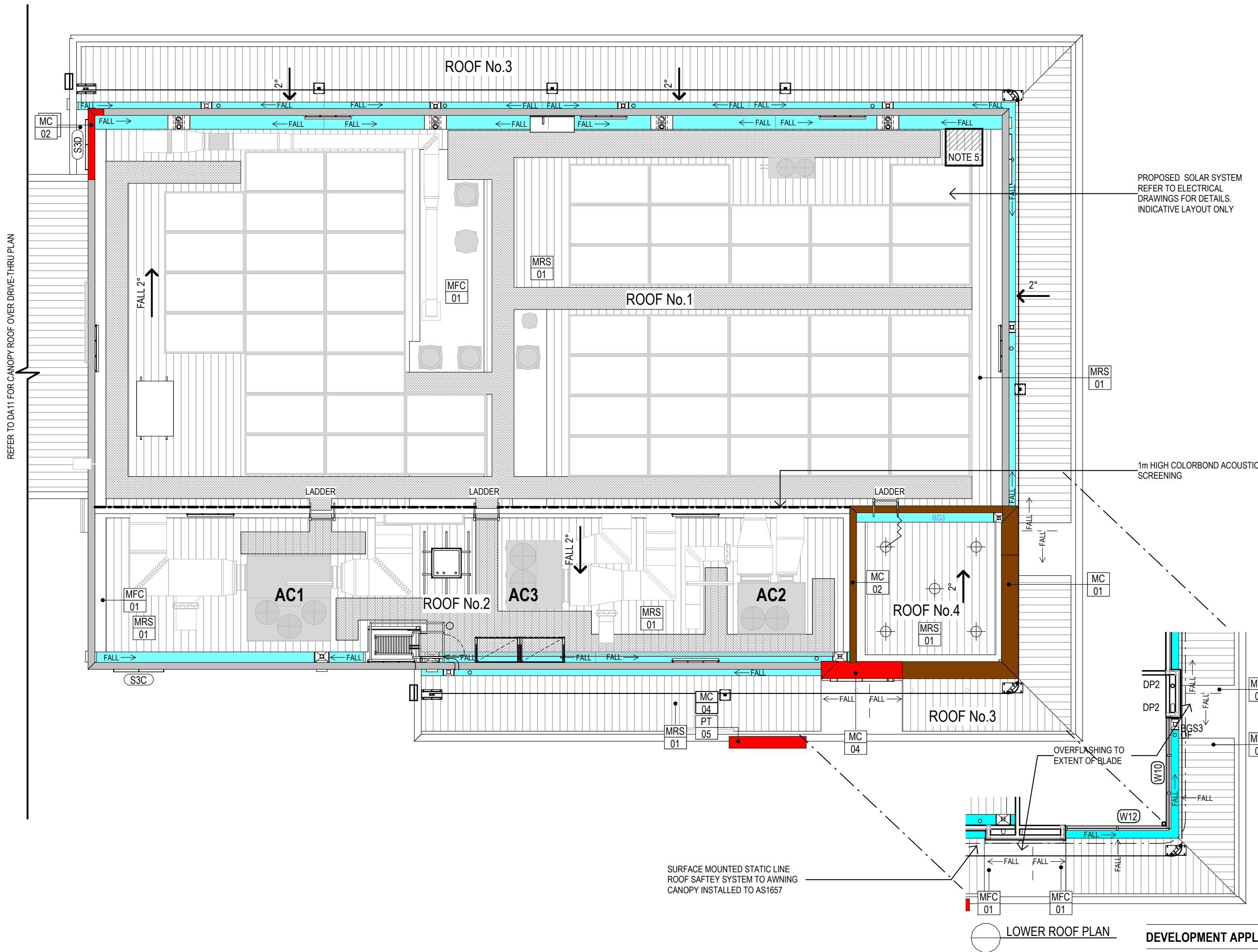
DEVELOPMENT APPLICATION

Revisions	General Notes	Drawing Notes
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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/manufacturer. 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.		



Client	Project
McDonald's Australia Limited ABN: 43 008 496 928 02 9875 6666	NEW McDONALDS RESTAURANT
Project Manager	Location
NATIONAL DEVELOPMENT GROUP	LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale	1 : 100 @ A3
Drawing	FLOORPLAN
Project Number	0882
Drawing Number	DA09
Issue	0



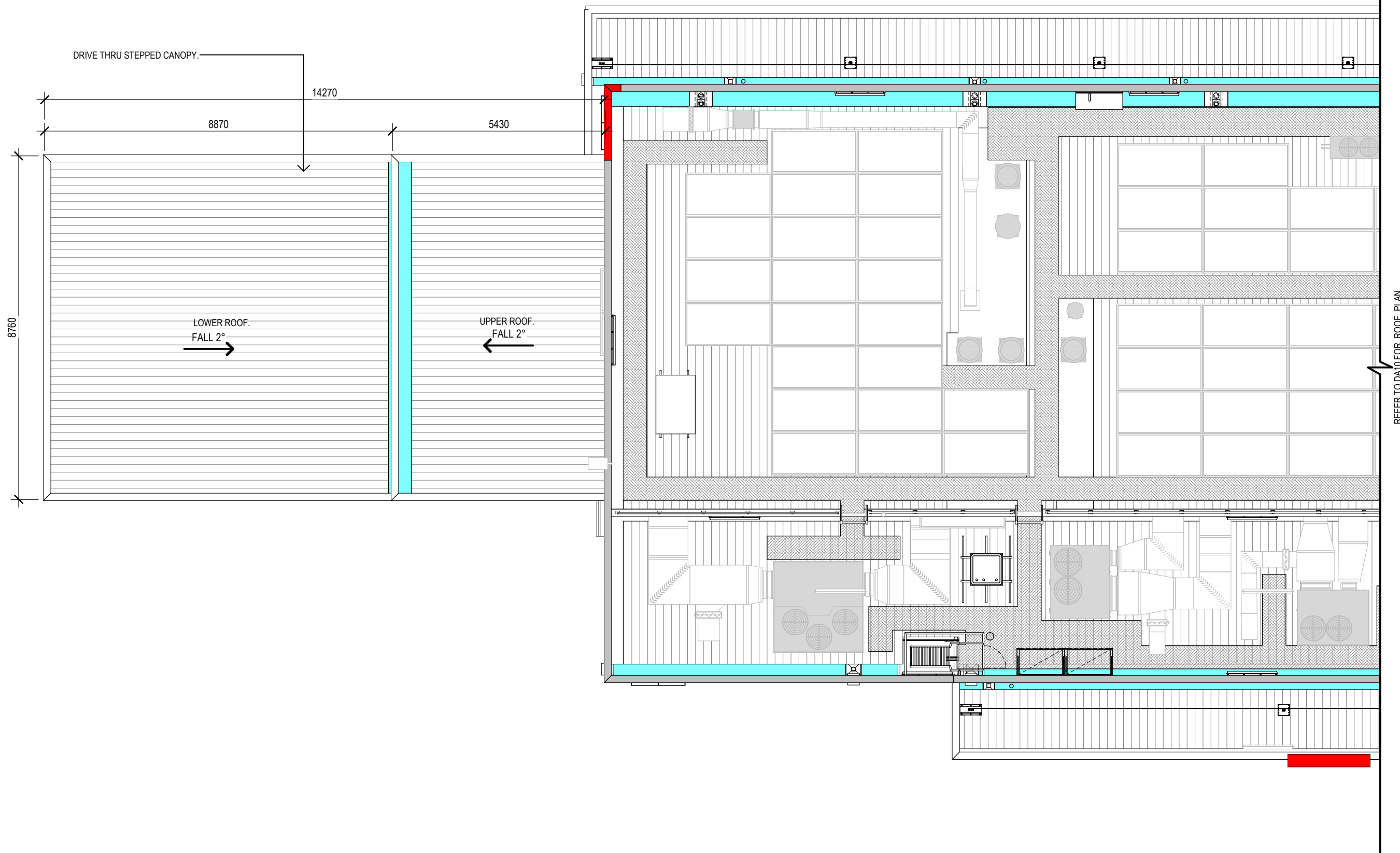
PROPOSED SOLAR SYSTEM
REFER TO ELECTRICAL
DRAWINGS FOR DETAILS.
INDICATIVE LAYOUT ONLY

1m HIGH COLORBOND ACOUSTIC
SCREENING

SURFACE MOUNTED STATIC LINE
ROOF SAFETY SYSTEM TO AWNING
CANOPY INSTALLED TO AS1657

LOWER ROOF PLAN

DEVELOPMENT APPLICATION



REFER TO DA10 FOR ROOF PLAN

Revisions		General Notes		Drawing Notes	
0	DA ISSUE	DEC 2024	AJJ NR		
Issue Description		Date	Chk Int	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/manufacturer. 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.	

North

Client

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Project

NEW McDONALDS RESTAURANT

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

1 : 100 @ A3

Drawing

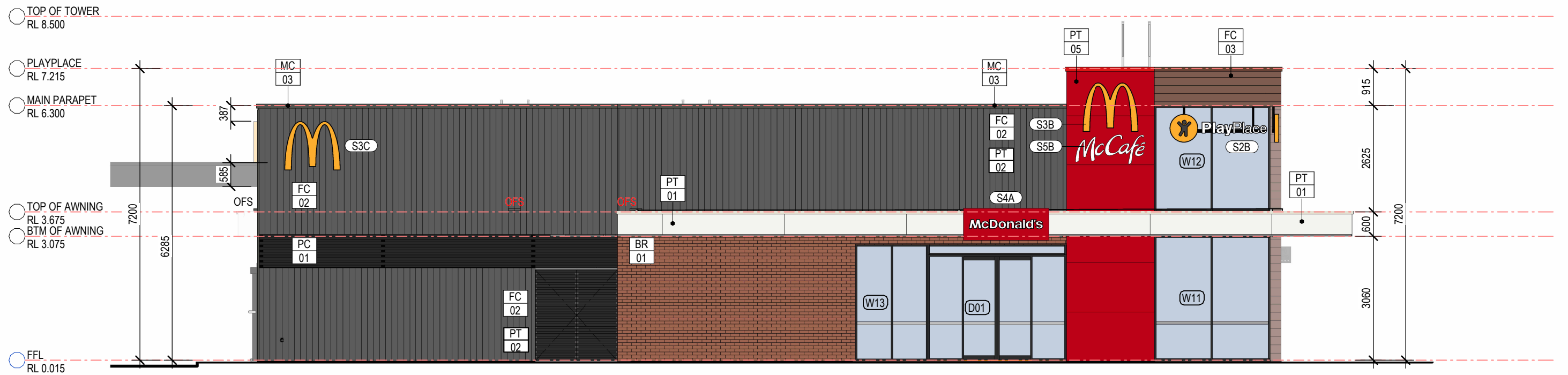
CANOPY ROOF PLAN - DRIVETHRU

Project Number	Drawing Number	Issue
0882	DA11	0

DEVELOPMENT APPLICATION



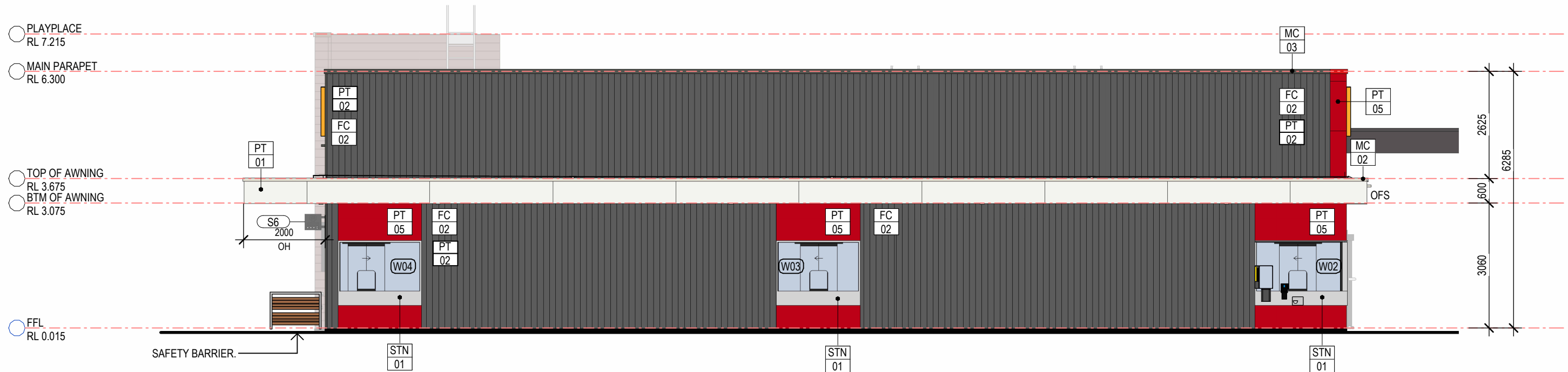
1 FRONT ELEVATION
1:100



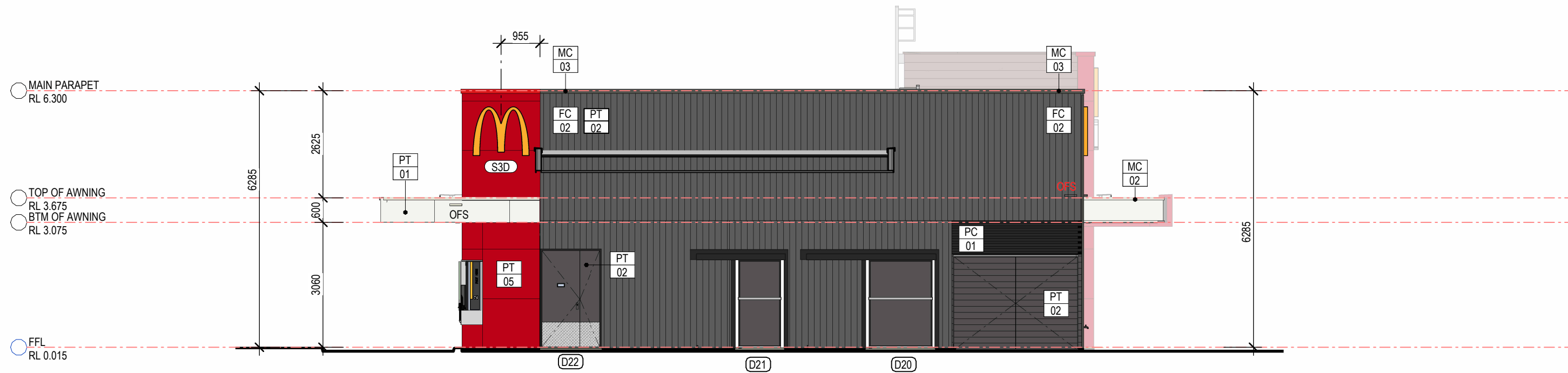
2 SIDE ELEVATION
1:100

Revisions				General Notes				Drawing 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/manufacturer. 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.							
0	DA ISSUE	DEC 2024	AJJ NR								
Issue	Description	Date	Chk Int								

Client				Architect				Project				Scale			
McDonald's Australia Limited ABN: 43 008 496 928 02 9875 6666				Hindley and Associates Pty Ltd Building Designers Unit 4/166 Stirling Highway Nedlands WA 6009 PO Box 199 Nedlands WA 6909 08 9386 6699 www.hindley.com.au				NEW McDONALDS RESTAURANT				1:100 @ A3			
Project Manager				Location				Drawing				FRONT & SIDE BUILDING ELEVATIONS			
				LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA				Project Number				Drawing Number			
								0882				DA12			
								Issue				0			



3 DRIVETHRU ELEVATION
1 : 100



4 REAR ELEVATION
1 : 100

Revisions	General Notes	Drawing Notes
0 DA ISSUE	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/manufacturer. 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.	
Issue Description	Date Chk Int	

Client

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Project Manager



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Project

NEW McDONALDS RESTAURANT

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

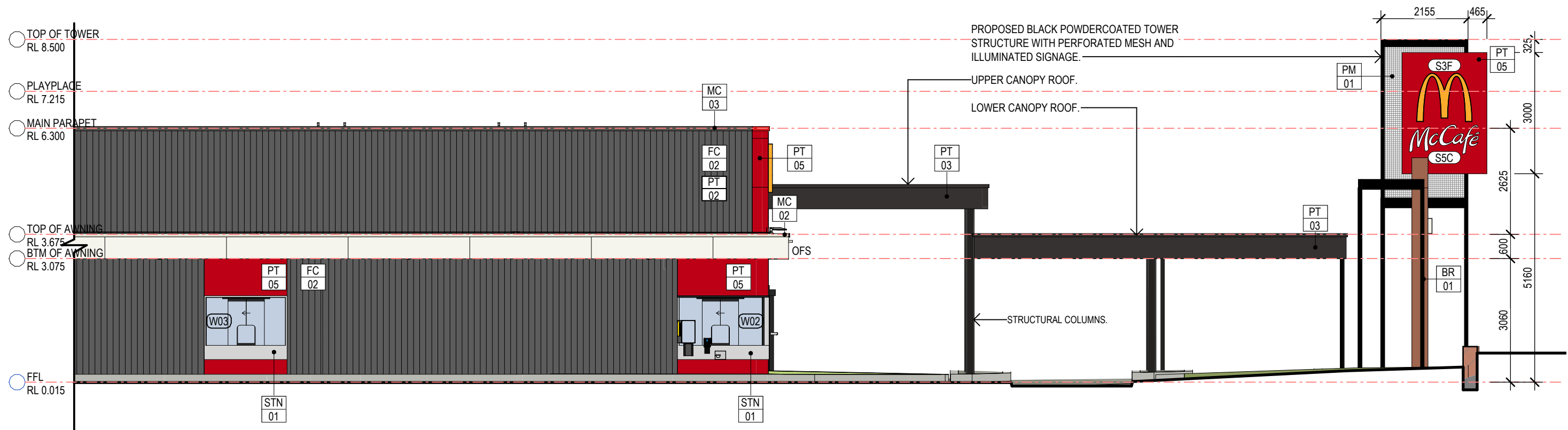
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Drawing

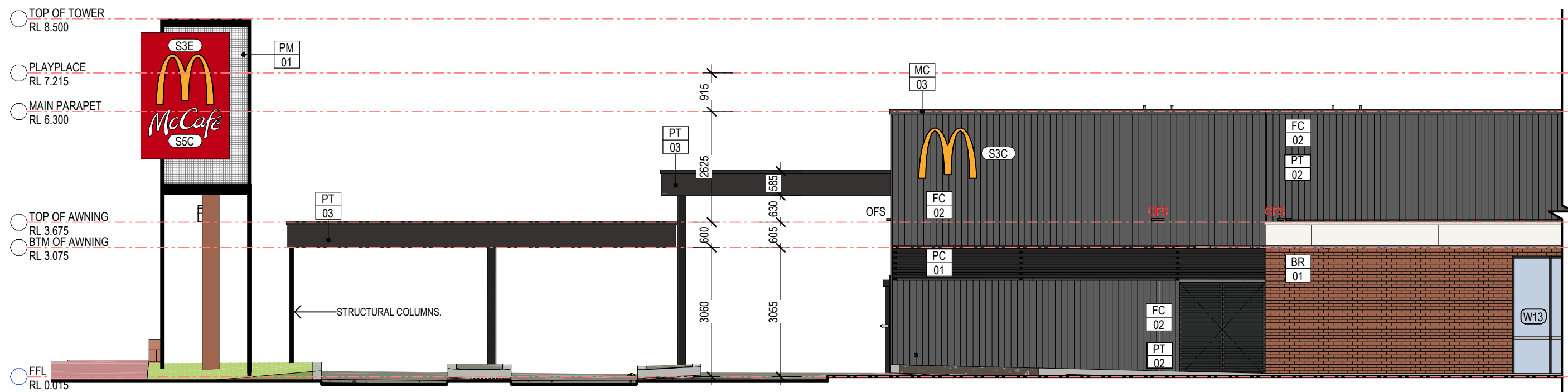
DRIVE - THRU & REAR BUILDING ELEVATIONS

Project Number Drawing Number Issue

0882 DA13 0



5 DRIVETHRU ELEVATION
1 : 100



6 SIDE SCREENING ELEVATION
1 : 100

Revisions	General Notes	Drawing Notes
0 DA ISSUE Issue Description	DEC 2024 Date	AJ Chk
	NR Int	

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Client

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Project

NEW McDONALDS RESTAURANT

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND
LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

1 : 100 @ A3

Drawing
DRIVE - THRU SCREENING BUILDING
ELEVATIONS

Project Number
0882

Drawing Number
DA14

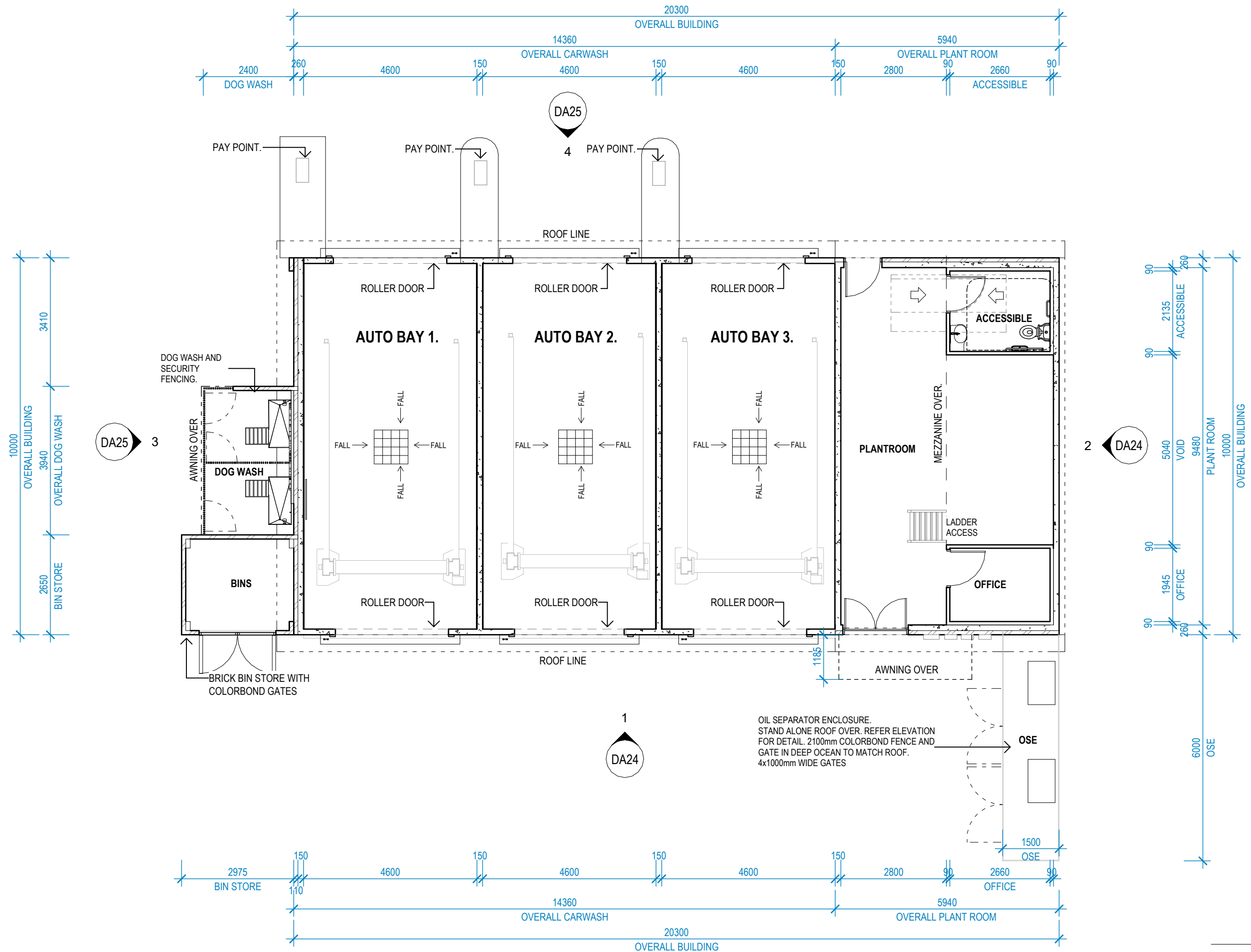
Issue
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DEVELOPMENT APPLICATION



Revisions		General Notes		Drawing Notes	
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Issue Description		Date	Chk Int		

Client		Architect		Project		Scale	
McDonald's Australia Limited ABN: 43 008 496 928 02 9875 6666		Hindley and Associates Pty Ltd Building Designers Unit 4/166 Stirling Highway Nedlands WA 6009 PO Box 199 Nedlands WA 6909 08 9386 6699 www.hindley.com.au		NEW McDONALDS RESTAURANT		1 : 100 @ A3	
Project Manager		Location		Lots 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA		Drawing DRIVE - THRU SCREENING BUILDING ELEVATIONS	
						Project Number	Drawing Number
						0882	DA15
						Issue	
						0	



Revisions				General Notes				Drawing 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/manufacturer. 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.								
0	AMENDED DA AS CLOUDED	AUGUST 2024	AJJ KT									
Issue	Description	Date	Chk	Int								

Client

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www.hindley.com.au

Project

KALAMUNDA CARWASH

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

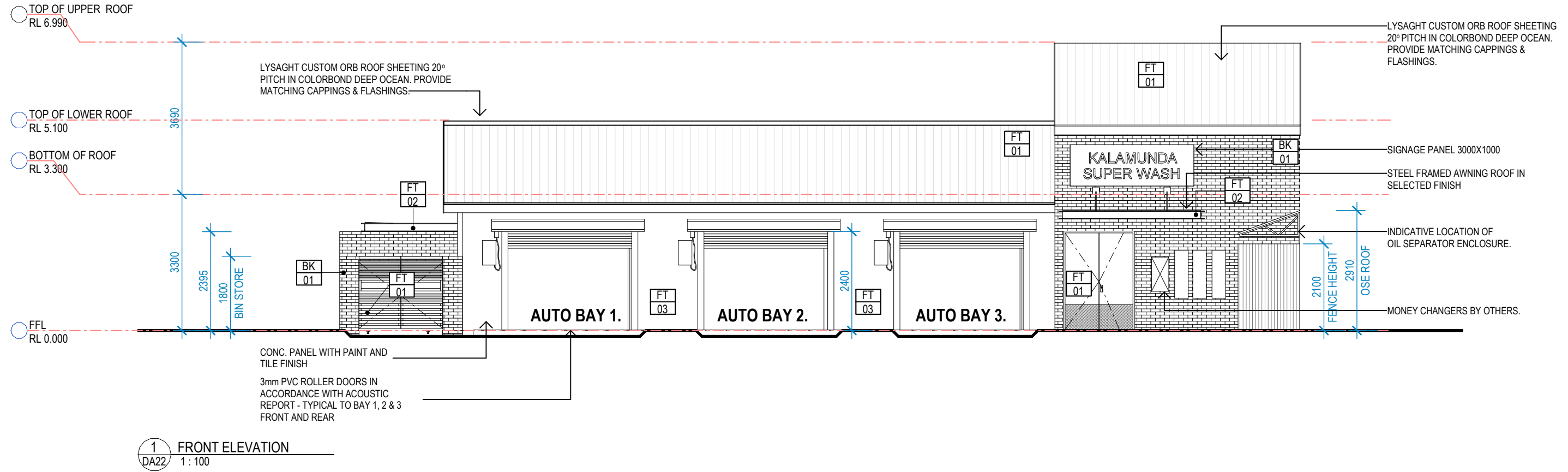
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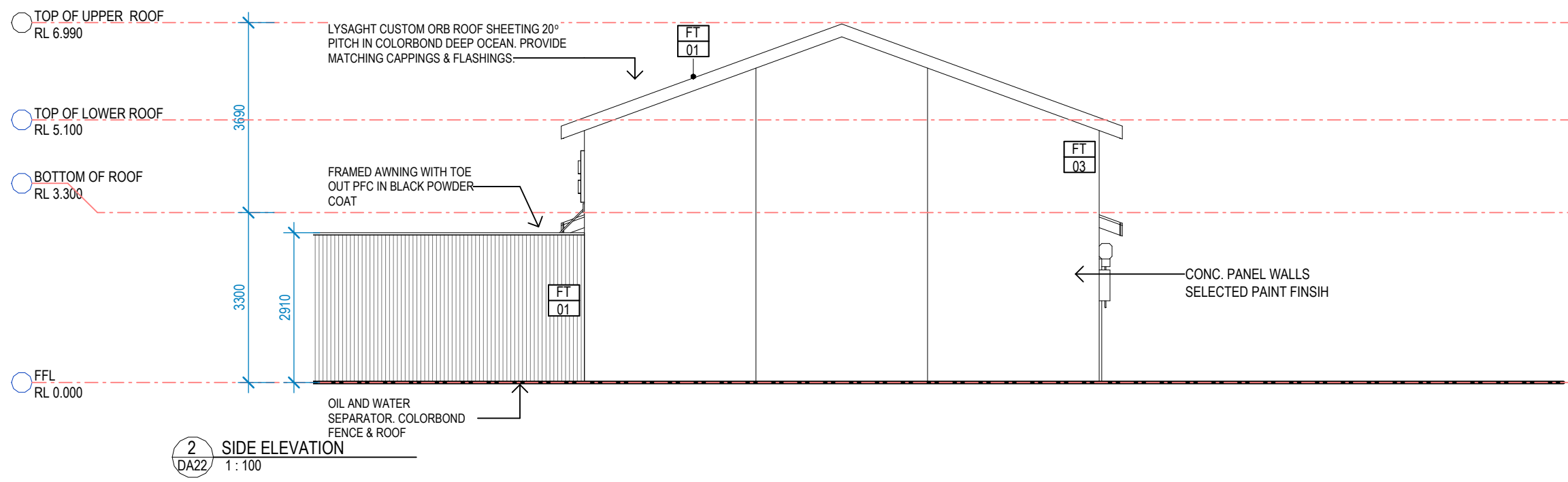
Drawing

PROPOSED FLOOR PLAN - CARWASH

Project Number	Drawing Number	Issue
0882	DA22	0

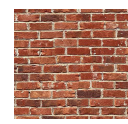


1 FRONT ELEVATION
DA22 1 : 100



2 SIDE ELEVATION
DA22 1 : 100

FINISHES SCHEDULE

	MIDLAND BRICK - COLOUR SUBIACO RED COACH BK01
	COLORBOND DEEP OCEAN FT01
	BLACK POWDER COATED STEEL FT02
	DULUX - MR FROSTY QTR FT03

DEVELOPMENT APPLICATION

Revisions	General Notes	Drawing Notes
0 AMENDED DA AS CLOUDED Date	AUGUST 2024 Date	AJJ KT Chk Int
Issue Description	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/manufacturer. 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.	

Client



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Project

KALAMUNDA CARWASH

Location

LOTS 28(16) AND 29(14) CANNING ROAD AND LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale

As indicated @ A3

Drawing

FRONT AND SIDE BUILDING ELEVATIONS

Project Number

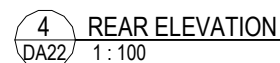
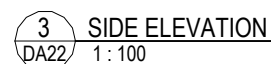
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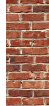
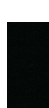
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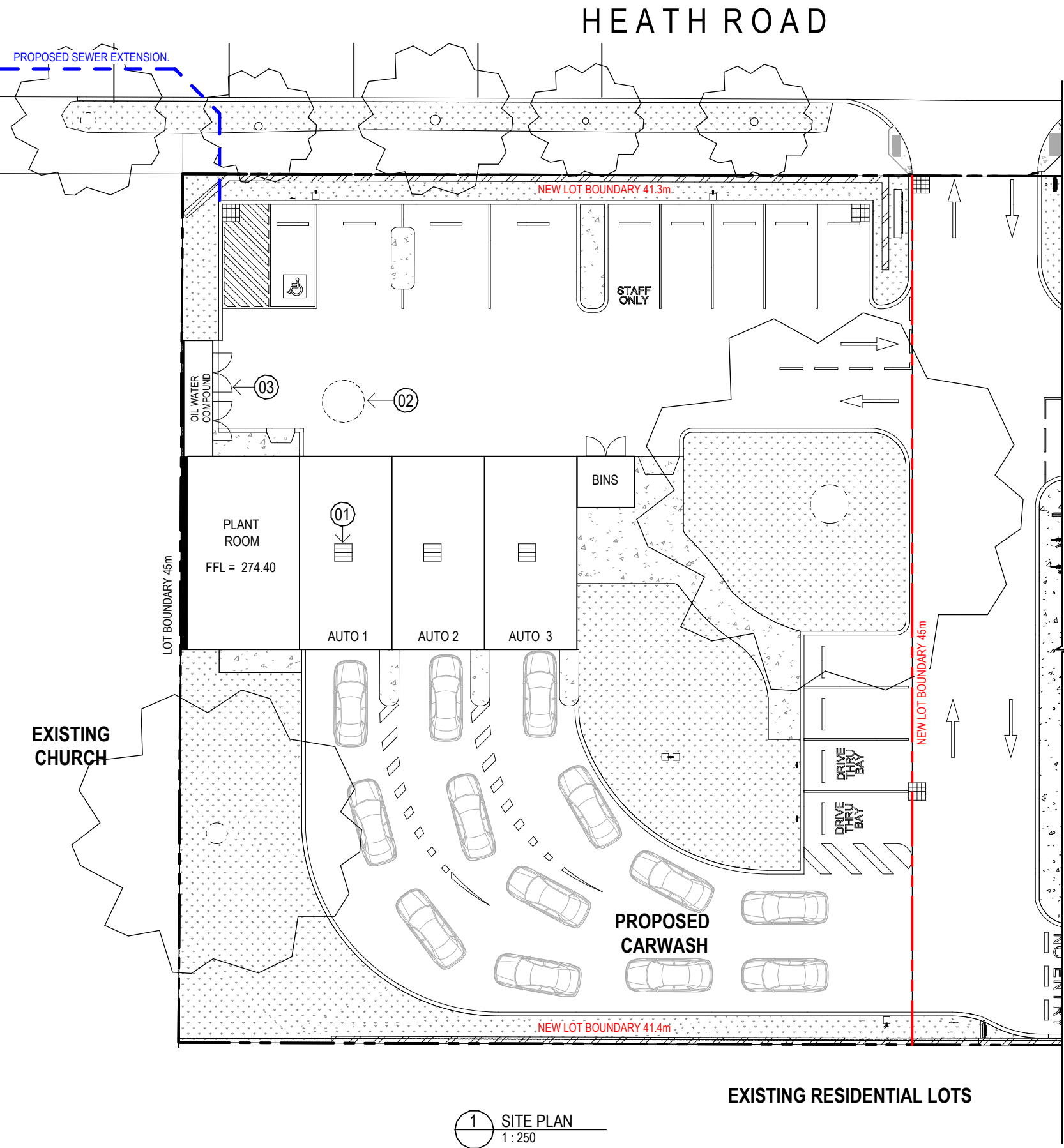
DA24

Issue

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	MIDLAND BRICK - COLOUR SUBIACO RED COACH
	BK01
	COLORBOND DEEP OCEAN
	FT01
	BLACK POWDER COATED STEEL
	FT02
	DULUX - MR FROSTY QTR
	FT03

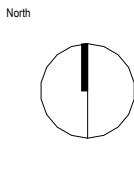


- NOTES:**
- Each automatic wash bay contains an underslab 1,000 litre concrete collection pit which is the primary collection point for all the water and wash residues from the automatic wash process. Each pit is covered with a metal grate under which sits a steel mesh basket which collects any soil residue from the wash process. These mesh baskets are emptied daily by the car wash staff.
 - Kalamunda Super Wash will have 3 automatic wash bays, (3 x 1,000 L underground collection pits). These pits are joined in series and the combined wash residue falls by gravity via a 100mm HDPE pipe into a 5,000 L dirty water collection tank.
 - A pump installed in the dirty water collection tank pumps the wash residue into an oil and water separator (OWS) for treatment. The OWS separates oil from the wash residue and the recovered oil is collected in a small tank which is periodically collected by a licenced contractor for disposal. The treated wash residue (which is now free of oil) is then discharged to the Water Corporation sewer.

1 SITE PLAN
1 : 250

DEVELOPMENT APPLICATION

Revisions		General Notes		Drawing Notes	
0	DA ISSUE	DEC 2024	AJJ NR	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/manufacturer. 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.	
Issue Description		Date	Chk Int		



Client
 McDonald's Australia Limited
ABN: 43 006 496 928
02 9875 6666
Project Manager

Architect
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Building Designers
Unit 4/166 Stirling Highway
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www.hindley.com.au

Project
McDONALDS STANDARD DOCUMENTS
Location
LOTS 28(16) AND 29(14) CANNING ROAD AND
LOT 3(5) HEALTH ROAD, KALAMUNDA

Scale
1 : 250 @ A3
Drawing
WASTE WATER MANAGEMENT PLAN
Project Number
0882
Drawing Number
WW01
Issue
0

Appendix B – Influencing Factor Calculation

The assigned levels combine a baseline assigned level with an influencing factor, with the latter increasing the assigned level on the basis of the existence of significant roads and commercial or industrial zoned land within an inner circle (100 metre radius) and an outer circle (450 metre radius) of the noise sensitive premises. The calculation for the influencing factor is:

$$= \frac{1}{10} (\% \text{ Type A}_{100} + \% \text{ Type A}_{450}) + \frac{1}{20} (\% \text{ Type B}_{100} + \% \text{ Type B}_{450})$$

where :

% Type A₁₀₀ = the percentage of industrial land within
a 100m radius of the premises receiving the noise

%TypeA₄₅₀ = the percentage of industrial land within
a 450m radius of the premises receiving the noise

% Type B₁₀₀ = the percentage of commercial land within
a 100m radius of the premises receiving the noise

%TypeB₄₅₀ = the percentage of commercial land within
a 450m radius of the premises receiving the noise

+ Transport Factor (maximum of 6 dB)

= 2 for each secondary road (6,000 to 15,000 vpd) within 100m

= 2 for a major road (> 15,000 vpd) within 450m

= 6 for a major road within 100m

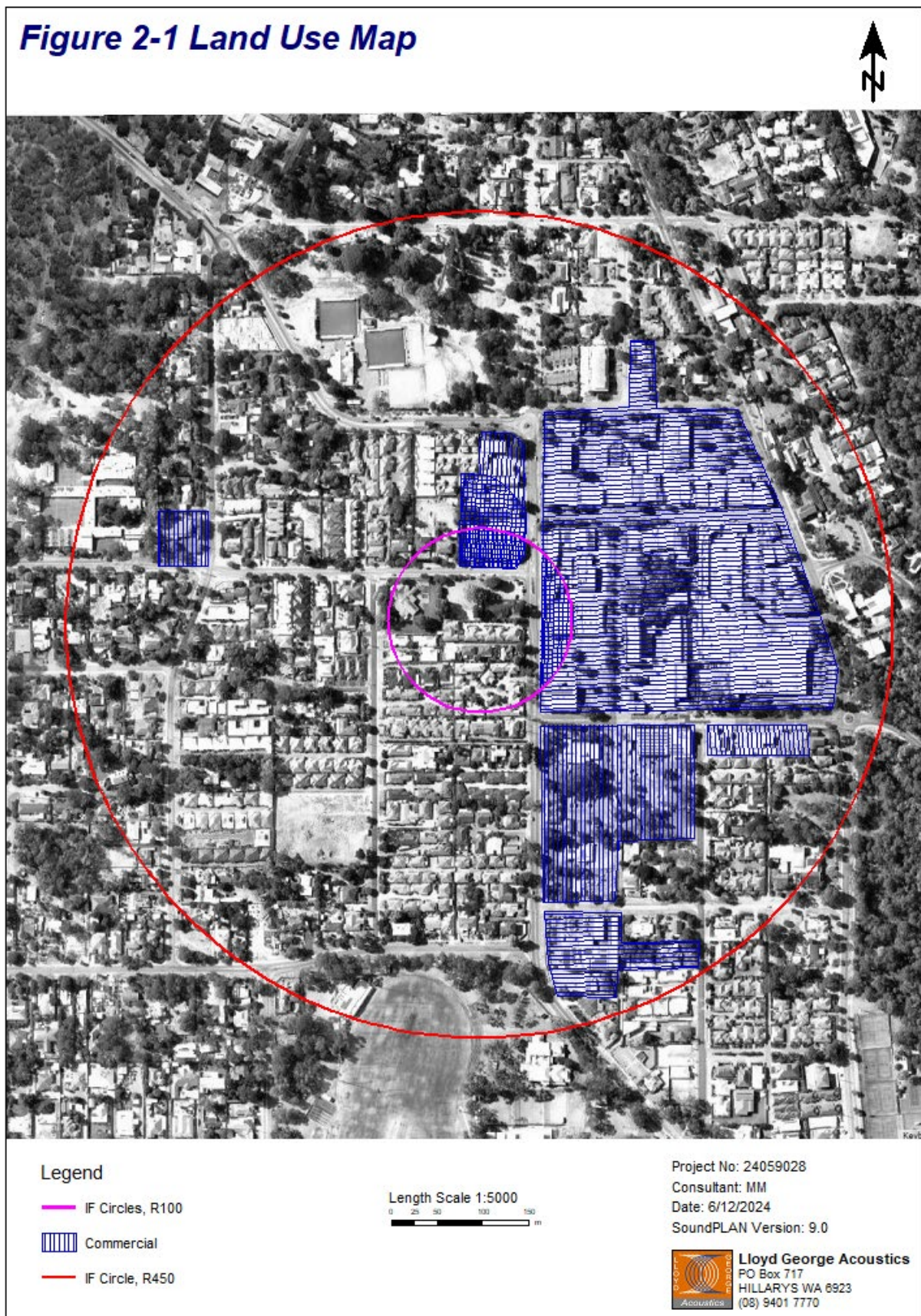
The nearest noise sensitive premises are identified as:

- R1 – 18 Canning Road
- R2 – 7 Heath Road
- R3 – 4 Heath Road

Table B-1 shows the percentage of industrial and commercial land within the inner (100 metre radius) and outer (450 metre radius) circles of this noise sensitive premise with reference to the local planning scheme.

Table B-1: Percentage of Land Types within 100m and 450m Radii

Receiver	Land Type	Within 100m	Within 450m
R1, R2, R3	Type A - Industrial and Utility	0	0
	Type B – Commercial	28	27

Figure 2-1 Land Use Map**Figure B-1: Land Types within 100m and 450m Radii**

From the Main Roads WA Traffic Map (refer *Figure B-2*), *Table B-2* shows the relevant roads and their traffic counts within the inner (100 metre radius) and outer (450 metre radius) circles. In this case, only Canning Road is classified as a secondary road and is within 100m of all nearest noise sensitive premises to the proposal.

Table B-2: Relevant Roads within 100m and 450m Radii

Receiver	Within 100m		Within 450m
	Major Road (+ 6 dB)	Secondary Road (+ 2 dB)	Major Road Not Within 100m (+ 2 dB)
R1, R2, R3	-	Canning Road (13,403 - 2023)	-

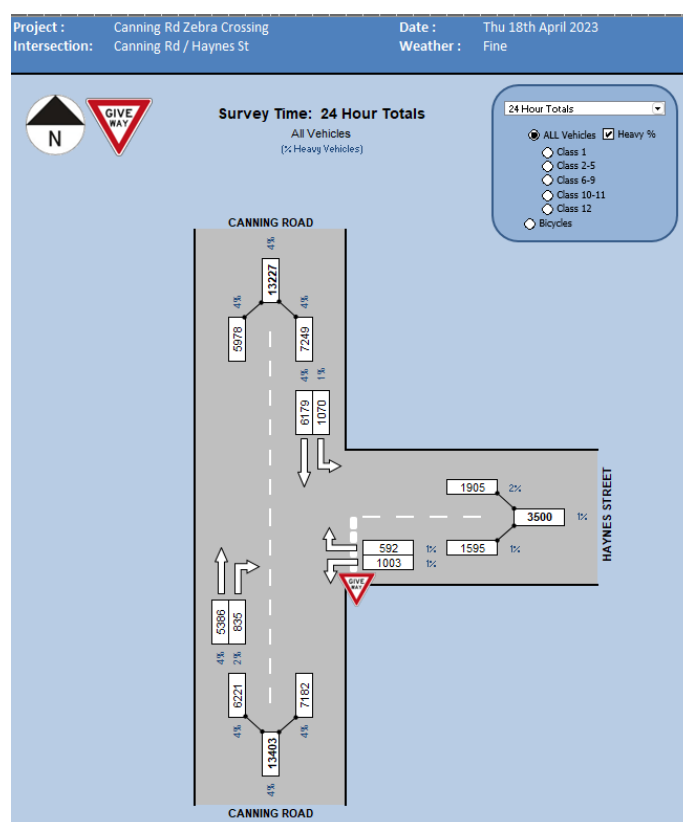


Figure B-2: MRWA Published Traffic Data

Table B-3 combines the percentage land types and Transport Factor to calculate the influencing factor.

Table B-3: Influencing Factor Calculation, dB

Receiver	Industrial Land	Commercial Land	Transport Factor	Total
Nearest Future Residences	0	2.8	2	5

The influencing factor calculated in *Table B-2* is combined with those baseline assigned levels of *Table 2-2*, resulting in the project assigned levels provided in *Table 2-3*.

Appendix C – Terminology

The following is an explanation of the terminology used throughout this report:

- **Decibel (dB)**

The decibel is the unit that describes the sound pressure levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

- **A-Weighting**

An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A , dB.

- **Sound Power Level (L_w)**

Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure level at known distances. Noise modelling incorporates source sound power levels as part of the input data.

- **Sound Pressure Level (L_p)**

The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc. and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

- **L_{ASlow}**

This is the noise level in decibels, obtained using the A-frequency weighting and the S (slow) time weighting. Unless assessing modulation, all measurements use the slow time weighting characteristic.

- **L_{AFast}**

This is the noise level in decibels, obtained using the A-frequency weighting and the F (fast) time weighting. This is used when assessing the presence of modulation.

- **L_{APeak}**

This is the greatest absolute instantaneous sound pressure level in decibels using the A-frequency weighting.

- **L_{Amax}**

An L_{Amax} level is the maximum A-weighted noise level during a particular measurement.

- **L_{A1}**

The L_{A1} level is the A-weighted noise level exceeded for 1 percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

- **L_{A10}**

The L_{A10} level is the A-weighted noise level exceeded for 10 percent of the measurement period and is considered to represent the “intrusive” noise level.

- **L_{A90}**

The L_{A90} level is the A-weighted noise level exceeded for 90 percent of the measurement period and is considered to represent the “background” noise level.

- **L_{Aeq}**

The equivalent steady state A-weighted sound level (“equal energy”) in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the “average” noise level.

- **One-Third-Octave Band**

Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20000 Hz inclusive.

- **Representative Assessment Period**

Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

- **L_{Amax} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded at any time.

- **L_{A1} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded for more than 1 percent of the representative assessment period.

- **L_{A10} assigned level**

Means an assigned level, which, measured as a L_{ASlow} value, is not to be exceeded for more than 10 percent of the representative assessment period.

- **Tonal Noise**

A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

- the presence in the noise emission of tonal characteristics where the difference between -
 - (a) the A-weighted sound pressure level in any one-third octave band; and
 - (b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

This is relatively common in most noise sources.

- **Modulating Noise**

A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

- a variation in the emission of noise that —
 - (a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band; and
 - (b) is present for at least 10% of the representative assessment period; and
 - (c) is regular, cyclic and audible.

- **Impulsive Noise**

An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness means:

- a variation in the emission of a noise where the difference between L_{Apeak} and L_{Amax} is more than 15 dB when determined for a single representative event.

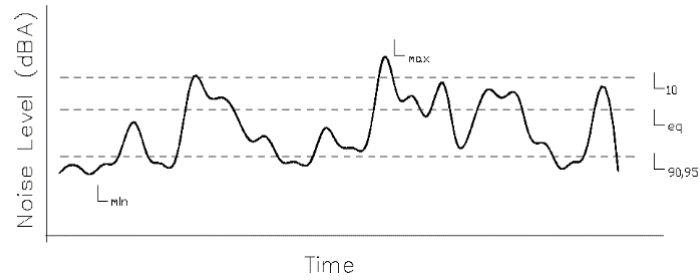
- **Major Road**

Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

- **Secondary / Minor Road**

Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

- Chart of Noise Level Descriptors



- Austrroads Vehicle Class

VEHICLE CLASSIFICATION SYSTEM	
AUSTRADS	
CLASS	LIGHT VEHICLES
1	SIXCYCLE Car, Van, Wagon, 4WD, UTV, Buggy, Motorcycle
2	SIXCYCLE - TOWING Trailer, Caravan, Boat
HEAVY VEHICLES	
3	TWO AXLE TRUCK OR BUS *2 axles
4	THREE AXLE TRUCK OR BUS *3 axles, 2 axle groups
5	FOUR (or FIVE) AXLE TRUCK *4 (5) axles, 2 axle groups
6	THREE AXLE ARTICULATED *3 axles, 3 axle groups
7	FOUR AXLE ARTICULATED *4 axles, 3 or 4 axle groups
8	FIVE AXLE ARTICULATED *5 axles, 3+ axle groups
9	SIX AXLE ARTICULATED *6 axles, 3+ axle groups or 7+ axles, 3 axle groups
LONG VEHICLES AND ROAD TRAINS	
10	DOUBLE 4 or HEAVY TRUCK and TRAILER *7+ axles, 4 axle groups
11	DOUBLE ROAD TRAIN *7+ axles, 5 or 6 axle groups
12	TRIPLE ROAD TRAIN *7+ axles, 7+ axle groups

- Typical Noise Levels

