MULDER KAMPMAN DESIGN

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p: 0400 219 966
e: admin@mulderkampman.com.au
Sebenzana Pty Ltd ATF the Kuche Trust t/AS
Mulder Kampman Design
ABN 76 135 587 092 ACN 142659934

PROJ REF: 0701

November 7, 2024

Shire of Serpentine Jarrahdale
Attention: Planning Department / Assessing Officer

PROPOSED PLACE OF WORSHIP AT LOT 1 & 8 NETTLETON ROAD, BYFORD

To whom it may concern

Please find enclosed our Planning Application for a Place of Worship at Lot 1 & 8 Nettleton Road, Byford.

The submission includes the following documents:

Drawings:

- SK10-Sheet 1-Site Demolition Plan
- SK10-Sheet 2-Site Plan
- SK10-Sheet 3-Ground Floor Plan
- SK10-Sheet 4-Upper Floor Plan
- SK10-Sheet 5-Elevations / Exterior Colour Selections
- SK10-Sheet 6-Perspectives
- SK10-Sheet 7-Landscaping Plan
- SK10-Sheet 8-Waste Management Plan
- Net-24-01-Stormwater

Reports/Information:

- Stormwater Design Cover letter & Calculations
- Acoustic Report
- Traffic Assessment – TIS
- Bushfire Assessment

DEVELOPMENT SUMMARY

PROPOSED USES

Place of worship for Christian activities including:

- Worship Services
- Devotional prayers
- Bible studies/teachings
- Pastoral counseling
- Youth social activities
- Children church
- Weddings
- Prayer meetings
- Family Builders Convention
- Leadership seminars
- Easter and Christmas services
- Administration associated with a Place of Worship

Daily Summary of Activities (Times / Maximum occupancy)

- Monday
  - Prayer meeting: 50 members - 6:30pm - 9pm
- Tuesday
  - Ladies Prayer meeting: 50 members - 6:30pm- 9pm
- Wednesday
  - None
- Thursday
  - Conventions (6 times per year): 300 members - 6:30pm - 10pm
- Friday
  - Prayer meeting/leadership meetings/seminars: 100 members - 6:30pm - 10pm
- Saturday
  - Leadership meetings (4 times per year): 100 members - 9:00am - 4pm
  - Prayer meetings/conventions: 200 members - 6:30pm - 10pm
- Sunday
  - Worship Service: 400 members - 9:00 - 3pm
  - Youth Service: 50 members - 5:30pm - 9pm
- Monday-Friday
  - Admin Activities: 1-5 members - 8am-5pm

SITE COVERAGE

Site Area	
Lot 1 - Site area:	2696m2
Lot 8 - Site area:	2350m2
TOTAL:	5046m2

Building Area (Footprint):	1053m2
Plot Ratio:	20.86%

VEHICLE PARKING AND ACCESS

Refer to the Transport Impact Statement

PEDESTRIANS & CYCLISTS

Refer to the Transport Impact Statement

WASTE MANAGEMENT

Refer Waste Management Drawing

EXTERNAL LIGHTING

The detail design of the external lighting will be developed as part of the future Building Permit documentation and will ensure compliance with relevant codes & standards

BUILT FORM & AESTHETICS

The proposed building is contemporary design that meet that meets the clients requirements. The building is well setback from street boundaries and the main entrance is clear and legible

LANDSCAPING

Water wise plant, shrubs and trees are proposed.
Refer to the Landscaping drawing

STORMWATER

Refer to the Stormwater design and associated design calculations

CPTED & Safer Design

The site layout and design generally affirm the principles of Safer Design and CPTED including:

- Clear sightlines
- Pedestrian safety (disabled car-bays located close to office entry, dedicated pedestrian access from street to main entry)
- Substantial surveillance
- Visually permeable fencing
- Robust materials

We trust that the proposal appropriately addresses the Planning Scheme and policy requirements of the Serpentine Jarrahdale Shire, and we look forward to working with you towards attaining a Development Approval.

If you require any further information, please contact the undersigned.

Yours truly,

Lester Mulder
Director – Mulder Kampman Design

DEMOLITION LEGEND:

- BUILDINGS / STRUCTURES TO BE REMOVED
- PAVING / CROSSOVERS
- FENCING TO BE REMOVED
- SERVICES TO BE REMOVED
- TREES TO BE REMOVED

SITE DEMOLITION PLAN

Scale 1 : 200

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
M.Sibum	AUG 2024	1 : 200 @ A1	0701	Sheet 1	SK10

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CAR PARKING CALCULATIONS

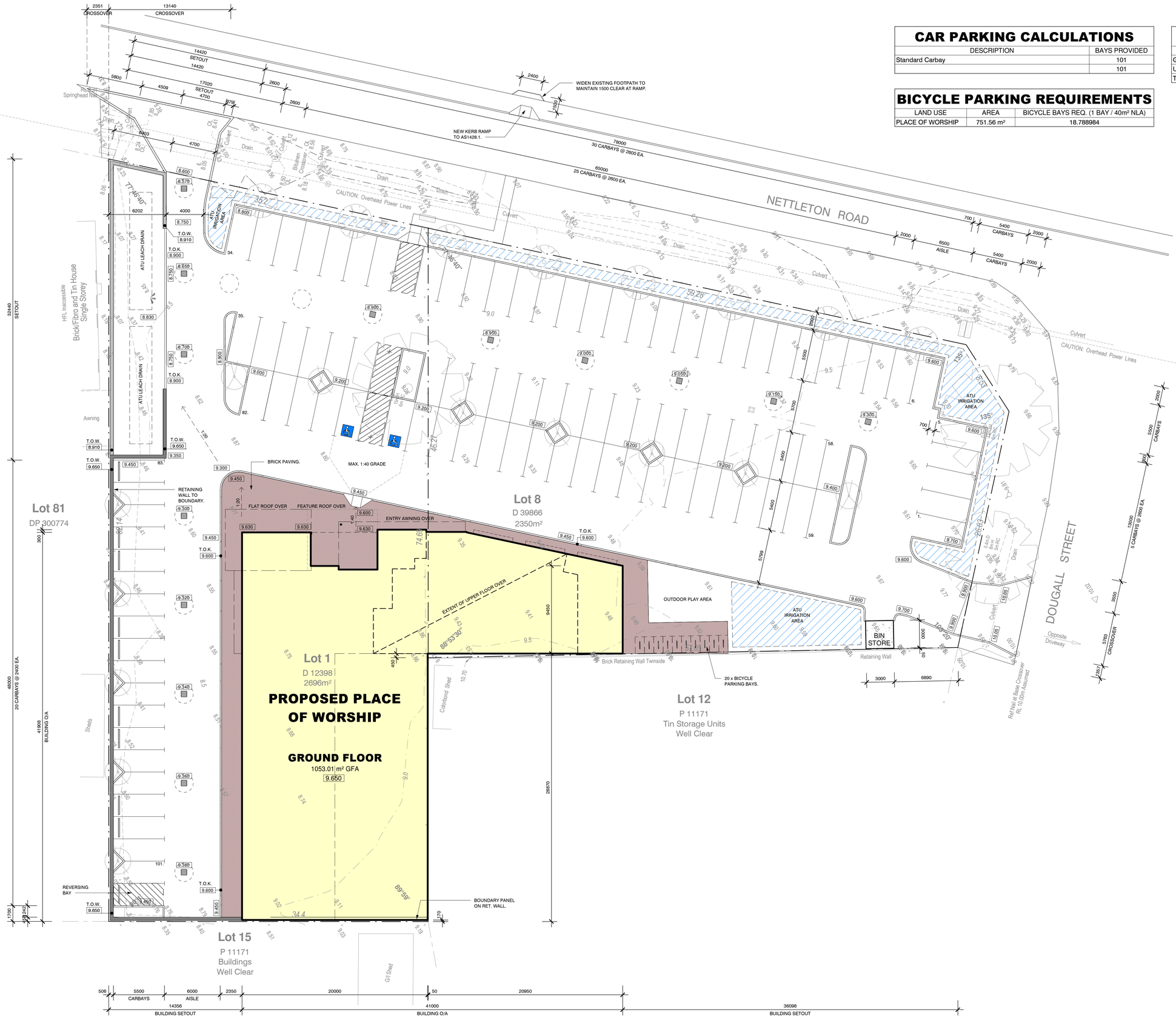
DESCRIPTION	BAYS PROVIDED
Standard Carbay	101
	101

BICYCLE PARKING REQUIREMENTS

LAND USE	AREA	BICYCLE BAYS REQ. (1 BAY / 40m² NLA)
PLACE OF WORSHIP	751.56 m²	18.788984

AREAS (GFA)

LAND USE	AREA
GROUND FLOOR	1053.01 m²
UPPER FLOOR	239.65 m²
TOTAL	1292.65 m²



SITE PLAN

Scale 1 : 200

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN M.Sibum | DATE AUG 2024 | SCALE 1 : 200 @ A1 | PROJECT No. 0701 | DRAWING No. Sheet 2 | REV. SK10

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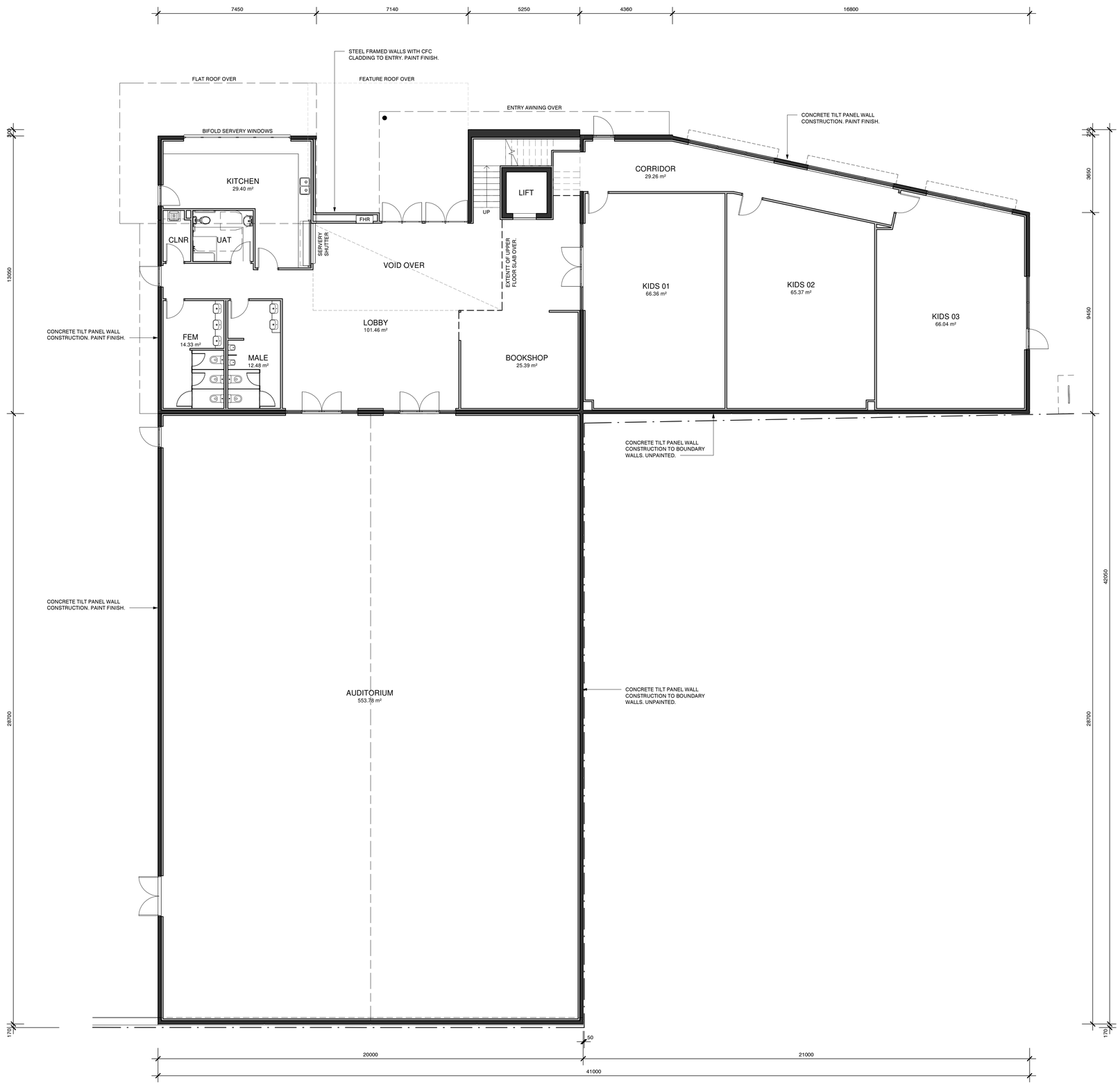

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GROUND FLOOR PLAN

Scale 1 : 100

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

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M.Sibum	AUG 2024	1 : 100 @ A1	0701	Sheet 3	SK10

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UPPER FLOOR PLAN

Scale 1 : 100

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

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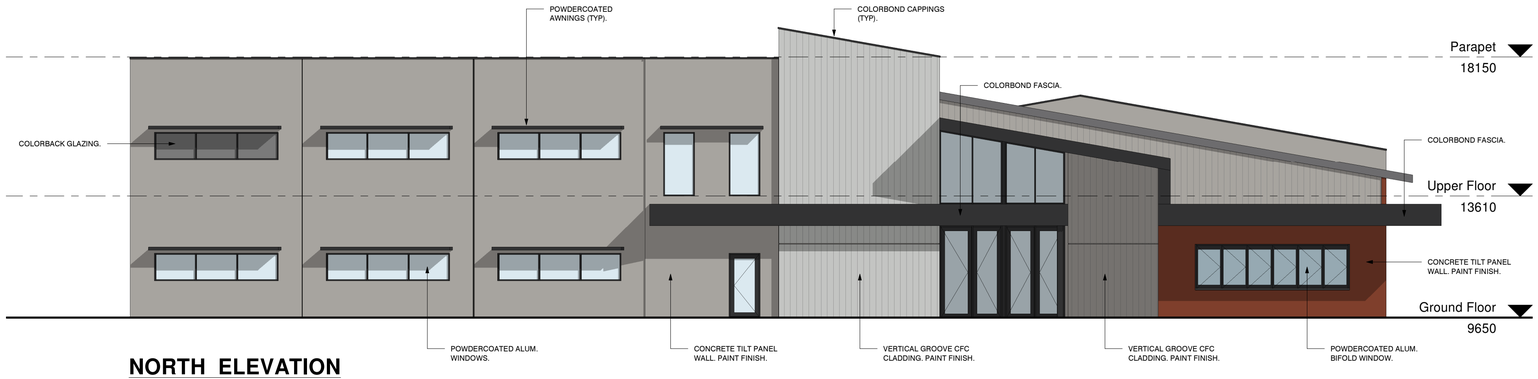
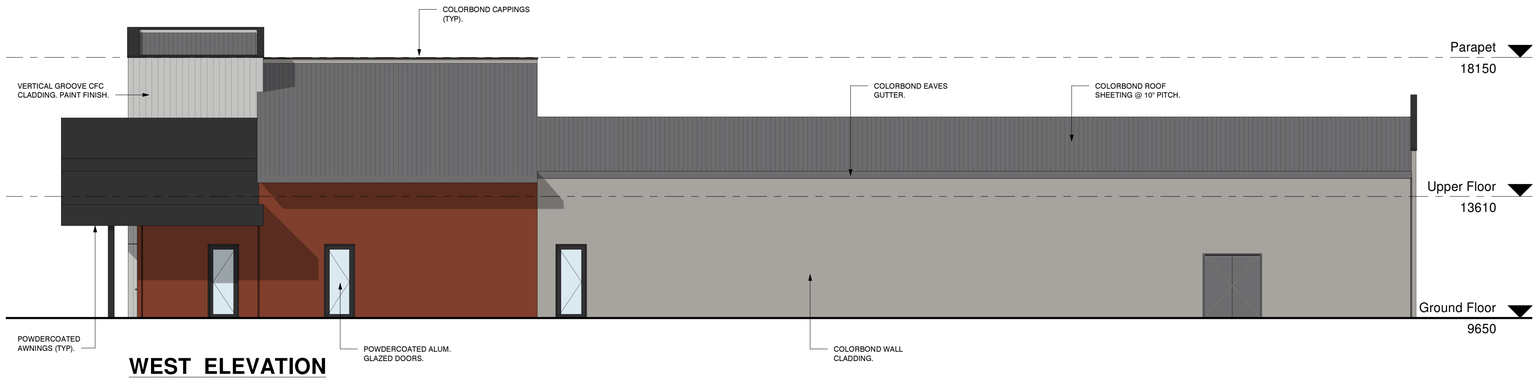


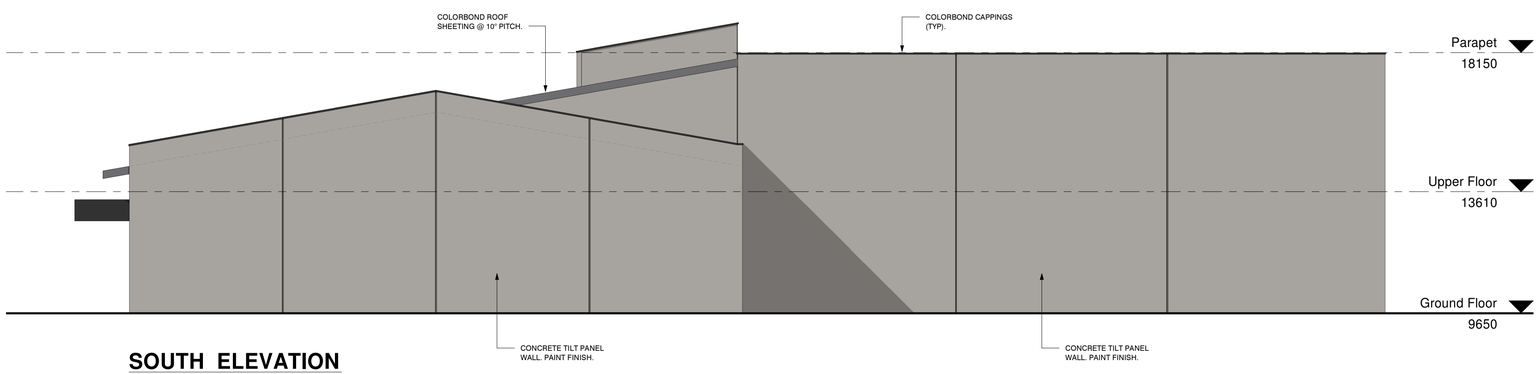
NORTH ELEVATION

Scale 1 : 100



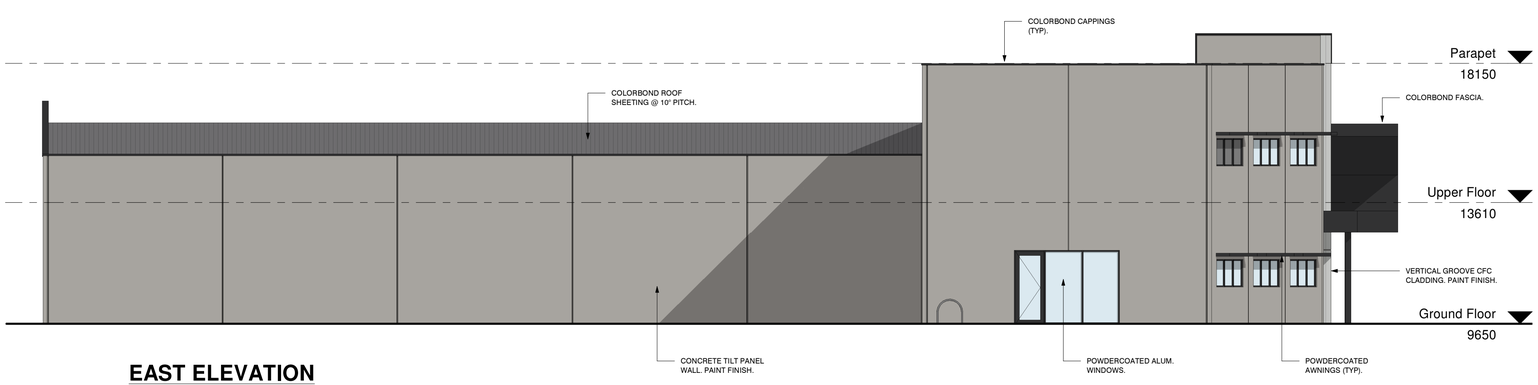
WEST ELEVATION

Scale 1 : 100



SOUTH ELEVATION

Scale 1 : 100



EAST ELEVATION

Scale 1 : 100

MATERIALS:

1. MAIN CONCRETE PANELS - PAINT FINISH - DULUX 'ASHLITE'
2. FEATURE CONCRETE PANELS - PAINT FINISH - 'AUTUMN ORANGE'
3. MAIN CFC CLADDING - PAINT FINISH - DULUX 'ASHLITE'
4. FEATURE CFC CLADDING - PAINT FINISH - DULUX 'TRANQUIL RETREAT'
5. WALL SHEETING - COLORBOND - 'BASALT'
6. PA DOORS - PAINT / POWDERCOAT - 'BASALT'
7. ALUM. WINDOW / DOOR FRAMES - POWDERCOAT - 'MONUMENT'
8. AWNINGS / FASCIAS / WALL CAPPINGS - COLORBOND - 'MONUMENT'
9. ROOF SHEETING - COLORBOND - 'BASALT'

COLOUR LEGEND:

'ASHLITE'

'AUTUMN ORANGE'

'TRANQUIL RETREAT'

'BASALT'

'MONUMENT'

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

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PROPOSED PLACE OF WORSHIP

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LANDSCAPING PLAN

Scale 1 : 200

PLANT LEGEND

FICINIA NODOSA (KNOTTED CLUB RUSH)	
CONOSTYLIS ACULEATA (PRICKLY COTTONHEAD)	
GREVILLEA OBTUSIFOLIA (GINGIN GEM)	
PATERSONIA OCCIDENTALIS (PURPLE FLAG)	
LOMANDRA LONGFOLIA (TANIKA)	
HIBISCUS TILIACEUS RUBRA (RED COTTONWOOD)	
ELAEOCARPUS RETICULATUS (BLUEBERRY ASH)	

LANDSCAPING LEGEND

	NAME	TYPE	DENSITY
	FICINIA NODOSA (KNOTTED CLUB RUSH)	MEDIUM SHRUB	2 PLANTS / m2
	CONOSTYLIS ACULEATA (PRICKLY COTTONHEAD)	MEDIUM SHRUB	4 PLANTS / m2
	GREVILLEA OBTUSIFOLIA (GINGIN GEM)	MEDIUM SHRUB	1 PLANTS / m2
	PATERSONIA OCCIDENTALIS (PURPLE FLAG)	MEDIUM SHRUB	4 PLANTS / m2
	LOMANDRA LONGFOLIA (TANIKA)	MEDIUM SHRUB	4 PLANTS / m2
	HIBISCUS TILIACEUS RUBRA (RED COTTONWOOD)	TREE	N/A
	ELAEOCARPUS RETICULATUS (BLUEBERRY ASH)	TREE	N/A
	KIKUYU	GRASS	N/A

LANDSCAPING NOTES

LANDSCAPING INSTALLATION REQUIREMENTS:

POT SIZES AS FOLLOWS:

TREES	100L
SHRUBS	150-200mm
SMALL BORDER PLANTS	MINIMUM 130mm

- ALL GARDEN BEDS TO BE MULCHED TO A MINIMUM DEPTH OF 100mm WITH 50mm BREATHING SPACE AROUND STEMS AND TRUNKS OF PLANTS
- ALL TREES TO BE STAKED AND TIED
- WHERE FERTILISER IS REQUIRED - SLOW RELEASE FERTILISER SHOULD BE APPLIED
- ALL SHRUBS & TREES TO HAVE AN AUTOMATIC TRICKLE SYSTEM

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PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries
Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN M.Sibum
DATE AUG 2024
SCALE As indicated @ A1
PROJECT No. 0701
DRAWING No. Sheet 7
REV. SK10

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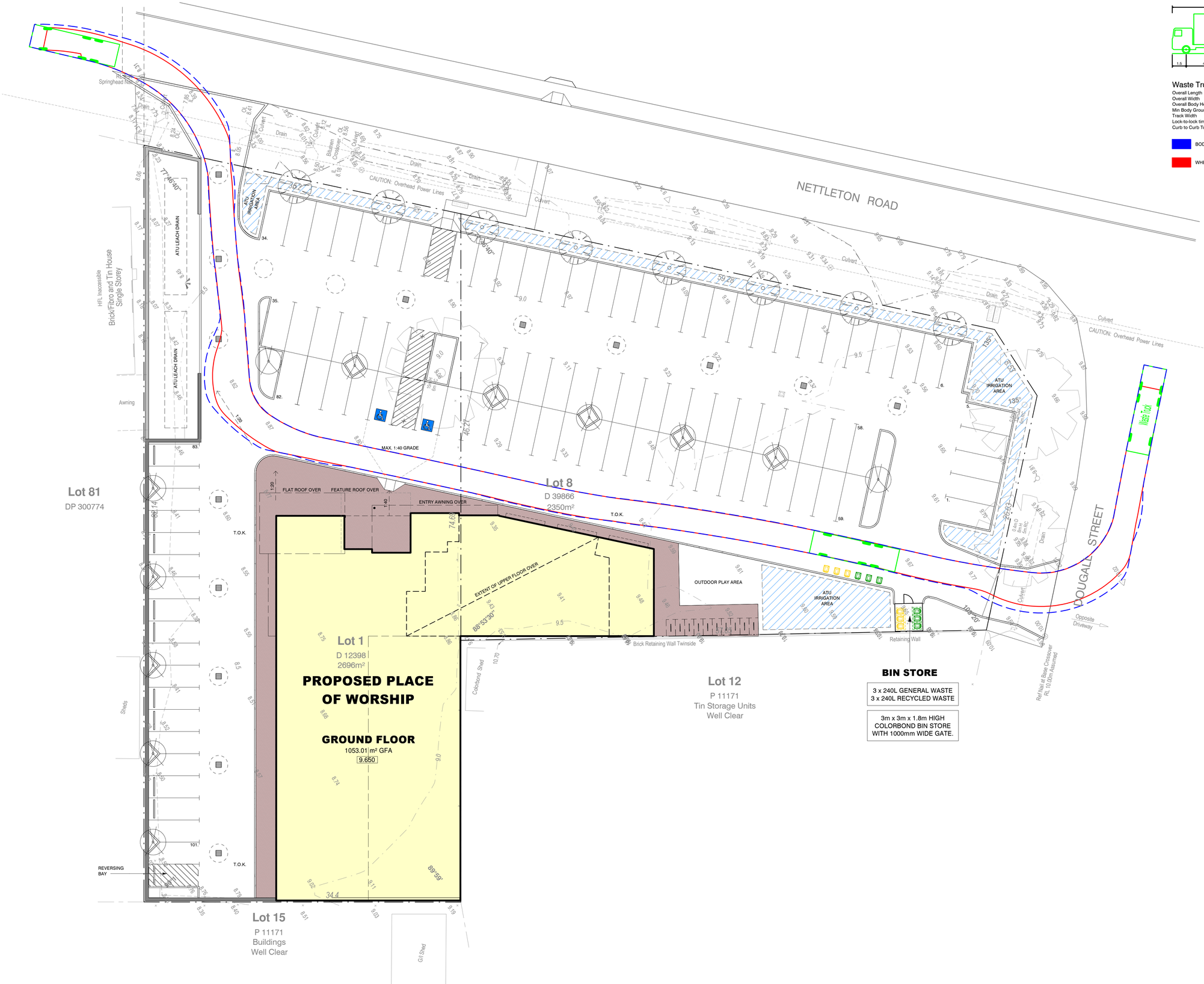

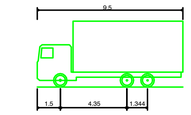

Waste Truck

Overall Length	9.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.427m
Track Width	2.500m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	9.150m

BODY TRACK

WHEEL TRACK

WASTE MANAGEMENT PLAN

Scale 1 : 200

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
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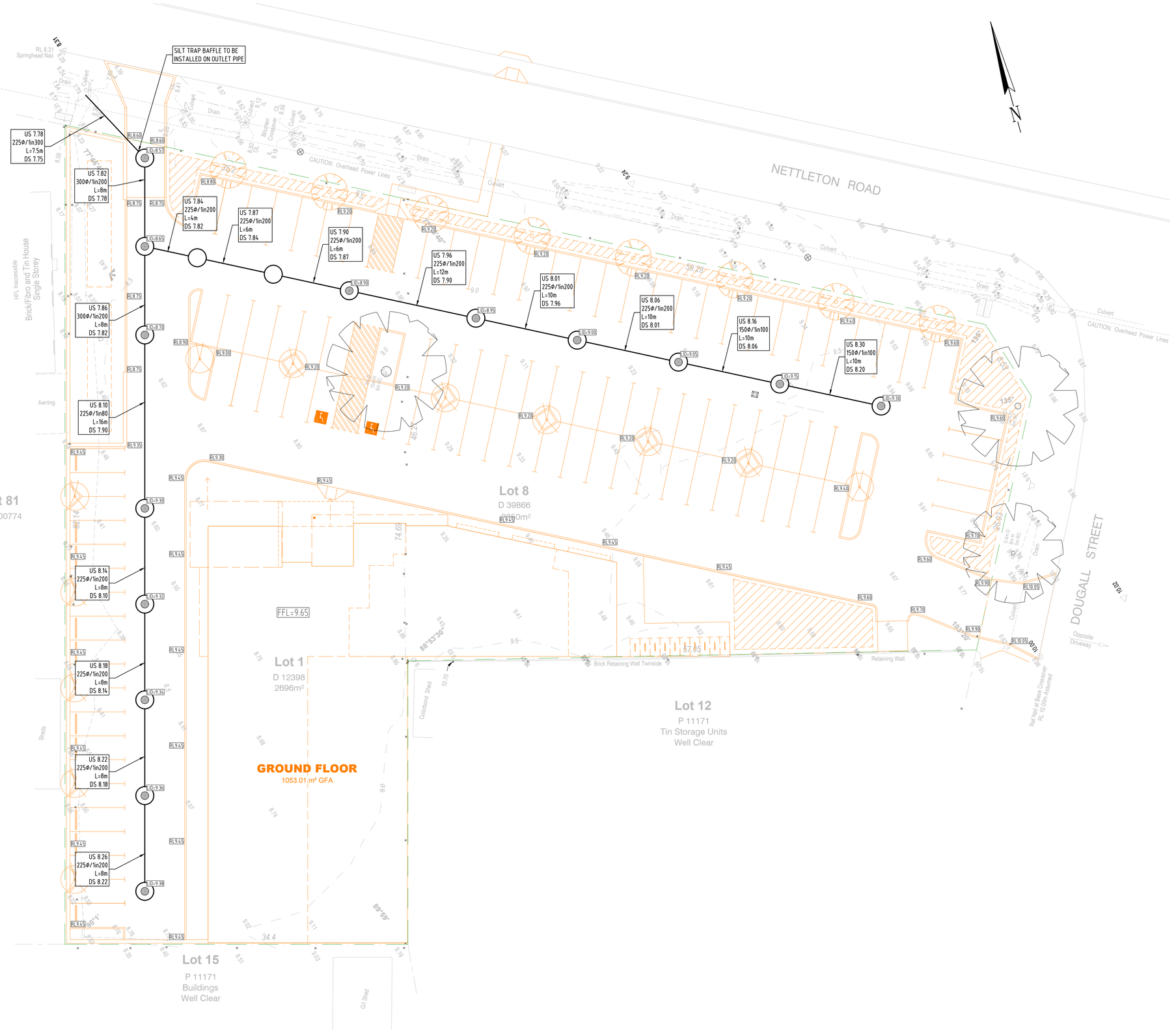


STORMWATER CALCULATIONS

Lot area = 5,047m²
Runoff (predevelopment) = 30%
Equivalent impervious area = 1514m²
Rainfall (20% AEP, 10 min duration) = 75.8mm/hr
Q (pre-development) = 31.9litres/sec
Runoff (post development) = 90%
Equivalent impervious area = 4542.3m²
Detention volume required (based on modified COPAS equation) = 35m³
Pit capacity (1800dia x 900deep) = 2.29m³
No pits = 16
Total pit capacity = 36.64m³

Controlled overflow from development will be less than predevelopment levels.

NOTES:
1. ALL STORMWATER PIPES SUBJECT TO VEHICLE LOADS ARE TO BE LAID WITH A MINIMUM OF 450mm COVER TO TOP OF PIPE.
2. STORMWATER PITS TO BE PRECAST CONCRETE PITS WITH 150Φ WEEPHOLE IN BASE.
3. ALL DOWNPIPES TO BE CONNECTED TO MAIN STORMWATER SYSTEM WITH 150Φ PIPE LAID AT 1in100 MIN GRADIENT.
4. DOWNPIPE LOCATIONS ARE NOT SHOWN. REFER TO ARCHITECTURAL DRAWINGS.

AMENDMENTS

No.	INITIAL	DATE	DESCRIPTION

SJR Civil Consulting Pty Ltd
Ph : 0447 112 481
Email : stace@sjrcivilconsulting.com

SIGNED/APPROVED DATE

SCALE: 1:200 (A1)
DATUM A.H.D.

DESIGNED	STACE ROGERS
DRAWN	STACE ROGERS
CHECKED	STACE ROGERS
DATE DRN	SEPTEMBER 2024

Lot 8 (30) Nettleton Road Byford
FORWARD IN FAITH MINISTRIES

STORMWATER PLAN & DETAILS

SJR Civil Consulting Pty. Ltd.

DRAWING No : NET-24-01

AMENDMENT No:

BUSHFIRE ATTACK LEVEL REPORT

No 30 Nettleton Road, Byford
(Shire of Serpentine Jarrahdale)

BPAD Bushfire Planning & Design Accredited Practitioner Level 2

Report completed by Ralph Smith
BPAD Accredited Practitioner 27541
26 August 2024
smith.consulting@bigpond.com
0458 292 280

Bushfire Attack Level (BAL) Certificate

Determined in accordance with AS 3959-2018

This Certificate has been issued by a person accredited by Fire Protection Association Australia under the Bushfire Planning and Design (BPAD) Accreditation Scheme. The certificate details the conclusions of the full Bushfire Attack Level Assessment Report (full report) prepared by the Accredited Practitioner.

Property Details and Description of Works

Address Details	**Unit no**	**Street no**	**Lot no**	**Street name / Plan Reference**	
		30		Nettleton Road	
	Suburb			**State**	**Postcode**
	Byford			WA	6122
Local government area	Shire of Serpentine Jarrahdale				
Main BCA class of the building	Class 9b	**Use(s) of the building**		Place of worship	
Description of the building or works	Construction of a place or worship				

Determination of Highest Bushfire Attack Level

AS 3959 Assessment Procedure	Vegetation Classification	Effective Slope	Separation Distance	BAL
Method 1	Class G Grassland	Level	106	BAL – LOW

BPAD Accredited Practitioner Details

Name
Ralph Smith

Company Details
Smith Bushfire Consultants Pty Ltd

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2018.

I hereby declare that I am a BPAD accredited bushfire practitioner.
Accreditation No. 27541
Signature
Date 26 August 2024

Authorised Practitioner Stamp

Reliance on the assessment and determination of the Bushfire Attack Level contained in this certificate should not extend beyond a period of 12 months from the date of issue of the certificate. If this certificate was issued more than 12 months ago, it is recommended that the validity of the determination be confirmed with the Accredited Practitioner and where required an updated certificate issued.

Introduction

This is a Bushfire Attack Level (BAL) assessment and report. It has been developed by Smith Bushfire Consultants Pty Ltd for the exclusive use of the client, Mulder Kampman Pty Ltd and their agents.

This BAL assessment and report has been compiled using the standard methodologies required by Western Australian government departments and agencies. The report is based on the following:

- *State Planning Policy 3.7 Planning in Bushfire Prone Areas (SPP 3.7)*, December 2015
- *Guidelines for Planning in Bushfire Prone Areas*, December 2021
- *Australian Standard 3959 – Construction of buildings in bushfire-prone areas (Incorporating Amendments Nos 1 and 2)*, November 2018
- Shire of Serpentine Jarrahdale requirements

The techniques described in the above publications have been applied in the appropriate areas and circumstances for the development of this document.

There was very limited access available for the vegetation assessment. The lot is neighboured by lots which all have fencing. Where there was no public access, the interpretation is based on photographic and satellite imagery, and a laser distance meter was used to measure distances and effective slope.

DISCLAIMER

This Bushfire Attack Level (BAL) assessment and report has been prepared in good faith. It is derived from sources believed to be reliable and accurate at the time of publication. Nevertheless, this report is distributed on the terms and understanding that the author is not responsible for results of any actions taken based on information in this publication or for any error or omission from this publication.

Smith Bushfire Consultants Pty Ltd has exercised due and customary care in the preparation of this BAL report and has not, unless specifically stated, independently verified information provided by others.

Any recommendations, opinions or findings stated in this report are based on circumstances and facts as they existed at the time Smith Bushfire Consultants Pty Ltd performed the work. Any changes in such circumstances and facts upon which this document is based may adversely affect any recommendations, opinions or findings contained in this report.

Property Details

Location of property: 30 Nettleton Road, Byford, Western Australia

Property owner or representative: Mulder Kampman Design Pty Ltd

Property representative contact details: lester.mulder@mulderkampman.com.au

Date of field assessment: 12 August 2024

Purpose of Assessment

This assessment has been undertaken to determine the potential Bushfire Attack Level (BAL) on the proposed development for No 30 Nettleton Road, Byford. The BAL assessment and subsequent report are based on the physical evidence that was present at the time of assessment. The BAL assessment is based on the requirements contained within the Western Australian government policies and guidelines. There is only a very small portion of the development site which is declared as bushfire prone.

BALs are used to determine which, if any, construction requirements contained within Sections 3–9 of the *Australian Standard 3959 – Construction standard of buildings in bushfire-prone areas* (AS 3959) are appropriate for a particular site.

Procedure

The BAL assessment involved the following process in accordance with AS 3959 (Method 1):

- Determine the area to be assessed
- Determine the relevant Fire Danger Index (FDI)
- Determine the vegetation type/s and class
- Determine the distance of the site from the classified vegetation type/s
- Determine the effective slope/s under the classified vegetation type/s
- Determine the BAL
- Determine the appropriate construction requirements.

Fire Danger Index

The methodology rates bushfire attack using a combination of vegetation type, slope and distance from the building or building envelope to the predominant vegetation. In Western Australia it assumes a Fire Danger Index (FDI) of 80.

Site Assessment

The assessment of the proposed development was undertaken on 12 August 2024 for the purpose of determining the Bushfire Attack Level in accordance with AS 3959 (Method 1).

Figure 1: Vegetation Classification Map.

Slope

Figure 2: Two-metre Contour Map.

The blue dotted area is the proposed place of worship. There is no slope affecting this development as the land between the contour lines is under land that is developed with buildings, parking areas and other non-flammable areas. The distance between the two contour lines is 106 metres for a change in elevation of four metres which equates to 2.16°.

Vegetation Classification

All vegetation within 150 metres of the proposed development as indicated on the vegetation classification map was classified in accordance with the Western Australian Government criteria and Clause 2.2.3 of AS 3959 was applied. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified below. AS 3959 only requires consideration of 50 metres between vegetation and the building for grassland.

Plot 1
Exclusion – Low threat vegetation and non-vegetated areas
Clause 2.2.3.2 (e) and (f).

Photo ID: Photo 1 Looking at the development lot.

Photo ID: Photo 2 Looking at the neighbouring dwellings and future gardens.

Photo ID: Photo 3 Looking at the dwellings and future gardens on the neighbouring lots.

Photo ID: Photo 4 Looking at the dwellings on the neighbouring lots.

Photo ID: Photo 5 Looking at a neighbouring dwellings within the 150 metre vegetation assessment area.

Photo ID: Photo 6 Looking at a neighbouring industrial and vegetation required to be managed to low threat standard.

Photo ID: Photo 7 Looking at the industrial site and vegetation required to be managed to low threat standard.

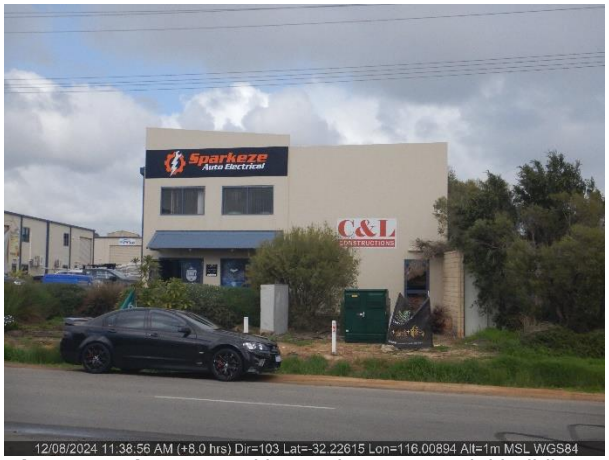


Photo ID: Photo 8 Looking at the commercial buildings and vegetation.

Photo ID: Photo 9 Looking at the dwellings on the neighbouring lots.

Plot 2
Exclusion – Low threat vegetation and non-vegetated areas
Clause 2.2.3.2 (e)

Photo ID: Photo 10 Looking along Dougall Street and buildings.

Photo ID: Photo 11 Looking along Michael Street.

Photo ID: Photo 12 Looking at the bitumen truck parking area.

Photo ID: Photo 13 Looking at the commercial area.

Plot 3
Exclusion – Low threat vegetation areas
Clause 2.2.3.2 (f)

Photo ID: Photo 14 Looking at the managed to low threat

grassland.

Plot 4

Class G – Grassland under an open woodland (G – 06)

Photo ID: Photo 15 Looking at the grassland within the 150 metre vegetation assessment zone.

Photo ID: Photo 16 Looking through the security fence at the grassland vegetation.

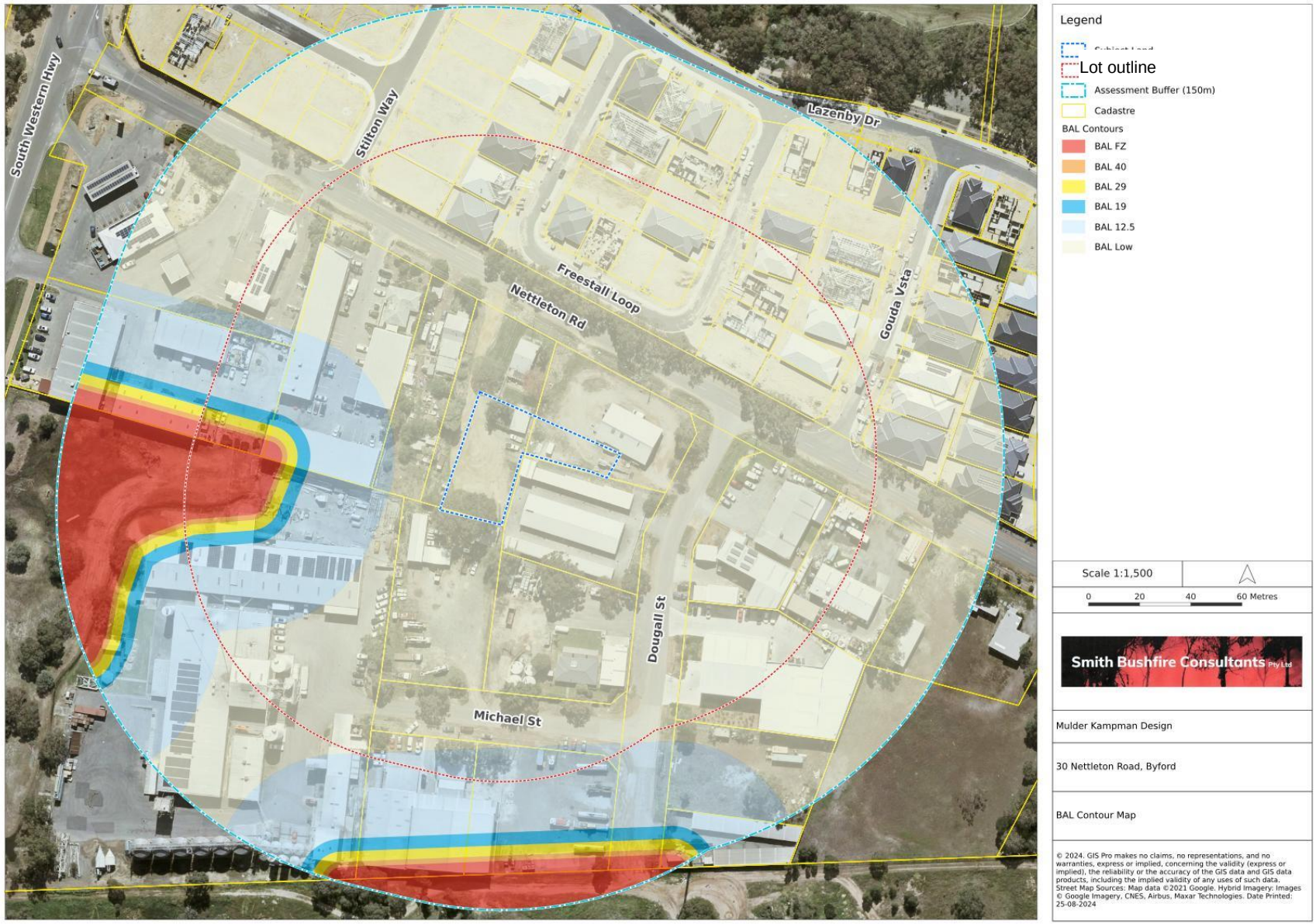


Figure 3: BAL Contour Map.

Notes to Accompany Vegetation Classification

1. Plot 1
Exclusion – Low threat vegetation and non-vegetated areas
Clause 2.2.3.2 (e) and (f).

This plot is the established houses, managed gardens, asset protection zones (APZ) and driveways within the suburban area north of Nettleton Road. This plot includes the lots that are having dwellings built and vacant lots that must have their grass managed to low threat vegetation. This plot also includes the lots south of Nettleton Road that contain a commercial or industrial building and some vegetation.

2. Plot 2
Exclusion – Low threat vegetation and non-vegetated areas
Clause 2.2.3.2 (e)

This plot is the established bitumen road network that supports the lot and general suburb. This plot includes the large established area of commercial and industrial areas that are on the southern side of Nettleton Road. The lots are fenced, and therefore access is not available to all of the lots. These commercial lots do not have any surface vegetation and are non-vegetated.

3. Plot 3
Exclusion – Low threat vegetation areas
Clause 2.2.3.2 (f)

This is the small area of grassland that is south-east of the development lot and is managed to meet the low threat standard of vegetation management.

4. Plot 4
Class G – Grassland under an open woodland (G – 06)

This plot is the large grassed area south of the development lot and the neighbouring commercial and industrial areas. There is another areas of grassland west of the development lot and commercial and industrial areas behind a security fence.

Potential Bushfire Impacts

The potential bushfire impacts to the proposed new place of worship from each of the identified vegetation plots are identified below.

Plot	Vegetation Classification	Effective Slope	Separation distance (m)	BAL rating
1	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e) and (f)	Not applicable	N/A	N/A
2	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e)	Not applicable	N/A	N/A
3	Exclusion – Low threat vegetation and non-vegetated areas Clause 2.2.3.2 (e)	Not applicable	N/A	N/A
4	Class G – Grassland under an open woodland (G – 06)	Upslope/Level	106	LOW

Determination of Bushfire Attack Level (BAL)

The determined Bushfire Attack Level (highest BAL) for the proposed new dwelling on 30 Nettleton Road, Byford, has been determined in accordance with Clause 2.2.6 of AS 3959 using the above analysis.

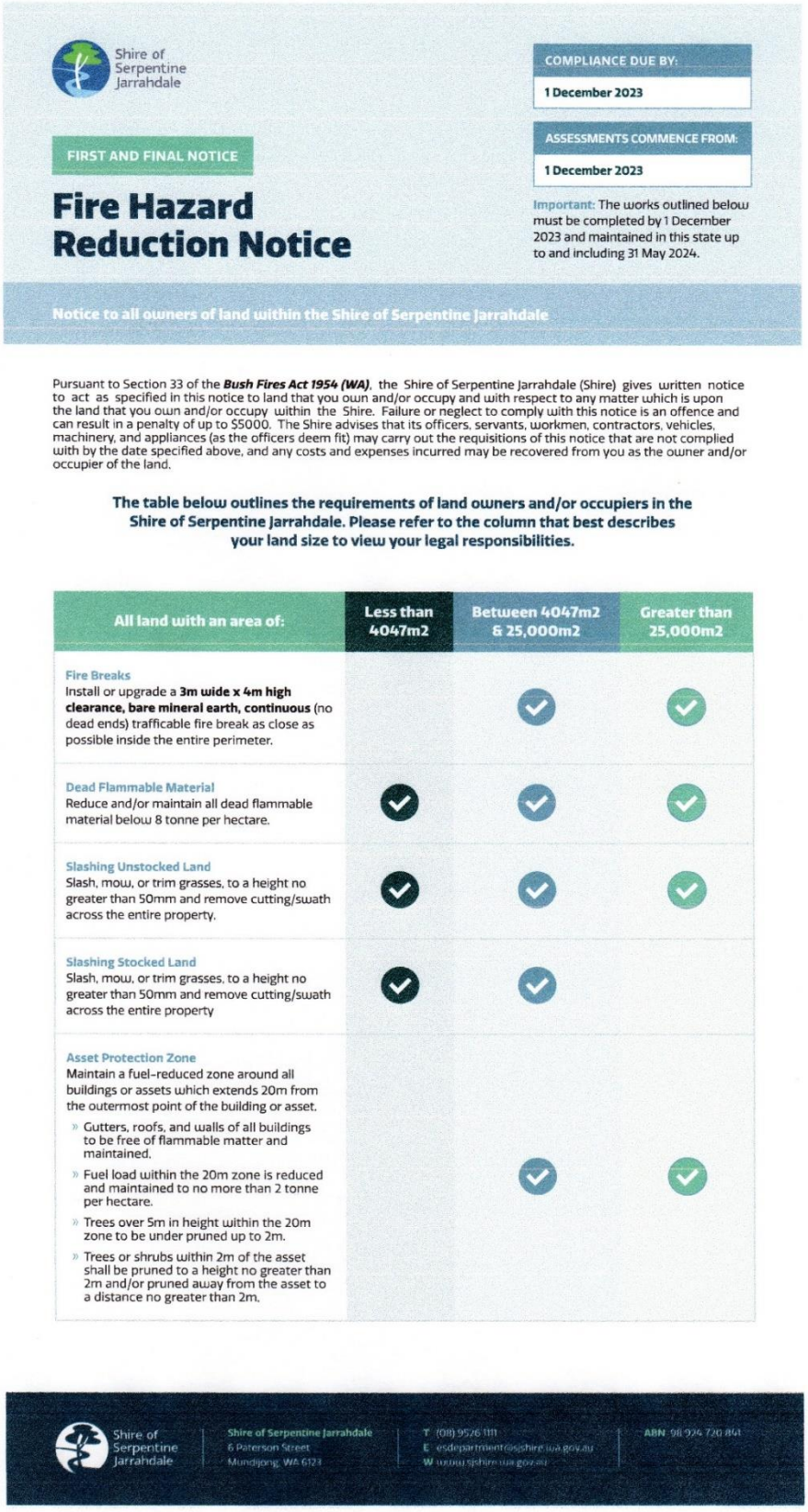
The determined Bushfire Attack Level (BAL) for the proposed new dwelling is **BAL–LOW**.

Appendix 1

Aerial photo showing the subject site, 30 Nettleton Road, Byford, and the adjacent lots as being partially, or not, or is designated as bushfire prone area. Source: Landgate online map of bushfire prone areas.

Appendix 2

Extract of the Shire of Serpentine Jarrahdale Fire Hazard Reduction Notice 2023/2024.



Shire of Serpentine Jarrahdale

FIRST AND FINAL NOTICE

Fire Hazard Reduction Notice

COMPLIANCE DUE BY:
1 December 2023

ASSESSMENTS COMMENCE FROM:
1 December 2023

Important: The works outlined below must be completed by 1 December 2023 and maintained in this state up to and including 31 May 2024.

Notice to all owners of land within the Shire of Serpentine Jarrahdale

Pursuant to Section 33 of the ***Bush Fires Act 1954 (WA)***, the Shire of Serpentine Jarrahdale (Shire) gives written notice to act as specified in this notice to land that you own and/or occupy and with respect to any matter which is upon the land that you own and/or occupy within the Shire. Failure or neglect to comply with this notice is an offence and can result in a penalty of up to $5000. The Shire advises that its officers, servants, workmen, contractors, vehicles, machinery, and appliances (as the officers deem fit) may carry out the requisitions of this notice that are not complied with by the date specified above, and any costs and expenses incurred may be recovered from you as the owner and/or occupier of the land.

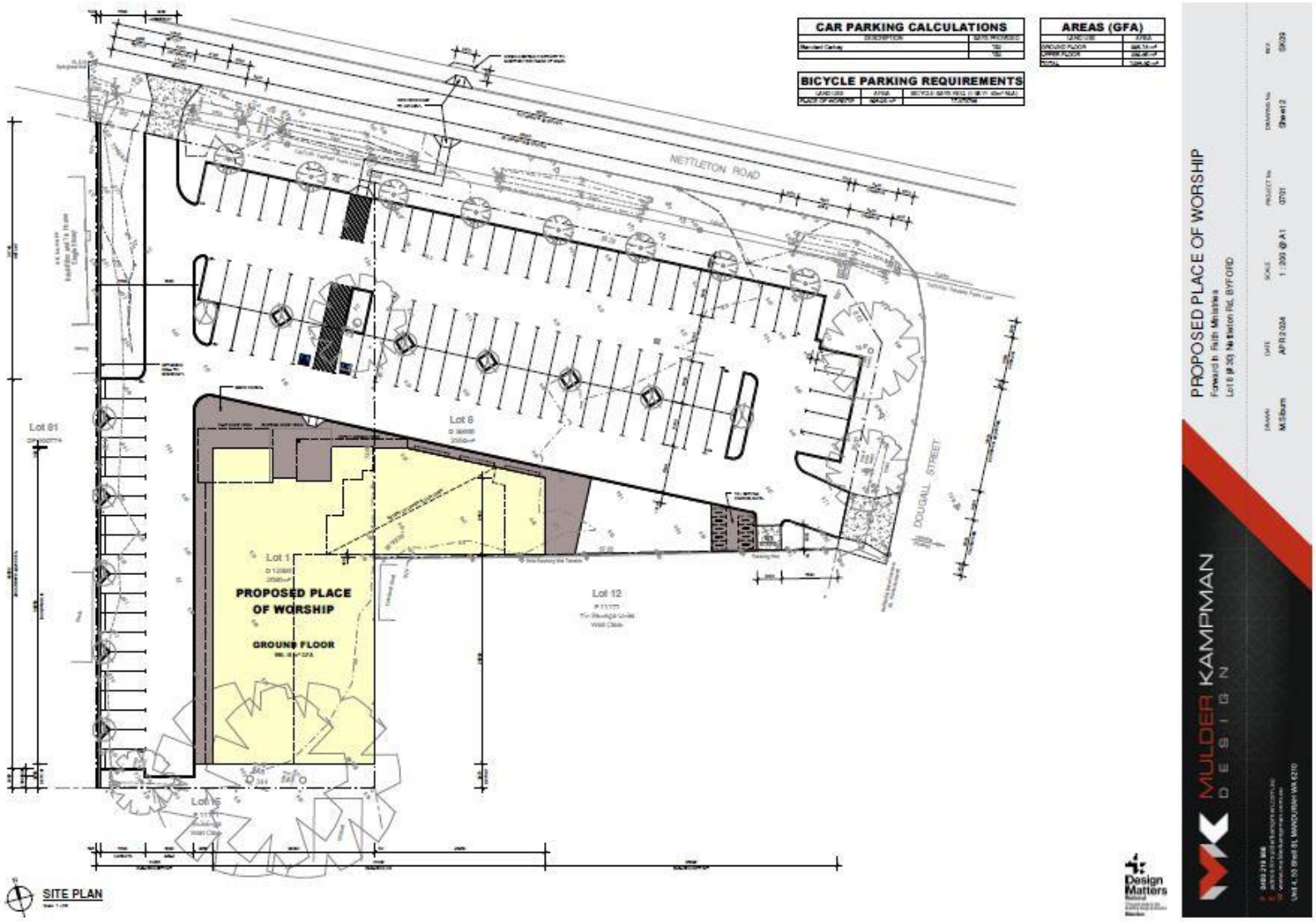
The table below outlines the requirements of land owners and/or occupiers in the Shire of Serpentine Jarrahdale. Please refer to the column that best describes your land size to view your legal responsibilities.

All land with an area of:	Less than 4047m2	Between 4047m2 & 25,000m2	Greater than 25,000m2
Fire Breaks Install or upgrade a **3m wide x 4m high clearance, bare mineral earth, continuous** (no dead ends) trafficable fire break as close as possible inside the entire perimeter.		✓	✓
Dead Flammable Material Reduce and/or maintain all dead flammable material below 8 tonne per hectare.	✓	✓	✓
Slashing Unstocked Land Slash, mow, or trim grasses, to a height no greater than 50mm and remove cutting/swath across the entire property.	✓	✓	✓
Slashing Stocked Land Slash, mow, or trim grasses, to a height no greater than 50mm and remove cutting/swath across the entire property	✓	✓	
Asset Protection Zone Maintain a fuel-reduced zone around all buildings or assets which extends 20m from the outermost point of the building or asset. » Gutters, roofs, and walls of all buildings to be free of flammable matter and maintained. » Fuel load within the 20m zone is reduced and maintained to no more than 2 tonne per hectare. » Trees over 5m in height within the 20m zone to be under pruned up to 2m. » Trees or shrubs within 2m of the asset shall be pruned to a height no greater than 2m and/or pruned away from the asset to a distance no greater than 2m.		✓	✓

Shire of Serpentine Jarrahdale | Shire of Serpentine Jarrahdale, 6 Paterson Street, Mundijong, WA 6123 | T (08) 9526 1111 | E esdepartment@sjshire.wa.gov.au | W www.sjshire.wa.gov.au | ABN 98 924 720 864

Appendix 3

Copy of the site plan. Source: Mulder Kampman Design.



References

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Landgate map from https://map-viewer-plus.app.landgate.wa.gov.au/index.html

Shire of Serpentine Jarrahdale Bushfire Mitigation Notice 2023/2024 Retrieved 2 August 2024 from https://www.sjshire.wa.gov.au/Profiles/sj/Assets/ClientData/25266_-_Fire_Hazard_Reduction_Notice_2023-24_-_Digital_FINAL.pdf f

HERRING STORER ACOUSTICS

PROPOSED PLACE OF WORSHIP
LOT 8 (#30) NETTLETON ROAD
BYFORD

ENVIRONMENTAL ACOUSTIC ASSESSMENT

SEPTEMBER 2024

OUR REFERENCE: 33428-1-24262

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
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DOCUMENT CONTROL PAGE

ENVIRONMENTAL ACOUSTIC ASSESSMENT

PLACE OF WORSHIP
BYFORD

Job No: 24262

Document Reference : 33428-1-24262

FOR

FORWARD IN FAITH MINISTRIES

DOCUMENT INFORMATION			
Author:	Tim Reynolds	**Checked By:**	George Watts
Date of Issue:	27 September 2024		

REVISION HISTORY

Revision	Description	Date	Author	Checked

DOCUMENT DISTRIBUTION

Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	Mulder Kampman Design Attn : Lester Mulder Email : lester.mulder@mulderkampman.com.au		✓

CONTENTS

APPENDICIES

1. INTRODUCTION

Herring Storer Acoustics were commissioned to undertake an acoustic assessment of noise emissions associated with the proposed place of public worship, to be located at Lot 8 (#30) Nettleton Road, Byford for the Development Application.

The report considers noise received at the neighbouring premises from the proposed development for compliance with the requirements of the *Environmental Protection (Noise) Regulations 1997.* This report considers noise emissions from:

- Prayers, services and events held within the auditorium;
- Mechanical services; and
- Vehicle movements within parking area, including car starts and doors closing.

We understand that there would be no bell ringing occurring in the centre.

For reference, a site plan and building plan are attached in Appendix A.

2. SUMMARY

An acoustic assessment of noise emissions associated with the proposed place of public worship, to be located at Lot 8 (#30) Nettleton Road, Byford for the Development Application.

With regards to a Place of Worship, it is noted that under Regulation 16 – Community activities of the *Environmental Protection (Noise) Regulations 1997*, noise emission from a Place of Worship is considered as community noise; and under this regulation, Regulation 7 or the assigned noise levels do not apply to Community noise. Even so, an assessment with regards to the requirements of the Environmental Protection (Noise) Regulation 1997 has been undertaken.

Based on the analysis of noise emissions from the proposed place of public worship, noise received at the neighbouring premises would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed usages, provided that :

- The air conditioning condensing units are located on the western façade of the buildings. Alternatively, if the unit are located in other locations, they would need to be screened from the neighbours to the north and east; and in this circumstance it is recommended that an acoustical assessment be undertaken of the design to ensure compliance is achieved.

3. CRITERIA

With regards to a Place of Worship, it is noted that under Regulation 16 – Community activities of the *Environmental Protection (Noise) Regulations 1997*, noise emission from a Place of Worship is considered as community noise; and under this regulation, Regulation 7 or the assigned noise levels do not apply to Community noise. However, we believe that noise still needs to be reasonable. Thus, an assessment with regards to compliance with the Regulations has been undertaken.

The allowable noise level for noise sensitive premises in the vicinity of the proposed development are prescribed by the *Environmental Protection (Noise) Regulations 1997*. Regulations 7 and 8 stipulate maximum allowable external noise levels or assigned noise levels that can be received at a premise from another premises. For residential premises, this noise level is determined by the calculation of an influencing factor, which is then added to the base levels shown below. The influencing factor is calculated for the usage of land within two circles, having radii of 100m and 450m from the premises of concern. The base noise levels for residential premises are listed in Table 3.1.

TABLE 3.1 - BASELINE ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	45 + IF	55 + IF	65 + IF
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	40 + IF	50 + IF	65 + IF
	1900 - 2200 hours all days (Evening)	40 + IF	50 + IF	55 + IF
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and Public Holidays (Night)	35 + IF	45 + IF	55 + IF

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.
IF is the influencing factor.

It is a requirement that received noise be free of annoying characteristics (tonality, modulation and impulsiveness), defined below as per Regulation 9.

"impulsiveness" means a variation in the emission of a noise where the difference between L_{Apeak} and $L_{Amax(Slow)}$ is more than 15 dB when determined for a single representative event;

"modulation" means a variation in the emission of noise that –

(b) is more than 3 dB L_{AFast} or is more than 3 dB L_{AFast} in any one-third octave band;

(c) is present for more at least 10% of the representative assessment period; and

(d) is regular, cyclic and audible;

"tonality" means 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_{ASlow} levels.

Where the noise emission is not music, if the above characteristics exist and cannot be practicably removed, then any measured level is adjusted according to Table 3.2 below.

TABLE 3.2 - ADJUSTMENTS TO MEASURED LEVELS

Where **tonality** is present	Where **modulation** is present	Where **impulsiveness** is present
+5 dB(A)	+5 dB(A)	+10 dB(A)

Note: These adjustments are cumulative to a maximum of 15 dB.

Where the noise emission is music, if the music is audible, then any measured level is adjusted according to Table 3.3 below.

TABLE 3.3 – ADJUSTMENTS TO MEASURED MUSIC NOISE LEVELS

Where **impulsiveness** is not present	Where **impulsiveness** is present
+10 dB(A)	+15 dB(A)

For this development, the neighbouring residences of concern are located to the north and denoted below in Figure 3.1 as Residences to the north west, north and north east.

FIGURE 3.1 – AERIAL

Note : The above image is from the Shire of Serpentine Jarrahdale Intramaps Public Mapping System.

For the neighbouring residences above, noting the land south of Nettleton Road is zoned industrial, the influencing factor has been determined to be +5 dB. Thus, the assigned noise levels would be as listed in Table 3.4.

TABLE 3.4 - ASSIGNED OUTDOOR NOISE LEVEL

Premises Receiving Noise	Time of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area	0700 - 1900 hours Monday to Saturday (Day)	50	60	70
	0900 - 1900 hours Sunday and Public Holidays (Sunday / Public Holiday Day)	45	55	70
	1900 - 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

Note: L_{A10} is the noise level exceeded for 10% of the time.
L_{A1} is the noise level exceeded for 1% of the time.
L_{Amax} is the maximum noise level.

4. PROPOSAL

From information supplied, it is understood that the following activity would occur on site :

- Devotional prayers
- Bible studies teachings
- Pastoral counselling
- Youth social activities
- Children church
- Weddings
- Prayer meetings
- Family Builders Convention
- Leadership seminars
- Easter and Christmas services

With the weekly usage / activities being:

Monday:	Prayer meeting with up to 50 members - 6:30pm - 9pm
Tuesday:	Ladies Prayer meeting with up to 50 members -6:30pm- 9pm
Wednesday:	None
Thursday:	Conventions - (6 times per year) with up to 300 members 6:30pm - 10pm
Friday:	Prayer and leadership meetings/ seminars with up to 100 members. 6:30pm - 10pm
Saturday:	Leadership meetings with up to100 members 4 times per year 9:00am - 4pm Prayer meetings / conventions with up to 200 members 6:30pm - 10pm
Sunday:	Service 400 members 9:00am - 3pm Youth Service with up to 50 members 5:30pm. - 9pm

Services on Friday, Saturday and Sunday have praise and worship band with a sound control limiter, limiting noise to 80 dB(A).

We note that there would be no bell ringing occurring in the centre.

From the above activities, it is also noted that it is understood that 2 major events would also be held within the hall. However, with regards to compliance the Sunday service with up to 400 members and music / singing would be the critical activity with regards to compliance. Thus, achieving compliance for this activity would also achieve compliance, the other activities would also achieve compliance.

For reference, a site plan is attached in Appendix A.

5. MODELLING

To assess the noise received at the neighbouring residences from the proposed development, noise modelling was undertaken using the noise modelling program SoundPlan.

By utilising acoustic modelling, the propagation of noise to nearby residences has been determined taking into account attenuation due to distance, ground absorption and any barrier affects due to fences, buildings or the like. Also, modelling was undertaken using DWER worst case weather conditions.

Calculations were based on the sound power levels used in the calculations are listed in Table 5.1.

TABLE 5.1 - SOUND POWER LEVELS

Item	Sound Power Noise Level, dB(A)
Hall	
Parishioners	60 / m^2
Music	94
Car Moving in Car Park	76
Door Closing	84
Air conditioning condensing Unit	3 @ 78 1 @ 82
Kitchen exhaust	1 @ 78
Toilet Exhaust	1 @ 70

At this stage of the development the mechanical services have not been designed. However, it is recommended that the air conditioning condensing units be located on the lower flat section of roof being above the kitchen and screened from the neighbouring residences. Noise associated with the mechanical services does not take into account any diversity of operation. Thus, this is a conservative assessment.

6. ASSESSMENT

Given the operating times, noise emissions from the hall would need to comply with the acoustic criteria for the Sunday day, which includes evening. However, with the inclusion of the Event 2 that occurs in November (Lantern and lights for celebration of Buddha's birthday) compliance with the night period would be required.

The results of the noise modelling for the air conditioning condensing units and breakout from the hall are shown in Table 6.1.

TABLE 6.1 - ACOUSTIC MODELLING RESULTS FOR L_{A10} CRITERIA
BREAKOUT FROM AUDITORUIM AND MECHANICAL PLANT

Neighbouring Residence	Calculated Noise Level (dB(A))	
	Mechanical Services	Breakout from Auditorium
North West	32 (37)	28 {38}
North	33 (38)	26 {36}
North East	32 (37)	22 {32}

( ) Includes +5 dB(A) penalty for tonality
{ } Includes a +10 dB(A) adjustment for music

Notes

- Noise emissions from the mechanical services would be tonal and a +5 dB(A) penalty would be applicable.

- Although, at the calculated noise level, we believe that the noise received at the neighbouring residences from noise breakout from the auditorium would be considered reasonable, with music played within the auditorium, to be conservative, the +10 dB(A) adjustment for music has been applied.

- The above assessment for the breakout from the auditorium has been based on tilt-up concrete walls and metal deck roof (as indicated on the drawings). Noise received at the neighbouring residences from the auditorium would be dominated by noise breakout from the roof. However, it should be noted that to be conservative, no ceiling has been included in the assessment.

Based on the definitions of tonality, noise emissions from car movements and car starts, being an L_{A1} and L_{AMax} respectively, being present for less than 10% of the time, would not be considered tonal. Thus, no penalties would be applicable, and the assessment would be as listed in Table 6.2 (Car Moving) and Table 6.3 (Car Starting). However, noise emissions from car doors closing could be impulsive, hence the +10dB penalty has been included in the assessment, as indicated in Table 6.3.

TABLE 6.2 - ACOUSTIC MODELLING RESULTS L_{A1} CRITERIA
CAR MOVING

Location	Calculated Noise Level (dB(A))
North West	39
North	40
North East	41

TABLE 6.3 - ACOUSTIC MODELLING RESULTS L_{Amax} CRITERIA
CAR STARTING / DOOR CLOSING

Location	Calculated Noise Level (dB(A))	
	Car Starting	Door Closing
North West	45	46 [56]
North	44	46 [56]
North East	46	47 [57]

[ ] Includes +10 dB(A) penalty for a impulsiveness.

Based on the calculated noise levels, Tables 6.4 to 6.8 summarise the applicable Assigned Noise Levels, and assessable noise level emissions for each identified noise.

It is noted that given the usage, as outlined in Section 4, the Place of Worship is NOT used during the night period and compliance is only required for the other periods of the day. Thus, for information, the night period assigned noise level has been shown for the mechanical services and breakout from the auditorium. However, as cars could be leaving the development after 10pm, the noise associated with car movements etc have been assessed against the appropriate night period assigned noise level.

TABLE 6.4 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS MECHANCIAL SERVICES

Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Level (dB) L_{A10} dB	Exceedance to Assigned Noise Level (dB)
North West	37	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A
North	38	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A
North East	37	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A

TABLE 6.5 – ASSESSMENT OF L_{A10} NOISE LEVEL EMISSIONS BREAKOUT FROM AUDITORIUM (WORST CASE USAGE)

Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Level (dB) L_{A10} dB	Exceedance to Assigned Noise Level (dB)
North West	38	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A
North	36	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A
North East	32	Day - Weekday	50	Complies
		Day - Sundays / Public Holiday	45	Complies
		Evenings	45	Complies
		Night	40	N/A

TABLE 6.6 – ASSESSMENT OF L_{A1} NOISE LEVEL EMISSIONS
CAR MOVING

Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Level (dB) L_{A1} dB	Exceedance to Assigned Noise Level (dB)
North West	39	Day - Weekday	60	Complies
		Day - Sundays / Public Holiday	55	Complies
		Evenings	55	Complies
		Night	50	Complies
North	40	Day - Weekday	60	Complies
		Day - Sundays / Public Holiday	55	Complies
		Evenings	55	Complies
		Night	50	Complies
North East	41	Day - Weekday	60	Complies
		Day - Sundays / Public Holiday	55	Complies
		Evenings	55	Complies
		Night	50	Complies

TABLE 6.7 – ASSESSMENT OF L_{AMax} NOISE LEVEL EMISSIONS
CAR STARTING

Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Level (dB) L_{Amax} dB	Exceedance to Assigned Noise Level (dB)
North West	45	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies
North	44	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies
North East	46	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies

TABLE 6.8 – ASSESSMENT OF L_{AMax} NOISE LEVEL EMISSIONS
CAR DOOR CLOSING

Noise Source	Assessable Noise Level, dB(A)	Applicable Times of Day	Applicable Assigned Level (dB) L_{Amax} dB	Exceedance to Assigned Noise Level (dB)
North West	56	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies
North	56	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies
North East	57	Day - Weekday	70	Complies
		Day - Sundays / Public Holiday	70	Complies
		Evenings	60	Complies
		Night	60	Complies

7. CONCLUSION

Based on the above, noise received at the neighbouring residences from the activities associated with acts of worship within the place of worship would comply with the appropriate assigned noise levels. Thus, noting that under the Regulations, noise emissions from a place of worship are exempt from complying with the assigned noise levels, noise associated with the place of worship would be deemed reasonable and compliant with the requirements of the *Environmental Protection (Noise) Regulations 1997*. These activities include, but would not be limited to :

Monday:	Prayer meeting with up to 50 members - 6:30pm - 9pm
Tuesday:	Ladies Prayer meeting with up to 50 members -6:30pm- 9pm
Wednesday:	None
Thursday:	Conventions - (6 times per year) with up to 300 members 6:30pm - 10pm
Friday:	Prayer and leadership meetings/ seminars with up to 100 members. 6:30pm - 10pm
Saturday:	Leadership meetings with up to100 members 4 times per year 9:00am - 4pm Prayer meetings / conventions with up to 200 members 6:30pm - 10pm
Sunday:	Service 400 members 9:00am - 3pm Youth Service with up to 50 members 5:30pm. - 9pm

Additional to the above, it is noted that noise associated with cars movements and cars starting are exempt from complying with the Regulations. However, noise emissions from car doors are not strictly exempt from the Regulations. Noise received at the neighbouring residences from these noise sources would with the fencing, as shown on the site plan in Appendix A, comply with the Regulatory requirements, at all times.

Based on the analysis of noise emissions from the proposed place of public worship, noise received at the neighbouring premises would comply with the requirements of the *Environmental Protection (Noise) Regulations 1997* for the proposed usages. However, it is recommended that :

- The air conditioning condensing units are located on the flat section of roof (above the kitchen) and screened from the neighbouring residences. Alternative location would also be acceptable. However, as the mechanical services has not been designed at this stage of the development, it is recommended that an acoustical assessment be undertaken of the mechanical services design to ensure compliance is achieved.

APPENDIX A

SITE PLAN

CAR PARKING CALCULATIONS

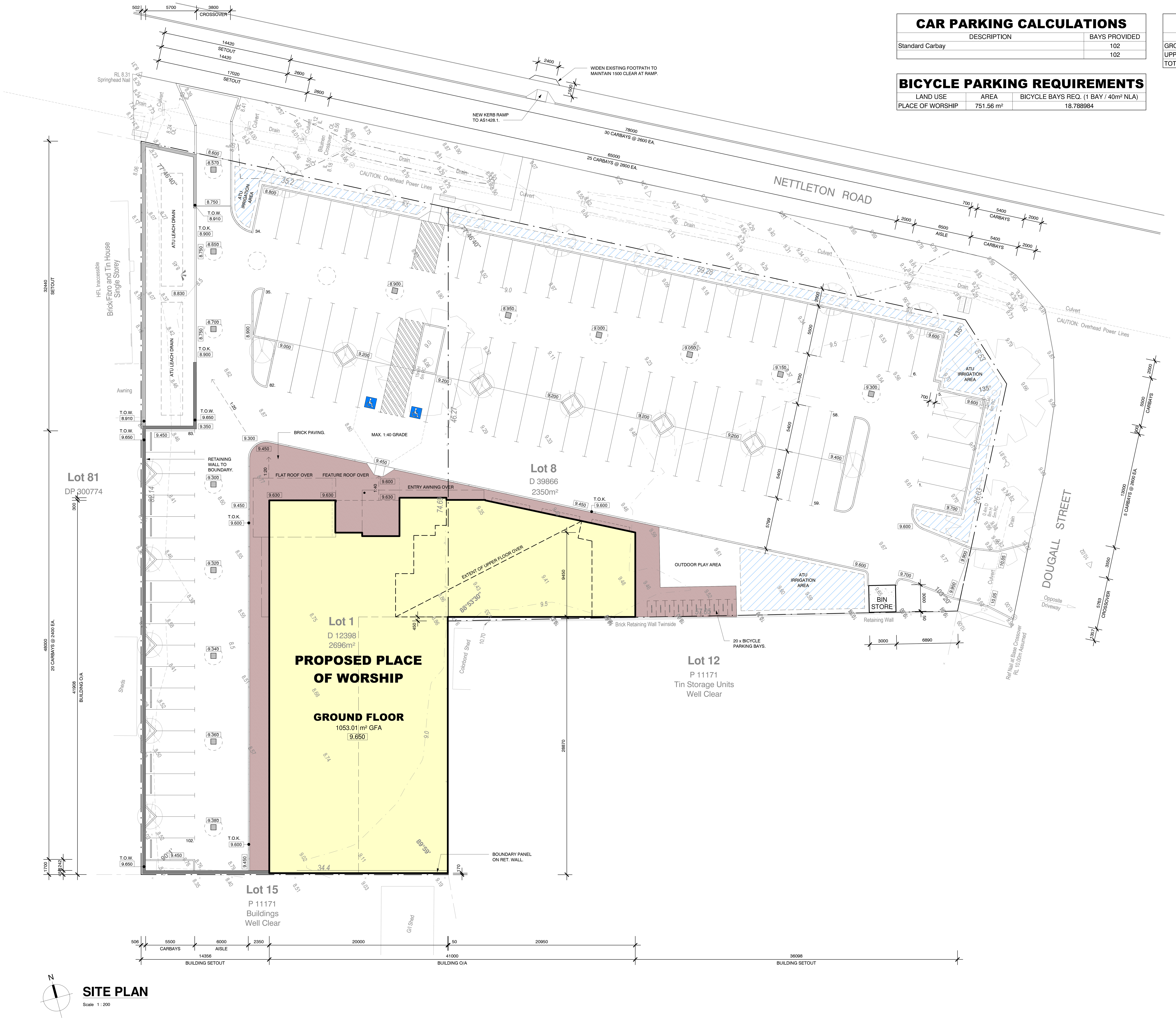
DESCRIPTION	BAYS PROVIDED
Standard Carbay	102
	102

BICYCLE PARKING REQUIREMENTS

LAND USE	AREA	BICYCLE BAYS REQ. (1 BAY / 40m² NLA)
PLACE OF WORSHIP	751.56 m²	18.788984

AREAS (GFA)

LAND USE	AREA
GROUND FLOOR	1053.01 m²
UPPER FLOOR	239.65 m²
TOTAL	1292.65 m²


NETTLETON ROAD
DOUGALL STREET
WIDEN EXISTING FOOTPATH TO MAINTAIN 1500 CLEAR AT RAMP.
NEW KERB RAMP TO AS1428.1.
30 CARBAYS @ 2600 EA.
25 CARBAYS @ 2600 EA.
CAUTION: Overhead Power Lines
ATU IRRIGATION AREA
ATU LEACH DRAIN
BRICK PAVING.
MAX. 1:40 GRADE
FLAT ROOF OVER
FEATURE ROOF OVER
ENTRY AWNING OVER
EXTENT OF UPPER FLOOR OVER
OUTDOOR PLAY AREA
BIN STORE
20 x BICYCLE PARKING BAYS.
Brick Retaining Wall Twinside
Retaining Wall
RETAINING WALL TO BOUNDARY.
BOUNDARY PANEL ON RET. WALL.
Lot 8
D 39866
2350m²
Lot 1
D 12398
2696m²
PROPOSED PLACE OF WORSHIP
GROUND FLOOR
1053.01 m² GFA
Lot 81
DP 300774
Lot 12
P 11171
Tin Storage Units
Well Clear
Lot 15
P 11171
Buildings
Well Clear
HFL Inaccessible
Brick/Fibro and Tin House
Single Storey
20 CARBAYS @ 2400 EA.
5 CARBAYS @ 2600 EA.
BUILDING SETOUT
BUILDING O/A
CROSSOVER
Opposite Driveway
Ref Nail at Base Crossover RL 10.00m Assumed

SITE PLAN

Scale 1 : 200

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
M.Sibum	AUG 2024	1 : 200 @ A1	0701	Sheet 2	SK10

MULDER KAMPMAN DESIGN

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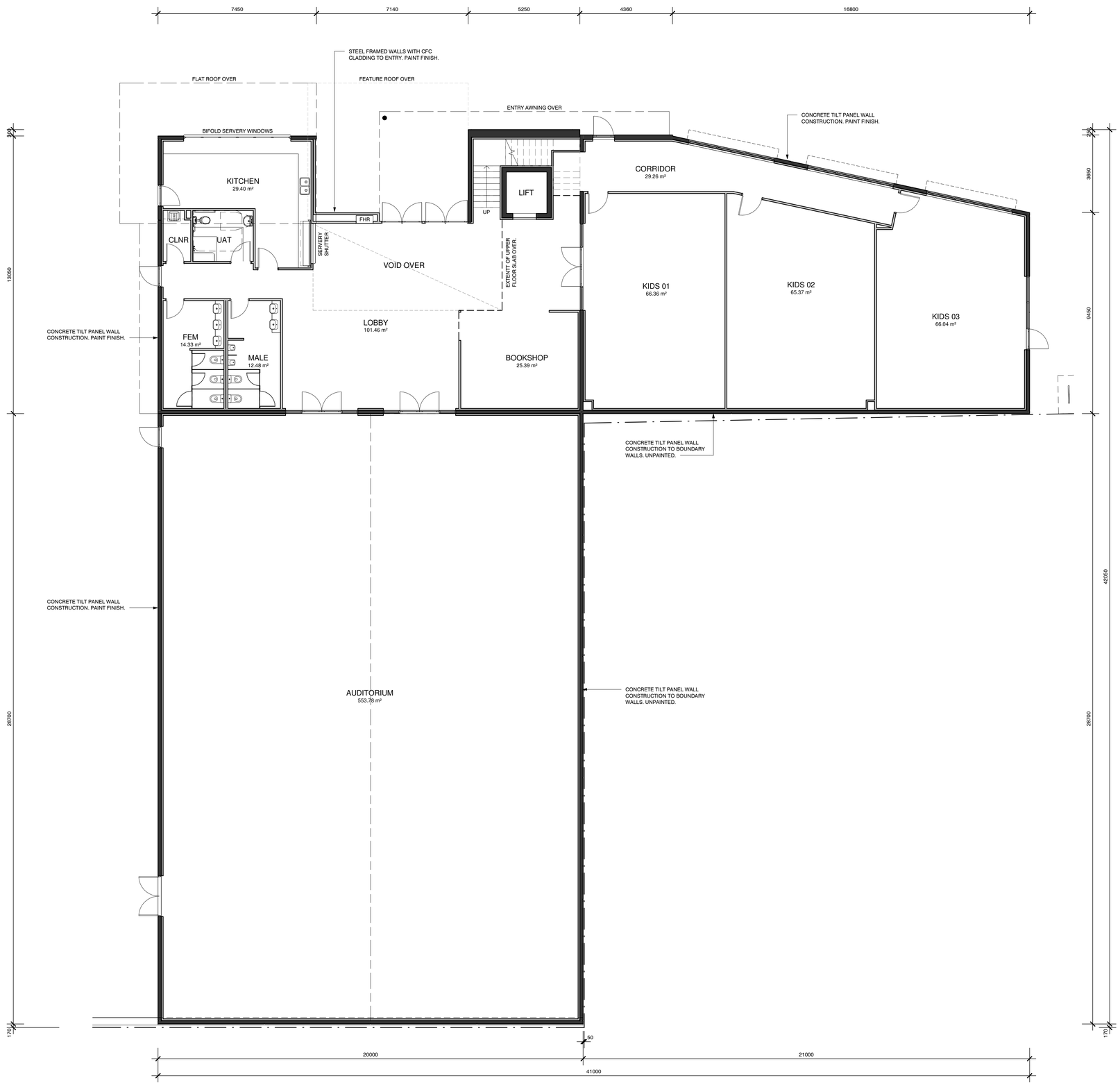
Unit 4, 53 Sholl St, MANDURAH WA 6210



N

GROUND FLOOR PLAN

Scale 1 : 100

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
M.Sibum	AUG 2024	1 : 100 @ A1	0701	Sheet 3	SK10

MULDER KAMPMAN DESIGN

P 0400 219 966
E admin@mulderkampman.com.au
W www.mulderkampman.com.au
Unit 4, 53 Sholl St, MANDURAH WA 6210

N

UPPER FLOOR PLAN

Scale 1 : 100

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
M.Sibum	AUG 2024	1 : 100 @ A1	0701	Sheet 4	SK10

MULDER KAMPMAN DESIGN

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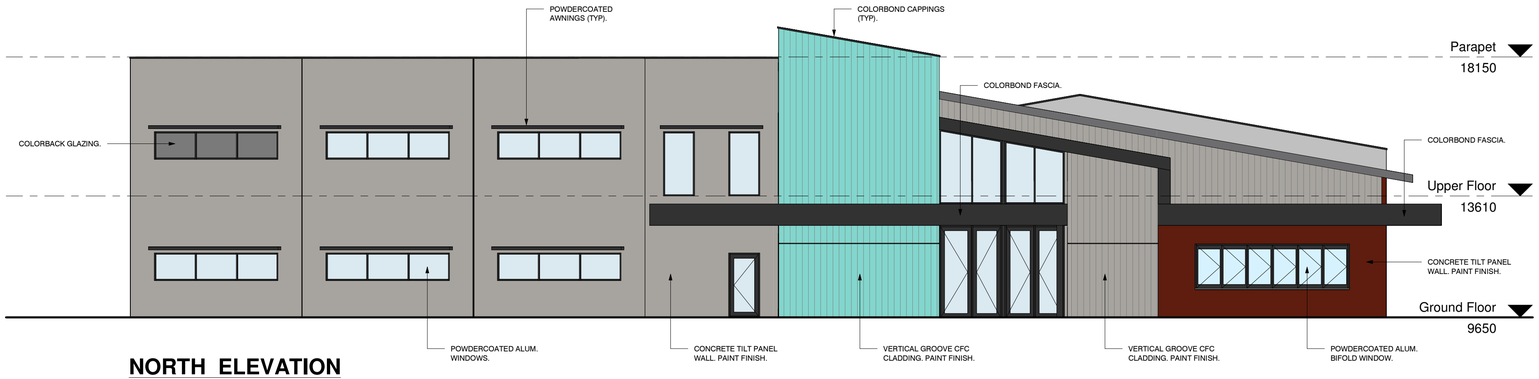
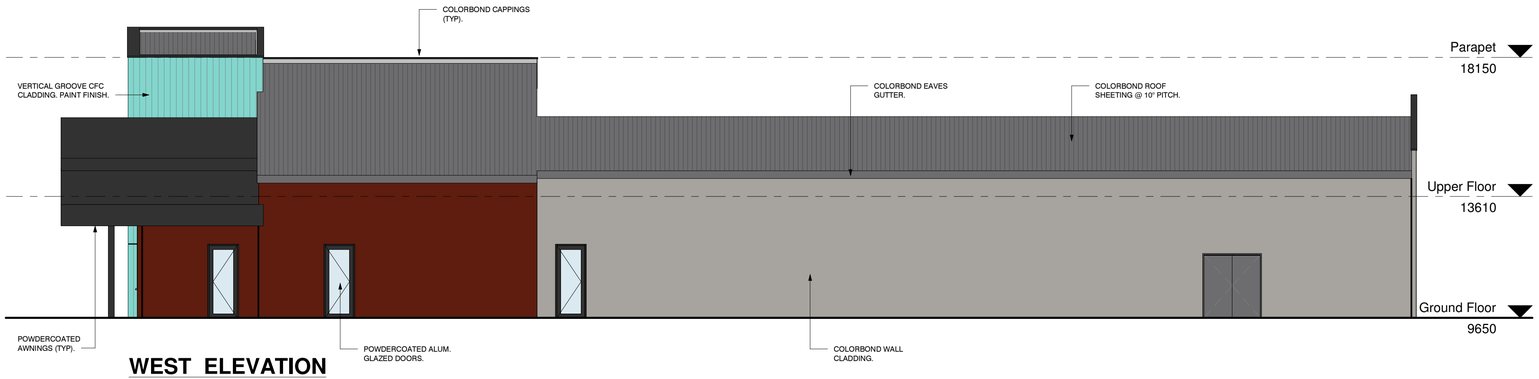


NORTH ELEVATION

Scale 1 : 100



WEST ELEVATION

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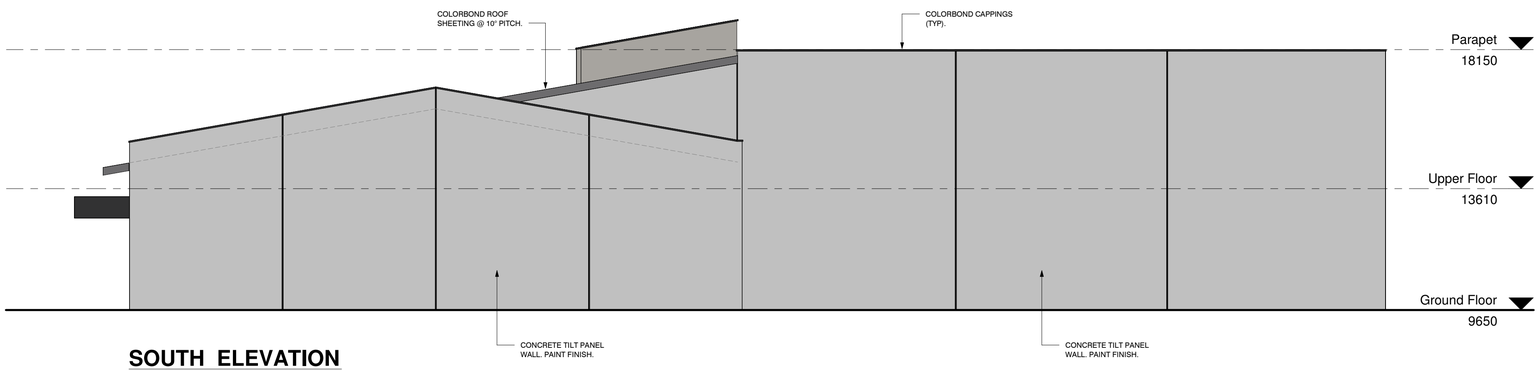
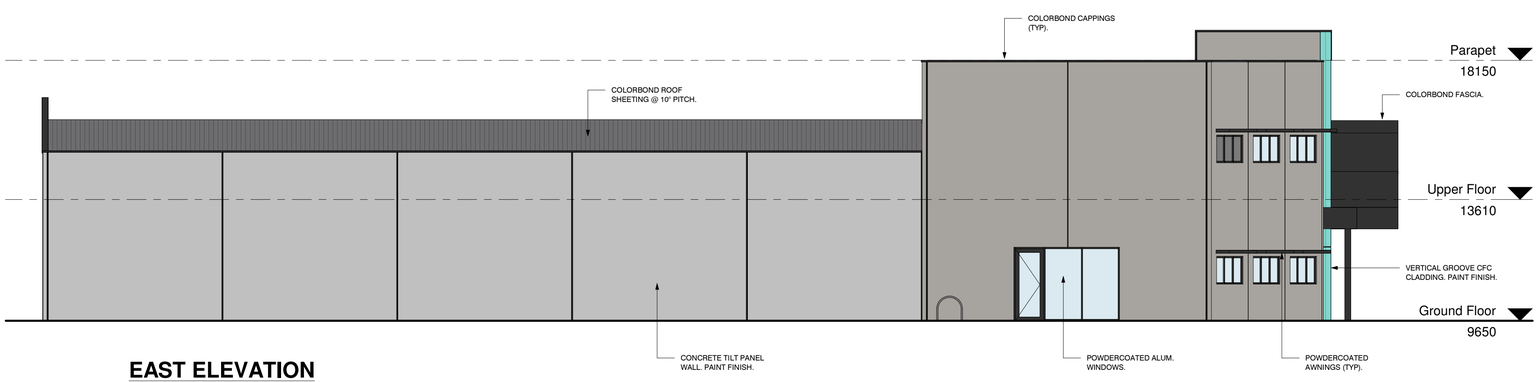


SOUTH ELEVATION

Scale 1 : 100



EAST ELEVATION

Scale 1 : 100

MATERIALS:

1. MAIN CONCRETE PANELS - PAINT FINISH - DULUX 'ASHLITE'
2. FEATURE CONCRETE PANELS - PAINT FINISH - 'MANOR RED'
3. MAIN CFC CLADDING - PAINT FINISH - DULUX 'ASHLITE'
4. FEATURE CFC CLADDING - PAINT FINISH - DULUX 'NILE STONE'
5. WALL SHEETING - COLORBOND - 'BASALT'
6. PA DOORS - PAINT / POWDERCOAT - 'BASALT'
7. ALUM. WINDOW / DOOR FRAMES - POWDERCOAT - 'MONUMENT'
8. AWNINGS / FASCIAS / WALL CAPPINGS - COLORBOND - 'MONUMENT'
9. ROOF SHEETING - COLORBOND - 'BASALT'

COLOUR LEGEND:

- 'ASHLITE'
- 'MANOR RED'
- 'NILE STONE'
- 'BASALT'
- 'MONUMENT'

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

DRAWN	DATE	SCALE	PROJECT No.	DRAWING No.	REV.
M.Sibum	AUG 2024	1 : 100 @ A1	0701	Sheet 5	SK10

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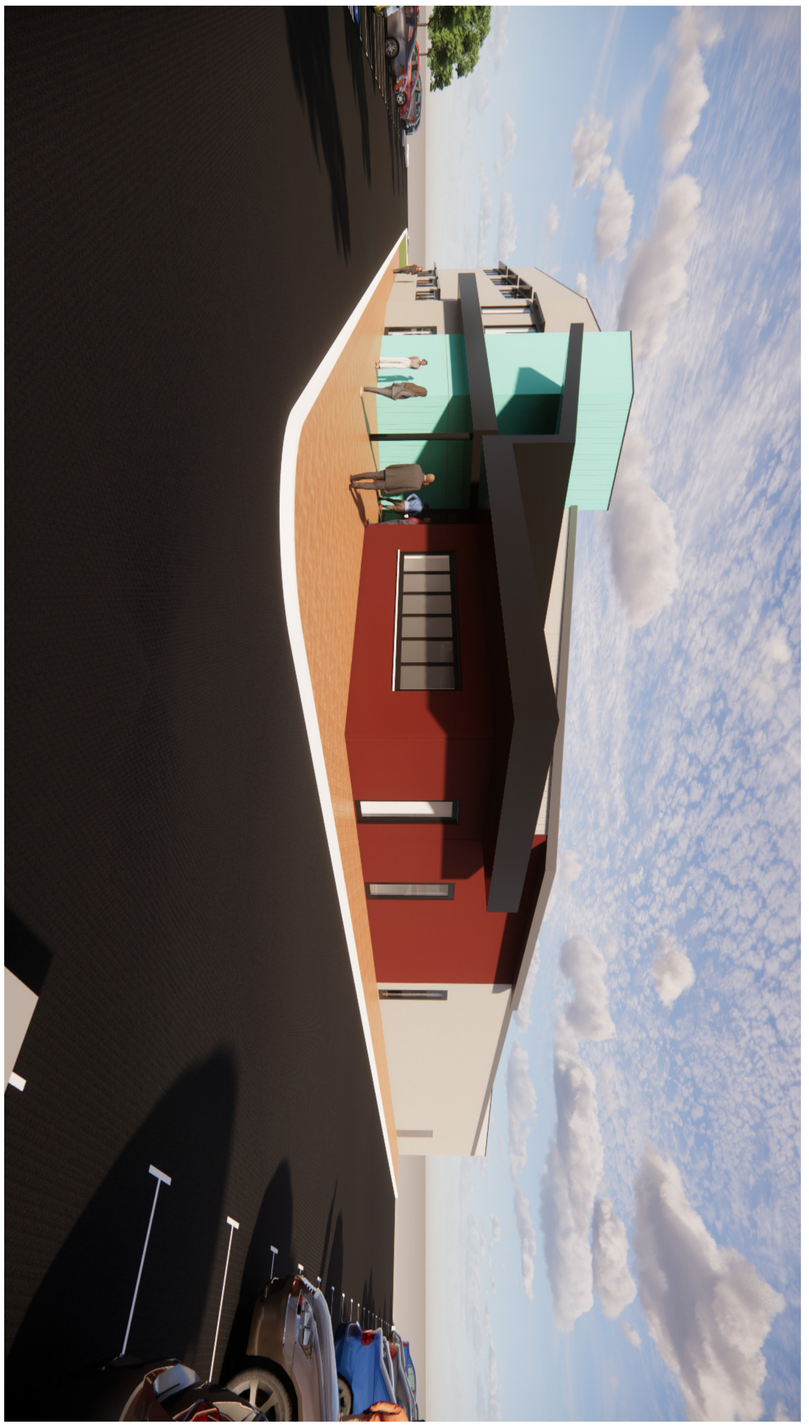

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Lot 8 (#30) Nettleton Rd, BYFORD

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LANDSCAPING PLAN

Scale 1 : 200

PLANT LEGEND

FICINIA NODOSA (KNOTTED CLUB RUSH)	
CONOSTYLIS ACULEATA (PRICKLY COTTONHEAD)	
GREVILLEA OBTUSIFOLIA (GINGIN GEM)	
PATERSONIA OCCIDENTALIS (PURPLE FLAG)	
LOMANDRA LONGFOLIA (TANIKA)	
HIBISCUS TILIACEUS RUBRA (RED COTTONWOOD)	
ELAEOCARPUS RETICULATUS (BLUEBERRY ASH)	

LANDSCAPING LEGEND

	NAME	TYPE	DENSITY
	FICINIA NODOSA (KNOTTED CLUB RUSH)	MEDIUM SHRUB	2 PLANTS / m2
	CONOSTYLIS ACULEATA (PRICKLY COTTONHEAD)	MEDIUM SHRUB	4 PLANTS / m2
	GREVILLEA OBTUSIFOLIA (GINGIN GEM)	MEDIUM SHRUB	1 PLANTS / m2
	PATERSONIA OCCIDENTALIS (PURPLE FLAG)	MEDIUM SHRUB	4 PLANTS / m2
	LOMANDRA LONGFOLIA (TANIKA)	MEDIUM SHRUB	4 PLANTS / m2
	HIBISCUS TILIACEUS RUBRA (RED COTTONWOOD)	TREE	N/A
	ELAEOCARPUS RETICULATUS (BLUEBERRY ASH)	TREE	N/A
	KIKUYU	GRASS	N/A

LANDSCAPING NOTES

LANDSCAPING INSTALLATION REQUIREMENTS:

POT SIZES AS FOLLOWS:

TREES	100L
SHRUBS	150-200mm
SMALL BORDER PLANTS	MINIMUM 130mm

- ALL GARDEN BEDS TO BE MULCHED TO A MINIMUM DEPTH OF 100mm WITH 50mm BREATHING SPACE AROUND STEMS AND TRUNKS OF PLANTS
- ALL TREES TO BE STAKED AND TIED
- WHERE FERTILISER IS REQUIRED - SLOW RELEASE FERTILISER SHOULD BE APPLIED
- ALL SHRUBS & TREES TO HAVE AN AUTOMATIC TRICKLE SYSTEM

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PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries
Lot 8 (#30) Nettleton Rd, BYFORD

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DATE AUG 2024
SCALE As indicated @ A1
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Proposed Place of Worship

Lot 1 (24) & Lot 8 (30) Nettleton Road, Byford

Transport Impact Statement

PREPARED FOR:
Mulder Kampman Design

October 2024

Document history and status

Author	Revision	Approved by	Date approved	Revision type
R Bajwa	r01	B Bordbar	11/10/24	Final

File name: t24.162.rb.r01

Author: Transcore

Project manager: Behnam Bordbar

Client: Mulder Kampman Design

Project: Lot 1 (24) & Lot 8 (30) Nettleton Road, Byford

Document revision: r01

Project number: t24.162

TABLE OF CONTENTS

REPORT FIGURES

1 Introduction

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Mulder Kampman Design with regard to the proposed Place of Worship for Christian activities at Lot 1 (24) & Lot 8 (30) Nettleton Road, Byford in Shire of Serpentine Jarrahdale.

The subject site is located at the southwest corner of Nettleton Road / Dougall Street unsignalised T-intersection as shown in **Figure 1**. The subject site is bounded by Nettleton Road to the north, Dougall Street to the east and existing industrial developments to the south and west. The subject site is currently occupied by industrial-type land use.

Figure 1: Location of the subject site

The Transport Impact Assessment Guidelines (WAPC, Vol 4 – Individual Developments, August 2016) states: *"A Transport Impact Statement is required for those developments that would be likely to generate moderate volumes of traffic*[1] *and therefore would have a moderate overall impact on the surrounding land uses and transport networks"*.

[1] *Between 10 and 100 vehicular trips per hour*

Section 6 of Transcore's report provides details of the estimated trip generation for the proposed development. Accordingly, as the total peak hour vehicular trips are estimated to be less than 100 trips, a Transport Impact Statement is deemed appropriate for this development.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed development, access and egress movement patterns and parking demand and supply.

2 Proposed Development

The development application seeks approval for a Place of Worship and associated amenities with a capacity to accommodate a maximum of 400 persons. The existing commercial land uses at the subject site will be demolished and replaced by the proposed development. The proposed development site plan is provided in **Appendix A**.

The proposed development will incorporate the following key elements:

- An auditorium that will be used for general church meetings and gatherings;
- Associated amenities such as a kitchen, bookshop, kids' playrooms and outdoor play area at the ground floor level and a nursing room, boardroom, and four office rooms at the upper floor level; and,
- A sealed car parking area with 101 parking spaces.

Further, based on the information provided to Transcore, the following activities will take place at the proposed Place of Worship:

- Devotional prayers
- Bible studies teachings
- Pastoral counselling
- Youth social activities
- Children church
- Weddings
- Prayer meetings
- Family Builders Convention
- Leadership seminars
- Easter and Christmas services

There are 5 admin/ office staff expected to work at the proposed facility at any time on weekdays. The weekly schedule of the activities and the estimated number of attendances will be as follows:

Monday:
- Prayer meetings between 6:30pm - 9pm - 50 members.

Tuesday:
- Ladies Prayer meetings between 6:30pm - 9pm - 50 members.

Wednesday:
- No activities proposed.

Thursday:
- Conventions between 6:30pm - 10pm (6 times per year) - 300 members.

Friday:

- Prayer meetings /leadership meetings/ seminars between 6:30pm - 10pm - 100 members.

Saturday:

- Leadership meetings between 9am - 4pm (4 times per year) -100 members.
- Prayer meetings/ conventions between 6:30pm - 10pm - 200 members.

Sunday:

- Service between 9:00am - 3pm - 400 members.
- Youth Services between 5:30pm - 9pm - 50 members.

3 Vehicle Access and Parking

3.1 Access

The existing developments at the subject site currently entail three full-movement crossovers on Nettleton Road and one full-movement crossover on Dougall Street. Access to the proposed Place of Worship will be facilitated through the existing full-movement crossover on Dougall Street and the westernmost existing crossover on Nettleton Road as depicted in **Figure 2**. The two existing crossovers on Nettleton Road currently serving Lot 8 (30) Nettleton Road are proposed to be removed.

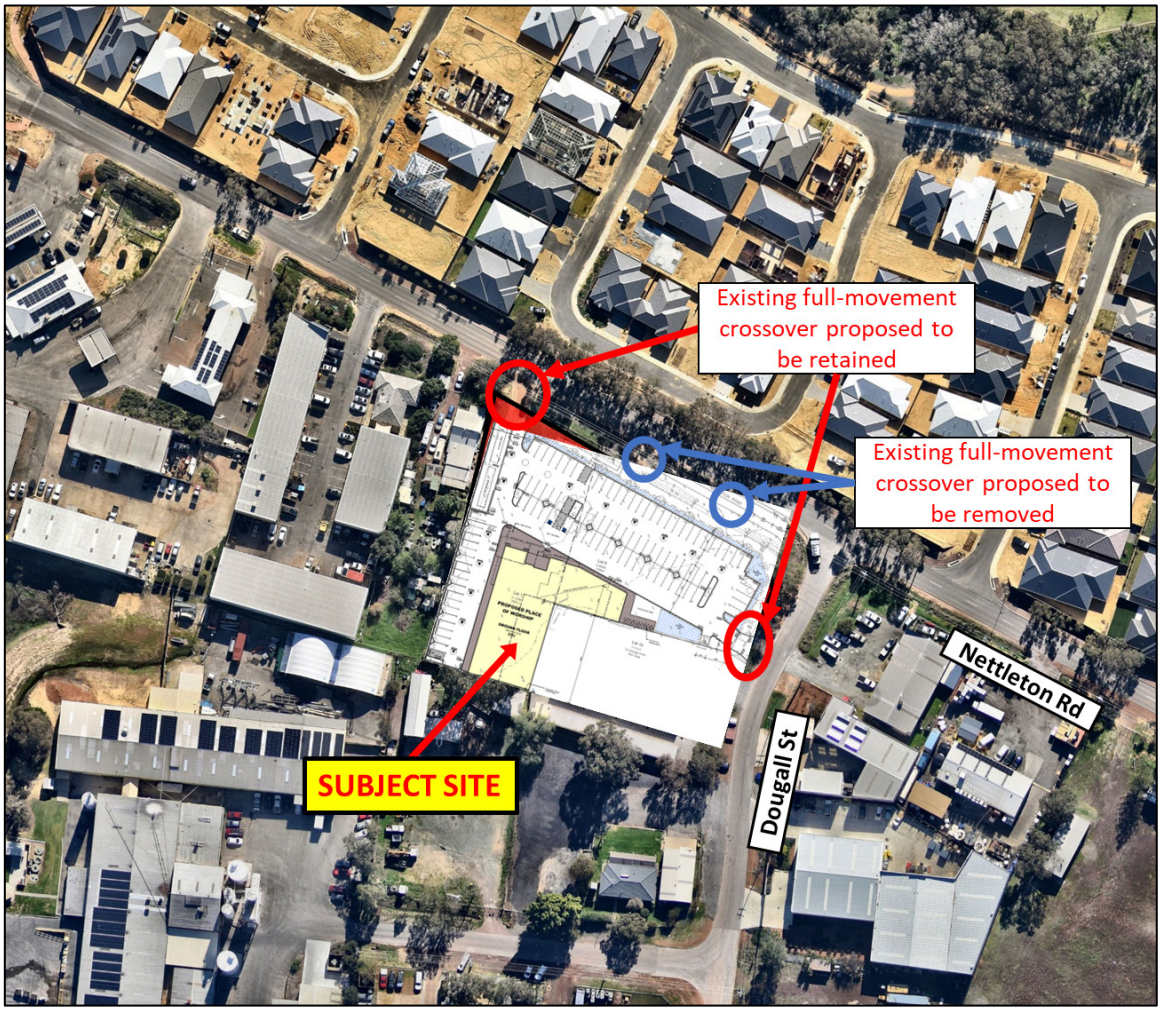


Figure 2: Proposed development access arrangement

3.2 Parking Demand and Supply

According to the Shire of Serpentine Local Planning Scheme 3, the car parking provision for a Place of Worship is 1 space for every 4 persons accommodated at maximum occupancy.

The proposed development site plan in **Appendix A** shows that 101 car parking bays are proposed on site including 2 ACROD bays. The Place of Worship is designed to accommodate a maximum capacity of 400 persons, and as such, will require a total of 100 parking bays as per Shire's policy. Accordingly, the parking supply meets the requirements of the LPS 3.

The proposed car park complies with the relevant Australian parking standards.

Additionally, according to Shire's planning scheme, the bicycle parking provision for the proposed development is 1 bay per 40sqm NLA. The NLA of the proposed development is 751.56sqm. Thus, as per the Shire's requirements, the proposed development would require 19 bicycle bays.

The proposed development site plan shows that 20 bicycle parking bays are proposed as part of the proposed development which complies with the Shire's bicycle parking requirements.

4 Provision for Service Vehicles

A bin storage area is proposed adjacent to the crossover on Dougall Street as shown in the development plan in **Appendix A**.

Waste collection and deliveries will take place within the site. A private contractor will collect waste using an 8.8m service vehicle. The waste collection truck will be able to enter the site via the Dougall Street crossover in forward gear, park in a suitable position adjacent to the bin store for rubbish collection and then exit the site via the Nettleton Road crossover in forward gear.

Swept path analysis is undertaken for an 8.8m service vehicle and the turn path plans included in **Appendix B** show satisfactory access, egress, and circulation within the site.

5 Hours of Operation

The admin/office staff are anticipated to work between 8am to 5pm on weekdays. The operating hours of the proposed Place of Worship are as follows:

Monday & Tuesday:
- 8am to 9pm.

Wednesday:
- 8am to 5pm.

Thursday & Friday:
- 8am to 10pm.

Saturday:
- 9am to 10pm.

Sunday:
- 9am to 9pm.

6 Daily Traffic Volumes and Vehicle Types

6.1 Existing Development Trip Generation

The subject site currently entails two industrial developments. However, to undertake a conservative analysis, the trip generation of the existing development has not been discounted.

6.2 Proposed Development Trip Generation

As detailed in **Section 2** of this report, the highest visitation to the proposed Place of Worship will be during the worship service proposed to be held each Sunday, between 9am and 3pm, with a peak attendance of 400 members. Therefore, the highest trip generation of the proposed development is anticipated to be on Sunday.

It should be noted that some members will walk, cycle, ride share or arrive at the Church via public transport, especially given the proximity of the proposed development to the public transport services.

There are 101 car parking bays proposed at the proposed Place of Worship. For conservative analysis, it is assumed that the parking facility will be fully occupied during Sunday services i.e. 101 vehicles will arrive at and depart from the facility.

Conservatively it is assumed that 80% of the vehicles arrive between 8:30am – 9:30am (service starts at 9am) and 80% of the vehicles depart between 2:30pm – 3:30pm (service finishes at 3 pm). Therefore, it is anticipated that the Sunday service will attract inbound traffic flows of approximately 80 vehicles between 8:30am – 9:30am and outbound traffic flows of approximately 80 vehicles between 2:30pm – 3:30pm.

Youth services are proposed to be held each Sunday, starting at 5:30pm and finishing at 9pm, with a peak attendance of 50 members. Using a similar logic as above approximately 13 vehicles are expected to arrive and depart from the proposed development during youth services. The admin office will be closed on Sundays. Accordingly, the highest daily trip generation is anticipated to be on Sunday and will be approximately 124 vehicles inbound and 124 vehicles outbound.

6.3 Traffic Flow

Based on the general spatial distribution of existing residential developments in the immediate area and the permeability of the local road network, the proposed development traffic distribution adopted for this analysis is as follows:

- 10% to/from east on Nettleton Road;
- 60% to/from north on South Western Highway and,
- 30% to/from south on South Western Highway.

Figure 3 illustrates trip generation and traffic distribution over the local road network for the proposed development.

Figure 3: Estimated traffic movements for the subject site

6.4 Impact on Surrounding Roads

The WAPC *Transport Impact Assessment Guidelines* (2016) provides the following guidance on the assessment of traffic impacts:

"As a general guide, an increase in traffic of less than 10 percent of capacity would not normally be likely to have a material impact on any particular section of road, but increases over 10 percent may. All sections of road with an increase greater than 10 percent of capacity should therefore be included in the analysis. For ease of assessment, an increase of 100 vehicles per hour for any lane can be considered as equating to around 10 percent of capacity. Therefore, any section of road where development traffic would increase flows by more than 100 vehicles per hour for any lane should be included in the analysis."

The proposed development will not increase traffic flows on any roads adjacent to the site by the quoted WAPC threshold of +100vph per lane to warrant further analysis. Therefore, the impact of the proposed development traffic on the surrounding road network will not be material.

7 Traffic Management on the Frontage Streets

Nettleton Road north of the subject site is a 6.5m wide two-lane single-carriageway road as shown in **Figure 4**. It is classified as a *Regional Distributor* in the Main Roads WA *Functional Road Hierarchy* and operates under the sign-posted speed limit of 60km/h.

Figure 4: Westbound view of Nettleton Road in the vicinity of the subject site

Dougall Street, east of the subject site, is a 6.5m wide single-carriageway road as shown in **Figure 5**. Dougall Street is classified as an *Access Road* in the Main Roads WA *Functional Road Hierarchy* and operates under the default built-up area speed limit of 50km/h.

Figure 5: Northbound view of Dougall Street in the vicinity of the subject site

8 Public Transport Access

According to the current Transperth bus network map, the closest bus routes operating in the vicinity of the subject site are Transperth bus routes 251, 252 and 253 operating on South Western Highway. The nearest bus stop is located approximately 250m walking distance from the subject site. Existing public transport services in the vicinity of the subject site are shown in **Figure 6**.

Additionally, the proposed development is located approximately 300m away from the Byford Train Station, however, there is no direct pedestrian path between South Western Highway and Byford Train Station.

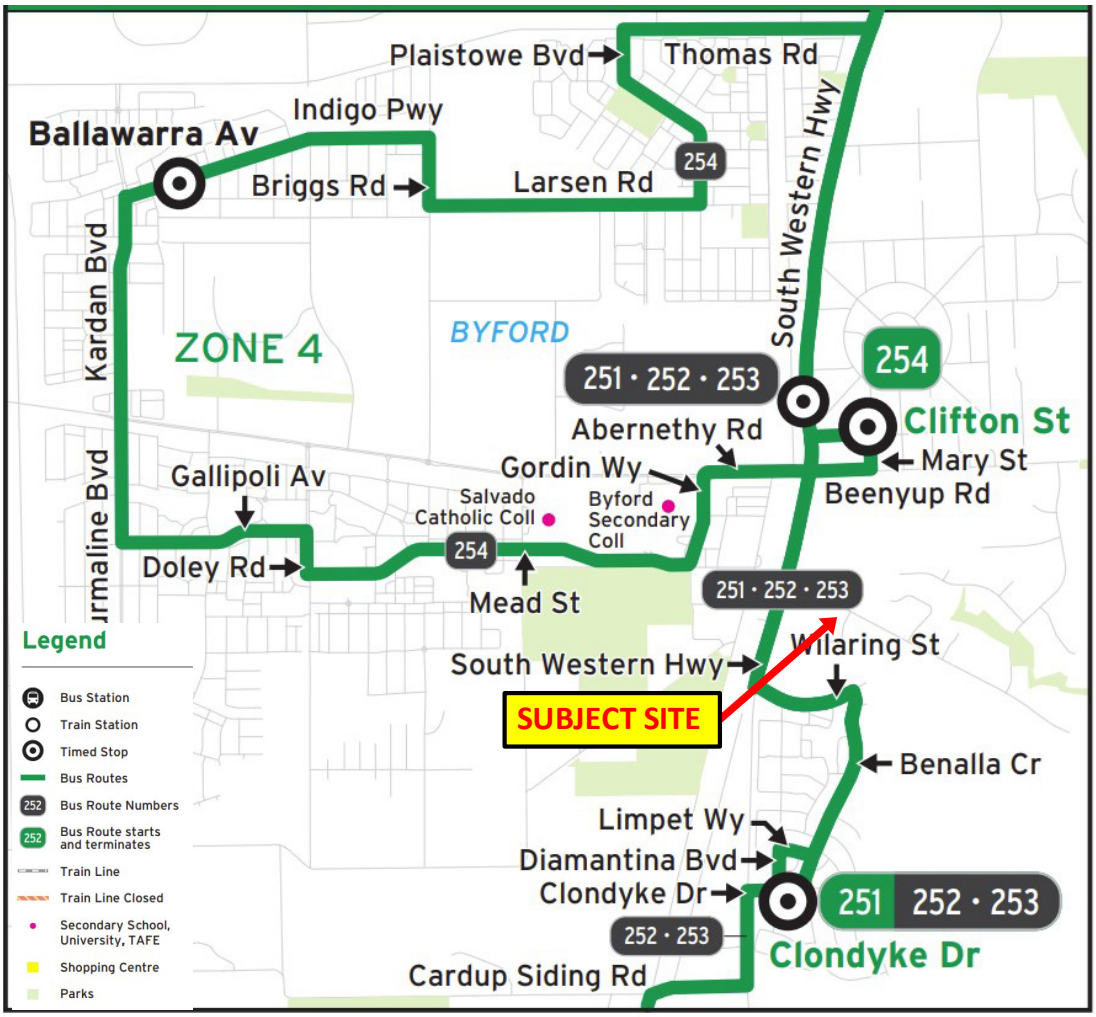


Figure 6: Existing bus routes (Transperth Maps)

9 Pedestrian and Cycle Access

According to the current Department of Transport Bike Maps, there is a good road riding environment on Abernethy Road approximately 600m north of the subject site as shown in **Figure 7**. Cyclists are expected to share the road on South Western Highway and Nettleton Road. Pedestrian footpaths are available on the northern side of Nettleton Road and both sides of South Western Highway in this locality.

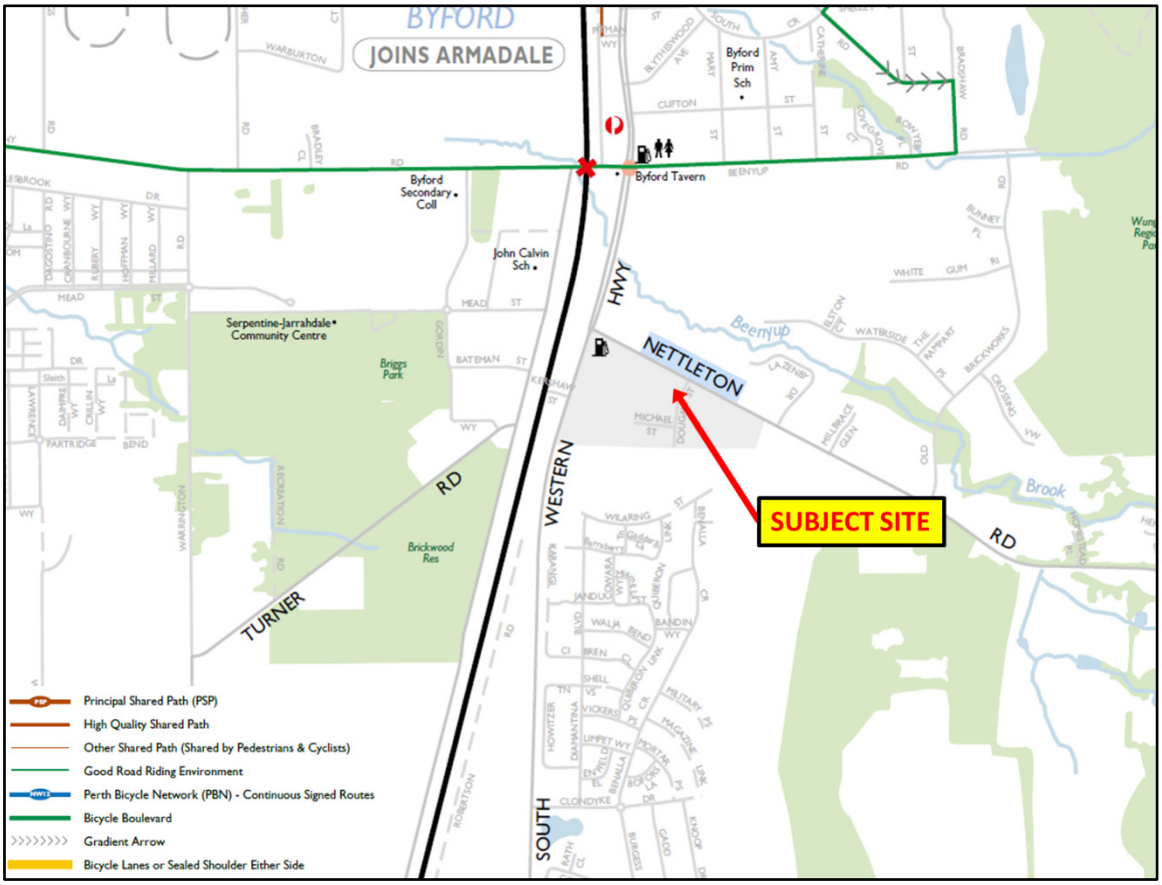


Figure 7: Extract from Perth Bicycle Network (Department of Transport)

10 Site Specific Issues

No site-specific issues were identified within the scope of this assessment.

11 Safety Issues

No safety issues were identified within the scope of this assessment.

12 Conclusions

This Transport Impact Statement (TIS) has been prepared by Transcore on behalf of Mulder Kampman Design with regard to the proposed Place of Worship for Christian activities at Lot 1 (24) & Lot 8 (30) Nettleton Road, Byford in Shire of Serpentine Jarrahdale.

The development application seeks approval for a Place of Worship a capacity to accommodate a maximum of 400 persons. The existing industrial land uses at the subject site will be demolished and replaced by the proposed development.

The existing land uses at the subject site currently entail three full-movement crossovers on Nettleton Road and one full-movement crossover on Dougall Street. Access to the proposed Place of Worship will be facilitated through the existing full-movement crossover on Dougall Street and the westernmost existing crossover on Nettleton Road. The two existing crossovers on Nettleton Road currently serving Lot 8 (30) Nettleton Road are proposed to be removed.

The development is proposed to provide a total of 101 car parking bays and 20 bicycle parking bays which satisfies and exceeds the parking provision according to the Shire of Serpentine Local Planning Scheme.

A bin storage area is proposed adjacent to the crossover on Dougall Street. A private contractor will collect waste using an 8.8m service vehicle within the site. Swept path analysis is undertaken for an 8.8m service vehicle and the turn path plans show satisfactory access, egress, and circulation within the site.

It is estimated that the proposed development would generate a total of approximately **248** (124 inbound and 124 outbound) vehicular trips on the peak activity day which is a Sunday with about **80** trips during the AM peak hour and **80** trips during the PM peak hour. Thus, the estimated traffic generation by the proposed development is not significant and as such would not have a significant impact on the surrounding road network.

No particular transport or safety issues have been identified for the proposed development within the scope of this report.

It is concluded that the findings of this Transport Impact Statement are supportive of the proposed Place of Worship.

Appendix A

PROPOSED DEVELOPMENT PLANS

CAR PARKING CALCULATIONS

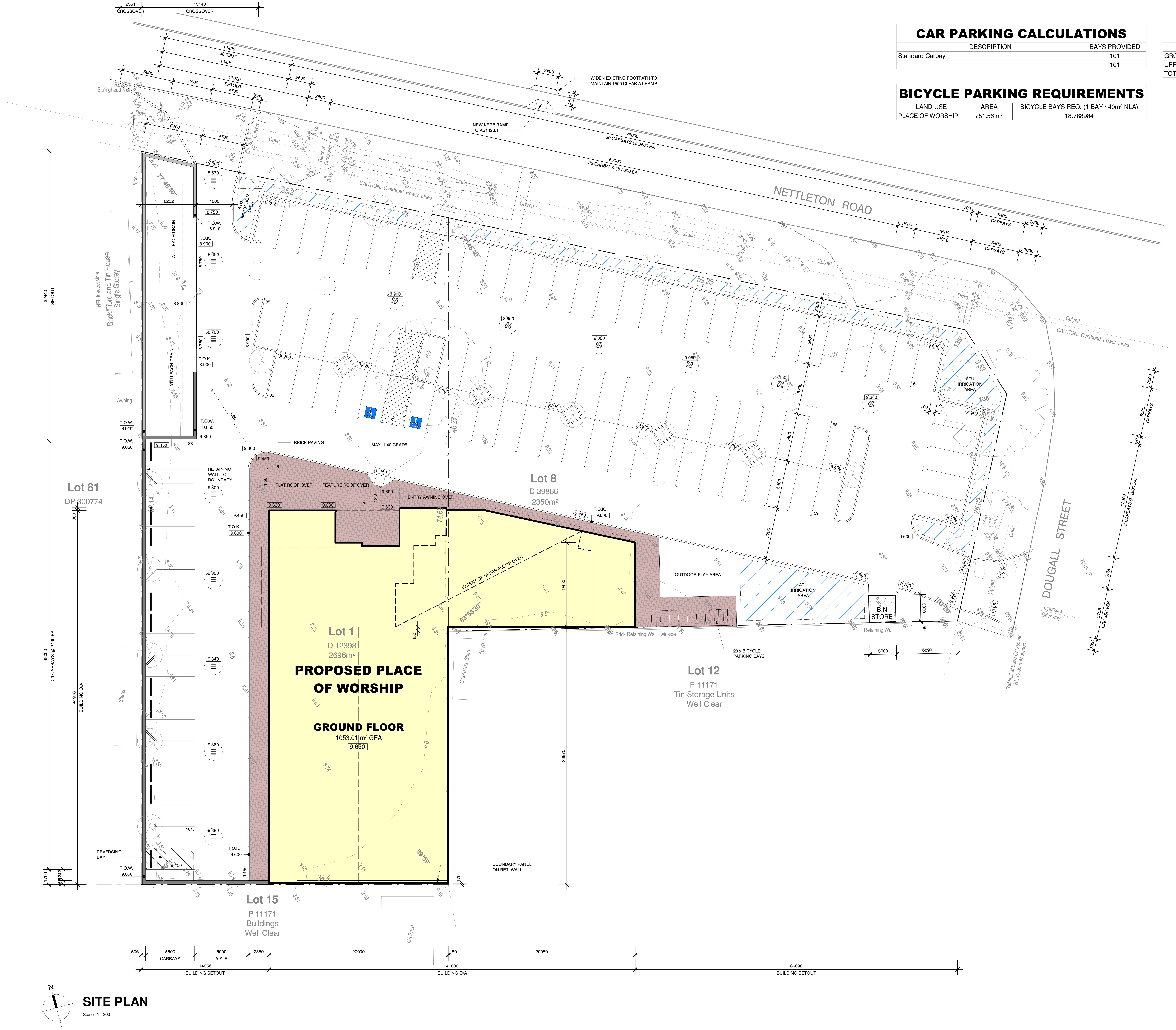
DESCRIPTION	BAYS PROVIDED
Standard Carbay	101
	101

BICYCLE PARKING REQUIREMENTS

LAND USE	AREA	BICYCLE BAYS REQ. (1 BAY / 40m² NLA)
PLACE OF WORSHIP	751.56 m²	18.788984

AREAS (GFA)

LAND USE	AREA
GROUND FLOOR	1053.01 m²
UPPER FLOOR	239.65 m²
TOTAL	1292.65 m²



NETTLETON ROAD
DOUGALL STREET
Lot 8
D 39866
2350m²
Lot 1
D 12398
2696m²
PROPOSED PLACE OF WORSHIP
GROUND FLOOR
1053.01 m² GFA
Lot 81
DP 300774
Lot 12
P 11171
Tin Storage Units
Well Clear
Lot 15
P 11171
Buildings
Well Clear
30 CARBAYS @ 2600 EA.
25 CARBAYS @ 2600 EA.
20 CARBAYS @ 2400 EA.
5 CARBAYS @ 2600 EA.
WIDEN EXISTING FOOTPATH TO MAINTAIN 1500 CLEAR AT RAMP.
NEW KERB RAMP TO AS1428.1.
CAUTION: Overhead Power Lines
ATU IRRIGATION AREA
ATU LEACH DRAIN
BRICK PAVING.
MAX. 1:40 GRADE
FLAT ROOF OVER
FEATURE ROOF OVER
ENTRY AWNING OVER
EXTENT OF UPPER FLOOR OVER
OUTDOOR PLAY AREA
BIN STORE
20 x BICYCLE PARKING BAYS.
RETAINING WALL TO BOUNDARY.
REVERSING BAY
BOUNDARY PANEL ON RET. WALL.
BUILDING SETOUT
BUILDING O/A

SITE PLAN

Scale 1 : 200

PROPOSED PLACE OF WORSHIP

Forward In Faith Ministries

Lot 8 (#30) Nettleton Rd, BYFORD

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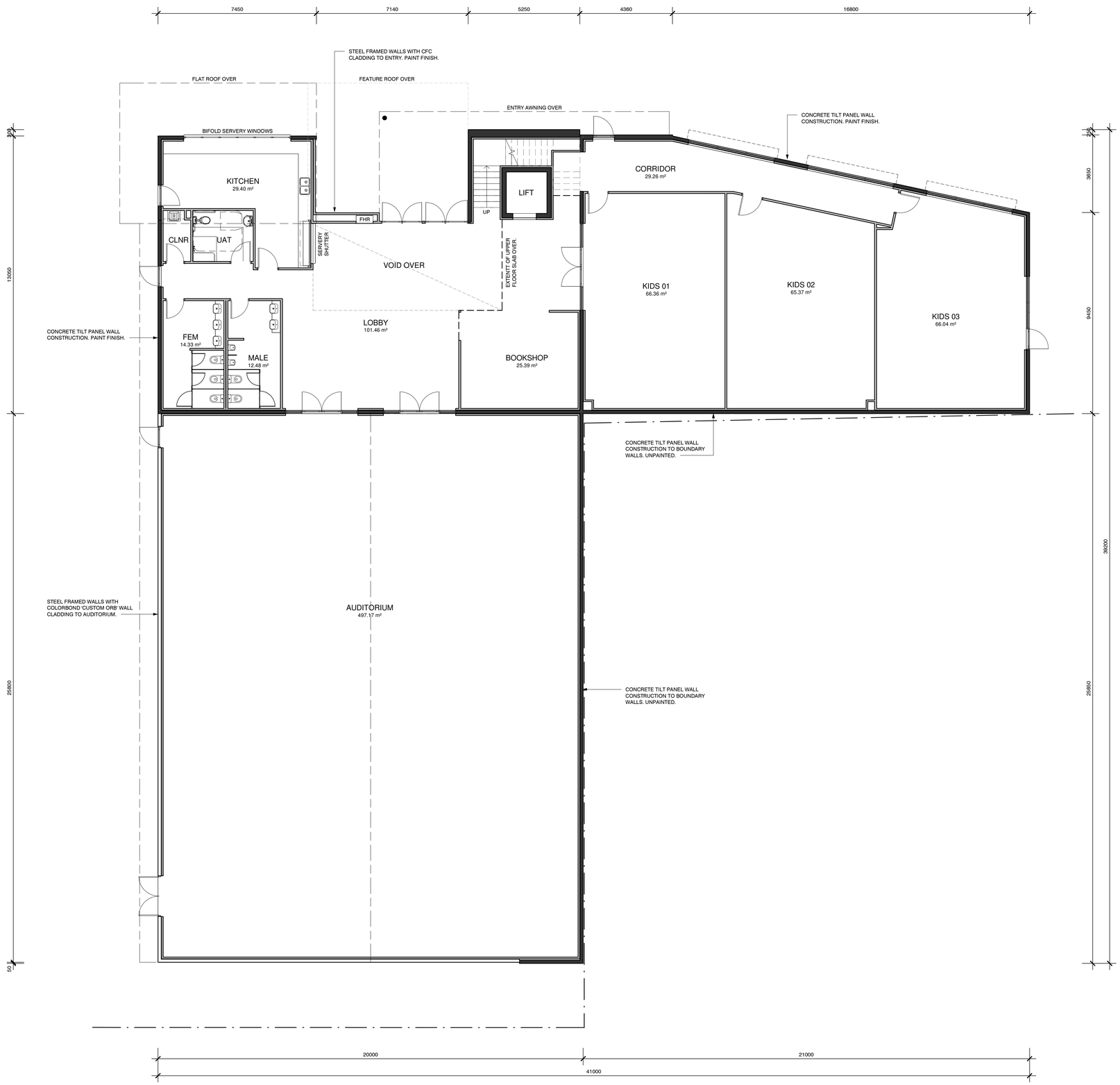

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GROUND FLOOR PLAN

Scale 1 : 100

PROPOSED PLACE OF WORSHIP

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UPPER FLOOR PLAN

Scale 1 : 100

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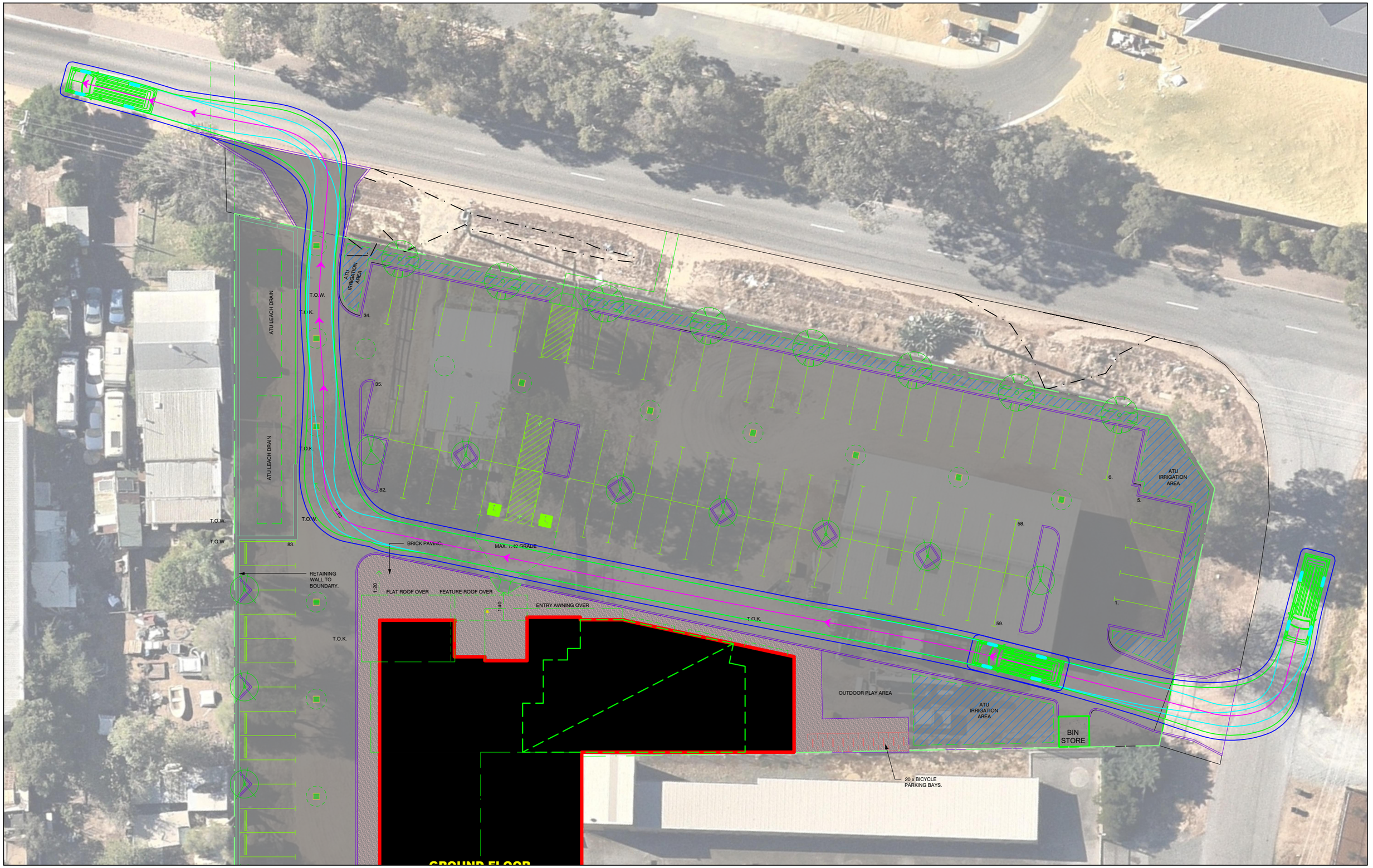
Appendix B

TURN PATH PLANS



Lot 8 (30) Nettleton Road, Byford

8.8m service vehicle

Entry From Dougall St

LEGEND

Vehicle Body

Wheel Path

500mm Clearance

t24.162.sk05

01/10/2024

Scale: 1:350 @ A3

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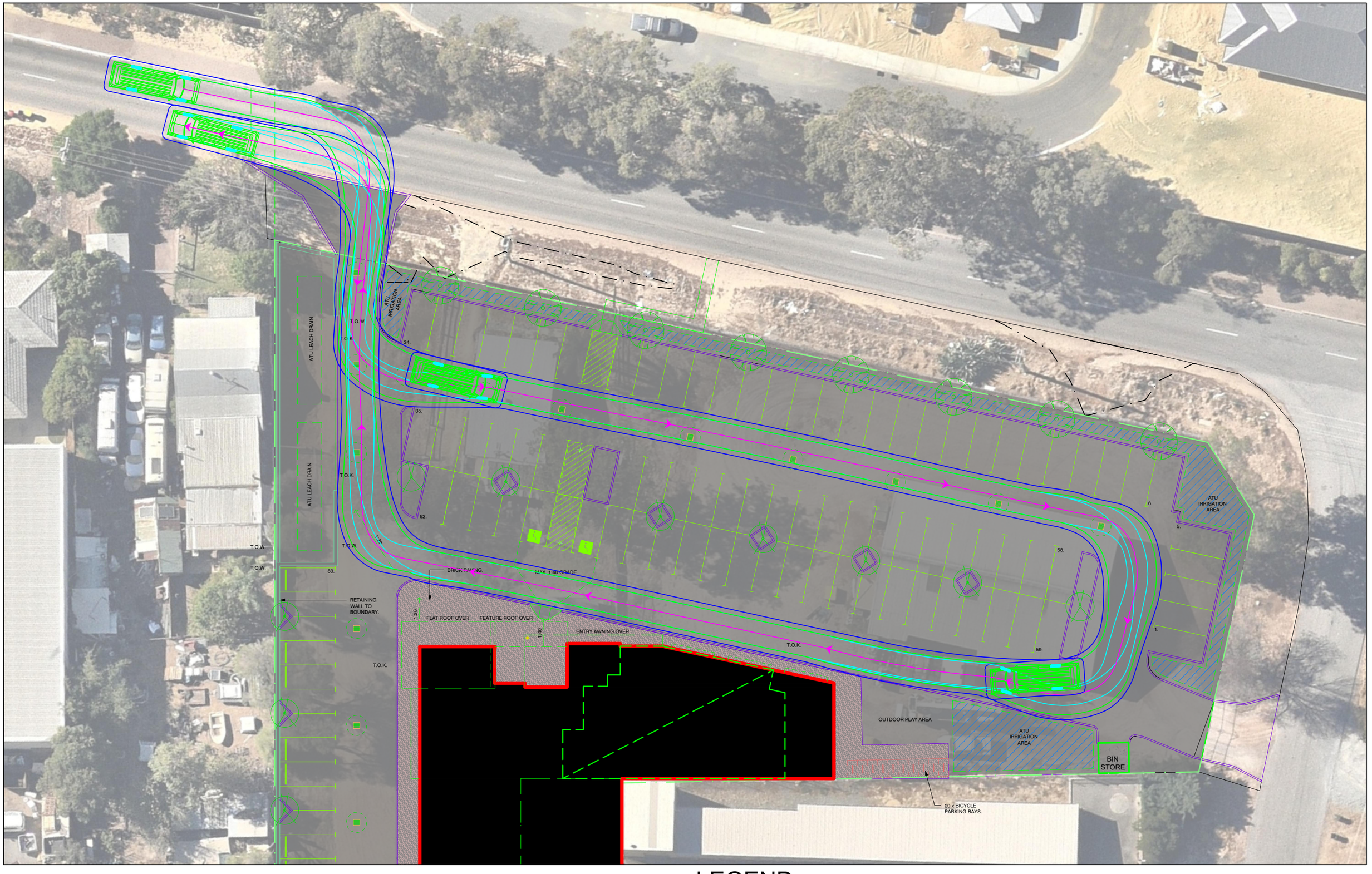

Lot 8 (30) Nettleton Road, Byford

8.8m service vehicle

Entry From Nettleton Road

LEGEND

Vehicle Body

Wheel Path

500mm Clearance

t24.162.sk06

01/10/2024

Scale: 1:350 @ A3

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Technical Note: No 1 **Date:** 22/01/2025
Project No: t24.162
Project: PA24/958 – Lot1, 24 and Lot 8, 30 Nettleton Road, Byford - Place of Worship
Subject: SIDRA intersection analysis

1 Introduction

Transcore prepared a Transport Impact Statement (TIS) in October 2024 on behalf of Mulder Kampman Design with regard to the proposed Place of Worship for Christian activities at Lot 1 (24) & Lot 8 (30) Nettleton Road, Byford in the Shire of Serpentine Jarrahdale (The Shire).

The Shire has reviewed the supporting documents including Transcore TIS and provided the following comment regarding the TIS:

"Based on the latest counts for Nettleton Road in that vicinity, there is a peak of 154 veh/hr on Sunday morning (and similar volume during the afternoon) when the Church would be operating at its peak. The anticipated trip generation of 80 trips into the site and 80 trips out of the site during the day would therefore represent a volume increase of approximately 50% on the road during the peak hours. This is a significant increase and therefore additional analysis is required to determine the future impact on the Nettleton Road / South Western Highway intersection, preferably by SIDRA analysis".

In order to address the above comment, Transcore organised traffic counts at the intersection of South Western Highway/ Nettleton Road on Sunday 19 January 2025 and undertook SIDRA intersection analysis for existing (2025), post development (2026) and 10 years post development (2036) scenarios.

This Technical Note documents the outcome of Transcore's assessments.

The location of the intersection is shown in **Figure 1.**

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Email: admin@transcore.net.au
Transcore Pty Ltd ACN 094 951 318 ABN 19 094 951 318

www.transcore.net.au
www.linkedin.com/company/transcore/
instagram: @transcoreaustralia

Figure 1: Site Location

2 Existing traffic counts

Transcore organised turn count traffic survey at the intersection of South Western Highway/ Nettleton Road at Sunday 19 January 2025 during the peak operating time of the proposed development on Sunday 8:00-9:00 in the morning and 3:00-4:00 in the afternoon.

The results of this traffic count survey are presented in **Figure 2**.

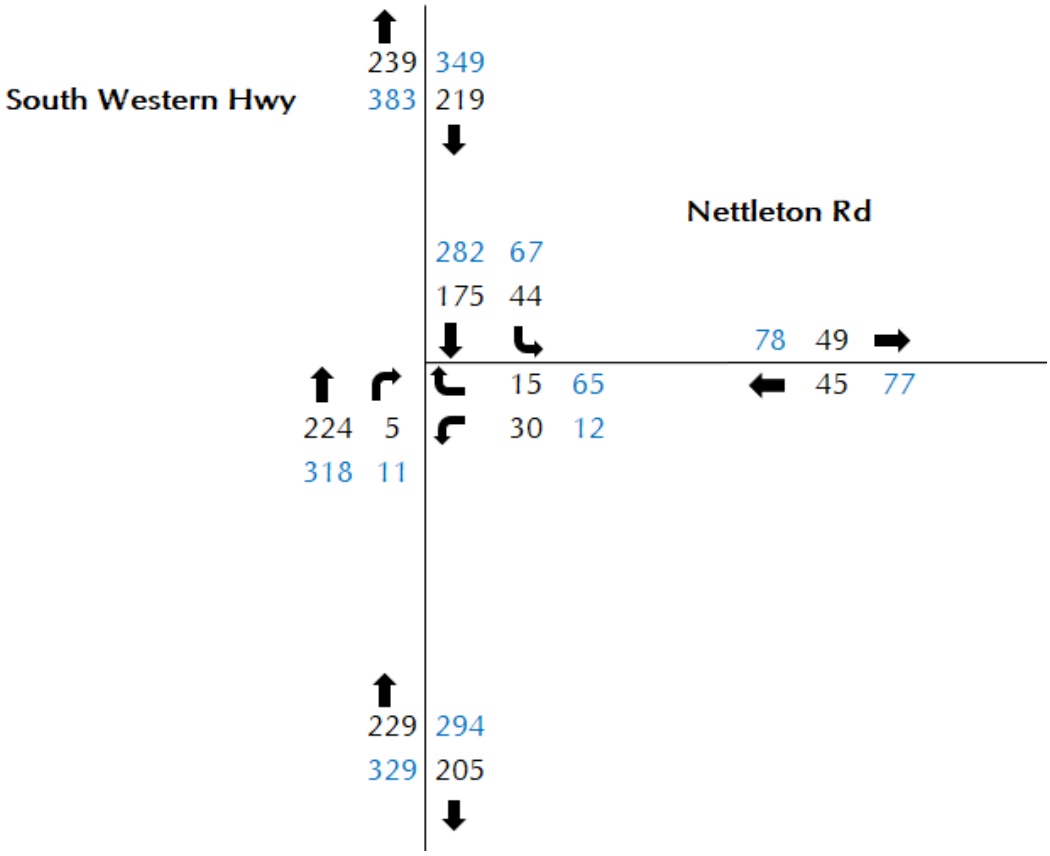


Figure 2:Existing traffic volumes –Sunday peak operating hours of the development (AM/ PM)

3 Assessment years

As detailed in Section 2 of the Transcore TIS, the highest visitation to the proposed Place of Worship will be during the worship service proposed to be held each Sunday, between 9am and 3pm, with a peak attendance of 400 members.

Therefore, the highest trip generation of the proposed development is anticipated to be on Sunday 8:00-9:00 in the morning and 3:00-4:00 in the afternoon.

The assessments years are for post development (2026) and 10 years post development (2036) in accordance with Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines (2016).

3.1 Development traffic

The development traffic has been sourced from Transcore's TIS and presented in **Figure 3**. As evident, the proposed development will not increase traffic flows on Nettleton Road adjacent to the site by more than100vph per lane. Therefore, the impact of the proposed development traffic on Nettleton Road will not be material.

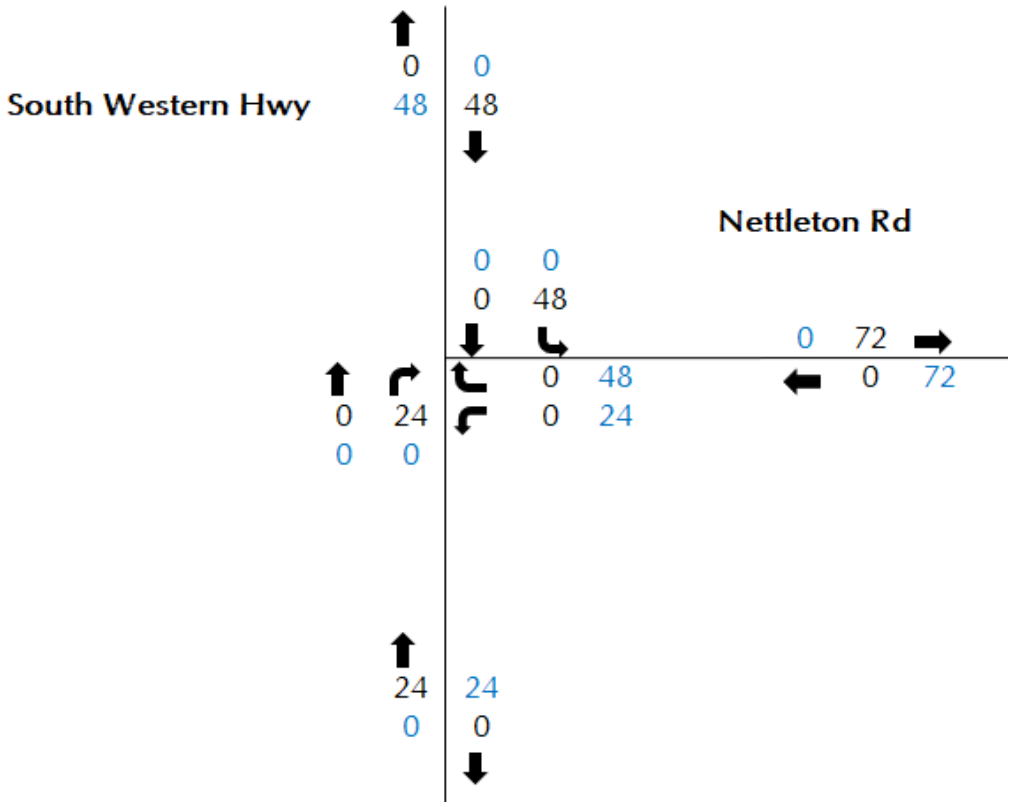


Figure 3:Proposed development traffic – Sunday peak hours

3.2 Future traffic volumes

The 2026 and 2036 traffic projections at the intersection are illustrated in Figure 4 and Figure 5 respectively.

A 2% annual traffic growth has been applied to the South Western Highway traffic volumes to establish the future traffic projections.

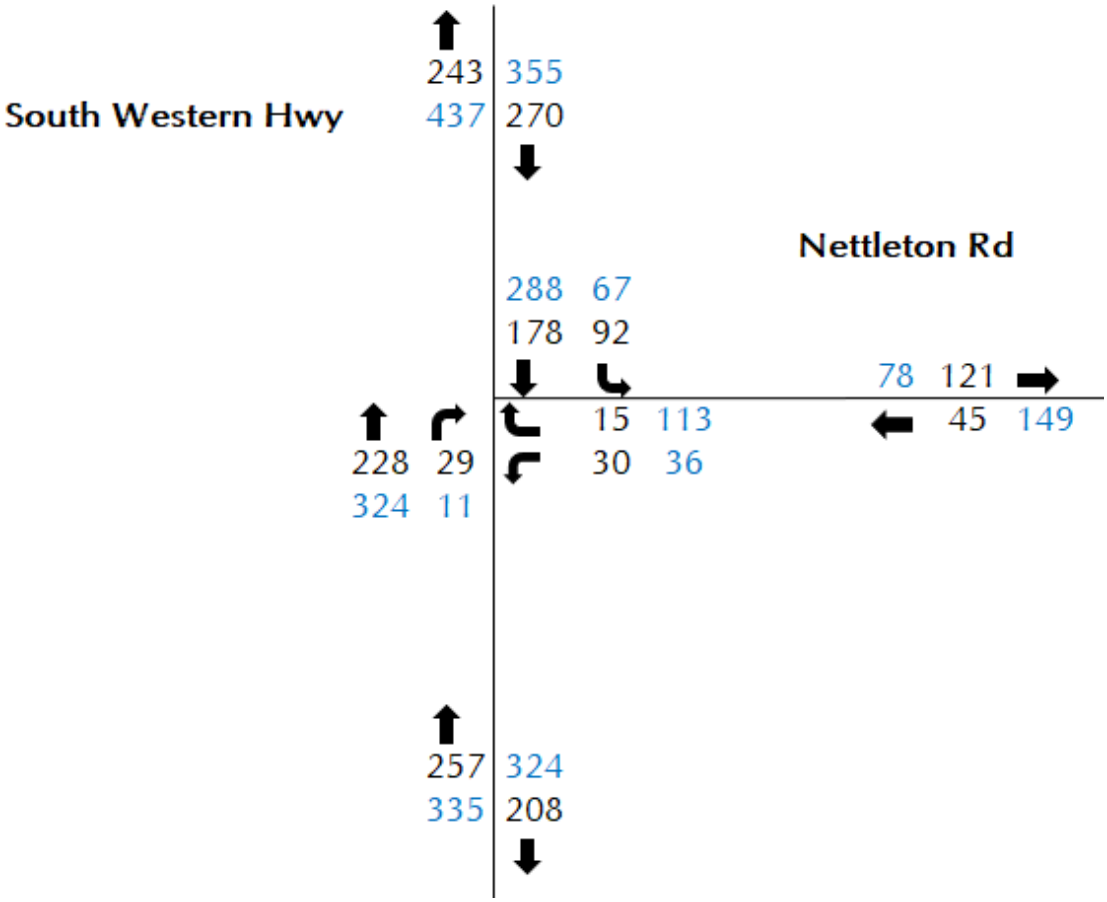


Figure 4: Total (2026) traffic – Sunday peak hours

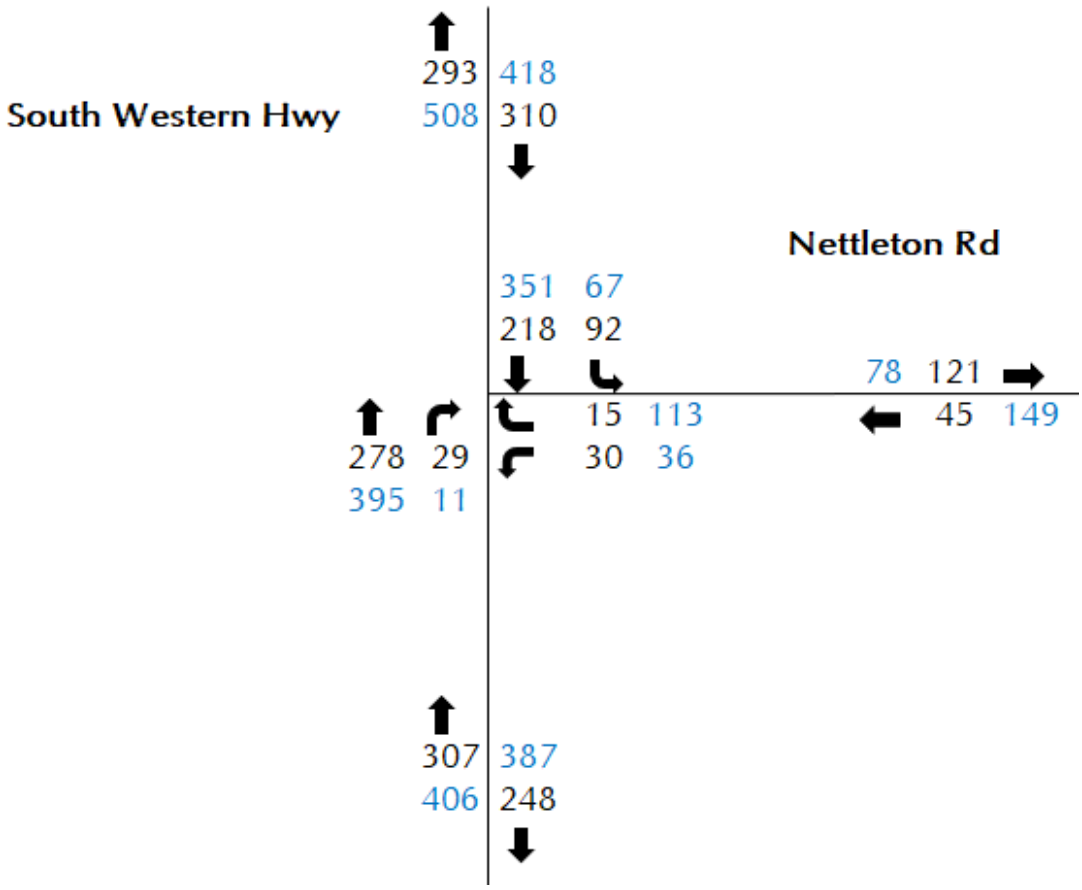


Figure 5:Total (2036) traffic – Sunday peak hours

4 SIDRA Analysis

Intersection capacity analysis has been undertaken for the South Western Highway/ Nettleton Road intersection for the existing, 2026 and 2036 Sunday AM peak and PM peak hours.

Analysis of this intersection has been undertaken using the SIDRA computer software package. SIDRA is an intersection modelling tool commonly used by traffic engineers for all types of intersections. SIDRA outputs are presented in the form of Degree of Saturation, Level of Service, Average Delay and 95% Queue. These characteristics are defined as follows:

- Degree of Saturation is the ratio of the arrival traffic flow to the capacity of the approach during the same period. The Degree of Saturation ranges from close to zero for infrequent traffic flow up to one for saturated flow or capacity.
- Level of Service is the qualitative measure describing operational conditions within a traffic stream and the perception by motorists and/or passengers. In general, there are 6 levels of service, designated from A to F, with Level

of Service A representing the best operating condition (i.e. free flow) and Level of Service F the worst (i.e. forced or breakdown flow).
- Average Delay is the average of all travel time delays for vehicles through the intersection.
- 95% Queue is the queue length below which 95% of all observed queue lengths fall.

The results of the SIDRA analysis are summarised in **Appendix A.**

The SIDRA analysis and site observations indicated that the intersection of South Western Highway/Nettleton Road is currently operating at a Level of Service (LoS) B or better (indicating a very good level of service) during the assessed periods on Sundays, with minimal delays and queues.

The additional traffic from the development will not impact the LoS of the intersection in 2026. By 2036, while future traffic growth is anticipated on South Western Highway, the LoS during the development morning peak hour will remain unchanged. However, the right turn movement from Nettleton Road onto South Western Highway will shift from LoS B to LoS C during the PM peak hour. The reported Degree of Saturation (DOS), 95% queue length, and average delay for this critical right turn movement in 2036 are 0.374, 13.8 meters, and 19.4 seconds, respectively.

Overall, the intersection of South Western Highway/Nettleton Road is expected to operate satisfactorily with ample of spare capacity during the assessed peak hours throughout the Sunday worship services.

Additionally, the proposed development will not result in an increase of over 100 vehicles per hour (vph) per lane on Nettleton Road adjacent to the site, indicating that the impact of the development traffic will not be significant.

Consequently, it is expected that the proposed development will not adversely impact the traffic operations or safety of Nettleton Road and its intersection with South Western Highway.

5 Conclusion

This Technical Note outlines the findings from the traffic counts and SIDRA intersection analysis conducted to assess the impact of the proposed Place of Worship on Nettleton Road and the Nettleton Road/South Western Highway intersection. The analysis responds to the Shire of Serpentine Jarrahdale's concerns regarding potential traffic increases due to the development.

Transcore conducted traffic counts at the South Western Highway/Nettleton Road intersection on Sunday, January 19, 2025, and performed a SIDRA intersection analysis for the existing conditions (2025), post-development (2026), and ten years post-development (2036) scenarios.

The SIDRA analysis and site observations indicated that the South Western Highway/Nettleton Road intersection is currently operating at a Level of Service (LoS) B or better on Sundays, with minimal delays and queues.

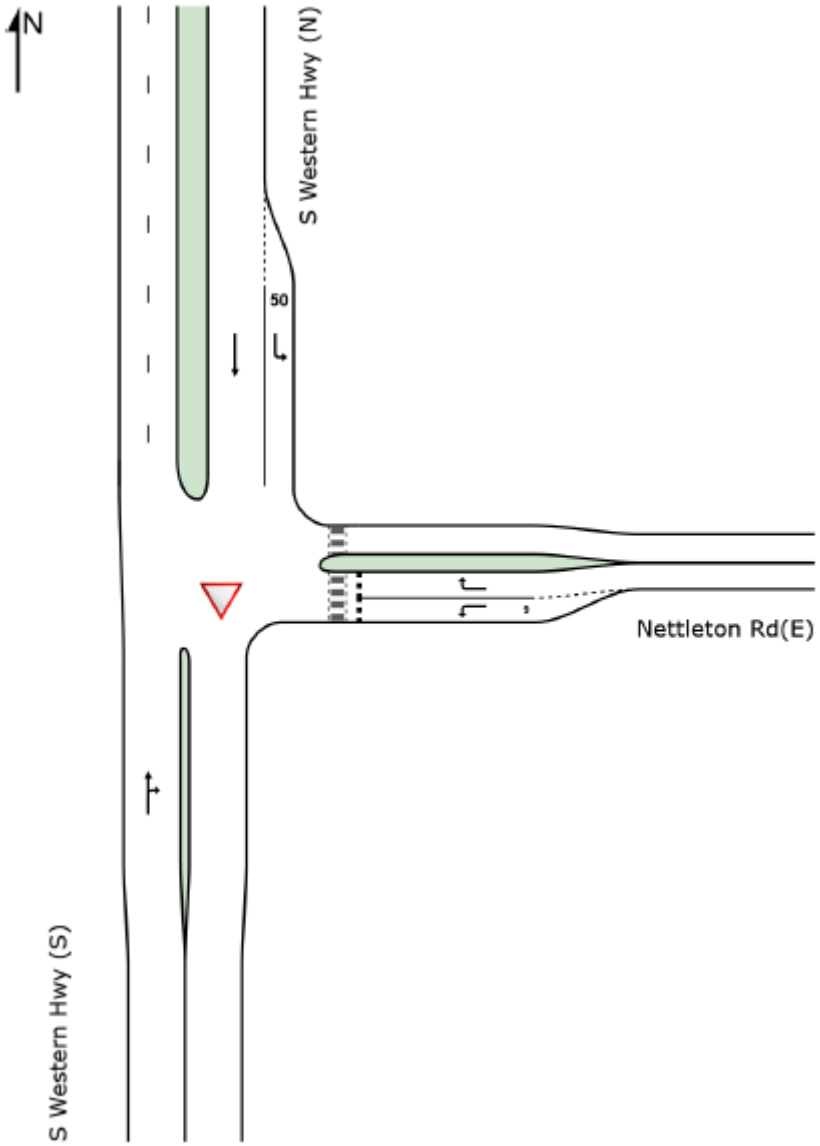
The additional traffic from the proposed development is not expected to affect the LoS in 2026 and 2036. Overall, the intersection is projected to operate satisfactorily with sufficient spare capacity during peak operating hours of the development on Sundays.

The proposed development will not result in an increase of over 100 vehicles per hour (vph) per lane on Nettleton Road adjacent to the site, indicating that the impact of the development traffic will not be significant on Nettleton Road.

Consequently, it is expected that the proposed development will not adversely impact the traffic operations or safety of Nettleton Road and its intersection with South Western Highway.

APPENDIX A

SIDRA ANALYSIS


N
S Western Hwy (N)
50
Nettleton Rd(E)
S Western Hwy (S)

MOVEMENT SUMMARY

▽ Site: [S Western Hwy & Nettleton Rd - Existing - Sunday - AM (Site Folder: Existing)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	224	10.4	236	10.4	0.130	0.0	LOS A	0.1	0.5	0.02	0.01	0.02	59.8
6	R2	5	13.6	5	13.6	0.130	7.1	LOS A	0.1	0.5	0.02	0.01	0.02	54.2
Approach		229	10.5	241	10.5	0.130	0.2	NA	0.1	0.5	0.02	0.01	0.02	59.7
East: Nettleton Rd(E)														
7	L2	30	14.1	32	14.1	0.025	6.4	LOS A	0.1	0.8	0.29	0.55	0.29	46.1
9	R2	15	14.1	16	14.1	0.026	9.3	LOS A	0.1	0.8	0.51	0.68	0.51	44.2
Approach		45	14.1	47	14.1	0.026	7.4	LOS A	0.1	0.8	0.36	0.59	0.36	45.5
North: S Western Hwy (N)														
10	L2	44	13.6	46	13.6	0.029	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	175	8.4	184	8.4	0.095	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		219	9.4	231	9.4	0.095	1.2	NA	0.0	0.0	0.00	0.12	0.00	57.7
All Vehicles		493	10.3	519	10.3	0.130	1.3	NA	0.1	0.8	0.04	0.11	0.04	57.4

MOVEMENT SUMMARY

▽ Site: [S Western Hwy & Nettleton Rd - Existing - Sunday - PM (Site Folder: Existing)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	318	10.4	335	10.4	0.191	0.2	LOS A	0.2	1.4	0.05	0.02	0.05	59.5
6	R2	11	13.6	12	13.6	0.191	8.3	LOS A	0.2	1.4	0.05	0.02	0.05	54.0
Approach		329	10.5	346	10.5	0.191	0.4	NA	0.2	1.4	0.05	0.02	0.05	59.4
East: Nettleton Rd(E)														
7	L2	12	14.1	13	14.1	0.011	6.9	LOS A	0.0	0.4	0.37	0.57	0.37	45.8
9	R2	65	14.1	68	14.1	0.163	13.2	LOS B	0.6	5.1	0.66	0.86	0.66	41.6
Approach		77	14.1	81	14.1	0.163	12.2	LOS B	0.6	5.1	0.62	0.81	0.62	42.2
North: S Western Hwy (N)														
10	L2	67	13.6	71	13.6	0.044	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	282	8.4	297	8.4	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		349	9.4	367	9.4	0.154	1.1	NA	0.0	0.0	0.00	0.11	0.00	57.7
All Vehicles		755	10.4	795	10.4	0.191	2.0	NA	0.6	5.1	0.08	0.14	0.08	56.6

MOVEMENT SUMMARY

▽ Site: [S Western Hwy & Nettleton Rd - 2026 - Sunday - AM (Site Folder: 2026)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	228	10.4	240	10.4	0.160	0.3	LOS A	0.3	2.9	0.12	0.07	0.12	58.7
6	R2	29	13.6	31	13.6	0.160	7.5	LOS A	0.3	2.9	0.12	0.07	0.12	53.2
Approach		257	10.8	271	10.8	0.160	1.1	NA	0.3	2.9	0.12	0.07	0.12	58.2
East: Nettleton Rd(E)														
7	L2	30	14.1	32	14.1	0.025	6.4	LOS A	0.1	0.8	0.29	0.55	0.29	46.1
9	R2	15	14.1	16	14.1	0.029	10.0	LOS B	0.1	0.9	0.54	0.70	0.54	43.7
Approach		45	14.1	47	14.1	0.029	7.6	LOS A	0.1	0.9	0.37	0.60	0.37	45.3
North: S Western Hwy (N)														
10	L2	92	13.6	97	13.6	0.060	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	178	8.4	187	8.4	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		270	10.2	284	10.2	0.097	2.0	NA	0.0	0.0	0.00	0.20	0.00	56.0
All Vehicles		572	10.7	602	10.7	0.160	2.1	NA	0.3	2.9	0.09	0.17	0.09	56.1

MOVEMENT SUMMARY

▽ Site: [S Western Hwy & Nettleton Rd - 2026 - Sunday - PM (Site Folder: 2026)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	324	10.4	341	10.4	0.195	0.2	LOS A	0.2	1.4	0.05	0.02	0.05	59.5
6	R2	11	13.6	12	13.6	0.195	8.4	LOS A	0.2	1.4	0.05	0.02	0.05	54.0
Approach		335	10.5	353	10.5	0.195	0.4	NA	0.2	1.4	0.05	0.02	0.05	59.4
East: Nettleton Rd(E)														
7	L2	36	14.1	38	14.1	0.034	7.0	LOS A	0.1	1.1	0.38	0.60	0.38	45.8
9	R2	113	14.1	119	14.1	0.290	14.7	LOS B	1.2	10.5	0.71	0.91	0.83	40.6
Approach		149	14.1	157	14.1	0.290	12.8	LOS B	1.2	10.5	0.63	0.84	0.72	41.7
North: S Western Hwy (N)														
10	L2	67	13.6	71	13.6	0.044	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	288	8.4	303	8.4	0.157	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		355	9.4	374	9.4	0.157	1.1	NA	0.0	0.0	0.00	0.11	0.00	57.8
All Vehicles		839	10.7	883	10.7	0.290	2.9	NA	1.2	10.5	0.13	0.20	0.15	55.2

MOVEMENT SUMMARY

Site: [S Western Hwy & Nettleton Rd - 2036 - Sunday - AM (Site Folder: 2036)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h]	HV] %	DEMAND FLOWS [Total veh/h]	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh]	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	278	10.4	293	10.4	0.189	0.4	LOS A	0.4	3.2	0.12	0.06	0.12	58.9
6	R2	29	13.6	31	13.6	0.189	7.9	LOS A	0.4	3.2	0.12	0.06	0.12	53.3
Approach		307	10.7	323	10.7	0.189	1.1	NA	0.4	3.2	0.12	0.06	0.12	58.4
East: Nettleton Rd(E)														
7	L2	30	14.1	32	14.1	0.026	6.6	LOS A	0.1	0.9	0.33	0.57	0.33	46.0
9	R2	15	14.1	16	14.1	0.033	11.3	LOS B	0.1	1.0	0.58	0.75	0.58	42.8
Approach		45	14.1	47	14.1	0.033	8.2	LOS A	0.1	1.0	0.41	0.63	0.41	44.9
North: S Western Hwy (N)														
10	L2	92	13.6	97	13.6	0.060	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	218	8.4	229	8.4	0.119	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		310	9.9	326	9.9	0.119	1.7	NA	0.0	0.0	0.00	0.17	0.00	56.5
All Vehicles		662	10.6	697	10.6	0.189	1.9	NA	0.4	3.2	0.08	0.15	0.08	56.5

MOVEMENT SUMMARY

Site: [S Western Hwy & Nettleton Rd - 2036 - Sunday - PM (Site Folder: 2036)]

Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h]	HV] %	DEMAND FLOWS [Total veh/h]	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh]	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: S Western Hwy (S)														
5	T1	395	10.4	416	10.4	0.236	0.2	LOS A	0.2	1.6	0.05	0.02	0.05	59.5
6	R2	11	13.6	12	13.6	0.236	9.2	LOS A	0.2	1.6	0.05	0.02	0.05	54.0
Approach		406	10.5	427	10.5	0.236	0.4	NA	0.2	1.6	0.05	0.02	0.05	59.4
East: Nettleton Rd(E)														
7	L2	36	14.1	38	14.1	0.037	7.3	LOS A	0.1	1.2	0.43	0.63	0.43	45.7
9	R2	113	14.1	119	14.1	0.374	19.4	LOS C	1.6	13.8	0.80	0.99	1.03	37.9
Approach		149	14.1	157	14.1	0.374	16.5	LOS C	1.6	13.8	0.71	0.90	0.89	39.5
North: S Western Hwy (N)														
10	L2	67	13.6	71	13.6	0.044	5.8	LOS A	0.0	0.0	0.00	0.57	0.00	48.5
11	T1	351	8.4	369	8.4	0.191	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		418	9.2	440	9.2	0.191	1.0	NA	0.0	0.0	0.00	0.09	0.00	58.1
All Vehicles		973	10.5	1024	10.5	0.374	3.1	NA	1.6	13.8	0.13	0.18	0.16	55.2