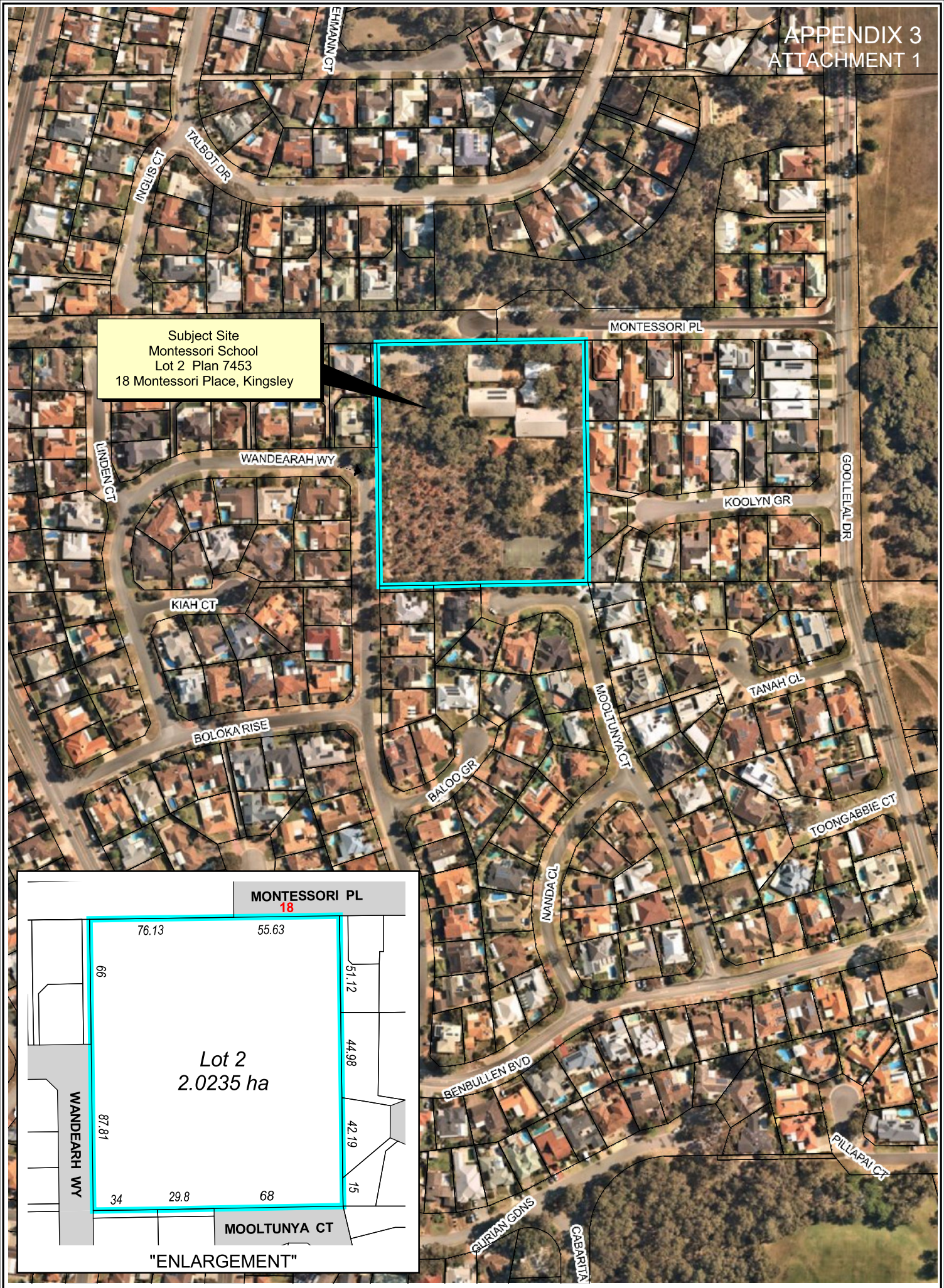


City of Joondalup

20 0 20 40 Meters

lot2-18_montessori-06042023

ATTACHMENT 2

MONTESORI PLACE

MOOLTUNYA COURT

2 BRICK & TILE RESIDENCE

502 BRICK & TILE RESIDENCE

207 BRICK & TILE RESIDENCE

215 BRICK & TILE RESIDENCE

2
2.0234ha

SERVICE LEGEND

DRAINAGE
- COMBO PIT
- GRATE
- SIDE ENTRY PIT
- STORM WATER MANHOLE

ELECTRICITY
- CABLE MANHOLE
- CABLE PIT / BOX — ECP, ECB
- CABLE DOME
- CONSUMER POLE — CP
- LIGHT POLE — LP
- POWER POLE — PP
- STAY POLE — SP
- STAY WIRE ANCHOR — SWA
- O/H POWER LINE

GAS
- GAS MANHOLE
- GAS MARKER — G
- GAS METER — GM
- GAS VALVE — GV

SEWERAGE
- SEWER MANHOLE
- PROPERTY CONNECTION — PC
- SEWER LINE

TELECOMMUNICATION
- TEL / COMMS MANHOLE
- TEL / COMMS MARKER — T, C
- TEL / COMMS PIT — PIT, COM

WATER
- FLUSH POINT — FP
- HYDRANT — HY
- STOP VALVE — SV
- TAP — TAP
- WATER MARKER — W
- WATER METER — M
- WATER LINE

SURVEY
- DATUM
- PEG FOUND — PF

OTHER
- AWNING / EAVES
- ROOF RIDGE
- FLOOR RL
- WINDOW — 1ST
- BANK - BOTTOM
- BANK - TOP

SERVICE RECORD

SERVICE \ STATUS	LOCATED	AVAILABLE	NO SERVICE	CONFIRM
WATER	✓			
SEWERAGE	✓			
GAS				✓
TEL / COMM	✓			
POWER U/G	✓			
POWER O/H				

SERVICES MARKED CONFIRM REQUIRE BUILDER / CLIENT TO CONFIRM POSITION AND / OR AVAILABILITY ON SITE.

SEWER AND WATER INFORMATION SHOWN HAS BEEN TAKEN FROM THE WATER CORP. ONLINE DATABASE.

PLANNING ISSUE

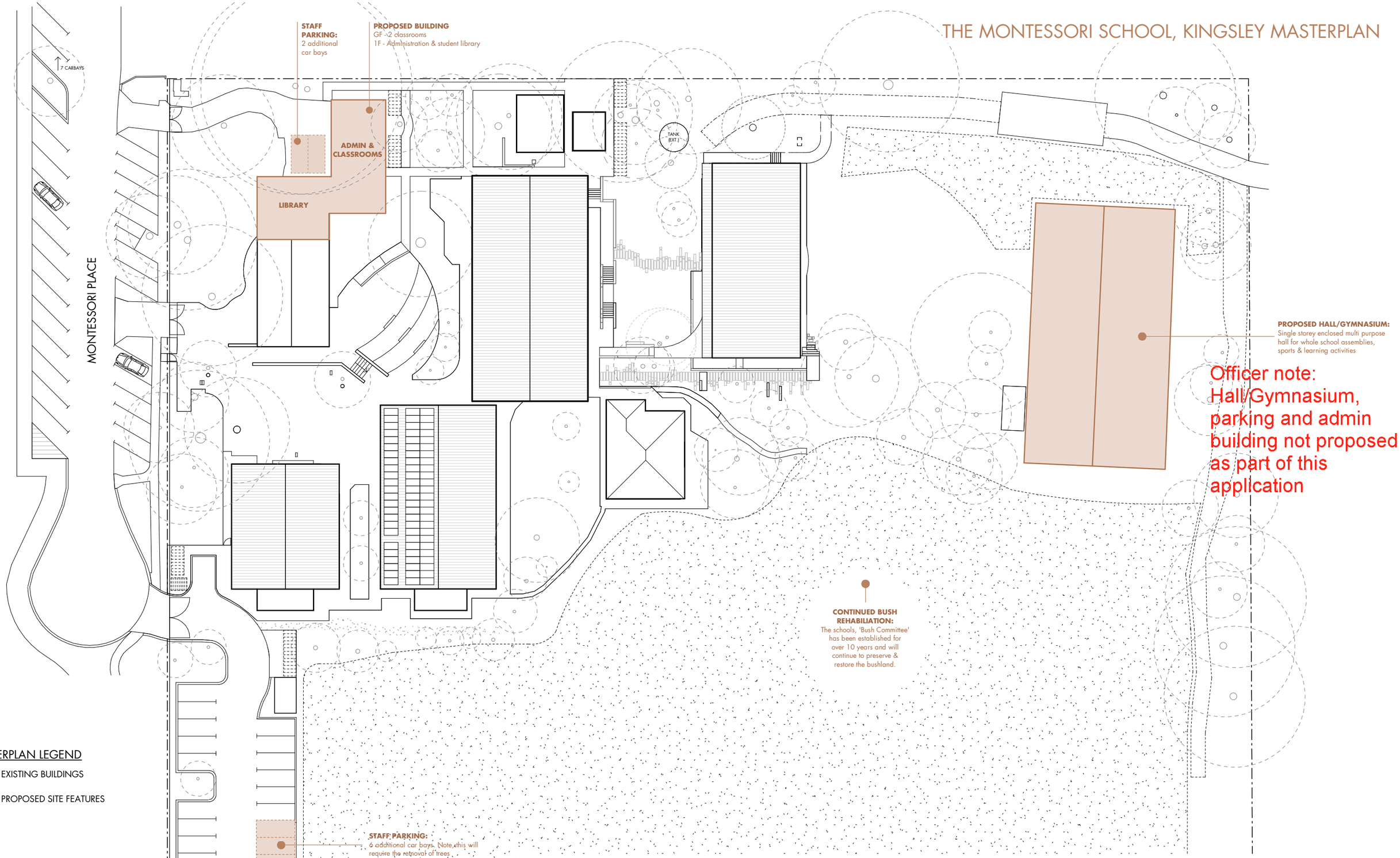
SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SITE SURVEY **A001**

0 5 10 25
1:500

THE MONTESSORI SCHOOL, KINGSLEY MASTERPLAN



MASTERPLAN LEGEND

- EXISTING BUILDINGS
- PROPOSED SITE FEATURES

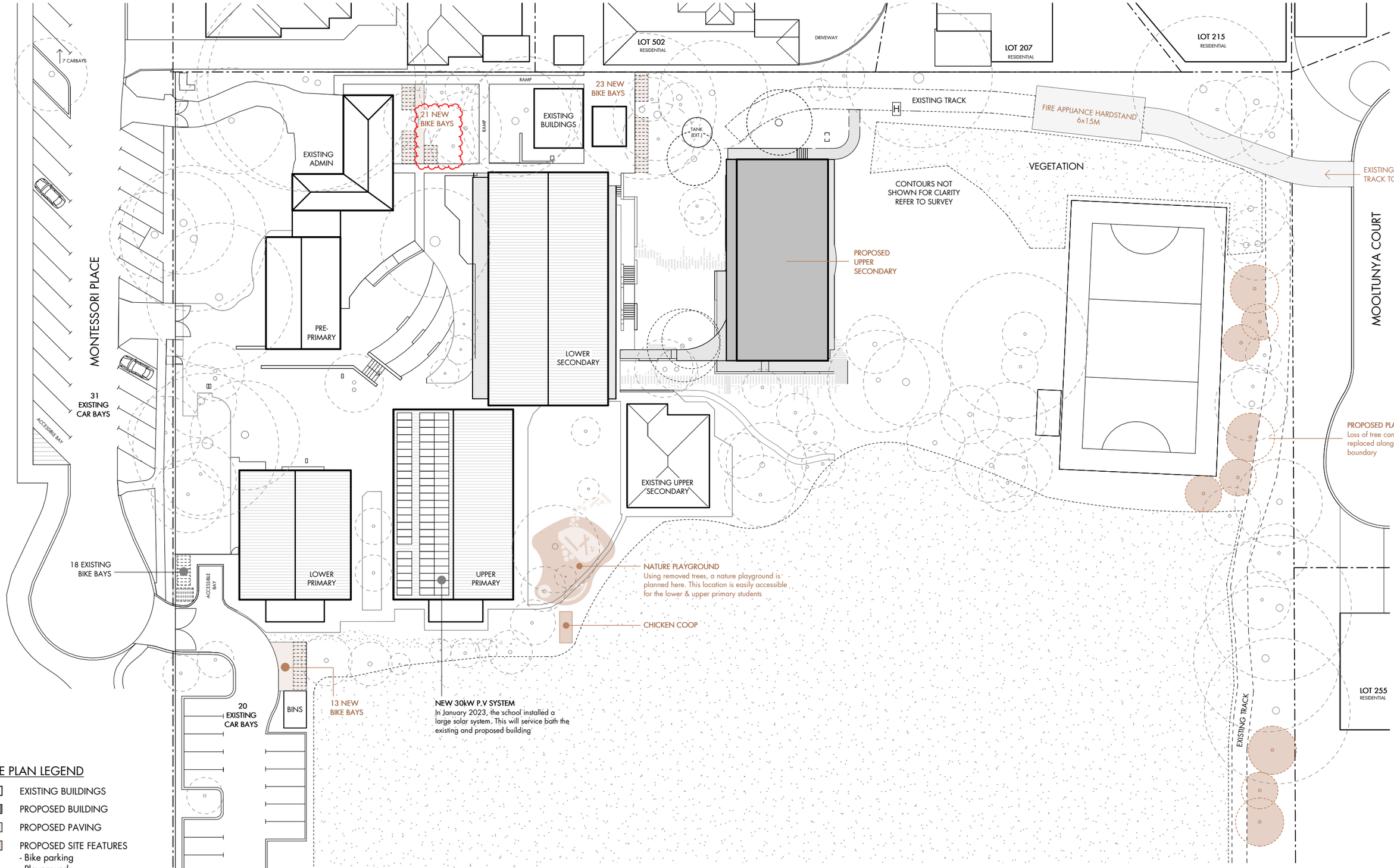
PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SCHOOL MASTERPLAN **A002**

0 5 10 25
1:500



SITE PLAN LEGEND

- EXISTING BUILDINGS
- PROPOSED BUILDING
- PROPOSED PAVING
- PROPOSED SITE FEATURES
  - Bike parking
  - Playgrounds
  - Tree planting

PARKING

51 EXISTING CAR BAYS (INC. 2 ACCESSIBLE)

BIKE PARKING: TOTAL 70

Existing	18
Proposed	52

PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY

18 MONTESSORI PLACE, KINGSLEY, WA, 6026

09.02.2023

PROJECT 2021.10

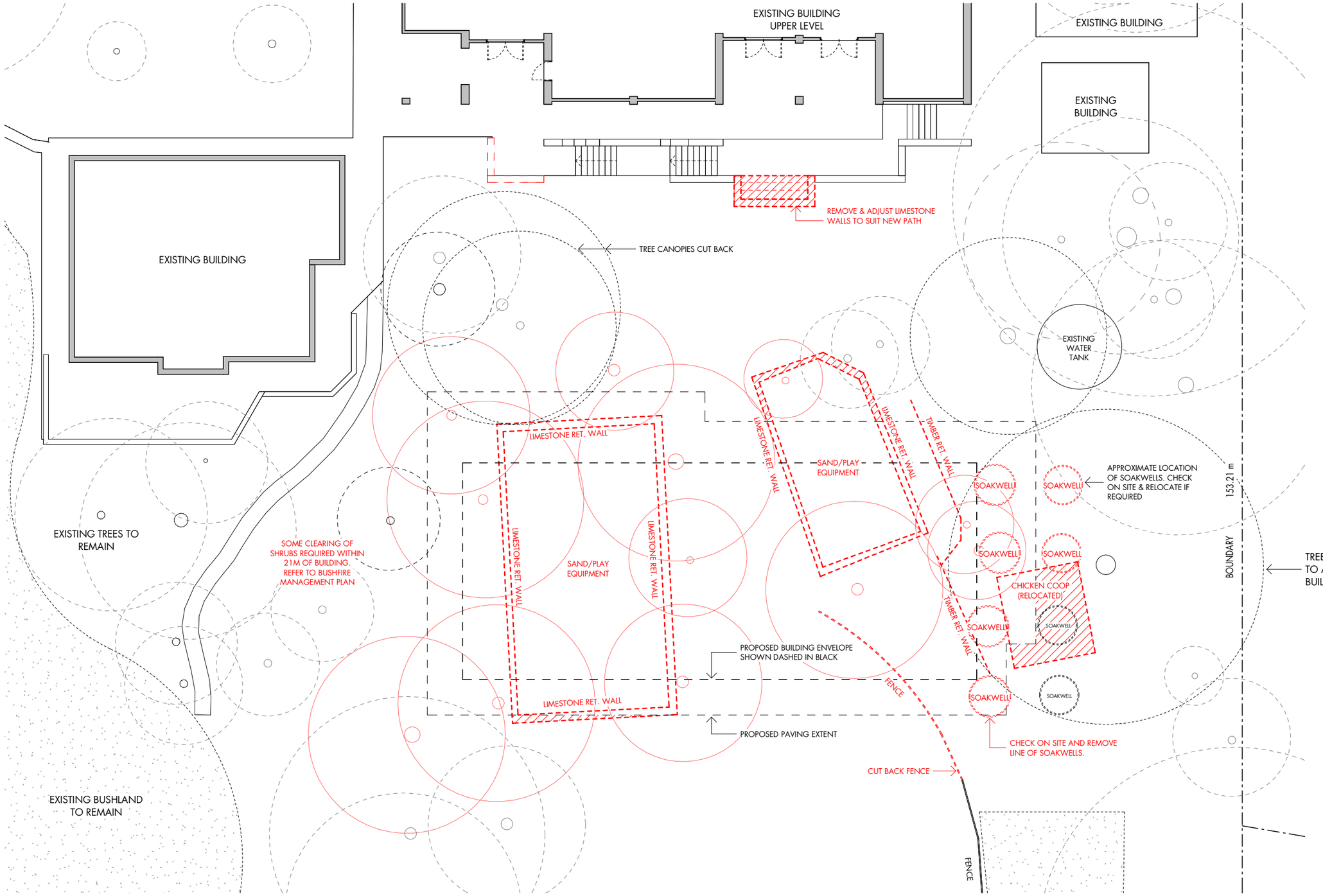
PROPOSED CONTEXT PLAN A003

REV.1 04.04.2023

ADDED FIVE BIKE BAYS

0 5 10 25

1:500



DEMOLITION LEGEND

ALL ITEMS TO BE DEMOLISHED SHOWN IN RED

EXISTING TREES

EXISTING TREES WITH CANOPY CUT BACK TO AVOID OVERHANGING BUILDING

TREES TO BE REMOVED

TOTAL TREES REMOVED & REPLANTED
12 TREES

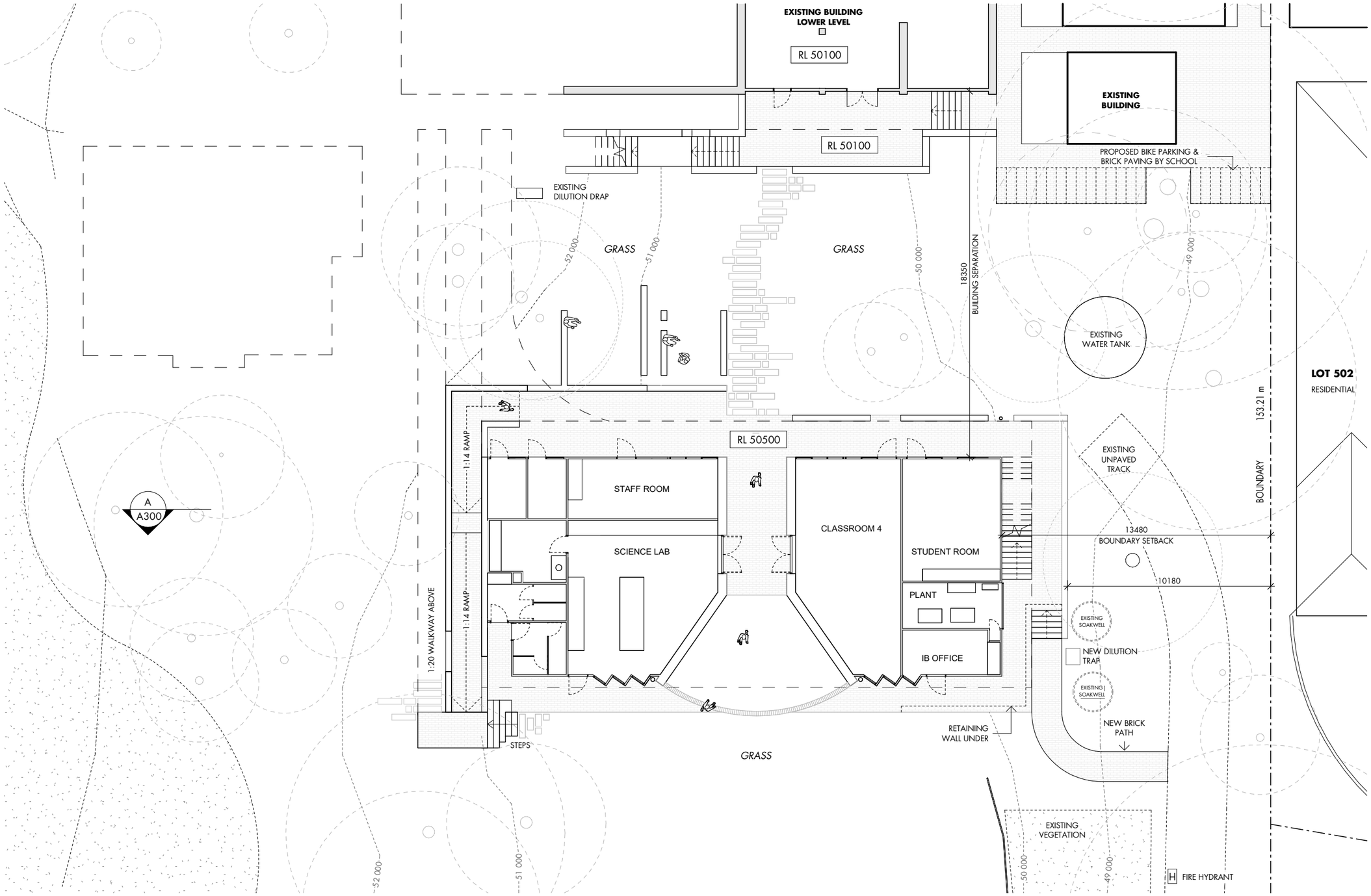
PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

EXISTING & DEMOLITION SITE PLAN **A004**

0 2 4 10
1:200



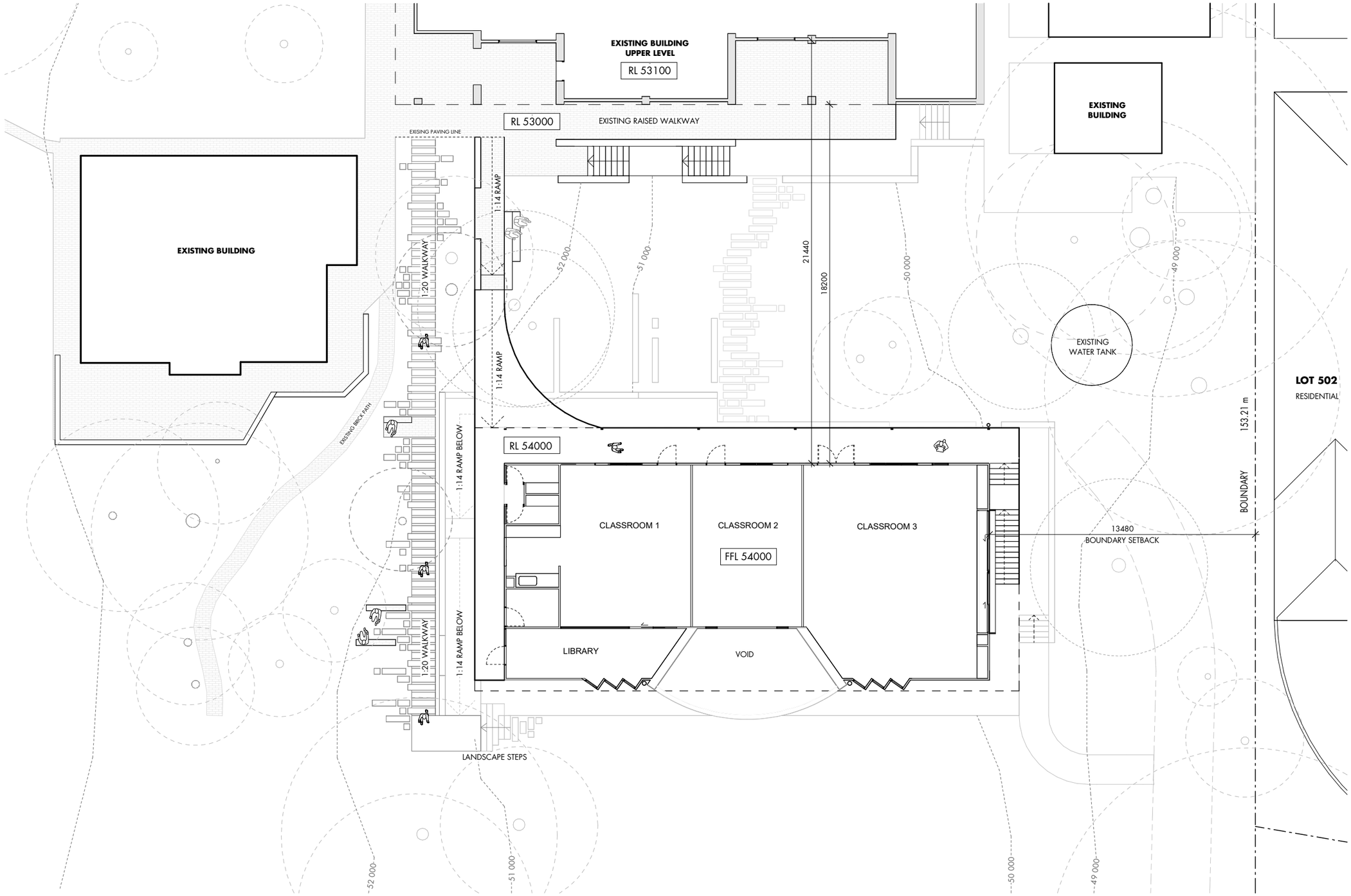
PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

PROPOSED SITE PLAN - GF **A005**

0 2 4 10
1:200



PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

PROPOSED SITE PLAN - 1F **A006**

0 2 4 10
1:200

C

B

WALL LEGEND

NEW STEEL FRAMED WALLS

NEW CAVITY RAMMED EARTH WALLS

GRASS

RAMMED EARTH LANDSCAPE SEATS TERRACED ON GRASS

LANDSCAPE BENCH

DP

BRICK PAVING

RL 50500

1:14 RAMP

WINDOW 900W x 600H (1800H SILL)

WINDOW 900W x 600H (1800H SILL)

WINDOWS 4100W x 1500H (900H SILL)

WINDOWS 4100W x 1500H (900H SILL)

WINDOWS 2400W x 1500H (900H SILL)

OPENING 3000W x 380H

UNI WC
VINYL
5.8 m²

STAFF UNI WC
VINYL
5.8 m²

STAFF ROOM
VINYL
22.5 m²

STUDENT ROOM
VINYL
30.0 m²

LANDING

CHEMICAL CUPBOARD

EYE WASH

TW

WINDOW 2550W x 380H (2700H SILL)

SCIENCE PREP
VINYL
11.1 m²

TWO SIDED 1.2M FUME CUPBOARD

SCIENCE LAB
VINYL
52.8 m²

FFL 50 500

CLASSROOM 4
VINYL
51.9 m²

FFL 50 500

FIXED SMARTBOARD

RISER

AMBULANT

OPENING 2550W x 380H

WC (F)
VINYL
7.9 m²

PLANT
CONC.
11.4 m²

DISTRIBUTION BOARD

AC

AC 1200X700

AC 1200X700

SLIDING GATE

RL 50500

WALKWAY ABOVE

1:14 RAMP

WINDOW 900W x 600H

WC (M)
VINYL
6.9 m²

AMBULANT

FLOOR LEVEL ABOVE

FIXED SMARTBOARD

EXPOSED AGGREGATE

RL 50500

IB OFFICE
VINYL
9.7 m²

COMMS

STORE

RISER

WINDOWS 700W x 2400H (OH SILL)

WINDOWS 700W x 2400H (OH SILL)

DP

DP

ROOF ABOVE

BRICK EDGING

GRASS

LANDING
RL 51600

LANDSCAPE STEPS

RETAINING WALL - MAX HEIGHT ABOVE NGL - 950MM

11000
OVERALL

26100
OVERALL

PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

C
A302

B
A301

GROUND FLOOR PLAN **A100**

0 1 2 5
1:100

C

B

WALL LEGEND

NEW STEEL FRAMED WALLS

NEW CAVITY RAMMED EARTH WALLS

1:14 RAMP
CONCRETE

RAMP BELOW

RL 54000

COVERED VERANDAH
CONCRETE

COVERED VERANDAH

WINDOWS 3200W x 1500H (900H SILL)

WINDOW 800W x 1500H (900H SILL)

WINDOW 800W x 1500H (900H SILL)

WINDOWS 4780W x 1500H (900H SILL)

WINDOW 900W x 1500H

WC (M)
VINYL
3.3 m²

AMBULANT

AMBULANT

FIXED SMARTBOARD

WINDOW 900W x 1500H

WC (F)
VINYL
3.3 m²

SEAT

OPERABLE WALL

OPERABLE WALL

TRUSSES ABOVE

STORE

FFL 54000

WINDOW 1400W x 2400H

KITCHENETTE

SINK

FR

CLASSROOM 1
VINYL
54.1 m²

CLASSROOM 2
VINYL
45.5 m²

CLASSROOM 3
VINYL
93.1 m²

STORAGE CUPBOARDS UNDER WINDOWS

WINDOWS 6245W x 1200H (1200 SILL)

UNI WC
VINYL
5.1 m²

GLAZED WINDOW, 900MM SILL

CAVITY SLIDER

WINDOW 600W x 1500H (900H SILL)

WINDOW 600W x 1500H (900H SILL)

LOW BOOKSHELVES/DESK

WINDOW 900W x 1500H (900H SILL)

LIBRARY
VINYL
21.5 m²

VOID

FULL HEIGHT BOOKSHELF

WINDOWS 700W x 2400H (0H SILL)

WINDOWS 700W x 2400H (0H SILL)

DP

ROOF ABOVE

DP

DP

STORE

1:20 WALKWAY

1:14 RAMP BELOW

C
A302

B
A301

PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

FIRST FLOOR PLAN **A101**

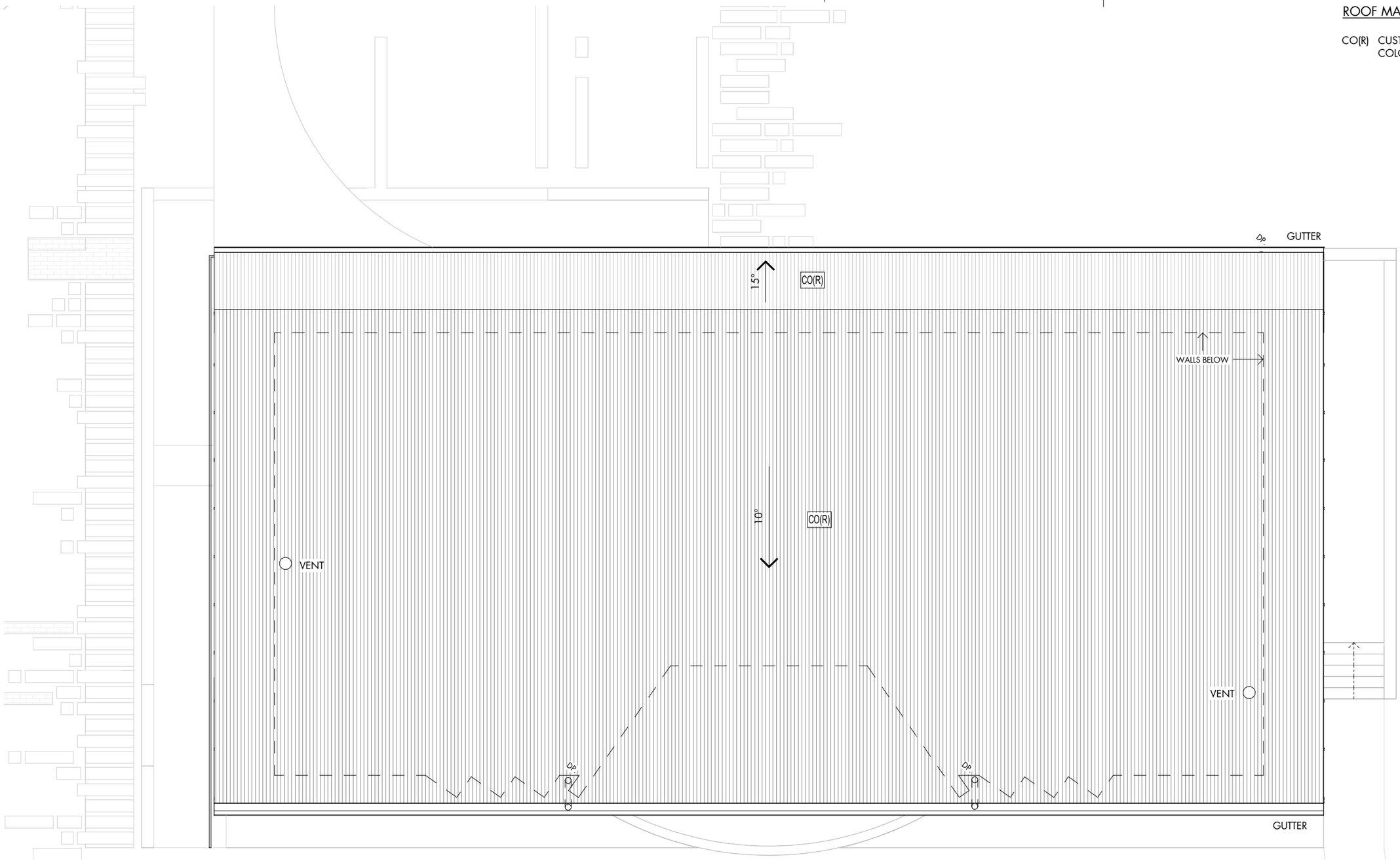
0 1 2 5
1:100

C

B

ROOF MATERIAL KEY

CO(R) CUSTOM ORB ROOF SHEETING, LIGHT COLOURED AS SPEC.



C
A302

B
A301

PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

ROOF PLAN **A102**

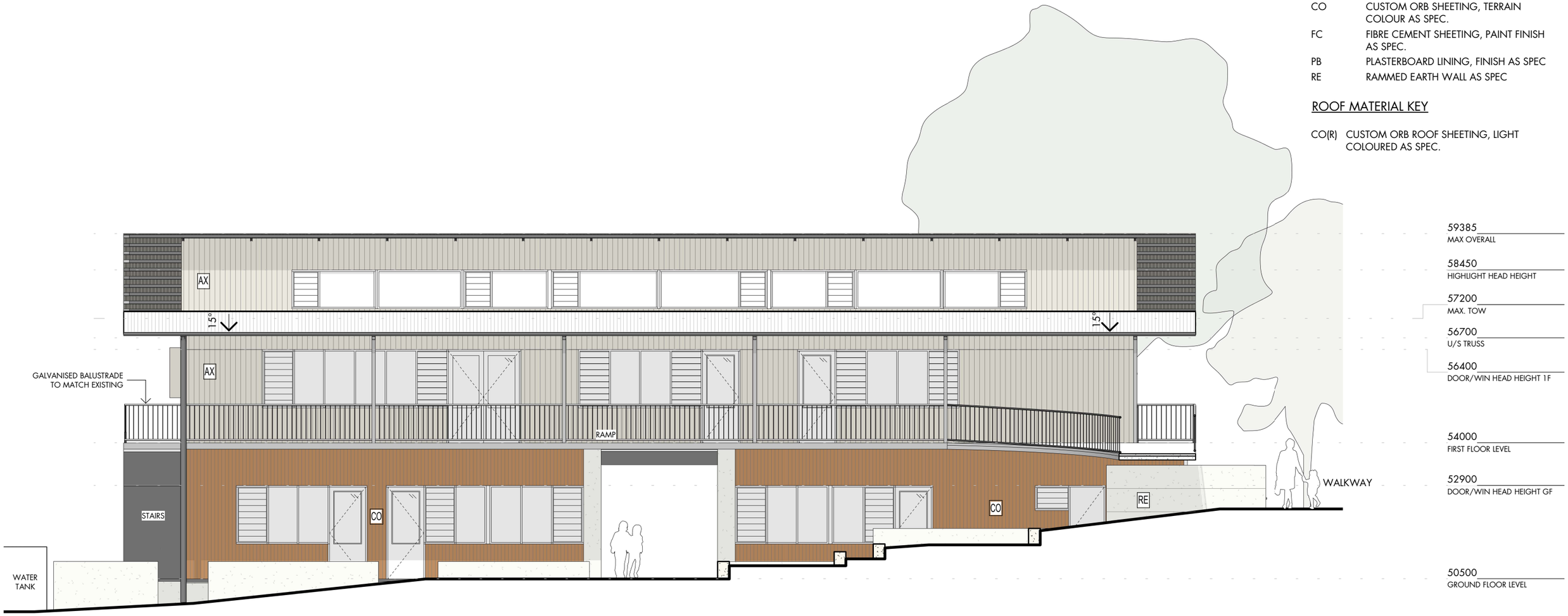
0 1 2 5
1:100

WALL MATERIAL KEY

AX	AXON CLADDING, PAINT FINISH AS SPEC
CO	CUSTOM ORB SHEETING, TERRAIN COLOUR AS SPEC.
FC	FIBRE CEMENT SHEETING, PAINT FINISH AS SPEC.
PB	PLASTERBOARD LINING, FINISH AS SPEC
RE	RAMMED EARTH WALL AS SPEC

ROOF MATERIAL KEY

CO(R)	CUSTOM ORB ROOF SHEETING, LIGHT COLOURED AS SPEC.



PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

NORTH ELEVATION **A200**

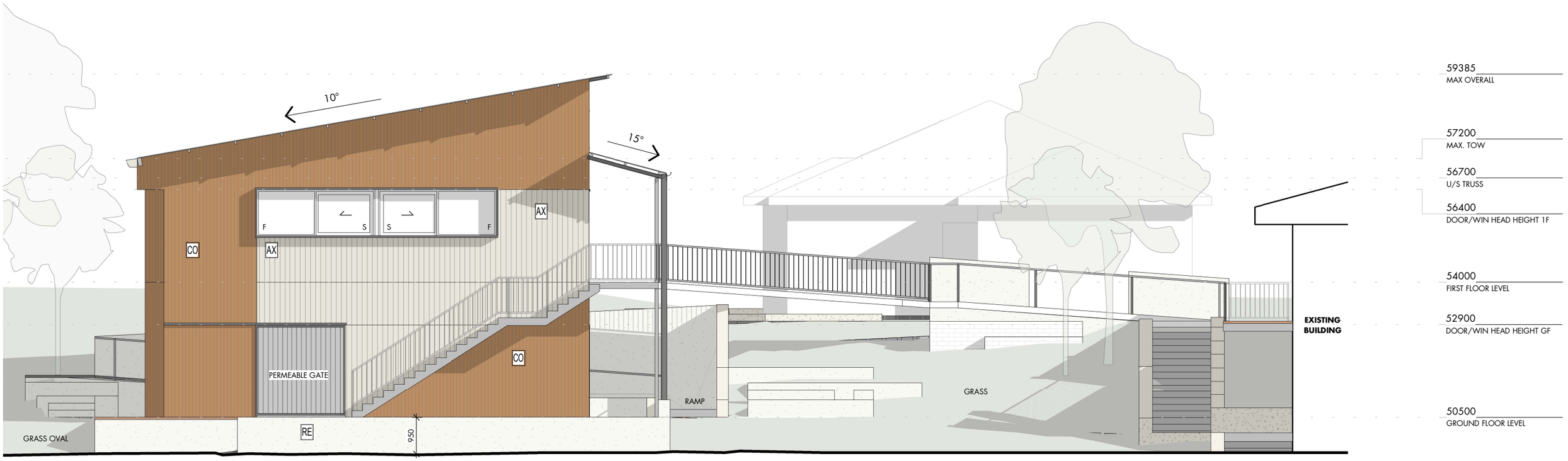
0 1 2 5
1:100

WALL MATERIAL KEY

AX	AXON CLADDING, PAINT FINISH AS SPEC
CO	CUSTOM ORB SHEETING, TERRAIN COLOUR AS SPEC.
FC	FIBRE CEMENT SHEETING, PAINT FINISH AS SPEC.
PB	PLASTERBOARD LINING, FINISH AS SPEC
RE	RAMMED EARTH WALL AS SPEC

ROOF MATERIAL KEY

CO(R)	CUSTOM ORB ROOF SHEETING, LIGHT COLOURED AS SPEC.



PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

EAST ELEVATION **A201**

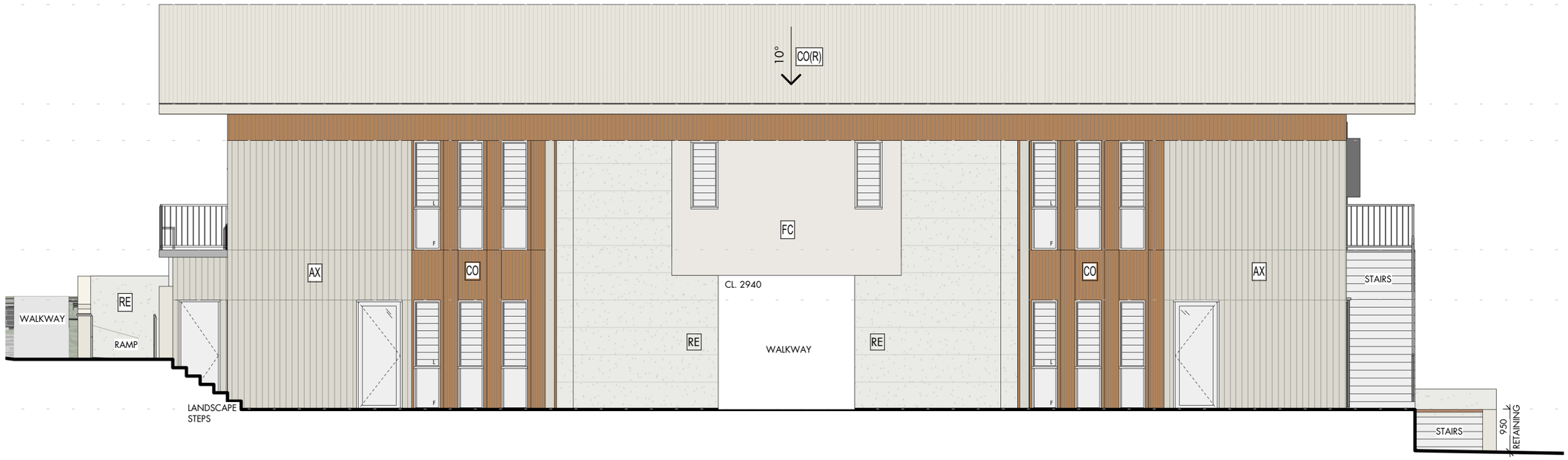
0 1 2 5
1:100

WALL MATERIAL KEY

AX	AXON CLADDING, PAINT FINISH AS SPEC
CO	CUSTOM ORB SHEETING, TERRAIN COLOUR AS SPEC.
FC	FIBRE CEMENT SHEETING, PAINT FINISH AS SPEC.
PB	PLASTERBOARD LINING, FINISH AS SPEC
RE	RAMMED EARTH WALL AS SPEC

ROOF MATERIAL KEY

CO(R)	CUSTOM ORB ROOF SHEETING, LIGHT COLOURED AS SPEC.



59385
MAX OVERALL

57200
MAX. TOW

56400
DOOR/WIN HEAD HEIGHT 1F

54000
FIRST FLOOR LEVEL

52900
DOOR/WIN HEAD HEIGHT GF

50500
GROUND FLOOR LEVEL

PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SOUTH ELEVATION **A202**

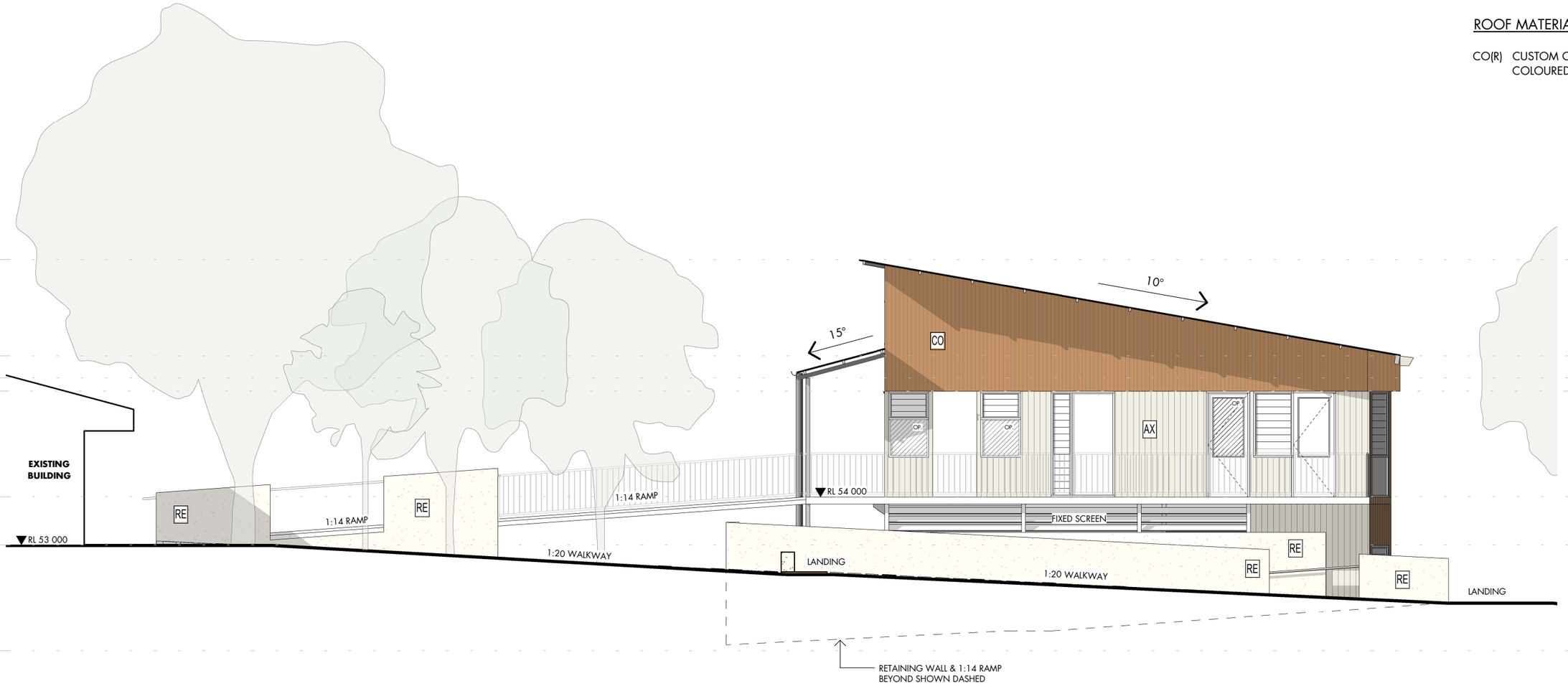
0 1 2 5
1:100

WALL MATERIAL KEY

AX	AXON CLADDING, PAINT FINISH AS SPEC
CO	CUSTOM ORB SHEETING, TERRAIN COLOUR AS SPEC.
FC	FIBRE CEMENT SHEETING, PAINT FINISH AS SPEC.
PB	PLASTERBOARD LINING, FINISH AS SPEC
RE	RAMMED EARTH WALL AS SPEC

ROOF MATERIAL KEY

CO(R)	CUSTOM ORB ROOF SHEETING, LIGHT COLOURED AS SPEC.



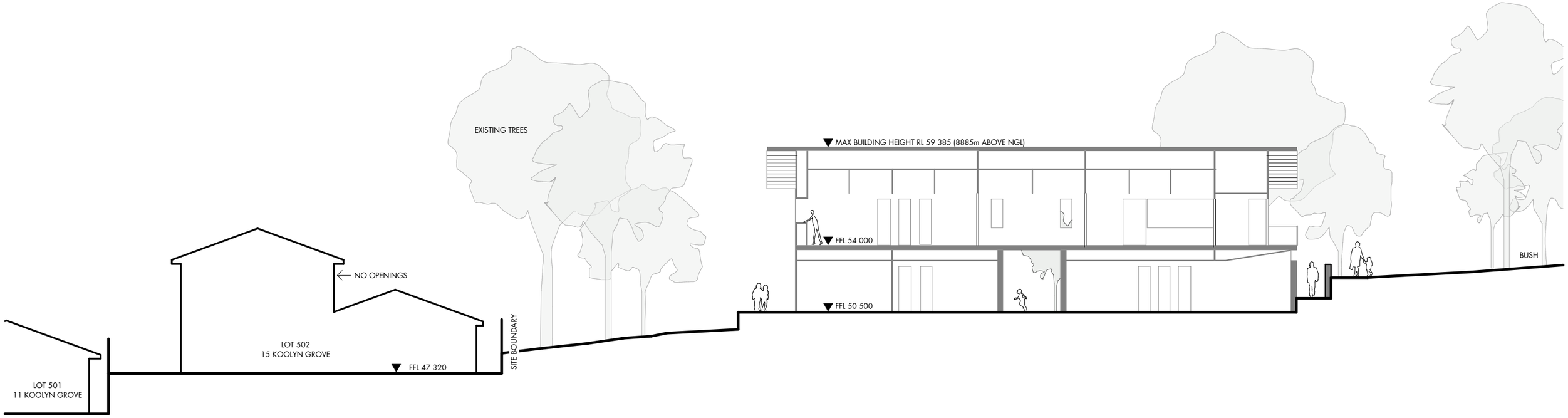
PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

WEST ELEVATION / SITE SECTION **A203**

0 1 2 5
1:100



PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SITE SECTION A **A300**

0 2 4 10
1:200

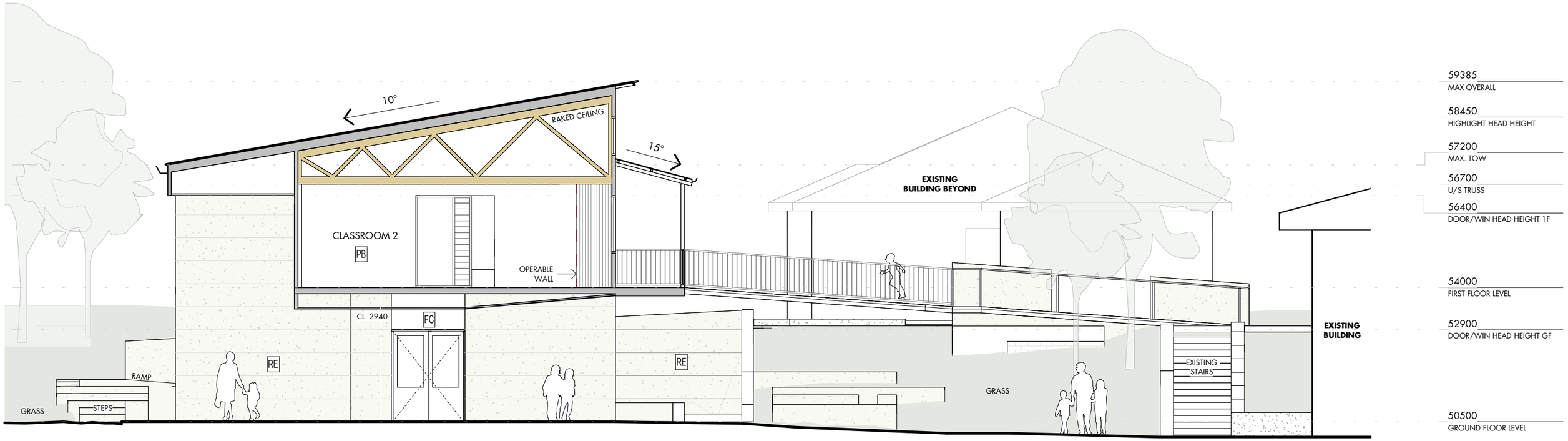
PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SECTION B - NORTH/SOUTH **A301**

0 1 2 5
1:100



PLANNING ISSUE

SHAMAI BUILDING

THE MONTESSORI SCHOOL KINGSLEY
18 MONTESSORI PLACE, KINGSLEY, WA, 6026
09.02.2023
PROJECT 2021.10

SECTION C NORTH/SOUTH **A302**

0 1 2 5
1:100

Bushfire Management Plan

18 Montessori Place, Kingsley

Client – The Montessori School Kingsley

March 2023

envision
bushfire protection

LIMITATIONS STATEMENT

This Bushfire Management Plan has been solely prepared for the The Montessori School Kingsley.

Envision Bushfire Protection

ABN: 90958370365

PO Box 7209 SHENTON PARK WA 6008

P: 0428 066 147

Email: admin@envisionbp.com.au

Version Control

The Montessori School Kingsley 18 Montessori Place Kingsley			
Version	**Date**	**Author**	
V1	14 November 2022	Anthony Rowe	Revised secondary access
V2	23 November 2022	Anthony Rowe	Submission
V3a	31 March 2023	Anthony Rowe	AS3959 2.2.3.2 (f) added, and Figures 3a and 3b amended to show vegetation over the site boundary and 3 b denoted as Post development (heading)

Disclaimer

In undertaking this work, the authors have made every effort to accurately apply the available information at the time of writing following the instructions of the regulatory authorities and applying best practice as described by the Fire Protection Association Australia. Any conclusions drawn or recommendations made in the report are made in good faith, and the consultants take no responsibility for how this information and the report are subsequently used.

Envision Bushfire Protection accepts no liability for a third party's use of, or reliance upon, this specific report.

Envision Bushfire Protection accepts no liability for the inaction of the owner to provide or maintain the bushfire protection measures identified in this report. Vegetation is dynamic, building materials may distort, and the accumulation and the location of flammable materials near the building may affect the potential for damage or loss of a building to occur.

Failure to maintain the property and/or building to these standards may compromise an insurance policy if currently covering any of your assets or those of any third party that may be consequentially affected due such failure. If not insured, and if you are seeking insurance, this report may not influence the decision of any insurer not to offer cover.

Importantly the measures contained in this report cannot guarantee human safety or an absence of harm or that the building will not be damaged or would survive a bushfire event on every occasion. This is due to the unpredictable nature of fire behaviour (knowledge in this field continues to develop) and the unpredictable nature of extreme weather conditions.

Scope of this report

Envision Bushfire Protection has been engaged to provide expert bushfire safety and planning advice.

The scope of the advice has been to assess the proposal for compliance with the policy measures described in State Planning Policy 3.7 and identify appropriate mitigation measures to be considered by the determining authority. This is described in a Bushfire Management Plan and prepared with regard to the Department of Planning Lands and Heritage templates.

The investigations and mitigation measures identified in the Bushfire Management Plan have, in turn, formed the basis for the preparation of a Bushfire Emergency Evacuation Plan.

Client relationship

I was engaged in providing expert bushfire safety and planning advice. My relationship with the client is a standard commercial contract, and no private, personal, or other matter has influenced the content of the Bushfire Management Plan or my findings.

STATEMENT OF CONFORMITY – PLANNING AND DEVELOPMENT ACT 2005

Anthony Rowe Level 3 - BPAD36690

Principal

envision
bushfire protection

BRONZE MEMBER
Fire Protection Association Australia

BPAD
Bushfire Planning & Design
Accredited Practitioner
Level 3

The signatory declares that this Bushfire Management Plan meets the requirements of State Planning Policy 3.7 and the Guidelines for Planning in Bushfire Prone Areas v1.4.

SUMMARY

Preface

The applicant is seeking development approval for an education facility The Montessori School Kingsley, 18 Montessori Place Kingsley ('**the site**'). The site is located within the City of Joondalup, and the City is the decision maker.

The site is within a declared bushfire prone area. Accordingly, the application for development approval is to be assessed for compliance with State Planning Policy 3.7 *Planning in Bushfire Prone Areas* ('**SPP 3.7**') "***to preserve life and reduce the impact of bushfire on property and infrastructure."***

In accordance with cl.6.5 in SPP 3.7, a development application is to be accompanied by a Bushfire Attack Level (BAL) assessment, prepared in accordance with AS3959:2018, and an assessment against the Bushfire Protection Criteria provided in the *Guidelines for Planning in Bushfire Prone Areas v1.4* (Guidelines v1.4).

This information is to be provided in a Bushfire Management Plan ('BMP') prepared in accordance with SPP 3.7 and Appendix Five in the Guidelines v1.4 *and the* Department of Planning Land and Heritage *BMP Template for a complex development application.*

In accordance with cl.5.5 in the Guidelines v1.4, the proposal is classed as a vulnerable development, and in turn following cl.6.5 in SPP 3.7, a Bushfire Emergency Evacuation Plan will accompany the BMP. The school has a contemporary bushfire emergency evacuation plan *The Montessori School Kingsley Inc. - Fire Management and Evacuation Procedures – 2022,* which is compliant with the content requirement described in the Guideline v1.4 and has been augmented to reflect the new building.

1. Proposal details (addressed in Section 1)

The proposal is a two storey building; the ground floor comprises the science room, a staff room, a student room and a classroom and on the on the second level three class rooms.

The school incorporates a bushland rehabilitation area.

The proposed building has been positioned on the site to minimise the Bushfire Attack Level from the bushland rehabilitation area.

The school address, and its primary vehicle access, is from Montessori Place at the northern boundary of the site. The proposed development will provide an additional (emergency) access onto Mooltunya Court at the south west corner of the site. The school site also joins Wandearah Way. The bushland rehabilitation area separates the school buildings from Wandearah Way. No access is provided from the school onto Wandearah Way.

The school is within the urban area, residential zone, and has access to a reticulated water supply and hydrant network (Water Corporation).

2. Environmental considerations (addressed in Section 2)

The proposed building will not require the removal of regulated vegetation and the building has been sited to avoid modification to the bushland rehabilitation area (classified as scrub). The proposed building is separated from the bushland rehabilitation area by an area of woodland, characterised as elevated canopies over a grass understory. Continued rehabilitation of the bushland rehabilitation area and an intrusion of elevated vegetation into the woodland would bring

a forest classification (higher BAL exposure). The bushland rehabilitation area is managed with fuel reduction burns on a 7-10 year cycle. It would however be prudent to maintain an Asset Protect Zone setback of 21 m, avoiding an encroachment of elevated fuels, to provide a sustained separation of the building from forest to maintain the building position outside of flame contact: represented as BAL 29. A secondary Asset Protection Zone up to 14 m from the building can also be provided where the woodland condition is maintained. Tree canopies closer than 14 m will be subject to a distribution described by the Asset Protection Zone standard.

3. Bushfire assessment results (addressed in Section 3)

A Bushfire Attack Level assessment has been undertaken from a site inspection conducted on 1 November 2022. The proposed building has a zero setback to the nearest classified vegetation, woodland and will require the establishment of an Asset Protection Zone equivalent to BAL 29, on completion.

A BAL contour plan has been prepared to identify the Asset Protection Zone (APZ) for the proposed building, accounting for the vegetation and land slope. It has been set with an expectation that revegetation to forest, may occur as an extension of the bushland rehabilitation area.

4. Identification of bushfire hazard issues (addressed in Section 4)

The most intense bushfire is likely to arrive in the afternoon between mid-December and March each year when the Forest Fire Danger Index[1] (FFDI) is above 50. The wind roses for Perth Airport (nearest weather station) illustrate the morning winds are likely from the east and afternoon winds strongest from the southern hemisphere (west through to east). A fire can come from any direction but typically travel from east to west.

The site is 190 m west of Lake Goollelal, which contains an area of forest, that has been subject to small fires since 2012. The primary risk of bushfire is from embers from a fire in the Lake Goollelal forest igniting the school's bushland rehabilitation area.

The appropriate risk treatment is a separation of the building from a direct flame contact from a fire in the school's bushland. In addition a construction standard that is resistant to ember attack and management of the site to avoid the accumulation or location of flammable objects or materials near enough to the building that if ignited might expose the building to a direct flame contact.

The site is within the urban area and has access to a reticulated water supply. Emergency Services are located nearby.

5. **Assessment against SPP 3.7 Policy Measures** (objectives and Guidelines v1.4 - addressed in Section 5)

   The proposal is required to demonstrate compliance with the Objectives of SP 3.7 and the Guidelines Bushfire Protection Criteria Elements: Location, Siting and Design, Access, and Water.

   5.1 Objectives compliance

   The proposal is not introducing an increased risk of bushfire ignition and is able to reduce the vulnerability of the building to be located outside of flame contact (BAL 29 level) by establishing an Asset Protection Zone that is consistent with the School's objective to foster the bushland rehabilitation area.

[1] FFDI is a measure of fire danger weather 50+ is Severe, 75+ is Extreme and 100+ is Catastrophic

5.2 Acceptable Solution

The proposal was compared with the four Bushfire Protection Criteria Elements summarised below:

Element 1 Location

The site is within a residential area, with Lake Goollelal to the east of the site (single aspect). The building can be located within an area not exceeding BAL 29.

Element 2: Siting and Design

Element 2 requires that no habitable building should be exposed to a Bushfire Attack Level (BAL) greater than BAL 29 on completion.

An Asset Protection Zone set from forest to the face of the proposed building that will expose the building to a BAL no greater than BAL 29 can be achieved. A restriction on forest establishing within 21 m of the building will provide flexibility for the rehabilitation of vegetation on site without exceeding BAL 29 at the building.

Element 3 - Vehicle Access

Element 3 requires a site to have a public access to two destinations (through road).

The school is presently accessed from Montessori Place which is a cul-de-sac extending west from Goollelal Drive. Goollelal Drive is a through road with multiple connections to the urban road network.

Montessori Place and Goollelal Drive are sealed public roads compliant with the technical requirements in Table 6 column 1 of the Guidelines (IPWEA subdivision standards).

Montessori Place is 225 m long, but the school is located within 155 m of Goollelal Drive.

The school joins Mooltunya Court at its south east corner and an emergency vehicle access way is proposed from Mooltunya Court. Mooltunya Court is a 300 m cul-de-sac extending Benbullen Boulevard (a through road) through residential development. It provides an additional route from the school for the evacuation of students or for the attendance of emergency services, if Montessori Place is not available.

Element 4 - Water

The school is connected to the Water Corporation's reticulated water supply network and a hydrant is installed at the school in Montessori Place, and at the site's adjoining roads Mooltunya Court and Wandearah Way.

Additional Bushfire Management Strategies

The bushfire management strategies that are additional to Bushfire Protection Criteria (4 Elements) is provided in the Bushfire Emergency Evacuation Plan (The Montessori School Kingsley Fire management and Evacuation procedures). The school is within an urban area and unusually the primary threat is the rehabilitated bushland on the site. The site is otherwise exposed to low radiant head, ember attack and smoke from Lake Goollelal, but is accessible through out a bushfire event to facilitate evacuation of the school. Evacuation from the school is recommended to avoid the effects of smoke. External exposure is minimised by students remaining in class until leaving for an evacuation vehicle, to avoid smoke and injury from airborne materials. The primary evacuation point is Montessori Place, but it is adjoined by woodland vegetation and adjoins Goollelal Drive

which may not be available if the fire is arriving from Lake Goollelal. If evacuation from Montessori Place is not available, then evacuation from can be taken from Mooltunya Court. It provides a BAL Low (Low threat) route from the School.

The BEEP addresses the additional requirements described at cl. 5.5.4 of the Guidelines v1.4 to provide a pre-planned response to a bushfire affecting the site and safe and orderly evacuation of the school.

6. Responsibilities for implementation and management of the bushfire measures

The Owner responsibilities (Guidelines 4.6.3) identify the bushfire management measures necessary to achieve compliance with the bushfire protection criteria are provided at **section 6** in this BMP and summarised in Figure Ex1.

Contents

1. PROPOSAL DETAILS

1.1 Introduction

Envision Bushfire Protection has been commissioned to prepare a Bushfire Management Plan and Bushfire Evacuation Plan for The Montessori School Kingsley at 18 Montessori Place Kingsley. The Site location is shown at Plate 1.

The site is within a declared bushfire prone area (Plate 2).

In accordance with SPP 3.7, the planning authority in determining an application in a declared bushfire prone area must be satisfied the proposal is consistent with the Policy intent, ***to preserve life and reduce the impact of bushfire on property and infrastructure***.

Purpose of this Plan

The purpose of this BMP is to assess the suitability of the location for the intended use as a school. The suitability is determined by placing a primacy upon human life, accounting for the requirements of people with reduced physical or mental capacity, such as children under 18 years of age (vulnerable).

This document presents an assessment of a proposed vulnerable class of development with the requirements of State Planning Policy 3.7 and *Guidelines for Planning in Bushfire Prone Areas* (WAPC, V1.3 December 2017), including assessment against each of the Bushfire Protection Criteria and the requirement for an Emergency Evacuation Plan.

Site and Proposal Description

The proposal and its context comprise:

Landowner	The Montessori School Kingsley			
Address	18 Montessori Place Kingsley			
Local Government Area	City of Joondalup			
Local Planning Scheme Zone	The land is zoned Private Community Purpose within a Residential Zone R20.			
Bushfire Season	November – May (precise dates vary annually)			
Development proposal	Early childhood – Senior school (ages 3 – 18 years)			
Building class	Class 9 – bushfire construction is at the discretion of the proponent			
Lot size	2.03 ha			
Landscape context	Urban			
Land description site	The site is occupied by the The Montessori School Kingsley, multiple buildings at the east of the site (approximately 50% of the site area. The western portion of the site is a bushland rehabilitation area.			
Adjoining Landuses	North	East	South	West

	Narrow Woodland, City reserve, followed by Low Threat Residential (Primary evacuation route)	Low Threat Residential Lake Goollelal (Forest) is located	Low Threat Residential (Secondary evacuation route)	Low Threat Residential (school building separated by the bushland rehabilitation area)
Road Access	Access to the site is from Montessori Place. An emergency access way will be provided from Mooltunya Court.			
Nearest town centre	The site is with the City of Perth urban area			
Water supply	The site has access to a reticulated water supply. Water corporation Hydrants are available in Montessori Place, Mooltunya Court and Wandearah Way. Hydrants supplying the school are located at the north boundary of the site.			
Tele communications	The site is within the Telstra 4G network			
Emergency services	The nearest fire brigade is 3.8 km from the site Wangara Fire Station 24 Prindiville Dr, Wangara			
Minor Development	N/A			
Unavoidable development	N/A			
Vulnerable Development	Yes			
High-risk land use	N/A			

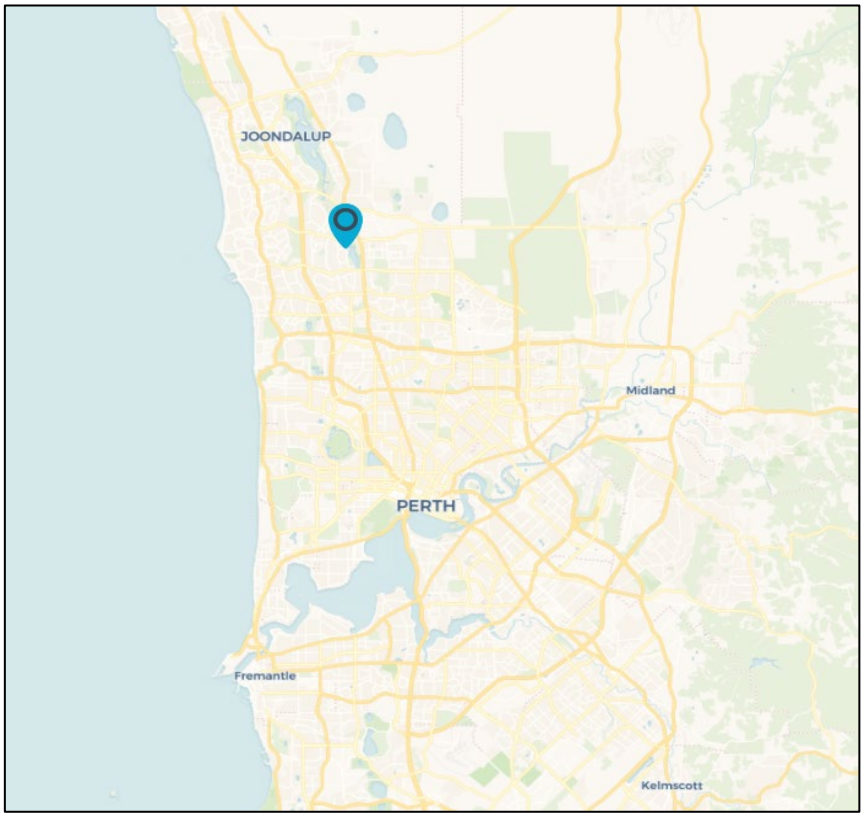


Plate 1: Location (blue) identifier

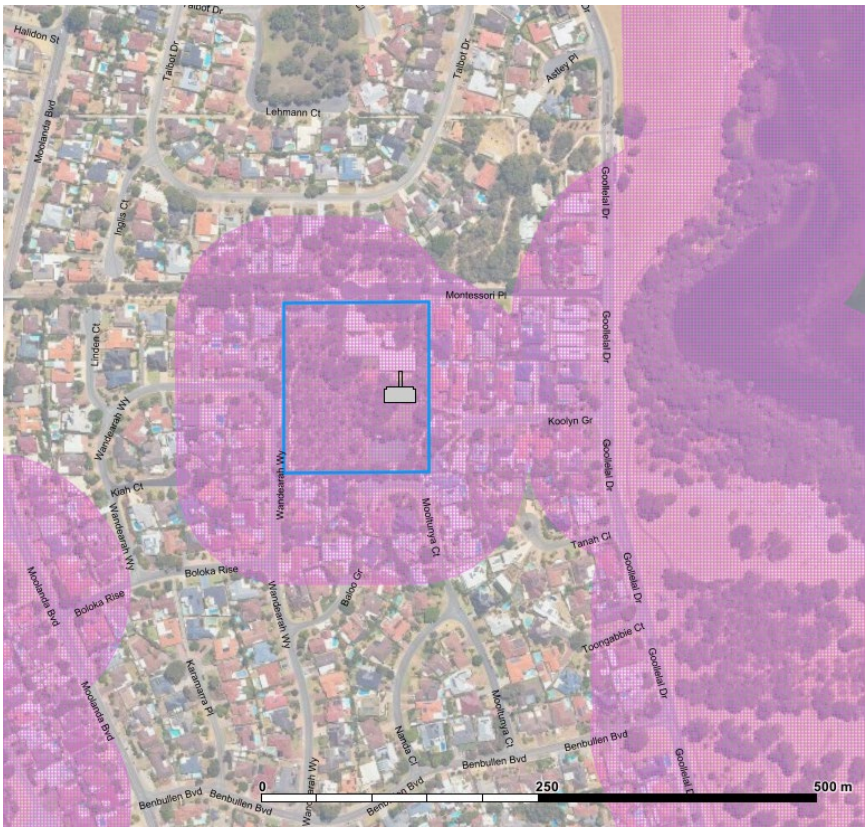


Plate 2: OBRM Bushfire Prone Area (Pink area)

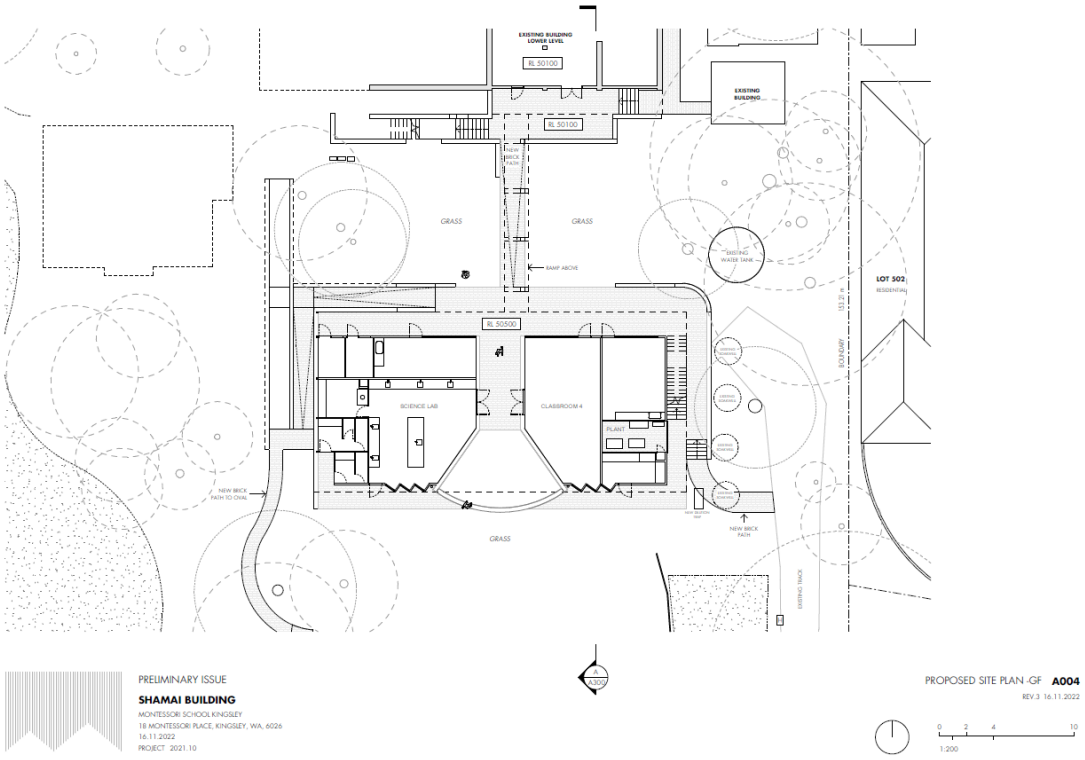


Plate 3a- Ground floor

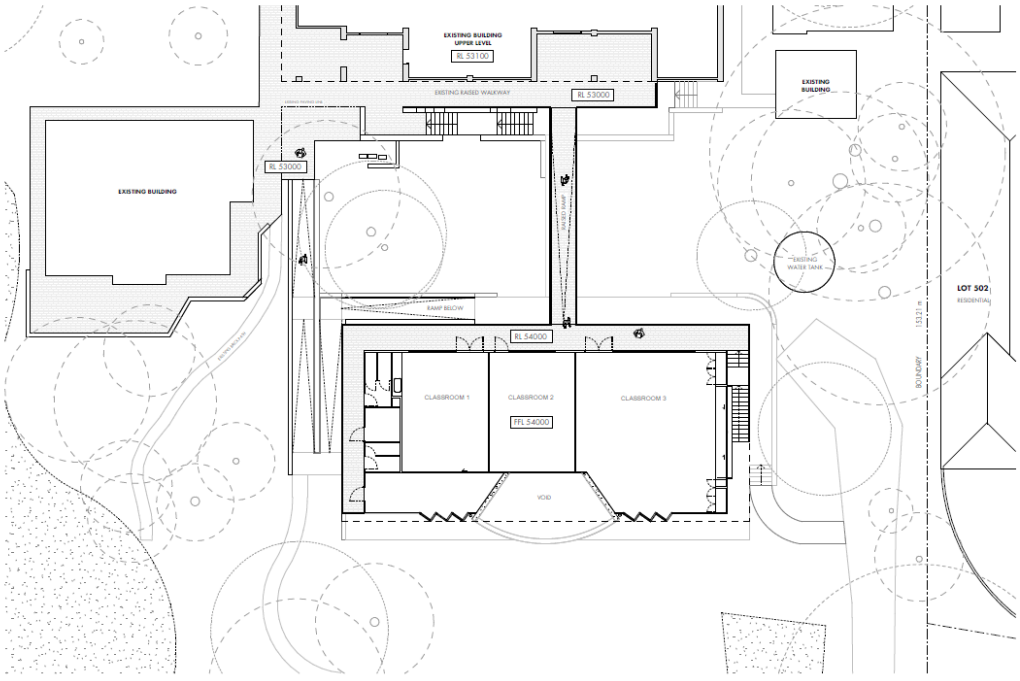
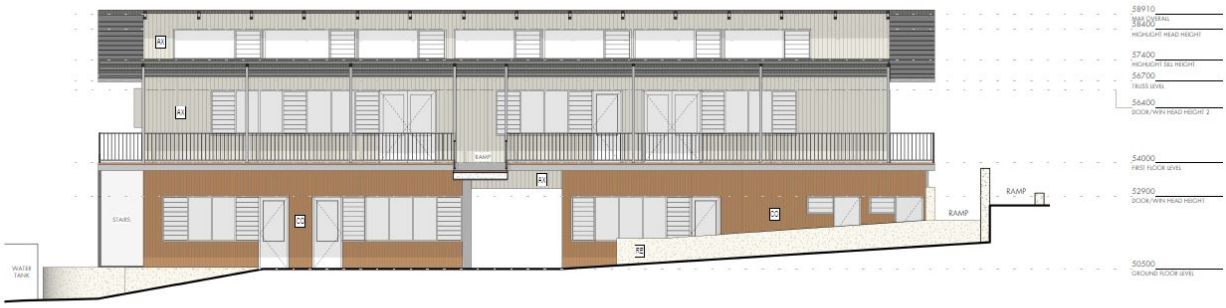
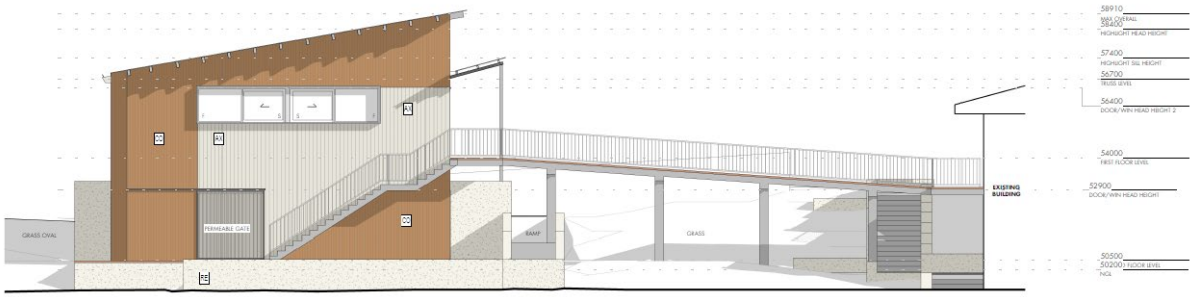


Plate 3b- First Floor

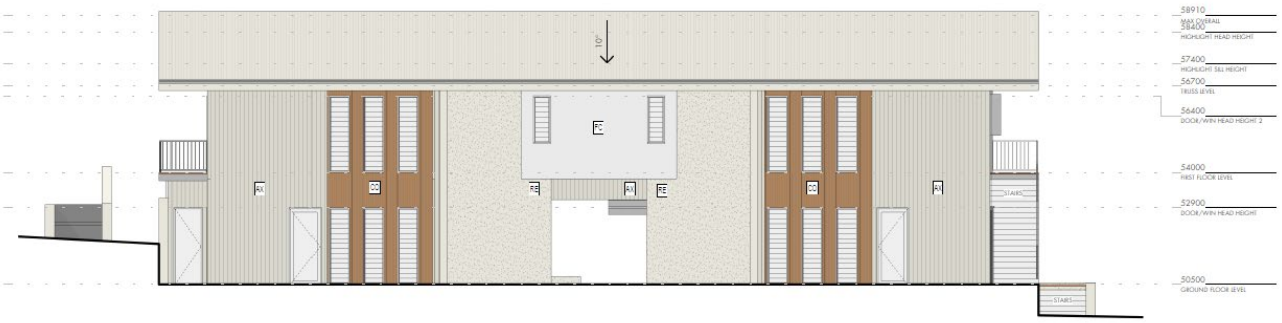
Plate 3c- Site Plan Proposed Buiding and emergency access to Mooltunya court



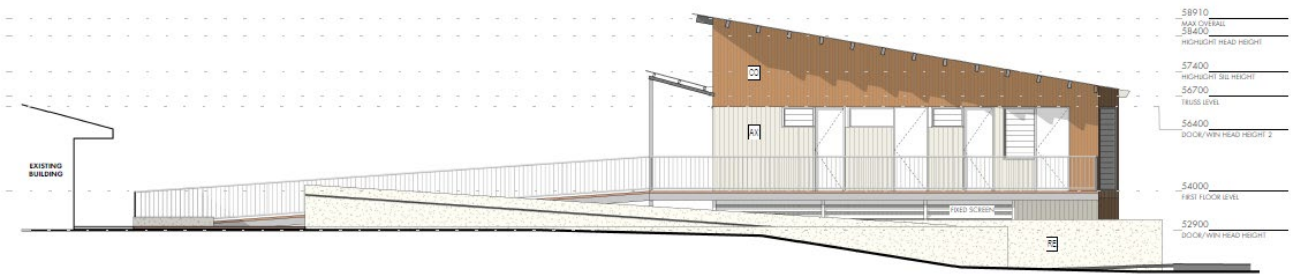
North Elevation



East Elevation



South Elevation



West Elevation

1.2 Regulatory Compliance Requirements

Planning and Development Act 2005 - SPP 3.7

On 7 December 2015, the State Government introduced a state map of Bushfire Prone Areas by order under the *Fire and Emergency Services Act 1998* and introduced development controls in Bushfire Prone Areas through the *Planning and Development Act 2005*. These controls were authorised by State Planning Policy 3.7 (Planning in Bushfire Prone Areas) regulations introduced under Part 10A Schedule 2 of the *Planning and Development (Local Planning Scheme) Regulations 2015* and guided by the *Guidelines for Planning in Bushfire Prone Areas*.

The State Planning Policy, Regulations, and Guidelines now form the foundation for fire risk management planning in WA at a community and land development level. The Policy Intent of SPP 3.7 is ***to preserve life and reduce the impact of bushfire on property and infrastructure***.

***Vulnerable Land Uses* (Guidelines for Planning in Bushfire Prone Areas cl.5.5)**

Typically, *Vulnerable* land uses are those where persons may be less able to respond in a bushfire emergency.

This includes:

> *"land uses and associated infrastructure that is designed to accommodate groups of people with reduced physical or mental ability such as the elderly, children (under 18 years of age)"*

The Building Act 2011

A school is a class 9 building subject to the construction requirements of the National Construction Code 2019, which does not explicitly apply the bushfire standards listed in AS 3959:2018. However, the National Construction Code 2022 include a construction and shelter standards to be adopted for all School buildings. The Adoption of this component of the NCC has been deferred until 1 May 2024 and concern has been expressed that it may not be practical or necessary to construct all school buildings to Shelter standards.

The BMW Technical Guidance: TG015 Building in Bushfire Prone Areas (Department of Finance - Building Management and Works 2018) recommends all buildings are constructed to the BAL rating applicable to their location, and the specifications for the BAL rating in AS 3959. The Association for Independent Schools WA also strongly encourages all schools to follow this convention.

***Bush Fires Act* 1954**

Section 33(1) of the *Bush Fires Act 1954* is important in reducing ignitions and the spread of bushfire. It recognises the responsibility of all landowners to prevent the spread of bushfire. Local government, at any time, may give Notice in writing to an owner or occupier of land within the district of the local government. The Notice may specify works to be undertaken, including the management of grasses on private property, usually to be maintained at less than 10 cm during the fire season. It also provides that the identified works can be undertaken as a separate operation or in coordination with the neighbouring land. The requirements of the Firebreak Notice are separate/independent to the requirements provided by a Bushfire Management Plan. Generally the highest standard of bushfire protection expressed in either document will prevail if there is conflict between a firebreak notice and a BMP.

2. Environmental Considerations

Native Vegetation – Modification and Clearing

A fundamental consideration in the assessment of development under SPP 3.7 is to avoid instances where bushfire risk management measures would conflict with or be limited by other biodiversity management measures.

Conservation class legislation

The ability to implement bushfire risk management measures may be affected by a number of conservation class vegetations: described below.

Environment Protection Act 1986 and Environmental Protection (clearing native vegetation) Regulation 2004

It is an offense to clear native vegetation without the authority of a permit or an exemption. The act of clearing native vegetation, requires a permit from either the Department of Water and Environmental Regulation (DWER) or the Department of Mines, Industry Regulation and Safety (DMIRS), unless an exemption applies.

Exemptions include:

Environment Protection Act 1986

- Clearing required by local government Section 33 *Bushfire Act 1954.*
- **Clearing in accordance with the terms of a subdivision approval.**
- Clearing in accordance with a permit under the *Bushfires Act 1954* (prescribed burning) and clearing by a bushfire control officer.

Environmental Protection (clearing native vegetation) Regulation 2004 (exemptions do not apply in Environmentally Sensitive Areas, and clearing > than 5 ha)

https://www.der.wa.gov.au/your-environment/environmentally-sensitive-areas

- Clearing to the extent necessary to construct an approved building.
- Clearing that is for fire hazard reduction burning.
- Clearing to maintain an area cleared in the last ten years.

(WA) Biodiversity Conservation Act 2016 and Bio-diversity Conservation Regulations 2018

The *Biodiversity Conservation Act, 2016*, replaces the *Wildlife Conservation Act, 1950*, and the *Sandalwood Act, 1929*, it became operational with the *Bio-diversity Conservation Regulations 2018*, on 1 January 2019.

The Act provides for listing species, threatened ecological communities (TECs), key threatening processes, and critical habitats. It introduces criteria for listing species 'endangered', 'critically endangered' or 'vulnerable,' to align with the Environment Conservation and Biodiversity Conservation Act 1999 (Cth).

The *Biodiversity Conservation Act 2016* recognises that activities approved under the *Environment Protection Act 1986* do not require further approval include clearing of native vegetation that is either exempt or done under the authority of a clearing permit or done in accordance with an implementation decision under Part IV of the *Environment Protection Act 1986*.

Commonwealth Environment Protection Biodiversity Conservation Act 1999

The Commonwealth Environment Protection Biodiversity Conservation Act 1999 provides for the protection of matters of national environmental significance. National environment law does not generally regulate fire prevention measures taken by state and territory governments, but no specific exemptions are provided.

In accordance with the Department of Planning Lands and Heritage template (BMP template to support a BAL Contour Assessment) a review of the listed databases has been undertaken as part of this assessment to identify whether restrictions or other specific considerations may apply that would affect the implementation of any bushfire protection initiatives that may otherwise be identified.

A fundamental consideration in the assessment of development under SPP 3.7 is to avoid instances where bushfire risk management measures would conflict with or be limited by other biodiversity management measures.

In accordance with the Department of Planning Lands and Heritage template (BMP template to support a BAL Contour Assessment) a review of the listed databases has been undertaken as part of this assessment to identify whether restrictions or other specific considerations may apply that would affect the implementation of any bushfire protection initiatives that may otherwise be identified.

Table 1: Ecological database assessment.

Is the land affected by:	**Yes/No/NA**	**If yes - describe**	
Conservation Wetland or buffer (DBCA-019 DBCA-017)	No		
RAMSAR Wetland (DBCA-010)	No		
Threatened and Priority Flora (DBCA-036)	Nearby	Not within the site but within 400 m south east.	
Threatened and Priority Fauna (DBCA-037)	Yes	Carnaby's Black Cockatoo	
Threatened Ecological Communities (DBCA-038)	No		
Bush Forever (COP-071)	No		
Environmentally Sensitive Area (DWER-046)	No		
Regionally Significant Natural Areas (DWER-070)	No		
Conservation Covenant (DPIRD-023)	No		
Does the proposal require the removal of restricted vegetation?		**Yes**	~~No~~

Native vegetation – modification and clearing

The site is located in an area broadly identified as habitat for the Carnaby's Black Cockatoo. The location of the proposed building is predominantly over grass, but modification of woodland west of the building will be required for the establishment of the Asset Protection Zone (APZ)

The APZ standards, are described in Element 2 Schedule 1 of the Guidelines v1.4 and are not barren land but describes a horizontal and vertical separation of classified vegetation.

The Bushland Sub-committee organises periodic controlled burns in the bushland every 7-10 years to ensure to emulate the natural cycle and ensure the ground fuel build-up is reduced. This will reduce the intensity of a fire in the bushland.

All vegetation outside of the site is assumed to remain in its existing condition. No areas of native vegetation outside of the site are proposed to be modified by the proponent as part of the proposed development.

Revegetation and landscape plans

It is important that landscaping which would increase the risk of a bushfire across the site does not occur within the Asset Protection Zone of the building, because it would expose the building to a higher radiant heat or flame contact that the building was designed for and could lead to significant damage or loss. The Asset Protection Zone has been set to 21 m to enable Forest to be established outside of the Asset Protection Zone without exposing the building to direct flame contact (BAL 29).

3. BUSHFIRE ASSESSMENT

3.1 Bushfire Attack Level Assessment (Inputs)

The following assessment has applied the methodologies described in AS 3959:2018, the Guidelines, and has used the Fire Protection Association Australia accredited practitioner methodology for the preparation of Bushfire Attack Level (BAL) assessments.

All vegetation within 150 m (context) of the site has been classified following Clause 2.2.3 (AS 3959:2018) to determine the predominant vegetation affecting the behaviour at the locality. The Bushfire Attack Level is determined by the **predominant** vegetation within 100 m of the site boundary (for subdivision), or around the development site (building envelope) or the external face from a habitable building.

The classifications of vegetation used in AS 3959:2018 are based on foliage cover, measured as a percentage of a hectare and by the fuel (vegetation) height.

> ***Foliage cover**: The portion of the ground that would be shaded by foliage when the sun is shining directly overhead , expressed as a percentage for each stratum or identifiable layer of vegetation*

AS 3959:2018

Layer/ Stratum	Description	Hazard
Bark	Tight/fine or course/ribbon	Spotting and ember attack potential (the potential increases course/ribbon barks)
Canopy	Trees taller than 6 m	Influences the flame height
Elevated fuel	Trees and Shrubs up to 6 m	Influences the flame height
Near surface	Grasses and shrubs taller than 100 mm and up to 2 m	Influences the rate of spread (the cured, looser and potential aerated the material, the easier to ignite and the faster the spread).
Surface	On ground material, leaves, twigs, bark	Influences the rate of spread (the looser and potential aerated the easier to ignite and the faster the spread).

From CFA (Vic) Overall fuel assessment guide 2010

AS 3959:2018 describes six categories of Bushfire Attack Level (BAL): BAL-LOW, BAL-12.5, BAL-19, BAL-29, BAL-40, and BAL-FZ. In addition, BAL-FZ describes only performance solutions where the separation from classified vegetation (on completion) is less than 10 m. The BAL level is used for determining the siting of development (to be less than BAL-40) and in turn the construction standard that is equivalent to the BAL at the proposed building location.

This assessment has followed the guidance of AS 3959:2018. This includes:

- A recognition of excluded vegetation types described at cl.2.2.3.2 (e) and (f), but the underlying vegetation should still be classed e.g. an orchard may be excluded but not the grassland within it.
- A separate plot is applied if there is a variation in the slope greater than 5.0^0
- For various vegetation classes a representation that is less than 10%, does not constitute the predominant class. Foliage cover referred to in AS 3959:2018 for various classes is based on the foliage cover for that class as a percentage of a ha. (shadow cast is not representative of foliage cover).

- The measurement point and the most influential vegetation class (presenting the highest BAL at the building) is used for the determination of the BAL at the building (Figure 2.2 AS 3959:2018).
- Consideration of the predominant vegetation is to consider the likelihood of regeneration.
- Orchards, and single tree rows (planted in a row less than 10 m wide) is determined by underlying the near surface fuel.

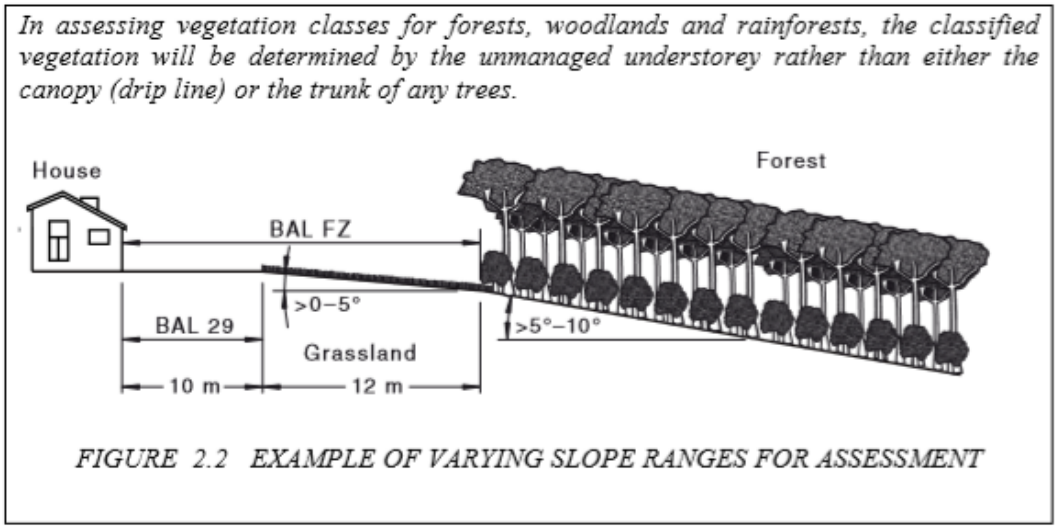


Plate 4: Effective Slope and measurement taken from AS 3959:2018

Effective slope under each vegetation plot was assessed in accordance with the methodology detailed in AS 3959:2018 Construction of buildings in bushfire prone areas (AS 3959) (Standards Australia, 2018 Bushfire Fuels). Slope data was measured on site and cross referenced with Landgate elevation data.

Figures 2 and 3 represent the evidence collected from the site visit, verification of the topography (Figure 2) and the vegetation class with geo-referenced photographs (Figure 3).

Photo evidence Site Assessment & Site Plans

The assessment of this site / development was undertaken on 1 November 2022 by a BPAD Accredited Practitioner for the purpose of determining the Bushfire Attack Level in accordance with AS 3959:2018 Simplified Procedure (Method 1).

Figure 1: Location

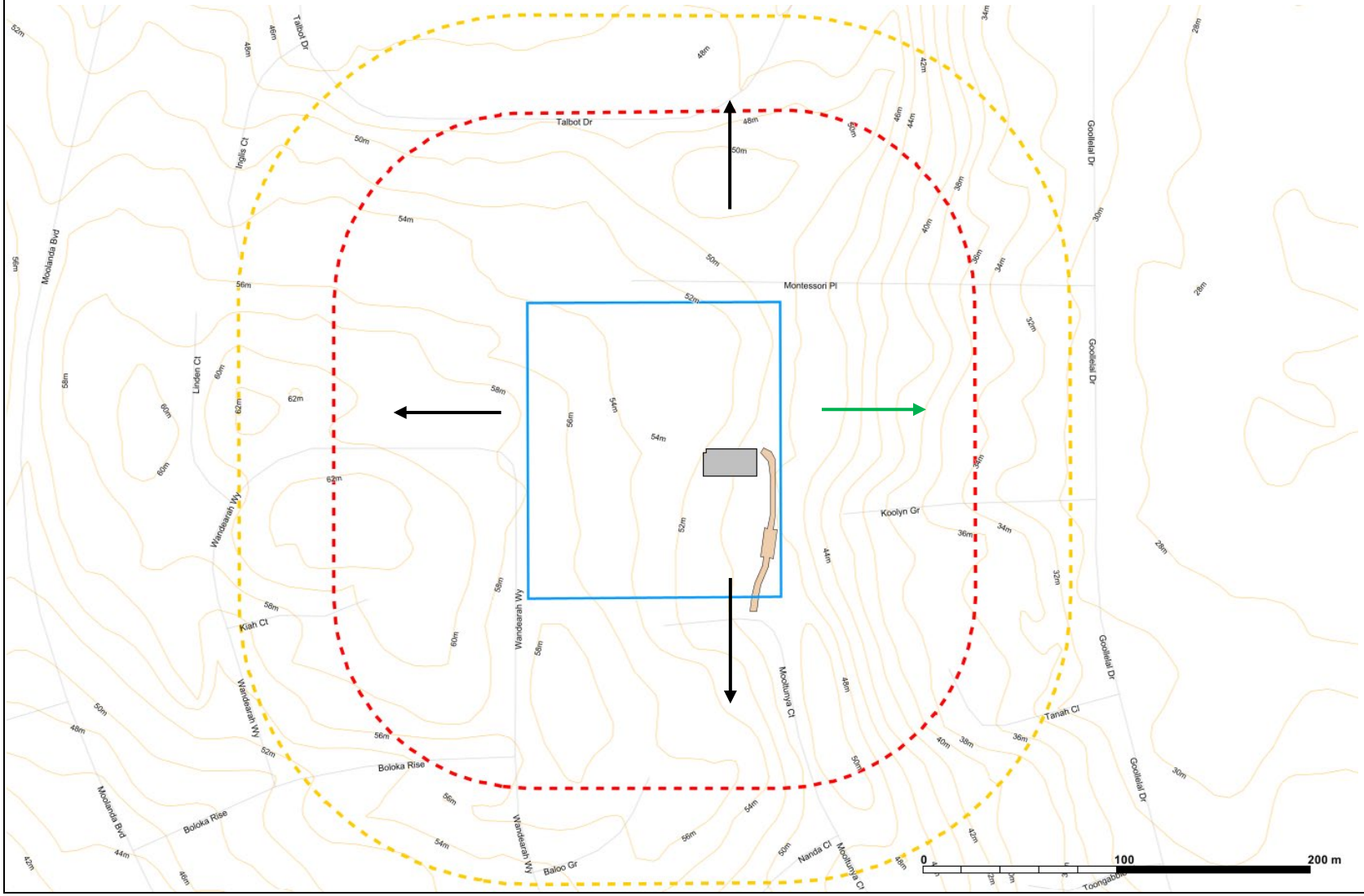
Site boundary

150 m assessment area

100 m assessment area

Assessment Date: 1 November 2022
Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2022
FPAA FIRE MAP 2022
GDA 1994 MGA Zone 50

Figure 2: Topography



Site boundary

150 m assessment area

100 m assessment area

AHD contour unavailable, Slopes recorded by a Nikon Pro

Upslope and overall level ground

Downslope 0--5

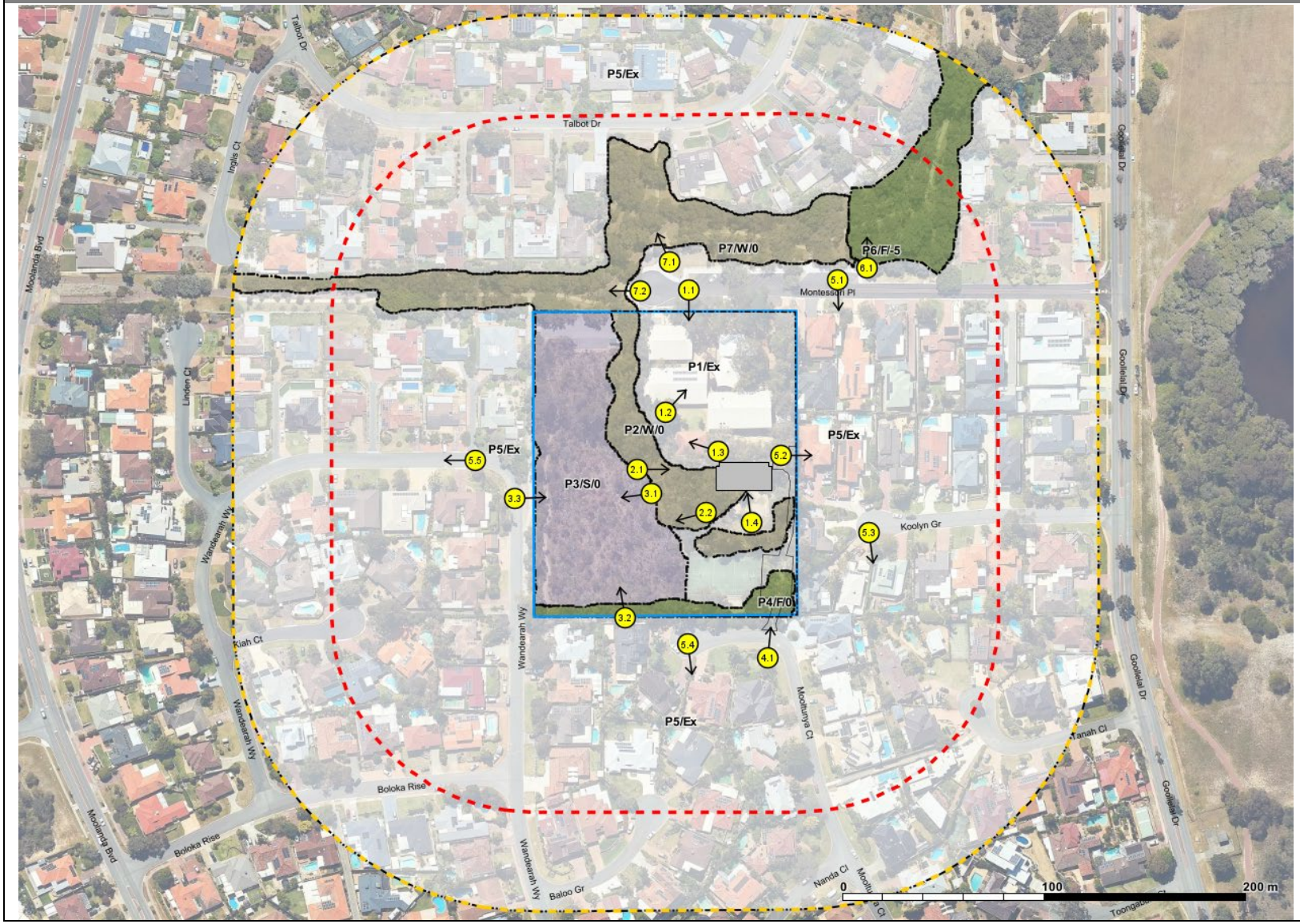
Downslope 5--10

Downslope 10--15

Downslope 15--20

Assessment Date: 1 November 2022
Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2022
FPAA FIRE MAP 2022
GDA 1994 MGA Zone 50

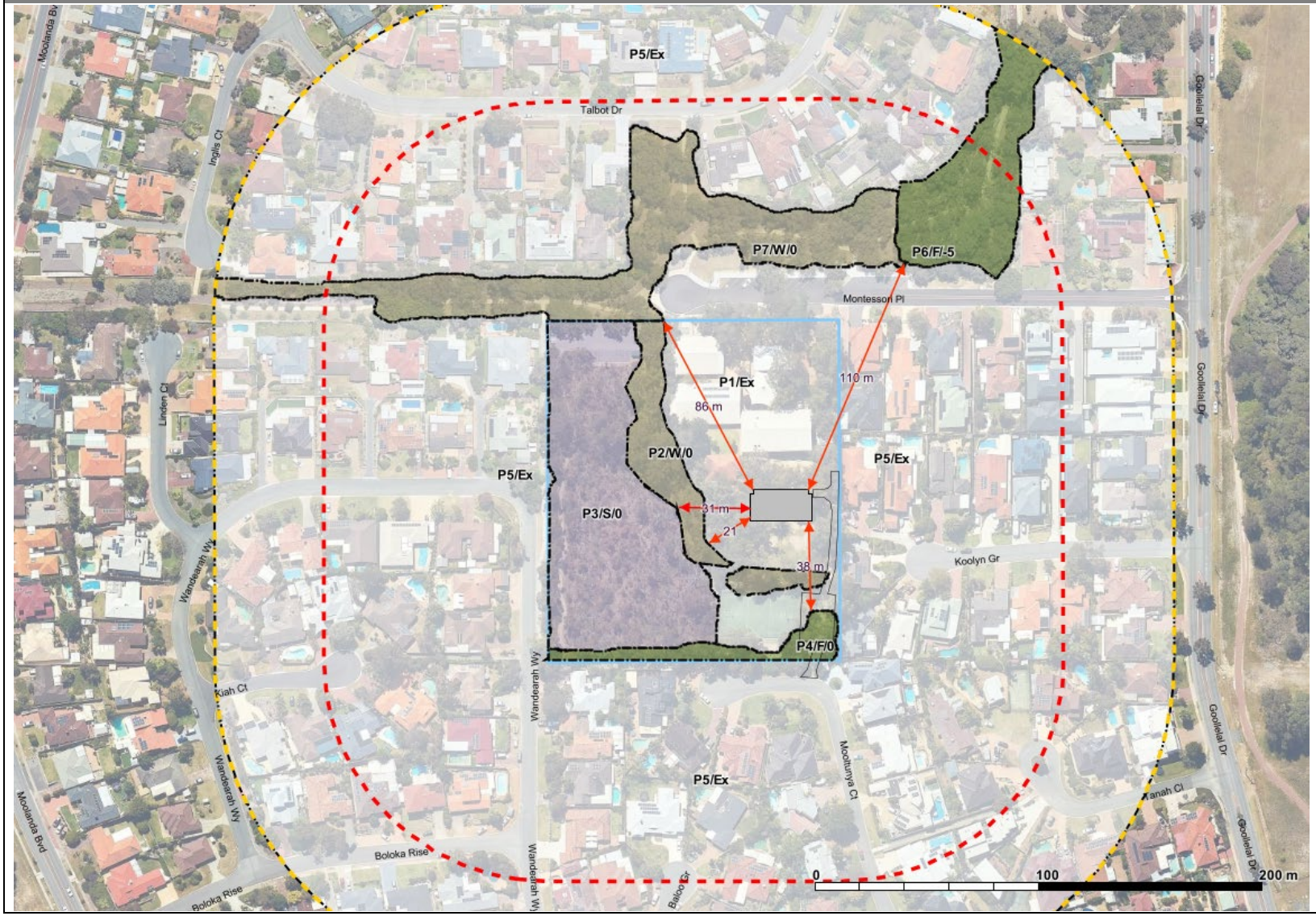
Figure 3a: Vegetation Classification



- Site boundary
- 150 m assessment area
- 100 m assessment area
- Class A Forest
- Class B Woodland
- Class C Shrubland
- Class D Scrub
- Class G Grassland
- Excluded
- Photo points
- Plot Label (Plot/Class/Slope)

Assessment Date: 1 November 2022
Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2022
FPAA FIRE MAP 2022
GDA 1994 MGA Zone 50

Figure 3b: Vegetation Classification - Post Development



- Site boundary
- 150 m assessment area
- 100 m assessment area
- Class A Forest
- Class B Woodland
- Class C Shrubland
- Class D Scrub
- Class G Grassland
- Excluded
- Dimension
- Plot Label (Plot/Class/Slope)

Assessment Date: 1 November 2022
Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2022
FPAA FIRE MAP 2022
GDA 1994 MGA Zone 50

PLOT: 1	
Vegetation Classification	**Vegetation Description (AS 3959)**
Excludable - 2.2.3.2(e) Non Vegetated Areas	(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
Slope	
Flat	
Post development	
Retained at low threat	

Photo 1.1

Photo 1.2 (proposed building site)

Photo 1.3

Photo 1.4

Observation/Justification for classification

Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				

PLOT: 2	
Vegetation Classification	**Vegetation Description (AS 3959)**
Class B Woodland - Open woodland B-06	Trees 10 m - 30 m high; 10% - 30% foliage cover dominated by eucalypts and/or callistris with a prominent grassy understorey. May contain isolated shrubs. Note: Woodland is classed by its understorey for the purpose of determining the fire intensity.
Slope	
Flat	
Post development	
Retained as woodland	

Photo 2.1

Photo 2.2 (proposed building site)

Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓		
Moderate	✓			✓
High			✓	
Very High				
Extreme				

PLOT: 3	
Vegetation Classification	**Vegetation Description (AS 3959)**
Class D Scrub - Closed scrub D-13	Found in wet areas and/or areas affected by poor soil fertility or shallow soils; >30% foliage cover. Dry heaths occur in rocky or sandy areas. Shrubs >2 m high. Typical of coastal areas and tall heaths up to 6 m in height. May be dominated by Banksia, Melaleuca or Leptospermum with heights of up to 6 metres
Slope	
Flat	
Post development	
Scrub Retained	

Photo 3.1

Photo 3.2

Photo 3.3

Observation/Justification for classification

Fuel Hazard	Surface	Near surface	Elevated	Bark
Low				✓
Moderate	✓		✓	
High		✓		
Very High				
Extreme				

PLOT: 4	
Vegetation Classification	**Vegetation Description (AS 3959)**
Class A Forest - Open forest A-03	Trees over 30 m high; 30%-70% foliage cover (may include understorey of sclerophyllous low trees or shrubs). Typically dominated by eucalypts, melaleuca or callistemon (may include riverine and wetland environments) and callitris. Includes eucalypt plantations.
Slope	
Flat	
Post development	
To be retained, adjoining the Emergency Access Way	

Photo 4.1 (existing access gate to be the Emergency Access Way)

Observation/Justification for classification

Fuel Hazard	Surface	Near surface	Elevated	Bark
Low				
Moderate	✓			✓
High		✓		
Very High			✓	
Extreme				

PLOT: 5	
Vegetation Classification	**Vegetation Description (AS 3959)**
Excludable - 2.2.3.2(e) Non Vegetated Areas	(e) Non-vegetated areas, that is, areas permanently cleared of vegetation, including waterways, exposed beaches, roads, footpaths, buildings and rocky outcrops.
Excludable - 2.2.3.2(f) Low Threat Vegetation	
Slope	
Flat	(f) Vegetation regarded as low threat .maintained lawns,…. cultivated gardens, …nature strips and windbreaks. Note it includes grass<100 mm and single tree rows.
Post development	
Retained	

Photo 5.1

Photo 5.2 adjoining residential view from within the school.

Photo 5.3

Photo 5.4

Photo 5.5

Observation/Justification for classification

Fuel Hazard	Surface	Near surface	Elevated	Bark
Low	✓	✓	✓	✓
Moderate				
High				
Very High				
Extreme				

PLOT: 6	
Vegetation Classification	**Vegetation Description (AS 3959)**
Class A Forest - Open forest A-03	Trees over 30 m high; 30%-70% foliage cover (may include understorey of sclerophyllous low trees or shrubs). Typically dominated by eucalypts, melaleuca or callistemon (may include riverine and wetland environments) and callitris. Includes eucalypt plantations.
Slope	
Downslope 0-5	
Post development	
To be retained.	
	
Photo 6.1	

Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low				
Moderate	✓			✓
High		✓		
Very High			✓	
Extreme				

PLOT: 7	
Vegetation Classification	**Vegetation Description (AS 3959)**
Class B Woodland - Open woodland B-06	Trees 10 m - 30 m high; 10% - 30% foliage cover dominated by eucalypts and/or callistris with a prominent grassy understorey. May contain isolated shrubs. Note: Woodland is classed by its understorey for the purpose of determining the fire intensity.
Slope	
Flat	
Post development	
To be retained	

Photo 7.1

Photo 7.2

Observation/Justification for classification				
Fuel Hazard	Surface	Near surface	Elevated	Bark
Low		✓		
Moderate	✓			✓
High			✓	
Very High				
Extreme				

Determined Bushfire Attack Level (Outputs) Method 1

Plot	Vegetation	Slope	Separation (m)	BAL
Plot 1	Excluded	Upslope/Level	0	BAL Low
Plot 2	**Woodland**	**Upslope/Level**	**0**	**BAL FZ**
Plot 3	Scrub	Upslope/Level	31	BAL 12.5
Plot 4	Forest	Upslope/Level	38	BAL 12.5
Plot 5	Excluded	Upslope/Level	12	BAL Low
Plot 6	Forest	Downslope (0-5)	110	BAL Low
Plot 7	Woodland	Upslope/Level	86	BAL 12.5

The determined BAL due to the zero separation from classified vegetation is BAL FZ. Without a separation from classified vegetation the building will be within flame contact.

3.2 Indicative Bushfire Attack Level (Outputs) Method 1

The Indicative Bushfire Attack Level (highest BAL) for the site / proposed development is based upon the conditions and classified vegetation present **at the time of completion**. It represents the potential to implement the bushfire protection measures.

Th indicative BAL has assumed there is no change to vegetation beyond the site. The primary consideration is the future of the bushland rehabilitation area.

The indicative BAL has considered the maturing of the bushland rehabilitation area and the opportunity to provide flexibility for the rehabilitation considerations.

The indicative BAL has assumed Forest can be established up to 21 m from the building and Woodland up to 14 m from the building.

A primary APZ of 21 m has been identified in which elevated vegetation under tree canopies is to be avoided and a secondary APZ of 14 m where tree canopies are required to follow the distribution described in the APZ standard.

In short, within 14 m of the building vegetation must be of an APZ standard (as described by The Guidelines V1.4, Schedule 1: Standards for Asset Protection Zones) ; beyond 14 m of the proposed building Woodland can be established/retained and beyond 21 m of the proposed building there is no restriction upon vegetation.

SPP 3.7 is not retrospective, there is no requirement to reduce the bushfire risk at existing buildings. It is understood the school follows a 20 m separation of buildings from classified vegetation in accordance with the City Fire Break Notice. Ongoing compliance with those requirements is a matter separate to this BMP.

The proposed building is separated by more than 6 m from other buildings; their risk does not affect the classification of the proposed building. However, the BAL at the proposed building will be affected by the treatment of other buildings to the north west and their separation from vegetation.

This BMP has only considered the separations required for the proposed building, particularly from the west and south, where the establishment of the APZ will provide the separation.

Indicative Bushfire Attack Level	**BAL-29***
* *With required separation of 21 m from Forest and 14 m from Woodland*	

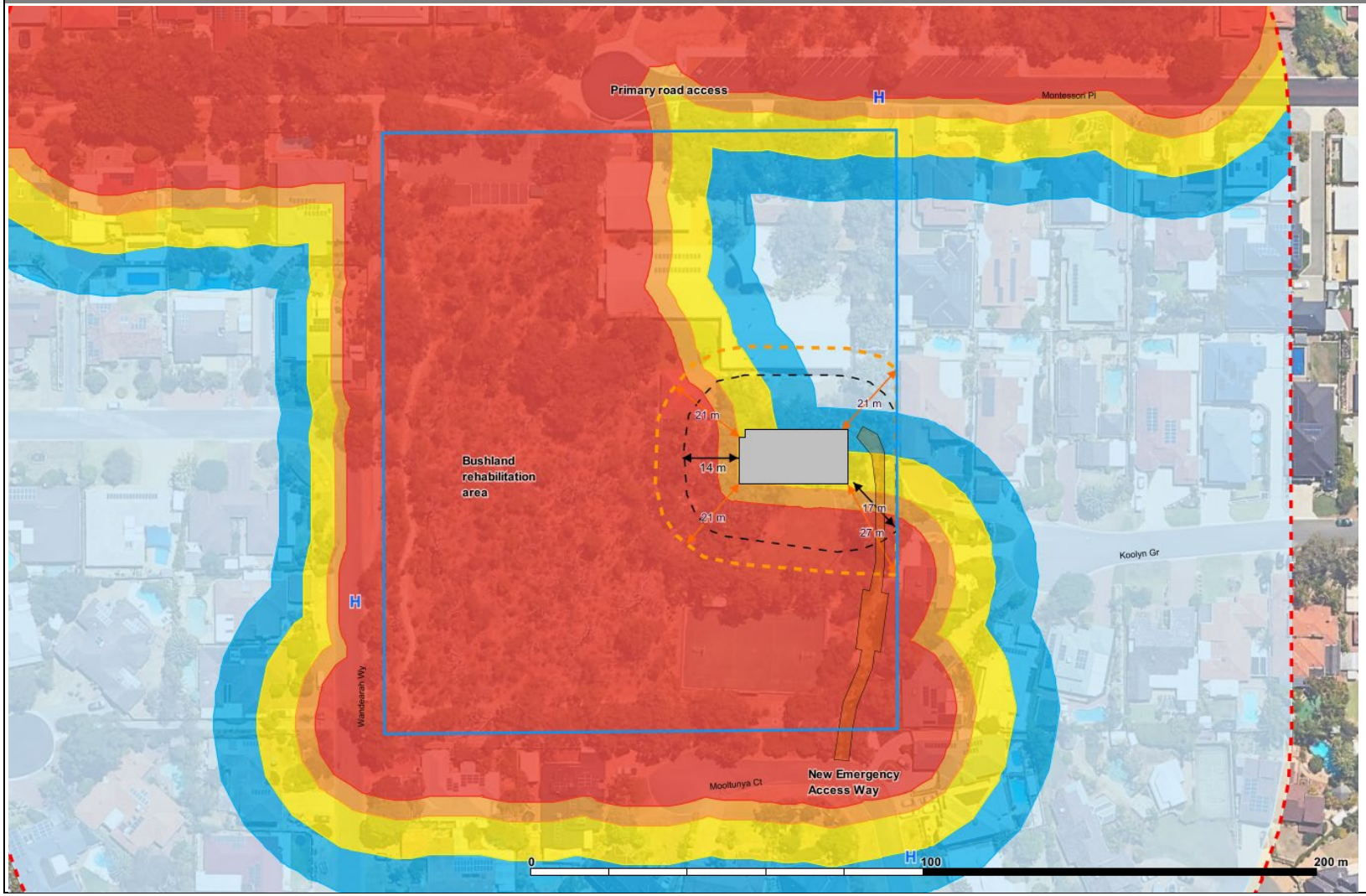
Potential Bushfire Impact - Outputs

In accordance with SPP 3.7, a BAL Contour Map has been prepared to illustrate the potential radiant heat impacts and associated BAL ratings for the assessment area after the development is completed (Figure 5).

In this instance Figure 5 identifies the indicative BAL and in turn an indication of the required separation from classified vegetation, excluding grassland, required to achieve BAL 29.

6	Forest	0-5	< 20 m	BAL-FZ
			20 - < 27 m	BAL-40
			27 - < 37 m	BAL-29
			37 - < 50 m	BAL-19
			50 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
4	Forest	Flat/upslope	< 16 m	BAL-FZ
			16- < 21 m	BAL-40
			21 - < 31 m	BAL-29
			31 - < 42 m	BAL-19
			42 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
2 & 7	Woodland	Flat/upslope	< 10 m	BAL-FZ
			10- < 14 m	BAL-40
			14 - < 20 m	BAL-29
			20 - < 29 m	BAL-19
			29 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW
3	Scrub	Flat/upslope	< 10 m	BAL-FZ
			10- < 13 m	BAL-40
			13 - < 19 m	BAL-29
			19 - < 27 m	BAL-19
			27 - < 100 m	BAL-12.5
			> 100 m	BAL-LOW

Figure 4: BAL contour plan - Excluding grassland



Assessment Date: 1 November 2022
Prepared: Anthony Rowe
Accreditation Level: BPAD L3
Accreditation Number: 36690
Accreditation Expiry: Dec 2022
FPAA FIRE MAP 2022
GDA 1994 MGA Zone 50

4. IDENTIFICATION OF BUSHFIRE HAZARD ISSUES

Bushfire Behaviour

Sustainable fire combustion depends upon the availability of fuel, oxygen, and heat. Removal of any one of the three aspects will extinguish or not sustain a fire. Fuel management, the management of vegetation, is the most practical means of control.

Bushfire behaviour, as it increases in intensity and speed of travel, can exceed human control measures and when this occurs the risk increases to humans and property. Bushfire behaviour is a result of climate, topography, and the availability of bushfire fuel (vegetation).

- Climate (drought and season) & weather (temperature, humidity, wind, atmospheric instability).

  Wind

  Bushfires are influenced by the wind direction and the speed. The wind direction generally determines the direction of the fire and wind speed, along with ground slope, generally determines the speed a fire will travel over ground. As wind strength increases it increases the availability of oxygen allowing the fire intensity to increase.

  Atmospheric conditions determine the potential for the uplift of embers and particles that can be distributed by the prevailing wind direction well ahead of the fire, up to 9 km, to create spot fires that can advance the location of the fire front.

  Atmospheric interaction can also give rise to strong winds drawn in to the firefront and conversely strong downdrafts where the proceeds of the fire can no longer be supported by the convective column. The down draft can occur many kilometres from the firefront depending upon the location of the fire plume. The timing and the location of the downdrafts are described as unpredictable but requires a long running fire up to 3 hours to develop.

  Fire Danger Index FDI

  FDI is an indicator of potential fire intensity and behaviour based upon weather conditions; temperature, humidity, and wind speed, together with climate measures, drought factor representing the dryness of the ground fuels.

  The FDI is an indicator of the potential for house loss and fatalities.

  The FDI is used as a basis for determining the required design performance of a building.

- Topography (slope of the ground, aspect) – fire travels faster uphill, and in some conditions may determine the direction of the fire. The landform can also channel and increase the windspeed at a locality and create turbulence. It is measured as 0.0^0 or in downslope increments of 5.0^0.

- Vegetation (horizontal and vertical structure, flammability, mass, and availability). Measured as a vegetation classification, or an exclusion, in AS 3959 (Method 1). The arrangement of fuel has a greater effect upon the intensity of a fire than just its mass; its exposure to oxygen is referred to as its availability in a bushfire.

Grass fires are fast moving and influenced by the wind direction. Forest Fires are characterised by the high fuel mass and have the highest fire line intensity requiring the largest separations to reduce radiant heat. Forest fires, if of sufficient size, continuity, and intensity can eject embers up to 5 km in advance of the fire front (and greater distances but rare). Ember attack is the cause of the highest building loss, either finding gaps and flammable materials within a building or igniting flammable materials near a building that can expose a building to direct flame contact.

It is assumed that a bushfire will achieve a steady-state and be fully developed to maximum intensity over a 100 m (minimum) fire run. Grass fires travel faster (GFDI) than a forest canopy fire, but a forest canopy fire can eject a higher level of embers and also eject them over a greater distance. Crown fires occur when the ground fire is intense, and conversely, when ground fuels are managed, the resultant fire intensity may not be sufficient to involve the crown or sustain a fire.

Fuel reduction initiatives such as slashing and controlled burns are intended to reduce the fuel availability to a level where the intensity of the fire remains controllable.

Climate

The nearest weather station to the site is at Perth airport (6km south west of the site). The site is within an area described as having a Mediterranean climate of dry summers and mild, wet winters. The majority of rainfall is between May and September. The prohibited burning period is from mid-December to mid-March.

The Bushfire Danger Season has traditionally been between November and April each year, but recent climatic conditions have caused fire danger conditions to be present either side of this period.

Severe bushfire conditions FDI 50+, occur mostly between January and March. Extreme and Catastrophic conditions occur mostly in the afternoon.

Bushfires generally travel in the direction of the prevailing wind. The direction of the prevailing wind conditions can affect the options for evacuation and anticipated fire intensity depending upon the slope and fuel.

The wind roses below (Plates 5 and 6) for February (averaged) recorded at 9 am and 3 pm. illustrate the winds are strongest and most frequent from the south-east and east in the morning. Afternoon winds are generally stronger and of a higher frequency from the west.

A fire can however come from any direction that the wind may be blowing at the time, the wind roses provide an indication that over a period, if a fire is not controlled, it may follow the prevailing wind.

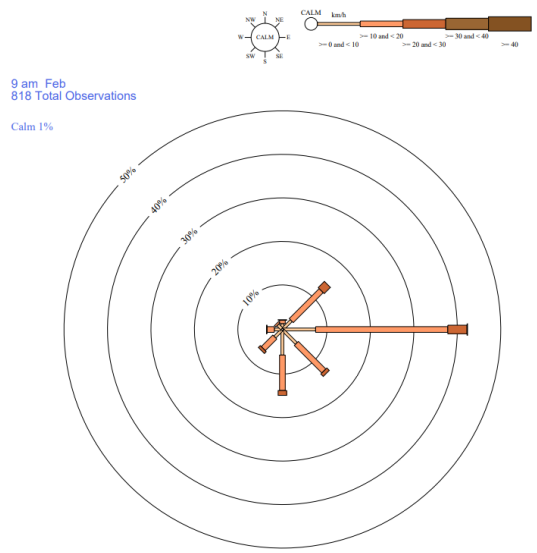


Plate 5: wind directions as at 9 am

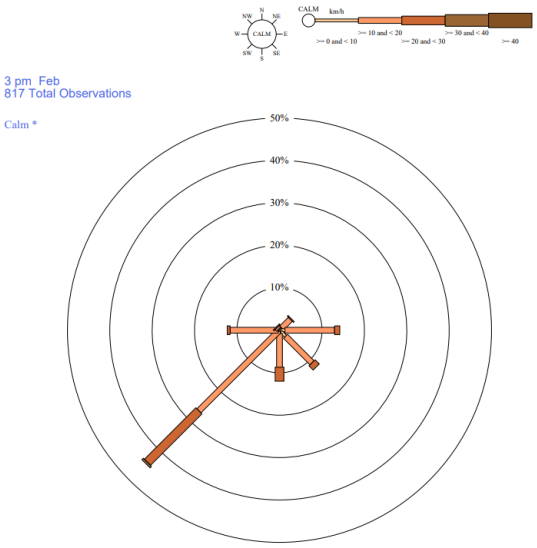


Plate 6 : wind directions as at 3 pm

Site Context

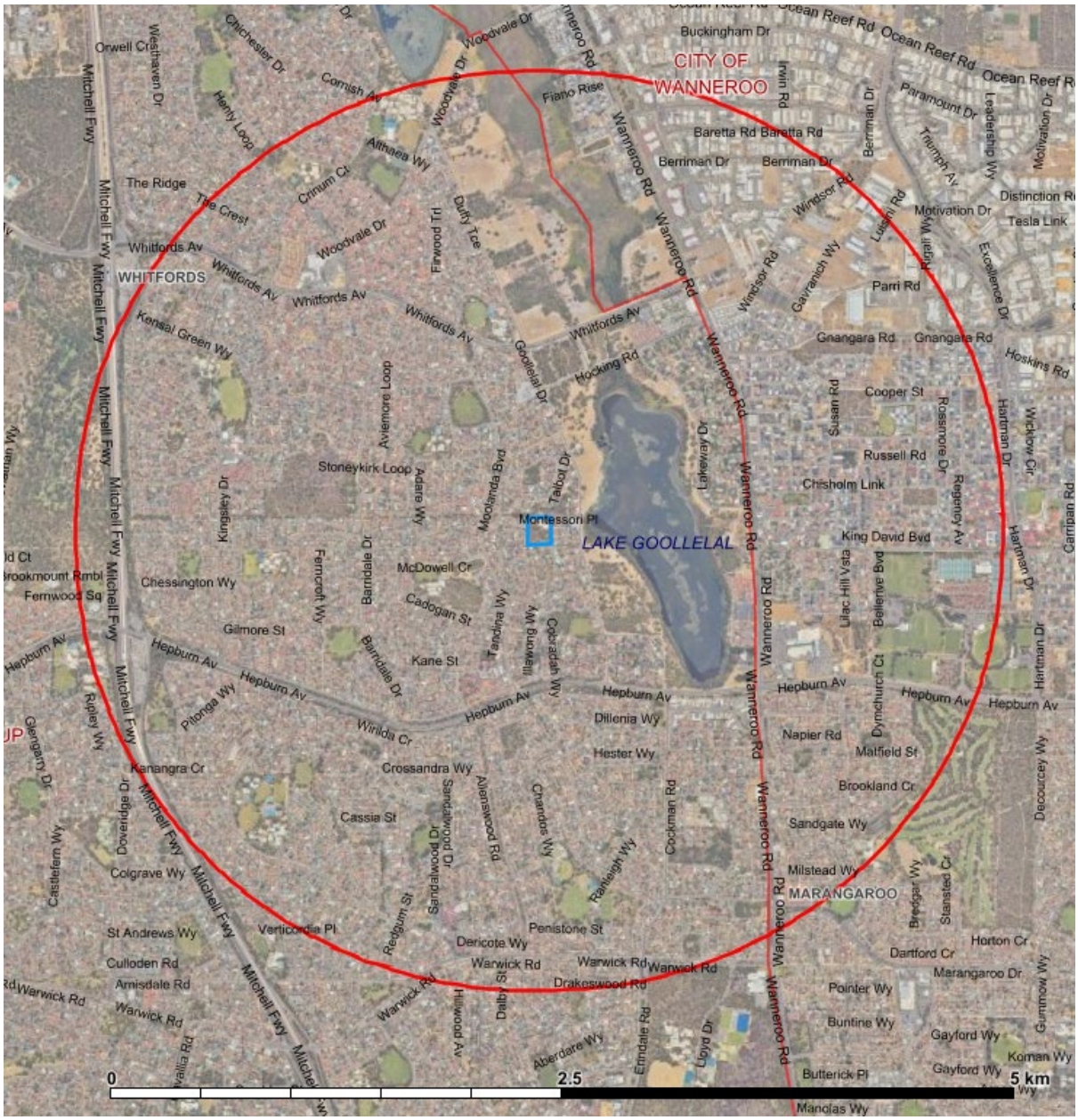


Plate 7: Illustrates the surrounding area within 5 km.

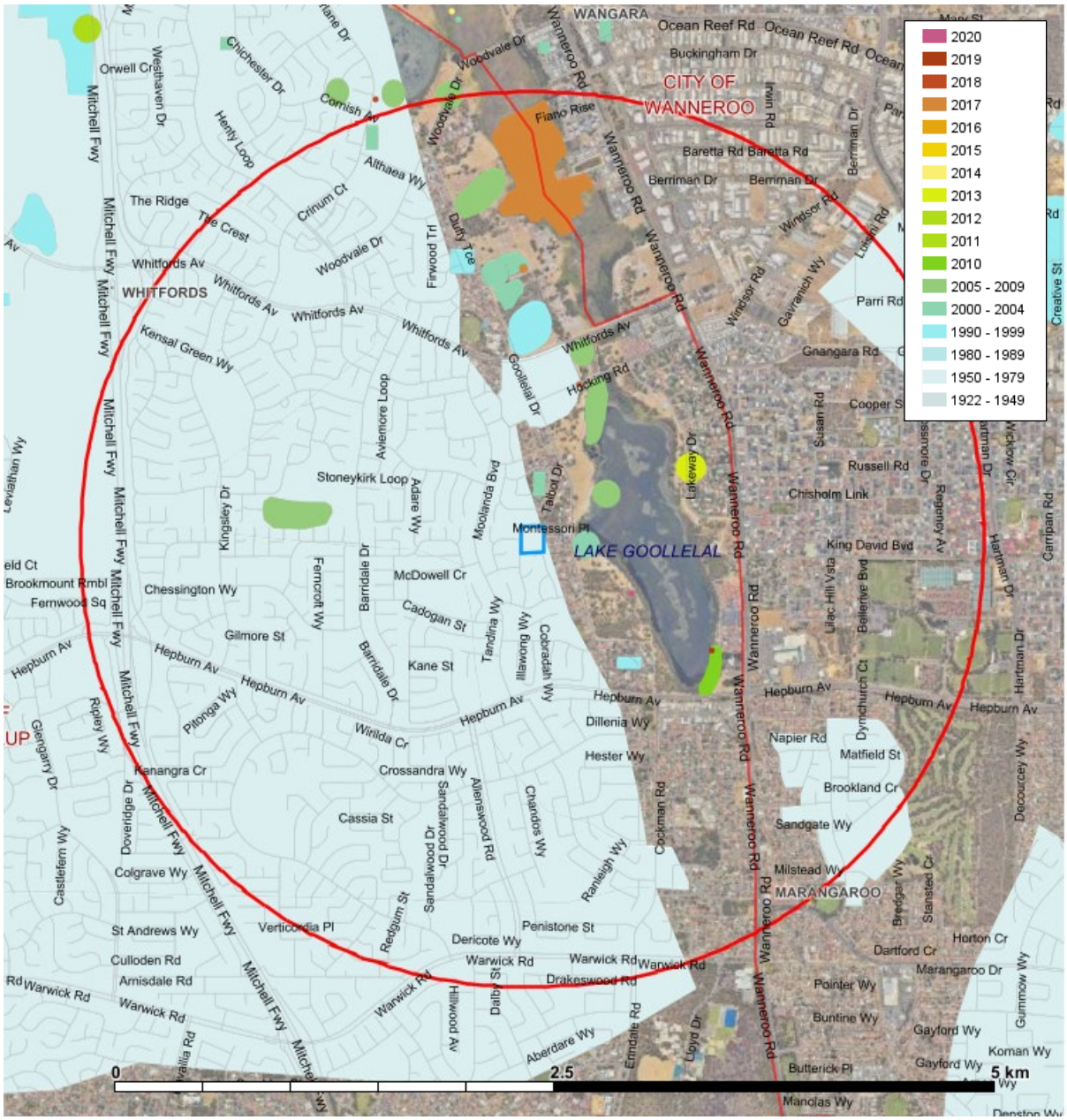


Plate 8: Illustrates the fire history affecting the site. It is an indicative reference only due to historically different reporting practice. Much of the area historically affected is now built out urban area west of site) and no longer a bushfire threat.

A review of the DBCA records of fire history in the area illustrates the likelihood is within a frequency of greater than 10 years and therefore classed as 'unlikely' (NERAG 2020[2]).

The wind roses suggest the likelihood is for a fire to arrive at the site from the east (morning) and the southern hemisphere in the afternoon. The wind direction during a fire can come start from any direction notwithstanding the low representation of the wind direction on the wind roses, and most fires arrive from the east.

[2] National Emergency Risk Assessment Guideline 2020 page

The site is isolated from a direct contact with contiguous classified forest. Lake Goollelal is located to the east of the site and is classed as forest. The threat to the School is ember an attack from the east igniting the school's rehabilitation bushland (Scrub).

The purpose of the APZ is to separate the building from the fire run, by a distance greater than the flame length, avoiding flame contact.

Whilst there is no bushfire construction requirement for a school building, the recommended approach is to adopt comparable construction standards. In this instance is to adopt construction comparable to a BAL 29 standard which is a radiant heat resistant standard (outside of direct flame contact) and it addresses the occurrence of ember attack.

Ongoing site management is required t ensure flammable objects are located within the separating area that if they ignite may expose the building to a direct flame contact.

The school is within an urban area with access to a reticulated water supply and attendance by career fire fighting services.

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5. BUSHFIRE PROTECTION MEASURES

5.1 State Planning Policy 3.7 - Planning in Bushfire Prone Areas (SPP 3.7)

SPP 3.7 applies to all subdivision applications in designated bushfire prone areas.

SPP 3.7 Objectives

Policy Measure 5 contains the objectives of SPP 3.7. The following demonstrates how the proposed development meets each of the objectives.

Objective 1: Avoid any increase in the threat of bushfire to people, property, and infrastructure. The preservation of life and management of bushfire impact is paramount.

The proposed building is not an activity that will increase the risk of igniting a bushfire.

Objective 2: Reduce vulnerability to bushfire through the identification and consideration of bushfire risks in decision-making at all stages of the planning and development process.

The proposed building will require an Asset Protection Zone. The APZ is set to 21 m from the building to enable the bushland to revegetate to forest up to 21 m from the building without exposing it to a BAL greater than BAL 29.

Objective 3: Ensure that higher order strategic planning documents, strategic planning proposals, subdivision and development applications take into account bushfire protection requirements and include specified bushfire protection measures.

The Figure 5 has demonstrated the building can achieve BAL 29 within the site, from classified vegetation located west of the building. The building as 12m from the residential built out area (low threat) at the east of the site.

Objective 4: Achieve an appropriate balance between bushfire risk management measures and, biodiversity conservation values, environmental protection and biodiversity management and landscape amenity, with consideration of the potential impacts of climate change.

The proposal will not require modification to the School's bushland rehabilitation area.

5.2 Guidelines for Planning in Bushfire Prone Areas Version 1.4 (the Guidelines)

The Guidelines apply to development applications located within designated bushfire prone areas. The Guidelines provide supporting information for implementation of SPP 3.7. Specifically, they provide the Bushfire Protection Criteria (risk treatments) to be addressed for all applications.

The bushfire risk mitigation strategies detailed in (Table 2 below) are designed to comply with the Bushfire Protection Criteria detailed in Guidelines for Planning in Bushfire Prone Areas v.1.4 (the Guidelines) Appendix 4 (WAPC, 2021).

Note: Some items listed under Element 3 vehicle access are only applicable to a subdivision proposal and are not applied retrospectively to a development application and a site where the road network has been established.

Table 2: Bushfire Protection Criteria assessment.

Appendix 4 in the Guidelines for Planning in Bushfire Prone Areas v.1.4 assigns provisions to certain stages within the planning process, Strategic Plans, Structure Plan and subdivision, development application (dwelling or other).

✓	Acceptable solution provided (External risk control)	C	An Acceptable Solution conditioned (Internal risk treatment)
N/A	Not Applicable	P	Performance Principle solution see 5.2

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
Element 1: location To ensure that strategic planning proposals, subdivision, and development applications are located in areas with the least possible risk of bushfire to facilitate the protection of people, property, and infrastructure	**A1.1 Development location** The strategic planning proposal, subdivision, and development application is located in an area that is or will, on completion, be subject to either a moderate or low bushfire hazard level, or BAL–29 or below.	✓		The site is within a residential area, three directions; Lake Goollelal is located to the east of the site (single aspect) with residential development beyond. The proposed building on completion will be located within BAL 29. <u>Development Response</u> Compliance acknowledged.

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
Element 2: Siting and Design To ensure that the siting and design of development minimises the level of bushfire impact	**A2.1 Asset Protection Zone** Every habitable building is surrounded by, and every proposed lot can achieve, an APZ depicted on submitted plans, which meets the following requirements: • Width: Measured from any external wall or supporting post or column of the proposed building, and of sufficient size to ensure the potential radiant heat impact of a bushfire does not exceed 29kW/m² (BAL-29) in all circumstances. • Location: the APZ should be contained solely within the boundaries of the lot on which the building is situated, except in instances where the neighbouring lot or lots will be managed in a low-fuel state on an ongoing basis, in perpetuity (see explanatory notes). • Management: the APZ is managed in accordance with the requirements of 'Standards for Asset Protection Zones.' (see Schedule 1).	C		Figure 5 illustrates an Asset Protection Zone capable of BAL 29 at the face of the proposed building can be provided within the site. <u>Development response</u> The required Asset Protection Zone is identified on Figure Ex1. Note: the building is a class 9 building, and the bushfire construction is at the discretion of the proponent.

<table>
<tr><th>Bushfire Protection Criteria</th><th>Method of Compliance</th><th>AS</th><th>PP</th><th>Proposed Bushfire Management Strategies</th></tr>
<tr><td>Element 3: Vehicular Access</td><td colspan="4">
<table>
<tr><th>TECHNICAL REQUIREMENTS</th><th>1
Public roads</th><th>2
Emergency access way[1]</th><th>3
Fire service access route[1]</th><th>4
Battle-axe and private driveways[2]</th></tr>
<tr><td>Minimum trafficable surface (metres)</td><td>In accordance with A3.1</td><td>6</td><td>6</td><td>4</td></tr>
<tr><td>Minimum horizontal clearance (metres)</td><td>N/A</td><td>6</td><td>6</td><td>6</td></tr>
<tr><td>Minimum vertical clearance (metres)</td><td colspan="4">4.5</td></tr>
<tr><td>Minimum weight capacity (tonnes)</td><td colspan="4">15</td></tr>
<tr><td>Maximum grade unsealed road[3]</td><td rowspan="4">As outlined in the IPWEA Subdivision Guidelines</td><td colspan="3">1:10 (10%)</td></tr>
<tr><td>Maximum grade sealed road[3]</td><td colspan="3">1:7 (14.3%)</td></tr>
<tr><td>Maximum average grade sealed road</td><td colspan="3">1:10 (10%)</td></tr>
<tr><td>Minimum inner radius of road curves (metres)</td><td colspan="3">8.5</td></tr>
</table>
</td></tr>
<tr><td rowspan="2">To ensure that the vehicular access serving a subdivision/ development is available and safe during a bushfire event</td><td>A3.1 Public roads
The minimum requirements under this acceptable solution are applicable to all proposed and existing public roads. Public roads are to meet the minimum technical requirements in Table 6, Column 1. The trafficable (carriageway/pavement) width is to be in accordance with the relevant class of road in the Local Government Guidelines for Subdivisional Development (IPWEA Subdivision Guidelines), Liveable Neighbourhoods, Austroad standards and/or any applicable standards for the local government area.</td><td>✓</td><td></td><td>Montessori Place and Goollelal Drive are sealed public roads compliant with the technical requirements in Table 6 column 1 of the Guidelines (IPWEA subdivision standards).

The school also borders Mooltunya Court and Wandearah Way, and both have hydrants accessible to the school.

An emergency access is proposed from Mooltunya Court. It will provide a contingency for evacuation if the primary access at Montessori Place is not available due to fire in the vegetation north.

<u>Development Response</u>

Compliance is acknowledged</td></tr>
<tr><td>A3.2a Multiple access routes
Public road access is to be provided in two different directions to at least two different suitable destinations with an all-weather surface (two-way</td><td>✓</td><td></td><td>The school is accessed from Montessori Place, which is a 224 m long cul-de-sac extending west from Goollelal Drive. The school is located 155 m from Goollelal Drive which is a through road with multiple connections</td></tr>
</table>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	access). If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the road access is to be a maximum of 200 metres from the subject lot(s) boundary to an intersection where two-way access is provided. The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met: the no-through road travels towards a suitable destination; and the balance of the no-through road, that is greater than 200 metres from the subject site, is wholly within BAL-LOW, or is within a residential built-out area			to the urban road network. The school is compliant with the Acceptable Solution. The school will also have emergency access from Mooltunya Court which extends is 300 m from Benbullen Boulevard, through low threat residential development. A loop road is available 157 m from the School which connects to Benbullen Boulevard. *(note this is not treated as a Performance Principle because it is an additional benefit and whilst longer than 200 m it is through low threat).* <u>Development Response</u> Compliance is acknowledged
	A3.2b Emergency access way Where it is demonstrated that A3.2a cannot be achieved due to site constraints, or where an alternative design option does not exist, an emergency access way can be considered as an acceptable solution. An emergency access way is to meet all the following requirements: • requirements in Table 6, Column 2; provides a through connection to a public road; • be no more than 500 metres in length; and • must be signposted and if gated, gates must open the whole trafficable width and remain unlocked.	NA		The proposed development is not reliant upon an emergency access way as it is able to satisfy A3.1 and A3.2a. It is not required to comply with the technical requirements for an EAW. Note the School has requested the access to Mooltunya Court, be identified for emergency access only.

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	A3.3 Through-roads All public roads should be through-roads. No-through roads should be avoided and should only be considered as an acceptable solution where: • it is demonstrated that no alternative road layout exists due to site constraints; and • the no-through road is a maximum length of 200 metres to an intersection providing two-way access, unless it satisfies the exemption provisions in A3.2a of this table. A no-through road is to meet all the following requirements: • requirements of a public road (Table 6, Column 1); and • turn-around area as shown in Figure 24	NA		Not applicable to a development application

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	A3.4a Perimeter roads A perimeter road is a public road and should be provided for greenfield or infill development where 10 or more lots are being proposed (including as part of a staged subdivision) with the aim of: • separating areas of classified vegetation under AS 3959, which adjoin the subject site, from the proposed lot(s); and • removing the need for battle-axe lots that back onto areas of classified vegetation. A perimeter road is to meet the requirements contained in Table 6, Column 1. **A perimeter road may not be required where:** • the adjoining classified vegetation is Class G Grassland; lots are zoned for rural living or equivalent; • the lots are zoned for rural living or equivalent; • it is demonstrated that it cannot be provided due to site constraints; or • all lots have frontage to an existing public road	NA		Not applicable to a development application

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	A3.4b Fire service access route Where proposed lots adjoin classified vegetation under AS 3959, and a perimeter road is not required in accordance with A3.4a, a fire service access route can be considered as an acceptable solution to provide firefighter access, where access is not available, to the classified vegetation. A fire service access route is to meet all the following requirements: • requirements in Table 6, Column 3; be through-routes with no dead-ends; linked to the internal road system at regular intervals, every 500 metres; • must be signposted; no further than 500 metres from a public road; • if gated, gates must open the required horizontal clearance and can be locked by the local government and/or emergency services, if keys are provided for each gate; and • turn-around areas designed to accommodate type 3.4 fire appliances and to enable them to turn around safely every 500 metres	N/A		Not applicable to a development application

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	A3.5 Battle-axe access legs Where it is demonstrated that a battle-axe cannot be avoided due to site constraints, it can be considered as an acceptable solution. There are no battle-axe technical requirements where the point the battle-axe access leg joins the effective area of the lot, is less than 50 metres from a public road in a reticulated area. In circumstances where the above condition is not met, or the battle-axe is in a non-reticulated water area, the battle-axe is to meet all the following requirements: • requirements in Table 6, Column 4; and • passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres).	NA		Not applicable to a development application

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
	A3.6 Private driveways There are no private driveway technical requirements where the private driveway is: within a lot serviced by reticulated water; no greater than 70 metres in length between the most distant external part of the development site and the public road measured as a hose lay; and accessed by a public road where the road speed limit is not greater than 70 km/h. In circumstances where all of the above conditions are not met, or the private driveway is in a non-reticulated water area, the private driveway is to meet all the following require: requirements in Table 6, Column 4; passing bays every 200 metres with a minimum length of 20 metres and a minimum additional trafficable width of two metres (i.e. the combined trafficable width of the passing bay and constructed private driveway to be a minimum six metres); and turn-around area as shown in Figure 28 and within 30 metres of the habitable building	N/A		The technical requirements do not apply. The school is within 10 m of Montessori Place, and the proposed building is within 70 m of Montessori Place. The proposed building is 62 m from Mooltunya Court. <u>Development response</u> Compliance acknowledged.

<table>
<tr><th>Bushfire Protection Criteria</th><th>Method of Compliance</th><th>AS</th><th>PP</th><th>Proposed Bushfire Management Strategies</th></tr>
<tr><td>Element 4: Water</td><td colspan="4"><table>
<tr><th>PLANNING APPLICATION</th><th>NON-RETICULATED AREAS</th></tr>
<tr><td>Development application</td><td>10,000L per habitable building</td></tr>
<tr><td>Structure Plan / Subdivision:
Creation of 1 additional lot</td><td>10,000L per lot</td></tr>
<tr><td>Structure Plan / Subdivision:
Creation of 3 to 24 lots</td><td>10,000L tank per lot or 50,000L strategic water tank</td></tr>
<tr><td>Structure Plan / Subdivision:
Creation of 25 lots or more</td><td>50,000L per 25 lots or part thereof
Provided as a strategic water tank(s) or 10,000L tank per lot</td></tr>
</table></td></tr>
<tr><td>To ensure that water is available to the subdivision, development or land</td><td>A4.1 Identification of future water supply</td><td>✓</td><td></td><td>The site is located within the urban area with access to the Water Corporation reticulated water network. The building will be subject to the structural firefighting requirements in accordance with the authorisations required under the Building Act 2011.</td></tr>
</table>

Bushfire Protection Criteria	Method of Compliance	AS	PP	Proposed Bushfire Management Strategies
use to enable people, property and infrastructure to be defended from bushfire	**A4.2 Provision of water for firefighting purposes** Where a reticulated water supply is existing or proposed, hydrant connection(s) should be provided in accordance with the specifications of the relevant water supply authority. Where these specifications cannot be met, then the following applies: • The provision of a water tank(s), in accordance with the requirements of Schedule 2; and • Where the provision of a strategic water tank(s) is applicable, then the following requirements apply: – land to be ceded free of cost to the local government for the placement of the tank(s); – the lot or road reserve where the tank is to be located is identified on the plan of subdivision; – tank capacity, construction, and fittings, provided in accordance with the requirements of Schedule 2; and – a strategic water tank is to be located no more than 10 minutes from the subject site (at legal road speeds). Where a subdivision includes an existing habitable building(s) that is to be retained, a water supply should be provided to this existing habitable building(s), in accordance with the requirements listed above.	✓		The school is connected to the Water Corporation's reticulated water supply network and a hydrant is installed at the School in Montessori Place, and in the site's adjoining roads Mooltunya Court and Wandearah Way. <u>Development response</u> Compliance acknowledged

5.3 Additional management strategies

In addition to the bushfire protection criteria the following additional measures are to be considered and reflected in the required Responsibilities for Implementation and Management of Bushfire Measures.

The BEEP, which forms part of this proposal the Montessori School Kingsley Inc. - Fire Management and Evacuation Procedures – 2022 is consistent with the Department of Education's *Principal's Guide to Bushfire* and the *Stand-alone Bushfire Plan Template For 2019-2020.*

The BEEP is attached in Appendix 1.

Section 5.5.4 V1.4 in Guidelines for Planning in Bushfire Prone areas lists the matters to be addressed in a BEEP. That list and the content of the attached BEEP have been compared in **Table 3.**

Table 3: Compares compliance with Cl. 5.5.4 *Guidelines for Planning in Bushfire Prone Areas* with The Montessori School Kingsley Inc. - Fire Management and Evacuation Procedures – 2022.

Table 3

The emergency evacuation plan should be concise and consider:	**Addressed in the Emergency Evacuation Plan**
The number of persons at the facility	205 students and 30 staff
Whether the occupants are permanent or transient	Transient
Whether there is a caretaker on site	The school is under supervision when students are present
Whether there are people with a disability, medically dependant, young children, or the elderly	Children aged 3-18 years
Identification of a safe alternative location if there was a need for evacuation/relocation	The City of Joondalup has several welfare centres listed in its 'Local Emergency Management' document. In the event of a bushfire emergency the selection of the location of a welfare centre will be based on a number of factors. Names and locations of activated welfare centres will be publicly broadcast.
A proposed method of movement of occupants to a safe location(s)	Private vehicles, and supplementary bus transport if evacuating the site, and pedestrian access to the proposed refuge buildings.
Details of suitable access/egress routes for the expected type/volume of traffic, including alternatives when suitable roads are inaccessible, insufficient or inappropriate	Safe routes will be on advice from emergency services (publicly broadcast information).
Transport options for those without access to private vehicles	Supplementary bus transport is required
Options to shelter in place as a last resort	Evacuation if safe to do so.

Roles and responsibilities of facility personnel and emergency services.	Roles and responsibilities are Provided in the Stand Alone template for the school

The emergency evacuation plan should consider if actions will change based on a series of triggers, such as:	**Addressed in the Emergency Evacuation Plan**
Effective warning methods appropriate for the occupants (including consideration of at-risk persons and the demographics of the occupants)	Provided in the Stand Alone Fire Management and Evacuation Procedures for the school
Closure of facility and early relocation of occupants appropriate to the fire danger rating (FDR) and bushfire warnings	The School Principal will make the decision to close a school based on advice from the DoE Incident Controller or emergency services, on the day before.
Any local government bushfire requirements (for example, harvest and vehicle movement bans)	N/A
A suitably qualified emergency management professional should prepare the emergency evacuation plan in collaboration with relevant stakeholders including the landowner/developer and the local government (refer to section 6.14 of the Guidelines)	Anthony Rowe Accreditation Level 3 Accreditation Number: 36690

5.4 Spatial representation of the bushfire management strategies

Further to the assessment against the bushfire protection criteria, the key features demonstrating compliance should be represented spatially in the *Spatial representation of the bushfire management strategies*. It represents the required bushfire risk management measures that must be implemented and maintained.

The *Spatial representation of the bushfire management strategies* is provided in Figure EX1.

6. RESPONSIBILITIES FOR IMPLEMENTATION AND MANAGEMENT OF THE BUSHFIRE MEASURES

The *Responsibilities for Implementation and Management of the Bushfire Measures*, summarises the measures that achieve compliance with the bushfire protection measures following SPP 3.7.

The details contained within the planning application authorised by the responsible decision maker are enforceable under section 214 of the *Planning and Development Act 2005*. The items addressed in the table responsibilities for implementation and management of the bushfire measures form part of the planning authorisation and where there is conflict supersede the detail of the planning application.

The purpose of the *Spatial representation of the bushfire management strategies* is provided in Figure EX1, is to provide an at glance identification of ongoing bushfire protection measures at the site which are within the control of the land owner. This is to be used by the City for monitoring compliance.

The responsibilities assigned to the City of Joondalup reflect the current activities risk controls of the provided by the City that contribute to reducing human harm and property damage from bushfire at the site.

The Owner responsibilities (Guidelines 4.6.3) identify the bushfire management measures necessary to achieve compliance with the bushfire protection criteria.

Management action	Timing
Proponent	
Implement and maintain its currency. The Montessori School Kingsley Inc. - Fire Management and Evacuation Procedures – 2022 (**Appendix 1**) *Reason: To provide decisive actions for the protection of the safety of students in a bushfire event having regard to site specific circumstances including the intensity of a fire affected the site and the opportunity to evacuate the site.*	Details to be completed prior to occupation and in alignment with the overall Emergency in Facilities Plan.
An Asset Protection Zone ('APZ') shown on Figure EX1, is to be established and maintained to the standards for Asset Protection Zones in Element 3 Schedule 1 of the Guidelines v1.4. *Note an APZ is not barren ground, but an appropriate horizontal and vertical separation of classified vegetation as described in AS3959:2018, cl.2.2.3.2(f)* *The illustrated APZ, on* Figure EX1, *is 21 m from the building - within 14 m of the building vegetation must be of an APZ standard (as described by The Guidelines V1.4, Schedule 1: Standards for Asset Protection Zones); beyond 14 m of the proposed building Woodland can be established/retained and beyond 21 m of the proposed building there is no restriction upon vegetation.* *Reason: to prevent the building from direct flame contact in a bushfire event.*	Prior to occupation and ongoing.
The Installation of fire hoses, as part of the structural fire requirement should also be capable of applying water to the external surface of the building and a distance of 10 m around it. *Reason: The assist the preparation measure prior to bushfire impacting the site and promoting a convenience for the suppression of small fires following the passage of the fire front and prevent significant damage to or the loss of the building.*	Prior to occupation.

Advisory Note	
At the discretion of the landowner, in accordance with clause 5.8.3 Guidelines v1.4, the building is to be constructed and maintained at a compatible standard with the construction requirements described at section 3 and 7 in AS3959:2018. *Reason: To reduce the likelihood of serious damage or loss of the building to ember attack.*	Prior to occupation and ongoing
City of Joondalup	
Maintain public road reserves under their management to appropriate standards, where required/applicable.	Ongoing, as required.
Develop and maintain district bushfire firefighting services and facilities.	Ongoing, as required.
Administer the *Bush Fires Act 1954* and monitor landowner compliance.	Ongoing, as required.
Promote education and awareness of bushfire prevention and preparation measures through the community.	Ongoing, as required.
State Government	
Notification of Emergency Alerts - Website and Telecommunication Media	Ongoing
Policing operations to minimise the deliberate ignition of bushfires.	Ongoing
Maintain fuel reduction on public lands	Ongoing

Acknowledgment - Proponent

The proponent acknowledges the responsibilities as listed above and the requirement to ensure that should the land transfer to a new owner, that the new owner is aware of the BMP and their ongoing responsibility.

APPENDIX 1 - Emergency Evacuation Plan

The Montessori School Kingsley Inc.

FIRE MANAGEMENT AND EVACUATION PROCEDURES

The safety and survival of students and staff should always be the School's main priority.

Version Management

Version	Date Published/Reviewed	Changes	Author	Date Ratified by School Board
1	11/2022	New Procedures	Health and Safety Representative	

1. INTRODUCTION

The objective of these procedures is to ensure, as far as practicable, the safety, health, and well-being of staff, students, contractors, and visitors during emergencies at The Montessori School Kingsley.

Our school's procedures are developed to assist with fire risk. Depending on many factors, even in medium or low-risk areas, a bushfire on a catastrophic fire danger rating (FDR) day could pose a real danger to property and life. On lower fire-rated days, schools in vulnerable areas will still need comprehensive policies and procedures in place for monitoring warnings.

Bushfires occur regularly in Western Australia (WA) often with little warning. Depending on a number of circumstances and conditions a bushfire may pose a threat to school property and, more seriously, to staff and students.

Typically, WA's bushfire season in the South West starts in November and continues through to April. As climate and seasonal conditions change, bushfires in WA are becoming more common and the risks are increasing.

The Guide to the Registration Standards and other Requirements 2020 (page 52) states that the Non-Government School Regulator (NGSR) considers a school's preparation for, and response to, catastrophic events part of their provision of a 'Satisfactory Level of Care'. A bushfire, that is a potential threat to a school, would definitely be considered an emergency and should be included in the school's 'Critical and Emergency Incidents Policy.

1.1 Purpose

The purpose of these procedures is to outline what steps staff are to take in the event of a fire, either in a building on campus, in the School's bushland, or within Kingsley and the surrounding area, and the need to evacuate or stay and defend.

1.2 AISWA's and the School's Role

The Department of Education has asked that the Association of Independent Schools in Western Australia (AISWA) play a role in contacting schools in any area that is, or is expected to be, declared as having a catastrophic FDR. The Department of Education will normally contact AISWA to informed them as to which schools will be closing. AISWA will make every effort to contact independent schools in the same area. The Minister for Education expects that independent schools have the same response as the public schools.

Schools need to be aware that AISWA, due to a range of possible circumstances, cannot accept any responsibility for schools not being contacted when catastrophic conditions are predicted. In addition, schools with class groups or year groups who are attending camp/tour sites away from the School will need to monitor the conditions carefully before and during the event and act as and when necessary. School Principals should ensure that they, or delegated people, have the responsibility of monitoring conditions via the internet (DFES website), emails, local radio, TV, weather, and local fire services.

AISWA will use the emergency contact details that schools have recorded on the AISWA website and will attempt to make contact through SMS or email. It is the School's responsibility to ensure that this information up to date.

2. ORGANISATIONAL SCOPE

School staff, students, board directors, volunteers, and contractors.

3. DEFINITIONS

TERM	DEFINITION
Chief Warden	The Chief Warden is responsible for management of on-site and off-site school related emergencies and critical incidents, in order to minimise trauma and distress to students and staff and damage to property and to ensure the teaching and learning program is maintained or resumed. In most cases, the Chief Warden will be the Principal, but in the Principal's absence, the leader of the Emergency Management Team will step in (see Emergency and Critical Incident Management Policy).
Emergency Management Team (EMT)	The team who initially deal with an emergency. The team may include leadership, medical personnel, grounds/maintenance staff and selected teaching staff.
Evacuation	The movement of people from a threatened area to a place of safety.
Evacuation Coordinator	If the School must evacuate off-site to a welfare centre, the Evacuation Coordinator will drive to designated welfare centre and coordinate evacuation from there, releasing children to parents.
Prevention	Measures to eliminate or reduce incidence or severity of emergencies and critical incidents.
Preparedness	Measures to ensure that, should an emergency or critical incident occur, resources and services are capable of coping with the effects. Measures can include planning, staff training, and acquisition of specific safety equipment, infrastructure and maintaining the safety of the School grounds.
Response	Actions taken immediately prior to, during and immediately after an emergency or critical incident to ensure that its effects are minimised.
Recovery	Measures which support emergency or critical incident - affected individuals and school communities in reconstruction of the physical infrastructure and restoration of emotional, economic, environmental and physical wellbeing.
School	The Montessori School Kingsley

School Site Plan	The plan of the School site showing the general layout of buildings. The site plan may include Emergency Exits / Evacuation Escape Routes, location of any fire fighting equipment and the direction/location of the Evacuation Muster Area. It may also identify the location of Fire Hydrant/s, gas storage and control valves, and the electrical system Main Isolating Switch.

4. PROCEDURES

4.1 Chief Warden

The Chief Warden is responsible for management of on-site and off-site school related emergencies and critical incidents, to minimise trauma and distress to students and staff and damage to property, and to ensure the teaching and learning program is maintained or resumed.

The Chief Warden is the first person on this list who is present:

A. The Principal
↓
B. Oldest Year Level (International Baccalaureate and Lower Secondary) Class Teacher (hand over the class to another teacher)
↓
C. Next Year Level (Upper Primary and Lower Primary) Class Teacher (hand over the class to another teacher)
↓
D. Until Youngest Year Level (Pre-Primary) Class Teacher (hand over the class to another teacher)

4.2 Area Wardens (Teachers)

Every teacher at the School has a dual role as both Teacher and Area Warden in the event of an emergency. The teacher has the responsibility of ensuring their classroom is cleared and escorting the children to the Muster Point, where they will check the roll.

4.3 School Office Warden

The Office Manager is the School Office Warden.

4.4 Emergency Response Team (ERT)

All teaching and non-teaching staff of The Montessori School Kingsley have received First Aid Training (annually) and have received Fire Equipment Training (every two years) so, as such, all our staff who has been employed at the School for a year or more is eligible to be part of our Emergency Response Team (ERT).
In the case of an emergency, the Chief Warden will assemble the ERT.

During incidents and/or emergencies, instructions from the ERT overrule the normal management structure. The role of the ERT is to:

- Provide operational support and guidance to the front-line incident responders with the objectives of:
  - preserving life and minimising harm to all persons
  - ensuring ongoing compliance with School obligations

  - minimising loss and damage to School assets and infrastructure
  - minimising the extent and duration of any disruption
  - supporting an orderly transition to the recovery from an incident including the re-establishment of business-as-usual operation.
- Maintain communications between the front-line responders.
- Make any required operational decisions and authorise actions within the delegated authority of each EMT member.
- Observe appropriate meeting administration practices including the preparation of meeting documentation and the retention of all relevant records.
- Refer all matters beyond the delegated authority of the members to the Principal for consideration and decision.

4.5 Warden Actions

4.5.1 Chief Warden Actions

The Chief Warden takes control of the situation. They will:

1. Don vest, white hat and gather megaphone, and CHIEF WARDEN KIT from the back of the School Office.
2. Direct School Office staff (or another adult) to:
   - Inform Emergency Services of situation (Dial 000)
   - Remain in the office to receive and make calls, if safe to do so.
   - Determine / delegate central point of contact via mobile phone in the event of evacuation of all personnel.
3. Designate Chief Warden responsibilities among available staff.
4. Commence ringing the bell and issuing instructions to gather at the Muster Point or take shelter in Safer Buildings.
5. Wait at the Muster Point or Safer Buildings for all Fire and Area Wardens to report on status of their Classroom.
6. Liaise with Emergency Services.
7. Authorise the “all clear” and safe return of students and staff to School grounds or to home/parent/guardian.

4.5.2 Area Wardens (Teachers) Actions

The Area Warden will:

1. Gather roll and any medications (i.e., EpiPens).
2. Have children quietly line up and prepare to evacuate the classroom.
3. Take head count.
4. Evacuate the classroom by following behind children and calmly escort them to the Muster Point or the Safehouse Building.
5. Supervise the safe return of students to School grounds or to home/parent/guardian.

4.5.3 School Office Warden

The Office Manager is the School Office Warden and their role is to:

1. Collect First Aid box and don the Hi-Vis vest from the School Office.
2. Take to the Muster Point.
3. Attend to casualties, delegating as necessary.

4.5.4 Warden Kit

The WARDEN KIT contains all necessary equipment to help Chief Wardens attract attention and evacuate safely and quickly. The kit includes:

- 1 x Warden Kit Backpack Bag
- 1 x Storage Clipboard
- 1 x Pealess Whistle
- 1 x Red Warden Cap
- 1 x Red Warden Vest
- 1 x 450 Lumen LED Torch

4.6 Drill

The School is to conduct drills every term, including evacuation, lockdown, and safe house. Upon hearing the relevant alarm, staff must follow the steps relevant to the emergency, even if they know it is a scheduled drill. A record of that drill must be kept.

Upon hearing the relevant alarm, staff must follow the steps relevant to the emergency, even if they know it is a scheduled drill.

Any incoming phone calls are to be cancelled if not to do with the drill. If the phone rings regarding a routine matter, say “We are having a fire drill, please call back later.”

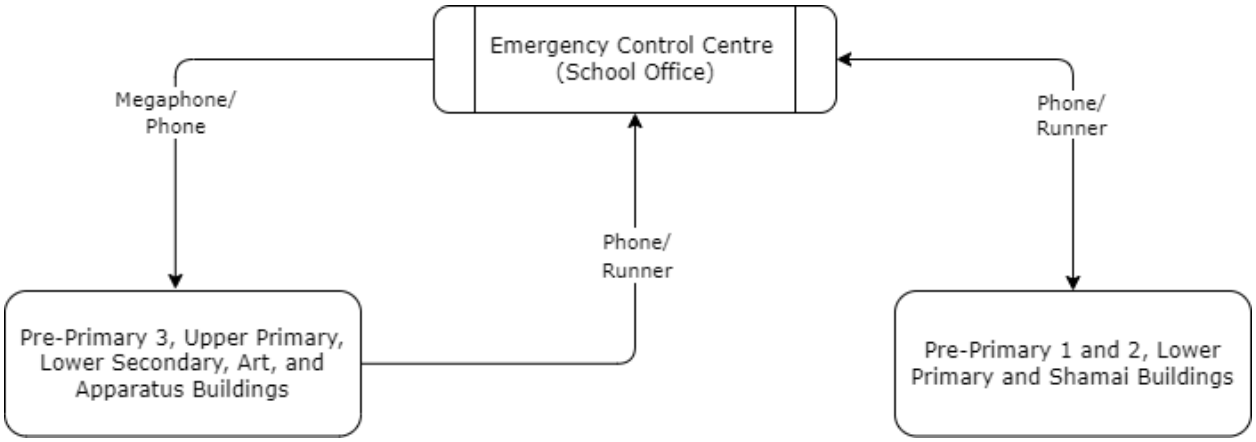
4.7 Muster Points

The School’s Muster Points are:

- Across Montessori Place – if it is safe to do so – via the safest route unless otherwise directed (the map is located in every classroom – see Appendix A).
- At the back of the School near the back gate.
- In the Pre-Primary Building.
- In the case of a whole school evacuation off-site (life is in danger), the muster point is the staff car park in preparation for evacuating to a named welfare centre.

4.8 Communication Methods

Communication during an emergency is vital and, should the need arise, information will be communicated as shown below:



4.9 What to do if there is a fire on school grounds or around the School (not a bush fire)?

Upon hearing the Evacuation Alarm, staff must follow these steps:

1. Emergency Management Team (Chief Warden and delegated staff) will designate roles as required, and staff with designated duties will assume their role/positions.
2. School Office Staff to inform Emergency Services we are evacuating to the evacuation area as advised by the Shire or Emergency Services.
3. School Office Staff (or designated adult/s) to message parents via SchoolStream and ask them to collect children from Muster Point.
4. Teachers and staff to reassure all students and visitors and STAY CALM.
5. Teachers to close and lock all doors and windows, if safe to do so.
6. Teachers to pick up:
    a. Portable First Aid Kit (Red)
    b. Student Medication
    c. Attendance Roll
    d. Keys
    e. Mobile Phone
1. Teachers to check the toilets/kitchen to ensure they are empty and then exit classroom.
2. Teachers to take the roll for all students – if a child is missing, send a staff to search for the child.
3. Chief Warden to inform all teachers we are evacuating and for children to have hats and shoes on and bags ready. Children are to remain seated in classroom with the teacher.
4. Teachers to check roll – once all accounted for, head to the Muster Point.
5. Staff to listen to the sound alarm to know where to evacuate, which will be either:
    - Across Montessori Place – if it is safe to do so – via the safest route unless otherwise directed (the map is located in every classroom – see Appendix A).
    - At the back of the School near the back gate.
    - In the Fire Safe Building: the Pre-Primary Building.
6. Teachers and staff to lead evacuation to the Muster Point,
7. Teacher to check the roll for all students again at the Muster Point. If a student is missing, the Chief Warden nominates an adult to search for the child. A teacher is to remain with each class or hand over responsibility to another staff member.
8. Teachers to ensure children remain grouped in classroom order and seated in Muster Point. Check Roll again.
9. Once DFES and/or the Chief Warden gives the 'all clear,' teachers are to release children to parents and mark the child departure on the roll. All children are to remain at the Muster Point, seated and in classroom order with the teacher during the evacuation to parents. No child is to run off to meet a parent in the carpark. It should remain a calm and orderly evacuation.
10. All staff are to remain until all children collected.

See School Site Plan in Appendix A and School Map in Appendix B

4.9.1 Evacuation for People with Disability

1. When evacuation procedures are in place, people with disability should be considered as if they cannot evacuate without assistance, or if they take longer than an average person.
2. Wardens need to be aware of any people with disability in their area. When an evacuation is taking place, arrangements should be made for someone to be assigned to each person

with a disability to assist them. This should be someone within close proximity of that person and will need to assist the person with disability to a predetermined "safe" area. Fire Services will determine the method of evacuating all persons from these safe areas, if need be.

3. Wardens should inform the Chief Warden of the number of people with disability, location, nature, and extent of their disability at the completion of the general evacuation. The Chief Warden should then inform the Emergency Services, who will determine what further action should be taken for the safety of the person(s) with disability.
4. People with disability should participate in the regular fire drills that are conducted.

4.10 What to do in the event of a suspected bushfire emergency?

4.10.1 Fire Weather Warnings

The Bureau of Meteorology's fire weather services has been developed in close consultation with the fire authorities in each State and Territory to best cater to local requirements. Fire Weather Warnings are issued when the rating on the fire danger scale is expected to be Severe, Extreme, or Catastrophic over an area.

It is the School Office Warden's responsibility to check the fire warning on the Emergency WA website.

The information contained in a fire weather warning will be:

- The office which issued the warning
- The local time, day and date that it was issued
- A description of the relevant meteorological conditions and fire danger
- The area affected
- The time period for which it will be in effect

The Office Manager should refer to the Bureau of Meteorology's website for action statements appropriate for the Fire Danger Ratings being forecast.

Fire Weather Warnings are available from the Bureau's website and they are also distributed through the media and to fire agencies and other key emergency services organisations. They are normally issued in the afternoon for the following day so that they are available in time for the evening television and radio news services. However, they may be issued at any time that the need is recognised. They are renewed at regular intervals, generally at major forecast issue times, and amended immediately if the need is recognised. If there is a Fire Weather Warning current the Bureau will mention this in State/Territory and District weather forecasts for that area.

To check for current warnings, please go to the National Warning Summary available on the BOM website: http://www.bom.gov.au/australia/warnings/index.shtml

4.10.2 Fire Information Contact Details

The School Office Warden (the Office Manager) is responsible for initiating contact with the relevant authorities.

1. Phone the DFES Emergency Information Line on 13 3337
2. Visit the DFES Website www.dfes.wa.gov.au
3. Or listen to regular radio updates, 15 minutes after the hour on ABC Radio if major bushfires threaten lives or property. Radio frequency: 674.25MHZ

4. The fire danger rating and weather forecast for the School can be found on the BOM website; look under Lower West: http://www.bom.gov.au/wa/forecasts/lower-west.shtml

The Emergency Number to Dial for Police, Fire, and Ambulance is 000.

4.10.3 Department of Fire and Emergency Services

The Department of Fire and Emergency Services can also provide essential information and advice to assist schools to **Prepare, Act, Survive** on the day (www.dfes.wa.gov.au).

1. **Prepare**
   Prepare your school. Know your bushfire risk and develop a bushfire survival strategy.
2. **Act**
   Act on the fire danger ratings. Put your preparations into action; do not wait and see.
3. **Survive**
   Survive by monitoring conditions if a fire starts. Know the bushfire warning alert levels and what you will do if you are caught in a fire.

4.10.4 Catastrophic Fire Danger

In the case of a Catastrophic Fire Danger Warning by DFES **for the following day**, the School will be pre-emptively closed the day before and will inform the parents/carers via SchoolStream and email. The School Office Staff will place a notice on the School gate at the front of the School.

In the case of a Catastrophic Fire Danger Warning by DFES **on the same day**, the School will be evacuated as soon as possible, if safe to do so. Then follow **Whole School Evacuation Plan (** (below).

4.10.5 Smoke and Toxins

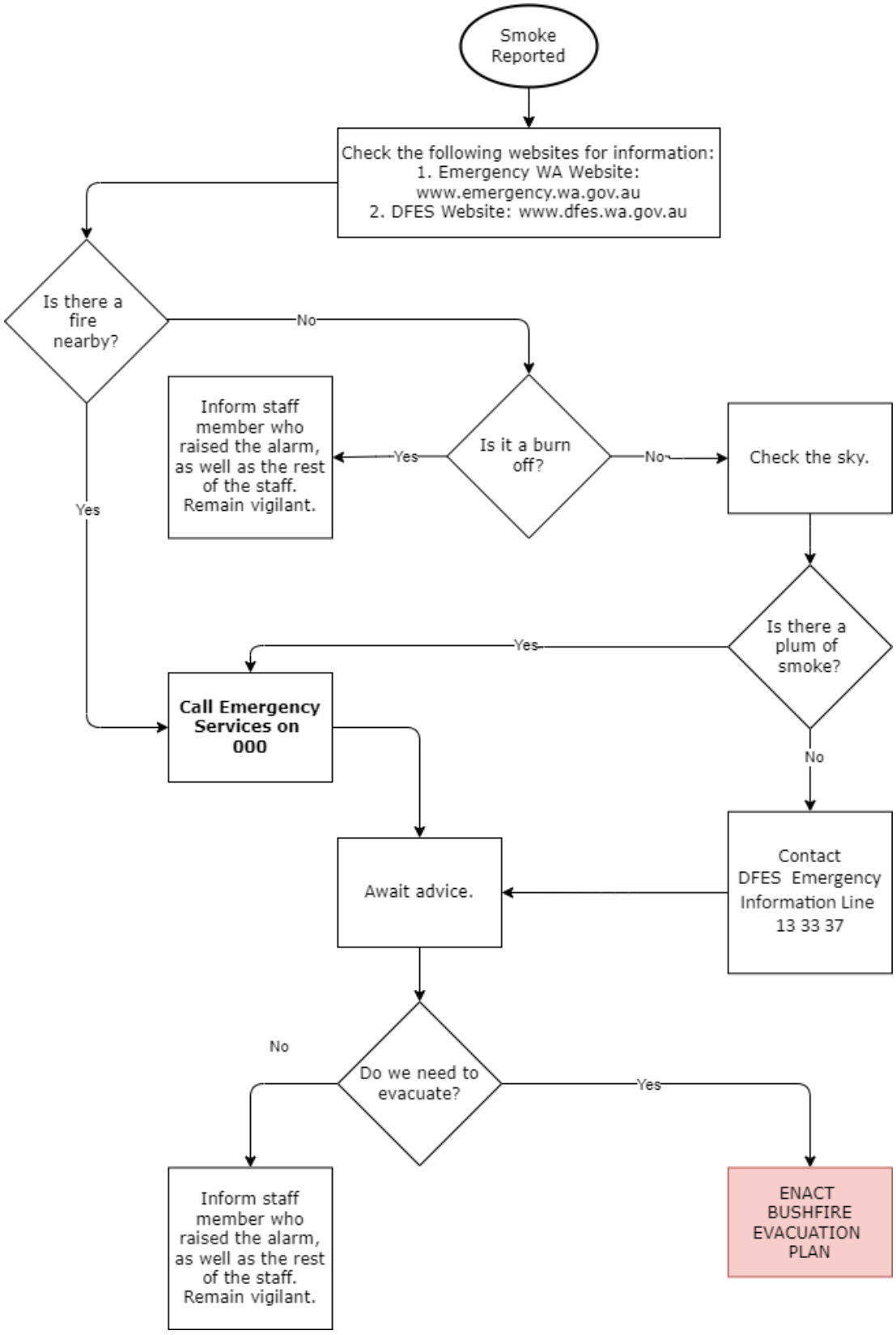
By-products from fire are smoke and toxins, affecting the air we breathe. In a smoke-filled room, there will also be invisible poisonous gases that collect close to the ground and 1 metre and upwards. The safe air to breathe is between 60cm-1metre. Young children will need to crouch to remain within this range, whilst K6 and upwards and adults will need to crawl when leaving the building.

4.10.6 Feeding the Fire and Checking Surfaces

Before accessing exits always check heat of doorknobs, doors and other surfaces with back of hand to avoid burning skin. Opening a doorway exit when a fire is burning in close proximity can create a rush of air and oxygen which could result in 'feeding the fire'. Ensure you open the exit door two finger width's and stand away from the opening, on the hinge side, turning head slightly to check if exit way is safe. Ensure children are away from doorway when you check.

4.10.7 Smoke (potential bush fire)

Anyone can report smoke to the School Office and, once reported, the School Office Warden (Office Manager will enact this process):



4.11 What to do if there is a bushfire (not on school grounds)

If a bushfire is judged to be a risk to the School or site, the Chief Warden (or delegate) will:

1. Contact the Department of Fire and Emergency Services (DFES), to establish the status of the fire and the degree of risk;
2. Ascertain the practicality of *Taking Shelter* in the designated Pre-Primary 1 & 2 Building within the School site or evacuating the site;
3. Liaise with parents, if possible.

4.11.1 Decision to Stay

1. Chief Warden to communicate the decision calmly to staff and students, sound bell and megaphone to *Take Shelter* in Safer Buildings (Pre-Primary 1 & 2 Building).
2. Collect class rolls and keep staff and students informed about the bushfire at all times.
3. Move to the designated Safer Building and check classroom rolls.
4. Admin staff, specialist teachers, and any parents on site to join evacuation to the Pre-Primary 1 & 2 Building.
5. Grounds and Building Maintenance Person to engage the sprinkler system – if Grounds and Building Maintenance Person is not on school grounds, the School Office Staff must engage the sprinkler system.
6. If safe to do so, the Grounds and Building Maintenance Person (or School Office Staff) to ensure the surroundings of safe buildings are as clear as possible. Ensure hoses are operational and commence wetting down fences and peripheral areas.
7. Keep one telephone line clear.
8. Have a mobile telephone as a back-up if power is lost for a landline.
9. If it is possible to do so safely, consider evacuating asthmatics and children with disabilities or special needs first.
10. Send a communication to all parents so those wishing to collect their children can do so.
11. Implement a communication strategy to advise parents and media of the situation.
12. Close windows and doors, and block draughts to prevent the entry of smoke and embers.
13. Remove combustible materials from walls, including curtains, posters, etc.
14. Fill as many containers as possible with water to assist in extinguishing small spot fires.
15. Block gutters and fill them with water
- Use tennis balls and use duct tape (found in the WARDEN KIT) to wrap around them to make them larger. These will be used to bung or block off the downpipe entry point.
  - Alternatively, you could use a rolled-up t-shirt. It needs to be 90-100mm in diameter to cap off the downpipes.
- The Pre-Primary Building has eight downpipes so they will all need to be blocked.
  - Six of them are smaller and two of them will require more duct tape to go around the balls as they are bigger).

16. Deal with spot fires in roof spaces and around the safer location
17. Maintain contact with emergency services and await advice.

4.11.2 As the fire front passes

1. As this can last up to 10 minutes, it may not be safe outside.
2. Be calm and defuse any signs of panic.
3. Instruct students to remain on the floor, away from windows.
4. Restrict all movements.

4.11.3 *After* the fire front passes

1. Reassure staff and students.

2. Check buildings for signs of smoke.
3. Check grounds for burning trees and logs, as there is still a risk of injury.
4. Encourage people to drink water.
5. Attend to any injuries.
6. Remain in Safer Buildings until it has been deemed safe to begin releasing children to parents.
7. Arrange for parents and caregivers to collect students and formally sign them out.
8. Maintain contact with emergency services.

4.11.4 Decision to Evacuate the Whole School Off-Site – IF LIFE IS IN DANGER

Evacuating the whole school off-site is a much larger task, and so for this reason, the decision to evacuate will ONLY be made if there is enough time to do so and if it is deemed safe to do so.

If life is in danger, the Principal may make the call, with the guidance of Department of Fire and Emergency Services (DFES) to evacuate to a welfare centre using staff vehicles. In this case, the staff would evacuate as per the (4.09) - What to do if there is a fire on school grounds or around the School (not a bush fire)? but instead of evacuating at the Muster Point across Montessori Place, the evacuation would take place in the staff car park.

Whole School Evacuation Plan

1. School Office Staff to inform Emergency Services we are evacuating to the evacuation area as advised by the Shire or Emergency Services.
2. Inform all Wardens (teachers) we are evacuating and for children to have hats and shoes on and bags ready. Children are to remain seated in their classroom with the Warden. Check roll – once all accounted for, head to Muster Point.
3. Have children remain grouped in classroom order and seated in Muster Point. Check Roll again.
4. School Office Staff (or designated adult/s) to message parents via SchoolStream and inform them that the students would be taken to a Welfare Centre.
5. Wardens are to keep their mobile phones at hand and any incoming phone calls are to be cancelled if they have nothing to do with the emergency situation.
6. Chief Warden to assign children to cars for evacuation. Write down which children are in which cars. Use the forms provided.
7. With the aim of saving lives, staff would evacuate the maximum of students in a short amount of time – so staff would fill their cars with as many students as possible.
8. If parents come to collect their children before they have departed with a teacher to the Welfare Centre, the Warden must check them off as having left the School.
9. All other parents are to collect their children from the designated Welfare Centre.
10. Wardens are to remain at school until the Chief Warden delegates children with them to be driven to the designated evacuation area. Take class rolls and parent contact lists with you.
11. Wardens are to drive to the Welfare Centre with the designated children in their cars.
12. Chief Warden to designate an Evacuation Coordinator to drive to the designated Welfare Centre and coordinate evacuation from there.
13. The Evacuation Coordinator, or delegate, will coordinate the release of children to their parents and check them off as having left the Welfare Centre. Use the forms provided.
14. Chief Warden and another staff are to remain at school until all children evacuated, then to drive to designated Welfare Centre.
15. Chief Warden to liaise with Evacuation Coordinator at the designated Welfare Centre.
16. Chief Warden and wardens are to remain at the Welfare Centre until all children have been collected.

17. To stay of-to-date with the situation, the Chief Warden, or delegate, should:

- Check DFES Website: www.dfes.wa.gov.au
- Call DFES 13 3337 or 9395 9300;
- Check 720 ABC as it is a source of regular updates on fires that threaten life and property.

See School Map in Appendix G: Forms to Use During Emergency Evacuation Off-Site

4.11.5 Welfare Centres

The provision of welfare in the event of an emergency is the responsibility of Department for Child Protection and Family Support and the City of Joondalup is required to provide suitable facilities for the purposes. The Local Welfare Emergency Management Support – Sub Plan Joondalup District identifies six primary welfare centres:

1. Heathridge Park Centre, Sail Terrace, Heathridge
2. Craigie Leisure Centre, Whitfords Avenue, Craigie
3. Duncraig Leisure Centre, 40 Warwick Road, Duncraig
4. Fleur Freame Pavilion, Forrest Road and Marmion Avenue, Padbury (McDonald Park)
5. Currambine Community Centre, 64 Delamere Avenue, Currambine
6. Warwick Stadium, Corner Warwick and Wanneroo Road, Warwick

A predetermined centre cannot be nominated as the location of such needs to be made taking into consideration the position of the fire and the characteristics of a specific event. There would be nothing more dangerous than sending residents to a centre which is in the direct path of a fire.

Should a fire be in a local area, residents need to determine if they will stay and defend their property or leave early. If residents leave early, they would be best advised to go to a house of family or friends outside the district under the threat from the fire.

4.12 Medical Emergency

In case of a medical emergency, i.e., life threatening condition where person has collapsed or is unconscious, in respiratory / cardiac distress or severe pain:

1. **DO NOT** leave the person unattended at any time.
2. Evaluate (D.R.S.A.B.C.D.) and commence lifesaving procedures, if necessary:

3. If alone, obtain assistance by any means available to you:
   a. Yell for help
   b. Phone if able
   c. Send a student to seek assistance

4. Delegate a person to contact the School Office or use your phone and give the following information:
   a. condition of patient
   b. location of incident
   c. what assistance is required

5. If required, retrieve the Defibrillator from the front gate using the key located in the School Office.

4.13 Issues to Consider Immediately Following a Fire

The School will need to consider several issues immediately following a bushfire or any fire that may cause damage to life or property. Refer to the DFES 'After the Fire - A Guide to Bushfire Recovery' brochure. (Available: https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire).

1. **First Aid**
   An immediate priority is the evacuation of staff and students to a safe clear space. They may need a drink. In addition, there may need to be provision of first aid to any child or staff member who has sustained some form of physical injury as a result of the fire. This may involve the Department of Fire and Emergency Service, the Police or an Ambulance service. Evacuation of the critically injured should be by helicopter. In general, all relevant emergency services should be updated on the School's situation.

2. **Contact with Parents/Carers**
   Contact details and a known emergency number that may be accessed by parents in the event of a fire may assist schools in advising worried parents of the safety of their children. Parents also need to know when the Catastrophic FDR has been downgraded and that it is therefore safe for their children to return to school after a planned closure. This could be done by sending a message via SchoolStream from the School Office or via mobile.

3. **Student and Staff Support**
   Ensure that there are counselling services available as and when required for both students and staff; contact AISWA for support.

4. **Returning to the Site**
   Staff, students, and parents need to take extreme care when moving around a fire affected area, as conditions may change. Trees damaged in the fire will drop branches or fall over. Burnt stumps and trees may still be smouldering and burnt ground may still be hot. Fires may also restart from hidden smouldering debris. It is not recommended for any members of a school community to re-enter a site if there is even the slightest suspicion of fire damage unless DFES or the Chief Warden has given the all clear.

5. **Building and Site Safety**
   Be aware that some or all the school buildings may not be structurally sound and going into any possibly affected building can be very dangerous. Walls, roofs, and ceilings can give way without warning and floors, or stairs may not be as stable as they appear. No-one should enter the school premises until it has been declared safe. A building inspector may be required to ensure the school buildings are structurally safe before anyone re-enters the campus. The School's insurance company may contact a building inspector or the local government's building inspector may be able to help. The fire or falling debris may have also damaged chemical containers in the laboratory and ground-shed areas. If staff are unsure about handling these chemicals, contact DFES.

6. **Electricity and Gas Supply:**
   Utilities such as gas, electricity and water may have been shut off or disconnected during the fire. The suppliers of the school's power, water and gas will need to send a qualified tradesperson to inspect and repair any damage to these services and arrange

for them to be reconnected.

7. **The Media**
The media often report on fires in their news bulletins. Staff should be advised that if a reporter approaches them for an interview, only the Principal (or delegate) should decide whether to speak with them or not. Schools may also wish to ask a fire officer to help and act as a facilitator.

8. **Contact the Board, the Department of Education Services (DES) and AISWA**
If there has been considerable damage to classrooms and the School cannot be used at all for a period of time, the Principal should first make contact with the Chair of the Board as soon as practicable and then contact DES to make arrangements for the continued education of the children. If a school is to be temporarily closed, AISWA should be advised, as a courtesy, to be able to provide support as and when required.

9. **Contact Insurance Companies**
Schools should know if their insurance company will cover fire damage, re-housing of students and staff and so forth. It is also advisable for schools to have plans in place for employees who may not be able to return to work as there are no classrooms or buildings left that are safe and the students may have been relocated through the assistance of DES.

5. ACCOUNTABILITIES AND RESPONSIBILITIES

In relation to these guidelines, the following positions are responsible for:

ROLE	RESPONSIBILITY
Policy Owner	The Policy Owner, the Principal, has overall responsibility for the content of this Policy and its operation in the School.
Principal	The Principal is responsible for ensuring that the requirements of this policy are implemented, monitored and reviewed.
Workers	Ensuring they understand the information presented in this policy.

6. RELATED DOCUMENTS:

6.1 The policy is supported by the following procedures:

- Emergency and Critical Incident Management Procedures

6.2 Policies that are relevant to the operation of this policy are as follows:

- Emergency and Critical Incident Management Policy
- Privacy and Media Policy

6.3 Other documents that are relevant to the operation of this policy are as follows:

- Staff Code of Conduct
- Students Code of Conduct
- Communication Strategy

- The Educational Services for Overseas Students Act 2000 (ESOS Act)
- The National Code of Practice for Providers of Education and Training to Overseas Students 2018 (National Code 2018)
- Australian Standard AS 3745:2010 Planning for emergencies in facilities
- Emergency Management Act 2005
- Emergency Management Regulation 2006
- School Education Act 1999, s159(1)(i)
- School Education Regulations 2000
- Disability Discrimination Act 1992
- Occupational Safety and Health Act 1984
- Occupational Safety and Health Regulations 1996
- Privacy Act 1988
- Standards Australia AS/NZS ISO 31000:2009 Risk Management Guidelines
- Standards Australia HB 292:2006 A practitioners guide to business continuity management

7. APPENDICES

7.1 Bushfire Prevention Plan

Steps need to be taken to prepare School property for the potential of a bushfire or fire within the school grounds.

7.1.1 Circle of Safety

1. Do not pile wood against or near school buildings.
2. If possible, place metal fly wire mesh on all windows or vents to keep sparks and embers out.
3. If possible, block any gaps under floor spaces, in the roof space, under eaves, external vents, skylights, evaporative air conditioners, and wall cladding.
4. Create and maintain a minimum two-metre gap between school buildings and tree branches. Shrubs should be a minimum of three times the height (at maturity) of the shrub away from the building.
5. Rake up leaf litter and twigs under trees.
6. Remove shrubs and small trees under and between larger trees.
7. Keep garden mulch away from buildings and grass is kept short.
8. If possible, ensure all gaps in external wall claddings are sealed.
9. Keep roof gutters and valleys clear of leaves and bark.
10. Keep LP gas cylinders secured and on the side of the school furthest away from the likely direction of bushfires (where the bush is) and placed so they vent away from the building.
11. If possible, block any gaps in the roof space.
12. Remove flammable materials and store them away from school buildings.
13. Create a 20-metre circle of safety around your school. This area needs to be cleared of all rubbish, long dry grass, bark, and material that may catch fire.
14. Prune lower branches (up to two metres off the ground) to stop a ground fire from spreading into the canopy of the trees.
15. Make sure you meet your local government's firebreak requirements.
16. Cut long grass and dense scrub.
17. Clear obstacles and trees from driveways and access points.

7.1.2 Bushland Sub-Committee

The Bushland Sub-Committee ensures that the Fire Safe Building (PP2) is cleared within a minimum radius of 20m prior to November (or date advised by DFES) each year. Also ensures, together with the School Office, that the fire break surrounding the bushland is cleared to a 3m width prior to November (or date advised by DFES) each year. The School Office staff is responsible for ensuring rubbish is controlled, gutters are cleared, trees are pruned etc. The Bushland Sub-committee also organises the controlled burn in the bushland every 7-10 years to ensure the build-up of fuel within the bushland is controlled.

The Bushland Sub-Committee's responsibilities are documented in the Bushland Management Plan.

7.1.3 School Maintenance

The School undertakes regular maintenance to ensure prepare the School for bushfire season and to minimise the risks of fires.

Before Fire Season Maintenance		
Maintenance Activity	**Frequency**	**Month/Date (if applicable)**
Roof Maintenance: clean roofs and gutters	Every Six Months	
Roof Maintenance: clean Admin Building, Heritage Building, and Art Room	Annually	
Working Day Clear Area Behind Safe House (Pre-Primary Building)	Annually	The week before 1st November- City of Joondalup deadline.
Clear Firebreak: 3m from boundary fence to be cleared as well as the verges, as required	Annually	The week before 1st November- City of Joondalup deadline.
Service fire extinguishers	Every two years	
Check Fire hydrants/ flow meter	Annually	
Sweep Hard Court	Regularly during Term	
Sweep School Grounds	Regularly during Term	
Tree maintenance	Every two years	
Lawn mowing + inspection	Fortnightly	
Regular Maintenance (that contributes to fire safety)		
Maintenance Activity	**Frequency**	**Month/Date (if applicable)**
Reset reticulation to summer watering, and check reticulation system and water tank	Annually	After 1 October
Reset reticulation to the winter watering	Annually	Before 1 June
Check smoke alarms and replace batteries	Annually	
Testing/tagging of electrical equipment	Annually	
Clean and inspect PV panels and inverters	Annually	January
RCD Testing	Every two years	
Check emergency and exit lighting	Every two years	

7.1.4 Fire Services During Bushfires

During a major bush fire, firefighters will be working to stop the fire from spreading. A fire truck may not be available to defend every building. If this is the case, the Chief Warden will make an early decision to evacuate all staff, children, visitors, and students from the school campus either to their homes or designated site according to the shire's evacuation centres.

BUSHFIRE EMERGENCY RESPONSE PLAN

Location - 18 Montessori Place

Facility – Montessori Primary School

Students 205 student 30 staff

KEY CONTACT

Chief Warden- School Principal	0447 898 103
Emergency	000
DFES Information Line	13 33 37
Police	13 14 44
Transport	To be confirmed seasonally

Chief Wardens Seasonal Role:

- Remain informed of DFES Emergency Warnings by monitoring public information sources (listed below)
- Ensure sufficient transport arrangents are available for evacuation of guests at all times during the bushfire season

KEEPING INFORMED

Local ABC radio	720 am
Emergency WA	www.emergency.wa.gov.au
Emergency WA QR code	

ADVICE - prepare to evacuate

Trigger: Fire is greater than 10 km away

An ADVICE warning has been issued across telecommunications media of an incident nearby (within 10 km).

Response:

The Chief Warden will take the following information into consideration when determining if and when to evacuate:

- The severity of the bushfire incident.
- The location and distance of the bushfire from the site
- Approximate time for the bushfire to impact the facility.
- Emergency services advice – direct or via public information

If the decision is made to evacuate, follow the procedure under Watch and Act.

WATCH AND ACT- Evacuate

Trigger: Fire is within 10 km

DFES or Police have advised EVACUATION IS REQUIRED (Public Notice) OR smoke or fire is observed from the site and DFES or emergency services have confirmed safe evacuation is available.

Confirm with DFES or police the evacuation route which should be taken (public information).

Response:

- Sound alarm
- Arrange Transport
- Close all doors, windows
- Students to remain in class with teacher
- Student prioritised by disability and age to move by classroom and teacher to transport
- Advise parents the school has been evacuated and the destination
- Secure all buildings

ALL CLEAR

When emergency services have deemed the area safe:

- The Chief Warden will attend the site and
  - check buildings and grounds for any smouldering objects and determine if it is safe for guests to return
  - advise parents when the School will re-open
  - Monitor site conditions for 24 hours for delayed ignitions

EVACUATION RESPONSIBILITIES

Chief Warden:

Verify evacuation is required and destination

ALARM -Raise the Alarm 3 three horns

Call for transport

Inform Emergency services and AISWA

Teachers:

Close doors and windows,

Account for all students visitors and staff

Await instruction to move students to transport (muster point) to board buses

Area wardens:

Check grounds and building are clear of persons.

Maintain communication between classrooms until evacuated

Transport warden:

People with disabilities evacuated following their personal evacuation plan.

Allocate class, by younger age group first, to available bus

Chief Warden:

Coordinate any arriving emergency services

Communications Warden

Inform parents of evacuation and student collection arrangements

First Aid Warden:

Attend to minor injuries, encourage hydration.

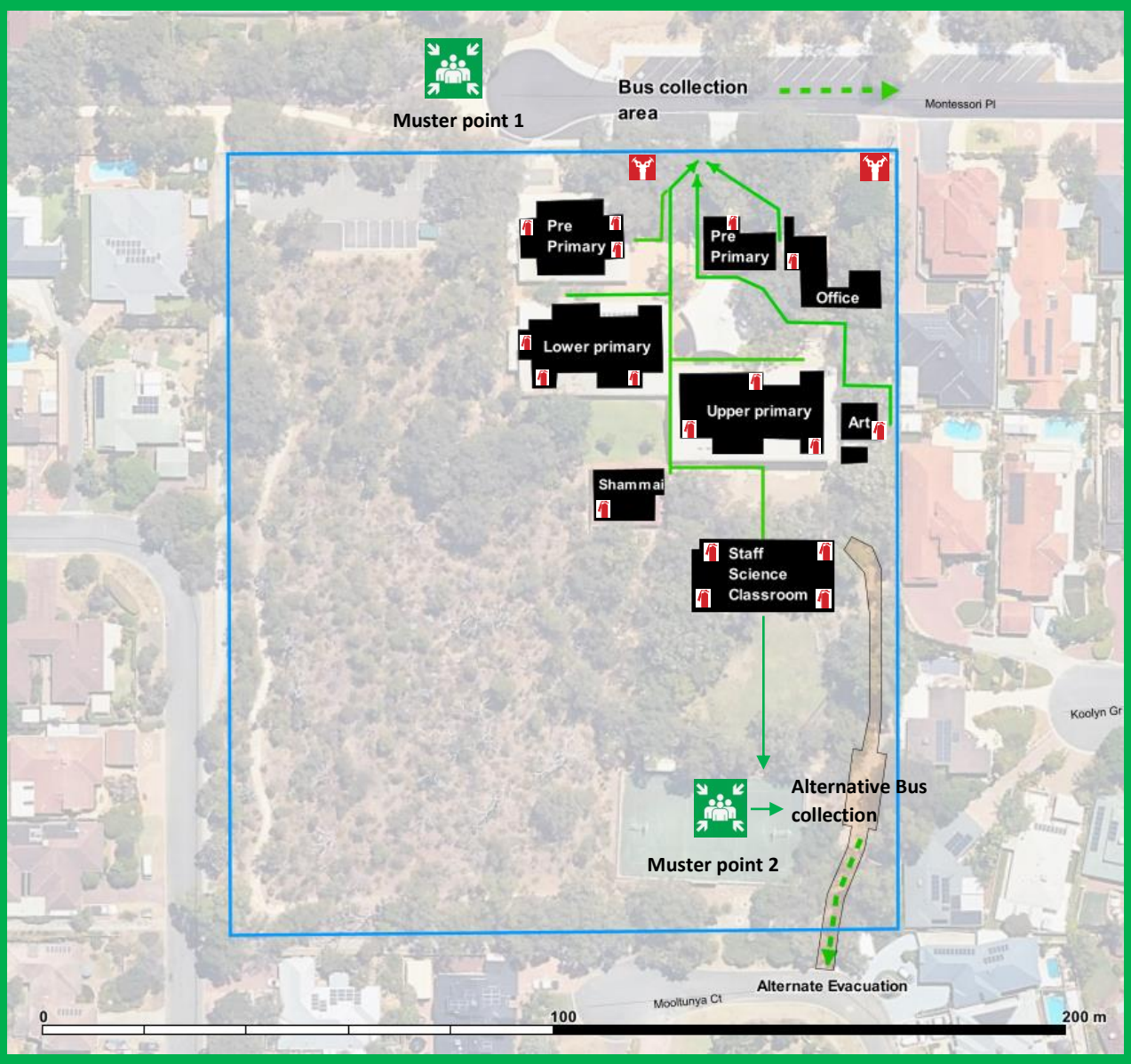
Teachers

Confirm destination arrival and maintain supervision until children are collected

Chief Warden

Determine when to re-open the school

EMERGENCY EVACUATION DIAGRAM



EVACUATION PROCEDURES

ALARM

3 Horns

1. Close Doors and Windows
2. Account for all students
3. Students with Personal Evacuation Plans are to be directed to the Office
4. Receive communications from Area Warden (Mobile Phones)
5. Await direction to nominated Bus collection Muster point
6. If fire is on the School and moving towards the classrooms, then evacuate students to the Office
7. Assemble at students Muster point
8. Board buses
9. Confirm arrival at evacuation destination
10. Supervise students at evacuation destination until collected by a carer/parent
11. Keep students hydrated
12. Account for all students
13. Confirm all clear with Chief Warden

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7.4 Appendix C – General Principles Regarding Bushfires

Bushfires are dangerous and can pose a great threat to lives and property. To help protect yourself and buildings against bushfire it is important to understand some basic facts.

7.4.1 Fuel

During the hot bushfire season, bush land is covered with vegetation that provides fuel for fires – long grass, parched native shrubs, dead leaves and twigs. Around the buildings dry grasses, leaves, twigs and bark provide fuel for a fire. This fuel contributes to how hot the fire becomes and how fast it spreads.

7.4.2 Embers

While a fire may not reach the buildings, they can still be damaged by burning embers carried by strong winds. Embers landing on materials that easily burn are often the cause of small fires around buildings. Gaps and openings in roofs, walls, evaporative air conditioners, window and doors allow embers to enter buildings and start a fire. Embers can be of risk for some time after the fire front has passed.

7.4.3 Radiant Heat

Bushfires generate extreme heat. This radiated heat can kill people, plants and animals – it is the main cause of loss of life in a bush fire.

Radiant heat may not directly ignite buildings, however, it can crack and break windows which will allow embers to enter.

7.4.4 Direct Flame Contact

Direct flame contact can occur when materials close to buildings ignite, resulting in flames touching the outside of the building. The length of time that direct flame contact lasts depends on the amount of fuel to be burnt.

7.4.5 Wind

Generally, strong winds accompany bushfires. As the wind increases, so too does the fire's intensity. The wind pushes flames closer to unburnt fuel, making the fire travel faster. Embers and other burning materials are also carried by the wind which can have a damaging effect on homes several hundred metres from the fire front.

7.5 Appendix C – Fire Drill Observer Checklist

Date: _____

Evacuation Sequence

EVACUATION SEQUENCE	Time	
	Hours	Minutes
Alarm sounded		
Warden(s) respond		
Wardens check floor or area		
Evacuation commenced		
Wardens report floor or area clear		
Persons with mobility impairment accounted for		
Arrive at muster area(s), or safe place		
Wardens check personnel present (where appropriate)		
Evacuation completed		
Exercise terminated		

COMMENTS:

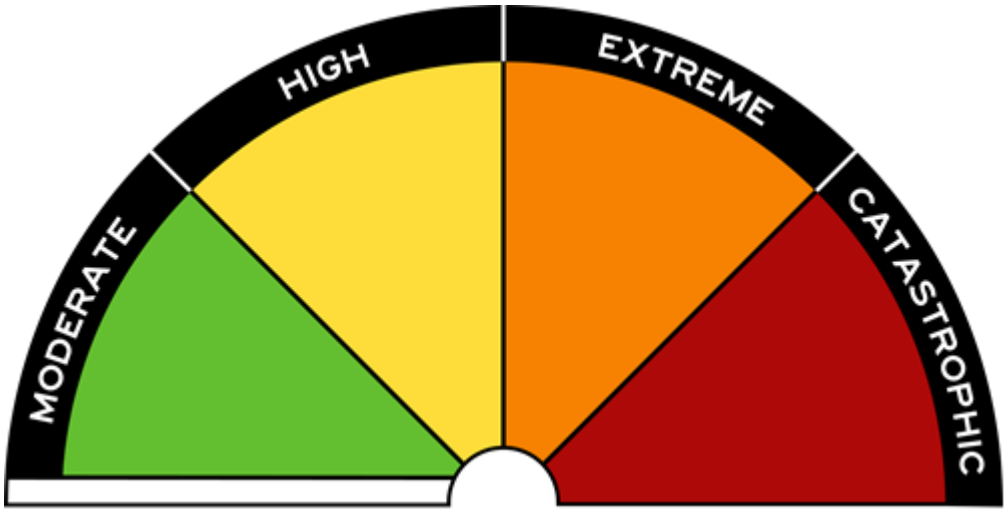
7.6 Appendix D – Department of Fire and Emergency Services (DFES) and Bureau of Meteorology (BOM) Warnings

During a bushfire, emergency services provide as much information as possible through a number of different channels.

BOM FIRE RATINGS (**Bold** = AISWA to try to contact schools)

There are four levels of fire danger in the new system:

1. **Moderate**: Plan and prepare.
2. **High**: Be ready to act.
3. **Extreme**: Take action now to protect your life and property.
4. **Catastrophic**: For your survival, leave bushfire risk areas.



DFES BUSHFIRE WARNINGS (**Bold** = AISWA to try to contact schools)

1. ADVICE
2. **WATCH and ACT**
3. EMERGENCY WARNING
4. **TOTAL FIRE BAN***
5. ALL CLEAR**

See Appendix C – Australian Bushfire Danger Ratings and Advice.

* This is not a Bushfire warning, but schools will be advised of this.
** AISWA may, if the situation requires it, send out the 'all clear' advice. However, if schools are monitoring the DFES website as requested, they will have access to this advice online.

The Bushfire Warnings and Fire Ratings may change to reflect the increasing risk to life and the decreasing amount of time you have until the fire arrives.

ADVICE - An advice message provides you with information on a bushfire that is not threatening lives or property but may be causing smoke near schools.

WATCH AND ACT - A watch and act message tells you the fire conditions are changing and there is a possible threat to lives and schools.

EMERGENCY WARNING - An emergency warning is the **highest level of warning** and tells you of **immediate danger**. In some circumstances, it may start with a siren sound called the Standard Emergency Warning Signal (SEWS) to get your attention as the fire is about to arrive. SEWS is a distinctive sound that is broadcast immediately prior to major emergency announcements on radio, television and other communication systems. The signal sounds like 'whoop, whoop, whoop' and is broadcast for up to ten seconds before the broadcast of emergency information. SEWS tells people 'you need to listen - there is an emergency in your area and you need to take action now'. It is used like a siren and is strictly controlled for use by an authorised hazard management agency only.

The school should activate their Emergency Critical Incident Management Plan for evacuation. Consideration will include: location of fire and ability to travel safely to the selected relocation point; notify DFES Communication Centre of your decision; and relocation point. If it is not safe to do so, direct all students, staff and visitors to the school's SAFE BUILDINGS or Safer Location; this may be the Evacuation Centres nominated by the Shire.

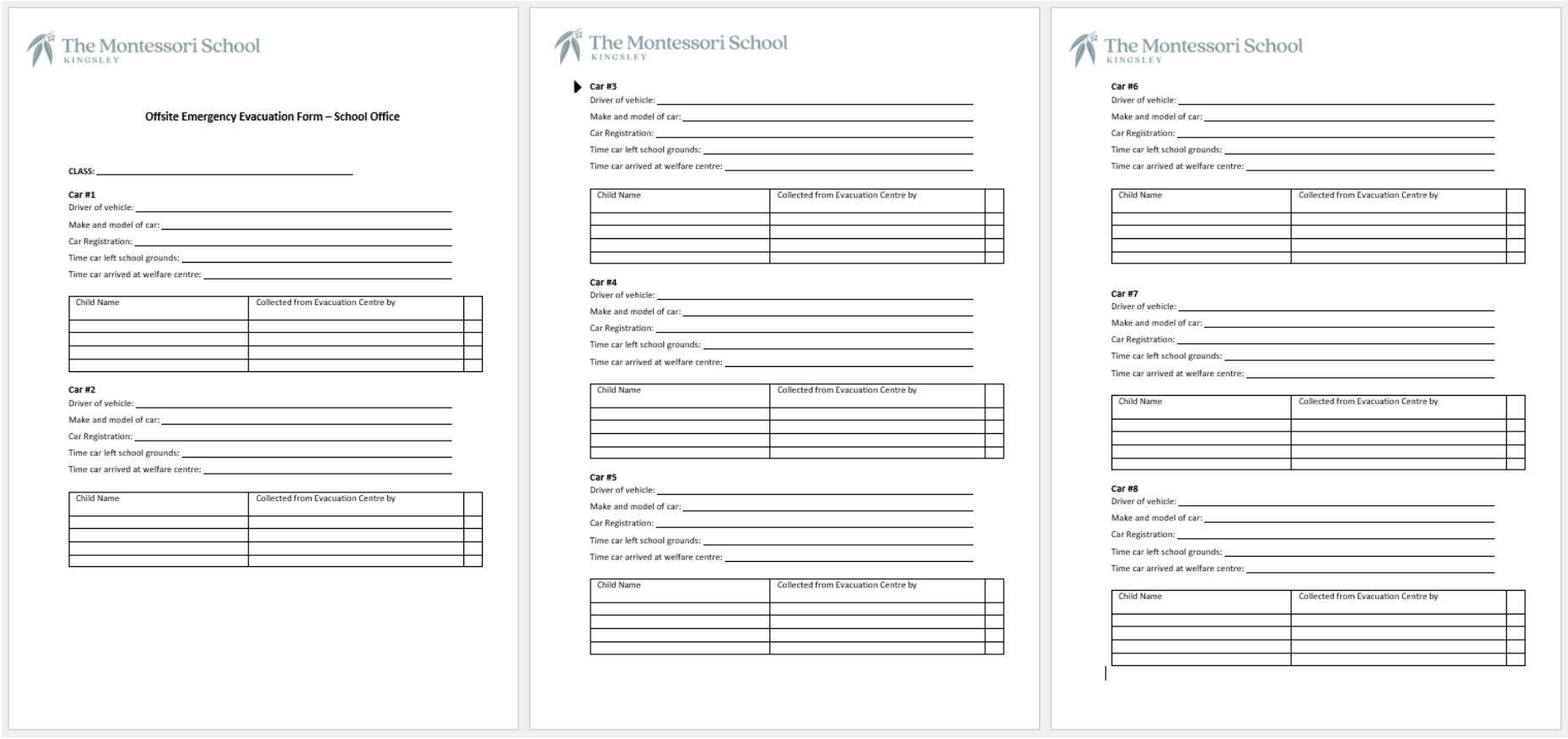
SEVERE RATING to **EXTREME RATING** - **These are the worst conditions for a bush or grass fire**. If a fire starts and takes hold, it will be extremely difficult to control and will take significant firefighting resources and cooler conditions to bring it under control. **Schools need to get ready to act.**

CATASTROPHIC RATING - **Schools need to act now.** DFES stresses that survival must be considered first and people should leave bushfire risk areas the night before or early in the day. When the Fire Danger Rating is moving from Extreme to Catastrophic for your area it means any fires that start are likely to be so fierce that even a well-prepared, well-constructed and actively defended structure may not survive a fire. If this sort of weather is expected, **it is advised that Schools evacuate (where possible) a day or hours before a fire might threaten** as this is the best option for survival.

When a **TOTAL FIRE BAN** is declared it prohibits the lighting of any fires in the open air and any other activities.

7.7 Appendix E – Forms to Use During Emergency Evacuation Offsite

Offsite Emergency Evacuation Form – Car



The Montessori School
KINGSLEY

Offsite Emergency Evacuation Form – School Office

CLASS: _____

Car #1
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Car #2
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

The Montessori School
KINGSLEY

Car #3
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Car #4
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Car #5
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

The Montessori School
KINGSLEY

Car #6
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Car #7
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Car #8
Driver of vehicle: _____
Make and model of car: _____
Car Registration: _____
Time car left school grounds: _____
Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

Offsite Emergency Evacuation Form – School Office

The Montessori School
KINGSLEY

Offsite Emergency Evacuation Form – Car

CLASS: _____

Driver of vehicle: _____

Make and model of car: _____

Car Registration: _____

Time car left school grounds: _____

Time car arrived at welfare centre: _____

Child Name	Collected from Evacuation Centre by	

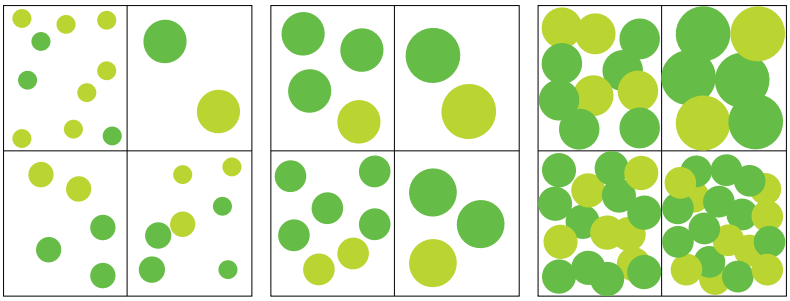
Checklist:

- ☐ Have you notified the School Office of your arrival at the evacuation centre filled in the above details concisely?
- ☐ Have you notified the School Office once all children collected from your car?

APPENDIX 2 - APZ Guidelines

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Fences within the APZ	• Should be constructed from non-combustible materials (for example, iron, brick, limestone, metal post and wire, or bushfire-resisting timber referenced in Appendix F of AS 3959).
Fine fuel load (Combustible, dead vegetation matter <6 millimetres in thickness)	• Should be managed and removed on a regular basis to maintain a low threat state. • Should be maintained at <2 tonnes per hectare (on average). • Mulches should be non-combustible such as stone, gravel or crushed mineral earth or wood mulch >6 millimetres in thickness.
Trees* (>6 metres in height)	• Trunks at maturity should be a minimum distance of six metres from all elevations of the building. • Branches at maturity should not touch or overhang a building or powerline. • Lower branches and loose bark should be removed to a height of two metres above the ground and/or surface vegetation. • Canopy cover within the APZ should be <15 per cent of the total APZ area. • Tree canopies at maturity should be at least five metres apart to avoid forming a continuous canopy. Stands of existing mature trees with interlocking canopies may be treated as an individual canopy provided that the total canopy cover within the APZ will not exceed 15 per cent and are not connected to the tree canopy outside the APZ. **Figure 19:** Tree canopy cover – ranging from 15 to 70 per cent at maturity  15% 30% 70%
Shrub* and scrub* (0.5 metres to six metres in height). Shrub and scrub >6 metres in height are to be treated as trees.	• Should not be located under trees or within three metres of buildings. • Should not be planted in clumps >5 square metres in area. • Clumps should be separated from each other and any exposed window or door by at least 10 metres.
Ground covers* (<0.5 metres in height. Ground covers >0.5 metres in height are to be treated as shrubs)	• Can be planted under trees but must be maintained to remove dead plant material, as prescribed in 'Fine fuel load' above. • Can be located within two metres of a structure, but three metres from windows or doors if >100 millimetres in height.

ELEMENT 2: SITING AND DESIGN OF DEVELOPMENT

SCHEDULE 1: STANDARDS FOR ASSET PROTECTION ZONES

OBJECT	REQUIREMENT
Grass	• Grass should be maintained at a height of 100 millimetres or less, at all times. • Wherever possible, perennial grasses should be used and well-hydrated with regular application of wetting agents and efficient irrigation.
Defendable space	• Within three metres of each wall or supporting post of a habitable building, the area is kept free from vegetation, but can include ground covers, grass and non-combustible mulches as prescribed above.
LP Gas Cylinders	• Should be located on the side of a building furthest from the likely direction of a bushfire or on the side of a building where surrounding classified vegetation is upslope, at least one metre from vulnerable parts of a building. • The pressure relief valve should point away from the house. • No flammable material within six metres from the front of the valve. • Must sit on a firm, level and non-combustible base and be secured to a solid structure.

** Plant flammability, landscaping design and maintenance should be considered – refer to explanatory notes*

APPENDIX 3 – References

GENERAL REFERENCES

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Office of Bushfire Risk Management (OBRM), Bushfire Risk Management (BRM) Plan Guidelines

ATTACHMENT 4

Mt Eyk Architects
Livingstone Studios, 14 Livingstone Street, Beaconsfield, WA 6162
info@mteyk.com.au
0439 098 524
ABN 55 626 288 864

03.02.2023

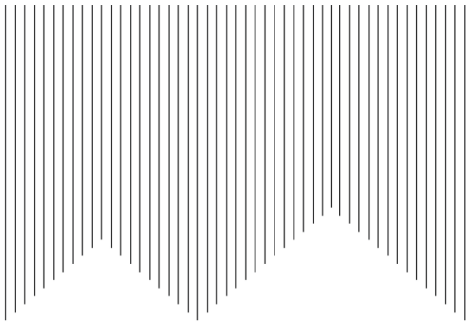
COMMERCIAL DEVELOPMENT – THE MONTESSORI SCHOOL KINGSLEY

Applicant:	Mt Eyk Architects, licence number 3323
	Emily Van Eyk registered architect, registration number 2961
Lot:	2
Address:	18 Montessori Place
Land size:	20 235m^2
Zoning:	Private Community Purposes Zone

Dear City of Joondalup Planning Department,

To whom it may concern,

This letter provides justification for variations to the Private Community Purposes Local Planning Policy. Further information scaffolding the design intent has been described and illustrated in detail in the enclosed document. We intend to demonstrate how the minor variations do not have adverse impacts on the adjoining properties. The proposed building will offer a well-designed education facility that is thoughtfully orientated, naturally ventilated and contributes to the existing character of the school, and wider neighbourhood.



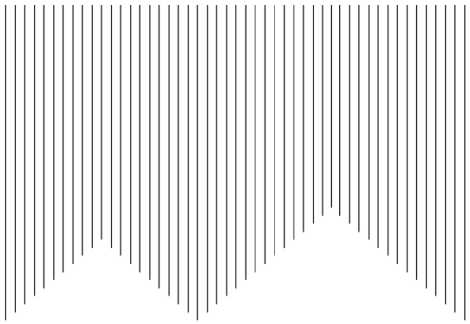
1.0 DESIGN PROPOSAL DETAILS

The Montessori School in Kingsley is an independent not-for-profit school. It is located on an elevated site atop a hill, on Whadjuk Country, surrounded by native bushland and overlooking Lake Goollelal.

The proposed project is a new educational classroom facility, two storeys in height with an approximate FECA of 500m² located at the existing Montessori School campus. The new building will be located between the existing building lower secondary classrooms and the outdoor play area. The site has a significant slope and is surrounded by trees with bushland to the west.

The Montessori education does not split classes into year groups. It has four mixed groups. The new building will be dedicated to upper secondary students undertaking the International Baccalaureate (IB) course, aged 17 & 18 as well as the lower secondary group aged 12 to 16. The Kingsley Montessori School was the first Montessori school in the world to offer the IB course and with the addition of this new building, they plan to expand this program.

Classrooms	Current: 10 classrooms Proposed: 4 classrooms Total: 14 classrooms
Student enrolment	Current: 191 students Proposed: 220 - 230 students The above proposed figure is based on the estimated students once the new building is complete in 2024.
Staff Numbers	20 part time teachers/ educational assistants 11 full time teachers/ educational assistants 4 part time administration staff 3 full time administration staff All numbers are current with no projected increase as there is room for the classes to grow within current staffing numbers.
Waste collection	City of Joondalup general bin collection, including red, yellow & green bins. Commercial green waste bags collected regularly when filled. Skip bin hired twice a year. Waste allowances for predicted growth are capable of being comfortably accommodated by the current waste arrangement.



2.0 RELEVENT POLICIES & WRITTEN JUSTIFICATION

2.1 – JOONDALUP LOCAL PLANNING POLICY, NO 3

Compliant, no justification required

2.2 - LOCAL PLANNING POLICY, PRIVATE COMMUNITY PURPOSES ZONE

ITEM 5.2 Building Height

Required top of wall height	6m
Proposed top of wall height	6.7m
Justification	The overall top of wall height is marginally higher than the required height in the Local Planning Policy. This variation will not have any adverse effects on the adjoining neighbours from overlooking, overshadowing, or bulk and scale as the setback and existing vegetation on the site mitigate these issues. The height increase does not cause overshadowing to any other properties. The large setback and existing trees will mitigate overlooking. In addition, the house directly adjacent has no openings or outdoor living areas along this boundary. The proposed building is setback 13.5m from the eastern boundary with trees retained for additional privacy and noise control. The building will be predominantly hidden from view by existing mature trees and has been designed to fit within its surrounding context, taking on a similar architectural and landscape aesthetic to what currently exists. This minor height variation allows all classrooms to have a minimum of 2.7m ceilings and 600mm service spaces, which is the requested space from our mechanical consultants not just for design but for safety in operation and future maintenance for the life of the building. We tested a variety of designs, but all other options were either similarly over-height or resulted in lower ceilings. We have worked hard to investigate materials, structural systems, and servicing to reduce height as much as possible. High ceilings provide excellent amenity to the students. High ceilings provide additional light, natural ventilation, and a mentally spacious environment to learn. We do not see the variation causing any negative effects but rather creating better classrooms for the students and staff members of the school.

ITEM 5.6 Parking & Access

Required	2 per classroom, 14 classrooms total Total required car bays: 28
Provided	On-site 20 car bays Off-site 31 car bays Total existing car bays: 51 Proposed: 0
Justification	No additional car bays are proposed in this stage of development as the school already has nearly double the required number of bays for the 14 classrooms. The Private Community Purposes Zone LPP does not specify that car bays must be on the property and the existing car parks adhere to the Item 5.6.2, 'Car Park Location & Design.' As Montessori Place is a cul-de-sac, the parking provided off-site is by and large only used by the school and should be included as part of the school's total car bays. Additional parking is part of the schools' future plans and will add additional bays when the demand increases. In addition, Shawmac— consulting civil and traffic engineers, were engaged to provide a traffic impact statement which is included in the DA submission for further justification of the decision to propose no new car bays.

Please don't hesitate to ask if you have any questions.

Thank you.
Emily Van Eyk, Mt Eyk Architects

THE MONTESSORI SCHOOL KINGSLEY
SHAMAI BUILDING

18 MONTESSORI PLACE, KINGSLEY, WA
DEVELOPMENT APPLICATION | FEB 2023

Mt Eyk ARCHITECTS

The Montessori School
KINGSLEY • EST. 1962

CONTENTS

NOTE: All responses and revisions following the Joondalup Design Review Panel have been highlighted in this report with the following title block.

DA REVISION

PROJECT TEAM

Architects	Mt Eyk Architects
Structural Engineers	Scott Smalley Partnership
Service Engineers	Lucid Consulting
Building Certification	Taycon Group
Bush Fire Consultant	Envision Bush Fire Protection
Quantity Surveyor	Owen Consulting
Energy Assessor	Lucid Consulting
Traffic Engineers	Shawmac

DA REVISION

PROJECT DETAILS

SCHOOL PROFILE

The Montessori School in Kingsley is an independent not-for-profit school. It is located on an elevated site atop a hill, on Whadjuk Country, surrounded by native bushland and overlooking Lake Goollelal. The school is Australia's longest running Montessori School. It caters to students aged 3 to 18 in mixed-age classrooms; from pre-primary education to the International Baccalaureate Diploma Program. The school is based on self-learning and the Montessori teaching philosophy focuses on a holistic physical, intellectual, and social development of every child.

PROJECT BRIEF

The proposed project is a new educational classroom facility, two storeys in height with an approximate FECA of 500m^2 located at the existing Montessori School campus. The new building will be sited between the existing building lower secondary classrooms and the outdoor play area. The site has a significant slope and is surrounded by trees with bushland to the west.

The Montessori education does not split classes into year groups. Rather it has four mixed groups. The new building will be dedicated to upper secondary students undertaking the International Baccalaureate (IB) course, aged 17 & 18 as well as the lower secondary group aged 12 to 16. The Kingsley Montessori School was the first Montessori school in the world to offer the IB course and with the addition of this new building, they plan to expand this program.

Montessori classrooms need to be carefully designed to encourage children to move about freely and choose their own working space. Internal and external working environments are both important with students encouraged to sit outside.

"Montessori learning environments are designed to promote curiosity, resilience, independence, and connectedness, to self, to others, and to the natural environment."

PROJECT DETAILS

ZONING	LAND SIZE	CLASSROOMS	STUDENTS NUMBERS	STAFF NUMBERS	CAR PARKING	BICYCLE PARKING
PRIVATE COMMUNITY PURPOSE ZONE CITY OF JOONDALUP	20 235 **m²**	EXISTING | **10** PROPOSED | **4** **TOTAL** | **14**	CURRENT | **191** PROPOSED | **220-230** The above proposed figure is based on the estimated students once the new building is complete in 2024.	PART TIME | **20** FULL TIME | **11** ADMIN | **7** The staff numbers will remain the same with the new building. The school does not plan to increase the number of classes but rather increase the number of students in each class.	20 on-site 31 off-site **TOTAL** | **51** No additional car bays are proposed as there will not be an increase in staff members. As per the Local Planning Policy, the school is required to have 2 car bays per classroom, therefore 28 in total. As Montessori Place is a cul-de-sac, the parking provided is only used by the school and should be included as part of the schools total car bays.	EXISTING | **18** PROPOSED | **52** **TOTAL** | **70** DA REVISION

Student & staff numbers provided by The Montessori School, Kingsley (07.11.2022)

SPP7 DESIGN PRINCIPLES & SITE ANALYSIS

1. CONTEXT & CHARACTER

Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

The Montessori School in Kingsley is located on site with a diverse ecosystem, home to over 100 native flora species in the bushland zone. The school is fortunate to be nestled in natural bushland and overlooks Lake Goollelal. The design proposal needed to supply a 500m² education building while preserving the existing bushland and outdoor play area.

The design process has included an analysis of the site context including the topography, vegetation and existing buildings. It responds to its context by selecting a site with the least impact to the existing bushland and frames views. The project adheres to the established architectural language (notably EIW architects) by using materials with a raw finish and exposed structure albeit with consideration to contemporary regulations of bush fire compliance.

The sloping topography of the site provides views to Lake Goollelal. The building was sited so the dominant upper floor classroom and verandah form a visual connection to the lake.

The land is zoned Private Community Purpose within a residential zone R20. To the east and south, the school directly borders residential houses. The proposed design has allowed for very generous setbacks and retention of trees along the boundary to provide a buffer zone between the school and the residential community.

SPP7 DESIGN PRINCIPLES & SITE ANALYSIS

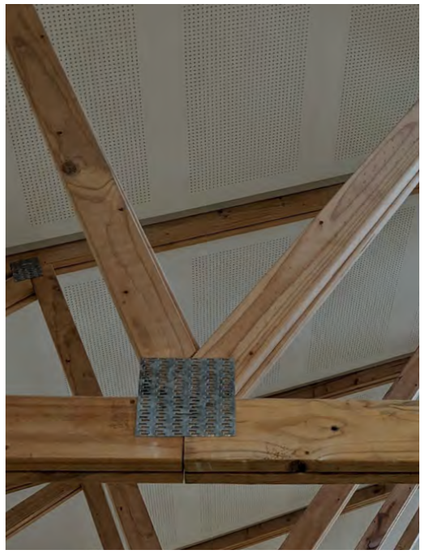
1. CONTEXT & CHARACTER

EXISTING BUILT FORM

Within an established education campus, it is important for the buildings to look cohesive without simple duplicating them. The new classroom building responds to and enhances the distinctive characteristics of the Montessori School, through its use of a linear building form, skillion roof, rammed earth, exposed internal trusses and natural tones. The proposed design has responded to the existing school context, taking inspiration from the colours and materials that contribute to the character of the place without mimicking it.

The proposed building does not interact with any of the surrounding streets and therefore its character was not driven by the streetscape but rather the existing buildings on the site.

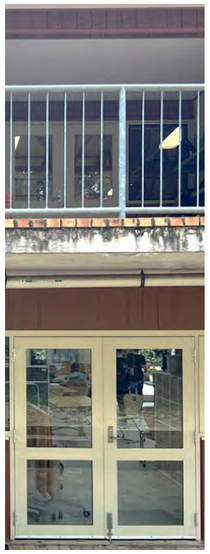
1. CONTEXT & CHARACTER



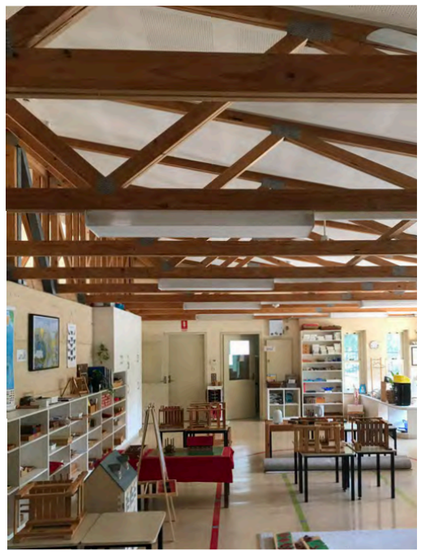
EXPRESSED TIMBER TRUSSES

BRICK PAVING

BUSH

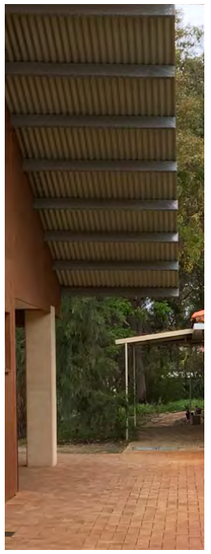


GALVANISED FINISH

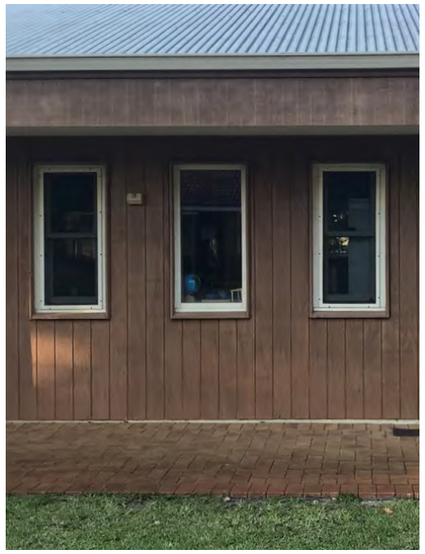


TIMBER FEATURE IN CLASSROOMS

RAMMED EARTH



RAMMED EARTH



VERTICAL CLADDING

Do to the change in regulations, combustible timber products can no longer be used and therefore the proposed building cannot be clad in the same timber as the existing school buildings.

For the proposed building, we plan to use fibre cement sheeting with a similar vertical groove painted a shade of white and introduce the natural brown tones through Colorbond Custom Orb cladding in Terrain colour.

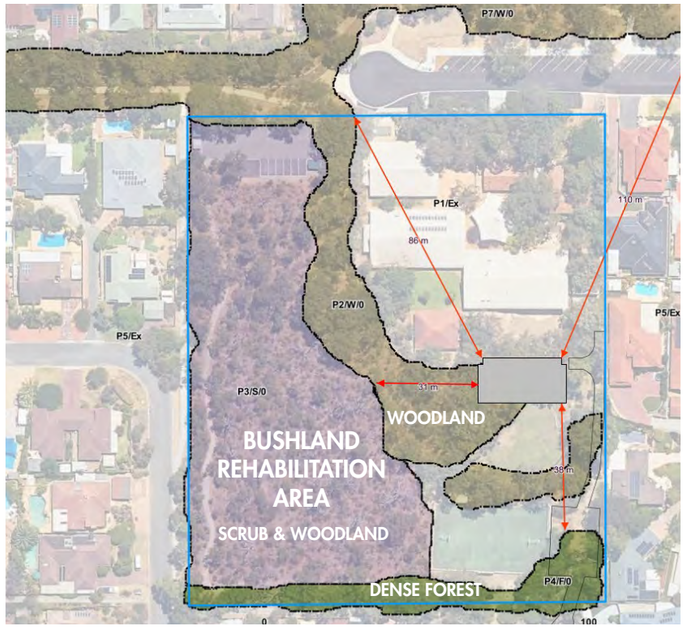
SPP7 DESIGN PRINCIPLES & SITE ANALYSIS

1. CONTEXT & CHARACTER

BUSHLAND & FIRE

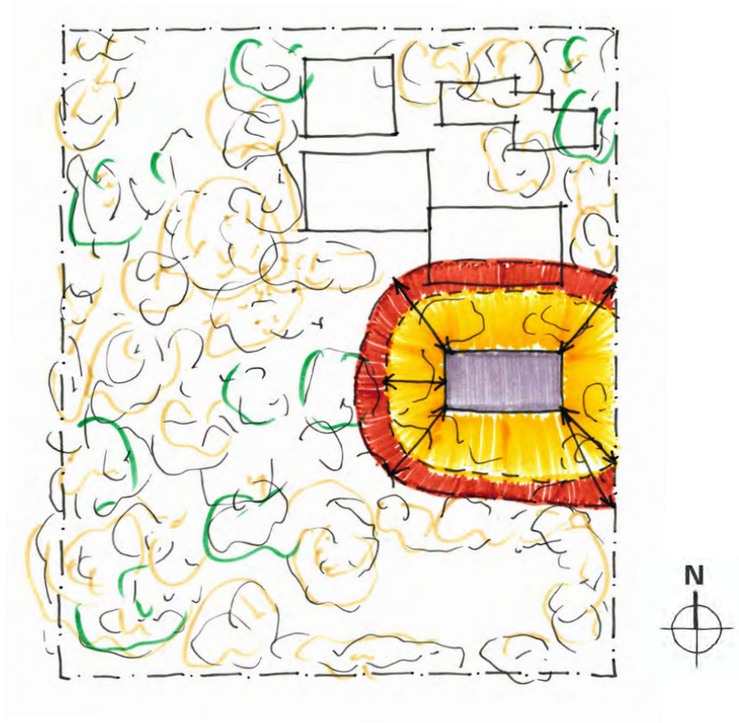
The Kingsley school site is located within a bush fire prone area. The bush fire threat and the wide 21m Asset Protection Zone required was a major factor in the early design phase of siting the new building.

The proposed building has been located to avoid modification to the bushland rehabilitation area. To minimise the Bush Fire Attack Level, an Asset Protection Zone will need to be created. The chosen site allows the least trees to be removed. The proposed development will be required to follow the State Planning Policy 3.7, Planning in Bush Fire Prone Areas.



VEGETATION CLASSIFICATION

SOURCE: ENVISION BUSHFIRE PROTECTION, MONTESSORI BUSH FIRE ASSESSMENT



0-14m ASSET PROTECTION ZONE
– MAX. 15% TREE CANOPY
- NO TREES WITHIN 6M

14-21m WOODLAND VEGETATION
- TREES WITH GRASS UNDERSTOREY

DESIGN REVIEW RESPONSE

1. CONTEXT & CHARACTER

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 1 - CONTEXT & CHARACTER

Good design responds to and enhances the distinctive characteristics of a local area, contributing to a sense of place.

Comments:

- Develop a Master Plan to better understand school operations now and into the future.
- Provide a rationale on the choice of location for the proposed building within its bush setting, and its relationship to existing buildings (for example, why the separation distance of buildings when overshadow by the existing northern building has no impact on the proposal? Could the impact on existing trees to the south and their proposed removal be reduced if the building is relocated further to the north?).

Recommendation 1:

-Prepare a Masterplan that integrates current and proposed new buildings, bushland, landscaped areas and provision of car and bike parking as per an 'educational establishment'.

-Provide a rationale on the current site planning and consider refinement to possibly preserve more existing trees.

MASTERPLAN

Through consultation with the School Board, a masterplan for The Montessori School in Kingsley has been developed and included in this development application.

The School highlighted the following future intentions:

- A library and administrative building with 2 additional classrooms
- Additional staff parking on site
- Continued bush rehabilitation by the schools Bush Committee
- An enclosed multi purpose hall for whole school assemblies, sports & learning activities
- Additional solar to match future demand
- Additional bike parking in-line with requirements of an educational establishment

BUILDING LOCATION

The site for the proposed building was careful selected after considerable site research. It has been selected for the following reasons. Diagrams have been provided on the follow pages to further illustrate the rationale behind the selected site.

1. Maximum tree retention overall, including trees within the courtyard space (refer to diagram). This was the major reasoning.

2. 1:14 ramp gradient required
The buildings must be separated by 14m to allow for the universally accessible ramp to rise 1m (Refer to plans). The more direct the ramp (no double-backing) the better the universal access.

3. Fire hydrant coverage
The building requires fire hydrant coverage. To avoid a truck turnaround that would have removed most trees in the area, we can provide a dead-end hardstand if we meet minimum distances, currently this is adequate, moving the building further north would compromise this.

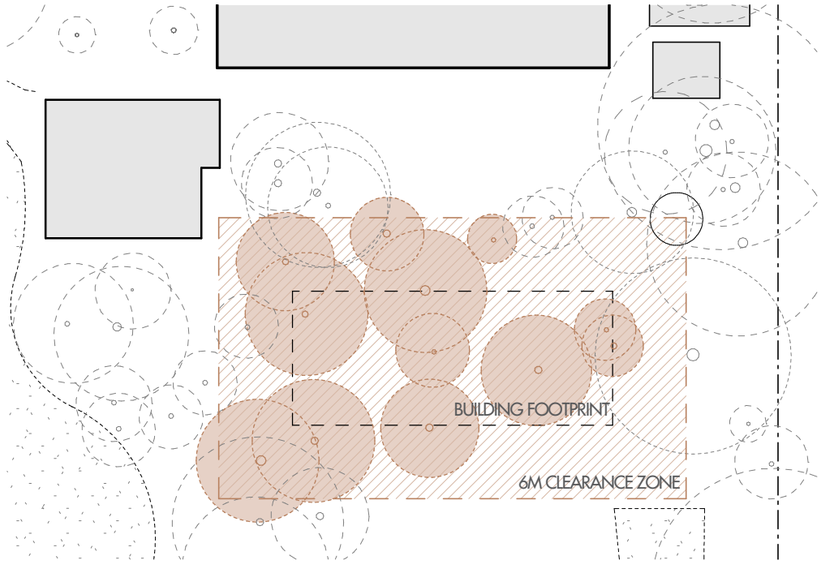
4. Large central courtyard with solar access
The central courtyard is core to the design, providing external learning areas and open space. If the building shifts north to preserve some trees (at the loss of others), only 22% will receive sun. Currently, over 61% will receive solar access in winter. (Refer to diagram).

5. Fire separation between buildings
If the buildings have reduced separation, they are required to achieve a high fire rating (FRL) and additional, unneeded materials would need to be added, increasing embodied energy and cost.

DA REVISION

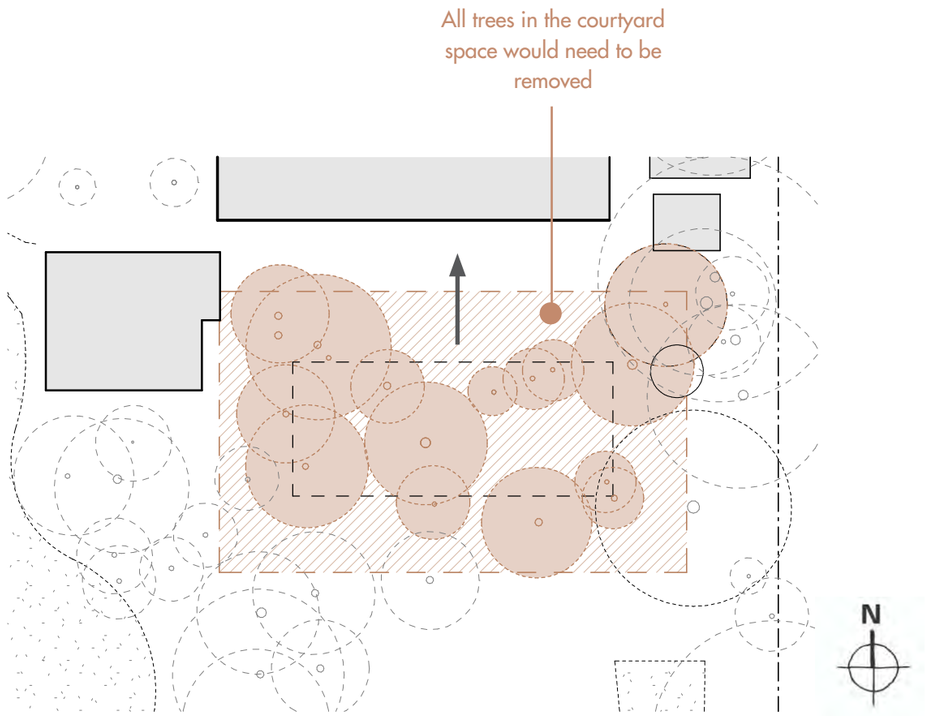
DESIGN REVIEW RESPONSE

1. CONTEXT & CHARACTER



PROPOSED LOCATION & TREE REMOVAL

NUMBER OF TREES REMOVED
12



BUILDING RELOCATED NORTH & TREE REMOVAL

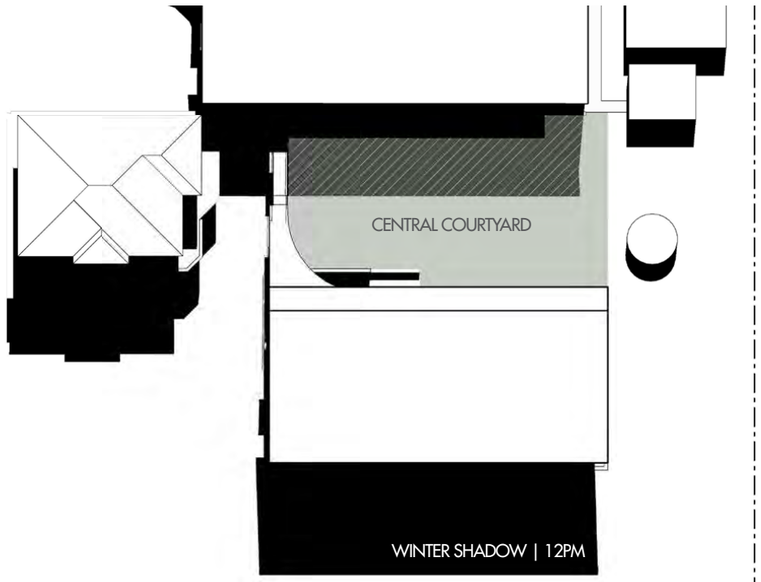
NUMBER OF TREES REMOVED
17

CONCLUSION:
Relocating the building north towards the existing building would result in more trees removed. In additional, all trees in the central courtyard space would have to be removed resulting in loss of shade.

DA REVISION

DESIGN REVIEW RESPONSE

1. CONTEXT & CHARACTER

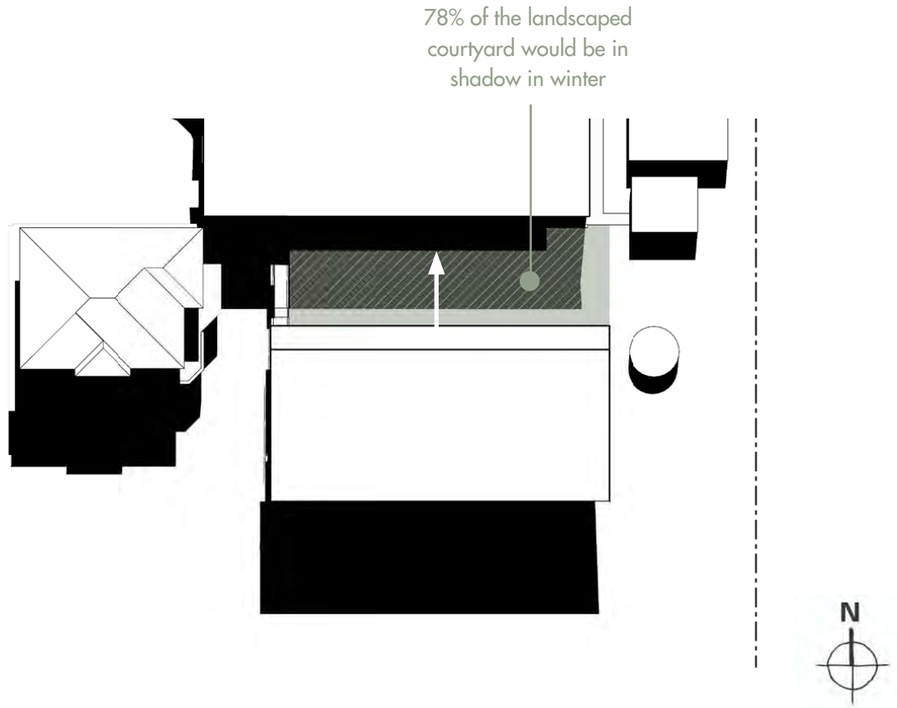


PROPOSED LOCATION & OVERSHADOWING

COURTYARD TOTAL AREA | 308m²

SHADOW | 120m² (39%)

SUN | 188m² (61%)



BUILDING RELOCATED NORTH & OVERSHADOWING

COURTYARD TOTAL AREA | 154m²

SHADOW | 120m² (78%)

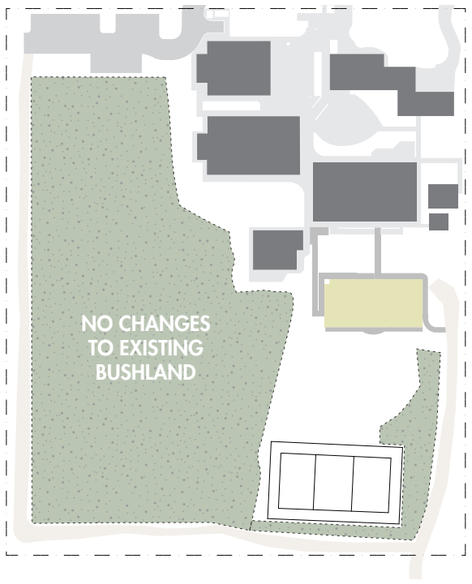
SUN | 34m² (22%)

CONCLUSION:
Relocating the building north would result in over 78% of this central courtyard in shade in winter. While the building is not impacted by overshadowing, the courtyard is. Grass and plants will struggle to grow and the space will not be as usable.

DA REVISION

2.LANDSCAPE

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.



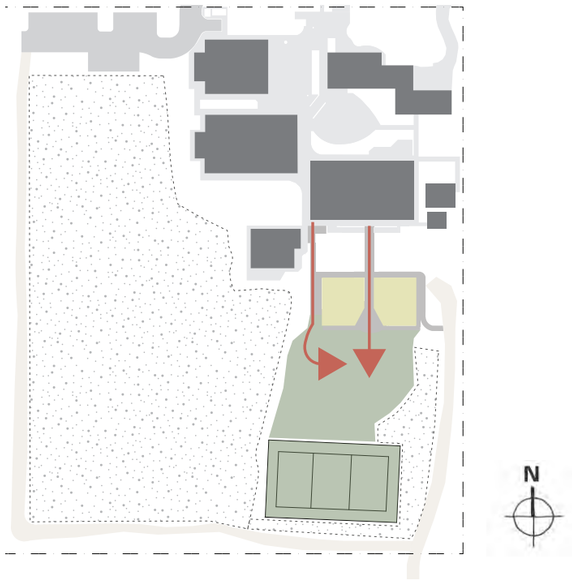
MAINTAIN BUSHLAND

The building was located on a site that allowed all of the current bushland rehabilitation area to the west to remain untouched and continue to offer a habitat for flora and fauna.

The school is committed to preservation, conservation and restoration work within the bushland and regularly work with parents and students to maintain the bush.

MAINTAIN & CREATE OUTDOOR LEARNING AREAS

Creating external learning areas as an extension of the classroom is important to the Montessori education. For this reason, the building was not sited between any of the existing buildings. The chosen site allows a new courtyard space to be created and maintains the connection to the oval. A combination of hard and soft landscape as well as covered areas will offer students engaging places to work.



STRENGTHEN CONNECTION TO THE OVAL & OPEN SPACE

Currently the school oval & open space is difficult to access and lacks connection with classrooms. There is no accessible path to the oval with only a sloping unpaved dirt track. The new development establishes new paths that allow all abilities to access the schools green space.

For this reason, the buildings ground floor level was set at the same level as the oval. In addition to the main central walkway through the building, a new path to the oval, accessed off the ramp will be added.

DESIGN REVIEW RESPONSE

2.LANDSCAPE

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 2 - LANDSCAPE QUALITY

Good design recognises that together landscape and buildings operate as an integrated and sustainable system, within a broader ecological context.

Comments:

- Provide a detailed landscape / open play area plan that considers interaction of the building and spaces (including outdoor seating), and with possible relocation on the site of the existing sand play area and chicken coop.
- Any removed trees should be repurposed on the site, for example as nature play.
- Demonstrate how the proposed removal of tree canopy will be replaced outside of the bushfire contours.

Recommendation 2:
-Provide a detailed proposed landscape plan and possible relocation of existing open play areas.
-Re-use removed trees in nature play.
-Provide locations for new tree planting to replace cut trees.

LANDSCAPE PLAN

A Landscape plan has been prepared for The Montessori School. Together with the context plan, these demonstrate the following comments raised by the Joondalup Design Review Panel:

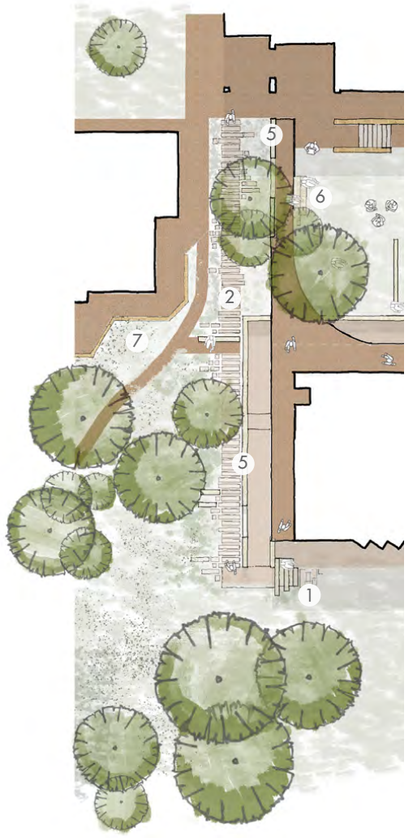
1. Chicken coop relocated

2. Nature playground included in design proposal using removed trees. The new location was selected for it's proximity and access to the lower & upper primary student classrooms.

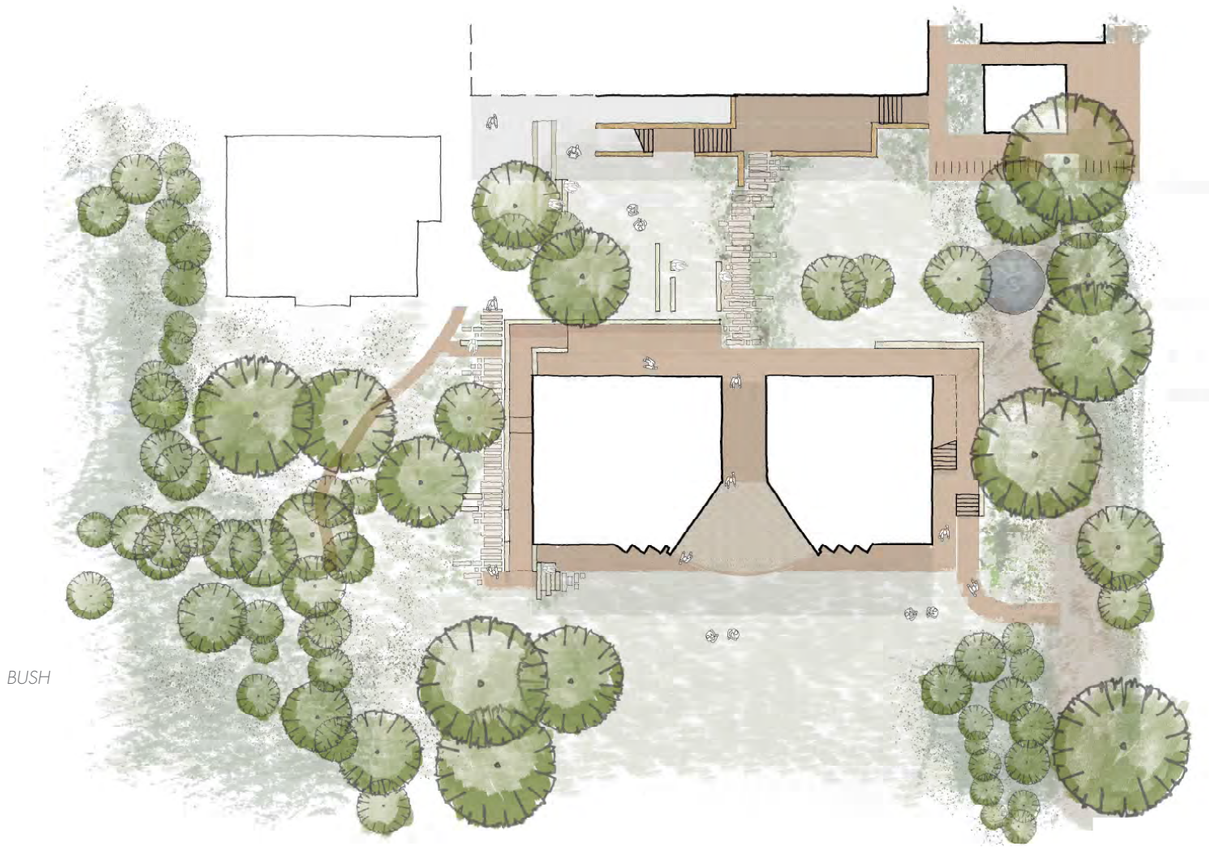
3. The loss of tree canopy will be replaced along the southern boundary adjacent to Mooltunya Court. The School Board selected this area to provide an additional barrier for the residential area and establish trees prior to building the proposed gymnasium.

4. Landscape seating has been incorporated within the design as well as a landscaped walkway. The gradient of the western ramp was reduced allowing us to create a walkway that is integrated in the landscape. The precedent photographs on the following page show our intentions for this space.

5. Bush rehabilitation and planting around the new building will be managed by the Montessori School Bush Committee as part of the school curriculum. This sub-committee of the board has been established for over 10 years and already works with students from various age groups in a program of seed collection, raising seedlings and planting and other education-related program. The existing greenhouse will be used for seed propagation of native species.



UPPER LEVEL



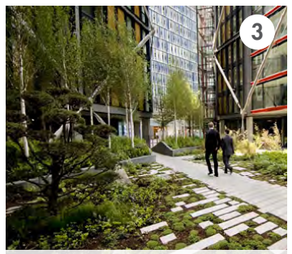
LOWER LEVEL

LEGEND

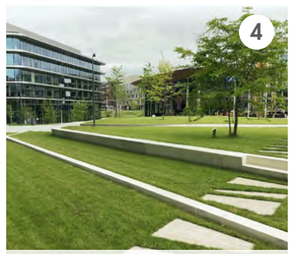
- Existing trees
- Brick paving
- Exposed aggregate

1 PLAYFUL STEPS

2 WALKWAY

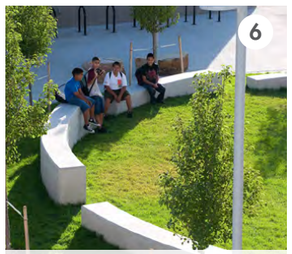


3 NATIVE GROUND COVER



4 TERRACED GRASS

5 PLAYFUL RAMP WALLS



6 LANDSCAPE BENCHES

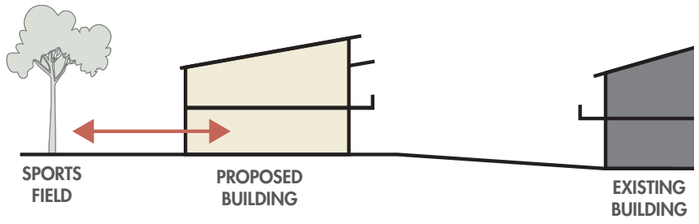
7 NATIVE VEGETATION

DA REVISION


BIKES
GRASS
GRASS
BUSH
GRASS
EXISTING TRACK
1
2
3
4
5
6
7
LEGEND
Existing trees
Brick paving
Exposed aggregate
1 Playful steps
2 Walkway
3 Native groundcover
4 Terraced grass
5 Playful ramped walls
6 Landscape benches
7 Native vegetation
DA REVISION
0
2
4
10
1:200

3. BUILT FORM & SCALE

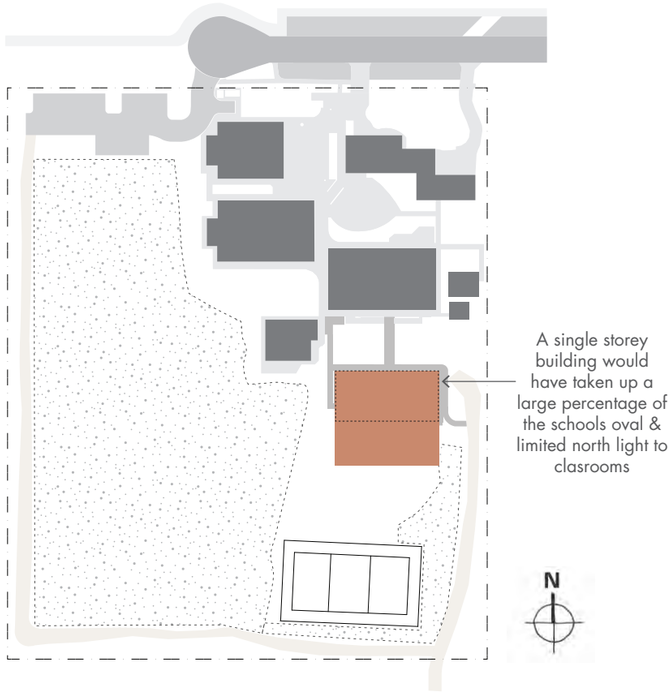
Good design provides development with massing and height that is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.



HEIGHT APPROPRIATE TO ITS SETTING

The massing & height of the proposed building is consistent with the existing buildings. The height is marginally higher than the existing building due to the topography. It was important that the ground floor of the building was at the same level as the sports field.

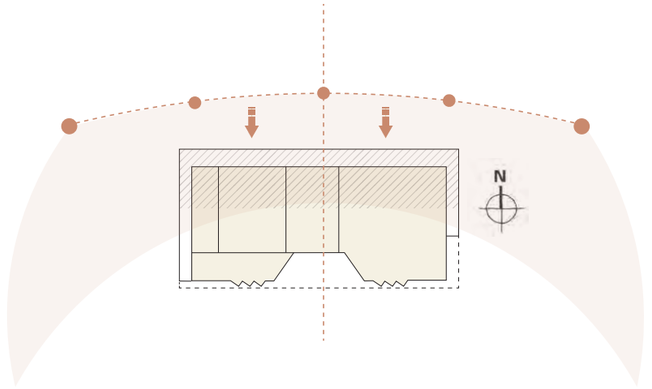
The buildings height is determined by ceiling levels and service space. Both levels with have a minimum 2.7m ceiling to provide a comfortable learning environment.



SMALL FOOTPRINT = MORE OPEN SPACE

Very early in the design process, it was decided that the building needed to be two storeys to maintain the sports oval, all the bushland and large setbacks from neighbours.

A single storey building would have taken up a large proportion of the open space, caused tree removal and limit northern light to classrooms.



BUILT FORM TO MAXIMISE NORTHERN ORIENTATION

The built form responds directly to solar exposure. The building is oriented to maximise northern sun and minimise the building envelope on the east & west.

DESIGN REVIEW RESPONSE

3. BUILT FORM & SCALE

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 3 - BUILT FORM & SCALE

Good design ensures that the massing and height of development is appropriate to its setting and successfully negotiates between existing built form and the intended future character of the local area.

Comments:

- The impact of the proposed building's excess height and its bulk is unclear from the eastern lower Koolyn Grove viewpoint.

Recommendation 3:

-Provide a photomontage viewed from Koolyn Grove of the proposed building form and retained trees to demonstrate no negative visual impact in the broader context (an outline of the proposed building and tree line with analysis would suffice).

THE PROPOSED BUILDING WILL BE CONCEALED BY ESTABLISHED TREES ALONG THE BOUNDARY

PHOTOMONTAGE VIEWED FROM KOOLYN GROVE (PHOTO 1)

The photomontage and photographs illustrate that the proposed building will be hidden from view by existing mature trees along the eastern boundary. The building scale will not cause any negative visual impact to the surrounding context.

The proposed building is also 46m from the road edge. There are several trees on surrounding properties providing a further visual barrier.

DA REVISION

DESIGN REVIEW RESPONSE

3. BUILT FORM & SCALE

PHOTO 2

View looking north along eastern boundary.

PHOTO 3

View looking east towards 15 Koolyn Grove

The house directly adjacent to the proposed building has no openings or outdoor living areas along this boundary that would cause privacy issues.

PHOTO 4

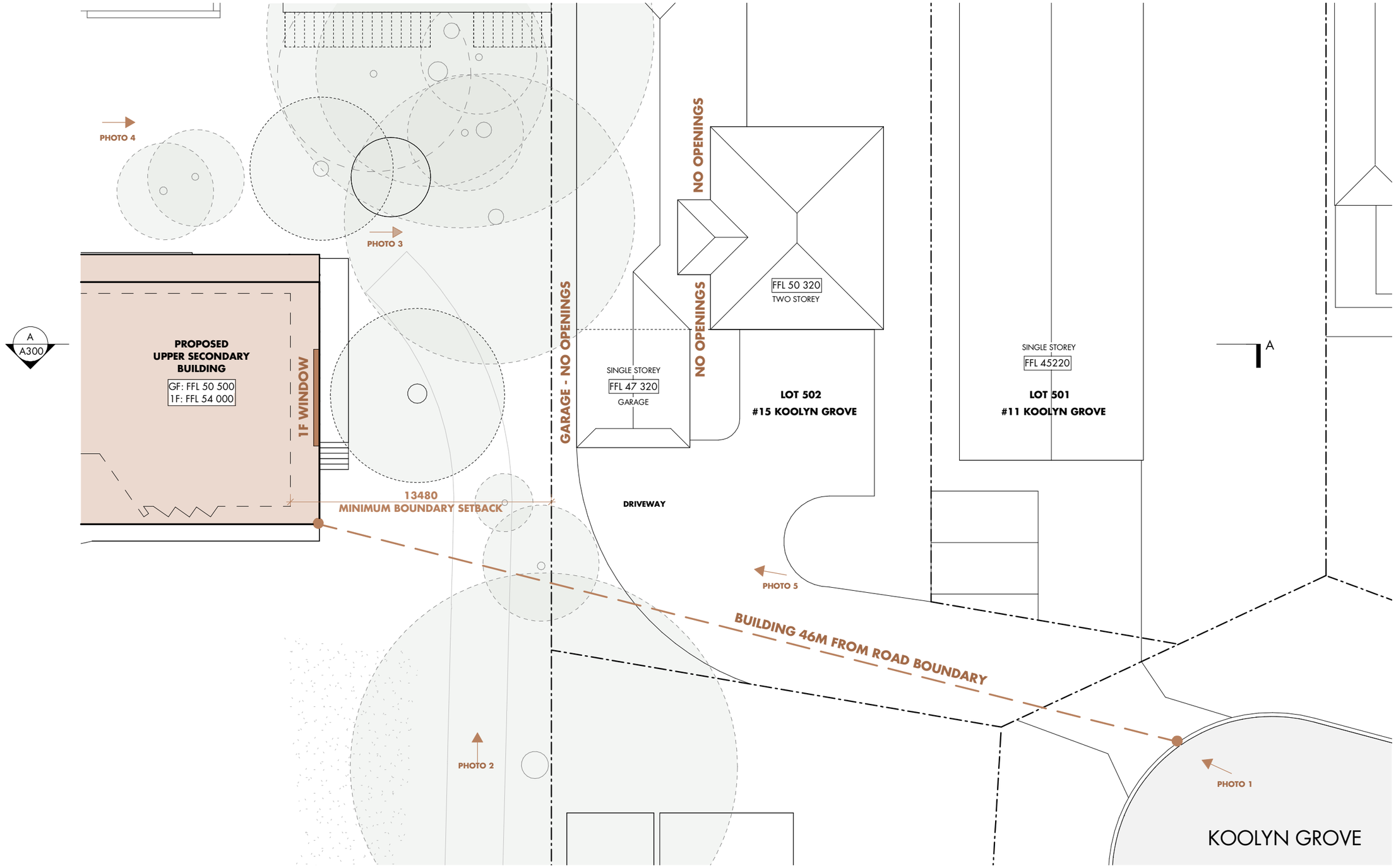
View looking east towards 15 Koolyn Grove

Large trees along the boundary provide additional privacy to adjacent neighbours. This will be the view from the courtyard between the new and existing buildings.

PHOTO 5

15 Koolyn Grove, Kingsley
Approximate FFL: 47 320

DA REVISION



0 2 4 10

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DA REVISION

SPP7 DESIGN PRINCIPLES & SITE ANALYSIS

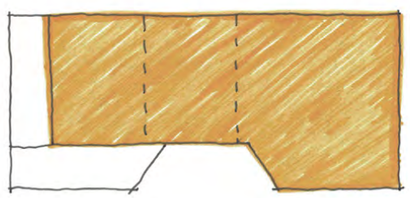
4. FUNCTIONALITY

Good design meets the needs of users efficiently and effectively, balancing functional requirements to deliver optimum benefit and performing well over the full life-cycle.

Part of the school's brief was to create a space that could be adapted to suit a wide range of uses including whole school gatherings.

The upper-level classrooms offer a high level of flexibility with operable walls. It is part of their school ethos to allow children to move freely around and work where they feel most comfortable. It was important that the design of each classroom facilitate a Montessori method education based on self-directed learning and collaboration. The upper-level classrooms offer this high level of flexibility with operable walls. Any built-in elements into classrooms such as storage or kitchens have been placed on the periphery of the rooms.

The school has multi-age classrooms which also required greater flexibility than standard schools. The classrooms purposely vary in size to accommodate different size learning groups. The smaller student room and library have been designed as spaces that can double as smaller learning areas.



192m² OF FLEXIBLE CLASSROOM/FUNCTION SPACE

4. BUILD QUALITY & 10. AESTHETICS

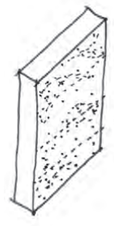
Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.

As part of the Montessori education, the school embraces exposed structure and raw materials as a means of educating students. The aesthetics have been largely driven by context and use of raw materials. The school wants the new building to feel like it belongs. The existing buildings are all clad in Plywood but due to the change in regulations, no external elements can be constructed from timber. We instead plan to use a combination of rammed earth, custom orb sheeting and vertical groove fibre cement on the exterior. Timber elements will instead be introduced on the interior with exposed timber trusses.

Long life and low maintenance materials have been selected. Operating costs on the school were also considered with passive design at the forefront.

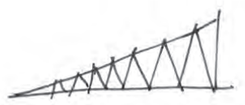
Rammed earth is a core part of the existing material palette at the school and will create a strong feature in this new building. It requires little to no maintenance and has been placed away from direct sun to avoid heat gain.

The Montessori School embraces learning through seeing and the classrooms are intended to be a source of teaching. The services on the first floor will be left exposed for students to be able to see the what is required to operate a classroom including lights, fans and air-conditioners. The timber trusses and connections will also remain in view.

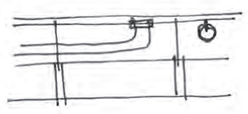


RAMMED EARTH

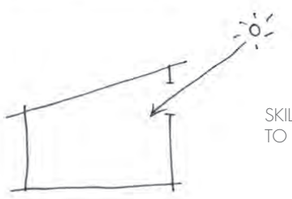
VERTICAL CLADDING



EXPOSED TRUSSES



EXPOSED SERVICES



SKILLION ROOF
TO THE NORTH

DESIGN REVIEW RESPONSE

4. FUNCTIONALITY & BUILD QUALITY

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 4 - FUNCTIONALITY & BUILD QUALITY

Good design meets the needs of users efficiently and effectively, balancing functional requirements to perform well and deliver optimum benefit over the full life cycle.

Comments:

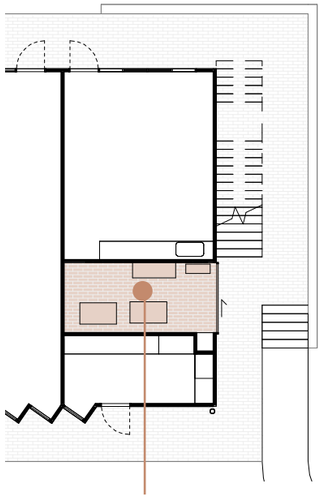
- Show the location of any aircon units and/or solar panels to ensure they do not have a visual and/or amenity impact on the context.
- Concern regarding reduced car and bicycle parking – the use is an 'educational establishment' rather than a Montessori School, therefore the required number of bike and car parking bays should be accommodated in appropriate locations to future proof for a conventional school.

Recommendation 4:
-Demonstrate any installation of a/c units and solar panels has no detrimental impact on the context.
-A plan indicating the provision of car and bike bays

AC & SOLAR LOCATION

A designated area for air conditioners and other plant was designed from the beginning to ensure they do not have any negative visual impact. As shown in the diagram below, they are located on the ground floor of the east side of the building and will be behind a sliding gate.

The location of solar panels is shown on the context plan. In January this year, a 30kW system has been installed on an existing building that will also service the proposed development.



AC/PLANT AREA
BEHIND SLIDING GATE

EXAMPLE OF SLIDING GATE INTENDED FOR THE PLANT AREA

SOURCE: KINGS PARK VOLUNTEER HUB BY MJA

CAR & BIKE BAY LOCATION

REFER TO THE CONTEXT AND MASTERPLAN

All 70 required bike bays will be provided in various locations around the campus for different age groups. These will be implemented by the school.

The location of the additional 8 car bays on-site will be implemented at a later stage and are shown on the masterplan.

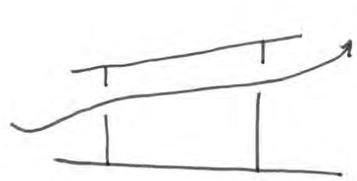
5. SUSTAINABILITY

Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

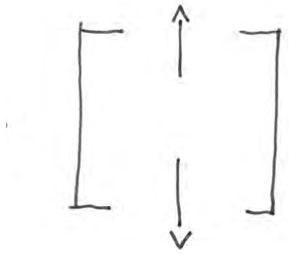
Sustainability should always be a priority in design, and it is essential in schools. Education buildings should demonstrate the benefits of leading a sustainable life and allow students to learn about passive design. The Montessori School already has a number of sustainability practices in place including bush management, rainwater harvesting, solar and food production. The proposed additional classrooms only plan to strengthen the school's sustainability.

Each classroom is orientated to ensure exposure to cooling breezes to reduce the reliance on air-conditioning. The south facing windows allow for cooling sea breezes to circulate though each classroom. The high ceilings and operable windows in the first floor classrooms will allow hot air to escape creating a cooler environment. The size and placement of openings have been designed to use the venturi effect.

The building is orientated to the north with a generous amount of glazing, shaded correctly to ensure no excess heat gain in summer. To the east and west, glazing has been kept to a minimum while still offering views to the lake and bush.



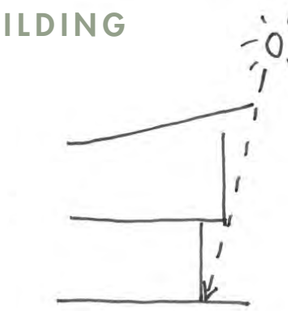
HIGH LEVEL CEILINGS & OPENINGS TO ALLOW HOT AIR OUT



DUAL ASPECT CLASSROOMS FOR NATURAL VENTILATION

NEW SHAMAI BUILDING

VIEWS TO TREES

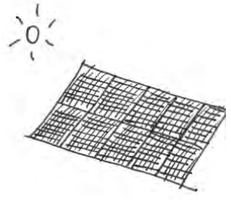


SHADING TO NORTHERN WINDOWS

CURRENT SUSTAINABILITY PRACTICES AT THE MONTESSORI SCHOOL

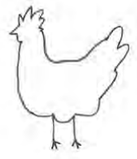
BUSH MANAGEMENT & REHABILITATION

RAINWATER HARVESTING



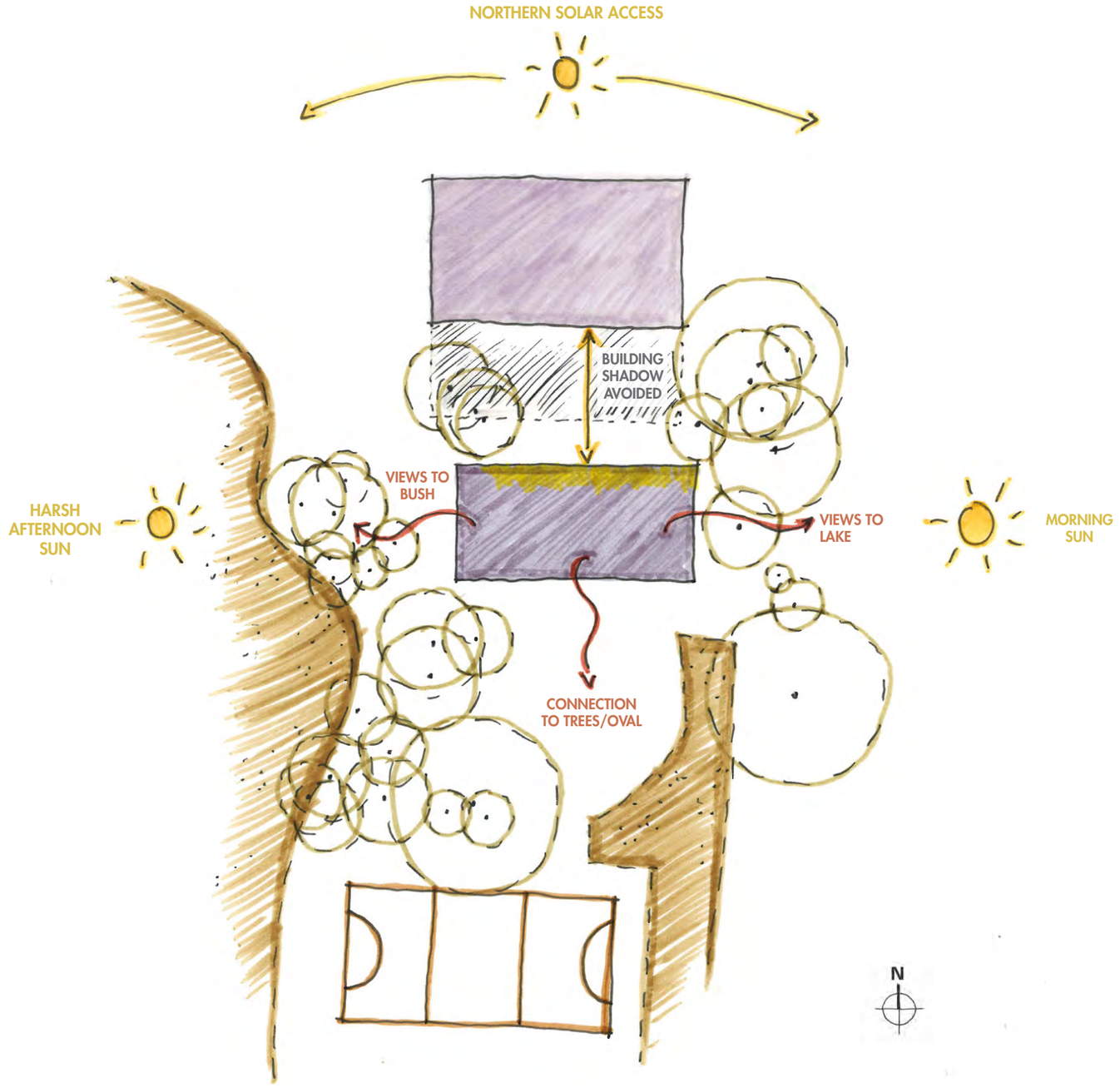
SOLAR

PRODUCTIVE GARDENS



CHICKENS

5. SUSTAINABILITY



DESIGN REVIEW RESPONSE

5. SUSTAINABILITY

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 5 - SUSTAINABILITY

Good design optimises the sustainability of the built environment, delivering positive environmental, social and economic outcomes.

Comments:

- The retention of the existing rainwater tank is noted, however consider other rainwater harvesting opportunities and use, for example for flushing toilets or on landscape.
- Further explain the sustainability initiatives for this project, including the location for any solar panels and if struts will be used for panels to be angled to the north

Recommendation 5:

-Provide further details on sustainability initiatives, including use of rainwater and solar.

SOLAR

As noted previously, a new 30kW solar panel system has been installed in January 2023 on an existing building. This system has been designed with the intention to also service the proposed classrooms and has the capacity to do so. Therefore additional solar does not need to be included in this proposal.

If the need arises, an additional 9kW system can be installed on the verandah roof facing north and a further 30-40kw system can fit on the north facing roof of the existing lower secondary building.

New solar panels installed in January 2023

RAINWATER

The current water collected in the tank located near the proposed building currently services all ablution facilities and is not used to its full capacity.

From the advice provided by the school and also the hydraulic consultant, the existing water tank has the capacity to also be connected to the new building and service the proposed toilets and science lab sinks.

In the future, with the construction of a new administration, library and additional classrooms, an additional water tank will need to be provided but at this stage, the current capacity is adequate. The school uses very minimal reticulation and the proposed landscaping will incorporate only native, waterwise plants, therefore we are not proposing an additional water tank.

DA REVISION

6. AMENITY & 7. LEGIBILITY

Good design optimises internal and external amenity for occupants, visitors and neighbours, contributing to living and working environments that are comfortable and productive.

Good design results in buildings and places that are legible, with clear connections and memorable elements to help people find their way around.

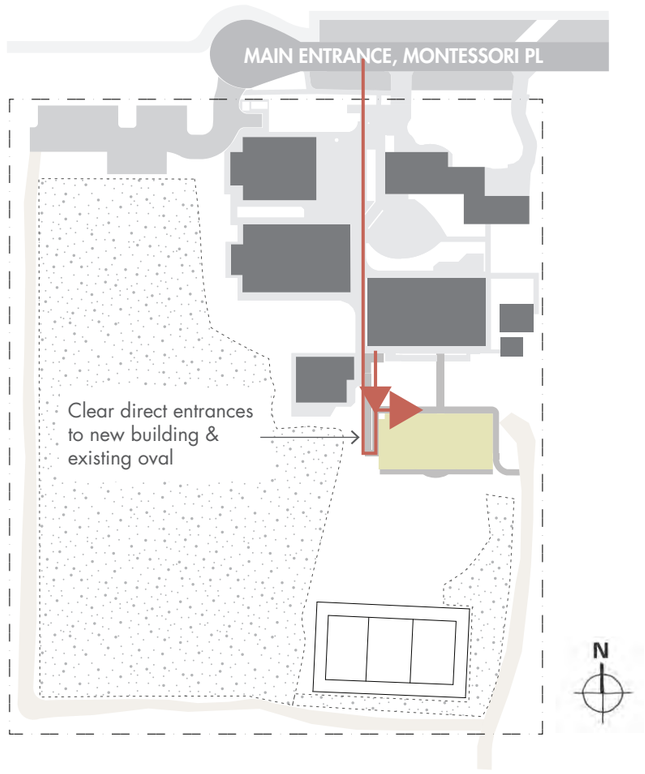
The proposed Shamai Building is universally accessible and will provide a high level of amenity to the Montessori School campus, offering more senior students an opportunity to be part of its unique community.

Strong connections to the existing school buildings were a core driver in the design development. The walkway and ramps to the west provide an accessible path to both levels floor, directly off the school's main pedestrian axis. Accessibility has been prioritised in the design with stairs offered as a secondary access and fire escape.

The entrance to the new building is clearly legible and access routes are well connected to the surrounding buildings.

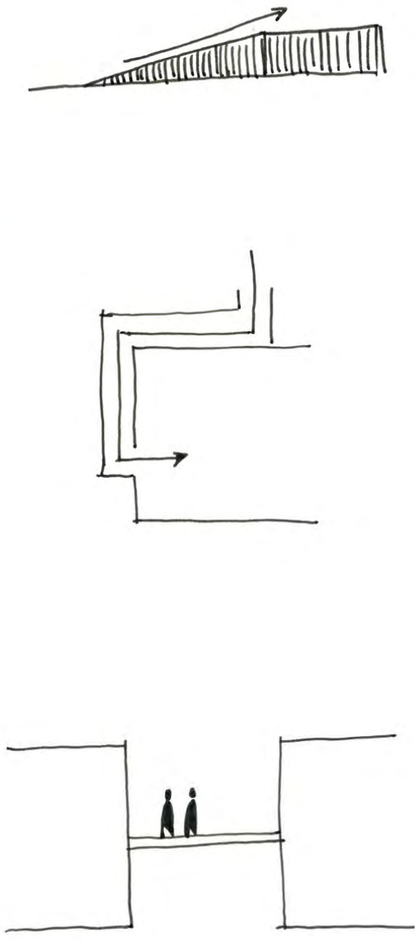
The Montessori School believes in learning by other students and mixed level education. For this reason, it was important to locate the new building adjacent to an existing one. Students can interact and learn from other age groups. The central courtyard offers a place for the two ages groups, lower and upper secondary to mix.

Additional bike parking will be offered for students, teachers, parents and staff. The school is well connected to a bike network and riding to school is encouraged by the school.



FULLY ACCESSIBLE AND CLEARLY LEGIBLE PATHS TO THE PROPOSED BUILDING

DA REVISION



DA REVISION

DESIGN REVIEW RESPONSE

7. LEGIBILITY

RESPONSE TO DESIGN REVIEW PANEL PRINCIPLE 7 - LEGIBILITY

Good design results in buildings and places that are legible, with clear connections and easily identifiable elements to help people find their way around.

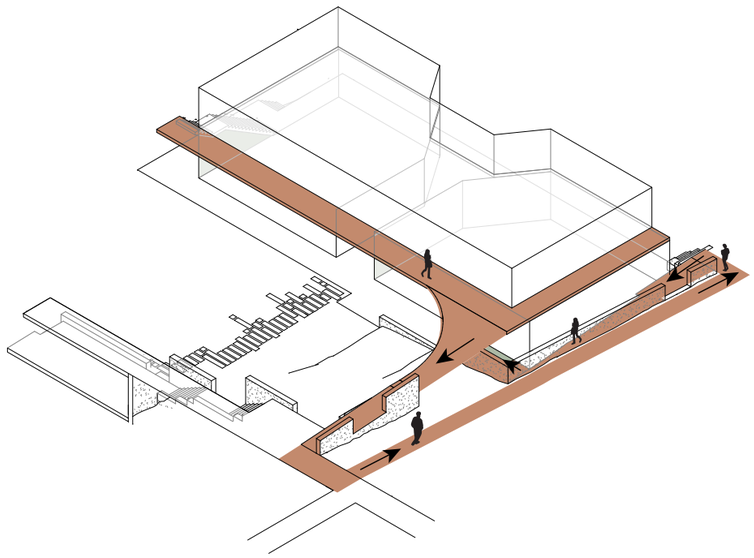
Comments:

- Provide a rationale and diagram to clarify movement within the 2-storey building given there is no internal stair.
- Accessibility and legibility of pedestrian movement between the existing buildings and spaces and the new building is unclear, together with adherence to fire escape standards. Provide site sections, particularly north-south, showing levels and proposed retaining walls to clarify new universal access connections between the existing buildings and proposed building.

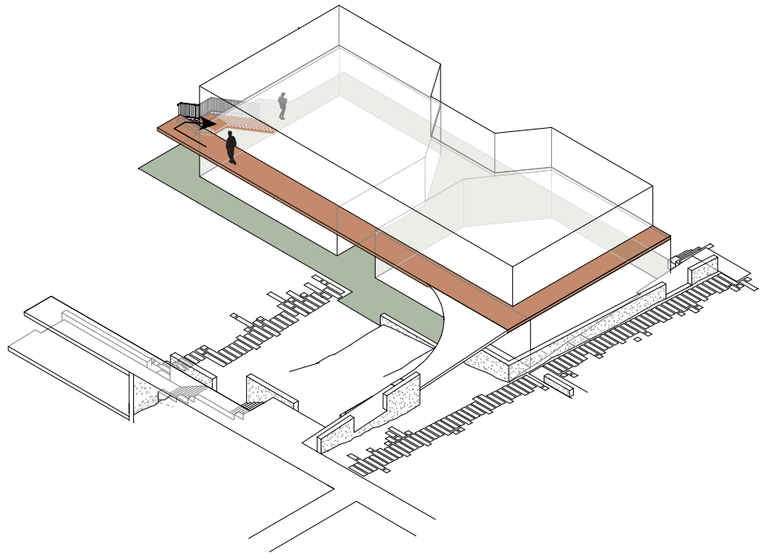
Recommendation 7:
-Clarify the legibility and universal accessibility of routes to the proposed building and within the building.

CIRCULATION PATHS

Upon reviewing the design after receiving feedback from the Design Review Panel, adjustments have been made to the circulation routes within and to the proposed building. The bridge has been removed and instead a more direct ramp to the first floor is located adjacent to the down ramp. This allows for a continued path of travel between floors and has improved the legibility. The following five diagrams explain the movement within and to the building. Additional site sections have also been provided as part of the development application to clarify the levels and connections between the buildings.



ACCESSIBLE PATH— PRIMARY & MOST DIRECT ACCESS ROUTE

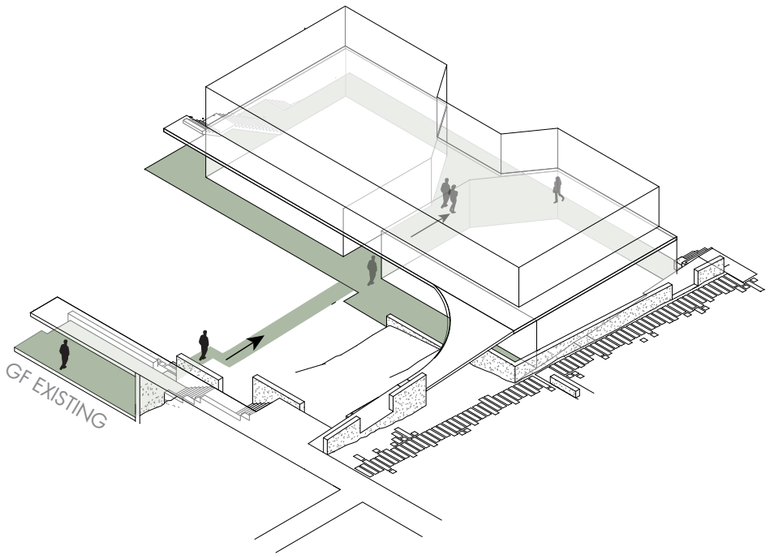


NON-ACCESSIBLE PATH— SECONDARY ROUTE

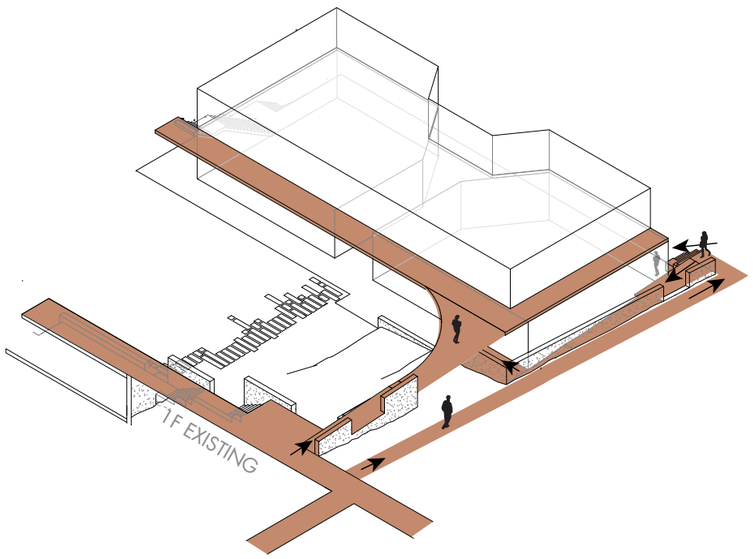
MOVEMENT **WITHIN** PROPOSED BUILDING

DESIGN REVIEW RESPONSE

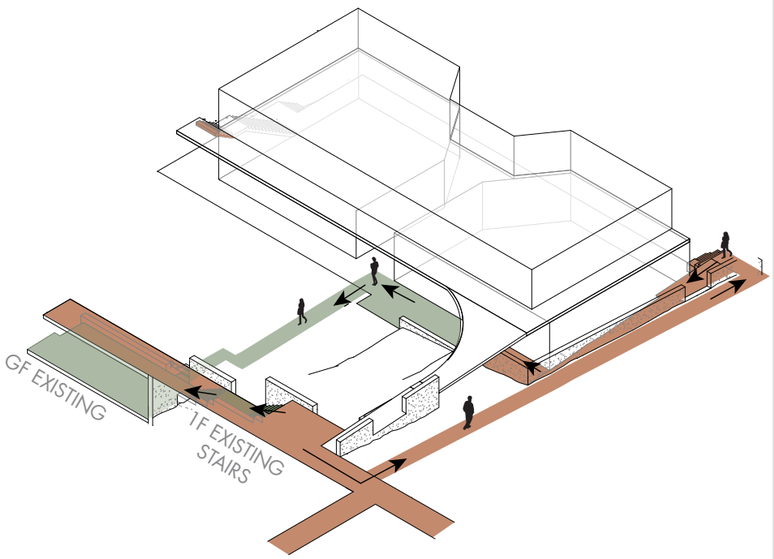
7. LEGIBILITY



LOWER FLOOR TO LOWER FLOOR
ONLY ACCESSIBLE PATHS



UPPER FLOOR TO UPPER FLOOR
ONLY ACCESSIBLE PATHS



UPPER FLOOR TO LOWER FLOOR
ACCESSIBLE & NON-ACCESSIBLE PATHS

MOVEMENT **BETWEEN** PROPOSED & EXISTING BUILDINGS

DA REVISION

SPP7 DESIGN PRINCIPLES & SITE ANALYSIS

8. SAFETY

Good design optimises safety and security, minimising the risk of personal harm and supporting safe behaviour and use.

Through design consultations with the school, safety & surveillance became a major influence on the design outcome. The school wanted to ensure there was adequate surveillance to the Student Common Room and all four classrooms needed to be viewed from the adjacent building. The staff room also needed to be on the north side to allow staff to overlook the courtyard for added surveillance. These addressed priorities can be seen in the design outcome.

The primary circulation paths including the ramp and raised walkway will be lit after hours for improved safety and security. No vehicle access except emergency vehicles provides a safe pedestrian area for the students.

9. COMMUNITY

Good design responds to local community needs as well as the wider social context, providing buildings and spaces that support a diverse range of people and facilitate social interaction.

This Shamai Building will provide an increase in high school placements for the Kingsley and surrounding communities. The International Baccalaureate (IB) course can be expanded and offered to more senior school students.

The Montessori education system is built on community. The new building will facilitate school functions as well as the ability for other community groups to use the space. The upstairs classrooms have been designed to double as a function room. Classroom 3 offers a large open flexible area with views to the lake and kitchen facilities nearby. As the oldest Montessori school, they regularly hold meetings and conferences to allow the community to learn about the Montessori education style. Furthermore, part of the brief was to provide an area for assembles where the school community could gather on the grass.

The school has a number of community programs in place helping the wider community but also establishing a close knit group within the school. Fortnightly, the upper secondary students will cook for the whole group and all students will eat together. For this purpose, a kitchen has been provided in the Student Common Room.

DESIGN REVIEW RESPONSE

10. AESTHETICS

RESPONSE TO DESIGN REVIEW PANEL
PRINCIPLE 10 - AESTHETICS

Good design is the product of a skilled, judicious design process that results in attractive and inviting buildings and places that engage the senses.

Comments:

- Given the building's purpose is the education of children, a suggestion is for a greater 'playfulness' on the facades, such as through the judicious use of colour.

Recommendation 10:
-Consider greater 'playfulness' in the aesthetic.

ADDING 'PLAYFULNESS'

Taking on the feedback from the panel we spent some time researching the idea of playful architecture and incorporating it into our design. The Royal Institute of British Architects (RIBA) publication 'Happy by Design' served as a helpful general handbook to rediscover some basics principles.

Playful spaces typically use levels, materials, heights, and access routes that suggest but do not dictate how they should be used. They often link spaces either physically or visually and direct participants towards other spaces of exploration. We looked to the work of Assemble Architects in the UK renowned for their use of play, as well as other architects and designers as illustrated on the following page.

What we have attempted to do is allow for fun and spontaneity using sensory and cognitive mediums to encourage experiential and explorative spaces. What we haven't done is rely on simplistic notions of fun such as bright colours or gaudy symbols.

There are five main ways we have attempted to introduce playfulness, these are: levels, geometry, routes, materials, and edges.

Levels: The site has an opportunity to create dynamic interactions as the differing levels allow for unexpected physical and visual connections. A student might see their peer through the break in the ramp wall on the other side, or nestled under the curved overhang—a spontaneous interaction. Using differing levels of steps and seating in the walkway to the oval, and the slope in the courtyard encourages exploration and improvisation as it isn't entirely clear whether these are seats, steps, or even play equipment.

Geometry: The soaring curve has a cadence and pattern to it as you walk along the ramp and a softening to the courtyard offering a less austere and more inviting atmosphere. Linked to levels the unusual geometry offers different areas for prospect and refuge, quite play and group fun.

Routes: There is a slight 'choose-your-own-adventure' to the way-finding of this design. This is not an accident and allows for a sense of ownership. While there is a clear accessible route the pathways lead through, or to, nature spaces, giving prompts to students when selecting their space for breakout times or outdoor learning.

Materials: The interstitial spaces use a variety of soft and hard landscaping with tactile surfaces. This variety in something as simple as a walkway will create sensory differences along a path of travel. Brick, rammed earth, concrete, grass, ground cover.

Edges: The edges or boundaries of built form are intentionally blurred to encourage a variety of activity and allow for pause and pace. The disintegrated edge to the bushland invites people in, and slows movement, whereas the lower ramp is smoother with larger openings for a more quick-paced and high-energy atmosphere.

STAWELL STEPS

NBMW
Stawell, VIC

- Tactile brickwork
- Multi-level
- Range of activity and group sizes

FUJI KINDERGARTEN

TEZUKA ARCHITECTS
Mutsu, JAPAN

- Interaction through levels
- Routes through nature
- Multiple pathways

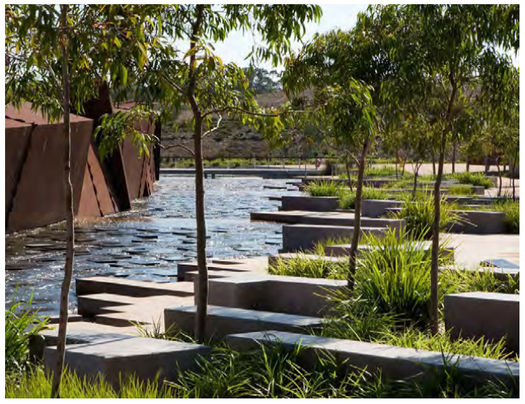
WAVE FIELD

MAYA LIN
Michigan, US

- Soft surfaces
- Refuge and prospect
- Tactility

THE AUSTRALIAN GARDEN

TCL
Cranbourne VIC



- Blurred edges
- Interspersed with native species
- Surface texture changes

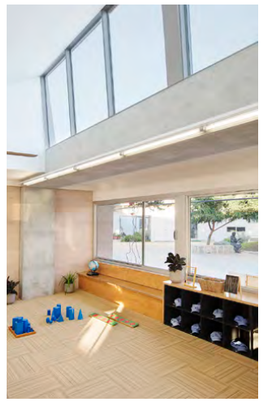
DA REVISION

PERTH WALDORF SCHOOL

Bent Architects
Bibra Lake, WA

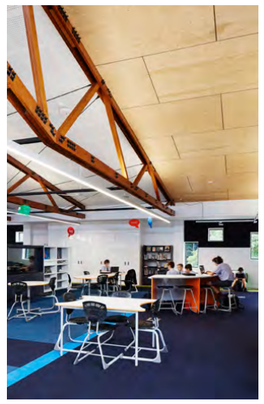
BEEHIVE MONTESSORI SCHOOL

Edho Architecture
Mosman Park, WA



AMBROSE TREACY MIDDLE SCHOOL

Fulton Trotter Architects
Brisbane, QLD



CABOOLTURE MONTESSORI SCHOOL

Towill Design Group
Caboolture QLD

3D
VISUALISATION

VIEW TO NORTH

DA REVISION

3D
VISUALISATION

VIEW TO SOUTH

DA REVISION

DA REVISION

FEE PROPOSAL P1600

PROJECT NAME	The Montessori School Kingsley – Proposed New Building Traffic Engineering Services
CLIENT	The Montessori School Kingsley c/- Mt Eyk Architects
PREPARED BY	Paul Nguyen
DATE	29th November 2022
SCOPE	The Montessori School Kingsley are proposing to establish a new two-storey classroom block at their existing campus at 18 Montessori Place in Kingsley. No additional car parking is proposed at this stage but it is proposed to add 30 additional bicycle parking spaces. The student population is projected to increase from 191 students to between 220 and 230 students. No additional staff are proposed. The City of Joondalup has requested a Transport Impact Assessment to support the development. As the development will generate less than 100 additional vehicle trips during the peak hours, a Transport Impact Statement (TIS) will be the standard of assessment. The TIS will be prepared in accordance with the WAPC *Transport Impact Assessment Guidelines* and will include the following information: • Details of the proposed development. • Vehicle access and parking. • Provision for service vehicles. • Daily traffic volumes and vehicle types. • Traffic management on the frontage streets. • Public transport access. • Pedestrian access. • Cycle access. • Site specific and safety issues.
DELIVERABLE	The deliverable will be a Transport Impact Statement report for submission with the application.

Transport Impact Statement

Project:	The Montessori School Kingsley Proposed New Building 18 Montessori Place, Kingsley
Client:	The Montessori School Kingsley c/- Mt Eyk Architects
Author:	Paul Nguyen
Date:	23rd January 2023
Shawmac Document #:	2212006-TIA-001

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Disclaimer

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1. Introduction

1.1. Proponent

The Montessori School Kingsley are proposing to establish a new two-storey classroom block at their existing campus in Kingsley. Shawmac has been engaged by Mt Eyk Architects to prepare a Transport Impact Statement (TIS) for the proposed increase in student capacity resulting from the project.

1.2. Scope

This TIS has been prepared in accordance with WAPC *Transport Impact Assessment Guidelines* (TIA guidelines).

According to the WAPC guidelines, the key objectives of a TIS are to:

- assess the proposed internal transport networks with respect to accessibility, circulation and safety for all modes, that is, vehicles, public transport, pedestrians and cyclists;
- assess the level of transport integration between the development and the surrounding land uses;
- determine the impacts of the traffic generated by the development on the surrounding land uses; and
- determine the impacts of the traffic generated by the development on the surrounding transport networks.

1.3. Site Location

The site address is 18 Montessori Place, Kingsley and the local authority is the City of Joondalup. The general site location is shown in **Figure 1**.

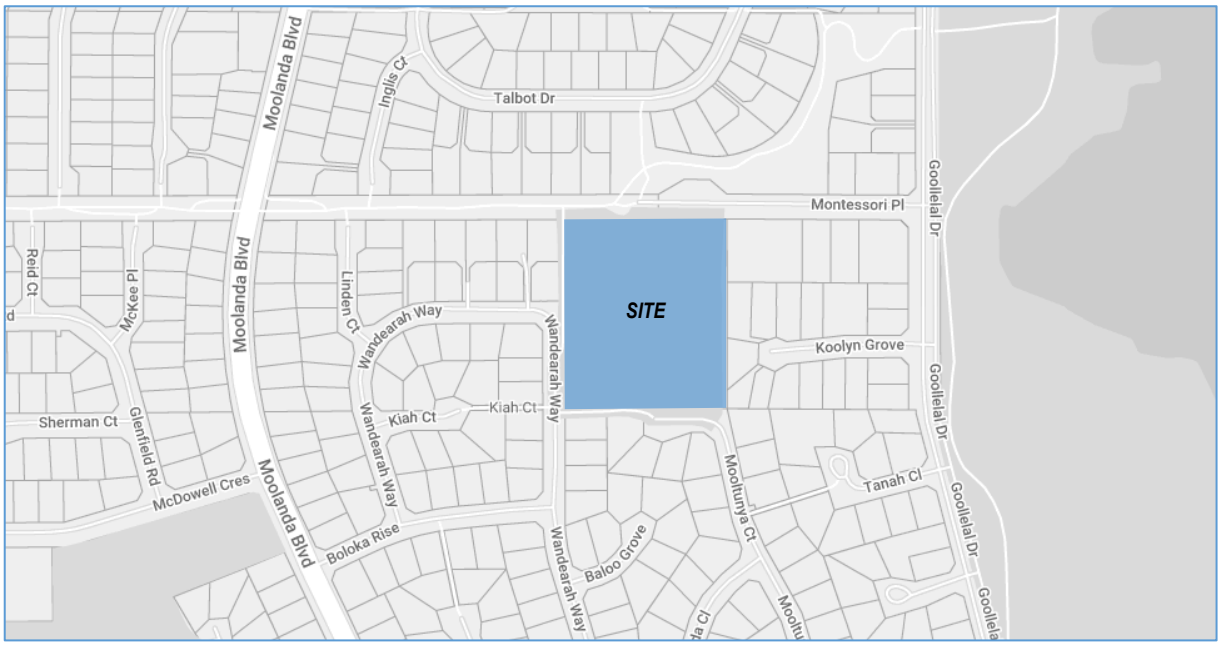


Figure 1: General Site Location

An aerial view of the school site is shown in **Figure 2**.

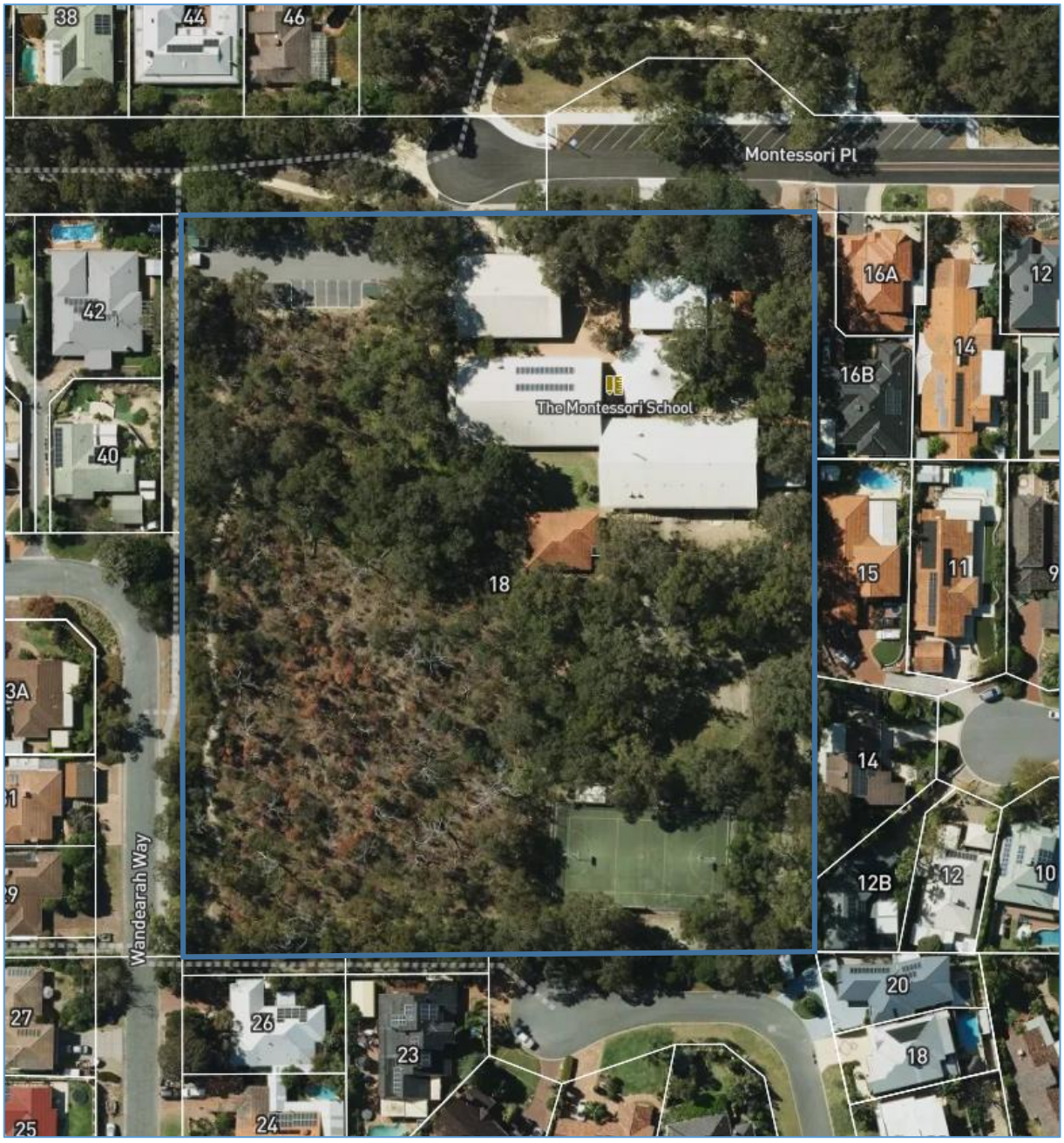


Figure 2: Existing School Site (October 2022)

2. Proposed Development

It is proposed to construct a new two-storey building classrooms, a science lab, performance space and supporting amenities (staff room, plant rooms, toilets etc.).

The student population is projected to increase from 191 students to between 220 and 230 students. No additional staff are expected.

No additional car parking is proposed.

The location of the proposed building is shown in **Figure 3**.

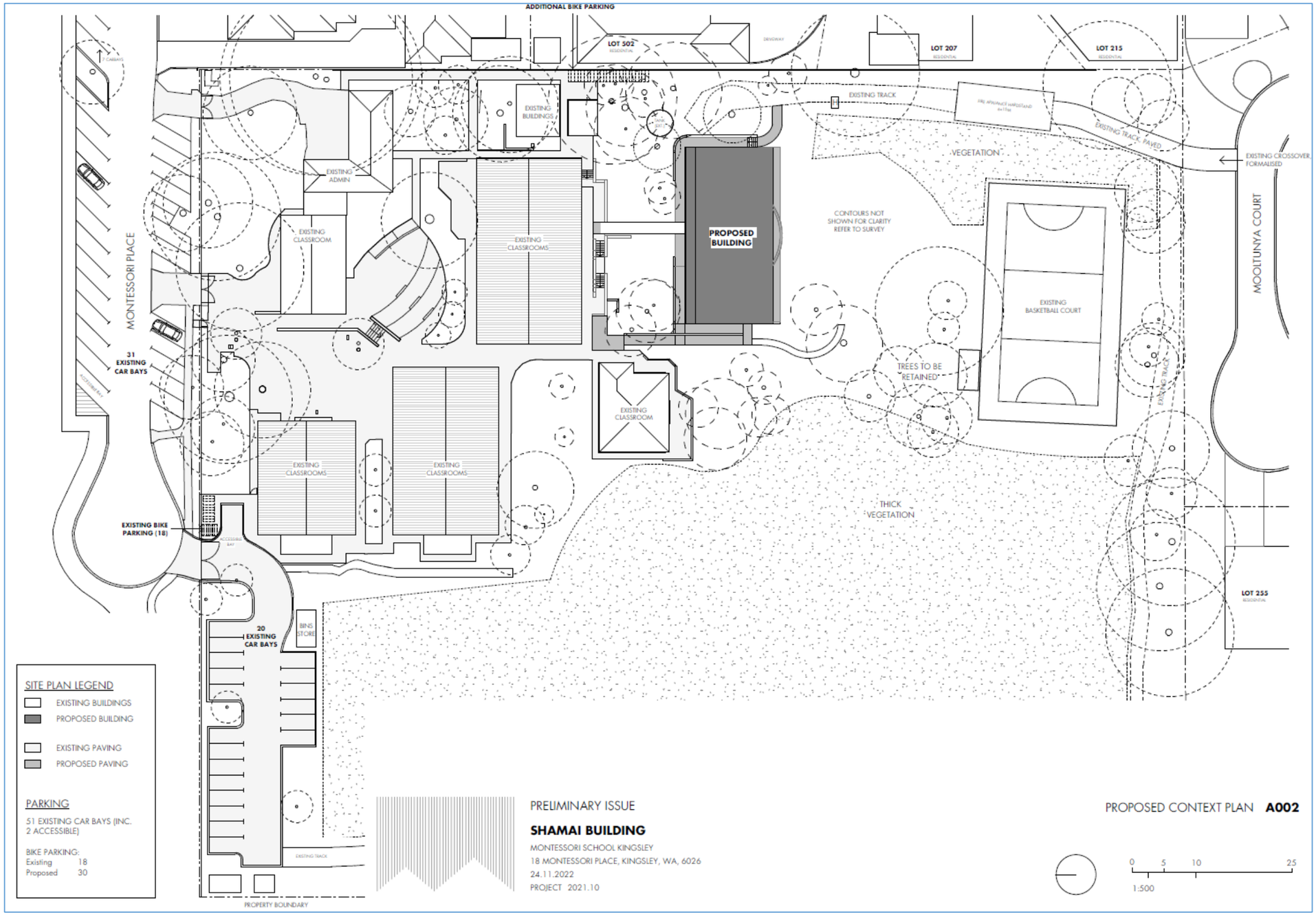


Figure 3: Proposed Building Location

3. Traffic Management on Frontage Streets

3.1. Road Network

3.1.1. Layout and Hierarchy

The current layout and hierarchy of the surrounding road network according to Main Roads WA's *Road Information Mapping System* is shown in **Figure 4**.

Figure 4: Road Layout and Hierarchy

3.1.2. Speed Limits

The current speed limits are shown in **Figure 5**. The 40km/h school zone speed limit applies on the surrounding roads during the school peak periods on school days (7:30-9am and 2:30-4pm). These are shown below in black.

Figure 5: Speed Limits

4. Vehicle Access and Parking

4.1. Access

Vehicle access to the on-site car park is currently via a single crossover at the end Montessori Place which is a cul-de-sac as shown in **Figure 6**.

No changes to the existing access arrangement are proposed.

Figure 6: Access Arrangement

4.2. Proposed Parking

There are currently 20 car parking bays on the school site and a further 31 street parking bays along Montessori Place. The total car parking provision is therefore 51 bays. No additional car parking is proposed as part of the development.

The existing parking layout is shown in **Figure 7**.

Figure 7: Existing Parking

4.3. Parking Requirements – City of Joondalup

The City's parking requirements are outlined in the City's *Private Community Purposes Zone Local Planning Policy*. The requirement for primary and secondary schools is 2 bays per classroom but not less than 10.

The proposed building will increase the total number of classrooms from 10 to 14. On this basis, the development requires a minimum of 28 car parking bays. The existing 51 bays satisfies the City's requirements and is therefore considered to be adequate.

4.4. Site Visit

A site visit was undertaken in October 2022 to review the current traffic and parking scenario during the afternoon peak period which is typically the worst period as parents and guardians will often arrive before the siren and wait to pick up their children.

During the site visit traffic flowed well and drivers appeared to follow the school parking procedures as listed on the school website. Only minor queueing was observed while drivers were waiting for another car to leave a car bay. No drivers were observed blocking the traffic lanes. Many drivers were observed to park along nearby streets and walk to and from the school to reduce the demand on the bays along Montessori Place.

The overall observation is that the available parking is used efficiently and that the additional parking demand generated by the increase in students can be accommodated by the existing available bays without major impact.

5. Traffic Generation

5.1. Traffic Generation

The WAPC Guidelines recommend school traffic generation is based upon data from the PARTS surveys that indicate around 65% to 70% of primary school children are driven to school, with an average occupancy of around 1.4 to 1.5 children per car. This equates to approximately 0.5 inbound vehicle trips and 0.5 outbound vehicle trips per child during each peak hour. For secondary schools, the PARTS data indicates that the proportion driven to school is generally slightly lower but it is suggested that the primary school rate is used for all schools.

As the school includes both primary and secondary age students, there would be a higher than typical proportion of families with multiple siblings and so the average car occupancy is likely to be higher overall. Regardless, the standard trip generation rate for standalone schools has been applied as a worst-case scenario.

The trip generation potential of the increased student population is summarised in **Table 1**.

Table 1: Traffic Generation

Item	Quantum
Students	39
Peak Hour Traffic Generation Rate	1 trip per student (0.5 in / 0.5 out)
Peak Hour Trips	40 (20 in / 20 out)

As shown, the proposed expansion is predicted to generate 40 additional vehicle movements during each peak hour (20 inbound and 20 outbound).

According to the WAPC TIA guidelines, an increase of between 10 to 100 peak hour vehicles is considered to have a low to moderate impact and is generally deemed acceptable without requiring detailed capacity analysis. The estimated 40 vehicles per hour is at the lower end of this range and so the development traffic is considered to have a low impact and can be accommodated within the existing capacity of the road network.

6. Pedestrian and Cyclist Demand and Facilities Assessment

6.1. Path Network

As shown in **Figure 8**, there are existing paths along the key roads in the surrounding area as well as along reserves to link the paths between the key roads. The only roads with no paths are short access roads where traffic volumes and speeds would be low and pedestrians could safely walk on the road or verge.

Figure 8: Existing Path Network

The path network has been established for a long time and is considered to be adequate. The proposed development does not warrant the provision of additional path or cycle infrastructure. Internally, the existing paths, walkways and ramps will be extended to connect to the proposed building.

6.2. Bicycle Parking

There are currently 18 bicycle parking spaces and it is proposed to install approximately 52 additional spaces in an effort to encourage cycling to and from school and reduce the demand on motor vehicles.

7. Public Transport Accessibility

Transperth Bus Route 447 currently operates in the area between Whitfords Station and Warwick Station. The closest stops are located on Moolanda Boulevard north of the pedestrian bridge, approximately 350m walking distance from the school along existing paths.

The existing services are considered to be adequate to meet the likely demand.

8. Site Specific Issues and Safety Issues

8.1. Crash History

The crash history of the adjacent road network was obtained from the MRWA Reporting Centre. The search included Montessori Place, Talbot Drive, Mooltunya Court, Wandearah Way and the length of Goollelal Drive between Astley Place and Tanah Close.

A summary of the recorded incidents over the five-year period ending December 2021 is shown in **Figure 9**.

Figure 9: Crash History January 2017 to December 2021

As shown, the crash history is low and does not indicate any major safety issues on the adjacent road network. The proposed new building will generate a low volume of additional traffic and there is no indication that the proposed development would increase the risk of crashes unacceptably.

9. Conclusion

A Transport Impact Assessment for the proposed new building at The Montessori School Kingsley concluded the following:

- The proposed development is estimated to generate a total of 40 new vehicle movements during each of the school peak hours. This volume of traffic is low and can be accommodated within the existing capacity of the road network with no major impact.
- Based on the total of 14 classrooms, 28 bays are required satisfy the City's Local Planning Policy requirements. The existing 51 bays satisfies the City's requirements and is therefore considered to be adequate.
- It is proposed to install 52 additional bicycle spaces to provide a total of 70 spaces to encourage students and staff to cycle to and from school.
- A site visit was undertaken during the afternoon school peak period and it was observed that traffic flowed well and queuing was minimal. The overall impression is that the existing parking provision was used efficiently and that the additional parking demand generated by the increase in students can be accommodated by the existing available bays without major impact
- The existing path network is considered to be adequate and the proposed development does not warrant the provision of additional path or cycle infrastructure. Internally, the existing paths, walkways and ramps will be extended to connect to the proposed building.
- The existing public transport services are considered to be adequate.
- The crash history of the adjacent road network is low and does not indicate any major safety issues on the adjacent road network. The proposed new building will generate a low volume of additional traffic and there is no indication that the proposed development would increase the risk of crashes unacceptably.

Your Ref: DA23/0103

Marshall Farrell

City of Joondalup

marshall.farrell@joondalup.wa.gov.au

Dear Mr Farrell

RE: VULNERABLE LAND USE – HOUSE NUMBER 18 MONTESSORI PLACE, KINGSLEY – NEW TWO STOREY BUILDING - DEVELOPMENT APPLICATION

I refer to the Department Fire and Emergency Services comments forwarded on 30 March 2023, regarding the above development subdivision.

Please be aware that the Guideline provide:

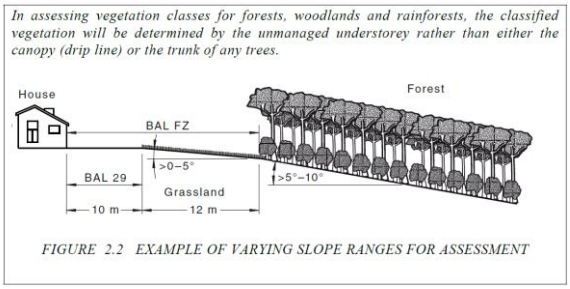
> "DFES officers are not required to be accredited under the Western Australian Bushfire Accreditation Framework as outlined in section 6.12 of these Guidelines to provide advice, technical evidence or representation."

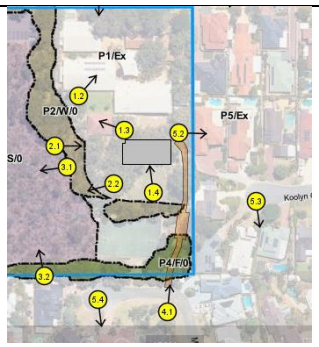
As a BPAD practitioner Level three. Section 6.12, I have to have a tested knowledge and expertise to have my accreditation. I have been audited (December2022) to apply correct interpretation of AS3959 and the Guidelines v1.4.

Whilst DFES is free to express its opinion, I am obligated to follow the rules, including the correct procedures for determining the risk and the required risk treatments.

Assessment	Action
Evidence to support the exclusion of Plot 1 and 5 in accordance with AS3959 is required. Specifically, the BMP has excluded Plot 1 and 5 under 2.2.3.2 (e) - non vegetated areas. It is noted that the table on page 24 indicates that the building would have a determined BAL of BAL-FZ, indicating that these areas should not be excluded for a pre-development assessment. • Photos 1.1-1.3 detail trees surrounding existing buildings, and grassland to the north and south of the development site. These trees appear to overhang existing buildings, which does not comply with APZ standards. • Photo 1.4 is noted on the vegetation classification map as showing the development site, however details only the building to the north of the	Plots 1 and 5 are correctly classified for the following reasons and the mapping is consistent. The APZ standard only applies to classified vegetation under s.2.3.2 in AS3959. The Guidelines at section 2 state they are not retrospective. The assessment of the bushfire risk is measured at completion, after APZ's have been established. For further clarification photos 1.1 – 1.3 have been amended in the BMP to replace s.2.2.3.2 (e) with s.2.2.3.2 (e) and (f). The referred trees are within the meaning of a cultivated/managed/garden. This simply provides clarification and makes no change to the building ratings.

development site (while the vegetation classification map details that trees are located in this area). This inconsistency must be addressed as it is critical to establishing the BAL rating of the development site. • Photos 5.1, 5.3 and 5.4 clearly detail vegetated areas surrounding the subject site while the plot has been excluded as non-vegetated. Further evidence is required to clearly detail the vegetation surrounding the proposed development site and excluded areas. Alternatively, the vegetation should be classified as per AS3959, or the resultant BAL ratings may be inaccurate.	The Vegetation Map does not show any vegetation in this area? The target of Photo 1.4, as mentioned on the photo is the building and it is numbered relating to the target Plot. There is no inconsistency. As a comment on all photos, the position from which the photo was taken, and where it appears as georeferenced (yellow dot) is not necessarily the target. Often it may be through foreground vegetation of a different type identified by another photo ie Photo 5.2. The arrow illustrates the direction of the view, and may also exceed the plot. Photos 5.1, 5.3 and 5.4 are medium density residential lots and excluded s.2.2.3.2 (e) and f). To classify these as a threat would be to classify all of urban Perth. The BMP has been amended to s.2.2.3.2 (e) and (f)
Vegetation plots 2 cannot be substantiated as Class B Woodland with the limited information and photographic evidence available. Photo 2.2 appears to point in the wrong direction, and the aerial imagery for areas surrounding Photo 2.1 appears to show areas of canopy cover as greater than 30%. The BMP should detail specifically how the Class B Woodland classification was derived as opposed to Class A Forest. If unsubstantiated, the vegetation classification should be revised to consider the vegetation as per AS3959, or the resultant BAL ratings may be inaccurate.	DFES have been advised on numerous occasions and affirmed by SAT, that AS3959: 2018 is a National Standard to be practiced by National convention (not DFES) and is applied by section 4 of the Guidelines. There is ambiguity in the description of Woodland that is resolved by the purpose. At table B3 in AS3959:2018, the distinction between Forest and Woodland is the understorey. Both Woodland and Forest use the same canopy density for determining the radiant heat bushfire risk (canopy coverage % between the two is therefore irrelevant). It is the absence of an understorey, ladder of fuels that distinguish Woodland from Forest. Photos in the Plot 2 series show an absence of understorey fuels but includes grasses longer than 100 mm. Photos in the Plot 1 series show trees over managed surfaces, grasses less than 100 mm or surrounded by paving. The BMP classification is correct: the APZ that has been identified (see Figure EX 1) has been determined to forest 21 m (beyond which no control of vegetation is required) and between 21 m and 14 m from the building the understory is to be restricted and no closer than 14 m. The

	21 m serves as a warning not to allow forest to establish within 14 m of the building.
Vegetation plot 3 cannot be substantiated as Class D Scrub with the limited information and photographic evidence available. Plot 3 is noted as a rehabilitation area, with the BMP summary confirming that the plot is likely to return to a Class B Woodland classification if the rehabilitation is continued. It is unclear why this plot has been classified as Class D Scrub and not Class B Woodland or Class A Forest given the above statement. Further photo 3.3 details tall trees, with no height sticks provided to validate the maximum heights noted in the vegetation description. The BMP should detail specifically how the Class D Scrub classification was derived as opposed to Class B Woodland or Class A Forest. If unsubstantiated, the vegetation classification should be revised to consider the vegetation at maturity as per AS3959, or the resultant BAL ratings may be inaccurate.	The correct interpretation of bushfire behaviour is the 'predominant' vegetation, it is not the worst example within the vegetation that determines the classification. It is accepted national practice that variations of up to 10%, within a ha, do not determine the vegetation type (following the description for grassland). Plot 3 has been determined as Scrub. The photos show it as predominantly trees up to 6 m with occasional trees exceeding 6 m (less than 10%). This is a correct classification for the building in the present circumstance. As identified above, the measure for compliance is at completion. The BMP is clear that for an abundance of caution, the APZ for the buildings (at completion) has been determined from forest.
The following errors have been noted in the BMP • Measurements in figure 3b do not appear to accurately detail separation distances from all plots. • Photos 2.2, 5.2 and 5.3 do not appear to point in the direction indicated on figure 3a. • No separation is provided between Plot 2 and Plot 7. It is unclear why these has been separated into two plots. • Figure Ex1 details incorrect APZ distances in the legend due to the multiple slopes present in the site requiring different APZ distances.	Measurements in figure 3b do not appear to accurately detail separation distances from all plots. The measurements in figure 3b follow the method Figure 2.2 in AS3959 and are correct.  FIGURE 2.2 EXAMPLE OF VARYING SLOPE RANGES FOR ASSESSMENT *• Photos 2.2, 5.2 and 5.3 do not appear to point in the direction indicated on figure 3a.* Photo 2.2 points to Woodland and it is Woodland? Photo 5.2 and 5.3 point to urban development which is the topic on the plot as excluded? Photo 5.2 is looking through perimeter trees (single row excluded) but the target is the buildings beyond. The notation on the photo said this.

	 The BMP is correct. • *No separation is provided between Plot 2 and Plot 7. It is unclear why these has been separated into two plots. Is it separated or not*? The plots have been illustrated as separate based upon the property boundary and potential control. Plot 7 is outside the site and separated by the property boundary. Figure 3b draws dimensions to the plots outside of control or retained within site. It draws to Plot 7 at the boundary. Figures 3a and 3b have been amended, for clarification, to show the vegetation on top of the site boundary and distinguish pre and post development vegetation, by a heading on Figure 3b. It does not affect the BMP outcomes. • *Figure Ex1 details incorrect APZ distances in the legend due to the multiple slopes present in the site requiring different APZ distances*. The correct approach is the slope of vegetation as it faces the building elevation, and it is the slope under the vegetation. The vegetation west of the building is upslope relative to the building; requiring an APZ of 21 m to Forest and 14 m for Woodland. The land south is terraced and the slope under the vegetation is flat - APZ of 21 m to Forest and 14 m for Woodland. The APZ as drawn, and the BMP are correct.
A1.1 & A2.1 – not demonstrated The BAL ratings cannot be validated for the reasons outlined in the above table. It is noted that the APZ distances required based on the current classifications do not fit within the site boundary and relies on exclusions outside of the development site which have not been validated.	For the reasons identified above the BMP is correct. There is no basis for the DFES comment that it disputes the arrangement, because DFES is wrong regarding the classification. The APZ could be drawn at 14 m as required to Woodland to achieve BAL 29. There is no expressed intent for the adjacent vegetation to be

References to the APZ for the building must be updated to remove ambiguity. Both a 14m APZ and a 21m APZ are indicated in several places within the BMP, with the BMP indicating that "within 14 m of the building vegetation must be of an APZ standard (as described by The Guidelines V1.4, Schedule 1: Standards for Asset Protection Zones); beyond 14 m of the proposed building Woodland can be established/retained and beyond 21 m of the proposed building there is no restriction upon vegetation". DFES disputes this statement – if vegetation with a Class A Forest classification (which features in the site already) was 21m from the building, then the APZ would need to be 21m. APZs are calculated based on the BAL rating associated with each plot of classified vegetation, not necessarily just the closest vegetation. The BMP should be updated to make clear, unambiguous statements in relation to vegetation on site and APZs.	developed as forest and it would have significant implications on other buildings if it was. The APZ shows an area to be maintained as Woodland up to 14 m, in the event the vegetation should change in the future. It serves more as a warning not to allow forest to establish within 14 m of the building. If the BMP was to change to strictly follow the methodology of AS3959, then the APZ would be drawn only to 14 m. The BMP is therefore more conservative than strictly required by AS3959. No change to the BMP is warranted.
A3.2b – not demonstrated The BMP notes that an EAW is not required, however will be provided for vehicle access to the proposed new building (as detailed on Figure ex 1). The proposed EAW does not appear to provide a 6m trafficable surface, with an additional 6m horizontal clearance, or clarification regarding the need for a 4.5m vertical clearance (given the location of trees surrounding the EAW). Further, the EAW does not appear to connect to a vehicular access within the site so does not provide a through access to a second public road. DFES notes that any proposal utilising an EAW should comply with the EAW requirements. If the proposed EAW is to be modified to a private driveway, the BMP should be updated to demonstrate compliance with A3.6.	The reference to the EAW reflects the Schools terminology and intent rather than the requirements for an EAW under the Guidelines. The technical requirements for a private driveway do not apply; the proposed building is within 70 m of a public road. The school has a frontage to two public roads, it does not require an EAW under the terms of the Guidelines, and this was reflected in the BMP. The school is sensitive to community concerns about traffic generation. The school has requested it be shown as an EAW to alleviate community concern. No change to the BMP is required the EAW reference makes sense to the school and its assurance with the community that it is not a high traffic generator.
Class 9 buildings should be afforded significant protection from the impacts of a bushfire due to being occupied by people who may need assistance, or be unable, to evacuate the building in the event of a bushfire. In response, revised provisions in the National Construction Code will apply in May 2024. The proposed changes include but are not limited to; minimum separation between buildings, and separation from allotment boundaries, carparking areas and hazards. It is suggested the decision maker consider applying the proposed higher construction and design standards to the proposed development.	This statement whilst for comment is misplaced. Firstly, it does not apply until May 2024, and secondly it will apply only to buildings deemed necessary "to the degree necessary" to meet a shelter construction standard, this is identified in the NCC provision to become operational. It would otherwise be unworkable and prohibit the likes of transportable buildings which are used dynamically to manage varying school capacity. It would also prohibit the expansion of many established schools without encroachment into school ovals and play areas.

Further information regarding the proposed changes can be found here: https://consultation.abcb.gov.au/engagement/ncc-2022-public-comment-draft/supporting_documents/NCC2022VolumeOnePCD.pdf	The intent is each new school in a bushfire prone area should have a safer building, that meets the standard of the NCC for certain class 9 b buildings. DFES should certainly be aware of this, and its officers should advise correctly.
The referral has included a 'Bushfire Emergency Evacuation Plan' for the purposes of addressing the policy requirements. Consideration should be given to the Guidelines Section 5.5.4 'Developing a Bushfire Emergency Evacuation Plan'. This contains detail regarding what should be included in a BEEP and will ensure the appropriate content is detailed when finalising the BEEP to the satisfaction of the City.	A standard DFES clause, that has no reflection on the BEEP provided. The BEEP has followed the Guideline v1.4 section 5.5.4 (correct reference).
Built Environment Branch (BEB) Comments: The application has been referred internal to BEB, with the following comments provided: As the proposed building is to be Class 9b, plans will need to be provided to DFES Built Environment Branch for assessment as required by Regulation 18B of the Building Regulations 2012 (as amended). If the total floor area of the proposed building exceeds 500m2, hydrant and hose reel coverage may need to be provided to this building. The pressure/flow requirements of these will be based upon DFES Operational Requirements (and based on the relevant specifications of AS2419.1-2005).	Noted, but this does not affect the BMP or the consideration at planning, other than the school has access to a reticulated water supply. This comment should not be included in technical advice pertaining to the planning consideration (Planning and Development Act 2005) but will be addressed separately by the Building Act 2011.

Should you have any queries, please contact me on 0428 066 147, or alternatively by email: admin@envisionbp.com.au

Yours sincerely

Anthony Rowe BPAD L3

Principal

Attached Revised: BMP