

BUSHFIRE ASSESSMENT REPORT

PROPOSED RECYCLING FACILITY



**LOT 7 and Lot 11 DP 270328
21D and 21F School Drive, Tomago**

Date: 11/11/2020

Prepared for: REMONDIS

NEWCASTLE BUSHFIRE CONSULTING

5 Chartley Street, Warners Bay NSW 2282
(ph) 02 40230149 (mob) 0423 923284
email: mail@newcastlebushfire.com.au

I hereby declare that I am a BPAD accredited bushfire practitioner.		
Accreditation No. BPAD16132		
Signature		
Date	11/11/2020	

Couch Family Trust T/A
Newcastle Bushfire Consulting Pty Ltd A.B.N. 96 831 374 298
Bushfire and Building Sustainability Consultants

Document Status

Revision No.	Issue	Description	Reviewed	Approved by Director
1	12/06/2020	Draft	E. Davis	P.Couch
2	14/06/2020	Final	E. Davis	P.Couch
3	11/11/2020	Rev A – revised plan	E. Davis	P.Couch

Prepared By:



Phillip Couch GFireE
Bach Info Science
Grad Dip Design for Bushfire Prone Areas
FPAA BPAD – Level 3 Accreditation Number BPD-PA-16132
Director Newcastle Bushfire Consulting



TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES	4
2.0 INTRODUCTION	6
2.1 PURPOSE OF REPORT	6
2.2 PROPOSED DEVELOPMENT	7
3.0 BUSHFIRE ATTACK ASSESSMENT	7
3.1 VEGETATION CLASSIFICATION	7
3.2 EFFECTIVE SLOPE.....	11
3.3 BUSHFIRE ATTACK LEVELS.....	11
3.4 COMMERCIAL AND INDUSTRIAL DEVELOPMENT COMPLIANCE	12
4.0 UTILITY SERVICES AND INFRASTRUCTURE	14
4.1 WATER SERVICES.....	14
4.2 ELECTRICITY SERVICES.....	14
4.3 GAS SERVICES.....	14
5.0 PROPERTY ACCESS	14
6.0 LANDSCAPING MAINTENANCE	15
7.0 POTENTIAL IGNITION SOURCES DURING OPERATION	15
8.0 RECOMMENDATIONS.....	16
9.0 CONCLUSION.....	16
10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY	17
11.0 APPENDIX 2.0 – OIL AND DIESEL TANK SITE MAINTENANCE.....	18
12.0 REFERENCES AND DISCLAIMER	19

LIST OF TABLES

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL	4
TABLE 2 – BUSHFIRE THREAT ASSESSMENT EXISTING BUILDINGS	4
TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) COMPLIANCE.....	5
TABLE 4 – REVIEW OF SECRETARY’S ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARS) FOR BUSHFIRE.....	6

LIST OF FIGURES

FIGURE 1 – SITE CONSTRAINTS MAP	9
FIGURE 2 – LOCALITY MAP.....	10
FIGURE 3 – COUNCIL’S BUSHFIRE PRONE LAND MAP	10
FIGURE 4 – SITE PLAN	13

LIST OF PHOTOGRAPHS

PHOTOGRAPH 1 – PROPOSED TRUCK PARKING AREA LOOKING WEST	8
PHOTOGRAPH 2 – NORTHERN SHORT HEATH.....	8
PHOTOGRAPH 3 – SOUTHERN FOREST.....	11

1.0 EXECUTIVE SUMMARY AND COMPLIANCE TABLES

This report has assessed the proposed recycling facility against the requirements of section 4.14 of the Environmental Planning and Assessment Act 1979, AS3959 (2018) Building in Bushfire Prone Areas and Planning for Bush Fire Protection (2019).

This report establishes that the recycling facility is capable of complying with the acceptable solutions of Planning for Bush Fire Protection (2019).

TABLE 1 – PROPERTY DETAILS AND TYPE OF PROPOSAL

Applicant Name	REMONDIS		
Site Address	21D and 21F School Drive, Tomago	Lot/Sec/DP	Lot 7 and Lot 11 DP 270328
Local Government Area	Port Stephens	FDI	100
Bushfire Prone Land	Yes, mapped bushfire prone land		
Type of development	New Building	Type of Area	Urban
Special Fire Protection Purpose	No	Flame Temperature	1090K
Application Complies with DTS Provisions	Yes. Relevant specifications and requirements are satisfied	Referral to RFS required	No

TABLE 2 – BUSHFIRE THREAT ASSESSMENT EXISTING BUILDINGS

	North	East	South	West
Vegetation Structure	Short Heath	Grassland	Forest	Maintained Lands
Asset Protection Zone	25 metres	52 metres	76 metres	140 metres
Accurate Slope Measure	1 degree upslope	Level	1 degree downslope	N/A
Slope Range	Level/Upslope	Level/Upslope	1 to 5 degrees downslope	N/A
AS3959 (2018) Bushfire Attack Level (BAL)	BAL-12.5	N/A	BAL-12.5	BAL-LOW

The waste oil tank will be located 53 metres off the short heath being BAL-12.5 with the diesel tank being located more than 100 metres from a bushland threat.

TABLE 3 – PLANNING FOR BUSH FIRE PROTECTION (2019) COMPLIANCE

Performance Criteria	Proposed Development Determinations	Method of Assessment
Asset Protection Zone	<p>Asset Protection Zones have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The Asset Protection Zone will be maintained for the life of development and defensible space is provided onsite.</p>	Acceptable Solution
Siting and Design	Buildings have been designed to minimise the risk of bushfire attack.	Acceptable Solution
Construction Standards AS3959 – 2018	<p>Bushfire Attack Levels have been determined in accordance with Planning for Bush Fire Protection (2019).</p> <p>The highest Bushfire Attack Level to the proposed building was determined to be BAL-12.5.</p> <p>The building is outside flame contact zone with non-residential Class 5 to 8 buildings require no specific level of construction in accordance with AS3959 (2018).</p>	Acceptable Solution
Private and or Public Road Infrastructure	The public road system is not affected or changed as part of this application.	Acceptable Solution
Property Access	The existing property access complies with Planning for Bush Fire Protection (2019) Section 7.	Acceptable Solution
Water and Utility Services	Water, electricity and gas services offer compliance with Planning for Bush Fire Protection (2019) section 7.	Acceptable Solution
Landscaping	Landscaping to comply with Planning for Bush Fire Protection (2019), appendix 4.	Acceptable Solution

TABLE 4 – REVIEW OF ENVIRONMENTAL ASSESSMENT REQUIREMENTS (SEARS) FOR BUSHFIRE

Assessment Criteria	Compliance
The aims and objectives of Planning for Bush Fire Protection (2019)	The aims and objectives are addressed in section 3.4 of this report.
Identification of potential ignition sources during construction and operation of the development	Potential ignition sources are detailed in section 7.0 of this report.
Storage of fuels and other hazardous materials (e.g. explosives for blasting)	The storage of fuels and hazardous materials are detailed in section 7.0 of this report.
Proposed bushfire protection measures for the development including vegetation management and fire suppression capabilities	Asset protection zones are based on AS3959 (2018) and have all buildings exposed to BAL-12.5 or lower. Fire response procedures from staff have been included in section 8.0 of this report.
Operational access for firefighting appliances to the site	The existing property access to the buildings complies with Planning for Bush Fire Protection (2019) Section 7. The area around the truck parking area is recommended to be maintained as mown grass to support fire appliance movement.
Emergency and evacuation planning	An emergency management plan shall be prepared for the site which considers bushfire.

2.0 INTRODUCTION

2.1 PURPOSE OF REPORT

The purpose of this report is to establish suitable bushfire mitigation measures for the proposed recycling facility to be located at Lot 7 and Lot 11 DP 270328, 21D and 21F School Drive, Tomago, in order for the approval authority to make determination of the proposed development pursuant to the requirements of section 4.14 of the NSW Environmental Planning and Assessment Act 1979.

Features on or adjoining the site that may mitigate the impact of a bush fire on the proposed development

The vegetation to the immediate north and northwest of the site is heavily fragmented with significant areas of exposed sand located between low coastal heath less than 1.5 metres in height. There are large expanses of grass located east and south of the site with the concrete hardstand truck parking area, further reducing potential bush fire impact on the development.

Likely environmental impact of any proposed bush fire protection measures

A small number of regenerating shrubs are located in the northern portion of the site, less than 2,500 square metres in area. The bulk of the vegetation on the site is fragmented grassland.

The recommendations within this report address the aims and objectives of Planning for Bush Fire Protection (2019) to reduce the risk of ignition of the recycling facility in a bushfire event.

2.2 PROPOSED DEVELOPMENT

The proposed development includes use of the existing industrial workshops as a recycling facility. The only changes to the existing site will be the construction of a concrete parking area for trucks and the placement of waste oil and diesel tanks. REMONDIS is seeking approval for the receipt and processing of up to 98,200 tonnes of solid and liquid waste materials per annum. Waste materials include dry non-putrescible waste materials from domestic sources, commercial and industrial sources. It will also receive, within this total, a small amount of putrescible waste materials from the depackaging of food, such as drinks and packaged food items. The facility will also receive and recycle liquid wastes such as drill muds from hydro-excavation and oily wastes from mining and industrial activities across the region.

3.0 BUSHFIRE ATTACK ASSESSMENT

3.1 VEGETATION CLASSIFICATION

Potential bushfire hazards were identified from Port Stephens Council's Bushfire Prone Mapping as occurring within the investigation area. Aerial mapping and inspection of the site reveals that the bushfire prone land map is somewhat inaccurate in respect to the current bushfire hazard.

The major vegetative threats have been determined using Keith (2004) to derive vegetation structures listed in Planning for Bush Fire Protection (2019).

Primary Vegetation Structures have been identified in Figure 1 – Site Constraints Map and separation distances shown in Table 2 – Bushfire Attack Assessment.



PHOTOGRAPH 1 – PROPOSED TRUCK PARKING AREA LOOKING WEST

View of the proposed concrete truck parking area. The site is predominantly grassland with a small number of scattered shrubs. The site is surrounded by established industrial development to the west and south.



PHOTOGRAPH 2 – NORTHERN SHORT HEATH

View of coastal short heath located north of the site. The shrubs are less than 50 centimetres in height directly north of the site, with large areas of exposed sand. The vegetation will not have a high heat yield being so sparse.

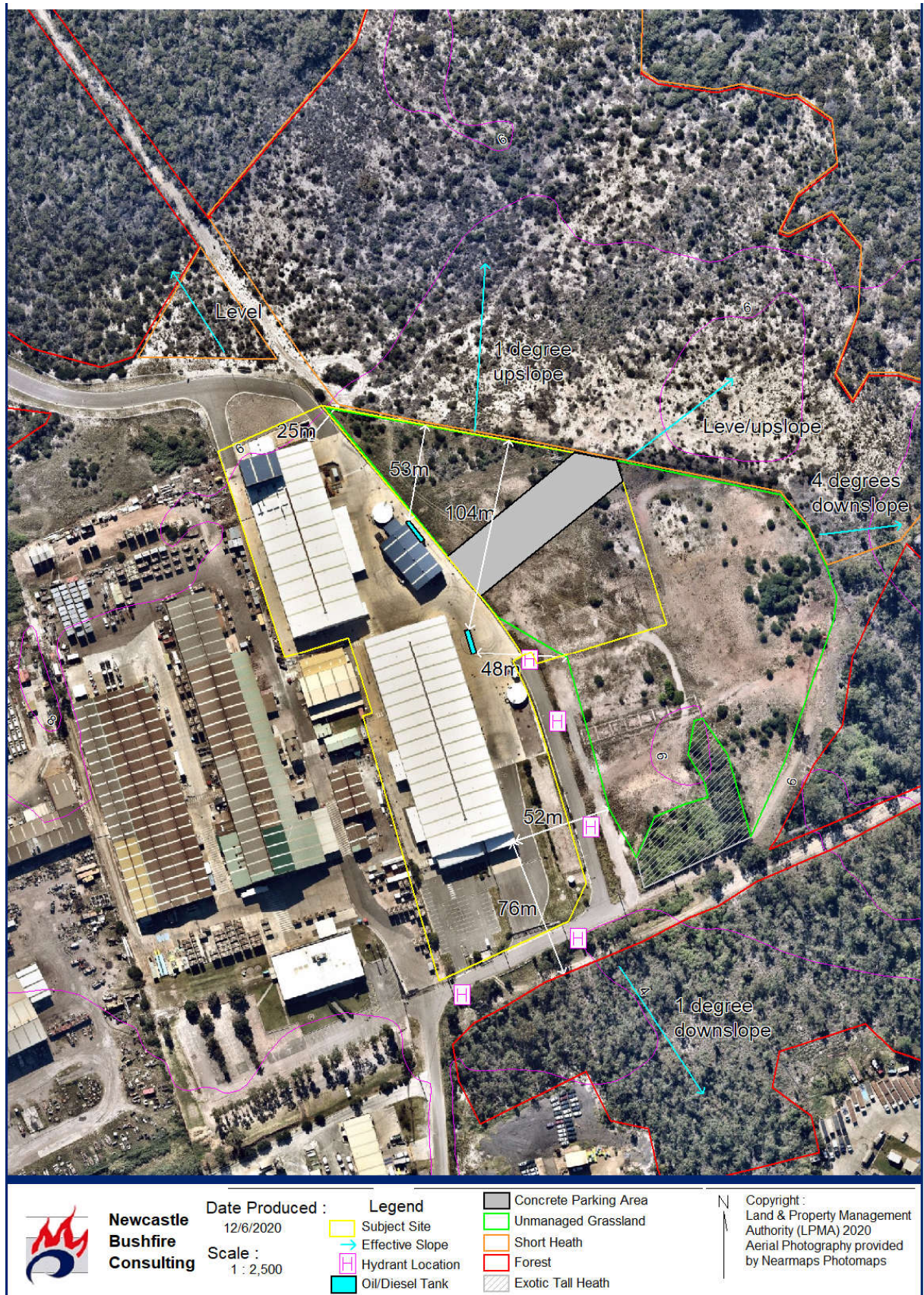


FIGURE 1 – SITE CONSTRAINTS MAP

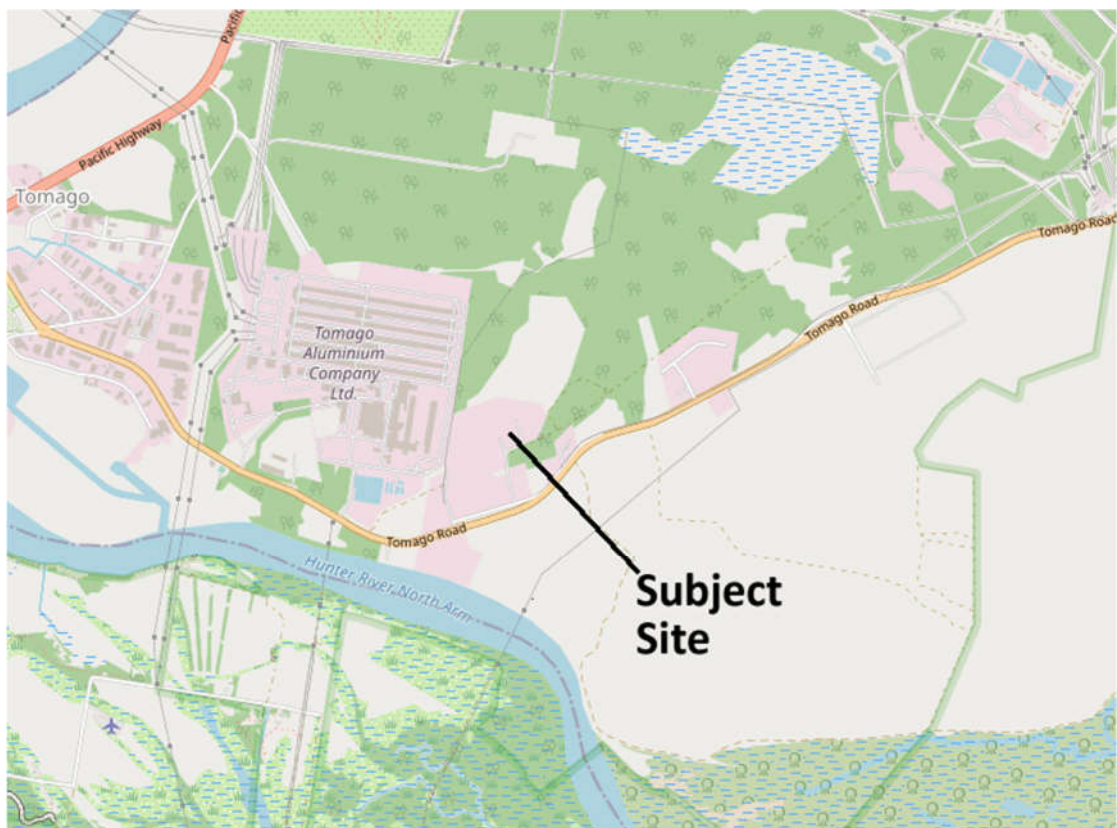


FIGURE 2 – LOCALITY MAP
Courtesy of OpenStreetMap

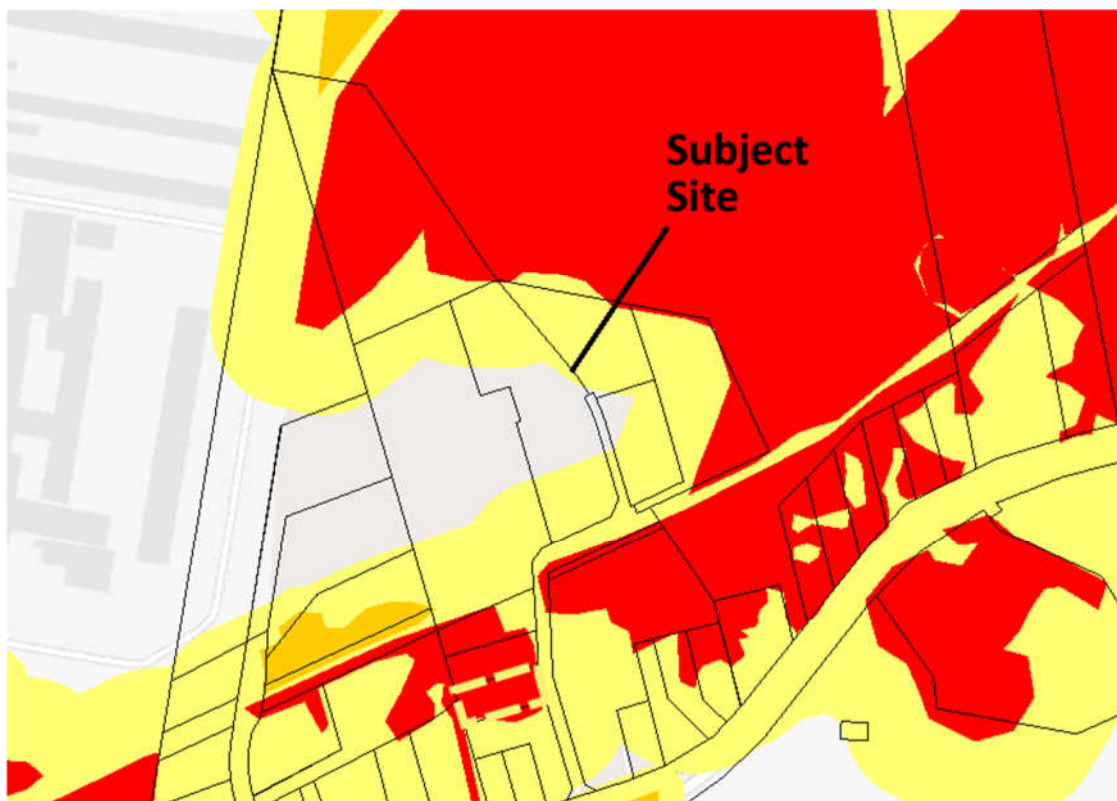


FIGURE 3 – COUNCIL'S BUSHFIRE PRONE LAND MAP

3.2 EFFECTIVE SLOPE

Effective slope was measured using 2 metre contour data obtained from Department of Lands and verified by a laser hypsometer on site. The laser hypsometer verified slope within the vegetation calculating effective fire run slope from 5 separate measurements in each dominant direction.

Effective Slopes have been identified in Figure 1 – Site Constraints Map and slope ranges are shown in Table 2 – Bushfire Threat Assessment.

3.3 BUSHFIRE ATTACK LEVELS

Bushfire attack levels and relevant construction levels in accordance with Planning for Bush Fire Protection (2019) have been demonstrated in Section 1 Executive Summary and Compliance Tables.



PHOTOGRAPH 3 – SOUTHERN FOREST

View of the dry sclerophyll forest located south of the site. The upper stratum is dominated by eucalypts with a low density canopy bordering on woodland in some areas. There is an understorey of grasses and native shrubs. An access trail is located on the northern boundary of the forest.

3.4 COMMERCIAL AND INDUSTRIAL DEVELOPMENT COMPLIANCE

Where no residential component is included, commercial and industrial development is addressed through the aims and objectives of Planning for Bush Fire Protection.

The aim of Planning for Bush Fire Protection is to use the NSW development assessment system to provide for the protection of human life (including firefighters) and to minimise impacts on property from the threat of bush fire, while having due regard to development potential, onsite amenity and protection of the environment.

The aims and objectives of Planning for Bush Fire Protection are addressed below for the building:

Afford occupants of any building adequate protection from exposure to a bush fire

Multiple building exits are available, located away from the bushland threat. Evacuation planning in the event of bushfire should clearly indicate to building users safe evacuation procedure.

Provide for a defensible space to be located around buildings

Defensible space is available around all buildings and the proposed truck parking area. In the event of bush fire, firefighters will have direct access to the bushland via the open areas onsite and the internal road network which will support firefighting efforts. In the event a firefront impacts on the building, defensible space is available around the building from where the fire could be fought.

Provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent the likely fire spread to buildings

All buildings are outside the flame zone and require no specific building upgrades.

Ensure that appropriate operational access and egress for emergency service personnel and occupants is available

The property access to the facility offers compliance with Planning for Bush Fire Protection access requirements.

Provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ)

The building manager shall maintain landscaping and fuel management in accordance with Appendix 4 of Planning for Bush Fire Protection and the NSW Rural Fire Service's document Standards for Asset Protection Zones.

Ensure that utility services are adequate to meet the needs of firefighters.

Significant hydrant network is already available through the site.

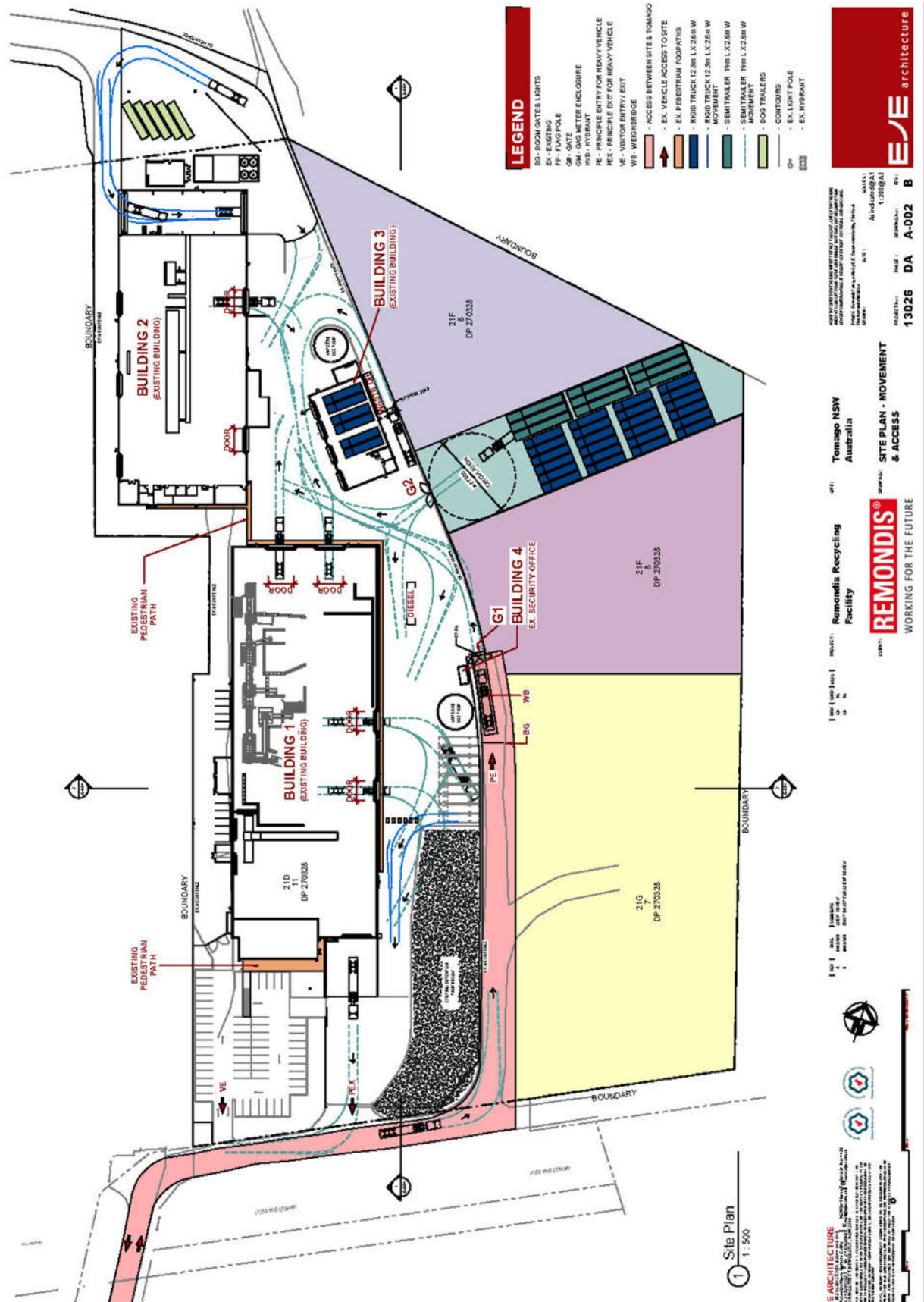


FIGURE 4 – SITE PLAN

4.0 UTILITY SERVICES AND INFRASTRUCTURE

4.1 WATER SERVICES

A reticulated water supply and street hydrant access is available providing coverage of the development in accordance with AS 2419.1 – 2005. It is noted that hydrant pressures have not been tested as part of this report.

4.2 ELECTRICITY SERVICES

The existing electrical supply to the local area is via overhead electrical transmission lines. Landscaping onsite should be managed so that no part of a tree is closer to a power line than the distance set out in accordance with the specifications in 'Vegetation Safety Clearances' issued by Energy Australia (NS179, April 2002). Onsite power supply is underground with an extension to power recommended to be located underground.

4.3 GAS SERVICES

- Reticulated or bottled gas to be installed and maintained in accordance with AS 1596 (2002) and the requirements of the relevant authorities. Metal piping is to be used.
- Fixed gas cylinders to be kept clear of flammable material by a distance of 10 metres and shielded on the hazard side of the installation.
- Gas cylinders close to the building are to have the release valves directed away from the building and at least 2 metres from flammable material with connections to and from the gas cylinder being of metal.
- Polymer-sheathed flexible gas supply lines to gas meters adjacent to the buildings are not to be used.

5.0 PROPERTY ACCESS

Property access is by way of School Drive providing access from the public road system directly to the private land, giving fire fighters access to the building.

The existing property access roads comply with section 7 of Planning for Bush Fire Protection (2019) and are capable of vehicle movement for vehicles larger than a medium rigid vehicle.

6.0 LANDSCAPING MAINTENANCE

It is recommended that landscaping is undertaken in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and maintained for the life of the development.

Trees should be located greater than 2 metres from any part of the roofline of a building. Garden beds of flammable shrubs are not to be located under trees and should be no closer than 10 metres from an exposed window or door. Trees should have lower limbs removed up to a height of 2 metres above the ground.

The landscaped area should be maintained free of leaf litter and debris. The gutter and roof should be maintained free of leaf litter and debris.

Landscaping should be managed so that flammable vegetation is not located directly under windows.

Ground fuels such as fallen leaves, twigs (less than 6mm in diameter) and branches should be removed on a regular basis, and grass needs to be kept closely mown and, where possible, green.

7.0 POTENTIAL IGNITION SOURCES DURING OPERATION

The following potential ignition sources are identified that could affect the occurrence and growth of a fire:

- Equipment faults, such as electrical short circuit or fuel leak on a machine;
- Lightning strike;
- Hazard reduction burn;
- Intentional arson; and
- Lit cigarettes or matches being carelessly thrown on the ground.

The proposed development includes the processing of recyclable materials, many of which are flammable. A separate study will be completed reviewing compliance with NSW Fire and Rescue recommendations. The varying stages of the development will involve clearing of bushland with limited opportunity for fire to start if machinery is maintained and the bushland is not burned.

Storage Oil and Diesel Storage

Three portable tanks are proposed with the oil tanks being located 53 metres off the northern short heath and the diesel fuel tank being located more than 100 metres from bushland. Both tanks are constructed to AS1692 and AS1940.

Both tanks are double layer 5mm steel with the manufacturer's recommendations on maintenance of site upkeep included in Appendix 2 of this report. The emergency management plan should consider the potential of leakage and fire within both tanks to ensure building integrity is not lost.

Material / potential pollutant	Storage location	Maximum quantity on site	Tank type
Waste oil	External – two tanks stacked	54,000 L	Self Bunded Fuel Tank
Waste oil		67,000 L	Self Bunded Fuel Tank
Diesel / AdBlue for refuelling vehicles and equipment	External	60,000 L	AdBlue™ Logitank Blue LTBL 60 (or equivalent).

There are no known explosives stored onsite.

8.0 RECOMMENDATIONS

Based upon an assessment of the plans and information received for the proposal, it is recommended that development consent be granted subject to the following conditions:

1. At the commencement of building works and in perpetuity, the entire property shall be managed as an inner protection area (IPA) as outlined within Appendix 4 of Planning for Bush Fire Protection 2019 and the NSW Rural Fire Service's document Standards for Asset Protection Zones.
2. Landscaping is to be undertaken in accordance with Appendix 4 of Planning for Bush Fire Protection (2019) and managed and maintained in perpetuity.
3. It is recommended that the property owner and occupants familiarise themselves with the relevant bushfire preparation and survival information provided by the New South Wales Rural Fire Service.
4. The building manager shall have emergency evacuation plans prepared for the workplace with specific consideration of bushfire evacuation and management planning.

9.0 CONCLUSION

The final recommendation is that the proposed development offers compliance with Planning for Bush Fire Protection. There is potential for bushfire attack at this site and a list of recommendations has been included in the above assessment to reduce that risk.

10.0 APPENDIX 1.0 – ASSET PROTECTION ZONES SUMMARY

Below is a summary of Asset Protection Zones outlined in appendix 4 of Planning for Bush Fire Protection (2019) and the NSW Rural Fire Services “Standards for Asset Protection Zones”. The property owner should obtain these two documents and familiarise themselves with their content.

Generally

Asset Protection Zones (APZ) refers to the area between the bushfire threat and the asset (i.e. building). The APZ may contain two areas; the Inner Protection Area (IPA) and the Outer Protection Area (OPA). Some areas should be managed entirely as an Inner Protection Area (IPA). Refer to the plans for locations of APZ and distances from Assets.

Inner Protection Area (IPA)

The inner protection area is located adjacent to the asset and is identified as a fuel free zone.

A. Shrubs (consisting of plants that are not considered to be trees)

1. Shrubs must be located away from a buildings glazing and vent openings.
2. Avoid planting around entry ways if the vegetation is flammable.
3. A maximum 20% of the Inner Protection Area may contain shrubs.
4. A minimum 1.5 metre separation of shrubby vegetation from the building shall be maintained.
5. Shrubs must not have a connection with the tree canopy layer; remove/trim shrubs or underprune trees.
6. Ensure turf is suitably mown and/or grasslands are continually slashed to restrict to max 100mm high.

B. Trees: Maintain a minimum 2-5 metre canopy separation.

1. Trees are allowed in the inner protection area however they should not touch or overhang buildings. No tree should be within 2 metres of the roofline.
2. Underprune branches between the shrub layer and the canopy layer.
3. Ensure branches do not overhang buildings.
4. Ensure all trees in the IPA within 3 metres of buildings do not provide a serious fire threat.
5. Trees should have lower limbs removed up to a height of 2 metres above the ground.

Outer Protection Area (OPA)

The Outer Protection Area (OPA) is located adjoining the vegetation. The OPA should be maintained as a fuel reduced area. This assumes trees may remain but with a significantly reduced shrub, grass, and leaf litter layer. In many situations leaf litter and the shrub layer may not require maintenance at all.

A. Shrubs:

1. Reduce or trim large stands of shrubs

B. Trees:

1. Existing trees can be retained.
2. Ensure a separation is available between shrubs and tree canopy.
3. Reduce tree canopy so there is no interlocking canopy.

11.0 APPENDIX 2.0 – OIL AND DIESEL TANK SITE MAINTENANCE

9.2.9 Site upkeep

The area within any compound or in and around any store shall be maintained in a safe condition. The following requirements apply:

- (a) The area shall be kept clear of all extraneous materials.
- (b) Specified clearance distances shall be maintained at all times.
- (c) Packages shall not be placed where they could jeopardize entry and exit.
- (d) Vegetation that could become a fire hazard shall be kept short.
- (e) Any weed killer that is known to be a potential source of fire danger shall be used only with due care and precautions.
- (f) Any compound drain valve shall be kept closed and locked except during supervised drainage. A notice with the following words shall be displayed:

COMPOUND DRAIN VALVE—TO BE KEPT CLOSED AND LOCKED

- (g) The walkway of any tanker loading gantry shall be kept clear of extraneous materials.
- (h) Spills shall be cleaned up as soon as possible (see also Section 11).

12.0 REFERENCES AND DISCLAIMER

References

Standards Australia (2018) AS3959 Construction of Buildings in Bushfire-Prone Areas

Keith D. (2004) "Ocean Shores to Desert Dunes", Department of Environment and Conservation, Sydney.

Environmental Planning and Assessment Act (1979)

New South Wales Rural Fire Service (2019) Planning for Bush Fire Protection

New South Wales Rural Fire Service (2010) Planning for Bush Fire Protection Appendix 3 Amendment

Disclaimer

Despite the recommendations in this report, it is impossible to remove the risk of fire damage to the building entirely. This report assesses and provides recommendations to reduce that risk to a manageable level. It is of paramount importance that the recommendations are adhered to for the life of the structure and that all maintenance is performed, to ensure a level of protection is provided to the building, occupants and fire fighters.

Planning for Bush Fire Protection (2019) states that notwithstanding the precautions adopted, it should always be remembered that bushfires burn under a wide range of conditions and an element of risk, no matter how small always remains.

AS3959 (2018) Building in Bushfire Prone Areas states that the standard is designed to lessen the risk of damage to buildings occurring in the event of the onslaught of bushfire. There can be no guarantee, because of the variable nature of bushfires, that any one building will withstand bushfire attack on every occasion.