BUSHFIRE MANAGEMENT PROCEDURE

Bingo Industries
Resource Recovery and Recycling Facility
50 Wyllie Road Kembla Grange NSW (Lot 10 in DP878167)

1. Purpose of This Procedure

To ensure the safety of workers, visitors, clients and other stakeholders in the event of a bushfire by ensuring the facility minimises the risk of a bushfire occuring and affecting the facility's infrastructure

To ensure the facility has the ability to adequately manage the fighting of fires at any part of the site

2. Responsible Person

Site Supervisor

3. Associated Bingo Industries Environmental Documents

Pollution Incident Response Management Plan

4. External Reference Documents

NSW *Protection of the Environment Operations Act* 1997

Work Health and Safety Act 2011

AS 3959-2009 Construction of buildings in bushfire-prone areas (Standards Australia 2009).

Bushfire Protection Assessment (Eco Logical Australia Pty Ltd 2013)

State Signficant Development 5300 - Consent

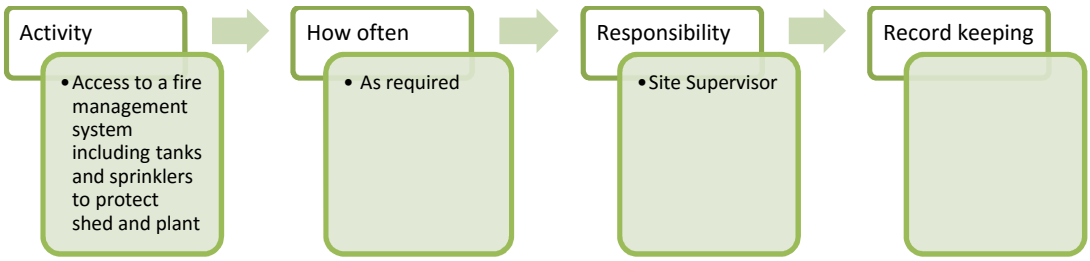
5. Main Bushfire Risks at the Site

Bushfire caused by arson, accidental lighting or environmental factors

Bushfire caused by the disposal of a hot load

6. Preventative Measures to Be Undertaken

Activity	How often	Responsibility	Record keeping
• All plant, including contract plant on site must have an appropriate classification fire extinguisher in the cabin.	• Continuous	• Site Supervisor	• Company policy • Toolbox meetings
• Fire extinguishers of appropriate classification are to be located in a prominant position in the weighbridge, office and mechanics workshop	• Continuous	• Site Supervisor • Lead mechanic	• Company policy • Toolbox meetings
• All extinguishers are to be current and checked monthly by site personnel and annually by an external contractor	• Continuous	• Site Supervisor	• Training and induction register
• All staff are to be familiar with the operations of fire extinguishers	• Continuous	• Site Supervisor	• Training and induction register
• Access to a 30,000L water cart to be used for any major fire outbreak	• As required	• Site Supervisor	



7. Other Bushfire Management Control Measures

Reference: Bushfire Protection Assessment (Eco Logical Australia Pty Ltd 2013)

The Development shall be managed as an Inner Protection Area (IPA) as outlined in *Planning for Bush Fire Protection* 2006 and *Standards for Asset Protection Zones*. The IPA shall include the area around the workshop building for a distance of 20 metres to the north and east, but exclude the riparian corridor, which traverses the site.

The stockpiling and loading area for green waste and timber is to be confined to the western and south-western sides of the 'Indoor Processing & Storage Shed' over 100 m from the riparian area or within the Indoor Processing & Storage Shed.

The development is serviced by a static water supply to meet the PBP requirement for a minimum of 20,000 litres water for fire fighting purposes. The water supply will be visible and readily accessible to fire fighting vehicles and a suitable connection for Rural Fire Service purposes will be made available (65 mm Storz fitting). The supply will be accessible to within 3m by fire fighting appliances.

Clearing and offsetting of vegetation in the riparian corridor for 16 metre to the east of Building 1 and 15 metres to the west of Building 2.

Building 1 is subject to BAL-19 and should be upgraded to meet the requirements for windows, doors, screening, decks and stairs as per Section 6 of AS 3959-2009.

Building 2 is subject to BAL-40 and should be upgarded to meet the requirements for windows, doors, screening, decks and stairs as per Section 8 of AS 3959-2009.

Ensure that any new building is constructed in accordance with the latest version of Australian Standard AS3959 and *Planning for Bush Fire Protection* 2006

Ensure landscaping of the development, excluding the riparian corridor, complies with the principles in appendix 5 of *Planning for Bush Fire Protection* 2006.

The proposed external construction materials for Building 3 are to include:

1. Any glazing on the north and east facades to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;
2. Any glazing on the south and west facades to be able to withstand BAL-29 intensities as described in Clause 7.5.2 of AS 3959-2009;
3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
4. Weather strips to external doors;
5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and
6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm

The proposed external construction materials for Building 4 are to include:

1. Any glazing on the north, west and south facades to be able to withstand flame zone intensities as described in Clause 9.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product, metal mesh screens, and standard bushfire shutters as per Clause 3.7 of AS3959-2009;
2. Any glazing on the east facade to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;
3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
4. Weather strips to external doors;
5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and
6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm

The development is serviced by a static water supply to meet the PBP requirement of a minimum amount of 20,000 litres for fire fighting purposes. The supply does not need to be dedicated to fire fighting and can double as the potable water supply or other use such as irrigation. The water supply must be visible and readily accessible to fire fighting vehicles and a suitable connection for Rural Fire Service purposes must be made available (65 mm Storz fitting). The supply must be accessible to within 3 m by fire fighting appliances. If an underground tank is considered, an access hole of 200 mm must be allowed for tankers to refill direct from the tank and a hardened ground surface to within 4 metres of the access hole supplied.

Electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed, they should:

i. be installed with short pole spacing, unless crossing gullies, and

ii. no part of a tree should be closer to a powerline than the distance specified in “Vegetation Safety Clearances” issued by Ausgrid (NS179, December 2010).

h. Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).

Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).

8. In the Event of a Bushfire

Activate the Pollution Incident Response Management Plan

Site Supervisor to ensure the safety of all personnel on site

The Site Supervisor will immediately take all action possible to prevent the fire spreading from the source to the waste and other sources of fuel

The Site Supervisor will immediately contact the emergency services and advise them of the fire

The Site Supervisor will arrange for the water cart and other mobile fire-fighting equipment to be utilised to extinguish the fire

9. Performance Indicators

The occurence of fires

The number of fire fighting vehicles and appliances available

The length of time required to extinguish a fire

10. Corrective Actions

If the performance indicators detect a failing, then measures will be put in place to increase the fire-fighting capacity of the facility

If it is identified that the fire-fighting procedures need to be augmented to improve performance, the procedures should be modified. This modification may inclde additional staff training

Attachment 1 – Bushfire Protection Assessment (Eco Logical Australia Pty Ltd 2013)

Bushfire Protection Assessment

Proposed Industrial Development: 50 Wyllie Road, Kembla Grange

Prepared for
TCG Planning

07 July 2014

DOCUMENT TRACKING

Item	Detail
Project Name	Bushfire Protection Assessment, Proposed Industrial Development, 50 Wyllie Road, Kembla Grange
Project Number	13GOSBUS-0034
Prepared by	Josh Calandra
Approved by	David Peterson
Status	FINAL
Version Number	2
Last saved on	07 July 2014

ACKNOWLEDGEMENTS

This document has been prepared by Eco Logical Australia Pty Ltd.

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1 Property and proposal

Name:	TCG Planning		
Street or property Name:	50 Wyllie Road		
Suburb, town or locality:	Kembla Grange	**Postcode:**	2526
Lot/DP no:	Lot 10 DP 878167		
Local Government Area:	Wollongong City Council		
Type of area:	Industrial		
Type of development:	Industrial Development		

1.1 Description of proposal

TCG Planning commissioned Eco Logical Australia Pty Ltd (ELA) to prepare a bushfire protection assessment (BPA) for a proposed workshop and office and approval for existing temporary weighbridge offices and OH&S Training Room at Lot 10 DP 878167, 50 Wyllie Road, Kembla Grange (hereafter referred to as the subject land).

This assessment has been prepared by ELA Bushfire Consultant, Josh Calandra (FPAA BPAD-D Certified Practitioner No. BPD-PD-23276), who also conducted a site inspection on the 14th of February 2013. Josh is recognised by the NSW Rural Fire Service as qualified consultant in bushfire risk assessment.

1.2 Location and description of subject land

The subject land is located in the Wollongong suburb of Kembla Grange approximately 9 kilometres southwest of the Wollongong CBD. Figure 1 shows the subject land in a local context. Figure 2 shows the subject land and the location of the proposed development in relation to the nearest bushfire prone vegetation. Figure 3 shows the layout for the proposed development. The Wollongong Local Government Area has a Fire Danger Index of 100.

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Figure 1: Aerial photograph depicting the subject land

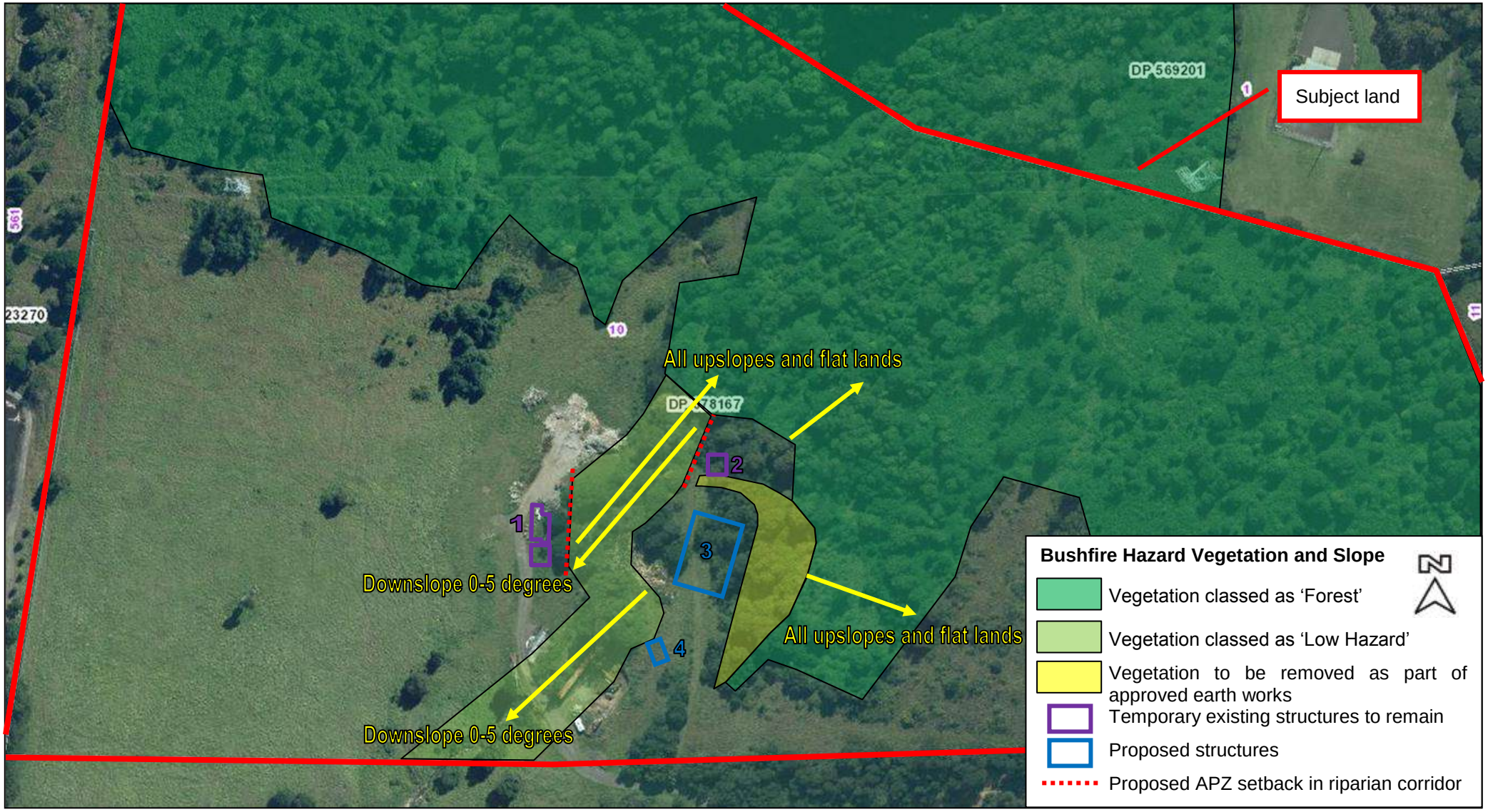

Figure 2: Aerial photograph depicting the vegetation and slope relating to the subject land

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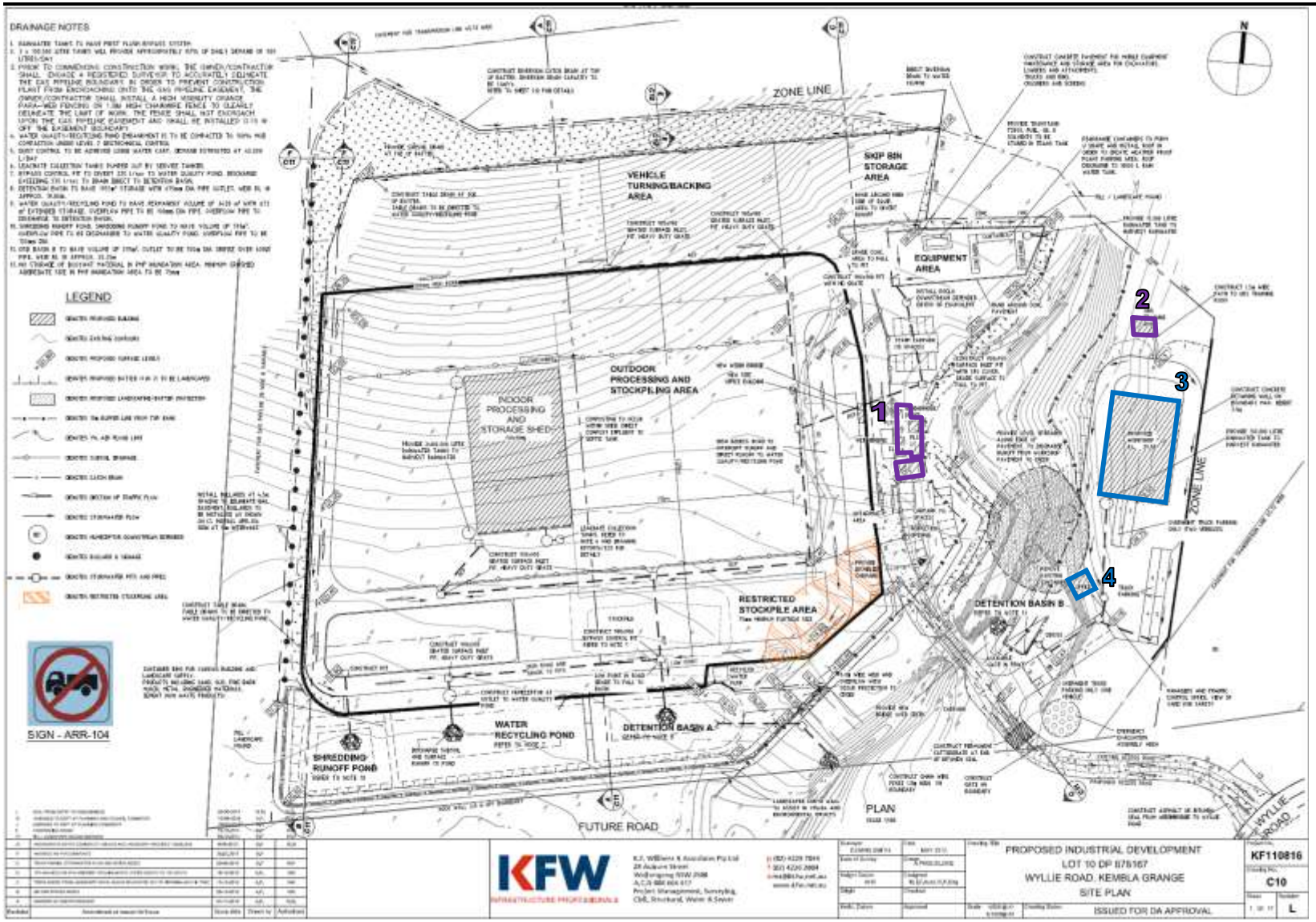

Figure 3: Layout of proposed development

2 Bushfire threat assessment

The subject land is identified as Bush Fire Prone Land by Wollongong City Council. The following assessment is prepared in accordance with Section 79BA of the *Environmental Planning and Assessment Act 1979* and 'Planning for Bushfire Protection' (RFS 2006), herein referred to as PBP.

2.1 Vegetation types and slope

In accord with PBP the predominant vegetation class has been calculated for a distance of at least 140 m out from the development and the slope class 'most significantly affecting fire behaviour' has been determined for a distance of at least 100 m in all directions.

The bushfire prone vegetation influencing the development is a proposed riparian corridor and forest vegetation.

The riparian corridor which runs between the existing building 1 and the existing building 2 and proposed buildings 3 and 4, forms a 40m wide strip allowing it to be categorised under PBP as 'Low Hazard' as per page 52 of PBP.

"Remnant vegetation is a parcel of vegetation with a size less than 1 Ha or a shape that provides a potential fire run directly towards the buildings not exceeding 50 metres. These remnants are considered a low hazard and APZ setbacks and building construction standards for these will be the same as for rainforests"

In accordance with the Department of Primary Industries, Office of Water *'Guidelines for Riparian Corridor on Waterfront Land'* 2012, infrastructure including APZs are allowed inside up to 50 percent of the corridor but must be offset elsewhere along the corridor. It is proposed that the riparian corridor be setback to a distance of 16 metres to the east of Building 1 so as to provide a minimum APZ distance of 16 metres.

The vegetation to the north and west of existing Building 2 and to the west of proposed buildings 3 and 4 is categorised under PBP as 'Forest'.

The slope to the east of Building 1 and to the north and west of Buildings 2, 3 and 4 is categorised under PBP as 'All upslopes and flat lands'. To the southwest of Buildings 2, 3 and 4 is categorised under PBP as 'Downslopes 0 -5 degrees'. The slope of the riparian corridor has been assessed along its length in accordance with page 52 of PBP relating to remnants.

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3 APZ and BAL assessment

PBP does not require a specific APZ for industrial development (Section 4.3.6.f). The following assessment demonstrates what APZ and defendable space is available, and the resulting Bushfire Attack Level (BAL) in order to determine an appropriate construction standard (discussed further in Section 4 of this report). The BAL assessment is in accordance with *AS 3959-2009 Construction of buildings in bushfire-prone areas* (Standards Australia 2009).

Table 1 below lists the available APZ and corresponding BAL based on the vegetation and slope assessment in Section 2 of this report.

Additional APZ establishment through clearing and offsetting of vegetation in the riparian corridor for 16 metres to the east of Building 1 and 15 metres to the west of Building 2 is proposed. Clearing is proposed as part of earth works to the east of Buildings 3 and 4. Building 4 can provide a minimal APZ due to its proximity to a tree protection zone and as such can provide a minimum defendable space of 2 metres.

Table 1: Threat assessment, APZ and category of bushfire attack

Direction from envelope	Slope[1]	Vegetation[2]	Proposed APZ	AS3959 Construction Standard[3]	Comment
Building 1 East	Upslope/Flat	Low Hazard	16 m	BAL-19	The proposed APZ will partially occur in the riparian corridor which will need to be offset elsewhere along the corridor.
Building 2 West	Downslope 0-5^0	Low Hazard	15 m	BAL-29	
Building 2 North	Upslope/Flat	Forest	20 m	BAL-40	Some clearing required
Building 2 East	Upslope/Flat	Forest	20 m	BAL-40	
Building 3 West	Downslope 0-5^0	Low Hazard	15 m	BAL-29	APZ in place no clearing required
Building 3 Southwest	Downslope 0-5^0	Low Hazard	15 m	BAL-29	
Building 3 East	Upslope/Flat	Forest	20 m	BAL-40	Proposed earthworks and landscaped batter will provide APZ
Building 3 Northeast	Upslope/Flat	Forest	20 m	BAL-40	

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Direction from envelope	Slope[1]	Vegetation[2]	Proposed APZ	AS3959 Construction Standard[3]	Comment
Building 4 Northwest	Downslope $0\text{-}5^0$	Low Hazard	2 m	BAL-FZ	Defendable space can be achieved
Building 4 Southwest	Downslope $0\text{-}5^0$	Low Hazard	15 m	As above	APZ in place no clearing required
Building 4 Northeast	Upslope/Flat	Forest	50 m	BAL-40	Proposed earthworks and landscaped batter will provide APZ
All other directions	Managed Lands				

[1] Slope most significantly influencing the fire behaviour of the site having regard to vegetation found. Slope classes are according to PBP.

[2] Predominant vegetation is identified, according to PBP and *"Where a mix of vegetation types exist the type providing the greater hazard is said to be predominate"*.

[3] Assessment according to AS 3959-2009.

4 Construction standard

Section 4.3.6.f of PBP relates to the assessment requirements for 'other' development. This section states that the BCA does not provide for any bushfire specific performance requirements for non-habitable buildings such as Class 5, 6, 7, 8 and 10 buildings (which include offices, factories, warehouses, commercial or industrial facilities, and sheds), and as such building construction standards under AS 3959-2009 do not apply as a set of deemed-to-satisfy provisions. The general fire safety constructions provisions of the BCA are taken as acceptable solutions, but the aim and objectives of PBP apply in relation to other matters such as access, water and services, emergency planning, and landscaping/vegetation management.

Although not a set of deemed-to-satisfy provisions, the application of AS 3959 to the development is recommended in this case as the most convenient method of achieving the aims and objectives of PBP in regards to preventing material ignition. Therefore it is proposed that the relevant Bushfire Attack Levels (BALs) in AS 3959-2009 be applied to the existing temporary buildings (Buildings 1 and 2) which are proposed to become permanent.

Building 1 is subject to BAL-19 and should meet the requirements for windows, doors, screening, decks and stairs as per Section 6 of AS 3959-2009. It is advised that the documentation prepared for Construction Certificate demonstrate this and be reviewed and signed off by a suitably qualified bushfire consultant to indicate that the intents and purposes of BAL-19 have been met.

Building 2 is subject to BAL-40 and should meet the requirements for windows, doors, screening, decks and stairs as per Section 8 of AS 3959-2009. It is advised that the documentation prepared for Construction Certificate demonstrate this and be reviewed and signed off by a suitably qualified bushfire consultant to indicate that the intents and purposes of BAL-40 have been met.

The proposed external construction materials for Building 3 are such that they are expected to withstand BAL-40 intensities. To ensure building survival, the following recommendations are made:

1. Any glazing on the north and east facades to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;

2. Any glazing on the south and west facades to be able to withstand BAL-29 intensities as described in Clause 7.5.2 of AS 3959-2009;

3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;

4. Weather strips to external doors;

5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and

6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm.

The proposed external construction materials for Building 4 are to withstand flame zone intensities. To ensure building survival, the following recommendations are made:

1. Any glazing on the north, west and south facades to be able to withstand flame zone intensities as described in Clause 9.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product, metal mesh screens, and standard bushfire shutters as per Clause 3.7 of AS3959-2009;

2. Any glazing on the east facade to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;

3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;

4. Weather strips to external doors;

5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and

6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm.

5 Water supply

There is an application with Sydney Water for fire hydrants to be installed to comply with AS 2419.1 *Fire hydrant installations - System design, installation and commissioning (*Standards Australia 2005).

If this application is rejected the development will need to be serviced by a static water supply to meet the PBP requirement for a minimum amount of 20,000 litres for fire fighting purposes. The supply does not need to be dedicated to fire fighting and can double as the potable water supply or other use such as irrigation. The water supply must be visible and readily accessible to fire fighting vehicles and a suitable connection for Rural Fire Service purposes must be made available (65 mm Storz fitting). The supply must be accessible to within 3 m by fire fighting appliances. If an underground tank is considered, an access hole of 200 mm must be allowed for tankers to refill direct from the tank and a hardened ground surface to within 4 metres of the access hole supplied.

6 Gas and electrical supplies

In accordance with PBP, electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed:

- Lines are to be installed with short pole spacing, unless crossing gullies, and
- No part of a tree should be closer to a powerline than the distance specified in "Vegetation Safety Clearances" issued by Ausgrid (NS179, December 2010).

Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).

7 Access

The proposed development is accessed via hard surfaced areas designed to receive deliveries by trucks. A fire involving the development would be attended to by fire appliances from the hardstand surface of the subject land accessed from Wyllie Road. A perimeter loop road is proposed around Building 3 (refer to Figure 3). This complies with PBP and no additional provisions are required to support the proposed development.

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8 Assessment of environmental issues

At the time of assessment, there were no known significant environmental features, threatened species, or Aboriginal heritage issues identified under the Threatened Species Conservation Act 1995 or the National Parks Act 1974 that will affect or be affected by the bushfire protection proposals in this report.

Wollongong City Council is the determining authority for this development; they will assess more thoroughly any potential environmental and heritage issues.

9 Recommendations & conclusion

The proposal consists of two existing temporary structures proposed to be made permanent (Buildings 1 and 2) and two proposed buildings which would act as a workshop (Building 3) and an office (Building 4). Sufficient APZs can be provided for Buildings 1, 2 & 3 through some clearing and offsetting of riparian corridors. Building 4 can provide sufficient APZs in most directions, however, due to the proximity to protected vegetation can only provide a 2 metre defendable space to the northwest.

The following recommendations are made within this assessment:

a. Clearing and offsetting of vegetation in the riparian corridor for 16 metre to the east of Building 1 and 15 metres to the west of Building 2.

b. Building 1 is subject to BAL-19 and should meet the requirements for windows, doors, screening, decks and stairs as per Section 6 of AS 3959-2009. It is advised that the documentation prepared for Construction Certificate demonstrate this and be reviewed and signed off by a suitably qualified bushfire consultant to confirm that the objectives of BAL-19 have been met.

c. Building 2 is subject to BAL-40 and should meet the requirements for windows, doors, screening, decks and stairs as per Section 8 of AS 3959-2009. It is advised that the documentation prepared for Construction Certificate demonstrate this and be reviewed and signed off by a suitably qualified bushfire consultant to confirm that the objectives of BAL-40 have been met.

d. The proposed external construction materials for Building 3 are to withstand BAL-40 intensities. To ensure building survival, the following recommendations are made:

    1. Any glazing on the north and east facades to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;

    2. Any glazing on the south and west facades to be able to withstand BAL-29 intensities as described in Clause 7.5.2 of AS 3959-2009;

    3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;

4. Weather strips to external doors;

5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and

6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm

e. The proposed external construction materials for Building 4 are such that they are expected to withstand flame zone intensities. To ensure building survival, the following recommendations are made:

1. Any glazing on the north, west and south facades to be able to withstand flame zone intensities as described in Clause 9.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product, metal mesh screens, and standard bushfire shutters as per Clause 3.7 of AS3959-2009;

2. Any glazing on the east facade to be able to withstand BAL-40 intensities as described in Clause 8.5.2 of AS 3959-2009 or by the use of a BAL-40 related window product;

3. Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;

4. Weather strips to external doors;

5. Preventing or sealing gaps at joins of metal sheeting for walls and roof to prevent the entry of embers; and

6. Roof mounted ventilators be screened against embers with steel mesh with a maximum aperture of 2mm

f. Either, water mains application to Sydney Water is accepted and fire hydrants are to be installed to comply with AS 2419.1 *Fire hydrant installations - System design, installation and commissioning (*Standards Australia 2005).

OR

The development will need to be serviced by a static water supply to meet the PBP requirement for a minimum amount of 20,000 litres for fire fighting purposes. The supply does not need to be dedicated to fire fighting and can double as the potable water supply or other use such as irrigation. The water supply must be visible and readily accessible to fire fighting vehicles and a suitable connection for Rural Fire Service purposes must be made available (65 mm Storz fitting). The supply must be accessible to within 3 m by fire fighting appliances. If an underground tank is considered, an access hole of 200 mm must be allowed for tankers to refill direct from the tank and a hardened ground surface to within 4 metres of the access hole supplied.

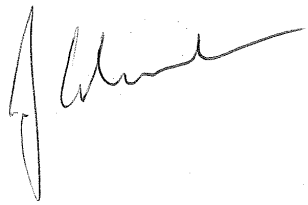
g. Electricity should be underground wherever practicable. Where overhead electrical transmission lines are installed, they should:

i. lines are to be installed with short pole spacing, unless crossing gullies, and

ii. no part of a tree should be closer to a powerline than the distance specified in "Vegetation Safety Clearances" issued by Ausgrid (NS179, December 2010).

h. Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008 (Standards Australia, 2008).

In the author's professional opinion the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development, a standard that is consistent with *'Planning for Bush Fire Protection'* (RFS 2006).



Josh Calandra
Bushfire Consultant
FPAA BPAD Certified Practitioner No. BPD-PD-23276

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