



BUSHFIRE ASSESSMENT REPORT

**MARTINS CREEK QUARRY
STATION STREET
MARTINS CREEK**

**JUNE 2016
REF: 6015**

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PREFACE

This document provides an assessment of the bushfire attack potential and the necessary bushfire protection strategies for the proposed quarry extension and possible future development of the subject site at Station Street, Martins Creek. Aspects considered in relation to the Bushfire Assessment Report include; vegetation type, slopes, water supplies, entry and egress access, provision of defendable space, maintenance of defendable space, responsibilities for the upkeep of defendable space and construction standards for proposed buildings following subdivision of the site.

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SECTION 1

BACKGROUND DETAILS

1.1 INTRODUCTION

This Bushfire Assessment Report has been prepared by *Conacher Consulting Pty Ltd* for the proposed quarry extension and future development within the subject site at Martins Creek.

The objectives of this Report are to:

- i) Detail the assessment of the site in relation to bushfire hazard and attack;
- ii) Address the relevant requirements of Planning for Bushfire Protection (Rural Fire Service, 2006);
- iii) Identify if the development complies with the aims and objectives of Planning for Bushfire Protection (RFS, 2006);
- iv) Prepare a Report that supplies the relevant information for the Rural Fire Service and Council prior to granting a Bushfire Safety Authority (RFS) or development approval by the Department of Planning and Infrastructure.

1.2 DESCRIPTION OF THE PROPERTY

Location and Site Details

The property is located at the northern end of Station Street, Martins Creek approximately 4.6 kms north of the village of Patterson in the Dungog Local Government Area.

Surrounding Land Use

The site is surrounded by open forest vegetation. The village of Martins Creek is located along Station Street and to the south of the site. The site and surrounding areas are shown in Figure 1.

1.3 PROPOSED DEVELOPMENT

The proposed development is for the extension of the existing quarry into the adjoining area to the north and east. The proposed extension area details are provided in separate documentation to this Report. The extent of the proposed area of expansion is shown in detailed plans provided with the planning documentation for this application. No dwellings are proposed in the subject site.

During ongoing operation of the quarry the existing offices, and associated buildings and other constructed infrastructure will be relocated to other locations within the site to suit the ongoing resource extraction sequence and resource transport routes.

SECTION 2

BUSHFIRE ATTACK ASSESSMENT

2.1 BUSHFIRE ASSESSMENT CRITERIA

Bushfire Prone Land Map

Council's Bushfire Prone Land Map shows that the site and surrounding areas are mapped as Bushfire Prone Land. The extent of Bushfire Prone Land mapped on the site and adjoining area is shown in Figure 2.

Forest Fire Danger Index

The subject site is located within Dungog Council Local Government Area in the Greater Hunter Region Fire Area. The Forest Fire Danger Index for the Greater Hunter Region Fire Area is rated at 100 for use in determining asset protection zone requirements and categories for bushfire attack.

Vegetation Classification

The vegetation to be retained within the site and the adjoining area is classified as a Forest Vegetation Formation according to the vegetation classification criteria used in Planning for Bushfire Protection (RFS 2006).

Development Category

The proposal is for an extension of the quarry area to provide for the ongoing operation and extension of a hard rock quarry within the subject site. No dwellings are proposed. This is not classified as a residential subdivision, an infill or a Special Fire Protection Purpose development under Chapter 4 of Planning for Bushfire Protection (RFS, 2006). Development approval is required from the Department of Planning and Infrastructure for this development. The Rural Fire Service should be consulted with regards to the proposal and Bushfire Assessment Report.

Planning for Bushfire Protection (RFS, 2006)

Due to the proposed development being a quarry for an extractive industries type development, and the fact that the site and adjoining areas contain land mapped as Bushfire Prone Land, a Bushfire Assessment Report has been prepared in accordance with the requirements of *Planning for Bushfire Protection* (RFS, 2006).

State Legislation

Future building proposals following approval from the Department of Planning and Infrastructure would be subject to Section 79 BA of the Environmental Planning and Assessment Act which requires the consent authority to consider the requirements of Planning for Bushfire Protection (RFS, 2006).

In relation to the Rural Fires Act, Section 100B of this Act does not apply to the proposed quarry extension as the proposal is not for a subdivision. This will not require an application to the RFS for a Bushfire Safety Authority. However the Rural Fire Service should be consulted by the approval authority in relation to this development proposal.

2.2 BUSHFIRE ATTACK ASSESSMENT

As the proposed development is not for a residential building the assessment of categories of bushfire attack and level of building construction according to the AS3959-2009 and Building Code of Australia is not required for the industrial type buildings which may be located on the site as part of the quarry operation.

The existing buildings associated with the current quarry are considered to be a Class 6 building classification under the provisions of the Building Code of Australia. Class 6 buildings are not covered by the provisions of Planning for Bushfire Protection (RFS 2006) or by AS3959-2006 Construction of Buildings in Bushfire Prone Areas. Planning for Bushfire Protection (RFS 2006) identifies (pg 3) that for Class 5 and Class 6 buildings *“the provisions under the BCA for fire safety will be accepted for bushfire purposes where the aim and objectives of PBP can be met”*.

As the proposed development is an industrial / extractive industries type development, not residential, a combination of defendable space and/or fire resistant construction materials is most often employed to protect against the impact of a bush fire. A summary of the defendable space between the possible future development and the bush fire threat is provided in Table 2.1.

For bushfire hazard assessment purposes the location of the existing site offices, amenities building and machinery maintenance sheds are considered the key building assets for protection from impacts by bushfire. Therefore, this area is the point where the bushfire hazard assessment is centred on. These facilities are located in the cleared areas in the Southern part of the subject site, which is also the location used as an assembly point for emergency operation procedures. These site offices and associated amenity buildings will remain operational during the ongoing extension of quarrying activities. The development proposal does not incorporate construction of any dwelling or overnight accommodation facility.

In relation to the subject site and the proposed future development, the principal direction of bushfire attack is from the Forest vegetation to the west, which is separated from the Office Buildings by cleared areas exceeding 100 metres in width.

The existing offices and sheds are located within cleared areas with the land surrounding these buildings managed to the condition of an inner protection zone which provides protection from possible bushfire attack from the forested areas.

TABLE 2.1 DEFENDABLE SPACE BETWEEN THE BUSHFIRE THREAT AND THE SITE AMENITIES			
Direction	Vegetation Classification (greatest threat within 140m)	Effective Slope (within 100m)	Existing or proposed Defendable Space (m)
North	Managed Land	upslope	>100m
South	Managed Land	0-5°downslope	>100m
East	Managed Land	upslope	>100m
West	Forest	0-5°downslope	>100m

SECTION 3

BUSHFIRE PROTECTION MATTERS

3.1 ASSET PROTECTION ZONE AND BUSHFIRE HAZARD MANAGEMENT

An Asset Protection Zone (APZ) as defined in PBP (RFS 2006) is not required in the strictest sense for an extractive industries type development. It is considered that the surrounding development and clearing for future resource extraction will provide a sufficient separation from any bushfire hazard.

Defendable spaces of between 20 to 100 metres can be provided within cleared or quarried areas. The defendable space areas of land will provide a space which can be maintained to prevent accumulation of rubbish and vegetative materials and which can be accessed if required after a local bushfire event to undertake any maintenance or property protection actions.

The working quarry areas, curtilage or hard standing areas within the proposed development are to be maintained as an Inner Protection Area (IPA) in accordance with the standards described in PBP (RFS, 2006). The responsible party for the inspection and maintenance of the site or curtilage areas will be the operators of the quarry.

The existing offices and associated buildings are likely to be relocated to other areas within the site in future years. When this occurs it would be appropriate to provide a 20 metre wide area of land around these buildings to act as an asset protection zone or defendable space area to protect against damage from a bushfire.

3.2 SPECIFIC BUSHFIRE PROTECTION REQUIREMENTS

3.2.1 *Building Construction Level*

Construction Levels in relation to AS3959-2009 are applicable to dwellings but are not applicable to industrial buildings or extractive industries.

Any proposed buildings are likely to be constructed from fire-resistant materials such as precast concrete panels, masonry and/or metal sheeting.

3.2.2 *Additional Bushfire Protection Measures*

Due to the presence of the retained forest vegetation in close proximity to the north-east and western aspect of the proposed development, it is considered that additional safeguards against ember and flame attack are warranted. Some specific measures to reduce the potential for damage from ember attack during a bushfire event include:

- i) Maintenance of the retained areas of curtilage, access or hard stand areas within the development as an inner Asset Protection Zone in accordance with PBP (RFS 2006).
- ii) Provision of an on-site mobile water pump and tank for use in protecting buildings from bushfire impacts during a local bushfire event.
- iii) Retention of water in an on-site dam so that it can be accessed in a bushfire emergency.
- iv) Preparation of a Bushfire Emergency Response and Evacuation Plan for inclusion in the Emergency Safety Procedures for the Quarry Operation.

3.3 ACCESS

Section 4.2.7 – Access / Internal Roads in Planning for Bushfire Protection (RFS, 2006) states that :-

“The public road system in a bush fire prone area should provide alternative access or egress for firefighters and residents during a bush fire emergency if part of the road system is cut by fire.”

The proposed development will benefit from direct ingress and egress routes directly to a public road (Station Street) and then to the local area public road network. Within the existing development and adjoining areas there are areas such as car parking or hard stand areas that will enable adequate access and turning areas for fire appliances. These facilities in combination with the existing public road system will provide an adequate ingress and egress route and will enable the safe evacuation of people while simultaneously enabling access for emergency services.

In general it is expected that the external public road system within the local area will comply with the requirements for access for fire fighting appliances and will be adequate for use in any fire emergency.

3.4 WATER SERVICES

The site is not connected to Councils water supply system. Due to the location of the site, type of activity undertaken and presence of the nearby forest bushfire hazard the provision of an on-site water supply for bushfire protection is recommended. Planning for Bushfire Protection (RFS 2006) requires the following measures to be implemented in relation to on-site water supply for bushfire protection:

- A dedicated water supply of 20,000 litres stored on-site in tanks, pools or ponds;
- Water tanks to be fitted with a 65mm Storz outlet with a gate or ball valve;
- A sign displayed on the property entry point that a static water supply is available for bushfire control purposes;
- The existing and future water storage ponds associated with the quarry would provide an adequate water supply for a bushfire emergency. Additionally, the provision of an on-site mobile water pump and tank, with fire fighting hose connections, should be provided for protecting buildings from bushfire impacts from the adjoining forested lands.

SECTION 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 AIM AND OBJECTIVES OF PLANNING FOR BUSHFIRE PROTECTION

“The aim of Planning for Bushfire Protection is to use the NSW development assessment system to provide for the protection of human life and to minimise impacts on property from the threat of bushfire, while having due regard to development potential, on site amenity and protection of the environment” (PBP pg 1).

The preparation of this Bushfire Assessment Report and subsequent assessment by Council and/or the Rural Fire Service ensures compliance with the aim of Planning for Bushfire Protection.

The following comments are provided in relation to satisfying the objectives of PBP.

Objective 1

- (i) *afford occupants of any building adequate protection from exposure to a bush fire;*

Measures have been identified which should be implemented within the proposed development in regard to fire protection. The future buildings associated with the proposed development should be constructed from fire resistant materials such as precast concrete panels, masonry and/or sheet metal. This will provide adequate protection from exposure to a bush fire within the forest vegetation to the north-east and west.

Objective 2

- (ii) *provide for a defensible space to be located around buildings;*

An adequate defensible space is provided within the existing development and infrastructure within the existing development as shown in Figure 2. A defensible space of at least 20 to 100 metres is available to the forest vegetation to the west of the site.

Objective 3

- (iii) *provide appropriate separation between a hazard and buildings which, in combination with other measures, prevent direct flame contact and material ignition;*

Adequate separation of at least 20 to 100 metres is provided by the existing surrounding development and cleared lands within the site. This separation distance and the recommended defensible space areas in combination with other measures such as fire resistant construction materials, adequate supply of water and the management of the site will provide appropriate separation between the hazard and buildings which will prevent direct flame contact and material ignition.

Objective 4

- (iv) *ensure that safe operational access and egress for emergency service personnel and residents is available;*

The existing public road system within the local area is currently operational for truck and passenger vehicle movements in Section 4.1.2 (RFS, 2006). This will ensure multi-path safe operational ingress for emergency services and also simultaneous safe egress for workers and the public during an emergency.

Objective 5

- (v) *provide for ongoing management and maintenance of bush fire protection measures, including fuel loads in the asset protection zone (APZ);*

The quarry operators will undertake regular inspections and undertake management of the grounds including any gardens, curtilage or hard stand areas within the proposed development.

Objective 6

- (vi) *ensure that utility services are adequate to meet the needs of fire fighters (and others assisting in bush fire fighting)*

The site is not connected to the Council reticulated water supply system and therefore the provision of an on-site water supply and mobile fire fighting pump and tanker is considered appropriate for this site.

4.2 CONCLUDING COMMENTS

The existing development (office and amenities area) has a forest bushfire threat located to the west. Bushfire protection is to be achieved by the use of existing managed lands providing separation distance and defensible space to the bushfire hazard. The bushfire attack from the forest vegetation will be decreased by the use of fire resistant construction materials such as precast concrete panels, masonry and/or sheet metal for any future buildings associated with the quarry, and the maintenance of the existing area of defensible space.

With the implementation of the measures recommended, and outlined in Section 3 of this Report, the overall aims and objectives of Planning for Bushfire Protection (RFS, 2006) can be achieved for the proposed development.

4.3 RECOMMENDATIONS

The following recommendations are provided in relation to reducing the potential for loss of life and property by the impact of bushfire:

- i. Retention of the defensible space area of 20 to 100 metres around the existing office and amenities area;
- ii. Use of cladding materials for the external surfaces for future buildings which are fire retardant materials such as metal sheeting, pre-cast cement panels or masonry.
- iii. Provision of an on-site mobile water pump and tanker fitted with fire fighting hose connections;
- iv. Regular inspections and maintenance of the Managed Lands or curtilage / revegetated areas / hard stand areas within the proposed development is to be undertaken by the owners (or their agents) according to PBP (RFS, 2006).
- v. Maintenance of any retained areas of Managed Lands or curtilage / gardens within the development as an Inner Protection Area (IPA) in accordance with PBP (RFS 2006).
- vi. Preparation of a Bushfire Emergency Response and Evacuation Plan for inclusion in the Emergency/Safety Procedures for the Quarry Operation.
- vii. This report should be referred to the Rural Fire Service for their review and comment.

REFERENCES

Rural Fire Service (2006) Planning for Bushfire Protection

Standards Australia (2009 Australian Standard (AS3959-2009) Construction of Buildings in Bushfire Prone Areas.

FIGURES





