



# Landscape Management Plan (Bushfire)

Murwillumbah High School

86 Riverview St, Murwillumbah NSW 2484

Prepared for

**NSW Department of Education -  
School Infrastructure NSW**



Version 1.1

21 August 2020

## Murwillumbah High School Landscape Management Plan (Bushfire)

**Document Tracking:**

<b>Project Name:</b>	<b>Murwillumbah High School Landscape Management Plan (Bushfire)</b>
<b>Client Details:</b>	NSW Department of Education - School Infrastructure C/- Indigeco
<b>Project Address</b>	Murwillumbah High School 86 Riverview Street Murwillumbah NSW 2484

**BlackAsh Contact Details**

Dan Pedersen	Principal Bushfire and Ecology
0427 337 783	<a href="mailto:dan.pedersen@blackash.com.au">dan.pedersen@blackash.com.au</a>

**Document Control**

<b>Version</b>	<b>Primary Author(s)</b>	<b>Description</b>	<b>Date Completed</b>
1.1	Dan Pedersen	Final	21 August 2020

**Dan Pedersen / Principal Bushfire Ecology****Blackash Bushfire Consulting**

B.Sc. (ecology), Grad. Dip. (Design for Bush fires)  
Fire Protection Association of Australia BPAD Level 3 BPD-PA 16293

**Disclaimer**

Blackash Bushfire Pty Ltd has prepared this document in good faith based on the information provided to it, and has endeavored to ensure that the information in this document is correct. However, many factors outside Blackash's current knowledge or control affect the recipient's needs and project plans. Blackash does not warrant or represent that the document is free from error or omissions and does not accept liability for any errors or omissions. The scope of services was defined in consultation with the client by time and budgetary constraints imposed by the client and the availability of reports and other data on the subject area. Changes to available information, legislation and schedules are made on an ongoing basis and readers should obtain up to date information. To the fullest extent possible Blackash expressly excludes any express or implied warranty as to condition, fitness, merchantability or suitability of this document and limits its liability for direct or consequential loss at Blackash's option to re-supplying the document or the cost of correcting the document. In no event shall Blackash's responses to questions or any other information in this document be deemed to be incorporated into any legally binding agreement without the express written consent of an officer of Blackash. The information in this document is proprietary, confidential and an unpublished work and is provided upon the recipient's promise to keep such information confidential and for the sole purpose of the recipient evaluating Blackash's products/services. In no event may this information be supplied to third parties without Blackash's written consent.

## Contents

<b>1. Introduction</b>	<b>1</b>
<b>1.1. Location</b>	<b>2</b>
<b>1.2. Bushfire Prone Land</b>	<b>2</b>
<b>1.3. The Project</b>	<b>5</b>
<b>2. Assessment Framework</b>	<b>6</b>
<b>2.1. Planning for Bushfire Protection 2019</b>	<b>6</b>
<b>2.2. General Objectives of Planning for Bushfire Protection</b>	<b>6</b>
<b>2.3. Development of a Landscape Plan of Management</b>	<b>6</b>
<b>3. Landscape Management Assessment</b>	<b>7</b>
<b>3.1. Vegetation Management</b>	<b>7</b>
<b>3.2. Landscaping - Establishment and Maintenance</b>	<b>8</b>
<b>4. Modifying the Bushfire Prone Land Map</b>	<b>9</b>
<b>School Vegetation Management Works Plan</b>	<b>11</b>
<b>Appendix 1 References</b>	<b>13</b>

---

## 1. Introduction

The Tweed Shire Council has mapped vegetation within Murwillumbah High School landholding as Bushfire Prone Land (**BFPL**) and as such, any future development will need to consider the bushfire protection measures as detailed in Planning for Bushfire Protection (PBP 2019).

Blackash prepared a bushfire risk assessment for proposed upgrades to the Murwillumbah High School (Blackash 2020). This assessment demonstrated the potential to manage the bushfire prone vegetation as a Low Threat Vegetation – Exclusions (PBP 2019, Section A.10) based on the following characteristics:

1. Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1 or Category 2 vegetation
2. Multiple areas of vegetation less than 0.25 hectares in area and not within 20 metres of each other
3. Strips of vegetation less than 20 metres in width, regardless of length and not within 20 metres of other areas of Category 1 or Category 3 vegetation
4. Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load, including grassland managed in a minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, arboretums, commercial nurseries, nature strips and windbreaks.
  - o NOTE 1: Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bush fire attack (recognizable as short- cropped grass for example, to a nominal height of 100 mm).
  - o NOTE 2: A windbreak is considered a single row of planted trees located on a boundary and used as a screen or to reduce the effect of wind on the leeward side of the trees.
5. Existing areas of managed gardens and lawns within curtilage of buildings
6. Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops.

## Murwillumbah High School Landscape Management Plan (Bushfire)

This Landscape Management Plan provides a set of management actions to inform ongoing vegetation management across the school landscape, for the purpose of achieving the landscape performance criteria for 'low threat vegetation', and subsequently the vegetation within the school will not be required to be considered for the purposes of PBP (i.e. excluded vegetation, not a significant bushfire risk).

The Landscape Management Plan would also be used as a supporting document for future consultation with the Council, with respect to Bushfire Prone Land Mapping, and whereby it may be proposed to modify Bushfire Prone Land Maps and remove the mapped vegetation on the school grounds from the Tweed Shire Council Bushfire Prone Land Map.

### 1.1. Location

The Murwillumbah High School is at 86 Riverview Street, Murwillumbah (**the site**) which incorporates Lot 2 DP578679, Lot 5 and Lot 6 DP8206025 (**Figure 1**).

The Murwillumbah High School is within the urban landscape of the Murwillumbah township, and within the Tweed Shire Council Local Government Area (**LGA**).

### 1.2. Bushfire Prone Land

Bushfire prone land is land which can support a bushfire or is likely to be subject to bushfire attack (radiant heat, embers or flame). Bushfire prone land maps are prepared by local council and certified by the Commissioner of the RFS.

The school site is identified as being within mapped 'bushfire prone land' being a parcel of Category 1, Category 2 and associated buffers (**Figure 2**).

The mapped or designated bushfire prone vegetation is located within the school boundary, bordering the south-western boundary. The nearest bushfire prone vegetation outside the school property is mapped greater than 100m to the west.

Murwillumbah High School Landscape Management Plan (Bushfire)

Figure 1 Locality



**Legend**

- Subject Land
- Lot

N

**DKGIS**

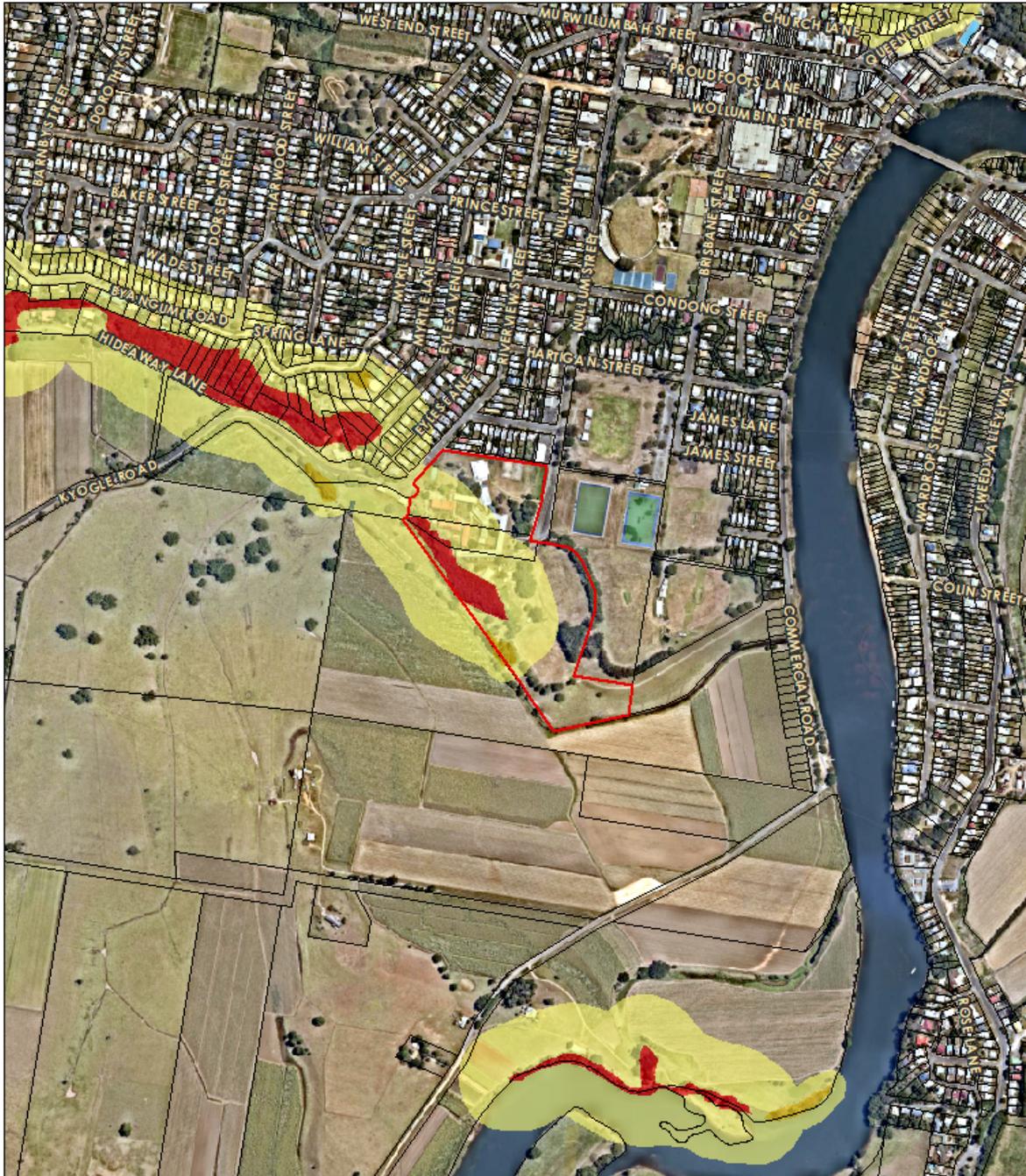
Date: 21/02/2020

0 125 250 500 750  
Metres

Coordinate System: GDA 1994 MGA Zone 56  
Imagery: © Nearmap

Murwillumbah High School Landscape Management Plan (Bushfire)

Figure 2 Bushfire Prone Land Mapping



**Legend**

- Subject Land
- Lot
- Bushfire Prone Land**
- Vegetation Category 1
- Vegetation Category 2
- Vegetation Category 3
- Vegetation Buffer

N

**DKGIS**  
Date: 21/02/2020

0 75 150 300 450  
Metres

Coordinate System: GDA 1994 MGA Zone 56  
Imagery: © Nearmap

### 1.3. The Project

The Murwillumbah High School Landscape Management Plan offers the school a suite of management actions that would be applied to the vegetation over the school, for the purpose of bushfire protection, and specifically to manage the vegetation within the school landholding to mitigate the potential bushfire threat.

The NSW RFS PBP 2019 (and AS3959) have detailed performance criteria for vegetation that would classify that vegetation as a 'Low Threat Vegetation', and consequently not required (excluded) to be considered as a significant threat for the purpose of PBP 2019. These criteria are detailed in Table 1. This Plan demonstrates how the vegetation across the Murwillumbah High School should be managed to achieve Low Threat-exclusion vegetation classification.

Further, the Landscape Management Plan would also support future consultation with the Council, with respect to Bushfire Prone Land Mapping, and whereby the proposal to remove the mapped vegetation on the school grounds from the Tweed Shire Council Bushfire Prone Land Map.

**Table 1: PBP 2019 Low Threat Vegetation – Exclusions**

Performance Criteria for Low Threat Vegetation – Exclusions	
<b>A</b>	Single areas of vegetation less than 1 hectare in area and greater than 100 metres separation from other areas of Category 1 or Category 2 vegetation
<b>B</b>	Multiple areas of vegetation less than 0.25 hectares in area and not within 20 metres of each other
<b>C</b>	Strips of vegetation less than 20 metres in width, regardless of length and not within 20 metres of other areas of Category 1 or Category 3 vegetation
<b>D</b>	Vegetation regarded as low threat due to factors such as flammability, moisture content or fuel load, including grassland managed in a *minimal fuel condition, mangroves and other saline wetlands, maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, arboretums, commercial nurseries, nature strips and **windbreaks.
<b>E</b>	Existing areas of managed gardens and lawns within curtilage of buildings
<b>F</b>	Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops

\*Minimal fuel condition means there is insufficient fuel available to significantly increase the severity of the bush fire attack (recognizable as short- cropped grass for example, to a nominal height of 100 mm).

\*\* A windbreak is considered a single row of planted trees located on a boundary and used as a screen or to reduce the effect of wind on the leeward side of the trees.

---

## 2. Assessment Framework

### 2.1. Planning for Bushfire Protection 2019

PBP 2019 is the formal NSW guideline which provides development standards for planning, designing and building on bushfire prone lands in NSW. PBP 2019 sets out an overall framework consisting of an aim and objectives, specific objectives for defined development types, types of bushfire protection measures (BPMs) which may be employed in a development or risk assessment, and performance criteria for each BPM. Landscape management is one of the BPM pillars.

PBP 2019 Appendix A1.10 details the performance criteria for Low Threat Vegetation – exclusions.

### 2.2. General Objectives of Planning for Bushfire Protection

All development on BFPL must satisfy the aim and objectives of PBP 2019. The aim of PBP 2019 is to provide for the protection of human life and minimise impacts on property from the threat of bushfire, while having due regard to development potential, site characteristics and protection of the environment. The objectives are to:

- I. *Afford buildings and their occupants protection from exposure to a bushfire*
- II. *Provide for a defensible space to be located around buildings*
- III. *Provide appropriate separation between a hazard and buildings which, in combination with other measures, minimises material ignition*
- IV. *Ensure that appropriate operational access and egress for emergency service personnel and residents is available*
- V. **Provide for ongoing management and maintenance of BPMs**
- VI. *Ensure that utility services are adequate to meet the needs of firefighters.*

### 2.3. Development of a Landscape Plan of Management

Although specifically detailed in PBP 2019 for landscape management within a landholding, a plan of management should detail the following attributes to achieve the low threat status:

Murwillumbah High School Landscape Management Plan (Bushfire)

- A management plan should be submitted with any DA to provide details on how the APZ will be implemented and maintained. the management plan should include, but not be limited to:
  - the mechanical means necessary to complete the management required;
  - The financial costing of the mechanism and responsibility for meeting this cost;
  - A schedule for maintenance to occur to ensure the APZ is regularly managed; and
  - the relevant body responsible for maintaining the APZ.

### 3. Landscape Management Assessment

The Murwillumbah High School grounds have a variable land use and management requirements, as detailed in Table 2 and the attached site Landscape Management Plan:

**Table 2: Vegetation Parcels across the school grounds**

<b>Vegetation Parcels and Performance</b>	
<b>A</b>	Hoop Pine plantation on steep slopes, grading south down to gentle slopes south of the school buildings. Pine plantation on western boundary.
<b>B</b>	Remnant forest parcels (rainforest structure) less than 0.25 hectares in area and not within 20 metres of each other across the school, with some form of management evident in the ground and shrub layers.
<b>C</b>	Strips of vegetation on the western oval (school boundary) and southern oval, not within 20 metres of other areas of vegetation.
<b>D</b>	Sporting fields and grassland managed in a minimal fuel condition.
<b>E</b>	Existing areas of managed gardens and lawns within curtilage of buildings
<b>F</b>	Non-vegetated areas, including waterways, roads, footpaths, buildings and rocky outcrops

#### 3.1. Vegetation Management

The vegetation formations (bushfire fuels) combine with topography (effective slope) to create the bushfire behaviour that may affect the site, and which determine the planning and building response of the bushfire planning framework and PBP 2019. By managing the vegetation as a low threat, the bushfire risk would be mitigated. The vegetation management actions for each parcel are:

## Murwillumbah High School Landscape Management Plan (Bushfire)

- 
- A. The Hoop Pine vegetation along the western boundary is assessed as plantations consistent with a Rainforest structure (closed canopy and lacking shrub and ground storey vegetation). The total area of vegetation prior to any designated management is greater than 1ha in area. This pine plantation has potential to be managed in perpetuity as a vegetation parcel less than 1ha in area, being greater than 100m from other areas of Category 1 or 2 vegetation, and thus eliminating the hazard (low threat vegetation). The most appropriate zone to reduce the plantation area is the southern fringe, where the slopes are less than 18 degrees. The plantation areas can be managed in perpetuity through maintaining/slashing the perimeter on regular basis, for example when grasses exceed 30cm.
- B. There are some remnant parcels of Rainforest vegetation throughout the school. These parcels are less than 0.25ha in area and not within 20 metres of each other across the school. The current management of the parcels is a rainforest canopy, with no shrub layer and ground vegetation. These parcels are actively used by students on daily basis and do not represent a hazard. It is relevant that future landscape management ensures these parcels do not increase in size and become a significant hazard. By identifying these parcels and limits within this Landscape Management Plan (less than 0.25ha in area and not within 20 metres of each other), the extent of these remnant vegetation parcels can be monitored.
- C. The strips of vegetation on the southern and eastern sporting oval boundaries are isolated. These strips need to be managed as a low threat vegetation by removing the ground fuels within the school grounds (remove build-up of tall grass, leaves and twigs).
- D. The sporting fields and grasslands will continue to be managed as low threat (less than 10cm high). The extent of the grasslands management is detailed in the Landscape Management Plan.
- E. The vegetation within the curtilage has been assessed as landscaping out to 10m from the buildings. This mostly consists of landscaped gardens and paths. There are some trees that are close to the buildings and structures, these will be maintained as current (remove build-up of tall grass, leaves and twigs).

### **3.2. Landscaping - Establishment and Maintenance**

Landscaping provides for the perpetual management and the ongoing maintenance of vegetation that could potentially cause or fuel a bushfire. Landscaping also ensures the vegetation standards are adequate and meet the guidelines and principles of low threat vegetation.

## Murwillumbah High School Landscape Management Plan (Bushfire)

The recommended actions in this Landscape Management Plan would adequately manage the vegetation across the school grounds such that all vegetation would meet the performance criteria for Low threat vegetation and not a significant risk to current and future school infrastructure and developments.

The Murwillumbah High School is responsible for the vegetation management within the school property and would be managed in perpetuity. This Landscape Management Plan provides for a monitoring assessment that can be conducted as required, and mitigation actions applied as per the works plan.

### 4. Modifying the Bushfire Prone Land Map

The identification of Bushfire Prone Land (BFPL) in NSW is required under s.10.3 of the EP&A Act. Bushfire Prone Land maps provide the trigger for the various development assessment provisions.

the Commissioner of the NSW RFS designates what constitutes BFPL and how it is to be mapped. Each council prepares a map in accordance with the guidelines and submits the map to the NSW RFS for certification by the Commissioner. These maps are required to be recertified at least every five (5) years and the Commissioner may make direct changes to a BFPL Maps at any time (guidelines for the mapping of BFPL can be obtained from [www.rfs.nsw.gov.au](http://www.rfs.nsw.gov.au)). A consent authority can refer a DA to the NSW RFS under the provisions of s.4.15 of the EP&A Act, even where a bush fire hazard has not been mapped.

The Department of Education is looking to modify the Tweed Shire Council Bushfire Prone Land mapping over the Murwillumbah High School, to represent the actual low bushfire risk associated with low threat vegetation. The following steps should be followed to communicate to the Council and the NSW RFS with respect to the removal of bushfire prone vegetation mapping from the Councils maps:

1. This Landscape Management Plan demonstrates the works that would be required to manage and maintain vegetation to satisfy the low threat – exclusion performance and should be used as the primary document to detail the context and proposed outcome in the Council and RFS.
2. Contact Tweed Shire Council (planning) and arrange a meeting with designated bushfire officer or similar. Meeting to discuss the Council position on update for current mapping and objective to modify the mapping over the school vegetation.

**Tweed Shire Council Murwillumbah Administration Office:**

**Phone:** (02) 6670 2400

**Street Address:** Civic and Cultural Centre, 10-14 Tumbulgum Road, Murwillumbah NSW 2484

## Murwillumbah High School Landscape Management Plan (Bushfire)

- 
3. Contact the Far North Coast NSW RFS office to arrange a meeting. Meeting to discuss the suitability of the proposal, options available for modification of existing mapping and future mapping updates, specifically the removal of the bushfire [prone vegetation on the school landholding.

**NSW RFS Far North Coast office:****Street Address:** 92 Lundberg Drive, Murwillumbah 2484**Postal Address:** PO BOX 816, Murwillumbah 2484**Phone Number:** (02) 6671 5500

4. Actions following these discussions will be identified post discussion, however, it is a likely assumption that the BFPL map would be modified at the time when the whole of Council areas are recertified (updated on 5-yearly basis, current mapping 2012 or 8 years).

## School Vegetation Management Works Plan

Vegetation Parcel		Management Performance Criteria	Method of Management	Schedule for Management (or trigger)	Responsibility
A. Hoop plantations and perimeters	Pine and	Reduce the parcel size to less than 1ha by tree removal as per the Plan (avoid removal on steep slopes >18°)	Removal of at least 200m <sup>2</sup> of the eastern side of the plantation (see Plan)		SINSW - As part of any future MHS upgrade works
		Maintain a property access and boundary fence break on the western property boundary	Manage a 3m break within the western property boundary, consistent with D (sporting field and grassland). Slashing on regular basis.	Regrowth and tall grass exceeding 30cm	MHS Landscape Maintenance
		Maintain low fuel loads in ground layer at plantation perimeters	Slashing perimeter of plantations on a regular basis	Regrowth and tall grass exceeding 30cm	MHS Landscape Maintenance
B. Remnant forest parcels		These parcels are currently less than 2500m <sup>2</sup> and >20m from each other. Maintain less than 2500m <sup>2</sup> and >20m from each other as current and monitor (as per this Plan)	Maintain parcel size in current status. Can be monitored against this Plan. Slash remove regrowth at perimeters.	Monitored against this Plan - Option to remove regrowth when/if landscaping increases the existing areas	MHS Landscape Maintenance

## Murwillumbah High School Landscape Management Plan (Bushfire)

C. Strips of vegetation on the western oval	Maintain as current (slashing/mowing beneath trees to less than 10cm)	Slashing/mowing.	When dry fuels build up (fallen leaves/twigs) or when grass exceeds 10cm in height.	MHS Landscape Maintenance
D. Sporting fields and grassland	Maintain as minimal fuel condition (less than 10cm)	Slashing/mowing.	Regular (monthly) or when grass exceeds 10cm in height.	MHS Landscape Maintenance
E. Existing areas of managed gardens and lawns within curtilage of buildings	Maintain gardens and lawns around and within curtilage of buildings in a minimum fuel condition (general housekeeping)	Mowing, raking and pruning, removal of fine fuels.	Regular (monthly) or when a build-up of fuels is identified (e.g. dry leaves, grasses and twigs).	MHS Landscape Maintenance
F. Non-vegetated areas	N/A	N/A	N/A	

Note: the financial responsibility for each LMP item sits with the nominated responsible party.

---

## Appendix 1 References

Australian Building Codes Board *Building Code of Australia Volumes 1&2*

Councils of Standards Australia AS3959 (2009) – *Australian Standard Construction of buildings in bushfire-prone areas*

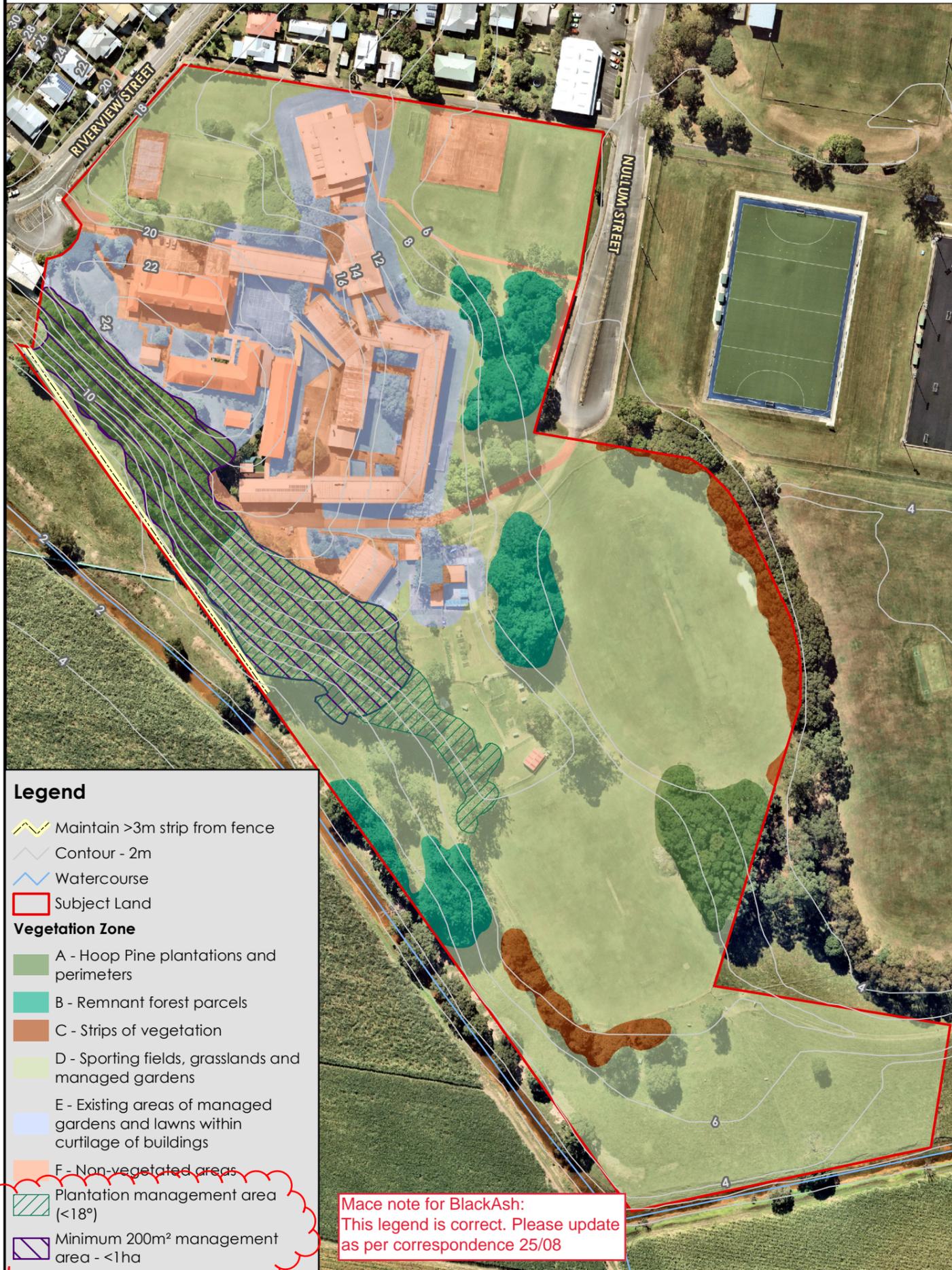
Keith, David (2004) – *Ocean Shores to Desert Dunes – The Native Vegetation of New South Wales and the ACT*. The Department of Environment and Climate Change

NSW Rural Fire Service (2015) *Guide for Bushfire Prone Land Mapping*

NSW Rural Fire Service (RFS). PBP 2019. *Planning for Bushfire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra

NSW Government (1979) *Environmental Planning and Assessment Act 1979*. NSW Government Printer

# Landscape Management Plan



**Legend**

- Maintain >3m strip from fence
- Contour - 2m
- Watercourse
- Subject Land

**Vegetation Zone**

- A - Hoop Pine plantations and perimeters
- B - Remnant forest parcels
- C - Strips of vegetation
- D - Sporting fields, grasslands and managed gardens
- E - Existing areas of managed gardens and lawns within curtilage of buildings
- F - Non-vegetated areas

Plantation management area (<math><18^\circ</math>)

Minimum 200m<sup>2</sup> management area - <math><1\text{ha}</math>

Mace note for BlackAsh:  
 This legend is correct. Please update  
 as per correspondence 25/08

Vegetation Parcel	Management Performance Criteria	Method of Management	Schedule for Management (or trigger)	Responsibility
A. Hoop Pine plantations and perimeters	Reduce the parcel size to less than 1ha by tree removal as per the Plan (avoid removal on steep slopes >18°)	Removal of at least 200m <sup>2</sup> of the eastern side of the plantation (see Plan)		SINSW - As part of any future MHS upgrade works
	Maintain a property access and boundary fence break on the western property boundary	Manage a 3m break within the western property boundary, consistent with D (sporting field and grassland). Slashing on regular basis.	Regrowth and tall grass exceeding 30cm	MHS Landscape Maintenance
	Maintain low fuel loads in ground layer at plantation perimeters	Slashing perimeter of plantations on a regular basis	Regrowth and tall grass exceeding 30cm	MHS Landscape Maintenance
B. Remnant forest parcels	These parcels are currently less than 2500m <sup>2</sup> and >20m from each other.  Maintain less than 2500m <sup>2</sup> and >20m from each other as current and monitor (as per this Plan)	Maintain parcel size in current status.  Can be monitored against this Plan.  Slash remove regrowth at perimeters.	Monitored against this Plan - Option to remove regrowth when/if landscaping increases the existing areas	MHS Landscape Maintenance
C. Strips of vegetation on the western oval	Maintain as current (slashing/mowing beneath trees to less than 10cm)	Slashing/mowing.	When dry fuels build up (fallen leaves/twigs) or when grass exceeds 10cm in height.	MHS Landscape Maintenance
D. Sporting fields and grassland	Maintain as minimal fuel condition (less than 10cm)	Slashing/mowing.	Regular (monthly) or when grass exceeds 10cm in height.	MHS Landscape Maintenance
E. Existing areas of managed gardens and lawns within curtilage of buildings	Maintain gardens and lawns around and within curtilage of buildings in a minimum fuel condition (general housekeeping)	Mowing, raking and pruning, removal of fine fuels.	Regular (monthly) or when a build-up of fuels is identified (e.g. dry leaves, grasses and twigs).	MHS Landscape Maintenance
F. Non-vegetated areas	N/A	N/A	N/A	