Harrisenvironmental CONSULTING

VEGETATION MANANGEMENT PLAN

Proposed St Marys Rainbow Preschool

Fronting FARRER ROAD, BOOROOMA, NSW 2678

LOT: 153 DP: 751407

LGA: WAGGA WAGGA

Client: Anglican Diocese of Canberra and Goulburn
C/O Colliers International

DATE: 30/7/2024

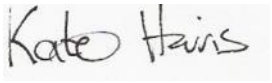
BUSHFIRE CONSTRAINTS HAZARD ASSESSMENT

HARRIS ENVIRONMENTAL CONSULTING
ABN 54 12 87 40 549

PO BOX 70, 2533

Phone: (02) 42 350 954 | (02) 48 621 168
Mobile: 0403 237 072
Email: kate@hec.eco
Web: www.harrisenvironmental.com.au

ASSESSOR & QUALIFICATIONS



BPAD-L3-26927

MASTERS BUSH FIRE PROTECTION, WSU
GRAD DIP BUSH FIRE PROTECTION, UWS
GRAD DIP ENVIRO MANG HERTS, UK,
GRAD DIP NAT RES UNE,
BSC APP SC, AGRICULTURE HAC

Prepared by Samantha Orum

DISCLAIMER
The recommendations provided in this report are a result of the analysis of the proposal in relation to the requirements of Planning for Bushfire Protection 2019. Utmost care has been taken in the preparation of this report however there is no guarantee of human error. There is no implied assurance or guarantee the summary conditions will be accepted in the final consent and there is no way Harris Environmental Consulting is liable for any financial losses incurred should the recommendations in this report not be accepted in the final conditions of consent. This bushfire constraints assessment provides a risk assessment of the bushfire hazard as outlined in the PBP 2019 and AS3959 2018. It does not provide protection against any damages or losses resulting from a bushfire event. This report should not be used to accompany any DA.

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EXECUTIVE SUMMARY

This Vegetation Management Plan (VMP) assessment has been prepared to assist with the establishment and ongoing maintenance of an Asset Protection Zone (APZ) for the Proposed St Marys Rainbow Preschool. The VMP provides:

- An overview of the proposed development.
- The objective and scope of the Vegetation Management Plan
- How to undertake work to establish and maintain the APZ
- Landscaping considerations.

METHODOLOGY

The advice provided herein is based on the following research and knowledge:

- A desktop analysis of the vegetation and topography within and surrounding the subject land;
- Southeast NSW Native Vegetation Classification and Mapping (Tozer et al. 2010);
- The requirements of 'Planning for Bush Fire Protection' 2019 (PBP) and other related NSW Rural Fire Service (RFS) policy regarding bushfire planning for Infill, increased density and Special Fire Protection Purpose developments in bushfire prone areas.
- Standards for Asset Protection Zone (2010) (NSW RFS) to establish and maintain APZ.

1. PROPOSAL

The Vegetation Management Plan (VMP) has been prepared by Harris Environmental on behalf of St Marys Rainbow Preschool located along Farrer Road, Boorooma. The site is within Wagga Wagga Local Government Area, between Charles Sturt University infrastructure and the grassland paddocks. Residential housing is located towards the southern elevation as shown in Figure 1.

The VMP is to be submitted with the Development Application (DA) packaged and will describe the management of the land for Asset Protection Zone (APZ) Purposes only. This VMP does not cover any other environmental assessment.

Harris Environmental Consulting was commissioned to provide this vegetation management plan.

Figure 1 shows the subject lot location.

FIGURE 1 SITE LOCATION

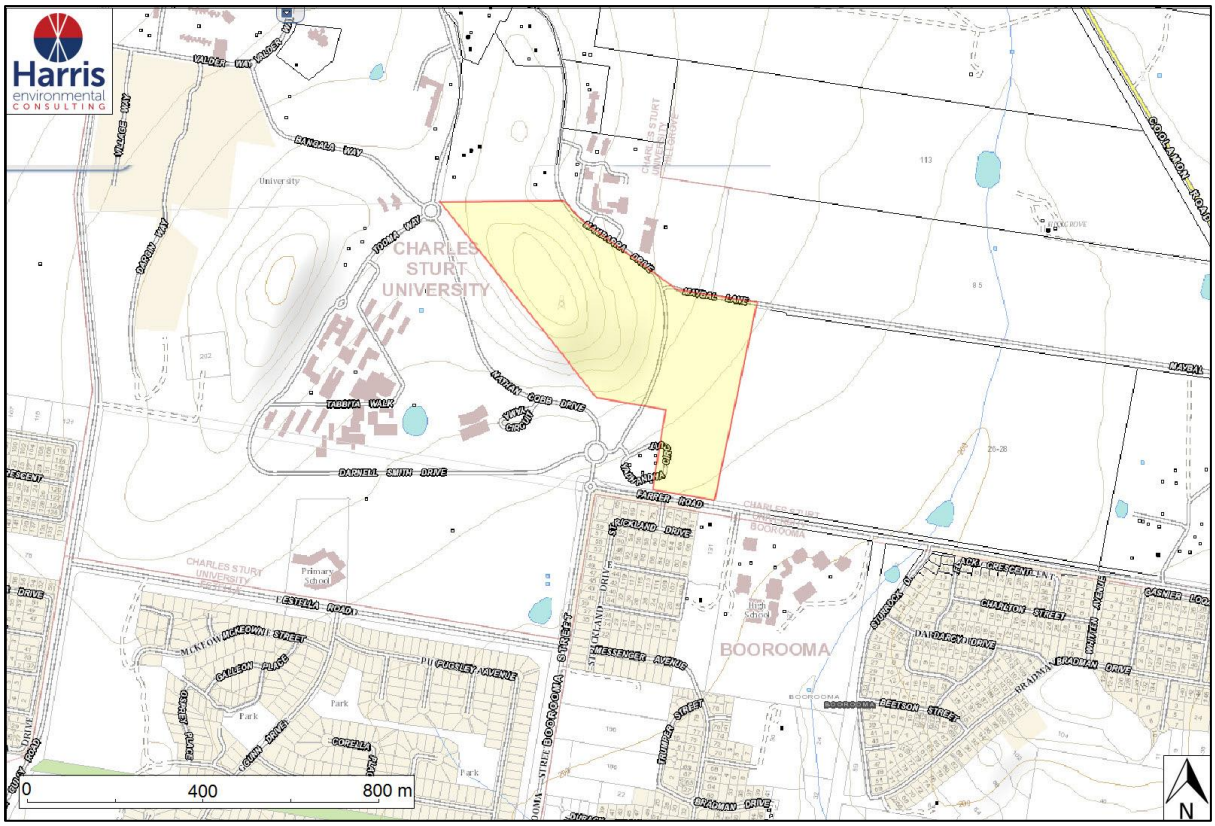


FIGURE 2 VEGETATION MANAGEMENT PLAN AND PROPOSED ASSET PROTECTION ZONE

FIGURE 3 DETAILED SITE PLAN

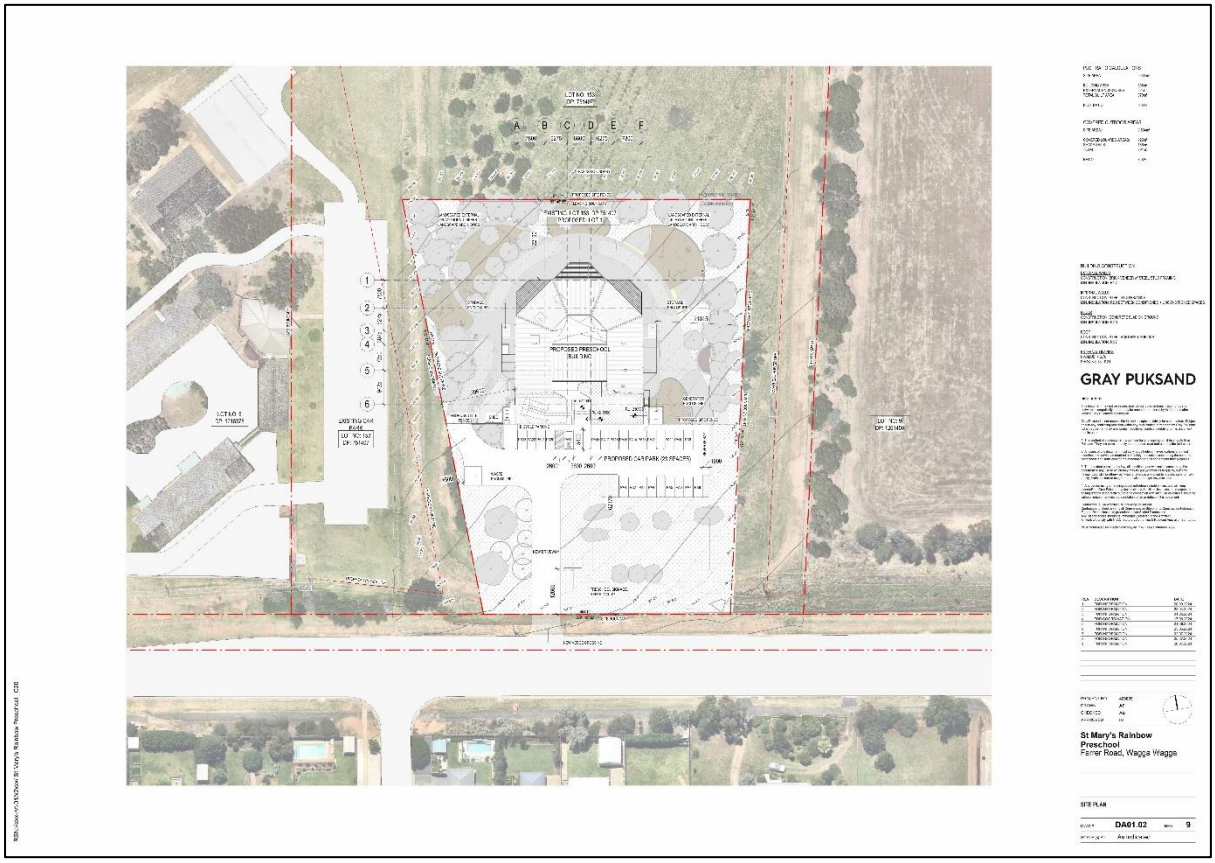
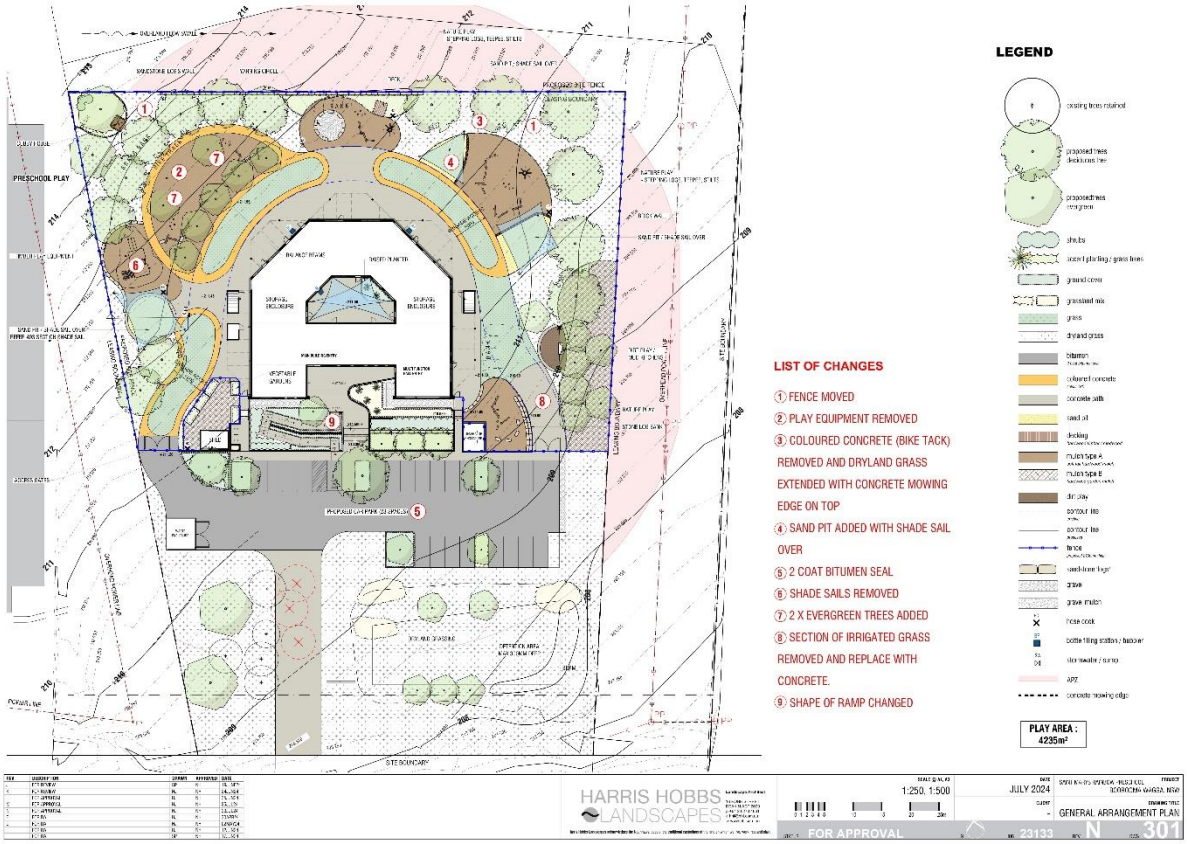


FIGURE 4 PROPOSED LANDSCAPE PLAN



2. SITE DESCRIPTION

The APZ for the development includes the proposed St Marys Rainbow Preschool, outdoor play area and a portion of the parking space as shown in Figure 2.

The predominate vegetation on the proposed St Marys Rainbow Preschool is “Grassland” towards the northern and western elevations and has been used to identify the Asset Protection Zone (APZ).

3. OBJECTIVE AND SCOPE

The objective of this management plan is to establish and maintain the APZ for the purposes of the preschool development.

An APZ is a fuel-reduced area surrounding a building or structure. It is located between the building or structure and the bush fire hazard. By maintaining the APZ, the vegetation within the zone does not provide a path for the spread of fire to the building, either from the ground level or through the tree canopy.

An APZ provides:

- a buffer zone between a bush fire hazard and an asset;
- an area of reduced bush fire fuel that allows suppression of fire;
- an area from which backburning may be conducted; and
- an area which allows emergency services access and provides a relatively safe area for firefighters and home owners to defend their property.

The scope of this plan is to manage the vegetation within the APZ as an Inner Protection Area (IPA) for perpetuity.

This plan has an operational life of 5 years and is a living document that should evolve as new knowledge or technologies emerge.

The Emergency Planning Committee should review this plan after the following:

- A major bushfire event;
- Changes to organisational responsibility; and
- Changes to legislation.

4. APZ REQUIREMENTS

The APZs are to be maintained as Inner Protection Areas (IPA).

The IPA is the area closest to the building and creates a fuel-managed area which can minimise the impact of direct flame contact and radiant heat on the development and act as a defendable space. Vegetation within the IPA should be kept to a minimum level. Litter fuels within the IPA should be kept below 1cm in height and be discontinuous.

In practical terms the IPA is typically the curtilage around the building, consisting of a mown lawn and well-maintained gardens.

When establishing and maintaining an IPA the following requirements apply:

Trees

- tree canopy cover should be less than 15% at maturity;
- trees at maturity should not touch or overhang the building;
- lower limbs should be removed up to a height of 2m above the ground;
- tree canopies should be separated by 2 to 5m; and
- preference should be given to smooth barked and evergreen trees.

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- grass should be kept mown (as a guide grass should be kept to no more than 100mm in height); and
- leaves and vegetation debris should be removed.

4. APPROVAL TO UNDERTAKE WORK

Upon Development Application approval, the conditions of consent should provide approval for the APZ. Undertaking APZ management work does not require an additional approval.

All work undertaken must be consistent with any existing land management agreements (e.g. a conservation agreement, or property vegetation plan) entered into by the property owner.

If you intend to burn off to reduce fuel levels on your property you may also need to obtain a Fire Permit through the RFS or NSW Fire Brigades. See the RFS document Before You Light That Fire for an explanation of when a permit is required.

5. HOW TO UNDERTAKE WORK

Reduction of fuel does not require removal of all vegetation, which would cause environmental damage.

Also, trees and plants can provide some bush fire protection from strong winds, intense heat and flying embers (by filtering embers) and changing wind patterns. Some ground cover is also needed to prevent soil erosion.

ESTABLISHMENT

Before the APZ can be maintained, it needs to be established to Inner Protection Area standards as detailed in Section 4. This may include vegetation removal of existing trees or shrubs prior to maintenance. This includes:

Trees

- trees at maturity should not touch or overhang the building;
- tree canopies should be separated by 2 to 5m; and

Shrubs

- create large discontinuities or gaps in the vegetation to slow down or break the progress of fire towards buildings should be provided;
- shrubs should not be located under trees;
- shrubs should not form more than 10% ground cover; and
- clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

When choosing plants for removal, the following basic rules should be followed:

- Remove noxious and environmental weeds first. Your local council can provide you with a list of environmental weeds or 'undesirable species'. Alternatively, a list of noxious weeds can be obtained at https://weeds.dpi.nsw.gov.au/;
- Remove more flammable species such as those with rough, flaky or stringy bark; and
- Remove or thin understorey plants, trees and shrubs less than three metres in height

The removal of significant native species should be avoided.

MAINTENANCE

Ongoing maintenance is required to ensure the APZ is maintained. The following details the management methods details in *Standards for Asset Protection Zones (NSW RFS).* It is the duty of the person responsible for maintaining the APZ to use the most appropriate method for maintenance below.

Fuels can be controlled by:

1. Raking or manual removal of fine fuels

   Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis. This is fuel that burns quickly and increases the intensity of a fire. Fine fuels can be removed by hand or with tools such as rakes, hoes and shovels.

2. Mowing or grazing of grass.

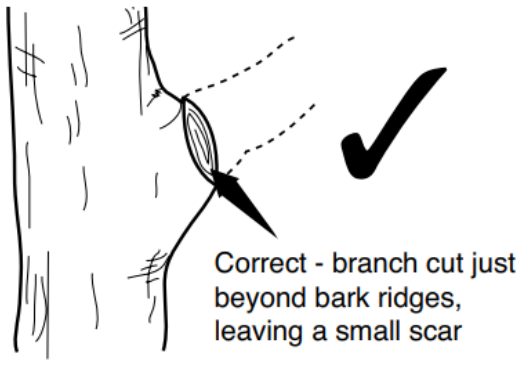
   Grass needs to be kept short and, where possible, green.

3. Removal or pruning of trees, shrubs and understorey.

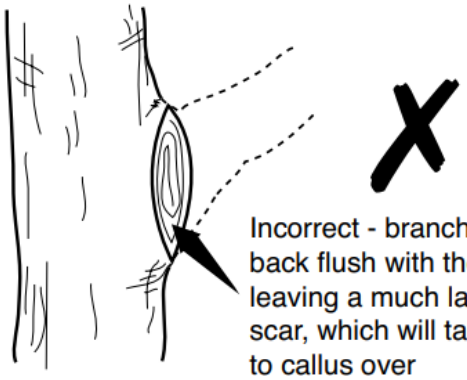
   The control of existing vegetation involves both selective fuel reduction (removal, thinning and pruning) and the retention of vegetation. Prune or remove trees so that you do not have a continuous tree canopy leading from the hazard to the asset. Separate tree crowns by two to five metres. A canopy should not overhang within two to five metres of a dwelling. Native trees and shrubs should be retained as clumps or islands and should maintain a covering of no more than 20% of the area.

Prune in accordance with the following standards:

- Use sharp tools. These will enable clean cuts and will minimise damage to the tree.
- Decide which branches are to be removed before commencing work. Ensure that you maintain a balanced, natural distribution of foliage and branches.
- Remove only what is necessary.
- Cut branches just beyond bark ridges, leaving a small scar.
- Remove smaller branches and deadwood first.



Correct - branch cut just beyond bark ridges, leaving a small scar



Incorrect - branch cut right back flush with the trunk, leaving a much larger scar, which will take longer to callus over

There are three primary methods of pruning trees in APZs:

1. Crown lifting (skirting)

Remove the lowest branches (up to two metres from the ground). Crown lifting may inhibit the transfer of fire between the ground fuel and the tree canopy.

2. Thinning

Remove smaller secondary branches whilst retaining the main structural branches of the tree. Thinning may minimise the intensity of a fire.

3. Selective pruning

Remove branches that are specifically identified as creating a bush fire hazard (such as those overhanging assets or those which create a continuous tree canopy). Selective pruning can be used to prevent direct flame contact between trees and assets.

4. Slashing and trittering

Slashing and trittering are economical methods of fuel reduction for large APZs that have good access. However, these methods may leave large amounts of slashed fuels (grass clippings etc) which, when dry, may become a fire hazard. For slashing or trittering to be effective, the cut materials must be removed or allowed to decompose well before summer starts.

If clippings are removed, dispose of them in a green waste bin if available or compost on site (dumping clippings in the bush is illegal and it increases the bush fire hazard on your or your neighbour's property).

The following techniques can also assist in the implementation and maintenance of APZ:

- Biodegradable chemicals such as Roundup may be used on individual plants which are not endemic.
- Trees are to remain unaffected, except where the dead matter is hanging in the near-surface fuel area, i.e. branches less than 4 m;
- Any regrowth of shrubs to be culled.

6. LANDSCAPING CONSIDERATIONS

The following should be given consideration when maintenance occurs.

SOIL EROSION

While the removal of fuel is necessary to reduce a bush fire hazard, you also need to consider soil stability, particularly on sloping areas. Soil erosion can greatly reduce the quality of your land through:

- loss of top soil, nutrients, vegetation and seeds
- reduced soil structure, stability and quality
- blocking and polluting water courses and drainage lines

A small amount of ground cover can greatly improve soil stability and does not constitute a significant bush fire hazard. Ground cover includes any material which directly covers the soil surface such as vegetation, twigs, leaf litter, clippings or rocks. A permanent ground cover should be established (for example, short grass). This will provide an area that is easy to maintain and prevent soil erosion.

When using mechanical hazard reduction methods, you should retain a ground cover of at least 75% to prevent soil erosion. However, if your area is particularly susceptible to soil erosion, your Hazard Reduction Certificate may require than 90% ground cover be retained.

REMOVAL OF OTHER MATERIALS

Woodpiles, wooden sheds, combustible material, storage areas, large quantities of garden mulch, stacked flammable building materials etc. should be located away from the house. These items should preferably be located in a designated cleared location with no direct contact with bush fire hazard vegetation.

OTHER PROTECTIVE FEATURES

You can also take advantage of existing or proposed protective features such as fire trails, gravel paths, rows of trees, dams, creeks, swimming pools, tennis courts and vegetable gardens as part of the property's APZ.

TABLE 1 FREQUENCY OF MAINTENANCE WORKS

Activity	Minimum Frequency	Description of Activity	Responsibility
Creation of APZ	Competed prior to the commencement of building works in accordance with the approved Conditions of Consent	APZ to be established in accordance with this plan	Site Manager
APZ Maintenance	**Trees and Shrubs:** Quarterly **Grass:** Fortnightly	APZ to be maintained in accordance with this plan	Site Manager
New plan	Every 5 years	Overall coordination and review of this plan. A review should also occur following: • A major bushfire event; • Changes to organisational responsibility; • Changes to legislation.	Site Manager

7. REFERENCES

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

NSW Department of Planning and Environment (DPE) (2020). Planning Portal. Accessed at: https://www.planningportal.nsw.gov.au/.

NSW Office of Environment and Heritage (OEH) (2019a). Biodiversity Value Map. Accessed at: https://www.lmbc.nsw.gov.au/Maps/index.html?viewer=BVMap.

NSW Rural Fire Service (2010) *Standards for asset protection zones*

NSW Rural Fire Service (2019) *Planning for Bushfire Protection. A Guide for Councils, Planners, Fire Authorities and Developers*. *November 2019.*

Tozer MG, Turner K, Keith DA, Tindall D, Pennay C, Simpson C, MacKenzie B, Beukers P, Cox S 2010. *Native Vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands*. Cunninghania 11:359-406.

APPENDIX I DEFINITION OF ASSET PROTECTION ZONES

Vegetation within the APZ should be managed in accordance with APZ specifications for the purposes of limiting the travel of a fire, reducing the likelihood of direct flame contact and removing additional hazards or ignition sources. The following outlines some general vegetation management principles for APZs:

1. Discontinuous shrub layer (clumps or islands of shrubs not rows);

2. Vertical separation between vegetation stratums;

3. Tree canopies not overhanging structures;

4. Management and trimming of trees and other vegetation in the vicinity of power lines and tower lines in accordance with the specifications in “Vegetation Safety Clearances” issued by Energy Australia (NS179, April 2002);

5. Maintain low ground covers by mowing / whipper snipper / slashing; and

6. Non-combustible mulch e.g. stones and removing stores of combustible materials;

7. Vegetation to be planted should consist of fire retardant/ less flammable species strategically located to reduce attack from embers (i.e. as ember traps when in small clumps and short wind breaks).

APPENDIX II DEFINITIONS AND ABBREVIATIONS

Asset Protection Zone- A fuel reduced area surrounding a buffer zone between a bushfire hazard and an asset. The APZ includes a defendable space within which firefighting operations can be carried out. The size of the required APZ varies with slope, vegetation and FFDI.

Bush fire prone area- an area of land that can support a bush fire or is likely to be subject to bushfire attack, as designated on a bush fir prone land map

Bush fire prone vegetation (BFPV) – A map prepared by Council in accordance with RFS guidelines and defining area of vegetation by BFPV categories

Bushfire prone land map (BFPL) A map prepared in accordance with RFS guidelines and certified by the Commissioner of the NSW RSS under section 146 (2) of the Environmental Planning and Assessment Act (1979)

Crown /Canopy Fire: Fast burning fire in the crowns of the tree

Effective Slope: The land beneath the vegetation which most significantly effects fire behaviour, having regard to the vegetation present.

Fine Fuels: All fuels less than 6 mm in diameter

Fire Intensity - The rate of energy released per unit length of fire front

Fire Season- The periods of the year during which fires are likely to occur. There is an official fire season that is determined each year by the RFS

Fuel: Any material such as grass, bark, leaf litter and living vegetation which can be ignited and sustains fire. Fuel is measured in tonnes per hectare of dry weight

Managed land- Managed land is land that has vegetation removed or maintained to limit the spread and impact of bushfire. It may include existing developed land (i.e. residential, commercial or industrial) roads, golf course fairways, playgrounds or sports fields, vineyards, orchards, cultivated ornamental gardens, and commercial nurseries.

PCT Maps- *Plant Community Types* are the agreed foundation level for classifying vegetation in NSW and are intended to provide the most ecologically relevant grouping of plant species for a range of purposes not just mapping. Plant communities are complex and dynamic entities that can be challenging to map or even recognize on the ground especially where they have been significantly modified through clearing or logging.

VMP- Vegetation Management Plan outlines the objectives, techniques and actions specific to the management of the vegetation on site.