Clarence City Council

# Bushfire Management Plan

## Rokeby Hills Reserve
## Howrah

Revised
January 2017
Clarence City Council

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## PROJECT TEAM

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# 1. Introduction

This bushfire management plan (BMP) is the second revision of the initial BMP for Kuynah Bushland Reserve (now known as Rokeby Hills Reserve) prepared by AVK Environmental Management and Renaissance Forestry in 2005, and will operate for a period of 5 years after which another review is recommended. This BMP includes Toorittya Bushland Reserve (approximately .5ha located at 534 Oceana Drive, Howrah) and approximately 32ha of public open space (POS) throughout Rokeby Hills formerly owned by Malwood PTY LTD, acquired by Council in 2016 as an offset for impacts associated with adjacent residential development.

Sections of the reserve are covered by a Conservation Covenant stipulating activities on, or in relation to, the land which will cause damage to, or degradation of, the natural values (see figure 5 for extent of covenant).

It should be noted that this BMP is not an operations plan and does not deal directly with "response" to bushfires. Operational procedures are dealt with in various documents prepared by the Tasmania Fire Service (TFS) and other emergency services.

## 1.1 Aim

The aim of this BMP is to provide a framework for bushfire management that meets Clarence City Council's land management objectives for the site, as set out in Council's *Bushfire Management Strategy for Council Owned and Controlled Land*, *Bushfire Management Strategy - Best Management Practice Guidelines* and Strategic Plan.

It must be noted that it will not be possible to prevent bushfires occurring in the reserves. Unless these fires are suppressed quickly, there is a risk that large destructive fires may develop. Depending on weather conditions, such fires may burn a substantial portion of the bushland in and adjoining the reserve causing damage to assets and environmental values, and even loss of life. This BMP aims to lessen these risks by minimising the risk of fires starting in the reserve, and minimising the risk of injury or damage to assets in and surrounding the reserve.

This plan also provides for the use of fire as a management tool to:

- Target area for maximum risk reduction
- reduce bushfire hazard to protect assets from bushfires
- maintain the long-term viability of the native vegetation in the reserve
- Assist in the removal of weeds and the regeneration of degraded bushland.

## 1.2 Location and Description

With the 2016 acquired land, Rokeby Hills Reserve covers an area of approximately 40ha. The reserve is located along the skyline of Rokeby Hills, bordering the suburbs of Howrah and Rokeby (figure 1). The highest point in the reserve is approximately 150m above sea level (ASL) with a north to westerly aspect. The reserve is surrounded by residential developments to the north, south and west and bushland/grasslands on private property and residential developments to the east. Four large privately owned blocks are scattered throughout Rokeby Hills surrounded by the reserve and are zoned as Environmental Living under the *Tasmanian Interim Planning Scheme Zoning* (figure 2). The reserve has multiple entry points; access from the eastern boundary is via bushland/degenerated pasture on private property exiting Rokeby which has multiple unrestricted entry points. This creates challenge as allows for the frequent dumping/torching of stolen cars, rubbish dumping and illegal fire wood collection. Multiple costly attempts have been made to restrict access and have not been successful.

The reserve and some adjacent land (figure 4) have been mapped as a bushfire-prone area under the *Clarence Interim Planning Scheme 2015* (CIPS 15). Any future developments within or adjacent may require a Bushfire Risk Assessment and a Bushfire Hazard Management Plan.

### 1.2.1 Geology and Soils

Soils in the norther elevated sections of the reserve are shallow dark brown clays of moderate fertility over Jurassic dolerite and are considered to have a low erodibility. The lower section in the northern end of the reserve and the POS (formerly owned by Malwood PTY LTD) is predominantly underlain by Permian mudstone with thin skeletal soils on the upper slopes and deeper soils confined to the lower slopes (North Barker Ecosystems Services, 2011).

**Figure 1 – Location of the Reserve**

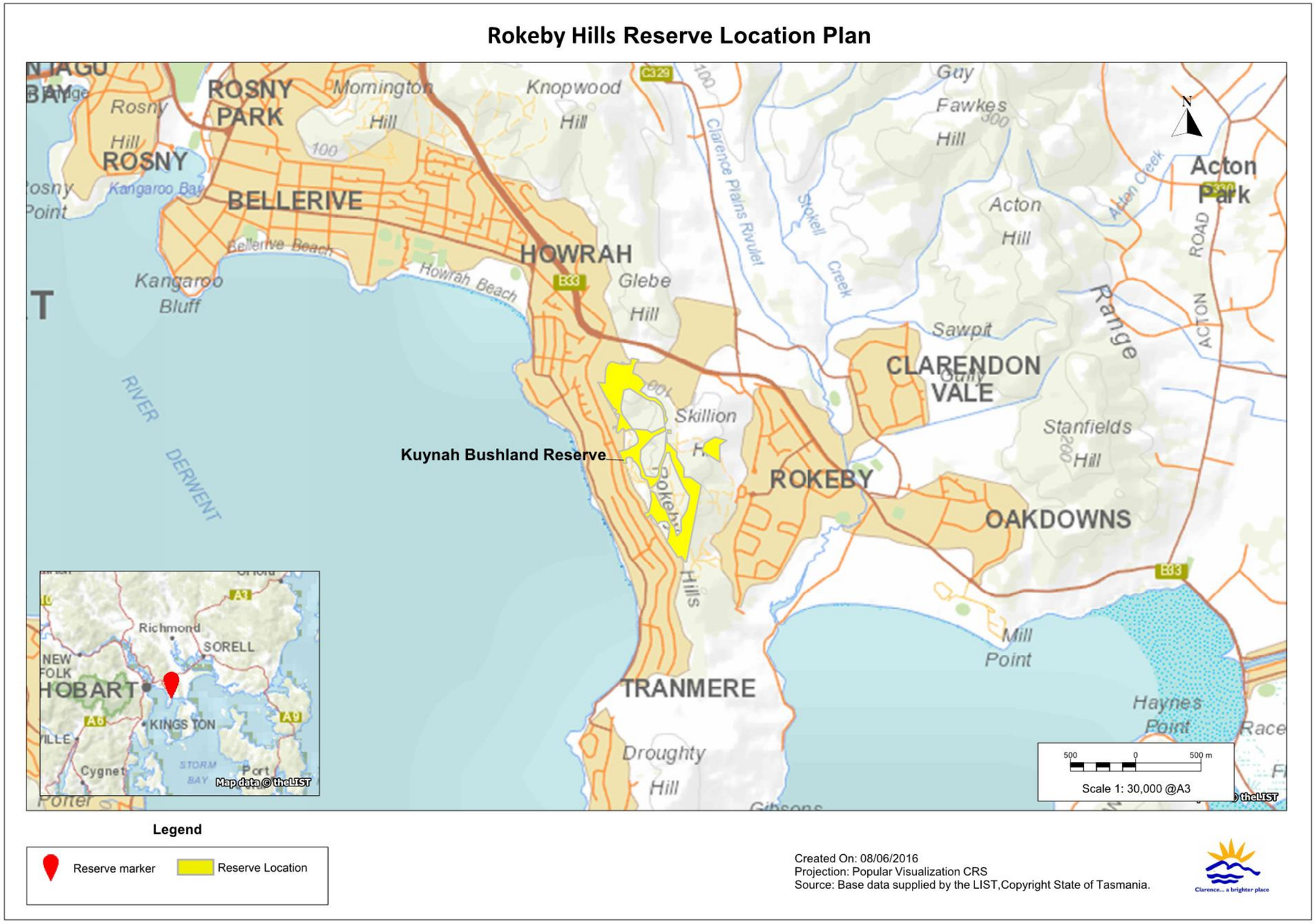
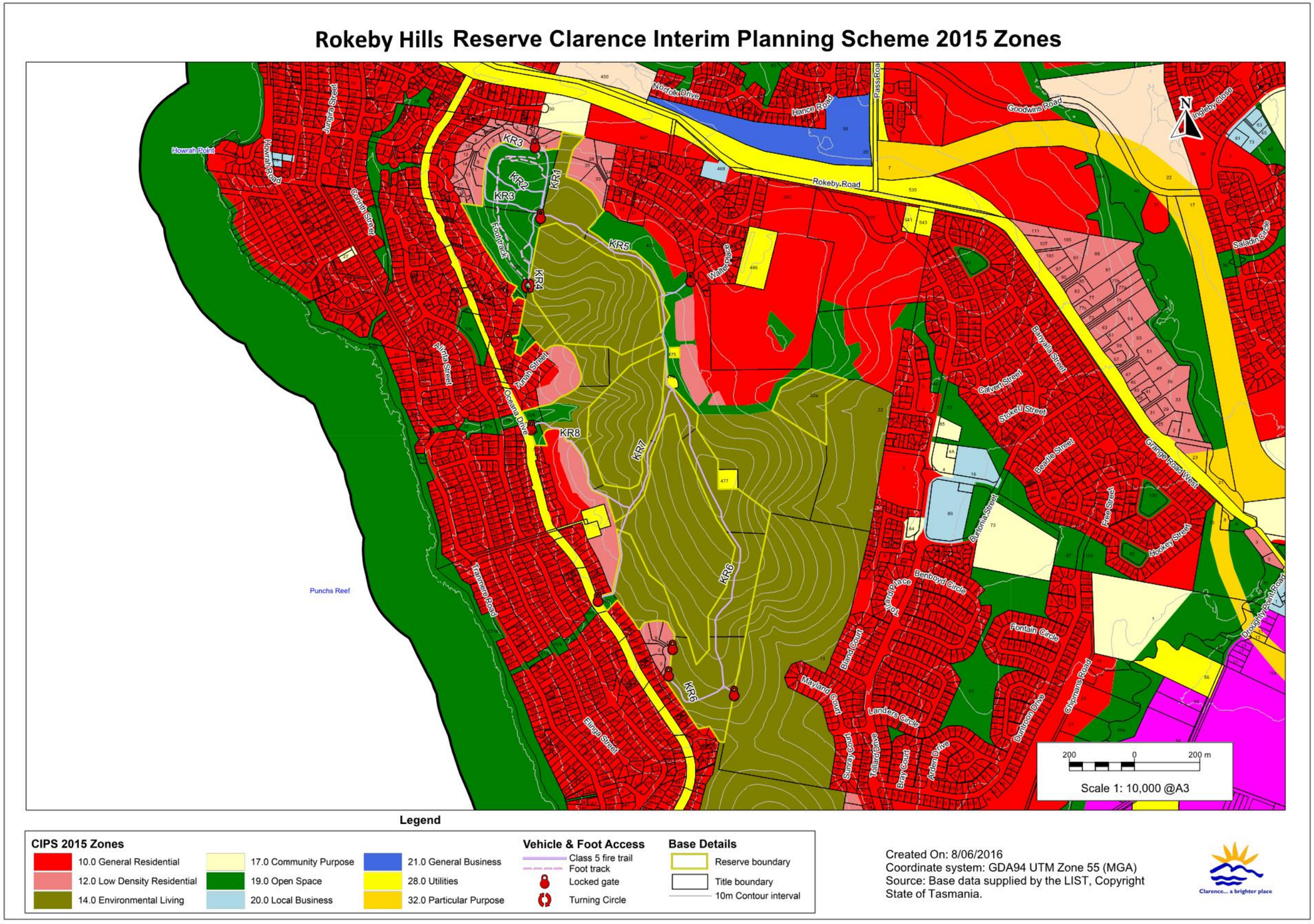


**Figure 2 – Tasmanian Interim Planning Scheme**



### 1.2.2 Vegetation

The major vegetation communities in the reserve are shown in figure 3. Vegetation types and community boundaries within the reserve is based on Tasveg 3.0 mapping, checked and modified where required following a survey of the reserve. Vegetation community boundaries outside the reserve have not been checked for accuracy but are shown to give an indication of the surrounding vegetation. Vegetation communities within the reserve are:

*Eucalyptus amygdalina* with *Eucalyptus viminalis* dominant (DAM V)

*Eucalyptus amygdalina* forest and woodland on mudstone (DAM)

*Eucalyptus globulus* dry forest and woodland (DGL)

*Eucalyptus risdonii* forest and woodland (DRI)

*Eucalyptus viminalis* grassy forest and woodland (DVG)

Agricultural land (FAG)

Lowland *Poa labillardierei* grassland (GPL)

Rockplate grassland (GRP)

*Allocasuarina verticillata* forest (NAV)

The reserve has a grassy understorey with some sections of relatively dense, shrubby understorey. Ground cover is suppressed in some of the northern NAV section where she oak is dense.

Areas within the Lowland *Poa labillardierei* grassland (GPL) are listed as critically endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*; however it has not been determined whether the areas of GPL on the land qualify as constituting the listed community. The community is 'derived' from past removal of canopy *Eucalyptus viminalis.* Removal of introduced livestock in recent years has led to an over-mature grassland dominated by large, rank tussocks of *Poa labillardierei*, with notably occurrences of weed species such as Bria rose *(Rosa rubiginosa)* (North Barker Ecosystems Services, 2010).

Rockplate grassland (GRP) is an example of a vegetation type which may be similar to, intergrade with, or occur close to the lowland native grasslands of Tasmania. These vegetation types are excluded from the national ecological community in their own right. However, where a patch of vegetation meets the description and the condition thresholds of the lowland native grasslands of Tasmania presented in the listing advice then it forms part of the listed national ecological community (Department of the Environment, Water, Heritage and the Arts, 2010).

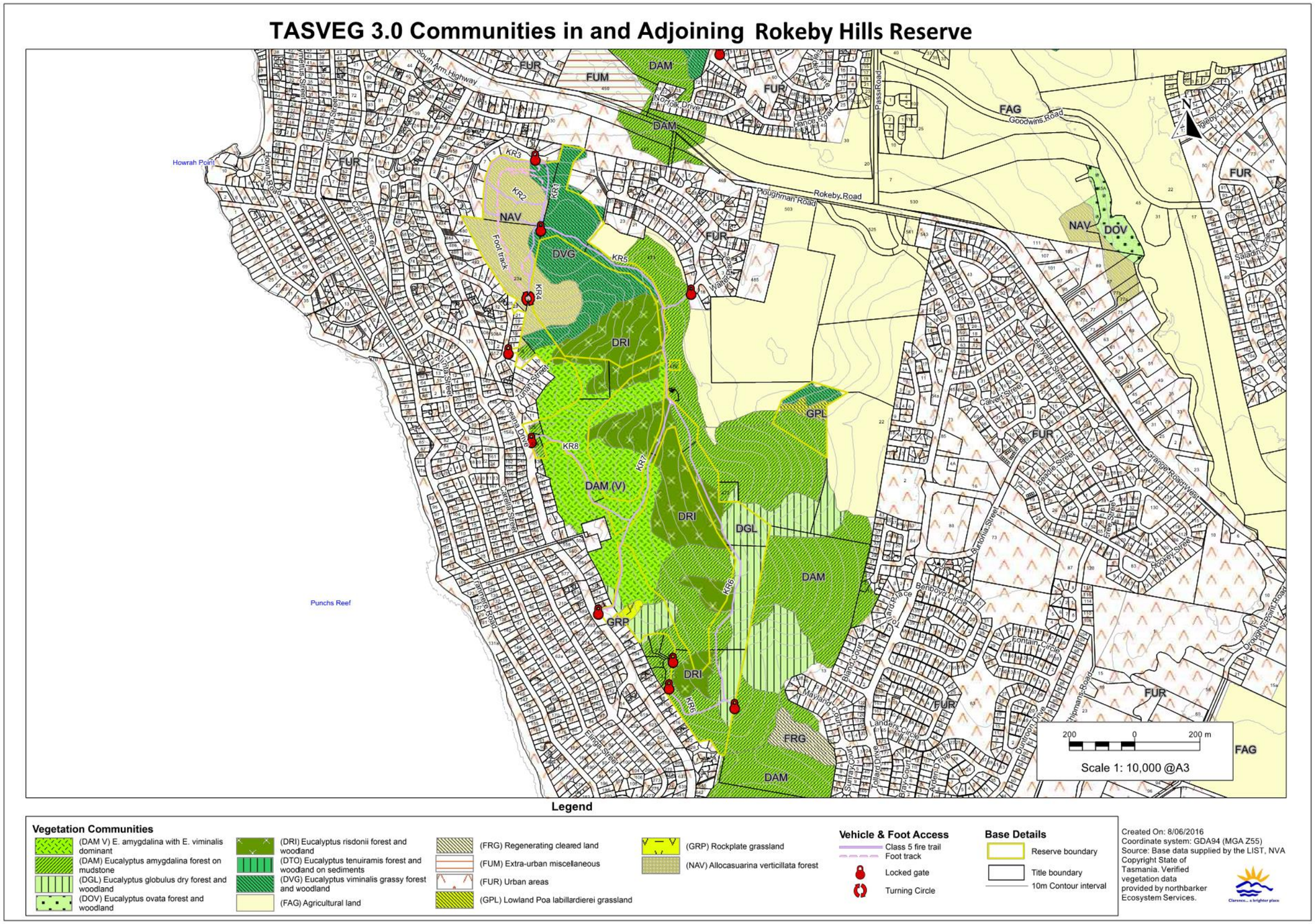
*Eucalyptus globulus* dry forest and woodland (DGL) and *Eucalyptus risdonii* forest and woodland (DRI) are listed as threatened native vegetation communities under the *Nature Conservation Act 2002.*

### 1.2.3 Reserve Usage

The reserve is a locally important recreational area for activities such as; mountain biking, walking, dog exercising and jogging.

The reserve is accessible by 4WD vehicles (and stolen 2WD vehicles) from the east with frequent torching of stolen vehicles. There is also evidence of wood hooking and rubbish dumping in the reserve (localised to eastern boundaries).

**Figure 3 – Native Vegetation Types in and adjoining the Reserve**



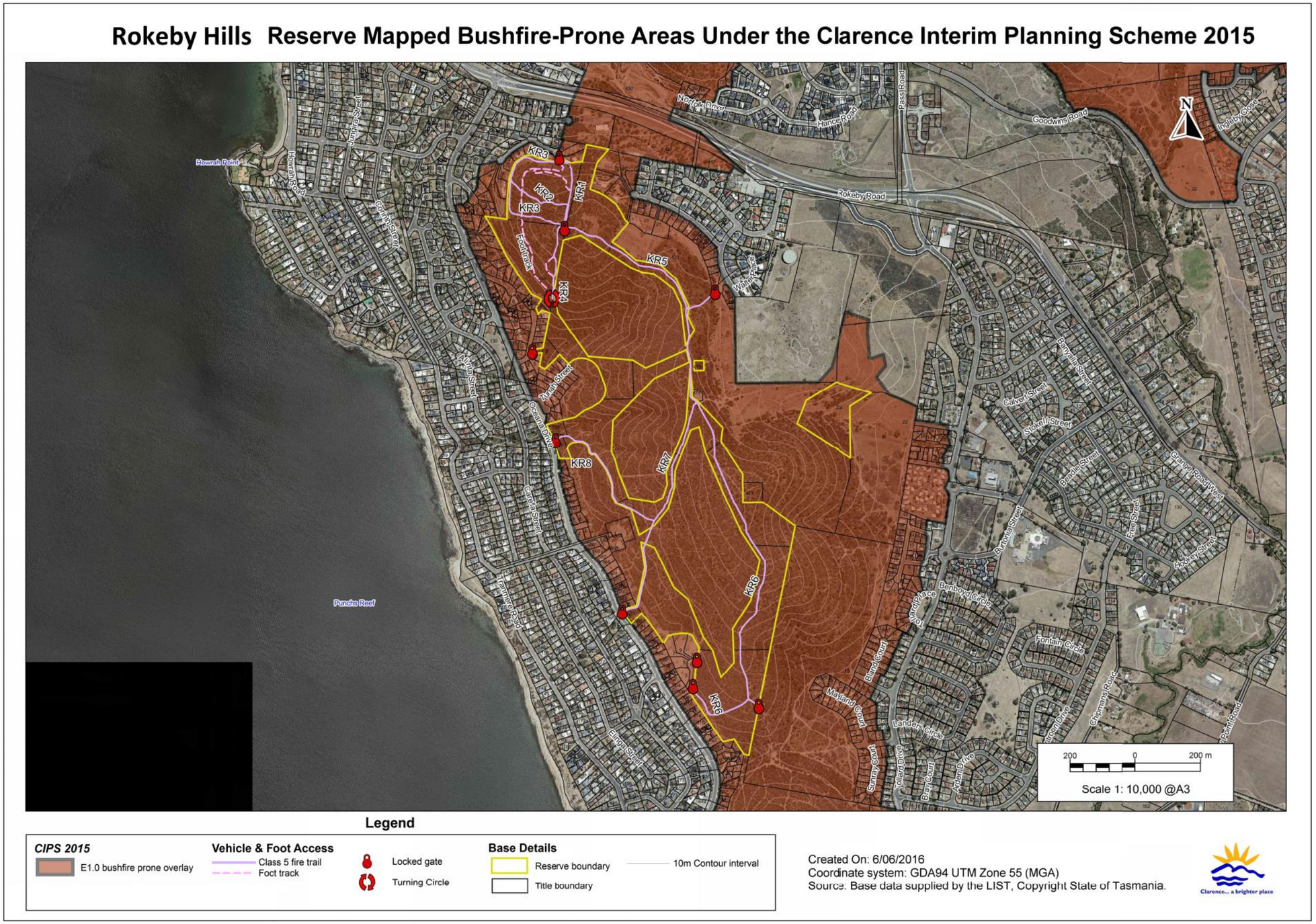
## 1.3 Bushfire Management Objectives

Bushfire management within the Rokeby Hills Reserve will meet the following broad management objectives:

1. Protection of life, assets and adjoining property from bushfire.
2. Minimise the risk of fires starting and spreading in the reserve.
3. Protection and enhancement of the ecological and visual values provided by the reserve.
4. Protection of infrastructure and cultural heritage values within the reserve.
5. Recovery, maintenance and enhancement of vegetation communities and fauna habitat within the reserve.
6. Minimisation of soil loss resulting from bushfire, or bushfire management activities.

The actions recommended to attain each of these objectives are listed in section 5.1.

**Figure 4 – Mapped Bushfire-Prone Areas under the *Clarence Interim Planning Scheme 2015* (CIPS 15)**



## 1.4 Reserve Management Responsibilities

Management of the reserve is the responsibility of Clarence City Council. Clarence City Council has a responsibility under the *Fire Service Act* (1979) to take all reasonable precautions to prevent any fire lit on their property from spreading onto neighbouring property. This BMP will help to fulfil that "duty of care". The TFS is responsible for suppressing bushfires within the reserve.

## 1.5 Management Plans

There are a number of assessments and management plans that were prepared for parts of the reserve or adjoining areas that contain information relevant to the management of the reserve prior to, and post Councils acquirements of POS during 2016. These include:

A **Draft Reserve Activity Plan (RAP)** covering the former Kuynah Bushland Reserve BMP boundary (8$^{ha}$). The RAP is intended to document the natural, cultural, recreational and other values of the reserve, and include an implementation plan for proposed on-ground activities. This RAP runs from 2016-2021 and is planned to be amended to incorporate the acquired POS.

A **Nature Conservation Plan** identifying general management objectives in addition to specific management objectives for natural values of land covered under the Conservation Covenant (figure 5). This plan is part of the Conservation Covenant under Part 5 of the *Nature Conservation Act 2002.*

A **Vegetation Survey and Fauna Habitat Assessment** covering approximately 77.4$^{ha}$ comprising of the 2016 Council acquired POS, and the remaining privately owned bushland by Malwood PTY LTD. This assessment was undertaken in 2011 and designed to ensure the proposed development responded sympathetically to the natural values.

## 1.6 Conservation Covenants

The reserve has one Conservation Covenant in place on the land under Part 5 of the *Nature Conservation Act 2002*. The covenant at Rokeby Hills was developed as an offset for impacts associated with adjacent residential development. The covenant meets a threatened species permit condition imposed by the Development and Conservation Assessment Branch, Department of Primary Industries, Parks, Water and Environment (DPIPWE) that requires a perpetual Conservation Covenant to be registered upon the land title.

The land provides an important area of native vegetation in Hobart's peri-urban zone and provides an opportunity to protect threatened species and communities, whilst contributing to a potential native vegetation corridor between the Rokeby Hills and the Howrah Hills to the north (North Barker Ecosystems Services, 2010).

The lands placed under these covenants by the previous owners are shown in figure 5.

The Conservation Covenants binds the current and all future owners of the land. The sections in the Terms of Covenant that have implications for bushfire management in the reserve are:

Clause 4.2 (c) "introduction of Foreign Material {must not be undertaken} except materials for the maintenance and construction of infrastructure, fences or carriageways as authorised in writing by the Minister"

Clause 4.2 (d) "off-road use of vehicles except for emergency purposes, or for the purpose of assisting the maintenance or construction of fences, carriageways or infrastructure"

Clause 4.2 (f) "lighting of fires {must not be undertaken} except for the purpose of fire hazard reduction or management of the Natural Values as authorised in writing by the Minister"

Clause 4.2 (h) "use of herbicides and other chemicals {must not be undertaken} except for registered herbicides or pesticides for the purpose of controlling exotic species that threaten natural values"

Clause 4.2 (i) "removal or disturbance of soil, rock or other mineral resources {must not be undertaken} except for the purposes of maintenance and construction of fences, carriageways, including walking tracks or infrastructure and for revegetation activities"

Clause 4.2 (k) "building or placement of infrastructure, fences or carriageways {must not be undertaken} except:

(i) for the purposes of fencing to protect the Land from activities on adjoining land or to meet property boundary fencing commitments to adjoining landowners"

(ii) for the purposes of constructing additional fences or constructing additional carriageways as authorised in writing by the Minister;

Clause 4.2 (m) "clearance of native vegetation {must not be undertaken} except:

(i) for the purposes of fire hazard reduction, firefighting purposes, or the creation and maintenance of firebreaks if authorised by the Tasmanian Fire Service or as authorised in writing by the Minister;

(ii) for the purposes of maintenance of carriageways, rights of ways and easements in accordance with all Legislative Requirements;

(iii) for the purposes of constructing carriageways additional fences or infrastructure as authorised in writing by the Minister;

(iv) for the purposes of maintenance of fences, carriageways or infrastructure as authorised in writing by the Minister;

(v) for the purpose of management of the Natural Values through the planned use of fire as authorised in writing by the Minister"

Clause 4.3 "The Owner agrees:

(a) to use best endeavours to ensure that Exotic Species that threaten the Natural Values of the Land do not become established;

(b) to use best endeavours to eliminate or control established Exotic Species that threaten the Natural Values of the Land by observing the weed management prescriptions and feral animal control prescriptions issued for the Land by the Minister;

(c) to observe any reasonable fire management practices prescribed for the Land by the Minister;

(d) to maintain fences if those fences are necessary to protect the Natural Values of the Land;

(e) to observe any threatened species management prescriptions issued for the Land by the Minister;

(f) to observe any prescriptions limiting off-road vehicle use issued for the Land by the Minister; and

(g) to use best endeavours to protect the Natural Values of the Land.

Clause 9 "The Owner will advise the Minister of any proposed actions or events which have had, or may have, adverse effects upon the Natural Values"

These restrictions only apply to the portions of the reserve covered by the Conservation Covenants. There are other provisions in the Covenants that will affect other management activities.

As required under the terms of the Covenant, Council's Fire and Bushland Management will seek Ministerial authorisation from the Department of Primary Industries, Parks, Water and Environment (DPIPWE) to use fire prior to implementation of this Plan. If sufficient detail is provided to DPIPWE in the BMP then the authorisation may be provided for the full 5 year life of the Plan.

**Figure 5 – Extent of Conservation Covenant**

# 2. Bushfire Risks

Extreme bushfire conditions can occur in southern Tasmania when dry winters and springs are followed by summers where fuels are very dry. Under these conditions, fires can be expected to move quickly under the influence of strong, dry, north-westerly winds, and then move more or less at right angles on a broad front when the subsequent south-westerly wind change arrives. Fires that start under these conditions can reach a very high intensity, even in areas with relatively low fuel loads, and are very difficult to control until the weather conditions abate.

## 2.1 Bushfire History and Causes

The 1967–2015 bushfire history and 2011-2016 TFS incidents within the reserve are shown on figure 6.

### 2.1.1 Bushfires

Data supplied by the TFS and Clarence City Council showed that within the period 2011 to 2016 the TFS attended eight vegetation fires <1$^{ha}$, and 2 vegetation fires >1$^{ha}$ within the reserve. During January 2013 a vegetation fire impacted approximately 2$^{ha}$ within the Council managed bushland behind Maum Street, Rokeby followed by an additional 7$^{ha}$ in February 2013 at the same location. All ten incidents were determined as malicious

The previous BMP stated during 1997 a vegetation fire impacted approximately 10$^{ha}$ within the reserve adjacent to Caroda Court and Fairisle Terrace; however there are no records of this fire. It is believed the fire originated from an escaped burn off on private property.

There have also been nine recorded torched vehicles on the eastern side of the reserve, however this figure is considered to be grossly under inflated. During field visits for the BMP review approximately 30 torched cars were observed.

### 2.1.2 Planned Burning

During the 5 year period covered by the previous BMP, Clarence City Council conducted two planned burns within the reserve (figure 7). VMU 2 was broadscale burnt during 2011, considerable boneseed *(Chrysanthemoides monilifera)* germinated post burn and an extensive post burn weed management program was enacted. This infestation has now been controlled and annual monitoring occurs. VMU 5 was scheduled to be broadscale burnt during 2013. Unfavourable conditions prevented the scheduled burn in 2013. The burn was carried over to 2014 where sections were heap burnt with the reminder broadscale burnt during 2015.

The revised planned burning schedule for 2016-2021 can be found in Table 8.

**Figure 6 – Reserve Bushfire History (1967–2015) and attended TFS Incidents of Reserve (2011-2016)**

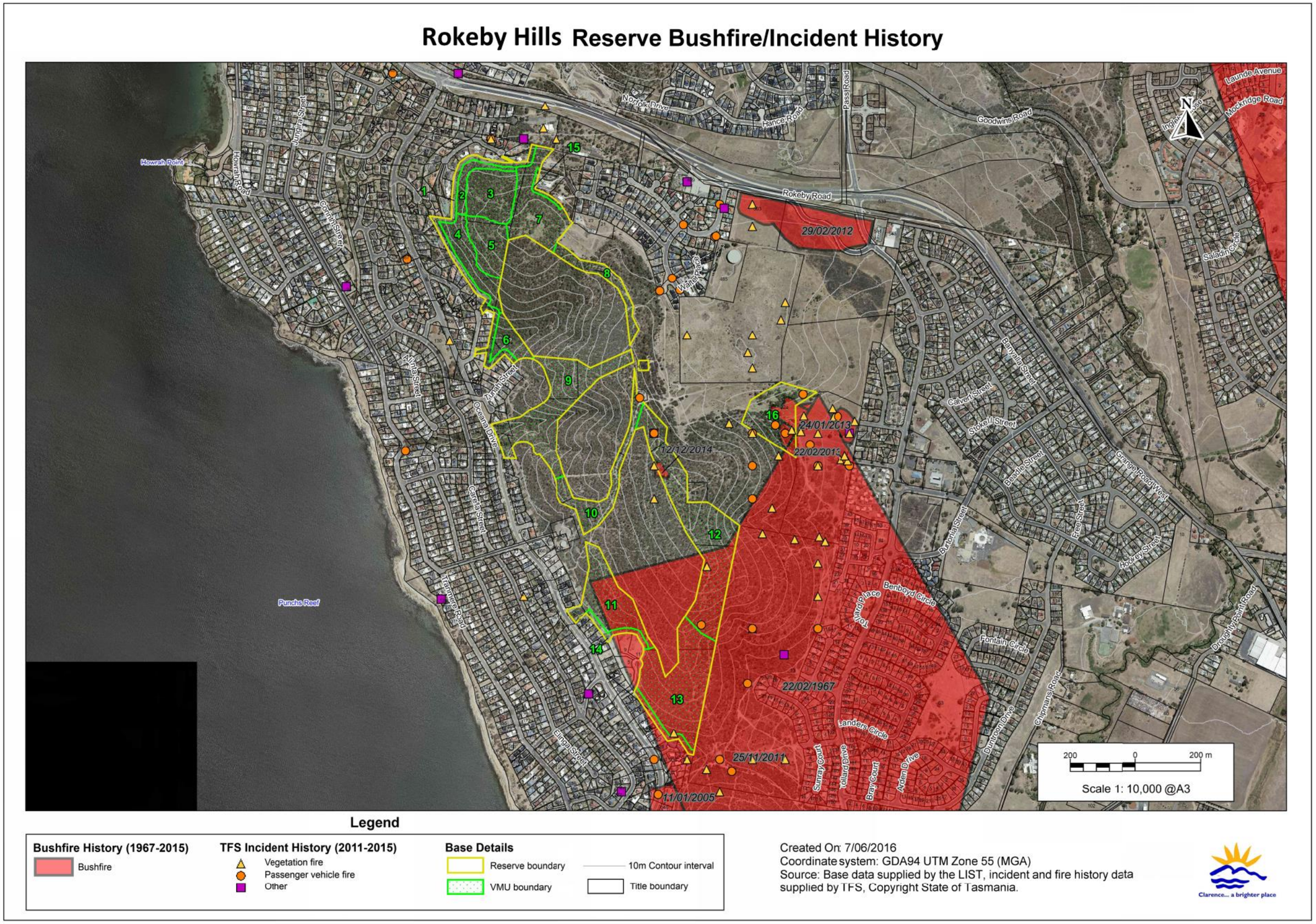


**Figure 7 – Planned Burn History (2011-2015)**

## 2.2 Fuel Types and Hazard Levels

The higher the intensity of a bushfire the greater its destructiveness and the more difficult it is to control. As the intensity of a bushfire increases it becomes progressively more difficult to contain and suppress the bushfire. Very high intensity (> 4000 kW/m heat output at the fire front) fires with flame heights greater than 10m are generally uncontrollable (NSW Rural Fire Service, 1997). Although grass fires rarely attain a very high intensity, they can move much faster than forest fires, thereby making them difficult to contain.

Fire intensity is a function of the heat content of the fuel, the quantity (load) of fuel, and the rate of spread of the bushfire. The heat content of vegetation fuels is roughly constant, and rate of spread is largely a function of slope and weather conditions (wind speed and relative humidity). It has been found that the quantity and distribution of fine fuels are the main factor influencing bushfire behaviour. Larger fuels burn during a bushfire but do not contribute significantly to the spread of a bushfire (NSW Rural Fire Service, 1997).

Fine fuels consist of dead plant matter less than 6mm in diameter and live plant matter less than 2mm in diameter (including grasses, bracken, leaves, bark, and twigs and branches) (Marsden-Smedley, 2009). Fine fuel load (measured in tonnes per hectare) has therefore been used as a convenient measure of the underlying bushfire hazard in areas dominated by woody vegetation. The fine fuel load at any given time is a balance between the rate of fuel build-up, and factors that remove fuel, such as litter decomposition and fire. In the absence of bushfire, fuel loads in forests and woodlands with a shrubby or heathy understorey build up to a quasi-equilibrium state where the rate of fuel production equals the rate of decomposition. The maximum levels vary for different vegetation types and also for the same vegetation types in different locations (Conroy, 1988). The time taken to reach equilibrium fuel loads also varies, ranging from about 2 years in some native grasslands to about 20 to 40 years in dry eucalypt forests (Marsden-Smedley, 2009).

However, it has been found that the fuel structure is possibly more important than the total fine fuel load in determining bushfire behaviour (Marden-Smedley, 2009). Fuel in forests, woodlands and shrublands can be categorised into four layers with differing effects on bushfire behaviour (Hines et al., 2010). These layers are:

- **Surface fine fuel**; leaves, bark, small twigs and other fine fuel lying on the ground. These fuels provide the horizontal continuity that allows a bushfire to spread.
- **Near surface fine fuel**; grasses, low shrubs, bracken etc. up to about 0.5m above the ground surface. Fuels in this layer will burn when the surface fuel layer burns and will increase bushfire intensity.

- **Elevated fuels**; larger shrubs and small saplings with most of the fuel closer to the top of this layer and a clear gap between them and the surface fuels. These interact with the two lower fuel layers to further increase bushfire intensity. They also contribute to the vertical continuity of fuel that allows fire to 'climb' into the tree canopy.
- **Bark fuels**; flammable bark on trees, saplings and large bushes from ground level to the canopy. Loose fibrous bark on stringy-bark eucalypts, and candle bark on some gums can generate large amounts of burning embers which can start spot fires ahead of the main fire front.

Canopy fuels are not usually included in fuel hazard assessments in forests and woodlands, but are included in shrubland and heath fuel types where they are equivalent to elevated fuels. If there is sufficient fuel in the lower fuel layers to start the canopy fuel burning (called a crown fire) fire intensity can increase considerably. Crown fires in forests are generally considered uncontrollable (Luke and McArthur, 1986).

The main fuel factor that influences the rate of spread of a bushfire is the quantity of near surface fuel whereas total fine fuel load is the main factor influencing fire intensity (Gould et al 2007).

In grasslands and grassy woodlands the degree of curing (dryness) of the fuel is considered at least as important as the actual fuel load (Cheney and Sullivan, 2008). Grass goes through an annual cycle with new growth in spring drying out over summer. The bushfire hazard in grassland areas is greatest when the grass is fully cured which usually occurs during the period from December to April depending on seasonal breaks and significant summer rainfall events. However, grasslands that are not grazed or slashed over winter can burn in spring if cured grass from the previous growing season is still present.

Unlike bushland dominated by woody plants, grasslands can accumulate fuel very rapidly, and therefore burning is not a very effective method of hazard reduction. As grass fuel decomposes faster than eucalypt leaves and twigs, and is more likely to be eaten by herbivores, fuel loads in grasslands and grassy woodlands can fluctuate from year to year (Cheney and Sullivan, 2008).

Fuel loads can be roughly categorised in terms of the potential threat they pose as follows:
Low - < 5 tonnes per hectare
Moderate - 5 to 15 tonnes per hectare
High - >15 tonnes per hectare.

The characteristics of each fuel type in the reserves is given in table 1. The TASVEG 3.0 codes of the vegetation types in figure 3 corresponding to each fuel type are listed under the fuel type.

**Table 1 – Characteristics of the different fuel types in the reserves**

| FUEL TYPE | FUEL HAZARD CHARACTERISTICS | BUSHFIRE BEHAVIOUR AND CONTROL |
|---|---|---|
| Grassy forest / woodland<br>DAM<br>DAM (V)<br>DRI[1]<br>DVG | Canopy, surface, near surface, elevated and bark fuels present.<br>Surface fuels are dominant fuel layer in the form of bark, sticks and dead branches. Near surface fuels sparse with some dense aggregates in the form of grasses up to 0.1m. Elevated fuels also sparse within DRI, but can be dense in other communities.<br>Low-moderate fuel loading.<br>Grass component of the fuel load can build up rapidly after fire. | Can burn with moderate to high intensity depending on the degree of fuel build-up. Significant ember attack on structures and spotting across containment lines can be expected. Capable of carrying a bushfire at any time of year if there is a sufficient amount of litter on the ground, and/or cured grass.<br>Tree cover generally to sparse to sustain crown fire. Eucalypt component with hollows and rough bark will be a source of burning embers which can carry a bushfire over nearby fire control lines (roads, fuel breaks) and threaten nearby assets.<br>Fuel reduction burning is effective in removing accumulated litter and the bark fuels largely responsible for spotting, but grass fuels can be replenished within a year after a burn. |
| Shrubby forest / woodland<br>DGL[1] | Canopy, surface, elevated and bark fuels present. Near surface fuels present but sparse in locations. Where she oak present duff layer averages 10-20mm, mainly she oak needles. Shrub layer 3-5m in height. Near surface fuels a mixture of grasses, leaves and bark. Leaf and bark fall around trees contributes to a gradual build-up of fuel, particularly around the base of trees. Generally moderate overall fuel load. Grass component of the fuel load can build up rapidly after fire. | Can burn with moderate to high intensity depending on the degree of fuel accumulation. Significant ember attack on structures downwind of the bushfire and spotting across containment lines can be expected. Capable of carrying a bushfire at any time of year if there is a sufficient amount of litter on the ground.<br>Tree cover generally to sparse to sustain crown fire. Eucalypt component with hollows and rough bark will be a source of burning embers which can carry a bushfire over nearby fire control lines (roads, fuel breaks) and threaten nearby assets. Fuel reduction burning is effective in removing accumulated litter, however limited near surface fuels can limit rate of spread of fire during planned burns. |
| Unmanaged grassland<br>GPL[2]<br>GRP | Native and introduced grasses, near surface and surface fuels present. Potential for dense elevated fuels to about 1m high following wet winters and springs. Flammability dependant on degree of curing of the grass. Grass fuels can be replenished within a year after a burn. | Can generate rapidly moving, moderate intensity fires in late summer and early autumn. Fires can occur at other times of the year if the cured standing crop from the previous year's growth persists. Likely to be relatively little spotting so fires can usually be stopped at roads and firebreaks, however, fires may be uncontrollable in severe fire danger rating (FDR) conditions. |
| Shrubland<br>NAV | Moderate overall fuel loads, predominantly elevated and bark fuels. High proportion of the fuel finely divided and elevated up to 6-7m. Relatively low surface and near surface fuel loads except where the shrub cover is sparse. Thick duff layer up to 40-50mm in form of she oak needles. | Where shrub canopies touch the fuel can sustain a running crown fire of high intensity that would be difficult to control. Dense thickets are difficult to access. Significant ember attack on nearby structures and spotting across containment lines can be expected. May be difficult to burn at low intensity in cool weather due to low surface and near surface fuel loads. |

[1] *Nature Conservation Act 2002.*

[2] *Environment Protection and Biodiversity Conservation Act 1999.*

General fuel loadings throughout the reserve are moderate averaging $10^{t/ha}$. Fuel characteristics are noticeably different amongst exposed DRI community, being more open and dry with limited understorey. Fire suppression amongst DRI community must factor in localised very shallow soils on bedrock.

The eastern side of the reserve experiences frequent localised fires due to the torching of stolen cars. These fires have previously assisted in maintaining a mosaic of ridgeline fires, with low-moderate fuel loadings. The vast extent of in-formalised fire wood cutting tracks assists in suppressing fires within the reserve.

## 2.3 Bushfire Threat and Risk to Persons

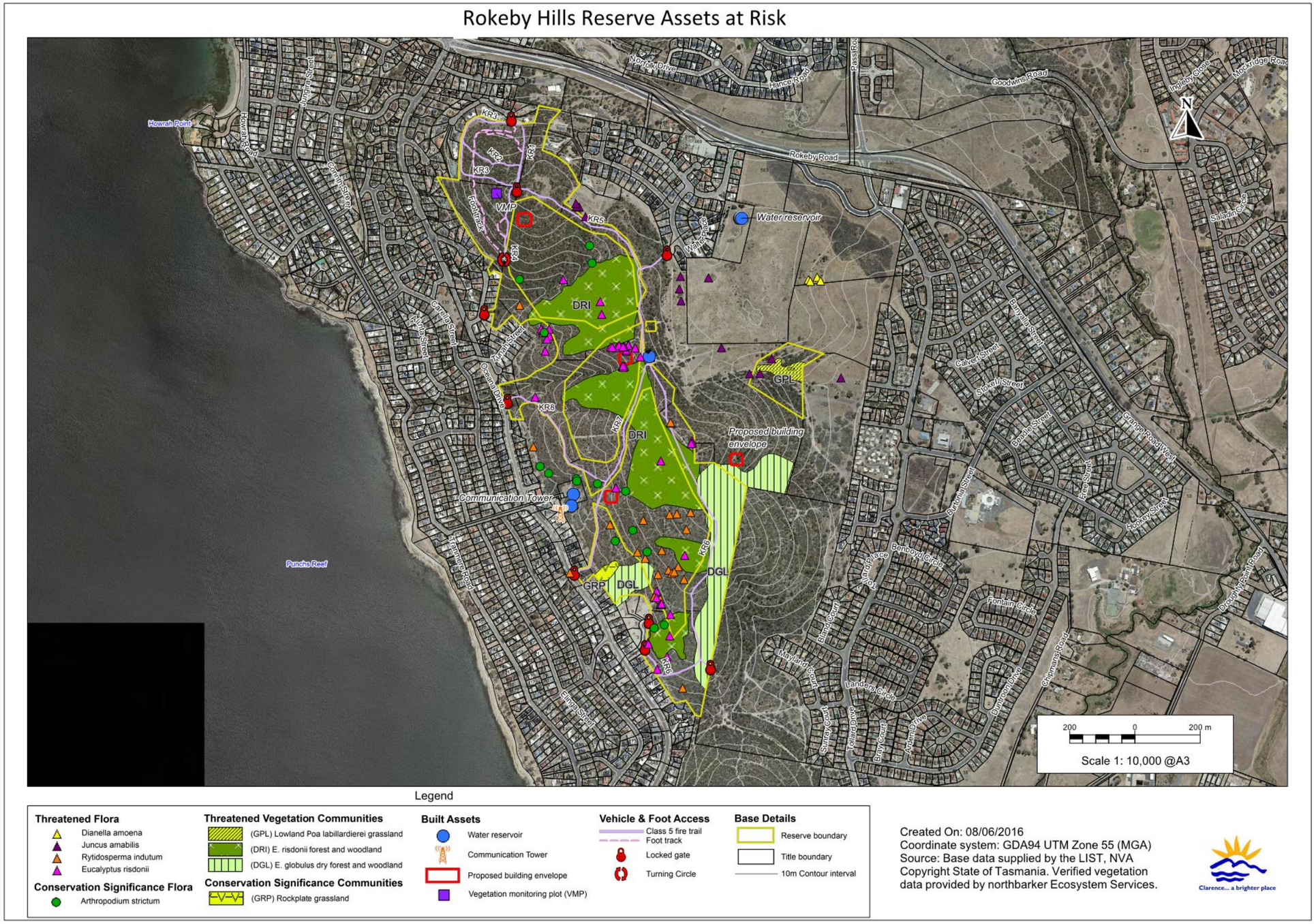
The reserve is situated amongst approximately $110^{ha}$ of undeveloped privately owned bushland and Council managed POS. The main bushfire threat to the reserve is considered to come from fires originating or entering the reserve from the northern end or western slopes that can travel fast running the length of the reserve, and has potential to reach high intensity under days of strong, dry prevailing north to nor-westerly winds. Such fires could quickly run the length of the reserve and threaten adjoining property or life of those situated within. In addition, fires starting within the southern section of the reserve have potential to be fanned through the reserve by afternoon south west to south easterly sea breezes.

Constructing future dwellings/assets within or adjacent to the reserve to the Australian Standard 3959-2009 *Construction of buildings in bushfire-prone areas* can assist in mitigating impacts by fire.

## 2.4 Assets at Risk from Bushfire

Assets potentially at risk from bushfire include; dwellings, infrastructure, and other items (such as ornamental and regeneration plantings) which would cost money to replace; as well as items of scenic, cultural and natural heritage value which could be damaged or destroyed by bushfire, or bushfire suppression activities. Each landowner has an obligation to reduce a bushfire hazard where it is a threat to neighbouring properties. However, even with extensive hazard reduction treatments, the risk of high intensity bushfires occurring in the reserve cannot be eliminated. Therefore consideration must be given to protection measures that will reduce the risk of bushfire damage to assets in and surrounding the reserves. Assets within and surrounding the reserves that are considered at risk from bushfires are shown in figure 8.

**Figure 8 - Assets at risk from bushfire**



### 2.4.1 Bushfire Risk to Natural Heritage Assets

The conservation value of the plant communities in the reserve is given in table 2. A number of plant species of conservation value occur within the reserve. These are listed in table 3 along with their response to fire if known.

The *Natural Values Atlas* identifies no verified records of fauna species of conservation significance occurring within the reserve. It does identify potential habitat present within the reserve for the following species:

Australian grayling *(Prototroctes marena)*, chaostola skipper *(Antipoda chaostola)*, eastern barred bandicoot *(Perameles gunnii),* forty-spotted paradalote *(Paradalotus quadragintus),* green and gold frog *(Litoria raniformis)*, grey goshawk *(Accipiter novaehollandiae),* masked owl *(Tyto novaehollandiae)*, spotted-tail quoll *(Dasyurus maculatus)*, swift parrot *(Lathamus discolor)*, Tasmanian devil *(Sarcophilus harrisii),* Tasmanian wedge-tailed eagle *(Aquila audax subsp. Fleayi),* Tunbridge looper moth *(Chrysolarentia decisaria),* tussock skink *(Pseudemoia pagenstecheri)*, Wedge-tailed eagle *(Aquila audax)* and White-bellied sea-eagle *(Accipiter novaehollandiae)*.

**Table 2 – Conservation value of native plant communities**

| TASVEG 3.0 CODE | EQUIVALENT FLORISTIC COMMUNITY[1] | Conservation Status[2] | EPBC STATUS[3] |
|---|---|---|---|
| DAM<br>DAM (V) | DRY-gAMmud<br>Grassy *E. amygdalina* forest | Not threatened | Not threatened |
| DGL | DRY-gGLOB<br>Grassy *E. globulus* forest | THREATENED NATIVE COMMUNITY | Not threatened |
| DRI | DRY-gRIS<br>Grassy *E. risdonii* forest | THREATENED NATIVE COMMUNITY | Not threatened |
| DVG | DRY-gVIM<br>Grassy *E viminalis* woodland | Not threatened | Not threatened |
| GPL | None described | Not threatened | Critically endangered |
| GRP | None described | Not threatened | Treat as critically endangered when vegetation meets the description and the condition thresholds of the Lowland Native Grasslands. |
| NAV | DRY-in VERT<br>Inland *A. verticillat*a low forest | Not threatened | Not threatened |

1. Forest Practices Authority (2005)
2. *Nature Conservation Act 2002*
3. *Environment Protection and Biodiversity Conservation Act 1999*

**Table 3 - Plant species of conservation value and preferred bushfire management**

| SPECIES | CONSERVATION STATUS[1] | OCCURRENCE | RESPONSE TO BUSHFIRE AND MANAGEMENT | *ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999* (EPBC Act) STATUS |
|---|---|---|---|---|
| *Arthropodium strictum* chocolate lily | Delisted as RARE[1] in 2015. Holds conservation significance. | Four observations on lower section above Oceana Drive. | Noticeable flush of regeneration from seed following fire. Plants also regenerate from tuberous rootstock. | Not threatened |
| *Eucalyptus risdonii* Risdon peppermint | RARE | Localised communities on western facing slopes (figure 8). | Regenerates from lignotubers. Repeated fires may weaken trees. Fire promotes seed release and subsequent germination. | Not threatened |
| *Juncus amabilis* gentle rush | RARE | Localised occurrences in areas with impeded drainage. | Most likely pollination vector is wind. Species is reported to persist after fire. | Not threatened |
| *Ranunculus sessiliflorus var. sessiliflorus* shade peppercress | Delisted as RARE[1] in 2015. Holds conservation significance. | Previously recorded in vegetation Management unit (VMU) 3 & 4 (figure 10). | Regenerates from seed. | Not threatened |
| *Rytidosperma indutum* tall wallaby grass | RARE | Localised occurrences in open dry sclerophyll woodlands. | Likely to regenerate from rootstock and establish from seed after bushfire. | Not threatened |

[1] Tasmanian *Threatened Species Protection Act* 1995

The fire sensitivity and flammability ratings of the vegetation types in the reserves according to Pyrke and Marsden-Smedley (2005), is given in table 4.

**Table 4 – Fire attributes of the native vegetation**

| TASVEG 3.0 CODE | FIRE SENSITIVITY | FLAMMABILITY |
|---|---|---|
| DAM<br>DAM (V) | Low | High |
| DGL | Low | High |
| DRI | Low | High |
| DVG | Low | High |
| GPL | Low | High |
| GRP | Low | High |
| NAV | Low | Moderate |

Flammability classification of Tasmanian vegetation (Pyrke & Marsden-Smedley, 2005)

| FLAMMABILITY | CRITERIA FOR FLAMMABILITY |
|---|---|
| Very high | Will burn readily throughout the year even under mild weather conditions, except after recent rain (i.e. less than 2–7 days ago). |
| High | Will burn readily when fuels are dry enough but will be too moist to burn for lengthy periods, particularly in winter. Fuels will be dry enough to burn on most days from late spring to early autumn. |
| Moderate | Extended periods without rain (i.e. two weeks at least) and/or moderate or stronger winds are required for these communities to burn. |
| Low | These communities will burn only after extended drought (i.e. four weeks without rain) and/or under severe fire weather conditions (i.e. forest fire danger index > 40). |

*Note*: recently burnt stands of low or moderate flammability classes may have a higher flammability rating.

Fire sensitivity classification of Tasmanian vegetation (Pyrke & Marsden-Smedley, 2005)

| FIRE SENSITIVITY | ECOLOGICAL IMPACT OF BUSHFIRE | MANAGEMENT RECOMMENDATIONS |
|---|---|---|
| Extreme | Any bushfire will cause either irreversible or very long-term (> 500 years) damage. | Suppress all bushfire. Highest priority for bushfire suppression. |
| Very high | A single bushfire will cause significant change to the community for 50–100 years and will increase the probability of subsequent fires changing the community permanently. | Suppress all bushfire. High priority for bushfire suppression. |
| High | A fire-adapted community requiring at least 30 years between fires to maintain the defining species. Bushfire intervals greater than 80 years are required to reach mature stand structure. | Suppress all bushfire, but give higher priority to stands burnt less than 80 years ago. |
| Moderate | A fire-adapted community requiring at least 15 years between fires to maintain the defining species. | Suppress fires in stands burnt less than 20 years ago. |
| Low | Highly fire-adapted or non-native vegetation. A single bushfire will generally not affect biodiversity, although repeated short intervals (i.e. < 10 years) may cause long- term changes. | Suppression usually not an ecological priority except in specific situations (e.g. a recently burnt stand of a threatened species). |

The low fire sensitivity of the native vegetation in the reserves indicates that it is highly fire adapted and a single fire will generally not adversely affect biodiversity, though repeated fires at intervals of less than 10 years may cause long-term changes in floristics and vegetation structure (Pyrke & Marsden-Smedley 2005). The moderate to high flammability rating of the native bushland in the reserves in Pyrke & Marsden-Smedley (2005) indicates that the bushland in the reserves will burn readily when fuels are dry but may be too moist to burn for long periods during winter. Fuels will generally be dry enough to burn on most days from late spring to early autumn.

### 2.4.2 Bushfire and Habitat Management

The main bushfire risk to natural heritage assets in the reserve is from bushfires that burn the whole of the reserve as well as bushfire regimes (planned or unplanned) that are outside the thresholds within which a particular plant community, or habitat for flora and fauna species, has viability in the long-term. Bushfire regimes within the thresholds of a particular plant community will help maintain its long-term viability, whereas bushfire regimes outside the thresholds are likely to lead to progressive changes in the structure and floristics of the plant community, and loss of habitat for the fauna favouring that plant community.

High intensity bushfires that burn the whole of the reserve can damage or destroy valuable fauna habitat including:

- Tree hollows used as nests and dens by many birds and arboreal mammals.
- Mature, senescing or dead trees that can be important invertebrate, bird and reptile habitat, and take a long time to replace.
- Understorey species that provide nest and shelter sites as well as a food source for many bird and mammal species.

- Fallen logs, bark and leaf litter that provide shelter and a food source for invertebrates, frogs, reptiles, birds and mammals.

Species may be lost from the reserves if they cannot recolonise from nearby areas, or survive in unburnt patches.

Bushfires often stimulate the spread of environmental and other weeds. However, some weed species provide significant protection and food sources for fauna (for example, gorse and blackberry) and removal of these species should be carefully managed to ensure they are progressively replaced by equivalent native species habitat.

Planned burning of the native vegetation in the reserve at the optimum frequency for its long-term viability is considered the best way to conserve important habitat for both flora and fauna in the reserve. Planned burning in a mosaic pattern along with maintenance of fire trails is the best way to minimise the risk of a bushfire burning the whole of the reserves. The bushfire management requirements of the different plant communities/habitats in the reserves are given in table 5. These plant communities have been grouped together according to their bushfire management requirements.

**Table 5 - Bushfire management requirements of the plant communities in the reserves**

| TASVEG 3.0 MAPPING UNITS | BUSHFIRE IMPACTS AND BUSHFIRE MANAGEMENT AIMS |
|---|---|
| **Grassy dry sclerophyll forests and woodlands** | |
| DAM –*Eucalyptus amygdalina* forest on mudstone<br>DAM (V) - *Eucalyptus amygdalina* with *Eucalyptus viminalis* dominant<br>DGL - *Eucalyptus globulus* dry forest and woodland<br>DRI - *Eucalyptus risdonii* forest and woodland<br>DVG – *Eucalyptus viminalis* grassy forest and woodland | Infrequently burnt sites develop a dense shrubby understorey. Kangaroo grass (*Themeda triandra*) can die out after an extended absence of bushfire, or other method of biomass reduction (Lunt & Morgan, 1998).<br>Frequent fires (< 5 years) can inhibit tree regeneration and eliminate the shrubby component.<br>Sites overlying dolerite and other more fertile soils have markedly more rapid rates of regeneration than low fertility soils derived from mudstone and sandstone.<br>Overfrequent burning regimes in the past within much of the forest overlying mudstones around Hobart has contributed to loss of topsoil and erosion.<br>Extended absence from bushfire can result in build-up of fuel causing hot and damaging burns.<br>A temporal and spatial mosaic-burning pattern would assist with tempering the effects of a devastating bushfire.<br>**Optimal bushfire frequency is 5-20 years on fertile sites.**<br>**Exclude bushfire from representative areas to provide controls for monitoring the effects of bushfire. Exclude bushfire from most areas on mudstone, which due to low fertility have low biomass growth rates and are drought stressed.** |
| **Non eucalypt forests/woodlands** | |
| NAV – *Allocasuarina verticillata* Forest | Extended absence of fires leads to a closed canopy and a dense litter layer that has a low density and diversity of ground layer species, although it may be important for invertebrate species.<br>Frequent low intensity fires benefit *Allocasuarina verticillata* over the adjacent eucalypt dominated communities (Kirkpatrick 1985).<br>Tendency to exclude bushfire for visual impact reasons in foreshore environments risks the long-term loss of regenerative age classes and the ultimate decline of this community in favour of grassland. Alternate methods of facilitating natural regeneration through localised clearance may be a more suitable method.<br>**Preferred bushfire interval in inland reserves is between 15-25 years.** |

| TASVEG 3.0 MAPPING UNITS | BUSHFIRE IMPACTS AND BUSHFIRE MANAGEMENT AIMS |
|---|---|
| **Grasslands** | |
| GPL - Lowland *Poa labillardierei* grassland<br>GRP – Rockplate grassland | Bushfire intervals > 5 years may lead to a loss of biodiversity in grassy sites (Lunt & Morgan, 1988).<br>Frequent fires (< 5 year intervals) may lead to a loss in diversity of invertebrates.<br>**Grasslands are very localised. Some burning or other biomass reduction may be necessary to maintain them in the long term if bushfire is excluded.** |

### 2.4.3 Bushfire Risk to Built and Cultural Assets

During the BMP review process Aboriginal Heritage Tasmania (AHT) completed a requested search of the Aboriginal Heritage Register (AHR) regarding the area inside the BMP boundary. There are no known Aboriginal heritage sites within the reserve.

There are no built assets within the reserve likely to be at risk from bushfire. The western boundaries above Oceana Drive have some timber paling fences on steel supports. It is generally considered more costly to provide bushfire protection than to replace these fences if impacted by bushfire.

External to the reserve on the western boundary is a telecommunications tower and two TasWater reservoirs, to the north east and east are two more TasWaters reservoirs (all roofed), and to the north are two vineyards; Clarence House Vineyard and Meehan's Vineyard. Although not likely to be directly affected by bushfire or planned burning within the reserve, the grape vines in the vineyards could be affected by smoke from fires. Smoke during the period when the grapes are ripening can taint the wine produced from them and reduce its value. See table 6, table 8 and section 3.1.2 for proposed management strategies for adjacent vineyards.

As at May 2016, many dwellings on properties adjoining the reserve are close to the reserve boundary, however the risk to these is reduced by the fact that they are all downslope of the reserve and the winds on days of severe bushfire weather would tend to blow fires to the south-east or east, away from the houses adjoining the reserves. In addition some defendable spaces are maintained annually by Councils Fire and Bushland Management with establishment of additional defendable spaces recommended (see figure 10, table 6 & section 3.1.6).

Three of the four bushland blocks adjacent to the POS within Rokeby Hills (figure 8) will have an increased risk from bushfire given the slope under the vegetation which most influences the bushfire attack is downslope. Development of all blocks will require a Bushfire Risk Assessment and a Bushfire Hazard Management Plan and construction to Australian Standard 3959-2009 *Construction of buildings in bushfire-prone areas.*

The degree of bushfire danger at any particular time is a combination of fine fuel quantity, slope, and the prevailing weather conditions. The actual risk of a bushfire causing damage to an asset is a function the degree of danger, the probability of a bushfire igniting, and any measures taken to prevent the bushfire causing damage.

The four major modes of attack by bushfires that can cause damage to assets are:

1. Wind-blown burning debris.
2. Radiant heat which can ignite flammable materials ahead of the fire front and shatter glass.
3. Flame contact.
4. Strong winds generated or intensified by the bushfire.

The potential for damage to buildings in the path of large fires burning out of the reserve will depend largely on:

- Whether the bushfire will approach upslope or downslope.
- The quantity and distribution of fuel surrounding the building.
- Whether they are defended during the bushfire.
- Their design.
- if the building was constructed to Australian Standard 3959-2009, *Construction of Buildings in Bushfire-prone Areas*.
- How well they have been maintained.

The Australian Standard for Construction of buildings in bushfire-prone areas (AS:3959 – 2009) uses a FDR of 50 to determine the Bushfire Attack Level (BAL) for buildings that need to comply with the standard. An FDI of 50 is the boundary between Very High and Severe Fire Danger Rating.

There is insufficient data available to assess the likelihood of a high intensity fire starting in the reserve; however there is sufficient fine fuel within the reserve and the four adjacent private bushland blocks within Rokeby Hills to sustain a high intensity fire on days of severe fire danger.

The bushfire risk to the built and cultural heritage assets within and surrounding the reserve has been assessed using a procedure adapted from the National Emergency Risk Assessment Guidelines (NEMC, 2010). The assessment process is explained in section 5.4 of *Clarence City Council Bushfire Management Strategy for Council Owned and Controlled Land*, and the results and proposed management strategies are shown in table 6. This assessment process has been analysed and complies with AS/NZS IOS:31000-2009. Note that the assessment in table 6 only considers the risk from fires starting in, or passing through the reserve. Some assets may face a greater bushfire risk from nearby bushfire hazards that are not under the control of Clarence City Council.

Some assets, such as Aboriginal heritage sites, may not be directly damaged by bushfire but may be damaged by bushfire management and bushfire suppression activities, such as constructing fire control lines. These risks are noted under "other risks" in table 6 if these assets are found in the reserve.

NOTE: It was not possible to inspect assets on properties adjoining the reserve. The risk assessment therefore makes the following assumptions about these assets:

- Landowners/residents have established and are maintaining a defendable space to TFS specifications around assets at risk, either wholly within the lot, or up to the boundary with the reserve where there is insufficient space within the lot. Where this is not the case the asset may face a much higher bushfire risk than indicated in the risk assessment.
- All dwellings adjoining the reserve are well maintained to resist attack by wind-blown burning embers. Where this is not the case the asset may face a much higher bushfire risk than indicated in the risk assessment.

The management strategies recommended in table 6 will reduce the existing bushfire risk to built and cultural assets but in most cases will not eliminate it. Active protection of an asset during a bushfire can greatly reduce the bushfire risk. The TFS recommends that homes should not be defended when the Fire Danger Rating (FDR) exceeds 50 in your area unless you have created defendable space and ember-proofed your home. Assets at medium and high risk of damage from bushfire will need to be protected during planned burns in the reserve.

**Table 6 - Bushfire risk assessment for built and cultural assets**

RISK CATEGORIES

LOW – asset of low value or considered to have a low risk of damage from bushfires in the reserve due to its construction, location, or protection measures already in place.

MODERATE – asset is vulnerable to damage by bushfires and could face attack by a moderate to high intensity bushfire, but has features that will reduce the intensity of the fire attack, or provide some protection from fires. Further bushfire protection measures are required.

HIGH – asset is of high value, is vulnerable to damage by bushfires and could face attack by a high intensity bushfire with few, if any, features that would reduce the intensity of fire attack. Further bushfire protection measures are required.

| ASSET AT RISK | RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy) | | | | | | | | OTHER BUSHFIRE RISKS | PROPOSED MANAGEMENT STRATEGIES |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E[1] | F | G | Level of Risk | | |
| Dwellings adjoining Rokeby Hills Reserve at 14, 16, 18 & 20 Tunah Street. | 5 | 3 | 3 | 2 | 2 | 1 | 6 | 1080 Moderate | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 10m wide outer zone along the reserve boundary, heap burn VMU 6 when fuel loads exceed 10t/ha (see table 9). |
| Dwellings adjoining Rokeby Hills Reserve at 9 & 11 Tunah Street. | 5 | 2 | 3 | 2 | 2 | 1 | 6 | 720 Moderate | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary, extended where required ensuring dwellings on adjoining properties have a minimum 20m wide defendable space. |
| Dwellings adjoining Rokeby Hills Reserve at 536 Oceana Drive. | 5 | 2 | 3 | 2 | 2 | 1 | 6 | 720 Moderate | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary, extended where required ensuring dwellings on adjoining properties have a minimum 20m wide defendable space. |

| ASSET AT RISK | RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy) | | | | | | | | OTHER BUSHFIRE RISKS | PROPOSED MANAGEMENT STRATEGIES |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E[1] | F | G | Level of Risk | | |
| Dwellings adjoining Rokeby Hills Reserve along Mayfair Court. | 5 | 1 | 1 | 2 | 2 | 1 | 6 | 360 Moderate | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary, extended where required ensuring dwellings on adjoining properties have a minimum 20m wide defendable space. |
| Dwellings adjoining Rokeby Hills Reserve along Monaco Place, Eyrie Close, Caroda Court, Fairisle Terrace & dwellings at 478, 480, 482, 490 & 492 Oceana Drive. | 5 | 1 | 3 | 2 | 2 | 1 | 6 | 360 Moderate | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 10-15m wide outer zone along the reserve boundary, extended where required ensuring dwellings on adjoining properties have a minimum 20m wide defendable space. |
| Dwelling adjoining Rokeby Hills Reserve at 23 Raleigh Court. | 3 | 2 | 3 | 2 | 1 | 6 | | 216 Low | | Advise residents of the need to maintain an adequate defendable space around their dwellings.<br>Maintain a 10m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 33 & 35 Raleigh Court. | 3 | 1 | 3 | 2 | 2 | 1 | 6 | 216 Low | | Advise residents of the need to maintain an adequate defendable space around their dwellings.<br>Maintain a 10m wide outer zone along the reserve boundary. |
| Dwellings adjoining Rokeby Hills Reserve at 582, 584, 586, 592, 610, 616 & 2/618 Oceana Drive. | 5 | 1 | 1 | 2 | 2 | 1 | 6 | 120 Low | | Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary, extended where required ensuring dwellings on adjoining properties have a minimum 20m wide defendable space. |

| ASSET AT RISK | RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy) | | | | | | | | OTHER BUSHFIRE RISKS | PROPOSED MANAGEMENT STRATEGIES |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E[1] | F | G | Level of Risk | | |
| Dwelling adjoining Rokeby Hills Reserve at 2/620 Oceana Drive. | 5 | 1 | 1 | 2 | 2 | 1 | 6 | 120<br>Low | | It is not known what BAL rating if any this dwelling is constructed to. TFS correspondence recommended construction to a minimum Level 1 as specified in AS:3959-1999 or BAL 12.5 as specified in AS:3959-2009.<br>Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 1/628, 2/628 & 3/628 Oceana Drive. | 5 | 1 | 1 | 2 | 2 | 1 | 6 | 120<br>Low | | Advise residents of the need to maintain an adequate defendable space around their dwellings.<br>Maintain a 15m wide outer zone along the reserve boundary. |
| Dwellings adjoining Rokeby Hills Reserve at 3/634 & 5/634 Oceana Drive. | 5 | 1 | 1 | 2 | 2 | 1 | 6 | 120<br>Low | | Advise residents of the need to maintain an adequate defendable space around their dwellings.<br>Maintain a 15m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 588 Oceana Drive. | 5 | 1 | 1 | 1 | 0.2 | 1 | 6 | 6<br>Minimal risk of fire damage. | | Records show this dwelling has been constructed to a BAL 12.5 standard as per AS:3959-2009.<br>Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a 20m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 1/590 & 2/590 Oceana Drive. | 5 | 1 | 1 | 1 | 0.2 | 1 | 6 | 6<br>Minimal risk of fire damage. | | Records show these dwellings have been constructed to a BAL 19 standard as per AS:3959-2009 and are to be maintained entirely as inner zones.<br>Maintain a 20m wide outer zone along the reserve boundary |

| ASSET AT RISK | RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy) | | | | | | | | OTHER BUSHFIRE RISKS | PROPOSED MANAGEMENT STRATEGIES |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E[1] | F | G | Level of Risk | | |
| Dwelling adjoining Rokeby Hills Reserve at 2/608 Oceana Drive. | 5 | 1 | 1 | 1 | 0.2 | 1 | 6 | 6<br>Minimal risk of fire damage. | | Records show this dwelling has been constructed to a BAL 29 standard as per AS:3959-2009 and is to be maintained entirely as an inner zones.<br>Maintain a minimum 15m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 2/612 & 614 Oceana Drive. | 5 | 1 | 1 | 1 | 0.2 | 1 | 6 | 6<br>Minimal risk of fire damage. | | Records show this dwelling has been constructed to a BAL 19 standard as per AS:3959-2009.<br>Advise residents of the need to maintain an adequate defendable space around their dwelling.<br>Maintain a minimum 15m wide outer zone along the reserve boundary. |
| Dwelling adjoining Rokeby Hills Reserve at 622 Oceana Drive. | 5 | 1 | 1 | 1 | 0.2 | 1 | 6 | 6<br>Minimal risk of fire damage. | | Records show this dwelling has been constructed to a BAL 12.5 standard as per AS:3959-2009.<br>Advise residents of the need to maintain an adequate defendable space around their dwelling. |
| Perimeter fences | - | - | - | - | - | - | - | Variable | | Replace if damaged by bushfire. |
| Telecommunications tower (external to reserve western boundary) | - | - | - | - | - | - | - | - | | No defendable space required within the reserve.<br>Clear all trees, shrubs and bushes within 10m of tower. |
| Water reservoir (external to reserve western boundary). | 5 | 1 | 1 | 0 | 2 | 1 | 1 | 0<br>Minimal risk of fire damage. | Smoke and ash contamination of water in the reservoirs is an issue during planned burns and bushfires. All reservoirs adjacent to the reserve are roofed, reducing the risk of contamination. | Liaise with TasWater regarding protection measures for water supplies before any planned burns near water reservoirs. |

| ASSET AT RISK | RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy) | | | | | | | | OTHER BUSHFIRE RISKS | PROPOSED MANAGEMENT STRATEGIES |
|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E[1] | F | G | Level of Risk | | |
| Water reservoir (external to reserve eastern boundary). | 5 | 3 | 3 | 0 | 2 | 1 | 1 | 0 Minimal risk of fire damage. | Smoke and ash contamination of water in the reservoirs is an issue during planned burns and bushfires. All reservoirs adjacent to the reserve are roofed, reducing the risk of contamination. | Liaise with TasWater regarding protection measures for water supplies before any planned burns near water reservoirs. |
| Water reservoir (external to reserve north-eastern side). | 2 | 2 | 1 | 0 | 2 | 1 | 1 | 0 Minimal risk of fire damage. | Smoke and ash contamination of water in the reservoirs is an issue during planned burns and bushfires. All reservoirs adjacent to the reserve are roofed, reducing the risk of contamination. | Liaise with TasWater regarding protection measures for water supplies before any planned burns near water reservoirs. |
| Grape vines in Clarence House Vineyard and Meehan's Vineyard | - | - | - | - | - | - | - | - | Grapes may be tainted by smoke from fires. | Consult with vineyard owners before broadscale planned burning in reserve. |

1 – Note that the risk analysis score in column E only indicates that there is enough space to provide a defendable space between bushland in the reserve and an adjoining asset. It does not indicate that a defendable space has been established on the adjoining property, or if established is being adequately managed.

# 3. Bushfire Management Issues

## 3.1 Existing Bushfire Management

### 3.1.1 Implementation of the Previous BMP

As part of this revision of the BMP for Rokeby Hills Reserve, a review of the success of the implementation of the recommendations of the previous BMP was carried out. This review is limited to the previous 8ha reserve polygon, and does not incorporate the additional 32ha of POS acquired in 2016.

The review found that of eighteen recommendations: thirteen have been fully implemented, two have been partly implemented, one has not been implemented because it was not been required (ie they are actions in response to other incidents), and two have not been implemented. The findings of the review are in Appendix A.

### 3.1.2 Planned Burning

The previous BMP recommended two planned burns across two VMUs within the reserve. All planned burns were successfully carried out, refer section 2.1.2.

An amended burning schedule for the next five years has been included in this plan (see table 8).

Table 8 also specifies planning restraints and required communication with the two vineyards that have potential to be impacted by smoke management associated with broadscale planned burning within the reserve.

### 3.1.3 Vehicle Entry Points, Fire Trails and Foot Tracks

As some of the reserve is covered by an enacted Conservation Covenant (figure 5), the maintenance and establishment of vehicle access for fire management purposes throughout the reserve outlined in this BMP will require written approval from the Minister responsible for the *Nature Conservation Act 2002*. During each BMP review process the Minister or delegated DPIPWE representative must be notified with the revised works program, commencement of this program is not to occur until written approval is received.

There are two authorised vehicle access points into the reserve, one from Mayfair Court controlled by locked gate, and the other from Skillion Road through private property controlled by locked gate (figure 9). These two access point met previous access requirements, however with the 2016 acquirement of the additional 32ha of POS additional access points are required via southern and western boundaries. These additional access points will allow for maintenance of defendable spaces, planned burning, and access/escape routes for the TFS conducting bushfire suppression activities. These are shown on figure 9 and described in table 7.

Restricting unauthorised vehicle access to the reserve from the east is challenging due to most of the eastern boundary being privately owned bushland or grasslands. One access track into the reserve above Sunray Court, Rokeby is controlled by a locked gate.

Multiple attempts have been made previously to prevent access via the eastern boundary such as fencing, trenching and installation of large rocks, all timely and costly. All attempts have been unsuccessful due to high volumes of unauthorised access being via stolen cars with no regard to vehicle damage whilst gaining access. There is a locked slip rail the junction of KR1, KR3, KR4 and KR5, this has been successful in previously restricting access to the northern section of the reserve, but has been repaired twice during 2015/2016 after being rammed by stolen vehicles.

A recommended updated fire trail network to meet current operational requirements has been incorporated into this revision. The additional required fire trail network in some areas will also act as defendable spaces to meet current TFS guidelines as outlined in section 3.1.6 and Councils responsibilities under *Fire Service Act 1979* for properties bordering the reserve.

Each fire trail has been assigned a usage class and its current condition assessed against the standard for their assigned usage class in MP 1 in the *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines.*

There are various informal foot tracks throughout the reserve, at time of the review Council is investigating to formalise and expand the existing network.

**Figure 9 – Vehicle and Foot Access**

**Table 7 – Condition, maintenance and required establishment of fire trails in the reserve**

| Assigned usage class (see MP 1): | Maintenance priority: |
|---|---|
| **Class 1** – all 2WD and 4WD vehicles | **High** priority - major through routes and fire control lines |
| **Class 3** – all weather 4WD, light and heavy 4WD vehicles (category 3, 4 & 5 tankers) | **Medium** priority - important access and escape routes and minor fire control lines |
| **Class 5** – dry weather and/or high clearance 4WD, light 4WD (category 5 tankers), also includes trails with sharp bends and dead end trails with small turning areas. | **Low** priority - minor access routes and boundaries of vegetation management units. |

The trail usage class describes the suitability of the fire trail if properly maintained, not necessarily its condition at the time of inspection.

***MP refers to Management Procedures in *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines***

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR1 | 5 | YES | High | Runs from Mayfair Court to the top of the hill finishing at locked slip rail junction (JCN) KR3, KR4 & KR5.<br>Trail is unsurfaced and rocky, only accessible in dry weather. Meets class 5 standards. | Inspection and maintenance as specified in MP2. | NONE |
| KR2 | 5 | NO | Medium | Links KR1 & KR3 running east-west.<br>Trail can become slippery in wet, dry weather use only.<br>Trail meets class 5 usage standards. | Inspection and maintenance as specified in MP2. | NONE |

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR3 | 5 | YES | High | Runs from KR1 near Mayfair Court entrance along the defendable space on the northern boundary of the reserve.<br>Trail is roughly formed and not surfaced.<br>Trail has sharp corner which becomes slippery in wet. Dry weather use only<br>Trail meets class 5 usage standards. | Inspection and maintenance as specified in MP2. | NONE |
| KR4 | 5 | YES | High | Trail starts at locked slip rail at JCN KR1, KR3 & KR5 heading south to Fairisle Terrace.<br>Trail is steep with turning circle and finishes at dead end above Fairisle Terrace steps.<br>Turning circle only suitable for class 5 firefighting appliances.<br>Trail can become slippery in wet, dry weather use only.<br>Trail meets class 5 standards. | Inspection and maintenance as specified in MP2. | NONE |

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR5 | 5 | NO | High | Trail starts at locked slip rail at JCN KR1, KR3 & KR4 heading west, finishing through private land with locked gate on Skillion Road.<br>Trail is unsealed and meets class 5 standards except for drainage. | Inspection and maintenance as specified in MP2. | Consult Conservation Covenant prior to operations.<br>Fire trail runs through DRI[2], Consult DPIPWE Threatened Species Section as required.<br>Rare plant species *Juncus amabilis*[3] within proximity. Consult DPIPWE Threatened Species Section as required. |

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR6 | 5 | NO | High | Trail starts at JCN KR5 & KR6 above Skillion Road entrance. Trail follows ridgeline south, turning north through defendable space behind Oceana Drive properties finishing at locked bollard at Eucalypt Rise.<br>Section in defendable space and exit currently unformed.<br>Formed sections meets class 5 standards. | Modify entrance at Eucalypt Rise to allow class 5 access.<br>Establish trail through defendable space. Coordinate operations to link with required grooming of defendable space as recommended in section 3.1.6.<br>Inspection and maintenance as specified in MP2. | See figure 5 section of fire trail included in Conservation Covenant.<br>Consult Conservation Covenant as required.<br>Fire trail runs through to DRI[2] & DGL[2], Consult DPIPWE Threatened Species Section as required.<br>Rare plant species *Rytidosperma indutum*[3] within proximity. Consult DPIPWE Threatened Species Section as required. |

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR7 | 5 | NO | High | Trail starts at water reservoir located at 479 Rokeby Road running south-west down existing pipeline easement. Trail finishes at Council owned land at 580 Oceana Drive. Section of trails between JCN KR7 & KR 8 to 580 Oceana Drive is partially unformed and needs establishment.<br><br>Formed pipeline easement meets class 5 standards. | Modify entrance at 580 Oceana Drive access to allow class 5 access.<br><br>Install lockable gate at 580 Oceana Drive access to prevent unauthorised access.<br><br>Establish trail to class 5 standards linking to pipeline easement.<br><br>Inspection and maintenance as specified in MP2. | See figure 5 for fire trails included in Conservation Covenant.<br><br>Consult Conservation Covenant as required.<br><br>Fire trail runs through DRI[2], Consult DPIPWE Threatened Species Section as required.<br><br>Rare plant species *Rytidosperma indutum*[3] within proximity. Consult DPIPWE Threatened Species Section as required. |

| FIRE TRAIL ID | USAGE CLASS | STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1] | MAINTENANCE PRIORITY | LOCATION AND CONDITION AT MAY 2016 | ACTION REQUIRED | MANAGEMENT CONSTRAINT |
|---|---|---|---|---|---|---|
| KR8 | 5 | NO | Medium | Trail starts at JCN KR7 & KR8 above water reservoir and telecommunications tower located at 190A Carella Street.<br>Trail is partially formed finishing at Council owned land at 534 Oceana Drive.<br>Formed section of trail meets class 5 standards. | Modify entrance at 534 Oceana Drive to allow class 5 access.<br>Install lockable gate at 534 Oceana Drive access to prevent unauthorised access.<br>Establish sections of trail to class 5 standards linking to JCN KR7 & KR8.<br>Inspection and maintenance as specified in MP2. | See figure 5 section of fire trail included in Conservation Covenant.<br>Consult Conservation Covenant as required.<br>Rare plant species *Eucalyptus risdonii*[3] within proximity. Consult DPIPWE Threatened Species Section as required. |

[1] Strategic fire trails have been identified in the Hobart Fire Protection Plan. Strategic fire trails will be signposted.

[2] Threatened native vegetation communities under the *Nature Conservation Act 2002.*

[3] Tasmanian *Threatened Species Protection Act* 1995

### 3.1.4 Water Supply

There are no reticulated water sources within the reserve. The adjacent reservoirs are all enclosed with no access for firefighting.

Water for firefighting and fire management operations needs to be obtained from fire hydrants in adjacent streets (figure 9). This is considered adequate for firefighting and fire management operations within the reserve.

### 3.1.5 Fuel Breaks

A fuel break (sometimes called a "firebreak") is a strip of cleared, or partly cleared, bushland constructed and maintained to slow, or stop, the progress of a bushfire to assist in its control. They are not the same as defendable spaces which are maintained around vulnerable assets to protect them from bushfires. Fuel breaks in grassland can be effective in stopping fires if cleared down to mineral earth, but where trees and shrubs are present wind-blown burning embers will usually carry a bushfire across a fuel break. Therefore, in bushland with shrubs and trees the only benefit of a fuel break is to provide access for firefighters and a boundary for back burning operations.

There are no established fuel breaks within the reserve. KR5 & KR6 (figure 9) traverses the ridgeline of the reserve through Rokeby Hills, although not a fuel break these fire trails could be utilised for back burning operations in event of bushfire impacting the reserve.

Currently there are no standards or guidelines for fuel breaks in Tasmania.

### 3.1.6 Defendable Spaces

A defendable space is an area of managed vegetation around an asset likely to be at risk from bushfire that protects it from direct flame contact and intense radiant heat, as well providing an area where fire fighters can defend the asset.

The TFS document *Bushfire Survival Plan 2015-2016* recommends that a defendable space includes two 'zones':

- An inner zone (formerly a Bushfire Protection Zone) where flammable materials are minimised.
- An outer zone (formerly a Fuel Modified Buffer Zone) where a low level of flammable material is permitted.

In the inner zone, flammable materials on, under and around your home should be moved away from the house.

**In the inner zone:**

- Include non-flammable areas such as paths, driveways, and mowed lawns.
- Use non-flammable mulch; do not use woodchips or bark.
- Locate any dams, orchards, vegetable gardens and any effluent disposal areas on the fire-prone side of the dwelling.
- Use radiation shields and windbreaks such as stone or metal fences and hedges using low-flammability plants.
- Remove fire hazards such as wood piles, rubbish heaps and stored fuels.
- Replace all highly-flammable plants with low-flammability plants.
- Prune lower branches on trees and remove flammable shrubs from under and between trees.
- Rake up bark and leaves and keep roofs and gutters clear of flammable debris.

The TFS notes it is not necessary to remove all vegetation from the inner zone. Individual trees rarely cause houses to burn in bushfires.

Trees can screen a building from windblown embers while protecting it from radiant heat. Smooth barked trees are less likely to catch fire than those with rough bark. No tree should be able to fall on the building.

In the outer zone, small-sized natural fuels (such as leaf litter, bark, sticks, tussocks and some shrubs) should be removed and larger fuels (trees and shrubs) should be cut back to reduce the intensity of an approaching bushfire.

Natural fuels, both on the ground and between the ground and any larger trees, should be reduced by selective removal of vegetation, both horizontally and vertically, followed by ongoing maintenance.

**In the outer zone:**

- Retain established trees to trap embers and reduce wind speeds.
- Selectively remove small trees and shrubs to create clumps (rather than a continuous wall of trees) separated by open areas.
- Remove the vegetation between the ground and the bottom of the tree canopy, to a height of at least two metres.
- Minimise fine fuels at ground level, such as grasses and leaf litter.

The existence and adequacy of defendable spaces on individual lots adjoining the reserve was not surveyed as part of this BMP. Nevertheless, it must be stressed that establishment and maintenance of defendable spaces around dwellings bordering the reserve is essential for bushfire protection. Clarence City Council and individual landowners need to co-operate to provide and maintain adequate bushfire protection.

Many of the dwellings bordering the reserve were constructed pre AS:3959 *Construction of Buildings in Bushfire-prone Areas*, and do not have enough room on the lot for adequate defendable spaces. Parts of these will need to be maintained within the reserve. Future subdivisions adjoining the reserve should allow for inner zones to be fully located within subdivisions so that their maintenance does not become an expense for the whole community.

Currently there are four defendable spaces within the reserve managed as outer zones. These range from 6m up to 20m, and located in VMU 1 and VMU 14, with an additional recommended in VMU 15 (see table 6, table 8 and figure 10).

VMU 1 has been identified in the *Hobart Fire Protection Plan 2016* as a Strategic Fuel Modified Zone (SFMZ), and is designed to provide a break in fuels between the reserve and adjoining properties where vehicle access is not available due to steep slopes. This SFMZ is referenced on figure 10 and table 8 as a Strategic Outer Zone.

The southern section of VMU 14 will require grooming to allow for annual mechanical maintenance of defendable space.

All current defendable spaces are wide enough to meet TFS requirements for an outer zone as identified in the TFS document *Bushfire Survival Plan 2015-2016*, and should provide adequate protection for adjoining properties, provided that the portion of these properties between the dwelling and the reserve is maintained as an inner zone.

### 3.1.7 Bushfire Detection and Suppression

The reserve is visible from surrounding properties, roads, and highly visible from the western shore. It is likely that any fires would be promptly reported.

Fires in the reserve are most likely to originate from one of two locations. In the northern section of the reserve being fanned by prevailing nor-westerly winds on days of very-high or above FDR. These fires have the potential to impact the entire reserve and adjacent human settlements. Fires may also originate internally along the eastern boundary originating from the torching of stolen cars, again being fanned again by prevailing nor-westerly winds or the subsequent south east through south west afternoon sea breeze.

The reserve currently has some internal access, section 3.1.3; table 7 and figure 9 discuss the required establishment and maintenance of fire trails to provide access to Councils Fire and Bushland Management to apply treatments to mitigate impacts of bushfire whilst maintaining biodiversity, and in event of bushfire provide safe access and escape routes to the TFS to attempt bushfire suppression. It should be noted that vehicle access could be difficult when fire trails are wet.

## 3.2 Weeds

A detailed weed survey was not undertaken as part of this BMP, merely observations during field work.

Environmental weeds occur within the reserve; however the reserve is free of major weed infestations with only localised or scattered occurrences typical of urban fringe bushland.

**Action 2** of the *Malwood Nature Conservation Plan* notes "The owner will make annual inspections of the land and must control and (if possible) eradiate infestations of environmental weeds". The recommended fire trail maintenance and establishment in section 3.1.3; table 7 and figure 9 will assist Council complying with this action.

Several weed species found in the reserve are classified as declared weeds under the Tasmanian *Weed Management Act 1999* and/or Weeds of National Significance (WONS). Where possible these weeds will be targeted as a priority to prevent their further spread.

Broom *(Genista monspessulana),* African boxthorn (*Lycium ferocissimum*), serrated tussock *(Nassella trichotoma)*, boneseed (*Chrysanthemoides monilifera)* and blackberry *(Rubus fruticosus)* are present declared weeds and WONS.

Other environmental weeds present within the reserve are:

Bluebell creeper *(Billardiera heterophylla),* cotoneaster *(Cotoneaster sp.),* radiata pine *(Pinus radiata),* sweet pittosporum *(Pittosporum undulatum),* and sweet briar *(Rosa rubiginosa).*

Boneseed *(Chrysanthemoides monilifera)* has the potential to spread following fires. Control measures will need to be implemented following any bushfires or planned burns within the reserve.

## 3.3 Rubbish Dumping

VMU 12 experiences regular rubbish dumping, numerous attempts of restricting access from the private property to the east has been unsuccessful as noted in section 1.2.

Section 6.23 of the *Malwood Nature Conservation Plan* states "The owner must remove, at the owners cost, all dumped rubbish, including dumped cars and garden waste within two years of the covenant being registered." Given the high frequency of rubbish dumping and torched stolen cars, it is recommended an annual program be established targeting the removal.

## 3.4 Stakeholder and Community Concerns

At the commencement of the project Clarence City Council sent a letter to all landowners adjoining the former 8ha Kuynah Reserve polygon and to other stakeholder groups informing them that the BMP was being revised and inviting them to have input into the revised plan for the reserve by sending in a written submission, attending a community "walk and talk" in the reserve, or by contacting the reviewer directly. The community "walk and talk" was held in the reserve on 15th November 2015 and was attended by two community members and a Council representative.

No written comments were received. The community members who attended were relatively new to the area and were interested in Councils approach to managing bushfire risks within the reserve. Defendable spaces were a key point of discussion during the walk and talk.

# 4. Plan Implementation

To ensure that the recommendations in this plan are fully implemented, Clarence City Council will ensure that TFS brigades likely to attend bushfires within the reserve are familiar with the plan, and its contents are issued to the TFS.

## 4.1 Bushfire Risk Reduction Strategy

The overall bushfire risk reduction strategy recommended for the reserve can be summarised as follows:

- Reduce ignitions through a reduction in frequency of dumping of stolen cars, and prompt reporting of fires.
- Encourage neighbouring residents to maintain defendable spaces around their homes.
- Maintain defendable spaces within the reserve to complement defendable spaces on adjoining properties.
- Carry out strategic planned burning and manual fuel removal to reduce bushfire hazards in the reserve whilst promoting biodiversity.
- Upgrade existing access points and fire trails to the standard in the Clarence Bushfire Management Strategy.
- Extend existing fire trails to eliminate dead ends and provide access to manage defendable spaces. Ensure the TFS are familiar with the location and condition of fire trails in the reserve.
- Ensure that new dwellings adjoining the reserve have BAL-19 separation distances as stated in AS3959 – 2009, and wherever possible the inner zones for these dwellings are contained within the lots.

## 4.2 Community Education, Awareness and Involvement

To ensure successful implementation of this BMP it will be necessary to inform key sectors of the community about bushfire management issues in the reserve. This should include surrounding residents and those with special interests in the reserve, or whose activities can affect assets within the reserve. The community education process is detailed in section 5.7 of *Clarence City Council Bushfire Management Strategy for Council Owned and Controlled Land*. This was not implemented during the previous BMP, and has a heavy influence in the effectiveness of this BMP.

In particular, adjoining residents should be advised that dumping garden waste and other rubbish in reserves increases the bushfire hazard and makes firefighting along the bushland/urban interface more difficult and dangerous for fire fighters. It also contributes to the spread of weeds. Residents should also be advised that they are not authorised to remove vegetation in a Council reserve, even if it is recommended in the BMP.

If residents have any concerns about the bushfire hazard in the reserve near their home, they are encouraged to contact Council's Fire and Bushland Vegetation Management Co-ordinator.

## 4.3 Planned Burning

The native plant communities in the reserve are considered dependent on bushfire to maintain their structure and floristics in the long term. Periodic burning will help to maintain diversity in the understorey, and allow bushfire dependent species to germinate and establish. However, there is a need to minimise damage to important habitat elements (such as dead trees, old logs and stumps) during these burns, and to ensure adequate retention of unburnt patches of each forest type to act as refugia for recolonisation of burnt areas.

The approach adopted in this plan is to use planned burning both for asset protection in areas targeted for maximum risk reduction and for ecosystem management. Areas burnt for ecosystem management will have the additional benefit of reduced bushfire hazard for a period following each planned burn.

### 4.3.1 Vegetation Management Units (VMU)

The planned burning program in this plan is based on the division of the dry forest, shrubland and grassland habitats into a mosaic of VMUs (see figure 10). VMUs can be burnt at a frequency, season and intensity that are optimal for the plant communities within each unit or excluded from fire if the vegetation does not require burning, or the VMU is being managed by other means. The bushfire management requirements of the vegetation communities within the reserves are given in table 5.

The previous BMP divided the reserve into 6 VMUs based on the vegetation types in the reserve, and the presence of suitable control lines in the form of fire trails and foot tracks. The revised BMP now incorporates 16 VMUs post Councils 2016 acquirement of approximately 32$^{ha}$ of POS throughout Rokeby Hills. The revised VMU regime will allow for the implementation of the most appropriate methods for managing bushfire hazard whilst promoting biodiversity at time of review.

### 4.3.2 Planned Fire Regimes

When possible planned burning operations should be carried out following the seed-setting period of native species, and after the nesting period of the understorey bird species in the reserve. Where possible hollow logs and dead trees should be protected from bushfire due to their fauna habitat value. This can be achieved by using wet lines around the tree or log, or raking fine fuels away from logs or the base of hollow trees, and rapidly extinguishing fires at these points should they occur.

This BMP covers a 5-year period, after which another review is recommended. Burns within the reserve have been scheduled in table 8.

To allow for flexibility in budgeting and planning, and for unfavourable weather, the burns can take place in the year following that recommended in table 8, if required.

If a bushfire burns more than half of a VMU, the whole of the VMU should be considered to have been burnt and the schedule adjusted accordingly.

In order to create a mosaic of native bushland with different bushfire histories, VMUs should generally not be burnt within 2 years of adjoining VMUs.

### 4.3.3 Preparation and Supervision

The VMUs scheduled for burning should be inspected some months before the proposed burn to check that the scheduling and burning prescriptions are still appropriate and to determine whether weeds are present that require treatment before burning. Where treatment of weeds is required, it should be carried out at least 3 months in advance of the burn to allow treated weeds to desiccate. Disturbance of the treated infestations (by mechanical means, slashing or burning) within this period may reduce the herbicide's effectiveness, and regeneration from rootstock is likely to occur. Terms within the enacted Conservation Covenant need to be consulted prior to herbicide application.

Successful implementation of the planned burns in this plan requires trained personnel and special equipment. Each planned burn recommended in this plan must have a burn plan prepared by someone who has completed the Forestry Tasmania "Develop Prescribed Burning Plans" course or equivalent. All persons engaged in planned burning or firefighting in the reserve must have completed the Forestry Tasmania "Forest Fire Fighting" course or equivalent.

If the planned burning is contracted out, the contractor must be able to meet the required training accreditation in the previous paragraph, as well as provide evidence of experience in carrying out broadscale low intensity fuel reduction burns.

**Figure 10 – Vegetation Management Units in the Reserves**

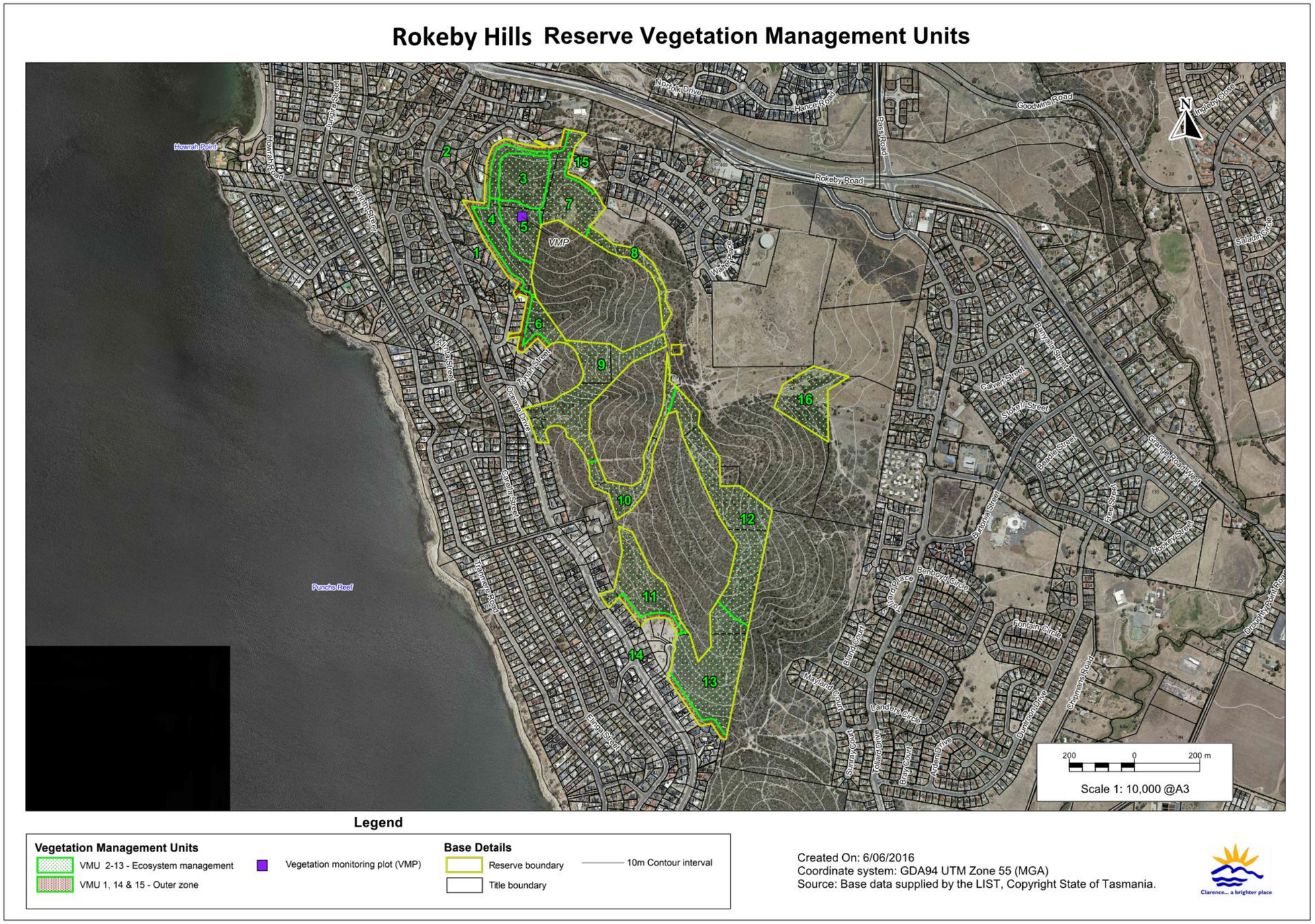


**Table 8 – Bushfire management in the reserve**

| VMU [1, 4] | AREA (ha) | BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS | NOTES and PRECAUTIONS [2, 3] | LAST BURNT | NEXT BURN |
|---|---|---|---|---|---|
| 1 Managed vegetation | 1.1 | OBJECTIVE:<br>Maintain as 15m wide strategic outer zone to protect adjoining dwellings<br>PRESCRIPTION:<br>See specifications for outer zones in MP 5 in the Best Management Practices Guidelines. | Heap burn/patch burn only. | Heap burnt 2015/2016 | As required or when fuel loads >5t/ha |
| 2<br>DVG<br>NAV | 1.0 | OBJECTIVES:<br>Maintain as grassy woodland and shrubland.<br>Promote regeneration of canopy species and limit density of she oaks to 60 % total canopy cover.<br>Maintain visual amenity.<br>Reduce the extent and density of weeds, particularly African boxthorn and boneseed.<br>PRESCRIPTION:<br>Autumn or spring burn every 15 to 20 years. | Protect adjoining property during burns.<br>Protect perimeter fence during burns. | Partially burnt 2011 | 2021 |
| 3<br>DVG<br>NAV | 2.0 | OBJECTIVE:<br>Maintain as grassy woodland and shrubland.<br>Promote regeneration of canopy species and limit density of she oaks to 60 % total canopy cover.<br>Maintain visual amenity.<br>Reduce the extent and density of weeds, particularly African boxthorn and boneseed.<br>PRESCRIPTION:<br>Autumn or spring burn every 15 to 20 years. | Notify Clarence House Vineyard and Meehan's Vineyard in planning stage, and prior to burning. | Not known | Assess next plan |

| VMU [1, 4] | AREA (ha) | BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS | NOTES and PRECAUTIONS [2, 3] | LAST BURNT | NEXT BURN |
|---|---|---|---|---|---|
| 4<br>NAV | 1.8 | OBJECTIVES:<br>Maintain as she oak shrubland.<br>Maintain visual amenity.<br>Reduce the extent and density of weeds, particularly African boxthorn and boneseed.<br>PRESCRIPTION:<br>Autumn or spring burn every 15 to 20 years. | Notify Clarence House Vineyard and Meehan's Vineyard in planning stage, and prior to burning.<br>Protect adjoining property during burns.<br>Protect perimeter fence during burns. | Not known | Assess next plan |
| 5<br>NAV | 2.0 | OBJECTIVES:<br>Maintain as grassy woodland and shrubland.<br>Promote regeneration of canopy species and limit density of she oaks to 60 % total canopy cover.<br>Maintain visual amenity.<br>Reduce the extent and density of weeds, particularly African boxthorn and boneseed.<br>PRESCRIPTION:<br>Autumn or spring burn every 15 to 20 years. | Notify Clarence House Vineyard and Meehan's Vineyard in planning stage, and prior to burning.<br>Vegetation Monitoring Plot (VMP) 006 to be measured pre and post burn. | Heap burnt 2014<br>Partially broadscale burnt 2015 | Assess next plan |
| 6<br>DAM<br>NAV | 1.1 | OBJECTIVES:<br>Reduce the extent and density of weeds/exotic species. Maintain in modified fuel state.<br>PRESCRIPTION:<br>Heap burn when fuel loading exceeds 10$^{t/ha}$ to assist with disposal of excessive fuel loads & exotic plants. | Protect adjoining property during burns.<br>Protect perimeter fences during burns. | Heap burnt 2016 | Heap burn when fuel loads exceed 10t/$^{ha}$ |
| 7<br>DVG | 2.8 | OBJECTIVES:<br>Maintain as grassy forest and woodland.<br>Reduce the extent and density of weeds, particularly African boxthorn and boneseed.<br>PRESCRIPTION:<br>Autumn or spring burn every 15 to 20 years. | Notify Clarence House Vineyard and Meehan's Vineyard in planning stage, and prior to burning.<br>Protect adjoining property during burns.<br>Protect perimeter fences during burns. | Unknown | Heap and broadscale burn 2020 |

| VMU [1, 4] | AREA (ha) | BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS | NOTES and PRECAUTIONS [2, 3] | LAST BURNT | NEXT BURN |
|---|---|---|---|---|---|
| 8<br>DRI[2]<br>DVG | 1.1 | OBJECTIVES:<br>Maintain as class 5 fire trail.<br>PRESCRIPTION:<br>See specifications for class 5 fire trails in MP 1 in the Best Management Practices Guidelines. | Consult DPIPWE Threatened Species Section before burning. Contains DRI[2]. | Unknown | Heap burn as required. |
| 9<br>DRI[2]<br>DAM (V) | 5 | OBJECTIVES:<br>Maintain structure of floristics.<br>PRESCRIPTION:<br>Withhold fire/disturbance for duration of BMP. | **Caution:**<br>Very shallow soils on bedrock present. Withhold machinery.<br>Contains DRI[2] community. | 1967 | No fire duration of BMP. |
| 10<br>DRI[2]<br>DAM (V) | 2.3 | OBJECTIVES:<br>Maintain sections as class 5 fire trail.<br>Maintain structure of floristics.<br>Reduce the extent and density of weeds.<br>PRESCRIPTION:<br>See specifications for class 5 fire trails in MP 1 in the Best Management Practices Guidelines.<br>Autumn or spring burn every 20 to 30 years. | Consult DPIPWE Threatened Species Section before burning. Contains DRI[2].<br>Protect adjacent telecommunications tower during burns.<br>Adjacent reservoirs: Notify TasWater in burn planning stage. | Entire 1967<br>Partially burnt 2015 | Assess next plan. |
| 11<br>DAM<br>DAM (V)<br>DGL[2]<br>GRP[4] | 2.9 | OBJECTIVES:<br>Maintain structure of floristics.<br>Keep scorch height to a minimum.<br>Reduce the extent and density of weeds, particularly boneseed.<br>PRESCRIPTION:<br>Autumn burn every 5-20 years. | Consult DPIPWE Threatened Species Section before burning. Contains DGL[2], GRP[4].<br>Contains the rare plant species, *Eucalyptus risdonii*[3] and *Rytidosperma indutum*[3]. Obtain a permit from DPIPWE Threatened Species Section before burning.<br>Protect adjacent telecommunications tower during burns.<br>Adjacent reservoirs: Notify TasWater in burn planning stage. | Partially burnt 1967 | 2021 |

| VMU [1, 4] | AREA (ha) | BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS | NOTES and PRECAUTIONS [2, 3] | LAST BURNT | NEXT BURN |
|---|---|---|---|---|---|
| 12<br>DAM<br>DGL[2]<br>DRI[2] | 7.4 | OBJECTIVES:<br>Maintain sections as class 5 fire trail.<br>Maintain structure of floristics.<br>Reduce the extent and density of weeds.<br>PRESCRIPTION:<br>See specifications for class 5 fire trails in MP 1 in the Best Management Practices Guidelines.<br>Autumn or spring burn every 20 to 30 years. | Consult DPIPWE Threatened Species Section before burning. Contains DGL[2], DRI[2].<br>Contains the rare plant species, *Eucalyptus risdonii*[3] and *Rytidosperma indutum*[3]. Obtain a permit from DPIPWE Threatened Species Section before burning. | Partially burnt 1967, 2014 & 2015 | Assess next plan. |
| 13<br>DAM<br>DGL[2]<br>DRI[2] | 5.4 | OBJECTIVES:<br>Maintain sections as class 5 fire trail.<br>Maintain structure of floristics.<br>Reduce the extent and density of weeds.<br>PRESCRIPTION:<br>See specifications for class 5 fire trails in MP 1 in the Best Management Practices Guidelines.<br>Autumn or spring burn every 20 to 30 years. | Consult DPIPWE Threatened Species Section before burning. Contains DGL[2], DRI[2].<br>Contains the rare plant species, *Eucalyptus risdonii*[3] and *Rytidosperma indutum*[3]. Obtain a permit from DPIPWE Threatened Species Section before burning.<br>Protect adjoining property during burns.<br>Protect perimeter fences during burns. | 1967 | 2019 |
| 14<br>Managed vegetation | 0.75 | OBJECTIVE:<br>Maintain as 15m wide outer zone to protect adjoining dwellings<br>PRESCRIPTION:<br>See specifications for outer zones in MP 5 in the Best Management Practices Guidelines. | Heap burn/patch burn only. | Partially burnt 1967 | As required or when fuel loads >5$^{t/ha}$ |
| 15<br>DVG | 0.3 | OBJECTIVE:<br>Maintain as 10m wide outer zone to protect adjoining dwellings<br>PRESCRIPTION:<br>See specifications for outer zones in MP 5 in the Best Management Practices Guidelines. | Heap burn/patch burn only. | Unknown | As required or when fuel loads >5$^{t/ha}$ |

| VMU [1, 4] | AREA (ha) | BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS | NOTES and PRECAUTIONS [2, 3] | LAST BURNT | NEXT BURN |
|---|---|---|---|---|---|
| 16<br>DAM<br>DVG<br>FAG<br>GPL[4] | 2.7 | OBJECTIVE:<br>Maintain structure of floristics.<br>Reduce the extent and density of weeds, particularly boneseed and briar rose.<br>PRESCRIPTION:<br>Autumn burn every 5-20 years. | Withhold fire from drainage line.<br>Contains the rare plant species *Juncus amabilis*[3]. Obtain a permit from DPIPWE Threatened Species Section before burning. | Partially burnt 1967 & 2013 | Assess next plan |

[1] TASVEG 3.0 codes of vegetation types in the unit.

[2] *Nature Conservation Act 2002*

[3] Tasmanian *Threatened Species Protection Act 1995*

[4] *Environment Protection and Biodiversity Conservation Act 1999*

## 4.4 Bushland Management

Bushfire can provide the disturbance that many introduced species need to spread to new areas, as well as to expand existing populations. Other bushfire management activities, such as construction and maintenance of fire trails, and establishment of fuel breaks during bushfire suppression, can also provide opportunities for weeds to colonise native bushland. Fire can also be used as a tool to manage weed infestations. Some species are best controlled by herbicide application to regrowth following a bushfire. Other species can sometimes be controlled by the application of a fire regime that stimulates germination of seed but kills the regrowth before it has been able to flower.

Planned burning can assist a weed control program, and it is recommended that weed control activities be integrated with planned burning where it is necessary to dispose of a large weed biomass and stimulate regeneration of native species. MP 8 in *Clarence City Council Bushfire Management Strategy - Best Management Practice Guidelines* includes guidelines for integrating weed management with management burning, and for minimising the risk of weed invasion following bushfires. These guidelines should ensure that fires in the reserve do not worsen existing weed problems, or cause weeds to spread.

It should be noted that bush regeneration plantings in previously cleared areas might increase the bushfire hazard.

Any proposals for bush regeneration in the reserve should be considered in the context of this BMP, and Councils Fire and Bushland Management consulted to ensure that they do not compromise bushfire protection measures such as defendable spaces proposed in this plan.

In general, plantings are not allowed:

- on inner and outer zones around assets at risk
- on fuel breaks
- Within 2m of the edge of fire trails.

### 4.4.1 Control of She Oak (*Allocasuarina verticillata*)

Dense thickets of she oak increase the bushfire hazard and reduce biodiversity by inhibiting understorey species. Dense thickets of she oak also put additional stress on eucalypts growing in the thickets, particularly during drought, which can lead to dieback and death. This is evident in the northern section of the reserve (area not covered by Conservation Covenant).

Since 2013 a manual thinning treatment has been trialled in VMU 5. Vegetation monitoring has been established and assessed annually in Councils Fire and Bushland Management Vegetation Monitoring Program (see section 4.5).

Thinning is targeted to locations where eucalypts are being suppresses by she oak, thinned by hand with residue heap burnt on site. Since 2013 positive outcomes have been noted such as; new epicormic growth, canopy class development, and natural recruitment occurring in previously suppressed locations.

VUU's with a manual she oak removal treatment are identified in table 8.

This treatment is not permitted in areas within the reserve covered by the Conservation Covenant (see figure 5).

## 4.5 Formalised Monitoring

During 2013 Councils Fire and Bushland Management established a Vegetation Monitoring Program. The objective of this program is to gain data sets on treatments applied by Councils Fire and Bushland Management towards vegetation within land managed by Clarence City Council. These data sets assist in auditing effectiveness of prescribed treatments, and also satisfying requirements as outlined in permits to take threatened plants for vegetation management from DPIPWE.

The program includes: pre and post burn photo point monitoring, flora surveys, soil health and overall vegetation condition.

VMU 5 has Vegetation Monitoring Plot (VMP)006 which is assessed annually. It was first assessed in February 2013 pre-planned burn, re-assessed December 2013 post-planned burn, and then reassessed July 2015. Assessment will continue annually with data sets evaluated at the next BMP revision in 2021.

It is recommended an additional VMP be established in VMU 9 during 2017.

# 5. Bushfire Management Recommendations

The management actions recommended to meet the objectives of the plan in section 1.3 have been summarised and classified using the following criteria:

**U**RGENT - Actions required to reduce a very high risk to life or property.

**E**SSENTIAL - Actions required to improve safety, or inadequate bushfire protection measures in high risk areas.

- Actions that are essential for control & suppression of bushfires, and/or conservation of threatened species.

**REC**OMMENDED - Actions required to improve inadequate bushfire protection measures in moderate risk areas.

- Actions required to ensure on-going effective bushfire management, or conservation of biodiversity.

**ROU**TINE - Maintenance of bushfire control resources and protection measures.

Urgent actions need to be undertaken as soon as possible.

Where applicable the desirable timing of other actions has been coded as follows:

A - Inspect and maintain annually, or as specified in the relevant MP

A/S - Timing as specified in the bushfire management plan

1, 2, etc. - Carry out action within the time period specified (years)

1A, 2A etc. - Construct within the next 1, 2 etc. years and then inspect and maintain annually, or as specified in the relevant MP.

Management actions have been linked to generic MP's in *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines*. Performance indicators have also been provided for each management action. These should be used to determine if the specific objectives of this BMP have been achieved. They should be monitored when the plan is revised every 5 years. Where performance targets are not being achieved, a review of the relevant portion of the plan should be undertaken.

## 5.1 Management Action Summary

| RECOMMENDED ACTION | OBJECTIVE (section 1.3) | PRIORITY | RESPONSIBILITY | PERFORMANCE INDICATORS |
|---|---|---|---|---|
| 1) Develop a community education program, including an information sheet, as outlined in section 5.7 of the Bushfire Management Strategy, to inform the community of bushfire management issues in the reserves and to ask them to report any smoke, or suspicious activity, on days of total fire bans to the police. | 1, 2 | REC - 1 | Clarence City Council Fire and Bushland Management<br>Tasmania Fire Service | Educational material distributed to adjoining residents, reserve users and other interest groups.<br>Reduction in the incidence of non-prescribed fire and vehicle dumping in and around the reserve. |
| 2) Implement the bushfire protection measures in section 2.4 for protection of assets in and around the reserves. | 1, 4 | E | Clarence City Council Fire and Bushland Management<br>Private landowners | Bushfire protection measures for adjoining dwellings implemented and maintained.<br>No assets lost to fires originating in, or moving through, the reserves. |
| 3) Erect appropriate signs on tracks and roads to warn reserve users of planned burns. | 1 | E | Clarence City Council Fire and Bushland Management | No users of the reserves injured by planned burns. |
| 4) Implement the recovery procedures in MP 12 following planned burns and bushfires. | 1, 5, 6 | E | Clarence City Council Fire and Bushland Management<br>Tasmania Fire Service | Post-fire recovery carried out after planned burns and bushfires.<br>No users of the reserves injured by fires or the effects of fires. |
| 5) Ensure all fire trails shown on figure 9 are established, inspected and maintained in a trafficable condition at all times according to table 7 and MP 2. | 2, 4 | ROU - A | Clarence City Council Fire and Bushland Management | Vehicle access routes inspected as required in MP 2, and maintained in a trafficable condition for fire management appliances. |
| 6) Signpost strategic fire trails at entry points and intersections so they can be identified day and night. | 2, 4 | REC - 2 | Clarence City Council Fire and Bushland Management | Signage installed and legible. |

| RECOMMENDED ACTION | OBJECTIVE (section 1.3) | PRIORITY | RESPONSIBILITY | PERFORMANCE INDICATORS |
|---|---|---|---|---|
| 7) Monitor unauthorised access; where practical install gates/obstructions to reduce illegal access. Ensure TFS have keys to security locks on gates. | 2 | ROU - A | Clarence City Council Fire and Bushland Management | Security lock system implemented, keys distributed to TFS brigades and other emergency services. |
| 8) Conduct a familiarisation tour of the reserve for local TFS brigades upon request. | 1, 2, 4 | ROU - A | Clarence City Council Fire and Bushland Management<br>Tasmania Fire Service | Local TFS brigades familiar with reserve. |
| 9) Carry out planned burning according to the schedule in table 8 using the procedure in MP 7. | 2, 3, 4, 5 | E - A/S | Clarence City Council Fire and Bushland Management | Mosaic of burnt VMUs maintained.<br>No long term decline in the structure and floristics of the native vegetation in the reserves. |
| 10) Treat any weeds in areas to be burnt under this BMP according to MP 8. Ensure follow-up weeding is carried out post fires. | 3, 5 | REC – A/S | Clarence City Council<br>Clarence City Council Fire and Bushland Management | Pre and post-fire weed control carried out in any VMUs burnt under this plan. Minimal coppicing or regrowth of weeds from treated rootstock.<br>Manage populations of WONS, declared weeds and environmental weeds. |
| 11) Thin she oak density in VMUs where the total cover exceeds the limit set in table 8. | 3, 5 | REC – A/S | Clarence City Council Fire and Bushland Management | Density of she oak maintained within management limits. |
| 12) Consult with the DPIPWE Threatened Species Section when carrying out bushfire management activities that may affect populations of threatened flora or fauna. | 3 | E | Clarence City Council Fire and Bushland Management<br>DPIPWE Threatened Species Section | All required permits obtained before burns or other management activities likely to affect threatened species.<br>All planned burns carried out to conditions as outlined via written correspondence from DPIPWE. |

| RECOMMENDED ACTION | OBJECTIVE (section 1.3) | PRIORITY | RESPONSIBILITY | PERFORMANCE INDICATORS |
|---|---|---|---|---|
| 13) Continue formalised vegetation monitoring as outlined in section 4.5. | 3, 5 | E | Clarence City Council Fire and Bushland Management | VMP006 re-assessed annually.<br>VMP established in VMU 9. |
| 14) Regularly revise burning schedules and prescriptions to ensure they incorporate the most recent information on the fire ecology of flora, fauna and plant communities of conservation value in the reserves. | 3, 5 | REC - A/S | Clarence City Council Fire and Bushland Management | BMP revised every 5 years. |
| 17) Ensure all personnel engaged in planned burning activities in the reserves have the appropriate level of training and equipment as outlined in the bushfire management strategy, and the minimum equipment listed in MP 7. | 1, 2 | E | Clarence City Council Fire and Bushland Management | All personnel are able to demonstrate the required level of training and minimum levels of equipment. |
| 18) Record bushfire management activities and bushfires using the procedures in MPs 10 and 11. | 3, 4, 5 | REC - A/S | Clarence City Council Fire and Bushland Management | Records maintained of all bushfire management activities. |
| 19) Make BMP available to Council planners so context can be factored in when development applications are received for adjacent developments/subdivisions. | 1 | REC | Clarence City Council Fire and Bushland Management<br>Clarence City Council | Future developments/subdivisions adjacent to reserve utilise existing defendable spaces and provide access when possible to existing fire trail network. |
| 21) Groom southern section of VMU 14 (defendable space) to allow mechanical maintenance. | 1, 2, 3, 5, 6 | ESS - 1 | Clarence City Council Fire and Bushland Management | VMU 14 can be maintained by mechanical means (bobcat with slasher). |

| RECOMMENDED ACTION | OBJECTIVE (section 1.3) | PRIORITY | RESPONSIBILITY | PERFORMANCE INDICATORS |
|---|---|---|---|---|
| 22) Council Fire and Bushland Management engaged in verbal consultation at review stages of Reserve Activity Plan (RAP). | 1, 3, 4, 5 | ESS | Clarence City Council<br>Clarence City Council Fire and Bushland Management<br>Consultant reviewing RAP. | RAP and BMP do not include conflicting recommendations.<br>RAP and BMP have holistic management approach. |

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# Appendix A

**Implementation of the previous BMP**

The following codes have been used in assessing implementation of the previous Bushfire Management Plan for Rokeby Hills Reserve:

IS – Implemented successfully

PI – Partly implemented

NI – Not implemented

NA – Not applicable (to be implemented at a later time, or dependent on another incident or action).

| RECOMMENDED ACTION | CODE | COMMENT |
|---|---|---|
| 1) Develop a community education program, including an information sheet, as outlined in section 5.7 of the Bushfire Management Strategy, to inform the community of bushfire management issues in the reserves and to ask them to report any smoke, or suspicious activity, on days of total fire bans to the police. | PI | A formalised community education program has not been designed.<br>Public exhibition of Councils *Bushfire Management Strategy for Council Owned and Controlled Land*, *Bushfire Management Strategy Best Management Practice Guidelines* and the previous BMP for the reserve has taken place.<br>Various TFS community bushfire preparation events have been attended and represented by Council Fire and Bushland Management throughout municipality. |
| 2) Implement the bushfire protection measures in section 2.4 for protection of assets in and around the reserves. | IS | All required bushfire protection measures in section 2.4 implemented successfully. |
| 3) Erect appropriate signs on tracks and roads to warn reserve users of planned burns. | IS | All signage erected prior to planned burns taking place. No users of reserve were injured during planned burns. |
| 4) Implement the recovery procedures in MP 12 following planned burns and wildfires. | IS | Post fire recovery has been carried out after planned burns. No wild fires impacted previous reserve polygon for duration of previous BMP. |
| 5) Ensure fire trails shown on figure 5 are inspected and, where specified in table 8, are maintained in a trafficable condition at all times according to table 8 and MP 2. | IS | All fire trails shown on figure 5 on Council managed land maintained and inspected to required standards. |
| 6) Signpost fire trails at entry points and intersections so they can be identified day and night. | NI | Fire trails have not been signposted. A review of fire trail sign posting has been undertaken by CCC Fire and Bushland Management during 2015. Only fire trails identified as strategic in the Hobart Fire Protection Plan will be marked. |

| RECOMMENDED ACTION | CODE | COMMENT |
|---|---|---|
| 7) Inspect gates regularly to ensure that locks are in place and functioning. Ensure that the local Tasmania Fire Service Brigade and other emergency services have keys to the gates on trails giving access to the reserves. | IS | Gates/locks regularly audited and maintenance enacted when required.<br>TFS have keys to Council locks within reserve. |
| 8) Conduct a familiarisation tour of the reserves for local TFS brigades prior to the start of the fire permit period each year. | NI | Familiarisation tour not taken out.<br>Familiarisation tour to be offered upon request from TFS. |
| 9) Carry out planned burning according to the schedule in table 9 using the procedure in MP 7. | IS | All scheduled planned burns from previous plan carried out successfully. |
| 10) Treat any weeds in areas to be burnt under this bushfire management plan according to MP 8. Ensure follow-up weeding is carried out after planned burns and wildfires. | IS | Pre and post planned burn weed maintenance has occurred. Ongoing monitoring throughout duration of future BMPs will continue. |
| 11) Thin out she oak in VMUs where the total cover exceeds the limit set in table 9 using the procedure in section 4.4.1. | IS | She oak thinning occurring and will continue as specified in revised BMP. Photo Point Monitoring has been established in areas undergoing this prescription. |
| 12) Consult with the DPIPWE Threatened Species Section when carrying out bushfire management activities that may affect populations of threatened flora or fauna. | IS | Relevant DPIPWE specialists consulted as required throughout previous BMP. Relevant permits obtained and documented. |
| 13) Avoid burning the whole of any population of a threatened or rare plant species in a single bushfire. | NA | No bushfires impacted previous reserve polygon during previous BMP. |
| 14) Carry out vegetation monitoring as detailed in section 5.10 of the Bushfire Management Strategy including the recovery of any populations of threatened or rare flora and fauna burnt by wildfires or planned burns. | IS | Vegetation monitoring established in 2013. Annual assessments occurring. |
| 15) Regularly revise burning schedules and prescriptions to ensure they incorporate the most recent information on the fire ecology of flora, fauna and plant communities of conservation value in the reserves. | IS | Regimes and prescriptions have been analysed throughout life of previous BMP. During 2016 review process, all VMUs regimes and prescriptions have been evaluated to suit best outcomes for asset protection and ecological burning. |

| RECOMMENDED ACTION | CODE | COMMENT |
|---|---|---|
| 16) Coordinate bushfire management, weed management and other management activities, such as bush regeneration, using the procedure in MP 9. | PI | Coordination of activities has been undertaken. Meetings as recommended in MP9 not carried out. |
| 17) Ensure all personnel engaged in planned burning activities in the reserves have the appropriate level of training and equipment as outlined in the bushfire management strategy, and the minimum equipment listed in MP 7. | IS | Extensive training has been delivered to Council Fire and Bushland Management during term of previous BMP. Ongoing training will be recommended on a needs basis. |
| 18) Record bushfire management activities and wildfires using the procedures in MPs 10 and 11. | IS | Since 2013 Council has developed extensive GIS Fire Management context. All available historic fire management information has been input and updated annually. |