Document 14

From: s 36
To: [redacted]; s 36
Cc: s 36
Subject: Tasman Highway - Airport Interchange to Midway Pt. Causeway - Co-ordination Meeting 30th March 2023
Date: Friday, 31 March 2023 11:22:29 AM
Attachments: image001.png
s 36, s 39 [redacted]

Good morning

Attached please find the notes of yesterday's meeting. Please advise of any corrections or additions.

[redacted]

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

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Attachment 1

pitt&sherry

Specialist Knowledge.
Practical Solutions.

SETS Airport Interchange to Midway Point Causeway – Design Meeting

Venue Teams meeting

Date 30 March 2023

Time 2.30 pm

Present s 36 (Pitt & Sherry) [redacted] (DSG). s 36 (North Barker)

Apologies s 36 (Pitt & Sherry)

No.	Item	Action	Date
1	**Milford**		
1.1	Methodology for habitat assessment GD advised that refinement is needed for the methodology in line with the comments received from DCCEEW. In particular if sampling is required for mycorrhiza this is likely to be intense and it is not known precisely how it would be done. Also the value of assigning soil types was questioned given the consistency of soil type across the site. JJ suggested that DCCEEW might wish to see a suite of variables of which soil type is one. GD agreed that we could look at some fine scale variables and how these might change. s 39 [redacted] Seasonal timing also needs to be considered eg best time to measure weeds is when orchids are present. Agreed that GD would carry out an initial habitat assessment over the period 10-12 April. KP to obtain approval from s 36 for this. Clarification with Canberra is still required on some of DCCEEW's comments on the methodology for habitat assessment. This is best done after the initial field assessment and when s 36 Returns from leave. DC to request a meeting with DCCEEW for 16th May 2023.. GD will also draft a response to DCCEEW in preparation for the 16th May meeting.	KP DC GD	6/4/23 6/4/23 10/5/2023

No.	Item	Action	Date
1.2	RCS Plan Draft has been submitted to DSG for review. JJ advised that this needs to meet DCCEEW's expectations and align with DSG format including link map locations.		
1.3	Offset Strategy Some work has been done on this however it needs to address a) a description of the offset site(s) including location, size, condition and environmental values b) details of the surveys undertaken in accordance with the survey guidelines used to confirm the presence of the protected matter at the offset site c) details of the quality of the offset site and habitat characteristics for the protected matter d) details of on-going threats to the protected matter at the offset site e) comparison of the environmental values as compared to the impact site f) justification Some of this information won't be available until the habitat assessment is complete.		
1.4	Offset Management Plan This is work in progress and cannot be completed until the habitat assessment is complete.		
1.5	Covenant Conservation covenant through NRE is favoured. JJ has sent through a form to be populated by PS/North Barker. This will then be submitted to NRE to determine whether the proposed offset site at 6 Ha, which is less than the accepted 10 Ha minimum, can be established under this regime. KP to confirm that s 36 agrees to a covenant in this form.	DC/GD KP	30/4/2023 30/4/2023
1.6	Other Milford Matters Power line clearance over new access. KP advised that s36 believes that the powerline clearances are insufficient. DC confirmed after the meeting that the clearances are Ch 760 5.78 metres min – 6.01 metres max. Ch 880 5.99 metres min – 6.21 metres max. These clearances would appear to be sufficient for current and proposed future uses on Milford. Gate from Pittwater Road access needs to be moved to the south to avoid a large white gum. s36 wants the new access track to be moved to the south to minimise tree loss and also provide a buffer/better protection for orchid habitat. DC to provide advice to GD/AN for review. This would increase the impact on potential orchid habitat and likely increase the size of the offset area. This may not be an issue as the proposed offset area is significantly larger than is required under the current calculations.	DC DC	14/4/2023 6/4/2023

No.	Item	Action	Date
	s36 has previously raised questions concerning the habitat assessment methodology. These were answered by AN in his email to [redacted] of 14/3/2023. DC to forward this email to GD to confirm that any revised approach remains consistent with this. Also for GD to inspect the proposed passing bay under the power line during the 10-12 April visit. KP advised that he is still waiting on advice from Wildseed on the 10 year maintenance of the compensatory planting area and also when they will carry out the outstanding maintenance. DC to follow up with Wildseed. s36 has questioned how the proposed Offset Management Plan for Unit 4 will be integrated and consistent with the existing Milford Forest Orchid and Fire Management Plan. DC to review and advise. KP reminded DC about the markup of the compensatory planting area requested on 21/03/2023.	DC DC DC DC	6/4/2023 6/4/2023 6/4/2023 6/04/2023
2	**Airport Land Acquisition**		
2.1	Draft tripartite Deed has been received. [redacted] will progress the discussions and process for reaching agreement on valuation. Comments have been received from the Airport on the sublease. The reinstatement to pre-existing conditions, in the event that the lease terminates without the land being in State ownership, remains the major point of difference. This risk may have to be accepted by DSG. There is a follow up meeting with the Commonwealth in the near future. After that meeting it is proposed to include the Airport in ensuing meetings.		
3	**Golf Club**		
3.1	KP advised that he expects Golf Course matters are progressing and can be resolved ahead of the EPBC and Airport acquisition. He will issue a reminder to s 36 [redacted] for the Golf Club's statement of required compensation.		
4	**Forward Meeting Schedule**		
	TBC	KP	6/4/2023

Document 15

From: s 36
To: [redacted]
Subject: Coordination of existing and proposed new Orchid Management Plans
Date: Thursday, 30 March 2023 8:30:01 PM
Attachments: image001.png
image002.png
080501 Milford Forest Orchid and Fire Management Plan May2008 DPIW by AVK Env Mgt.pdf

Hi [redacted]

I've had another look at the Milford Forest Orchid and Fire Management Plan (MFOFMP) and provide the following comments.

i. The plan is heavily focussed on fire as the predominant management activity, and we understand that fire is no longer favoured for this purpose.
ii. The stated aims of the Plan are

> **1.1 Aim of the Plan**
>
> The aim of the Milford Fire Management Plan is to:
>
> a) Reduce the bushfire risk to life and property
>
> b) Maintain existing habitat for the endangered orchids *Prasophyllum milfordense* and *Caladenia saggicola*, and encourage the spread of the orchids through appropriate prescribed burning.
>
> c) Ensure the long term viability of the *Eucalyptus viminalis* woodland at the northern end of "Milford" through application of an appropriate fire regime.

iii. All of these aims rely on burning and if burning is no longer carried out then one might argue that the MFOFMP is no longer relevant. Section 5.4.4 of this plan states that minor reviews of it should be undertaken every 3 years and a full review every 15 years. It was prepared in 2008, so it is now out of date. On that basis the best way to co-ordinate management activities across the whole of Milford may be to look at the Offset Management Plan (OMP) covering unit 4 as the defining document and implement activities to the extent that s36 resources can achieve over the other areas of Milford. Note that our responsibility is for Unit 4 and we are not obliged to do anything elsewhere on the property by way of orchid management. We can obtain advice from North Barker on whether the activities proposed for the balance of Milford should be carried out at the same time as the Unit 4 activities or whether there should be some sort of staggering or rotation.
iv. Irrespective of the above, Section 6 of the MFOFMP contains nine "Management Actions" seven of which relate to the use of fire. The two that remain are Action 5 – *Ensure an adequate and accessible water supply for fire fighting* and Action 9 – *Control unwanted plant species through minimising the spread of weeds*. Action 5 will be achieved through the proposed hydrant on the new watermain and the OMP will comprehensively address the weed issue. Control of bracken is also covered in the MFOFMP in section 3.6 and these strategies can be included in the OMP.

If this co-ordination issue is a significant one, and I'm not convinced that it is, then s 36 needs to advise us on

i. What has been carried out in the past re orchid management
ii. What is intended in the future
iii. Her take on how future activities should be co-ordinated with our obligations for the Offset area

Regards

[redacted]

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

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Attachment 1

Tasmanian Government

Department of Primary Industry and Water

Bushfire Management Plan *Eucalyptus viminalis* Woodland on "Milford"

May 2008

Bushfire Management Plan
Eucalyptus viminalis Woodland on "Milford"

May 2008

Prepared By

AVK Environmental Management

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Summary

This fire management plan for "Milford" has been prepared for the Department of Primary Industry and Water. The "Milford" property is located between Hobart Airport and Pitt Water. (see Figure 1). This plan specifically covers approximately 36 ha of *Eucalyptus viminalis* grassy forest and woodland located at the northern end of the property. This bushland contains populations of two endangered orchids; the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*).

This fire management plan covers a 15 year period (2008 to 2023). This will allow for at least one cycle of burning for most of the native vegetation on the property, and time to collect enough information for an informed assessment and review.

The main populations of the the Milford Leek-Orchid and the Sagg Spider-Orchid have recently been enclosed with a rabbit-proof fence. It is possible that there are other populations of these orchids on Milford. The burning program in this plan will help in the search for additional populations, as well as encouraging the existing populations to spread.

Landowners in Tasmania have a general legal responsibility to take all reasonable steps to minimise the risk of fires that originate on their property causing personal injury, damage to adjoining property, or damage to items of natural or heritage value protected by government legislation.

Analysis of Tasmania Fire Service fire records over the last 15 years shows no fires on Milford for at least 10 years and few in the surrounding area. This indicates a relatively low risk of fires starting on or around Milford. The main bushfire threat to Milford is considered to come from local ignitions, particularly along the roads on the northern and western boundaries of the property.

It will not be possible to prevent wildfires occurring in the bushland on Milford. Fires lit along roads are generally easy to access and can be rapidly contained under most conditions, however if they are not quickly reported, or occur in extreme weather conditions, major fires could result. This plan aims to lessen these risks by providing a strategy for reducing the risk of fires starting, controlling fires that do start, and minimising the risk of loss of life or damage to assets.

The *Eucalyptus viminalis* grassy forest and woodland on Milford is considered to have a Low fire sensitivity and high flammability (Pyrke & Marsden-Smedley 2005). The only built assets within the bushland on Milford likely to be at risk from fire are fence posts and wooden power poles. Close to the bushland are a group of plastic covered greenhouses and a shed used by CSIRO when monitoring growth of an experimental plantation. These and the plantation itself are also at risk from fire.

No prescribed burning has been carried out in the bushland on Milford in the recent past either for hazard reduction or ecosystem management. A ploughed firebreak 2 to 3 m wide is maintained along the Pittwater Road and Tasman Highway boundaries of the property. A number of internal tracks also function as firebreaks. There are no assets on adjoining properties that require hazard reduction or firebreaks on Milford for their protection.

Bracken fern (*Pteridium esculentum*) is a major concern in the bushland on Milford as it has the potential to dominate the understorey and exclude other native species, including orchids. As bracken recovers very quickly after fire, it can quickly dominate areas that are burnt frequently. It also builds up an elevated fuel load in 2 to 3 years, thus making burning an ineffective method of hazard reduction.

The overall bushfire risk reduction strategy recommended for Milford is as follows:

- Reduce ignitions through control of access, and prompt reporting of fires.
- Maintain access trails, firebreaks, water supply points, and hazard reduced areas to enable the TFS to rapidly contain fires that start on Milford.
- Carry out strategic hazard reduction to slow the spread of fires on Milford.

A number of fire management objectives have been set for Milford. These objectives, and the management actions recommended to achieve them, are summarised below.

Fire Management Objective		Recommended Actions
1	Monitor the impact of wildfires and fire management activities on Milford. Adjust practices to achieve relevant objectives, and periodically review the fire management plan.	a) Monitor the impacts of fires carried out as outlined in section 5.5. b) Review this fire management plan at regular intervals using the procedures in section 5.5.4. and table 5. c) Regularly revise burning prescriptions to ensure they incorporate the most recent information on the fire ecology of the flora of conservation value on Milford. d) Gather baseline data on the extent and approximate numbers of populations of rare or threatened species prior to prescribed burning.
2	Maintain up-to-date records of wildfires and fire management activities on Milford.	Record fire management activities and wildfires using the procedures detailed in section 6.7.
3	Minimise the risk of wildfires starting and spreading on Milford.	a) Carry out the management burns shown on figure 6 and scheduled in table 3. b) Maintain ploughed firebreaks along the boundary fence. c) Maintain all power line easements through Milford (Aurora Energy) to minimise the risk of short-circuits and flash-overs starting fires.

Fire Management Objective		Recommended Actions
4	Minimise the risk of fire to life and property on Milford.	a) Carry out the procedures to reduce the risk of fires starting and spreading (Objective 3). b) Ensure that any new developments on Milford incorporate appropriate bushfire protection measures to TFS standards. c) Ensure that any prescribed burning is carried out when winds will blow smoke and embers to the east, away from the airport, roads and the greenhouses. d) Protect wooden fence posts and power poles during prescribed burns.
5	Ensure an adequate and accessible water supply for fire fighting.	Maintain vehicle access to the standpipe near the farmhouse, and the ponds on the eastern side of the greenhouses.
6	Ensure all personnel carrying out fire management activities on Milford are suitably trained, equipped and supervised.	Ensure all personnel engaged in prescribed burning activities on Milford have the appropriate level of training and equipment as outlined in section 5.2.4.
7	Minimise the fire risk to threatened flora and fauna.	a) Apply the appropriate fire regime to populations of threatened flora and fauna that require periodic fire for their long-term survival. b) Plan prescribed burns in units containing populations of threatened flora and fauna together with the DPIW Nature Conservation Section. c) Avoid burning the whole of any population of a threatened plant species in a single fire. d) Monitor the recovery of any populations of threatened flora and fauna burnt by wildfires or prescribed burns. e) Fire fighting foams should not be used without prior consultation with the DPIW Nature Conservation Branch.
8	Implement a mosaic burning program to maintain and enhance habitat diversity, particularly for orchids.	a) Carry out prescribed burning according to the schedule in table 3 using the procedure in section 5.2. b) Regularly revise burning prescriptions to ensure they incorporate the most recent information on the fire ecology of the flora and fauna of conservation value on Milford.
9	Control unwanted plant species through minimising the spread of weeds.	Carry out weed control in conjunction with fire management activities as detailed in section 5.3.

1. Introduction

This fire management plan for "Milford" has been prepared for the Department of Primary Industry and Water. The "Milford" property is located between Hobart Airport and Pitt Water. (see Figure 1). This plan specifically covers approximately 36 ha of *Eucalyptus viminalis* grassy forest and woodland (TasVeg code: DVG) located at the northern end of the property bordering the Tasman Highway.

The bushland at the northern end of Milford contains populations of two endangered orchids; the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*). Both species are endemic to Tasmania and are listed as Endangered in the Tasmanian Threatened Species Protection Act, 1995, and Critically Endangered in the Commonwealth Environment Protection and Biodiversity Conservation Act, 1999.

To help overcome the lack of information on the long-term responses of indigenous vegetation to fire, this plan has adopted the principles of 'adaptive management'. The plan contains a monitoring and evaluation component which will provide the information required to progressively refine the plan to ensure it is achieving its desired outcomes. In view of this, the scheduling of prescribed burning in the plan covers a 15 year period (2008 to 2023). This will allow for at least one cycle of burning for most of the native vegetation on the property, and time to collect enough information for an informed assessment and review. However, the plan also includes procedures to ensure that key components of the plan can be updated when required.

This plan is designed to be a working document, containing all the maps and information necessary for its implementation.

1.1 Aim of the Plan

The aim of the Milford Fire Management Plan is to:

a) Reduce the bushfire risk to life and property

b) Maintain existing habitat for the endangered orchids *Prasophyllum milfordense* and *Caladenia saggicola*, and encourage the spread of the orchids through appropriate prescribed burning.

c) Ensure the long term viability of the *Eucalyptus viminalis* woodland at the northern end of "Milford" through application of an appropriate fire regime.

It must be noted that it will not be possible to prevent wildfires occurring on Milford. 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 on the property causing damage to assets and environmental values, and even loss of life. This fire management plan aims to lessen these risks by minimising the risk of fires starting on the property, and minimising the risk of injury or damage to assets on the property.

Figure 1 – Location of "Milford"

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

- reduce fire hazard to protect assets from wildfires
- maintain the long-term viability of the native vegetation and individual species of conservation value on the property
- assist in the removal of weeds and the regeneration of degraded bushland.

1.2 Description of the Property

"Milford" is located between Hobart Airport and Pitt Water and is bounded by the Tasman Highway to the north and Pittwater Road to the west. The property dates back to the 1830s and is currently owned by Charles Lewis, a descendent of the original owner. Mr Lewis advised that the area of bushland covered by this fire management plan was never fully cleared though the understorey is likely to have been altered by past grazing. The bushland area is flat and low lying with sandy soils. It rises slowly towards that east to form a low scarp along the edge of Pitt Water. There has been some physical disturbance to the area, mainly tracks and jumps created when it was leased to a pony club. Currently the bushland area is not used for any agricultural or other purpose.

Close to the southern boundary of the bushland is an experimental eucalypt plantation planted by the CSIRO. Adjoining the south-western boundary are a number of plastic-covered green houses (see Figure 2).

1.2.1 Species of Conservation Value

Despite past disturbance the bushland on Milford has a relatively high concentration of species of conservation value, particularly orchids. These are listed in Table 1. The bushland itself, *Eucalyptus viminalis* grassy forest and woodland (TasVeg code: DVG), is considered Vulnerable in the South-east Bioregion. The two most important species of conservation value on Milford are the Milford Leek-Orchid and the Sagg Spider-Orchid. The main populations of these orchids have recently been enclosed with a rabbit-proof fence. It is possible that there are other populations of these orchids on Milford. The burning program in this plan will help in the search for these, as well as encouraging the existing populations to spread.

Figure 2 – Extent of the bushland area covered by this plan

Table 1 – Species of conservation value recorded on Milford

FLORA SPECIES	CONSERVATION STATUS	
	STATE[1]	NATIONAL[2]
Prasophyllum milfordense Milford Leek-Orchid	endangered	critically endangered
Caladenia saggicola Sagg Spider-Orchid	endangered	critically endangered
Caladenia caudata Tailed Spider-Orchid	rare	vulnerable
Ranunculus sessiliflorus var. *sessiliflorus* Rockplate Buttercup	rare	-
Wilsonia humilis Silky Wilsonia	rare	-
Limonium australe Yellow Sea-Lavender	rare	-
Cynoglossum australe Coast Houndstongue	rare	-
FAUNA SPECIES		
Perameles gunnii Eastern Barred Bandicoot	-	vulnerable
Tyto novaehollandiae subsp. *castanops* Masked Owl (Tasmanian)	endangered	-

1 – Tasmanian Threatened Species Protection Act, 1995

2 – Commonwealth Environment Protection and Biodiversity Conservation Act, 1999.

1.3 Use of Fire in Bushland Management

Fire plays an important role in maintaining biodiversity in Australia. Changes in the fire regime (season, frequency and intensity of fire) can cause progressive changes in plant communities. Frequent fire and long-term exclusion of fire have both been shown to lead to progressive changes in plant community structure, and a reduction in biodiversity. Failure to use fire properly as a management tool can be considered a threat to some of the natural habitat on Milford.

Inappropriate fire regimes (season, intensity and frequency of fires) can cause progressive and sometimes irreversible changes in indigenous plant communities, including a loss of biodiversity. On the other hand, identification, prescription and implementation of an appropriate fire regime can be used to:

- manage indigenous flora and fauna habitats in a sustainable manner
- maintain biodiversity
- control selected weed species and promote natural regeneration in dry forest communities.

The potential risks to flora and fauna habitats from wildfire can be managed by minimising the risk of ignitions, maintaining adequate emergency vehicle access routes and other control lines, and by burning suitable areas of vegetation at different times to create a mosaic of vegetation units at different stages of recovery from fire. Adoption of a mosaic burning pattern has the following advantages:

- increases habitat diversity
- reduces overall fuel loads
- provides control lines to help in the suppression of wildfires
- reduces risk of a single, high-intensity wildfire burning large areas.

Within the mosaic of burning units the fire regime (frequency, season and intensity of fire) can be manipulated to achieve some or all of the following objectives:

- removal of woody and herbaceous weeds, and weed seeds from mid-storey, leaf litter, and soil surface
- reduction in the levels of plant nutrients, such as phosphorus and nitrogen, which may be contributing to weed invasion
- manipulation of ecological processes such as; species composition (via the promotion of selected species or communities), regeneration of senescent vegetation, and the creation of suitable conditions for native seed germination
- protection of species of conservation value by maintaining habitat elements that are critical for their survival.

In bushland fire can be used to stimulate germination of indigenous plant seeds. She-oaks, most Eucalypts, Acacias, members of the pea family (*Fabaceae*) and many species from other plant families frequently germinate prolifically in areas which have been burnt. However, the burnt area will also be open to weed invasion and must be carefully monitored.

Frequent burning of native forests is known to reduce species diversity and make them more vulnerable to weed invasion (Williams, 1991). A high fire frequency (less than 5 years) will usually favour grasses and bracken in the understorey at the expense of shrubs, and severely restrict the re-establishment of canopy species.

In native bushland fire will generally increase an existing weed problem. Many woody weeds re-sprout rapidly from rootstock after fire, often coppicing densely (hawthorn, gorse). Herbaceous species (including many grasses) respond in a similar way, regenerating from growth buds on a network of robust underground rhizomes (pampas grass, bracken). Seed germination is usually prolific after fire, a response which necessitates prompt control measures, on-going monitoring, and site maintenance (gorse, boneseed, broom).

Therefore, where weeds are already a problem, prescribed burning should only be carried out after weeds have been treated, and follow up weed control can be carried out. In general, weed infested bushland areas should not be burnt if resources for post-fire weeding are not available. The exception to this is high fire hazard areas close to dwellings where burning is the only feasible method of hazard reduction.

1.4 Fire Hazard Reduction

As the intensity of a bushfire increases it becomes progressively more difficult to contain and suppress the fire. Very high intensity (> 4000 kW/m heat output at the fire front) fires with flame heights greater than 10 m are generally uncontrollable (NSW Rural Fire Service, 1997). The threat from a bushfire therefore increases as its intensity increases. Fire intensity is directly related to the quantity, type, and the distribution, of fine fuel (live and dead plant matter less that 6 mm diameter) available to the fire. Other factors, such as slope and moisture content of the fuel, also influence fire intensity, but the only factor that can be effectively controlled to limit fire intensity is fine fuel load (usually expressed in tonnes per hectare).

The fire threat to infrastructure and built assets, such as dwellings, can be reduced by creating a buffer zone around the asset where fine fuel loads are maintained at low levels. Generally, these buffers consist of an inner zone around the asset with minimal fine fuel loads, and an outer zone with reduced fine fuel loads. The purpose of the outer zone is to reduce the intensity of any bushfire approaching an asset. The purpose of the inner zone is to protect the asset from flame contact and intense radiant heat. The inner zone is called the 'building protection zone', and the outer zone the 'fuel modified buffer zone'. The whole buffer can be termed a 'defendable space'. Slashing, mowing, or hand cutting of vegetation are generally the most effective methods for establishing and maintaining small defendable spaces around isolated assets, or long, narrow, defendable spaces along urban/bushland perimeters.

Protection of other assets and values, such as water catchments, views, and threatened species, is generally more difficult, and requires strategies that minimise the risk of wildfires starting and spreading. The main strategies are to:

- minimise the risk of wildfires igniting by removing or limiting as many potential causes of fire as possible
- maximising the ability of fire suppression agencies to detect and control any wildfires that do start.

Maintaining fuel loads at a low level will limit the intensity and rate of spread of wildfires, and make it easier for fire brigades to control and suppress them. Prescribed burning is generally the most effective way to reduce fuel loads over relatively large areas, or where other methods of fuel management, such as slashing, are not feasible. However, there is always a risk of prescribed burns escaping control lines and becoming destructive wildfires. In addition, some vegetation

types accumulate fuel very rapidly and therefore require frequent burning to maintain fuel reduced conditions. Frequent burning can have adverse side affects, such as loss of plant communities and fauna habitat, increased erosion, and loss of visual amenity.

1.5 Statutory Responsibilities

Landowners in Tasmania have a general legal responsibility to take all reasonable steps to minimise the risk of fires that originate on their property causing personal injury, damage to adjoining property, or damage to items of natural or heritage value protected by government legislation.

Fire Service Act, 1979

The main responsibilities of landowners/occupiers under the Fire Service Act, 1979, are:

- to take all reasonable precautions to prevent any fire lit on their property from spreading onto neighbouring land (Section 63)
- to take diligent steps to extinguish or control any unauthorised fire on their property during a fire permit period, and to report that fire to the Tasmania Fire Service, or the Police (Section 64).

Clause 18 (2) of the Fire Service (Miscellaneous) Regulations 1996 states that holders of permits under Section 66 of the Fire Services Act: "must, before lighting a fire in the open air that he or she is authorised by the permit to light during a fire permit period, give notice orally or in writing of the intention to light such a fire" to "the owner or occupier of any land adjoining, whether separated by a road or watercourse or not, the land on which the fire is to be lit."

Threatened Species Protection Act, 1995

The Threatened Species Protection Act (TSPA), 1995, provides for "the protection and management of threatened native flora and fauna, and to enable and promote the conservation of native flora and fauna".

Schedule 1 lists the objectives of the resource management and planning system of Tasmania, and the threatened species protection system established by the Act. These objectives include the principles of 'sustainable development'. The intent of this Act makes protection of threatened species a major objective of any fire management plan in the State.

Section 51 (a) of the TSPA states that: "A person must not knowingly, without a permit - take, trade in, keep or process any listed flora or fauna". The TSPA defines 'take' as including: "kill, injure, catch, damage, destroy and collect". Landowners may therefore be required to obtain a permit from the Department of Primary Industries and Water to carry out prescribed burning that may affect any of the species listed in the Act.

Local Government Act, 1993

Section 93 of the Act allows a council to impose a service rate on rateable land for the purpose of providing fire protection.

Section 200 of the Local Government Act requires a council to issue a hazard abatement notice whenever it is satisfied there is, or is likely to be, a fire risk on any privately owned land. If the person served with an abatement notice fails to comply with the notice within the specified time, the council is empowered under Section 201 of the Act to carry out the action specified in the notice, and recover the cost from the owner or occupier of the land.

Environmental Management and Pollution Control Act, 1994

The objectives of the Act as stated in Schedule 1 of the Act includes;

> "3(c) to regulate, reduce or eliminate the discharge of pollutants and hazardous substances to air , land or water consistent with maintaining environmental quality"

Section 96C of this Act allows the Parliament to make environment protection policies for the purpose of furthering any of the objectives of the Act. Policies that affect fire management activities include the State Air Quality Policy and the State Water Quality Management Policy.

Environment Protection Policy (Air Quality), 2004

Clause 17 of the State Air Quality Policy covers "planned burning" which includes low intensity burning for fuel reduction and ecological management, but does not include backburning to control wildfires. Clause 17 of the policy states that:

> "(2) Persons or organisations involved in the conduct of planned burning or in the preparation of management guidelines for such operations must take account of the health and amenity impacts of smoke pollution on individuals and the community.
>
> (3) Best practice environmental management should be employed by those persons undertaking planned burning to minimise the effects of smoke pollution on individuals and the community. This includes, but is not limited to, complying with the State Fire Management Council Guidelines on high intensity and low intensity burning.
>
> (4) Where practicable, agencies, companies or organisations undertaking burning on a regular basis or on a large scale should:
>
> (a) adopt efficient and effective air quality monitoring programmes;
>
> (b) adopt a uniform approach to recording and assessing complaints;
>
> (c) focus upon minimising the impact of smoke on the community in terms of health, amenity and safety;
>
> (d) encourage the planning and execution of planned burning in a way that minimises the generation of smoke and improves the management of the effects of smoke; and
>
> (e) require a responsible person involved in planned burning for land management to be competent in relevant burning procedures."

The State Fire Management Council Guidelines for low intensity prescribed burning advises that:

> "The effects of smoke from planned fires should be considered when preparing burning plans, taking account of the probable wind direction. Where practicable, smoke mitigation strategies should be used including: prescribing favourable wind direction; ensuring that fuels are dry; limiting the size of the burning area; limiting the number of areas lit at the same time within the same airshed; allowing time for areas to burn out prior to evening inversions, particularly late in autumn ; avoiding planned fires coinciding with public events; avoiding week-ends and Public holidays; providing information to the public."

The State Air Quality Policy also requires that a uniform approach to recording and assessing complaints be developed. This will be implemented through the Tasmanian Air Quality Strategy.

Tasmanian Air Quality Strategy, 2006

The Tasmanian Air Quality Strategy has been established under the Environment Protection Policy (Air Quality) to guide the management of air quality in Tasmania. The overall aim of the Air quality Strategy is to "to achieve compliance with the National Environment Protection (Ambient Air Quality) Measure Standard and Goal for PM_{10} particles, in line with the stated requirements of the Environment Protection Policy (Air Quality)".

Objective 13 of the strategy deals with smoke management from planned fires and aims to:

> "Improve the management of smoke from planned burning in accordance with the Environmental Protection Policy (Air Quality) 2004 by:
>
> (a) Establishing smoke management procedures for planned burning;
>
> (b) Incorporating smoke management procedures into the Forest Practices Code;
>
> (c) Improving the co-ordination of planned burning to minimise smoke impacts; and
>
> (d) Investigating the most appropriate way to manage and respond to complaints relating to planned burning."

The strategy estimates that only about 3% of particulate (PM_{10}) emissions in Tasmania come from management burns and wildfires, however it also notes that poor planning and coordination of planned burns can lead to short-term exceedance of air quality targets.

The strategy also notes that:

> "Although fuel reduction burns may impact on air quality, it is recognised that this practice reduces the likelihood of wildfires that could have more significant impacts such as property destruction."

It should also be noted that Section 66 of the Fire Service Act states that:

> "a person who lights and controls a fire in accordance with the conditions of a permit granted to that person under this section is exempt from the Environmental Management and Pollution Control Act 1994."

Implementing the air quality policy and strategy will require prescribed burns on Milford to be coordinated with other prescribed burns in the area, and to be carried out when weather conditions will help to disperse the smoke.

State Water Quality Management Policy, 1997

One of the objectives of the State Water Quality Management Policy is to:

> "6.1(b) Ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged to waterways are reduced as far as is reasonable and practical by the use of best practice environmental management"

Clause 31.4 of the policy under the section dealing with diffuse sources of pollution states that:

> "Codes of practice or guidelines required by this Policy in respect of specific activities with the potential to impact on stream-side land should pay specific attention to defining appropriate stream-side buffer strips and acceptable management practices within these strips. Strategies and incentives, including economic instruments, to encourage the retention and/or improved management of streamside vegetation should be investigated."

In relation to the construction and maintenance of fire trails, Clause 35.1 of the policy states that:

> "35.1 Road construction and maintenance operations will be carried out in accordance with the guidelines or code of practice developed pursuant to clause 31.3 of this Policy, or employ other measures consistent with best practice environmental management, to prevent erosion and the pollution of streams and waterways by runoff from sites of road construction and maintenance."

The only codes of practice under the Water Quality Management Policy that are relevant to construction and maintenance of emergency vehicle access routes is the *Wetlands and Waterways Works Manual* (DPIWE, 2003).

Aboriginal Relics Act, 1975

Section 14 of the Act provides for the protection of sites with Aboriginal relics:

> "14. Protection of relics
>
> (1) Except as otherwise provided in this Act, no person shall, otherwise than in accordance with the terms of a permit granted by the Minister on the recommendation of the Director –
>
> (a) destroy, damage, deface, conceal, or otherwise interfere with a relic;
>
> (b) make a copy or replica of a carving or engraving that is a relic by rubbing, tracing, casting, or other means that involve direct contact with the carving or engraving;
>
> (c) remove a relic from the place where it is found or abandoned;
>
> (d) sell or offer or expose for sale, exchange, or otherwise dispose of a relic or any other object that so nearly resembles a relic as to be likely to deceive or be capable of being mistaken for a relic;
>
> (e) take a relic, or cause or permit a relic to be taken, out of this State; or
>
> (f) cause an excavation to be made or any other work to be carried out on Crown land for the purpose of searching for a relic.
>
> (2) A permit under subsection (1) is of no effect if, to the knowledge of the holder thereof, the relic to which it relates has been acquired or dealt with in contravention of this Act."

A permit will therefore be required for any fire management works that may affect Aboriginal relics on Milford.

Weed Management Act, 1999

This act provides a legislative framework for weed management throughout Tasmania. It includes a list of "Declared Weeds" which have statutory "Weed Management Plans" outlining how they are to be controlled. Actions in Weed Management Plans can be enforced through the Act.

2. Bushfire Risks

2.1 Fire Climate and Fire Weather

Bad fire weather can be expected from time to time in southern Tasmania when dry winters and springs are followed by summers where fuels are very dry. The strong north-westerly winds that often precede cold fronts in summer can contain dry air from the interior of the Australian mainland. These winds pick up some surface moisture crossing Bass Strait, but as the air stream descends from the Central Highlands dry air at a higher altitude descends to the surface resulting in extremely low humidity. This combination of strong winds and low humidity creates the ideal meteorological conditions for major wildfires. Fires that start under these conditions can be expected to move quickly downwind, and then move more or less at right angles on a broad front when the subsequent south-westerly wind change arrives. These fires can reach a very high intensity in a short time, even in areas with relatively low fuel loads, and are very difficult to control until the weather conditions abate.

If a high pressure system is blocked in the Tasman Sea, strong dry northerly winds can persist for days. These were the conditions that produced the 1967 and 1998 bushfires around Hobart.

2.2 Bushfire History

Information on the recent incidence of fires on Milford was taken Tasmania Fire Service records, supplemented by discussion with the owner and field observations during February and March 2008.

TFS records from 1993 to the present give the ignition point of a fire, and the approximate size of the area burnt, but until recently the TFS has not recorded the actual area burnt. Ignition points on and around Milford are shown on Figure 3. Note that these ignition points are generally only accurate to the nearest 100 m.

TFS records show no fires on Milford for at least 10 years and few in the surrounding area.

2.3 Bushfire Causes

Of the two fires recorded on Milford in the 1990s one had an unknown cause and the other was recorded as an escape from a burn off. The latter fire, in January 1997, was reported to have burnt 7 ha, but the actual area burnt was not recorded. The fires recorded in the areas surrounding Milford have either been less than 1 ha, or vehicle fires which did not spread to bushland.

The TFS records and advice from the landowner indicate that there is a relatively low risk of fires starting on or around Milford.

Figure 3 – Location of past fires on Milford.

2.4 Current Hazard Levels

The higher the intensity of a wildfire the greater its destructiveness and the more difficult it is to control. Fire intensity is a function of the heat content of the fuel, the quantity of fuel (fuel load), and the rate of spread of the fire. The heat content of vegetation fuels is roughly constant, so fire intensity is largely determined by slope and weather conditions (wind speed and relative humidity), and fuel quantity and distribution.

Fine fuels are the main factor influencing fire behaviour (larger fuels burn during a fire but do not contribute significantly to the spread of main fire front, though they may be a source of embers that start spot fires ahead of the main fire front). Fine fuels consist of live and dead plant matter (including grasses, bracken, leaves, bark, and twigs and branches) less than 6 mm in diameter. This measure normally includes any fine fuel in the understorey as well as litter on the ground. Fine fuel load (measured in tonnes per hectare) is therefore used as a convenient measure of the underlying fire hazard in a particular area. 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 fire, fuel loads build up to a maximum level where the rate of fuel production equals the rate of decomposition. This theoretical maximum varies for different vegetation types, however it is rare for dry eucalypt forests and woodlands to reach their maximum fuel loadings due to relatively frequent fires.

Fuel loads can be roughly categorised in terms of the potential threat they pose as follows:

Low - < 5 tonnes per hectare

Medium - 5 to 15 tonnes per hectare

High - >15 tonnes per hectare.

It should be noted that even the lower range of medium fuel loads are sufficient to generate uncontrollable fires on days of high to extreme fire danger, particularly if the fire is running upslope.

Currently fuel loads in the bushland area on Milford covered by this fire management plan are in the medium range with a moderate proportion of elevated fuels. Of concern are the relatively large areas of bracken fern (*Pteridium esculentum*) in the understorey. The widespread presence of this fern is indicative of past disturbance such as grazing or frequent burning. It presents a problem for fuel management in that its underground rhizomes are not killed by fire and therefore it can take advantage of the disturbance created by fire to spread further. It also rapidly builds up an elevated fuel load that shades out other native species and burns with relatively high intensity. Because of this, burning areas of bracken is problematic whether the objective is hazard reduction or ecosystem management. Bracken control strategies are discussed in section 3.6.

2.5 Bushfire Threat

The main bushfire threat to Milford is considered to come from local ignitions, particularly along the roads on the northern and western boundaries of the property. Fire records show that the incidence of such fires in the area has been low.

Fires lit along roads are generally easy to access and can be rapidly contained under most conditions, however if they are not quickly reported, or occur in extreme weather conditions, major fires could result.

2.6 Assets at Risk from Fire

Assets potentially at risk from fire include; dwellings, infrastructure, and other items (such as plantation 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 fire, or fire suppression activities. Each landowner has an obligation to reduce a fire hazard where it is a threat to neighbouring properties.

2.6.1 Bushfire Risk to Natural Heritage Assets

Natural heritage assets include native flora and fauna, as well as scenic values. This fire management plan minimises the risk of fire damaging these assets through measures to minimise the risk of wildfires starting, and ensuring that any prescribed burns are of low intensity to limit canopy scorch, and not so frequent as to prevent the existing tree cover regenerating.

The main fire risk to natural heritage assets on Milford is from fire regimes that are outside the thresholds within which a particular plant community, or habitat for flora and fauna species, has viability in the long-term. Fire regimes within the thresholds of a particular plant community will help maintain its long-term viability, whereas fire 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. Similarly large, high intensity wildfires can destroy fauna habitat over a wide area. Species may be lost from the area if they cannot recolonise from nearby areas, or survive in unburnt patches.

Management burning of the native vegetation on Milford at the optimum frequency for their long-term viability is considered the best way to conserve important habitat for both flora and fauna on the property. Management burning in a mosaic pattern, along with maintenance of vehicle trails, is the best way to minimise the risk of high intensity wildfires burning large sections of the bushland on Milford. The *Eucalyptus viminalis* grassy forest and woodland on Milford is considered to have a low fire sensitivity and high flammability (Pyrke & Marsden-Smedley 2005). Low fire sensitivity indicates that the vegetation type 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). Pyrke & Marsden-Smedley (2005) consider the optimal fire interval for *Eucalyptus viminalis* grassy forest and woodland to be between 3 and 50 years. Suppression is not usually an ecological priority except in specific situations (Pyrke & Marsden-Smedley 2005).

The high flammability rating of *Eucalyptus viminalis* grassy forest and woodland in Pyrke & Marsden-Smedley (2005) indicates that the native bushland on Milford 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.

This fire management plan is based on current knowledge of the effects of fire on the flora and fauna species known, or considered likely, to occur on Milford. Where there is a lack of information about the fire ecology of a particular threatened species or plant community, a fire regime has been applied that aims to conserve their habitat by maintaining the structure and floristics of the plant community in which they occur. It should be noted that the flora and fauna on Milford have persisted in an environment that has been burnt in the past at varying frequencies. The continued presence of these species on Milford suggests that they have the capacity to at least survive a number of fires. Additional species of conservation value may occur on Milford. If any such species are discovered this plan may need to be modified to incorporate the fire management requirements of the new species.

Although the management burns prescribed in this plan may kill some individuals of particular threatened species, the management prescriptions should have an overall beneficial effect on species of conservation value by ensuring the long-term conservation of their habitats, and reducing the risk of large wildfires eliminating isolated populations. The monitoring and review procedures in the plan will allow fire regimes to be modified as new information on the ecology of any of the flora and fauna species of conservation value on Milford becomes available.

2.6.2 Bushfire Risk to Built and Cultural Assets

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

The only built assets within the bushland on Milford covered by this fire management plan are fence posts and wooden power poles. However, close to the boundary are a group of plastic

covered greenhouses and a shed used by CSIRO staff when monitoring growth of their experimental plantation (see figure 4). The plantation itself is also an asset at risk. These adjoining assets could be damaged by radiant heat from fires in the bushland area, but the biggest threat is from wind-blow embers during both wildfires and prescribed burns.

Figure 4 – Assets at risk from fire on Milford

3. Fire Management Issues

3.1 Bushfire Management Responsibilities

Control of wildfires on Milford is the responsibility of the Tasmania Fire Service (TFS), however the landowner is responsible for bushfire hazard mitigation and bushfire protection works, and making sure that the resources necessary for the TFS to function effectively on the property are in place and maintained. This includes gates, fire trails and water points.

Milford is within the area of the Seven Mile Beach Fire Brigade.

Most parts of Milford are easily visible from surrounding public roads so it is likely that any fires will be quickly reported.

3.2 Prescribed Burning

No prescribed burning has been carried out in the bushland on Milford in the recent past either for hazard reduction or ecosystem management. Hazard reduction burns are aimed at maintaining relatively low fuel loads to slow the rate of spread and reduce the intensity of wildfires. Ecosystem management burns aim to ensure the long-term health of fire dependant vegetation types. The trigger for hazard reduction burns is usually a maximum fuel load, whereas ecosystem management burns are scheduled so that the fire regime (frequency, season and intensity of fire) will not lead to progressive changes in the structure and floristics of the vegetation. Ecosystem management burning will also reduce fuel loads for a period after the burn but may allow relatively high fuel loads to accumulate between burns if this is natural for the vegetation type.

3.3 Firebreaks

A firebreak is a strip of cleared, or partly cleared, bushland constructed and maintained to slow, or stop, the progress of a bushfire so as to assist in its control. Firebreaks 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 firebreak. Therefore in bushland with shrubs and trees the only benefit of a firebreak is to provide access for firefighters and a boundary for backburning operations. Currently there are no standards or guidelines for firebreaks in Tasmania.

The owner of Milford currently maintains a ploughed firebreak 2 to 3 m wide along the Pittwater Road and Tasman Highway boundaries of the property. A number of internal tracks also function as firebreaks. The location of the internal tracks and firebreaks is shown on figure 5.

There are no assets on adjoining properties that require hazard reduction or firebreaks on Milford for their protection.

Figure 5 – Firebreaks and vehicle access on Milford

3.4 Vehicle Access Routes

There are a number of vehicle access routes on Milford that can be used to access and contain fires. In addition most areas can be accessed cross-country by 4WD vehicles. The location of the access routes on Milford are shown on figure 5.

Gates on Milford are also shown on figure 5, most of these are unlocked.

3.5 Water Supply

Water points for filling tankers are shown on figure 5. These include a standpipe on the western side of the old farmhouse, and 2 ponds on the eastern side of the greenhouses. There are a number of small dams on Milford but these are often dry. The standpipe at the farmhouse can be used for fire management activities such as prescribed burning, however the ponds behind the greenhouses are for emergency use only.

3.6 Bushland Management

Fire can provide the disturbance that many introduced species need to spread to new areas, as well as to expand existing populations. Other fire management activities, such as construction and maintenance of emergency vehicle access routes, and bulldozing of firebreaks during fire 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 fire. 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.

Bracken fern (*Pteridium esculentum*) is a major concern in the bushland on Milford. Although it is an indigenous species it has the potential to dominate the understorey and exclude other native species, including orchids. As bracken recovers very quickly after fire, it can quickly dominate areas that are burnt frequently. Its widespread presence in the bushland at Milford is indicative of frequent burning in the past. There are 3 possible methods of dealing with bracken on Milford:

1. Manual/mechanical removal: The simplest method is to cut off the fronds each year just as they emerge, thereby slowly starving the plant. This method would have the least adverse effect on other native species, however it would take many years of consistent effort and is relatively labour intensive. The other manual method is to remove both fronds and rhizomes. This method would be much quicker than just removing fronds every year, but would be much more labour intensive and would involve considerable soil disturbance which could adversely affect the orchids on the site.

2. Herbicide: For details of the herbicides that can be used for control of bracken in Tasmania see http://www.dpiw.tas.gov.au/inter.nsf/WebPages/RPIO-4ZW9TH?open. None of the herbicides available are specific to bracken and therefore they will also affect other native species. On Milford herbicide would only be a control option where bracken has formed a well-established monoculture.

3. Shading: Bracken is not particularly shade tolerant and will not persist under a dense canopy of shrubs and trees. This option requires the long-term exclusion of fire and conditions that allow a dense shrub layer or tree canopy to develop. This is unlikely to occur in the bushland on Milford due to sandy soils and relatively low rainfall.

The likely response to fire of introduced species that could occur on Milford is given in table 6.

Table 2 - Response to fire of weed species likely to occur on Milford

Priority Weeds are identified in **bold**.

WEED SPECIES	WHOLE PLANT KILLED	RE-SPROUTS FROM ROOTSTOCK[3]	RE-SPROUTS FROM EPICORMIC BUDS	SEED GERMINATION LIKELY AFTER FIRE	COMMENTS
Carduus spp. / Cirsium sp. (thistles)	X			X	
Chamaecytisus palmensis (tree lucerne)		X		X	
***Chrysanthemoides monilifera ssp. monilifera* (boneseed)**		X		X	Resprouts if fire is not hot enough to kill plant. Hard fire-tolerant seed accumulates in large quantities in soil, germinating in large numbers after fire. Any prescribed burning should include active pre and post fire management or back-to-back fires within 2 years of each other.
Coprosma repens (mirror bush)			X		
***Cytisus scoparius* (English broom)**		X		X	Seeds may remain viable up to 70 years.
Dactylis glomerata (cocksfoot)		X		X	
***Erica lusitanica* (Spanish heath)**	X	X		X	Resprouts if fire is not hot enough to kill plant.
***Genista monspessulana* (canary broom)** [2]		X		X	The seed is long lived and fire tolerant. Any prescribed burning should include active pre and post fire control.
Holcus lanatus (yorkshire fog grass)		X		X	
Hypochoeris radicata (rough catsear)		X		X	
Leontodon taraxacoides (hairy hawkbit)		X		X	
Pinus radiata (Monterey pine)	X			X	Fire adapted and has the potential to proliferate after a wildfire.

WEED SPECIES	WHOLE PLANT KILLED	RE-SPROUTS FROM ROOTSTOCK[3]	RE-SPROUTS FROM EPICORMIC BUDS	SEED GERMINATION LIKELY AFTER FIRE	COMMENTS
Rosa rubiginosa (briar rose)		X			Occasional on grassy sites - introduced from bird sown seed.
Rubus fruticosus **(blackberry)** [1 2]		X			Occasional on disturbed sites especially on drainage lines and roadsides.
Ulex europaeus **(gorse)** [1 2]		X	X	X	Seeds may remain viable for up to 40 years. Any prescribed burning should include active pre and post fire management.

1 WONS = Weed of National Significance – National Weed Strategy 1999 (Thorp 1999)

2 Declared Weed – Tasmanian *Weed Management Act 1999*

3 Some plants may resprout after low intensity fires but will be killed by high intensity fires.

3.7 Conservation of Biodiversity

Fire plays an important role in maintaining biodiversity in Australia. Changes in the fire regime (season, frequency and intensity of fire) can cause progressive changes in plant communities. Frequent fire and long-term exclusion of fire have both been shown to lead to progressive changes in plant community structure, and a reduction in biodiversity. Failure to use fire properly as a management tool can be considered a threat to the natural habitats on Milford, particularly those of the threatened orchid species the Milford Leek-Orchid and the Sagg Spider-Orchid.

Frequent burning of native forests will generally reduce species diversity and make it more vulnerable to weed invasion. A high fire frequency (less than 5 years) will usually favour grasses and ferns in the understorey at the expense of shrubs, and severely restrict the re-establishment of canopy species.

Fire can adversely affect fauna by killing individual animals, removing their habitat, or removing specific elements in their habitats, such as nest sites and feeding areas. This fire management plan aims to conserve the known habitats of fauna species of conservation value by prescribing an appropriate fire regime to ensure the long-term viability of the species, and ensuring the critical habitat elements are protected as much as possible.

The *Eucalyptus viminalis* grassy forest and woodland on Milford is considered to be dependent on fire to maintain its present structure and floristics in the long term and to provide habitat for the threatened orchid species. Periodic burning will help to maintain diversity in the understorey, and allow fire 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.

4. Fire Management Objectives

The specific fire management objectives recommended for Milford for the 15 year duration of this fire management plan are as follows:

1. Monitor the impact of wildfires and fire management activities on Milford. Adjust practices to achieve relevant objectives, and periodically review the fire management plan.
2. Maintain up-to-date records of wildfires and fire management activities on Milford.
3. Minimise the risk of wildfires starting and spreading on Milford.
4. Minimise the risk of fire to life and property on, and adjoining, Milford.
5. Ensure an adequate and accessible water supply for fire fighting.
6. Ensure all personnel carrying out fire management activities on Milford are suitably trained, equipped and supervised.
7. Minimise the fire risk to threatened flora and fauna.
8. Implement a mosaic burning program to maintain and enhance habitat diversity, particularly for orchids.
9. Control unwanted plant species through minimising the spread of weeds.

The actions recommended to achieve these objectives are given in the management action summary table in section 6.

5. Plan Implementation

5.1 Bushfire Risk Reduction Strategy

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

- Reduce ignitions through control of access, and prompt reporting of fires.
- Maintain access trails, firebreaks, water supply points, and hazard reduced areas to enable the TFS to rapidly contain fires that start on Milford.
- Carry out strategic hazard reduction to slow the spread of fires on Milford.

5.2 Prescribed Burning

Burns on Milford will be at the optimal fire frequency for the vegetation as detailed in section 2.6.1. Hazard reduction will be attained through strategic sequencing of mosaic burns.

5.2.1 Fire Management Units

In order to implement the prescribed burning component of the fire management plan the bushland on Milford has been divided into a mosaic of fire management units which can be burnt at a frequency, season and intensity that is optimal for *Eucalyptus viminalis* grassy forest and woodland. These are shown in figure 6.

Wherever possible existing tracks, easements and grazed paddocks have been used for fire management unit boundaries. Use of these existing fire control lines will reduce the amount of preparation required prior to burning. In some instances natural features or plant community boundaries have been used as unit boundaries. The objectives, precautions and burning prescriptions for each fire management unit are given in table 3.

5.2.2 Burning of Known Orchid Populations

Burns should not be undertaken in the known populations of the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) until a survey is carried out to determine the approximate extent of each population and the number of plants. This is essential baseline data for monitoring the effects of burning and should be carried out according to the methods in the Threatened Tasmanian Orchids Flora Recovery Plan 2006–2010 (Threatened Species Section 2006). Once the baseline data on each population has been collected, half the population can be burnt. The other half of the population should not be burnt until the recovery of the two species following the first burn has been confirmed. Unit 1 containing the known orchid populations has been split into subunits 1a and 1b to reflect this. The boundary between units 1a and 1b is indicative only and will need to be determined following a survey of the extent of the orchid populations to ensure only half the population is burnt.

Figure 6 – Fire Management Units on Milford

5.2.3 Prescribed Fire Regimes

To allow for flexibility in budgeting and planning, burns have been scheduled within five 3-year periods as shown in table 3. The burns can take place at any suitable time during the specified 3-year period. If a wildfire burns more than half of a unit, the whole of the unit should be considered to have been burnt and the schedule adjusted accordingly. In order to create a mosaic of native bushland with different fire histories, adjoining units should generally not be burnt in the same 3-year period. Fire management units scheduled for burning should be inspected some months prior to the proposed burn to check that the scheduling and burning prescriptions are still appropriate. Minor reviews of the burning schedules are recommended every 5 years, and a major review of the whole plan every 15 years.

Prescribed burns in this plan will be carried out through spot or line ignition within established containment lines (trails or previous burns). These burns can be easily controlled within the containment lines in mild conditions (FDR – Low).

General desired outcomes for all burns:

- Low to moderate fire intensity.
- No fire fighting foam to be used without prior consultation with the DPIW Threatened Species Section.
- Retention of fallen logs, dead trees and stumps where possible. If difficult to protect, trial the use of fire retardant by spraying on logs, stumps and in hollow trees prior to burning.
- Keep fire out of hollow trees
- Burn coverage greater than 80%
- Fine fuel loads reduced to less than 5 tonnes per hectare overall
- Minimal smoke over nearby roads.

The following fuel and weather conditions are considered to be optimal for safe, low intensity burning of dry forests and grassy woodlands:

- Fuel Moisture Content (FMC) of surface fine fuels 13% to 16%
- Soil Dryness Index (SDI) - 25 to 50
- Fire Danger Index (FDR) - Low
- Wind Speed - < 20 km per hour in the open
- Relative Humidity - 40% to 60%
- Temperature - < 20° C

Burning can be undertaken when weather conditions are outside these prescriptions if the officer in charge is confident (based on past experience) that the desired outcomes can be safely achieved.

Burns should only be undertaken when forecast winds will not carry smoke towards the airport, Tasman Highway or the plastic greenhouse to the south of the bushland area. On calm days burns should be timed so that they burn out before inversions form in the evening.

Burns should be undertaken in late summer or autumn when the orchids in the area are dormant.

Prior to any burns inform the Hobart Airport control tower, TFS Firecomm and the Hobart Golf Club of the burn, and provide them with a number to contact the officer in charge of the burn.

If burns are undertaken during the fire permit period a permit must be obtained from the Tasmania Fire Service prior to the burn.

5.2.4 Preparation and Supervision

Successful implementation of the prescribed burns in this plan requires trained personnel and special equipment. Each management burn recommended in this plan must have a burn plan prepared by someone who has completed the TFS "develop prescribed burning plans" course or equivalent, and be supervised by someone who has completed the TFS "conduct prescribed burning" course or equivalent. All persons engaged in management burning or fire fighting on Milford must have completed the TFS "volunteer basic skills" course or equivalent.

If the prescribed 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 ecosystem management burns.

Table 3 - Burning regimes for Milford

UNIT	AREA (ha)	PRECAUTIONS and PRESCRIPTIONS	BURNING SCHEDULE				
			2008 TO 2010	2011 TO 2013	2014 TO 2016	2017 TO 2019	2020 TO 2022
1a 1b	1.0 1.0	OBJECTIVES: Maintain suitable habitat for the known populations of the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) PRECAUTIONS: Do not commence burning until baseline monitoring data has been collected on the extent of each orchid population and the approximate number of plants. Protect wooden fence posts during burns. Ensure that burning embers do not blow in the direction of the nearby greenhouses. Do not burn unit 1a until recovery of the orchids in 1b has been confirmed. PRESCRIPTIONS: Burn half the population in late summer or early autumn in each 3 year period. Exact boundary between units 1a and 1b to be determined and marked on site prior to the burn.	Burn 1b	Burn 1a	Burn 1b	Burn 1a	Burn 1b
2	1.7	OBJECTIVES: Reduce hazard adjacent to the greenhouses. Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the greenhouses. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn.		BURN			
3	3.6	OBJECTIVES: Reduce hazard adjacent to the greenhouses. Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the greenhouses. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn.			BURN		

UNIT	AREA (ha)	PRECAUTIONS and PRESCRIPTIONS	BURNING SCHEDULE				
			2008 TO 2010	2011 TO 2013	2014 TO 2016	2017 TO 2019	2020 TO 2022
4	5.8	OBJECTIVES: Reduce hazard adjacent to the greenhouses. Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the greenhouses. Ensure that smoke does not blow over the Tasman Highway or Pittwater Road. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn. Establish a temporary control line on the side of the powerline easement.	BURN				
5	5.5	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the CSIRO shed or plantation. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn.			BURN		
6	1.3	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the CSIRO shed or plantation. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn. Establish a temporary control line on the side of the powerline easement.					BURN

UNIT	AREA (ha)	PRECAUTIONS and PRESCRIPTIONS	BURNING SCHEDULE				
			2008 TO 2010	2011 TO 2013	2014 TO 2016	2017 TO 2019	2020 TO 2022
7	1.7	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the CSIRO shed or plantation. Ensure that smoke does not blow over the Tasman Highway PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn. Establish a temporary control line on the side of the powerline easement.		BURN			
8	4.0	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Protect wooden fence posts during the burn. Ensure that burning embers do not blow in the direction of the CSIRO shed or plantation. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn. Establish a temporary control line on the side of the powerline easement.				BURN	
9	1.8	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Ensure that smoke does not blow over the Tasman Highway. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn.				BURN	
10	2.2	OBJECTIVES: Maintain suitable habitat for the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*) to encourage their spread. PRECAUTIONS: Ensure that smoke does not blow over the Tasman Highway. PRESCRIPTIONS: Burn whole unit every 15 years in late summer or autumn.					BURN

5.3 Weed Control

Known responses to fire of weeds likely to occur on Milford is detailed in table 2.

Prior to management burning any mature woody weeds in the area to be burnt should be treated to ensure infestations are root dead at the time of burning. Chemical treatment of woody weeds may involve cutting and poisoning the stump (cut-stump), tree injection, or spraying with an appropriate herbicide. Treatment of target weeds both pre- and post-fire given in table 4.

If used, herbicide treatment should be carried out at least 3 months prior to a burn to ensure that the chemical has penetrated into the root system, achieved a kill of all tissue, and the plant has had time to desiccate prior to burning. This will maximise removal of weed biomass during the burn. 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.

Following a management burn in heavily weed infested areas, a flush of weed seedlings can be expected. It is essential to treat weed seedlings (either manually or using a foliar spray) before indigenous plant seeds germinate. As a rule of thumb, herbaceous (and some woody) weeds germinate rapidly in high light situations, so that it may be possible to treat the flush of weeds before any native seeds germinate. However, once native seeds have germinated, control options are reduced to careful spot-spraying (using a protective cone nozzle sprayer) or hand weeding.

Woody weeds regenerating from rootstock must also be treated promptly. Re-cutting the stump and poisoning, drilling into the bole (junction of stem and root), or spraying new shoots when they reach approximately 0.5 m in height, is recommended.

Burning weed debris in situ is an economical way of disposing of large amounts of material, and may stimulate germination of indigenous plant seeds if present in the soil. Note that burning will also stimulate weed seeds to germinate and follow-up treatment will be required.

Table 4 – Recommended treatment for weeds

TARGET WEEDS	BEFORE BURNING					AFTER BURNING					COMMENTS
	Spot Spray	Cut Stump & Poison	Drill & Poison	Hand Pull	Other	Spot Spray	Cut Stump & Poison	Drill & Poison	Hand Pull	Other	
Carduus spp. / Cirsium sp. (thistles)	X				X	X				X	Thistles can also be chipped with a hoe.
Chamaecytisus scoparius (tree lucerne)	X					X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.
Chrysanthemoides monilifera ssp. Monilifera (boneseed)	X	X				X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.
Coprosma repens (mirror bush)		X	X			X					
Cytisus scoparius (English broom)	X					X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.
Dactylis glomerata (cocksfoot)						X					
Erica lusitanica (Spanish heath)	X					X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.
Genista monspessulana (canary broom)	X	X				X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.
Holcus lanatus (yorkshire fog grass)						X					
Hypochoeris radicata (rough catsear)						X					

TARGET WEEDS	BEFORE BURNING					AFTER BURNING					COMMENTS
	Spot Spray	Cut Stump & Poison	Drill & Poison	Hand Pull	Other	Spot Spray	Cut Stump & Poison	Drill & Poison	Hand Pull	Other	
Leontodon taraxacoides (hairy hawkbit)						X					
Pinus radiata (Monterey pine)		X				X			X		
Psoralea pinnata (butterfly bush)		X	X			X			X		
Rosa rubiginosa (briar rose)	X	X				X			X		
Rubus fruticosus (blackberry)	X					X					
Ulex europaeus (gorse)	X	X				X			X		Preferable to leave cut timber lying on ground for fuel and to avoid moving seed bearing material.

5.4 Monitoring And Evaluation

Details of any prescribed burning or wildfires on Milford should be recorded as follows:

Prescribed Burns

The following details should be recorded for any prescribed burns on Milford:

- the area burnt
- date, and time of commencement and completion of the burn
- who carried out the burn
- crew strength
- fine fuel loads prior to the burn
- weather conditions during the burn (temperature, relative humidity, wind speed and direction)
- FDR and SDI on the day of the burn
- fire intensity estimated from flame height (low < 0.5 m; moderate 0.5 to 1.5 m; high> 1.5 m)
- percent of canopy scorch
- any variations to the burning prescription
- any problems encountered, such as spotting over control lines
- dates and extent of any pre- and post-burn weed control
- weed species and general density of weeds in the area burnt at the time of pre-burn weed control.

Wildfires

The following details should be recorded for any wildfires on Milford:

- the cause of the fire
- the area burnt (units or portion of units)
- date and time the fire was reported
- weather conditions at the time of the fire (temperature, relative humidity, wind speed and direction)
- FDR and SDI on the day of the fire
- extent of any backburning carried out
- fire intensity estimated from flame height (low < 0.5 m; moderate 0.5 to 1.5 m; high> 1.5 m)
- average scorch height (survey one to two weeks after the fire)
- any assets lost or damaged

- any problems encountered during fire fighting operations, such as poor condition of access, inadequate water supply
- dates and extent of any post-fire weed control.

5.4.1 Species of Conservation Value

All areas burnt should be searched for threatened plant species, particularly orchids, at intervals after every prescribed burn.

5.4.2 Plant Community Structure

A photographic record of the vegetation in each fire management unit should be set up to monitor any major changes in plant community structure over time. Photos should be taken of a representative section of each fire management unit before burning and at the beginning of each 3-year period of the plan. Photos should be taken from the same location in each unit and show the same area of bushland. This will require a marked vantage point in each unit, and specifications as to the film type and camera settings to be used. Ideally the same camera settings should be used for each photo.

5.4.3 Performance Indicators

The management action summary in section 6 includes performance indicators for actions, or groups of actions, recommended to meet the objectives of the fire management plan. The performance indicators should be used to determine if the specific objectives of this fire management plan have been achieved. They should be monitored every 5 years during the operation of the plan. Where performance targets are not being achieved, a review of the relevant portion of the plan should be undertaken.

5.4.4 Review of the Fire Management Plan

Minor reviews should be undertaken approximately every 5 years, and when any of the triggers listed in table 5 are encountered. A full review of the fire management plan should be undertaken after all the burns prescribed for the fifth 3-year period of the plan have been completed.

The review should include:

- an audit to ascertain if procedures have been properly carried out and performance targets have been achieved
- a review of contemporary fire management and fire ecology literature to incorporate the latest information into the plan
- comparison of the condition of burnt and unburnt fire management units
- assessment of any changes in plant community structure as a result of fire
- preparation of a revised fire management plan to cover the next 15 years.

Table 5 - Fire management plan revision procedures

ASSESSMENT	REVIEW TRIGGER	RECOMMENDED ACTION
Monitoring of wildfires on Milford.	Wildfire burns more than half of any single fire management unit.	Consider the whole unit to have been burnt and reschedule the next prescribed burn according to the optimal fire frequency given in table 4.
Monitoring of wildfires on Milford	Wildfire burns more than 50% of the fire management units in any single year.	Completely revise the burning schedule.
Flora and fauna surveys or incidental recordings.	Threatened species considered sensitive to fire recorded on Milford.	Revise the burning prescription and/or burning schedule to ensure that the newly identified threatened species is/are not adversely affected.
At the end of each 3-year period check that each burn has produced the desired outcomes.	Burning prescription not producing the desired outcomes.	Revise burning prescription based on information recorded during the burn to ensure outcomes can be achieved.
Review of ecological literature.	Research shows that the optimal fire frequencies for the plant community or threatened species on Milford needs revision.	Revise burning schedules for the fire management units affected.

5.5 Adaptive Management

It is recommended that an 'adaptive management' approach be adopted for the implementation of the part of this plan concerned with the conservation of biodiversity on Milford. Although this plan incorporates current knowledge on the impacts of fire on specific flora and fauna species and different plant communities, none of this knowledge is specific to Milford. It is therefore difficult to predict the effect of the management actions recommended in this plan, particularly the prescribed burning program, on the ecosystems on Milford, or on individual flora and fauna species.

Adaptive management utilises an experimental approach to land management where full scientific knowledge is lacking but where immediate management actions are required. For the adaptive management approach to work, the management plan will have to be run as an experiment with the following steps:

Model (hypothesis)

This is the aim of the experiment and can be stated as:

- To apply a specific fire regime to the plant community on Milford that will maintain its structure and floristics, as at 2008, in the long-term.
- To maintain, and encourage the spread of, the populations of the threatened orchid species the Milford Leek Orchid (*Prasophyllum milfordense*) and Sagg Spider-orchid (*Caladenia saggicola*)

- To maintain the populations of indigenous fauna on Milford.
- To reduce the distribution and abundance of introduced species in the native plant communities on Milford.

Test

The test is the implementation of the plan.

Collect Relevant Data

The performance indicators in the summary table in section 6 of this plan are designed to monitor the effectiveness of the implementation of the plan, rather than its impacts. However, it should be noted that if the plan is not being implemented effectively it will be more difficult to analyse and draw useful conclusions from the monitoring program.

It order to run this 'experiment', baseline data of sufficient accuracy for resampling and statistical analysis must be collected. This could be expensive and it is suggested that suitably qualified persons design of the 'experiment', including data collection and analysis. Data collection could be undertaken by students and/or interested community groups, if properly supervised.

Analyse

Data collected will need to analysed in such a way that it will indicate where changes in the plan are required.

Feed back

Use of the monitoring results to improve the plan is the essential component of adaptive management. This will allow the plan to be progressively improved so that it is more closely linked to the actual conditions on Milford.

6. Management Action Summary

FIRE MANAGEMENT OBJECTIVE	RECOMMENDED ACTION	PERFORMANCE INDICATORS
1. Monitor the impact of wildfires and fire management activities on Milford. Adjust practices to achieve relevant objectives, and periodically review the fire management plan.	a) Monitor the impacts of fires carried out as outlined in section 5.5. b) Review this fire management plan at regular intervals using the procedures in section 5.5.4. and table 5. c) Regularly revise burning prescriptions to ensure they incorporate the most recent information on the fire ecology of the flora of conservation value on Milford. d) Gather baseline data on the extent and approximate numbers of populations of rare or threatened species prior to prescribed burning.	Monitoring and review carried out as scheduled in the plan.
2. Maintain up-to-date records of wildfires and fire management activities on Milford.	Record fire management activities and wildfires using the procedures as detailed in section 6.7.	Records maintained of all fire management activities.
3. Minimise the risk of wildfires starting and spreading on Milford.	a) Carry out the management burns shown on figure 6 and scheduled in table 3. b) Maintain ploughed firebreaks along the boundary fence. c) Maintain all power line easements through Milford (Aurora Energy) to minimise the risk of short-circuits and flash-overs starting fires.	• Hazard reduction burns carried out according to prescriptions. • No wildfires started by accident on Milford.
4. Minimise the risk of fire to life and property on Milford.	a) Carry out the procedures to reduce the risk of fires starting and spreading (Objective 3). b) Ensure that any new developments on Milford incorporate appropriate bushfire protection measures to TFS standards. c) Ensure that any prescribed burning is carried out when winds will blow smoke and embers to the east, away from the airport, roads and the greenhouses. d) Protect wooden fence posts and power poles during prescribed burns.	No injuries, or damage to property, during wildfires or prescribed burns on Milford.
5. Ensure an adequate and accessible water supply for fire fighting.	Maintain vehicle access to the standpipe near the farmhouse, and the ponds on the eastern side of the greenhouses.	Access to water supplies maintained.

FIRE MANAGEMENT OBJECTIVE	RECOMMENDED ACTION	PERFORMANCE INDICATORS
6. Ensure all personnel carrying out fire management activities on Milford are suitably trained, equipped and supervised.	Ensure all personnel engaged in prescribed burning activities on Milford have the appropriate level of training and equipment as outlined in section 5.2.4.	All personnel are able to demonstrate the required level of training and minimum levels of equipment.
7. Minimise the fire risk to threatened flora and fauna.	a) Apply the appropriate fire regime to populations of threatened flora and fauna that require periodic fire for their long-term survival. b) Plan prescribed burns in units containing populations of threatened flora and fauna together with the DPIW Nature Conservation Section. c) Avoid burning the whole of any population of a threatened plant species in a single fire. d) Monitor the recovery of any populations of threatened flora and fauna burnt by wildfires or prescribed burns. e) Fire fighting foams should not be used without prior consultation with the DPIW Nature Conservation Branch.	• All prescribed burns carried out according to the requirements of threatened flora and fauna. • No decline in the populations of threatened flora and fauna due to fire. • No decline in the area or distribution of plant communities of conservation value.
8. Implement a mosaic burning program to maintain and enhance habitat diversity, particularly for orchids.	a) Carry out prescribed burning according to the schedule in table 3 using the procedure in section 5.2. b) Regularly revise burning prescriptions to ensure they incorporate the most recent information on the fire ecology of the flora and fauna of conservation value on Milford.	• Mosaic of burnt fire management units maintained. • No decline in the populations or distribution of threatened species.
9. Control unwanted plant species through minimising the spread of weeds.	Carry out weed control in conjunction with fire management activities as detailed in section 5.3.	• Pre and post fire weed control carried out in any weed infested fire management units burnt under this plan. Minimal coppicing or regrowth of weeds from treated rootstock. • All declared noxious weeds removed, reduction in extent of other weeds.

References

DPIWE (2003) *Wetlands and Waterways Works Manual*. Department of Primary Industries, Water & Environment, Hobart.

NSW Rural Fire Service (1997) *Prescribed Burning Course Manual.* NSW Rural Fire Service, Sydney.

Pyrke A. F. and Marsden-Smedley J. B. (2005). Fire-attributes categories, fire sensitivity, and flammability of Tasmanian vegetation communities. *Tasforests* **16**, 35-46

Thorp J. (1999) *Weeds of National Significance - Guidelines for Developing Weed Strategies.* National Weeds Strategy Executive Committee, Canberra.

Threatened Species Section (2007) Listing Statement for *Prasophyllum milfordense* (Milford leek-orchid), Department of Primary Industries & Water, Tasmania.

Threatened Species Section (2006) Listing Statement for *Caladenia saggicola* (sagg spider-orchid), Department of Primary Industries & Water, Tasmania.

Williams K. (1991) Dry sclerophyll vegetation. In Kirkpatrick J. B. (Ed) *Tasmanian Native Bush: A Management Handbook*. Tasmanian Environment Centre, Hobart.

From: s 36
To: [redacted]
Subject: RE: North Baker Habitat Assessment
Date: Monday, 27 March 2023 8:36:14 AM
Attachments: T-HB19197-ENV-REP-001-OrchidManagementPlan-Rev03.docx

Good morning [redacted]

I will send a reply to you later this morning on your request for revised dates. In the meantime here is a draft of the RCS Management Plan.

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Wednesday, 22 March 2023 3:03 PM
To: s 36 [redacted]@pittsh.com.au>
Cc: s 36 [redacted]@pittsh.com.au>; [redacted]@stategrowth.tas.gov.au>; [redacted]@stategrowth.tas.gov.au>
Subject: RE: North Baker Habitat Assessment

Hi s 36 [redacted]

NB changed the date from Wednesday to Tuesday, the landowner was not available on Tuesday. s 39 [redacted]. I've asked for the RSC plan and draft offset management plan for weeks/months which have not been provided. The offset management plan started to be developed until almost 9 months after DCCEEW visit in ~March 2022, this only commenced after the department asked for an update. Meeting we DCCEEW in November last year, habitat assessment methodology was provided a month/months the meeting.

s 39 [redacted]. NB, or another entity, need to undertake the habitat assessment on 11-12 April on Milford following a meeting with Canberra early next week.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] s 36 [redacted]
www.stategrowth.tas.gov.au

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TEAMWORK | INTEGRITY | RESPECT | EXCELLENCE

In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: [redacted]@pittsh.com.au>
Sent: Wednesday, 22 March 2023 2:50 PM
To: [redacted]@stategrowth.tas.gov.au>
Subject: Re: North Baker Habitat Assessment

Hi [redacted]
I'm not able to do that. Refer my earlier email. s 39 [redacted].
Regards
s 36 [redacted]

Sent from my iPhone

> On 22 Mar 2023, at 14:39, [redacted]@stategrowth.tas.gov.au> wrote:
>
> CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.
>
> Hi s 36 [redacted].
>
> We cannot be dependent on one person, and need to progress while s 36 [redacted] is on leave. Can you please send through the updated methodology by the end of this week for [redacted]/my review and set a meeting with DCCEEW early next week to work through any matters needed. We cannot afford to lose another month.
>
> Thanks,
>
> [redacted]
> Programming and Delivery | Department of State Growth
> 4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
> [redacted] | s 36 [redacted]
> www.stategrowth.tas.gov.au
>
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Please note I do not work Fridays.

From: s 36 [redacted] @pittsh.com.au>
Sent: Wednesday, 22 March 2023 12:56 PM
To: [redacted] @stategrowth.tas.gov.au>
Subject: Re: North Baker Habitat Assessment

Hi [redacted]
Please read s 36 [redacted] emails of 14 March. He will do the field work in the period 22-24 May. Please coordinate and agree suitable days in that window with s 36 [redacted] Two days needed. His revised methodology is attached to last weeks emails. We are going to set up a further meeting with DCCEEW for 16 May to clarify a few matters prior to the survey.
Haven't heard back from Wildseed yet.
Regards
s 36 [redacted]

Sent from my iPhone

On 22 Mar 2023, at 11:31, [redacted]
<[redacted] @stategrowth.tas.gov.au> wrote:

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi s 36 [redacted],

We need to keep this moving in s 36 [redacted] absence. Have NB updated the methodology with DCCEEW's comments/feedback? We need to update this and send it to s 36 [redacted] /lock in a time with s36 [redacted] to undertake the habitat assessment on Milford. s 36 [redacted] has suggested 10-12 April although that includes Easter Monday. I'll lock in 11-12 April with s 36 [redacted], please confirm NB will be on site on these dates.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: s 36 [redacted] @northbarker.com.au>
Sent: Tuesday, 14 March 2023 4:53 PM
To: [redacted] @stategrowth.tas.gov.au>; s 36 [redacted] @pittsh.com.au>
Subject: RE: North Baker Habitat Assessment

Hi [redacted],
As I am on leave until May, I suggest postponing any work in this area until that time. This will also ensure we can accommodate any feedback from DCCEEW regarding our methodology. I'm reluctant to bring in someone else from North Barker at this stage.

I suggest for s 36 [redacted] benefit that she should be provided with a copy of my Orchid Impact Offset Review. This may alleviate her concerns regarding soil sampling , which does not form part of the exercise.
Attached is an updated version where I have modified the cut off quantum for scoring impact from animal digging from 5% to 25 %. This version also has a modified Figure 1 that correctly shows the orchid habitat directly impacted (minor mapping error).
The sampling sites for the orchid management area are identified in a georeferenced pdf.
Data to be collected will be taken from 5 x 5 m quadrats and include observed cover densities following an adapted Braun-Blanquet cover class . No plant material will be taken.

Regards s 36 [redacted]

s 36 [redacted]
Director / Principal Ecologist
<image001.png>

s 36 [redacted]

313 Macquarie St, Hobart, TAS. 7000
www.northbarker.com.au

We pay our respects to the muwinina people, on whose unceded land we work. We acknowledge all palawa people across lutrawitta / Tasmania, their elders past, present and emerging, and their continuing history of sustainable land management.

From: [redacted] @stategrowth.tas.gov.au>

Sent: Tuesday, March 14, 2023 2:06 PM
To: s 36 @northbarker.com.au>; s 36 @pittsh.com.au>
Subject: FW: North Baker Habitat Assessment
Importance: High

Hi s 36

s 36 just advised that the habitat surveying will need to be postponed, I've let s 36 know (through her lawyer). '

s 36 mentioned that Canberra had changes to our methodology, are you able to completed the sections in yellow below or do you need to wait for Canberra's feedback?

Can we organise a site visit for 11 & 12 April? I know s 36 is away although I'm sure there is another resource that can assist in the interim.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36
www.stategrowth.tas.gov.au

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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

Out of scope
[redacted]

Attachment 1

pitt&sherry

EPBC Act Referral 2020/8805

Tasman Highway Upgrade - Hobart Airport to Midway Point Causeway, near Hobart

Milford Orchid Roadside Conservation Site Management Plan

Controlled Action - Listed threatened species protected under Part 3 of the EPBC Act

Prepared for
Department of State Growth
ABN 36 388 980 563

Client representative
[redacted]

Date
11 May 2023

Rev 04

Declaration of accuracy

In making this declaration, I am aware that section 491 of the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both. I am authorised to bind the approval holder to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed

[redacted]

Department of State Growth, Project Management

Date / /

Document version control

Prepared by — s36 **Ecologist NBES**	s36	**Date —** 25 February 2022
s36 **Principal Ecologist NBES**	s36	**Date —** 25 February 2022
s36 **Planner, pitt&sherry**	s36	**Date —** 25 February 2022
Reviewed by — s36	s36	**Date —** 25 February 2022
Authorised by — s36		**Date —** 25 February 2022

Revision History

Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft for pitt&sherry review	s36 / NBES	s36 NBES	s36 / NBES	24-9-2021
00	Draft for DAWE	s36	s36	s36	15-10-2021
01	Final	s36	s36	s36	16-11-2021
02	Revised for DAWE	s36 (NBES)	s36	s36	25-02-2022
03	Scope reduced to road reserve activities	s36	s36	s36	

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Appendix A — Orchid Habitat Maps

List of Abbreviations

Term	Meaning
CEMP	Construction Environmental Management Plan
DAWE	Commonwealth Department of Agriculture, Water and Environment
DVC	*Eucalyptus viminalis* coastal forest and woodland vegetation community
EPBC Act	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
MNES	Matters of National Environmental Significance
NBES	North Barker Ecosystem Services
SETS	South East Traffic Solution

Executive Summary

The Tasmanian Department of State Growth (State Growth) is proposing to duplicate the Tasman Highway between the Hobart International Airport and Pittwater Bluff. The Project will necessitate native vegetation clearance in close proximity to populations of three orchid species listed under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*: The orchid species are located on the "Milford" property which has a one kilometre frontage on the Tasman Highway at the site of the proposed duplication.

- *Prasophyllum milfordense (*Milford leek-orchid) - Critically Endangered
- *Caladenia saggicola (*Sagg spider-orchid) - Critically Endangered; and
- *Caladenia caudata (*Tailed spider-orchid) – Vulnerable.

The proposed action was referred to the Commonwealth Department of Agriculture, Water and Environment (EPBC 2020/8805) and was determined to be a Controlled Action, with assessment to be conducted using Preliminary Documentation. Milford Orchid Roadside Conservation Site Management Plan (Management Plan) focusses on the road reserve adjacent to the Milford Orchid Habitat and has been prepared to support the assessment of the proposed action. An Offset Management Proposal (including an offset strategy and management plan) has been prepared, detailing the management regime for the declared Offset Area on Milford.

The direct impact of the project to individual plants will be unlikely, however, there will be some impact resulting from the removal of primary potential habitat, which equates to 'critical habitat' for all three species. An area of 0.08 ha of critical habitat will be directly impacted and up to 0.5 ha of secondary potential orchid habitat may be indirectly impacted. The proportionate loss is small and a range of management actions are proposed in this management plan to minimise the potential for impacts.

Key potential impacts include:

- Encroachment of development into habitat areas either directly or as a result of sediment transport in run-off
- Weed incursion through the spread of stormwater and sediment, and on machinery used for construction; and
- Alteration of habitat to the detriment of orchid species or resulting in new weed infestation.

Under this Management Plan, these potential impacts can be managed to minimise impacts to orchid habitat. Key management strategies include:

- Clear demarcation of the construction zone with a new boundary fence
- Delineation of exclusion zones for construction works, including land on the Milford property within 50 m of the new boundary
- Weed treatment and ongoing management in the construction footprint and within the exclusion zone
- Routine inspections during and after construction to confirm the effectiveness of construction and management measures and to ensure no encroachments or non-compliance
- Establishment of ongoing monitoring and reporting to allow for ongoing adaptive management; and
- Long-term management of the roadside through the Department of State Growth's Roadside Conservation Areas Program[1] to ensure the new roadside area is managed appropriately.

[1] Further detail is available on the RCS Program at https://www.transport.tas.gov.au/roads_and_traffic_management/managing_the_roads/managing_our_environment

1. Introduction

The Tasmanian Government is proposing to upgrade the Tasman Highway between Hobart Airport and Pittwater Bluff (the Project), north east of Hobart (Figure 1). This upgrade is part of a series of road improvements between Hobart and Sorell, referred to as the South East Traffic Solution (SETS), which aims to deliver a more efficient and safer road network. A development application for the Project was approved by Clarence City Council in September 2021 under the *Land Use Planning and Approvals Act 1994*.

The Project will require some vegetation clearance in close proximity to populations of three threatened orchid species on a private property (Milford), though no direct impacts to individual plants. There will be some direct impact resulting from the removal of some critical habitat for all three species (Figure 1).

To address potential impacts on Matters of National Environmental Significance (MNES), a referral for the Project was submitted under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) on 1 October 2020 (Referral 2020/8805). A decision was made on 8 February 2021 that the Project is a Controlled Action with the relevant controlling provision being:

- Listed threatened species and communities (Section 18 and Section 18A) protected under Part 3 of the EPBC Act.

The Project is being assessed using Preliminary Documentation. The relevant listed species for this document are the three orchid species detailed in Table 1.

Table 1: Species subject to assessment

Species	Status	Comment
Prasophyllum milfordense Milford leek-orchid	Critically Endangered	Development is adjacent to the only known population.
Caladenia saggicola Sagg spider-orchid	Critically Endangered	Development is adjacent to largest of only two known populations
Caladenia caudata Tailed spider-orchid	Vulnerable	Development is adjacent to a population; one of 48 recorded in Tasmania[2].

The Commonwealth Government published *Environmental Management Plan Guidelines*[3] (the Guidelines) in 2014 to provide general guidance to stakeholders preparing environmental management plans (EMPs) for environmental impact assessments and approvals. Section 2.4 of the Guidelines relates to timing of the submission of an EMP and encourages submission of plans early in the assessment process to facilitate assessment and potentially allow simpler conditions of approval.

This Milford Orchid Roadside Conservation Site Management Plan (Management Plan) forms part of the Preliminary Documentation required to assess the submitted referral (Referral 2020/8805). It has been written within the framework of the Guidelines and outlines the potential impacts of construction activities and operational use on these three threatened species, and measures to manage and/or mitigate these potential impacts. This plan will be integrated into the Construction Environmental Management Plan (CEMP) for this project.

An Offset Management Proposal (including an offset strategy and management plan) also forms part of the Preliminary Documentation and will cover the offset area within Milford (Figure 2). It will be managed and reported on separately from this Management Plan.

[2] Threatened Species and Marine Section (2014). Listing Statement for *Caladenia caudata* (tailed spider-orchid). Department of Primary Industries, Parks, Water and Environment, Tasmania DPIPWE

[3] Environmental Management Plan Guidelines, Commonwealth of Australia 2014

Figure 1: Location of road design footprint and critical orchid habitat

Figure 2: Milford Roadside Conservation Site and Offset area

2. Project description

The SETS program for upgrades to the Tasman Highway between Hobart Airport Interchange and the Arthur Highway at Sorell is being implemented in five stages. The Project forms one of the five stages and is the subject of this Management Plan. This section of the Tasman Highway is currently a single carriageway with three public access points at Barilla Bay Oysters and the Tasmanian Golf Club on the northern side, and at Pittwater Road on the southern side. These features are identified on *Figure 3*.

The Project includes:

- Widening the Tasman Highway to four lanes between the eastern end of the airport interchange and a point approximately 250m south-west of the Midway Point Causeway
- Improving access to and from the three main traffic generators on this section of the highway – Barilla Bay Oysters, Pittwater Road and the Tasmania Golf Club – with a new signalised intersection at Pittwater Road joining to new access roads to Barilla Bay Oysters and Tasmania Golf Club, which will be minor two-lane, sealed roads, running parallel to the highway
- Providing shared walking/cycling paths on the northern side of the highway; and
- Realignment of private access tracks on the Milford property, 1431 Tasman Highway, Cambridge.

Details of the proposed works, including the revised property boundaries and the relocation of the access tracks along the frontage of Milford, are provided on *Figure 2*.

To facilitate the Project, there has been land acquisition on both sides of the road alignment. Clearing of approximately 0.8 hectares of native vegetation east of Pittwater Road within the Milford property, south of the Highway, is required. This stand of vegetation supports habitat for the three threatened orchids identified in Table 1.

Figure 3: Project footprint

3. Objectives

This Management Plan aims to minimise risk of impact to existing orchid populations and potential habitat associated with the Project. Key objectives of the Management Plan are to:

- Outline the location of the application of this Management Plan
- Outline pre-construction and construction management measures to protect orchid habitat outside the footprint of works
- Outline long-term post-construction roadside maintenance to monitor any impacts to orchid habitat; and
- Document timeframes and reporting requirements for the implementation of the Management Plan.

3.1 Timing and duration

This plan will be in effect for the duration of the Project, which is currently in the preconstruction phase with construction completion anticipated at the end of 2023. The main stages of works will be:

- Pre-construction; in progress
- Construction; late 2023 until mid 2024
- Post-construction period – 2 years after completion of construction; and
- Maintenance period – ongoing maintenance regime on the road reserve adjacent to Milford as described in Section 7.

These above dates are based on the current proposed construction period and for 2 years post-construction and are contingent on obtaining project approvals.

3.2 Location

The area covered under this Management Plan will become a Roadside Conservation Site (RCS) and is applicable to the road reserve adjacent to the Milford property (Refer to Figure 2). It will be incorporated in State Growth's Roadside Conservation Sites Program. This site is to be managed in conjunction with the Offset Area and a wider area of orchid habitat within the Milford Property. More details on the RCS are located in Section 7.7.

Commented [JH1]: This contradicts what I had written in section 1 (maybe you missed it) – will they be managed separately or in conjunction?

4. Reporting

4.1 Document revision

This Management Plan will be revised as required in response to legislative or other changes (e.g. monitoring as outlined in Section 8). This will include significant environmental incidents which may trigger a review of management actions (e.g. bushfire) or where monitoring indicates a trend which is inconsistent with the objectives of the Management Plan.

Auditing will be undertaken of the effectiveness of the management actions in this plan. Frequency of audits and monitoring is outlined in Sections 7.8 and 8.1 and any identified changes will be included in the Management Plan.

The Document Version Control section of this management plan will be updated to reflect all revisions. Any revised document will be submitted to DAWE accompanied by a tabular summary of changes.

4.2 Roadside Conservation Management Report

A Milford Orchid RCS Management Report (Management Report) will be prepared prior to the commencement of the construction period. This report will encompass land only within the road reserve. The first report will form a baseline document for reference by subsequent surveys of habitat extent and quality, species distribution, weed occurrence and any other relevant issues. This report will be updated on an annual basis throughout the construction period and for three years post-construction. Following this it will be reviewed every five years. More detail is provided on this report in Section 8.2.

4.3 Related documents

The Project is supported by a number of technical reports by North Barker Environmental Services (NBES) which assessed the potential for impact on the threatened orchid species and provided technical information to assist with the assessment. These are outlined in Table 2 and should be consulted for details.

Table 2 Project documentation

Title	Author/Date	Purpose
Tasman Highway Holyman Avenue to Pittwater Bluff Natural Values Assessment	North Barker Environmental Services - 30 September 2020	Baseline assessment and likelihood of presence Survey results
Significant Impact Assessment 2020	North Barker Environmental Services 27 July 2020	Assessment of impacts on MNES
Orchid habitat impact assessment and mitigation plan	North Barker Environmental Services 3 July 2021	Assessment of impacts on threatened orchid species
EPBC Referral 2020/8805 Assessment by Preliminary Documentation	pitt&sherry September 2021	Assessment of impacts on MNES – includes: • Stormwater management and analysis; and • Roadside soil pollutant assessment.
Milford Offset management proposal	pitt&sherry 2023	Provides overview of the offset strategy and management plan to offset the residual impacts
Milford Offset management strategy	pitt&sherry 2023	Provides the strategy for how the offset was determined and deemed appropriate for the offsetting the residual impacts
Milford Offset management plan	pitt&sherry 2023	Provides details of the management of the offset management plan

5. Threatened orchid species and habitats

5.1 *Prasophyllum milfordense* – Milford leek orchid

Milford leek-orchid is a terrestrial orchid endemic to southern Tasmania. The species is listed as Critically Endangered under the EPBCA. It is only known from a single population on the Milford property. Records exist in close proximity to the development footprint, although none have been recorded within the development footprint.

The Milford leek-orchid grows in sandy soil of *E. viminalis* woodlands, where there is a ground layer dominated by *Lomandra longifolia*. Flowering occurs in late spring.

This species is threatened by land clearance, inappropriate fire regimes, and grazing by rabbits[4]. Suitable habitat for this species has largely been cleared[5].

A Recovery Plan[6] for the Tasmanian threatened orchids includes specific measures relevant to the population of Milford leek-orchid that include monitoring, weed control, fencing, rabbit control and the implementation of a suitable fire regime.

5.2 *Caladenia saggicola* – sagg spider orchid

The sagg spider-orchid is a deciduous herb, endemic to Tasmania where it is confined to the south-east. Sagg spider-orchid are listed as Critically Endangered under the EPBCA. There are only two known populations with a combined area of occupancy less than 10 ha. The most important population for the continuation of this species is within close proximity to the development footprint.

This species grows in the sandy soils of open woodland dominated by large *E. viminalis* with a dense groundcover of *Lomandra longifolia*. Flowering occurs in early spring.

Threats to the sagg spider-orchid include clearing of suitable habitat, inappropriate disturbance regimes, fire and drought, grazing pressure, and climate change[7]. The small, restricted distribution also puts the species at risk from stochastic events; unforeseen human activities and chance events[8].

A Recovery Plan[6] for the Tasmanian threatened orchids includes specific measures relevant to the Milford population of sagg spider orchid that include monitoring, weed control and fencing.

5.3 *Caladenia caudata* – tailed spider-orchid

The tailed spider-orchid is a terrestrial orchid found across the lowland areas of north, south, and south-eastern Tasmania. This spider-orchid is listed as Vulnerable under the EPBCA. Several populations occupying a total less than 600 ha have been recorded, but no important populations have been formally recognised and the precise sites of subpopulations are unknown[9]. The listing statement refers to 48 populations in Tasmania, 18 of which have been confirmed since 2000. The total population is estimated to be less than 10,000 individuals, with more than 1,000 known from one site and more than 1,000 from three other sites. Populations listed in the Recovery Plan for Tasmanian Orchids[6] include five sites. Milford is not one of these.

Tailed spider-orchids occur in the sandy / loamy soils of heathy and dry eucalypt woodlands, however, this species does not display a preference for any particular substrate, with sites found on granite, sandstone and dolerite[10]. The species are most often found on sunny sites with a northerly or easterly aspect. *Caladenia caudata* reproduces from seed in association with mycorrhizal fungi. Altitudinal range varies from 0 to 50 m above sea level[11].

Threats to this species include the destruction and degradation of habitat, largely from forest harvesting, agriculture, and development[11]. Much of the suitable habitat for this species has been cleared[9].

A Recovery Plan[6] for the Tasmanian threatened orchids includes specific measures for five populations of tailed spider-orchid, but not including the Milford population.

[4] Threatened Species Section (2020) *Prasophyllum milfordense* (Milford leek-orchid)
[5] Department of the Environment (2020) *Prasophyllum milfordense* in Species Profile and Threats Database
[6] Threatened Species Section (2017).
[7] Department of the Environment (2020) *Caladenia saggicola* in Species Profile and Threats Database
[8] Threatened Species Section (2020) *Caladenia saggicola* (sagg spider-orchid)
[9] Threatened Species Section (2020) *Caladenia caudata* (tailed spider-orchid)
[10] Threatened Species and Marine Section (2014). Listing Statement for Caladenia caudata (tailed spider-orchid). Department of Primary Industries, Parks, Water and Environment, Tasmania.
[11] Department of the Environment (2020) *Caladenia caudata* in Species Profile and Threats Database

5.4 Orchid habitat

All three orchid species, *Prasophyllum milfordense, Caladenia saggicola* and *Caladenia caudata*, occur south of the existing Tasman Highway. The critical habitat and secondary potential habitat for these species has been mapped (Appendix A), and these habitats are as defined below:

- Critical habitat is that which surrounds consistently recorded orchid locations, areas where plants or have been irregularly recorded and/or have ecological attributes likely to support these species. The future RCS includes 440m^2 of critical habitat, some of which will be directly impacted by the project footprint; and
- Secondary potential habitat are areas of heathy woodland with attributes less suitable for orchids. Over the long-term, this habitat may be able to be restored to be suitable habitat, with appropriate management.

Examples of *Eucalyptus viminalis – Eucalyptus globulus* coastal forest and woodland (TASVEG code DVC) within the Milford are shown in Plate 1 and Plate 2.

Plate 1: DVC community on Milford property (Source NBES 2020)

Plate 2: DVC community on Milford property (Source NBES)

6. Potential impacts, mitigation, and risk

Threats and potential impacts to threatened orchid habitat are associated with construction activities and changed land use. If not appropriately managed, damage to orchid habitat outside the footprint area may occur due to:

- Accidental earthworks
- Accidental damage during fencing works
- Dumping of fill or road spoil; or
- Vegetation clearance during earthworks for the highway realignment and construction of the access track on the adjacent Milford property.

The increase in volume of stormwater and associated soil contamination with increased nutrient and chemicals is an indirect potential threat to orchid habitat within the RCS. However, the drainage system for the Project has been designed to divert stormwater from the orchid habitat within the RCS.

Weed infestations are already an issue within Milford and adjacent roadside areas. Increased water infiltration and ground disturbance associated with the development may favour habitat suitability on the roadside for weeds. Vegetation clearance works will remove some of the existing infestations close to the existing roadside. These infestations have recently been colonised by highly invasive ground cover species such as garden freesias (*Freesia* X hybrids) and panic veldt grass (*Ehrharta erecta*).

Unanticipated damage to habitat outside the Project footprint, weed invasion, and changed hydrology impacts can be minimised through the implementation of appropriate management during construction and ongoing maintenance of the road reserve (post-construction).

Specific impacts have been identified and are delineated in Table 3.

Table 3: Potential impacts on orchid habitats

No.	Potential impact	Description
Construction phase		
1	Pre-construction works - including service realignment, fencing and vegetation clearing	Potential disturbance of habitat outside immediate footprint of development
2	Earth works/soil disturbance/ Vegetation clearance outside approved clearance area	Earthworks (or any other disturbance) outside approved clearance area could impact orchid habitat and potentially impact orchid plants
3	Soil/ road material dumped outside approved footprint	Potential contamination by nutrients and or weed propagules. Potential to smother or outcompete native vegetation
4	Sediment and water run off during construction	Potential for stormwater and sediment run off down slope into orchid habitat
5	Weed infestation and importation of plant pathogens	• Importation of weeds/pathogens into the Milford and the RCS • Increase water infiltration and ground disturbance from plant and vehicles increasing weed invasion; and • Existing weed infestations spreading.
Operational phase		
6	Increased water run off	Increased finished road surface area increases runoff volume
7	Weed infestations	• Exacerbation of an existing issue, and • Increased water infiltration and ground disturbance associated with the development may favour habitat suitability on the roadside for weeds.

6.1 Predicted impacts

Clearing of a small area of orchid habitat is required for the project. An area of 0.08 ha (or 800 m^2) of critical habitat and up to 0.21 ha (or 2,100 m^2) of secondary potential orchid habitat will be directly impacted.

Up to 0.05 ha (or 500 m^2) of critical habitat and up to 0.21 ha of secondary potential orchid habitat may be indirectly impacted by storm water runoff affecting hydrology and nutrient loading. However, the road drainage system has been designed to minimise the impact on adjacent vegetation.

No known individual threatened orchid plants will be directly or indirectly impacted by the Project. The location of orchids are well known due to the frequency and number of surveys.

Proposed actions and measures to mitigate these impacts are included and fully documented in Section 6.2.

6.2 Proposed mitigation strategies

The mitigation strategies, as part of this Management Plan, proposed to limit the potential impacts on orchid habitat are outlined in Table 4. The actions proposed to implement each strategy and the timing for these are also listed and these are discussed in detail in Section 7.

Table 4: Mitigation strategies

No.	Potential impact	Strategy
Construction phase		
1	Preconstruction works - including service realignment, fencing and vegetation clearing	• Environmental awareness training will be included in inductions (Action 1.6) • Exclusion fencing (Action 1.3); and • No construction vehicles south of protective fence line (Exclusion Zone).
2	Earth works/soil disturbance/ Vegetation clearance outside approved clearance area	• Environmental awareness training will be included in inductions (Action 1.6) • Trees will be felled will be directed towards the road (under appropriate traffic control) to minimise damage to retained vegetation (Action 2.2) • New permanent boundary fence erected following clearing and prior to other works commencing (Action 2.3); and • Exclusion fence and signage erected prior to works commencing where permanent fence is not constructed (Action 1.3).
3	Soil/ road material dumped outside approved footprint	• Exclusion/boundary fencing (Actions 1.3 and 2.2).
4	Sediment and water run-off during construction	• Installation of sediment traps and water flow controls (Action 1.5) • Monitor during wet weather to ensure effectiveness and detect any failure (Action 2.5); and • Monitor soil within the orchid habitat areas for potential contaminants (comparing to background and/or pre-construction levels; Action 2.9).
5	Weed infestation and importation of plant pathogens	• Exclusion/boundary fencing (Actions 1.3 and 2.2). • Employ vehicle hygiene best practice (Action 2.4) • Monitor for water runoff (Action 2.7) • Control weeds (Action 1.8, 2.6) • Reinstatement of construction areas (Action 3.1); and • Treat existing weed infestations (Action 2.7).
Operational phase		
6	Increased water run off	• Construction of drainage system as designed • Monitor runoff (Actions 2.4, 2.6); and • Monitor soil within the orchid habitat for potential contaminants (comparing to background and/or pre-construction levels; Action 3.4).
7	Weed infestations	• Reinstatement of construction areas (Action 3.1) ; and • Ongoing weed control (Actions 3.2, 3.3).

6.3 Risk assessment

A risk assessment was undertaken using the methodology and rating terms outlined in Section 4 of the Guidelines as shown in Table 5.

Table 5: Risk assessment parameters

Likelihood		Consequence	
Highly likely	Is expected to occur in most circumstances	Minor	Minor incident of environmental damage that can be reversed
Likely	Will probably occur during the life of the project	Moderate	Isolated but substantial instances of environmental damage that could be reversed with intensive efforts
Possible	Might occur during the life of the project	High	Substantial instances of environmental damage that could be reversed with intensive efforts
Unlikely	Could occur but considered unlikely or doubtful	Major	Major loss of environmental amenity and real danger of continuing
Rare	May occur in exceptional circumstances	Critical	Severe widespread loss of environmental amenity and irrecoverable environmental damage

The risk rating table shown below was used to determine the risk of each potential impact.

	Consequence				
	Minor	Moderate	High	Major	Critical
Highly Likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

The results of the risk assessment are presented in Table 6. The level of risk, with mitigation strategies in place, is considered low for each potential impact.

Table 6: Risk rating table

Potential impact	Likelihood	Consequence	Risk
Trampling of habitat	Rare	High	Low
Disturbance outside approved clearance area	Rare	High	Low
Dumping of soil outside approved area	Rare	High	Low
Water and sediment run off into orchid habitat	Unlikely	Moderate	Low
Importation of weeds/pathogens	Unlikely	Minor	Low
Existing weed infestations spreading	Possible	Minor	Low
Increased water run off	Likely	Minor	Low
Roadside habitats may become favourable for weeds	Possible	Minor	Low

7. Environmental management measures

This section outlines the details of the management plan and how they will be implemented to protect orchid habitat within the RCS. For the purposes of this Management Plan, RCS is the area identified on Figure 2. The section of the Milford Orchid Management Area within 50 m of the new property boundary is an exclusion zone for all construction works for the purposes of this Management Plan.

7.1 Roles and responsibilities

Overall responsibility for implementation of this Management Plan rests with the Department of State Growth. The roles and responsibilities of each party required to implement this plan effectively are outlined in Table 7.

Table 7: Roles and responsibilities

Role	Organisation	Responsibilities
Proponent Project Manager	State Growth	The Project Manager will: • Provide leadership and resources to ensure compliance with project requirements, legal and other, and to oversee the implementation of the Management Plan. • Ensure the Management Plan is reviewed in response to changes in environmental legislation, an environmental incident, internal or external audit findings or as part of any periodic review process specified by the Department: and • Delegate environmental responsibilities to other staff but remain accountable for the overall management of project environmental aspects and impacts.
Project Environmental Officer	State Growth	The Project Environmental Officer will: • Provide technical advice to other project staff on the implementation of the Management Plan and subordinate plans • Have a good understanding of project environmental legal and other requirements, including project specific permit obligations • Liaise with the Project Ecologist to provide appropriate environmental advice to other staff required to execute the project's scope of work • Have a leading role in preparing and conducting site specific inductions and will ensure environmental monitoring programs are completed as required under this Management Plan; and • Ensure site inspections and audits are planned, conducted and reported in accordance with the Management Plan and Project Manager's expectations.
Construction Manager	Contractor	The Construction Manager will prepare and implement a CEMP. This CEMP is to be prepared in accordance with the State Growth Specification, Standard Section 176 (Environmental Management)[12]. The contractor will also incorporate the measures summarised in Section 7.8 of this Management Plan. The Construction Manager is accountable for putting into effect the practical aspects of the Management Plan. The Construction Manager must ensure all workers have received a site-specific project induction and are made aware of environmental hazards and risk controls when assigning work. The Construction Manager may be

[12] Available at https://www.transport.tas.gov.au/__data/assets/word_doc/0003/138486/Sec176.doc

Role	Organisation	Responsibilities
		required to assist with environmental monitoring programs, including visually checking the works. Environmental incidents must be report immediately to the Project Manager or the Project Environmental Officer
Project Workers	Contractor	Project workers receive instructions from the Construction Manager when implementing their scope of works. In accepting these instructions, workers should ensure they have been made aware of the requirements of the Management Plan with respect to their operations.
Quality Assurance Verifier	Contractor	The Quality Assurance Verifier monitors and audits construction activities, environmental protection activities and the performance of those activities.
Project Ecologist	Consultant (e.g. NBES)	The Project Ecologist will be responsible for the management of orchid habitat on the RCS and will be responsible for monitoring the effectiveness of exclusion fencing and measures to control sedimentation and runoff. The results of monitoring and the reporting of any breaches will be provided to the Project Environmental Officer. The Project Ecologist will also prepare post construction roadside management plan to be incorporated into the State Growth Roadside Conservation program along with any scheduled monitoring and reporting.

7.2 Emergency contacts

Key emergency contacts are:

Proponent Project Manager - [redacted] – Department of State Growth, Project Manager

[redacted]@stategrowth.tas.gov.au s 36 [redacted]

Project Environmental Officer - [redacted] – Department of State Growth, Environment Development Approvals

[redacted]@stategrowth.tas.gov.au, 0361 663 426

7.3 Environmental training

Environmental awareness training will be included in inductions that clearly explains the importance of values on the Milford property, to ensure the Exclusion Zone is protected from all impacts.

7.4 Access onto Milford

No access to the Exclusion Zone is permitted without approval. The landowner is to be given a minimum of 48 hours' notice, except in emergency situations.

7.5 New boundary fencing

Prior to the commencement of earthworks, the new property boundary will be defined. This will form the limit of works and Exclusion Zone boundary for the period of construction works. The boundary fence shall be constructed in the form that has been agreed with the landowner.

7.6 Weed management

To support this RCS, a Weed Management Plan will be implemented. The Weed Management Plan will include the following actions:

- Undertaking of a detailed weed impact assessment that documents all existing non-indigenous species, prioritises their ecological threat and measures and maps priority species abundance and extent
- Prioritisation of weed management by threat status and other site-specific concerns
- Treatment of declared weeds prior to the commencement of any ground disturbing activities
- Management of weed and soil pathogen potential within imported materials
- Provisions for cleaning plant and equipment at the following times -
    - Prior to arrival on Site
    - Prior to departure from Site; and
- Prior to movement within the Site from infested to non-infested areas.

Monitoring the site for the presence of weeds and pests will be in accordance with the requirements of Section 7.6 and Section 7.8.

7.7 Management of the Roadside Conservation Site

After the completion of the Project, the roadside adjacent to Milford will be incorporated into State Growth's Roadside Conservation Sites (RCS) Program, recognising its proximity to priority orchid habitat and importance for a high standard of management to reduce the risk of any future adverse impacts to that habitat.

Under the RCS Program, State Growth currently manages 13 sites across Tasmania, including grasslands, mixed species woodlands, grasstrees and eucalypts. The sites are managed for their conservation values with each site having a management plan that directs annual works to reduce threats at the site.

The program includes:

- Annual qualitative monitoring to manage threats including weeds control and rubbish removal
- Annual reporting on works done and success achieved; and
- Biological monitoring of each site every five years to report on the number of species and number of plants per species present and the general condition of the threatened species at each site.

Under the Management Plan, State Growth will create a new Roadside Conservation Site (RCS) called "Milford Orchids". This will be included in State Growth's RCS database where all site details and management works are documented. Management reports will be prepared annually for three years post-construction, and then every 5 years thereafter (consistent with other sites under the RCS Program). Annual reporting of management actions will also be prepared, consistent with the reporting regime for the RCS Program. This describes works conducted in the preceding year and prescribes works for the forthcoming year.

Where practicable, vegetation management works within the Milford Orchids RCS will be conducted by a qualified bushland management contractor overseen by the Project Ecologist (or a suitable representative). Standard roadside maintenance works will be constrained to operational safety matters relating to the maintenance of the road shoulder, and roadside furniture such as guideposts and culvert outfalls.

- The Milford RCS will be subject to six-monthly inspections for weeds and other impacts such as stormwater discharge impacts and rubbish dumping. Any identified issues will be reported and appropriately managed

- The Milford RCS will be defined and included in the Milford Orchid Roadside Conservation Management Report (see Section 4.2)
- All weeds recorded and treated will be mapped and reported
- Any likely threatening processes that may impact on the adjacent orchid habitat will be identified, reported and monitored. Recommendations will be included in the management report to address any such issues; and
- Annual reporting will include documentation of management actions and prescription of actions for next 12-month period.

Declared weeds, pests and diseases will be managed on the Milford RCS. This will include treatment of existing weeds prior to works, hygiene measures[13] for equipment brought on to site, monitoring for new weeds and expansion of existing infestations, and treatment of weeds using appropriate weed management measures (as directed by the Project Ecologist). All works will be consistent with the requirements of Section 187.8 as a minimum. This will be the responsibility of the Construction Manager throughout the construction phase and through to the end of the Defects Liability Period[14]. The site will be monitored by the Project Ecologist through this period. After the end of the Defects Liability Period, the Department of State Growth will adopt responsibility for monitoring and managing weeds through the RCS Program.

7.8 Summary of management actions

Table 8 presents a summation of all management actions proposed to achieve the objectives of this management plan relating to the protection of orchid habitat within the proposed action area and on the adjacent Milford property.

Table 8: Management actions

No.	Management Actions	Frequency	Responsibility
Preconstruction Phase			
1.1	Prepare Management Report specific to the RCS	Prior to commencing work	Project Ecologist
1.2	Prepare CEMP	Prior to commencing work	Construction Manager
1.3	Install exclusion fencing[15] south of the access track on Milford property. If new boundary fence is not erected during pre-construction works, then exclusion fencing will be erected along the full extent of orchid habitat.	Prior to commencing work	Construction Manager
1.4	Clear and legible signage every 50m stating "*Threatened Flora Exclusion Zone"* or similar	Prior to commencing work	Construction Manager
1.5	Sediment fencing to be constructed and maintained where there is potential for construction water run-off to enter the orchid habitat areas	Prior to commencing work	Construction Manager

[13] These measures will be consistent with the Tasmanian Washdown Guidelines for Weed and Disease Control (https://nre.tas.gov.au/Documents/Washdown-Guidelines-Edition-1.pdf)

[14] The Defects Liability Period begins after completion of construction works.

[15] Exclusion fencing will utilise temporary high visibility barrier fence (safety bunting is not sufficient); includes signage every 50m stating "*Threatened Flora Exclusion Zone"* or similar; be checked and confirmed as correct by the Project Ecologist; and be referred to in all site inductions.

No.	Management Actions	Frequency	Responsibility
1.6	All site personnel, including contractors, will complete a project induction that clearly explains the importance of values on Milford and importance to the Project to ensure the Milford property site is an exclusion zone to be protected from all impacts.	Prior to commencing work	Construction Manager
1.7	Background soil sampling[16] will be undertaken as part of the soil and water quality monitoring plans to provide a baseline for soil monitoring programs. These samples will be taken from representative locations prior to the commencement of works	Prior to commencing work	Construction Manager
1.8	Weed management will be undertaken within the RCS to reduce weed sources for colonisation into the road reserve. This will include treatment of declared weeds prior to the commencement of any ground disturbing activities.	Prior to commencing work	Project Ecologist
Construction Phase			
2.1	Conduct regular monitoring of all exclusion fencing, including signage and record on the weekly environmental inspection checklist. Fence maintenance to be conducted if damaged or not functional	Daily during any vegetation clearance works Weekly thereafter	Project Environmental Officer and Construction Manager
2.2	Fell trees towards the road (under appropriate traffic control) to minimise damage to retained vegetation	During vegetation clearance	Construction Manager
2.3	Install a new boundary fence ensuring no environmental impact to orchid habitat under supervision of Project Ecologist	Once	Construction Manager
2.4	Machinery operating in this area will be subject to appropriate hygiene standards for construction machinery.	At all times	Construction Manager
2.5	Monitoring of the adequacy of sediment and water controls as prescribed and immediate maintenance as required will be undertaken. Any impacts to be rectified and controls to be upgraded to address deficiencies. All incidents to be reported to Project Manager, including management measures required and/or implemented.	Every three months, or within: one hour of commencement of a rain event[17] during working hours every four hours for periods of continuous rain during working hours within 12 hours of a rain event outside working hours	Construction Manager
2.6	Monitor and treat infestations of weeds in the RCS. Map and record all infestations and their treatment.	Every three months	Construction Manager and Project Ecologist

Commented [JH2]: I think it would have to be the Ecologist to ID what needs treating

[16] Background denotes at least 200 m into Milford from the current access tracks, at least 0.5m deep and ensuring the same soil type is sampled (loamy sand)

[17] Rain event is defined in Integrated Water Management Guidelines VicRoads 2013.

No.	Management Actions	Frequency	Responsibility
2.7	Monitor for evidence of water runoff and / or sedimentation that could impact habitat within the RCS or within Milford.	Every three months or within 24 hrs of major rain event (50 mm in a 24 hour period)	Construction Manager
2.8	Prepare Management Report specific to the RCS	Annually	Project Ecologist
2.9	Monitor soil within the RCS for potential contaminants (comparing to background levels). Any increases above background levels to be reported to the Project Ecologist.	Every three months	Project Environmental Officer
Post-construction - Defects Liability Period			
3.1	Rehabilitate any construction areas not required for operations. Any stockpiled material is to be removed and topsoil spread across the area. This is to be seeded with a native grass mix using species indigenous to the area.	Within one month of construction completion	Construction Manager
3.2	Monitor and treat weeds in in the RCS: • Identification of key weed and other threats to orchid viability • Weed management prioritised by threat status and other site-specific concerns	Every six months	Project Ecologist
3.3	Prepare Management Report specific to the RCS	Annual	Project Ecologist
3.4	Monitor soil within the orchid habitat for potential contaminants (comparing to background levels). All increases above background levels to be reported to Project Ecologist for assessment and appropriate action.	Every three months	Project Environmental Officer
Post construction – After Defects Liability Period[18]			
4.1	Management (following actions 3.1-3.4) of new roadside adjacent to orchid habitat will be handed over to and incorporated into the State Growth RCS Program	Annual	Project Environmental Officer

8. Monitoring and reporting requirements

8.1 Monitoring

Monitoring will be undertaken for potential impacts to initiate appropriate management measures. This Management Plan includes a monitoring regime that will identify and respond to any future threats to orchids and their habitat and is in addition to the monitoring listed in Table 8.

The monitoring schedule outlined in Table 9 will operate throughout the construction period.

Table 9: Construction period monitoring

[18] Commences two years after completion of construction.

No.	Monitoring and Inspection requirements	Frequency	Responsibility
1	During vegetation clearance works, undertake construction inspections and review and ensure all environmental controls are in place, particularly exclusion fencing and signage	Daily	Quality Assurance Verifier
2	Post clearance, undertake construction inspections and review and ensure all environmental controls are in place, particularly exclusion fencing and signage	Weekly	Quality Assurance Verifier
3	Monitor adequacy of sediment and water controls and ensure any maintenance is completed immediately as required.	3 monthly or within • 1 hour of commencement of a rain event during working hours • Every four hours for periods of continuous rain during working hours; and • Within 12 hours of a rain event outside working hours.	Quality Assurance Verifier
4	Monitor infestations of weeds in the RCS	Every three months	Quality Assurance Verifier and Project Ecologist

Commented [JH3]: Can the QA person undertake this?

8.2 Reporting

The Management Report will be prepared by the Project Ecologist prior to the commencement of the construction period. Thereafter the report will be updated on an annual basis throughout the construction period and for two years post construction. It will be updated every five years thereafter. The Management Report will be submitted to the Minister for the Environment by State Growth.

Table 10: Reporting requirements

Timeframe	Reporting
First 12 months	• Prepare a management report that describes the values, maps orchids, weeds plus other relevant matters. The Management report will form a baseline document for reference by subsequent surveys • Undertake a detailed weed impact assessment that documents all non-indigenous species, prioritises their ecological threat and measures and maps priority species abundance and extent; and • Document primary weed management for highest priority infestations.
Annual management	• Collation of orchid record data in collaboration with relevant stakeholders[19] • Identification of key weed and other threats to orchid viability

[19] Current arrangement is coordinate by Milford landowner working with Threatened Plants Tasmania (TPT), other orchid specialists with guidance from botanist at DPIPWE

	• Weed management prioritised by threat status and other site-specific concerns • Reporting of the effects of stormwater runoff monitoring. Identify any incidences of runoff entering orchid habitat. Document mitigation response to redirect water from the orchid habitat • Documentation of management actions over the preceding 12 months; and • Prescription of actions for next 12 month period.
Annually for first three years and then every five years	• Prepare management report that reviews changes over the relevant management period and relates this to management and other threatening processes • Make recommendations for changes to management where appropriate; and • This report will include the management of the adjacent section of roadside reserve on the Tasman Highway.

9. Incident management protocols and Corrective actions

Any non-compliance is to be reported and if there is elevated risk to orchid habitat then all works that are considered as presenting risk will cease until the non-compliance matter is addressed. All non-compliance will be reported and if necessary the management plan reviewed to address any potential for recurrence. It is considered that the level of review of activities during and after construction, as outlined in Table 9 is sufficient to identify any potential or actual non-compliance.

10. Management of uncertainty

The land within the Project site has been subjected to a high level of survey over a substantial period of time (since 2009). Known orchid records, and the extent of the potential habitat on site can be mapped with a relatively high degree of confidence. The extent of the direct disturbance footprint is defined and can be identified on site to prevent any encroachment beyond the impact area. The extent of indirect impacts, such as weed incursion or stormwater discharge from the road pavement, have been determined and managed.

The risk assessment determined that the potential impacts have a low risk rating and it is considered that the actions proposed are appropriate to that level of risk.

Given the low level of risk, and the high degree of confidence relating to the extent of potential habitats and the management measures proposed, the level of uncertainty relating to impacts and their mitigation is considered low.

11. Audit and review

Implementation of the Orchid Habitat Management Plan will be reviewed throughout and after construction and the effectiveness of management actions will be assessed using:

- Evidence of environmental incidents or complaints
- Responses required to any incidents
- Fencing effectiveness to protect exclusion zones
- Weed survey across the management areas; and

- Assessment of the effectiveness of soil and water erosion management structures.

Auditing responsibilities are outlined in Table 7.

The plan will be reviewed as outlined in Section 4.1, to address:

- Legislative changes or requirements
- Significant environmental issues or events; and
- Any reported incident that warrants a review of actions.

References

Department of Environment (2014). Environmental Management Plan Guidelines, Commonwealth of Australia.

North Barker Ecosystem Services (2020). Tasman Highway. Hobart Airport interchange to Pitt Water Bluff (including associated works on Tasmania Golf Course). Matters of National Environmental Significance. Significant Impact Assessment. Report to Department of State Growth, September 30 2020.

Threatened Species and Marine Section (2014). Listing Statement for *Caladenia caudata* (tailed spider-orchid). Department of Primary Industries, Parks, Water and Environment, Tasmania DPIPWE

Threatened Species Section (2017). Listing Statement for *Caladenia saggicola* (sagg spider-orchid). Department of Primary Industries, Parks, Water & Environment, Tasmania.

Threatened Species Section (2017). Listing Statement for *Prasophyllum milfordense* (Milford leek-orchid). Department of Primary Industries, Parks, Water & Environment, Tasmania.

Threatened Species Section (2017). Threatened Tasmanian Orchids Flora Recovery Plan. Department of Primary Industries, Parks, Water & Environment, Hobart.

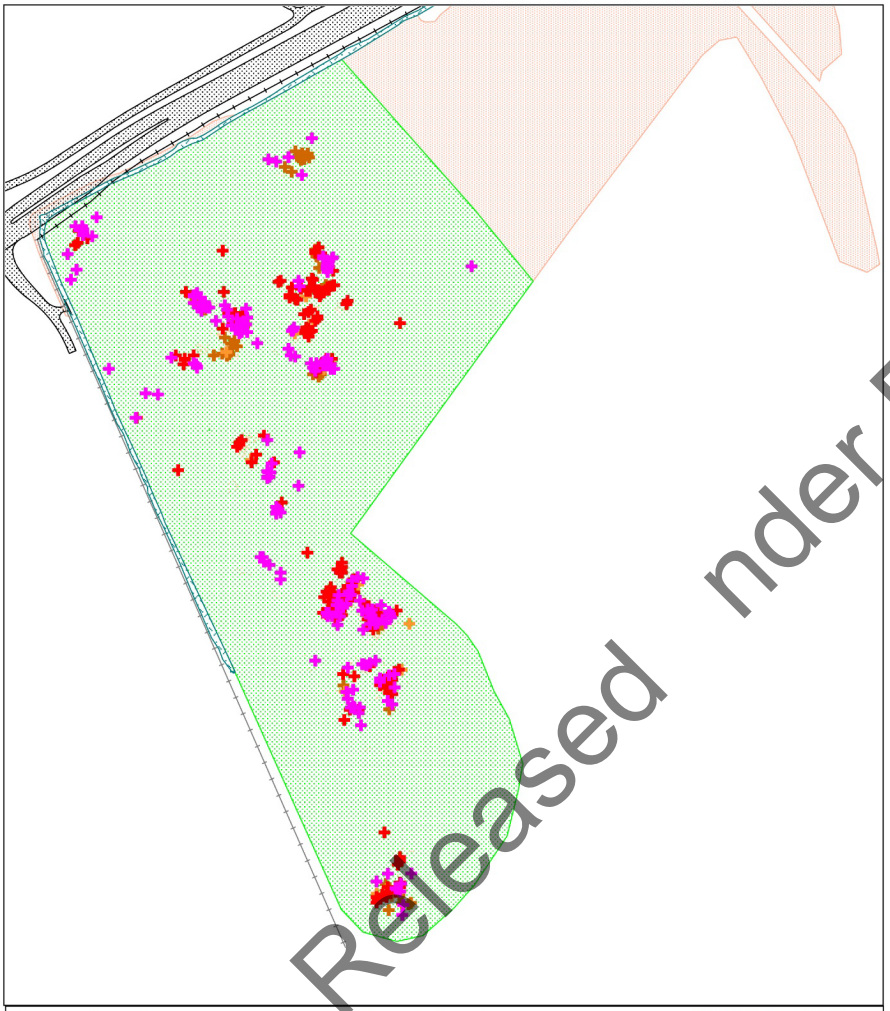
Wong, T. Breen, P. & Lloyd, S. (2000). Water Sensitive Road Design – Design Options for Improving Stormwater Quality of Road Runoff. Page: Cooperative research Centre for catchment Hydrology, Technical Report 00/1.

Orchid Habitat and records

(Source: NBES 2022 Orchid Impact Assessment and Mitigation Plan)

Appendix A

pitt&sherry



Prasophyllum milfordense
(Source; NBES, TPT, MWells, NVA)

- 2021
- 2020
- 2019
- 2018
- 2009 to 2017

Orchid habitat

- Potential secondary habitat
- Critical habitat

Property boundary

- Milford property boundary (existing)

Road design
(Source: Pitt and Sherry 26/04/2021)

- Pavement

Existing track

Base data from theLIST, © State of Tasmania
Datum: GDA94, AHD Grid: MGA Zone 55

0 150
metres

northbarker
ECOSYSTEM SERVICES

DSG022 11/02/2022 LD

pitt&sherry

EPBC Act Referral 2020/8805 Tasman Highway Upgrade - Hobart Airport to Midway Point Causeway, near Hobart, Tasmania Orchid Habitat Management Plan

Pitt & Sherry (Operations) Pty Ltd
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

Located nationally —
Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport

ref: T-HB19197-ENV-REP-001-OrchidManagementPlan-Rev03 (002)/MD/mj

Document 17

From: s 36
To: [redacted]
Subject: FW: Tasman Highway Upgrade - Airport Interchange to Midway Point Causeway [SEC=UNOFFICIAL]
Date: Thursday, 16 March 2023 9:20:06 AM
Attachments: image001.png
2020-8805 DCCEEW Review of Tasman Highway Orchid Offset Appraisal.docx

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Good morning [redacted]

Please refer to attached comments from DCCEEW on the proposed offset assessment methodology on Milford. We will review to see if there is anything here that is likely to be problematic. Have you had any further thoughts, [redacted], on how the covenant should be secured, noting that DCCEEW now want us to "identify the specific covenant intended to be used, and engage with NRE Tasmania to confirm their support of a covenant arrangement".

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s36 [redacted]

pittsh.com.au

Out of scope [redacted]

EPBC 2020/8805

DCCEEW review of Tasman Highway Orchid Offset Appraisal

The scope of comments on this document relate primarily to offset quality metrics. The department anticipates more detailed comments on more advanced documents in the offset proposal, including regarding further detail around who is managing the offset, details of management procedures, confirming covenant viability at that location, cost of offset, etc.

Reference	DCCEEW comments
Offset Appraisal Offset area	• Please describe more clearly the meaning of *Orchid Habitat Management Area,* and how it relates to the offset. The different areas – 6.1 ha, 5.5 ha, and names should be referred to more clearly. • Management to mitigate disturbance resulting from the action or facilitated by the action, such as management to mitigate impacts of potential future road disturbance, cannot be considered as an offset outcome, or contribute towards improvement scores. • Please identify the relevance of the Milford Fire Management Plan 2008, and confirm that any management action included in the proposed in the offset is additional to pre-existing requirements of management regimes • Please identify the specific covenant intended to be used, and engage with NRE Tasmania to confirm their support of a covenant arrangement.
Offset Appraisal Offset calculator	• Please note that accumulating the two 0.08 ha impacting areas is not a legislative requirement. However, the department supports a conservative approach to ensure effective conservation outcomes for the species. • With regard to the calculation of direct and indirect impacts on a single calculator, the incorporation of indirect impacts into the calculation depends on the assumed severity of those impacts. The assumption of total loss as a result of indirect impacts is a reasonable approach.
Offset Appraisal Habitat quality – site condition	• To account for seasonal variation in ground cover (weeds or otherwise), the department recommends consideration of the seasonal timing of surveys. • Other relevant features (such as soil type, mycorrhizae presence, etc) still need to be considered in scoring. While they may be consistent between sites, these factors are still relevant to the quality and need to be quantified and considered as an outcome in management of the offset.

Offset Appraisal Habitat quality – site context	• The department will require justification of the value of 13 m in relation to edge effects. Including or discussing the source would beneficial. • This section needs to consider the site context in a broader sense too - value of site in context of remaining habitat, site size, zoning, existing management regimes.
Offset Appraisal Habitat quality – stocking rates	• Given the importance of species stocking to habitat quality, species stocking should be equally, if not higher weighted, than quality and context in scoring.
Offset Appraisal Habitat quality – Table 2 habitat quality metric	• In general, the habitat quality metric should be able to be applied to these species wherever they occur, and as such, it needs to include all relevant considerations for each component of the score. For example, it is not appropriate for the only measure of site context to be "distance to Earthworks" • Scoring is too biased towards site condition. Under this scoring weighting, marked improvements in offset quality score may be achieved without actually achieving direct species outcomes such as increased stocking. The department will require a score distribution more appropriately weighted to species outcomes. Species outcomes may be facilitated by effective management of ground cover and other key habitat characteristics.
Offset Appraisal Habitat quality – text below Table 2	• Please consider and justify whether 5 m x 5 m quadrats 45 m apart is an appropriate measure in consideration of the high local variation in plant density for orchids • Please clarify whether the quadrat sampling method will apply to site context. • The department notes sampling plots may need to be randomly distributed to ensure that performance monitoring is representative across the offset site
Offset Appraisal Time until ecological benefit	• Time to ecological benefit relates to the time required to achieve the proposed quality outcome proposed. Reading this all together, the proposal is suggesting that weed management will result in a cover of <5% of herb and grassy weeds within three years. Given no information has been provided on the current coverage of weeds it is difficult to comment on the achievability of this target. It is noted that this type of target may be difficult to reliably achieve, and a significant program of works and monitoring may be required.

Offset Appraisal Future Quality Score without offset	• The department notes the proposed scoring equates to greater than 50% cover of herbs and grassy weeds.
Offset Appraisal Future Quality Score without offset	• The department notes the proposed scoring equates to less than 5% cover of herbs and grassy weeds.
Offset Appraisal Confidence in result	• Whilst your determination of confidence may be "cautionary and conservative" you need to justify how and why so. In consideration of changing of score weightings to focus on species outcome, confidence may decrease. Final offset documents will need to describe how you "effectively account for and manage the risks of the offset not succeeding "
Offset Appraisal % of Impact Offset	• Direct offsets should contribute at least 90%, but in most cases, proponents meet 100% of the requirement through direct offsets where available. • 100% of the residual impacts must be offset. Please note that any usage of indirect offsets will require further discussion with the department, including whether indirect offsets are viable.

From: [redacted]
To: s 36 [redacted]
Subject: RE: Compensationary Planting Area
Date: Wednesday, 15 March 2023 9:02:00 AM

Hi s 36 [redacted]

Thanks for the background, it helps with my conversations with s 36 [redacted]. I believe we have committed to maintenance for 10 years, we can't rip them out.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

Courage to make a difference through
TEAMWORK | INTEGRITY | RESPECT | EXCELLENCE

In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: s 36 [redacted]@pittsh.com.au>
Sent: Tuesday, 14 March 2023 6:27 PM
To: [redacted]@stategrowth.tas.gov.au>
Subject: Re: Compensationary Planting Area

Hi [redacted]
As far as I am aware, s36 [redacted] didn't ever agree that the planted area would be offset against compensation. What she did say early on was that it would reduce the productive farm area and accordingly she expected paid compensation on that basis. Our view always was that the trees were replacement for the trees lost from the highway, hence the term compensatory planting. In our mind it was never a monetary compensation. s 39 [redacted]
Early on in the discussions s 36 [redacted] did ask what the Department intended to do about about the trees that would be lost. The concept evolved through various discussions and s 36 [redacted] certainly became more committed to the planting area as the discussion progressed. Surely the valuers can work out if and how it should be accounted for in the compensation assessment. When it's all said and done it's only about 1 Ha.

Regards
s 36 [redacted]

Sent from my iPhone

> On 14 Mar 2023, at 17:56, [redacted]@stategrowth.tas.gov.au> wrote:

Hi s 36 .

I read those emails although I was unable to find where she agreed the area planted would be a partial offset for the loss of forest and therefore reduce compensation. Do you have anything recorded where this agreement was made?
s 39

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
s 36
www.stategrowth.tas.gov.au

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From: s 36 @pittsh.com.au>
Sent: Tuesday, 7 March 2023 10:59 PM
To: @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi

I sent you an email going through all of this on 30 January and Its 17mb, so possibly didn't go through, although I didn't receive any error message, then or now. Please let me know that you have received it.
There was no requirement to collect seed from the tree that the seeds came from, it wasn't assessed as significant or having environmental value. The seed from that tree was collected at s 26 following a request from s 26 as she indicated that it may have been a unique species and was worth trying to propagate new trees from it. I reiterate that the request for the trees to be planted on Milford came from s 36 If she doesn't want them it will be easier and cheaper for the Department to pull them out, remove the fence and reinstate the paddock.

Regards

s 36

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phones 36 [redacted]

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Tuesday, 7 March 2023 9:08 PM
To: s 36 [redacted]@pittsh.com.au>
Subject: RE: Compensationary Planting Area

Hi s 36 [redacted]

The reason for the planting area is unclear to me. I thought it was for the department to save the tree that would be lost, you've mentioned it was to offset the forest lost. Can you please provide a detailed explanation as to how the planting area came about, the reasons for is and the agreement with s 36 [redacted].

s 36 [redacted] words are that she helped us out with an area to plant the seedlings (possibly not the right word) from the tree we were removing.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From: s 36 [redacted]@pittsh.com.au>
Sent: Monday, 6 March 2023 2:17 PM
To: [redacted]stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Good afternoon [redacted]

I did discuss this with s 36 [redacted] last week. He advised that the seed of all the Eucalyptus viminalis came from the tree opposite the airport runway, thought to be sub species pryoriana. On this basis testing all the planted trees (400) seems

totally unnecessary. It may be of interest to confirm what the sub species is by testing a small number of plants.

Regards

s 36

Principal Engineer

s 36 | | |

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: @stategrowth.tas.gov.au>
Sent: Monday, 6 March 2023 1:10 PM
To: s 36 @pittsh.com.au>
Cc: @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi s 36

See attached from s 36 . This appears to be a suggestion regarding genetic testing, can you/NB/Wildseed let me know if this is something we should look into?

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
| s 36
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From:
Sent: Monday, 6 March 2023 9:10 AM
To: s 36 @pittsh.com.au>
Cc: @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi s 36

I assume this means that s 36 has visited site and addressed the weeds and long grass?

I'm not familiar with the species, if most of the Eucalyptus viminalis has survived and that is the species we are trying to save why is there a need to plant more trees? Are there multiple species of tree planted at this location?

s 36 is calling the compensationary planting are the pryoriana area. I'm not 100% sure, I'll email her to get it direct from the source.

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
| s 36
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From: s 36 @pittsh.com.au>
Sent: Friday, 3 March 2023 4:17 PM
To: @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

s 36 has advised the following

There have been substantial losses of understory vegetation due to frosts followed by the plants then being under water. Most of the Eucalyptus viminalis have survived.
s 36 will provide a cost in the near future for replacement planting. He expects of the order of s 39. Please confirm your approval to conduct this work at your earliest convenience and confirm that Wildseed are on your list of suppliers and payment can be made to Wildseed in a timely fashion following completion of that remedial work.
The Eucalyptus viminalsi that has been planted came from seed collected from a single tree opposite the airport runway. This thought in some quarters to be sub species pryoriana, however s36 an others think it is Eucalyptus Viminalis sub species viminalis. Is this what s36 wants to check via genetic testing?
I have a contact for the genetic testing and will follow up what is required for the testing, likely costs and timeframe. This will require further approval from s 36 to

enter Milford and collect plant material from the new trees.
Andrew will update the maintenance /managment plan to a 10 year one.

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: @stategrowth.tas.gov.au>
Sent: Tuesday, 28 February 2023 9:01 AM
To: s 36 @pittsh.com.aualyptus
Subject: Compensationary Planting Area

Out of Character | Suspicious Attachment

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi s 36

Can you let me know when the planting area will be sprayed for weeds and then cut? I've attached photos I took on 23 Jan.

Can you please send through the 10 year management plan for the area.

s36 asked about genetic testing trees to minimise future cost of management. What would be involved if we were to do this? I believe her concern was around the trees no being the species/sub-species we were trying to save.

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
| s 36
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

Document 19

From: s 36
To: s 36
Cc: [redacted]
Subject: RE: URGENT: Surveyor"s visit
Date: Wednesday, 8 March 2023 11:19:58 AM
Attachments: image001.png

Hi s 36

Your task is the assessment of unit 4 as per your methodology, and a check of the area under the power lines where s 36 wants a passing bay on the access track. The setout of the access track is a separate item that s 36 requested. As far as I'm concerned logging of trees has already been done by you. As I understand it , s 36 wanted to see where the relocated sections of the track were going. That's pretty straightforward as they are parallel to the new boundary, nevertheless we agreed to set it out for clarity.

Please call if you need any further clarification.

Regards

[redacted]

From: s 36 [redacted] @northbarker.com.au>
Sent: Wednesday, 8 March 2023 11:05 AM
To: s 36 [redacted] @pittsh.com.au>
Cc: [redacted] @stategrowth.tas.gov.au>
Subject: RE: URGENT: Surveyor's visit

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

There's a bit of a list of things for me to compile. s 36 I am expecting some outline of what you want me to do on site that is separate to the baseline orchid monitoring data collection.
s 36

s 36 [redacted]
Director / Principal Ecologist
[redacted]
s 36 [redacted]
313 Macquarie St, Hobart, TAS. 7000
www.northbarker.com.au

We pay our respects to the muwinina people, on whose unceded land we work. We acknowledge all palawa people across lutrawitta / Tasmania, their elders past, present and emerging, and their continuing history of sustainable land management.

From: s 26 @pittsh.com.au>
Sent: Wednesday, March 8, 2023 10:41 AM
To: @stategrowth.tas.gov.au>; Out of scope
s 36 @northbarker.com.au>
Subject: RE: URGENT: Surveyor's visit

Good morning and s 36

Veris are simply setting out the access track from co-ordinates supplied by Pitt & Sherry. Parts of it will be in fairly thick vegetation so there won't be a lot to see. Clearing for the track will be done when construction starts.

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone +s 36

pittsh.com.au

Out of scope

Document 20

From: s 36
To:
Subject: FW: s36 consultant EPBC Review
Date: Tuesday, 7 March 2023 7:43:52 PM

Hi

s 39

. We think we have covered the necessary actions, however there may be an item we have not addressed (eg insect, accumulation of plant material other than weeds, treatment of fire dependent species if burning is not carried out). s 39

I also note that bracken control is addressed in s 36 current plan (Bushfire Management Plan for Eucalyptus Viminalis) and I have previously instructed our people to incorporate all management practices from this plan with the exception of use of fire.

Regards

s 36

"propose interventions Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: s 36
Sent: Tuesday, 31 January 2023 8:02 PM
To: s36
Cc: @stategrowth.tas.gov.au>; @stategrowth.tas.gov.au>
Subject: s36 consultant EPBC Review

Hi

The requirement from DCCEEW (as stated in March last year) was to *"demonstrate that the Orchid Habitat Impact Assessment and Mitigation Plan has the agreement of the landholder to be implemented effectively on the Milford Property."* My apologies, I didn't send you the brief last year, however refer below.

We now or will have the following documents
Orchid Habitat Impact Assessment
Roadside Conservation Site Management Plan
Offset Management Plan (Covering the whole of unit 4 and including area specific management

measures for the offset area and the mitigation area).

On this basis we recommend the following brief to s 36 independent reviewer

i. Responding to the impact of the works (0.4% of the known orchid habitat), review the Impact Assessment and Management Plans for compliance with the EPBC Act, the Environmental Offsets Policy and the Offsets Assessment Guide
ii. Particular attention is to be given to the existing habitat characteristics and expected enhanced habitat characteristics following management interventions.
iii. Review management interventions for their suitability to avoid, minimise and mitigate potential direct and indirect impacts to the listed orchid species and their habitat during construction and after construction has been completed.
iv. Propose any additional management interventions in the offset area that are consistent with the requirements of the EPBC Act and could further minimise impacts to the orchids and orchid habitat
v. Propose any additional management interventions in the offset area that are consistent with the requirements of the EPBC Act and could further improve orchid habitat.

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: s36
Sent: Tuesday, 31 January 2023 7:38 PM
To: s 36 @pittsh.com.au>
Subject: Fwd: s 36 consultant EPBC Review

Sent from my iPhone

Begin forwarded message:

From: ' @stategrowth.tas.gov.au>
Date: 31 January 2023 at 16:49:24 AEDT
To: s36
Cc: @stategrowth.tas.gov.au>
Subject: s 36 **consultant EPBC Review**

Hi s 36

I cannot find your wording for the brief for s 36 consultant for the review of the offset management plan. Have DCCEEW advised it is only the offset management plan she needs to approve?

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

Courage to make a difference through
TEAMWORK | INTEGRITY | RESPECT | EXCELLENCE

In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: [redacted]
To: [redacted] s 36
Subject: RE: TN power line above new driveway
Date: Tuesday, 7 March 2023 8:17:00 PM
Attachments: image001.png

Hi [redacted] s

I've requested plant type and dimensions from [redacted] s

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: [redacted] s 36 [redacted] @pittsh.com.au>
Sent: Monday, 20 February 2023 11:14 AM
To: [redacted] @stategrowth.tas.gov.au>
Subject: RE: TN power line above new driveway

Hi [redacted]

I have attached the full extract of the clearance summary table and notes. This does advise that a risk assessment be undertaken based on the type of equipment in use on the property. Based on what we know, 5.5 m looks more than adequate. Equipment higher than 5.5 m (and in fact much lower equipment) could not get into the property via existing driveways due to overhanging trees and a pivot irrigator could not currently get near the power lines due to existing fences. We can do a risk assessment and [redacted] s 36 one of our electrical engineers can do it with some input from me. [redacted] s would need to advise us of the machinery including dimensions that she proposes to use on the property. Any proposal to lift the power lines above their current height looks like betterment to me. Let me know if you want us to do the risk assessment. Tasnetworks won't do it because its a private line.

Regards

[redacted] s 36 [redacted]

Principal Engineer

[redacted] s 36 [redacted] | [redacted] | [redacted]
Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone [redacted] s 36
pittsh.com.au

Out of scope

[redacted]

10.1 DISTRIBUTION MAINS CLEARANCES FROM GROUND AND STRUCTURES

10.1.1 Summary Table

Clearance Type		Location Description	Dimension Code (see 10.1.3)	Direction	LV		HV 1kV – 33kV			HV >33kV, <132kV
					ABC	BARE	Bare & Covered Conductor	Insulated without Earth Screen	Insulated with Earth Screen	Bare & Covered Conductor
Ground	Roads	Over the carriageway	A	Vertically	5.5m	5.5m	6.7m	6.0m	5.5m	6.7m
		Over roadway other than the carriageway	B	Vertically	5.5m	5.5m	5.5m	5.5m	5.5m	6.7m
	Other	Private driveways and land traversable by vehicles more than 3m in height (except service stations and farms)	C	Vertically	5.5m	5.5m	5.5m	5.5m	5.5m	6.7m
		Areas not normally accessible to vehicles more than 3m in height (e.g. swampy areas, gradient > 1:1)	C1	Vertically	4.5 m	4.5m	4.5 m	4.5m	4.5m	5.5m
		Cuttings, embankments and easement boundaries		Horizontally	1.5m	1.5m	2.1m	2.1m	1.5m	5.5m
Structures / Buildings		Unroofed terraces, balconies, sun decks, paved areas etc. that are subject to pedestrian traffic only	E	Vertically (Note 1)	2.7m	3.7m	4.5m	3.7m	2.7m	5.0m
			F	In any other direction	1.0m	1.5m	2.1m	1.5m	1.5m	3.0m
		Roofs or similar structure not normally accessible to persons but on which a person may stand	G	Vertically (Note 1)	2.0m	2.7m	3.7m	2.7m	2.7m	4.5m
			H	In any other direction	1.0m	1.5m	2.1m	1.5m	1.5m	3.0m
		Covered places such as verandahs, balconies and windows which can be opened	I	In any direction	1.0m	1.5m	2.1m	1.5m	1.5m	3.0m
		Parts of any structure not normally accessible to persons, incl. blank walls and windows that cannot be opened	K	Vertically (Note 1)	0.6m	2.7m	3.7m	2.7m	2.7m	4.5m
			L	Horizontally	0.1m	0.6m	1.5m	0.6m	0.1m	2.5m
Other High-Risk Situations		Service Poles in the vicinity of OH conductors (refer 10.2.4)		Vertically	1.5m	1.5m	1.65m	1.65m	1.5m	3.0m
				Horizontally	1.0m	2.0m	2.2m	1.5m	1.5m	3.0m
		Overdimension high load transport routes		Vertically	6.7m minimum for all conductors (incl. stay wires and services)					
		Temporary structures including scaffolding		Vertically	Not permitted					
				Horizontally	1.0m	1.5m	2.1m	2.1m	2.1m	3.0m
		Quarries, mines, farms etc. where activities will be in close proximity to power lines (Note 3)			Subject to risk assessment					
		Farms utilising irrigation		Vertically	5.5m	7.5m	7.5m	7.5m	7.5m	7.5m
				Horizontally	7.9m	7.9m	8.5m	8.5m	7.9m	13.0m

See notes on next sheet

Notes regarding Distribution Mains Ground and Structure Clearances table:

1. This should not be taken as meaning only the literal vertical. The actual clearance may also extend outwards in an arc until it interacts with the relevant intersecting dimension.
2. Minimum clearance values are for the following conductor conditions:
    a. Maximum conductor temperature of:
        i. 75ºC for LVABC
        ii. 50ºC for bare open LV,11kV, 12.7kV & 22kV mains
        iii. 50ºC for HVABC
        iv. 50ºC for bare open 33kV mains
    b. Worst condition of conductor swing - 15ºC and 500Pa Wind load
    c. Allowance to be made for inelastic stretch of conductors following installation.
3. The above clearances are a minimum and at times a higher clearance may be warranted. For high-risk locations where machinery and plant are likely to operate in close proximity to power lines a risk assessment should be conducted to determine the most appropriate solution to minimise the risk of contact. Examples of potential high-risk locations include quarries, mines, farms with a need to transport tall centre pivots or grain augers. Possible solutions to be considered include:
    a. relocation of power line to an alternate location
    b. increasing clearances
    c. use of an insulated conductor type
    d. use of an underground cable
    e. installing powerline markers or insulated barriers/covers.
4. The clearances in the above table are for vehicles with a maximum height of 4.6m. Vehicles exceeding 4.6m require a permit from the Government and as part of the permit approval process TasNetworks may be required to survey the intended route.

From: s 36
To: [redacted]
Subject: RE: Compensationary Planting Area
Date: Monday, 6 March 2023 10:35:20 AM
Attachments: Duplicate

Good morning [redacted]

I refer you to the original proposal from Wildseed, in particular the highlighted section. This was developed by s 36 from Wildseed and s 36 in consultation with s 36 [redacted]. The intent is not just to replant with E.Viminalis but to re-create a forest system with a mix of species including understorey. The maintenance plan s 36 prepared is based on maintenance of all the planted species and adherence to this in the early years will give better long term results and lower future costs. s 36 has not addressed weeds and long grass at this stage and will attend to that in the coming weeks.

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | s 36

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Monday, 6 March 2023 9:10 AM
To: s 36 [redacted]@pittsh.com.au>
Cc: [redacted]@stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi s 36 [redacted]

I assume this means that s 36 has visited site and addressed the weeds and long grass?

I'm not familiar with the species, if most of the Eucalyptus viminalis has survived and that is the species we are trying to save why is there a need to plant more trees? Are there multiple species of tree planted at this location?

s 36 [redacted] is calling the compensationary planting are the pryoriana area. I'm not 100% sure, I'll email her to get it direct from the source.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] s 36 [redacted]
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From: s 36 [redacted] @pittsh.com.au>
Sent: Friday, 3 March 2023 4:17 PM
To: [redacted] @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi [redacted]

s 36 [redacted] has advised the following

There have been substantial losses of understory vegetation due to frosts followed by the plants then being under water. Most of the Eucalyptus viminalis have survived.
s 36 [redacted] will provide a cost in the near future for replacement planting. He expects of the order of s 39 [redacted]. Please confirm your approval to conduct this work at your earliest convenience and confirm that Wildseed are on your list of suppliers and payment can be made to Wildseed in a timely fashion following completion of that remedial work.
The Eucalyptus viminalsi that has been planted came from seed collected from a single tree opposite the airport runway. This thought in some quarters to be sub species pryoriana, however s36 [redacted] an others think it is Eucalyptus Viminalis sub species viminalis. Is this what s36 [redacted] wants to check via genetic testing?
I have a contact for the genetic testing and will follow up what is required for the testing, likely costs and timeframe. This will require further approval from s 36 [redacted] to enter Milford and collect plant material from the new trees.
s36 [redacted] will update the maintenance /managment plan to a 10 year one.

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted] @stategrowth.tas.gov.au>

Sent: Tuesday, 28 February 2023 9:01 AM
To: s 36 [redacted] @pittsh.com.aualyptus
Subject: Compensationary Planting Area

Out of Character | Suspicious Attachment

Hi s 36 [redacted]

Can you let me know when the planting area will be sprayed for weeds and then cut? I've attached photos I took on 23 Jan.

Can you please send through the 10 year management plan for the area.

s36 [redacted] has asked about genetic testing trees to minimise future cost of management. What would be involved if we were to do this? I believe her concern was around the trees no being the species/sub-species we were trying to save.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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Document 23

From: [redacted]
To: s 36 [redacted]
Cc: [redacted]
Subject: RE: Compensationary Planting Area
Date: Monday, 6 March 2023 1:10:00 PM

Out of scope [redacted]

From: [redacted]
Sent: Monday, 6 March 2023 9:10 AM
To: s 36 [redacted] @pittsh.com.au>
Cc: [redacted] @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi s 36 [redacted]

I assume this means that s 36 [redacted] has visited site and addressed the weeds and long grass?

I'm not familiar with the species, if most of the Eucalyptus viminalis has survived and that is the species we are trying to save why is there a need to plant more trees? Are there multiple species of tree planted at this location?

s 36 [redacted] is calling the compensationary planting are the pryoriana area. I'm not 100% sure, I'll email her to get it direct from the source.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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From: s 36 [redacted] @pittsh.com.au>
Sent: Friday, 3 March 2023 4:17 PM
To: [redacted] @stategrowth.tas.gov.au>
Subject: RE: Compensationary Planting Area

Hi [redacted]

s 36 [redacted] has advised the following

There have been substantial losses of understory vegetation due to frosts followed by the plants then being under water. Most of the Eucalyptus viminalis have survived.
s 36 [redacted] will provide a cost in the near future for replacement planting. He expects of the order of s 36 [redacted]. Please confirm your approval to conduct this work at your earliest convenience and confirm that Wildseed are on your list of suppliers and payment can be made to Wildseed in a timely fashion following completion of that remedial work.
The Eucalyptus viminalsi that has been planted came from seed collected from a single tree opposite the airport runway. This thought in some quarters to be sub species pryoriana, however s36 [redacted] an others think it is Eucalyptus Viminalis sub species viminalis. Is this what s36 [redacted] wants to check via genetic testing?
I have a contact for the genetic testing and will follow up what is required for the testing, likely costs and timeframe. This will require further approval from s 36 [redacted] to enter Milford and collect plant material from the new trees.
s36 [redacted] will update the maintenance /managment plan to a 10 year one.

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted] @stategrowth.tas.gov.au>
Sent: Tuesday, 28 February 2023 9:01 AM
To: s 36 [redacted] @pittsh.com.aualyptus
Subject: Compensationary Planting Area

Out of Character | Suspicious Attachment

[redacted] [redacted]

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi s 36

Can you let me know when the planting area will be sprayed for weeds and then cut? I've attached photos I took on 23 Jan.

Can you please send through the 10 year management plan for the area.

[redacted] has asked about genetic testing trees to minimise future cost of management. What would be involved if we were to do this? I believe her concern was around the trees no being the species/sub-species we were trying to save.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From: s 36
To:
Cc: s 36
Subject: RE: Orchid Offset baseline survey
Date: Wednesday, 1 March 2023 6:48:06 PM
Attachments: image001.png

Hi ,
I suspect we will require 2 days to do this work. On that basis I've pencilled in 14 and 15 March.
Regards s 36

s 36
Director / Principal Ecologist

313 Macquarie St, Hobart, TAS. 7000
www.northbarker.com.au

We pay our respects to the muwinina people, on whose unceded land we work. We acknowledge all palawa people across lutrawitta / Tasmania, their elders past, present and emerging, and their continuing history of sustainable land management.

From: @stategrowth.tas.gov.au>
Sent: Tuesday, February 28, 2023 4:03 PM
To: s 36 @northbarker.com.au>
Cc: s 36 @pittsh.com.au>
Subject: RE: Orchid Offset baseline survey

Hi s 36

Let's pencil in 14/3 with the aim for the week before, I'm checking with s 36 . Do you need just the one day? You will be surveying the potential 'pull-in lane' along the access track under the TN easement as well yes? We need to know if we can put a passing bay there, currently it's potential habitat. FYI, I've received pushback from s36 and co on this as they're suggesting the soil type, and there is a slight gully under the TN easement, would not support orchids.

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
| s 36
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

From: s 36 [redacted]@northbarker.com.au>
Sent: Tuesday, 28 February 2023 9:06 AM
To: [redacted]@stategrowth.tas.gov.au>
Cc: s 36 [redacted]@pittsh.com.au>
Subject: RE: Orchid Offset baseline survey

Hi [redacted],
I can do 14 March should next week not be possible.
s 36 [redacted]

s 36 [redacted]
Director / Principal Ecologist
[redacted]

s 36 [redacted]

313 Macquarie St, Hobart, TAS. 7000
www.northbarker.com.au

We pay our respects to the muwinina people, on whose unceded land we work. We acknowledge all palawa people across lutrawitta / Tasmania, their elders past, present and emerging, and their continuing history of sustainable land management.

From: [redacted]@stategrowth.tas.gov.au>
Sent: Tuesday, February 28, 2023 7:59 AM
To: s 36 [redacted]@northbarker.com.au>
Cc: s 36 [redacted]@pittsh.com.au>
Subject: RE: Orchid Offset baseline survey

Hi s 36 [redacted].

Unfortunately s36 [redacted] isn't open to those dates, I've attached an email from her. I've asked about availability next week but have yet to respond.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: s 36 [redacted] @northbarker.com.au>
Sent: Thursday, 23 February 2023 10:43 AM
To: [redacted] @stategrowth.tas.gov.au>
Cc: s 36 [redacted] @pittsh.com.au>
Subject: Orchid Offset baseline survey

Hi [redacted],
I propose to be on site to undertake baseline surveys sometime in the period 1-3 March. I understand form s 36 [redacted] that you will make contact with s 36 [redacted] to seek her approval.
Regards s 36 [redacted]

s 36 [redacted]
Director / Principal Ecologist
[redacted]

s 36 [redacted]

313 Macquarie St, Hobart, TAS. 7000
www.northbarker.com.au

We pay our respects to the muwinina people, on whose unceded land we work. We acknowledge all palawa people across lutrawitta / Tasmania, their elders past, present and emerging, and their continuing history of sustainable land management.

Out of scope [redacted]

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From: [redacted]
To: s 36 [redacted]
Cc: [redacted]
Subject: RE: MILFORD COVENANT - RE: Updated minutes/progress report from 21 Sept
Date: Monday, 27 February 2023 2:17:00 PM
Attachments: image001.png
s 31 [redacted]

Hi s 36 [redacted].

Going through your old minutes and speaking with you on the phone, it appears that DSG drove the covenant idea although it became administratively heavy and decided not to pursue. If the covenant for the compensatory planting is complete, or in draft as per the attached, is that administrative risk mitigated? Was the primary reason for the covenant to protect the trees? Who's decision was it to not pursue the covenant? Is there any issue not pursuing the covenant now as I assume the reason for the covenant was to protect the trees as DSG needed them to survive? What happens if no tree survive?

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: s 36 [redacted]@pittsh.com.au>
Sent: Tuesday, 6 December 2022 9:29 AM
To: [redacted]@stategrowth.tas.gov.au>
Subject: MILFORD COVENANT - RE: Updated minutes/progress report from 21 Sept

Hi [redacted]

The Milford covenant for the compensatory planting is attached.
Item 6c – I don't believe that we received the information referred to from s 36 [redacted] – I have this

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Tuesday, 6 December 2022 8:40 AM
To: s 36 [redacted]@pittsh.com.au>; [redacted]@stategrowth.tas.gov.au>
Cc: [redacted].Grundy@stategrowth.tas.gov.au>
Subject: FW: Updated minutes/progress report from 21 Sept

Hi team.

See action register from yesterday's meeting with s 36 [redacted]

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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Out of scope [redacted]

Attachment 2

Item No.	Issue	Time frame	Responsibility	Sub-issue	24-Oct	5-Dec
1a	Alt. driveway access	Jan-23	s36 /KP	The DA and appeal process ruled that there was no requirement for an alternate access to the Milford property. s36 informed DAWE representatives that she would access her property via the current Pittwater Road access, impacting the orchids and orchid habitat. DAWE advised that an alternate would need to be provided for EPBC approval as a result.	Design ongoing	s36 to review drawings KP sent this morning. s36 to advise, via return email, if culverts or no-culverts preferred (noting pros and cons outlined in the email) and markup trough locations. TN assets do not need changing - KP to send s36 email confirming TN assets don't need moving
1d		Dec-22	s36	Remote controlled gate	KP to follow up NoA Works progress.	s36 to advise what sort of remote control gate she would like at Pittwater Road
2a	Fire trail (north)	Jan-23	KP	Fire trail alignment	KP to confirm when surveyor will peg out new sections of fire trail on Milford. s36 to be in attendance	As per action from 24/10
2c		Dec-22	KP	Passing bays	KP continues to investigate passing opportunities within TN easement. s36 to send through survey information regarding habitat under the TN line - s36 no offical soil survey has been done. This could easily be done when the surveyors come to survey the fire trail. However s36 has passed on s 36 information regarding the orchids and clay soil	KP continuing to discuss with designer. As formal TN easement is no longer required this may become more difficult
2i		Dec-22	KP	TW authorised access to easement of Milford	KP to send to s36	KP to re-send to s36
~~3a~~	~~TW meter~~			~~Can electric/remotely read meters be installed?~~		
~~3d~~			~~Closed~~	~~s36 to confirm acceptance of TW works on Milford~~	~~s36 to confirm acceptance of TW works on Milford via email~~	~~s36 confrimed acceptance for TW works on Milford. Closed~~
~~4a~~	~~Golf club TW take off~~		~~Closed~~	~~What access is required to Milford to complete these works?~~		
~~4b~~			~~Closed~~	~~Fire supply at this location~~	~~As per item 3d~~	~~TW have approved the drawings including the fire hydrant. Closed~~

~~5~~	~~TN easement~~		~~Closed~~	~~Easement locations~~	~~s36 not willing to accept zero compensation. She has received independent professional advice on what TasNetworks should reasonably pay. It is not her fault that "the cart has been put before the horse", and they should have negotiated this first. KP looking at alternatives and will advise~~	~~The TN powerline has been designed and a easement on title, exisiting agreement to remain in place. Closed~~
6a	Orchid offset		~~Closed~~	~~Covenant~~	~~[Closed.] s36 agrees in principle that a covenant can be placed over the Orchid offset area once location, size, etc are confirmed and a management plan is designed, costed, funding secured and agreed.~~	
6b		Dec-22	KP	Size of offset	Location and size of offset yet to be confirmed. KP advised DSG are "working through a strategy". KP advised of a planned meeting with the consultants, date to be advised. s36 noted that they will need to provide any current info for this prior to the meeting so we can read it first.	The preliminary assessment determined approximately 2.8 Ha of mitigation and 1.5 Ha of offset – total about 4.3 Ha. Unit 4 (proposed offset location) is approximately 6Ha.

6c		Dec-22	[redacted]	Offset location	Offset location to be confirmed. *On 30/10/22 [redacted] subsequently sent KP information on the prior existance of Caladenia saggicola on Blocks 7&8 from orchid expert [redacted], and confirmed Block 6 near the power lines is not potential orchid habitat due to low lying, likely clay soils (to be confirmed then the surveyors come).*	DSG is proposing Milford unit 4 as the offset location. The site boarders the Tasman Highway and Pittwater road, has existing orchids ands is larger than the offset size required. A meeting with DCCEEW outlined further activities DSG needed to complete, including a habitat assessment on unit 4. DCCEEW asked if there were orchids found within unit 4 and were satisfied that there are existing known orchid locations. KP was not at the meeting (on leave) and aims to provide more information this week. [redacted] to advise DSG if unit 4 can be used for the offset location. [redacted] confirmed DSG's consultant/sub-consultant can visit Milford to complete further studies of unit 4 given adequate notice if provided
6d		Dec-22	KP	Can a provide a timeline on when a covenant will be placed on Milford, with steps required to be undertaken/completed and due dates?		KP can provide a brief timeline although there are several variables including landowner consent, representations during advertisement, etc
~~7~~	~~Fees for appeal~~		~~closed~~	~~Can reimbursement for legal fees be removed~~	~~DM continuing to investigate. *Resolved 2/11/22. Now CLOSED*~~	~~DSG confirmed fee recovery has been withdrawn. Closed~~
8a	Offset management plan		~~Closed~~	~~Request for [redacted]/GC's feedback on OMP~~	~~[redacted] provided dot points on offset management plan. Closed~~	

~~8b~~			~~Closed~~	~~NRE's comments on draft OMP ([s36] note: this is a draft Orchid Management Plan, not the same things as the Offset Management Plan, see above).~~	~~The action refers to the Roadside Conservation Plan (RCP) which is developed in conjuction to Offset Management Plan. KP to review [s36] comments on this RCP.~~	~~A RCP will be developed for the road reserve only, an offset management plan will be finalised for Milford. The RCP stops at the Milford boundary and requires not further discussion at these meetings. Closed~~
8e		Jan-22	KP	Offest management plan development	Offset management plan continuing to be refined.	Meeting held with DCCEEW last week who provided fruther advise, DSG actioning this advice
8f		Feb-22	KP	Landowner consent of OMP	KP to issue offset management plan to [s36] for review. Meeting to follow approximately one week later	As discussed in 8e, further work on the offset management plan is required before submission to landowner for review. DSG to provide breif for consultant to review offset management plan and any other assoiciated documentation - review to be limited to scope of EPBC Act only
~~8i~~			~~Closed~~	~~Does Milford use fire as management practice?~~		~~[s36] currently does not use fire as a orchid mitigation startegy. Closed~~
11a	Drainage management plan		Note	Water along pittwater road	Closed. This is a council asset and does not involve this project.	Re-opened. DSG working with council to reduce run off at hardstands on Pittwater road
13a	Compensationary planting	Jan-23	KP	10 year plan	Ongoing	Ongoing. KP continuing to follow up
13b		Jan-22	KP	Legal means for access	Ongoing. KP continuing to investigate	Ongoing. KP continuing to follow up
14	Damage fence	Jan-23	KP	[s36] lawyer has contacted DSG on the state of the fence now within the DSG road reservation	Fence is on acquired land, does not require contact with Milford. KP to advice [s36] when works will occur as a courtesy *30/11/22 [s36] has not been contacted about this. Grass is now gettign very long and needs to be grazed down.*	KP has followed up internally. The exetreme weather around the state has been the focus for maintenance crews - the fence will be attended to as soon as resources are available

Document 26

From: s 36 [redacted]
To: [redacted]
Subject: RE: MILFORD COVENANT - RE: Updated minutes/progress report from 21 Sept
Date: Monday, 27 February 2023 8:56:26 PM
Attachments: image001.png

Hi [redacted]

Refer below and also my email of 30/01/2023.

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Monday, 27 February 2023 2:18 PM
To: s 36 [redacted]@pittsh.com.au>
Cc: [redacted]@stategrowth.tas.gov.au>
Subject: RE: MILFORD COVENANT - RE: Updated minutes/progress report from 21 Sept

Hi s 36 [redacted]

Going through your old minutes and speaking with you on the phone, it appears that DSG drove the covenant idea although it became administratively heavy and decided not to pursue. Yes. If the covenant for the compensatory planting is complete, or in draft as per the attached, is that administrative risk mitigated? Not to any great degree, s 36 [redacted] needs to obtain legal advice on it and agree to it and any changes on her side would need to be approved by OCS, with the attendant long time frames and general objections that might apply there. Was the primary reason for the covenant to protect the trees? Yes Who's decision was it to not pursue the covenant? Sven and I jointly agreed that it was not in the Department's best interests, although as advised in my 30 Jan emai s 36 [redacted] seems to be keen on it. Is there any issue not pursuing the covenant now as I assume the reason for the covenant was to protect the trees as DSG needed them to survive? Not that I can see other than what s 36 [redacted] might wish for. What happens if no tree survive? We maintain for 10 years, then its up to s 36 [redacted] s 39 [redacted] Robyn must not take steps that would destroy the trees (eg cut them down), although I'm not sure what the penalty would or should be for such an action. s 39 [redacted] s 39 [redacted]

s 39

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
| s 36
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In recognition of the deep history and culture of this island, I acknowledge and pay my respects to all Tasmanian Aboriginal people; the past, and present custodians of the Land.

Please note I do not work Fridays.

From: s 36 @pittsh.com.au>
Sent: Tuesday, 6 December 2022 9:29 AM
To: @stategrowth.tas.gov.au>
Subject: MILFORD COVENANT - RE: Updated minutes/progress report from 21 Sept

Hi

The Milford covenant for the compensatory planting is attached.
Item 6c – I don't believe that we received the information referred to from s 36 – I have this

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: @stategrowth.tas.gov.au>
Sent: Tuesday, 6 December 2022 8:40 AM
To: s 36 @pittsh.com.au>; @stategrowth.tas.gov.au>
Cc: @stategrowth.tas.gov.au>
Subject: FW: Updated minutes/progress report from 21 Sept

Hi team.

See action register from yesterday's meeting with s 36 .

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | MB: s 36
www.stategrowth.tas.gov.au

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Please note I do not work Fridays.

Out of scope
[redacted]

From: s 36
To:
Subject: Re: Top-level critique of orchid plan document
Date: Thursday, 23 February 2023 1:43:53 PM

Hi
s 36 advises that she does need the habitat assessment to complete the offset strategy. I've taken that on face value as I understand that "strategy" in this context is more than a high level overarching guidance document

Regards
s 36

Sent from my iPhone

On 23 Feb 2023, at 10:20,
@stategrowth.tas.gov.au> wrote:

HI s 36 and

I think scheduling the works in a good idea although this should come through me to s 36 as the POC on the project. Can you let me know when NB are looking to understand the assessment and I'll reach out to her.

As mentioned by (more clearly than my email yesterday), there are three separate documents. The RCS management plan (which included the 13m into Milford) should not be depended on the habitat assessment as can be shared with us now for review. can you please send the RCS management plan through for review.

The strategy, this should be ready for review also as I understand this outlines the strategy and is not dependent on the habitat assessment – I assume it will reference doing a habitat assessment although would not be dependent on the results of the assessment. s36 , can you please send the offset strategy through for review.

Thanks,

Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
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From: [redacted]@stategrowth.tas.gov.au>
Sent: Thursday, 23 February 2023 10:02 AM
To: s 36 [redacted]@pittsh.com.au>; [redacted]
[redacted]@stategrowth.tas.gov.au>
Subject: RE: Top-level critique of orchid plan document

Thanks for inclusion in emails s36 and [redacted].

I just wanted to clarify that the offset strategy, offset management plan and roadside conservation site plan will be three separate documents. The RCS management plan will just deal with the roadside area and values and the interplay between the routine roadside maintenance and indirect impacts into the offset site. We have a standard MP template for these sites so this should be relatively straight forward.

Cheers,

[redacted]

From: s 36 [redacted]@pittsh.com.au>
Sent: Thursday, 23 February 2023 8:46 AM
To: [redacted]@stategrowth.tas.gov.au>
Cc: [redacted]@stategrowth.tas.gov.au>
Subject: RE: Top-level critique of orchid plan document

Good morning [redacted]

We do intend to meet with s 36 once we have completed the additional habitat assessment and got the plans into shape. In that regard we have done some further work on the plans but cannot progress them until we do the additional habitat assessment, so sending them to you for review is premature. s 36 advised me that we could expect their feedback on 10 th February. I spoke with one of s 36 colleagues on Monday this week and he undertook to follow up with her.
I don't need to tell you how frustratingly slow all of this is. We had a meeting with DCCEEW on 22 November last year (3 months ago!) to clarify a methodology, are required to propose a level of detail in the habitat assessment that is most unlikely to change anything with respect to the offset, and we are still waiting on endorsement of that methodology.
The further complication is that s 36 is going on leave mid March until early May. It's not essential that he does the assessment but given resource constraints

in North Barker (they are effectively one person down while s 36 is away) its best if he does it. On this basis s 36 and I have decided to go ahead and schedule the fieldwork asap. He will contact s 36 directly. Our rationale is that we don't expect that DCCEEW will change the methodology too much if at all and we can make any changes if necessary on the run.

Regards

s 36

Principal Engineer

s 36

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36

pittsh.com.au

From: @stategrowth.tas.gov.au>
Sent: Wednesday, 22 February 2023 8:32 PM
To: s 36 @pittsh.com.au>
Cc: @stategrowth.tas.gov.au>
Subject: RE: Top-level critique of orchid plan document

Hi s 36

Picking up on item 8, our plan and s36 plan coexisting, s36 mentioned that the activities between the offset management area (unit 4) and her other units need to occur together, unit 4 cannot be siloed. I think once we do the habitat study and update the offset management plan we need to meet with s36 and co to discuss how we can implement our plans together.

Can you please send through the roadside conservation plan (I believe you're calling the orchid management plan) for the road reserve for our review. Can you send the draft offset strategy and management plan for our initial look noting the habitat assessment will provide more information.

Have you had an update from s 36 on their feedback on the habitat assessment methodology?

Thanks,

Programming and Delivery | Department of State Growth
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| s 36
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From: s 36 [redacted] @pittsh.com.au>
Sent: Tuesday, 1 November 2022 8:42 PM
To: [redacted] @stategrowth.tas.gov.au>
Subject: RE: Top-level critique of orchid plan document

Hi [redacted]

Refer below in red. Still waiting on a response from s 36 [redacted] on Item 2.

s 36 [redacted]

Principal Engineer

s 36 [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted] @stategrowth.tas.gov.au>
Sent: Monday, 24 October 2022 4:57 PM
To: s 36 [redacted] @pittsh.com.au>; s 36 [redacted] @pittsh.com.au>
Cc: [redacted] @stategrowth.tas.gov.au>
Subject: FW: Top-level critique of orchid plan document

Hi s36 [redacted] and s36 [redacted].

Please see comments from s36 [redacted] on the OMP, s 39 [redacted]. I have some questions also:

1. Is our offset management plan a desktop assessment? No s 39 [redacted]. BTW what we have produced to date is the Orchid Habitat Management Plan for the RCS. It was based on Appendix I of the Preliminary Documentation – Orchid Habitat Impact Assessment and Mitigation Plan. Have we surveyed in detail, or to the detail required for EPBC, to provide competent and compliant PD? Absolutely and this has not been questioned by DCCEEW

assessors.

2. How have indirect and residual impacts from tree removal as part of the road building, and potentially the new track, been considered? Is this included in the offset management plan? s 36 will advise in near future.
3. How is the OMP rev 3 progressing? Aiming for 15th November, however s 36 who has been working on it has Covid and that might slow things down. Will you be in a position to present this to the Department this week, if not can you provide an ETA? Have the diagrams in the OMP been updated to make the area more clear, including adding road names? Not yet.
4. Have you received a response from Canberra on the questions asks a couple of weeks ago? Sent to you just recently
5. Can you confirm if the 12.1m (13m used in OMP) for edge start at the boundary or edge of road seal? Starts at limit of earthworks
6. Are Canberra accepting of your proposed offset location (13-50m from boundary in critical habitat)? Refer response from s 36, looks like they want the Offset to be additional to the RCS. Is that ok by you
7. Have you developed the roadside conservation plan? This needs to be separate to the offset management plan. That is the Orchid Habitat Management Plan referred to above.
8. How do we intend to implement our offset management plan in an area were s36 already has a mgmt. plan? I don't think we can have two management plans over the same area of land. The plan s 36 refers to is called really a fire management plan for the whole of Milford forest and isn't expansive about the orchids. s 39 [redacted], with the exception of budget, it contains all of those things, albeit terminology might be slightly different. We can do a budget, s 39 [redacted]. My understanding from s 36, when he discussed the Orchid management with s 36, was that fire was no longer favoured as a management tool for the forest. This needs to be clarified with s36 and will involve a meeting with s 36, her colleagues and s 36. I see no reason why the two plans cannot co-exist and cross reference each other

Speaking with s36 off the record today it appears we would have a better chance taking over management of all on of her 'lots' opposed to a strip off the front.

s36 on leave between 3/11 – 20/11. I'm on leave between 22/11– 25/11. This is pushing us dangerously close to Xmas.

s 36 (s36 compensation lawyer) was at today's meeting. He's suggested to s36 that she should seek a quote from an orchid expert to review the OMP on her behalf, the costs re-imbursed through the OVG. I am in favour of this, it will add time of course, but so does all the back and forth with s36. As discussed s36

could prepare the brief but we would need to review. It needs to be very clear that the Plans need to respond to the impacts of our works and our obligations under the EPBC Act. I think that person is likely to be s36 of Van Diemen Consulting, that's my guess only.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | MB: s 36 [redacted]
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Out of scope
[redacted]

Document 28

From: s 36 [redacted]
To: [redacted]
Cc: [redacted]
Subject: RE: Offset Management Plan
Date: Thursday, 23 February 2023 8:22:24 AM
Attachments: image001.png

Good morning [redacted]

It is intended to have the access track within the mitigation and offset areas as applicable. The track needs to be managed to ensure weeds are properly controlled. Being sandy soil the track also plays an important role in filtering out pollutants from road runoff before the runoff reaches orchid habitat, and we would want to maintain that functionality as much as possible.

Regards

s 36 [redacted]

Principal Engineer

s 36 [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

From: [redacted]@stategrowth.tas.gov.au>
Sent: Wednesday, 22 February 2023 8:25 PM
To: s 36 [redacted]@pittsh.com.au>
Cc: [redacted]@stategrowth.tas.gov.au>
Subject: RE: Offset Management Plan

Hi s 36 [redacted]

Picking this back up, there is an access track along the Tasman Highway and Pittwater Road inside the Milford boundary. Is the intent to have the offset over these access tracks? If so, how can we improve these areas if they are access tracks?

Further, s 36 [redacted] has outlined that she would want a fence around the offset to delineate that offset from the rest of the farm. I suspect this would have a further impact to the orchids as we may be putting a fence on or near known orchid locations. This request, I believe, was around farm functionality opposed to protecting the offset.

Thanks,

[redacted]
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001

[redacted] | s 36 [redacted]
www.stategrowth.tas.gov.au

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From: s 36 [redacted] @pittsh.com.au>
Sent: Thursday, 1 December 2022 3:49 PM
To: [redacted] @stategrowth.tas.gov.au>
Subject: FW: Offset Management Plan

Hi [redacted]

Hers is the image with

i. roadworks footprint
ii. the Milford boundary
iii. the 13 m disturbance zone from edge of earthworks
iv. the Milford Unit 4

Let me know if you want anything else added asap

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

Out of scope [redacted]

State Growth

Milford offset proposal

N

0 0.04 0.07 0.14 km

Coordinate System: GDA 1994 MGA Zone 55

1:4,000 When Printed at A4

MAP REF P.19.0270

DATA Base data and map from

Legend

- Road design footprint
- Offset area
- Roadsite conservation site
- Milford boundary (new)

From: [redacted]
To: s 36 [redacted] ; [redacted]
Subject: RE: Milford -EPBC Approval
Date: Wednesday, 22 February 2023 9:32:00 PM
Attachments: image001.png

Hi s 36 [redacted]

I did mention this in an earlier email although do you have an update from Canberra?

Thanks,

[redacted] | Project Manager
Programming and Delivery | Department of State Growth
4 Salamanca Place, Hobart TAS 7000 | GPO Box 536, Hobart TAS 7001
[redacted] | s 36 [redacted]
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Please note I do not work Fridays.

From: s 36 [redacted] @pittsh.com.au>
Sent: Thursday, 2 February 2023 11:14 AM
To: [redacted] @stategrowth.tas.gov.au>; [redacted] @stategrowth.tas.gov.au>
Subject: Milford -EPBC Approval

Hi [redacted]

I just spoke with s 36 [redacted] at DCCEEW and she expects to provide us with their comments on the methodology for assessment of the offset area on Milford by the end of next week. On that basis I have updated the timeframe to obtain the approval (refer attached). It looks like end of October. North Barker are looking at when they can do the field work and hopefully they can save some time there. There are a lot of matters outside our control including the independent assessment of the Impact assessment, Offset Management Plan/Orchid Management Plan on behalf of s 36 [redacted]. What is the status there, and can we have that party lined up so they are ready to respond when we have the documents ready ?

Regards

[redacted]

s 36 [redacted]

Principal Engineer

s 36 [redacted] | [redacted] | [redacted]

Hobart Office — Level 1, Surrey House, 199 Macquarie Street
PO Box 94 Hobart Tasmania 7001 | Phone s 36 [redacted]

pittsh.com.au

Attachment 1

Activity	Estimated time	Target completion date
DCCEEW approve offset assessment methodology	2 weeks	14 February 2023
Field assessment of Offset	4 weeks	14 March 2023
Amend Impact Assessment and prepare Offset Management Plan, revise Orchid Management Plan(s)	4 weeks	11 April 2023
Independent review of Impact assessment and orchid management plans	4 weeks	9 May 2023
Complete Preliminary Documentation	3 weeks	30 May 2023
DAWE approve preliminary documentation and direct to publish	3 weeks	20 June 2023
Publish	1 week	27 June 2023
Advertising period	4 weeks	25 July 2023
Deal with comments	4 weeks	22 August 2023
Amend Documentation and advertise	2 weeks	5 September 2023
DAWE makes recommendation to Minister and Minister's decision	8 weeks	31 October 2023