



# Reserve Activity Plan

2015 - 2019

## NATONE HILL BUSHLAND AND GEILSTON BAY COASTAL RESERVES

ADVICE PREPARED BY  
TASFLORA FOR  
CLARENCE CITY COUNCIL  
AUGUST 2015



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*Weed Control and Native Vegetation Specialists*

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## 1 BACKGROUND

The Natone Hill Bushland Reserve (the NHB Reserve) is a 45 hectare bushland reserve encompassing Natone Hill in Lindisfarne on Hobart's eastern shore. The Reserve is owned and managed by Clarence City Council (Council). It is valued by locals for its bushland setting, scenic views and extensive track network which is used for a range of recreational activities. The Reserve also forms part of the 'scenic rim' of vegetated hills on Hobart's eastern shore which creates an important visual landscape connection of bushland areas from the foreshore to ridges in the Clarence municipality. The Natone Hill Landcare Group has played an active role in caring for the Reserve for over 20 years.

The Geilston Bay Coastal Reserve (the GBC Reserve) encompasses the foreshore strip and multi user pathway corridor between Koomela Bay in Lindisfarne and Geilston Bay, as well as the riparian zone along Faggs Gully Creek between Geilston Bay and the East Derwent Highway. It is highly valued by locals for its coastal setting, scenic views and recreational opportunities, forming an important link in the Clarence Foreshore Trail. The ownership of the Reserve is mixed between Council and the Crown, with some foreshore areas owned by private landowners. The Geilston Bay Landcare Group (North Bank and South Bank), the Geilston Bay Boat Club Landcare Group and the former Geilston Bay High School Coastcare/Landcare Group have played an active role in undertaking management activities along Faggs Gully Creek and the Geilston Bay foreshore over many years, while the newly established Limekiln Point Landcare Group undertakes on ground work in the area between Limekiln Point and Koomela Bay.

Several management plans have previously been prepared for the Reserves, including two management plans (deGryse 1990, 1998) and a bushfire management plan (AVK Environmental Management 2011a) for the NHB Reserve and two weed management plans for the GBC Reserve (Tasflora 2007a, 2007b). These have served to guide management activities in the Reserves and a large number of the recommendations contained in these reports have been implemented.

Tasflora has now been engaged by Council to develop a five year Reserve Activity Plan for on ground management activities within the two Reserves, including the development of an implementation plan identifying immediate and ongoing management priorities to be undertaken during the period 2015-2019.<sup>1</sup>

The recommendations contained within this *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* are intended to provide guidance for on ground activities that can be implemented by Council, community groups and/or volunteers. It is acknowledged that it may not be possible to undertake all recommended activities due to resource constraints; rather the intent of this plan is to provide a guide to management concepts and outcomes that could be achieved

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<sup>1</sup> The *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* falls under Council's *Clarence Bushland and Coastal Strategy*, which summarises plans and strategies relevant to Reserves within the Clarence municipality.

if sufficient funding can be obtained.

## 2 OBJECTIVES

The objectives of the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* are to:

- ensure the Reserves are sustainably managed to preserve and enhance their natural, cultural and social values;
- identify priority management activities to be undertaken within the Reserves by Council, community groups and/or volunteers as resources become available during the period 2015-2019; and
- encourage community engagement through raising awareness of the Reserves' values and encourage participation in activities to minimise threats to these values.

## 3 SITE DESCRIPTION

The area covered by the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* is illustrated in Figure 1. It includes Natone Hill, the multi user pathway corridor between Koomela Bay and Geilston Bay, and the Faggs Gully Creek riparian zone as far as the East Derwent Highway. Both Reserves are zoned as Recreation under the *Clarence Planning Scheme 2007* (Clarence City Council 2011) and as Open Space under the *Clarence Draft Interim Planning Scheme 2014*.<sup>2</sup>

## 4 SITE VALUES OF THE NATONE HILL BUSHLAND RESERVE

### 4.1 Native flora

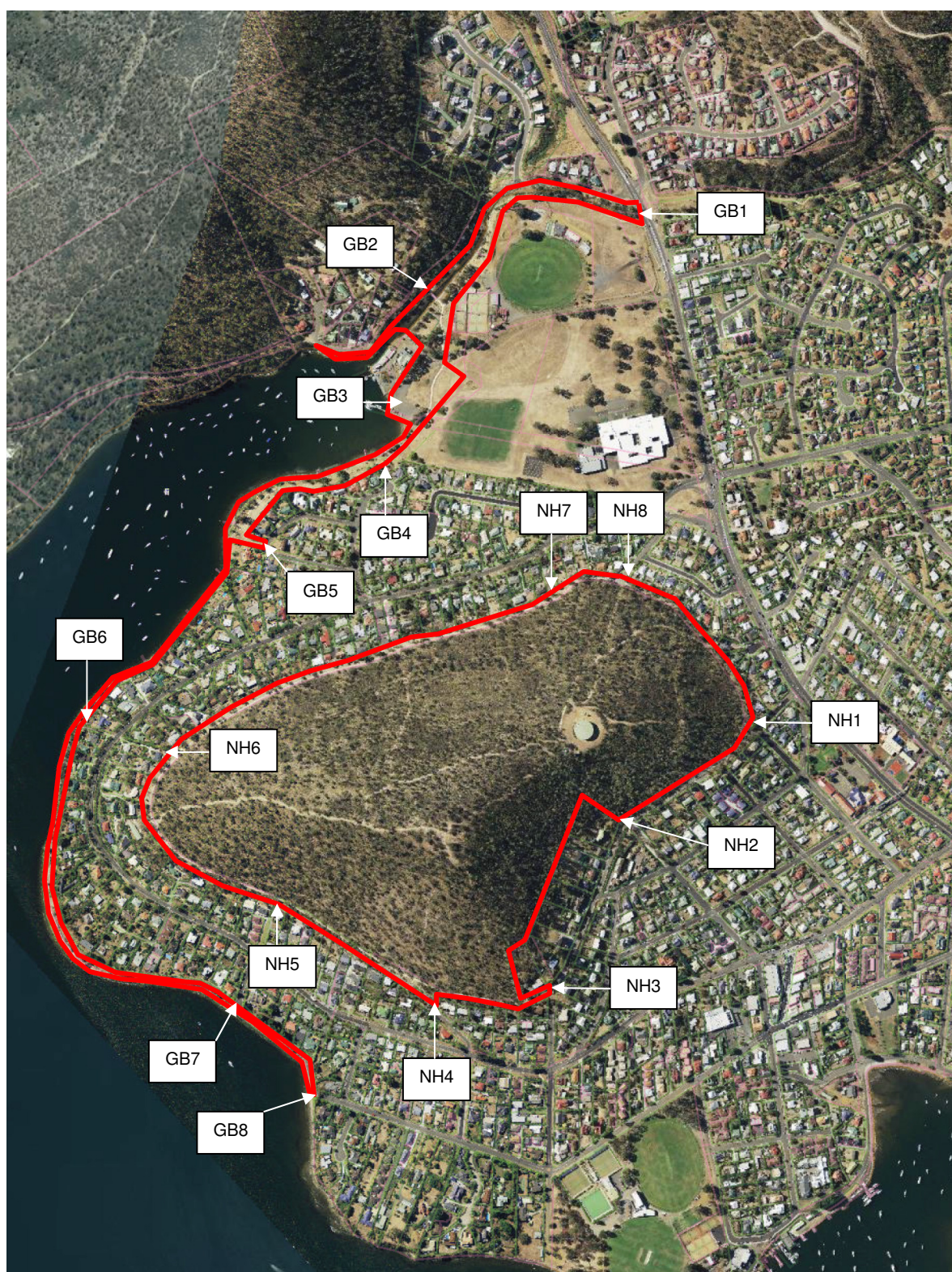
The NHB Reserve's native vegetation is comprised of grassy woodland and forest, with four native vegetation communities present (AVK Environmental Management 2011a). *Eucalyptus amygdalina* (black peppermint) forest on mudstone covers the majority of the site (refer Figure 2). There are also three small areas of other native vegetation communities on the south facing slopes of Natone Hill, including *E. viminalis* (white gum) grassy forest and woodland, *E. globulus* (blue gum) dry forest and woodland and *E. risdonii* (Risdon peppermint) forest and woodland (refer Figure 3). The latter two communities are listed as threatened native vegetation communities under the Tasmanian *Nature Conservation Act 2002*. A full description of each of the communities occurring within the Reserve is provided at Appendix 1.

Three native plant species of high conservation value have been recorded in the NHB Reserve (AVK Environmental Management 2011a; DPIPWE 2014): *Arthropodium strictum* (chocolate lily), *Eucalyptus risdonii* (Risdon peppermint), *Lepidium pseudotasmanicum* (shade peppergrass) and *Rytidosperma indutum* (tall wallabygrass). Further information on these threatened species is provided at Appendix 1.

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<sup>2</sup> Refer <http://www.ccc.tas.gov.au/interimplanningscheme>





**Figure 1:** Area covered by the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019*, including main Reserve entrances (NH1-8 & GB1-8) (base map sourced from the LIST).





**Figure 2:** Typical *Eucalyptus amygdalina* forest on mudstone occurring in the Natone Hill Bushland Reserve.

A flora species list was last compiled for the NHB Reserve in 1998 (deGryse 1998), and is provided at Appendix 2.

## 4.2 Native fauna

The Reserve contains suitable habitat for a range of native wildlife (mammals, birds, reptiles and invertebrates), including:

- mature or dead eucalypt trees with hollows, which provide potential den and nest sites for possums and hollow-nesting bird species, including the endangered swift parrot (*Lathamus discolor*) and Tasmanian masked owl (*Tyto novaehollandiae* subsp. *castanops*);
- mature, flowering eucalypt trees that provide a foraging source for possums and birds;
- shrubs and other understorey species that provide nesting, shelter and a foraging source for birds and small mammals (eg brown bandicoot, eastern barred bandicoot); and
- fallen timber and leaf litter, which provide shelter and foraging habitat for small birds, reptiles and invertebrates.

A bird survey was undertaken in the Reserve by members of Birdlife Tasmania in October 2014. Eleven native bird species were recorded during a half hour period, as summarised in Appendix 3.





**Figure 3:** Threatened *Eucalyptus risdonii* forest and woodland community occurring in the Natone Hill Bushland Reserve.

While no threatened fauna species have been previously recorded within the Reserve (DPIPWE 2014), there is suitable habitat for the endangered swift parrot, Tasmanian masked owl and the vulnerable eastern barred bandicoot (*Perameles gunnii*). Further information on these species is provided at Appendix 1.

The presence of wildlife in the Reserve is valued by local residents, and ongoing management of a diversity of habitats has been identified as an important management issue.

#### 4.3 Cultural heritage

Natone Hill and its surrounds are thought to have been previously occupied by the Mumirimina band of the Oyster Bay tribe. A quarry has been recorded in the NHB Reserve (de Gryse 1990), and a number of middens have been previously recorded around the foreshore in the neighbouring GBC Reserve (refer Section 5.3).

Under the Tasmanian *Aboriginal Relics Act 1975* (the Aboriginal Relics Act), it is an offence to 'destroy, damage, disfigure, conceal, uncover, expose, excavate or otherwise interfere with a relic' unless a permit has been granted. It is therefore important to ensure that no artefacts or other cultural material are exposed or disturbed without a permit during Reserve management activities. In the event that an Aboriginal artefact is inadvertently uncovered, an Unanticipated Discovery Plan should be implemented immediately (refer Appendix 4) and the items reported to



Aboriginal Heritage Tasmania for advice.

The NHB Reserve contains one known site of European cultural heritage. During World War II, Natone Hill was identified as a potential site for a gun battery and barracks and excavations for these were undertaken at the crest of the hill, although guns were not erected (Alexander 2003). The excavations can still be observed at the summit of Natone Hill (refer Figure 4).



**Figure 4:** Remnant gun emplacement excavations from World War II at the summit of Natone Hill.

#### 4.4 Recreational values

The Reserve is highly utilised year round for a range of recreational activities by local residents and visitors, including walking, jogging, dog exercise, bike riding, mountain biking and orienteering.

### 5 SITE VALUES OF THE GEILSTON BAY COASTAL RESERVE

#### 5.1 Native flora

The GBC Reserve contains two distinct natural environments: coastal foreshore between Koomela Bay and Geilston Bay, and the riparian zone along Faggs Gully Creek between Geilston Bay and the East Derwent Highway.

While much of the coastal foreshore section of the Reserve is comprised of exotic vegetation, remnant patches of *Allocasuarina verticillata* (sheoak) forest occur in



this area (refer Figure 5). Remnant native vegetation along Faggs Gully Creek is difficult to classify as the understorey is absent in many places following removal of large tracts of weeds (refer Figure 6). *Eucalyptus ovata* and *E. viminalis* are the dominant trees in this area. A succulent saline herbfield is growing on the creek margins adjacent to the revegetation area at the Geilston Bay end of the creek (refer Figure 7). This community is interspersed with pockets of saline sedgeland/rushland dominated by *Juncus kraussii* (sea rush).



**Figure 5:** Remnant *Allocasuarina verticillata* forest and woodland in the GBC Reserve.

No native plant species of conservation value have been previously recorded in the GBC Reserve (DPIPWE 2015).

## 5.2 Native fauna

The forested creekline of Faggs Gully Creek is likely to support the highest diversity of wildlife in the GBC Reserve. Mature gum trees with hollows along the waterway provides potential habitat for a number of birds and animals, and play a particularly important habitat role in areas where weed control has created a highly modified grassland environment. Increasing habitat diversity in these grassland areas at the East Derwent Highway end of the creek has been identified as a long term management issue for the Reserve.

The immediate environment of Faggs Gully Creek provides a distinct and localised habitat for aquatic fauna, including fish, frogs and aquatic invertebrates. Many of





**Figure 6:** Typical native vegetation at the East Derwent Highway end of Faggs Creek.



**Figure 7:** Typical native vegetation at the Geilston Bay end of Faggs Creek.



these species are sensitive to changes to their riparian environment such as habitat loss, changing water flows, contaminants, erosion, in-stream barriers and weed infestations. Management of this riparian environment has been identified as an important ongoing issue for this area.

### **5.3 Cultural heritage**

The Geilston Bay area is thought to have been previously occupied by the Mumirimina band of the Oyster Bay tribe. A number of middens have been recorded around the Geilston Bay and Limekiln Point foreshore area, and Faggs Gully Creek may have been used by Aborigines as an access route to and from the Derwent River from the Meehan Range area (Maynard 1997). As discussed in Section 4.3, in the event that an Aboriginal artefact is inadvertently uncovered in the Reserve, an Unanticipated Discovery Plan should be implemented immediately (refer Appendix 4) and the items reported to Aboriginal Heritage Tasmania for advice.

### **5.4 Recreational values**

The Reserve is highly utilised year round for a range of recreational activities by local residents and visitors, including walking, jogging, dog exercise, bike riding and water activities.

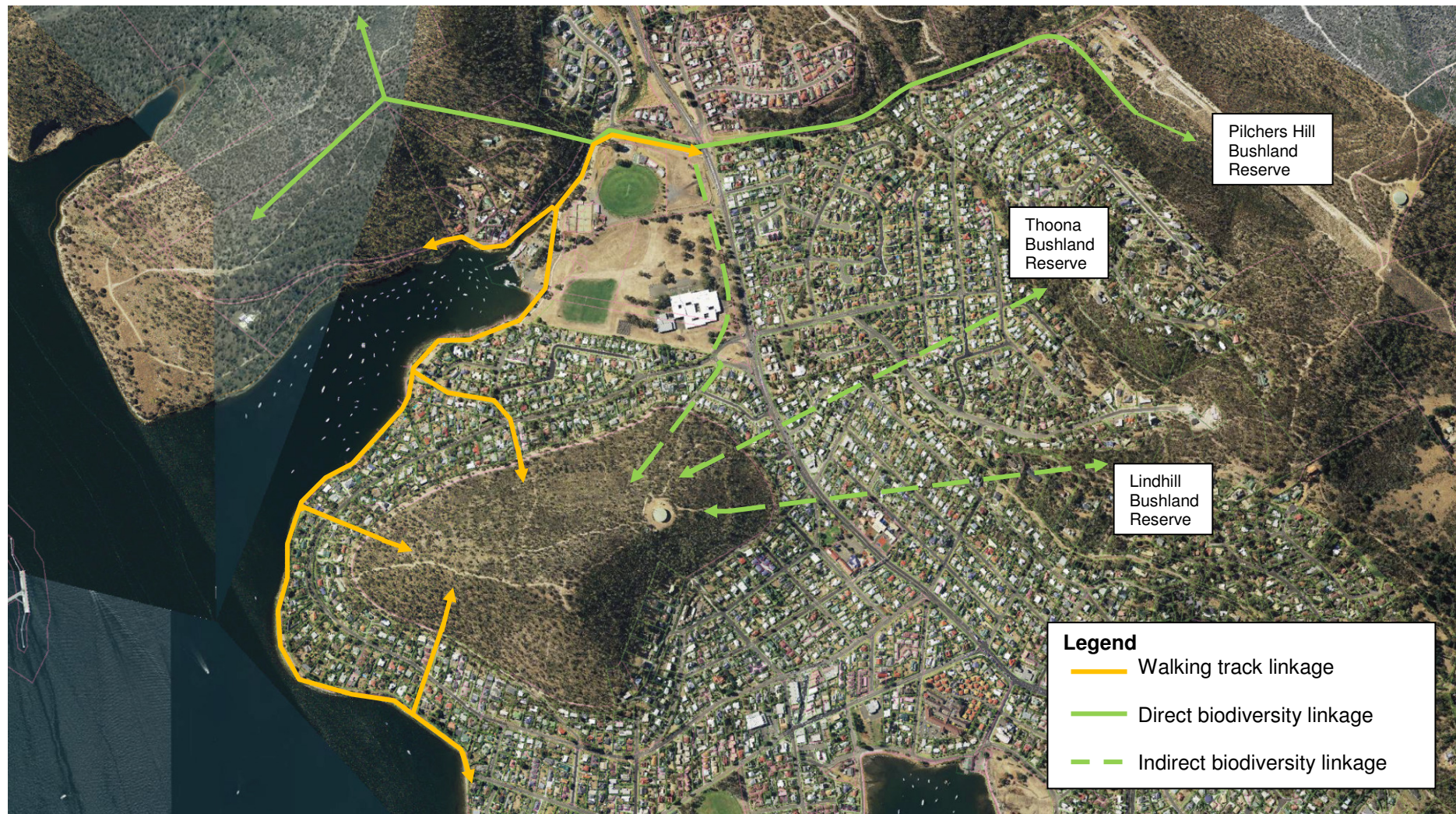
## **6 LANDSCAPE SETTING AND CONNECTIVITY**

The two Reserves form part of the important visual landscape connection of bushland areas from the foreshore to ridges in the Clarence municipality. The NHB Reserve provides a significant bushland backdrop to Geilston Bay and Lindisfarne. The GBC Reserve contributes to the scenic fringe along the Derwent River's estuarine coastline on Hobart's eastern shore, linking with the Bedlam Walls area to the north and Lindisfarne Bay to the south to create an extensive strip of remnant vegetation lining the Derwent when viewed from Hobart. Maintaining and enhancing these setting landscape settings is important for ongoing visual amenity in the area.

Connectivity between areas of bushland provides an important ecological link for flora and fauna to enable gene flow between populations and to allow animals to move across the landscape for foraging, nesting and breeding. The GBC Reserve is connected to Bedlam Walls and Government Hills via vegetated private land on Fishers Hill, and to the Pilchers Hill Bushland Reserve via Faggs Gully Creek (refer Figure 8). While the NHB Reserve is isolated from other areas of bushland by residential lots, there is an indirect linkage with the Pilchers Hill Bushland Reserve, Thoona Bushland Reserve and Lindhill Bushland Reserve (refer Figure 8). These indirect corridors are more likely to be of benefit to plant seed dispersal and birds and invertebrates that can fly due to the large number of residential lots, roads and open ovals between these areas.

Connectivity from a user perspective is currently very good. There are direct links between both Reserves at various locations along the foreshore, and the foreshore trail through the GBC Reserve contributes an important linkage along the Clarence foreshore trail. This landscape setting and connectivity is important for the long





**Figure 8:** Connectivity between the NHB Reserve, GBC Reserve and other bushland areas.

term viability of Clarence's bushland areas as well as ongoing visual amenity and recreational opportunities within the municipality. It is important that these linkages be preserved and strengthened through strategic land use planning.

## **7 STAKEHOLDER CONSULTATION**

A public meeting and community 'walk and talk' session in each Reserve was facilitated by Council and Tasflora on 21 September 2014. The purpose of these sessions was to seek input from local residents, Landcare and Coastcare groups and other relevant stakeholders on values and management issues associated with the Reserves. Over 15 stakeholders attended each meeting, including representatives from the Natone Hill Landcare Group, the Geilston Bay Landcare Group (North and South Banks), the Limekiln Point Landcare Group and the Geilston Bay Boat Club. A feedback form seeking input to the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* was also mailed to local residents and relevant stakeholders.

The draft *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* was released for community consultation in March - April 2015. A Natone Hill Bushland and Geilston Bay Coastal Reserves Report Card was developed as a key tool in encouraging stakeholder feedback on the draft plan and was mailed out to residents and other interested stakeholders. Three submissions on the draft plan were received during the consultation period. A summary of the issues raised in these submissions is provided at Appendix 5.

Where possible, all relevant community feedback has been considered in the development of the draft *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019*. However some issues identified during the consultation process are beyond the scope of this plan or pertain to management issues outside the Reserve. These issues have been noted by Council and will be addressed through other processes where feasible.

## **8 WEED MANAGEMENT**

### **8.1 Weed species present**

Over the last 20 years, the Natone Hill Landcare Group has played an active role in removing significant infestations of declared and environmental weeds across Natone Hill. The Reserve is now largely free from large infestations of weeds.

Significant weed control activities have also been undertaken in the GBC Reserve over the last 10 years. Following the development of two weed management plans for Faggs Gully Creek and the Geilston Bay foreshore area in 2007 (Tasflora 2007a & 2007b), the Geilston Bay Landcare Group and contractors have removed significant weed infestations in these areas, including dense infestations of blackberry, broom and hawthorn, as illustrated in Figures 9-12. The recently formed Limekiln Point Landcare Group has also been very active over the past year in removing significant weed infestations along the foreshore around Limekiln Point.





**Figure 9:** Faggs Gully Creek before (2007) and after (2015) weed control and revegetation activities.



**Figure 10:** Faggs Gully Creek before (2007) and after (2015) weed control and revegetation activities.



**Figure 11:** Geilston Bay foreshore before (2007) and after (2015) weed control and revegetation activities.





**Figure 12:** Geilston Bay foreshore before (2007) and after (2015) weed control and revegetation activities.

A list of environmental weed species occurring on Natone Hill and along Faggs Gully Creek, including their status and recommended control methods, is provided at Appendix 6.<sup>3</sup> To assist with identification, a picture of each weed species is also provided. Several weed species found in the Reserves are classified as declared weeds under the *Tasmanian Weed Management Act 1999* (the *Weed Management Act*) and/or Weeds of National Significance (WONS). Where possible, these weeds should be targeted as a priority to prevent their further spread. The distribution of declared and other environmental weed species on Natone Hill and along Faggs Gully Creek is illustrated in Appendices 7-10.

## 8.2 Primary weed control work in the Natone Hill Bushland Reserve

Weed control work within the NHB Reserve should continue to focus on removing isolated populations of declared and environmental weeds. Given the limited number of weeds present, a sweep of the entire hill would be desirable, although it is recognised that this may be beyond the capability and/or desire of members of the Natone Hill Landcare group. With this in mind, consideration should be given to engaging a contractor to undertake a sweep of the hill and remove all weeds encountered. The sweep should be undertaken in consultation with the Natone Hill Landcare Group to ensure that all known weed locations are targeted. Follow-up maintenance over the following years could then be undertaken by volunteers and/or contractors.

***Recommendation 1: Undertake a sweep of Natone Hill to remove isolated populations of declared and environmental weeds.***

An area of gorse persists within the fenced boundary of the reservoir at the top of Natone Hill. While this patch is mown, seedlings are spreading through the fence into the Reserve, despite efforts by the Natone Hill Landcare Group to control it. Control of this gorse will require liaison with TasWater who manages the area within the fence.

<sup>3</sup> A general overview of weed control techniques is available at:  
[http://www.nrmsouth.org.au/uploaded/287/15130842\\_66weedsbookletfinalweb.pdf](http://www.nrmsouth.org.au/uploaded/287/15130842_66weedsbookletfinalweb.pdf)

***Recommendation 2: Liaise with TasWater to control gorse growing within the Reservoir boundary at the top of Natone Hill.***

The Reserve's Bushfire Management Plan (AVK Environmental Management 2011a) notes that weed control activities should be integrated with planned burning activities in the Reserve. Management Procedure 8 (MP8) in Council's bushfire Best Practice Management Guidelines (AVK Environmental Management 2011b) recommends that:

- mature woody weeds in areas to be burnt should be controlled so that rootstocks are dead prior to burning;
- any herbicide treatment (including spot spraying or cut and paste) of weeds in areas to be burnt should be completed at least three months prior to planned burns to ensure that death and desiccation of plants has occurred; and
- following burning, weed seedlings and weeds regenerating from rootstocks should be treated promptly to ensure native seedlings are not outcompeted.

***Recommendation 3: Weed control should be undertaken prior to and following planned burns on Natone Hill.***

### **8.3 Primary weed control work in the Geilston Bay Coastal Reserve**

Primary weed control has been completed along Faggs Gully Creek and the Geilston Bay foreshore over the last eight years. As well, significant primary weed control work has been completed around Limekiln Point in recent months to remove large tracts of weeds between the walking track and the foreshore. Due to the large areas from which weeds have been removed, it is recommended that weed control work in the GBC Reserve now focuses on maintaining these areas to ensure they remain weed free and that native regeneration occurs, particularly along the foreshore around Limekiln Point. This is further discussed in Section 8.4.

***Recommendation 4: Weed control in the GBC Reserve should focus on maintaining areas where weed control has been previously undertaken.***

Removal of large quantities of weeds around Limekiln Point has resulted in large piles of cut wood and other plant material being heaped along the foreshore close to high water mark. The Limekiln Point Landcare Group has requested assistance in removing these piles through either burning or physical removal.

***Recommendation 5: Remove or burn piles of cut weeds from around Limekiln Point.***

### **8.4 Maintenance of weed control work**

Regeneration of weeds in both Reserves is likely to continue for many years due to the existing seed bank in the soil and the fact that some weed species have an inherent ability to resprout following primary control (eg boxthorn, blackberry). Weed control activities will not be successful unless a commitment is made to undertaking ongoing follow-up maintenance activities.



Maintenance of primary weed control work should be undertaken annually, preferably in spring and summer when plants are least likely to be dormant. This can be achieved by performing an annual sweep of previously targeted areas to remove all new germinants of previously targeted weeds and undertake follow-up control on any plants that may have resprouted. Ongoing annual follow-up will be required until the soil seed bank is exhausted.

Specific areas identified as requiring immediate maintenance include:

- the Faggs Gully Creek riparian zone, particularly between Dumbarton Drive and East Derwent Highway where significant regrowth of blackberries has occurred; and
- Limekiln Point, where primary weed control has recently been completed along a lengthy section of the Reserve between the walking track and the foreshore. Ongoing maintenance will be required to prevent weeds from regenerating and ensure that native regeneration occurs. In particular, persistent follow-up will be required to control large patches of *Vinca major* (blue periwinkle) and matted lignum (*Muehlenbeckia axillaris*) in this area.

Ongoing maintenance on Natone Hill and along the Geilston Bay foreshore will also be required to ensure that weeds do not re-establish in these areas.

***Recommendation 6: Undertake an annual sweep and follow-up control of all previously targeted weeds.***

Broadleaf weeds and exotic grasses are common through the Reserves and are not considered a priority for control except in revegetation or landscaped areas, and where their removal is desirable as part of an ongoing general Reserve maintenance program (eg along track edges).

***Recommendation 7: Control of exotic grasses and broadleaf weeds is only required in revegetation and landscaped areas, and where necessary as part of the Reserves' general maintenance programs.***

GPS weed mapping of environmental weeds occurring within both Reserves has been undertaken during the development of this plan. In order to monitor the success of the weed control program, follow-up GPS weed mapping should be undertaken after five years to assess progress and facilitate planning of future weed control activities. As well, GPS mapping by contractors and volunteers as they control weeds should be encouraged, with data to be provided to Council to enable its database to be updated.

***Recommendation 8: Undertake follow-up GPS mapping of all weeds in both Reserves after five years to monitor progress and inform future weed control priorities.***

## **9 REGENERATION AND REVEGETATION**

### **9.1 Regeneration**

Natural regeneration should be encouraged within both Reserves as the most cost

effective and natural means of restoring original native vegetation in areas where disturbance has occurred. Apart from weed control, management activities in areas of intact native vegetation should be limited to encourage the natural regeneration process.

## 9.2 Revegetation activities

The primary purpose of undertaking new revegetation activities in the Reserves is to provide preserve and enhance existing areas of remnant native vegetation, provide habitat for native birds and animals, and improve the visual amenity for users of the Reserves.

Large scale revegetation activities are not considered necessary in the NHB Reserve due to its relatively undisturbed vegetation, and the Natone Hill Landcare Group has not expressed a desire to undertake revegetation work in specific areas of the Reserve. However, native landscaping is recommended at two entrances to the Reserve to improve their visual amenity. This is further discussed in Section 13.

Revegetation activities have previously been undertaken along Faggs Gully Creek and along the Geilston Bay foreshore in the GBC Reserve, which has resulted in the successful establishment of native plants in many areas (refer Figures 10-13). While these areas are currently well maintained, ongoing maintenance of these areas should continue to remain a priority to ensure they remain weed free and are well maintained (ie dead plants removed, bags and stakes removed as plants mature, mulch topped up etc). This is particularly important adjacent to high pedestrian traffic areas where visual amenity is desirable, such as along the Geilston Bay foreshore.



**Figure 13:** Faggs Gully Creek revegetation site growth in (a) 2007 and (b) 2015.

***Recommendation 9: Continue to undertake regular maintenance of existing revegetation areas to ensure successful establishment and ongoing visual amenity.***

Further revegetation activities identified for the GBC Reserve are summarised in Table 1.

In general, revegetation activities should be avoided in areas where the original soil

**Table 1:** Recommended revegetation activities to be undertaken within the GBC Reserve.

Activity	Purpose	Recommended locations	Priority
Maintain existing revegetation sites	Ensure existing revegetation sites are established and regularly maintained	Geilston Bay foreshore, Faggs Gully Creek	Ongoing in conjunction with other revegetation activities
Understorey planting	Improve visual amenity and/or create habitat in areas where natural regeneration is considered unlikely to occur or requires enhancement	Beneath existing eucalypts between Geilston Bay Boat Club (GBBC) and the multiuser pathway	Progress with existing Council grant
		Along Faggs Gully Creek between Dumbarton Drive and the East Derwent Highway	As resources become available
Revegetation following weed control	May be required if bare patches are created or bank stabilisation is necessary following primary weed control	To be assessed following primary weed control activities along foreshore near Limekiln Point. Only to be undertaken if natural regeneration is considered unlikely to occur or if bank stabilisation is required.	Immediately following weed control activities
Landscaping	Improve visual amenity	Revegetate a small strip on the bay side of the tennis courts to screen the fencing	As resources become available
Bioremediation and riparian zone planting	Enhance the riparian environment and water quality of Fagg's Gully Creek through appropriate species selection	Faggs Gully Creek	High priority – refer Section 10

and water conditions have been modified (eg areas of runoff where enhanced nutrients may encourage prolific growth of weeds and exotic grasses) unless a specific bioremediation planting regime is deemed necessary. Where possible, plants should be grown from the seed or cuttings of plants local to the area to ensure local variants of plants are planted.<sup>4</sup>

***Recommendation 10: Undertake revegetation and landscaping at several locations in the GBC Reserve to improve visual amenity and provide habitat for native birds and animals.***

Revegetation and landscaping activities will not be successful unless a commitment is made to undertake follow-up maintenance activities. In particular, it

<sup>4</sup> An overview of best practice revegetation and regeneration techniques has been produced by Greening Australia Victoria (2003) and is available at [http://live.greeningaustralia.org.au/nativevegetation/pages/pdf/Authors%20C%2013\\_Corr.pdf](http://live.greeningaustralia.org.au/nativevegetation/pages/pdf/Authors%20C%2013_Corr.pdf)

is important to ensure that sufficient resources are available for ongoing maintenance (eg weeding, watering) before establishing new sites.

***Recommendation 11: New revegetation and landscaping activities should not be committed to unless sufficient resources are available to undertake ongoing regular maintenance of newly planted areas.***

## 10 RIPARIAN ZONE MANAGEMENT

Concern was raised during the community consultation process regarding the current condition of Faggs Gully Creek in the GBC Reserve. Issues raised included silt settling, visual amenity at low tide, odour issues and ongoing maintenance of creek rehabilitation work. Council is also aware of water quality issues arising from recent sewage spills into the creek causing nitrification issues.

Some water sensitive urban design (WSUD) work has previously been undertaken in the lower sections of the creek to reduce erosion and improve water quality and flows. However, with the exception of weed control activities and some revegetation activities, no WSUD work has been undertaken in the upper section of the creek to optimise water flows or improve water quality. As well, revegetation activities in the upper section of the creek have been limited to establishing trees and the creek line is lacking an appropriate shrub and understorey layer.

A review of the current condition of Faggs Gully Creek should be undertaken as a priority, with a focus on improving water quality, stormwater runoff quality and native vegetation establishment both within and adjacent to the creek line. As well, a water quality monitoring program should be established and used as a baseline for measuring any changes resulting from improved river care.

***Recommendation 12: Develop and implement a WSUD Management Plan that investigates and assesses options for improving the current condition of Faggs Gully Creek, including water quality, water flows, stormwater runoff and riparian vegetation management.***

***Recommendation 13: Establish a water quality monitoring program for Faggs Gully Creek.***

***Recommendation 14: Educate local residents and user groups to contact TasWater if odour issues arise along Faggs Gully Creek.***

## 11 FAUNA HABITAT MANAGEMENT

As described in Section 4.2, both Reserves play an important role in providing habitat for a range of wildlife, including mammals, birds, reptiles, invertebrates, fish and amphibians.

A variety of canopy layers, dead trees, hollow logs, fallen timber and leaf litter are required to provide important habitat for wildlife, including mammals, birds, reptiles and invertebrates. Native revegetation activities proposed in Section 9 will play a role in enhancing the habitat values of the Reserves.

Leaf litter and dead wood are often viewed as a fire risk in bushland reserves located in urban areas. However, it is important that fauna habitat requirements are considered when planning future bushfire management activities. The NHB Reserve's current bushfire management plan recognises this.

**Recommendation 15: Consider fauna habitat requirements when planning bushfire management activities in the NHB Reserve.**

Faggs Gully Creek in the GBC Reserve provides habitat for aquatic fauna, including fish, frogs and aquatic invertebrates. Many of these species are sensitive to changes to their riparian environment such as contaminants, erosion, in-stream barriers and weed infestations. Section 10 discusses recommendations for managing and improving aquatic habitat along the Faggs Gully Creek.

The GBC Reserve's coastline has the potential to provide nesting habitat for the little penguin (*Eudyptula minor*). Collaboration with Birdlife Tasmania and the Derwent Estuary Penguin Project should continue to ensure any nesting sites are identified and managed in accordance with the document *Co-existing with the Little Penguins in the Derwent Estuary - Information and Management Guidelines* (Prior and Wells 2009).

Uncontrolled domestic dogs and cats have the potential to harass or kill native wildlife. Under Council's Dog Management Policy, dogs may be exercised off a lead in the NHB Reserve provided they are, at all times, in close proximity, within sight and immediately responsive to an owner's commands. More descriptive information about effective control provisions should be included on signs at main entrances NH1 and NH8 to inform users of their responsibilities when walking dogs within the Reserve to help prevent harassment of native wildlife. A specific recommendation for this is included in Section 13 (Reserve Entrances).

Council promotes responsible cat ownership, and will continue to encourage local residents to meet their obligations under the *Cat Management Act 2009* through having their cats microchipped, desexed and under effective control (eg indoors at night). The Invasive Species Branch of DPIPWE is currently working towards a regional approach to cat management involving local government, and Kingborough Council has demonstrated leadership in this area by establishing the Kingborough Cat Management Project and appointing a part time cat management project officer to raise awareness of cat management responsibilities within the municipality. Liaison with both DPIPWE and Kingborough Council should continue to support the development of a regional approach to cat management. As well, Council proposes to develop a responsible cat management brochure,<sup>5</sup> and this should be distributed to local residents bordering the NHB Reserve and GBC Reserve to raise community awareness of cat management responsibilities (further discussed in Section 18).

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<sup>5</sup> As recommended in the *Bellerive-Howrah Coastal Reserve Activity Plan 2015-2019* (Tasflora 2015).



***Recommendation 16: Continue to liaise with DPIPWE and Kingborough Council to support the development of a regional approach to cat management.***

***Recommendation 17: Develop and distribute a responsible cat management brochure and distribute to residents bordering both Reserves.***

## 12 VEGETATION AND FAUNA MONITORING

A survey of the native flora within the NHB Reserve was undertaken in 1990 (deGryse 1990). A full flora species list has not since been compiled for the NHB Reserve, although an overview of native vegetation communities and recorded threatened species locations is provided in the Reserve's Bushfire Management Plan (AVK Environmental Management 2011a). It would therefore be desirable to:

- undertake an in-depth botanical survey of the current species composition of the NHB Reserve;
- update mapped locations of threatened species on DPIPWE's Natural Values Atlas; and
- use vegetation transects in conjunction with Council's planned annual aerial photography program to undertake vegetation composition and condition assessments on an annual basis.

***Recommendation 18: Undertake an updated flora survey and annual vegetation composition and condition assessments of the NHB Reserve to further inform on ground management activities.***

Fire activity in the NHB Reserve (both planned and unplanned) has the potential to significantly impact the Reserve's vegetation composition. Council proposes to install permanent vegetation monitoring plots within the NHB Reserve to monitor annual regrowth following prescribed burning proposed for 2015.<sup>6</sup> Once established, each plot should be assessed annually for regeneration growth and the results analysed to inform ongoing adaptive fire and vegetation management activities.

***Recommendation 19: Establish vegetation monitoring plots prior to undertaking prescribed burns and monitor each plot annually.***

It is recommended that additional photo points be established at several other locations within the Reserve to facilitate monitoring of vegetation condition and annual regeneration growth. As well, several photo points should be established along Faggs Gully Creek and around Limekiln Point to monitor natural regeneration following removal of large tracts of weed in these areas.

***Recommendation 20: Establish photo points at several locations within both Reserves to facilitate monitoring of annual regeneration growth.***

<sup>6</sup> The permanent vegetation monitoring lots will be located within VMU2, as defined in the Reserve's Bushfire Management Plan (AVK Environmental Management 2011a).

Both Reserves contains habitat for a range of wildlife species, and it is expected that species diversity could increase with appropriate vegetation management practices and effective control of cats and dogs by local residents and dog walkers. Fauna surveys (including mammal, bird,<sup>7</sup> reptile and invertebrate surveys) and habitat assessments to confirm the species present in both Reserves are recommended to be undertaken now and at the end of the plan (ie 2015 and 2019) as a basis for monitoring species diversity over time. In particular, aquatic surveys of fish and invertebrate species in Faggs Gully Creek could be used as a baseline for measuring any changes resulting from improved river care.

***Recommendation 21: Undertake fauna surveys, including aquatic surveys, in 2015 and 2019 to measure changes arising from Reserve management activities and to further inform on ground management activities.***

An analysis of all completed flora surveys, vegetation composition assessments and fauna surveys should be undertaken in 2019 to determine trends and implications for ongoing vegetation management in the Reserves. This should be undertaken in conjunction with a review of the *Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019* scheduled for 2019 (refer Section 20). The Natone Hill Landcare Group's historical flora and photographic resources should be utilised when analysing native flora/vegetation community trends.

***Recommendation 22: Undertake an analysis of all photo points, completed flora surveys, vegetation composition assessments and fauna surveys in 2019 to determine trends and inform future management activities.***

### 13 RESERVE ENTRANCES AND PARKING

There are eight entrances (NH1-NH8) to the NHB Reserve and eight main entrances (GB1-GB8) to the GBC Reserve managed by Council, as illustrated in Figure 1. Key management issues identified for these entrances are summarised in Table 2.

***Recommendation 23: Improve Reserve entrances by installing additional signage, improving parking and undertaking landscaping activities.***

Community feedback at the 'walk and talk' session indicated a desire to upgrade NH1 off Tianna Road and promote this as the main entrance for visitors to the NHB Reserve. This will necessitate formalisation of a car parking area at this entrance, and landscaping and new signage is also proposed. Enhancement of existing car parking arrangements at NH8 is also proposed as this area is prone to congestion and cars blocking access for residents in Nubeena Street.

***Recommendation 24: Formalise car parking areas at Reserve entrances NH1 and NH8.***

<sup>7</sup> Bird surveys should be undertaken in conjunction with BirdLife Tasmania using standard BirdLife Australia monitoring techniques. An assessment of potential little penguin nesting sites along the Geilston Bay foreshore should also be undertaken and protection measures adopted if required in collaboration with Birdlife Tasmania and the Derwent Estuary Penguin Project.

**Table 2:** Recommended management activities to be undertaken at Reserve entrances.

Issue	Description	Recommendation
Signage	There is no clear sign identifying the Reserves at some entrances	Develop identifying names (other than street names) for Reserve entrances NH1 and NH8 Large Reserve name sign (with identifying entrance name – see above) to be installed at NH1 and GB3 Small Reserve name signs to be installed at NH2, NH4, GB1-2 & GB4-8
	Signage at NH3 states “no mountain bikes”, despite their use being encouraged (eg on the Greater Hobart Trails website)	Remove “no mountain bikes” sign at NH3 or edit sign to say “no trail bikes”
	There is limited interpretation signage along the Geilston Bay foreshore trail	Enhance existing interpretation sign at GB3 and install new interpretation signs at GB6 and GB7, as detailed in Section 18
	The unformed route from the end of Nelumie Street via Tianna Road to Natone Hill is steep and hazardous	Erect signage at both ends of Nelumie Street directing users from Nelumie Street along Moirunna Road, then along Rowitta Road foot path to Tianna Road and NH1 to consolidate this preferred route until the demand for an upgraded Nelumie St access warrants investment
Parking	No formal parking area at NH1	Formalise car parking at NH1 in conjunction with landscaping, as detailed in the concept landscape plan provided at Appendix 11
	No formal parking area at NH8	Formalise car parking at NH8 in conjunction with landscaping, as detailed in the concept landscape plan provided at Appendix 12
	Parked cars block fire trail entrances and the access way to private residences off Nubeena Street	
	Cars parked on Nubeena Street prevent access to/from private residences	Install ‘No parking’ signs along the Reserve end of Nubeena Street
Visual amenity	Some entrances would benefit from landscaping activities and enhanced maintenance activities	Undertake landscaping at NH1 as per concept landscape plan detailed in Appendix 11 Undertake landscaping at NH8 as per concept landscape plan detailed in Appendix 12 Enhance the Reserves’ existing maintenance program to ensure regular weeding and slashing is undertaken at all Reserve entrances (particularly in spring and summer)



Issue	Description	Recommendation
Dogs	No clear signage about effective control provisions within the NHB Reserve	Include more descriptive information about effective control provisions signs at main entrances NH1 and NH8 to inform users of their responsibilities when walking dogs within the Reserve

## 14 TRACKS AND TRAILS

A map of the Reserves' track networks is provided at Figure 14. Much work has been done in recent years to improve signage and connectivity of trails within and between the NHB Reserve and the GBC Reserve. Of particular note is the construction of an intertidal walkway enabling foreshore access between Geilston Bay and Limekiln Point, forming an important linkage along the Clarence Coastal Trail.

Key management identified with the Reserves' existing tracks and trails are summarised in Table 3. No track closures or construction of new tracks is proposed in either Reserve.

***Recommendation 25: Improve the Reserves' track networks by installing directional signs and improving the condition of existing tracks.***

## 15 INFRASTRUCTURE

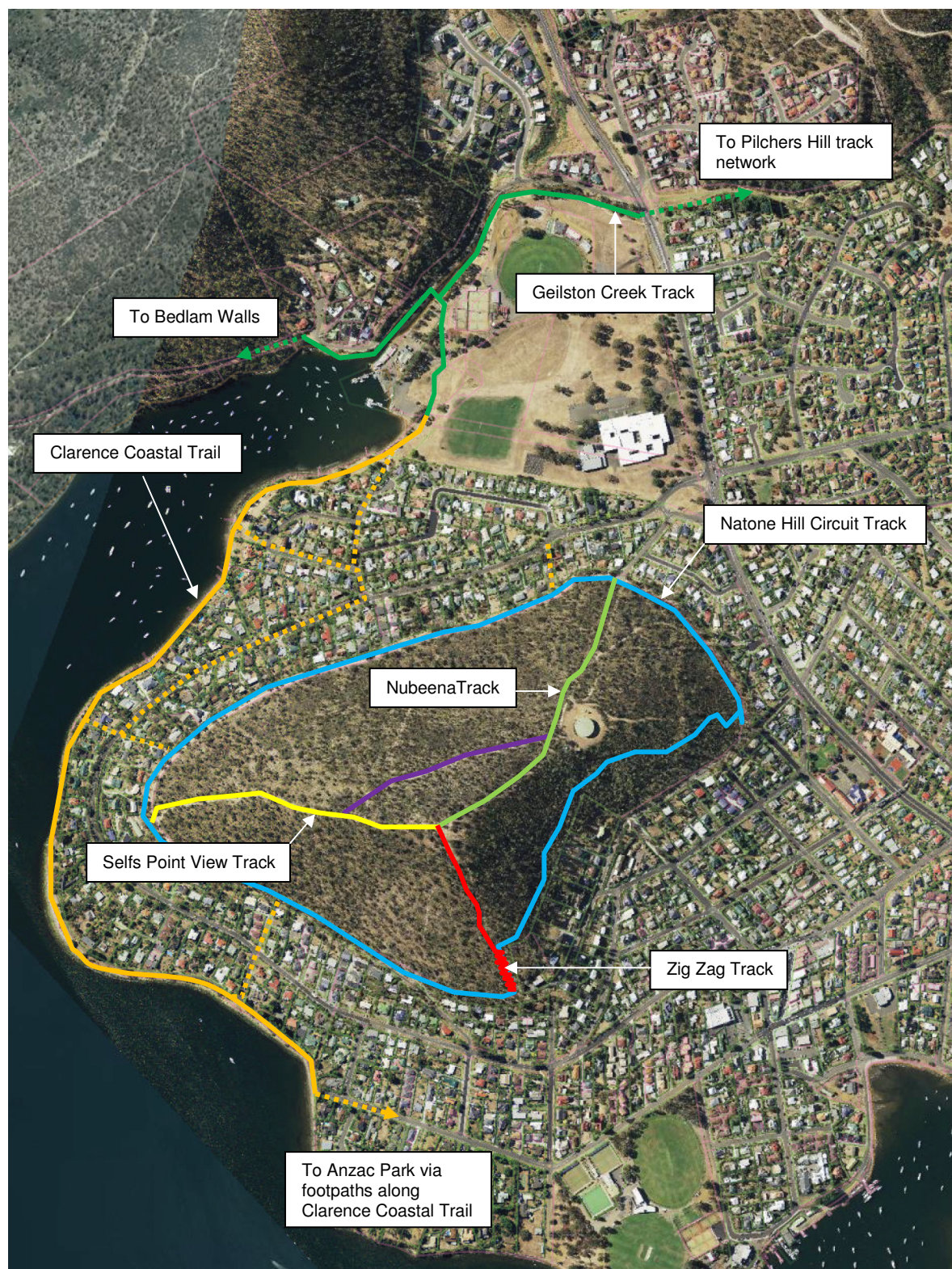
There is currently limited community infrastructure located within the NHB Reserve, and the natural environment and visual amenity of both Reserves would be enhanced through minimising significant additional infrastructure installation.

Both Reserves are a popular destination for dog exercise, particularly the NHB Reserve for off lead dog exercise. While dog waste bins and bag dispensers are present at many locations, there are sometimes long distances between them. With this in mind, it is recommended that additional dog waste bins and bag dispensers be installed in visible locations at NH1 and NH6 in the NHB Reserve and at GB6 in the GBC Reserve. The installation of additional dog waste bins will also fulfil a dual role of providing additional rubbish bins within the Reserves.

***Recommendation 26: Install new dog waste bag dispensers and bins at Reserve entrances NH1, NH6 and GB6.***

Due to the high usage and popularity of the Reserves, it is recommended that new outdoor seats be installed at strategic positions to enable rest opportunities and encourage contemplation of the scenic views. Depending on the level of funding available, the following initial locations are suggested (an assessment of additional seat locations should be undertaken if significant funding becomes available):

- near NH4 to replace the existing narrow wooden seat;
- along the long stretch of track between NH6 and NH7 to allow a rest opportunity;
- at a point along Selfs Point track to enable a rest opportunity as well as



**Figure 14:** Major track framework of the NHB and GBC Reserves (base map sourced from the LIST). Note some smaller tracks have not been included for clarity.



**Table 3:** Track management issues identified for the NHB Reserve and GBC Reserve.

Issue	Description	Recommendation
Signage	There is no map for visitors unfamiliar with the NHB Reserve's track network	Install a map showing main tracks below the existing directional signs at main entrances NH1, NH4 & NH8  Develop identifying names for unnamed main tracks in the NHB Reserve (in conjunction with Natone Hill Landcare Group)
	Directional signs needed at some track junctions on Natone Hill	Install directional signs in the following locations: <ul style="list-style-type: none"> <li>• at two major track junctions on the main fire trail between NH8 and the summit;</li> <li>• at the first track junction between NH3 and the reservoir</li> <li>• on existing sign at the summit (currently only two tracks labelled)</li> </ul>
	Location of "Natone Hill Scenic Lookout 1.2km" sign near NH7 is confusing	Remove "Natone Hill Scenic Lookout 1.2km" sign near NH7
Access for bushfire management	Access for TFS heavy tankers is impeded at NH8	Install boom gate, remove rocks and prune vegetation as recommended in the NHB Reserve's Bushfire Management Plan
	Trail between Nubeena Street and Tianna Road requires widening in some sections to allow access by heavy tankers	Widen narrow sections as recommended in the NHB Reserve's Bushfire Management Plan
	Trail between the Reservoir and NH6 is in poor condition and does not meet the required usage class 3 specifications	Widen track, improve track surface and install drainage as recommended in the NHB Reserve's Bushfire Management Plan
	Cars park in front of fire trail gates	Install no standing signs on boom gates at NH1 and NH8
	Tree branches encroaching fire trails in places	Remove dead vegetation and undertake vegetation pruning and clearing as recommended in the NHB Reserve's Bushfire Management Plan
Track condition / access	Log steps leading up Natone Hill from NH2 are in poor condition	Assess condition of log steps and plan for their upgrade/replacement
	Nubeena Track between NH8 and the reservoir requires substantial erosion control work	Improve track surface and install appropriate drainage

Issue	Description	Recommendation
	The gravel track along Faggs Gully Creek between the East Derwent Highway and Dumbarton Drive is overgrown	Incorporate a more regular spraying regime into the Reserve's existing maintenance program
	The pedestrian path along Geilston Bay Road between the bridge and Sarean Court is overgrown	Clear path and incorporate a more regular maintenance regime into the Reserve's existing maintenance program
	Cars park over the section of pedestrian pathway outside 100-108 Geilston Bay Road, limiting pedestrian access and creating a safety issue	Install no parking signs outside 100-108 Sarean Court
	Difficult for maintenance vehicles to gain access over kerb at GB4	Install a cross over at this entrance
Track names	Geilston Creek Track actually runs alongside Faggs Gully Creek	Change the name of this track to Faggs Gully Creek track

contemplation of the views;

- two or three seats between the car park and the water at GB3;
- at Limekiln Point;
- under the weeping willow tree between GB6 and GB7; and
- a cluster of two or three seats at GB7 to allow groups to appreciate the views to the Tasman Bridge.

Vandal-proof bench seats, such as those already used in the Reserves, should be coloured to blend in with the environment (ie seat painted green) and set into a concrete foundation with a hardened under surface (eg compacted gravel or concrete) extending in front of the seat. Alternatively, seats could be constructed from natural stone to deter vandalism. Shade structures should be included above seats at some locations if feasible.

***Recommendation 27: Install new outdoor seats at several locations in both Reserves.***

The small cove and gravelly beach adjacent to the car park at GB3 is a popular kayak launching area, particularly for novice kayakers. The opportunity exists to promote this area as a preferred water craft launching site and promote it as part of an eastern shore kayak trail. Proposed interpretation signage at Reserve entrance GB3 (refer Section 18) could include information to promote this area to novice kayakers, and there is the potential to investigate the future feasibility of a kayak wash down area adjacent to the beach. As well, community consultation has indicated that the amenity of this area for kayaks as well as from a visual perspective could be improved by depositing a layer of coarse sand on the existing beach surface. If this does occur, a period of water testing and appropriate



warning signage would be required to discourage swimming from the beach until water quality has been fully assessed.

***Recommendation 28: Promote a preferred kayak launch site off the small beach adjacent to the GB3 car park and investigate feasibility of installing a wash down area.***

***Recommendation 29: Assess the technical feasibility of depositing coarse sand on the small beach adjacent to the GB3 car park to improve its amenity.***

***Recommendation 30: In consultation with the Derwent Estuary Program, review existing water quality data and establish a minimum six month water quality monitoring program for the small beach adjacent to the GB3 car park.***

Any additional installation of new infrastructure within the Reserves will be subject to limited funding. With this in mind, no additional infrastructure beyond that discussed above is proposed within the next five years unless significant funding becomes available. A further review of the infrastructure requirements of the Reserves should be undertaken in 2019.

***Recommendation 31: Undertake a review of the infrastructure requirements of the Reserves in 2019.***

## 16 BUSHFIRE MANAGEMENT

A five year Bushfire Management Plan encompassing the NHB Reserve was developed for Council in 2011 (AVK Environmental Management 2011a). Key recommendations in the plan include:

- maintaining and repairing fire trails to the required standards;
- maintaining fuel modified buffer zones near residences backing on to the Reserve;
- undertaking planned burns in 2015;
- carrying out vegetation monitoring; and
- ensuring that the WWII excavations at the summit of Natone Hill are not damaged when undertaking bushfire management activities.

The Bushfire Management Plan is scheduled for review in 2016.

## 17 COASTAL EROSION AND INUNDATION

Prior to undertaking any further on ground work along coastal sections of the GBC Reserve, the *Tasmanian Coastal Works Manual: A best practice management guide for changing coastlines* (Page and Thorp 2010) should be consulted to ensure best practice coastal management techniques are implemented.

***Recommendation 32: The Tasmanian Coastal Works Manual should be consulted prior to undertaking any on ground activities in coastal areas.***

Community consultation indicated concern about an area of erosion occurring on the bank immediately above the small beach adjacent to the car park at GB3 that

may in time impact on the pathway above. An assessment of the recession occurring in this area should be undertaken to determine the most appropriate adaptation response to prevent further erosion from occurring.

***Recommendation 33: Assess and implement an appropriate adaptation response to prevent further erosion and recession from occurring on the bank immediately above the small beach adjacent to the car park at GB3.***

## 18 COMMUNITY PARTICIPATION AND AWARENESS

There is a strong history of community commitment and enthusiasm for caring for both Reserves through the Natone Hill Landcare Group, the Geilston Bay Landcare Group (North and South Banks), the Geilston Bay Boat Club Landcare Group, the newly formed Limekiln Point Landcare Group and local schools. Ongoing engagement with these groups should continue where appropriate to encourage ongoing participation in Reserve management activities. In particular, engagement with North Lindisfarne Primary School following its recent relocation to the former Geilston Bay High School site should occur to encourage a continuation of the former Geilston Bay Landcare/Coastcare Group's commitment to caring for the GBC Reserve.

***Recommendation 34: Engage with North Lindisfarne Primary School to encourage a continuation of the former Geilston Bay Landcare/Coastcare Group's commitment to caring for the GBC Reserve.***

Outside these groups, community participation and awareness has an important role to play in protecting the natural, cultural and recreational values of the Reserves. Education of locals, visitors and some residents living adjacent to the Reserves is desirable to foster behavioural change and encourage community ownership and appreciation of the Reserve's values. Key management issues identified as requiring community awareness and enforcement are summarised in Table 4. A letterbox drop to adjacent landowners with information on each of these issues is recommended as a first step to achieving community awareness and understanding of these issues.

***Recommendation 35: Undertake community education through letterbox drops to facilitate behavioural change and encourage ownership and appreciation of the values of the Reserve.***

There appears to be a gap in knowledge and understanding by local residents of Council's approach to bushfire management within the Reserve and the rationale for this approach (Chris Johns, Clarence City Council, pers. comm. 2015). It is therefore recommended that a Natone Hill bushfire management awareness brochure be developed and distributed to local residents bordering the NHB Reserve to raise community awareness of Council's approach to bushfire management in the Reserve, including pre and post fire vegetation management regimes and their rationale.

**Table 4:** Management issues requiring community education and awareness within the Reserves.

Issue	Description
Garden waste dumping	Dumping of garden waste in bush or on the foreshore encourages the spread of weeds and is visually unattractive for all users.
Removal of native vegetation	Removal of native vegetation (eg to improve views, reduce bushfire risk, collect fire wood) is illegal. It encourages the establishment of weeds and reduces species diversity and animal habitat. Seed collection should only be undertaken with Council approval.
Encroachment	Some properties adjacent to the Reserves have 'adopted' the area next to their properties (eg by modifying vegetation, storing property)
Environmental weeds	Weeds in adjacent gardens pose a threat to existing native vegetation.
Wildlife	Trapping and relocation of native wildlife is not permitted
Bushfire management	Local residents should take action to reduce the bushfire risk of the vegetation on their properties. There is also a need to educate residents about Council's approach to bushfire management within the NHB Reserve.
Cats and dogs	Cats and dogs can kill native wildlife. Dogs restrictions apply in both Reserves. Cats should be microchipped, desexed and kept indoors at night.

***Recommendation 36: Develop and distribute a Natone Hill bushfire management awareness brochure and distribute to residents bordering the NHB Reserve.***

Interpretation signs provide an important opportunity to display information on the Reserves' natural values and history. Community consultation indicated that interpretation signage is not desired in the NHB Reserve due to vandalism. However, there is a level of desire for new interpretation panels to be installed along the Geilston Bay foreshore track to provide information about Landcare group activities and the history of the area. Interpretation signs are therefore proposed at GB6 (Limekiln Point Landcare Group information sign) and at GB7 (information about history of limestone use, aboriginal heritage). These signs should be developed in consultation with the Limekiln Point Landcare Group. Additional information (eg pictures of the foreshore and creek before and after weed control and revegetation activities, information about the preferred kayak launching point) could also be included on the existing interpretation panel at GB3, which currently only contains a small amount of information about the Geilston Bay Landcare Group's activities.

***Recommendation 37: Install new interpretation signs at GB6 and GB7.***

Under the Tasmanian *Work Health and Safety Act 2012*, volunteers are considered 'workers' when working for Council on Council owned land. Council therefore has



a duty of care to provide a safe workplace for volunteer workers.

- **All volunteers have rights and responsibilities.** Volunteers have the right to a safe work environment, to be treated fairly and with respect, to public liability insurance, to safe equipment, tools and personal protective equipment (PPE), to adequate instruction to perform tasks, to contribute their suggestions and to receive acknowledgement for their contributions. Volunteers also have the right to refuse work if they consider it unsafe.
- **Volunteers also have the responsibility** to care for the health and safety of others, to respect others, to follow policies, procedures and instructions, and to care for their own health and safety.

With this in mind, all volunteers need to refer to the relevant Council Safe Work Method Statements (SWMSs) before undertaking works in Council Reserves, including cut and paste work, brushcutting and spreading of mulch. These are available from Council's Natural Areas Volunteer Coordinator (Chris Johns, phone 6245 8773 or email [cjohns@ccc.tas.gov.au](mailto:cjohns@ccc.tas.gov.au)). All spot spraying should be undertaken by certified operators (eg Council staff, contractors).

## 19 IMPLEMENTATION PLAN

A map illustrating the location of on ground management activities recommended within the Reserve are provided at Figure 15. These are based on the key recommendations contained within this plan, which are summarised in detail at Appendices 13-14.

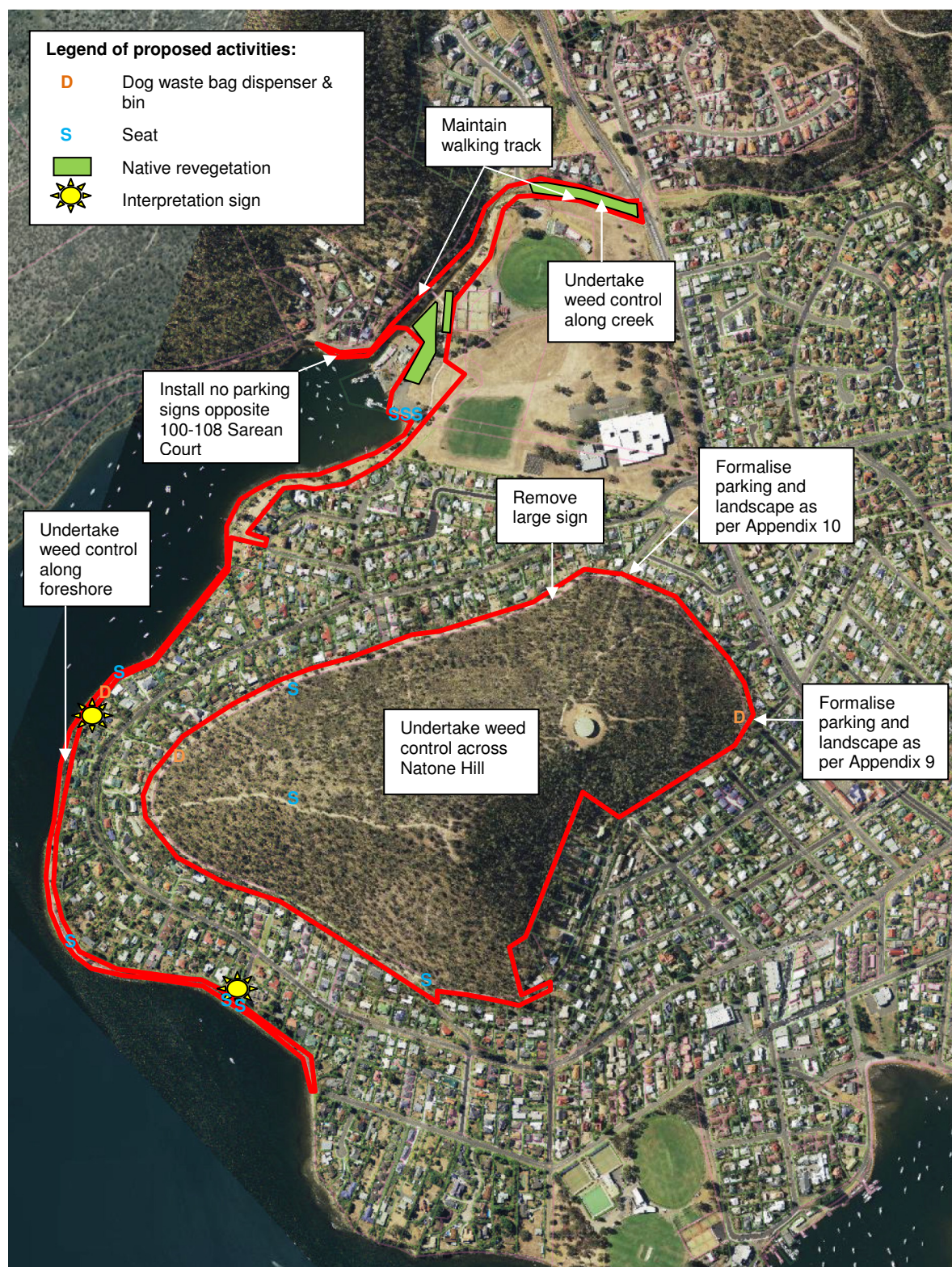
Based on these recommendations, an Implementation Plan with associated performance measures has been developed and is provided at Table 5. It identifies three stages of management activities to be undertaken within the Reserve:

- Priority 1 - immediate (6-12 months) management activities.
- Priority 2 – medium term (1-3 years) management priorities.
- Priority 3 – long term (5 years) management priorities.

The intent of the Implementation Plan is to provide a guide to outcomes that could be achieved within the Reserve by Clarence City Council, contractors and/or volunteer groups within the period 2015-2019 if sufficient resources are available. The Implementation Plan provides an indication of the level of funding required to achieve these outcomes.<sup>8</sup> While it would be desirable to undertake all the recommended activities, it is acknowledged that this may not be possible due to resource constraints, and implementation will ultimately be guided by what is achievable with resources as they become available. Federal, State and Local Government grants programs may provide an opportunity to obtain resources to implement many of the recommendations contained within this report.

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<sup>8</sup> Funding details are based on an internal Council document which provides a detailed five year cost estimate for all planned activities. This has been developed primarily for Council budgetary processes and potential grant applications. Specific details may be sought by contacting Council's NRM Planner.



**Figure 15:** Overview of key proposed on ground management activities in the NHB Reserve and GBC Reserve (base map sourced from the LIST).



**Table 5:** Implementation Plan for undertaking recommended management activities within the Reserves.

Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
<b>Weed control</b>						
1	R1	Undertake a sweep of Natone Hill to remove isolated populations of declared and environmental weeds	Spring – summer for spot spraying; all year round for other techniques	Sweep completed and weed infestations eradicated	Council, contractor and/or volunteer groups	\$3,000
1	R2	Liaise with TasWater to control gorse growing within the Reservoir boundary at the top of Natone Hill	N/A	Gorse within reservoir boundary eradicated	Council	N/A
1	R5	Remove or burn weed piles around Limekiln Point	N/A	Weed piles removed from Limekiln Point foreshore	Council	N/A
1,2&3	R6	Undertake annual sweep and follow-up control of all previously targeted weeds	Ongoing on an annual basis	All areas of primary weed control remain weed free	Council, contractor and/or volunteer groups	\$3,000 per annum
3	R8	Undertake follow-up GPS mapping of all weeds	Spring - summer	Weed maps and Council database are updated within five years	Council, contractor and/or volunteer groups	\$600
<b>Regeneration and revegetation</b>						
1,2&3	R9, R10,R11,	Undertake revegetation activities as detailed in Section 9	Autumn – winter	Revegetation sites established and maintained for 5 years	Council, contractor or volunteers	\$2,000 per annum

<sup>9</sup> Funding estimate is based on total costs required to undertake all recommended activities over the period 2015-16 to 2019-20. N/A = Council in kind support is anticipated for this activity.



Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
<b>Riparian zone management and water sensitive urban design</b>						
2	R12	Develop and implement a WSUD Management Plan that investigates and assesses options for improving the current condition of Faggs Gully Creek, including water quality, water flows, stormwater runoff and riparian vegetation management	N/A	WSUD Management Plan developed and implemented	Council	\$5,000
1	R13	Establish a water quality monitoring program for Faggs Gully Creek	N/A	Water monitoring program established	Council, volunteers or UTAS	N/A
<b>Fauna habitat management</b>						
2	R17	Develop and distribute a responsible cat management brochure and distribute to residents bordering both Reserves	N/A	Cat brochure developed and distributed to local residences bordering both Reserves	Council	\$3,000
<b>Vegetation and fauna monitoring</b>						
1,2&3	R18	Undertake an updated flora survey and annual vegetation composition and condition assessments of the NHB Reserve to further inform on ground management activities	Spring	Flora survey completed	Contractor	\$2,000
1,2&3	R19	Establish vegetation monitoring plots prior to undertaking prescribed burns and monitor each plot annually	N/A	Plots established and monitored annually	Council	N/A
1,2&3	R20	Establish photo points at several locations within both Reserves to facilitate monitoring of annual regeneration growth	N/A	Photo points established and annual photos taken	Council, contractor or volunteers	\$600

Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
1,3	R21	Undertake surveys to update the fauna record of the Reserve	N/A	Terrestrial and aquatic fauna surveys and bird surveys completed 2015 & 2019	Contractor and/or BirdLife Tasmania and/or UTAS	\$10,000
<b>Reserve entrances</b>						
1	R23	Develop identifying names (other than street names) for Reserve entrances NH1 & NH8	N/A	Identifying names developed for NH1 & NH8	Council	N/A
1	R23	Install Reserve Entrance name signs as per Table 2	N/A	Reserve Entrance name signs installed as per Table 2	Council	\$9,000
1	R23	Erect signage at both ends of Nelumie Street directing users from Nelumie Street along Moirunna Road, then along Rowitta Road foot path to Tianna Road and NH1 to consolidate this preferred route	N/A	Preferred route signposted	Council	\$500
2,3	R23, R24	Undertake native landscaping and formalise parking at Reserve entrances NH1 & NH8 as per Appendices 11 & 12	Autumn - winter	Landscaping and new parking areas completed at Reserve entrances NH1 & NH8	Council, contractor or volunteers	Up to \$20,000 per entrance
2	R37	Install interpretation signs at entrances GB6 and GB7	N/A	Two new interpretation signs installed	Council or contractor	\$2,000
<b>Tracks and trails</b>						
1	R25	Install track direction signs as detailed in Table 3	N/A	Track marker signs installed	Council or contractor	\$1,000
1,2&3	R25	Maintain fire trails in the NHB Reserve to required standard for heavy vehicles	N/A	Tracks maintained to standard identified in the Bushfire Management Plan	Council	N/A

Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
3	R25	Assess condition of log steps leading up Natone Hill from NH2 and plan for their upgrade/replacement	N/A	Log steps leading up Natone Hill from NH2 upgraded or replaced	Council or contractor	\$5,000
1,2&3	R25	Maintain walking tracks along Faggs Gully Creek and Geilston Creek Road	N/A	No complaints No safety incidents reported	Council or contractor	\$1,000 per annum
1	R25	Develop identifying names for unnamed major tracks in the NHB Reserve (in conjunction with Natone Hill Landcare Group)	N/A	All major trails named and signposted	Council	N/A
<b>Infrastructure</b>						
3	R26	Install new dog waste bag dispensers and bins at NH1, NH6 and GB6	N/A	Dog waste bag dispensers and bins installed	Council or contractor	\$1,500
2	R26	Install up to eight bench seats at various location in the Reserves	N/A	Eight bench seats installed	Council or contractor	\$16,000
2	R28	Promote a preferred kayak launch site off the small beach adjacent to the GB3 car park and investigate feasibility of installing a wash down area	N/A	Feasibility study complete and funding allocated if appropriate	Council	N/A
3	R29	Assess the technical feasibility of depositing coarse sand on the small beach adjacent to the GB3 car park to improve its amenity	N/A	Feasibility assessed and sand deposited if appropriate	Council or contractor	\$7,000 (including cost of sand)
2	R30	In consultation with the Derwent Estuary Program, review existing water quality data and establish a minimum six month water quality monitoring program for the small beach adjacent to the GB3 car park	N/A	Water quality monitoring program established	Council, DEP	N/A



Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
3	R31	Review the infrastructure requirements of the Reserve in 2019	N/A	Infrastructure review completed in 2019	Council	N/A
<b>Coastal erosion and inundation</b>						
2	R33	Assess and implement an appropriate adaptation response to prevent further erosion from occurring on the bank immediately above the small beach adjacent to the car park at GB3	N/A	No further erosion observed on the bank immediately above the small beach adjacent to the car park at GB3	Council	N/A
<b>Community participation and awareness</b>						
2	R34	Engage with North Lindisfarne Primary School to encourage a continuation of the former Geilston Bay Landcare/Coastcare Group's commitment to caring for the GBC Reserve	N/A	North Lindisfarne Primary School Landcare/Coastcare Group established	Council	N/A
1,2,3	R17, R35	Undertake a letterbox drop to residents neighbouring the Reserves on key issues requiring education community education including: garden waste dumping, removal of native vegetation, encroachment, environmental weeds, wildlife, bushfire management and responsible cat and dog management	N/A	Letterbox drop on each issue completed	Council	N/A
1	R36	Develop and distribute a Natone Hill bushfire management awareness brochure and distribute to residents bordering the NHB Reserve.	N/A	Brochure developed and distributed to local residents	Council and/or contractor	\$3,000
<b>Implementation plan</b>						
1,2&3	R38	Undertake annual review against all performance measures	N/A	Review of all performance measures completed annually	Council	N/A

Priority	Rec. No.	Action	Seasonal timing	Performance measure	Responsibility	Estimated funding <sup>9</sup>
3	R39	Undertake a review of the <i>Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019</i> in 2019	N/A	<i>Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019</i> reviewed within five years	Council and/or contractor	\$10,000

A review of progress against all performance measures should be undertaken annually during the period 2015-2019 to help prioritise available resources.

**Recommendation 38: Review progress against all performance measures identified in the Implementation Plan annually.**

## 20 FUTURE PRIORITIES

A review of the *Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019* should be undertaken in 2019. The purpose of this review should be to:

- assess progress towards achieving the objectives of the *Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019*;
- assess progress against all performance measures;
- analyse photo point data and all completed fauna assessments to determine trends and implications for ongoing vegetation management; and
- determine ongoing management priorities for the Reserves for the next five years.

**Recommendation 39: Review the Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019 in 2019 to assess progress and determine ongoing management priorities for the Reserves.**

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## APPENDIX 1: CONSERVATION SIGNIFICANCE OF THE NATONE HILL BUSHLAND RESERVE'S NATIVE FLORA AND FAUNA

The Natone Hill Bushland Reserve contains four native vegetation communities (AVK Environmental Management 2011a), two of which is listed as threatened native vegetation communities under the Tasmanian *Nature Conservation Act 2002*. These are summarised in Table A1.1.

**Table A1.1:** Conservation status of native vegetation communities occurring within the NHB Reserve.

Community name	TASVEG code	Description	Conservation status
<i>Eucalyptus risdonii</i> forest and woodland	DRI	Open dry sclerophyll community dominated by a very sparse canopy of <i>E. risdonii</i> trees. Localised community on the south western side of Natone Hill.	Rare
<i>Eucalyptus globulus</i> dry forest and woodland	DGL	Dry sclerophyll community dominated by <i>E. globulus</i> with a similar understorey of secondary trees and tall shrubs as the DAM community. The ground layer is dominated by grasses. Located at the eastern end of the Reserve.	Vulnerable
<i>Eucalyptus amygdalina</i> forest on mudstone	DAM	Dry sclerophyll community dominated by <i>E. amygdalina</i> , with an understorey composed of secondary trees and tall shrubs such as <i>Acacia dealbata</i> , <i>Acacia mearnsii</i> , <i>Allocasuarina littoralis</i> and <i>Exocarpos cupressiformis</i> . The ground layer is characterised by sedges and grasses (eg <i>Lomandra longifolia</i> , <i>Diplazene morraea</i> ) interspersed with areas of bare soil. This community occurs across the majority of Natone Hill.	Not threatened
<i>Eucalyptus viminalis</i> grassy forest and woodland	DVG	Woodland dominated by <i>E. viminalis</i> . A small area of this community occurs near the summit of Natone Hill.	Not threatened

Four flora species recorded in the Reserve are listed as threatened species under the Tasmanian *Threatened Species Protection Act 1995* (the TSP Act) and/or Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act). These are summarised in Table A1.2.

The Reserve also contains potential habitat for several threatened fauna species listed under the TSP and/or EPBC Acts, including two endangered species. These are summarised in Table A1.3.

**Table A1.2:** Flora species of conservation significance recorded within the Reserve.

Flora species	Common name	Conservation status <sup>10</sup>	Comments
<i>Arthropodium strictum</i>	chocolate lily	Rare	Recorded on grassy west facing slopes.
<i>Eucalyptus risdonii</i>	Risdon peppermint	Rare	Localised stand on the south western side of Natone Hill.
<i>Lepidium pseudotasmanicum</i>	shade peppergrass	Rare	Recorded between Reserve entrances NH7 and NH8.
<i>Rytidosperma indutum</i>	tall wallaby grass	Rare	Recorded at several locations throughout the Reserve.

**Table A1.3:** Fauna species of conservation significance for which suitable habitat exists within the Reserve.

Fauna species	Common name	Conservation status <sup>9</sup>	Habitat / Comments
<i>Lathamus discolor</i>	swift parrot	Endangered ENDANGERED	Nesting habitat is hollows in mature eucalypts with stem diameter >70cm at breast height. Forages in mature <i>Eucalyptus globulus</i> and <i>E. ovata</i> trees. Potential nesting and foraging habitat exists within the Reserve.
<i>Tyto novaehollandiae</i> subsp. <i>castanops</i>	masked owl (Tasmanian)	Endangered	Inhabits dry eucalypt forest and woodland with old growth eucalypts containing hollows. Potential nesting habitat exists within the Reserve.
<i>Perameles gunnii</i>	eastern barred bandicoot	VULNERABLE	Inhabits grassy woodlands, native grasslands and mosaics of pasture and shrubby ground cover. Potential nesting and foraging habitat exists within the Reserve.

<sup>10</sup> Lower case = TSP Act; UPPER CASE = EPBC Act



## APPENDIX 2: FLORA SPECIES LIST FOR THE NATONE HILL BUSHLAND RESERVE<sup>11</sup>

List originally compiled in January, 1990 by Louise Gilfedder (then of the Department of Geography and Environmental Studies) and from Kirkpatrick (*pers. comm.*). Species marked \* are from Friends group members input. Species marked \*\* identified by Diana and Fred Duncan for the Natone Hill Landcare Group

Species nomenclature originally followed Buchanan, A.M., McGeary-Brown, A. and Orchard, A.E. (1989) **A Census of the Vascular Plants of Tasmania** Tasmanian Herbarium Occasional Publication No.2. and has been revised by Karen Johnson (Parks and Wildlife Service) using:

Buchanan, A.M. (ed.) 1995. **A Census of the Vascular Plants of Tasmania** Tasmanian Herbarium: Hobart.

Where a species does not occur in Buchanan (1995) other similar references held by the Tasmanian Herbarium have been used for nomenclature including:

Chittenden, F.J. 1956. **The Royal Horticultural Society Dictionary of Gardening (2nd edition)** Oxford University Press.

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Usher, G. 1974. **A Dictionary of Plants Used by Man** Constable and Company, London.

Abbreviations used include:

e=endemic species

i=introduced species

r=rare (as per Schedule 5 - *Tasmanian Threatened Species Protection Act 1995*)

<sup>11</sup> Source: deGryse, J. (1998). *Natone Hill Bush Park Management Plan*. Unpublished report for Clarence City Council.

Note that the status of orchid at Natone Hill is uncertain (Wapstra *pers. comm.*) and has therefore been left blank in the following list. See Section 1.2.1 for the likely status of orchid species at Natone Hill.

## GYMNOSPERMAE

### Pinaceae

- |                  |              |
|------------------|--------------|
| *i Pinus radiata | radiata pine |
|------------------|--------------|

## PTERIDOPHYTA

### Adiantaceae

- |                              |           |
|------------------------------|-----------|
| Cheilanthes austrotenuifolia | rock fern |
|------------------------------|-----------|

### Dennstaedtiaceae

- |                      |         |
|----------------------|---------|
| Pteridium esculentum | bracken |
|----------------------|---------|

## MONOCOTYLEDONEAE

### Commelinaceae

- |                            |               |
|----------------------------|---------------|
| i Tradescantia fluminensis | wandering jew |
|----------------------------|---------------|

### Cyperaceae

- |                       |                  |
|-----------------------|------------------|
| Carex breviculmis     |                  |
| Gahnia radula         | thatch saw-sedge |
| Isolepis sp.          | club-rush        |
| Lepidosperma concavum |                  |
| Lepidosperma gunnii   | sword sedge      |
| Schoenus apogon       | common bog-rush  |

### Iridaceae

- |                       |           |
|-----------------------|-----------|
| Diplarrena moraea     | flag iris |
| i Freesia leichtlinii | freesia   |
| i Iris sp.            | iris      |
| Patersonia fragilis   |           |

### Juncaceae

- |                  |          |
|------------------|----------|
| Juncus australis | rush     |
| J. pallidus      | "        |
| Luzula sp.       | woodrush |

### Liliaceae

- |                                 |              |
|---------------------------------|--------------|
| Arthropodium milleflorum        | vanilla lily |
| Bulbine glauca                  | bulbine lily |
| Dianella revoluta var. revoluta | flax lily    |
| *i Narcissus spp.               |              |

### Orchidaceae

(see Section 1.2.1 for likely status of orchid species at Natone Hill)

### Poaceae

- |                         |                    |
|-------------------------|--------------------|
| r Agrostis aemula       | blown grass        |
| i A. capillaris         | browntop           |
| i Aira caryophyllea     | silvery hair grass |
| i Anthoxanthum odoratum | sweet vernal       |
| i Arrhenatherum elatius | oatgrass           |
| i Avena fatua           | wild oat           |
| i Briza maxima          | quaking grass      |
| i B. minor              | shivery grass      |

i	<i>Cortaderia selloana</i>	pampas grass
i	<i>Cynosurus echinatus</i>	dog's tail
i	<i>Dactylis glomerata</i>	cocksfoot
	<i>Danthonia caespitosa</i>	ringed wallaby grass
	<i>D. laevis</i>	wallaby grass
	<i>D. pilosa</i>	"
r	<i>D. procera</i>	tall wallaby grass
	<i>D. racemosa</i>	wallaby grass
	<i>D. semiannularis</i>	"
	<i>D. setacea</i>	"
	<i>Deyeuxia quadriseta</i>	bent grass
	<i>Dichelachne crinita</i>	longhair plume grass
	<i>D. rara</i>	shorthair plume grass
	<i>Ehrharta stipoides</i>	weeping grass
	<i>Elymus scaber</i>	common wheatgrass
i	<i>Holcus lanatus</i>	Yorkshire fog grass
i	<i>Hordeum murinum</i>	barley grass
	<i>Pentapogon quadrifidus</i>	five-awn spear grass
	<i>Poa labillardierei</i>	tussock grass
	<i>P. rodwayi</i>	"
	<i>P. sieberiana</i>	"
i	<i>Phalaris</i> sp.	canary grass
i	<i>Piptatherum miliaceum</i>	rice millet
	<i>Stipa flavesces</i>	speargrass
	<i>S. mollis</i>	"
	<i>S. pubinodis</i>	"
	<i>S. semibarbata</i>	"
	<i>S. stiposa</i>	"
	<i>Themeda triandra</i>	kangaroo grass
i	<i>Vulpia bromoides</i>	rat's tail fescue
Xanthorrhoeaceae		
	<i>Lomandra longifolia</i>	sagg
**	<i>Lomandra nana</i>	sagg
<b>DICOTYLEDONEAE</b>		
Apiaceae		
i	<i>Foeniculum vulgare</i>	fennel
Asteraceae		
	<i>Brachyscome aculeata</i>	daisy
i	<i>Calendula officinalis</i>	marigold
i	<i>Chrysanthemoides monilifera</i>	boneseed
	<i>Chrysocephalum apiculatum</i>	common everlasting
	<i>Chrysocephalum semipapposum</i>	clustered everlasting
	<i>Craspedia glauca</i>	billy buttons
	<i>Helichrysum scorpioides</i>	
i	<i>Hypochoeris glabra</i>	smooth cat's ear
i	<i>H. radicata</i>	flatweed, cat's ear
	<i>Gnaphalium collinum</i>	cudweed
i	<i>Leontodon taraxacoides</i>	hawkbit
	<i>Leptorhynchus squamatus</i>	scaly buttons
	<i>Olearia ramulosa</i>	twiggy daisy-bush
	<i>Ozothamnus obcordatum</i>	
	<i>Podolepis jaceoides</i>	showy podolepis



Senecio glomeratus	
S. hispidulus	
S. linearifolius	
S. quadridentatus	
r S. velleioides	fireweed
i Sonchus asper	prickly sow-thistle
i S. oleraceus	sow-thistle
i Taraxacum officinale	common dandelion
Boraginaceae	
Cynoglossum suaveolens	sweet hound's tongue
Brassicaceae	
i Brassica sp.	wild mustard
r Lepidium pseudotasmanicum	peppercress
i Lobularia maritima	sweet Alice
Campanulaceae	
Lobelia gibbosa	native lobelia
Wahlenbergia stricta	bluebell
W. tadgellii	"
Caprifoliaceae	
i Lonicera periclymenum	honeysuckle
Caryophyllaceae	
i Silene gallica	French catchfly
Casuarinaceae	
Allocasuarina littoralis	bullock
A. verticillata	she-oak
Chenopodiaceae	
i Chenopodium album	fat hen
Rhagodia candolleana	climbing saltbush
Clusiaceae	
Hypericum gramineum	small St. John's wort
Convolvulaceae	
Convolvulus erubescens	native bindweed
Crassulaceae	
Crassula sieberana	
i Echeveria sp.	
i Sedum sp.	stonecrop
Dilleniaceae	
Hibbertia riparia	guinea flower
Epacridaceae	
Acrotriche serrulata	ant's delight
Astroloma humifusum	native cranberry
* Epacris impressa	common heath
** Lissanthe strigosa	peach berry
Fabaceae	
Aotus ericoides	
Bossiaea prostrata	
i Cytisus proliferus	tree lucerne
Daviesia latifolia	
D. ulicifolia	native gorse
Dillwynia cinerascens	grey parrot pea
Dillwynia glaberrima	grey parrot pea
i Genista monspessulana	canary broom
Hovea linearis	common hovea
Pultenaea daphnoides	

P. juniperina	bush pea
P. pedunculata	"
i Trifolium repens	white clover
i Ulex europaeus	gorse
Geraniaceae	
i Geranium sp.	geranium
Geranium solanderi	native geranium
Pelargonium australe	austral stork's bill
Goodeniaceae	
Goodenia lanata	native primrose
Grossulariaceae	
i Ribes sp.	currant
Haloragaceae	
Gonocarpus tetragynus	raspwort
Lauraceae	
e Cassytha pedicellosa	dodder
Cassytha pubescens	dodder laurel
Linaceae	
Linum marginale	native flax
Mimosaceae	
*i Acacia baileyana	Cootamundra wattle
A. dealbata	silver wattle
A. genistifolia	
* A. gunnii	ploughshare wattle
i A. longifolia	sallow wattle
* A. mearnsii	black wattle
A. mucronata	narrow-leaved wattle
Myrtaceae	
e Eucalyptus amygdalina	black peppermint
E. globulus	blue gum
i E. leucoxylon 'Rosea'	
re E. risdonii	Risdon peppermint
E. viminalis subsp. viminalis	white gum
i Melaleuca sp.	paperbark
Oxalidaceae	
Oxalis corniculata	yellow wood sorrel
i Oxalis sp.	
Passifloraceae	
i Passiflora mollissima	banana passionfruit
Pittosporaceae	
Bursaria spinosa	prickly box
i Pittosporum undulatum	
Plantaginaceae	
i Plantago coronopus	plantain
i P. lanceolata	"
P. varia	native plantain
Polygalaceae	
Comesperma volubile	love creeper
Polygonaceae	
i Acetosella vulgaris	sheep's sorrel
i R. crispus	curled dock
Primulaceae	
i Anagallis arvensis	scarlet pimpernel

Proteaceae	
<i>Banksia marginata</i>	silver banksia
i <i>Grevillea</i> sp.	
Ranunculaceae	
<i>Ranunculus lappaceus</i>	common buttercup
Rhamnaceae	
<i>Pomaderris elliptica</i>	
Rosaceae	
<i>Acaena echinata</i>	
<i>A. novae-zelandiae</i>	buzzy
i <i>Cotoneaster glaucophyllus</i>	
i <i>Sanguisorba minor</i>	
i <i>Prunus</i> sp.	plum
i <i>Rosa rubiginosa</i>	sweet briar rose
i <i>Rubus fruticosus</i>	blackberry
Rubiaceae	
<i>Coprosma</i> sp.	shining coprosma
Rutaceae	
<i>Eriostemon verrucosus</i>	wax flower
Santalaceae	
<i>Exocarpos cupressiformis</i>	native cherry
Sapindaceae	
<i>Dodonaea viscosa</i> subsp. <i>spathulata</i>	native hop
Saxifragaceae	
i <i>Bergenia cordifolia</i>	elephant ears
Solanaceae	
* <i>Solanum laciniatum</i>	kangaroo apple
* <i>S. tuberosum</i>	potato
Scrophulariaceae	
<i>Veronica gracilis</i>	slender speedwell
Stylidiaceae	
<i>Stylidium graminifolium</i>	grass trigger plant
Thymelaeaceae	
<i>Pimelea humilis</i>	rice flower
Tremandraceae	
<i>Tetralathea labillardierei</i>	pink bells
Tropaeolaceae	
i <i>Tropaeolum majus</i>	nasturtium
Valerianaceae	
i <i>Centranthus ruber</i>	kiss-me-quick
Violaceae	
<i>Viola hederacea</i>	ivy-leaf violet



### **APPENDIX 3: BIRD SURVEY FOR NATONE HILL**

**Observers:** Denis Abbott, Sue Drake and Bruce Longmore

**Natone Hill:** walked to top of Natone Hill (the reservoir) from Tianna Road, at junction of Rowanna Road.

**Date:** 9 October, 2014    **Time:** 9.35-9.55.

**Birds Seen/heard:**

Blackbird \*  
Forest Raven  
Grey Currawong  
Little Wattlebird  
Noisy Miner  
Shining-bronze Cuckoo  
Silvereye  
Silver Gull  
Spotted Pardalote  
Starling \*  
Striated Pardalote  
Sulphur-crested Cockatoo  
Welcome Swallow  
Yellow-throated Honeyeater

\* Not native to Tasmania

This is a dry hillside with little understory, hence few smaller birds, except the pardalotes which are in the eucalypt canopy. The road noise from the highway was very penetrating making it difficult to distinguish calls at any distance.

**APPENDIX 4: UNANTICIPATED DISCOVERY PLAN**

# Unanticipated Discovery Plan

## For proponents and consultants dealing with Aboriginal Heritage in Tasmania

This paper provides a Plan that should be followed when dealing with unanticipated discoveries of Aboriginal Cultural Heritage such as sites and objects. The plan provides guidance to project personnel so that they may meet their obligations with respect to Aboriginal heritage in accordance with the *Aboriginal Relics Act 1975* and the *Coroners Act 1995*.

The Unanticipated Discovery Plan is in two sections. The first section primarily explains mitigation strategies that should be employed when any Aboriginal Cultural Heritage sites or items are discovered excluding skeletal remains (burials), while the second process deals specifically with skeletal remains (burials).

### Discovery of Cultural Heritage Items

- Step 1: Any person who believes they have uncovered Aboriginal Cultural Heritage material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 2: A temporary 'no-go' or buffer zone of at least 10m x 10m should be implemented to protect the suspected Aboriginal Cultural Heritage site or relics. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected Aboriginal Cultural Heritage relics have been assessed by a recognised Aboriginal Heritage Officer or Archaeologist.
- Step 3: Aboriginal Heritage Tasmania (AHT) in Hobart (ph 6233 6613) needs to be notified and consulted as soon as possible and informed of the discovery. AHT will then provide further advice in accordance with the *Aboriginal Relics Act 1975*.

### Discovery of Skeletal Material

- Step 1: Call the Police immediately. Under no circumstances should the suspected skeletal remains be touched or disturbed. The area must now be considered a crime scene. It is a criminal offence to interfere with a crime scene.
- Step 2: Any person who believes they have uncovered skeletal material should notify all employees or contractors that are working in the immediate area that all earth disturbance works must cease immediately.
- Step 3: A temporary 'no-go' or buffer zone of at least 50m x 50m should be implemented to protect the suspected skeletal remains. No unauthorised entry or works will be allowed within this 'no-go' zone until the suspected skeletal remains have been assessed by the Police and or Coroner.
- Step 4: Should the skeletal remains be determined to be of Aboriginal origin, the Coroner will contact the Tasmanian Aboriginal Land and Sea Council (TALSC) to arrange for repatriation of the remains, as per the *Coroners Act 1995*.

## Unanticipated Discovery Plan

**Guide to the most common sites of Aboriginal Significance****Stone Artefact Scatters**

Stone artefacts are the tangible evidence found in regard to past Aboriginal lifeways. Stone artefacts indicate areas that were used by Aboriginal People, either for camping, hunting or other activities such as the manufacture of stone tools. Archaeologists can also determine the duration a site may have been occupied, the amount of times that the site may have been occupied, and the number of people that the area may have supported at any given time.

Some stone artefacts are the result of Aboriginal People fracturing or 'flaking' fine-grained rocks to produce sharp cutting or scraping implements. These were then used, for example, for cutting up animals and then scraping the hides. Volcanic rocks such as basalt were flaked and then ground down to form axes for a number of chopping and cutting tasks. The results of such activities can be seen in the archaeological record (i.e. scatters) in the form of modified stones such as cores, retouched flakes, hammerstones and flaked pieces. From these scatters, by understanding site density and frequency patterns, inferences can be made in relation to past Aboriginal lifeways.

**Shell Middens**

Shell middens by definition are prehistoric refuse pits. They are the leftover waste of resources exploited which formed the basis of Aboriginal diet. Midden sites can range in size from large mounds to small scatters of shell. Middens usually also contain as well as shell, the remains of animals exploited for food as well as artefacts of stone, bone and shell. These sites are usually found near waterways and coastal areas.

**Rockshelters**

Rockshelters can either be shelters which contain archaeological deposits from living floors or art rock shelters, and may occur in any area of rocky terrain. Sediments on the floor of the rockshelter can contain preserved stratified deposits of archaeological material. Art types found in rockshelters can vary greatly. It can be in the form of painting, stencils of body parts, tools and equipment, or engravings. Style variations in painting can cover animal or human figurines, supernatural beings, and geometric patterns. Engravings can have similar variations as they can depict tools, humans, human parts, animals and birds and their tracks, geometric patterns and supernatural beings. Pecking is also a form of engraving.

**Quarries or Stone Procurement Sites**

Quarry sites occur where outliers of suitable tool-making stone appear. A quarry can be generally recognised by evidence of human manipulation and extraction of suitable material and the debris left by the processing of the suitable material. Some quarries can cover vast areas with extremely high amounts of lithic discard. Ochre or pigment was also quarried.

**Burials**

Burials can occur anywhere, though they are generally found close to areas where there was a high population concentration. Burials can occur where there are soft sediments such as sand hills, they can be found in caves and rockshelters and sometimes they can be associated with hollow trees.

## **APPENDIX 5: SUMMARY OF STAKEHOLDER CONSULTATION**

During September - October 2014, identified stakeholders were invited to provide comments relevant to the development of the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019*.

A public meeting and community 'walk and talk' session in each Reserve was facilitated by Council and Tasflora on 21 September 2014. The purpose of each session was to seek input from local residents, Landcare and Coastcare groups and other relevant stakeholders on values and management issues associated with the Reserves. Over 15 stakeholders attended each meeting, including representatives from the Natone Hill Landcare Group, the Geilston Bay Landcare Group (North and South Banks), the Limekiln Point Landcare Group and the Geilston Bay Boat Club.

Key issues raised during the Natone Hill Bushland Reserve walk and talk included:

- Don't make any major changes to the Reserve.
- No parking signs are needed at the Nubeena Street entrance and along Nubeena Street to prevent visitors to the Reserve blocking tracks or blocking access by residents to their houses.
- The Reserve's entrances need to be more obvious (eg signage) to encourage people to use them.
- Consider making the entrance at the northern end of Tianna Road the main entrance to the Reserve. A parking area and conceptual landscape plan should be developed for this entrance.
- Tracks need to be signposted within the Reserve, not just at the entrances.
- The bitumen is eroding on the main track to Reservoir.
- Large dead wood throughout the Reserve is creating a bushfire hazard.
- Gorse within the reservoir boundary should be controlled to prevent its encroachment into the Reserve.
- Interpretation signage about the Reserve's Works War II history should not be reinstalled as it will likely be vandalised.
- Install a tap for dogs.
- Education of adjacent property owners is needed to prevent dumping of garden rubbish and discourage planting of weedy Australian natives.

Key issues raised during the Geilston Bay Coastal Reserve walk and talk included:

- The condition/height of the intertidal walkway between Geilston Bay and Limekiln Point.
- Request for Council to assist with the removal of large piles of cut weeds around Limekiln Point.



- Maintenance of revegetation sites required at the pumping station end of Tahune Street.
- Faggs Gully Creek requires attention to address water flow issues.
- Walking tracks along Faggs Gully Creek and between the bridge and Sarean Court need maintenance.
- A wildlife corridor should be created around the Geilston Bay Boat Club by planting understorey plants beneath existing eucalypts.

A feedback form seeking input to the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* was also mailed to stakeholders. Written responses were received from 14 stakeholders, which are summarised in Table A5.1 and Table A5.2.

The draft *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019* was released for community consultation in March - April 2015. A Natone Hill Bushland and Geilston Bay Coastal Reserves Report Card was developed as a key tool in encouraging stakeholder feedback on the draft plan and was mailed out to residents and other interested stakeholders. Three submissions on the draft plan were received during the consultation period. A summary of the issues raised in these submissions is provided in Table A5.3.

Where possible, all relevant community feedback has been considered in the development of the *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019*. However some issues identified during the consultation process are beyond the scope of this plan or pertain to management issues outside the Reserves. These issues have been noted by Council and will be addressed through other processes where feasible.

**Table A5.1:** Summary of written responses received regarding the Natone Hill Bushland Reserve during initial stakeholder consultation.

Management issue	Response
<b>Reserve entrances</b>	
Create parking area at Nubeena Street entrance (NH8)	Section 13 recommends formalised parking at NH8 (refer Appendix 12)
Clearly signpost the road at Nubeena Street entrance so visitors don't block access to residences	Section 13 recommends 'no parking' signs in these areas
<b>Tracks and trails</b>	
Better tracks around and over Natone Hill as some areas are affected by rain etc.	Section 14 recommends some track improvements
Keep the tracks unsealed	There is no proposal to seal any tracks
Retain Natone Hill as an off-lead dog walking area	No changes to current dog walking provisions are proposed

Management issue	Response
<b>Infrastructure</b>	
Need more rubbish bins	Section 15 recommends additional dog waste disposal bins which will also serve as rubbish bins
<b>Bushfire management</b>	
Find a way to use the dead wood on the hill to reduce bushfire risk	This feedback will be forwarded to Council's bushfire management staff for consideration.

**Table A5.2:** Summary of written responses received regarding the Geilston Bay Coastal Reserve during initial stakeholder consultation.

Management issue	Response
<b>Weed management</b>	
The Limekiln Point Landcare Group needs assistance with removing heaps of cut weeds near the high water mark around Limekiln Point.	Section 8 recommends that Council assists with this work
<b>Regeneration and revegetation</b>	
Increase maintenance of creek rehabilitation work to ensure gains are maintained	Sections 8 & 9 recommend weed control and revegetation activities along Faggs Gully Creek
Revegetate a thin strip on the bay side of the tennis courts to screen the fences	Section 9 recommends revegetation in this area
Revegetate the bank between the multiuser path and fences along the rock bench path	This area is currently maintained through brushcutting. Revegetation is not recommended as plants may grow over the narrow walkway.
Plant understorey species in the strip of land bounded by De Bomford Lane, the Geilston Bay Boat Club and the toilet block for visual amenity and a wildlife corridor	Section 9 recommends understorey planting in this area
<b>Fauna habitat management</b>	
Engage a consultant to undertake a study of the creek as a whole to ensure optimal water flows along its length	Section 10 recommends that Council investigates and assesses options to improve water quality, water flows and aquatic habitat in Faggs Gully Creek
<b>Tracks and trails</b>	
Check that signage linking one area with the other is good for both directions of pathways	Section 14 contains recommendations for improving track signage
Introduce a more regular spraying regime of	Section 14 recommends more regular

Management issue	Response
the gravel track between East Derwent Highway and Bedlam Walls	maintenance of this track
There is no footpath along Geilston Bay Road between the bridge over Faggs Gully Creek and the Shag Bay walking track	An overgrown walking track does exist in this area. Section 14 recommends regular maintenance of this track.
Cars park over the walking track between 100 and 108 Geilston Bay Road	Section 14 recommends the installation of "No Parking" signs along this section
Install a cross over at the access to the walkways area at the bottom of Granville Ave to allow truck access for maintenance issues	Section 14 recommends that a cross over be installed at this entrance
Create a small learn to ride bike path loop adjacent to the cricket nets on the bottom old High School oval which is connected to the road crossing of the concrete bike path	Not considered a priority over the next five years unless suitable funding becomes available
<b>Infrastructure</b>	
Install fitness equipment in the bay area or between the tennis courts and BBQ huts	Not considered a priority over the next five years unless suitable funding becomes available
Highlight an area between the concrete path and boat ramp car park as a potential site for a commercial development of a small cafe	To be noted by Council and considered
Shift the car park 5m to the east to allow planting of a row of trees (Casuarina) and park benches to be installed along the top of the rock wall	Moving the car park likely to be costly. Section 15 recommends installing seats in the existing space
Install a small in ground trampoline in the kids play park	Not considered a priority over the next five years unless suitable funding becomes available
Need more seating with shelter on walking tracks	Section 15 recommends additional seats with shelter where feasible
The jetties on the foreshore could be repaired and made safer, as they make a nice 'stop point' in a walk	The majority of these jetties are privately owned
<b>Community awareness and education</b>	
Encroachment by private landowners is occurring at the entrance off Musgrove Road (GB4)	Section 18 addresses encroachment issues
<b>Other Reserve management issues</b>	
Install one row of large rocks at the base of the eroded bank at the back of the beach	The reason for this proposal is unclear so has not been recommended

Management issue	Response
area near the car park	
Introduce a layer of clean, coarse sand over the beach area adjacent to the boat ramp car park	An assessment of the feasibility of this is recommended in Section 15.
Create a flat, grassy area on the bay side of the tennis court to create an area for children's ball games	This area has been identified for understorey revegetation activities.
Need off lead dog running areas	No change to current dog exercise arrangements are proposed
<b>Management issues outside the Reserve's boundary/outside the scope of the RAP</b>	
Improve lighting and maintenance around the BMX track area	While these issues are outside the Reserve boundary and/or outside the scope of the <i>Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019</i> , they have been noted by Council and will be addressed where feasible.
Improve drainage between the BMX track and skate ramp	
Formalise access for bikes between the BMX track and skate board ramp	
Place additional rocks across gravel access to BMX track to prevent vehicle access	
Stop dumping of turf and soil next to the rocks adjacent to the tennis club parking area	
Plant trees adjacent to East Derwent Highway from the creek to the High School area to improve visual amenity and fauna habitat/access	
Reduce access to the top of the bank along East Derwent Highway to prevent the display of cars for sale	
Extend the avenue of trees with <i>Eucalyptus viminalis</i> from East Derwent Highway to the boat ramp car park	
Create space for parallel parking along Debomford Lane from East Derwent Highway to the boat club driveway	
Have cross overs for the footpaths at junctions between Granville Avenue and Musgrove Road for ease of access for prams and bikes	
The Sarean Court car park is not always adequate for the number of people using the Shag Bay walking track	
Need to impede rogue vehicle access to all	



Management issue	Response
<p>areas that encompass the Geilston Bay High School grounds, sports fields and Geilston Bay Football club rooms car parks</p> <p>Plant more trees in Symons Park</p> <p>Area of bush behind Llenroc Street, Geilston Bay requires rehabilitation, a wildlife corridor and water access for animals</p> <p>TasWater has not rehabilitated the bush on the eastern side of East Derwent Highway</p>	




**Table A5.3:** Summary of written responses received on the draft *Natone Hill Bushland and Geilston Bay Coastal Reserves Activity Plan 2015-2019*.

Issue	Comment
<b>Weed management (Section 8)</b>	
Natone Hill Landcare Group should be consulted when undertaking weed sweeps to ensure that all known infestations of gorse, broom, boneseed, Lucerne and Sydney wattle are targeted	Section 8.2 will be amended to note that weed sweeps should be undertaken in consultation with the Natone Hill Landcare Group to ensure that all known weed locations are targeted.
The Limekiln Point Landcare Group Committee endorses the recommendation to remove or burn piles of cut weeds around Limekiln Point.	No change to plan required.
The current weed removal process on the coastal path from Lindisfarne to Geilston Bay has left an eyesore of rotting weeds all along the foreshore... what was once a green leafy walk is now rotting vegetation all along the foreshore	No change to plan proposed. Section 8.3 currently identifies removal or burning of these cut weeds as a Priority 1 activity (ie to be undertaken within the next 6 months).
The Limekiln Point Landcare Group Committee endorses the recommendation to undertake weed maintenance work, and notes the effort that will be required to fully control <i>Vinca major</i> and <i>Muehlenbeckia axillaris</i> .	Section 8.4 will be updated to note the need for persistent follow-up to control <i>Muehlenbeckia axillaris</i> .
Weed removal along the coastal path has been heavy-handed and focused on removal with limited effective regeneration. The net effect has been the removal of two weed varieties and inevitably replaced with others and the increased use of poisons to control them.	No change to plan proposed. Section 8.3 recognises that weeds have been removed from a large area, and that future weed control activities should focus on maintaining these areas to ensure they remain weed free. Section 8.4 identifies the Limekiln Point area as an area requiring immediate maintenance weed




Issue	Comment
<b>Regeneration and revegetation (Section 9)</b>	control activities.
<p>If there is limited funding then steps should be funded to preserve the current amenity along the coastal path and ensure that first-class regeneration occurs and acknowledgement that only gradual progress can be made.</p>	<p>Sections 8 and 9 emphasise that new weed control and/or revegetation activities should not be undertaken unless ongoing resources are available for ongoing maintenance activities. The plan will be updated to emphasise that the primary focus for work and funding along the coastal track should be to ensure that existing areas of weed control are maintained and that regeneration occurs.</p>
<b>Fauna habitat management (Section 11)</b>	
<p>Council should adopt a strong position that Natone Hill is not a dog exercise area and that dogs should be on the lead while on the hill.</p>	<p>No change to plan proposed. Natone Hill is currently a designated off lead area. This feedback should be incorporated in to the next review of Council's Dog Management Policy.</p>
<p>Council should investigate providing a fenced dog exercise area (perhaps in the park), similar to what we have seen adjacent to Brisbane's nature reserves (similar to Natone Hill) and dogs on lead throughout other areas. This would provide improved outcomes for all users</p>	<p>No change to plan proposed. This feedback should be incorporated in to the next review of Council's Dog Management Policy.</p>
<b>Vegetation and Fauna Monitoring (Section 12)</b>	
<p>A member of the Natone Hill Landcare Group notes that Diana Duncan's flora samples and Helen Genders' photo collection are available</p>	<p>Section 12 will be updated to note that the Landcare Group's flora and photographic resources should be utilised when analysing native flora/vegetation community trends.</p>
<b>Reserve Entrances and Parking (Section 13)</b>	
<p>Formalising gravel car parks to Natone Hill will encourage additional usage in particular the use of the hill as a dog exercise track and cycling (which we understand is currently prohibited on the hill). There clearly needs to be an understanding of the mitigation of the effects of undesirable use of the hill to improve the overall outcome for users.</p>	<p>No change to plan proposed.</p> <ul style="list-style-type: none"> <li>• Encouraging additional usage of the Reserve is consistent with the objective of enhancing its social (recreational) values.</li> <li>• Formalising gravel car parks will improve the overall outcome for all users by improving access to the Reserve, as current parking arrangements at NH1 and NH8 are awkward and unclear.</li> <li>• Cycling is currently permitted along the</li> </ul>




Issue	Comment
<p><b>Infrastructure (Section 15)</b></p> <p>Agree with the recommendation to install seats along the coastal track as there is currently only one present.</p> <p>The activity plan needs to be more specific about the outcome that is intended and the method to achieve it. For example "Install new seats and dog waste bins" gives no indication of both the design and location of seats and dog waste bins.</p> <p>The objective should be clearly to improve the outcome for users not simply install more seats.</p> <p>The use of materials (aluminium and steel) that act as heat sinks does not provide a comfortable seat. Council has installed seats in numerous locations of alternative designs made from synthetic wood and aluminium frames that in the main are comfortable in all weathers (noting that this may be expensive and reduce the number of seats that can be installed).</p>	<p>Reserves tracks (Section 12 recommends that the "no mountain bikes" sign at NH3 be removed to reduce confusion).</p> <p>No change to plan required.</p> <p>No change to plan proposed. Section 15 discusses the proposed locations of new dog waste bag dispensers/bins and the proposed locations and design of new seats. Figure 15 illustrates the proposed locations of new seats and dog waste bag dispensers and bins.</p> <p>No change to plan proposed. The installation of additional seats improves the outcomes for all users by providing more seating for both rest opportunities and contemplation of the scenery at various locations throughout the Reserves.</p> <p>No change to plan proposed. While other seating materials could be used, the recommended seat materials are consistent with existing seats in both Reserves (and recommended for other reserves) to ensure longevity and deter vandalism.</p>
<p><b>Community participation and awareness (Section 18)</b></p> <p>The proposed interpretation signs at GB6 and GB7 should be developed in consultation with the Limekiln Point Landcare Group.</p> <p>If funds are short, the best action councils could take would be inspection, education and warnings on inappropriate behaviour (eg dog owners not walking with dogs on leads along the coastal track) rather than building more seats and car parks.</p>	<p>Section 18 will be updated to note that the proposed interpretation signs at GB6 and GB7 should be developed in consultation with the Limekiln Point Landcare Group.</p> <p>This falls outside the scope of on ground management activities within the Reserve. This feedback should be forwarded to the relevant Council staff for consideration.</p>

**APPENDIX 6: WEED SPECIES PRESENT AND RECOMMENDED CONTROL TECHNIQUES**



Common name	Species	Status	Picture	Recommended control technique
<u>DECLARED WEEDS</u>				
Blackberry	<i>Rubus fruticosus</i> aggregate	Declared WONS		Large stands - spot spray larger using an appropriate herbicide (as per the DPIPWE Control Guide) in non-fruiting periods Isolated patches - spot spray or cut and paste
Boneseed	<i>Chrysanthemoides monilifera</i>	Declared WONS		Hand pull seedlings. Cut and paste larger plants. Fruit should be bagged and disposed of responsibly.
Canary (Montpellier) broom	<i>Genista monspessulana</i>	Declared WONS		Hand pull seedlings. Cut and paste larger plants. Spot spraying may be appropriate for larger infestations.



Common name	Species	Status	Picture	Recommended control technique
Gorse	<i>Ulex europaeus</i>	Declared WONS		Hand pull small plants. Cut and paste larger plants. Spot spraying may be appropriate for larger infestations.
<b><u>OTHER ENVIRONMENTAL WEEDS</u></b>				
Blue periwinkle	<i>Vinca major</i>			Brushcut followed by spot spraying. Repeated follow-up spot spraying required.
Cotoneaster	<i>Cotoneaster</i> sp.			Hand pull seedlings. Cut and paste larger plants.

Common name	Species	Status	Picture	Recommended control technique
Cumbungi	<i>Typha</i> sp.			Hand pull and remove all the rhizome.
English ivy	<i>Hedera helix</i>			Cut and paste.
Golden wattle	<i>Acacia pycnantha</i>			Cut and paste.

Common name	Species	Status	Picture	Recommended control technique
Hawthorn	<i>Crataegus monogyna</i>			Hand pull small plants. Cut and paste larger plants.
Mirror bush	<i>Coprosma repens</i>			Hand pull seedlings. Cut and paste larger plants.
Sweet briar	<i>Rosa rubiginosa</i>			Cut and paste or spot spray

Common name	Species	Status	Picture	Recommended control technique
Sweet pittosporum	<i>Pittosporum undulatum</i>			Hand pull small plants. Cut and paste larger plants.
Tree lucerne	<i>Chamaecytisus palmensis</i>			Hand pull seedlings. Cut and paste larger plants.



## APPENDIX 7: LOCATION OF DECLARED WEEDS IN THE NATONE HILL BUSHLAND RESERVE





## APPENDIX 8: LOCATION OF NON-DECLARED ENVIRONMENTAL WEEDS IN THE NATONE HILL BUSHLAND RESERVE



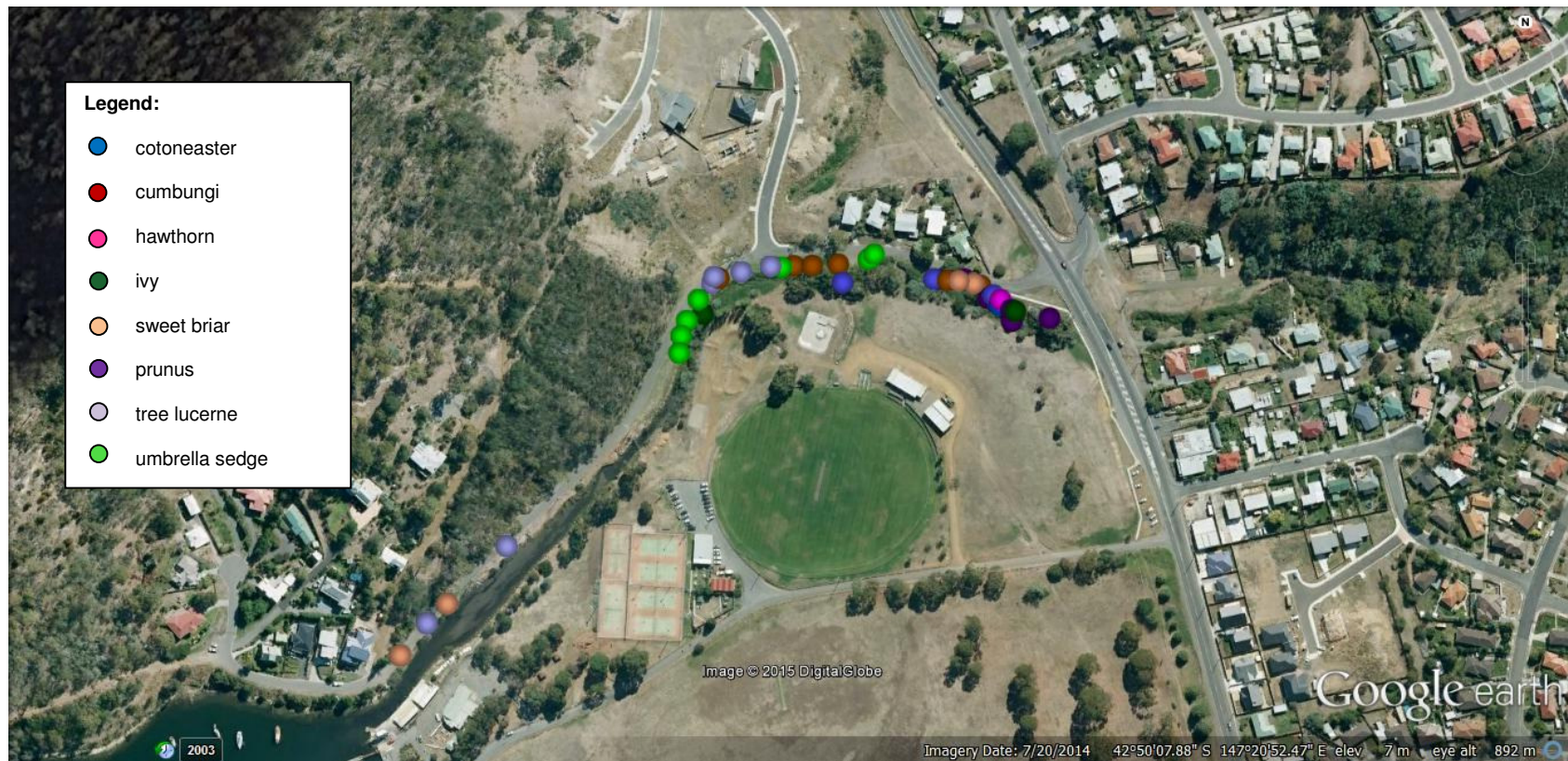


## APPENDIX 9: LOCATION OF DECLARED WEEDS ALONG FAGGS GULLY CREEK IN THE GEILSTON BAY COASTAL RESERVE



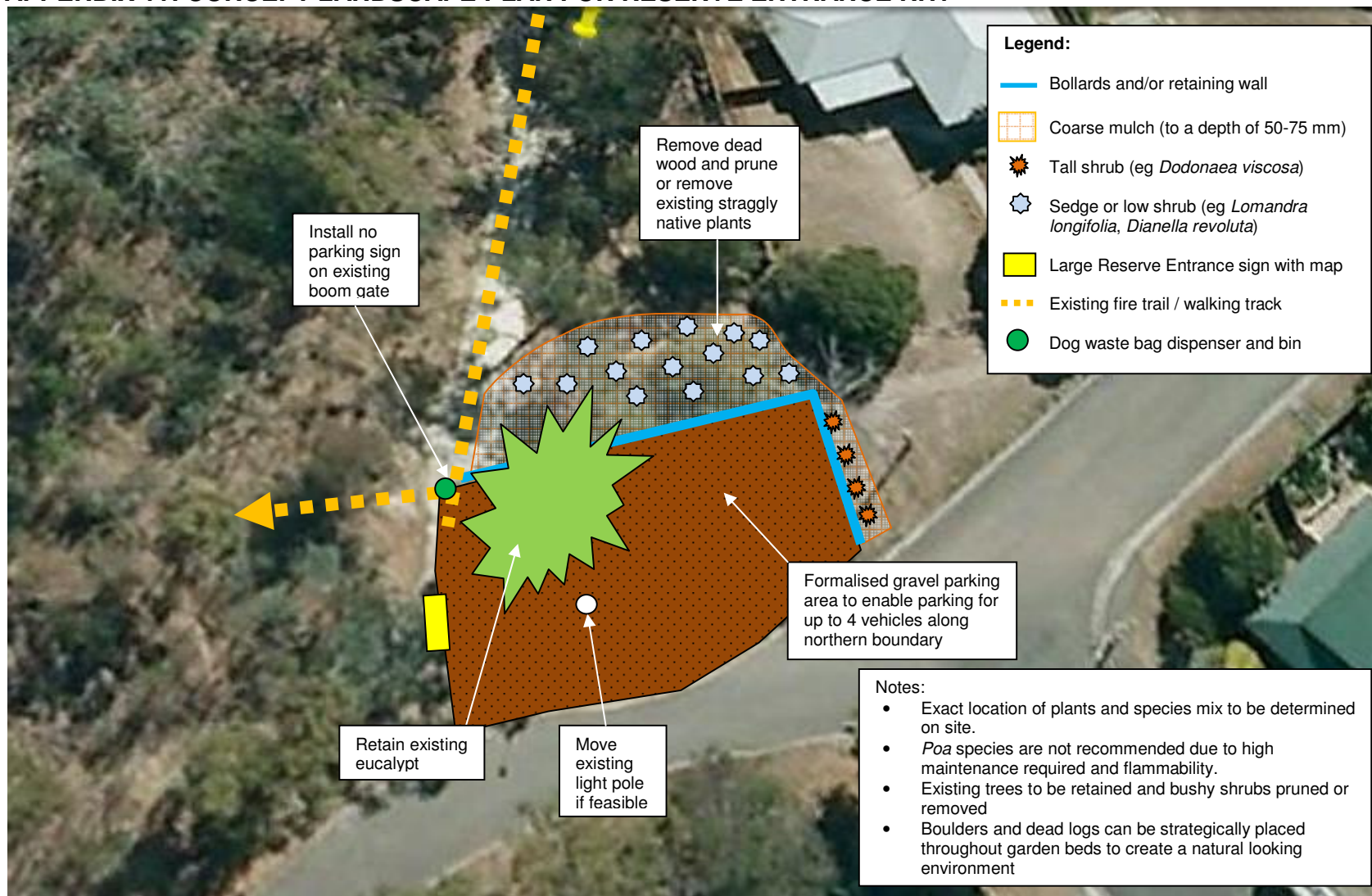


## APPENDIX 10: LOCATION OF NON-DECLARED WEEDS ALONG FAGGS GULLY CREEK IN THE GEILSTON BAY COASTAL RESERVE





## APPENDIX 11: CONCEPT LANDSCAPE PLAN FOR RESERVE ENTRANCE NH1



## APPENDIX 12: CONCEPT LANDSCAPE PLAN FOR RESERVE ENTRANCE NH8



## APPENDIX 13: SUMMARY OF ON GROUND MANAGEMENT RECOMMENDATIONS FOR THE NATONE HILL BUSHLAND RESERVE

<b>Weed management</b>	
R1	Undertake a sweep of Natone Hill to remove isolated populations of declared and environmental weeds
R2	Liaise with TasWater to control gorse growing within the Reservoir boundary at the top of Natone Hill
R3	Weed control should be undertaken prior to and following planned burns on Natone Hill
R6	Undertake an annual sweep and follow-up control of all previously targeted weeds
R7	Control of exotic grasses and broadleaf weeds is only required in revegetation and landscaped areas, and where necessary as part of the NHB Reserve's general maintenance program
R8	Undertake follow-up GPS mapping of all weeds in the NHB Reserve after five years to monitor progress and inform future weed control priorities
<b>Regeneration and revegetation</b>	
R9	Continue to undertake regular maintenance of existing revegetation areas to ensure successful establishment and ongoing visual amenity
R11	New revegetation and landscaping activities should not be committed to unless sufficient resources are available to undertake ongoing regular maintenance of newly planted areas
<b>Fauna habitat management</b>	
R12	Consider fauna habitat requirements when planning bushfire management activities in the NHB Reserve
R16	Continue to liaise with DPIPWE and Kingborough Council to support the development of a regional approach to cat management
R17	Develop and distribute a responsible cat management brochure and distribute to residents bordering the NHB Reserve
<b>Vegetation and fauna monitoring</b>	
R18	Undertake an updated flora survey and annual vegetation composition and condition assessments of the NHB Reserve to further inform on ground management activities
R19	Establish vegetation monitoring plots prior to undertaking prescribed burns and monitor each plot annually
R20	Establish photo points at several locations within the NHB Reserve to facilitate monitoring of annual regeneration growth
R21	Undertake fauna surveys in 2015 and 2019 to measure changes arising from Reserve management activities and to further inform on ground management activities
R22	Undertake an analysis of all photo points, completed flora surveys, vegetation composition assessments and fauna surveys in 2019 to determine trends and inform future management activities
<b>Reserve Entrances</b>	
R23	Improve NHB Reserve entrances by installing additional signage, improving parking and undertaking landscaping activities
R24	Formalise car parking areas at Reserve entrances NH1 and NH8
<b>Tracks and trails</b>	

R25	Improve the NHB Reserve's track networks by installing directional signs and improving the condition of existing tracks
<b>Infrastructure</b>	
R26	Install new dog waste bag dispensers and bins at Reserve entrances NH1 and NH6
R27	Install new outdoor seats at several locations
R31	Undertake a review of the infrastructure requirements of the NHB Reserve in 2019
<b>Community participation and awareness</b>	
R32	Undertake community education through letterbox drops to facilitate behavioural change and encourage ownership and appreciation of the values of the NHB Reserve
R36	Develop and distribute a Natone Hill bushfire management awareness brochure and distribute to residents bordering the NHB Reserve
<b>Implementation Plan</b>	
R38	Review progress against all performance measures identified in the Implementation Plan annually
R39	Review the <i>Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019</i> in 2019 to assess progress and determine ongoing management priorities for the NHB Reserve



## APPENDIX 14: SUMMARY OF ON GROUND MANAGEMENT RECOMMENDATIONS FOR THE GEILSTON BAY COASTAL RESERVE

<b>Weed management</b>	
R4	Weed control in the GBC Reserve should focus on maintaining areas where weed control has been previously undertaken
R5	Remove or burn piles of cut weeds from around Limekiln Point
R6	Undertake an annual sweep and follow-up control of all previously targeted weeds
R7	Control of exotic grasses and broadleaf weeds is only required in revegetation and landscaped areas, and where necessary as part of the GHB Reserve's general maintenance program
R8	Undertake follow-up GPS mapping of all weeds in the GHB Reserve after five years to monitor progress and inform future weed control priorities
<b>Regeneration and revegetation</b>	
R9	Continue to undertake regular maintenance of existing revegetation areas to ensure successful establishment and ongoing visual amenity
R10	Undertake revegetation and landscaping at several locations in the GBC Reserve to improve visual amenity and provide habitat for native birds and animals
R11	New revegetation and landscaping activities should not be committed to unless sufficient resources are available to undertake ongoing regular maintenance of newly planted areas
<b>Riparian zone management and water sensitive urban design</b>	
R12	Develop and implement a WSUD Management Plan that investigates and assesses options for improving the current condition of Faggs Gully Creek, including water quality, water flows, stormwater runoff and riparian vegetation management
R13	Establish a water quality monitoring program for Faggs Gully Creek
R14	Educate local residents and user groups to contact TasWater if odour issues arise along Faggs Gully Creek
<b>Fauna habitat management</b>	
R17	Develop and distribute a responsible cat management brochure and distribute to residents bordering the GBC Reserve
<b>Vegetation and fauna monitoring</b>	
R20	Establish photo points at several locations within the GBC Reserve to facilitate monitoring of annual regeneration growth
R21	Undertake fauna surveys, including aquatic surveys, in 2015 and 2019 to measure changes arising from Reserve management activities and to further inform on ground management activities
R22	Undertake an analysis of all photo points, completed flora surveys, vegetation composition assessments and fauna surveys in 2019 to determine trends and inform future management activities
<b>Reserve Entrances</b>	
R23	Improve GBC Reserve entrances by installing additional signage
<b>Tracks and trails</b>	
R25	Improve the GBC Reserve's track networks by installing directional signs and improving the

condition of existing tracks	
<b>Infrastructure</b>	
R26	Install new dog waste bag dispensers and bins at Reserve entrance GB6
R27	Install new outdoor seats at several locations
R28	Promote a preferred kayak launch site off the small beach adjacent to the GB3 car park and investigate feasibility of installing a wash down area
R29	Assess the technical feasibility of depositing coarse sand on the small beach adjacent to the GB3 car park to improve its amenity
R30	In consultation with the Derwent Estuary Program, review existing water quality data and establish a minimum six month water quality monitoring program for the small beach adjacent to the GB3 car park
R31	Undertake a review of the infrastructure requirements of the GBC Reserve in 2019
<b>Coastal erosion and inundation</b>	
R32	The <i>Tasmanian Coastal Works Manual</i> should be consulted prior to undertaking any on ground activities in coastal areas
R33	Assess and implement an appropriate adaptation response to prevent further erosion from occurring on the bank immediately above the small beach adjacent to the car park at GB3
<b>Community participation and awareness</b>	
R34	Engage with North Lindisfarne Primary School to encourage a continuation of the former Geilston Bay Landcare/Coastcare Group's commitment to caring for the GBC Reserve
R35	Undertake community education through letterbox drops to facilitate behavioural change and encourage ownership and appreciation of the values of the Reserve
R37	Install new interpretation signs at GB6 and GB7
<b>Implementation Plan</b>	
R38	Review progress against all performance measures identified in the Implementation Plan annually
R39	Review the <i>Natone Hill Bushland and Geilston Bay Coastal Reserve Activity Plan 2015-2019</i> in 2019 to assess progress and determine ongoing management priorities for the GBC Reserve