



NORFOLK ISLAND
REGIONAL COUNCIL

NORF'K AILEN RIJENL KAUNSL

PLAN OF MANAGEMENT

WAN PLAEN 'MAENEJMENT



BALL BAY RESERVE

BORL BIEH RESERW

2020 - 2030

Foreword

The Norfolk Island Council of Elders considers it important that any Plans of Management for Public Reserves take into account all of the following points in line with Norfolk Island's Cultural Heritage, both tangible and intangible:

1. The importance of the Public Reserves to Norfolk Islanders for recreational activities (fishing, swimming, walking, picnics etc.).
2. The importance of Public Reserves for cultural activities like picking hihis etc.
3. The importance of the natural environment on Norfolk Island to Norfolk Islanders.
4. The importance of endemic/native plants to Norfolk Islanders for traditional craft and other cultural activities, and the importance of these activities continuing.
5. The importance of native birds, including seabirds, to Norfolk Islanders.
6. The impact of noxious weeds and pest animals like rats, cats, swamp hens and feral chickens, and the importance of controlling these.
7. The use of licensed cattle on roads, commons and other designated grazing areas to assist in the control of grass.

The Pitcairn settlers arrived on Norfolk Island in 1856 as a distinct ethnic group, bringing with them a unique heritage, culture and language. They were the first people to settle Norfolk Island as a permanent homeland.

Norfolk Islanders have a very strong cultural connection with the unique environment on the Island, and they are aware of the impact pest animals and noxious weeds can have on the natural and cultural values of the Island.

Norfolk Islanders have maintained many traditional customs, including weaving of hats, baskets and other items from native flax, Moo-oo and Bulrush ('drain flax'). These plants are not as abundant as they once were due to modified land use, and it is important that the Plans of Management for Public Reserves contain management actions to protect or increase the abundance of these plants to ensure these traditional customs can continue.

Other cultural activities that are still very important to Norfolk Islanders today include picking hihis and collecting crabs and other traditional food from the sea. In the past, Norfolk Islanders have relied upon the fruits from a range of exotic plants (including yellow and red guava, lemon and taro), and it is pleasing to see that the picking of exotic fruits can continue in Norfolk Island Public Reserves.

The Public Reserves on Norfolk Island are important to Norfolk Islanders for recreational activities such as fishing, swimming, walking and picnics. It is important that the Norfolk Island people continue to have access to the Public Reserves on Norfolk Island and that these activities can continue.

The Norfolk Island people recognise the need to protect and conserve Norfolk Island's natural and cultural resources. The natural environment and cultural charm of Norfolk Island are increasingly valuable commodities that must be managed appropriately in the face of increasing tourism and development pressure.

Norfolk Island Council of Elders

Forwad

De Norf'k Ailen Kaunsl 'Eldas thort es importantan fe eni Plaen 'Maenejment fe dem Pablik Reserw tek intu akaunt orlii point in lain lorngfe Norf'k Ailens Kalcharl Heritej, dem yu el sii endem yu kaant:

1. De importens 'dem Pablik Reserw fe Norf'k Ailen salan yuuset (fishen, naawien, werken, haewen 'piknik endem kaina'thing)
2. De importens 'dem Pablik Reserw fe orlem kalcharl thing yuusa duu simmes piken 'hihi endem
3. De importens 'luken orn Norf'ks naetrl said fe Norf'k salan
4. De importens 'orl auwas plaants tu Norf'k salan fe auwas tradishenl werk ena taeda kalcharl thing fe duu, en hau important tu orl aklan fe kiip ii thing gwen
5. De importens 'orl auwas nietew berd, enem siiberd, tu Norf'k salan
6. Wieh 'nokshas wiids ena pest simmes 'raet, keht, taalaberd enem wail faul el efekt ieh ailen, en hau important fe kontroel dem
7. Yuusen em laisens kaetl orna roed, ornaa koeman enem taeda said fe dem griez fe haelp in kontroelen 'graas.

Dem Pitkern salan kam tu Norf'k in 1856 es wan distinct ethnic gruu, fetchen lorngfe dem, dems yuuniik heretij, kalcha ena laengwij. Dem es de fas salan fe yuus Norf'k aes dems hoem fe aewa.

Norf'k salan gata riel strorng kalcharl konekshan tu de yuuniik envairanment 'dems alien en dem noe wathen pest aeneml ena nokshas wiids gwen haew orn de naechrl en kalchrl vaelyu 'dieh alien.

Norf'k salan bin kiipap plenti dems tradishenl kastam, simmes wiiwen 'haet, basket ena taeda thing fromem nietew flaks, mu-uu ena bulrush (drienflaks). Nor gat mach 'dii plaants es bin yuus kos 'chienj in wieh yuusen a laen, en es importantan fe dem Plaen 'Maenejment 'dem Pablik Reserw fe haew ina wieh fe kiipap ala groe de namba 'dii plaants fe miek shua orlii tradishenl kastam el kiip gwen.

Taeda kalchrl thing Norf'k salan duu stil es importantan fe Norf'k salan des dieh simmes piken 'hihi, ketchen 'krarb ena taeda tradishenl wetls auta saf. Lorng taim 'goe Norf'k salan bin el depen orna fruu fram wan rienj 'eksotik plaants (simmes 'yaela ena red gorwa, leman ena taala), enes gudan fe si stil el pik 'eksotik fruu auta dem Pablik Reserw.

Es importantan fe haew 'Pablik Reserw orn Norf'k soe Norf'k salan el kiip duwen dem thing simmes fishen, naawien, werken en haewen 'piknik. Es importantan fe Norf'k salan el kiip yuusen ii Pablik Reserw soe orlii praektes el kiip gwen.

Norf'k salan noe haew 'lukaut for, protect en kiip Norf'ks naechrl ena kalchrl resors. De naechrl ena kalchrl chaam 'Norf'k kamen mor n mor vaelubl en haew 'luk aafta et proepli aes tuares ena dewelapment groe biga.

Norf'k Ailen Kaunsl 'Eldas

Norfolk Language translated by Gaye Evans

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1 Introduction

1.1 Reserve Description

Ball Bay Reserve is located in the south-east of Norfolk Island (Figure 1) and includes the former Buck's Point Reserve. Ball Bay Reserve is Norfolk's second largest reserve, with an area of 28.72 hectares. The Reserve's coastal boundaries extend to the high water mark (Figure 2).

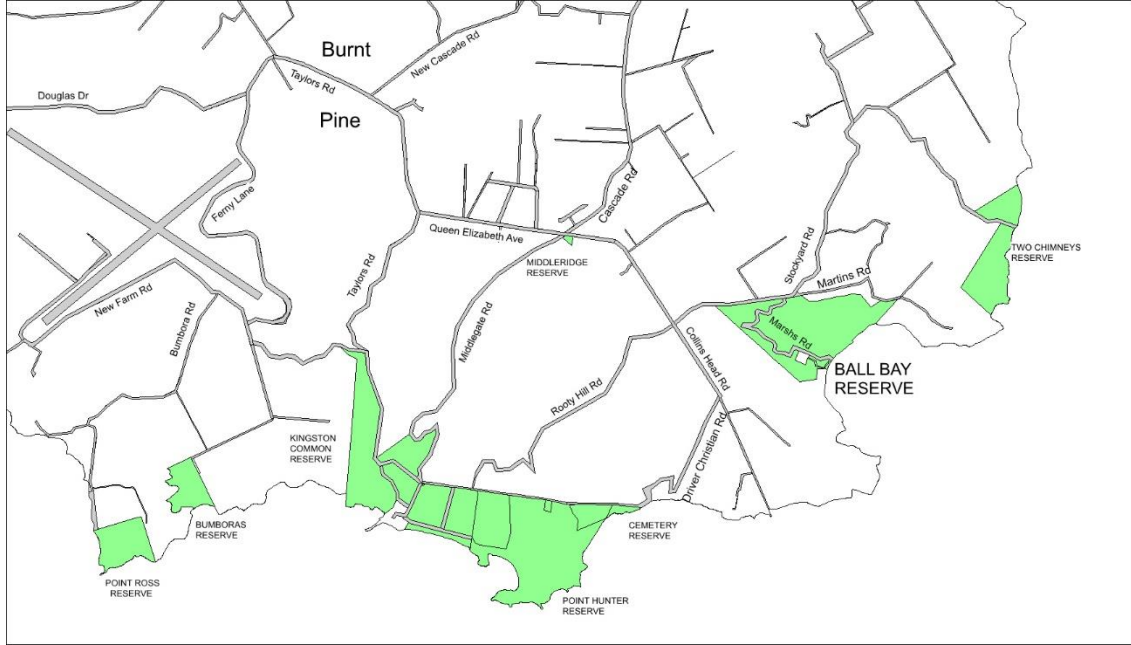


Figure 1: Ball Bay Reserve Location



Figure 2: Ball Bay Reserve Boundaries

1.2 Public Consultation and Planning Framework

The original, smaller area once known as Ball Bay Reserve was proclaimed under the Commons and Public Reserves Act 1936 on 4 February 1937 for the purposes of recreation, landing and shipping. Bucks Point Reserve was then proclaimed under the Commons and Public Reserves Act 1936 on 18 May 1971 for the conservation of flora and fauna. The boundaries of the Reserve were then extended on 5 May 2000 to include 4.19 ha from Portion 47c2 and the former Bucks Point Reserve (3.411 ha). Two small portions of non-reserve freehold land (48a and 48e) are located within the Reserve boundary. These portions and associated easements provide for the bulk storage of the Island's fuel supplies. Portion 48c, which was excised from the Reserve on 12 May 1970 and used under license for rock crushing, was re-incorporated into the Reserve on 30 November 1999.

The land to the east of Marshs Road is within the conservation zone of the *Norfolk Island Plan 2002*, and the reserve land to the west of the road is located in the Open Space zone. The *Norfolk Island Plan 2002* states:

'The intent of the Conservation Zone is to:

(a) provide a very limited range of low intensity and low impact use or development opportunities in the areas under this zone that are considered to have very high natural and/or heritage conservation values;

(b) ensure that the areas within the Conservation Zone that have very high natural conservation values continue to provide the aesthetic backdrop for Norfolk Island and continue to provide the open space and wilderness habitat that is vital to life systems on the Island;

(c) include land between the Top of Cliff as shown on the Official Survey of Norfolk Island and the Mean High Water Mark. The areas under this zone are considered to have high natural conservation values; and

(d) ensure that the areas within the coastal portion of the Conservation Zone, to which the Coastal Environment Provisions apply in accordance with clause 9A, will be quarantined from built forms of use or development to ensure safety and to maintain cliff and foreshore stability.

The *Norfolk Island Plan 2002* also states:

'The intent of the Open Space Zone is to:

a) provide a limited range of low intensity and low impact use or development opportunities within areas that have natural, cultural and heritage values that should be maintained;

b) provide the open space and wilderness habitat that is vital to life systems on Norfolk Island; and

c) provide land that may buffer certain incompatible uses.'

On Norfolk Island public reserves are managed in accordance with the Public Reserves Act 1997 (NI) and Management Actions within the current Plans of Management for Public Reserves.

The *Public Reserves Act 1997* states that each of the Norfolk Island Public Reserves will have a plan of management. The plans must promote the objects of the Act which are 'to protect and conserve public reserves so as to:

(a) promote the conservation of the natural environment and landscape beauty of Norfolk Island;

(b) promote the conservation of the heritage of Norfolk Island; and

(c) preserve the way of life and the quality of life of the people of Norfolk Island.'

The first Plan of Management for Ball Bay Reserve was prepared in 2003. In 2017, the Plans of Management for all Public Reserves were placed on public display, with an invitation to provide feedback to produce updated plans of management.

The following feedback was received specifically in relation to Ball Bay Reserve:

- Keep current cattle exclusion fencing in place – no expansion in area under cattle grazing.
- Protect the Critically Endangered Norfolk Island Euphorbia (*Euphorbia norfolkiana*) plant population.
- Restore the Bicentennial walkway using a better route now that the reserve is larger.
- Areas designated for restoration should be preserved.

The following comments were received from multiple respondents with regard to the Reserves in general:

- No expansion of cattle grazing in the reserves. Protect current and proposed rehabilitated areas from cattle grazing. Native replanting is needed.
- Better management of waterways, including work to desilt the drainage channels in Kingston area to prevent coral deaths.

As part of the 2017 consultation process, the Public Reserves Advisory Committee, also undertook a survey on Cats on Norfolk Island. The information gathered from this survey is outlined in the Pest Animals section of this Plan of management.

The Draft Plan of Management for Ball Bay Reserve was prepared in 2019 and was released for comment and feedback from the community over a 56-day period, which closed on 20th September 2019. Feedback received during the 56 day Public Exhibition Period have been taken into account as part of the preparation of this Final Plan of Management for Ball Bay Reserve 2020-2030.

The Federal *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* applies to Norfolk Island and is relevant in a number of ways to the management of the public reserves. In particular however, the Act recognises a number of native and endemic plant and animals as threatened species. These species are afforded protection under the Act, and are the subject of the Norfolk Island Region Threatened Species Recovery Plan. Ball Bay Reserve is home to many threatened species recognised under the Act, and the management of the reserves needs to align with the Threatened Species Recovery Plan.

1.3 Heritage Listing

The former Bucks Point Reserve was listed on the Register of the National Estate (RNE) on 21 October 1980 and was the only part of Ball Bay Reserve listed on the RNE. The RNE was replaced on 1 January 2004 by a National Heritage List, which recognises and protects places of outstanding heritage to the nation, and the Commonwealth Heritage List, which includes Commonwealth owned or leased places of significant heritage value. In 2016, the Commonwealth of Australia transferred ownership of the entire area of Ball Bay Reserve to the Administration of Norfolk Island, now the Norfolk Island Regional Council. Therefore, the reserve no longer appears on the Commonwealth Heritage List. That part of Ball Bay Reserve formerly known as Bucks Point Reserve is however, listed on the Norfolk Island Heritage Register, as per the *Heritage Act (NI) 2002*.

2 Significance of Ball Bay Reserve

Ball Bay Reserve has significant landscape, conservation and historical values. The semi-circular bay is made particularly spectacular by the surrounding 80m high escarpment. The area is used for picking his, nature appreciation and occasionally for surfing. The bay itself can offer a sheltered landing place for certain types of ocean vessels including barges for delivery of heavy machinery and the fuel tanker which brings fuel to Norfolk on a regular basis. The Reserve incorporates small areas of coastal forest which is now scarce on Norfolk Island, and valuable habitat for many threatened species.

2.1 Geology and Landform

The Ball Bay basalts erupted from an unknown volcanic vent about 3 million years ago. That period of volcanic activity probably lasted for less than 100,000 years. It was another 200,000 years before the volcanic activity that built Phillip Island and most of Norfolk Island commenced. Volcanic activity on Norfolk Island ceased entirely about 2.3 million years ago.

Semi-circular Ball Bay may be the eroded remnant of either a maar (a crater formed by a shallow explosive eruption caused when underground magma invaded the groundwater table) or a pit crater formed by the collapse of the ground after the withdrawal of underlying magma. In any case, it is probable that the crater of the bay formed late in Norfolk Island's last volcanically active period. The sea has since eroded away the southeast half of the crater. The remaining crater walls form a steep, escarpment 80-100m high around the bay.

The basalt lava flows underlying the Reserve have been deeply weathered to form highly porous and erodable ferrosols, or rich clay loams. Streams flowing to the bay have deeply incised the slopes in the Reserve; the western-most of these is the largest that flows into the bay. Its catchment is sufficiently large to support an almost permanent water flow in the lower reaches. This stream flows over a waterfall near the foot of the scarp, about 80m from the shore.

2.2 Flora

Much of Ball Bay Reserve has been cleared over time, with the remaining forest mostly infested by woody weeds. The Reserve however still has significant flora values, with mature native trees, throughout the entire area primarily Norfolk Pines (*Araucaria heterophylla*) and Oaks (*Lagunaria patersonia*). There are also small pockets of native vegetation, concentrated in those valleys too steep for cattle to reach. These remnants, or 'biodiversity hotspots' shelter threatened species, including a small population of the Critically Endangered Norfolk Euphorbia (*Euphorbia norfolkiana*), the Endangered Brakefern (*Pteris kingiana*) and the uncommon fern *Hypolepis tenuifolia*. Other species include Siah's backbone (*Streblus pendulinus*) Birdcatcher (*Pisonia brunoniana*), Evergreen (*Alyxia gynopogon*), Mountain Rush (*Freycinettia baueriana*), Isaacwood (*Exocarpus phyllanthoides*), Binung Ferns (*Christella spp.*), Cutty grass (*Carex neesiana*), Coastal fern (*Asplenium difforme*), and Kangaroo fern (*Phymatosorus pustulatus*). A map of these hotspots is shown in Figure 3. The Reserve supports the only known population of the native fern *Dicranopteris linearis* on the island.

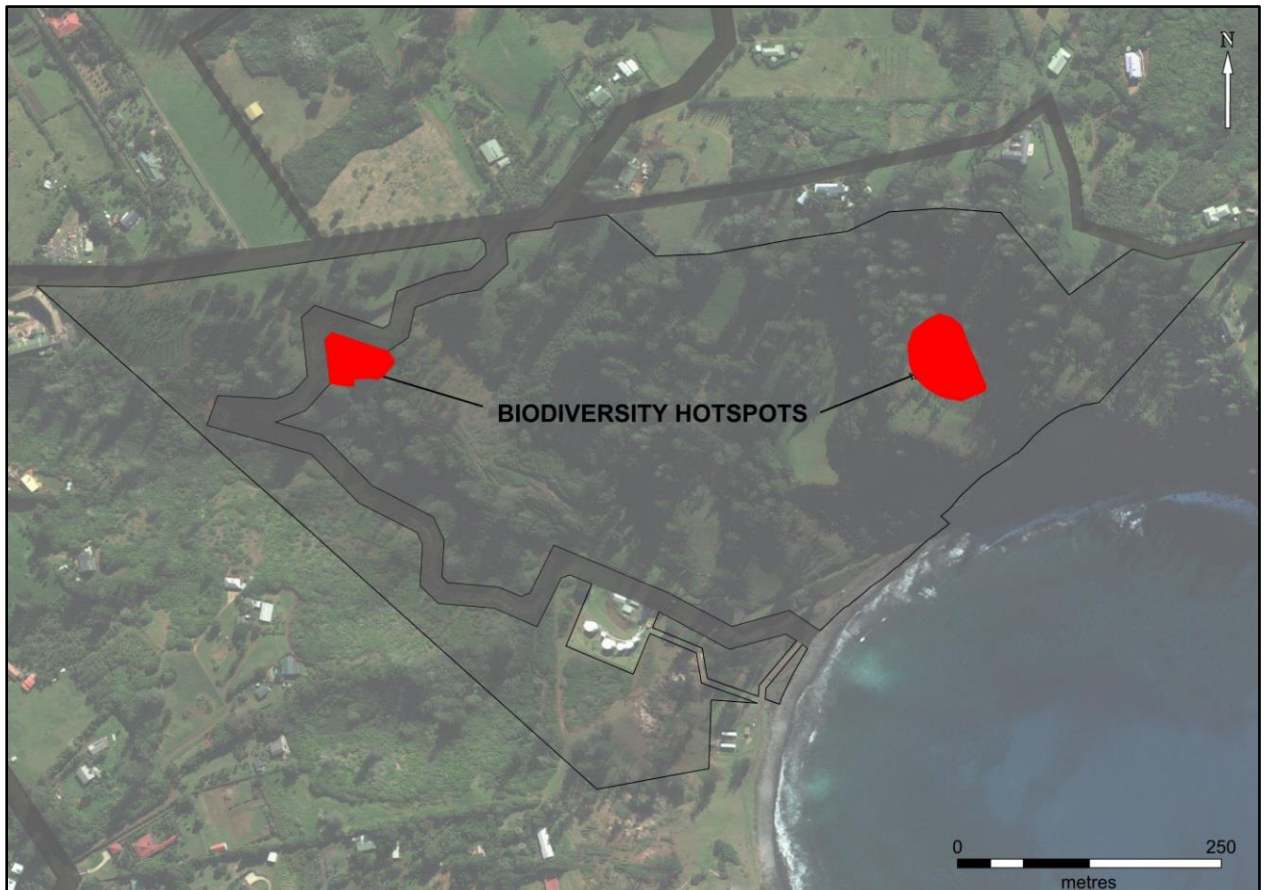


Figure 3. Location of Biodiversity Hotspots in Ball Bay Reserve

2.2.1 Significant Plant Species

In his 2017 targeted search of Ball Bay Reserve for threatened species, Mills recorded some of the following significant species. Other significant species were also recorded in field survey by Christian, 2017.

Name	Habit	Significant due to EPBC ¹ listing	Number of Plants (counted)	Estimate (where counting not possible)
Ti (<i>Cordyline obtecta</i>)	Tree	Vulnerable	52+	-
Norfolk Island Euphorbia (<i>Euphorbia norfolkiana</i>)	Shrub	Critically Endangered	29	-
Whiteywood (<i>Melicytus ramiflorus</i>)	Tree	Vulnerable	4	
Beech (<i>Myrsine ralstoniae</i>)	Tree	Vulnerable	114	
Kings brakefern (<i>Pteris kingiana</i>)	Fern	Endangered	89	
Yellow daisy (<i>Senecio australis</i>)	Herb	Vulnerable	31	

¹ Environmental Protection and Biodiversity Conservation Act 1999 (Cth)

Siah's Backbone (<i>Streblus pendulinus</i>)	Tree	Endangered	7	
Muehlenbeckia (<i>Muehlenbeckia australis</i>)	Creeper	Endangered	-	5
Dicranopteris (<i>Dicranopteris linearis</i>)	Fern	Yes (only population on the island)		c.50
Isaacwood (<i>Exocarpus phyllanthoides</i>)	Tree	Yes, large mature trees rare outside National Park	1	
Mountain Rush (<i>Freycinettia bauriana</i>)	Scrambler	Very rare outside of National Park		One patch
Ground Fern (<i>Hypolepis tenuifolia</i>)	Fern	Yes		c.20
Birdcatcher (<i>Pisonia brunoniana</i>)	Tree	Yes	1	-

In May 2000, the land between the former Bucks Point Reserve and the original Ball Bay Reserve was merged with the existing reserves to become what is now known as Ball Bay Reserve. The Planning Board was advised in July 1999 that 'The future survival of a range of Endangered species will be significantly enhanced by the restoration and development of native forest habitat through Ball Bay Reserve, Lot 168 (which has approximately 70 mature native trees) and Bucks Point Reserve. The incorporation of Buck Point Reserve and Lot 168 into Ball Bay Reserve will enable this valuable area to be restored and managed as a unit, significantly enhancing the ecological value of this part of the island. The Australian Heritage Commission has no objection to the amalgamation of Ball Bay and Bucks Point reserves through the incorporation of Lot 168.'

2.3 Fauna

A variety of native and endemic fauna still occur in the Reserve, however with limited native habitat their diversity and populations are depleted. A single endemic Long-billed White-eye was recorded in the Reserve in the 1978 Royal Australasian Ornithologists Union census.

White Terns (*Gygis alba*) breed in the larger trees in the more sheltered areas of the Reserve. The escarpment is generally unsuitable for Red-tailed Tropic Bird (*Phaethon rubricauda*) nests and Wedge-tailed Shearwater (Ghostbird) (*Ardenna pacifica*) burrows, although there are nests of these species on suitable adjacent land around Ball Bay.

The clearing of coastal vegetation has reduced the amount of habitat available to seabirds in the Reserve, and the primary way to address this loss of valuable habitat is through restoration of the native forest.

2.4 Cultural Heritage

No evidence of early Polynesian use of the Reserve area has been found. However, as with many other parts of the Island, it is likely that Polynesian people would have at least visited the area during the long period they inhabited Norfolk Island.

Ball Bay was originally named 'Ball's Bay' after Lieutenant Henry Lidgbird Ball, commander of HMS Supply, who had assisted Lieutenant Governor King in exploring Norfolk's coast and finding a suitable

landing site in March 1788. At daylight on 17 August 1788, Lt. King set out to walk overland to Ball Bay to investigate its value as a landing place. From his description, King appears to have approached the Bay via the valley that runs south-easterly between Allendale Drive and the Bay and from which the shore can be reasonably easily reached.

By December 1788, a small settlement had been formed at Ball Bay with the aim to establish a second landing place. A number of leases were granted to convicts between 1791 and 1814. It is likely that parts of what is now Ball Bay Reserve were cleared during this time. However, with the abandonment of Norfolk's first European settlement around 1814, cleared areas probably regrew. It was 11 years before the second European settlement began. By 1840, the 'Arrowsmith' map (Figure 4) shows a clearing of about 5 acres (2 hectares) roughly half way between Stockyard Road and Ball Bay, in the vicinity of the wide ridge that runs down to Marshs Road at the Norfolk Energy bulk fuel depot. The cleared area is not named and the remainder of the Reserve still appears vegetated. Stockyard Road and part of Martins Road are shown as tracks on the 1840 map.

In 1858-59 Norfolk Island was divided into lots of approximately fifty acres, many of which were distributed to the Pitcairn families. What is now Ball Bay Reserve appears to have remained vacant until at least 1887, when Portion 48 (approximately 58 acres, occupying the south-western two-thirds of the present Ball Bay Reserve) when maps show this as a 'Reserve for Public Purposes', and a 1904 map shows this as Ball Bay Reserve. By this time, Portion 47, between Martins Road and Ball Bay was still vacant but had been subdivided into 47b and 47c. No track or road to the shore is shown. After 1904, a lease over Portion 47b changed hands a number of times before being surrendered to the Crown in September 1968. The Portion was then subdivided: Portion 47b1 being leased; and Portion 47(rem) being declared Bucks Point Reserve in May 1971. A lease over Portion 47c also changed hands a number of times, until leaseholders Bill and Diana Forsyth agreed to surrender part of this lease. On 5 May 2000 that part of Portion 47c was incorporated into Ball Bay Reserve, thus joining the former Bucks Point and Ball Bay Reserves together.



Figure 4: 1840 Arrowsmith Map Showing the Ball Bay Reserve Area

Ball Bay has played an important role in the economic and cultural development of Norfolk Island. A local whaling industry was established in Ball Bay in the latter half of the 19th century and whaling ships from America and Europe often visited Norfolk Island. Whalers intermittently called for supplies at both Pitcairn and Norfolk Islands, maintaining the link between the two communities and providing opportunities for trade and employment. The South Seas Whaling and Sharking Company Ltd operated the last whaling station in Ball Bay in 1950.

Ball Bay has also played a significant role in shipping and transport for the Island, providing an alternative site for the landing and unloading of supplies and heavy machinery. Early in the Third Colonial Settlement, Captain Bates used the bay as anchorage for the Southern Cross, the Melanesian Mission ship that provided the Island with its major link to the external world. United States military engineers also constructed a short pile jetty and slipway during WWII to unload military machinery and supplies.

Rock-fill ramps have occasionally been constructed to enable heavy equipment for major construction projects to be landed from barges: the airport upgrade in 1982; the Cascade cliff safety project in 1999-2000; the Mt Pitt Road project in 2001-02 and the airport runway re-seal in 2005-06. Boulders from the foreshore used to construct the ramps have been replaced along the foreshore when the ramps have been removed. Ball Bay is subject to high energy waves and swells driven by the prevailing south-easterly winds. To prevent displacement of the ramp material by the sea, the ramps have been removed as soon as unloading or loading has been completed.

Two parcels of land have been excised from Ball Bay Reserve to provide for fuel facilities. Norfolk Island is serviced regularly by a small oil tanker and a small bulk gas tanker. Petrol, diesel, and aviation fuel is pumped through a floating pipeline to a fixed pipeline that runs across the Reserve from the foreshore to the Norfolk Energy bulk fuel depot. Bulk gas is also pumped ashore to the gas terminal.

Over a period of almost 30 years a series of companies operated rock crushing plants on Portion 48c in the north-western corner of the Reserve, adjacent to Stockyard Road. Rock quarried at Cascade was hauled to the Stockyard Road crusher. Crushed rock products were used all over Norfolk Island for road construction and maintenance, and for concrete. Significant quantities of crushed rock were also produced for the airport upgrade in the early 1980's. The crusher at Stockyard Road closed when the lease for Portion 48c was terminated in 1999. The area was then returned, as much as possible to its pre-crusher form. It was stabilised, fenced, and planted with Kikuyu pasture and native trees including Norfolk Island Pine (*Araucaria heterophylla*), White Oak (*Lagunaria patersonia*) and Maple (*Elaeodendron curtispiculum*). In September 2010, topsoil was imported and spread to improve the poor skeletal topsoil on the upper section of the former crusher site and additional native trees were planted.

3 Management Issues

3.1 Geology and Landform

Much of Ball Bay Reserve is very steep. These slopes have been mostly cleared of the forest that was once present, and grazing over many decades has left these slopes vulnerable to erosion. This vulnerability to erosion has been demonstrated on many occasions, including:

- The Bucks Point to Ball Bay Bicentennial Scenic Trail was constructed in 1988, but only lasted a few years due to the track continually eroding away.
- In October 1998, blocked drains along Marshs Road caused flooding and channeling of water. The water cut through road embankments and in some places stripped the road seal causing damage to the road itself. Two large Norfolk Island Pines were undermined and had to be removed. Repairs were expensive.
- In March 2011, during intense rain, a short section of the outer edge of Marshs Road failed and washed down the westernmost creek gully (which contains one of two biodiversity hotspots identified within in the Reserve). The mudslide flowed over 100m down the gully, carrying with it much of the vegetation in the creek bed. This landslip left a near-vertical scarp, requiring significant stabilisation work to provide a sound foundation on which to re-construct the road.

The erosion issues can be addressed with better grazing management, and ecological restoration to ensure land is not left bare of vegetation, as outlined in Section 4 of this plan of management.

3.2 Weeds

Weeds are one of the main threats to the remaining biodiversity values in Ball Bay Reserve. The main weeds are Hawaiian Holly (*Schinus terebinthifolius*), Olive (*Olea europea* subsp. *cuspidata*) and Porpieh (*Psidium cattleianum*), which are present throughout the entire reserve. Cotoneaster (*Cotoneaster glaucophyllus*) has become a serious weed in the area west of Marshs Road, and Pohutukawa (*Metrosideros kermadecensis*) has naturalised on the escarpment northeast of the old access road. Other problem weeds in the Reserve include Purple milkwort (*Polygala myrtifolia*) and Cascade Onion (*Moraea flaccida*) which is confined mainly to the grazed ridges and flat areas of the Reserve.

The need to reverse the environmental degradation of Ball Bay Reserve by addressing the infestations of woody weeds and re-establishing native forest was recognised in the 1960's and 70's, with stock exclusion fencing and planting of Norfolk Pines in the western section of the Reserve. At about the same time, a population of the Critically Endangered Norfolk Island Euphorbia (*Euphorbia norfolkiana*) was found towards Bucks Point. This area was protected as Bucks Point Reserve in 1971 and it was then listed on the (former) Register of the National Estate for its high flora and fauna conservation value. In 1999 further Commonwealth (Green Corps) funding was used to rehabilitate and enhance earlier plantings and remove woody weeds. Around 2002, woody weeds were cleared from the valley south of Stockyard Road in preparation for planting Norfolk Pines and other native forest trees.

There are some areas of Ball Bay Reserve where woody weeds are the dominant vegetation, and reestablishment of native vegetation would be a long term, resource intensive exercise. Without a significant injection of funding there is little that can be done in the short term to improve the condition of these areas. However, there are other areas of the Reserve where careful weeding and grazing exclusion will have significant positive effects. There are two areas that should now be fenced and weeded, to preserve for example the Critically Endangered *Euphorbia norfolkiana* population that still struggles on, and a small coastal forest remnant that is representative of the type of coastal forest that would once have been widespread prior to land clearing in coastal areas.

One of the significant flora species present is Isaacwood (*Exocarpus phyllanthoides*). This is an endemic hemiparasite that obtains some of its sustenance directly from the roots of nearby plants, which it parasitises. It is therefore vulnerable to herbicides being applied to its host plant(s). Ball Bay Reserve is home to a very large Isaacwood, in one of the two remaining forest remnants, so care with herbicide application is essential.

3.3 Pest Animals

Feral cats, rats and Argentine ants are the main pest species in the Reserve, and all of them present significant threats to the native flora and fauna.

Feral cats are present and breed in the Reserve. Cats feed mainly on vertebrate prey. Nesting birds, fallen tern chicks and ground nesting seabirds are particularly Vulnerable. In 2017, a public survey on Norfolk Island was used to ask the 182 respondents who voluntarily responded, which of the following three options they supported with regard to the management of cats on Norfolk Island: (1) Do nothing; (2) Ban cats from Norfolk Island; or (3) Allow continued cat ownership under controlled conditions. 69% of respondents supported continued ownership under controlled conditions. The vast majority of respondents also made written comments and one of the most common comments was that private people were actively trapping cats, and that feral cats were a big problem on Norfolk. This shows the high level of community support for Feral Cat control.

The Polynesian Rat and the Black Rat occur throughout Norfolk Island and the Reserve. Rats feed on the seeds and fruits of a variety of native and introduced plants, and predate a variety of terrestrial fauna, including snails, land crabs, bird eggs and nestlings. Eradication of the Black Rat from several New Zealand off-shore islands and other islands around the world, and the recovery of flora and fauna populations following these eradication programs, has demonstrated that this introduced species has a devastating effect on native flora and fauna.

The Black Rat has had and continues to have a negative impact on Norfolk's biota, including the post-war extinction of bird species such as the Black and White Sparrow, Guava Bird, and the serious decline in others such as the Robin and the White-breasted Silveryeye and the extinction of both species of bat (Gould's Wattleed Bat and the Norfolk Island Free-tail Bat).

Feral chickens occur within Ball Bay Reserve and are having a dramatic impact on the environment by scratching and displacing native seedlings and dispersing noxious weed seeds. Feral chickens also feed upon invertebrates such as endemic land snails and dung beetles, which play a vital role in the Reserve. Landowners from neighboring properties have complained about feral chickens entering their private land from Hundred Acres Reserve in the past. The culling of feral chickens in Norfolk Island Public Reserves does occur, although culling is currently prohibited between October and April and the feral chicken population increases during this time as a result.

The Crimson Rosella (Red Parrot) (*Platycercus elegans*) was introduced to Norfolk Island as a cage bird, and is now prolific on the Island. The Crimson Rosella is in direct competition with native bird species such as the Norfolk Island Green Parrot (*Cyanoramphus novaezelandiae cookii*) for territory and nesting sites (tree hollows).

The Argentine ant (*Linepithema humile*) is one of the world's worst invasive species, having spread from its native habitat in South America to establish populations on six continents and many oceanic islands. The Argentine Ant was first identified on Norfolk Island in 2005, and an eradication program

commenced in 2008. This aggressive ant actively displaces other species of ants, and with its need for protein based food sources, it poses a threat to the majority of Norfolk's vertebrates and invertebrates. In 2010, Argentine Ants were found in Ball Bay Reserve at the top of the first gully, immediately to the east of the start of the old road. At the time of preparation of this plan of management, this ant infestation had been successfully treated, but was awaiting final confirmation that all ants had been eradicated. All of the reserve's vertebrate and invertebrate fauna are vulnerable to Argentine Ants.

3.4 Stock grazing

Cattle grazing has had and is having a significant impact on the ecology of Ball Bay Reserve. This is partly due to the fact that large parts of the Reserve have been cleared of native vegetation, and partly due to the steep terrain. Large, hard hooved animals walking along steep slopes cleared of vegetation has contributed to the degraded landscape shown in Figure 5.



Figure 5. 2017 photo of cleared, grazed steep slopes. Despite recent rain and grass cover, exposed tree roots are visible, and terracettes can still be seen along the slopes

Throughout the Reserve, there are indications of grazing damage including exposed tree roots, terracettes on steep slopes, hillside erosion, siltation due to upstream erosion, trampling of the wetland, waterway degradation and populations of threatened plant species reduced by grazing. This includes the Critically Endangered Norfolk Island (*Euphorbia norfolkiana*). Public consultation on this plan of management showed that people were specifically concerned about the plight of this species. In addition, public consultation showed support for maintaining cattle exclusion areas. The Norfolk Euphorbia is endemic, meaning that it is only found on Norfolk Island. The Ball Bay population is the last remaining natural population of this species and cattle have grazing access to this. The only adult plants left are those growing on an escarpment too steep for cattle, with new seedlings from these plants under direct threat. When cattle exclusion was in place during the 1980s-1990s the population covered a much larger area. The species is listed as Critically Endangered by the *Environmental Protection and Biodiversity Conservation Act 1992* and is protected by the Act.

At present, former Portion 48c is maintained as cattle exclusion area, due to the fact this is the rehabilitated former crusher with many young native saplings present. The area will be maintained as a cattle exclusion area so that these native plants survive.

Grass grows more slowly and is thinner on hillsides than on lower valley slopes. This is because valley soils are usually deeper and have more nutrients, organic matter and moisture in the root zone. The low productivity and steep slopes of such hillside pasture result in a naturally lower stock carrying capacity.

Like other public land on Norfolk stock freely grazed Ball Bay Reserve during the late nineteenth and much of the twentieth century. In the late 1980's - 1990's, a fence was erected along the length of Marshs Road, excluding cattle from all of the reserve east of that road (an area about two thirds of the reserve). Commonwealth (Bushcare) funding was then used to plant Norfolk Island Pines and other native trees in various parts of the Reserve. By 2003, about 10 hectares of the Reserve was relatively weed free, with some of that area having been cleared between 1993 -1996 as part of a forest rehabilitation program and some cleared in 2002 in preparation for tree planting. The 2003 Plan of Management reflected the intention to continue the native forest rehabilitation program and cattle exclusion to the east of Marshs Road. However, the fence along the eastern side of Marshs Road fell into disrepair, and cattle gained access to the whole of the area through to Bucks Point resulting in continuing significant damage to remnant native vegetation and to revegetated areas.

Another significant issue with grazing in Ball Bay Reserve is reliable access to drinking water for stock. The creeks in Ball Bay Reserve are, for the most part, ephemeral. The one creek that rarely dries out is located in the west of the reserve, flowing down to the picnic table near the foreshore. Figure 6 shows the damage that cattle are causing to the wetland area near the hairpin bend in Marshs Road. Wetlands are scarce on Norfolk, and stock access to wetlands damages water quality and the native flora and fauna that utilise these areas. The Norfolk Island Natural Resource Plan of management 2009 recommended as a priority across the island that *'All wetlands and important water sources are to be protected and fenced off from cattle and/or control measures implemented to prevent animal waste entering the water.'*



Figure 6. Wetland on hairpin bend in Marshs Road showing damage due to stock grazing

3.5 Recreation and Facilities

Ball Bay Reserve is secluded, and has a low level of recreational use by the public. Many visitors drive through the Reserve along Marshs Road to the bay foreshore to take in the view. The Reserve is also occasionally used by local people for fishing, walking, surfing, and collecting Hi-Hi's.

There are no formal picnicking facilities in the area, although there is an old, useable picnic table close to where the creek meets the foreshore. This is located in an ideal place for the development of a formalised picnic area, as it has some flat land, is close to the ocean, and has a cleared area suitable for a community planting of plants significant to the Ball Bay Reserve such as the Critically Endangered Norfolk Island Euphorbia (*Euphorbia norfolkiana*).

In May 2000, Ball Bay Reserve was expanded to include not only the former Bucks Point Reserve, but other land that had been privately owned. The former Australian Heritage Commission advised the then Norfolk Island Planning Board that the incorporation of the land 'will allow that reserve to be joined with Bucks Point Reserve to make a single 28.334ha reserve. Bucks Point Reserve is listed on the Register of the National Estate, but is small and isolated. A walking track from Bucks Point Reserve down the cliff front to Ball Bay was closed because of the unsuitability of the terrain for such a track. Joining Bucks Point Reserve and Ball Bay Reserve with Lot 168 (4.194ha) will enable walking access between the present Bucks Point Reserve and Ball Bay.' There are now a number of options for walking tracks between the Bucks Point and Ball Bay sections of the Reserve and the foreshore, without the need to traverse exceptionally steep land. Public consultation on the review of the plan of management did include a request to reinstate part of the trail, but to reroute it through Portion 47c2 along the contours to keep the trail gradient more reasonable.

3.6 Access and Landing Ramps

Marshs Road is sealed and provides all weather access to the bay. It was constructed to replace the original road which took a steeper, more direct route from Stockyard Road to the foreshore. The old road footprint is still present, but is heavily eroded and inaccessible for vehicles, although occasionally in the past the Conservator has allowed the use of this road by heavy machinery for various projects.

There are limited options available on Norfolk Island for landing heavy equipment for the construction and maintenance of the Island's infrastructure. The foreshore of Ball Bay has periodically been used for landing heavy equipment via a temporary ramp constructed at the foreshore. These ramps have been constructed of boulders and rocks collected within Ball Bay and have been dismantled after use, and the foreshore rehabilitated.

4 Management Strategy

Management Vision: To improve the environmental and ecological values of Ball Bay Reserve

4.1 Ecological Restoration

Strategic Objective: To improve the condition of the remaining native vegetation and support the recovery of threatened species in the reserve

A strategy for the effective removal of weeds from the Reserve will be developed. This will help to promote the natural regeneration of native plant species, and where necessary, appropriate native species will be planted to increase the density and diversity native species within the Reserve.

Clearing of native coastal forest has resulted in the loss of potential breeding habitat for fauna such as White Terns and Black Noddies. Restoration of coastal forest is important for species such as these, particularly in the valleys. Revegetation will also allow for the reestablishment of Endangered and Critically Endangered plant species that are now under direct threat due to grazing pressure and woody weed encroachment. Replanting and reestablishment of forest areas throughout the Reserve will increase the resilience of the land to issues such as erosion, slippage and siltation.

The ecological restoration required in Ball Bay Reserve is extensive, and due to the size of the Reserve it will be costly. For this reason, the restoration program should be staged depending on the level of available funding, with short, medium and long-term goals staggered over the life of this plan and successive budget cycles.

In the short term, there are two small biodiversity hotspots in Ball Bay Reserve, which are both under direct threat due to cattle grazing. These are shown in Figure 3. These hotspots offer very little grazing as they are small, steep and mostly forested. Despite the steep terrain, some cattle do reach these places where they trample and/or eat seedlings of Endangered and Critically Endangered species including Kings Brakefern (*Pteris kingiana*) and Norfolk Euphorbia (*Euphorbia norfolkiana*). These species are protected under the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* and as a land manager, Council has a Duty of Care to protect these species. It is therefore recommended that these areas be fenced off as soon as possible to exclude cattle, and followed up with weed control to prevent them becoming infested with woody weeds.

In the medium term, the grazing regime within Ball Bay Reserve will be modified in consultation with the Norfolk Island Cattle Association with a view to:

- continuing continual grazing in some areas (grazing zone);
- providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and
- excluding grazing completely from areas with high conservation value and areas that are prone to erosion (conservation zone).

Following the establishment of the three zones mentioned above, planting areas will be established within appropriate locations in Ball Bay Reserve so as to allow for the propagation and planting of plant species that are under direct threat in Ball Bay Reserve (and ongoing weed control), plus other species that will complement them as follows:

- Ti (*Cordyline obtecta*)
- Norfolk Island Euphorbia (*Euphorbia norfolkiana*)
- Whiteywood (*Melicytus ramiflorus*)

- Beech (*Myrsine ralstoniae*)
- Kings brakefern (*Pteris kingiana*)
- Yellow daisy (*Senecio australis*)
- Siah's Backbone (*Streblus pendulinus*)
- Muelenbeckia (*Muehlenbeckia australis*)
- Dicranopteris (*Dicranopteris linearis*)
- Isaacwood (*Exocarpus phyllanthoides*)
- Mountain Rush (*Freycinettia bauriana*)
- Ground Fern (*Hypolepis tenuifolia*)
- Birdcatcher (*Pisonia brunoniana*)
- Native flax (*Phormium tenax*)
- Melky tree (*Excoecaria agallocha*)

These planting areas can then be used to grow and maintain populations of Norfolk Island Euphorbia (*Euphorbia norfolkiana*) and any of the other threatened species that are currently found within the Reserve. These planting areas will then be used for seedstock should any further populations of threatened species become extinct from Ball Bay Reserve.

It should be recognised that if any removal of grazing and/or weed control is to be successful in Ball Bay Reserve it is extremely important that sufficient funding be provided for the ongoing management of these areas so that woody weed infestations can be removed and managed. Adequate levels of ongoing funding for this work should be sourced before and broad scale work commences.

Individual native trees will be planted in stock-proof enclosures (such as timber pallets) in the grazing and managed grazing zones in consultation with the Norfolk Island Cattle Association. These trees should be chosen for their hardiness, amenity value and shade value. Species such as Norfolk Pines (*Araucaria heterophylla*), White oaks (*Lagunaria patersonia*), Melky trees (*Excoecaria agallocha*) and Pulau trees (*Hibiscus tiliaceus*) would be appropriate. Trees will not be planted in rows, as this can result in future erosion issues.

The Dicranopteris (*Dicranopteris linearis*) fern within the Reserve is vulnerable and will be researched and propagated if possible, and robust arrangements will put in place to ensure that roadworks, roadside spraying and other activities do not have an impact on this species.

Community groups will be encouraged to assist with the management of Ball Bay Reserve (in line with this Plan of Management), and research and monitoring projects that improve scientific knowledge of the natural environment or that may lead to improved management of the Reserve will be encouraged with permission from the Conservator of Public Reserves.

Parts of the Reserve may be suitable feeding and breeding habitat for the Norfolk Island Morepork. The provision of artificial nest hollows will be investigated. Artificial nest boxes will not be placed in the Reserve without appropriate monitoring and pest control, and will be coordinated with advice from the Park Manager, Norfolk Island National Park and Botanic Gardens. A Red Parrot (Crimson Rosella) eradication program will be implemented as part of this work.

4.1.1 Management Actions: Ecological Restoration

- a) Seek adequate levels of ongoing external/other funding to undertake weed control, revegetation and habitat restoration programs within the Reserve before any broad scale work commences (High Priority).
- b) Develop and implement a strategy for the eradication or control of weeds and revegetation with appropriate native species within the Reserve. Leave woody weeds in place to decompose where possible to minimise disturbance (High Priority).
- c) Investigate options for the supply of appropriate native plants and seed for revegetation within Norfolk Island Reserves (High Priority).
- d) Carry out an ongoing Rat control programs within Ball Bay Reserve and other Public Reserves on Norfolk Island to reduce damage to the seeds and seedlings of native plants and to nesting seabird populations within the Reserve (Ongoing/High).
- e) Investigate the value of installing nest boxes for hollow dependent native species within the Reserve with advice from Norfolk Island National Park and Botanic Gardens (High Priority).
- f) Exclude cattle from the two biodiversity hotspots in the Reserve as soon as possible as the highest priority, and undertake weed control in these areas as soon as possible to prevent woody weeds taking over these areas (High priority).
- g) Plant individual native trees in stock-proof enclosures (such as timber pallets) in the grazing and managed grazing zones in consultation with the Norfolk Island Cattle Association (Medium Priority).
- h) In the medium term, the grazing regime within Ball Bay Reserve will be modified in consultation with the Norfolk Island Cattle Association with a view to:
 - continuing grazing in some areas (grazing zone);
 - providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and
 - excluding grazing completely from areas with high conservation value and areas that are prone to erosion (conservation zone) (High Priority).
- i) Following the establishment of the grazing, managed grazing and conservation zones mentioned above, planting areas will be established within appropriate locations in Ball Bay Reserve so as to allow for the propagation and planting of plant species that are under direct threat in the Reserve, plus other species that will complement them (High Priority).
- j) Carry out research on the Dicranopteris (*Dicranopteris linearis*) fern within the Reserve and propagate/replant if possible (High Priority).
- k) Put in place robust arrangements to ensure that roadworks, roadside spraying and other activities do not have an impact on the Dicranopteris (High Priority).
- l) Encourage community groups to assist with the management of Ball Bay Reserve (in line with this Plan of Management), and encourage research and monitoring projects that improve scientific knowledge of the natural environment or that may lead to improved management of the Reserve (High Priority).

4.2 Pest Animal Management

Strategic Objective: To reduce the negative impacts of pest species in the Reserve

An ongoing rat baiting program will be established to target those areas with vulnerable flora and fauna, particularly Norfolk Island Euphorbia (when fruiting and seeding) and during seabird breeding season. Rat control may also reduce predation pressure on other birds that are now uncommon in the Reserve, such as the Norfolk Island Green Parrot, Norfolk Island Boobook Owl, Scarlet Robin, Golden Whistler, and Grey Fantail. Live trapping will be used to control cats in the Reserve, especially before and during the Ghostbird, White Tern, and Noddy breeding season.

Live trapping will be used to control cats in the reserve, particularly prior to and during bird breeding seasons.

A feral chicken and Red Parrot control program will be implemented to reduce the feral chicken population and protect invertebrates such as endemic land snails and dung beetles.

The root rot fungus *Phellinus noxius* may occur as a natural part of the forest ecosystem. It is not likely to cause undue damage in an undisturbed, diverse and healthy native forest. The incidence and effect of *P. noxius* in the Reserve will be monitored and minimised by enhancing forest diversity and minimising disturbance and damage to tree butts and roots.

Until it is confirmed that Argentine ants have been eradicated from the Reserve, all plant and equipment used in the Argentine ant infested area of the Reserve will be inspected, cleaned and if necessary sprayed with pesticide prior to leaving the Reserve to ensure it is free of Argentine ants, or any soil or vegetative material that might harbour Argentine ants. Similarly, any timber or other material removed from the Reserve will be inspected and if necessary, sprayed with pesticide prior to its removal from the Reserve.

4.2.1 Management Actions: Pest Animal Management

- a) Continue with the implementation of the Argentine Ant Eradication Strategy throughout the Island (and within the Reserve as required) as part of the wider eradication program across the island (Ongoing/High).
- b) If deemed necessary, inspect all plant, equipment and biological materials leaving the Reserve for signs of Argentine Ants. Where necessary, treat such materials with appropriate pesticides to reduce the potential for the spread of ants from Ball Bay Reserve to other parts of the island (Ongoing/High).
- c) Establish an ongoing coordinated Island wide Rat control program with the target of reducing rat numbers in areas with vulnerable flora and fauna, and reducing predation pressure on birds (High Priority).
- d) Carry out cat trapping and humane euthanasia, focusing on reducing cat numbers prior to the seabird breeding season around potential breeding areas (High priority).
- e) Carry out feral chicken and Red Parrot control within the Reserve and encourage neighboring landholders to control feral chickens and Red Parrots on their properties (High Priority).

4.3 Stock Management

Strategic Objective: To manage stock so that grazing is sustainable in Ball Bay Reserve and native vegetation (including threatened species) is protected

Former Portion 48c will be maintained as a cattle exclusion area, due to the fact this is the rehabilitated former crusher with many young native trees and other plants present. The area will be maintained as a cattle exclusion area.

The grazing regime within Ball Bay Reserve will be modified in consultation with the Norfolk Island Cattle Association with a view to:

- continuing grazing in some areas (grazing zone);
- providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and

- excluding grazing completely from areas with high conservation value and areas that are prone to erosion (conservation zone).

The installation of cattle troughs within the grazing and managed grazing zones will be investigated, and stock troughs will be installed if this is possible and if funding allows.

4.3.1 Management Actions: Stock Management

- Maintain portion 48c (the former crusher on Stockyard Road) as a cattle exclusion zone (Ongoing/High Priority).
- Exclude cattle from the two biodiversity hotspots in the Reserve as soon as possible, and immediately schedule weed control in these areas (High Priority).
- Modify the grazing regime within Ball Bay Reserve in consultation with the Norfolk Island Cattle Association with a view to:
 - continuing grazing in some areas (grazing zone);
 - providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and
 - excluding grazing completely from areas with high conservation value, steep areas and other areas that are prone to erosion (conservation zone) (High Priority).
- Exclude cattle from the wetland area on the hairpin bend at on Marsh's Road (High Priority).
- Investigate the installation of cattle troughs within the grazing and managed grazing zones, and install troughs if feasible and if funding allows (High priority).

4.4 Recreation Management

Strategic Objective: To facilitate sustainable recreation in Ball Bay Reserve

One of the actions in the Ecological Restoration section of this plan is to establish and maintain cattle grazing zones within the Reserve. When these zones are established, picnic tables and facilities could be installed in appropriate areas so Reserve visitors can stop, rest and enjoy the views of Ball Bay.

There is an informal lookout area where the original, eroded road cutting intersects with Marshs Road. People can sometimes be seen stopping their car to take photos from this location, which offers sweeping views of the Bay. Should there be a future demand for more recreation facilities within the Reserve, this area could be considered for a picnic area.

Constructed in 1988, the Buck's Point to Ball Bay Bicentennial Scenic Trail traversed steep slopes on the bay escarpment and crossed a number of steep gullies, requiring a very high level of maintenance. Within a few years, sections of the track deteriorated to such an extent that it was closed. During the preparation of this plan of management, it was established that much of the original footprint of this trail is still present. In its day, the trail had a relatively low level of use, probably in part due to the very challenging nature of what was essentially a one way walk. With the incorporation of part of Portion 47c2 into the reserve, there are a number of options for walking tracks between the Bucks Point and Ball Bay sections of the Reserve and the foreshore, without the need to traverse the steep escarpment. Public consultation on the review of the plan of management did include a request to reinstate part of the trail, but to reroute it through Portion 47c2 as discussed here. Not only might this be a recreational trail, but it might be linked with the existing 4WD vehicular track to allow for maintenance of cattle grazing fences along the tops of the ridges.

There is the potential to establish a walking trail linking Ball Bay and Two Chimneys Reserves. The feasibility and costs associated with establishing this walking trail will be investigated, and funding sources will be explored.

Wherever possible, rubbish bins will not be provided in Reserves, due to the cost and staff resources associated with servicing them. Where there is a picnic area or a problem with rubbish build up, bins may be provided on an as-needed basis.

4.4.1 Management Actions: Recreation Management

- a) Consider providing a formal picnic area within Ball Bay Reserve, taking into account the location of the fuel tanks and the potential fire risk and other Reserve values (High Priority).
- b) Consider providing picnic facilities at the lookout (Medium Priority).
- c) Consider establishing a walking trail along the original footprint of the Bucks Point to Ball Bay Bicentennial trail in the east of the Reserve, but reroute the trail in the west so that it does not traverse the escarpment into Ball Bay itself, but instead that it follows the contours to the intersection of Martins Road/Stockyard Road (High priority).
- d) Consider establishing a Ball Bay to Two Chimneys walking trail if funding allows (Medium Priority).
- e) Investigate the need for rubbish bins periodically (Low Priority).

4.5 Access, Facilities and Landing Ramps

Strategic Objective: To meet the requirements for access and infrastructure in Ball Bay Reserve without compromising the values of the reserve

For safety and maintenance reasons, a slashed buffer area will be established and maintained around the bulk fuel and gas storage facilities. The width of that buffer will be determined in consultation with the operators of those facilities.

Should the Bucks Point to Ball Bay Bicentennial Trail be reinstated in its modified form as outlined in the recreation section of this plan of management, it could potentially be used for maintenance access for slashing, weed control and stock fencing along the ridges to control grazing. This track would therefore double as a maintenance and recreation trail.

The Conservator of Public Reserves may approve the construction of a temporary ramp on the foreshore of Ball Bay provided the activity complies with the specifications in Table 1 of this Plan of Management. In the past, such ramps have been used to land heavy machinery for essential infrastructure upgrades on Norfolk.

Parts of the Ball Bay Reserve can be accessed from Stockyard Road and Marshs Road. In the past, drains on these roads have blocked, resulting in water banking up and massive erosion during heavy rain. Whilst some work has been undertaken to manage roadside runoff, it is still a problem. The design of roadside drainage along these roads needs to be reviewed and works undertaken to minimise damage from runoff.

Roadside drainage and other drainage issues within the Reserve should be investigated and options to improve drainage should be implemented. Of particular concern is the close proximity of probably the island's largest specimen of Isaacwood (*Exocarpos phyllanthoides* x 2) to the major erosion area.

4.5.1 Management Actions: Access, Facilities and Landing Ramps

- a) Maintain a clear buffer around the bulk fuel and gas storage facilities (Ongoing/High).

- b) Consider the reinstatement of the Bucks Point to Ball Bay Bicentennial Trail in its modified form as outlined in the recreation section of this plan of management, and consider its use for maintenance access and stock fencing along the ridges (Medium Priority).
- c) Landing ramps will be considered only provided the activity complies with the specifications in Table 1 and where a permit has been issued by Marine Parks Australia for the construction of such (Ongoing/High Priority).
- d) Review and upgrade roadside drainage from Stockyard Road and Marshs Road and other drainage within the Reserve to cope with heavy rainfall events and to prevent or limit erosion and erosion into the Marine Park (High priority).

4.6 Planning for Efficient Reserve Management

Strategic Objective: To deliver the best possible outcomes by efficiently allocating management resources across the Norfolk Island Public Reserves

The Norfolk Island Public Reserves network currently consists of 12 reserves², each of which has a Plan of Management. Within each plan there are a many actions, and Council needs a method to determine which actions are funded first. These management actions have been prioritised as high, medium or low (or ongoing), which will help in determining which actions to fund first. However, there are many reserves and Council must determine which actions from which reserves are to be funded in each successive annual budget. To do this, the high, medium and low priority actions for one reserve need to then be compared against the high, medium and low value actions for all other reserves.

To enable management actions to be compared against one another across the entire reserve network, the reserves themselves need to be prioritised. All of the reserves are intrinsically valuable, for many different reasons including conservation, recreation and heritage values. Spatial prioritisation of land for conservation and land management is a well-established science that allows land managers to direct funding to where it is most needed (Moilanen *et. al.* 2009). It is recognised that this is a complex process, and one which is generally performed by computer modelling software. Therefore, a full prioritisation project is recommended. In the interim, a draft prioritisation of the reserves has been prepared during the management planning process, and is presented in Appendix 2.

It is recommended that all actions from all management plans be pooled, and sorted into high, medium, low or ongoing status. This list of actions then needs to be further filtered using the priority assigned to each reserve. High priority actions in high priority reserves would generally be considered for funding before low priority actions in lower priority reserves. The highest priority actions would then be considered for funding in the annual Council operational plan. Obviously, this is only a starting point as Council's annual budget will need to consider a broad range of other factors and other projects competing for funding.

4.6.1 Management Actions: Planning for Efficient Reserve Management

- a) Determine the priority of each reserve in the Public Reserves network for budget and resource allocation purposes. Amongst other things, this prioritisation should consider the objects of the Public Reserves Act 1997 (NI), the zoning and gazetted purpose of the reserve and on ground observations. Priorities will change over time, so this is a dynamic process. In the interim, draft priorities have been assigned to each reserve in Appendix 2 of this Plan of Management (High priority).

² Potentially subject to change, as per Appendix 3

- b) Combine the management action priority (e.g. high, medium or low) with the reserve priority to determine which actions across the entire reserve network are funded in each successive Council annual Operational Plan (High priority).
- c) Track the progress of each of the actions in the annual Operational Plan as a measure of the success of the Plan of Management (Medium priority).

SUMMARY TABLE OF MANAGEMENT ACTIONS FOR BALL BAY RESERVE 2020 - 2030

Management Vision: To improve the environmental and ecological values of Ball Bay Reserve

Theme	Strategic Objectives	Actions (How will we get there?)	Priority
4.1 Ecological Restoration	To improve the condition of the remaining native vegetation and support the recovery of threatened species in the reserve	4.1.1 (a) Seek adequate levels of ongoing external/other funding to undertake weed control, revegetation and habitat restoration programs within the Reserve before any broad scale work commences.	High
		4.1.1 (b) Develop and implement a strategy for the eradication or control of weeds and revegetation with appropriate native species within the Reserve. Leave woody weeds in place to decompose where possible to minimise disturbance.	High
		4.1.1 (c) Investigate options for the supply of appropriate native plants and seed for revegetation within Norfolk Island Reserves.	High
		4.1.1 (d) Carry out an ongoing Rat control programs within Ball Bay Reserve and other Public Reserves on Norfolk Island to reduce damage to the seeds and seedlings of native plants and to nesting seabird populations within the Reserve.	Ongoing/ High
		4.1.1 (e) Investigate the value of installing nest boxes for hollow dependent native species within the Reserve with advice from Norfolk Island National Park and Botanic Gardens.	High
		4.1.1 (f) Exclude cattle from the two biodiversity hotspots in the Reserve as soon as possible as the highest priority, and undertake weed control in these areas as soon as possible to prevent woody weeds taking over these areas.	High
		4.1.1 (g) Plant individual native trees in stock-proof enclosures (such as timber pallets) in the grazing and managed grazing zones in consultation with the Norfolk Island Cattle Association.	Medium
		m) 4.1.1 (h) In the medium term, the grazing regime within Ball Bay Reserve will be modified in consultation with the Norfolk Island Cattle Association with a view to: <ul style="list-style-type: none"> • continuing grazing in some areas (grazing zone); • providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and • excluding grazing completely from areas with high conservation value and areas that are prone to erosion (conservation zone). 	High Priority
		4.1.1 (i) Following the establishment of the grazing, managed grazing and conservation zones mentioned above, planting areas will be established within appropriate locations in Ball Bay Reserve so as to allow for the propagation and planting of plant species that are under direct threat in the Reserve, plus other species that will complement them.	High
		4.1.1 (j) Carry out research on the Dicranopteris (<i>Dicranopteris linearis</i>) fern within the Reserve and propagate/replant if possible.	High
4.1.1 (k) Put in place robust arrangements to ensure that roadworks, roadside spraying and other activities do not have an impact on the Dicranopteris	High		

Theme	Strategic Objectives	Actions (How will we get there?)	Priority
		4.1.1 (l) Encourage community groups to assist with the management of Ball Bay Reserve (in line with this Plan of Management), and encourage research and monitoring projects that improve scientific knowledge of the natural environment or that may lead to improved management of the Reserve	High
4.2 Pest Animal Management	To reduce the negative impacts of pest species in the reserve	4.2.1 (a) Continue with the implementation of the Argentine Ant Eradication Strategy throughout the Island (and within the Reserve as required) as part of the wider eradication program across the island.	Ongoing/ High
		4.2.1 (b) If deemed necessary, inspect all plant, equipment and biological materials leaving the Reserve for signs of Argentine Ants. Where necessary, treat such materials with appropriate pesticides to reduce the potential for the spread of ants from Ball Bay Reserve to other parts of the island.	Ongoing/ High
		4.2.1 (c) Establish an ongoing coordinated Island wide Rat control program with the target of reducing rat numbers in areas with vulnerable flora and fauna, and reducing predation pressure on birds.	High
		4.2.1 (d) Carry out cat trapping and humane euthanasia, focusing on reducing cat numbers prior to the seabird breeding season around potential breeding areas.	High
		4.2.1 (e) Carry out feral chicken and Red Parrot control within the Reserve and encourage neighboring landholders to control feral chickens and Red Parrots on their properties.	High
4.3 Stock Management	Strategic Objective: To manage stock so that grazing is sustainable in Ball Bay Reserve and native vegetation (including threatened species) is protected.	4.3.1 (a) Maintain portion 48c (the former crusher on Stockyard Road) as a cattle exclusion zone.	Ongoing/ High Priority
		4.3.1 (b) Exclude cattle from the two biodiversity hotspots in the Reserve as soon as possible, and immediately schedule weed control in these areas.	High
		4.3.1 (c) Modify the grazing regime within Ball Bay Reserve in consultation with the Norfolk Island Cattle Association with a view to: <ul style="list-style-type: none"> • continuing grazing in some areas (grazing zone); • providing managed grazing in areas that are less prone to erosion and where damage to native vegetation cannot occur (managed grazing zone); and • excluding grazing completely from areas with high conservation value, steep areas and other areas that are prone to erosion (conservation zone). 	High
		4.3.1 (d) Exclude cattle from the wetland area on the hairpin bend at on Marsh's Road.	High

Theme	Strategic Objectives	Actions (How will we get there?)	Priority
		4.3.1 (e) Investigate the installation of cattle troughs within the grazing and managed grazing zones, and install troughs if feasible and if funding allows.	High
4.4 Recreation Management	To facilitate sustainable recreation in Ball Bay Reserve	4.4.1 (a) Consider providing a formal picnic area within Ball Bay Reserve, taking into account the location of the fuel tanks and the potential fire risk and other Reserve values.	High
		4.4.1 (b) Consider providing picnic facilities at the lookout.	Medium
		4.4.1 (c) Consider establishing a walking trail along the original footprint of the Bucks Point to Ball Bay Bicentennial trail in the east of the Reserve, but reroute the trail in the west so that it does not traverse the escarpment into Ball Bay itself, but instead that it follows the contours to the intersection of Martins Road/Stockyard Road	High
		4.4.1 (d) Consider establishing a Ball Bay to Two Chimneys walking trail if funding allows.	Medium
		4.4.1 (e) Investigate the need for rubbish bins periodically.	Low
4.5 Access, Facilities and Landing Ramps	To meet the requirements for access and infrastructure in Ball Bay Reserve without compromising the values of the reserve	4.5.1 (a) Maintain a clear buffer around the bulk fuel and gas storage facilities.	Ongoing/High
		4.5.1 (b) Consider the reinstatement of the Bucks Point to Ball Bay Bicentennial Trail in its modified form as outlined in the recreation section of this plan of management, and consider its use for maintenance access and stock fencing along the ridges.	Medium
		4.5.1 (c) Landing ramps will be considered only provided the activity complies with the specifications in Table 1 and where a permit has been issued by Marine Parks Australia for the construction of such.	Ongoing
		4.5.1 (d) Review and upgrade roadside drainage from Stockyard Road and Marshs Road and other drainage within the Reserve to cope with heavy rainfall events and to prevent or limit erosion and erosion into the Marine Park.	High
4.6 Planning for Efficient Reserve Management	To deliver the best possible outcomes by efficiently allocating management resources across the Norfolk Island Public Reserves	4.6.1 (a) Determine the priority of each reserve in the Public Reserves network for budget and resource allocation purposes. Amongst other things, this prioritisation should consider the objects of the Public Reserves Act 1997 (NI), the zoning and gazetted purpose of the reserve and on ground observations. Priorities will change over time, so this is a dynamic process. In the interim, draft priorities have been assigned to each reserve in Appendix 2 of this Plan of Management.	High
		4.6.1 (b) Combine the management action priority (e.g. high, medium or low) with the reserve priority to determine which actions across the entire reserve network are funded in each successive Council annual Operational Plan.	High
		4.6.1 (c) Track the progress of each of the actions in the annual Operational Plan as a measure of the success of the Plan of Management.	Medium

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Appendix 1: Controlled Activities

Some activities are only permitted in the public reserves by obtaining a permit as per Part V of the *Public Reserves Act 1997*. These activities are known as controlled activities, and the permit must be either:

- specified by a plan of management; or
- by notice published in the Gazette by the Conservator of Public Reserves; or
- by a permit granted to an individual by the Conservator of Public Reserves.

Should a proposed activity be inconsistent with a plan of management, a permit is required. All activities undertaken in a reserve must be consistent with the objects of the *Public Reserves Act 1997*, regardless of whether a permit is required or not. The objects of the *Public Reserves Act 1997* are 'to protect and conserve public reserves so as to –

- (a) promote the conservation of the natural environment and landscape beauty of Norfolk Island;
- (b) promote the conservation of the heritage of Norfolk Island; and
- (c) preserve the way of life and the quality of life of the people of Norfolk Island'

Table 1. Controlled Activities specific to Ball Bay Reserve

The following controlled activities are published in this Plan of Management, as they are specific to Ball Bay Reserve. Should activities inconsistent with those outlined in Table 1 be undertaken in Ball Bay Reserve; (i) they must be consistent with the objects of the *Public Reserves Act 1997*; and (ii) they must be undertaken as per the conditions of a permit from the Conservator of Public Reserves.

Activity Type	Details of Controlled Activity and Permit Requirements for Ball Bay Reserve
Vehicle Access	The Conservator of Public Reserves may approve the use of the old road by heavy machinery provided: <ul style="list-style-type: none"> • there is no feasible alternative; and • there is unlikely to be any significant medium or long-term damage to natural features, including the fauna and flora in the Reserve.
Landing Ramps	The Conservator of Public Reserves may approve the construction of a temporary ramp on the foreshore of Ball Bay provided: <ul style="list-style-type: none"> • an application for a Permit for the construction of the temporary landing ramp in the area outside of the Reserve (within the Marine Park, or below the high water mark) is prepared and a Permit for the construction of the landing ramp is issued by Marine Parks Australia. • the Conservator of Public Reserves is satisfied that there unlikely to be any significant long-term adverse effect on the marine environment of Ball Bay; • there is no viable alternative for unloading or loading equipment or machinery; and • that the ramp is removed as soon as equipment loading or unloading is completed; and

Activity Type	Details of Controlled Activity and Permit Requirements for Ball Bay Reserve
	<ul style="list-style-type: none"> • that the foreshore is appropriately restored after the ramp is removed; and • that as far as is practical, the ramp is constructed with clean material such as boulders, crushed rock and gravel to minimise sedimentation of increasing the turbidity of inshore waters; and • material that is taken from the foreshore to construct the ramp is replaced along the foreshore and the bay restored to its original depth.; and <p>The Conservator of Public Reserves may not approve any subsequent applications for the construction of a temporary ramp on the foreshore of Ball Bay if:</p> <ul style="list-style-type: none"> • the construction and removal of a temporary ramp on the foreshore of Ball Bay as approved by the Conservator of Public Reserves does not satisfactorily fulfil all of the above conditions and any other conditions that the Conservator of Public Reserves has imposed in the granting of that approval and or during the undertaking of that activity; and or • there is evidence of significant medium or long-term changes to the inshore marine environment (including composition and abundance of marine fauna and flora) that is likely to have been caused by ramp construction

Table 2. Controlled Activities in all Norfolk Island Public Reserves

The table below outlines controlled activities in all public reserves on Norfolk Island, outlining what activities do not require formal approval, and providing guidance where a permit is required. Those activities that might be relevant to Ball Bay Reserve include: 1 (Hazardous Activities), 11 (Traditional craft materials), 12 (Pine Seed Collection), 17 (Motor Vehicles) and others, depending on the situation. Should activities inconsistent with those outlined in Table 2 be undertaken in Ball Bay Reserve, (i) they must be consistent with the objects of the *Public Reserves Act 1997*; and (ii) they must be undertaken as per the conditions of a permit from the Conservator of Public Reserves.

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
1. Hazardous Activities	<p>No person shall undertake any activity within a Reserve that may reasonably be expected to expose them or any other person to injury or death. Any other activity that may reasonably be expected to pose some hazard or nuisance to any person or to nuisance to the Reserve or adjoining land or sea may not be undertaken in a Reserve without a permit.</p> <p>The Conservator of Public Reserves may only grant such a permit if he or she is satisfied that reasonable measures can and will be taken by the person proposing the activity to ensure that the hazard or nuisance is minimised and likely to be reduced to an acceptable level.</p>
2. Firearms, other Weapons,	<p>No member of the public shall possess, carry or use within a Reserve any form of:</p> <ul style="list-style-type: none"> • firearm, hunting bow, spear, slingshot, or any other weapon; • any type of trap, net, or snare, other than would reasonably be used and is intended to be used in rock fishing without a permit.

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
Traps and Snares	The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.
3. Explosive Devices	<p>No person shall possess, carry or use within a Reserve any form of explosive device, including pyrotechnic devices such as fireworks of any kind, without a permit.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so. A permit can only be granted if the proposed activity:</p> <ul style="list-style-type: none"> • is an integral and important part of a community celebration that has been agreed by the Norfolk Island Regional Council; • is to be conducted by a properly licensed person; and • meets the safety standards for that activity that would have to be met in an Australian State or Territory. <p>Any person proposing to possess, carry or use any explosive device within a Reserve when applying for a permit shall provide the Conservator of Public Reserves with written details and plans of the proposed activity, proof of licences, a copy of appropriate standards and any other relevant technical details. A permit to conduct these activities shall not be granted unless the applicant holds a valid public risk liability insurance policy for at least \$20 million and meets the requirements in relation to certificates of currency and indemnity forms set out in this table at 20. Commercial Activities.</p>
4. Artefacts	<p>A person shall not interfere with any artefact in a Reserve without a permit. An 'artefact' is any man-made object, thing or item and includes but is not restricted to any object, thing or item that in some way has been protected or that may be capable of being protected under any other legislation. 'Artefact' includes any man-made object, thing or item that can reasonably be construed to be or to have been the property of a person or persons unknown.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.</p>
5. Metal Detecting	<p>No person shall use a metal detecting device in any public Reserve without a permit.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.</p>
6. Native and Other Animals	<p>No member of the public shall:</p> <ul style="list-style-type: none"> • have in their possession, interfere with, damage, injure or destroy an animal whether alive or dead in a Reserve; • feed any animal in a Reserve; or • take an animal into, leave an animal in or knowingly permit an animal to enter a Reserve without a permit. <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so, or essential to the interpretive and education aims of the plan of management.</p>

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
7. Protection of Individuals of All Species	<p>No member of the public shall:</p> <ul style="list-style-type: none"> • take an individual of any species in a Reserve; or • remove an individual of any species from a Reserve without a permit. <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so, or essential to the interpretive and education aims of the plan of management.</p> <p>Despite anything in this paragraph, plants or parts of plants may be picked or removed in accordance with Sections 10 (Exotic Fruit), 11 (Traditional Craft Materials), 12 (Pine Seed Collection), and 13 (Firewood) of this table.</p>
8. Dogs	<p>Except as otherwise provided here, or provided in the <i>Dogs Registration Act 1936</i> and the <i>Dogs Registration Regulations 1994</i>, a person shall not take a dog into a Reserve unless that dog is under the control of and is in the company of that person.</p> <p>A dog must be kept on a leash <u>at all times</u> within Hundred Acres, Bumbora and Point Ross Reserves, and within other areas of Reserves that are not grazed by cattle to avoid death or injury to seabirds and other birds.</p> <p>A dog that is accompanied by and is under the control of a person is permitted in:</p> <ul style="list-style-type: none"> • those areas in public Reserves to which cattle normally have access for grazing; • all of Point Hunter, Kingston Common and Kingston Recreation Reserves except for those parts of those Reserves between the seaward side of Bay Street and high water mark and between the seaward side of the road around Emily Bay and high water mark; and • those parts of Government House Domain Reserve generally to the south of the wall on the south and south east of Government House grounds and driveway to which the public normally have access; <p>A person shall not permit any dog over which they could reasonably be expected to exercise control to go onto a tee, green or bunker that is part of Government House Domain Reserve or Point Hunter Reserve that is maintained and used by the Norfolk Island Golf Club as part of the golf course.</p> <p>A person shall not permit any dog over which they could reasonably be expected to exercise control to enter the graveyard in Cemetery Reserve.</p> <p>A person shall not permit any dog over which they could reasonably be expected to exercise control to interfere with any native animal or the habitat of any native animal.</p>

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
	A person who could reasonably be expected to be responsible for exercising control over a dog in a Reserve must carry means for removing and disposing of dog faeces. If a dog over which a person could reasonably be expected to exercise control defecates in a Reserve that person must remove the faeces from the Reserve. A person shall not feed a dog in a Reserve.
9. Plants	<p>No member of the public shall:</p> <ul style="list-style-type: none"> • have in their possession, interfere with, damage, injure or destroy any plant whether alive or dead in a Reserve; or • take a plant into or leave a plant in a Reserve without a permit. <p>Despite anything in this paragraph, plants or parts of plants may be picked or removed in accordance with Sections 10 (Exotic Fruit), 11 (Traditional Craft Materials), 12 (Pine Seed Collection), and 13 (Firewood) of this table.</p>
10. Exotic Fruit	Hand picking of fruits from exotic plants, such as peach, guava and lemon, for personal consumption is permitted in all public Reserves.
11. Traditional Craft Materials	Picking and removing by hand of foliage of <i>Typha orientalis</i> (Flags, Drain Flax, Bulrush) within Headstone Reserve, Kingston Recreation Reserve, Kingston Common Reserve and Bumbora Reserve for making traditional handicrafts is permitted. Picking and removing by hand of foliage of <i>Cyperus lucidus</i> (Moo-oo) and <i>Phormium tenax</i> (Flax) within all public Reserves for making traditional handicrafts is permitted. 'Traditional handicrafts' does not include items made for sale. Persons must ensure that they do not cause damage to any other plants when picking and removing the foliage of <i>Typha orientalis</i> (Flags, Drain Flags, Bulrush), <i>Cyperus lucidus</i> (Moo-oo) and <i>Phormium tenax</i> (Flax).
12. Pine Seed Collection	<p>Pine seed collection is not permitted in the Reserves without a permit</p> <p>The Conservator of Public Reserves may grant a permit for the collection of pine seed or cones from:</p> <ul style="list-style-type: none"> • unfenced areas in public Reserves to which cattle normally have access; and • picnic areas in public Reserves; <p>only if it is in the interests of the conservation and management of a public Reserve to do so.</p>
13. Firewood Collection	<p>Firewood collection is not permitted in the Reserves without a permit.</p> <p>The Conservator of Public Reserves may permit the collection of firewood only if it is in the interests of the conservation and management of a public Reserve to do so.</p>
14. Monuments and Memorials	<p>A person shall not erect or place a monument, memorial or commemorative marker of any kind in a public Reserve without approval from the Conservator of Public Reserves.</p> <p>The Conservator of Public Reserves may grant approval for a person to erect or place a monument, memorial or commemorative marker only if the proposed monument, memorial or commemorative marker:</p> <ul style="list-style-type: none"> • is of a style and structure appropriate to the local setting in the Reserve; • is a reminder of a person who, or a group or organisation which, made a major contribution to conserving the area or its biodiversity; • reflects cultural associations with the area by individuals or groups; and

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
	<ul style="list-style-type: none"> • marks a significant event in the history of the Reserve. <p>A proposal to erect or place a monument, memorial or commemorative marker in memory of a deceased person may only be approved if the deceased had a strong, long-standing involvement with conserving the area or its biodiversity. In considering a proposal to erect or place a monument, memorial or commemorative marker, the Conservator of Public Reserves shall also have regard to:</p> <ul style="list-style-type: none"> • potential impacts on the amenity of the Reserve including but not limited to visual obtrusiveness taking into account materials, size, design and content; and • satisfactory maintenance arrangements or commitments, including costs, by the proponent. <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.</p>
15. Research	<p>A person shall not undertake any research for an archaeological, scientific or any other purpose or take, measure or in any other way mark or tag any samples of air, water, soil, rock or take, measure or in any other way mark or tag any biological item, organism or material within a Reserve without a permit.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so, or essential to the interpretive and education aims of the plan of management. Unless a formal agreement has been reached that ensures that the Norfolk Island community will share appropriately in any profits or other benefits from the proposed access to biological resources, permits granted for scientific research purposes will not convey to the permit holder or any other person, institution or corporation any rights whatsoever to any benefits that may flow from intellectual property obtained by the permit holder as a result of the permit holder's activities. In such cases, every permit granted for scientific research purposes shall include the following condition: <i>This permit is issued for scientific research and educational purposes only and does not convey to the permit holder or any other person, institution or corporation any rights whatsoever to any benefits that may flow from intellectual property obtained by the permit holder as a result of the permit holder's activities pursuant to this permit, such intellectual property and benefits remaining vested in the Norfolk Island Regional Council and or the Commonwealth of Australia as the case may be.</i></p>
16. Horse-riding	<p>Horses may be ridden without a permit in those areas in public Reserves to which cattle normally have access for grazing.</p> <p>A permit may be granted for occasional horse riding within other Reserves if the Conservator of Public Reserves is satisfied that such activity will not adversely affect the amenity of the Reserve for other users and will not damage the natural and cultural features of the Reserve.</p>
17. Motor Vehicles	<p>A person shall not use or leave a motor vehicle in a Reserve except in or on an area approved for the purpose. Motorised wheelchairs or mobility aids may be used to convey disabled persons in public Reserves. Motor vehicles required for emergency services response purposes, or for conservation and management will be permitted in a Reserve. Conservator of Public Reserves must be informed by the responding emergency service coordinator as soon as practicable of any entry of an emergency service response vehicle to a Reserve.</p>

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
	The Conservator of Public Reserves may permit commercial plant and equipment in the Reserve only if it is in the interests of the conservation and management of the Reserve.
18. Lighting Fires	<p>As per the <i>Public Reserves Act 1997</i>, a person shall not light, use or maintain a fire in a Reserve except in –</p> <ul style="list-style-type: none"> (a) a fireplace approved for the purpose; or (b) a portable barbeque, or portable stove in which heat is provided by the burning of liquefied petroleum gas <p>The Conservator of Public Reserves may approve the lighting of a fire or fires in a Reserve if it is in the interests of the conservation and management of the Reserve to do so.</p>
19. Non-commercial Sporting and Other Community Events	<p>Unless otherwise specifically approved in a plan of management, non-commercial sporting and other community events shall not occur in a Reserve without a permit.</p> <p>A permit shall not be granted for any non-commercial sporting or other community events unless the Conservator of Public Reserves is satisfied that such event will not adversely affect the amenity of the Reserve for other users and will not damage the Reserve.</p>
20. Commercial Activities	<p>As per the <i>Public Reserves Act 1997</i>, a person shall not undertake a commercial activity in a Reserve except in accordance with an approval for the activity. A permit to conduct a commercial activity in a Reserve shall not be granted unless the applicant provides a certificate of currency showing that he or she holds a valid public risk liability insurance policy for at least \$20 million. The certificate shall have endorsed upon it the Norfolk Island Regional Council's interest in granting the permit and shall specifically refer to the activities intended to be conducted pursuant to the permit. It will be presumed that in issuing the certificate of currency the insurer has been advised of the activities to be conducted and that those activities are not the subject of any exclusion under the policy held. The permit to conduct these activities will cease to be valid immediately if the permit holder's public risk liability insurance lapses for any reason during the period for which the permit has been issued or if a certificate of currency appears to be defective in any manner.</p> <p>A permit shall not be granted for any commercial activity unless the Conservator of Public Reserves is satisfied that such activity will not adversely affect the amenity of the Reserve for other users and will not damage the Reserve. Filming and photography of any kind other than for private purposes and the use of any part of a public Reserve for promotions of any kind are considered to be commercial activities. Wedding ceremonies are detailed in part 21 of this table. A permit shall not be granted for commercial activities, other than bus tours, off-road vehicle tours, walking tours, horse rides or picnics in a Reserve unless the Conservator of Public Reserves is satisfied that such activities are in the interests of the conservation and management of the Reserve, or are essential to the interpretive and education aims outlined in a plan of management. Commercial tour operators shall in all cases:</p> <ul style="list-style-type: none"> • provide sufficient cooking equipment, tables and seating to cater for all of the persons on their tour; and • remove all rubbish and other wastes, including used cooking oil, generated by their activities.
21. Weddings	Weddings are not permitted in Cemetery Reserve, Government House Domain Reserve and War Memorial Reserve without a permit.

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
	<p>A wedding ceremony may be conducted, including by a wedding celebrant in the course of a business, trade, profession or calling, without a permit in a public Reserve other than Cemetery Reserve, Government House Domain Reserve and War Memorial Reserve, provided</p> <ul style="list-style-type: none"> • confetti or rice is not thrown; • hire equipment of any description is not used; • wedding parties use their own catering supplies: no commercial catering; • catering supplies are limited finger food and to non-alcoholic drinks; • no gazebos, marquees or other structures are erected; • there are no 'lanterns' and/or candles (or similar paraphernalia) with naked flames and no lighting of fires outside of a designated fireplace, or during a fire danger period declared under s21 of the Fire Control Act 2000; • no balloons or other non-biodegradable materials or paraphernalia are released into or left in the environment; • generators, electrical lighting and public broadcast equipment is not used; • the site and any facilities used are left clean and rubbish is removed prior to leaving the site; • the event does not conflict with the use or enjoyment of the Reserve by others; and • if the ceremony is conducted by a wedding celebrant in the course of a business, trade, profession or calling, that celebrant holds a valid public risk liability insurance policy in accordance with section 20 of this table
22. Camping	<p>As per the <i>Public Reserves Act 1997</i>, a person shall not camp overnight in a Reserve except in an area approved for the purpose. Camping will not be permitted in any Reserve except Government House Domain Reserve other than on or in the immediate vicinity of the Polynesian settlement site and Point Hunter Reserve in the pines between Emily Bay and the golf course.</p> <p>Camping shall be permitted in Government House Domain Reserve and Point Hunter Reserve at times between 1 December and 1 March as specified in the Gazette. Camping in Government House Domain Reserve and Point Hunter Reserve at other times may be permitted only if the Conservator of Public Reserves is satisfied that it is in the interests of the conservation and management of the Reserve, or essential to the interpretive and education aims of the plan of management to do so.</p>
23. Structures	<p>A person shall not erect, place or leave a structure in a Reserve except in accordance with an approval.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.</p>
24. Chemicals	<p>No chemical pesticide, herbicide or toxic or noxious substance shall be used, left or deposited in a Reserve without a permit from the Conservator of Public Reserves.</p> <p>The Conservator of Public Reserves may only grant such a permit if it is in the interests of the conservation and management of the Reserve to do so.</p>
25. Quarrying and Mining	<p>The Conservator of Public Reserves <u>may</u> consider approving a permit for rock extraction/quarrying activities within Headstone Reserve providing:</p>

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
	<ul style="list-style-type: none"> • A thorough independent investigation is done to determine the suitability of Headstone Reserve as a rock extraction site in comparison to other potential sites on public and private land on Norfolk Island for rock extraction, and Headstone Reserve is identified as the best location for this activity. • All required permits and approvals (including permits from Marine Parks Australia and EPBC Act referrals where required) are obtained prior to any works commencing. • A detailed Environmental Impact Statement/Assessment is prepared by an independent party as part of the development. • The Environmental Impact Statement considers the impact of the rock extraction on the environment in Headstone Reserve (including flora, fauna) and details and costs appropriate mitigation measures and environmental offsets, including habitat restoration, revegetation, weed control, erosion control and improvements to drainage and runoff from Public Reserves into the Marine Park in Headstone Reserve and/or in other High Priority Public Reserves on Norfolk Island to ensure no net loss of environmental values on Norfolk Island. • The Conservator of Public Reserves is satisfied that the recommended environmental offsets and mitigation measures are appropriate to ensure there will be no long-term overall impact on the environment of Norfolk Island. • Funding for the recommended environmental offsets is provided following approval to proceed, and prior to the commencement of any activities associated with rock extraction. <p>Any other quarrying and or mining in any form, other than for sand from Cemetery Reserve in the short term, shall not be permitted in any other Reserve.</p> <p>Sand mining in Cemetery Reserve will be permitted by the Conservator of Public Reserves <u>only until an alternative source of sand is identified</u>, provided the sand is for an essential building or construction purpose, specifically;</p> <ul style="list-style-type: none"> • plastering; • block and brick laying; • installation of water storage tanks; and • tiling for bathrooms, toilets and kitchens; <p>Each removal of sand must be from within an area specified by the Conservator of Public Reserves, and in accordance with any conditions that the Conservator of Public Reserves may set from time to time; and an appropriate fee must be paid.</p> <p>In granting each permit for the removal of sand, the Conservator of Public Reserves shall have regard to archaeological advice, the advice of the KAVHA Site Manager, the KAVHA Conservation Plan of management and, in the case of requests for significant amounts of sand, any recommendation of the Norfolk Island Regional Council. A permit for the removal of sand for other than an essential building or construction purpose shall only be granted if it is in the overriding public interest to do so. Sand may not be removed elsewhere from within Cemetery Reserve or from within any other Public Reserve.</p>

Activity Type	Details of Controlled Activity and Permit Requirements for ALL Public reserves
26. Spoil Stockpiles	<p>The dumping and or stockpiling of soil, spoil or fill shall not be permitted in a Reserve unless that stockpile is in accordance with a plan of management, or in the opinion of the Conservator of Public Reserves, is essential to undertaking or completing works in a public Reserve to:</p> <ul style="list-style-type: none"> • ensure public safety; and or • conserve the environment.

Definitions for Controlled Activities

‘Animal’ means:

- (a) any invertebrate or vertebrate individual, organism or biological specimen alive or dead that is not a member of the plant kingdom or fungi kingdom, other than a domestic female bovine of the genus *Bos* to which a pasturage right³ applies or its dependent calf up to 6 months old; or a registered⁴ domestic dog of the genus *Canis*; or
- (b) any part of such an individual, organism or biological specimen; or
- (c) embryos, eggs or any other part of the reproductive cycle of such an individual, organism or biological specimen.

‘Commercial activity’ has the same meaning as ‘commercial activity’ in section 46 of the Public Reserves Act 1997, which states:

‘commercial activity’ means –

- (a) supplying, or offering to supply, goods or services; or*
- (b) producing goods;*

in the course of a business, trade, profession or calling.

‘Interfere’ has the same meaning as ‘interfere’ in section 42 of the *Public Reserves Act 1997*, which states ‘interfere’ includes remove, move, damage, deface, obscure and tamper.

‘Nuisance’ includes noise, or environmental harm to the Reserve or potentially to adjoining land or sea.

‘Plant’ means a member of a ‘species’ as defined here of the plant kingdom or the fungi kingdom.

‘Species’ means a group of biological entities that:

- (a) interbreed to produce fertile offspring; or
- (b) possess common characteristics derived from a common gene pool; and includes:
- (c) a sub-species.

‘Take’ means take, catch, capture or keep and includes, in relation to a live individual of any species, kill or injure (whether or not for the purpose of taking)

³ In accordance with the *Pasturage and Enclosure Act 1949*.

⁴ In accordance with the *Dogs Registration Act 1936*.

Permit Application and Standard Indemnity

A person seeking to undertake a controlled activity in a public reserve is required to use the permit application forms available from the Norfolk Island Regional Council. In signing the application form, the applicant is undertaking to indemnify the Commonwealth and the Norfolk Island Regional Council in the terms of the indemnity on the form. Every permit granted for a controlled activity shall include the following condition:

'The permit holder, in accordance with the indemnity provided on the application for the permit, fully and irrevocably indemnifies and saves harmless the Conservator of Public Reserves, all rangers, the Norfolk Island Regional Council together with all employees servants and agents thereof, the Administrator of Norfolk Island, the Crown and the Commonwealth of Australia jointly and severally from any and all liability and claims whatsoever arising in any way out of or in connection with or as a result of any activities carried out or conducted or proposed to be carried out or conducted under the permit or the involvement of any person firm or corporation in any way in regard to any activity carried out or to be carried out under the permit;

and the footnote:

The Norfolk Island Regional Council expressly denies any liability for any injury occurring to any person who may conduct any activity pursuant to this permit.'

The holder of a permit who has contravened a condition to which that permit is subject but who seeks to renew that permit or have a new permit granted will be required by the Conservator of Public Reserves to show cause why such permit should be renewed or granted.

In so showing cause, the permit holder will have to:

- provide evidence that fully explains the circumstances surrounding the contravention of the permit condition; and
- demonstrate the measures that the permit holder will take to ensure that the conditions to which a future permit would be subject will be complied with.

The Conservator of Public Reserves may, by notice in the Gazette, revoke or amend in any manner the approval or other regulation of any activity approved or otherwise controlled in a Plan of Management.

Appendix 2: Preliminary Reserve Prioritisation for Resource Allocation

Table 3 presents the draft prioritisation of the reserves. In prioritising the reserves against one another, the draft prioritisation considered the criteria in Table 3. Note that this is a preliminary prioritisation only one of the high priority management actions from this plan is to formally prioritise the reserves using solid scientific methodology.

Table 3. Criteria for determining the priority of reserves for budget allocation

Criteria	Notes on Assessing the Reserves using Criteria
The objects of the <i>Public Reserves Act 1997 (NI)</i>	The objects of the Public Reserves Act 1997 (NI) are 'to protect and conserve public reserves so as to- a. promote the conservation of the natural environment and landscape beauty of Norfolk Island; b. promote the conservation of the heritage of Norfolk Island; and c. preserve the way of life and the quality of life of the people of Norfolk Island.' The reserves have been compared against the objects of the Act. Those reserves with greater environmental or heritage values have been assigned a higher priority than those with lower values.
On ground observations and survey results	Field values may include the presence of threatened species, amount of remnant vegetation cover, level of weed invasion, habitat for native fauna, presence of pest animals, etc. The reserve may also have heritage values such as evidence of Polynesian use, Pitcairn heritage use or European convict heritage.
Land zoning and overlay maps applicable under the NI Plan 2002; Reserve purpose when originally gazetted	Is the land in the open space, conservation or another zone? The more protected the land zoning, the higher the conservation potential of the land. Consideration should also be given to the Norfolk Island Strategic Plan Map (e.g. is the land in the High Rural/Conservation Value area?) and the Norfolk Island Heritage Overlay Map. The purpose of the reserve when it was first gazetted is also important. For example, was the reserve gazette for the conservation of flora and fauna, forestry, watering stock, common, or some other purpose?
Land use in adjoining allotments	Does the land adjoin areas with high conservation values, such as the National Park, or is it surrounded by small, heavily modified allotments? This will increase or reduce the conservation value of the land respectively.

Table 4. Draft prioritisation of Norfolk Island Public Reserves for allocation of management resources

Reserve Name	Priority (1 =Low to 10 = High priority)
Selwyn Reserve	9
Hundred Acres Reserve	9
Bumbora Reserve	8
Nepean Island Reserve	8
Two Chimneys Reserve	7.5
Anson Bay Reserve	6
Ball Bay Reserve	6
Cascade Reserve	5
Headstone Reserve	5
Point Ross Reserve	4
Middleridge Reserve	3
Stock Reserve	1

Appendix 3: Transitional Reserve Management Arrangements Following Changes to the *Norfolk Island Act 1979* in 2016

The first plans of management were prepared for most of the Reserves in 2003. At this time there were 18 reserves managed by the former Administration of Norfolk Island. Each reserve had a plan of management including the 6 reserves located in KAVHA (i.e. Cemetery Reserve, Government House Domain Reserve, Kingston Common Reserve, Kingston Recreation Reserve, Point Hunter Reserve and War Memorial Reserve). There was also a separate overarching KAVHA Conservation Plan of management, which took precedence over the Public Reserves Plan of managements in the case of any inconsistencies.

Between 1978 and 2016, Norfolk Island had a form of internal self-government under the *Norfolk Island Act 1979 (Cth)*. The Norfolk Island Legislative Assembly was responsible for governing the island and managing the reserves. In 2015 – 2016 however, changes were made under the Act to remove internal self-government and it was determined that many services would be delivered by a newly elected Regional Council, including management of the Public Reserves. There were also changes to the ownership of a number of the public reserves as shown in Table 5.

Table 5. Changes to ownership and management of Norfolk Island Public Reserves

1. Reserves transferred from the Commonwealth to the Norfolk Island Regional Council ⁵	2. Interests yet to be transferred from the Commonwealth of Australia to the Norfolk Island Regional Council	3. Interests to be retained by the Commonwealth of Australia ⁶
<ul style="list-style-type: none"> • Anson Bay Reserve • Ball Bay Reserve • Bumbora Reserve • The portion of Cascade Reserve previously known as the Quarantine Reserve • Headstone Reserve • Hundred Acres Reserve • Middleridge Reserve • Point Ross Reserve • Stock Reserve • Two Chimneys Reserve 	<ul style="list-style-type: none"> • Nepean Island • Selwyn Reserve • The remainder of Cascade Reserve not previously known as the Quarantine Reserve (includes Philipsburg Cemetery) 	<ul style="list-style-type: none"> • All KAVHA reserves including: Cemetery Reserve • Government House Domain Reserve • Kingston Common Reserve • Kingston Recreation Reserve • Point Hunter Reserve • War Memorial Reserve

During 2017-2018, updated Public Reserve Plan of managements were prepared for the 10 reserves in Column 1 (includes part of Cascade Reserve) plus the reserves in Column 2 (includes the remainder of Cascade Reserve). The KAVHA reserves in Column 3 will be managed under a new arrangement with the KAVHA Heritage Plan of management 2016 still guiding the overall heritage management of the area. Instead of having individual public reserve plan of managements for the KAVHA reserves, it is anticipated that a Memorandum of understanding or a similar will be used to specify the management of the significant natural values of the reserves. Day to day operational work including mowing, issuing of camping permits and dog restriction enforcement will also need to be captured in this arrangement, as it is assumed that such works will be the responsibility of Council.

⁵ As per the *Norfolk Island Land Transfer Ordinance 2016 (Cth)*

⁶ As per advice from the Commonwealth Department of Infrastructure and Regional Development, 2016