

# **Kingston and Arthur's Vale Historic Area**

## **Cultural Landscape Management Plan**

Report prepared for Department of Infrastructure, Regional Development and  
Cities  
December 2018



## Report Register

The following report register documents the development and issue of the report entitled Kingston and Arthur's Vale Historic Area—Cultural Landscape Management Plan, undertaken by GML Heritage Pty Ltd + GML Heritage Victoria Pty Ltd (GML + Context) in accordance with its quality management system.

Job No.	Issue No.	Notes/Description	Issue Date
17-0453	1	Preliminary Draft Report	23 April 2018
17-0453	2	Final Report	15 June 2018
18-0654	3	Draft for Review	14 December 2018

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The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

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## 1.0 Introduction

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### 1.1 Introduction

Kingston and Arthur's Vale Historic Area (KAVHA) is a place of outstanding heritage value to the people of Norfolk Island, the Australian community and internationally. The cultural landscape of KAVHA is multilayered and complex and is recognised for its evocative and picturesque character, outstanding Georgian buildings and ruins, archaeological remains, and Pitcairn history, set within a bucolic coastal landscape. The cultural landscape also comprises important natural systems as well as perceptions, beliefs, stories, experiences and practices.

As identified in the Kingston and Arthur's Vale Historic Area Heritage Management Plan, April 2016 (HMP):

*The site plays an important and continuing role in the life, identity and cultural of the Norfolk Island community. It was initially occupied by seafaring Polynesians, then settled by the British from 1788 as a convict penal settlement ... In 1856 the KAVHA site was settled by the Pitcairn Island descendants of the HMAV Bounty mutineers and Tahitians.*

Norfolk Island has a rich, visible history in its extant buildings, built patterns and landscape. Importantly, the underlying biophysical character of the place is still evident in its proximity to the coastline, its exposure to sea influences and the characteristic form of one species of the Island's indigenous flora, the Norfolk Island pine.

The heritage significance of the KAVHA site is recognised and protected through statutory heritage listings at national, Commonwealth and regional (local) levels. Internationally, the KAVHA site is one of 11 sites which comprise the Australian Convict Sites World Heritage property. The boundary of the KAVHA site included in the National Heritage List (NHL) and inscribed on the World Heritage List is the same area. The Commonwealth Heritage Listed (CHL) area excludes all private freehold land areas, as the listing can only apply to Commonwealth land.

### 1.2 The Study Area

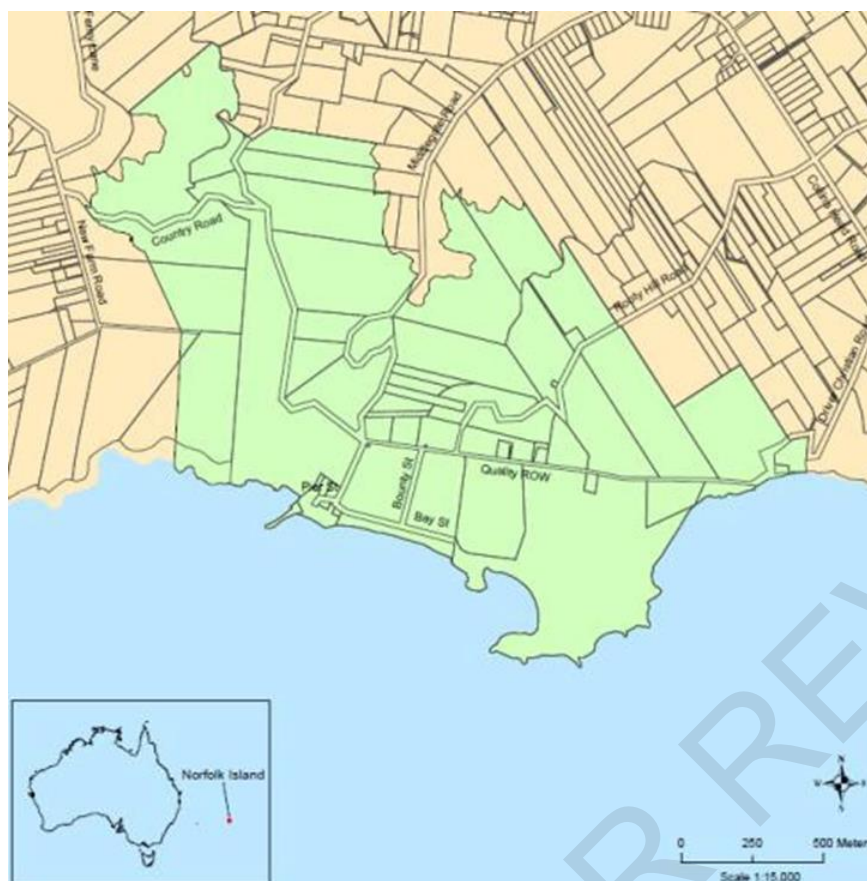
#### 1.2.1 Geographical Location

The KAVHA site is located on the southern side of Norfolk Island, and comprises an area of about 250ha, 78 hectares of which are within public reserves. The topography of Norfolk Island has a general elevation of 100–120m, falling away to steep cliffs. KAVHA is located in a unique area on the south side of the Island, located at a break in the cliffs that surround the Island. The KAVHA site consists of two distinct land types: the low-lying land of the Kingston area (approx. 200ha); and the hills to the north and the west. The highest point of the KAVHA site is the 90m contour, noting that the highest point of Norfolk Island is Mt Pitt (318m).

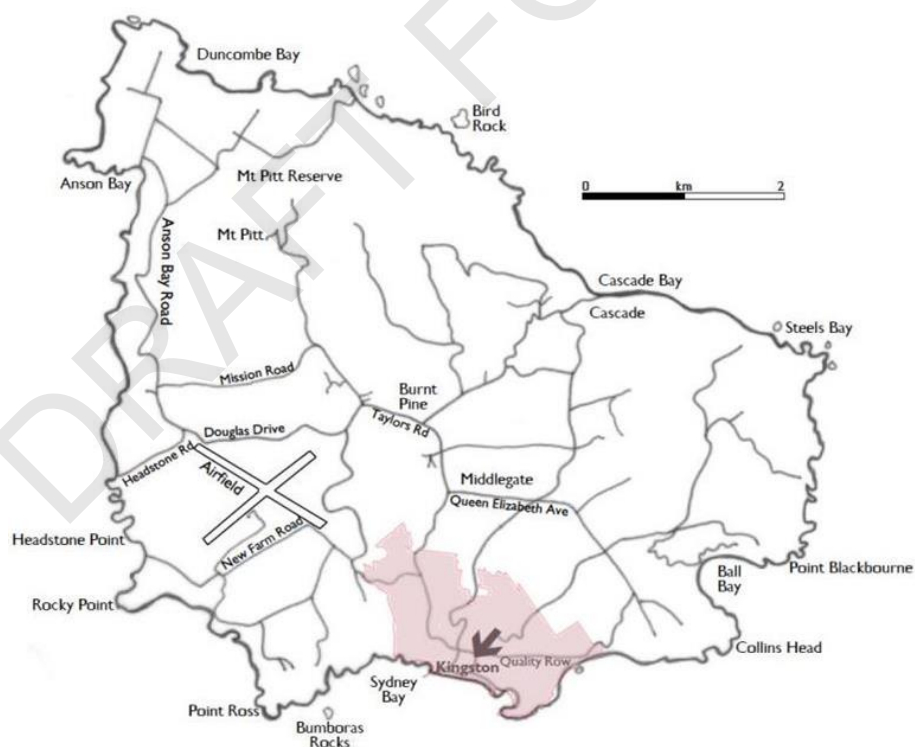


**Figure 1.1** Norfolk Island is located in the south Pacific Ocean, approximately 1400km east of mainland Australia. (Source: KAVHA CMP, 2007)

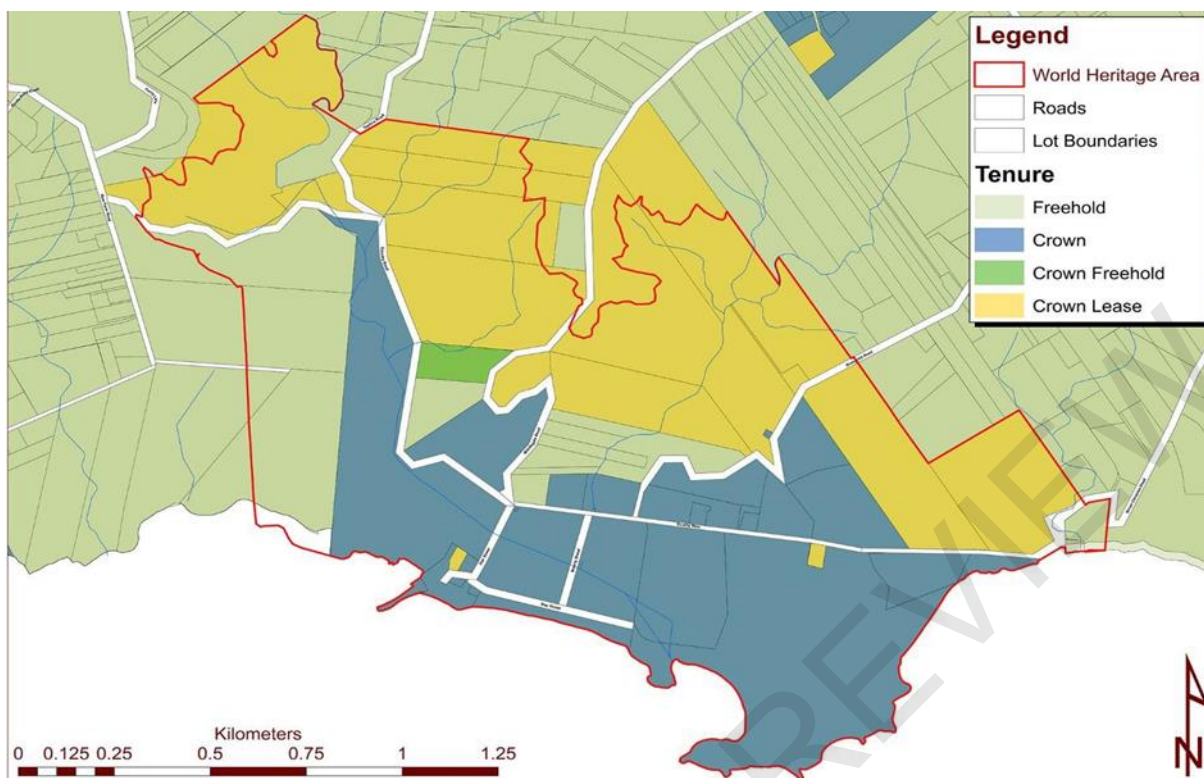




**Figure 1.2** Kingston and Arthur's Vale Historic Area (the KAVHA site), Norfolk Island. This boundary depicts the area included in the World Heritage List and National Heritage List. (Source: Australian Heritage Database <<http://www.environment.gov.au/node/19668>>)



**Figure 1.3** Norfolk Island, showing the Kingston and Arthur's Vale Historic Area. (Source: 2007 KAVHA Conservation Management Plan (CMP) prepared by Otto Cserhalmi & Partners and Jean Rice Architect in 2002 and updated in 2007 with additions by Jean Rice)



**Figure 1.4** KAVHA, showing the World Heritage Area, Crown land, Crown freehold, and freehold and Crown lease lands. (Source: Department of Infrastructure and Regional Development)

### 1.2.2 Terminology

'The KAVHA site' is used to refer to the Kingston and Arthur's Vale Historic Area, which means the place, as included in the NHL as one of the 11 properties that comprise the Australian Convict Sites serial listing. Consistent with the HMP, 'the KAVHA site' is used in preference to KAVHA.

Consistent with the HMP, the various settlement periods that comprise the history of the place are referred to as follows:

- 'Polynesian Settlement' refers to the Polynesian settlement, from c1150 to c1540 AD;
- 'First (Colonial) Settlement' refers to the period between 1788 and 1814;
- 'Second (Penal) Settlement' refers to the period between 1825 and 1855; and
- 'Third (Pitcairn) Settlement' refers to the period between 1856 to the present.

An identification system for the place was devised once the boundary for the KAVHA site was established in the 1980 Management Plan. The identification system divides the place into a series of precincts, expressed alphabetically from A–N (excluding I) and named:

- A Government House Reserve
- B Lowlands
- C Cemetery Reserve
- D Quality Row

- E Uplands (land above the 100ft/30m contour) and Stockyard Valley
- F Swamp (known as Kingston Common)
- G Prisoners' Compounds
- H Landing Place Ridge (known as Kingston Pier)
- I not used
- J Beachfront (known as Slaughter Bay and Emily Bay)
- K Windmill Ridge
- L Chimney Hill
- M Arthur's Vale/Watermill Valley
- N Bloody Bridge

The precincts form distinctive management areas.



**Figure 1.5** The KAVHA site, showing the listed area and division of the site into precincts. (Source: 2016 HMP, based on the 1980 Management Plan)



### 1.3 Project Approach

This project requires delivery of more than a standard response for the development of a cultural landscape management plan (CLMP). It is understood and appreciated that KAVHA has been thoroughly analysed, documented and researched, including in the recent KAVHA HMP (2016) and the Norfolk Island Economic Development Strategy (2015). The CLMP therefore now seeks to establish landscape management guidance for KAVHA that builds upon, and develops, the existing management strategies outlined in the HMP and other relevant related reports.

### 1.4 Key Objectives

The key objectives for this CLMP are to:

- provide a sound basis for best practice conservation, protection and presentation of the outstanding heritage values of KAVHA at World, National and Commonwealth levels as a living and evolving cultural landscape;
- assist with achieving priority policies and recommendations contained in the KAVHA HMP (2016), with special regard for authenticity and the cultural landscape as a place that embodies diverse heritage values. The brief provided by the Department of Infrastructure, Regional Development and Cities (the Department) in its Approach to Market, specifically identifies that these priority policies and recommendations include:
  - conservation and maintenance of the historic spatial layout and form of the evolved and partially reconstructed cultural landscape of KAVHA and its setting; and
  - recognition and management of the KAVHA cultural landscape as a landscape including primary production such as grazing and agriculture;
- improve and enrich community and visitor understanding and experience of the heritage values of the KAVHA site;
- nurture and facilitate ongoing community engagement with and partnerships in the care and management of KAVHA's cultural landscape; and
- utilise and augment existing documentation relevant to KAVHA's cultural landscape.

### 1.5 Methodology

The CLMP has been prepared according to the principles of the internationally acknowledged *Australia ICOMOS Burra Charter, 2013* (the Burra Charter) and its associated Practice Notes.

An extensive body of literature has assisted in understanding the KAVHA site, its history, fabric, comparative values, significance, and issues. Preparation of the CLMP has involved review and synthesis of existing background information—in particular the reports directly related to the cultural landscape of the KAVHA site, and selective incorporation of key policies and recommendations. Strategic review and analysis of key technical reports has enabled deeper understanding of cultural landscape issues.

The methodology for this project responds to the project objectives, and is underpinned by five key principles:



- the need to build on existing relevant background material and key policy and recommendations;
- an integrated, 'whole of landscape' approach;
- a consultative approach;
- a highly visual and pragmatic approach; and
- a best practice approach in natural and cultural heritage management.

Development of this CLMP is informed by an understanding that attachments to place are made through a long history of living in a place and experiencing it on a daily basis. The cultural landscape and memories of this history of living in a place form a key vehicle for revealing the stories of places to others through intelligent planning and design, and strengthening and enhancing visitors' experience of a locale.

## 1.6 Targeted Engagement for the CLMP

A series of targeted engagement activities were undertaken by the project team during the week on Norfolk Island, 5–9 March 2018.

The initial Approach to Market for the CLMP included scope for consultation. At the request of the Department, following reports of 'consultation fatigue' by the community, the approach to consultation for the CLMP was amended to 'targeted stakeholder engagement'.

Objectives for the targeted engagement and communication were to:

- demonstrate that development of the CLMP and strategic projects in the four priority project areas will build on the extensive work that has been done before (including consultation for the KAVHA HMP [2016]); and
- build confidence that the CLMP and strategic projects will be developed in accordance with policy in the HMP, which was informed by consultation and feedback from community and stakeholders.

Goals for targeted engagement were:

- understanding issues or concerns related to the priority project areas and identifying opportunities to resolve issues;
- gathering information about landscape issues generally and specific information related to the priority project areas;
- gathering other resources (maps, archival materials, archaeological findings and other data, for example); and
- communicating clearly and listening carefully.

During the week of the project team's visit to KAVHA, the project team conducted a series of engagement activities, including:

- briefings;

- group sessions;
- round tables—themed discussions with invited participants. Numbers were limited to ensure opportunity for in-depth discussion of issues; and
- site inspections with KAVHA Works Crew staff and the KAVHA Advisory Committee.

The project team met with the KAVHA Advisory Committee, landowners and leaseholders (group session), KAVHA Works Crew (round table), Research Centre and Norfolk Island Museum Staff (round table), and held round tables with key individuals representing different interests related to the environment, natural values, water quality, tourism, and livestock management (the Norfolk Island Cattle Association).

### 1.7 Limitations

The project development was limited by the following factors:

- The timeframe and budget for completion of the draft CLMP and Proposals for Specific Projects related to four high priority cultural landscape issues was also limited.
- The Commonwealth Heritage Manager was on sick leave and therefore unavailable for the majority of the project's duration (26 February to 23 April 2018), including the targeted engagement and fieldwork.
- Michael Johnston, Supervisor of the KAVHA Works Crew and Conservator of Public Lands, was unavailable to contribute to targeted engagement during the fieldwork of 5–9 March 2018.
- There was no scope in the project brief for detailed investigation or analysis of the ornamental gardens at Government House or the Quality Row Houses, noting that work by Inspiring Place has been recently prepared for the Government House gardens in 2017.
- There was no scope in the project brief for detailed investigation or analysis of the Cemetery.

### 1.8 Authors

The CLMP has been prepared by the GML + Context project team, comprising:

- Rachel Jackson—Heritage Specialist, Project Director, GML Heritage, Canberra;
- Dr Christina Dyson—Cultural landscape specialist, Project Manager, Context, Melbourne;
- John Dyke—Heritage specialist and landscape architect, Context, Melbourne;
- Adam Hunter—Senior landscape architect, Environmental Partnership, Sydney; and
- Nicole Eva—Landscape architect, Environmental Partnership, Sydney.

### 1.9 Acknowledgements

The project team would like to thank all those who provided assistance and support during the preparation of this report.

We acknowledge the assistance of:

- KAVHA Advisory Committee members:
  - Mr Eric Hutchinson, Norfolk Island Administrator (Chair);
  - Kristal Buckley AM and Kevin Sumption PSM (Expert Members); and
  - David Evans and Duncan Evans (Community Members);
- Norfolk Island Administrator: Mr Eric Hutchinson;
- Norfolk Island Office of the Administrator staff:
  - Kass Peacock, Executive Officer; and
  - Barbara Quintal, Administrative Assistant, Office of the Norfolk Island Administrator;
- Commonwealth Heritage Manager: Brian Pearce;
- Landholders within the KAVHA site area, with special thanks to Amanda Keast and Ken McDonald, 'Coop' and Alan Bataille for invitations to visit their properties;
- KAVHA Works Crew, particularly Diana (Ippy) Adams and Shane Quintal for assisting with site familiarisation and site inspections, and to all the team for sharing their knowledge and ideas during our round table session and guided field inspections;
- Norfolk Island Museum and KAHVA Research Centre staff, particularly Janelle Blucher;
- Representatives from the Department of Infrastructure, Regional Development and Cities, including the KAVHA Secretariat;
- George 'Puss' Anderson, for providing additional insight into the history of the KAVHA site management and for helping the team's understanding of the evolution of the KAVHA site in the recent past; and
- Dr Jane Harrington and Dr Caitlin Vertigan, Port Arthur Historic Site.

We would also like to thank participants who contributed to the targeted engagement, including:

- the KAVHA works staff;
- landholders;
- tourism representatives.
- Norfolk Island Cattle Association representatives; and
- Norfolk Island Regional Council representatives.

DRAFT FOR REVIEW



## 2.0 Understanding the Place

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### 2.1 Cultural Landscape: Definition

Cultural landscapes are combined works of nature and humans;<sup>1</sup> they express a long and intimate relationship between people and their natural environment. What makes a cultural landscape special, at a World Heritage level, is defined by the *Operational Guidelines for the Implementation of the World Heritage Convention*, as follows.

*Cultural landscapes are cultural properties that represent the “combined works of nature and man” [people] designated in Article I of the Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic, and cultural forces, both external and internal.<sup>2</sup>*

In addition to the widely accepted definition, there are categories of cultural landscapes used in the identification and assessment of places for World Heritage nominations. Three main categories are:

- (i) designed landscapes and created intentionally by people—mainly parks and gardens;
- (ii) organically evolved landscapes, that may be relict or continuing; and
- (iii) associative cultural landscapes.

The cultural landscape category, that most prominently aligns with KAVHA’s landscape, is an ‘organically evolved landscape’ which has both relic and continuing elements:

*a landscape that displays a system of evolved land use in their form and features. They may be ‘relict’ such as former mining or rural landscapes. They may be ‘continuing; such as modern active farms, vineyards, plantations or mines’.<sup>3</sup>*

Polynesian settlement and the First and Second Settlement periods exemplify the sub-category of relic landscapes, as discrete evolutionary processes that came to an end in the past, in c1450, 1805 and 1856, respectively. The KAVHA site represents a continuing landscape because it retains an active role in contemporary society, as it has since 1856. The pier and active waterfront also retain an active role in contemporary society, continuing the long-standing use of this part of the site for maritime industry since the First Settlement period in 1788.

The KAVHA site also embodies aspects of the other cultural landscape categories—there are areas of KAVHA that are ‘designed landscapes’ and an ‘associative cultural landscapes’:

- As a designed landscape (category [i]), the First and Second Settlement layouts and spatial relationships are products of intentional design, not for aesthetic reasons but to reinforce notions of power and authority.
- As an ‘associative cultural landscape’ (category [iii]), the KAVHA site is a powerfully evocative landscape, for its picturesque landscape setting and natural beauty of the seascape. representative of

Section 2.2 provides an overview of the evolution of KAVHA’s cultural landscape. In brief, the evolution of KAVHA’s landscape is one that has had four distinct human phases of interaction, listed in Section 1.1.2 and, as a historic site and a living landscape, a place with deep cultural meaning for Norfolk Islanders.

## 2.2 Historical Overview

The cultural landscape of the KAVHA site has been shaped by its natural environment and the responses of people interacting with that landscape over the four defined settlement periods: Polynesian Settlement (c1150–c1540 AD); First (Colonial) Settlement (1788–1814); Second (Penal) Settlement (1825–1855); and Third (Pitcairn) Settlement (1856–present).

The following history for each period has been excerpted from the 2016 HMP and provides historical, landscape context for the CLMP.

### 2.2.1 Polynesian Settlement (c1150–c1540 AD)

Polynesians occupied Norfolk Island prior to Europeans. Archaeological remains at the cemetery and Emily Bay were investigated in 1995, 1996 and 1997 by Professor Atholl Anderson. The Emily Bay site suggests a single phase of occupation in the period between c1150 and c1450 AD, with settlers probably arriving from East Polynesia by way of the Kermadec Islands. Other evidence for prior Polynesian settlement was the discovery of bananas growing in Arthur's Vale in 1788, as well as stone artefacts, remains of a canoe at Ball Bay and human remains.

### 2.2.2 First (Colonial) Settlement (1788–1814)

Arthur Phillip's instructions were that Norfolk Island was to be settled and secured as soon as possible after landing at Botany Bay. The HMS *Supply*, with Lieutenant Philip Gidley King, arrived on the Island on 2 March 1788 with four military officers, four civil officers, nine male convicts and six female convicts. The settlement site had fresh water, flat ground and a landing place formed by a rocky projection from the shoreline.

During the initial months, thick undergrowth near the shore was cleared, shelters and storehouses constructed, and areas cleared for cultivation and livestock. Work on a timber house for King began on 9 April 1788. By the end of the year, the town on Sydney Bay (as King named it) had a number of thatched and weatherboard buildings. In 1789 channels were cut to drain the swamp. By 1790 cultivated areas stretched along Arthur's Vale (Watermill Valley) to Cemetery Bay. The foreshore was cleared, new buildings had been built in the town, and a barn was constructed in the vale. There were crop failures from grub, rat and bird attacks, and setbacks due to gales.

The colony's only links to the outside world were HMS *Sirius* and HMS *Supply*. On 19 March 1790, the HMS *Sirius* was wrecked on the reef. Crew and passengers were forced to remain while King left on the HMS *Supply*. Major Ross of the Royal Marines took command and proclaimed martial law. The settlers survived on sparse rations and by eating ground nesting birds and their eggs, including the so-called 'providence petrel'. Under Ross, a hospital, bakehouse, storehouse and a ditch for conveying clean water to the town were built. When King returned in 1791, a log gaol and penitentiary were constructed and lime burning commenced.

During 1795, the convict Nathaniel Lucas constructed a dam and watermill in Arthur's Vale and a windmill for himself at the end of Point Hunter. William Neate Chapman's 1796 Plan of the Town of Sydney shows the settlement. In October 1796, King left Norfolk Island in the command of officers of the New South Wales Corps.

Former convicts and the military were granted land for private use across the Island. Two villages—Queenborough (formerly Charlotte Field) and Phillipburgh (formerly Cascade)—had been formed adjacent to areas that were free of trees.

In 1803, a group of now free settlers petitioned to remain on Norfolk Island. Eventually it was recognised that Norfolk Island could not support itself independently of Port Jackson, and that the expense and danger of sending freight was too great. In late 1804, Captain John Piper of the New South Wales Corps became Commandant. A series of five evacuations to Van Diemen's Land took place in the years 1807 and 1808, reducing the population to 255.

In 1810 orders were given for the settlement's closure; removal of the remaining settlers commenced in February 1813. By March 1813 only a caretaker population of 43, including three soldiers, remained to slaughter and salt the remaining livestock. In February 1814 the brig *Kangaroo* sailed for Sydney with the remnants of the Norfolk Island community. The Island was unoccupied for the next 11 years.

### **2.2.3 Second (Penal) Settlement (1825–1855)**

In August 1822, Commissioner John T Bigge (1780–1843) reported on how transportation could again be made a deterrent to crime and recommended that Norfolk Island be re-opened. On 22 July 1824, Earl Bathurst instructed Sir Thomas Brisbane (1773–1860), NSW governor from 1821–25, to re-occupy the Island on the principles of a 'great hulk or penitentiary' as a means of secondary punishment, with the absence of the hope of mitigation being the main object. The object of Brisbane's successor as NSW governor, Sir Ralph Darling (1772–1858), was for Norfolk Island to be a place for the most extreme punishment short of death.

A party, under the command of Major Robert Turton of the 40<sup>th</sup> Regiment, landed on Norfolk on 6 June 1825. Roads were re-formed and the Garrison was placed behind Government House, giving it a view of both the Prisoners' Camp and the Garrison Farm. A garden was formed in Arthur's Vale for the detachment, and facilities to produce building materials were prepared.

In December 1825 a further 31 convicts arrived, as well as a number of women who may have been associated with the detachment. In March 1826, Captain Vance Young Donaldson and the 57<sup>th</sup> Regiment relieved Turton. His orders included the removal of all women, both bond and free. Women continued to be excluded until 1829 when officers' wives and families were allowed, but no female convicts.

Hard labour included work in gangs, in the mills and at quarries. By 1833 there were 600 prisoners and 130 troops. A series of commandants over the next eight years saw the construction of the Prisoners' Barracks, the Old Military Barracks, the Lumber Yard, the Beach (or Pier) Store and original Commissariat Store (later Crank Mill).

By the time Major Joseph Anderson of the 50<sup>th</sup> Regiment arrived in April 1834, the place was known as Kingston. Anderson directed construction of the Commissariat Store, the New Military Barracks, and in 1836 commenced work on a New Gaol based on the radiating-wing principle. Other works included improvements to drainage and the creation of an ornamental garden.

The year 1838 saw the arrival of the Royal Engineer, Lieutenant Lugard, who surveyed the settlement and later designed a number of the buildings. Lugard proposed improvements at the Landing Place, and construction of the Kingston Pier commenced in 1839 and continued until 1847, but it was never completed.

When Major Thomas Bunbury replaced Anderson in April 1839, there were 1200 prisoners and 180 soldiers. Bunbury reintroduced the plough, practical agricultural techniques and flax production. He constructed two underground silos above the Commissariat Store, and made changes to the Watermill dam system. He allocated easier labour to the well-behaved, encouraged church services and allowed

individual gardens. Bunbury's command was terminated abruptly in September 1839 after he attempted to stamp out irregularities within the 80<sup>th</sup> Regiment by removing their private huts and gardens.

Prison reformer Captain Alexander Maconochie RN took command in March 1840—a time when the convict population reached its highest number of 1,872. He found a lack of accommodation for prisoners, inadequate mess facilities and an absence of schools and places of worship. Maconochie implemented his system of reform among the English prisoners—that is, convicts sent directly from Britain as opposed to the colonial convicts sent as the result of a second conviction.

Maconochie suspended work on the New Gaol and saw it as a place fit for use only as a 'quarry'. From 1842 to 1844, more houses were needed for additional civil officers; these were built on Military Road (Quality Row) to a plan developed by Anderson and Lugard in February 1839. Maconochie's reforms faced criticism by 1843. Major Joseph Childs RM was commissioned to take charge of the Island in January 1844. Following the suspension of transportation to New South Wales, control of the Norfolk Island Penal Station was transferred to Van Diemen's Land from 1844.

Childs was required to enforce penalties and introduce greater discipline. He restored a harsh penal code, restoring the gang system of labour, and withdrew indulgences for good behaviour, including the opportunity to cultivate private gardens. The bartering of food was also forbidden. With privileges removed and a brutally harsh regime reinstated, the convict community 'seethed with unrest and degradation'.<sup>4</sup> Tensions reached a climax in July 1846, when a rebellion broke out near the lumber yard, linked to Commandant Childs the day before having removed the convict men's cooking utensils. These were given to the convicts under Maconochie and were regarded as their own possessions. The revolt is known as the cooking pot rebellion. Breakdowns in discipline such as the cooking pot rebellion forced Childs to resign in February 1846. Rev Naylor, Chaplain, reported in detail a regime of brutal punishment. The report of Robert Pringle Stewart, a former commissioner and magistrate, was critical and stressed the need for changes.

Childs' resignation was accepted on 10 July 1846. Childs' replacement was a civilian, John Price. Price arrived at the beginning of August 1846 to take charge and to administer punishment to those involved in an uprising. Price continued with the work on the New Gaol, and by 1847 it was substantially complete.

In 1847 Britain's Secretary of State for the Colonies informed the Governor of New South Wales that the penal settlement on Norfolk Island was to be abolished.

The convict population was reduced from 1,820 in December 1846 to 857 in December 1847, and the size of the garrison was halved. Norfolk Island was to be for colonial prisoners only, and works no longer needed were abandoned.

The convict population was reduced to 495 by the end of 1852, and Price left the Island in January 1853. There were only 119 convicts on the Island in October 1854.

Van Diemen's Land, under the name Tasmania, was preparing for a measure of self-government that entailed the cessation of transportation to its territories, including Norfolk Island.

### **2.2.4 Third (Pitcairn) Settlement (1856–Present)**

In 1852, following several years of negotiations, the British Home Office decided to relocate the Pitcairners. By this time the community were devout Christians and had outgrown Pitcairn Island. With the penal settlement closure imminent, Norfolk Island was deemed to be a suitable place.



The Pitcairn community had its origins in the mutiny on HMAV *Bounty*. Under Captain Bligh, HMAV *Bounty* had sailed from Britain to Tahiti to acquire breadfruit plants to establish as a food supply for plantation slaves in the West Indies.

On 28 April 1789, after leaving Tahiti, the crew led by Fletcher Christian mutinied and Bligh and 18 others were forced into the ship's launch whilst the mutineers sailed the ship to Tahiti. Bligh sailed to Timor and returned to England in 1790. The mutineers and a group of Tahitians left Tahiti seeking to settle on a remote island. They established a community on Pitcairn Island where they scuttled the HMAV *Bounty*.

On 20 September 1854 Sir William Denison, the new Governor of New South Wales, requested that Norfolk Island be placed under his jurisdiction. The people of Pitcairn voted to make the transfer and sailed on the *Morayshire*, landing at Kingston on 8 June 1856.

The Pitcairn Islanders first stayed in 'barracks', presumably the New Military Barracks, and were made familiar with the place and the operation of the mills and the blacksmith's shop. By 1857 the Islanders were in possession of the Kingston buildings, but they had difficulty repairing them owing to a lack of experience and skills, and the small number of adult males.

They maintained only those buildings they needed. Each household head was allocated a 50-acre lot, away from Kingston. A formal survey was made in 1858 and titles were issued in 1859. These regulations prevented the sale of land issued by grant from the Crown to people who did not have permission to live on the Island. The vegetation was gradually allowed to return, changing the denuded landscape the Pitcairners had encountered on arrival.

Throughout the 1870s and 1880s, a number of the buildings at Kingston decayed—these were primarily buildings associated directly with the convicts, such as the New Gaol, Lumber Yard, Convict Barracks and Civil Hospital. Until 1900 few significant physical changes occurred in Kingston.

The administration of Norfolk Island was transferred to the Governor of New South Wales, taking effect on 1 January 1901. In 1903 the New South Wales Government decided to issue licenses for occupation of the Kingston houses that were not held by deed of grant, in order to combat their continued decay. The licenses were conditional on maintenance and they limited the inheriting of properties. Evictions and ongoing tensions resulted in the burning of a number of houses in 1908, including houses on Quality Row.

*The Norfolk Island Act 1913* (Cwlth) established the place as a territory under the Commonwealth of Australia.

During the 1920s a number of the former convict buildings were renovated for use by the administration as offices and residences. The tourist trade also saw the construction of a guest house (Dewville) to the east of the Quality Row houses, and the creation of the golf course (which also contained a racetrack). Channelling and drainage works were undertaken. During World War II, the Pier was the main landing site for personnel and equipment associated with the construction of the airfield. Stone was quarried from Point Hunter, sand was removed from Emily and Cemetery Bays, and buildings were used as quarters. After World War II, tourism increased, and in the 1950s a number of buildings were repaired. Some ruins were removed, leaving empty compounds for use as community facilities, and other buildings were used as government offices.

The Commonwealth Department of Housing commenced a program of restoration in 1962, which continued into the 1970s. During this period the *Norfolk Island Act 1979* (Cwlth) (now amended; see

*Norfolk Island Legislation Amendment Act 2015* [Cwlth] No. 59, 2015) conferred a degree of self-government. In 1980 the Kingston and Arthur's Vale Historic Area Management Plan was prepared under the guidance of an interdepartmental committee. The Kingston and Arthur's Vale Historic Area Management Board was established under a Memorandum of Understanding (MOU) in 1989 (revised in 1994) to manage the conservation of the area and advise the Norfolk Island and Australian Governments.

From 1 July 2016, the Australian Government assumed responsibility for funding and delivering national and state level services to Norfolk Island. Since that time, the Norfolk Island Regional Council has provided landscape, garden and asset maintenance, and interpretation and public program services for KAVHA under a Service Delivery Agreement (SDA) with the Australian Government, through the Department of Infrastructure, Regional Development and Cities.

## 2.3 Natural Features

### 2.3.1 Geology, Topography and Climate

Norfolk Island, and nearby Phillip Island, are the product of former volcanic activity and are remnants of extinct volcanic cones. Uplift, dissection and coastal erosion comprise the major forces that subsequently shaped the Island's topography, which has a general elevation of 100–120m, falling away to steep cliffs. KAVHA is located in a unique area on the south side of the Island, located at a break in the cliffs that surround the Island. The KAVHA site consists of two distinct land types: the low-lying land of the Kingston area (approx. 200ha); and the hills to the north and the west. The highest point of the KAVHA site is the 90m contour, noting that the highest point of Norfolk Island is Mt Pitt (318m).

There are three general soil types in KAVHA: basalt derived soils; clayey alluvial soil; and sandy soil. The steeper land of the hills has soils derived from basalt (parent material) with high clay content, named 'Rooty Hill Clay'. Cracking is evident as soils dry out. Decomposed basalt appears in the profile at about 1m depth.<sup>5</sup> Clayey alluvial soils have developed in the valley floors. This soil is overlaid with sediment which has washed from the hill slopes since European settlement.<sup>6</sup> This sediment rich soil is evident as wet black soil in swampy and soak situations, including on parts of Kingston Common. The low-lying land of KAVHA generally consists of calcarenite, a limestone formed of consolidated current bedded calcareous sand, remnants of a former and much more extensive coral formation.<sup>7</sup> The sandy soil at Kingston is derived from the calcarenite and has a sandy subsoil to varying depths.<sup>8</sup> The fertility of the soils of the steep hillsides is said to be low, compounded by their degraded condition.

The dunes at Kingston are most developed behind Emily Bay and Cemetery Bay beach, with a narrow line of dunes behind Slaughter Beach. All the dunes are said to be formed from material blown from the beaches.<sup>9</sup>

The Island is drained by both permanent and seasonal streams. Watermill and Town Creek drain into and through the KAVHA site and have alluvial flats in their lower reaches (within the KAVHA site) and there is an area of low-lying sandy soil around Kingston. The hills are frequently dissected with gullies, with the gradients of slopes up to 30 degrees.<sup>10</sup>

Climate records show mild temperatures consistent with the Island's subtropical climate and an annual average rainfall of 1324mm. Rainfall is greatest during the four months from May to August, with monthly long-term mean rainfall of approximately 130mm to 147mm. June is typically the wettest month, having an average rainfall of 147mm. November is typically the driest month, having an

average rainfall of 75mm. The highest monthly rainfall was recorded in December 1989, of 473.2mm.<sup>11</sup> Heavy rainfall in the past has caused occasional flood events in Kingston lowland area.

Temperature variation between the summer and winter seasons is relatively small; average maximum temperatures range in winter from 18–19C and in summer to between 23C and 25C. Relative humidity is generally high, averaging in the 74–79% range at 9am and 71–74% at 3pm. Prolonged heavy rainfall, particularly after long dry spells, is a key contributing factor in soil erosion and sediment movement.<sup>12</sup>

Winds are predominantly east to southeast during summer and autumn, swinging south to southwesterly in winter, and returning to the south in spring.<sup>13</sup> Tropical cyclones occasionally have an influence in the early months of the year.<sup>14</sup>

### 2.3.2 Remnant Natural Vegetation

The topography of Norfolk Island is varied, comprising a sequence of different landforms (from coast to inland): coastal fringe areas, low-lying swamps; coastal foot slopes; exposed mid slopes; exposed upper slopes and ridges; mountain top; gullies; and intermediate slopes. The KAVHA site encompasses much of this topographical variety, with the exception of the mountaintop (Mount Pitt). Topographical variation, aspect, altitude, terrain, and proximity to the coast all have implications on the patterns and composition of indigenous vegetation communities.

Before colonial settlement in 1788, lush subtropical rainforest covered most of Norfolk Island. The vegetation profile is described by Hicks and reproduced in the Tropman landscape conservation and management plan.<sup>15</sup> Hicks and Coyne describe the following naturally occurring vegetation patterns:

- coastal fringe areas: flax (*Phormium tenax*) and the Norfolk Island white oak (*Lagunaria patersonii*);
- low-lying swamp and wet areas: rush and sedge grass, including swamp lily (*Crinum pedunculatum*), possibly introduced during the convict era, endemic sedge (*Carex neesiana*), *Eleocharis acuta* (also occurs naturally in Australia and New Zealand), the sedges (*Isolepis cernua* var. *setiformis* and *I. inundata*), and rush species *Schoenoplectus Validus*;
- coastal footslope: Norfolk Island pine (*Araucaria heterophylla*) and white oak, forming a protective fringe;
- exposed mid slopes: Norfolk Island pine, white oak, mixed hardwoods;
- exposed upper slopes and ridges: drier forests of Norfolk Island pine;
- sheltered upper slopes and gullies above 150m: Norfolk Island palm forests (*Rhopalostylis baueri*);
- mountain top: palm and mixed hardwoods;
- ridges: mixed hardwood and Norfolk Island pine;
- sheltered slopes and gullies in lower areas and on upper mountain slopes: hardwood rainforest, with ironwood (*Nestegis apetala*), maple (*Elaeodendron curtispiculum*), white oak, and bloodwood (*Baloghia inophylla*), tree ferns (*Cyathea brownii* and *Cyathea australis*), and some Norfolk Island pines;

- lower sheltered slopes: hardwood forest with vines and canopy formed by whitewoods (*Celtis paniculata*), bastard ironwoods (*Planchonella costata*) and bloodwoods; and
- exposed inland slopes: rocky scrub—hopwood (*Dodonaea viscosa*).

Kingston, comprising coastal fringe, low-lying swamp, and coastal footslope, is the only coastal plain on Norfolk Island. The only naturally treeless areas on Norfolk Island were the seacliffs, which were instead covered with the flax *Phormium tenax*.<sup>16</sup>

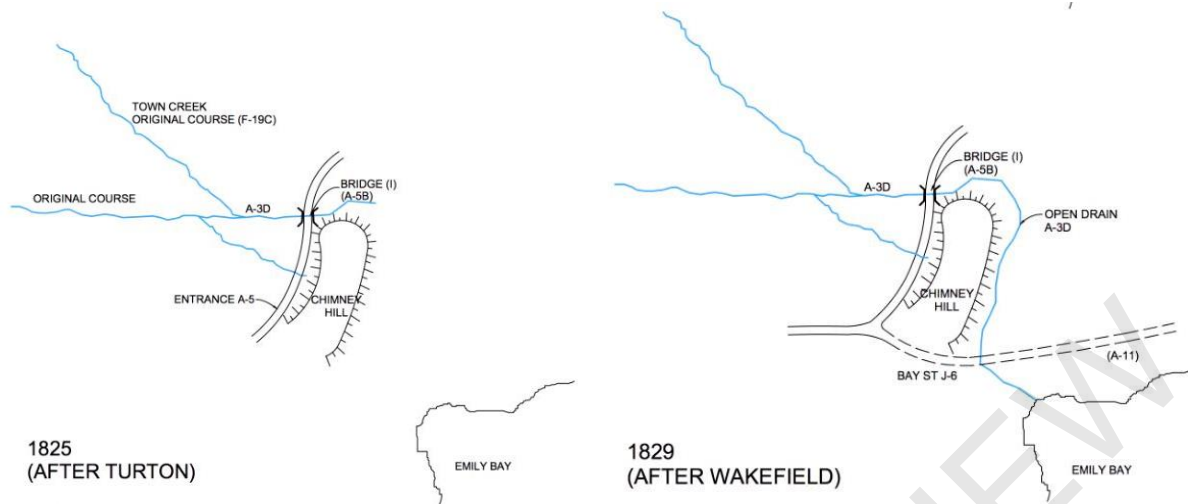
Early descriptions of the Island's pre-colonial settlement natural landscape and indigenous vegetation depict a uniform closed canopy through which protruded Norfolk Island pines, and Norfolk Island pines and flax are described as prominent.<sup>17</sup> However, there was great species diversity at canopy, mid-storey, and understorey levels, as indicated in the points above.

### 2.3.3 Drainage Patterns

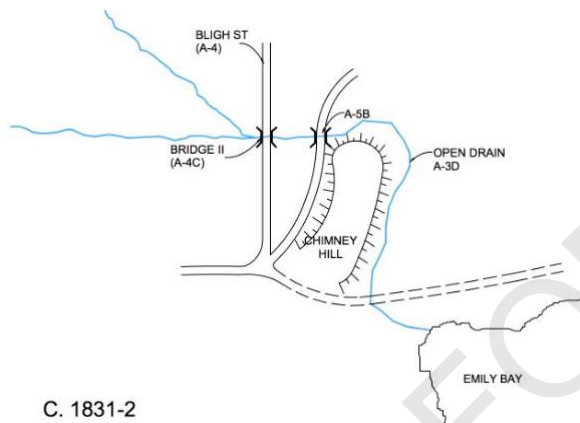
There are three main catchment areas in the KAVHA site: Watermill Creek, Town Creek and Bloody Bridge. These catchment areas extend beyond the KAVHA site boundary. Watermill Creek catchment is one the largest watersheds on Norfolk Island (the other being Cascade Creek which is outside of the KAVHA area). Watermill and Town Creeks drain into the western end of Emily Bay. Water from the Bloody Bridge catchment drains into Cemetery Bay.

Historically water did not drain directly into Emily Bay, instead passing first through a swamp system. The swamp system formed behind a low ridge of Quaternary dune calcarenite and recent sand dunes along the coastal lowlands of the KAVHA site, which prevented direct outflow of floodwaters to the marine waters of Emily Bay.<sup>18</sup> The swamp system functioned as a filtration system for the groundwater, before it entered the marine environment. Parts of the original swamp system were described as 'swampy' ground on early maps of Second Settlement.<sup>19</sup> The first channel to drain much of the swamp was cut during First Settlement period, in March 1789, in the vicinity of the area now known as Chimney Hill, thus opening up fertile land for agricultural use. With abandonment of First Settlement in 1814, the 1789 channel became blocked allowing the swamp to reform. A channel to Emily Bay was opened in 1829 around the north end of Chimney Hill. By 1835, the 1839 channel was abandoned, and a new channel cut through Chimney Hill that turned sharply south on the east side of Chimney Hill to Emily Bay. A bridge was constructed over the new channel. This channel remains visible in the landscape. In the 1940s a new straight channel was cut from the Serpentine to Emily Bay south of Chimney Hill, entering Emily Bay at a different location to the 1835 channel (to its west).<sup>20</sup>

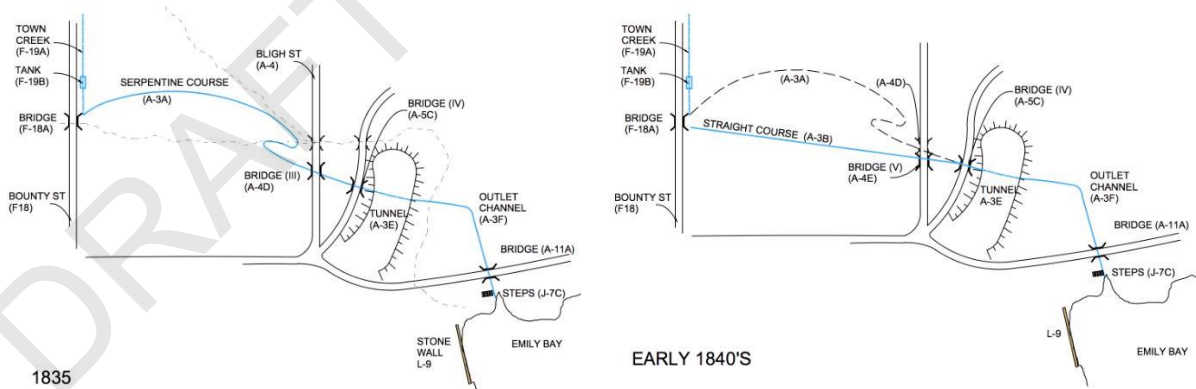
The diagrams showing modifications to the swamp, channel and drain system through Kingston Common to Emily Bay, including the Serpentine, are based on Wilson and Davies' research of 1980.<sup>21</sup>



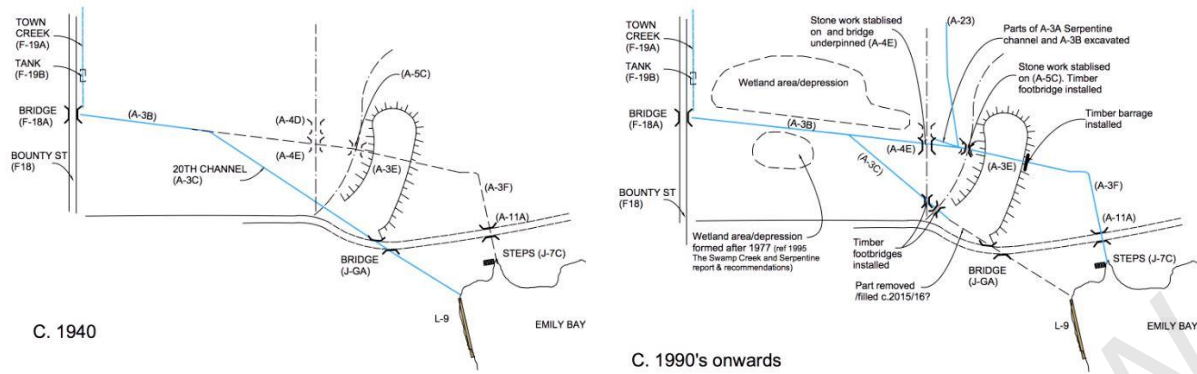
**Figures 2.1 and 2.2** These two diagrams and those that follow show the evolution of the creek and drainage channel system in the lower reaches of Watermill Creek, channels and drains by 1825 and 1829. (Source: EP, 2018)



**Figure 2.3** Watermill Creek, channels and drains by c1831–32. (Source: EP, 2018)

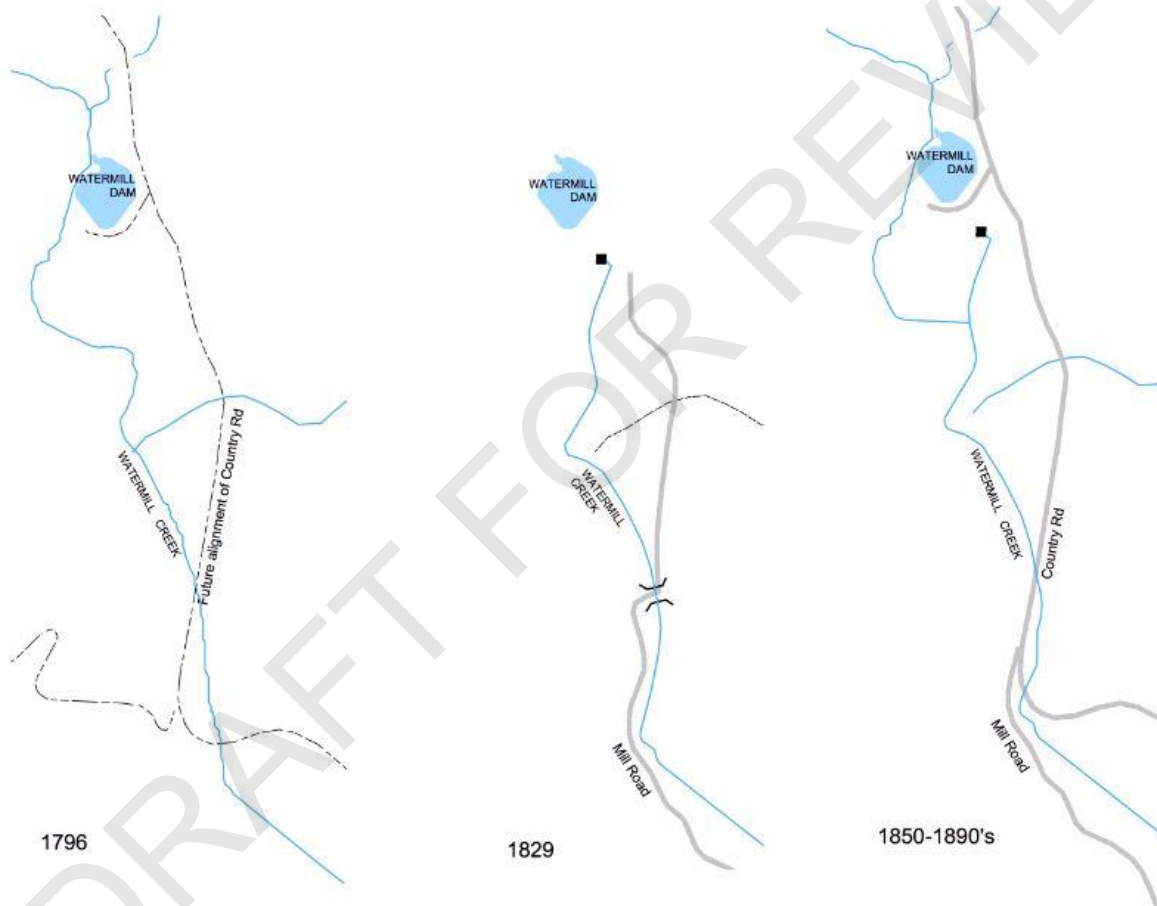


**Figures 2.4 and 2.5** Watermill Creek with Town Creek intersecting, channels and drains by c1835 and by the early 1840s. (Source: EP, 2018)

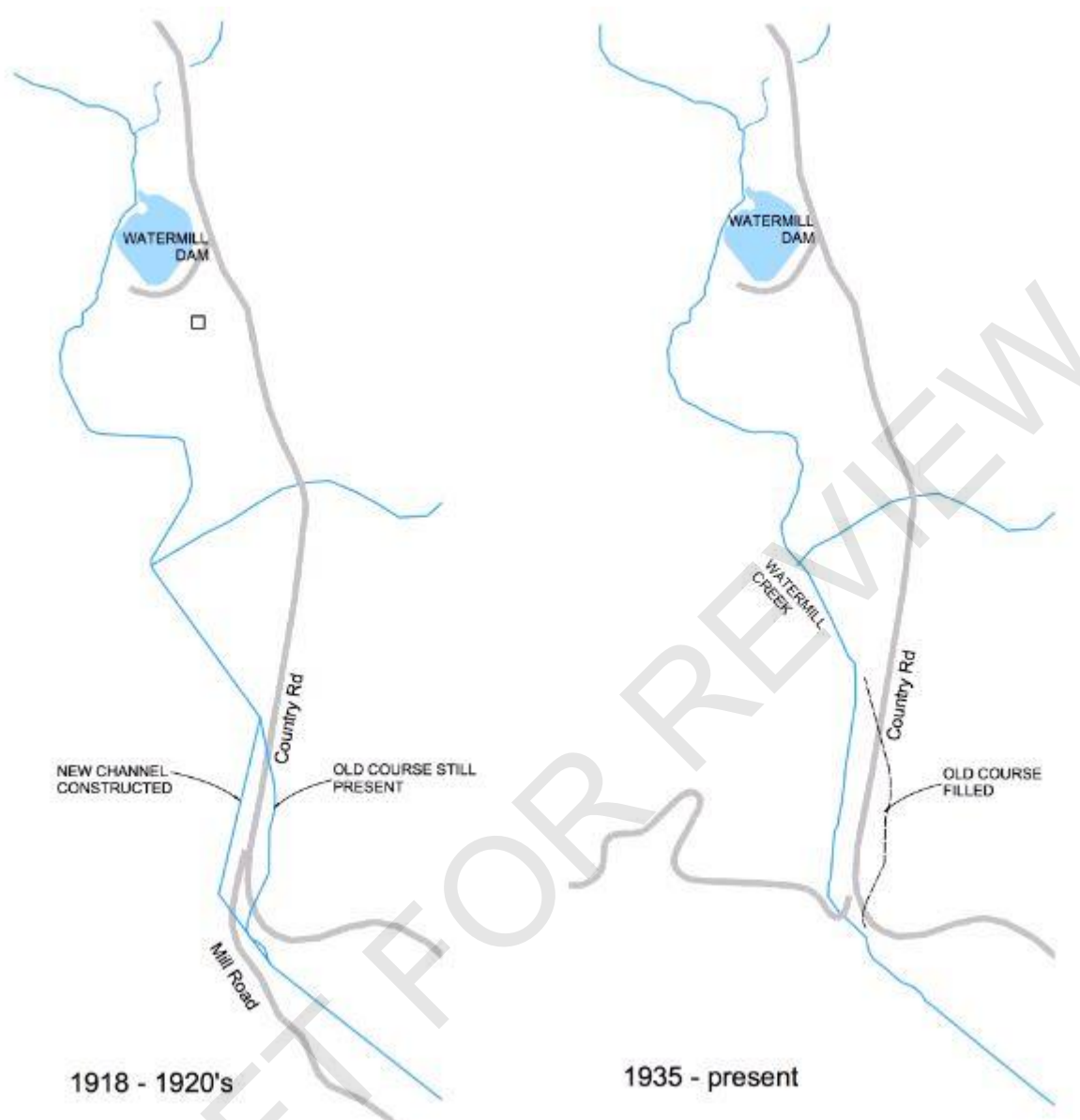


**Figures 2.6 and 2.7** Watermill Creek with Town Creek intersecting, channels and drains by c1940 and from 1990s. (Source: EP, 2018)

The following diagrams show the evolution of Watermill Creek through Arthur's Vale.



**Figure 2.8** Diagrammatic representation of changes to Watermill Creek, from 1796 to the 1890s. (Source: EP, 2018)



**Figure 2.9** Diagrammatic representation of changes to Watmill Creek, from 1918 to the present. (Source: EP, 2018)

### 2.3.4 Fauna

European settlement has dramatically affected the indigenous and endemic fauna on Norfolk Island. Even so, one of the specific attributes that contributes to the overall heritage value of the KAVHA site is provision of important habitat (wetland habitat and remnant vegetation) for migratory birds and endemic fauna, including land snails and crustaceans.<sup>22</sup> Evidence cited in Tropman 1994, including sub-fossil formation, suggests that prior to European settlement Norfolk Island had a rich snail fauna.<sup>23</sup>

## 2.4 Cultural Landscape Patterns

### 2.4.1 Land Clearing and Vegetation

The vegetation across the KAVHA site and its setting has undergone substantial change over the more than two centuries since First (Colonial) Settlement in 1788. Clearing of the thick, almost impenetrable indigenous vegetation began virtually immediately after the landing of Lt. Philip Gidley King and party on 5 March 1788. Ground was progressively cleared to provide space for buildings, food crops and

grazing of farm animals essential for sustaining the settlement, and to harvest building materials. The resulting destruction of native vegetation in the Kingston area is described as 'swift and complete'.<sup>24</sup> Clearing extended to the hills and valleys around Kingston, for government gardens and farming. When settlement was abandoned in 1814, 30% of forest had been cleared, allowing for the proliferation of weeds, especially grasses.<sup>25</sup>

Second Settlement saw continued clearing and grazing, and introduction of exotic plants. There was a specific and conscientious policy to clear the natural environment both for food production and security (surveillance) reasons. The landscape was ordered and its character primarily utilitarian and industrial, with the design and layout of settlement and spatial arrangement of its buildings reinforcing the hierarchy and regime of power. The 1829 Wakefield 'Plan of the Settlement and Garrison Farm, &c. Norfolk Island' shows an ordered and mostly cleared landscape, defined by productive gardens (civil officers' garden, prisoners' gardens, the government garden, and soldiers' gardens), and the Garrison Farm. A 'sandy flat' behind Emily Bay and land near the Burial Ground are shown with limited areas of what may be remnant vegetation (low growing and scrubby). A lone pine tree is shown at Point Hunter.<sup>26</sup> The presence of woody weeds was identified by Backhouse in 1835.<sup>27</sup>

Thomas Seller's 1835 watercolour of the settlement at Norfolk Island shows an organised pattern of cleared land with distinct kinds of vegetation in different patterns across the landscape.<sup>28</sup> The surrounding hillsides are depicted as largely cleared but dotted with individual trees. Two to three kinds of trees are depicted along the ridgeline (including what appear to be Norfolk Island pines). Fields are defined by either rows of reed-like plants or timber post-and-rail fences. A group of evenly spaced trees stands on the northwestern-facing slope of the Government House grounds. A dense clump of trees with Norfolk Island pines protruding above the canopy is shown just north of the lime stone quarry/Chimney Hill. Clumps of low-growing vegetation are shown on the swampy area of land behind the Emily Bay dune. Two pines are shown on Point Hunter, and another four pines are shown by the east side of the Emily Bay beach. Some flax-like strappy plants are shown in the swampy area of the Kingston Common. The 1850 'Plan of the Settlement, Norfolk Island' again shows mostly cleared land, ordered with rectangular form, some possibly remnant dune vegetation south of the Burial Ground, a single pine on the Emily Bay side of Point Hunter, clumps of trees at the west end of Emily Bay, on Salt House Point and in the vicinity of Chimney Hill and the Serpentine, and a formal garden shown at Government House between Government House and Military Road (now Quality Row).<sup>29</sup>

By 1856, when the Pitcairners arrived on Norfolk Island, something close to 40% of the land had been cleared.<sup>30</sup> With Third (Pitcairn) Settlement (from 1856) vegetation was gradually allowed to return, progressively reversing the severe and austere character of the denuded landscape that was a legacy of First and Second Settlements. Areas of land such as the Common remained cleared and used for grazing, and Arthur's Vale remained in use for agriculture and grazing. Allotments were granted to Pitcairners from 1858–1859, generally outside of the KAVHA area, with people encouraged to move away from Kingston and settle on their farm blocks. The hills remained cleared for pasture, with Tropman indicating that pasture predominated with little or no crop material into the mid-twentieth century.<sup>31</sup> By 1991, more than 80% of Norfolk Island was cleared and most of the remaining forest was weed infested.

From the end of the Second World War, historic aerial photographs show increasing vegetation cover, predominantly Norfolk Island pines as linear plantings, commemorative plantings and re-forestation plantations intended to remedy erosion.



Many of the hills cleared for pasture are eroded and have been colonised by weeds (including woody weeds such as Hawaiian holly and African olive) and by unmanaged spontaneous growth of Norfolk Island pines and white oak.

Although an indigenous species, the predominance of Norfolk Island pines within the KAVHA site detracts from the transmission of the heritage values of its cultural landscape.

#### **2.4.2 Creeks, Waterways, Canals and Drains**

The effects of human endeavour over time on the natural hydrology of the KAVHA catchment and KAVHA site have been profound, as a result of extensive modifications to the naturally occurring watercourses.

The streams originally drained naturally into a series of swamps behind a foreshore ridge before the freshwater entered Emily Bay. The swampy land is identified on the early maps made during Second Settlement. According to Hunter, Town Creek did not originally flow directly into Emily Bay, but partially drained into the swamp behind the Emily Bay dune, the site of the present-day Golf Course.<sup>32</sup>

Since the 1790s, the streams and swamps began to be confined to channels. Early in 1795 saw the first effective harnessing of the Island's creeks and streams for milling. In mid-1795, a mill with an over-shot water wheel was driven by the stream at Arthur's Vale.<sup>33</sup>

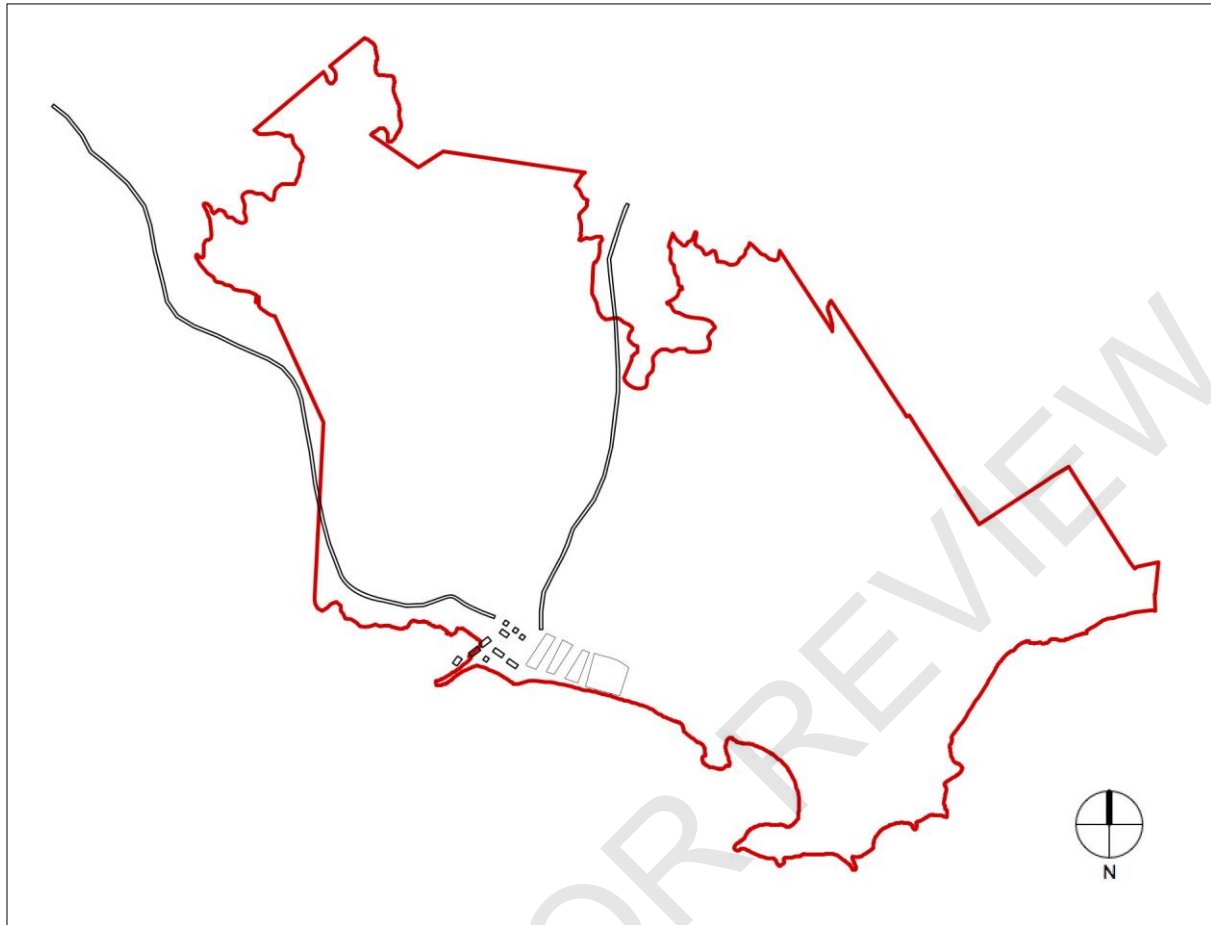
The channel and drain system was altered extensively during the Second Settlement period. The Serpentine channel, formed under Anderson in 1834–1839, attempted to divert the water along a channel designed on picturesque principles. It was subsequently abandoned by Bunbury, who reportedly made reference to it as a sewer, suggesting water flow issues. During the 1840s, a water supply system was first constructed.<sup>34</sup>

Further changes occurred from the Pitcairn Settlement period and into the present, and the landscape continues to evolve and change through both human intervention and a lack of human intervention. Historically, the two creeks that run through the KAVHA site, Watermill Creek and Town Creek, would have had a full barrier and swamp system to control flows and provide natural filtration, which are no longer in place.

#### **2.4.3 Roads, Pathways and Bridges**

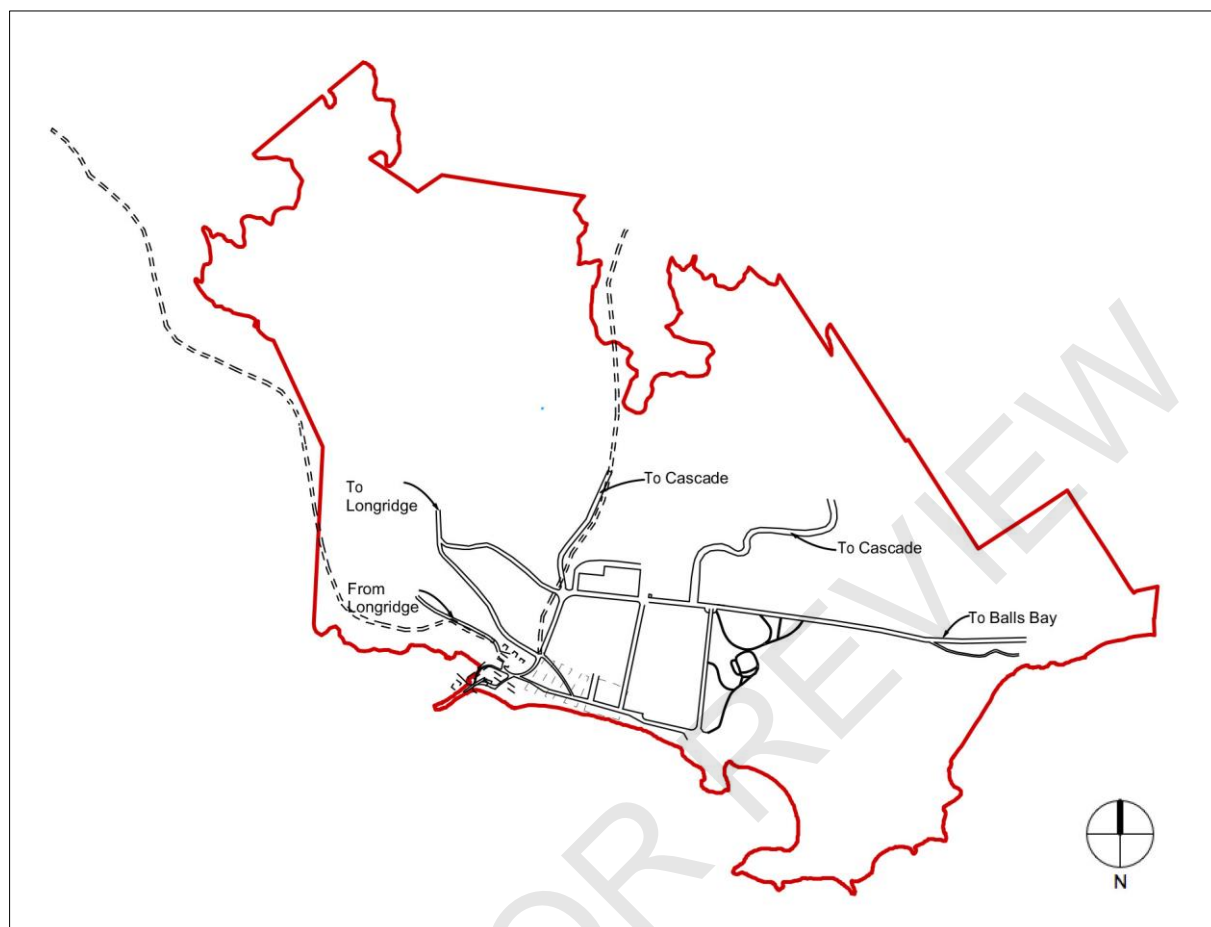
Other than arriving and departing by sea, there is little to no known evidence of pathways or routes through the landscape from the Polynesian Settlement period or where along the seafront or beach they landed. However, documentary and archaeological evidence of their occupation exists in different locations within the site—the possible 'marae' within the dune area on the west side of Emily Bay, and discovery of the presence of bananas by King in 1788 in Arthur's Vale (Watermill Valley)—suggesting movement of Polynesian people across the land now referred to as the KAVHA site.

First (Colonial) settlers landed on Norfolk Island at a site to the immediate west of the present-day Pier (now known as the 'Landing Place'), and from this point settlement grew. The (first) Government House was built within sight of the landing place, and the route between the two sites determined the orientation of the settlement.<sup>35</sup> By the 1790s, roads and tracks had been cut from 'Sydney Town' to Balls Bay, Mt Pitt and Anson Bay, and a primitive path formed between the main settlement and Cascade.<sup>36</sup>

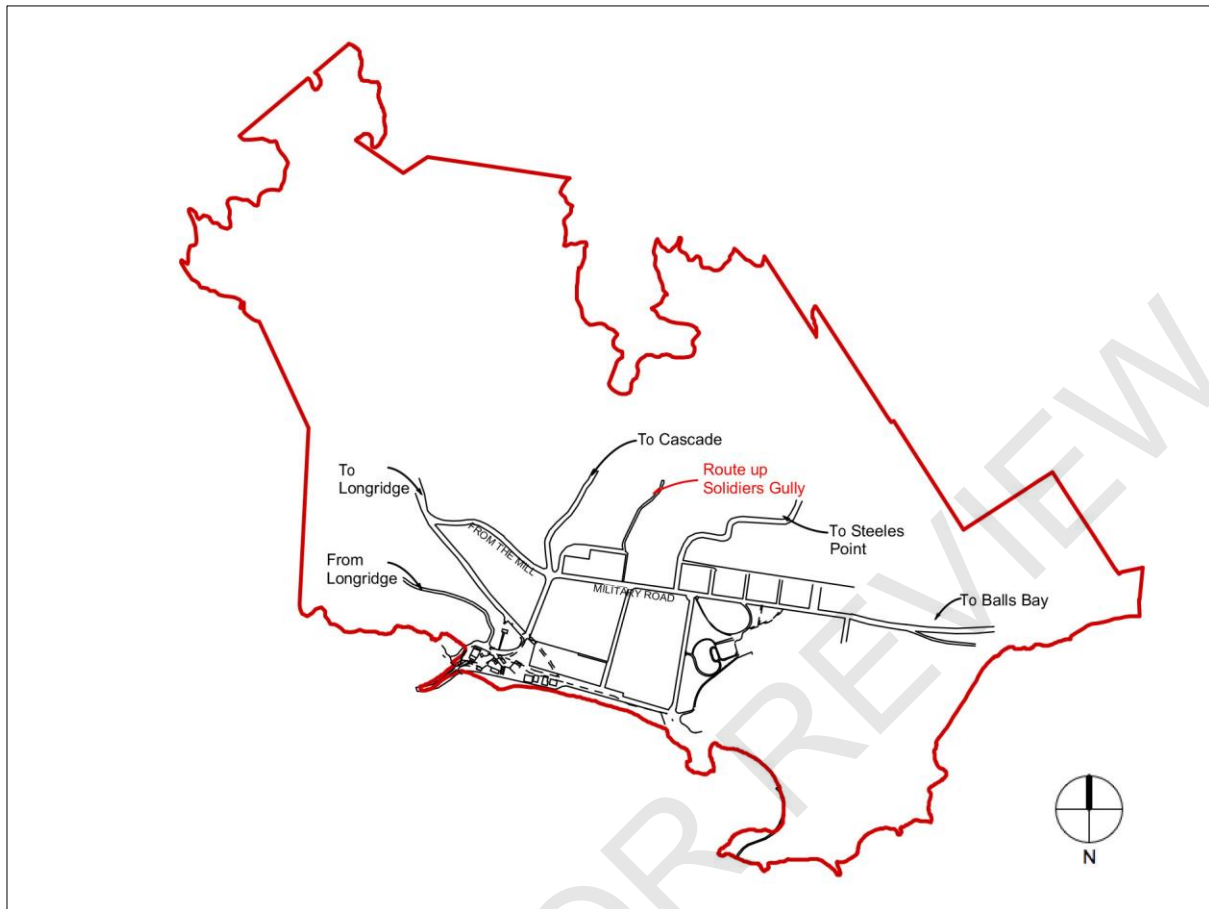


**Figure 2.10** Indicative locations of roads and pathways during the First Settlement period show in relation to the KAVHA site boundary, based on the 1793 'Plan of Town of Sydney on south side of NI, December 1793' by Chas. Grimes, Deputy Surveyor (SLNSW Mitchell Map Collection M2 819.2/1793/1). (Source: EP, 2018)

Tropman describes the years between 1828–1834 of the Second (Penal) Settlement period as the Establishment Period, which correlates with the arrival at the settlement of Royal Engineers Bordes and Lugard, who were sent to the Island to superintend the erection of the New Gaol.<sup>37</sup> Over the course of these years, major buildings were erected, and sites of industry and food production established, requiring pathways and communication lines be formed between them. These pathways became the major circulation routes.<sup>38</sup> The Pier Street bridge was constructed in 1835, Bounty Street Bridge in the 1830s, and Bloody Bridge in the mid-1830s.<sup>39</sup> The 1835 Thomas Seller watercolour shows unsealed road surfaces' possibly Mill Road, rutted from cart traffic.<sup>40</sup> The rectangular pattern of the layout of Second Settlement survives into the present day.



**Figure 2.11** Indicative locations of roads and pathways during the Second Settlement period show in relation to the KAVHA site boundary, based on the 'Plan of the Settlement, Norfolk Island taken Oct.r 1838' by Bordes, 1841 (SLNSW Z/M4 819.2/1838/1). (Source: EP, 2018)



**Figure 2.12** Indicative locations of roads and pathways during the Second Settlement period show in relation to the KAVHA site boundary, based on the 'Plan of Norfolk Island Settlement', 1850 (Tasmanian Archives G033/1/99). (Source: EP, 2018)

The design of the Parterre (and Serpentine), formed under Anderson in 1834–1839, stood in stark contrast to the rectangular street pattern established 1828–34. The serpentine pathways were laid over part of the Kingston Common (the part now used for active recreation) and foreshore land east of the 'Lumber yard and Convict Mess Rooms'? up to Chimney Hill.<sup>41</sup>

By 1838, a causeway had been constructed east–west across the swamp area on the east side of the settlement near Cemetery Bay (the area occupied by the present-day Golf Course) before turning southwest to join the west end of Emily Bay.<sup>42</sup> It is clearly depicted in the 1850 Plan of the Settlement.<sup>43</sup> The causeway is still visible in an 1890 photograph of the Island by Charles Kerry.<sup>44</sup> Two remnants survive end to end at the eastern side of the golf course.

Under Maconochie's command (1840–1844), Longridge was developed as a separate station, and presumably the Longridge Road was formed about this time. Between 1844–1855, Tropman records that the settlement 'represented its fullest built form, ... [with] an ordered layout based on rectangular forms.'<sup>45</sup> The sea wall was completed at this time, which may have had implications on the road layout along the sea front. Certainly the curving seafront road shown in the 1829 Wakefield plan is depicted in 1850 as a straight road.<sup>46</sup> 'The road to the cemetery represented an important edge at this time.'<sup>47</sup> Sketches indicate cuttings associated with banks cut into hillsides for roads and tracks leading to the other side of the Island.<sup>48</sup>

A 1914–1915 photograph of the prison area from Flagstaff Hill shows a simple straight-aligned route leading from the Pier, diagonally past the Gaol, in the direction of the Kingston Common area (in the present-day location of the triangular intersection of Pier and Bay streets).

During the twentieth century, construction of the airport in the 1940s appears to have resulted in the loss of part of the Longridge Road. A golf course was established at the site of the current Golf Course, but initially covering a smaller area than it does in the present day.

#### 2.4.4 Built Elements in the Landscape

Much of the built environment within the KAVHA site is constructed from local materials, including local timber and calcarenite. Most of the First Settlement buildings were timber. Calcarenite is a type of limestone, and it ranges in quality with two main types: rubble (less dense) and massive calcarenite. According to Blucher, the Polynesian settlers on Norfolk Island used this stone (1200–1600 AD): 'Excavations in the 1990s uncovered hearth stones of rubble and slabs of massive calcarenite formed into a marae'.<sup>49</sup> By 1791, during First Settlement, the calcarenite was discovered as a form of limestone that was suitable for building and the manufacture of mortar. Good lime was being manufactured in Kingston by 1793 and sacks of lime were sent to Sydney.

Lime mortar was manufactured in the kilns constructed for this purpose near the rocky outcrop west of Emily Bay, near Chimney Hill, in the 1790s and 1825. During the Second Settlement convicts were employed in quarrying the stone. Visiting Norfolk Island in 1835, James Backhouse described the quarrying process and how the stone was raised by levers using manual labour.<sup>50</sup>

During the Second (Penal) Settlement period the predominant building material was calcarenite:

*Rubble calcarenite was used for roads, water systems, foundations and walls. External walls formed with roughly dressed blocks were jointed together with lime mortar, and rendered with smooth slaked-lime sand mix ... Skilfully cut massive calcarenite was formed into finishing stones for pediments, sills, chimneys, corners, decorative features and headstones.*<sup>51</sup>

Some floors, including verandahs, consisted of two-inch-thick paving stones laid on a bed of sand.<sup>52</sup> Massive calcarenite was also used for dripstones, believed to have functioned for water filtration.

During the Pitcairn settlement period, houses within Kingston were generally maintained, as were maritime and administrative buildings. The convict buildings fell into ruin, with some stone re-used for building elsewhere across the Island (for foundations) as settlers were encouraged to settle on their farm blocks.

In the postwar period, the remaining colonial buildings and built elements (walls, standing ruins, bridges, for example), were subject to programs of conservation works.

#### 2.4.5 Land Use

##### Food Production: Cultivation of Crops and Grazing

Evidence of some small-scale cultivation of crops (bananas) by the Polynesian settlers was found by King in 1788, in Watermill Valley. Some of these banana plants were harvested during the First Settlement period.

During the first week of the First Settlement period, trees were felled and ground was cleared for food crops and a small stock of farm animals. According to Wright, within two weeks, the first public garden was planted.<sup>53</sup> When the settlement relocated to the base of Mount George (now Flagstaff Hill), the

northeast slopes of the hill were prepared for planting wheat and barley. (The south side was also attempted but strong winds destroyed emerging crops.) Arthur's Vale with its swamp and rivulet were discovered soon after and recognised as a well-watered and sheltered spot for public gardens.<sup>54</sup> The banana plants discovered there were trimmed and soon additional cropping plants were introduced over an area of approximately one acre: sugar cane, orange trees, South American bananas, cabbages, turnips, onions, leeks, carrots, lettuces, parsley, artichokes, beet, potatoes and yam. Not all crops were successful, with challenges posed by grubs, rats and wind.<sup>55</sup> Barley was also sown, over about 2.5 acres.

As the population expanded, more land was cleared and cultivated, to ensure self-sufficiency of the colony. Convicts were allocated land for their own gardens, and were required to establish these before labouring in gardens for the public good. Convicts were encouraged to become self-sufficient (in food producing groups) to reduce the burden on the government stores.<sup>56</sup>

By 1791, around 100 acres, excluding private gardens, was under cultivation. Crops included potatoes, cabbages, grape vines, orange and lemon trees, and sugar cane.<sup>57</sup> Maize, wheat and barley were also grown.

Maps of the Second Settlement show that by 1829, many areas of non-swampy land were used as 'gardens', that is, gardens for the cultivation of crops. Separate gardens are identified for convicts, civil officers, soldiers and government gardens. Watermill Valley and a large area in the northwest of the Kingston area are denoted as farms.<sup>58</sup>

By 1838, much of the productive gardens surrounding Government House were converted into ornamental gardens, with the area to the south retained for food production (a paddock is now shown southeast of the original government gardens area). The Military Officers' Gardens appear in the gully north of the Parade Ground.<sup>59</sup> The pattern of productive gardens continues up Watermill Valley west of present-day Pier Street. In 1839 the first two of several grain silos were constructed for underground storage of grain.<sup>60</sup>

By 1850, the productive gardens remain in Watermill Valley, west of Pier Street (Civil Officers' Gardens) and north of the Parade Ground on both sides of Soldiers' Gully (Military Officers' Gardens on the east side, Soldiers' Gardens on the west side).<sup>61</sup> The productive gardens in the Kingston area had otherwise generally decreased in area, reflecting Anderson's conversion of areas of productive land around Government House into a designed landscape organised on picturesque principles (1834–1839), and Maconochie's establishment of an agricultural outstation at Longridge (1840–1844). Longridge was established as a separate agricultural settlement under Maconochie, concerned about keeping colonial prisoners separated from newly arriving English prisoners.<sup>62</sup>

With Pitcairn settlement from 1856, small scale agriculture continued in Arthur's Vale. Allotments were generally granted outside of the present-day KAVHA area, and Pitcairners were encouraged to move to their farms 'up country', and away from the 'town'. This meant that while food production for self-sufficiency continued, like during Second Settlement under Maconochie, the imperative for all food production to occur within the Kingston area had again decreased. Between 1900 and 1945, Tropman describes a grazing regime within Kingston, but not crop cultivation.<sup>63</sup>

While there is evidence of cultivation associated with the transient Polynesian population, the presence of livestock is unknown.

Writing about the beginning of First Settlement, Hunter observed (in 1793) how Governor Phillip had advised King that those settlers who were not convicts were at liberty to cultivate ground for their own

benefit (not exceeding 10 acres to any one person) and were permitted to 'receive part of the live stock', as King would judge necessary (permits were required for killing).<sup>64</sup> It is not clear where the livestock was grazed or enclosed at this time, but already in 1788 the clearing of land and settlement had extended into Arthur's Vale, and by 1789 to Balls Bay. Convicts, Marines and free people were all engaged in land clearing for private gardens and for public use for cultivation. Under Major Ross by c1791, food producers, including convicts grouped into food-producing units, were provided with livestock and seed, which they were required to nurture.<sup>65</sup> Along with conditions associated with land grants to new settlers, ex-convicts and Marines (that is, different time periods by which independence of the government store had to be achieved), tools and provisions, breeding sows (two) and hens (six) were freely received. Settlers' blocks were spread across the Island, as shown in the 1792 plan and list of landholders. Between 1791 and 1793, livestock numbers increased dramatically. Stock included goats, sheep, lambs, boars, sows, young pigs, duck, geese, fowls, and turkey.<sup>66</sup> Pork production was part of the Island's agriculture, which required salt for preservation, and found its way to the government stores. By 1801, the Island's livestock fund included increased numbers of pigs, sheep, goats, plus small numbers of asses, female cattle (7) and male cattle (8).<sup>67</sup> By 1804, grazing had become a significant land use, with swine, goats and sheep predominating. Before 1810, a substantial proportion of the population was associated with agriculture and the land (about 55% of the male population) was associated with the land and agriculture: as bull carriers, stockmen and stock keepers, shepherds, a milkman, and a harness maker, for example. A list of artisans involved in related work included blacksmiths, salt boilers, butchers and cooks.<sup>68</sup> In 1813, in preparation for withdrawing from and ultimately abandoning the settlement by 1814, livestock were systematically killed and salted down.<sup>69</sup>

During Second Settlement (1825–1855), a limited volume of resources was devoted to animal husbandry, as suggested by meat imports (in particular salt meat). In 1837, there were 221 head of cattle on the Island: mostly bullocks for very hard draught work not possible by convicts, with milk and dairy products supplied to the free population. Sheep were more numerous, slaughtered mainly only for hospital requirements and the military, two rations per week. Most of the wild pigs and goats on the Island at the start of settlement had been destroyed. Apparently, animal husbandry was comparatively neglected because of penal policy; it was not considered sufficiently hard labour, was harder to measure, and there was the perceived risk of convicts absconding into the bush with a ready source of food.<sup>70</sup> Soldiers were engaged in informal primary production in their spare time (such as in Soldiers Gully), and some raised poultry. Around 1837, the introduction of herds and flocks and draught cattle, requiring less burdensome work in terms of manual labour relative to manual construction of roads and buildings, were not recommended on the basis of not being 'a proper source of profit as well as of employment in a penal settlement'.<sup>71</sup>

By 1843, fowls were recorded on individual farms, and pigs recorded on some farms and officers' private stockyards. Cattle and sheep, the other main types of livestock, were exclusively government owned. Cattle numbers trebled by 1843 (to 677), from 1837 levels. Over the same period, sheep numbers had almost doubled (to 5,352). Government livestock records for the period 1837–1852 show horse numbers at 12 in 1837 rise to 30 in 1852. An 1852 watercolour by CS Akers shows a cleared valley on Norfolk Island, about the width of Watermill Valley but unidentified, with grazing cattle.<sup>72</sup>

At the end of Second Settlement, buildings and large quantities of equipment, livestock and stores were left behind on the Island, although the more valuable stores and livestock were selected for shipment to Hobart. The remaining assets would be transferred to the Pitcairners on their arrival in 1856. This included cleared land (600 acres) and fencing, barns (among other buildings), an expansive

network of roads and tracks, and large numbers of livestock, including 433 cattle, 1,304 sheep, plus horses, pigs and poultry.<sup>73</sup>

The Pitcairners were allocated the Second Settlement sites, buildings, infrastructure, cleared land and livestock. Small-scale agriculture continued in Arthur's Vale from 1856–1900. Tropman records that between 1900 and 1945, overgrazing in the Kingston area and high storm activity contributed to a breach of the frontal dunes at Emily and Cemetery Bays, and that grazing regimes appeared to exist in the KAVHA site area, with tussocky grasses indicating a 'common'. Arthur's Vale appeared to retain the same use from earliest times. The 'common' area remained cleared because of its use for grazing; grazing activity meaning trees were unable to establish. The use of some 'common' land for grazing, such as in the area of the present-day Golf Course, was replaced by recreation, for example a golf course and racecourse.<sup>74</sup>

During the early post-World War II period, stock were allowed to roam. Between 1960 and 1993 tourism and recreational activities replaced some of the 'common' land used for grazing. Cattle continue to graze on the public reserved land, which includes Kingston Common, and along Quality Row.

Vestiges of these land uses remain in the cultural landscape, such as walls of former stockyards, remnants of a milking yard, the open valley of Arthur's Vale and coastal plain of Kingston drained and cleared to increase viable land for agriculture, barns, remnant silos, ruins and vestiges of former mills (1795 watermill at Arthur's Vale, 1827 Crank Mill, 1842–1844 windmill at Point Hunter), for example.

### Power and Surveillance

Power and authority were conveyed through the Georgian architecture and imposing buildings of Second Settlement, such as the Military Barracks, Prisoners Barracks, Commissariat Store and Government House. The landscape was also used to reinforce the hierarchy and regime of power. As noted above, clearing of the land was a specific and conscientious policy both for food production and security (surveillance).

The design and layout of the Second Settlement also took advantage of the landform, using it to reinforce notions of power and authority. The siting of government and military buildings and functions on higher, more visible ground, and the siting of Government House on a prominent rise in the Kingston area, were strategic. It meant these buildings overlooked the Prisoners' Compounds and other sites of industry on lower ground. The visibility of the government and military buildings on higher ground meant that for convicts in the barracks, or working the land and industrial sites, the power and authority of government and military were continually reinforced.

The ornamental gardens created under Anderson and on Quality Row would have reinforced the hierarchies of power in a different way, through exclusion, being accessible only to officers, or clergy, and their families.

### Burials

Tropman presents a chronology of places used for burials within the KAVHA site, in the Kingston Cemetery Study and Management Plan (1994).<sup>75</sup> In summary, the Cemetery Study reveals the earliest evidence of a burial in the vicinity of Emily Bay; a site of pre-European remains known as Burial 608 was exposed at Emily Bay in 1936 after disturbance from a flood and high seas. Then:

- 1788—Marine John Bachelor (drowned) was buried near the then site of the Flagstaff, at the landward end of Kingston Pier.



- 1796—A burial ground is shown on the 'Plan of the Town of Sydney', immediately east of the swamp drainage channel to Emily Bay. A tree planting commemorates the site of the First Settlement burial ground at Emily Bay.

Other than these specific mentions, between 1788 and 1811, interments are believed to have generally occurred near the place of death. In 1811, Governor Macquarie issued a notice for a consecrated burial ground seeking to end this practice.

In 1825, with Second Settlement, the current area was set aside as the burying ground. Headstones remaining from First Settlement at the Emily Bay cemetery are believed to have been moved to the Kingston cemetery site at this time.<sup>76</sup> It is not known if the graves (ie human remains) were also moved.<sup>77</sup>

Third Settlement burials also occurred in the Kingston Cemetery, requiring extension of the cemetery to the west.

The Cemetery continues to be used as a burial ground by the Norfolk Island community. It is also a site visited by tourists and descendants of Norfolk Island settlers.

### **Industrial and Utilitarian Landscape**

For a substantial part of its colonial, penal, and Pitcairn history, the cultural landscape of the KAVHA site was largely industrial and utilitarian in purpose and character. In addition to grazing and crop production, discussed above, the Kingston area included many industrial sites, structures and buildings, including for maritime industries, for extraction, harvesting and manufacture of building materials, and for other smaller industries and activities associated with establishing and sustaining the settlements.

Maritime industries included boat building, fishing, shore whaling (to 1939), and lighterage. These maritime functions were, historically, concentrated at the Pier area, at the southern end of Pier Street, and the Pier area is significant for its continued use for maritime purposes into the present day. Currently, the Pier area continues to be used for lighterage and fishing, functions as an informal fish market, and is the arrival point for visitors to Norfolk Island by cruise ship in suitable weather conditions.

The extraction, harvesting and manufacture of building materials were other major industrial functions within the Kingston area, which continued in a reduced form to 1986 when sand quarrying ceased at Kingston. Quarrying included extraction of stone for use in construction (calcarenite or limestone, with sacks of lime exported to Sydney) and dripstones (exported to Sydney or burned to make lime).<sup>78</sup> Stone, sand and lime were manually quarried during Second Settlement by convicts under harsh conditions, sometimes waist deep in water, as described in records and reminiscences of early visitors to the Island, including James Backhouse in 1835 and Major T Bunbury in 1839.<sup>79</sup> Lime production continued during Third Settlement, although sporadically, until the 1930s.

There were quarries at Emily Bay and on the Emily Bay dune, Chimney Hill, Cemetery Bay, at Point Hunter and on the golf course to the east of Government House (a dry quarry in 1846–1856). The dry quarry near Government House was re-opening during Third Settlement, from 1930–1944, during which time it was a limestone quarry and rock crushing plant. A sand quarry continued to operate at Point Hunter into the post-World War II years. The causeway that crossed the swampy ground behind the Emily Bay dune was quarried for fill in the 1940s.

Timber for building materials was manufactured at the sawpit and workshop established near the edge of Slaughterhouse Bay (east of present-day Bounty Street) in 1825, with a lumber and mess yard added in 1833–1834. The sawpit was infilled after 1856.

Other industrial structures along the waterfront included salt houses, Salt House I (H48) and Salt House II (H49) and a blacksmith's compound (H44) east of the Pier and on the south side of Bay Street. On Salt House point was another salt house (L5), and salt concentration and salt regulation tanks on the rocks at the foreshore of Emily Bay.

This land use history is largely obscured by the picturesque and bucolic landscape of the present-day KAVHA site, by the Georgian buildings set in expanses of grass and manicured lawn, and by the silence and stillness of the place.

### Ornamental Gardens

Government House was constructed between 1828–1829, initially with an approach road from a drive along the beach front. Yards to the south and east of the house had been formed by 1825. In c1831–1832, Bligh Street was formed including the front gates which provide access into Government House Grounds from Quality Row. In the early 1830s the rear driveway entrance was formed, and an arboretum was established in the wider grounds. By 1838 a fruit garden was developed. In 1834–1839, under Anderson, a Serpentine landscape was designed in accordance with picturesque principles with several bridges, in the areas west and southwest of Government House. The pathways on Kingston Common and the Serpentine channel are depicted on the 1838 and 1839 plans of settlement.<sup>80</sup> This was possibly the first ornamental garden.

Ornamental public gardens were not common, and the interventions made under Major Anderson's command (1834–1839) of an ornamental garden for use by officers and their families for recreation and the Serpentine represented a momentary but significant shift in land use away from self-sufficiency, and towards aesthetic considerations and refined recreation. By 1840, the gardens were removed by Anderson's successor, Major Bunbury, who saw them as extravagances.<sup>81</sup>

Other ornamental gardens existed around the Civil Officers' quarters, which were erected between 1832 and 1847. The Catholic Clergyman's house (D11) was the first constructed, followed later by the Protestant Clergyman's Quarters (D7). Tropman records these houses collectively described in 1848 as:

*a succession of white cottages, surrounded by green verandahs, each on its own lawn or shrubbery ornamented with variegated flowers, one above the other, about twenty yards apart and presenting a picturesque view.*<sup>82</sup>

Early plans show symmetrically laid out gardens defined by walls, with a central timber gate on the Quality Row frontage and central path leading from the gate to the front verandah. Rear boundaries appear to have been defined by hedges.

By Third Settlement the houses along Quality Row were occupied by different families and described as substantial, covered with creepers, honeysuckles and roses and surrounded with gardens. The two mature hibiscus in the garden at No. 10 are believed to date from the early Pitcairn period.

### Contemporary Land Use

Overlaid onto the layers and traces of previous and continuing land uses are contemporary patterns of land use. Long-standing and contemporary uses within Kingston include uses associated with maritime industry, commemoration, spiritual functions, government administration, tourism, conservation, and

recreation, and the KAVHA landscape continues to sustain living social and cultural traditions of the local Norfolk Island community.

## 2.5 Intrusive Elements

Elements have been identified as ‘intrusive’, on the basis that they obscure or detract from transmission of the heritage values of the KAVHA site, or which have adverse visual or physical impacts on important attributes of heritage value.

### *Circulation, Access and Parking*

- Visual intrusion and bulk of parked vehicles throughout the site, at vantage points and close to historic buildings.
- Wear tracks from cars going off-road—for example, around public toilets at Slaughter Bay, and between the Old Surgeon’s Quarters and the Crank Mill and Settlement Guard House (the latter follow the alignment of an early route in this approximate location, from Second Settlement, c1838–1850).
- Unrestricted access of vehicles throughout the site and the speed of vehicles moving through the site.

### *Livestock*

- Central fence and its angled alignment in Pound Paddock.

### *Vegetation Management*

- Reeds and weedy vegetation along waterway edges, in particular within and at the edges of the lowland and plain swamps/wetland system.
- Weedy vegetation on the surrounding hillsides (Norfolk Island pines, African olive, Hawaiian holly, French clover).
- Spray lines in grass from weed control activity at footings of buildings, structures and ruins and accidental lines running between buildings, structures and ruins.
- Large grassed areas of mechanically mown lawn.

### *Waterways, Creeks, Swamps and Drainage*

- Black water not draining from lowlands swamp/wetland system.
- Reeds and weedy vegetation along waterway edges, in particular within and at the edges of the lowlands and plain swamps/wetland system.

### *Built Elements*

- ‘Unloved’ lighters (four) at the Pier, crumbling into the landscape by neglect.
- Property fences of masonry/brick on approach roads (hedges and open fences preferred, and transparent fences that allow views and the setting of KAVHA to be appreciated).
- Unused, vacant buildings within Kingston which give the impression of abandonment.

- Public toilets near lumber yard intrude on the setting of Kingston Common and in the main view lines of Quality Row across Kingston Common to the seafront and reef, and ocean.
- Visual intrusion of the Panorama Apartments which intrudes on the setting, when viewed from Country Road and the Kingston area.
- Reconstructed pathways and paving/pavers of modern mechanically produced pavers (concrete, concrete pavers) at the Quality Row houses (in central courtyards and some front gardens).
- Uniform paint finishes (of unsuitable materials) to individual buildings and stonework: conceals authenticity of original fabric and/or finishes; conceals hand-made individual characteristics of each building; prevents the ability for new work to be readily identifiable (refer to Purcell report 2017, and HMP Policy 8.3.3).
- The uniformity of paint finishes which obscures the ability of buildings to demonstrate the different layers of development across the site and thus transmit the values of the cultural landscape as an evolved landscape (refer to Purcell report 2017, and HMP Policy 8.3.3).
- Cement render and bagging to stone work of standing structures and ruins conceals authentic fabric of the walls and handmade, individual characteristics of each building (HMP Policy 8.3.3).

### *Landscape Character of Surrounding Hillsides*

- Eroded hillsides.
- Erosion on roadside verges on approach roads within KAVHA.
- The dominance of monocultural pine plantations on surrounding hillsides.
- Erosion within pine plantations (reported to project team but no examples visited).
- Monocultural pine plantation on the dune behind Emily Bay and the Golf Course.
- Golf Course, for its manicured lawn over a vast area of the site.
- Equipment stored and rubbish dumped in area adjacent to and visible from Quality Row (south side) within Golf Course reserve.

### *Government House Gardens and Grounds*

- Norfolk Island pine trees causing damage to physical fabric (stone walls, for example).
- Unmanaged weed growth beneath trees.
- Unmanaged spontaneous growth of Norfolk Island pines and white oak within Government House grounds.
- Unmanaged productive gardens within animal enclosures in Government House grounds.
- Dumping of grass clippings and garden waste on garden beds on the south side of retaining wall in Government House grounds.

### *Norfolk Island Pine Trees*

- Overdominance of Norfolk Island pine trees throughout the site: commemorative plantings, plantations, amenity plantings, self-sown, golf course plantings.
- Norfolk Island pine trees that obscure important visual relationships between the Military Barracks (Old and New) located on higher ground, and the New Gaol (ruins) and Prisoners Barracks (ruins).
- Norfolk Island pine trees that obscure the visual prominence of Government House.
- Norfolk Island pine trees that obscure the views between Government House and the flagstaff on Flagstaff Hill.

### *Commemorative Plantings and Structures*

- Commemorative plantings and plantations of Norfolk Island pine trees that obscure or conceal other values (for example, Pier Street linear planting a memorial planting, connected to Cenotaph).
- Linear planting of (originally 100) Norfolk Island pines, commemorating the 100<sup>th</sup> birthday of local woman Aunty Jemima, which cuts through Arthur's Vale.
- Commemorative monument at Slaughter Bay (pavement fabric intrusive only)—with bricks from Lt King's house in England.
- Alignment of the Flagstaff Hill walk (c2003), which adds a new pathway alongside early Longridge Road (inconsistent with CLMP and HMP Policy 8.2.2).
- Commemorative seats along walk to Flagstaff Hill walk (inconsistent with CLMP and HMP Policy 8.2.2).
- Commemorative stone monument within triangular intersection of Pier and Bay streets. Consultation with historical society before removal would be essential.

2.6 Illustrations and Maps

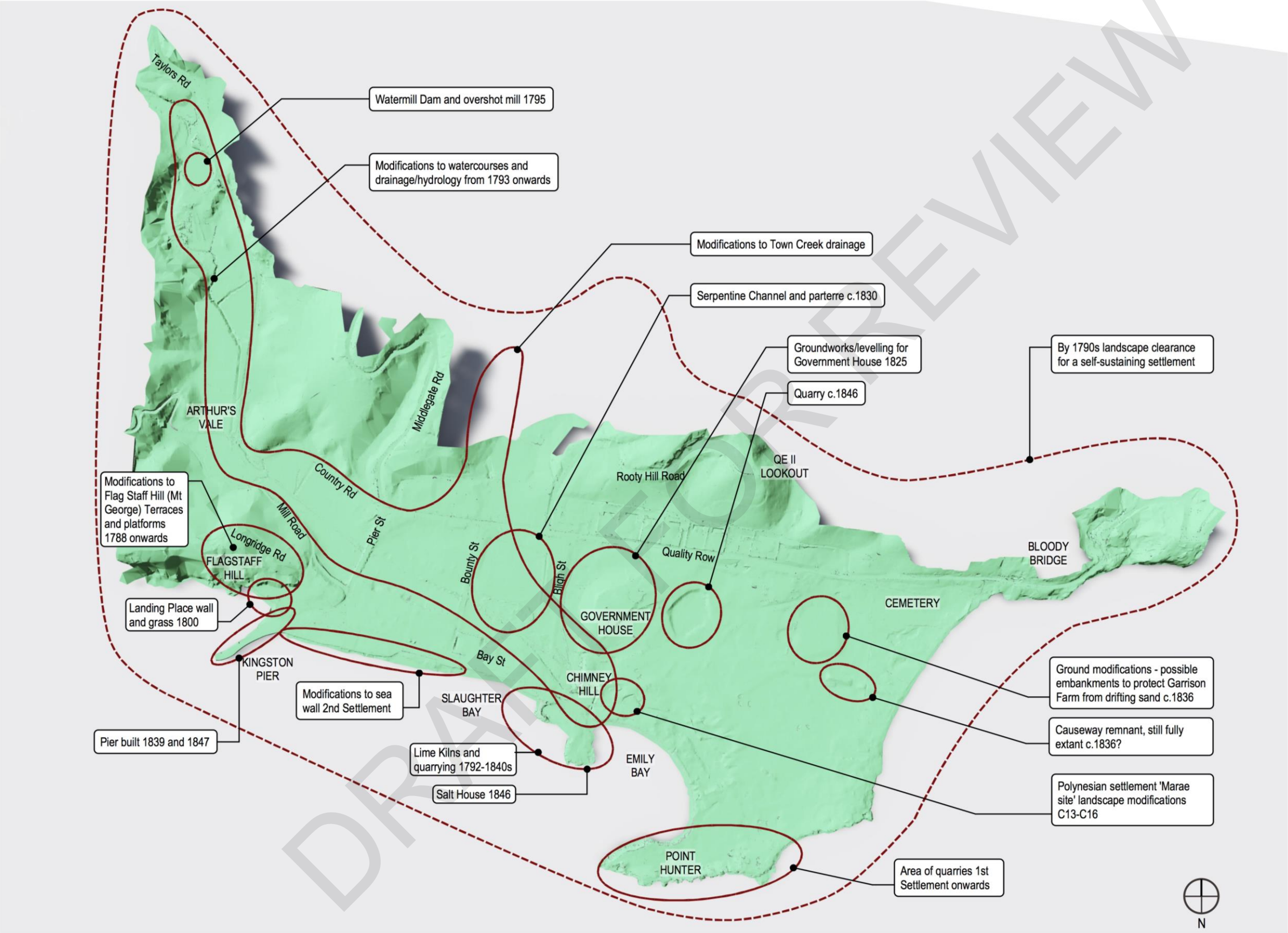


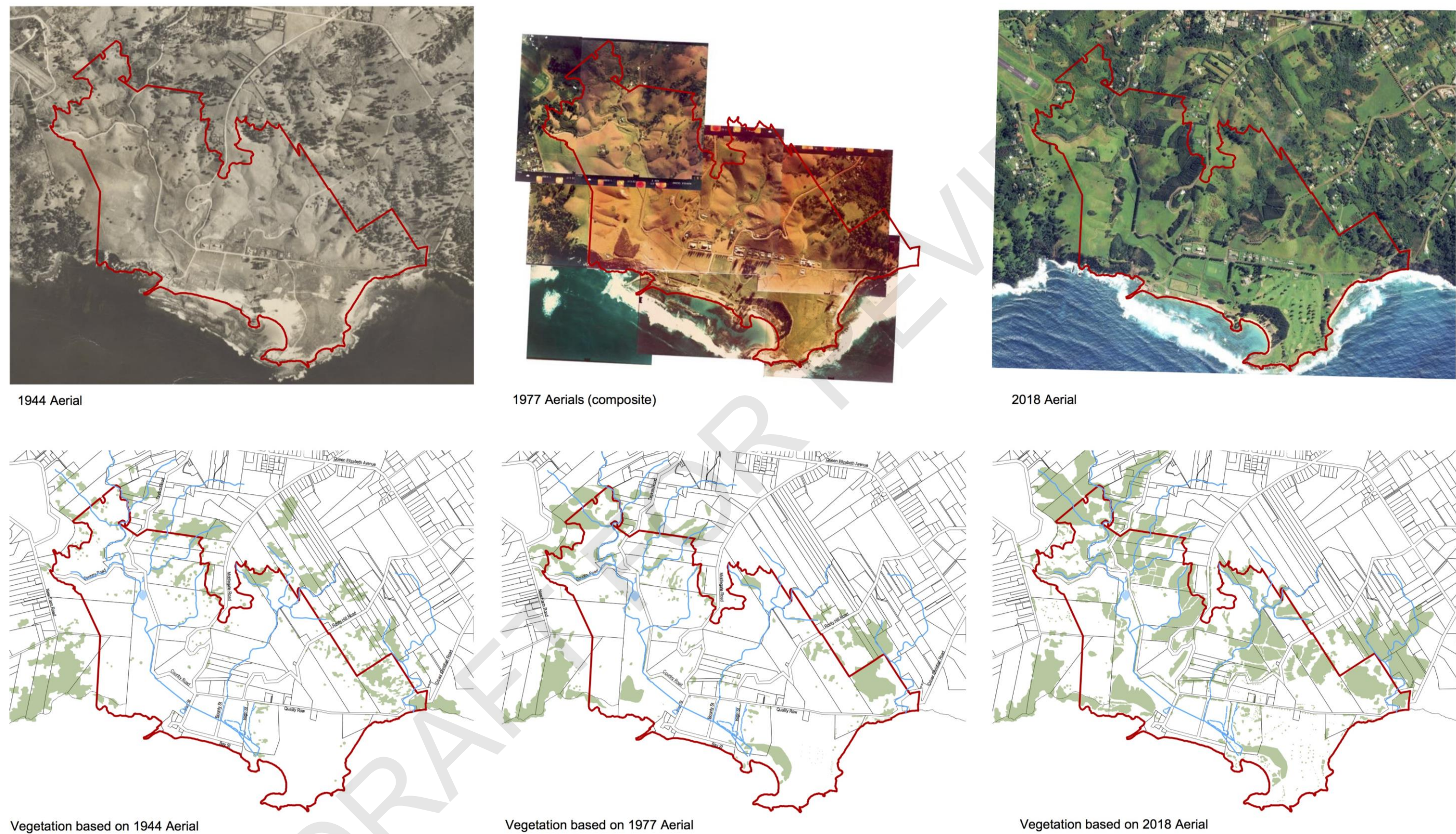
Figure 2.13 Plan showing landscape modifications to the Kingston and Arthur's Vale areas over time. (Source: DEM by RCS Group Surveyors, 2016, with overlay by EP, GML and Context, 2018)





Figure 2.14 Current hydrological features within the KAVHA site. (Source: Reproduced from the KAVHA CLMP Appendix A, mapping prepared by EP, 2018)





**Figure 2.15** Analysis of change to the vegetation cover in KAVHA through the twentieth century, from 1940s, 1977 and the present day, shows a steady increase in vegetation cover and erasure of the 'cleared landscape' ideal of First and Second Settlements and vegetation changes over time. (Source: Reproduced from the KAVHA CLMP, mapping prepared by EP, 2018)





**Figure 2.16** Analysis of existing vegetation, showing significant remnant trees and areas of remnant vegetation, cultural plantings of Norfolk Island pines, Norfolk Island pine plantations, and areas with general mixed vegetation. (Source: Reproduced from the KAVHA CLMP Appendix A, mapping prepared by EP, 2018)



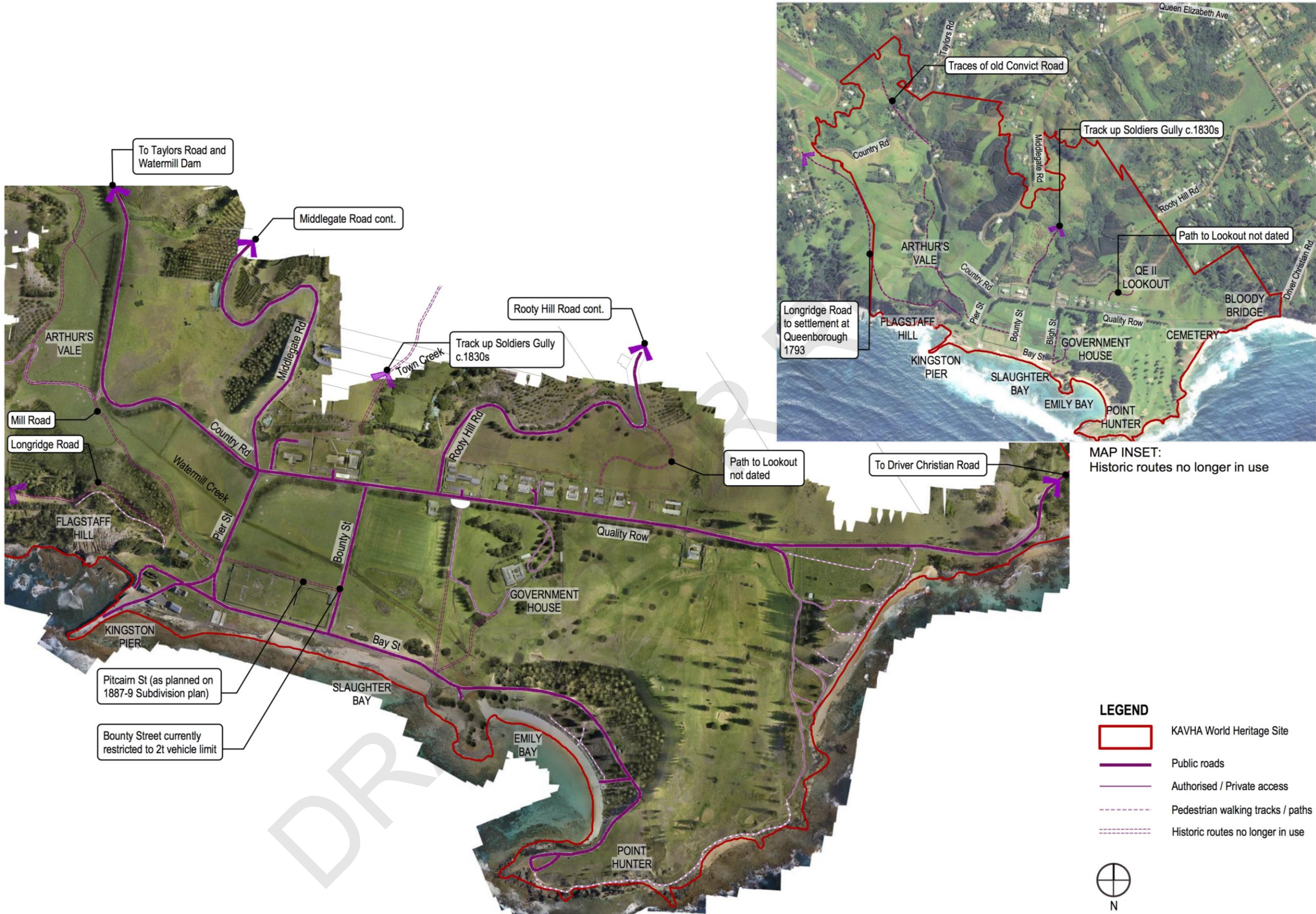


Figure 2.17 Roads and pathways which influence circulation patterns through the landscape. (Source: Reproduced from the KAVHA CLMP Appendix A, mapping prepared by EP, 2018)



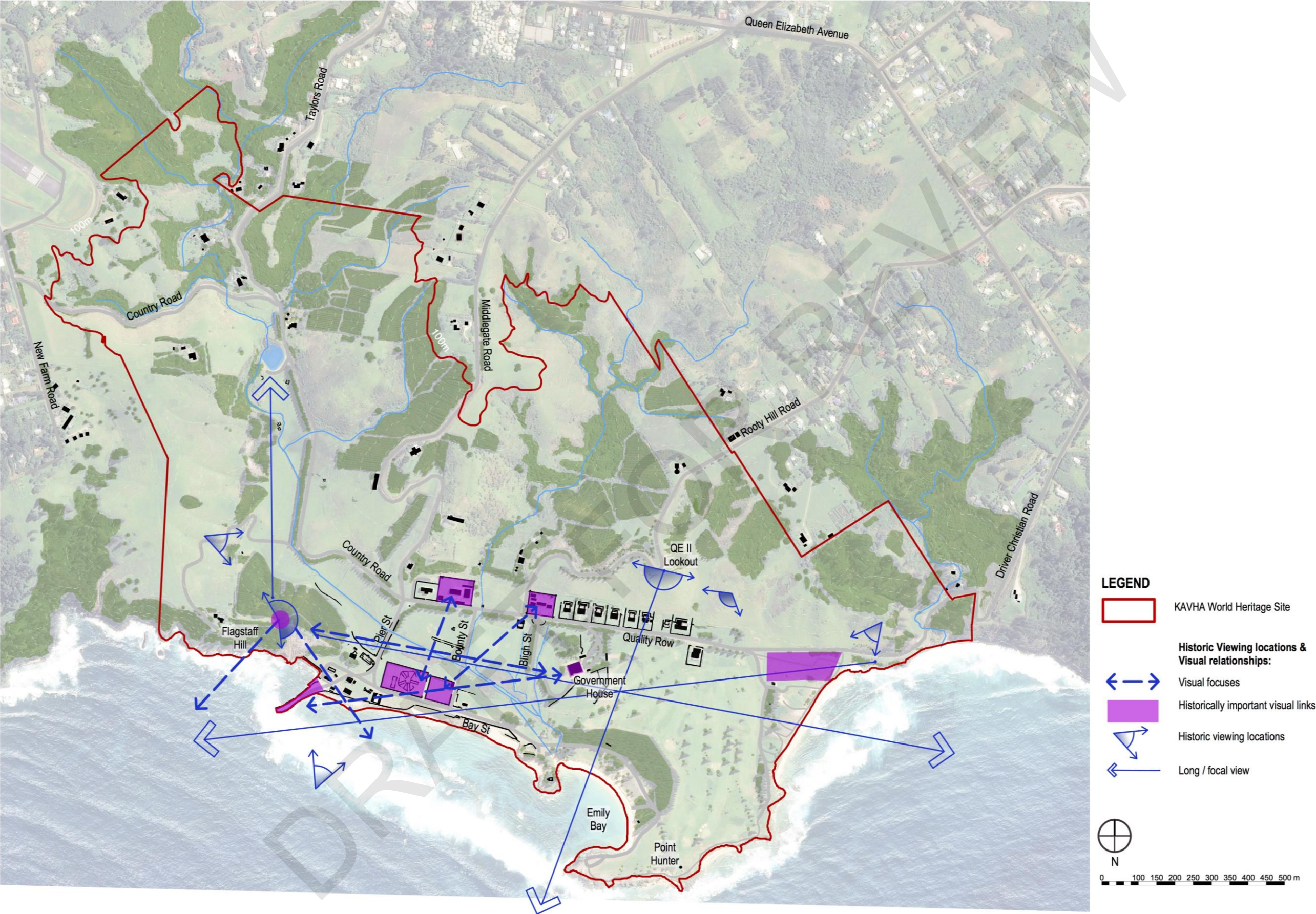


Figure 2.18 Significant views and important visual relationships. (Source: Reproduced from the KAVHA CLMP Appendix A, mapping prepared by EP, 2018)



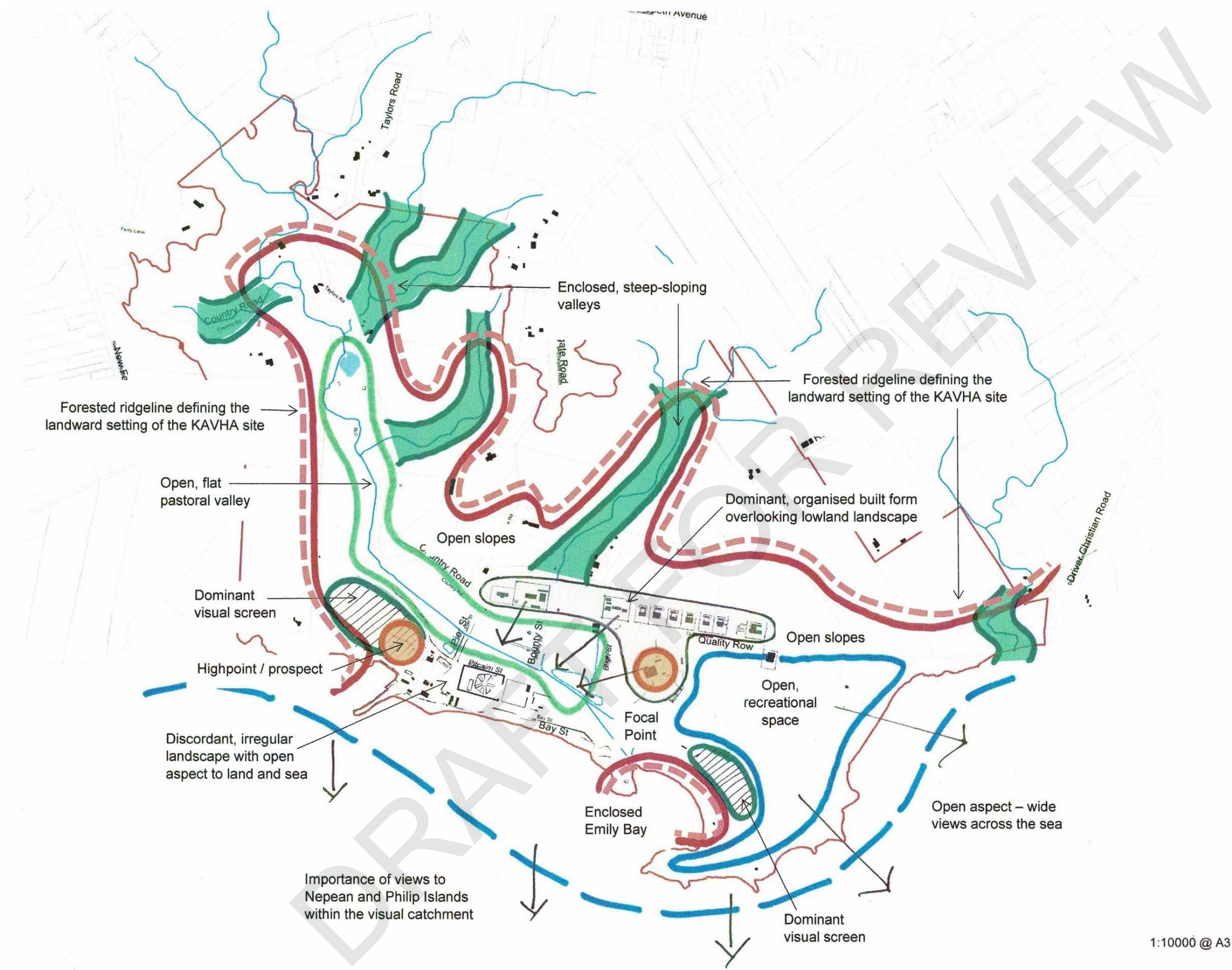
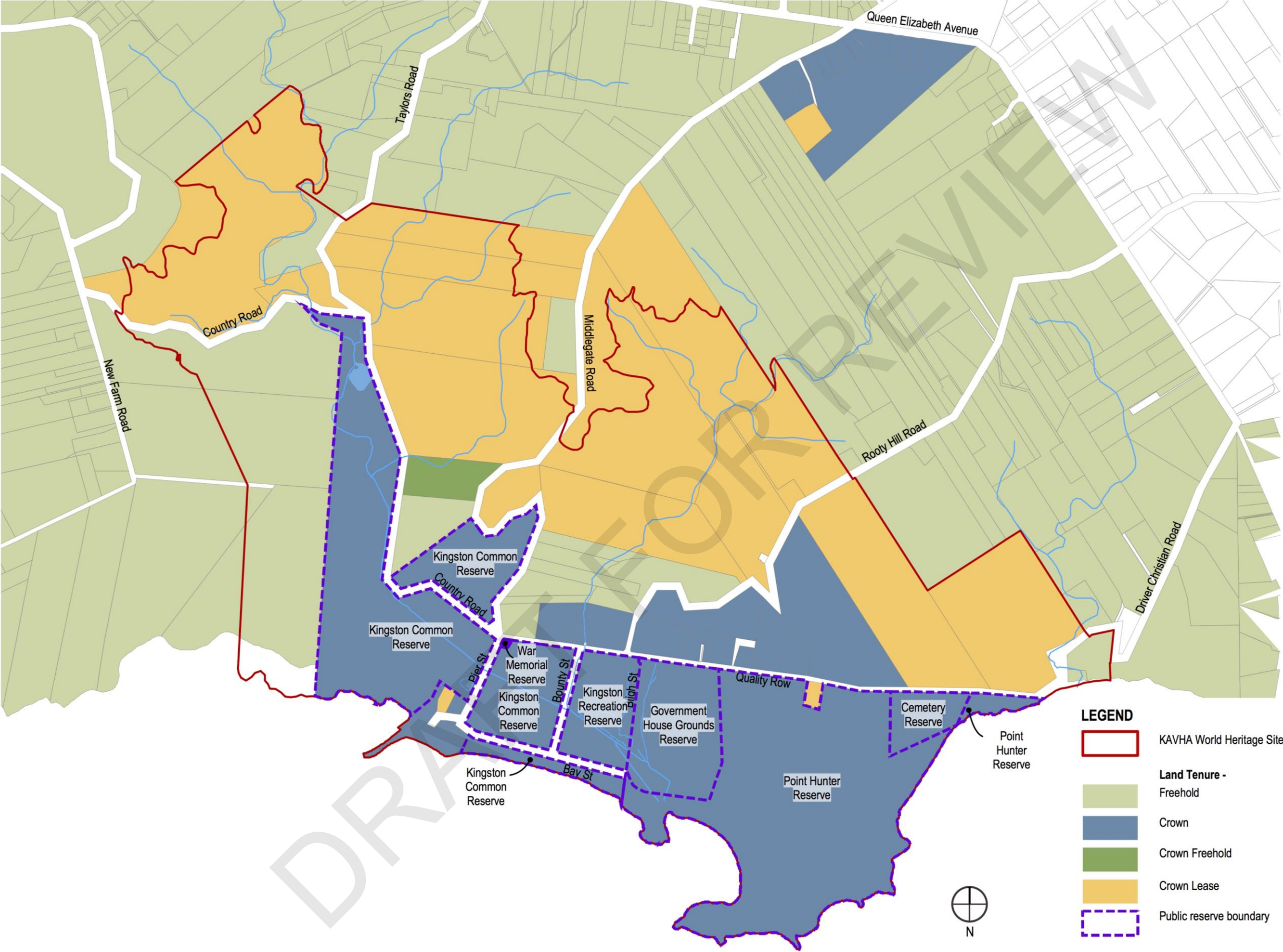


Figure 2.19 Analysis of landscape character. (Source: GML + Context, 2018)





**Figure 2.20** Current land tenure and management boundaries. (Source: Base plan showing land tenure from KAVHA, overlaid with data from Norfolk Island Public Reserves, Plans of Management, Norfolk Island Regional Council. Map created by EP with GML + Context, 2018)



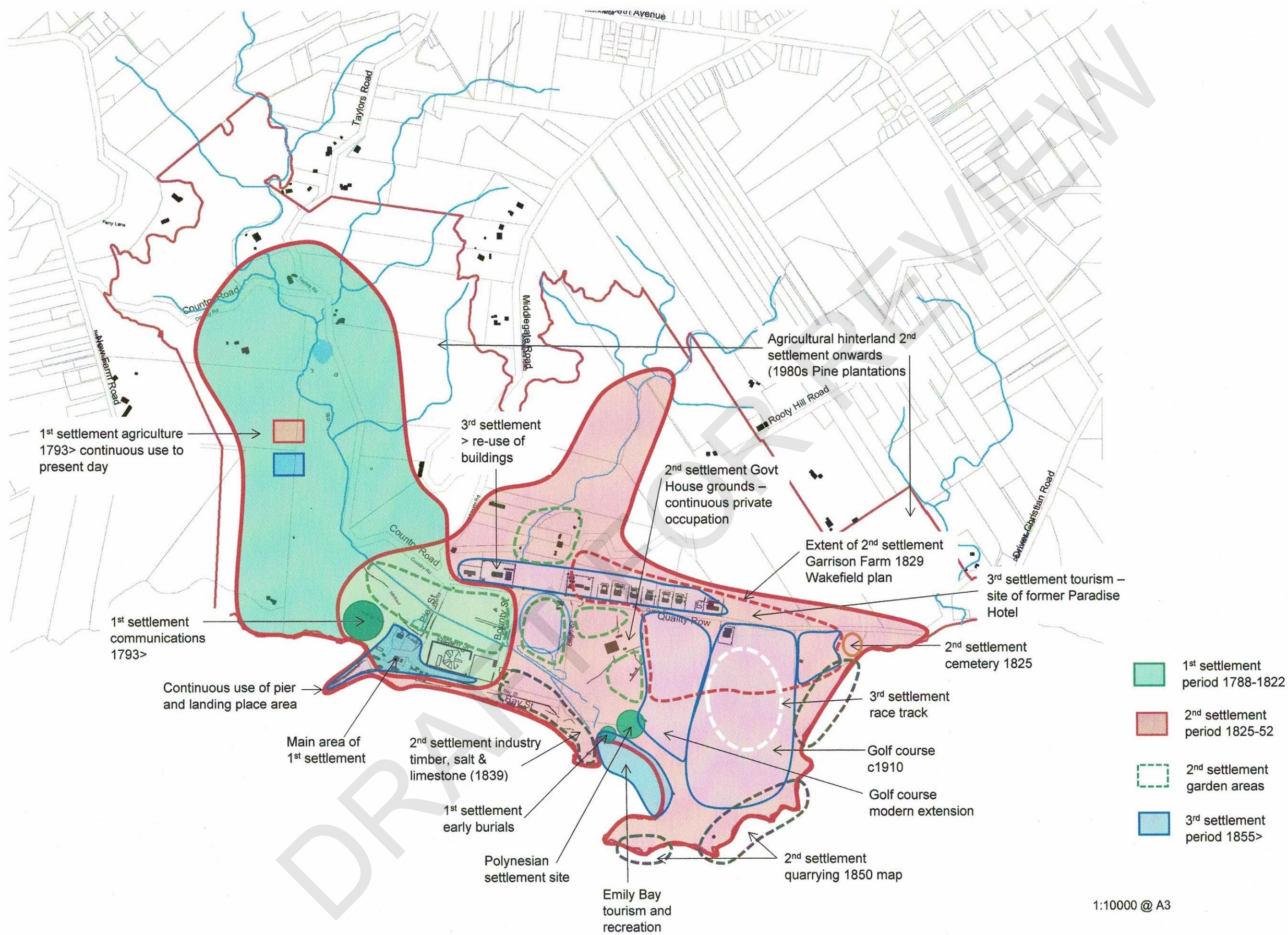


Figure 2.21 Layered land use from 1788 to the present day. (Source: GML + Context, 2018)



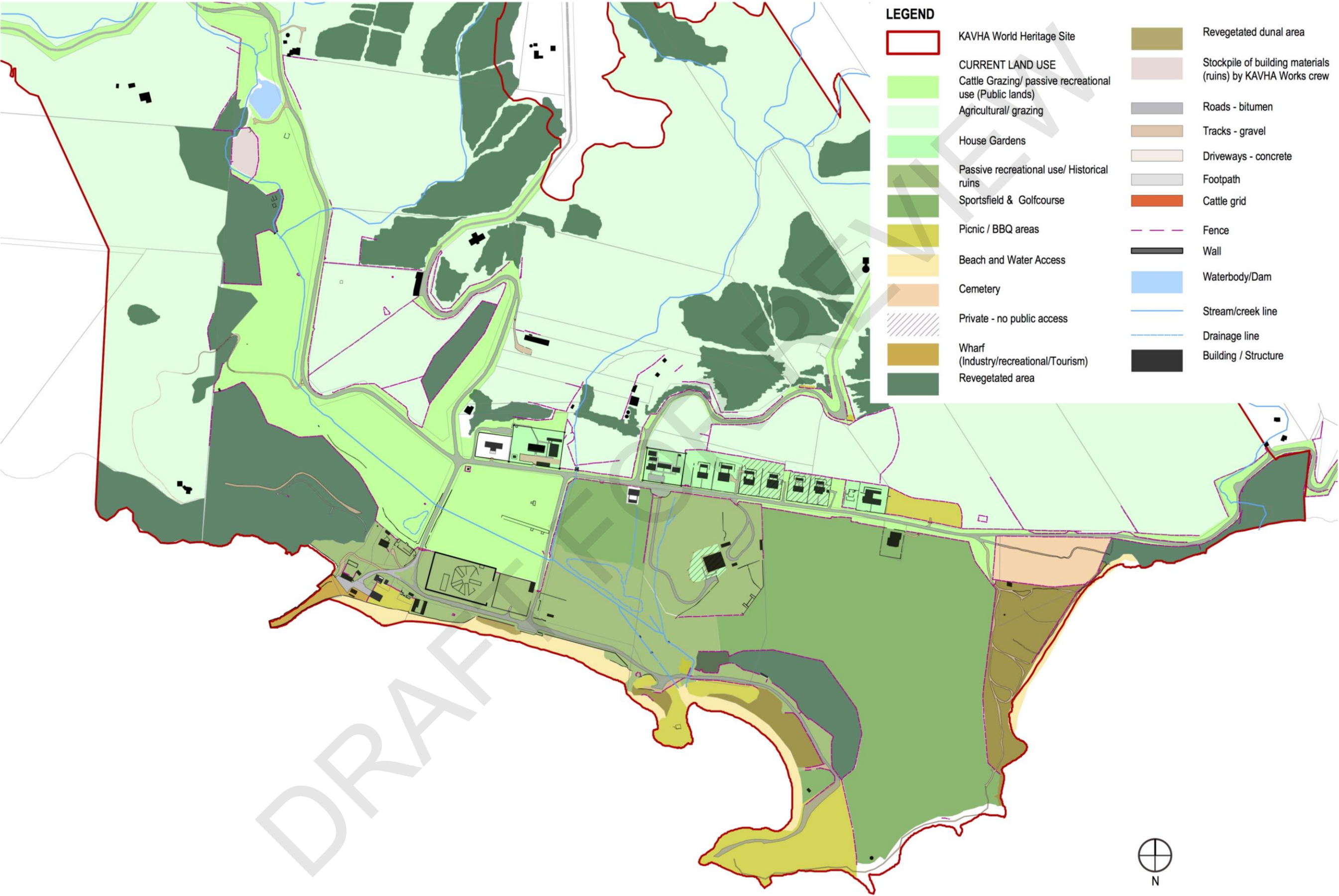


Figure 2.22 Current land use of the KAVHA site. (Source: EP with GML + Context, 2018)

## 2.7 Endnotes

- <sup>1</sup> Operational Guidelines for the Implementation of the World Heritage Convention, UNESCO 2017; the World Heritage Convention is the *Convention Concerning the Protection of the World Cultural and Natural Heritage* adopted by the General Conference of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) meeting in Paris, 1972.
- <sup>2</sup> International Council on Monuments and Sites (ICOMOS), ICOMOS Documentation Centre, 2013, Cultural landscapes: Management and conservation, ICOMOS Documentation Centre, October 2013.
- <sup>3</sup> Australia ICOMOS, National Scientific Committee on Cultural Landscapes and Routes, 2013, 'Understanding Cultural Landscapes' brochure.
- <sup>4</sup> Hoare, M, *Norfolk Island: A Revised and Enlarged History 1774–1998*, Central University of Queensland Press, St Lucia, 1999, p 59.
- <sup>5</sup> Clifton, G, Land Degradation Study and Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island, 1993, p 2.
- <sup>6</sup> Clifton, G, Land Degradation Study and Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island, 1993, p 2.
- <sup>7</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 6.
- <sup>8</sup> Clifton, G, Land Degradation Study and Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island, 1993, p 2.
- <sup>9</sup> Tropman and Tropman, Landscape Management and Conservation Plan, 1994, pp 6–7.
- <sup>10</sup> Clifton, G, Land Degradation Study and Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island, 1993, p 2.
- <sup>11</sup> Bureau of Meteorology, 'Climate of Norfolk Island' <<http://www.bom.gov.au/nsw/norfolk/climate.shtml>>.
- <sup>12</sup> Bureau of Meteorology, 'Climate of Norfolk Island' <<http://www.bom.gov.au/nsw/norfolk/climate.shtml>>.
- <sup>13</sup> Bureau of Meteorology, 'Climate of Norfolk Island' <<http://www.bom.gov.au/nsw/norfolk/climate.shtml>>.
- <sup>14</sup> Bureau of Meteorology, 'Climate of Norfolk Island' <<http://www.bom.gov.au/nsw/norfolk/climate.shtml>>.
- <sup>15</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994; and Hicks, J 1991, 'The Natural History of the Island' in Nobbs, R (ed), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, fig. 96.
- <sup>16</sup> Hicks, J 1991, 'The Natural History of the Island' in Nobbs, Raymond (ed), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 158–165; 160.
- <sup>17</sup> See Coyne, P 2011, *Norfolk Island's Fascinating Flora*, Petaurus Press, ACT; Tropman & Tropman, Landscape Management and Conservation Plan, 1994, pp 15–16.
- <sup>18</sup> Abell, RS and Falkland, AC 1997, *The hydrology of Norfolk Island, South Pacific Ocean*, AGPS, Canberra, 1991, p 9, cited in Davidson, P, Water Quality Management Strategy (Draft), p 4.
- <sup>19</sup> See for example the 1829 Plan of the settlement and Garrison Farm & Co., Norfolk Island (NLA nla.obj-232773519).
- <sup>20</sup> Australian Construction Services, The Swamp Creek and Serpentine Area Conservation Study and Interpretive Design, vol. 1, 1994, p 14.
- <sup>21</sup> Wilson, G and Martin, D, *Norfolk Island: Archaeological Survey Kingston — Arthur's Vale Region*, volume 1, 1980, fig. 4.
- <sup>22</sup> GML Heritage, Context, Jean Rice, Architect, Kingston and Arthur's Vale Historic Area—Heritage Management Plan, April 2016, 62.
- <sup>23</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 18.
- <sup>24</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 83.
- <sup>25</sup> Hicks, J 1991, 'The Natural History of the Island' in Nobbs, Raymond (ed), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 158–165; 160.
- <sup>26</sup> Captain Wakefield, Plan of the Settlement and Garrison Farm &c., Norfolk Island, 1829, NLA.
- <sup>27</sup> Hicks, J 1991, 'The Natural History of the Island' in Nobbs, Raymond (ed), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 158–165; 160.
- <sup>28</sup> Thomas Seller (water colour) 'Settlement at Norfolk Island', 1835, NLA PIC Drawer 6021 #R236.
- <sup>29</sup> Plan of the Settlement, Norfolk Island, 1850, Tasmanian Archives.
- <sup>30</sup> Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, Fig. 91.
- <sup>31</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 86.
- <sup>32</sup> Wilson, PJ, Water Quality in the KAVHA Catchment, 2017, p 5, citing Hunter's 1793 journal.
- <sup>33</sup> Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125; 119.
- <sup>34</sup> Cox in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 136–137.



- 35 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 82.
- 36 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125; 113.
- 37 Cox in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 124.
- 38 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 84.
- 39 Cox in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 136–137.
- 40 Thomas Seller (water colour) 'Settlement at Norfolk Island', 1835, NLA PIC Drawer 6021 #R236.
- 41 Bordes, Plan of the Settlement, Norfolk Island, 1838, SLNSW; and Lugard 'Plan of the Settlement, Norfolk Island', 1839, Tasmanian Archives.
- 42 Bordes, Plan of the Settlement, Norfolk Island, 1838, SLNSW. Cox (in Nobbs 1991), give a build date of 1835 for the causeway (Nobbs 1991, 136–137).
- 43 Plan of the Settlement, Norfolk Island, 1850, Tasmanian Archives.
- 44 Causeway is visible in the 1890 photograph by Charles Kerry 'Cemetery, Kingston, Norfolk Island, c1890', NLA obj-322881445.
- 45 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 85.
- 46 Captain Wakefield, Plan of the Settlement and Garrison Farm &c., Norfolk Island, 1829, NLA and 'Plan of the Settlement, Norfolk Island', 1850, Tasmanian Archives.
- 47 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 85.
- 48 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 85.
- 49 Blucher, J, 'Calcarenite: Otherwise known as Limestone, Sandstone or Coral Stone', *Discover Norfolk* (2) 1, 2018, pp 11–18, 13.
- 50 Blucher in *Discover Norfolk* (2) 1, 2018, 15 citing Backhouse 1843, 225.
- 51 Blucher, J, 'Calcarenite: Otherwise known as Limestone, Sandstone or Coral Stone', *Discover Norfolk* (2) 1, 2018, p 15.
- 52 Blucher, J, 'Calcarenite: Otherwise known as Limestone, Sandstone or Coral Stone', *Discover Norfolk* (2) 1, 2018, p 16.
- 53 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- 54 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, p 112.
- 55 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125, 113.
- 56 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125, p 115.
- 57 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125, 115.
- 58 Captain Wakefield, Plan of the Settlement and Garrison Farm &c., Norfolk Island, 1829, NLA.
- 59 Bordes, Plan of the Settlement, Norfolk Island, 1838, SLNSW.
- 60 Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 128.
- 61 Plan of the Settlement, Norfolk Island, 1850, Tasmanian Archives.
- 62 Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 130.
- 63 Tropman & Tropman, Landscape Management and Conservation Plan, 1994, 86.
- 64 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- 65 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- 66 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- 67 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- 68 Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.

- <sup>69</sup> Wright, R 1988, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, pp 112–125.
- <sup>70</sup> Treadgold in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, pp 80–81.
- <sup>71</sup> Treadgold in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 83.
- <sup>72</sup> Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, fig. 43.
- <sup>73</sup> Treadgold in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 98.
- <sup>74</sup> Tropman & Tropman, Landscape Management and Conservation Plan, 1994, p 86.
- <sup>75</sup> Tropman & Tropman, Kingston Cemetery Study and Management Plan, 1994, pp 7–8.
- <sup>76</sup> Tropman & Tropman, Kingston Cemetery Study and Management Plan, 1994, p 7.
- <sup>77</sup> Wilson and Davies (1980, p 47) and Tropman (1994, p 7) both refer to 'graves' being moved and do not distinguish between headstones, graves and human remains. The 2007 CMP refers to 1798 headstones probably being relocated to the Cemetery (p 130).
- <sup>78</sup> Blucher, J, 'Calcarenite: Otherwise known as Limestone, Sandstone or Coral Stone', *Discover Norfolk* (2) 1, 2018, pp 11–18.
- <sup>79</sup> Blucher, J, 'Calcarenite: Otherwise known as Limestone, Sandstone or Coral Stone', *Discover Norfolk* (2) 1, 2018, pp 11–18.
- <sup>80</sup> Bordes, Plan of the Settlement, Norfolk Island, 1838, SLNSW; and Lugard 'Plan of the Settlement, Norfolk Island', 1839, Tasmanian Archives.
- <sup>81</sup> Cox in Nobbs, R 1991 (ed.), *Norfolk Island and Its Second Settlement, 1825–1855*, Library of Australian History, North Sydney, p 120.
- <sup>82</sup> Tropman and Tropman, Government House and Quality Row Gardens Conservation, January 1997, p 14.

## 3.0 Context: Significance and Sustainability

### 3.1 KAVHA's Cultural Landscape Significance

This section provides a summary of KAVHA's statutory heritage listings—World, national, Commonwealth and regional levels in the context of the cultural landscape and specific attributes. The complete citations are not repeated here, but excerpts of text relevant to the cultural landscape have been extracted from the heritage citations and included in the following table. Note of course that this does not exclude other aspects of the citations from the understanding of KAVHA's heritage significance or management.

**Table 3.1** Excerpts of Cultural Landscape Values from KAVHA's Statutory Heritage Listings—World, National, Commonwealth and Regional Levels.

Statutory Listing	Cultural Landscape Values—Excerpts from the Heritage Citations
<p><b>Australia's World Heritage List (WHL)</b></p> <p>Outstanding Universal Value (OUV) Criteria (iv) and (vi)</p> <p>To qualify for inscription on the World Heritage List, properties must have values that are outstanding and universal as outlined in the Operational Guidelines for the Implementation of the World Heritage Convention.</p> <p>KAVHA is one of the 11 places which comprise the Australian Convict Sites and contributes to the Outstanding Universal Value of the inscribed World Heritage property.</p>	<p>First and Second (Colonial/Penal) Settlements: KAVHA is a material record of convicts being used as a geopolitical tool to secure strategic military importance, potential naval resources and Norfolk Island's role as an outpost of NSW from other European powers. This is demonstrated through the surviving layout (including archaeology) and the majority of the (former) penal colony's structures. The harbour, pier and ancillary buildings maintain their function as a port, and many pine trees from the convict period still remain.</p> <p>Commentary on the listing: The Second (Penal) Settlement was harsher than the first and was designed to deter crime in Britain and the colonies by reviving the fear of transportation. Norfolk Island earned an international reputation as 'hell on earth' through the severity of punishment, comparative to some of the world's harshest penal settlements. There are remnant buildings and features in the landscape that represent this, but the landscape itself does not overtly illustrate this historically harsh place.</p> <p>Other settlement phases are not specifically listed in the WHL citation.</p> <p><b>Attributes from the WHL relevant to the cultural landscape:</b></p> <ul style="list-style-type: none"> <li>The harbour, pier and outbuildings maintain their function as a port, and pine trees from the convict period.</li> </ul>
<p><b>National Heritage List (NHL)</b></p> <p>The National Heritage List includes places of outstanding heritage significance to Australia.</p> <p>Of outstanding heritage value to the nation as a convict settlement spanning the era of transportation to eastern Australia between 1788–1855.</p>	<p>Generally: The NHL citation references KAVHA as outstanding for its picturesque setting, historic associations, part ruinous configuration and subsequent lack of development. The aesthetic qualities of the landscape have been acknowledged since the First Settlement, forming the subject matter of an artistic record that has continued to the present.</p> <p>The remnant Serpentine landscape is an outstanding example of colonial period (pre-1850) attitudes to landscape design in Australia.</p> <p>First (Colonial) Settlement: KAVHA is important for its role in the evolution of the colonies of both Van Diemen's Land and New South Wales. The buildings, archaeological remains and landforms of the First Settlement illustrate British convict settlement at the beginning of European occupation of Australia.</p> <p>Second (Penal) Settlement: KAVHA is an outstanding example of a place of severe punishment. It was purposefully established to be the extreme element in the overall convict management system. Its aim was to create fear and prevent crime and re-offending. It became known as 'hell in paradise' for its brutal and sadistic treatment of inmates and this reputation spread beyond the colonies to Britain and ultimately served to fuel the anti-transportation debate.</p> <p>The design and layout, buildings, archaeological remains, engineering works and landscaping of the KAVHA Second Settlement (1825–1855) demonstrate the planning and operation of a nineteenth-century penal settlement with a very high degree of integrity.</p>

Statutory Listing	Cultural Landscape Values—Excerpts from the Heritage Citations
	<p>'Polynesian Settlement' and 'Third (Pitcairn) Settlement': The Pre-European Polynesian culture, exploration and settlement patterns are significant.</p> <p>KAVHA is uncommon as a place where a distinctive Polynesian/European community has lived and practised their cultural traditions for over 150 years. Aspects of the Third Settlement including the artefacts, archives, Pitcairn language and ongoing use of the cemetery.</p> <p>Current phase: KAVHA is a place of special significance to the community because it has been continually and actively used as a place of residence, work, worship and recreation.</p> <p><b><u>Attributes from the NHL relevant to the cultural landscape:</u></b></p> <ul style="list-style-type: none"> <li>• The picturesque landscape setting, with its domestic scale and agricultural character, and the contrast it represents between the horror of the past and the charm of the present.</li> <li>• Views across the site, within the site, from the site to the seascape, and views of the site in its landscape setting.</li> <li>• Norfolk Island pines, the archaeological remains and research potential, and buildings that demonstrate the harshness and severity of the treatment of convicts including the New Gaol, the Prisoners' Barracks, and the Crankmill.</li> <li>• The Cemetery, set in an evocative and picturesque historical landscape, and as a place of strong connection with the current community through its continuous use.</li> <li>• The continuity of a working waterfront at the Landing Pier; the centre of Norfolk Island administration; continuing religious worship at All Saints Church and the community's burial place at the cemetery; areas for recreation and sports; the cultural centre with cultural and social events, museums and archaeological sites; and the harbour, pier and the whole site for ongoing deep connection to the community.</li> <li>• Landscape features across the site including stone walls, wells, drains, building platforms, Bloody Bridge and other bridges, culverts, roads, quarry sites, privies and archaeological sites.</li> </ul>
<p><b>Commonwealth Heritage List (CHL)</b></p> <p>The CHL includes heritage places on Commonwealth land, or owned or managed by the Commonwealth.</p> <p>The place has significant heritage values under the following Commonwealth Heritage criteria:</p> <ul style="list-style-type: none"> <li>• Criterion A—Processes;</li> <li>• Criterion B—Rarity;</li> <li>• Criterion D—Characteristic values;</li> <li>• Criterion G—Social value; and</li> <li>• Criterion H—Significant people.</li> </ul> <p>Kingston and Arthur's Vale Commonwealth Tenure Area, Quality Row, Kingston, comprises the area known as KAVHA with the exclusion of areas of freehold tenure.</p>	<p>First and Second (Colonial/Penal) Settlements: The large group of convict-era buildings, archaeological subsurface remains, and landform elements contribute to an outstanding cultural landscape of the development of global convict transportation.</p> <p>Cultural connection with the natural environment: The landscape shows the way and pattern in which the land was cleared, used and developed by the inhabitants since European settlement, and demonstrates the impact of this on a natural environment hitherto occupied by Polynesian peoples.</p> <p>Land use: The mix of land uses within the place (museums, administrative, the official residence, Parliament, lighterage, residence, industrial/commercial and Pitcairner).</p> <p>Natural heritage: KAVHA is valued for its natural heritage including its geology, particularly the petrified forest and calcarenite stone, Kingston Swamp, and for its biology, including the marine areas.</p> <p>Natural heritage includes rare components in the Cemetery Bay dune area with its plant and remnant lowland forest unique to the Island. This area is also associated with the fossiliferous preservation of the Island's past biota and small remnant land mollusc population.</p> <p><b><u>Attributes from the CHL relevant to the cultural landscape:</u></b></p> <ul style="list-style-type: none"> <li>• remnant Serpentine landscape—which is an outstanding example of colonial period attitudes to Australian landscape design;</li> <li>• the Cemetery—including its outstanding collection of headstones and evocative and picturesque setting in the historical landscape;</li> <li>• other stone walls, wells, drains, building platforms, bridges, culverts, roads, quarry sites, privies and archaeological sites of former buildings, including the Bloody Bridge;</li> <li>• the petrified forest and calcarenite stone, Kingston Swamp, and for its biology, including the marine areas; and</li> </ul>

Statutory Listing	Cultural Landscape Values—Excerpts from the Heritage Citations
	<ul style="list-style-type: none"> <li>the Cemetery Bay dune area with its plant and remnant lowland forest, fossiliferous preservation of the Island's past biota and small remnant land mollusc population.</li> </ul>
<p><b>Norfolk Island Heritage Register</b></p> <p>The Heritage Register identifies properties and sites on Norfolk Island that are considered, following an extensive consultation process, to be of heritage significance.</p> <p>KAVHA is of special significance for Norfolk Island under the <i>Norfolk Island Heritage Act 2002</i> (NI) and <i>Norfolk Island Plan 2002</i>.</p>	<p>KAVHA comprises a large group of buildings from the convict era, some modified during the Pitcairn period. The substantial ruins and standing structures, archaeological subsurface remains, landform and cultural landscape elements are significant as an outstanding example of the development of global convict transportation.</p> <p>KAVHA is the primary site of the Second Settlement period and contains the landform, layout, extensive buildings, standing structures, archaeological remains and remnant landscape features of the period.</p> <p>KAVHA is important for its aesthetic qualities, which are valued by the Norfolk Island community and visitors. The combination of cultural expression, natural forces and their patterns enable a perception and interpretation of the place as a picturesque and romantic landscape.</p> <p>The drama of its landform, sea, and panoramic views creates a picturesque setting enhanced by visual links integral to the functioning of the First and Second penal settlements.</p> <p>KAVHA is significant for its topography, littoral zone, watercourses and its connection to the lagoon and marine environment.</p> <p>KAVHA contains wetland habitat and remnant vegetation. The wetlands are particularly valuable as a resting place for migratory birds and in supporting a population of rare crustaceans found only on Norfolk Island.</p>

### 3.2 Attributes of the Cultural Landscape

The significance of the KAVHA site is embodied within the fabric of the place itself, its cultural connections, uses, associations and meanings, as well as its visual and aesthetic qualities, relationships with other places and the evocative reaction that the site (or its individual elements) has on the people who regard it as important.

The table below is an extract from the 2016 HMP of the attributes specific to the cultural landscape significance of KAVHA (see Section 4.6 of the 2016 HMP for the full list).

**Table 3.2** Specific Cultural Landscape Attributes identified in the 2016 KAVHA HMP.

Cultural Landscape Attribute	2016 HMP Commentary about the Attribute
Topography	The underlying topography of Watermill Valley, the hillslopes surrounding Kingston and a <b>dramatic sweep of the coastline</b> provide the physical and visual palette for the KAVHA site.
Underlying geology	There are <b>fossilised geological formations</b> beneath the KAVHA site and the remains of the calcarenite ridge from which stone was quarried.
Visual setting of the KAVHA site	The <b>evocative and picturesque</b> setting affords dramatic views, particularly the vista out to sea towards Phillip Island, as well as the backdrop provided by natural vegetation such as Norfolk Island pines.
Bucolic landscape	The <b>agricultural/pastoral landscape</b> , particularly within Arthur's Vale (Watermill Valley), is arguably the only eighteenth-century farming land still discernible in Australia.
Terrestrial watercourses	The <b>watercourses</b> define the physical structure of the KAVHA site, reflect natural water flow patterns (to some extent) and support life.
Remnant natural vegetation	Despite more than two centuries of European settlement, <b>areas and specimens of native flora</b> remain.

Cultural Landscape Attribute	2016 HMP Commentary about the Attribute
Lagoon and littoral zone	The interface between the <b>structured cultural landscape, the littoral zone, the reef and the ocean</b> is a defining feature of the KAVHA site, creating a challenge for shipping, as well as important marine habitat.
Emily Bay and Cemetery Bay	Emily and Cemetery bays, and the site as a whole, provide an important recreational venue for local people, a <b>distinctive edge</b> to the site and important <b>marine habitat</b> .
Norfolk Island pines—naturally occurring species and formal plantings	Visually the <b>Norfolk Island pines</b> , even if deliberately planted, are one of the defining features of the KAVHA site. However, the extended plantations of Norfolk Island pines on some hillslopes are not an attribute of significance.
Flax plants	Flax plants, even if deliberately planted, <b>evoke one of the reasons for the First Settlement</b> .
Fauna—migratory birds, land snails and crustaceans	The KAVHA site provides important habitat for <b>migratory birds and endemic fauna</b> including land snails and crustaceans.
Polynesian settlement—physical evidence and association	Norfolk Island is the only place in Australia with <b>pre-European Polynesian settlement</b> . Both surviving physical evidence and the association of the place with Polynesian culture are important.
Physical evidence of historical evolution	The KAVHA site is an <b>evolved cultural landscape</b> in which the combination of landscape and built elements provides a physical chronicle of more than two centuries of colonial and post-colonial settlement. Some later elements contribute to the totality of the site's history, while others—through location and/or design—may detract from heritage values.
First (Colonial) Settlement (1788–1814) structures	Surviving structures from the First (Colonial) Settlement 1788–1814 offer outstanding and <b>rare evidence of eighteenth-century colonisation and penal practice</b> .
Ruins—First (Colonial) Settlement (1788–1814)	Ruins associated with the First (Colonial) Settlement 1788–1814 provide important physical evidence, and are also <b>highly evocative of the passage of time</b> and the evolution of history.
Buildings—Second (Penal) Settlement (1825–1855)	Buildings from the Second (Penal) Settlement 1825–1855 provide one of the finest collections of surviving colonial Georgian structures in the world. A number of these structures have considerable <b>historic and aesthetic value</b> .
The Cenotaph	The Cenotaph is an important marker of Norfolk Island's twentieth-century history and the role played by Norfolk Islanders in major wars. It has considerable <b>social value</b> to the contemporary Norfolk Island community.
Infrastructure—First (Colonial) Settlement (1788–1814), Second (Penal) Settlement (1825–1855) and Pitcairner periods	The KAVHA site is defined by <b>roads, bridges, a canal, retaining walls and drains</b> which date from the First (Colonial) Settlement 1788–1814 and Second (Penal) Settlement 1825–1855. These elements are integral to the fabric and structure of the place.
Coastal retaining wall	The coastal <b>retaining wall</b> defines Kingston and provides a <b>physical barrier</b> that protects important site elements such as the Second Settlement Prison.
Buildings, structures and created landscape—Pitcairner Settlement (1856 to the present)	The <b>form of the landscape and structures</b> built or adapted since 1856 are also an important contributor to the totality of the KAVHA site history.
Archaeological deposits (intact)	The research potential of much of the <b>remaining subsurface archaeology</b> at the KAVHA site vests in intact archaeological deposits which remain undisturbed and unexcavated.

Cultural Landscape Attribute	2016 HMP Commentary about the Attribute
Cemetery—layout and headstones	The cemetery provides a comprehensive social record of Norfolk Island history; it is a place of outstanding <b>social and personal meaning</b> to Norfolk Islanders and descendants of those buried there in the colonial periods, a place of historical importance to both Norfolk Islanders and visitors, a highly scenic landmark and an important research resource.
Government House—particularly the intact form, physical and visual presence, and garden setting	Government House offers a physical manifestation of the unusual colonial and post-colonial governance arrangements on Norfolk Island, as well as a focal point of <b>visual interest</b> within the <b>cultural landscape</b> of the KAVHA site.
Gardens of Quality Row Houses	The gardens surrounding the houses along Quality Row make an important <b>contribution to the setting</b> of both individual buildings and the streetscape itself, as well as providing opportunities for <b>interpretation and education</b> .
Connections with other Australian convict sites, both those within the Australian Convict Sites World Heritage Property and others	The KAVHA site is not only important as part of the World Heritage listed Australian Convict Sites, but also as an <b>outstanding</b> element at the national level within the total set of places associated with <b>convict transportation</b> and the establishment of the Australian nation through a process of forced convict migration.
Connections with other historic places on Norfolk Island	The KAVHA site is part of a wider set of <b>convict</b> and <b>Pitcairner historic sites</b> on Norfolk Island.
Cultural connections—Association with Anniversary (Bounty) Day	Anniversary (Bounty) Day is an event of fundamental importance to the Pitcairner community which is strongly linked to Kingston—the focus for Anniversary (Bounty) Day celebrations and activities.
Cultural connections—Association with Foundation Day	Foundation Day is a major event for the wider Norfolk Island community which is strongly linked to activities that traditionally occur at Kingston.
Cultural connections—Continuing association of private land holdings with Pitcairner descendant landholders	Parts of the KAVHA site have been occupied by particular Pitcairner families for many generations, and have <b>strong and enduring links</b> with these families and their Pitcairner heritage.
Cultural connections—Connection with contemporary cultural practices	The KAVHA site is a focus for <b>continuing cultural practices</b> that are distinctive, particular and important to the Norfolk Island community, including language, religion, ceremony, stories, work and song.
Cultural connections—Amenity value for Norfolk Islanders	The KAVHA site has an important and continuing value to the Norfolk Island community and to visitors as a place for <b>recreation, relaxation, enjoyment and family/social events</b> .
Cultural connections—Family associations for visitors	The KAVHA site has particular associations and meanings for visitors who have <b>historic connections with convict or early settlers</b> .

### 3.3 KAVHA's Cultural Connection with the Landscape

To follow a sustainable model of conservation management and tourism, 'nature and culture' should not work in direct competition with each other. The cultural landscape of KAVHA responds directly to the natural landscape and environmental factors; it also supports and works with the significant cultural attributes and qualities of the place, as recognised by the various heritage listings and attributes listed above.

The cultural connection to KAVHA by Norfolk Islanders is profound and cannot be underestimated. KAVHA is rich in natural and cultural values because of the presence of people—the custodians of the place. The contemporary community use of the site for grazing and recreational purposes provides a strong cultural connection that stems from Norfolk Island's historic development (its four phases). This

cultural appreciation, use and function sustains the environment and KAVHA economically, socially and culturally.

Supporting this philosophy, the aim of this CLMP is to ensure a symbiotic relationship between the environmental factors, the historical and physical makeup of the landscape and the contemporary cultural significance and needs to create a sustainable place for mutually beneficial economic, social, cultural and environmental outcomes.

### 3.4 Sustainability of KAVHA's Cultural Landscape

Currently, KAVHA's conservation management, while well intentioned, is a complex mix of Commonwealth managers and local custodians. Protecting the cultural landscape in a sustainable way requires an approach that recognises the cultural values, sustains traditional and deep emotional connections to the place, allows tourism opportunities and engages people in a joint stewardship for the KAVHA site and partnership for the economic success of Norfolk Island.

The future safeguarding of KAVHA's cultural landscape should be considered in a sustainable context, that is, in accordance with the policy for integrating a sustainable integrating a sustainable approach, in the context that nature and culture are linked by community, for the management of the cultural landscape.<sup>1</sup>

### 3.5 Endnotes

- <sup>1</sup> UNESCO, Policy Document for the Integration of a Sustainable Development Perspective into the *World Heritage Convention*, as adopted by the General Assembly of States Parties to the *World Heritage Convention* at its 20<sup>th</sup> Session (UNESCO 2015) <<https://whc.unesco.org/en/sustainabledevelopment/>>.



## 4.0 Landscape Management Framework and Issues

### 4.1 Landscape Management Framework

#### 4.1.1 Relevant Legislation

Section 5.0 of the 2016 HMP provides detailed information about the relevant heritage, environmental and planning legislation that governs KAVHA. It is summarised here for ease of reference, noting the 2016 HMP provides detail on the implementation of the Acts and their regulations. As there are current transitions between Commonwealth and Norfolk Island responsibilities, it is advisable to check the relevant legislation directly with the Department, or online, or with the Norfolk Island Regional Council (NIRC), on an as needed basis.

**Table 4.1** Statutory Heritage Legislation relevant to KAVHA and a Summary of Obligations.

Statutory Legislation and Heritage Listing	Summary of Statutory Legislation Obligations relevant to KAVHA
<p>World Heritage Convention—Operational Guidelines</p> <p>On 31 July 2010, the Australian Convict Sites property, including the KAVHA site and 10 other sites, was inscribed on the World Heritage List.</p>	<p>World Heritage Convention is supported by the Operational Guidelines for <b>World Heritage properties</b>.</p> <p>Obligations and some specific technical requirements and processes of the Operational Guidelines are addressed through the EPBC Act and an Australian Intergovernmental Agreement on World Heritage.<sup>1</sup> The EPBC Act is the Australian Government's legal framework to protect and manage nationally and internationally significant natural and cultural places.</p> <p>The Intergovernmental Agreement sets out a series of high-level principles and specifies the roles and responsibilities of Commonwealth, state and territory governments. The Department manages KAVHA in accordance with the EPBC Act and the principles of the Intergovernmental Agreement.</p>
<p>EPBC Act—NES Matters</p> <p>Kingston and Arthur's Vale Historic Area is included in the National Heritage List (NHL).</p>	<p>The EPBC Act requirements address <b>matters of National Environmental Significance</b> (NES Matters). NES matters at the KAVHA site include:</p> <ul style="list-style-type: none"> <li>• the World Heritage property;</li> <li>• the national heritage place;</li> <li>• nationally threatened species and ecological communities;</li> <li>• Commonwealth marine areas; and</li> <li>• listed migratory species.</li> </ul> <p>Management of KAVHA and its NES matters are the responsibility of the Department. The Department is supported by the KAVHA Secretariat and the Commonwealth Heritage Manager (on-island) and guided by the KAVHA Advisory Committee. The KAVHA Advisory Committee consists of two local members and two expert members. It is chaired by the Administrator of Norfolk Island.</p> <p>The 2016 HMP was developed as a requirement of the EPBC Act, meeting World, national and Commonwealth statutory heritage obligations. This CLMP is a strategic outcome in the implementation of the 2016 HMP.</p>

Statutory Legislation and Heritage Listing	Summary of Statutory Legislation Obligations relevant to KAVHA
<p>EPBC Act—Commonwealth Heritage Places</p> <p>The Kingston and Arthur's Vale Commonwealth Tenure Area is included in the Commonwealth Heritage List (CHL).</p>	<p>The Kingston and Arthur's Vale Commonwealth Tenure Area, which comprises Commonwealth land within KAVHA (but excludes areas of freehold tenure), is included in the CHL. As such it is managed and protected under the EPBC Act.</p> <p>The EPBC Act Regulations outline all Commonwealth (and national) heritage management responsibilities. Also, the 2016 HMP was developed as a requirement of the EPBC Act, meeting World, national and Commonwealth statutory heritage obligations.</p> <p>This CLMP is a strategic outcome in the implementation of the 2016 HMP and the statutory heritage obligations remain the same.</p> <p>Management of KAVHA and its NES matters are the responsibility of the Department. The Department is supported by the KAVHA Secretariat (including the Commonwealth Heritage Manager on-island) and guided by the KAVHA Advisory Committee.</p>
<p><i>Norfolk Island Legislation Amendment Act 2015</i> (Cwlth) (No. 59, 2015)</p> <p>The KAVHA site was included on the Norfolk Island Heritage Register on 17 December 2003, a provision of the Heritage Act 2002 (NI).</p>	<p>The <i>Norfolk Island Act 1979</i> (Cwlth) (&lt;<a href="https://www.legislation.gov.au/Series/C2004A02035">https://www.legislation.gov.au/Series/C2004A02035</a>&gt;) and subordinate regulations (&lt;<a href="https://www.legislation.gov.au/Details/F2011L02028">https://www.legislation.gov.au/Details/F2011L02028</a>&gt;) apply to Norfolk Island. Significant changes were made to the Norfolk Island Act in 2015; these changes came in effect through the <i>Norfolk Island Legislation Amendment Act 2015</i> (Cwlth).</p> <p>Norfolk Island Regional Council (NIRC) provides services at KAVHA under an agreement with the Australian Government.</p> <p>The NIRC follows other legislation relevant to KAVHA and its landscape management (in conjunction with the Department [described in the 2016 HMP, pages 69–71]), including the:</p> <ul style="list-style-type: none"> <li>• <i>Planning Act 2002</i> (NI);</li> <li>• Norfolk Island Plan 2002;</li> <li>• <i>Heritage Act 2002</i> (NI);</li> <li>• <i>Norfolk Island Trees Act 1999</i> (NI)</li> <li>• <i>Building Act 2002</i> (NI) Building Codes &amp; Standards; and</li> <li>• <i>Public Reserves (Consequential Provisions) Act 1997</i> (NI).</li> </ul>

#### 4.1.2 Planning Context

In addition to the statutory and non-statutory management and planning context, there are a number of key source and operational documents related to the KAVHA site's cultural landscape, many of which are used in the conservation and management of the cultural landscape of KAVHA.

##### Heritage Management Plan, April 2016

The 2016 HMP, prepared by Context, GML Heritage and Jean Rice Architect, and established under the EPBC Act, provides strategic principles for conservation of KAVHA's Outstanding Universal Value and other heritage values. The 2016 HMP sets the direction for the CLMP and provides a guiding framework through its endorsed principles and policies, including policy for the cultural landscape:

*The KAVHA site's historic cultural landscape will be conserved and managed to transmit its values, recognising its authenticity as evolved and as part of the life of the community. [HMP 2016]*

The 2016 HMP provides conservation and management policies for the cultural landscape and natural environment of the KAVHA site, as well as for structures and objects, archaeology, living cultural traditions and community connections, sustainable development, tourism, education and interpretation, governance and capacity, communication and engagement.

A shared vision, or aspirational statement, for the future of KAVHA was developed for the HMP:

*The Kingston and Arthur's Vale Historic Area is a place of outstanding heritage value to the people of Norfolk Island, the Australian community, and internationally.*

*The rich and interwoven natural and cultural landscape of the KAVHA site will be conserved, managed, protected and presented with authenticity as a vibrant place through effective governance, good management, improved support, best practice techniques/tools and enduring community partnerships.*

The adopted HMP 2016 replaced the CMP (2008) as the guiding document for the conservation and management of the KAVHA site. This CLMP sits below the HMP and is a key secondary document for ensuring a 'whole of landscape' approach to sustainable management of the heritage values, including natural values, of the KAVHA site's cultural landscape.

### **Landscape Management and Conservation Plan, Two Volumes, 1994**

The KAVHA *Landscape Management and Conservation Plan* by Tropman & Tropman is a key foundational document. The history, description and analysis of evidence, and mapping of key views, and visual relationships have informed development of this CLMP. The Plan contains a high level of detail, including description and condition assessments of portions of private land, and provides a useful reference for management and planning. The significance assessment and policy need updating.

Volume 2 of this report is an inventory. The inventory is organised using the numbering and naming system established in the 1980 CMP and provides information on location, ownership, fabric integrity (at 1993), significance and management recommendations. Location maps are provided for each item, but in the scanned photocopy of the original the maps are not legible. Much of the detail in photographs was also lost in the versions provided. The information, however, appears thorough and would provide a good basis for an asset management tool, subject to updating, such as a maintenance database that could be regularly updated. Appropriate staff and software resources would be required for the inventory to function effectively as a database and asset management tool.

### **Conservation Management Plan (Draft) and Inventory, 2007**

The draft KAVHA Conservation Management Plan 2007, by Otto Cserhalmi & Partners (Jean Rice), was never finalised and therefore remains a draft document. However, in this draft report, the KAVHA site and its history are very well documented, with the location of past and present structures and elements clearly shown on relevant precinct maps, with features named and numbered. The historical analysis contains a high level of detail and appears thorough, and is supported by historical overlays, and a timeline and chronologies that provide valuable and accessible reference tools. The history builds on and updates the 1979/1980 history prepared by Wilson and Davies as part of their archaeological survey of the KAVHA site. (The Wilson and Davies history also forms the basis of the history and historical analysis in the Tropman & Tropman Landscape Management and Conservation Plan [1994].)

Three volumes of the associated inventory (of apparently 11 volumes) were also reviewed. The inventory provides information for every item, including historical development of the buildings and changes that have occurred since the Kingston and Arthur's Vale Historic Area was established. It exists in hard copy, and provides space for additional notes. It could form a solid basis for a practical management tool.

The history, site descriptions and analyses, mapping overlays and chronologies of the KAVHA landscape from the Otto Cserhalmi and Partners' draft CMP (2007) should be reviewed, finalised and

republished, and should form the basis of future management plans and master plans for the KAVHA site.

### **Conservation Management Plan: Government House and Quality Row Residences, Gardens Conservation, 1997**

The *Conservation Management Plan: Government House and Quality Row Residences, Gardens Conservation*, by Tropman & Tropman, is an important operational document with a high level of detail. The sections related to the Quality Row Houses gardens require review and augmentation with more specific maintenance advice and planting instructions. The section related to the Government House gardens and grounds has been updated in the Inspiring Place landscape advice report for the Government House Reserve part of the KAVHA site (see below).

Many of the recommendations for conservation and restoration of the gardens and grounds of Government House and Quality Row houses have not been implemented or only partially implemented. The recommended rationalisation of the trees (Norfolk Island pines) along the driveway into Government House has been carried out.

Recommendations in the Tropman & Tropman report for tree removal to restore significant views and visual relationships have informed the vegetation management policy in this CLMP.

There was no scope in the CLMP project to review the fine-grain detail of recommendations for individual house gardens, namely their proposed restoration and plant lists. However, guided site inspections of the Quality Row houses revealed there have been problems with some recommendations. For example, planting Norfolk Island pines to then periodically remove them when they reach a certain level of maturity has introduced problems with ground stability in former trunk locations and root zones. While the lists of plants available during early settlement provide a valuable record of historically appropriate garden plants, many of these plants are no longer available on Norfolk Island and are therefore difficult to source. The plant lists do not take into account biosecurity considerations.

A list should be prepared of appropriate alternative plants, which are: possible to source on the Island; would not pose biosecurity risks; and which reflect other values and aesthetic qualities of early plant species.

### **Landscape & Garden Maintenance Advice, Government House Grounds, Norfolk Island, 2017**

The *Landscape & Garden Maintenance Advice, Government House Grounds* report, by Inspiring Place, was prepared in 2017 for the Government House gardens and grounds (2017 Landscape & Garden Maintenance Advice report), an area which comprises the Government House Reserve. The report divides the site area into three components: the formal fenced gardens around Government House; the 'parklands', an extensive area of specimen trees and lawn; and the 'stockyards', historically a utilitarian area of the Reserve formerly used as a paddock with a dairy. Note that the greater Government House reserve including the Serpentine was excluded from the 2017 report.

There was no scope in the CLMP project to review the fine-grain detail of recommendations for the formal, fenced garden at Government House.

Recommendations that relate to the Government House grounds were reviewed in the context of the policy prepared for this CLMP. The following table provides a summary of the recommendations,

noting their consistency with the CLMP policies. Commentary is provided where an explanation seemed necessary or where agreement is conditional.

**Table 4.2** 2017 Landscape and Garden Maintenance Advice Report Recommendations.

2017 Landscape and Garden Maintenance Advice Report	Commentary
1.1 Remove pines where they are encroaching on built fabric.	Before making decision about removal of pines, confirm physical impacts from pines on north boundary wall of stockyard.
1.2 Develop a strategy for staged removal of pines and oaks that significantly impeded views to and from Government House.	Recommend retention of select mature white oaks in paddock to south of Government House for amenity reasons. White oaks to the north of Government House with fungal rot should be removed for safety reasons. The strategy should consider potential impacts from: <ul style="list-style-type: none"> <li>• change in wind patterns on buildings and other significant trees; and</li> <li>• changes to water content of the soil.</li> </ul> The strategy should also consider the potential for re-use of the timber, including by community/community groups.
1.3 Remove garden escapes that are colonising building fabric including the cellar entry door, on steps and in the foundations of the verandahs.	This recommendation has not been assessed.
1.4 Undertake survey and archaeological investigations required to give clarity to the potential for reconstruction and/or interpretation of the ornamental garden.	Not assessed. Agree to reconstruction in principle, where there is adequate evidence and when resources permit sustained ongoing management and maintenance.
1.5 Consider restoration or reconstruction of 'ornamental garden', roads and/or paths shown on Lugard's and/or Hamilton's plans provided enough evidence can be found to determine extent, their locations and construction methods.	Agree this requires further consideration.
2.1 Continue to maintain the lawns of the parklands to a standard equivalent to that for a golf course fairway, including mowing, weed management and pest control.	Strongly disagree with this recommendation. Standard of management and manicured appearance would not be historically appropriate.  An integrated weed management strategy should be prepared for the whole KAVHA site, including weed management and pest control within the Government House Reserve.
2.2 Engage qualified arboricultural assistance...	Agree.
2.3–2.7 (Recommendations relate specifically to the sustainable management of the Government House gardens. Not reproduced here.)	This recommendation has not been assessed.
3.1 Prepare a thematic interpretation strategy for KAVHA...	Agree.
3.2 Establish and maintain a seasonal calendar of events to enable planning of garden maintenance and planting of annuals to suit.	Agree.
3.3 Consider re-introduction of cropping or grazing of stockyards (contingent on time and resources being available to maintain such activities).	Grazing preferred, over cropping, based on historic use as a paddock and stockyard.
4.1 Support preparation of up-to-date management documents for KAVHA (LMP and CMP for Government House ensuring specific analysis of the Gardens).	The history and place analysis in Tropman (1997) and Cserhalmi and Partners (2007) should form the basis of such plans.

2017 Landscape and Garden Maintenance Advice Report	Commentary
4.2 Consider possibilities for engaging outside specialist horticulturalists to undertake works for re-invigorating the gardens to a 'maintenance rationale'.	<p>If engaged, outside specialist horticulturalist should work in tandem with contractors responsible for managing the Government House grounds, on the basis of building knowledge and experience of the existing grounds staff, and growing their capacity.</p> <p>In future, it would be preferable for management of Government House grounds to be incorporated into the Service Delivery Agreement and, therefore, the works program of the works staff who manage other areas of public land within KAVHA to better ensure integrated management of the Kingston area and conservation and transmission of the KAVHA site's values.</p>
4.3 Consider splitting the current contract arrangement into four contracts.	Disagree, based on concern about further fragmentation of management.

### Landscape Guides for KAVHA, 2001

The report, Landscape Guides for KAVHA, September 2001, by Jean Rice of Otto Cserhalmi + Partners P/L, presents a succinct and highly visual analysis of the landscape character, historic views, general characteristics of views, including the backdrops to views of historic buildings, and impacts of modern development on views within the KAVHA site.

The report also provides development guidelines and useful principles for managing the landscape character and visual setting of Kingston, the setting of historic buildings, and historic views. General characteristics of views in different locations of the KAVHA site are described as follows: Kingston Common as a cleared common with a backdrop of undeveloped hillsides; Arthur's Vale as cleared for agriculture and enclosed by open hillsides with trees on the skyline; Government House and grounds as set against a backdrop of undeveloped hillsides with trees on the ridge line, and the building compounds with a backdrop of undeveloped hillsides.

The report, however, needs updating, to take account of change to the cultural landscape of the KAVHA site since the report was prepared in 2001.

Since 2001, the visual setting has been incrementally eroded as a result of a number of factors, including: unmanaged plantations of Norfolk Island pines, planted for stabilisation of eroded areas; over-dominance of Norfolk Island pines (which exist in the landscape as cultural plantings, forestry plantations, and self-sown species); and from weeds, including woody weeds throughout the hillsides, through inadequate pasture management leading to weed colonisation of large areas of the pastoral landscape.

### Condition and Conservation Report, 2017

The report Kingston & Arthur's Vale Historic Area, Norfolk Island: Condition and Conservation Report, by Purcell (July 2017), provides an evaluation of the building fabric conservation issues occurring in KAVHA. Background on the historic building materials (stone, lime, sand, and timber) and methods used at KAVHA, and observations on the history of conservation management practices at KAVHA from 1962, are well documented. The report then assesses the condition of building fabric, using case studies of typical issues, such as those associated with cleaning, damp and salt attack, renders, mortars and plasters, coatings and finishes, metals, and the Cemetery Reserve and monuments. Conclusions for each issue include best practice conservation responses to the issues. Detailed recommendations follow that outline the importance of a conservation maintenance program for

building fabric at KAVHA, noting that conservation maintenance practices should be refined to be in line with policies in the 2016 KAVHA HMP and current best practice.

The recommendations in the Purcell report echo earlier reports that identified similar issues associated with the wide use of cement render and plastic paints in the KAVHA maintenance and conservation programs, for example by: Donald Ellsmore Pty Ltd, Kingston & Arthur's Vale Historic Area, Norfolk Island: Investigation of Paint Finishes, August 2011; and Philip Cox & Partners Pty Ltd, Norfolk Island Conservation Program: Report on Renders and Paints, January 1985.

## 4.2 Management Issues

### 4.2.1 Fragmentation of Management

Fragmented management of the cultural landscape of KAVHA is identified as an issue affecting the appearance, condition and visitor experience of KAVHA, and the ability of the cultural landscape of KAVHA to transmit its heritage values.

Fragmentation appears to stem from a number of factors, including (at differing levels of influence): different ownership (the KAVHA site is a mix of Crown, Freehold, Crown Freehold, and Crown Leased land); the designation of several areas of Commonwealth land within KAVHA as public reserves, under Norfolk Island legislation that are managed by the NIRC in accordance with Plans of Management; and independent and/or subcontracted management of some areas.

The management arrangements for KAVHA operate under a joint Service Delivery Agreement (SDA) between the Commonwealth and the Norfolk Island Regional Council, established in 2016. Under the SDA, in accordance with directions issued by the Commonwealth Heritage Manager, the NIRC is responsible for carrying out cyclical and responsive maintenance to the Commonwealth-owned heritage buildings and structures, operating the KAVHA visitor interpretation and research centre and the various onsite museums, and accessioning all newly discovered material into the KAVHA collection. Functions under the SDA also include landscape and garden maintenance, facilities maintenance, and interpretation and public programs within the KAVHA site. Part of the Museum's operation service under the SDA is 'collection of public moneys relating to the service', with the revenue collected being offset against the running costs of the museums.

A group of works staff is employed by Norfolk Island Regional Council to carry out works associated with the conservation and maintenance functions defined in the SDA. Works staff notionally comprise two painters, two carpenters, one groundsman, and two part-time gardeners, who are supervised by the NIRC Team Leader KAVHA. At times works staff are currently also utilised by the NIRC for work in other areas of Norfolk Island.

Government House gardens and grounds, the Golf Course, and part of Kingston Recreation Reserve are excluded from the landscaping tasks component of the SDA.

Garden, general maintenance and lawn care services for the Government House grounds are managed by a service provider (currently the Norfolk Island Golf Club Incorporated) under contract to the Department of Infrastructure, Regional Development and Cities.

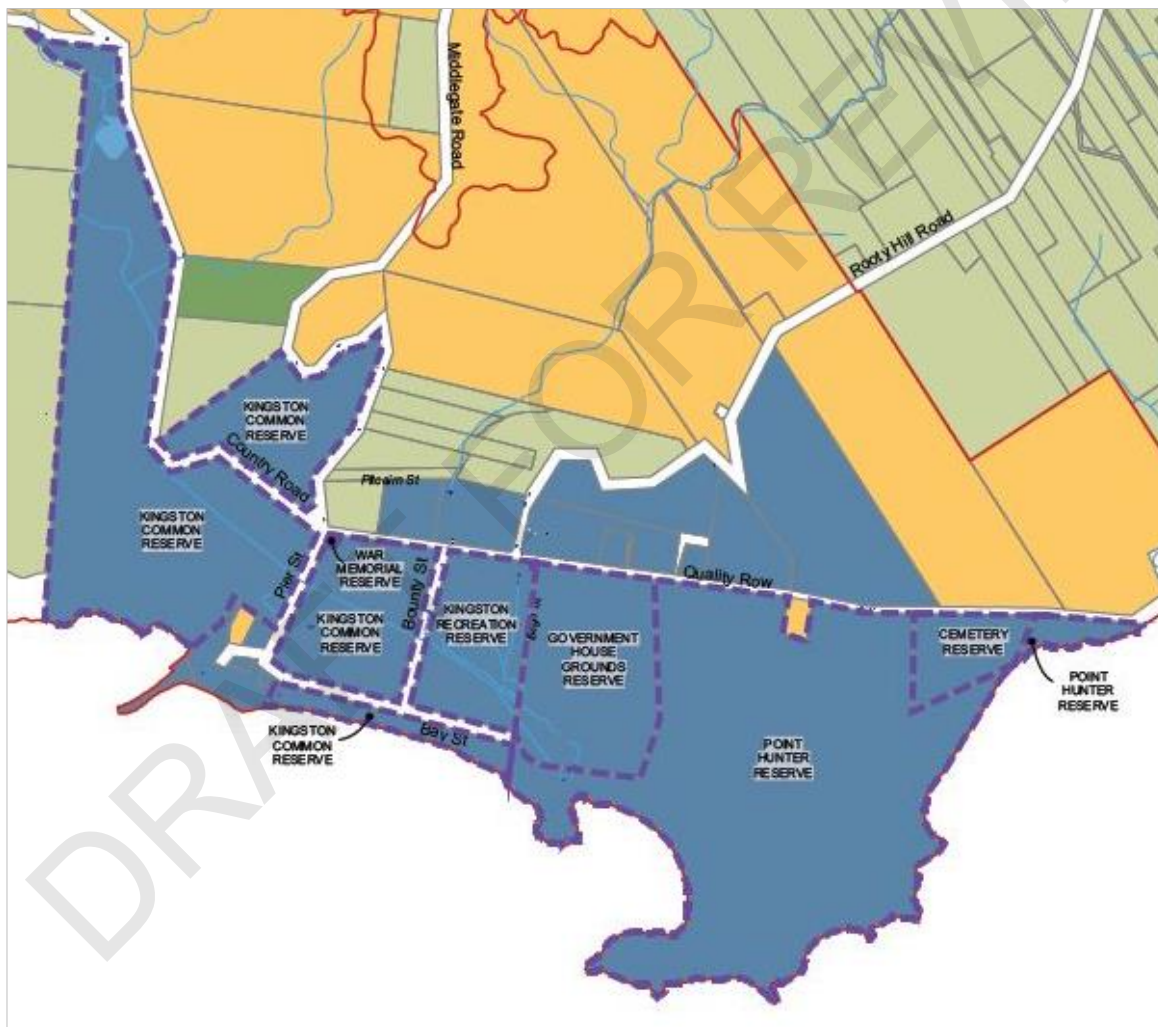
The Golf Course is managed and maintained by the Norfolk Island Golf Club Incorporated (the Golf Club).

The Recreation Reserve (part) comprising the playing field between Bounty and Bligh Streets is maintained by the NIRC.

## Public Reserves

The KAVHA site includes six areas of land that are designated public reserves and managed and protected under the *Public Reserves Act 1997* (NI). These areas are:

- Kingston Common Reserve;
- Kingston Recreation Reserve;
- Government House Grounds Reserve;
- Point Hunter Reserve;
- the Cemetery Reserve; and
- the War Memorial Reserve.



**Figure 4.1** Plan showing the public reserves within the KAVHA site. The blue-shaded areas are Crown land, the yellow Crown lease. The purple-hatched borders define the boundaries of the reserves (labelled). (Source: EP 2018))



Consistent with the *Public Reserves Act 1997*, each of the public reserves has a Plan of Management, which sets out management issues, objectives, strategies and actions. Management objectives cover cultural and natural heritage, pest species, recreation, education and interpretation.

Certain activities within the reserves are controlled and regulated through permits and approvals. Permits and approvals are assessed and issued by the Conservator of Public Reserves, employed by Norfolk Island Regional Council.

The Commonwealth has no legislative function to issue permits or approvals for works within KAVHA.

The 2016 KAVHA HMP is the guiding document for the management of KAVHA, including the Norfolk Island reserves within the site, replacing the earlier KAVHA CMP. The Reserve Plans of Management state that where there is any inconsistency between the plans of management and the approved KAVHA HMP, the intent of the KAVHA HMP shall prevail.

### **Roads and Other Infrastructure**

Roads and other infrastructure (water, wastewater and electricity infrastructure) are managed by the Department of Infrastructure, Regional Development and Cities.

### **Golf Course**

The Golf Course is managed and maintained by the Norfolk Island Golf Club. Under the Plan of Management for Government House Grounds Reserve, the use of part of Government House Grounds Reserve as a not-for-profit community golf course is in accordance with an annual permit granted by the Conservator of Public Reserves. The use of the reserve as a golf course is not exclusive and the Golf Club cannot control or restrict any legitimate public use of the course for other purposes.

The management of the golf course grounds should be consistent with the site's heritage values and cultural landscape management policies in the CLMP policies.

### **Government House Gardens and Grounds**

Management of the Government House gardens and grounds is contracted out by the Department of Infrastructure, Regional Development and Cities to a service provider, currently the Golf Club.

Fragmented or disjointed management risks incremental degradation of and potential impacts on heritage values. The likelihood of this occurring in the complex and layered cultural landscape of KAVHA is very high. An example of this is evidenced by the seemingly independent management and resultant 'manicured' landscape character of the Golf Course, and to an extent the lawns within the Government House grounds.

Fragmentation contradicts a 'whole of landscape' approach to managing the place and the conservation and transmission of its heritage values, noting that not one of the high priority cultural landscape issues fits neatly within single management areas of a defined precinct.

The management of the *Government House Gardens and Grounds* should be consistent with the site's heritage values and cultural landscape management policies in the CLMP policies.

Individual landholders maintain their private land, but no assistance appears to be provided for maintenance of former KAVHA plantings on private land. Norfolk Island pine plantations on private land were planted by KAVHA in the late 1980s–early 1990s with the intention that the former KAVHA Board would undertake routine thinning and maintenance. The management arrangement is

remembered by landholders, but has lapsed due to altered management arrangements that have come about since the 1990s. As such, no thinning or maintenance of the pine plantations on private land was carried out and no maintenance of the pine plantations is currently undertaken. The result of this situation is causing detrimental impacts to the heritage values of the site.

#### **4.2.2 Resources**

Regular funding for resources and engagement of dedicated staff resources with the right skill set appears to be lacking and appears to be a factor contributing to a number of cultural landscape management, conservation and maintenance-related issues.

It is understood that the only revenue collected from tourism at the KAVHA site is from museum passes and other sales at the museums, which is collected by the Norfolk Island Regional Council for operating the museums. Notwithstanding the above, revenue from tourism should not be expected to fully cover the costs of conservation, site management, and visitor services within the KAVHA site.

Other resourcing matters are well documented in the KAVHA Economic Feasibility Study prepared by The Centre for International Economics (October 2017).

### **4.3 Existing Site Data**

The following issues also have implications on the management of the KAVHA site, although to a lesser extent than those described above in Section 4.2 on fragmentation of responsibilities and resources. The issues noted here, in Section 4.3, are also of considerably less complexity and could be simply resolved.

The recommendations noted in the following sections are included as actions in the policy section (Section 6.0) of this CLMP.

#### **4.3.1 Quality and Legibility of Older Reports**

The KAVHA site and its history is well documented in some key earlier reports, as noted in Section 3.0 of this CLMP. However, the mixed quality and legibility of scanned photocopied reports, many of which are poor quality, reduces the benefits of previous research and the value of their consistent numbering and naming systems. Some but not all reports have embedded optical character recognition (OCR) functions. OCR function for all current and operational reports would increase efficiency of navigation and maximise the usefulness of these resources.

#### **4.3.2 KAVHA Site Survey Data**

Surveyors RCS GROUP undertook a detail survey and high-resolution aerial imagery of KAVHA in 2015. The survey includes detail defining the basic site infrastructure, including cadastral boundaries, roadways, tracks, watercourses, fencing, buildings, powerlines, communications, stormwater and contours depicting the levels of the topography. Data capture of the existing site and archaeological details (those mapped and recorded in the 1980 archaeological survey by Wilson and Davies) was also undertaken to populate an administrative Geographic Information System (GIS) and to provide an accurate record of archaeological data, infrastructure, topography and resources within the World Heritage area. A Digital Elevation Model (DEM) was also created.

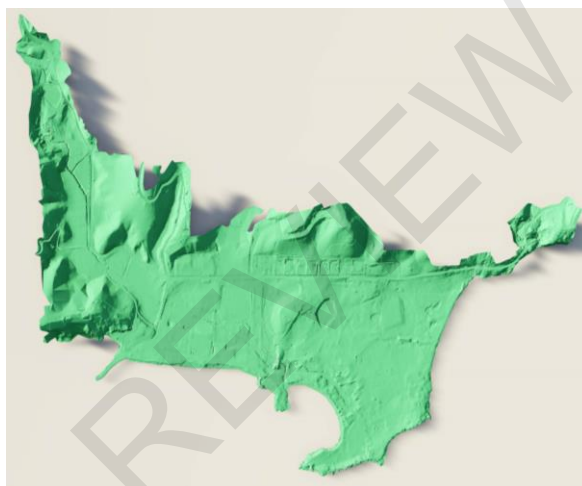
The information that appears in the survey and high-resolution imagery appears thorough and comprehensive. It provides a useful tool for management and planning. Historically, the survey data and aerial imagery will provide a valuable record of the site conditions in 2015.

The usefulness of this data is limited by the extent of site coverage. The area of the survey encompassed approximately 120 hectares. The KAVHA site covers approximately 250 hectares (refer to Figures 4.1 and 4.2 below).

The usefulness of the data is further limited by challenges in readily accessing the data electronically. Some of the data is difficult to access. Files have not been possible to open because of the file types and file sizes. The DEM and the PDF version provided to the project team lacks distinguishable features and therefore its capacity for practical application and use is lost.



**Figure 4.1** Relationship of survey data and high resolution digital imagery capture (approx. 120 ha) to the KAVHA site (approx. 250 ha). (Source: RCS Group Surveyors, 2016 detail survey overlaid onto aerial photograph)



**Figure 4.2** Manipulated version of the KAVHA Digital Elevation Model as a PDF version showing top view. (Source: RCS Group Surveyors, 2016; a PDF top view and shadowing was created by EP)

In 1984 Robert Varman undertook a substantial survey of the KAVHA site that apparently included consideration of landscape use, the distribution of elements in the landscape, and the larger setting of KAVHA. The report has not been sighted but is possibly the 'Survey Study of the First, Second, and Third Settlements on Norfolk Island' prepared by Varman for the Australian Heritage Commission (1984). This report is held in the University of Sydney's NSW Archaeology Online: Grey Literature Archive. It does not appear to be digitised. A copy of the survey work carried out by Varman should be obtained, reviewed and important insights integrated into the understanding of the KAVHA site's cultural landscape.

### 4.3.3 Archaeology

The *Archaeological Survey* (two volumes) by Wilson and Davies (1980 and 1983) was prepared in association with the 1980 KAVHA Management Plan. The report provides a detailed site record, identifying discernible features and the location of possible subsurface remains. It therefore provides an important research base for ensuring the archaeological resources of the KAVHA site could be managed to retain their cultural heritage values and realise their research potential (HMP Policy 8.4).

As noted in the 2016 HMP, the 1980/83 *Archaeological Survey* continues to be a key operational and reference document. It is understood that recent survey work sought to make the data more accessible (electronically).

As part of the 2015 survey work (described above), the archaeological data from the 1980/83 *Archaeological Survey* was brought into CAD information files. However, in the survey data provided in

CAD, the archaeological data is not visible in the layer system. It has therefore not been possible to view the archaeological data in electronic formats or to view it as integrated into the detail survey plan.

A hard copy site survey with archaeological features mapped alongside other site features was provided for a section of the site—part of the low-lying land of the Kingston area. Different colours are used for different line work. This survey appears to have been carried out by Australian Construction Service. The survey plan is undated. A key to the plan exists as a separate hard copy document held by the Norfolk Island Museum.

The information it contains appears thorough and comprehensive. It provides a useful tool for management and planning, in particular in relation to archaeology. It would be more useful if converted to CAD information layers with the relevant information contained in the 'key'.

#### 4.4 Endnotes

- <sup>1</sup> Australian Government 2010, Australian World Heritage Intergovernmental Agreement, Department of Environment, Canberra.

## 5.0 General Site Policy

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### 5.1 Conservation Policy Framework

#### 5.1.1 Introduction

The conservation policy framework has been developed, based on a consideration of the heritage values of the whole site and policies outlined in the 2016 HMP.

The vision, key objectives and strategies from the HMP, excerpted in this section, take into account the heritage significance of the individual attributes, tangible and intangible, that contribute to the overall heritage value of the KAVHA site, as well as the potential future needs and statutory requirements, and other constraints.

The intention of the cultural landscape objectives and policy in this section is to provide general direction and guidance for the future use, conservation and development of the site and its landscape elements. These policies should be considered in future master planning, strategic work and new policy development.

Due to the complex nature of the KAVHA site, these policies are deliberately general, and can be applied to a variety of situations and events. More detailed policies are provided in Section 6.0, Landscape Conservation Policy.

#### 5.1.2 2016 HMP Vision for KAVHA

The HMP establishes a vision for managing the heritage values of KAVHA:

*The Kingston and Arthur's Vale Historic Area is a place of outstanding heritage value to the people of Norfolk Island, the Australian community and internationally.*

*The rich and interwoven natural and cultural landscape of the KAVHA site will be conserved, managed, protected and presented with authenticity as a vibrant place through effective governance, good management, improved support, best practice techniques/tools and enduring community partnerships.*

#### 5.1.3 Key Objectives from the 2016 HMP

The HMP provides key objectives for managing the World, National and Commonwealth Heritage values, which are relevant for the management of the cultural landscape of the KAVHA site, and these are:

- to provide an **integrated practical management** plan for the heritage values of the KAVHA site at World, National, Commonwealth and Norfolk Island levels;
- to provide direction to assist in the **conservation, protection, management, continuation and transmission** of all values of the KAVHA site to benefit current and future generations;
- to provide guidance on a **skilled and transparent organisational**, decision-making and advisory structure for the KAVHA site to support its conservation, interpretation and use, commensurate with its status as one of the eleven sites which comprise the Australian Convict Sites World Heritage property;
- to recognise the different roles of participants and the **shared public and private responsibility** for the conservation and management of the KAVHA site; to identify requirements including funding, human resources, knowledge and skills; and to promote capacity building for local people;

- to ensure that the KAVHA site continues to **respect, reflect, celebrate and support** the evolving cultural practices and recreational life of the community of Norfolk Island and the wider Australian community;
- to ensure that any future development and **use of the KAVHA site is sustainable** and does not significantly impact the heritage values of the site;
- to identify mechanisms for **open and respectful communication** between private landholders and other stakeholders, the Norfolk Island community and the KAVHA site management, to guide and inform decision-making;
- to ensure that the **authenticity of the tangible and intangible** attributes at the KAVHA site is managed and maintained through traditions, techniques, design, use of materials and specific functions; and
- to define opportunities to establish and **grow high-quality tourism and visitor experiences** at the KAVHA site—including commercial, recreational and sporting activities—through effective partnerships and collaboration with tourism operators and the community.

### 5.1.4 2016 HMP Strategic Principles

The HMP establishes key principles for managing the KAVHA site, which are relevant for the management of the cultural landscape, and these are reproduced below:

- **Heritage Conservation:** Management of the KAVHA site should be based on understanding and conservation of identified heritage values; the KAVHA site should be conserved in accordance with the Burra Charter of Australia ICOMOS; Conservation should focus on authenticity and integrity; adequate resources should be allocated to conserve heritage values; the condition of heritage values should be monitored.
- **Life in the Community:** Local people and their cultures should be respected; Celebration of local traditions, uses and activities, including recreation and leisure, should be encouraged and continued; The Norfolk Island community, including private landholders, should be engaged with the KAVHA site and should participate in its conservation, interpretation and management.
- **Sustainable Tourism:** Tourism should provide positive and engaging visitor experiences which communicate heritage values; Tourism should support local traditions; Tourism should provide benefits to local people; Tourism at the KAVHA site should minimise impacts on heritage values; The tourism industry should be contributing partners in the conservation and management of the KAVHA site.
- **Education and Information:** Heritage values should be transmitted to future generations; Outstanding interpretation should be provided on and off the KAVHA site; Interpretation of the KAVHA site should present a full range of stories related to all the phases of settlement; educational outreach should be provided locally and off site; Links and networks should be established with other Norfolk Island heritage places, the other properties which form part of the Australian Convict Sites and other related sites.
- **Governance and Capacity:** One organisation should be responsible for the care, control and management of the KAVHA site; The KAVHA site management should have a simple organisational structure, with clarity in roles and appropriate delegations; The organisational culture should foster collaboration, shared information, accountability and transparency; High performance, effective systems and processes are required; The KAVHA Advisory Committee should include relevant expertise and representation.

## 5.2 General Cultural Landscape Conservation Policies

### 5.2.1 Introduction

The following policies are for the whole KAVHA site. They are accompanied by a conservation action, or rationale, with specific actions, prioritised according to timing/urgency of short term, medium term,



long term, future, as required or ongoing. The implementation of the policies and actions will ensure effective conservation of the identified heritage values of the KAVHA site's cultural landscape and management of change in a positive way for future generations by the Commonwealth and other responsible managers.

### 5.2.2 Prioritised Actions (Definition and Method)

The actions are prioritised as a matter of urgency in four timing categories: short, medium and long term. The time frames are intended to provide a hierarchy of relative importance and/or take account of important sequencing of actions to be implemented. Additional timing parameters include 'as required' and an 'ongoing' basis. Many of the actions have resourcing implications for the Department, so the recommended timing will be dependent upon planning for, and seeking resources in, the future budget cycles.

- **Short term:** These actions are important, relatively urgent, conservation and maintenance actions that should be undertaken within a 24 month timeframe.
- **Medium term:** These actions should be undertaken in the medium-term category and have a two–five–year timeframe. They are less urgent than actions required in the short term, but are required to ensure heritage values are appropriately conserved. Forward planning to secure resources would enable implementation of these actions within the medium-term timeframe.
- **Long term:** These actions require implementation within a five–10-year timeframe and may involve implementation of actions of a lower priority or finalisation of larger proposals or actions in a site masterplan.
- **Future:** These actions require implementation within a 10–20-year timeframe. They involve implementation of actions of a lower priority or finalisation of larger proposals or actions outlined in a site masterplan.

### 5.2.3 Policies and Actions

- **Policy 1: Conserve and manage all identified heritage values and key attributes which contribute to the significance of the cultural landscape of the KAVHA site.**

In accordance with the HMP and other legislative responsibilities, 'the KAVHA site's cultural landscape must be conserved and managed to transmit its values, recognising its authenticity as evolved and as part of the life of the community.' In this Policy, use of the word 'conserve' is consistent with the Burra Charter definition for conservation, meaning 'all the processes of looking after a place so as to retain its cultural significance'.<sup>1</sup>

Conservation Actions	Priority
Use the CLMP to guide and inform decision making about how all the heritage values of the KAVHA site's cultural landscape are conserved, maintained, managed and interpreted.	As required
Refer to the relevant sections of this CLMP for high level conservation policies (Section 5.0) and specific conservation policies (Section 6.0) for conserving, maintaining and managing change to the cultural landscape of the KAVHA site.	As required

- **Policy 2: Conserve and manage the KAVHA site's cultural landscape with authenticity and maintain its high degree of integrity.**

KAVHA is one of 11 Australian Convict Sites that together make up the Australian Convict Sites that, as a group, reflect and are required to maintain the integrity and authenticity of the World Heritage property. The cultural landscape of the KAVHA site, comprising its design and layout, outstanding collection of Georgian buildings, the extensive archaeological remains, engineering works and landscaping of the Second (Penal) Settlement, clearly shows the planning and operation of a nineteenth-century penal settlement with a very high degree of integrity. In accordance with key principles in the HMP, and the Nara Document on Authenticity (1994), conservation and management should pursue and ensure authenticity in terms of the sources supporting decisions about appropriate conservation and change.<sup>2</sup>

Conservation Actions	Priority
Maintain the integrity and authenticity of KAVHA and its contribution to the heritage values of the Australian Convict Sites group.	Ongoing
Conserve and manage the KAVHA site's cultural landscape to transmit its values, recognising its authenticity as evolved and as part of the life of the community. (Refer HMP Policy 8.2)	Ongoing
Pursue and ensure authenticity in all conservation and management actions, including in terms of the sources supporting decisions about appropriate conservation and change. <sup>3</sup>	Ongoing

- **Policy 3: Manage the cultural landscape of the KAVHA site with an integrated, 'whole of landscape' and sustainable approach.**

The sum of all heritage values—the attributes, elements and meanings—included in all heritage listings for the site should be conserved, sustained and interpreted. Managing KAVHA's cultural landscape involves recognising the need to conserve and manage the significant layers within the cultural landscape, which relate to the four settlement periods. It also includes managing the strong cultural connections with the natural and cultural values, and recognising these as integral with the life of the community at KAVHA.

To follow a sustainable model of conservation management, 'nature and culture' should not be placed in direct competition with each other. Furthermore, the KAVHA site is rich in natural and cultural values because of the presence of people, the custodians of the place.<sup>4</sup>

Managing the cultural landscape of KAVHA requires an integrated, whole of landscape approach, and at times a whole of catchment approach that considers all values and their interrelationships. An integrated and sustainable approach requires consideration of:

- the impacts of change on the values of the whole landscape and its wider catchment, including significant spatial and visual relationships, landscape character (What stories does the site/landscape convey with power and clarity? What stories does it conceal or erase?), a combination of natural and cultural values, and high priority cultural landscape issues (refer to Appendix A);
- buildings, ruins and standing structures integrated with their immediate and broader settings, conserved not in isolation but as contributing to the whole place;
- the complex management arrangements across the KAVHA site and beyond the KAVHA site into its broader catchment area; and
- support for community involvement in managing the landscape and for maintaining their heritage values, traditional and continuing uses, and cultural connections.

Conservation Actions	Priority
Integrate decisions about the management of natural and cultural values, to avoid depletion or degradation of natural values, ensure long-term environmental quality and ensure community benefits, including public health and safety.	Ongoing and short term within 12 months
Decisions about everyday conservation and management and about the future of the KAVHA cultural landscape need to ensure a symbiotic relationship between environmental factors, the historical and physical makeup of the landscape, and community and cultural connections, and need to create a sustainable place for mutually beneficial economic, social, cultural and environmental outcomes.	Ongoing
Adopt an approach to managing the values of the KAVHA site that recognises all heritage values (cultural and natural), sustains traditional and deep emotional connections to the place, allows tourism opportunities and engages people in the stewardship for the economic success of Norfolk Island.	Ongoing and short term within 12 months
When change is proposed, engage with other land managers, and/or other relevant management bodies and authorities, and community to communicate and co-ordinate land management decisions. For proposed change associated with site drainage and water quality, engagement is needed with the NIRC to ensure decisions take into account the catchment-wide implications of change and to seek opportunities for projects to dovetail with NIRC water management projects.	As required, during the development phase of proposals.

- **Policy 4: Conserve and manage the visual setting and aesthetic values to reflect the cultural and natural heritage values of the KAVHA site.**

The picturesque qualities of the KAVHA site and the bucolic landscape character are recognised as attributes that contribute to the heritage value of the KAVHA site, and they should be conserved.

The visual setting and aesthetic values of the KAVHA site derive from a combination of factors. These include the location of Kingston on the coastal lowlands on the south side of Norfolk Island, overlooking Slaughter Bay, Emily Bay and Cemetery Bay, and beyond towards the dramatic outcrops that form Nepean and Phillip Islands. On the foreshore are rocky headlands, sandy beaches, Emily and Slaughter Bays protected by a coral reef, and Cemetery Bay. Lookouts provide views over the Kingston settlement, of the shore and the sea and islands beyond.

The visual setting and aesthetic values also derive from the backdrop to the Kingston lowland area, hills characterised by 'natural vegetation such as Norfolk Island pines', and 'the agricultural/pastoral landscape' of the hillsides, as described in the HMP.

In recent decades, the landscape character of the hills surrounding KAVHA, which provide the backdrop to the Kingston lowland area and individual historic buildings, has been incrementally eroded by a lack of vegetation management. This has resulted in unmanaged weed growth and monocultures of pines dominating the backdrop, where previously these hills were characterised as open and undeveloped, with pines on the ridges and skyline. Within the Kingston lowlands area, because of extensive areas of lawn and grass, the current aesthetic qualities of the landscape contradict and overwhelm the ability to understand the KAVHA site's past as a place of harsh brutality, psychological punishment and industry during the Second (Penal) Settlement. The difficulties that the current aesthetic values and presentation of the landscape pose for understanding the many layers and meanings of the place are acknowledged and are a key challenge for this CLMP. Reducing the dominance of lawn and introducing more varied ground plane treatments based on historical evidence and interpretation opportunities would be appropriate and should be actively sought.

Conservation Actions	Priority
Implement specific 'Vegetation Management' projects that relate to the visual qualities and setting of the KAVHA site, so that the ability of the cultural landscape to transmit the heritage values (defined in the HMP) is improved and enhanced (refer to Appendix A of the CLMP). The backdrop to the Kingston area and its historic buildings should be characterised by undeveloped and largely open hillsides, with trees on the ridgelines and sky line.	Short-term: commencement, within 12 months  Medium term: completion by 24 months
Norfolk Island pines should not be planted in KAVHA without consideration of their visual, aesthetic and physical impacts on the KAVHA site's cultural landscape.	Ongoing
Review and update planting policy for the Golf Course, to ensure the introduction of new plantings is carefully managed to improve transmission of the values of the cultural landscape.	Short term
Actively seek opportunities to reduce the over-dominance of lawn in the Kingston lowland area. Change should be based on historical evidence and take into account the different historical functions and land use of different parts of the site.	Medium term: within 24 months
Develop design and siting guidelines for development and activities within the KAVHA setting, so that they are controlled and managed. Use the report 'Landscape Guides for KAVHA' by Jean Rice (2001) as a basis for design guidelines (subject to review and updating). Ensure such guidelines clearly outline all approvals needed for development and activities within the KAVHA setting, and clearly outline, step by step, the approvals processes.	Short term: within 12 months

• **Policy 5: Retain and conserve significant vegetation.**

Significant vegetation includes remnant vegetation, plantings that date from the First and Second Settlements (mostly of Norfolk Island pine and white oak), and commemorative plantings, most of which date from the Third Settlement period. Many of the commemorative plantings hold contemporary community value. All significant vegetation should be clearly identified, retained, conserved and managed.

Conservation Actions	Priority
Establish a register of trees, cultural plantings and other vegetation of significance.	Short term: within 12 months
Instigate a program of regular monitoring of the success and health of significant trees, cultural plantings and gardens.	Medium term: within 24 months
Manage and maintain significant trees according to specialist arboricultural advice on their health and condition.	Ongoing

• **Policy 6: Conserve and maintain significant views and visual relationships.**

Key views across and within the KAVHA site are crucial for understanding important visual relationships and spatial qualities of the Second (Penal) Settlement and they should be conserved and maintained. Where lost, they should be restored through careful removal of intrusive trees or other elements. This aspect of the cultural landscape reinforces understanding of the historic hierarchy and regime of power associated with the Second Settlement. They are also an important part of the aesthetic qualities of the landscape. Removal of trees and plantings is appropriate where this would restore key views, visual relationships and significant spatial qualities of the cultural landscape.

Conservation Actions	Priority
Implement the specific projects associated with tree removal to restore significant views and visual relationships, outlined in Appendix A of this CLMP.	Medium term: 2–5 years
Develop and implement communication strategy in preparation for tree removal.	Short term: within 12 months

- **Policy 7: Conserve and maintain significant spatial relationships between elements.**

The design and layout of KAVHA provide important physical evidence of how the settlements functioned historically (in particular the Second Settlement) and of the hierarchy and regime of power embodied in the landscape.

Conservation Actions	Priority
Maintain the siting and distribution of historic buildings across the landscape, the spatial and visual relationships between buildings and groups of buildings, standing structures and ruins, and other landscape elements.	Ongoing
Avoid new and permanent structures or elements that would have adverse visual or physical impacts on heritage values and the ability to understand and interpret key spatial relationships (see also Policy 9).	Ongoing

- **Policy 8: Establish resources to enhance transmission of values, support appropriate conservation works, cyclical maintenance programs, and enable works programs to be planned and implemented.**

Regular funding and dedicated staff resources with the right skill set and clear understanding of objectives and requirements for managing the values of the World Heritage site should be established, implemented and monitored.

Conservation Actions	Priority
Establish an annual budget that provides adequate resources for ongoing and skilled cyclical and responsive maintenance and conservation works.	Medium term: within 24 months Ongoing
Seek funding opportunities for specific conservation and works programs and specific projects, in particular for resolution of high priority cultural landscape issues. Ongoing funding will also be required for appropriate levels of maintenance inputs associated with completed specific works or projects.	Ongoing
Explore ongoing resourcing opportunities for funding conservation, site management and visitor services.	Long term: five–10 years

- **Policy 9: New landscape elements and other new development should not detract from the heritage values or character of the KAVHA site and its setting.**

The introduction of new landscape elements or other new development in the landscape should generally be avoided. Where new landscape elements or other new development are essential, for amenity, safety, visitor orientation and access, recreation, to support community uses or continue a significant tradition, they should be designed to respect and enhance the integrity and landscape character of the KAVHA site's cultural landscape, and in accordance with the policy and principles for

new landscape elements defined in Section 6.0 of this CLMP (Section 6.8, Landscape Elements and Site Furniture).

In accordance with the Burra Charter principles (Article 22) and Practice Note for 'New Work', 'new work should be readily identifiable as such but must respect and have minimal impact on the cultural significance of the place'.<sup>5</sup> Best practice guidelines for infill development, adaptation and new buildings in historic places are listed in the Burra Charter Article 22 Practice Note.

Conservation Actions	Priority
Avoid new landscape elements or other new development in the landscape, unless it can be demonstrated they are essential for amenity, safety, recreation or visitor orientation and access, and/or enhance heritage values.	Ongoing
Develop landscape guidelines to ensure a consistent approach to the design of new landscape elements and landscape infrastructure. (Refer to Policy 41 in this CLMP.)	Medium term: two–five years Ongoing
Assess proposals for new landscape elements and site furniture for impact on cultural heritage values and significant heritage attributes, including significant physical fabric, historic buildings and their setting, landscape character, views and important spatial relationships, and archaeological resources.	As required

- Policy 10: Remove or reduce the impact of intrusive elements on the heritage values of the KAVHA site.**

Intrusive elements are those that detract from the significance of the place and, when the opportunity arises, they should be removed.

Conservation Actions	Priority
Identify intrusive elements on a map.	Short term: within 12 months
Develop a strategy for the removal of intrusive elements or, where removal is not possible in the medium term, develop strategies (such as screening) for mitigating their impacts on the cultural landscape and heritage values of the KAVHA site.	Medium term: two–five years
Screen intrusive development that is not possible to remove in the medium to long term by appropriate planting or other means.	Medium term: two–five years
Implement the strategy for removal of intrusive elements and intrusive development (including intrusively sited toilet amenities). Replace essential elements with sensitively sited new development that has been designed with care and design excellence (refer to Policy 9 above).	Staged: <ul style="list-style-type: none"> <li>Medium term: two–five years</li> <li>Future: 10–20 years</li> </ul>

## 5.3 Endnotes

- <sup>1</sup> Australia ICOMOS Inc, *The Burra Charter: the Australia ICOMOS Charter for Places of Cultural Significance* 2013, Article 1.4
- <sup>2</sup> ICOMOS, *The Nara Document on Authenticity* (1994) <<https://www.icomos.org/charters/nara-e.pdf>>.
- <sup>3</sup> ICOMOS, *The Nara Document on Authenticity* (1994) <<https://www.icomos.org/charters/nara-e.pdf>>.
- <sup>4</sup> UNESCO, *Policy Document for the Integration of a Sustainable Development Perspective into the World Heritage Convention*, as adopted by the General Assembly of States Parties to the *World Heritage Convention* at its 20<sup>th</sup> Session (UNESCO 2015) <<https://whc.unesco.org/en/sustainabledevelopment/>>



## 6.0 Landscape Conservation Policy

### 6.1 Natural Features

#### 6.1.1 Topography

- **Policy 11: Retain and interpret the geology and existing landform.**

The underlying geology and landform are important factors in shaping the cultural landscape of the KAVHA site. The unusual landform of the KAVHA site, the only coastal plain on Norfolk Island, enabled a landing place not possible elsewhere on the Island where steep cliffs define the land/sea interface. The geology formed raw materials for building. Archaeological investigations have found that the local calcarenite was used during Polynesian settlement as hearth stones (rubble calcarenite) and formed into a marae (massive calcarenite). Local calcarenite was discovered during First Settlement to be a form of limestone that was suitable for building materials and mortar. During Second Settlement, calcarenite was the predominant building material. Both rubble and massive calcarenite were used and lime was manufactured for mortar and render. The influence of these factors on the cultural landscape that subsequently evolved should be interpreted. The landform and other natural resources (water and alluvial soils) provided for food production. These aspects of the landscape should be retained and interpreted.

The existing landform includes remnants of the natural topography and modified landforms. Natural topography includes the lowlands, dunes, swamps, contours of the steep hillsides and gullies, steep cliffs at the west end and visible from Bloody Bridge, the framing reef, lagoon and littoral zones, and Emily Bay and Cemetery Bay. The modified landform includes the reclaimed land along the sea wall and Pier, the quarries, kilns, channels, drains, Watermill Dam, remnants of the former causeway, and the prominent mound (levelled) on which Government House is sited. They are key components in the aesthetic qualities of the landscape. (This policy does not refer to the reintroduced wetland vegetation within the Kingston Common from Pier Street to Chimney Hill.)

Conservation Actions	Priority
Manage and conserve the geology and natural and modified landforms of the KAVHA site, in accordance with Policy 8.1.1 of the HMP.	Ongoing
Avoid changes to the natural topography and modified landform of the KAVHA site's cultural landscape.	Ongoing
Interpret the role of the underlying geology and landform of the KAVHA site in shaping the cultural landscape of the KAVHA site.	Medium term, in association with interpretation and education programs

- **Policy 12: Interpret the First and Second Settlements' clearing of the landscape, for food production and security, and related use of the landform for security and surveillance.**

The design and layout of the Second Settlement took advantage of the natural landform, using and modifying it to reinforce the Penal Settlement's hierarchy and regime of power. The siting of government and military buildings and functions on higher, more visible ground overlooking the Prisoners' Compounds and the land and industrial sites worked by convicts was deliberate and strategic.

Conservation Actions	Priority
Manage the cultural landscape to improve transmission of the values of the design and layout of the KAVHA site.	Short term, ongoing
Interpret the specific and conscientious policy to clear the landscape of native vegetation both for food production during First and Second Settlement and security and surveillance during Second (Penal) Settlement.	Medium term, in association with interpretation and education programs
Carry out specific tree removal projects in accordance with Specific Proposals for Vegetation Management (refer to Appendix A of the CLMP) to reinstate significant visual and spatial relationships and views within the KAVHA site and therefore improve transmission of these heritage values.	Short–medium term

- **Policy 13: Retain and conserve remnant sections of pre-settlement hydrology, creeks, swamps and waterways.**

While the creeks, waterways and swamps that drain through the KAVHA site have been substantially modified since 1788, sections of the natural system and the hydrology of the site may remain, which should be surveyed, conserved and interpreted. They are important as remnant natural features, and serve to anchor understanding of the extent of the system's modifications during successive periods of settlement, in order to increase the land available initially for food production (farms and productive gardens) and now for recreation, events, tourism and grazing.

Conservation Actions	Priority
Survey the natural hydrology of the coastal plain of the Kingston area.	Short term
Use the hydrology survey findings to inform finalisation of specific proposals for site drainage and water quality.	Short–medium term
Interpret the challenge presented by the swampy land behind the coastal dunes of the Kingston area since the first European settlement and the successive attempts to control it.	Medium term

### 6.1.2 Remnant Flora and Fauna

- **Policy 14: Protect, conserve and manage remnant flora and fauna in accordance with their identified natural values and the cultural heritage values on the KAVHA site.**

Some areas and specimens of remnant native vegetation survive within the KAVHA site, despite more than two centuries of settlement activity. This aspect is identified as one of the attributes of the KAVHA site that contributes to its heritage value. Locations of remnant natural vegetation should be identified, recorded and mapped.

Norfolk Island pines are one of a number of species of indigenous vegetation within the KAVHA site. Other naturally occurring species on Norfolk Island would have been present within the KAVHA site, and include the *Lagunaria patersonii*, *Rhopalostylis baueri*, *Cyathea brownii* and *Cyathia australis*, *Nestigis apetala*, *Elaeodendron curtispiculum*, *Baloghia inophyllum*, *Celtis paniculata*, *Planchonella costata*, *Dodonaea viscosa*, and flax *Phormium tenax*. These species should be identified, recorded mapped, and monitored on site.

KAVHA provides valuable habitat for migratory birds and endemic fauna including land snails and a population of rare crustaceans found only on Norfolk Island. These species and important habitat locations should be identified, recorded, mapped and monitored.

Conservation Actions	Priority
Identify, record and map remnant and indigenous vegetation.	Short term
Identify, record, map and monitor endemic fauna and key habitat sites within the KAVHA site.	Short term, ongoing
Ensure mapped data and monitoring records are available in accessible formats. Use this information to inform finalisation of specific proposals for site drainage and water quality, vegetation management, and livestock management projects.	Short term Ongoing, as required

### 6.1.3 Coastal Edges

- **Policy 15: Retain, conserve and interpret the coastal edge for its environmental values, as an important part of the visual setting of the KAVHA site, and for its changing role as a natural and physical barrier between the cultural landscape and the ocean, and point of arrival and departure, during all settlement periods to the present day.**

The coastal edge, including the littoral zone, the reef, and the ocean, provides a natural barrier and interface between the cultural landscape and sea. It made, and continues to make, shipping and landing uniquely challenging; it assisted in containing convicts within the site. The coastal sea wall along the seafront is identified as a significant landscape feature from Second Settlement, which provides a physical barrier that protects important site elements such as the Second Settlement Prison. The natural values of, and life within, the coastal and littoral zones also have listed natural values.

Conservation Actions	Priority
Retain, conserve and interpret the environmental and cultural values of the marine environment, littoral zone and coastal edge in accordance with Policy 8.1.1 of the HMP.	Ongoing
Ensure listed environmental values of the coastal edge and marine environment are sustained in keeping with their values, and that conservation of the KAVHA site's cultural landscape seeks to avoid or minimise natural heritage impacts.	As required

## 6.2 Cultural Landscape

### 6.2.1 Settlement Patterns

- **Policy 16: Recognise and manage the significant cultural landscape of the KAVHA site to the edges of the KAVHA site boundary. This includes the lower-lying coastal plain of the Kingston area, Arthur's Vale and the surrounding hills and cliffs which provide the backdrop, setting and visual catchment.**

Currently, there is no strong sense of having entered the Kingston and Arthur's Vale Historic Area, until arrival at the lower-lying land of Arthur's Vale, the Kingston area, or Quality Row. Directional signage that marks arrival at the historic site is located on two of the four access routes into KAVHA: on Taylors Road, at the intersection of Country and Taylors roads near the Watermill Dam; and another on Driver Christian Road at Bloody Bridge. These locations are well within the KAVHA site. Yet the hills to the north and west of the coastal plain of the Kingston area and Arthur's Vale, right to the edges of the KAVHA boundary, form an important part of the KAVHA site, its setting and visual catchment. The wider landscape also provides the setting to important views across the cultural landscape.

Conservation Actions	Priority
Conserve and manage all land within the KAVHA site boundary to transmit the heritage values of the cultural landscape.	Ongoing
Develop landscape guidelines for managing the cultural landscape of the road corridors within the KAVHA site. (Refer to Policy 41 in this CLMP.) The landscape guidelines should establish a coordinated approach to landscape treatments—signage, fences and driveway entries to private property, views and vistas, through the corridors of all approach roads—that uses a consistent palette of materials.	Short term
Avoid implementation of ad hoc and un-coordinated landscape elements, infrastructure and signage throughout the KAVHA site which are not in keeping with the values, integrity and landscape character of the KAVHA site and which do not enhance transmission of values.	Ongoing

• **Policy 17: Conserve and maintain the design and layout of the KAVHA site.**

During the Second Settlement ‘establishment period’ (1828–1839) land clearing continued, the major buildings were erected, sites of industry and food production established, and pathways and routes formed between them. These pathways became the major circulation routes, and the rectangular pattern of the Kingston layout from Second Settlement survives to a high degree of integrity into the present day.

Conservation Actions	Priority
Conserve and maintain the historic layout of the KAVHA site. This applies to the siting of buildings, standing structures and ruins, the areas of cleared land for agriculture, the hilly rural land and forested areas, and the major circulation routes.	Ongoing

• **Policy 18: Avoid new buildings and permanent structures within the low-lying coastal plain of the Kingston area and Arthur’s Vale.**

New buildings and permanent structures within the low-lying coastal plain of the Kingston area and Arthur’s Vale are not appropriate and should be avoided. This includes new buildings or works to accommodate compatible uses, such as interpretation of the KAVHA site and a facility for visitor orientation.

New buildings or works and associated infrastructure to accommodate visitor orientation within the hills surrounding the broader KAVHA site may be considered, only where sited and designed to avoid adverse visual and physical impacts on the visual qualities of the KAVHA site and its setting. Any new visitor orientation centre and associated parking should not be visible from the low-lying land of the Kingston area or key viewing points. The topography of the hills, appropriate screening vegetation, design and siting should be utilised to avoid adverse visual impacts.

Conservation Actions	Priority
Ensure actions are consistent with Policy 8.6.3 in the HMP.	As required
Refer proposals for new development to the Department of Environment for assessment.	As required

Conservation Actions	Priority
Identify buildings and structures that are currently not used or underutilised and which could be sensitively adaptively re-used to accommodate compatible uses, in accordance with HMP Policy 8.6.4. Currently this could include the single and double boat sheds in the Pier area, No. 11 Quality Row, and the Old Military Barracks.  Compatible uses include significant traditional and community uses, uses for interpretation of the KAVHA site, and provision of visitor services.	Short term
Investigate the feasibility of temporary 'structures' that could provide additional visitor services during peak times, such as a 'pop-up' café or coffee carts with outdoor removable seating/umbrellas, in the Pier area (in the forecourt of the double boat shed), and/or at Emily Bay in association with special events.	Short term, within 12 months

## 6.2.2 Creeks, Canals and Drains, and Bridges

- **Policy 19: Conserve and manage creeks, channels and drains, culverts and bridges, from pre-settlement through to the present day, to improve transmission of their values.**

These features are significant artefacts of natural and cultural forces. Dating from First (Colonial), Second (Penal) and Third (Pitcairn) settlements, the canals and drains are identified as elements of infrastructure that are integral to the fabric and structure of the place. They provide evidence of more than two centuries of attempts to control water movement and retention in creeks and swamps in Arthur's Vale and the Kingston lowland area, many undertaken using manual labour, and using different engineering solutions and infrastructure.

The difficulty of achieving an appropriate balance between cultural heritage values, environmental values, and public health concerns is acknowledged and is one of the challenges of this CLMP.

Conservation Actions	Priority
Conserve and maintain creeks, channels and drains, culverts and bridges throughout Kingston and Arthur's Vale to improve transmission of their values.	Short term, ongoing
Ensure comprehensive and integrated investigations into the whole drainage system (catchment-wide), and development of specific proposals to resolve site drainage and water quality issues in accordance with the Water Management Principles in Appendix A of this CLMP.	Short term, ongoing
Investigate and interpret the pre-settlement hydrology of the site and the creek and swamp drainage system.  Use the investigations to inform finalisation of specific proposals for site drainage and water quality (refer to Appendix A in this CLMP).  A complete return to pre-settlement hydrology and site drainage would not be appropriate. However, use of the pre-settlement swamp drainage system as a model or strategy for underground water holding and/or filtration, as part of resolving site drainage and water quality issues, would be appropriate where there are no archaeological impacts or adverse physical or visual impacts.	Short term
Restore the Serpentine as a significant Second Settlement picturesque landscape element.  Investigate options for re-integrating the Serpentine into a healthy functioning drainage system. Where it is not possible for the Serpentine to contribute to such a system, it should be retained as a landscape feature and interpreted.  Base restoration of the Serpentine on archival or archaeological evidence.	In association with specific projects for site drainage and water quality
Consider closing more recent sections of the channel and drain system (post c1940) if needed to improve drainage and water quality. They should be recorded and interpreted.	In association with specific projects for site drainage and water quality

Conservation Actions	Priority
Ensure proposals for resolving site drainage and water quality issues consider and respect pre-settlement natural drainage patterns and modified post-settlement infrastructure and alignments.	As required
Undertake regular cyclic maintenance of creeks, channels and drains and the vegetation at their edges.	Ongoing
Remove and manage reeds on Kingston Common.	Short term (commencement)
Remove weeds along creeklines.	Ongoing (staged)
Revegetate creeks to enhance ecological diversity and water quality. Revegetate Watermill Creek and the drainage channels in Kingston Common to improve water quality. Ensure vegetation is not invasive, will not escalate, and will enhance transmission of values. Introduction of indigenous wetland vegetation should only be considered to the extent that the historic alignment of the channel and drain system remains legible in the landscape, and should only occur where there are adequate resources to undertake regular maintenance.	Medium term

### 6.2.3 Roads, Pathways and Bridges

- **Policy 20: Conserve and maintain the existing road and pathway layout within the KAVHA site.**

The existing road and pathway layout, largely established during the Second Settlement period, survives with a high degree of integrity. This layout has shaped the way people have moved through the site from Second Settlement into the present day, and it should be conserved and maintained. The road surface fabric is not significant and may be upgraded to enhance visitor access and circulation. Road and pathway widening are not appropriate, unless there is archaeological evidence that an early road was originally wider. Differentiated vehicle and pedestrian zones within existing road corridors should occur within existing roadway footprints. Any modifications to the road layout should be based on archaeological or archival evidence.

Conservation Actions	Priority
Avoid widening roads and pathways beyond existing footprints. Road and path layouts and widths should be informed by archaeological and archival evidence.	Ongoing
Retain soft road edges to approach roads and roads within the Kingston and Arthur's Vale areas, Pier Street, Bay Street, Bounty Street, Bligh Street, the south side of Quality Row.	Ongoing
Avoid introduction of new roads and pathways within the cultural landscape of the KAVHA site.	Ongoing

- **Policy 21: Restore and interpret the alignment of former routes and pathways.**

Some historic routes and pathways within the KAVHA site are no longer in regular use. Some exist as remnants and are only partially visible as traces in the landscape or in archival sources. Others might be revealed through archaeological investigations. These historic routes have the potential to provide a more thorough understanding of historic circulation patterns within and movements into and out of the KAVHA site and how the site functioned.



Conservation Actions	Priority
Use former routes and pathways as the basis for interpretive walks and trails.	Short term; in association with development of new interpretive trails
Restore and interpret the remnant sections of the former road to Longridge and Mill Road. Remove spontaneous tree growth and other woody vegetation from the remnant section of the former road to Longridge.	Short term Short term
Retain and interpret the remnant of the causeway at the Cemetery Bay edge of the Golf Course.	Short term
Interpret the extension of Bligh Street and pathways from Government House grounds and crossings over the former Serpentine and other drainage channels, using differential mowing. Base mown alignments on archival and archaeological evidence.	Short term
Interpret the short-lived Serpentine landscape design developed under Anderson in 1834–1839 in interpretive media.	Short–medium term
Investigate former convict roads and causeways on private property (for example, on land that correlates with Lot 68 allocated to Samuel Hussey on the 1796 Settlers' Lots plan).	Medium term

The historic route located between the Crankmill and the Old Surgeons Quarters should be closed to general traffic. Foot traffic should be permitted. Use of this route by vehicles should only be permitted for specifically defined purposes, such as deliveries, universal access, site maintenance, or in peak times (ship loading/unloading).

- **Policy 22: Maintain the curves and ‘country lane aspect’ of the approach roads.**

The curved roads, grassed verges, and soft road edges of approach roads contribute to the rural landscape character of the wider setting of KAVHA and its distinctive sense of place.

Conservation Actions	Priority
Retain and enhance the landscape character of the curved roads, grassed verges, and soft road edges of the approach roads into Kingston and Arthur's Vale.	Ongoing
Develop an approach to signage on approach roads that is consistent and complementary across the whole KAVHA site. (Refer to policy in Section 6.8 of this CLMP.) Carefully design site signage on approach roads to ensure signage needs are met but also maintain consistency with the visual qualities of the signs' setting.	Medium term
Keep signage for road safety to a minimum, but in accordance with essential safety requirements and standards.	Medium term: review and revise road safety signage after introduction of visually unobtrusive methods of improving road safety
Introduce visually unobtrusive methods for reducing vehicle speed (ground surface textures, speed limits) to improve safety.	Short term

- **Policy 23: Conserve and maintain all bridges and crossovers throughout the KAVHA site, including the Pier Street Bridge, Bloody Bridge, and crossovers within the Serpentine landscape.**

The bridges and crossovers in the KAVHA site are important elements of infrastructure, integral to the historic fabric and for understanding early circulation patterns and functions.

The expanding wetland vegetation and soil saturation on Kingston Common is causing harm to the physical fabric and levels of the Bounty Street Bridge. The bridge has sunken at the northern end. The expanse of waterlogged land and area colonised by unmanaged reeds far exceeds the width of the channel. The bridge now requires substantial restoration works. Recent recommendations for use of the Bounty Street Bridge have included limits placed on traffic type and speed. These restrictions have been implemented. This approach to protecting the fabric of the bridge is appropriate and should continue. Restoration of the Bounty Street Bridge should occur as a priority.

Conservation Actions	Priority
Conserve and manage bridges and crossovers within the KAVHA site to ensure significant fabric is protected and to improve transmission of their values. They should be conserved in accordance with HMP Policy 8.2.	Ongoing
Avoid introduction of additional bridges, roads, footpaths, and related infrastructure.	Ongoing
Restore channel and flow beneath Bounty Bridge. Ensure restoration works are integrated into projects for resolving site drainage, water quality and weed management issues on Kingston Common.	Short–medium term
Undertake measures to remedy soil saturation around footing of the bridges on Kingston Common.	Short term (Bounty Bridge) Medium term (Pier Street bridge)

#### 6.2.4 Built Elements in the Landscape

- **Policy 24: Conserve and maintain the walls, buildings, ruins and standing structures in the landscape so that they contribute to transmission of the heritage values of the KAVHA site's cultural landscape.**

Stone walls, retaining walls, buildings, standing structures and ruins are part of the cultural landscape and they play an important role in transmitting the heritage values of the KAVHA site. Their appearance in the landscape has implications on how they are 'read' and how they demonstrate different building techniques, use of local materials, different phases of settlement and different types of construction.

The uniformity of paint finishes (currently a single colour palette using unsuitable acrylic paint) and cement render to buildings across the KAVHA site currently reduces and obscures the ability to 'read' the different historical layers of development which transmit the values of the KAVHA site as an evolved and relic landscape. The uniform paint finishes and cement render also conceal original fabric and the historic, 'hand-made' characteristics of each building. These issues are well documented in the Purcell Condition & Conservation Report (2017) and in the report by D. Ellsmore, Investigation of Paint Finishes (2011).

Conservation Actions	Priority
Adopt and commence implementation of the recommendations in the Kingston & Arthur's Vale Historic Area, Norfolk Island: Condition & Conservation Report (Purcell, 2017).	Short term; within 12 months
Develop a strategic conservation maintenance program, guided by a clear policy of best practice conservation and consistent with the framework set by the KAVHA Heritage Management Plan 2016 (in particular HMP Policy 8.3) for the planning of maintenance and capital works.	Short term; within 24 months

Conservation Actions	Priority
Investigate the feasibility of replacing uniform paint finishes to individual buildings with a more appropriate lime-based finish. In accordance with the conclusions of the Purcell report (2017) and the report by D. Ellsmore (2011), coatings and finishes to building fabric should be lime-based, to improve the integrity and long-term condition of fabric, and improve the authenticity and presentation of the buildings.	Short term; within 12 months Ongoing
Carry out future works to buildings in lime-based materials	As required
Cease the use of acrylic paints in maintenance and conservation works to historic buildings and structures.	Short term; within 12 months
Engage appropriate expertise for conservation works.	Ongoing
Adopt the principles outlined in the Purcell report for historic building conservation, for the materials and presentation of other built structures in the landscape, including walls, paths, and fences, that were constructed using local materials and techniques.	Short term; within 12 months

### 6.2.5 Vegetation Management

General policies for conservation and management of significant vegetation, views and visual relationships, and the visual setting and aesthetic values of the KAVHA site's cultural landscape, are included in Section 5.0 of this CLMP.

The conservation actions that follow provide guidance for future management, conservation and transmission of the heritage values of the KAVHA site's cultural landscape in relation to different aspects of vegetation management:

- significant vegetation;
- tree removal;
- replacement of significant vegetation;
- vegetation on privately-held land;
- public gardens;
- grass, pasture and lawn; and
- weed management.

- **Policy 25: Significant Vegetation.**

Conservation Actions	Priority
Retain and conserve mature Norfolk Island pines ( <i>Araucaria heterophylla</i> ) and white oaks ( <i>Lagunaria patersonii</i> ) that date from pre-European settlement or First and Second Settlement periods, and commemorative plantings with local Norfolk Island community values.  Significant trees and commemorative and memorial plantings should be regularly maintained, conserved and managed to extend their safe and useful life expectancy (SULE), in accordance with Policy 5 of this CLMP.	Ongoing

Conservation Actions	Priority
Establish clear understanding among all land managers (through consultation and briefing sessions) of the requirements, obligations and approvals processes associated with vegetation management within the KAVHA site, to ensure that heritage values are understood and protected.	Short term, as required
Establish regular funding and dedicated staff resources with the right skill set and clear understanding of objectives and requirements for managing the values of the World Heritage site.	Short term, ongoing
Avoid introduction of commemorative and memorial plantings within the KAVHA site.	Ongoing

- Policy 26: Tree Removal.**

Conservation Actions	Priority
Remove trees that are causing harm to the physical fabric of significant built and landscape elements, including walls.	Short term
Integrate advice from a structural engineer and arborist prior to tree removal, to ensure appropriate measures are in place to protect the structural integrity of significant built and landscape elements during and after tree removal. Consider also the implications of tree removal on changes in wind patterns and soil moisture.	As required
Implement measures to mitigate adverse impacts from tree removal.	As required
Remove trees that pose risks to significant buildings, built fabric, archaeology, or people.	As required
Implement recommendations for tree removal in the 'Vegetation Management' section of this CLMP (Appendix A).	Short-medium term

- Policy 27: Replacement of Significant Vegetation.**

Conservation Actions	Priority
Replace trees that are significant for their design, historic or aesthetic values, or as landmark plantings when they become senescent or die.	As required
Propagate replacement trees from seed.	Short term
Plant replacement trees in a location as close as possible to the original, while ensuring optimal soil and environmental conditions for proper establishment and growth.	As required
Propagate replacement plantings from seed or cuttings (as appropriate) of individually significant trees (for example the Lone Pine on Point Hunter and Norfolk Island pines dating from First and Second Settlement).	Short term
Photographically record individually significant trees.	Short term
Remove and replace individually significant trees when they become senescent or unsafe.	As required
Establish a dedicated nursery facility for propagation of high quality and historically appropriate garden plants for Government House grounds and Quality Row Houses gardens, and propagation of genetically consistent plants to replace significant trees and shrubs.	Medium term
Establish ongoing resources to support the nursery facility.	Medium term, ongoing
Maintain existing significant memorial trees. Consistent with the HMP, no new planted memorial avenues or individual trees will be planted on the KAVHA site. (See HMP Policy 8.2.5) Memorial plantings include the row of Norfolk Island pines planted in association with the War Memorial (Cenotaph) along the east side of Pier Street, and the Norfolk Island pines marking the location of the first burial ground at Emily Bay.	Ongoing

Conservation Actions	Priority
Do not replace memorial trees when they are senescent or dead. (See HMP Policy 8.2.5)	As required
Do not replace commemorative tree plantings where the planting is intrusive and not consistent with the identified values of the cultural landscape.	As required
Explore alternative commemorative approaches to large tree plantings or monuments, such as a formal register maintained by KAVHA and/or the NIRC that can be viewed by the public. Commemorative tree plantings include the Norfolk Island pine plantation on Middlegate Road to commemorate self-governance in 1979; the row of 100 Norfolk Island pine trees planted to commemorate the 100 <sup>th</sup> birthday of Aunty Jemima; and the pair of Norfolk Island pines planted in the Government House grounds in 1988 by Governor-General Sir Ninian Stephen to commemorate the bicentenary of European settlement of Norfolk Island.	As required

• **Policy 28: Vegetation on Privately-held Land.**

Conservation Actions	Priority
Consult with, encourage and support private landholders in managing erosion, weeds, and pine plantations on their land.	Short term (for consultation), ongoing
Develop specific strategies for engaging with and supporting landholders in managing vegetation on their land to ensure the setting of the KAVHA site's cultural landscape is protected and enhanced. Strategies should address vegetation and weed management, enhancement of the visual setting, filtering or screening elements, removal of intrusive elements, landscape design, and sensitive design and siting of new structures.	Medium term
Reduce the dominance of Norfolk Island pines within the KAVHA site in accordance with the specific proposals for Norfolk Island pine plantations on private land in this CLMP (Appendix A).	Medium term, ongoing

• **Policy 29: Public Gardens.**

Conservation Actions	Priority
Conserve and manage the gardens and grounds at Government House and the Quality Row houses in accordance with the policy in the HMP (refer to HMP Policy 8.2.6).	Short term, ongoing
Implement the recommendations of the 2017 Inspiring Place report, Landscape and Garden Maintenance Advice: Government House Grounds, Norfolk Island (2017), subject to the commentary in Table 4.2 of this CLMP.	Short-medium term
Review and update the conservation plan for the gardens of the Quality Row houses. Ensure the plan addresses evidence-based reconstruction of pathways (layout and historically appropriate fabric). Ensure the plan includes a list of appropriate plant species. In accordance with the HMP, significant senescent garden plants will be replaced with the same or similar species, where practical. Ensure the plan includes selection criteria for appropriate plants of similar species, where the same species is not practical. Appropriate replacement species would: <ul style="list-style-type: none"> <li>• have comparable aesthetic characteristics (size, form, habit, foliage colour and texture, and floral features, as relevant);</li> <li>• have interpretive potential (historically appropriate food plants, for example); and</li> <li>• be sustainable (plants suited to environment, soil, climate and microclimate, and without biosecurity risks).</li> </ul>	Medium term
Establish a plant cutting system or nursery to ensure adequate supply of high quality and historically appropriate plant material.	Medium term



**Policy 30: Grass, Pasture and Lawn.**

A hierarchy of differential mowing regimes should be developed and implemented for areas of open space with grass throughout the low-lying areas of KAVHA to achieve mixed landscape characters, on a continuum of productive land/grazed pasture being most desirable, and highly manicured lawn to the standard of a golf course fairway least desirable. Areas that were historically used as ornamental gardens or parklands should have a noticeably different treatment to areas historically used for food production, grazing and industry. Highly trafficked areas may require a grass or gravel surface of a higher maintenance standard to withstand more intense usage.

Conservation Actions	Priority
Reduce the prominence of lawn, including large areas of mechanically mown and manicured grass.	Short term, ongoing
Establish differential mowing regimes to: <ul style="list-style-type: none"> <li>• reduce the predominance of mown and manicured lawn throughout the KAVHA site;</li> <li>• interpret early pathways and routes;</li> <li>• counter the effects on landscape character by the proposed action to exclude livestock from part of the Kingston Common (between Pier and Bounty Streets); and</li> <li>• balance the large area of the Golf Course (highly manicured greens), which does not contribute to transmission of the values of the KAVHA site's cultural landscape.</li> </ul>	Short term
Amend the Lawn Mowing Schedule in the Service Delivery Agreement (Schedule 1, Attachment D) to take account of revised mowing regimes.	Short term
Introduce differential mowing of former pathways, including from Government House across the Serpentine landscape, to transmit the values of these former circulation patterns and provide a historical context for the existing crossovers.	Short term
Investigate introduction of other agricultural patterns (field boundaries) or uses to interpret former productive gardens and the history of self-sufficiency.	Short term, ongoing

- Policy 31: Weed Management.**

Conservation Actions	Priority
Develop and implement an integrated, best practice weed management (eradication, control, ongoing management, prevention) strategy for all land within the KAVHA site Work with the Norfolk Island Regional Council in the development of such a strategy. The strategy should meet current standards for weed management. The weed management plan should include clear guidance on methods for eradication and control of weeds across the site. Ensure the strategy is consistent with relevant legislation, including the Norfolk Island <i>Noxious Weeds Act 1916</i> , and the NSW Department of Primary Industries' <i>Noxious Weeds Act 1993</i> .	Short term, ongoing
Ensure all land managers, KAVHA works staff, and landowners have a working familiarity of the objectives and content of the weed management strategy.	Short term, ongoing
Ensure adequate funding and staff resources for weed prevention, early detection and eradication, control, and ongoing maintenance.	Short term, ongoing
Self-sown Norfolk Island pines should be actively removed as seedlings or juvenile trees, before they grow into large, mature trees that are difficult to manage and costly to remove.	As required, ongoing

## 6.3 Land Use

- Policy 32: Maintain and encourage the continuing uses of specific areas within KAVHA.**

Continuing use of the Cemetery as a burial ground, All Saints Church for religious worship and spiritual practices, and the Pier for fishing, lighterage, and associated maritime activities are key components of their significance and these uses should be retained.

Conservation Actions	Priority
Encourage and support continued use of the Cemetery as a burial ground, and the All Saints Church for religious worship and spiritual practices.	Ongoing
Conserve and maintain the continuing use of the Pier area as a working seafront and functional pier serving multiple island requirements, including cargo, fishing, lighterage, associated maritime activities, recreation and tourism.	Ongoing
Monitor the physical condition and capacity of the Pier to sustain continued use. Input from a qualified engineer with experience with pier structures would be required.	Routinely
Avoid additional jetties or pier structures in the waterfront area of the KAVHA site.	Ongoing
Retain and interpret the cultural importance and visual focus of the Pier to the community and visitors.	Ongoing

- **Policy 33: Maintain the use of KAVHA for traditional, continuing and contemporary cultural practices by the Norfolk Island community.**

Continue to allow access to the coastal areas of the site for passive recreation, swimming, water sports, fishing, bird watching, and contemporary cultural and social events. Recreation opportunities for the local Norfolk Island community should be supported where they do not adversely impact upon environmental (natural and historic) values or areas of archaeological sensitivity.

Conservation Actions	Priority
Encourage and support living cultural traditions and community connections in accordance with the HMP Policy 8.5.	Ongoing
Encourage and support continued access to the KAVHA site for passive recreation, swimming, water sports, fishing, camping, bird watching, and contemporary cultural and social events by the local Norfolk Island community, where these activities do not have adverse impacts on environmental or other values and in accordance with HMP Policy 8.5.	Ongoing

- **Policy 34: Conserve and maintain the use of the KAVHA site's cultural landscape as a productive landscape that supports primary production, including agricultural activities and grazing.**

Grazing of livestock on common land within KAVHA contributes to transmission of the site's long history of supporting primary production and self-sufficiency. It also makes a positive contribution to the landscape character through the 'grazed' appearance of the pasture. However, cattle grazing also has potential to harm significant building fabric and ruins, archaeological resources and gardens. Livestock also contribute negative impacts through erosion of steep hillsides and road verges, potential spread of weeds, and pollution of waterways, which has broader environmental and public health implications.

It is recognised that grazing on Norfolk Island is a significant part of local heritage and traditions, and a primary industry for Norfolk Island, and that it represents continuity of self-sufficiency on the Island. It is also recognised that continuing the tradition of grazing livestock on common land is not the sole responsibility of the KAVHA site, but an island-wide concern. Management of cattle within KAVHA needs to be considered within that wider framework.

There is currently little clearly visible evidence of agricultural activity within KAVHA, with the possible exception of some food plants in the gardens of the Quality Row houses and Government House.

Conservation Actions	Priority
Ensure sustainable grazing practices within the KAVHA site so that negative impacts on physical fabric, archaeological resources, water quality, and public health, weed movement, and erosion are avoided.	Short term, ongoing
Adopt an integrated approach to livestock management within a broader perspective of conserving heritage values and traditions and protecting environmental values and public health.	Short term, ongoing
Control quotas and movement of cattle on public land within KAVHA, in accordance with specific proposals outlined in Appendix A of the CLMP.	Short–medium term
Implement measures to control the movement of livestock and to exclude livestock from creeks and waterways within the KAVHA site, for conservation of cultural values and for environmental and public health benefits. (Refer to Appendix A of the CLMP.)	Short term
Encourage sustainable practices for primary production, including for grazing and potential future agricultural activities, where adverse physical impacts are avoided.	As required

- **Policy 35: Maintain the use of the KAVHA site for a range of community, government, spiritual, recreational, residential, landscape management and conservation purposes and special events by local people, workers, tourists, visitors and residents.**

Conservation Actions	Priority
Manage use of the KAVHA cultural landscape for tourism in accordance with the policy in the HMP (refer to Policy 8.7).	As required

## 6.4 Archaeology

- **Policy 36: Recognise and manage for the archaeological sensitivity of the cultural landscape.**

The archaeological resources of the KAVHA site include relics, ruins and standing structures, as well as subsurface deposits and artefacts, from the Polynesian, First and Second Settlement periods and the Pitcairn Settlement. The location of these resources in the landscape needs to be clearly understood and communicated so they can be protected and conserved in accordance with the policy in the KAVHA HMP 2016 (see Policy 8.4.1 Conservation of the Resource).

The capacity of the archaeological resources to contribute to understanding of the site and provide a key evidence base for decision-making is well recognised in the KAVHA HMP 2016, in particular in the recommended action that ‘an integrated Archaeological Zoning Plan ... be prepared for the KAVHA site’ (Policy 8.4.1). The Archaeological Zoning Plan would clearly define areas of sensitivity and determine the degrees of vulnerability.

Conservation Actions	Priority
Prepare the integrated Archaeological Zoning Plan for the whole KAVHA site (public and private land), in accordance with HMP Policy 8.4.1.	Short term
Use the Archaeological Zoning Plan to inform future site works, management, maintenance and new development, including for resolution of cultural landscape issues such as site drainage, vehicle and pedestrian access, parking, vegetation management, and livestock management.	Short–medium term, ongoing

Conservation Actions	Priority
Develop and implement procedures for conserving, managing and interpreting archaeological resources and ruins in the landscape in accordance with current best practice, including the principles and approach in <i>Ruins: A guide to conservation and management</i> (KAVHA HMP 2016, Policy 8.3.4 Ruins). <sup>1</sup>	Short–medium term, ongoing
Site, design and manage new development, works and maintenance activities to avoid or minimise adverse impacts on archaeological resources.	As required

Physical damage, erosion and compaction can occur from consistent patterns of driving and parking. Archaeological resources are less vulnerable to physical impact from grazing, unless ruins are exposed or the ground around the ruins becomes very wet. Mounds or exposed archaeological ruins that are evident in the landscape are likely to be of higher vulnerability to physical damage, erosion and compaction of the archaeological resource.

Conservation Actions	Priority
Discourage and avoid parking and driving over areas of potential archaeological sensitivity and over known archaeological resources.	Ongoing
Avoid grazing around ruins where they are exposed or when the ground becomes very wet from heavy rain or flooding.	As required
Review and revise the practice of capping ruins in the landscape as a means of protecting them (following 1960s specifications), in terms of current best practice.  Capped ruins were not assessed in the recent Purcell report. However, in relation to cementitious renders on walls dating from 1962 specifications, the Purcell report recommends such areas 'be left to take their course of deterioration', as there are no practical ways to remove these contemporary coatings without significant impact on original fabric. <sup>2</sup>	Short–medium term
Avoid parking and driving over areas of potential archaeological sensitivity and areas where there are known archaeological resources.  Notwithstanding the potential for physical impacts from driving, parking and grazing over archaeological resources, parked cars, trucks and buses are visually intrusive and reduce the ability of those areas to transmit their cultural heritage values.	Short term, ongoing

- **Policy 37: Ensure detailed and accessible survey data exists for the archaeology of the entire KAVHA site.**

Detail survey work was undertaken for the KAVHA site in 2015. This work included bringing existing archaeological data from the 1980/83 *Archaeological Survey* into a digital format (GIS referenced), presumably so the 1980/83 archaeological data could be integrated into the digital detail survey. (The 1980/83 *Archaeological Survey* of KAVHA by Wilson and Davies is noted in the HMP 2016 as a key operational and reference document for the KAVHA site.) The 2015 work also included production of an interactive Digital Elevation Model (DEM). The electronic formats of the GIS referenced archaeological data and the interactive DEM are not currently accessible, limiting the value of these interactive digital resources for management and planning. Robert Varman also carried out a survey of the KAVHA site in 1984, but the work is not readily accessible.

Conservation Actions	Priority
Create readily accessible versions of the GIS referenced archaeological data for the Kingston lowlands area, for example as CAD information layers and as PDF and jpeg files.	Short term
Create readily accessible versions of the Digital Elevation Model (for example, PDF or jpeg files).	Short term

Conservation Actions	Priority
Review, update and integrate existing archaeological and landscape survey data into the 'integrated Archaeological Zoning Plan' in accordance with HMP policy 8.4.1.	Short term
Undertake a detail survey and high-resolution aerial imagery of the hills surrounding the Kingston lowlands area, which are also part of the KAVHA site but which were not included in the 2015 survey work. The detail survey should also include data capture of archaeological features on private land.	Medium term

## 6.5 Cultural Landscape Interpretation

- **Policy 38: Ensure all the stories and meanings of the cultural landscape of KAVHA and its land use, physical manipulation and exploitation since Polynesian and European settlement, are transmitted.**

It is recognised that there is a need to represent a broader range of stories in interpretation at the KAVHA site 'to ensure that the layered and living history of the site (including Pitcairn and Polynesian history and heritage)' is transmitted (Policy 8.8.2, HMP).

It is also recognised that the picturesque landscape and bucolic pastoral landscape character are dominant landscape themes transmitted by the cultural landscape of the KAVHA site and that, as a result, themes of food harvesting, food production, industry (maritime, quarrying, lumber), punishment, incarceration, harsh labour, and power and surveillance are not well transmitted.

Conservation Actions	Priority
Investigate ways the cultural landscape could improve transmission of significant layered and living land use history across the KAVHA site.	Medium term, ongoing
In accordance with HMP Policy 8.8.2, review and update the KAVHA Interpretation Strategy to align with the HMP, and expand it to become a project-based Interpretation Plan.	Short–medium term
Include themes of food production, industry, punishment, incarceration, harsh labour, and power in the broader range of stories to be interpreted at the KAVHA site, to ensure the themes not well represented at the site are transmitted.	Medium, in conjunction with development of KAVHA Interpretation Strategy
Investigate opportunities for conservation and management of the cultural landscape that improves transmission of under-represented stories and themes.	Medium term
Ensure interpretation, tours and visitor experiences are designed to provide for a range of experiences and different mobility needs and preferences. (Refer to HMP Policy 8.8.2.)	Medium, in conjunction with development of project-based Interpretation Plan
Site interpretive signage to avoid adverse visual and physical impacts on the setting, views and appreciation of the KAVHA site's cultural landscape.	As required
Consider interpretation of Second Settlement productive gardens through introduction of fencing to interpret historical field boundaries, in accordance with Policy 8.2.2 of the HMP.  Alignment and definition of field boundaries, and appropriate fabric for interpreting historic field boundaries, should be based on documentary or archaeological evidence. Appropriate fabric for defining edges and boundaries could include low growing, non-weedy vegetation. Use of Norfolk Island pines for defining such boundaries is not appropriate and should be avoided.	Medium–long term
Investigate the feasibility of reconstructing productive gardens, ensuring best-practice implementation and ongoing sustainable management.	Long term—future



## 6.6 Reconstruction

- **Policy 39: Adopt a precautionary approach to reconstruction of landscape elements.**

Reconstruction and restoration of specific landscape elements (walls, fences, paths, structural plantings, drains and channels, gardens, for example) may occur within some areas of the KAVHA site, providing:

- reconstruction is based on documentary, physical or archaeological evidence about location, design, construction method and species or materials;
- proposed new elements are consistent with the conservation and meaning of surrounding elements and fabric; and
- reconstruction would improve and enhance the ability of the landscape to transmit a greater diversity of significant land use themes.

Conservation Actions	Priority
In accordance with HMP Policy 8.3.4, consider reconstruction and restoration of ruins where 'essential for physical conservation or approved interpretive programs'.	Medium–long term

## 6.7 Parking

- **Policy 40: Ensure adverse visual and physical impacts from vehicles within KAVHA are avoided.**

The visual bulk of vehicles within the Kingston area of KAVHA should be significantly reduced to minimise adverse visual and physical impacts on the cultural landscape of the KAVHA site and transmission of its values.

It is recognised that exceptional arrangements for parking need to be considered for special commemorative days or events. Parking on such days should avoid adverse physical impacts on significant fabric and landscape features, including buildings, standing structures, ruins, archaeological remains and plantings.

Parking for extended periods on the site, including at the first Landing Place, outside museums, near the Prisoners' Compounds, by tour buses and staff should not be permitted. Tour buses should drop off visitors, picnickers and equipment at the site, and move away to a designated waiting area.

Conservation Actions	Priority
Demarcate dedicated parking areas within the KAVHA site where physical impacts can be avoided and visual impacts are minimised.	Short term
Upgrade existing small parking areas. Appropriate surfacing would be a stabilised gravel surface, granitic sand (no asphalt), potentially stabilised with a 5% lime or cement component. Reinforced gravel or grass surfacing may be appropriate in some areas, depending on archaeological sensitivity.	Short term
Build up over ruins where necessary to avoid damage, compaction or erosion.	Short–medium term
Install barriers/bollards to protect significant building fabric, ruins, and areas of archaeological sensitivity.	Short term
Discourage expedient parking practices within the KAVHA site.	Short term, ongoing

Conservation Actions	Priority
Encourage active travel where possible, including for workers and tourists.	Short term, ongoing
Permit parking by local community for continuation of traditional uses within clearly defined, designated areas.	Short term, ongoing
Establish a shuttle service within the Kingston and Arthur's Vale areas, as an alternative to the tag-along tours. Site designated drop-off/pick-up areas within the KAVHA site where adverse visual and physical impacts are minimised.	Short term
Investigate options for staff, visitor and tour bus parking and waiting areas that are outside the low-lying coastal plain of the Kingston area and Arthur's Vale, and where physical and visual impacts and key views are avoided. Land within Precinct E set below the ridgelines may be appropriate.	Medium term
Purchase land (within Precinct E, low-lying site, below the ridgelines) for carparking for visitors, tour buses, and staff, and with adequate space for a potential visitor orientation facility.	Long term
Develop a carpark for visitors, tour buses (waiting area) and staff that is outside of and not visible from the low-lying coastal plain of the Kingston area and Arthur's Vale. (Land within Precinct E set below the ridgelines may be appropriate.)	Long term
Establish a dedicated shuttle service linking the carpark to the Kingston area of the KAVHA site.	Long term

## 6.8 New Landscape Elements and Site Furniture

- **Policy 41: Develop and maintain a consistent and coordinated approach to new landscape elements that is in keeping with and enhances transmission of the heritage values of the cultural landscape.**

New landscape elements and infrastructure should be designed to respect and enhance the integrity and landscape character of the KAVHA site's cultural landscape. They should be:

- respectful of the significance of the KAVHA site and its attributes, and introduced only where there is a genuine and proven public or organisational need;
- sited to avoid adverse visual and physical impacts on cultural and natural heritage values, including views and vistas, landscape character, historic buildings and their settings, and archaeological resources;
- made using modern materials and techniques to clearly distinguish new elements from authentic original fabric or remnant or original landscape elements;
- detailed with care and design excellence, using non-reflective materials;
- of sustainable ongoing maintenance demand;
- made of robust and durable materials best suited to withstand impacts from the marine environment; and
- removable.

- **Policy 42: Memorials**

In exceptional circumstances, new memorials may be considered appropriate, in which case, they could be sensitively integrated into the site, provided they don't impact on the heritage values. Siting and design are important and should be undertaken in a manner that is complementary with the landscape character of the KAVHA's cultural landscape. Generally, personal memorials within the KAVHA site should be avoided.

Conservation Actions	Priority
Develop landscape guidelines to ensure a consistent approach to the design, materials and finishes of new landscape elements and landscape infrastructure, including site furniture (such as seats, picnic tables, bins, barbecues, signage, bollards and barriers), toilet amenities, lighting, and signage [wayfinding/directional, interpretive, commercial]). The landscape guidelines should be informed by the principles outlined above, and Policies 8.2.2, 8.6.3 and 8.6.5 of the HMP, and Policy 9 of the CLMP.	Medium term: two–five years Ongoing
Design bollards/barriers required to demarcate priority exclusion zones for vehicles to match existing, in the short term.	Short term: within 12 months
Formally assess the heritage impacts of proposed new landscape elements, including memorials. (Refer to Policy 8.6.7 of the HMP.)	As required
Provide interpretation about memorials and the events they commemorate for visitors who want more information about their meaning.	As required
Recognise the need for ongoing maintenance and periodical replacement of site furniture and introduced landscape elements. Include these items in the appropriate maintenance and asset budgets.	Ongoing: every three–five years

## 6.9 Site Drainage and Water Quality

- **Policy 43: Ensure a holistic, catchment-wide approach to managing site drainage and water quality that engages appropriate expertise and is integrated into wider wastewater management strategies and projects.**
- **Policy 44: Protect and enhance the significant layout of terrestrial watercourses and modified channels and drains, and significant fabric of channels, drains, bridges, culverts and other water-related infrastructure.**

Issues associated with site drainage and water quality within the KAVHA site are complex and multifaceted, and their resolution needs to ensure conservation and transmission of the heritage values of the cultural landscape and the channels and drains that date from First (Colonial) and Second (Penal) Settlement, which are integral to the fabric and structure of the place.

The difficulty of achieving an appropriate and sustainable balance between cultural heritage values, environmental values, and public health concerns is acknowledged as one of the challenges of this CLMP.

Integrated expertise in hydraulic engineering, archaeology, landscape architectural heritage, ecology, and wastewater management will be critical to ensuring measures for managing waterways, conservation of the channel and drain system in KAVHA, and reinstating physical, visual and/or functional characteristics of the lowlands swamp/Serpentine and drainage system are in keeping with all recognised values.

Conservation Actions	Priority
Engage and integrate expertise in hydraulic engineering, archaeology, landscape architectural heritage, ecology, marine biology, and wastewater management in the development of measures to resolve site drainage and water quality issues.	Short term
Actively seek opportunities to work in tandem with the NIRC to integrate water quality management within KAVHA with current and ongoing island-wide wastewater management strategies and programs.	Short term and ongoing
Implement livestock exclusion zones to creek and swamp margins and banks in accordance with both the GHD report recommendations and specific proposals in Appendix A of this CLMP.	Short term
Develop solutions to existing site drainage and water quality issues in accordance with the principles for specific proposals outlined in Appendix A of this CLMP. Ensure works to improve site drainage and water quality are designed and engineered to avoid harm to significant fabric and landscape elements and to improve transmission of the heritage values of the First and Second Settlement and Pitcairner infrastructure.	Short term
Restore creek and swamp margins and banks to mitigate erosion, enhance habitat, and improve flows and water quality.	Short–medium term
Improve water holding capacity upstream and along creeks, using barrages or similar. In flood events, reduce the volume of freshwater, sand, sediment, nutrients and pollution emptying into Emily Bay to avoid adverse environmental impacts on the marine environment and risks to public health.	Medium term
Implement integrated proposals for resolving site drainage and water quality issues.	Medium to long term

- **Policy 45: Monitor, improve and protect the quality of surface, ground and marine receiving waters throughout the KAVHA catchment to avoid environmental impacts and ensure public health and safety.**

Water quality throughout KAVHA and at Emily Bay should be monitored routinely. Recreational users should be notified of pollution levels. The beach at Emily Bay should be closed during periods when the water quality reaches dangerously high pathogen levels (consistent with the 2017 Water Quality study by Wilson).

Conservation Actions	Priority
Integrate water quality data into the development and refinement of solutions to site drainage and water quality issues.	Short–medium term and ongoing
Upgrade tanks and wastewater management infrastructure throughout KAVHA as a priority.	Short term
Connect Government House, the houses on Quality Row, other historic buildings within KAVHA, private properties and tourism accommodation to a sewerage system.	Medium term, in connection with NIRC wastewater management projects
Explore options for the capture, treatment and re-use of greywater on site.	Long term—future

## 6.10 Documentation

Section 4.0 of this CLMP noted key source and operational documents related to the KAVHA site's cultural landscape. From a review of these documents, the following actions are recommended.

Conservation Actions	Priority
Review, update as relevant, finalise and republish the history, site descriptions and analyses, mapping, overlays and chronologies in the KAVHA Conservation Management Plan (Otto Cserhalmi & Partners, 2007).	Short term
Use the republished document as a reference tool for site managers, and as the basis for future management plans and masterplans for the KAVHA site.	As required
Review, update and integrate the inventories to the KAVHA Landscape and Conservation Management Plan (Tropman & Tropman, 1994) and the draft KAVHA Conservation Management Plan (Otto Cserhalmi & Partners, 2007) for use as the basis of an asset management tool.	Short–medium term
Review and integrate important insights contained in the report ‘Survey Study of the First, Second, and Third Settlements on Norfolk Island’ (RVJ Varman, 1984) into the understanding of the KAVHA site’s cultural landscape.	Short term
Review and update the plant lists in the Government House and Quality Row Residences, Gardens Conservation Management Plan (Tropman & Tropman, 1997) with a list of appropriate alternative plant species which: are possible to source on the Island; pose no known biosecurity risks; and which reflect other values and aesthetic qualities of early plant species.	Short–medium term
Review and update the Landscape Guides for KAVHA (Jean Rice of Otto Cserhalmi & Partners, 2001). Refer to Policy 4 of this CLMP.	Short–medium term
Implement the recommendations of the 2017 Inspiring Place report, Landscape & Garden Maintenance Advice: Government House Grounds, Norfolk Island (2017), subject to the commentary in Table 4.2 of this CLMP.	Short–medium term
Implement the recommendations of the Purcell report, to improve transmission of the values of the cultural landscape.	Short–medium term

## 6.11 Endnotes

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DRAFT FOR REVIEW



## 8.0 Appendices

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### Appendix A

Kingston and Arthur's Vale Historic Area—Proposals for Specific Projects related to High Priority Cultural Landscape Issues, prepared by Environmental Partnership in association with GML Heritage + Context.

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# **Kingston and Arthur's Vale Historic Area**

## **Cultural Landscape Management Plan**

### **Appendix A—Landscape Issues**

Report prepared for Department of Infrastructure, Regional Development and  
Cities

December 2018



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## Report Register



The following report register documents the development and issue of the report entitled, undertaken by GML Heritage Pty Ltd + GML Heritage Victoria Pty Ltd (GML + Context) in accordance with its quality management system.

Job No.	Issue No.	Notes/Description	Issue Date
17-0453	1	Preliminary Draft Report	23 April 2018
17-0453	2	Final Report	15 June 2018
18-0654	3	Draft for Review	14 December 2018

## Quality Assurance

GML Heritage Pty Ltd operates under a quality management system which has been certified as complying with the Australian/New Zealand Standard for quality management systems AS/NZS ISO 9001:2008.

The report has been reviewed and approved for issue in accordance with the GML quality assurance policy and procedures.

Project Manager:	Christina Dyson	Project Director & Reviewer:	Rachel Jackson
Issue No.	3	Issue No.	3
Signature		Signature	
Position:	Associate	Position:	Principal
Date:	14 December 2018	Date:	14 December 2018

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# 1.0 Vehicle and Pedestrian Access, and Parking

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## 1.1 Introduction

Vehicle and pedestrian access and parking have been identified as one of four high priority cultural landscape issues at the Kingston and Arthur's Vale Historic Area (KAVHA).

Understanding this issue, how and why people and vehicles move through and use the site, the different intensities of this movement and use at different times, and where vehicles park, has been informed by review and analysis of existing site data and reports, targeted engagement and field observations by the project team (5–9 March 2018), and information provided by the Commonwealth Heritage Manager.

Investigation of the issue included review of the KAVHA history, analysis of historic plans of First and Second Settlements, historic photographs and aerial photography showing Third and subsequent settlement, LIDAR imagery of the Kingston area (based on a 2016 Digital Elevation Model), and limited available archaeological survey data, to understand the layout and evolution of historic routes through the KAVHA site.

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- Aerial photography: 2016 (RCS Group Surveyors, KAVHA Collection); 1977 (KAVHA Secretariat); 1944 (NLA nla.obj-233301148);
- RCS Group Surveyors, LIDAR imagery of Kingston, based on Digital Elevation Model, 2016;
- Historic plans: 1796, 1829, 1839, 1850 (refer CLMP Reference List); and
- Archaeological survey of Kingston—in hard copy only, no author, undated (KAVHA records).



## 1.2 Opportunities and Approach

There is significant opportunity and scope for improving how people and vehicles access, move through, stop and experience the KAVHA site, so that the heritage values of the place are respected, enhanced and transmitted, and KAVHA meets existing best practice visitor management within a World Heritage site.

Change and improvements to vehicle and pedestrian access and parking should be approached from an integrated and sustainable development perspective.

With consideration of historical appropriateness of actions and materials, and careful planning and design to avoid negative heritage impacts, solutions to parking and access issues could contribute to reducing the dominance of lawn and grass throughout the Kingston area.

## 1.3 Observations and Issues

Vehicle and pedestrian access and parking issues have different dimensions and challenges. These include:

- the need to balance conservation of the cultural landscape to transmit its heritage values, while recognising and respecting KAVHA as a living landscape, and the traditional and everyday uses of KAVHA by the Norfolk Island community;
- lack of orientation in visitor arrival, lack of clear preferred routes for visitors, and limited way-finding;
- visual impacts from vehicles on the experience of the place;
- physical impacts of vehicles driving over/parking:
  - on areas of archaeological sensitivity (risking damage, erosion, and compaction of ruins);
  - close to landscape features (tree root zones, low branches within canopies); and
  - close to historic buildings;
- public safety risks associated with lack of clear separation of vehicles and pedestrians with vehicles travelling at high speeds;
- limited mobility of current visitor demographic (CIE Economic Feasibility Study);
- physical separation of the museums: Commissariat Store (corner Quality Row and Middlegate Road), Research Centre (No. 9 Quality Row), No. 10 Quality Row, HMS Sirius Museum (Bounty Street), and the Pier Store (Pier Street). The Royal Engineer's Office (REO), located opposite the Pier Store, is linked to the Museums, with information, displays, books and souvenirs and light refreshments;
- car-centric tours, such as the Museum tag-along tours (the allotted time frame of 1.5 hours limits joining tour on foot);
- alternative transport options into and out of the KAVHA site are not offered. Self-drive, self-guided and organised tours are available, rather than KAVHA managed/coordinated tours;

- roads and parking used by diverse user groups with different frequencies: visitors (private or hire car, tour, cruise ship); tour operators; locals, including KAVHA workers, recreational users, commercial/industry, farmers, landholders and residents;
- former routes are not clearly maintained or interpreted: former Longridge Road, remnants of the causeway at Golf Course, tracks from Government House grounds over the Serpentine, for example; and
- a visitor orientation facility within the KAVHA site would bring added parking requirements.



**Figure A1.1** Shared use of the roadway (Quality Row). (Source: GML + Context, 2018)



**Figure A1.2** Parking at recreational ground on Kingston Common, associated with evening game. (Source: GML + Context, 2018)



**Figure A1.3** Foundation Day: food truck, picnic lunch for tour group, and parking on dune overlooking Emily Bay. (Source: GML + Context, 2018)



**Figure A1.4** Tour group picnic at the Landing Place. Buses remain parked at the site. (Source: GML + Context, 2018)



**Figure A1.5** Buses parked, waiting for arriving visitors, on a cruise ship day, December 2017. (Source: KAVHA)



**Figure A1.6** Parking on ship day, with lighters unloading. Cars parked in close proximity to Commissariat Store and over First Settlement ruins, October 2017. (Source: KAVHA)



**Figure A1.7** Parking on ship day in October 2017, near the Crankmill and Old Surgeon's Quarters (Lion's Club) and over First Settlement ruins including the 1788 Landing Place. (Source: KAVHA)



**Figure A1.8** Parking on ship day, October 2017, within triangular intersection of Pier and Bay streets. (Source: KAVHA)



**Figure A1.9** Parking at the Lion's Club, November 2017. (Source: KAVHA)





**Figure A1.10** Parking in close proximity to the Old Surgeon's Quarters (Lion's Club), REO and northern wall of New Gaol compound, March 2018. (Source: GML + Context)



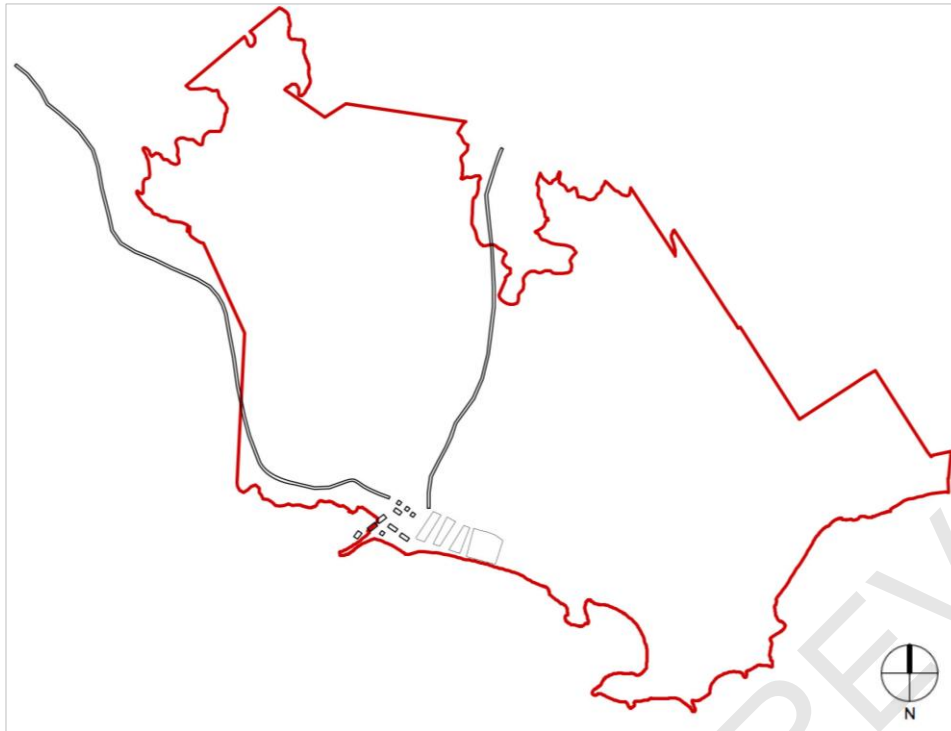
**Figure A1.11** Parking at Emily Bay on Foundation Day, 6 March 2018. (Source: GML + Context)



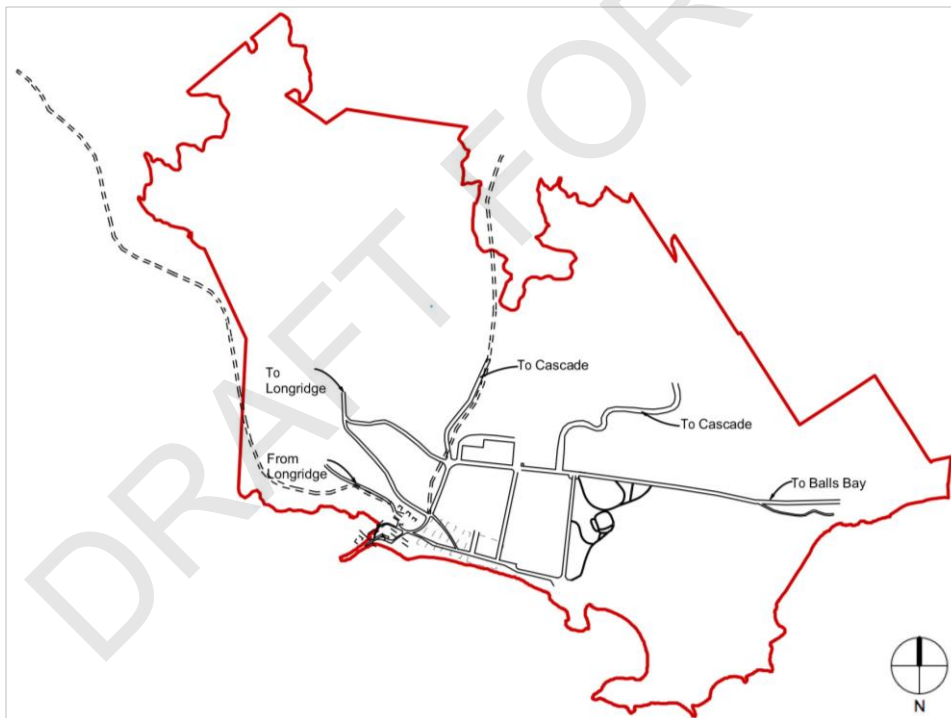
**Figure A1.12** Parking at Emily Bay associated with jazz festival, December 2017. (Source: KAVHA)

## 1.4 Other Influences and Factors

Other factors influencing resolution of the issue include consideration of historic routes through the landscape, in accordance with consideration of Policy 8.2.2 in the KAVHA HMP 2016: 'When considering new routes or pathways, priority will be given to reinstating historic routes where possible.' The following sequence of images depict routes from the First and Second Settlements. The present-day road layout largely follows the road and pathway layout established during Second Settlement.

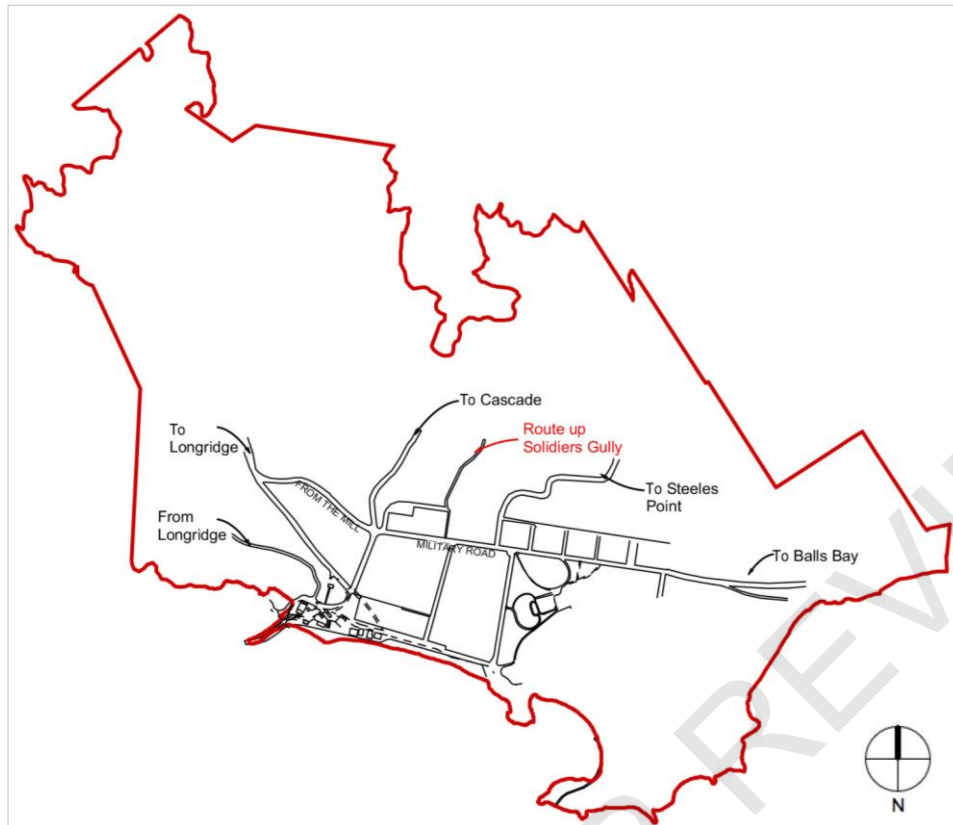


**Figure A1.13** Routes associated with First Settlement by 1793 or 1796, based on the Wakefield plan. (Source: Public Records Office, London)



**Figure A1.14** Routes associated with Second Settlement by 1838, based on Bordes' Plan of the Settlement Norfolk Island. (Source: State Library of NSW)





**Figure A1.15** Routes associated with Second Settlement, by 1850, based on 1850 'Plan of the Settlement Norfolk Island'. (Source: Tasmanian Archives)

## 1.5 Movement and Parking Through the Kingston Area

The following observations relate to the current situation within the Kingston area of the KAVHA site:

- the existing road network remains largely as shown on 1825–1850 maps;
- Mill Road, Bligh Street, and Longridge Road are no longer in use or publicly accessible as routes or pathways;
- pathway/route from Government House across the creek (east of the Serpentine) is no longer visible in the landscape, although the creek crossing remains;
- the past track along Soldiers Gully is no longer accessible;
- the primary modes of transport up to 1925 were walking, horse-riding, horse and buggy (source: *Discover Norfolk*, Volume 1, Issue 2);
- cars were introduced to the island in 1925 (source: *Discover Norfolk*, Volume 1, Issue 2);
- island roads were sealed in the 1950s (they were road base/gravel prior) (source: *Discover Norfolk*, Volume 1, Issue 2);
- pedestrian track routes reflect long-standing approach to best moving through the KAVHA site; and
- informal pedestrian movement also occurs on roadways and roadway edges.

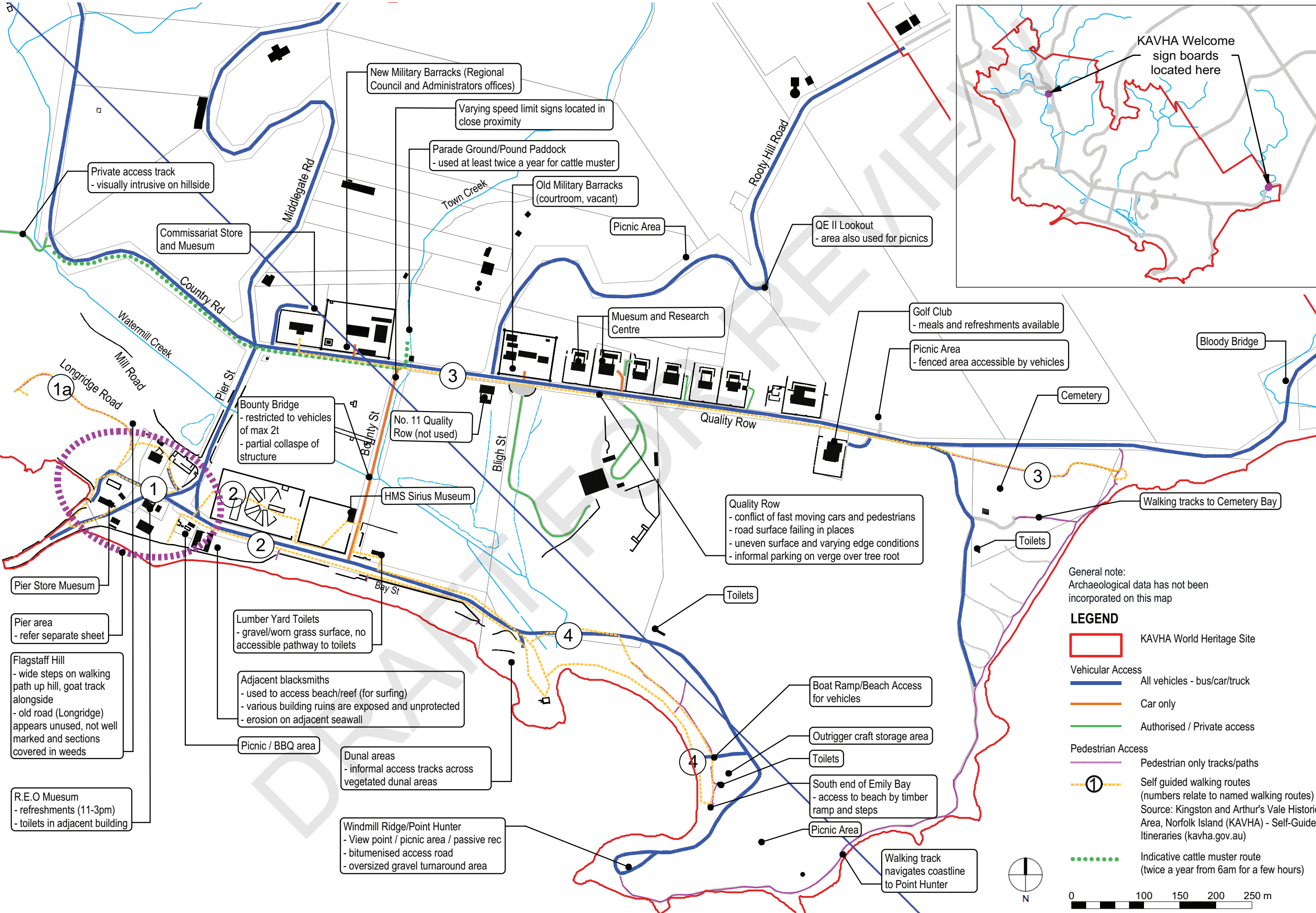




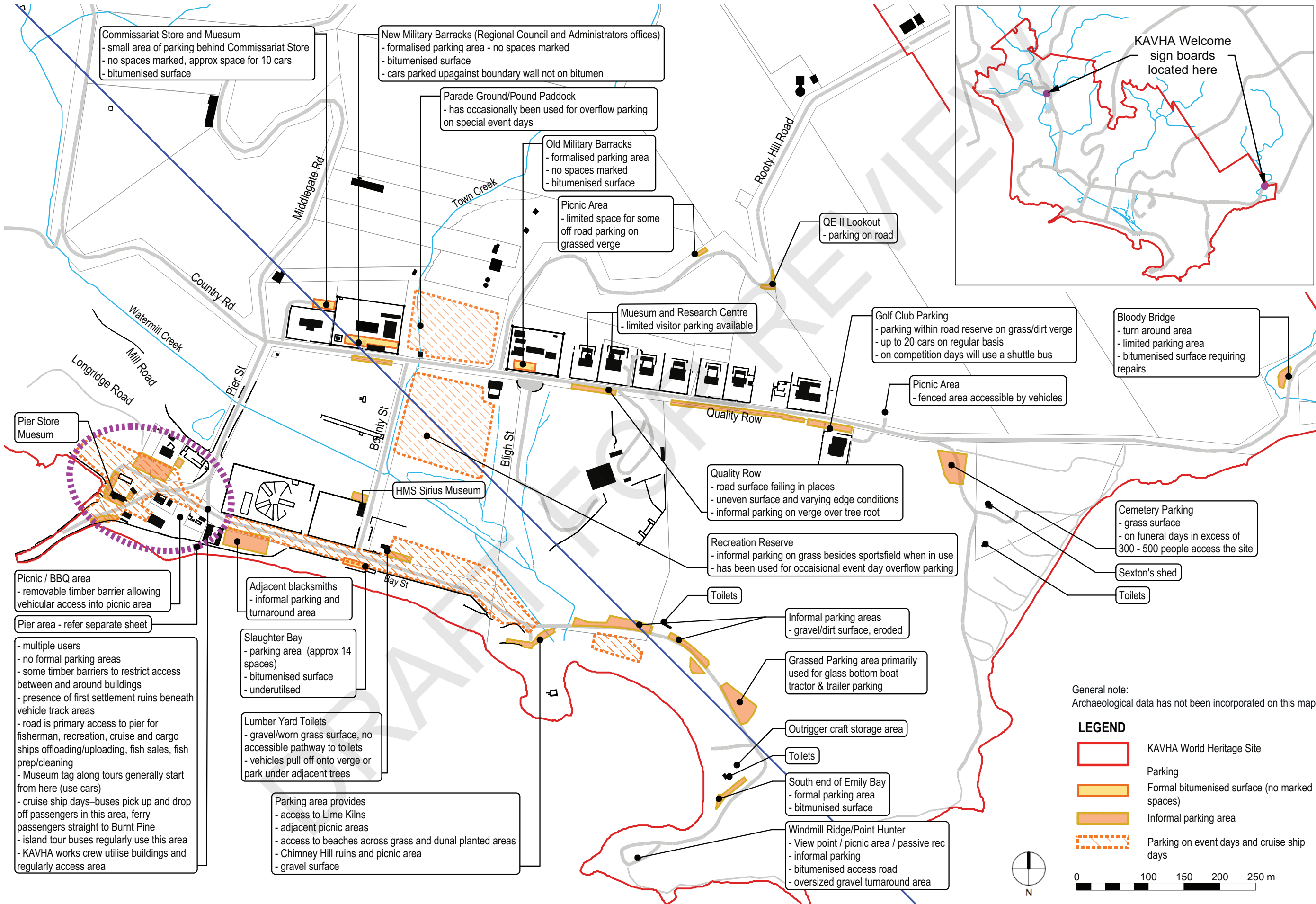
**Figure A1.1**  
The KAVHA site, showing access routes, as existing.



Summary of access specific observations and issues



Summary of parking specific observations and issues



**Table A1.1** Proposals for Specific Projects and Schedule of Proposed Actions (This is a prioritised schedule – refer to the timing in Section 5.2.2 of the CLMP)

	Objectives	Key Proposals/Actions	Prioritised Schedule
1.	Reduced physical impacts and visual intrusion from vehicles in key areas within the KAVHA site.	Encourage tourism bus operators to drop off/pick up guests, park and wait outside of visitor hub zone. Shuttle and tourist bus operators—test circuit route and drop-off facility.	Short term Short term
		Subtly demarcate parking areas, provide barriers to protect ruins and building fabric.	Short term
		Upgrade existing small parking areas. Appropriate surfacing would be a stabilised gravel surface, granitic sand (no asphalt), potentially stabilised with a 5% lime or cement component. Reinforced gravel/grass surfacing could be appropriate in some areas, depending on archaeological sensitivity. Build up over ruins where necessary to avoid damage, compaction, erosion.	Short–medium term
		Reinforce/repair tracks which are likely to continue to be used. Appropriate surfacing would be a stabilised gravel surface, granitic sand (no asphalt), potentially stabilised with a 5% lime or cement component. Reinforced gravel/grass surfacing could be appropriate in some areas, depending on archaeological sensitivity. Build up over ruins where necessary to avoid damage, compaction, erosion.	Short–medium term
		Mark pedestrian access routes with subtle low-key markers, using differential mowing, subtle surface texture change, or materials appropriate to the historic context of the penal/ industrial/agricultural past.	Short–medium term
		Relocate tour bus waiting areas and visitor parking outside of the Kingston area, in a location that is not visually or physically intrusive on the values of the KAVHA cultural landscape.	Future
2.	Provision of improved visitor experience through enhanced sense of arrival, clearer vehicle and pedestrian routes, and clear, designated parking areas.	Orient visitors on the approach to and at the Quality Row/Pier Street intersection. Introduce site way-finding from Visitor Hub/Pier. Provide easily accessible map which denotes walking distances/times and routes. Define one speed limit throughout KAVHA site: <ul style="list-style-type: none"> <li>Install new rationalised and simplified signage and remove confusing speed limit signage.</li> <li>Enforce speeds and other regulations.</li> </ul> Consider rumble strips within KAVHA site to slow traffic in high pedestrian areas ie Quality Row between Pier Street and Cemetery, on Bay Street (rumble strips, stone sett banding within road surface, line marking, cattle grid).	Short–medium term Short–medium term Short term  In association with implementation of Safety Audit recommendations
		Improve road surfacing and address surface failures ie on Quality Row: <ul style="list-style-type: none"> <li>Investigate road drainage and source of current failures.</li> <li>Design road surface and edge treatment to distinguish KAVHA from other areas on Norfolk Island and influence visitor behaviour without excessive signage.</li> </ul> Upgrade and demarcate Bloody Bridge turning area/parking road surface and fence.	Medium term  Medium term
		Provide accessible paths/boardwalks from Emily Bay parking areas across vegetated dunal areas to protect rehabilitated areas. Repair and upgrade existing stepped access to Slaughter Bay beach areas. Make provision for accessible parking—retain parking area near Blacksmiths Compound.	Medium term Short term Medium term
3.	Recognition of general access to KAVHA by Norfolk Islanders on a daily basis as part of everyday life, for work, worship, recreation and cultural traditions.	Retain and define small low-key areas of parking within KAVHA to avoid harm to archaeological resources, for access to beach/recreation areas and pier (refer to other proposals for upgrading these areas).	Short term
4.	Consideration of longer-term opportunities for future visitor facilities and circulation routes.	Provision of visitor centre: <ul style="list-style-type: none"> <li>on site (adaptive re-use of existing structure); or</li> <li>off site (sensitively designed and sited within the KAVHA site).</li> </ul> Bicycle hire point location: <ul style="list-style-type: none"> <li>from Pier visitor Hub, could Blacksmiths compound be used?</li> <li>Or locate at 'visitor centre' when established.</li> </ul> Define routes, on road, off road, sealed/unsealed (visitors map).	Medium term Long term—future  Medium–long term Long term—future Medium–long term
		Investigate KAVHA site shuttle bus ie start using as alternative for Museum tag-along tours.	Short term
		Investigate options for the provision of on-site visitor shuttle ('park and ride' service) between visitor centre to visitor areas. Define drop-off/pick-up areas and link to visitor areas.	Medium term Medium term



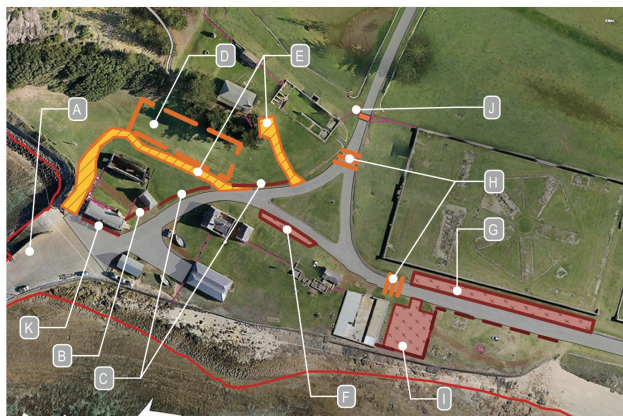
	Objectives	Key Proposals/Actions	Prioritised Schedule
		<div>Investigate new walking routes:</div> <ul style="list-style-type: none"><li>Soldiers Gully along route based on historic evidence of former road.</li><li>Define walking route up to QEII lookout from KAVHA either along Rooty Hill Road or direct link from Quality Row—route definition to be based on historic/archaeological evidence.</li><li>Old Longridge Road to site of Longridge Farm or other reserves.</li></ul>	Medium–long term

## Detailed proposals for Pier area

1. Maintain triangular intersection configuration acting as de-facto turning circle.
2. Review traffic safety considerations of the split, two-way movement at the north apex of the triangle. Avoid proliferation of traffic signage.
3. Define and demarcate drop-off area for tour buses and shuttle bus services where visitors can walk short distance to features. Buses to move away from First and Second Settlement area to park and wait.
4. Investigate options for slowing vehicle speeds along Pier Street through use of stone rumble strips, or cattle grates.
5. Tour buses and shuttle bus services to move clockwise around triangular intersection and avoid moving west of Royal Engineers Office (Museum Shop).
6. Limit the introduction of further signage.
7. Define parking areas and install subtle, visually compatible barriers to small area of parking adjacent Blacksmiths Compound. Avoid areas of archaeological sensitivity.

8. Reinforce/armour with gravel surface tracks over archaeological ruins on route of original road around the Crankmill.
9. Investigate use of Blacksmiths Compound for suggested bicycle hire. Currently used as site depot.
10. Upgrade road surface with coarse asphalt mix (compatible with heritage character) suitable for all access - pedestrians, vehicles and bicycles.
11. Undertake education process with locals, tour operators and KAVHA staff about reasons for proposed changes to vehicle and parking management.

### Pier area - minor interventions



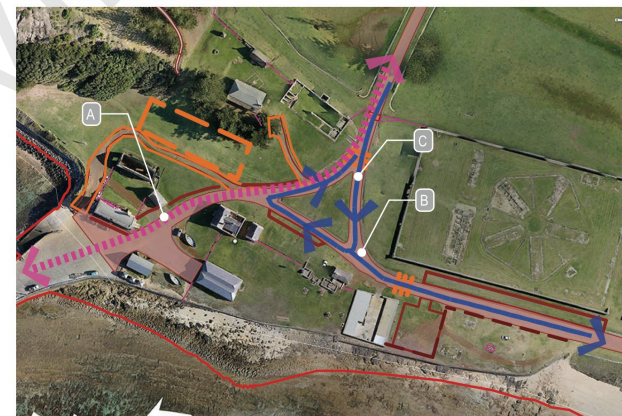
- A. Continue vehicle access to wharf/pier for industry/fishing/recreation.
- B. Remove parking: relocate barrier; improve access route into building/ museum.
- C. Replace timber logs: low timber bollards i.e. 500mm high; timber barriers to match existing for short to medium term.
- D. Short term temporary parking area for local visitors: special events; no parking with license area (around building) other than short term for deliveries.
- E. Reinforce/armour tracks over ruins: reinforced grass; demarcate route.
- F. Provide drop-off for tour bus operators/ museum tours: reinforce grass; subtle demarcation of area.
- G. Alternative or second location for drop-off/ short term parking for tour bus operators/ museum tours, visitor parking.
- H. Install rumble strips or similar; slow traffic within 'visitor hub'.
- I. Small parking area: demarcate area of parking with low key timber barrier to protect ruins and sea wall; provide reinforced surface gravel or grass.
- J. Pedestrian gate only provided on one side of grid. Modify east side for second gate.
- K. Install low timber bollards on ground to south side of Pier Store to protect building.

### Pier area - adaptive reuse opportunities



- A. Use of Pier for fishing/ lighterage/ fish sales continued.
- B. Shared space in conjunction with adaptive reuse opportunities of Boatsheds: suitable location for outdoor coffee cart, box seats and umbrellas(temporary/ moveable items); new interpretative opportunities i.e. Lighter storage.
- C. Potential use of single Boatshed and interpretation opportunities.
- D. Consider alternative use of Double Boatshed for visitor related use and/ or interpretative experience; link to adjoining picnic area.
- E. Blacksmiths compound (existing regional council workshop): part repurpose to provide KAVHA Bicycle Hire and storage; alternatively locate Bicycle Hire at visitor facility (on-site) - OMB or NMB.

### Pier area - circulation

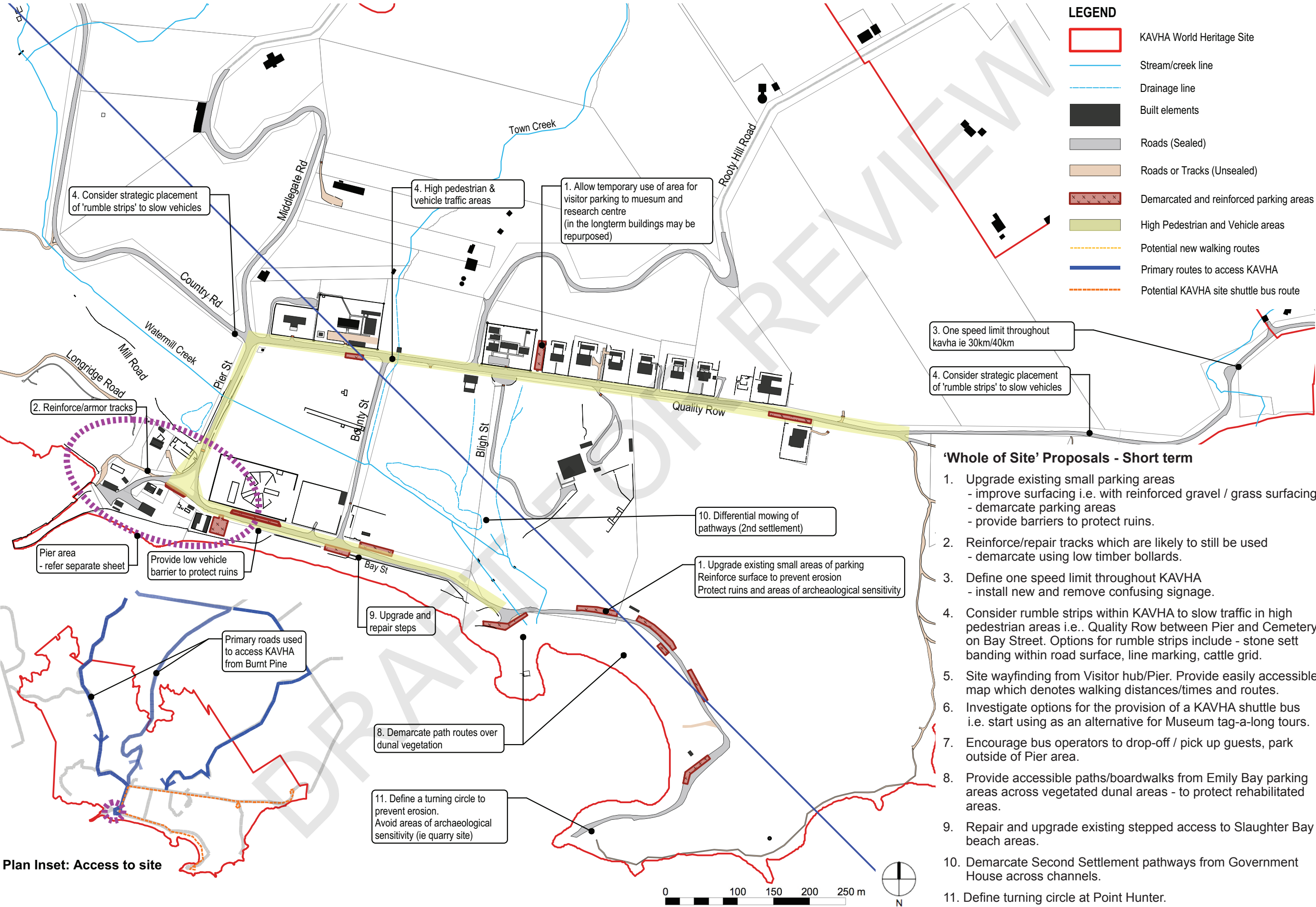


- A. Continue vehicle access to wharf/pier for industry/fishing/recreation.
- B. Upgrade road surface: suitable for shared surface for vehicles/ pedestrians/cycling.
- C. Shuttle Bus route/ drop-off.

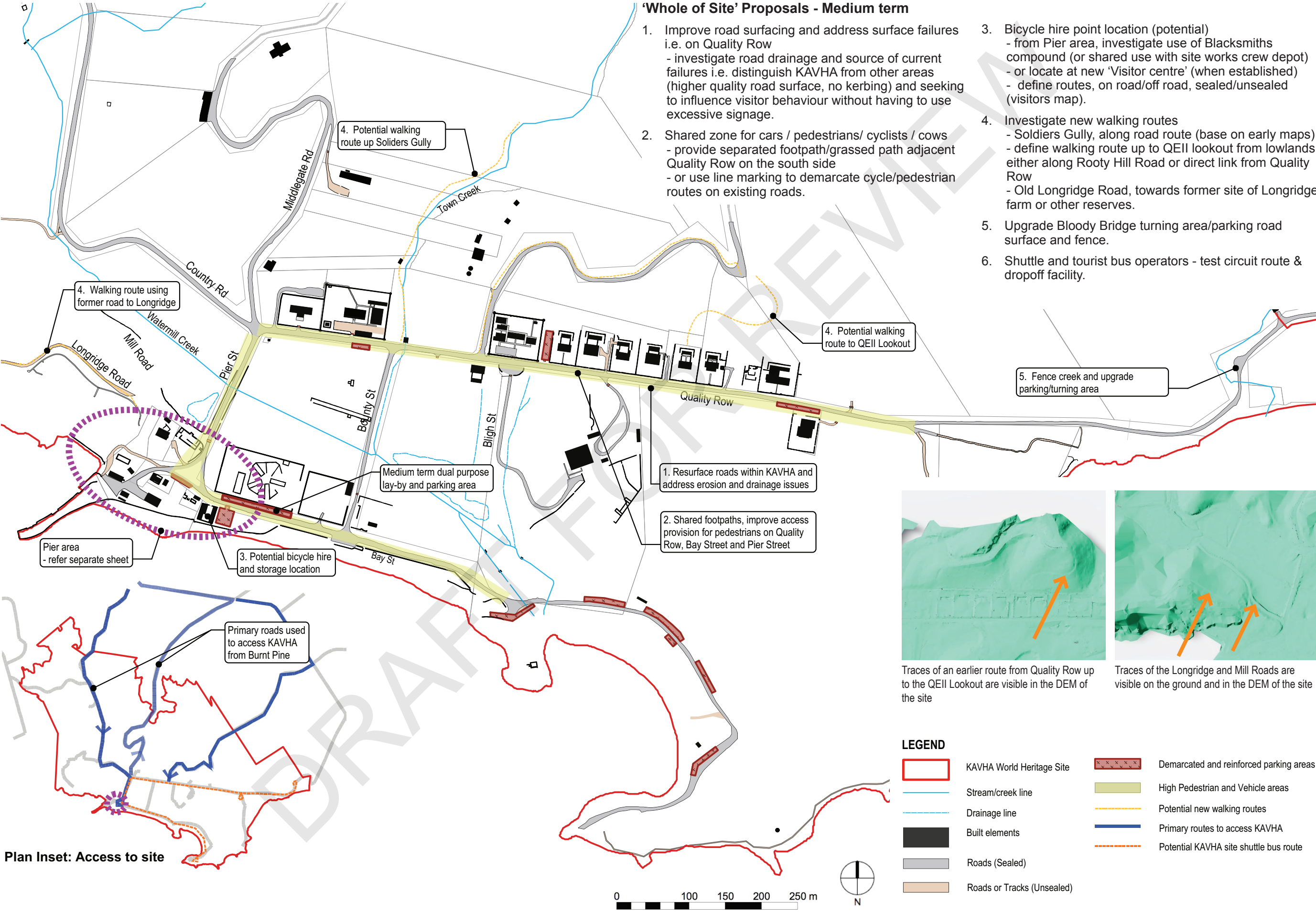




Short term recommendations (minimal interventions)

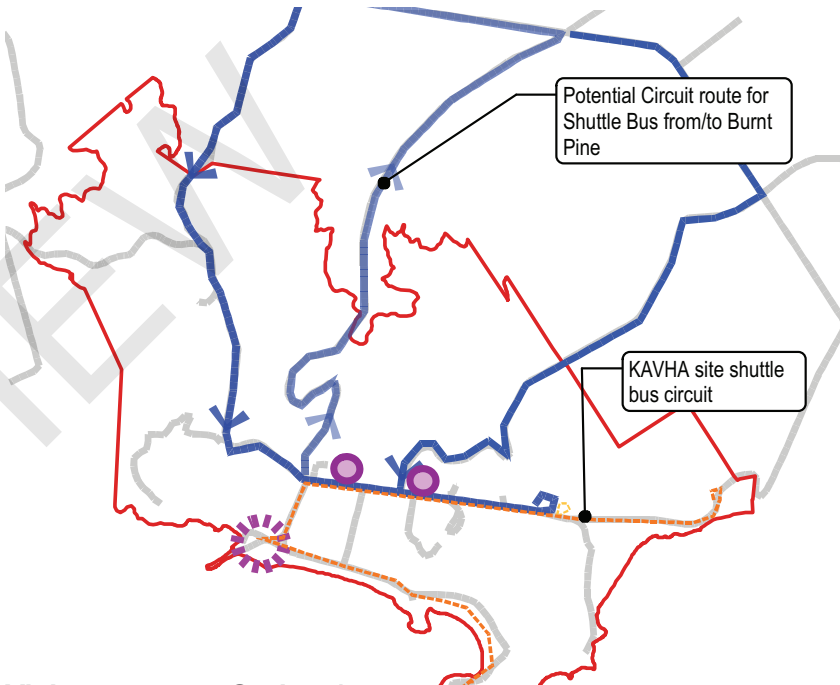
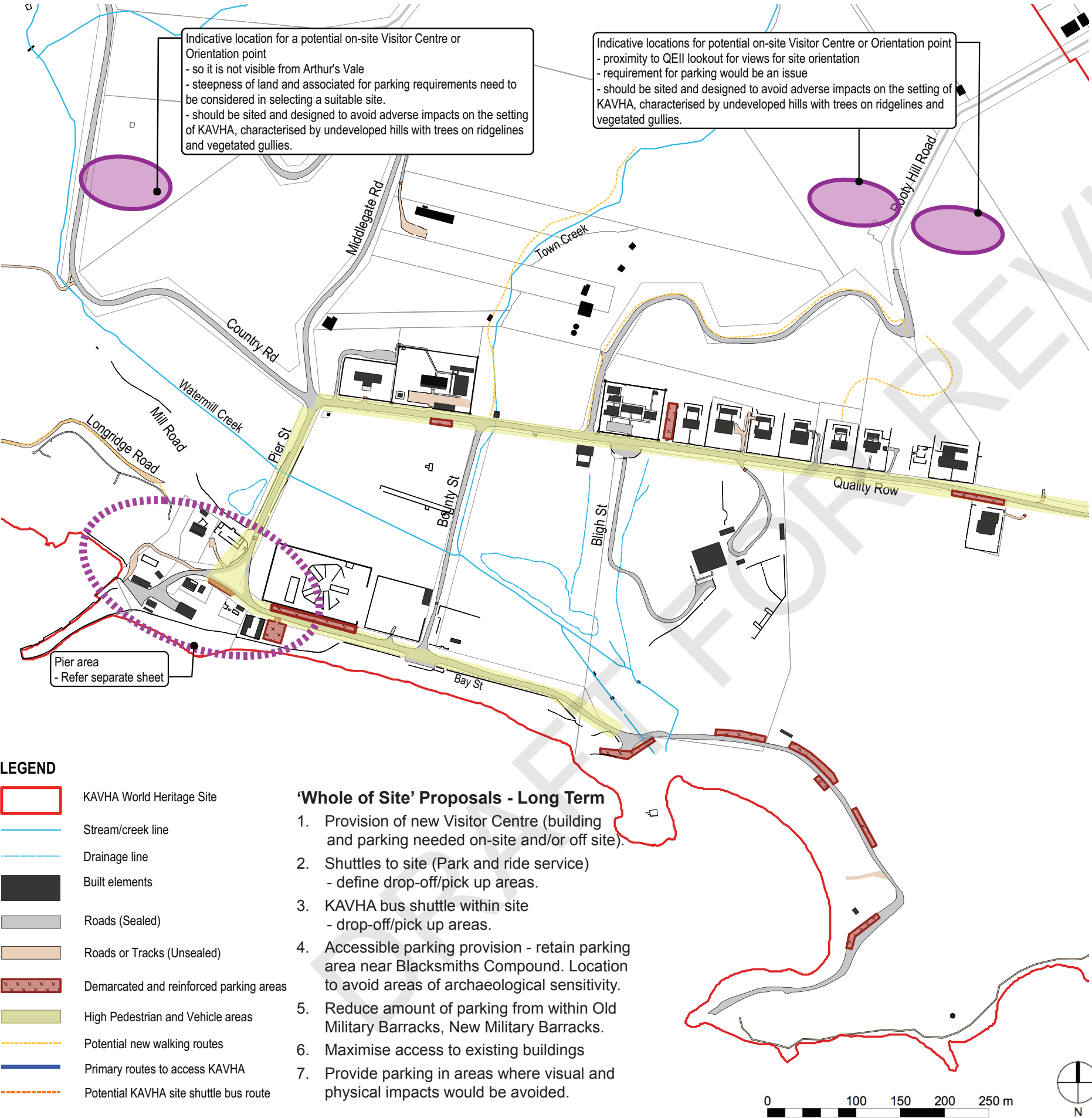


Medium term recommendations



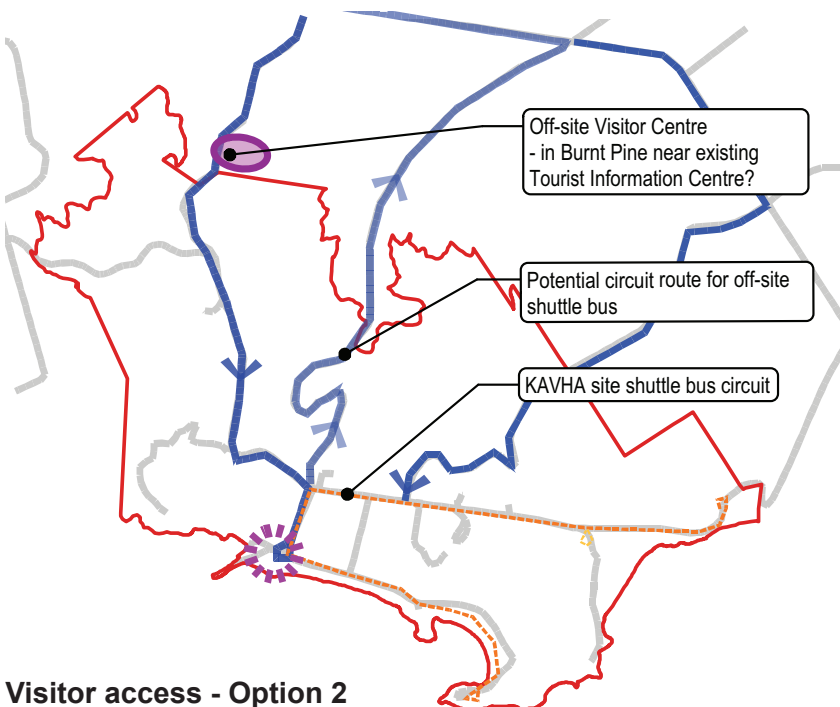


Long term recommendations (major interventions)



**Visitor access - Option 1**

- Provision of on-site Visitor Centre in re-purposed, existing structure
- Shuttle bus from Burnt Pine to new 'Visitor Centre'
- Shuttle bus specific to KAVHA site
- Provision of visitor parking at Visitor Centre
- Retain series of small parking areas for limited car visitors and local use
- Bus operators utilise drop-off bays, park buses away from visitor hub/ Pier



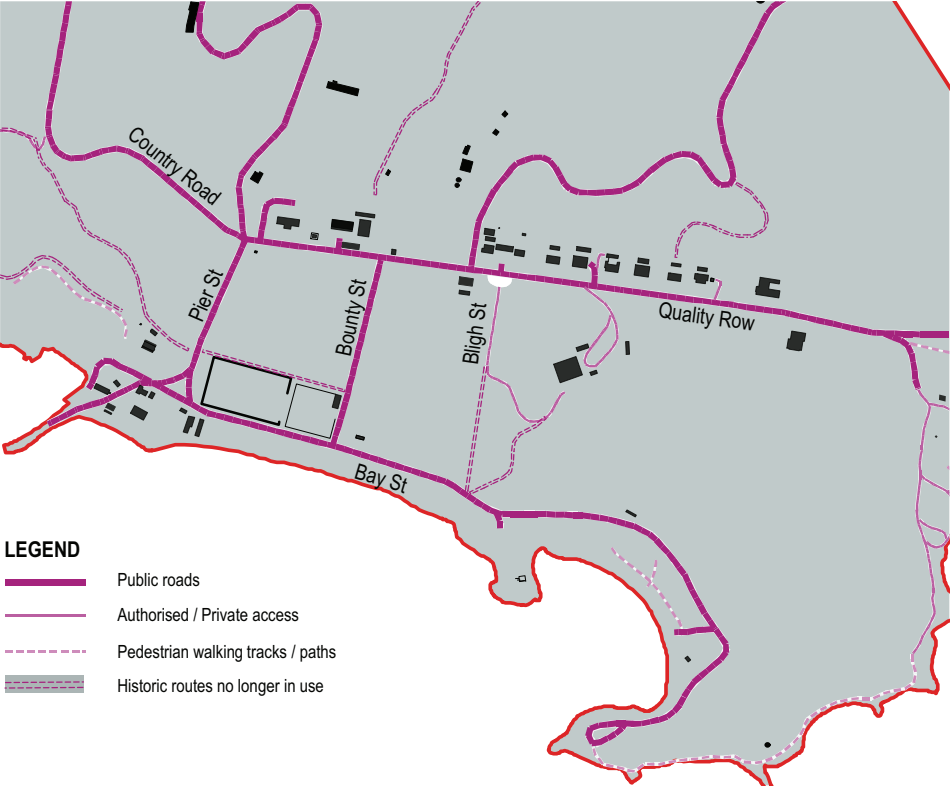
**Visitor access - Option 2**

- Provision of new off-site Visitor Centre
- Shuttle bus from 'Off-site' Visitor Centre to visitor hub
- Shuttle bus specific to KAVHA site
- Retain series of small parking areas for limited car visitors and local use. Locations to avoid areas of archaeological sensitivity.
- Bus operators utilise drop-off bays, park buses away from visitor hub/ Pier

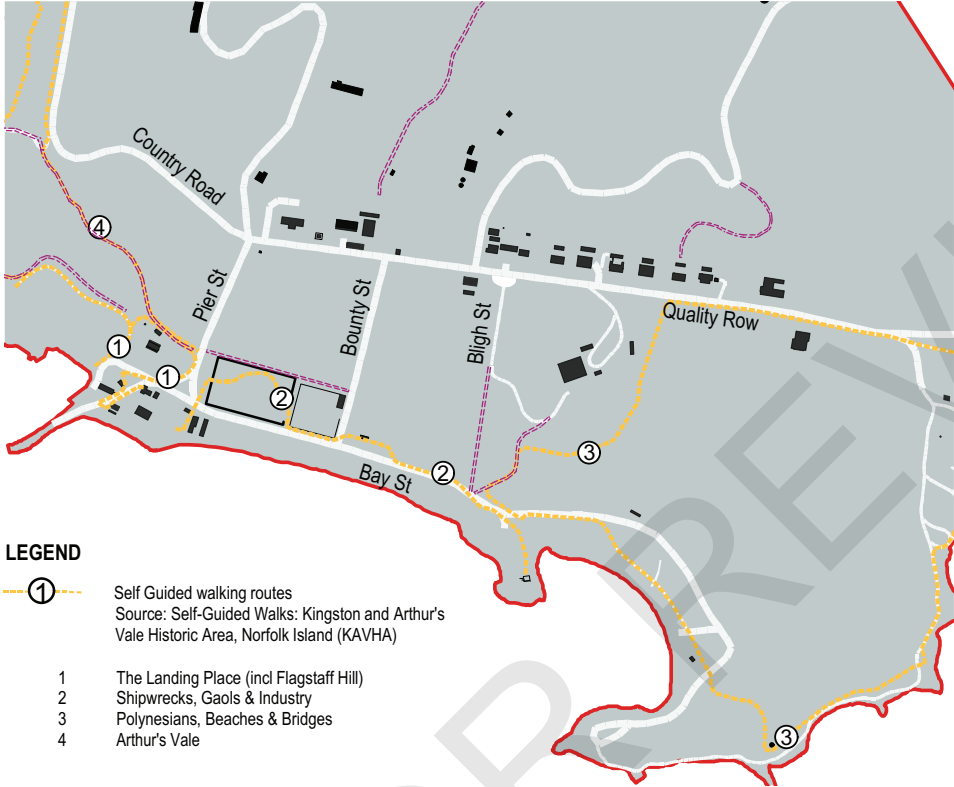


# Walking track categorisation

## Access Routes



## Walking Route Itineraries (existing) - brochure



## Walking Route Itineraries (existing) - online



## Existing Walking Route - materials



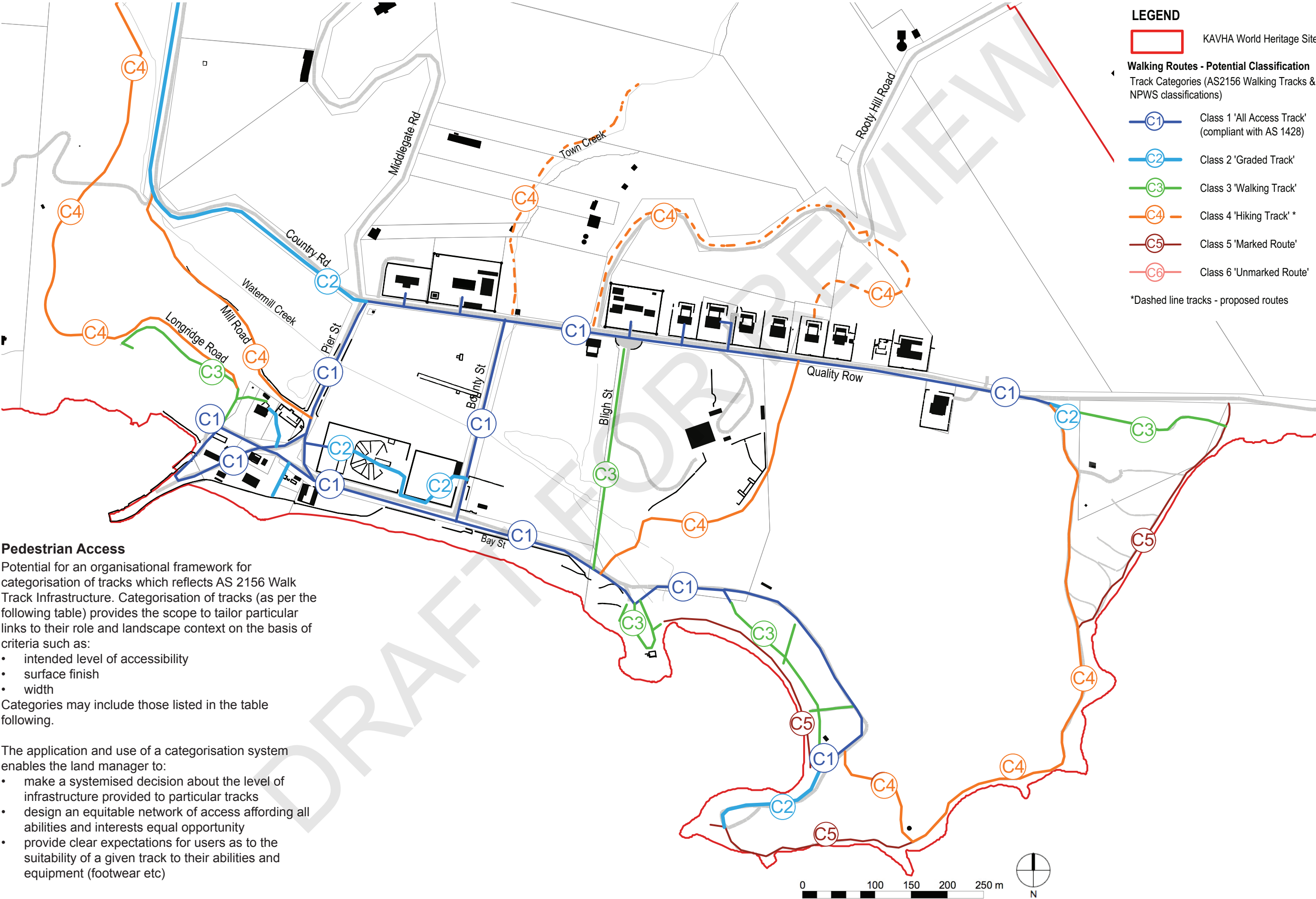
## Existing Walking Route - Indicative Classification



## Walking Route - Potential Classification



Pedestrian Access



Pedestrian Access

Potential for an organisational framework for categorisation of tracks which reflects AS 2156 Walk Track Infrastructure. Categorisation of tracks (as per the following table) provides the scope to tailor particular links to their role and landscape context on the basis of criteria such as:

- intended level of accessibility
- surface finish
- width

Categories may include those listed in the table following.

The application and use of a categorisation system enables the land manager to:

- make a systemised decision about the level of infrastructure provided to particular tracks
- design an equitable network of access affording all abilities and interests equal opportunity
- provide clear expectations for users as to the suitability of a given track to their abilities and equipment (footwear etc)

**Table A1.2** Interpretation of the Six Walking Track Classes Outlined in AS 2156 Walking Tracks.

<b>Description of Track</b>	<b>Class 1 'All Access Track'</b>	<b>Class 2 'Graded Track'</b>	<b>Class 3 'Walking Track'</b>	<b>Class 4 'Hiking Track'</b>	<b>Class 5 'Marked Route'</b>	<b>Class 6 'Unmarked Route'</b>
Surface	Hard surface suitable for wheelchair access eg concrete, asphalt, paver, elevated boardwalks.	Generally a hard surface dependent on level of usage eg concrete, asphalt, bitumen, pavers, elevated boardwalks.	Generally a modified surface eg bitumen, stone, gravel, mulch, board and chain, boardwalks.	Distinct surface often without major modification eg gravel, mulch, natural surface.	Limited modification to natural surface and track alignment may be indistinct in places.	No modification of the natural environment, eg wilderness areas.
Width	Constant 1500mm min.	Constant 1200mm min.	Variable 1200mm preferred	Variable 600mm max	N/A	N/A
Path gradient /access requirements	Compliant with AS 1428 Design for Access and Mobility (refer to general requirements page).	1:10 max gradient. Minimal steps.	No steeper than 1:10 preferred but may exceed this gradient for short lengths dependent on soil stability. Steps may be common.	Limited by environmental and maintenance considerations.	May include steep sections of unmodified surfaces.	Likely to include steep sections of unmodified surfaces.
Example	Discovery track located adjoining visitor centre.	Very high-use tracks located adjoining park focal points eg visitor centre, lookouts.	High-use tracks in high visitation areas.	Medium-use tracks in high visitation areas, high-use tracks in low visitation areas.	Low-use routes.	Occasional-use routes.

The table above provides a summary interpretation of the six walking classes outlined in AS 2156 Walking Tracks.

DRAFT FOR REVIEW

## 2.0 Livestock Management

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### 2.1 Introduction

Livestock management has been identified as one of four high priority cultural landscape issues for the Kingston and Arthur's Vale Historic Area. Understanding of the issue is informed by review and analysis of relevant reports, targeted engagement, and field observations by the project team, 5–9 March 2018.

#### Sources:

- Agersens: <<https://www.agersens.com/animal-health/>>.
- CSIRO, 'Virtual Fencing': <<https://www.csiro.au/en/Research/AF/Areas/Animal-Science/Animal-Health-Welfare/Virtual-fencing>>.
- Farmstyle Australia, 'Huge Strides for Virtual Fencing': <<http://farmstyle.com.au/news/huge-strides-virtual-fencing>>.
- Francis, Chantelle, 'Virtual Fencing Launch at Beef Australia', *The Weekly Times*, 4 May 2017: <<https://www.weeklytimesnow.com.au/agribusiness/dairy/virtual-fencing-launch-at-beef-australia/news-story/55ed763ac6225d331429d06766668544>>.
- GHD Pty Ltd, Calculation of Stocking Rates on Public Lands, February 2016.
- Graeme Clifton, Land Degradation Study and Management Plan: Kingston & Arthur's Vale Historic Area, 1993.
- Norfolk Island Cattle Association, 'Cattle on Norfolk Island – our Heritage and Traditions', 2016.
- Otto Cserhalmi & Partners, Kingston & Arthurs Vale Historic Area: Conservation Management Plan (Draft), 2007.
- Technical Services Division ACT Region, Department of Housing and Construction, Arthur's Vale Landscape Restoration and Conservation, August 1983.
- Treadgold, Malcolm, 'Economic Development' in Nobbs, Raymond (ed.), *Norfolk Island and its Second Settlement, 1825–1855*, Library of Australian History, Sydney, 1991, 73–98.
- Tropman & Tropman Architects, Kingston and Arthur's Vale Historic Area, Norfolk Island: Landscape Management and Conservation Plan, vol. 1, May 1994.
- URS, Norfolk Island Water Quality Study: Emily Bay and Upper Cascade Creek Catchments, May 2013.
- Wilson, PJ, Water Quality in the KAVHA Catchment, prepared on behalf of the Norfolk Island Regional Council, December 2017.
- Wright, Reginald, 'Land Usage' in Nobbs, Raymond (ed.), *Norfolk Island and its First Settlement, 1788–1814*, Library of Australian History, North Sydney, 1988, 112–125.
- Historic plans: 1838 Bordes (SLNSW), 1839 Wakefield (NLA), 1839 Lugard (Tas Archives), 1846 Plan of Norfolk Island showing Cattle and Police Stations (SLNSW), 1850 Plan of Settlement (Tas Archives).



## 2.2 Opportunities and Approach

The KAVHA site's cultural landscape continues to be a productive landscape that supports primary production, including grazing and agriculture, and transmits the place's history of self-sufficiency.

Issues associated with livestock management are related to two of the other high priority cultural landscape issues, namely water quality and vegetation management. An integrated approach to possible solutions within a broader perspective of conserving heritage values and traditions and protecting environmental values and public health is therefore required.

## 2.3 Observations and Issues

Evaluation of issues associated with livestock management within the KAVHA site has included consideration of the following issues and challenges:

- cattle on Kingston Common and in Arthur's Vale (Watermill Valley) contribute to the picturesque and 'bucolic' landscape character;
- cattle contribute to grass/pasture management and desirable 'grazed' appearance of the grass (ie not mechanically mown);
- cattle currently provide the only interpretation of the history of food production and self-sufficiency;
- potential impacts of livestock on areas of archaeological sensitivity and importance, ruins, sites of First and Second Settlement gardens, natural environment and water quality;
- introduction of fences to protect creek-lines and swamp edges, and authenticity of the historic cultural landscape. Such fencing required for conservation may not interpret historically fenced boundaries (location or materiality);
- cattle quotas and carrying capacity of KAVHA land are a source of disagreement (refer to data below);
- contribution by livestock to pollution of waterways;
- potential for livestock to contribute to spread of weed species; and
- potential for cattle to contribute to erosion of steep hillsides and road verges.



**Figure A2.1** Grazing in Arthur's Vale (Watermill Valley) contributes to the bucolic character of the landscape. Watermill Creek is accessible to cattle. Cattle contribute to erosion of creek banks, contamination of water, and movement of weeds. (Source: GML + Context 2018)



**Figure A2.2** Livestock on Country Road, Kingston, contributes to the bucolic character of KAVHA landscape. (Source: GML + Context 2018)



**Figure A2.3** Cattle grazing on Kingston Common and sites of the former Chief Constable's Quarters and Inferior Person's Quarters (ruins). (Source: GML + Context 2018)



**Figure A2.4** Cattle grazing on Kingston Common with access to Watermill Creek, contributing to erosion of creek banks, contamination of water, and movement of weeds. (Source: GML + Context 2018)



**Figure A2.5** Former Parade Ground (now Pound Paddock) with stockyards. Used at least twice yearly for muster (for drenching, de-liming, tagging). Proximity of stockyards to Town Creek and Second Settlement fabric (walls) poses risks of water pollution and physical damage to original fabric. (Source: GML + Context 2018)



**Figure A2.6** Livestock in close proximity to historic fabric (walls and standing structures) presents risks of physical damage to significant fabric. (Source: GML + Context 2018)



**Figure A2.7** Watermill Dam, at the head of Arthur's Vale (Watermill Valley), with eroded slopes from grazing visible in the middle ground. The Dam is unfenced and accessible to livestock (cattle, ducks, chickens). (Source: GML + Context 2018)



**Figure A2.8** Cattle near Watermill Dam, with eroded banks of roadside verges visible in the background. (Source: GML + Context 2018)

Other factors taken into account when evaluating this issue were stocking rate calculations in the Norfolk Island Stocking Rate report by GHD (2016):

**Stocking Rate calculation for KAVHA:** The following calculations are based on calculations in the Norfolk Island Cattle Stocking Rate Draft Report (2016) (GHD, p.24):

A. Area of Public land excl roads & incl area multiplier	25.12448 Ha
B. Carrying capacity of land	15 DSEs/Ha
C. DSEs available	376.8672 (A X B)
D. DSE rating of cow and calf	13.3 DSEs
E. Stocking rate (average)	<b>28 cows</b> (C ÷ D)

28 cows plus 28 calves up to 6 months old ie 56 animals.

Variables taken into consideration:

- carrying capacity of land within KAVHA may vary;
- lowlands/flat areas with deeper soils could have up to 20 DSEs/Ha;
- steeper slopes are likely to have a maximum carrying capacity of 10 DSEs/Ha or less depending on pasture groundcover, skeletal soils, rainfall etc.

If this was applied to KAVHA:

**Lowlands/flat areas based on 13.7ha**

13.7 x 20 DSEs/Ha = 274,  
274 ÷ 13.3 DSEs = 21 cows

**Steeper slopes based on 11.4173ha**

11.4173 x 10 DSEs/Ha = 114.173,  
114.173 ÷ 13.3 DSEs = 9 cows

Result: potentially two more tagged cows could be accommodated on the KAVHA site than with applying the average of 15 DSEs/Ha.

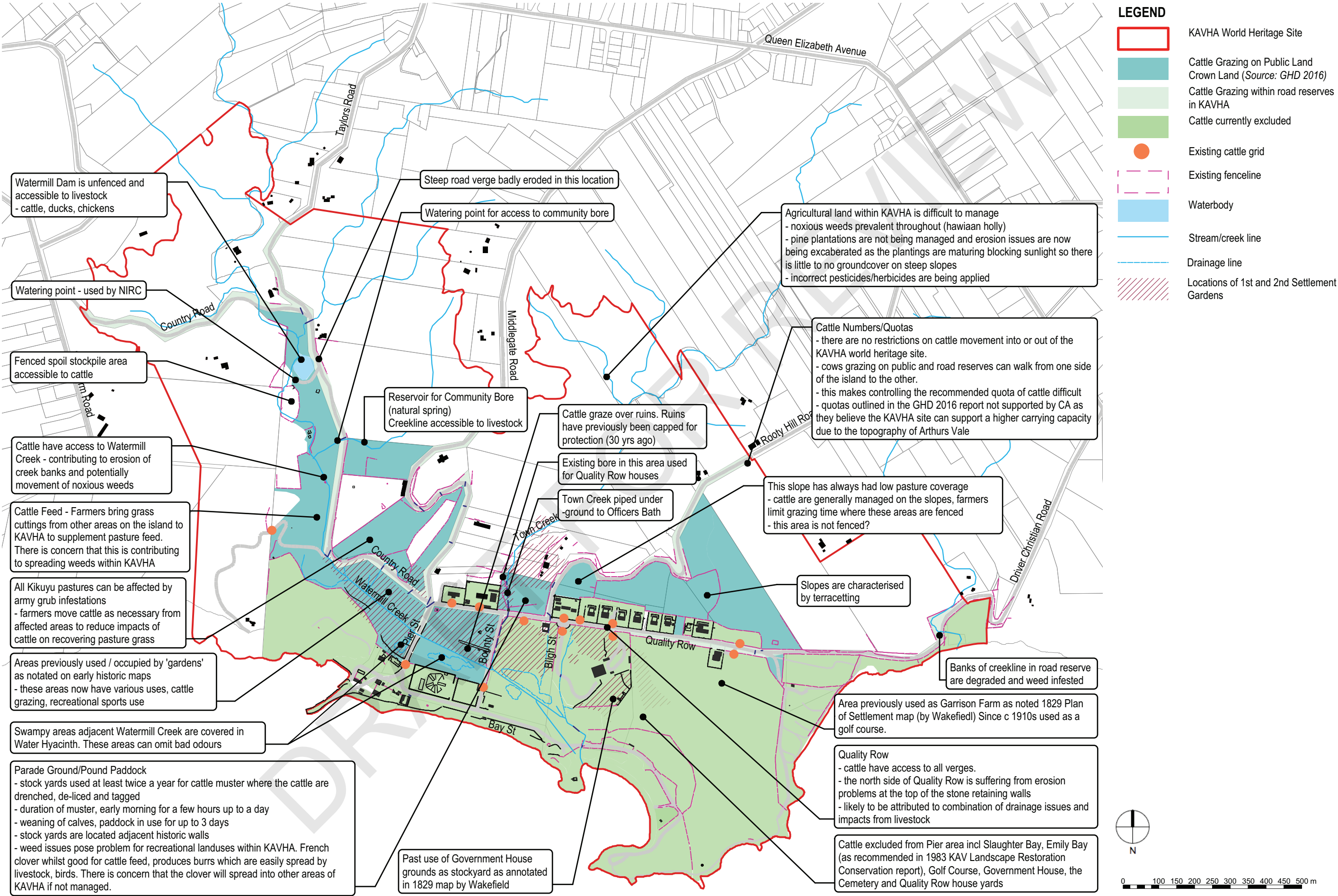




Figure A2.1  
Plan showing the present day areas of public land within the KAVHA site used for grazing.



Summary of observations and issues





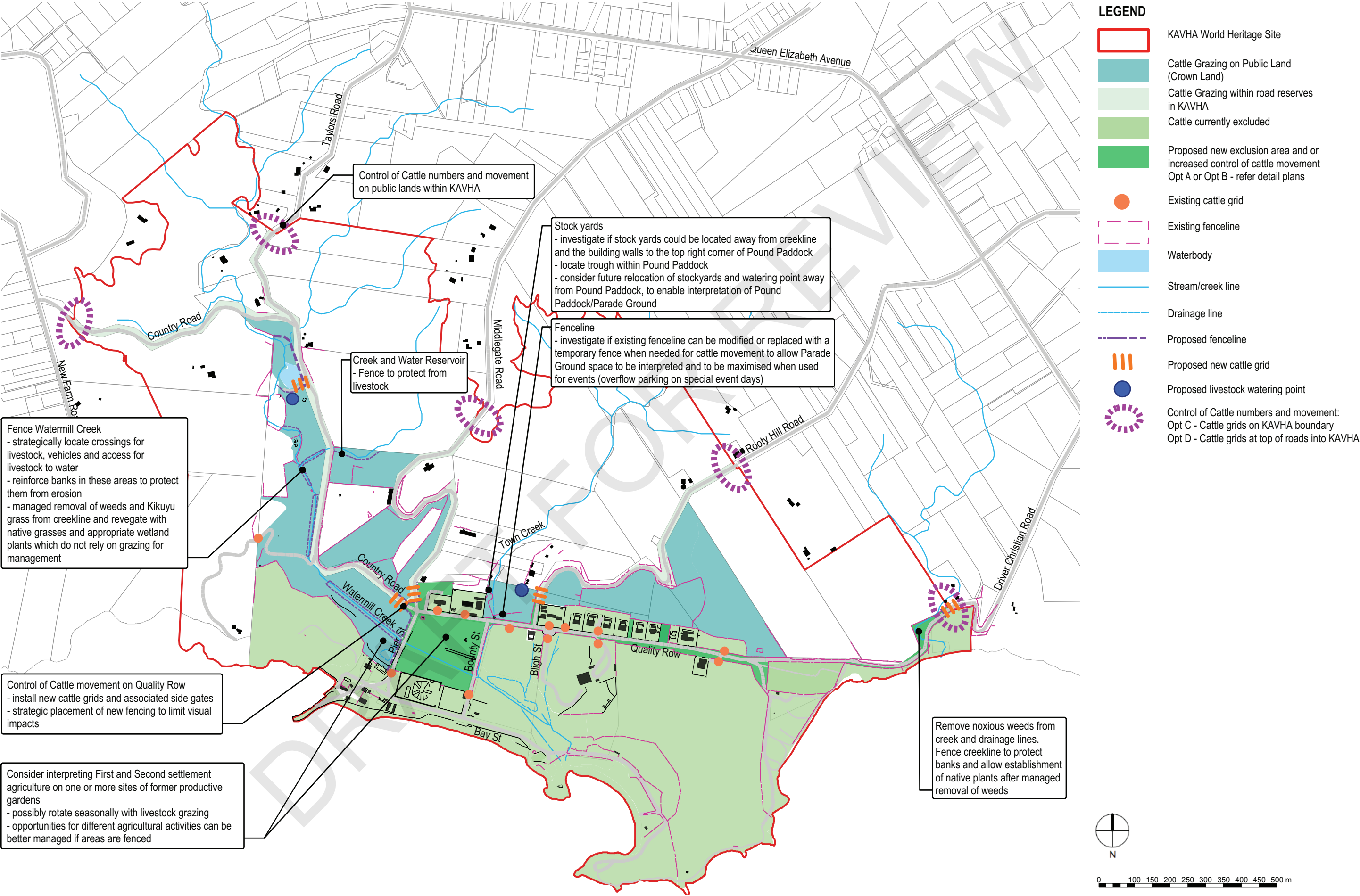
**Table A2.1** Proposals for Specific Projects and Schedule of Proposed Actions, for Discussion. (This is a prioritised schedule – refer to the timing in Section 5.2.2 of the CLMP)

	Objectives	Specific Proposals/Actions	Prioritised Schedule
1.	Sustainable grazing within the KAVHA site, managing potential for negative impacts and harm to physical fabric, water quality, and public health, weed movement, and erosion. Maintain the transmission of KAVHA's history as a place of primary production and self-sufficiency.	Control movement of livestock on Quality Row (refer Specific Proposals shown in Option A or Option B, for discussion).	Short term
		Install permanent fencing to control livestock movement (refer locations shown in Option A or Option B, for discussion).	Short term
		Make provision in maintenance budgets for fencing replacement every three–five years.	Medium term; ongoing
		Control quotas and movement on public land within KAVHA (refer to Specific Proposals outlined in Option C or Option D for discussion).	Short term; ongoing
2.	Protection and enhancement of creek lines and waterways for improved water quality, stabilisation of creek edges, and environmental and public health benefits.	<i>Watermill Creek</i> : Fence creek line; provide crossings for livestock and vehicles and key points to prevent erosion and water contamination.	Short term
		<i>Watermill Creek</i> : Manage creek line vegetation to remove noxious weeds as a priority.	Short term; within 24 months
		<i>Watermill Dam</i> : Fence to protect edges and prevent contamination.	Short term; within 12 months
		<i>Watermill Dam</i> : Remove noxious weeds.	Short term; within 12 months
3.	Effective management of weeds.	Refer to Vegetation Management Specific Proposals for weed management (Section 3, Appendix A).	
4.	Transmission of KAVHA's history as a place of primary production and self-sufficiency.	Explore options for other agricultural activities within the Kingston and Arthur's Vale (Watermill Valley) areas. Introduction of other agricultural activities would require exclusion of livestock from those areas.	Long term—future
		Consider introduction of fence lines to interpret the outlines of former productive gardens of Second Settlement, based on archival or archaeological evidence of garden boundary locations.	Long term
		As resources permit, consider introduction of productive gardens to improve transmission of the history of primary production and self-sufficiency at KAVHA.	Long term—future
5.	Retention of the authenticity and integrity of the KAVHA site.	Investigate replacement of permanent fencing that is not historically appropriate with virtual fencing (*refer to note on Virtual Fencing below).	Medium to long-term; dependent on outcomes of ongoing research and development studies and further trials of the technology

\*Virtual Fencing: Virtual fencing has been developed by the CSIRO. The product 'eShepherd™' is being developed by CSIRO in commercial partnership with Agersens. The product is a GPS enabled collar, worn by livestock, and a mobile application to fence, move or monitor livestock. GPS boundaries are loaded into the collar. Using Google maps on a computer or tablet, virtual boundaries can be set to specific locations; at KAVHA this could be to define area boundaries for controlled grazing, to protect walls or to exclude livestock from waterways. The collar is said to train the animal to stay within a virtual boundary.

Virtual fencing is in the early stages of development. Commercial trials of the product began in early December 2017, and the product was launched in May 2018. This year, further research and development studies are being rolled out by the CSIRO, the University of Sydney, and the University of Tasmania. Virtual fencing may provide a positive solution to controlling livestock movement within KAVHA by avoiding the visual impacts of fencing. Early adoption of this product before outcomes of further research and development studies and trials of the technology are known is not recommended.

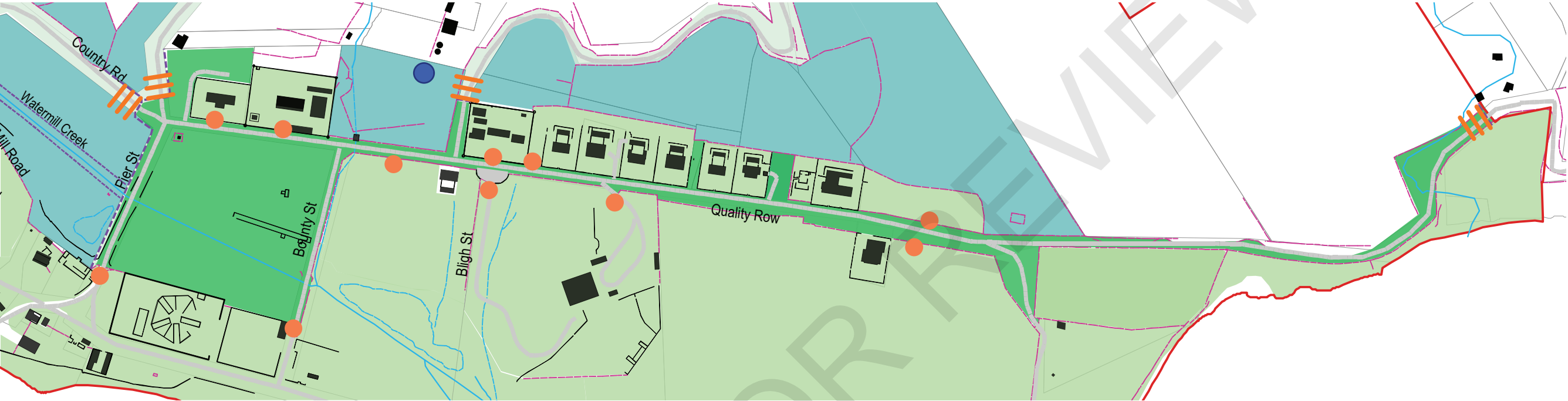
Specific proposals for discussion



Specific proposals - options for control of cattle on Quality Row for discussion

Option A - exclude cattle between Pier Street to Bloody Bridge

- 4 new grids required and associated access gates plus fencing to the west side of Pier Street and extension of fencing along Country Road
- addresses issues on Quality Row that have been associated with cattle movement i.e.. erosion of verges, walls being damaged, cows jumping garden walls
- allows cattle to be excluded from key visitor pedestrian routes i.e. between museums and to the cemetery
- potentially reduces the amount of fencing to creeklines and the lowland area - the Watermill Creek channel between Pier and Bounty Street would not require fencing in this option.



Option B - exclude cattle from Rooty Hill Road to Bloody Bridge

- 2 new grids required, fencing and access gates at each grid location
- little change / few impacts to existing site
- Pound Paddock and stockyards easier to access for management of cattle
- does not provide protection to the external walls of the NMB or OMB from impacts of cattle rubbing/leaning against walls and or soil erosion on verges
- fencing of the Watermill Creek channel between Pier and Bounty Street will still be necessary
- consider as an interim option whilst other sitewide investigations and plans are developed





**Specific proposals - options for the control of cattle numbers and movement KAVHA wide for discussion**

**Generally:**

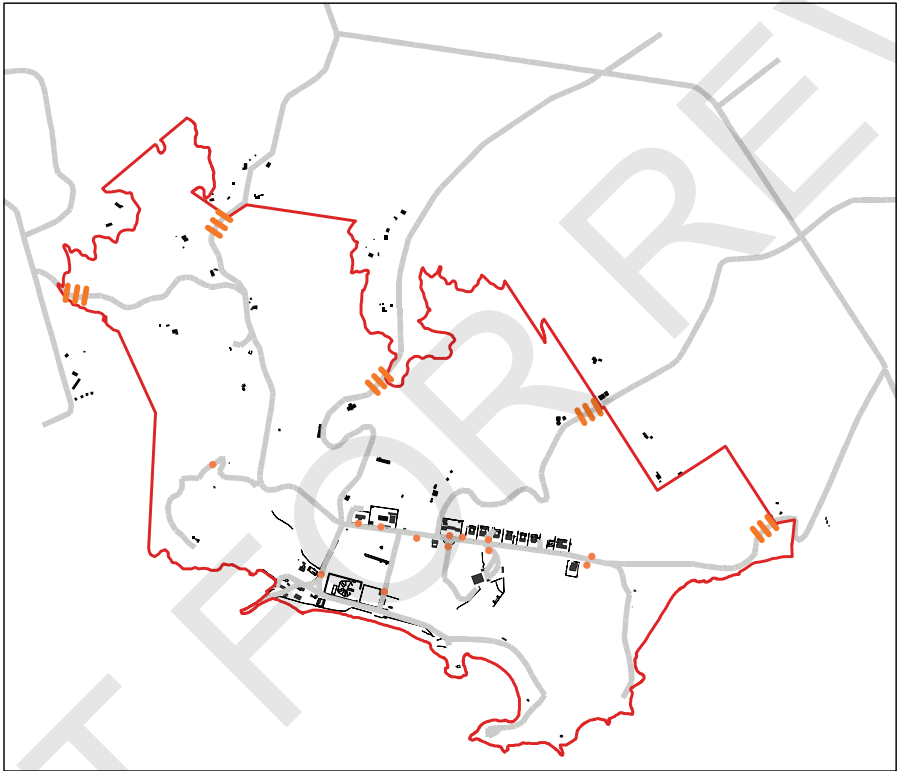
- Install cattle grids and side gates on the roads into the KAVHA site as an alternative to fencing Kingston Common Reserve/Arthur's Vale and retain the open nature of reserves by limiting
- permanently fence creek line with minimum buffer zone of 5m either side with strategically located crossings for livestock, vehicles, pedestrians
- Control cattle movements along Quality Row to protect heritage fabric and address safety concerns for high pedestrian areas.



**Option C - new grids positioned at top of roads leading into KAVHA**

Benefits of this approach include:

- more control over movements of cattle across the island whilst still allowing cattle to roam over a significant area of public lands and road reserves
- position of grids potentially more practical in terms of managing cattle and positioning new water points as opposed to Option B
- the ability to restrict numbers as necessary to a 'zone' of the island (subject to pasture quality, weed management practices etc)
- The control of cattle coming into this 'zone' may assist with controlling the spread of grassy weed species etc.



**Option D - new grids positioned at KAVHA site boundary**

Benefits of this approach include:

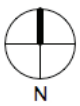
- more control over movements of cattle on public lands and road reserves specifically within the KAVHA area
- provides ability to restrict numbers as necessary within the KAVHA site specifically.

**LEGEND**



KAVHA World Heritage Site

Proposed new cattle grid





## 3.0 Vegetation Management

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### 3.1 Introduction

Vegetation management has been identified as one of four high priority cultural landscape issues at the Kingston and Arthur's Vale Historic Area. Understanding of the issue is informed by review and analysis of relevant reports, targeted engagement and site inspections, and field observations by the project team (5–9 March 2018).

#### Sources

- Australian Construction Services, *The Swamp Creek and Serpentine Area: Conservation Study and Interpretive Design* (vols 1 and 2), June 1994.
- Clifton, Graeme, *Land Degradation Study & Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island*, February 1993.
- Coyne, Peter, *Norfolk Island's Fascinating Flora*, Petaurus Press, ACT, 2011.
- Inspiring Place, *Landscape & Garden Maintenance Advice, Government House Grounds, Norfolk Island*, August 2017.
- Norfolk Island Parks & Forestry Service, *Cemetery Reserve: Plan of Management (Part B Section 13)*, 2003.
- Norfolk Island Parks & Forestry Service, *Government House Grounds Reserve: Plan of Management (Part B Section 14)*, 2003.
- Norfolk Island Parks & Forestry Service, *Kingston Common Reserve: Plan of Management (Part B Section 15)*, 2003.
- Norfolk Island Parks & Forestry Service, *Kingston Recreation Reserve: Plan of Management (Part B Section 16)*, 2003.
- Norfolk Island Parks & Forestry Service, *Point Hunter Reserve: Plan of Management (Part B Section 17)*, 2003.
- Norfolk Island Parks & Forestry Service, *War Memorial Reserve: Plan of Management (Part B Section 18)*, 2003.
- Otto Cserhalmi & Partners, *Kingston & Arthurs Value Historic Area: Conservation Management Plan (Draft)*, 2007.
- Tropman & Tropman Architects, *Kingston and Arthur's Vale Historic Area, Norfolk Island: Landscape Management and Conservation Plan*, vol. 1, May 1994.
- Tropman & Tropman Architects, *KAVHA, Norfolk Island, Conservation Management Plan: Government House and Quality Row Residences Garden Conservation*, January 1997.
- Technical Services Division ACT Region, Department of Housing and Construction, *Arthur's Vale Landscape Restoration and Conservation*, August 1983.
- Aerial photography: 2016 (KAVHA); 1977 (KAVHA); 1944 (NLA).

### 3.2 Opportunities and Approach

Management of vegetation within the KAVHA site provides an opportunity to improve transmission of the heritage values of the cultural landscape. In the Kingston lowland area, this includes actions that would improve visitor understanding and experience of KAVHA's Penal Settlement history of industry, harsh labour and psychological punishment, of self-sufficiency, and key visual and spatial relationships that tell the story of the hierarchy and regime of power and surveillance. Within the whole KAVHA site, it provides an opportunity to restore the landscape character of open valley bottoms and hillsides cleared for agriculture, and the backdrop of undeveloped hillsides with trees on the ridgelines. On the approach roads, it provides an opportunity to improve and enrich visitor understanding and experience of the heritage values of the KAVHA site from the moment they enter the site.

Issues associated with vegetation management are related to other high priority cultural landscape issues, namely livestock management and site drainage and water quality.

In responding to this issue, proposals for vegetation management have considered different aspects of vegetation in a cultural landscape context:

- cultural plantings;
- open space (cleared areas), grass and lawn;
- natural values;
- weeds;
- amenity; and
- sustainability.

### 3.3 Observations and Issues

Evaluation of issues associated with vegetation management within the KAVHA site has included consideration of the following observations, issues and challenges:

- fragmentation of management across the KAVHA site;
- insufficient resources for vegetation management;
- over-dominance of Norfolk Island pines throughout the KAVHA site and areas of weedy, unmanaged land, which obscure the ability of the cultural landscape to transmit its history as cleared land for agriculture, crop production and security reasons;
- predominance of lawn, including large areas of mown grass, which challenges and obscures understanding of the industrial and agricultural past of the KAVHA site;
- insufficient control of weeds and noxious weeds on all land within the KAVHA site;
- lack of integrated best-practice weed management, in particular related to pesticide and herbicide use;
- no active management of Norfolk Island pine plantations, many located on private land (original intent of former KAVHA Board was to thin these to encourage an understorey and manage accordingly). Some of these plantations were commemorative plantings or planted for

stabilisation of eroded land, yet are now contributing to erosion and sediment control issues, for example, as well having adverse impacts of the visual setting of KAVHA.



**Figure A3.1** View from Pier Street up Arthur's Vale—reeds in channel and eroded creek banks. (Source: Context + GML 2018)



**Figure A3.2** View from Chimney Hill towards the Serpentine and channels through Kingston Common, showing escalating reeds within the channels. (Source: GML + Context 2018)



**Figure A3.3** Emily Bay pine plantation obscures views from the QEII lookout to Emily Bay, windmill ruin, and Point Hunter. The pine trees and manicured grass of the golf course do not positively contribute to the landscape character of the Kingston lowland area. (Source: Context + GML 2018)



**Figure A3.4** Grazing cattle make a positive contribution to the bucolic character of the landscape and character of the grass. (Source: Context + GML 2018)



**Figure A3.5** View from QEII lookout across Crown Lease land, heavily weed infested slopes and gullies. (Source: Context + GML 2018)



**Figure A3.6** Pine trees surrounding Government House obscure its intended visual prominence in the landscape. (Source: Context + GML 2018)





**Figure A3.7** Norfolk Island pine trees obscure the intended prominence of Government House. Note: The four trees at the northern end of the row are significant (left hand side of image). (Source: Context + GML 2018)



**Figure A3.8** View from Flagstaff Hill towards Government House and over Kingston is obscured by growth of Norfolk Island pines. (Source: Context + GML 2018)



**Figure A3.9** Views from Government House towards Flagstaff Hill obscured by row of Norfolk Island pines along Bligh Street. (Source: Context + GML 2018)



**Figure A3.10** Uncontrolled reed growth and weeds in channels on Kingston Common. (Source: Context + GML 2018)



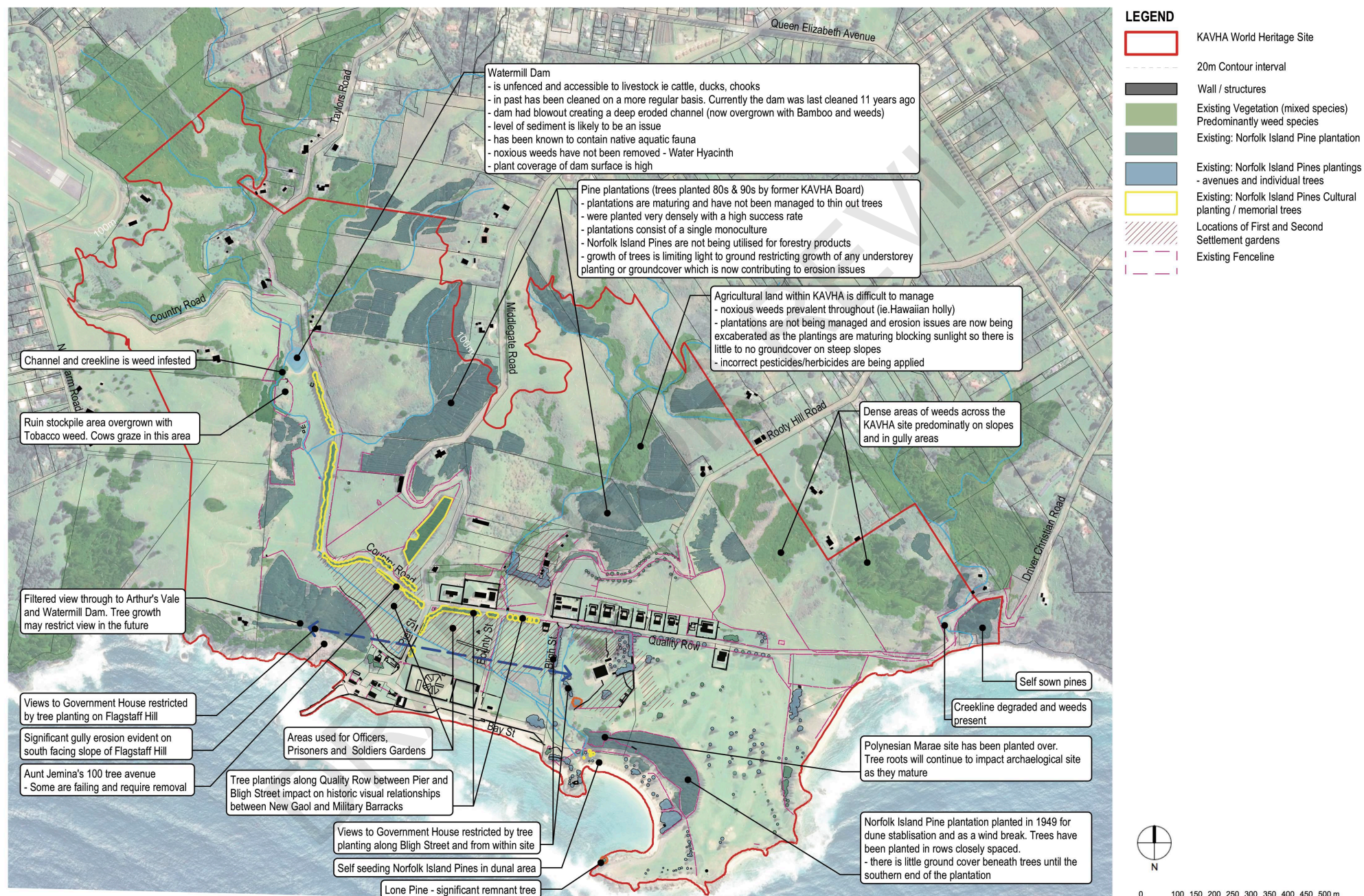
**Figure A3.11** View across Parade Ground to Soldiers Gully. Undeveloped hillside backdrop is colonised by weeds. (Source: Context + GML 2018)



**Figure A3.12** View into Government House grounds, showing mature Norfolk Island pine (harming the physical fabric of the stone wall) and smaller self-sown pine (right). (Source: Context + GML 2018)



## Summary of observations and issues

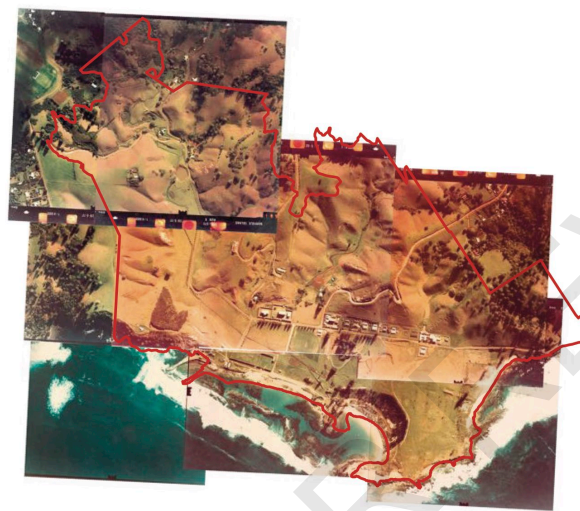




# Increasing vegetation cover from the 1940s - present day



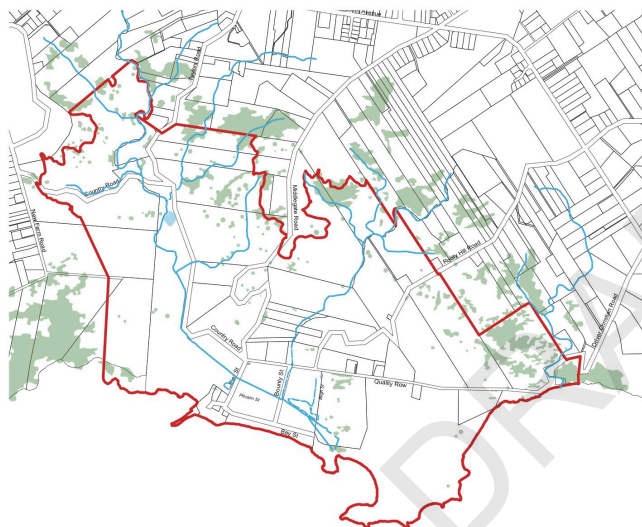
KAVHA boundary overlaid onto 1944 aerial photograph of Norfolk Island (detail). (NLA)



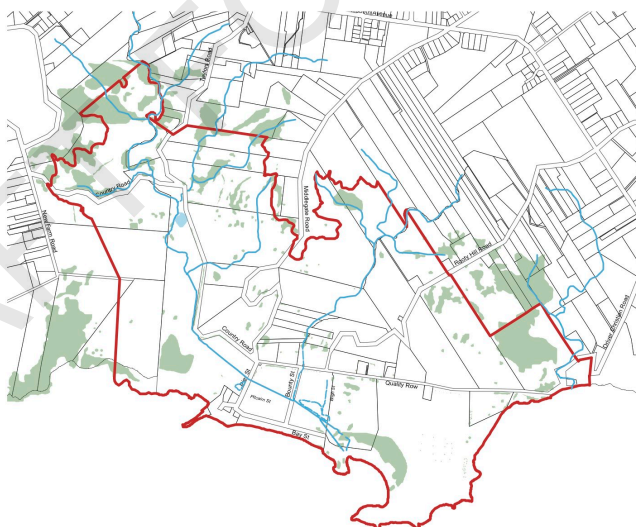
Composite of 1977 aerial photography of the KAVHA site. (KAVHA)



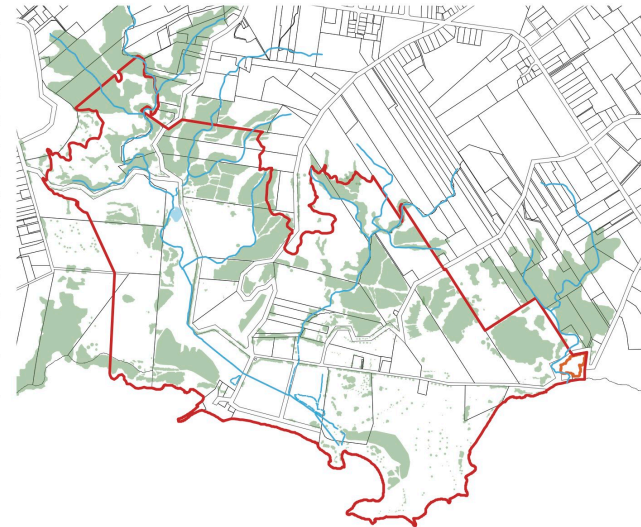
KAVHA boundary overlaid onto current aerial photograph of the site. (KAVHA)



Vegetation cover based on 1944 aerial



Vegetation cover based on 1977 aerial



Vegetation cover based on 2018 aerial



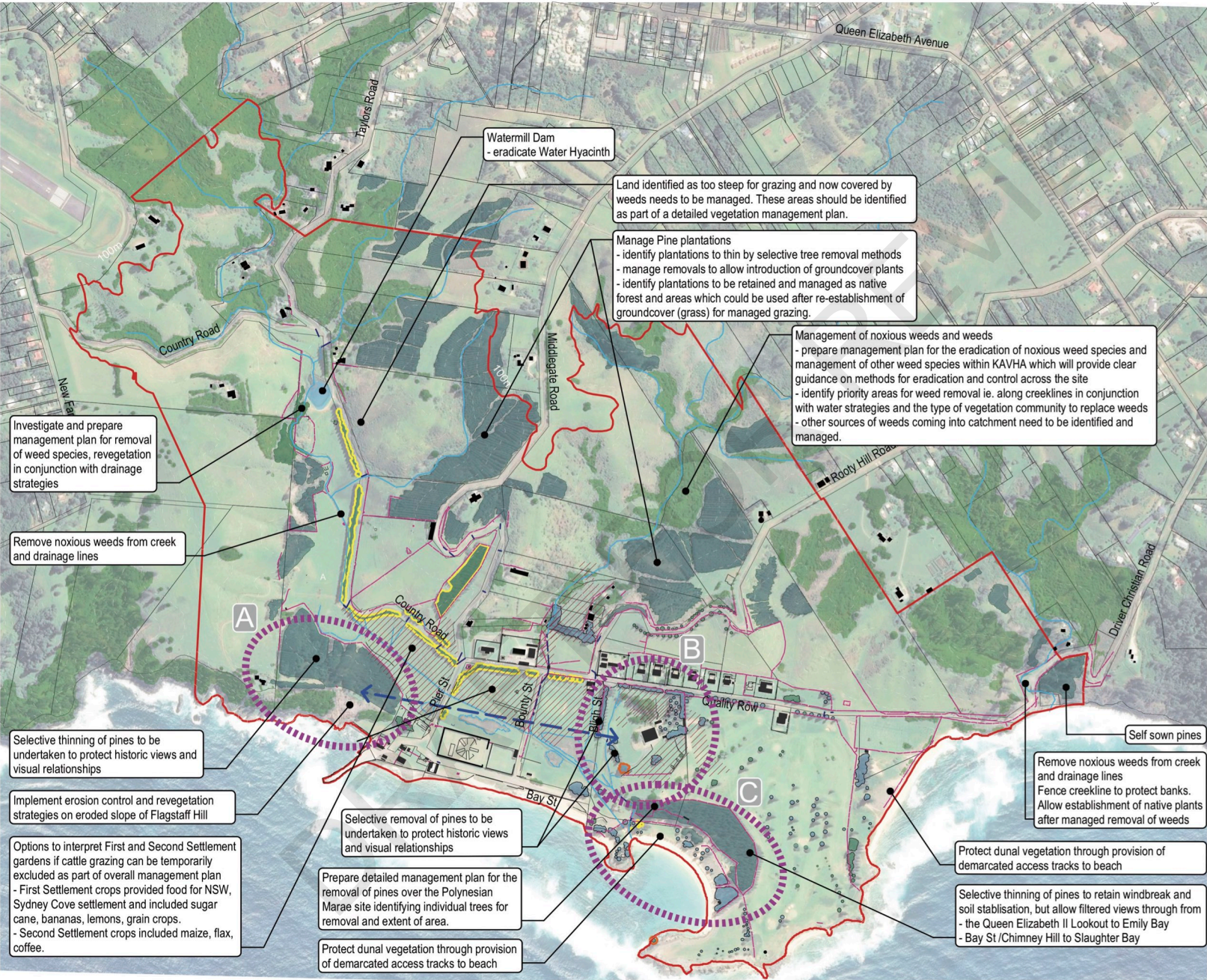
**Table A3.1** Proposals for Specific Projects and Schedule of Proposed Actions. (This is a prioritised schedule – refer to the timing in Section 5.2.2 of the CLMP)

	Objectives	Specific Proposals/Actions	Prioritise Schedule
1.	Coordinated and best-practice management and conservation of the vegetation across the KAVHA site.	Establish clear understanding across all land managers (through consultation and briefing sessions) of the requirements, obligations and approvals processes associated with vegetation management within the KAVHA site, to ensure that heritage values are understood and protected.	Short term; as required
2.	Appropriate funding and staff resources for managing and conserving vegetation within the KAVHA site.	Establish regular funding and dedicated staff resources with the right skill sets and clear understanding of objectives and requirements for managing the values of the World Heritage site.	Short term; ongoing
3.	Clearly legible significant visual and spatial relationships and views, and landscape character that helps transmit the heritage values of the KAVHA site.	<b>Tree removal</b> —for restoring significant views, visual relationships and setting: Consult with the community about requirements and rationale for tree removal.	Short term
		Crown land/reserve—Flagstaff Hill and Government House grounds (a staged approach).	Short–medium term (after consultation)
		Thin NI Pines on Salt House Point to recover visibility of Salt House ruins.	Short term (after consultation)
		Selective removal of Norfolk Island pines to open up ‘key hole’ vistas between military and clergy buildings along Quality Row and the prison and gaol buildings on Slaughterhouse Bay.	Medium term (after consultation)
4.	Reduced dominance of Norfolk Island pines within the KAVHA site.	<b>Tree removal or thinning and management</b> —Norfolk Island pines:	
		Assess plantations and define the scope of works required.	Short term
		Engage with community and relevant landholders about the issue and future management objectives in relation to Norfolk Island pine plantations and tree removal.	Short term
		Thin monocultural plantations of Norfolk Island pines on Crown land.	Medium to long term (prioritise Flagstaff Hill and dune behind Emily Bay and areas needing erosion and sediment control)
		Actively manage Norfolk Island Pine plantations on private land.	Medium term; ongoing
		Identify and assess issues associated with Norfolk Island pine plantations on private land. Consult with landowners about future proposals to manage and maintain plantations and appropriate future land use, and erosion control.	Short term
		Establish resources for removing monocultural pine plantations on private land. Replant with diverse communities of indigenous vegetation appropriate to the particular land form, topography, aspect, altitude, terrain, and proximity to the coast, and balancing the requirements for erosion control and prevention, or an appropriate change of land use.	Medium term
		<i>Golf Course</i> : Review and update tree planting policy for Golf Course, in consultation with lessees, to redress the over-dominance of Norfolk Island pines. Norfolk Island white oak and other indigenous species suited to the coastal lowland area would be appropriate.	Short term
5.	Reduced prominence of lawn/large areas of mown and manicured grass.	<i>Golf Course</i> : Enhance the open landscape character of the reserve, which was formerly agricultural/productive land, in part a quarry and, before that, described as ‘swampy’.	Medium term; ongoing
		Establish differential mowing regimes to: <ul style="list-style-type: none"> <li>reduce the predominance of mown and manicured lawn throughout the KAVHA site;</li> <li>interpret early pathways and routes;</li> <li>counter the effects on landscape character by the proposed action to exclude livestock from part of the Kingston Common (between Pier and Bounty Streets); and</li> <li>balance the large area of the Golf Course (highly manicured greens) which does not contribute to transmission of the values of the KAVHA site’s cultural landscape.</li> </ul>	Short term
		Amend the Lawn Mowing Schedule in the Service Delivery Agreement (Schedule 1, Attachment D) to take account of revised mowing regimes.	Short term
		Investigate introduction of other agricultural patterns (field boundaries) or uses to interpret former productive gardens and the history of self-sufficiency.	Medium–long term

	Objectives	Specific Proposals/Actions	Prioritise Schedule
6.	Integrated, best practice weed management (eradication, control, ongoing management, prevention) for all land within the KAVHA site.	<b>Weed management</b> Develop an integrated weed management plan for the KAVHA site that meets current standards for weed management. The weed management plan should include clear guidance on methods for eradication and control of weeds across the site.	Short term
		Ensure adequate funding and staff resources for weed prevention, early detection and eradication, control, and ongoing maintenance.	Short term; ongoing
7.	Other specific proposals in accordance with Policy 8.2.6 Public Gardens in the KAVHA Heritage Management Plan (2016).	<b>Gardens (Government House)</b> Implement 2017 Inspiring Place report recommendations, subject to developing an evidence base and criteria for appropriate species selection. Criteria for appropriate selection of species include: comparable aesthetic characteristics (size, form, habit, foliage colour and texture, and floral features, as relevant); interpretive potential (historically appropriate food plants, for example); and sustainability (plants suited to environment, soil, climate and microclimate, and without biosecurity risks).	Short term
		<b>Gardens (Quality Row)</b> Review and update plant lists for the kitchen and ornamental gardens of Quality Row Houses. Base plant lists on Tropman and Tropman 1997 recommendations. Where an original or early plant species is not available or presents a weed or biosecurity threat, alternative plant species should be determined. Criteria for appropriate alternative species (refer to Policy on Garden Plants in Section 6.2.5 of the CLMP, and as above).	Short – medium term
		Remove intrusive pathway and courtyard paving surfaces (concrete, concrete pavers) and replace with historically appropriate fabric (evidence-based, from archaeological investigation).	Medium term



Specific proposals



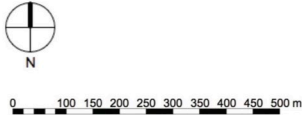
**LEGEND**

- KAVHA World Heritage Site
- 20m Contour interval
- Wall / structures
- Existing Vegetation (mixed species)  
Predominantly weed species
- Existing: Norfolk Island Pine plantation
- Existing: Norfolk Island Pines plantings  
- avenues and individual trees
- Existing: Norfolk Island Pines Cultural planting / memorial trees
- Locations of First and Second Settlement gardens
- Existing Fenceline

Refer to detailed proposals for the following areas:

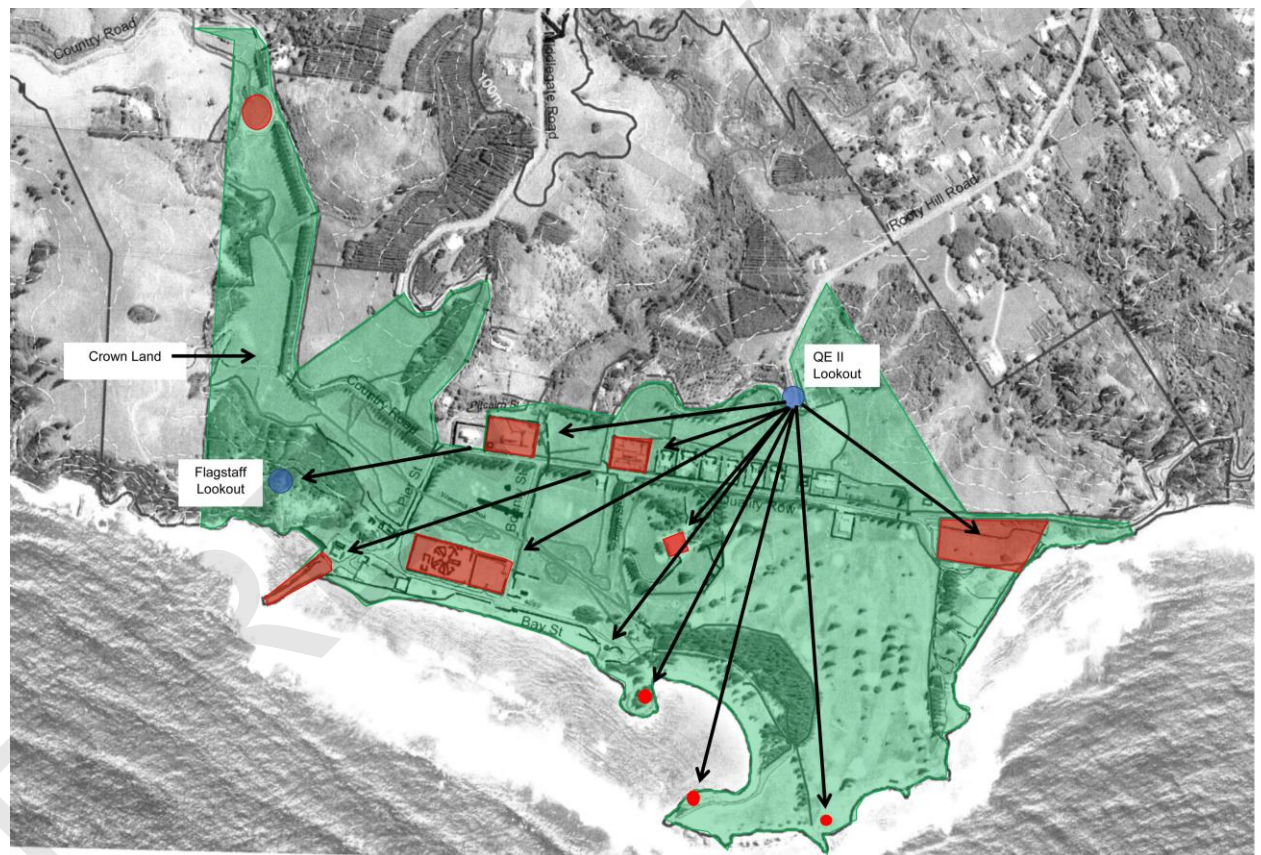
- A Flagstaff Hill
- B Government House Grounds
- C Emily Bay

**Water hyacinth** must be managed appropriately and eradicated. (Note: Water Hyacinth is listed as a Weed of National Significance in Australia. In NSW it is a Class 2 (Notifiable) noxious weed in the majority of Local Council areas). Seed banks can last for up to 30 years.



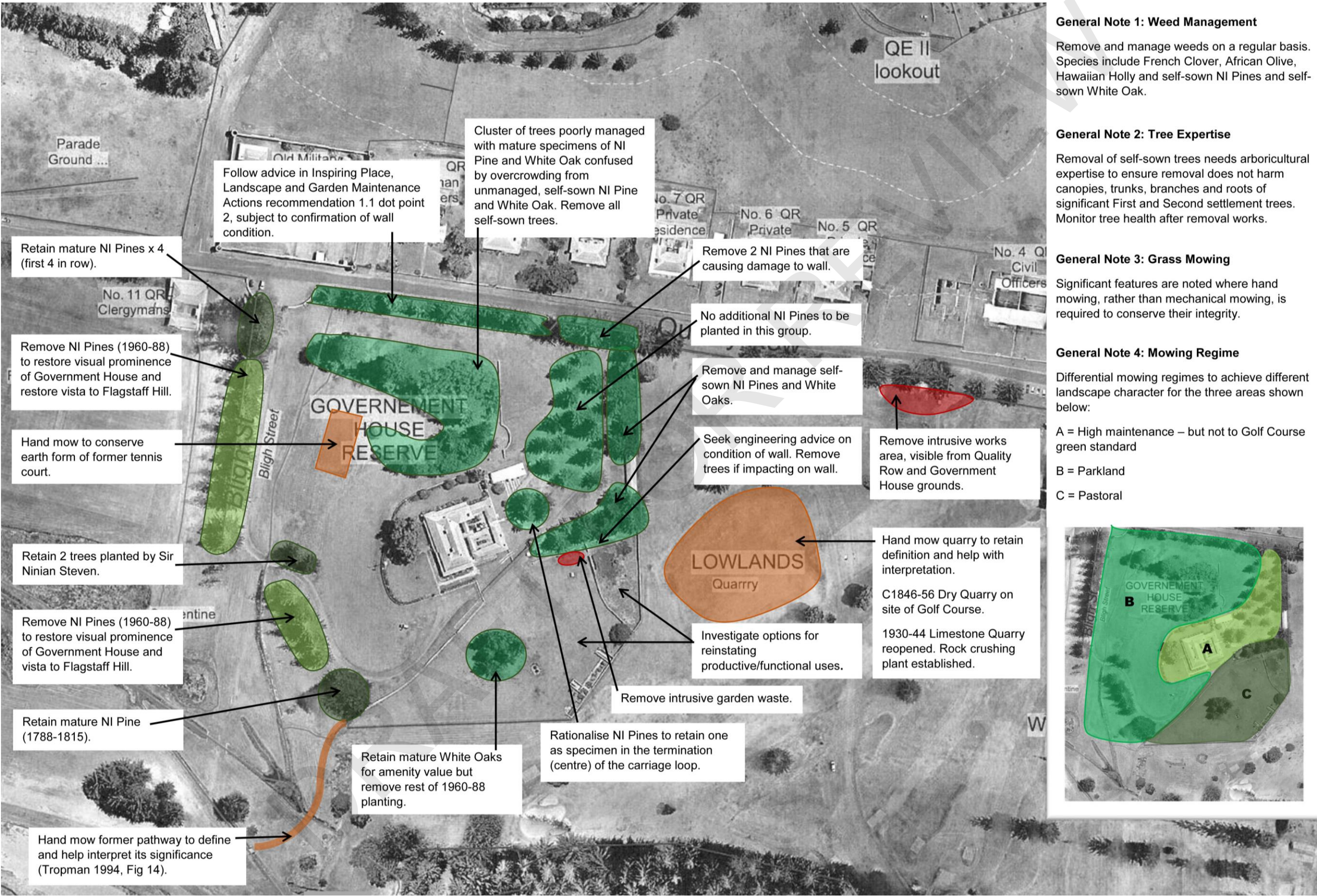


Detailed Area A – Flagstaff Hill



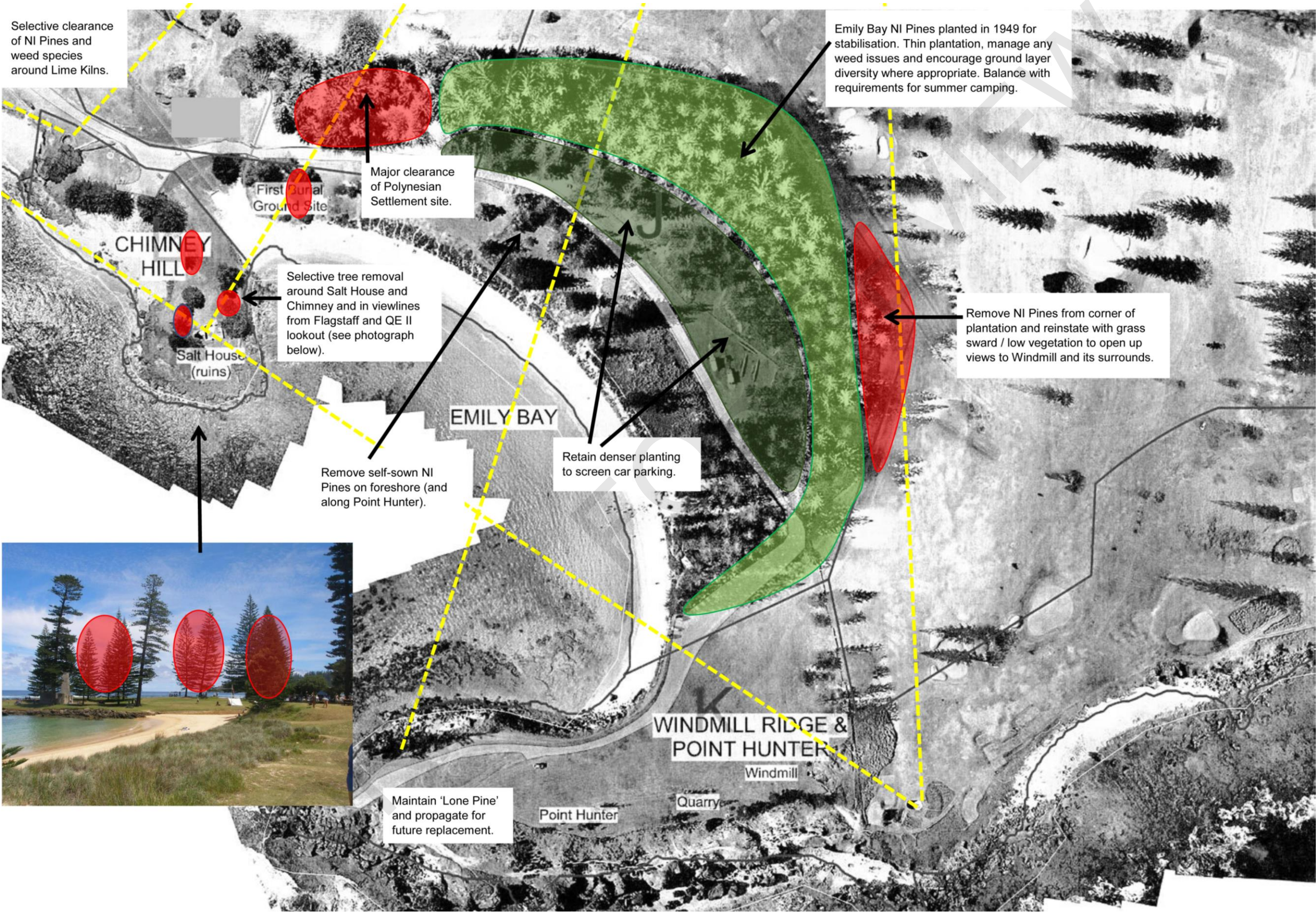


Detailed Area B – Government House





Detailed Area C – Emily Bay





DRAFT FOR REVIEW

## 4.0 Site Drainage and Water Quality

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### 4.1 Introduction

Site drainage and water quality have been identified as one of four high priority cultural landscape issues at the Kingston and Arthur's Vale Historic Area. Understanding of the issue is informed by review and analysis of relevant reports, targeted engagement and field observations by the project team (5–9 March 2018), and information provided by the Commonwealth Heritage Manager.

For the purposes of this report, the two components of this issue are defined as follows:

- site drainage: the movement of water through the wider KAVHA catchment, through the KAVHA site, and out to sea; and
- water quality: the quality of the water that moves through the KAVHA catchment, the KAVHA site, and into the sea.

### Sources

- Australian Construction Services, *The Swamp Creek and Serpentine Area: Conservation Study and Interpretive Design*, vols 1 and 2, June 1994.
- Clifton, Graeme, *Land Degradation Study & Management Plan: Kingston and Arthur's Vale Historic Area, Norfolk Island*, February 1993.
- Davidson, Peter, *Norfolk Island, Kingston and Arthur's Vale Historic Area Water Quality Management Plan*, February 1997, *Norfolk Island KAVHA Water Quality Management Plan 1997*.
- URS, *Norfolk Island Water Quality Study: Emily Bay and Upper Cascade Creek Catchments*, May 2013.
- Otto Cserhalmi & Partners, *Kingston & Arthurs Vale Historic Area: Conservation Management Plan (Draft)*, 2007.
- 'Serpentine & Swamp' (Ref: F21/F3) and 'Arthur's Vale' (Ref: M), interpretive panels, KAVHA site.
- Tropman & Tropman Architects, *Kingston and Arthur's Vale Historic Area, Norfolk Island: Landscape Management and Conservation Plan*, vol. 1, May 1994.
- Wilson, PJ, *Water Quality in the KAVHA Catchment*, prepared on behalf of the Norfolk Island Regional Council, December 2017.

### 4.2 Opportunities and Approach

Appropriate conservation and management of site drainage and water quality within the KAVHA site has potential to create a healthy system of creeks, waterways, swamps, channels and drains that has no adverse environmental or health impacts and that transmits the heritage values of the KAVHA site's cultural landscape.

The issues associated with site drainage and water quality are complex and multifaceted, and the two components are interrelated. Issues associated with site drainage and water quality are also related to two of the other high priority cultural landscape issues, livestock management and vegetation management.

In responding to the issues, the strategies for resolving site drainage and water quality issues need to consider three kinds of water-bodies, as defined in 'Water Quality' in the KAVHA Catchment study (Wilson, 2017):

- surface waters (creeks and wetlands/swamps);
- ground water; and
- marine receiving waters (Emily Bay).

Specific proposals need to consider the site drainage and water quality issues as they are apparent within the KAVHA site, as well as point source pollution in a catchment wide context.

### **4.3 Observations and Issues**

The overarching challenge related to site drainage and water quality is achieving an appropriate balance between cultural heritage values, environmental values, and public health concerns. The issues are complex and multifaceted, and diverse factors need to be considered in determining appropriate and best ways to resolve it.

#### **4.3.1 Whole of Catchment Issues**

- Unfiltered stormwater enters KAVHA catchment and flows into Emily Bay with adverse effects on the marine environment (there is potential for more frequent extreme weather events producing high volumes of stormwater).
- Insufficient movement of water from the ephemeral swamps/wetlands on Kingston Common.
- Weeds, including noxious weeds, in creek lines and swamp areas. Little to no vegetation management compounding the issue.
- Sediment washing from eroded land is contributing to siltation issues within drainage catchments and systems.
- Health risks and environmental concerns: public health risks and environmental concerns in relation to groundwater, surface waters, coastal swimming waters and marine habitats have been identified. High nutrient and high coliform levels present, resulting from untreated human and stock sewage.
- Unfiltered stormwater and wastewater entering the catchment: water quality investigations have identified the need to slow water flowing in creeks to prevent erosion, control sediment release, and allow filtration of groundwater. Currently, large volumes of fresh and turbid water are entering Emily Bay in high rainfall events.
- A number of properties are not connected to the sewerage system and still rely on soakage trenches.
- Pollutants enter the catchment from diverse sources, presenting challenges for future integrated management, including from the airport, car wash, and diesel power plant.

### 4.3.2 KAVHA Site Specific Issues

- A number of buildings within the KAVHA site are reliant on soakage, for example: Quality Row houses (some soakage, some tanks, but aged infrastructure); Panorama tourist accommodation; Government House has the only upgraded holding tanks in KAVHA. Septic upgrade proposed by NIRC for whole-of-island wastewater management, commencing with Little Corm monitoring area.
- Livestock in proximity to creeks, swamps, and bores, contributing to erosion of creek banks and water pollution.
- Use of pesticides and herbicides in proximity to waterways, impacts on native flora and fauna and human health.
- Lack of water flow in Watermill Creek channel and through Kingston Common, contributing to soil saturation that has impacts on structures, including Bounty Bridge and Pier Street bridge.
- Channels are not managed and, as a result, are clogged with reeds and weeds (escalating).



**Figure A4.1** Lack of water flow and soil saturation on Kingston Common, west side of Pier Street. (Source: Context + GML 2018)



**Figure A4.2** Reed and weed clogged channels on Kingston Common. (Source: Context + GML 2018)



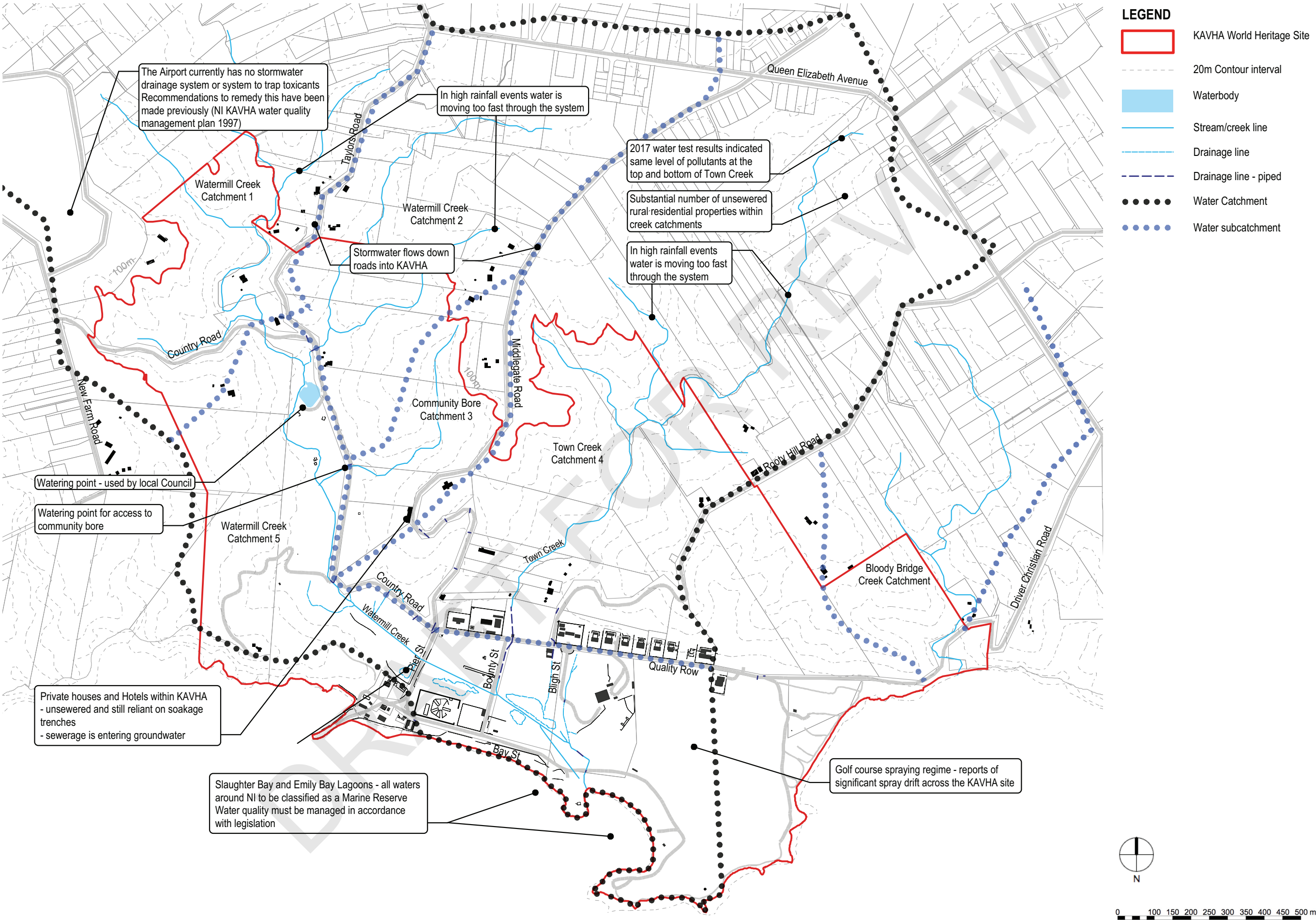
**Figure A4.3** Drain into Emily Bay. (Source: Context + GML 2018)



**Figure A4.4** Reeds damming and slowing water flow, contributing to saturation of soil on Kingston Common (Bounty Street Bridge shown). (Source: Context + GML 2018)



Summary of catchment wide observations and issues







**Table A4.1** Proposals for Specific Projects and Schedule of Proposed Actions. (This is a prioritised schedule – refer to the timing in Section 5.2.2 of the CLMP)

	Objectives	Specific Proposals/Actions	Prioritised Schedule
1.	A holistic, catchment wide approach to site drainage and water quality that engages appropriate expertise and is integrated into wider wastewater management strategies and projects.	Engage and integrate expertise in hydraulic engineering, archaeology, landscape architectural heritage, ecology, and wastewater management to assist in decision making about the physical, visual and functional characteristics of the lowland swamp/Serpentine and drainage system.	Short term; ongoing
2.	Improved quality of surface, ground and marine receiving waters throughout the KAVHA catchment to avoid environmental impacts and ensure public health and safety.	Convert existing soakage trench waste management systems within KAVHA to tank systems. Install and/or upgrade associated infrastructure, as relevant.	Short term
		Connect houses and buildings on Quality Row and other buildings, private properties and hotels/chalets to sewerage system.	Medium term, in connection with NIRC waste management projects
		Investigate options for the capture, treatment and re-use of grey water on site.	Long term
3.	Protected and enhanced significant layout of the terrestrial watercourse and significant fabric of drains, bridges, culverts and other water-related infrastructure.	Ensure any new site drainage works are designed to retain, protect and interpret significant fabric of infrastructure and related landscape elements. Ensure archaeological and archival evidence is incorporated into decision making.	Short term; as required
		Review and reconcile the multiple factors to the table on the following pages to establish guiding priorities that can assist decision making around the swamp/Serpentine.	Short term
4.	Protected and enhanced significant layout and edges of creek lines and channels, to mitigate erosion issues, enhance habitats and improve water quality.	Review number of barrages influencing creek flow.	Short term, considering advice from integrated assessment in Objective 1.
		Undertake staged weed management and appropriate vegetation establishment.	Short term (commencement) Staged
		Restore creek and swamp margins and banks.	Short term, as weeds/reeds are cleared.
		Implement livestock exclusion zones for creek and swamp margins and banks, in accordance with the GHD report recommendations.	Short term
5.	Controlled flow and movement of water through the creek lines, from upstream and from the wider KAVHA catchment area.	Improve water holding capacity upstream and along creeks (barrages or similar).	Medium term, taking advice from integrated assessment in Objective 1 into consideration.
		Minimise volume of freshwater and sand emptying into Emily Bay (flood events).	Medium term, taking advice from integrated assessment in Objective 1 into consideration.
		Restore movement of water through the ephemeral swamps within the KAVHA site.	Medium term, taking advice from integrated assessment in Objective 1 into consideration.
		Investigate options for water harvesting of surface water from Town and Watermill Creek which can be re-used on site for irrigation, toilet flushing, and potentially for flushing of drainage channel.	Future
6.	Managed flow of water and sediment into Emily Bay to reduce environmental impacts on the marine environment.	Current strategy is covered in Objective 1.	



# Water Management Principles

Proposals for site drainage and water quality should be determined after comprehensive investigation of the whole system (catchment wide) including investigations and improvements to water quality and wastewater management. Investigations should engage and integrate expertise in hydraulic engineering, archaeology, landscape architectural heritage, ecology and wastewater management.

This includes integration with investigation of the stability of the Bounty Street bridge and the proposed actions arising. As a low lying area of highly permeable substrate the soils surrounding both Pier Street and Bounty Street are regularly water laden which can affect stability of structures. Staging implementation of water management works also need to be coordinated, e.g. creek corridor temporarily diverted to enable Bounty Street stabilisation works and creek cleanup and de-sedimentation to occur.

Proposals to resolve site drainage and water quality issues should be informed by the following principles:

- 1. Treat and trap pollutants at entry points into KAVHA** (on creek lines, drainage lines, stormwater)
  - treatment of coliforms at Town Creek (medium term goal for all buildings to be connected to sewerage system)
  - install Gross Pollutant Traps (GPTs) and silt/sediments arrestors. Maintenance will be required on a cyclical basis to clean out GPTs.
- 2. Slow speed of water to trap sediments and nutrients prior to entering downstream channels**
  - re-vegetate drainage gullies and steep eroded slopes
  - re-vegetate creek and channel lines (enhancing ecological diversity)
  - installation of retardation basins, new wetlands
- 3. Control speed of water flow in Kingston lowland area**
  - regular management of channel and plants in channels to ensure sufficient movement of water in lower Watermill Creek to prevent soil saturation and stagnation
  - resolve/restore channel and flow beneath Bounty Street bridge
- 4. Reduce volume of freshwater entering Emily Bay**
  - increase storage capacity within catchments by installation of retardation basins, wetlands, leaky weirs on creek lines
  - ("doubling storage capacity of Watermill Creek catchment would result in a five-fold decrease in number of run-off events that ran directly to sea" Davidson,1997)
- 5. Management and monitoring**
  - ongoing water management and a monitoring plan to include regular testing of water quality
  - regular management of plants in channels to retain width, visibility and appearance of historic channels and diversity in native species
  - regular noxious weed control
- 6. Heritage interpretation**
  - interpret c.1835-38 layout of the Serpentine on the ground
  - interpretation opportunity, for a discrete part of water/drainage system to demonstrate pre-settlement function of the swampy areas of the Kingston lowlands.
  - remove 1939-42 channel
- 7. Sustainability and future proofing**
  - diversion of fresh water from the Serpentine area to an underground storage facility for reuse
  - diversion of fresh water to a separate ocean outfall for major rain/flood events

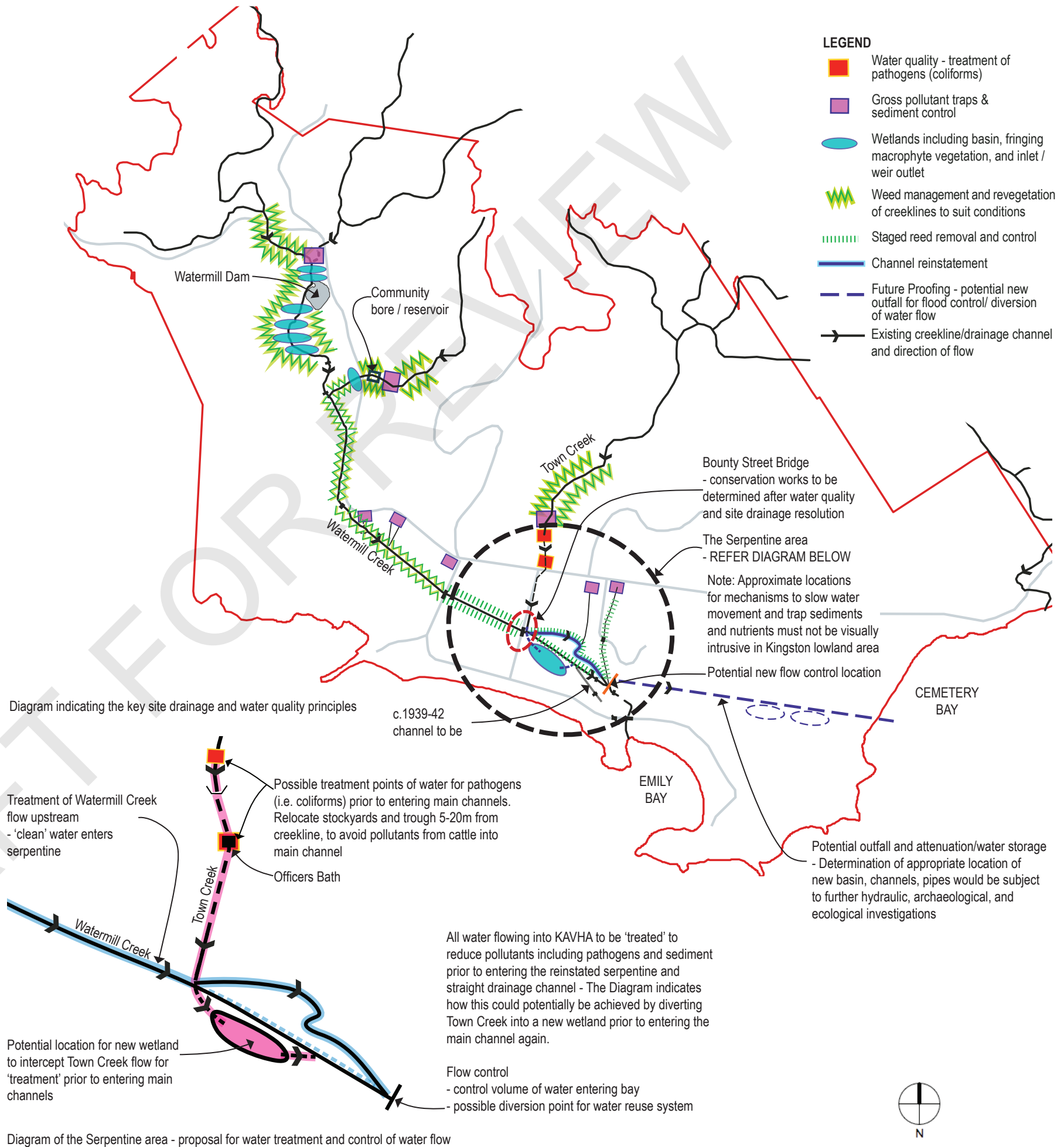




Table A4.2 Literature Review and Analysis of Issues.

	Past Strategies/Actions	Flood Control	Water Quality	Habitat/Ecology	Heritage Interpretation	Visual Landscape
1	<p>Livestock Exclusion Zones (2017 WQR)</p> <ul style="list-style-type: none"> <li>Exclude livestock from Watermill Creek by fencing or cattle collars ('virtual fence' GPS controlled).</li> <li>Provide 5m buffer zone either side of waterways, troughs located clear of permanent water bodies (PJ Wilson based on NZ Dairy industry best practice).</li> </ul>	<ul style="list-style-type: none"> <li>Assist with preventing erosion of creek channel banks and allowing native vegetation to establish.</li> </ul>	<ul style="list-style-type: none"> <li>This is likely to reduce level of contamination of surface water from within KAVHA.</li> </ul>	<ul style="list-style-type: none"> <li>Allows waterway habitats to be re-established.</li> </ul>	<ul style="list-style-type: none"> <li>Position of fence lines could interpret First/Second Settlements.</li> </ul>	<ul style="list-style-type: none"> <li>Fence lines may be considered visually intrusive on 'bucolic' landscape character.</li> </ul>
2	<p>Livestock Exclusion Zones (2013 WQR)</p> <ul style="list-style-type: none"> <li>20m exclusion zone around waterways, dams and wetlands.</li> <li>10m exclusion zone around bores.</li> </ul>	<ul style="list-style-type: none"> <li>Assist with preventing erosion of creek banks and allowing native vegetation to establish.</li> </ul>	<ul style="list-style-type: none"> <li>This will ensure potential for contamination from manure is significantly reduced.</li> </ul>	<ul style="list-style-type: none"> <li>Allows waterway habitats to be re-established.</li> </ul>	<p>Width of exclusion area along waterways is significant. Or is it compatible to partly use zone for other agricultural interpretation ie demonstration crops?</p>	<ul style="list-style-type: none"> <li>Management of vegetation of exclusion zone.</li> <li>Difficult to establish simple fence alignments.</li> <li>Fence lines may be considered visually intrusive on 'bucolic' landscape character.</li> </ul>
3	<p>Provide alternative drinking water sources for livestock (2013 WQR):</p> <ul style="list-style-type: none"> <li>Provision of troughs away from dam, waterways, channel.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in erosion of creek/channel banks.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in potential for contamination including sediment.</li> </ul>	<ul style="list-style-type: none"> <li>Less disturbance where habitats being re-established.</li> </ul>	<ul style="list-style-type: none"> <li>Strategically locate away from significant ruins.</li> </ul>	<ul style="list-style-type: none"> <li>Need to provide water infrastructure—potentially underground.</li> </ul>
4	<p>Stocking rate (2013 WQR):</p> <ul style="list-style-type: none"> <li>Reduce stocking rate.</li> <li>Stock rotation in response to grazing conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in erosion of creek/channel banks.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in potential for contamination including sediment.</li> </ul>	<ul style="list-style-type: none"> <li>Less disturbance where habitats being re-established.</li> </ul>	<ul style="list-style-type: none"> <li>Still significant numbers of cattle retained within KAVHA to contribute to agricultural character.</li> </ul>	<ul style="list-style-type: none"> <li>Still significant numbers of cattle retained within KAVHA to contribute to visual character.</li> </ul>
5	<p>Divert creek and stormwater from entering Emily Bay into settling ponds situated in the Golf Course. This would also provide an opportunity for water harvesting (2017 WQR, PJ Wilson).</p> <ul style="list-style-type: none"> <li>Excess water to be directed to an outfall off Cemetery Bay where water is rapidly diluted and dispersed.</li> </ul>	<ul style="list-style-type: none"> <li>Protection of marine environment.</li> <li>Potentially reduces water retention between Pier Street and Bligh Street (note this area is a low point) and swampy land.</li> </ul>	<ul style="list-style-type: none"> <li>Protects Emily Bay marine environment.</li> <li>Offers opportunities for polluted water to be treated before re-use or diversion to Cemetery Bay.</li> </ul>	<ul style="list-style-type: none"> <li>Settling ponds provide opportunity for new habitat establishment.</li> <li>Existing channels would need to be part cleared of reeds to allow water to flow to ponds/attenuation tanks?</li> </ul>	<ul style="list-style-type: none"> <li>Water diversion and controls have been part of the KAVHA story since First Settlement.</li> </ul>	<ul style="list-style-type: none"> <li>Potential for ponds to be sensitively integrated into Golf Course or underground retention tanks.</li> </ul>
6	<p>Introduce leaky weir system across the catchment to slow water, and allow natural uptake of nutrients ie below Watermill Dam (2017 WQR).</p>	<ul style="list-style-type: none"> <li>Slowing water will reduce erosion of creek and channel, level of sediments carried downstream.</li> </ul>	<ul style="list-style-type: none"> <li>This will help to reduce sediment build-up lower down in water catchments.</li> </ul>	<ul style="list-style-type: none"> <li>Habitat areas could be re-established.</li> </ul>	<ul style="list-style-type: none"> <li>Water diversion and controls have been part of the KAVHA story since First Settlement.</li> </ul>	<p>There are locations, ie below either side of Watermill Dam, where a system could be integrated sensitively.</p>
7	<p>Connect all properties within Catchment to Sewerage (2017 WQR plus targeted engagement).</p>	<ul style="list-style-type: none"> <li>Reduction in potential for sewerage entering ground/surface water throughout catchment.</li> </ul>	<ul style="list-style-type: none"> <li>This is likely to significantly improve ground and surface water in the long term to acceptable public health levels.</li> </ul> <p>Significant positive impact on the marine environment in Emily Bay.</p>	<ul style="list-style-type: none"> <li>Improve likelihood of sensitive aquatic species colonising new and existing aquatic habitats.</li> </ul>	<ul style="list-style-type: none"> <li>Installation of underground pipe network (less impact if beneath long-established access roads).</li> </ul>	<ul style="list-style-type: none"> <li>Removal and rationalisation of visible plastic storage tanks in gardens of Quality Row houses will be a positive.</li> </ul>
8	<p>Trial removal of bands of reeds ie five–10m bands perpendicular to waterflow and re-vegetate with native sedges to provide diversity in species (2013 WQR).</p>	<ul style="list-style-type: none"> <li>Retention of vegetation will aid bank stabilisation, level of sediments carried downstream.</li> </ul>	<ul style="list-style-type: none"> <li>Retention of some vegetation will assist with sediment control.</li> </ul>	<ul style="list-style-type: none"> <li>More diversity in species.</li> </ul>		
9	<p>Intercept toxicants from runoff from airport, stormwater (1997 WQR). (Outside of KAVHA.)</p>	<ul style="list-style-type: none"> <li>Reduction in pollutants entering KAVHA catchments.</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in pollutants will improve surface and ground water.</li> </ul>	<ul style="list-style-type: none"> <li>Sensitive aquatic species may be able to colonise waterways or be reintroduced.</li> </ul>		

	Past Strategies/Actions	Flood Control	Water Quality	Habitat/Ecology	Heritage Interpretation	Visual Landscape
10	<p>Watermill Dam Management and Maintenance (1997 WQR):</p> <ul style="list-style-type: none"> <li>Sediment to be regularly removed (prevent downstream flooding and sedimentation).</li> <li>Maintain reed/bulrushes. Water plants should be encouraged, not mechanically removed.</li> <li>Impacts on aquatic fauna to be minimised.</li> <li>Introduced floating and submerged plants require regular removal (raking out) eg Canadian pondweed, water hyacinth.</li> </ul>	<ul style="list-style-type: none"> <li>Dam will hold more water if sediment is removed on regular basis.</li> </ul>	<ul style="list-style-type: none"> <li>Removal of sediment will improve water quality downstream.</li> <li>Retention of plants will allow level of biofiltration to occur.</li> </ul>	<ul style="list-style-type: none"> <li>Mechanical removal of sediment will disturb aquatic fauna.</li> <li>Water hyacinth must be managed appropriately and eradicated (note: water hyacinth is listed as a Weed of National Significance in Australia; in NSW it is a Class 2 [notifiable] noxious weed in the majority of local council areas).</li> </ul>	<ul style="list-style-type: none"> <li>Dam has been utilised for different purposes over all three main settlement time periods.</li> </ul>	—
11	<p>Soil stockpiles to be sited above one-in-five-year flood level or outside of KAVHA (1997 WQR).</p>	<ul style="list-style-type: none"> <li>Reduce risk of additional sediment being washed into channels.</li> </ul>	<ul style="list-style-type: none"> <li>Reduce risk of additional sediment and contaminants being washed into channels.</li> </ul>	<ul style="list-style-type: none"> <li>Reduced contaminants which may affect aquatic fauna.</li> </ul>		<ul style="list-style-type: none"> <li>Can be located in less visually intrusive zones.</li> </ul>
12	<p>Prevent stock from grazing in Watermill Creek within KAVHA (1997 WQR):</p> <ul style="list-style-type: none"> <li>Set up stock watering points away from creek.</li> </ul>	Refer to Nos 1 to 4.	—	—	—	—
13	<p>Interception Ponds (1997 WQR):</p> <ul style="list-style-type: none"> <li>Construct retention/retardation basin upstream of Pier Street Bridge.</li> </ul>	<ul style="list-style-type: none"> <li>Will hold and slow water depending on size of the rain event.</li> <li>Potentially have little impact on one-in-100-year or other significant flood events for Emily Bay.</li> </ul>	<ul style="list-style-type: none"> <li>May assist in holding sediment from entering downstream channels and Emily Bay, depending on size of rain event.</li> </ul>	<ul style="list-style-type: none"> <li>Additional water bodies which may attract wildlife and/or aquatic habitats could be established.</li> </ul>	<ul style="list-style-type: none"> <li>First/Second Settlement channel lines would be lost.</li> <li>This would potentially be recreating the swamp in this area—pre-1790 landscape.</li> </ul>	<ul style="list-style-type: none"> <li>Re-creation of swamp is a significant change since Watermill Creek was channelised in 1790s.</li> </ul>
14	<p>Construct two barrages in the Serpentine area (1997 WQR).</p> <ol style="list-style-type: none"> <li>One at site of original barrage at 1835 bridge.</li> <li>Upstream from Bay Street bridge.</li> </ol>	<ul style="list-style-type: none"> <li>Encourage water retention in these areas and more swampy land.</li> <li>May reduce and slow some water from entering Emily Bay.</li> </ul>	<ul style="list-style-type: none"> <li>May reduce volume of sediment entering Emily Bay.</li> </ul>	<ul style="list-style-type: none"> <li>Retention of water would provide habitat for aquatic fauna.</li> </ul>	<ul style="list-style-type: none"> <li>Return to swamp versus retention of drainage channels.</li> </ul>	<ul style="list-style-type: none"> <li>Swamp landscape versus interpretation of historic cultural landscape.</li> </ul>
15	<p>Retain timber barriers? To prevent upstream progression of sand from Emily Bay (1997 WQR).</p>	<ul style="list-style-type: none"> <li>Barrier slows/holds water entering the bay.</li> <li>Gets washed out in large flood events.</li> </ul>	<ul style="list-style-type: none"> <li>Reduces level of beach sand entering channels.</li> <li>This is encouraging water retention and swampy land.</li> </ul>	<ul style="list-style-type: none"> <li>Barrier reduces need to remove sediment and disturbance to potentially sensitive habitats within the upstream channel.</li> </ul>	<ul style="list-style-type: none"> <li>Part of the evolution of the drainage systems?</li> </ul>	—
16	<p>Serpentine Channel—1994/1995 work to part restore and interpret channel and Serpentine landscape, timber bridges built.</p> <ul style="list-style-type: none"> <li>Re-introduction of sluice gates etc to retain level of water in main channel attributing to increase in swampy land.</li> </ul>	<ul style="list-style-type: none"> <li>Management of sluice gates—still carried out?</li> <li>In large flood events this area becomes inundated.</li> </ul>	<ul style="list-style-type: none"> <li>Water is not flowing through continuously, some areas stagnant (swampy areas).</li> </ul>	<ul style="list-style-type: none"> <li>Waterways overgrown with reeds.</li> <li>Very little open areas of water visible to allow for oxygenation.</li> </ul>	<ul style="list-style-type: none"> <li>Works were focused on the interpretation of the period of the Second Settlement.</li> <li>Overgrown with reeds.</li> </ul>	<ul style="list-style-type: none"> <li>Currently Serpentine channel is not visible—swamp roughly outlines the outer edge of the channel shape. Overgrown with reeds.</li> </ul>