

**The Recherche Bay D'Entrecasteaux visit in 1792
and 1793
A Tasmanian-French Collaboration
Archaeological Project (2006)
Final Report**

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Content

The Recherche Bay D'Entrecasteaux visit in 1792 and 1793 A Tasmanian-French Collaboration Archaeological Project (2006)	1
Final Report.....	1
Acknowledgments.....	2
List of figures	7
Summary.....	10
Introduction.....	10
Context of Project	11
Historical background.....	11
Aboriginal history.....	11
The French d'Entrecasteaux visits of 1792 and 1793	11
Whaling 1830s-1850s.....	14
Convict activities 1841-1847.....	14
Mining 1840-1940.....	14
Ship building 1850s	15
Timber-getting 1860s-1950s.....	15
Settlement.....	15
Scope of the project (Figure 3).....	18
Methodology.....	18
Equipment.....	21
The natural settings of Recherche Bay	21
Sites selected for survey (Figure 4 a and b)	25
Results	27
The 1792 garden site.....	28
The French garden of Recherche Bay	28
The garden in history.....	28
Location of the garden.....	30
The mapping of Beautemps-Beaupré	30
Available cartographic resources for Pygsties Bay.....	30
Size and position of the garden	35
Previous research and discovery.....	37
Objectives and Methods	38
Geology	38
Geophysical results	41
Electric conductivity of the ground.....	41
Magnetic susceptibility of the ground	41
Surface survey of the wider garden area	45
Archaeological mapping and excavation.....	51
Detailed topographic survey of the stone layout.....	51
Archaeological excavation, Trench 1	51

Stratigraphy	51
Results	54
Historical context of the stone structure	55
The 1793 stop at Rocky Bay:	61
Boucher's grave.....	61
Historic context.....	61
Geographic location of the grave.....	61
Results of the survey at Fords Greens	65
The whalers' graves at Planter Beach	66
Survey setup	67
Results (Figure 31).	70
Shore-parallel transects	70
Shore-perpendicular transects.....	70
<i>Espérance</i> shore facilities at Rocky Bay	75
Position along the coastline	75
Distance of the observatory from the present coastline	76
Results of geophysical survey	81
Results of archaeological survey	83
Trench 1	85
Stratigraphy	85
Trench 2	85
Stratigraphy	85
Interpretation	91
Summary of results	91
Trench 3	92
Stratigraphy	92
Interpretation.....	93
Summary of results	93
Trench 4	95
Stratigraphy	95
Interpretation.....	95
Summary of results	95
Trench 5	97
Stratigraphy	97
Interpretation.....	99
Summary of results	99
Trench 6	101
Stratigraphy	101
Interpretation.....	102
Summary of results	102
Trench 7	103
Stratigraphy	104
Interpretation.....	104

Summary of results	104
Trench 8	106
Stratigraphy	106
Palaeosol.....	107
<i>Recherche</i> forge and shore facilities at Mott's Beach	109
Environmental setting	113
Topography.....	113
Topsoil and palaeosol.....	116
Survey setup	116
Results	117
Area of the forge's headland and present stream.....	117
Gridded area in the sandy plain.....	117
Large scale anomalies.....	117
Small-scale point anomalies	117
Linear anomalies.....	117
Narrow linear anomalies	118
Wide linear anomalies	118
Anomalies and comparative cartography	118
Interpretation.....	124
The Observatory of the <i>Recherche</i>	130
Discussion of results	133
The search for the garden of Delahaye.....	133
The shore facilities of the <i>Recherche</i> and <i>Espérance</i> at Rocky bay in 1793.....	134
References and suggested bibliography	136

List of figures

Figure 1. Part of the original 1793 map of ‘Baie des Tempêtes’ with indication of the routes of the ship during their reconnoissance of the bay (courtesy of the French National Archives, Paris)	13
Figure 2. Topographic map of Recherche bay.	17
Figure 3a,b et c. Several views of the French observatory of the espérance in 1793 (drawn by Piron).	20
Figure 4 (a) Map of Pigsties bay with indication of researched area,	24
Figure 5. Original map of Port du Nord (Pigsties bay) drawn in 1793 from the original	28
Figure 6. Draft of Port du Nord, only part of the coastline has been drawn.	32
Figure 7. Colorised map of Port du Nord.	33
Figure 8. Proof of the final engraving of Port du Nord	34
Figure 9. Several representations of the garden of Delahaye (A is the published engraving, B the colorised map and C the final proof for the engraving. Note the differences in the layout of the garden between C and A).	36
Figure 10. Delahaye’s garden on the 1793 map (left), and the same area in 1946 (right) from aerial photography. Substantial deforestation had taken place by 1946, but nowadays the forest cover is more homogenous. (The black circle on the original photo is irrelevant here).	37
Figure 11. Plan of the stone layout	40
Figure 12. Electrical conductivity and magnetic susceptibility of the ground (EM38). The maps are derived from gridded exploratory median and diagonal transects, therefore, data coverage is not homogeneous and must only be used to derive large scale trends.	43
Figure 13. Magnetic susceptibility averaged to about 1-1.5m deep maps from high resolution south-nord EM38 grid. (Stone lineations perpendicular to the survey lines appear thicker than they are in reality).	44
Figure 14. The wider garden area at coal Pit Bight with indication of the surveyed areas.	45
Figure 15. 10mm contour map of stone feature, showing location of soil samples and archaeological excavation (Trench 1).	49
Figure 16. 100 mm elevation grid (AHD) showing the south-southeasterly fall of the site, and the generally consistent relationship of stone feature surface elevation to surrounding terrain. (20mm cell size).	50
Figure 17. Trench 1, pre-excitation.	52
Figure 18. Trench 1, contexts [4], [5] and [6].	52
Figure 19. Trench 1, contexts [7], [8] and [9].	53
Figure 20. Trench 1, contexts [10], [11] and [12].	53
Figure 21. Trench 1, post excavation photomosaic.	54
Figure 22. Survey diagram 30/23 1905.	56
Figure 23. 1948 aerial photograph of the area.	57
Figure 24. Block survey plan of the area of the stone layout.	58

Figure 25. Printed edition of a map of Rocky bay drawn by Jouvençy in 1793.....	60
Figure 26. Calder's first map of Rocky bay with some indication of an engraved tree associated with La Pérouse.....	63
Figure 27. Location map of geophysics in the southern part of Recherche bay.	64
Figure 28. The beach at Fords Greens and the hypothetical area of the grave of gunner Boucher.....	65
Figure 29: Mid-19th century cadastral map of Planter's beach drawn by crown surveyor Calder.	68
Figure 30. Whaler tombstone at Planter's beach.....	69
Figure 30. Shore perpendicular transect, Deacon's grave.....	72
Figure 31. Conductivity, susceptibility, and GPR profile across the area of the tombstone. The transect runs nearly NW-SE and is perpendicular to the coastline	73
Figure 33. The 1793 observatories of Rocky bay.	74
Figure 33. the observatory of Espérance.....	78
Figure 34. GPR profile along the beach, observatory of Espérance.	79
Figure 35. Ground conductivity survey on the possible location of the observatory of Espérance.....	80
Figure 36. Shore parallel GPR profile, observatory of Espérance.....	81
Figure 37. Map of study area showing geophysical survey grids and trench locations.	84
Figure 38. Trench 2 Ferrous metal objects within context 5.	87
Figure 39. Context [8] surface, limit of excavation.	88
Figure 40. Trench 2, south section post excavation.....	89
Figure 41. Trench 2, west section post excavation.....	90
Figure 42. Trench 3, excavation in progress.	93
Figure 43. Trench 3, context [3].	94
Figure 44. Trench 4, ferrous metal bar in context [3].....	96
Figure 45. Trench 4, context [6], limit of excavation.	96
Figure 46. Trench 5, axe head and glass/ceramic fragments, context [3] surface.....	100
Figure 47. Trench 5, context [4], limit of excavation.	101
Figure 48. Trench 6, barbed wire fragment, surface of context [2].	102
Figure 49. Trench 6, context [2], limit of excavation.	103
Figure 50. Trench 7, context 3.	105
Figure 51. Forge of the Recherche at Mott's beach in 1793. The position of the forge and the shore facilities of the Recherche was also used as bearing for the hydrographic survey. The forge gives the approximate position of the French camp at Mott's beach.....	111
Figure 52. Mott's Beach study area superimposed on 1880s block survey B3/27.	112
Figure 53. View of Mott's beach from the north-east.....	114
Figure 54. Mott's beach : summary of geophysical survey results.....	115
Figure 55. Map of Mott's beach study area showing geophysical survey grids.	115
Figure 56. Mott's beach. Magnetic susceptibility and electric conductivity.	119
Figure 57. Mott's beach GPR profile C. reflector AB correspond to the major linear	

anomaly on susceptibility map. Other reflectors are more difficult to relate to known anomalies.	120
Figure 58. Mott's beach GPR profile A (parallel to coastline). This GPR profile runs approximately SSW (bottom of page) to NNE. The circled anomaly is either a paleochannel or a paleosol, bedrock also apparent on line B.	121
Figure 59. Mott's beach GPR profile B (parallel to coastline). This GPR profile runs approximately SSW (bottom of page) to NNE (see location map). The circled anomaly is a paleochannel or a paleosol, bedrock and is also apparent on line A.	122
Figure 60. Mott's beach. Aerial photograph, 1948.	123
Figure 61. Early hydrographic chart of Recherche Bay (in: »Chart of the approaches to the port of Hobart town, from actual surveys made by various officers of the survey department, Tasmania« ; courtesy of the Department of primary industries and water, Hobart)	126
Figure 62. Early hydrographic chart of Recherche Bay (1860-61 and 1886-88 surveys)(in : »Approaches to Hobart including d'Entrecasteaux channel and Derwent river, Tasmania ». Hydrographic Office 1889. Courtesy Dept. Of Primary Industries and Water, Hobart).	127
Figure 63. Calder cadastral chart of Mott's beach.	128
Figure 64. Published coastl profiles of Tasmania drawn by the d'Entrecasteaux expedition. It includes Recherche bay seen from the outside of the bay.	129
Figure 65. Hypothetical sketch explaining the geophysical anomalies at Mott's beach.	130
Figure 66. Final draft of « Port du Sud » (Pygsties bay) drawn in 1793 by Jouvency.	132

Summary

Introduction

In May 2005 the Tasmanian Government declared a Heritage Area over part of the North-East Peninsula of Recherche Bay. The aim was to protect the place's historic cultural heritage while providing the opportunity for a more rigorous historical cultural heritage significance assessment to be undertaken.

Following that declaration, work began on organising a joint research project involving Tasmanian and French experts. The aim was to better understand and define the historical significance of the area for the Tasmanian, Australian and French communities with a particular focus on the 1792 and 1793 French expedition sites of the d'Entrecasteaux expedition.

Following a visit by French experts, Dr. Jean-Christophe Galipaud (IRD) and Dr. Helene Richard (French National Library), in August 2005, both the Tasmanian and French Governments agreed to extend the project to a field work program to investigate those areas of Recherche Bay where the 1792-1793 French expedition visited.

In October 2005, the Australian Government placed a more extensive area of the North-East Peninsula on the National Heritage List, further raising awareness of the significance and history of the area. It subsequently received a nomination for a wider area of Recherche Bay, and decided to become a party to this collaboration.

In September 2004 a number of sites were nominated to the Tasmanian Heritage Register. As well a request for the declaration of a Heritage Area at Rocky Bay had been made to the Minister in July 2005. The 2006 archaeological project is intended to further the understanding of some of these sites, and define their historical significance. The Recherche Bay French Collaboration Archaeological Project (2006) is a joint effort between the French, Australian and Tasmanian Governments. The Tasmanian Government input has been provided particularly through Heritage Tasmania, a division of the Department of Tourism, Arts and the Environment (DTAE). In addition, the Port Arthur Historic Site Management Authority provided the services of Tasmanian historical archaeologist Greg Jackman, and the Parks and Wildlife Service, (a division of the DTAE) provided logistical support. The Commonwealth Department of Environment and Water Resources provided funding through the Gift to the Nation program for historical research, scientific analysis, Aboriginal consultants and field expenses. Other organisations involved in this collaborative effort were the Tasmanian Museum and Art Gallery (DTAE) and the Tasmanian Aboriginal Land and Sea Council (TALSC).

Context of Project

Historical background

The Recherche Bay area has a long-reaching European history extending back to some of the earliest European explorers in 1792. Following that initial period of exploration and discovery, the Recherche Bay area was later associated with whaling, convict activities, mining, ship-building, timber-getting and settlement.

This historical overview is based on the reports prepared as a part of this project for Heritage Tasmania, of the Rocky Bay area of Recherche Bay by Anna Gurnhill (Heritage Tasmania 2005) and of the North-East Peninsula and Western Shoreline by Peter MacFie (2006).

Aboriginal history

The Recherche Bay area has been occupied by Aboriginal people for times still not precisely measured (see Appendix 4 SEQ). The Lyluequonny people were a band of the South East maritime people who spent the summer and autumn periods at Recherche Bay. They were predominantly a coastal people whose diet included seal, abalone, crayfish, mussel, swan and mutton birds.

In 1793, the crew of the French d'Entrecasteaux expedition met with about 40 Aboriginal people, who formed a loosely-knit tribe of approximately seven families.

The French d'Entrecasteaux visits of 1792 and 1793

The French d'Entrecasteaux expedition visited Recherche Bay in 1792 and returned again the following year. Each stay was for approximately four weeks. During this time, the ships made repairs, and replenished their provisions of wood and water. The scientists surveyed the area, described and collected plants and animals, made scientific observations and drew an accurate map of the bay and the adjacent d'Entrecasteaux channel. (**Erreur ! Source du renvoi introuvable.**)

On 21 April 1792, battered by unrelenting storms, the two bedraggled vessels of the French d'Entrecasteaux expedition, the *Recherche* and the *Esperance*, sighted the coast of Van Diemen's Land. The next day the two ships were towed by their long boats into the northern arm of the bay just beyond the present Bennett's Point. Over the next four weeks, the bay saw much activity by the 221 passengers and crew.

Whilst at Recherche Bay in 1792, Elisabeth Paul Edouard Rossel set up an observatory on what is now Bennetts Point and founded the science of Geo-magnetism which was of great significance to navigational science, an event commemorated by the unveiling of a plaque on the site by the CSIRO in 1992. Rossel's discovery was a major breakthrough in the science of geomagnetism, which improved global navigation. His discovery was to revolutionise compass use and make navigation much safer, especially in the Great Southern Continent. Observations made here helped prove that the Earth's magnetic

field varied with latitude.

The ships left Recherche Bay on the 16th of May for the d'Entrecasteaux channel where they remained until the 28th of the same month. On the 16th of June, they sighted isle of Pines, the southernmost island of the new Caledonia archipelago.

In early January 1793 the ships were anchored off Esperance Bay in Western Australia. Unable to find water, d'Entrecasteaux commanded his ships to return to the beautiful, safe and abundant Port du Nord (literally North Port, now Pigsties Bay, Recherche Bay). On the evening of 20 January 1793 the *Esperance* followed by the *Recherche* re-entered the Bay which now bears its name. Shortly after their arrival, a gunner, Boucher, from the *Esperance*, died of tuberculosis and was buried ashore. This is thought to be the first European burial in Tasmania.

According to the French records, on 8 February the botanists and their assistants were working near Southport Lagoon when they noticed the approach of a large group of Aboriginal persons. The Frenchmen laid down their weapons and approached the group of about 40 men, women and children. A number of items were exchanged and reports suggest a good humoured rapport was established between the two groups.

The ships left Recherche Bay for the second time on 13 February for a further reconnoissance of The d'Entrecasteaux channel. After a few days in Aventure bay, they finally left Tasmania on 27 February 1793, heading for Tonga.

Both their stays in Recherche Bay are well documented with published and unpublished accounts written by the officers, scientists and sailors from both the *Recherche* and the *Espérance* (see Richard 1986, pp 345-353 for a complete list of known published and unpublished documents). Those accounts are valuable in documenting some of the first European contacts with Aboriginal people in Tasmania.

The research done by the French scientists and, in particular, the maps drawn by the hydrographer Beautemps-Beaupré have influenced the later exploration and settlement of the island. Of importance is the well documented contact with the Tasmanian Aboriginals, a friendly contact which allowed the first European descriptions of these inhabitants and their customs.

Figure 1. Part of the original 1793 map of 'Baie des Tempêtes' with indication of the routes of the ship during their reconnaissance of the bay (courtesy of the French National Archives, Paris)



Whaling 1830s-1850s

Recherche Bay was a favourable location for shore-based whalers between the 1830s-1850s. Protected by the Actaeon Reef, Recherche Bay was a calm water area used by whales as a calving ground. As a result it possessed a resident population that could almost be culled at will, given that mothers would not abandon newly born calves who could be routinely harpooned to keep the adults in the area. The reef also limited the whales escape routes.

In 1830-1835 whaling grounds were established in Recherche Bay and Southport Lagoon. During this time at least 14 stations operated out of Recherche Bay Recherche Bay was one of the last places where whaling was carried out in Tasmania with leases being taken out as late as 1860.

In 1833, George Augustus Robinson noted that:

'Recherche Bay is a whaling station and the shore is strewed with putrid carcasses and bones of the whale... Last season there were upwards of 100 whales caught at this station'. (Kostoglou 1995)

In 1838, during her visit to Recherche Bay, Lady Franklin describes a picture of the whaling industry in Rocky Bay at the time:

'Proceeding from hence along the shore towards the head of the bay, our olfactory nerves were sorely disturbed by the effluvia from some putrid whale carcasses which were lying on the sand, and which were borne by the wind right across us...'. (Mackaness 1977:43)

Convict activities 1841-1847

By 1841 a convict station had been established at Southport, close to Recherche Bay, and by 1846 Southport could provide accommodation for up to 500 men in wards and thirty in separate apartments. The station also accommodated 50-60 boys under the age of twenty - the youngest being about fourteen. They were, as much as possible, kept in distinct gangs from the men during the day and entirely separated from them at night. Work at the station involved mining at the South Cape coal mine, felling trees for timber for the Colonial Government and the construction of Government buildings such as the pilot's station on Fishers Point and the police lock-up at Bennett's Point. The station closed in 1847.

Mining 1840-1940

In 1793 Labillardiere, of the d'Entrecasteaux expedition, noted a coal seam at South Cape. In 1838 the coal was again noticed by a mariner, Captain George King. In 1840 a syndicate of nine people approached the colonial government with a view to mining at Recherche Bay. A team of convict miners and an overseer from the Tasman Peninsula Coal Mines were lent to the syndicate. The workforce, in 1841, totalled 43, with seven miners. The gangs worked in three shifts, including a night shift mustered at 10pm.

At least 12,000 tons of coal was brought to the Hobart market. This mining venture collapsed, owing 4,316 pounds for the services of the convict miners, tools and stores. It is uncertain exactly when this period of mining at Coal Pit Bight ended.

From 1900-1912 further coal mines in the area were worked. During the 1920s mining at Coal Pit Bight continued including more complex mining operations.

During this time the James Craig was brought to Recherche Bay for use as a hulk between there and Hobart. However, there she was beached and remained until salvaged for restoration in the 1980s.

Ship building 1850s

From the 1850s Recherche Bay was known as a ship building locality. At least one fully rigged schooner/ketch was constructed on the shores of the bay.

A Crown Survey map made by Surveyor George Innes in 1863 shows a ship being built at Bennett's Point and annotated 'craft building'. The ship may be the *Ripple*, which was built at Recherche Bay in 1863 and owned by William Domeney, who later lived at Sullivans Point.

Timber-getting 1860s-1950s

By the 1860s timber-getting had replaced whaling as the area's principal industry. All the easily accessible timber in the Cockle Creek area had been used by the 1860s by small-scale logging operations that serviced the whaling industry, forcing the second phase of mechanised operations in the area to go further inland. This required the construction of extensive tramways to link the saw mills to the increasingly distant forests.

During the 1850s and 1860s there were over 400 people living at Recherche Bay.

While occasional timber harvesting took place on the North East Peninsula from the earliest times, timber mills were only established on the Peninsula at the end of the 19th century and then mainly for the purpose of milling timber from more productive areas. Kemsley's Crescent Mill located at Coal Pit Bight operated from 1899 to 1910. Gourlay's Mill was located just north of Blackswan Lagoon.

The last of the mills within the Recherche Bay area closed during the 1950s.

Settlement

Shortly after the establishment of whaling stations at Cockle Creek, this initial commercial presence was supplemented by residential settlement. The initial whaling station leases were absorbed into a grander township plan called 'Ramsgate' and the land between Fishers Point and the Catamaran River was subdivided into allotments. The population rose and fell with the establishment and decline of the whaling industry in the 1830s to 1860s and with the operation of timber mills from 1911 to 1922 and from 1943 to the 1950s. At least two dozen domestic buildings existed in the Ramsgate (Cockle Creek) area in the early 20th century in addition to the industrial mill buildings.

In the early 1850s to 1860 land at the head of Recherche Bay, later known as The Pigsties, became the centre of a short-lived timber boom and the population temporarily rose to 500. Today the Moss Glen area is occupied by modern shacks.

The North East Peninsula was settled later and much less intensively. In the late 19th century there were two families living and working at Quiet Cove. One operated a boarding house. The other was the constable-cum-postman and his family. In the early 20th century one family lived at Bennetts Point and ran cattle across the Peninsula.

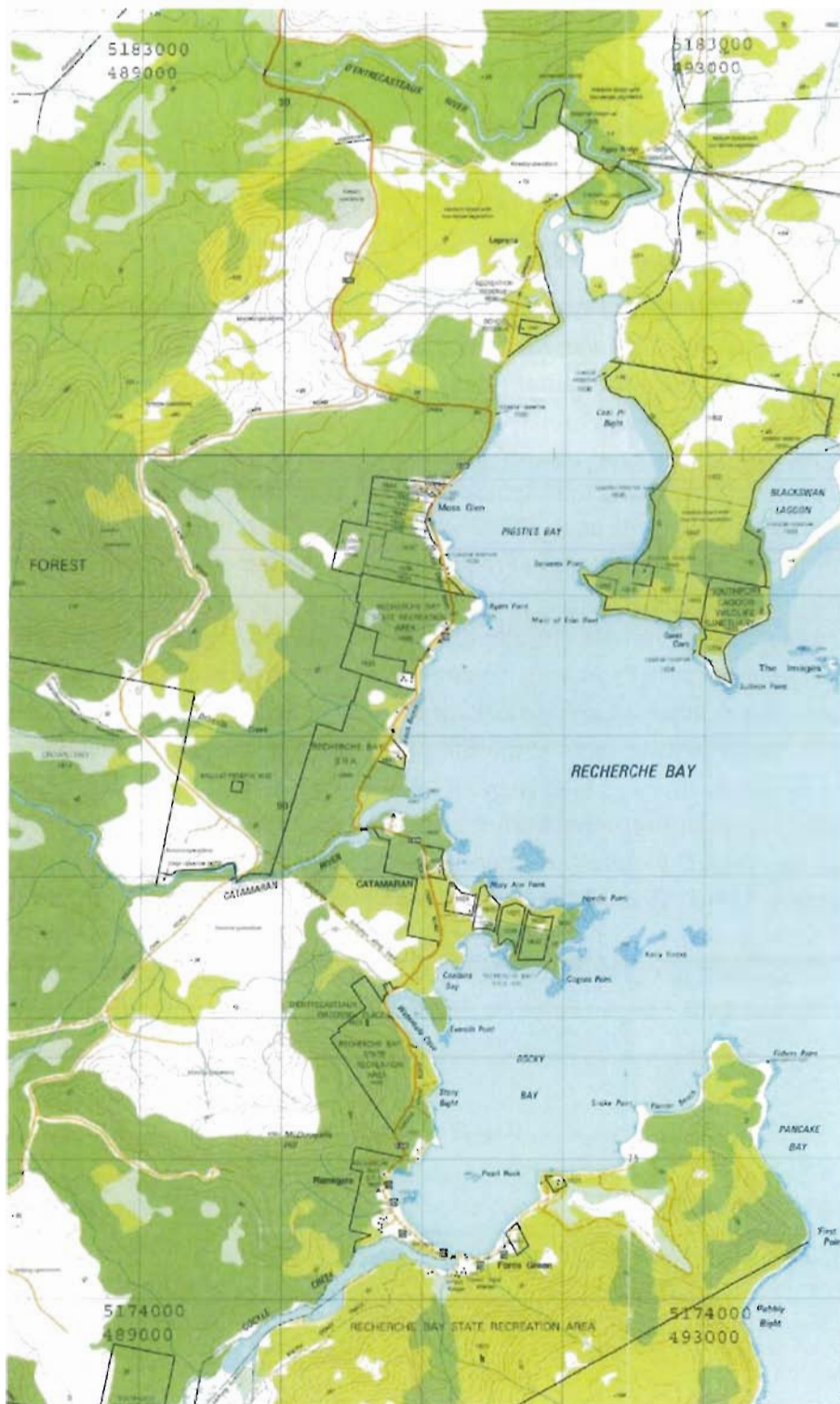


Figure 2. Topographic map of Recherche bay.

Scope of the project (Figure 3)

Methodology

The objective of the 2006 field work was to locate and study some of the onshore areas used during the d'Entrecasteaux expedition in Recherche Bay. Reconnaissance exploratory geophysical archeology surveys were carried out in order to complement the traditional methods of historical archeology. From d'Entrecasteaux to Jane Griffin (Lady Franklin, 1791-1875, wife of the famous rear-admiral, arctic explorer and lieutenant-governor Sir John Franklin), historical documents provide information on the approximate locations of the various sites used and visited by d'Entrecasteaux. In most cases unfortunately, the information is not sufficient enough to accurately pinpoint remnants of those activities.

Although exploration ships of the 18th century carried a significant number of people and items, it would be wrong to imagine explorers' shore camps and observatories as imposing undertakings. Still, as the 1793 stopover in Recherche Bay was the longest of the expedition, the idea that traces of the camp or of its impact on the area still exist is plausible.

There are unfortunately no drawings of d'Entrecasteaux main camp in Rocky Bay (the Recherche facility at Mott's beach). To our knowledge, there is actually no drawing of any camp of the d'Entrecasteaux expedition anywhere. Still, for Rocky Bay, there is a drawing that includes three tents at the site of the observatory of l'Esperance, probably seen from the observatory of la Recherche (Figure 3 a,b and c).

Incidentally, the area of the main French camp on the other side of the bay ("Motts Beach") is also on this picture (in between the ship and the observatory). Unfortunately on this picture Mott's Beach is too small to be of any use in the study of the French camp. In the appendix we provide a number of pictures of various shore installations of the French explorers of the early 19th century. There are probably little difference between them and the camps/observatories of d'Entrecasteaux.

Figure 3a

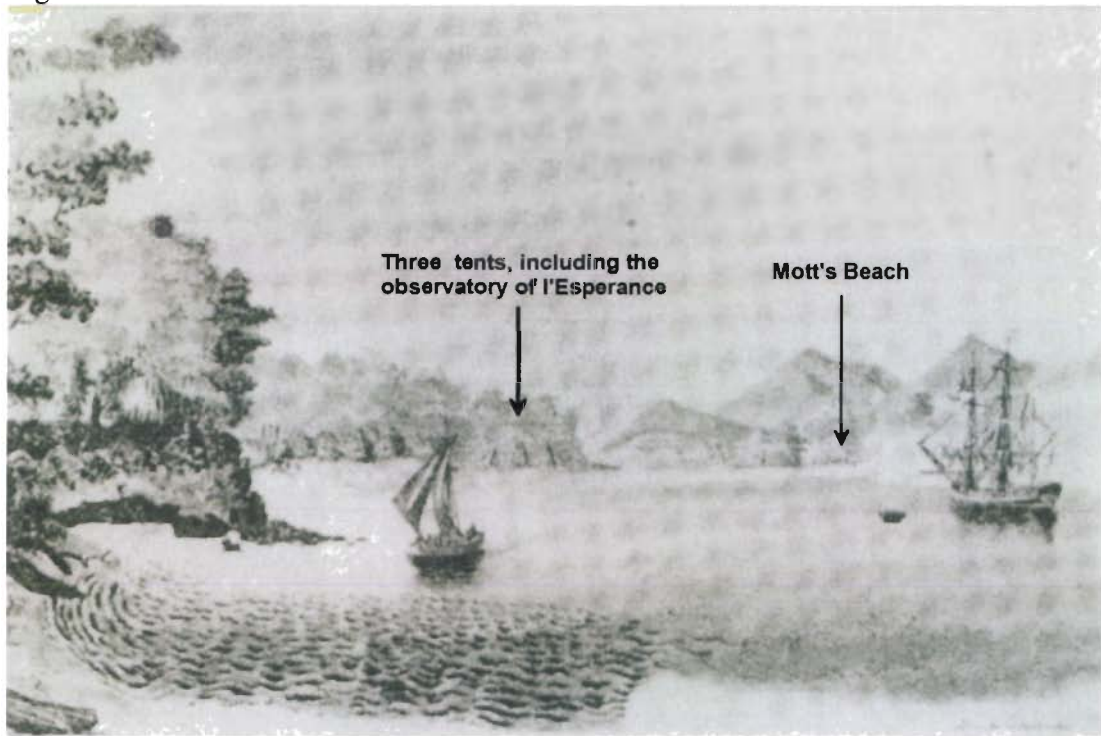
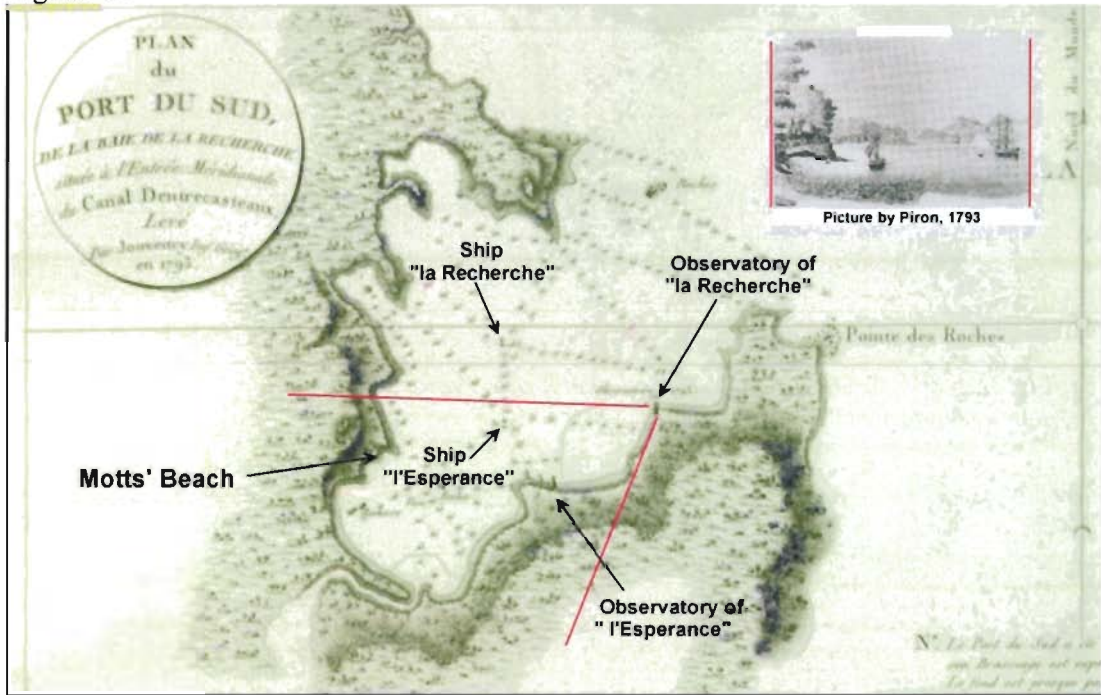


Figure 3b



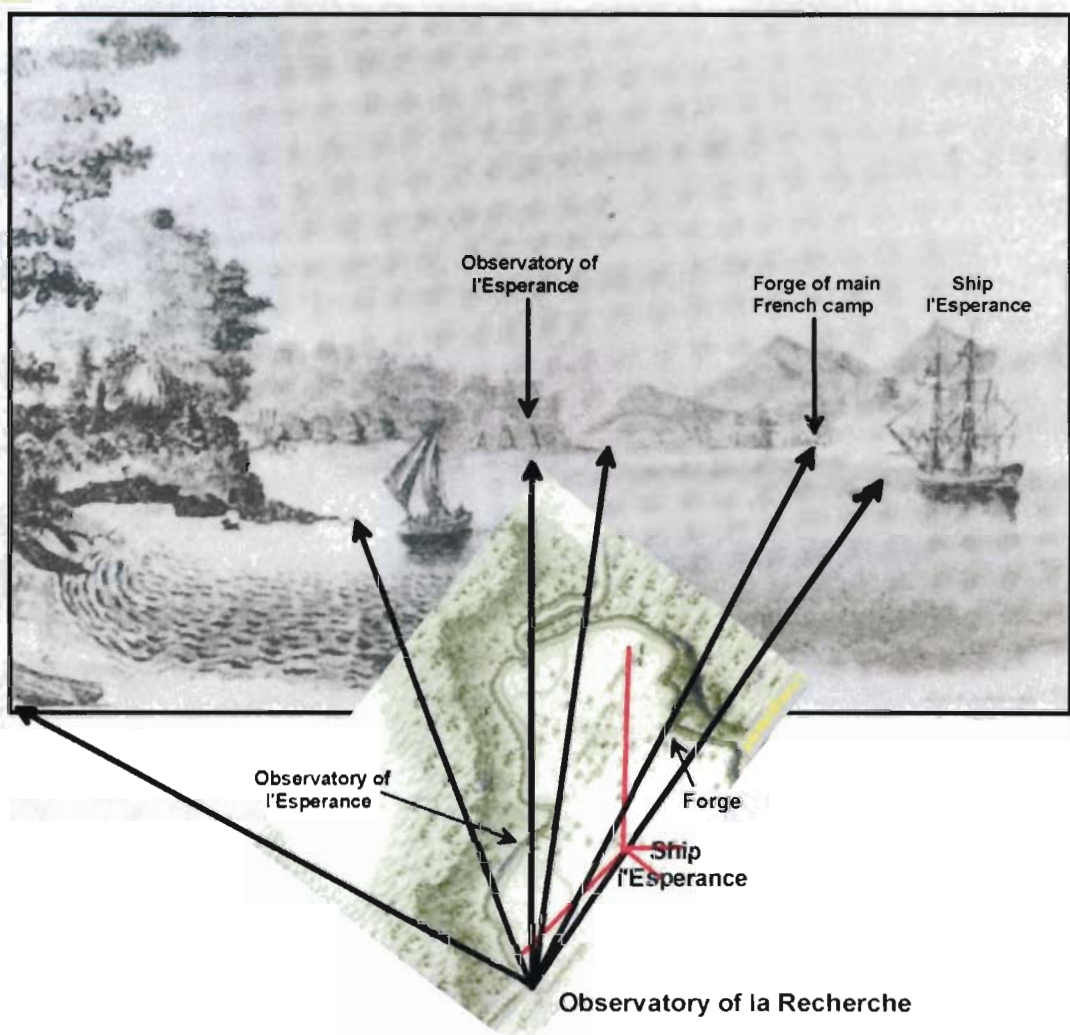


Figure 3c

Figure 3a,b et c. Several views of the French observatory of the espérance in 1793 (drawn by Piron).

Equipment

As the objective was mostly about exploration to find sites rather than about delineating known sites, the strategy was to conduct random transects in each area of interest. From the results of those exploratory profiles, the areas that needed further work were picked and surveyed in a systematic fashion by conducting survey grids with short station and line spacing intervals eventually followed by archaeological investigations. Because of the diverse environmental settings and types of target, four different types of detectors were used for this project:

- A rented EM38 shallow conductivity meter and susceptibility meter (1.5m maximum penetration with a detection peak at 0.3m of depth).
- A DEEPERS light hand-held flux gate gradiometer [a type of magnetometer] belonging to IRD Noumea, Department of Archeology
- A standard metal detector kindly lent by Mr. Christophe Rodot from Vanuatu (the type used by people searching for buried coins).
- A RAMAC ground penetrating radar ("GPR") kindly lent by the University of Tasmania.

All the various types of GPR antennas (800Mhz, 500Mhz and 250Mhz) were used extensively. The choice of antenna was made from trials and from the depth of investigation desired at the various sites. The data acquisition computer hooked to the GPR had battery problems which limited the amount of time available for radar surveys, but overall coverage was satisfactory. For the EM38, numerous trials at each site were attempted in order to decide the most suitable survey parameters (sampling rate, sensor vertical orientation, sensor horizontal orientation, conductivity and/or susceptibility measures). No digital hand-held recorder was provided with the EM38, therefore an electronic notebook was hooked to the instrument and used as a recorder. Inconvenient as it is, the notebook also created more electronic noise than a proper hand-held recorder; therefore tests were conducted to estimate the best location and distance between the computer and the EM38 so that the electronic noise from the computer was below the detection limit of the instrument. Professor Michael Roach of UTAS also kindly provided us with working scans of the 1948 aerial photographs of the area. The 1995 color aerial photograph of the area of southeastern Recherche Bay is from DPIWE Tasmania.

Many of the features depicted in the diagrams of this report were oriented using the magnetic North. At the time of our survey the declination of the magnetic field was about +15 degrees (East).

The natural settings of Recherche Bay

The geology of Recherche Bay is made of Jurassic dolerite and Triassic sedimentary sequences sometime blanketed by quaternary sand depositions.

The vegetation is dominated by forest of *Eucalyptus obliqua*. Wetter or swampy areas are

rich in *Melaleuca squarrosa* and grassy sedgelands with ferns, *Acacia longifolia* and *Eucalyptus nitida* characterise the coastal area.

In 200 years of occupation by Europeans, the vegetation of the bay has undergone severe changes and repeated fires and one may question the extent to which today's environment reflects the 1792 landscape. In a report prepared for the Tasmanian Land Conservancy, Sib Corbett gives us some elements of answer:

« Various lines of evidence suggest that the Recherche landscape seen by the French was much more open than it is today, probably as a result of Aboriginal firing. The forests which filled D'Entrecasteaux with such admiration for their antiquity are likely to have been on the peninsula, inland from the observatory, but may also have been on the western side of Pigsties Bay, or further afield. Most of the eastern routes taken by Labillardiere and other French explorers in 1793 pass through what is now the most open part of the TLC block, the "fire corridor" which runs south west from the northeastern corner of the block to Pigsties Bay.

*A broader area, between the north end of Coal Pit Bight and the mouth of the D'Entrecasteaux River, was burnt extensively in 1981. It is suggested that these two corridors, which are rich in flammable moorland species, have repeatedly acted as fire pathways, although there is no way of knowing when they first filled that role. The fact that both corridors are underlain by dolerite has probably precluded the development of *Eucalyptus nitida* scrubs and moorland, which normally occurs after fire on siliceous substrates – the corridors are occupied by *Eucalyptus obliqua* sparse woodlands and sedgy heath.*

The site of the French garden lies on the northern side of the southern fire corridor, and is covered by eucalypts perhaps 100 years old. It seems certain the French would not have chosen a garden site in an area covered by gum trees. Finally, there is an engraving (after Piron) of French sailors and aborigines together, in which a good deal of artistic license has been applied, but it seems likely the setting is on the shore near Blackswan Lagoon. In the middle ground is an isolated manfern, such as only happens after fire has removed the forest. »
(Corbett S. 2006)

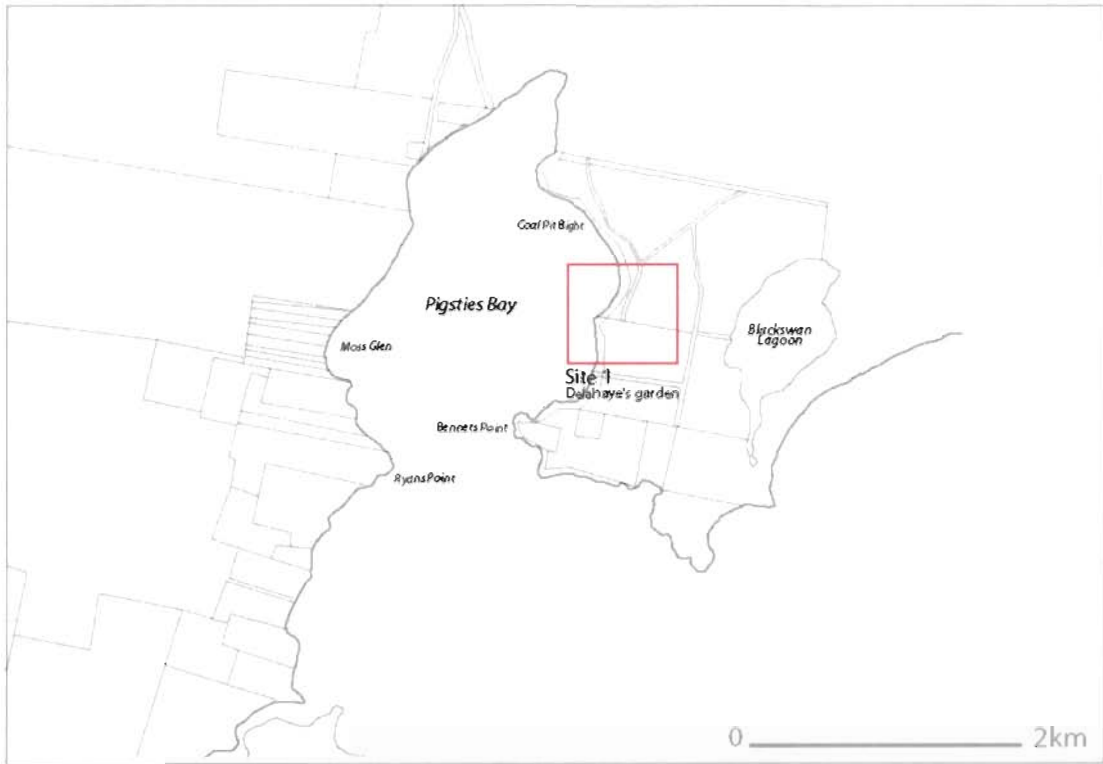


Figure 4a

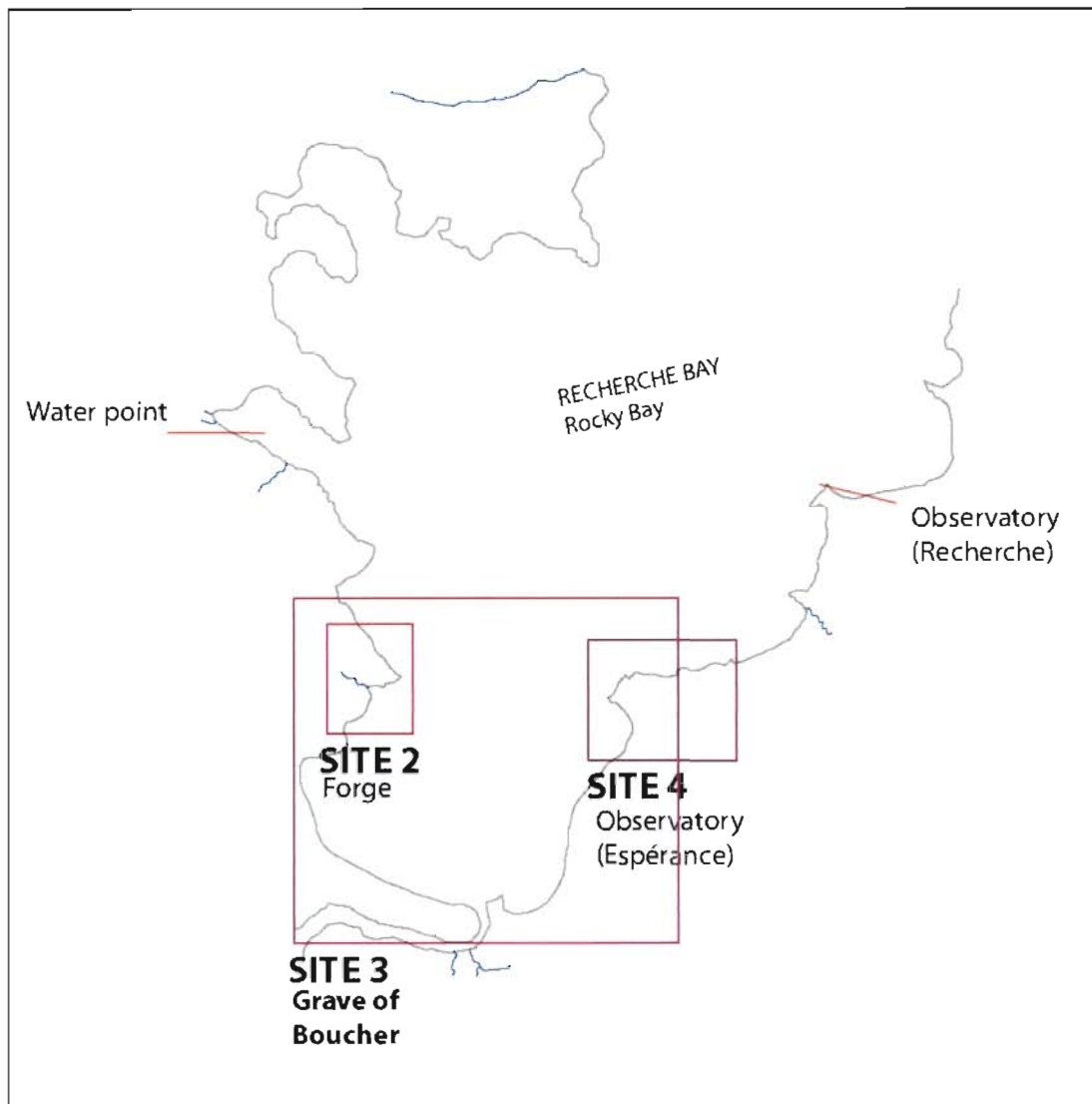


Figure 4b

Figure 4 (a) Map of Pigsties bay with indication of researched area, (b) Map of Rocky bay with indications of researched area

Sites selected for survey (Figure 4 a and b)

Several areas of Recherche Bay are of interest for the study of the d'Entrecasteau Tasmanian first exploration. Sites both in Pigsties Bay (*Baie du Nord* visited in 1792) and in Rocky Bay (*Baie du Sud* visited in 1793) were of potential significance to this study. Most sites are well documented and can be localised to a certain degree. A few sites are difficult to locate today because of their remoteness, the lack of information, or both. This is especially the case with two significant places, the 1792 garden of Delahaye and the 1793 grave of Boucher. The place of the garden has been placed on a map but eventually lacks today any visible feature; the grave of second class gunner Laurent Boucher who died on 3rd February 1793 from tuberculosis is not well documented.

Places of interest in relation to this history can be listed as follows:

Pigsties Bay (Baie du Nord)

- The 1792 observatory for the *Recherche* and the *Espérance* at Bennett's point.
- The 1792 garden of Delahaye located at Coal Pit Bight.
- The 1792 forge site located near Bennett's point.
- The 1792 watering place at Coal Pit Bight.

Rocky Bay (Baie du sud)

- The 1793 *Recherche* observatory.
- The 1793 *Espérance* observatory and shore facilities.
- The 1793 grave of gunner Laurent Boucher, exact location unknown.
- The 1793 *Recherche* forge, charcoal and work facilities at Mott's beach.
- The 1793 Scattered gardens and watering place in Rocky Bay.

Blackswan Lagoon

- Site of first intensive contact with Aboriginal people in 1793.

We believe that all these sites are equally significant in considering their history. The French came back to the area in 1793 to take on water and to fulfill the study which they started in 1792 and the sites at Pigsties Bay and in Rocky Bay are therefore part of the same history.

Among those sites, a few have been chosen as especially significant and the project will focussed primarily on them. Following is a list and description of the sites which were researched in relation to this project.

Six sites were targeted for archaeological and geophysical surveys in 2006:

- ☒ Delahaye's garden to the North (exact location of garden patch is unknown)
- ☒ French camp at Mott's Beach (no remnants of activity/presence ever found)
- ☒ Onshore observatory of ship "Esperance" in 1793 (exact location unknown)
- ☒ Onshore observatory of ship "Recherche" in 1793 (exact location unknown)
- ☒ Grave of gunner Boucher (location from historical documents is vague)
- ☒ Whaler's grave at Planter beach (geophysical survey only to test site for suitability of equipment)

Each of our six target areas is discussed individually in the next chapter.

Excluded from this list are the following places also visited by the d'Entrecasteaux expedition in Research Bay:

- ☒ First and second 1792 watering places at Moss Glen
- ☒ The 1793 "watering place" (the "Aiguade" on the French maps) because its location is already accurately known in Waterhole Cove.
- ☒ The 1792 Observatory at Bennett's Point. This site has a good potential for our research as all shore facilities were concentrated at this point, but there has been much disturbance on this site during the 19th century.
- ☒ The place of the first encounter between the Aborigines and the French at Blackswan Lagoon. A study of this area would have to focus on Aboriginal settlements and thus was out of the actual scope of the project.

Results



The 1792 garden site

The French garden of Recherche Bay

A surface stone layout near the top edge of the coastal bluff at Coal Pit Bight, in the northern part of Recherche Bay, has recently been the subject of controversy (Poulson 2004:62). The stone feature is located in the general area of the 1792 French garden ("Delahaye's garden") indicated on the French maps. This feature has dimensions close to those indicated by the French and it has for this reason been proposed that it represents the ultimate witness of the former French garden. A few discrepancies between the position and nature of the stone layout and the 1792 and 1793 descriptions have fuelled the debate between historians on this matter and the need for some further research has been stressed.

The objectives of the research on the garden site can be summed up with the two following questions:

- a) Is the rock layout in any way related to the French garden and is there a scientific mean to demonstrate it?
- b) If not, does the general environment give us some clue as to the possible place of this garden?

The garden in history

To answer these two questions we need first to understand the reality of an 18th century explorer's garden.

Gardens were an important part of the botanist duties during the 18th century French expeditions. Gardeners were to collect useful plants and seeds to enrich the variety of European vegetables and fruits and were at the same time to sow European seeds in the new lands visited to facilitate later travels and eventually help future settlers. According to d'Entrecasteaux:

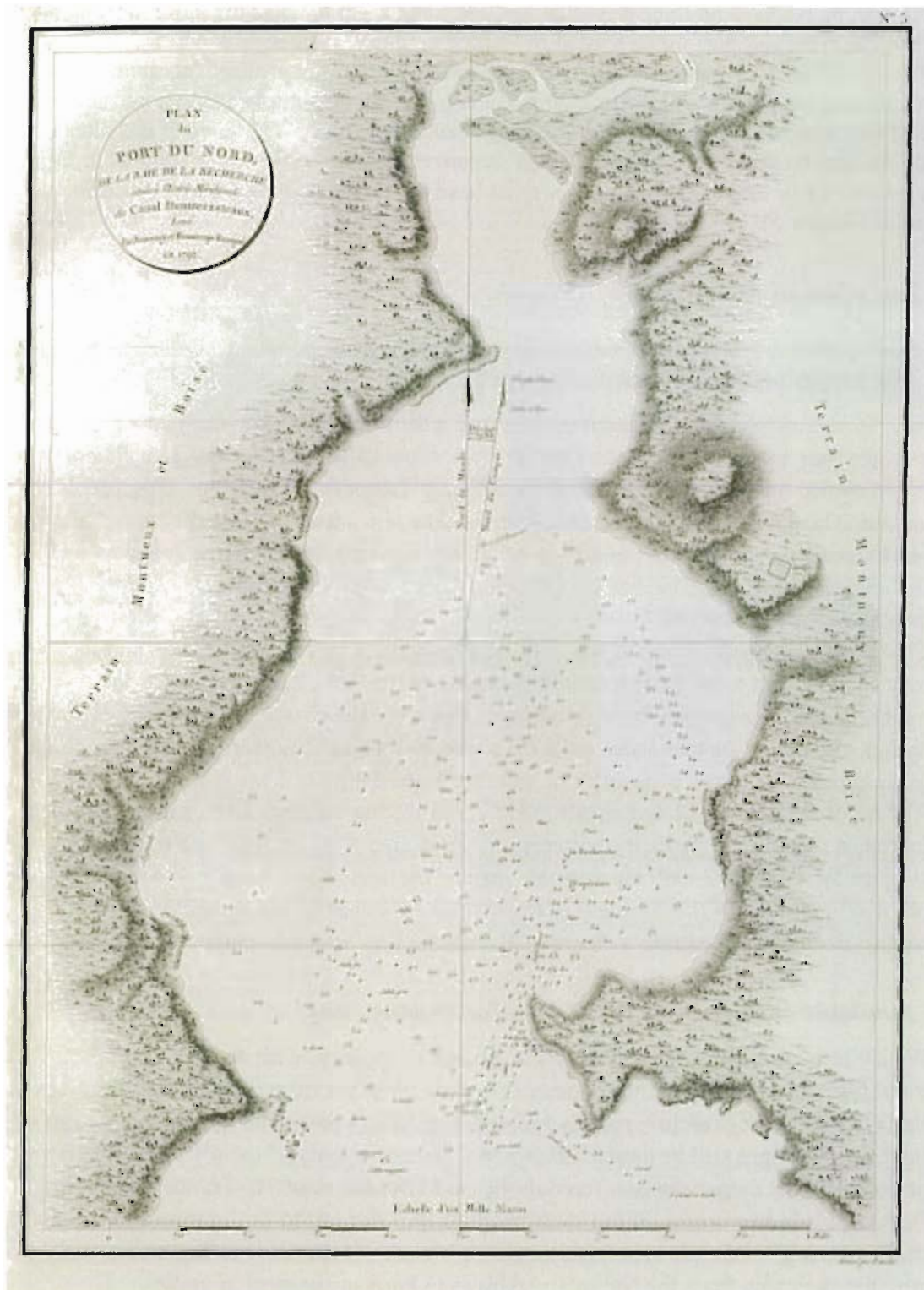
« Various seeds sowed by M. Delahaye, gardener-botanist, might in future furnish supplies to navigators who will shelter in this haven, if however their produce escapes the destructive zeal of the natives who might mistake the new plants, the properties of which they are ignorant of, for all the other herbs which they seem to allow to perish with their fires. » (D'Entrecasteaux quoted by Duyker 2004)

During both stays, seeds were sown in several areas that were believed to be suitable for cultivation and in particular cress, which grew well in damp areas. In addition, in 1792, the gardener was requested to prepare a garden with a variety of plants for future travelers (including celery, chervil, chicory, cabbage, grey romane lettuce, turnips, white onions, radish, sorrel, peas, black salsify and potatoes) (Catalogue, Journal de Botanique, MNHN, PER-K-G-24). It took three men more than three days to prepare the ground and then sow the seeds.

Figure 5. Original map of Port du Nord (Pigsties bay) drawn in 1793 from the original

¹³ GDA 94 datum

chart by Beautemps Beaupré.



D'Entrecasteaux explicitly asked that this garden be marked on the chart of the bay and this can be taken as an indication that this Tasmanian garden was meaning more to him than the generally performed spread of European plants or trees in newly found lands during 18th century expeditions. The time used to prepare the ground, the diversity of plants that were sown and the mapping of the place are indications of d'Entrecasteaux's will to acknowledge his visit with a lasting memory. A place with good and sheltered anchorage, fresh wood and water, a rich sea environment, no fierce inhabitants or fauna, a climate close to the one of Brittany must have been indeed an appealing place for a sailor (Figure 5).

Location of the garden

The mapping of Beautemps-Beaupré

In 1792 the cartographer Beautemps-Beaupré with the help of Jouvency, the second cartographer, made a chart of the *Port du Nord* (now called Pigsties Bay), or *Baie A* as it is mentioned on the general charts of the *Baie des Tempêtes*. Beautemps-Beaupré was already a leading geographer and cartographer when he joined the expedition and his work during the expedition but also later, the survey techniques he developed as well as the accuracy and systematic of his maps have been taken as examples by later geographers (Chapuis 1999).

The maps were made from the sea with light embarkations along the coasts and the instruments used were the graphometer and the plane table, using triangulations methods, the cartographer were able to plot precisely the coasts and the main remarkable points further away from the shore, as long as they were visible from the sea (a condition which was probably not met for the garden).

The modern maps of the area might today challenge the accuracy of this map, although there is a remarkable similarity between the published 1792 map of Baie du Nord (Figure 5) and the 1/25000 topographic map of the area. The accuracy of a map can only be compared to the accuracy of the instruments used to get a position. In this regard, Beautemps-Beaupré's charts of Recherche Bay are of an outstanding quality.

Available cartographic resources for Pygsties Bay

We are in possession of several drafts and maps of the bay, with and without indications of the garden. These documents were obtained from the National Archives in Paris in 2005. These archives are incomplete and lack in particular some precise draft of the bay that might still be located elsewhere. The documents of the d'Entrecasteaux and particularly the maps were scattered during and after the return to France. Beautemps-Beaupré made two copies of the set of maps drawn during the exploration and some of the copies might lack the type of information we are seeking. It is difficult to assert whether the maps from the National Archives in Paris are original or copies.

The map resources for the *Port du Nord* are:

- A partial draft of the bay (Figure 6) with indications of bearings and stations.

This draft has probably been drawn at an early stage. It shows mostly the coast. The garden is not depicted.

- A lightly colorised map of the bay (Figure 7) with some indications in sepia ink of the topography. Soundings, anchorage of dhips, rivers re marked. The garden is positioned as a near square without details. We assume that this map is a final draft drawn in 1792 (also published by Plomley 1993:103).
- A black and sepia ink map with topographic details (Figure 8), the garden is larger in size on this map and has details on the inside layout. This map is the proof drawn prior to the engraving of the final print. It is very similar to the known original engraving, except for the inside layout of the garden which has been positioned differently on the published engraving.

From these available documents we can observe that there are differences in the drawing and positioning of the garden. It appears that the later documents, prepared in France for the publication emphasized on the garden layout rather than on its position or size.

Figure 6. Draft of Port du Nord, only part of the coastline has been drawn.

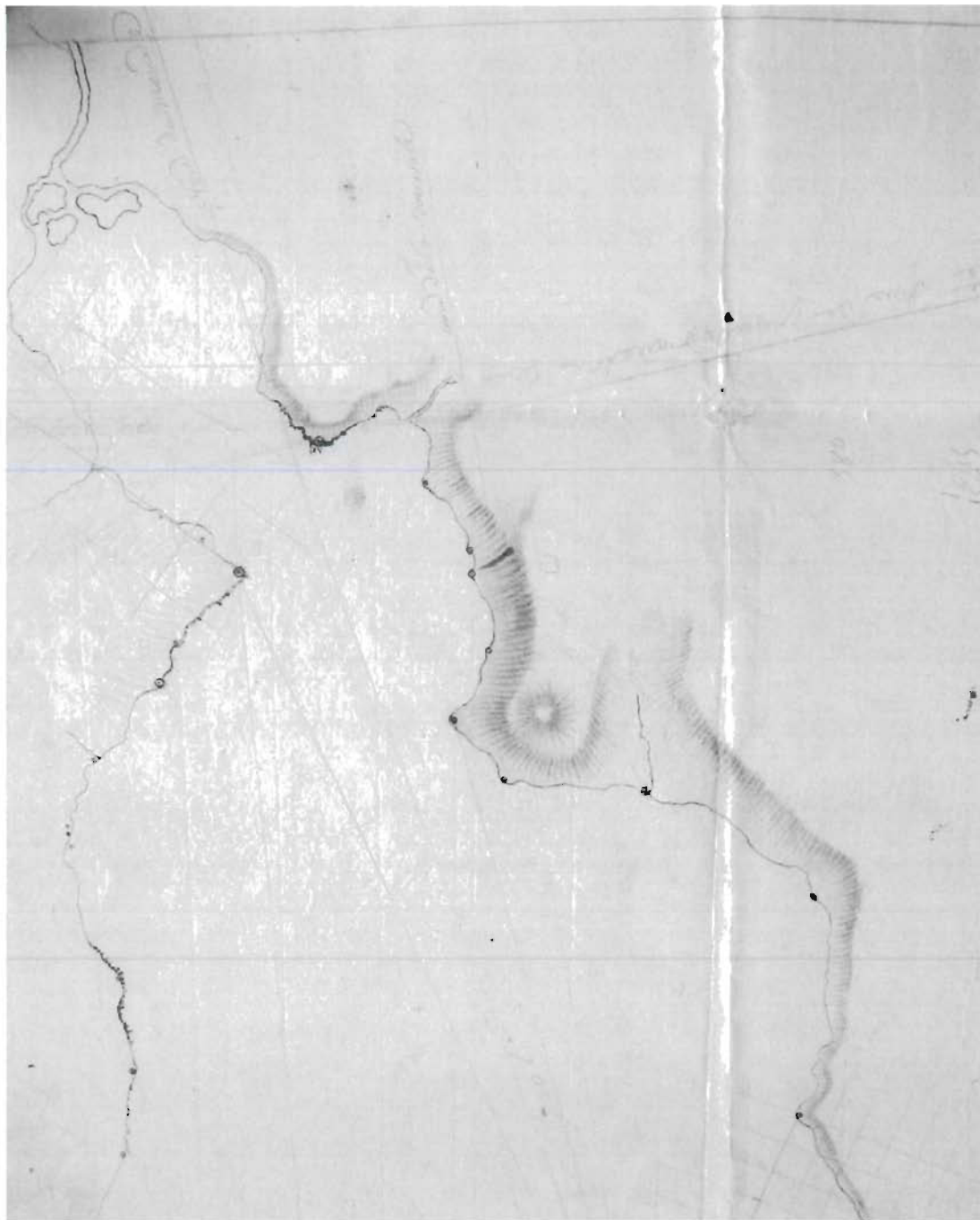


Figure 7. Colorised map of Port du Nord.

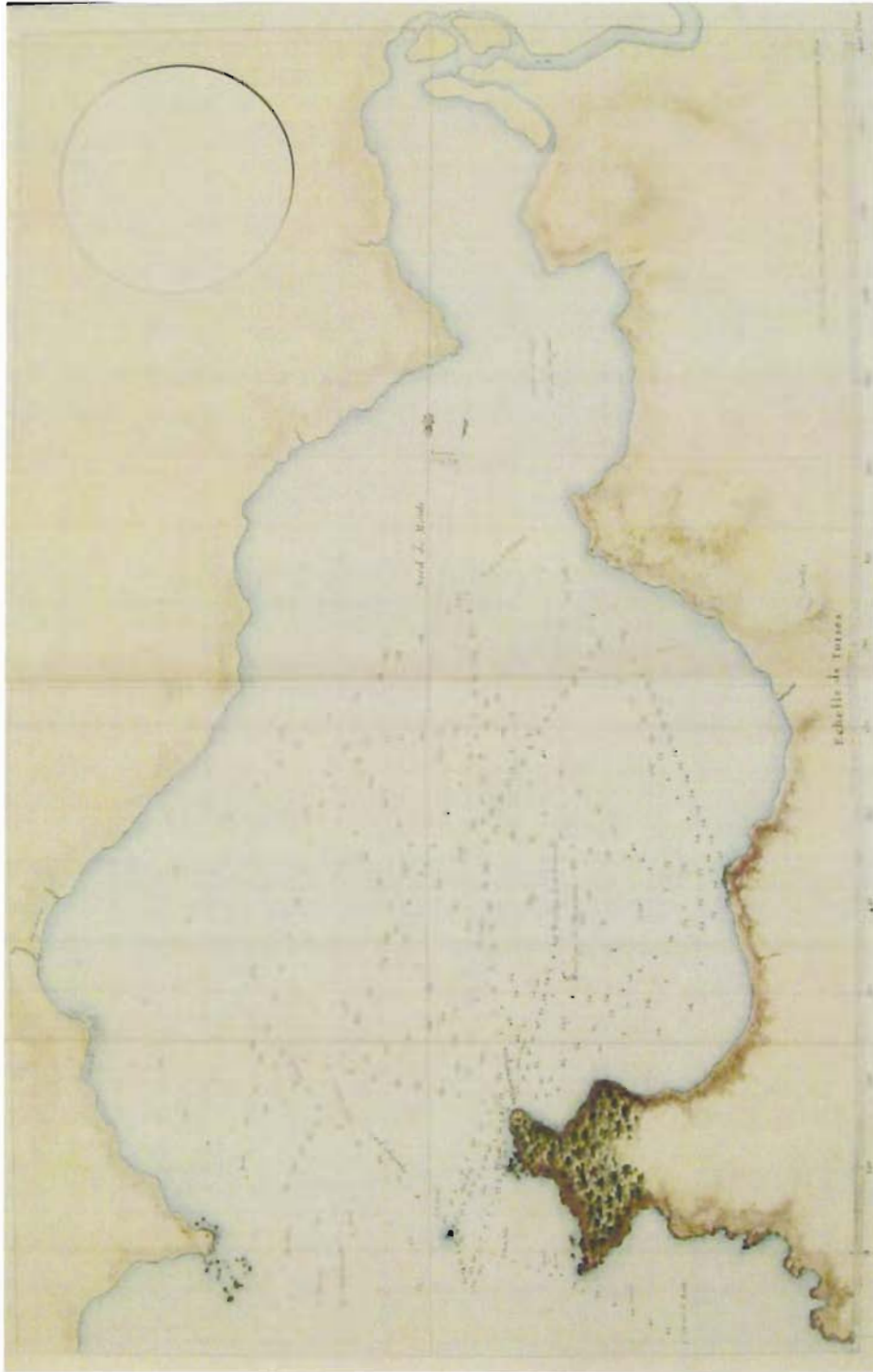




Figure 8. Proof of the final engraving of Port du Nord.

Size and position of the garden

The written accounts and the maps give us some information on the size and location of the garden. The gardener himself speaks of a piece of land of "28 *pieds carré*" which could be translated by '28 Feet Square' or by 'a square of 28 Feet side'. Labillardière gives in 1793 a more precise description of the garden (Labillardière, op. cit. p.122): "*It was a plot of ground 27 Feet by 21 Feet (8.8 and 6.8 meters respectively, 1 French foot of the time equals 0.3248 meter), divided into four beds*" and later (p.166) "*this spot which is very well dug for an extent of nine meters by seven, had been divided into four patches*", which suggests that the garden was a near square.

The distance of the garden to the shore and its size on the map can only be estimated by using the scales of the different maps (a French toise is equal to 1.949 metre):

Figure 7: Size of the garden 28 x 30 meters; distance to the shore: 159 meters (81,7 toises). (Plomley estimated the distance to the shore using the same map to about 80 toises (156 meters) but indicated 146 meters in his book).

Figure 8: Size of the garden 44 x 53 meters; distance to the shore: 149 meters (76,5 toises).

The projection of the original Beautemps-Beaupré map on to the actual topographic map gives a distance of about 175 meters.

The discrepancy between the written accounts and the measurements on the maps indicate most certainly that the garden has been purposely drawn larger on all the maps in order to make it more visible (Figure 9). The largest representations of the garden are on the final proof and on the published map, were the details of the layout of the garden necessitate a minimum size on the print. This allows us to conclude that the drawing of the garden on the map is not accurate enough to give an exact representation of what it was, nor to allow us to extrapolate its exact size. The distance of the garden to the shore however is quite similar on all maps, between 150 and 170 meters, and we can assume that the garden has been positioned with certain accuracy and that only the differing sizes of the garden itself has limited the precision of its position.

Figure 9. Several representations of the garden of Delahaye (A is the published engraving, B the colorised map and C the final proof for the engraving. Note the differences in the layout of the garden between C and A).

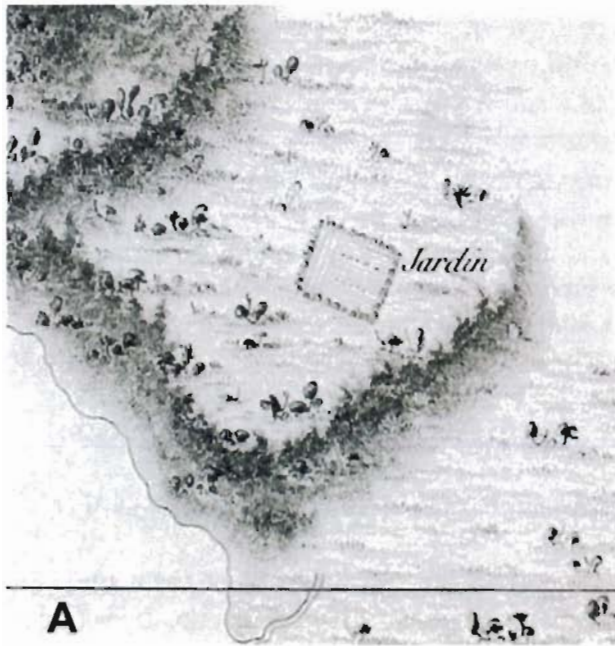
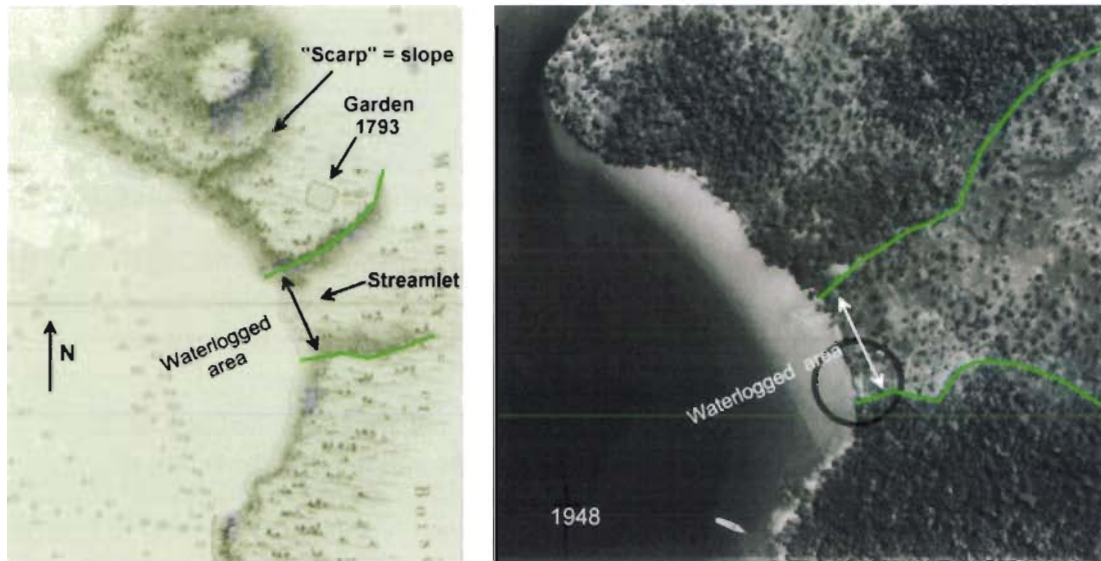


Figure 10. Delahaye's garden on the 1793 map (left), and the same area in 1946 (right) from aerial photography. Substantial deforestation had taken place by 1946, but nowadays the forest cover is more homogenous. (The black circle on the original photo is irrelevant here).



Previous research and discovery

The garden of Delahaye has always been seen as a potentially visible and durable witness of the stay of the d'Entrecasteaux expedition in Recherche Bay. Lady Franklin's visit to the Bay in 1838 gave expression to this quest as well as the first description of what might have been the French garden.

Serious attempts to locate the garden were made by a group of local historians from the *Far South Historical Society* in 2003 and the discovery of the garden was announced the same year.

The stone structure discovered in 2003 by Bob Graham and Helen Gee, which is considered potential evidence of the French garden, is: "75 meters in direct line from the northern end of Crescent Beach" (Poulson 2004:64). The garden as they describe it is:

"of symmetrical shape and measuring approximately 9 by 7 meters and divided into four sections, its inner and outer lines are edged by stones, some of which may have been quarried from a nearby outcrop" (Poulson 2004:62).

In 2003, Gaughwin, archaeologist for the Tasmanian Forest Practice Board, noted that there was the need for an archaeological excavation and analysis of the soil between the stones. She also questioned the stones as an adequate marker for the garden site (Gaughwin, 2003).

In 2005, a rapid visit to the site by Galipaud and Richard allowed them to test the proposed location against the known descriptions in the French archives. Some of the characteristics of the garden and its location were examined. The authors concluded in their report that the discovered stone structure did not fully comply with the description of the French. Of particular concern was the size and location, which did not match exactly the 1792 descriptions but also, as Gaughwin had noted, the stone outlining, a feature never mentioned by the French (Galipaud and Richard, 2005).

Objectives and Methods

Following these previous researches, several objectives were set for the study of the French garden in 2005. Most importantly, it was necessary to assess, if possible, the nature of the stone structure found in 2003 but also to survey and test the larger potential area of the garden as delimited on the 1792 and 1793 maps of the bay. Furthermore, due to the invisible nature of the remains, sampling of soils for possible pollens, starch grains or phytoliths was also programmed, not only on the stone structure but also in the wider potential area of the garden.

The survey of the area of the stone layout and of the potential extended area of the garden was undertaken with particular attention to the soil quality, the nature of vegetation and the stone or possible earth structures. The geology and soil characteristics of the place are also particularly relevant here as they probably indirectly or directly controlled the choice of location of the garden by Delahaye (Figure 10) .

The methods used included a geophysical survey of the stone layout to check for artifacts (EM38 magnetometer) and provide a non-destructive assessment of the structure including potentially hidden buried features (EM38 magnetometer and fluxgate gradiometer). Archaeological mapping, excavation of one key area and core sampling, completed the survey.

Geology

The shallow geology of the stone structure site is weathered bedrock and shallow soil with loose pebbles and boulders. It is unclear whether these rocks derive from in-situ weathering, and which part of the soil profile is residual or transported. The reader is referred to Sharples (1994) for a description of the glacial and periglacial geomorphology in South East Tasmania, and to Duncan (2005) for the present vegetation in the area of the garden.

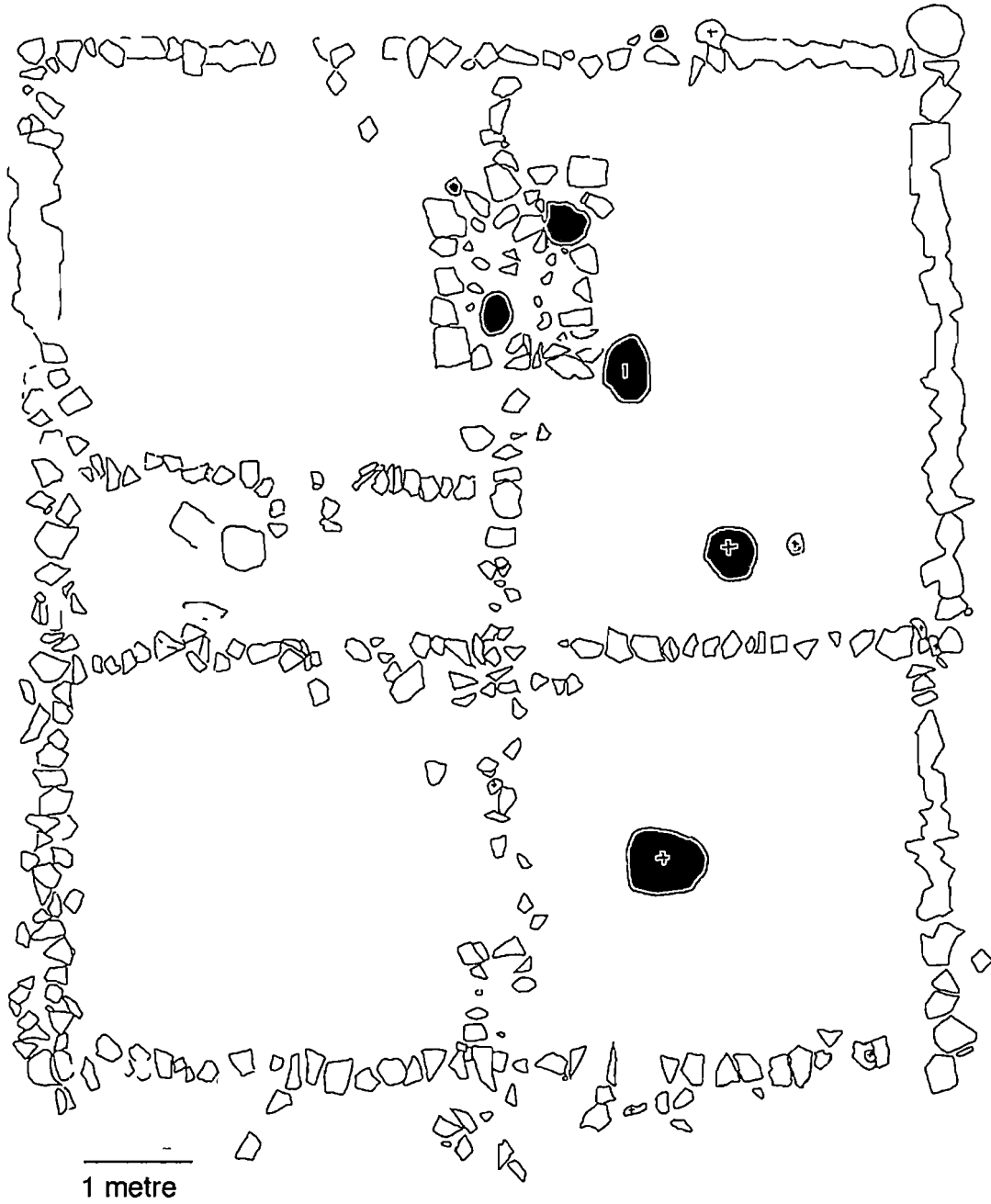
The area of the garden is part of the “Southport Lagoon Plains Land System” while the southern part of Research Bay is part of the “Catamaran Land System”. The attributes of those land systems and landforms are detailed in Davies (1987) and Derose (2001). The type of soil in the garden area probably fits in the classification of Grant et al (1995) for Tasmania. Their description of how suitable this kind of soil is for agriculture, regeneration and forestry is relevant here. Their comments probably apply also on the suitability of setting up a garden, all the more as Grant et al. even indicate the amount of ripping and ploughing necessary. The main types of soil for the potential garden area as a whole are:

- *Loamy over mottled clayey soil under dry forest.* It is a very dark greyish brown clay loam becoming paler with depth over a dolerite bedrock. This soil is poorly drained and any attempt to establish plantation: “would require deep ripping on the contour to improve subsoil rooting and improve moisture characteristics” (Grant et al., 15.1, page 84).
- *Red clayey soil under dry forest.* It is a dark brown clay loam becoming more yellow with depth. As for (a), it is a poor soil for plantations and deep ripping is necessary (Grant et al., 15.2, page 86).
- *Yellowish brown mottled clayey soil under wet forest.* It is a very dark greyish brown clay loam becoming greener with depth. It is more suitable for plantation with “deep ripping of compact subsoil and mound ploughing to provide a suitable planting medium” (Grant et al., 15.3, page 86).

Soil (a) is present around the stone layout. Soil (a) and (b) are characteristic of the wider area of the garden and soil (c) is only represented close to the intermittent creek. The soil characteristics of the surveyed area thus indicate that the less suitable soils are around the stone layout and in the vicinity of the potential garden area as extrapolated from the map. The best suitable soils are further down near the creek.

Interestingly the French also address this issue in their records. Delahaye notes in his journal (April-May 1792) that: “the soil is generally very difficult to cultivate being generally swampy and clayish. It is a little worth under the big trees ... there are a few sand plains which are not too bad”. Labillardière in 1793 criticised his gardener noting that “the soil was rather too full of clay to ensure the success of the seeds”(Labillardière, 1800). After having visited again the garden in 1793, Delahaye and Labillardière noted that the plants had not very successfully grown, a failure attributed to the lack of sufficient watering and the nature of the soil.

Figure 11 Plan of the stone layout



Geophysical results

The surface rock features (Figure 11) surveyed with the EM38, first by exploration transects of medians and diagonals of the layout as well as of the external outer edge of the northern wall. For those transects both conductivity and susceptibility in both vertical and horizontal dipole modes were measured. The results of these exploratory transects led us to complete additional two high-resolution gridded susceptibility surveys with the instrument in horizontal dipole mode (maximum penetration): one South-North grid (9.25m X 11.25m) and one West-East grid (10.25m X 10.25m). The flux gate gradiometer and the metal detector were also used for random but systematic searches in this small area. The following chapter describes both electric conductivity and magnetic susceptibility of the stone layout.

Electric conductivity of the ground

The following geophysical transects were taken: transects across the stone feature, and a long exploration transect. No transect was taken across the location indicated in the 1792 chart.

Because of the shallowness of bedrock in the area, median and diagonal exploration transects showed that here the conductivity component of the EM38 was probably directly related to soil thickness. As the various exploration transects were coherent, their data was merged and gridded. The map obtained for the very shallow conductivity (EM38 dipole in horizontal mode) only concerns the depth of the first few centimeters of the ground and is therefore mostly unaffected by bedrock. Here it shows which anomalies on the deeper conductivity map (EM38 in vertical dipole mode) are due to sources shallower than bedrock in the ground, like shallow loose rocks or surficial rocks (Figure 12).

This is a particularly interesting result as it shows that in terms of soil depth, the area of the stone layout is not the best place for a garden in this vicinity. Bedrock being very shallow, it would be expected that the French would have *de-facto* tested soil thickness by trial and error.

Magnetic susceptibility of the ground

The initial transects showed that the susceptibility component was mostly imaging the distribution of loose rocks (a combination of natural and anthropic distribution of loose rocks). Indeed in the high resolution grid susceptibility (Figure 13) data image the surficial stone layout (inner and outer rock lineations) as well as other anomalies where there are no rocks at the surface of the ground. Those anomalies are of a character similar to that of the anomalies created by the stone layout. They could therefore be mostly due to buried loose rocks similar to those used for the surficial layout, although ground truthing is recommended in those spots in the future.

The flux gate gradiometer and the metal detector were also used on this site. No metals were detected in the vicinity or inside the stone layout.

Figure 12. Electrical conductivity and magnetic susceptibility of the ground (EM38). The maps are derived from gridded exploratory median and diagonal transects, therefore, data coverage is not homogeneous and must only be used to derive large scale trends.

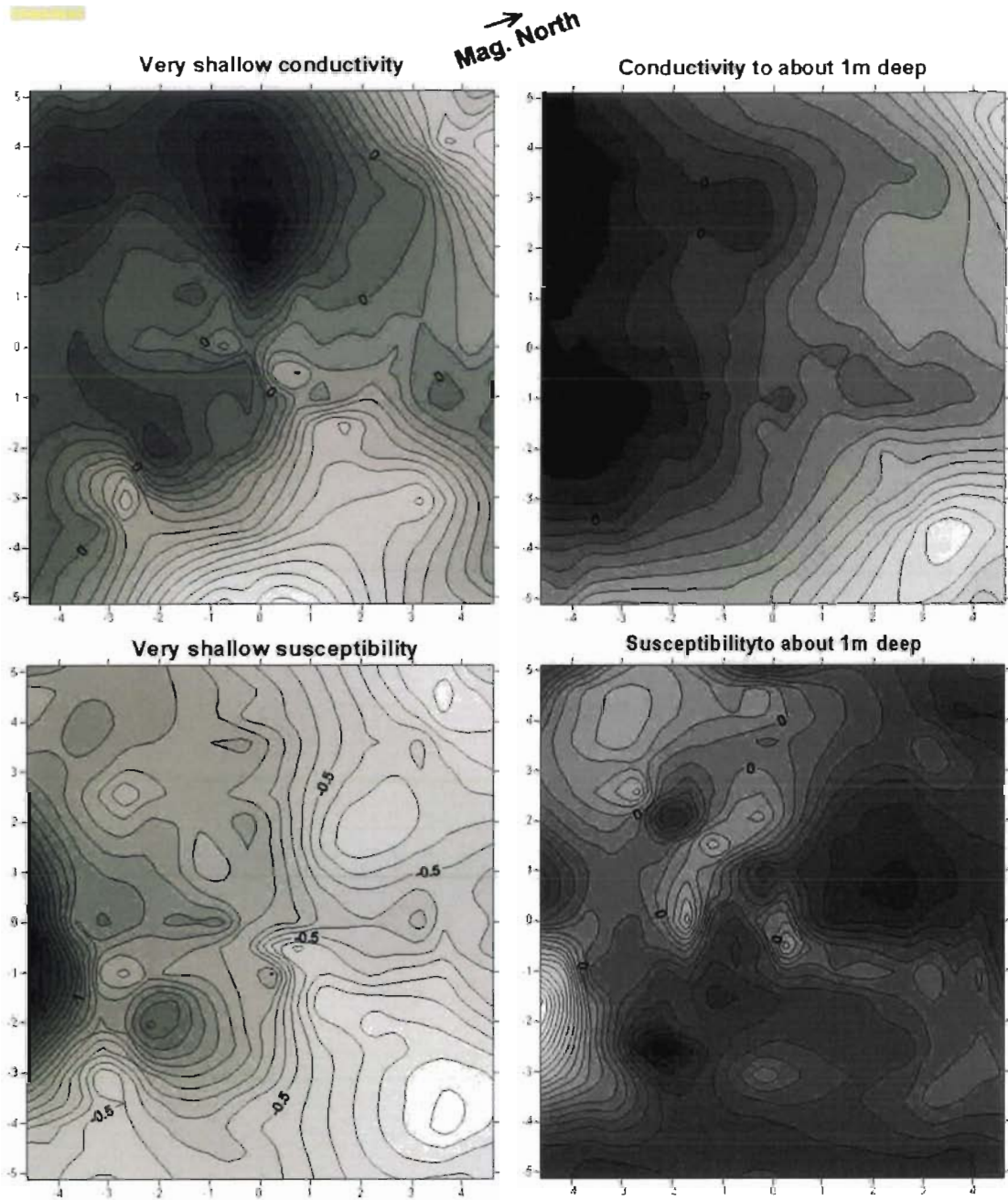
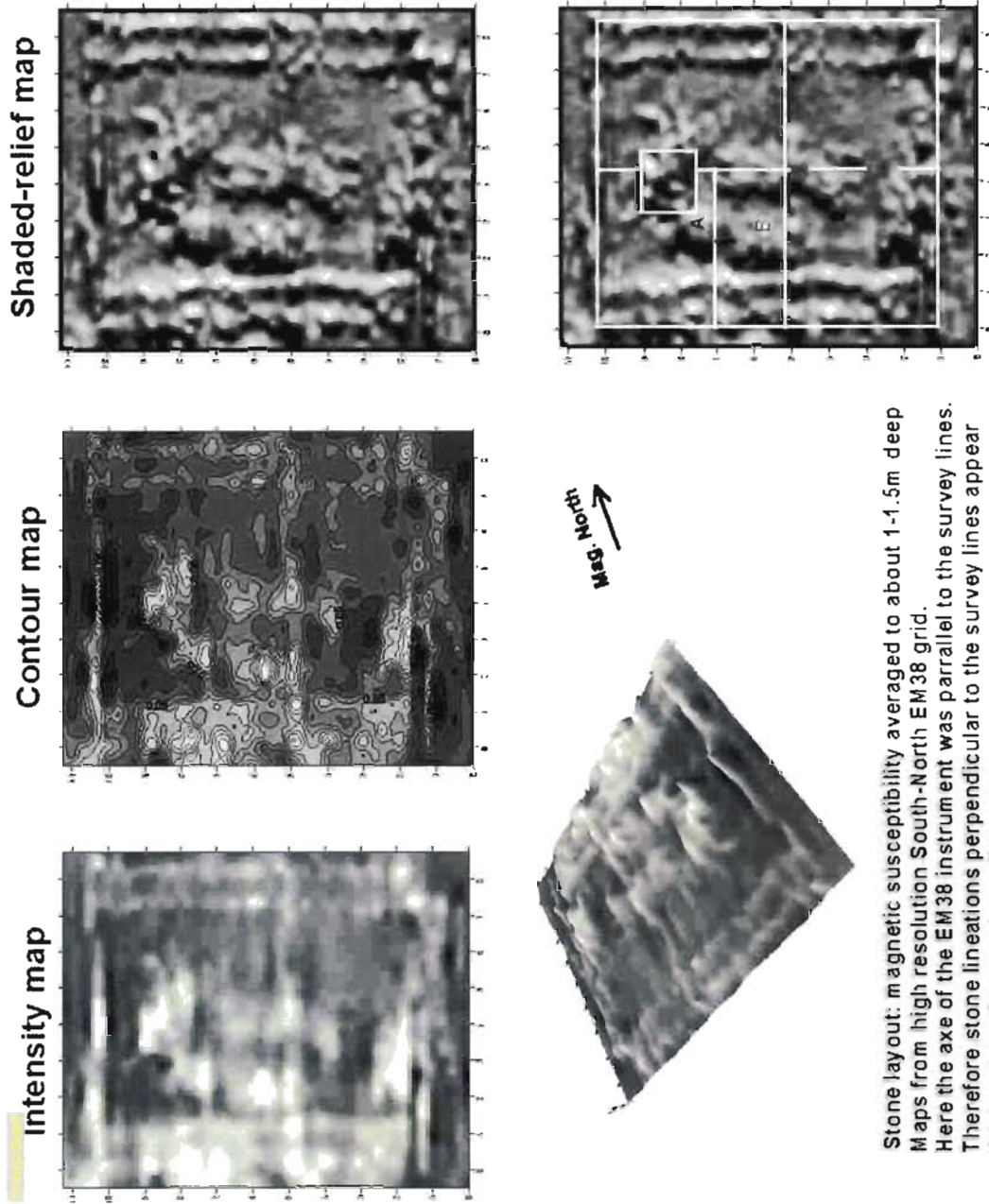


Figure 13. Magnetic susceptibility averaged to about 1-1.5m deep maps from high resolution south-nord EM38 grid. (Stone lineations perpendicular to the survey lines appear thicker than they are in reality).



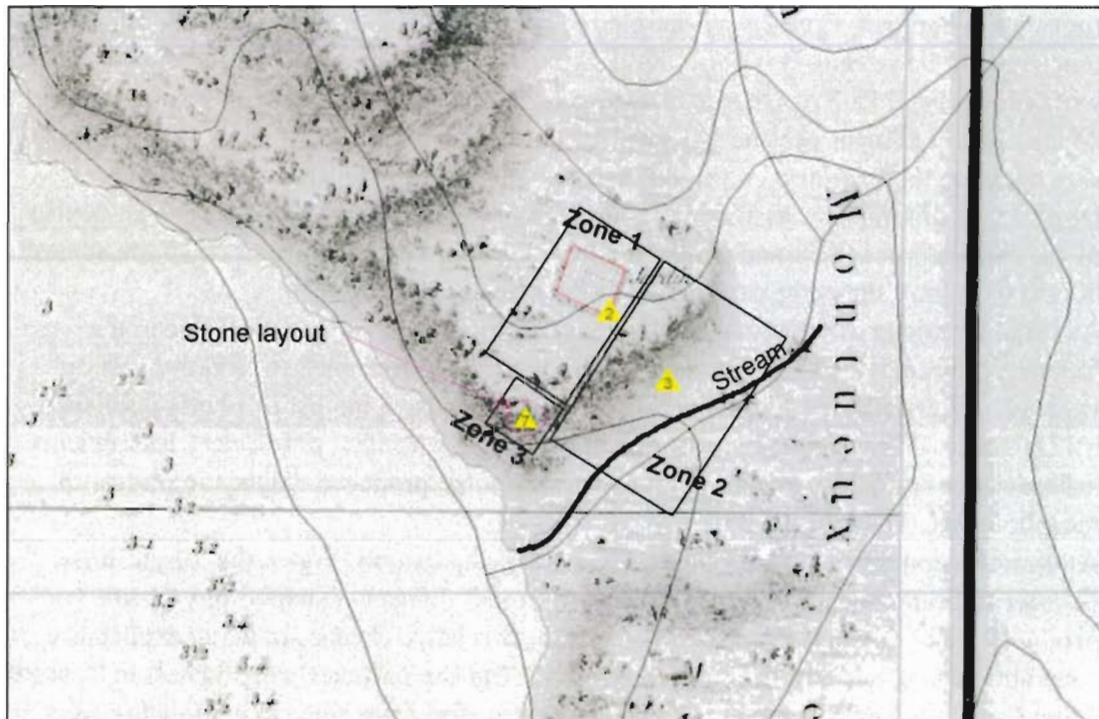
Stone layout: magnetic susceptibility averaged to about 1-1.5m deep Maps from high resolution South-North EM38 grid. Here the axe of the EM38 instrument was parallel to the survey lines. Therefore stone lineations perpendicular to the survey lines appear thicker than they are in reality. For the "external" stone outline only the outer edge is drawn here.

Surface survey of the wider garden area

The position of the garden on the 1792 map, once transferred onto the modern topographic map, appears to be on one of the least likely spots where a garden would be set in the area: on a dolerite outcrop where the micro-topography is the most rugged and the soils the shallowest of the vicinity. The location of the garden as per the available maps must therefore be used as a relative rather than an absolute position.

In order to identify the most plausible area for the garden a surface survey of the wider area was undertaken. It was then completed with a series of soil samples, which reflected the different environments encountered during the survey. Samples were taken with a 1 metre long gouge auger (diameter at the base 20mm and at the top 50mm) (Figure 14).

Figure 14. The wider garden area at coal Pit Bight with indication of the surveyed areas.



In the first two zones, a systematic surface survey was conducted. The survey was made difficult due to the dense vegetation, particularly in zone one where cutting grasses (*Gahnia grandis*) were very abundant. In this area, which according to the location of the garden on the map would be the most likely area of the old garden, the vegetation is characterized by large *E. obliqua* and dense concentrations of *Gahnia grandis*. The terrain is uneven with dolerites rocks emerging around trees and in the northern area of the zone. The area is sloping from north to south.

Zone two, between zone one and the stream is gently sloping and not so densely wooded and becomes flatter towards the streamlet. *E. obliqua* and *Gahnia grandis* are not anymore so common and are replaced near the stream by *Melaleuca* shrubs, an indication of the wetter environment.

Seven soil samples were extracted from zone 1 and 2 (4 samples) and zone 3 (3 samples). Additional soil samples were also taken during the excavation process of trench one in the stone layout.

Three soil samples were sent for phytolith detection to Dr D. Bowdery at the School of Archaeology and Anthropology at ANU, Canberra (Core 2 from Zone 1, Core 3 from Zone 2 and Core 7 from Zone 3) (Figure 14). In addition, 3 soil samples from excavation Trench 1 in the stone layout (context 5, 8 and 11) – part of Zone 3 - were also submitted. The aim of the analysis was to determine whether the French garden location could be assessed using phytoliths.

The stratigraphy of Core 2 is representative of soil type (a) in dolerite outcrop in zone 1. It is a dark clay soil (5 cm) becoming rapidly crumbly clayish (12 cm) which overlays the dolerite bedrock. Core 3 was sampled in zone 2 halfway between the dolerite outcrop and the stream. It is very wet dark brown clayey sediment, becoming greener with depth (type 15.3 of Grant's classification, our type (c)). The core was limited to 44 cm as the sediment became too soft because of the amount of water. Core 7 (40,6 cm) was taken on the southwest corner of the stone feature and is a red clayey sediment (type 15.13 of Grant's classification, our type (a)). Differences between overall depths of the four samples (TP1 and Core 2 are less than 20cm while Cores 3 and 7 are at least 40cm deep) limit the comparisons across the area.

As no illustrations of the economic plants sown by Delahaye were available in the literature, the analysis included the creation of a limited reference collection made up from available seeds, seedlings and other plant parts, using the list of plants published by Delahaye. Of the economic plants prepared for phytoliths, only celery leaf, chicory inflorescence and leaf, and white onion leaf and radish produced diagnostic phytolith morphologies. (Bowdery 2006).

All samples contained varying amounts of *Gahnia* and shrub phytoliths. Phytoliths, *Gahnia* and carbon particles were densest in Core 2. Large fan shaped phytoliths produced by hydrophyllic grasses that can show relative changes in water availability were abundant especially in Core 7 and Core 3. Carbon particles were highest in Test Pit 1 and Core 2, the drier samples. Phytolith transformed from silica to cristobalite were noted in all sediments indicating high temperatures during fire occurrences.

In her report (2006), Bowdery also noted that, regarding economic plants, "*two phytoliths, one each from chicory and radish, are very difficult to distinguish from Gahnia morphologies which dominated the assemblage, similarly, a white onion morphology from an unidentified morphology present in the assemblages. Under these conditions, I cannot positively identify phytoliths to plants other than to say that these look-alikes were single occurrences in Core 3 and Core 7*".

Finally, she notes the surprising absence of small-cell bilobate phytoliths which are abundant in many grasses. Presence/absence of these small cells often indicates

opening/closure of grassland. In this instance however, Bowdery suggest rather that a different dynamic, possibly water or fire has removed them for the area.

In conclusion, this preliminary phytolith analysis highlighted the difficulty of sampling and interpreting as well as the methodological limits of the procedure. It provided furthermore interesting information on the nature and dynamic of the garden environment. The drier conditions of the dolerite area, the evidence of large fires and their impact on the conservation of natural evidences are of great relevance for our study.

Both soil sampling and analysis and depth estimation by probing, as well as reconnaissance geophysical surveys (EM38), show that there is significant variation in topography, soil thickness, soil type, soil moisture/drainage, and soil chemistry within the general area where the garden has been said to be. A working hypothesis is that those variations are somewhat similar, at least in their distribution, to those in the days of d'Entrecasteaux. It is most probable that Delahaye did not choose the location of his garden randomly but rather tried to locate a place with adequate soil and moisture condition. As noted earlier however, his choice was criticized a year later by Labillardière when the loss of the plantations was acknowledged.

Still, it is worth to note that the intermittent stream near the garden area is in the vicinity of one of the very rare geological contact in Research Bay between Jurassic dolerite and Triassic sandstone. This contact possibly determines topography, hydrology (stream location and drainage), geomorphology, and soil/subsoil characteristics, thus, indirectly, vegetation and possibly the general location of the garden as well. This statement has to be moderated by the fact that glacial, periglacial and Quaternary processes may have offset the variations of these landforms attributes relatively to the exact position of the contact.

The maps tell us, more qualitatively than quantitatively, that the garden is to the north of a kind of swampy area where a streamlet runs. Nowadays it is a waterlogged subdued valley (i.e. with very low topographic contrast) (Figure 10). This stream is probably intermittent but is indicated on the modern 1/25,000 map. The swampy area of the 1792-1793 maps matches surprisingly well the preferentially logged/devegetated area on the 1948 aerial photographs. We ground-truthed the edge of this waterlogged area and noticed that it has deeper soils and a flatter surface than the higher areas, and is therefore much more suited for setting up a garden than the area of the stone layout. It is about 50 meters south and west of the 1792-1793 map location of the garden.

Interestingly, some of the 1792-1793 maps from the expedition depict a scarp to the north of the garden (Figure 9). No such scarp exists. Still, this detail styled and printed from field original sketches and data, is not gratuitous. This is just the way hydrographic charts of the time used to roughly/qualitatively indicate a slope, irrespectively of its real and exact extent, inclination and direction. Those parameters are indeed difficult to quantify from coastal or offshore observations alone. The "scarp" of the 1793 map depicts the actual general slope of the dolerite outcrop in our area of research, and tells us that the actual position of the garden is at/near the lower-lying part of the slope. To sum up, the Beautemps-Beaupré maps of the area of the garden tell us that the

garden is close to the edge of the low-lying waterlogged area. This is consistent with, albeit 50 metres from, our field estimation of the most suited spot for a garden onshore of Coal Pit Bight, where soils are deeper and moist, less rocky, and the area flatter. Conversely, the area of the stone layout is in a rocky area, which has not a sufficient depth of soil for a garden and some 100 metres from the location indicated on the Beautemps-Beaupré map.

Figure 15. 10mm contour map of stone feature, showing location of soil samples and archaeological excavation (Trench 1).

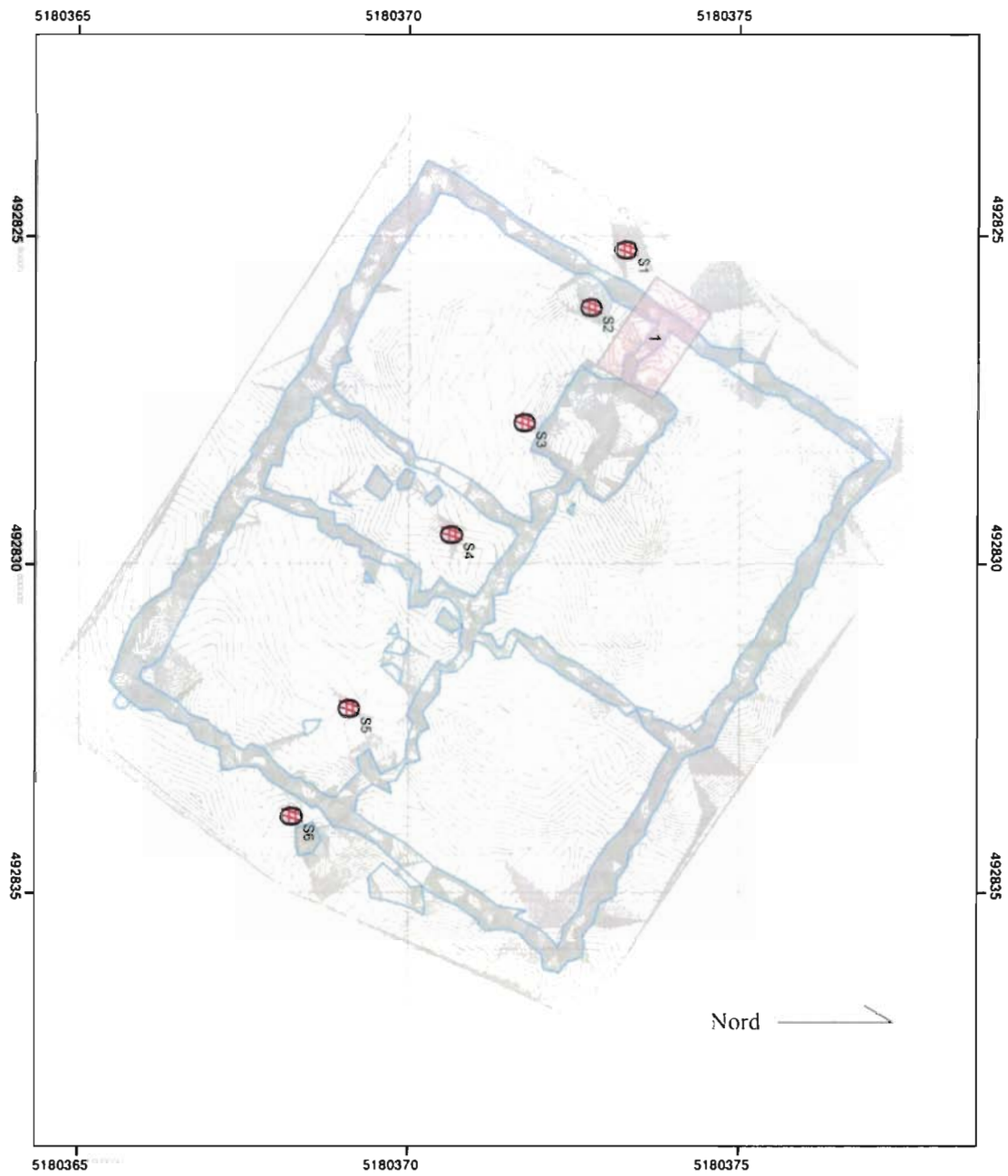
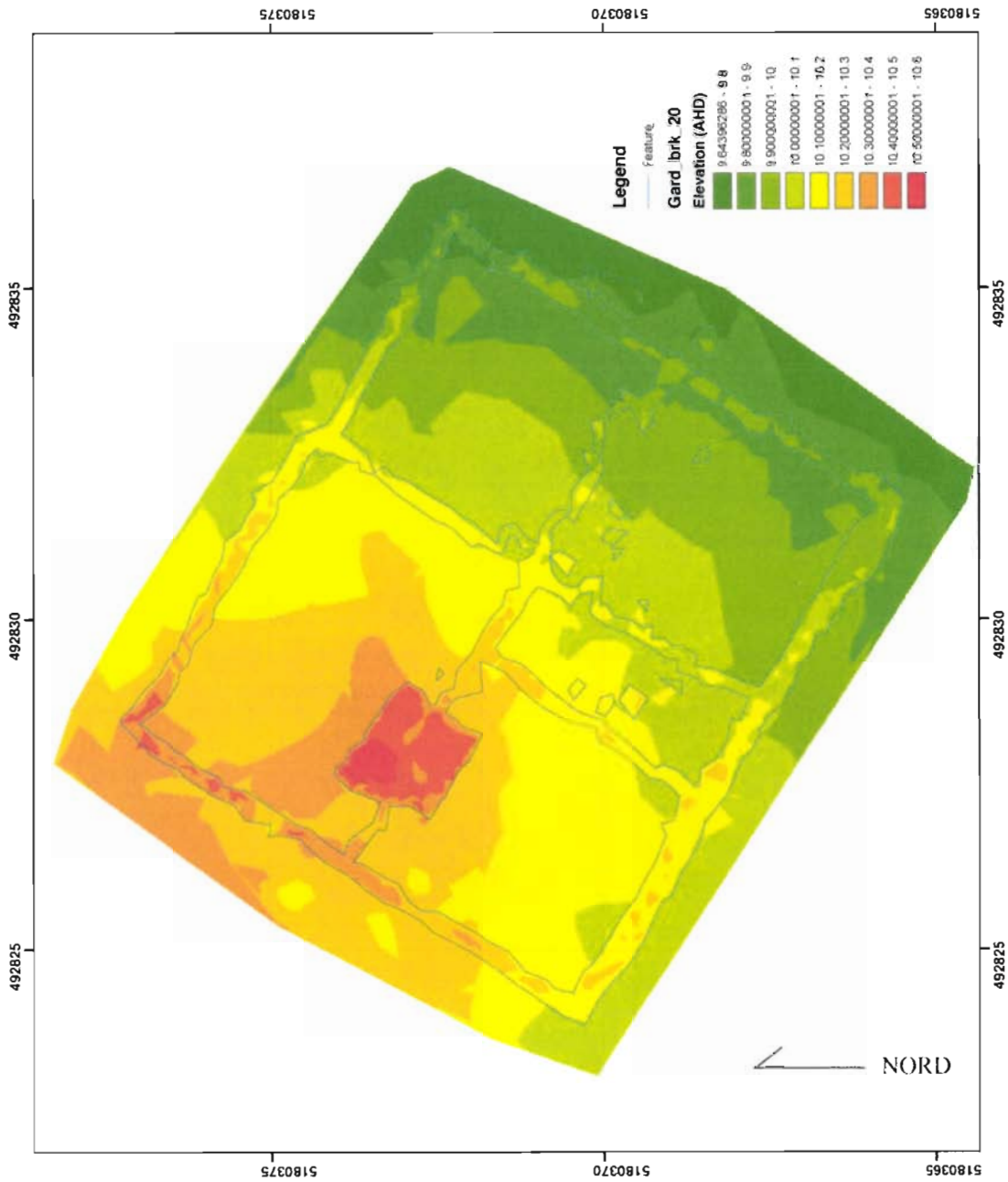


Figure 16. 100 mm elevation grid (AHD) showing the south-southeasterly fall of the site, and the generally consistent relationship of stone feature surface elevation to surrounding terrain. (20mm cell size).



Archaeological mapping and excavation

Detailed topographic survey of the stone layout

A detailed topographic survey was carried out of the stone feature, which involved the capture of over 1500 data points (Figure 15). The data were collected with a Nikon DTM720 total station.

The data were used to create a digital elevation model (DEM) of the feature in order to facilitate analysis of surface levels and correct geophysical data (Figure 16).

From the model it can be clearly seen that the site terrain is most elevated in the northwest corner, falling steadily away to the southeast. The highest area is formed by the square cluster of fieldstone separating the western-most cells of the feature. The mean height differential between built surface and surrounding ground in this area exceeds 200mm. This contrasts with an average height differential between built element and adjacent ground surface of between 100-200mm for the linear stone alignments. There does not appear to be any significant difference in average standing heights of the linear stone elements (relative to neighbouring ground) between different areas of the feature. Assuming that the site has not been 'tidied up', the absence of significant quantities of collapsed rubble suggests that there was no consistent finish height for the stone alignments, with little evidence of building up, additional courses or selection of larger rocks to compensate for the observed decrease in terrain elevation to the southeast. In summary, the stone alignments essentially comprise a single course draping over the existing (modified) site terrain.

Archaeological excavation, Trench 1

A 1.6m x 1m trench was positioned adjacent to the west side of the rectangular stone mound, extending westwards to encompass the western stone alignment and centered longitudinally over the short stone alignment connecting both (Figure 15). The trench was sited to test a series of questions pertaining to the spatial layout of the stone feature, its construction and use.

Stratigraphy

The trench was subdivided into three excavation areas: A, B and C, each separated by aligned stone. The areas were approximately equal in size (Figure 17). Leaf litter and surface vegetation was removed and designated contexts [1], [2], and [3] for areas A, B and C respectively.

Further excavation followed this general system. In all areas the surface litter deposits overlay friable light clay impregnated with white fibrous (fungal) matter [4], [5], [6] (Figure 18). This was removed to expose an irregular topography of medium clay, grading to heavy clay with organic staining in some areas [7], [8], [9] (Figure 19). With no natural stratigraphic subdivisions observable at surface, the clay was taken down in level spits to a maximum depth of 80mm, the soil becoming increasingly homogenous and compact with depth.

Three 0.25m² sondages were excavated at this level, one in each area, with the soil

removed as [10], [11] and [12] (Figure 20). The shallow sondages were discontinued at a depth of 70mm below the spit surface.

Figure 17. Trench 1, pre-excitation.



Figure 18. Trench 1, contexts [4], [5] and [6].



Figure 19. Trench 1, contexts [7], [8] and [9].

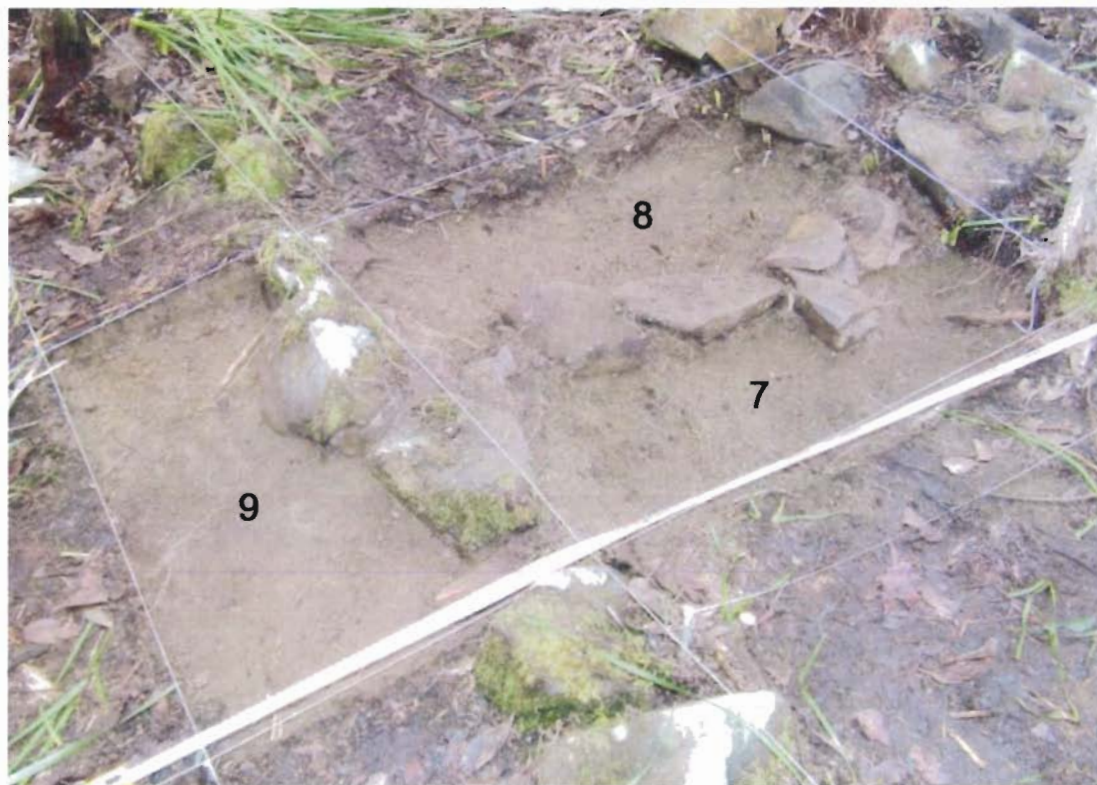


Figure 20. Trench 1, contexts [10], [11] and [12].



Results

Apart from some small isolated fragments of ferruginised stone tentatively identified as possible ochre (determination by Aboriginal archaeologist) no artefactual material was encountered during the excavation. The soil profile was relatively weakly developed, with minimal A0/A1 ([1], [2], [3]) and A2 ([4], [5], [6]) formation. The pockets of A2 fibrous material did not appear to bear any significant spatial relationship to the stone features, such as post-hole or trench fill, and would seem to indicate relatively recent (active) decomposition of native plant material. The clay substrate B21 horizon ([7], [8], [9]) did not display evidence of cultural modification such as incorporation of charcoal, organic or other material. No significant textural changes were observed within the sondages, which exposed a gradation into culturally unadulterated mottled olive dolerite clay B22 ([1], [11], [12]). No gross compositional or textural differences were observed within the A0-B22 sequence between areas A, B and C. If anything, A1 was underdeveloped in all areas, suggesting generic truncation/disturbance of the topsoil at some point.

The stone alignments comprised a single row of dolerite fieldstone sitting on the B21 surface ([7], [8], [9]). No evidence of entrenching was observed. Similarly, no evidence of feature truncation, keying in or other sequential activities was observed, suggesting single phase construction of feature elements in this location. No historical artefacts were found during the excavation (Figure 21).

Figure 21. Trench 1, post excavation photomosaic.



Historical context of the stone structure

Timber milling commenced in the area in 1898, with John Kemsley taking out a 400 area lease at the Crescent for a sawmill, linked by a tramway to a 5000 acre timber lease further north near the D'Entrecasteaux River (Kostoglou 1993: 80). The mill appears to have operated under a range of owners until around 1910. The tramway, constructed by 1904, operated until closure of the mill, being partially reopened during the late 1920s-early 1930s when Henry Jones & Co. began construction of a new mill and wharf approximately 1km north of the abandoned Crescent mill site. The new mill was never completed.

The route of Kemsley's Crescent mill tramway is shown within one chain road reserve on the accompanying block survey prepared in 1905 (Figure 22) along with two other road reserves that are not indicated as being developed. The tramway clearing is clearly visible on a 1948 aerial photograph of the site (Figure 23).

The stone feature is located approximately 30m west of the tramway, a surviving 25m long segment of which was recorded heading in a northwesterly direction. This is parallel to, but offset from, its charted position on the 1905 survey by several metres.

In order to locate the stone feature with respect to the 1905 survey and 1946 aerial photographs, both survey plan and aerial image were georeferenced using the 1:25000 Tasmapi vector dataset for Recherche³. The method for each operation utilised a first order polynomial (affine) transform⁴. The discrepancy between the on-ground measured position of the tramway alignment and its position indicated on the georeferenced image (Figure 24) is 11m, which falls within the published confidence levels for the 1:25000 dataset⁵. The relative precision of the georeferenced 1905 cadastre relative to the stone feature is considered to be of the same order.

The stone feature coincides with a short section of surveyed reserved road, shown on the block survey plan, which connects the tramway easement with the coastal reserve. The purpose of the road reserve is unclear, however two parallel broken lines shown extending from its western end into the bay suggest the road may have been under consideration as access to a possible jetty site. The road reserve appears on the 1946 aerial photograph as a clearing with minimal regrowth, suggesting recent activity contemporary with the extensive harvesting at the Crescent further south.

⁴ RMS errors 2.11 for 4 point transform for 047941 and 4.89 for 5 point transform of 1946 air photo.

⁵ DPIWE 2005

Figure 22. Survey diagram 30/23 1905.

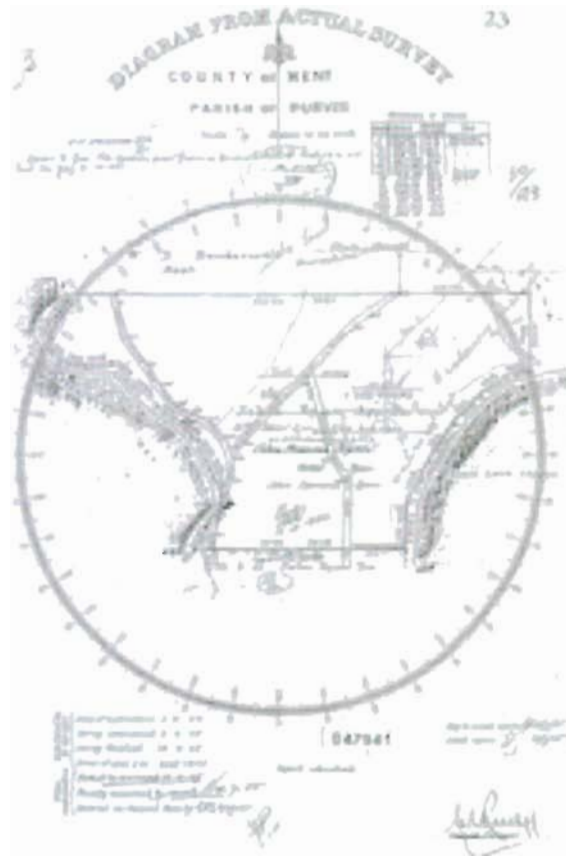


Figure 23. 1948 aerial photograph of the area.



Figure 24. Block survey plan of the area of the stone layout.



Apart from the evident landscape modification and stone feature itself, no other historical artefact types were observed at this site, suggesting limited development and little or no subsequent occupancy or use. The absence of fastenings, either from the excavation or elsewhere at the site, and lack of any consistent finish level, or evidence of downhill coursing to the stonework mitigates against the feature being evidence for a completed and subsequently removed standing structure. The possibility of the evidence indicating site preparation and early groundworks for an uncompleted structure cannot be discounted on present data.

Conclusion

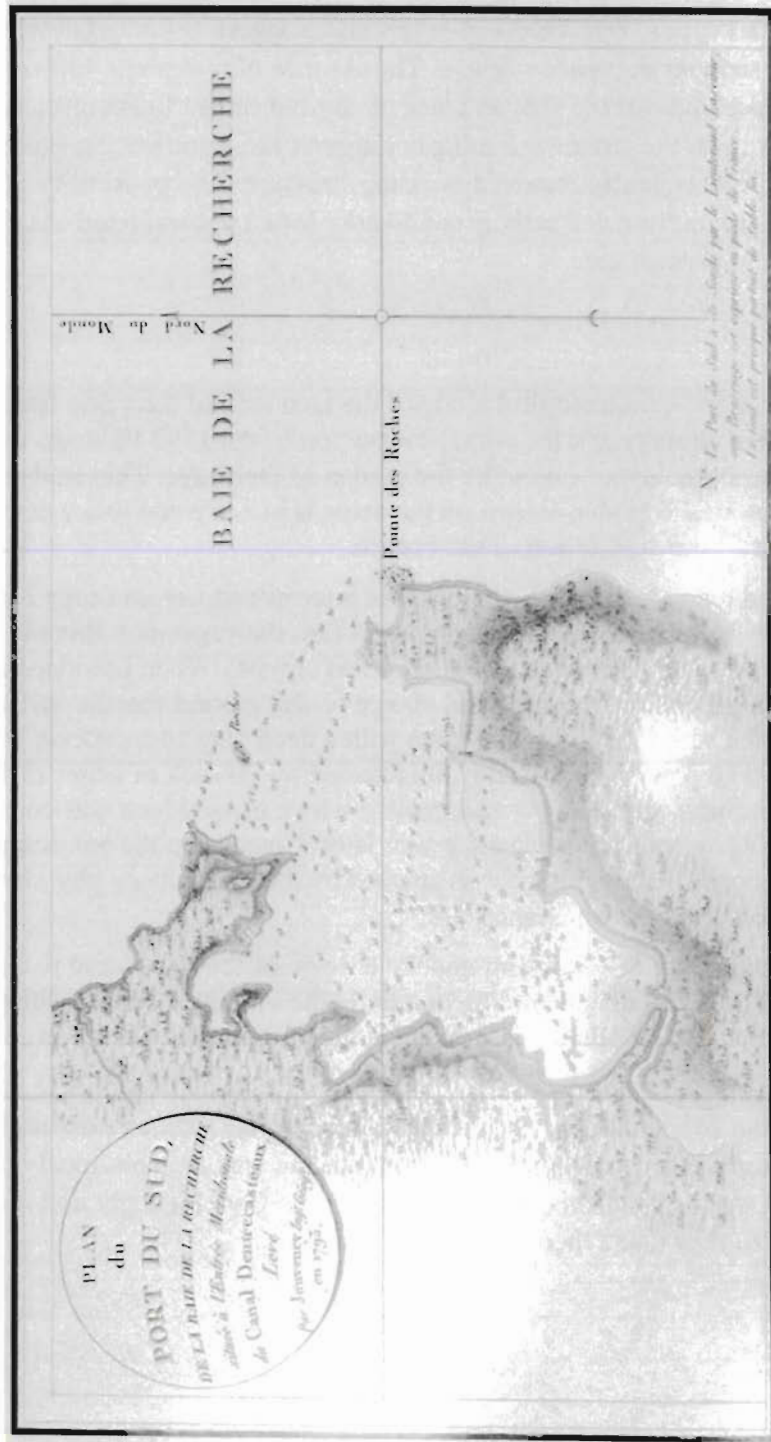
The geophysical and archaeological study of the area around the stone feature as well as the soil sampling strategy and the close observation of the 1792-93 maps of the area suggest that the stone layout cannot be the garden of Delahaye. This study also indicates that the location of the garden shown on the maps is in a dry and rocky environment which does not fit the description of the French.

The most suited area for the garden is near the intermittent stream (zone 2 of our survey) (Figure 14). The area near the stream is flat, the vegetation there is typical of wet and swampy grounds and the soil is deep and clayish. When Labillardière visited the garden in 1793, he criticised the bad choice on the ground that the soil was too silty. The area near the streamlet is the only area with a deep clay cover. Drier conditions during the 1793 stop at Recherche Bay are attested by the lack of water at the 1792 watering place. Such conditions would explain why a place which was considered adequate in 1792 appeared inadequate a year later. Changes in the environment due to climatic conditions or human impact as attested by the preliminary phytolihys analysis can have altered the 1792 landscape.

The intermittent nature of the stream and the erosion of the slopes due to attested fires has possibly caused flooding or sedimentation in the vicinity of the stream since d'Entrecateaux's visit and thus traces of the garden might today be covered by alluvial deposits.

The stone layout found in 2002 is probably a uncomplete structure associated with the late 19th and early 20th century developpment of the area. It is obviously one of the few remaining witnesses of this part of the history of Coal Pit Bight and needs to be protected and further researched.

Figure 25. Printed edition of a map of Rocky bay drawn by Jouveney in 1793.



The 1793 stop at Rocky Bay: Boucher's grave

Historic context

Jacques Laurent Boucher, second class gunner in 1791 and wigmaker by profession died on 3rd February 1793 at the age 22. He was onboard *Espérance* part of the garrison of the ship under the authority of François Augustin Guyard, master gunner and wood carver.

Denis Joannet, Chirurgien major, writes in his logbook (Marine 5JJ13) that J.L. Boucher, being of a very weak complexion, was suffering heavy pain in the chest with fever and that medications were without much effect. Fever intensified short after arriving at Rocky Bay and led to a general infection. He died on 3rd February at 1 AM.

Logbooks of the *Recherche* and *Espérance* are very concise about this event:

« The majority of them [the crew] went on board the Espérance, having been invited to assist at the funeral of one of their comrades who had died on board the frigate of a chest complaint; he was buried on shore. »
(Recherche logbook quoted by Plomley 1993:157)

« During the night, one of the sailors, a gunner, died; he had long been ill with pulmonary phthisis. He was buried at 2.30pm. » (*Espérance* logbook, written by Trobriand and quoted by Plomley 1993:158).

In his journal, La Motte du Portail (Officer on board the *Espérance*) writes :

« At 2 pm, the body of the dead soldier who died overnight has been carried ashore where he was buried not far from the shore, the detachments from both frigates accompanied him. Mr de la Seinie and myself joined the ceremony which our soldiers seemed to appreciate. Mr Guillard, master gunner made an inscription that he placed on a nearby tree. » (Marine 5JJ13/1).

Geographic location of the grave

Information for locating the grave is very limited . The map of Port du Sud or Rocky Bay drawn by Jouvençy (Figure 25) does not give any details of the probable area of the burial and no indication was found in other available original maps or sketches or in available logbooks.

The few description about this event suggest that the grave is not far from the shore and in an area with large enough trees for an inscription to be carved. It is reasonable to believe that the grave has been placed in the vicinity of the shore facilities of the *Espérance*.

The carved wood is of specific interest and can possibly help to narrow the potential area. From the entries in the logbooks from the *Espérance* it appears that a copperplate might have been used for the grave (Richard, pers com). This was a usual practice and we already know that in 1792, an inscription had been left at Bennet's point, etched on a

tinplate. In both cases, the master gunner Guyard had etched the plate.

Carved trees are described by Lady Jane Franklin in the diary from her 1838 journey to Recherche Bay (quoted by Mackaness, 1977:43):

« Two trees, blown down by the wind, or uprooted by the breaking away of the bank, were lying on the beach on the S. which still bore the marks of the places where the plates had been inscribed, though they themselves had been removed ».

Her guide reports having seen the trees in 1832 and describes them in those terms:

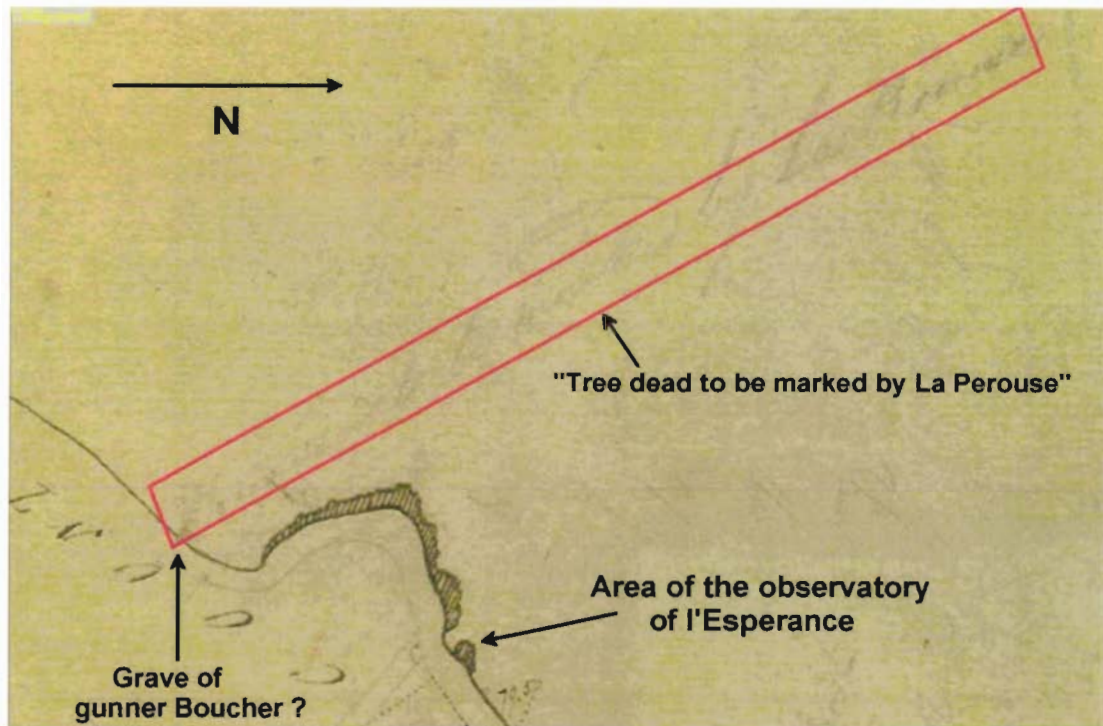
« One of the trees bore a portion of the copper-plate inscription which had since disappeared, probably like the rest, carried off by the natives. » .. »the other tree contains an oblong hollowed space, about 3 inches long and somewhat less broad, and of sufficient depth to have contained papers which it is supposed were inserted in it and closed down by the plate. The iron nails which fastened down the plate remained around the outer edge of the excavation, worn away and rusted. I carried off one of them, as well as one of the two circular nobs carved in a lower part of the trunk near the root - some more pieces were afterwards subtracted from the decaying trunks by the gentlemen on a subsequent visit, the excavated box being left by us all uninjured ».

A few years earlier, and possibly with the same person, Calder crown surveyor, draws the first map of the newly organised subdivision of Rocky Bay and makes a pencil note on the eastern side of the bay which reads: *« tree dead to be marked by La Perouse »* (Figure 26).

Mid-19th century historical records from Lady Franklin and from surveyor Calder suggest that the grave of the French gunner Boucher (from ship l'Esperance) could be on the coast on the south side of Rocky Bay. The general area is a series of small bays between rocky headlands. The current landforms are foredunes sometimes fronted by berms, incipient dunes and storm scarps.

The spot indicated by Lady Franklin and Calder is near the shore, in the vicinity of the area called *« Fords Green »* on the 1/25,000 map, to the South of the headland where the observatory of the *Esperance* stood. The records are consistent with each other as to this location, and suggest that the possible spot for the grave had already been eroding in the first half of the 19th century. This severely reduces the chances of finding the grave if it is in this area, all the more as coastal devegetation / deforestation continued unabated long after. Still, we conducted exploratory but systematic transects in all practically feasible coastal areas (that is with less very thick bush) with all the detection instruments. As it is not certain that the area mentioned by Lady Franklin and Calder is the actual spot of the grave, we included in our geophysical search both sides of the headland of the observatory of the *Esperance* (Figure 27).

Figure 26. Calder's first map of Rocky bay with some indication of an engraved tree associated with La Pérouse.



Another hypothesis for the location of the grave has been proposed by Peter MacFie (2006 :61) :

« A grave marked on Calder's 1833 plan of the whaling stations ... obviously predates the map. This beach was later known as Planter's Beach. Who this person was is uncertain, but possibly a whaler. Kostoglou, notes the grave was used as a survey marker as late as 1890. The remaining headstone of Samuel Thomas Pryat appears to have been of a later burial. Location of this early grave is about 40 years after the French expedition's burial. Given the popular local memory of the expedition shown by whalers such as Lucas, suggests [sic] this documented grave site may have been at the same location as the French sailor.»

We included in our survey a geophysical search on the whalers' graves from Planter's beach. The results of this work is detailed in the next chapter.

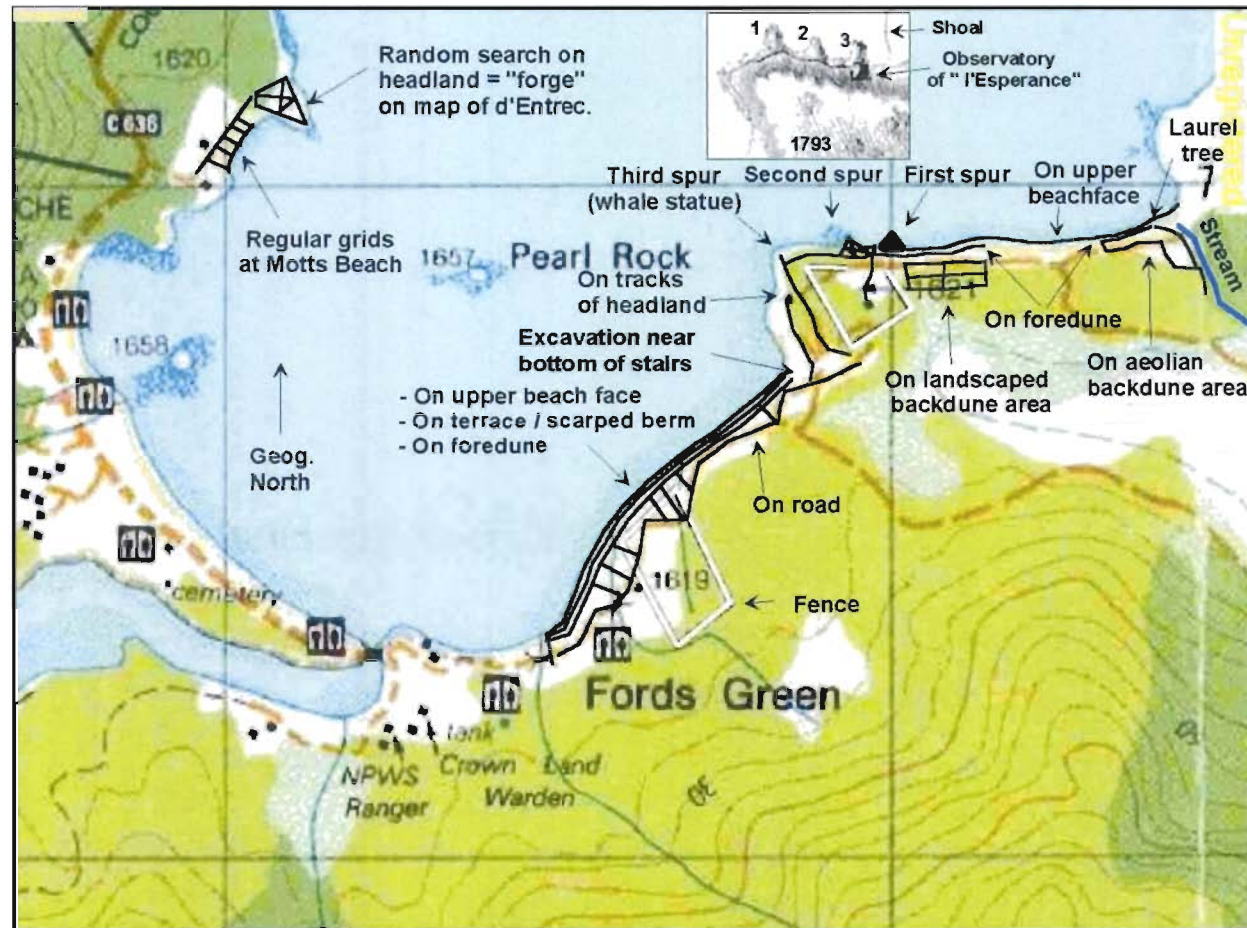


Figure 27. Location map of geophysics in the southern part of Recherche bay.

Location map of geophysics in the southern part of Recherche Bay.
 Black lines : areas searched with the detectors: GPR, EM38, magnetometer, metal detector.
 Parts of these areas could not be studied because of very dense bush.
 The "first spur" is the location of the triangular EM38 grid survey.
 Tests were conducted in the area of the tombs of the whalers at Planters's Beach which is outside this map.
 The background map is extracted from the 1/25.000 topographic series (one side of a grid square is 1000m).

Results of the survey at Fords Greens

Only one GPR anomaly was conspicuous in terms of size, character, depth and contrast with its surrounding media. It was an isolated, flat, metric, regular (smooth) and strong reflector. EM38 tests also gave anomalies at this particular spot. It was therefore deemed worth investigating further. It was located near the foot of the wooden stairs that give access to the beach (Figure 28SEQ), comment « Excavation near bottom of spears ») at the southern edge of the headland of the observatory of l'Esperance. Excavations only revealed a rock slab that had detached from the fractured bedrock at the base of the main high foredune. It had fallen flat and had subsequently been buried by or sunk into coastal sands. If the grave has not already been eroded away, it will probably only be found by luck or because of further erosion of the coastline. Therefore attention should remain strong in this area for any remain which during the course of future work might remind of this grave.

Figure 28. The beach at Fords Greens and the hypothetical area of the grave of gunner Boucher.



The whalers' graves at Planter Beach

The cadastral map of Calder shows that there was a whaler's grave in Planter Beach in the mid 19th century, « Deacon's Grave » (Figure 29). Coincidentally, this is virtually the same spot that was chosen by the French in 1793 to setup a beach baseline as well as to setup a temporary landmark for one of their hydrographic transects. These graves are not of direct relevance for the present study unless the hypothesis put forward by Peter Macfie is valid. They were studied in order to test this hypothesis as well as to provide a relevant geophysical signature for the search of gunner Boucher's grave.

At least eight graves have actually been recorded in early historical documents for this area. (Le Grand 1869) Only one is marked with a gravestone. It is located on the steep eroding foreslope of a foredune, on a shore-parallel narrow terrace found along most of the small bay (

Figure 31). This terrace is possibly the remnant of a low flat between two dunes (a « swale »), the seawardmost dune having now been mostly eroded. The present foredune's seaward slope is very steep and in direct contact with the upper beach face, with neither a beach berm or a backbeach. Therefore ongoing coastal erosion directly destroys the foredune.

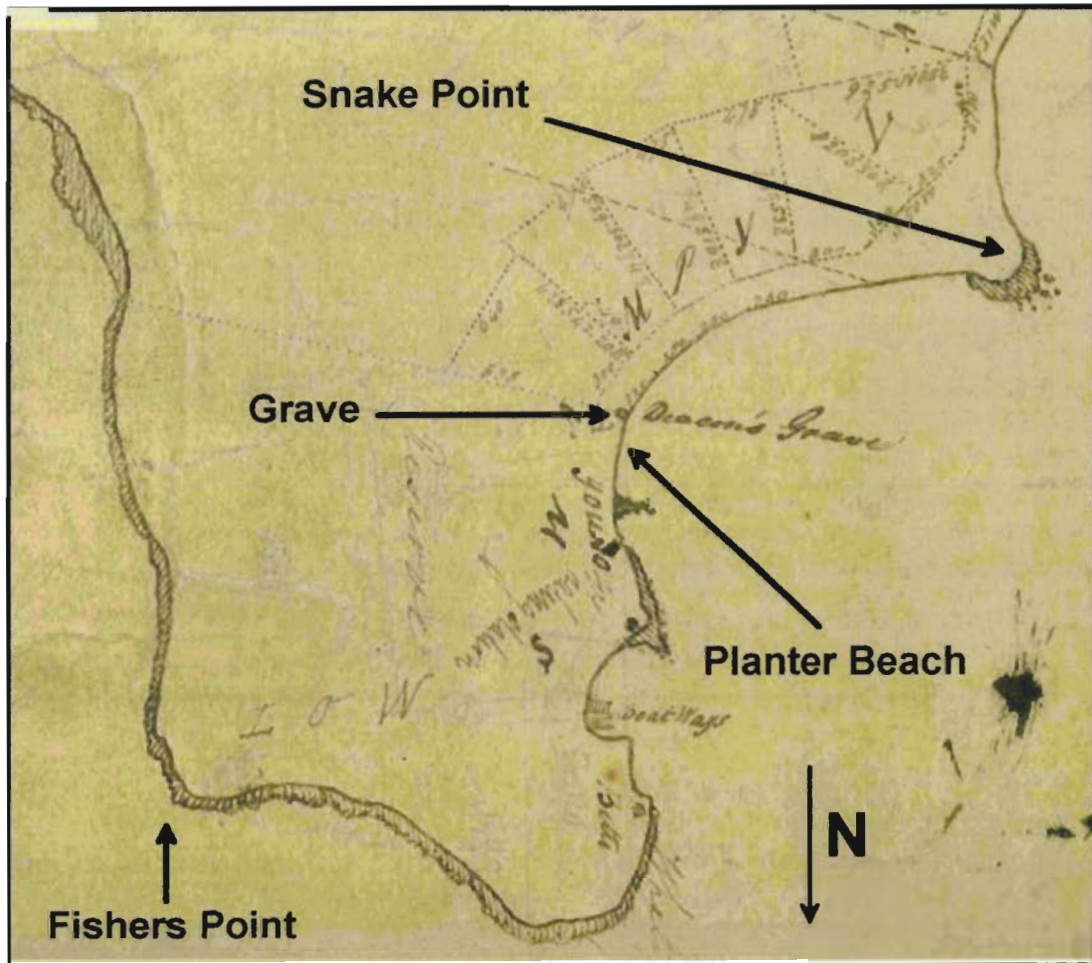
The gravestone is so close to the sand scarp that further erosion would imply that it collapses. The location, topography and elevation of the swale give attractive characteristics to this spot for a burial. It is worth noting that a similar geomorphology/topography is presently found at a lower elevation in the bay where Calder and Lady Franklin indicate a possible location for the French grave (area of Fords Green on the 1/25,000 map).

Survey setup

Both GPR and EM38 explorative transects were tried along and across the swale where the gravestone is located. The shore-parallel transects (~SW-NE) were very short because of the dense scrub on either sides of the area of the gravestone. The GPR and EM38 transects across the swale (~NW-SE) start on the beach, passes one meter away from the NE side of the gravestone, and end on the lee slope of the coastal hill. These later transects use an existing sand track therefore no bush was cleared.

The 500Mhz antennas were used with a 5cm sampling interval, which is the minimum interval required so as to avoid undersampling-related ambiguities during interpretation ("aliasing"). This antenna size proved satisfactory for this site and kind of target.

Figure 29: Mid-19th century cadastral map of Planter's beach drawn by crown surveyor Calder.



Location of "Deacon's Grave" on the mid-19th century cadastral map of Research Bay by surveyor Calder.

Figure 30. Whaler tombstone at Planter's beach.



Results (Figure 32).

Shore-parallel transects

The 5.7m long GPR transect shown on SEQ is located within the swale. This profile is parallel to the gravestone and to the coastline. The EM38 survey was done exactly on the same transect for comparison.

Along this single short transect there are five noticeable EM38 susceptibility anomalies, three EM38 conductivity anomalies and seven GPR reflectors of interest. The largest and strongest conductivity anomaly, to the south of the gravestone, is the only significant negative anomaly and has the typical shape of an anomaly due to metal. In particular, the main GPR anomaly near the gravestone shows interrupted bedding that caps a narrow parabola; this is typical of a vaultless and (now) coffin-less grave (see for instance Field et al. (2001) for a GPR and EM31 study of a 19th century European coastal burial in New Zealand). The GPR anomaly near the whaler's gravestone is slightly less than a meter wide, and is at a depth of about 30-40cm.

Still, vegetation did not allow for the shore-parallel GPR and EM38 transects to be long enough to properly discriminate useful information from background levels, including disturbance from roots and human artefacts. Many anomalies overlap and it is therefore difficult to discriminate them. Moreover, the locations of most of the EM38 anomalies do not correlate well with the locations of the GPR anomalies. The latter themselves do not correlate with the position of the gravestone. This is perhaps not surprising as the gravestone is said to have been moved. Finally, the gravestone itself may contribute to the conductivity and susceptibility anomalies.

Shore-perpendicular transects

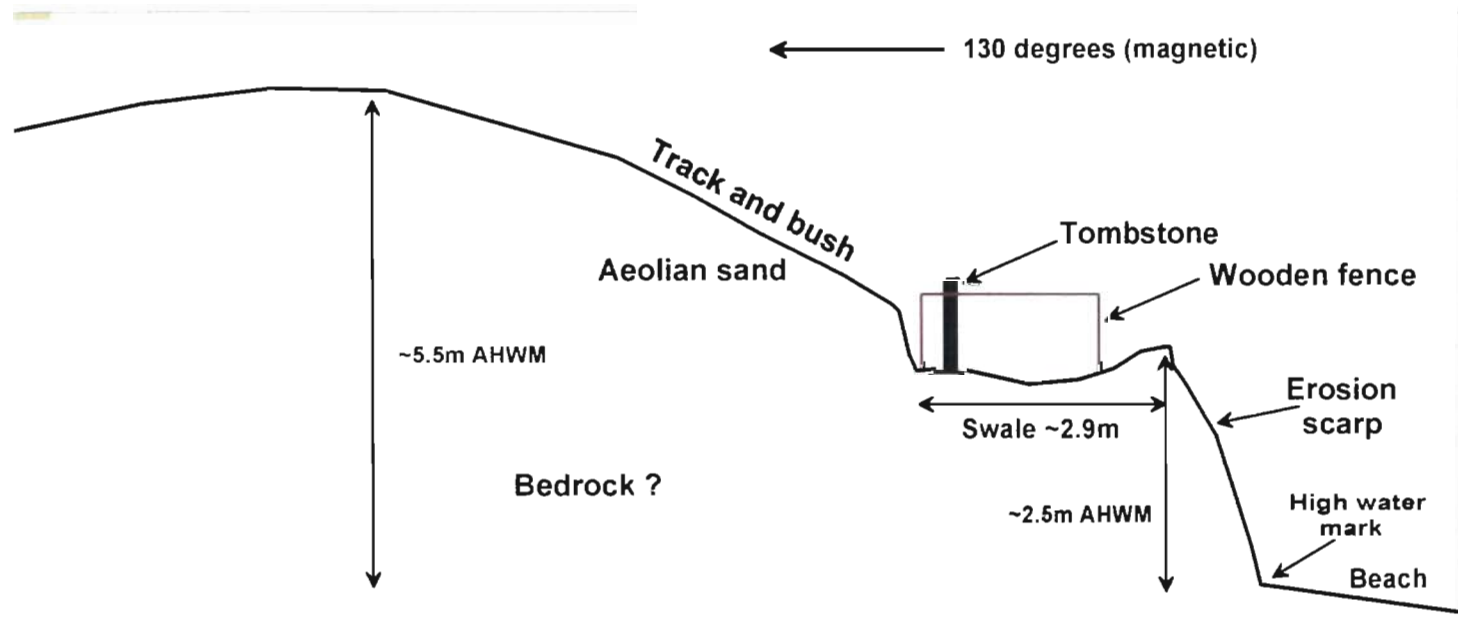
The shore-perpendicular transects bear more striking results (SEQ) . There is clear and conspicuous coincidence between conductivity, susceptibility, and GPR anomalies on the side of the gravestone, where this transect passes. These anomalies also have similar length, about two meters, and therefore could be due to a burial. The GPR transect show that the anomaly is quite shallow (30-40cm).

Incidentally, this is the same spot as the main GPR anomaly (one meter wide, at similar depth) on the shore-parallel transect. The shore-perpendicular and the shore-parallel transects therefore suggest that there is a 2m long by 1m wide anomaly, oriented towards the shore, just next to the gravestone (north-east of it, on the track side). The anomaly position is not related to the current position of the gravestone, as it does not face it: it is simply next to it.

There is a complex large GPR anomaly (or group of anomalies) deeper below the gravestone (and slightly more inland), approximately at sea level. If the origin of this anomaly is natural (non anthropic), it could for instance be due to bedrock, buried trees/roots, or a palaeosol on a buried foredune.

At the top of the hill, there is another coincident conductivity, susceptibility and GPR anomaly, of unknown origin (marked with a question mark on

Figure 32). Early cadastral maps show that the area had been allotted and therefore those anomalies are perhaps due to remnants of habitations. Proper geoarchaeological investigation of the area of the gravestone would require that some bush is cleared, which is not recommended as it stabilizes the foredune and thus in turn directly protects graves from further coastal erosion.



Sketch of the topographic section across the coastal sand dunes at the tombstone, Planter Beach. The profile, roughly SE-NW, is perpendicular to the coastline. Heights are above the high water mark (AHWM). This sketch is not to exact scale. Depth to bedrock is unknown.

Figure 31. Shore perpendicular transect, Deacon's grave.

Figure 32. Conductivity, susceptibility, and GPR profile across the area of the tombstone. The transect runs nearly NW-SE and is perpendicular to the coastline

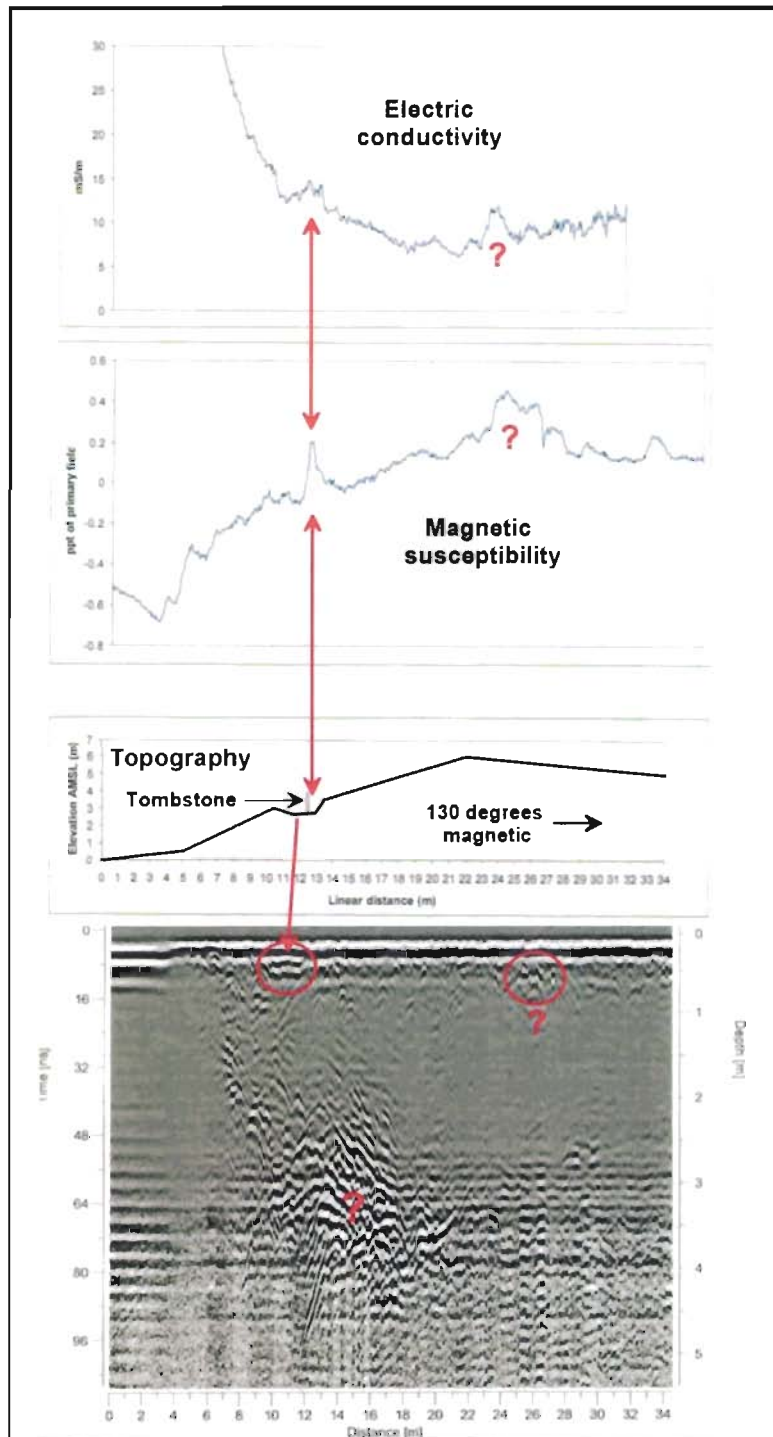
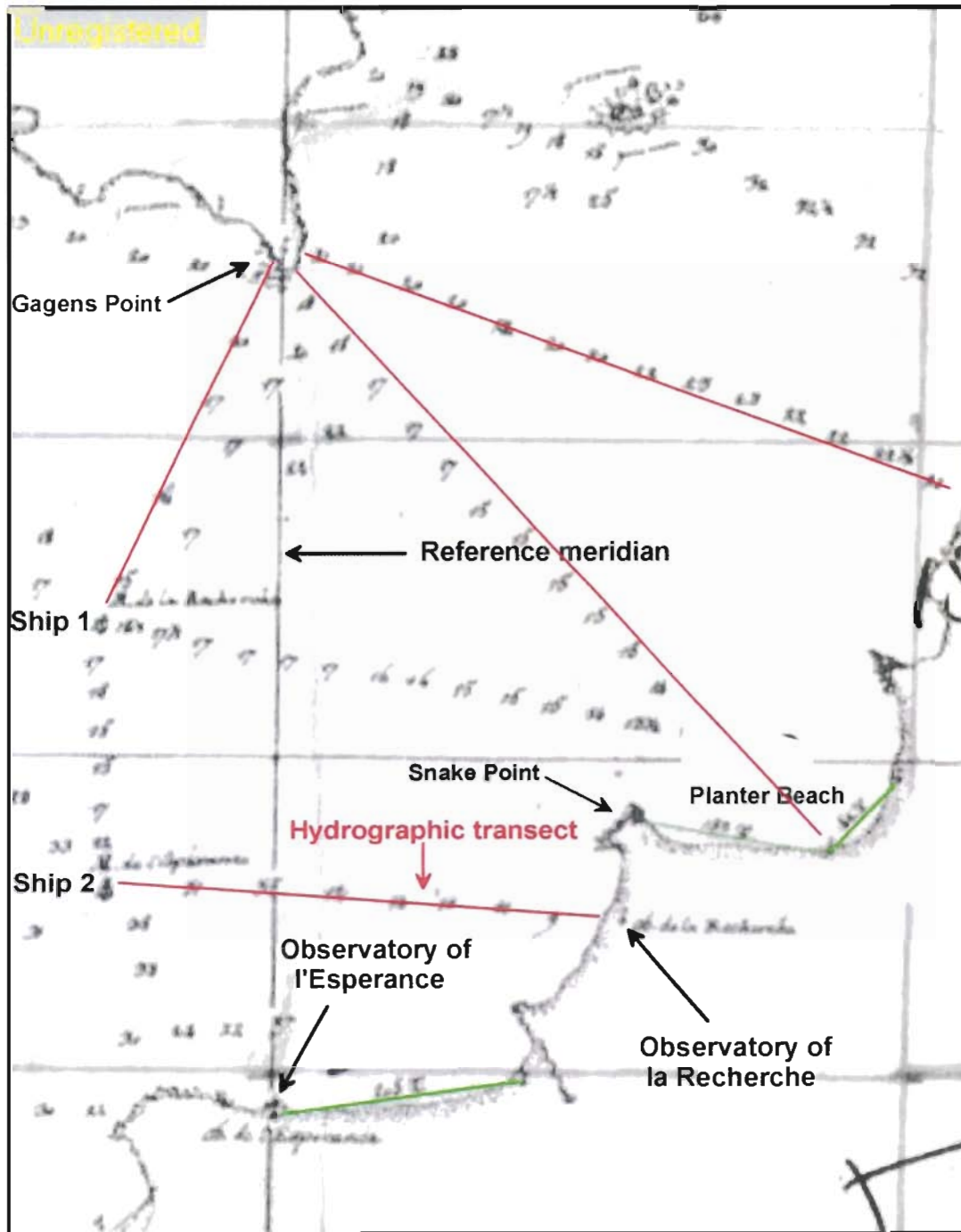


Figure 33. The 1793 observatories of Rocky bay.



1793 observatories in Research Bay, and how they related to particular meridians, landmarks, and hydrographic transects (red). Chained hydrographic shore-baselines are highlighted (green).

***Espérance* shore facilities at Rocky Bay**

The observatory of the *Espérance* is clearly marked on the 1793 hydrographic chart of Jouvency (Figure 25). This location is just behind the easternmost rocky spur of the very headland below which the authors of this report were camped during the survey work. On another map by Jouvency, his reference meridian clearly -and probably intentionally- passes through both the observatory and Gagens Point on the other side of the bay, to the North (SEQ).

The coastline running WE at this loci, the problem with pin-pointing the location of the Observatory is twofold:

- finding the position of the observatory along the coast (thus its « Easting »)
- finding the distance of the observatory from the present coastline (thus its « Northing »)

Position along the coastline

The problem is to ascertain whether the easternmost rocky spur of the 1793 map corresponds to the present easternmost rocky spur (

Figure 34). In other words, has the target 1793 spur been superficially eroded or perhaps been buried through subsidence or by progradation of coastal sands? We therefore completed a long GPR traverse to check if there was at least one other rocky spur buried under beach sand. The traverse started from the second last spur (immediately to the West of the easternmost spur), and run along the beach berm 500 meters eastward; it ends at the next rocky headland, just past a stream (Figure 27SEQ). The current visible spurs appear clearly on the GPR section (Figure 35). The radar data also show that there is no buried spur to the East of the visible spur. The conclusion is that the present easternmost rocky spurs does give the position of the observatory along the coastline.

Distance of the observatory from the present coastline

It is fortunate that one of the drawings of the expedition's artist does show a group of three tents near a headland in Research Bay (Figure 3). This is the same headland as the one drawn next to the observatory of l'*Espérance* on the map of Jouvençy (Figure 25). The written account of the journey mentions that one of the tents is that of the observatory of the *Espérance* in Recherche Bay. The other two tents are those of the blacksmith and of the crew.

Because of the large scale, the map leaves some doubts as to whether the observatory was exactly on the easternmost spur of the headland or just to the south of this spur, that is slightly inland. The artist's view (Figure 3) does not show clearly either whether the tents are on the spur, on a backbeach/berm or on a dune. Still the picture clearly indicates that the tent of the observatory was very close to the shore.

We therefore conducted a GPR and an EM38 survey not only on the spur itself (thus we had to do a « triangular grid » survey), but also on the adjacent sandy area inland of the spur, as well as on the coastal foredune (to the east of the spur) and the backdune area. Part of the rocky spur is rather flat and covered by a sandy soil. It offers a superb lateral angle of view for observations, and an easy beach landing nearby. It would seem like an ideal spot for an observatory. Line spacing for the EM38 conductivity grid was 25cm and station spacing was 5cm. Only the conductivity component was used as trials showed that the susceptibility component was too much influenced by the shallow dolerite bedrock.

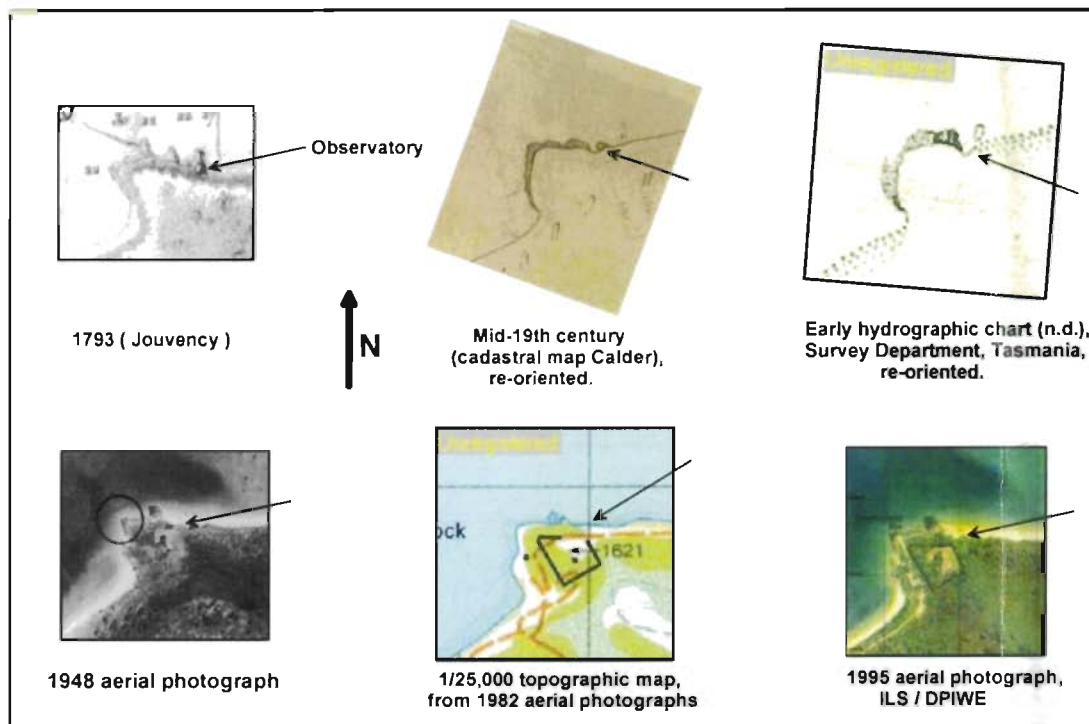
The foredune that runs along the bay (to the east of the spur) nowadays ends abruptly just before the spot where it would be expected to connect smoothly with the hillslope of the headland. That is the area immediately inland of our rocky spur. This area seems to have been landscaped/deflated into a saddle point at the junction of four geomorphic features in the vicinity of the observatory:

- the headland's hillslope,
- the end of the foredune,
- the backdune area,
- the spur.

Landscaping had perhaps been done in order to facilitate communications along the

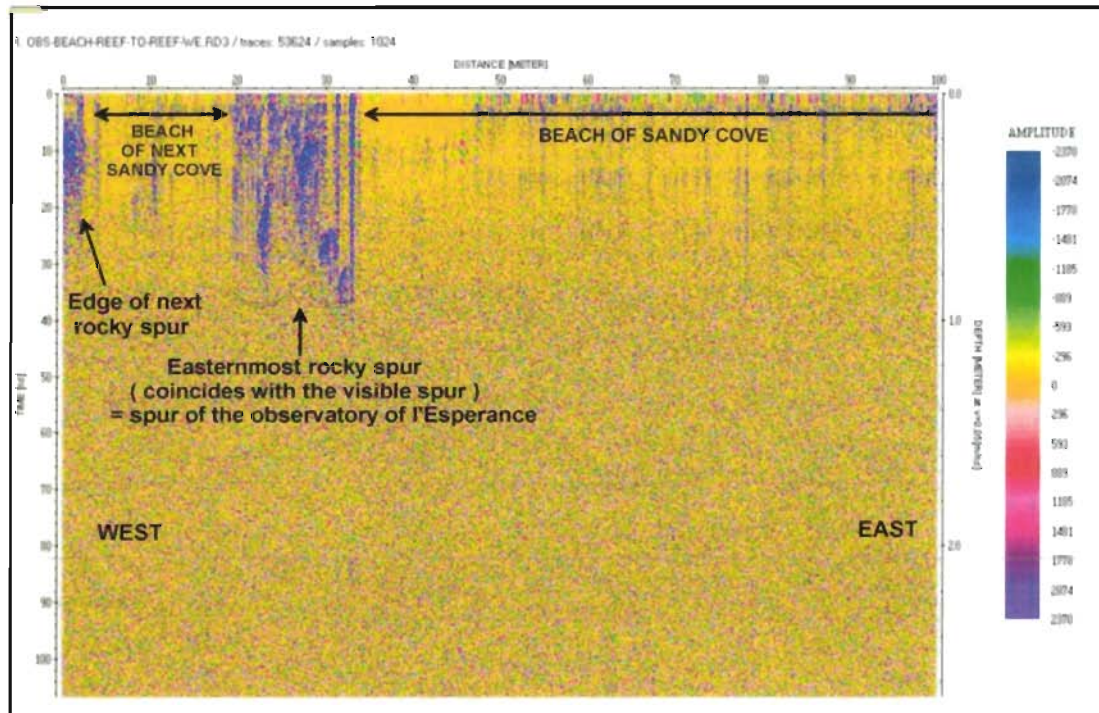
shore. This disturbance of the inland area behind the spur rendered geoarchaeological investigations there somewhat less useful than on the spur itself. Note that the area immediately inland of the spur is a natural path for someone walking, for instance, eastward around the headland and then from the eastern most spur towards the stream further East, towards Snake Point, all this without using the beach (which is not usable at high tide). It is therefore not excluded that long term human or cattle trampling (instead of landscaping) on a coastal track on what used to be the end part of a dune may have resulted in its deflation.

Figure 34. the observatory of Espérance.



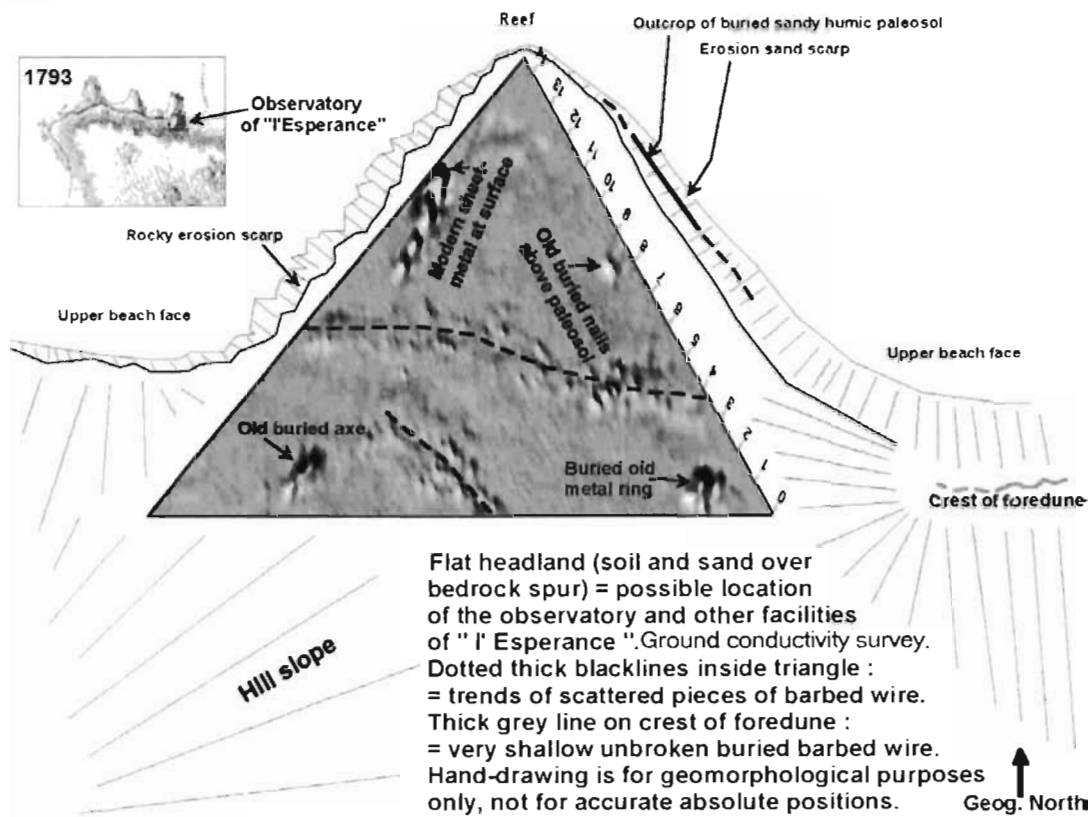
Historical imagery of the area where the observatory of l'Espérance was located.
The arrow indicates the spur close to (or on top of) which the observatory stood.

Figure 35. GPR profile along the beach, observatory of Espérance.



GPR profile along the rocky spurs and the beaches of the coves in the vicinity of the observatory of l'Espérance. Only the first 100 meters of this 500m long transect have been represented here. This transect continues eastward past a laurel tree and the stream. It ends at the next rocky headland.

Figure 36. Ground conductivity survey on the possible location of the observatory of *Espérance*.



Results of geophysical survey

The EM38 conductivity map shows both point anomalies and elongated anomalies (Figure 36). All the major anomalies were tested by excavations.

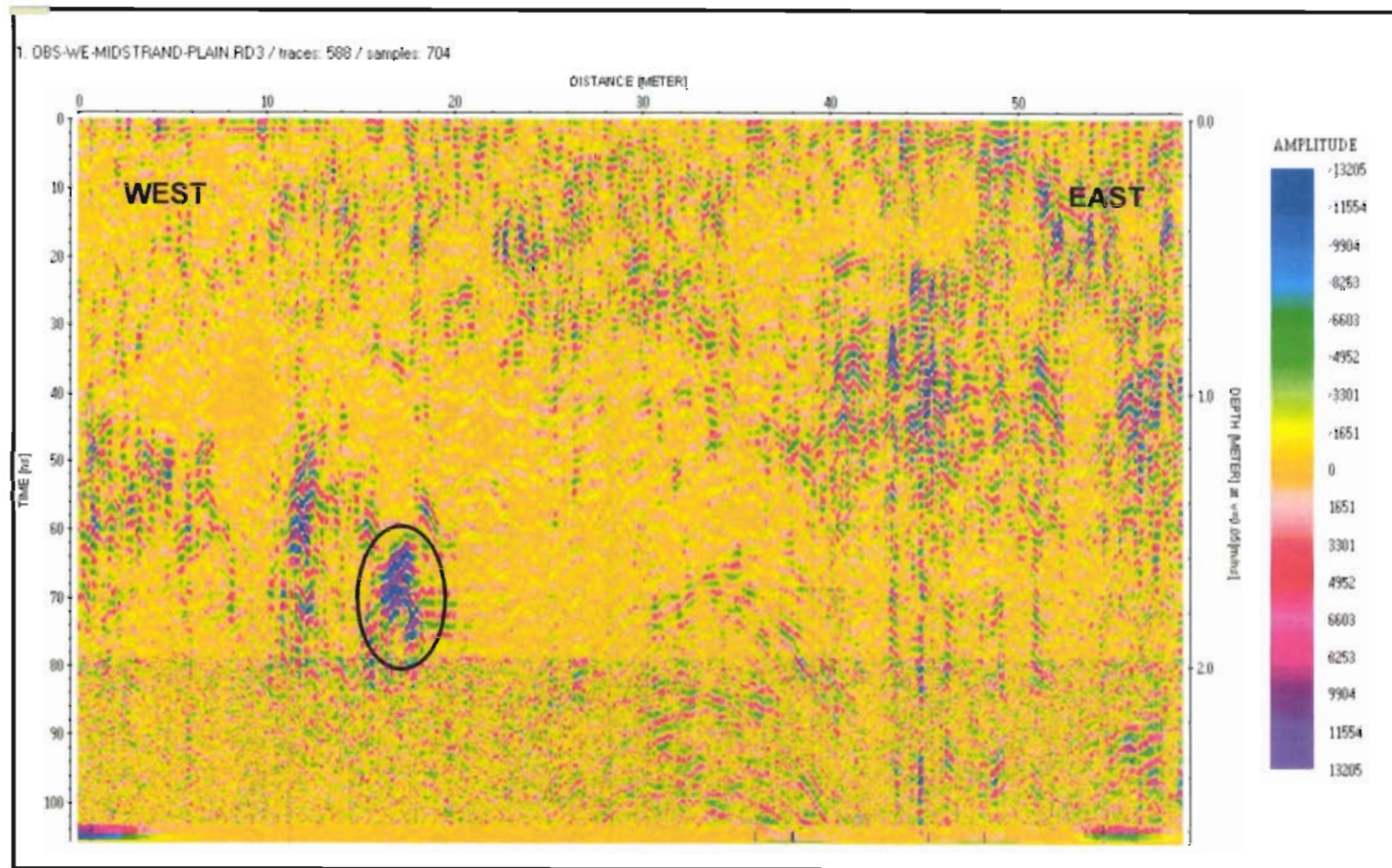
The linear anomalies were due to the scattered remnants of a fairly old rotting segment of barbed wire. This barbed wire was also traced with detectors into the adjacent foredune. There the wire is not broken and is buried a couple of inches deep along the crest of the dune. This shows that the dune height at this location has not changed much since the barbed wire was set. On the other hand, some of the area inland at the back of the foredune has been recently considerably landscaped with heavy machinery. This probably impaired detection of remains of the French expedition, especially possible remains of the forge near the observatory of the *Espérance* .

Finally numerous scattered pieces of barbed wire were also found in the area immediately inland of the triangle surveyed. It is the area which had probably been landscaped or trampled.

A shore-parallel GPR transect running five meters away from the foot of the lee slope of the foredune shows a stronger anomaly at about 1.5m depth (Fig. 34). The transect starts at the foot of the eastern hillslope of the headland (where the chalets used for this survey stand). This anomaly is therefore in the vicinity of the area inland at the back of the spur of the observatory.

There is also a conductivity anomaly in this area (not represented here), but the depth of the GPR anomaly is at the limit of detectability for the EM38. Therefore it is unclear whether the GPR and the conductivity anomaly are related. Still, the GPR anomaly is conspicuous enough and unique for the area. It is therefore an archaeological target. It was not excavated because there was not enough time left for proper investigation at this depth. Note that a large part of the area behind the foredune has been recently landscaped or relandscaped, and it is hoped that there has been less disturbance at the depth of the GPR anomaly.

Figure 37. Shore parallel GPR profile, observatory of Espérance.



Shore-parallel GPR profile at the back of the foredune near the observatory of l'Esperance. The profile starts at the foot of the eastern hillslope of the headland (with chalets), and runs parallel (5m away) to the foot of the lee slope of the foredune. The reflector highlighted by the oval is a potential archaeological target.

Results of archaeological survey

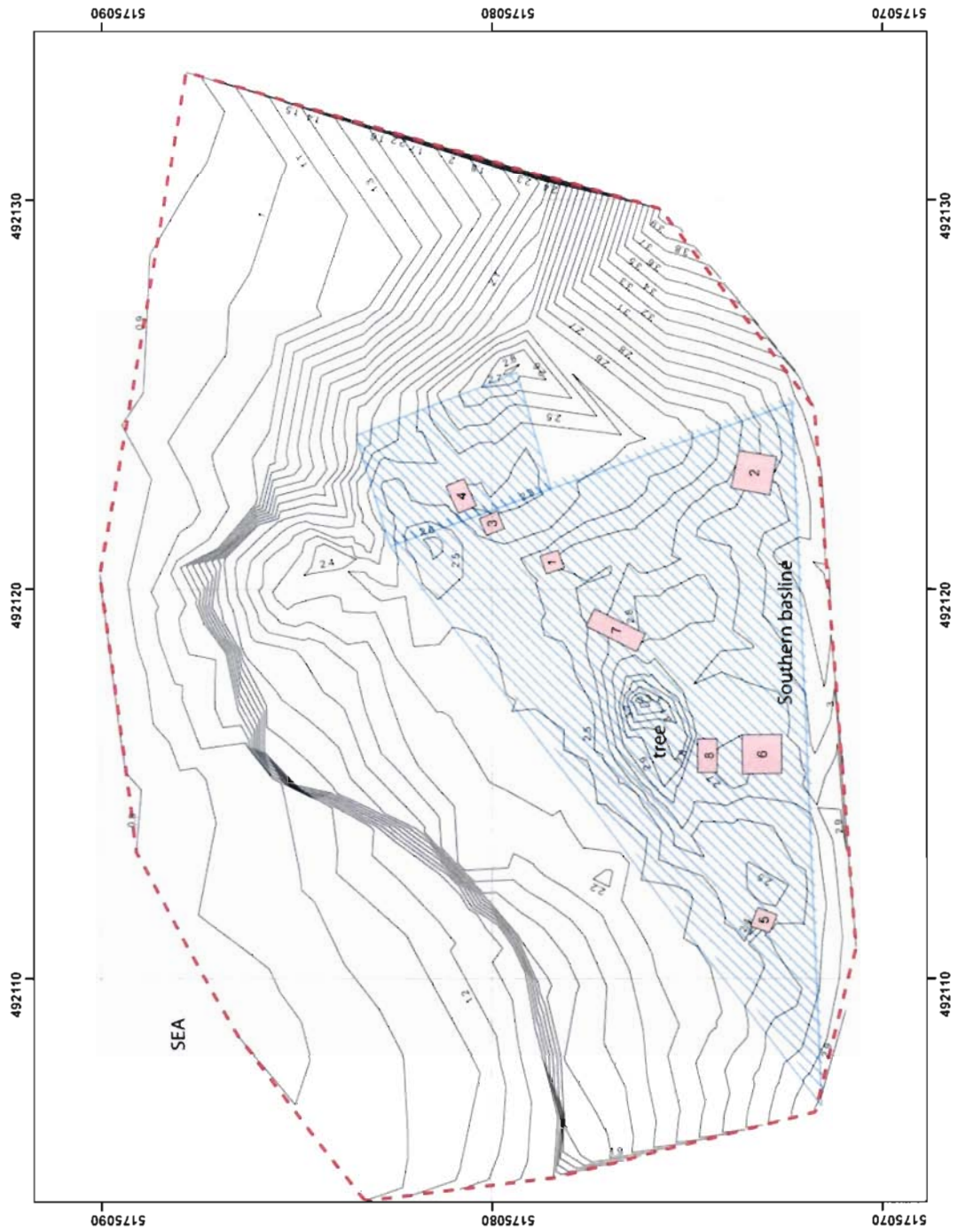
The small sandy spur is approximately 1km northeast of the Cockle Creek bridge. There is little formal documentation of any activity in this area subsequent to the d'Entrecasteaux expedition. The site is located at the south-western extent of a series of approximately 3 acre allotments marked on Calder's c1840 survey, however it does not appear that the proposed subdivision ever occurred. The land, which was denoted by Calder as '*swampy land and low country*', was included within the town plan of the failed 19th century settlement of Ramsgate. While the area containing the study site was retained as foreshore esplanade, the block immediately adjacent, to the south, was surveyed as a block of 11 acres, 3 roods and 8 perches, purchased by Thomas Williams (Plan B4/68).

A total of eight test trenches/pits was excavated at the site located with the geophysical survey and which consists of a low sandy knoll bordered to the east by a small foreshore dune, and to the west by a wash-out at the head of a small beach (Figure 38). The site is thickly overgrown with bracken and coastal scrub, and a mature eucalypt growing from the centre of the knoll.



The site of the Espérance observatory, seen from the west.

Figure 38. Map of study area showing geophysical survey grids and trench locations.



Trench 1

A 1m square trench was positioned in the southeast quadrant of the surveyed area, between trench 3 and 7. This first excavated trench aimed at determining the source of a small anomaly.

Stratigraphy

Once the surface vegetation had been cleared (1), a sandy humic loam of not more than a few centimeters (2) covers a white sandy sediment (3). No artefact was found and the excavation was stopped in the sand at 70cm below the surface.

Trench 2

A 1m square trench was positioned towards the southeast corner of the grid over a broad EM/magnetic anomaly, and near the base of a low dune (Figure 38). The aim of the excavation was to determine the source of the conductivity/magnetic response as well as to investigate the stratigraphy of the site at this point.

Stratigraphy

Following clearing of remaining leaf litter and surface vegetation [1], the topmost 100mm of soil, a homogenous dark brown sandy loam rich in humic matter [2] was removed. Below this point shell flecking was observed, comprising finely divided shell particles representing oyster, mussel and various gastropod species in a loamy sand matrix [3]. Some particles, particularly mussel, showed evidence of burning. A single lithic was recovered at this level. Excavation temporarily ceased in the western, more heavily shell-flecked, half of the trench pending concern about disturbing Aboriginal material, but progressing in the eastern half which correlated with the major part of the conductivity response. This part of the deposit [9] contained less shell flecking and encompassed a number of ferrous metal objects that could be seen protruding from the deposit surface (Figure 39). The matrix containing the ferrous objects was taken down, exposing a lens up to 1500mm thick of white sand [4] occupying the south-east corner of the trench. This lens dipped in towards the centre of the trench (i.e. to the northwest). The sand lens overlay a deposit of dark brown fine sandy loam with minor shell flecking [5]. This deposit was identified as the source of the historical artefacts, with several ferrous metal objects located at the interface of [4] and [5]. The historic cultural deposit [5] was also observed to extend westwards below [3]. A small (30 x 30cm) sondage was placed in the southeast corner of the trench to test the vertical character and extent of [5], with a single metal artefact (container lid) being recovered (Figure 39).

The sondage exposed strata comprising approximately 80mm of [5], above a thin (10mm) layer of fine shell dust in sandy loam [6] over 30-120mm (thickening westwards) of compact brown sandy loam with minor shell flecking [7]. The latter deposit overlay a patch of burnt mussel shell amid a reasonably dense scatter of fine shell debris [8] representing various edible species; including mussel, oyster, abalone, and whelk.

Further vertical excavation ceased at this point on the formal advice of the Aboriginal heritage Officer. (See Aboriginal Heritage report, Appendix 4).

Given the continuation of the historical deposit [5] beneath [3], the latter was subsequently taken down, along with [5], [6] and [7], exposing the surface of [8] over the entire trench. The surface of [8] (

Figure 40) was highest in the southwest corner, dipping to the northeast. The concentration of shell material decreased northwards from the southeast corner. Excavation ceased when two flat-lying lithics were located in the northeast quadrant.

Figure 39. Trench 2 Ferrous metal objects within context 5.



Figure 40. Context [8] surface, limit of excavation.



As a final work, a 50cm x 30mm core sample was taken in the southeast corner of the trench. The core displayed a 30cm thick cultural sequence comprising several bands of shell ([8], [10] and [12]), separated by layers of sandy loam ([9], [11]), over what appeared to be culturally sterile white and grey sand deposits ([14], [15]) (Figure 41, Figure 42).

Figure 41. Trench 2, south section post excavation.



Figure 42. Trench 2, west section post excavation.



Interpretation

The soils encountered in trench 2 are culturally derived, but might be classed as modified humic podsols developed on aeolian sand. Limited podsol development was noted at the base of the core. No consistent soil profile development was observed within overlying layers, suggesting a relatively recent cultural sequence encompassing both Aboriginal and historic occupation of the site.

The topmost layers [1], [2] and [3], which overly the one distinct historical layer are considered to be of relatively recent derivation, even though [3] contains material that pre-dates the historical occupation. This is likely to be the product of remobilisation resulting from vegetation growth, burrowing activity or other dynamic sedimentary process. This dynamism is reflected in the sand-lens [4], which is culturally sterile but post-dates the onset of permanent historic occupation at the site. As the trench was located at the base of a dune the incorporation of natural slopewash or drift is to be expected. Historical material, and the source of the EM anomaly, was primarily associated with context [5], a shell flecked sandy loam that contained a range of metal objects. These objects included fragments of steel plate or sheet, twisted wire 'rope', and several architectural and mechanical/light industrial fittings. While precise dating is not possible owing to the fragmentary nature and extent of corrosion of the features, they appear to date to the late 19th-early 20th centuries. Their presence on the site can be most simply explained as resulting from expedient dumping activity, rather than any in-situ industry or habitation.

Underlying deposits relate to a combination of Aboriginal occupation punctuated by period of natural sediment accumulation. No attempt has been made to analyse or date the Aboriginal occupation deposits or cultural material. All Aboriginal material recovered during the excavation was re-interred prior to backfill.

Summary of results

- No evidence of French occupation was identified during the excavation of trench 2
- Historical artefacts and deposits relate to late 19th - early 20th century occupation
- The underlying Aboriginal cultural sequence is too thick to have formed in between French and British occupations
- There is very little likelihood of encountering evidence of the D'entrecasteaux camp in trench 2 below the excavation level reached.

Trench 3

A small 50cm x 50cm pit positioned towards the northeast corner of the grid over an EM anomaly, and near the toe of a small dune forming the east side of the Observatory Point projection (Figure 43). The aim of the excavation was to determine the source of the conductivity response as well as to investigate the stratigraphy of the site at this point.

Stratigraphy

As with trench 2, the site had very limited topsoil development (A0 approximately 10mm [1]). The underlying A1 soil comprised greyish sand [2] that became whiter with depth. The deposit contained many mottles and signs of disturbance. At a depth of approximately 100mm below surface there was a transition into fine dark grey sand [3] which continued for a depth of approximately 100- 120mm (

Figure 44). At a depth of 30mm below the surface of [3] the proportion of fine shell particles increased noticeably.

The excavation was stopped on what appeared to be an Aboriginal midden at a depth of 300mm below surface. No artefact of European origin was observed.

Interpretation

This site displayed moderately more soil profile development than trench 2, with some A2 leaching observed in context [2].

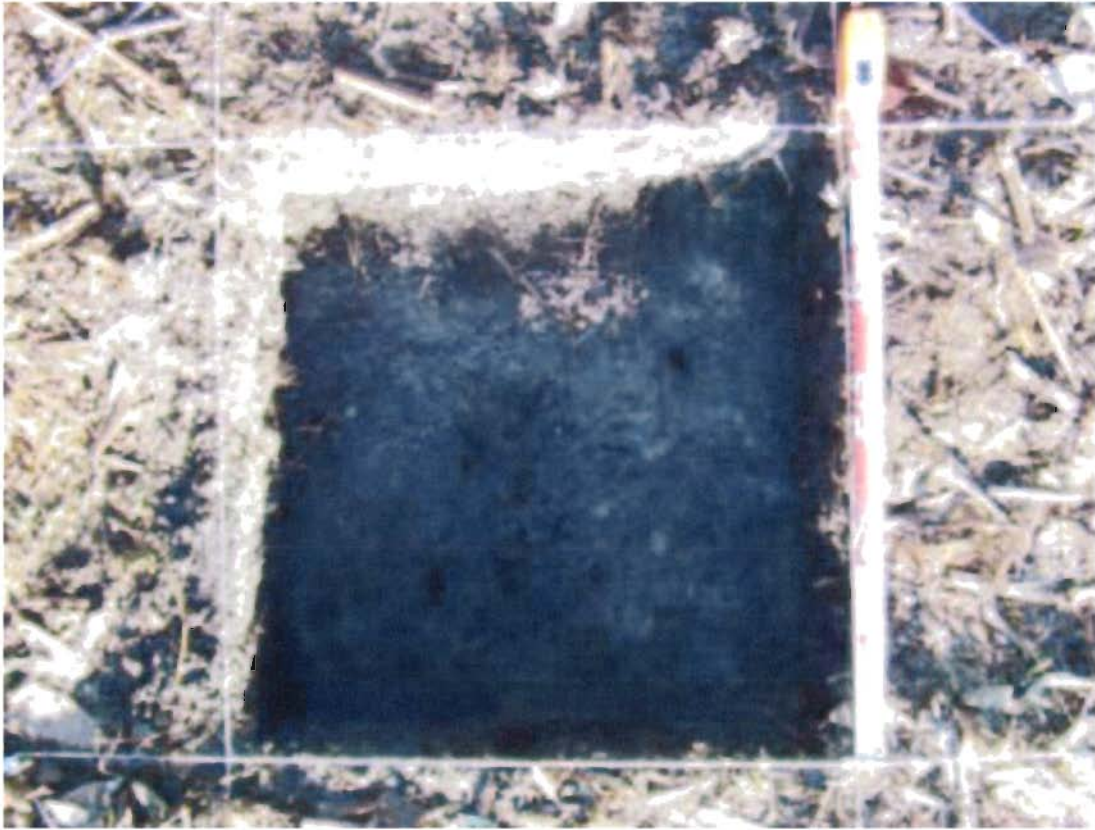
Summary of results

- No evidence of French occupation was identified during the excavation of trench 3

Figure 43. Trench 3, excavation in progress.



Figure 44. Trench 3, context [3].



Trench 4

A small 50cm x 50cm (later extended to 50 x 75cm) pit positioned within an extension of the geophysical survey area adjacent to the northeast corner of the original survey grid. The trench was sited to test a discrete EM38/magnetic anomaly very close in position to Trench 3. The aim of the excavation was to determine the source of the conductivity/magnetic response.

Stratigraphy

The stratigraphic sequence comprised an accumulation of approximately 50mm of friable leaf litter (A0) [1] over up to 100mm of heavily root matted grey humic sand [2]. There followed a sharp transition to fine white sand [3] which continued for a depth of 150-250mm. At a depth of 300mm below surface, a ferrous metal bar, 22mm wide, was encountered projecting from the west baulk (Figure 45). The trench was extended 25cm to the west at this point in order to determine the extent of the metal object. Once removed, the excavation of [3] continued to a depth of approximately 400mm below the ground surface at which point concentrations of coarse charcoal [4] became apparent, being most prevalent in the northern portion of the trench.

At a depth of approximately 420mm below ground surface there was a rapid transition to dark ashy loam with minor shell flecking [5], which continued for a depth of 20-50mm before becoming significantly coarser in the shell fraction [6].

At this point excavation ceased on the formal advice of the Aboriginal Heritage Officer (Figure 46) (See Aboriginal Heritage Report, Appendix 4).

Interpretation

The soil transitions observed within Trench 3 were very sharp, which suggests a dynamic sedimentary environment with little opportunity for near surface soil profile development. While the source of the EM/magnetic anomaly was clearly identified as a cultural artefact, its context within an otherwise culturally sterile layer [3] is intriguing. The concentrations of charcoal observed in [4] may be associated in some way, however this was not able to be proved during the excavation. The depth of burial of the ferrous object and its vertical proximity to material identified by the Aboriginal Heritage Officer as in-situ midden material is a possible indicator of the antiquity of the object. However it should be noted that the trench is located at the toe of an unstable fore-dune and that increased sedimentation rates are likely to have occurred in the historic period owing to changes in land and vegetation management practices.

Summary of results

- Lack of gradation between the deposit containing the historical artefact and the underlying Aboriginal cultural deposit suggests an abrupt interruption of Aboriginal occupation

Figure 45. Trench 4, ferrous metal bar in context [3].

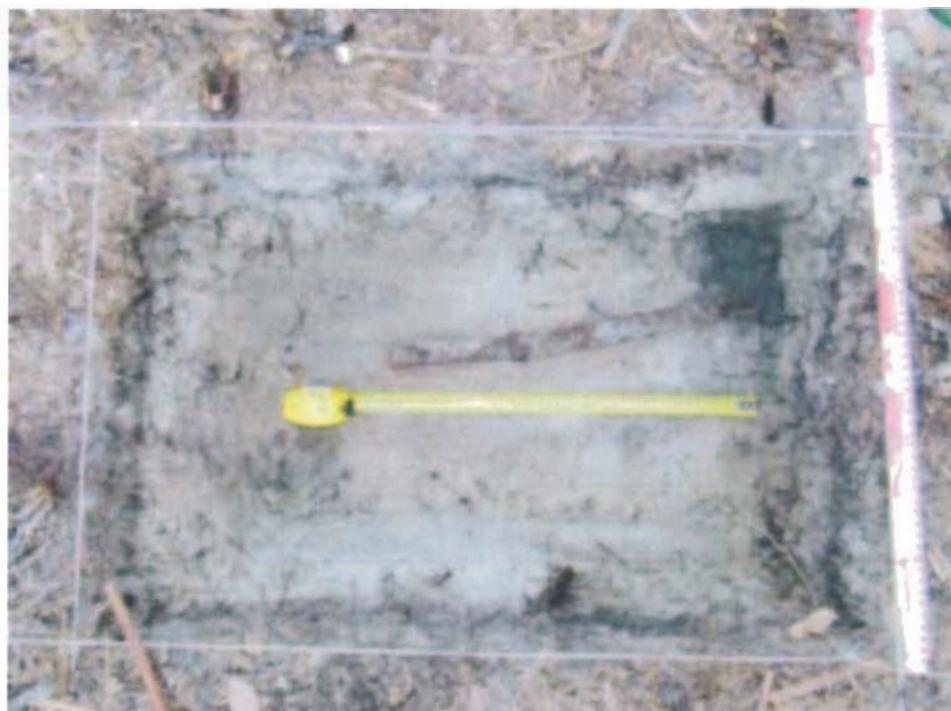


Figure 46. Trench 4, context [6], limit of excavation.



Trench 5

A 50cm x 50cm test pit positioned near the southwest corner of the survey grid. The trench was oriented to encompass two small discrete EM/magnetic responses.

Stratigraphy

A simple stratigraphic sequence was observed in the excavation. Approximately 40mm of loose leaf litter A0/ [1] was removed from dark brown humic sandy loam A1 topsoil [2]. This was removed, yielding a small fragment of clear glass at -150mm and exposing a corroded steel axe head and small fragments of ceramic and glass at a depth of 200-250mm below ground surface (

Figure 47). The underlying deposit was designated as [3] based on the presence of artefacts, however its colour, texture and composition was identical to [2]. Excavation of [3] continued to a depth of 340mm below surface at which level a patch of fragmented shell [4] was encountered in the west half of the trench; containing elements of mussel and oyster. A single lithic was exposed on the opposite side of the trench. Excavation was terminated at this point at the request of the Aboriginal Heritage Officer (

Figure 48)(See Aboriginal Heritage Report, (Appendix 4).

A shallow 350mm x 30mm soil core was subsequently taken to test the character of underlying deposits. This indicated 150mm of humic sandy loam over 200mm of light grey sand immediately beneath the terminal excavation surface. No shell layers were observed in the core.

Interpretation

A single conductive object, a large steel axe head, was recovered from the trench, along with several fragments of glass and ceramic. The axe head was situated midway between the two mapped surface anomalies, and was probably responsible for both. The artefact types appear to be of late 19th – early 20th century manufacture. No other significant attributes were observed in the excavation prior to encountering the shell deposit. The underlying deposits appear unlikely to contain any European cultural material.

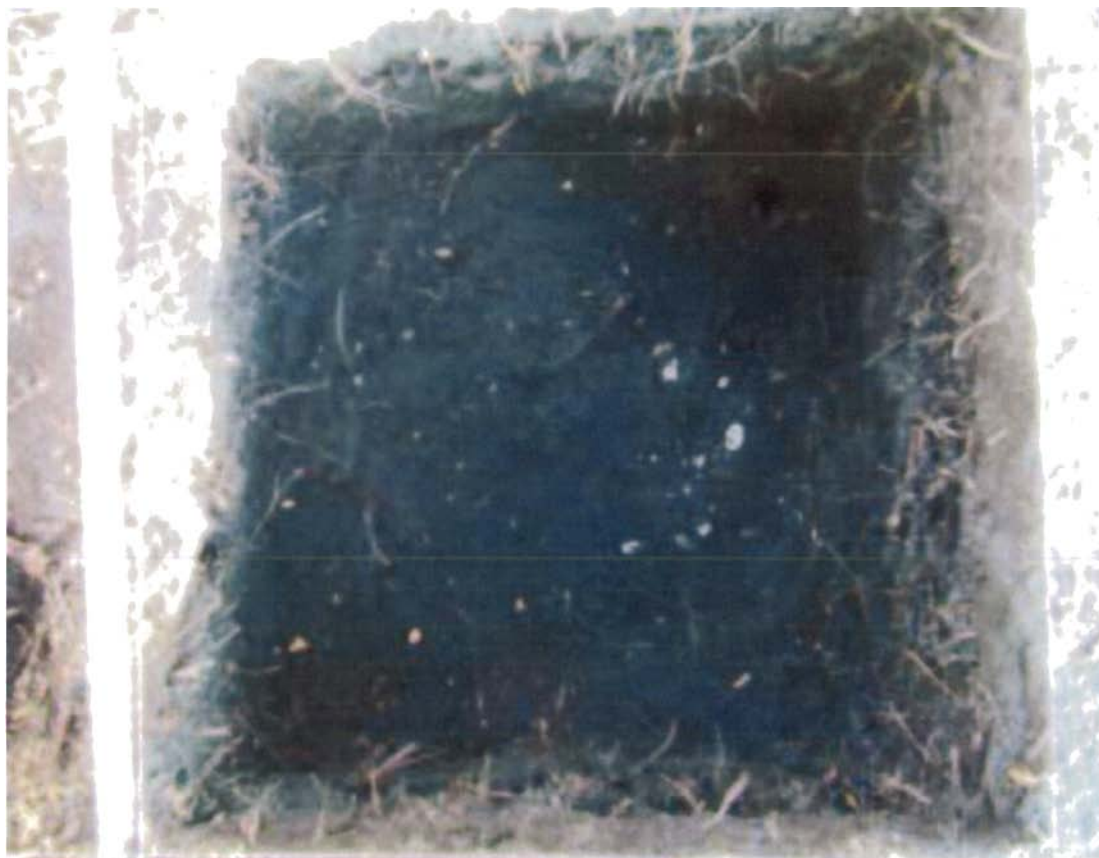
Summary of results

- The source of the geophysical anomaly was found to be of late 19th –early 20th century derivation
- No evidence of French occupation was identified during the excavation of trench 5

Figure 47. Trench 5, axe head and glass/ceramic fragments, context [3] surface.



Figure 48. Trench 5, context [4], limit of excavation.



Trench 6

A 1m square trench positioned on the side of a low mound, approximately 2.5m south of the large tree in the centre of the geophysical survey area. The aim of the excavation was to determine the source of a diffuse EM/mag anomaly in that location.

Stratigraphy

The topmost deposit comprised 50mm of leaf litter and surface vegetation [1], which overlay dark grey humic sandy loam [2] heavily infiltrated by plant roots. Four short lengths of heavily corroded barbed wire, oriented roughly north-south, were found at the interface between [1] and [2] (Figure 49).

Fine shell flecking within [2] increased with depth, and excavation was halted at a maximum depth of 230mm at the request of the Aboriginal Officer (Figure 50). (See Aboriginal Heritage Report, (Appendix 4).

No further anomalous magnetic response was noted at this point.

Interpretation

The four segments of barbed wire located at the A0/A1 interface reflect relatively recent historical activity of the property, and are probably derived either from nearby fencing or localised rubbish disposal.

Summary of results

- The source of the geophysical anomaly was found to be recent (20th century) fencing wire.
- No evidence of French occupation was identified during the excavation of trench 6

Figure 49. Trench 6, barbed wire fragment, surface of context [2].



Figure 50. Trench 6, context [2], limit of excavation.



Trench 7

A 1.5m x 0.5m trench was positioned 2m east of the central tree in order to test a diffuse anomalous EM/mag response in that area (

Figure 51).

Stratigraphy

A simple stratigraphic sequence was observed essentially similar to that encountered in Trench 6. This comprised a thin mantle of leaf litter A0/[1] developed over 250mm thick deposit of dark brown humic sandy loam A1/[2]. Five fragments of heavily corroded barbed wire were found scattered across the trench at the A0/A1 interface. At a depth of 280mm below ground surface the soil became darker with greater proportion of shell flecking [3]. Based on the negative findings of previous trenches the excavation was halted at this point.

Interpretation

As in Trench 6, the source of the geophysical anomaly was found to be relatively recently derived (20th century) barbed wire lying near the surface. No further anomalous readings were returned following recovery of this material.

Summary of results

- The source of the geophysical anomaly was found to be recent (20th century) fencing wire.
- No evidence of French occupation was identified during the excavation of trench 7

Figure 51. Trench 7, context 3.



Trench 8

A small 25cm x 25cm, test pit near trench 6 on the south-western side of the central tree. This trench was dug to infer the reason of a geomagnetic anomaly.

Stratigraphy

Only two contexts are recorded for the test pit; leaf litter [1] and underlying humic sandy loam [2]. The excavation was discontinued at 250 mm under the surface because of the worsening weather conditions. No artefact was found.

Palaeosol

Our excavations revealed artefacts that show that the area has been a favourite spot from prehistoric times (midden not investigated further), through early European times (very old axe), to modern times (garbage). In particular in most of the excavated trenches a buried humic palaeosol with Aboriginal middens occurs under the surface.

This palaeosol also outcrops in the eroding scarp along the eastern edge of the spur, at a depth of about 30 cm. This suggests that there has been significant coastal erosion in the area of the observatory. Whether this erosion had mostly taken place before or after 1793 was not understandable from our work. In the latter case, some cues to the presence of the observatory could have been already lost.

This palaeosol was not excavated and not investigated further as it is not the object of this project. This palaeosol is still of interest here as, like in Mott's Beach, it gives a lower depth limit to the location of the paleosurface of European occupation. This palaeosol is possibly of same age as the one in Mott's beach, and of the same age as the one that can also be found in the foredune dune to the East of the rocky spur investigated. There it naturally outcrops at length along the scarp of the eroding foredune, right up to the river mouth of the stream close to which a laurel tree is located (Figure 27).

There this outcrop shows massive amount of Aboriginal shell middens and had already been recorded in 1992 by Jones and McCarthy (database of the Tasmanian Aboriginal Land and Sea Council, TALSC, « TASI 6169 and 6170 »), and again by Shell et al. in 2000 and 2005 (TASI 6169, 6170, 2815 and 3645). All these authors stress the importance of the eroding process mainly through wave actions. Mc Carthy even mentions in his report (Austral Archaeology 1992: 20) that of the 220 meters of midden observed on the first survey day, only 170 were still visible a day later, due to the wave action during the night.

Chris Langeluddecke did some evaluation of middens for stabilisation potential in 2002. It appears that TASI 6169 and some other middens previously recorded were not visible at that time.

It is possible that this palaeosol is present in most of the similar geomorphic settings (coastal sands as dunes, coastal plains, and sandy soils) all around Research Bay and is possibly the most significant/prevalant anthropic feature of Recherche Bay. It is not far-fetched to consider the working hypothesis that this palaeosol was the actual landscape/landform in 1793.

As the palaeosol contains a significant amount of middens, it is possible that the French did not have to clear the site much further than what had been possibly already done by the Aboriginal people. This may be another reason why the place was noticed and selected by the French in the first place. It is also possible that significant anthropic devegetation/destabilisation of the area in the 19th/20th century triggered coastal erosion and/or burial of the palaeosols by shifting sands.

Finally, it is important to note that the sediment and soil cover at the spur is relatively

thin, but that its stratigraphy and palaeosol structure is condensed and complex. It is all the more fragile. As it records human activity in both pre-European and historical times, it must be particularly protected. This rare flat area, easily accessible and tangent to the official current tourist track, is as tempting to be used for camping or as a lookout as it was in d'Entrecasteaux's and pre-European times.

In any case, no artefacts, remnants or any cue of the presence of the French were found at what we have determined to be the most likely spot for the observatory of *l'Espérance*. All the artefacts collected are described in Appendix 3 SEQ.

***Recherche* forge and shore facilities at Mott's Beach**

The 1793 map of Jouvency positions the forge of the French camp in Recherche Bay at about the center of the northeastern headland of a cove (Figure 52). That cove later belonged to Richard and William Mott (Figure 53). The forge had been indicated on this hydrographic chart only because the forge had been used as a landmark for a hydrographic transects and probably for further resection work as well. This is also the reason why the chart only records the forge, the coastline and a stream at Mott's Beach, and no other camp facilities. This does not mean that there was no other significant facilities/structure in the camp. No signs of its presence have ever been discovered so far.

The available documents inform us on the whereabouts of this camp which was rather than the main camp, the area of the shore facilities of the *Recherche*. Among the activities which were performed here are the laundry, the forge, general boat mending, etc.. A tent was also erected to protect the ill sailors who had been transported ashore from the ship to help their recovery. It seems that research was not carried at this place but on the other side of the bay, near the research camp of the *Astrolabe*. Each boat had its own organization and it was not unusual to have a camp set for each vessel. In this instance, however, the choice of the *Astrolabe* to set up a camp at the other side of the bay was criticized by D'Auribeau who thought that a unique camp at Mott's beach would have limited the rowing in and there and would have been more efficient.

The area investigated as the possible site of the *Recherche* forge is situated at the head of Mott's Beach, at the southeast corner of Rocky Bay. There is little historical information available relating to this site subsequent to the d'Entrecasteaux expedition. Apart from indicating the presence of a creek entering the beach, there are no other indications of activity or proposals for this area on Calder's c1840 survey of Recherche Bay. The land at the head of the beach was subsequently surveyed as two parcels of 5.2.18 and 4.3.10 acres respectively within the Ramsgate town plan. These allotments were acquired by Richard and William Mott (Plan B3/37), however the extent of further development on the land is not documented.

The two allotments were surveyed in 1992 and recorded as Ramsgate Allotments No. 32 and 33 by Kostoglou (1993 p. 91-92) :

«Ramsgate allotment 32

History

This five acre allotment was one of two located here which were purchased by the Mott family. Mr Richard Mott bought this particular allotment in 1865, after departing the Crown Reserve in which he fought with Thomas Driscoll. In the 1867 land assessment rolls for the area, Mr Richard Mott was still listed as the owner of 5 acres of unimproved bush land here. By the time of the assessment in 1871, Mott had erected a hut on his property. Richard Mott died in 1882, and the property was taken over by his widow and son Richard junior. In 1888, the cottage and land was leased to Mr John Reynard by Roseanna Mott. In 1889, he purchased it and remained

here until c.1900.

In 1928 title of this and the neighbouring allotment was transferred to Mrs Alice Mott, recently widowed wife of Richard junior.

Description

The sea-side frontage of this allotment now accommodates a large shack and a number of lesser structures. A stack of irregular stones noted in the shack garden may relate to an older building, possibly that of Richard Mott.

Ramsgate Allotment 33

History

William Mott and his family resided at an unknown venue before purchaseing this 4 acre allotment next to Richard Mott in June 1888. In 1928 Mrs Alice Mott, recently widowed (from Richard Mott junior) received title to this block and the neighbouring allotment.

Description

Part of this allotment also accommodates beach front shacks, which now form one enclave with those sited on the allotment owned by Richard Mott. A search of the block failed to locate any building remains that may have related to William Mott and his family.»

The majority of the land surveyed for the project is currently part of the Recherche Bay State Recreation Area. The southwestern part of the study area falls within a small private allotment (PID 5268567). A dwelling and a number of outbuildings have been constructed on this allotment, extending onto the adjacent reserve. Extensive landscaping and gardening has been carried out on the private allotment, and the remainder of the study area has been leveled and is currently maintained as lawn. The study site is traversed by several drains that channel water from swampy ground to the north through to the beach.

Figure 52. Forge of the Recherche at Mott's beach in 1793. The position of the forge and the shore facilities of the Recherche was also used as bearing for the hydrographic survey. The forge gives the approximate position of the French camp at Mott's beach.



Environmental setting

Mott's Beach is a sandy cove made of Holocene sands between two doleritic rocky headlands (Figure 54). A small stream is located in the northeast part of this small bay. The eroding scarp between the upper beach face and the inland sand plain/terrace suggests ongoing erosion. The family currently settled at Mott's Beach informed us that the beach has been eroding (at least) since they arrived about thirty years ago. Following their description of the scarp at that time, it seems that at least 6m of the coastal plain has eroded in about 30 years.

To go further back in time, we have overlaid the 1948 vertical aerial photographs with the 1/25,000 map of Research bay which is based on 1982 vertical aerial photographs. This allowed us to estimate the recent coastal evolution. We observed that, at this scale, no dramatic erosion has taken place for decades in virtually the whole of Research Bay. The paleocoastline match in Mott's Beach was actually one of the best.

There were no visible human infrastructure in Mott's Beach in 1948, which morphology otherwise looks similar to that of present time; it would be interesting to check whether historical records mention any infrastructure for the 19th and early-to-mid 20th century, which may be mistaken for remnants and artifacts of the French stay. Although the owners have considerably cleaned up the site, they mention that a considerable amount of 20th century garbage still litters the place, both at the surface and at shallow depth.

Topography

The seaward side of the sand plain/terrace slightly dips inland for about 50m. This suggest that either the shore is covered by washover storm deposits, or has been landscaped. For instance subdued foredunes or hummocky dunes may have been flattened (Figure 55).

D'Auribeau makes a very short statement about the place:

"We looked for a suitable place for setting up our various establishments and found a little stream in a bay where everything was completely accessible at all times.." (quoted by Plomley, 1993:196)

It is not clear whether the cove's geomorphology has been mostly controlled by coastal-marine, alluvial or even aeolian processes.

There is a waterlogged area at the back of the dipping part of the sand plain, from which streamlets coalesce into the main stream. Further inland, in the beach forest, the sand plain is not waterlogged and is fairly flat which suggests that the current relative flatness of the whole cove may be natural. The waterlogged area could be the sand-filled backswamp of a subdued coastal barrier. Toward the edges of the sandy cove, towards the two headlands that frame it, the plain, and therefore its erosion scarp, has a slightly higher elevation.

If in the time of d'Entrecasteaux similar waterlogged areas existed, they would have restricted the candidate areas for a camp onshore. In any case the geomorphology of Mott's Beach in 1793 may have been significantly different to what it is now.

Figure 54. View of Mott's beach from the north-east.



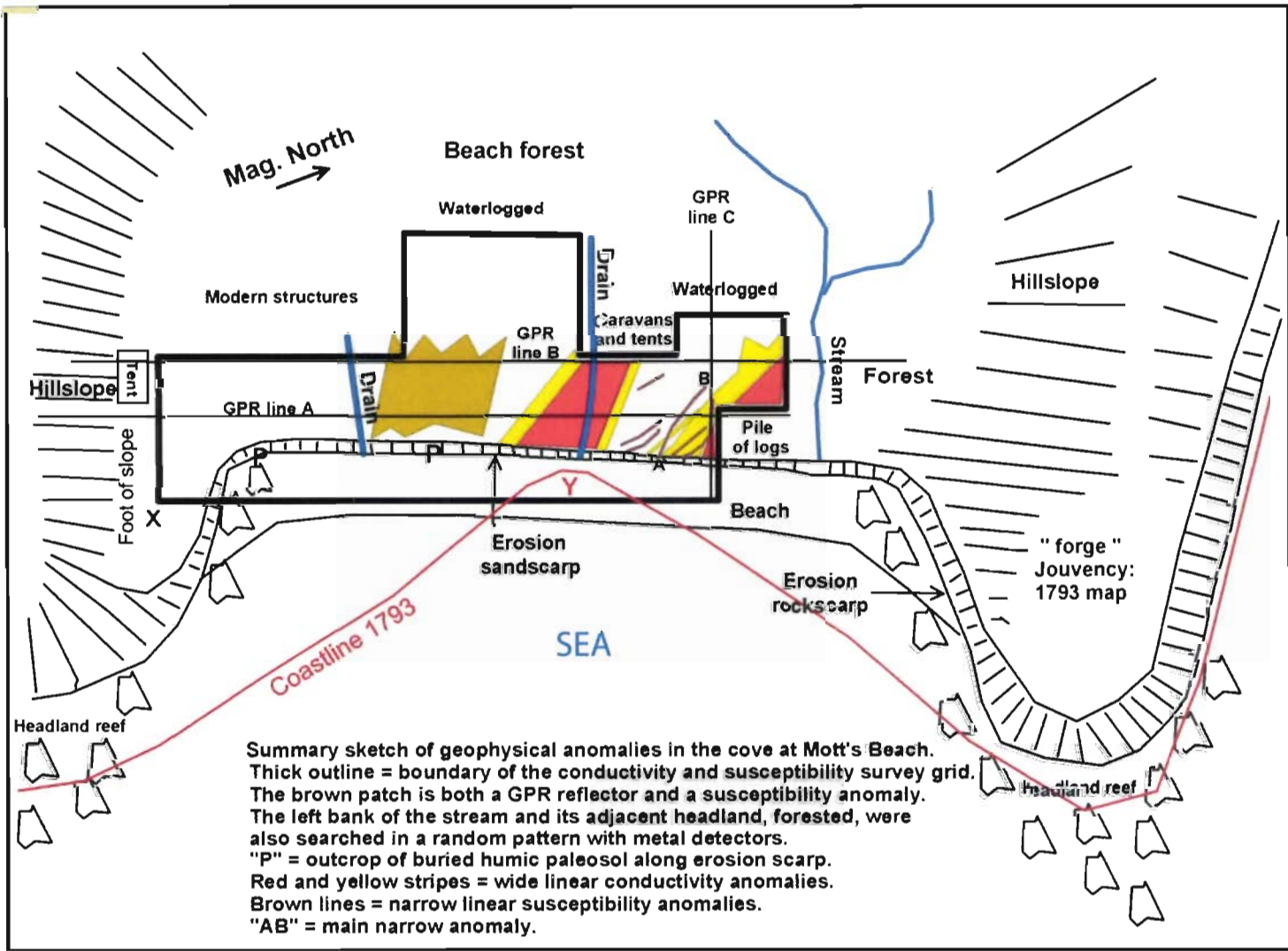


Figure 55. Mott's beach : summary of geophysical survey results.

Figure 56. Map of Mott's beach study area showing geophysical survey grids.

Topsoil and palaeosol

About 40cm of a fairly dark humic topsoil has developed on well-sorted fine silicic sand, which may explain poor drainage and sub-optimal, but acceptable, penetration of the GPR. Careful inspection of the eroding sandy scarp all along the cove revealed two outcrops about 30m apart (at points "P" on Figure 55), of what is possibly a buried thick very dark sandy palaeosol that underlies parts of the sand plain.

The very dark component of this layer is amorphous (non-mineral), and therefore it is not certain whether it derives from advanced decomposition of humus or of charcoal. It is unclear whether the two outcrops are contiguous and whether they are of the same nature. The westernmost outcrop was found by historian Dr David Young, Heritage Tasmania, during this survey.

Both outcrops are almost flush with the edge of the upper beach face at the foot of the sandy scarp. The scarp is higher on the edges of the cove, therefore the westernmost palaeosol outcrops at a deeper depth (about three feet) than the other outcrop (one foot below the surface of the plain) which is more central in the cove. There is a shallow bed of reddened volcanic stones, possibly burnt, above the westernmost outcrop.

This Holocene "palaeosol" possibly antedates European activity, in which case it would be a useful indicator of the maximum depth of the palaeosurface of occupation by the French. It allowed us to confirm that the penetration of our detection instruments was probably sufficient on this site. The palaeosol could also itself be the very occupation surface used in 1793.

Survey setup

Many areas could not be surveyed because of the presence of houses, garages and caravans, hence the need for multiple grids in the available irregular space. The grids were setup over the coastal plain and the upper beach face, using 20m and 100m measuring tapes and compass. The main axis of the grid runs 20 degrees East (magnetic), and corner "X" (Figure 55)(Figure 56) is at 133 degrees East (magnetic) and 24.6m from the southernmost corner of the main house. The corners of the grids were subsequently surveyed with a Total Station, for absolute referencing.

Fortunately most of the most seaward part of the coastal plain was free of modern structures and was covered with neatly cut grass, which was surveyed easily. This survey area extends roughly from the southwestern rocky headland to the northeastern stream. Line spacing was 25cm and station spacing was 10cm. Each grid was surveyed twice with the EM38: one time to measure conductivity in the ground and the second time to measure susceptibility. The various grids obtained were merged into one grid. Reconnaissance GPR transects were also completed, using the same grid as reference for positioning.

Random searches were done with the flux gate gradiometer, with the EM38, and with the "frying pan" metal detector in the area to the east of the stream, including the rocky

headland where the forge is indicated on the hydrographic map of Jouvency. Because of the undergrowth, this area could not be gridded.

Results

Area of the forge's headland and present stream

The random searches with the fluxgate magnetometer and the metal detectors (both EM38 and "frying pan") showed that the highest density of modern garbage was found along the stream, especially on its left bank. Except for this area, there was actually little modern metallic garbage (be it at the surface or at a shallow depth) in the area of the rocky headland where the forge is believed to have stood, which simplified geoarchaeological work.

Gridded area in the sandy plain

In the gridded areas, the conductivity map and the susceptibility map show four types of anomalies:

- large-scale anomalies
- small-scale point anomalies
- narrow linear anomalies
- wide linear anomalies

Large scale anomalies

Both the conductivity map and the susceptibility map show that there are wide-scale variations of unremarkable shapes (Figure 57). They reflect variations in soil and sediment conditions.

Small-scale point anomalies

Superimposed on the large-scale anomalies are smaller-scale anomalies. Some of these are like pock-marks ("point anomalies") and are due to doleritic stones and objects of anthropic origin such as metals. Excavations were carried out to ascertain the origin of these point anomalies. They were all 20th century objects buried within a few decimeters below ground, as well as anomalies due to housing and calverts.

Linear anomalies

More interesting are the conductivity and susceptibility linear anomalies that conspicuously run at a skewed angle to the current coastline and are all about WNW. Some anomalies are fairly wide (and clearer on the conductivity map), some much more narrow (and clearer on the susceptibility map). They are all grouped in the northeastern part of the cove, that is towards the forge side. As one would expect that linear traces of anthropic activity along a coast would be mostly either perpendicular or parallel to the shore, those skewed anomalies are unexpected.

Narrow linear anomalies

A GPR profile (at X=100m) that cuts across the axis of the main narrow susceptibility anomaly (anomaly A-B on Figure 55) also shows a clear anomaly at this loci, at about one metre of depth (Figure 58). The narrow linear anomalies could be due to buried logs acting as a negative imprint within magnetic sediments/palaeosols. They could also be due to metals, probably corroded as the anomalies are weak. They could also be due to linear marks in the buried sediments/palaeosols, created by dragging heavy objects, again creating negative imprints.

The same GPR profile shows other distinct anomalies at similar depths (C,D,E,F), which are difficult to relate to those of the conductivity and susceptibility maps as the area is littered with 20th century garbage at very shallow depth. These GPR anomalies are deeper than the modern trash and therefore possibly antedates it. The anomalies could be due to loose boulders as the headland is near, but could also be due to features of interest.

Wide linear anomalies

GPR data suggest that the wide linear anomalies (which are more obvious on the conductivity map than on the susceptibility map) could be due to natural paleochannels large anthropic trenches, or paleosol or bedrock, at about one meter of depth, (Figure 59 , Figure 60 with location of those transects on Figure 55). The widest anomalies at about the center of the grid, shows on both GPR and susceptibility map is quite possibly related to the palaeosol that outcrops on the beach at point "P" (Figure 55).

Another wide anomaly seems to be linked to the northeastern modern drain, although the anomaly created is too large to be due only to that drain only. More importantly, this anomaly diverges from the drain seaward. Still, the link between the anomaly and the drain is perhaps not totally coincidental: the drain could actually be a visible partial/reworked remanant of a paleochannel, and could perhaps even be the stream of 1793.

Anomalies and comparative cartography

We therefore tentatively compared the 1793 map for Mott's Beach and the present coastline (Figure 61). For Recherche Bay in general, the accuracy of the 1793 map clearly varies along the coastline, and for Mott's Beach we believe for a number of reasons that the 1793 palaeocoastline should be tested against the geophysical data. The results are interesting: the 1793 stream (ending seaward at point "Y" on Figure 55) seems to be at a significantly more central location than the present stream. Thus the 1793 stream could be responsible for one of the large linear anomalies. Also, the orientation of the linear anomalies now makes more sense: all those anomalies are roughly perpendicular to the 1793 shoreline as depicted on the Jouveny map. It is therefore tempting to make the working hypothesis that the anomalies formed when the shore had a configuration similar to that of 1793, rather than at subsequent different coastal orientations.

Figure 57. Mott's beach. Magnetic susceptibility and electric conductivity.

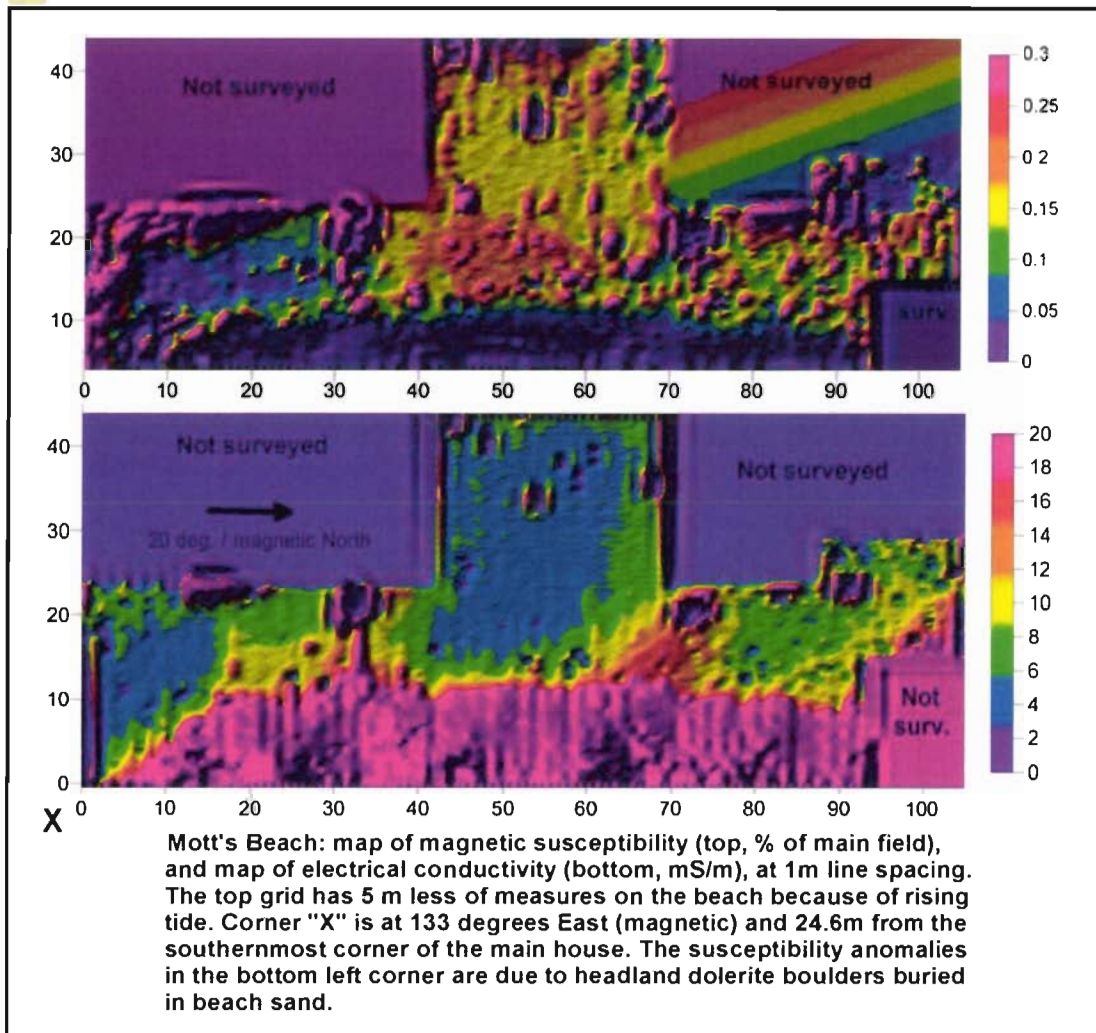
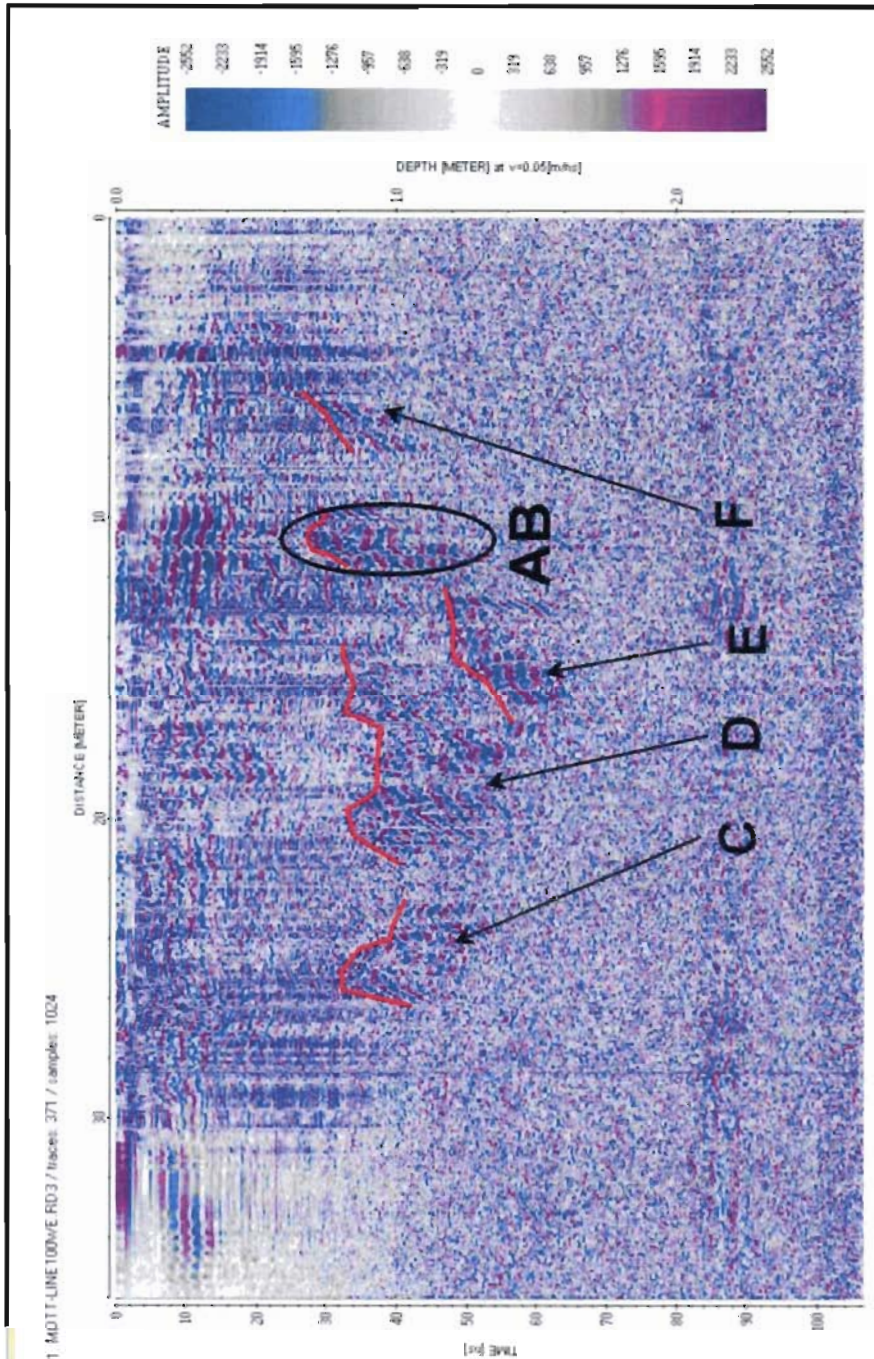


Figure 58. Mott's beach GPR profile C. reflector AB correspond to the major linear anomaly on susceptibility map. Other reflectors are more difficult to relate to known anomalies.



Mott's Beach GPR profile C, perpendicular to coastline (see location map). Reflector AB is at the same location as the section of the major narrow linear anomaly seen on the susceptibility map (= also anomaly AB on the summary sketch map). C, D, E and F are reflectors more difficult to relate to anomalies of the conductivity and susceptibility maps.

Figure 59. Mott's beach GPR profile A (parallel to coastline). This GPR profile runs approximately SSW (bottom of page) to NNE. The circled anomaly is either a paleochannel or a paleosol, bedrock also apparent on line B.

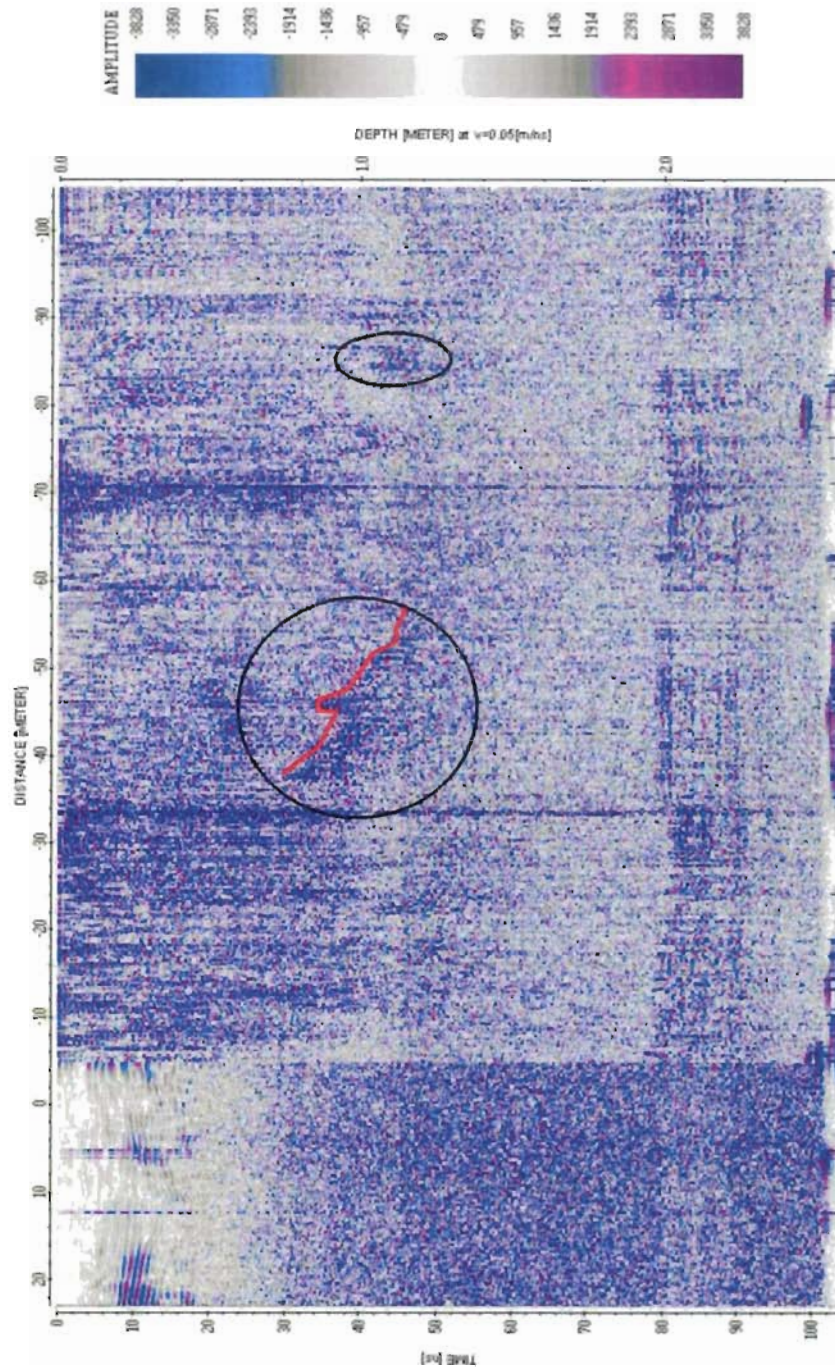


Figure 60. Mott's beach GPR profile B (parallel to coastline). This GPR profile runs approximately SSW (bottom of page) to NNE (see location map). The circled anomaly is a paleochannel or a paleosol, bedrock and is also apparent on line A.

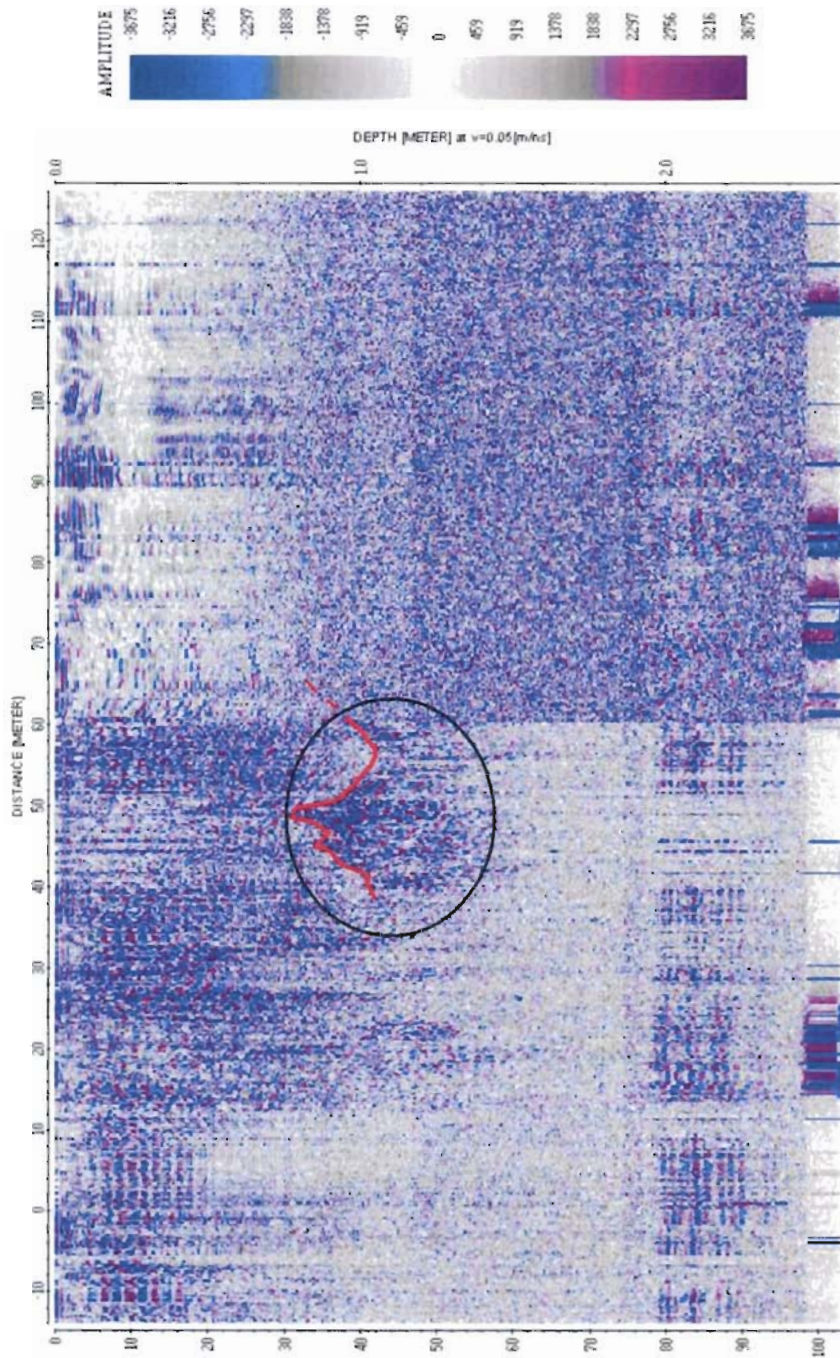
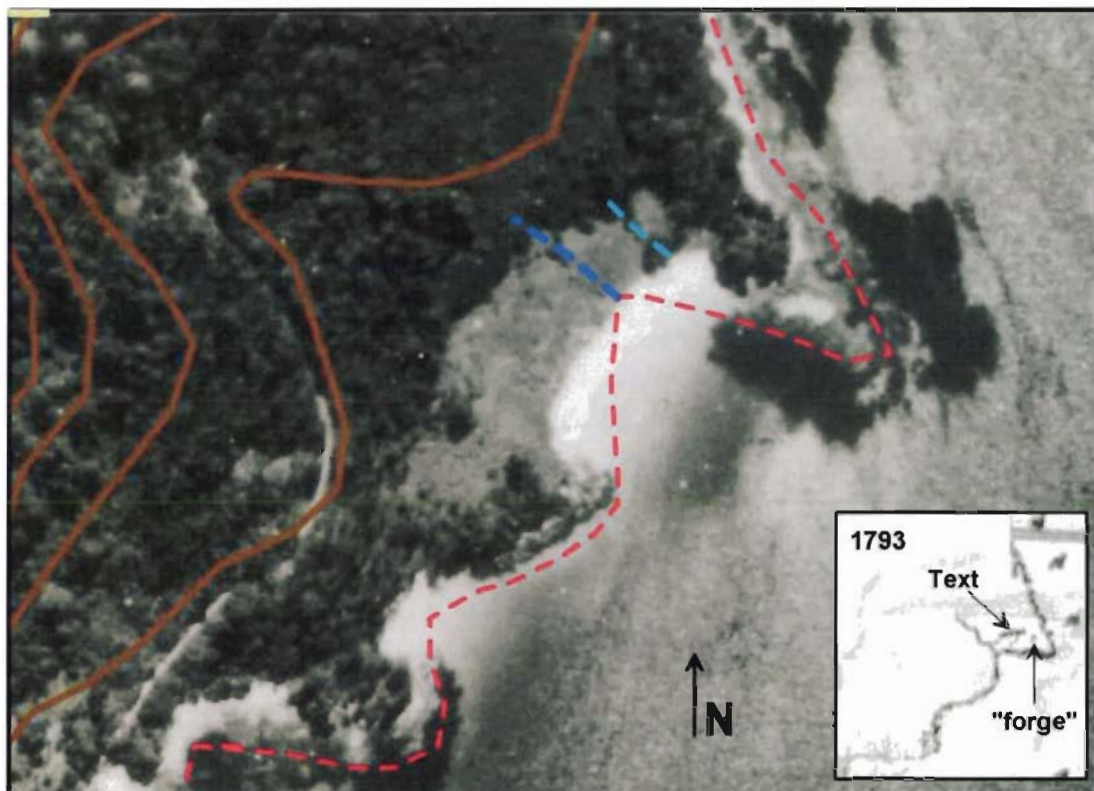


Figure 61. Mott's beach. Aerial photograph, 1948.



Aerial photograph of Mott's Beach in 1948, here overlain with :

- brown lines = 10m contour lines (for drainage)
- red dashes = 1793 shoreline (Jouvency)
- dark blue dashes = 1793 stream (Jouvency)
- light blue dashes = present stream

The map in the bottom right corner is from the 1793 map made by Jouvency.

To check this working hypothesis, we tentatively carried the historical comparative cartography one step further and study the geometry of the coastline of the cove between 1793 and 1948; this not only to confirm Jouvency's map, but also to see if the 19th and early 20th century shoreline was anyway similar to that of 1793. That case

would mean that the linear anomalies could have been created at times others than d'Entrecasteaux's.

No aerial photograph survey of the area took place prior to 1948, therefore we investigated early cadastral maps and early hydrographic charts. The problem is that examination of the early maps shows that they were possibly partially based on Jouvency's map, if only for their outline (Figure 62)(Figure 63). This is all the more a possibility as the French expedition's charting (the first for this area) was known to be of a high quality and had eventually been seized by the British at the end of the voyage, then copied.

Fortunately, the only early map which was quite clearly drawn independently from the French map is also one of the the oldest one. It is the mid-19th century cadastral chart of the southern part of Research Bay ("Kent - Recherche Bay", courtesy Dept. of Primary Industries and Water, Hobart) completed by surveyor James Erskine Calder (1808-1882), "*one of the colony's most distinguished early surveyors*" (Australian Dictionary of Biography - Online Edition). Calder had been surveying in Tasmania since 1829. In Mott's Beach the cadastral map shows that by the mid-19th century the shore had already started to evolve towards the present configuration, while still betraying some aspects of the 1793 coastline (Figure 64). Most importantly, many of the linear geophysical anomalies are still skewed relatively to the coastline drawn by Calder, and therefore the anomalies have a chance to predate the mid-19th century. There is therefore a chance that the anomalies are related to the French camp in Mott's Beach.

Comparing the maps of different times also suggest that the headland's seawardmost area of soil cover has possibly been denuded to bedrock. Therefore there are nowadays perhaps no remnants of the forge, although this has not been ascertained. The second-oldest cadastral map of the southern part of Research Bay ("Ramsgate", circa 1851-1890), which shows the adjacent shore parcels of Richard Mott and William Mott, is unfortunately of no use to palaeogeography in this particular area.

It is here important to keep in mind that this comparative historical cartography exercise would be less difficult if the unpublished French and British original survey data, field sketches, and drafts for Recherche Bay are checked, assuming they can be found.

Regarding the 1793 maps, Ms. Helene Richard, Director of the *Departement des Cartes et Plans* ("Department of Charts and Maps" at the Bibliotheque Nationale de France in Paris) who is also a specialist of the d'Entrecasteaux expedition, kindly checked the French sources for us.

She concluded that the survey of Recherche Bay was not a running survey and had left none of the detailed coastal profiles available for the other coasts chartered by the expedition "en route", in particular for Tasmania (Figure 65). At best, these coastal profiles show Recherche Bay seen from d'Entrecasteaux's ships outside the bay.

Interpretation

The origin of the observed anomalies could be natural, Aboriginal, 19th century European, early 20th century European. Still, the location, shape, depth and orientation

of the anomalies, relatively to the 1793 shoreline and forge's location, suggest that there is a reasonable likelihood that they are due to the camp of the the French expedition of d'Entrecasteaux.

This hypothesis would entail that the anomalies might be due to (Figure 66) :

- ☒ a palaeochannel of the 1793 natural stream (one of the wide linear anomalies),
- ☒ a small boat launch area, leaving "launch marks" (the narrow linear anomalies).

In a more general way, the geophysical data show that the subsurface at Mott's Beach is contrastedly much more complex than what its present fairly flat and homogenous surface suggests. It may therefore be important that further investigations be carried out in Mott's Beach. This would be done in cooperation with the local authorities and the current settlers / landowners / inhabitants, before further development/activity with any ground impact takes place.

Also, examination of the Jouveny map suggests that significant erosion has taken place since 1793 in Mott's Beach, especially on both edges of the cove (where it joins with the headlands) which partly includes the area of the French camp. This is consistent with the fact that nowadays the sandy scarp along the cove is highest at the edges of the cove, which suggests that erosion has possibly been the strongest there.

The wide and narrow linear anomalies, possibly due to launch/haul marks or palaeochannels trenches, should be investigated further with the highest priority as they are the low-lying sandy area of the French camp that suffers most from the ongoing coastal erosion. The thin soil cover on the higher rocky headland where the forge stood have also been undergoing coastal erosion, but probably at a different rate, perhaps only during severe storms.

Finally, it is tempting to wonder to what extent the d'Entrecasteaux expedition influenced or even triggered the subsequent geomorphology and coastline evolution of Mott's Beach. The establishment of a French camp may have directly or indirectly resulted in significant devegetation and surficial alteration, modifying alluvial and coastal sedimentation / pedogenetic / erosion patterns. This in turn raises the question about how the natural setting of Mott's Beach looked like when the French discovered it, and how much it reflected earlier and contemporary Aboriginal presence.

Figure 62. Early hydrographic chart of Recherche Bay (in: »Chart of the approaches to the port of Hobart town, from actual surveys made by various officers of the survey department, Tasmania« ; courtesy of the Department of primary industries and water, Hobart)



Figure 63. Early hydrographic chart of Recherche Bay (1860-61 and 1886-88 surveys)(in : »Approaches to Hobart including d'Entrecasteaux channel and Derwent river, Tasmania ». Hydrographic Office 1889. Courtesy Dept. Of Primary Industries and Water, Hobart).

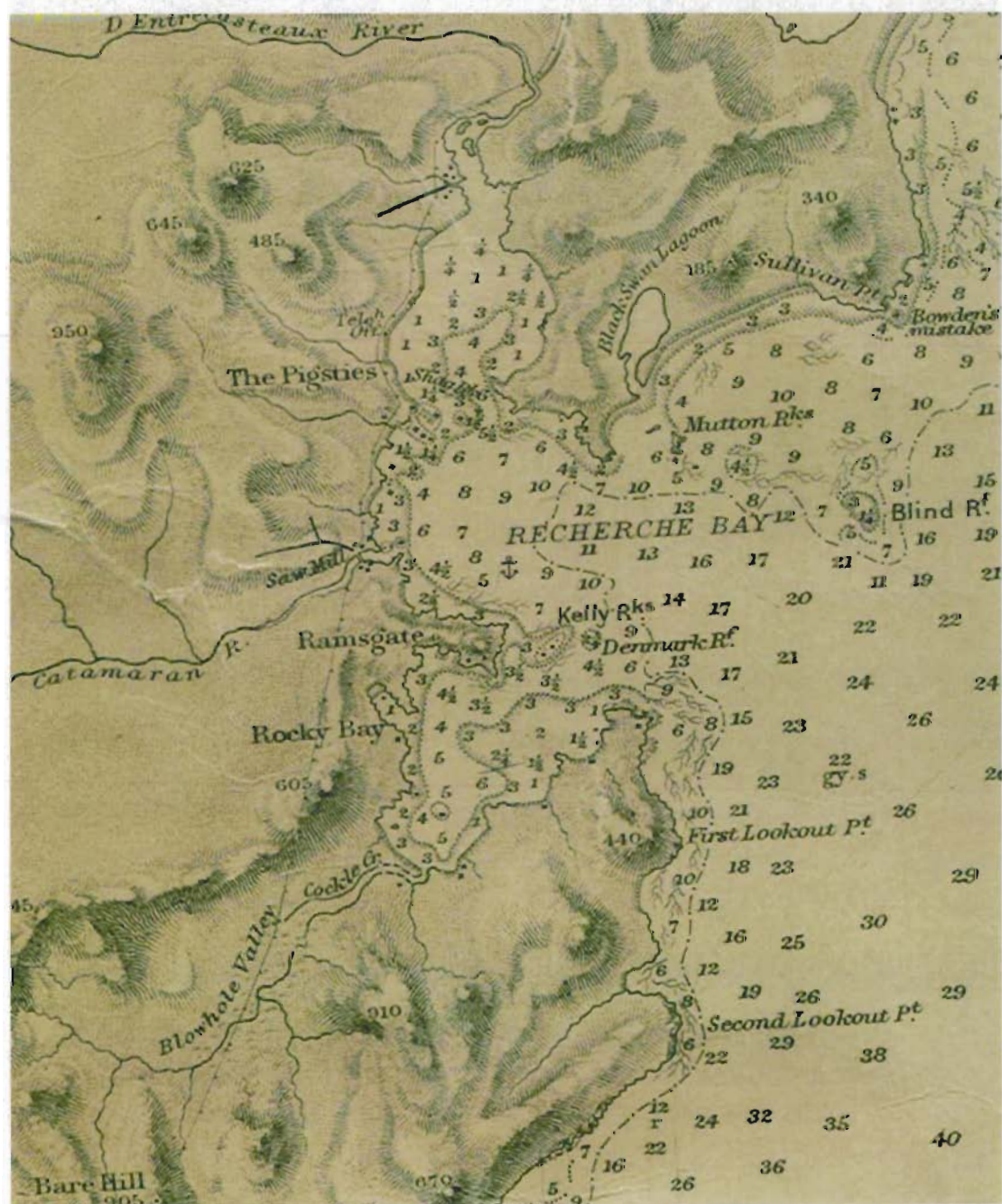
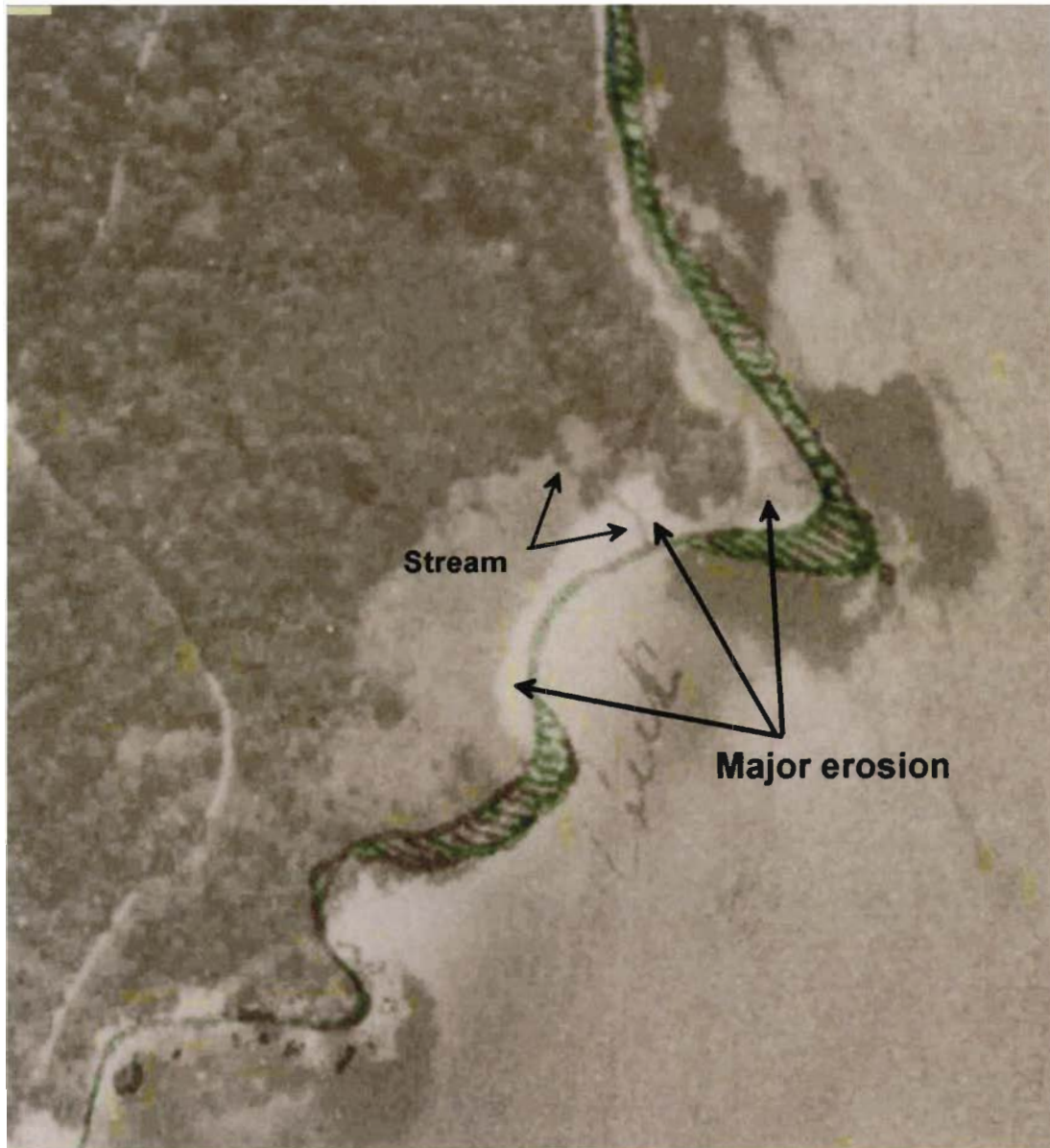


Figure 64. Calder cadastral chart of Mott's beach.



Mott's Beach: Calder's mid-19th century cadastral chart overlaid over the 1948 aerial photograph. Note the good location match for the stream.

Figure 65. Published coastl profiles of Tasmania drawn by the d'Entrecasteaux expedition. It includes Recherche bay seen from the outside of the bay.

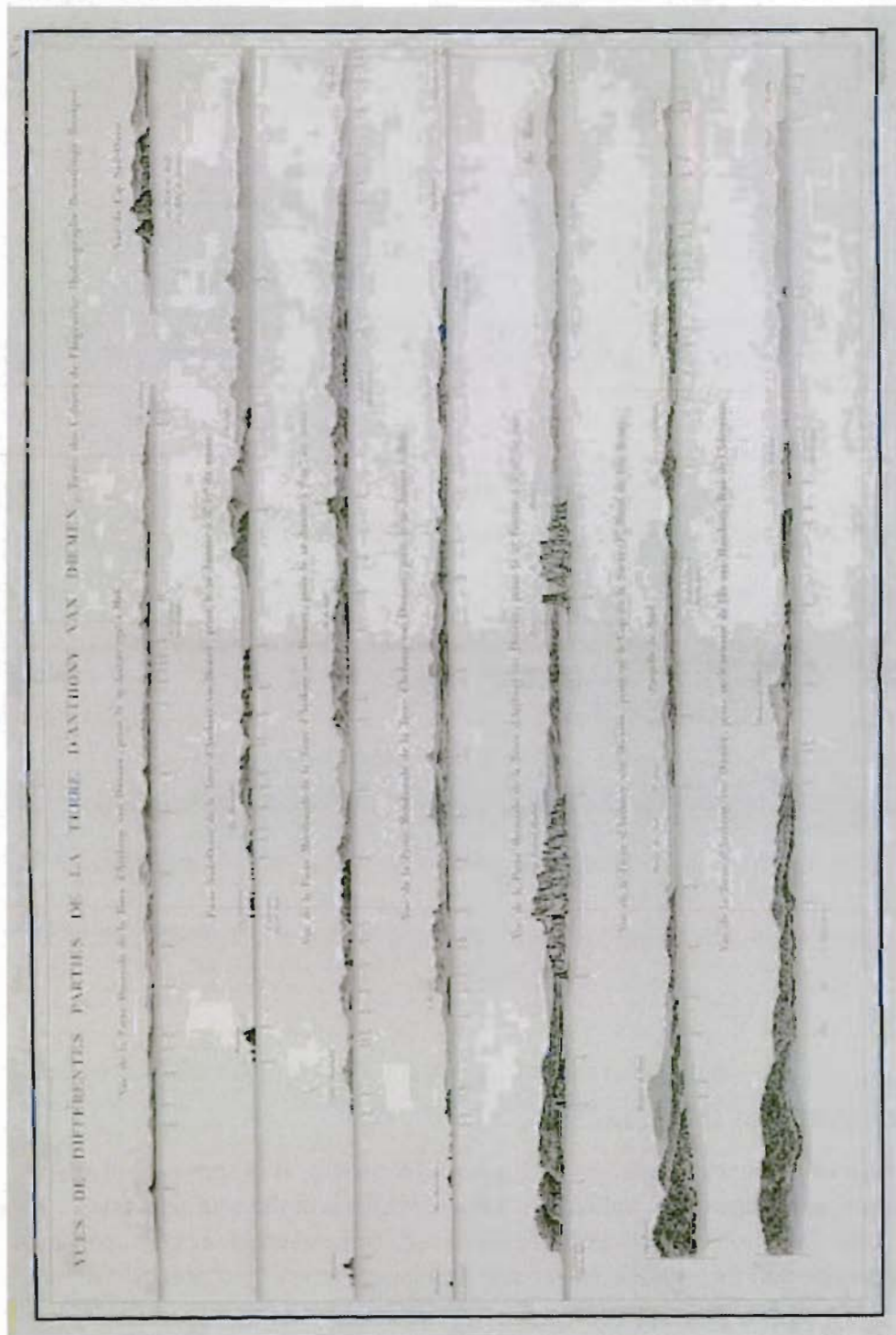
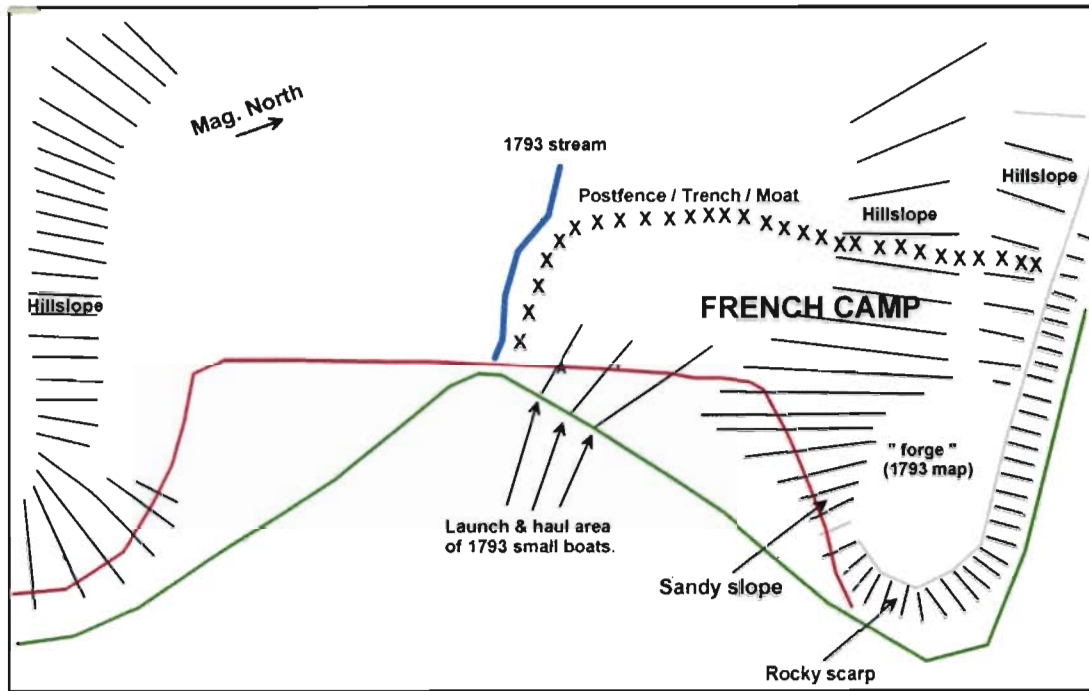


Figure 66. Hypothetical sketch explaining the geophysical anomalies at Mott's beach.



Sketch of one of the possible interpretations (working hypothesis) of the geophysical anomalies in Mott's Beach.
 - "X" = defensive postfence or moat.
 - Red line = present coastline.
 - Green line = coastline in 1793

The Observatory of the Recherche

The two maps of Jouvençy (Figure 4 and Figure 67) show that it is approximately located at/near the headland now called Snake Point, which is at the southern tip of Planters Beach. The observatory was probably located somewhere along the top edge of the steep hillslope that forms the headland and its adjacent coves. Each map shows the observatory at a slightly but significantly different place.

On one of the 1793 maps the observatory is shown to be used as a landmark for a hydrographic transect that ends on a sandy cove. From an « ease of landing » point of

view, this area is constrained by a nearby reef. On the other 1793 map, the observatory is clearly offset northward from the end point of this very same hydrographic transect, and therefore the observatory is shown as being located much nearer the headland (Snake Point). Therefore each map casts a doubt on the reliability of the other. As a result none of them can be used to pinpoint unambiguously the observatory.

The extremely dense shrub prevented us from carrying systematic ground geophysical surveys in both of these area, all the more as vegetation is protected. Therefore we managed to conduct only a few random reconnaissance EM38 transects where practicable, showing no anomalies. The area already being a nature reserve, no particular additional conservation measures are recommended for this area, although the cove (bordered by a dune) is much more threatened by short-term coastal erosion than the massive rocky headland at Snake Point.

Discussion of results

The objective of the 2006 French-Tasmanian joint research project was to locate or relocate and study some of the areas used by the 18th century French expedition in Recherche Bay.

The importance of this early historical discovery of the southern part of Tasmania cannot be dismissed. As a whole, the d'Entrecasteaux visit in 1792 and 1793 in Recherche Bay and in the d'Entrecasteaux channel is of great historical significance and by choosing to study only part of the area concerned by this history, our project aimed rather at enhancing the whole significance of the visit rather than emphasising on a few specifically significant places associated with the visit.

Six sites were targeted for archaeological and geophysical surveys in 2006:

- The garden of Delahaye in Rocky bay.
- The French forge and shore facilities of the *Recherche* at Mott's Beach.
- The onshore observatory and forge of the *Esperance* in 1793.
- The onshore observatory of the *Recherche* in 1793.
- The grave of gunner Boucher.
- The whaler's tomb at Planter beach (geophysical survey only to test site for suitability of equipment).

The results of the research were consistent with the above objectives and showed the efficiency of the survey method. Most of the targeted sites are now securely positioned according to the available historical documents. Only two sites, the 1792 garden of Delahaye and the grave of gunner Boucher could not be precisely positioned, because of the inaccuracy of the available historical information. The work done on these later sites however has allowed to narrow the potential area to a reasonable dimension. Following are, site by site, a summary of the results achieved and when adequate an indication of potential further research.

The search for the garden of Delahaye

The main difficulty in assessing the location of the garden was the potential invisible nature of the spot as well as the rather limited description of the feature itself. What was adequate for an 18th century discussion, proved to be rather imprecise when trying to relocate the place. The garden was in 1792 the only settled place not directly on the shore or close to the shore. The difficulty to survey today the thick bush behind the coastal fringe reminded us of the difficulty experienced by the French who often stated that the vegetation was too thick to be crossed.

An initial study of the French documents and especially the maps helped us to get an idea of the accuracy of the garden layout and of its position. It appears that the garden has systematically been drawn larger on published maps to make this important feature

more visible.

On the field, it is apparent that there were not many suitable areas to set up a garden in Coal Pit Bight, mostly because of the presence of a basaltic outcrop and the subsequent inadequacy of the soil cover. Recent synthesis on the vegetation in this area, initial attempt to study the phytoliths as well as field survey of the wider area of the garden clearly indicated that the best suited place for a garden would have been near an intermittent stream, about 50 meters to the south of the charted garden position and about 70 to 100 meters to the south-east of the stone structure discovered in 2002. If further work is thought necessary in this area, it should encompass a good survey of the area of the streamlet as well as a thorough analysis of the sediments in this same area.

The stone structure found in 2002 needed to be surveyed precisely as it was the most obvious candidate for the garden. We were hoping to find in the structure itself some evidence that it was or was not associated with the 1792 stay at Recherche Bay. In particular, it seemed obvious that if the structure was rather from the 19th or early 20th century, some artefacts would clearly attest it, such as nails or glass. To our surprise, absolutely no artefact was recovered in or around the structure although the instruments used to survey the place were of great accuracy for such a search. This evidence and other evidences collected during the research have led us to conclude that the structure is an uncomplete building associated with the milling industry in the area at the turn of the 20th century. As such it is part of the later history of the bay and its significance that relation needs to be assessed.

The garden area is today part of the Reserve of the Tasmanian Land Conservancy and every step should be taken to have the potential area of the garden adequately protected in order to avoid any kind of activity which might affect the results of later study. It is in particular important to limit access to the area pending the decision on future soil analysis and survey.

The shore facilities of the *Recherche* and *Espérance* at Rocky bay in 1793

There has often been some confusion as to the camps and observatories set up by the *Recherche* and the *Espérance* in 1793 in Rocky bay. The confusion came mostly from the fact that in 1793, the ship *Espérance* decided to set up some shore facilities elsewhere of the place chosen by d'Auribeau for the whole expedition. The scientists, for reasons of sciences also decided to set up several observatories and not one, as had been done in 1792 at Bennet's point.

The research in 2006 focused on the shore facilities of the *Recherche* at Mott's beach and of the *Espérance* at Rocky bay but also tried to adequately locate the *Recherche* observatory at Snake point.

All three places were located with a good accuracy. Of specific interest is the presence on both sides of Rocky bay of a buried paleosol containing significant amount of midden deposits. It is not far-fetched to consider the working hypothesis that this palaeosol

was the actual landscape/landform in 1793. As the palaeosol contains a significant amount of middens, it is possible that the French did not have to clear the site much further than what had been possibly already done by the Aboriginal people. This may be another reason why the places were noticed and selected by the French in the first place. It is also possible that significant anthropic devegetation/destabilisation of the area in the 19th/20th century triggered coastal erosion and/or burial of the palaeosols by shifting sands.

The examination of the available maps for the whole area of Rocky bay clearly indicate that the bay is prone to frequent coastal erosion. As all the French facilities were close to the shore, it is reasonable to suppose that they have been affected by subsequent changes of the coastal area.

No artefacts, remnants or any cue of the presence of the French were found at what we have determined to be the most likely spot for the observatory of *l'Espérance*.

At Mott's beach, the geophysical data show that the subsurface is contrastedly much more complex than what its present fairly flat and homogenous surface suggests. Some if not all of the large anomalies detected are possibly associated with the French settlement. It is therefore important that further investigations be carried out in that bay.

Finally, it is important to note that the sediment and soil cover at the potential site of the *Espérance* observatory is relatively thin, but that its stratigraphy and palaeosol structure is condensed and complex. It is all the more fragile. As it records human activity in both pre-European and historical times, it must be particularly protected. This rare flat area, easily accessible and tangent to the official current tourist track, is as tempting to be used for camping or as a lookout as it was in d'Entrecasteaux's and pre-European times.

The grave of gunner Boucher

It was not possible during the survey to locate exactly the grave of Laurent Boucher, the first European buried in Tasmania. There are several reason for the failure to detect the grave, the main one beeing the inaccuracy of the available descriptions. A few historic documents have however allowed to narrow the potential area to a reasonable dimension. Further research in the French archives migh help to narrow even more the potential site of the grave. It is surprising that so far no mention of this grave has been found on any of the French maps. The documents found as part of this research project clearly indicate that Laurent Boucher was buried in the coastal area and it is not impossible that the grave has suffered from later erosion. The vegetation today limits the accuracy of the search and if developpment is made in the area of the grave, it will be important to survey again the whole bay with adequate geophysical instruments.

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Appendix 1

**REPORT ON FLORA VALUES FOR PROPOSED LOGGING COUPE –
RECHERCHE BAY AREA**

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This report has been made available to Richard Morrison (Commonwealth Dept of Environment and Heritage) for assistance with analysing flora values of the Recherche Bay area. The report is based on information provided to Gunns (Triabunna) in October 2003, as a result of surveys and research undertaken by the Forest Practices Board and the Tasmanian Herbarium. Some details relating to the site may have changed since then, as more information has become available on various aspects of the area. Details in this report do not constitute final advice or correspondence from the Forest Practices Board, in relation to future forest management in the area.

Site details

UPI No(s): 1602, 1647, 1649, 1651

Location: Recherche Bay – Bennett’s Point – Southport Lagoon area

Mapsheets: Leprena, Recherche Grid Refce: 493000 5180000

Background

Botanical assessment of issues related to the Forest Practices Plan (FPP) on this property comprised:

Information provided by the Forest Practices Officer (FPO) following surveys associated with assessment of the area and preparation of the FPP.

An extensive survey of the FPP area by Fred Duncan (FPB Senior Botanist) in July 2000. Forest environments in proposed operational areas were sampled, with forest type maps being used to facilitate sampling. Some areas of forest in Southport Lagoon Wildlife Sanctuary (southern section) were also assessed. Non-forest vegetation in the coupe was not assessed but was interpolated from information about non-forest vegetation on similar substrate in the general area.

Liaison with botanical staff of the Threatened Species Unit (DPIWE) about possible effects of the proposed operation on threatened species that had the potential to occur in or close to the FPP area.

Liaison with botanical staff of the Tasmanian Herbarium about the potential of the area to contain type localities of plant species that were collected by scientists of the French Expedition of D’Entrecasteaux that visited Recherche Bay in 1792/93. The effects of forestry operations on the type localities were subsequently considered.

Surveys of vegetation in the west and northwest part of the FPP area in September 2003. Some of these areas are excluded from the operational area, primarily for cultural heritage and landscape reasons. This assessment included vegetation in and around the site known as “The French Garden site”.

This report covers the proposed logging coupes and their internal roadlines. The comments and given below are based on the forestry operations being followed by regeneration to native forest.

FINDINGS

Threatened species

Westringia brevifolia var. *raleighii* is shown as occurring in the FPP area on the Conservation Inventory Report. This species is listed as a rare species (Schedule 5) on the Tasmanian Threatened Species Protection Act. Vegetation close to the mapped site was assessed, but this species was not located during the survey. The species occurs in Southwest National Park. Subsequent inquiries to the Threatened Species Unit have determined that the record of *Westringia brevifolia* var. *raleighii* from this area is in fact from Grid Reference 495300 5179800, which is outside the FPP area.

Two threatened species of *Euphrasia* have been recorded from Southport Lagoon Wildlife Sanctuary. They are *Euphrasia gibbsiae* ssp. *psilantherea* and *Euphrasia fragosa*, which are both listed as endangered species (Schedule 3) on the Tasmanian Threatened Species Protection Act, and are also listed nationally. Both species occur in open areas (e.g. sedgeland) on the margins of forest or woodland.

Euphrasia gibbsiae ssp. *psilantherea* is known from only one population, within 800 m of the NE corner of the FPP area. *Euphrasia fragosa* is known from one population in the northern part of the Wildlife Sanctuary, and two populations elsewhere. There is potential habitat for both species in the coupe, in non-forest vegetation that is excluded from operations.

The two *Euphrasia* species are not susceptible to *Phytophthora cinnamomi*, but host plants (e.g. *Epacris* species) in their habitat are likely to be (*Euphrasia* species are semi-parasitic). Prescriptions regarding *Phytophthora* which apply to the access road through the Wildlife Sanctuary will cover the potential occurrence of these species in the FPP area.

Burning of sedgeland, scrub or heath containing these species is likely to be important in maintaining optimal open conditions. Discussion with DPIWE (Threatened Species Unit and Fire Management Section) about burning in non-forest vegetation in the FPP area is desirable.

Analysis of historical plant collections made by the French expedition of 1792/93
The Forest Practices Board engaged the Tasmanian Herbarium to compile information on plant specimens collected by scientists of D'Entrecasteaux's expedition (principally the botanist Jacques-Julien Labillardière) from the Recherche Bay area (and elsewhere in Tasmania) in 1792/93. The aim of this study was to get better information on the importance of the Recherche Bay area as a type locality of Tasmanian plant species, and to better assess the potential effects of the proposed forestry operations on species that may have their type locality in this area. I have also reviewed some transcripts written by members of D'Entrecasteaux's expedition, which describe aspects of the environment in the Recherche Bay area.

The Herbarium's study lists 226 different species of plants that were collected from southeastern Tasmania by Labillardière. These comprised: 192 species of vascular plant; 3 species of bryophyte; 22 species of lichen; 8 species of seaweed; 1 fungus.

Most of the plant species collected by Labillardière were new to science, and were first described by him. The specimen from which a species is first formally described is called the type specimen. A type locality is the actual location from where the type specimen was collected. The type specimen and type locality have significant scientific value, because they are the "benchmarks" upon which the taxonomy of that species (and often related species) is based. Of the species collected by Labillardière, there are 147 type specimens of vascular plant species and 12 type specimens of other species. This makes the collection sites of these specimens the type localities.

Labillardière's collecting localities included: North Bruny Island (Dennes Point, Snake Bay); South Bruny Island (Simpsons Bay, Fluted Cape, Adventure Bay, Partridge Island, Great Taylor Bay); Gordon area; Burnett Point; Catamaran - Mt Leillateah area; Recherche Bay - Southport Lagoon; Fisher Point - Cockle Creek - South Cape area. From the information in the Herbarium study, it is not possible to tell the exact or general type locality of most of the species that Labillardière described. A few sites are known with certainty (e.g. Penguin Island near Fluted Cape is the type locality of *Eucalyptus cordata*), but most of the type specimens could have been collected from

more than one of the sites visited by Labillardière.

Some indication of potential type localities can be gleaned from the typical habitat of the species – hence many of the drier forest species are likely to have been collected from Bruny Island. The situation is less certain for species typical of wet sclerophyll forest and damp sclerophyll forest (intermediate wet – dry eucalypt forests) because there are several areas visited by Labillardière that would have supported these forest types. However, because of the time spent by the French at Recherche Bay, it is reasonable to conclude that many wet and damp sclerophyll forest species were collected from this area.

It is likely that many of the species collected by Labillardière from other vegetation types (e.g. coastal environments, heath and moorland) were also collected in the Recherche Bay area. However, because these species will not be affected by the proposed forestry operation I will not consider them further in this report.

About 70 vascular species and most of the lichens and bryophytes collected by Labillardière are associated with eucalypt forest with a damp sclerophyll, wet sclerophyll or rainforest understorey (as is found in the FPP area). Some of these species extend to drier forests and non-forest vegetation. I recorded many of the wet and damp sclerophyll forest vascular species when I surveyed the FPP area. Most (if not all) of these species would occur in other places visited by Labillardière. However, the possibility needs to be considered that Recherche Bay is the type locality of many of these species. Most of these species occur in sites that are zoned as reserves in the FPP area, as well as in areas proposed for forestry operations.

Most of the forest currently occurring in the FPP area is regrowth *E. obliqua* forest. Historical records indicate that much of this regrowth resulted from heavy logging in the past, with wildfire possibly also playing a role. The accounts of the French expeditioners suggest that aborigines in the Recherche Bay area burnt the bush. The fact that I recorded most of the vascular species that Labillardière collected (including several rainforest species) indicates that these species can cope with intensive disturbance followed by regeneration to native forest.

The proposed forestry operations in the FPP area, coupled with reservation of a range of environments within and adjacent to the FPP area, indicate that those species that have their type localities in the Recherche Bay area are likely to persist in this area.

Vegetation in the area of “The French Garden”

Vegetation in the immediate area of the “The French Garden” comprises regrowth *E. obliqua* forest with a wet sclerophyll or damp sclerophyll understorey. The trees present on this site and the immediate surrounding area I estimate from their height and diameter to be about 20-30 years old. The origin from relatively recent disturbance is supported by an age count of 20-23 years on the two oldest *Banksia marginata* on this site. Counting growth whorls of *Banksia* gives a fairly accurate indication of the age of this species, and hence the period since substantial disturbance at a site.

Vegetation upslope of this site comprises *E. obliqua* wet sclerophyll and damp sclerophyll forest. Many trees in this area had old-growth characteristics. Based on their size and growth habit, some trees were of considerable age (greater than 150 years).

Plant communities

Forest in the areas proposed for forestry operations is dominated by *E. obliqua*. Forest dominated by *E. globulus* was associated with the coastal fringe in some areas, and was not recorded from areas proposed for logging. The following communities were identified in the areas proposed for logging.

Wet sclerophyll forest:

OB0111 wet sclerophyll forest (*E. obliqua* – *Melaleuca squarrosa* – *Monotoca glauca* wet sclerophyll forest) is the most widespread community in the FPP area. Most of this forest comprises regrowth, stemming from past logging and possibly wildfire. Occasional old-growth trees were present, but the forest does not qualify as old-growth forest. Small areas of OB0110 wet sclerophyll forest (*E. obliqua* – *Acacia dealbata* – *Olearia argophylla* wet sclerophyll forest) may also be present on protected or more fertile sites (e.g. better drained sites in the east of the FPP area, where *E. regnans* co-occurred in *E. obliqua* forest adjacent to a minor creekline).

Mixed forest:

OB101 mixed forest (*E. obliqua* – *Nothofagus cunninghamii* – *Monotoca glauca* mixed forest) has a localised occurrence in the FPP area. This forest is characterised by the presence of rainforest species (e.g. *Nothofagus cunninghamii*, *Anodopetalum biglandulosum*, *Eucryphia lucida*). It is a later successional stage than OB0111 wet sclerophyll forest. Some old-growth trees were present but on most sites the trees were also mainly regrowth.

Damp sclerophyll forest:

Forest containing a mixture of wet sclerophyll and dry sclerophyll species in the understorey occurred on drier or more exposed sites, such as the slopes adjacent to the French Garden site. In most areas the forest is dominated by *E. obliqua*, but *E. globulus* was occasional on some sites (particularly in the south of the FPP area) that are excluded from forestry operations for landscape or cultural heritage reasons.

Understorey species include *Acacia verticillata*, *Monotoca glauca*, *Banksia marginata*, *Goodenia ovata*, *Pultenaea juniperina* and *Epacris impressa*, *Pteridium esculentum*, *Dianella tasmanica* and *Gahnia grandis*. The forest occurred as regrowth forest on most sites I assessed, but some areas of old-growth forest were also present in the area.

This forest type can be validly attributed to either OB010 wet sclerophyll forest (*E. obliqua* – *Olearia lirata* – *Pultenaea juniperina* wet sclerophyll forest) or shrubby *E. obliqua* dry sclerophyll forest.

All of the above communities are reserved in the D'Entrecasteaux Bioregion, including in the Southwest National Park, on the southern side of Recherche Bay. They also occur in the area of Southport Lagoon Wildlife Sanctuary lying to the southeast of the coupe.

E. obliqua wet sclerophyll forest and mixed forest in the coupe correspond with the RFA community "tall *E. obliqua* forest". This community does not require protection on public land under the RFA. Areas of *E. obliqua* forest that are attributed to shrubby *E. obliqua* dry sclerophyll forest correspond to the RFA community "dry *E. obliqua* forest", which is also adequately reserved in the region.

All forest communities in the area proposed for forestry operations are also located in

areas to be reserved on the property.

Non-forest vegetation in the FPP area is known or likely to be adequately reserved in the region. It includes scrub, moorland, some coastal communities, and possibly some scrub or swamp forest communities associated with poorly drained sites adjacent to Black Swan Lagoon. The range of non-forest communities also occur in areas to be excluded from forestry operations.

Appendix 2

**REPORT ON PHYTOLITH ANALYSIS OF
SEDIMENTS FROM RECHERCHE BAY,
TASMANIA**

for

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and

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by

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School of Archaeology and
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0200

*4 November
2006
Canberra*

AIM OF THE PHYTOLITH ANALYSIS

To determine whether the 'French Garden' cleared and sown by Félix Delahaye in 1892 could be located using phytolith analysis

The Recherche Bay area is rich in flora with a dominant ground cover of *Gahnia grandis*, there was no doubt that phytoliths would be plentiful. What was in doubt was the exact location of the French Garden. In 1792 Delahaye wrote

... after eight days two men and myself tilled, with great difficulty, a piece of land measuring 28 feet square. ... I had large quantities sown everywhere in the woods, in the more open spaces and where the soil was more friable. ... I sowed mixed seeds everywhere, thrown at random, where I believed they could succeed. (1792: page 27 April-May)

and on 7 February 1793 after his return to the area

All the seeds had nearly sprouted, but remained with their first leaves. I thought that it was the drought that had made them perish, since the soil was very hard. I only found potatoes. I pulled out several which were very small.

Can phytolith analysis detect the critical two years?

In consultation with Dr Galipaud, 17 samples were selected from sediment samples collected by him at Recherche Bay in May 2006. Details are shown in Table 1. A sketch map (Figure 1) indicates the probable spatial reference of sites to one another. Phytolith extraction from the sediments proceeded as outlined in my email to Anna Gurnhill (copy J.-C. Galipaud) dated 29 June 2006. Of the four sites selected for phytolith extraction and analysis, three were located within a stone structure and the fourth some 200 m to the southwest. Evidence for any possible clearance of the sedge *Gahnia grandis* in the columns site could be important.

Differences between overall depths of the four site samples should be noted, Test Pit 1 and Core 2 are less than 20 cm and Cores 3 and 7 are at least 40 cm deep, limiting comparisons across the area.

From Duyker's (2004) translation of Delahaye's Botanical Catalogue-Journals of 1792 and 1793 a list of plants sown by Delahaye (p 27 April-May 1792) was made and is shown in Table 2. With the exception of cabbage, I was unable to find illustrations in the phytolith literature of phytoliths recovered from these economic plants. A small phytolith reference collection was required. Spring was just beginning in Canberra, whole plants of some listed species were not readily available and of necessity the reference collection plant material resulted in a collection made up from seeds, seedlings and other plant parts (Table 2). Dr Galipaud supplied a specimen of *Gahnia grandis* from Recherche Bay. Phytoliths were extracted from plant material by wet ashing.

METHODS

Extraction of phytoliths from soil sediments and plant material A heavy liquid flotation method was used to extract phytoliths from sediments. Because time was short and some of the samples were very wet, 5.5 g of sample rather than a preferred 5g was taken from the wet sediment samples to take into account any loss if sample had been dried. Samples were subject to daily deflocculation changes until clear of clay; warmed in Hydrochloric acid (HCl) to remove carbonates; warmed in Hydrogen peroxide (H₂O₂) to remove organic material; sieving; with intermediate washings with distilled water at each step. Sodium polytungstate, at 2.8 sg,

was used to float material from the residue. The recovered float contained phytoliths, other microfossils and material with a specific gravity less than 2.8. Floats were subjected to further washings, weighing and drying before being mounted onto a glass slide.

Plant material was washed, dried then wet ashed by warming in H₂O₂ until organic material was completely reduced. The residue was washed and dried before mounting on slides.

Eukitt was used as mountant for all samples. All slides were scanned at X325 and X625 magnifications using an Olympus BH2 light microscope. A quick scan was made of all slides.

RESULTS

The ashed *Gahnia grandis* sample indicated that this plant is a high producer of biogenic silica (phytoliths), with at least 12 diagnostic morphologies observed. Of the economic plants ashed for phytoliths only celery (leaf), chicory (leaf and inflorescence) and white onion (leaf) produced diagnostic phytolith morphologies. Of the 22 plant parts ashed 11 samples contained starch granules. Fresh organic potato material was not available, however this plant family is regarded as being low in silica and high in starch.

Table 3 lists data obtained during extraction from sediments. The sediments varied from coarse sand intermingled with very fine grey clay. A low figure in column 8 indicates a high clay content. Particle size, column 9, does not vary greatly with the exception of Core 2, bottom (969) and Core 3, section 3 top (974A). These two samples contained identical coarser material indicating a similar original source area. Column 10 lists weight of final residue after flotation, washing and drying.

Many phytolith morphologies were observed during a quick scan of all sediment slides. All sediments contained varying amounts of *Gahnia* and shrub phytoliths. Phytoliths, *Gahnia* and carbon particles were densest in sediment 969 (Core 2). There was no evidence for *Gahnia* clearance or till mixing in any sediment. However, any clearance or till level may have been at greater depths than available in Test Pit 1 and Core 2 sediments.

At this point in the analysis a preliminary report was due for submission. However as the quick scan showed few 'exotic' phytoliths in the sediments presence of other data was noted for other possibly relevant proxies.

Presence of large, fan-shaped phytolith morphologies were noted for each slide. This morphology is produced in hydrophyllic grasses and can show relative changes in water availability and from this changes in vegetation and climate through a sequence. Sixtyfive different fan morphologies were noted indicating a wide range of grasses present in the assemblages. Table 4 shows that Test Pit 1, Cores 2 and 7 sediments (all located within the stone structure) have respectively, 4, 1 and 15 different fan types unique to each assemblage. Out of the stone structure, 9 unique fan-shaped phytoliths were recorded for Core 3. Fan morphology 35 was noted in 13 of the 17 sediments, and nil occurrence in Test Pit 1 or the top of Core 2. From the fan phytolith data a *relative wet/dry* index was constructed (Table 4). A total of 220 fan phytoliths were counted. Of the 17 sediments six (index 1-6) were above the median (at 110) indicating wetter conditions than the 11 sediments (index 7-17) below the median, indicating *relatively* drier sediments at the time of phytolith deposition. Although all sites received water, through time, Test Pit 1 and Core 2 were relatively drier than Cores 3 and 7.

That grasses were abundant in the area is shown by the high numbers of fan-shaped and, unrecorded, ubiquitous short to medium elongate phytoliths. Surprisingly absent were large numbers of small-cell bilobate phytoliths abundant in many grasses. Grouped into 9 morphologies their low presence is shown in Table 5 and were not noted in Core 2 or three

sediments from Core 3 (970, 974A, 974B). A low presence was indicated in the remaining sediments. Presence/absence of these small cells can indicate opening/closure of grassland, however, in this instance I believe a different dynamic, possibly water or fire, has removed them from the area.

Starch grains were noted during the quick scans as shown in Table 6. If starch producing plants were present in any of these sediments a higher count could be expected.

Carbon particles give evidence for fire in an area, highest presence was noted in Test Pit 1 and Core 2 sediments the relatively drier samples.. Phytoliths transformed from silica to cristobalite were noted in all sediments indicating high temperatures during fire occurrences.

Also observed on each slide were many biogenic silica triradiate sponge spicules and diatoms (up to four species) and non-silicon nematoda. All are indicators of wetter conditions through time.

Scans showed a change of phytolith distribution through the four sites. The change is similar to the fan morphology distribution shown in Table 4. Noted were more woody shrubs in Core 2 and Core 3 with the exception of 971, 973, 974A. Also noted were a discrete group of morphologies only observed in Core 3 (973, 974A, 974B, 075, 977) and Core 7 (978, 979, 980).

Of the economic plants ashed celery, chicory, white onion and radish produced diagnostic phytoliths. Unfortunately two phytoliths, one each from chicory and radish, are very difficult to distinguish from *Gahnia* morphologies which dominated the assemblages, similarly, a white onion morphology from an unidentified morphology present in the assemblages. Under these conditions I cannot positively identify phytoliths to plants other than to say that these look-alikes were single occurrences in Core 3 (970, 971, 973, 974, 976) and Core 7 (977, 980).

Figure 2 is a tentative summary of correlations that can be made from the data. Possibly Core 3, outside the stone structure and with six interactions, could be indicating the local undisturbed vegetation. Test Pit 1, the most northerly and less similar to the other three sites, suggests a possible physical barrier in the terrain.

CONCLUSION

In the past the whole bay area has been a long/short term holiday destination with shacks, gardens and paths throughout and more recently has been subjected to logging and clearance of habitation debris (pers. comm. J. Dalco 2006). Until sediment dates become available to narrow the search for the Garden, that is before the widespread casual settlement, I can see no advantage in proceeding any further with the analysis. The few numbers of relevant phytoliths observed to date would be disregarded in any statistical programme and in this analysis changes in local vegetation are not of interest.

It is unfortunate that this analysis has not reached a satisfactory conclusion, therefore, I submit this document as a final report.

ACKNOWLEDGEMENTS

Alex Buchanan (TMAG, Tasmania), Greg Jackman (Port Arthur Historic Site Management Authority) and Wendy Potts (DPIW, Tasmania) all provided me with relevant information on vegetation in the area of interest. Annie Bickford (Archaeology and Heritage Pty Ltd, Sydney) provided copies of relevant pages translated from Delahaye's journal.

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Table 1: Recherche Bay -Sediment samples selected for phytolith analysis

Table 2: Recherche Bay -Seeds sown by Félix Delahaye. List of relevant plant material ashed to obtain phytoliths for comparative purposes

Table 3: Recherche Bay -Extracts from phytolith recovery worksheet

Table 4: Recherche Bay -Construction of a wet/dry index from presence of fan phytolith morphology

Table 5: Recherche Bay -Presence of bilobate grass phytoliths in sediments

Table 6: Recherche Bay -Presence of starch grains in sediments

Figure 1: Recherche Bay -Sketch map of French Garden sediment sites area

Figure 2: Recherche Bay -Tentative minimum spanning tree diagram key

Table 1: Recherche Bay - Sediment samples selected for phytolith analysis

Outside Garden

Test Pit 1, Area B	
965*	Context 5
966	Context 8
967	Context 11

Core 2	(16.8 cm)
968	Top
969	Lower

Core 7	(40.6 cm)
Section 1	db cmY
977	0-10
Section 2	10-20
978	
Section 3	20-30
979	

Section 4	30-40
980	
	40.6

Core 3 (43.7 cm)		
Section 1 (0-11 cm)		dbS cm
970	2.5-4.5	2.5-4.5
971	7.5-9.5	7.5-9.5
Section 2 (0-10 cm)		11
972	1.5-3.5	12.5-14.5
973	7.5-9.0	18.5-20.0
Section 3 (0-11 cm)		21
974A	0.5-2.0	21.5-23.0
974B	4.5-6.0	25.5-27.0
Section 4 (0-6.2 cm)		32
975	2.0-3.5	34.0-35.5
Section 5 (0-5.5 cm)		38.2
976	1.0-2.5	39.0-40.5
		43.7

* DB identification number, 5g sample except where indicated Note: Test Pit 1, Cores 2 and 8 are located within the stone structure Test Pit 1 - bag samples

Core 2 -unconsolidated samples Core 3 -very wet, 5.5 g samples Core 7 -
unconsolidated granules have spread to width of 11 cm bags ° Nominal length
only

**Table 2: Seeds sown Félix Delahaye and relevant plant material ashed to
obtain phytoliths for comparative purposes**

"I sowed mixed seeds everywhere, thrown at random, where I believed they could
succeed." Delahaye Genus, species Family Part ashed

Garden cress *Barbarea verna* Brassicaceae P367 j (American upland) celery *Apium graveolens*
dulce Apiaceae P368 a b chervil *Anthriscus cerefolium* Apiaceae P369 a b chicory (endive)
Cichorium intybus Asteraceae P370 a b c cabbage *Brassica oleraceae* Brassicaceae no sample
turnip different kinds *Brassica rapa* sp. Brassicaceae P371 a b t romaine gris
lettuce *Lactuca sativa* Asteraceae P372 j (romaine brown)
black salsify *Scorzonera hispanica* Asteraceae no sample white onion *Allium cepa*
Asparagales P373 a d radish *Raphanus sativus* Cruciferae P374 a b d+t sorrel
(French) *Rumex scutatus* Polygonaceae P375 a b pea *Pisum sativum* Fabaceae
P376 a b j potato *Solanum tuberosum* Solanaceae no sample

1-2 October 2006 -Seeds, seedlings and vegetables purchased at Canberra markets, shops and
nurseries: Fyshwick Market, Kingston Bus Market, Candelo Herbs, Greengold, Mountain Spring

3 October 2006 -Wet ashing commenced Plant components: a leaf b stem c inflorescence d
root j seed t tuber/bulb

Translation of Félix Delahaye's "Botanical Catalogue-Journal" in Van Diemen's Land (Tasmania)
January-May 1792, page 27. Translated by Maryse Duyker (December 2004, issued October
2005) in *Explorations: A bulletin devoted to the study of Franco-Australian links*

Table 3: Recherche Bay - Extracts from phytolith recovery worksheet

1	2	3	4	5	6	7	8	9	10
Sample #	Slide #	Obs approx. cm	Sample g	Defloc. # of times	HCl	H2O2	Recovered from sieve before N PTH*		Recovered from <2.28 sgY float
							weight g	particle size µ	
Test pit 1									
Context									
5	965		5	16			0.11	<1700	0.06
8	966		5	19			0.08	<1410	0.08
11	967		5	19			0.12	<1700	0.10
Core 2		16.8							
top	968		5	18			0.13	<710	0.11
bottom	969		5	15		reaction	0.40	>4200	0.13
Core 3		43.7							
Sect.1 top	970	25-4.5	5.5w	17			0.09	<1410	0.06
1 bottom	971	7.5-9.5	5.5w	18			0.30	<1410	0.14
2 top	972	12.5-14.5	5.5w	17			0.71	<2000	0.13
2 bottom	973	18.5-20.0	5.5w	17			0.30	<2000	0.10
3 top	974A	21.5-23.0	5.5w	15		reaction	0.79	>4200	0.09
3 bottom	974B	25.5-27.0	5.5w	15			0.87	<2000	0.09
4 top	975	34.0-35.5	5.5w	17		reaction	0.22	<2000	0.10
4 bottom	976	39.0-40.5	5.5w	17			0.35	<1410	0.09
Core 7		40.6							
Section 1	977		5.5w	19			0.06	<1000	0.10
Section 2	978		5.5w	19			0.17	<2000	0.05
Section 3	979		5	20			0.08	<1410	0.08
Section 4	980		5	20			0.04	<1410	0.06

*NPTH - Sodium polytungstate heavy liquid at 2.28 sg ° - Includes biogenic silica and other material w - wet sample

Table 4: Recherche Bay - Construction of a wet/dry index from presence of fan phytolith morphology

Fan morph.	1	2	3	4	5	6	8	10	11	12	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
Test Pit 1																												
965	x		x		x	x					x	x																
966	x	x	x	x	x	x	x	x	x	x																		
967				x					x	x	x		x	x	x	x												
Core 2																												
968				x										x			x	x	x	x	x	x	x	x	x	x		
969			x		x	x											x				x		x	x	x	x		
Core 3																												
970				x						x													x					
971																												
972	x			x	x		x			x		x			x	x	x	x		x					x	x		
973		x								x			x								x					x	x	
974A			x		x	x								x							x							
974B		x																				x						
975				x			x	x										x	x							x		
976	x									x												x		x		x		
Core 7																												
977		x		x		x			x					x					x	x	x					x	x	
978			x		x		x													x		x			x	x	x	
979					x																					x		
980																										x	x	x
		4	5	4	7	7	5	4	2	4	5	2	2	2	4	2	2	4	7	2	7	2	4	2	4	8		

Morphology #	TP1	77	9	13	32	37	38	48	51	54	57	60	65													12
unique to Total	C2	32	9	13	14	41	42	46	48	50	60	61	62													41
fan phytoliths	C3	36	37	38	40	55	56	57	58	59																9
present Median	C7	51	52	53	54																					15
Wetter		220																								
sediments Single		110																								
morphology #	W																		63	64	65					

Bowdery 4
November 2006

45	46	47	49	50	52	53	55	56	58	59	61	62	63	64	12 single occurrences	Total	Index (1=wettest)	
																6	D16	
															3	13	D8	
																8	D13	
																10	D12	
															1	14	D7	
															2	8	D13	
																4	D17	
x																21	W2	
																11	D11	
x	x	x														15	W6	
																8	D13	
	x	x	x	x											1	16	W5	
	x		x	x												12	D10	
					x	x	x	x								2	21	W2
x					x	x	x	x	x	x	x	x	x			2	22	W1
			x		x	x	x	x		x	x		x	x			13	D8
		x			x	x	x		x		x	x	x	x		1	18	W4
3	3	3	3	2	3	4	4	3	2	2	3	2	3	2	12	220		

Table 5: Recherche Bay - Presence of bilobate starch grains in sediments Table 6: Recherche Bay - Presence of grass phytoliths in sediments

Slide #	Bilobate group number									
	1	2	3	4	5	6	8	9	10	
Test Pit 1										
965	x	x	x	x	x	x		x	x	
966	x	x	x			x				
967	x	x	x	x	x	x		x		
Core 2										
968										
969										
Core 3										
970										
971	x									
972			x			x	x	x		
973			x	x		x	x	x		
974A										
974B										
975	x	x				x				
976			x			x				
Core 7										
977	x		x	x		x	x	x		
978	x	x	x		x	x		x		
979			x			x	x	x	x	
980	x									x

4
0
2
0
0
4
1
0
1
0
0
6
0
0
0
1
0

Figure 1: Recherche Bay - Sketch map of French Garden sediment samples area

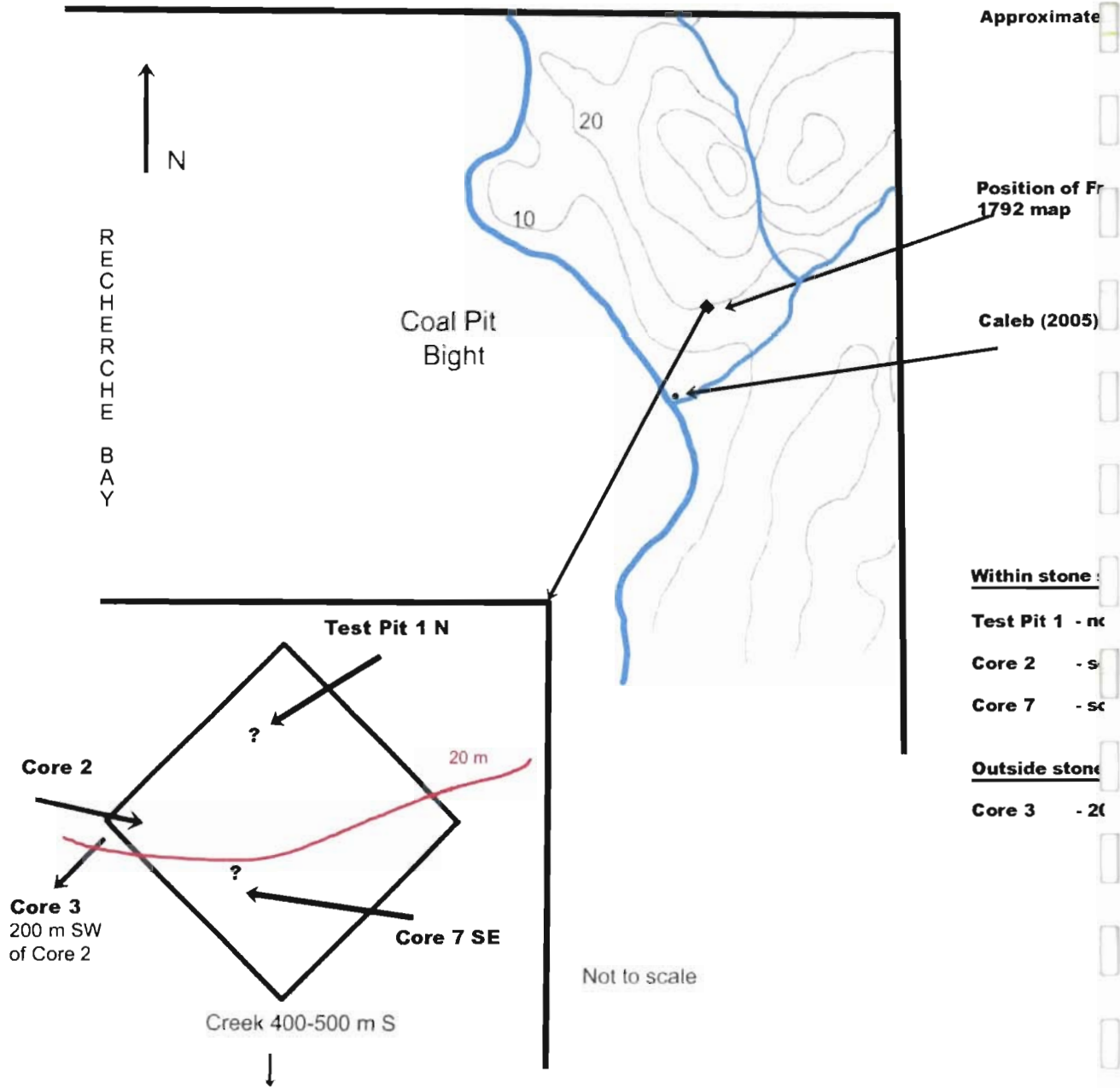
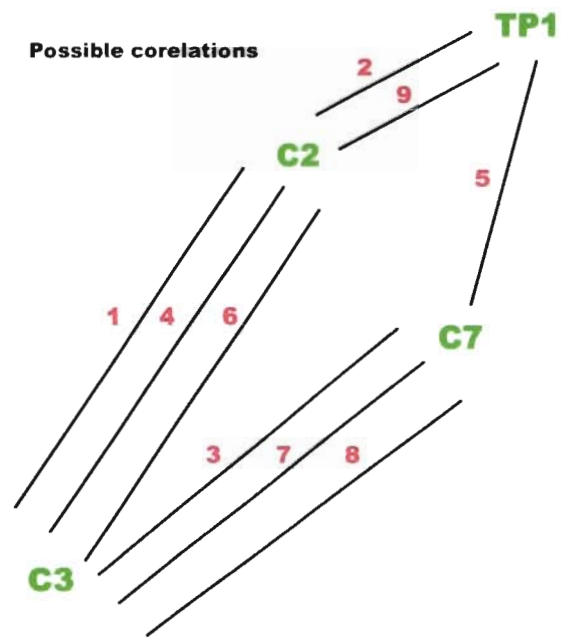


Figure 2: Recherche Bay -Tentative correlations between sediment sites



Line	Source		Inside garden	Outside garden
1	Table 3	Coarser micro morphology	C2 (969) <16.8 cm	C3 (974A) >21.5 cm
2	Table 4	Drier sediments	TP1 (965-6) C2 (968-9)	
3		Wetter sediments	C7	C3
4	Table 5	Absence of small bilobate phytoliths	C2 (968-9)	C3 (970, 974A-B)
5		Highest presence of bilobate phytoliths	TP1 (965, 967) C7 (977)	
6		Increase in woody shrubs	C2 (968-9)	C3 (970, 972, 974B-6)
7	noted	Group of morphologies unique to	C7 (977-80)	C3 (973, 974A-5)
8	noted	Possible presence of phytoliths from plants on Delahaye's list		
		White onion	C7 (997-80)	C3 (970-1, 973-4, 976)
		Celery (no correlation)		C3 (976)
9	noted	Highest presence of carbon particles	TP1, C2	

Appendix 3

List and description of artefacts collected on the presumed site of the Espérance facilities in 1793.

Appendix 4

Recherche Bay Archaeological Project 2006 Aboriginal Heritage Report,

By Colin Hughes,

Tasmanian Aboriginal Land and Sea Council

This is a brief report concerning the Aboriginal community's involvement in a project supported by the French and Tasmanian Governments.

The Recherche Bay area contains many values associated with Aboriginal, scientific and environmental values are all present. The Recherche Bay area contains many Aboriginal values such as sites, plants used for foods and crafts, shellfish also used for food and crafts. Recherche Bay was and is Aboriginal land. It was occupied for many generations and is still of immense importance to Aboriginal people.

The Tasmanian Aboriginal Land and Sea Council (TALSC) was requested to participate in the project undertaken by the French and Tasmanian Governments. TALSC contracted Leigh Maynard as the Aboriginal Heritage Officer for the project. An additional TALSC representative, Nathan Maynard, Trainee Aboriginal Field Officer who was on secondment from the PWS, was also present to provide support and assistance to Leigh and to get some training and experience in Aboriginal heritage assessments. Other TALSC Staff, such as Colin Hughes, Manager at the time, and Emma Lee, Project Manager, visited the project from time to time.

The French archaeologist, Dr J.C. Galipaud, had obtained a permit under the Aboriginal Relics Act 1975 (permit no: 06/04) to "interfere and remove Aboriginal Relics found in a secondary or non insitu context as part of the archaeological excavations relating to the investigation of the 1792 & 1793 D'Entrecasteaux expedition to Recherche Bay, Southern Tasmania". Permit conditions included:

- 'The interference and removal of Aboriginal relics is only permitted when they are found in a secondary on non in-situ context during the excavations being undertaken for the investigations into the 1792 – 1793 D'Entrecasteaux expedition.'
- 'Middens and in-situ Aboriginal Relics are not covered by this permit. In-situ relics are not to be impacted in any way. If a determination is required on whether a relic is in-situ the Manager TALSC and the Manager Aboriginal Heritage Services (AHS) are to be contacted for advice.'
- 'Any Aboriginal Relics removed during the course of the excavation are to be fully recorded using standard archaeological recording practices and Aboriginal Heritage Office recording forms. At completion of recording, all Aboriginal relics removed are to be returned to the location they were excavated from unless otherwise arranged with the Manager, AHS branch and the Manager TALSC.'
- 'Excavations undertaken must be monitored by an Aboriginal Heritage Officer and/or Trainee Aboriginal Field Officer. Excavations must not proceed unless an Aboriginal Heritage Officer or Trainee Aboriginal Field Officer are present.'

Leigh and Nathan were present during all excavations undertaken by the French and Tasmanian Team; they also surveyed a large area of Recherche Bay with the French Team. Leigh and Nathan's job was to ensure that any Aboriginal sites located were recorded and to create TASI records as necessary and to ensure that the excavations did not impact upon any Aboriginal site. Leigh and Nathan reported that the survey and all aspects of the project were conducted in line with the recommendations and wishes of the Tasmanian Aboriginal Land and Sea Council Committee.

The TALSC representatives were part of a French and Tasmanian Team consisting of employees from Heritage Tasmania and the archaeological representatives from the French Government.

The Heritage Tasmania participants were:

Project support co-ordinator: Anna Gurnhill

Project support: Pete Smith (Manager), Angela McGowan, Allison Ryland, Ester Guerzoni, David Young and Marcia Calder.

The French team participants were:

Dr. Jean-Christophe Galipaud, Antoine de Biran, Rufino Pineda, Xavier Coquaud, Antoine Badoc

During the project Greg Jackman, Port Arthur Historic Site Management Authority (Historical Archaeologist) attended and participated in the project.

There has been a considerable interest in the Recherche Area by local historians and the Aboriginal community. Because of this interest the representatives of the French Government were approached to participate in an assessment of the French landing in 1792. Local historians had indicated that they had identified the location of a number of the original French sites created by Rear Admiral d'Entrecasteaux, Commander Huon de Kermadec and their men when they spent some time in the area aboard their vessels Recherche and Esperance. The expedition gardener Felix de la Haie constructed a garden planting European vegetables and trees. The French returned again in 1793, during this return they had friendly contact with the local Aboriginal people.

The project was created to assess whether the locations identified by the local historians were in fact the sites created by the French in 1792 and 1793. The French archaeologists were tasked to undertake the assessment due to their knowledge and expertise regarding Rear Admiral d'Entrecasteaux. The TALSC was involved due to the Aboriginal heritage issues in the area and to provide an indigenous perspective on the project.

Apart from some procedural issues the project went reasonably well and there were no Aboriginal heritage issues encountered during the project that required intervention or discourse. Both the French and Tasmanian Teams were prepared to consider and deal with the Aboriginal heritage issues that might have arisen in a professional and expeditious manner.

Dr Galipaud excavated all areas with the exception of the Mott's Beach excavation, this was due to the Manager TALSC Colin Hughes and Aboriginal Heritage Officer Leigh Maynard being present at the excavation, and determined that this was in fact an in-situ

site, due to a layer of midden material being present in the excavation trench, therefore excavation was stopped as this would have been a breach of the permit conditions.

The project consisted of the following French site assessments:

Site 1 The garden of Felix de la Haie (1792). Works planned includes archives research, geophysical and historical survey of potential site, geo physical and archaeological survey of other possible locations.

Site 2 Recherche and Esperance (?) forge charcoal and work facilities at Mott's Beach. There is a possibility that the grave of Gunner Boucher is located along this shore. Works planned here are mapping of the area a geo physical exploration and archaeological test excavations.

Site 3 Grave of Gunner Boucher .Works planned here are research available documents, a geo physical survey of the area

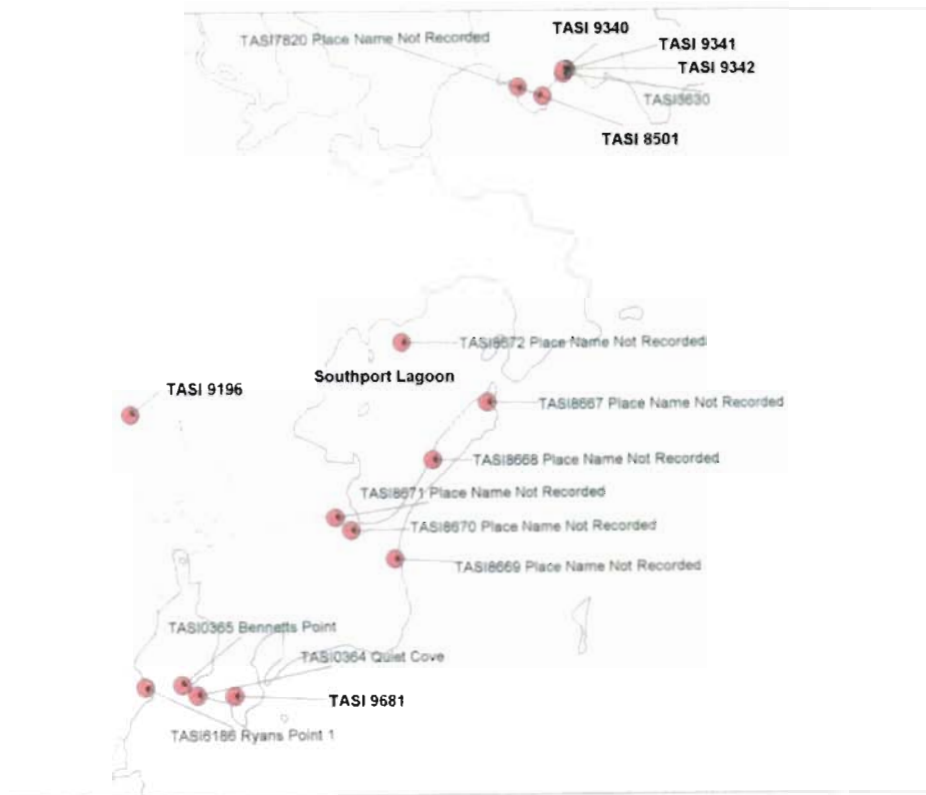
Site 4 Rocky Bay Observatory of Boat Esperance in 1793. Works planned are a geo physical exploration eventually followed by limited archaeological excavations.

There have been many Aboriginal sites identified in the Recherché Bay area. They have consisted of mainly middens and stone artefacts, both isolated and scatters. Two sites have been identified as stone cairns. All these sites indicate a long association with the area by the Aboriginal community. The area also contains shells that are used for shell necklaces. Other resources abound in the area, both terrestrial and water. The middens indicate the abundance of shell fish, land animals and stone resources.

The Aboriginal sites have been impacted by two hundred years of non indigenous activity, but are still findable if you know where to look. Some sites are easily visible and others are now only subsurface, but they are still present in extensive numbers.

The Aboriginal people at the time of the first French expedition were the Lyluequonny.

Below is the information contained in the Tasmanian Aboriginal Site Index (TASI).



17 Aboriginal sites recorded around Southport Lagoon.

**Brief for Tasmanian Aboriginal Heritage Officer
Recherche Bay Archaeological Project**

April / May 2006

BACKGROUND TO THE PROJECT

Project scope

A Tasmanian Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer are required to work in collaboration with a team of French and Tasmanian archaeologists for the duration of the Recherche Bay Archaeological Project April / May 2006, and to oversee all aspects of the project pertaining to Aboriginal heritage. The Aboriginal Heritage Officer will be responsible for supervising the Trainee Aboriginal Heritage Officer.

The archaeological project is designed to identify and better understand sites associated with the d'Entrecasteaux visits to the Recherche Bay area in 1792 and 1793; to evaluate their significance, and to ensure that appropriate protection, management, conservation and interpretation strategies for the wider Recherche Bay area are able to be developed.

The French d'Entrecasteaux expedition visited the northern and southern shores of Recherche Bay for a period of 22 days in 1792 and again in 1793. Since this time, whaling, mining, convict and timber-getting activities have also featured strongly in the history of the area.

Recent reports, (Heritage Tasmania, 2005 'Historic Heritage Assessment Report in the Cockle Creek East and Rocky Bay Area of Recherché Bay', & MacFie, P 2006, 'The Evolution of Some Historic Sites – NE Peninsula and Western Shore, Recherché Bay', report for Heritage Tasmania) provide an overarching historical profile of the wider Recherche Bay area and will be used to inform the project.

Historic heritage sites not directly associated with the eighteenth century d'Entrecasteaux visits but of relevance for the general history of Recherche Bay will be recorded and surveyed by a Tasmanian historical archaeologist.

Recherche Bay Archaeological Project objectives

The archaeological potential of the d'Entrecasteaux sites (see below for description of sites) include the remains left by the French sailors at their shore facilities (charcoal burning stations, forge, etc..) and the grave of the gunner Laurent Boucher.

In addition, the remains of subsequent layers of history, including whaling, convict activities, coal mining and timber-getting, are expected to be evident.

The specific research questions intended to be addressed through this project concern the nature of the d'Entrecasteaux shore facilities and the activities which have been performed there. Of particular importance will be an understanding of the way in which the shore facilities in 1793 were organised, and an understanding of the garden site of 1792.

This project has the potential to contribute to an understanding of Tasmania's early European history through the study of these visits at Recherche Bay in 1792 and 1793. An important focus will be determining the location of the different sites visited by the French. This will add to and/or validate specific knowledge of an important part of this early history.

To maximise the chances of success, both geophysical and archaeological methods will be used. Archaeological excavations will be kept to a minimum in order to limit as much as possible the impact of the research work on the sites.

The project also seeks to understand subsequent layers of history at the sites visited by the d'Entrecasteaux expedition.

Project Team

The Recherche Bay project team will comprise:

- Dr Jean-Christophe Galipaud, Principal archaeologist and ethnohistorian, Head of Archaeology dept., Research Institute for Development (IRD), Nouméa, New Caledonia
- Dr. Antoine de Biran, geophysicist, Haines Surveys, Australia
- Rufino Pineda, geologist, lecturer in geology, Natural History Museum, Paris
- Heritage Tasmania staff member(s)
- Aboriginal Heritage Officer
- Trainee Aboriginal Heritage Officer
- Tasmanian historical archaeologist – Greg Jackman
- A small number of volunteers

The team leader is Dr Galipaud.

Study Area

Several areas of Recherche Bay are of interest for the study of the 1792 and 1793 d'Entrecasteaux exploration. Sites both in Pigsties Bay (Baie du Nord visited in 1792) and in Rocky Bay (Baie du Sud visited in 1793) are of potential significance for this study. Most sites are well documented and can be readily located. A few sites are difficult to locate today because of their remoteness, the lack of information, or both. This is especially the case with two significant places, the 1792 garden of Delahaye and the 1793 grave of Boucher (outlined below).

There will initially be four exploratory trench sites, with the possibility of more. At each

site the precise location of, and the number of trenches of approximately one by one metre each, will depend upon the results of the geophysical exploration.

SITE 1: The garden of Delahaye (1792)

This site has been potentially identified by Bob Graham and Helen Gee who found a stone structure in 2003 and is registered on the Tasmanian Heritage Register. However, a 2005 visit by Dr Galipaud and colleague H. Richard (Director of Collections, National Library of France) suggested that the structure might not be the described garden of Delahaye and that more research was needed in and around the potential garden structure as well as in the archives held in France to allow a firm identification. The planned 2006 work on this site will include archival research (prior to fieldwork), geophysical and archaeological survey / assessment of the stone structure and geophysical and archaeological survey / assessment of other possible locations.

Confirmation of the status of the stone structure is a primary focus of this research. In addition, it is intended that this project confirms whether the stone structure at this site is the 1792 French garden and, if not, if the correct site of the garden can be located elsewhere in the vicinity.

SITE 2: Recherche and Espérance (?) forge, charcoal and work facilities at Motts Beach (1793)

In 1793, it is possible that both vessels decided to have their onshore facilities at the same place. Motts Beach was chosen as the shore facilities of the *Recherche* and possibly also the *Espérance*, for its ease of access, shelter and close availability of wood and water. The 1793 shore based activities associated with the place included a forge, a charcoal burning facility, a cloth washing area and a tent for the ill. As most of the operational activity in 1793 (relating to at least the *Recherche* if not also the *Espérance*), apart from the research, was concentrated along this beach, this place provides high potential to assess the history of this second port of call. For the same reason, there is also a possibility that the grave of gunner Boucher (Site 4) is located in the immediate vicinity of the shore camp at Motts Beach. The proposed 2006 research will include a mapping of the area, a geophysical exploration and archaeological test excavations.

SITE 3: Rocky Bay observatory of boat Espérance in 1793

In 1793, the crews of the *Recherche* and the *Espérance* set up their observatories on two nearby points on the east side of Rocky Bay. The *Recherche* observatory was set up on Snake Point while the *Espérance* observatory was on the adjacent point, toward the bottom of the bay. Scientists decided on the location of their observatories to fulfil their scientific needs. Sailors had to install facilities on shore to carry out maintenance work. In 1793, the main shore facility was on Motts Beach (Site 2). It is however unclear from the available written accounts whether the Motts Beach facility was the only one. There is in at least one instance an indication that a forge facility was set up close by the *Espérance* observatory. If this proves to be true, the surroundings of this observatory are also a likely area for the search of Site 4, the grave of gunner Boucher, who was on-board the *Espérance*.

The planned work on this site in 2006 will include a geophysical exploration, possibly followed by limited archaeological excavations.

SITE 4: Grave of gunner Laurent Boucher (1793)

This site is of particular historical significance as Laurent Boucher was the first European to be buried in Tasmania. His grave, if it can be located, will be a special landmark of the first contact history of the region. This will be a difficult task given the size of the potential area, the later development and the lack of archival information concerning the inhumation. Available documents will be compiled prior to the fieldwork commencing. The fieldwork will be a rapid geophysical survey of a known grave at Planter's Beach to assess the geophysical signature of this feature in the Recherche Bay coastal environment.

The Whaler's grave is that of Samuel Pryat who died in the 1800s (exact date unsure, but prior to 1833). Its GDA 66 reference is: E492940 N5175340, and is located at Planter's Beach. There were at least another eight whaler burials in the immediate area, though these are now unmarked.

Note 1: Works Approval for the project has been obtained from the Tasmanian Heritage Council, under Section 32 of the *Historic Cultural Heritage Act 1995*.

Note 2: A permit to disturb non in-situ Aboriginal relics under the *Aboriginal Relics Act 1975* has been lodged with the Aboriginal Heritage Office and the Tasmanian Aboriginal Land and Sea Council (TALSC). The TALSC Committee at their meeting 4 April 2006 were briefed in regards to this project and the permit application. The Committee endorsed the project and application on the provision that two Aboriginal Heritage Officers are employed for the duration of the Project. A copy of the permit signed by the Minister will be made available to the Aboriginal Heritage Officer.

Service Required

Level of responsibility:

- Manage all aspects of the project relating to Aboriginal heritage
- Supervise and be responsible for the Trainee Aboriginal Heritage Officer

Major Duties:

1. Manage Aboriginal heritage issues for Dr Galipaud and all team members
2. Advise Dr Galipaud and team members on all aspects of the project pertaining to Aboriginal heritage
3. Liaise with the Aboriginal Heritage Office, DTAE and TALSC as necessary
4. Provide authoritative expert advice to Dr Galipaud and team members on Aboriginal heritage best management practices
5. Provide authoritative expert advice to Dr Galipaud and team members regarding the administrative and legislative requirements of the *Aboriginal Relics Act 1975*

6. Undertake a TASI and other relevant background searches for the project site area, prior to fieldwork commencing
7. Manage and undertake field examination, recording and assessment of Aboriginal heritage sites according to the requirements of the Aboriginal Heritage Office, DTAE and TALSC
8. Create Tasmanian Aboriginal Site Index (TASI) site records as necessary, according to the requirements of the Aboriginal Heritage Office, DTAE and TALSC
9. Provide an appendix, of a professional standard, to the report prepared by Dr Galipaud, including reporting on Aboriginal heritage values and sites identified during the project
10. Assist other team members, as required by the team leader
11. Supervise and be responsible for the Trainee Aboriginal Heritage Officer
12. Participate in an induction session at Heritage Tasmania prior to the commencement of the fieldwork
13. Participate in a debriefing session at Heritage Tasmania on the conclusion of fieldwork

Knowledge and skill requirements:

- o High level ability to identify Aboriginal artefacts, site types and provenance in the field
- o Training in Aboriginal skeletal remains identification
- o High level understanding of best management practices in Tasmanian Aboriginal heritage, as determined by the Aboriginal Heritage Office DTAE, TALSC and the Tasmanian Aboriginal community
- o High level understanding of the administrative and legislative requirements of the *Aboriginal Relics Act 1975*
- o High level written and oral communication skills

Reporting

At the conclusion of the project, Dr Galipaud will provide a final report to the Tasmanian Heritage Council, presenting the findings of the excavation in a comprehensive and systematic framework. The Aboriginal Heritage Officer will be required to provide an Appendix to this report.

The Aboriginal Heritage Officer is required to submit a report within 2 months of the last day of the fieldwork to Dr Galipaud, with a copy to Heritage Tasmania. A final report is required to be submitted within 2 weeks of receiving any comments.

The Aboriginal Heritage Officer must also lodge a copy of his/her final report with the Aboriginal Heritage Office, DTAE and TALSC.

A copy of all published papers and other publications based on this work are to be forwarded to Heritage Tasmania.

Occupational, Health and Safety (OHS)

The Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer will be required to adhere to Departmental OH&S requirements as determined by Heritage Tasmania.

- The Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer are required to provide (in writing or via email) Heritage Tasmania with knowledge of any medical conditions / requirements
- The Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer are required to provide (in writing or via email) Heritage Tasmania with knowledge of any current first aid qualifications
- The Aboriginal Heritage Officer is responsible for the safety and well being of the Trainee Aboriginal Heritage Officer

Note 3: Heritage Tasmania has prepared a Communication Strategy and Job Safety Analysis report (JSA) for the projects fieldwork component. Heritage Tasmania will provide an OH&S induction prior to the commencement of the fieldwork. All team members will be required to attend.

Insurance / Public Indemnity

The Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer are to provide (in writing or via email) Heritage Tasmania evidence that their public indemnity / insurance details are current.

Timing

The duration of the archaeological project is 17 days from Wednesday 19 April to Friday 5 May 2006. Fifteen of these days (day 2-16) will be based in the field, with the remainder two days in Hobart (day 1 & 17). A copy of the projects timetable will be provided.

Logistics

- The Aboriginal Heritage Officer is expected to be on site for the duration of the fieldwork

- o Heritage Tasmania will provide on site accommodation for both the Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer
- o Heritage Tasmania will cover the food costs of the Trainee Aboriginal Heritage Officer
- o Heritage Tasmania will coordinate food, with reimbursements from all team members required (except the Trainee Aboriginal Heritage Officer).
- o Heritage Tasmania will require (in writing or via email) notification of any dietary requirements / allergies prior to the commencement of the fieldwork
- o It is envisaged that the project team will leave Hobart at 12.30 noon Thursday 20 April. Heritage Tasmania can provide transport for the Aboriginal Heritage Officer and Trainee Aboriginal Heritage Officer if needed. If private cars are being taken, Heritage Tasmania will need to be provided with the car make and registration details.

Payment

The Aboriginal Heritage Officer will be paid at a standard rate of \$530.00 per day less daily government food allowance:

- | | |
|--|--------------------|
| o 17 project days @ \$530.00 | \$ 9,010.00 |
| o minus daily government food allowance of \$55.10 x 15 field days | \$ 826.50 |
| o total amount payable | \$ 8,183.50 |

The Aboriginal Heritage Officer will be paid by TALSC, who will then invoice Heritage Tasmania.

The Trainee Aboriginal Heritage Officer will attend the project at their or TALSC own costs – as noted above Heritage Tasmania will cover the Trainee's accommodation and food costs.

**Brief for Tasmanian Historical Archaeologist
Recherche Bay Archaeological Project**

April 2006

BACKGROUND TO THE PROJECT

Project scope

An historical archaeologist is required to work in collaboration with a team of French archaeologists at Recherche Bay in April 2006.

This archaeological project is designed to identify and better understand sites associated with the d'Entrecasteaux visits to Tasmania in 1792 and 1793, to evaluate their significance, and to ensure that appropriate protection, management, conservation and interpretation strategies for the wider Recherche Bay area are able to be developed.

Other heritage sites, not directly associated with the eighteenth century d'Entrecasteaux visits but of relevance for the general history of Recherche Bay will be recorded and surveyed if necessary.

Heritage Tasmania has recently undertaken historic research for the Cockle Creek East region of Recherche Bay, comprising the long-reaching European history of the area. In addition, Heritage Tasmania is currently engaging an historian to undertake research into the layers of history for the North-East Peninsula and Western shoreline of Recherche Bay. Both reports provide an overarching historical heritage profile of the wider Recherche Bay area and will be used to inform the Archaeological project.

The history of the Recherche Bay area dates back to at least 1792, with the French d'Entrecasteaux expedition having visited the northern and southern shores for a period of 22 days respectively in 1792 and again in 1793. Since this time, whaling, mining, convict and timber-getting activities have also featured strongly in the history of the area.

Recherche Bay Archaeological Project objectives

The archaeological potential of the d'Entrecasteaux sites (see below for description of sites) include the remains left by the French sailors at their shore facilities (charcoal burning stations, forge, etc..) and the grave of the gunner Laurent Boucher.

In addition, the remains of subsequent layers of history, including whaling, convict activities, coal mining and timber-getting, are expected to be evident.

The specific research questions intended to be addressed through this project concern the nature of the d'Entrecasteaux shore facilities and the activities which have been performed there. Of particular importance will be an understanding of the way in which the shore facilities in 1793 were organised, and an understanding of the garden

site of 1792.

This project has the potential to contribute to an understanding of Tasmania's early history through the study of these European visits at Recherche Bay in 1792 and 1793. An important focus will be determining the location of the different sites visited by the French. This will add to and/or validate specific knowledge of an important part of this early history.

To maximise the chances of success, both geophysical and archaeological methods will be used. Archaeological excavations will be kept to a minimum in order to limit as much as possible the impact of the research work on the sites.

The project also seeks to understand subsequent layers of history at the sites visited by the d'Entrecasteaux expedition.

Project Team

The Tasmanian historical archaeologist will be working in collaboration with a French government team. The team will comprise:

- Dr. Jean-Christophe Galipaud, Principal archaeologist and ethnohistorian. Head of Archaeology dept., Research Institute for Development (IRD), Nouméa, New Caledonia
- Dr. Antoine de Biran, geophysicist, Haines Surveys, Australia
- Rufino Pineda, geologist, lecturer in geology, Natural History Museum, Paris
- Heritage Tasmania staff member
- Tasmanian archaeologist
- A small number of volunteers
- Aboriginal Heritage Officer

Study Area

Several areas of Recherche Bay are of interest for the study of the 1792 and 1793 d'Entrecasteaux exploration. Sites both in Pigsties Bay (Baie du Nord visited in 1792) and in Rocky Bay (Baie du Sud visited in 1793) are of potential significance for this study. Most sites are well documented and can be readily located. A few sites are difficult to locate today because of their remoteness, the lack of information, or both. This is especially the case with two significant places, the 1792 garden of Delahaye and the 1793 grave of Boucher (outlined below).

There will initially be four exploratory trench sites, with the possibility of more. At each site the precise location of, and the number of trenches of approximately one by one metre each, will depend upon the results of the geophysical exploration.

SITE 1: The garden of Delahaye (1792)

This site has been potentially identified by Bob Graham and Helen Gee who found a stone structure in 2003 and is registered on the Tasmanian Heritage Register. A recent visit by J.C. Galipaud and colleague H. Richard (Director of Collections, National Library of France) in 2005 however suggested that the structure might not be the described garden of Delahaye and that more research was needed in and around the potential garden structure as well as

in the archives held in France to allow a firm identification. The planned work on this site in 2006 will include archives research (prior to fieldwork), geophysical and archaeological survey of the stone structure and geophysical and archaeological survey of other possible locations.

Confirmation of the status of the stone structure is a primary focus of this research. In addition, it is intended that this project confirms whether the stone structure at this site is the 1792 French garden and, if not, if the correct site of the garden can be located elsewhere in the vicinity.

SITE 2: Recherche and Espérance (?) forge, charcoal and work facilities at Motts Beach

(1793)

In 1793, it is possible that both vessels decided to have their onshore facilities at the same place. Motts Beach was chosen as the shore facilities of the *Recherche* and possibly also the *Espérance*, for its ease of access, shelter and close availability of wood and water. The 1793 shore based activities associated with the place included a forge, a charcoal burning facility, a cloth washing area and a tent for the ill. As most of the operational activity in 1793 (relating to at least the *Recherche* if not also the *Espérance*), apart from the research, was concentrated along this beach, this place provides high potential to assess the history of this second port of call. For the same reason, there is also a possibility that the grave of gunner Boucher (Site 4) is located in the immediate vicinity of the shore camp at Motts Beach. The proposed research will in 2006 include a mapping of the area, a geophysical exploration and archaeological test excavations.

SITE 3: Rocky Bay observatory of boat Espérance in 1793

In 1793, the crews of the *Recherche* and the *Espérance* set up their observatories on two nearby points on the east side of Rocky Bay. The *Recherche* observatory was set up on Snake Point while the *Espérance* observatory was on the adjacent point, toward the bottom of the bay. Scientists decided on the location of their observatories to fulfil their scientific needs. Sailors had to install facilities on shore to carry the maintenance work. In 1793, the main shore facility was on Motts Beach (Site 2). It is however unclear from the available written accounts whether the Motts Beach facility was the only one. There is in at least one instance an indication that a forge facility was set up close by the *Espérance* observatory. If this proves to be true, the surroundings of this observatory are also a likely area for the search of site 4, the grave of gunner Boucher, who was on-board the *Espérance*.

The planned work on this site in 2006 will include a geophysical exploration, possibly followed by limited archaeological excavations.

SITE 4: Grave of gunner Laurent Boucher (1793)

This site is of particular historical significance as Laurent Boucher was the first European to be buried in Tasmania. His grave, if it can be located, will be a special landmark of the first contact history of the region. This will be a difficult task because of the size of the potential area, the later development and the lack of information concerning the inhumation. Prior to the fieldwork, available documents are being compiled. The fieldwork will be a rapid geophysical survey of a known grave at Planter's Beach to assess the

geophysical signature of this feature in the Recherche Bay coastal environment.

The Whaler's grave is that of Samuel Pryat who died in the 1800s (exact date unsure, but prior to 1833). Its GDA 66 reference is: E492940 N5175340, and is located at Planter's Beach. There were at least another 8 whaler burials in the immediate area, though these are now unmarked.

Works Approval for the project has been obtained from the Tasmanian Heritage Council, under Section 32 of the *Historic Cultural Heritage Act 1995*.

SERVICES REQUIRED:

The following services are required by the historical archaeologist:

14. To work in collaboration with the French team led by archaeologist Dr Jean-Christophe Galipaud as defined by the attached 'Recherche Bay Archaeological Project Works Application'.
 - Prior to the fieldwork period contact and liaison with Dr Galipaud to collaborate or finalise the scope and services of the Tasmanian archaeological component.
 - Assist with fieldwork relating to the d'Entrecasteaux expedition, including cataloguing of any artefacts found during excavation.
 - To assist with the supervision of volunteers.

15. Field examination and recording of historic sites and materials subsequent to the eighteenth century French visits which are located in the same area as the d'Entrecasteaux shore facilities will be undertaken by the Tasmanian historical archaeologist.
 - To direct the recording and assessment of layers of history subsequent to the d'Entrecasteaux expedition and provide professional historic archaeological advice to the French team.
 - Create Tasmanian Historic Places Index (THPI) site records as necessary.
 - To provide an appendix, of a professional standard, to the report prepared by Dr Jean-Christophe Galipaud, reporting on non-French materials found during the excavations.
 - To provide field notes.

16. The role of the Tasmanian historical archaeologist may involve some positioning surveying and soil sampling, if required by the team leader.

A public talk on findings would be supported by Heritage Tasmania, though is not considered a requirement.

Note that Works Approval for the project has been obtained and that stages 1, 2, 3, and 4.1 in Practice Note 2 are already complied with by Dr. Galipaud's project proposal. The Tasmanian archaeologist will be reporting to Dr Galipaud and to Heritage Tasmania, and is to adhere to the Tasmanian Heritage Council's Practice Note 2 – Archaeological Requirements, including Section 4.2 - Reporting.

Reporting

At the conclusion of the project, Dr Galipaud will provide a final report to the Tasmanian Heritage Council, presenting the findings of the excavation in a comprehensive and systematic framework. The Tasmanian historical archaeologist will be required to provide an Appendix to this report, based on non-French materials found during excavation.

A copy is to be supplied to Heritage Tasmania.

A copy of all published papers and other publications based on this work is to be forwarded to Heritage Tasmania.

Occupational, Health and Safety (OHS)

The Tasmanian historical archaeologist will be required to adhere to Departmental OH&S requirements as determined by Heritage Tasmania, DTPHA.

Timing

The duration of the archaeological project is 18 days during April and / or May 2006. Fourteen of these days will be based in the field, with the remainder in Hobart. The exact dates of the fieldwork are yet to be confirmed, though are expected to be April 12 to April 25.

The historical archaeologist is required to submit a report within 2 months of the last day of the fieldwork, with a final report due within 2 weeks of receiving comments.

Appendix 7 : Permits and Approvals

'Permit to interfere and remove' under the *Aboriginal Relics Act 1975*

Decision under *Environment Protection and Biodiversity Conservation Act 1999*

Authorisation from Parks and Wildlife Service Regional Manager

Works Approval under the *Historic Cultural Heritage Act 1995*

Development permit from Huon Valley Council under the *Land Use Planning and Approvals Act 1993*. Not attached.

'Authority to take abiotic samples for Scientific Purposes' under the *National Parks and Reserved Land Regulations 1999*

'Authority to take plants for scientific purposes' under the *National Parks and Reserved Land Regulations 1999*

ABORIGINAL RELICS ACT 1975

PERMIT TO INTERFERE AND REMOVE

I, Judy Jackson, being the Minister administering the *Aboriginal Relics Act 1975*, acting on the advice of the Director of National Parks and Wildlife, do hereby grant to:

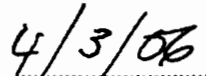
Dr Jean-Christoph Galipaud

a permit under Section 14 of the said Act to interfere and remove Aboriginal relics found in a secondary or non *in-situ* context as part of the archaeological excavations relating to the investigations of the 1792 & 1793 D'Entrecasteaux expedition to Recherche Bay, Southern Tasmania.

This permit is granted upon the following terms:

1. This permit has no effect if, to the knowledge of the holder, a relic to which it relates has been acquired or dealt with in contravention of the *Aboriginal Relics Act 1975*.
2. This permit will apply from 13 April 06 to 13 April 07.
3. The interference and removal of Aboriginal relics is only permitted when they are found in a secondary or non *in-situ* context during the excavations being undertaken for the investigations in to the 1792 & 1793 D'Entrecasteaux expedition.
4. Middens and *in-situ* Aboriginal relics are not covered by this permit. *In-situ* relics are not to be impacted in any way. If a determination is required on whether a relic is *in-situ* the Manager TASLC and the Manager Aboriginal Heritage Services (AHS) are to be contacted for advice.
5. Any Aboriginal relics removed during the course of the excavation are to be fully recorded using standard archaeological recording practices and Aboriginal Heritage Office recording forms. At completion of recording all Aboriginal relics removed are to be returned to the location they were excavated from unless otherwise arranged with the Manager, AHS Branch and the Manager of TALSC.
6. This permit does not cover Aboriginal skeletal material; if Aboriginal skeletal material or suspected Aboriginal skeletal material is uncovered, work must stop immediately and the Manager of TALSC must be contacted for advice.
7. As agreed to by Heritage Tasmania and the Manager TALSC, excavations undertaken must be monitored by an Aboriginal Heritage Officer and or Trainee Aboriginal Field Officer. Excavations must not proceed unless an Aboriginal Heritage Officer or Trainee Aboriginal Field Officer are present.
8. This permit does not authorise any other activity on any other Aboriginal relic.


.....
Minister for Parks and Heritage


.....
Date

COMMONWEALTH OF AUSTRALIA

ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

DECISION THAT ACTION IS NOT A CONTROLLED ACTION

I, ALEX RANKIN, Assistant Secretary, Environment Assessment Branch, Department of the Environment and Heritage, a delegate of the Minister for the Environment and Heritage for the purposes of section 75 of the *Environment Protection and Biodiversity Conservation Act 1999*, decide that the proposed action, set out in the Schedule, is not a controlled action.

SCHEDULE

The proposed action to undertake an archaeological investigation, including geophysical and archaeological surveys, designed to identify and better understand sites associated with the d'Entrecasteaux visits to Tasmania in 1792 and 1793, in particular the French Garden, Recherche Bay, Tasmania, and as described in the referral received under the Act on 21 February 2006 (EPBC 2006/2618).

Dated this 22nd day of MARCH 2006



**ASSISTANT SECRETARY
ENVIRONMENT ASSESSMENT BRANCH
DEPARTMENT OF THE ENVIRONMENT AND HERITAGE**



Parks and Wildlife Service Tasmania
DEPARTMENT of TOURISM, PARKS,
HERITAGE and the ARTS

RAA Ref No:	57
HO File:	
Region File:	
Status:	<input type="checkbox"/> Draft <input checked="" type="checkbox"/> Final

Reserve Activity Assessment

Project title:	Recherche Bay Archaeological Project April 2006
Initiating Agency/Organisation:	Heritage Tasmania, DTPHA
Initiating Person:	Allison Ryland on behalf of Dr Jean-Christoph Galipaud
Initiating Person's Contact Phone No.:	6233 7117
PWS Contact Officer:	Michael Garner (with assistance from Ann McCaig and Timothy O'Loughlin)
PWS Officer Contact Phone No.:	62648467
Date Generated:	10 February 2006
Decision Required By:	10 March 2006

Attachments

No.	Description/Details of Attachment eg. maps, photos, reports
1	'Recherche Bay Archaeological Project Works Application' submitted to the Tasmanian Heritage Council / includes site maps
2	Site location maps
3	Tasmanian Heritage Council Archaeological Practice Note 2 (approved in principle by the THC - awaiting images and editing)
4	Tasmanian Heritage Council Practice Note 11 Managing the Heritage Values of Cemeteries
5	RAA Natural Values Report

8. District Manager's Decision

Senior Ranger:
Supported/Not supported by:
Name:
Signature:
Date:

PROJECT APPROVED

PROJECT APPROVED, SUBJECT TO THE FOLLOWING CONDITIONS:

- Prepare and submit business plan (refer to templates at www.projectmanagement.tas.gov.au)
- Prepare and submit communications plan.
- Prepare and submit risk assessment/job safety analysis.
- Other

PROJECT NOT APPROVED

- The proposed activity conflicts with the statutory management objectives of the reserve category in which it is proposed.
- The proposed activity contravenes an existing planning document. State policy or strategy.
- The proposed activity is likely to cause unacceptable environmental or social impacts.
- Other

Authorised by:

A / Regional Mgr South.

Name: *DAVID WHITEAW.*

Signature: *[Signature]*

Title: Regional Manager

Date *24/03/06.*

Note: AHO support the RAA provided that no works are undertaken prior to a permit under the Aboriginal Relics Act is granted by the Minister.

[Signature]

Tasmanian Heritage Council

134 Macquarie St or
GPO Box 618 Hobart Tasmania 7001
Phone: 1300 850 332 (local call cost) or (03) 6233 2037
Fax: (03) 6233 3186 email: enquiries@heritage.tas.gov.au

Ref: 10173 Application No: 2278
Local Council Development Application No: PLA 2/2006
22/02/2006

COPY

General Manager
Huon Valley Council
PO Box 210
Huonville 7109

NOTICE OF DECISION

La Haie's Botanic Garden, Adjacent to Coal Pit Bight, Recherche Bâ, Southport

The Tasmanian Heritage Council advises you that, in accordance with section 39 of the Historic Cultural Heritage Act 1995, the decision for the proposed works is as follows:

This Works Application is approved subject to the following condition:

1. that the work be in accordance with the Tasmanian Heritage Council's Practice Note 2 (archaeological notes).

This approval is valid for a period of two years from the date of this notice, at which time the approval will lapse unless substantial commencement has occurred.

The Act requires the Local Government Authority to serve notice of the decision on the applicant and any person who made a submission. Copies of the decision are enclosed for this purpose.

The Act provides that the applicant or any person may appeal to the Resource Management and Planning Appeal Tribunal. An appeal is to be made in writing and lodged with the Tribunal within 14 days after this notice of decision is given. The Appeal Tribunal can be contacted on 6233 6464.

Note: (1) This may not be the only permit needed. The applicant should check with the Local Planning Authority as a planning, building or plumbing permit may also be required. (2) The Heritage Council conducts regular compliance audits to ensure that works are being carried out in accordance with its decisions. The Act provides for severe penalties for non-compliance with a Heritage Council directive.

Yours sincerely

Dianne Snowden
Dr Dianne Snowden
Acting Chair
Tasmanian Heritage Council

www.heritage.tas.gov.au



DEPARTMENT of PRIMARY INDUSTRIES, WATER and ENVIRONMENT
AUTHORITY TO TAKE ABIOTIC SAMPLES FOR SCIENTIFIC PURPOSES

Authority No. ES 06401

Issued in accordance with Regulation 18 (2) of the National Parks and Reserved Land Regulations 1999 and Regulation 22 of the Crown Lands Regulations 2001

Dr. Jean-Christophe Galipaud
Principal archaeologist and ethnohistorian
Archaeology Department, Research Institute for
Development (IRD), Nouméa, New Caledonia.

Inquiries : Michael Askey-Doran
Phone : 6233 5058
Fax : 6233 3477
Our Ref. : File: 50-34-13
Email : jason.bradbury@dpiwe.tas.gov.au

is authorised to take up to 10 kg of soil samples
from Southwest National Park, Recherche Bay Nature Recreation Area, or
D'Entrecasteaux Watering Place Historic Site

subject to the conditions in Schedule 1 (overleaf)

This authority is valid only from 1/4/2006 to 30/5/2006

Issued by Michael Askey-Doran Date 20/3/06

Michael Askey-Doran

Delegate of the Director National Parks and Wildlife

Parks and Wildlife Service Consent

To enable collection on reserved land (if provided for above), this authority must be signed below by the relevant Regional Manager, Parks and Wildlife Service (Department of Tourism, Parks, Heritage and the Arts).

Signature [Signature] Date 10/04/06

Name DAVID WHITEHEAD Title A/RM SOUTH

SCHEDULE 1 Conditions of authority

1. This authority is to be carried while collecting and produced on demand by an authorised officer.
2. Samples may only be collected by the permit holder or under their closely supervised direction.
3. The taking of samples for commercial gain is not permitted.
4. The taking of multiple samples for distribution or the distribution of sample splits is not permitted, excepting that samples may be submitted either whole or in part to a third party laboratory for any analysis specified by the permit holder.
5. No battery, petrol, explosive or otherwise powered tools, machinery or devices are to be used for sampling.
6. Any excavations are to be refilled and rehabilitated prior to expiry of this permit.



DEPARTMENT of PRIMARY INDUSTRIES, WATER and ENVIRONMENT
AUTHORITY TO TAKE ABIOTIC SAMPLES FOR SCIENTIFIC PURPOSES

Authority No. ES 06401

Issued in accordance with Regulation 18 (2) of the National Parks and Reserved Land Regulations 1999 and Regulation 22 of the Crown Lands Regulations 2001

7. A copy of any report, thesis, scientific paper or similar work produced as a result of this research must be supplied to the DPIWE geoscientist within four weeks of completion or publication. If no such work has been completed within 12 months of expiry of this permit then an interim report documenting the progress of sample analysis is required by that date. Due consideration will be given to any request that such an interim report be held on a confidential basis.
8. Type specimens or significant samples must be lodged with curated institutional collections (e.g. university, geological survey or museum) within two years of collection. Preference must be given in the first instance to lodgement with Tasmanian institutions. The DPIWE geoscientist is to be advised of the location of all samples.
9. Permission must be obtained from land owners or land managers prior to entering their land to take the specified samples. The Parks and Wildlife Service Huonville field centre (6264 8460) must be notified before taking or collecting on reserved land.
10. The permit holder and any associated persons are to abide by any directive issued by any other relevant authority including landowners regarding access authority, quarantine, wildlife, heritage, safety, interpretation of this permit and any other relevant matters.

SCHEDULE 2 Joint Permit Holders

Greg Jackman
Historical Archaeologist
Port Arthur Authority
6251 2336 / 0407 339 118
greg.jackman@portarthur.org.au



Tasmania

DEPARTMENT of PRIMARY INDUSTRIES, WATER and ENVIRONMENT

AUTHORITY TO TAKE PLANTS FOR SCIENTIFIC PURPOSES

Authority No. FL 06427

Issued in accordance with Regulation 18 (2) of the National Parks and Reserved Land Regulations 1999 and issued in accordance with Regulation 22 (1) of the Crown Lands Regulations 2001

Dr. Jean-Christophe Galipaud
Head of Archaeology Dept.
Research Institute for Development (IRD)
Noumea, New Caledonia

Inquiries : Naomi Lawrence
Phone : 6233 6311
Fax : 6233 3477
Our Ref : File 50-34-14
Email : naomi.lawrence@dpiwe.tas.gov.au

is authorised to take
Native plant specimens

from

Land reserved under the Nature Conservation Act 2002 and the Crown Lands Act 1976 in the Parks and Wildlife Southern Region around Recherche Bay as shown on the 3 attached maps

subject to the conditions in Schedule 1 (overleaf)

This authority is valid only from 1/4/2006 to 31/5/2006

Issued by Naomi Lawrence Date 21/03/06

Naomi Lawrence

Delegate Of The Director National Parks And Wildlife And Bailiff Of Crown Lands

Parks and Wildlife Service Consent

To enable collection on reserved land (if provided for above), this authority must be signed below by the relevant Regional Manager, Parks and Wildlife Service (Department of Tourism, Parks, Heritage and the Arts).

Signature [Signature] Date 24/03/06

Name DAVID WHITELAW Title A/ Regional Mgr South