



Northern Beaches Health Service Redevelopment
A new wave in healthcare

Northern Beaches Hospital

Stage 1: Concept Design, Site Clearance & Preparatory Works

Appendix F

Aboriginal Heritage

Northern Beaches Health Services, Frenchs Forest: Aboriginal Heritage Impact Assessment

Prepared by Australian Museum Business Services
for SMEC Australia Pty Ltd

Final Report

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Executive Summary

Australian Museum Business Services (AMBS) has been commissioned by SMEC Australia Pty Ltd (SMEC) to prepare an Aboriginal heritage impact assessment (AHIA) for the proposed Northern Beaches Hospital Development, Frenchs Forest. This AHIA will form part of the Environmental Impact Statement (EIS) prepared by SMEC for Health Infrastructure NSW in accordance with Schedule 2 of the *Environmental Planning & Assessment Regulation 2000*.

The Northern Beaches Hospital Development site comprises two areas in Frenchs Forest. The Bantry Bay Road area is bound by Wakehurst Parkway, Warringah Road and Frenchs Forest Road West. The second area is southeast of the Bantry Bay Road area, on Aquatic Drive east of the block on the corner of Madison Way and west of the Cerebral Palsy building. The aim of the Northern Beaches Hospital Development is to consolidate a number of medical and ancillary services, currently dispersed over a number of areas, into one facility at Frenchs Forest. A multi-storey hospital building is to be constructed to house over 250 beds, multiple operating theatres and space for associated and ancillary services on the Bantry Bay Road study area. Options are under investigation for use of the Aquatic Drive study area as an offset area for the Duffys Forest Endangered Ecological Community to mitigate biodiversity impacts on the hospital site.

Aboriginal community consultation was undertaken in accordance with the OEH *Aboriginal Cultural Heritage Consultation Requirements For Proponents 2010*. Following consultation with registered Aboriginal community groups (for details regarding consultation, see Section 3), a survey of the study area was conducted on 21 August 2012 by AMBS archaeologist Jenna Weston, accompanied by Aboriginal community representatives.

No Aboriginal sites were identified within the study area during the survey. The high level of disturbance observed within the major part of the study area, and the apparent lack of substantial intact topsoil, indicates that there is unlikely to be any archaeological potential for intact or substantial Aboriginal stone artefact deposits. As such, there is low potential for the recovery of *in situ* Aboriginal objects, and low research potential; however, it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. It is noted that this area within the designated road reserve for Wakehurst Parkway is likely to be left intact in an effort to retain some vegetation.

Recommendation 1

Should any impact be proposed to the currently obscured sandstone outcrops in the north eastern section of the Bantry Bay Road study area, pre-construction vegetation and soil clearing should be undertaken in this area to allow an appropriate level of archaeological inspection for any art/engraving sites. Vegetation and soil clearance should be undertaken with care, to limit any disturbance to any unidentified Aboriginal art/engraving sites that may be present. Once cleared, this area should be inspected for Aboriginal art/engraving sites by an archaeologist, in conjunction with registered Aboriginal stakeholder representatives. If any Aboriginal sites are identified during this inspection, they should be recorded, and an appropriate course of action for the mitigation of construction impacts should be determined, prior to any disturbance of the sandstone outcrops.

The remainder of the study area is unlikely to retain Aboriginal objects; however, should any Aboriginal objects be exposed during construction works, then excavation or disturbance of the area should cease and the Cultural Heritage Division of OEH should be informed in accordance with Section 91 of the NPW Act. Works should not continue without the written consent of OEH.

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1 Introduction

1.1 Preamble

Australian Museum Business Services (AMBS) has been commissioned by SMEC Australia Pty Ltd (SMEC) to prepare an Aboriginal heritage impact assessment (AHIA) for the proposed Northern Beaches Hospital Development, Frenchs Forest. This AHIA will form part of the Environmental Impact Statement (EIS) prepared by SMEC for Health Infrastructure NSW in accordance with Schedule 2 of the *Environmental Planning & Assessment Regulation 2000*.

1.2 Study Area and Proposed Development

The Northern Beaches Hospital Development site comprises two areas in Frenchs Forest. Lots 11, 12, 13, 14 and 15 DP 792918 are owned by the Department of Health, and on the opposite side of Bantry Bay Road is Lot 1 DP 119383 and Lots 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11 DP 26087, owned by Warringah Council; the area is bound by Wakehurst Parkway, Warringah Road and Frenchs Forest Road West. The second area, Lot 12 DP 1112906 is southeast of the Bantry Bay Road area, on Aquatic Drive east of the block on the corner of Madison Way and west of the Cerebral Palsy building; this area is owned by the Department of Health. The study area is within the Warringah Local Government Area (LGA), approximately 13km north of the Sydney CBD (Figure 1.1).

The aim of the Northern Beaches Hospital Development is to consolidate a number of medical and ancillary services, currently dispersed over a number of areas, into one facility at Frenchs Forest. A multi-storey hospital building is to be constructed to house over 250 beds, multiple operating theatres and space for associated and ancillary services on the Bantry Bay Road study area. Options are under investigation for use of the Aquatic Drive study area as an offset area for the Duffys Forest Endangered Ecological Community to mitigate biodiversity impacts on the hospital site.

1.3 Methodology

This report is broadly consistent with the principles of the Burra Charter (*The Australia ICOMOS charter for the conservation of places of cultural significance*). It has been prepared in accordance with current heritage best practice and the requirements of the Office of Environment and Heritage, Department of Premier & Cabinet (OEH; formerly the Department of Environment, Climate Change and Water [DECCW] and Heritage Branch, Department of Planning) guidelines as specified in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010), the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011), and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010).

The key heritage requirements for this project are:

- identification of any Aboriginal heritage sites present within the study area;
- assessment of the Aboriginal heritage values of the study area; and
- provision of recommendations for the management of Aboriginal heritage resources in the study area.

To fulfil the requirements of the project, the following tasks were undertaken:

- consultation with the local Aboriginal community, as per the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*;
- search and review of the OEH Aboriginal Heritage Information Management System (AHIMS) database, to determine the location and nature of any Aboriginal heritage sites recorded within, or in the vicinity of, the study area;

- review of relevant previous archaeological reports specific to the area, to determine the extent of past archaeological research in the region;
- review of relevant contextual environmental information and previous land use history;
- field survey with local Aboriginal community representatives, to allow identification and assessment of Aboriginal heritage values present in the study area; and
- preparation of a report describing the results of the background research, the extent and significance of any Aboriginal heritage items recorded in the study area, and management recommendations and mitigation measures for any Aboriginal heritage resources, including constraints and opportunities.

1.4 Authorship & Acknowledgements

This report has been prepared by AMBS Project Officer Jenna Weston. AMBS Project Manager Christopher Langeluddecke reviewed the report. AMBS Senior Project Manager Jennie Lindbergh reviewed the report for quality and consistency.

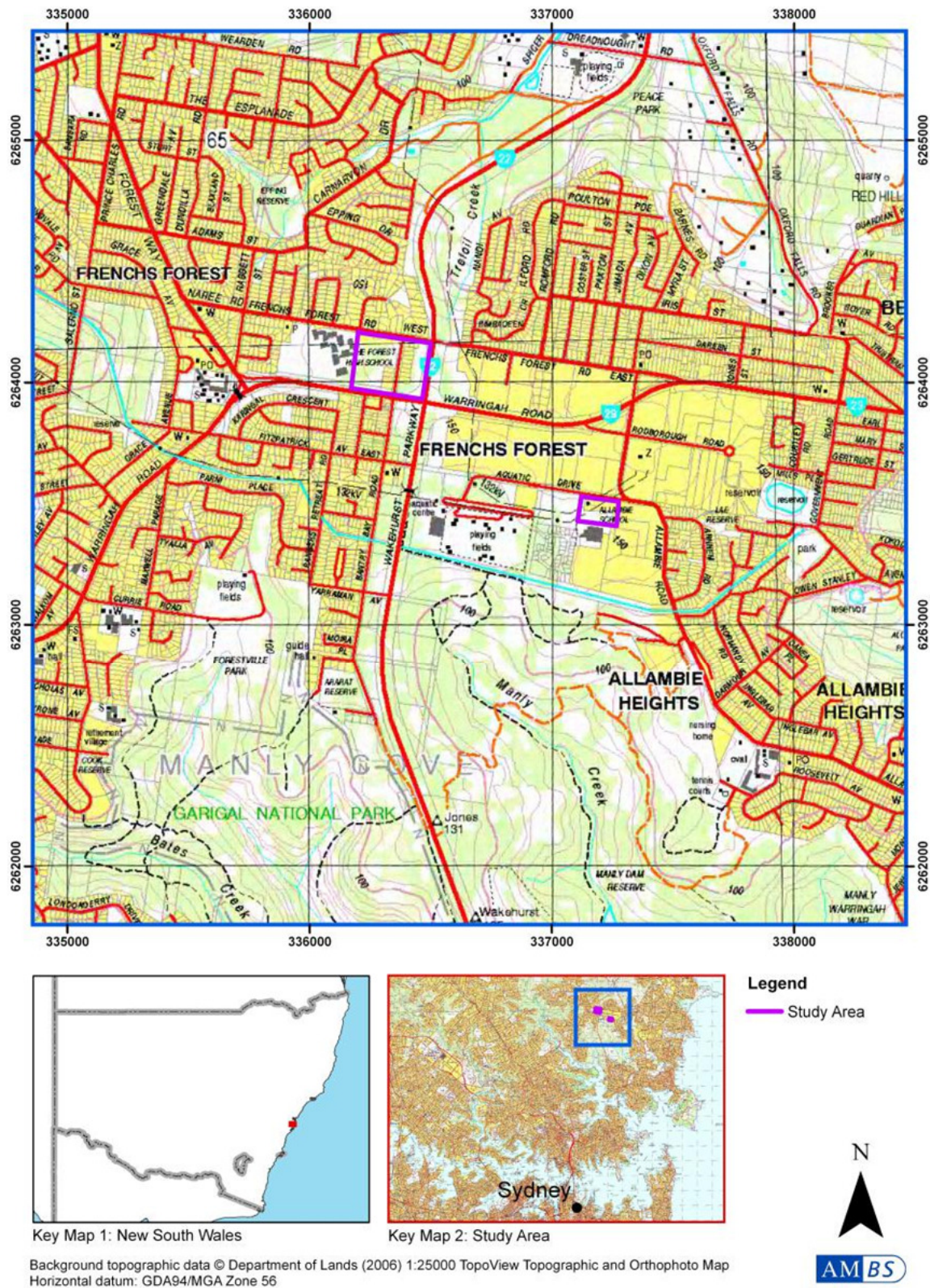


Figure 1.1 Location of the study area.

2 Statutory Context

2.1 Preamble

The conservation and management of heritage items, places, and archaeological sites takes place in accordance with relevant Commonwealth, State or local government legislation. Non-statutory heritage lists and registers, ethical charters, conservation policies, and community attitudes and expectations can also have an impact on the management, use, and development of heritage items. The relevant statutory and non-statutory heritage listings for the study area are summarised below.

2.2 Environment Protection & Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act* 1999 (EPBC Act) provides a legal framework for the protection and management of places of national environmental significance. Several heritage lists are addressed by the EPBC Act, including the National Heritage List (NHL) and Commonwealth Heritage List (CHL). The NHL protects places that have outstanding value to the nation. The CHL protects items and places owned or managed by Commonwealth agencies. The Australian Government Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) is responsible for the implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage and to promote Australian arts and culture. Approval from the Minister is required for controlled actions which will have a significant impact on items and places included on the NHL or CHL.

There are no Aboriginal heritage items listed on the NHL or CHL within the study area or in its vicinity.

2.3 National Parks & Wildlife Act 1974 (Amended 2010) and National Parks & Wildlife Amendment Regulation 2010

Under the provisions of the *National Parks & Wildlife Act* 1974 (NPW Act), the Director-General of the National Parks and Wildlife Service (NPWS; now OEH) is responsible for the care, control and management of all national parks, historic sites, nature reserves, state conservation areas, karst conservation reserves and regional parks. The Director-General is also responsible, under this legislation, for the protection and care of native fauna and flora, and Aboriginal places and objects throughout NSW.

All Aboriginal Objects are protected regardless of their significance or land tenure under the NPW Act. Aboriginal Objects can include pre-contact features such as scarred trees, middens and open campsites, as well as physical evidence of post-contact use of the area such as Aboriginal built fencing and fringe camps. The NPW Act also protects Aboriginal Places, which are defined as 'is or was of special significance with respect to Aboriginal culture'. Aboriginal Places can only be declared by the Minister administering the NPW Act.

Under Section 90 of the Act, it is an offence for a person to destroy, deface, damage or desecrate an Aboriginal Object or Aboriginal Place without the prior issue of an Aboriginal Heritage Impact Permit (AHIP). The Act requires a person to take reasonable precautions and due diligence to avoid impacts on Aboriginal Objects. AHIPs may only be obtained from the Environmental Protection and Regulation Division (EPRD) of OEH.

The *National Parks and Wildlife Amendment Regulation* 2010 commenced on 1 October 2010. This Regulation excludes activities carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* from the definition of harm in the Act. That is, test excavations may be carried out in accordance with this Code of Practice, without requiring an AHIP.

The Regulation also specifies Aboriginal community consultation requirements (*Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*). In addition, the Regulation adopts a Due Diligence Code of Practice which specifies activities that are low impact, providing a defence to the strict liability offence of harming an Aboriginal object.

Part of the regulatory framework for the implementation of the NPW Act is the Aboriginal Heritage Information Management System (AHIMS), maintained by OEH. AHIMS includes a database of Aboriginal heritage sites, items, places and other objects that have been reported to the OEH. Also available through AHIMS are site cards, which describe Aboriginal sites registered in the database, as well as Aboriginal heritage assessment reports, which contribute to assessments of scientific significance for Aboriginal sites. The AHIMS is not a comprehensive list of all Aboriginal heritage in NSW, rather it reflects information which has been reported to OEH. As such, site co-ordinates in the database vary in accuracy depending on the method used to record their location. Heritage consultants are obliged to report Aboriginal sites identified during field investigations to OEH, regardless of land tenure, or whether such sites are likely to be impacted by a proposed development. The results of a site search for the local area are presented in Section 5.2.1.

2.4 Heritage Act 1977

The NSW *Heritage Act 1977* (Heritage Act) provides protection for heritage places, buildings, works, relics, moveable objects or precincts that are important to the people of NSW. These include items of Aboriginal and non-Aboriginal heritage significance. Where these items have particular importance to the state of NSW, they are listed on the State Heritage Register (SHR).

There are no Aboriginal heritage items listed on the SHR within the study area or in its vicinity.

2.4.1 Roads and Maritime Services Section 170 Register

Section 170 of the Heritage Act requires government instrumentalities to maintain a Heritage and Conservation Register (Section 170 Register). This Register provides a list of assets which may have State or local heritage significance, including:

- (i) *heritage items under environmental planning instruments,*
- (ii) *items subject to interim heritage orders,*
- (iii) *items listed on the State Heritage Register,*
- (iv) *items identified by the government instrumentality as having State heritage significance.*

There are no Aboriginal heritage items listed on the RMS Section 170 Register within the study area or its vicinity.

2.5 Environmental Planning & Assessment Act (1979)

The *Environmental Planning and Assessment Act 1979* (EP&A Act) is the main act regulating land use planning and development in NSW. Under Section 111 of the Act, Health Infrastructure NSW as proponent and determining authority for the project:

must examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that activity.

Clause 228(2)(e) of the *Environmental Planning and Assessment Regulation 2000* states that, for the purposes of Part 5 of the EP&A Act, the factors to be taken into account when consideration is being given to the likely impact of an activity on the environment include:

any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations.

The EP&A Act also controls the making of environmental planning instruments (EPIs). Two types of EPIs can be made: Local Environmental Plans (LEPs) covering local government areas; and State Environment Planning Policies (SEPPs), covering areas of State or regional environmental planning significance. LEPs commonly identify, and have provisions for, the protection of local heritage items and heritage conservation areas. The study area is located in the Warringah LGA.

2.5.1 Warringah LEP 2011

Clause 5.10 of the Warringah LEP 2011 has been prepared in accordance with the NSW Government's Standard Instrument—Principal Local Environmental Plan, and is consistent with current heritage best practice guidelines, providing for the protection of heritage buildings, places, works and trees, heritage conservation areas, and archaeological relics.

There are no Aboriginal heritage items listed on the Warringah LEP within the study area or its vicinity.

2.5.2 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (SEPP Infrastructure 2007) provides specific provisions and development controls for essential infrastructure projects. Division 10 of the SEPP specifically addresses the development of Health services facilities.

However, Clause 14 'Consultation with councils – development with impacts on local heritage' requires that a public authority should consult with Council where the development:

- (1) (a) *is likely to have an impact that is not minor or inconsequential on a local heritage item (other than a local heritage item that is also a State heritage item) or a heritage conservation area.*

2.6 Non-Statutory Registers

2.6.1 Register of the National Estate

The Register of the National Estate (RNE) was originally established under Section 22 of the *Australian Heritage Commission Act 1975* (AHC Act). Since the establishment of the NHL and CHL, there is now a considerable level of overlap between the RNE and heritage lists at the national, state and territory, and local government levels. From February 2012, all references to the RNE have been removed from the EPBC Act and the AHC Act. The RNE is now being maintained on a non-statutory basis as a publicly available archive.

There are no Aboriginal heritage items listed on the RNE within the study area or its vicinity.

2.6.2 National Trust of Australia (NSW)

The National Trust of Australia is a private, not-for-profit organisation committed to conserving Australia's heritage. Listing with the National Trust of Australia does not have statutory authority; however, it does have a role in raising public awareness of heritage issues.

There are no Aboriginal heritage items listed on the National Trust Register within the study area or its vicinity.

3 Aboriginal Consultation

Aboriginal community consultation is an integral part of the Aboriginal cultural heritage assessment process, and this project has been undertaken in accordance with the OEH *Aboriginal Cultural Heritage Consultation Requirements For Proponents 2010* (see Appendix A). The aims of the consultation process are to:

- provide the opportunity for the local Aboriginal community to provide input into identifying cultural heritage values and be involved in the heritage assessment process;
- provide the opportunity for the local Aboriginal community to inspect the study area with the aim of identifying Aboriginal sites and areas of archaeological and cultural sensitivity;
- identify the Aboriginal cultural heritage significance of the study area;
- integrate Aboriginal heritage values into the heritage assessment; and
- provide an opportunity for the local Aboriginal community to comment on the heritage management strategy and proposed outcome.

AMBS wrote to the following organisations on 27 June 2012, requesting notification of any Aboriginal organisations who may wish to register as stakeholders:

- OEH;
- Metropolitan Local Aboriginal Land Council (MLALC);
- National Native Title Tribunal (NNTT);
- Office of the Registrar, Aboriginal Land Rights Act 1983 (ORALRA);
- Native Title Services Corporation (NTSCorp);
- Sydney Metropolitan Catchment Management Authority (SMCMA); and
- Warringah Shire Council.

ORALRA responded that there are no registered Aboriginal Owners for the area, and suggested contacting MLALC. A Native Title search undertaken on 9 July 2012 by the NNTT found no registered native title claimants, native title holders or registered Indigenous Land Use Agreements for the study area.

OEH advised that the following organisations should be contacted:

- MLALC;
- Darug Aboriginal Cultural Heritage Assessments (DACHA); and
- Scott Franks (Yarrawalk/Tocomwall).

DACHA declined the opportunity to register for consultation on the project, identifying that the study area was not within their areas of interest.

Warringah Shire Council identified that the Aboriginal Heritage Office (AHO) advises Council on these matters. The AHO registered an interest to be consulted for the project, but identified that the AHO “is not an Aboriginal community organisation and therefore is not able to provide feedback on cultural matters, but as an arm of the 8 partner Councils the AHO works to help protect the Aboriginal heritage of the local area working with Councils, residents and community”.

In accordance with OEH requirements, an advertisement was placed in the Manly Daily on 28 June 2012. The advertisement sought expressions of interest for participation in the Aboriginal heritage assessment process for this project. The closing date for registrations was 12 July 2012. Responses to the advertisement were received from the following parties:

- Guringai Tribal Link Aboriginal Corporation (GTLAC); and
- Professor Dennis Foley (University of Newcastle).

In summary, the following Aboriginal parties registered their interest to be consulted on this project:

- MLALC;
- GTLAC;
- AHO;
- Dennis Foley;
- Yarrawalk/Tocomwall; and
- Darug Land Observations (DLO).

Details of the proposed development and a draft heritage assessment methodology were sent to each of the registered Aboriginal parties on 23 July 2012. One response was received, from Dennis Foley (see Appendix A).

Registered Aboriginal stakeholder organisations which participated in a survey of the study area on Tuesday 21 August 2012 are listed in Table 3.1. MLALC was unable to provide a field representative for the survey.

Table 3.1 Aboriginal community fieldwork participants.

Organisation	Field Representative
GTLAC	David Pross, Robert Pankhurst
DLO	Ron Workman
Yarrawalk/Tocomwall	Steven Very

The results of the survey and the proposed recommendations were discussed with Aboriginal community representatives in the field, and no objections were raised. The draft Aboriginal heritage assessment report was provided to each group for review and comment, on 7 September 2012. Two written responses were provided by registered stakeholders within the 28 day feedback period (see Appendix A).

4 Environmental Context

An understanding of environmental factors within the local landscape provides a context for past human occupation and history of an area. The analysis of environmental factors contributes to the development of the predictive modelling of archaeological sites, but it is also required to contextualise archaeological material and to interpret patterns of past human behaviour. In particular, the nature of the local landscape including topography, geology, soils, hydrology and vegetation are factors which affect patterns of past human occupation. Current land use practices have the potential to affect the visibility of archaeological material; they may obscure, or expose archaeological sites. In addition, previous disturbances may have also exposed archaeological material, such as excavation for dams or other ground disturbance. It is important that such factors are also considered in making assessments of archaeological resources in an area and understanding the distribution of observed sites.

4.1 Geology

The study area is underlain by Hawkesbury Sandstone, and Triassic Wianamatta Group Shales which comprise the Liverpool Sub-Group of Minchinbury Sandstone and Bringelly and Ashfield Shales (1:250,000 Geological Series Sheet S1 56-5 Sydney). The latter consists of shale with some sandstone beds. Hawkesbury Sandstone geology may result in stone outcroppings suitable as surfaces for art (such as engraving and drawing/painting) and sharpening stone axes/tools, or shelters for camping. As such, rock engravings/art sites, axe grinding grooves and shelter sites may be present in the study area, although stone quarry sites are unlikely, as these geologies are unsuitable for artefact manufacture.

4.2 Soils, Topography & Vegetation

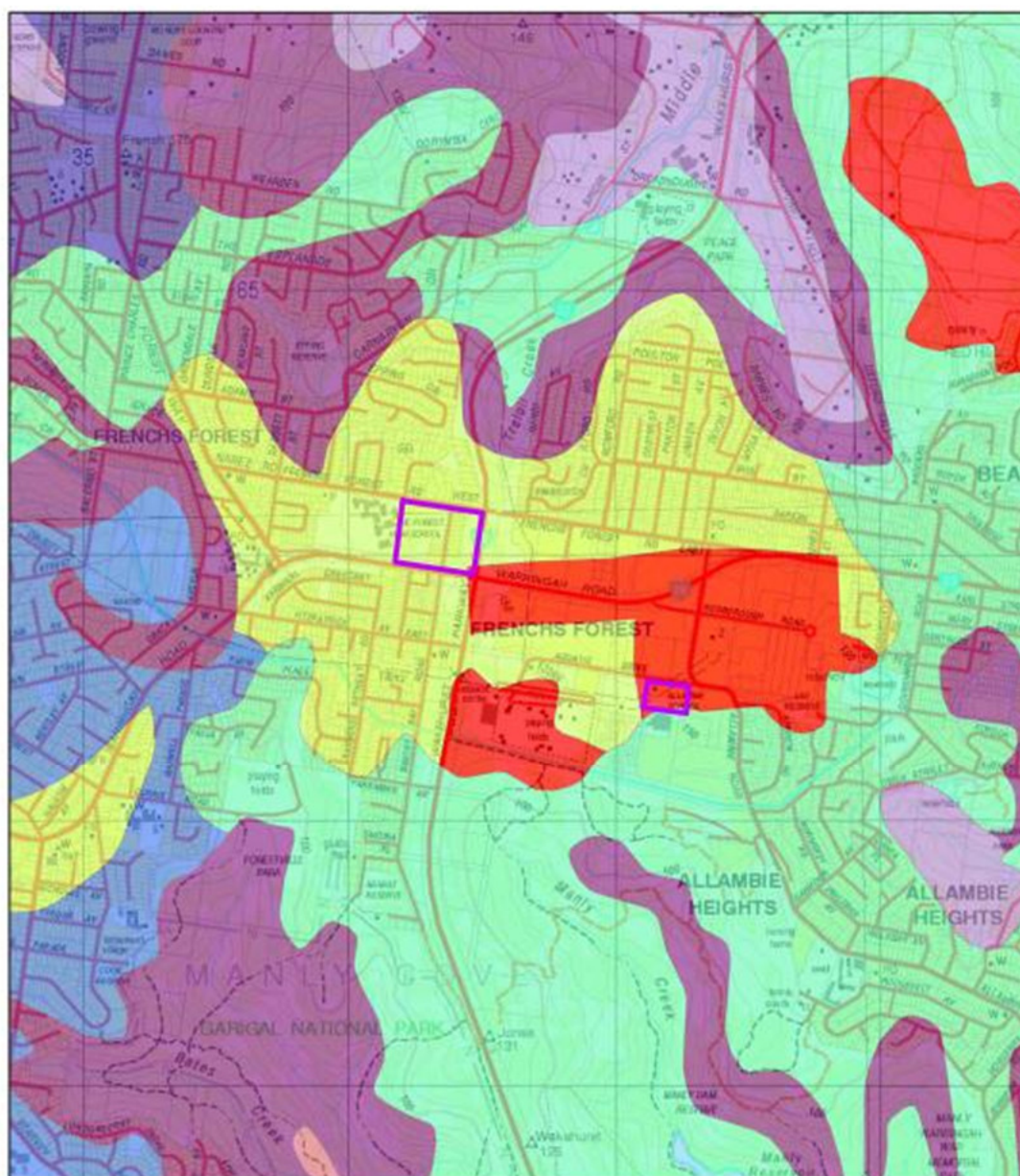
The study area is located on the Lucas Heights Soil Landscape, with some disturbed terrain in the corner of the study area on Bantry Bay Road and across much of the study area on Aquatic Drive (Figure 4.1). A corner of the study area on Aquatic Drive is located on the Lambert Soil Landscape.

Lucas Heights soils primarily consist of moderately deep (50-150cm) hardsetting yellow podzolic soils and yellow soloths, with yellow earths on the outer edges of crests. This is a residual landscape comprising gently undulating crests and ridges on plateau surfaces of the Mittagong Formation (alternating bands of shale and fine-grained sandstones), with local relief to 30m and slopes <10%. Vegetation consists of extensively or completely cleared, dry sclerophyll low forest and woodland. Limitations of this soil landscape are stony soil, low soil fertility and low available water capacity (Chapman & Murphy 1989:26).

Lambert soils primarily consist of shallow (<50cm) discontinuous earthy sands and yellow earths on crests and inside of benches; shallow (<20cm) siliceous sands/lithosols on leading edges; shallow to moderately deep (<150cm) leached sands, grey earths and gleyed podzolic soils in poorly drained areas; and localised yellow podzolic soils associated with shale lenses. This is an erosional landscape comprising undulating to rolling low hills on Hawkesbury Sandstone (rock outcrop >50%), broad ridges, gently to moderately inclined slopes, wide rock benches with low broken scarps, small hanging valleys and areas of poor drainage, with local relief to 20-120m and slopes <20%. Vegetation consists of open and closed-heathland, scrub and occasional low eucalypt open-woodland. Limitations of this soil landscape are stony soil, low soil fertility and low available water capacity (Chapman & Murphy 1989:58).

Aboriginal occupation was often focussed on prominent landforms such as ridges, which were favourable locations for camping and travelling, and from which surrounding plant and animal resources could be viewed. However, they also camped on lower, elevated areas adjacent to reliable water sources, such as the Parramatta River. The study area would have been suitable for camping,

although it is likely that coastal and riverine areas would have been most frequently occupied (see Section 4.3 below).



Legend

Study Area	Gymea	Mangrove Creek
Soils	Hawkesbury	Oxford Falls
Disturbed terrain	Lambert	Somersby
	Lucas Heights	

0 200 400 800 1,200 1,600 Metres



Soil data © Copyright Commonwealth of Australia (Geoscience Australia) 2001
Horizontal datum: GDA94/MGA Zone 56

Figure 4.1 Soils within the study area.

4.3 Hydrology & Drainage

The study area is located c.115m south west of Trefoil Creek, a first order tributary of Middle Creek; c.500 south east of another first order tributary of Middle Creek; and c.750m north east of a first order tributary of Manly Creek. In short, the area is well-drained, with ample water to have supported Aboriginal occupation. As such, occupation sites including open stone artefact scatters may occur within the study area or its vicinity. However, coastal and riverine areas (Bantry Bay located c.2km to the south, Narrabeen Lagoon located c.5km to the north east, and the coast c.5km to the east) would have been most frequently occupied for their water and marine food resources.

4.4 Land Use & Disturbance

The study area has been subject to previous disturbance from historic timber-getting and brick-making (particularly for the study area on Bantry Bay Road), the construction of roads and other infrastructure, the construction and demolition of housing, and adjacent developments including schools. In addition, the Aquatic Drive study area has been modified by cutting and filling to create a flat terrace area. As such, there has been a history of European use and disturbance to the original ground surface, which will have impacted upon the integrity of, and possibly have entirely destroyed, any Aboriginal sites that were present in the study area.

5 Archaeological Context

This chapter describes the nature of the known Aboriginal archaeology of the study area, based upon a review of relevant archaeological reports and publications, and a search and review of previously recorded sites in the OEH AHIMS. This review and discussion allows for the development of a predictive model for potential Aboriginal sites within the study area, and establishes context for a comparative significance assessment. Summary descriptions of site types are provided in Table 5.1.

Table 5.1 Summary descriptions of Aboriginal site types referred to in this report.

Site Type	Details
Open camp sites/ stone artefact scatters/ isolated finds	<p>Open camp sites represent past Aboriginal subsistence and stone knapping activities, and include archaeological remains such as stone artefacts and hearths. This site type usually appears as surface scatters of stone artefacts in areas where vegetation is limited and ground surface visibility increases. Such scatters of artefacts are also often exposed by erosion, agricultural events such as ploughing, and the creation of informal, unsealed vehicle access tracks and walking paths. These types of sites are often located on dry, relatively flat land along or adjacent to rivers and creeks. Camp sites containing surface or subsurface deposit from repeated or continued occupation are more likely to occur on elevated ground near the most permanent, reliable water sources. Flat, open areas associated with creeks and their resource-rich surrounds would have offered ideal camping areas to the Aboriginal inhabitants of the local area.</p> <p>Isolated finds may represent a single item discard event, or be the result of limited stone knapping activity. The presence of such isolated artefacts may indicate the presence of a more extensive, in situ buried archaeological deposit, or a larger deposit obscured by low ground visibility. Isolated artefacts are likely to be located on landforms associated with past Aboriginal activities, such as ridgelines that would have provided ease of movement through the area, and level areas with access to water, particularly creeks and rivers.</p>
Middens	Shell middens result from Aboriginal exploitation and consumption of shellfish, in marine, estuarine or freshwater contexts. Middens may also include faunal remains such as fish or mammal bone, stone artefacts, hearths, charcoal and occasionally, burials. They are usually located on elevated dry ground close to the aquatic environment from which the shellfish has been exploited and where fresh water resources are available. Deeper, more compacted, midden sites are often found in areas containing the greatest diversity of resources, such as river estuaries and coastal lagoons.
Scarred trees	Tree bark was utilised by Aboriginal people for various purposes, including the construction of shelters (huts), canoes, paddles, shields, baskets and bowls, fishing lines, cloaks, torches and bedding, as well as being beaten into fibre for string bags or ornaments. The removal of bark exposes the heart wood of the tree, resulting in a scar. Over time the outer bark of the tree grows across the scar (overgrowth), producing a bulging protrusion around the edges of the scar. Trees may also have been scarred in order to gain access to food resources (e.g. cutting toe-holds so as to climb the tree and catch possums or birds), or to mark locations such as tribal territories. The locations of scarred trees often reflect historical clearance of vegetation rather than the actual pattern of scarred trees. Unless the tree is over 150 years old, scarring is not likely to be of Aboriginal cultural origin; therefore, these sites most often occur in areas with mature, remnant native vegetation.
Axe grinding grooves	Grinding grooves are the physical evidence of tool making or food processing activities undertaken by Aboriginal people. The manual rubbing of stones against each other creates grooves in the rock, which are usually found on flat areas of soft rock such as sandstone, in areas of creek beds and other water sources. They are often associated with rock pools in creek beds and on platforms to enable the wet-grinding technique.
Quarries	Aboriginal quarry sites are sources of raw materials, primarily for the manufacture of stone tools, but also for ochre procurement. They are only found where raw materials (stone or ochre) occur within the landscape, and where these have been exploited in the past. Such sites are often associated with stone artefact scatters and stone knapping areas. Loose or surface exposures of stone or cobbles may be coarsely flaked for removal of portable cores. Raw materials can be sourced to these sites and provide evidence for Aboriginal movement and/or exchange.
Rock engravings	Rock engravings are a type of Aboriginal art, and are often located on high vantage points along ridge lines at the headwaters of creeks, but can be located on any suitable fine grained stone surface.

Shelter sites with art (engraving, painting or drawing) or occupation deposit	These are art or occupation sites located in areas where suitable rock outcrops and surfaces occur, where weathering has resulted in suitable overhangs or recesses in boulder outcrops or cliff-lines.
Bora/ceremonial	Aboriginal ceremonial sites are locations that have spiritual or ceremonial values to Aboriginal people. Aboriginal ceremonial sites may comprise natural landforms and, in some cases, will also have archaeological material. Bora grounds are a ceremonial site type, usually consisting of a cleared area around one or more raised earth circles, and often comprised two circles of different sizes, connected by a pathway, and accompanied by ground drawings or mouldings of people, animals or deities, and geometrically carved designs on the surrounding trees. Unfortunately, the raised earth features are easily destroyed by agricultural and pastoral activities, vegetation growth and exposure to weather.
Stone arrangements	Stone arrangements usually consist of geometric arrangements of portable stone on prominent rock outcrops, such as vantage points along escarpments where other key landmarks are visible. Some stone arrangements also include circles and pathways. They are thought to be ceremonial in nature, and may have also sometimes been used for corroborees (dances), fights or judicial meetings. Stone arrangements are often isolated from known camp site areas.
Natural mythological (ritual) sites	These types of sites are usually identified by the local Aboriginal community as locations of cultural significance, and they may not necessarily contain material evidence of Aboriginal associations with the place.
Carved trees	Carved trees generally marked areas for ceremonial purposes, or the locations of graves.
Burial sites	Aboriginal burial of the dead often took place relatively close to camp site locations. This is due to the fact that most people tended to die in or close to camp (unless killed in warfare or hunting accidents), and it is difficult to move a body long distances. Soft, sandy soils on, or close to, rivers and creeks allowed for easier movement of earth for burial; and burials may also occur within rockshelters or middens. Aboriginal burial sites may be marked by stone cairns, carved trees or a natural landmark. Burial sites may also be identified through historic records, or oral histories.
Contact/ historical sites	These types of sites are most likely to occur in locations of Aboriginal and settler interaction, such as on the edge of pastoral properties or towns. Artefacts located at such sites may involve the use of introduced materials such as glass or ceramics by Aboriginal people, or be sites of Aboriginal occupation in the historical period.

5.1 Regional Archaeological Context

Aboriginal occupation of the Sydney basin is likely to have spanned at least 20,000 years, although dates of more than 40,000 years have been claimed for artefacts found in gravels of the Cranebrook Terrace on the Nepean River (Stockton and Holland 1974; Nanson et al 1987; Stockton 1993). Late Pleistocene occupation sites have been identified on the fringes of the Sydney basin and from rockshelter sites in adjoining areas. Dates obtained from these sites are 14,700 Before Present (BP) at Shaws Creek in the Blue Mountain foothills (Kohen et al 1984), c. 11,000 BP at Loggers Shelter in Mangrove Creek (Attenbrow 1981, 2004), and c. 20,000 BP at Burrill Lake on the South Coast (Lampert 1971). The majority of sites in the region, however, date to within the last 3,000 to 5,000 years, with many researchers proposing that occupation intensity increased from this period (Kohen 1986; McDonald 1994; McDonald and Rich 1993). Such an increase in occupation intensity may have been influenced by rising sea levels, which stabilised approximately 6,500 years ago. Older occupation sites along the now submerged coastline would have been flooded, with subsequent occupation concentrating along, and utilising resources of, the current coastlines and the changing ecological systems of the hinterland (Attenbrow 2003).

A study of the Sydney region reveals that Aboriginal sites are distributed across the whole range of physiographic units and environmental zones, although certain types of sites may be more frequently associated with certain parts of the landscape (for example, shelter sites are particularly common in areas of Hawkesbury Sandstone), and different parts of the landscape contain different resources, which may be seasonally available or highly localised (Koettig 1996). Hence, shell middens are

common in the Port Jackson region around the shores of bays, rivers, harbours and the coast, in areas where shellfish are available. Accordingly, the Port Jackson archaeological record is different to that of the Cumberland Plain of Sydney, partly because of the different resources in these areas (Attenbrow 1990:30).

In 1989-90, Val Attenbrow undertook Stage 1 of the Port Jackson Archaeological Project, which involved documentary research on previous archaeological work done in the catchment, detailed recording of registered sites and some field survey of areas where no sites had been registered. Stage 2 involved further research of regional issues through excavation of certain sites. Overall, Attenbrow classified six sites as having excellent research potential, 48 as having good potential, and 151 as having poor to nil potential. Attenbrow found, from a review of excavation work in the Port Jackson area, that Aboriginal people were living around the harbour foreshores gathering shellfish at least 4,500 years ago, that the number and species of shellfish represented in middens varied according to distance from the harbour mouth, and that a change from exploitation of predominantly cockle (*Anadara trapezia*) to predominantly oysters (*Saccostrea commercialis*) appears to have occurred over time in this region (Attenbrow 1990:30). She also found that most middens are located within 10m of the high water level, and that burials were placed in open middens as well as in middens within rockshelters. In the same year, as part of an Aboriginal Sites Planning Study for the Lane Cove River State Recreation Area, the NPWS observed that regional excavations of coastal sites with midden layers indicated the exploitation of a variety of sea and land resources (NPWS 1990).

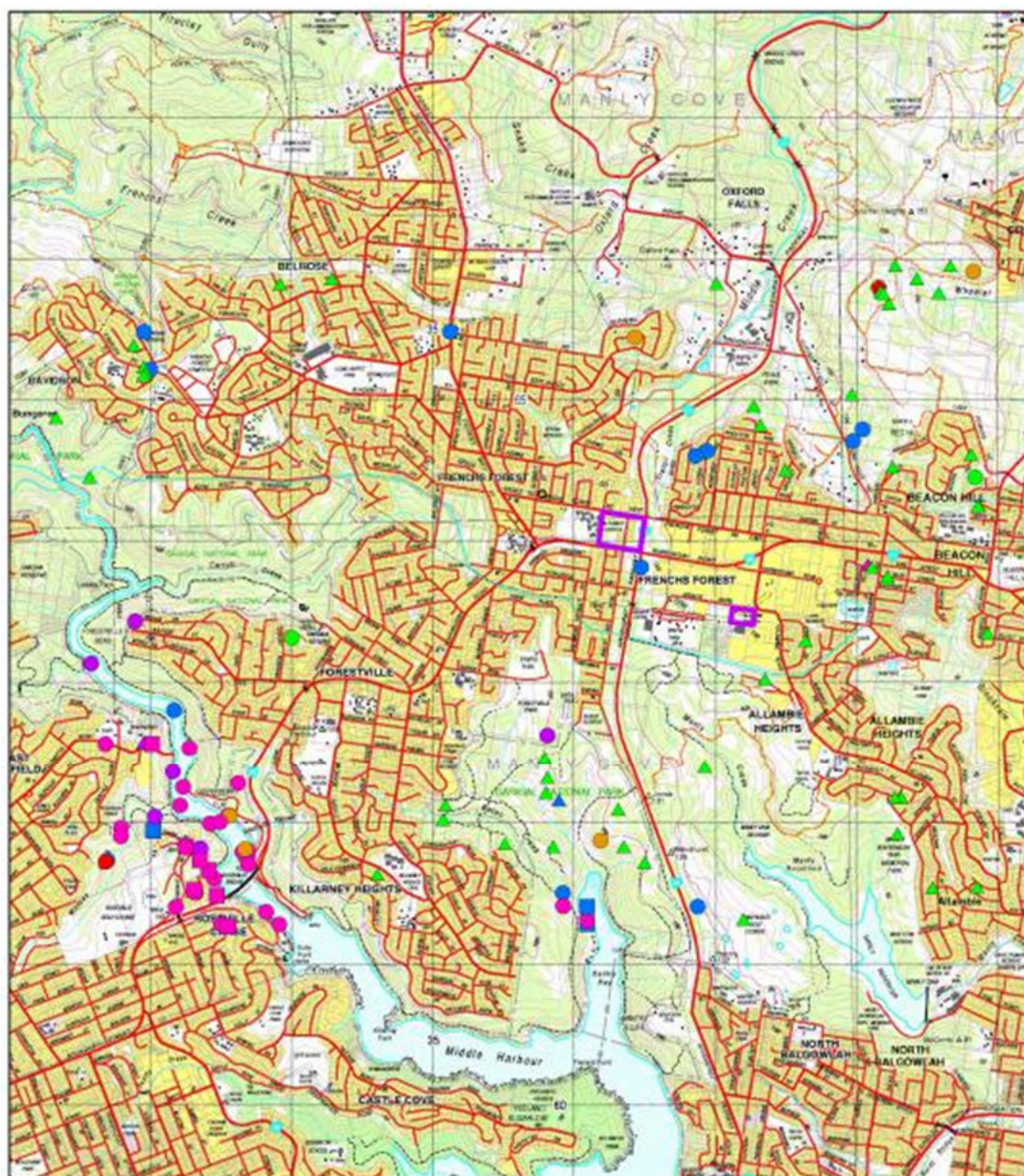
It should also be recognised that the archaeological evidence within any particular site can vary considerably in quantity and the range of evidence present, and that the number of sites or amount of archaeological evidence found in any specific area varies. Further, the distribution of presently recorded sites in some areas is unlikely to be indicative of the original distribution of Aboriginal sites and therefore may not be a reliable guide to the occupation history of that area (Koettig 1996). Accordingly, without professional archaeological assessment of an area, the sites most likely to have been recorded are those which are most obvious to non-professionals, such as rockshelters and art sites.

5.2 Local Archaeological Context

5.2.1 Site Types

A search of the AHIMS database was undertaken on 6 June 2012 (AHIMS ID 71989), and 120 registered Aboriginal sites are identified within approximately 2km of the study area. The search results are presented in Figure 5.1 and summarised in Table 5.2.

No Aboriginal sites are registered within the study area. The closest site to the study area is a shelter with art approximately 100m south east of the study area at Bantry Bay Road (AHIMS #45-6-1004). The most common sites previously recorded in the local area are rock engravings and shelter sites with middens or art. These types of sites are associated with the formation of the Hawkesbury Sandstone in the area, as it outcrops in platforms and shelters which were used by Aboriginal people for these purposes. Sites tend to cluster along Middle Harbour Creek, which was a major source of water and food resources in the region; and within areas of National Park, where sites have been preserved by the lack of development.



Legend

AHIMS Sites

- | | | |
|-----------------------|--------------------------------|--|
| ▲ Rock Engraving | ● Shelter with Art and Midden | ▲ Axe Grinding Groove, Rock Engraving, Water Hole/Well |
| ● Shelter with Midden | ● Shelter with Deposit | ▲ Axe Grinding Groove, Rock Engraving |
| ● Shelter with Art | ● Shelter with Art and Deposit | ▲ Rock Engraving, Shelter with Deposit |
| ■ Midden | ■ Midden, Open Camp Site | ● Shelter with PAD |
| | ● Open Camp Site | ○ Not an Aboriginal Site |
| | | — Study Area |

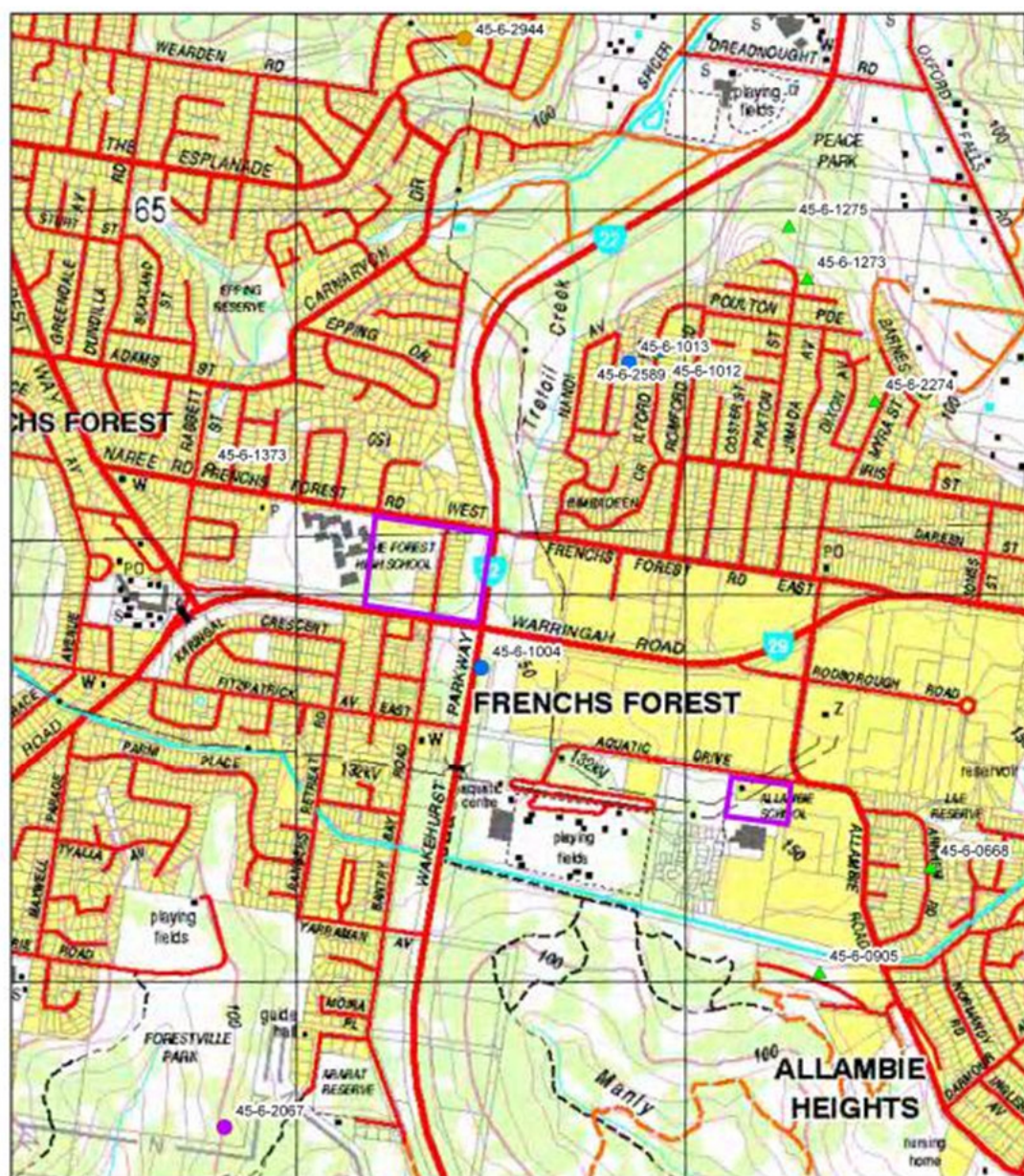
0 315 630 1,260 1,890 2,520 Metres



AMBS

Background topographic data © Department of Lands (2006) 1:25000 TopoView
Topographic and Orthophoto Map
Horizontal datum: GDA94/MGA Zone 56

Figure 5.1 AHIMS sites in the vicinity of the study area (data obtained from AHIMS search [ID: 71989] on 6/6/12).



Background topographic data © Department of Lands (2006) 1:25000 TopoView
 Topographic and Orthophoto Map
 Horizontal datum: GDA94/MGA Zone 56

Figure 5.2 AHIMS sites in closest proximity to the study area (data obtained from AHIMS search [ID: 71989] on 6/6/12).

Table 5.2 Summary of Aboriginal sites previously recorded near the study area (data obtained from AHIMS search [ID: 71989] on 6/6/12).

Site types	Count	Percentage
Rock engraving	50	41.7
Shelter with midden	27	22.5
Shelter with art	12	10
Midden	7	5.8
Shelter with deposit	6	5
Shelter with art and midden	6	5
Midden, open camp site	3	2.5
Shelter with art and deposit	3	2.5
Open camp site	1	0.8
Shelter with Potential Archaeological Deposit (PAD)	1	0.8
Not an Aboriginal site	1	0.8
Rock engraving, shelter with deposit	1	0.8
Axe grinding groove, rock engraving	1	0.8
Axe grinding groove, rock engraving, water hole/well	1	0.8
Total	120	100%

Archaeological investigations in the general vicinity of the study area have often failed to locate sites (Attenbrow 1982; Bell 1982; Brayshaw 1986, 1989, 1998, 2000a, 2000b; Brown & Farquharson 2007; Byrne 1996; Corkill 1993; Dallas 1991; Dallas & Irish 2009; Edgar 1997a, 1997b, 1997c, 1997d, 1998a, 1998b; Edgar & Corkill 1998; Haglund 1982; Irish 2004; McDonald 1999; Oakley 1995; Ross 1983). Some investigations have however, confirmed the location of previously recorded shelter and art sites without identifying any additional sites (Brayshaw & McDonald 1989; Brown 2011; Dallas 1988). This is likely to be a reflection of the urban development of the area, which would have precluded the preservation of sites and the necessity for archaeological assessment and resulted in only the recording of obvious sites such as shelters and art sites. Within the adjacent Hornsby Shire it has been found that many sites have been destroyed by previous development, that sites within reserves can be subjected to severe impact (for example the destruction of art by graffiti), and that sites within areas of residential development are likely to have been heavily impacted (Koettig 1996:58). Sites and areas with Aboriginal archaeological potential have generally been identified in less disturbed areas along the Parramatta River and its bays (including Bantry Bay and Middle Harbour, and the coast), but also in areas with intact Hawkesbury Sandstone platforms and shelters that may retain art and archaeological deposit (Byrne 1992; Dallas 1983; Kelly 1991; Smith 1989). A summary of archaeological investigations in the general vicinity of the study area is provided in Appendix B.

5.3 Aboriginal Heritage Site Prediction Modelling

On the basis of the registered archaeological sites in the region and the review of previous archaeological studies, the following conclusions can be drawn regarding the potential presence and location of Aboriginal heritage sites within the landscape of the study area:

- sites most likely to be present within the study area are art sites in areas with Hawkesbury Sandstone, and isolated finds or small open stone artefact sites. These sites are most likely to occur within less disturbed areas with natural ground surface;
- any sites within the study area are likely to have been extensively disturbed (and hence not be *in situ*) by European occupation of the area.

5.3.1 Sites Unlikely to be Present

The following site types may or may not have been previously recorded within the local region, but are unlikely to be present within the current study area:

- the lack of suitable stone outcrops and water indicates that stone quarry sites and axe grinding grooves are highly unlikely to be found in the study area;

- it is highly unlikely that midden deposits will be present within the study area, given the distance from the Parramatta River and its bays, and the coast;
- it is highly unlikely that scarred or carved trees will be present within the study area, as there do not appear to be any trees of sufficient age remaining in the study area; and
- burials and ceremonial sites (including stone arrangements and bora grounds) are unlikely to be present in the area given the long history of disturbance.

6 Aboriginal Heritage Survey

6.1 Survey Methodology

The Aboriginal cultural heritage survey was undertaken on 21 August 2012 by AMBS archaeologist Jenna Weston, accompanied by Aboriginal community representatives (see Table 3.1). The fieldwork methodology, the context of the Aboriginal heritage assessment and available mapping information were discussed with Aboriginal representatives prior to fieldwork. The findings of the survey and recommendations were discussed with Aboriginal representatives in the field, and their comments have been incorporated into this report.

The purpose of the survey was to inspect the area for any archaeological sites and to identify the potential for archaeologically sensitive areas to be present within the study area.

The survey involved pedestrian transects throughout the entire study area, focussing particularly on areas of ground exposure (see the GPS tracklog in Figure 6.1). If any Aboriginal artefacts were encountered, notes were to be made regarding their type, size, and material, descriptions of the site were to be recorded including the environmental setting and details of any disturbance to archaeological material in the site's vicinity, and Geocentric Datum of Australia (GDA94) coordinates were to be taken using a Garmin Oregon 300 handheld GPS unit. Photographs of objects and their location were also to be taken. Photographs of the study area in general were taken using a Canon EOS 300D digital camera.

6.2 Survey Coverage

Survey coverage data was gathered during the archaeological field survey to allow quantification of ground exposure and visibility, as adverse observation conditions can affect the detection of Aboriginal sites and material. This data does not reflect the extent of the area that was physically surveyed, but represents an estimate of the area of ground surface examined, and presents an estimate of the effectiveness of the survey, given environmental conditions and ground visibility. Survey coverage data is presented in accordance with the OEH guidelines in the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

Only the areas covered by pedestrian survey are included in the estimate of effective coverage (see Figure 6.1 for the survey tracklog recorded by the GPS). The pedestrian survey focussed on areas of ground exposure, mostly along tracks through vegetated areas, and areas of erosion adjacent to the roads. Survey coverage data for the current study is presented in Table 6.1 and Table 6.2. The area covered during the survey was considered adequate for the purposes of this heritage assessment.



Legend

- Tracklog
- Study Area

0 60 120 240 360 480 Metres



Background aerial: NSW Land and Property Information;
 Ausimage © Sinclair Knight Merz Pty Ltd 2008
 Horizontal datum: GDA94/MGA Zone 56

Figure 6.1 Tracklog recorded by GPS during survey of the study area.

Table 6.1 Survey coverage table.





Transect	Landform	Description	Total Area (m ²)	Area Surveyed (m ²)	Visibility	Exposure	Effective coverage (m ²)	Effective coverage (%)	Transect Photograph
1	Gentle slope	Former housing area on eastern side of Bantry Bay Road	13800	13000	40%	70%	3640	26.37	
2	Gentle slope	Vegetated area on western side of Wakehurst Parkway, east of Bantry Bay Road	11300	3000	2%	50%	30	0.3	
3	Gentle slope	Western side of Bantry Bay Road	38100	8000	1%	60%	48	0.1	
4	Slope/terrace	Southern side of Aquatic Drive	10700	9000	10%	40%	360	3.4	

Table 6.2 Landform summary for sampled areas.

Landform	Landform area (m ²)	Area effectively surveyed (m ²)	% of landform effectively surveyed	Number of sites	Number of artefacts or features
Gentle slope	63200	3718	5.9%	0	N/A
Slope/terrace	10700	360	3.4%	0	N/A

6.3 Survey Results

No Aboriginal sites were located during the survey.

6.3.1 Aquatic Drive Study Area

The study area on Aquatic Drive was found to have been extensively modified by terracing to create a flat grassed area. The majority of the flat area was found to have a soft silty/sandy fill (Figure 6.2). The original slope has therefore been modified by cutting and filling, and is not considered to have archaeological sensitivity. No mature trees or sandstone outcrops were seen in this area.



Figure 6.2 Soft silty/sandy fill used to create flat area across majority of Aquatic Drive study area.

6.3.2 Bantry Bay Road Study Area

The land adjacent to Bantry Bay Road, on each side of the road, was found to have been extensively disturbed by the construction of, and recent demolition of houses, including the planting of gardens and erection of property fences (Figure 6.3). One building is extant on Bantry Bay Road, on the western side near its intersection with Warringah Road (Figure 6.4); however, there are plans for this remaining building, currently used by the Manly Area Health Services Frenchs Forest, to be demolished also. The house lots are considered to have been too disturbed to retain Aboriginal archaeological deposits, and therefore do not have archaeological sensitivity.



Figure 6.3 Evidence of former driveway, fence and garden plantings, on eastern side of Bantry Bay Road.



Figure 6.4 Building remaining on western side of Bantry Bay Road.

Some evidence of former timber-getting and brick-making (small pits likely resulting from removal of clay) was seen within the vegetated areas in the study area on Bantry Bay Road (Figure 6.5). Although some large trees were present, these did not appear to contain evidence of Aboriginal modification. A fragment of basalt was noted in the soil exposed by a large tree fall (Figure 6.6-Figure 6.8). While it is possible that this may have been brought into the area by past Aboriginal people, it did not exhibit clear evidence of deliberate modification (ie. flaking), and was therefore not considered to constitute a site. A number of other fragmented stones (including sandstone) were noted in the exposed soil, and the area had been disturbed by dumping of European material, including bricks and bottles.

Visibility was hampered throughout the vegetated areas to the east and west of Bantry Bay Road by a high level of grass and undergrowth (Figure 6.9). However, there were several exposed areas of clayey loam which were inspected for Aboriginal artefacts. The soil appeared shallow, and basal clay and rock were exposed in many areas (Figure 6.10). As such, the likelihood is low that any substantial, intact topsoil remains. Given the distance of the study area from permanent water, and the extent of disturbance to the original land surface, it is not considered that there is archaeological potential for intact or substantial Aboriginal stone artefact deposits in the study area.

The Bantry Bay Road study area slopes gently, and it is evident that the roads to the north (Frenchs Forest Road West) and east (Wakehurst Parkway) had been cut down into the slope (Figure 6.11). Some sandstone outcrops were noted in the north eastern corner of the Bantry Bay Road study area, which had been cut into for the construction of Frenchs Forest Road West and the Wakehurst Parkway (Figure 6.8, Figure 6.12). The areas of sandstone which were exposed had been extensively damaged by the road construction, and no Aboriginal art/engravings were identified; however, the sandstone extending back from the road was inaccessible due to the thick vegetation (including lantana). Given the high numbers of Aboriginal art/engraving sites in the vicinity of the study area, it is possible that such art/engravings may be present on this sandstone, where it is currently obscured by vegetation.



Figure 6.5 Evidence of tree felled by early timber-getting.



Figure 6.6 Soil exposed by tree fall (showing large piece of sandstone protruding from top).



Figure 6.7 Basalt fragment from tree fall soil.



Legend

- Basalt fragment
- General location of sandstone outcrops
- Study Area

0 30 60 120 180 240 Metres



Background aerial: NSW Land and Property Information;
 Ausimage © Sinclair Knight Merz Pty Ltd 2008
 Horizontal datum: GDA94/MGA Zone 56

Figure 6.8 Location of basalt fragment and sandstone outcrops seen during survey.



Figure 6.9 Example of grass and undergrowth obscuring survey in vegetated areas.



Figure 6.10 Example of basal clay seen exposed in vegetated area.



Figure 6.11 Example of cut into slope for construction of road.



Figure 6.12 Example of sandstone outcrop in north eastern corner of Bantry Bay Road study area.

7 Assessing Heritage Significance

7.1 Preamble

A primary step in the process of Aboriginal cultural heritage management is the assessment of significance. Heritage significance relating to Aboriginal sites, objects and places in NSW is assessed in accordance with the criteria defined in the OEH guidelines, and cultural significance is identified by Aboriginal communities. The 2010 OEH *Code of Practice for Aboriginal Investigation of Aboriginal Objects in New South Wales*, states that archaeological values should be identified and their significance assessed using criteria reflecting best practice assessment processes as set out in the Burra Charter. The NSW heritage assessment criteria as defined in *Assessing Heritage Significance* (NSW Heritage Office 2001) reflect the Burra Charter assessment criteria, and are consistent with the OEH 1997 guidelines.

The criteria for assessing Aboriginal heritage significance are derived from the Burra Charter criteria of aesthetic, historic, scientific, social or spiritual value, for assessing cultural significance for past, present and future generations (Article 1.2). OEH guidelines for assessing significance as defined in the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH 2011:10) reflect the Burra Charter criteria, and require consideration of the following aspects of heritage sites:

- *Research Potential: does the evidence suggest any potential to contribute to an understanding of the area and/or region and/or state's natural and cultural history?*
- *Representativeness: how much variability (outside and/or inside the subject area) exists, what is already conserved, how much connectivity is there?*
- *Rarity: is the subject area important in demonstrating a distinctive way of life, custom process, land-use, function or design no longer practiced? Is it in danger of being lost or of exceptional interest?*
- *Education potential: does the subject area contain teaching sites or sites that might have teaching potential?*

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a site is not fixed for all time; what is considered as significant at the time of assessment may change as similar items are located, more research is undertaken and community values change. This does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why also changes over time (Pearson and Sullivan 1995:7).

7.2 Assessment against Criteria

This assessment of heritage values against the OEH criteria is informed by the results of the environmental and heritage context, the predictive model for Aboriginal sites in the region, and the results of the Aboriginal heritage field survey. Aboriginal heritage sites are considered to be of heritage significance if they meet one or more of the following criteria:

Does the subject area have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons? – social value

The study area is not considered to have archaeological potential for intact or substantial Aboriginal stone artefact deposits. It is however, possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Any such art/engravings which may be present are likely to be representative of past activity by Aboriginal people. Although such sites retain cultural significance, a sense of place, and heritage value for local Aboriginal people, individually they are not rare at a local or regional level. Nevertheless, the AHO has indicated that all surviving rock art and rock engravings sites are significant to them. Registered Aboriginal stakeholder Dennis Foley has also indicated that, according

to oral tradition, the area has cultural significance associated with former staging camps for ceremony, and a former nesting ground for the now-extinct *Megalania prisca* or *Varanus priscus* (giant ripper lizard).

Is the subject area important to the cultural or natural history of the local area and/or region and/or state? – historic value

The study area is not considered to have any archaeological potential for intact or substantial Aboriginal stone artefact deposits, although it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Any such art/engravings which may be present are likely to be representative of past activity by Aboriginal people, and provide evidence of the artistic strategies of the local Aboriginal people. These sites are representative of similar Aboriginal sites in the local area and wider region, where suitable stone outcrops are found, although such sites are becoming increasingly rare due to the impact of encroaching development. As such, any art/engravings which may be present are likely to have at least moderate (local) historic value, depending on the figures that may be represented in any such art/engravings.

Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state? – scientific (archaeological) value

The study area is not considered to have archaeological potential for intact or substantial Aboriginal stone artefact deposits. It is possible however, that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Although Aboriginal art/engraving sites are one of the most common site types in the local area, such sites are being increasingly impacted by urban development. Although the stone outcrops in the study area have been substantially disturbed by cutting back for road construction, there is some potential for relatively intact art/engravings to be present beneath the current vegetation. Any such art/engravings that may be present would likely be representative of the local archaeology that is under threat in the region. Such art/engravings would not currently be considered to have archaeological rarity; however, they are likely to become rarer with increasing development of the region. The presence of art/engravings may demonstrate the long history of Aboriginal occupation in the region, and dependant on the quality and accessibility of any art/engravings, may have some potential as a teaching site for educating the general public about the Aboriginal past. As such, any such art/engravings that may be present are likely to have at least low-moderate (local) scientific value, dependant on the level of disturbance.

Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state? – aesthetic value

The study area is not considered to have any archaeological potential for intact or substantial Aboriginal stone artefact deposits, although it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Any such art/engravings that may be present on the stone outcrops may have aesthetic value for Aboriginal heritage, dependant on the nature and integrity of any such art/engravings.

7.2.1 Summary Statement of Significance

The study area is not considered to have archaeological potential for intact or substantial Aboriginal stone artefact deposits, although it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Any such art/engravings that may be present on the stone outcrops are likely to be

representative of similar Aboriginal sites in the local area and wider region, dependant on the figures that may be represented in any such art/engravings. Based on current scientific evidence, any such art/engravings that may be present are likely to have at least low-moderate (local) scientific, historic and aesthetic value, dependant on the level of disturbance. Although all Aboriginal heritage sites contain intrinsic cultural significance, one of the registered Aboriginal stakeholders has indicated that all surviving rock art and rock engravings sites are significant to them. Another stakeholder has also indicated that the area has cultural significance associated with former staging camps for ceremony, and a former nesting ground for the now-extinct *Megalania prisca* or *Varanus priscus* (giant ripper lizard).

8 Conclusion

No Aboriginal sites were identified within the Bantry Bay Road or Aquatic Drive study areas during the survey. The high level of disturbance observed within the major part of the two study areas, and the apparent lack of substantial intact topsoil, indicates that there is unlikely to be any archaeological potential for intact or substantial Aboriginal stone artefact deposits within the study area. As such, the two study areas have a low potential for the recovery of *in situ* Aboriginal objects, and low research potential.

However, it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the Bantry Bay Road study area, where it is currently obscured by vegetation. Any such art/engravings that may be present on the stone outcrops are likely to be representative of similar Aboriginal sites in the local area and wider region, and are likely to have at least low-moderate (local) scientific, historic and aesthetic value, dependant on the figures represented and the level of disturbance. Should any impact be proposed to currently obscured sandstone outcrops in this area, it is recommended that these outcrops should be subject to archaeological inspection once exposed, to determine whether art/engravings are present. It is noted, however, that this area within the designated road reserve for Wakehurst Parkway is likely to be left intact in an effort to retain some vegetation within the study area.

Recommendation 1

Should any impact be proposed to the currently obscured sandstone outcrops in the north eastern section of the Bantry Bay Road study area, pre-construction vegetation and soil clearing should be undertaken in this area to allow an appropriate level of archaeological inspection for any art/engraving sites. Vegetation and soil clearance should be undertaken with care, to limit any disturbance to any unidentified Aboriginal art/engraving sites that may be present. Once cleared, this area should be inspected for Aboriginal art/engraving sites by an archaeologist, in conjunction with registered Aboriginal stakeholder representatives. If any Aboriginal sites are identified during this inspection, they should be recorded, and an appropriate course of action for the mitigation of construction impacts should be determined, prior to any disturbance of the sandstone outcrops.

The remainder of the study area is unlikely to retain Aboriginal objects; however, should any Aboriginal objects be exposed during construction works, then excavation or disturbance of the area should cease and the Cultural Heritage Division of OEH should be informed in accordance with Section 91 of the NPW Act. Works should not continue without the written consent of OEH.

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Appendix A

Aboriginal Community Consultation

The views presented in the following letters are those of the relevant Aboriginal groups, are presented without editing or comment, and do not necessarily reflect the views of Australian Museum Business Services (AMBS). AMBS does not guarantee the accuracy of any information contained in the following letters / reports, and does not accept legal responsibility for its contents.

Aboriginal Community Consultation Log

Date	Sender	Organisation	Recipient	Organisation	Method	Details
27/6/12	Jenna Weston	AMBS	N/A	News Local (NL)	Phone	Rang to find out how to send through text for a public notice for the Manly Daily. Was given an email address.
27/6/12	Jenna Weston	AMBS	N/A	NL	Email	Sent text for ad, to be placed 28 June 2012; response date 12 July 2012.
27/6/12	Jenna Weston	AMBS	N/A	NL	Email	Automatically-generated email saying they'd received my email.
27/6/12	N/A	NL	Jenna Weston	AMBS	Email	Ad proof.
27/6/12	Jenna Weston	AMBS	N/A	NL	Phone	Confirmed placement of ad, and arranged payment.
27/6/12	Lisa van der Mye	NL	Jenna Weston	AMBS	Phone	Asked whether I'd received her email and the ad was ok to go ahead. I said I'd spoken with someone already to confirm that the ad was fine, and he said he would send us a monthly invoice. Lisa said she'd send a confirmation email that the ad would be placed in tomorrow's paper.
27/6/12	Lisa van der Mye	NL	Jenna Weston	AMBS	Email	Confirmation of ad to appear in tomorrow's Manly Daily.
27/6/12	Jenna Weston	AMBS	Reception	Warringah Council	Phone	Rang to ask who to speak with regarding Aboriginal consultation. Was told that they normally direct enquiries about Aboriginal heritage to Dave Watts at North Sydney Council.
27/6/12	Jenna Weston	AMBS	Reception	Warringah Council	Email	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	Laurel Alexander/ Miranda Morton	OEHL	Letter and fax	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	N/A	ORALRA	Email	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	Peter Schultz	NTSCorp	Letter and fax	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	N/A	NNTT	Email	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	N/A	SMCMA	Email	Notification of project; request for contact details of Aboriginal groups.
27/6/12	Jenna Weston	AMBS	N/A	MLALC	Email	Notification of project; request for contact details of Aboriginal groups; asked them to identify whether they wished to be consulted, by 11 July.
27/6/12	N/A	North Sydney Council	Jenna Weston	AMBS	Email	Automatically-generated email saying they'd received my email.
27/6/12	Jenna Weston	AMBS	Website	NNTT	Website	Searched Warringah LGA. No active claimant applications registered.
28/6/12	Tracey Howie	GTLAC	Jenna Weston	AMBS	Email	Registration of interest.
29/6/12	Jenna Weston	AMBS	N/A	OEHL	Phone	Called several times to confirm that the fax was received. No answer.
29/6/12	Jenna Weston	AMBS	N/A	OEHL	Email	Asked whether the fax (attached to the email for reference) had been received and forwarded to the Aboriginal Heritage section.
29/6/12	N/A	OEHL	Jenna Weston	AMBS	Email	Automatically-generated email saying they'd received my email.
2/7/12	Geoff Hunt	AHO	Jenna Weston	AMBS	Email	Registration of interest.
2/7/12	Jenna Weston	AMBS	N/A	OEHL	Phone	Called several times to confirm that the fax was received. No answer.
2/7/12	Tabatha Dantoine	ORALRA	Jenna Weston	AMBS	Letter	Identified that there are no registered Aboriginal owners. Advised that MLALC may know of stakeholders.

3/7/12	Jenna Weston	AMBS	N/A	OEH	Phone	Called several times to confirm that the fax was received. No answer.
3/7/12	Jenna Weston	AMBS	Lou Ewins	OEH	Phone	Asked whether the fax had been received. I said I'd sent it to 9995 6900. She wasn't sure of the fax number but thought it might be the correct one. She said that Laurel Alexander and Miranda Morton no longer work there, and that I should have addressed the fax to the Manager, Aboriginal Heritage and Planning Section. She suggested I could email it, and I said I'd sent it by email to the info@environment.nsw.gov.au address. She said that was a very general address and it might take a while to get through to them. I asked whether I should email it to her and she said if she's not around then the email wouldn't get looked into. She said she'd look for the fax but that many came through and she couldn't do this all the time.
3/7/12	Lou Ewins	OEH	Jenna Weston	AMBS	Phone	Confirmed receipt of the fax; said they would send a reply shortly.
3/7/12	Lou Ewins	OEH	Jenna Weston	AMBS	Mail	Letter identifying the following groups as potentially having an interest in the study area: MLALC, DACHA and Scott Franks.
9/7/12	Jessica Di Blasio	NNTT	Jenna Weston	AMBS	Email	No registered native title claimants, native title holders or registered Indigenous Land Use Agreements identified for the study area. Identified 2 numbers on the National Native Title Register - NN97/15 and NN00/2. These appear to be for MLALC, and identify that Native Title didn't exist in the 2 areas (Bantry Bay Road and Duffys Forest).
9/7/12	Jenna Weston	AMBS	Jessica Di Blasio	NNTT	Email	Asked whether the maps supplied were relevant, as they appeared to be for the Port Stephens LGA, and were NC numbers rather than NN numbers.
9/7/12	Jenna Weston	AMBS	Gordon Morton	DACHA	Mail	Notification of project and asked whether they would like to be consulted, by 23 July.
9/7/12	Jenna Weston	AMBS	Scott Franks	Yarrawalk	Mail	Notification of project and asked whether they would like to be consulted, by 23 July.
9/7/12	Michael Haynes	Warringah Council	Jenna Weston	AMBS	Email	Identified that the AHO advises Council on these matters, and said they'd probably be in touch with me soon. [NB the AHO have already registered to be consulted.]
10/7/12	Jessica Di Blasio	NNTT	Jenna Weston	AMBS	Email	Confirmed that the wrong maps had been sent. Supplied correct map for Bantry Bay Road area (not within study area; non-claimant application). Said they didn't keep maps for non-claimant applications prior to 2000, but the other application description was in the original letter (ie. Duffys Forest).
11/7/12	Dennis Foley	University of Newcastle	Jenna Weston	AMBS	Email	Registration of interest.
16/7/12	Scott Franks	N/A	Jenna Weston	AMBS	Email	Asked me to email him a copy of the EOI that I posted last week.
17/7/12	Jenna Weston	AMBS	Scott Franks	N/A	Email	Emailed the notification of project asking whether they would like to be consulted, by 23 July.
17/7/12	Gordon Workman	DLO	Jenna Weston	AMBS	Email	Registration of interest.

23/7/12	Jenna Weston	AMBS	Scott Franks	Yarrawalk	Email and post	Asked again if he wished to register to be consulted. Sent proposed methodology in case, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Dennis Foley	University of Newcastle	Email and post	Proposed methodology, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Geoff Hunt	AHO	Email and post	Proposed methodology, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Tracey Howie	GTLAC	Email and post	Proposed methodology, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Paul Morris	MLALC	Email and post	Proposed methodology, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Gordon Workman	DLO	Email and post	Proposed methodology, requesting feedback by 20 August. Email undeliverable - typo in address (hotmail instead of bigpond).
23/7/12	Jenna Weston	AMBS	Gordon Workman	DLO	Email	Proposed methodology, requesting feedback by 20 August.
23/7/12	Jenna Weston	AMBS	Gordon Morton	DACHA	Mail and fax	Asked again if he wished to register to be consulted. Sent proposed methodology in case, requesting feedback by 20 August.
23/7/12	Scott Franks	Yarrawalk	Jenna Weston	AMBS	Email	Registration of interest.
23/7/12	Gordon Workman	DLO	Jenna Weston	AMBS	Email	Identified correct email address.
31/7/12	Celestine Everingham	DACHA	Jenna Weston	AMBS	Phone	Rang to say that Frenchs Forest was outside their area, and so they weren't interested in being consulted.
2/8/12	N/A	AHO	Jenna Weston	AMBS	Email	Identified that they'd received a methodology letter addressed to Geoff Hunt (a consultant who occasionally works for AHO). Said that correspondence for the AHO should be addressed to the Manager, David Watts. Said that the AHO "is not an Aboriginal community organisation and therefore is not able to provide feedback on cultural matters, but as an arm of the 8 partner Councils the AHO works to help protect the Aboriginal heritage of the local area working with Councils, residents and community".
2/8/12	Jenna Weston	AMBS	N/A	AHO	Email	Said that I'd send future correspondence addressed to David Watts. Asked whether AHO was still interested in receiving reports, given that they had identified that the AHO is not an Aboriginal community organisation and cannot provide feedback on cultural matters.
3/8/12	N/A	AHO	Jenna Weston	AMBS	Email	Said that they would still like to receive reports, if possible.
6/8/12	Jenna Weston	AMBS	N/A	AHO	Email	Said that we'd include the AHO in the list of stakeholders to whom reports would be sent for the project.
6/8/12	Jenna Weston	AMBS	Dennis Foley	University of Newcastle	Email	Said that we'd include him in the list of stakeholders to be consulted for the project, that he should have received a methodology, and that reports would also be sent for the project.
6/8/12	N/A	AHO	Jenna Weston	AMBS	Email	Thanked us for including them in the list of stakeholders to be sent reports for the project.
9/8/12	Jenna Weston	AMBS	Nicole Davis	OEH	Email	Identification of registered parties for project, and copy of ad.
9/8/12	Jenna Weston	AMBS	N/A	MLALC	Email	Identification of registered parties for project, and copy of ad.
9/8/12	Jenna	AMBS	Jenna	AMBS	Email	Thanked us for the list, and said

	Weston		Weston			they'd put it on file.
16/8/12	Dennis Foley	University of Newcastle	Jenna Weston	AMBS	Email	Said that he'd attached comments on the methodology. [No documents were attached, however.]
20/8/12	Jenna Weston	AMBS	Dennis Foley	University of Newcastle	Email	Identified that there were no documents attached to his last email, and asked if he could try to send them again.
21/8/12	Dennis Foley	University of Newcastle	Jenna Weston	AMBS	Email	Comments (dated 15/8/12) attached to email, indicating that the area has special cultural significance as former staging camps for ceremony, and a former nesting ground for the now-extinct <i>Megalania prisca</i> or <i>Varanus priscus</i> (giant ripper lizard), based on oral history.
7/9/12	Jenna Weston	AMBS	Paul Morris	MLALC	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Jenna Weston	AMBS	Tracey Howie	GTLAC	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Jenna Weston	AMBS	Scott Franks	Yarrowalk	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Jenna Weston	AMBS	Gordon Workman	DLO	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Jenna Weston	AMBS	Dennis Foley	University of Newcastle	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Jenna Weston	AMBS	David Watts	AHO	Email	Sent draft report and feedback form, requesting feedback by 5 October.
7/9/12	Phil Hunt	AHO	Jenna Weston	AMBS	Email	Supported the recommendations in the draft report, but noted that any unrecorded art/engravings that may exist in the north-east corner of the Bantry Bay Road study area may have more than low-moderate (local) scientific, historic and aesthetic value, depending on the figures that may be represented in any such art/engravings. Identified that the AHO takes the view that all surviving sites are significant (especially rock art and rock engravings) and all efforts should be taken to protect them from avoidable harm. [NB. Impacts to this north-east corner are considered unlikely at this stage - the area within the designated road reserve for Wakehurst Parkway is likely to be left intact in an effort to retain some vegetation within the study area. Should any art/engravings be identified in this area during pre-construction, an updated significance assessment would be undertaken.]
10/9/12	Gordon Workman	DLO	Jenna Weston	AMBS	Email	DLO considered that there is a good chance of artefacts and grooving sites remaining in the study area, and recommended test pitting on these site, and fencing off of any site found. [NB. The high level of previous disturbance to the study area, and the shallow topsoil, indicates that it is highly unlikely that any intact, substantial stone artefact sites will remain. As such, test excavation is not considered to be warranted. There appears to be no standing or flowing water in areas with sandstone, and as such, grinding grooves are considered highly unlikely to occur.]

Proof of advertisement that appeared in the Manly Daily on 28 June 2012

Notice of Aboriginal Consultation

Sites on Bantry Bay Road and Aquatic Drive, Frenchs Forest

An Aboriginal heritage assessment is proposed for three sites at Bantry Bay Road and Aquatic Drive, Frenchs Forest, for the proposed Northern Beaches Hospital Development. Aboriginal people who hold cultural knowledge & wish to be consulted for this assessment are invited to register an expression of interest by 12 July 2012, by fax to (02) 9320 6428, by email to Jenna.Weston@austrmus.gov.au or by post to:

Attn: Jenna Weston

Australian Museum Business Services

6 College Street

Sydney NSW 2010

The consultation may be used to assist in the preparation of an application for an AHIP for the proposed development, and assist the Director General of OEH in consideration and determination of the AHIP application.

Feedback on methodology from Dennis Foley

PURPOSE OF THIS FORM

This form is intended to make it easier for registered Aboriginal parties to provide comments and feedback on the proposed Northern Beaches Health Services, Frenchs Forest Aboriginal Heritage Impact Assessment (AHIA). It is not obligatory to provide feedback in this way, however if you would like to use this form, please fill out, sign and return to AMBS as a scanned document emailed to jenna.weston@austmus.gov.au, by fax to (02) 9320 6428, or post the original to:

Attn: Jenna Weston
Australian Museum Business Services
6 College Street, Sydney NSW 2010

ABORIGINAL FEEDBACK

I, Dennis Foley (your name)
of Gai-mariggal (Southern Guringah) (Aboriginal group name)

agree with the proposed methodology in the AMBS correspondence (dated 23 July 2012) regarding the Northern Beaches Health Services, Frenchs Forest AHIA and/or

would like to make the following comments about the proposed methodology in the AMBS correspondence (dated 23 July 2012) regarding the Northern Beaches Health Services, Frenchs Forest AHIA, or provide the following information regarding the cultural heritage values of the study area (cross out if not applicable):

The sites are former staging camps for ceremony
undertaken in the Wheelers Creek - Narrabeen - Oxford
Falls, Red Hill and Banting Bay ceremonial sites.
The surrounding area that includes these two pools was
the nest area for megalania (megalania prisca or
Varanus priscus), from our oral history. Although
the area has been cut for timber and is in regrowth and
it has been grazed - the smaller property I believe has
been bulldozed at some time; the land is still special
to us. I hope we can work together with respect

Signature

Date 15 Aug 2012

Position within Aboriginal group

Senior Male. Grandson of last Kaandjari
+ Mathnach.

Feedback on draft report from AHO

From: aho@northsydney.nsw.gov.au
Sent: Friday, 7 September 2012 1:55 PM
To: Jenna Weston
Subject: Re: Frenchs Forest draft AHIA report for comment
Attachments: ATT00001.bmp; ATT00002.jpg; ATT00003

Hi Jenna,

thanks for the report.

The AHO supports the recommendations in the draft report, however, it does not agree with the assessment that any unrecorded 'art/engravings' that may exist in the NE corner of the Bantry Bay Road study area would 'likely have low-moderate (local) scientific, historic and aesthetic value' merely because they may be representative of similar sites in the local and wider area. Suggesting a level of significance from an unknown seems rather presumptive. It also suggests that all the sites in the region are representative, which has not been substantiated. For example, most rock engravings sites have a range of figures and the range of figures is not consistent. Similarly, the number of rock art sites with hand stencils, for example, may be fairly high, but the intra-site variation may again vary in terms of location (left, right, ceiling, wall), spread, pigment colour, hand 'owner' (large, small, left, right), etc.

If there is a need to examine the NE area further it is hoped that the team selected to survey it has not been pre-programmed to only expect things of low-moderate significance. The number of recorded sites in the region may still be increasing, but the actual number of surviving sites is finite and will only ever diminish with development, accident, weathering and time. It is for this reason that the AHO takes the view that all surviving sites are significant (especially rock art and rock engravings) and all efforts should be taken to protect them from avoidable harm.

If you have any questions or require further information, please let us know.

regards

Phil Hunt
Archaeologist
per
David Watts
Manager



Aboriginal Heritage Office
39/135 Sailors Bay RD
Northbridge NSW
2065
aho@northsydney.nsw.gov.au
9949 9882
www.aboriginalheritage.org

Feedback on draft report from DLO

DARUG - LAND - OBSERVATIONS



ABN: 87239202455
E-MAIL: gordow51@bigpond.net.au
PO BOX: 571 Plumpton. NSW 2761
Phone: 029831 8868 or 0415 663 763



10-9-2012

Jenna Weston

Project Officer Archaeologist *Archaeology & Heritage*

Re: Bantry Bay Road and Aquatic Drive, Frenchs Forest, for the proposed Northern Beaches Hospital Development.

D.L.O reps Ron did this walkover with you on the 21 August 2012 as most of the area is covered with grass and weeds Ron's believes there is a good chance of Artefacts and grooving sites still there which has to be saved from damage and development with this in mind D.L.O recommends test pitting on these's site's fencing off of any site found.

Yours faithfully

Uncle
Gordon Workman
Darug Elder

Sites Officer

Appendix B

Summary Table of Previous Local Aboriginal Heritage Investigations

Reference	Location	Type of investigation	Findings	Distance from study area
Brown & Farquharson (2007)	189 Allambie Road, Allambie Heights	Archaeological survey of proposed redevelopment	No sites identified.	Immediately east
Attenbrow (1982)	Carnarvon Drive, Frenchs Forest	Archaeological survey of proposed retirement village	No sites identified.	c.400m north
Kelly (1991)	Warringah to Bantry Bay, Frenchs Forest	Archaeological survey of proposed renewal of watermain	Location of engraving site 45-6-0655 confirmed. 1 shelter with PAD identified. Sites were to be protected.	c.400m south west
Byrne (1986)	Beacon Hill	Archaeological survey of proposed Warringah Park Business Centre	Location of 2 known engraving sites confirmed. 1 quartz flake identified. 1 engraving site to be protected; protection of other sites considered not to be warranted.	c.400m north east
Brown (2011)	28 Rodborough Road, Frenchs Forest	Due diligence assessment to confirm location of rock engraving	Location of engraving site 45-6-0668 confirmed. No impact proposed. No further sites identified.	c.400m north east
Corkill (1993)	Parni Place, Frenchs Forest	Archaeological survey for urban capability assessment	No sites identified.	c.550m south west
Byrne (1996)	Carnarvon Drive, Frenchs Forest	Archaeological survey for proposed playing fields	No sites identified.	c.600m north
Bell (1982)	Middle Creek, from Oxford Falls to Frenchs Forest	Archaeological survey of a proposed sewerage pipeline	No sites identified.	c.600m north west to c.2km north east
Ross (1983)	Middle Creek Carrier, Frenchs Forest	Archaeological survey of proposed sewerage pipeline extensions	No sites identified.	c.600-700m north west
Ross (1974)	Deep Creek	Survey of Deep Creek	Many previously known and some new engravings, shelters and grinding grooves recorded by the Illawarra Prehistory Group.	c.1km north east to c.5km north
Oakley (1995)	Belrose	Archaeological survey for Optus communications facility	No sites identified.	c.1.1km north west
Irish (2004)	Lots 7-11 DP257403, Bantry Bay Road, Frenchs Forest	Archaeological survey for proposed senior's living area	No sites identified.	c.1.1km south west
Byrne (1992)	St Ives to Dee Why	Archaeological survey for proposed rezoning	1 shelter with art and PAD (45-2-0354) identified.	c.1.4km north west
Brayshaw (1998)	Red Hill and Golden Grove, Beacon Hill	Archaeological survey for upgrade to open space facilities	No sites identified.	c.1.5km north east
Dallas (1983)	Manly Warringah War Memorial Park	Archaeological survey of Wakehurst golf and recreation club	Location of 4 of 5 known engraving sites confirmed. 2 shelters with art and 1 shelter with PAD identified. Sites were to be protected.	c.1.5km south
Dallas (1988)	Willandra Road, Beacon Hill	Archaeological survey for proposed rezoning	Location of engraving site 45-6-0692 confirmed. No further sites identified.	c.1.6km north east
Edgar (1998a)	Perentie Road and Dawes Road, Belrose	Archaeological survey for proposed rezoning	No sites identified.	c.1.7km north west
Brayshaw (2000a)	137-139 Forest Way and 17 Dawes Road, Belrose	Archaeological survey for proposed subdivision	No sites identified.	c.1.7km north west

Brayshaw (2000b)	Forest Way and Lord Street, Belrose	Archaeological survey for urban planning	No sites identified.	c.1.7km north west
Barber (1995)	Oxford Falls	Archaeological survey of proposed fibre optic cable	1 isolated mudstone flake identified, outside of impact area.	c.2km north
Edgar (1997a)	Lot 6, cnr Forest Way and Perentie Road, Belrose	Archaeological survey for proposed rezoning	No sites identified.	c.2km north west
Edgar (1997b)	Lot 7, cnr Forest Way and Perentie Road, Belrose	Archaeological survey for proposed rezoning	No sites identified.	c.2km north west
Dallas & Irish (2009)	70 Willandra Road, Beacon Hill	Archaeological survey of proposed senior's residential development	No sites identified.	c.2km north east
Haglund (1982)	Wakehurst Parkway, Frenchs Forest	Archaeological survey of proposed pipeline	No sites identified.	c.2-4km north west
Brayshaw (1986)	Oxford Falls	Archaeological survey of radio relay tower and fibre optic cable	No sites identified.	c.2.2km north
Dallas (1991)	Beacon Hill	Archaeological survey for Department of Housing project	No sites identified.	c.2.5km north east
Brayshaw & McDonald (1989)	Forest Way, Belrose	Archaeological survey of proposed road widening and realignment	Location of 2 of 4 known engraving sites confirmed. No further sites identified.	c.2.6km north west
Smith (1989)	Forest Way, Belrose	Night survey of sandstone platforms along proposed road widening and realignment	Location of 1 of 2 known engraving sites confirmed. 2 new engraving sites identified. Protection of at least the most extensive sites recommended.	c.2.6km north west
McDonald (1999)	Belrose Public School	Archaeological survey for proposed rezoning	No sites identified.	c.2.7km north west
Haglund (1991)	Maybrook Avenue, Cromer	Archaeological test excavations	Excavation of 2 shelters identified that 1 had archaeological deposit. 479 flaked stone artefacts recovered, predominantly of quartz/quartzite, with evidence of bipolar knapping and microlithic technology. Recommended site be protected.	c.2.8km north east
Brayshaw (1989)	Linden & Wyatt Avenues, Belrose	Archaeological survey of proposed TAFE site	No sites identified.	c.3.3km north west
Edgar (1997c)	Lots 903-4, Narabang Way, Belrose	Archaeological survey for proposed offices/warehouses	No sites identified.	c.5.3km north west
Edgar (1997d)	Lot 905, Narabang Way, Belrose	Archaeological survey for proposed offices/warehouses	No sites identified.	c.5.3km north west
Edgar (1998b)	Lot 906, Narabang Way, Belrose	Archaeological survey for proposed offices/warehouses	No sites identified.	c.5.3km north west
Edgar & Corkill (1998)	Lot 106, Narabang Way, Belrose	Archaeological survey for proposed offices/warehouses	No sites identified.	c.5.4km north west

