

## Heritage Impact Assessment



# Caltex Kurnell Refinery Conversion: Heritage Impact Assessment

Prepared by Australian Museum Business Services  
for URS Australia Pty Ltd

February 2013

120949

## Document Information 120949

<b>Citation:</b>	AMBS 2013, <i>Caltex Kurnell Refinery Conversion: Heritage Impact Assessment</i> . Report to URS Australia Pty Ltd.
<b>Local Government Area:</b>	Sutherland Shire LGA
<b>Versions:</b>	Version 1: Draft Report issued December 2012 Version 2: Draft Report issued December 2012 Version 3: Draft Report issued January 2013 Version 4: Draft Report issued January 2013 Version 5: Report issued February 2013 Version 6: Report issued February 2013
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## Executive Summary

Australian Museum Business Services (AMBS) has been commissioned by URS Australia Pty Ltd (URS) on behalf of Caltex Refineries (NSW) Pty Ltd (Caltex) to prepare a Heritage Impact Assessment (HIA) to address Aboriginal and historic heritage issues associated with Caltex's conversion of its Kurnell refinery to a finished fuel terminal facility. The Project is being assessed as State Significant Development under Part 4 Division 4.1 of the *Environmental and Planning Assessment Act 1979* (EP&A Act). The HIA forms a Technical Appendix to the Environmental Impact Statement (EIS) for the Project.

The proposed terminal would receive and distribute refined petroleum products, including gasoline, diesel, jet fuel and fuel oil. Over the long term, there would be a reduction in the total number of tanks required for storage when compared to the number currently in use for refinery operations. In association with the Project, the refinery plant would be shut down, depressurised, de-inventoried and left in situ. The Project does not include demolition, dismantling, or remediation of tanks or plant, which would be subject to separate approvals at a later stage.

### *Scope of the Assessment*

The preliminary Aboriginal heritage assessment study area addresses the specific location of the proposed works, described in this report as the Project Area. The historic heritage assessment study area addresses the broader historic heritage environment, including heritage items in the vicinity of the Project Area that could also be affected by the proposed works.

### *Heritage Context*

An extensive search of the Office of Environment and Heritage's Aboriginal Heritage Information Management System database was undertaken on 28 August 2012 (AHIMS client service number #78255), and 75 registered Aboriginal sites were identified within a 6 km x 7 km area centred on the Project Area. One potential Aboriginal site has previously been identified in the immediate vicinity of the Project Area, a Potential Archaeological Deposit which extends 100 m into the Kurnell refinery between Solander Street and Road 14 (Kurnell Pipeline PAD; not registered on AHIMS).

There are three historic heritage items or places in the immediate vicinity of the Site. The Project Area itself forms part of the locally significant industrial heritage site Australian Oil Refinery, which began operations in 1956. The locally significant four wheel drive track (Captain Cook Drive) is closely associated with the north-west and south-west boundaries of the Site, while the nationally significant Kurnell Peninsula Headland adjoins the south-east boundary of the Site.

### *Heritage Impact Assessment*

#### *Aboriginal Heritage*

Previous archaeological investigations carried out near the Project Area demonstrate that despite disturbance across the Kurnell Peninsula, *in situ* Aboriginal archaeological deposits may still be present. However, this area has been subject to extensive disturbance from industrial development, the subsequent construction of roads, and installation of pipelines, tanks and a stormwater basin, and ongoing maintenance of subsurface infrastructure, as well as exotic plantings. As such, it is unlikely that midden deposits, subsurface artefact occurrences or burials are present below the ground surface. Based on the high level of ground disturbance, the Project Area is considered to have no Aboriginal archaeological potential, and does not form part of the Kurnell Pipeline PAD.



### **Australian Oil Refinery**

The conversion of the Caltex Refinery to a finished product terminal would have a major adverse impact on the technical and scientific values of the Australian Oil Refinery site, as a rare example of an operational oil refinery in NSW. Decommissioning of the plant would diminish the ability of the Site to demonstrate its technological significance and its historical contribution to development of an oil refining industry in NSW in the mid-twentieth century.

The cleaning and/or modification of some of the existing tanks at the Caltex Refinery to store finished petroleum products would conserve a representative sample of original Australian Oil Refinery storage tanks on site, and as such respects the historical association of the Site with the development of the Australian petroleum industry. However, the conversion of all crude oil tanks to finished products tanks, and the possible discontinuation of use of other speciality tanks, would have a minor adverse impact on the technical significance and representative value of the Site, by reducing the functional range of tanks in use.

The installation of new dedicated diesel and jet fuel pipelines along the existing Pipeline Easement 2, and conversion of an existing pipeline within Pipeline Easement 1 to a new use, may have minor adverse impacts on significant fabric of the Australian Oil Refinery site, but these changes are consistent with the ongoing use of the Site and the associated necessity to update infrastructure to current operational standards.

### **Four Wheel Drive Track (Captain Cook Drive)**

The proposed conversion of the Caltex Refinery to a finished product terminal would not impact on significant fabric of the former four wheel drive track or the historic significance of the local heritage item.

### **Kurnell Peninsula Headland**

The proposed conversion of the Caltex Refinery to a finished product terminal would not impact on significant fabric of the NHL Kurnell Peninsula Headland, and there would be no change to the identified historic or social values of the place. The proposed works would not alter the existing landscape setting of the Kurnell Peninsula Headland or otherwise impact on the existing view corridors associated with the national heritage values of the place.

### **Conclusions and Recommendations**

The proposed conversion of the Caltex Refinery into a finished product terminal would not impact on any Aboriginal heritage sites, objects or places, or areas of archaeological potential or Aboriginal sensitivity. No further Aboriginal heritage assessment is required for the proposed works.

A heritage management strategy should be prepared to identify possible mitigation for the cumulative loss of industrial heritage value during the decommissioning of the main refinery plant.

#### **Recommendation 1**

***Caltex should consider undertaking a review of the heritage significance of the Australian Oil Refinery site prior to decommissioning of the refinery plant. The review would form part of a heritage management strategy for the overall Site, which would inform and guide measures to minimise or mitigate the loss of heritage value during the decommissioning process. The review should clarify the extent and heritage significance of the place, by identifying key elements of industrial heritage and their relative contribution to the overall significance of the Site. Key elements could include the existing***

***plant and oil refining infrastructure, as well as associated administrative and workshop buildings.***

Implementation of an interpretation strategy would provide some mitigation for the adverse effects of the Caltex Refinery Conversion on the industrial heritage significance of the site. It could also contribute to future understanding and/or promotion of the history of the Caltex Brand in Australia. The first stage of an interpretation strategy would be an archival recording of the refinery before and during the decommissioning process.

***Recommendation 2***

***An archival recording of the existing fabric and operations of the Australian Oil Refinery site should be prepared while the plant is still operational, and during the decommissioning process. The recording should incorporate a range of media, such as historic plans of the plant and infrastructure, photographic recording of the plant and infrastructure, and audiovisual recording of the stories of workers who operate the plant. The recording should become part of the history of the place and should be maintained for the appreciation of present and future generations.***

***The archival recording should be made in accordance with current Heritage Branch guidelines.***

***Management and Mitigation Measures***

In response to the conclusions and recommendations included in this report and consultation with the Heritage Branch regarding the Project Caltex have outlined plans to undertake the following work in the lead up to the closure of the main refinery plant in 2014:

- Form an in-house team to manage documentation and interpretation of the history of the refinery prior to its closure, including production of a colour illustrated book on the history of the refinery targeted at Caltex's employees;
- Liaise with the Mitchell Library (NSW State Library) to prepare a photographic record of the refinery (both plant and people) for inclusion in the library's archives; and
- Engage a professional photographer to prepare a photographic exhibition on the refinery.

Caltex have also indicated a commitment to undertaking the following additional measures to manage and mitigate impacts on the significance of heritage items, places and archaeological sites affected by the works:

- Prepare an archival photographic recording of the existing fabric and operations of the Kurnell refinery while the plant is still operational, and during the decommissioning process. The recording would be undertaken in accordance with the Heritage Council guidelines on *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006). The archival recording would be maintained for the appreciation of present and future generations. To this end, the recording would be lodged with Sutherland Shire Library and the NSW State Library.
- Lodge a copy of the 2005 DVD *50 Years of Refining Fuel for Australia* with Sutherland Shire Library and the NSW State Library.
- Prepare a Heritage Management Strategy for the Australian Oil Refinery site prior to shut-down of the refinery plant, which would provide Caltex with a basic framework for the ongoing management of the site's heritage during present and future works on site. The Strategy would include a review of the heritage significance of the overall site. The review would clarify the extent and relative heritage value of the place by identifying key elements of industrial and built heritage as well as social values of the refinery, and the relative contribution of these elements to the overall significance of the Site. Recommendations

would also address the future assessment and management of memorabilia and other significant items of moveable heritage maintained on-site.

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# 1 Introduction

## 1.1 Preamble

Australian Museum Business Services (AMBS) has been commissioned by URS Australia Pty Ltd (URS) on behalf of Caltex Refineries (NSW) Pty Ltd (Caltex) to prepare a Heritage Impact Assessment (HIA) to address Aboriginal and historic heritage issues associated with Caltex's conversion of its Kurnell refinery to a finished fuel terminal facility. The Project is being assessed as State Significant Development under Part 4 Division 4.1 of the *Environmental and Planning Assessment Act 1979* (EP&A Act). The HIA forms a Technical Appendix to the Environmental Impact Statement (EIS) for the Project.

## 1.2 The Site & Proposal

### 1.2.1 The Site

The Caltex Refinery (the Site) is located on the Kurnell Peninsula, within Sutherland Shire Local Government Area (LGA), approximately 15 km south of Sydney's Central Business District (CBD) (Figure 1.1). The land is owned and occupied by Caltex Refineries (NSW) Pty Ltd, and is described as:

- Lot 56 DP 908;
- Lot 57 DP 908;
- Lot 62 DP 908;
- Part Lot 11 DP 7632;
- Part Lot 12 DP 7632;
- Lot 189 DP 7632;
- Lot 190 DP 7632;
- Lot 43 DP 8135;
- Lot 44 DP 8135;
- Lot 45 DP 8135;
- Lot 46 DP 8135;
- Part Lot 77 DP 8135;
- Lot 78 DP 8135;
- Lot 79 DP 8135;
- Part Lot 122 DP 8135;
- Part Lot 123 DP 8135;
- Part Lot 124 DP 8135;
- Part Lot 125 DP 8135;
- Lot 48 DP 9564;
- Lot 77 DP 9564;
- Lot 78 DP 9564;
- Lot 81 DP 9564;
- Part Lot 1 DP 215818;
- Part Lot 2 DP 215818;
- Lot 1 DP 215819;
- Lot B DP 338897;
- Lot D DP 361103;
- Part Lot F DP 361103;
- Lot G DP 361103;
- Lot J DP 362655;
- Lot K DP 362655;
- Lot H DP 362655;
- Lot 570 DP 752064;
- Lot 24 DP 776328;
- Lot 1 DP 1044690;
- Lot 25 DP 776328;
- Lot 283 DP 752064; and
- Lot 1 DP 132055.

The Site is bounded by Kamay Botany Bay National Park to the south and east, Kurnell township to the north, and Captain Cook Drive to the west.

Crude oil is currently delivered to Botany Bay by ship, transferred by pipeline to storage tanks at the Site, and piped, on demand, to the crude distillation and other refinery units for processing into fuels, including petrol, diesel and jet fuel. The finished products from the refinery are then pumped via a pipeline beneath Botany Bay to Banksmeadow terminal, the Sydney/Newcastle pipeline, or the Joint User Facility at Sydney Airport for further distribution. Selected products are also transported overland from the refinery by ship and overland by road tankers.

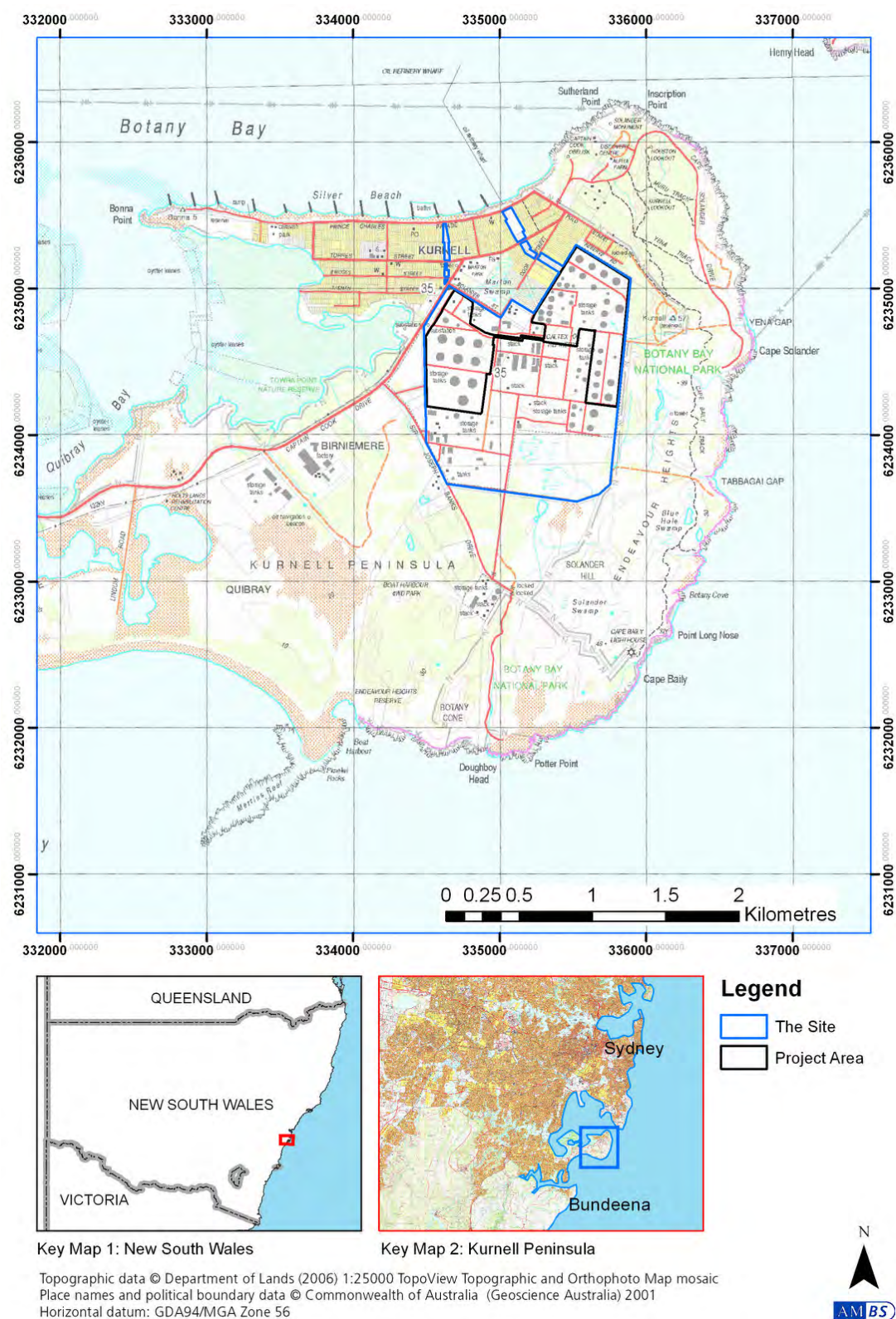


Figure 1.1 Caltex Refinery Site and Project Area.

### 1.2.2 The Proposal

Caltex proposes to convert the refinery into a Finished Product Terminal (the Project). The terminal would receive and distribute refined petroleum products, including:

- Gasoline – Unleaded Petrol (ULP), Premium Unleaded Petrol (PULP) and Super Premium Unleaded Petrol (SPULP);
- Diesel
- Jet fuel; and
- Fuel oil.

Finished fuel products would be imported through Botany Bay, stored in the existing tanks, and leave the Site via the current major product distribution systems.

Over the long term, there would be a reduction in the total number of tanks required for storage when compared to the number currently in use for refinery operations. Approximately 60% of the existing tanks would continue to be used, for storing finished fuel products, product mixes, slop and site wastewater. The Kurnell Wharf would retain its current capability for out loading; however, this would be of low frequency. Under typical operational conditions, road transportation of products from the Site would cease.

Key elements of the proposed Project are:

- Continued use of parts of the Site (the Project Area) in a manner similar to that currently in place for the storage and distribution of petroleum products;
- Cleaning and modification of some of the existing tanks within the Project Area to store refined product (i.e. conversion to finished product tanks); and,
- A range of ancillary works to improve efficiency and capability across the site for its conversion and use as a terminal, including pipeline, pump and other infrastructure upgrades, and the consolidation of utilities, transportation and management systems.

Key tank modifications would include:

- Conversion of four petroleum products tanks within the Eastern Tank Area to finished product storage.
- Replacement of one tank within the Eastern Tank Area, for finished product storage.
- Change of service for one finished product tank within the Eastern Tank Area to hold a different finished product.
- Change of service for two petroleum products tanks within the Eastern Tank Area to slop storage.
- Conversion of eight tanks within the Western Tank Area from crude oil storage to finished product storage.
- Change of service for one tank within the Western Tank Area from crude oil to slop storage.

Table 1.1 and Figure 1.2 provide a summary of the changes to tanks within the Project Area.

**Table 1.1 Summary of tanks requiring conversion or change of service.**

Proposed Tank Service	No. of Tanks Requiring Conversion	No. of Tanks Requiring Change of Service
Finished Products	13*	1
Waste Water and Slop	0	3
Total	13	4

\*One tank would be restored in kind



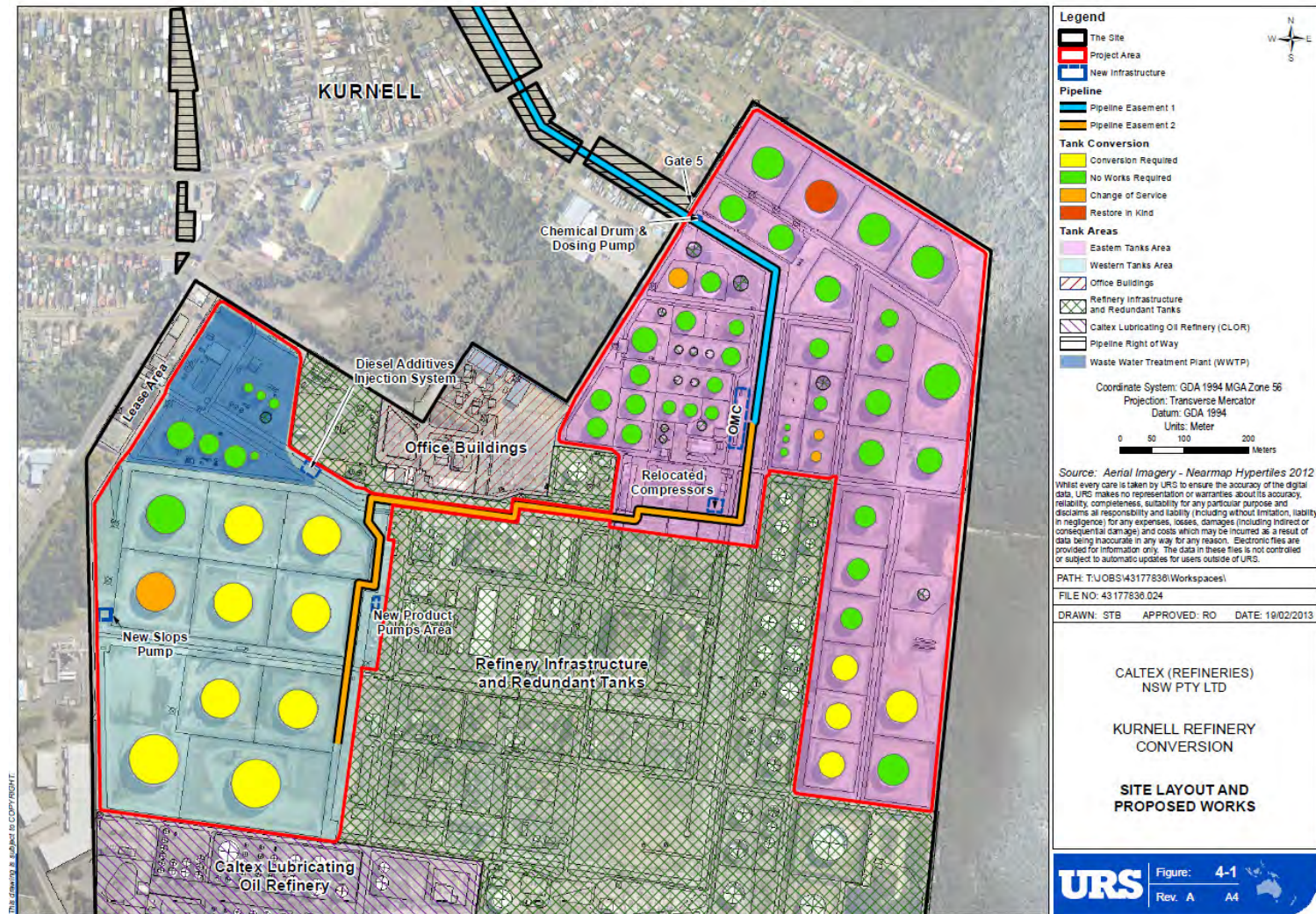


Figure 1.2 Site Layout and Proposed Works (Source: URS, EIS Figure 4-1).

For tanks that require modification, the works would involve some or all the following activities:

- Replacement of water draw-off system, where required;
- Repair or replacement of tank floor, where required, including conversion to cone up type for jet fuel tanks and installation of underfloor liners;
- Internal painting of the tank floor and shell up to the first strake. Internal painting of the entire shell and external painting would be undertaken where required;
- Design and installation of vent systems in line with API 2000, API1650 and API1653;
- Modification of fire systems as required to meet fire foam and water volume requirements;
- Installation of new power and signal cables, cable ladders, switchgear, instrumentation and electrical motors, where required;
- Installation of an internal floating roof on gasoline tanks (with air scoops, hinged covers and stainless mesh screens) and an external dome, where required. This arrangement protects the gasoline from external contaminants, e.g. water, and ensures safer operation;
- Removal of insulation from existing crude oil tanks, where extant; and
- Minor changes to piping and tank nozzles for slop tanks.

The replacement of a tank in the north of the Eastern Tank Area would involve:

- Demolishing the existing tank; and
- Preparing a foundation for the new tank in the same location as the current base. This would be prepared for a cone up tank floor. This type of tank floor does not require major excavation works. Excavation depth would not extend past half a meter below ground level.

Ancillary works would include:

- Installation of two new dedicated diesel pipelines from the Oil Movements Centre (OMC) along the existing Pipeline Easement 2 to the Western Tank Area.
- Installation of two new dedicated jet fuel pipelines from the OMC along the existing Pipeline Easement 2 to the Western Tank Area.
- Conversion of an existing pipeline within Pipeline Easement 1 from currant usage to slop oil.
- Installation of a new diesel additives injection system within the Western Tank Area.
- Installation of five new product transfer pumps with concrete foundations on the eastern side of the Western Tank Area, and one pump on the west side of the Western Tank Area.
- Installation of two new product transfer pumps at the OMC.
- Installation of a small chemical drum and dosing pump close to Gate 5, attached to the existing jet fuel pipeline.
- Installation of new electrical infrastructure within the Project Area.

In association with the Project, the refinery plant would be shut down, depressurised, de-inventoried and left in situ. Tanks not required for terminal operations would be emptied, isolated, cleaned, and left with all manhole covers removed. Redundant infrastructure is hatched green on Figure 1.2. The Project does not include demolition, dismantling, or remediation of tanks or plant, which would be subject to separate approvals at a later stage.

The Project is expected to be undertaken over a 54 month period. Refinery operations would cease in the second half of 2014 and would be followed by continued conversion of some tanks within the Project Area to hold finished products. With the cessation of refining operation and the high levels of automation of the terminal, the number of employees on Site would be substantially reduced.

### 1.2.3 Scope of Assessment

The preliminary Aboriginal heritage assessment study area addresses the specific location of the proposed works, described in this report as the Project Area (Figure 1.1-Figure 1.2). The historic heritage assessment study area addresses the broader historic heritage environment, including heritage items in the vicinity of the Project Area that could also be affected by the proposed works. Due to commercial confidentiality, the specific numbers and functions of individual tanks are not discussed in this report.

## 1.3 Methodology

This report incorporates an historic heritage impact assessment of the proposed works, and a preliminary assessment of the Aboriginal cultural heritage constraints of the Project Area.

### 1.3.1 General Methodology

The historic and preliminary Aboriginal heritage assessments are based on the following general methodology:

- Review of statutory and non-statutory heritage lists and registers, to identify the location and significance of Aboriginal and historic heritage items, places, and archaeological sites in the vicinity of the Study Area:
  - National Heritage List (NHL);
  - Commonwealth Heritage List (CHL);
  - State Heritage Register (SHR);
  - State Heritage Inventory (SHI);
  - Aboriginal Heritage Information Management System (AHIMS), Office of Environment and Heritage (OEH);
  - Historic Heritage Information Management System (HHIMS), OEH;
  - State Environmental Planning Policy (Kurnell Peninsula) 1989, Schedules 2 and 3 (SEPP Kurnell Peninsula);
  - Sutherland Shire Heritage Inventory;
  - National Trust of Australia (NSW) Register;
  - National Trust of Australia (NSW) Industrial Archaeological Sites List (IAS); and
  - Register of the National Estate (RNE).
- Desktop assessment of the environmental context and previous land use history of the Study Area;
- Preparation of a thematic history of the Study Area, based on a review of relevant primary and secondary historical documentation, maps and photographs;
- Site inspection of the Project Area and analysis, to confirm the location and condition of known and potential Aboriginal and historic heritage items, places and archaeological sites;
- Review of cultural heritage values (or heritage significance);
- Assessment of the impacts of the proposed development on the cultural heritage values of items, places and archaeological sites.

The assessments are consistent with the principles and guidelines of the Burra Charter (*The Australia ICOMOS charter for the conservation of places of cultural significance*).

The preliminary Aboriginal heritage assessment has been undertaken in accordance with Step 1 of the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Department of Environment and Conservation [DEC] 2005).



The historic heritage impact assessment has been prepared in accordance with the *NSW Heritage Manual* (1996), published by the Heritage Office and Department of Urban Affairs and Planning (now the Heritage Branch, OEH), and associated supplementary publications. The assessment of impacts on items of National heritage significance has been prepared in accordance with *Matters of National Environmental Significance: Significant impact guidelines 1.1* (Department of the Environment, Water, Heritage and the Arts 2009).

The site inspection was undertaken on 31 October 2012 by AMBS Project Manager, Libby Percival, and AMBS Project Officer, Ngaire Richards, accompanied by La Perouse Local Aboriginal Land Council (LALC) representative Shane Ingrey and Caltex representative James Farhart.

A meeting was held at the Heritage Branch, OEH on 10 January 2013 to discuss the potential heritage impacts of the Project and the conclusions and recommendations of this report. The meeting was attended by Dr Siobhan Lavelle OAM, Senior Heritage Officer at the Heritage Branch, Caltex representatives Jos Kusters and Kylie Gordon, URS representatives Will Miles and Rachel O'Hara, and AMBS representatives Jennie Lindbergh and Libby Percival. The results of the meeting are incorporated into Section 10 of this report.

### 1.3.2 Magnitude of Heritage Impact

The assessment of heritage impacts considers whether the proposed works are likely to affect the historic, aesthetic, scientific, social or spiritual significance of a heritage item, place, or archaeological site. Table 1.2 outlines the terminology used in this report to indicate the magnitude or severity of potential impacts. The assessment of magnitude or severity of potential impacts on cultural heritage value has been based on:

- the extent to which proposed action would have a substantial and/or long-term effect on one or more heritage values of the place, including the complete or partial loss of a one or more heritage values;
- the likelihood that the proposed action would involve removal, destruction, damage or substantial alteration of the fabric of a heritage item, place, archaeological deposit, site or cultural artefact, in a manner inconsistent with its heritage values;
- the extent to which the proposed action would enhance or detract from the landscape setting, context, or important views associated with a heritage item or place, where the setting, context or views contribute to the heritage values of the item or place;
- the extent to which the proposed works would diminish one or more heritage values of an item or place by restricting or inhibiting significant uses and associations of the place; and/or
- the extent to which the proposed works would diminish the ability of the place to demonstrate creative or technical achievement.

**Table 1.2 Magnitude of Impact – heritage items, places and archaeological sites**

Rating	Impact Definition
Positive or Beneficial	<ul style="list-style-type: none"> <li>• The proposed action enhances the heritage value and integrity of the item or place.</li> <li>• The proposed action enhances understanding of the item or place.</li> </ul>
Neutral or No impact	<ul style="list-style-type: none"> <li>• The proposed action respects the heritage value and integrity of the item or place.</li> <li>• There will be no change or impact as a result of the proposed action.</li> </ul>
Minor adverse impact or Partial loss of value	<ul style="list-style-type: none"> <li>• The proposed action will have minor temporary effects on, and/or minor changes to important fabric, setting, context, views, uses or associations.</li> <li>• There will be no substantial or long-term effect on heritage value, integrity, or understanding of the item or place.</li> </ul>
Major adverse impact or Total loss of value	<ul style="list-style-type: none"> <li>• The proposed action will involve permanent changes to, or destruction of important fabric, setting, context, views, uses or associations.</li> <li>• There will be a substantial or long-term effect on heritage value, integrity, or understanding of the item or place.</li> </ul>



The *Matters of National Environmental Significance: Significant impact guidelines 1.1* state that an action is likely to have a significant impact if there is a real chance or possibility that it will cause one or more of the National Heritage values to be:

- lost;
- degraded or damaged; or
- notably altered, modified, obscured, or diminished.

The action can also have a significant impact if it results in a partial loss of heritage fabric, where the fabric embodies particularly sensitive or important values.

Impacts to a State or local heritage item, place, or archaeological site are considered to be significant if the action results in a substantial loss of heritage value.

For known Aboriginal sites and areas of archaeological potential in NSW, the magnitude of impact is assessed in accordance with the requirements of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (DECCW 2010).

Where potential impacts are serious, irreversible, or cannot be fully mitigated, the precautionary principle and the principle of inter-generational equity apply.

### 1.3.3 Aboriginal Community Consultation

Aboriginal community consultation is an integral part of the assessment of Aboriginal cultural heritage significance. Preliminary consultation was undertaken in order to:

- provide La Perouse LALC, as statutory representatives of the local Aboriginal community, with the opportunity to comment on the Aboriginal cultural heritage values of the Project Area and be involved in the heritage assessment process;
- identify potential Aboriginal cultural heritage values of the Project Area;
- integrate potential Aboriginal heritage values and recommendations for management into the assessment report; and
- provide an opportunity for the local Aboriginal community to comment on the outcomes and recommendations of Heritage Impact Assessment reporting.

Initial consultation was undertaken with La Perouse LALC, who were advised of the proposed works on 18 October 2012, and invited to identify any spiritual, traditional, historical or contemporary associations and attachments which the Project Area has for the present-day Aboriginal community, in accordance with Step 1 of the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* (Draft Guidelines) (DEC 2005).

The Draft Guidelines outline a series of steps to be undertaken as part of the Aboriginal cultural heritage assessment process. Due to the disturbed nature of the Project Area, full Aboriginal community consultation in accordance with the *Interim Community Consultation Requirements for Applicants* (DEC 2004) has not been undertaken. However, as Aboriginal cultural heritage values are not likely to be affected by the proposed Project, as concluded in this report, there is no further requirement for Aboriginal community consultation or assessment.

The draft preliminary Aboriginal heritage assessment was sent to La Perouse LALC for review and comment on 7 January 2013. La Perouse LALC was contacted by phone at the end of the 28 day review period and asked if they wished to provide any comments; however, no feedback has been received.

## **1.4 Authorship & Acknowledgements**

This report has been prepared by AMBS Project Officer Ngaire Richards and AMBS Project Manager Libby Percival. AMBS Senior Project Manager Jennie Lindbergh reviewed the report for quality and consistency, and AMBS Project Manager Christopher Langeluddecke provided a technical review of the Aboriginal heritage aspects of the report.

The authors acknowledge the assistance of Rachel O'Hara, Senior Environmental Scientist, URS.



## 2 Statutory Context

### 2.1 Environment Protection and 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 the 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 (SEWPaC) 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 would have a significant impact on items and places included on the NHL or CHL.

#### 2.1.1 National Heritage List

The following place is listed on the NHL:

Place ID	Name	Primary Address	Significance
105812	Kurnell Peninsula Headland	Cape Solander Dr, Kurnell, NSW, Australia	National

The location of the Kurnell Peninsula Headland is described as:

*About 400ha, at Kurnell, comprising Botany Bay National Park, Lot 1 DP91704, the road reserve extending from Cape Baily Lighthouse in the east to the Park boundary in the west and the area between the seaward boundaries of the National Park and Lot 1 DP91704 and the Low Water Mark.*

Kamay Botany Bay National Park is owned and managed by the NSW National Parks and Wildlife Service (NPWS). The boundary of the place is illustrated in Figure 2.1.

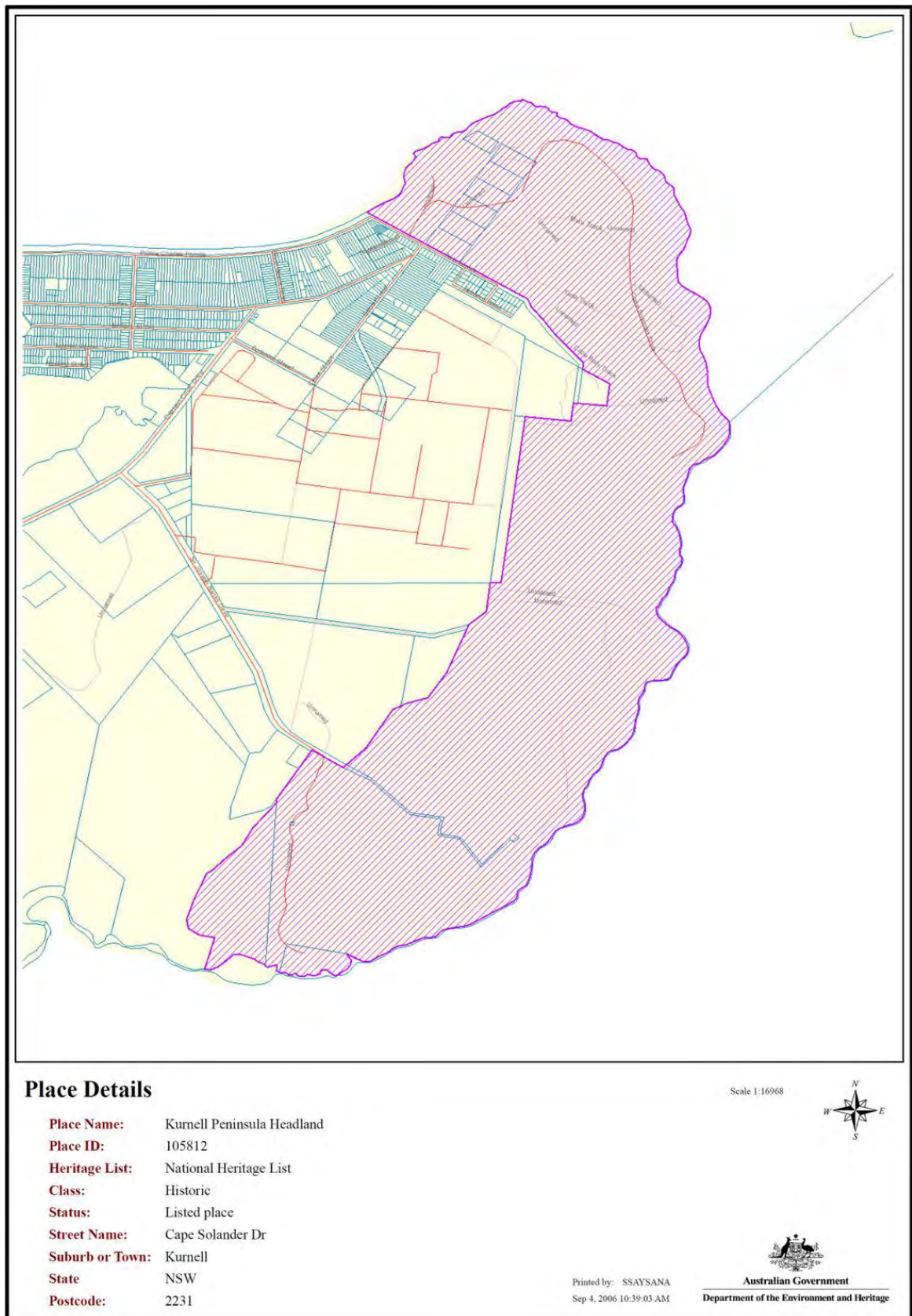


Figure 2.1 Boundary map of the NHL Kurnell Peninsula Headland (Source: SEWPaC).

The following place has been nominated for inclusion on the NHL:

Place ID	Name	Primary Address	Significance
106162	Kamay Botany Bay	Captain Cook Dr, Kurnell, NSW, Australia	National



The nomination seeks to include all the values encompassed in the current NHL Kurnell Peninsula Headland within a broader boundary and to recognise additional associative values.

### 2.1.2 Commonwealth Heritage List

The CHL lists the following item in the vicinity of the project Site, and within the boundary of the NHL Kurnell Peninsula Headland:

Place ID	Name	Primary Address	Significance
105571	Cape Baily Lighthouse	Sir Joseph Banks Dr, Kurnell, NSW, Australia	National

The lighthouse is within the boundary of the NHL Kurnell Peninsula Headland, but is more than 750 m southeast of the project Site. The lighthouse is leased from the NPWS by the Australian Maritime Safety Authority.



**Figure 2.2** CHL Cape Baily Lighthouse is indicated with pink arrow; NHL Kurnell Peninsula Headland is indicated by red shading. (Source of background imagery: Google Earth; © 2012 Whereis® Sensis Pty Ltd; © 2012 Sinclair Knight Merz; © 2012 DigitalGlobe; © 2012 TerraMetrics; Data: SIO, NOAA, US Navy, NGA, GEBCO).



Figure 2.3 Boundary map of the CHL Cape Bailly Lighthouse (Source: SEWPaC).

## 2.2 National Parks and Wildlife Act 1974

Under the provisions of the *National Parks & Wildlife Act 1974* (amended 2010; NPW Act), the Director-General of the NPWS (now part of 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 camp sites, 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 a place that 'in the opinion of the Minister, 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 harm an Aboriginal Object or Aboriginal Place without the prior issue of an Aboriginal Heritage Impact Permit (AHIP). The definition of harm includes any act or omission that destroys, defaces or damages an object or place, or in relation to an object - moves the object from the land on which it had been situated. Any loss of value to an Aboriginal site or area of archaeological potential would require the relevant approvals to allow such an impact. Mitigation through recording, collection or excavation of Aboriginal heritage material may be appropriate, depending on the assessed level of significance of the site. 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.

Under Section 89J(c) of the EP&A Act, Caltex would not be required to apply for an AHIP for State Significant Development (see Section 2.4, below). However, under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, the Director-General is required to consult with OEH in the preparation of environmental assessment requirements, and to assess key issues raised by OEH with respect to the proposed works.

### 2.2.1 Aboriginal Heritage Information Management System (AHIMS)

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 sites 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 4.2.1.

## 2.3 Heritage Act 1977

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



Part 4 of the Heritage Act refers to the effects of listing on the SHR and interim heritage orders (IHOs). There are no items or places within the study area, or its vicinity, listed on the SHR.

Part 6 Division 9 refers to the protection to archaeological relics, features or deposits. Sections 139 to 145 of the Act require that excavation or disturbance of land that is likely to contain, or is believed may contain, archaeological relics is undertaken in accordance with an excavation permit issued by the Heritage Council (or in accordance with a gazetted exception under Section 139(4) of the Act).

The Heritage Act defines an archaeological relic as:

*any deposit, artefact, object or material evidence that:*

- (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and*
- (b) is of State or local heritage significance.*

Under Section 89J(c) of the EP&A Act, Caltex would not be required to apply for approvals or excavation permits under the Heritage Act for State Significant Development (see Section 2.4 below). However, under Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* the Director General is required to consult with the Heritage Branch in the preparation of environmental assessment requirements, and to assess key issues raised by the Heritage Branch with respect to the proposed works.

Under Section 146 of the Heritage Act, the discovery of a relic also requires that

*a person who is aware or believes that he or she has discovered or located a relic (in any circumstances, and whether or not the person has been issued with a permit) must:*

- (a) within a reasonable time after he or she first becomes aware or believes that he or she has discovered or located that relic, notify the Heritage Council of the location of the relic, unless he or she believes on reasonable grounds that the Heritage Council is aware of the location of the relic, and*
- (b) within the period required by the Heritage Council, furnish the Heritage Council with such information concerning the relic as the Heritage Council may reasonably require.*

### 2.3.1 OEHL Heritage and Conservation Register (Section 170 Register)

Part 8 Section 170 of the Heritage Act requires government departments and agencies to maintain a Heritage and Conservation Register (Section 170 Register). Part 4 Clause 21 of the Heritage Regulation 2012 describes the assets that must be included on a Section 170 Register:

- (a) items that are listed as heritage items under an environmental planning instrument made under the Environmental Planning and Assessment Act 1979,*
- (b) items that are subject to an interim heritage order,*
- (c) items that are listed on the State Heritage Register,*
- (d) items identified by the government instrumentality concerned as having State heritage significance.*

Section 170A of the Act requires that a government department or agency must give the NSW Heritage Council not less than 14 days written notice before the government instrumentality:

- (a) removes any item from its register under section 170, or*
- (b) transfers ownership of any item entered in its register, or*
- (c) ceases to occupy or demolishes any place, building or work entered in its register.*

The government department or agency is also responsible for ensuring that the items listed on its Section 170 Register are maintained with due diligence in accordance with State Owned Heritage Management Principles.

OEH maintains a database of known and potential historic heritage items that have been identified on OEH managed estate, known as the Historic Heritage Information Management System (HHIMS). The OEH (former DECCW) Section 170 Register is a subset of the HHIMS database. The HHIMS database lists 58 known or potential heritage items and complexes (collections of items) in the southern section of Kamay Botany Bay National Park, within Sutherland LGA. The OEH (former DECCW) Section 170 Register lists the following items and places within the same area:

Place ID	Name	Primary Address	Significance
1402	Alpha Farm Site and Kurnell Accommodation House (Complex)	Botany Bay National Park, Sutherland	National*
3366	Banks Monument	Botany Bay National Park, Sutherland	National*
1377	Captain Cook's Landing Place Monuments (Complex)	Botany Bay National Park, Sutherland	National*
10646	Commemorative Tree Plantings (Complex)	Botany Bay National Park, Sutherland	National*
3364	Cook's Monument	Botany Bay National Park, Sutherland	National*
3357	Cook's Well	Botany Bay National Park, Sutherland	National*
1401	Discovery Centre	Botany Bay National Park, Sutherland	National*
3365	Forby Sutherland Monument	Botany Bay National Park, Sutherland	National*
3360	Foreshore Pines near flagstaff	Botany Bay National Park, Sutherland	National*
3373	Foreshore sea wall- coursed stone	Botany Bay National Park, Sutherland	National*
11029	Freshwater Stream Plaque	Botany Bay National Park, Sutherland	National*
3367	Inscription Point Plaque	Botany Bay National Park, Sutherland	National*
11028	Isaac Smith Memorial	Botany Bay National Park, Sutherland	National*
10984	Kurnell Peninsula Meeting Place Precinct (Complex)	Botany Bay National Park, Sutherland	National*
3362	Landing Place Memorial	Botany Bay National Park, Sutherland	National*
3358	Main Flagstaff	Botany Bay National Park, Sutherland	National*
3368	Prince's Tree Memorial	Botany Bay National Park, Sutherland	National*
3355	Queen Elizabeth II Tree	Botany Bay National Park, Sutherland	National*
3363	Solander Memorial	Botany Bay National Park, Sutherland	National*
3359	Trust wharf abutment	Botany Bay National Park, Sutherland	National*

\*These items are within the NHL listed Kurnell Peninsula Headland (see Section 2.1 above).

## 2.4 Environmental Planning and Assessment Act 1979

The EP&A Act is the main act regulating land use planning and development in NSW. Part 4 Division 4.1 of the Act provides a process for the assessment and approval of State Significant Development (SSD). The proposed works are declared to be SSD in accordance with Schedule 1 Clause 10 (3) of *State Environmental Planning Policy (State and Regional Development) 2011*:

*Development for the purpose of the manufacture, storage or use of dangerous goods in such quantities that constitute the development as a major hazard facility within the meaning of Chapter 6B of the Occupational Health and Safety Regulation 2001.*

Applications made under Part 4 Division 4.1 of the EP&A Act are subject to environmental assessment requirements, prepared by the Director General of Planning and Infrastructure. Under Schedule 2(3)(4) of the *Environmental Planning and Assessment Regulation 2000* the Director-General is required to:

*consult relevant public authorities and have regard to the need for the requirements to assess any key issues raised by those public authorities*

This should include consultation with OEH and the Heritage Branch regarding items, places and archaeological sites that have heritage significance.

Director General's Environmental Assessment Requirements (DGRs) for the proposed works were issued on 12 September 2012. The DGRs require the EIS to address the following specific matters:

*Heritage – including:*

- *an Aboriginal cultural heritage assessment (including both cultural and archaeological significance), which must demonstrate effective consultation with relevant Aboriginal community groups; and*
- *a non-Aboriginal cultural heritage assessment (including both cultural and archaeological significance) which must:*
  - *include a statement of heritage impact (including significance assessment) for the site and any National, State significant, or locally significant historic heritage items in the area, including the Kurnell Peninsula Headland; and*
  - *outline any proposed management and mitigation measures.*

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 LGAs; and State Environment Planning Policies (SEPPs), covering State or regional environmental planning issues. LEPs commonly identify and have provisions for the protection of local heritage items, archaeological sites, and heritage conservation areas. In the case of the Kurnell Peninsula, local heritage items and archaeological sites are protected by the *State Environmental Planning Policy (Kurnell Peninsula) 1989* (SEPP Kurnell Peninsula).

#### 2.4.1 State Environmental Planning Policy (Kurnell Peninsula) 1989

The aims and objective of the SEPP Kurnell Peninsula include:

1. *(a) to conserve the natural environment of the Kurnell Peninsula and ensure that development is managed having regard to the environmental, cultural and economic significance of the area to the nation, State, region and locality,*  
*(b) to apply environmental performance criteria which will ensure that the environment is not adversely affected by development, and*
2. *(d) to identify and conserve areas, sites and features of natural, ecological, historic or cultural significance,*  
*(i) to conserve the environmental heritage of the Kurnell Peninsula.*

Clauses 23A-23D of the SEPP Kurnell Peninsula include provisions for the protection of local heritage items, relics, and archaeological sites. Schedule 2 'Archaeological sites' and Schedule 3 'Heritage items' lists the following heritage items or places within, or in the vicinity of the project Site:

Ref	Name	Primary Address	Significance
L015—S	Botany Bay National Park (Kurnell Historic Site)		National*
L016—S	Kurnell monuments (in National Park)		National*
A081	Captain Cook's landing place	Cape Solander Drive	National*
A082	Captain Cook's landing site	Cape Solander Drive	National*
A084	Banks Memorial	Cape Solander Drive	National*
A085	Solander monument	Cape Solander Drive	National*
A086	Captain Cook monument	Cape Solander Drive	National*
A087	Forby Sutherland monument	Cape Solander Drive	National*
A088	Landing place wharf abutment	Cape Solander Drive	National*
A089	Alpha Farm Site	Cape Solander Drive	National*
A090	Captain Cook Watering hole	Cape Solander Drive	National*
A091	Captain Cook Watering well	Cape Solander Drive	National*
A092	Flagpole	Cape Solander Drive	National*
A093	Yena track	Cape Solander Drive	National*
A094	Muru track	Cape Solander Drive	National*
A095	Tabbagai Gap cliff site	Tabbagai Gap	National*
A096	Tabbagai Gap house site	Tabbagai Gap	National*
A038	Australian Oil Refinery	Sir Joseph Banks Drive	Local
A028	Four wheel drive track	Captain Cook Drive, Kurnell	Local

\*These items are within the NHL listed Kurnell Peninsula Headland (see Section 2.1 above).

## 2.5 National Trust of Australia

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.

The following item is classified by the National Trust:

Ref	Name	Primary Address
681	Botany Bay Entrance Landscape Conservation Area	Comprising on the South Side the extremity of Kurnell Peninsula north of Cape Bailey and on the North side La Perouse Peninsula southward of the general line of Anzac Parade and the southern limit of the residential area near the reservoir and a line through the golf courses to the coast south of Little Bay.

## 2.6 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. In February 2012, all reference to the RNE was removed

from the EPBC Act and the AHC Act. The RNE is now maintained on a non-statutory basis as a publicly available archive.

The following places in the vicinity of the project Site are listed on the RNE:

Place ID	Name	Primary Address	Significance
3335	Captain Cooks Landing Place Historic Site	Cape Solander Dr, Kurnell, NSW, Australia	Historic
102930	Cape Baily Lighthouse	Sir Joseph Banks Dr, Kurnell, NSW, Australia	Historic

### 3 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 also is 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.

#### 3.1 Geology & Topography

The Kurnell Peninsula is a coastal sand barrier complex within Botany Bay, predominantly made up of Quaternary estuarine sediments and marine quartz sand, with exposed Hawkesbury Sandstone on the coastal headlands. In the vicinity of the Project Area, the natural topography of the peninsula has been disturbed by industrial development, with slopes levelled to <5% (Hazelton & Tille 1990:86, 104; Albani & Rickwood 1998).

#### 3.2 Soils & Disturbance

The Project Area is predominantly classified as disturbed terrain, which is defined as being '*disturbed by human activity to a depth of at least 100cm*' (Hazelton & Tille 1990:104) (Figure 3.1). Between 1951 and 1961, approximately 42 ha of wetlands in this area were excavated down to bedrock or sand, then levelled with marine sand, in preparation for construction of the refinery (see Section 5.5.1) (Martin 1994:312; Seidler & Abel 2003:86).

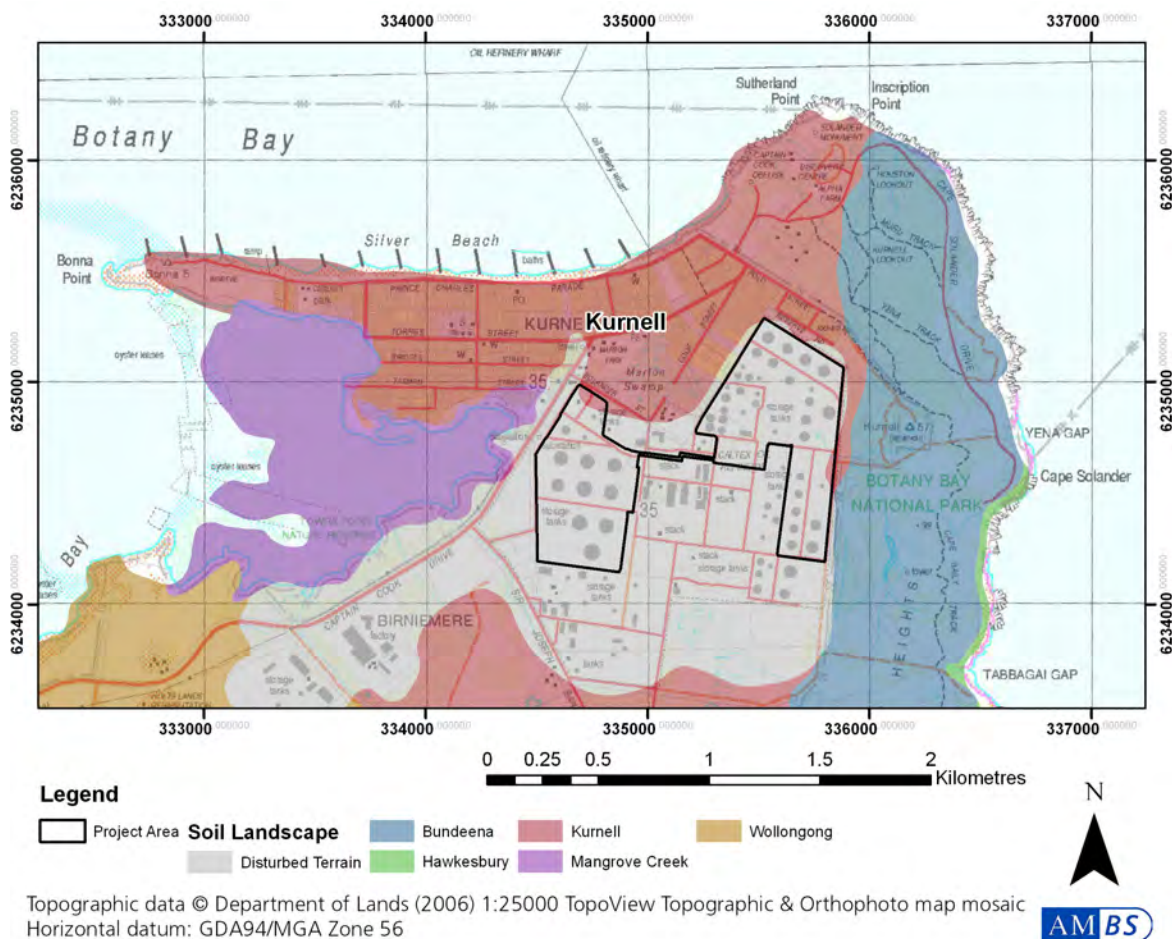
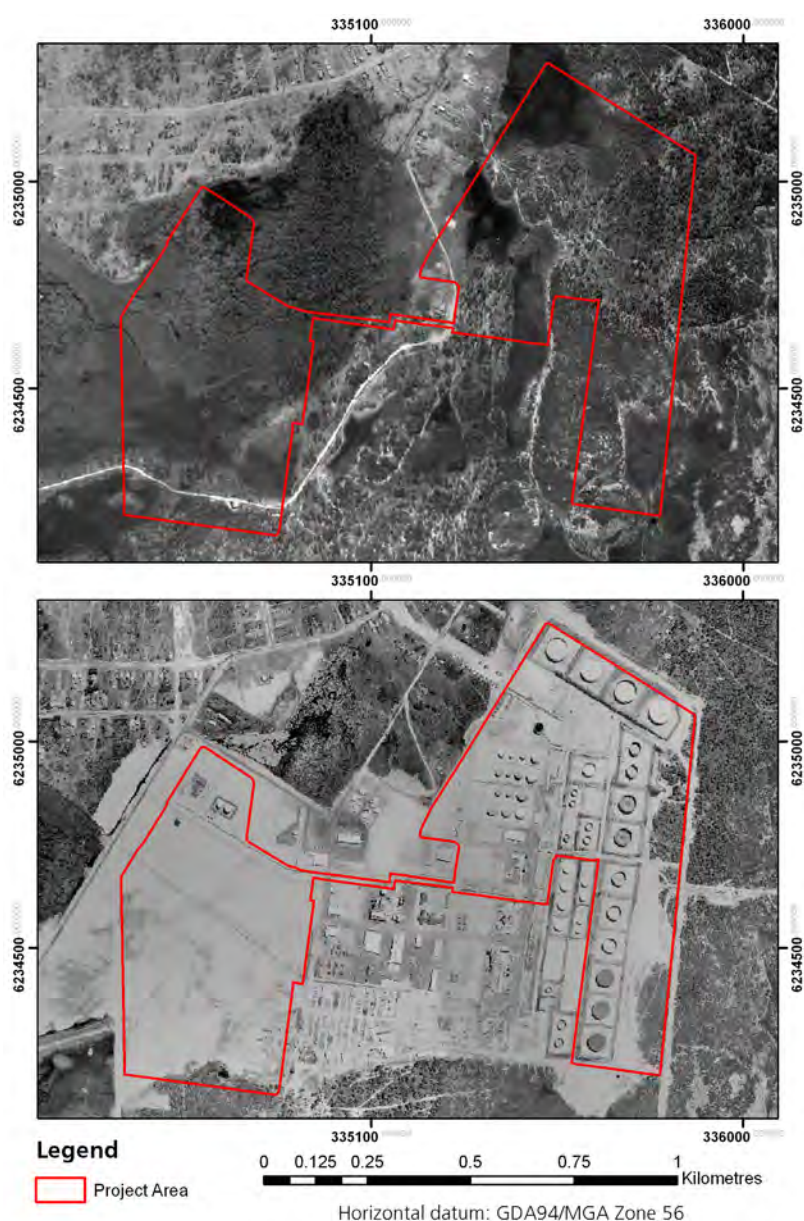


Figure 3.1 Soil landscapes in the vicinity of the Project Area.



The Kurnell soil landscape occurs to the north and east of the Project Area. Formed from Aeolian processes, this landscape typically contains deep (>200cm) podzols on dunes and in swales. The dominant soil materials include topsoil of loose brown sand (up to a depth of 80cm), and subsoils of grey brown mottled sand, brown soft sandy iron pan (also known as coffee rock), and loose yellowish brown sand. Black sticky peat is also found as subsoil in poorly drained swales. The soil material in this landscape is highly erodible (Hazelton & Tille 1990: 86-88).

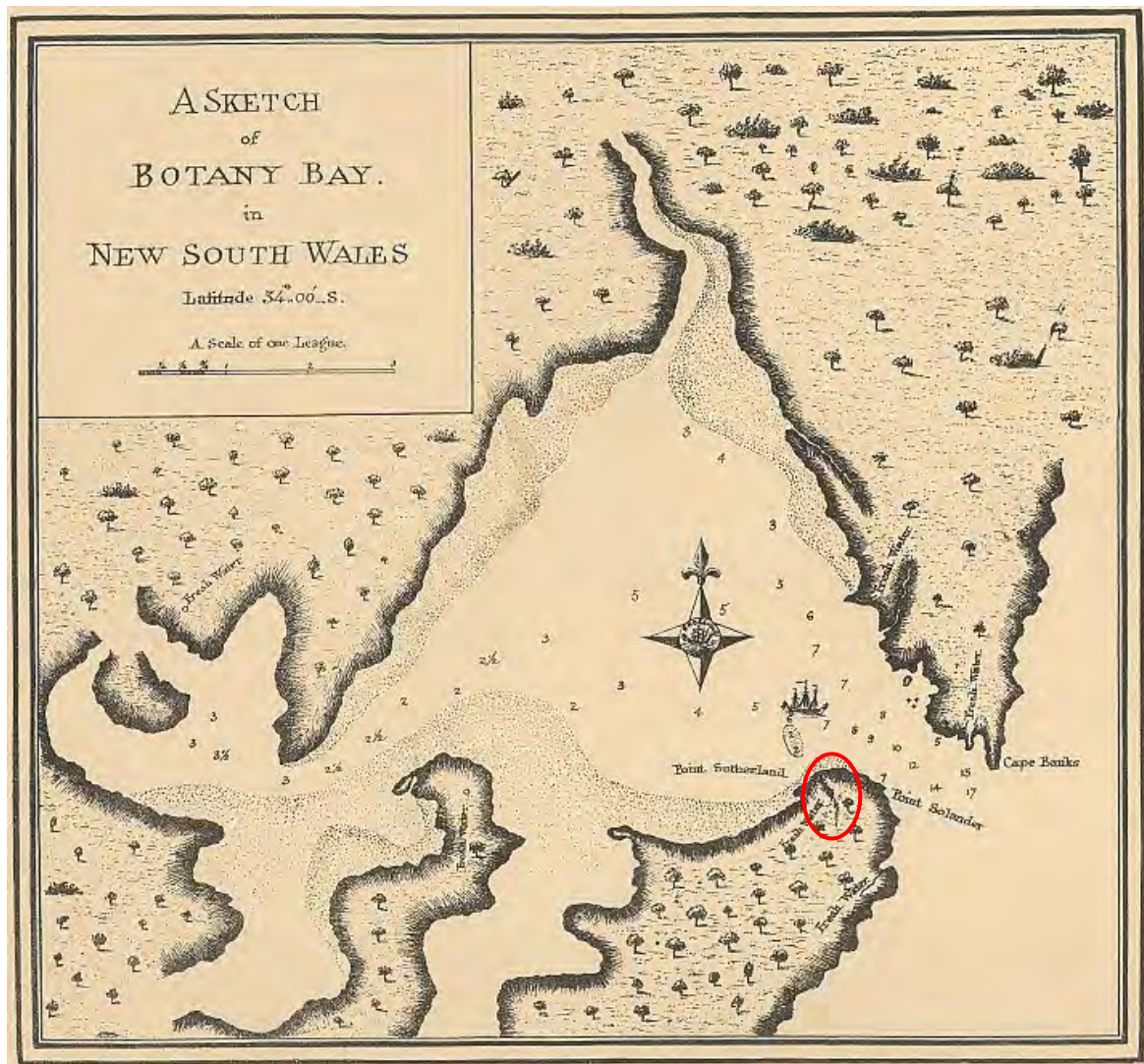
The soil landscape boundaries in Figure 3.1 are based on interpretation of aerial photographs, with field sampling of soil profiles at Kurnell undertaken near the intersection of Captain Cook Drive and Sir Joseph Banks Drive, and in Marton Park Wetland off Cook Street (Hazelton & Tille 1990:7; NSW Government, NSW Natural Resource Atlas). Although it appears that the northern and eastern margins of the Project Area impinge on the less disturbed Kurnell soil landscape, the scale of the mapping data is such that the soil landscape unit boundaries may not correspond precisely to those on the ground. A 1955 aerial photograph suggests that the Site is entirely situated on disturbed terrain (Figure 3.2).



**Figure 3.2** Aerial photographs of the Site, 1943 (top), and 1955 (bottom) (Source: Sutherland Shire Maps). The Project Area is outlined in red.

### 3.3 Hydrology

Cook's Stream rises from a dune ridge on the coastal headland to the north east of the Project Area, and flows north west into Botany Bay. The stream was first mapped in 1770 by Lieutenant James Cook, Commander of the *HMS Endeavour*, who [...] sent a party of men a shore in the morning to the place where we first landed to dig holes in the sand by which means and a small stream they found fresh water sufficient to water the ship (Cook 2004 [1768-1770]) (Figure 3.2). It would have been a semi-permanent source of fresh water for local Aboriginal people. The stream was dammed in the early twentieth century, but was re-opened in 2008 (Irish 2010:15).



**Figure 3.3 Captain Cook's chart of Botany Bay, 1770. Cook's Stream is circled in red (Source: National Library of Australia, <http://nla.gov.au/nla.map-rm2456d>).**

Marion Park Wetland is a freshwater wetland that covers an area of approximately 10 ha to the north west of the Project Area, and drains west into Quibray Bay. Until the construction of the Kurnell refinery, the wetland was connected to the bay, and would have formed part of an estuarine wetland system. Changes in drainage within the wetland catchment occurred in the mid-twentieth century, when the Project Area was cleared of vegetation, and some of the drainage paths were filled by industrial development (Figure 3.4). The north western part of the Project Area is constructed on reclaimed wetland (Molino Stewart Pty Ltd 2009:7, 14) (Figure 3.2).





**Figure 3.4** Drainage works at Australian Oil Refining Pty. Ltd. at Kurnell, 1955; photo by Ern McQuillan. (Source: State Library of NSW, Australian Photographic Agency - 00061).

### 3.4 Flora & Fauna

Cook named Botany Bay after *The great quantity of Plants Mr. Banks and Dr. Solander found in this place [...]* (Cook 2010 [1768-1770]). At the time of European contact, plant communities on the Kurnell Peninsula are likely to have included coastal scrub/woodland, littoral rainforest, swamp forest, dune woodland, sedge-swamp and mangroves (Benson & Eldershaw 2007). Bark from native woodland species such as the Bangalay (*Eucalyptus botryoides*), Swamp Oak/Grey She Oak (*Casuarina glauca*), and stringybarks (for example, *E. agglomerata* and *E. acmenodides*) would have been used by Aboriginal people to build canoes and shelters (huts) (Martin 1994:325; Attenbrow 2010:112-113).

Faunal remains recovered from coastal middens can indicate faunal types exploited as food resources by Aboriginal people in this area. Archaeological excavation of the 'Watering Place' in Botany Bay National Park (also known as Captain Cooks Landing Place midden), recovered shell material mixed with fish bones, predominantly snapper and bream. Seal, dolphin and whale bones were represented in the midden, as were terrestrial animals including wallaby, kangaroo and dingo. Mussel and common mud oyster were identified as the major edible species of mollusc present (Megaw 1997:10-12).

## 4 Aboriginal Heritage Context

### 4.1 Historical & Ethnographic Context

#### 4.1.1 Living as Australia's earliest inhabitants

Aboriginal occupation of the Sydney region, of which the Project Area is a part, 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 (Nanson et al. 1987; Stockton 1993; Stockton & Holland 1974). Late Pleistocene occupation sites have been identified on the fringes of the Sydney basin and from rock shelter sites in adjoining areas. Dates obtained from these sites were 14,700 BP at Shaws Creek in the Blue Mountain foothills (Kohen et al. 1984), c.20,000 BP at Burrill Lake on the South Coast (Lampert 1971), and c.11,000 BP at Loggers Shelter in Mangrove Creek (Attenbrow 1981, 2004). The majority of sites in the Sydney 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 & Rich 1993; McDonald 2008). This increase in sites may reflect an intensity of occupation which was 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 on and utilising resources along the current coastlines and in the changing ecological systems of the hinterland (Attenbrow 2010:55-56).

Radiocarbon dates have been obtained for a number of Aboriginal occupation sites on the Kurnell Peninsula (Table 4.1). The nearest of these is Captain Cooks Landing Place, within Botany Bay National Park, which was excavated by Megaw in 1970-1971. Charcoal samples obtained from Trench F4 Square BB4, toward the base of the midden deposit, returned a date of 1293 ±120 years BP (ANU-721) (Irish 2010:18-19).

**Table 4.1 Earliest radiocarbon dates for excavated Aboriginal sites on the Kurnell Peninsula (after Attenbrow 2010:18-20).**

Site name	Radiocarbon date (years BP)	Sample material
Captain Cooks Landing Place BB4	1,293 ±120 (ANU-721)	charcoal
Quibray Bay 2	4,130 ±111 (SUA-518)	shell
McCue Midden	1,840 ±40 (Beta-165771)	charcoal
260 Captain Cook Drive	2,262 ±38 (Wk-22797)	shell
Quibray Bay 1	2,210 ±360 (ANU-261)	bone
Cronulla STP1	3,240 ±70 (Wk-8845)	charcoal
Potter Point	5,620 ±70 (Wk-ANU-402)	charcoal
Doughboy Head 1	12,190 ±110 (Beta 36920)*	charcoal
Botany Cone Swamp 5	1,520 ±90 (SUA-2857)	charcoal
Boat Harbour 1	1,953 ±70 (ANU-895)	charcoal
Bate Bay BHW	2,402 ±88 (NZA-2323)	charcoal

\*The early date from Doughboy Head 1 has been questioned, because of inadequate documentation of the stratigraphy and sample retrieval process, and the similarity of the artefact typology to other sites on the Peninsula that date to within the last 5,000 years (Dallas 1996:9).

#### 4.1.2 Utilising natural resources

Early European accounts of the Kurnell Peninsula area indicate that small groups of Aboriginal people camped near the water, sometimes in bark huts. Extensive evidence of fishing and shellfishing activity was observed (Smith *et al.* 1990:33-43). The area was inhabited by the Gweagal people at the time of European contact:

*[...] Each family has a particular place of residence, from which is derived its distinguishing name. This is formed by adding the monosyllable Gal to the name of the place: thus the southern shore of*

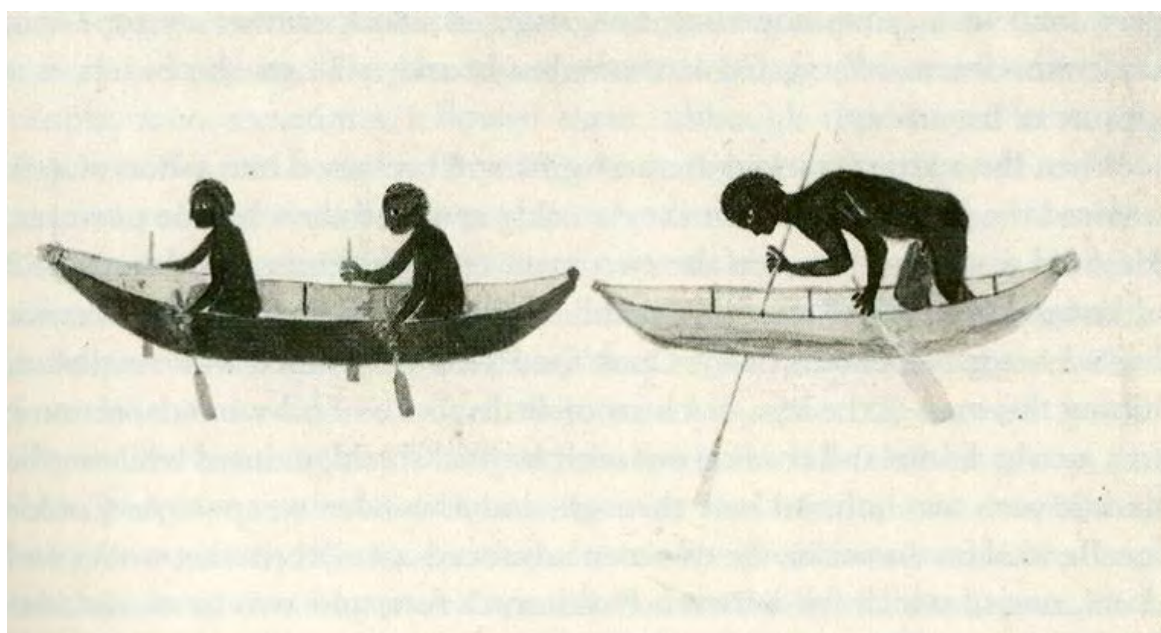
*Botany Bay is called Gwea, and the people who inhabit it stile themselves Gweagal (Collins 2003 [1798]).*

### **Fishing**

Fish played an important part in the diet of coastal Aboriginal people, and fishing equipment included the hook and line, and the fiz-gig (fishing spear). Early observations by Europeans suggest that Aboriginal women fished from canoes with a hook and line; using mussels and cockles, or boiled fish, as bait. The canoes were constructed of bark, and varied in length between 8 feet and 20 feet (approximately 2.4m to 6m). They lay low in the water, and were propelled with paddles or by hand (Attenbrow 2010:87-88; Collins 2003 [1798]) (Figure 4.1 and Figure 4.2). Most archaeological fish hook specimens from the Sydney region, such as those excavated by Megaw from the Captain Cooks Landing Place midden, are made of Turban shell. The hooks are curved and unbarbed in design, with small notches that were used to secure lines made of twisted bark or vegetable fibre (Attenbrow 2010:87, 98; Megaw 1997:12). Collins (2003 [1798]) described their manufacture:

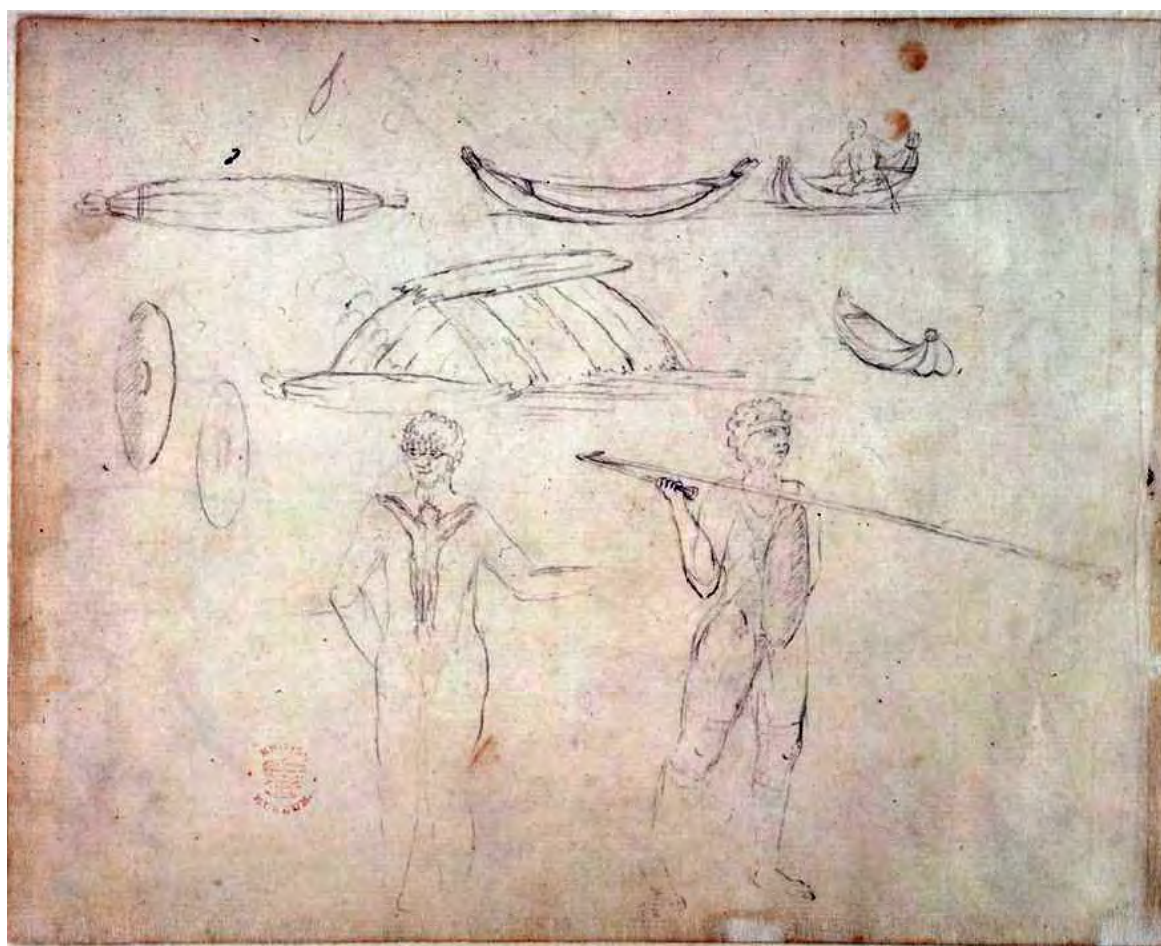
*The lines used by the women are made by themselves of the bark of a small tree which they find in the neighbourhood. Their hooks are made of the mother-of-pearl oyster, which they rub on a stone until it assumes the shape they want.*

According to Collins, men always used fiz-gigs or fishing spears, which had wooden shafts between 15 and 20 feet in length (approximately 3.7m to 6m). They were often constructed in segments in order to increase the length of the spear in deeper water, and the joints were fastened together with gum. Fishing spears had between one and four prongs about 30cm in length, which were pointed and barbed with shell, fish teeth, animal bone or wood (Attenbrow 2010:86-87,98; Collins 2003 [1798]).



**Figure 4.1 Aboriginal men fishing, by Tupaia, 1770 (Source: British Library, London. Add. Ms. 15508, f.10(a), (no. 10)); in Nugent 2005:11).**





**Figure 4.2 Two Australian Aborigines and other drawings, by Sydney Parkinson, 1770 (Source: British Library, London. Add. Ms. 9345, f.14v; in Nugent 2005:24).**

### *Shellfishing*

There are few historic documentary accounts of shellfishing (Attenbrow 2010:82). In 1770, during the voyage of the Endeavour along the east coast of New South Wales, Lieutenant James Cook noted in his log that:

*[...] on the sand & Mud banks [of Botany Bay] are Oysters, Muscles [sic], Cockles & which I believe are the Chief support of the inhabitants who go into Shoald Water with their little Canoes, & pick them out of the sand & Mud with their hands [...]* (Cook 2010[1768-1770]).

In February 1788, Hunter described Aboriginal men diving in the surf for shellfish, which they gathered from underwater rocks in Port Jackson. The shellfish were then cooked on a fire by the shore (Hunter 2003 [1793]). Coastal middens are the result of Aboriginal exploitation and consumption of shellfish in marine or estuarine contexts, where debris is discarded in the same location and accumulates over time. Middens may also include faunal remains such as fish or mammal bone, stone artefacts, hearths, charcoal, and human burials (OEH 2011).

## 4.2 Aboriginal Archaeological Context

This section describes the nature of the known Aboriginal archaeology of the local area, based upon a review of relevant archaeological reports and publications, and a search and review of previously recorded sites in the OEH AHIMS database. Summary descriptions of site types are provided in Table 4.2 below.

**Table 4.2 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.</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, <i>in situ</i> 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>
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.
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.
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, coastal dunes, 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.

### 4.2.1 Known Aboriginal Sites

An extensive search of the AHIMS database was undertaken on 28 August 2012 (AHIMS client service number #78255), and 75 registered Aboriginal sites were identified within a 6 km x 7 km area centred on the Project Area. The search results are presented in Figure 4.3 and summarised in Table 4.3. Details of the Aboriginal sites recorded near the Project Area are attached in Appendix A.



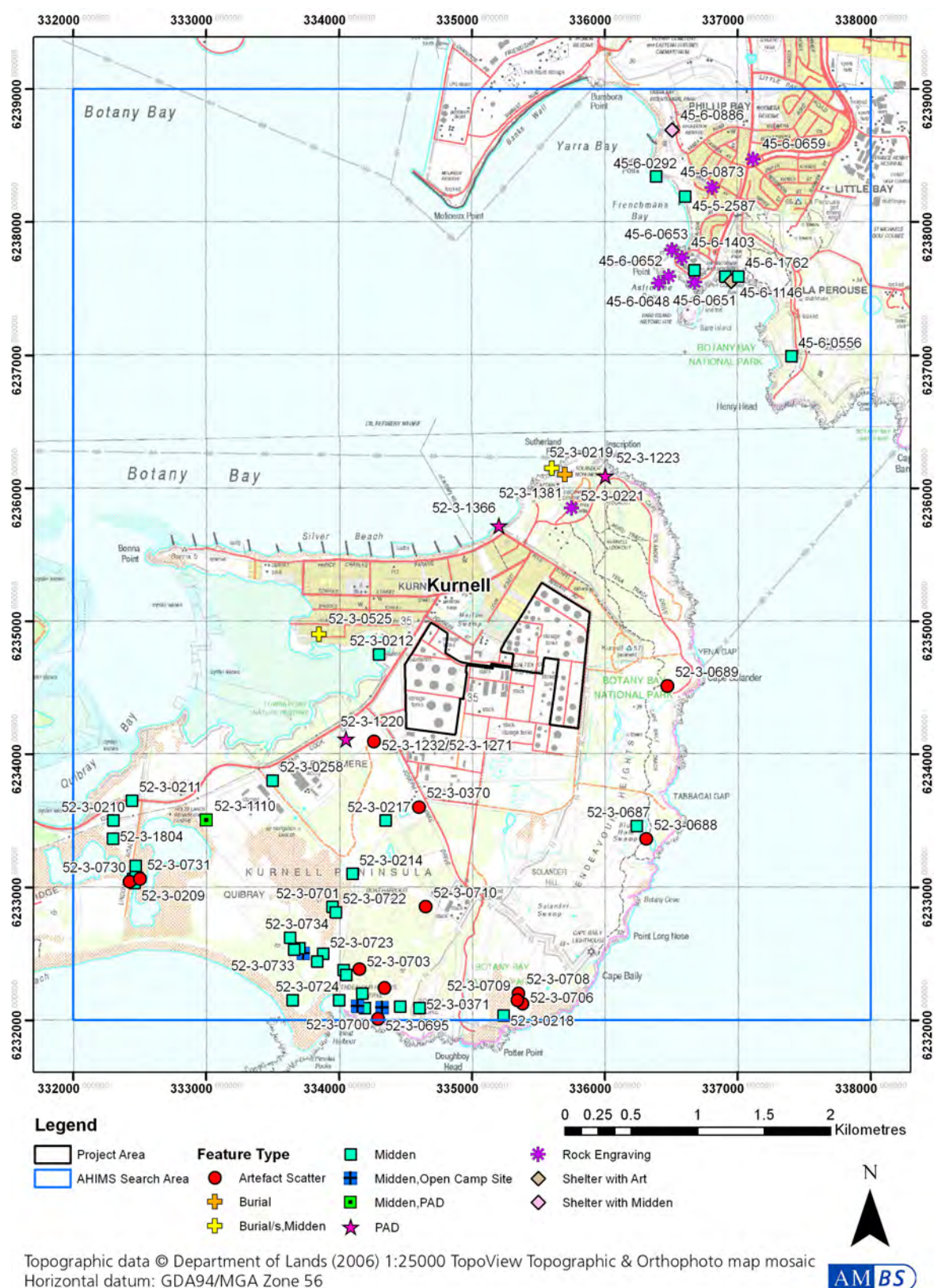
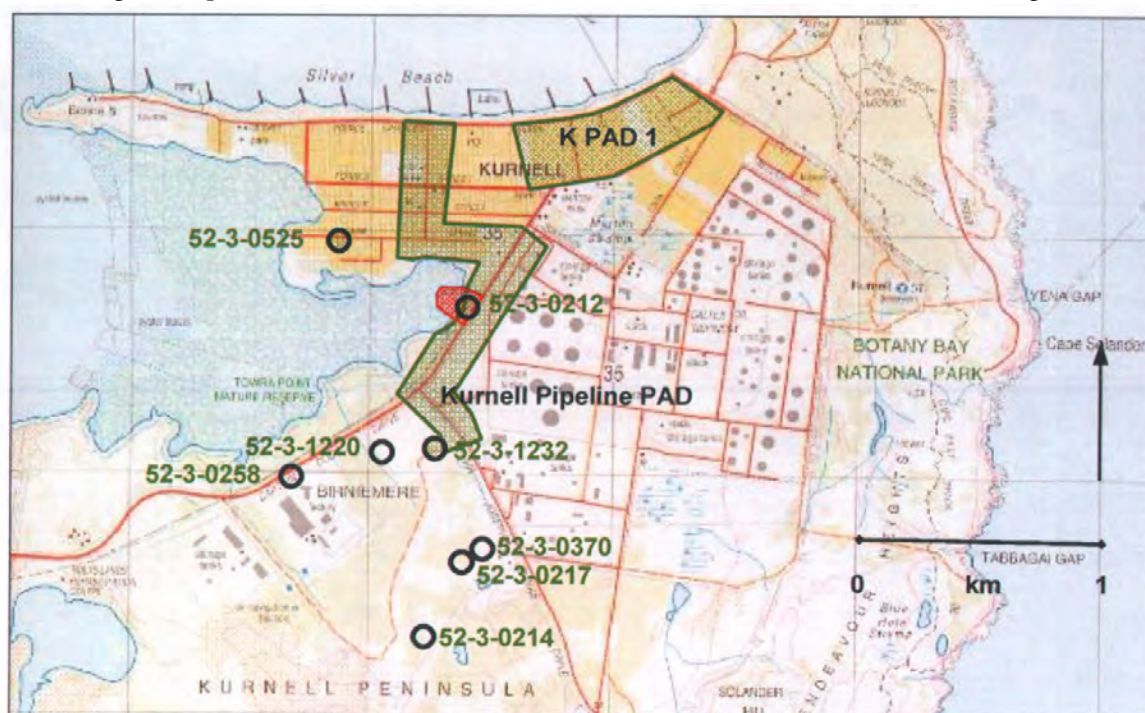


Figure 4.3 Location of Aboriginal sites previously recorded near the Project Area.

**Table 4.3 Summary of Aboriginal sites previously recorded near the Project Area.**

Site Type	Number Present	Percentage (to 2 decimal places)
Artefact Scatter	14	18.67%
Burial	1	1.33%
Burial/s,Midden	2	2.67%
Midden	36	48.00%
Midden,Open Camp Site	3	4.00%
Midden,PAD	1	1.33%
PAD	3	4.00%
Restricted	3	4.00%
Rock Engraving	10	13.33%
Shelter with Art	1	1.33%
Shelter with Midden	1	1.33%
<b>Total</b>	<b>75</b>	<b>100.00%</b>

Navin Officer identified two areas of Potential Archaeological Deposit (PAD) to the west and north of the Project Area; the Kurnell Pipeline PAD (not registered on AHIMS) and Kurnell Potential Archaeological Deposit 1 (K PAD 1; AHIMS 52-3-1366) (Navin Officer 2006; 2007a) (Figure 4.4).



**Figure 4.4 PADs near the Project Area identified by Navin Officer (2007a:12). AHIMS Site 52-3-0212, a shell midden, is shaded red.**

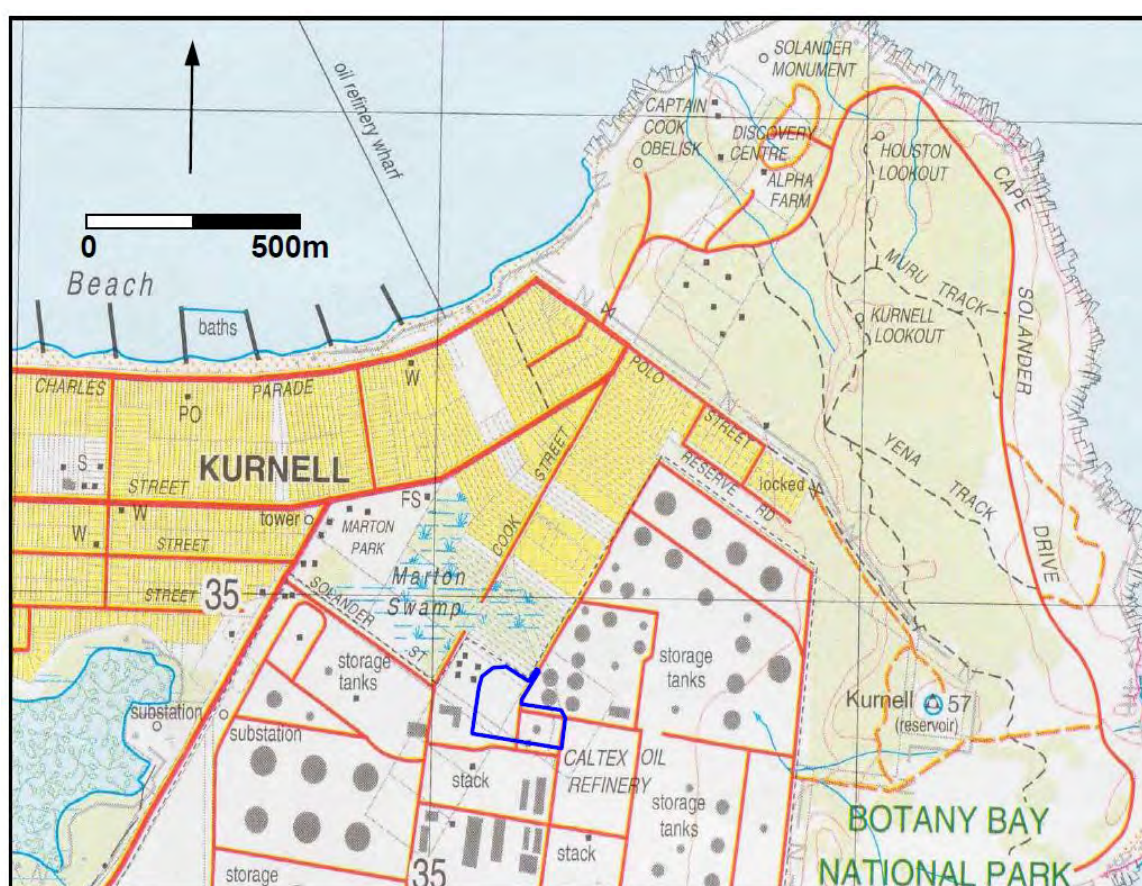
The Kurnell Pipeline PAD is located between Sir Joseph Banks Drive and Silver Beach, and includes *'the fore and hind dune deposits behind Silver Beach, the eastern margin of the Quibray Bay estuarine basin, and the dune and swale deposits along Sir Joseph Banks Drive'* (Navin Officer 2007a:13) (Figure 4.4). AHIMS Site 52-3-0212, a shell midden, was initially recorded on the north side of Captain Cook Drive by F. P. Dickson in 1968, in the vicinity of what is now the Kurnell Subtransmission Substation. The AHIMS co-ordinates place the midden approximately 170 m west of the Project Area, within the Kurnell Pipeline PAD extent. Although the assessment notes that the PAD has been modified by clearing, levelling, road construction, residential development and filling, it was identified as having moderate archaeological potential for remnant midden deposits, subsurface artefact occurrences and burials to be present (Navin Officer 2007a:12). Navin Officer later revised the archaeological sensitivity of the PAD in the vicinity of the Subtransmission Substation to low, and removed that area from the PAD recording, based on levels of ground disturbance and the assumption that AHIMS Site 52-3-0212 was destroyed during its construction (Navin Officer 2007b:13). The



PAD extent, as mapped in Figure 4.4, appears to have been generated by placing a 100 m buffer around the pipeline route. A section of the PAD, to the east of Captain Cook Drive, is within the boundary of the current Project Area, extending 100 m into the Caltex Refinery between Solander Street and Road 14.

K PAD 1, located approximately 500 m north of the Project Area, is described as encompassing *'the whole of the foreshore from the high water mark to Torres Street'*. Despite some disturbance from roads and landscaping, the sand dunes in this area were assessed as having moderate to high potential for *in situ* subsurface archaeological deposits and burials to present (Navin Officer 2006:34).

In 2009, Navin Officer undertook a cultural heritage assessment of the Caltex contractor car park and adjacent sections of the refinery (Figure 4.5). The study area was disturbed by vegetation clearance and levelling, building construction, sealing of the car park, fence construction, tree plantings, and additional above- and below-ground construction associated with refinery infrastructure (Navin Officer 2009:7). No Aboriginal sites, areas of archaeological potential, or Aboriginal cultural values were identified within the study area (Navin Officer 2009:15).



**Figure 4.5 Caltex contractor car park study area (Navin Officer 2009:6).**

Lot 101 DP 1027438, Captain Cook Drive, was the subject of archaeological survey and test excavations undertaken by Jo McDonald Cultural Heritage Management Pty Ltd (JMCHM) in 2002 and 2003. An artefact scatter, AHIMS Site 52-3-1232 (also recorded as AHIMS Site 52-3-1271), was identified on a track along the fence line of the property, approximately 250 m south west of the Site. The scatter consisted of four stone flakes and three waste flakes of mudstone/chert, basalt, fine grained siliceous material (possibly fossilised wood), silcrete and quartz. Twenty two test pits were excavated; however, no artefacts or midden material were recovered. It was concluded that the study area had been extensively disturbed (JMCHM 2003:22; 2007:16).

A number of Aboriginal sites have also been identified within Kamay Botany Bay National Park, to the north and east of the Site, including middens, burials, stone artefacts and a rock engraving site (Figure 4.6). Some of the earliest formal archaeological excavations on the Kurnell Peninsula were undertaken in this area at Captain Cooks Landing Place by Megaw in 1970-71 (Megaw 1997). Recent investigations of the Meeting Place Precinct by Irish entailed archaeological test excavation across various parts of the precinct to determine the subsurface archaeological potential of the area, monitoring of works, and limited salvage excavation. The result of these investigations found that although some Aboriginal archaeological remains had been disturbed, the material recovered was nonetheless informative. An *in situ* midden was identified near the Cook's Stream Dam, and recommendations were made to avoid the area where possible (Irish 2007a; 2007b; 2009; 2010).



Figure 4.6 Known Aboriginal archaeological remains within the Meeting Place Precinct (Irish 2007a:7).

In 1990, Smith, Rich and Hesp prepared a management study for Aboriginal sites on the Kurnell Peninsula. Aboriginal occupation of the Kurnell peninsula was considered to have been focused in the area between Boat Harbour and Doughboy Head/Cape Baily, given the number of large sites in this location. Smith *et al.* (1990:135) considered that the headland was more likely to contain greater numbers of sites than the isthmus. In general, sites on the Kurnell peninsula were considered to have high archaeological, public and interpretive significance in the Sydney region, with archaeological potential to provide information about Aboriginal use of coastal resources, including changes through time, based on different stratigraphic layers observed in the area, and the presence of hearths (Smith *et al.* 1990:127-8).

#### 4.2.2 Summary

The majority of Aboriginal sites previously recorded near the Project Area are midden sites, followed by artefact scatters (also known as open camp sites) and rock engravings. Midden sites have been identified in the sand dunes and sandy soils of the Kurnell Peninsula, particularly around Boat Harbour, Doughboy Head and Quibray Bay, and are also known to occur on the Kurnell Peninsula Headland. The Kurnell Pipeline PAD was identified as extending 100m into the Project Area from Captain Cook Drive, between Solander Street and Road 14. However, subsurface midden material is unlikely to be present in areas that have been subject to high levels of ground disturbance, such as the Caltex Refinery (the Site).

Artefact scatters usually comprise flaked stone artefacts, although ground stone, bone or shell artefacts may also occur. Such sites are generally interpreted as camp sites; however, they can also represent other types of activity within the landscape. Artefact scatters have been identified across the Kurnell Peninsula.

Rock engravings are present in areas with suitable sandstone outcrops, although they are more common on the headland at La Perouse Point, on the northern shore of Botany Bay.





## 5 Historic Heritage Context

The Kurnell Peninsula Headland is famous for being the place where British explorer Lieutenant (later Captain) Cook first set foot on the shore of eastern Australia in April 1770. It is also the place where the crew of the *Endeavour* first encountered the Indigenous occupants of the land, and naturalists Joseph Banks and Daniel Solander collected the first scientific type-specimens of Australian flora and fauna. It was intended to be the location of the first British penal colony in Australia; however, Captain Arthur Phillip found the land to be unsuitable, and decided to establish Sydney to the north at Port Jackson. Despite this, the site of Captain Cook's landing place quickly became a commemorative landscape, where heroes of science and exploration and the events of 1770 could be memorialized and celebrated. From 1899, it was developed as a park, focused on the landing site and its symbolic importance for a national identity. However, the park also became popular for non-historical reasons, and was commonly used by Sydney-siders for bush-walking, fishing, picnicking and camping.

In the second half of the twentieth century, the Kurnell Peninsula became a contested landscape, symbolising for some the 'birth of the nation,' for others an important natural environment within the Sydney area, and for others again, the marginalisation and dispossession of Aboriginal people. Despite the perceived historic, social and ecological significance of the Kurnell Peninsula to various Indigenous and non-Indigenous members of the community alike, much of the area was developed in the mid-twentieth century for heavy industry, including sand mining, the Caltex Refinery, and chemical and pharmaceutical manufactories.

### 5.1 The Meeting Place: First Contact between British Explorers & Aboriginal People in Australia

The European history of the Kurnell Peninsula is closely associated with the 1768-1771 voyage of the *Endeavour*, commanded by Lieutenant James Cook. Cook was originally sent to the Pacific by the British Admiralty to observe the transit of the planet Venus across the face of the sun. Once the observations in Tahiti were completed, Cook opened secret instructions to search the Pacific for signs of a great land or continent thought to be located south and west of New Zealand. The instructions document the British Admiralty's concern to discover exploitable natural resources, and to expand Britain's control of strategic trading posts around the globe:

*If you discover the Continent abovementioned ... You are to employ yourself diligently in exploring as great an Extent of the Coast as you can ... You are also carefully to observe the Nature of the Soil, and the Products thereof; the Beasts and Fowls that inhabit or frequent it, the Fishes that are to be found in the Rivers or upon the Coast and in what Plenty and in Case you find any Mines, Minerals, or valuable Stones you are to bring home Specimens of each, as also such Specimens of the Seeds of the Trees, Fruits and Grains as you may be able to collect, and Transmit them to our Secretary that We may cause proper Examination and Experiments to be made of them. You are likewise to observe the Genius, Temper, Disposition and Number of the Natives, if there be any and endeavour by all proper means to cultivate a Friendship and Alliance with them, making them presents of such Trifles as they may Value inviting them to Traffick, and Shewing them every kind of Civility and Regard; taking Care however not to suffer yourself to be surprized by them, but to be always upon your guard against any Accidents.*

*You are also with the Consent of the Natives to take Possession of Convenient Situations in the Country in the Name of the King of Great Britain: Or: if you find the Country uninhabited take Possession for his Majesty by setting up Proper Marks and Inscriptions, as first discoverers and possessors. (Secret Instructions to Captain Cook, 30 June 1768)*

Cook first sighted land along the east coast of Victoria, then sailed northwards along the coast before dropping anchor in Botany Bay, on 29 April 1770. As the Endeavour came into the bay, Cook had noted a number of Aboriginal men, women and children, and a few huts on the shore. A landing party was dispatched in a longboat, with the intention of trying to speak to them. Cook recorded his impressions of this first contact with the local people in his journal:

*... as we approached the shore they all made off except two Men who seem'd resolved to oppose our landing - as soon as I saw this I orderd the boats to lay upon their oars in order to speake to them but this was to little purpose for neither us nor Tupia [a Tahitian interpreter] could understand one word they said. we then threw them some nails beads & C a shore which they took up and seem'd not ill pleased with in so much that I thout that they beckon'd to us to come a shore but in this we were mistaken for as soon as we put the boat in they again came to oppose us upon which I fired a musket between the two which had no other effect than to make them retire back where bundles of thier darts lay and one of them took up a stone and threw at us ... Mr Banks being of opinion that the darts were poisoned made me cautious how I advanced into the woods - We found here a few Small hutts made of the bark of trees in one of which were four or five small children with whome we left some strings of beads & C a quantity of darts lay about the hutts these we took away with us - three Canoes lay upon the bea[c]h the worst I think I ever saw they were about 12 or 14 feet long made of one peice of the bark of a tree drawn or tied up at each end and the middle kept open by means of peices of sticks by way of Thwarts (Daily Entry, 29 April 1770)*

Beryl Timbery-Beller, a descendant of Aboriginal people who witnessed the landing, has related the alternative view from the shore that day:

*When they saw a big white bird sailing into the Bay, that's what was handed down to me, they saw this big white bird coming, these two Aborigines went down as a warning party to let them get the children and hide them. They stood their ground and the others were in the bushes – a back up to protect the family groups. On the rock stood two warriors, and there were about thirty marines. Two against thirty!" (Quoted in Salt 2000:18)*

The following day, the British explorers returned to the Kurnell headland, where they found a fresh water stream sufficient to supply the ship, now known as Cook's Stream. Over the following week, they continued to explore the Botany Bay area, gathering food, collecting scientific samples and observing the land and charting the coast. Joseph Banks and Daniel Solander collected 132 unique plant specimens during this visit. To celebrate the place where this impressive botanical collection was made, Captain Cook eventually named it Botany Bay, and the northern and southern headlands Cape Banks and Point Solander respectively. Able Seaman Forby Sutherland, who died of tuberculosis, was also buried near the water source during the visit; Cook named Point Sutherland after the seaman. Despite several encounters with local Aboriginal people, Cook was unable to establish communication, although the crew noted the behaviour and activities of the local people, including details of their clothing (or lack thereof), camping, fishing, using trees for bark and food, collecting shells and cooking fish. They also noted that they themselves were being closely observed by the Aboriginal people (Salt 2000:18-23; Nugent 2005:17).

Cook's favourable description of Botany Bay as being *capacious, safe and convenient*, along with the impressions recorded by Sir Joseph Banks in his various publications and reports to the British Government, greatly influenced the Government in recommending Botany Bay as being a suitable location for the establishment of penal settlement. However, when the First Fleet arrived on the 18 January 1788, they found that the bay had a difficult entrance, was exposed to the prevailing easterly winds, and was too shallow to provide a suitable anchorage. Captain Arthur Phillip subsequently abandoned Botany Bay in favour of the much more sheltered and suitable deep water harbour just to the north, which became known as Port Jackson (Cook 1821:88-89; Frost 1994:87-97).

### 5.1.1 Memorialisation

The results of Cook's expedition eventually led to the British occupation of the Australian continent. Although Captain Arthur Phillip subsequently chose Port Jackson as for the site of the first penal colony, the name Botany Bay became entrenched in popular nineteenth century poems and songs as a place of convict punishment and exile. As the colony developed, the place also developed a symbolic mystique as a place of natural beauty and scientific discovery. Natural features, such as Cook's stream, could be visited and experienced by colonists seeking to 'remember' and make a historical connection with the early explorers. Soon commemorative plaques and other memorials were installed at Kurnell, in recognition of the British explorers and scientists who landed there in 1770. The first memorial was an inscription plate attached to the cliff face at Point Solander in 1822, dedicated to Cook and Banks by Philosophical Society of Australasia. The second was a sandstone obelisk dedicated to Cook, erected in 1870 by Thomas Holt on the centenary of the *Endeavour's* arrival in Botany Bay (Figure 5.2). In 1881, the site was visited by Their Royal Highnesses, Princes Albert (Duke of Clarence) and George (later King George V), who planted four trees. Numerous other commemorative trees have been planted on the site since then (Salt 2000:24; Nugent 2005:36, 67-80)



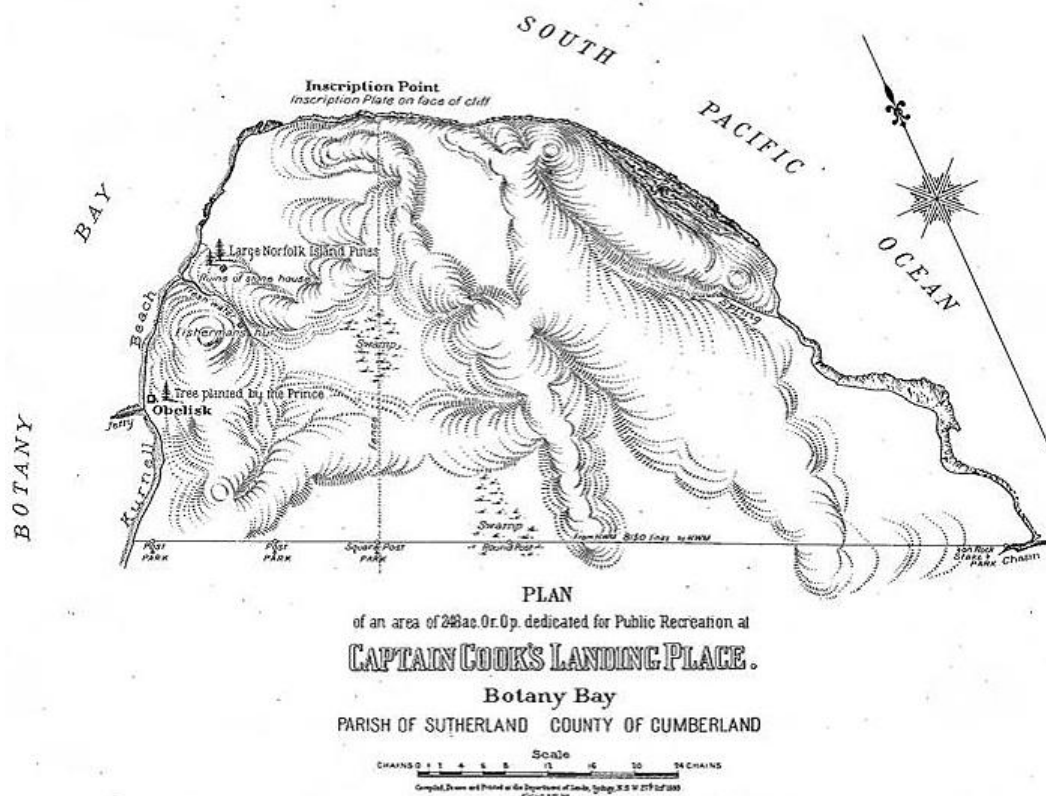
**Figure 5.1** *Captain Cook's Landing at Botany, A.D. 1770*; published in the Christmas edition of the *Town & Country Journal*, 21 Dec 1873 (Source: National Library of Australia, <http://nla.gov.au/nla.pic-an7890396>). It has been noted that this depiction of the landing, which became popular in the nineteenth century, shows the Aboriginal men on the beach in an aggressive pose while Captain Cook is presented as conciliatory.



**Figure 5.2 Captain Cook's monument, Botany Bay, N S Wales, by Thomas George Glover, 1878 (Source: National Library of Australia, <http://nla.gov.au/nla.pic-an4335757>). The Cook monument was erected in 1870 by Mr Thomas Holt. This obelisk has become a prominent feature of the landscape and can be seen from the opposite headland of the bay.**

By the end of the century the process of memorialisation became entwined with notions of nationhood and territorial possession, with Captain Cook as founding father of the land. In 1899, as the Australian colonies were moving towards Federation, approximately 250 acres of land at Kurnell Peninsula was resumed by the Government and dedicated as the Captain Cook Landing Place Reserve for the 'use and enjoyment of the public for all time' (Figure 5.3). The site became the focus of numerous commemorative events, including further tree planting, picnics, speeches, re-enactments of the landing and flag-raising ceremonies (Nugent 2005:36, 67-80). In 1984, the Landing Place Reserve became part of Botany Bay National Park.





**Figure 5.3 Map of Captain Cook's Landing Place Reserve, 1899 (Source: Botany Bay National Park; in Nugent 2005:68).**

In more recent decades, commemorative activities at the site have sought to recognise other layers of significance of the site, and in particular to acknowledge that the place also symbolises the beginnings of dispossession of Aboriginal people from the land. Cook's landing at Kurnell was remembered by the local Aboriginal people, and indeed Captain Cook stories were spread throughout the Indigenous nations of Australia. However, it was the 1970 bicentenary of Cook's arrival in Botany Bay that provided the watershed moment, where Aboriginal people began to challenge the dominant European version of Cook's landing, which highlighted the discovery and founding of the Australian nation. During a re-enactment of Cook's landing, performed before Queen Elizabeth II, an Aboriginal protest and mourning ceremony was held on the opposite headland of La Perouse. In 1988, during bicentenary celebrations of the 1788 founding of the colony, Aboriginal protesters similarly converged on the Kurnell landing site, to voice their opposition to the public celebrations. Since that time, the focus of interpretation at the landing place site has shifted, and NPWS moved to involve local Aboriginal people in future planning and interpretation of the place. In 1998, on the occasion of the first national Sorry Day, local Aboriginal elders hosted a smoking ceremony at the site to clear away ill feeling. The concept of a 'meeting place' precinct has been developed to address the multi-faceted physical, historical and social implications of that first contact, and to set the groundwork for future reconciliation. In 2002, NPWS adopted a dual Aboriginal-English name for the park: Kamay Botany Bay National Park. On 20 September 2004, the Kurnell Peninsula Headland was included in the National Heritage List (Nugent 2005:130-150).

## 5.2 European Settlement & Subdivision of the Kurnell Peninsula

When the Parish of Sutherland was proclaimed in 1835, there was very little European settlement on the southern shores of Botany Bay (Figure 5.4). The soil was considered to be unsuitable for agriculture, and there was little in the way of other resources to attract settlers or investment (Larkin 1998:10).



**Figure 5.4 Detail of parish map of Sutherland, c1830s (Source: © NSW Land Information Centre, Ref: 14066401).**

The first land grant in the area was made by Governor Lachlan Macquarie to James Birnie in 1815. Birnie was a merchant and ship owner, involved in the local sealing and whaling industry. He received a grant of 700 acres of land on the western side of the Kurnell Peninsula, where he intended to build a whaling station, along with 160 acres of saltwater marshes. The grant included Captain Cook's landing place. Birnie established a farm, market garden and dairy on the property, which he named *Alpha Farm*. Birnie never lived on the grant, but he built a three-roomed homestead for a caretaker, named *Curnell*, and another smaller cottage for servants. The caretaker cut a dock into the foreshore for harbouring boats at high tide, and transported fresh fish and produce to market in Sydney by boat. Convicts were assigned to the property to cut down the trees and clear the land. (Salt 2000:25, 37, 77; Nugent 2005:56).



**Figure 5.5 Kurnell Reserve, Botany Bay, from a print by W.J. Carruthers, 1906 (Source: State Library of NSW, Government Printing Office 1 – 10519). The photo shows the ruins of Alpha House.**

James Birnie was declared insane in 1828, and his executors sold *Curnell* and *Alpha Farm* to John Connell, who also owned land at the south end of Cronulla Beach. Connell likely cut timber and ran cattle on the property, and eventually extended his holding in the area to 3,000 acres. Connell erected *Alpha House* on the foundations of Birnie's *Curnell*, which was occupied by his son John Connell Jnr. Following Connell Snr's death in 1849, his land passed to his grandsons John Connell Laycock and Elias Pearson Laycock (Larkin 1998:10; Salt 2000:25).

In the period between Cook's landing and the first European land grants, Aboriginal people continued to live on the Peninsula and maintain a connection to the land, although their numbers were likely reduced by the diseases and violence of the colonists. In 1827, assistant surveyor Robert Dixon surveyed the coast around Botany Bay and Port Hacking, and recorded Aboriginal names for various features on the maps he was making. Local historical Daphne Salt has suggested that Birnie named his cottage *Curnell* after the Aboriginal name for the area; while other sources suggest that Kurnell was an Aboriginal corruption of the name Connell. Historian Maria Nugent has further pointed out that John Laycock's son was one of the main informants in the early twentieth century for the location of Forby Sutherland's grave, and that Laycock's information had come from a local Aboriginal woman, Sally Mettymong, who he had known as a young boy when living on his father's estate (Salt 2000:25; Nugent 2005:47-54, 56-57).

### 5.2.1 Thomas Holt

In 1861, Thomas Holt purchased 4,600 acres from John Laycock, who was heavily in debt, including the Birnie estate on the Kurnell Peninsula. In the same year, the eastern side of the Peninsula was reserved by the Government from settlement (Figure 5.6).





**Figure 5.6 Detail of parish map of Sutherland, c1882 (Source: © NSW Land Information Centre, Ref: 14033901).**

Holt was a wool merchant, financier, and politician. He was also a foundation director and member of several gold-mining, insurance and railway companies. He went on to purchase most of the unsold Crown land lots in the Sutherland district, and by 1875 he owned approximately 12,000 acres (4856ha), from Kurnell in the east to the Woronora River in the west. This land, originally known as the South Botany Estate and later as the Sutherland Estate, was divided into 11 paddocks and systematically cleared of trees by ringbarking. The trees were sold for timber, and the remaining vegetation was burned to encourage grass for sheep and cattle. Holt also imported and planted grass seed from Germany; however, the land proved to be unsuitable for grazing, and by the 1870s large areas of grassland on the Peninsula had been overtaken by sand dune. In an effort to control the movement of the dunes, Holt imported buffalo grass from America to supplement the native and imported grasses he had planted. Holt also established a number of oyster breeding grounds in Weeney and Gwawley Bays (Larkin 1998:10-12; Salt 2000:27-31).

Holt retained the Connell overseer, Mr Justice, on-site at Kurnell, but also appointed a local Aboriginal man, William Rowley, as his foreman. It is likely that other Aboriginal people lived and worked on Holt's estate in the 1860s and 1870s. However, by the end of the nineteenth century, most had moved away, some to the government reserve at La Perouse on the north shore of Botany Bay and others to a camp at Saltpan Creek on the Georges River (Salt 2000:29; Nugent 2005:59-61).

## 5.2.2 Kurnell Township

In 1881, Holt formed the Holt-Sutherland Estate Land Company Limited. The objective of the company was to lease land from Holt's Sutherland Estate and prepare it for settlement. The terms of the lease entitled the company to grant subleases to tenants for up to 99 years. In 1882, Richardson & Wrench offered a subdivision of the Sutherland Estate, known as The Maritime Township of Kurnell. The blocks were small, and were envisaged as weekender blocks rather than residences (Figure 5.7). Few peoples showed interest in the subdivision, and in the early years the village was little more than a fishing camp, with shanties improvised from scrap and local scrub. Other building materials were brought in by boat from La Perouse, Botany, or Sans Souci. During the Depression in the late 1920s and 1930s, many out of work families also settled in camps in the bush on the southern shore of the peninsula, or in little houses set into the cliffs (Salt 2000:48-50, 123-127).



**Figure 5.7 Detail of parish map of Sutherland, c1900-1913, showing the subdivisions of the Township of Kurnell (Source: © NSW Land Information Centre, Ref: 14039602).**

Kurnell village became more established in the period between the wars, continuing to attract out of work people and retirees. During the construction of the Kurnell Oil Refinery, between 1952 and 1956, a Dutch dredging company brought a team of Dutch workers to operate the dredges. A residential hostel was erected near Bonna Point, Kurnell to house the workers. Following the completion of the Refinery, the Dutch company moved on to its next project, but its workers and their families elected to stay and settle permanently in Kurnell. A significant Dutch community remains today. After the road was built from Cronulla to service the Refinery, a large number of inexpensive houses were also relocated to the village, trucked to the area from other parts of the Shire (Salt 2000: 99-100, 125-127).



### 5.3 Transport

Until the mid-twentieth century, the only access to the Kurnell Peninsula was on foot or by boat. The first known wharf was built by Thomas Holt in the 1880s, adjacent to the Cook obelisk. This wharf was replaced by the Department of Lands in 1902, for the use of visitors to the Captain Cook's Landing Place Reserve (Figure 5.8). Regular private ferry services ran from Sans Souci and La Perouse to the Captain Cook Landing Place Reserve from at least 1902. These services were operated by the Fisher family, based in La Perouse. These services became intermittent from the 1950s, and were finally stopped in 1965. The wharf was continued to be maintained by NPWS, but was destroyed by a storm in 1974 (Salt 2000:103-107).



**Figure 5.8** Wharf beside the Cook obelisk, Captain Cook's Landing Place Reserve, c1906 (Source: National Library of Australia, <http://nla.gov.au/nla.pic-an20043808-22>).

A second wharf at Dampier Street in Kurnell Township was also constructed by professional fishermen in the 1940s (Figure 5.9). This wharf could only be used during high tide, and quickly went out of use (Salt 2000:105-106). By 1955, it is no longer visible on aerial photos of the peninsula.



**Figure 5.9 Wharf off Dampier Street, Kurnell, c1946 (Source: Sutherland Shire Libraries, MF002424).**

The Kurnell Refinery Wharf and the first main road to the Peninsula were constructed in the period 1953-56 to facilitate construction of the Australian Oil Refinery (see Section 5.5.1). Prior to this time, the only road access was a rough track over the sand dunes, which was maintained by local residents with motor vehicles. The new road, now known as Captain Cook Drive, was the first fully sealed road connecting Kurnell to Cronulla. It was constructed by Sutherland Shire Council, but substantially paid for by Caltex, with some assistance from a Federal Aid Grant (Kirkby 1973:113, 129-133; Salt 2000:116-117; Hill and Knowlton c1960:2).

## 5.4 Recreation & Leisure

The relative isolation of the Kurnell Peninsula from residential settlement and development meant that it attracted visitors in search of natural beauty, places to picnic, fish and hunt, and of course some people looking to re-discover the historical sites and features associated with Cook's landing (Nugent 2000:61-66). In one late nineteenth century newspaper article, Kurnell was described as 'a veritable sportsman's paradise':

*Half-a-century back the place abounded with game of great variety—wallaby, quail, ducks, curlew whelps, spurwing and golden plover, were there in great numbers. ... He was indeed a poor shot who, in those days, visited Kurnell and failed to secure a weighty bag. (Sunday Times, 30 April 1899; quoted in Nugent 2000:5)*

In the 1880s, Thomas Holt's caretaker at Alpha House provided meals and accommodation for visitors to the Peninsula (Salt 2000:37).

Following the dedication of Captain Cook's Landing Place Reserve in 1899, the Captain Cook Landing Place Trust initiated a series of improvements to the headland, including a new wharf, a shelter shed for picnickers, walking paths, camping grounds, and an first-class accommodation house with bedrooms and a café (Salt 2000:47, 51-55). Despite the naming of the reserve, many visitors came to use these recreational facilities, rather than to visit the landing place per se (Nugent 2005:83-84).



**Figure 5.10 View of Captain Cook's Landing Place Reserve, 1910, showing the Trustees cottage and wharf (Source: NSW State Library, Government Printing Office 1 - 11952).**



**Figure 5.11 Visitors to Kurnell, 1906 (Source: NSW State Library, Government Printing Office 1 – 10451).**

Camping holidays were popular in the 1940s and 1950s, particularly during school holidays. With construction of the Kurnell Oil Refinery Road in the 1950s, the numbers of visitors to the park increased, often coming in large family or social groups. When the Captain Cook Landing Place Reserve came under the provisions of the NPWS Act in 1967, camping was no longer permitted on the headland. The NPWS initiated a program of re-vegetation and feral animal control, in an attempt to restore a pre-1770 ecological environment to the area. In 1988, the park was expanded and became part of Botany Bay National Park (Salt 2000:52-57; Nugent 2000:141-142)

## 5.5 Industrial Development

The earliest industries in the Botany Bay area focused on the water-based resources of the bay and shoreline. Commercial fishing was established on the north side of the bay as early as 1790, and by the 1850s fishermen had also built shacks on the shores of Boat Harbour, Weeney, Woollooware and Quibray Bays, sending their catch by water to the markets in Sydney. Shell-gathering or digging was also important, particularly as a source of lime for lime putty mortar, used in the construction of masonry buildings, stuccoing, and plastering over other inferior building materials (Salt 2000:73-77).

From 1864, Thomas Holt began experimenting with oyster farming for the food industry, establishing farms in Gwawley and Weeney Bays at Towra Point. Holt used convict labour to establish the first European spawning and maturing areas. Holt's venture proved to be an expensive failure; however, once established, the oyster farming industry continued in Botany Bay and the Georges River for much of the twentieth century. In 1994, an outbreak of QX disease stopped oyster farming in all areas of Botany Bay, except for the leases in Quibray Bay and Woollooware Bay. Most of the oyster leases around Towra Point have now been abandoned (Salt 2000:75-77).

The relative isolation of the Kurnell Peninsula from the suburban areas of Sydney also attracted the attention of the noxious industries trade, which had been pushed to the outskirts of the city following the passing of the 1848 Slaughter House Act. Before widespread understanding of germ theory, it was widely accepted that disease was spread by bad smells or miasmas, and that these industries were therefore a danger to public health. Between 1881 and 1886, the government considered various proposals to reserve a site for noxious trades, such as abattoirs, tanneries, and a cemetery, including 2970 acres of land at Kurnell for noxious trades, (see Figure 5.7 above) (Fitzgerald 2008). Although the bill enforcing the reservation was never formally enacted, much of the Kurnell Peninsula was kept free of residential development, and in the post-War period various heavy industries established factories and other operations on the land, including sand mining, the Australian Oil Refinery, two carbon black manufactories, and various chemical and pharmaceutical manufactories (Figure 5.12-Figure 5.13) (Salt 2000:87-96).

It is likely that sand has been mined on the peninsula from at least the 1930s, when the State Government granted mining leases on freehold land. However, the mining took off in the 1950s, when the State Government suspended the Kurnell peninsula from the Cumberland County Planning Scheme. Companies owned by Thomas Essington Breen and the Holt Group have mined sand on freehold and leasehold land from 1953 onward (Salt 2000:93-96). Since that time the dunes have been systematically removed, transforming the landscape. In 2003, the last major exposed sand dune on the peninsula was listed on the State Heritage Register, as part of the Cronulla Sand Dune and Wanda Beach Coastal Landscape (State Heritage Inventory).





**Figure 5.12 Aerial photo of Kurnell peninsula, 1943 (Source: Sutherland Shire Maps).**



**Figure 5.13 Aerial photo of Kurnell peninsula, 1978 (Source: Sutherland Shire Maps).**

The reclamation of foreshore land and associated dredging activities for industrial development around Botany Bay has changed the original shape of the shoreline. In 1890, the city established a Sewage Farm on the northern shore of the bay, adjacent to the mouth of the Cooks River. This land was redeveloped in the mid-twentieth century as part of the expansion of Kingsford Smith Airport, and the Cooks River was diverted to a new outlet in the bay. Dredging and construction of the Kurnell Oil Refinery wharf and Banksmeadow Oil Terminal (1953-56), and the Port Botany Container Terminal (from 1970), have further altered the local environment (Salt 2000:87-92).

The construction of the Australian Oil Refinery, and the ongoing heavy industrialisation of the Kurnell Peninsula, was resisted by many community groups, including environmental groups concerned that the industry would destroy the natural heritage and recreational values of the area, and others concerned that industrial facilities would desecrate the historical and social significance of the Captain Cook Landing Place Reserve (Kirkby 1973:128-129; Nugent 2005:126-128).

### 5.5.1 Australian Oil Refinery

#### *Background to the Australian Oil Refining Industry*

The modern petroleum industry emerged in the mid-nineteenth century, when increasing demand for kerosene as a lighting fuel led to the development of commercial oil wells in Azerbaijan, Poland, Romania, USA, and Canada. The US firm Vacuum Oil was the first oil company to establish a presence in Australia, setting up an office in Melbourne in 1895, and the Vacuum-Colonial company dominated the oil import industry for the first two decades of the twentieth century. However, several other international oil companies also established branches in Australia during this period, including Shell (1900), Neptune (1909) and the Texas Company (1918) (Murray 2001:28-29; Wilkinson 2004:19).

In approximately 1901, Shell opened a bulk kerosene receiving terminal at Gore Bay in Port Jackson. At about the same time, the Colonial Oil Company established a major oil storage depot at Pulpit Point in Hunters Hill, and began importing kerosene and motor spirits (also known as benzene or petrol) into Australia. The Colonial Oil Company merged with Vacuum Oil in 1908, and in 1924



Vacuum Oil opened its first bulk petroleum products terminal at the Pulpit Point site. Vacuum Oil (which later became Mobil) operated its Hunter's Hill depot until 1988. The Texas Company (later Caltex) also operated an import terminal at Ballast Point in Balmain from 1928 until 1994 (ExxonMobil 2008; Wilkinson 2004:19; Tropman & Tropman Architects 2004:16).

The introduction of the Model T Ford to Australia in 1909 marked the beginning of the age of mass-produced motor vehicles. The internal combustion engine required a higher quality fuel than could be distilled from shale, which led to a dramatic increase oil imports. In 1913, an Australian shipping agent, HC Sleigh, also began to import oil, using the brand name Golden Fleece (Murray 2001:28-30; Wilkinson 2004:19). In 1916, the petrol pump and storage system invented by SF Bowser & Co of Canada was introduced to most roadside garages, and removed the need for the cumbersome 'funnel and can' method for refuelling (Wilkinson 2004:19, 23, 26). In 1920, Golden Fleece opened a chain of 20 service stations in Melbourne, Sydney and Adelaide, exclusively marketing its own oil products. However most garages continued to sell multiple brands of petrol until the 1950s, when the major brands began to introduce their own service stations and focus on solo marketing (Wilkinson 2004:48, 83).

In 1920, as motor vehicles became more popular in Australia, the Australian Federal Government formed the Commonwealth Oil Refineries (COR) and by 1924 it had built Australia's first oil refinery, at Laverton in Victoria. Crude oil feedstock for the Laverton refinery was imported from Iran. By 1926, John Fell and Company had also begun refining petroleum at Clyde in Sydney. The Clyde site had originally been established to refine kerosene shale oil from Newnes in the Blue Mountains. The Clyde refinery was purchased by The Shell Company of Australia Ltd in 1928, and Shell continued to operate the refinery on the site until September 2012. The COR refinery was purchased by the Anglo-Iranian Oil Company (later British Petroleum [BP]) in 1952, and closed in 1955 (Murray 2001:18; Shell 2012).

Australia's third and fourth major oil refineries were constructed in the late 1940s, specialising in the production of bitumen from heavy crude oil feed stocks: the Bitumen and Oil Refining Australia Ltd (BORAL) plant (part owned by Caltex) at Matraville on Botany Bay, opened in 1948; and the Standard-Vacuum Oil Company plant at Altona near Melbourne, VIC, opened in 1949 (Wilkinson 2004:60-61). In the years following WW II, motor car use and aviation technology also boomed. Petrol rationing was lifted in 1950, and the main petroleum companies quickly began to take advantage of the world-wide supply of cheap oil to invest in new Australian-based refineries. In 1951-1952, Vacuum proposed to upgrade its refinery at Altona VIC, Shell proposed a new refinery at Geelong VIC, BP proposed a new refinery at Kwinana WA, and Caltex proposed a new refinery at Botany Bay, near to Sydney's Kingsford Smith Airport (*SMH* 25 July 1951; 31 August 1951; 15 September 1951; Wilkinson 2004:63). The Sydney airport was at that time being upgraded to accommodate two new runways and an international terminal. A Botany Bay location would also enable easy distribution of petrol to local markets, good access to labour, and good access to water needed to cool the plant (Caltex 1984:5). The Caltex refinery was eventually established on the Kurnell Peninsula, known as the Australian Oil Refinery, beginning operations in 1956 (see Development of the Australian Oil Refinery below). At the same time, Caltex established a finished products terminal on the north side of the bay, at Banksmeadow, and ceased storing petrol at its Balmain terminal.

Over the last two decades, the profitability of the Australian refining industry has come under pressure from two main sources: competition from new larger-scale refineries in Asia, and the need to upgrade aging equipment to comply with Federal clean fuel regulations. At the same time, all of the refineries have carried out upgrades to enable them to treat a wider variety of crude types (Wilkinson 2004:152, 175; Vivoda 2012). In July 2011, Shell announced that it was going to shut down its refining

operations at Clyde and convert the refinery into a fuel import terminal. In July 2012, Caltex followed suit, and announced the conversion of its Kurnell refinery, the last refinery in NSW, to an import terminal (Table 5.1) (Vivoda 2012). Shell ceased refining operations at its Clyde plant from 30 September 2012 (Shell 2012).

**Table 5.1 List of operational and recently closed Australian oil refineries. (Based on Vivoda 2012).**

Refinery	Location	Capacity (bpd)	Began operating	Closure
BP Bulwer Island	QLD	90,000	1965	-
BP Kwinana	WA	138,000	1955	-
Caltex Lytton	QLD	104,000	1965	-
Caltex Kurnell	NSW	124,500	1956	2014
ExxonMobil Altona	VIC	75,000	1949	-
ExxonMobil Port Stanvac	SA	100,000	1963	2009
Shell Clyde	NSW	100,000	1928	2012
Shell Geelong	VIC	130,000	1954	-

### *Development of the Australian Oil Refinery*

Cumberland County Council initially rejected Caltex's application to build the new £25 million oil refinery at Kurnell, in an area then zoned as Open Space. Sutherland Shire Council had also objected to Caltex's proposed refinery site of 300-400 acres at Kurnell because of its proximity to Captain Cook's landing place, which they regarded as '*consecrated soil*', and the overall '*effect of such a dominating industry in the locality*' (Kirkby 1973:128). Caltex argued that the refinery would not produce smoke nuisance of any kind, and that some 600 employees would be recruited locally. Sutherland Shire Council later withdrew its objection, although its reasons were not specified, and in June 1952 the State Government approved the project, provided that the company bear the cost of dredging and constructing a jetty-head, which would have to be as far as possible from the Captain Cook's Landing Place Reserve, and bear the cost of necessary roads and other infrastructure (SMH 28 March 1952; 11 June 1952; Kirkby 1973:129).

Caltex was originally established as an international company in 1936, as a joint venture of the Texas Company (later called Texaco) and the Standard Oil Company of California (Socal, later called Chevron). The proposed Kurnell refinery would enable Caltex to process and distribute oil from its successful Minas Oil Fields in Sumatra, Indonesia (Hill and Knowlton c1960:4). Prior to construction, Caltex established an Australian subsidiary company to construct and operate the refinery: the Australian Oil Refining Pty Ltd (AOR) (Caltex 1984:3; Salt 2004:97).

Caltex initially purchased 174 hectares of swamp land at Kurnell, and subsidised construction by Sutherland Shire Council of an access road from Cronulla, now known as Captain Cook Drive. Historical photographs of the site indicate that the area was progressively cleared of native vegetation, sandhills levelled and swampland reclaimed, to prepare the site for construction of the refinery. Meanwhile, the company sent scientific and technical trainees to Bahrain, Japan and the Philippines to learn how to operate a refinery. Construction of the main refinery began in December 1953, and was completed in 1956 (Figure 5.14, Figure 5.20-Figure 5.21). The principal contractor was E B Badger and Sons Pty Ltd, which built the process units, power plant, and installed the piping. Chicago Bridge and Iron Company built 56 tanks for crude oil and finished product storage. During the peak of construction in 1955, approximately 3,000 people were employed to drain swamps, clear scrub, install water and sewerage facilities, and build the main refinery. At the same time, a submarine pipeline was constructed between Kurnell and a terminal at Banksmeadow in order to transport jet fuel to the airport and other refined oils to the dockyards for sea transport. A wharf approximately 1.2 km long was also provided on the south shore of Botany Bay, with a breasting island capable of

berthing two large tankers (Figure 5.15). The wharf and submarine pipeline were constructed by Fletcher-Merritt-Raymond Construction Company of New Zealand (Hill and Knowlton c1960:2-3; Salt 2000:99-101). By February 1956, the refinery was pumping finished fuel products across Botany Bay via the submarine pipelines to the Banksmeadow Terminal, where they were transferred to road and rail tankers for further distribution throughout NSW (Hill and Knowlton c1960:2, 24).



**Figure 5.14 Aerial view of construction of the Kurnell Oil Refinery, 1955, with wharf in the background (Source: State Library of NSW, Australian Photographic Agency – 00036).**



**Figure 5.15 Oil tanker Caltex Bombay at Kurnell Wharf, 1956; photo by Curly Fraser (Source: State Library of NSW, Australian Photographic Agency – 00970).**

At the time of construction, the Australian Oil Refinery was the largest petroleum installation in NSW, and the largest industrial plant built by private enterprise in the State. It initially included 56

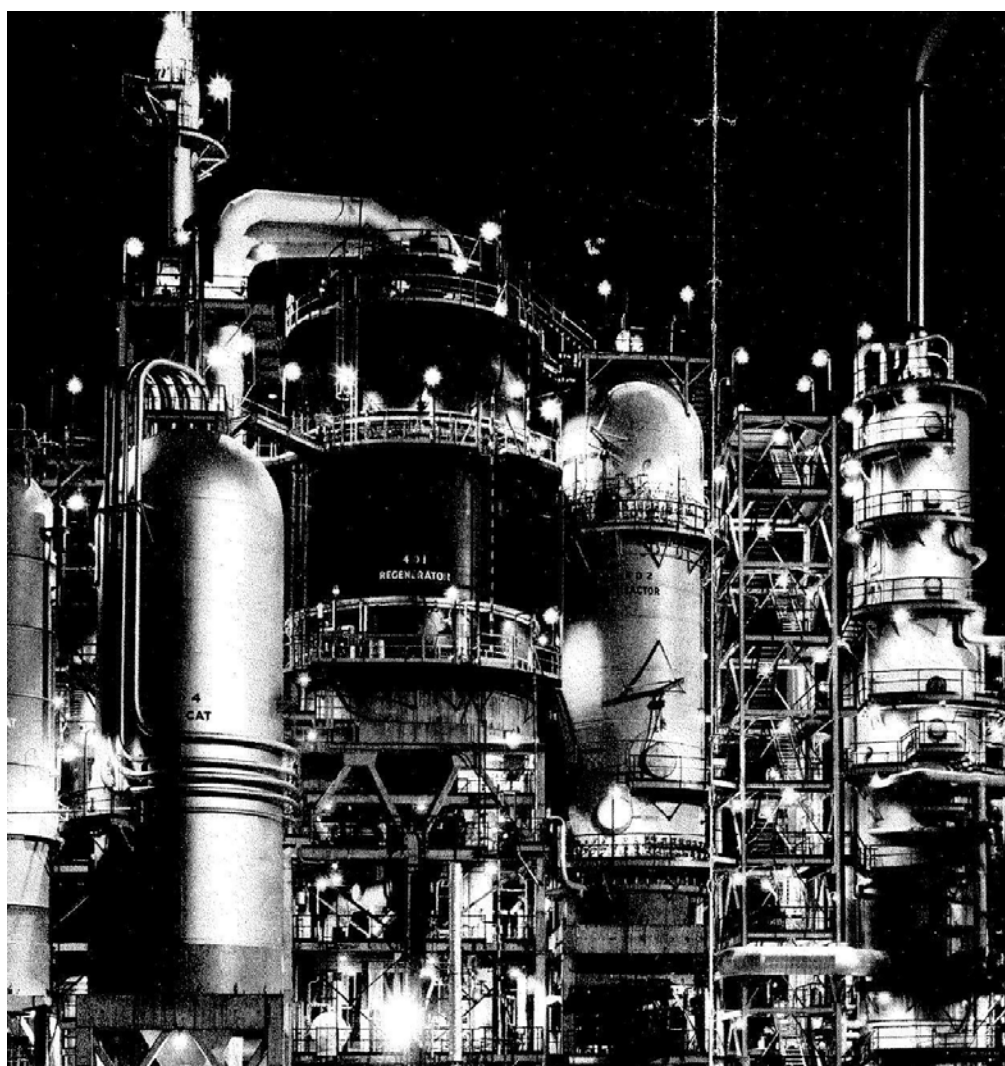


storage tanks, and processed 22,000 barrels or 770,000 imperial gallons (3,500,491 litres) of oil per day. Four crude oil tanks at the northern end of the site held 6,300,000 imperial gallons (28,640,378 litres) each, enough to keep the Refinery operating for approximately one month (Hill and Knowlton c1960:3, 11). These tanks were 48ft (14.63m) high and 164ft (49.98m) in diameter, with floating roofs. The other, smaller tanks held a range of intermediate and finished products, including petrol, illuminating kerosene, diesel oil, industrial diesel oil, and bunker fuel oil. Tanks holding the less volatile liquids, such as kerosene, diesel and fuel oil were general constructed with cone-type roofs, supported by trussed on columns (Hill and Knowlton c1960:9).

Passing from the crude oil storage tanks, the oil was processed through a number of major processing units, including:

- Crude oil distillation unit, which separated the oil into its various components or fractions;
- Propane decarbonisation unit;
- Fluid catalytic cracking unit; and
- Treating, inhibiting and blending units.

The fluid catalytic cracking unit was the largest processing unit at the refinery, with a regenerator stack 175 ft high (Figure 5.16-Figure 5.18) (Hill and Knowlton c1960:3, 19).



**Figure 5.16 Fluid catalytic cracking unit; photo by Max Dupain and Kerry Dundas, c1956 (Source: Hill and Knowlton c1960:18-19).**



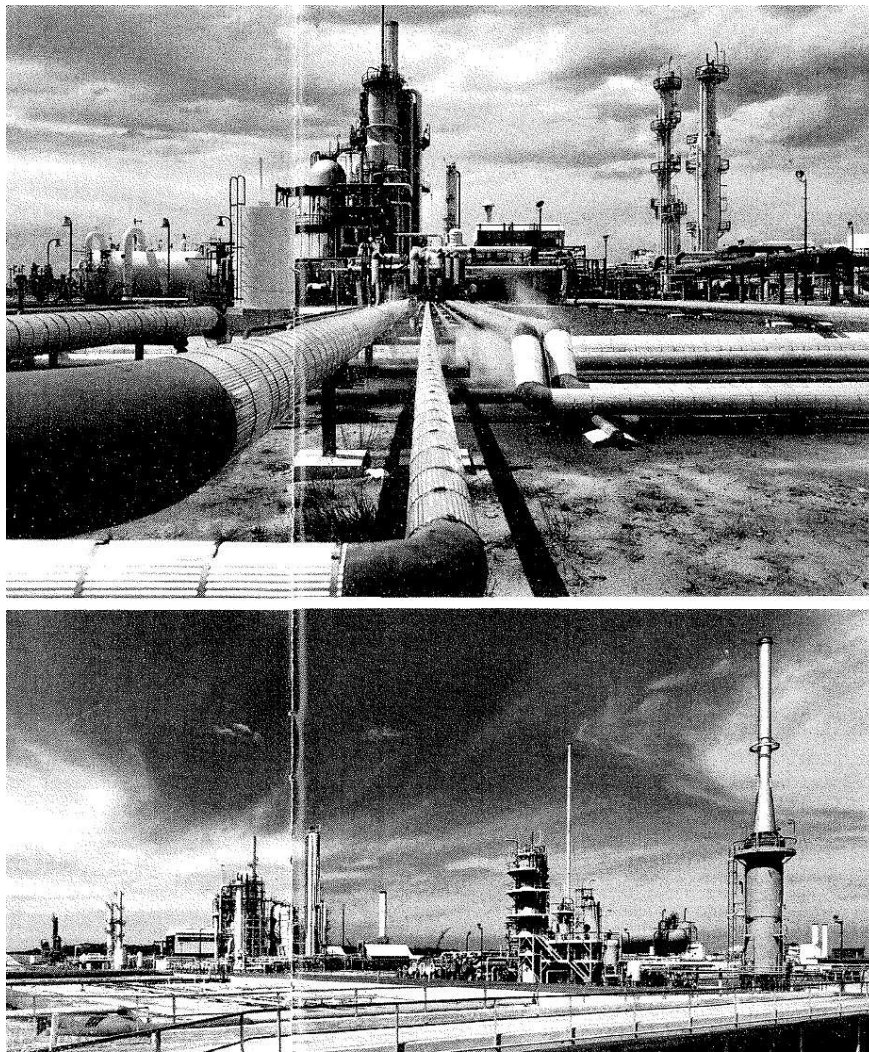


Figure 5.17 Pipelines leading to the fluid catalytic cracking unit (above) and general view of the process line (below); photo by Max Dupain and Kerry Dundas, c1956 (Source: Hill and Knowlton c1960:12-13).

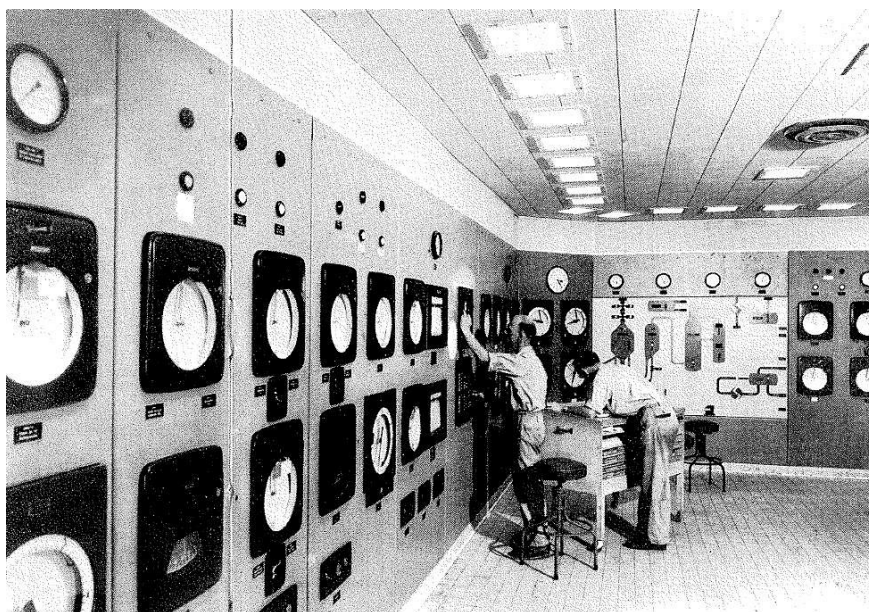


Figure 5.18 Control room of the fluid catalytic cracking unit; photo by Max Dupain and Kerry Dundas, c1956 (Source: Hill and Knowlton c1960:24-25).



This infrastructure was initially painted with a proprietary colour scheme of white, soft red, 'polished black' and 'botany blue':

- Tanks and power plant were white;
- Crude oil distillation unit was red, with whites and greys on auxiliary equipment;
- Propane decarbonisation unit was grey with red trim (Figure 5.19);
- Fluid catalytic cracking unit was blue, grey, red, black and white; and
- Polymerisation unit was blue.



**Figure 5.19** This photo of the first propane decarbonisation unit (no longer extant) is titled 'This is Australia'; by Max Dupain and Kerry Dundas, 1956 (Source: *Australian Women's Weekly* 13 June 1956, <http://nla.gov.au/nla.news-article41851582>). The image paints an optimistic view of Australia's technological capabilities in the post-War era.

An early promotional booklet for the refinery, entitled *the Kurnell story*, lauded the place as *an impressive symbol of the mechanisation of our age*. Photographic imagery by Max Dupain and Kerry Dundas supported this vision, celebrating the refinery as a good example of Australia's technological capabilities in the post-War era (Hill and Knowlton c1960:16; *Australian Women's Weekly* 13 June 1956). The modernist vision was also exemplified in architect Harry Seidler's design of six on-site worker's cottages, as well as amenities and office buildings for the site (Hill and Knowlton c1960:136-37; Seidler & Abel 2003:86).

The refinery was progressively expanded to accommodate increased demand for oil and other refinery products (Figure 5.20-Figure 5.23). A major period of expansion began in 1961, and by 1964 refinery capacity had been increased over 400%, to 90,000 barrels of crude per day (Caltex 1984:6). Aerial photographs indicate that additional crude oil distillation and fluid catalytic cracking units as well as an alkylation unit had been added to the process line. Five larger crude oil tanks had also been constructed on the west side of the site.



**Figure 5.20 Australian Oil Refinery, 1955 (Source: Sutherland Shire Maps).**



**Figure 5.21 Australian Oil Refinery, 1961 (Source: Sutherland Shire Maps).**

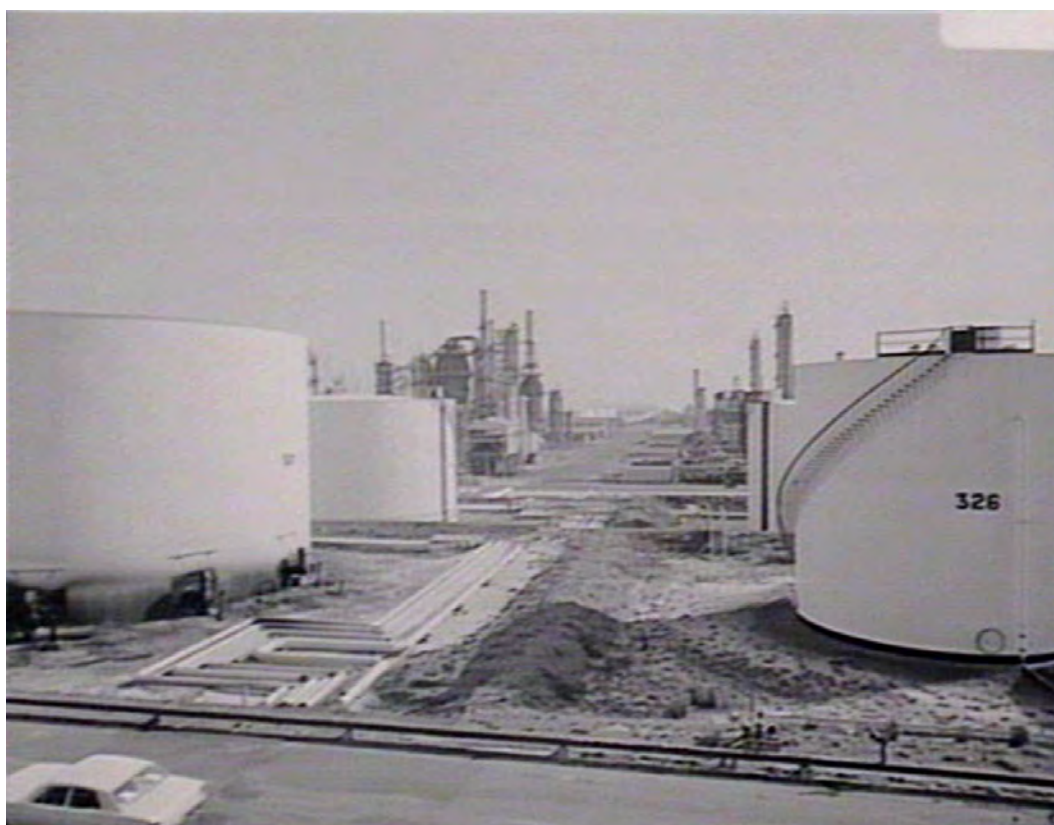


**Figure 5.22 Australian Oil Refinery (centre and top right) and ALOR (bottom left), 1970 (Source: Sutherland Shire Maps).**



**Figure 5.23 Australian Oil Refinery and ALOR, 1978 (Source: Sutherland Shire Maps).**





**Figure 5.24 View of the Kurnell Refinery from the east, 1973 (Source: NSW State Library, Government Printing Office 2 – 49254). The tank on the right was installed by 1955 and removed in the 2000s; the tank on the left was installed in the 1960s and is still extant.**

From 1961, the Australian Lubricating Oil Refinery (ALOR, later known as the Caltex Lubricating Oil Refinery or CLOR) was also constructed on Crown Land adjacent to the main refinery (Figure 5.22 and Figure 5.25-Figure 5.26). ALOR was Australia's first lubricating oil refinery, initially conceived as a joint venture by Caltex (50%) Golden Fleece (25%) and Ampol (25%). The joint venture ensured that the refinery would have sufficient bulk output to make it profitable, and that it would be 50% Australian-owned (*The Australian Women's Weekly* 20 December 1961). ALOR began operating in 1963, importing Arabian crude oil to produce base stocks for lubricants and greases, naphthenic products, and waxes used in waterproofing, building products and cosmetics (Caltex 1984:6; Salt 2000:102). Caltex later acquired Golden Fleece (1981) and merged with Ampol (1995) (Caltex 1984:3; Caltex 2011).

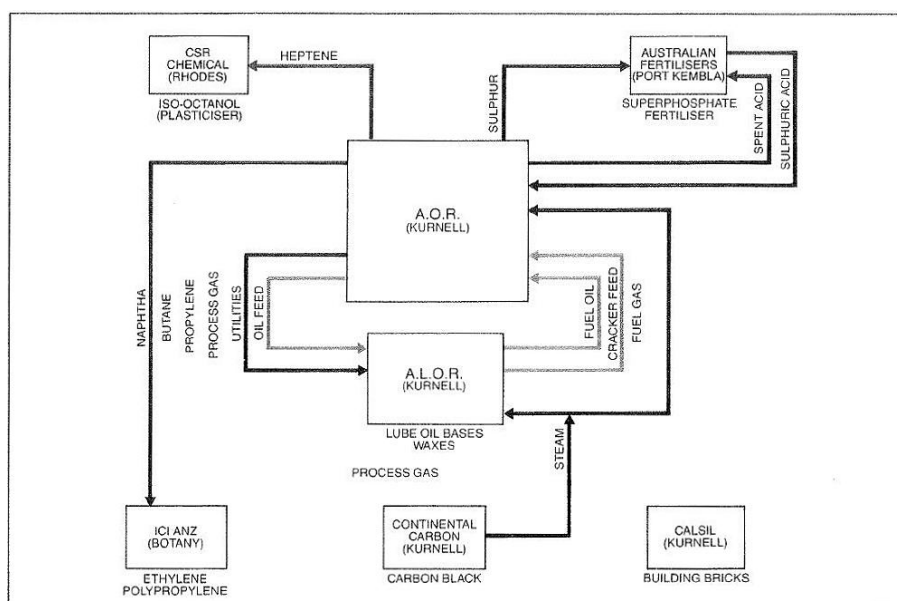




Figure 5.25 Site preparation for the ALOR, with the main refinery behind (Source: *The Australian Women's Weekly* 20 December 1961).

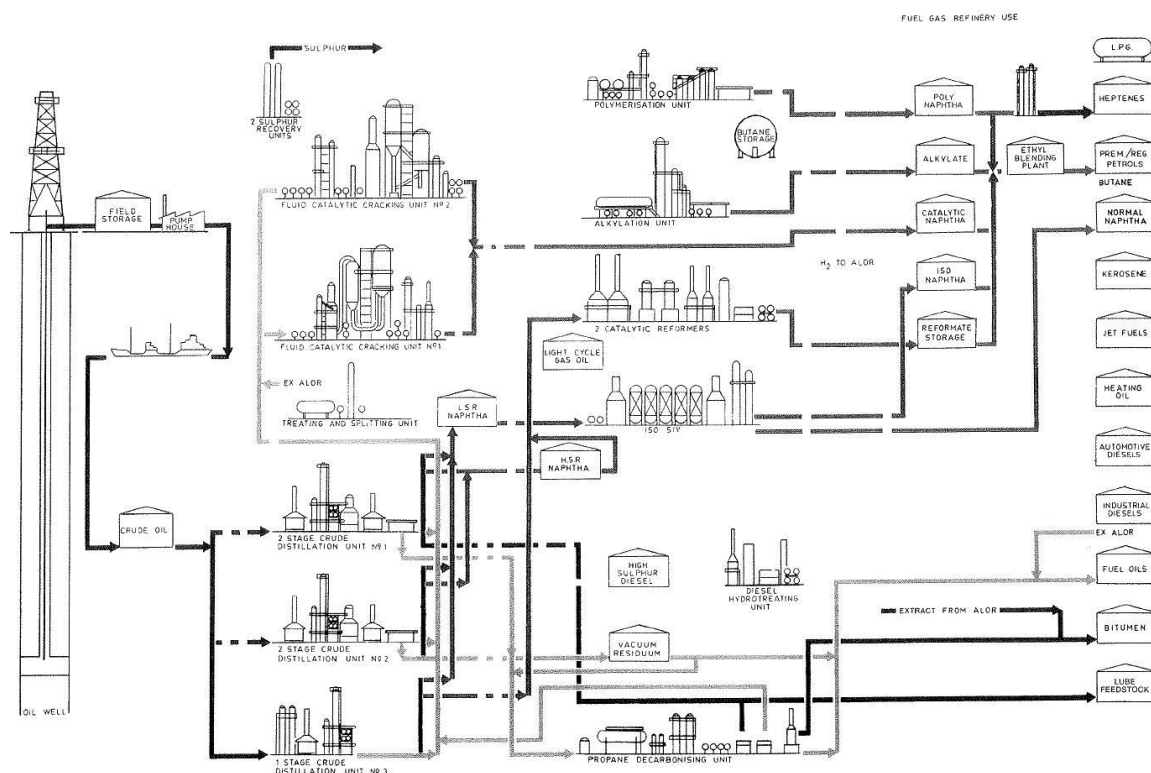


Figure 5.26 Aerial photograph of Australian Lubricating Oil Refinery, Kurnell, 1966 (Source: State Library of NSW, Ref: Australian Photographic Agency – 23344).



**Figure 5.27** Flow chart showing the functional relationship between AOR, ALOR, and adjacent industries (Source: Caltex 1984:9).

The discovery in the 1960s of various viable Australian oil fields changed the nature of the Australian refining industry. In particular, Esso/BHP's off-shore wells in Bass Strait came on stream in 1969, prompting the refineries to construct new plant to cater to the new, low sulphur feedstock. At Kurnell, an additional plant to refine the Australian-produced Bass Strait crude oil was completed in 1973. By 1984, AOR was refining 150,000 barrels per day, with 70% coming from Australian oil fields in Bass Strait and the Cooper Basin in Central Australia (Caltex 1984:6; Salt 2000:101; Wilkinson 2004:81).



**Figure 5.28** Flow diagram for the Caltex Refinery, 1984, showing the various processes and final products produced at that date (Source: Caltex 1984:8).

In more recent decades the Caltex Refinery has undergone a number of major upgrades to accommodate new safety and environmental standards, as well as repairs to aging equipment. In 2000, a serious problem developed in one of the plant's fluidized catalytic cracking units. A faulty 67m high stack was demolished and replaced with a new one (Wilkinson 2004:178). In 2006, Caltex constructed a new Benzene Saturation Plant (BENSAT) and upgraded the existing Diesel Hydro-Treating Unit (DHTU) to reduce benzene levels in both petrol and diesel fuels (pers. comm. James Farhart 31 October 2012). Following the 2005 BP Texas City explosion, officeworkers in the centre of the site were relocated away from the main plant.

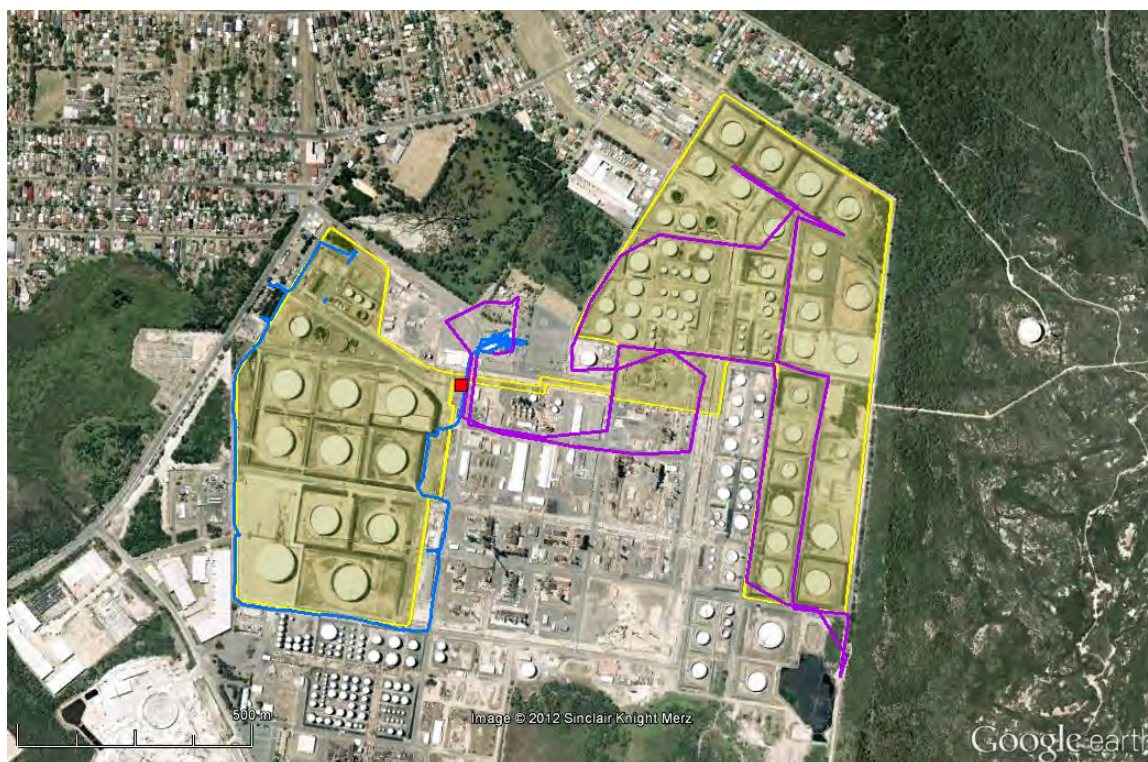
In 2009, Caltex announced that it would close ALOR, by then known as CLOR, due to the fact that the plant was manufacturing outmoded lubricant products and faced declining feedstock sources. The plant closed in 2011 and has been partially demolished. In July 2012, Caltex announced that it would also close the main refinery, and convert parts of the site to store additional finished fuel so that it would operate wholly as a finished products terminal (*SMH* 26 July 2012; 27 July 2012).





## 6 Physical Assessment

The Aboriginal and historic heritage issues and constraints associated with the Project were assessed during an inspection of the Site on 31 October 2012 by AMBS Project Manager Libby Percival and AMBS Project Officer Ngaire Richards, accompanied by La Perouse LALC representative Shane Ingrey and Caltex representative James Farhart. Photographs of the Project Area were taken using Fuji Finepix HS 20 EXR digital cameras. For safety reasons, photography at the Caltex Refinery was permitted from road areas only. Survey track logs were recorded using a Garmin Oregon 300 handheld GPS unit. The site inspection was undertaken on foot along roads in the Western Tank Area, and by vehicle in the Eastern Tank Area (Figure 6.1).



**Figure 6.1** Survey tracklog recorded during site inspection. The pedestrian survey is shown in blue, vehicle traverses in purple, and Project Area in yellow. The location of Caltex's investigative pits is indicated with a red square (Source: Background imagery: Google Earth © 2012 Sinclair Knight Merz)..

### 6.1 Aboriginal Heritage

#### 6.1.1 Methodology

The fieldwork methodology and available mapping information were discussed with the La Perouse LALC representative prior to fieldwork. An aerial photograph of the Site was made available to all participants to guide the site inspection. It focussed particularly on that part of the Project Area identified by Navin Officer as being within the Kurnell Pipeline PAD. The findings of the site inspection and recommendations were discussed with the representative in the field, and input received during the site inspection has been incorporated into this assessment, where appropriate.

The aims of the site inspection were to:

- inspect all Project impact areas;
- record any Aboriginal heritage sites/objects within the Project impact areas;
- determine any areas of potential Aboriginal archaeological sensitivity within the Project impact areas; and

- identify places or areas of cultural value to the Aboriginal community.

### 6.1.2 Results

No Aboriginal heritage sites, objects, places or areas of archaeological potential were identified within the Project Area. The Caltex Refinery is a well-established industrial facility, and contains no undisturbed natural landforms. The natural ground surface has been excavated, levelled and built-up to allow construction of the refinery, and no original soil landscapes are visible within the Project Area (Figure 6.2-Figure 6.3). Further, no specific Aboriginal cultural heritage values associated with the Site were identified by Shane Ingrey; however, he noted that according to oral tradition, an ochre quarry is thought to have been located in this general area. It is considered that ground disturbance resulting from site preparation works in the 1950s is such that any archaeological evidence of a quarry is highly unlikely to survive.



**Figure 6.2 View north east along Road L.**



**Figure 6.3 View west along Road N.**

Two investigative pits were recently excavated by Caltex to the north and south of Road L, adjacent to the intersection with Road 9 (Figure 6.1). The pits were dug in order determine subsurface conditions along Pipeline Easement 2 to a depth of 4 feet (c.1.2m), in preparation for laying of pipes. The stratigraphy of the pits revealed several layers of fill, including an existing pipe and layer of bricks (Figure 6.4), and a former asphalt road surface (Figure 6.5). Spoil associated with the southern test pit contained shell fragments, including turban, pipi and clam (Figure 6.6). The presence of shell fragments is not unexpected given the location of the Site on a coastal sand barrier complex, and the use of marine sand to level the Site prior to construction of the refinery. Given that the fragments were not part of a larger accumulation of shell, and no associated artefacts were identified, they are not considered to be part of an Aboriginal midden.





Figure 6.4 North investigative pit, intersection of Road 9 and Road L.



Figure 6.5 South investigative pit, intersection of Road 9 and Road L.





**Figure 6.6 Shell fragments in spoil from south investigative pit.**

### ***Kurnell Pipeline PAD***

The Kurnell Pipeline PAD was identified by Navin Officer as extending 100m into the Caltex Refinery from Captain Cook Drive, between Solander Street and Road 14. This area has been subject to extensive disturbance from industrial development, the subsequent construction of roads, and installation of pipelines, tanks and a stormwater basin, and ongoing maintenance of subsurface infrastructure (Figure 6.7-Figure 6.8), as well as exotic plantings along the verge of Road J, and between Roads 12 and 13 (Figure 6.9). As such, it is unlikely that midden deposits, subsurface artefact occurrences or burials are present below the ground surface. Based on the high level of ground disturbance, this area is considered to have no Aboriginal archaeological potential, and does not form part of the Kurnell Pipeline PAD.



**Figure 6.7 View north east to pipelines, tanks and Road 13.**



**Figure 6.8 View east to stormwater basin, a tank and Road 13.**





**Figure 6.9** View south east to the refinery plant (left) and tanks (right), with exotic plantings of oleander between Road 12 and Road 13.

## 6.2 Historic Heritage

There are three identified historic heritage items or places in the immediate vicinity of the project Site. The Project Area itself forms part of the locally significant Australian Oil Refinery. The locally significant four wheel drive track (Captain Cook Drive) is closely associated with the north-west and south-west boundaries of the project Site, while the nationally significant Kurnell Peninsula Headland adjoins the eastern boundary of the Site. Other heritage items on the Kurnell Peninsula are at a distance of at least 300 m or more from the project Site and would not be affected by the proposed works.

### 6.2.1 Australian Oil Refinery

The Sutherland Shire Heritage Inventory identifies the Australian Oil Refinery as an industrial heritage site comprising the main Caltex Refinery, which was originally constructed and operated by Caltex's Australian subsidiary, Australian Oil Refining Pty Ltd, as well as the CLOR, the Kurnell Wharf, and the submarine pipelines across Botany Bay to Banksmeadow (Figure 6.10). The Project Area is contained within the boundary of the main refinery Site.



**Figure 6.10** Approximate area of local heritage item Australian Oil Refinery is outlined in green. The Project Area is outlined in yellow. (Source: Written description of site contained in Sutherland Shire Heritage Inventory; Background imagery: Google Earth; © 2012 Whereis® Sensis Pty Ltd; © 2013 Sinclair Knight Merz; © 2013 DigitalGlobe; © 2013 TerraMetrics).

Historical photographs indicate that the area was progressively cleared of native vegetation, sand hills levelled and swampland reclaimed in the 1950s and 1960s, to prepare the Site for construction and later expansion of the refinery. As such, there is unlikely to be any evidence of earlier historic land uses across the Site.

Although the Site is principally an industrial landscape, it should be noted that there is a dedicated office and administrative area in the north-central part of the Site. The office and administrative area has a modernist design aesthetic, consistent with the establishment of the refinery in the 1950s, and includes a group of five houses designed by architect Harry Seidler, now converted to office uses (Figure 6.11-Figure 6.12).





**Figure 6.11 Entrance to administrative building, with tank storage area beyond.**



**Figure 6.12 Houses designed by architect Harry Seidler have been converted to office use.**

The majority of tanks slated for conversion or ongoing use were installed in the 1950s and early 1960s, during the earliest phases of development of the Site. A small number of tanks were installed during the 1970s, and two tanks were installed in the 2000s. Most tanks have the same basic cylindrical form, constructed of welded steel panels, although some have different floor structures, roof structures, and/or insulation, depending on current use (Figure 6.13).



**Figure 6.13 Tanks in the Eastern Tank Area, installed in the 1950s to 1970s. The photo includes examples of tanks with fixed cone roofs (right) and floating roofs (centre).**

The tanks have been regularly maintained and/or upgraded over the life of the refinery, including the replacement of steel panels as required and conversion to new uses (Figure 6.14-Figure 6.15). Regular painting is required to control corrosion; as such, a number of tanks that are now out of use are showing progressive signs of corrosion, particularly within the area of the former CLOR at the southern edge of the Site (Figure 6.16).



**Figure 6.14 A tank in the Eastern Tank Area undergoing maintenance, including replacement panels.**





**Figure 6.15** A tank in the Western Tank Area undergoing conversion. Insulation panels have been removed and the tank floor is being rebuilt.



**Figure 6.16** Former CLOR tanks at the southern edge of the Site, now out of use.

The tanks are all surrounded by bund walls, designed to contain spillage from the tanks. The earliest bunds are essentially earthen berms encased in asphalt. In some cases, the interior of the bunded area is also lined to prevent leakage. Any tank floors rebuilt during the Project and during the ongoing operation of the terminal would incorporate an underfloor liner.

The refinery's various storage tanks are concentrated in two main areas:

- Eastern Tank Area, which currently contains the existing intermediate and finished petroleum products tanks; and

- Western Tank Area, which currently contains the existing crude oil tanks, as well as wastewater, slops, and biotreatment tanks.

The following sections review the current physical context of the tanks to be converted and tanks which will become redundant in each area.

### *Eastern Tank Area*

The Eastern Tank Area runs along the eastern and north-eastern boundaries of the refinery Site. The small and medium sized tanks in this area currently contain a variety of intermediate and finished petroleum products, including butane, Refinery Grade Propylene, CAT naphtha, ISO naphtha, sweet reduced crude oil, gasoline, diesel and jet fuel. Thirty-four tanks in this area would be retained in their current use, with no works required. These include a range of small, medium and large tanks. Four tanks would require conversion to store finished products, four tanks will require a change of service, and one tank will be rebuilt.

Figure 6.17 shows four large floating roof tanks adjacent to the northern boundary of the Site, between Road A and Road B, originally installed in the 1950s as crude oil tanks. The tank indicated with a red arrow is currently used for finished product storage. This tank would be replaced with a similar tank with the same function on a new foundation. The other three tanks in the row would be retained as is, with no works required for ongoing finished products storage.



**Figure 6.17 View of four tanks along the northern boundary of the Site (right), in the Eastern Tank Area. The tank indicated with a red arrow will be replaced with a similar tank.**

Figure 6.18 shows a large cone roof tank adjacent to the eastern boundary of the Site, between Road 1 and Road 2. Likely installed in 1961, the tank would be converted from intermediate product storage to finished product storage. The tank was renewed in 2010, but modifications will be required to the roof structure and nozzles.

Figure 6.19 shows three medium sized cone roof tanks between Road 2 and Road 3, also near the eastern boundary of the Site. Originally installed in the 1950s, these tanks would also be converted from intermediate product storage to finished product storage. These tanks are fully or partially encased in insulating material, which keeps the contents of the tank warm and fluid. It is likely that

this insulation and associated steam and condensate nozzles would be removed as part of the proposed works. The floors would also be renewed and the roof structures modified.



**Figure 6.18** View along the eastern boundary of the Site, towards the north. The large cone roof tank indicated (red arrow) would be converted from intermediate product storage to finished product storage.



**Figure 6.19** View of tanks along the west side of Road 2. Three tanks are partially or fully insulated; this insulation and associated steam and condensate nozzles would likely be removed.

Based on the current proposal, approximately 45 tanks in the Eastern Tank Area would become redundant as a result of the refinery conversion: primarily small and medium sized cylindrical tanks (for example, Figure 6.20-Figure 6.24). These include approximately 22 tanks from the original refinery layout. A few content-specific tanks installed in more recent decades may also become redundant and if so these types would no longer be represented on the site, although this has not been



confirmed and will likely be decided during future stages of the site conversion and remediation (Figure 6.25-Figure 6.26).



**Figure 6.20** View towards the south along Road 3. Tanks on the left would be retained; tanks on the right may become redundant. Most of these tanks date to the original refinery layout.



**Figure 6.21** These tanks on the west side of Road 3, installed in the 1950s and 1960s, may become redundant.



**Figure 6.22** Two tanks on the west side of Road 3, installed in the 1960s, may become redundant.



**Figure 6.23** This tank on the south side of Road N, installed in the 1970s, may become redundant.



**Figure 6.24** These tanks in the area west of Road 5, installed in the 1950s, may become redundant.



**Figure 6.25** This tank on the east side of Road 2, installed in the 1970s, may become redundant.



**Figure 6.26** Two tanks on the east side of Road 2, installed in the c1990s, may become redundant.

### ***Western Tank Area***

The Western Tank Area is adjacent to the western boundary of the Site. Most of the large tanks in this area were originally constructed in the 1960s and 1970s to contain crude oil and they continue to be used for this purpose. There are also slop, waste water, and LPG tanks. Eight primarily small and medium sized tanks would be retained in their current use, with no works required, including the waste water treatment plant tanks and infrastructure. Eight large tanks would require conversion to store finished products and one large tank will require a change of service to store slop.

The tank in Figure 6.27 is the newest tank within the refinery, constructed in 2007. Located at the southwest corner of the site, it is also the largest tank, and as such is surrounded by a large bund wall. Minor modifications only would be required to convert this tank to finished product service.



**Figure 6.27 View of tanks in the Western Tanks Area. The tank on the right is the largest tank in the refinery.**

Three large floating roof tanks in the south of the Western Tank Area, installed in the 1960s and 1970s, may require new floors, and the roofs and nozzles would likely be modified (Figure 6.28).

Three cone roof tanks in the centre of the Western Tank Area, installed in c1961, may require new floors, and nozzles and vent systems would be modified (Figure 6.29 and Figure 6.15 above). One tank in the same area is currently unused. One tank along Pipeline Easement 2 is currently encased in insulating material, and it is likely that this insulation would be removed as part of the proposed works.



**Figure 6.28 View of a cone roof tank in the Western Tank Area, installed in the 1970s.**





**Figure 6.29 View of the Western Tank Area from Road D. The tank with the yellow arrow is currently unused. The tank with the red arrow is currently encased in insulating material. The former Yard Office building is in front.**

Based on the current proposal, approximately six small tanks would become redundant in the Western Tank Area. These include approximately two small tanks from the original refinery layout (Figure 6.30). A few content-specific tanks installed in the 1960s, may also become redundant and if so these types would no longer be represented on the site, although this has not been confirmed and will likely be decided during future stages of the site conversion and remediation (Figure 6.31).



**Figure 6.30 Three tanks (left) on the north side of Road L, installed in the 1950s, may become redundant. Three tanks (right), also installed in the 1950s and early 1960s, would remain in use with no works required.**



**Figure 6.31** Three content-specific tanks on the north side of Road L, installed in the 1960s, may become redundant.

### *Pipeline Easements*

Pipeline Easement 1 follows the route of the Main Pipeway, which enters the area of the main refinery near the north east corner of the site, and passes southward through the centre of the Eastern Tank Area before reaching the OMC and refinery plant (Figure 6.32-Figure 6.33). Pipeline Easement 2 passes southward from the OMC, before turning westward along Pipeway A through the plant, and then southward along Pipe Track 3, between Road 9 and the Western Tank Area (Figure 6.34). The various pipelines exhibit a complex mix of old and new materials. The proposed new pipelines would be installed low to the ground, along pipe racks in line with the existing pipeways.



**Figure 6.32** View along the main pipeway (Pipeline Easement 1), towards the south.





**Figure 6.33 View along the main pipeway (Pipeline Easement 1), towards the north, with the OMC on the left.**

Two new product transfer pumps would be installed on concrete foundations at the OMC to transfer slop oil and jet fuel across the Site. The proposed new diesel additive injection system would be installed within the easement of Pipe Track A, at the northern end of the Western Tank Area (Figure 6.35). Five new product transfer pumps would be installed in an open gravelled area adjacent to Pipe Track 3, on the eastern side of the Western Tank Area; and an additional pump would be installed within a shed on the western side of the Western Tank Area (refer to Figure 1.2), in an open grassed area (Figure 6.36-Figure 6.37).



**Figure 6.34 View along Pipe Track 3, towards the north.**



**Figure 6.35 View along Pipe Track A, towards the east.**





**Figure 6.36** Open gravelled area adjacent to Pipe Track 3.



**Figure 6.37** Open grassed area on western side of Western Tank Area.

### *Former Propane Decarbonisation Unit Site*

Compressors would be relocated to an area of vacant land to the north of the plant, at the junction of the Main Pipeway and Pipeway A (Figure 6.38). This area was originally the site of the first Propane Decarbonisation (Deasphalting) Unit (PDU No. 1). PDU No. 2 was installed on the west side of PDU No. 1 in the 1960s, and an analysis of aerial photos indicates that PDU No. 1 was dismantled between 1984 and 1994. Concrete foundations visible on the site are likely related to a series of tanks installed on the site between 1994 and 2001. These tanks were relocated in 2010-2011.



**Figure 6.38** View of vacant land to the north of the plant, at the junction of the Main Pipeway and Pipeway A, with PDU No. 2 behind.

### *Other Plant and Infrastructure*

The central part of the Site contains the main refinery plant and associated infrastructure (Figure 6.39).



**Figure 6.39 View of main refinery plant, from Road 4 towards the southwest.**

Although outside the Project Area addressed in this report, the refinery plant would be shut down, depressurised, de-inventoried and left in situ as part of the Project. The refinery plant current includes the following process areas:

- Crude oil distillation units Nos. 1, 2 and 3;
- PDU No. 2;
- Fluid catalytic cracking units Nos. 1 and 2;
- Polymerisation unit;
- Alkylation unit;
- Catalytic reforming unit;
- IsoSiv unit;
- Hydrotreating unit;
- Amine/sulphur recovery units Nos. 1 and 2;
- Treating and splitting unit;
- DHTU; and
- BENSAT unit.

Demolition, dismantling, or remediation of the plant would be subject to separate approvals at a later stage.

As noted in Section 5.5.1 above, the former CLOR plant closed in 2011 and has already been partially demolished.

Other infrastructure closely associated with the main refinery plant includes a number of workshops, office and storage buildings, several of which were constructed in the 1950s as part of the original refinery works (for example, Figure 6.40-Figure 6.42). Some of these buildings were removed from service following the 2005 BP Texas City explosion and are no longer in use.





Figure 6.40 Yard Office North.



Figure 6.41 Old Garage and Training Centre.





**Figure 6.42 Workshop building.**

#### *6.2.2 Four Wheel Drive Track (Captain Cook Drive)*

The four wheel drive track which originally connected Kurnell Village with Cronulla to the southwest was largely overlaid in 1953-56 by the construction of Captain Cook Drive, which in turn facilitated construction of the Caltex refinery. As such, much of the alignment of Captain Cook Drive reflects that of the original track. However, a short section of Captain Cook Drive along the western boundary of the refinery Site by-passes the original route of the track, which had intersected the refinery property. Construction of the refinery plant and infrastructure in the 1950s effectively erased this section of the track from the landscape, and there is no physical evidence of the original track alignment extant within the boundary of the refinery Site today (Figure 6.43). To the south of the Site the original alignment of the track is picked up by Chisholm Road and Captain Cook Drive. To the north of the Site the original alignment of the track crosses the Marton Park Wetland, between Cook Street the refinery's Road 7.



**Figure 6.43** Approximate alignment of former four wheel drive track through the refinery Site is indicated by the pink line. (Source of background imagery: Google Earth; © 2012 Whereis® Sensis Pty Ltd; © 2012 Sinclair Knight Merz).

### 6.2.3 Kurnell Peninsula Headland

The National Heritage listed Kurnell Peninsula Headland forms part of Kamay Botany Bay National Park. It covers approximately 325ha, extending from the southern headland of Botany Bay to Doughboy head in the south, and adjoins part of the eastern boundary of the Site (Figure 6.44).





**Figure 6.44 Northern part of NHL Kurnell Peninsula Headland is indicated by red shading. (Source of background imagery: Google Earth; © 2012 Whereis® Sensis Pty Ltd; © 2012 Sinclair Knight Merz; © 2012 DigitalGlobe; © 2012 TerraMetrics).**

The northern foreshore of the headland has been developed as a recreational park, now known as the Meeting Place Precinct. This precinct has various historic monuments and plantings, which commemorate Captain Cook's 1770 expedition to Australia, the first recorded contact between Indigenous and British people in eastern Australia, and the subsequent consequences of this meeting, namely the colonisation of Australia and dispossession of Aboriginal people from the land. A foreshore walking path connects the various monuments and plantings, and explanatory signage interprets these elements as well as the broader symbolic significance of the site (Figure 6.45).

Views between the Meeting Place Precinct, Botany Bay, and La Perouse beyond, and the orientation of the site to the bay, make an important contribution to the historic, aesthetic, and social values of the place. The visual and physical relationships between the Precinct and the bay enable visitors to experience or make a connection with the landscape setting of Cook's first landing on the east coast of Australia, of Banks and Solander's collection of specimens, and of a place that was lived in by the original Aboriginal inhabitants of the land. However, this experience can be diminished by the twentieth century industrial history of the bay, which detracts from the historic and aesthetic integrity of the place.

The Kurnell Wharf is a prominent, albeit distant, element in views from the Precinct, across the bay to the east (Figure 6.46). Similarly, taller elements of the main refinery Site are discordant features of views towards the Meeting Place Precinct from the headlands on the north side of the bay, and on approach to the Meeting Place Precinct from the bay, although the refinery becomes less visible closer to the shore (Figure 6.47).





**Figure 6.45 View from Kamay Botany Bay National Park towards Kurnell Village. A foreshore walking path connects the various monuments and commemorative plantings in the park. The Cook Monument (left) is one of the most prominent monuments, and was designed to be highly visible from the water.**



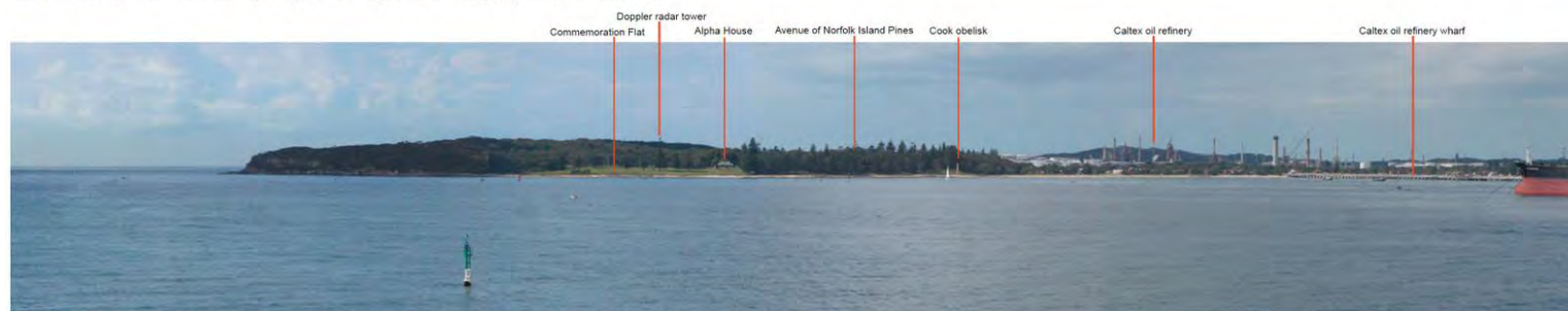
**Figure 6.46 View of the Isaac Smith Memorial (Landing Rock Monument), with Kurnell Wharf behind.**



View of Cape Solander and the Meeting Place Precinct from La Pouse



View of the Meeting Place Precinct from Yarra Bay - the chimneys of the oil refinery project above the study area



View of the Meeting Place Precinct from Molineaux Point - Botany Bay National Park contrasts greatly with the industrial development of Kurnell



View of Cook Obelisk from the water on approach across Botany Bay - it stands in a cleared area framed by Norfolk Island Pine trees

**Figure 6.47 Views of the Meeting Place Precinct from headlands to the north, and from the water on approach (Source: Design 5 2006:75).**



The section of park closest to the fenced boundary of the main refinery Site is primarily native scrub, criss-crossed by various walking paths and tracks. Along much of this boundary fence, the refinery infrastructure is set into a depression below the level of the surrounding parkland, and as such there are no views to the Meeting Place Precinct from the Site (Figure 6.48). A distant view of Cape Bailey Lighthouse can be had from the south-east part of the Site, where the parkland slopes down toward the south, adjacent to the refinery sludge farm (Figure 6.49). Similarly, the taller elements of the refinery infrastructure can be seen from the coastal walking path through the National Park in the vicinity of the lighthouse.



**Figure 6.48** North-east corner of the Kurnell Refinery site, with scrubland above the boundary fence.



**Figure 6.49** View from the south-eastern part of the Kurnell Refinery site towards the south, overlooking Kamay Botany Bay National Park. Cape Bailey Lighthouse can be seen in the distance (red arrow).



## 7 Assessment of Significance

### 7.1 Preamble

A primary step in the process of cultural heritage management is the assessment of significance. The Burra Charter defines cultural significance as *aesthetic, historic, scientific, social or spiritual value for past, present or future generations*. Significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects.

### 7.2 Aboriginal Cultural Heritage Significance

Aboriginal cultural heritage significance concerns the value(s) of a site, or feature, to a particular community group, in this case the local Aboriginal community. Preliminary consultation was undertaken with La Perouse LALC, to identify social or cultural values the Project Area has for the present-day Aboriginal community, in accordance with Step 1 of the Draft Guidelines (see Section 1.3.3).

While all Aboriginal sites contain intrinsic cultural value, no specific Aboriginal cultural heritage values have been identified by La Perouse LALC in association with the Project Area.

### 7.3 Historic Heritage Significance

As identified in Section 2, the following historic heritage items are within or in the vicinity of the study area:

- Australian Oil Refinery;
- Four-wheel drive track (Captain Cook Drive); and
- Kurnell Peninsula Headland – incorporating:
  - Alpha Farm Site and Kurnell Accommodation House (Complex);
  - Banks Monument;
  - Cape Baily Lighthouse;
  - Captain Cook's Landing Place Monuments (Complex);
  - Commemorative Tree Plantings (Complex);
  - Cook's Monument;
  - Cook's Well;
  - Discovery Centre;
  - Forby Sutherland Monument;
  - Foreshore Pines near flagstaff;
  - Foreshore sea wall - coursed stone;
  - Freshwater Stream Plaque;
  - Inscription Point Plaque;
  - Isaac Smith Memorial;
  - Kurnell Peninsula Meeting Place Precinct (Complex);
  - Landing Place Memorial;
  - Main Flagstaff;
  - Prince's Tree Memorial;
  - Queen Elizabeth II Tree;
  - Solander Memorial;
  - Trust wharf abutment;
  - Yena track;
  - Muru track;
  - Tabbagai Gap cliff site; and
  - Tabbagai Gap house site.

The cultural heritage significance of these items and places has been researched and assessed as part of the statutory listing process and does not require reconsideration for this report. However, the assessment of significance provides the framework for the development of conservation and management policies, to protect the item or place for future generations. Previous assessments of these items are summarised below.

### 7.3.1 Australian Oil Refinery

The Australian Oil Refinery is listed on the SEPP Kurnell Peninsula as a place of local heritage significance. The place is identified as an archaeological site, but it should be understood that archaeological heritage lists and registers traditionally include industrial heritage sites and items, including built heritage items. (Industrial archaeology is synonymous with industrial heritage.) The Sutherland Shire Heritage Study Inventory includes the following Summary Statement of Significance for the place:

*Australian Oil Refinery is significant as being one of only two refineries in the Sydney area.*

It should be noted that, with the closure of the Shell's Clyde refinery in September 2012, the Caltex Refinery is the only extant refinery in NSW. The Caltex refinery has historic, aesthetic/technical and scientific significance, rarity and representative value.

The Sutherland Shire Heritage Inventory indicates that the refinery has State heritage significance. Since the place is not listed on the State heritage register, it is addressed in this report as a local heritage item; however, it should be understood that the place is considered to have particular value, which extends beyond the local community.

### 7.3.2 Four Wheel Drive Track (Captain Cook Drive)

The former four wheel drive track, now largely covered by Captain Cook Drive, is listed on the SEPP Kurnell Peninsula as a place of local heritage significance. The Sutherland Shire Heritage Study Inventory includes the following Summary Statement of Significance for the place:

*The site represents the theme of transport and its difficulties, and the isolation of some areas within Sutherland Shire until very recently.*

The former four wheel drive track has historic and scientific significance, and representative value.

### 7.3.3 Kurnell Peninsula Headland

The Kurnell Peninsula Headland is listed on the NHL as a place of national heritage significance. The NHL includes the following Summary Statement of Significance for the place:

*Kurnell Headland (comprising Botany Bay National Park and the Sydney Water land at Potter Point), Kurnell Peninsula, is of outstanding heritage value to the nation as the site of first recorded contact between Indigenous people and Britain in eastern Australia. The place symbolically represents the birthplace of a nation, and the dispossession of Indigenous people. The first landing at Kurnell Peninsula in April 1770 by Lt James Cook has been commemorated since 1822. The Meeting Place Precinct, including Captain Cook's Landing Place, features memorials and landscape plantings celebrating the events. Attributes specifically associated with its Indigenous values include the watering point and immediate surrounds, and the physical evidence of Indigenous occupation in the area broadly encompassed by the watering place and the landing stage. The story of Cook's first landing on the east coast of Australia is nationally important and an integral part of Australian recorded history and folklore.*

*Cook's running-survey of the east coast of Australia in 1770 and his survey of Botany Bay as a safe harbour, was an outstanding technical achievement, enabling the continental characteristics of Terra Australis to be defined for the first time, with the exception of Bass Strait, building on the work of earlier maritime explorers. Cook's first landfall in Australia at Botany Bay in 1770 informed the subsequent British declaration of terra nullius and began the process which led to British possession of the Australian continent by 1830. The headland area of Kurnell Peninsula, comprising most of Botany Bay National Park, and described by Cook in his Journal as a significant coastal landmark at the entrance to Botany Bay, is significant to the nation as the destination of the First Fleet under Captain Arthur Phillip in 1787.*

*On this, Cook's first of three voyages to the Pacific, Joseph Banks was botanist, assisted by Daniel Solander and the artists Sydney Parkinson, Alexander Buchan and Herman Sporing, were to produce botanical, zoological and ethnographic drawings. Banks and Solander collected 83 specimens whilst at Botany Bay, many of which are now the type specimens of species and genera, including Banksia, named after Joseph Banks. Kurnell Headland, was the first site on the eastern coast of the Australian continent to be explored by scientist from Britain, with many of the first type-specimens of flora collected at the Kurnell Peninsula landing site by both Banks and Solander. Cape Banks and Point Solander have defined the entrance to Botany Bay since 1770. Cook's naming of 'Botany Bay' in 1770 would result in its adoption as an emotive term for a distant destination, which came to be associated with convictism for much of the nineteenth century.*

The Kurnell Peninsula Headland satisfies the following NHL criteria: (a) Events and processes; (b) Rarity; (g) Social value; (h) Significant People.

Numerous historical elements associated with the NHL site are also separately listed on the SEPP Kurnell Peninsula and the OEH Section 170 Register. However, none of these elements are in the immediate vicinity of the Site.





## 8 Assessment of Impact

This section assesses the impacts of the proposed works on the heritage significance or values of Aboriginal and historic heritage items, places, and archaeological sites within or in the vicinity of the Site.

### 8.1 Aboriginal Heritage

No Aboriginal archaeological sites, objects or places, or areas of archaeological potential or Aboriginal sensitivity, were identified within the Project Area. The results of the site inspection conducted with a representative of La Perouse LALC confirmed extensive disturbance from industrial development and associated ongoing maintenance of subsurface infrastructure, and it is therefore considered highly unlikely that evidence of previous occupation by Aboriginal people remains within the study area.

### 8.2 Historic Heritage

The following questions consider the impact of the proposed works on the historic heritage values of the Australian Oil Refinery, the former four wheel drive track, and the Kurnell Peninsula Headland.

*The following aspects of the proposal respect or enhance the heritage significance of the item or conservation area for the following reasons:*

- The cleaning and/or modification of some of the existing tanks at the Caltex Refinery to store finished petroleum products would conserve a representative sample of original Australian Oil Refinery storage tanks on site, in association with Caltex's petroleum products storage and distribution network. This aspect of the works respects the historical association of the Site with a major period of development in the Australian petroleum industry. Although one tank would be replaced and some tanks would be modified to accommodate different products, this is consistent with the technical value of the Site as an operational refinery and as an important part of the petroleum finished products distribution network.
- The installation of new pumps and electrical infrastructure upgrades is unlikely to have an impact on significant fabric of the Australian Oil Refinery and is consistent with the technical significance of the site as an operational refinery.
- Considering that there is no physical evidence of the former Kurnell four wheel drive track extant within the boundary of the refinery Site today, and that the proposed works are limited to the footprint of the Site, the project would not impact on significant fabric of the track or the historic significance of the local heritage item.
- The proposed works would not impact on significant fabric of the NHL Kurnell Peninsula Headland, and there would be no change to the historic or social values of the place.
- Although the refinery infrastructure detracts from the experience of significant views of the Kurnell Peninsula Headland from Botany Bay, there are no direct views between the Meeting Place Precinct of the Kurnell Peninsula Headland and the main refinery Site, and only limited distant views from the Cape Bailey Lighthouse, and from the coastal walking track. The proposed works would not alter the existing landscape setting of the Kurnell Peninsula Headland, insofar as there will be little or no change to the bulk or vertical scale of the existing refinery infrastructure, or otherwise impact on the existing view corridors associated with the national heritage values of the place.

*The following aspects of the proposal could detrimentally impact on heritage significance. The reasons are explained as well as the measures to be taken to minimise impacts:*

- The conversion of the Caltex Refinery to a finished product terminal would involve the permanent shut-down of the refinery plant, which would have a major adverse impact on the technical and scientific values of the Australian Oil Refinery site, as a rare example of an operational oil refinery in NSW. With the closure of Shell's Clyde refinery in September 2012, the Caltex Refinery is the only oil refinery still operating in NSW. With the closure of the Caltex Refinery in 2014, there would be no operational oil refineries remaining in the State, and only five operational refineries nationwide. Although this report does not consider impacts on the fabric of the plant, decommissioning of the plant would itself diminish the ability of the Site to demonstrate the technological significance of the Australian Oil Refinery and its historical contribution to development of an oil refining industry in NSW in the mid-twentieth century.
- The conversion of all crude oil tanks to finished products tanks, and the discontinuation of use of other speciality tanks, would have a minor adverse impact on the technical significance and representative value of the Australian Oil Refinery site, by reducing the functional range of tanks in use. However, the tank modifications would facilitate the ongoing use of the Site by the petroleum industry, by updating the existing infrastructure to current operational standards.
- The installation of new dedicated diesel and jet fuel pipelines along the existing Pipeline Easement 2, and conversion of an existing pipeline within Pipeline Easement 1 to a new use, could have a minor adverse impact on significant fabric of the Australian Oil Refinery site. However, the pipeline modifications are consistent with the ongoing use of the Site and the associated necessity to update infrastructure to current operational standards.

*The following sympathetic solutions have been considered and discounted for the following reasons:*

No alternative proposals have been considered to-date.

### *8.2.1 Statement of Heritage Impacts*

#### *Australian Oil Refinery*

The conversion of the Caltex Refinery to a finished product terminal would have a major adverse impact on the technical and scientific values of the Australian Oil Refinery site, as a rare example of an operational oil refinery in NSW. Decommissioning of the plant would diminish the ability of the Site to demonstrate its technological significance and its historical contribution to development of an oil refining industry in NSW in the mid-twentieth century.

The cleaning and/or modification of some of the existing tanks at the Caltex Refinery to store finished petroleum products would conserve a representative sample of original Australian Oil Refinery storage tanks on site, and as such respects the historical association of the Site with the development of the Australian petroleum industry. However, the conversion of all crude oil tanks to finished products tanks, and the possible discontinuation of use of other speciality tanks, would have a minor adverse impact on the technical significance and representative value of the Site, by reducing the functional range of tanks in use.

The installation of new dedicated diesel and jet fuel pipelines along the existing Pipeline Easement 2, and conversion of an existing pipeline within Pipeline Easement 1 to a new use may have minor adverse impacts on significant fabric of the Australian Oil Refinery site, but are consistent with the



ongoing use of the Site and the associated necessity to update infrastructure to current operational standards.

#### ***Four Wheel Drive Track (Captain Cook Drive)***

The proposed conversion of the Caltex Refinery to a finished product terminal would not impact on significant fabric of the former four wheel drive track or the historic significance of the local heritage item.

#### ***Kurnell Peninsula Headland***

The proposed conversion of the Caltex Refinery to a finished product terminal would not impact on heritage fabric of the NHL Kurnell Peninsula Headland, and there would be no change to the identified historic or social values of the place. The proposed works would not alter the existing landscape setting of the Kurnell Peninsula Headland or otherwise impact on the existing view corridors associated with the national heritage values of the place.



## 9 Conclusions and Recommendations

### 9.1 Aboriginal Heritage

The proposed conversion of the Caltex Refinery into a finished product terminal would not impact on any Aboriginal heritage sites, objects or places, or areas of archaeological potential or Aboriginal sensitivity. No further Aboriginal heritage assessment is required for the proposed works.

### 9.2 Historic Heritage

There are three identified historic heritage sites in the immediate vicinity of the Site. The Project Area itself forms part of the locally significant industrial heritage site Australian Oil Refinery, which began operations in 1956. The locally significant four wheel drive track (Captain Cook Drive) is closely associated with the north-west and south-west boundaries of the Site, while the nationally significant Kurnell Peninsula Headland adjoins the south-east boundary of the Site. The proposed conversion of the Caltex Refinery into a finished product terminal would have an adverse impact on the identified heritage values of the Australian Oil Refinery. However, the proposed works would not affect the heritage values of the four wheel drive track or the NHL Kurnell Peninsula Headland. As such, Caltex is not required to submit a referral to SEWPaC for an assessment and approval by the Minister under the provisions of the EPBC Act.

#### 9.2.1 Retaining Heritage Significance

The existing Site has over 100 tanks used for storing crude oil, refined or finished product, other petroleum intermediate products and effluent water. Approximately 60% of these would be retained, some would remain in current service, some would change service with no modifications required, and some would be modified to contain finished product when the refinery is converted to a terminal. Approximately 40% of the extant tanks would become redundant and would go out of use. The works would conserve a representative sample of original Australian Oil Refinery storage tanks on site, and as such respects the historical association of the Site with a major period of development in the Australian petroleum industry. The tank and pipeline modifications would also facilitate the ongoing use of the Site by the petroleum industry, by updating the existing infrastructure to current operational standards. However, the conversion of all crude oil tanks to finished products tanks, and the discontinuation of use of other speciality tanks, would have a minor adverse impact on the technical significance of the Australian Oil Refinery site, by reducing the functional range of tanks in use.

This report does not directly address any future dismantling or demolition of the physical fabric of the refinery plant; however, the proposed works include the shut down and depressurisation of the existing plant. The proposed decommissioning of the refinery plant is likely to have a major adverse impact on the identified heritage values of the Australian Oil Refinery. In particular, permanent shut down of the plant would diminish the technological and scientific values of the plant, as an integral part of the only remaining operational oil refinery in NSW. In this context, it should be noted that the former CLOR plant at the south end of the site has been decommissioned and partially demolished. As such, it is appropriate that a heritage management strategy is prepared to identify possible mitigation for the cumulative loss of heritage value during the decommissioning of the main refinery plant.

#### *Recommendation 1*

*Caltex should consider undertaking a review of the heritage significance of the Australian Oil Refinery site prior to shut-down of the refinery plant. The review would form part of a heritage management strategy for the overall Site, which would inform and guide measures to minimise or mitigate the loss of heritage value during the decommissioning process. The*



*review should clarify the extent and heritage significance of the place, by identifying key elements of industrial heritage and their relative contribution to the overall significance of the Site. Key elements could include the existing plant and oil refining infrastructure, as well as associated administrative and workshop buildings.*

### 9.2.2 Interpretation as Mitigation

In some situations, interpretation can be used to mitigate adverse impacts on heritage value. Interpretation is a means of conveying an understanding of the history and cultural significance of an item or place to the community. It is an ongoing process that incorporates a range of actions, including the retention and maintenance of historic fabric, documenting changes to a site, and explanatory signage.

Implementation of an interpretation strategy would provide some mitigation for the adverse effects of the Caltex Refinery Conversion on the industrial heritage significance of the Site. It could also contribute to future understanding and/or promotion of the history of the Caltex Brand in Australia. The first stage of an interpretation strategy would be an archival recording of the refinery before and during the decommissioning process.

#### *Recommendation 2*

*An archival recording of the existing fabric and operations of the Australian Oil Refinery site should be prepared while the plant is still operational, and during the decommissioning process. The recording should incorporate a range of media, such as historic plans of the plant and infrastructure, photographic recording of the plant and infrastructure, and audiovisual recording of the stories of workers who operate the plant. The recording should become part of the history of the place and should be maintained for the appreciation of present and future generations.*

*The archival recording should be made in accordance with current Heritage Branch guidelines.*

## 10 Management & Mitigation Measures

In response to the conclusions and recommendations included in this report and consultation with the Heritage Branch regarding the Project, Caltex has outlined the following work undertaken to-date to document the history of the Site and efforts to present or exhibit that history to its employees and the local community:

- In 2005, for the refinery's 50 year anniversary celebrations, Caltex prepared a DVD for its employees on *50 Years of Refining Fuel for Australia*. The DVD includes:
  - The Kurnell Story – a film which chronicles the construction of the Kurnell Refinery from 1953-1956;
  - Kurnell Memories – interviews with former refinery employees;
  - a collection of Caltex advertisements from 1956-1980;
  - historical images – a collection of the original Kurnell Refinery construction photographs and copies of the Lookbox (the refinery's newsletter);
  - Portrait of Australia – a Caltex production which explores the industrial, commercial, sporting cultural and social landscape of Australia in 1962;
  - Service in the Sun – an Ampol film promoting surf lifesaving and the Australian Beach culture. Set in the late 1950s – early 1960s; and
  - The Ampol Car Trial.
- During shutdown of the CLOR in 2011, Caltex hosted a temporary memorabilia room, where employees could deposit and view items of memorabilia associated with the site, including Caltex uniforms, tools, advertisements, and old turnover books.
- Caltex understands that the Powerhouse Museum is in the process of preparing an exhibit on the CLOR. Curators were invited to photograph and document the site. They collected small items of technology and/or memorabilia from the site for inclusion in the exhibition.

Caltex is also planning to undertake the following in the lead up to the closure of the main refinery plant in 2014:

- Form an in-house team to manage documentation and interpretation of the history of the refinery prior to its closure, including production of a colour illustrated book on the history of the refinery, targeted at Caltex's employees;
- Liaise with the Mitchell Library (NSW State Library) to prepare a photographic record of the plant and people associated with the refinery for inclusion in the library's archives; and
- Engage a professional photographer to prepare a photographic exhibition on the refinery.

Caltex has an extensive, albeit informal, collection of historical resources and moveable heritage items and memorabilia associated with the Site, which may be used in future interpretation. The collection is located on-site in a secured area and is currently managed by the site's librarian. The collection includes:

- hundreds of photographs of the refinery (both plant and people) from construction through to the present day, including original photographs and others scanned from originals provided by employees;
  - original Max Dupain photographs of the refinery, including images of the Harry Seidler designed refinery houses featuring original furnishings;
  - photographs associated with other parts of Caltex's business, including marketing, distribution, and the corporate head office;
  - photographs depicting Caltex's and the refinery's involvement in the community;
- past issues of the company magazine, the *Caltex Star*, dating back to the 1950s (issues have also been lodged with the Mitchell Library);

- past issues of refinery newsletters, including the *Look Box*, and the *Good Oil*, dating back to the 1950s;
- film footage of the refinery;
- Caltex and Ampol advertisements (also held by the National Film and Sound Archive in Canberra);
- films about aspects of Australian life produced by Caltex and Ampol in the 1960s and 1970s (when the company was involved in film making); and
- various company memorabilia dating back to before the refinery's construction including signs, sporting trophies, employee booklets, plaques, old turnover books etc.

## 10.1 Statement of Commitments

Taking into consideration the measures and resources outlined above and the recommendations contained in this report, Caltex have indicated a commitment to undertaking the following additional measures to manage and mitigate impacts arising from the proposed works on the significance of heritage items, places and archaeological sites affected by the works:

- An archival photographic record of the existing fabric and operations of the Kurnell refinery would be prepared while the plant is still operational, and during the decommissioning process. The recording would be undertaken in accordance with the Heritage Council guidelines on *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006). The archival recording would be maintained for the appreciation of present and future generations. To this end, the recording would be lodged with Sutherland Shire Library and the NSW State Library.
- A copy of the 2005 DVD *50 Years of Refining Fuel for Australia* would be lodged with Sutherland Shire Library and the NSW State Library.
- A Heritage Management Strategy would be prepared for the Australian Oil Refinery site prior to shut-down of the refinery plant, to provide Caltex with a basic framework for the ongoing management of the site's heritage during present and future works on site. The Strategy would include a review of the heritage significance of the overall site. The review would clarify the extent and relative heritage value of the place by identifying key elements of industrial and built heritage as well as social values of the refinery, and the relative contribution of these elements to the overall significance of the Site. Recommendations would also address the future assessment and management of memorabilia and other significant items of moveable heritage maintained on-site.



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SEWPaC, Australian Heritage Database  
<http://www.environment.gov.au/cgi-bin/ahdb/search.pl>

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Sutherland Shire Maps  
<https://mapping.ssc.nsw.gov.au/Sutherland/>



## Appendix A

### *Aboriginal Sites Previously Recorded in the Vicinity of the Study Area*

Site ID	Site Name	Datum	Zone	Easting	Northing	Site Type
45-5-2587	Frenchmans Bay Foredune	AGD	56	336500	6238000	Midden
45-6-0292	Yarra Point;Botany Bay	AGD	56	336280	6238150	Midden
45-6-0556	La Perouse;BBNP Proposal	AGD	56	337300	6236800	Midden
45-6-0561	Congwong Beach	AGD	56	336900	6237400	Midden
45-6-0648	Site 1, La Perouse	AGD	56	336300	6237350	Rock Engraving
45-6-0649	Site 2, La Perouse	AGD	56	336572	6237358	Rock Engraving
45-6-0650	Site 3, La Perouse	AGD	56	336572	6237358	Rock Engraving
45-6-0651	Site 4, La Perouse	AGD	56	336572	6237358	Rock Engraving
45-6-0652	Site 5, La Perouse	AGD	56	336375	6237400	Rock Engraving
45-6-0653	Site 6, La Perouse	AGD	56	336400	6237600	Rock Engraving
45-6-0659	La Perouse	AGD	56	337011	6238281	Rock Engraving
45-6-0873	La Perouse Reserve	AGD	56	336702	6238068	Rock Engraving
45-6-0886	Bare Island;Yarra Bay;	AGD	56	336400	6238500	Shelter with Midden
45-6-1144	La Perouse;	AGD	56	336570	6237449	Midden
45-6-1145	La Perouse;	AGD	56	336800	6237400	Midden
45-6-1146	Congwong Cave, La Perouse	AGD	56	336846	6237363	Shelter with Art
45-6-1403	La Perouse,	AGD	56	336477	6237539	Rock Engraving
45-6-1762	Congwong Beach;	AGD	56	336900	6237400	Midden
45-6-2752	Restriction applied. Please contact ahims@environment.nsw.gov.au.	-	-	-	-	Restricted
45-6-2753	Restriction applied. Please contact ahims@environment.nsw.gov.au.	-	-	-	-	Restricted
52-3-0209	Cronulla Beach;Kurnell Peninsula;	AGD	56	332356	6232840	Midden
52-3-0210	Quibray Bay;Cronulla Beach;	AGD	56	332196	6233310	Midden
52-3-0211	Quibray Bay Cronulla Beach Quibray Complex	AGD	56	332336	6233460	Midden
52-3-0212	Kurnell Peninsula;Captain Cook Drive;	AGD	56	334196	6234560	Midden
52-3-0213	Boat Harbour;Cronulla Beach;	AGD	56	333929	6232185	Midden
52-3-0214	Kurnell Peninsula;	AGD	56	333996	6232910	Midden
52-3-0215	BH 1;Boat Harbour;Cronulla Beach;	AGD	56	333896	6231960	Midden
52-3-0216	Boat Harbour;BH 2;	AGD	56	334090	6231900	Midden
52-3-0217	Kurnell Peninsula;	AGD	56	334246	6233310	Midden
52-3-0218	Potter Point;Kurnell;	AGD	56	335132	6231845	Midden
52-3-0219	Captain Cook's Landing Place.	AGD	56	335496	6235960	Burial/s,Midden
52-3-0220	Restriction applied. Please contact ahims@environment.nsw.gov.au.	-	-	-	-	Restricted
52-3-0221	Captain Cook's Landing Place,	AGD	56	335646	6235660	Rock Engraving
52-3-0258	Abbot Site;Botany Bay;	AGD	56	333396	6233610	Midden
52-3-0370	Joseph Banks 1-	AGD	56	334496	6233410	Open Camp Site

Site ID	Site Name	Datum	Zone	Easting	Northing	Site Type
52-3-0371	Boat Harbour Reserve;	AGD	56	334500	6231900	Midden
52-3-0525	Tasman St-	AGD	56	333746	6234710	Burial/s,Midden
52-3-0687	TG1, Tabbigai Gap 1-	AGD	56	336136	6233270	Midden
52-3-0688	TG2, Tabbigai Gap 2-	AGD	56	336206	6233170	Open Camp Site
52-3-0689	CS1, Cape Solander 1-	AGD	56	336366	6234320	Open Camp Site
52-3-0690	Botany Cone Swamps 1; BCS1-	AGD	56	334356	6231910	Midden
52-3-0692	Botany Cone Swamps 3; BCS3-	AGD	56	334236	6232050	Open Camp Site
52-3-0694	Botany Cone Swamps 5;BCS5;	AGD	56	334220	6231900	Midden,Open Camp Site
52-3-0695	Botany Cone Swamps 6; BCS6-	AGD	56	334186	6231820	Open Camp Site
52-3-0698	Boat Harbour 3;BH3;	AGD	56	333950	6232150	Midden
52-3-0699	Boat Harbour 4;BH4;	AGD	56	334070	6232010	Midden
52-3-0700	Boat Harbour 5; BH5-	AGD	56	334036	6231910	Midden,Open Camp Site
52-3-0701	Besmaw 1; B1-	AGD	56	333846	6232660	Midden
52-3-0702	B2; Eastside	AGD	56	333626	6232310	Midden,Open Camp Site
52-3-0703	Boat Harbour; NT 1	AGD	56	334046	6232190	Open Camp Site
52-3-0706	Potter Point 1; PP1-	AGD	56	335276	6231930	Open Camp Site
52-3-0708	Potter Point 3; PP3-	AGD	56	335246	6232010	Open Camp Site
52-3-0709	Potter Point 4; PP4-	AGD	56	335236	6231960	Open Camp Site
52-3-0710	Joseph Banks Drive 1; JBD1-	AGD	56	334546	6232660	Open Camp Site
52-3-0722	Pimple Midden Relics;Kurnell Peninsula;	AGD	56	333870	6232620	Midden
52-3-0723	BH TRACK; Kurnell Peninsula-	AGD	56	333776	6232310	Midden
52-3-0724	BH W Kurnell Peninsula-	AGD	56	333546	6231960	Midden
52-3-0725	Big Middens;Kurnell Peninsula;	AGD	56	333730	6232250	Midden
52-3-0726	W2; Kurnell Peninsula-	AGD	56	332346	6232870	Midden
52-3-0727	W3; Kurnell Peninsula-	AGD	56	332376	6232880	Midden
52-3-0728	W4; Kurnell Peninsula-	AGD	56	332366	6232890	Midden
52-3-0729	W5; Kurnell Peninsula-	AGD	56	332366	6232970	Midden
52-3-0730	S1; Kurnell Peninsula-	AGD	56	332316	6232850	Open Camp Site
52-3-0731	S2; Kurnell Peninsula-	AGD	56	332396	6232870	Open Camp Site
52-3-0732	E1; Kurnell Peninsula-	AGD	56	333596	6232350	Midden
52-3-0733	E2; Kurnell Peninsula-	AGD	56	333556	6232340	Midden
52-3-0734	E3; Kurnell Peninsula-	AGD	56	333526	6232430	Midden
52-3-1110	McCue Midden-	AGD	56	332896	6233310	Midden,PAD
52-3-1220	Kurnell PAD	AGD	56	333950	6233920	PAD
52-3-1223	Kurnell Meeting Place Precinct	AGD	56	335900	6235900	PAD



Site ID	Site Name	Datum	Zone	Easting	Northing	Site Type
52-3-1232/ 52-3-1271	Kurnell Lot 101 Captain Cook Drive #1	GDA	56	334260	6234096	Artefact Scatter
52-3-1366	Kurnell Potential Archaeological Deposit 1 (K PAD 1)	AGD	56	335100	6235525	PAD
52-3-1381	Cundlemongs grave	AGD	56	335596	6235910	Burial
52-3-1804	LR1	GDA	56	332299	6233363	Midden

## Appendix B

*Historic Heritage Inventories*

*National Heritage List*

***Kurnell Peninsula Headland***

*Sutherland Hire Heritage Study*

***Australian Oil Refinery***

***Four wheel drive track (Captain Cook Drive)***



*Environment Protection and Biodiversity Conservation Act 1999*

DECISION ABOUT INCLUSION OF A PLACE IN THE NATIONAL HERITAGE LIST

I, Ian Gordon Campbell, Minister for the Environment and Heritage, having considered, in relation to Kurnell Peninsula (the place), included in the National Heritage List on 20 September 2004 under section 324F (Emergency Listing) of the *Environment Protection and Biodiversity Conservation Act 1999* (the Act)—

- (a) the Australian Heritage Council's assessment whether the place meets any of the National Heritage criteria; and
- (b) the comments given to the Council under section 324G of the Act;

alter the boundary, pursuant to subsection 324J(5) of the Act, of the listed place described in the National Heritage List to that described in the Schedule below, and remove from the List for the place the National Heritage value that caused it to meet criterion (e) as prescribed by the regulations for the purposes of section 324D of the Act.

The descriptions of the values under criteria (a), (b), (g) and (h) are varied, including: removal of the natural National Heritage values ascribed to the place under criterion (a); and removal of the historic National Heritage values ascribed to the place with respect to La Perouse under criterion (a).

The entry for this place in the National Heritage List is now as set out in the Schedule.

Dated this 24<sup>th</sup> day of February 2005

Ian Gordon Campbell  
Minister for the Environment  
and Heritage

## SCHEDULE

## STATE

Local Government Area

Name:

Location

Values:

## NEW SOUTH WALES

Sutherland Shire**Kurnell Peninsula Headland:**

About 400ha, at Kurnell, comprising Botany Bay National Park, Lot 1 DP91704, the road reserve extending from Cape Baily Lighthouse in the east to the Park boundary in the west and the area between the seaward boundaries of the National Park and Lot 1 DP91704 and the Low Water Mark.

**Criterion**

(a) the place has outstanding heritage value to the nation because of the place's importance in the course, or pattern, of Australia's natural or cultural history.

**Values**

The Meeting Place Precinct, Kurnell Peninsula, was the site of first recorded contact between Indigenous people and Britain in eastern Australia, and symbolically represents the birthplace of a nation, and the dispossession of Indigenous people. This symbolism is reinforced by its proximity to Sydney, the site of the first British settlement, as well as its accessibility. The discovery of Botany Bay, including Kurnell Peninsula, in April 1770 by Lt. James Cook, Commander of the Endeavour, was a precursor to the colonization of Australia by Britain. The association of Cook's visit with the place is clear and well substantiated and has been celebrated since 1822.

The Meeting Place Precinct, including Captain Cook's Landing Place, includes memorials and landscape plantings commemorating the events of 1770. Place names such as Inscription Point and Point Solander, the remnant watercourse, the memorials to explorers and Indigenous inhabitants, and Cook's maps of the Peninsula, in conjunction with Cooks Journal, and those of officers and scientists, clearly illustrate the events of 1770. Attributes specifically associated with its Indigenous values include the watering point and immediate surrounds, and the physical evidence of Aboriginal occupation in the area broadly encompassed by the watering place and the landing stage.

Kurnell Peninsula, Botany Bay, was the first site on the east coast of the Australian continent explored by scientists from Britain, with many of the first type-specimens of flora and fauna collected near the landing site by both Banks and Solander. Of particular note in 1770 was the naming of the *Banksia* genus after Joseph Banks. Cook's naming of 'Botany Bay' in 1770 would result in its adoption as an emotive term



for a destination, which came to be associated with convictism for much of the nineteenth century.

Although Cooks' mapping of the east coast of Australia in 1770 did not appreciate the extent and importance of Port Jackson, nor the existence of Bass Strait, his running surveys were an outstanding achievement, which enabled the continental characteristics of Terra Australis, and its relationship to Papua New Guinea and New Zealand, to be defined fully for the first time. Cook's survey of Botany Bay in 1770, and clear description of the headlands at its entrance, provided information about a safe harbour with fresh water for British ships which followed.

The headland area of Kurnell Peninsula, in its landmark role bounding the entrance to Botany Bay, is significant to the nation as the destination for the First Fleet under Captain Arthur Phillip in 1787. Although first settlement occurred at Sydney Cove in January 1788, Cook's first voyage, with his first landfall in Australia at Kurnell Peninsula, Botany Bay, informed the subsequent British declaration of *terra nullius* through his reports, and, as the destination of the First Fleet, began the process that would lead to British possession of the Australian continent by 1830.

(b) the place has outstanding heritage value to the nation because of the place's possession of uncommon, rare or endangered aspects of Australia's natural or cultural history.

Kurnell Peninsula was the first landfall made by Cook on continental Australia during his successful mapping of the eastern coastline, and is the point of first recorded contact between the British and Indigenous Australians in eastern Australia.

The impact of the event and the events themselves are well described. The association of the events with the place is clear and well substantiated.

The place possesses rare aspects of Australia's cultural heritage and is of outstanding heritage value to the nation.

For Attributes refer to the first entry for Criterion (a).

(g) the place has outstanding heritage value to the nation because of the place's strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

'Captain Cook's Landing Place' at Kurnell Peninsula is considered by many to be of outstanding heritage value to the nation for its association with the 'the birth of the nation'. The events hold a different meaning for Indigenous Australians, marking the commencement of colonization of Australia, and dispossession, underpinned by the doctrine of *terra nullius*. The story of Cook's first landing on the east coast of Australia is nationally important, and Captain Cook's Landing Place has become a symbolic place representing an important national story.

The story of Cook's voyage, including Cook's landing place at Kurnell and first contact between the British and Indigenous Australians on the eastern seaboard, has become an integral part of Australian folk-lore and our collective psyche. There are 'Captain Cook' stories in many parts of Aboriginal Australia, including remote areas such as Central Australia and the Victoria River Downs, Northern Territory. The events have been well documented by many authors, acknowledging the place's important association with Indigenous Australian's at a national level.

Captain Cook's Landing Place is within the Meeting Place Precinct and part of the reserve set aside in 1899. For Attributes refer to the first entry for Criterion (a).

(h) the place has outstanding heritage value to the nation because of the place's special association with the life or works of a person, or group of persons, of importance in Australia's natural or cultural history

The Meeting Place Precinct, Kurnell Peninsula, is significant to the nation as the first landfall of Captain James Cook during his successful mapping of Australia's eastern coastline in 1770. This event has been celebrated by the placing of memorials since 1822 and through commemorations such as the bicentenary in 1970.

On this, Cook's first of three voyages in the Pacific, Joseph Banks was botanist, assisted by Daniel Solander and the artists Sydney Parkinson, Alexander Buchan and Herman Sporing. The artists were to produce botanical, zoological and ethnographic drawings. Banks and Solander collected 83 specimens, many of which are now the type specimens of species and genera, including *Banksia*. Both Banks and Solander as scientists on Cook's crew are remembered by local geographical place names; Cape Banks and Point Solander have defined the entrance to Botany Bay since 1770.

Attributes clearly associated with the landing are included within the Meeting Place Precinct. Although the location of botanical specimens collected by Banks and Solander was referred to generically as 'Botany Bay', the landing place, as the site of first exposure to the environment, was a key source of botanical specimens and species types. A number of species, including *Angophora costata* woodland on the adjacent headland areas and a native violet at the watering place, named after Banks, occur in close proximity to the landing site.

Historical archaeological sites, Sutherland Heritage Study.

<b>Present name</b> Australian Oil Refinery	<b>Reference number</b> 38
<b>Other name(s)</b>	<b>Date inspected</b> 20/7/92
<b>Location</b> PORT HACKING, 9129-4-N, 1:25,000, 334050-335800E, 623510-623350N	<b>Survey by</b> Kirsty Altenburg
<b>Locality</b> Sir Joseph Banks Drive, Kurnell.	<b>Property description</b>
<b>Present owner</b> Australian Oil Refinery Pty. Ltd.	<b>Site area</b>
<b>Address</b> Sir Joseph Banks Drive Kurnell	<b>Existing zoning</b>
<b>Category</b> Other work	
<b>Sub category</b> Oil refinery	

**Photograph** Film / negative nos:L / 17  
**Caption** Australian Oil Refinery, Kurnell, from South.



## Historical archaeological sites, Sutherland Heritage Study.

<b>Reference number</b>	38
<b>Present name</b>	Australian Oil Refinery
<b>Date of construction</b>	1953-1956
<b>Architect</b>	
<b>Builder</b>	
<b>Materials exterior</b>	
<b>Materials interior</b>	
<b>Other physical details</b>	Principal contractor E.B Badger and Sons Pty. Ltd., subsidiary of Stone and Webster Corporation of United States. Fletcher- Merritt-Raymond Construction Company of New Zealand constructed 1,200m. wharf. they also laid four 0.15mm (6 inch ) submarine pipelines across Botany Bay to Banksmeadow. Chicago Bridge and Iron Company built the 54 tanks for crude oil and product storage. There are nine separate production areas: 1. petrol storage areas. 2. Fuel oil and intermediate product tankage. 3. Distillate storage. 4. Process plant. 5. Power plant. 6. Storehouse yard. 7. Bass Strait complex. 8. Crude tankage. 9. Australian Lubricating Oil Refinery.
<b>Site condition</b>	Intact structure
<b>Modifications</b>	

<b>Listings</b>	
<b>SHIP themes</b>	24. Industrialisation or deindustrialisation. 12. The growth and dominance of Sydney.
<b>Local themes</b>	Work.
<b>Historical period</b>	1951-1975 Post 1975
<b>Other historical notes</b>	See additional notes.
<b>Information sources</b>	Aird, The Water Supply, Sewerage and Drainage of Sydney 1788-1960, 193, 276 .

<b>Historic</b>	Representative State
<b>Aesthetic</b>	Representative State
<b>Social</b>	
<b>Scientific</b>	Representative State
<b>Other</b>	
<b>Statement of Significance</b>	Australian Oil Refinery is significant as being one of only two refineries in the Sydney area.
<b>Recommendations</b>	This site should be conserved. A conservation plan should be prepared prior to disturbance.



Historical archaeological sites, Sutherland Heritage Study.

Reference number	38
Present name	Australian Oil Refinery

**Additional notes**

Other physical details

**Extra historical notes**

Residents of Kurnell agitated for piped water supply, but cost had been too great. In 1953 AOR paid 56,901 pounds to Water Board for construction of 5.25 miles of water pipeline from Cronulla to Kurnell. Completed 29 Oct. 1954. Refinery capacity at completion of construction just over one million tons of crude oil per year on daily throughput of 22,000 barrels. Phase two of refinery expansion began in 1961. Refinery capacity increased to 90,000 barrels per day. Further expansion completed in 1973. At time of construction refinery was largest petroleum installation built in New South Wales, and largest industrial plant built at one time by private enterprise in the State.

Historical archaeological sites, Sutherland Heritage Study.

<b>Present name</b> Captain Cook Drive	<b>Reference number</b> 28
<b>Other name(s)</b>	<b>Date inspected</b> 15/1/93
<b>Location</b>	<b>Survey by</b> Kirsty Altenburg
<b>Locality</b> Connects Kurnell Peninsula with North Cronulla	<b>Property description</b>
<b>Present owner</b> Road and Traffic Authority SSC	<b>Site area</b>
<b>Address</b>	<b>Existing zoning</b>
<b>Category</b> Other work	
<b>Sub category</b> Other - road	

**Photograph** Film / negative nos: L/31  
**Caption** Captain Cook Drive , from West



# Historical archaeological sites, Sutherland Heritage Study.

Reference number	28
Present name	a. former four wheel drive track (now largely covered by Captain Cook Drive)
Date of construction	
Architect	
Builder	
Materials exterior	Bitumen road
Materials interior	
Other physical details	Road and electricity requirements for Caltex Oil Refinery
Site condition	Intact structure
Modifications	
Listings	
SHIP themes	15. The transport network. 24. Industrialisation or deindustrialisation.
Local themes	Getting there - transport.
Historical period	1951-1975 Post 1975
Other historical notes	Kurnell was extremely isolated until Sutherland Shire Council, with apparently some limited financial contribution from Caltex, constructed the first road in the 1950s.
Information sources	Thematic History, 11-12
Historic	Representative Locality
Aesthetic	
Social	
Scientific	Representative Locality
Other	
Statement of Significance	This site represents the theme of transport and its difficulties, and the isolation of some areas within the Sutherland Shire until very recently.
Recommendations	This site should be recorded prior to disturbance.