Kurnell Wharf Infrastructure Upgrade

Construction Noise and Vibration Management Plan

CALTEX REFINERIES (NSW) PTY LTD

October 2013

1 INTRODUCTION

Caltex Refineries (NSW) Pty Ltd (Caltex) proposes to undertake port and berthing facility works off Silver Beach in Botany Bay, NSW (the Project). There are two main elements to the (Project):

- Dredging.
- Upgrading existing elements of the berthing infrastructure.

Environmental management requirements for the Project are set out in the following documents:

- Dredge and Sediment Disposal Management Plan (DSDMP)
- Wharf Upgrade Construction Environmental Management Plan (Wharf Upgrade CEMP)
- Installation of a Sheet Pile Wall and Rock Revetment Construction Environmental Management Plan (Sheet Pile Wall and Rock Revetment CEMP).

This management plan has been prepared to support the DSDMP and the CEMPs.

1.1 Location

The Project works are located in the waters of Botany Bay off Silver Beach (Figure 3 -1).

The works are located in close proximity to places with important ecological and heritage values. These include:

- Towra Point Nature and Aquatic Reserves, which contain an internationally important Ramsar-listed wetland habitat (3.5 km to the west)
- Areas of seagrass beds, which support a range of threatened species (100 m to the south)
- Both Taren and Dolls Point (5 km to the west), which both contain important and protected shorebird communities

Kamay Botany Bay National Park is located approximately 700 m to the east. The National Park contains important Aboriginal and historic heritage; which includes the landing place of Captain James Cook. The National Park also serves as a valued recreational and educational asset. The nearest residents to the Project Site are the Rangers House (Alpha House) in Kamay Botany Bay National Park (700 m to the east) and the properties along Prince Charles Parade, Kurnell (800 m to the south).

2 OBJECTIVES

The objective of the Construction Noise and Vibration Management Plan is to ensure that construction activities do not result in significant noise or vibration impacts to the surrounding environment during the Project. To address this objective, the Management Plan documents:

- The management measures, actions and associated performance indicators, that will be implemented throughout the Project;
- The proposed monitoring program that will be implemented; and
- Key project management roles and responsibilities and reporting requirements.

3 PROJECT OVERVIEW

The Kurnell Wharf Port and Berthing Facility is the sole entry point for feedstock of crude oil and other finished petroleum product imports to the Kurnell Refinery. At present, it is also used as the distribution point for refined products, which are either shipped interstate or overseas.

The existing facility has operated since 1956. It comprises the Kurnell Wharf (a 1 km jetty structure), at the end of which are two fixed shipping berths (fixed berth #1 and fixed berth #2) located either side of a breasting island. The facility also includes a submarine berth (sub berth), located to the west of the fixed berths, as well as a ship turning circle and associated approaches that interface with the main Botany Bay Shipping Channel.

On the northern side of the wharf, a crude oil submarine pipeline connects the refinery's storage tanks to the sub berth (Figure 3 - 1).Starting adjacent to the wharf, south of the fixed berths, are a series of additional submarine pipelines that transport fuel under Botany Bay. These pipelines head west then north and connect to terminals at Banksmeadow, Silverwater and Newcastle, whilst also servicing Sydney (Kingsford Smith) Airport.

Kurnell Wharf is located, in part, on Lot 456 DP 1413279, within the Sutherland Shire Local Government Area (LGA) and in part on unincorporated land (i.e. not part of any LGA) that is leased to Caltex by the State Government.

Dredging of approximately 153,000 m^3 is required from spot locations within the berths, approaches and turning circle over a total area of approximately 178,000 m^2, to improve shipping access and capacity. Infrastructure works will also be carried out to upgrade mooring and berthing equipment in the sub berth and fixed berth #1. Other ancillary works will include an upgrade to the fire system on the Wharf and construction of a rock revetment and a sheet-piled wall at the southern end of fixed berth #1.

The Project site and its context are shown in Figure 3 – 1.

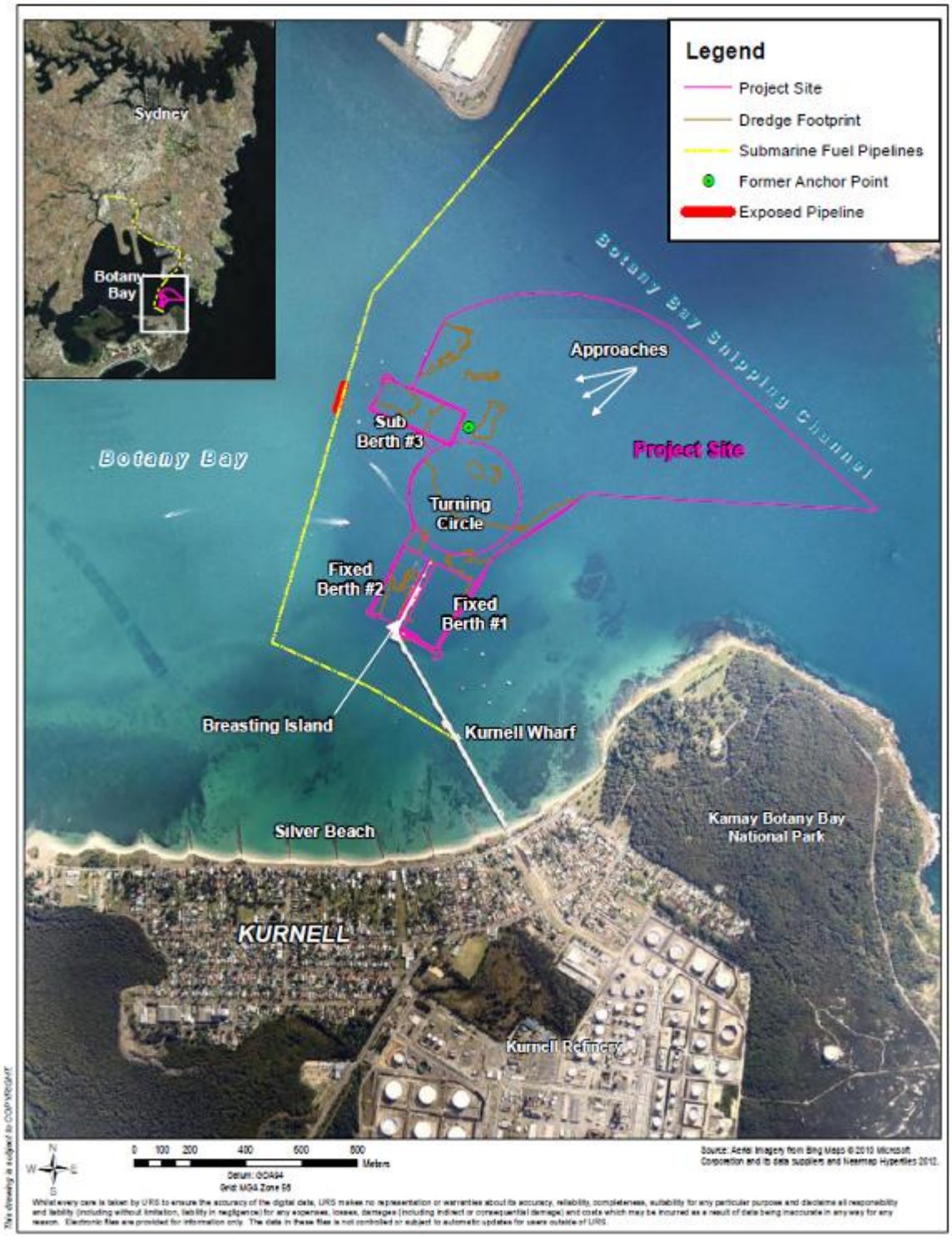

Figure 3 - 1: Project Site and Context (source: URS 2013)

3.1 Project Program

The approximate Project program is shown in Table 3 – 1.

Table 3 - 1: Approximate Project program

Works	Duration	2013			2014			2015		
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Dredging Works (including one week mobilisation / demobilisation)	25 weeks		■	■	■					
Reuse Works	1 week		■							
Sheet Piling Works	3 weeks		■							
Rock Revetment and Scour Protection Works	4 weeks			■	■					
Kurnell Wharf Infrastructure Upgrade Works										
Loading Arms Installation and Manifold Installation	12 weeks			■	■					
Mechanical Loading Arm Removal and New Tie-ins	12 weeks							■	■	
Quick Release Hooks	16 weeks			■						
Fire System	8 weeks						■	■		
Installation of Dolphins, Moorings and Piling	20 weeks (approx.)						■	■	■	■
Sub Berth Upgrade Works	20 weeks (approx.)				■	■				

The likely noise impacts from this Project were evaluated in the Environmental Impact Statement and noise limits were developed based on the Interim Construction Noise Guidelines. Below is list of the significant noise generating activity in relation to the sensitive receivers:

1. Dredging work may generate noise along the Prince Charles Parade or the Rangers house above background levels,
2. Piling work may generate noise along the Prince Charles Parade or at the Rangers house above background levels.
3. Rock Revetment work may generate noise along the Prince Charles Parade or at the Rangers house above background levels.

4 IMPLEMENTATION

4.1 Responsibilities

Overall responsibility for the implementation of this Construction Noise and Vibration Management Plan rests with Caltex. All employees and the Contractor will meet the requirements of this Management Plan and associated procedures. Management actions set out in this Management Plan may be delegated in writing by Caltex to the specific Contractor.

Key Project personnel including the Caltex Project Manager, Caltex Dredging Supervisors, Caltex EMR, Contractor Project Manager and each Contractor's Environment / HSE Representative, will ensure that all management actions are undertaken to a satisfactory standard and that all personnel are aware of their responsibilities with respect to environmental matters. There will be dedicated staff to manage environmental issues (or integrated HSE matters) during dredging. A general outline of responsibilities in relation to environmental management is provided below:

Caltex Project Manager

- Overall accountability for the environmental management of the Project.
- Implementation of the Caltex Environmental Policy with respect to the Project.
- Overall responsibility for development, implementation, maintenance and compliance with this Management Plan.

Caltex Environmental Management Representative (EMR)

- Accountable for environmental matters on the Project.
- Provide support to Caltex personnel and the Contractor as required to ensure this Management Plan is implemented and complied with.
- Review effectiveness and implementation of this Management Plan.
- Monitor the implementation of all required environmental management actions and compliance with legislation.
- Undertake environmental auditing as required.
- Implement *Protection of the Environment Operations Act 1997* (POEO Act) notification requirements in the event of a pollution incident (these requirements can be delegated to appropriate personnel by the EMR).

All Personnel (Caltex and the Contractor)

- Comply with the requirements of this Management Plan.
- Report all environmental incidents as they occur.
- Attend environmental inductions or any other training as required.

4.2 Induction

Caltex has a site induction program that all contractors and employees are required to complete prior to undertaking any work.

All Caltex employees and the Contractor are required to undertake the Caltex Project Induction before they can commence work on the Project.

4.3 Training

All Project personnel will have the experience and necessary training to carry out their required tasks, including in the use of equipment and the implementation of this Management Plan.

Caltex and the Contractor will each maintain a Training Register that records all environmental training completed by its personnel, including records of attendance at awareness training and toolbox talks, as well as competency assessments.

4.4 Incident Management

Caltex will continue to implement its existing incident management procedures, including for response to, investigation and reporting of incidents.

A comprehensive Emergency Management System is currently implemented at the Kurnell Refinery, with associated response and safety equipment held on site. Key personnel are trained to support the implementation of the system. Regular training exercises are carried out by Caltex

4.5 Compliance Management

Caltex has a complaint management procedures for the investigation, response and reporting of complaints.

Caltex manages all community complaints in accordance with the requirements of EPL 837, including:

- Reporting complaints in the Annual Return for EPL 837
- Keeping a legible record of all complaints made to Caltex and its Contractors, including:
    - The date and time of the complaint
    - The method by which the complaint was made
    - Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect
    - The nature of the complaint
    - The action taken by Caltex in relation to the complaint, including any follow-up contact with the complainant
    - If no action was taken by Caltex, the reasons why no action was taken

Caltex will continue to operate its 24-hour hotline number (1800 802 385 toll free) to receive feedback and complaints associated with the Project. All feedback and complaints will be relayed to the EMR and relayed to the Refinery Manager, Community Relations Manager and the Environmental Protection Superintendent, as relevant depending on their nature.

Any feedback and complaint records will be logged in the Complaints Register, tracked and where relevant, responded to. Responses to complaints will be made, where reasonably possible, within 48 hours of receiving the complaint.

5 ENVIRONMENTAL PROCEDURES

Specific control measures required to undertake the Project including the Performance Objectives, Management Actions, Performance Indicators, Monitoring, Reporting and Corrective Actions set out in the following sections.

Suitable equipment, facilities, training, work practices and other necessary precautions will be taken to minimise impacts to the environment and the risk of pollution.

All Caltex and Contractors personnel will implement reasonable and practicable measures to avoid or minimise impacts to the environment that may arise from the Project.

5.1 Management Actions

The noise management actions include;

- Marine fauna monitoring will be carried out in accordance with DSDMP.
- Noise generation will be managed in accordance with regulatory and licence requirements. Any activity that results in noise levels that exceed the limits must have corrective actions implemented to the satisfaction of the EMR.
- All sheet pile wall and rock revetment construction activities will be restricted to the standard working hours set out in the Interim Construction Noise Guidelines (ICNG), being between the hours of 0700 and 1800 Monday to Friday; 0800 to 1300 Saturday; with no work on Sundays or public holidays.
- Fabrication will be undertaken off-site as far as possible.
- Vessels and equipment will be maintained in good working order to minimise noise.
- Regular maintenance of construction equipment will be scheduled and carried out by the relevant Contractor.
- Slow start up measures will be used for all construction activities that generate underwater noise to ensure any noise-sensitive marine fauna are able to move away from the noise source.
- Piling operations with a sound power levels (SWL) of 113 dB(A) or less should be utilised wherever possible.
- Noise levels during piling and rock revetment works will be maintained within the following limits:
    - Calculated 15-minute SWLs $L_{w,eq,15min}$ less than or equal to 113 dB(A) at source.
    - Measured 15-minute sound pressure levels (SPLs) $L_{p,eq,15min}$ less than or equal to 85 dB(A) measured at 10 m from the source.
- During installation of the sheet pile wall, noise levels along Prince Charles Parade and at the Ranger's residence at Kamay Botany Bay National Park (Figure 5-1) will be maintained below or equal to $L_{Aeq(15min)}$ = 55 dB(A).
- During rock revetment works, noise levels along Prince Charles Parade and at the Ranger's residence at Kamay Botany Bay National Park (Figure 5-1) will be maintained below or equal to $L_{Aeq(15min)}$ = 54 dB(A).
- Noise measurements will be carried out by a qualified acoustics consultant, (i.e. a member of the Australian Acoustical Society (AAS) or the Association of Australian Acoustical Consultants (AAAC)) and undertaken in accordance with relevant Australian Standards for acoustic measurement of equipment in the field.

- Caltex will specifically consult with the residents of Prince Charles Parade and other local community groups ahead of starting the piling and rock revetment works.
- An out-of-hours work (OOHW) protocol for the assessment, management and approval of works outside standard construction hours will be implemented. This OOHW protocol will apply to any out-of-hours work that is not included in the consent for the Project. The protocol will include an assessment of risk, mitigation and notification requirements.
- Dredging works should comply with the following Noise Criteria Management Levels dB(A) ($L_{Aeq(15min)}$)

Sensitive Receptors	**Standard Hours (Mon-Fri: 0700-1800 and Sat 0800-1300)**		**Outside Standard Hours**
	Noise Affected Management Level $L_{Aeq(15min)}$ [RBL + 10]	**Highly Noise affected Level $L_{Aeq(15min)}$**	**Noise Affected Management Level $L_{Aeq(15min)}$ [RBL + 5]**
Residential dwellings at Nos. 2 – 174 Prince Charles Parade	51 dB(A)	75 dB(A)	46 dB(A)
Ranger's House	51 dB(A)	75 dB(A)	46 dB(A)
Silver Beach (Passive recreational area)	60 dB(A) (when facilities are being used)		
Kamay Botany Bay National Park (Passive recreational area)	60 dB(A) (when facilities are being used)		
Environmental Botany Bay Education Centre (Educational institutions	55 dB(A)* (when facilities are being used)		
*A 10 dB(A) allowance has been made to account for the internal and external noise levels for building other than residences.			

5.2 Performance Indicators

The following performance indicators will be implemented during the project:

- No exceedances of the Noise Affected Management Level of LAeq(15min) = 46 dB(A) at sensitive receptors (Figure 5-1) during dredging outside of standard hours.
- No dredging, reuse or disposal works whilst marine turtles, cetaceans, pinnipeds or dugongs are within 420 m of active dredging, reuse or disposal areas.
- Works carried out within the required hours.

- No piling whilst marine turtles, cetaceans, pinnipeds or dugongs are within 250 m of active piling or rock revetment works areas.

5.3 Monitoring

Noise monitoring must be undertaken at the nearest sensitive receiver and the nearest sensitive down-wind receiver (but limited to the southern shore of Botany Bay). The key monitoring requirements for this Project:

- Where dredging is undertaken outside the standard working hours set out in the Interim Construction Noise Guidelines (ICNG) (i.e. outside the hours 0700 to 1800 Monday to Friday and 0800 to 1300 Saturdays), monthly noise monitoring depending on perceived noise levels and activities being undertaken, will be carried out to verify noise levels along Prince Charles Parade and the Rangers house are below or equal to $L_{Aeq(15min)}$ = 46 dB(A).
- At the beginning of undertaking high noise activities (i.e piling and rock revetment works), noise monitoring will be carried out along Prince Charles Parade and the Rangers house. Marine fauna monitoring will be used to make observations for marine turtles, cetaceans, pinnipeds, dugongs and instances of shoaling fish up to a distance of 420 m from active dredging areas prior to start up and throughout dredging works.
- If high noise generating works (including piling and rock revetment works) are shown to exceed the required noise limits, or if noise complaints are received, additional mitigation will be implemented for these activities (to ensure compliance with the required noise limits to the satisfaction of the Environmental Representative), such as:
    - The use of dampening non-metallic dollies (wooden blocks) for piling.
    - Acoustic screening for high noise equipment.
    - Implement periodic breaks in undertaking high noise generating works. For example, piling for 3 hours and stopping for 1 hour.
- If rock revetment works are shown to exceed the required noise limits, additional mitigation measures, developed by the Rock Revetment Contractor in consultation with Caltex and the EPA, will be implemented to ensure compliance with the required noise limits to the satisfaction of the Environmental Representative.
- Monthly noise monitoring will be undertaken during construction work outside of standard construction hours along Prince Charles Parade and at the Rangers House in Kamay Botany Bay National Park.
- Noise monitoring must be undertaken at the nearest residential property to the source of noise and at the nearest residential property in Kurnell downwind from the source. Thus monitoring locations will vary dependent of any source of noise and the wind direction.

5.4 Reporting

The reporting requirements for the Project include:

- The Contractor will report the sound power level (SWL) of the BHD to the Caltex ER prior to commencement of dredging.
- The dates and outcomes of monthly noise monitoring for dredging works will be reported by the Contractor to the Caltex ER as soon as results are available.

- The dates and outcomes of marine fauna monitoring will be reported by the Contractor to the ER fortnightly.
- The contractor will report any monitoring results that exceed the noise limits to the ER as soon as possible.

5.5 Corrective Action

Where there are any monitoring results that exceed the noise limits then corrective actions must be developed that will ensure compliance with the limits to the satisfaction of the ER. The effectiveness of any corrective actions undertaken must be monitored to demonstrate compliance with the limits and the results provided to the ER. Corrective actions for the Project are:

- Where the SWL of the BHD to be utilised for dredging is higher than that used in the noise modelling set out in the EIS, Caltex will give consideration to additional modelling and the potential for implementation of additional noise mitigation measures.
- Where noise monitoring demonstrates potential or actual exceedances of required noise levels, the Contractor will implement additional noise management controls in line with the ICNG and in consultation with Caltex. Additional controls could include:
    - Further consultation with sensitive receivers
    - Consideration of favourable wind conditions
    - Additional noise shielding, if possible.
    - The use of dampening non-metallic (wooden) dollies for piling
    - Implement periodic breaks in undertaking high noise generating works. For example during piling or rock revetment work having a one hour break every 3 hours
    - Implement dredging respite periods, including the appropriate timing and duration of respite periods.

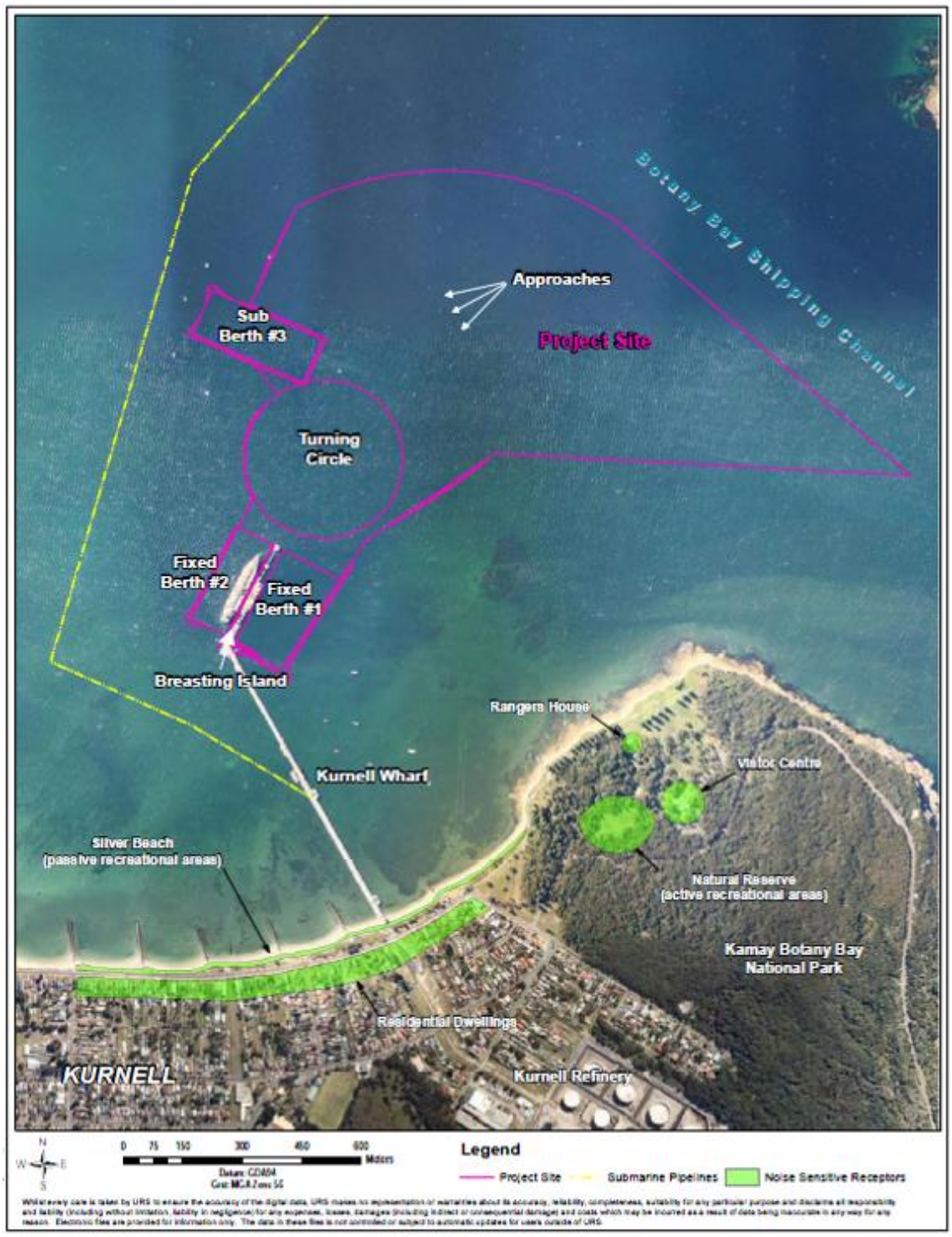

Figure 5 - 1: Noise sensitive receptors in the vicinity of the Project Site

Note: Noise monitoring will be undertaken at sensitive locations highlighted in green on Figure 5-1.

ATTACHMENT 1

Kurnell Wharf Infrastructure Upgrade

Construction Noise and Vibration

Out-of-Hours Work Protocol

CALTEX REFINERIES (NSW) PTY LTD

September 2013

1 OUT-OF-HOURS WORK

Caltex Refineries (NSW) Pty Ltd (Caltex) proposes to undertake port and berthing facility works off Silver Beach in Botany Bay, NSW (the Project). There are two main elements to the (Project):

- Dredging.
- Upgrading existing elements of the berthing infrastructure.

Environmental management requirements for the Project are set out in the following documents:

- Dredge and Sediment Disposal Management Plan (DSDMP)
- Wharf Upgrade Construction Environmental Management Plan (Wharf Upgrade CEMP)

The conditions of consent for the Project include a requirement for the preparation of a Construction Noise and Vibration Management Plan. This plan needs to include an Out-of-Hours Work (OOHW) protocol. The consent condition states:

"An OOHW protocol for the assessment, management and approval of works outside of standard construction hours (not already allowed under this consent) as defined in condition C16, including a risk assessment process under which an Environmental Representative may approve out-of-hours construction activities deemed to be of low environmental risk and refer high risk works for the Director General's approval. The OOHW protocol shall detail standard assessment, mitigation and notification requirements for high and low risk out-of-hours works, and detail a standard protocol for referring applications to the Director General".

1.1 Standard Work Hours

The proposed hours of work for the Project are:

- Dredging twenty four hours per day, seven days per week.
- All other work including sheet pile wall and rock revetment construction activities will be restricted to the standard working hours set out in the Interim Construction Noise Guidelines (ICNG), being between the hours of 0700 and 1800 Monday to Friday; 0800 to 1300 Saturday; with no work on Sundays or public holidays.

These hours of work apply to the Project. It is noted that normal business operations that include repairs and maintenance will also be conducted concurrently with the Project. Normal business activities are conducted twenty four hours per day, seven days per week.

1.2 Standard Work Hours Noise Management Levels

The noise management actions that have been established for the allowed work under the Project consent include;

- Piling operations with a sound power levels (SWL) of 113 dB(A) or less should be utilised wherever possible.
- Noise levels during piling and rock revetment works will be maintained within the following limits:
    - Calculated 15-minute SWLs $L_{w,eq,15min}$ less than or equal to 113 dB(A) at source.

- Measured 15-minute sound pressure levels (SPLs) $L_{p,eq,15min}$ less than or equal to 85 dB(A) measured at 10 m from the source.

- During installation of the sheet pile wall, noise levels along Prince Charles Parade and at the Ranger's residence at Kamay Botany Bay National Park will be maintained below or equal to $L_{Aeq(15min)}$ = 55 dB(A).
- During rock revetment works, noise levels along Prince Charles Parade and at the Ranger's residence at Kamay Botany Bay National Park will be maintained below or equal to $L_{Aeq(15min)}$ = 54 dB(A).
- Dredging works should comply with the following Noise Criteria Management Levels dB(A) ($L_{Aeq(15min)}$)

Sensitive Receptors	**Standard Hours (Mon-Fri: 0700-1800 and Sat 0800-1300)**		**Outside Standard Hours**
	Noise Affected Management Level $L_{Aeq(15min)}$ [RBL + 10]	**Highly Noise affected Level $L_{Aeq(15min)}$**	**Noise Affected Management Level $L_{Aeq(15min)}$ [RBL + 5]**
Residential dwellings at Nos. 2 – 174 Prince Charles Parade	51 dB(A)	75 dB(A)	46 dB(A)
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Kamay Botany Bay National Park (Passive recreational area)	60 dB(A) (when facilities are being used)		
Environmental Botany Bay Education Centre (Educational institutions	55 dB(A)* (when facilities are being used)		
*A 10 dB(A) allowance has been made to account for the internal and external noise levels for building other than residences.			

1.3 OOHW Noise Evaluation

To assess the magnitude of environmental risk (being either high risk or low risk) the following key consideration need to be evaluated:

Is the OOHW going to result in a noise level from the Project work (in total) that greater than 46 db(A) at the Rangers house or residences along Prince Charles Parade (thus an exceedence of the Outside Standard Hours for dredging work)?

OOHW that will results in noise levels greater than 46 dB(A) at the Rangers house or residences along Prince Charles Parade is considered High Risk however the following exclusions apply.

- Is the OOHW required to reduce other risks (incident avoidance activities) associated with the Project. OOHW to mitigate other environmental risks associated with an unplanned/unforeseen circumstance are considered Low Risk. Such OOHW must be of a limited duration. OOHW conducted to avoid an environmental incident must be documented and investigated through the Caltex incident management system.
- Is the OOHW required as the result of an incident. OOHW undertaken in response to an incident is not considered High Risk however the incident must be documented and investigated through the Caltex incident management system.
- What is the potential duration of the OOHW. OOHW that results in a noise level greater than 46 dB(A) the Rangers house or residences along Prince Charles Parade for a short period (less than 2 hour) is considered Low Risk. Such OOHW cannot be routine or frequent in occurrence.

1.4 OOHW Notification

The occupants of the Rangers house or residences along Prince Charles Parade need to be notified of ongoing (more than 24 hours in duration) OOHW that is deemed to be Low Risk on the basis that it will not results in noise levels greater than 46 dB(A) at the Rangers house or residences along Prince Charles Parade. Notification of the community in general should also be considered (if there is the potential for community impacts) however there should be no noise impacts.

OOHW that is the result of an incident or potential incident needs to be communicated to the occupants of the Rangers house, residences along Prince Charles Parade, the community in general and the relevant authorities (including Director General and EPA). This communication may be as a post incident/potential incident report.

OOWH that could results in noise levels greater than 46 dB(A) at the Rangers house or residences along Prince Charles Parade for a short period (less than 2 hour) need to be notified to the potentially impacted occupants prior to the work where reasonably practicable. A record of all short term OOHW needs to be maintained.

OOHW that is considered to be High Risk need to be referred to the Director General for approval.

1.5 Mitigation

An application to the Director General for High Risk OOHW needs to include any proposed mitigation measures and the benefit of the proposed measures. Where no mitigation measures are provided then a justification for the OOHW without mitigation measures must be included.

Low Risk OOHW is not considered to need the implementation of mitigation measures.

OOHW Risk Assessment Summary

Requirement	Noise Level	Duration	Approver	Notification/Reporting
Routine or frequent Project work	>46dB(A) at Rangers house or residences along Prince Charles Parade	Ongoing	Director General	Occupants of Rangers house and residences along Prince Charles Parade. Notification to the community in general if there are any other (than noise) potential impacts.
Routine or frequent Project work	<46dB(A) at Rangers house or residences along Prince Charles Parade	Ongoing	Environmental Representative	Occupants of Rangers house and residences along Prince Charles Parade.
Incident mitigation work	No limits	As required	Environmental Representative	Occupants of the Rangers house, residences along Prince Charles Parade, the community in general and the relevant authorities. Report to Director General
Incident response work	No limits	As required	Environmental Representative	Occupants of the Rangers house, residences along Prince Charles Parade, the community in general and the relevant authorities. Report to Director General
Short term Project work	Limits consistent with those specified for Standard Work Hours	<2 hours	Environmental Representative	Occupants of the Rangers house, residences along Prince Charles Parade, the community in general and the relevant authorities. Report to Director General