



Eden Safe Harbour Project

Addendum Review of Environmental Factors

Transport for NSW

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Transport for NSW | July 2022

Prepared by Advisian Pty Ltd and Transport for NSW

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Approval and authorisation

Title	Eden Safe Harbour Project addendum review of environmental factors
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Dated:	18/07/2022

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1 Introduction

1.1 Proposed modification overview

Transport for NSW proposes to modify the construction hours of the Eden Safe Harbour Project at Snug Cove, Eden on Saturdays to reduce the overall duration of the program (proposed modification). The proposed standard hours are as follows:

- Monday to Friday – 7am-6pm.
- Saturdays – 8am-5pm.
- Sundays/Public Holidays – Nil.

NSW Department of Industry (DoI) completed a review of environmental factors (project REF) of the Eden Safe Harbour Project in November 2017. The REF described the project involving two options for the wave attenuator structure (fixed or floating), assessed the potential environmental and social impacts associated with the construction and operation of the project and identified safeguards and management measures to avoid, mitigate or manage those potential impacts.

The project REF was placed on public display between 16 November 2017 and 19 January 2018. Following public display, submissions received were considered and responded to by Advisian on behalf of NSW DoI in the Response to Submissions Report, dated 13 April 2018.

After consideration of the project REF and Response to Submissions Report, Advisian Pty Ltd on behalf of NSW DoI completed an addendum REF, dated 23 August 2018 for a proposed modification comprising changes to the alignment of the wave attenuator structure. At the time of the project REF, a decision had not been made by the NSW DoI on the type of wave attenuator. It was decided that due to greater certainty around the performance and durability that a fixed panel wave attenuator structure would be adopted. The addendum REF reflected this decision.

NSW DoI made a decision to proceed with the project through a determination on 28 August 2018. The determined project involves the construction of a fixed wave attenuator in Snug Cove, Eden, to be 367 m in length, commencing 55 m from the end of the Multipurpose Jetty and extending into part of Cattle Bay.

As part of the government restructure this project has now been transferred, under the Maritime Infrastructure Delivery Office Memorandum of Understanding, to Transport for NSW to deliver.

Since determination, Transport for NSW has undertaken:

- Updates to better define construction activities including:
 - construction boundaries
 - ancillary sites and loading areas
 - potential maritime navigational routes and anchor zones
 - plant and equipment
 - source and quantity of materials.
- Minor value engineering refinements to the fixed wave attenuator structure.

These changes were the subject of a Due Diligence Assessment, dated November 2020 and endorsed by Transport for NSW on 5 May 2021.

Transport for NSW has appointed Austral Construction Pty Ltd (the Contractor) to construct the fixed wave attenuator and undertake maintenance work on the Mooring Jetty (subject of a separate REF and determination by Transport for NSW). The Contractor proposed the construction of a temporary load out (TLO) facility which was the subject of a consistency review, endorsed by Transport for NSW on 17 September 2021.

Construction of the project commenced in November 2021. Transport for NSW and the Contractor are seeking approval to the proposed modification to reduce the overall duration of the program. Chapter 3 describes the proposed modification in more detail.

1.2 Purpose of the report

This addendum REF has been prepared by Advisian Pty Ltd on behalf of Transport for NSW. For the purposes of these works, Transport for NSW is the proponent and the determining authority under Division 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This addendum REF is to be read in conjunction with the project REF, Response to Submissions Report, previous addendum REF, Due Diligence Assessment and Consistency Review for the project. The purpose of this addendum REF is to describe the proposed modification, to document and assess the likely impacts of the proposed modification on the environment, and to detail mitigation and management measures to be implemented.

The description of the proposed work and assessment of associated environmental impacts has been undertaken in context of Section 171 of the *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation), *Is an EIS Required? Best Practice Guidelines for Part 5 of the Environmental Planning and Assessment Act 1979* (Is an EIS required? guidelines) (DUAP, 1995/1996), the *Marinas and Related Facilities EIS Guideline* (DUAP, 1996), the *Biodiversity Conservation Act 2016* (BC Act), the *Fisheries Management Act 1994* (FM Act), and the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

In doing so, the addendum REF helps to fulfil the requirements of Section 5.5 of the EP&A Act including that Transport for NSW examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the activity.

The findings of the addendum REF would be considered when assessing:

- Whether the proposed modification is likely to result in a significant impact on the environment and therefore the necessity for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning under Division 5.2 of the EP&A Act
- The significance of any impact on threatened species as defined by the BC Act and/or FM Act, in section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement or a Biodiversity Development Assessment Report
- The potential for the proposed modification to significantly impact any matter of national environmental significance or Commonwealth land and the need to make a referral to the Australian Government Department of Agriculture, Water and the Environment for a decision by the Australian Government Minister for the Environment on whether assessment and approval is required under the EPBC Act.

2 Need and options considered

2.1 Strategic need for the proposed modification

Chapter 2 of the project REF (Advisian, 2017) and the addendum REF (Advisian, 2018) addresses the strategic need for the project, the project objectives and the options that were considered. The proposed modification described and assessed in this addendum REF is consistent with the strategic need for the project.

The proposed modification is needed to facilitate the efficient construction of the wave attenuator, in which the objective *“is to provide a safer harbour for local and visiting vessels and improve the protection of existing maritime infrastructure within Snug Cove, Eden”* (Advisian, 2017).

2.2 Alternatives and options considered

2.2.1 The Identified options

In addition to the ‘do nothing’ option, one potential option was considered which comprises the extension of construction hours on Saturdays.

2.2.2 Analysis of options

Do nothing

The ‘do-nothing’ option would see the continuation of the approved construction hours. Transport for NSW together with the Contractor, acknowledge minor delays have occurred with the project due to impacts of the COVID-19 pandemic and the global shipping crisis. There are potential for further delays to project completion under this option, specifically related to potential adverse weather conditions.

Option 1 – Extension of Construction Hours

Currently, the approved construction hours on Saturdays for 8am to 1pm (5 hours) does not assist in providing efficient progress with significant time required to position and start up plant and equipment in addition to soft starts, potential marine mammal encounters, and pack down requirements. The proposed additional hours on Saturdays would:

- Allow for more efficient work practices by the Contractor
- Reduce duration of construction impacts to land and water-based areas from temporary loss of pedestrian access, boat ramp, parking areas and nearby hardstand areas and temporary impacts to vessel movements.
- Regain lost time
- Mitigate any potential further delays that may occur due to weather.

2.3 Preferred option

Option 1 is the preferred option as it reduces overall duration of construction land use, property and socio-economic impacts, creates opportunities to reduce further delays to the project completion, specifically related to potential adverse weather conditions and allow more efficient work practices by the Contractor.

3 Description of the proposed modification

3.1 The proposed modification

In January 2022, Transport for NSW advised in the project update that construction is expected to be completed in late 2022, weather permitting. Section 3.5 of the addendum REF (Advisian, 2018) identified that construction of the project would be undertaken within standard hours:

- Monday to Friday – 7am-6pm.
- Saturdays – 8am-1pm.
- Sundays/Public Holidays – Nil.

Transport for NSW together with the Contractor, acknowledge minor delays with the project due to due to impacts of the COVID-19 pandemic and the global shipping crisis, and seek to explore opportunities to reduce further delays to the project completion, specifically related to potential adverse weather conditions.

It is proposed to extend construction hours on Saturdays only for the duration of the project with the revised hours of 8am to 5pm.

3.2 Design

There are no changes proposed to the project design.

3.3 Construction activities

3.3.1 Work methodology

Construction activities to be undertaken during the extended hours would be consistent with the determined project and the Due Diligence Assessment including operation of ancillary facilities, piling, concreting, pre cast installations and other land-based and on-water activities. In relation to piling, it is noted that only four weeks of this activity is expected to be required for completion from mid-July.

3.3.2 Construction hours and duration

The proposed standard hours are as follows:

- Monday to Friday – 7am-6pm.
- Saturdays – 8am-5pm.
- Sundays/Public Holidays – Nil.

4 Statutory planning framework

4.1 Environmental Planning and Assessment Act 1979

The EP&A Act establishes the system of environmental planning and assessment in NSW. Part 5 of the EP&A Act specifies the environmental impact assessment requirements for activities undertaken by or on behalf of public authorities such as Transport for NSW which are permissible without development consent under the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (TI SEPP).

4.1.1 State Environmental Planning Policies

State Environmental Planning Policy (Transport and Infrastructure) 2021

Chapter 2 of the TI SEPP aims to facilitate the effective delivery of infrastructure across the State.

The determined project was assessed and determined as development for the purpose of wharf or boating facilities by or on behalf of a public authority without consent on any land under Clause 68(4) of the now repealed *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP). This provision is now Section 2.79(4) of the TI SEPP.

As the proposed modification is for the purpose of wharf or boating facilities and is to be carried out by Transport for NSW, it can be assessed under Division 5.1 of the EP&A Act. Development consent from council is not required. The proposed modification is not located on land reserved under the *National Parks and Wildlife Act 1974*.

The proposed modification does not require development consent or approval under *State Environmental Planning Policy (Resilience and Hazards) 2021* (RH SEPP) or *State Environmental Planning Policy (Planning Systems) 2021*.

State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 2 of the RH SEPP aims to manage development in the coastal zone. The RH SEPP contains provisions relating to the four coastal management areas that comprise the NSW coastal zone.

The determined project falls within the coastal environment area (waterside and landside areas) and coastal use area zones (landside areas) identified in the RH SEPP. It does not fall within the coastal wetlands and littoral rainforests nor coastal vulnerability area.

Under the RH SEPP, development on land within the coastal environment area and coastal use area must not be granted if a development is likely to cause an adverse impact to these areas with respect to matters outlined in Sections 2.10 and 2.11. As the determined project did not require development consent, no further consideration of the RH SEPP is required.

4.1.2 Local Environmental Plan

The proposed modification is permissible without development consent under the TI SEPP; therefore, the permissibility and consent provisions of the *Bega Valley Local Environmental Plan 2013* do not apply.

4.2 Other relevant NSW legislation

Section 4.2 of the addendum REF addressed other NSW legislation. It is considered that the addendum REF adequately addressed these statutory requirements, and these remain valid.

4.3 Commonwealth legislation

4.3.1 Environment Protection and Biodiversity Conservation Act 1999

Under the EPBC Act a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'. These are considered in Appendix A and Chapter 6 of the REF.

The assessment of the impact of the proposed modification on matters of national environmental significance and the environment of Commonwealth land found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land. Accordingly, the proposal has not been referred to the Australian Government Department of Agriculture, Water and Environment under the EPBC Act.

4.4 Confirmation of statutory position

The proposed modification is categorised as development for the purpose of wharf or boating facilities and is being carried out by or on behalf of a public authority. Under Section 2.79(4) of TI SEPP the proposed modification is permissible without consent. The proposed modification is not State significant infrastructure or State significant development. The proposed modification can be assessed under Division 5.1 of the EP&A Act. Consent from Council is not required.

5 Consultation

5.1 Consultation strategy

Transport for NSW is continuing stakeholder and community engagement throughout construction. Engagement activities completed so far include letter box drops, email updates, community information sessions, meetings, start of work notifications, frequently asked questions, information station at the Eden Welcome Centre and one-on-one telephone conversations with the community. In addition, regular updates are made to the public via the project website.

In response to the proposed modification and related proposed extension of Saturday construction hours for the nearby Mooring Jetty maintenance work, Transport for NSW is to undertake targeted consultation with the community via the following methods:

- Email to stakeholders
- SMS to stakeholders
- Update to project website, in latest news section and uploading of the addendum REF.

Existing engagement activities as described above, and noise monitoring would also continue throughout construction for the project.

No consultation is required under the TI SEPP as confirmed by the statutory consultation checklists in Appendix B, with the Aboriginal community or with other government agencies.

5.2 Community outcomes

Previous targeted consultation was undertaken with the community comprising:

- 10 November 2021 – door knocks to sensitive receivers (noise and vibration) prior to construction
- 10 February 2022 – letterbox drop to local community around Snug Cove prior to pile arriving and unloading activities for out of hours work (up to four nights in February 2022).

No complaints have been received to date from the community.

5.3 Ongoing or future consultation

Stakeholder and community engagement would continue throughout construction as described in Section 5.1.

6 Environmental assessment

This section of the addendum REF provides a detailed description of the potential environmental impacts associated only with the construction of the proposed modification of the Eden Safe Harbour Project. All aspects of the environment potentially impacted upon by the proposed modification are considered. This includes consideration of the *Is an EIS required?* (DUAP, 1995/1996) guideline, the factors specified in Section 171 of the EP&A Regulation and the *Marinas and Related Facilities Guideline* (DUAP, 1996). The factors specified in Section 171 of the EP&A Regulation are also considered in Appendix A.

Site-specific safeguards and management measures are provided to ameliorate the identified potential impacts.

6.1 Noise and vibration

6.1.1 Existing environment

Background noise monitoring from 2015 indicated a semi-rural environment, strongly influenced by intermittent noise sources such as traffic and activities around the Port (commercial and industrial) and that the acoustic environment is slightly different depending on the Noise Catchment Area (NCA) (PEL, 2016). The project site is immediately surrounded by residential, commercial and industrial areas. The nearest sensitive receivers are located to the north along Victoria Terrace and to the east in Snug Cove. The locations of the sensitive receivers are shown in Figure 6-1.



Figure 6-1: Sensitive receivers in Snug Cove (Source: SLR, 2021)

A Construction Noise and Vibration Management Plan (CNVMP) (SLR, 2021) was prepared for the project which addresses the potential noise and vibration impacts associated with the construction of the project and details the mitigation and management procedures for dealing with potential impacts.

6.1.2 Potential impacts

Section 6.8 of the project REF and Noise, Vibration and Air Quality Assessment (Appendix D to the project REF) assessed construction noise and vibration impacts.

Since determination, additional information has been obtained from construction noise and vibration monitoring (including piling activities) for the completed Eden Breakwater Wharf Extension Project and for the project.

Construction Noise

Table 6.5 of project REF Appendix D originally identified the predicted construction noise levels for a floating wave attenuator (PEL, 2016) at the worst case (maximum sound levels) under the respective meteorological conditions evaluated. It was predicted that Scenario 3 (impact piling) during standard hours would have the highest predicted noise level, where exceedances at a number of sensitive receivers are anticipated to be highly intrusive (i.e. >30dB(A)) and highly noise affected (i.e. >75dB(A)).

The monitoring results for the Eden Breakwater Wharf Extension Project confirmed that noise levels from activities including piling were within approved levels and criteria.

The CNVMP includes predicted impacts at the most affected receivers and is representative of the worst-case noise levels that are likely to occur during construction. The assessment indicates that the *“highest noise levels at residential receivers are predicted to be around 70 to 77 dBA at the nearest receivers when noise intensive equipment (such as impact piling) is being undertaken nearby”* (SLR, 2021).

Monitoring was undertaken by the Contractor during April 2022 for the project at three sensitive receivers (or receptors):

- R29 – 37 Victoria Terrace (residence)
- R38 – 249 Imlay Street (industrial)
- R46 – 2 By Street (residence).

The results contained in the Noise Monitoring Register in Appendix C shows that the highest L_{Aeq} dB noise level was 62.8dB recorded at R38 on 23 April 2022 during pile driving works with a similar reading for R29 of 62.5dB on 26 April 2022. The noise level for the closest residential receptor, R29, is below the predicted worst-case noise level of 78dB(A) from Table 6.5 of project REF Appendix D and 77dB(A) for land-based construction from Table B of the CNVMP.

It is expected that the extension of construction hours to Saturdays by four hours (with no works during the evening or night time periods) would generate only minor additional noise impacts to the nearest sensitive receivers (i.e. general reduction of respite periods from construction noise) when compared to the determined project.

Table 6.12 of project REF Appendix D outlined additional mitigation measures for Out of hours work (OOHW) Period 1 (including Saturdays 1pm-10pm) where exceedances are predicted using the Transport for NSW Construction Noise Strategy. Table 18 of the CNVMP provides further details for additional mitigation measures. Where exceedances are in the clearly audible category (10-20dB(A) above the day criteria), project notification is undertaken and for moderately intrusive (20-30 dB(A)), project notification, verification monitoring and specific notification is provided (individual briefings or phone call).

In response to the proposed modification, Transport for NSW has carried out targeted consultation with sensitive receivers. Other consultation activities as described in Section 5.1 and noise monitoring would also continue throughout construction.

Road traffic generation from construction activities undertaken during the extended hours is not expected to generate any additional noise impacts when compared to the determined project.

Construction Vibration

Vibration monitoring of piling works has been between 14 December 2021 and 2 May 2022 with the results provided in Appendix D. Two vibration monitors were installed at the base of slope and at Victoria Terrace Lookout to measure any impacts from the TLO area and from Arm AB of the wave attenuator.

The review of the measurement data and the vibration register by SLR concluded “*that vibration from piling did not exceed the conservative thresholds for building damage at nearby terrestrial receivers (ie excluding piers) since they were separated typically at least 100 m from the TLO piling area (and greater separation from piling area Arm AB)*”.

There are no additional construction vibration impacts expected from the proposed modification.

6.1.3 Safeguards and management measures

A new site-specific safeguard is proposed as outlined below.

Impact	Environmental safeguards	Responsibility	Timing	Reference
Noise – extended construction hours (Saturdays)	Transport for NSW is to undertake targeted consultation prior to the start of the extended construction hours via the following methods: <ul style="list-style-type: none">• Email to identified stakeholders• SMS to identified stakeholders• Update to project website, in latest news section and uploading of the addendum REF.	Transport for NSW	Construction	N/A

6.2 Other impacts

6.2.1 Existing environment and potential impacts

Environmental factor	Existing environment	Potential impacts
Visual amenity	Snug Cove is a semi enclosed harbour landscape with elevated views across the harbour. A number of public spaces adjoin the harbour, including streets, footpaths, elevated foreshore walks, parks and wharves.	<p>Section 6.5 of the project REF and the Landscape Character and Visual Impact Assessment (Appendix B to the project REF) assessed construction visual amenity impacts.</p> <p>During the construction phase, construction plant and equipment would likely result in a visual impact to Snug Cove. However, such impacts were previously assessed in the REF and addendum REF to be temporary. This statement remains valid for the proposed modification in terms of visual impacts of construction plant and equipment that would be in use for extended hours on Saturdays.</p>
Land use and property	<p>Snug Cove contains a range of maritime facilities including wharves and jetties and existing buildings and structures on the foreshore areas.</p> <p>The main land-based Contractor work area (ancillary site) is within the area adjacent to the existing commercial fishing (abalone) boat ramp. The marine construction and vessel mooring zone is an area of Snug Cove that is provided for the exclusive use of the Contractor.</p>	<p>Section 6.6 of the project REF assessed construction land use and property impacts.</p> <p>The proposed modification would have additional positive impacts through reducing the overall duration that:</p> <ul style="list-style-type: none"> • The commercial boat ramp and car park is closed to the public due to operation of the land-based construction zone • Foreshore public access to Thompson’s Point Baths is restricted as the baths are located adjacent to the land-based construction zone • Port operations and vessel movements within Snug Cove are impacted from the established marine construction and vessel mooring zones.
Socio-economic	Section 6.7.1 of the project REF described the socio-economic characteristics of Eden and existing Snug Cove infrastructure.	Section 6.7 of the project REF assessed construction socio-economic impacts.

Environmental factor	Existing environment	Potential impacts
		<p>The proposed modification would result in additional positive socio-economic impacts regarding the reduced duration of impacts occurring from the temporary loss of pedestrian access, boat ramp, parking areas and nearby hardstand areas and temporary impacts to vessel movements due to construction as identified in the project REF. It is considered that overall, the proposed modification is consistent with the project objective in that it would facilitate efficient construction of the wave attenuator.</p>

6.2.2 Safeguards and management measures

No additional safeguards and management measures are proposed.

7 Environmental management

7.1 Environmental management plans

The Due Diligence Assessment identified the additional safeguards and management measures to be implemented for the determined project. These were incorporated into the Template Construction Environmental Management Plan (CEMP) prepared for the project procurement and have been adopted by the Contactor in the development of their CEMP and sub-plans. The safeguards and management measures are designed to minimise any potential adverse impacts arising from the project on the surrounding environment.

7.2 Summary of safeguards and management measures

Environmental safeguards and management measures for the Eden Safe Harbour Project are summarised in Table 7-1. Additional safeguards and management measures identified in this addendum REF are included in bold and italicised font. The safeguards and management measures will be incorporated into the Contractor's CEMP and sub-plans and implemented during construction of the proposed modification, should it proceed.

Table 7-1: Summary of site-specific safeguards

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
1	General - minimise environmental impacts during construction	A CEMP be developed and implemented for the Project. The CEMP is to be to the satisfaction of Transport for NSW and in consultation with relevant agencies.	Contractor / Transport for NSW Project Manager	Pre-construction / Construction	N/A
A1	Biodiversity – Marine Habitats and Fauna	To minimise damage to sensitive marine habitats (seagrass, macroalgae and/or subtidal rocky reef) in the immediate site, Snug Cove and Cattle Bay, all vessels will avoid anchoring over areas of sensitive habitat including mapped seagrass beds and areas of subtidal rocky reef, where practicable.	Contractor	Construction	N/A
A2	Biodiversity – Marine Habitats, Fauna Water Quality and Waste Management	To reduce the potential impacts of water quality on marine habitats during construction the following measures will be adopted: <ul style="list-style-type: none"> • All construction vessels will be well maintained and regularly serviced to ensure they are in proper working order and reduce the likelihood of fuel / oil leaks and spills. • Contractors will ensure their vessels maintain their septic tanks and pumps so that they do not leak. No release of sewage into the waterway will be allowed. • Oil and sewage spill response kits will be readily available on the construction vessels and training should be provided to construction staff on their use. The location of these should be clearly marked. • Any ongoing washing of the wave attenuator following construction will be undertaken with marine environmentally friendly and biodegradable products only. 	Contractor	Construction / Post-construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		Contractors will adopt appropriate waste management, with all general waste contained and disposed of onshore in waste collection devices and all construction waste removed from the site. Post construction a seabed clearance survey will be undertaken to ensure that this has occurred.			
A3	Biodiversity – Marine Habitats and Fauna	To reduce the spread of suspended sediments generated during piling and the potential for sedimentation / smothering of sensitive habitats and associated flora and fauna, silt curtains or similar must be used wherever possible around the immediate area of piling or to separate areas of sensitive habitats. Particularly to separate the construction areas from areas of sensitive habitat. If it is possible, the use of sleeves around piles during pile driving will also help to contain the spread of suspended sediment so it does not impact on the nearby areas of macroalgae during piling activities.	Contractor	Construction	N/A
A4	Biodiversity – Marine Fauna	To reduce the potential for lighting related impacts on marine fauna, construction, activities will not be undertaken during the evening and night-time to reduce the overall need for construction related artificial lighting (on vessels and the attenuator) and associated impacts.	Contractor	Construction	N/A
A5	Biodiversity – Marine Fauna	The risk of vessel strike during construction may be reduced through the adoption of: <ul style="list-style-type: none"> • All vessels associated with construction will travel at speeds no higher than 10 knots within the port limits unless necessary due to navigational safety. • Vessels will maintain a 300m exclusion zone with all whales when travelling to site where practicable except for predominately white whales where there is to be a 500m exclusion zone. 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • Site inductions and training. • Active management, such as regular information exchange on known marine mammal activity (e.g. via local residents, commercial fishers, mussel farmers, NPWS whale watch and Cat Balou Cruises). • Marine fauna awareness in the local waterway by vessel operators so appropriate speeds and clearance can be adopted when cetaceans are nearby. 			
A6	Biodiversity – Marine Fauna	<p>To reduce the potential for noise impacts on marine fauna (specifically marine mammals) the following be applied and adjusted, as required, based on the Contractor(s) piling methodology and the recommendations of the Blue Planet Marine (2018) acoustic monitoring:</p> <p>a) Pre-start Observation: Marine mammal observers must visually monitor observation and shut-down zones for whales for a minimum of 30 minutes before the commencement of piling.</p> <p>Observation zone is defined as: A horizontal radius determined from the piling equipment of 2km.</p> <p>Shut-down zone is defined as: A horizontal radius determined from the piling equipment of 1km.</p> <p>b) Soft-Start Procedure: If after the 30 minute pre-start observation no whale/s have been spotted within the observation or shutdown zone a soft start procedure may commence with a gradual increase in piling impact energy of no more than 50% of full impact energy for 10 minutes. The soft start procedure must</p>	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<p>be implemented after breaks in piling driving of 30 minutes or more.</p> <p>c) Stand by procedure: If a whale is spotted within the observation zone during the soft start procedure the operator of the piling equipment must be placed on standby to shut-down the piling rig and a trained crew member should continuously monitor the whale/s in sight at all times.</p> <p>d) Normal Piling Procedure: If no whale/s has been sighted during the soft-start procedure full impact piling may commence.</p> <p>The use of bubble curtains around areas of piling could also be adopted to reduce noise impacts on marine fauna.</p> <p>Shut-Down requirements:</p> <p>a) If visibility is poor and the marine mammal observer is unable to clearly identify objects to the full observation zone distance, a vessel or aircraft search must be conducted or the action postponed until visibility has improved.</p> <p>b) Piling is not permitted between 6.00 pm and 7.00 am.</p> <p>c) If any whales are spotted within the shut-down zone, piling must cease immediately or as soon as safe to do so until the whale/s has moved outside of the shut-down zone.</p> <p>d) All piling must cease for a minimum of 1 hour after the last sighting of a whale within the observation zone. Piling must recommence at the prestart observation after the one hour shutdown has elapsed.</p> <p>All standard management and mitigation measures in Section 5.3 of the Underwater Piling Noise Guidelines</p>			

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		(Government of South Australia, 2012) are to be implemented during piling.			
A7	Biodiversity – Invasive Species	The goals of the NSW Invasive Species Plan 2018 – 2021 (NSW DPI 2018) will be adopted for the Project.	Contractor	Construction and Operation	N/A
A8	Biodiversity – Invasive Species	All Contractors will undertake a Vessel Risk Assessment (VRA) prior to mobilisation to the site. The VRA may be undertaken by the vessel owner / operator. All vessels, floating plant and equipment mobilised to site from any place inside or outside of Australia will be subject to VRA. Contractor(s) will provide the VRA to DPI Fisheries, after review by Transport for NSW, four weeks prior to mobilisation.	Contractor	Construction	N/A
A9	Biodiversity – Invasive Species	The Contractor(s) will undertake an Invasive Marine Species (IMS) Inspection of all vessels brought to Twofold Bay. The IMS will be undertaken by an appropriately qualified marine scientist or equivalent with experience in biosecurity of marine vessels, floating plant and equipment. The Contractor(s) is responsible for arranging the IMS inspection, reporting and attendance of DPI Fisheries or other suitably qualified personnel. All IMS Reports are to be provided to DPI Fisheries at least 2 weeks prior to the vessel departing its current location en-route to Eden.	Contractor	Construction	N/A
A10	Biodiversity – Invasive Species	Construction vessel antifouling will be maintained to avoid the attachment and potential translocation of invasive species into and out of Twofold Bay.	Contractor	Construction	N/A
A11	Biodiversity – Invasive Species	Ballast water management will be implemented: <ul style="list-style-type: none"> • Ballast water exchange by domestic vessels will be avoided. • Domestic vessels will manage ballast water in accordance with <i>the Australian Ballast Water</i> 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<p><i>Management Requirements</i> (Department of Agriculture and Water Resources 2016).</p> <ul style="list-style-type: none"> Any ballast water exchange from international vessels will be undertaken in accordance with the <i>International Convention for the Control and Management of Ships' Ballast Water and Sediments</i> (BWM) (IMO 2016). 			
A12	Biodiversity – Invasive Species	Monitoring and inspection / surveillance of the construction vessels and barges will be undertaken in accordance with the <i>Biosecurity Act 2015</i> .	Contractor	Construction	N/A
A13	Biodiversity – Marine Fauna	DPI Fisheries (1800 043 536) is to be immediately notified of any fish or marine mammal kills within the construction site. In such cases, all works other than emergency response procedures are to cease until the issue is rectified and written approval to proceed is provided by DPI Fisheries.	Contractor	Construction	N/A
A14	Biodiversity – Marine Fauna	<p>Any injured marine mammals must be immediately reported to the ORRCA 24 hour hotline on 02 9415 3333 or NPWS on 1300 361 967. The ORRCA telephone hotline is staffed by volunteers and keeps ORRCA members, Government Authorities and interested members of the public informed of marine mammal emergencies, incidents and sightings.</p> <p>ORRCA representatives will quickly mobilise to site and attempt to capture and treat the stricken animal. Depending upon the location of the animal and the circumstances that surround the injury, breakwater construction activities may need to cease or be altered to enable the rescue of the animal.</p> <p>Following this the Transport for NSW Project Manager must also be informed.</p>	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
CP1	Coastal Processes	The loading from waves and, to a lesser extent, tidal and wind driven currents as well as propeller wash from tugs and bow thrusters from cruise ships during manoeuvring to and from the Breakwater Wharf extension will need to be considered in the further design of the attenuator.	Transport for NSW	Detailed design	N/A
CP2	Coastal Processes	Cocora Beach is sensitive to wave climate, therefore any wave attenuator must minimise any alteration to the wave climate along the beach, such as alteration to the wave direction (which governs alignment) and wave energy, and impact on the outlook from the beach.	Transport for NSW	Detailed design	N/A
CP3	Coastal Processes	Recreational vessels are not to be moored along the Breakwater Wharf during strong winds from the south to west sector due to expected significant levels of reflected wave energy (local seas) from the attenuator.	Transport for NSW	Operation	N/A
CP4	Coastal Processes	Monitoring of wave conditions in the vicinity of the Water Police Jetty, Breakwater Wharf and Cocora Beach be considered (visual) to assess the actual extent in practice of wave reflection from the attenuator towards these areas.	Transport for NSW	Operation	N/A
WQ1	Water Quality	<p>The following general construction mitigation measures will be adopted by the Contractor(s) to reduce impacts on water quality:</p> <ul style="list-style-type: none"> • All construction equipment and vessels will be inspected by qualified personnel prior to commencement of work, to reduce the risk of hydrocarbon spills or leaks. • Containment measures will be utilised to minimise spillage associated with pile replacement or repair, grouting and concreting. 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • A turbidity curtain with a minimum drop of 4m and floating booms will be used locally around the perimeter of pile drilling works to limit the spread of plumes generated by drilling activities. Drilling spoil and cuttings will be deposited at seabed level within the site and contained within the turbidity curtain. • Portable toilets will be emptied on a regular basis using licenced service provider and human waste disposed of to a local sewage treatment plant. • Spill response kits (including hydrocarbon booms) will be located around the construction site and on-board construction vessels to facilitate containment of any water based spills. • The existing dedicated oil spill recovery area at the landward end of the Breakwater Wharf, containing spill containment booms and chemical absorbent materials will be maintained and operated by PANSW. • The Contractor(s) is to consult with the Harbour Master related to any request for additional equipment or services from PANSW relating to the mitigation of spills during construction works. • Environmentally friendly/water based drilling muds will be used for pile drilling activities. • Industry standards, PANSW and pollution prevention regulations will be adhered to during refuelling, transfer, storage and handling of hazardous materials. • The lowest volumes of hydrocarbons (oil, grease, petrol and diesel) practicable will be stored on-site. 			

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • Chemical storage areas will be bunded and chemicals will be stored in accordance with the products Safety Data Sheet (SDS) and AS 1940 on board construction vessels, and land-based construction areas. • Vessels (self-propelled and unpowered) will have adequate on-board communication, containment, drainage, bunding and monitoring systems to prevent discharges of unauthorised effluents. • Bunkering standard operating procedures will be implemented. • Spill response strategy and procedures will include the contact details of the relevant authorities to be notified in the event of a spill, including the PANSW. • Appropriate sediment and erosion management controls to minimise water quality impacts from surface runoff are to be implemented by the Contractor(s) in accordance with Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004). All erosion and sediment controls are to be in place prior to the commencement of any landside works, inspected regularly and maintained throughout construction, and removed only once all disturbed areas have been reinstated. • Weather and tide forecasts will be checked regularly during construction. Where flooding is forecast to the work area, all equipment and materials will be removed from the landside construction zones or appropriately secured above expected flood levels in the area. 			

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
WQ2	Water Quality	<p>The following general mitigation measures will be adopted by the wave attenuator operator to reduce operational impacts on water quality:</p> <ul style="list-style-type: none"> • Vessels (self-propelled and unpowered) will have adequate on-board communication, containment, drainage, bunding and monitoring systems to prevent discharges of unauthorised effluents. • Appropriate inductions/training will be performed detailing the potential water quality impacts and relevant spill and emergency response procedures. Contractor(s) to perform regular spill response drills. • Spill response strategy and procedures will include the contact details of the relevant authorities to be notified in the event of a spill, including the PANSW. 	Transport for NSW	Operation	N/A
T1	Land transport	<p>The Contractor(s) CEMP is to address construction traffic and access management including the following measures:</p> <ul style="list-style-type: none"> • Identify roads to be utilised as part of construction and measures to ensure construction vehicles follow the routes. The entry and egress routes for construction vehicles will be selected from the following permitted routes: <ol style="list-style-type: none"> 1. Princes Highway, Imlay Street (subject to maximum load limits of 20-22 tonnes through the Eden Town Centre), Albert Terrace and Weecoon Street. 2. As per 1 above, except for alternative construction routes to detour from use of Imlay Street through Eden Town Centre 	Contractor	Pre-construction / Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<p>(between Mitchell Street and Chandos Street), as required.</p> <ul style="list-style-type: none"> • Identify and implement marine construction and vessel mooring zones and measures to delineate these areas to ensure protection of construction vessels and existing and future port users where may be required by the Harbour Master. • Measures to maintain access to the Multipurpose Jetty or other arrangements for vessels utilising this jetty. • Measures for safe passenger access, if cruise ships moor in Twofold Bay and tenders to and from the Port of Eden operating during construction. • Measures to minimise disruption to Port businesses including maintenance for pedestrian and vehicle access and parking and provision of directional signage. • Measures, where required, to physically separate pedestrian and construction vehicle movements, such as temporary barriers. • Minimise traffic associated with construction activities. • Whilst construction vehicles use Council local roads: <ul style="list-style-type: none"> • Any Oversize/Overmass or Performance Based Standards permits required during the period of construction will be submitted to the National Heavy Vehicle Regulator (NHVR) for approval. • Where any part of the vehicle, including its load or any equipment, exceeds 4.9m in height, approval will be obtained in writing from 			

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<p>Essential Energy. This approval will be obtained and complied with in addition to any other clearance requirements in force along the route.</p> <ul style="list-style-type: none"> • Vehicles will remain on the sealed section of carriageway for the entirety of its journey when practical. • Trucks will enter and leave the Site in a forward direction where possible. • Exhaust brakes will not be used in built up areas. • For any over-dimension loads, two additional pilot vehicles will accompany the permit vehicle from the Mitchell Street/Princes Highway Roundabout to the site. • Erect direction and speed signage as required. • Ensure all vehicles are properly maintained so emissions are within legal limits. • Ensure vehicles keep within legal and Site speed limits. • Retain access for existing commercial users of the port. • Use broadband reversing alarms on all vehicles where reversing alarms are fitted to muffle the noise. • Consultation with PANSW during construction to ensure maintenance of safe navigation for shipping. 			
T2	Water transport	The Contractor(s) will prepare and implement any management plan(s) that may be required in a Harbour Master Approval for the Project.	Contractor	Pre-construction / Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
T4	Water transport	Movement of vessels will be in accordance with Harbour Master's directions.	Contractor / Transport for NSW	Construction and Operation	N/A
V1	Visual	A standard grey Portland Cement will be employed for all concrete elements, which will eventually weather to more muted tones to blend with the background landscape.	Transport for NSW	Detailed design	N/A
V2	Visual	The wave attenuator structure is constructed with minimal use of reflective materials. Where painted finishes are to be applied, it is recommended that these are of a matt finish where practical, including for white caps to pile heads, if these are required.	Transport for NSW	Detailed design	N/A
L1	General - minimise environmental impacts during construction	The CEMP will be prepared and implemented to manage the impacts of the construction works.	Contractor	Pre-construction / Construction	N/A
L2	Land use and property Impacts	Relocation of impacted swing moorings will be managed by Transport for NSW within the designated timeframe.	Transport for NSW	Pre-construction	N/A
L3	General - minimise environmental impacts during construction	The defined "Marine Construction Zone" and "Construction Vessel Mooring Zone" will be implemented to ensure protection of construction vessels, aquatic habitats, marine fauna and other port users.	Contractor	Construction	N/A
S2	Social impacts	PANSW will be consulted during construction and operation to ensure maintenance of safe navigation for vessels.	Contractor	Construction	N/A
S3	Social impacts	Opportunities for local and Aboriginal workforce participation will be enhanced during the construction.	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
NV1	Noise and vibration	The Contractor(s) CEMP is to address construction noise and vibration management including detail for a targeted range of management and monitoring options of noise from construction activities.	Contractor	Pre-construction / Construction	N/A
NV2	Noise	The Contractor(s) will provide respite periods where noise exceeds the Highly Affected Noise level of 75dB LAeq, 15 minute. The timing of respite is to be determined by Transport for NSW in consultation with the Community Liaison Group.	Contractor / Transport for NSW	Pre-construction / Construction	N/A
NV3	Noise	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce the impacts on noise amenity through source controls:</p> <ul style="list-style-type: none"> • Where possible, plant and equipment will be selected that can be fitted with options to minimise noise such as covers, mufflers, shrouds and other noise suppression equipment. • Plant and equipment will be turned off and not left idling when not in use. Anchorages and moorings are to be used for boats or other water craft if necessary. • Plant and equipment will be operated in accordance with industry standards and have been serviced as per manufacturer specifications. • Noisy plant and equipment will be oriented away from sensitive receivers where possible. • Temporary screens or other items that provide a noise buffer (including plant and equipment) will be used proximate to noise sources. • Low noise emission plant and equipment will be selected where available. 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • Broadband reversing alarms or similar will be used as an alternative to a traditional beeper reversing alarm for vehicles permanently on-site. • Plant and equipment will be well maintained and serviced regularly to ensure it is not generating excessive noise. • Tools will not to be dropped from a height onto hard surfaces. 			
NV4	Noise	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce the impacts on noise amenity through administration controls:</p> <ul style="list-style-type: none"> • The use of horns and alarms will be minimised. • The staff and visitor induction protocols will include awareness of noise generating activities and mitigation measures and techniques that should be implemented. • Training will be conducted for appropriate community behaviours when access/egress the site. 	Contractor	Construction	N/A
NV5	Noise and vibration	<p>The following general construction mitigation measures will be implemented to reduce the impacts on noise amenity through community management:</p> <ul style="list-style-type: none"> • The community will be notified by Transport for NSW one week prior to noise intensive activities commencing, such as piling. • The community will be informed by Transport for NSW one week prior to any planned out of hours work commencing. • A complaints procedure will be implemented by Transport for NSW and contact details provided to 	Transport for NSW / Contractor	Pre-construction / Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<p>potentially affected residents and businesses in the area.</p> <ul style="list-style-type: none"> Transport for NSW complaints procedure will include a record of complaints indicating cause and measures taken to resolve/minimise cause. 			
NV6	Noise	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce the impacts on noise amenity through site controls:</p> <ul style="list-style-type: none"> Works will be scheduled to minimise the number of noisy plant and equipment operating at any one time. Construction activities will be planned to minimise vehicular movements around the site. Arrange worksites will avoid or minimise reversing movements and where possible, ensure vehicles enter and exit work sites in a forward direction. 	Contractor	Construction	N/A
NV7	Vibration	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce the impacts of vibration:</p> <ul style="list-style-type: none"> High vibration methods will be substituted with lower vibration methods where possible. Alternatives to high vibration plant and equipment will be used where possible. 	Contractor	Construction	N/A
NV8	Vibration	<p>The following general construction-monitoring will be implemented by the Contractor(s) to reduce the impacts of vibration due to piling:</p> <ul style="list-style-type: none"> The Contractor(s) will monitor the piling-induced vibration at the nearest receivers at the commencement of piling works to ensure the actual vibration is within the limits in the <i>Assessing Vibration: A Technical Guideline</i> and the <i>German</i> 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<i>Standard DIN 4150-3-1999 Structural Vibration – Part 3 Effects of Vibration on Structures.</i>			
NV9	Noise – extended construction hours (Saturdays)	<p>Transport for NSW is to undertake targeted consultation prior to the start of the extended construction hours via the following methods:</p> <ul style="list-style-type: none"> • Email to identified stakeholders • SMS to identified stakeholders • Update to project website, in latest news section and uploading of the addendum REF. 	Transport for NSW	Construction	N/A
AQ1	Air quality	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce the impacts to air quality:</p> <ul style="list-style-type: none"> • All plant and equipment used during the construction works will be regularly maintained to comply with the relevant exhaust guidelines. • Any visible and persistent dark emissions from vessel exhausts will be reported and the equipment repaired or replaced as soon as practicable. • All operations and activities occurring at the premises will be carried out in a manner that will minimise the emission of dust from the premises. 	Contractor	Construction	N/A
AQ2	Air quality	<p>Comprehensive vessel/ship refuelling procedures will be implemented by the Contractor(s) to avoid or reduce the possibility of release. As a minimum, these procedures will include:</p> <ul style="list-style-type: none"> • Adhering to all PANSW Port Safety Operating Licence requirements. • Refuelling during daylight hours where possible, depending on sea conditions. 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • Training personnel involved with refuelling or fuel transfer in their roles, functions and responsibility, including emergency response. • Maintaining open communication channels. • Deploying spill prevention systems in accordance with established procedures and regulatory requirements. • Maintaining emergency response equipment to ensure that it is readily available. 			
H1	Aboriginal cultural heritage	<p>Project staff and Contractor(s) will be made aware of their statutory obligations for heritage under the <i>National Parks and Wildlife Act 1974</i> through the site induction and toolbox talks. The Contractor(s) are to include an Aboriginal Culture Awareness module in its induction training in which the local Aboriginal community will be invited to present.</p> <p>No excavation or ground penetration of any form is permitted within the landside areas of the Site. All Works and Temporary Work, must be undertaken above the existing surface levels.</p>	Contractor	Construction	N/A
H2	Unexpected heritage finds	<p>In the event that any Aboriginal objects are disturbed and identified within the area of works, works within the immediate vicinity of the Aboriginal object will cease forthwith and the OEH contacted so that appropriate management strategies can be identified and followed.</p> <p>The Standard Management Procedure – Unexpected Heritage Items (Roads and Maritime, 2015) will be followed in the event that an unknown or potential Aboriginal object(s), including skeletal remains, is/are found during construction. Works will only restart once the requirements of that procedure have been satisfied.</p>	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
H3	Unexpected heritage finds	In the event that skeletal remains are uncovered, works in the immediate area will cease, the area will be cordoned off and the NSW Police Coroner will be contacted to determine if the material is of Aboriginal origin. If determined to be Aboriginal, the OEH Enviroline 131 555 and relevant Aboriginal stakeholders will be contacted to determine an action plan for the management of the skeletal remains prior to works re-commencing.	Contractor	Construction	N/A
H4	Historic heritage	All relevant staff and contractors will be trained regarding their statutory obligations and responsibilities under the <i>Heritage Act 1977</i> and best practice outlined in The Burra Charter 2013, through the site induction and toolbox talks in the event suspected historical cultural material is uncovered.	Contractor	Construction	N/A
H5	Unexpected heritage finds	If work results in unexpected historic heritage items (archaeological relics and other historic items including historic shipwrecks), all work must stop in the immediate area. Transport for NSW are to be notified and the 'unexpected heritage items procedure' in the Standard Management Procedure: Unexpected Heritage Items (2015) is to be followed.	Contractor	Construction	N/A
C11	General - minimise environmental impacts during construction	Preparation and implementation of a CEMP to manage the impacts of the construction works.	Contractor	Construction	N/A
C12	General - minimise environmental impacts during construction	Implementation and adherence to the defined "Marine Construction Zone" and "Construction Vessel Mooring Zone" to ensure protection of construction vessels, aquatic habitats, marine fauna and other port users.	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
CI3	Cumulative impacts	Navigational hazard lighting is to be fitted to the wave attenuator. Transport for NSW will consult with PANSW regarding the responsibility for maintaining the navigational lighting once installed.	Transport for NSW	Operation	N/A
CI4	Cumulative impacts	Speed limits for vessels transiting Snug Cove will take into consideration boating hazards and will be enforced as deemed necessary by the relevant authority, being PANSW or Water Police.	Transport for NSW	Operation	N/A
G1	Sustainability	<p>Sustainable practices will be implemented during the construction of the proposed wave attenuator, including:</p> <ul style="list-style-type: none"> • Recycled construction materials will be used where possible. • Locally sourced construction material that is low maintenance and durable will be used where possible. • PVC plastic will only be used, as required. • Equipment and construction vehicles and marine vessels will not be left idling and switched off when not in use. • Equipment and construction vehicles and marine vessels will be regularly serviced (including preventative maintenance) and removed from site if not working properly (emitting excessive smoke). • Construction works will be planned to ensure minimal movement of equipment and construction vehicles and marine vessels. • Resource use and waste generation will be minimised and all waste will be reused, recycled 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		or disposed of in accordance with best practice and relevant legislation.			
G2	Sustainability	Navigational hazard lighting fitted to the wave attenuator will be solar powered LED light types, where practicable.	Transport for NSW	Operation	N/A
WM1	Waste	<p>The following general construction mitigation measures will be implemented by the Contractor(s) to reduce waste impacts:</p> <ul style="list-style-type: none"> • All waste will be classified in accordance with the Waste Classification Guidelines (NSW EPA 2014). • No wastes will be disposed of off-shore. • Construction materials will be procured to minimise cut-off and wastage. • Excess construction material suitable for reuse will be returned to the supplier, or recycled, where practicable. • Waste streams will be kept separate onsite to reduce cross-contamination and ensure the wastes are handled and treated appropriately. • Vehicles used for the transportation of waste will be covered to prevent loss of waste. • Waste to be disposed offsite will be disposed to a waste facility that is licenced to receive that type of waste stream. • Waste to be transported offsite would be recorded including type, quantity and destination. • Hazardous waste such as waste oil and lubricating oil will be recycled at an appropriately licenced recycling waste depot. 	Contractor	Construction	N/A

No.	Impact	Environmental safeguards	Responsibility	Timing	Reference
		<ul style="list-style-type: none"> • Portable toilets would be emptied on a regular basis and human waste disposed of to a local sewage treatment plant. • Recycling facilities (garbage bins or other suitable receptacles) would be provided to maximise recycling of waste materials such as plastic, glass, aluminium cans, and paper/cardboard. 			
WM2	Waste	<p>The following general mitigation measures are to be adopted to reduce operational impacts on waste management:</p> <ul style="list-style-type: none"> • Vessels (self-propelled and unpowered) will have adequate on-board communication, containment, drainage, bunding and monitoring systems to prevent discharges of unauthorised effluents. • Maintenance materials including waste oil and lubricants would be disposed at an appropriately licenced facility. 	Transport for NSW	Operation	N/A

7.3 Licensing and approvals

All relevant licenses, permits, notifications and approvals needed for the Eden Safe Harbour Project and when they need to be obtained are listed in Table 7-2. No additional or changed licenses and approval requirements are required.

Table 7-2: Summary of licensing and approvals required

Instrument	Requirement	Timing
<i>Fisheries Management Act 1994 (s199)</i>	Notification to the Minister for Agriculture and Western NSW prior to any dredging or reclamation work.	A minimum of 28 days prior to the start of work – completed.
<i>Fisheries Management Act 1994 (s205)</i>	Permit to harm marine vegetation from the Minister for Agriculture and Western NSW.	Prior to start of the activity – completed.
<i>Ports and Maritime Administration Regulation 2012 (Clause 67ZN)</i>	A Harbour Master Approval from Port Authority of NSW where disturbance of the bed of the port is proposed.	Prior to start of the activity – completed.

8 Justification and conclusion

8.1 Justification

The proposed modification remains consistent with the objectives of the project and the intent of the determined project. The potential environmental and social impacts of the proposed modification are considered to be minor, and the continued implementation of the safeguards would avoid, minimise or mitigate any impacts such that the benefit of the proposed modification would outweigh any potential impacts. As such the proposed modification is considered justified and is consistent with the justification in the project REF.

8.2 Objects of the EP&A Act

Consideration of the proposed modification against the Section 1.3 Objects of the EP&A Act is set out in Table 8-1.

Table 8-1: Objects of the EP&A Act

Object	Comment
1.3(a) To promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources.	The proposed modification has considered the potential impacts on the community and how these are managed during construction. There would be no impacts on natural and other resources.
1.3(b) To facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment.	Ecologically sustainable development (ESD) has been considered in the addendum REF.
1.3(c) To promote the orderly and economic use and development of land.	The proposed modification contributes to the orderly and economic use and development of land during construction of the project.
1.3(d) To promote the delivery and maintenance of affordable housing.	Not relevant to the proposed modification.
1.3(e) To protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats.	Not relevant to the proposed modification.
1.3(f) To promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage).	Not relevant to the proposed modification.
1.3(g) To promote good design and amenity of the built environment.	Not relevant to the proposed modification.
1.3(h) To promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants.	Not relevant to the proposed modification.
1.3(i) To promote the sharing of the responsibility for environmental planning	Not relevant to the proposed modification.

Object	Comment
and assessment between the different levels of government in the State.	
1.3(j) To provide increased opportunity for community participation in environmental planning and assessment.	Targeted consultation has been undertaken to inform the addendum REF.

8.2.1 Ecologically sustainable development

ESD is development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. The principles of ESD have been an integral consideration throughout the development of the project. ESD requires the effective integration of economic and environmental considerations in decision-making processes. The four main principles supporting the achievement of ESD were assessed in the project REF and the proposed modification is consistent with that assessment.

8.3 Conclusion

This addendum REF has examined and taken into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of the proposed activity. This has included consideration, where relevant, of conservation agreements and plans of management under the NPW Act, stewardship sites under the BC Act, wilderness areas, areas of outstanding value, impacts on threatened species, populations and ecological communities and their habitats and other protected fauna and native plants. It has also considered potential impacts to matters of national environmental significance listed under the EPBC Act.

A number of potential environmental impacts from the proposed modification have been avoided or reduced during the options assessment. The proposed modification as described in the addendum REF best meets the project objectives but would still result in minor impacts to the community relating to construction noise from the extension of hours on Saturdays. Safeguards and management measures as detailed in this addendum REF would ameliorate or minimise these expected impacts. The proposed modification would also have positive land use, property and socio-economic impacts from reducing the overall duration that public access is restricted during construction.

On balance the proposed modification is considered justified, and the following conclusions are made.

Significance of impact under NSW legislation

The proposed modification would be unlikely to cause a significant impact on the environment. Therefore, it is not necessary for an environmental impact statement to be prepared and approval to be sought from the Minister for Planning and Urban Spaces under Division 5.2 of the EP&A Act. A Biodiversity Development Assessment Report or Species Impact Statement is not required. The proposed modification is subject to assessment under Division 5.1 of the EP&A Act. Consent from Council is not required.

Significance of impact under Australian legislation

The proposed modification is not likely to have a significant impact on matters of national environmental significance or the environment of Commonwealth land within the meaning of the *Environment Protection and Biodiversity Conservation Act 1999*. A referral to the Australian Department of Agriculture, Water and Environment is not required.

9 Certification

This addendum review of environmental factors provides a true and fair review of the proposed modification in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the proposed modification.



Claire Jones
Principal Environmental Planner
Advisian Pty Ltd
Date: 8 July 2022

I have examined this addendum review of environmental factors and accept it on behalf of Transport for NSW.



Andrew Dooley
Project Director
Maritime Infrastructure Delivery Office
Date: 18/07/2022

10 References

Advisian, 2017, Review of Environmental Factors Eden Safe Harbour Project at Snug Cove, Eden NSW.

Advisian, 2018, Addendum Review of Environmental Factors Eden Safe Harbour Project at Snug Cove, Eden NSW.

Pacific Environment Limited, 2016, Port of Eden Redevelopment – Noise, Vibration and Air Quality Assessment.

SLR, 2021, Eden Safe Harbour Project Construction Noise and Vibration Management Plan.

SLR, 2022, Eden Safe Harbour Project Vibration Monitoring up to 2 May 2022.

Terms and acronyms used in this REF

Term/ Acronym	Description
BC Act	<i>Biodiversity Conservation Act 2016 (NSW).</i>
CEMP	Construction Environmental Management Plan
CNVMP	Construction Noise and Vibration Management Plan
Dol	NSW Department of Industry
EIA	Environmental impact assessment
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW).</i> Provides the legislative framework for land use planning and development assessment in NSW
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).</i> Provides for the protection of the environment, especially matters of national environmental significance, and provides a national assessment and approvals process.
ESD	Ecologically sustainable development. Development which uses, conserves and enhances the resources of the community so that ecological processes on which life depends, are maintained and the total quality of life, now and in the future, can be increased
FM Act	<i>Fisheries Management Act 1994 (NSW)</i>
Jetty	A structure extending into the harbour as part of a wharf
LEP	Local Environmental Plan. A type of planning instrument made under Part 3 of the EP&A Act.
MNES	Matters of national environmental significance under the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999.</i>
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
Piles	Foundations used to support marine structures and offshore platforms
SEPP	State Environmental Planning Policy. A type of planning instrument made under Part 3 of the EP&A Act.
RH SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
TI SEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021
TLO	Temporary load out
Wharf	A landing place or pier where ships may tie up and load or unload.

Appendix A

Consideration of Section 171(2) Factors

Consideration of Matters of National Environmental
Significance and Commonwealth land

Section 171(2) Checklist

In addition to the requirements of the *Guidelines for Division 5.1 Assessments* (DPE, 2022) and the *Marinas and Related Facilities EIS Guideline* (DUAP 1996) as detailed in the addendum REF, the following factors, listed in section 171(2) of the Environmental Planning and Assessment Regulation 2021, have also been considered to assess the likely impacts of the proposed modification on the natural and built environment.

Factor	Impact
<p>a) Any environmental impact on a community?</p> <p>The proposed modification would have minor impacts to the community relating to construction noise from the extension of hours on Saturdays. These impacts are mitigated through the reduction of the overall duration of the construction program. Construction noise would be managed according to the existing safeguards and the additional safeguard for targeted consultation identified in Table 7-1.</p>	Short term, minor negative impacts.
<p>The proposed modification would also have positive land use, property and socio-economic impacts that public access is restricted during construction.</p>	Short term, minor positive impacts.
<p>b) Any transformation of a locality?</p> <p>The proposed modification would not result in transformation of the locality.</p>	Nil.
<p>c) Any environmental impact on the ecosystems of the locality?</p> <p>The proposed modification would not result in impacts to ecosystems of the locality.</p>	Nil.
<p>d) Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality?</p> <p>The proposed modification would not reduce environmental qualities or values of the locality.</p>	Nil.
<p>e) Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations?</p> <p>The proposed modification would have no direct or indirect impacts to Aboriginal and non-Aboriginal cultural heritage.</p>	Nil.
<p>f) Any impact on the habitat of protected animals (within the meaning of the <i>Biodiversity Conservation Act 2016</i>)?</p> <p>The proposed modification would not impact the habitat of protected animals.</p>	Nil.
<p>g) Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air?</p> <p>The proposed modification would not endanger any terrestrial or aquatic species.</p>	Nil.

Factor	Impact
<p>h) Any long-term effects on the environment? The proposed modification relates only to the construction phase and would not have any long-term effects on the environment.</p>	Nil.
<p>i) Any degradation of the quality of the environment? The proposed modification would not degrade the quality of the environment.</p>	Nil.
<p>j) Any risk to the safety of the environment? The proposed modification would not reduce environmental qualities or values of the locality.</p>	Nil.
<p>k) Any reduction in the range of beneficial uses of the environment? The proposed modification would not reduce the range of beneficial uses of the environment.</p>	Nil.
<p>l) Any pollution of the environment? The proposed modification would not contribute to pollution of the environment.</p>	Nil.
<p>m) Any environmental problems associated with the disposal of waste? The proposed modification would not cause environmental problems from waste disposal.</p>	Nil.
<p>n) Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply? The proposed modification would not cause an increased demand on resources.</p>	Nil.
<p>o) Any cumulative environmental effect with other existing or likely future activities? The proposed modification would not have any additional cumulative environmental effects in the locality.</p>	Nil.
<p>p) Any impact on coastal processes and coastal hazards, including those under projected climate change conditions? The proposed modification would not have an impact on coastal processes and hazards.</p>	Nil.
<p>q) Any local strategic planning statements, regional strategic plans or district strategic plans made under the EP&A Act, Division 3.1? Not relevant to the proposed modification.</p>	Nil.
<p>r) Any other relevant environmental factors? In considering the potential impacts of the proposed modification all relevant environmental factors have been considered, refer to Chapter 6 of this assessment.</p>	Nil.

Matters of National Environmental Significance and Commonwealth land

Under the environmental assessment provisions of the EPBC Act, the following matters of national environmental significance and impacts on the Commonwealth land are required to be considered to assist in determining whether the proposed modification should be referred to the Australian Government Department of Agriculture, Water and the Environment.

Factor	Impact
a) Any impact on a World Heritage property? No impact.	Nil.
b) Any impact on a National Heritage place? No impact.	Nil.
c) Any impact on a wetland of international importance? No impact.	Nil.
d) Any impact on a listed threatened species or communities? No impact.	Nil.
e) Any impacts on listed migratory species? No impact.	Nil.
f) Any impact on a Commonwealth marine area? No impact.	Nil.
g) Does the proposal involve a nuclear action (including uranium mining)? No impact.	Nil.
h) Additionally, any impact (direct or indirect) on the environment of Commonwealth land? No impact.	Nil.

Appendix B

Statutory consultation checklists

Transport and Infrastructure SEPP

Certain development types

Development type	Description	Yes/No	If 'yes' consult with	TI SEPP section
Car Park	Does the project include a car park intended for the use by commuters using regular bus services?	No	[Local council and the occupiers of adjoining land]	TI SEPP s. 2.110
Bus Depots	Does the project propose a bus depot?	No	[Local council and the occupiers of adjoining land]	TI SEPP s. 2.110
Permanent road maintenance depot and associated infrastructure	Does the project propose a permanent road maintenance depot or associated infrastructure such as garages, sheds, tool houses, storage yards, training facilities and workers' amenities?	No	[Local council and the occupiers of adjoining land]	TI SEPP s. 2.110

Development within the Coastal Zone

Issue	Description	Yes/No/NA	If 'yes' consult with	TI SEPP section
Development with impacts on certain land within the coastal zone	Is the proposed modification within a coastal vulnerability area and is inconsistent with a certified coastal management program applying to that land?	No	[Local council]	TI SEPP s. 2.14

Note: See interactive map here: <https://www.planning.nsw.gov.au/policy-and-legislation/coastal-management>. Note the coastal vulnerability area has not yet been mapped.

Note: a certified coastal zone management plan is taken to be a certified coastal management program

Council related infrastructure or services

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
Stormwater	Is the work likely to have a <i>substantial</i> impact on the stormwater management	No	[Local council]	TI SEPP s. 2.10(1)(a)

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
	services which are provided by council?			
Traffic	Is the work likely to generate traffic to an extent that will <i>strain</i> the capacity of the existing road system in a local government area?	No	[Local council]	TI SEPP s. 2.10(1)(b)
Sewerage system	Will the work involve connection to a council owned sewerage system? If so, will this connection have a <i>substantial</i> impact on the capacity of any part of the system?	No	[Local council]	TI SEPP s. 2.10(1)(c)
Water usage	Would the work involve connection to a council owned water supply system? If so, would this require the use of a <i>substantial</i> volume of water?	No	[Local council]	TI SEPP s. 2.10(1)(d)
Temporary structures	Would the work involve the installation of a temporary structure on, or the enclosing of, a public place which is under local council management or control? If so, would this cause more than a <i>minor</i> or <i>inconsequential</i> disruption to pedestrian or vehicular flow?	No	[Local council]	TI SEPP s. 2.10(1)(e)
Road & footpath excavation	Would the work involve more than <i>minor</i> or <i>inconsequential</i> excavation of a road or adjacent	No	[Local council]	TI SEPP s. 2.10(1)(f)

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
	footpath for which council is the roads authority and responsible for maintenance?			

Local heritage items

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
Local heritage	Is there is a local heritage item (that is not also a State heritage item) or a heritage conservation area in the study area for the work? If yes, does a heritage assessment indicate that the potential impacts to the heritage significance of the item/area are more than <i>minor</i> or <i>inconsequential</i> ?	No	[Local council]	TI SEPP s. 2.11

Flood liable land

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
Flood liable land	Is the work located on flood liable land? If so, would the work change flood patterns to more than a <i>minor</i> extent?	No	[Local council]	TI SEPP s. 2.12
Flood liable land	Is the work located on flood liable land? (to any extent). If so, does the work comprise more than minor alterations or additions to, or the demolition of, a building, emergency work or routine maintenance	No	State Emergency Services Email: erm@ses.nsw.gov.au	TI SEPP s. 2.13

Note: Flood liable land means land that is susceptible to flooding by the probable maximum flood event, identified in accordance with the principles set out in the manual entitled *Floodplain Development Manual: the management of flood liable land* published by the New South Wales Government.

Public authorities other than councils

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
National parks and reserves	Are the works adjacent to a national park or nature reserve, or other area reserved under the <i>National Parks and Wildlife Act 1974</i> , or on land acquired under that Act?	No	Environment, Energy and Science, DP&E	TI SEPP s. 2.15(2)(a)
National parks and reserves	Are the works on land in Zone E1 National Parks and Nature Reserves or in a land use zone equivalent to that zone?	No	Environment, Energy and Science, DP&E	TI SEPP s. 2.15(2)(b)
Navigable waters	Are the works comprising a fixed or floating structure in or over navigable waters?	No	Transport for NSW	TI SEPP s. 2.15(2)(c)
Artificial light	Would the works increase the amount of artificial light in the night sky and that is on land within the dark sky region as identified on the dark sky region map? (Note: the dark sky region is within 200 kilometres of the Siding Spring Observatory)	No	Director of the Siding Spring Observatory	TI SEPP s. 2.15(2)(d)
Defence communications buffer land	Are the works on buffer land around the defence communications facility near Morundah? (Note: refer to Defence Communications Facility Buffer Map referred to in clause 5.15 of Lockhardt LEP 2012, Narrandera LEP 2013 and Urana LEP 2011.	No	Secretary of the Commonwealth Department of Defence	TI SEPP s. 2.15(2)(e)

Issue	Potential impact	Yes/No	If 'yes' consult with	TI SEPP section
Mine subsidence land	Are the works on land in a mine subsidence district within the meaning of the <i>Mine Subsidence Compensation Act 1961</i> ?	No	Mine Subsidence Board	TI SEPP s. 2.15(2)(f)
Bush fire prone land	Are the works for the purpose of health services facility, a correctional centre or residential accommodation in bush fire prone land?	No	Rural Fire Service	TI SEPP s. 2.16

Appendix C

Noise Monitoring Register – April 2022

Appendix D

Vibration Monitoring up to 2 May 2022

