

# Appendix A

## Terms of Reference

# Terms of reference for the preparation of an Environmental Impact Statement

21-Oct-2021  
Darwin Ship Lift Project

# Terms of reference for the preparation of an Environmental Impact Statement

Client: Department of Chief Minister and Cabinet

ABN: 18 108 001 191 23

Prepared by

**AECOM Australia Pty Ltd**

Level 3, 9 Cavenagh Street, Darwin NT 0800, GPO Box 3175, Darwin NT 0801, Australia

T +61 8 8942 6200 F +61 8 8942 6299 [www.aecom.com](http://www.aecom.com)

ABN 20 093 846 925

21-Oct-2021

AECOM in Australia and New Zealand is certified to ISO9001, ISO14001 AS/NZS4801 and OHSAS18001.

© AECOM Australia Pty Ltd (AECOM). All rights reserved.

AECOM has prepared this document for the sole use of the Client and for a specific purpose, each as expressly stated in the document. No other party should rely on this document without the prior written consent of AECOM. AECOM undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. This document has been prepared based on the Client's description of its requirements and AECOM's experience, having regard to assumptions that AECOM can reasonably be expected to make in accordance with sound professional principles. AECOM may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

## Quality Information

Document Terms of reference for the preparation of an Environmental Impact Statement


Ref 60633505

Date 08-Nov-2021

Prepared by Cameron Adams

Reviewed by James Jentz

### Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	21-Oct-2021	Draft Issue	James Jentz Darwin Office Manager	
1	08-Nov-2021	Final Issue	James Jentz Darwin Office Manager	

## 1.0 Construction and operation

**Table 1 Minimum information required in the Proposal description**

ID	Terms of reference requirements	EIS section number
<b>1.0 Site layout maps</b>		
1.1	<p>The description of the Proposal must include, but not be limited to, detailed maps and graphic illustrations of:</p> <ul style="list-style-type: none"> <li>the location and approximate dimensions of areas to be disturbed and structures to be built including (as relevant): <ul style="list-style-type: none"> <li>- all areas to be cleared, disturbed, dredged and reclaimed</li> <li>- roads and service infrastructure</li> <li>- stormwater and drainage infrastructure</li> <li>- buildings and structures</li> <li>- temporary stockpiles</li> <li>- waste storage facilities.</li> </ul> </li> </ul>	Section 2.1 and 2.2 Figures 2-1 and 2-4
	<ul style="list-style-type: none"> <li>the Proposal dredge spoil discharge point/disposal location</li> </ul>	Section 2.4.2 Figure 2-1
	<ul style="list-style-type: none"> <li>the Proposal layout overlain with the environmental values such as the location of marine values and heritage.</li> </ul>	Sections 2.2 and 8.4 Figures 2-4 and 8-1 Appendix M: Cultural Heritage Assessment Figure 2
<b>2.0 Design</b>		
2.1	Describe design options considered, reasons for selection and how the proposed design avoids and/or mitigates environmental constraints and potential impacts and risks to the surrounding environment including long-term legacy contamination. Outline and justify any trade-offs in the design.	Section 2.3, 2.8, 4.4.4 and 11.1.2 Appendix N: Preliminary Site Investigation
<b>3.0 Construction</b>		
3.1	<p>Describe all elements of the construction phase including:</p> <ul style="list-style-type: none"> <li>construction methods and limitations of construction methods in the area of the Proposal</li> </ul>	Section 2.3, 2.4 and 2.8
	<ul style="list-style-type: none"> <li>vessels and machinery required</li> </ul>	Section 2.4.8
	<ul style="list-style-type: none"> <li>construction materials required – major types, quantities, qualities, sources,</li> </ul>	Section 2.4.3

ID	Terms of reference requirements	EIS section number
	<ul style="list-style-type: none"> <li>storage requirements and potential hazards</li> </ul>	Section 2.2.13, 2.2.15, 2.2.18.4 and 11.1.3
	<ul style="list-style-type: none"> <li>navigation aids</li> </ul>	Section 2.2.4
	<ul style="list-style-type: none"> <li>timeframes</li> </ul>	Section 2.4.11
	<ul style="list-style-type: none"> <li>any new ancillary infrastructure and upgrades required to service the Proposal, including supply of electricity, water, sewerage and road access</li> </ul>	Section 2.2.11, 2.2.12, 2.4.6, 2.4.10 and 2.4.11 Appendix L: Traffic Impact Assessment
	<ul style="list-style-type: none"> <li>environmental management of all aspects of the proposed construction with detailed maps and diagrams where relevant, including:               <ul style="list-style-type: none"> <li>erosion and sediment control</li> <li>water requirements</li> <li>water management including stormwater drainage</li> <li>biosecurity</li> <li>waste classification<sup>1</sup> and management, including containment and disposal of contaminated wastewater and solids with details of pits, bunds, treatment and recycling</li> <li>noise and vibration management (above and underwater)</li> <li>controls to prevent creation of biting insects habitat.</li> </ul> </li> </ul>	Section 2.2.2, 2.2.8, 2.2.10, 2.2.13, 2.2.14, 2.2.15, 2.2.16, 2.4.5, 8.6, 11.1.4 and 11.3.4 Chapter 13: Environmental Management Framework Appendix G Underwater Noise Technical Report Appendix K: Terrestrial Noise Impact Technical Report
	<ul style="list-style-type: none"> <li>applicable legislation, guidelines and standards including the South Australia EPA Code of Practice for Vessel and Facility Management (Marine and Inland Waters) (SA EPA 2017)</li> </ul>	Chapter 3: Strategic and Statutory Framework
	<ul style="list-style-type: none"> <li>any feasible construction alternatives. Where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.</li> </ul>	Section 2.8
<b>4.0 Dredging</b>		
4.1	<p>All proposed dredging activities should be in accordance with the procedures, methods and minimum requirements of the NT EPA's Guidelines for the Environmental Assessment of Marine Dredging in the Northern Territory (NT EPA 2013a) and the National Assessment Guidelines for Dredging (Australian Government 2009). Information should include:</p> <ul style="list-style-type: none"> <li>all capital dredging requirements, including area and volumes to be dredged and location where spoil will be disposed</li> </ul>	Section 2.4.2
	<ul style="list-style-type: none"> <li>all maintenance dredging requirements including frequency, area and volumes to be dredged and location where spoil will be disposed dredging methods, timing and equipment, inclusive of spoil loading and disposal</li> </ul>	Section 2.4.2

ID	Terms of reference requirements	EIS section number
	<ul style="list-style-type: none"> <li>location, outline and method of reclamation</li> </ul>	Section 2.2.2, 2.4.2 and 2.2.4 Figure 2-1
	<ul style="list-style-type: none"> <li>an outline of all licensing and management plan requirements, including:               <ul style="list-style-type: none"> <li>Construction and Operation Environmental Management Plans that demonstrate how environmental duties under Section 12 of the Water Management and Pollution Control Act 1998 will be exercised</li> <li>a Dredge Spoil Disposal Environmental Management Plan, including capital and maintenance dredging management and monitoring, and environmental monitoring of potential environmental impacts associated with disposed dredge spoil</li> </ul> </li> </ul>	Chapter 3: Strategic and Statutory Framework Chapter 13: Environmental Management Framework
	<ul style="list-style-type: none"> <li>conceptual site model (NT EPA 2013c)</li> </ul>	Appendix N: Preliminary Site Investigation
	<ul style="list-style-type: none"> <li>feasible dredging and spoil disposal alternatives, including alternative</li> </ul>	Section 2.4.2, 2.8.2 and 2.8.3
	<ul style="list-style-type: none"> <li>dredging methods (where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts).</li> </ul>	Section 2.4.2
<b>5.0 Operation</b>		
5.1	<p>Describe all landside and waterside elements of the proposed operation including:</p> <ul style="list-style-type: none"> <li>environmental management of all aspects of the proposed operation with detailed maps, diagrams and facility design specifications and standards where relevant, including:               <ul style="list-style-type: none"> <li>erosion and sediment control</li> <li>water requirements</li> <li>water management including stormwater drainage biosecurity measures</li> <li>waste management, including containment and disposal of contaminated wastewater and solids with details of pits, bunds, treatment and recycling (including potentially hazardous grit blast waste material, antifoulant, organisms cleaned from vessels, removal of anodes, paint, sewage, run-off)</li> <li>air quality management, including containment of dust and particles from sand/grit blasting, odour and emissions including paint overspray</li> <li>ongoing maintenance of onshore and offshore components and servicing infrastructure</li> <li>noise management (above and underwater)</li> <li>applicable legislation, guidelines, and standards including the South Australia EPA Code of Practice for Vessel and Facility Management (Marine and Inland Waters) (SA EPA 2017)</li> <li>proposed corrosion control method for any submerged steel structures or pipelines over water</li> </ul> </li> </ul>	Section 2.2, 2.3, 2.4, 2.5, 9.8, 11.3.4, 13.5 Chapter 3 Strategic and Statutory Framework

ID	Terms of reference requirements	EIS section number
	<ul style="list-style-type: none"> <li>any feasible operation alternatives (where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.</li> </ul>	Section 2.8
<b>6.0 Transport and traffic</b>		
6.1	Describe land and water traffic and transport activities during construction and operation, including but not limited to: <ul style="list-style-type: none"> <li>type, size, draft, number and frequency of vessels and hours of operation</li> </ul>	Section 2.2.4, 2.2.11, 2.4.9, 2.4.10, 2.5.1, 2.5.2, 2.5.3 and 2.5.4 Appendix L: Traffic Impact Assessment
	<ul style="list-style-type: none"> <li>details on access, haulage routes, vehicle types, volumes of traffic.</li> </ul>	Section 2.2.11, 2.4.10, 2.4.11, 2.5.1, 2.5.2, 2.5.3 and 2.5.4 Appendix L: Traffic Impact Assessment
<b>7.0 Energy</b>		
7.1	Provide relevant information with respect to energy during construction and operation, including but not limited to: <ul style="list-style-type: none"> <li>energy requirements and sources</li> </ul>	Section 2.2.1, 8.1 and 9.7.2
	<ul style="list-style-type: none"> <li>consideration of renewable sources of energy and justification of selected option</li> </ul>	Section 2.2.18.1, 2.3 and 9.8
	<ul style="list-style-type: none"> <li>estimate of greenhouse gas emissions</li> </ul>	Section 9.7.2 Appendix J: Air Quality and Greenhouse Gas Technical Report
	<ul style="list-style-type: none"> <li>measures to maximise energy efficiency and avoid and/or reduce greenhouse gas emissions, particularly relating to source and consumption of energy.</li> </ul>	Section 9.8



ID	Terms of reference requirements	EIS section number
<b>8.0 Workforce</b>		
8.1	Provide a summary of the: <ul style="list-style-type: none"> <li>• estimated number of people to be employed</li> </ul>	Section 2.4.11, 2.5.6 and 10.5.2 Chapter 10: Social Economic and Cultural Surroundings Appendix C: Social Impact Assessment
	<ul style="list-style-type: none"> <li>• skills base required</li> </ul>	Section 10.5.2 Appendix C: Social Impact Assessment
	<ul style="list-style-type: none"> <li>• likely sources (local, regional, overseas).</li> </ul>	Section 2.4.11, 2.5.6 and 10.5.2 Appendix C: Social Impact Assessment

## 2.0 Marine environmental quality

**Table 2** Minimum information required for assessment of Marine environmental quality

ID	Terms of reference requirements	EIS section number
<b>1.0 Environmental values</b>		
1.1	Describe the environmental values with respect to marine environmental quality of the Proposal area and Darwin Harbour. Include discussion of: <ul style="list-style-type: none"> <li>the influence of tides, current patterns and wave magnitudes, sediment dynamics, with consideration of extreme weather conditions</li> </ul>	Section 7.2.1 and 7.4.3
	<ul style="list-style-type: none"> <li>the outcomes of geotechnical investigations and bathymetry surveys (intertidal and subtidal; depth, backscatter and water column) of the zone of influence and an assessment of the site's suitability</li> </ul>	Section 7.4.3
	<ul style="list-style-type: none"> <li>water quality (chemical, physical and biological) of the Proposal footprint (surveyed baseline), zone of influence and Darwin Harbour including temporal and spatial variations and reference to the metric by which water quality is measured</li> </ul>	Section 7.4.4 Appendix E: Water Quality Technical Reports
	<ul style="list-style-type: none"> <li>water quality objectives and declared beneficial uses for Darwin Harbour</li> </ul>	Section 7.2.1
	<ul style="list-style-type: none"> <li>the physical and chemical characteristics of the sediment within the spoil/dredge footprint, the Proposal footprint and zone of influence (surveyed baseline) as required by the Guidelines for the Environmental Assessment of Marine Dredging in the Northern Territory (NT EPA 2013a), including acid sulfate soil potential, toxicities and nutrients</li> </ul>	Section 7.4.6 Appendix H: Marine Sediment Geochemical Assessment Report
	<ul style="list-style-type: none"> <li>the location and physical and biological characteristics of the spoil disposal site/reclamation site.</li> </ul>	Section 7.4.8
<b>2.0 Potential impacts and risks</b>		
2.1	Utilise bathymetry surveys and field-verified hydrodynamic modelling to determine the areas that could feasibly experience impacts associated with the proposed activities. This is to take into account currents, waves, sediment transport, sediment plume, local-scale seabed features, dispersal and sedimentation characteristics including flocculation. Classify the areas as: <ul style="list-style-type: none"> <li>Zones of impact – or direct disturbance footprint (Proposal footprint). These are the areas of propose infrastructure, vegetation clearing, dredging and direct use.</li> </ul>	Section 7.5.1.1 Appendix I: Sediment Transport Modelling Technical Report
	<ul style="list-style-type: none"> <li>Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes in hydrodynamics and sedimentation.</li> </ul>	Section 7.5.1.1.1 Appendix I: Sediment Transport Modelling Technical Report

ID	Terms of reference requirements	EIS section number
2.2	<p>Provide a detailed and comprehensive assessment of potential impacts on and risks to marine environmental quality (sediment and water) utilising hydrodynamic modelling, geotechnical investigations, outcomes of sediment quality investigations and other relevant information. As a minimum, the assessment should take into consideration:</p> <ul style="list-style-type: none"> <li>• dredging methods, equipment, timing and frequency</li> </ul>	Section 7.5
	<ul style="list-style-type: none"> <li>• the likely scale, extent and fate of sediment plumes</li> </ul>	Section 7.5.1.1 Appendix I: Sediment Transport Modelling Technical Report
	<ul style="list-style-type: none"> <li>• other industries and proposals in Darwin Harbour that may contribute to cumulative impacts of this Proposal e.g. from dredging, contamination and habitat loss</li> </ul>	Section 7.4.77.8.6 and 12.4
	<ul style="list-style-type: none"> <li>• environmental management requirements associated with seasonal weather, extreme weather conditions such as storms and cyclones for the 2, 10 and 100 year average recurrence interval events</li> </ul>	Section 7.3
	<ul style="list-style-type: none"> <li>• details of reclamation containment and dewatering method, including expected settlement timeframe</li> </ul>	Section 7.4.8
	<ul style="list-style-type: none"> <li>• the physical and chemical characteristics of reclamation discharge</li> </ul>	Section 7.4.8
	<ul style="list-style-type: none"> <li>• potential contaminants and sources (including accidental spills, antifoulant, metal loading from corrosion control for submerged steel structures and pipelines over water) from the Proposal, pathways and dispersal into the surrounding marine environment.</li> </ul>	Section 7.5.1.2 and 7.5.1.3
2.3	<p>The assessment must take into account all land and water based construction and operation activities of the Proposal including reclamation, site preparation, vessel traffic, spills, storm water discharge, biosecurity and hazardous substances used or mobilised during operations (e.g. antifouling paints, hydrocarbons, solvents, heavy metals etc.).</p>	Section 7.5
	<p>The assessment must identify potential impacts and risks to marine water quality and quantify their significance:</p> <ul style="list-style-type: none"> <li>• against relevant guideline thresholds</li> </ul>	Section 7.5
	<ul style="list-style-type: none"> <li>• on the beneficial uses, water quality objectives and identified environmental values of Darwin Harbour</li> </ul>	Section 7.2.1, 7.4 and 7.5
	<ul style="list-style-type: none"> <li>• on the food chain, particularly species that are consumed by people (bioaccumulation).</li> </ul>	Chapter 8: Marine Flora and Fauna
	<p>The assessment of each aspect should consider cumulative impacts and the reversibility of potential impacts.</p>	Section 7.5.1, 7.8.6 and 12.4

ID	Terms of reference requirements	EIS section number
<b>3.0 Mitigation and management</b>		
3.1	<p>Outline the measures for minimising, managing and mitigating potential impacts and risks to marine environmental quality (e.g. sediment and water). These may be incorporated into management plans and address at a minimum:</p> <ul style="list-style-type: none"> <li>• facility design and layout</li> <li>• water management, including stormwater and wastewater management</li> <li>• waste management including a detailed description of management methods for all types of wastes (including bilge water, and anti-foul materials removed from and/or added to boats)</li> <li>• dredging management</li> <li>• dredge spoil management</li> <li>• erosion and sediment control</li> <li>• acid sulfate soil management (if present)</li> <li>• emergency response management</li> <li>• compliance with any statutory or policy basis for the proposed measures.</li> </ul> <p>Discuss adaptation to a changing climate including design and resultant viability of the Proposal.</p> <p>All mitigation measures should be substantiated and in accordance with best practice advice from relevant Northern Territory Government advisory agencies.</p>	<p>Section 7.6 Chapter 2: Project Description</p> <p>Section 7.5.1.2, 7.5.1.3 and 7.6</p> <p>Section 7.5.1.3 Chapter 11: Other Environmental Factors</p> <p>Section 7.6</p> <p>Section 7.6</p> <p>Section 7.6</p> <p>Section 7.5.1.1.3</p> <p>Section 7.6</p> <p>Section 7.2</p> <p>Section 7.3</p> <p>Section 7.2</p>
<b>4.0 Monitoring and reporting</b>		
4.1	<p>Outline how the Proponent will monitor and report on potential impacts and risks to marine environmental quality as outlined above, including:</p> <ul style="list-style-type: none"> <li>• water quality</li> <li>• sediment quality</li> <li>• dredge plume and operation</li> <li>• spoil and spoil leachate, including acid sulfate soils</li> <li>• bioaccumulation</li> </ul>	Section 7.8

ID	Terms of reference requirements	EIS section number
	<ul style="list-style-type: none"><li>erosion and sediment</li></ul>	Section 7.8
	<ul style="list-style-type: none"><li>waste management, including antifoul removal, disposal and application.</li></ul>	Section 7.8
	All monitoring activities should be substantiated and in accordance with best practice advice from relevant Northern Territory Government advisory agencies.	Section 7.2
<b>5.0 Residual impact</b>		
5.1	Assess the significance of any residual impact or risk of the Proposal to identified values.	Section 7.7

## 3.0 Marine flora and fauna

**Table 3 Minimum information required for assessment of marine flora and fauna**

ID	Terms of reference requirements	EIS section number
<b>Table 4: Minimum information required for assessment of marine flora and fauna</b>		
<b>1.0 Environmental values</b>		
1.0	As a minimum, describe and discuss within the context of the Proposal footprint, the zone of influence and Darwin Harbour:	Section 8.4
	<ul style="list-style-type: none"> <li>the distribution, abundance, habitat utilisation and seasonality for species of conservation significance (including species listed as threatened under the <i>Territory Parks and Wildlife Conservation Act 1976</i> and marine megafauna)</li> </ul>	
	<ul style="list-style-type: none"> <li>the presence or likely presence of marine fauna and flora species with significant cultural, commercial and/or recreational value</li> </ul>	Sections 8.4.1.7 and 8.4.3
	<ul style="list-style-type: none"> <li>the quality and quantity of available habitat for significant species, and provide maps of the local extent of important habitat areas</li> </ul>	Section 8.4.2
	<ul style="list-style-type: none"> <li>the current status of marine pests and biosecurity measures</li> </ul>	Section 8.4.3
	<ul style="list-style-type: none"> <li>the importance of the local population of significant species in a regional, NT, national and international context</li> </ul>	Section 8.4.3
	<ul style="list-style-type: none"> <li>coastal habitat values, including mangroves and saltmarshes</li> </ul>	Section 8.4.2, 10.6.4.1 and 11.2.2.1
	<ul style="list-style-type: none"> <li>sensitive habitats with key ecological relationships and interdependencies (such as a food source for a threatened marine mammal), including benthic habitats and communities</li> </ul>	Section 8.4.2
	<ul style="list-style-type: none"> <li>detailed descriptions and fine scale maps (based on field verified modelling) of the benthic habitat and communities within the zone of influence, including reef communities, seagrass / macro algae, mangroves, intertidal and subtidal flats and keystone species. Keystone species information should be suitable to be used as baseline data to establish a pre-impact reference for seasonal presence and abundance.</li> </ul>	Section 8.4.2
	<ul style="list-style-type: none"> <li>broad scale maps of the regional context for benthic habitat and communities.</li> </ul>	Section 8.4.2.1
	Use current data available from the Flora and Fauna Division, Department of Environment and Natural Resources and display findings in map format wherever possible.	Section 8.4.2.1
	Where important knowledge gaps exist, conduct surveys using appropriate methods and with sufficient sampling intensity to provide robust understanding of baseline conditions.	Section 8.4.2.1

ID	Terms of reference requirements	EIS section number
<b>2.0 Potential impacts and risks</b>		
2.1	Describe potential impacts and risks to marine flora and fauna during construction and operation, including but not limited to: <ul style="list-style-type: none"> <li>collision with vessels</li> </ul>	Section 8.5.1
	<ul style="list-style-type: none"> <li>grounding vessels</li> </ul>	Section 8.5.1
	<ul style="list-style-type: none"> <li>disturbance through light, noise and vibration (e.g. temporary and permanent increase in underwater noise)</li> </ul>	Section 8.5.6 and 8.5.3
	<ul style="list-style-type: none"> <li>changes in water and sediment quality, and exposure to contaminants (including increased particulate matter; hazardous chemicals from spills and runoff; contact with acid sulfate soils and antifoul products; metal loading [e.g. from corrosion control]; bioaccumulation in the food chain)</li> </ul>	Section 8.5.7
	<ul style="list-style-type: none"> <li>loss of foraging habitat</li> </ul>	Section 8.5.2
	<ul style="list-style-type: none"> <li>the introduction or spread of marine pests or weeds.</li> </ul>	Section 8.5.8
	<p>Include a detailed assessment of the nature and extent of the likely short-term and long-term impacts, including cumulative impacts, to marine species of conservation significance, and culturally, commercially and recreationally significant species in the local, regional and Territory context.</p> <p>The assessment should as a minimum:</p> <ul style="list-style-type: none"> <li>Include a discussion (with reference to maps showing important habitat areas) of areas to be disturbed or altered by the proposed action, making clear how they will be disturbed or altered and how much potential habitat will be lost or impacted permanently and temporarily.</li> </ul>	Section 8.5
	<ul style="list-style-type: none"> <li>Identify potential impacts and threshold levels of underwater noise, including cumulative exposures, for species of conservation significance. This should include an evaluation of key construction and operational activities with elevated underwater noise e.g. pile-driving, dredging, shipping, rock placement, ship lifting and other operational activities with modelling taking into account geo-acoustic properties (sediment type and sediment thickness, depth, bathymetry, sound speed profiles (seasonal and spatial) and other relevant oceanic / environmental variables). Demonstrate how the model will be validated. Consider impacts experienced at similar facilities elsewhere.</li> </ul>	Section 8.5.6, Appendix G: Underwater Noise Technical Report
	<ul style="list-style-type: none"> <li>Provide a statement whether any relevant impacts to significant marine species and habitats are likely to be unknown, unpredictable or irreversible and the significance of any permanent loss of habitat on marine ecosystem integrity at an appropriate scale.</li> </ul>	Section 8.7
<p>Include references to relevant research, statutory advice and statutory plans, such as conservation advices, action plans, recovery plans, threat abatement plans and health guidelines (where relevant to potential bioaccumulation), when assessing potential impacts and risks. Identify if and how the action is consistent with any relevant statutory recovery plans and threat abatement plans.</p>	Section 8.2 and 8.5	

ID	Terms of reference requirements	EIS section number
<b>3.0 Mitigation and management</b>		
3.1	Outline the measures for avoiding, minimising, managing and mitigating potential impacts and risks to marine flora and fauna. These may be incorporated into management plans and address at a minimum: <ul style="list-style-type: none"> <li>management for marine fauna of conservation significance</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>underwater noise</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>vessel traffic, including vessel strikes</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>dredging operations</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>biosecurity</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>contaminant load, including fugitive emissions (e.g. from sand/grit blasting and paint overspray) and other contamination sources</li> </ul>	Section 8.6
	<ul style="list-style-type: none"> <li>compliance with any statutory or policy basis for the proposed measures.</li> </ul>	Section 8.6
<b>4.0 Monitoring and reporting</b>		
4.1	Outline how the Proponent will monitor and report potential impacts and risks to marine flora and fauna as outlined above, including: <ul style="list-style-type: none"> <li>monitoring of benthic primary producer communities that contribute to marine fauna food chains</li> </ul>	Section 8.8
	<ul style="list-style-type: none"> <li>marine pest monitoring (such as marine pest settlement devices).</li> </ul>	Section 8.8
	All monitoring activities should be substantiated and in accordance with advice from relevant Northern Territory Government advisory agencies.	Section 8.8
<b>5.0 Residual impact</b>		
5.1	Assess residual impact or risk of the Proposal to identified values.	Section 8.7



## 4.0 Air quality and greenhouse gases

**Table 4 Minimum information required for assessment of air quality and greenhouse gases**

ID	Terms of reference requirements	Report section number
<b>Table 1: Minimum Information required in the Proposal description</b>		
<b>Energy</b>		
	Provide relevant information with respect to energy during construction and operation, including but not limited to: <ul style="list-style-type: none"> <li>energy requirements and sources</li> </ul>	Section 9.3.2 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 8.0)
	<ul style="list-style-type: none"> <li>consideration of renewable sources of energy and justification of selected</li> </ul>	Section 9.7.2.3 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 9.2)
	<ul style="list-style-type: none"> <li>estimate of greenhouse gas emissions</li> </ul>	Section 9.7.2 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 8.0)
	<ul style="list-style-type: none"> <li>measures to maximise energy efficiency and avoid and/or reduce greenhouse gas emissions, particularly relating to source and consumption of energy.</li> </ul>	Section 9.7.2.3 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 9.2)
<b>Table 5: Minimum information required for assessment of air quality and greenhouse gases</b>		
<b>1.0 Environmental values</b>		
1.1	As a minimum, describe ambient air quality of the area potentially impacted by emissions released by the Proposal.	Section 9.4.2 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 5.2)

ID	Terms of reference requirements	Report section number
<b>2.0 Potential Impacts and Risks</b>		
2.1	Describe potential impacts and risks to air quality including potential impacts and risks to the environment from fugitive emissions. As a minimum: <ul style="list-style-type: none"> <li>provide an inventory of significant emissions to air likely to result from the Proposal</li> </ul>	Section 9.3.1 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 4.2.2.2)
	<ul style="list-style-type: none"> <li>identify and provide the location of sensitive receptors on land and sea</li> </ul>	Section 9.6 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 6.0)
	<ul style="list-style-type: none"> <li>include reporting requirements and compliance with relevant environmental standards</li> </ul>	Section 9.2 Section 9.3.1.1.4 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 6.3)
	<ul style="list-style-type: none"> <li>assess air emission impacts during construction and operation based on air dispersion modelling for odour and volatile organic compounds (VOCs).</li> </ul>	Section 9.3.1.1.4 and 9.7.1.2 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 6.3)
<b>3.0 Mitigation and management</b>		
3.1	Outline the measures for avoiding, minimising, managing and mitigating potential impacts and risks to air quality including: <ul style="list-style-type: none"> <li>design of painting facilities, e.g., enclosed facility with negative air capacity.</li> </ul>	Section 9.7.2 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 9.0)
<b>4.0 Monitoring and reporting</b>		
4.1	Describe how the Proponent will monitor and report potential impacts and risks to air quality including air quality standards and trigger values.	Section 9.8 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 9.3)

ID	Terms of reference requirements	Report section number
5.0 Residual impact		
5.1	Assess residual impact or risk of the Proposal to identified values.	Section 9.11 Appendix J: Air Quality and Greenhouse Gas Technical Report (Section 11)

## 5.0 Social, Economic and Cultural Surrounds

**Table 5 Minimum information required for assessment of air quality and greenhouse gases**

ID	Terms of reference requirements	EIS section number
<b>1.0 Environmental values</b>		
1.1	Describe, using maps where appropriate, the existing social and economic aspects and values (including key stakeholders) of Darwin Harbour that may be impacted by the Proposal including commercial and recreational values such as marine tourism, recreational fishing and the amateur fishing industry. Identify and map all places and items with historic and/or indigenous cultural heritage values and/or protected under legislation within the Proposal footprint, the zone of influence and in areas that could be otherwise impacted by the Proposal activities.	Sections 4.5, 4.6, 4.7 and 10.4 Appendix C: Social Impact Assessment (Section 7 and 8) Appendix M: Cultural Heritage Assessment (Section 5 and 8)
	Baseline information should be provided regarding historic or cultural heritage values and significance of the sites/areas, including: <ul style="list-style-type: none"> <li>• areas listed on Commonwealth and Northern Territory registers of historic and/or cultural heritage</li> </ul>	Section 4.7 and 10.4.4 Appendix M: Cultural Heritage Assessment (Section 5 and 8)
	<ul style="list-style-type: none"> <li>• a description and location of Aboriginal and non-Aboriginal sites, places or objects of natural, historic or cultural heritage significance, current utilisation and spiritual significance. Information sources should include published archaeological and anthropological information, respective registers, consultations and other research</li> </ul>	Section 4.7 and 10.4.4 Appendix M: Cultural Heritage Assessment (Section 5 and 8)
	<ul style="list-style-type: none"> <li>• provision of an Authority Certificate under the Northern Territory Aboriginal Sacred Sites Act 1989 or an application under the Act</li> </ul>	Section 4.7.1 and 10.4.4.1 Appendix M: Cultural Heritage Assessment (Appendix A)
	<ul style="list-style-type: none"> <li>• provision of information on the current status of any approvals, permits or clearances in relation to the protection of heritage items or places.</li> </ul>	N/A
<b>2.0 Potential impacts and risks</b>		
2.1	Describe and quantify: <ul style="list-style-type: none"> <li>• the potential social and economic opportunities and impacts with an analysis of the social and economic values, benefits and potential impacts of the Proposal on a local/regional, NT and national scale, including but not limited to: <ul style="list-style-type: none"> <li>- projected economic costs and benefits of the Proposal, including a cost/benefit analysis or similar studies, the estimated capital and annual operational expenditure and estimated total revenue</li> <li>- details of relevant costs and benefits of alternative options to the proposed action</li> <li>- training and employment opportunities expected to be generated by the Proposal</li> <li>- opportunities for local and regional businesses</li> </ul> </li> </ul>	Section 10.4 and 10.5 Appendix C: Social Impact Assessment, Section 5, 7 and 8

ID	Terms of reference requirements	EIS section number
	<ul style="list-style-type: none"> <li>- impacts on the local community such as on the amenity of the area, marine tourism, recreational fishing and the amateur fishing industry</li> <li>- risks of the Proposal not realising its proposed economic and social benefits</li> <li>- social impacts associated with not achieving the proposed economic benefits</li> </ul> <ul style="list-style-type: none"> <li>• the potential impacts of Proposal infrastructure and activities, such as land transport and traffic impacts, water vessel traffic, dredging and reclamation, on cultural and historic heritage values on land, within the intertidal zone and submerged in Darwin Harbour. This should include:               <ul style="list-style-type: none"> <li>- the potential impacts and risks of destruction and / or damage to the Catalina A24-69 wreck site (Catalina 2) and the East Arm Flying Boat Base</li> <li>- the potential cumulative impacts and risks, taking into consideration other users and activities</li> </ul> </li> </ul> <p>details of unexploded ordinance clearance.</p>	<p>Section 10.5.3 Appendix C: Section 3, 8 and Appendix B Appendix L: Traffic Impact Assessment (Section 8 and 9) Appendix M: Cultural Heritage Assessment (Section 9.2)</p> <p>Section 4.4.5 Appendix M: Cultural Heritage Assessment (Section 5.4.3) Appendix N: Preliminary Site Investigation (Section 2.9)</p>
<b>3.0 Mitigation and management</b>		
3.1	<p>Address all potential impacts and risks identified through the economic and social impact assessment, identify measures to avoid, reduce or mitigate these impacts including:</p> <ul style="list-style-type: none"> <li>• measures to protect, and avoid impacts and entry, to sacred sites, including transit of vessels in the vicinity of sacred sites</li> <li>• procedures to avoid significant heritage values and sites, and protect key sites during construction and operation</li> <li>• any requirement to apply to, or applications already made to, the NT Minister for Tourism, Sport and Culture to disturb or destroy a prescribed archaeological place and/or object under the Heritage Act 2011</li> <li>• procedures that would be implemented in the event that any surface, sub- surface or submerged items/sites of heritage/cultural significance (additional to those identified in the EIS) are identified during implementation of the Proposal</li> <li>• traffic management.</li> </ul>	<p>Section 10.6 Appendix M: Cultural Heritage Assessment (Section 10)</p> <p>Section 10.6 Appendix M: Cultural Heritage Assessment (Section 10)</p> <p>N/A</p> <p>Section 10.6 Appendix M: Cultural Heritage Assessment (Appendix B)</p> <p>Section 10.6</p>

ID	Terms of reference requirements	EIS section number
	Describe how emerging social impacts would be identified, assessed and mitigated in the future.	Appendix L: Traffic Impact Assessment (Section 11) Section 5.7 Appendix C: Social Impact Assessment (Appendix C)
<b>4.0 Monitoring and reporting</b>		
4.1	Describe monitoring and reporting of identified potential economic, social and cultural impacts and risks.	Section 10.8 Appendix C: : Social Impact Assessment (Section 10.4)
<b>5.0 Residual impacts</b>		
5.1	Assess any residual impact or risk of the Proposal to identified values.	Section 10.7 Appendix C: Social Impact Assessment 10.4 Appendix C: Social Impact Assessment (Appendix C) Appendix M: Cultural Heritage Assessment (Table 9 and Section 10)