Australian Government
Department of the Environment

ntepa
Northern Territory
Environment Protection Authority

TERMS OF REFERENCE FOR THE PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT (NT)

GUIDELINES FOR THE CONTENT OF A DRAFT PUBLIC ENVIRONMENT REPORT (AUSTRALIAN GOVERNMENT)

EAST ARM MARINE INDUSTRY PARK
NT LAND DEVELOPMENT CORPORATION

(EPBC 2014/7318)

February 2015

1 Introduction

The Proponent, the Land Development Corporation, is master planning the East Arm Marine Industry Park (the proposed action) as part of the wider East Arm Logistics Precinct. The proposed action is situated approximately seven kilometres (km) east of the Darwin Central Business District on the East Arm Peninsula within Darwin Harbour, east-north-east of the East Arm Wharf. The proposal would provide additional land for development of industries servicing the marine sector, including a mix of existing privately owned service industries, a new waterfront development, commercial activities and areas proposed for marine maintenance, servicing and logistics facilities.

Development would be undertaken in stages, anticipated to be over a long timeframe of up to 50 years. The Proponent anticipates that construction of the first stage would commence as early as 2016 and take five years. The total area of the proposed action according to the 2014 concept plan is approximately 92.4 hectares (ha).

The concept plan incorporates the following elements which would occur in stages:

- subdivision of land for commercial and industrial allotments, including waterfront allotments for marine maintenance, servicing and logistics facilities
- provision of required utilities and infrastructure
- land reclamation and seawall establishment
- dredged access channels and ship turning area to provide access for increasingly larger vessels (if required)
- dredged spoil is expected to be used in reclamation work at the site if suitable.

It is likely that some dredging of channels and berth pockets would be undertaken during the initial stages of development as determined by industry demand and operational requirements. Alternatively, operations would initially work on the tides with some small berth pockets to be dredged. Further dredging of access channels and more extensive berth pockets would be staged to accommodate additional businesses and foundation tenants and the project expanded.

On 26 August 2014, the Proponent submitted a Notice of Intent for the proposed action for assessment under the Northern Territory (NT) *Environmental Assessment Act* (EA Act). On 29 October 2014 the Northern Territory Environment Protection Authority (NT EPA) decided that the proposed action required formal assessment under the EA Act at the level of an Environmental Impact Statement (EIS). Issues of concern contributing to the decision include:

- loss of mangrove habitats due to vegetation clearing and reclamation
- potential for deterioration of water quality due to erosion and sedimentation, and disturbance of acid sulphate soils during construction
- dredging, dredge spoil disposal and land reclamation are likely to directly impact on marine flora and fauna through removal and smothering, and will have indirect impacts through effects on water quality
- changes to bathymetry and coastal processes through dredging activities and reclamation
- noise and vibration impacts to sensitive receptors from dredging, pile driving and increased marine vessel traffic
- increased risk of collision with marine fauna
- disturbance or loss of historic or culturally significant or sacred sites.

Additionally, cumulative impacts in the East Arm area are considered to be significant due to the current development activities in Darwin Harbour occurring in conjunction with previous disturbance.

The proposal was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the Minister for the Environment (Australian Government Minister) on 29 August 2014. The Minister determined on 3 October 2014 that approval is required as the action has the potential to have a significant impact on the following matters of National Environmental Significance (NES) that are protected under Part 3 of the EPBC Act:

- listed threatened species and communities (s18 & s18A)
- listed migratory species (s20 & s20A).

The delegate of the Minister determined, on 3 October 2014, that the proposed activity be assessed by a Public Environment Report (PER).

The assessment process is being conducted jointly by both governments, to streamline the process while satisfying requirements of the EPBC Act and EA Act.

These Terms of Reference / Guidelines are to assist the Proponent in preparing a single Environmental Impact Assessment (EIA) document for the proposed action that fulfils the requirements of the Australian Government's PER in accordance with Part 8 of the EPBC Act and the NT Government's EIS in accordance with Clause 8 of the NT Environmental Assessment Administrative Procedures of the EA Act.

Information about the proposed action and its relevant impacts, as outlined in this document, is to be provided in the Proponent's EIA documentation. This information should be sufficient to allow:

- the NT EPA to make informed recommendations to the NT Minister for the Environment
- the Australian Government Minister to make an informed decision on whether or not to approve, under Part 9 of the EPBC Act, the taking of the action for the purposes of each controlling provision.

2 Description of the Proposed Action

2.1 General Information

Provide the background and context of the proposed action, including:

- the title of the action
- the full name and postal address of the designated Proponent
- a clear outline of the objective of the action
- the background to the development of the action
- the location of the action in the region and its proximity to:
  - landmark features
  - sites of sacred, cultural, historical or social interest
  - regional community centres
  - areas on the National Reserve System and Sites of Conservation Significance

  - sensitive environments, such as the marine and estuarine environment of Darwin Harbour, significant natural features and conservation reserves

- an outline of similar projects undertaken by the Proponent elsewhere demonstrating its commitment to effective environmental management
- identification of areas proposed for future development or expansion, or any other potential future activities being planned
- how the action relates to any other proposals or actions (of which the Proponent should reasonably be aware) that have been or are being undertaken, that have been approved in the local area or that are proposed for the area
- climate and atmospheric characteristics relevant to the action (e.g. air quality, seasonal temperatures, humidity, wind, evaporation, extreme events such as cyclones, storm surges and rainfall)
- the current status of the action.

The information provided must include details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources:

- against the person proposing to take the action
- for an action for which a person has applied for a permit, the person making the application

If the person proposing to take the action is a corporation, details of the corporation's environmental policy and planning framework must also be included.

2.2 Approvals and Conditions

The EIA documentation must provide information on requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the proposed action, including:

- National, State and/or Territory standards, codes of practice, guidelines and legislation relevant to the action
- a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the EPBC Act), including any conditions that apply to the action
- details of any local or Territory Government planning scheme, or plan or policy under any local or Territory Government planning system that deals with the proposed action
- a summary of current agreements between the Proponent and the Northern Territory Government, and/or the Australian Government, and/or other stakeholders, including Traditional Owners and/or land managers
- a statement identifying additional approvals that are required
- a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

2.3 Project Components

All construction and operational components of the action should be described to allow a detailed understanding of infrastructure design and engineering. All construction (including site preparation), operation and management elements of the action must be described in detail. This should include the precise location (including coordinates) of all

works to be undertaken, structures to be built or elements of the action that may have relevant impacts, including on matters of NES.

The description of the action must also include (but not be limited to) details on:

- how the works are to be undertaken (including stages of development and their timing) and design parameters for those aspects of the structures or elements of the action that may have relevant impacts
- the disturbance associated with all construction activity, such as temporary access tracks, dredging, dredge spoil disposal, land reclamation and piling
- design parameters for those structural aspects of the action that have impact potential
- related proposals, including those that may involve a potential for expansion or additional development by the Proponent, and possible timeframes
- elements of the action with potential relevant impacts for matters protected under Part 3 of the EPBC Act and species protected under the *Territory Parks and Wildlife Conservation Act* (TPWC Act), as well as those aspects of the environment that could potentially be impacted under other relevant legislation such as the *Heritage Act* and *Historic Shipwrecks Act*
- potential design parameters that could manage or mitigate the potentially relevant impacts referred to in the previous point
- all other safeguards and mitigation measures proposed to deal with relevant impacts of the action.

2.3.1 Construction Phase

Describe the elements of the construction phase, including:

- vessels and machinery required
- construction materials required – major types, quantities, qualities, sources, storage requirements and potential hazards
- limitations of construction methods in the area of the proposed action, such as the potential for mud waving.

Describe management of construction traffic, including:

- operating times and scheduling
- vehicle/vessel numbers and frequency
- traffic flow management.

Describe water management for the construction phase of the proposed action, including consideration of:

- water requirements – uses, quantities, quality and sources, such as for dust suppression, construction requirements, drinking water, ablutions and sewage treatment and landscaping
- stormwater, drainage, erosion and sediment control
- water re-use.

Describe proposed rehabilitation of any temporarily disturbed areas.

Describe waste management for the construction phase of the action.

Outline any new ancillary infrastructure and upgrades required to service the proposed action, including supply of electricity, water, sewerage, and road access.

2.3.2 Post-construction Phase

For the post-construction phase of the action, describe proposed:

- land and infrastructure tenure/ownership arrangements and responsibility for maintenance of project components
- provision for ongoing maintenance of onshore and offshore components and servicing infrastructure.

2.4 Alternatives

The EIA documentation should describe any feasible alternatives to carrying out the proposed action. The choice of the preferred option(s) should be clearly explained, including how it complies with the principles and objectives of ecologically sustainable development (ESD).

Alternatives should include:

- not proceeding with the action
- site selection, including alternative layouts and alternative locations that improve project outcomes, such as reducing destruction of mangrove areas or sites of historic heritage significance
- sources of raw materials such as fill and rock armour materials
- dredge methods and dredge spoil disposal locations where dredged material is demonstrated to be unsuitable for land-based disposal
- options to optimise ecological sustainability of the action, such as alternatives to reduce/offset the project's environmental footprint
- consideration of alternative environmental management measures for key risks/impacts.

Discussion should include:

- adverse and beneficial effects of alternatives at national, territory, regional and local levels
- the comparison of short and long term advantages and disadvantages of the alternatives
- a comparative description of the impacts of each alternative on the NES matters protected by controlling provisions of Part 3 of the EPBC Act.

3 Risk Assessment

3.1 Risk Assessment Approach

The EIA documentation should be undertaken with specific emphasis on the identification, analysis and mitigation of risks through a whole-of-project risk assessment. Through this process, the EIA process will:

- acknowledge and discuss the full range of risks presented by the proposed action, including those of special concern to the community
- quantify and rank risks so that the reasons for proposed management responses are clear

- acknowledge levels of uncertainty about estimates of risk and the effectiveness of risk controls
- explicitly identify those members of the community expected to accept residual risks and their consequences, providing better understanding of equity issues.

Statements about levels of uncertainty should accompany all aspects of the risk assessment. Steps taken to reduce uncertainty or precautions taken to compensate for uncertainty should be identified and their effect/s demonstrated.

Information provided should permit the reader to understand the likelihood of the risk, its potential severity, and any uncertainty about the effectiveness of controls. Levels of uncertainty that preclude robust quantification of risk should be clearly acknowledged.

Risk rankings assigned should be fully justified. Where a risk score associated with the likelihood or consequence of an impact is reduced as a result of proposed mitigation measures, clear justification should be provided for the reduction in score. The adequacy and feasibility of mitigation measures must be demonstrable.

Sufficient quantitative analysis should be provided to indicate whether risks are likely to be acceptable or tolerable. A comparison can be made with similar developments in Australia and internationally. Assumptions used in the analyses should be explained. Relevant standards, codes and best practice methodologies that minimise risks should be discussed.

The risk assessment should be based on international best practice. Processes for risk management are formalised in Standards Australia / Standards New Zealand (e.g. AS/NZS ISO 31000:2009; HB 436:2004; HB 158:2010; HB 203:2012).

A number of key risks have been identified through a preliminary assessment of the action. Each of the identified risks described in this Section should be addressed by the Proponent in the risk assessment and management process.

Additionally, it is expected that further risks will be identified through the comprehensive risk assessment process required for the EIA process. These should also be addressed and appropriate management initiatives developed.

Environmental objectives, or overarching goals identifying environmental values to be protected, have been identified for some key risks.

3.2 Information requirements

The NT EPA has prepared a series of Environmental Assessment Guidelines to assist in the preparation of EIS documents. Environmental Assessment Guidelines are developed and updated periodically, and should be referenced and referred to where relevant when addressing the information requirements in an appropriate section of the EIS. Environmental Assessment Guidelines, current at the time of publication of these ToR, include:

- *Guidelines for the Environmental Assessment of Marine Dredging in the Northern Territory*
- *Guidelines for the Preparation of an Economic and Social Impact Assessment*
- *Guidelines on Environmental Offsets and Associated Approval Conditions*.

Relevant Department of the Environment documents that should be reviewed to assist in preparation of an EIS include:

- *EPBC Act Environmental Offsets Policy 2012*

- relevant EPBC Act survey guidelines, recovery plans and any approved conservation advice.

3.3 Cumulative impacts

Cumulative impacts can arise from compounding activities of a single operation or multiple operations, as well as the aggregation and interaction of project impacts with other past, current and future activities that may not be related to the proposed action.

An assessment of cumulative environmental impacts should be undertaken that considers the potential impact of the proposed action in the context of existing developments and reasonably foreseeable future developments, to ensure that any potential environmental impacts are not considered in isolation. The extent of cumulative impacts to be considered depends on the nature of the environmental issue and on ecosystem resilience. The EIA document should address potential cumulative impact of the action on ecosystem resilience and, in this context, the cumulative effects of climate change impacts on the environment must also be considered.

The risk assessment should discuss cumulative impacts where relevant, and account for impacts on an appropriate scale, in consideration of the following:

- landscape change originates not only from single projects and management actions but also from complex and dynamic interactions of multiple past, present and future management actions
- biophysical, social and economic change accumulates through additive or interactive (or synergistic) processes. The aggregate impact of multiple actions on the environment can be complex and may result in impacts that are more significant because of interactive processes
- any given action does not operate in isolation. The most significant changes are often not the result of the direct effects of an individual action, but from the combination of multiple minor effects over the accumulation of time.

3.4 Human Health and Safety

Environmental Objectives

The EIA documentation should include an assessment of the risks to people, the environment and nearby facilities associated with the construction, operation and maintenance of the various components of the proposal, and the storage and transport of materials to and from the complex. The aim of this assessment is to demonstrate that:

- the Proponent is fully aware of the risks to human health and safety associated with all aspects of the development
- the prevention and mitigation of risks to human health and safety are properly addressed in the design specifications for the development
- the risks can and will be managed effectively during the construction, commissioning, and operation of the development.

Assessment of Risks

Provide an assessment of:

- the effect of unusual and extreme weather conditions or seismic events on vulnerable components of the project
- catastrophic failure of components

- potential impacts from an incident on health and safety
- Potential accidents associated with construction, operation and maintenance of the various components of the proposal, including storage and transport of materials to and from the development area.

Mitigation and Monitoring

Detailed emergency plans and response procedures will need to be developed as a contingency in the event of an emergency or accident and provided in the final Environmental Management Plan (EMP), as discussed in Section 4 of these ToR. Responsibilities and liabilities in such an event should be included.

The hazard and risk analysis will identify the critical areas that need to be addressed in management plans, monitoring programs, contingency and emergency plans.

3.5 Biodiversity

Environmental Objectives

- To maintain the conservation status, abundance, diversity, geographic distribution and productivity of flora and fauna at species and ecosystem levels through the avoidance or management of adverse impacts.
- To minimise the risk of Significant Impacts to threatened species and communities, and migratory species listed under the EPBC Act, and species listed under the TPWC Act, during construction and operation of the proposed action.
- To prevent the introduction and/or spread of invasive and pest species as a result of the proposed action.

Information Requirements

A detailed description of the marine and terrestrial environments (including threatened and/or migratory species listed under the EPBC Act and TPWC Act, and commercial fish species) likely to be affected by the proposed action must be provided. This should serve as a benchmark against which the impacts of the project may be assessed and monitored over time.

The detailed description must:

- describe the area of the proposed action, and the surrounding area, explaining:
  - local oceanographic processes (tidal, current velocities and direction, sediment dynamics, etc.)
  - ambient water quality (chemical, physical and biological), including reference to the metric by which water quality is measured
  - ambient underwater noise levels
- describe the benthic habitats within the area. Sensitive environments/habitats should be identified and key ecological relationships and interdependencies discussed
- for the listed threatened and/or migratory species shown in Attachment 3:
  - discuss the quality and quantity of available habitat
  - discuss the local population's size and its distribution, including at different life cycle stages, for example, when the population is breeding, foraging, resting and/or migrating - maps showing the local population's range, important habitat areas and migratory pathways must be included
  - discuss the importance of the local population in a local, regional, NT, national and international context

  - discuss (with reference to maps showing important habitat areas) the areas to be disturbed or altered by development as part of the proposed action, making clear how they will be disturbed or altered

- explain the basis for statements made in response to the above, that is, whether the Proponent:
  - is identifying and relying upon existing literature or previous surveys, or
  - has conducted its own surveys specifically for this purpose
- where the Proponent has conducted surveys, explain the scope, timing and methodology for each survey. For each survey, describe the information and baseline established, and note all comments received from experts on the surveys. Experts are people or organisations recognised as having extensive expertise about the identified listed threatened and/or migratory species.

Assessment of Risks

The EIA documentation must include an assessment of all of the relevant risks of the action to the listed threatened and/or migratory species shown at Attachment 3, those species protected under the TPWC Act, sensitive terrestrial vegetation and marine benthic communities. Potential impacts during the construction and operational phases of the project should be addressed, and the following information provided:

- a detailed assessment of the nature and extent of the likely short-term and long-term relevant impacts to listed threatened and/or migratory species at the local, regional, NT, national and international context
- a statement whether any relevant impacts to listed threatened and/or migratory species are likely to be unknown, unpredictable or irreversible
- analysis of the significance of the relevant impacts
- any technical data and other information used or needed to make a detailed assessment of the relevant impacts to listed threatened and/or migratory species.

The EIA documentation should identify, discuss and assess the source of potential impacts from construction and operation on protected matters. This should include but not be limited to:

- physical or behavioural impacts from noise, pressure change and/or vibrations, including from piling and blasting, if relevant. Information on the expected source level, frequency and propagation characteristics of noise and/or pressure should be provided. Where there is likely to be noise related impacts from the project, a noise assessment must be undertaken to determine the severity and extent of potential impacts and the EIS must demonstrate that proposed mitigation and management measures would reduce the potential impacts to an acceptable level
- an analysis of the risk and potential impact of fauna strike and entanglement with offshore infrastructure and vessels
- habitat modification from clearing of mangroves, reclamation, dredging and dredge spoil disposal, and/or changes to sediment transport and hydrodynamics (sediment mobilisation, erosion, transportation and deposition, smothering, turbidity and seabed scour)
- invasive marine and terrestrial species (introduction and spread)
- likely toxicological impacts from lubricants, anti-foulants and anti-corrosion measures expected to be used in the proposal. All other indicative wastes and their sources, including fuel and oil leakage from vessels associated with construction and operation of all project components, should be identified.

Consultation with the relevant species experts to determine the nature and extent of impacts to threatened and migratory species known to inhabit (or migrate through) the project area should be included.

Mitigation

The EIA documentation must provide information on proposed safeguards and mitigation measures to deal with the relevant impacts of the action. Specific and detailed descriptions of proposed measures must be provided and substantiated, based on best available practices and must include the following elements:

- a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including:
  - a description of proposed safeguards and mitigation measures to deal with relevant impacts of the action, including mitigation measures proposed to be taken by the Territory government, local government or the Proponent
  - assessment of the expected or predicted effectiveness of the mitigation measures
  - statutory or policy basis for the mitigation measures
  - the approximate cost of the mitigation measures
- a detailed outline of an EMP
- the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program.

Monitoring

For identified threatened species present in the local area, a proposed monitoring program to determine the effectiveness of the mitigation measures should be outlined. The monitoring program should identify the methodology for monitoring potential impacts and identify clear thresholds and contingency measures that will be implemented in the event that the mitigation measures appear ineffective.

3.6 Coastal Processes

Environmental objectives

Changes to the hydrodynamics of the East Arm of Darwin Harbour as a result of the Project do not significantly alter coastal processes in other areas of the harbour.

Information requirements

- Provide maps and interpretation of regional bathymetry and local-scale seabed features.
- Provide results and interpretation of any geotechnical investigations undertaken to assess the suitability of components of the proposal.
- Describe the oceanic processes within Darwin Harbour such as tides, current patterns and wave magnitudes.
- Conduct appropriate hydrodynamic modelling for the area affected by the proposal.
- Provide details of any tidal inundation areas and storm surge zones.
- Provide details on any natural and historic heritage values within the marine environment affected by the proposal.

Assessment of Risks

The EIA documentation should assess the risks of impacts associated with changes to coastal hydrodynamics from construction of components of the action, including:

- the potential impacts of project components or activities (such as site preparation, component construction, dredging and spoil dumping) on oceanic processes and natural features
- the extent of impacts from coastal processes such as erosion, currents and storm events
- the expected changes in hydrodynamics from infrastructure installations and biophysical consequences of these changes such as scouring/erosion and sediment deposition
- the impacts of reclamation on the coastal environment.

Mitigation and Monitoring

- Detail measures or safeguards to avoid or minimise identified impacts.
- Detail the monitoring required to maintain and verify the effectiveness of those measures or safeguards.

3.7 Water Quality

Environmental objectives

Water resources will be protected both now and in the future, such that ecological health and land uses, and the health, welfare and amenity of people are maintained.

The Water Quality Objectives and Beneficial Uses for Darwin Harbour are maintained.

Information requirements

Describe and discuss:

- local meteorology in the context of project environmental management including the frequency and severity of extreme weather conditions such as storms and cyclones for the 2, 10 and 100 year average recurrence interval events
- hydrology/hydrogeology including drainage patterns, flow/discharge rates, likelihood of flooding, etc.
- water quality of fresh and marine/estuarine waters including temporal and spatial variations
- water quality objectives for Darwin Harbour
- the development within the context of declared beneficial uses and environmental values of water resources in the area of the proposed action.

Assessment of Risks

Predict and assess the risks of construction activities associated with the proposed action to marine water quality by demonstrating appropriate modelling of sediment plumes from dredging activities and any offshore spoil disposal. Modelling should include dispersion of high-risk plumes such as turbid water from decant ponds or reclamation activities.

The EIA documentation should provide a detailed assessment of:

- potential impacts of project components/ activities such as site preparation, component construction, disturbance of acid sulphate soils, spills, storm water discharge, sewage treatment/discharge and port operation on the quality of marine/fresh/ground waters
- expected impacts on the Beneficial Uses, Water Quality Objectives and identified environmental values
- the consequences (where relevant) of predicted water quality impacts on the food chain, particularly species that are consumed by people
- The consequences of predicted water quality impacts on listed threatened and/or migratory species and their habitat.

Mitigation and Monitoring

The EIA documentation should provide:

- measures for minimising impacts to water quality particularly with respect to acid sulphate soil excavation and disposal, and erosion and sediment control.
- measures for protecting the Beneficial Uses and maintenance of Water Quality Objectives in Darwin Harbour
- design of stormwater management systems relevant to the local meteorology, including capacity and resilience of any existing natural drainage systems that will be implicated in stormwater management.

Provide a discussion on the likely effectiveness of safeguards and the monitoring required to determine their effectiveness.

Note that where disturbance of acid sulphate soils is likely to occur, an Acid Sulfate Soil management plan would need to be developed by a suitably qualified and experienced professional in accordance with the Queensland or Western Australian Acid Sulfate Soil Management plan guidelines.

For all development that requires soil disturbance, Erosion and Sediment Control Plans would need to be prepared by suitably qualified and experienced professionals in erosion and sediment control planning.

An outline of an Acid Sulfate Soil management plan and an Erosion and Sediment Control Plan should be included in the EIS as part of the EMP.

3.8 Cultural Heritage

Environmental objectives

Places and items with historic and/or indigenous cultural heritage values protected under the *Heritage Act, Historic Shipwrecks Act 1976* and/or Northern Territory *Aboriginal Sacred Sites Act* will be identified and those values protected.

Information requirements

The EIA documentation should include the results of an updated desktop assessment of cultural sites both within and around the footprint of the action including the outcomes of previous assessments in the East Arm area, and searches on the Northern Territory Government's Heritage Register, the Australian Government Shipwrecks Database and the Australian Government's Environmental Reporting Tool. Where information is not confidential or of a sensitive nature, the results of any archaeological and heritage assessment should be included in the EIA document.

A detailed assessment of remote sensing data and other related material should be conducted by a qualified and experienced maritime archaeologist. The Heritage Branch of the Department of Lands, Planning and the Environment can provide a detailed scope of works to direct such an assessment. Where data are unavailable, a physical maritime survey (e.g. remote sensing and field validation) should be conducted to capture any objects that may be located within the proposed marine area of the action. This can be conducted in conjunction with a survey for Unexploded Ordnance with appropriate archaeological advice. Identified targets should be assessed against agreed criteria and inspected (where warranted) with advice from the archaeologist.

An archaeological/heritage survey should be conducted in the onshore area of the proposed action.

Identify all Indigenous/non-Indigenous places of historic or contemporary cultural heritage significance both onshore and within the marine environment including:

- areas nominated for listing, interim listing or listed on the Northern Territory Heritage Register
- areas nominated for listing or listed on Commonwealth and Territory Heritage registers and Commonwealth and Territory registers of indigenous cultural heritage
- sacred sites - provide evidence of an Authority Certificate under the Northern Territory *Aboriginal Sacred Sites Act*
- traditional and historic Aboriginal and Torres Strait Islander (ATSI) archaeological and heritage places and objects protected under relevant Territory and/or Commonwealth legislation
- historic shipwrecks that may be encountered or items deposited into the seas by a ship over 75 years ago and are protected under the *Historic Shipwrecks Act 1976*
- areas with special values to indigenous and non-indigenous people (e.g. traditional land use, landscape, visual environment, recreational, commercial, tourism, fisheries, scientific, educational and marine archaeological sites)
- European historic sites
- Macassan and Aboriginal sites and objects.

Assessment of risks

Assess the risks associated with the proposed action on sacred sites, heritage places and cultural heritage sites more broadly. The EIA documentation should provide:

- details of the requirements to apply to, or applications already made to, the NT Minister for Lands, Planning and the Environment to disturb or destroy a prescribed archaeological place and/or object under the *Heritage Act*
- an assessment of risks to any sites or items which have indigenous or historic cultural heritage significance, and items or sites worthy of inclusion on the NT Heritage Register, in particular any sacred sites in the area and the RAAF Catalina wrecks two and three.

Mitigation

The EIA document should describe the prevention and mitigation of potential risks to existing sites or items of indigenous or historic cultural heritage significance, and include:

- procedures to avoid significant sites and areas
- protection of key sites during construction and post-construction work
- measures to enable the Proponent, or contractor to the Proponent, to meet its duty of care to protect the cultural heritage values of any places or items of significance
- procedures for the discovery of items during the course of carrying out the proposed action.

The EIA documentation should include the outline of a draft cultural heritage management plan that seeks to avoid impacts to and afford protection for significant sites or items. The cultural heritage management plan should include provisions to mitigate and manage any items or places identified prior to or during construction and maintenance activities. When preparing the archaeological report and the cultural heritage management plan it is strongly recommended that the Proponent give consideration to, and refer to, the Burra Charter and guidelines at: http://australia.icomos.org/publications/charters/ to ensure that the investigations and mitigation measures proposed meet best practice standards for the management of heritage in Australia.

3.9 Socio-economic

Environmental objectives

To analyse, monitor and manage the intended and unintended economic and social consequences of the proposed action, both positive and negative, and any social change processes.

Assessment of risks

An Economic and Social Impact Assessment (ESIA) should be conducted in accordance with the NT EPA *Guidelines for the Preparation of an Economic and Social Impact Assessment*. Key matters that should be included in the assessment are:

- details of any public consultation activities undertaken, and their outcomes
- projected economic costs and benefits of the project, including the basis for their estimation through cost/benefit analysis or similar studies
- employment opportunities expected to be generated by the project (including construction and operational phases)
- opportunities for local and regional businesses
- any negative economic and social impacts on the local community such as on the amenity of the area, marine tourism and the amateur fishing industry.

Details of the relevant cost and benefits of alternative options to the proposed action, as identified in Section 2.4 Alternatives above, should also be included.

Mitigation

An Economic and Social Impact Management Plan should be prepared to address any risks identified in the ESIA, including the optimisation of potential benefits.

4 Environmental Management

Specific safeguards and controls, proposed to minimise or remedy environmental impacts identified in the risk assessment process, are to be included in an EMP.

The EMP should be strategic, describing a framework for management, mitigation and monitoring programs for the significant environmental impacts of the action. The scope, content and structure of the EMP will be a function of the outcomes of the environmental risk assessment and determined by the significance of the environmental impacts. The EMP should not be prepared in isolation but should be consistent and integrated with the principles of an environmental management system. Specific management practices, procedures and thresholds should be included in the EMP, where possible. Reference should be made to relevant legislation, guidelines and standards, and proposed arrangements for necessary approvals and permits should be noted. Proposed reporting procedures on the implementation of the plan, independent auditing or self-auditing and reporting of accidents and incidents should be included. The agencies responsible for overseeing implementation of the EMP should be identified. The EMP would continue to be developed and refined following the conclusion of the assessment process, taking into consideration the proposed timing of development activities, comments on the EIA documentation and incorporating the Assessment Report recommendations (if any) and conclusions, and any conditions of the Australian Government Minister's approval.

5 General Advice on the PER/EIS

5.1 General Content

The EIA documentation should be a stand-alone document. It should contain sufficient information to avoid the need to search out previous or additional, unattached reports. The document should take into consideration the EPBC Act Significant Impact Guidelines that can be downloaded from the following web site: http://www.environment.gov.au/epbc/guidelines-policies.html.

The EIA documentation should enable interested stakeholders and government to understand the environmental consequences of the proposed action. Information provided should be objective, clear, and succinct and, where appropriate, be supported by maps (using an appropriate scale, resolution and clarity), plans, diagrams and other descriptive detail should be included. Technical jargon should be avoided or accompanied by a clear explanation so that it is readily understandable. Cross-referencing should be used to avoid unnecessary duplication of text.

The level of analysis and detail should reflect the level of significance of the potential impacts on the environment, as determined through adequate technical studies. Consideration of appropriate spatial, temporal and analytical scales should be used to clearly communicate the potential impacts to the environment. Reliability of the data and an explanation of the sampling criteria and approach should be provided where data are used to support statements, studies and claims in the EIA documentation. All known and unknown variables, limitations or assumptions made must be clearly stated and discussed.

Information materials summarising and highlighting risks of the proposed action should be provided in a culturally appropriate format and language, accompanied by graphics and illustrations that assist with interpretation, where relevant.

5.2 Structure, Format and Style

The EIA document should comprise of three elements:

1. Executive summary

The executive summary must include a brief outline of the proposed action and each chapter of the document, allowing the reader to obtain a clear understanding of the proposed action, its environmental implications and management objectives. It must be written as a stand-alone document, able to be reproduced on request by interested parties who may not wish to read the EIA documentation as a whole. The executive summary should briefly:

- state the background and the need for the proposal
- describe the expected, likely and potential impacts of the proposal on the environment during construction, operation and post-operation phases
- summarise the environmental protection measures and safeguards, monitoring and reporting procedures to be implemented for the proposal.

2. Main text of the document

The main text of the EIA documentation should include a list of abbreviations, a glossary to define technical terms, acronyms, abbreviations, and colloquialisms. The document should consist of a series of chapters detailing the level of significance and management of the potential impacts on the environment from the proposed action.

An overall conclusion as to the environmental acceptability of the project should be provided, including discussion on compliance with principles of ESD and the objects and requirements of the EPBC Act. Reasons justifying undertaking the project in the manner proposed should also be outlined.

Measures proposed or required by way of offset for any unavoidable impacts on NES matters, and the relative degree of compensation, should be restated here.

3. Appendices

The appendices must include detailed technical information, studies or investigations necessary to support the main text. These will be made publicly available and should include:

- a table listing how these Guidelines/Terms of Reference have been addressed in the EIA documentation, cross-referenced to chapters, page numbers and/or appendices
- the name of, work done by and the qualifications and experience of the persons involved in preparing the EIA documentation
- a table listing commitments made by the Proponent
- detailed technical information, studies or investigations necessary to support the main text.

The EIA documentation should be produced on A4 size paper capable of being photocopied, with any maps, diagrams or plans on A4 or A3 size paper, and in colour, if possible.

5.3 Referencing and Information Sources

All sources must be appropriately referenced using the Harvard Standard. The reference list should include the address of any internet pages used as data sources. All

referenced supporting documentation and data, or documents cited must be available upon request. For information given in the EIA documentation, the following must be stated:

- the source of the information
- how recent the information is
- how the reliability of the information was tested
- what uncertainties (if any) are in the information.

All known and unknown variables or assumptions made in the EIA documentation must be clearly stated and discussed. Confidence levels must be specific, as well as the sources from which they were obtained. The extent to which a limitation, if any, of available information may influence the conclusions of the environmental assessment should be discussed.

The EIA documentation must include information on any consultation about the action, including:

- any consultation that has already taken place about the proposed action and, any documented response to, or result of, the consultation
- a list of persons and agencies consulted during preparation of the EIA documents
- proposed consultation about relevant impacts of the action
- identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

The EIA process has an important role in informing the public about the proposed action. It is essential that the Proponent demonstrates how any public concerns were identified and will influence the design and delivery of the action. Public involvement and the role of government organisations should be clearly identified. The outcomes of any surveys, public meetings and liaison with interested groups should be discussed including any changes made to the proposal as a result of consultation. Details of any ongoing liaison should also be discussed.

5.4 Administration

The Proponent is required to obtain approval from the Australian Government Minister to publish the draft EIA documentation. After receiving approval to publish, the Proponent is required to make the draft EIA documentation available for public comment. Specific instructions regarding publication requirements will be provided as part of the Minister's direction to publish.

Once publication is approved, the Proponent should lodge five bound hardcopies and an electronic (Adobe PDF format) copy of the EIA document with the NT EPA, and two bound copies and an electronic copy with the Department of the Environment. The electronic copies should be provided both as a single file of the entire document and separate files of the document components. A Microsoft Word copy of the EIA documentation should be provided to facilitate the production of the Assessment Report.

The Proponent should consider the file size, format and style of the document appropriate for publication on the internet. The capacity of the website to store data and display the material may have some bearing on how the document is constructed.

The NT EPA requires the complete EIA document and a draft of the advertisement at least one week prior to advertising the draft documentation, to arrange web upload of the document and review advertising text.

If it is necessary to make use of material that is considered to be of a confidential nature, the Proponent should consult with the NT EPA and the Department of the Environment on the preferred presentation of that material, before submitting it to the Australian Government Minister for approval for publication.

5.5 Public Exhibition

Sufficient copies of the EIA documentation should be provided to and be made available for public exhibition at:

- Northern Territory Library, Parliament House, Darwin
- NT EPA, 2nd Floor, Darwin Plaza, 41 Smith Street Mall, Darwin
- Environment Centre Northern Territory, Unit 3, 98 Woods St, Darwin.

The public exhibition period for the draft EIS/PER will be a minimum of 20 business days. The exhibition period should not occur in late December or January in any year to ensure optimal opportunity for public and Government viewing of the document. Additional time will be added to the exhibition period if it overlaps any Christmas and January periods.

6 Guidance Notes

6.1 Waste Discharge

Any discharge of waste from the area into groundwater or waterways may require licensing under the NT *Water Act*. Guidance and application forms can be found at: http://www.ntepa.nt.gov.au/waste-pollution/approvals-licences

6.2 Mosquito Breeding

The onshore component of the project should conform to applicable sections of the Medical Entomology guideline 'Guidelines for preventing mosquito breeding associated with construction practice near tidal areas in the NT', to ensure no new mosquito breeding sites are created.

6.3 Invasive Species

The presence of vessels during construction or operation may pose a risk to introductions of invasive marine species. The environmental risks associated with the potential introduction or translocation of invasive species, including how any vessel involved in the project during the construction or operation stages (including dredging vessels) will meet minimal national standards. Guidance on best practice management biofouling is available at: http://www.marinepests.gov.au/non-trading-vessels.

7 Attachments

7.1 ATTACHMENT 1

THE OBJECTS AND PRINCIPLES OF THE
ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999
SECTIONS 3 AND 3A

3 Objects of the Act

(a) to provide for the protection of the environment, especially those aspects of the environment that are matters of national environmental significance;
(b) to promote ecologically sustainable development through the conservation and ecologically sustainable use of natural resources;
(c) to promote the conservation of biodiversity;
(d) to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples;
(e) to assist in the co-operative implementation of Australia's international environmental responsibilities;
(f) to recognise the role of indigenous people in the conservation and ecologically sustainable use of Australia's biodiversity; and
(g) to promote the use of indigenous peoples' knowledge of biodiversity with the involvement of, and in co-operation with, the owners of the knowledge.

3A Principles of Ecologically Sustainable Development

The following principles are principles of ecologically sustainable development.

(a) Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.
(b) If there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
(c) The principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
(d) The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.
(e) Improved valuation, pricing and incentive mechanisms should be promoted.

7.2 ATTACHMENT 2

MATTERS THAT MUST BE ADDRESSED IN A PER AND EIS
(SCHEDULE 4 OF THE EPBC REGULATIONS 2000)

1 General information

1.01 The background of the action including:

(a) the title of the action;

(b) the full name and postal address of the designated Proponent;

(c) a clear outline of the objective of the action;

(d) the location of the action;

(e) the background to the development of the action;

(f) how the action relates to any other actions (of which the Proponent should reasonably be aware) that have been, or are being, taken or that have been approved in the region affected by the action;

(g) the current status of the action; and

(h) the consequences of not proceeding with the action.

2 Description

2.01 A description of the action, including:

(a) all the components of the action;

(b) the precise location of any works to be undertaken, structures to be built or elements of the action that may have relevant impacts;

(c) how the works are to be undertaken and design parameters for those aspects of the structures or elements of the action that may have relevant impacts;

(d) relevant impacts of the action;

(e) proposed safeguards and mitigation measures to deal with relevant impacts of the action;

(f) any other requirements for approval or conditions that apply, or that the Proponent reasonably believes are likely to apply, to the proposed action;

(g) to the extent reasonably practicable, any feasible alternatives to the action, including:

(i) if relevant, the alternative of taking no action;

(ii) a comparative description of the impacts of each alternative on the matters protected by the controlling provisions for the action; and

(iii) sufficient detail to make clear why any alternative is preferred to another;

(h) any consultation about the action, including:

(i) any consultation that has already taken place;

(ii) proposed consultation about relevant impacts of the action; and

(iii) if there has been consultation about the proposed action — any documented response to, or result of, the consultation; and

(i) identification of affected parties, including a statement mentioning any communities that may be affected and describing their views.

3 Relevant impacts

3.01 Information given under paragraph 2.01(d) must include

(a) a description of the relevant impacts of the action;

(b) a detailed assessment of the nature and extent of the likely short term and long term relevant impacts;

(c) a statement whether any relevant impacts are likely to be unknown, unpredictable or irreversible;

(d) analysis of the significance of the relevant impacts; and

(e) any technical data and other information used or needed to make a detailed assessment of the relevant impacts.

4 Proposed safeguards and mitigation measures

4.01 Information given under paragraph 2.01(e) must include:

(a) a description, and an assessment of the expected or predicted effectiveness of, the mitigation measures;

(b) any statutory or policy basis for the mitigation measures;

(c) the cost of the mitigation measures;

(d) an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing;

(e) the name of the agency responsible for endorsing or approving each mitigation measure or monitoring program; and

(f) a consolidated list of mitigation measures proposed to be undertaken to prevent, minimise or compensate for the relevant impacts of the action, including mitigation

measures proposed to be taken by State governments, local governments or the Proponent.

5 Other Approvals and Conditions

5.01 Information given under paragraph 2.01(f) must include:

(a) details of any local or State government planning scheme, or plan or policy under any local or State government planning system that deals with the proposed action, including:

(i) what environmental assessment of the proposed action has been, or is being carried out under the scheme, plan or policy; and

(ii) how the scheme provides for the prevention, minimisation and management of any relevant impacts;

(b) a description of any approval that has been obtained from a State, Territory or Commonwealth agency or authority (other than an approval under the Act), including any conditions that apply to the action;

(c) a statement identifying any additional approval that is required; and

(d) a description of the monitoring, enforcement and review procedures that apply, or are proposed to apply, to the action.

6 Environmental record of person proposing to take the action

6.01 Details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against:

(a) the person proposing to take the action; and

(b) for an action for which a person has applied for a permit, the person making the application.

6.02 If the person proposing to take the action is a corporation — details of the corporation's environmental policy and planning framework.

7 Information sources

7.01 For information given the PER must state:

(a) the source of the information; and

(b) how recent the information is; and

(c) how the reliability of the information was tested; and

(d) what uncertainties (if any) are in the information.

7.3 ATTACHMENT 3

LIST OF THREATENED SPECIES TO BE CONSIDERED IN THE PUBLIC ENVIRONMENT REPORT

Species	**EPBC Status**
Water mouse, *Xeromys myoides*	Vulnerable
Flatback turtle, *Natator depressus*	Vulnerable, Migratory
Green turtle, *Chelonia mydas*	Vulnerable, Migratory
Hawksbill turtle, *Eretmochelys imbricata*	Vulnerable, Migratory
Olive Ridley Turtle, *Lepidochelys olivacea*	Vulnerable, Migratory
Loggerhead turtle, *Caretta caretta*	Endangered, Migratory
Australian snubfin dolphin, *Orcaella heinsohni*	Migratory
Indo-pacific humpback dolphin, *Sousa chinensis* Note: recently reclassified as Australian humpback dolphin, *Sousa sahulensis*	Migratory
Spotted bottlenose dolphin (Arafura/Timor Sea populations), *Tursiops aduncus*	Migratory
False Killer Whale *Pseudorca crassidens*	Migratory
Dugong, *Dugong dugon*	Migratory
Great egret, *Ardea alba*	Migratory
Red knot, *Calidris canutus*	Migratory
Curlew sandpiper, *Calidris ferruginea*	Migratory
Grey-tailed tattler, *Heteroscelus brevipes*	Migratory
Black-tailed godwit, *Limosa limosa*	Migratory
Whimbrel, *Numenius phaeopus*	Migratory
Terek sandpiper, *Xenus cinereus*	Migratory