

# Terms of Reference for strategic assessment by an EIS

## Middle Arm Sustainable Development Precinct

Department of Infrastructure, Planning and Logistics

Middle Arm Peninsula and Darwin Harbour

September 2022

<b>Proposal :</b>	Middle Arm Sustainable Development Precinct
<b>Proponent:</b>	Department of Infrastructure, Planning and Logistics
<b>NT EPA Reference:</b>	EP2022/013
<b>Location:</b>	Middle Arm Peninsula, Darwin Harbour, Northern Territory
<b>Local Government Area:</b>	Litchfield Municipality
<b>Public consultation period:</b>	Draft Terms of Reference – 40 business days

Further information and guidance on the environmental impact assessment process is available on the NT EPA website at: [www.ntepa.nt.gov.au](http://www.ntepa.nt.gov.au)

<b>Document title</b>	Terms of Reference for strategic assessment by an EIS
<b>Document type</b>	Terms of Reference
<b>Version</b>	1.0
<b>Date approved</b>	29 September 2022
<b>Date issued</b>	7 October 2022
<b>TRM number</b>	NTEPA2021/0173-0009~0010

# Contents

<b>1. Context</b> .....	<b>6</b>
1.1. Overview.....	6
1.2. Concurrent Australian and NT Government assessment processes .....	7
1.3. Assessment period.....	7
1.4. Assessment timeline .....	7
<b>2. Matters to be addressed in the EIS</b> .....	<b>8</b>
2.1. Executive summary of the draft EIS.....	8
2.2. Description of the strategic proposal.....	8
2.2.1. Scope of the strategic proposal .....	10
2.2.2. Outcomes framework.....	11
2.2.3. Implementation and Assurance Plan .....	12
2.3. Stakeholder engagement.....	12
2.4. Information requirements for environmental factors.....	14
2.4.1. Terrestrial environmental quality .....	16
2.4.2. Terrestrial ecosystems.....	18
2.4.3. Hydrological processes.....	20
2.4.4. Inland water environmental quality .....	22
2.4.5. Coastal processes .....	23
2.4.6. Marine environmental quality .....	26
2.4.7. Marine ecosystems.....	29
2.4.8. Air quality .....	31
2.4.9. Atmospheric processes.....	33
2.4.10. Community and economy .....	34
2.4.11. Culture and heritage .....	37
2.4.12. Human health.....	39
2.5. Other environmental matters .....	41
2.5.1. Consideration of the impacts of a changing climate .....	41
2.5.2. Achievement of administrative and regulatory efficiencies.....	41
2.5.3. Evaluation of the overall outcomes of the strategic proposal.....	42
2.5.4. Addressing uncertainty and risk .....	42
2.5.5. Information sources .....	42
<b>3. Public consultation requirements</b> .....	<b>43</b>
3.1.1. Submission period .....	43
3.1.2. Manner in which to publish.....	43
3.1.3. Advertising .....	43
3.1.4. Public consultation locations.....	43

Glossary of acronyms and terms

Acronyms	Full Form
ASS	Acid Sulfate Soils
DEPWS	The Department of Environment, Parks and Water Security
EIS	Environmental Impact Statement
EP Act	<i>Environment Protection Act 2019 (NT)</i>
EP Regulations	Environment Protection Regulations 2020 (NT)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act (1999) (Commonwealth)</i>
ESD	Ecologically Sustainable Development
GHG	Greenhouse Gas
MASDP	Middle Arm Sustainable Development Precinct
NEPM	National Environment Protection Measure
NT	Northern Territory
NT Government	Northern Territory Government
PASS	Potential Acid Sulfate Soils
SAA	Strategic Assessment Area
SMART	specific, measurable, achievable, relevant and timely
SOR	Statement of Reasons
TOR	Terms of Reference
TPWC Act	<i>Territory Parks and Wildlife Conservation Act 1976 (Northern Territory)</i>

Term	Description
Action	Defined in section 5 of the EP Act as a project, development, undertaking, activity or series of activities, works, or material alteration of these.
Cumulative impact	The combined impact of the strategic proposal and other actions: <ul style="list-style-type: none"> <li>• for which environmental approval has been granted; or</li> <li>• which are the subject of environmental impact assessment; or</li> <li>• for which an approval (however described) has been given under another enactment; or</li> <li>• for which an application for approval (however described) is being assessed under another enactment; or</li> <li>• that are occurring or proposed in or near the area of the strategic proposal.</li> </ul>
Ecologically sustainable development (ESD)	Broadly, development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends, and recognises the need for development to be equitable between current and future generations. The principles of ESD are set out in Part 2, Division 1 of the EP Act.

Term	Description
Environmental Impact Statement (EIS)	Method of strategic assessment under the EP Act, referred to as an Impact Assessment Report under the EPBC Act. The document must assess the potential impacts of implementing the Program on the NT EPA's environmental factors and objectives, and protected matters under the EPBC Act.
Environmental values	Incorporates physical, biological, social, cultural, and economic values.
Impacts	An event or circumstance that is a direct consequence of an action, or an indirect consequence where the action is a substantial cause of the event or circumstance. In these TOR an impact is taken to be adverse, as opposed to beneficial.
Nominated industries	Industries identified as potential candidates for the MASDP and therefore within the scope of actions being considered in the strategic assessment.
Protected matters	A matter protected under Part 3 of the EPBC Act, sometimes termed matters of national environmental significance. In these TOR, also used to denote matters under the TPWC Act.
Severity of impact	The degree of impact on an environmental value or protected matter.
Strategic Assessment	Assessment of a plan, program, policy or methodology, which could include a proposed action or group of proposed actions, that has the potential to have a significant impact on the environment.
Strategic Assessment Agreement	Legal agreement entered into by the Commonwealth Minister of the Environment and state/territory Minister (as delegated).
Strategic Assessment Area (SAA)	The geographic area covered by the strategic environmental assessment that has the potential to be directly and/or indirectly impacted by the proposal, which includes the Middle Arm Peninsula, Darwin Harbour and surrounding areas.
The Program (strategic proposal)	Defines the scope of future development and environmental management at the proposed MASDP, for which the proponent is seeking approval and would need to implement to enable development.
Strategic Proposal	Under the EP Act, means a policy, program, plan or methodology. In the case of the proposed MASDP it is a Program.

# 1. Context

## 1.1. Overview

The Northern Territory Environment Protection Authority (NT EPA) accepted a proponent initiated EIS referral from the Northern Territory Department of Infrastructure, Planning and Logistics (proponent) for the Middle Arm Sustainable Development Precinct strategic proposal on 7 March 2022 for consideration under the *Environment Protection Act 2019* (EP Act).

The Minister for Environment, Climate Change and Water Security (Minister) decided that the strategic proposal required a strategic assessment by the method of an environmental impact statement (EIS) under the EP Act. The notice of decision and statement of reasons for the decision are on the [DEPWS website](#).

The strategic proposal is a Program to develop a new industrial precinct on Middle Arm Peninsula in Darwin Harbour, involving the staged development of approximately 1,500 hectares (ha) of land over a period of 50 years, including development and maintenance of land and marine enabling infrastructure. The strategic proposal is planned to attract future industries, with a focus on low emission petrochemicals, renewable hydrogen, carbon capture and storage, advanced manufacturing and minerals processing. The strategic proposal is described in the referral at: [Middle Arm Sustainable Development Precinct | NTEPA](#).

The NT EPA is conducting the assessment and has prepared these terms of reference (TOR), setting out the matters that are to be addressed by the proponent in the EIS for this strategic proposal, including requiring the proponent to:

- identify and assess the potential significant impacts and risks on the environment associated with the strategic proposal, in particular the potential cumulative impacts at a regional scale in consideration of existing and proposed development in the Darwin Region
- identify and assess the effectiveness of options available to avoid, mitigate or offset these impacts and risks to an acceptable level
- demonstrate how the principles of ecologically sustainable development (ESD) have been considered in planning for the strategic proposal and proposed future industries and activities
- demonstrate how the strategic proposal can be implemented in a manner that is acceptable in terms of its costs and benefits to the community.

In addition to these TOR, the EIS must address all relevant requirements in the NT EPA's guidance: *Preparing an environmental impact statement – Environmental impact assessment guidance for proponents*.

The intent of strategic assessment is to streamline the assessment process and to eliminate duplicitous referrals. Strategic assessment can provide for better environmental outcomes through a more comprehensive assessment of the potential cumulative impacts associated with grouped developments. For example, the strategic assessment will consider land clearing impacts for the total footprint proposed to be cleared in the strategic assessment area within the regional context. This would minimise the need for assessment of land clearing activities on an ad-hoc basis as part of individual actions proposed to be undertaken (subject to decisions under the EP Act).

Assessment of the strategic proposal by the NT EPA does not imply that an approval for industrial development on Middle Arm Peninsula and Darwin Harbour will be granted; nor does it replace the need for individual actions within the scope of the strategic assessment to meet obligations under the EP Act. If an approval for the strategic proposal is granted, any action considered as part of the strategic assessment will require an approval notice issued by the Minister in consultation with the NT EPA before it can

proceed. Any proposed actions not within the scope of the strategic proposal would require separate consideration by the NT EPA under the EP Act.

## 1.2. Concurrent Australian and NT Government assessment processes

The Chief Minister of the Northern Territory entered into Strategic Assessment Agreement with the Commonwealth Minister for the Environment, pursuant to section 146(1) of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), to undertake a strategic assessment of the impacts of actions taken within the defined strategic assessment area on matters protected by a provision of Part 3 of the EPBC Act (protected matters). The agreement requires the proponent to develop a Program for assessment and endorsement, and an EIS to assess the impacts on protected matters of implementing the Program including the impacts of an action or class of actions. The proponent will be required to address separate TOR and endorsement criteria attached to the agreement for the assessment under the EPBC Act.

A strategic assessment process undertaken by the NT EPA is not accredited by the Australian Government under the assessment bilateral agreement and therefore the assessment processes are being conducted concurrently, in a coordinated and streamlined manner. The status of the strategic assessment under the EPBC Act is available on the Australian Government Department of Climate Change, Energy, the Environment and Water at: <https://www.dcceew.gov.au/environment/epbc/strategic-assessments/middle-arm>.

## 1.3. Assessment period

The specified assessment period within which the draft EIS is to be submitted to the NT EPA in line with regulation 99 of the Environment Protection Regulations 2020 (EP Regulations) is two years from the date these TOR were issued. In determining this assessment period, the NT EPA has considered the matters listed under EP Regulation 99(3).

## 1.4. Assessment timeline

Table 1: Indicative assessment timeline for the strategic proposal

Key assessment milestones	Proposed / Completion date
NT EPA accepts proponent initiated EIS referral	7 March 2022
Referral consultation period	12 April to 10 June 2022
NT EPA makes recommendation to the Minister	23 August 2022
Minister decides strategic assessment and EIS method	19 September 2022
NT EPA issues final TOR	7 October 2022
Draft EIS submitted to the NT EPA	March 2023
Draft EIS consultation period	March to May 2023 (30 – 60 business days)
Direction to prepare supplement to the draft EIS (if required)	May/June 2023 (25 business days after consultation closes)
Supplement submitted	Required period 6 months – November 2023

Key assessment milestones	Proposed / Completion date
	<i>(indicative)</i>
Supplement consultation period	November/December 2023 (15 business days)
Direction for additional information on EIS	Within 20 business days of submission period ending.
Assessment report and draft environmental approval provided to Minister	Date (45 business days after consultation closes plus a period for consultation on draft approval)
Minister's approval decision	Date (30 business days after receiving NT EPA's advice)

## 2. Matters to be addressed in the EIS

### 2.1. Executive summary of the draft EIS

An executive summary of the draft EIS must be prepared as a stand-alone document that can be provided on request to interested parties who may not wish to read the full draft EIS.

The summary should provide the following at a minimum:

- a clear and concise overview of the strategic proposal including its purpose, justification and objectives
- the scope including the key components, and actions or groups of actions such as enabling infrastructure and industries nominated for assessment as part of the strategic proposal
- environmental aspects and spatial area covered by the strategic assessment
- a summary of alternative sites and development options (including nominated industries) considered and justification for the preferred option/s
- a summary of stakeholder participation in developing the strategic proposal and commitments made for future stakeholder engagement
- a summary of the environmental impacts of implementing the strategic proposal
- a summary of the extent and currency of existing knowledge about the potential significant impacts of the strategic proposal
- a summary of measures to be implemented to avoid, mitigate or manage and offset potential significant impacts of the strategic proposal and the predicted outcomes for environmental values of implementing those measures
- the predicted outcomes for each of the NT EPA's environmental factors
- a description of governance arrangements and approval requirements for actions taken under an approved strategic proposal.

### 2.2. Description of the strategic proposal

The strategic proposal may be presented as a stand-alone document forming part of the draft EIS in a form that can be understood by stakeholders. The draft EIS may include detailed information on the strategic



proposal or summarised information cross-referenced to detail in the stand-alone strategic proposal. The draft EIS must assess the environmental impacts of implementing the strategic proposal.

Clearly describe the strategic proposal for which approval is sought. The description should include:

- key policy and other drivers for development of the strategic proposal
- the rationale and justification for the strategic proposal, considering social, economic and other environmental benefits and costs to the NT, in particular to local and regional communities, during the life of the strategic proposal
- the vision, overall purpose and objectives of the strategic proposal including a description of how the proposal meets these objectives
- the decision-making criteria and framework used in considering alternative locations for the precinct, proposed industries and environmental management measures. It should identify the alternative options that were evaluated in deciding the strategic proposal, and why the preferred option was selected and other options were not supported
- key actions and elements of the strategic proposal including a list of key physical components, spatial extent and timeframes including how long it is to be in effect
- identification of related projects and programs, for example water supply, power supply, waste disposal
- maps, figures, images, diagrams and flow charts to illustrate the strategic proposal, the strategic assessment area (SAA) and how these relate to surrounding land uses
- the relationship of the strategic proposal to relevant NT and Australian Government policies, plans, guidelines, commitments, regulations and legislation (including environmental approvals).
- details of the statutory framework including a description of any licences, permits, consents, or other approvals that will be required from Northern Territory government authorities (and the framework for future approvals to comply with laws in force at that time)
- proposed approval holder (or holders), including the legal structure of the proposed approval holder entity, and relationship to the proponent
- the legal and administrative frameworks to implement and ensure compliance with an approved strategic proposal and the persons and authorities responsible for the implementation of and compliance with the strategic proposal
- roles and responsibilities of the proponent, proposed approval holder (or holders) (if different to the proponent) and relevant Australian Government and NT Government authorities in the administration and regulation of an approved strategic proposal
- management and funding arrangements for implementing the strategic proposal and complying with any approval given with respect to the strategic proposal under section 69 of the EP Act, including but not limited to a description of the mechanism that will be used by the approval holder to verify the persons who are proposing to take an action in accordance with the strategic proposal and to inform those persons of any relevant obligations and conditions of the approval
- the proposed governance and planning process that will be used to ensure development of the strategic proposal and proposed future industries and activities is in accord with the extent of any limits or conditions on impacts to any factor, or required mitigation and management measures in respect of any factor in any approval of the strategic proposal

- how the governance and planning process will be used to manage common user infrastructure, for example, how a common user wastewater discharge would be regulated and which entity would hold the approval notice
- how the governance and planning process would manage changes to environmental standards and criteria across the future industries and activities in the proposed precinct, which would generally be expected to become more stringent over time
- outline the arrangements for decommissioning of infrastructure for closure of actions within the SAA and rehabilitation of decommissioned sites, including establishment of decommissioning objectives and goals.

### 2.2.1. Scope of the strategic proposal

A plan must be included that sets the proposed scope of development that would be allowed under the strategic proposal, if it is approved. The plan must provide details of:

- site selection and optioneering studies undertaken to determine the scope and locations for development, including selection criteria used such as land use separation distances, details of alternatives considered and justification for the preferred strategic proposal
- areas within the footprint of the SAA that would be developed
- actions that are considered part of the strategic assessment (e.g. development activities and nominated industries proposed to be undertaken within the SAA to be assessed through the EIS process) and would therefore require an approval notice to be issued by the Minister to proceed. Details should include but not be limited to the following actions:

- earthworks and stormwater infrastructure
- land clearing
- land reclamation (intertidal areas) and causeway
- lot development
- civil infrastructure – such as potable water, wastewater, drainage and electrical structures
- service corridors, road network
- rehabilitation works
- common user product corridors (pipelines, conveyors)
- desalination facility/s
- water treatment plant/s
- seawater intake/outfall pipelines
- shore crossing/s
- wastewater discharge pipeline/s
- waste storage facilities
- common user port facilities
- dredged shipping channel, swing basin and berth pockets
- offshore dredge spoil ground

- marine jetty, berthing infrastructure and causeways
- marine or subsea pipelines
- module offloading facility
- shipping (vessel traffic)
- nominated industries including their construction and operation
- geographic area within which nominated industries and other actions would be undertaken
- matters and actions proposed to be excluded from the scope of the strategic proposal (and therefore not considered in detail in the draft EIS).

The plan must summarise how environmental values may be impacted by development (including considering indirect and cumulative impacts).

### 2.2.2. Outcomes framework

The strategic proposal must include a framework to document how environmental values, including social and cultural values, would be effectively protected, managed or enhanced for the life of the strategic proposal. The outcomes framework component of the strategic proposal must:

- demonstrate how the objects in section 4 of the EP Act can be met, and address the specific requirements of sections 42 (purpose of environmental assessment) and 43 (general duty of proponents) of the EP Act
- demonstrate the application of the principles of ESD to decision-making processes as set out in Part 2 Division 1 of the EP Act
- demonstrate the application of hierarchies for environmental decision-making and waste management set out in Part 2 of the EP Act
- summarise the potential impacts of implementing the strategic proposal on the identified values based on the predictions and outcomes in the EIS
- establish the impact avoidance requirements of the strategic proposal
- set environmental management standards and controls
- provide tools that will be used to understand, predict, monitor and respond to potential impacts and opportunities over the life of the strategic proposal
- demonstrate how cumulative impacts to identified values of all actions proposed in the strategic proposal would be calculated and mitigated, and how benefits would be enhanced. Identify measures that are most effectively delivered at the Precinct scale, versus those which are specific to individual actions. Consider potential cumulative impacts in the context of other actions that are occurring or proposed in or near the area of the strategic proposal.
- provide a framework for identifying, selecting and managing appropriate offsets where there is potential for residual significant impacts, in accordance with the NT Offsets Framework
- define clear and measurable outcomes and commitments for environment protection that are relevant to the strategic proposal, and how these were decided
- include specific, measurable, achievable, relevant and timely performance indicators to demonstrate progress towards achieving these outcomes and commitments

- define clear and measurable outcomes, commitments and performance indicators for the achievement of administrative and regulatory efficiencies.

### 2.2.3. Implementation and Assurance Plan

The strategic proposal must include a plan that documents the governance structure for the strategic proposal and assurance framework for its implementation across the future industries and activities to be constructed and operated on the proposed precinct.

The Implementation and Assurance Plan must include an implementation framework that:

- describes a verification process to administer and track the use of the environmental approval by persons who are undertaking an action in accordance with the approved strategic proposal
- ensures persons undertaking actions under the approval are informed of and understand their obligations under the environmental approval and approved strategic proposal
- details how outcomes and commitments for environment protection and ESD, and regulatory and administrative efficiencies, will be monitored, documented, delivered and adequately resourced throughout the life of the strategic proposal
- details all governance arrangements including the roles and responsibilities of individual proponents and the approval holder (or holders), including in the post-approval phase, for the implementation of the strategic proposal and Approval Notice process under Section 103 of the EP Act.

The Implementation and Assurance Plan must include an assurance framework that:

- outlines how the approval holder (or holders) will monitor, evaluate, review, audit and adaptively manage the effectiveness of proposed regulatory, administrative and environment protection and ESD outcomes, commitments and approval conditions including a process for auditing and reporting to provide transparency for stakeholders
- identifies the timing and frequency of all assurance activities
- includes processes for adaptive management such as the integration of feedbacks between baseline information and threshold criteria, monitoring programs, triggers and corrective actions
- includes processes for data management and sharing of data
- includes processes for stakeholder engagement in accordance with the NT EPA's guidance on stakeholder engagement and consultation.

## 2.3. Stakeholder engagement

Details of stakeholder and public participation in developing and implementing the strategic proposal must be provided in consideration of the NT EPA's guidance for stakeholder engagement and consultation, including but not limited to information on:

- identified stakeholders
- the stakeholder consultation undertaken to date and the outcomes, including decision-making on the strategic proposal such as any adjustments as a result of consultation
- how information will be disseminated and extended to stakeholders in a form that will help stakeholders and the public understand the strategic proposal and actions within its scope, potential impacts and benefits, and how stakeholders can provide input

- how input from public participation will be incorporated into or inform scoping of studies and the strategic proposal more broadly
- broad public participation with affected people and communities to inform decision-making
- proactive measures to consult with Aboriginal communities, in a culturally appropriate manner
- how the proponent has sought to document community knowledge and understanding (including scientific, local and traditional knowledge) of the social, ecological and cultural values of areas that may be impacted by implementation of the strategic proposal
- recommended measures to protect the rights and interests of Aboriginal peoples in relation to areas that may be impacted by implementation of the strategic proposal
- how stakeholder engagement and consultation would be conducted for proposed actions within an approved strategic proposal.

## 2.4. Information requirements for environmental factors

Table 2 lists 12 environmental factors that have the potential to be significantly impacted by implementing the strategic proposal, identified from the *NT EPA Environmental factors and objectives – Environmental impact assessment guidance*.

Table 2 Preliminary environmental factors that must be considered in the draft EIS

THEME	FACTOR	ENVIRONMENTAL OBJECTIVE
LAND	Terrestrial environmental quality	Protect the quality and integrity of land and soils so that environmental values are supported and maintained.
	Terrestrial ecosystems	Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.
WATER	Hydrological processes	Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.
	Inland water environmental quality	Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.
SEA	Coastal processes	Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.
	Marine environmental quality	Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.
	Marine ecosystems	Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.
AIR	Air quality	Protect air quality and minimise emissions and their impact so that environmental values are maintained.
	Atmospheric processes	Minimise greenhouse gas emissions so as to contribute to the NT Government's target of achieving net zero greenhouse gas emissions by 2050.
PEOPLE	Community and economy	Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians
	Culture and heritage	Protect culture and heritage.
	Human health	Protect the health of the Northern Territory population.

For each of the environmental factors listed in Table 2 and relevant values identified for each factor, the draft EIS must describe and assess the direct, indirect and cumulative impacts of implementing the strategic proposal including consideration of the proposed future industries and activities in the SAA, as well as impacts associated with other actions that are occurring or proposed in or near the area of the strategic proposal. While it is for the NT EPA to decide whether potential impacts are significant, the draft EIS should consider the significance of the identified potential impacts with reference to section 11 of the EP Act and [significant impact guidelines](#) for protected matters under the EPBC Act.

For relevant environmental factors, the draft EIS must define and provide justification for predicted zones of high and moderate impact and a zone of influence to identify the aspects of the environment (under relevant environmental factors) and the specific environmental values that are expected to be impacted by implementation of the strategic proposal.

The draft EIS is to provide an assessment of how the NT EPA's environmental objective for each factor would be met, as outlined in the NT EPA's *Preparing an environmental impact statement – Environmental impact assessment guidance for proponents*.

The draft EIS must describe and provide justification for the method used to assess potential direct, indirect and cumulative impacts to all factors arising from actions proposed to be taken under the strategic proposal. The method must:

- be appropriate for assessment at a regional or landscape scale
- rely on the best available information
- preference, where possible, the collection of site-specific data (e.g. field surveys)
- quantify uncertainty, including reference to the data and information sources relied upon
- assume the worst-case scenario where there is a high degree of uncertainty or risk (i.e. apply the precautionary principle to the assessment of impacts).

The draft EIS must identify:

- the decision making process for determining impact mitigation requirements, in accordance with the precautionary principle
- how impacts to environmental values would be avoided and mitigated, and how benefits would be enhanced
- the effectiveness of avoidance and mitigation measures in reducing impacts to environmental values
- options available for offsets where residual impacts that cannot be avoided or mitigated are identified for relevant environmental factors, in accordance with the principles of the NT Offsets Framework
- the proposed funding arrangements and timeframes to implement measures to avoid, mitigate or offset potential impacts or enhance potential benefits
- proposed environmental outcomes and commitments for protection and/or enhancement of environmental values for the life of the strategic proposal.

Specific information requirements pertaining to each of the NT EPA's environmental factors are detailed in the sections below, noting the uncertainty around specific industries nominated for the Precinct.

If additional environmental values are identified through the environmental impact assessment process, they must also be included in the EIS, even if they are not specified in these TOR.

### 2.4.1. Terrestrial environmental quality

Table 3: Minimum information required for assessment of Terrestrial environmental quality

Aspect	Specific information required
<b>NT EPA objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Describe the characteristics and current condition of land and soils in the SAA that could be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum) descriptive and spatial information for the following:               <ul style="list-style-type: none"> <li>○ presence of acid sulfate soils (ASS) or potential acid sulfate soils (PASS) and indicative volumes encountered</li> <li>○ potential or actual presence of contaminated soils as determined from a Preliminary Site Investigation</li> <li>○ flooding</li> <li>○ slope characteristics and associated runoff and erosion risk, including details of existing erosion</li> <li>○ soil drainage to the extent that it poses a constraint to the proposed land use</li> <li>○ soil physical and chemical properties as relevant to the proposed land use.</li> </ul> </li> <li>• Identify areas of land with extreme or severe constraints that will require major management and/or engineered solutions to overcome.</li> <li>• Identify areas of land that will be excluded from development due to the presence of extreme constraints that cannot be overcome.</li> <li>• Identify land uses and environmental values that could be directly or indirectly affected by impacts to the quality and integrity of land and soils caused by implementing the strategic proposal. This must include consideration of the following where relevant:               <ul style="list-style-type: none"> <li>○ land uses, properties and public infrastructure surrounding the SAA</li> <li>○ surface watercourses</li> <li>○ groundwater aquifers</li> <li>○ mangroves and other vegetation</li> <li>○ marine ecosystems</li> </ul> </li> <li>• Justify the suitability of the methodologies, surveys or processes used to provide information about land and soils.</li> <li>• Detail any information gaps or uncertainties in relation to land and soils, including any further studies or measures required to address these gaps.</li> </ul>
Potential significant impacts and risks	<ul style="list-style-type: none"> <li>• Provide evidence of the appropriateness of the land to support the actions proposed to be undertaken under the strategic proposal in the form of a land capability assessment consistent with the <i>NT Land Clearing Guidelines</i>.</li> <li>• Where large volumes of fill or rock material are proposed to be imported to the site, identify potential sources of this material and the criteria that will be adopted to confirm suitability for the proposed use and the environmental regulatory requirements of that source.</li> </ul>



Aspect	Specific information required
<p><b>NT EPA objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.</b></p>	
	<ul style="list-style-type: none"> <li>• Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on the quality and integrity of land and soils. This must include (at a minimum) consideration of impacts associated with:               <ul style="list-style-type: none"> <li>○ erosion and offsite movement of sediments</li> <li>○ reclamation and dewatering of reclaimed areas</li> <li>○ disturbance and/or treatment of contaminated soils (if there are any present)</li> <li>○ disturbance, treatment and reuse of PASS/ASS materials (if they are present)</li> <li>○ use of dredge material as fill within the land-based footprint of the SAA (noting PASS/ASS and other contaminants present in dredged materials proposed for sea disposal must be assessed under the marine factors)</li> <li>○ contamination of soils from spills/leaks associated with transport, storage and handling of hazardous materials.</li> </ul> </li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act).</li> </ul>
<p>Avoidance, mitigation and management</p>	<ul style="list-style-type: none"> <li>• Identify how impacts to the quality and integrity of land and soils will be avoided.</li> <li>• Identify the standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to the quality and integrity of land and soils.</li> <li>• Standards and controls should address the following at a Precinct level (at a minimum):               <ul style="list-style-type: none"> <li>○ stormwater drainage design</li> <li>○ erosion and sediment control</li> <li>○ PASS/ASS treatment and management</li> <li>○ dredge spoil management</li> <li>○ reclamation and dewatering of reclaimed areas</li> <li>○ storage and handling of hazardous materials</li> <li>○ waste management</li> <li>○ emergency response.</li> </ul> </li> <li>• Demonstrate and substantiate that standards and controls will be in accordance with best practice, including advice from relevant NT Government authorities.</li> <li>• Assess the adequacy and likely effectiveness of standards and controls in delivering the outcomes and commitments proposed in the strategic proposal to effectively manage and conserve the quality and integrity of land and soils over the life of the strategic proposal, so that environmental values are maintained.</li> </ul>
<p>Predicted Outcome</p>	<ul style="list-style-type: none"> <li>• Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts</li> </ul>

Aspect	Specific information required
<b>NT EPA objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.</b>	
	<p>or risks to identified values.</p> <ul style="list-style-type: none"> <li>• Describe clear and measurable outcomes and commitments for the protection and enhancement of land and soils that are relevant to the strategic proposal.</li> <li>• Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>• Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

## 2.4.2. Terrestrial ecosystems

Table 4: Minimum information required for assessment of Terrestrial ecosystems

Aspect	Specific information required
<b>NT EPA objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Identify and describe the terrestrial ecosystems values within the SAA that may be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum): <ul style="list-style-type: none"> <li>○ descriptive and spatial information for listed (and potentially eligible) terrestrial threatened and/or migratory species found within or adjacent to the SAA outlining habitat type, quality and area (in hectares), landscape context, listing status (under <i>Territory Parks and Wildlife Conservation Act 1976</i> (TPWC Act) and EPBC Act), threatening processes, estimates of population size or abundance and distribution</li> <li>○ identification of any critical or important areas for protected matters under the TPWC Act and EPBC Act, including consideration of the importance of both small and large areas of habitat, habitat connectivity, their position in the landscape and areas likely to be important for maintaining ecological processes for protected matters</li> <li>○ assessment of the importance of any local populations of threatened species or migratory species, or habitats for these species, in a regional, NT, national and international context</li> <li>○ descriptive and spatial information for sensitive or significant vegetation types found within or adjacent to the SAA, outlining their known and potential extents (in hectares), condition, listing status, threatening processes, habitat quality and landscape context</li> <li>○ a map or maps of areas where species or habitats likely to be impacted by implementation of the strategic proposal are already protected, including national parks, nature reserves and known offset areas under both Commonwealth and Northern Territory legislation.</li> <li>○ the current status of weeds, terrestrial pests and biosecurity measures</li> </ul> </li> <li>• Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to identify/estimate the presence/absence and potential extent of environmental values within the SAA.</li> </ul>

Aspect	Specific information required
<b>NT EPA objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.</b>	
	<ul style="list-style-type: none"> <li>• Detail any information gaps or uncertainties in relation to terrestrial ecosystems, including any further studies or measures required to address these gaps.</li> </ul>
<b>Potential impacts and risks</b>	<ul style="list-style-type: none"> <li>• Identify how terrestrial habitats and species could be impacted by implementing the strategic proposal.</li> <li>• Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on terrestrial habitats and biodiversity values. This must include (at a minimum) consideration of impacts (direct, indirect and/or cumulative) to:               <ul style="list-style-type: none"> <li>○ listed threatened and migratory species associated with loss of habitat caused by land clearing and reclamation</li> <li>○ listed threatened and migratory species associated with injury/mortality and habitat degradation caused by noise and vibration, dust, weeds/pathogens, and pollution and contamination, including from unplanned, worst-case discharges/emissions from nominated industries</li> <li>○ sensitive or significant vegetation types (rainforest, riparian and sandsheet heath habitat) associated with land clearing and reclamation</li> <li>○ sensitive or significant vegetation types associated with modification of freshwater flows and tidal flows caused by land development and infrastructure placement, dredging and sediment deposition, hydrostatic head/seepage effects from the containment of water/dredge material, development of mud waves from the containment of sediment (fill), noise and vibration, dust, weeds/pathogens, pollution and contamination</li> <li>○ local and regional occurrence of environmental values accounting for planned future developments in the region.</li> </ul> </li> <li>• Include references to relevant research, statutory advice and statutory plans, such as conservation advice, action plans, recovery plans, threat abatement plans when assessing potential impacts and risks. Assess why implementing the strategic proposal would not be inconsistent with any relevant statutory recovery plans and threat abatement plans.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> </ul>
<b>Avoidance, mitigation and management</b>	<ul style="list-style-type: none"> <li>• Identify the standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to terrestrial habitats and environmental values.</li> <li>• Demonstrate that standards and controls will address the following at a Precinct level (at a minimum):               <ul style="list-style-type: none"> <li>○ protection of important habitats and listed threatened species</li> <li>○ weeds and pests risks</li> <li>○ compliance with any statutory or policy basis for the proposed measures.</li> </ul> </li> <li>• Demonstrate and substantiate that all standards and controls will be in accordance with best practice, including advice from relevant NT Government authorities.</li> </ul>

Aspect	Specific information required
<b>NT EPA objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.</b>	
	<ul style="list-style-type: none"> <li>Assess the adequacy and likely effectiveness of outcomes and commitments proposed in the strategic proposal to protect terrestrial habitats over the life of the strategic proposal so that environmental values are maintained.</li> </ul>
Predicted outcome	<ul style="list-style-type: none"> <li>Describe the predicted outcome against the factor’s environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>Describe clear and measurable outcomes and commitments for the protection and enhancement of terrestrial habitats and environmental values that are relevant to the strategic proposal.</li> <li>Demonstrate how the outcomes and commitments will ensure the factor’s environmental objective is met via the implementation of the strategic proposal</li> <li>Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the <a href="#">NT Offset Framework</a> .

### 2.4.3. Hydrological processes

Table 5: Minimum information required for assessment of Hydrological processes

Aspect	Specific information required
<b>NT EPA Objective: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>Describe the characteristics and current condition of groundwater and surface water flow regimes in the SAA that could be impacted by actions proposed to be taken under the strategic proposal.</li> <li>For surface water values, this must include descriptive and spatial information in relation to:               <ul style="list-style-type: none"> <li>surface water catchments</li> <li>direction of flow, flow conditions</li> <li>location and extent of surface water discharges into intertidal areas and Darwin Harbour.</li> </ul> </li> <li>For groundwater values, this includes descriptive and spatial information in relation to the groundwater characteristics beneath Middle Arm Peninsula, including:               <ul style="list-style-type: none"> <li>groundwater flows direction, volumes and yield</li> <li>depth to groundwater, including temporal variation</li> <li>recharge zones and expressions</li> <li>surface and groundwater connectivity</li> <li>connectivity of groundwater with Darwin Harbour.</li> </ul> </li> </ul>

Aspect	Specific information required
<p><b>NT EPA Objective: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</b></p>	
	<ul style="list-style-type: none"> <li>• Identify relevant water control districts and water allocation plans, declared beneficial uses, existing users, and environmental values that could be directly or indirectly affected by impacts to hydrological processes.</li> <li>• Justify the suitability of the methodologies, surveys or processes used to provide information about hydrological processes.</li> <li>• Detail any information gaps or uncertainties in relation hydrological processes, including any further studies or measures required to address these gaps.</li> </ul>
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>• Identify how hydrological regimes of surface water, groundwater and species could be impacted by implementing the strategic proposal.</li> <li>• Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on the hydrological regimes of surface water and groundwater. This must include (at a minimum) consideration of impacts associated with: <ul style="list-style-type: none"> <li>○ alteration of surface water flows and discharges into seasonal wetlands, intertidal areas and Darwin Harbour by introduction of a stormwater management system.</li> <li>○ alteration of groundwater levels from reduction in recharge potential from increased impermeable surfaces.</li> <li>○ changes to the groundwater/marine interface.</li> <li>○ other developments and proposed future proposals in the SAA that may contribute to cumulative impacts of actions under the strategic proposal.</li> </ul> </li> <li>• Describe the details of the hydrological modelling and comparison of pre-development and post-development flows and discharges (with reference maps showing surface water flows and groundwater flows).</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> </ul>
<p>Avoidance, mitigation and management</p>	<ul style="list-style-type: none"> <li>• Identify how impacts to the hydrological regimes of surface water and groundwater will be avoided.</li> <li>• Identify the standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to hydrological regimes and environmental values.</li> <li>• Demonstrate that standards and controls will address (at a minimum) stormwater management system design at the Precinct level and details of any specific measures required to maintain flows that are important to sustain the receiving environment e.g. mangroves or marine ecosystems.</li> </ul>
<p>Predicted outcome</p>	<ul style="list-style-type: none"> <li>• Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>• Describe clear and measurable outcomes and commitments for the protection</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</b>	
	<p>and enhancement of hydrological regimes and environmental values that are relevant to the strategic proposal.</p> <ul style="list-style-type: none"> <li>• Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>• Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

#### 2.4.4. Inland water environmental quality

Table 6: Minimum information required for assessment of Inland water environmental quality

Aspect	Specific information required
<b>NT EPA Objective: Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Describe the characteristics and current condition of groundwater in the SAA that could be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum) descriptive and spatial information for baseline groundwater quality based on existing groundwater bores, including chemical, physical and biological characteristics.</li> <li>• Justify the suitability of the methodologies, surveys or processes used to provide information about the water quality.</li> <li>• Detail any information gaps or uncertainties in relation to water quality, including any further studies or measures required to address these gaps.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Identify how quality of groundwater could be impacted by implementing the strategic proposal.</li> <li>• Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on groundwater quality. This must include (at a minimum) consideration of impacts associated with: <ul style="list-style-type: none"> <li>○ contamination of groundwater from: <ul style="list-style-type: none"> <li>• disturbance of untreated/unidentified PASS/ASS entering or intercepting the water table</li> <li>• seepage run-off from a land-based dredge material ground (disposal area)</li> </ul> </li> <li>○ leaks of hazardous materials from construction plant and equipment or other infrastructure associated with nominated industries</li> <li>○ leaks or loss of containment of hazardous or polluting material from the operation of nominated industries.</li> </ul> </li> <li>• Identify the areas that could feasibly experience direct and indirect impacts and assess the severity of impacts to identified values.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains,</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.</b>	
	demonstrate how the precautionary principle will be applied (section 19 of EP Act).
Avoidance, mitigation and management	<ul style="list-style-type: none"> <li>• Identify how impacts to the quality of groundwater will be avoided.</li> <li>• Identify the development standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to water quality.</li> <li>• Demonstrate that standards and controls will address the following at a Precinct level (at a minimum):                             <ul style="list-style-type: none"> <li>○ erosion and sediment control</li> <li>○ dewatering of reclamation area(s)</li> <li>○ water management, including stormwater and wastewater management</li> <li>○ PASS/ASS management (if present)</li> <li>○ reclamation management plan.</li> </ul> </li> <li>• Demonstrate and substantiate that standards and controls will be in accordance with best practice, including advice from relevant NT Government authorities.</li> <li>• Assess the adequacy and likely effectiveness of standards and controls in delivering the outcomes and commitments proposed in the strategic proposal to protect water quality over the life of the strategic proposal, so that beneficial uses and environmental values are maintained.</li> </ul>
Predicted Outcome	<ul style="list-style-type: none"> <li>• Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>• Describe clear and measurable outcomes and commitments for the protection and enhancement of environmental values associated with groundwater quality that are relevant to the strategic proposal.</li> <li>• Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>• Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

### 2.4.5. Coastal processes

Table 7: Minimum information required for assessment of Coastal processes

Aspect	Specific information required
<b>NT EPA Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Identify and describe the geophysical and hydrological processes within the SAA that may be impacted by actions proposed to be taken under the strategic proposal. This must include descriptive and spatial information in relation to (at a minimum):</li> </ul>

Aspect	Specific information required
	<p><b>NT EPA Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.</b></p> <ul style="list-style-type: none"> <li>○ coastal and estuarine hydrodynamics</li> <li>○ tides</li> <li>○ water levels</li> <li>○ currents</li> <li>○ sediment transport</li> <li>○ water filtration</li> <li>○ storm surge.</li> <li>● Identify environmental values that could be directly, indirectly and cumulatively affected by impacts to coastal processes caused by implementing the strategic proposal. This must include consideration of the following where relevant: <ul style="list-style-type: none"> <li>○ benthic communities and habitats</li> <li>○ mangrove communities</li> <li>○ threatened and migratory species</li> <li>○ habitats for species of cultural, social or commercial importance</li> <li>○ known recreational fishing sites</li> <li>○ other land uses</li> <li>○ sacred sites and heritage sites.</li> </ul> </li> <li>● Justify the suitability of the methodologies, surveys or processes used to provide information about geophysical and hydrological processes.</li> <li>● Detail any information gaps or uncertainties in relation to geophysical and hydrological processes, including any further studies or measures required to address these gaps.</li> </ul>
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>● Identify how geophysical and hydrological processes that shape coastal morphology could be impacted by implementing the strategic proposal.</li> <li>● Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on coastal processes. This must include at a minimum assessment of: <ul style="list-style-type: none"> <li>○ changes to bathymetry (increased channel depth) caused by dredging which may alter local tidal flow patterns/ current speed/direction</li> <li>○ modification to currents and flows from the construction of wharfs, berths, revetments and other infrastructure</li> <li>○ reduction to tidal prism from reclamation of tidal inlets (infilling), revetments and placement of infrastructure</li> <li>○ indirect impacts to water quality through alteration of hydrodynamics from dredging activities (capital and maintenance)</li> <li>○ indirect impacts to sediment deposition through changes to sediment transport and morphodynamics of estuary bed/sand shoals and ebb tide deltas</li> <li>○ indirect impacts to water quality, sediment deposition and tidal flushing due to alteration of the tidal prism and asymmetry of tides from loss of mangroves</li> </ul> </li> </ul>



Aspect	Specific information required
<p><b>NT EPA Objective: Protect the geophysical and hydrological processes that shape coastal morphology so that the environmental values of the coast are maintained.</b></p>	<ul style="list-style-type: none"> <li>○ indirect impacts to mangroves (e.g. changes in tidal prism)</li> <li>○ cumulative impacts of actions in the SAA including any other actions occurring or proposed but not part of the strategic proposal.</li> <li>● Assessment of impacts associated with dredging should be consistent with relevant guidance and recommendations from the Western Australian Marine Science Institution (WAMSI) <a href="#">Dredge Science Node</a>, for example, the <a href="#">Guideline on dredge plume modelling for environmental impact assessment</a>.</li> <li>● Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> </ul>
<p>Avoidance, mitigation and management</p>	<ul style="list-style-type: none"> <li>● Identify how impacts to geophysical and hydrological processes that shape coastal morphology will be avoided.</li> <li>● Identify the standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to coastal processes.</li> <li>● Demonstrate that standards and controls must address the following at a Precinct level (at a minimum): <ul style="list-style-type: none"> <li>○ site selection and design for terrestrial and marine infrastructure (including the navigation channel)</li> <li>○ site boundary treatments, including for protection of intertidal areas</li> <li>○ stormwater drainage management</li> <li>○ reclamation dewatering management</li> <li>○ coastal protection works.</li> </ul> </li> <li>● Demonstrate and substantiate that development standards and controls are in accordance with best-practice, including advice from relevant NT Government authorities.</li> <li>● Assess the adequacy and likely effectiveness of standards and controls in delivering the outcomes and commitments proposed in the strategic proposal to meet the NT EPA's objective.</li> </ul>
<p>Predicted Outcome</p>	<ul style="list-style-type: none"> <li>● Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>● Describe clear and measurable outcomes and commitments for the protection and enhancement of coastal processes that are relevant to the strategic proposal.</li> <li>● Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>● Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

## 2.4.6. Marine environmental quality

Table 8: Minimum information required for assessment of Marine environmental quality.

Aspect	Specific information required
<b>NT EPA Objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Describe the characteristics and current condition of water and sediment in the SAA that could be impacted by actions proposed to be taken under the strategic proposal (noting that protection of water and sediment quality must, in turn, protect biological productivity). This will include (at a minimum) descriptive and spatial information for the following:               <ul style="list-style-type: none"> <li>○ existing water and sediment quality data to inform the description and spatial definition of the:                   <ul style="list-style-type: none"> <li>• current condition of water quality within the SAA</li> <li>• current quality of sediments within proposed dredge footprint.</li> </ul> </li> <li>○ additional water and sediment quality sampling identified as required to enable robust impact assessment to be undertaken</li> <li>○ surface water discharging into Darwin Harbour to inform baseline chemical, physical and biological characteristics.</li> </ul> </li> <li>• Identify beneficial uses and environmental values that could be directly, indirectly and cumulatively affected by impacts to the quality of water and sediment caused by implementing the strategic proposal. This will include consideration of the following where relevant, within the SAA:               <ul style="list-style-type: none"> <li>○ marine ecosystems</li> <li>○ recreational uses</li> <li>○ commercial uses</li> <li>○ cultural uses including indigenous harvest of food</li> <li>○ cultural and heritage sites</li> <li>○ human health.</li> </ul> </li> <li>• Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to provide information about the quality and productivity of water, sediment and biota.</li> <li>• Detail any information gaps or uncertainties in relation to the quality and productivity of water, sediment, including any further studies or measures required to address these gaps.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Identify how quality and productivity of water (marine and surface runoff), sediment and biota could be impacted, with a focus on the long term (50 years), by implementing the strategic proposal.</li> <li>• Identify, describe and assess direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on marine environmental quality values within justified zones of impact (high and moderate) and influence, through all scenarios of construction and operation. This must include at a minimum assessment of:</li> </ul>

Aspect	Specific information required
<p><b>NT EPA Objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.</b></p>	<ul style="list-style-type: none"> <li>○ sediment plumes/ elevation in turbidity from mobilisation of sediment and reduced light availability to the sea floor from capital and maintenance dredging activities (including dredged material placement)</li> <li>○ sedimentation and changes in water quality</li> <li>○ decreased water quality due to:               <ul style="list-style-type: none"> <li>● runoff from areas in which potential ASS and dredge material are placed</li> <li>● stormwater discharges</li> <li>● wastewater (i.e. domestic (sewage), seawater cooling water and industrial) discharges</li> <li>● a range of hydrocarbon or chemical spill scenarios</li> <li>● release of metals from disturbed sediments (marine traffic and dredging activities)</li> </ul> </li> <li>○ alteration of surface water quality due to contamination from:               <ul style="list-style-type: none"> <li>● seepage run-off from storage of untreated/unidentified ASS entering Darwin Harbour</li> <li>● seepage run-off from dredge material reuse</li> <li>● a range of scenarios of leaks of hazardous materials from construction or operational plant and equipment or other infrastructure from nominated industries</li> <li>● stormwater run-off from nominated industries.</li> </ul> </li> <li>○ other industries and proposals in the SAA that may contribute to cumulative impacts of actions under the strategic proposal.</li> <li>● Establish/derive thresholds for benthic communities and habitats (considered significant to the ecosystem function of the study area) to sedimentation and light related impacts.</li> <li>● Describe and interpret any studies undertaken to assess the direct, indirect and cumulative impacts of implementing the strategic proposal including any actions taken under the strategic proposal. This must include at a minimum an interpretation of:               <ul style="list-style-type: none"> <li>○ water (marine and surface runoff) and sediment quality data</li> <li>○ water quality modelling in the area of the outfalls</li> <li>○ modelling of turbid plumes from dredging and dredged material placement.</li> </ul> </li> <li>● Assessment of impacts associated with dredging should be informed by guidance and recommendations from the WAMSI <a href="#">Dredge Science Node</a>.</li> <li>● Identify other industries and proposals within and adjacent to the SAA that may contribute to cumulative impacts of actions under the strategic proposal to benthic communities and habitats, marine threatened and/or migratory marine species and or other marine ecosystem values.</li> <li>● Identify the uncertainties and provide a detailed description of how uncertainties</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained.</b>	
	<p>would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</p>
<b>Avoidance, mitigation and management</b>	<ul style="list-style-type: none"> <li>• Identify how impacts to the quality and productivity of water (marine and surface runoff), sediment and biota will be avoided.</li> <li>• Identify the mitigation measures that must be implemented as part of the strategic proposal and their likely effectiveness to reduce impacts to marine ecosystem values. Mitigation must address the following at a Precinct level (at a minimum):               <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</li> <li>○ dredging management – Dredge Management Plan with water quality (light) and sedimentation triggers</li> <li>○ dredge material (spoil) ground management</li> <li>○ erosion and sediment control</li> <li>○ PASS/ASS management (if present)</li> <li>○ emergency response management.</li> </ul> </li> <li>• Demonstrate and substantiate that development standards and controls are in accordance with best-practice, including advice from relevant NT Government authorities.</li> <li>• Assess the adequacy and likely effectiveness of outcomes and commitments proposed in the strategic proposal to protect marine environmental quality over the life of the strategic proposal, so that environmental values are maintained.</li> </ul>
<b>Predicted Outcomes</b>	<ul style="list-style-type: none"> <li>• Describe the predicted outcome against the factor’s environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>• Describe clear and measurable outcomes and commitments for the protection of marine water (marine and surface runoff) and sediment quality that are relevant to the strategic proposal.</li> <li>• Demonstrate how the outcomes and commitments will ensure the factor’s environmental objective is met via the implementation of the strategic proposal.</li> <li>• Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>
<b>Offsets</b>	<ul style="list-style-type: none"> <li>• Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Framework.</li> </ul>

## 2.4.7. Marine ecosystems

Table 9: Minimum information required for assessment of Marine ecosystems.

Aspect	Specific information required
<b>NT EPA Objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Provide maps and interpretation of regional bathymetry, sedimentology and seabed features within the SAA.</li> <li>• Identify and describe the marine ecosystems values within the SAA that may be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum):               <ul style="list-style-type: none"> <li>○ descriptive and spatial information (maps) for benthic communities and habitats found within and or adjacent to the SAA, outlining their known (observed) and potential (modelled) extents and condition, including:                   <ul style="list-style-type: none"> <li>• underwater video transect data at a sufficient density to accurately map the extent of benthic habitats within the predicted zones of impact and influence at an appropriate scale (see point 2 below).</li> <li>• Description of the type and spatial extent (with consideration of temporal/seasonal variation) of benthic substrates and biota within the zones of impact and influence</li> <li>• sufficient field validation data to assess the accuracy of the DEPWS predictive benthic habitat model through comparison against predictive mapping.</li> </ul> </li> <li>○ descriptive and spatial information for listed (and potentially eligible) marine threatened and/or migratory marine species found within or adjacent to the SAA outlining key habitat types, listing status (under TPWC Act and EPBC Act), threatening processes, estimates of population size or abundance and distribution</li> <li>○ assessment of the importance of the threatened species, benthic communities and habitats and other marine values (i.e. listed and non-listed fish), and mangrove communities in a regional, NT, national and international context</li> <li>○ identification of any critical or important areas for protected matters including consideration of the importance of both small and large areas of habitat, habitat connectivity, their location in the SAA and areas likely to be important for maintaining marine ecological integrity and functioning</li> <li>○ map/s of areas that are already protected, including marine parks and known offset areas under both Commonwealth and Northern Territory legislation</li> <li>○ the current status of marine pests and biosecurity measures.</li> </ul> </li> <li>• Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to identify/estimate the presence/absence and potential extent of values within or adjacent to the SAA.</li> <li>• Detail any information gaps or uncertainties in relation to marine ecosystems, including any further studies or measures required to address these gaps.</li> </ul>

Aspect	Specific information required
<p><b>NT EPA Objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning</b></p>	
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>• Identify how marine ecosystems could be impacted by implementing the strategic proposal (e.g. noise, light, sedimentation, turbidity, vessel strike, chemical and brine contamination, thermal pollution) with a focus on the long term (50 years) including cumulative impacts of potential climate change scenarios.</li> <li>• Identify, describe and assess the direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, to all marine ecosystem values within justified zones of impact (high and moderate) and influence associated with:               <ul style="list-style-type: none"> <li>○ dredging of the berth pocket and entrance channel</li> <li>○ placement of dredged material at the dredge material (spoil) ground</li> <li>○ construction of the module offloading facility, jetties, revetments and intakes/outfalls</li> <li>○ operation of marine enabling infrastructure, including maintenance dredging</li> <li>○ reclamation (infilling) of tidal inlets</li> <li>○ construction of land based infrastructure</li> <li>○ operation of land based infrastructure</li> <li>○ increased vessel traffic</li> <li>○ unplanned, worst-case discharges/emissions from nominated industries.</li> </ul> </li> <li>• Assessment of impacts associated with dredging should be informed by and consistent with guidance and recommendations from the WAMSI <a href="#">Dredge Science Node</a>.</li> <li>• Identify other industries and proposals within and adjacent to the SAA that may contribute to cumulative impacts of actions under the strategic proposal to benthic communities and habitats, marine threatened and/or migratory marine species and or other marine ecosystem values.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> </ul>
<p>Avoidance, mitigation and management</p>	<ul style="list-style-type: none"> <li>• Identify how impacts to marine ecosystems must be avoided.</li> <li>• Identify the standards and controls that must be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to marine ecosystems, within the following (at a minimum):               <ul style="list-style-type: none"> <li>○ dredging and dredge material management plan</li> <li>○ marine enabling infrastructure construction management plan</li> <li>○ water quality management plan</li> <li>○ biosecurity management plan</li> <li>○ noise and vibration management plan.</li> </ul> </li> <li>• Demonstrate and substantiate that standards and controls are in accordance with</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning</b>	
	<p>best practice, including advice from relevant NT Government authorities.</p> <ul style="list-style-type: none"> <li>Assess the adequacy and likely effectiveness of standards and controls in delivering the outcomes and commitments proposed in the strategic proposal to protect marine ecosystems over the life of the strategic proposal.</li> </ul>
Predicted Outcome	<ul style="list-style-type: none"> <li>Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>Describe clear and measurable outcomes and commitments for the protection and enhancement of marine ecosystems and habitats that are relevant to the strategic proposal.</li> <li>Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>
Offsets	<ul style="list-style-type: none"> <li>Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Framework.</li> </ul>

## 2.4.8. Air quality

Table 10: Minimum information required for assessment of Air quality.

Aspect	Specific information required
<b>NT EPA Objective: Protect air quality and minimise emissions and their impact so that environmental values are maintained.</b>	
Environmental values	<ul style="list-style-type: none"> <li>Describe baseline ambient air quality for relevant air quality indicators using current ambient air data available from the Department of Environment, Parks and Water Security (DEPWS).</li> <li>Identify existing emission sources within the air shed that contribute to baseline ambient pollution, in particular, sources required to report under the National Pollutant Inventory, and the types and magnitude of pollutants emitted.</li> <li>Develop an air shed model that incorporates background baseline air quality and air shed capacity for pollutants likely to be relevant to the proposal.</li> <li>Describe and map the location of sensitive receivers within and in proximity to the SAA that may be impacted by air emissions associated with actions to be taken under the strategic proposal.</li> <li>Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to establish baseline air quality data and forecast emissions.</li> <li>Detail any information gaps or uncertainties in relation to air emissions, including any further studies or measures required to address these gaps.</li> </ul>

Aspect	Specific information required
<p><b>NT EPA Objective: Protect air quality and minimise emissions and their impact so that environmental values are maintained.</b></p>	
<p>Potential impacts and risks</p>	<ul style="list-style-type: none"> <li>• Identify how air quality could be impacted by implementing the strategic proposal with a focus on the long term (50 years).</li> <li>• Identify, describe and assess the potential direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on air quality in the Darwin airshed from criteria and other air pollutants including but not limited to : <ul style="list-style-type: none"> <li>○ oxides of carbon, sulfur and nitrogen</li> <li>○ dust and suspended particulates (PM<sub>10</sub> and PM<sub>2.5</sub>)</li> <li>○ odorous compounds</li> <li>○ metals or metalloids</li> <li>○ ozone</li> <li>○ organic compounds.</li> </ul> </li> <li>• For actions within the scope of the strategic proposal, consider how potential impacts to air quality associated with commissioning, start-up, shut-down and/or maintenance, and emergencies outside of normal operating conditions, would be addressed.</li> <li>• Assess the extent to which sensitive receptors could be directly or indirectly affected by air emissions from implementing the strategic proposal.</li> <li>• Identify the areas that could feasibly experience direct, indirect and cumulative impacts and assess the severity of impacts to identified values.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> <li>• If there is the potential for significant emissions from actions or nominated industries, a Level 2 air quality impact assessment is likely to be required according to the <a href="#">NSW Approved Methods</a> or an assessment made according to the EPA Victoria <a href="#">Guideline for Assessing and Minimising Air Pollution as part of the strategic assessment or an approval notice application</a>.</li> <li>• Any action or part of an action that is likely to generate odour may require an odour impact assessment in accordance with the <a href="#">Technical Framework - Assessment and Management of Odour from Stationary Sources in NSW</a> or the EPA Victoria Guidance for assessing odour as part of the strategic assessment or an approval notice application.</li> </ul>
<p>Avoidance, mitigation and management</p>	<ul style="list-style-type: none"> <li>• Identify how air emissions will be avoided over the life of the strategic proposal such as by excluding certain industries and adopting new technologies as they become available.</li> <li>• Identify the general and value-specific development standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage air emissions.</li> <li>• General and value-specific development standards and controls must address the following (at a minimum):</li> </ul>



Aspect	Specific information required
<b>NT EPA Objective: Protect air quality and minimise emissions and their impact so that environmental values are maintained.</b>	
	<ul style="list-style-type: none"> <li>○ details of Precinct level requirements for minimising emissions to air</li> <li>○ compliance with the National Environment Protection (Ambient Air Quality) Measure (Air NEPM).</li> <li>● Control measures for proposed actions under the strategic proposal must meet the emissions limits for premises set out in the NSW <a href="#">Clean Air Regulation 2010</a> (as adopted in the NT).</li> </ul>
Predicted outcome	<ul style="list-style-type: none"> <li>● Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>● Describe clear and measurable outcomes and commitments for the protection and enhancement of environmental values that could be impacted by air quality and emissions, in accordance with the Air NEPM standards.</li> <li>● Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>● Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

## 2.4.9. Atmospheric processes

Table 11: Minimum information required for assessment of Atmospheric processes.

Aspect	Specific information required
<b>NT EPA objective: Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.</b>	
Environmental values	<ul style="list-style-type: none"> <li>● Describe the current emissions profile for the NT by industry/sector.</li> <li>● Describe GHG emissions trajectories for the NT by industry/sector.</li> </ul>
Potential impacts, risks and benefits	<ul style="list-style-type: none"> <li>● Estimate scope 1 and scope 2 GHG emissions from construction of enabling infrastructure.</li> <li>● Identify how scope 1 and 2 and, if applicable, scope 3 emissions from nominated industries would be taken into account at the Precinct level.</li> <li>● Provide benchmarking of emissions for nominated industry scenarios.</li> <li>● Provide details of how implementation of the strategic proposal would align with the NT target of net zero GHG emissions by 2050.</li> <li>● Include detailed technical information, studies or investigations (including data) necessary to support the draft EIS in appendices. Justify the suitability of the methodologies, surveys or processes used to calculate GHG emissions.</li> <li>● Provide details of any information gaps or uncertainties in relation to GHG emissions, including any further studies or measures required to address these gaps.</li> </ul>

Aspect	Specific information required
<b>NT EPA objective: Minimise greenhouse gas emissions so as to contribute to the NT Government's goal of achieving net zero greenhouse gas emissions by 2050.</b>	
Avoidance, mitigation and management	<ul style="list-style-type: none"> <li>Identify how GHG emissions can be avoided or minimised over the life of the strategic proposal, for example by sourcing power from renewable sources or excluding certain industries.</li> <li>Identify the general and value-specific development standards and controls that would be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage GHG emissions.</li> <li>Demonstrate that standards and controls address (at a minimum) compliance with the NT Large Emitters Policy, including preparation of a Greenhouse Gas Abatement Plan.</li> <li>Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, demonstrate how the precautionary principle will be applied (section 19 of EP Act).</li> </ul>
Predicted outcome	<ul style="list-style-type: none"> <li>Describe the predicted outcome against the factor's environmental objective, and describe the risk of the NT Government's emissions target of net zero by 2050 not being met as a result of implementing the strategic proposal.</li> <li>Describe clear and measurable outcomes and commitments for minimising GHG emissions.</li> <li>Demonstrate how the outcomes and commitments ensure the factor's environmental objective is likely to be met by contributing to achieving net zero emissions by 2050 via the implementation of the strategic proposal.</li> <li>Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>
Offsets	<ul style="list-style-type: none"> <li>Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets for all GHG emissions generated by the strategic proposal and describe how any proposed offset is consistent with the NT Offset Framework (as published) and NT GHG emissions offsets policy (draft).</li> </ul>

## 2.4.10. Community and economy

Table 12: Minimum information required for assessment of Community and economy.

Aspect	Specific information required
<b>NT EPA Objective: Enhance communities and the economy for the wellbeing, amenity and benefit of current and future generations of Territorians.</b>	
Environmental values	<p>Describe and provide baseline data for the social area of influence likely to be affected by cumulative impacts from actions proposed to be taken under the strategic proposal. This must include (at a minimum):</p> <ul style="list-style-type: none"> <li>definition of social area of influence and affected community</li> <li>economic modelling to demonstrate the feasibility of government's investment in</li> </ul>

Aspect	Specific information required
<p><b>NT EPA Objective: Enhance communities and the economy for the wellbeing, amenity and benefit of current and future generations of Territorians.</b></p>	<p>enabling infrastructure and the return on investment</p> <ul style="list-style-type: none"> <li>• economic impact assessment to consider the equitable intra- and intergenerational distribution of economic benefits at a regional level</li> <li>• existing and emerging economic sectors</li> <li>• existing social infrastructure (health, education, housing, transport, emergency services, utilities)</li> <li>• demographic composition and population trends</li> <li>• workforce participation</li> <li>• levels of disadvantage against relevant social indicators</li> <li>• land and sea uses, including recreational values</li> <li>• community values of Darwin Harbour, Middle Arm Peninsula, and the broader region (including the municipalities of Darwin, Palmerston, Litchfield, Coomalie and Wagait)</li> <li>• historical context, including previous relevant studies</li> <li>• relevant government policies and legislation.</li> </ul>
<p>Potential impacts and opportunities</p>	<ul style="list-style-type: none"> <li>• Identify, describe and assess likely direct and indirect impacts and benefits, and cumulative impacts, of implementing the strategic proposal on communities and the economy. This must include (at a minimum) consideration of: <ul style="list-style-type: none"> <li>○ disturbance to social, cultural, economic and ecological values of East Arm and Darwin Harbour (including cultural activities, recreation, aesthetics, liveability and sense of place)</li> <li>○ the promotion of Darwin as an iconic, world-class harbour city</li> <li>○ disturbance to the environmental surrounds that provide for the tropical lifestyle and amenity of residents and visitors, through alteration of: <ul style="list-style-type: none"> <li>• air quality</li> <li>• noise</li> <li>• odour</li> <li>• light</li> <li>• visual amenity</li> </ul> </li> <li>○ concerns about cumulative impacts, e.g. discharges of waste water, dredging, reclamation, increased marine traffic, loss of mangroves and iconic species such as turtles, dugong and dolphins, migratory birds, loss of fishing breeding areas, reduced water quality, contribution to greenhouse gas emissions and climate change</li> <li>○ economic benefits from local industry participation and economic diversification</li> <li>○ economic benefits generated by short term construction and long-term operational job opportunities</li> </ul> </li> </ul>

Aspect	Specific information required
	<p><b>NT EPA Objective: Enhance communities and the economy for the wellbeing, amenity and benefit of current and future generations of Territorians.</b></p> <ul style="list-style-type: none"> <li>○ the equitable distribution of benefits within the communities affected</li> <li>○ pressure on existing employers through skills shortages and competition for skilled staff</li> <li>○ impacts on other economic sectors including tourism, fishing and aquaculture</li> <li>○ whether the strategic proposal is consistent with regional land use concept plans</li> <li>○ the need to coordinate planning for future population and industrial growth</li> <li>○ availability, quality and affordability of short-term and privately owned accommodation, including worker accommodation</li> <li>○ pressure on existing social infrastructure and services in nearby suburbs, including education, health, transport, emergency services and utilities</li> <li>○ disturbance to community cohesion as a result of polarised values and changed demographics (including the potential influx of fly-in, fly-out workers)</li> <li>○ increased road trauma as a result of increased industrial traffic through residential areas</li> <li>○ disturbance to non-heritage listed sites of historical importance, including World War II historical sites around East Arm and Darwin Harbour</li> <li>○ cultural identity, ties to the land and seas and ability to pass on knowledge (fishing, foraging, camping, access to and enjoyment of places around the Harbour)</li> <li>○ public concerns regarding industrialisation of Darwin Harbour with consequent pollution and degradation of the environment</li> <li>○ public concerns about the use of fossil fuels and sustainability of gas-based development and the implications for climate change</li> <li>○ access issues between Elizabeth River boat ramp and Darwin Harbour</li> <li>○ reduced marine safety in East Arm and Darwin Harbour, and rivers and creeks</li> <li>○ opposition to the need to find new water sources to support development (e.g. desalination, new dams).</li> </ul>
<p><b>Avoidance, mitigation and management</b></p>	<ul style="list-style-type: none"> <li>● Identify how impacts to communities and the economy would be avoided and opportunities enhanced.</li> <li>● Identify appropriate frameworks and management strategies and their likely effectiveness in avoiding social, cultural and economic impacts and enhancing potential benefits of the strategic proposal at the Precinct level, including (at a minimum): <ul style="list-style-type: none"> <li>○ coordinated identification of skills gaps and workforce planning across industries</li> <li>○ coordinated land use and long-term social infrastructure planning (in line with current scopes of work by the NT Planning Commission)</li> <li>○ five-yearly independent audits against agreed key indicators, including values of the Harbour</li> </ul> </li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Enhance communities and the economy for the wellbeing, amenity and benefit of current and future generations of Territorians.</b>	
	<ul style="list-style-type: none"> <li>○ a coordinated Territory Benefit Plan that individual proponents are accountable for implementing and reporting against</li> <li>○ an ongoing communication and community engagement plan and appropriate governance mechanisms (e.g. an industry and community reference group that must include strong Larrakia participation)</li> <li>○ recommended conditions to be applied at a Precinct and individual project approval level</li> <li>○ an agreed Precinct and harbour-wide management strategy with timelines for agreed monitoring and evaluation of sustainability outcomes against agreed indicators.</li> </ul>
Predicted Outcome	<ul style="list-style-type: none"> <li>● Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>● Describe clear and measurable outcomes and commitments for the protection and enhancement of social, cultural and economic values that are relevant to the strategic proposal. These outcomes must include:               <ul style="list-style-type: none"> <li>○ community acceptance of development at Middle Arm Peninsula</li> <li>○ equitable distribution of benefits and enhanced community wellbeing.</li> </ul> </li> <li>● Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>● Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

### 2.4.11. Culture and heritage

Table 13: Minimum information required for assessment of Culture and heritage.

Aspect	Specific information required
<b>NT EPA Objective: Protect culture and heritage.</b>	
Environmental values	<ul style="list-style-type: none"> <li>● Describe the characteristics and current condition of sacred sites, cultural and heritage values in the SAA that could be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum) descriptive and spatial information for the following:               <ul style="list-style-type: none"> <li>○ Aboriginal and non-Aboriginal sites, places or objects of natural, historic or cultural heritage significance, current use and spiritual significance</li> <li>○ cultural uses of the area</li> <li>○ registered or recorded sacred sites under the Northern Territory <i>Aboriginal Sacred Sites Act 1989</i> taking into account confidentiality requirements.</li> </ul> </li> <li>● Information sources must include published archaeological and anthropological information, site surveys, respective registers, consultations and other research.</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect culture and heritage.</b>	
	<ul style="list-style-type: none"> <li>• Justify the suitability of the methodologies, surveys or processes used to provide information about sacred sites, culture and heritage.</li> <li>• Detail any information gaps or uncertainties in relation to sacred sites, culture and heritage, including any further studies or measures required to address these gaps.</li> </ul>
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Identify how culture and heritage could be impacted.</li> <li>• Describe and assess the likely direct and indirect impacts of implementing the strategic proposal, including any actions taken under the strategic proposal, and cumulative impacts. This must include at a minimum an assessment of:               <ul style="list-style-type: none"> <li>○ damage or destruction of terrestrial and maritime archaeological features and/or sites of cultural significance, from construction and operation activities</li> <li>○ the unexpected revealing and/or destruction of buried material culture or human remains during construction works</li> <li>○ removal of culturally significant artefacts</li> <li>○ post-construction erosion of archaeological features and significant cultural landscape areas or sites</li> <li>○ visual scarring on the landscape created by the strategic proposal that may detract from culturally significant areas.</li> </ul> </li> <li>• Assess the potential for indirect impact to archaeological and cultural sites through:               <ul style="list-style-type: none"> <li>○ air pollutants, including dust and chemicals, within the disturbance footprint and area of influence</li> <li>○ water pollutants such as sediment, may damage or bury heritage features as a result of increased marine traffic and vessel size</li> <li>○ increased access by public from new road/tracks/marine infrastructure and increased awareness of archaeological and cultural features through environmental assessment process</li> <li>○ intergenerational impact to the perception of a place’s cultural value once it has been altered</li> <li>○ incremental destruction of places through increased development opportunities resulting from the development of the strategic proposal.</li> </ul> </li> <li>• Identify the areas that could feasibly experience direct, indirect and cumulative impacts and assess the severity of impacts to identified values.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, adopt the precautionary principle and demonstrate how it has been met (section 19 of EP Act).</li> </ul>

Aspect	Specific information required
<b>NT EPA Objective: Protect culture and heritage.</b>	
Avoidance, mitigation and management	<ul style="list-style-type: none"> <li>• Identify how impacts to culture and heritage would be avoided.</li> <li>• Identify the general and value-specific development standards and controls that will be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to sacred sites, culture and heritage.</li> <li>• General and value-specific development standards and controls must address the following (at a minimum):               <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>○ evidence that an Authority Certificate has been obtained or is under application in accordance with the Northern Territory <i>Aboriginal Sacred Sites Act 1989</i></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 under the <i>Heritage Act 2011</i> to disturb or destroy a prescribed archaeological place and/or object</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 strategic proposal.</li> </ul> </li> </ul>
Predicted Outcome	<ul style="list-style-type: none"> <li>• Describe the predicted outcome against the factor's environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>• Describe clear and measurable outcomes and commitments for the protection and enhancement of sacred sites, culture and heritage.</li> <li>• Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the strategic proposal.</li> <li>• Provide a clear explanation as to why the impacts of implementing the strategic proposal are acceptable.</li> </ul>

### 2.4.12. Human health

Table 14: Minimum information required for assessment of Human health.

Aspect	Specific information required
<b>NT EPA objective: Protect the health of the Northern Territory population.</b>	
Environmental values	<ul style="list-style-type: none"> <li>• Describe the human health values within the SAA and surrounding communities that may be impacted by actions proposed to be taken under the strategic proposal. This must include (at a minimum) descriptive and spatial information for:               <ul style="list-style-type: none"> <li>○ sensitive receptors</li> <li>○ social area of influence.</li> </ul> </li> </ul>

Aspect	Specific information required
<b>NT EPA objective: Protect the health of the Northern Territory population.</b>	
Potential impacts and risks	<ul style="list-style-type: none"> <li>• Identify how human health may be impacted including the conditions under which impacts may occur e.g. commissioning, normal operating conditions, upset conditions, shut-downs, start-ups.</li> <li>• Identify, describe and assess likely direct and indirect impacts of implementing the strategic proposal, and cumulative impacts, on human health. This must include (at a minimum) consideration of likely impacts associated with:               <ul style="list-style-type: none"> <li>○ hazardous facilities and activities</li> <li>○ air emissions including impacts of airborne contaminant deposition on receptors</li> <li>○ contaminant levels in fish and crustaceans (and other potential food sources) and toxicity of edible species to humans</li> <li>○ biting insects.</li> </ul> </li> <li>• Identify the areas that could feasibly experience direct and indirect impacts and assess the nature and severity of impacts to identified values.</li> <li>• Identify the uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating baseline studies, monitoring and staging. Where uncertainty remains, adopt the precautionary principle and demonstrate how it has been met (section 19 of EP Act).</li> <li>• A health impact assessment for nominated industries may be required in accordance with the <a href="#">Health Impact Assessment Guidelines (enHealth 2017)</a>, subject to consideration of the Chief Health Officer of the NT.</li> </ul>
Avoidance, mitigation and management	<ul style="list-style-type: none"> <li>• Identify how impacts to human health will be avoided.</li> <li>• Identify the general and value-specific development standards and controls that must be implemented as part of the strategic proposal and their likely effectiveness to avoid, mitigate and manage impacts to human health.</li> <li>• Identify any uncertainties associated with emerging technologies that may be relied upon for pollution control.</li> <li>• General and value-specific development standards and controls must address the following at a Precinct level (at a minimum):               <ul style="list-style-type: none"> <li>○ toxicity of fish and crustaceans</li> <li>○ air quality, noise, vibrations and odour for sensitive receptors in social area of influence</li> <li>○ hazardous substances</li> <li>○ changes to local traffic</li> <li>○ shipping in the Harbour</li> <li>○ biting insects</li> <li>○ safety distances from hazardous facilities</li> <li>○ emergency response capacity and capability</li> <li>○ compliance with any statutory plan or policy.</li> </ul> </li> </ul>



Aspect	Specific information required
<b>NT EPA objective: Protect the health of the Northern Territory population.</b>	
Predicted Outcome	<ul style="list-style-type: none"> <li>Describe the predicted outcome against the factor’s environmental objective, and state whether there are likely to be any significant residual environmental impacts or risks to identified values.</li> <li>Describe clear and measurable outcomes and commitments for the management and protection of human health that are relevant to the strategic proposal.</li> <li>Demonstrate how the outcomes and commitments will ensure the factor’s environmental objective is met via the implementation of the strategic proposal.</li> <li>Provide a clear explanation as to why the human health impacts of implementing the strategic proposal are considered acceptable.</li> </ul>

## 2.5. Other environmental matters

### 2.5.1. Consideration of the impacts of a changing climate

The draft EIS must assess how adaptation to a changing climate has been considered in the strategic proposal, with reference to the NT policy *Northern Territory Climate Change Response: Towards 2050* (DENR 2020) <sup>1</sup> and [Climate Change in the Northern Territory: State of the science and climate change impacts](#) (NESP ESCC Hub 2020).

The extent to which the outcomes and commitments proposed under the strategic proposal address any significant vulnerabilities of the strategic proposal and environmental values in and adjacent to the SAA must be assessed, under the most current, down-scaled climate projections for the region.

### 2.5.2. Achievement of administrative and regulatory efficiencies

The draft EIS must assess the adequacy and likely effectiveness of outcomes and commitments proposed in the strategic proposal for the achievement of administrative and regulatory efficiencies. To do this, the draft EIS must:

- identify and assess how the proposed implementation of an approved strategic proposal, and any subsequent EP Act approvals for proposed actions within the precinct, will deliver reduced administrative burden to third-parties acting under the approval, other parties who may be impacted by the approval, and regulators
- fully describe and assess the effectiveness of the proposed administrative systems to inform, educate, verify, administer and track third-party requests to undertake an approved action under the strategic proposal
- assess the effectiveness of proposed administrative systems to capture/monitor the environmental impacts of each action taken under the strategic proposal and ensure compliance with the strategic proposal is monitored and any non-compliance reported.

---

<sup>1</sup> DENR, 2020. Northern Territory Climate Change Response: Towards 2050. Department of Environment and Natural Resources, Darwin.

### 2.5.3. Evaluation of the overall outcomes of the strategic proposal

The draft EIS must evaluate the overall commitments and outcomes, taking into account likely impacts from implementing the strategic proposal and the Implementation and Assurance Plan. The evaluation must consider:

- the extent to which the strategic proposal meets the objects of the EP Act and the extent to which the principles of environment protection and management provided in Part 2 of the EP Act have been adequately applied to decision-making processes
- the extent to which environmental values are represented in the SAA
- the extent to which environmental values are represented in areas to be protected or managed under the strategic proposal
- the extent to which any areas to be protected or managed under the strategic proposal must ensure the long-term protection of each environmental value, and the on-going function of any key services needed for the on-going viability of those environmental values
- whether there will be serious and irreversible impacts to any environmental values
- the extent to which the outcomes and commitments proposed under the strategic proposal address any significant vulnerabilities of environmental values including under reasonable climate change scenarios
- the likely effectiveness of the outcomes and commitments proposed under the strategic proposal in protecting and managing environmental values and any risks and uncertainties
- an assessment of how the strategic proposal meets the requirements of these TOR and the endorsement criteria, as set out in the Strategic Assessment Agreement
- an analysis and justification as to why the proponent considers that the impacts of implementing the strategic proposal are acceptable.

The draft EIS must succinctly discuss predicted outcomes in relation to the principles of environment protection and management (EP Act Part 2) and the NT EPA's environmental objectives.

### 2.5.4. Addressing uncertainty and risk

The draft EIS must identify and quantify, where possible, key uncertainties and risks associated with implementing the strategic proposal, responses to these, and proposed adaptations to changing circumstances. Key uncertainties may include:

- knowledge gaps in scientific understanding and responses to new knowledge
- assumptions made in assessing potential impacts and benefits
- how changes to Commonwealth, Northern Territory and local government legislation, policies, plans and advice are to be accounted for in the management of the areas impacted by the implementation of the strategic proposal
- the effectiveness or capacity to ensure the strategic proposal is implemented.

### 2.5.5. Information sources

The draft EIS must identify the sources of information and data relied upon including the reliability and currency of the data.

The draft EIS may include summaries of independent peer review processes. If the review(s) are publicly available, the draft EIS will provide details of where they are publicly available.

### 3. Public consultation requirements

Proponents have a general duty under section 43 of the EP Act to provide communities that may be affected by a proposal with an opportunity for consultation to assist community understanding of the proposed action or strategic proposal and its potential impacts and benefits. The proponent must engage and consult with stakeholders<sup>2</sup> who are affected by and interested in the strategic proposal. The public consultation requirements for the draft EIS are outlined in Part 5 Division 6 of the EP Regulations. Additional specific details are provided below.

#### 3.1.1. Submission period

The submission period under the EP Act during which feedback can be given on the draft EIS is between 30 and 60 business days. The duration of the period will be confirmed during the draft EIS pre-lodgement phase.

#### 3.1.2. Manner in which to publish

The draft EIS must be provided as:

- accessible PDF files that do not exceed 20MB
- seven (7) printed copies for display at the locations in section 3.1.4 below.

The draft EIS must:

- be divided into two parts:
  - a main report (with executive summary available as separate document)
  - appendices to the main report
- have a navigable table of contents
- present information in format that is easy to follow
- use hyperlinks to assist with navigation through the document
- generally conform with the Web Content Accessibility Guidelines (WCAG) 2.0 Level AA and material relevant to creating accessible documents on the [NT Government website](#).

#### 3.1.3. Advertising

An advertisement must be placed in the NT News indicating that the draft EIS is available for comment, the locations where it can be inspected and obtained, the period in which comments/submissions can be made and where they can be made, and contact details for obtaining further information.

#### 3.1.4. Public consultation locations

The draft EIS should be provided to and be made available for public consultation at:

---

<sup>2</sup> As defined in the NT EPA's Stakeholder Engagement and Consultation – Environmental impact assessment guidance for proponents (NT EPA 2020)

- Northern Land Council, 45 Mitchell Street, Darwin
- Northern Territory Library, Parliament House, Darwin
- NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap
- Palmerston Library, Goyder Square, The Boulevard  
Palmerston
- Environment Centre Northern Territory, Unit 3, 98 Woods Street, Darwin
- Litchfield Council Office - 7 Bees Creek Road, Freds Pass, NT
- Taminmin Library - Challoner Circuit, Humpty Doo.