Proponent Draft Terms of Reference (TOR) for an EIS

Adelaide River Off-stream Water Storage Project (AROWS)

Department of Logistics and Infrastructure

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→ **The Power of Commitment**

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1. Introduction

1.1 Overview

The Adelaide River Off-stream Water Storage (AROWS) (the proposal) proposed by the Northern Territory Government (NT Government), represented by the Department of Logistics and Infrastructure (DLI) (the proponent) is being assessed by the Northern Territory Environment Protection Authority (NT EPA) under the *Environment Protection Act 2019* (EP Act) at the level of an environmental impact statement (EIS).

These terms of reference (TOR) set out the matters relating to the environment that are to be addressed in the EIS for this proposal, in accordance with regulations 98(1)(a) and 98(2) of the Environment Protection Regulations 2020 (EP Regulations). The EIS must also address all requirements in the NT EPA's *Preparing an environmental impact statement – Environmental impact assessment guidance for proponents.*

1.2 Background

The proposal is to develop an off-stream water storage reservoir (AROWS) which aims to nearly double the current water supply to the Darwin region to meet the projected long-term forecasted urban, industrial, and agricultural demand. The proposal is situated in the Top End of the NT and is located approximately 55 kilometres (km) southeast from Darwin and approximately 5 km north of Lake Bennett, adjacent to the Adelaide River (one of the NT's largest river systems) in the Coomalie and Litchfield shires.

The AROWS project is proposed to be the next major public water supply asset for the Darwin region and to be operated as part of the existing water supply network (Darwin River Dam, McMinns and Howard East Bore field, Manton Dam). The proposal stands as a distinctive public water infrastructure endeavour, with a primary objective of concurrently enhancing water availability, while ensuring the protection of cultural values and environmental sustainability. The Daly Range inclusive of a geological 'basin-like' formation and proximity to the Adelaide River offers a unique opportunity.

In contrast to in-stream dams, the AROWS project represents an innovative off-stream water storage initiative. This approach (as developed in other countries) eliminates the need for within-river dam infrastructure, and effectively controls when water is extracted from the river, thereby protecting dry periods and preserving the natural flow of the Adelaide River. To fill the reservoir, water is proposed to be extracted from the Adelaide River during the wet season at times of high flows. This favourable hydrological condition and natural geological formation provides the NT Government with a unique opportunity to deliver a major water infrastructure project, which can achieve complimentary outcomes of water availability and environmental sustainability.

The AROWS project consists of:

- Construction and operation of five (5) major infrastructure components: intake infrastructure (pumps, pipelines) along Adelaide River, basin infrastructure (dam/embankments and spillway) along the natural ridgeline and inundation area up to nominated spill level, outlet and delivery infrastructure (outlet tower, reservoir, pump, delivery pipeline), supporting infrastructure (borrow pits, cofferdams, access tracks, laydown areas, site facilities, electric substation, SCADA/Telemetry, telecommunication facilities) both temporary and permanent, and connecting infrastructure (pumps, pipeline, balance tank) along Stuart Highway's existing corridors
- Land disturbance of approximately 5,610.50 ha (this indicative construction footprint is based on the early concept design stage and is subject to further refinement following implementation of avoidance strategies informed by concept design and stakeholder and community engagement)
- Site rehabilitation activities undertaken progressively post-construction for the removal of temporary works and facilities and restoration of any disturbed areas.

The estimated operational life of the AROWS scheme is approximately 100 years with an annual yield capacity of 60GL per annum (165 ML/d) and a basin storage capacity of 250GL at a Full Supply Level of 32 metres AHD.

Further details of the proposal, and the statement of reasons for the NT EPA's decision are on the NT EPA's website.

1.3 Assessment under accredited assessment process

The proposal will be referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is anticipated that the proposal may be determined a controlled action due to the potential for significant impact on matters of national environmental significance (MNES) protected under Part 3 of the EPBC Act (see Section 4.1.1).

In anticipation of a controlled action decision, the proponent is seeking an accredited assessment (as referred to in Section 45 of the NT EP Act) between the Commonwealth and the NT governments, to streamline the assessment process and remove any unnecessary duplication. This terms of reference (TOR) has been prepared assuming that an accredited assessment process will be adopted and that both government assessment processes can be facilitated by the one EIS document. On this basis, the TOR relates to all the components of the proposal and includes:

– A description of relevant MNES for the proposal
– Assessment of the potential impacts on MNES under the relevant key environmental factors
– Mitigation and management measures.

1.4 Assessment timeline

Table 1.1 provides an outline of indicative proposal assessment timeframes.

Table 1.1 Assessment timeframes

Key assessment milestone	Proposed completion date
Proponent initiated EIS referral submitted to NT EPA with draft TOR and statement of reasons (SOR) for an EIS	November 2024
Proponent initiated EIS referral accepted by NT EPA	December 2024
Consultation period commences on draft referral and TOR	December 2024
Close of public consultation period	January 2025
Decision on accepted referral	February 2025
TOR approved and published by NT EPA	February 2025
Draft EIS submitted to the NT EPA	April 2026
Public and government authority consultation period	August 2026
Direction to prepare Supplementary EIS issued (if required)	September 2026
Supplementary EIS submitted	December 2026
Public and government authority consultation period (Supplementary EIS)	January 2026
Assessment report provided to Minister	February 2027
NT Minister's approval decision	March 2027
Commonwealth Minister's approval decision	March 2027

2. Matters to be addressed in the draft EIS

The draft EIS must address section 4 of the NT EPA guidance: *Preparing an environmental impact statement.* Specific information requirements for this proposal are outlined below.

2.1 Executive summary of the draft EIS

A summary of the draft EIS is required as part of the EIS documentation. The summary should be written as a stand-alone document, able to 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 proposal including proponent, key components, development stages, activities, lifespan, the potentially affected area, and appropriate map/s
– A summary of the key environmental values in the potentially affected area
– A summary of the potential environmental impacts of the proposal on the identified values
– A summary of measures to avoid, mitigate and offset (if applicable) potential impacts of the proposal, with a clear and measurable outcomes for environment protection
– A summary of the intended future use of the site and rehabilitation outcomes
– A summary of stakeholder engagement undertaken and commitments to future stakeholder engagement
– A description of governance arrangements and approval requirements for actions taken under an approved proposal
– A version of the executive summary presented in a culturally appropriate manner, to be determined through consultations with Aboriginal stakeholders as described in Section 4.5.

2.2 Proposal description

2.2.1 Overview

Provide a clear description of the proposal and the full scope of works for which approval is sought. The proposal description should include:

– A summary table listing the key physical components of the proposal and their maximum spatial extent or quantity, using appropriate parameters; including the matters outlined in Table 2.1.
– Supporting maps, figures, images, diagrams and flow charts
– Any variations or modifications to the proposal since the referral information was submitted
– Where there is uncertainty in the concept design, footprint, capacity or life of the proposal or its components, the approach to resolving this uncertainty should be clearly explained and the maximum extent for each parameter provided.

2.2.2 Potentially affected area

Delineate the potentially affected area of the proposal, taking into account the area of proposed works (areas of direct disturbance/impact) plus area of influence (area of potential indirect impact from water extraction including potential downstream effects), with a suitable buffer to allow for uncertainty.

Provide maps showing:

– The extent of this potentially affected area alongside key regional features
– Current land tenure, land use, and native title in the potentially affected area
– Other interests in land such as minerals and petroleum

– Sensitive environment, including towns, communities, homesteads and residences and any sites of conservation significance within the potentially affected area.

2.2.3 Proponent

Provide background to the proponent, including:

– Information on the environmental history of the proponent and its compliance with state/territory and Commonwealth environmental approval conditions
– Experience in the water supply industry
– Notification/disclosure of offences, or any non-compliances with state/territory or Commonwealth environmental approval conditions.

Outline any partnerships with other organisations or industries as part of the proposal.

2.2.4 Objectives of the proposal

State the rationale and justification for the 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 proposal.

List the key objectives of the proposal and include a description of how the proposal meets these objectives.

The proponent should demonstrate in the draft EIS how the objectives of a proposal address the specific requirements of sections 42 and 43 of the EP Act.

2.2.5 Statutory framework

The draft EIS must provide information on the statutory framework including a description of any permits, consents, or other approvals that will be required from Northern Territory or Commonwealth agencies and/or authorities for the proposal components that are within the scope of the EIS.

2.2.6 Construction, commissioning and operation

Provide a detailed and updated description of all construction, commissioning and operational aspects of the proposal as outlined in Table 2.1.

Table 2.1 Minimum information requirements for the Project description

Topic	Required information
Site layout maps and graphs	The description of the proposal must include, but not be limited to, detailed maps and graphic illustrations of: – The location and dimensions of existing disturbance, existing infrastructure (e.g. roads, power lines, railway and pipelines) and natural and modified landforms (including a depiction of these overlaid on aerial photos or high-resolution satellite imagery) within the proposal area – The location and approximate dimensions of areas to be disturbed, structures to be built or repurposed, including (where applicable): • All areas to be cleared[1] or disturbed • Electrical infrastructure, including substations, transmission lines, etc • Access roads, rail, and service infrastructure • Water storage, stormwater and drainage infrastructure • Buildings, structures and laydown areas • Borrow areas • Hazardous waste storage areas • Other significant infrastructure. – The proposal layout in relation to sensitive receptors and sensitive environment (including sensitive and/or significant vegetation types identified in the Northern Territory Land Clearing

[1] in accordance with the NT Land Clearing Guidelines and/or requirements under the NT Planning Scheme.

Topic	Required information
	Guidelines), permanent and seasonal residential communities; existing and potential future water users; sites of cultural significance; and no-go work areas/exclusion zones) overlying the proposal area and surrounds i.e. within the area potentially affected by the proposal – The boundaries of the proposal area in relation to any overlapping or adjacent licenses and permits (mineral, petroleum or other); and any other interests in land including native title (claims or determined), Aboriginal freehold land, and pastoral land.
Design	– Describe design options considered, including alternative configurations of the proposal's key infrastructure components, reasons for selection of preferred design options, and how the proposed design avoids and/or mitigates environmental constraints and potential impacts and risks to the surrounding environment – Outline any site/route selection processes that have been undertaken, any alternatives considered, and justify why the proposed site/route was selected. Outline and justify any trade-offs in the site/route selection. Site/route selection should consider the potential for disruption or damage to existing infrastructure, particularly where design of the proposal intends to share existing corridors – Describe how the proposal has been designed, or allows for, adaptation to a changing climate e.g., capacity and efficiency of proposal facilities to allow for potential increase in evaporation and/or large rainfall / flood events.
Construction	– Describe all elements and stages of the construction phase including: • Construction methodology • Equipment and machinery required • Construction materials required – major types, quantities, qualities, sources, storage requirements and potential hazards • Vegetation clearing and site preparation • Available and potential sources of fill / borrow material • Location, extent and nature of temporary stockpiles of borrow material and topsoil • Erosion, sediment and drainage control • Any new ancillary infrastructure and upgrades required to service the proposal, including road access, and supply of electricity, water and sewerage • Maintenance of existing onsite infrastructure over the course of construction timeframe • Controls to avoid construction material spills/discharges to the environment (terrestrial and aquatic) • Controls to avoid impacts on significant vegetation (e.g. groundwater-dependent ecosystems) and listed threatened species • Controls to prevent creation of biting insects habitat (breeding sites) • Dust management and control • Noise/vibration management and control • Biosecurity management and control in relation to weeds and feral animals • Fire management and control • Exclusion/no-go work areas (including but not limited to ecologically and culturally important areas) • Timeframes for completion • Applicable legislation, guidelines and standards. – Where multiple alternatives exist, the choice of the preferred option(s) must be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.
Commissioning	– Describe all elements and stages of the commissioning phase including: • Commissioning methodology (staging, reservoir filling, QA/QC of engineering structures etc) • Controls to prevent creation of biting insects habitat (breeding sites) • Controls to prevent migration of crocodiles • Controls to prevent materials/product spills/discharges to the environment (terrestrial and aquatic) • Controls to avoid impacts on significant vegetation (e.g. groundwater-dependent ecosystems) and listed threatened species

Topic	Required information
	• Biosecurity management and control in relation to weeds and feral animals • Timeframes for completion. – Where multiple alternatives exist, the choice of the preferred option(s) must be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.
Operation	– Describe all elements and stages of the operation phase including: • Water extraction methodology including details on operational metrics (regime and rules), and any limitations to the effective operation and management of the proposal, e.g. Operation in dry years, climatic conditions • Details on proposal infrastructure – location, size and type including environmental features/considerations/design principles • Equipment and machinery required including details on storage reservoir monitoring and instrumentation • Materials and chemicals required - major types, quantities, qualities, sources, potential hazards, transport and storage requirements and location • Details on operation including reservoir operation, designed event frequency and/or operational requirements for reservoir water release, and strategies for flood control and drought mitigation • Details on maintenance and contingency management including ongoing maintenance and upgrades required to service any infrastructure • Basin sedimentation management • Water quality management • Emergency preparedness and risk management • Weeds and feral animals management • Noise/vibration management and control • Fire management and control • Controls to prevent creation of biting insects habitat (breeding sites) • Strategies to prevent crocodile movement out of the AROWS basin • Applicable legislation, guidelines, standards and permits. – Where multiple alternatives exist, the choice of the preferred option(s) must be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.
Transport and traffic	– Describe traffic and transport activities during construction, commissioning and operation, including but not limited to: • Proposed transport methods/routes including proposed haul roads, access tracks, public roads (including any proposed realignments, closures and upgrades), proximity to sensitive receptors and sensitive areas (e.g. Townships or communities / outstations, waterways, sensitive and/or significant vegetation, culturally sensitive sites, threatened and invasive species) • Forecast vehicle movements including type, size, volume and frequency of movements/ volumes of traffic, vehicle/vessel types, access routes, hours of operation • Existing transport baseline information including current traffic numbers, movement patterns (during wet and dry seasons) and relevant existing infrastructure on potentially affected roads/road network.
Water	– Describe all water requirements and sources (include an overall site water balance) relevant to each project development stage. Provide detailed information on demand/volume required, storage and management – Demonstrate that the waste management hierarchy has been applied during the design of the proposal and will be applied to water management throughout the life of the proposal – Provide an overview of water quality objectives and/or targets for any controlled water discharge (including targets in accordance with ANZG (2018) or otherwise), location of the discharge point/s, and designed event frequency and/or operational requirements for the discharge.
Energy	– Provide relevant information with respect to energy during construction, commissioning and operation, including but not limited to:

Topic	Required information
	• Energy requirements and sources • Consideration of renewable sources of energy and justification of selected options • Estimate of the greenhouse gases emissions and savings • Measures to maximise energy efficiency and controls to avoid and/or reduce greenhouse gas emissions consistent with the NT Government's target of achieving net zero greenhouse gas emissions by 2050 (DENR 2020).
Waste	– Provide a waste inventory including waste streams/types generated for each phase of the proposal, annual and total estimates of the volumes of each waste stream, and the waste treatment or disposal method and/or location for each stream – Describe the overarching approach to waste management, confirming the key existing or new waste treatment/disposal infrastructure that will be used – Describe the proposed onsite waste management and storage facilities for all waste streams. Include capacity, location, site-selection considerations, and measures to contain by-products – Demonstrate that the waste management hierarchy and section 24 of the EP Act has been applied during the design of the proposal and will be applied to waste management throughout the life of the proposal.
Workforce	– Provide a summary for each phase of the proposal, of the: • Estimated number of people to be employed • Skills base required • Likely sources (local, regional, overseas) • On-site facilities provided (including any accommodation).

2.2.7 Rehabilitation and closure

This section should outline the planned rehabilitation and decommissioning of infrastructure and establish decommissioning objectives and goals. It should include:

– An overview of the pre-existing environment and land use, including existing conditions, amenities, previous and current land use, and agreed post-development land use (after closure), including alternatives defined by the outcomes of consultations undertaken with key stakeholders
– Proposal lifespan, planned closure timeframes, and planning for decommissioning and rehabilitation planning, including stakeholder engagement
– Any legacy benefits of the proposal to nearby communities (e.g., power or water supply, recreation, etc.)
– The biological, cultural, economic, and social viability of options for decommissioning, removal, and disposal of infrastructure and components, including implications of assets' disposal at the end of the proposal's life
– Proposed rehabilitation measures, including rehabilitation objectives, completion criteria, where applicable, and monitoring.

3. Information requirements for environmental factors

The proposal comprises the construction, commissioning and operation of five (5) main components that may have potentially significant impacts on the NT EPA's key environmental factors as described in *Section 2* of the proponent initiated EIS referral. These include:

- Intake infrastructure (includes all associated infrastructure for river water, extraction, transfer and release into the reservoir (pumps, pipelines) along the Adelaide River)
- Basin infrastructure (including all associated dam/embankment infrastructure and spillway along the natural ridgeline and inundation area up to spill level)
- Outlet and delivery infrastructure (including all associated infrastructure to facilitate the transfer of water from the AROWS basin to the shared infrastructure easement outlet tower, outlet conduct, low level outlet (LLO), pump station, delivery pipeline) to the connecting infrastructure
- Supporting infrastructure (including all temporary works and permanent utilities/facilities to support the construction and operation of the AROWS scheme (borrow pits, coffer dams, access tracks, laydown areas, site facilities ,electric substation, balance tank, SCADA/Telemetry, telecommunication facilities)
- Connecting infrastructure (including all associated infrastructure (pumps, pipeline, balance tank) to facilitate the transfer of water from the delivery infrastructure pipeline to the Strauss Water Treatment Plant via Hughes balance tank, along the Stuart Highway's existing corridors.

Table 3.1 lists the 10 environmental factors that have been identified as having the potential to be significantly impacted by implementing the proposal. These have been selected from the NT EPA's environmental factors and objectives (NT EPA 2021).

For each of the relevant environmental factors and values, the draft EIS must describe and assess the likely direct, indirect and cumulative impacts of implementing the proposal. The level of assessment will be proportionate to the level of potential risk to environmental values, and to the NT EPA's objectives for each factor.

The proposal footprint (direct disturbance) and area of influence (indirect disturbance) are to be established to identify the aspects of the environment (under each environmental factor) and the specific environmental values that could be impacted by implementation of the proposal. Consideration should be given to impacts associated with normal operations, abnormal operations, unplanned and emergency shutdowns of part or all of the proposal.

The draft EIS must identify:

- How negative impacts to environmental values will be avoided and positive impacts enhanced
- The likelihood and severity of the impacts, assessed in accordance with the precautionary principle
- The mitigation measures that will be implemented and their effectiveness in reducing impacts to environmental values
- How residual impacts that cannot be avoided or mitigated will be offset in accordance with the principles of the NT Offsets Framework, and EPBC Act Environmental Offsets Policy, 2012
- The proposed funding arrangements and/or timeframes to implement measures to avoid, mitigate and offset negative impacts or enhance potential positive impacts
- Environmental outcomes and commitments to protect and enhance environmental values for the life of the proposal.

Specific information requirements pertaining to each of the Territory and Commonwealth environmental factors and values are detailed in the sections below. If additional environmental values are identified through the environmental impact assessment process, they must also be included in the draft EIS, even if they are not specified in this draft TOR for EIS.

Table 3.1 NT EPA Environmental Factors and the components of the proposal that may have a significant impact

NT EPA Factor	Potential for significant impact of infrastructure components				
	Intake infrastructure	Basin infrastructure	Outlet and delivery infrastructure	Supporting infrastructure	Connecting infrastructure
Landforms	Yes	Yes	Yes	Uncertain	No
Terrestrial environmental quality	Yes	Yes	No	Yes	No
Terrestrial ecosystems	Yes	Yes	Yes	Uncertain	No
Hydrological processes	Yes	Yes	No	No	No
Inland water environmental quality	Yes	Yes	No	No	No
Aquatic ecosystems	Yes	Yes	No	No	No
Coastal processes	No	No	No	No	No
Marine environmental quality	No	No	No	No	No
Marine ecosystems	No	No	No	No	No
Air quality	No	No	No	No	No
Atmospheric processes	Uncertain	Uncertain	Uncertain	Uncertain	No
Communities and economy	Yes	Yes	Yes	Uncertain	No
Culture and heritage	Uncertain	Yes	Uncertain	Uncertain	No
Human health	No	Yes	No	No	No

Notes:

– Landforms and Terrestrial Environmental Quality are assessed jointly in the referral

– Visual impacts are discussed as part of 'Landforms and Terrestrial Environmental Quality' and 'Communities and Economy' EPA Factors.

The following sections and tables outline the information to be addressed for each environmental factor. The below information requirements should be addressed in an appropriate format within the draft EIS, with technical assessment reports appended to the draft EIS as applicable.

3.1 Landforms

Table 3.2 Minimum information required for assessment of Landforms

Aspect	Specific information required
NT EPA Objective: Conserve the variety and integrity of distinctive physical landforms	
Relevant activities	– Identify the activities that may affect landforms, including but not limited to: • Construction activities (e.g., embankment walls and associated infrastructure on Daly Range, Eastern Range, intake structure and supporting facilities on/adjacent to Adelaide River etc) • Extraction of water from the Adelaide River • Realignment of existing roads and tracks and/or construction of new permanent road infrastructure • Reservoir operations (i.e., AROWS basin as a new permanent water body) • Rehabilitation, closure and post-development activities.
Environmental values	– Describe the characteristics and current condition of the landforms in the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum) descriptive and spatial information for the following: • Mountain ranges (Daly Range, Eastern Range) • Adelaide River – Identify areas of land with extreme or severe constraints that will require major management and/or engineered solutions to overcome – Identify areas of land that will be excluded from proposal development due to the presence of extreme constraints that cannot be overcome – Identify cultural/social and environmental values associated with the distinctive landforms in the proposal area that could be directly or indirectly affected by impacts to the quality and integrity of the natural landscape caused by implementing the proposal. This must include consideration of the ecological, social, and cultural significance where relevant – Detail any information gaps or uncertainties in relation to landforms, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	– Identify, describe and assess direct and indirect impacts of implementing the proposal, and cumulative impacts, on the quality and integrity of landforms. This must include (at a minimum) consideration of impacts associated with: • Direct disturbance of landforms from proposal construction, commissioning and operations (earthworks, water extraction, visual amenity etc) • Indirect disturbance from proposal construction and operation, such as erosion/topsoil migration/offsite movement of sediments – The assessment of potential significant impacts to landform (including river morphology) must use the outcomes of relevant studies and information. As a minimum, the assessment must include: • Qualitative / semi-quantitative fluvial geomorphology assessment • Predictions based on modelling undertaken for relevant characteristics such as: – Alterations to river flow regime (hydraulic modelling) – Sediment transport (hydrodynamic modelling) • Multi-criteria assessment (concept design) – Determine the areas that could feasibly experience those significant impacts and classify the areas as: • Proposal footprint – or direct disturbance footprint. These are the areas of proposed infrastructure, vegetation clearing and direct use • Area of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc
Avoidance, mitigation and management	– Outline the measures for avoiding, mitigating, or offsetting impacts identified above, with consideration of section 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum:

Aspect	Specific information required
	• Infrastructure (including supporting facilities) design and layout • Proposal staging • Construction methods • Site rehabilitation and restoration where relevant • Erosion and sediment control • End-of-life of assets management • Compliance with any statutory or policy basis for the proposed measures. – All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction, commissioning and/or operations – All monitoring activities should be substantiated and in accordance with best practice or in accordance with advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values.

3.2 Terrestrial environmental quality

Table 3.3 Minimum information required for assessment of Terrestrial environmental quality

Aspect	Specific information required
NT EPA Objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.	
Relevant activities	– Identify the activities that may affect terrestrial environmental quality including but not limited to: • Land clearing • Excavation and disturbance of ground • Excavation and stockpiling of borrow materials • Realignment of roads and tracks (e.g., vehicle movement / traffic including ancillary use and vehicles accessing and leaving the site) • Dewatering during construction • Dangerous goods management • Waste handling (including wastewater and hazardous waste management from site facilities) • Unplanned events (e.g., accidental fuel/chemical spills) • Rehabilitation, closure and post-development activities.
Environmental values	– Describe the characteristics and current condition of land and soils in the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum) descriptive and spatial information for the following: • Presence of PASS/AASS/AFM and indicative volumes encountered • Potential or actual presence of contaminated soils as determined from a Preliminary Site Investigation (PSI) and/or contaminated land investigations, if any are undertaken • Slope characteristics and associated runoff and erosion risk, including details of existing erosion • Soil drainage to the extent that it poses a constraint to the proposed land use • Soil physical and chemical properties as relevant to the proposed land use. – Provide results and interpretation of any geotechnical and soil investigations and surveys of the area(s) of impact and an assessment of the suitability of sites for each relevant proposal component – Identify areas of land with extreme or severe constraints that will require major management and/or engineered solutions to overcome

Aspect	Specific information required
	– Identify areas of land that will be excluded from proposal development due to the presence of extreme constraints that cannot be overcome – 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 proposal. This must include consideration of the following where relevant: • Land uses, properties and public infrastructure surrounding the proposal • Surface watercourses • Groundwater aquifers • Groundwater dependent ecosystems • Aquatic ecosystems. – Detail any information gaps or uncertainties in relation to land and soils, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	– Identify, describe and assess direct and indirect impacts of implementing the proposal, and cumulative impacts, on the quality and integrity of land and soils. This must include (at a minimum) consideration of impacts associated with: • Direct disturbance of land and soils from proposal construction (e.g., land clearing, excavation, and trenching) such as soil compaction and loss of soil structure • Indirect disturbance from proposal construction and operation, such as erosion/topsoil migration/offsite movement of sediments, and altered drainage patterns • Disturbance and/or treatment of contaminated soils including potential acid sulfate soils (PASS)/ actual acid sulfate soils (AASS) and acid forming material (AFM) (if there are any present) • Contamination of soils from spills/leaks associated with transport, storage and handling of hazardous materials. – Determine the areas that could feasibly experience those impacts and classify the areas as: • Proposal footprint – or direct disturbance footprint. These are the areas of proposed infrastructure, vegetation clearing and direct use • Area of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc – 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 – Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Outline the measures for avoiding, mitigating, or offsetting impacts identified above, with consideration of section 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Infrastructure (including supporting facilities) design and layout • Proposal staging • Site rehabilitation and restoration where relevant • Erosion and sediment control • Water management and efficiency (including stormwater) • PASS/ASS/AFM management (if present) • Emergency/hazard/spill response management • End-of-life of assets management • Compliance with any statutory or policy basis for the proposed measures. – All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.

Aspect	Specific information required
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction, commissioning and/or operations – All monitoring measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values.

3.3 Terrestrial ecosystems

Table 3.4 Minimum information required for assessment of Terrestrial ecosystems

Aspect	Specific information required
NT EPA Objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.	
Relevant activities	– Identify the activities that may affect terrestrial ecosystems including but not limited to: • Land clearing and construction activities for temporary and permanent works (e.g., access tracks, laydown areas, site facilities, intake and outlet infrastructure etc) • Realignment and widening of roads and tracks and/or construction of new permanent road infrastructure • Dewatering during construction • Waste handling (including wastewater and hazardous waste management from site facilities) • Inundation of AROWS basin • Unplanned events (e.g., dam break/failure, accidental fuel/chemical spills) • Reservoir operations (e.g., controlled releases over the spillway or via the LLO) • Rehabilitation, closure and post-development activities.
Environmental values	– Identify and describe the terrestrial ecological ecosystem values within the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum): • A likelihood of occurrence assessment for all threatened terrestrial flora, fauna and migratory species modelled to occur or known to occur within the 20 km buffer desktop searches. • Descriptive and spatial information (maps) for sensitive/significant vegetation including riparian areas, wildlife corridors, wetlands and groundwater-dependent ecosystems (per the DEPWS NT Land Clearing Guidelines) found within and/or adjacent to the proposal area • Descriptive and spatial information of the extent of field-verified vegetation communities within the proposal area using vegetation mapping based on the Northern Territory Guidelines and Field Methodology for Vegetation Survey and Mapping (Brocklehurst et al. 2007) • Descriptive information for listed terrestrial threatened flora and fauna and/or migratory species known or considered likely or with potential to occur within or adjacent to the proposal area. Outlining habitat types, quality and extent of suitable habitat (hectares), landscape context, listing status (TPWC Act and EPBC Act), threatening processes, estimates of population size or abundance and distribution • Spatial information of general habitats and suitable habitat requirements for relevant threatened flora and fauna • Identification of any critical or important areas for threatened flora and fauna including consideration of the importance of both small and large areas of habitat, habitat connectivity (e.g., wildlife corridors), their location in the proposal area and areas likely to be important for maintaining terrestrial ecological integrity and functioning • Description of the presence of invasive weeds, pests and biosecurity risks observed or considered likely to occur in the proposal

Aspect	Specific information required
	• Map(s) of areas that are already protected and known offset areas under both Commonwealth and NT legislation. • Terrestrial ecosystem baseline survey assessments of infrastructure corridors (outside the basin) are to be undertaken. Additional targeted effort within the AROWS basin for relevant listed threatened species. – Provide detailed maps to support the above descriptions. Outline studies used in the assessment, including their results, limitations and uncertainties – Identify and describe the terrestrial groundwater ecosystem values within the proposal area – area(s) including descriptive and spatial information for habitats of terrestrial groundwater-dependent ecosystems that could be directly or indirectly impacted by the proposal – Identify areas of land that will be excluded from proposal development due to the presence of extreme constraints that cannot be overcome – 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, habitat condition/quality, and potential extent of values within or adjacent to the proposal area – Detail any information gaps or uncertainties in relation to terrestrial ecology, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	– Identify, describe, and assess the direct and indirect impacts, including cumulative effects, of implementing the proposal on terrestrial ecosystems and identified environmental values including: • Habitat loss including loss of vegetation communities and habitats for listed threatened fauna and flora and migratory species from land clearing and/or inundation • Habitat fragmentation due to infrastructure development • Habitat degradation for listed threatened fauna and flora and migratory species by noise, light, vibration, dust, weeds, run-off, sedimentation etc • Introduction/or spread of invasive species through workforce, vehicular and equipment movement and new access tracks that facilitate movement of feral predators • Fauna mortality and injury by collisions with construction vehicles, entrapment in excavations, and basin inundation. – Determine areas susceptible to these impacts, classifying them as: • Area of impact (direct disturbance footprint): Locations of proposed infrastructure, vegetation clearing, and direct use • Area of influence (indirect disturbance footprint): Surrounding and downstream areas indirectly affected by proposed activities. – Identify other industries and proposals in and around the area that could contribute to cumulative impacts on terrestrial ecosystems, including threatened species and habitats – Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Demonstrate infrastructure has been appropriately sited to minimise general biodiversity impacts and has taken environmental considerations into design – Identify standards and controls to be implemented as part of the proposal and their likely effectiveness to mitigate and manage impacts to terrestrial ecosystems – All mitigation measures should be substantiated and in accordance with available guidance, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks to terrestrial ecosystems, and mitigation and management measures. Describe clear and measurable indicators, outcomes and commitments that will allow the environmental objective is met and impacts of implementing the proposal will be acceptable. Specify timeframes for monitoring and reporting. The proposed monitoring and reporting should specify which proposal phase it relates to (i.e. construction, commissioning and/or operations) – All monitoring activities should be substantiated and in accordance with available guidance including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.

Aspect	Specific information required
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values. Describe level of certainty underpinning the predicted residual impacts.
Offsets	– Where a significant residual impact to listed species under the EPBC Act and TPWC Act may remain after applying the mitigation hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Framework (as published) and the EPBC Act environmental offsets policy

3.4 Hydrological processes

Table 3.5 Minimum information required for assessment of Hydrological processes

Aspect	Specific information required
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.	
Relevant activities	– Identify the activities that may affect hydrological processes (surface water and groundwater), including but not limited to: • Land clearing and construction (e.g., dewatering activities) • Extraction of groundwater for construction purposes • Water extraction from Adelaide River • Inundation of AROWS • Basin seepage/leakage • Rehabilitation, closure and post-development activities.
Environmental values	– Describe the characteristics and current condition of hydrological processes (surface water and groundwater systems) in the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum) descriptive and spatial information for the following: • Climate and meteorological conditions relevant to the proposal area, the frequency and severity of extreme weather conditions • Groundwater systems associated with the proposal area • Surface hydrology including catchment systems of the proposal's area of impact and area of influence, watercourse characteristics and baseline groundwater-surface water interactions • Any relevant water control districts and water allocation plans (current and future proposed) • Declared beneficial uses, existing users, water quality objectives and environmental values of water resources including sacred sites and sites of cultural significance • Current and potential (future) water use potentially affected by the proposed water extraction • Surface water setting, ensuring sufficient detail to enable the incremental /cumulative effects of the proposal on the Adelaide River to be identified, described and assessed quantitatively. This is to involve: – A flood study, including hydrological and hydraulic modelling of a range of flood events (baseline hydrology) – Analysis of available information to produce maps and descriptions of: • Regional and local catchments • Local drainage characteristics • Relevant environmental values – Provide detailed maps to support the above descriptions – Provide results and interpretation of any hydrological and hydrogeological surveys including surface water and groundwater level monitoring programs at local and catchment-scale and an assessment of relevance to the proposal area. Outline studies used in the assessment, including their results, limitations and uncertainties – Identify land uses and environmental values that could be directly or indirectly affected by impacts to hydrological processes caused by implementing the proposal. This must include consideration of the following where relevant:

Aspect	Specific information required
	• Land uses, properties and public infrastructure surrounding the proposal (e.g., private registered bores • Surface watercourses • Groundwater aquifers • Terrestrial and aquatic ecosystems (including groundwater dependent ecosystems) • Culturally significant sites – Detail any information gaps or uncertainties in relation to hydrological processes, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	– Identify, describe and assess direct and indirect impacts of implementing the proposal, and cumulative impacts, on the hydrological processes including: • Changes to the natural catchment, surface and groundwater hydrology for example from the creation of embankment walls, hardstand surfaces and other infrastructure through construction and operation of the proposal • Changes to surface water flows under proposed water extraction scenarios / operating rules including: – An alteration to the surface flow regime of Adelaide River – An alteration to the surface water inundation area (floodplain inundation extent upstream and downstream of the proposed intake) • Drawdown of localised groundwater table during construction, with likely effects to groundwater dependent ecosystems and declared beneficial uses (e.g., springs, wetlands, private registered bores etc), and connected surface water and groundwater systems during this time • Mounding of localised water table (as result of basin inundation and seeping during storage), with likely effects to downstream groundwater users and connected surface water and groundwater systems. – The assessment of potential significant impacts to surface water/hydrological processes must use the outcomes of relevant studies and information. As a minimum, the assessment must include: • Predictions based on modelling2 for relevant characteristics such as: – Alterations to river flow regime – Surface water levels, spatial extent and recovery time – Impacts to declared beneficial uses and other current or future surface water uses – Impacts to key ecological indicator species – Impacts to cultural water values – The assessment of potential significant impacts to groundwater/hydrogeological processes must use the outcomes of relevant studies and information. As a minimum, the assessment must include: • Predictions based on modelling for relevant characteristics such as: – Alterations to groundwater recharge – Groundwater drawdown levels, spatial extent and recovery time – Groundwater mounding levels, spatial extent and recovery time – Impacts to declared beneficial uses and other current or future groundwater uses (e.g., private registered bores, groundwater-dependent ecosystems) – Impacts to cultural water values – Determine the areas that could feasibly experience any potential significant impacts and classify the areas as: • Area of impact – or direct disturbance footprint. These are the areas of proposed infrastructure and direct use • Area of influence – or indirect disturbance footprint. These are surrounding downstream areas that may be indirectly affected by proposed activities, for example via groundwater mounding, changes to natural flows etc.

[2] Australia has various state and federal guidelines and frameworks that govern surface water modelling. These include guidelines for riverine floodplain modelling, water resource assessments, and environmental impact assessments.

Aspect	Specific information required
	– Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Outline the measures for avoiding, mitigating, or offsetting impacts identified above, with consideration of section 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Infrastructure (including supporting facilities) design and layout • Proposal staging • Engineering solutions and construction methodologies • Site rehabilitation and restoration where relevant • Erosion, sediment and drainage controls • PASS/ASS/AFM management (if present) • Water management and efficiency (including stormwater) • Emergency/hazard/spill response management • End-of-life of assets management • Compliance with any statutory or policy basis for the proposed measures. – All mitigation measures should be substantiated and in accordance with best practice and/or regulatory advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction, commissioning and/or operations – All monitoring activities should be substantiated and in accordance with best practice and/or advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values.

3.5 Inland water environmental quality

Table 3.6 Minimum information required for assessment of Inland water environmental quality

Aspect	Specific information required
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.	
Relevant activities	– Identify the activities that may affect inland water environmental quality (surface water and groundwater quality), including but not limited to: • Dewatering during construction activities • Extraction of groundwater for construction purposes • Excavation and/or stockpiling of borrow materials • Realignment of roads and tracks • Dangerous goods management • Waste handling (including wastewater and hazardous waste management from site facilities) • Unplanned events (e.g., dam break/failure, accidental fuel/chemical spills) • Water extraction from the Adelaide River • Reservoir operations (i.e., basin seepage/leakage, controlled/emergency discharges) • Rehabilitation, closure and post-development activities
Environmental values	– Describe the characteristics and current condition of inland water environmental quality (surface and groundwater quality) in the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum) descriptive and spatial information for the following:

Aspect	Specific information required
	• Surface water and groundwater quality (physical, chemical and biological) as relevant to the existing ecosystem and existing and proposed land use(s) within the proposal area • Surface water quality upstream and downstream of the proposed intake site, and at different river flow and tidal conditions • Sediment quality (targeting metals and nutrient analytes) upstream and downstream of the proposed intake site • Groundwater quality at local scale targeting impact areas within the construction footprint, and at regional scale targeting the predicted areas of mounding from basin inundation and seepage, covering both aquifer units (bedrock and alluvium) where required. – Provide results and interpretation of any surface water (and sediment) and groundwater quality sampling and monitoring programs of the area(s) of impact and an assessment of the suitability of sites for each relevant proposal component – Provide results and interpretation of any surface water (and sediment) and groundwater quality sampling and monitoring programs at catchment-scale and an assessment of relevance to the proposal area – Provide detailed maps to support the above descriptions. Outline studies used in the assessment, including their results, limitations and uncertainties – Identify areas of land with extreme or severe constraints that will require major management and/or engineered solutions to overcome – Identify areas of land that will be excluded from proposal development due to the presence of extreme constraints that cannot be overcome – Identify land uses and environmental values that could be directly or indirectly affected by impacts to the inland water environmental quality caused by implementing the proposal. This must include consideration of the following where relevant: • Land uses, properties and public infrastructure surrounding the proposal (e.g., private registered bores) • Surface watercourses • Groundwater aquifers • Terrestrial and aquatic ecosystems (including groundwater dependent ecosystems) • Culturally significant sites – Detail any information gaps or uncertainties in relation to inland water environmental quality, including any further studies or measures required to address these gaps.
Potential significant impacts and risks	– Identify, describe and assess direct and indirect impacts of implementing the proposal, and cumulative impacts, on the inland water environmental quality and associated environmental, social and cultural values. This must include (at a minimum) consideration of impacts associated with: • Localised erosion / runoff to waterways (including Adelaide River) from land based construction activities • Disturbance of contaminated soils including PASS/ASS/AFM materials (if present) and transport to sensitive receptors from proposal construction and operation activities (e.g., dewatering during construction, erosion/topsoil migration) • Contamination of surface water and groundwater from spills/leaks associated with transport, storage and handling of dangerous goods/hazardous materials and waste streams. • Changes to salinity and/or chemical concentrations within downstream waterways (including Adelaide River) as a result of changes to natural flow regimes from water extraction operations in the Adelaide River and/or basin releases over the spillway or via the LLO • Changes to groundwater quality at groundwater-dependent ecosystems and/or existing groundwater uses from seepage of stored water in the basin. – Determine the areas that could feasibly experience those potential significant impacts and classify the areas as: • Area of impact – or direct disturbance footprint. These are the areas of proposed infrastructure and direct use. • Area of influence – or indirect disturbance footprint. These are surrounding downstream areas that may be indirectly affected by proposed activities, for example via groundwater mounding, release of contaminants, changes to natural flows etc – The assessment must identify potential impacts and risks to inland water environmental quality and quantify their significance:

Aspect	Specific information required
	• Against any relevant guideline thresholds including Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG (2018)) • On the beneficial uses, water quality objectives and identified environmental (including cultural) values. – Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Outline the measures for avoiding, mitigating, or offsetting impacts identified above, with consideration of section 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Infrastructure (including supporting facilities) design and layout • Proposal staging • Engineering solutions and construction methodologies • Site rehabilitation and restoration where relevant • Erosion, sediment and drainage controls • PASS/ASS/AFM management (if present) • Water management and efficiency (including stormwater and wastewater) • Emergency/hazard/spill response management • End-of-life of assets management • Compliance with any statutory or policy basis for the proposed measures. – All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction, commissioning and/or operations – All monitoring activities should be substantiated and in accordance with best practice including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values.

3.6 Aquatic ecosystems

Table 3.7 Minimum information required for assessment of Aquatic ecosystems

Aspect	Specific information required
NT EPA Objective: Protect the quality and integrity of aquatic environmental values so that they are supported and maintained.	
Relevant activities	– Identify the activities that may affect aquatic ecosystems including, but not limited to: • Construction of project infrastructure near waterways (e.g., embankment walls, intake infrastructure, clean water diversion etc) • Construction flood management • Dewatering during construction • Dangerous goods management • Waste handling (including wastewater and hazardous waste management from site facilities) • Inundation of AROWS basin • Unplanned events (e.g., dam break/failure, accidental fuel/chemical spills) • Water extraction from the Adelaide River (e.g., impact to fish) • Reservoir operations (e.g., controlled releases over the spillway or via the LLO)

Aspect	Specific information required
	• Rehabilitation, closure and post-development activities.
Environmental values	– Identify and describe the aquatic ecological ecosystem values within the proposal area – area(s) that could be directly impacted by actions proposed to be taken under the proposal. This must include (at a minimum) the following: • Descriptive and spatial information (maps) for aquatic habitats found within and or adjacent to the proposal area • A likelihood of occurrence assessment for all threatened and listed aquatic species modelled to occur or known to occur within the 20 km buffer desktop searches • Field assessment of habitat, water quality, aquatic flora and fauna, and macroinvertebrates that captures seasonal and spatial variation of use in aquatic habitats within and adjacent to the proposal area • Condition of habitat as per the Northern Territory Australian River Assessment Scheme Sampling and Processing Manual • Descriptive and spatial information for listed aquatic threatened and/or migratory species known to occur within or adjacent to the proposal area outlining key habitat types, listing status (under TPWC Act and EPBC Act), threatening processes, estimates of population size or abundance and distribution • Assessment of the importance of habitats for threatened and listed species, and other aquatic values (i.e. fish and macroinvertebrates) in a Territory, national and international context • Identification and assessment of the importance of key indicator species including culturally significant species in a local and catchment scale context. Criteria for selection of key indicator species could include: – plausibly affected by potential project impacts (changes in flow, fragmentation/ loss of habitat, invasive species and/or entrapment/ entrainment), – species previously well studied (in the Adelaide River or in similar catchments in northern Australia), – species presence can be quantified – importance to conservation, Traditional Owners/Custodians and/or fisheries – indicator species including, but not limited to cherabin (*Macrobrachium spinipes*), freshwater sawfish (*Pristis pristis*), speartooth shark (*Glyphis glyphis*), barramundi (*Lates calcarifer*), archerfish (*Toxotidae spp*) and introduced/invasive species (e.g. Siamese fighting fish, *Betta splendens* or *Hymenachne amplexicaule*) • Additional targeted surveys including the use of environmental DNA (eDNA) analysis (eDNA metabarcoding and/or species-specific quantitative PCR (qPCR)) to help determine species presence (including key indicator species) and seasonal distribution where appropriate • Identification of any critical or important areas for protected matters including consideration of the importance of habitat connectivity and areas likely to be important for maintaining aquatic ecological integrity and functioning • Map(s) of areas that are already protected and known offset areas under both Commonwealth and NT legislation. – Identify areas of land with extreme or severe constraints that will require major management and/or engineered solutions to overcome – Identify areas of land that will be excluded from proposal development due to the presence of extreme constraints that cannot be overcome – 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 proposal area – Detail any information gaps or uncertainties in relation to aquatic ecology, including any further studies or measures required to address these gaps, and including previous or ongoing work undertaken by the Northern Territory Government or other organisations.
Potential significant impacts and risks	– Identify, describe and assess direct and indirect impacts of implementing the proposal, and cumulative impacts, on the quality and integrity of aquatic ecosystems. This must include (at a minimum) consideration of impacts associated with: • Direct disturbance from proposal construction, commissioning and operations (e.g. land clearing, earthworks, construction dewatering, operational surface water extraction,

Aspect	Specific information required
	inundation etc.) resulting in habitat fragmentation, habitat loss, fauna mortality/injury/entrapment, disturbance to flow-dependent species etc • Indirect disturbance from proposal construction and operation, such as erosion/topsoil migration, offsite movement of sediments, introduction/spread of invasive species, controlled/emergency basin discharges – Determine the areas that could feasibly experience those impacts and classify the areas as: • Area of impact – or direct disturbance footprint. These are the areas of proposed infrastructure, vegetation clearing and direct use. • Area of influence – or indirect disturbance footprint. Surrounding and downstream areas that may be indirectly affected by proposed activities, for example via changes to natural flow regimes and/or characteristics (salinity, temperature, etc), release of contaminants etc. – Identify sensitive time periods for threatened and listed species, and/or key ecological functions – Identify other industries and proposed projects within and adjacent to the proposal area that may contribute to cumulative impacts of actions under the proposal to aquatic communities and habitats, threatened and/or migratory species and or other aquatic ecosystem values – Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Identify how impacts to aquatic ecosystems (surface and groundwater-dependent) can be avoided, where possible – Identify and outline the standard controls and measures for avoiding, mitigating, or offsetting impacts identified above, with consideration of Section 26 (Environmental decision making hierarchy) and Section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Infrastructure (including supporting facilities) design and layout • Engineering solutions and construction methodologies • Project staging • Site rehabilitation and restoration where relevant • Erosion and sediment control • PASS/ASS/AFM management (if present) • Water management and efficiency (including stormwater) • Emergency/hazard/spill response management • End-of-life of assets management • Compliance with any statutory or policy basis for the proposed measures – All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential impacts and risks, and mitigation and management measures. The proposed monitoring and reporting should specify which proposal phase it relates to (i.e. construction, commissioning and/or operations). – All monitoring activities should be substantiated and in accordance with best practice including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values. Describe level of certainty underpinning the predicted residual impacts.
Offsets	– Where a significant residual impact to listed species under the EPBC Act and TPWC Act may remain after applying the mitigation hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Framework (as published) and the EPBC Act environmental offsets policy

3.7 Atmospheric processes

Table 3.8 Minimum information required for the assessment of Atmospheric processes

Aspect	Specific information required
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	
Relevant activities	– Identify the activities that may contribute to greenhouse gas emissions, including but not limited to: • Land clearing, vegetation and land use change • Fuel combustion for the operation of machinery and vehicles during construction, commissioning and operations • Power generation (e.g., electricity use) • Basin inundation (methane emissions) • Workforce movement (e.g., Fly-in and fly-out (FIFO), Drive-in Drive-out (DIDO))
Environmental values	– Describe the current emissions profile for the NT by industry/sector – Describe GHG emissions trajectories for the NT by industry/sector.
Potential significant impacts and risks	– Update the proposal's estimated impact on: • Direct GHG emissions due to Scope 1 and Scope 2 emissions (e.g., land clearing, diesel exhaust, electricity, basin methane emissions, etc. during construction, commissioning and operation) for each financial year and total for the life of the proposal - using recognised emissions accounting methodology(ies) • Comparison with NT and national emissions • Contribution to the NT target of net zero greenhouse gas emissions by 2050 and broader efforts to reduce global greenhouse gas emissions – Provide an up to date inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in tonnes 'CO_2 equivalent' terms. Provide justification for the suitability of methodologies or surveys used to calculate greenhouse gas emissions. – Provide details of any information gaps or uncertainties in relation to GHG emissions, including any further studies or measures required to address these gaps.
Avoidance, mitigation and management	– Describe any energy efficiency and mitigation and management measures that will be adopted during the construction, commissioning and operation phases of the proposal to reduce or minimise GHG emissions and demonstrate best practice so as to contribute to the NT's target of net zero by 2050 (for example by sourcing power from renewable source) in accordance with the NT's Climate Change Response. – This is to address any local conditions or circumstances that might influence the choice of technologies or measures to mitigate emissions.
Monitoring and reporting	– Outline any proposed monitoring and reporting of greenhouse gas emissions. – All monitoring activities should be substantiated and in accordance with best practice advice from relevant NT Government advisory agencies.
Residual impact	– Describe the net contribution to the NT's greenhouse gas emissions over the life of the proposal – Explain how the proposal will contribute to the NT EPA's objective to minimise greenhouse gas emissions so as to contribute to the NT Government's target of achieving net zero greenhouse gas emissions by 2050.
Offsets	– Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets for all GHG emissions generated by the proposal and describe how any proposed offset is consistent with the NT Offset Framework (as published) and NT GHG emissions offsets policy (draft).

3.8 Community and economy

Table 3.9 Minimum information required for assessment of Community and economy

Aspect	Specific information required
NT EPA objective: Enhance communities and the economy for the welfare, amenity and benefit of current and future generations of Territorians.	
Relevant activities	– Identify the activities that may affect community and economy, including but not limited to: • Property acquisition • Construction activities (e.g., land clearing, earthworks, roadworks etc) • Land use change (including all areas where proposal infrastructure will be established) • AROWS basin • Realignment of roads and tracks (e.g., new permanent road infrastructure) • Reservoir operations (e.g., controlled releases over the spillway or via the LLO) • Employment and social and economic opportunity for local communities • Rehabilitation, closure and post-development activities.
Environmental values	– Identify and describe the existing social and economic profile that could be affected by the proposal.
Potential impacts and risks	– Identify, describe and assess the potential impacts (including cumulative impact), along with the social and economic benefits associated with the proposal for the local, regional and NT community and economy including: • Potential and/or perceived changes to land use in areas of the proposal infrastructure • Potential partial and/or complete property acquisition as a result of the proposal infrastructure • Social impacts of activities that affect tangible and intangible cultural values, heritage and cultural landscapes for Traditional Owners and Custodians • Potential changes to the population and demography of the area (local, regional and NT) • Opportunities and benefits for existing local and regional businesses, economic sectors and employment/ livelihoods • Potential adverse impact to existing local and regional businesses and economic sectors (including those up and down stream) due to demographic changes and potential changes in water extraction and allocations from the Adelaide River • Potential impacts on short-term accommodation, including tourism • Potential pressure on quality, affordability and availability of existing social infrastructure and services, including education, health, transport, emergency services, utilities, and sport and recreation • Impacts on community wellbeing, values, aspirations, health and social cohesion • Amenity impacts (e.g., noise, vibration, dust, visual, etc) • Social impacts of local traffic changes, including traffic congestion or access changes due to the changes to Marrakai Road • Recreational and cultural access changes • Social impact of any potential and/or perceived safety risks. – Demonstrate that the assessment of the impacts and benefits of the proposal on people in the social study area is informed by an inclusive and collaborative community and stakeholder engagement and consultation process. – The assessment must quantify the significance of potential economic impacts to communities.
Avoidance, mitigation and management	– Provide a social impact management plan (SIMP) that: • Includes management measures to avoid, mitigate and manage potential significant social and economic impacts and enhance benefits • Outlines the roles and responsibilities of the proponent, its contractors and other stakeholders for implementation of the identified social and economic mitigation and management measures throughout the life of the proposal • Includes a framework for monitoring the effectiveness of the proposed avoidance, mitigation and management measures.

Aspect	Specific information required
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential significant impacts and risks to community and economy, and measures for their mitigation and management – The proposed monitoring and reporting should specify which proposal phase it relates to i.e., construction, commissioning or operations – Demonstrate how the views of stakeholders, including Aboriginal stakeholders, have been considered in proposed monitoring and reporting and are in accordance with best practice and advice from relevant NT Government authorities, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Assess the significance of any residual impact or risk of the proposal to identified values and the acceptability of the residual impact to Aboriginal stakeholders.

3.9 Culture and heritage

Table 3.10 Minimum information required for assessment of Culture and Heritage

Aspect	Specific information required
NT EPA Objective: Protect sacred sites, culture and heritage.	
Relevant activities	– Identify the activities that may affect culture and heritage, including but not limited to: • Construction activities (e.g., land clearing, blasting, earthworks, roadworks etc) • Realignment of roads and tracks (e.g., new permanent road infrastructure) • Inundation of AROWS basin • Surface water extraction • Reservoir operations (e.g., controlled releases over the spillway or via the LLO) • Rehabilitation, closure and post-development activities.
Environmental values	– Describe the characteristics and current condition of sacred sites, cultural and heritage values (both tangible and intangible) in the proposal footprint (area(s) of direct disturbance) and area of influence (indirect disturbance) that could be impacted by actions proposed to be taken under the proposal. This must include (at a minimum) descriptive and spatial information for the following: • Aboriginal and non-Aboriginal sites, places or objects of natural, historic or cultural heritage significance, current use and spiritual significance • Cultural uses of the area • Amenity (e.g. noise, odour, dust, vibration and aesthetics) to the extent of its importance to maintaining cultural values. – Information sources must include published archaeological and anthropological information, heritage assessment surveys, a cultural values impact assessment, respective registers, consultations and other research – Justify the suitability of the methodologies, surveys or processes used to provide information about sacred sites, culture and heritage – 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 – Registered or recorded sacred sites and processes for obtaining Authority Certificate under the *Northern Territory Aboriginal Sacred Sites Act 1989* or an application under the Act – Detail consultation with Traditional Owners and Custodians regarding possible impacts to sacred sites, including identification of participants, and results of consultation.
Potential significant impacts and risks	– Describe and assess the likely direct, indirect and cumulative impacts of implementing the proposal, including any actions taken under the proposal. This must include at a minimum an assessment of: • Damage or destruction of archaeological features and/or sites of cultural significance, from construction and operation activities • The unexpected revealing and/or destruction of buried material culture or human remains during construction works • Removal of important heritage items or places

Aspect	Specific information required
	• Inundation effects on archaeological features and significant cultural landscape areas or sites within the area(s) of impact and influence • Loss of access to land for cultural purposes. – Assess the potential for indirect impact to archaeological and cultural sites through: • Dust emissions from land clearing and soil disturbance activities, wind erosion and traffic movement • Water pollutants such as sediment, may damage or bury heritage features as a result of proposal operations (e.g., water extraction, controlled releases from reservoir) • Increased access by public from new roads/tracks/land infrastructure and increased awareness of archaeological and cultural features through environmental assessment process • Intergenerational impact to the perception of a place's cultural value once it has been altered • Incremental destruction of places through increased development opportunities resulting from the development of the proposal. – Identify uncertainties and provide a detailed description of how uncertainties would be addressed, such as through an adaptive management approach incorporating monitoring and staging. Where uncertainty remains, adopt the precautionary principle and demonstrate how it has been met (section 19 of EP Act).
Avoidance, mitigation and management	Provide a cultural heritage management plan (CHMP) that: – Identifies how impacts to sacred sites, culture and heritage must be avoided – Identifies the general and value-specific development standards and controls that will be implemented as part of the proposal and their likely effectiveness to avoid, mitigate and manage impacts to sacred sites, culture and heritage. These standards and controls must address the following (at a minimum): • Measures to protect, and avoid entry to, sacred sites • Procedures to avoid significant heritage values and sites and protect key sites during construction, commissioning and operation • Any requirement to apply to, or applications already made under the Heritage Act 2011 to disturb or destroy a prescribed archaeological place and/or object • Contingency procedures that would be implemented in the event that any surface or sub-surface items/sites of heritage/cultural significance (additional to those identified in the EIS) are identified during implementation of the proposal.
Residual impact	– Identify any potential significant residual impact or risk of the proposal to identified Aboriginal values and the acceptability of the residual impact to Aboriginal stakeholders. – Describe clear and measurable outcomes and commitments for the protection and enhancement of sacred sites, culture and heritage and state whether there are likely to be any significant residual environmental impacts or risks to identified values – Demonstrate how the outcomes and commitments will ensure the factor's environmental objective is met via the implementation of the proposal – Provide a clear explanation as to why the impacts of implementing the proposal are acceptable.

3.10 Human health

Table 3.11 Minimum information required for assessment of Human health

Aspect	Specific information required
NT EPA Objective: Protect the health of the Northern Territory population.	
Relevant activities	– Identify the activities that may affect human health and wellbeing, including but not limited to: • Construction activities (e.g., land clearing, soil disturbance, etc) • Changes to roads and tracks (e.g., vehicle movement / traffic, new permanent road infrastructure) • Reservoir operations (i.e., dam break/failure) • Employment

Aspect	Specific information required
	• Rehabilitation, closure and post-development activities.
Environmental values	– Describe the sensitive human populations in proximity to the proposal area. Provide maps to support descriptions as appropriate – Describe the health and well-being of the potentially affected community, and general population.
Potential significant impacts and risks	– Describe and assess potential significant impacts associated with the proposed construction, commissioning and operation activities, including: • Reduction in bush tucker availability • Traffic impacts across all phases of the proposal • Increased human exposure to risk of crocodile attacks • Increased human exposure to vector-borne diseases as a result of introduction of mosquitoes or increase in their population size/breeding sites • Safety from dam break/failure – The assessment must: • be based on outcomes of investigations and/or other relevant information • quantify the significance of potential impacts and risks against relevant guideline thresholds • consider cumulative impacts and the reversibility of potential significant impacts. – Describe any uncertainties and further work required to increase understanding of potential significant impacts and reduce uncertainty. Where uncertainty remains, demonstrate how the precautionary principle has been applied (section 19 of EP Act). Quantify the significance and extent of impacts, at the project level and cumulatively, using relevant guideline thresholds.
Avoidance, mitigation and management	– Outline the measures for avoiding, mitigating, or offsetting impacts identified above. These should address at a minimum: • facility design and layout • construction/installation methods • facility operations and maintenance • road infrastructure upgrades/re-alignment • weed/fire control and management. – All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Monitoring and reporting	– Outline proposed monitoring and reporting activities related to potential significant impacts and risks and mitigation and management measures to human health values. The proposed monitoring and reporting must specify which proposal phases it relates to. – All monitoring activities must be substantiated and in accordance with best practice advice from relevant from relevant NT Government advisory agencies, potential native title holders, Traditional Owners/Custodians and/or their representatives.
Residual impact	– Identify the significance of any residual impact or risk of the proposal to identified values.

Note: Perceived risks/impacts to human health and wellbeing are discussed as part of ‘Communities and Economy’ EPA Factor.

4. Other requirements

4.1 Other environmental factors or matters

4.1.1 Matters of national environmental significance (MNES)

The proposal is considered likely to be a controlled action and require an EIS under the Commonwealth legislation (EPBC Act) due to impacts to Commonwealth listed threatened species, in particular Listed threatened species and communities (section 18 and 18A).

The draft EIS must address all relevant MNES and explain how they have adequately regarded the Conservation Advice of each EPBC Act listed species that are known or likely to be impacted, and Australia's obligations under international conventions and agreements. Moreover, the draft EIS must explain how the proposal is consistent with any Guidelines, Threat Abatement Plans, Bioregional Plans or Recovery Plans including, but not limited to:

- DCCEEW's Significant Impact Guidelines 1.1
- EPBC Act Referral guideline for the endangered northern quoll *Dasyurus hallucatus*
- Conservation Advice for:
  - *Helicteres macrothrix*
  - Mertens' water monitor (*Varanus mertensi*)
  - Mitchell's Water *Monitor (Varanus mitchelli)*
  - Northern Blue-tongued Skink (*Tiliqua scincoides intermedia*)
  - Black-footed tree-rat (*Mesembriomys gouldii gouldii*)
  - Northern quoll (*Dasyurus hallucatus*)
  - Northern river shark (*Glyphis garricki*)
  - Speartooth shark (*Glyphis glyphis*)
  - Largetooth sawfish (*Pristis pristis*)
- National Recovery Plans for:
  - Northern Quoll (*Dasyurus hallucatus*) (DCCEEW, 2010)
  - Sawfish and River Sharks Multispecies Recovery Plan (DCCEEW, 2015)
- Threat Abatement Plans for/to:
  - Biological effects, including lethal toxic ingestion, caused by cane toads (DCCEEW, 2011)
  - Reduce the impacts on northern Australia's biodiversity by the five listed grasses (DCCEEW, 2012)
  - Predation by feral cats (DCCEEW, 2015)
  - Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*) (DCCEEW, 2017)

  The following survey guidelines:
  - Survey guidelines for Australia's threatened bats (DCCEEW, 2010)
  - Survey guidelines for Australia's threatened birds (DCCEEW, 2010)
  - Survey guidelines for Australia's threatened fish (DCCEEW, 2011)
  - Survey guidelines for Australia's threatened mammals (DCCEEW, 2011)
  - Survey guidelines for Australia's threatened reptiles (DCCEEW, 2011)

The draft EIS must include a discussion of how the proposal meets the principles of ecologically sustainable development, as defined under section 3A of the EPBC Act.

4.2 Offsets

Provide details of an overall offset strategy for any significant residual impacts of the proposal on the terrestrial environment. Offsets may be required as a condition of any approval under the EPBC Act. Offsets must be consistent with the NT Offsets Framework, and the EPBC Act environmental offsets policy.

4.3 Whole of environment considerations

Provide a holistic assessment of the impacts of the proposal on the whole of the environment, in particular, a description of the connections and interactions between the environmental factors, and cumulative impacts. Succinctly discuss predicted outcomes in relation to the principles of environment protection and management (as set out in Part 2 of the EP Act) and the NT EPA's environmental objectives.

4.4 Consideration of the impacts of a changing climate

The draft EIS must assess:

– How adaptation to reasonable climate change scenarios has been considered in the proposal (including design and resultant viability of the proposal), with reference to the NT policy Northern Territory Climate Change Response: Towards 2050 (DENR 2020) 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 proposal address any significant vulnerabilities of the proposal and the environmental values in and adjacent to the proposal area under the most current and reasonable climate change projections for the region.

4.5 Stakeholder engagement and consultation

Proponents have a general duty under Section 43 of the EP Act to provide communities and stakeholders that may be affected by a proposal with an opportunity for consultation to assist community understanding of the proposal and its potential impacts and benefits.

The draft EIS is to document the following:

– The proponent's approach to stakeholder engagement and consultation for the life of the proposal, through provision of a stakeholder engagement plan, including demonstration that this is consistent with the NT EPA's guidance for proponents: Stakeholder Engagement and Consultation (NT EPA 2021) and aligns with best-practice guidance

– A summary of information presented in the referral on consultation undertaken up until mid-2024, including identified stakeholder groups, key issues raised, and adjustments made to the proposal as a result of consultation

– Details of further stakeholder engagement and consultation undertaken on the proposal during the EIS phase including:
  - The engagement approach
  - Any additional identified stakeholders
  - Methods use for the communication with stakeholders and how proposal information was disseminated
  - How stakeholder input was invited
  - Key issues raised in consultations
  - Any adjustments to the proposal as a result of consultation.

4.5.1 Aboriginal stakeholders

The draft EIS, including a stakeholder engagement plan and the cultural and social impact assessment, is to be informed by consultation with Aboriginal stakeholders. The draft EIS should set out the processes applied to identifying and determining Aboriginal stakeholders.

Aboriginal stakeholders must include:

– Native title claimants of the potentially affected area
– Traditional Aboriginal Owners whose lands are within the potentially affected area

The draft EIS is to describe the Aboriginal stakeholders and demonstrate how the proponent has:

– Recognised the role of Aboriginal people as stewards of their country
– Recognised the rights and interests of Aboriginal stakeholders in the potentially affected area, and encouraged their participation in environmental decision-making in relation to the proposal
– Enabled Aboriginal stakeholders (and in particular affected potential native title holders and traditional owners and custodians) to make decisions about the proposal engaged with Aboriginal stakeholders in a culturally appropriate manner, using specialist expertise where required
– Provided Aboriginal stakeholders with information in appropriate detail, language and format for understanding of the proposal and its potential impacts and benefits
– Promoted the cooperative use of Aboriginal knowledge of biodiversity and Aboriginal culture in environmental decision-making
– Treated the views of Aboriginal stakeholders as the primary source of information on Aboriginal cultural values
– Discussed options with, and obtained the views of, Aboriginal stakeholders in regard to environmental management and cultural heritage management (including environmental monitoring and reporting)
– Adopted measures to protect the rights and interests of Aboriginal people in relation to the areas that may be impacted.

4.6 Public consultation requirements

The public consultation requirements for the draft EIS are outlined in Part 5 Division 5 of the EP Regulations. Consultation material must summarise and highlight the main risks and potential impacts of the proposal in a culturally appropriate format and language, accompanied by graphics and illustrations or other media to assist with interpretation.

The proponent will also ensure that stakeholders who are affected by the proposal are provided with the opportunity for a briefing from the project team where they are able to ask questions to the proponent.

4.6.1 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.

4.6.2 Manner in which to publish

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.

4.6.3 Advertising

An advertisement must be placed in the NT News and a nationally distributed newspaper 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.

4.6.4 Public consultation locations

The draft EIS should be provided to and be made available for public consultation as accessible PDF files and printed copies at the following locations:

- NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap
- Northern Territory Library, Parliament House, Darwin, NT 0800
- Environment Centre Northern Territory, Unit 3, 98 Woods Street, Darwin
- Northern Land Council, 45 Mitchell Street, Darwin
- NT Farmers Association, Shop 15A, 460 Stuart Highway, Coolalinga
- Adelaide River Post Office Store, 1 Stuart Highway, Adelaide River

Appendix A – List of relevant guidance material

The following guidance material is considered relevant to the TOR (in addition to those listed in Section 4.1.1). This list is not exhaustive, but captures key guidance used in the preparation of these TOR and to inform the preparation of the EIS. The proponent must draw on further relevant industry and best practice guidance as part of developing the EIS.

- ANZECC & ARMCANZ 2018. Australian and New Zealand Guidelines for Fresh and Marine Water Quality. https://www.waterquality.gov.au/anz-guidelines
- Barnett et al, 2012, Australian groundwater modelling guidelines, Waterlines report, National Water Commission, Canberra.
- Brocklehurst, P. S., et al., 2007. Northern Territory guidelines and field methodology for vegetation survey and mapping. Available at: Available at: https://hdl.handle.net/10070/635994
- CSIRO 2020. Climate Change in the Northern Territory: State of the science and climate change impacts. https://depws.nt.gov.au/__data/assets/pdf_file/0011/944831/state-of-the-science-and-climate-change-impacts-final-report.pdf
- DCCEEW 2023. Interim Engaging with First National People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999: https://www.dcceew.gov.au/environment/epbc/publications/engage-early
- DENR 2000. Northern Territory Water Allocation Planning Framework. Northern Territory Government. https://depws.nt.gov.au/__data/assets/pdf_file/0011/476669/nt-water-allocation-planning-framework.pdf
- DENR 2020. Land clearing guidelines. Department of Environment and Natural Resources: https://nt.gov.au/property/land-clearing
- DENR 2020. Northern Territory Climate Change Response: Towards 2050. Department of Environment and Natural Resources: https://depws.nt.gov.au/__data/assets/pdf_file/0005/904775/northern-territory-climate-change-response-towards-2050.pdf
- DEPWS 2021. Northern Territory Offsets Framework. https://depws.nt.gov.au/environment-information/northern-territory-offsets-framework/northern-territory-offsets-framework
- DEPWS 2023. Biodiversity Offsets Policy. https://depws.nt.gov.au/__data/assets/pdf_file/0003/1182450/biodiversity-offsets-policy.pdf
- NAIF 2020. Indigenous Engagement Strategy Guideline. Northern Australia Infrastructure Facility: https://naif.gov.au/wp-content/uploads/2020/09/FINAL_IESGuideline_2020.pdf
- Infrastructure Australia 2021. Guide to economic appraisal. https://www.infrastructureaustralia.gov.au/guide-economic-appraisal
- National Environmental Protection (Ambient Air Quality) Measure (NEPM) 2021: https://www.nepc.gov.au/nepms/ambient-air-quality
- NESP Earth Systems and Climate Change Hub 2020. Climate change in the Northern Territory: state of the science and climate change impacts. National Environment Science Programme, Earth Systems and Climate Change Hub: http://nespclimate.com.au/building-understanding-of-climate-change-in-the-northern-territory/.
- Northern Territory Government 2017. Preventing weed spread guide, Weed Management Branch: https://nt.gov.au/environment/weeds/how-to-manage-weeds/prevent-weed-spread-industry-and-recreation
- NSW DPE 2021. Cumulative Impact Assessment Guideline for State Significant Projects. NSW Department of Planning and Environment: https://www.planning.nsw.gov.au/sites/default/files/2023-03/cumulative-impact-assessment-guidelines-for-ssp.pdf
- NSW DPE 2021. Social Impact Assessment Guideline. NSW Department of Planning and Environment: https://www.planningportal.nsw.gov.au/sites/default/files/documents/2023/GD1944%20SIA%20Guideline_NEW%20VI_14_02_23.pdf

- NSW Waste classification guidelines at https://www.epa.nsw.gov.au/your-environment/waste/classifying-waste/waste-classification-guidelines
- NT EPA 2013a. Guidelines for Assessment of Impacts on Terrestrial Biodiversity. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- NT EPA 2013b. Guidelines for the Preparation of an Economic and Social Impact Assessment. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- NT EPA 2013c. Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the NT. Northern Territory Environment Protection Authority. https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/284685/siting_design_landfills.pdf
- NT EPA 2015. Waste Management Strategy for the Northern Territory 2015-2022. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- NT EPA 2017. Guideline: Recommended Land Use Separation Distances. https://ntepa.nt.gov.au/__data/assets/pdf_file/0006/453192/guideline_recommended_land_separation_distances_oct.pdf
- NT EPA 2018. Guidance on Adaptive Management. https://ntepa.nt.gov.au/__data/assets/pdf_file/0003/622092/guideline_adaptive_management.pdf
- NT EPA 2020. Environmental impact assessment guidance: NT EPA Environmental Factors and Objectives. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- NT EPA 2020. Environmental impact assessment guidance for proponents: Stakeholder Engagement and Consultation. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- NT EPA 2021. Environmental impact assessment guidance for proponents: Preparing an environmental impact statement. Northern Territory Environment Protection Authority: https://ntepa.nt.gov.au/__data/assets/pdf_file/0009/818217/preparing-an-environmental-impact-statements.pdf
- NT EPA 2022. Waste. https://ntepa.nt.gov.au/your-environment/waste
- NT EPA 2022. Draft Environmental factor guidance: Culture and heritage. https://ntepa.nt.gov.au/__data/assets/pdf_file/0003/1103484/draft-environmental-factor-guidance-culture-and-heritage.pdf
- NT EPA 2023. Environmental factor guidance: Atmospheric Processes. Greenhouse Gas Emissions https://depws.nt.gov.au/__data/assets/pdf_file/0007/1278511/environmental-factor-guidance-atmospheric-processes-august-2023.pdf
- NT EPA. Environmental Management - Environmental impact technical guidance; Guidance for environmental management, monitoring and reporting: https://ntepa.nt.gov.au/publications-and-advice/environmental-management
- DoH, 2017. Guidelines for Preventing Mosquito Breeding Associated with Construction Practice near Tidal Areas in the NT. https://digitallibrary.health.nt.gov.au/