Northern Water Desalination Plant and Water Transfer System Infrastructure Project

Application Number: **03264** Commencement Date: **11/12/2025** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Northern Water Desalination Plant and Water Transfer System Infrastructure Project

1.1.2 Project industry type *

Water Management and Use

1.1.3 Project industry sub-type

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1.1.4 Estimated start date *

01/10/2027

1.1.4 Estimated end date *

01/10/2128

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

Overview

The Northern Water Project (the Project), the proposed action that is the subject of this referral, aims to provide a secure, climate resilient water source for industry in South Australia's Upper Spencer Gulf and Far North. The Project would enable the growth of industries and key mining resources crucial for contributing to decarbonisation initiatives, sustainability and unlocking long term economic prosperity for South Australia.

Delivery of the Project will involve the construction and operation of a 51 GL/y seawater reverse osmosis desalination plant located at Mullaquana Station on the Upper Spencer Gulf. The proposed action includes the construction of a desalination plant, intake pump station, intake and outfall tunnels extending beneath the seabed into the Spencer Gulf and diffuser structures for discharge of return water into the Spencer Gulf. The transfer system consists of a ~360 km main transfer pipeline, a ~46 km Carrapateena lateral branch and associated transfer pump stations and storage tanks to transfer desalinated water to the delivery point at the Olympic Dam copper-gold mine. Electricity infrastructure includes high voltage electricity supply including powerlines, network and facility substations to provide power to the desalination plant and transfer pump stations.

Land at Mullaquana Station and the adjoining station properties is currently utilised for sheep grazing and has not been cleared for agricultural cropping. Transfer system infrastructure including pipelines, transfer pump stations and storages has been located to parallel and / or utilise existing and previously disturbed areas (where possible), largely within land subject to livestock grazing over native vegetation.

The proposed action will have a direct or indirect impact on the environment through clearing of native vegetation / habitat to enable the construction of the desalination plant, transfer system and electricity infrastructure. Potential environmental impacts from operational activities are more limited in extent and include direct and indirect impacts on marine flora and fauna from desalination plant return water to the marine environment, and impacts from light and noise on fauna from operation of the desalination plant, pump stations and ancillary infrastructure.

A brief overview of key Project elements is provided below. A detailed description of the Project is provided in Att A Project Description (all pages).

A Reference Design has been completed for the Project and has been used as the basis for the Project Description and indicative disturbance estimates. The Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue.

Project Infrastructure

Desalination Plant: Comprises an intake pump station, desalination treatment process (ultrafiltration and reverse osmosis membranes), product water storage tank(s) and/or earth bank storage(s) and ancillary equipment, facilities and power infrastructure at the plant. The site will also incorporate administration buildings, workshops, parking, fencing, entry points, and security.

Marine Infrastructure: Intake and outfall tunnels and pipes are proposed to extend offshore from the desalination plant into the Spencer Gulf waters to a minimum approximate water depth of 13 m (intake) to 17 m (outfall) from Lowest Astronomical Tide in order to reach suitable intake water quality and adequate depth to ensure the outfall can adequately disperse the return water.

The exact length of tunnels and location of the intake and outfall structures will be refined with inputs from hydrodynamic modelling and detailed design, but as a minimum the intake structure is expected to be no less than 3 km from the intake pump station and the outfall structure is expected to be no more than 5 km from the intake pump station. The outfall and intake structures will also be sufficient distance apart to avoid recirculation of return water back into the plant, so as to not affect plant performance.

Alternate marine intake and outfall construction methodologies including construction of a single tunnel, rather than dual tunnel, and use of a float and sink construction method for part of the outfall pipeline, may also be considered.

Transfer System: Consists of the following key components:

- a main transfer pipeline extending approximately 360 km north from the desalination plant at Mullaquana Station to the Olympic Dam mine delivery point
- a lateral branch approximately 46 km in length to the Carrapateena mine delivery point
- a transfer pump station at the desalination plant
- additional transfer pump stations at three locations along the pipeline
- storage tanks at transfer pump station locations and one at the transfer system high point.

The pipeline would generally be buried underground and constructed using trench and cover fill for the majority of the alignment including road crossings. Trenchless installation (e.g. tunnel boring) would be used for rail and for some watercourse crossings. The pipeline may also be required to be located above ground level for discrete sections where that is the preference of Traditional Owners or where rock is encountered or for the Carrapateena lateral branch (which may be constructed above or below ground).

Four transfer pump stations and associated water storages are proposed along the pipeline to move water along the length of the transfer system along with one additional water storage site:

- Mullaquana Station pump station and storage (part of the desalination plant footprint)
- Lincoln Gap pump station and storage
- Kalaya pump station and storage
- Mangata pump station and storage
- Bimba storage.

Power Infrastructure:

Approximately 20 kilometres north of the desalination plant, a new ElectraNet substation, the Mullaquana Substation, will be constructed and operated by ElectraNet. It will connect to the desalination plant via a ~20 km, 132 kV private transmission line, which will be built and operated by the Project.

At Lincoln Gap, the existing ElectraNet Coraberra Hill Substation will be augmented by ElectraNet. This substation will supply power to the Project's Lincoln Gap transfer pump station through a ~3 km, 275 kV private transmission line built and operated by the Project.

At Kootaberra Station, a new ElectraNet substation will be constructed and operated by ElectraNet. It will supply power to the Project's Kalaya transfer pump station via a ~4 km, 132 kV private transmission line built and operated by the Project.

At Oakden Hills, SAPN's Mount Gunson Substation will be augmented by SAPN. A new ~15 km, 33 kV distribution line will likely be constructed and operated by SAPN to connect the substation to the Project's Mangata pump station, noting that final scope of this remains subject to ongoing engagement with, and assessment by, SAPN.

Power for the Project's Bimba storage will be provided by a solar panel array and battery system.

The Project will also include four new facility substations, one dedicated to the desalination plant and located within the site at Mullaquana Station, and three dedicated to the transfer pump stations. These facility substations will be located within the facility sites, are expected to be smaller in size, may be enclosed, and will be constructed by the Project.

Other supporting infrastructure

Other infrastructure required for the Project includes:

- associated temporary construction-related infrastructure (e.g. construction camps, site offices and amenities, yards, storages and laydown areas)
- access tracks including upgrading existing tracks and establishing new tracks
- enabling roadworks and road upgrades.

Disturbance Footprint

The Project Area is based on a 2.5 km buffer of the alignment of linear infrastructure (with isolated areas identified outside of this buffer for potential laydown locations).

Within this Project Area, an indicative disturbance footprint for the Project has been developed, based on the Reference Design and anticipated construction methodologies. The indicative disturbance footprint (also referred to as the Project Footprint) is defined by attached shapefiles. This footprint incorporates estimated areas for permanent and temporary clearance for all Project components.

The indicative total disturbance for the Project is currently estimated at 2119 ha, of which an estimated 372 ha is permanent and 1747 ha is temporary and would be rehabilitated following construction (by respreading cleared topsoil and vegetation to encourage natural regeneration, with additional rehabilitation methods (e.g. direct seeding) implemented where required to supplement natural regeneration). Some of the vegetation in the disturbance footprint represents habitat which supports EPBC-listed species.

The overall disturbance required for the entire Project, and each of the individual Project elements, is further described in Section 4 of the Project Description (Att A Project Description, p. 16-17).

The Project design is preliminary and is expected to change through the detailed design process, or in response to cultural heritage matters or other refinements to minimise impacts as design and technical studies continue. As such the disturbance footprint and indicative disturbance estimates will be subject to change as the Project is refined. Any changes are anticipated to be contained within the Project Area.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

Yes

1.2.3 Is the proposed action the first stage of a staged development (or a larger project)?

No

1.2.4 Related referral(s)

EPBC Number	Project Title
2024/10096	Olympic Dam Smelter Refinery Expansion (SRE) Project.

1.2.5 Provide information about the staged development (or relevant larger project).

The proposed action involves development of a water transfer system from the desalination plant at Mullaquana Station to the boundary of BHP's Olympic Dam Special Mining Lease (SML). The proposed action does not include water pipeline infrastructure within the SML. Approval for pipeline infrastructure within the SML, from the SML boundary to on-site water-handling infrastructure, has been sought separately by BHP, as the legislative and approvals framework differs for activities inside the SML. BHP included a nominal alignment for water pipeline infrastructure within the SML, that would connect to the Northern Water Project at the SML boundary (at a nominal 'NWP connection point') in referral 2024/10096.

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

***Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act)**

The EPBC Act provides a legal framework to protect and manage Matters of National Environmental Significance (MNES). Under the environmental provisions of the EPBC Act, actions that are likely to have a significant impact on MNES must be referred.

Results from desktop database searches including the DCCEEW Protected Matters database accessed via the online Protected Matters Search Tool (PMST), (Att B; PMST Report, all pages), have indicated that several MNES may potentially interact with the Project, and as such, the Action is being referred to the Commonwealth Minister for the Environment.

Planning, Development and Infrastructure Act 2016 (SA)

The *Planning, Development and Infrastructure Act 2016* (PDI Act) governs the state planning system and sets out the process and pathways for granting development approvals. Projects being undertaken by Crown agencies are subject to the processes applying to a Crown development under s.131 of the PDI Act.

Pursuant to s.131(25) of the PDI Act, the Minister for Planning (SA) may direct that an Environmental Impact Statement (EIS) be prepared, being subject to the procedures and requirements of being an 'impact assessed' development, as if the development had been declared under s.108(1)(c) of the Act. Alternatively, the development would continue to be assessed as a Crown development under s.131 of the Act.

Should the Minister for Planning (SA) direct an EIS, the level of detail required to be addressed in an EIS is determined by Assessment Requirements published by the State Planning Commission pursuant to s.112 of the Act and Practice Direction 17. The Assessment Requirements set out the environmental attributes relevant to a development which are to be assessed. The key environmental, social and economic impacts to these environmental attributes are to be addressed in the EIS.

Native Title (South Australia) Act 1993 (SA)* and *Native Title Act 1993 (Cth)

Native Title has been extinguished over Mullaquana Station (and other Perpetual Crown Leases adjacent), however Native Title continues to exist over parcels of land and tenure types between Whyalla and Olympic Dam, including coastal land adjacent to the desalination plant site, Cultana Training Area and pastoral leases. Native Title rights and interests do not exist within freehold land, perpetual crown leases, road reserves, and some other forms of tenure as set out in Schedule 1 of the *Native Title Act 1993 (Cth)*.

The grant of tenure, whether by lease, licence, or easement over Crown Land (including pastoral land) where Native Title exists authorising the construction, operation and use of the desalination plant, pipeline and associated power/pumping/storage infrastructure is a 'future act' under *the Native Title Act 1993*. In order for a 'future act' to be validly done under the *Native Title Act 1993*, it must be validated by a *Native Title Act 1993* process, which can involve consent, notification or an agreement, such as an Indigenous Land Use Agreement (ILUA).

The *Native Title Act 1993* regulates ILUAs, which are voluntary agreements made with Native Title parties about the use and management of land and waters. These agreements may be between the Native Title parties and the State Government, local councils, mining companies and other developers. The Project is progressing the negotiation of ILUAs with the Barngarla Determination Aboriginal Corporation and Kokatha Aboriginal Corporation as the Registered Native Body Corporates in respect of each group.

Aboriginal Heritage Act 1988 (SA)

Under this Act, it is an offence to damage, disturb or interfere with Aboriginal heritage without consent.

Aboriginal Cultural Heritage is located within parts of the Project Footprint and broader landscape area. A key Project aim is to avoid or minimise impacts on areas of cultural heritage value. Aboriginal Cultural Heritage surveys have been undertaken for the majority of the Project Footprint, in collaboration with Barngarla and Kokatha Traditional Owners.

Cultural heritage survey outcomes have guided Project planning and development, including the identification of areas to be avoided or other design or construction constraints. Surveys will continue to be progressed for remaining areas and will continue to guide mitigations that avoid or minimise the risk of impact.

The outcomes of the cultural heritage surveys are also informing the development of detailed Cultural Heritage Management Plans for construction and operational phases. The plans will be agreed with the Kokatha and Barngarla and will set out the heritage protection and management processes to be implemented over the life of the infrastructure.

Native Vegetation Act 1991 and Regulations 2017 (SA)

The *Native Vegetation Act 1991* (NV Act) applies to the management and clearance of native vegetation in South Australia, including protection of seagrass. Under the NV Act approval is generally required from the Native Vegetation Council (NVC) to clear native vegetation except in prescribed circumstances which are set out in Schedule 1 of the *Native Vegetation Regulations 2017*. These include major developments where assessment documentation has been prepared and referred to the NVC for comment, and the development has been approved. Vegetation clearance will be permitted if undertaken in accordance with the development consent and an approved management plan which must achieve a Significant Environmental Benefit (SEB).

Remnant native vegetation exists across the transfer system alignment and within the area of the proposed action. The action traverses both the Eyre Peninsula (EP) and the South Australian Arid Lands (SAAL) Landscape Management Regions (LMRs), and as such, vegetation assessments are required to assess vegetation condition and habitat potential – the basis for applying for vegetation clearance approval and determining associated offset requirements under the SEB Offset Policy.

National Parks and Wildlife Act 1972 (SA)

South Australia's threatened plants and animals (including marine mammals) are listed under the threatened species schedules of the *National Parks and Wildlife Act 1972* (NPW Act). It is an offence to take protected plants or animals without approval. Part 5 of the NPW Act provides for the conservation of native animals and plants and Schedules 7, 8 and 9 list protected species and their protection status. There is potential for disturbance of terrestrial and / or marine ecology from the Project.

The Act also establishes protected areas including wilderness protection areas, national parks, conservation parks, regional reserves, game reserves and recreation parks. No protected areas declared under the NPW Act are expected to be affected by the Project.

Existing records have indicated that several species listed as threatened nationally and at a State level may occur within the Project Area. As such, the NPW Act is therefore relevant to the Project.

Landscape South Australia Act 2019 (SA)

The *Landscape South Australia Act 2019* (LSA Act) provides the framework for the management of South Australian landscapes. The nine landscape boards established under the LSA Act are responsible for administering the LSA Act and facilitating the management of landscapes in their region. Each board develops its own Regional Plan designed to meet the needs of the local regions and contribute to state level planning.

The Action falls within the EP and SAAL LMRs. Provisions in the LSA Act relevant to the Project include those addressing activities that affect land, surface water and groundwater and pest plants and animals.

Environment Protection Act 1993 (SA)

The *Environment Protection Act 1993* (EP Act) provides the regulatory framework for the management of pollution and general environmental protection in South Australia. The EP Act establishes a general duty of environmental care and defines prescribed activities of environmental significance which require

authorisation and licensing under the Act (Schedule 1).

As the action includes activities listed in Schedule 1 of the EP Act, including ‘the conduct of a desalination plant’, the operation of the desalination plant would be subject to licensing under the EP Act.

Other

Other legislation, including the below, will also apply to the action:

- *Dangerous Substances Act 1979 and Controlled Substances Act 1984 (SA)*
- *Public and Environmental Health Act 1987 (SA)*

State Planning Policies

State Planning Policies (SPPs) are the highest order policy documents in the state planning system and, amongst a suite of other documents, policies, standards and guidelines, are required to be considered as part of impact assessment under the PDI Act. The Project relates directly to the objective of SPP 14 – securing a safe and reliable water supply that can support the needs of current and future generations.

Region Plans

Section 64 of the PDI Act provides for South Australia to be divided into planning regions for which region plans must be prepared that are consistent with relevant SPPs. The relevant region plans for the Project are the Eyre and Western Region Plan (EWRP) and Far North Region Plan (FNRP). The EWRP promotes economic development of the region, appropriately balanced with preserving, restoring and protecting environmental assets, natural and landscape beauty, ecosystem function and hydrological systems. The FNRP encourages economic growth through support of the mining industry balanced with protection of environmental assets, and provision of services to remote and regional communities.

The action broadly aligns with the objectives, principles and policies of both the EWRP and FNRP through the development of an alternative water supply, which will contribute to strengthening the regional economy by promoting investment in existing and new industries, improving the reliability of access to water, and will reduce reliance on delicate or vulnerable water resources.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

The Northern Water Project is engaging with the two registered Native Title Body Corporates (RNTBCs), on which the Project Footprint occurs, the Barngarla Determination Aboriginal Corporation (BDAC) and Kokatha Aboriginal Corporation (KAC). This engagement is supporting detailed cultural heritage assessment work and negotiation of an Indigenous Land Use Agreement under the *Native Title Act 1993* (Cth).

Engagement is also taking place with key stakeholders and the broader community with a commitment to prioritise early, genuine, transparent and accountable engagement with key stakeholders and the community.

Since 2022, engagement activities have focused on informing the proposed location and design of the desalination plant, the alignment of the transfer system and the scope of environmental and technical investigations. This also included feedback received as part of the previous EPBC referral submitted in 2024.

There is a high level of stakeholder and community support for Northern Water and its objectives, with most in agreement that reducing reliance on natural water sources and providing water certainty in the region is critical to supporting existing industries and economic growth. Despite this support, the Project continues to proactively engage with stakeholders to address issues with the aim of avoiding and minimising impacts.

Stakeholder and public engagement activities are focused on cultural heritage, technical and environmental aspects. The key issues raised are in relation to the protection of the marine and terrestrial environment which includes EPBC listed species.

Engagement approach

The approach and key objectives of engagement are to:

- Continue to gather feedback, local insights and knowledge to inform all phases and environmental assessment of the desalination plant and transfer system, while building stakeholder understanding and acceptance.
- Build confidence that potential impacts are being mitigated, managed and avoided where possible through genuine and meaningful engagement opportunities.
- Increase understanding of Project benefits and ensure that benefits are realised.
- Commit to continuing to work collaboratively with both the Barngarla and Kokatha People in a manner that is founded on the principle of Free and Prior Informed Consent.

Engagement activities

Below is a summary of key engagement activities.

Cultural Heritage and Native Title Indigenous Land Use Agreements (ILUA)

Northern Water continues to engage with Traditional Owners, the Barngarla and Kokatha peoples as part of negotiations towards the development of Indigenous Land Use Agreements and to progress detailed Aboriginal Cultural Heritage surveys. The outcomes of this engagement and the associated heritage surveys include the identification of cultural heritage constraints and management measures which have informed design development, and other matters of interest such as employment, training and business opportunities, environmental impacts and protection requirements, and cultural expression opportunities. Ongoing engagement is informing the development of Cultural Heritage Management Plans, approaches for embedding employment, training and workforce outcomes and environmental assessment and mitigation measures.

This engagement has identified the importance of the Plains Mouse habitat and weed management as well as the protection of the marine environment.

Broader Aboriginal Engagement

Engagement has commenced with Aboriginal groups surrounding the physical Project Footprint that have been identified to have an interest in the Project.

Landholder meetings

Regular meetings are held with landholders regarding the Project including providing updates, discussions on potential impacts, negotiating access to minimise impact and disturbance. There are various tenures and rights to the land within the Project footprint with approximately 23 private land and lease holders, third parties, State Government agencies who manage Crown and Pastoral land and the two Aboriginal Native Title holders. The majority of the Project footprint is Crown land.

Stakeholder Reference Group (SRG) Meetings

Bimonthly SRG meetings have been occurring since 2022 and comprise of representatives from key industries, conservation and community groups, and regional representatives from state and local government.

The objective of these meetings is to provide an open and transparent forum to provide Project information and capture local knowledge and priorities from a broad range of regional government and non-government organisations, interest groups and peak bodies.

Mullaquana Station SRG Sub-group Meetings

Mullaquana Station SRG sub-group was established in early 2025 in response to renewed investigations of this location as an option for the desalination plant.

The subgroup comprises of a smaller membership of the SRG with a specific interest in Mullaquana Station. Northern Water has met with this group several times to capture local insights and inform site assessments.

Key stakeholder meetings and briefings

Targeted stakeholder meetings are being conducted to respond to key areas of interest and issues raised by the SRG and sub-group, particularly relating to interaction with the marine environment.

Meetings are ongoing with all relevant commercial and recreation fishing industry representatives and associations, local commercial and recreational fishers within the Whyalla region, tourism operators, environmental interest groups and conservationists.

Resident meetings

Meetings have been held with the nearest residential shack communities to Mullaquana Station including Murninnie Beach, located approximately 9 km south and Cowleds Landing located approximately 5km north of Mullaquana Station.

Cross Government Agency Briefings

Regular cross-government State agency briefings are held at an executive level, with a focus on information sharing, and risk identification with regards to assessment pathways and criteria, basis of reference design and estimates.

Government agencies and stakeholders

Ongoing individual meetings are held with Commonwealth, State and local government referral agencies at an operational level, including various branches within the Department for Environment and Water, EPA, Whyalla City Council and both the SA Arid Lands and Eyre Peninsula Landscape Boards. These meetings are intended to facilitate discussions around assessment requirements and seek feedback and insights on the methodologies and preliminary findings of our environmental investigations.

Industry and Business

Ongoing engagement is conducted with local businesses and organisations within the region including Aboriginal business stakeholders through targeted meetings with industry representatives and attendance and participation industry events to build Project awareness.

Events

Northern Water hosts educational events aimed at youth, listening posts, popups at community events and community information sessions with the broader community.

Communications

These activities have been supported by a Project website, regular dissemination of information via electronic Project updates (eDMs), distributed to approximately 800 registered email addresses. Information on the Project has also been shared through social media and traditional media.

Key findings from engagement

There is a high level of support for the Northern Water Project. Stakeholders can appreciate the need and see the benefits and opportunities the Project could bring to the region, including employment opportunities during the construction phase and the flow on of supplying water to industry.

This level of support does however rely on maintaining an understanding that the Project will not adversely impact existing industries, such as commercial fishing, aquaculture, tourism and farming, or the economic activities and growth that flow on from them.

Engagement with the Barngarla and Kokatha traditional owners has identified key areas of interest including the protection of their cultural heritage, environmental management, economic development, skills, training and employment opportunities. The Project continues to engage with both groups on these matters.

There is strong support from surrounding Aboriginal groups, particularly from the Arabana Aboriginal Corporation in reducing on reliance natural water sources, such as the Great Artesian Basin, which offers benefits to the culturally and ecologically valuable Mound Springs.

Impacts to the terrestrial environment, particularly flora and fauna has been a key issue for many key stakeholders. Design development has been a key topic, including how the desalination plant location and transfer system alignment has considered the management and mitigation of impacts to habitats, protected species and surface water flows.

The key priority for many stakeholders is the protection of the Upper Spencer Gulf marine and coastal environment and the industries and communities that value and rely on it, particularly commercial and recreational fishing and tourism.

The includes potential impact to marine life and habitats, especially juvenile life stages, nurseries and the Giant Australian Cuttlefish. Concerns raised to date include the destruction of habitat, increased salinity and entrainment, the cumulative impact of this Project and how the Harmful Algal Bloom (HAB) and more broadly how climate change will be considered as part of the Project.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

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1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	62100220479
Organisation name	JBS&G AUSTRALIA PTY LTD
Organisation address	2000 NSW

Referring party details

Name	Charlotte Baker
Job title	Senior Project Manager
Phone	0432845973
Email	cbaker@jbsg.com.au
Address	100 Hutt Street, Adelaide SA 5000

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	92366288135
Organisation name	Department for Infrastructure and Transport
Organisation address	5000 SA

Person proposing to take the action details

Name	Alexandra Schwarz
Job title	Manager - Planning and Environmental Approvals - Northern Water Project Delivery Office
Phone	1300 893 196
Email	Lexi.Schwarz@sa.gov.au
Address	83 Pirie Street, Adelaide SA 5000

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The Department for Infrastructure and Transport (the Department) has an assured record of responsible environmental management and performance and a strong environmental compliance record, remaining in compliance with all conditions of previous environmental approvals granted. Operations are undertaken in accordance with objectives for environmental protection, sustainability and continual improvement in environmental performance. The Department has a system and project management framework and Master Specification for managing environmental impacts and risks, operating under various environment-related policies, procedures and guidelines.

Contractors must comply with the relevant environmental legislation and have an Environmental Management System in accordance with AS/NZS 14001. Contractors are required to develop a Contractor Environmental Management Plan which sets out environmental protection requirements, with these being audited regularly.

The Department has completed similar works previously without incident.

The Department (and predecessor departments) have submitted several referrals for road and other infrastructure projects. Referrals include:

- Truro Bypass Project (EPBC Ref 2022/09398)
- Horrocks Highway Safety Upgrade – Rhynie (EPBC Ref 2022/09309)
- Old Belair Road and James Road Intersection, SA (EPBC Ref 2021/9118)
- Granite Island Causeway project (EPBC Ref 2020/8845)
- Northern Connector transport corridor project (EPBC Ref 2015/7611)
- Mt Compass Overtaking Lane (Northbound) (EPBC Ref 2007/3457)
- Rapid Bay Jetty (EPBC Ref 2007/3468)
- Sturt Highway Duplication – Seppeltsfield Road to Greenock Road (EPBC Ref 2008/4502)
- Coast to Coast Light Rail Stage 2 – City West to Adelaide Entertainment Centre (EPBC Ref 2008/4679)
- Wolseley to Kalangadoo Rail Upgrade 2009 (EPBC Ref 2009/5078) – Noarlunga to Seaford Rail Extension (EPBC Ref 2009/5118)
- Adelaide to Gawler Central Station Upgrade & Revitalisation of Existing Rail Line (EPBC Ref 2010/5342)
- Repair to Granite Island Causeway, Victor Harbour, South Australia (EPBC Ref 2011/5938)
- Extending and widening of the O'Bahn City Access bus route (EPBC Ref 2010/5542)
- Southern Expressway Duplication Project (EPBC Ref 2011/6111).

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

The Department for Infrastructure and Transport (the Department) is committed to delivering sustainable transport, infrastructure and programs in a manner that balances economic, environmental and social needs. In doing this, the Department seeks to minimise the impacts of activities on, and where practicable enhance, the environment, and deliver lasting benefits to the community. The Department is responsible for delivering fit for purpose transport solutions and valuable social and economic state infrastructure. The Department also manages substantial landholdings and oversees the facilities management arrangements for other South Australian Government (Government) assets including schools, hospitals and government offices.

The Department will work to achieve the above by:

- Assessing environment and heritage risks at all phases of a project and implementing appropriate adaptation and mitigation actions;
- Raising the awareness of the Department's staff to integrate environment and heritage considerations into decision making processes;
- Ensure that Contractors acting for, or undertaking works on behalf of the Department are aware of their environmental and heritage obligations;
- Continually improving Departmental standards and guidelines in environment and heritage management.

The Environment and Heritage Technical Manual (EHTM) is a compilation of the Department's key guidelines and standards, administered by the Department, relating to the assessment and management of environmental/ heritage components of a program or project for road, rail, marine and other infrastructure, as required. Departmental building projects are generally assessed under other processes, although some elements of the EHTM may be applicable. The Department does not legislatively require an Environmental Management System (EMS). The EHTM together with the Master Specifications provides in itself the key elements of an EMS relevant to Departmental requirements, thereby ensuring that the Department and those that deliver on the Department's behalf are aware of required legislative compliance, approval pathways and risk identification and management. The EHTM and the Master Specifications are digital resources and can be found in full through the supplied links (EHTM and Master Specification).

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	92366288135
Organisation name	Department for Infrastructure and Transport
Organisation address	5000 SA

Proposed designated proponent details

Name	Alexandra Schwarz
Job title	Manager - Planning and Environmental Approvals - Northern Water Project Delivery Office
Phone	1300 893 196
Email	Lexi.Schwarz@sa.gov.au
Address	83 Pirie Street, Adelaide SA 5000

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	62100220479
Organisation name	JBS&G AUSTRALIA PTY LTD
Organisation address	2000 NSW
Representative's name	Charlotte Baker
Representative's job title	Senior Project Manager
Phone	0432845973
Email	cbaker@jbsg.com.au
Address	100 Hutt Street, Adelaide SA 5000

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	92366288135
Organisation name	Department for Infrastructure and Transport
Organisation address	5000 SA
Representative's name	Alexandra Schwarz
Representative's job title	Manager - Planning and Environmental Approvals - Northern Water Project Delivery Office
Phone	1300 893 196
Email	Lexi.Schwarz@sa.gov.au
Address	83 Pirie Street, Adelaide SA 5000

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

Referring party

2. Location

2.1 Project footprint

Project Area: 215482.37 Ha **Disturbance Footprint:** 2121.20 Ha

2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Mullaquana Station, 22448 Lincoln Highway Middleback Range

2.2.2 Where is the primary jurisdiction of the proposed action? *

South Australia

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The existing land tenure includes:

- Private (i.e. not Government) Freehold
- Local, State and Commonwealth Freehold including unalienated and reserved Crown land and Crown land subject to licence
- Perpetual Crown leases
- Pastoral Crown leases
- Utilities easements and rights of way
- Mining leases
- Public roads

For the purpose of construction phase, it is proposed to obtain an Access License for the majority of the Project Footprint. The Access License will provide a temporary right of access for the duration of the construction phase to allow surveys, investigations and construction to occur.

The future permanent tenure requirements for the Project vary over the Project Area based on infrastructure type, the length of time and purpose requirements for the Project and existing tenure. Broadly it will include a combination of reserved Crown land, freehold, easement and dedication on Crown land.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area’s environment.

The proposed action spans from the Upper Spencer Gulf to the Far North of South Australia, traversing a range of semi-arid and arid landscapes.

Desalination plant and marine infrastructure

The proposed desalination plant site at Mullaquana Station is located within the Myall Plains sub-region of the Gawler Bioregion (Interim Biogeographic Regionalisation for Australia). The location experiences a semi-arid or Mediterranean climate with hot dry summers and cool moist winters. The site is located on land currently and historically used for livestock grazing over native vegetation. Grazing pressure has been assessed as low-moderate and the condition of the chenopod shrubland at the site varies from good to degraded. There are also existing tracks, fences and other evidence of pastoral land uses present.

The site is relatively flat and low-lying, sloping gently upwards from the coast in the east to the escarpment in the west. Saline plains, low coastal dunes and mangrove areas lie to the east of the site moving to sandy loam saltbush / bluebush plains to the west. Surface water features across and around the desalination plant site are scarce and ephemeral.

The Spencer Gulf is a semi-enclosed body of water bordered by the Yorke Peninsula to the east and the Eyre Peninsula to the west. The Gulf extends for approximately 300 km from Port Augusta in the north to the entrance in the south. It has a maximum width of 130 km, narrowing to less than 1 km in the upper Gulf. With minimal freshwater inputs and high evaporation, Spencer Gulf behaves as an inverse estuary where the upper reaches are highly saline (can exceed 50 g/L). Coupled with high summer water temperatures, the conditions in the upper gulf are similar to that of subtropical areas.

The North Spencer Gulf marine bioregion covers the marine and fringing coastal areas that geographically stretch from a line between Victoria Point near Franklin Harbour on the eastern Eyre Peninsula to Point Riley near Wallaroo on western Yorke Peninsula. The marine bioregion is used for recreational boating and fishing, commercial fisheries, diving, aquaculture, shipping, industry and tourism. Biodiversity and habitat in this bioregion include some of the largest extents of coastal saltmarsh in South Australia as well as mud flats, extensive seagrass meadows and mangroves.

The marine bioregion is an important breeding ground for many species of fish and there are species of macroalgae, invertebrates and fish which are only found in southern Australia. Marine communities in the North Spencer Gulf have adapted to the prevailing high salinities and temperatures. Many of the species found in the marine areas off Mullaquana Station also occur further north in higher salinities.

The nearshore coastal areas at the Mullaquana Station site are generally sandy and flat with extensive seagrass and mangrove habitats.

Transfer system

The transfer system alignment extends from the desalination plant site, through land under pastoral lease, road reserves and Department of Defence land. Pastoral properties support moderate to low density grazing within semi-arid to arid remnant vegetation, traversing four Interim Biogeographic Regionalisation for Australia (IBRA) sub-regions within the Gawler region; the Myall Plains (from Mullaquana Station, passing Whyalla, and then northwards towards Port Augusta), the Arcoona Plateau (from south of Port Augusta to north of Port Augusta, and again in the Pimba region), Gawler Lakes (north of Port Augusta to the start of the Carrapateena lateral branch), and Roxby (the northern end of the transfer system and the BHP Special Mining Lease at Olympic Dam).

The Gawler IBRA region comprises one quarter of South Australia's pastoral rangelands and is characterised by semi-arid to arid flat topped to rounded hills, rocky quartzite hills, sandstone plateaux, depositional plains, gibber plains and salt-encrusted lake beds. Typical vegetation includes open woodlands of Black Oak and Myall, chenopod shrublands (Bluebush / Saltbush) and tall Mulga shrublands. The native vegetation across the area is generally relatively intact, but in some areas, particularly near stock watering points, it is highly disturbed.

The environment of the region has been influenced by pastoral activities (e.g., sheep and cattle grazing), construction of energy utilities (e.g. transmission lines and hydrocarbon pipelines), mining operations, as well as Department of Defence activities. Grazing by livestock and rabbits has led to extensive habitat modification across the region and coupled with the introduction of predators such as foxes and cats, has resulted in the extinction of many small to medium sized mammals. Weeds are present across the region, primarily in disturbed areas.

A map showing key Project features and the existing environment is provided in Att A: Project Description (p.10).

A more detailed map series showing the Project locality, Project infrastructure and disturbance footprint is provided in Att A Project Description (p.18-45).

3.1.2 Describe any existing or proposed uses for the project area.

The proposed location for the desalination plant is Mullaquana Station, located approximately 25 km south-west of Whyalla. The proposed ~360 km transfer system between the proposed desalination plant site and Olympic Dam runs north-east along eastern Eyre Peninsula passing Whyalla, Lincoln Gap and Woomera through predominantly pastoral and remote areas (including Department of Defence land) and will, wherever possible and practicable, follow the alignment of existing road reserves and other utility corridors.

The Far North is highlighted as a region of significant economic importance to South Australia, with a large and growing number of mining and resource operations, and a tourism sector centered around unique landscapes, world-renowned landmarks, and arid land ecosystems.

The FNRP encourages economic growth through support of the mining industry balanced with protection of environmental assets, and provision of services to remote and regional communities. Management of water resources to allow for the expansion of mining, defence and tourism activities supported by appropriate infrastructure, are key policy objectives.

The Project strongly aligns with the objectives, principles, and policies of the FNRP through the development of an alternative source of water which will support the mining and defence industries and assist in the reduced reliance on groundwater extraction by water-intensive activities. This supports the continued sustainable expansion of development in the region and reduces impacts on groundwater resources and water-sensitive arid ecosystems.

The land use at the location of desalination plant and associated infrastructure at Mullaquana Station is dominated by livestock grazing.

Generalised land uses mapped for the transfer system alignment include livestock, recreation, utilities/industry, vacant, land held by public institutions and mining/quarrying. Pump stations, water storages and electrical infrastructure (including substations and transmission lines) are generally located on land mapped as livestock.

From Mullaquana Station to Whyalla, the dominant land uses in the Project Area are livestock grazing. Around Whyalla, the Project Footprint is located on Department of Defence (Defence) land (Cultana Training Area). North of Whyalla to Olympic Dam, the existing land use in the Project Area is again predominately livestock grazing (sheep and cattle), Defence activities centred around Woomera, and mining activities and associated infrastructure including the existing Carrapateena, Mount Gunson and Olympic Dam mine sites. Transmission lines, substations and water pipelines are also present, generally in proximity to the major road rail transport infrastructure.

There are no areas protected under the *Marine Parks Act 2007* (SA) at or near the location of the desalination plant intake and outfall. The Upper Spencer Gulf Marine Park is the closest marine protected area, located approximately 8 – 10 km north-east and the Franklin Harbour Marine Park is located approximately 11.5 km south of the proposed desalination plant marine infrastructure.

Fisheries and aquaculture have a significant commercial role in the Spencer Gulf region. The closest aquaculture lease to the proposed desalination plant site is approximately 43 km north (Fitzgerald Bay). There is no Aquaculture Zone in the vicinity of the proposed desalination plant site.

There is a proposed wind farm (Tilt Energy) on Nonowie Station (which adjoins Mullaquana Station and has been declared a controlled action under the EPBC Act) and a proposed uranium mine (Alligator Energy) currently undergoing field recovery trials on Mullaquana Station. BHP are also undertaking mining exploration activities at Oak Dam, south-east of Olympic Dam (which has been referred under the EPBC Act and was not declared a controlled action).

Further detail on Defence land (and other Commonwealth Land) relevant to the Project is described in Att E: Commonwealth Land Assessment (p.7-21).

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

National Parks and nature reserves in proximity to the Project

Areas of conservation value are avoided by the action and there are no areas protected under the *National Parks and Wildlife Act 1972* or areas under native vegetation heritage agreement under the *Native Vegetation Act 1991* at the desalination plant site or on the transfer system alignment.

The Whyalla Conservation Park is along the southern margin of the Project Area and located 10 km north of the centre of Whyalla immediately adjoining the Lincoln Highway. The transfer system alignment is located approximately 2 km north of the Whyalla Conservation Park.

The conservation park comprises Western myall/chenopod (*Acacia papyrocarpa*/chenopod) woodland characteristic of north-eastern Eyre Peninsula and protects the conservation value of this woodland and provides a recreational space for the community of Whyalla.

Wild Dog Hill which is located within the Whyalla Conservation Park is known to be an important cultural site for the Barngarla People.

Marine Parks

The Mullaquana Station desalination plant is 7.5 km south of the Upper Spencer Gulf Marine Park boundary. The Project Area adjoins the marine park for a short portion just north of the desalination plant site; however, the transfer system alignment is 1 km west of the boundary.

The Upper Spencer Gulf Marine Park Management Plan prioritises (among other aspects) the protection of the world's largest known breeding aggregation of Giant Australian Cuttlefish (*Sepia apama*), which gathers annually on the shallow rocky reefs near Point Lowly. The park safeguards extensive coastal wetlands of national importance, including some of southern Australia's largest mangrove forests and saltmarshes that serve as critical nurseries for commercial fish species and feeding grounds for migratory shorebirds. Additionally, the diverse environment features vast seagrass meadows and tidal flats that support a unique array of marine life, within waters characterised by distinctive sub-tropical summer conditions.

National Parks and nature reserves in the broader landscape

Munyaroo Conservation Park is a protected area located on the east coast of the Eyre Peninsula approximately 36 km south-west of Whyalla. The conservation park provides an important habitat link between the coastal vegetation and inland mallee of the peninsula. The Project Area is located approximately 10.5 km north-east and avoids any impacts to the Conservation Park.

Lake Torrens National Park is located approximately 15-20 km from the closest points of the northern section of the Project Area. The national park protects the body of the salt lake and surrounding wilderness areas and is listed in the Directory of Important Wetlands. The location of the proposed action avoids any impacts to the National Park.

Ironstone Hill Conservation Park is located 30 km to the west of the Project Area, approximately 53 km south-east of Kimba on the west side of the Middleback Range. Ironstone Hill Conservation Park is significant for the protection of sandy dunes, which are preferred habitat of the endangered Sandhill Dunnart. The park largely comprises mallee vegetation, and protects plant species including the Desert Greenhood and Sandalwood which are listed as Vulnerable under the *National Parks and Wildlife Act 1972*. The location of the proposed action avoids any impacts to the conservation park.

Other notable features

The most notable landscape features of the Project Area are the large salt lake systems and associated ephemeral watercourses in the northern section of the transfer system. These surface water features can also be places of Aboriginal heritage significance and cultural and spiritual importance to the Barngarla and Kokatha Peoples. Significant salt lakes in this region include Lake Dempsey, Lake Dutton, Lake Finniss, Ironstone Lagoon, Pernatty Lagoon, Island Lagoon and Lake Mary, and the larger Lake Torrens and Lake Gairdner in the broader region.

The proposed transfer system alignment crosses several tributaries west of Lake Dempsey, but avoids direct impacts to the lake. The Ironstone Lagoon/Pernatty Lagoon salt lake complex is connected by Black Oak Creek to Lake Dutton. The water transfer pipeline is proposed to be located underground within an existing road crossing through Black Oak Creek to avoid environmental and cultural heritage impacts.

Lake Windabout periodically retains water following heavy rainfall events as a result of internally draining ephemeral waterways. The proposed action transfer system alignment will cross the south-western margins of the lake area.

Lake Windabout and Black Oak Creek have cultural value to the Kokatha People, while Lake Dempsey is significant to the Barngarla People who are the Traditional Owners in these regions of South Australia. Engagement with Barngarla and Kokatha representatives regarding design and construction in these locations is being undertaken and their advice, input and consent is being sought to avoid potential impacts to cultural heritage.

The Carrapateena lateral branch alignment traverses onto the Arcoona Plateau, a notable geological uprising characterised by a stony tablelands landscape.

A map showing key Project features and conservation areas in proximity to the Project is provided in Att C: threatened and migratory species significant impact assessment (Fig 2-4 p. 16).

A more detailed map series showing the Project locality, Project infrastructure and disturbance footprint is provided in Att A: Project Description (p.18-45).

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The Project spans over 350 km of land within South Australia. A general description of the gradient is provided below.

The Project Area traverses the Gawler IBRA Bioregion, with intake and outfall pipes extending under the seabed into the marine environment of the Upper Spencer Gulf from the coast as part of the desalination plant.

The Gawler Bioregion is characterised by semi-arid to arid, flat topped to rounded hills, rocky quartzite hills, sandstone plateaus, depositional plains, gibber plains and salt-encrusted lake beds. The Project Area within this bioregion traverses generally flat or broadly undulating open plains which are traversed by highly ephemeral broad waterways. Ephemeral salt lakes are present in the northern portion of the Project Area, the fringes of which are traversed by the transfer system alignment.

The marine area for the proposed desalination infrastructure has a shallow gradient. The intake and outfall water pipes extend into the Spencer Gulf from the desalination plant, approximately 3.9 km (intake) and 4.8 km (outfall), to reach deeper water approximately 13 m (intake) and 17 m (outfall) below the lowest astronomical tide. Infrastructure landward of the intake structure would be tunnelled under the seabed.

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

Flora

The Protected Matters Search Tool (PMST) results for the Project Area indicate four EPBC listed threatened flora species as potentially present within the Project Area or within the 5 km buffer applied with the tool. The Protected Matters Search Tool results are provided in Att B: PMST (all pages).

A search of the Biological Database of South Australia (BDBSA) identified records for 507 native flora species including one EPBC-listed species (Large-flower Groundsel *Senecio megaglossus*, Vulnerable) (and 112 exotic species) within the Project Area.

No EPBC listed threatened flora species have been detected during any of the ecological field surveys undertaken for the Project. Samphire shrublands with infrequent inundation/saline soils identified near Mullaquana Station and at other locations were thought to provide appropriate conditions for *Tecticornia flabelliformis* (Bead Samphire, EPBC Vulnerable), but follow up targeted survey for the species in February 2023 and February 2025 during its visible life phase did not detect the species.

Further details regarding likelihood of occurrence, and an assessment of potential impact to EPBC listed threatened flora and threatened ecological communities which are considered as potentially relevant to the Project Area and the Action are provided in Att C: Threatened and Migratory SIA (p.23-44).

Flora is further described in the ecological assessment summary provided in Att C: Threatened and Migratory SIA (Appendix B p.53-178).

The coastal and marine flora at the proposed desalination plant site is of high environmental value incorporating significant seagrass and mangrove inshore areas. The subtidal area predominantly comprises dense seagrass including *Posidonia australis* (tape weed), Amphibolis (wire weed), *Posidonia sinuosa* (thin tape weed), and *Zostera nigricaulis* (black-stemmed eel grass). Mangroves (*Avicennia marina*) occur in the intertidal zone where they are inundated during high tide and exposed during low tide.

Fauna

The Protected Matters Search Tool results for the Project Area indicate 51 EPBC listed threatened fauna and 46 listed migratory fauna (some overlap) as potentially present within the Project Area or the 5 km buffer applied with the tool. The threatened fauna include 36 bird species (including oceanic species), 10 mammal species, 4 reptile species (including 3 turtles), and 1 shark species (and two conservation dependent species). The Protected Matters Search Tool results are provided in Att B: PMST Report (all pages).

A search of the BDBSA identified 381 native fauna species within the Project Area. This included 251 bird species, 34 mammals and 94 reptiles. Three species listed as threatened under the EPBC Act were detected during field surveys: Western Grasswren *Amytornis textilis myall* (Vulnerable), which was recorded (via targeted bird survey and on Song Meter) along sections of the transfer system alignment in proximity of Whyalla, Southern Whiteface *Aphelocephala leucopsis* (Vulnerable), which was observed in multiple locations and Blue-winged Parrot (Vulnerable), which was recorded via song meter at the Mullaquana Station desalination site.

While only three EPBC listed species have been confirmed as present based on the surveys undertaken for the assessment, several others are considered known or likely to occur based on historic records and presence of suitable habitat. These include Plains Mouse, *Pseudomys australis* (VU), Grey-headed Flying Fox *Pteropus poliocephalus* (VU), Australian Fairy Tern *Sternula nereis nereis* (VU), Little Tern *Sterna albifrons* (VU/MM) and Sharp-tailed Sandpiper *Calidris acuminata* (VU/MM).

Further details regarding likelihood of occurrence, and an assessment of potential impact to EPBC listed threatened fauna which are considered as potentially relevant to the proposed action are provided in Att C: Threatened and Migratory SIA (p.23-44).

Fauna is further described in the ecological assessment summary provided in Att C: Threatened and Migratory SIA (Appendix 1 p.53-178).

Upper Spencer Gulf is known to support commercial fisheries for key species including Western King Prawn, Blue Swimmer Crab, King George Whiting, Garfish and Snapper. Of particular interest to stakeholders for the Project Area are the Spencer Gulf prawn and snapper fisheries.

An assessment of the potential for significant impact on EPBC-listed marine fauna has been undertaken for the Project Att C: Threatened and Migratory SIA (p.23-44). A number of species were assessed for their likelihood to occur and potential to be impacted. Key nationally threatened marine species that may occur in the vicinity of the Project include marine mammals (Southern Right Whale, Australian Sea-lion), Marine Turtles, Seabirds and White Shark. Other species of conservation significance that may occur at the site include syngnathids and the Giant Australian Cuttlefish (*Sepia apama*), though these have not been recorded in the seasonal marine ecological surveys for the Project.

Weed and Pest Species

Search of the BDBSA within 50 km of the Project Area identified records for 34 pest species, with high number of records for Goat, House Mouse, Fox, Rabbit and Common Starling. Pest species recorded during the field surveys undertaken from Mullaquana Station to Olympic Dam further recorded Common Blackbird, Spotted Dove, Rock Dove and House Sparrow.

Desktop investigation within 50 km of the Project Area identified records for 72 weed species which are Declared species under the South Australian *Landscape South Australia Act 2019*. Of these 72 species, 30 are also considered Weeds of National Significance (WoNS).

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The Protected Matters Search Tool results for the Project Area indicate that one EPBC listed threatened ecological community is potentially present within the Project Area or the 5 km buffer applied with the tool: Subtropical and Temperate Coastal Saltmarsh (listed as Vulnerable).

Based on ecological assessments covering the entire alignment the Subtropical and Temperate Saltmarsh Community (EPBC Vulnerable) is known to occur adjacent to the desalination plant site at Mullaquana Station. Other threatened ecological communities have not been identified in the Project Area.

Further details regarding likelihood of occurrence, and an assessment of potential impact to threatened ecological communities are considered as potentially relevant to the Project Area and the Action is provided in Att C: Threatened and Migratory SIA (p.23).

Four broad vegetation types and associated landform types are traversed by the proposed action's desalination plant and transfer system alignment.

- Flat to undulating plains with low open chenopod shrubland
- Low dunes and sand plains with tall shrubland and open woodland
- Sandy loam plains with low open woodland over chenopod shrubland
- Drainage lines with shrubland, tall shrubland and open woodland.

The intake and outfall tunnels also by necessity cross under the coastal strip adjacent to the Mullaquana Station site and the intake and outfall extend into the marine environment.

The key vegetation associations present within each of the broad landform and community types present are described below.

Flat to undulating plains with low open chenopod shrubland

The flat to undulating plains with low open chenopod shrubland community is widespread in the southern portions of the alignment, particularly from south of Whyalla to north of Port Augusta and is characterised by a mix of low shrub species varying with soil type and landscape position.

Low dunes and sand plains with tall shrubland and open woodland

The proposed transfer system traverses through sections of low dunes and sand plains with tall shrubland and open woodland vegetation community throughout the alignment. In the southern portion of the alignment (south of Whyalla to Woomera) these sections are typically localised and patchy and often associated with the margins of ephemeral salt lakes, while this community becomes more dominant in the sand dunes and sandy swales of the Roxby IBRA sub-region in the northern portion of the alignment.

Sandy loam plains with low open woodland over chenopod shrubland

This broad vegetation community dominates in the southern portion of the alignment from the Eyre Highway north of Whyalla to the Arcoona Tableland approximately 130 km north of Port Augusta. *Acacia papyrocarpa* (Western Myall) is the dominant overstorey species typically with a variable Chenopod understorey.

Drainage lines with shrubland, tall shrubland and open woodland

The proposed alignment traverses a range of drainage lines from broad shallow creeks and ephemeral watercourses in the southern portion of the alignment, to more narrow stony drainage lines typical of the tableland country surrounding Woomera.

Further detail on vegetation in the Project Area is provided in Att C: Threatened and Migratory SIA (Appendix B p. 53-178).

Coastal Fringe

The Mullaquana Station desalination plant is located adjacent to the coast, and the intake and outfall tunnels cross into the marine environment. Key coastal vegetation associations at the desalination plant site include:

- Low chenopod shrubland of *Atriplex vesicaria / Tecticornia halocnemoides* ssp. including drainage lines (at desalination plant site)
- Low open woodland of *Myoporum platycarpum* over Chenopod shrubs (low dune adjacent desalination plant site)
- Coastal shrublands of *Myoporum insulare / Nitraria billardierii* and of *Alyxia buxifolia / Myoporum insulare* (east of desalination plant site)
- *Avicennia marina* ssp. *marina* (Grey Mangrove) tall shrubland (east of desalination plant site)
- Saline depressions and drainage lines with low open shrubland of *Tecticornia halocnemoides* ssp. (Samphire) and Chenopods (east of desalination plant site)

Further detail on vegetation at the desalination plant site is provided in Att C: Threatened and Migratory SIA (Appendix C p. 179-248 and Appendix D p. 249-253).

The key benthic habitat features from shallow to deep are provided below:

- Sand
- Dense *Posidonia australis* interspersed with *Zostera*
- Dense monospecific *Posidonia australis*
- Dense mixture of *P. australis* and *P. sinuosa*
- Dense mixed or alternating patches of *P. sinuosa* and *Amphibolis antarctica*
- Dense monospecific *P. sinuosa*
- Patches of monospecific *Amphibolis antarctica* and a patch of dense *Halophila australis* mixed with sparse *Zostera*
- *Zostera*
- Bare sand with macroalgae and invertebrates
- Bare sand with invertebrates
- A large and a small area of bryozoan monoculture (*Steginoporella truncata*)
- Bare sand with bioturbation (burrowing infauna)
- Bare sand (<5% invertebrates/algae).

Mature seagrass meadows of Posidonia, Amphibolis spp. and *Halophila australis* cover much of the shallow sandy substrates at the Mullaquana Station site. Marine flora plays a critical role in primary production, nutrient cycling, stabilising sediments and providing habitat for a variety of fauna including blue and red swimmer crab, spider crab, cuttlefish, mottle seastar, sea cucumber, pencil urchin, sponges, whiting, goblin fish, pipefish, blenny, and weedfish.

Bare sand habitats are prevalent habitats across the Spencer Gulf. In deeper waters off Mullaquana Station, clusters of invertebrates including large ascidians, sponges and bivalves grow on the silty bottom. Bare sand habitats are regularly utilised by fish and crustaceans, including commercially important fishery species. The sandy deeper water habitat at the site for the intake and outfall have sparse covers of macroalgae with sparse, small filter feeders, including bryozoan *Steginoporella truncata*, obese ascidian *Phallusa obesa*, soft coral *Echinogorgia* sp. (c) and western king prawn *Melicertus latisulcatus*.

3.3 Heritage

3.3.1 Describe any Commonwealth Heritage Places Overseas or other places recognised as having heritage values that apply to the project area.

There are no nationally, State or locally listed heritage places located in the vicinity of the proposed desalination plant site. The closest State and local heritage places are located in Whyalla, approximately 25 km north of the desalination plant site.

A review of the World Heritage Properties was undertaken using Australia's World Heritage List. It found the nearest World Heritage Site to the Project Area is the Willandra Lakes Region in NSW, located approximately 500 km east from the Project.

The Cuttlefish Coast Sanctuary Zone, a breeding ground for the Giant Australian Cuttlefish, was declared a National Heritage Place in February 2023. The Cuttlefish Coast Sanctuary Zone is located in the Upper Spencer Gulf near Point Lowly approximately 15 km north-east of Whyalla. The Zone is located approximately 34 km north-east from the Mullaquana Station desalination plant site.

Due to this distance, impacts on this National Heritage Place are not expected. Further discussion of the Cuttlefish Coast Sanctuary Zone is provided in Att D: National Heritage Assessment (p. all pages).

A review of Australia's National Heritage List identified the Ediacara Fossil Site – Nilpena as the second closest National Heritage Place, located approximately 50 km east of the proposed action and not impacted by the Project.

Department of Defence (Defence) land in the vicinity of the Project includes the Cultana Training Area outside of Whyalla, and the township of Woomera which has been owned and operated by Defence since its establishment in 1947 to support the operations of the Woomera Rocket Range. Defence will be consulted in relation to any heritage register they may hold relating to buildings or other items of non-Aboriginal heritage importance on land they control.

The city of Whyalla hosts several items of non-Aboriginal heritage significance (State heritage places) which are recorded on the SA Heritage Place database, the closest of which is located approximately 10 km from the proposed transfer system alignment.

No shipwrecks are recorded on the Australasian Underwater Cultural Heritage Database within 5 km of the proposed site. The closest shipwreck is the Mary Ann, which was abandoned in 1885 due to a leak, and is located approximately 11 km south of the proposed desalination plant site. Historic shipwrecks are protected under the *Historical Shipwrecks Act 1981*, irrespective of whether they have been found, located or retrieved.

South Australian Geoheritage Sites were formally described as 'geological monuments' and are administered by the South Australian Geological Heritage Subcommittee of the Geological Society of Australia. They represent rare, unique or representative occurrences of geological interest that are considered by the earth science community to be worthy of conservation for reference, research and training. The closest South Australian Geoheritage Site is located approximately 10 km to the west of the proposed desalination plant (Monument 1145 Deep Creek). There are two South Australian Geoheritage Sites in proximity to the proposed transfer system alignment at Whyalla (Monument 1468 Whyalla District (Mount Laura) and Monument 1143 Whyalla District (New Water Tank Hill).

Evidence of past non-Aboriginal settlement such as cemeteries, fences, stockyards, ruined huts, and windmills, is scattered throughout the Eyre Peninsula and Far North of South Australia. Preliminary assessment (including review of previous heritage studies in the Project region) has identified a number of such sites in the vicinity of the proposed transfer system alignment, comprising predominantly building ruins and/ or structures associated with the pastoral industry. Some of these sites are likely to be considered to have local historical significance or interest to property owners, travellers or the community, although preliminary assessment has not identified any sites of recognised heritage significance.

The location of the proposed desalination plant is on land that is currently and has historically been utilised for sheep grazing over native vegetation and has not been cleared for agricultural cropping. Due to the history of land use, the sparse population and the inaccessibility of the coastline it is considered unlikely

that the desalination plant location and coastal areas will present a risk for non-Aboriginal cultural heritage.

The proposed alignment for the transfer system and the location of other infrastructure has been selected to follow existing infrastructure corridors and previously disturbed areas, where possible. Listed sites of heritage significance have been avoided. Sites identified in further environmental impact assessment as being of local heritage or historical significance will also be avoided where possible by the proposed infrastructure footprints and alignments.

Sites of local historical or heritage significance identified during landholder and community engagement will also be considered as part of further environmental impact assessment. Potential impacts to unlisted or locally significant sites will be addressed in consultation with landholders and the community.

No non-Aboriginal cultural heritage sites are expected to be present at or impacted by the desalination plant, on the transfer system alignment or at other Project infrastructure sites although this will be confirmed during the environmental impact assessment process.

3.3.2 Describe any Indigenous heritage values that apply to the project area.

The proposed Mullaquana Station Desalination Plant, transfer system and electrical infrastructure are located on the traditional lands of the Barngarla and Kokatha Peoples, represented by the Barngarla Determination Aboriginal Corporation (BDAC) and Kokatha Aboriginal Corporation (KAC). Native title has been determined for both groups and exists throughout much of the Project Footprint, with the exception of land tenures including perpetual lease holdings, freehold land and within public road reserves where it has been extinguished.

Areas of Aboriginal Cultural Heritage significance are located within parts of the Project Footprint and the broader landscape.

Cultural heritage surveys with BDAC and KAC have been undertaken for the majority of the Project Footprint, and continue to be progressed for the remaining areas. Survey outcomes have informed design development and infrastructure siting through the identification of Cultural heritage sites and areas to be avoided as well as determining other design or construction constraints. Aboriginal Cultural Heritage Agreements and Management Plans with the Barngarla and Kokatha Traditional Owners are being negotiated as part the of the Indigenous Land Use Agreements and will form the basis of detailed Cultural Heritage Management plans (CHMPs) for construction and operation, informed by cultural heritage surveys.

Engagement has commenced with Aboriginal groups surrounding the physical Project Footprint that have been identified to have an interest in the Project. This includes with Arabana who have an interest the Project associated with the opportunity it provides for reducing reliance on the GAB for mining activities.

Location of Project infrastructure

The desalination plant footprint is located within the traditional lands of the Barngarla People. Aboriginal cultural heritage surveys of the area have been undertaken with Barngarla to identify cultural heritage values relating to the proposed desalination plant, transmission line and southern extent of the transfer system alignment.

Approximately 275km of the transfer system alignment, associated pumping stations and transmission infrastructure are proposed to be located within the boundaries of the Kokatha Determination Area. Aboriginal Cultural Heritage surveys have been completed for this infrastructure in conduction with Kokatha Traditional Owners.

Cultural Heritage Survey and Project Design

A search of the Central Archive, which includes the Register of Aboriginal Sites and Objects maintained by Aboriginal Affairs and Reconciliation within the South Australian Attorney-General's Department (AGD-AAR) has been undertaken for the Project Area. Numerous recorded and / or registered sites exist adjacent to the Project alignment, however it is noted that the Register maintained by AGD-AAR does not contain all cultural heritage information. Some Traditional Owner groups prefer to keep and maintain records of their heritage sites and interests within their community rather than have them endorsed on the Register of Aboriginal Sites and Objects administered by AGD-AAR.

Sites, objects, or remains of Aboriginal heritage significance in South Australia are automatically afforded protection under the *Aboriginal Heritage Act 1988* (SA) irrespective of whether they have been formally registered or recorded on the Central Archive, or discovered during cultural heritage surveys.

A key Project aim is to avoid or minimise impacts on areas of cultural heritage value. Aboriginal cultural heritage surveys have been undertaken with Kokatha and Barngarla to identify areas of Aboriginal cultural significance, including Aboriginal cultural heritage sites. The surveys include the identification of exclusion areas (areas to be avoided for Project infrastructure) as well as areas to which specific management measures or site protection protocols apply. These outcomes have informed the location, design and construction methodology for Project infrastructure including the desalination plant, marine works, transfer pipeline system and ancillary infrastructure. Undisturbed coastal areas, sand dunes and salt lakes are generally accepted as representing areas of cultural value and have higher-risk profile for the presence of

Aboriginal cultural heritage sites, objects or remains. The linear infrastructure required for the Project has sought to avoid salt lakes and areas known to contain sites, objects or remains, informed by survey outcomes. To minimise risk to heritage associated with the coastal dune area at the desalination plant site, deep tunnelling is proposed for the intake and outfall infrastructure.

Extensive land disturbance will be required to construct the Project infrastructure and as such there is potential for the presence of unrecorded and/or unregistered sites. However, aligning Project infrastructure with existing infrastructure corridors and disturbed areas wherever possible will reduce the risk of impacts to cultural heritage values. Identified recorded sites of cultural heritage significance can generally be avoided through selective transfer system alignment and location of other infrastructure.

Cultural Heritage Management Plan

The Aboriginal cultural heritage surveys will also inform the development of detailed Cultural Heritage Management Plans (CHMPs) for the construction and operational phases of the Project. The CHMPs will be agreed with Kokatha and Barngarla and will set out heritage identification, protection and management processes over the life of the construction and operation phases of the Project.

The purpose of the CHMP will be to:

- provide a consistent and transparent process for the management of cultural heritage to enable the Project Team to design and undertake construction activities to avoid disturbance of cultural heritage
- outline processes and procedures to enable works to be undertaken near and in areas of cultural heritage significance
- set out detailed procedures and protocols for managing and protecting the identified Aboriginal heritage values of the proposed infrastructure sites and corridors and their environs during construction, ownership, operation, and maintenance of the infrastructure
- set out the responsibilities of each person involved in the construction management process
- comply with the requirements of survey reports, Aboriginal Heritage Agreements, and ILUAs relating to the Project
- ensure all parties meet their statutory obligations in relation to the management of cultural heritage.
- detail how sensitive and confidential heritage information is managed.

The CHMP will outline procedures and protocols to avoid impacts to Aboriginal cultural heritage covering, but not limited to:

- cultural heritage induction and awareness training requirements
- mapping of cultural heritage and dissemination of heritage avoidance, constraint, monitor and cleared areas, including the requirements and expectations related to each
- cultural heritage monitoring requirements related to land clearance and initial ground disturbance
- unexpected finds/discovery procedures for Aboriginal cultural heritage
- physical demarcation of cultural heritage sites
- emergency management and incident procedures including notification requirements auditing and monitoring processes and review processes for the CHMP.

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The Project Area traverses the Gawler IBRA Bioregion, with the intake and outfall pipes extending into the marine environment of the Upper Spencer Gulf from the coast as part of the desalination plant.

The Gawler Bioregion is characterised by semi-arid to arid flat topped to rounded hills, rocky quartzite hills, sandstone plateaus, depositional plains, gibber plains and salt-encrusted lake beds. The Project Area within this bioregion traverses generally flat or broadly undulating open plains which are traversed by highly ephemeral broad waterways. Along the Carrapateena lateral branch, the alignment traverses the Arcoona Plateau Subregion where the landscape consists of undulating to hilly surfaces, stony tablelands with intermittent clay filled gilgais. The northern portion of the Project alignment is characterised by a series of internally draining catchments to nearby salt encrusted ephemeral salt lakes, with the fringes of Lake Dutton and Lake Windabout being traversed by the transfer system alignment.

The proposed Project Footprint is broadly characterised by:

- Extensive flat plains with highly permeable sandy soils (south of Pernatty Lagoon to Port Augusta) which allow rapid infiltration of surface waters, however the flat terrain can lead to widespread ponding when such events occur.
- Well defined drainage lines and catchments that have formed several large terminal salt lakes and ephemeral lagoons in the area of the northern section of the proposed alignment. Stone-free areas with cracking clay (gilgai) are an important element in the landscape and accept much of the runoff during smaller rainfall events.
- Terminal drainage in many small, enclosed catchments between dunes in the area of the northern end of the alignment. Typically, each catchment includes bounding dunes, an interdune swale and a lower depression within the swale (often a clay pan). No defined watercourses are present and surface waters from the small catchments rarely flow into the neighbouring catchments.
- The southern portion of the alignment is typically characterised by ephemeral creek systems draining water towards the coasts. After rainfall, runoff from the low hills and stony bluffs along the coast follows these minor ephemeral creeks.

Creek crossings on the proposed transfer system alignment have been identified through preliminary review in the Project's reference design as either major or minor crossings based on high-level visual assessment of GIS contour data and aerial imagery. Generally, major creek crossings have more than one tributary or watercourse converging upstream of the point of the crossing or a significant upstream catchment and with well-defined banks or signs of scouring or erosion. Minor creek crossings have been identified where small upstream catchments exist with relatively flat natural surface grades or where other minor depressions or swales are evident. Only a small number are categorised as major creeks, with the remainder comprising minor creeks which are highly episodic and without significant flow, due to the arid nature of the landscape. Aquatic ecological values are expected to be low in both major and minor creeks due to the temporary nature and high salinity of these arid region surface water habitats.

There are no surface water features of formal conservation significance (e.g., Great Artesian Basin (GAB) springs, Ramsar listed wetlands), the proposed transfer system alignment is not located within an area where the water resource is prescribed under the *Landscape South Australia Act* and is not within a water protection area.

<u>Groundwater</u>

Groundwater is generally of poor to marginal quality. Shallow groundwater is generally saline to hypersaline, ranging between 500 mg/L and 50,000 mg/L along the alignment and up to 200,000 mg/L near ephemeral salt lakes. Salinity of perched groundwater can be lower.

Depth to shallow groundwater varies along the alignment with potential areas of shallow groundwater (<5 m below ground level) with potential to be temporarily exposed by the Project. Generally, groundwater depth is in the order of 10 – 20 m or more below ground level, particularly on higher topography.

There are no Groundwater Dependent Ecosystems (GDE) known to occur on the proposed transfer system alignment. However, regional GDE mapping (BOM, 2025) shows a number of potential GDEs along the alignment, which generally correspond with the location of salt lakes.

In the broader region, the lack of reticulated water and reliable permanent surface water resources makes locally supplied groundwater resources an important source of water. However, across the area of the proposed transfer system alignment, utilisation of regional groundwater resources is generally restricted due to high salinity, although most pastoral stations use limited volumes of groundwater where present in sufficient volumes and at sufficient quality.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	Yes	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

A review of the World Heritage Properties was undertaken using Australia's World Heritage List. It found the nearest World Heritage Site is the Willandra Lakes Region in NSW, located approximately 500 km east from the proposed action.

Due to the distance between the Action and the nearest World Heritage Place, it is considered that there is no potential impact to this MNES.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

On 25 February 2023, the Federal Minister for the Environment and Water declared the inclusion of the Cuttlefish Coast Sanctuary Zone, a breeding ground for the Giant Australian Cuttlefish, as a National Heritage Place. This National Heritage Place (ID 106353) is located approximately 34 km northeast from the Mullaquana Station Desalination Plant site in the Spencer Gulf near Point Lowly. Due to the distance between the proposed action and the Cuttlefish Coast Sanctuary Zone, it is considered that there is no potential impact to this MNES. The preliminary results of dispersion modelling also support this conclusion. Further details are provided in Att D: National Heritage Assessment (all pages).

A review of Australia’s National Heritage List identified the Ediacara Fossil Site – Nilpena as the second closest National Heritage Place, located approximately 50 km east of the proposed action. Due to the distance between the proposed action and the Ediacara Fossil Site, it is considered that there is no potential impact to this MNES.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

A review of the location of Ramsar wetland locations indicates that the nearest Ramsar Wetland to the works is the Coongie Lakes located approximately 260 km north-east from the Project. As a result of the distance between the proposed action and the nearest Ramsar wetlands, no Project-related impacts to this MNES are predicted.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Amytornis modestus	Thick-billed Grasswren
Yes	Yes	Amytornis textilis myall	Western Grasswren (Gawler Ranges)
Yes	No	Aphelocephala leucopsis	Southern Whiteface
No	No	Aprasia pseudopulchella	Flinders Ranges Worm-lizard
No	No	Ardenna grisea	Sooty Shearwater
Yes	Yes	Arenaria interpres	Ruddy Turnstone
No	No	Caladenia tensa	Greencomb Spider-orchid, Rigid Spider-orchid
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris tenuirostris	Great Knot
Yes	Yes	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
Yes	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	No	Chelonia mydas	Green Turtle
No	No	Dasyurus geoffroii	Chuditch, Western Quoll
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
No	No	Diomedea antipodensis	Antipodean Albatross
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross
Yes	Yes	Eubalaena australis	Southern Right Whale
Yes	Yes	Falco hypoleucos	Grey Falcon

Direct impact	Indirect impact	Species	Common name
No	No	Frankenia plicata	
No	No	Galeorhinus galeus	School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Grantiella picta	Painted Honeyeater
No	No	Leipoa ocellata	Malleefowl
Yes	Yes	Limosa lapponica baueri	Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit
No	No	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	No	Macronectes halli	Northern Giant Petrel
No	No	Macrotis lagotis	Greater Bilby
Yes	Yes	Neophema chrysostoma	Blue-winged Parrot
Yes	Yes	Neophoca cinerea	Australian Sea-lion, Australian Sea Lion
Yes	Yes	Notomys fuscus	Dusky Hopping-mouse, Wilkiniti
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
No	No	Pachyptila turtur subantarctica	Fairy Prion (southern)
No	No	Pedionomus torquatus	Plains-wanderer
No	No	Phoebetria fusca	Sooty Albatross
Yes	Yes	Pluvialis squatarola	Grey Plover
Yes	Yes	Pseudomys australis	Plains Rat, Palyoora, Plains Mouse
Yes	Yes	Pteropus poliocephalus	Grey-headed Flying-fox
No	No	Pterostylis xerophila	Desert Greenhood
No	No	Rostratula australis	Australian Painted Snipe
No	No	Seriolella brama	Blue Warehou
No	No	Sminthopsis psammophila	Sandhill Dunnart
No	No	Stagonopleura guttata	Diamond Firetail

Direct impact	Indirect impact	Species	Common name
No	Yes	Sternula albifrons	Little Tern
No	Yes	Sternula nereis nereis	Australian Fairy Tern
No	No	Swainsona pyrophila	Yellow Swainson-pea
No	No	Thalassarche carteri	Indian Yellow-nosed Albatross
No	No	Thalassarche cauta	Shy Albatross
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	No	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche steadi	White-capped Albatross
No	Yes	Thinornis cucullatus cucullatus	Eastern Hooded Plover, Eastern Hooded Plover
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank

Ecological communities

Direct impact	Indirect impact	Ecological community
No	No	Subtropical and Temperate Coastal Saltmarsh

4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The significant impact assessment (Att C p.23-44) has identified the following species as known, likely or possible occurrences, with the potential for some direct or indirect impact. For each of these species, the likelihood of occurrence and the key potential impacts are listed below. Threatened ecological communities and threatened species that were identified in the significant impact assessment (Att C p.23-44) as unlikely to occur or having no likely direct or indirect impacts have not been included in the list below; details for these species are provided in (Att C p.23-44).

Species considered likely or known to occur

Amytornis textilis myall (Western Grasswren). Known to occur. Clearance of habitat for transfer system, electricity infrastructure and desalination plant.

Aphelocephala leucopsis (Southern Whiteface). Known to occur. Clearance of potential habitat for construction of transfer system and electricity infrastructure, the majority of which will be rehabilitated.

Calidris acuminata (Sharp-tailed Sandpiper). Likely to occur. Low potential for disturbance / indirect impact. Possible loss of small areas of ephemeral habitat.

Neophema chrysostoma (Blue-winged Parrot). Known to occur. Loss of potential foraging habitat. No nesting habitat occurs in the Project Area.

Sterna albifrons (Little Tern). Likely to occur. Low potential for disturbance / indirect impact.

Sternula nereis nereis (Australian Fairy Tern). Likely to occur. Low potential for disturbance / indirect impact.

Eubalaena australis (Southern Right Whale). Known to occasionally occur. During construction, the potential for adverse underwater noise or vibration impacts from construction is limited to piling (if required).

Pseudomys australis (Plains Mouse). Likely to occur. Clearance of potential refuge habitat for transfer system and electricity infrastructure, the majority of which will be rehabilitated.

Pteropus poliocephalus (Grey-headed Flying-fox). Likely to occur. Disturbance of potential foraging habitat (located outside the foraging range of nearest recognised important population).

Carcharodon carcharias (Great White Shark). Likely to occur. During construction the potential for adverse underwater noise or vibration impacts from construction is limited to piling (if required).

Species considered possible

Amytornis modestus (Thick-billed Grasswren). Possible occurrence (outside known range). Clearance of potential habitat for transfer system.

Arenaria interpres (Ruddy Turnstone). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris canutus (Red Knot). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris ferruginea (Curlew Sandpiper). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris tenuirostris (Great Knot). Possible occurrence. Low potential for disturbance / indirect impact.

Charadrius leschenaultii (Greater Sand Plover). Possible occurrence. Low potential for disturbance / indirect impact

Falco hypoleucos (Grey Falcon). Possible occurrence. Loss of potential general foraging habitat, and or temporary roosting habitat.

Limosa lapponica baueri (Nunivak Bar-tailed Godwit). Possible occurrence. Low potential for disturbance / indirect impact.

Numenius madagascariensis (Eastern Curlew). Possible occurrence. Low potential for disturbance / indirect impact

Thinornis cucullatus cucullatus (Eastern Hooded Plover). Possible occurrence. Low potential for disturbance / indirect impact.

Pluvialis squatarola (Grey Plover). Possible occurrence. Low potential for disturbance / indirect impact.

Tringa nebularia (Common Greenshank). Possible occurrence. Low potential for disturbance / indirect impact.

Neophoca cinerea (Australian Sea-lion). Possible occurrence. During construction, the potential for underwater noise or vibration impacts from construction is limited to piling activity (if required).

Notomys fuscus (Dusky Hopping-mouse). Possible occurrence (outside known range). Construction of the transfer system may require clearance of potential habitat situated outside the species' known range.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

The significant impact assessment (Att C p. 23-44) has identified that impacts to one threatened species (Western Grasswren (Gawler Ranges) *Amytornis textilis myall*) potentially trigger one of the significant impact criteria in the EPBC Act *Significant impact Guidelines 1.1 - Matters of National Environmental Significance.*

Western Grasswren (listed as Vulnerable) is known to occur in the Project Area south, west and north of Whyalla (Att C p. 17, p. 19-20 (table 4-2) and Figure 2-2). Construction of the transfer system and transmission lines involves clearance of approximately 136 ha of preferred habitat and 258 ha of atypical habitat, along a length of approximately 100 km. Construction of the desalination plant would require clearance of 187 ha of marginal habitat which is unlikely to support core populations. Significant impacts on the species are considered unlikely but possible. Although disturbance will largely be temporary and represents a very small proportion of available habitat for Western Grasswren in the region, impacts from the Project could be considered (in the short term) to trigger the criteria *adversely affecting habitat critical to the survival of a species*.

Other threatened species that are known or likely to occur are not considered likely to be significantly impacted, as follows:

Southern Whiteface (*Aphelocephala leucopsis*) (Vulnerable) – Although suitable habitat for this widely distributed habitat generalist occurs in patches throughout the full length of the Project Area, any impact from the Project is considered proportionately very small compared with the overall size of the population and extent of habitat in the bioregion and across southern Australia, and is not considered important, notable, or of consequence with regards to its context or intensity.

Blue-winged Parrot (*Neophema chrysostoma*) (Vulnerable) – The Project Area is unlikely to support a specific important population of this species, and the species does not breed in the region. Disturbance as a result of the Project is likely to represent a loss of occasional foraging habitat only, representing a very small fraction of total available foraging habitat for this species across much of Australia.

Sharp-tailed Sandpiper (*Calidris acuminata*) (Vulnerable) – There are nil to limited suitable aquatic habitats in the Project Footprint and no spatially reliable / recent records in the Project Footprint. The Sharp-tailed Sandpiper has a low possibility of occurrence in the Project Footprint (i.e. only when water is present, but other suitable habitat would be extensive under such conditions). The Project will not impact core habitats.

Australian Fairy Tern (*Sternula nereis nereis*) (Vulnerable) and Little Tern (*Sterna albifrons*) (Vulnerable) – The Project will not directly impact any coastal habitat and no impacts to any population are likely to occur.

Southern Right Whale (*Eubalaena australis*) (Endangered) – Southern Right Whales are occasionally present in Spencer Gulf between April and November. Potential impacts of noise from piling during construction (if required) if a whale is present in the vicinity would be short term and can be mitigated through implementing standard mitigation measures for underwater noise. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on highly mobile, transient Southern Right Whale individuals that may occur in the Project Area.

Plains Mouse (*Pseudomys australis*) (Vulnerable) – The species has not been detected during surveys for the Project. With only very low numbers of Plains Mouse potentially present within the Project Footprint (an assumed presence only), potential impacts to the species as a result of temporary disturbance for installation of the transfer system followed by site rehabilitation are not considered to be significant, given the very broad range across which the species persists, and the species' ability to recover during boom periods, and to spread into adjacent habitats.

Grey-headed Flying-fox (*Pteropus poliocephalus*) (Vulnerable) – The nearest recognised important population is located in the Adelaide Botanic Gardens, approximately 275 km from the Project Footprint. While there are two records in the vicinity of the study area and a camp has been reported as occurring in Port Augusta, the Project does not impact suitable roosting and foraging habitat and is not likely to have any impact on the species if it is present.

White Shark (*Carcharodon carcharias*) (Vulnerable) – There are few records in Upper Spencer Gulf, with most records and mapped biologically important foraging areas located further south, however individuals could occur in the area. The Project is not likely to have any impact on highly mobile White Shark individuals that may occur in the Project Area.

All other threatened species that are possibly or unlikely occurrences are also not likely to be significantly impacted. Refer to the significant impact assessment (Att C p. 17-18 and p. 19-27 (Table 4-2) and p. 28-37 (Table 4-3)) for further details.

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

The significant impact assessment (Att C p. 23-44) has identified that impacts to one threatened species (Western Grasswren (Gawler Ranges) *Amytornis textilis myall*) are potentially significant. The proposed action would involve clearance of preferred and atypical habitat for the transfer system and transmission lines in an area south, west and north of Whyalla where the species is known to occur. Although disturbance will largely be temporary and represents a very small proportion of available habitat for Western Grasswren in the region, impacts from the Project could be considered (in the short term) to trigger the criteria *adversely affect habitat critical to the survival of a species.* It is noted that disturbance of the marginal habitat identified at the desalination plant site would not be likely to have a significant impact on the species. Western Grasswren has not been recorded at this site and the habitat present is considered unlikely to support core populations or serve as important breeding habitat for the species. While it is possible that Western Grasswren may opportunistically use the area during periods of high abundance or favourable conditions, the site does not appear to provide the structural characteristics typically associated with key breeding or foraging habitat

Considering this potential for significant impact to Western Grasswren, the Project warrants further assessment to assess the potential impacts to this threatened species. As such, it is considered a controlled action determination is the best path forward.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Site selection, alignment selection and Project design have sought to avoid or minimise impacts to EPBC-listed species as far as possible. The detailed design process will involve ongoing refinement to minimise impacts as design and technical studies continue.

Mitigation measures that would be employed during construction and operation activities to reduce the impacts of the Project are described in detail in Table 3-1, page 15 to 16 of Att C: Significant Impact Assessment and are summarised below.

Terrestrial impact mitigation

- Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable.
- Minimise construction footprint and utilise previously cleared or disturbed areas where practicable.
- Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation.
- Where the construction footprint intersects with, or comes within proximity of, key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species, the construction footprint boundary will be defined to avoid unintentional disturbance outside of defined construction areas. Identification of key habitats to be identified by suitably qualified ecologist prior to disturbance.
- A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.
- During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site.
- During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks.
- During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified).
- Micro-site transmission line towers locations where possible to avoid important habitat features.
- Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the Project Area.
- Avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present where practicable
- Presence of experienced environmental management field staff during access and clearing activities.
- Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.
- Routine monitoring of open trenches during construction activities to inspect for trapped fauna.
- Progressive backfilling of trenches to minimise the length of open trenches at any time during construction.
- Inclusion of fauna ladders in open trenches to enable egress of any trapped fauna.
- Speed restrictions in place within construction corridor and along access tracks
- Maximise on-ground environmental offset (Significant Environmental Benefit) for native vegetation removal where opportunities are available.
- Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.
- Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation.
- Preparation of a Threatened Species Management Plan.
- Operations and Maintenance Environmental Management Plan prepared and implemented prior to commissioning.

Marine impact mitigation

- Standard marine environmental management practices will be implemented
- Implementation of vessel speed limits / awareness campaigns.
- If piling is required, detailed underwater noise modelling will be undertaken to establish noise management measures in accordance with Department for Infrastructure and Transport (the Department) Underwater Piling and Dredging Noise Guidelines (DIT, 2023), which would typically include:
    - Shut-down zones based on predicted potential for temporary threshold shift for hearing impact for the species.
    - Observation zone nominally 250m from the outer edge of the shut-down zone, with marine fauna observers as required to identify any relevant species at risk of entering the shut-down zone.
    - Standard Operating Procedures (SOP) in accordance with the Department's Underwater noise guidelines (DIT, 2023), which must be observed by piling contractors, including pre-start, soft start, normal operation, stand-by operation, and shut-down procedures.
- Soft start procedures will be used if piling is required.

Species-specific measures:

Western Grasswren (Gawler Ranges):

- Minimise construction width in areas of preferred habitat where possible.

Plains Mouse:

- Minimise construction width in areas of refuge habitat where possible.
- Restrict travel on access tracks during construction and operation to daylight hours, as far as practicable, to avoid potential impacts to this nocturnally active species.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

State based native vegetation offset (known as Significant Environmental Benefit or SEB) will be required for the Project as required under the South Australian *Native Vegetation Act 1991* for all disturbance to native vegetation. The Native Vegetation Act provides the option of paying an equivalent SEB payment to the Native Vegetation Fund administered under the Act, or the provision of on-ground vegetation commensurate with the nature, quality, location and amount of vegetation disturbed.

Exact details of the proposed State-based offset for the Northern Water Project (the proposed action) have yet to be determined, but the Project is preferencing on-ground offset wherever feasible.

The requirement for offsets for EPBC listed species have yet to be determined, but it is possible that offsets required under South Australian legislation may also provide benefit to EPBC listed species (acknowledging that separate offsets may be required under EPBC Act).

The establishment of on-ground offsets is in the early stages of planning with multiple landholders.

Should DCCEEW consider that residual impacts to Matters of National Environmental Significant require offsets, consideration would be given to on-ground EPBC offsets in conjunction (but separate to) State based SEB offset.

To protect the confidentiality of the owners of the potential offset sites, and to preserve the commercial negotiations, the exact location and nature of the offset sites have not been provided. The details of the offset sites (including their potential benefit under the *Native Vegetation Act 1991* and *Environmental Protection and Biodiversity Conservation Act 1999*) will be provided in the environmental impact assessment that will be prepared for the Project pursuant to the *Planning, Development and Infrastructure Act 2016* (SA) and *Environment Protection and Biodiversity Conservation Act 1999 (*if required).

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Actitis hypoleucos	Common Sandpiper
No	No	Apus pacificus	Fork-tailed Swift
No	No	Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater
No	No	Ardenna grisea	Sooty Shearwater
Yes	Yes	Arenaria interpres	Ruddy Turnstone
No	No	Balaenoptera edeni	Bryde's Whale
Yes	Yes	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris alba	Sanderling
Yes	Yes	Calidris canutus	Red Knot, Knot
Yes	Yes	Calidris ferruginea	Curlew Sandpiper
Yes	Yes	Calidris melanotos	Pectoral Sandpiper
Yes	Yes	Calidris ruficollis	Red-necked Stint
Yes	Yes	Calidris tenuirostris	Great Knot
No	No	Caperea marginata	Pygmy Right Whale
No	No	Carcharias taurus	Grey Nurse Shark
Yes	Yes	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
Yes	Yes	Charadrius leschenaultii	Greater Sand Plover, Large Sand Plover
No	No	Charadrius veredus	Oriental Plover, Oriental Dotterel
No	No	Chelonia mydas	Green Turtle
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
No	No	Diomedea antipodensis	Antipodean Albatross

Direct impact	Indirect impact	Species	Common name
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross
Yes	Yes	Eubalaena australis	Southern Right Whale
No	No	Gallinago hardwickii	Latham's Snipe, Japanese Snipe
No	No	Lagenorhynchus obscurus	Dusky Dolphin
No	No	Lamna nasus	Porbeagle, Mackerel Shark
Yes	Yes	Limosa lapponica	Bar-tailed Godwit
No	No	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	No	Macronectes halli	Northern Giant Petrel
Yes	Yes	Megaptera novaeangliae	Humpback Whale
No	No	Motacilla cinerea	Grey Wagtail
No	No	Motacilla flava	Yellow Wagtail
Yes	Yes	Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew
Yes	Yes	Pandion haliaetus	Osprey
No	No	Phoebetria fusca	Sooty Albatross
Yes	Yes	Pluvialis squatarola	Grey Plover
No	Yes	Sternula albifrons	Little Tern
No	No	Thalassarche carteri	Indian Yellow-nosed Albatross
No	No	Thalassarche cauta	Shy Albatross
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	No	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche steadi	White-capped Albatross
Yes	Yes	Thalasseus bergii	Greater Crested Tern
Yes	Yes	Tringa brevipes	Grey-tailed Tattler
Yes	Yes	Tringa nebularia	Common Greenshank, Greenshank

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The significant impact assessment (Att C p. 17-18 and Table 4-4 p. 38-40) has identified the following migratory species as known, likely or possible occurrences, with the potential for some direct or indirect impact. For each of these species, the likelihood of occurrence and the key potential impacts are listed below. Migratory species that were identified in the significant impact assessment (Att C p. 42-44) as unlikely to occur or having no likely direct or indirect impacts have not been included in the list below; details for these species are provided in (Att C p. 42-44).

Actitis hypoleucos (Common Sandpiper). Possible occurrence. Low potential for disturbance / indirect impact. Possible indirect disturbance / short-term loss of small areas of ephemeral habitat.

Arenaria interpres (Ruddy Turnstone). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris acuminata (Sharp-tailed Sandpiper). Likely to occur. Low potential for disturbance / indirect impact. Possible loss of small areas of ephemeral habitat.

Calidris canutus (Red Knot). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris ferruginea (Curlew Sandpiper). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris melanotos (Pectoral Sandpiper). Possible occurrence. Low potential for disturbance / indirect impact. Possible short-term loss of small areas of ephemeral habitat.

Calidris ruficollis (Red-necked Stint). Possible occurrence. Low potential for disturbance / indirect impact.

Calidris tenuirostris (Great Knot). Possible occurrence. Low potential for disturbance / indirect impact.

Charadrius leschenaultii (Greater Sand Plover). Occurrence possible. Low potential for disturbance / indirect impact.

Limosa lapponica (Bar-tailed Godwit). Possible occurrence. Low potential for disturbance / indirect impact.

Numenius madagascariensis (Eastern Curlew, Far Eastern Curlew). Occurrence possible. Low potential for disturbance / indirect impact.

Pandion haliaetus (Osprey). Occurrence possible. Injury or mortality from collisions with infrastructure. Noting powerlines are not expected to be near important coastal / foraging habitat and therefore risk of collisions is expected to be low.

Pluvialis squatarola (Grey Plover). Occurrence possible. Low potential for disturbance / indirect impact.

Sterna albifrons (Little Tern). Likely to occur. Low potential for disturbance / indirect impact.

Thalasseus bergii (Greater Crested Tern). Occurrence possible. Low potential for disturbance / indirect impact.

Tringa brevipes (Grey-tailed Tattler). Occurrence possible. Low potential for disturbance / indirect impact.

Tringa nebularia (Common Greenshank). Occurrence possible. Low potential for disturbance / indirect impact.

Eubalaena australis (Southern Right Whale). Known to occasionally occur. During construction, the risk of adverse underwater noise or vibration impacts from construction is limited to piling, if required.

Megaptera novaeangliae (Humpback Whale). Occurrence possible. During construction, the risk of adverse underwater noise or vibration impacts from construction is limited to piling, if required.

Carcharodon carcharias (Great White Shark). Likely to occur. During construction the potential for adverse underwater noise or vibration impacts from construction is limited to piling (if required).

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.5.6 Describe why you do not consider this to be a Significant Impact. *

The significant impact assessment (Att C p. 23-44) concludes that a significant impact is unlikely for all listed migratory species.

Migratory shorebirds

Migratory species that may occur in the Project Area are predominantly shorebirds which do not breed in Australia, but utilise habitats in Australia for foraging during non-breeding periods. The Project avoids key inland and coastal aquatic habitats which are important to migratory shorebirds, there is limited presence of migratory shorebird species or habitat within the Project Footprint and the Project avoids important migratory shorebird habitats (as identified in the National Shorebird Directory Driessen et al. 2025).

Project marine infrastructure (the intake and outfall) will be installed by tunnel boring underneath coastal environments at the Mullaquana Station site, and there will be no direct impact to intertidal migratory shorebird habitats. The desalination plant site is also a significant distance from the shoreline (e.g. the closest component, the intake pump station, is 400 m west of the mean high water mark) and is separated from intertidal areas by low dunes. Consequently, the potential for any indirect impact to migratory shorebirds that may be present in the area during construction or operation is very limited.

The few areas of habitat which are traversed by the alignment which represent potential foraging habitat for migratory shorebird species are highly ephemeral in nature – being inland salt lakes, or ephemeral watercourses and drainage lines through largely arid and semi-arid environments. Whilst some of these habitats will be impacted by the Project, when they are inundated with water, there will be other areas outside the Project Footprint in the region (in some instances vast areas) which also support water as a result of regional rainfall. Consequently, areas impacted by the Project would not represent important habitat and would represent a very small proportion of available ephemeral habitat for migratory shorebird species. Any impact to these habitats or indirect disturbance during construction would not have a significant impact on migratory shorebird species.

Other migratory species

Migratory marine species that may occasionally be present in the Upper Spencer Gulf (e.g. Southern Right Whale (*Eubalaena australis*) and Humpback Whale (*Megaptera novaeangliae*)) are unlikely to be impacted. Potential impacts of noise from piling during construction (if required) if a whale is present in the vicinity would be localised and short term and can be mitigated through implementing standard mitigation measures for underwater noise. Salinity beyond the immediate vicinity of the diffusers would remain within the range of natural seasonal variability, with no anticipated impact on highly mobile, transient individuals that may occur in the Project Area.

All other migratory species that are possible or unlikely occurrences are also not likely to be significantly impacted. Refer to the significant impact assessment (Att C p. 17-18 and p. 19-37 (Table 4-2), p. 23-41 (Table 4-3) and p. 42-44 (Table 4-4)) for further details.

4.1.5.7 Do you think your proposed action is a controlled action? *

No

4.1.5.9 Please elaborate why you do not think your proposed action is a controlled action. *

A controlled action determination for migratory species requires an assessment of significant impacts to migratory species as a result of the proposed action.

As stated above, the migratory species which are potentially relevant to the Project are predominantly shorebirds which do not breed in Australia, but utilise habitats in Australia for foraging during non-breeding periods. The Project avoids key inland and coastal aquatic habitats which are important to migratory shorebirds, there is limited presence of migratory shorebird species or habitat within the Project Footprint and the Project avoids important migratory shorebird habitats as identified in the National Shorebird Directory (Driessen et al. 2025).

Other migratory species that could potentially occur are also not likely to be significantly impacted (and are generally not likely to be impacted to any extent).

Consequently, as the Project is not likely to have a significant impact on any migratory species, it should not be a controlled action.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Site selection, alignment selection and Project design have sought to avoid or minimise impacts to EPBC-listed species as far as possible. The detailed design process will involve ongoing refinement to minimise impacts as design and technical studies continue.

Mitigation measures that would be employed during construction and operation activities to reduce the impacts of the Project are described in detail in Table 3-1, page 15 to 16 of Att C: Significant Impact Assessment and are summarised below.

Terrestrial impact mitigation

- Desktop and field surveys carried out to identify key ecological constraints, feeding into iterative design process to avoid and minimise interaction with important habitat as far as reasonably practicable.
- Minimise construction footprint and utilise previously cleared or disturbed areas where practicable.
- Restrict construction width to the minimum necessary to allow safe and efficient pipeline installation.
- Where the construction footprint intersects with, or comes within proximity of, key coastal and inland ephemeral swamps and salt lake habitats supporting EPBC listed threatened or migratory shorebird species, the construction footprint boundary will be defined to avoid unintentional disturbance outside of defined construction areas. Identification of key habitats to be identified by suitably qualified ecologist prior to disturbance.
- A field inspection will be undertaken with an experienced ecologist and construction design specialist in order to further reduce the construction corridor width where possible and to assist with demarcation of no-go zones for particularly sensitive areas.
- During construction, implement weed hygiene practices including vehicle checks and washdowns as required on vehicles or plant entering the construction site.
- During construction, undertake monthly weed surveillance monitoring targeting WoNS and Declared Weed species, with follow up controls as required for any identified weed outbreaks.
- During operation, implement weed surveillance and control programs targeting WoNS and Declared Weed species (if weeds identified).
- Micro-site transmission line towers locations where possible to avoid important habitat features.
- Develop and implement protocols for management of waste during construction to avoid an increase in, or attraction of, feral pest animals to the Project Area.
- Avoid construction works associated with crossings of ephemeral lakes and watercourses when water is present where practicable
- Presence of experienced environmental management field staff during access and clearing activities.
- Presence of, or access to, trained fauna handlers during construction to assist with removal of, and relocation of, any trapped (and/or injured) fauna caught within trenches, or displaced during habitat clearance.
- Speed restrictions in place within construction corridor and along access tracks
- Maximise on-ground environmental offset (Significant Environmental Benefit) for native vegetation removal where opportunities are available.
- Progressive rehabilitation of all temporary construction areas where native vegetation clearance has occurred.
- Preparation of a Project-specific CEMP including controls on activities near salt pans and clay pans, weed hygiene, weed monitoring and progressive rehabilitation.
- Preparation of a Threatened Species Management Plan.
- Operations and Maintenance Environmental Management Plan prepared and implemented prior to commissioning.

Marine impact mitigation

- Standard marine environmental management practices will be implemented
- Implementation of vessel speed limits / awareness campaigns.

- If piling is required, detailed underwater noise modelling will be undertaken to establish noise management measures in accordance with Underwater Piling and Dredging Noise Guidelines (DIT, 2023), which would typically include:
    - Shut-down zones based on predicted potential for temporary threshold shift for hearing impact for the species.
    - Observation zone nominally 250m from the outer edge of the shut-down zone, with marine fauna observers as required to identify any relevant species at risk of entering the shut-down zone.
    - Standard Operating Procedures (SOP) in accordance with Underwater noise guidelines (DIT, 2023), which must be observed by piling contractors, including pre-start, soft start, normal operation, stand-by operation, and shut-down procedures.
- Soft start procedures will be used if piling is required.

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

No offsets are proposed for specifically migratory species, as no significant impacts to migratory species are anticipated.

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not considered a nuclear action and does not involve the use, storage or transportation of radioactive materials. Therefore, it is considered the works do not trigger the MNES and thus do not require an assessment of the potential for significant impacts to the whole of the environment.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The distance between the Mullaquana Station desalination plant site and the Commonwealth marine environment at the southern end of Spencer Gulf is approximately 290 km. The nearest Commonwealth marine reserve is the Western Eyre Marine Park, located approximately 250 km (across terrain) south-west from the proposed action's desalination plant, off the southern coast off the Eyre Peninsula (Parks Australia, 2022).

Due to the very large distance and dilution potential between the works and the Commonwealth marine environment, there is considered to be no potential for impacts to this MNES.

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The closest point of the Great Barrier Reef Marine Park is located approximately 1,600 km (across terrain) north-east of the closest point of the proposed action. As a result of the distance between the works and the Great Barrier Reef Marine Park, it is considered that there is no potential impact to this MNES.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Project is not directly or indirectly associated with a coal seam gas development or large coal mining development. Therefore, it is considered the works do not trigger the MNES and thus do not require an assessment of the potential for significant impacts to the whole of the environment.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Commonwealth land area
Yes	Yes	Commonwealth Land - Australian National Railways Commission
Yes	Yes	Defence - AIRTC WHYALLA
Yes	Yes	Defence - CULTANA TRAINING AREA
Yes	Yes	Defence - DEFENCE SUPPORT CENTRE - WOOMERA
No	No	Defence - EL ALAMEIN - PORT AUGUSTA
No	No	Defence - LAUNCHER SITE RANGE - WOOMERA
No	No	Defence - WHYALLA TRAINING DEPOT
No	No	Defence - WOOMERA AIR WEAPONS RANGE

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.10.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The Project directly traverses Australian Rail Track Corporation (ARTC) (formerly Australian National Railways Commission) land, the Department of Defence (Defence) Cultana Training Area (CUTA), and is located adjacent to the Defence Support Centre – Woomera.

The Woomera Air Weapons Range was identified as potential Commonwealth Land in the PMST. Assessment of current land tenure and use identified that this land parcel is located within the Roxby Downs pastoral lease, currently held by Kokatha Pastoral and does not constitute a Commonwealth Area under section 525 of the EPBC Act (i.e. it is not owned by or held under lease by the Commonwealth or a Commonwealth agency, nor is it part of a Commonwealth reserve). Accordingly it has not been assessed further.

(Note: As the EPBC Act Business Portal did not automatically populate Commonwealth Land parcels, nominal parcels have been uploaded to represent Commonwealth Land that has been intercepted. As the Project does not have access to a spatial layer for Commonwealth Land, the list of parcels that have been manually identified may not be complete.)

A detailed description of all potential direct and indirect impacts to Commonwealth Land as well as maps showing the location of Commonwealth Land is presented in Att E: Commonwealth Land Assessment (all pages).

Potential direct or indirect impacts to the environment on ARTC land include:

Landscapes and soils: soil disturbance due to construction earthworks including pipeline trenching (adjacent to railway lines), underboring (crossing under railway lines), powerline construction at Lincoln Gap, upgrades to level crossings and access tracks; potential exposure of contaminated or acid sulphate soils

Water resources: changes to surface or groundwater quality or surface water flow due to pipeline and transmission line construction works

Pollutants, chemicals, and toxic substances: generation / spillage / discharge of smoke, fumes, chemicals, nutrients or other pollutants impacting local air quality or water quality

Flora and fauna: removal of habitat due to native vegetation clearance; injury or mortality from vehicle strike, entrapment in pipeline trench / excavations; disturbance from construction site lighting and noise; introduction or spread of invasive weed species or disease

People and communities: impacts to ARTC operations and personnel from pipeline and transmission line construction and operation

Aboriginal and non-Aboriginal heritage: disturbance, damage or loss of known and unknown items or places of heritage significance.

Potential direct or indirect impacts to the environment on CUTA land include:

Landscapes and soils: soil disturbance due to construction earthworks including pipeline trenching and site access tracks where required

Water resources: changes to surface or groundwater quality or surface water flow due to pipeline construction works

Pollutants, chemicals, and toxic substances: generation / spillage / discharge of smoke, fumes, chemicals, nutrients or other pollutants impacting local air quality or water quality

Flora and fauna: removal of Western Grasswren habitat due to native vegetation clearance; injury or mortality from vehicle strike, entrapment in pipeline trench / excavations; disturbance from construction site lighting and noise; introduction or spread of invasive weed species or disease; increase to bushfire risk

People and communities: impacts to Defence operations and personnel from pipeline construction and operation

Aboriginal and non-Aboriginal heritage: disturbance, damage or loss of known and unknown items or places of heritage significance.

Potential indirect impacts to the environment on Defence land at Woomera include:

Water resources: changes to surface or groundwater quality or surface water flow due to access track upgrades /widening

Pollutants, chemicals, and toxic substances: generation / spillage / discharge of smoke, fumes, chemicals, nutrients or other pollutants impacting local air quality

People and communities: impacts to Defence operations and personnel from pipeline construction adjacent to Commonwealth Land

Aboriginal and non-Aboriginal heritage: disturbance, damage or loss of known and unknown items or places of heritage significance.

(Note: The pipeline is aligned outside the surveyed boundary of the Defence Support Centre – Woomera Commonwealth Land parcel. The publicly available cadastral data in this location is inaccurate, and cadastral survey undertaken for the Project has confirmed that the Project footprint to the east of Woomera is outside the Commonwealth Land boundary. Refer to Att E: Commonwealth Land Assessment, Figure 4-4, p.18 for details).

The Woomera Air Weapons Range (within the Woomera Prohibited Area) is located within the Roxby Downs pastoral lease, currently held by Kokatha Pastoral and does not constitute a Commonwealth Area under section 525 of the EPBC Act as it is not owned by or held under lease by the Commonwealth or a Commonwealth agency, nor is it part of a Commonwealth reserve. This area does not represent Commonwealth Lands and thus has not been assessed further.

4.1.10.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.10.6 Describe why you do not consider this to be a Significant Impact. *

The Project is not considered to have significant impact to the relevant Commonwealth Land due to:

- the alignment of the pipeline footprint in previously disturbed areas as far as possible
- the pipeline will be buried underground
- trenchless installation of the pipeline underneath rail lines
- the short-term and transient nature of the construction activities
- current land uses and disturbed condition of much of the Commonwealth Land within the Project footprint
- ongoing engagement with Commonwealth Landholders to ensure impacts to operations are minimised
- implementation of mitigation and management measures to minimise construction and operation impacts.

The majority of the Project Footprint on or adjacent to these Commonwealth Lands will be located within existing disturbed areas, along property boundaries, or within a broader area that has been subject to continued land disturbance.

As a buried pipeline is the main Project component to be constructed on Commonwealth Land, the Project will not substantially alter natural landscape features. There will be short-term ground disturbance from construction of the pipeline, however the disturbance footprint is rehabilitated as soon as practicable, include re-contouring to match existing landforms, topsoil respreading and respreading of any cleared vegetation to encourage revegetation. The Project will be designed, engineered and constructed to minimise the risk of subsidence, instability or substantial erosion which could threaten the operation of the Project. This will also ensure the ongoing functionality of ARTC and Defence land for the Commonwealth purposes for which they are used.

Vegetation clearance on Commonwealth Land is small-scale, involving isolated areas of clearance of common and widespread vegetation types, adjacent to existing disturbed areas. Listed threatened flora species are unlikely to occur or be impacted. The location of the proposed alignment utilising or adjacent to existing disturbance areas, combined with the temporary nature of vegetation clearance and the transient nature of pipeline construction, is unlikely to displace or substantially limit the movement or dispersal of native animal populations, or result in reduction and fragmentation of available habitat on the Commonwealth Land. Vegetation clearance will not reduce habitat availability or quality to an extent that will lead to a decline in overall species.

The Project will not reduce the quantity, quality or availability of surface water or groundwater, nor alter groundwater table levels in a significant way within Commonwealth Land. The arid environment and ephemeral nature of watercourses will typically allow construction to take place when watercourses are dry. As such, the proposed action will not channelise, divert or impound rivers or creeks, and is unlikely to substantially alter drainage patterns on Commonwealth Land.

The proposed pipeline alignment and design have been developed in consultation with ARTC and Defence as part of the broader negotiation of third-party agreements which will define all terms of access, construction, design and approvals for the works. There will be ongoing liaison with ARTC and Defence during the detailed design stage to refine design and ensure requirements are met and impacts to operations are minimised. Once construction commences, the contractor would be required to meet requirements set by the agreement in relation to notice, access and other matters. Construction activities will be scheduled to minimise impacts on ARTC and Defence operations. Once construction and rehabilitation are complete, ARTC and Defence activities will not be impacted by the pipeline.

Given the distance of construction activities on Commonwealth Land from residential and other sensitive receptors, impacts from air and noise emissions are not expected.

Aboriginal cultural heritage surveys have been conducted for the Project Footprint within and adjacent to Commonwealth Land. The outcomes of these surveys have informed the pipeline alignment to avoid known areas of Aboriginal cultural heritage where possible and have identified management measures to mitigate risks to Aboriginal heritage. CHMPs developed with the Traditional Owners will set out Aboriginal heritage management requirements and discovery procedures in the event of unexpected heritage finds. Traditional Owner cultural heritage monitors during initial ground-disturbing activities for construction will further reduce the risk of damage, disturbance or interference with site, objects or remains with Aboriginal heritage significance.

The Project is continuing to engage with both Traditional Owner groups as part of negotiations towards to the development of Indigenous Land Use Agreements (ILUAs) to meet the requirements of the *Native Title Act 1993* these agreements will also include agreed Aboriginal cultural heritage management protocols.

The pipeline alignment does not affect any known non-Aboriginal heritage sites on Commonwealth Land and the potential for encountering unknown sites is considered low. Mitigation and management measures would be implemented to manage the discovery of new items.

Further detail on the Significance Impact Assessment is presented in Att E: Commonwealth Land Assessment (all pages).

4.1.10.7 Do you think your proposed action is a controlled action? *

No

4.1.10.9 Please elaborate why you do not think your proposed action is a controlled action. *

All Commonwealth Land likely to be impacted by the proposed action has been assessed in Att E: Commonwealth Land Assessment (all pages) and no significant direct or indirect impacts to the environment on Commonwealth Land are anticipated.

Australian Rail Track Corporation

Under-crossings of ARTC railway lines will be undertaken with consideration to train schedules and ARTC-specific standards for subterranean construction enabling trains to continue to operate without interruption. Underboring and installation beneath the rail line would be undertaken at a safe distance horizontally as well as vertically from the rail corridor. Transmission towers proposed at Lincoln Gap will be located at a sufficient distance from the railway land to avoid impact on ARTC's operations.

Native vegetation at the rail line under-crossing points has been subject to previous disturbance from railway operations and maintenance tracks. Vegetation on ARTC land is also subject to disturbance though railway maintenance activities such as weed spraying to manage fire risk. The limited vegetation clearance expected represents a very small proportion of vegetation and habitat in the surrounding region. Minimal clearance of potential habitat for threatened species is expected on ARTC land.

Contamination assessment undertaken prior to earthworks and geotechnical investigations to identify areas of potential contaminated or acid-sulphate soils will be used to inform design and management plans such that the pipeline alignment avoids substantial disturbance of contaminated or acid-sulphate soils.

Defence - Cultana Training Area

Construction activities would be planned in alignment with the agreed terms of the third-party agreement with the Department of Defence. Once construction and rehabilitation are complete, Defence activities would not be impacted by the pipeline.

The temporary loss of Western Grasswren habitat on the pipeline disturbance footprint in CUTA is not likely to result in a significant impact to the species. The pipeline alignment is located adjacent to a busy highway and the clearance would represent a very small proportion of suitable habitat in the region; it is not likely to lead to a long term decrease in the size of an important population, reduce the area of occupancy, fragment an important population, adversely affect habitat critical to the survival of the species or otherwise cause the species to decline. The CUTA area is already subject to disturbance from Defence training activities including live firing small arms, field and medium artillery weapons and air-delivered weapons.

Weeds are common throughout the CUTA. The Project will implement standard weed hygiene measures for construction sites to prevent weeds from being introduced from elsewhere or spread from CUTA land to elsewhere.

Defence Support Centre - Woomera

The limited vegetation clearance that may be required for access track upgrade / widening on the Commonwealth Land (which is expected to be in the order of 1 ha), and for construction of the transfer system adjacent to the Commonwealth Land, is not likely to have significant impact on the environment on Commonwealth Land. The pipeline construction corridor east of the Commonwealth Land at Woomera varies from 25 - 40 m to accommodate the presence of several significant ephemeral streams and minimise the impacts of vegetation clearance. Multiple tracks and other areas of previous disturbance are present in the surrounding landscape on the edge of Woomera. The pipeline utilises existing tracks where possible, minimising the need for vegetation clearance.

People have limited access to the Commonwealth land with the exception of organised heritage visits, personnel stationed or conducting exercises within Defence lands, and local service providers. Residences and Defence buildings, where personnel are concentrated, would not be impacted by the proposed action

due to the distance from activities. Any noise impacts would be short-term and vibration from construction activities is too distant to have an adverse impact on the amenity of residential receptors on the Commonwealth Land.

4.1.10.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Mitigation measures that will be implemented during planning and design to prevent or minimise impact to Commonwealth Land include:

Development of the proposed pipeline alignment and design in consultation with ARTC and Defence as part of the broader negotiation of a third-party agreement which will define all terms of access, construction, design and approvals for the works.

Ongoing liaison with ARTC and Defence during the detailed design stage to refine design and ensure requirements are met. Once construction commences, the contractor would be required to meet requirements set by the agreement in relation to notice, access and other matters.

Pipeline disturbance footprint would be rehabilitated as soon as practicable after pipe-laying and backfilling include re-contouring of the site to match existing landforms, topsoil respreading, installation of permanent erosion control structures (if required) and respreading of any cleared vegetation to encourage revegetation.

As well as avoidance, long term impacts from vegetation loss will be minimised through rehabilitation of the disturbance footprint. Following rehabilitation, impacted vegetation within Commonwealth Lands would regenerate with locally occurring flora species. Any loss of habitat for common species is not expected to be regionally significant, given the extensive areas of similar habitat surrounding the Commonwealth Land.

A 'significant environmental benefit' under the *Native Vegetation Act 1991* (SA) would be achieved to offset any native vegetation clearance.

Standard measures would be incorporated into the Construction Environment Management Plans (CEMPs) and would be implemented for trapped fauna in trenches including monitoring, removal of, and relocation of any trapped fauna, and use of fauna ladders.

CEMPs developed and applied for the Project will include protocols for 'unexpected finds' including contamination. If contamination is encountered, the CEMPs would be applied to ensure appropriate management of the contamination.

Outcomes of the Aboriginal Cultural Heritage surveys have informed Project design development, identifying areas to be avoided and other management and mitigation requirements for construction and operation to protect known cultural heritage. Measures include narrowing of defined sections of the construction corridor to reduce the risk of impact to sites of Aboriginal heritage significance and the presence of cultural heritage monitors during initial ground disturbance activities.

Development of detailed Aboriginal Cultural Heritage Management Plans (CHMPs) which will be agreed with the Traditional Owners. The CHMPs will set out heritage protection and management processes, to be implemented over the life of the infrastructure and will include procedures to be implemented in the event that ground disturbance works associated with the proposed action uncover previously unknown Aboriginal Cultural heritage.

Implementation standard weed hygiene measures for construction sites to prevent weeds from being introduced from elsewhere or spread from Commonwealth Land to elsewhere. Weed management measures will be incorporated into the Project CEMP.

Industry standard control strategies would be implemented in consultation with Defence to reduce risks to people, communities, environment and infrastructure from bushfire. Additional controls will form part of construction and operations management plans, including (but not limited to), no hot works and vehicle movements in bushland outside of designated roads/tracks on Total Fire Ban Days

Management of dust and air emissions to reduce potential impacts at sensitive receptors in Woomera would be implemented through a dust management plan focussing on adaptive management and incorporated into the Project CEMP.

Environmental management measures would be incorporated in CEMPs and implemented to minimise risk of erosion/ sedimentation, manage construction materials and waste, regulate vehicles and chemical use (where required), which could have indirect impacts on water resources

4.1.10.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

No offsets are proposed specifically for Commonwealth Land. However, any native vegetation disturbance on Commonwealth Land would be offset as required under the *Native Vegetation Act 1991* in South Australia. Offsets can be achieved through financial payment, or through land set aside. Exact details of the proposed offset for the Northern Water Project (the proposed action) have yet to be determined but the Project is preferencing on-ground offset wherever feasible.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The Action is located entirely within South Australia.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Threatened Species and Ecological Communities (S18)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Migratory Species (S20)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)
- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

The referral does not include alternatives as these have already been ruled out via a process of extensive stakeholder engagement and multi-criteria analysis (MCA).

A review of potential Project options commenced in 2021 with numerous desalination plant locations and water supply options considered. A number of phases of MCA has since occurred, following which, in 2025, Mullaquana Station was chosen as the preferred site.

The MCA process identified Mullaquana Station as the preferred site due to its capability in addressing the following objectives:

- Meets strategic Project objectives – Locating the desalination plant at Mullaquana Station enables the supply of water closer to demand in the Upper Spencer Gulf and Far North.
- Greater economic and financial viability – The desalination plant and transfer pipeline will be more cost effective to build and operate due to the plant's proximity to available workforce, local industry and existing transport infrastructure (newly redeveloped airport, rail and port facilities) and the pipeline's proximity to water demand.
- Favourable construction environment – On and offshore geotechnical investigations found that the ground conditions at Mullaquana Station are predominantly clay, making it favourable to construct the desalination plant and establish underground pipelines / tunnels.
- Supports growth in Whyalla and the region – Mullaquana Station is closer to potential water off takers, industry, workforce and infrastructure, aligning favourably with the State's aspirations to grow the economy of the Upper Spencer Gulf and Far North.
- Lower estimated greenhouse gas emissions –The Project, with the final desalination plant location at Mullaquana Station, has lower greenhouse gas emissions and reduced operational energy consumption.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A NW_Project Description_Rev0.pdf Project Description	17/12/2025	No	High
#2.	Document	Att A NW_Project Description_Rev0.pdf Project Description	16/12/2025		High

1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att B PMST_Project Area and 5 km buffer - November 10th 2025.pdf Protected Matters Search Tool for Project Area with 5 km buffer	10/11/2025	No	High
#2.	Link	Practice Direction 17 - Impact Assessed Development 2022 https://plan.sa.gov.au/resources/planning/practi..			High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Environment and Heritage Technical Manual https://www.dit.sa.gov.au/standards/manuals			High
#2.	Link	Master specification https://www.dit.sa.gov.au/contractor_documents/m..			High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A NW_Project Description_Rev0.pdf Project Description	16/12/2025		High
#2.	Document	Att A NW_Project Description_Rev0.pdf Project Description	16/12/2025		High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att E NW_ Cth_Land_Assessment_Rev0.pdf Assessment of project impacts on Commonwealth Land	17/12/2025	No	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att A NW_Project Description_Rev0.pdf Project Description	16/12/2025		High
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	17/12/2025	No	High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att B PMST_Project Area and 5 km buffer - November 10th 2025.pdf Protected Matters Search Tool for Project Area with 5 km buffer	09/11/2025		High
#2.	Document	Att B PMST_Project Area and 5 km buffer - November 10th 2025.pdf Protected Matters Search Tool for Project Area with 5 km buffer	09/11/2025		High
#3.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#4.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#5.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#6.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#7.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document				

Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species			16/12/2025	High	
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#3.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

3.3.1 Commonwealth heritage places overseas or other places that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att D NW_National_Heritage_Assessment_Rev0.pdf Assessment of potential impacts on the Cuttlefish Coast Sanctuary Zone	17/12/2025	No	High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Groundwater Dependent Ecosystems Atlas https://www.bom.gov.au/water/groundwater/gde/map..			High

4.1.2.3 (National Heritage) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att D NW_National_Heritage_Assessment_Rev0.pdf Assessment of potential impacts on the Cuttlefish Coast Sanctuary Zone	16/12/2025		High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf	16/12/2025		High

		Significant Impact Assessment - threatened and migratory species			
#3.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#3.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

4.1.4.8 (Threatened Species and Ecological Communities) Why you think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

4.1.4.10 (Threatened Species and Ecological Communities) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Link	Underwater Piling and Dredging Noise Guidelines https://www.dit.sa.gov.au/standards?a=955077			High
#3.	Link	Underwater Piling and Dredging Noise Guidelines			High

https://www.dit.sa.gov.au/standards?a=955077

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#3.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High

4.1.5.6 (Migratory Species) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#3.	Link	National Directory of Important Migratory Shorebird Habitat https://www.dcceew.gov.au/environment/epbc/publi..			High

4.1.5.9 (Migratory Species) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	National Directory of Important Migratory Shorebird Habitat https://www.dcceew.gov.au/environment/epbc/publi..			High

4.1.5.10 (Migratory Species) Avoidance or mitigation measures proposed for this action

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att C NW_Threatened_&_migratory spp_SIA_Rev0.pdf Significant Impact Assessment - threatened and migratory species	16/12/2025		High
#2.	Link	Underwater Piling and Dredging Noise Guidelines https://www.dit.sa.gov.au/standards?a=955077			High
#3.	Link	Underwater Piling and Dredging Noise Guidelines https://www.dit.sa.gov.au/standards?a=955077			High

4.1.10.2 (Commonwealth Land) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att E NW_ Cth_Land_Assessment_Rev0.pdf Assessment of project impacts on Commonwealth Land	16/12/2025		High
#2.	Document	Att E NW_ Cth_Land_Assessment_Rev0.pdf Assessment of project impacts on Commonwealth Land	16/12/2025		High

4.1.10.6 (Commonwealth Land) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att E NW_ Cth_Land_Assessment_Rev0.pdf Assessment of project impacts on Commonwealth Land	16/12/2025		High

4.1.10.9 (Commonwealth Land) Why you do not think your proposed action is a controlled action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att E NW_ Cth_Land_Assessment_Rev0.pdf Assessment of project impacts on Commonwealth Land	16/12/2025		High

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	62100220479
Organisation name	JBS&G AUSTRALIA PTY LTD
Organisation address	2000 NSW
Representative's name	Charlotte Baker
Representative's job title	Senior Project Manager
Phone	0432845973
Email	cbaker@jbsg.com.au
Address	100 Hutt Street, Adelaide SA 5000

☑ Check this box to indicate you have read the referral form. *

☑ Check this box to confirm these are the correct identification details. *

☑ By checking this box, I, **Charlotte Baker of JBS&G AUSTRALIA PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	92366288135
Organisation name	Department for Infrastructure and Transport
Organisation address	5000 SA
Representative's name	Alexandra Schwarz

Representative's job title	Manager - Planning and Environmental Approvals - Northern Water Project Delivery Office
Phone	1300 893 196
Email	Lexi.Schwarz@sa.gov.au
Address	83 Pirie Street, Adelaide SA 5000

☑ Check this box to indicate you have read the referral form. *

☑ Check this box to confirm these are the correct identification details. *

☑ I, **Alexandra Schwarz of Department for Infrastructure and Transport**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ Check this box to confirm these are the correct identification details. *

☑ I, **Alexandra Schwarz of Department for Infrastructure and Transport**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

You may receive automated notifications that aim to assist you in tracking the progress of your project. You can opt out of these notifications by updating your communication preferences on your profile.