EPBC Act referral

Australian Government
Department of Agriculture, Water and the Environment

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Title of proposal	2021/9003 - Townsville Eastern Access Rail Corridor

Section 1

Summary of your proposed action

1.1 Project industry type Transport - Land

1.2 Provide a detailed description of the proposed action, including all proposed activities

The Townsville Eastern Access Rail Corridor (TEARC) project will involve the construction of a rail line and supporting infrastructure between Cluden and Port of Townsville (PoT). The project is recognised as a key priority of the Australian Government, Queensland Government and Townsville City Council (Building Queensland 2017).

The Detailed Business Case (DBC) for the TEARC project was developed by Building Queensland in partnership with the Queensland Department of Transport and Main Roads (TMR) in 2017. The TEARC project has not progressed past the DBC phase; therefore, detailed design information is not available and the construction process is not confirmed. Preliminary design and construction information was prepared during the DBC, most of which is reported in GHD (2017a). Provided in Appendix A of this Referral is the construction durations (Att 1_DBC construction durations_sm) and drawings (Att 2_DBC drawings_sm) as developed in the DBC, and the resulting corridor-acquisition refinement drawings (Att 3_Corridor-acquisition refinement drawings_sm). TEARC's total construction duration is approximately two years.

The TEARC (Option B3 in the DBC) branches off the North Coast Line at Cluden, traversing the northern part of the Townsville State Development Area (TSDA), and then follows the eastern side of the Southern Port Road alignment, across the Ross River and connecting with the PoT minerals rail line loop. The alignment follows existing roads, except the portion between Abbott Street (Cluden) and Southern Port Road which is approximately 2.3 km long and traverses a mostly greenfield area. The project consists of the following major components:

- 8.3 km single, narrow-gauge track with one passing loop to accommodate a 1,000 m train, with the capacity to upgrade to 1,400 m trains in the future
- 3 m wide access road parallel to rail line (for service vehicles)
- re-alignment or extension of a number of existing public roads (to integrate TEARC project with existing road infrastructure), including an extension to Boundary Street which will require land reclamation on the northern bank of Ross River (near the river mouth)
- four road bridges
- eight rail bridges
- integration with existing and planned future PoT expansion.

The access road will be built at or near ground surface level where possible. The main rail line will predominantly be built on fill, with embankments ranging between 1.5m and 2m above the access road. Fill will be sourced from offsite locations and no cutting is required for the TEARC. Cross drainage provisions, to address flooding and environmental (eg erosion, geomorphology and water quality) matters, will comprise a combination of culverts and bridges (GHD 2017a).

The general activities anticipated during the construction and operation stages of the TEARC project are as follows.

- Construction:
  - vegetation clearing
  - earthworks
  - machinery movements
  - importation of fill and construction materials
  - pile driving (bridge construction)
  - storage and handling of hazardous materials
  - general construction activity (eg work force undertaking construction-related works not outlined above), including night works.
- Operation:
  - train and general machinery (eg service vehicles) movements
  - transportation of freight/materials
  - minor earthworks and construction activity associated with the maintenance of infrastructure
  - vegetation and weed control to maintain a clear transport corridor.

The vegetation clearing extents and limits to ground disturbance have not been established though will be confined to the TEARC project area (approximately 123 ha) and affect a majority of this area. According to mapping and data provided in the 'Technical Report: Ecology' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A), up to approximately 33 ha of remnant vegetation will be impacted.

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With respect to the TEARC project, multiple values relevant to Matters of National Environmental Significance (MNES) occur within the receiving environment of the proposed Ross River bridge crossing. Two bridge structures are proposed near Ross River ie BR11 and BR12. BR11, the main bridge over Ross River, is a 6 x 32 m span bridge positioned downstream of the Southern Port Road Bridge and has seven piers, all of which intersect the river channel. BR12 is a 2 x 24 m span bridge that will join BR11 on the northern river bank; it is an overpass, beneath which the extension to Boundary Street is proposed. No piers for BR12 intersect the river channel.

It is estimated that BR11 and BR12 will take 12 months to construct, with the pier construction/installation component (which includes pile driving) taking approximately 6 months. Pile driving will not occur continuously throughout this period. Consistent with Queensland noise pollution laws , it is likely that pile driving will not occur between 6:30 pm and 6:30 am Monday to Saturday, or anytime on Sunday or public holidays. It is expected that pile driving will not occur continuously, with planned stoppages enabling ancillary construction tasks to occur eg inspections, dewatering and filling/reinforcing pylon sleeve, welding sleeve segments. The exact schedule for pile driving is not known, and will be influenced by many factors eg weather, bed substrate, performance and maintenance requirements of machinery/equipment. As a guide, during the Townsville Port Access Road (TPAR) project in 2012, which involved the construction of the existing Southern Port Road bridge (near the river mouth), the ancillary pier construction tasks for pylons in the river channel took approximately one week to complete—during this time no pile driving occurred (pers. comm. Rohan Wilson, TMR, Senior Environmental Officer, 19 June 2020).

During the operation of the TEARC project, the rail network will transport mineral resources, agricultural and industrial commodities and general freight (Building Queensland 2017). This includes bulk freight (generally large quantities of homogenous product transported without packaging) and non-bulk freight (generally characterised as any containerised freight) (Building Queensland 2017).

1.3 What is the extent and location of your proposed action?

See Appendix B

1.5 Provide a brief physical description of the property on which the proposed action will take place and the location of the proposed action (e.g. proximity to major towns, or for off-shore actions, shortest distance to mainland)

The Townsville Eastern Access Rail Corridor (TEARC) project is in Townsville, north Queensland, on the eastern periphery of the city centre. The proposed action will link existing rail infrastructure from Cluden to the Port of Townsville (PoT). The 8.3 km alignment branches off the North Coast Line at Cluden, traversing the northern part of the Townsville State Development Area (TSDA), and then follows the eastern side of the Southern Port Road alignment, across the Ross River and connecting with the PoT minerals rail line loop.

1.6 What is the size of the proposed action area development footprint (or work area) including disturbance footprint and avoidance footprint (if relevant)?

The Townsville Eastern Access Rail Corridor (TEARC) will be contained within a 123 ha area. This area is shown in Section 1.3.2 (this document) (see also Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 1). Development and project-related disturbance will be limited to this corridor. The final disturbance extents are not confirmed, though is expected to cover the majority of the corridor.

1.7 Proposed action location

Other - The corridor occurs between Port of Townsville (in north) and Abbott Street, Cluden (in south).

1.8 Primary jurisdiction Queensland

1.9 Has the person proposing to take the action received any Australian Government grant funding to undertake this project?

☑ Yes ☐ No

1.9.1 Provide detail

The Australian and Queensland Governments are partners in the delivery of a Rail Investment Component under the National Partnership Agreement for Land Transport Infrastructure Projects (2019-20 to 2023-24), which includes the Townsville Eastern Access Rail Corridor (TEARC). TEARC is a nominated action in the National Freight and Supply Chain Strategy's National Action Plan (2019), under "Action 3.1c – Identify and protect key freight corridors and precincts from

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encroachment". The Australian and Queensland Governments will each provide a 50% funding contribution towards the total $10 million cost of the current TEARC corridor-acquisition project. This is part of the total $12.5 million commitment in the National Partnership Agreement for Land Transport Infrastructure Projects (2019-20 to 2023-24), which included funding for a 2017 Detailed Business Case (DBC) completed by Building Queensland for the overall rail-infrastructure project. The DBC was undertaken and funded under the Townsville City Deal (2016), an agreement between the Australian and Queensland Governments and Townsville City Council. The Australian and Queensland Governments endorsed the DBC recommendations that the corridor recommended in the DBC (Option B3) be preserved in the short term, with delivering rail-infrastructure as a longer term project when freight demand increases and in line with overall Port of Townsville expansion plans. Although infrastructure delivery phases are yet to be funded, the estimated start and estimated end date provided for TEARC in Section 1.11 (this document) align with Port of Townsville expansion plans.

1.10 Is the proposed action subject to local government planning approval?

☑ Yes ☐ No

1.10.1 Is there a local government area and council contact for the proposal?

☐ Yes ☑ No

1.11 Provide an estimated start and estimated end date for the proposed action	Start Date	01/01/2025
	End Date	31/01/2058

1.12 Provide details of the context, planning framework and state and/or local Government requirements

The development of the Port of Townsville (PoT) and improvements to the Mount Isa Line, including rail access to the PoT via the Townsville Eastern Access Rail Corridor (TEARC), is a key priority of the Australian and Queensland Governments and Townsville City Council (Building Queensland 2017). These improvements are considered important for economic development in northern Queensland (Building Queensland 2017) and are recognised in key policy drivers such as: Smart Cities Plan – Townsville City Deal (2016), Townsville State Development Area (TSDA) Development Scheme, Townsville Port Expansion Project, Mount Isa Line Rail Infrastructure Master Plan, Northern Australia Infrastructure Audit, Australian Infrastructure Plan, National Priority List, Priority Port Master Plan, a Strategic Blueprint for Queensland's North West Mineral Province. The TEARC project is considered a priority infrastructure project to enable the future landside development of the PoT Port Expansion Project to be realised (Building Queensland 2017).

The following Queensland legislation are relevant to the protection of environment and heritage items and may apply to the TEARC project.

- Planning Act 2016
- Nature Conservation Act 1992
- Environmental Protection Act 1994
- Fisheries Act 1994
- Coastal Protection and Management Act 1995
- Biosecurity Act 2014
- Environmental Offsets Act 2014
- Aboriginal Cultural Heritage Act 2003
- Native Title (Queensland) Act 1993
- Heritage Act 1992.

Permits which may be required under Queensland legislation for the proposed action are identified in the Environmental Report (AECOM 2019), and include Development Permit for waterway barrier works, clearing marine plants, tidal works, works within a coastal management district, and operational works on strategic port land; species management plan for high risk species; protected plant clearing permit (if a relevant protected plant is identified in the project area during further surveys or construction activities); disposal permit for contaminated soil removed from a location on the contaminated land register or environmental management register.

The local and state government approvals process will be confirmed with relevant officers during pre-lodgement and consultation meetings in the future. Assessment against the Townsville State Development Area Development Scheme is anticipated.

The corridor-acquisition component of the TEARC project will occur in accordance with the Queensland Acquisition of Land Act 1967. The corridor-acquisition will not trigger any other legislation except for Native Title legislation. Detailed environmental investigations have occurred as part of the corridor-acquisition project stage to determine approval

requirements for infrastructure delivery phases. These assessments have been necessary to update earlier DBC investigations to adequately reflect the environmental values of the area, particularly for investigations which were more than five years old.

1.13 Describe any public consultation that has been, is being or will be undertaken, including with Indigenous stakeholders

Stakeholder consultation was undertaken during the Detailed Business Case (DBC) stage of the project. The consultation related to the selection of a preferred rail corridor and included the stakeholders affected by the land acquisition to secure the corridor for the proposed action. All these stakeholders are government agencies except for one private landowner.

Other engagement and consultation recommendations in the DBC relate to the Development and Delivery Phases of the proposed action. For these phases, DBC recommendations included engagement with residents of adjacent suburbs (i.e. Cluden and South Townsville), Port of Townsville customers, rail operators and customers, key local stakeholders (including Townsville City Council, Townsville Enterprise Ltd, Townsville Chamber of Commerce) and with the broader Townsville community. Appropriate engagement mechanisms for future phases will be considered further at that time.

The Bindal and Gurambilbarra Wulgurukaba Aboriginal Parties have been identified as the Indigenous stakeholders for the TEARC project. It is planned that appropriate consultation with the Aboriginal Parties will be undertaken at a later stage of the TEARC project. These consultations will be conducted in accordance with the duty of care requirements under the Queensland Aboriginal Cultural Heritage Act 2003, and it is likely that Cultural Heritage Management Agreements (CHMAs) will be developed with each Aboriginal party relevant to the proposed action.

1.14 Describe any environmental impact assessments that have been or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project

The Townsville Eastern Access Rail Corridor (TEARC) traverses the Townsville State Development Area (TSDA) and will be assessed by the Queensland Government Coordinator-General against the TSDA Development Scheme once further design detail is available. The scheme includes assessment criteria for environment/heritage values.

Environmental assessments were conducted as part of the Detailed Business Case (DBC) (GHD 2017b). Further planning assessments occurred in 2019 (AECOM 2019), followed by technical studies of key values (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendices A to F, and H) and coastal processes (Att 6_20020180_R01v04CoastalRpt). These studies informed an EPBC Act self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05).

The DBC (GHD 2017b) has identified other potential State environmental approval requirements; eg tidal works, marine plant disturbance. These requirements and supporting studies will be confirmed with the relevant agencies in the future.

1.15 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

1.16 Is the proposed action related to other actions or proposals in the region?

☑ Yes ☐ No

1.16.1 Identify the nature/scope and location of the related action (Including under the relevant legislation)

The proposed action is part of a major supply chain corridor required to support the ongoing operation and expansion of the Port of Townsville (PoT).

The PoT expansion works were assessed by the Commonwealth and Queensland Governments through an EPBC Act Referral and EIS process. The Australian Government approved the project with conditions under the EPBC Act (referral 2011/5979, decision date 5/2/2018), and the Queensland Government Coordinator General recommended that the project proceed subject to conditions (Department of State Development 2017). The project is in progress.

The TEARC project was included in the referral application for the Townsville Port Access Project (EPBC referral number 2003/1011), however the rail component was withdrawn during the assessment process. The Australian Government approved the road corridor project (i.e. Townsville Port Access Road Project) with conditions under the EPBC Act (decision date 28/11/2007). The road was built in 2012.

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Section 2

Matters of national environmental significance

2.1 Is the proposed action likely to have any direct or indirect impact on the values of any World Heritage properties?

☑ Yes ☐ No

Property

Great Barrier Reef World Heritage Area (GBRWHA).

Impact

The Ross River bridge of the Townsville Eastern Access Rail Corridor (TEARC) intersects the Great Barrier Reef World Heritage Area (GBRWHA). Drainage pathways intersected by the proposed action flow into the GBRWHA.

Of the values for which the GBRWHA is listed as a world heritage property, the attributes relevant to the proposed action are marine species of conservation significance, coastal bird species of conservation significance, and a seabird breeding area. Potential impacts of the proposed action on the Threatened and Migratory (T&M) species relevant to these attributes are discussed in Sections 2.4 and 2.5 (this document).

Although not listed for cultural heritage values, Indigenous cultural heritage values are linked with the values of the GBRWHA and are relevant to the proposed action.

A significant impact assessment (SIA) report documenting the potential impacts of the proposed action on the GBRWHA values, the proposed mitigation measures and the potential for significant residual (post-mitigation) impact bas been prepared (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix F, Sections 3, 4 and 5 respectively).

Potential direct impacts to the GBRWHA values include the following.

- Pollutants from the project area that enter waterways (eg from accelerated erosion, exposure of acid sulfate soils, unplanned spills) may degrade elements that support GBRWHA values (e.g. habitat and food sources for T&M species). The degree of impact depends on the nature and scale of the water pollution, with a spill from a train derailment at the Ross River bridge crossing posing the greatest potential threat to the receiving environment.
- Habitat loss on the northern bank of Ross River mouth due to land reclamation will reduce habitat for T&M coastal bird species at low tide, and for T&M marine fauna at high tide.
- Loss/degradation of Indigenous heritage values due to ground disturbance along the alignment. Areas along the proposed alignment which will be disturbed and are likely to be significant to Aboriginal parties include the banks and channel of the Ross River, which is within the GBRWHA.
- The aesthetic environment will be altered by the proposed action. However, the alterations are not likely to affect the GBRWHA values because the alterations will be consistent with the existing infrastructure developed in the area (eg Southern Port Road, existing rail line for the Port of Townsville (PoT)).
- Increased human presence may disturb T&M fauna which form part of the GBRWHA attributes. Noise, notably from pile driving (construction), may impact or disturb bird and marine fauna species, and light pollution (construction and operation) may affect nocturnal activities of birds and turtles. These potential impacts are discussed in Sections 2.4 and 2.5 (this document).

Potential indirect impacts to the GBRWHA values include:

- Barrier to hydrological flows and modification of natural coastal and riverine processes may occur due to the construction of the Ross River rail bridge. The foreshore and river mouth near the proposed action have been modified over decades, with increasing amounts of hardened surfaces (eg rock wall for PoT, bridge abutments for the Southern Port Road bridge). The proposed action will result in loss of intertidal habitat on the northern and southern banks of the Ross River mouth, which will negatively impact T&M shorebirds, though will have minimal impact on the T&M marine fauna. The changes in flow velocities and tidal exchange near the bridge may also alter local prey assemblages for T&M marine fauna in this area, though resultant impacts on T&M marine fauna populations are likely to be minor.
- Marine debris and litter are a threat to values of the GBRWHA. The risk of debris and litter on the GBRWHA values is expected to be no greater for the proposed action than it is for the existing urban and industrial land use in the Townsville region.
- Habitat degradation of benthic habitats in the receiving environment (ie Ross River and Cleveland Bay) may occur due to sediment-laden runoff during the construction of the project. These habitat alterations may impact on foraging habitat for key coastal species, which contribute to the GBRWHA values.
- Biosecurity events (e.g. introduction/spread of weeds, pest fauna and pathogens) have the potential to occur during construction and operation activities of the proposed action. Tramp ants, which are a known threat to nesting seabirds, and pathogens, which are a potential threat to marine fauna, may be introduced to the area on machinery and construction materials.

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• Increased shipping, which may impact on GBRWHA values, is an indirect impact associated with the proposed action. The TEARC project will increase freight into and out of the PoT. Impacts associated with the increase in port activities were assessed in the EPBC referral for the PoT Port Expansion Project (EPBC referral number 2011/5979).

2.1.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.2 Is the proposed action likely to have any direct or indirect impact on the values of any National Heritage places?

☑ Yes ☐ No

Place

Great Barrier Reef

Impact

Within the vicinity of the proposed action, the Great Barrier Reef (GBR) National Heritage property and the Great Barrier Reef World Heritage Area (GBRWHA) are co-located, and share the same heritage values. Impacts described for the GBRWHA (Section 2.1) are therefore directly applicable to the GBR National Heritage place.

2.2.2 Do you consider this impact to be significant?

☐ Yes ☑ No

2.3 Is the proposed action likely to have any direct or indirect impact on the ecological character of a Ramsar wetland?

☐ Yes ☑ No

2.4 Is the proposed action likely to have any direct or indirect impact on the members of any listed species or any threatened ecological community, or their habitat?

☑ Yes ☐ No

Species or threatened ecological community

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Impact

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Species or threatened ecological community

No Threatened Ecological Community will be impacted by the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Section 3.2.5).

Impact

No Threatened Ecological Community will be impacted by the proposed action.

Species or threatened ecological community

Great Knot, Calidris tenuirostris: Critically Endangered/Migratory.

Great Knot is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted for the Townsville Eastern Access Rail Corridor project, and other surveys in the last decade, recorded Great Knot in nationally significant abundance. The species' presence has also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

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Impact

A Significant Impact Assessment (SIA) documenting the potential impacts of the proposed action on Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds) has been prepared (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D). The SIA includes an assessment of the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Potential impacts of the proposed action on T&M coastal bird species as described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3) comprise the following.

- Modification/loss of habitat from altered hydrological and geomorphological processes (e.g. increased erosion from increased water velocity through bridge pylons, and mangrove colonisation due to altered coastal processes) and reclamation of the South Townsville Beach intertidal flats.
- Machinery or object strike, noting that the likelihood of coastal birds being struck by equipment or machinery is very low.
- Disturbance to ordinary behaviours of coastal bird species from human presence and activities, noting that the proposed Ross River bridge will be built next to an existing road; therefore, the existing degree of disturbance to coastal birds is unlikely to increase by a measurable degree during operation. Construction phase impacts are likely to be short-term. Pile driving during construction is the most likely source of disturbance.
- Artificial lighting which causes light pollution may impact nocturnal activities of coastal bird species near the project area.
- Introduction/spread of biosecurity items (weeds, pest fauna, pathogens) e.g. on equipment/machinery and building supplies.
- Degradation of water quality from sedimentation and pollution during construction and operation may impact coastal birds directly (poisoning) or indirectly (decreasing quality of foraging habitat).

The recommended management measures are described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and in Section 4 (this document). These measures will mitigate the identified threats to coastal bird species associated with construction and operation. The exception to this is the threat associated with land reclamation that will result in the loss of approximately 40% of foraging habitat (intertidal flats) for T&M shorebirds on the northern bank of Ross River mouth (South Townville Beach; Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Figure 1). Surveys during ambient conditions in daylight hours show that shorebirds generally use South Townsville Beach in low abundances, though occasionally in abundances that exceed thresholds for national significance. Shorebird activity in this area at night or during inclement weather has not been determined, and a higher level of shorebird activity is possible during these times.

The loss of T&M shorebird habitat on South Townsville Beach is notable, and of consequence, because it is the last remaining habitat on the northern bank of the river mouth and it is part of a broader area of ‘important habitat’. However, although this habitat loss diminishes the value of the area to shorebirds, and constitutes a significant impact when assessed against EPBC Act Policy Statement 3.21 (Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species), the loss is unlikely to cause a major change in T&M shorebird presence in the local area. Following the loss of this habitat, T&M shorebirds are likely to continue to roost in large abundances in the river mouth and forage in the remaining local habitats (eg South Bank and intertidal flats of Cleveland Bay; Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Figure 1). A significant residual impact (post-mitigation) to T&M shorebirds is anticipated if the ‘precautionary principle’ is applied.

Species or threatened ecological community

Lesser Sand Plover, Charadrius mongolus: Endangered/Migratory.

Lesser Sand Plover is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted in the last decade recorded Lesser Sand Plover in nationally significant abundance. The species' presence has also contributed to the area exceeding collective-species thresholds for national significance (abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Lesser Sand Plover and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Species or threatened ecological community

Greater Sand Plover, Charadrius leschenaultii: Vulnerable/Migratory.

Greater Sand Plover is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted in the last decade recorded Greater Sand Plover in nationally significant abundance. The species' presence has also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Greater Sand Plover and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Species or threatened ecological community

Western Alaskan Bar-tailed Godwit, Limosa lapponica baueri: Vulnerable/Migratory.

Western Alaskan Bar-tailed Godwit is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted for the Townsville Eastern Access Rail Corridor project recorded the species in nationally significant abundance. The species' presence also contributed to the area exceeding collective-species thresholds for national significance (species richness).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Western Alaskan Bar-tailed Godwit and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Species or threatened ecological community

Eastern Curlew, Numenius madagascariensi: Critically Endangered/Migratory.

Species is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The

species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Primary foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted for the Townsville Eastern Access Rail Corridor project, and other surveys in the last decade, recorded the species in nationally significant abundance. The species' presence has also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Eastern Curlew and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Species or threatened ecological community

Loggerhead Turtle, Caretta caretta: Endangered/Migratory.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Loggerhead Turtle may travel through and occasionally feed in the direct receiving environment of the proposed action, though the species' presence is more likely in broader receiving environment. Species does not nest in these areas.

Impact

A Significant Impact Assessment (SIA) documenting the potential impacts of the proposed action on Threatened and Migratory (T&M) marine aquatic fauna (turtles, crocodile, dolphins, dugong, sawfish) has been prepared (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E). The SIA includes an assessment of the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Potential impacts of the proposed action on T&M marine turtles as described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3) comprise the following.

- Mortality to marine fauna may occur due to watercraft or object strike during construction, although the likelihood of impact is low.
- Noise pollution, notably from pile driving during construction, may result in physiological and behavioural impacts.
- Light pollution may alter the behaviour of marine turtles travelling through, or foraging in or near, the Ross River and river mouth. Marine turtle nesting does not occur in this area.
- Biosecurity items (pest fauna, pathogens) may impact marine fauna species indirectly (habitat degradation) and/or directly affect their health.
- Food resources for marine fauna species may be reduced by noise or degraded water quality during construction, and increased flow velocities from bridge pylons (during operation).
- Degradation of water quality by increased sedimentation or pollution may impact marine fauna directly (poisoning by uptake or contact, or entanglement in litter) or indirectly (degradation of foraging habitat). The degree of impact is dependent on the nature, scale and duration of the water quality degradation.

The recommended management measures are described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and in Section 4 (this document). Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 5'.

Species or threatened ecological community

Green Turtle, Chelonia mydas: Vulnerable/Migratory.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Green Turtle may travel through direct receiving environment of the proposed action, though the species' presence is more likely in broader receiving environment. Species does not nest in direct receiving environment though may nest in broader receiving environment.

Impact

Potential impacts of the proposed action on Green Turtle and the proposed mitigation measures are as described above for Loggerhead Turtle.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 6'.

Species or threatened ecological community

Hawksbill Turtle, Eretmochelys imbricata: Vulnerable/Migratory.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Hawksbill Turtle may travel through direct receiving environment of the proposed action, though the species' presence is more likely in broader receiving environment. Species does not nest in these areas.

Impact

Potential impacts of the proposed action on Hawksbill Turtle and the proposed mitigation measures are as described above for Loggerhead Turtle.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 6'.

Species or threatened ecological community

Flatback Turtle, Natator depressus: Vulnerable/Migratory.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Flatback Turtle may travel through and occasionally feed in direct receiving environment of the proposed action, though the species' presence is more likely in broader receiving environment. Species does not nest in direct receiving environment though may nest in broader receiving environment.

Impact

Potential impacts of the proposed action on Flatback Turtle and the proposed mitigation measures are as described above for Loggerhead Turtle.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual

(post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 6'.

Species or threatened ecological community

White-throated Needletail, Hirundapus caudacutus: Vulnerable/Migratory.

The significance of the direct receiving environment of the proposed action for White-throated Needletail is summarised in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 1).

In Townsville, flocks of White-throated Needletail often pass before a storm at the start of the wet season; species is otherwise scarce. During this time the species may temporarily forage on insects above the Townsville Eastern Access Rail Corridor (TEARC).

Impact

Potential impacts of the proposed action on White-throated Needletail were assessed in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Tables 3 and 4). The following TEARC project-related threats were identified as being relevant (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 4).

- Water pollution
- Habitat loss/degradation
- Soil loss/degradation
- Altered hydrological regimes
- Altered fire regimes
- Biosecurity ingress/proliferation
- Disturbance to normal animal behaviours

The likelihood of the proposed action affecting the White-throated Needletail is low, because the populations using the area are transient and unlikely to interact with land-based resources near the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 4). The loss or modification of important habitat due to the TEARC project is not substantial, and potential impacts on the mortality rates and breeding cycles of the affected populations are likely to be negligible (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 8). The recommended management measures are described in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Section 5) and in Section 4 (this document). Significant impacts can be avoided if the recommended management measures are implemented.

Species or threatened ecological community

Bare-rumped Sheathtail Bat, Saccolaimus saccolaimus nudicluniatus: Vulnerable.

The significance of the direct receiving environment of the proposed action for Bare-rumped Sheathtail Bat was assessed via specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A).

Non-definitive calls for Bare-rumped Sheathtail Bat were recorded during surveys for the Townsville Eastern Access Rail Corridor (TEARC) project (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Section 4.2.2.5). Potential roost trees do not occur in the TEARC project area, though may occur in the adjacent woodland habitats, and this microbat species is likely to forage in areas around the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Table 22).

Impact

A Significant Impact Assessment (SIA) documenting the potential impacts of the proposed action on Bare-rumped Sheathtail Bat has been prepared (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix H).

The potential impacts of the proposed action on Bare-rumped Sheathtail Bat as described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix H) comprise the following.

- Water/land pollution. The construction and operation phases have the potential to result in the release of pollutants into the receiving environment. During construction acute pollution events could arise from chemical or hydrocarbon spills, machinery/equipment leaks and the exposure of buried contaminants such as acid sulfate soils. During operation acute pollution events could occur as a consequence of spillage from train wagons, and/or train derailment. Pollution has the potential to impact Bare-rumped Sheathtail Bat directly via poisoning (contact and/or uptake of contaminants), and indirectly by decreasing the quality of their foraging habitat (eg by killing prey assemblages). The species is likely to derive some, and

potentially most, of its water intake requirements metabolically, which reduces the risk of direct poisoning.

• Direct mortality or harm to fauna. Direct mortality or harm to fauna during vegetation clearing, excavation works or because of machinery or object strike. The likelihood of impact is low due to the fact that: (a) the species primarily forages high above the ground and at night, which provides spatial and temporal separation between the species' and the activities associated with the proposed action and (b) potential roost sites are lacking in the TEARC project area.

• Habitat loss/degradation. Loss and/or degradation of habitat as a direct consequence of vegetation clearing and earthworks, and as an indirect consequence of wildfire, biosecurity incursions and habitat fragmentation. The TEARC project will result in the clearing of up to approximately 33 ha of remnant vegetation, which includes grasslands/forblands (approximately 12 ha), mangroves (approximately 11 ha) and Eucalyptus/Corymbia woodlands (approximately 10 ha). The species may forage above these habitats and cleared land. The proposed clearing will mostly occur along an existing edge of disturbance (Southern Port Road) and would not constitute habitat fragmentation for such a highly mobile species. Roosting habitat will not be impacted.

Critical or important habitat for this species does not occur in the TEARC project area. The SIA prepared for this species (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix H) concluded that none of the potential impacts to this species are 'important, notable or of consequence, having regard to its context or intensity.' The recommended management measures are described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and in Section 4 (this document).

2.4.2 Do you consider this impact to be significant?

☑ Yes ☐ No

2.5 Is the proposed action likely to have any direct or indirect impact on the members of any listed migratory species or their habitat?

☑ Yes ☐ No

Migratory species

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Impact

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Migratory species

The following species are are described in Section 2.4.

Threatened and Migratory shorebirds: Great Knot (Calidris tenuirostris); Lesser Sand Plover (Charadrius mongolus); Greater Sand Plover (Charadrius leschenaultii); Western Alaskan Bar-tailed Godwit (Limosa lapponica baueri); Eastern Curlew (Numenius madagascariensi).

Threatened and Migratory marine turtles: Loggerhead Turtle (Caretta caretta); Green Turtle (Chelonia mydas); Hawksbill Turtle (Eretmochelys imbricata); Flatback Turtle (Natator depressus).

Threatened and Migratory terrestrial fauna: White-throated Needletail (Hirundapus caudacutus).

Impact

The potential impacts of the proposed action, the proposed mitigation measures and potential for significant residual impact are as described in Section 2.4.

Migratory species

Sharp-tailed Sandpiper, Calidris acuminata.

Sharp-tailed Sandpiper is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted in the last decade have recorded Sharp-tailed Sandpiper in nationally significant abundance. The

species' presence has also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Sharp-tailed Sandpiper and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Whimbrel, Numenius phaeopus.

Whimbrel is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Primary foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). May also forage and roost/shelter in mangroves. Surveys in this area conducted for the Townsville Eastern Access Rail Corridor project, and other surveys in the last decade, recorded Whimbrel in nationally significant abundance. The species' presence has also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Whimbrel and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Grey-tailed Tattler, Tringa brevipes.

Grey-tailed Tattler is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Primary foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). May also forage and roost/shelter in mangroves. Surveys in this area conducted for the Townsville Eastern Access Rail Corridor project recorded Grey-tailed Tattler in nationally significant abundance. The species' presence also contributed to the area exceeding collective-species thresholds for national significance (species richness).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Grey-tailed Tattler and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Red-necked Stint, Calidris ruficollis.

Red-necked Stint is one of many migratory shorebirds present in the direct receiving environment of the proposed action. The species is non-breeding whilst in Australia.

The significance of the direct receiving environment for shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Surveys in this area conducted within the last decade recorded Red-necked Stint in nationally significant abundance. The species' presence also contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action on Red-necked Stint and the proposed mitigation measures are as described above for Great Knot.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Pacific Golden Plover (Pluvialis fulva); Grey Plover (Pluvialis squatarola).

The above species co-occur with other migratory shorebirds in the direct receiving environment of the proposed action. They are non-breeding whilst in Australia.

The significance of the direct receiving environment for migratory shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Their presence has contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance); though none have exceeded national abundance thresholds at the individual-species level.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Pacific Golden Plover and Grey Plover.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Common Greenshank (Tringa nebularia); Common Sandpiper (Actitis hypoleucos); Terek Sandpiper (Xenus cinereus).

The above species co-occur with other migratory shorebirds in the direct receiving environment of the proposed action. They are non-breeding whilst in Australia.

The significance of the direct receiving environment for migratory shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Primary foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). May also forage and roost/shelter in mangroves and saltmarsh wetlands.

Their presence has contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance); though none have exceeded individual-species abundance thresholds.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Common Greenshank, Common Sandpiper and Terek Sandpiper.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Marsh Sandpiper, Tringa stagnatilis.

Marsh Sandpiper co-occur with other migratory shorebirds in the direct receiving environment of the proposed action. They are non-breeding whilst in Australia.

The significance of the direct receiving environment for migratory shorebirds was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Primary foraging habitat (South Townsville Beach and South Bank intertidal flats) and roost habitat (sand spit) occurs in the direct receiving environment of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1). Infrequent use of use of saltmarsh wetlands may also occur (to shelter during severe storms or to forage) (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6).

Species presence has contributed to the area exceeding collective-species thresholds for national significance (species richness and abundance); though has not exceeded individual-species abundance thresholds.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Marsh Sandpiper.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.1).

Migratory species

Little Tern, Sternula albifron.

Little Tern co-occur with other coastal bird species in the direct receiving environment of the proposed action.

The significance of the direct receiving environment for Threatened & Migratory (T&M) coastal bird species was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Species forages in the near-shore marine waters of Cleveland Bay (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6). Uses sand spit (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1) for roosting and nesting. Breeding colonies on the sand spit have been recorded in spring and summer (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix

B, Sections 4.2.3 and 5.3).

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Little Tern.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.3).

Migratory species

Crested Tern, Thalasseus bergii.

Crested Tern co-occur with other coastal bird species in the direct receiving environment of the proposed action.

The significance of the direct receiving environment for Threatened & Migratory (T&M) coastal bird species was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Species forages in the near-shore marine waters of Cleveland Bay (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6). Uses sand spit (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1) for roosting. Not known to nest within direct receiving environment.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Crested Tern.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.3).

Migratory species

Gull-billed Tern (Gelochelidon nilotica); Caspian Tern (Hydroprogne caspia).

Gull-billed Tern and Caspian Tern co-occur with other coastal bird species in the direct receiving environment of the proposed action.

The significance of the direct receiving environment for Threatened & Migratory (T&M) coastal bird species was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Both species forage in the near-shore marine waters of Cleveland Bay (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6). Infrequently, may also forage in saltmarsh wetlands (following prolonged water inundation) (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6). May also shelter in saltmarsh wetlands during severe storms. Both species use sand spit (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Figure 1) for roosting. Not known to nest within direct receiving environment.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Gull-billed Tern and Caspian Tern.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.3).

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Migratory species

Eastern Osprey, Pandion cristatus.

Eastern Osprey co-occur with other coastal bird species in the direct receiving environment of the proposed action.

The significance of the direct receiving environment for Threatened & Migratory (T&M) coastal bird species was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B).

Broad sections of the landscape around the Townsville Eastern Access Rail Corridor (TEARC) project area contain foraging habitat, especially near-shore marine waters, Ross River and terrestrial wetlands (riverine and non-riverine) (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 6). Breeding adult pair known to nest on electricity poles near river mouth. May also nest in tall trees near TEARC project area.

Impact

The potential impacts of the proposed action are the same for all Threatened and Migratory (T&M) coastal bird species (shorebirds and seabirds). Therefore, the potential impacts of the proposed action, as described above for Great Knot, apply to Eastern Osprey.

The Significant Impact Assessment (SIA) report for T&M coastal bird species provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix D, Section 5.2).

Migratory species

Australian Snubfin Dolphin (Orcaella heinsohni); Australian Humpback Dolphin (Sousa sahulensis).

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Australian Snubfin Dolphin and Australian Humpback Dolphin occur in the direct and broader receiving environment. They are likely to use marine and estuarine habitats (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 5). For both inshore dolphin species the direct receiving environment contains important habitat (used for foraging or travelling) and may support important populations.

Impact

A Significant Impact Assessment (SIA) documenting the potential impacts of the proposed action on Threatened and Migratory (T&M) marine aquatic fauna (turtles, crocodile, dolphins, dugong, sawfish) has been prepared (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Potential impacts of the proposed action on Australian Snubfin Dolphin and Australian Humpback Dolphin as described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3) comprise the following.

- Habitat loss due to land reclamation on the northern shore of the river mouth and construction of pylons for the Ross River bridge.
- Mortality to marine fauna may occur due to watercraft or object strike during construction, although the likelihood of impact is low.
- Noise pollution, notably from pile driving during construction, may result in physiological and behavioural impacts. Inshore dolphins are likely to be the most sensitive to these impacts (c.f.co-occurring T&M marine aquatic fauna).
- Biosecurity items (pest fauna, pathogens) may impact marine fauna species indirectly (habitat degradation) and/or directly affect their health.
- Food resources for marine fauna species may be reduced by noise or degraded water quality during construction, and increased flow velocities from bridge pylons (during operation).
- Degradation of water quality by increased sedimentation or pollution may impact marine fauna directly (poisoning by uptake or contact, or entanglement in litter) or indirectly (degradation of foraging habitat). The degree of impact is dependent on the nature, scale and duration of the water quality degradation.

The proposed action is also likely to result in light pollution; however, for Australian Snubfin Dolphin and Australian Humpback Dolphin impacts are expected to be no greater than currently experienced.

The recommended management measures are described in the SIA (Att 4_CN-13187_TEARC EPBC self-ass R05,

Appendix E, Section 4) and in Section 4 (this document). Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 7'.

Migratory species

Narrow Sawfish, Anoxypristis cuspidata.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Narrow Sawfish occur in the direct and broader receiving environment. They are likely to use marine and estuarine habitats (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 5). The direct receiving environment contains important habitat (used for foraging or travelling) though is unlikely to support an important population.

Impact

Potential impacts of the proposed action on Narrow Sawfish and the proposed mitigation measures are as described above for Australian Snubfin Dolphin and Australian Humpback Dolphin.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 7'.

Migratory species

Estuarine Crocodile, Crocodylus porosus.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Estuarine Crocodile occur in the direct and broader receiving environment. They are likely to use (foraging or travelling) marine habitats and estuarine habitats (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 5). They are not likely to nest in the direct receiving environment.

Impact

Potential impacts of the proposed action on Estuarine Crocodile and the proposed mitigation measures are as described above for Australian Snubfin Dolphin and Australian Humpback Dolphin.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 7'.

Migratory species

Dugong, Dugong dugon.

The significance of the direct receiving environment of the proposed action for Threatened and Migratory marine aquatic fauna was subject to a specific study (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E).

Dugong may travel through the direct receiving environment though their presence is likely to be sporadic and temporary. The direct receiving environment does not contain suitable foraging habitat. Important habitat and important populations occur

outside of this area, in the broader receiving environment (Cleveland Bay).

Impact

Potential impacts of the proposed action on Dugong and the proposed mitigation measures are as described above for Australian Snubfin Dolphin and Australian Humpback Dolphin. The exception is in relation to habitat loss due to land reclamation and bridge pylon construction; these activities are not likely to result in the loss of habitat for Dugong.

The Significant Impact Assessment (SIA) report for T&M marine aquatic fauna provides further detail on the potential impacts of the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 3), the proposed mitigation measures (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 4) and the potential for significant residual (post-mitigation) impact (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Section 5).

Significant impacts can be avoided if the recommended management measures are implemented. Assessment against 'Matters of National Environmental Significance Significant Impact Guidelines 1.1' is provided in 'Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 7'.

Migratory species

Fork-tailed Swift, Apus pacificus.

The significance of the direct receiving environment of the proposed action for Fork-tailed Swift is summarised in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 1).

Flocks of Fork-tailed Swift may pass through Townsville at any time during the wet season (otherwise scarce). Species feeds on insects above any habitat. Presence above Townsville Eastern Access Rail Corridor project likely to be temporary.

Impact

Potential impacts of the proposed action on Fork-tailed Swift were assessed in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Tables 3 and 4). The following Townsville Eastern Access Rail Corridor (TEARC) project-related threats were identified as being relevant (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 4).

- Water pollution
- Habitat loss/degradation
- Soil loss/degradation
- Altered hydrological regimes
- Altered fire regimes
- Biosecurity ingress/proliferation
- Disturbance to normal animal behaviours.

The likelihood of the proposed action affecting the Fork-tailed Swift is low, because the populations using the area are transient and unlikely to interact with land-based resources near the proposed action (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 4). The loss or modification of important habitat due to the TEARC project is not substantial, and potential impacts on the mortality rates and breeding cycles of the affected populations are likely to be negligible (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 8). The recommended management measures are described in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Section 5) and in Section 4 (this document). Significant impacts can be avoided if the recommended management measures are implemented.

Migratory species

Oriental Cuckoo (Cuculus optatus); Rufous Fantail (Rhipidura rufifrons).

The significance of the direct receiving environment of the proposed action for Oriental Cuckoo and Rufous Fantail is summarised in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 1).

Small numbers of Oriental Cuckoo and Rufous Fantail may occasionally forage in Townsville Eastern Access Rail Corridor (TEARC) direct receiving environment, with Oriental Cuckoo being more likely in the wet season and Rufous Fantail being more likely in the in the winter months. Their presence in this area is likely to be temporary. Breeding is not likely to occur. The direct receiving environment is unlikely to support important populations of these species. It may contain important habitat for Rufous Faintail.

Impact

Potential impacts of the proposed action on Oriental Cuckoo and Rufous Fantail were assessed in the self-assessment

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report (Att 4_CN-13187_TEARC EPBC self-ass R05, Tables 3 and 4). The following Townsville Eastern Access Rail Corridor (TEARC) project-related threats were identified as being relevant (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 4).

- Water pollution
- Habitat loss/degradation
- Soil loss/degradation
- Altered hydrological regimes
- Altered fire regimes
- Biosecurity ingress/proliferation
- Disturbance to normal animal behaviours
- Direct mortality or harm to fauna.

Based on mapping presented in the 'Technical Report: Ecology' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A) and predicted habitat associations (Att 4_CN-13187_TEARC EPBC self-ass R05, Tables 1 and 2), the TEARC project area contains the following habitat extents.

- 10 ha of potential Oriental Cuckoo habitat (REs 11.2.1 and 11.2.5).
- 21 ha of potential Rufous Fantail habitat (REs 11.1.4, 11.2.1 and 11.2.5).

The TEARC project might require the clearing of most, or all, of the above habitat extents.

Oriental Cuckoo and Rufous Fantail are likely to occur in the direct receiving environment in low abundance, within a specific season and only temporarily whilst on passage. This reduces the likelihood and/or magnitude of potential impact. Further, the potential extent of habitat that will be lost is not substantial and large areas of suitable habitat (of similar type and similar or better condition) occur in the local area and broader landscape. Population scale impacts on Oriental Cuckoo and Rufous Fantail are not likely.

The recommended management measures are described in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Section 5) and in Section 4 (this document). Significant impacts can be avoided if the recommended management measures are implemented.

2.5.2 Do you consider this impact to be significant?

☑ Yes ☐ No

2.6 Is the proposed action to be undertaken in a marine environment (outside Commonwealth marine areas)?

☑ Yes ☐ No

2.6.1 Is the proposed action likely to have any direct or indirect impact on the Commonwealth marine environment?

☐ Yes ☑ No

2.7 Is the proposed action likely to be taken on or near Commonwealth land?

☑ Yes ☐ No

2.7.1 Is the proposed action likely to have any direct or indirect impact on the Commonwealth land?

☐ Yes ☑ No

2.8 Is the proposed action taking place in the Great Barrier Reef Marine Park?

☐ Yes ☑ No

2.9 Is the proposed action likely to have any direct or indirect impact on a water resource from coal seam gas or large coal mining development?

☐ Yes ☑ No

2.10 Is the proposed action a nuclear action?

☐ Yes ☑ No

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2.11 Is the proposed action to be taken by a Commonwealth agency?

☐ Yes ☑ No

2.12 Is the proposed action to be undertaken in a Commonwealth Heritage place overseas?

☐ Yes ☑ No

2.13 Is the proposed action likely to have any direct or indirect impact on any part of the environment in the Commonwealth marine area?

☐ Yes ☑ No

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Section 3

Description of the project area

3.1 Describe the flora and fauna relevant to the project area

Numerous studies have previously occurred in the Townsville Eastern Access Rail Corridor (TEARC) project receiving environment, including impact assessment and monitoring (construction phase) projects associated with the Townsville Port Access Road (built in 2012) and Townsville Port Expansion Project (construction in progress), and field studies (2011/12) that informed the preparation of the Townsville State Development Area Development Scheme. Therefore, the ecological values present in the landscape are well documented.

Desk-based and field studies were conducted for the TEARC project in 2019 and 2020 (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendices A to F, and H). The 'Technical Report: Ecology' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A) included a desk-based review of existing information, field habitat assessments and targeted field sampling for terrestrial Threatened and Migratory (T&M) species identified as having a moderate or high likelihood of occurrence in the TEARC project receiving environment (field methods were consistent with Australian Government EPBC Act survey guidelines where appropriate). The 'Threatened and Migratory Marine Aquatic Fauna Significant Impact Assessment Report' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E) involved a desk-based review of existing information to identify T&M marine aquatic species likely to occur in the TEARC project receiving environment. The 'Threatened and Migratory Coastal Bird Survey Report (2019/20)' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B) involved a desk-based review of existing information, field habitat assessments and surveys for T&M shorebirds. The shorebird surveys occurred monthly between December 2019 and February 2020, and were conducted consistent with Australian Government EPBC Act survey guidelines. The 'Wetland Assessment' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C) involved a desk-based review of existing information and field sampling to assess terrestrial wetland habitats within the TEARC project receiving environment, and the likelihood of these habitats supporting T&M species.

The TEARC project receiving environment includes terrestrial, intertidal and aquatic (freshwater, estuarine and nearshore marine) habitats. The TEARC project area contains approximately 33 ha of remnant vegetation (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Table 12), which includes grasslands/forblands (approximately 12 ha), mangroves (approximately 11 ha) and Eucalyptus/Corymbia woodlands (approximately 10 ha).

The terrestrial flora and fauna survey by recorded 50 plant and 68 fauna species in the TEARC project assessment area (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Tables 21 & 21), including three Migratory coastal bird species. Calls potentially attributable to the Bare-rumped Sheathtail Bat (Vulnerable) were also recorded (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Table 18).

The coastal bird survey recorded 53 bird species, of which 22 species were listed as Threatened and/or Migratory (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Table 3). The potential presence of Threatened and Migratory fauna in the nearshore (marine and estuarine) portions and non-subtidal portions of the TEARC project direct receiving environment were identified in the 'Threatened and Migratory Marine Aquatic Fauna Significant Impact Assessment Report' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix E, Table 1) and 'Wetland Assessment' (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C, Table 1) respectively. The self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Table 1) provides a consolidated list of Threatened and Migratory species known or likely to occur in the direct receiving environment of the proposed action.

3.2 Describe the hydrology relevant to the project area (including water flows)

The Townsville Eastern Access Rail Corridor (TEARC) intersects the tributaries of Gordon Creek (stream orders 1 and 2) and Stuart Creek (stream order 5). These streams discharge into the Ross River, approximately 2 km to 3 km north of the point of intersection, except for a branch of Stuart Creek which flows north-east for approximately 3 km, into Cleveland Bay (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C, Figure 1). Wetlands are a major feature of the landscape, portions of which occur in the ‘Burdekin - Townsville Coastal Aggregation (QLD005)’ which is listed on the Directory of Important Wetlands in Australia (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C, Figure 2). Wetland types occurring in the TEARC project direct receiving environment comprise (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C, Figure 1):

- estuarine wetlands (mangrove and saltmarsh wetlands)
- palustrine wetlands (saline swamps and floodplain grass/sedge/herb swamps)
- coastal tree swamps
- riverine wetlands.

3.3 Describe the soil and vegetation characteristics relevant to the project area

The coastal plain on which the Townsville Eastern Access Rail Corridor (TEARC) project occurs is flat and is dominated by salt pans and halotphytic (salt-tolerant) vegetation types, including mangroves, samphires and Saltwater Couch (Sporobolus

virginicus). Non-halophytic vegetation types also occur, mainly in the form of woodlands with tree canopies dominated Eucalypts and Melaleucas. These woodland communities primarily occur on deflated beach dune ridges in the vicinity of Ross River. Sparsely treed grasslands that are dominated by exotic pasture grass and forb species also occur away from the hypersaline areas. The 'Technical Report: Ecology' confirmed the following Regional Ecosystems as present in the TEARC project area (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Table 12):

- RE 11.1.1 Sporobolus virginicus grassland on marine clay plains [2.33 ha]
- RE 11.1.2b Samphire forbland on Quaternary estuarine deposits [9.52 ha]
- RE 11.1.4a Rhizophora spp. open forest on Quaternary estuarine deposits [0.79 ha]
- RE 11.1.4b Avicennia marina low open shrubland to closed forest on Quaternary estuarine deposits [9.76 ha]
- RE 11.2.1 Corymbia tessellaris woodland on flat coastal dunes [1.77 ha]
- RE 11.2.5 Corymbia-Melaleuca woodland complex of beach ridges and swales [8.54 ha].

The dominant soil types intersected by the TEARC project, as shown on soil mapping by Murtha (1982), are Jalloonda, Toonpan and Coonambelah. Also present are soil types associated with salt pans and mangroves; however, detailed descriptions of these soil types are not provided in Murtha (1982).

- Salt pans and mangroves: Undescribed saline muds and mangrove peats
- Jalloonda: Deep coarse sands, weakly developed A2 horizon overlying pale brown or yellowish brown subsoils
- Toonpan: Dark grey-brown loam A1 and sporadically bleached A2 horizon, clear change at 12-30 cm to very dark grey or black blocky structured heavy clay B horizons
- Coonambelah: Strongly bleached fine sandy loam or loam A horizons to 10 cm thick overlying faintly mottled very dark greyish brown and olive heavy clay B horizons.

3.4 Describe any outstanding natural features and/or any other important or unique values relevant to the project area

The Great Barrier Reef World Heritage Area (GBRWHA) encompasses Cleveland Bay and the downstream extent of Ross River. The Townsville Eastern Access Rail Corridor (TEARC) project intersects Ross River and occurs approximately 3 km from Cleveland Bay (Att 4_CN-13187_TEARC EPBC self-ass R05, Figure 2).

The TEARC project intersects a portion of the ‘Burdekin - Townsville Coastal Aggregation (QLD005)’ which is listed on the Directory of Important Wetlands in Australia (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix C, Figure 2).

The nearshore habitats extending south from Ross River mouth into Cleveland Bay are important for Threatened and Migratory (T&M) shorebirds, and have supported T&M shorebird populations of national and international significance (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix B, Sections 5.2 and 5.3).

3.5 Describe the status of native vegetation relevant to the project area

The 'Technical Report: Ecology' verified six Regional Ecosystems (REs) as present in the Townsville Eastern Access Rail Corridor (TEARC) (Att 4_CN-13187_TEARC EPBC self-ass R05, Appendix A, Table 12). All of these REs are listed as ‘Least Concern’ under the Queensland Vegetation Management Act and ‘No Concern at Present’ under the Queensland Department of Environment and Science Biodiversity Status, except RE 11.2.1 (Corymbia tessellaris woodland on flat coastal dunes) which is listed as ‘Of Concern’ under both articles. According to 'Technical Report: Ecology', most (approximately 70%) of the TEARC project intersects non-remnant vegetation.

None of the identified vegetation types are Threatened Ecological Communities under the EPBC Act.

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

The landscape in which the Townsville Eastern Access Rail Corridor (TEARC) occurs is flat, and generally below 5 m AHD. The Ross River channel in the vicinity of the TEARC project is maintained for boating via periodic dredging campaigns. The depth of the channel therefore varies according to sediment import and export via natural processes and management intervention. The maximum astronomical tidal range at the Ross River mouth is 4.11 m, with an average range during spring tides of 2.34 m and 0.63 m during neap tides (Att 6_20020180_R01v04 CoastalReport, Page 3). The lowest astronomical tide (LAT) in the river mouth is reported as -1.86 m AHD ((Att 6_20020180_R01v04 CoastalReport, Table 2-1).

3.7 Describe the current condition of the environment relevant to the project area

The Townsville Eastern Access Rail Corridor (TEARC) project is located a few kilometres south of the Townsville city centre, and predominantly occurs in the Townsville State Development Area. The TEARC follows existing roads, except the portion between Abbott Street (Cluden) and Southern Port Road, which is approximately 2.3 km long and traverses a mostly greenfield area. Large portions of the TEARC (and immediate surrounds) south of the Ross River were historically used for cattle grazing.

Vegetation communities vary in their condition from poor to fair. Sources of historical and contemporary disturbance

include vegetation clearing, illegal dumping, uncontrolled off-road vehicle activity and weed ingress. Weeds are particularly noteworthy in terms of diversity and relative abundance, though they mostly occur away from the hypersaline areas. Based on TMR (2009), which contains a consolidated plant species list derived from multiple studies, 30% of the plant species recorded in the general area encompassing the TEARC project are non-native. This is approximately double the proportion of non-native plant species recorded at the Townsville Local Government Area (LGA) scale (Wildlife Online records indicate that 14% of all plant species in the LGA are non-native).

The TEARC project occurs in the Ross River catchment, which covers approximately 1,218 square kilometres. The catchment is heavily developed and supports residential, commercial, industrial and agricultural land uses. Stormwater from these land uses generally enter the river untreated. The Port of Townsville occurs on the northern bank of the river mouth.

3.8 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the project

There are no Commonwealth Heritage places within, or near to, the Townsville Eastern Access Rail Corridor (TEARC).

The TEARC does not pass through locations that are listed on the Townsville City Council, National Trust, Queensland Heritage Register or National Heritage Registers, although three areas of European (post contact habitation) cultural evidence occur nearby.

Indigenous heritage values recognised for the area are described in Section 3.9.

3.9 Describe any Indigenous heritage values relevant to the project area

- There are no Indigenous cultural heritage sites listed on the Commonwealth Australian Heritage Database for the proposed Townsville Eastern Access Rail Corridor (TEARC) or near surrounds.
- Two Native Title Claims, including the Bindal People #2 (QC2016/005) and Gurambilbarra Wulgurukaba People (QC2016/007), intersect the TEARC. The boundary of the two Native Title claim areas is the mid-point of the Ross River.
- There are no records of significant Aboriginal cultural heritage sites within the TEARC (based on Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP) searches).

As per the Queensland Aboriginal and Cultural Heritage Act 2003, areas of potential cultural significance for the TEARC project include high risk, medium risk and low risk places.

3.10 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the project area

Most of the project area occurs within the Townsville State Development Area (TSDA), the exceptions being:
- The northernmost section of the alignment, which is not within the TSDA, is located on lands lease land (Lot 773 on SP223346).
- The intersection upgrade on Racecourse Drive, which is located within road reserve and the TSDA.
- The northernmost section of the proposed intersection with Abbott Street, which occurs on road reserve and freehold land (Lots 1, 2 & 3 on RP717802 and Lot 2 on RP725280).

3.11 Describe any existing or any proposed uses relevant to the project area

The project area occurs in the Townsville State Development Area (TSDA), which consists of 4,915 ha of land dedicated to industrial development (AECOM 2019). Landuse within the TSDA area is managed by precincts. The TEARC project will mostly occur in the Infrastructure Corridors Precinct, with very minor edges of the project located in Port Industry and Environmental Management Precincts (AECOM 2019). The precincts have been designated to accommodate linear infrastructure, port operations and protection of environmental values respectively.

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Section 4

Measures to avoid or reduce impacts

4.1 Describe the measures you will undertake to avoid or reduce impact from your proposed action

Measures to avoid or mitigate impacts to Matters of National Environmental Significance are stated in the self-assessment report (Att 4_CN-13187_TEARC EPBC self-ass R05, Section 5); a summary is provided below. The advice will be implemented in accordance with TMR's Environmental Processes Manual (Att 7_EnvtalProcessesManual); this ensures integration of the advice into the planning and design process.

Recommendation 1: Design the infrastructure to achieve, to the greatest extent practicable, the following design outcomes:

- maintenance of environmental flows
- minimise erosion and sedimentation risk
- minimal loss of intertidal habitat in the Ross River mouth (design to be informed by project-specific hydraulic modelling as recommended in coastal processes report (Att 6_20020180_R01v04 CoastalReport, Section 8.1)
- low risk of unplanned fire during operation
- management of runoff (including accidental spills) to minimise the release of pollutants to waterways and achieve relevant State policy water quality objectives.

Recommendation 2: Design the bridges over/near Ross River (BR11 and BR12) to specifications that minimise the likelihood of train derailment.

Recommendation 3: Implement policies and procedures to check the integrity of the rail line and bridges BR11 and B12 after significant weather events.

Recommendation 4: Schedule BR11 and BR12 construction works that involve soil or vegetation disturbance within or below the tidal zone to avoid the wettest months of the year (nominally December to March).

Recommendation 5: Maintain vehicles and machinery according to manufacturer specifications and away from waterways or within a bunded area. Vehicles and machinery to be operated by suitably qualified persons and be clean from soil material, weeds, pest fauna and pathogens before entering the project area.

Recommendation 6: Inspect machinery/vessels prior to commencing works to ensure that there are no leaks, or evidence or wear or damage to oil lines, seals or valves.

Recommendation 7: Minimise vegetation clearing extent via planning/design and implementation of systems/controls during construction.

Recommendation 8: Where practicable, artificial lighting used during construction and operation should be in accordance with the National Light Pollution Guidelines for Wildlife (DoEE 2020).

Recommendation 9: Complete appropriate acid sulfate soil investigations and implement controls to protect water quality and soil resources, as per Sullivan et al. (2018) and Dear et al. (2014).

Recommendation 10: Commission a TEARC project-specific underwater noise impact assessment. The study should assess the potential impacts associated with the operation phase and pile driving (construction phase). It should be based on site-specific information, relevant guidelines and scientific literature. If impacts are anticipated, the study should provide recommendations regarding:

- bridge design to reduce potential impacts of operation phase (eg rail dampeners/absorber pads)
- tasks to be undertaken during pile driving to reduce potential impacts (implemented via species management plan under Construction Environmental Management Plan (CEMP)).

Recommendation 11: Prepare and implement a CEMP that includes controls/plans for erosion and sediment control, acid sulfate soil management, storage and handling of hazardous substances, waste management, dust management, biosecurity management, heritage management, T&M species management (marine fauna, coastal birds and Bare-rumped Sheathtail Bat), emergency response management, and monitoring (eg biosecurity, water and air quality) requirements.

Recommendation 12: Where possible, access roads, parking, laydown, stockpiling areas and camps should occur in previously cleared areas to avoid the need to clear additional remnant vegetation.

Recommendation 13: Watercraft used during the TEARC project should not to exceed 6 knots whilst in the smooth waters of Ross River.

Recommendation 14: Develop and implement procedures and plans for the operation phase of the TEARC project to manage threats associated with pollution (stormwater and emergency response), biosecurity items and unplanned fires.

Recommendation 15: Advice contained in this report to be implemented in accordance with TMR's Environmental Processes Manual.

The TEARC project is similar to the Townsville Port Access Road (TPAR) project (built in 2012) in terms of location and potential environmental impacts. Experience from the TPAR project, and other road/rail projects on the Townsville coastal plain, have informed the management measures proposed for the TEARC project. This prior experience provides confidence in the effectiveness of the proposed management measures if properly implemented.

Potential TEARC project-related threats to MNES were identified via specialised studies. Literature reviews helped identify the current best practice management response.

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4.2 For matters protected by the EPBC Act that may be affected by the proposed action, describe the proposed environmental outcomes to be achieved

Measures to avoid and reduce the potential impacts of the Townsville Eastern Access Rail Corridor (TEARC) on Matters of National Environmental Significance (MNES) are identified for the design/planning, construction and operation project phases (refer to Section 4.1). The advice will be implemented in accordance with TMR's Environmental Processes Manual (Att 7_EnvtalProcessesManual). This includes revisions to the Review of Environmental Factors and Environmental Management Plan (Planning), and preparation of an Environmental Design Report to ensure the recommended advice is integrated into the TEARC planning and design process.

The design of the TEARC will incorporate measures to reduce impacts on MNES. Relevant design objectives include maintenance of environmental flows, management of land disturbance and stormwater to minimise erosion and sedimentation, minimising loss of intertidal habitats in the river mouth, minimising unplanned fire during operation, management of pollutants in stormwater runoff (operation), minimising the likelihood of train derailment and minimising light pollution. Design should be informed by project-specific studies, including hydraulic modelling as recommended in the coastal processes report (Att 6_20020180_R01v04 CoastalReport) and heritage surveys and consultations.

Planning for the construction stage will schedule Ross River bridge (BR11 and BR12) works that involve soil or vegetation disturbance (including land reclamation) within or below the tidal zone to avoid the wettest months of the year, and allow sufficient time for: (a) the recommended acid sulfate soil investigations and underwater noise impact assessment to be conducted, and (b) the advice incorporated into construction plans.

Measures to avoid and minimise potential impacts during construction are to be documented in a Construction Environmental Management Plan (CEMP) and implemented. The effectiveness of the CEMP will be assessed by a monitoring program/plan. The monitoring program/plan will address risks to, or associated with, biosecurity items, water quality, Indigenous cultural heritage, T&M marine fauna, T&M coastal birds (if pile driving occurs between September and February) and Bare-rumped Sheathtail Bat (if required, e.g. roosting bats are found in the impact area).

During the operation stage policies and procedures will be prepared and implemented to check the integrity of the rail line and Ross River bridges (BR11 and B12) after significant weather events, to minimise the potential for impacts associated with pollution (land, water and light), biosecurity items, unplanned fires and collision of watercraft with vessels used for bridge inspections/maintenance.

Significant impacts on MNES will be avoided, except for Threatened and Migratory (T&M) shorebirds where a significant impact is likely (when precautionary principle is applied) due to the loss of the last remaining foraging habitat on the northern bank of the Ross River mouth. The loss of this shorebird habitat is notable, and of consequence, because it is the last remaining habitat on the northern bank of the river mouth and it is part of a broader area of 'important habitat'. However, although this habitat loss diminishes the value of the area to shorebirds, and constitutes a significant impact when assessed against DoEE (2017), the loss is unlikely to cause a major change in T&M shorebird presence in the local area. Following the loss of this habitat, T&M shorebirds are likely to continue to roost in large abundances in the river mouth and forage in the remaining local habitats (eg South Bank and intertidal flats of Cleveland Bay).

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 5

Conclusion on the likelihood of significant impacts

5.1 You indicated the below ticked items to be of significant impact and therefore you consider the action to be a controlled action

- ☐ World Heritage properties
- ☐ National Heritage places
- ☐ Wetlands of international importance (declared Ramsar wetlands)
- ☑ Listed threatened species or any threatened ecological community
- ☑ Listed migratory species
- ☐ Marine environment outside Commonwealth marine areas
- ☐ Protection of the environment from actions involving Commonwealth land
- ☐ Great Barrier Reef Marine Park
- ☐ A water resource, in relation to coal seam gas development and large coal mining development
- ☐ Protection of the environment from nuclear actions
- ☐ Protection of the environment from Commonwealth actions
- ☐ Commonwealth Heritage places overseas
- ☐ Commonwealth marine areas

5.2 If no significant matters are identified, provide the key reasons why you think the proposed action is not likely to have a significant impact on a matter protected under the EPBC Act and therefore not a controlled action

Not applicable. Significant residual impact has been identified for listed Threatened and Migratory species.

The TEARC project environmental impact assessment was informed by desk-based studies and a field survey program. The desk-based studies included reviews of previous assessments undertaken for the Townsville Port Access Road Project (built) and Townsville Port Expansion Project (in progress). The field survey program targeted Threatened and Migratory species identified during previous studies as having a high or moderate likelihood of occurrence. Field surveys were designed/implemented to be consistent with Australian Government EPBC Act policy/guidelines (where relevant).

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 6

Environmental record of the person proposing to take the action

6.1 Does the person taking the action have a satisfactory record of responsible environmental management? Explain in further detail

The proponent, TMR, is highly experienced in planning, delivering and operating major transport infrastructure projects. The core role of TMR is the planning, building and maintaining of Queensland's road, rail, freight and maritime infrastructure.

TMR North Queensland has an excellent track record in coordinating environmental assessments and delivery of environmentally sensitive transport solutions (eg recent major infrastructure upgrades on the Bruce Highway including Corduroy Creek to Tully High School, Cardwell Range, Townsville Port Access Road, Townsville Ring Road).
More information regarding TMR's achievements, performance and outlook is available at www.tmr.qld.gov.au

6.2 Provide details of any past or present proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against either (a) the person proposing to take the action or, (b) if a permit has been applied for in relation to the action – the person making the application

There are no past or present proceedings against either the person proposing the action or the person making the application.

6.3 If it is a corporation undertaking the action will the action be taken in accordance with the corporation's environmental policy and framework?

☑ Yes ☐ No

6.3.1 If the person taking the action is a corporation, provide details of the corporation's environmental policy and planning framework

TMR operates under the principles of its Environmental Policy and Environmental Management Systems. The policy outlines how TMR will manage impacts on natural, human and cultural environments by:
- meeting the statutory obligations or all relevant environmental and heritage legislation as a minimum standard
- considering the effects of the project on stakeholders and long term relationships when carrying out statutory obligations, and seeking feedback on TMR's performance
- acting as a good government agency and adopting a proactive approach to environmental and heritage management
- improving awareness of environmental and heritage management process, standards and responsibilities among TMR employees and subcontractors
- ensuring the approach to the management of environmental and heritage impacts embrace the hierarchy of 'avoid, minimise and mitigate' in a financially feasible manner

TMR undertakes works in accordance with the Department's internal Environmental Process Manual (Att 7_EnvtalProcessesManual).

6.4 Has the person taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?

☑ Yes ☐ No

6.4.1 EPBC Act No and/or Name of Proposal

TMR has referred actions under the EPBC Act for a variety of projects across Queensland; projects submitted post-2013 are listed below.
2020/8803 Dpt of Transport & Main Roads/Transport - Land/Between Beerburrum And Nambour, Sunshine Coast Lga/Queensland/Beerburrum To Nambour Rail Upgrade Project The B2n Project
2020/8783 Dpt of Transport & Main Roads/Transport - Land/From Bald Hill Road, Glenella, To Harbour Road, North Mackay/Queensland/Mackay Port Access Road
2020/8692 Dpt of Transport & Main Roads/Transport - Water/Road Reserve And Unallocated State Land/Queensland/Yorkeys Knob Boating Infrastructure Project
2020/8646 Dpt of Transport & Main Roads/Transport - Land/Oaky Creek Road Coomera, To Nerang-Broadbeach Road Nerang/Queensland/Stage 1 Coomera Connector
2020/8628 Dpt of Transport & Main Roads/Transport - Land/Between Fairy Bower And Kawana, 6km West Of Rockhampton/Queensland/Rockhampton Ring Road
2020/8625 Dpt of Transport & Main Roads, Northern District, Townsville/Transport - Land/Townsville/Queensland/Townsville Ring Road 5
2019/8573 Dpt of Transport & Main Roads/Transport - Land/Bruce Highway Between Smiths Gap And Friday Pocket Road/Queensland/Bruce Highway - Smiths Gap Overtaking Lane And Fauna Crossing
2019/8523 Dpt of Transport & Main Roads/Transport - Water/Lot 10 On Sp312679/Queensland/Molongle Creek

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Navigation Channel Improvement
2019/8511 Dpt of Transport & Main Roads/Transport - Land/Port Alma Road Reserve And Lot 51 Sp102240/Queensland/Bajool - Port Alma Road Safety Upgrade Project
2018/8355 Dpt of Transport & Main Roads/Transport - Land/Bruce Highway, Forest Glen, Qld, 4556/Queensland/Bruce Highway Interchange Upgrades, Sunshine Coast, Qld
2017/7961 Dpt of Transport & Main Roads/Transport - Land/Brisbane/Queensland/Cross River Rail Connecting Dutton Park To Bowen Hills, Brisbane, Qld
2017/7941 Dpt of Transport & Main Roads/Transport - Land/Gazetted Future State-Controlled, Gympie, Qld, 4570/Queensland/Bruce Highway Cooroy To Curra (Section D: Woondum To Curra)
2017/7924 Dpt of Transport & Main Roads/Tourism And Recreation/Lot 550 Nr7351 (State Reserve (Boat Harbour Purposes) And Lot 540 Nr7350 (Sr (Scenic And Rec)) /Queensland/Mission Beach Clump Point Boating Infrastructure Project, Qld
2017/7892 Dpt of Transport & Main Roads/Transport - Land/Tin Can Bay Road, Toolara Forest/Queensland/Coondoo Creek Bridge Replacement, Tin Can Bay Rd, Qld
2016/7802 Dpt of Transport & Main Roads/Transport - Land/Warrego Hway Between Chinchilla And Miles/Western Australia/Warrego Highway Upgrade Program, Dalby To Miles Overtaking Lanes, Qld
2016/7774 Dpt of Transport & Main Roads/Transport - Land/10.2km South Of Ingham And 100 Km North Of Townsville/Queensland/Dual Bridge Replacement Crossing, Cattle & Frances Creek, Sth Of Ingham, Qld
2016/7690 Dpt of Transport & Main Roads/Transport - Land/Bruce Highway, Townsville/Queensland/Townsville Northern Access Intersections Upgrade, Bruce Highway, Townsville, Qld
2016/7683 Dpt of Transport & Main Roads/Transport - Land/Approximately 17km South-East Of Brisbane Cbd/Queensland/Logan Enhancement Project, Qld
2015/7613 Dpt of Transport & Main Roads Qld/Transport - Land/12.77km North Of Ingham/Queensland/Arnot Creek Bridge Upgrade
2015/7567 Dpt of Transport & Main Roads/Transport - Land/Sunshine Coast, Qld/Queensland/Mooloolah River Interchange Upgrade And Extension Project, Qld
2015/7558 Dpt of Transport & Main Roads/Transport - Land/Bruce Hway, 40kms South Of Maryborough/Queensland/Bruce Hway Overtaking Lane Adjustment Near Bauple-Woolooga Rd Intersection, Qld
2015/7552 Dpt of Transport & Main Roads/Transport - Land/Mackay Regional Area/Queensland/Eton Range Realignment, Peak Downs Hwy, Qld
2015/7444 Dpt of Transport & Main Roads/Transport - Land/South West Region /Darling Downs/Toowoomba /Qld/Warrego Highway Passing Lanes - Oakey To Dalby, Qld
2014/7394 Dpt of Transport & Main Roads/Transport - Land/Bruce Highway, Cooroy To Curra Section, Qld /Queensland/Bruce Highway Upgrade And Realignment - Cooroy To Curra, Qld
2013/7106 Dpt of Transport & Main Roads/Transport - Land/Brisbane/Qld/Underground Bus And Train Project, Brisbane
2013/7066 Dpt of Transport & Main Roads/Transport - Land/Nudgee Road To Bracken Ridge, Southeast Qld/Qld/Gateway Upgrade North (Gun) Project, Southeast Qld
2013/6912 Dpt of Transport & Main Roads/Transport - Land/West Of Bruce Hwy Between Yeppen Roundabout And Egan's Hill/Qld/Yeppen South Roadworks Project, Queensland
2013/6877 Dpt of Transport & Main Roads /Transport - Land/Maleny-Kenilworth Road, Conondale/Qld/Grigor Bridge Replacement Project, Qld
2013/6815 Dpt of Transport & Main Roads/Transport - Land/Between Cabbage Tree Road Creek And Carman Road, North Of Gin Gin/Qld/Bruce Highway Realignment - Between Cabbage Tree Creek And Carman Road, North Of Gin Gin.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 7

Information sources

Reference source

AECOM 2019, Environmental Review – Townsville Eastern Access Rail Corridor, prepared by AECOM Australia Pty Ltd for the Department of Transport and Main Roads, 22 November 2019.

Reliability

Consultants report.

Uncertainties

Some findings in the report have been refined by further studies and assessments, reported in the Townsville Eastern Access Rail Corridor self-assessment report (NRA 2021a).

Reference source

Building Queensland 2017, Townsville Eastern Access Rail Corridor Detailed Business Case, November 2017.

Reliability

Government publication.

Uncertainties

None known.

Reference source

Department of State Development 2017, Townsville Port Expansion Project – Coordinator-General's evaluation report on the environmental impact statement, Queensland Government Department of State Development, September 2017.

Reliability

Government publication.

Uncertainties

None.

Reference source

GHD 2017a, BQ0072-16 Townsville Eastern Access Rail Corridor Engineering Report, prepared by GHD on behalf of Building Queensland, 28 September 2017.

Reliability

Consultants report.

Uncertainties

None known.

Reference source

Murtha 1982, Soils and Land Use on the Southern Section of the Townsville Coastal Plain, North Queensland, Soils and Land Use Series No. 59, Commonwealth Scientific and Industrial Research Organization, Melbourne.

Reliability

Government research organisation publication.

Uncertainties

Scale of mapping is not site specific.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

TMR 2009, Biodiversity Management Plan for Environmental Reserve 2009-2014, Department of Transport and Main Roads, February 2009.

Reliability

Government publication.

Uncertainties

None known.

Reference source

TMR 2020, MNES Significant Impact Assessment, Bare-rumped Sheathtail Bat, Saccolaimus saccolaimus nudicluniatus, Vulnerable under the EPBC Act, prepared by Queensland Department of Transport and Main Roads.

Reliability

Prepared by environmental scientists at TMR.

Uncertainties

None identified.

Reference source

GHD 2017b, Townsville Eastern Access Rail Corridor – Business Case Environmental Assessment Report, prepared by GHD for Building Queensland, September 2017.

Reliability

Consultants report.

Uncertainties

Some findings in the report have been refined by further studies and assessments, reported in the Townsville Eastern Access Rail Corridor self-assessment report (NRA 2021a).

Reference source

Dear, SE, Ahern, CR, O'Brien, LE, Dobos, SK, McElnea, AE, Moore, NG & Watling, KM 2014, Queensland Acid Sulfate Soil Technical Manual: Soil Management Guidelines, Queensland Department of Science, Information Technology, Innovation and the Arts, Brisbane.

Reliability

Government publication.

Uncertainties

None identified.

Reference source

DoEE 2020, National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds, Australian Government Department of the Environment and Energy, Commonwealth of Australia.

Reliability

Government publication.

Uncertainties

None identified.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Reference source

Sullivan, L, Ward, N, Toppler, N & Lancaster, G 2018, National Acid Sulfate Soils guidance: National acid sulfate soils sampling and identification methods manual, Australian Government Department of Agriculture and Water Resources, Canberra.

Reliability

Government publication.

Uncertainties

None identified.

Reference source

Transport and Infrastructure Council, National Freight and Supply Chain Strategy National Action Plan (August 2019)

Reliability

Government publication.

Uncertainties

None identified.

Reference source

DoEE 2017, EPBC Act policy statement 3.21, Industry Guidelines for Avoiding, Assessing and Mitigating Impacts on EPBC Act Listed Migratory Shorebird Species, Department of the Environment and Energy, Commonwealth of Australia

Reliability

Government publication.

Uncertainties

None identified.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 8

Proposed alternatives

Do you have any feasible alternatives to taking the proposed action?

☑ Yes ☐ No

8.0 Provide a description of the feasible alternative

The Detailed Business Case (DBC) for the Townsville Eastern Access Rail Corridor (TEARC) project considered four options for the rail alignment (Building Queensland 2017). Options A and B followed similar alignments, branching off the North Coast Line at Cluden, while Option C and Option D branch off the North Coast Line near the Stuart Industrial Precinct and the Sun Metals Branch Line respectively. Building Queensland (2017) applied a Multi Criteria Analysis (MCA) process for the options assessment.

During the shortlisting process, Option D was discounted due to a number of engineering challenges and it did not meet operational requirements.

Option C was discounted due to flood provisioning requirements, it was not aligned with the existing Townsville State Development Area (TSDA) master plan (which has secured transport corridors aligned with Options A and B), and potential impacts on the Sun Metals solar farm.

Options A and B were considered in more detail (options A1, A2, B1, B2 and B3), with Option B3 identified as the preferred alignment (the proposed action as stated in this Referral is based on Option B3). Reasons for Option A1 and A2 not being preferred included the need to relocate a high voltage power line, higher social impacts due to closer proximity to residential areas and more land acquisition (c.f. Option B). Within Option B, sub-option B3 was preferred due to lower social impacts and lower cost.

Information below applies to Options B1 and B2, which were the next best alternatives to Option B3, as determined by the options assessment. The alignments for Options B1, B2 and B3 only differ north of Ross River.

Option B1 rail alignment crosses Ross River downstream of the existing Southern Port Road bridge. On the northern river bank the rail alignment splits into two segments. The western rail segment traverses industrial areas in the South Townsville suburb. The eastern rail segment continues directly to the Port of Townsville (PoT), to the east of, and parallel to, Benwell Road. The eastern rail segment of Option B1 is similar to the Option B3 rail alignment, and will result in the loss of beach dune areas (northern bank of Ross River) along the edge of the Highest Astronomical Tide (HAT). Under Option B1, a road connecting Boundary Street and Archer Street will be built to the west of, and approximately parallel to, Benwell Road.

Option B2 rail alignment is similar to Option B1. A major difference is that the eastern segment of Option B2 is positioned west of Benwell Road (c.f. east of Benwell Road for Option B1), thereby avoiding disturbance to beach dune areas on the northern river bank. Option B2 involves the same Boundary Street to Archer Street road connection as Option B1.

Detailed design information is not available because the TEARC project has not progressed past the DBC phase. Preliminary design and construction information was prepared for Option B3 during the DBC. Preliminary design and construction information was not prepared for Options B1 and B2; therefore, the potential disturbance areas for these options are not defined. The main differences between Option B3 and the alternative options (B1 and B2) occur north of the Ross River, as follows.

- The development footprints of Options B1 and B2 intersect smaller portions of intertidal flats compared with Option B3.
- The development footprints of Options B1 and B2 intersect larger portions of South Townsville (the suburb) compared with Option B3.

The DBC options assessment for the TEARC project is available at: https://buildingqueensland.qld.gov.au/business-case/townsville-eastern-access-rail-corridor/. A summary is provided in 'Att 5_TEARC Options Evaluation_sm, Appendix A'.

8.1 Select the relevant alternatives related to your proposed action

☐ Timeframes
☑ Locations
☐ Activities

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

8.4 Provide a brief physical description of the property on which the alternative proposed action will take place and the project location (e.g. Proximity to major towns, or for off-shore projects, shortest distance to mainland)

The alignment for Options B1 and B2 are mostly consistent with Option B3 (ie the proposed action). The exceptions being the location of road and rail alignments north of the Ross River into the Port of Townsville.

8.5 What is the size of the development footprint or work area of the alternative?

Not defined for Options B1 and B2. See Section 8.0.

8.6 Describe the location

Other - Options B1 and B2 apply to the area north of the Ross River, in the suburb of South Townsville.

8.7 Is there a different local government area and council contact for the alternative?

☐ Yes ☑ No

8.8 Provide details of the context, planning framework and State/Local Government requirements

As per Section 1.12.

8.9 Describe any public consultation that has been, is being or will be undertaken (including with Indigenous stakeholders)

As per Section 1.13.

8.10 Describe any environmental impact assessments that have been, is being or will be carried out under Commonwealth, State or Territory legislation including relevant impacts of the project for the alternative

The environmental impact assessments conducted (see Section 1.14) are specific to the preferred alignment (Option B3) as identified by Building Queensland (2017) in the Detailed Business Case (DBC) for the Townsville Eastern Access Rail Corridor (TEARC) project. Much of the information and advice contained in the completed assessments for Option B3 are relevant to the non-preferred options (B1 and B2) due to the alignments being similar.

8.11 Is this action part of a staged development (or a component of a larger project)?

☐ Yes ☑ No

8.12 Nominate any matters of National Environmental Significance that are likely to be impacted by this alternative proposal by ticking the relevant checkboxes

- ☑ World Heritage properties
- ☑ National Heritage places
- ☑ Listed threatened species or any threatened ecological community
- ☑ Listed migratory species

8.12.1 Provide further information on potential impacts of matters of environmental significance that you have nominated above

The non-preferred Options (B1 and B2) have not been subject to specific detailed assessment; however, much of the information and advice contained in the assessments completed for Option B3 (refer to Section 2) apply (due to the similarities between the three alignments).

A relevant difference between the respective potential impacts is that Options B1 and B2 have reduced (c.f. Option B3) impacts to Threatened and Migratory shorebirds, due to less habitat being lost by land reclamation on the northern bank of Ross River.

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

8.13 Describe any impacts on the flora and fauna relevant to the alternative proposal

The non-preferred Options (B1 and B2) have not been subject to specific detailed assessment; however, much of the information and advice contained in the assessments completed for Option B3 (refer to Sections 2, 3 and 8.12) are relevant (due to the similarities between the three alignments).

8.14 Describe the hydrology relevant to the alternative proposal (including water flows)

No material difference to description provided in Section 3.2.

8.15 Describe the soil and vegetation characteristics relevant to the alternative proposal

No material difference to description provided in Section 3.3.

8.16 Describe any outstanding natural features and/or unique values relevant to the alternative proposal

No material difference to description provided in section 3.4.

8.17 Describe the remnant native vegetation relevant to the alternative proposal

No material difference to description provided in Section 3.5.

8.18 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the alternative proposal

No material difference to description provided in Section 3.6.

8.19 Describe the current state of the environment relevant to the alternative proposal

No material difference to description provided in Section 3.7.

8.20 Describe any Commonwealth Heritage places or other places recognised as having heritage values relevant to the alternative proposal

No material difference to description provided in Section 3.8.

8.21 Describe any Indigenous heritage values relevant to the alternative proposal

No material difference to description provided in Section 3.9.

8.22 Describe the tenure of the action area (e.g. freehold, leasehold) relevant to the alternative proposal

As per section 3.10, with the exception of areas north of the Ross River which are located in urban / industrial areas.

8.23 Describe any existing or any proposed uses relevant to the alternative proposal

No material difference to description provided in Section 3.11.

8.25 Do you have another alternative?

☐ Yes ☑ No

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Section 9

Person proposing the action

9.1.1 Is the person proposing the action an organisation or business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	Department of Transport and Main Roads
Business name	
ABN	39407690291
ACN	
Business address	445 Flinders St, PO Box 1089, Townsville, 4810, QLD, Australia
Postal address	
Main Phone number	07 4421 8848
Fax	
Primary email address	stephen.j.mallows@tmr.qld.gov.au
Secondary email address	

9.1.2 I qualify for exemption from fees under Regulation 5.23(1)(ii) of the EPBC Regulations because I am:

☐ Small business
☑ Not applicable

9.1.2.2 I would like to apply for a waiver of full or partial fees under Regulation 5.21A of the EPBC Regulations

☐ Yes ☑ No

9.1.3 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Stephen
Last name	Mallows
Job title	District Director (Northern)
Phone	07 4421 8848
Mobile	
Fax	
Email	stephen.j.mallows@tmr.qld.gov.au
Primary address	445 Flinders St, PO Box 1089, Townsville, 4810, QLD, Australia
Address	

Declaration: Person proposing the action (To be signed by the person at 9.1.3)

I, Stephen Mallows on behalf of Department of Transport and Main Roads, **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.**

Signature: ..... **Date:** 6/8/2021

I, Stephen Mallows on behalf of Department of Transport and Main Roads, **the person proposing the action, consent to the designation of** Department of Transport and Main Roads **as the proponent for the purposes of the action described in this EPBC Act Referral.**

Signature:.....**Date:** 6/8/2021

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Proposed designated proponent

9.2.1 Is the proposed designated proponent an organisation or business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	Department of Transport and Main Roads
Business name	
ABN	39407690291
ACN	
Business address	445 Flinders St, PO Box 1089, Townsville, 4810, QLD, Australia
Postal address	
Main Phone number	07 4421 8848
Fax	
Primary email address	stephen.j.mallows@tmr.qld.gov.au
Secondary email address	

9.2.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Stephen
Last name	Mallows
Job title	District Director (Northern)
Phone	07 4421 8848
Mobile	
Fax	
Email	stephen.j.mallows@tmr.qld.gov.au
Primary address	445 Flinders St, PO Box 1089, Townsville, 4810, QLD, Australia
Address	

Declaration: Proposed Designated Proponent

I, Stephen Mallows on behalf of Department of Transport and Main Roads, **the proposed designated proponent, consent to the designation of myself as the proponent for the purposes of the action described in this EPBC Act Referral.**

Signature: ..... **Date:** 6/8/2021

Australian Government
Department of Agriculture, Water and the Environment

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Referring party (person preparing the information)

9.3.1 Is the referring party an organisation or a business?

☑ Yes ☐ No

Organisation

Organisation name (as registered for ABN/ACN)	NATURAL RESOURCE ASSESSMENTS PTY. LTD.
Business name	NRA ENVIRONMENTAL CONSULTANTS
ABN	77011073135
ACN	
Business address	1st Floor 320 Sheridan Street, PO Box 5678, Cairns, 4870, QLD, Australia
Postal address	
Main Phone number	07 4034 5300
Fax	
Primary email address	nra@natres.com.au
Secondary email address	

9.3.2 Contact (for an organisation - the contact details of the person authorised to sign on behalf of the organisation)

First name	Peter
Last name	Buosi
Job title	Principal Ecologist
Phone	07 4796 9444
Mobile	
Fax	
Email	peter@natres.com.au
Primary address	Suite 2A, Level 1, 41 Denham Street, PO Box 539, Townsville, 4810, QLD, Australia
Address	

Declaration: Referring party (person preparing the information)

I, Peter Buosi **, 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.**

Signature: P.Buosi **Date:** 06/08/2021

Note: PDF may contain fields not relevant to your application. These fields will appear blank or unticked. Please disregard these fields.

Appendix A

Attachment

Document Type	File Name
supporting_tech_reports	Att 1_DBC construction durations_sm.pdf
supporting_tech_reports	Att 2_DBC drawings_sm.pdf
supporting_tech_reports	Att 3_Corridor-acquisition refinement drawings_sm.pdf
supporting_tech_reports	*Att 4_CN-13187_TEARC EPBC self-ass R05.pdf
supporting_tech_reports	Att 5_TEARC Options Evaluation_sm.pdf
supporting_tech_reports	Att 6_20020180_R01v04 CoastalReport.pdf
supporting_tech_reports	Att 4_CN-13187_TEARC EPBC self-ass R05_210806 REDACT.pdf
corp_env_policy_docs	Att 7_EnvtalProcessesManual.pdf

* NOT PUBLISHED - SUPERSEDED

Appendix B

Coordinates

Area 1
-19.258645,146.838981
-19.259211,146.837695
-19.259443,146.837168
-19.263278,146.835987
-19.265045,146.835474
-19.264974,146.835221
-19.267124,146.834548
-19.267288,146.833715
-19.267676,146.83257
-19.267792,146.83196
-19.267828,146.831968
-19.267853,146.831837
-19.268117,146.831927
-19.268026,146.8324
-19.267862,146.833008
-19.267749,146.833589
-19.267601,146.834351
-19.267574,146.834493
-19.267807,146.834494
-19.268475,146.834778
-19.268658,146.834856
-19.268445,146.835543
-19.268573,146.835587
-19.268541,146.835676
-19.269547,146.836125
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