

Australian Government

Department of Sustainability, Environment, Water, Population and Communities

Referral of proposed action

Adani Mining Pty Ltd

North Galilee Basin Rail

Referral of proposed action

Project title:

North Galilee Basin Rail

1 Summary of proposed action

1.1 Short description

Adani Mining Pty Ltd (Adani) is proposing the development of railway comprising approximately 300 km of greenfield standard gauge rail and associated infrastructure (the North Galilee Basin Rail) (the NGBR Project). The NGBR Project will connect Adani's proposed Carmichael Mine and Rail Project's rail infrastructure directly to the Port of Abbot Point. The NGBR Project will facilitate the movement of product coal directly to the Port of Abbot Point.

1.2	Latitude and	Latitude and Ion	gitude coordinates at 5 rided below (GDA 94, N	kilometre i IGA Zone :	ntervals along the 100 55).	00 m wide investigative
	longitude	Chainage	Latitude		Longitude	
		location point	degrees minutes	seconds	degrees minutes	seconds
		0 Km	19° 54' 56.367" S		148° 5' 25.815" E	
		5 Km	19° 57' 25.604" S		148° 5' 59.678" E	
		10 Km	19° 58' 19.703" S		148° 3' 55.816" E	
		15 KM	19° 58' 31.572" S		148° 1' 14.967" E	
		20 Km	19° 59 43.760 5		147° 58' 41.431' E	
		30 Km	20° 1' 7 051" S		147° 53' 10 072" E	
		35 Km	20° 1' 58.207" S		147° 50' 29.205" E	
		40 Km	20° 4' 36.124" S		147° 50' 14.877" E	
		45 Km	20° 7' 15.633" S		147° 50' 20.141" E	
		50 Km	20° 9' 39.377" S		147° 49' 51.524" E	
		55 Km	20° 11' 52.082" S		147° 48' 20.255" E	
		60 KM	20° 14' 20.405" S		147° 47' 9.809" E	
		00 Km	20° 16 52.474 5 20° 18' 46 277" S		147° 40 10.788 E	
		75 Km	20° 21' 20 152" S		147° 43' 52 746" F	
		80 Km	20° 23' 57.049" S		147° 44' 10.199" E	
		85 Km	20° 26' 38.161" S		147° 43' 49.280" E	
		90 Km	20° 29' 12.830" S		147° 42' 59.932" E	
		95 Km	20° 31' 21.576" S		147° 41' 17.104" E	
		100 Km	20° 33' 36.229" S		147° 39' 50.885" E	
		105 KM	20° 36' 12.697" S		147° 40' 1.948" E	
		115 Km	20 30 23.207 3 20° 40' 37 700" S		147 41 42.111 E 1/7º /3' 22 323" E	
		120 Km	20° 42' 50.174" S		147° 45' 2.584" E	
		125 Km	20° 45' 7.427" S		147° 46' 34.211" E	
		130 Km	20° 47' 38.832" S		147° 47' 35.769" E	
		135 Km	20° 50' 15.439" S		147° 48' 22.411" E	
		140 Km	20° 52' 48.650" S		147° 48' 39.774" E	
		145 Km	20° 55' 18.303" S		147° 48' 4.184" E	
		150 Km	20° 58 0.917 5 21° 0' 13 060" S		147° 48 0.517 E 147° 46' 56 583" E	
		160 Km	21° 2' 40.715" S		147° 46' 5.727" E	
		165 Km	21° 4' 53.211" S		147° 44' 45.195" E	
		170 Km	21° 7' 19.865" S		147° 43' 39.946" E	
		175 Km	21° 9' 58.503" S		147° 43' 3.122" E	
		180 Km	21° 12' 37.027" S		147° 43' 8.992" E	
		185 Km	21° 14' 58.743" S		147° 44' 24.053" E	
		190 KM 105 Km	21° 17' 19.722" S		147° 45' 16.979" E	
		200 Km	21° 22' 16 934" S		147 44 40.092 E 147° 43' 24 326" E	
		205 Km	21° 24' 18.066" S		147° 41' 28.473" E	
		210 Km	21° 26' 16.085" S		147° 39' 29.847" E	
		215 Km	21° 27' 15.215" S		147° 36' 48.029" E	
		220 Km	21° 28' 41.587" S		147° 34' 22.536" E	
		225 Km	21° 30' 20.776" S		147° 32' 4.834" E	
		230 KM 235 Km	21° 31' 59.934" S		147° 29' 47.080" E	
		235 KII 240 Km	21 33 39.001 3 21º 34' 19 177" S		147 27 29.274 E 147° 24' 44 668" E	
		245 Km	21° 34' 16.142" S		147° 21' 51.848" E	
		250 Km	21° 34' 0.013" S		147° 18' 58.845" E	
		255 Km	21° 33' 43.834" S		147° 16' 5.852" E	
		260 Km	21° 34' 23.309" S		147° 13' 22.575" E	
		265 Km	21° 35' 32.779" S		147° 10' 45.358" E	
		270 Km	21° 36' 42.207" S		147° 8' 8.100" E	
		210 KII) 280 Km	∠1 37 31.394 3 21º 30' 15 014" 9		147° 3 30.800° E 147° 3' 7 017" ⊑	
		285 Km	21° 41' 51 496" S		147° 2' 20 532" F	
		290 Km	21° 44' 27.972" S		147° 1' 33.119" E	
		295 Km	21° 47' 4.445" S		147° 0' 45.678" E	
		300 Km	21° 48' 57.898" S		146° 58' 45.214" E	
		303.7 Km	21° 50' 19.739" S		146° 57' 2.069" E	

1.3 Locality and property description

The proposed NGBR Project rail alignment branches off approximately 70 km east of the Carmichael Mine on the proposed Carmichael Project's east-west rail corridor (the subject of separate investigations – refer EPBC 2010/5736), in the vicinity of Mistake Creek, northwards to connect with supporting infrastructure at the Port of Abbot Point (including rail loop/s and port infrastructure, the subject of separate investigations – refer EPBC 2011/6194).

The NGBR Project, currently a 1000 m wide investigative corridor (to be refined to a 100 m wide rail corridor through further investigation), is situated within the Isaac and Whitsunday Regional Council Local Government Areas and traverses 51 freehold lots, 35 leasehold lots, one unallocated State land lot and tenements comprising exploration permits for coal, exploration permits for minerals and one petroleum pipeline licence. One water pipeline and a number of high voltage power line easements are expected to be crossed. The existing environment is predominantly rural lands supporting grazing and other agricultural activities. The NGBR Project is located primarily within the Regional Landscape and Rural Production Area designation under the Mackay, Isaac and Whitsunday Regional Plan 2012, with a smaller area of Urban Footprint designation near Abbot Point.

Figure 1 (Appendix A) illustrates the Project location.

1.4	Size of the development footprint or work	The final alignment will be refined to a nominal 100 m wide rail corridor through the consideration of environmental, social and geotechnical constraints.
	area (hectares)	The final corridor will have an indicative footprint of 3037 ha (303.7 km x 100 m).
		Additional areas will be required to accommodate temporary construction related facilities such as camps, laydown areas, quarries and borrow areas.
1.5	Street address of the site	Not applicable.
		The Project will intersect with the Gregory Developmental Road near the southern extent and terminates in the north near the Port of Abbot Point, near Bowen, QLD.

1.6 Lot description

The NGBR Project 1000 m investigative corridor is located over the following 87 parcels, comprising Leasehold (LH – 35), Freehold (FH – 51) and Unallocated State Land (SL – 1) lots:

Lot on Plan	Current Tenure	Lot on Plan	Current Tenure
Lot 05 on DK103	LL	Lot 3 on RP748510	FH
Lot 1 on DK150	LL	Lot 3 on SB236	LL
Lot 1 on DK244	LL	Lot 3 on SB514	LL
Lot 1 on RP705785	FH	Lot 3 on SP132678	LL
Lot 1 on RP737838	FH	Lot 3 on SP194889	FH
Lot 1 on RP748508	FH	Lot 3 on 235PH752	LL
Lot 1 on RP748509	FH	Lot 33 on SP253263	FH
Lot 1 on RP748510	FH	Lot 335 on SP227560	LL
Lot 1 on RP748511	FH	Lot 336 on SP227560	LL
Lot 1 on RP748512	FH	Lot 355 on K124696	FH
Lot 1 on RP748625	FH	Lot 36 on USL44985	SL
Lot 1 on RP748626	FH	Lot 38 on 21PH1304	LL
Lot 1 on RP748627	FH	Lot 3821 on PH1304	LL
Lot 1 on SB279	LL	Lot 4 on SB687	LL
Lot 10 on BL49	LL	Lot 4 on SP116046	LL
Lot 10 on BL49	LL	Lot 4 on SP171921	LL
Lot 10 on DK17	FH	Lot 4 on SP194889	FH
Lot 13 on SP232519	FH	Lot 44 on HR1599	LL
Lot 14 on SB438	LL	Lot 47 on HR1607	LL
Lot 151 on SP122338	LL	Lot 47 on SP227557	LL
Lot 1510 on SP171920	LL	Lot 5 on DC90	FH
Lot 152 on SP122339	LL	Lot 5 on DK17	FH
Lot 17 on DK68	FH	Lot 5 on RP705781	FH
Lot 1943 on SP221555	LL	Lot 5 on SP194888	FH
Lot 2 on HR1033	FH	Lot 50 on HR1931	FH
Lot 2 on HR1724	FH	Lot 5047 on PH370	LL
Lot 2 on RP738758	FH	Lot 5086 on SM100	LL
Lot 2 on RP745292	FH	Lot 5088 on SM101	LL
Lot 2 on RP748511	FH	Lot 51 on HR1931	FH
Lot 2 on RP748512	FH	Lot 51 on SP243724	FH
Lot 2 on RP748625	FH	Lot 53 on SP243724	FH
Lot 2 on RP748626	FH	Lot 56 on SP243724	FH
Lot 2 on RP748627	FH	Lot 58 on SP243726	LL
Lot 2 on SP147334	FH	Lot 6 on DK17	FH
Lot 24 on RP804256	FH	Lot 6 on SP194888	FH
Lot 24 on RP805036	FH	Lot 618 on PH2106	LL
Lot 26 on SP220411		Lot 62 on SP195387	LL
Lot 3 on DC91	FH	Lot 667 on PH1321	
Lot 3 on HR1686	FH	Lot 7 on DK17	FH
Lot 3 on HR1711	FH	Lot 80 on K12450	FH
Lot 3 on HR1712	FH	Lot 86 on DK154	
Lot 3 on RP737838	FH	Lot 9 on DK17	FH
Lot 3 on RP748508	FH	Lot B on AP20323	LL
Lot 3 on RP748509	FH		

Figure 2 and Figure 3 (Appendix A) show land tenure and land use, respectively, traversed by the NGBR Project.

It should be noted that the final nominal 100 m rail corridor is expected to intersect only a fractional subset of the above 87 lots.

1.7 Local Government Area and Council contact (if known)

The NGBR Project is situated within the Isaac and Whitsunday Regional Council Local Government Areas (refer Figure 1 (Appendix A)).

1.8 Time frame

Initial output from the Carmichael Mine is expected in 2016. The Carmichael Mine has an expected lifespan of 90 years and NGBR Project rail infrastructure developed will be required to support the operations for the duration.

Construction of the NGBR Project is expected to commence in 2014 and be completed within approximately two years. Operation of the NGBR Project will coincide with completion of construction and commencement of Carmichael Mine output, currently expected in 2016.

1.9	Alternatives to proposed action		No
		Х	Yes, you must also complete section 2.2
1.10	Alternative time	Х	No
	names etc		Yes, you must also complete Section 2.3. For each alternative, location, time frame, or activity identified, you must also complete details in Sections 1.2-1.9, 2.4-2.7 and 3.3 (where relevant).
1.11	State assessment		No
		Х	Yes, you must also complete Section 2.5
1.12	Component of	Х	No
			Yes, you must also complete Section 2.7
1.13	Related		No
	actions/proposals	Х	Yes, provide details:
			The proposed NGBR Project:
			Generally aligns with the Queensland State Government's policy decision on the development of a multi-user common access rail corridor between the Galilee Basin and the Port of Abbot Point.
			• Provides a direct connection from the proposed Carmichael Coal Mine and Rail Project's rail infrastructure (the subject of separate investigations – refer EPBC 2010/5736) to supporting export infrastructure at the Port of Abbot Point (including rail loop/s and port infrastructure, the subject of separate investigations – refer EPBC 2011/6194).
			• Is a separate and distinct project from the Carmichael Coal Mine and Rail Project. The NGBR Project will require a separate financial investment decision and separate applications for State and local government approvals from the Carmichael Project, including a separate EIS process and post-EIS approvals.
1.14	Australian	Х	No
	Government funding		Yes, provide details:
1.15	Great Barrier Reef Marine Park	X	No Yes, you must also complete Section 3.1 (h), 3.2 (e)

2 Detailed description of proposed action

2.1 Description of proposed action

Overview

The NGBR Project will involve the development of an approximately 300 km long standard gauge greenfield rail line from the proposed Carmichael Project's dual gauge line in the vicinity of Mistake Creek and heading northwards to connect with supporting infrastructure (including rail loop/s and port infrastructure) at the Port of Abbot Point. The proposed NGBR Project Line will provide a more direct route to the Port of Abbot Point, bypassing the Goonyella and Newlands rail systems.

For investigative purposes, and to allow for the avoidance and/or minimisation of potential impacts on environmentally sensitive areas, a broad (1000 m wide) investigation corridor has been identified (refer Figure 1 (Appendix A)). The final alignment will be refined to a nominal 100 m wide corridor through consideration of environmental, social and geotechnical constraints.

The final corridor will accommodate all rail infrastructures, scalable to accommodate 100 Mtpa product coal transport, including but not limited to passing loops, a maintenance road, rolling stock maintenance (provisioning, fuel storage and refuelling, maintenance, etc.), water supply and pipeline, track and signalling maintenance facilities, staff crib, accommodation and training facilities and other necessary infrastructure associated with the operational functions of the Project.

Temporary construction facilities are expected to include, but not be limited to laydown areas, construction depots (warehousing, fuel storage, vehicle storage, administration facilities, etc.), sleeper manufacturing yards, construction accommodation camps, quarries and borrow pits, access tracks into the corridor and other necessary infrastructure associated with the construction functions of the Project, as required. Some temporary construction related facilitates (for example, a number of laydown areas, temporary construction camps, quarries, borrow pits and access tracks into the corridor) and some permanent operations related facilities (for example, rolling stock maintenance, provisioning and marshalling yards, fuel storage and transportation facilities including maintenance access tracks into the corridor) may require additional footprints adjacent to the corridor. While these temporary and permanent facility areas have the potential to be located beyond the final corridor, the facilities are key components of the NGBR Project and therefore will require assessment and conditions sought as part of the EIS. The final footprint of the Project, including all temporary and permanent facility areas (both within and outside of the final rail corridor), and impacts associated with construction, operation and maintenance will be assessed in the EIS.

The Project will comprise a standard gauge rail line with an operational capacity of up to 100 Mtpa. This allows for connection to Adani's proposed Carmichael Project railway line. It will also make provision for use by third parties within the Galilee Basin.

Construction Activities

The following construction activities are likely to be undertaken on the Project and will be assessed in the EIS:

- Site preparation including site clearance, establishing a number of temporary construction camps and a number of laydown areas (for the purposes of: materials laydown, warehousing, concrete sleeper manufacturing plant, fuel storage and dispensation facilities, concrete batching plant, machinery storage, etc.), installation of temporary and permanent fencing, installation of drainage and water, stormwater and wastewater management controls and construction of site access;
- Civil works including bulk earthworks, black soil treatment, construction of cuts and embankments, installation of permanent drainage controls, construction of temporary haul roads, establishment of concrete batching plants, bridge and water course crossing construction, development of quarries and borrow areas, and construction of permanent rolling stock maintenance, provisioning and marshalling yards. The temporary haul roads will be used during construction for the transport of materials (including: bulk earthworks, quarry material for ballast, rail, sleepers and fixings, water for dust suppression, etc.) and personnel along the alignment;
- Identification and establishment of water supply infrastructure. A number of options will be investigated for construction water supply such as: the use of creeks and rivers near to the alignment; construction of bores; use of existing storages such as dams that can be enlarged to increase capacity and rainfall harvesting; the construction of new dams along the alignment; and the use of recycled, potable and/or raw water from proximate townships tankered to site;

- Track works including installation of the rail, passing loops, and bad order sidings, signalling installation, communication backbone, and maintenance infrastructure facilities for track, signalling and emergency management system; and
- Haulage and transport of Project equipment, machinery, material and resources and personnel, respectively, on both internal temporary haul roads and the external road network.

The Project will also require the establishment of a maintenance access track within the proposed final corridor. The final location and design of the maintenance access track will be determined as part of the final detailed design and will be assessed in the EIS.

Construction of the NGBR Project is expected to employ a workforce of approximately 3800 construction staff at peak. Staff will be accommodated at temporary construction workers camp(s) along the alignment. Staff will be transported to and from the construction sites by means of four wheel drive vehicle and/or bus.

Operations

It is intended that the NGBR Project will operate standard gauge diesel-electric trains with around 240 wagons and four locomotives, resulting in train lengths of approximately 4,500 m and payloads of around 25,000 tonnes. Final train consist arrangements are subject to refinement and will be nominated during detailed design.

Operational capacity will be in the order of 100 Mtpa product to enable haulage of product from the Carmichael Mine and third party producers in the Galilee Basin.

Trains are expected to run 24 hours per day, year round. Trains will operate at a maximum speed of 80 km per hour when fully loaded. Conceptual operational regimes will be assessed in the EIS to determine potential impacts, in particular on air and noise sensitive receptors.

The number of train drivers required will vary depending on the cycle time, which is inherently driven by the design specification for the NGBR Project and capacity of other lines on the existing system. Approximately 125 employment opportunities will arise as a result of operation of the Project.

For the NGBR Project operations, it is anticipated that the majority of the mainline train crew will be based out of Bowen and would work in shifts while staying at the workers accommodation village at the proposed Carmichael Mine, then return to the Port of Abbot Point.

The signalling requirements for the NGBR Project will consist of a remote control signalling system with standard technology, which shall be upgraded to in cab signalling as traffic increases. It is proposed that a dedicated train control centre in Brisbane will be developed for controlling train operations, with a backup control centre at the mine end.

Generally track maintenance requirements can be split into three distinct categories: routine maintenance; major periodic maintenance; and emergency response. Maintenance teams will require facilities that are suitable to make routine maintenance cost effective, and are also able to support the major periodic maintenance or any emergency response requirements should they arise. In this regard, it is intended that the maintenance crews will utilise the rolling stock maintenance, provisioning and marshalling yards developed for the NGBR Project. It is expected that these facilities will be located toward the northern end of the investigative corridor, near to the Port of Abbot Point to minimise travelling time for the workforce and the transportation time and cost for equipment and fuel.

2.2 Alternatives to taking the proposed action

Overview

Given the current lack of direct mine to port rail systems in the Galilee Basin, coupled with the below rail capacity constraints on Aurizon (formerly QR National) networks of the Goonyella and Newlands systems and the limited potential for the existing narrow gauge railway infrastructures to serve the vast Galilee Basin in particular, there are very limited rail options available to the proponent.

The NGBR Project has been developed to largely align with the intent of, and thereby satisfy, the Queensland Government's 'Preferred Corridors Policy' announced in June 2012. This policy calls for all proposed railways, that join the Galilee Basin coal reserves with the existing rail network and/or Central Queensland coal export ports, to align with two preferred corridors; one aligned north-south and one aligned east-west. The NGBR

Project constitutes an alignment consistent with the intent of a north-south 'preferred corridor', terminating at the east-west Carmichael Project rail infrastructure around Mistake Creek in the south and Abbot Point in the north, and provides a more direct and shorter route to the growing export facilities at the Port of Abbot Point. Should the recently publicised GVK-Hancock and Aurizon partnership proceed, which appears in recent media announcements to indicate a desire on Aurizon's part to leverage its existing narrow gauge system rather than creating greenfield standard gauge capacity, this would mean the NGBR is a unique standard gauge solution for the Galilee Basin in the long term and does not conflict with the GVK-Hancock and Aurizon partnership solution.

The east-west Carmichael Rail infrastructure (dual / narrow gauge) primarily addresses the transportation need of coal from the Galilee Basin to Dudgeon Point or Abbot Point via Moranbah using the narrow gauge system of Aurizon. However, a narrow gauge system is not the ultimate commercially optimal solution for rail transport of the vast Galilee Basin coal reserves over the required haulage distances to Central Queensland export ports. As such, the Carmichael Rail infrastructure offers a short-term incremental solution that maintains port optionality, but is primarily only a medium- to long-term solution for export directly to Dudgeon Point.

Dual port capability for the export of coal is required by Adani to insure against potential force majeure conditions that may affect one of the mine-to-port supply chain routes. In addition, dual port capability will help to accommodate any future production increases from Adani and/or third-party mines in the Galilee Basin, which may exceed the capacity of one port. Adani Mining Pty Ltd is one of the two preferred proponents for development of the Dudgeon Point expansion. In addition, Adani currently owns Abbot Point Coal Terminal 1 and is proposing development of Terminal 0. Accordingly, suitable rail infrastructure is required to supply coal to both Abbot Point and Dudgeon Point for export.

Adani has, therefore, undertaken a high level desktop assessment and multi-criteria analysis to identify possible south to north rail alignments branching off from the Carmichael Project's proposed rail infrastructure near Mistake Creek heading to the Port of Abbot Point addressing the environmental, hydrological, geotechnical and civil constraints associated with each between these two points.

The preferred option for the Project is development of the proposed NGBR Project, which comprises the construction and operation of approximately 300 km of heavy haul standard gauge railway corridor connecting to the Carmichael Project's rail infrastructure (near Mistake Creek) directly with supporting infrastructure (including rail loop/s and port infrastructure, the subject of separate investigations) at the Port of Abbot Point. This preferred option will facilitate transport of up to 100 Mtpa product coal to the Port of Abbot Point, avoiding the rail infrastructure 'bottleneck' near Moranbah on the existing Goonyella system and further on the Newlands system of Aurizon.

Co-location and Co-use

Options for routing a rail corridor to the Port of Abbot Point using co-location and/or co-use opportunities have been investigated as follows:

Adani Carmichael Project

Adani is currently seeking environmental approval for the proposed Carmichael Project comprising the development of a rail infrastructure corridor between the Carmichael Mine and a connection with Aurizon's Goonyella rail system approximately 8 km south of Moranbah. The Carmichael Project rail infrastructure will enable direct transport of product coal toward the Port of Hay Point (Dudgeon Point expansion) and indirect transport toward the Port of Abbot Point via the already constrained Goonyella rail system. This would, however, be the narrow gauge system with a much lower 26.5 tonne axle load with very limited scalability over the brownfield section of Aurizon. The transportation of such a large quantity of coal over the much longer narrow gauge route would increase costs of producing the thermal coal, which in turn reduces the cost-competitiveness of Galilee basin coal in the global market. As such, the Carmichael Rail infrastructure offers a short-term incremental solution that maintains port optionality, but is primarily only a medium- to long-term solution for export directly to Dudgeon Point. So, for financial viability, a much shorter, higher tonne axle load and standard gauge route is preferable.

Waratah Coal Pty Ltd's proposed China First Project

Adani has considered developing and/or utilising a consolidated corridor with Waratah Coal Pty Ltd's proposed China First Project.

Due to long steep grades, serious contractibility challenges (such as very deep cut and fill earthworks) of this alignment through the middle of Leichardt range and uncertainty with respect to timeframes for

commencement of development for the China First Project, in addition to a more favourable and technically better route option having been identified by Adani, opportunities for co-use and/or co-alignment with the China First Project are limited.

• GVK - Hancock Coal Infrastructure Pty Ltd's proposed Alpha Coal Project

Adani has previously considered developing and/or utilising a consolidated corridor with Hancock Coal Infrastructure Pty Ltd's proposed Alpha Coal Project (Alpha).

The Alpha Railway will be operating at capacity when Adani seeks access as the railway is to be constructed to facilitate a capacity of 60 Mtpa which is fully allocated to Alpha mine (30 mtpa) and Kevin's Corner Mine (30 mtpa) to the south. As such opportunities for co-use of the railway are limited. The Alpha Railway, besides being a much longer route to Abbot Point from the northern Galilee Basin, traverses through the large flood plains of the Suttor and Bogie Rivers, which pose serious challenges for construction and maintainability of a heavy haul rail operation. Further, uncertainty with regard to timeframes and commitments around construction of the Alpha Project are a constraint to adoption of this proposal.

Aurizon Central Queensland Integrated Rail Project

Aurizon is seeking to develop an integrated rail system to service existing and proposed coal mines in the Galilee Basin. The rail system seeks to design a supply chain solution to haul coal from the Galilee Basin to relevant export terminals as efficiently as possible. The proposed Central Queensland Integrated Rail Project alignment is a narrow gauge solution connecting to already congested and less scalable network on the Newlands system. Moreover, the proposed Central Queensland Integrated Rail is a much longer, and therefore less cost-effective, route to Abbot Point, besides being an operationally less efficient narrow gauge system as compared to the heavy haul standard gauge proposed for the NGBR Project.

Opportunities to consolidate the Aurizon and Adani alignments have been explored; however, due to uncertainty with regard to Aurizon's development timelines, in addition to the above technical aspects, Adani has decided to propose the much shorter and standard gauge NGBR Project.

Do nothing

The development of the proposed NGBR Project will provide a much awaited transport solution to the vast thermal coal reserve in Galilee Basin and shall open a gateway to the development of Queensland's economy via the export of vast volumes of thermal coal through the Port of Abbot Point. The 'do nothing' option will result in increased traffic on Aurizon's Goonyella and Newlands rail systems and thus increase the 'bottleneck' situation currently being experienced on the existing rail system near Moranbah and will subsequently result in the need for an upgrade to a much larger section of the rail line with associated social and environmental disturbances. The transportation of such a large quantity of coal over the much longer narrow gauge route would increase costs of producing the thermal coal, which in turn reduces the cost-competitiveness of Galilee basin coal in the global market.

2.3 Alternative locations, time frames or activities that form part of the referred action Not applicable.

2.4 Context, planning framework and state/local government requirements

The Galilee Basin is the last undeveloped coal resource within Queensland and is expected to become the largest coal producing region in the State. The Queensland State Government recently announced its support to the development of the coal industry in the Galilee Basin and has committed to the designation of north-south and east-west common rail corridors to service coal mines in the region.

The NGBR Project has been developed to largely align with, and thereby satisfy, the Queensland Government's 'Preferred Corridors Policy' announced in June 2012. This policy calls for all proposed railways, that join the Galilee Basin coal reserves with the existing rail network and Central Queensland coal export ports, to align with two preferred corridors; one aligned north-south and one aligned east-west, The NGBR Project constitutes an alignment consistent with the intent of the north-south 'preferred corridor', while the Carmichael Project rail infrastructure alignment is consistent with the intent of the east-west 'preferred corridor'.

Management and planning for the development of Queensland's abundant coal resources now and into the future is guided by a number of key State and Federal government policy documents. The *Coal Plan 2030* (DIP

2010) is proposed to guide the development of Queensland's major coal regions and export markets over the next 20 years. The report's key findings focus on the development of regional coal resources, the growth of global markets and the need for domestic infrastructure to supply those markets.

The State Government's *Queensland Infrastructure Plan* (DLGP 2011a) was prepared to guide the development of major infrastructure toward the State's Q2 2020 objectives. The development of infrastructure to support Queensland's resources regions is a key initiative of the Infrastructure Plan. The Infrastructure Plan forecasts that the completion of a number of large thermal coal mining projects will place Queensland as one of the largest thermal coal exporters globally, in line with Queensland's current status as a major global metallurgical coal exporter. Improving rail access between the Galilee Basin and Abbot Point is a specific focus to improve current and future prospects for mining development in the region. The private sector is seen as the major proponent of such projects, a view supported by the Australian Government's *National Ports Strategy* (Infrastructure Australia 2010).

The Queensland Government's *Northern Economic Triangle Infrastructure Plan 2007 - 2012* (DEEDI 2007) (currently administered by Department of State Development, Infrastructure and Planning) is the first five year increment to achieve a 50 year commitment to ensure that critical infrastructure is provided to underpin private sector investment in industrial development and mineral processing. The expansion of the Port of Abbot Point and associated coal terminals, the development of coal processing infrastructure, and the integration of new with existing infrastructure are strategic objectives of this document.

The *Queensland Regionalisation Strategy* (DLGP 2011b) also cites the expansion of mining into the Galilee Basin as a key opportunity for the Mackay, Isaac and Whitsunday region. The *Mackay, Isaac and Whitsunday Regional Plan 2012* seeks to prevent incompatible development from occurring in key resource areas (DLGP 2012) to ensure the future development of the resources and manage the economic benefits for the region.

As per Section 2.5, Adani is currently seeking declaration of the project as a coordinated project (formerly 'significant project') under the Queensland *State Development and Public Works Organisation Act 1971* (SDPWO Act).

The NGBR Project is significant in its own right. Although related, this is separate to and distinct from the Carmichael Project (particularly the rail infrastructure components). The NGBR Project has the following attributes that characterise it as a Coordinated Project, as outlined in the Coordinator-General's guideline for preparing an IAS (DSDIP 2012):

- Is a standalone project that requires a separate financial investment decision and approvals from the Carmichael Project;
- Subject to complex approvals processes requiring Federal, State and Local government involvement;
- Requires a high level of capital expenditure, approximately \$2.2 billion;
- Provides significant employment opportunities through construction (3800) and operations (125);
- Has potential effects on infrastructure (rail and road), the environment and social values;
- Is strategically significant to the:
 - Locality reduces significant distance through rail route to Abbot Point as compared to the route via Moranbah.
 - Environment reduces significant potential rail congestion and cumulative impacts through the Goonyella and Newlands systems via Moranbah;
 - Region reduces potential congestion on the already constrained Goonyella and Newlands rail systems while increasing regional rail capacity, which shall be more operations friendly and cost effective as a result of being a heavy haul standard gauge line; and
 - State provides efficient access to the growing coal export facilities at the Port of Abbot Point (while maintaining potential for access to the Port of Hay Point (Dudgeon Point Expansion) through the related Carmichael Project).

The significance of the Project compares with rail projects of a similar scale currently being undertaken and previously undertaken in the region, which have been declared State significant projects (now coordinated projects).

A number of approvals may be required under Queensland legislation, for example:

- Material Change of Use for an Environmentally Relevant Activity (ERA) (such as extractive and screening activities; sewage treatment; water treatment);
- Resource entitlements for State resources;
- Operational works for clearing of assessable vegetation;
- Operational works for taking and interfering with water (under the Water Act 2000);
- Operational works for constructing or raising a waterway barrier (inclusive of fishway design programs);

- A Development Permit for quarrying in a watercourse;
- Cultural heritage management plans under the Aboriginal Cultural Heritage Act 2003;
- Riverine Protection Permit; and
- Permit to clear native plants.

2.5 Environmental impact assessments under Commonwealth, state or territory legislation

Adani is currently seeking declaration of the NGBR Project as a coordinated project under the SDPWO Act. It is expected that the NGBR Project will be assessed by Environmental Impact Statement (EIS), and that this will be undertaken in accordance with the Bilateral Agreement between the State of Queensland and the Commonwealth to meet the requirements of the EPBC Act and the SDPWO Act.

Queensland Assessment Officer contact details: Ms Melissa Williams Project Manager Coordinated Project Delivery Office of the Coordinator-General Department of State Development, Infrastructure and Planning Queensland Government Tel +61 7 3836 0667 Post PO Box 15517 City East Qld 4002 Level 4, 63 George Street, Brisbane

2.6 Public consultation (including with Indigenous stakeholders)

Consultation with directly affected landowners will be undertaken and a Community and Stakeholder Consultation Plan will be prepared to guide the consultation activities during the environmental assessment process. Adani has commenced notification of tenement and land holders of the proposed NGBR Project. Adani has also commenced discussions with regard to land access for investigative purposes and will continue to liaise with stakeholders throughout the EIS process. Adani has engaged with State and Commonwealth agencies.

Adani has a dedicated Stakeholder Engagement Manager responsible for liaison with the community and landholders and deal with day-to-day Project related queries.

Cultural heritage investigations for the Project have commenced. Adani has executed a Cultural Heritage Management Plan (CHMP) with the Jangga People with regard to the Carmichael Project and it is expected that this will be extended across the southern portion of the NGBR Project. A CHMP will be developed with other affected traditional owners, which are expected to include the Birri, Juru and Juru No. 2 Peoples. Adani has commenced consultation with the four Aboriginal parties for the NGBR Project Corridor in accordance with the Act. Further negotiations and investigations will be undertaken during the EIS process and matters addressed in accordance with the provisions of the Aboriginal Cultural Heritage Act 2003 as appropriate.

2.7 A staged development or component of a larger project

As outlined in Section 1.12, the NGBR Project is <u>not</u> part of a staged development or a component of a larger action.

The NGBR Project will form a separate and distinct project from the Carmichael Coal Mine and Rail Project, requiring:

- A separate financial investment decision; and
- Separate applications for State and local government approvals from the Carmichael Project, including a separate EIS and post-EIS approvals.

However, as outlined in Section 1.13, the NGBR Project is related to other actions proposed in the area, as follows:

- The NGBR Project generally aligns with the the Queensland Government's 'Preferred Corridors Policy'; and
- The NGBR Project provides a direct connection from the proposed Carmichael Coal Mine and Rail Project's rail infrastructure to QRN's Newlands rail system.

3 Description of environment & likely impacts

3.1 Matters of national environmental significance

3.1 (a) World Heritage Properties

Description

No World Heritage Properties occur within land covered by the 1000 m investigative corridor.

The Great Barrier Reef World Heritage Area (GBRWHA) does, however, lie in proximity (<500 m) to the northernmost part of the 1000 m investigative corridor near to the Port of Abbot Point. The location of the GBRWHA with respect to the investigative corridor is presented in Figure 4 (Appendix A).

The GBRWHA was designated in 1981 in recognition of the following natural universal values:

- an outstanding example representing the major stages in Earth's evolutionary history.
- an outstanding example representing significant ongoing ecological and biological processes.
- an example of superlative natural phenomena.
- containing important and significant habitats for in situ conservation of biological diversity.

The 1000 m investigative corridor crosses watercourses that flow to the GBRWHA. Major watercourses likely to be crossed include the Bowen River, Bogie River, Suttor River, Eliot River, Saltwater Creek and Splitters Creek. The majority of the study area is within the Burdekin River catchment which discharges to the GBRWHA near the town of Ayr.

Nature and extent of likely impact

The Project will not impact directly upon any World Heritage Areas, National Heritage Places or the Great Barrier Reef Marine Park.

The two closest world heritage properties to the Project are the Great Barrier Reef World Heritage Area (GBRWHA) and the Wet Tropics World Heritage Area.

The Wet Tropics World Heritage Area is located over 300 km north of the Project with no direct terrestrial, aquatic or biodiversity links to the Study Area. No influences from the Project are predicted to occur on the Wet Tropics World Heritage Area and this area has not been considered further for assessment.

The GBRWHA and Marine Park (GBRMP) are located near to the investigative corridor for the northern portion of the alignment approaching Abbot Point (Figure 4 (Appendix A)). However, for the majority of the alignment, the GBRWHA and GBRMP are over 300 km downstream of the NGBR Project and although connected aquatically via watercourses, substantial watercourse and overland barriers exist between the ocean and the Project, including the Burdekin River dam. Significant controls will be established to manage onsite and offsite water and sediment quality impacts. These measures will mitigate potential for offsite impacts to aquatic values that could affect the downstream reef environment. The distance from the GBRWHA and the extant barriers would impede site conditions from having an influence on the values for which the reef is protected. No impacts associated with the Project will result in a substantial and measurable change in the hydrological regime of the GBRWHA waters and, therefore, no effects on the GBRMP are predicted to occur. Accordingly, no impacts to the ecological, cultural or social values for which the Great Barrier Reef is recognised will occur as a result of the NGBR Project.

Ephemeral creeks bisected by the Project join a network of river systems which eventually enter the marine coastal waters of Queensland. As a result of the high location in the catchment and seasonality in rainfall for the majority of watercourses intersected by the 1000 m investigative corridor, flows within the NGBR Project area are predominantly restricted to the wetter months, November to March, with many streams and drainage channels drying entirely and larger rivers sustaining only pools or low flows by the winter months (June/July). The Burdekin River Gorge and falls and the Burdekin River Dam have influenced the ecology of the catchment by restricting aquatic fauna movement from the eastern coastal area to the upper catchment areas.

3.1 (b) National Heritage Places

Description

The Protected Matters Search Tool (Appendix B) identified the GBRWHA and GBRMP as being of relevance to the Project.

Nature and extent of likely impact

Refer 3.1 (a) for discussion on the GBRWHA and GBRMP.

3.1 (c) Wetlands of International Importance (declared Ramsar wetlands)

Description

The Protected Matters Search Tool (Appendix B) did not identify any Wetlands of International Importance of relevance to the Project.

No known wetlands of international significance (i.e. wetlands designated under the Ramsar Convention) occur within, or in the vicinity of, the 1000 m investigative corridor. The nearest wetland of international significance is the Bowling Green Bay wetland, located approximately 85 km north-north-west of Abbot Point.

Nature and extent of likely impact

Not applicable. The NGRB Project is not likely to impact any Wetlands of International Importance.

3.1 (d) Listed threatened species and ecological communities

Description

A review of relevant State and Commonwealth databases (Appendix B) including the EPBC Act Protected Matters database was undertaken to identify any listed threatened species or ecological communities potentially occurring within, and in the vicinity of, the NGBR Project's investigative corridor. Thirty-two EPBC Act listed species and three Threatened Ecological Communities (TECs) were predicted to occur, as listed in Table 1. A number of other migratory and/or marine species were identified from the EPBC Act Protected Matters search (Appendix B); however, due to the terrestrial nature of the project these species are unlikely to be directly or indirectly impacted by development of the NGBR Project. Table 1 Potential EPBC Act Listed Threatened Species and Threatened Ecological Communities

Scientific Name	Common Name	EPBC Act Status
Plants		
Acacia ramiflora	-	V
Aristida granitica	-	E
Bulbophyllum globuliforme	Miniature moss-orchid	V
Cajanus mareebensis	-	V
Croton magneticus	Magnetic Island croton	V
Cycas ophiolitica	Marlborough blue cycad	E
Dichanthium queenslandicum	King blue-grass	V
Dichanthium setosum	Bluegrass	V
Eucalyptus raveretiana	Black ironbox	V
Leucopogon cuspidatus	-	V
Omphalea celata	-	V
Ozothamnus eriocephalus	-	V
Polianthion minutiflorum	-	V
Streblus pendulinus	Siah's backbone, Sia's backbone, Isaac wood	V
Taeniophyllum muelleri	-	V
Animals		
Dasyurus hallucatus	Northern quoll	E
Delma labialis	Striped-tailed delma	V
Denisonia maculata	Ornamental snake	V
Egernia rugosa	Yakka skink	V
Erythriotriorchis radiatus	Red goshawk	V
Fregretta grallaria grallaria	White-bellied storm-petrel	V
Furina dunmalli	Dunmall's snake	V
Geophaps scripta scripta	Squatter pigeon (southern subspecies)	V
Lerista allanae	Retro slider, Allan's lerista	V
Lerista vittata	Mount Cooper striped lerista	V
Neochmia ruficauda ruficauda	Star finch (eastern), star finch (southern)	E
Paradelma orientalis	Brigalow scaly-foot	V
Phascolarctos cinereus	Koala	V
Poephila cincta cincta	Black-throated finch (southern)	E
Rhinolophus philippinensis	Greater large-eared horseshoe bat	E
Rostratula australis	Australian painted snipe	V
Xeromys myoides	Water mouse, false water rat	V
Threatened Ecological Commun	ities	
Brigalow (Acacia harpophylla domi	nant and co-dominant communities)	E
Natural Grasslands of the Queensl Basin	and Central Highlands and the Northern Fitzroy	E
Semi-evergreen vine thickets of the Bioregions	e Brigalow Belt (North and South) and the Nandewar	E

Legend: V = vulnerable E = endangered

Threatened species predicted to occur were evaluated to determine their likelihood of occurrence in or adjacent (10 km buffer) to the NGBR Project investigative corridor (the Study Area), distinguishing between species that are known, likely, possible or unlikely to occur. The likelihood of occurrence was determined based on the known habitat requirements of each species, information on their known distribution, recent historical records and information on habitats thought to be present in the Study Area. At the time of submission, surveys have not been undertaken to verify the type and quality of habitats present. More detailed information on the likelihood of occurrence and potential impacts will be determined through detailed flora and fauna surveys undertaken as part of the EIS process.

Likely to Occur

• Brigalow (Acacia harpophylla dominant and co-dominant) TEC

The Brigalow TEC comprises vegetation communities dominated or co-dominated by brigalow. Within Queensland, 16 REs are described as forming part of this TEC. All of these REs are located in the Brigalow Belt, South-East Queensland or Mulga Lands bioregions – none are located in the Desert Uplands bioregion. A number of these constituent REs are mapped within the Study Area.

• King blue-grass

King blue grass can be found throughout central Queensland on black cracking clay soils originating from Basalt, in association with other *Dichanthium* and *Bothriochloa* spp. within native grasslands and some open woodlands (Simon, 1982). This species has previously been recorded within 10 km of the proposed corridor (Wildlife Online). Suitable grassland habitat is likely to exist within the Study Area based on the species known habitat requirements and a desktop assessment of the Study Area. The Study Area is within the known distribution of the species.

• Squatter pigeon (southern)

The squatter pigeon (southern) is locally abundant within the northern part of its range (i.e. Brigalow Belt (North) and Desert Uplands Bioregions) (DSEWPaC, 2013a). It is considered to be common in grazing country north of the Tropic of Capricorn (DSEWPaC, 2013a). The species occurs in a wide range of habitats wherever there is a grassy understorey. It is often found within close proximity of water bodies (DSEWPaC, 2013a). The squatter pigeon (southern) has been historically recorded within 10 km of the proposed rail corridor (Wildlife Online). The Study Area is within the species known distribution and suitable habitat is likely to exist within the Study Area based on the species known habitat requirements and desktop assessment of the Study Area.

Ornamental snake

The ornamental snake's distribution is confined to the Brigalow Belt North bioregion and parts of the Brigalow Belt South bioregion (DSEWPaC, 2013b). This species is typically found in areas of brigalow, riverside woodland and open forest on natural levees (DSEWPaC, 2013b). Habitats featuring cracking clay and sandy substrates are known to be utilised by the species. The ornamental snake has been previously recorded within 10 km of the proposed corridor (Wildlife Online). Suitable habitat is likely to exist within the Study Area based on the species known habitat requirements and a desktop assessment of the Study Area.

Brigalow scaly-foot

The brigalow scaly-foot inhabits a variety of open forest habitats in central and south east Queensland. Acacia and eucalypt woodlands are known to be utilised by this species. The species has been recorded from habitats featuring substrates including cracking clays and sandy alluvium (DSEWPaC, 2013c). The brigalow scaly-foot has been previously recorded within 10 km of the proposed corridor alignment (Wildlife Online). The Study Area is within the species known distribution. Suitable habitat is mapped within eucalypt and Brigalow woodlands within the Study Area.

Koala

In Queensland, the species contains scattered populations throughout moist forests along the coastline, subhumid woodlands in central and southern regions and within Eucalypt woodlands along watercourses within semi-arid areas further west (Melzer *et al.*, 2000). The greatest density of koalas occur through central and eastern areas including the Brigalow Belt, Mitchell Grass Downs, Mulga lands and the Desert Uplands (Patterson, 1996). The koala has been historically recorded within 10 km of the proposed rail corridor (Wildlife Online). The Study Area is within the species known distribution and potentially suitable habitat is likely to exist within the Study Area based on species known habitat requirements and a desktop assessment of the Study area.

• Black-throated finch (southern)

This subspecies is now known from three general areas, namely Townsville, Ingham and scattered sites in central Queensland. The sub-species typically occurs in native grasslands and woodlands along creeks and riverbanks. Mosaics of habitat types that provide sufficient foraging resources (i.e. seed) through the wet season are thought to be required by this species (DSEWPaC, 2013d). The black-throated finch (southern) has been previously recorded within 10 km of the proposed railway corridor (Wildlife Online). The Study Area is within the species known distribution and potentially suitable habitat is likely to exist within the Study Area based on species known habitat requirements and a desktop assessment of the Study area.

Potential to Occur

• Natural Grasslands of the Queensland Central Highlands and the northern Fitzroy Basin TEC

The Natural Grasslands TEC is a tussock grassland community comprised of a number of native grass species throughout its range, depending upon factors such as rainfall, soil and geology. The TEC is endemic to Queensland and broadly occurs within the Fitzroy River Basin and the Brigalow Belt North bioregion. This TEC has the potential to occur in the southern part of the Study Area.

Bluegrass

In Queensland bluegrass has been reported from the Leichhardt, Morton, North Kennedy and Port Curtis regions. This species occurs in the Mistake Range, in Main Range National Park, and possibly in Glen Rock Regional Park, adjacent to the Main Range National Park (DSEWPaC, 2013e). This species has previously been recorded within 10 km of the proposed corridor (Wildlife Online). Suitable grassland habitat is likely to exist within the Study Area based on the species known habitat requirements and a desktop assessment of the Study Area. The Study Area is outside the known distribution of the species.

Red goshawk

The red goshawk prefers landscapes containing a mosaic of habitats including coastal and sub-coastal tall open forest, woodland and rainforest edges (Marchant and Higgins, 1993). Forests of intermediate density are particularly favoured, as are ecotones between variably dense habitats (i.e. ecotone between rainforest and sclerophyll forest) (DSEWPaC, 2013f). Large bird populations (the primary prey of this species) are also an important determinant of red goshawk habitat utilisation (DSEWPaC, 2013f). It generally avoids open habitats, and is only rarely encountered over agricultural land (Marchant and Higgins, 1993). Nesting occurs in tall trees within 1 km of permanent water, generally in open, biologically rich forest or woodland (Marchant and Higgins, 1993). The species is sparsely dispersed across approximately 15 per cent of coastal and sub-coastal Australia. The species occurs at low densities occupying home ranges estimated between $50 - 220 \text{ km}^2$ (DSEWPaC, 2013f). The red goshawk has not previously been recorded within the Study Area, however the Study Area is within the species known distribution and suitable habitat may exist based on a desktop assessment of the Study Area.

Australian painted snipe

The Australian painted snipe has a scattered distribution across eastern and northern Australia (DSEWPaC, 2013g). Shallow freshwater wetlands are the main habitat for the species (Marchant and Higgins, 1993). Such wetlands may include lakes, swamps, claypans, inundated / waterlogged grassland, dams, irrigated crop land and sewage ponds (Marchant and Higgings, 1993). Preferred wetland habitats boast emergent vegetation (including tussocks, grasses, sedges, rushes, reeds, canegrass and/or Melaleuca) (Marchant and Higgins, 1993). Nesting occurs amongst vegetation in or adjacent to wetlands (DSEWPaC, 2013g). This species has not previously been recorded within the Study Area, however, based on a desktop assessment, potentially suitable habitat may occur within the Study Area.

Northern quoll

Species distribution covers much of north eastern Australia, although the current range has contracted considerably such that it is now restricted to six discrete areas across northern Australia (Strahan, 1995). The species has no highly specific habitat requirements, though rocky areas associated with open woodland and open forest are considered optimal habitat (Hill and Ward, 2010). The preference for rocky habitat may be related to reduced exposure to threatening processes (i.e. vegetation clearing, fire, cane toads, reduced competition with cats) and the diversity of micro-habitats available (Hill and Ward, 2010). This species has previously been recorded within 10 km of the proposed corridor (Wildlife Online). The modelled distribution of the species, as presented in the *Referral Guidelines for the Northern Quoll Dasyurus hallucatus* (DSEWPaC, 2013h), indicates that the Study Area coincides with the modelled 'may occur' distribution area for the species. Based on a desktop assessment, suitable habitat may occur within the Study Area.

Retro slider

The retro slider occurs within the Clermont region and inhabits black to black-red soils with dense leaf litter cover or under trees, shrubs and grass tussocks (DSEWPAC, 2012b). The species has been recorded in *E. orgadophila* open woodlands, *Melaleuca bracteata* closed scrubs and forests and scattered *Bauhinia* spp. on plains (Covacevich *et al.* 1996). The retro slider has not previously been recorded within the Study Area (Wildlife Online). The modelled distribution of the species, as presented in the *Referral Guidelines for the Retro Slider Lerista allanae* (DSEWPaC 2013i) indicates that part of the study area coincides with the modelled 'may occur' distribution for the species. Based on a desktop assessment of the Study Area, suitable potential habitat may occur within the Study Area.

Dunmall's snake

Dunmall's snake occurs in central and south-east Queensland, with the northern limit of its known range extending between Yeppoon and the Expedition Range (DSEWPaC, 2011g). It inhabits open forest and woodland habitats. Brigalow growing on cracking clay and loam soils on floodplains is a known habitat for the species (DSEWPaC, 2013j). This species has not previously been recorded within the Study area. Based on a desktop assessment, potentially suitable habitat may exist within the Study Area.

Yakka skink

The yakka skink is endemic to dry open forests, woodlands and rocky areas of central and eastern Queensland. Yakka skinks live in communal borrow complexes, and often take refuge among low vegetation or under heaped dead timber, logs, rocks and in deep rock crevices (Wilson 2005; DSEWPaC, 2013k). The species occurs in a wide variety of vegetation types including poplar box (*Eucalyptus populnea*), ironbark (*Eucalyptus spp.*), brigalow (*Acacia harpophylla*), white cypress pine (*Callitris spp.*), mulga (*Acacia aneura*), bendee (*Acacia catenulata*) and lancewood (*Acacia shirleyi*) woodland and open forest (DSEWPaC, 2013k). This species has not previously been recorded within the Study area. Based on a desktop assessment potentially suitable habitat may exist within the Study Area.

Striped-tailed delma

The Striped-tailed Delma has been found in a variety of habitats, including low and tall open forests and open woodland (all with grassy understory), wet sclerophyll forest, coastal microphyll/notophyll vine forests/thickets, eucalypt forest and woodland with dense Xanthorrhoea and Acacia mid-storey to understory, spinifex, and seasonally dry tea-tree (Melaleuca viridiflora) swamp (DSEWPaC, 2013I). The striped-tailed delma has been previously recorded within 10 km of the proposed railway corridor (Wildlife Online). The Study Area is within the species known distribution and potentially suitable habitat is likely to exist within the Study Area based on species known habitat requirements and a desktop assessment of the Study area

Unlikely to Occur

• Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and the Nandewar Bioregions TEC

Semi-evergreen vine thicket TEC comprises semi-evergreen vine thickets (SEVT) in eastern Queensland and northern New South Wales. It is an extreme form of dry seasonal rainforest characterised by trees with microphyll sized leaves and the presence of bottle trees (*Brachychiton* spp.) as emergents (DSEWPaC, 2013m). Based on a desktop assessment of the *Map of the Semi-evergreen Vine thickets of the Brigalow belt (North and South) and Nandewar bioregions* (DSEWPaC, 2013m) and constituent RE mapping, no SEVT constituent REs are mapped within the Study Area.

Marlborough blue cycad

The species inhabits eucalypt open forest and woodland communities with a grassy understorey and occur on hill tops or steep slopes, at altitudes of 80-620 m above sea level. It grows on shallow, stony, red clay loams or sandy soils (Halford, 1995). This species has not previously been recorded within the Study area. However, the Study Area is within the known species distribution, and suitable habitat may exist based on a desktop assessment of the Study Area.

• Star finch (eastern), star finch (southern)

The distribution of the subspecies of the star finch is poorly known, however it is restricted to eastern Queensland (and distribution is likely to be severely fragmented (DSEWPaC, 2013n)). Areas of permanently occupied habitat or permanent populations have not been identified (DSEWPaC, 2013n). An estimate puts the extant wild population of the subspecies at 50 birds (DSEWPaC, 2013n). Habitat preferences include grasslands and grassy woodlands near water, sedgelands, swamps and wetlands (Higgins *et al.*, 2006; DSEWPaC, 2013n). The subspecies is also known from disturbed habitats including farmland (Higgins *et al.*, 2006; DSEWPaC, 2013n). This species has previously been recorded within 10 km of the proposed corridor. The subspecies has disappeared from much of its former eastern and central Queensland range, with a lack of recent records (Higgins *et al.*, 2006).

• White-bellied storm-petrel

The White-bellied Storm-Petrel occurs across sub-tropical and tropical waters in the Tasman Sea, Coral Sea and, possibly, the central Pacific Ocean (DSEWPaC, 2013o). In the non-breeding season, it reaches and forages over near-shore waters along the continental shelf of mainland Australia (DSEWPaC, 2013o). It breeds, in Australian territory, on offshore islets and rocks in the Lord Howe Island group (DSEWPaC, 2013o). It nests in crevices between large volcanic rocks, and in burrows excavated in banks (DSEWPaC, 2013o). The white-bellied storm-petrel has not previously been recorded in the Study Area. Species distribution does not include the Study Area.

Greater large-eared horseshoe bat

The greater Large-eared Horseshoe Bat is found in lowland rainforest, along gallery forest-lined creeks within open eucalypt forest, Melaleuca forest with rainforest understorey, open savannah woodland and tall riparian woodland of Melaleuca, Forest Red Gum (*E. tereticornis*) and Moreton Bay Ash (*E. tesselaris*) (DSEWPaC, 2013p). The greater large-eared horseshoe bat has not previously been recorded in the Study Area. Based on a desktop assessment potentially suitable habitat may exist within the Study Area.

Mount Cooper striped lerista

The Mount Cooper striped lerista is found in Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions, which is not predicted to occur in the Study Area (DSEWPaC, 2013q). The Mount Cooper striped lerista has not previously been recorded in the Study Area. Based on a desktop assessment potentially suitable habitat is unlikely to exist within the Study Area.

Nature and extent of likely impact

Overview

The Project will result in areas of vegetation within the final 100 m rail corridor, as well as at camp, quarry and borrow area locations, being cleared to accommodate rail construction and operational activities. This has the potential to cause localised impacts to flora and fauna including loss of habitat and resources, direct mortality of wildlife, disturbance of wildlife through increased noise, light, vibration, sedimentation, run-off, secondary impacts associated with habitat degradation such as increased edge effects, weed infestation and restricted fauna movement. Flora and fauna surveys will be undertaken as part of the EIS. These will verify RE mapping, identify habitat for listed flora and fauna and evaluate the value of the existing environments and breeding, nesting, foraging and sheltering resources for terrestrial and aquatic flora and fauna. Information from these surveys will be used to establish and implement management and mitigation measures to avoid, mitigate and/or manage potential impacts on flora and fauna. Further specific mitigation measures will be outlined in detail in an Environmental Management Plan.

Potential Impacts on Threatened Species and Ecological Communities

A detailed assessment of the potential impact on individual listed species will be provided as part of the EIS once habitats and resources have been identified through field surveys. It is anticipated that the Project will cause localised impacts on some listed species. Listed species that occur in key habitats such as grassland (i.e. squatter pigeon) and brigalow (i.e. brigalow scaly-foot, ornamental snake) may experience localised loss of habitat and resources. The extent of the impact will be assessed and informed by field survey data. REs consistent with TECs may occur within the Project footprint. Impacts on any TEC's will be assessed in the EIS once key resources and habitats for flora and fauna have been identified in field surveys.

3.1 (e) Listed migratory species **Description**

The EPBC Act Protected Matters Search (Appendix B) identified a range of EPBC Act listed migratory species that are predicted to occur in the desktop search extent encompassing the investigative corridor (as identified above in Section 3.1 [d]), including:

- Four migratory marine bird species.
- Seven migratory terrestrial bird species.
- 17 migratory wetland bird species.
- Seven migratory marine mammals.
- Seven migratory marine reptiles.
- Two migratory sharks.

Nature and extent of likely impact

From the desktop analysis, the Study Area does not intersect any wetlands or waterbodies that represent a significant breeding, nesting, roosting or foraging resource for migratory species. As such, there is not expected to be a significant impact on migratory or migratory marine species. Some foraging individuals may periodically utilise the Study Area, however no significant resources are on or adjacent to the NGBR Project investigative corridor. Consequently, impacts are expected to be minimal.

While it is unlikely that any migratory species will be adversely affected, EIS studies will fully investigate the nature and extent of any potentially significant indirect impacts on habitats that may support listed migratory species – in particular the Caley Valley wetland and GBRWHA. Where significant impacts are identified, mitigation measures will be included as part of the NGBR Project environmental management plan to avoid, minimise, manage, and offset these, as and where appropriate.

Potential significant impacts on listed migratory species may include the loss, fragmentation or degradation of habitat used by these animals on a seasonal, semi-permanent or permanent basis. Habitat areas that may be of importance to migratory species in the wider landscape in which the investigative corridor occurs include:

- Caley Valley wetland
- GBRWHA and GBRMP
- Bowen River: Birralee Pelican Creek wetland aggregation
- Burdekin- Bowen Junction and Blue Valley Weir aggregation
- Southern Upstart Bay.

Of the areas listed above, the northernmost part of the investigative corridor passes adjacent to, but will not intersect, the Caley Valley wetland, and is within close proximity of the GBRWHA and GBRMP.

3.1 (f) Commonwealth marine area

(If the action is <u>in</u> the Commonwealth marine area, complete 3.2(c) instead. This section is for actions taken outside the Commonwealth marine area that may have impacts on that area.)

Description

The NGBR Project is wholly terrestrial in nature, and therefore not within, and will not impact upon, any Commonwealth marine area.

NB: The Protected Matters Search Tool (Appendix B) identified one Commonwealth marine area of relevance to the Project (EEZ and Territorial sea) due to the 10 km buffer used to ensure a holistic PMST Report for the remainder of the 1000 m investigative corridor.

Nature and extent of likely impact

Not applicable.

3.1 (g) Commonwealth land

Description

The proposed NGBR Project is not on, and will not impact upon, Commonwealth land. The Protected Matters Search Tool (Appendix B) did not identify any impacts on Commonwealth land associated with the Project.

Nature and extent of likely impact

Not applicable.

3.1 (h) The Great Barrier Reef Marine Park Description

The GBRMP lies adjacent to the Port of Abbot Point, although the port area has been excluded from the Marine Park. The northernmost part of the investigative corridor is in the vicinity of the GBRMP (<500 m) but only in a limited area approaching Abbot Point.

The location of the GBRMP boundary with respect to the investigative corridor is presented in Figure 4 (Appendix A).

Nature and extent of likely impact

The proposed NGBR Project is wholly terrestrial and therefore not within, and will not impact directly upon, the GBRMP.

Refer 3.1 (a) for discussion on the GBRWHA and GBRMP.

3.2 Nuclear actions, actions taken by the Commonwealth (or Commonwealth agency), actions taken in a Commonwealth marine area, actions taken on Commonwealth land, or actions taken in the Great Barrier Reef Marine Park

3.2 (a)	Is the proposed action a nuclear action?	Х	No
			Yes (provide details below)
	The second	la a sur la al	la

If yes, nature & extent of likely impact on the whole environment

3.2 (b)	Is the proposed action to be taken by the	Х	Νο
	commonwealth or a commonwealth		Yes (provide details below)
-	agency:		

If yes, nature & extent of likely impact on the whole environment

3.2 (c)	Is the proposed action to be taken in a							Х	No	No								
	Commonwealth marine area?						Yes	(provide	details bel	low)								
			-			<u> </u>									1 11.1		a ((0))	

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(f))

3.2 (d)	Is the proposed action to be taken on	Х	No
	Commonwealth land?		Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(g))

3.2 (e)	Is the proposed action to be taken in the	Х	Νο
	Great Barrier Reef Marine Park?		Yes (provide details below)

If yes, nature & extent of likely impact on the whole environment (in addition to 3.1(h))

3.3 Other important features of the environment

3.3 (a) Flora and fauna

The NGBR Project investigative corridor is situated within the Brigalow Belt North Bioregion. The sub-humid to arid climate of the bioregion supports a variety of woodland habitats, dominated by eucalypts and acacias (Australian Natural Resource Atlas (ANRA), 2009a). Beyond the characteristic woodland habitats of the region, riparian habitats associated with ephemeral and perennial waterways, wetlands (natural and artificial), and elevated areas associated with hilly terrain are likely to represent important habitat features in the landscape.

Historically, the Brigalow Belt North Bioregion has been subject to extensive broadscale clearing due to land development (i.e. agriculture) and mining practices. Nonetheless, much of the landscape retains (fragmented) remnant vegetation coverage, and areas of remnant vegetation are intersected by the investigative corridor. Areas in which remnant vegetation persist are likely to support a higher diversity of species due to the higher relative diversity of resources, microhabitats and niches when compared with more homogenous, modified landscapes (i.e. cleared agricultural land). Particularly valuable habitat is likely to occur where large stands of remnant vegetation occur, and where these stands retain connectivity across the landscape. An estimated 1.18% of the bioregion is reserved in the protected area estate (ANRA, 2009a).

Remnant vegetation, as depicted by DERM's RE (Version 6, 2010) mapping layer, for the landscape in which the investigative corridor occurs, is presented in Figure 6 (Appendix A).

Beyond EPBC Act listed threatened flora and fauna species predicted to occur, a query of the Queensland Wildlife Online database was undertaken, as presented in Appendix B, to characterise the broad biodiversity values of the landscape, based on species that have been previously recorded from the desktop search extent.

The Wildlife Online results, as summarised in Table 2, indicate that the landscape supports a wide diversity of common native flora and fauna species, with a moderate diversity of introduced species (especially plants) and a limited number of threatened species. The NGBR Project EIS will seek to characterise the diversity of flora and fauna species occurring within or of relevance to the investigative corridor, through detailed desktop studies and targeted field surveys. The condition, value and extent of habitats for flora and fauna will be determined, such that the direct and indirect impacts (including potentially significant impacts) arising from the NGBR Project can be identified, and appropriately avoided, mitigated or managed, and offset, as and where required.

	Number of species
Total Species	24 amphibians
	316 birds
	12 fish
	56 mammals
	93 reptiles
	13 fungi
	1431 plants
Threatened species*	1 amphibian
	14 birds
	6 reptiles
	17 plants
EPBC Act-listed Migratory and listed Marine birds	42 listed Migratory and listed Migratory/Marine
	87 listed Marine
Introduced species	1 amphibian
	8 birds
	1 fish
	8 mammals
	1 reptile
	212 plants
Charles listed as threatened under the Commonwealth EDBC Act an	d/ar Quaandand NC Act

Table 2 Wildlife Online database search results

Species listed as threatened under the Commonwealth EPBC Act and/or Queensland NC Act

3.3 (b) Hydrology, including water flows

The NGBR Project investigative corridor is situated within the Burdekin River Catchment. The Burdekin River Catchment contains a number of sub-catchments within the Study Area, specifically comprising the catchments of the Burdekin, Bowen, Suttor, Belyando and Elliot Rivers and Mistake Creek. The investigative corridor crosses several named water courses, and a number of unnamed, ephemeral water courses. Figure 4 (Appendix A) provides an overview of water resources within the Study Area.

Wetlands in the Brigalow Belt North Bioregion are generally classed as being in "fair" condition (ANRA, 2009b). An assessment of wetlands in the region (as presented in the Directory of Important Wetlands) identified numerous threatening processes leading to the declining conditions of wetlands in the area. Key threatening processes include broadscale vegetation clearing, grazing pressure, exotic weeds, and changed hydrology (ANRA, 2009b).

Studies undertaken as part of the Project EIS will seek to characterise water courses within or of relevance to the investigative corridor. In particular, those waterways that may be exposed to direct or indirect impacts will be assessed through the Project EIS such that strategies to avoid, mitigate, manage, and offset, potential impacts (including potential significant impacts to MNES) can be developed as and where required.

3.3 (c) Soil and Vegetation characteristics

The soil types across the Study Area vary considerably and are expected to include a wide variety of chromosols, dermosols, hydrosols, kandosols, rudosols, sodosols, tenosols and vertosols (refer Figure 5 (Appendix A)). Low-lying inland areas are expected to include cracking/expansive clay soils. Acid sulphate soils have the potential to be present in the Abbot Point area below five metres Australian Height Datum (<5mAHD). Field investigations of acid sulphate soils are not proposed as part of the EIS as adequate information is expected to be available from EIS studies undertaken in the area for other projects. Recommendations will be made for further investigations, as required, prior to or during construction.

The investigative corridor crosses a large number of geological formations. The geology of the Brigalow Belt North Bioregion is characterised by:

- Permian volcanics and Permian-Triassic sediments of the Bowen and Galilee Basins.
- Carboniferous and Devonian sediments and volcanics of the Drummond Basin and coastal blocks.
- Cambrian and Ordovician rocks of the Anakie inlier and associated Tertiary deposits (ANRA, 2009a).

Geotechnical investigations and assessments will be conducted during the EIS to facilitate rail design and construction in accordance with geological conditions.

Despite widespread landscape modification to facilitate agriculture and mining, remnant vegetation still persists across parts of the landscape in which the investigative corridor is located (refer to remnant vegetation regional ecosystems (RE) mapping presented in Figure 6 (Appendix A)). As stated in Section 3.3(a) above, the subhumid to arid climate of the Brigalow Belt North Bioregion supports a variety of woodland habitats, dominated by eucalypts and acacias. The characteristics of vegetation assemblages across the landscape will be determined by land use, geology, topography, and proximity to waterways among other variables.

3.3 (d) Outstanding natural features

The Study Area is typically rural in nature. The NGBR Project will traverse an area typically covered by farmland, predominantly livestock. The northernmost part of the investigative corridor is located near the GBRWHA which is designated, in part, for its outstanding values in terms of heritage and the natural world, (refer Section 3.1(a)). The GBRMP is also designated a National Heritage Place (refer Section 3.1(b)).

Preliminary desktop studies have not identified any other outstanding natural features within or of relevance to the NGBR Project investigative corridor.

3.3 (e) Remnant native vegetation

A number of REs are mapped within the NGBR Project investigative corridor, including endangered REs and of concern REs (as listed under the Queensland *Vegetation Management Act 1999*). It is important to note that RE mapping is developed through a desktop process via spectral analysis of satellite imagery. RE mapping can be incorrect, particularly in areas that have not been groundtruthed in recent surveys. The mapping here is indicative only.

Figure 6 (Appendix A) shows REs as mapped within the Study Area.

3.3 (f) Gradient (or depth range if action is to be taken in a marine area)

The topography traversed by the NGBR Project varies across the investigative corridor, however, is dominated by gentle undulating slopes with slight rises and shallow depressions. In addition, the NGBR Project traverses the Leichardt Range in the south and the Clarke Range in the north. The final rail corridor will intersect a number of waterways and smaller ephemeral streams.

Figure 7 (Appendix A) shows the topography within the Study Area.

3.3 (g) Current state of the environment

The existing environment is rural, predominately covered by farmland used for cattle grazing. Small, scattered areas of remnant vegetation exist.

3.3 (h) Commonwealth Heritage Places or other places recognised as having heritage values

There are no Commonwealth Heritage Places within the investigation corridor.

3.3 (i) Indigenous heritage values

Cultural heritage investigations for the Project have commenced. Adani has executed a Cultural Heritage Management Plan (CHMP) with the Jangga People with regard to the Carmichael Project and it is expected that this will be extended across the southern portion of the NGBR Project. A CHMP will be developed with other affected traditional owners, which are expected to include the Birri, Juru and Juru No. 2 Peoples. Adani has commenced consultation with the four Aboriginal parties for the NGBR Project Corridor in accordance with the Act. Further negotiations and investigations will be undertaken during the EIS process and matters addressed in accordance with the provisions of the Aboriginal Cultural Heritage Act 2003 as appropriate.

A Native Title search has been undertaken on properties potentially impacted by the investigative corridor. The search indicated that part of the proposed corridor is located within the external boundaries of the Jangga People (QUD6230/98, QC98/10), Birri People (QUD6244/1998, QC98/12), Juru People (QUD554/2010, QC10/5) and Juru People No.2 (QUD07/2012, QC12/1) registered native title claims. Adani is in discussions with the Jangga People regarding the Carmichael Project and the NGBR Project. Indigenous Land Use Agreements and extinguishment assessments will be progressed with all relevant native title claimants. Adani will continue to engage with the Jangga, Birri and Juru Peoples, and any others as identified.

3.3 (j) Other important or unique values of the environment

Nairana National Park (~10 km west), Mount Abbot National Park (~15km west) and Mount Aberdeen National Park (~7km east) are located in the region of the NGBR Project. A Great Barrier Reef Wetland Protection Area associated with the Caley Valley Wetland is located adjacent the investigative corridor approaching Abbot Point. Figure 8 (Appendix A) shows the location of these environmental features relative to the Project location.

3.3 (k) Tenure of the action area (eg freehold, leasehold)

Refer to Section 1.6 for Lot on Plan and tenure descriptions.

Figure 2 and Figure 3 (Appendix A) show land tenure and land use, respectively, traversed by the NGBR Project.

3.3 (I) Existing land/marine uses of area

The proposed investigation corridor traverses an area typically covered by farmland, predominantly livestock. The rail is expected to intersect Eaglefield Road and Pasha Road and one stock route (M399BELY03) is traversed by the Project and may be affected.

The proposed rail corridor traverses land administered by two tiers of government (local and state) and involves freehold and leasehold land (refer Sections 1.6 and 3.3 (k)).

3.3 (m) Any proposed land/marine uses of area

The NGBR Project crosses a series of permanent and ephemeral water bodies, including Bowen River, Bogie River, Elliot River, Pelican Creek and Suttor River. The investigative corridor intersects a number of major roads, including the Bruce Highway, Suttor Developmental Road, Bowen Developmental Road, Gregory Developmental Road, Kilcummin-Diamond Downs Road, Cerito Road, Strathmore Road and Strathalbyn Road. Other minor roads and tracks will likely also be traversed. Crossing treatments are expected to be a combination of grade-separated and at-grade crossings, dependent on the level of risk, level of traffic, nature and size of the road being traversed. Six stock routes are also expected to be intersected.

A section of the investigative corridor enters the Abbot Point State Development Area and runs parallel with an existing Aurizon rail corridor approaching existing and proposed coal export facilities at the Port of Abbot Point.

4 Measures to avoid or reduce impacts

Route Selection through Multi-Criteria Analysis

Environmental values have been included in a Multi-Criteria Analysis to identify the rail alignment that provides an optimal environmental, social, cultural, economic and technical outcome.

Adani has undertaken a high level desktop assessment and Multi-Criteria Analysis to identify possible northsouth rail alignments addressing the environmental, hydrological, geotechnical and civil constraints associated with each between Mistake Creek and supporting infrastructure at the Port of Abbot Point.

Environmental considerations included:

- River and waterway crossings;
- Topography and landforms;
- REs, in particular endangered and of concern (REs), high value regrowth vegetation and Essential Habitat;
- The presence of other infrastructure (including homesteads and settlements), mining and exploration lease and permit boundaries, coal resource areas, roads, power lines and pipelines; and
- Strategic Cropping Land.

The Multi-Criteria Analysis identified the proposed 1000 m investigation corridor as the most suitable corridor for development of a heavy haul standard gauge rail alignment.

Environmental Management Plans

An Environmental Management Plan (EMP) will be prepared for the NGBR Project and will include:

- Description of the environmental values and potential impacts to the values from the NGBR Project;
- Assessment of adverse or beneficial impacts will consider:
 - The magnitude of any impact in relation to the environmental value being affected;
 - The severity of any adverse effects or scale of any positive benefits;
 - The likely duration of impact (i.e. whether it is likely to last through the construction phase, until the end of operation or a permanent impact);
 - An indication of the level of uncertainty and any assumptions used to address the uncertainty in any of the proposed commitments to protect environmental values.
- Environmental objectives, targets and indicators will be developed to reflect acceptable standards of management for development of the rail infrastructure;
- Environmental controls and management measures proposed for the NGBR Project based on recommendations made in the assessment process and accepted standards of environmental management for rail projects in Queensland and Australia. Environmental controls and proposed conditions will address:
 - Flora, fauna and communities, protecting threatened species and limiting impact on species diversity;
 - Air emissions including control of dust levels;
 - Noise and vibration including ameliorating noise impact on sensitive receptors;
 - Surface water, including mechanisms to control run-off and contain discharges on the site;
 - Groundwater including protection of sub-surface flows and protection from contamination;
 - Waste management and minimisation;
 - Land management and rehabilitation;
 - Community and social amenity.

A hierarchical approach to managing impacts will be employed for the NGBR Project, being in order of preference: avoidance, mitigation and offsetting.

Considered alternatives presented in Section 2.2 are projects subject to their own, separate environmental assessments and are not discussed further here.

5 Conclusion on the likelihood of significant impacts

5.1 Do you THINK your proposed action is a controlled action?



No, complete section 5.2

Yes, complete section 5.3

5.2 Proposed action IS NOT a controlled action.

Not applicable.

5.3 Proposed action IS a controlled action

Matters likely to be impacted

World Heritage values (sections 12 and 15A)
National Heritage places (sections 15B and 15C)
Wetlands of international importance (sections 16 and 17B)
Listed threatened species and communities (sections 18 and 18A)
Listed migratory species (sections 20 and 20A)
Protection of the environment from nuclear actions (sections 21 and 22A)
Commonwealth marine environment (sections 23 and 24A)
Great Barrier Reef Marine Park (sections 24B and 24C)
Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
Protection of the environment from Commonwealth actions (section 28)
Commonwealth Heritage places overseas (sections 27B and 27C)

Rationale - matters LIKELY to be impacted

At this stage (desktop assessment) it is uncertain whether there will be a significant impact on listed threatened species and communities and listed migratory species. However, given the likelihood of occurrence assessments and the predicted potential for species and/or species habitat to be impacted by the proposed rail infrastructure, there is the potential to impact on listed species and TECs. For this reason the proposed action is considered a Controlled Action and will seek development approval through the EIS process. More information on the threats to specific resources for listed fauna and flora will be identified in field surveys and documented in the EIS.

Rationale - matters NOT LIKELY to be impacted

The extensive 1000 m investigative corridor, to be refined to a final rail corridor of nominal 100 m width, does not intersect with and/or does not impact directly upon any of the following matters:

- World Heritage values (sections 12 and 15A)
- National Heritage places (sections 15B and 15C)
- Wetlands of international importance (sections 16 and 17B)
- Protection of the environment from nuclear actions (sections 21 and 22A)
- Commonwealth marine environment (sections 23 and 24A)
- Great Barrier Reef Marine Park (sections 24B and 24C)
- Protection of the environment from actions involving Commonwealth land (sections 26 and 27A)
- Protection of the environment from Commonwealth actions (section 28)
- Commonwealth Heritage places overseas (sections 27B and 27C).

While potential exists for indirect and/or consequential impacts on certain MNES from the related development of Port infrastructure at the Port of Abbot Point, these MNES are already subject to separate assessment via an EIS process – refer to EPBC 2011/6194. The matters considered therein, which are unlikely to be impacted by the land-based nature of the NGBR Project and therefore do not require further assessment via this EIS process, relate primarily to the following MNES:

- World Heritage values (sections 12 and 15A)
- Commonwealth marine environment (sections 23 and 24A)

• Great Barrier Reef Marine Park (sections 24B and 24C).

6 Environmental record of the responsible party

	Yes	No
Does the party taking the action have a satisfactory record of responsible environmental management?	х	
Provide details Adani has not been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. Since establishing in Australia, Adani has sought to deliver community benefit from its business involvement.		
Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?		Х
If yes, provide details Not applicable.		
If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework?	х	
If yes, provide details of environmental policy and planning framework Adani's Environmental Management System is consistent with the principles of ISO 14001, including provisions for monitoring and continuous improvement of environmental performance.		
Adani operates under an Environment and Sustainability Policy as attached in Appendix C.		
Has the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?	х	
Provide name of proposal and EPBC reference number (if known) Adani Mining Pty Ltd		
 Carmichael Coal Mine and Rail Project - Reference Number: 2010/5736 		
Abbot Point Terminal Pty Ltd		
Abbot Point Coal Terminal 0 Reference Number: 2011/6194		
	Does the party taking the action have a satisfactory record of responsible environmental management? Provide details Adani has not been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. Since establishing in Australia, Adani has sought to deliver community benefit from its business involvement. Has either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources? If yes, provide details Not applicable. If the party taking the action is a corporation, will the action be taken in accordance with the corporation's environmental policy and planning framework? Adani S Environmental Management System is consistent with the principles of ISO 14001, including provisions for monitoring and continuous improvement of environmental performance. Adani operates under an Environment and Sustainability Policy as attached in Appendix C. Has the party taking the action previously referred an action under the EPBC Act; or been responsible for undertaking an action referred under the EPBC Act? Provide name of proposal and EPBC reference number (if known) Adani Mining Pty Ltd Carmichael Coal Mine and Rail Project - Reference Number: 2010/5736 Abbot Point Coal Terminal 0 Reference Num	YesDoes the party taking the action have a satisfactory record of responsibleXProvide details Adani has not been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources. Since establishing in Australia, Adani has sought to deliver community benefit from its business involvement.XHas either (a) the party proposing to take the action, or (b) if a permit has been applied for in relation to the action, the person making the application - ever been subject to any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources?XIf yes, provide details Not applicable.XXIf yes, provide details of environmental policy and planning framework Adani's Environmental Management System is consistent with the principles of ISO 14001, including provisions for monitoring and continuous improvement of environmental performance.XAdani operates under an Environment and Sustainability Policy as attached in Appendix C.XHas the party taking the action previously referred an action under the EPBC Act, or been responsible for undertaking an action referred under the EPBC Act?XProvide name of proposal and EPBC reference number (if known) Adani Mining Pty LtdAdani Project - Reference Number: 2010/5736XAbbot Point Coal Terminal 0 Reference Number: 2011/6194Abbot Point Coal Terminal 0 Reference Number: 2011/6194

7 Information sources and attachments

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7.2 Reliability and date of information

All reference material is listed above. These sources are considered to be reliable and accurate.

7.3 Attachments

		\checkmark	
		attached	Title of attachment(s)
You must attach	figures, maps or aerial photographs showing the project locality (section 1)	\checkmark	Appendix A
			Figure 1
	figures, maps or aerial photographs showing the	\checkmark	Appendix A
	location of the project in respect to any matters of national environmental significance or important features of the environments (section 3)		Figures 2 - 8
If relevant, attach	copies of any state or local government approvals and consent conditions (section 2.5)	-	
	copies of any completed assessments to meet state or local government approvals and outcomes of public consultations, if available (section 2.6)	-	
	copies of any flora and fauna investigations and	\checkmark	Appendix B
	surveys (section 3)		Protected Matters and Wildlife Online database search results.
	technical reports relevant to the assessment of impacts on protected matters that support the arguments and conclusions in the referral (section 3 and 4)	-	
	report(s) on any public consultations undertaken, including with Indigenous stakeholders (section 3)	-	
	Adani Environmental and Sustainability Policy	\checkmark	Appendix C

8 Contacts, signatures and declarations

Project title: North Galilee Basin Rail

8.1 Person proposing to take action

Name	Yogendra Sharma		
Title	Director, Rail, Australia		
Organisation	Adani Mining Pty Ltd		
ACN / ABN (if applicable)	27 145 455 205		
Postal address	GPO Box 2569 Brisbane, QLD, 4001		
Telephone	07 3223 4800		
Email	Yogendra.Sharma@adani.com		
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that giving false or misleading information is a serious offence. I agree to be the proponent for this action. I acknowledge that I may be liable for fees related to my proposed action following the introduction of cost recovery under the EPBC Act.		
Signature	Date		

8.2 Person preparing the referral information (if different from 8.1) Individual or organisation who has prepared the information contained in this referral form.

Name	Michael Campbell
Title	Principal Environmental Scientist
Organisation	Adani Mining Pty Ltd (secondment from Hyder Consulting)
ACN / ABN (if applicable)	27 145 455 205
Postal address	GPO Box 2569 Brisbane, QLD, 4001
Telephone	07 3223 4800
Email	michael.campbell@adani.com
Declaration	I declare that to the best of my knowledge the information I have given on, or attached to this form is complete, current and correct. I understand that wilfully giving false or misleading information is a serious offence.
Signature	Date

REFERRAL CHECKLIST

NOTE: This checklist is to help ensure that all the relevant referral information has been provided. It is not a part of the referral form and does not need to be sent to the Department.

HAVE YOU:

Completed all required sections of the referral form?

- Included accurate coordinates (to allow the location of the proposed action to be mapped)?
- Provided a map showing the location and approximate boundaries of the project area?
- Provided a map/plan showing the location of the action in relation to any matters of NES?
- Provided complete contact details and signed the form?
- Provided copies of any documents referenced in the referral form?
- Ensured that all attachments are less than two megabytes (2mb)?
- Sent the referral to the Department (electronic and hard copy preferred)?

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Appendix A Figure 1 Locality

Appendix A Figure 2 Land Tenure

Appendix A Figure 3 Land Use

Appendix A Figure 4 Water Resources

Appendix A Figure 5 Soils

Appendix A Figure 6 Regional Ecosystems

Appendix A Figure 7 Topography

Appendix A Figure 8 Environmental Features

Appendix B1 EPBC Protected Matters Report

Appendix B2 Wildlife Online

Appendix C Adani Environment and Sustainability Policy