


Adani Mining Pty Ltd

NORTH GALILEE BASIN RAIL PROJECT

Environmental Impact Statement

Chapter 3 Land use and tenure

November 2013

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3. Land use and tenure

3.1 Purpose of chapter

The purpose of this chapter is to assess the potential impacts of the North Galilee Basin Rail Project (NGBR Project) on land use and tenure as well as propose mitigation and management measures to minimise the identified impacts. It provides an overview of the existing environment, methodology for assessing impacts, and relates directly to the Terms of Reference (TOR) relevant to land use and tenure. A table cross referencing the TOR is provided in Volume 2 Appendix K TOR Cross-reference.

A detailed existing environment report for land use and tenure is provided in Volume 2 Appendix C Land use and tenure. The existing environment report is summarised within this chapter.

All mitigation and management measures identified within this chapter are included within Volume 2 Appendix P Environmental management plan framework.

3.2 Methodology

3.2.1 Study area

The study area for the land use and tenure assessment has two components:

- **Regional study area** – defined by the boundaries of the Abbot Point State Development Area (APSDA), the Whitsunday Regional Council (WRC) and the Isaac Regional Council (IRC) which contains the preliminary investigation corridor (nominally1,000 m wide). Approximately 20 km of the preliminary investigation corridor is located within the APSDA, approximately 240 km will be located within the WRC local government area (LGA) and 40 km located in IRC LGA.
- **Local study area** – defined by the NGBR Project final rail corridor (nominally 100 m wide) and immediately adjacent parcels of land, infrastructure, communities and land use. The local study area includes the 64 properties intersected by the final rail corridor comprising of 27 leasehold lots, 36 freehold lots and one lot designated as 'Unallocated State Land'. Key communities in the local study area are considered to be Bowen, Collinsville and Moranbah.

3.2.2 Legislation

Legislation relevant to this land use and tenure assessment is as follows:

- *Sustainable Planning Act 2009* and *Sustainable Planning Regulation 2009*
- *Transport Infrastructure Act 1994*
- *Land Act 1994*
- *Mineral Resources Act 1989*
- *Nature Conservation Act 1992*
- *Vegetation Management Act 1999* and *Vegetation Management Regulation 2000*
- *Stock Route Network Management Bill 2011*
- *Land Protection (Pest and Stock Route Management) Act 2002*

- *Transport Planning and Coordination Act 1994*.

An explanation of the above legislation and how it applies to the NGBR Project is provided in Volume 1 Chapter 20 Legislation and approvals.

3.2.3 Desktop assessment

Existing land use and tenure within the study area was determined via desktop assessment that included the following activities:

- Review of the North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013) and determination of the study area
- Review of primary data to determine the environmental values of the study area such as land use, tenure, utilities and transport infrastructure networks, population statistics and forecasts
- Discussion with state and local government agencies
- Review of secondary Environmental Impact Statement reports to supplement an understanding of the environmental values of the study area
- Documentation and mapping of the environmental values of the study area.

The methodology for the assessment of potential impacts of the NGBR Project on land use and tenure was undertaken in accordance with the impact assessment methodology outlined in Volume 1 Chapter 1 Introduction.

3.3 Existing environment

3.3.1 Regional context

The preliminary investigation corridor occurs within the Brigalow Belt bioregion and the Burdekin Basin. The Burdekin Basin covers approximately 130,057 km^2 of north-east and central Queensland. Agriculture is the dominant land use in the Burdekin Basin (Dight 2009), where cattle grazing and cropping (predominantly sugar cane) account for 87 per cent of land use within the catchment (Dight 2009).

The majority of the preliminary investigation corridor occurs within the WRC LGA, with the southern portion occurring within the IRC LGA, and the northern portion occurring in the APSDA (refer Figure 3-1).

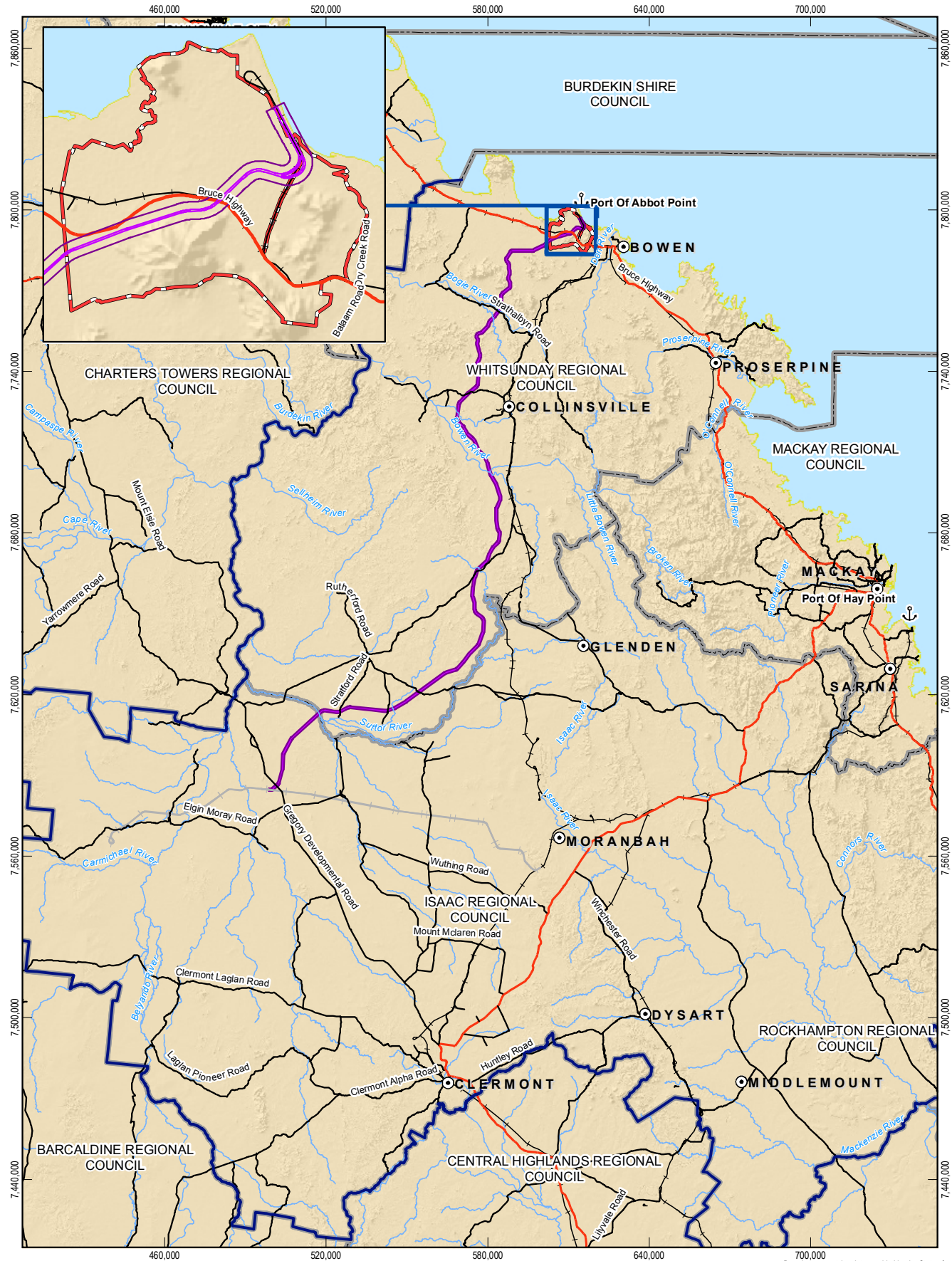
Table 3-1 Regional context

LGA	Total area	Population (2011)	NGBR Project preliminary investigation corridor (km)
Abbot Point State Development Area	160 km^2	n/a	20 km
Whitsunday Regional Council	23,871 km^2	35,500	240 km
Isaac Regional Council	58,862 km^2	23,000	40 km

The APSDA enables the State to facilitate and effectively manage the planned development and operation of the area and associated infrastructure for industrial purposes of regional, State and national significance (Queensland Government 2012). Approximately 20 km of the preliminary investigation corridor is located within the APSDA between the southern boundary of the Port of Abbot Point and the south western boundary of the state development area (refer to Figure 3-1).

The IRC LGA contains a substantial portion of the Bowen Basin coal reserve which has triggered intensive mining operations in the region. Additionally, a well-established agricultural industry operates in the region, comprising particularly pastoral farming, dry land grain cropping, and horticulture. National parks, state forest and wetlands also form part of the IRC LGA.

The importance of the WRC LGA lies in its location as the gateway to the World Heritage listed Great Barrier Reef and 74 tropical islands. This strategic location has driven the development of tourism industry followed by agriculture (horticulture and sugarcane); more recently, the infrastructure upgrades at the Port of Abbot Point have stimulated the growth in mining and industrial growth such as transport related industries and small scale manufacturing (Queensland Government 2012).



LEGEND

- Population Centres
- Major Port
- Mackay Isaac Whitsunday Boundary
- Highway
- Main Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Abbot Point State Development Area Boundary
- Local Government Area
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:2,000,000 Paper Size A4

0 15 30 60

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number	41-26457
Revision	B
Date	26 Sep 2013

Regional Land Use Categories

Figure 3-1

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Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010; Local Government Area/2011, Abbot Point SDA/2011. Created by:MS

3.3.2 Local context

Local communities

Key towns within the WRC and IRC LGAs relevant to the development and operation of the NGBR Project include:

- Bowen – a commercial, business, service and administrative hub for the northern section of the WRC and the largest town in the LGA. Bowen's local economy is based on a nationally significant horticulture industry, commercial fishing, aquaculture and a major salt processing facility (Queensland Government 2012). There are a number of emerging economic opportunities for Bowen and its surrounds due to the expansion of the Port of Abbot Point (approximately 20 km from Bowen). Opportunities include export of bulk commodities, large-scale industrial development, freight and logistics (Queensland Government 2012).
- Collinsville – located in the Bowen Shire area of the WRC, about 270 km north-west of Mackay. Collinsville serves as the WRC's main mining centre (Whitsunday Regional Council 2013b). Collinsville services the local community and the surrounding district with commercial, administrative, health and educational facilities and services. Expansion of Collinsville is limited by adjacent mining tenures, proximity to the Newlands rail line and other constraints, such as flooding.
- Moranbah – located 150 km south-west of Mackay. Moranbah services the surrounding coal mining industry and associated support industries. Moranbah was originally established as a purpose built mining town in the early 1970s, and is the major regional activity and service centre for the mining and gas industries in the IRC LGA (DLGP 2011a).

Refer to Volume 1 Chapter 16 Social and economic impacts for further discussion regarding local communities.

3.3.3 Tenure

Freehold and leasehold tenure

The NGBR Project final rail corridor traverses a total of 64 properties including:

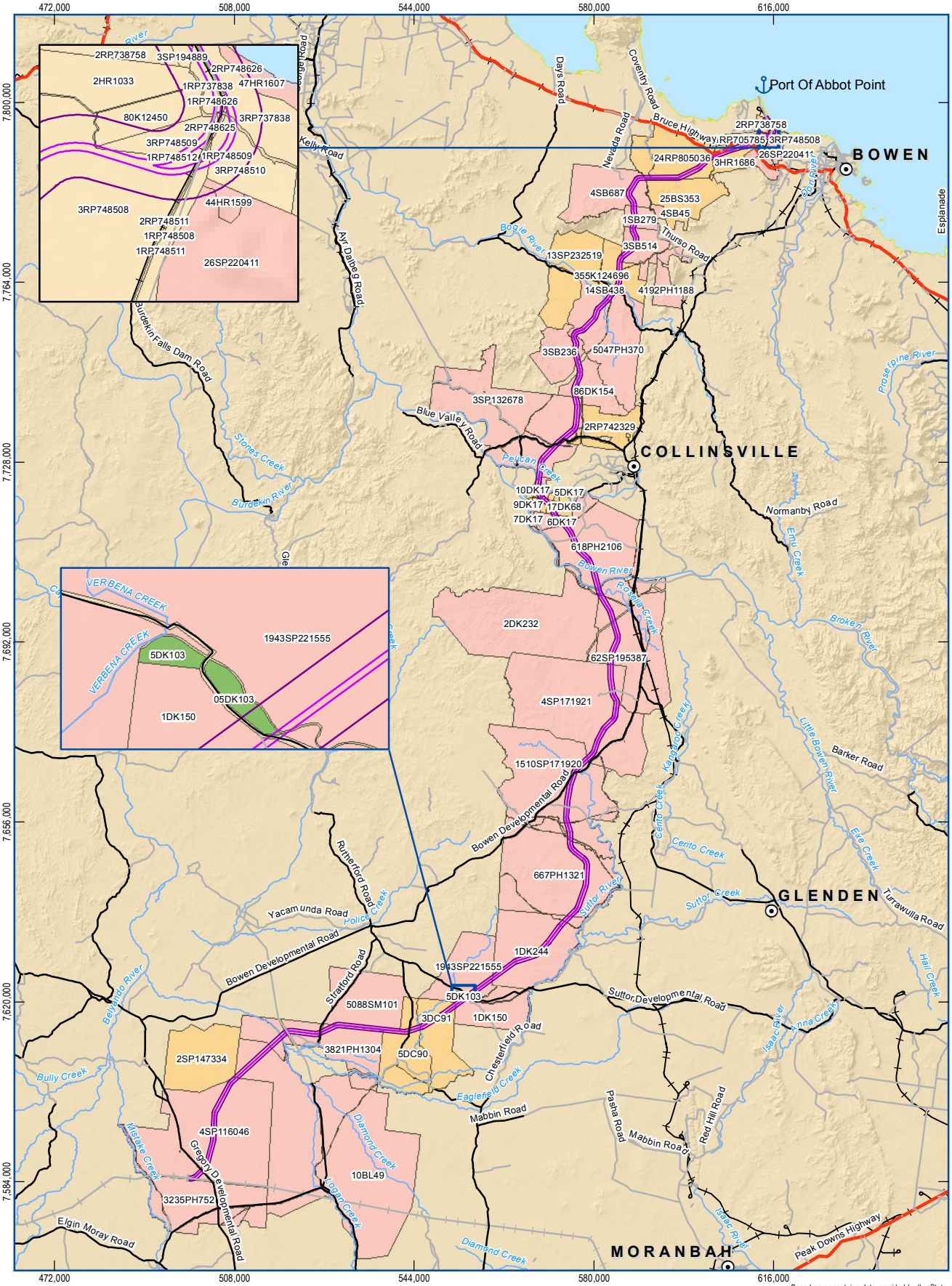
- A total of 27 leasehold lots – land under the control of the State of Queensland but which may be subject to a lease, permit or licence, reserved for a community purpose, dedicated as a road or subject to no tenure
- A total of 36 freehold lots – privately owned land alienated from the State. However, the State is empowered to withhold certain rights, such as the right to any minerals or petroleum
- One lot deemed to be 'Unallocated State Land'.

Table 3-2 provides a summary of the properties traversed by the NGBR Project including the lot and plan number, total area of the property within the final rail corridor and the existing tenure. Figure 3-2 shows the location of these properties.

Table 3-2 NGBR Project property tenure

Lot on plan	Area of lot (ha)	Area of lot within NGBR Project final rail corridor (ha)	Tenure
10BL49	84531.68	93.69	Leasehold
10DK17	515.53	13.54	Freehold
13SP232519	21763.39	62.93	Freehold
1510SP171920	38570.07	176.29	Leasehold
151SP122338	7.86	0.004	Leasehold
152SP122339	22.69	0.34	Leasehold
1943SP221555	13034.53	61.57	Leasehold
1DK150	10393.11	28.33	Leasehold
1DK244	22237.38	207.73	Leasehold
1RP705785	1369.09	15.98	Freehold
1RP737838	24.35	9.69	Freehold
1RP748508	69.62	1.65	Freehold
1RP748509	1.74	0.07	Freehold
1RP748510	0.93	0.93	Freehold
1RP748511	8.17	0.38	Freehold
1RP748512	1.27	0.11	Freehold
1RP748625	1.42	0.99	Freehold
1RP748626	3.59	2.84	Freehold
1RP748627	0.55	0.55	Freehold
1SB279	2700.69	52.64	Leasehold
24RP805036	13663.94	147.65	Freehold
2HR1724	432.21	35.24	Freehold
2RP748511	10.01	0.46	Freehold
2RP748626	4.66	4.09	Freehold
2RP748627	0.61	0.59	Freehold
3235PH752	20596.43	1.04	Leasehold
335SP227560	3.27	3.27	Leasehold
336SP227560	1.62	1.62	Leasehold
3821PH1304	19001.94	230.87	Leasehold
3DC91	11677.19	84.86	Freehold
3HR1686	2856.72	40.96	Freehold
3HR1711	287.43	0.18	Freehold
3RP737838	151.39	5.92	Freehold
3RP748508	754.55	40.33	Freehold
3RP748509	67.45	8.05	Freehold
3RP748510	113.70	7.95	Freehold

Lot on plan	Area of lot (ha)	Area of lot within NGBR Project final rail corridor (ha)	Tenure
3SB236	7856.54	59.96	Leasehold
3SB514	5643.55	95.33	Leasehold
3SP132678	39200.46	187.84	Leasehold
3SP194889	30.17	2.73	Freehold
47SP227557	5.86	5.85	Leasehold
4SB687	14069.58	78.13	Leasehold
4SP116046	43947.50	235.77	Leasehold
4SP171921	0.32	0.32	Leasehold
4SP194889	23142.72	126.99	Freehold
5047PH370	16671.68	0.0007	Leasehold
5088SM101	47201.42	233.43	Leasehold
53SP243724	45.13	0.84	Freehold
56SP243724	15.36	0.11	Freehold
58SP243726	216.96	18.04	Leasehold
5DC90	13387.61	75.06	Freehold
5DK17	518.34	11.74	Freehold
5SP194888	0.05	0.05	Freehold
618PH2106	24923.10	176.12	Leasehold
62SP195387	29934.35	155.47	Leasehold
667PH1321	35467.43	173.22	Leasehold
6DK17	520.33	17.65	Freehold
6SP194888	10.01	3.90	Freehold
7DK17	521.16	13.66	Freehold
80K12450	83.79	0.004	Freehold
86DK154	6912.81	67.85	Leasehold
9DK17	515.74	26.33	Freehold
2DK232	40679.49	2.11	Leasehold
5DK103	62.04	0.32	Reserve /Unallocated State Land



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Tenure
- Freehold
- Lands Lease
- Reserve
- State Land
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 9 18 36

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd
North Galilee Basin Rail Project

Local context and tenure

Job Number	41-26457
Revision	A
Date	29 Aug 2013

Figure 3-2

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013; DNRM: Roads/2010; DNRM: Cadastre/2013. Created by:MS

Mining and petroleum tenure

Under Section 8 of the *Mineral Resources Act 1989* (MR Act), the State owns gold, coal and all minerals on or below the surface of the land in Queensland. The MR Act provides the legislative framework for exploration, development and mining tenure (Queensland Government 2013) as follows:

- Prospecting permit – this permit entitles the holder to prospect for and/or hand-mine for minerals and/or peg a mining lease or mining claim on the available land (excludes coal). There are two types of prospecting permits, namely a parcel prospecting permit (granted for a term of three months) and a district prospecting permit (granted for all available land within a mining district for a term of 1-12 months).
- Exploration permit – this permit is issued for the purposes of exploration, allowing the permit holder to determine the existence, quality and quantity of minerals on, in or under land by methods such as prospecting, geophysical surveys and other methods. This permit may eventually lead into an application for a mineral development licence or mining lease.
- Mineral Development Licence – this licence allows the holder to undertake geoscientific programs, mining feasibility studies, environmental, engineering and design studies so as to evaluate the potential for development of the defined resource. A mineral development license can be granted to the holder of an exploration permit for a period of up to five years where there is a significant mineral occurrence of possible economic potential.
- Mining Claim – a mining claim is granted to holders of prospecting permits to carry out small scale operations, which can be up to one hectare in area and can be granted for minerals other than coal. A person can hold or have an interest in a maximum of two mining claims at any one time.
- Mining Lease – lease granted for mining operations that entitle the holder to machine-mine specified minerals and carry out activities associated with mining or promoting the activity of mining. A mining lease can be granted for those minerals specified in either the prospecting permit, exploration permit or mineral development licence held prior to the grant of the lease.

A review of the Queensland Government, Department of Mines and Energy (2013) data illustrates that the NGBR Project traverses tenements comprising exploration permits for coal (EPCs), an exploration permit for petroleum (EPP), exploration permits for minerals (EPMs), and a petroleum pipeline licence (PPL) (refer to Table 3-3). The NGBR Project final rail corridor does not cross any identified or known mineral resources.

The location of tenures in the regional study area is illustrated in Figure 3-3.

Table 3-3 Mining, petroleum and mineral tenures

Tenure	Holder	Status
Exploration permits for coal		
EPC 2401	Civil & Mining Resources Pty Ltd	Application
EPC 1321	Brothers Mining Pty. Ltd.	Application
EPC 2451	Civil & Mining Resources Pty Ltd	Application
EPC 1021	Conarco Minerals Pty Ltd	Granted
EPC 968	Argos (Qld) Pty Ltd	Granted
EPC 773	Xstrata Coal Queensland Pty Ltd	Granted
EPC 768	Rosella Creek Coal Pty Ltd	Granted
EPC 639	Pelican Creek Coal Pty Ltd	Granted
EPC 586	Bowen River Coal Pty Ltd	Granted
EPC 1320	North Coal Pty Ltd	Granted
EPC 1518	Endocoal Limited	Granted
EPC 1590	Endocoal Limited	Granted
EPC 739	Byerwen Coal Pty Ltd	Granted
EPC 2169	Queensland Coal Investments Pty Ltd	Granted
Exploration permits for petroleum		
EPP 688	BNG (Surat) Pty Ltd	Granted
Exploration permits for minerals		
EPM 25189	Barlyne Mining Pty Ltd	Application
EPM 16527	Drummond West Pty Ltd	Application
EPM 15485	Energy Minerals Pty Ltd	Granted
EPM 19087	Barlyne Mining Pty Ltd	Granted
EPM 18568	Conquest Mining Pty Limited	Granted
EPM 14171	Basin Gold Pty. Ltd.	Granted
EPM 18469	Natural Resources Exploration Pty Ltd	Granted
EPM 14928	Drummond West Pty Ltd	Granted

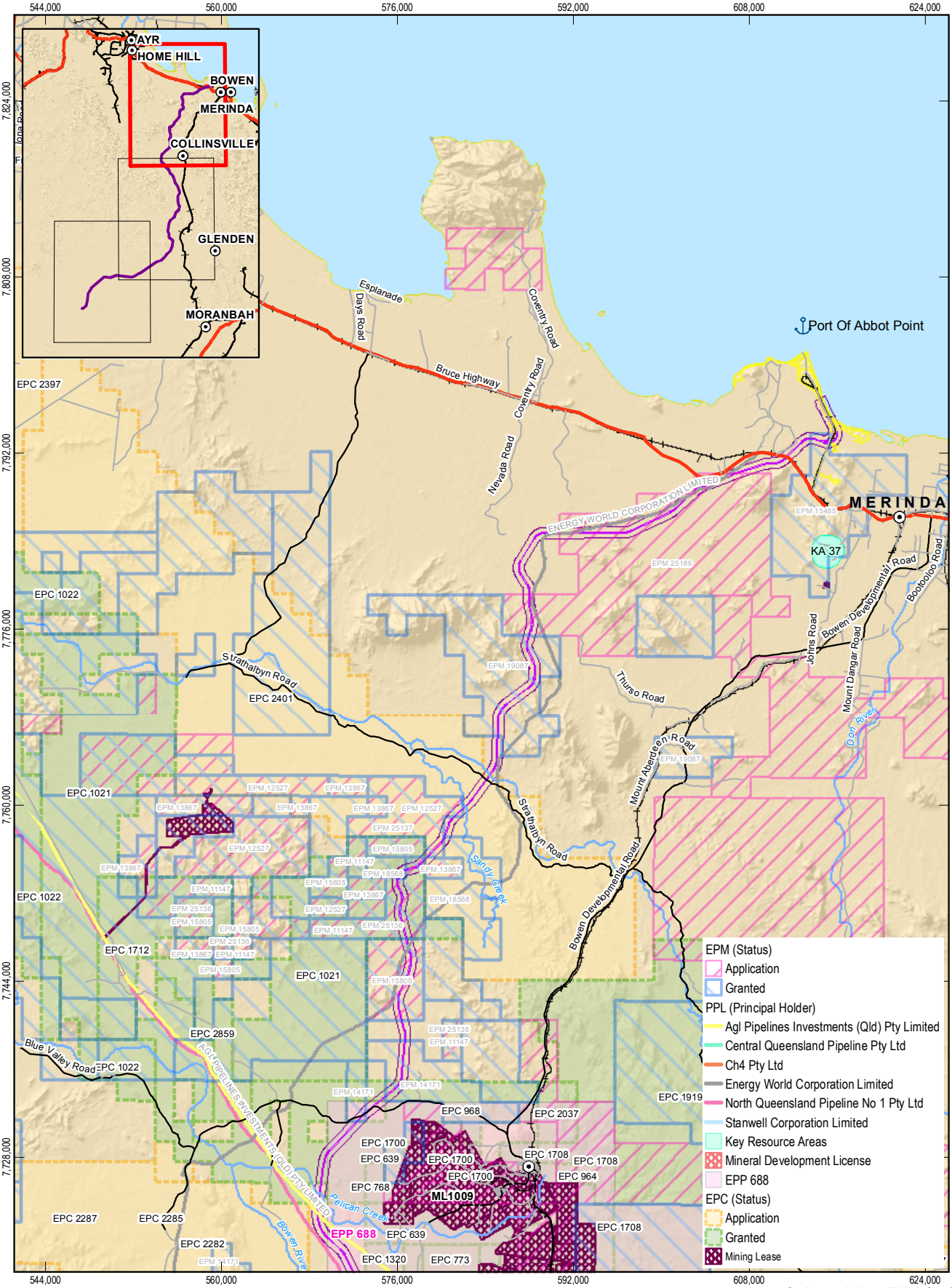
Tenure	Holder	Status
EPM 17703	Zamia Resources Pty Limited	Granted
EPM 25137	Conquest Mining Pty Limited	Application
EPM 12527	Conquest Mining Pty Limited	Granted
EPM 13867	Conquest Mining Pty Limited	Granted
EPM 25136	Conquest Mining Pty Limited	Application
EPM 15805	Conquest Mining Pty Limited	Granted
EPM 11147	Conquest Mining Pty Limited	Granted
EPM 25294	Kenex Pty Ltd	Application
Petroleum pipeline license		
PPL 89	North Queensland Pipeline No. 1 Pty Ltd	Granted

Strategic port land

North Queensland Bulk Ports Corporation Limited (NQBP) developed the Port of Abbot Point Land Use Plan 2010 in accordance with the statutory provisions of the *Transport Infrastructure Act 1994* (TIA). It sets out NQBP's planning and development intent for its strategic port land at the Port of Abbot Point, giving careful consideration to core matters relevant to the local and regional area including environmental, economic and social sustainability (NQBP 2010).

The northern extent of the NGBR Project traverses strategic port land within the boundaries of the Port of Abbot Point Land Use Plan 2010 and this section of final rail corridor and any proposed infrastructure within the jurisdiction of the plan will therefore require development assessment against that plan.

Assessment of the Port of Abbot Point Land Use Plan 2010 and how it applies to the NGBR Project is provided in Volume 1 Chapter 20 Legislation and approvals.



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Strategic Port Land
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:500,000 Paper Size A4

0 4 8 16

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd

North Galilee Basin Rail Project

Mining and Petroleum Tenure

Job Number	41-26457
Revision	B
Date	01 Nov 2013

Figure 3-3
Sheet 1 of 3

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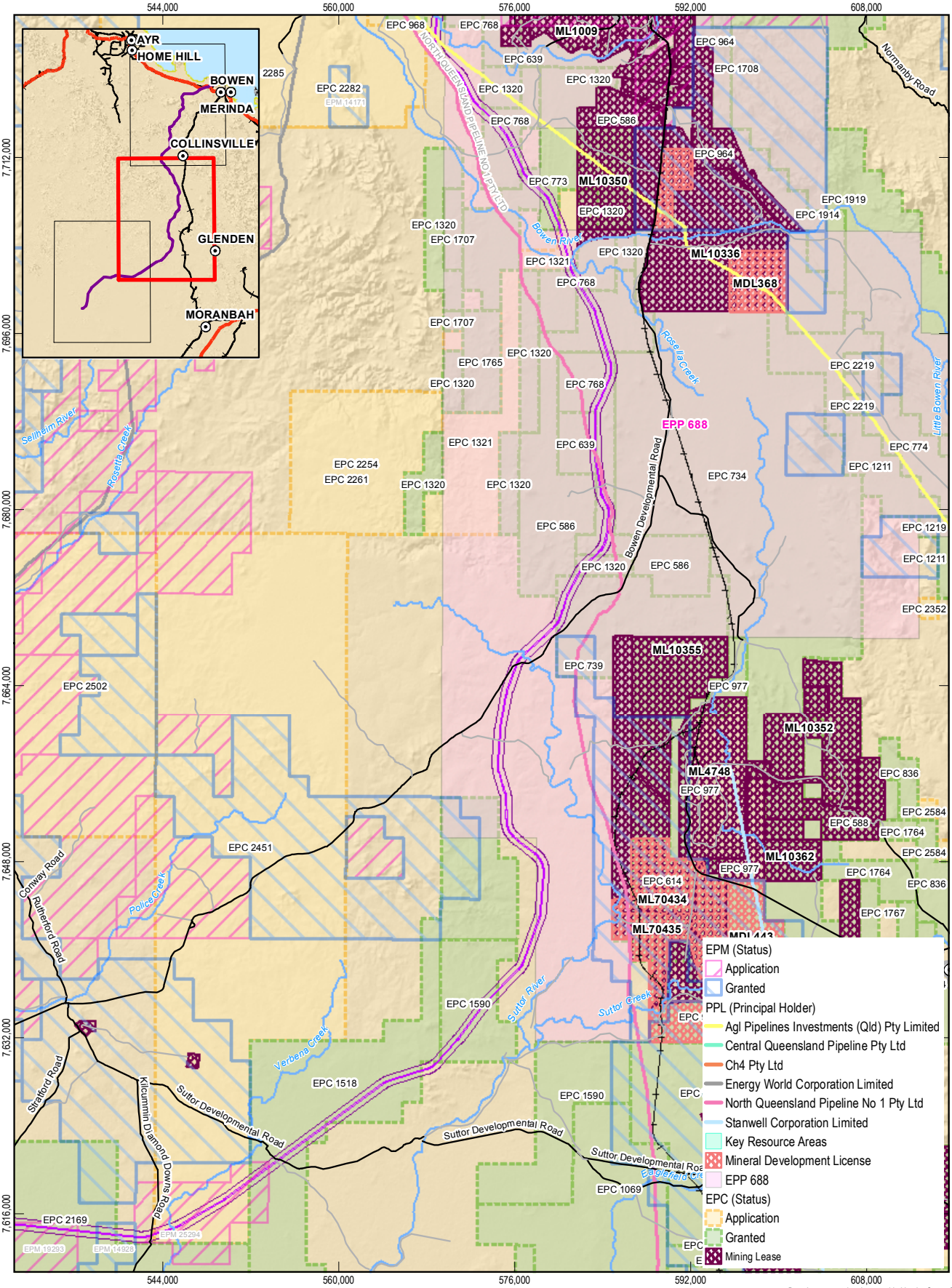
Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010, Strategic Portland/2010; DME: Mining Leases, Mineral Development Licences, Key Resource Area, EPC Boundary, EPM, PPL/2013. Created by:MS



LEGEND

Population Centres
Local Road
Railway
Main Road
Watercourse (Major)
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor

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0 4 8 16
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd
North Galilee Basin Rail Project

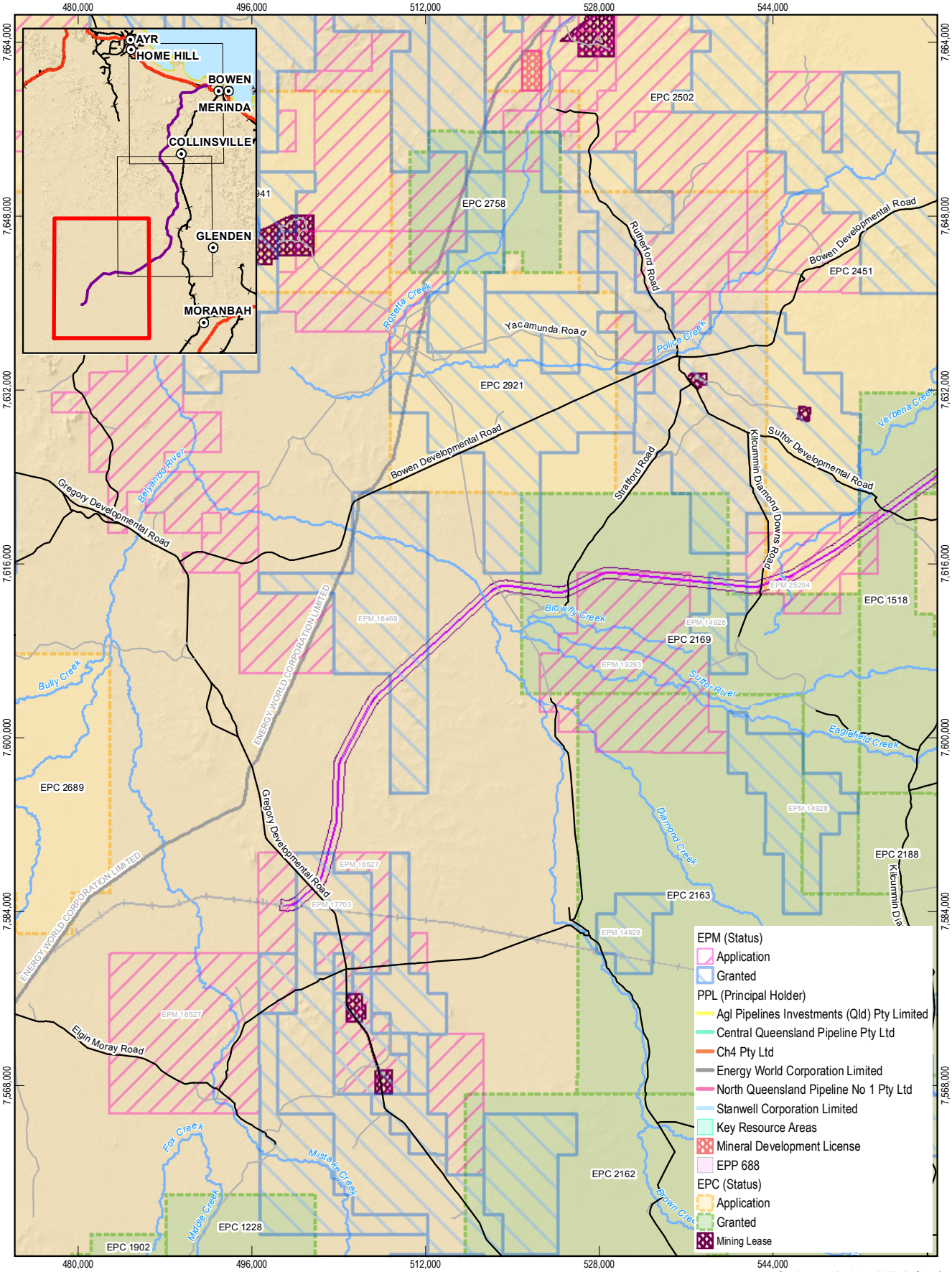
Mining and Petroleum Tenure

Job Number 41-26457
Revision B
Date 01 Nov 2013

Figure 3-3
Sheet 2 of 3

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010, Strategic Portland/2010; DME: Mining Leases, Mineral Development Licences, Key Resource Area, EPC Boundary, EPM, PPL/2013. Created by:MS



LEGEND

Main Road
Local Road
Carmichael Project (Rail)
Watercourse (Major)
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor

1:500,000 Paper Size A4

0 4 8 16

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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North Galilee Basin Rail Project

Mining and Petroleum Tenure

Job Number 41-26457
Revision B
Date 01 Nov 2013

Figure 3-3
Sheet 3 of 3

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Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010, Strategic Portland/2010; DME: Mining Leases, Mineral Development Licences, Key Resource Area, EPC Boundary, EPM, PPL/2013. Created by:MS

3.3.4 Land use

The NGBR Project is located within the Regional Landscape and Rural Production Area (RLRPA) land use category under the Mackay, Isaac and Whitsunday Regional Plan (MIWRP). The RLRPA includes land with significant biodiversity values, Good Quality Agricultural Land (GQAL), cultural and landscape heritage values, extractive resources of economic significance (e.g. mining), water catchments, native forests, coastal wetlands, land unsuitable for urban/rural residential purposes and rural towns and associated activities such as transport and telecommunication networks (DLGP 2012).

The extent of the land through which the NGBR Project traverses is classified as 'production from relatively natural environments' under the MIWRP. Land use in the local study area is predominantly for the purposes of cattle breeding and fattening (refer Figure 3-4).

The landscape of the NGBR Project final rail corridor is characterised by a combination of flat floodplains dominated by a number of creeks which have reasonably well defined channels but with wide floodplains that are inundated during flood events, and steeper undulating terrain associated with the Leichhardt and Clarke ranges. A number of nationally important wetlands are located in proximity to the NGBR Project including the Caley Valley wetland (at the Port of Abbot Point) and other wetlands associated with the Great Barrier Reef Marine Park, and the Bowen River: Birralee – Pelican Creek aggregation.

The main watercourses crossed by the NGBR Project final rail corridor comprise major waterways (including the Bowen River, Bogie River, Elliot River, Pelican Creek and Suttor River) and several smaller creeks and ephemeral water bodies. A discussion regarding water resources within the vicinity of the NGBR Project is presented in Volume 1 Chapter 9 Water resources.

The NGBR Project also traverses a number of State-controlled roads, minor roads and stock crossings (refer Section 3.3.5).

Rural uses

Good Quality Agricultural Land (GQAL) is land which is capable of sustainable use for agriculture, with a reasonable level of inputs, and without causing degradation of land or other natural resources (DPI & DHLGP 1993). Land use in the local study area is predominantly for the purposes of cattle breeding and fattening (refer to Figure 3-5) with limited areas used for the purposes of cropping and horticultural activities. Therefore, GQAL has the potential to be present throughout the study area. Potential GQAL within the local study area is shown in Figure 3-5 and discussed further in Volume 1 Chapter 5 Topography, geology, soils and land contamination.

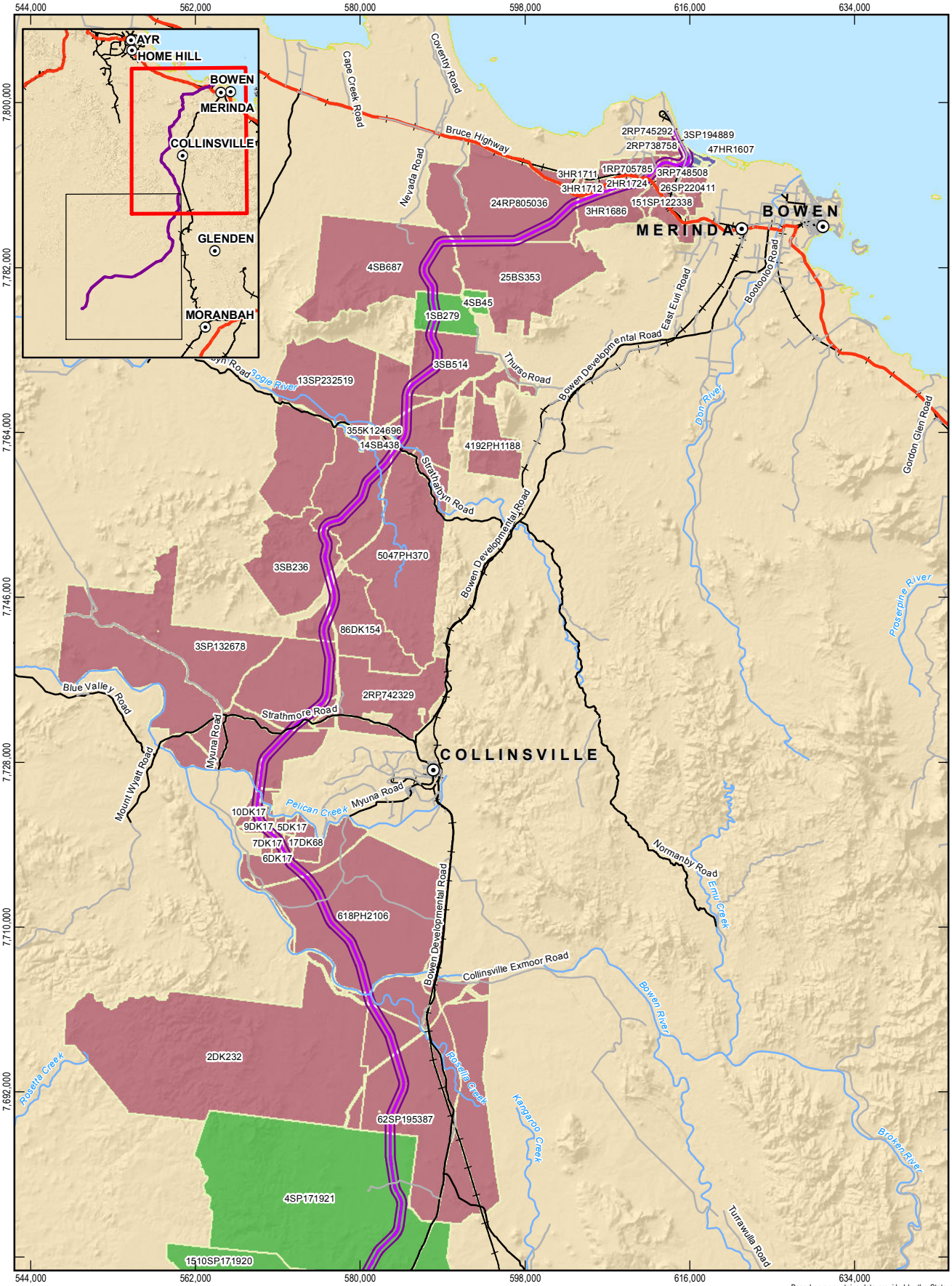
The Queensland Government considers that Strategic Cropping Land (SCL) i.e. high quality cropping land, is a finite resource that must be conserved and managed for the long term (Queensland Government 2010). As a general aim, planning and approval powers should be used to protect such land from those developments that would lead to its permanent alienation or diminished productivity. The local study area includes areas of potential SCL defined by the Western Cropping management zone and Coastal Queensland management zone (Refer to Figure 3-6).

The Queensland Agricultural Land Audit (DAFF 2013) identified the current and potential land use in the Mackay, Isaac and Whitsunday region; potential land use refers to the areas where the majority of a particular land use occurs as well as where production could potentially occur. The current and potential land uses in the region are summarised in Table 3-4.

Table 3-4 Current and potential land use (Mackay, Isaac and Whitsunday region)

Land use type	Current land use (percent of region[1])	Potential land use (percent of region[1])
Broadacre cropping	2.52 %	9.62 %
Sugarcane	1.88 %	7.06 %
Perennial horticulture	0.02 %	8.32 %
Annual horticulture	0.10 %	17.66 %
Grazing	85.28 %	92.88 %
Intensive livestock	0.00 %	23.84 %
Aquaculture	0.00 %	0.27 %
Other land use (non-agricultural land uses and also may include some forestry)	10.20 %	N/A

[1] – Region is defined as the Mackay, Isaac and Whitsunday region



LEGEND

- Population Centres
- Highway
- Main Road
- Local Road
- Railway
- Watercourse (Major)

Land Use

- Cattle Breeding & Fattening
- Cattle Grazing & Breeding
- Harbour Industries
- Transport Terminal
- Vacant Rural Land
- Vacant Urban Land
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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0 4.5 9 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

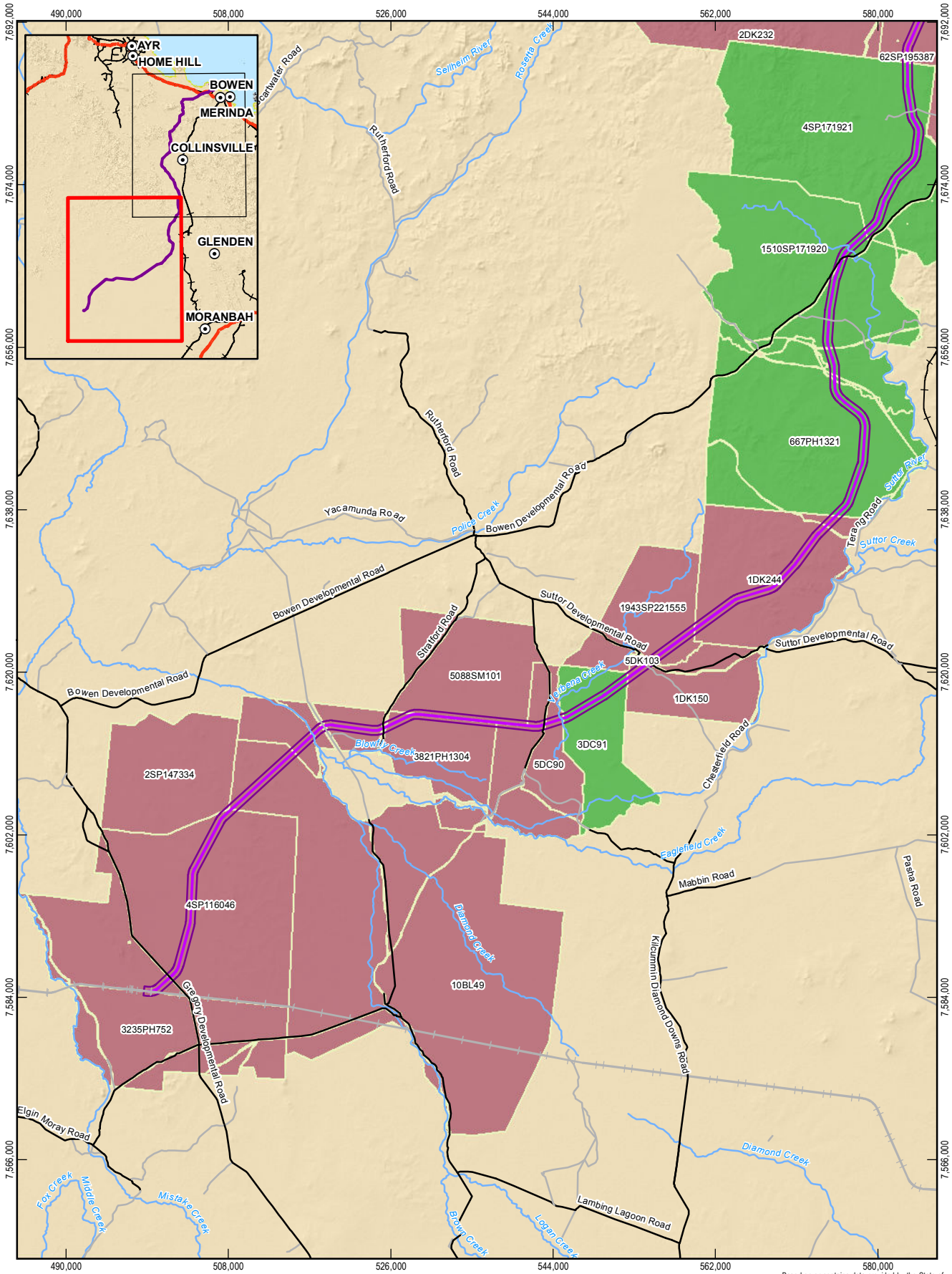
Job Number 41-26457
Revision A
Date 29 Aug 2013

Study area land use

Figure 3-4
Sheet 1 of 2

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010; GHD\DNRM: Land Use/2013. Created by:MS



LEGEND

Main Road
Local Road
Carmichael Project (Rail)
Watercourse (Major)

Land Use
Cattle Breeding & Fattening
Cattle Grazing & Breeding
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor

1:600,000 Paper Size A4

0 4.5 9 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

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North Galilee Basin Rail Project

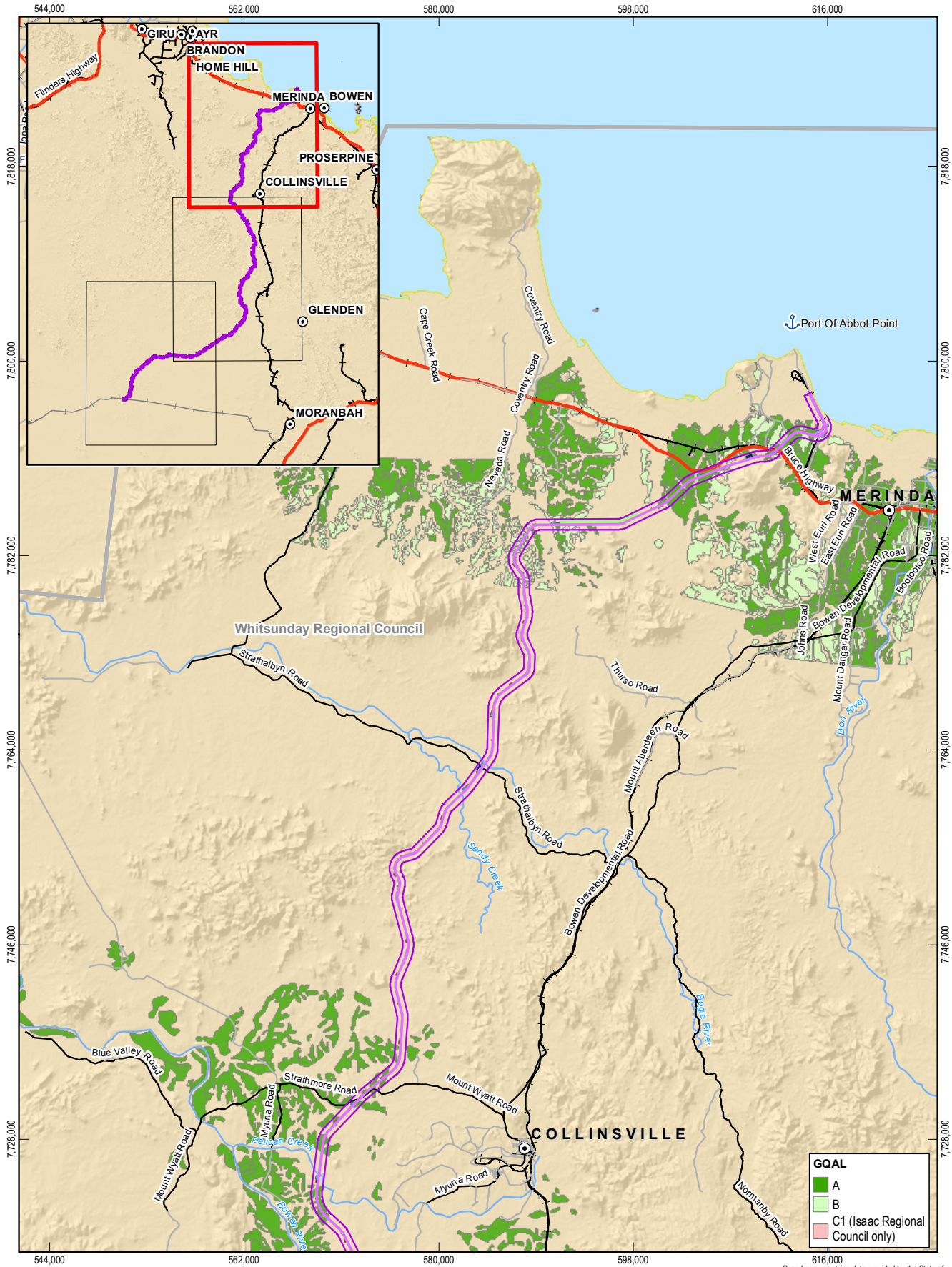
Job Number 41-26457
Revision A
Date 29 Aug 2013

Study area land use

Figure 3-4
Sheet 2 of 2

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010; GHD\DNRM: Land Use/2013. Created by:MS



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Local Government Area
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Rolling Stock Maintenance Depot
- Track Laydown Area
- Turning Circle

1:500,000 Paper Size A4

0 4.5 9 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd
North Galilee Basin Rail Project

Good Quality Agricultural Land

Job Number 41-26457
Revision A
Date 26 Sep 2013

Figure 3-5
Sheet 1 of 3

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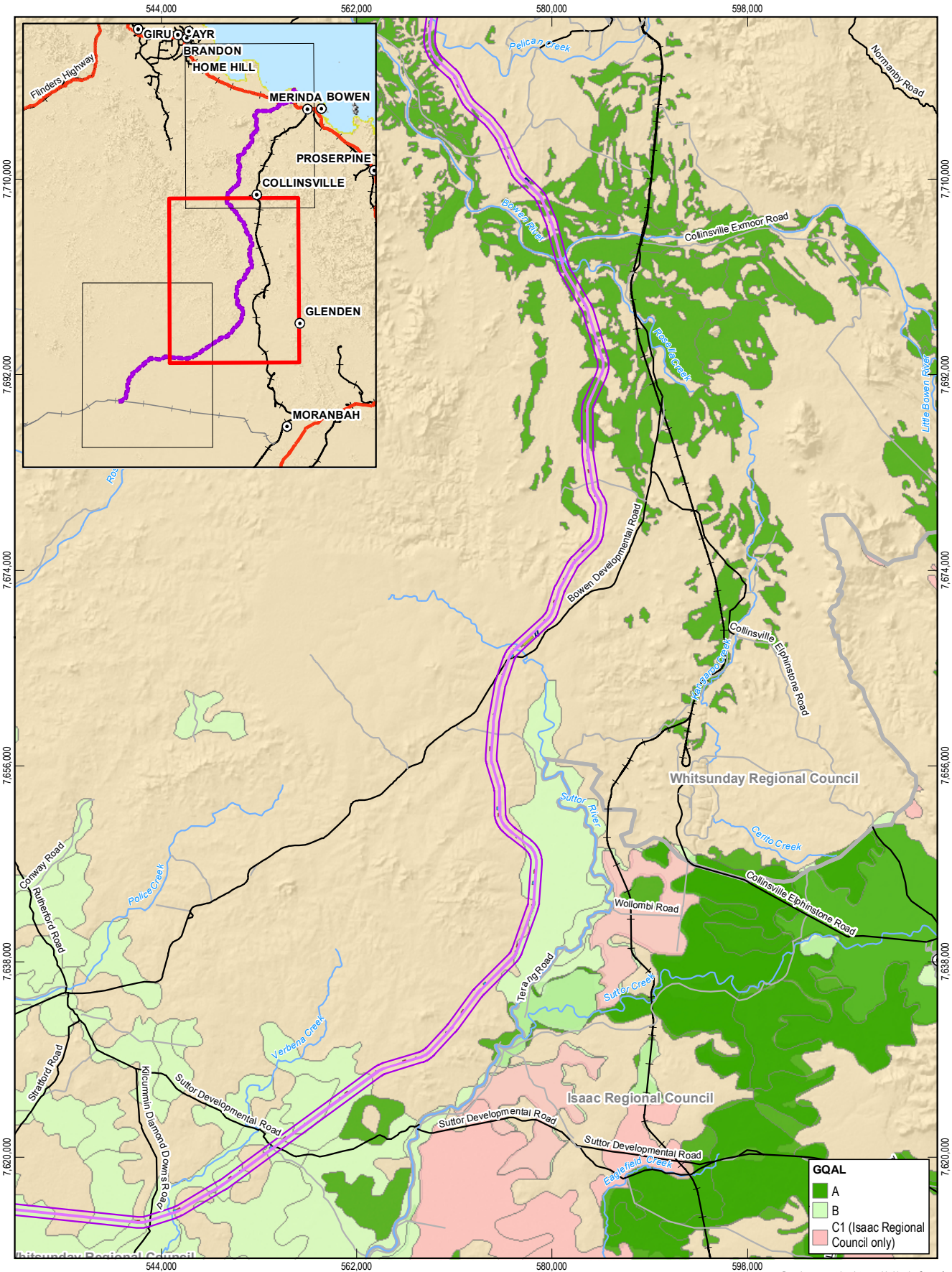
Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Coal Rail EIS 23/07/2012; DNRM: Roads/2010, GQAL/2010. Created by:MS



LEGEND

Population Centres
Main Road
Local Road
Railway
Watercourse (Major)
Local Government Area
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor
Ancillary Infrastructure Areas
Bridge Laydown Area
Concrete Batch Plant
Construction Camp
Construction Yard
Track Laydown Area
Turning Circle

1:500,000 Paper Size A4

0 4.5 9 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd
North Galilee Basin Rail Project

Good Quality Agricultural Land

Job Number 41-26457
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Date 26 Sep 2013

Figure 3-5
Sheet 2 of 3

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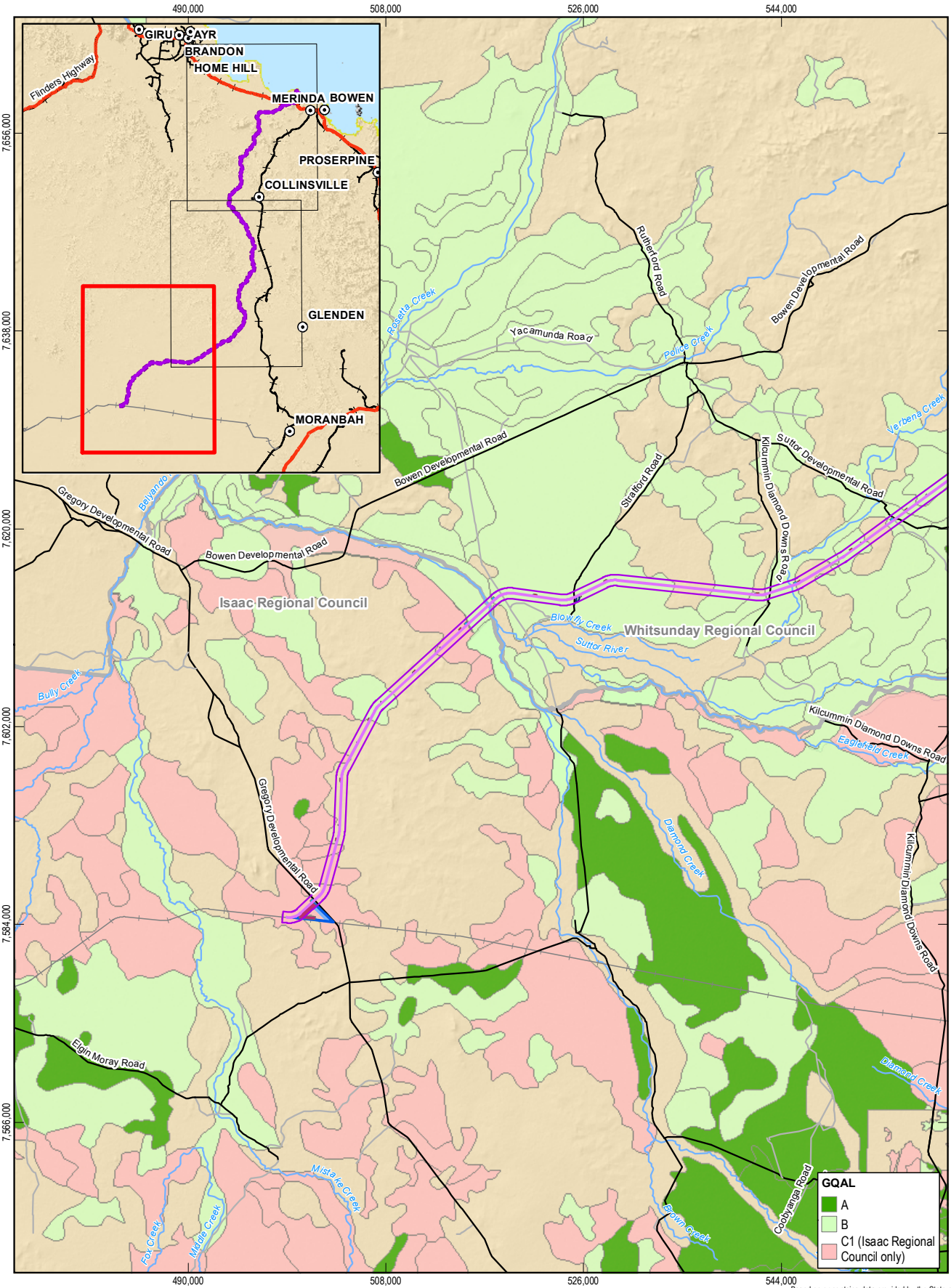
Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Coal Rail EIS 23/07/2012; DNRM: Roads/2010, GQAL/2010. Created by:MS



LEGEND

Main Road
Local Road
Carmichael Project (Rail)
Watercourse (Major)
Local Government Area
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor
Ancillary Infrastructure Areas
Bridge Laydown Area
Concrete Batch Plant
Construction Camp
Construction Depot Area
Rail Precinct Area
Track Laydown Area
Turning Circle

1:500,000 Paper Size A4

0 4.5 9 18

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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North Galilee Basin Rail Project

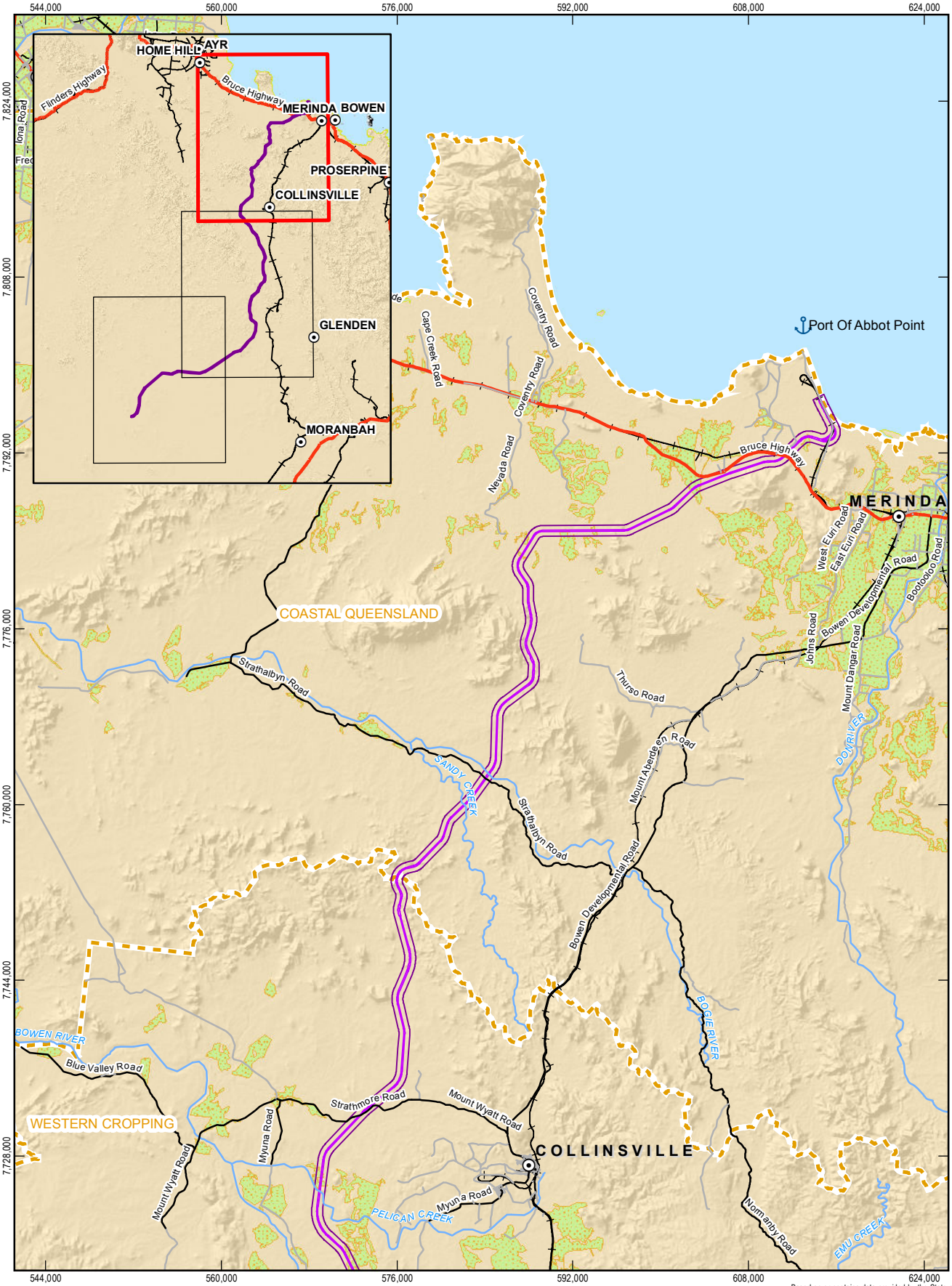
Good Quality Agricultural Land

Job Number 41-26457
Revision A
Date 26 Sep 2013

Figure 3-5
Sheet 3 of 3

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Coal Rail EIS 23/07/2012; DNRM: Roads/2010, GQAL/2010. Created by:MS



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Strategic Cropping Land Zone
- Strategic Cropping Land
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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0 4 8 16

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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North Galilee Basin Rail Project

Job Number	41-26457
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Strategic Cropping Land

Figure 3-6
Sheet 1 of 3

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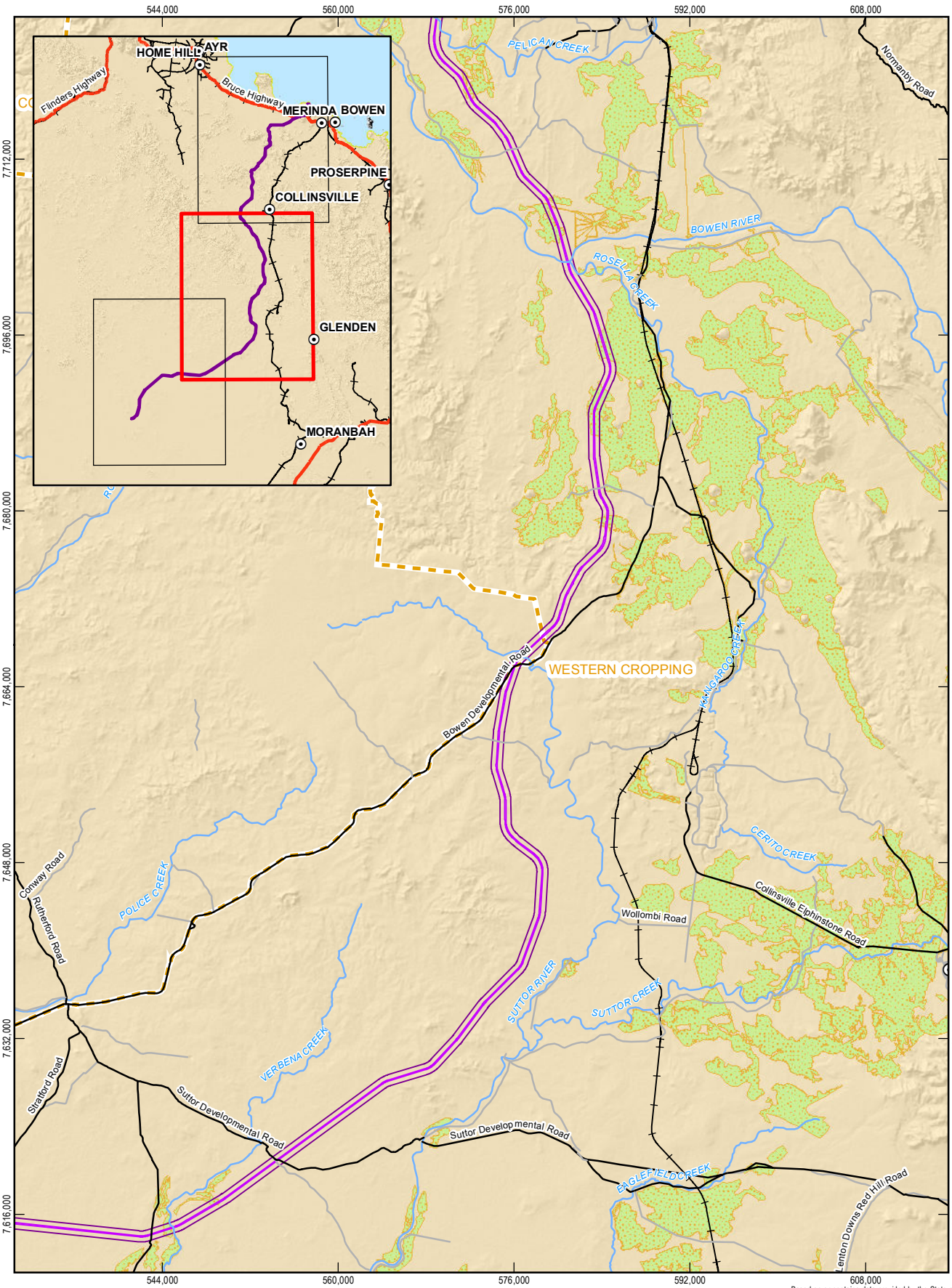
Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 03/05/2013; DNRM: Roads/2010; Conbined Soils/2010. Created by:MS



LEGEND

- Population Centres
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Strategic Cropping Land Zone
- Strategic Cropping Land
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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0 4 8 16

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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North Galilee Basin Rail Project

Job Number	41-26457
Revision	A
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Strategic Cropping Land

Figure 3-6
Sheet 2 of 3

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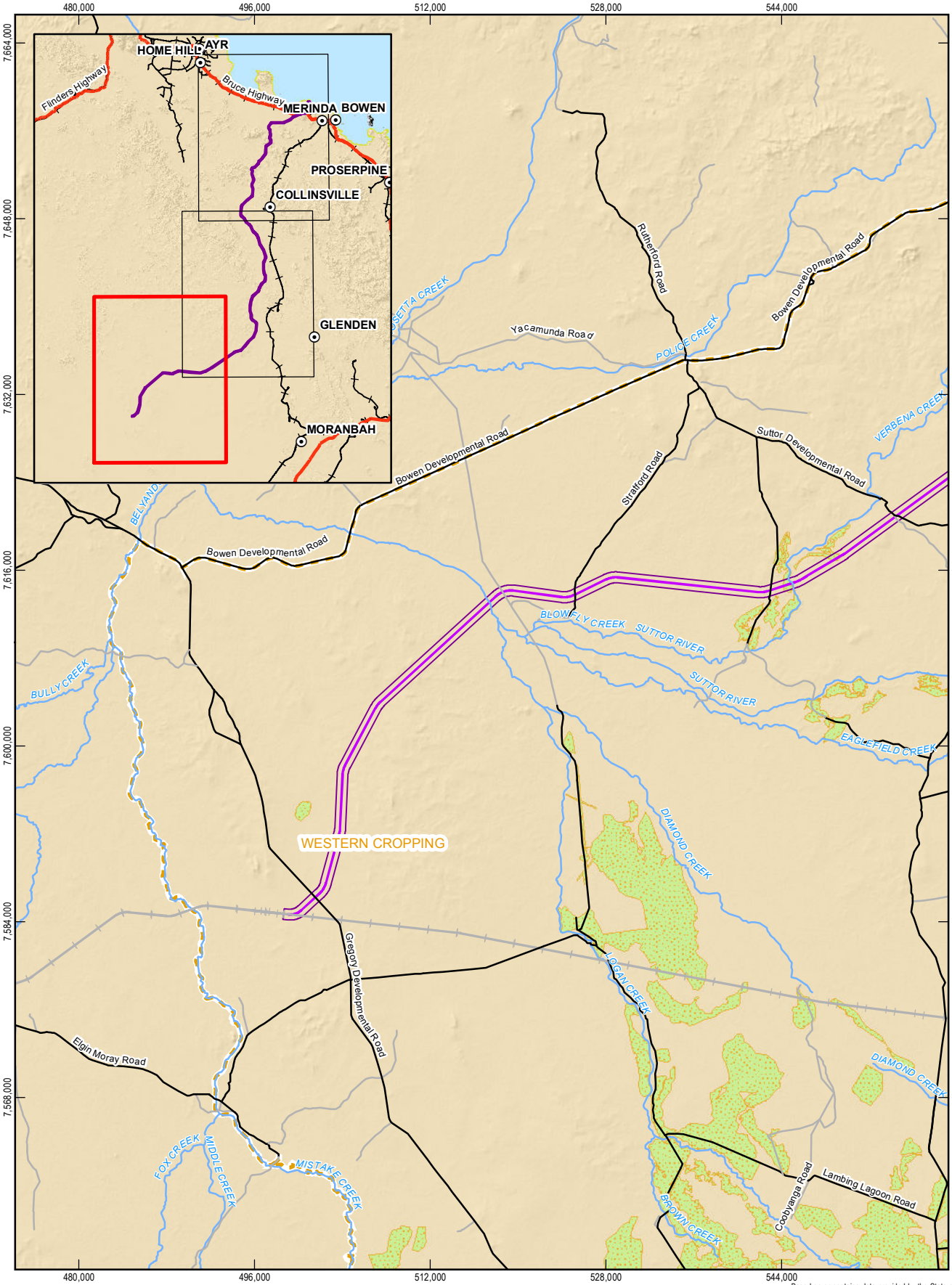
Level 9, 145 Ann Street Brisbane QLD 4000 Australia **T** 61 7 3316 3000 **F** 61 7 3316 3333 **E** bnemail@ghd.com **W** www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 03/05/2013; DNRM: Roads/2010; Conbined Soils/2010. Created by:MS



LEGEND

Main Road
Local Road
Carmichael Project (Rail)
Watercourse (Major)
Strategic Cropping Land Zone
Strategic Cropping Land
North Galilee Basin Rail 1000m Corridor
North Galilee Basin Rail 100m Corridor

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0 4 8 16

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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North Galilee Basin Rail Project

Job Number	41-26457
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Date	28 Aug 2013

Strategic Cropping Land

Figure 3-6
Sheet 3 of 3

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Level 9, 145 Ann Street Brisbane QLD 4000 Australia **T** 61 7 3316 3000 **F** 61 7 3316 3333 **E** bnemail@ghd.com **W** www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 03/05/2013; DNRM: Roads/2010; Conbined Soils/2010. Created by:MS

Non-rural uses

Non-rural land comprises land that is not for a rural purpose, including but not limited to land zoned as rural-residential, residential, urban, industrial and commercial.

Towards the Port of Abbot Point, the NGBR Project traverses land designated for industrial use including port handling activities and environmental buffers (refer to Figure 3-7) (refer to Section 3.3.6).

The main residential areas surrounding the NGBR Project are located in excess of 18 km from the NGBR Project final rail corridor at Moranbah, Collinsville and Bowen (refer Section 3.3.2).

The closest potentially sensitive receptor (Homestead 22) is located over one kilometre from the NGBR Project. Identified homesteads are shown in Figure 3-8 and summarised in Table 3-5.

Table 3-5 Summary of potential sensitive receptors

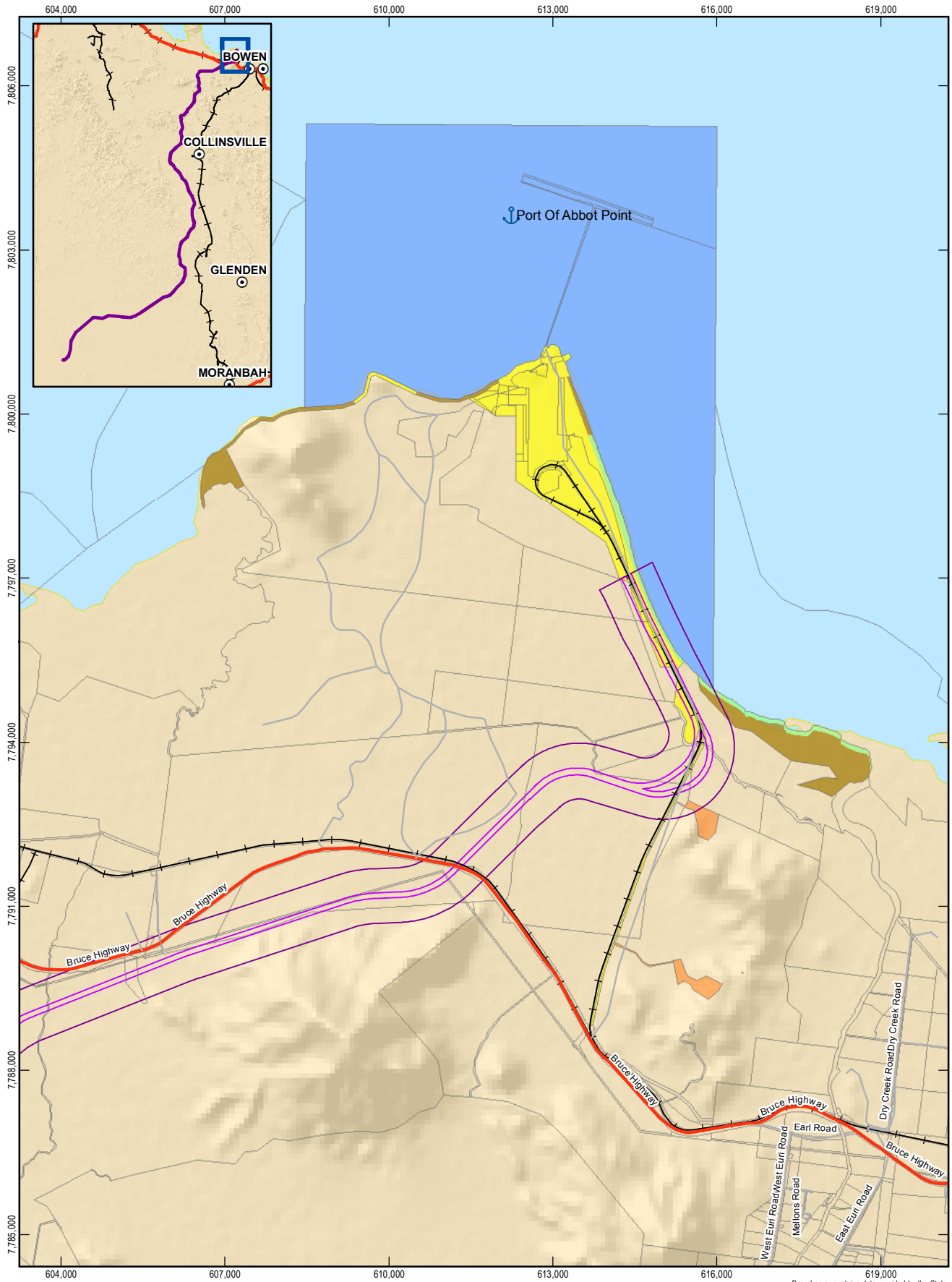
Sensitive receptor	Easting, mE (GDA94)	Northing, mN (GDA94)	Approximate distance from final rail corridor (m)	Lot on Plan
Homestead 1	609916	7794255	2,690	255HR2027
Homestead 2	604874	7790877	1,152	3HR1712
Homestead 3	585906	7784622	2,198	4SB687
Homestead 4	591656	7782269	2,581	25SB353
Homestead 5	592845	7775614	4,680	1SB279
Homestead 6	591975	7774322	3,776	3SB514
Homestead 7	594112	7773398	5,674	76SP167797
Homestead 8	581086	7764508	3,572	355K124696
Homestead 9	583141	7758004	2,071	5047PH370
Homestead 10	573776	7744903	2,877	3SB236
Homestead 11	577664	7743174	1,514	86DK154
Homestead 12	565463	7733205	6,158	3SP132678
Homestead 13	563357	7723411	5,316	14DK18
Homestead 14	574094	7721935	3,863	4914PH1791
Homestead 15	569153	7714138	4,263	618PH2106
Homestead 16	586276	7700615	3,819	62SP195387
Homestead 17	580954	7681237	2,772	4SP171921
Homestead 18	579067	7655503	4,120	1510SP171920

Sensitive receptor	Easting, mE (GDA94)	Northing, mN (GDA94)	Approximate distance from final rail corridor (m)	Lot on Plan
Homestead 19	570319	7624819	4,931	1DK244
Homestead 20	550182	7623709	4,694	1943SP221555
Homestead 21	530696	7620414	5,159	5088SM101
Homestead 22	519416	7613045	1,059	3821PH1304
Homestead 23	494429	7589483	6,584	4SP116046

The NGBR Project does not traverse any public recreation reserves, however the final rail corridor does traverse the Bicentennial National Trail at approximate chainage 106.05 km. The long distance, multi-use recreational trekking route stretches 5,330 km from Cooktown in tropical far-north Queensland to Healesville in Victoria (BNT 2013). There are also a number of sites surrounding the NGBR Project that are used for recreational purposes by the community and tourists as listed in Table 3-6.

Table 3-6 Significant recreational areas near the investigation corridor

Recreational area	Approximate Distance from final rail corridor
Nairana National Park	8.5 km west
Hells Gate Nature Refuge	9 km west
Mount Pleasant Nature Refuge	8 km west
Aberdeen Nature Refuge	8 km west
Mount Aberdeen National Park	4 km south-east
Mount Abbot National Park	8 km north-west
Abbott Bay Resources Reserve	7 km north



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Property Boundaries

Land Use Designation

- Port Handling Activities
- Port Related and Support Industry
- Offshore Port Infrastructure
- Special Mangement
- Environmental Buffer
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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0 0.75 1.5 3

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd

North Galilee Basin Rail Project

Port of Abbot Point land use designation

Job Number	41-26457
Revision	A
Date	28 Aug 2013

Figure 3-7

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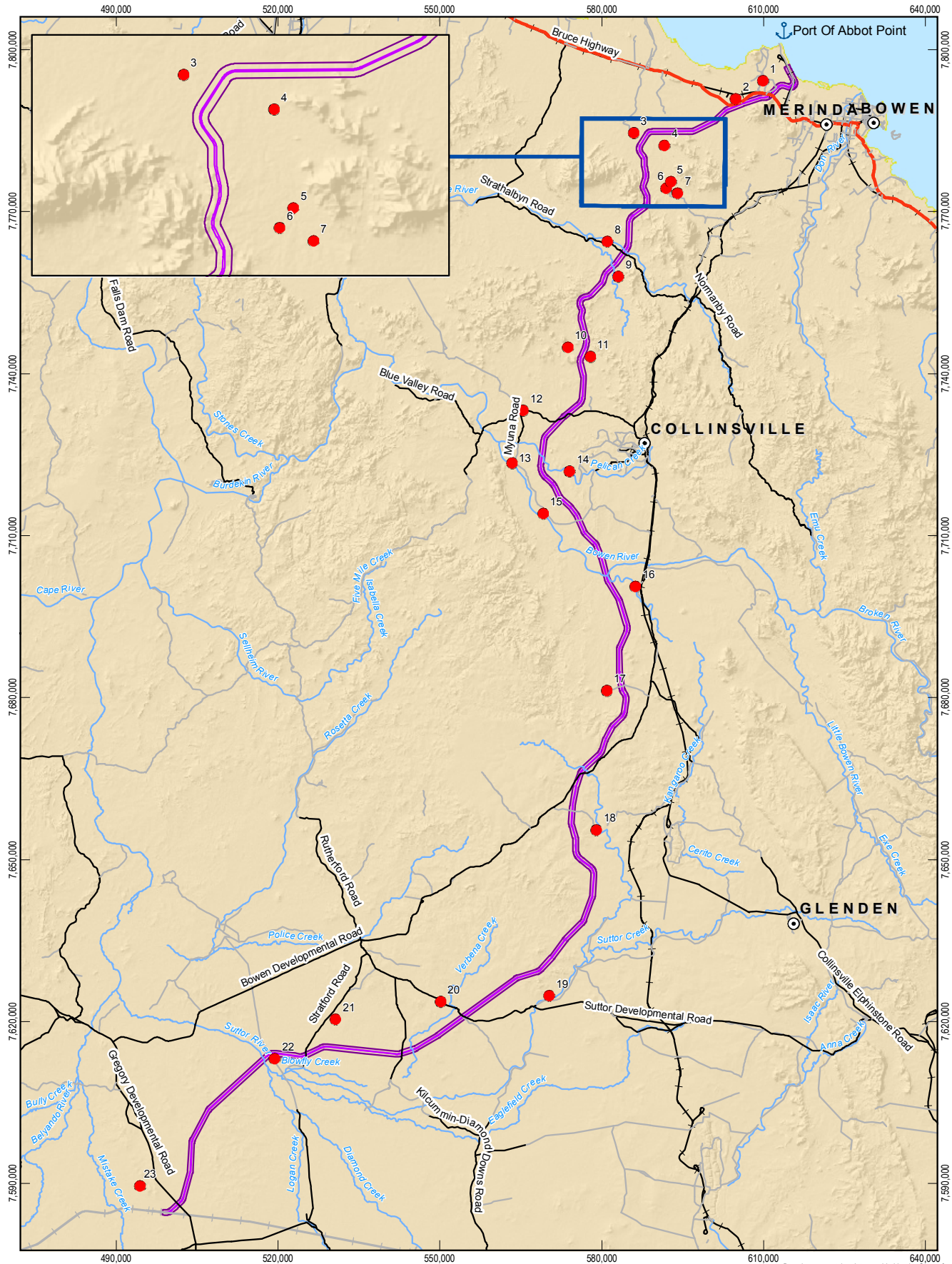
145 Ann Street Brisbane QLD 4000 Australia **T** 61 7 3316 3000 **F** 61 7 3316 3333 **E** bnemail@ghd.com **W** www.ghd.com

Data source: GA: Populated Places, Railway, Airports, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads; NQBP: Land Use Designation/2010. Created by:MS



LEGEND

- Population Centres
- Major Port
- Sensitive Receptors
- Highway
- Main Road
- Local Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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0 7.5 15 30

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

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Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number	41-26457
Revision	A
Date	29 Aug 2013

Sensitive receptors

Figure 3-8

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145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; Adani\GA\GHD: Sensitive Receptors/2013; DNRM: Roads/2010. Created by:MS

3.3.5 Existing and proposed infrastructure

Road and stock route networks

The NGBR Project final rail corridor will intersect State-controlled roads, local roads, gazetted stock routes, gazetted public road reserves (unconstructed) and occupational (private farm) tracks within private property boundaries and/or connecting adjoining properties of different ownership.

A total of 24 roads, stock routes and road reserves are likely to be intersected by the NGBR Project, of which five are considered major roads (State-controlled roads) , eight are minor roads (Council owned roads), four are road reserves and seven are gazetted stock routes (refer Table 3-7).

Table 3-7 Road and stock route crossings

Crossing	Chainage	Classification
Abbot Point Road	-5.25 km	Major road
Abbot Point Road	-6.70 km	Major road
Abbot Point Road	6.11 km	Major road
Bruce Highway	12.27 km	Major road
Glenore Road	34.05 km	Minor road
Road / Stock Crossing (gazetted Stock route number U398BOWN05)	57.34 km	Stock route
Strathalbyn Road	61.58 km	Minor road
Stock Crossing (gazetted Stock route number U398BOWN04)	62.77 km	Stock route
Road / Stock Crossing (gazetted Stock route number U398BOWN04)	79.55 km	Stock route
Road reserve (not constructed)	83.70 km	Road reserve
Strathmore Road & Stock Crossing (gazetted Stock route number U321BOWN01)	97.89 km	Minor road / stock route
Road reserve (not constructed)	117.11 km	Road reserve
Road Crossing (Minor Road)	120.46 km	Minor road
Stock Crossing (gazetted Stock route number U409BOWN02)	133.32 km	Stock route
Road reserve (not constructed)	139.27 km	Road reserve
Road Crossing	153.92 km	Minor road
Bowen Developmental Road	173.20 km	Major road

Crossing	Chainage	Classification
Cerito Road	177.82 km	Minor road
Cerito Road	180.25 km	Minor road
Stock Crossing (gazetted Stock route number U403BOWN02)	186.37 km	Stock route
Road reserve (not constructed)	205.84 km	Road reserve
Suttor Developmental Road	231.27 km	Major road
Kilcummin Diamond Downs Road	244.68 km	Minor road
Stratford Road	262.95 km	Minor road
Stock Crossing (gazetted Stock route number U402BOWN01)	269.63 km	Stock route
Gregory Developmental Road	303.79 km	Major road

There are no current or proposed road infrastructure upgrades occurring within the study area at a local, state or federal level with the exception of rehabilitation and overlay works occurring to the Bowen Developmental Road (Bowen – Collinsville) which may result in an improvement in the capacity to transport heavy vehicles or large quantities of materials from Bowen or the Port of Abbot Point to the construction site.

Further details on road and stock route networks within the local study area are provided in Volume 1 Chapter 14 Transport.

Rail

The closest existing rail freight network within the vicinity of the NGBR Project is Aurizon's Newlands rail network which links the Port of Abbot Point coal terminal to Newlands Junction. The NGBR Project is situated to the west of the Newlands rail network only interacting with this rail service (via grade-separated crossing) in the northern section of the NGBR Project, in the vicinity of the Port of Abbot Point. The Newlands rail network is linked with the Goonyella rail network which services the Port of Hay Point south of Mackay via the Northern Missing Link (North Goonyella Junction to Newlands Junction) (refer Figure 3-9).

The southern section of the NGBR Project will also adjoin the proposed Carmichael Coal Mine and Rail Project's rail infrastructure around Mistake Creek.

In addition to the NGBR Project, the following railway lines are proposed to be developed in the vicinity of, and may cross, the NGBR Project:

- GVK-Hancock Prospecting Pty Ltd's proposed Alpha Coal and Rail Project, with the rail component running north-east from the Alpha Mine to the Port of Abbot Point
- Waratah Coal Pty Ltd's China First Project, gazetted as Galilee Coal Project (Northern Export Facility), with the rail component travelling north-east from a new coal mine near Alpha in the Galilee Basin to the Port of Abbot Point.

Further details on rail networks within the vicinity of the local study area are provided in Volume 1 Chapter 14 Transport.

Airports and landing strips

Currently there are four airports located near to the NGBR Project. These airports are the Bowen Airport, Whitsunday Coast Airport, Moranbah Airport and Mackay Airport of which only the Whitsunday Coast Airport, Moranbah Airport and Mackay Airport are able to be serviced by flights from major airports such as Brisbane, Sydney and Townsville. The locations of these airports are shown on Figure 3-9.

As at 8 July 2013, Whitsunday Coast Airport had approximately three commercial flight arrivals and three departures daily. These direct flights between Whitsunday Coast Airport and Brisbane Domestic Airport are provided by Virgin Australia and Jetstar (Whitsunday Regional Council 2013a).

In comparison, Mackay Airport has a considerably larger number of domestic flights in and out with an average of 20 arrivals and 20 departures daily with Qantas, Virgin Australia, Jetstar and Tiger Airways being the major users of the Mackay Airport (Mackay Airport 2013).

The Moranbah Airport also has a considerable large number of flights in and out with an average of 15 arrivals and 15 departures daily with Qantaslink - Sunstate Airlines and Virgin Australia. The flights operate between Moranbah and Brisbane, Cairns, Townsville and Sunshine Coast.

Further details on airports within the vicinity of the local study area are provided in Volume 1 Chapter 14 Transport.

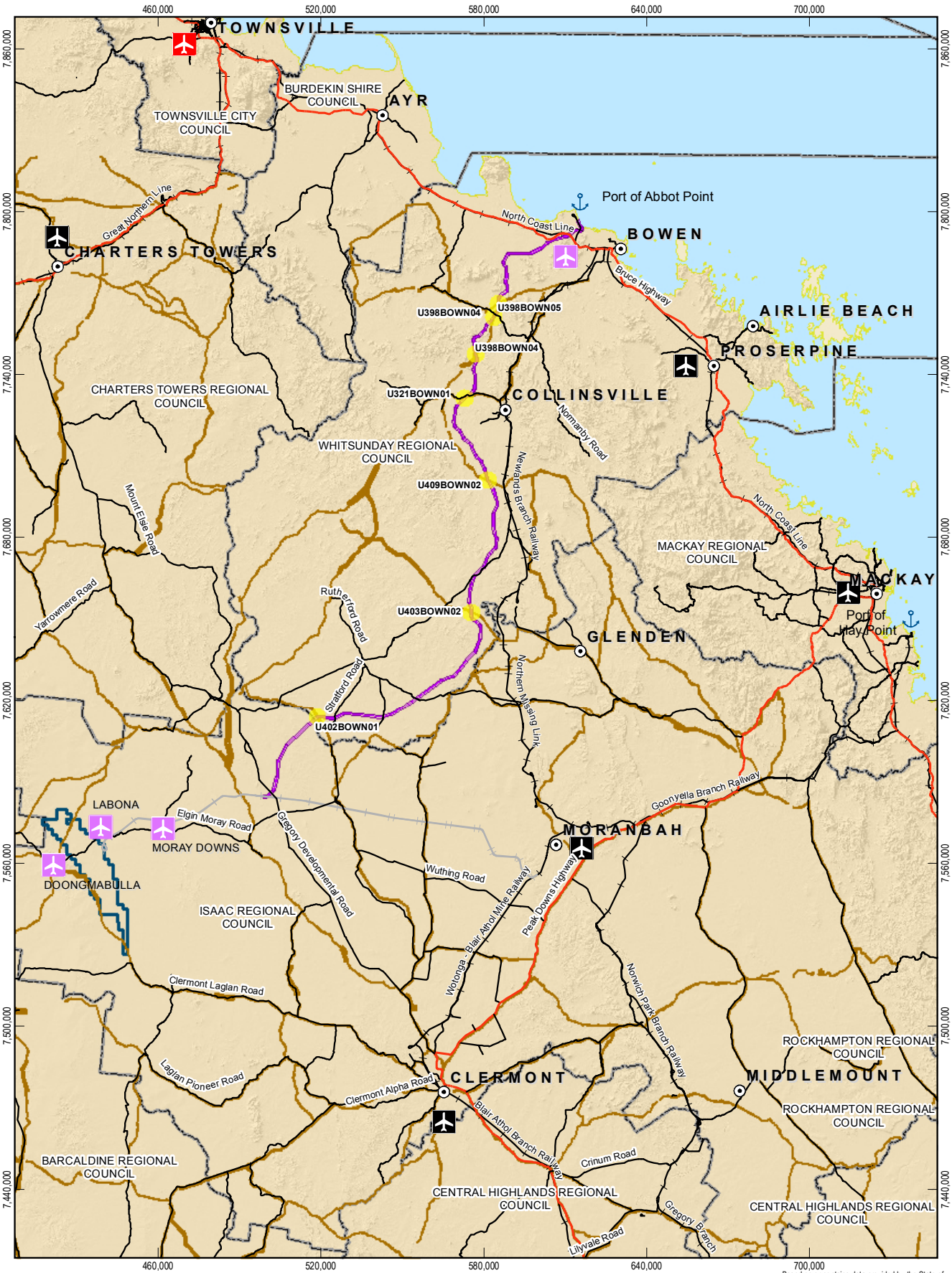
Ports

Existing ports in the vicinity of the NGBR Project are the Ports of Abbot Point, Townsville, Mackay and Hay Point (refer Figure 3-9). All ports are controlled by North Queensland Bulk Ports Corporation with the exception of the Port of Townsville which is controlled by Port of Townsville Limited. The Port of Mackay primarily facilitates the export of sugar and sugar products, grain and petroleum, while the Ports at Abbot Point and Hay Point principally export coal. The Port of Hay Point is one of the largest coal export ports in the world (NQBP 2012). The Port of Townsville is Queensland's third largest multi-commodity port and exports metals, sugar, fertiliser, and molasses (Port of Townsville Limited, 2012).

Port expansion projects are currently being investigated and developed at the Port of Abbot Point, Port of Hay Point and Port of Townsville, including the following on behalf of Adani:

- Abbot Point Coal Terminal 0 (T0) Project, a new initially 35 million tonnes per annum (mtpa) and ultimately 70 mtpa Terminal for Adani Abbot Point Terminal Pty Ltd
- Dudgeon Point Coal Terminals Project (a significant (now coordinated) project under the State Development and Public Works Organisation Act 1971 (SDPWO Act)), 180 mtpa expansion by North Queensland Bulk Ports Corporation for Adani Mining Pty Ltd (90 mtpa) and Dudgeon Point Project Management Pty Ltd (90 mtpa) (Adani Mining 2013).

Further details on ports within the vicinity of the local study area are provided in Volume 1 Chapter 14 Transport.



LEGEND

- Population Centres
- Major Port
- Airport: International, Other
- Regional
- Highway
- Main Road
- Railway
- Carmichael Project (Rail)
- Stock Route Crossing
- Stock Route
- Carmichael Project (Mine)
- Local Government Area
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:2,000,000 Paper Size A4

0 15 30 60

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number	41-26457
Revision	B
Date	29 Aug 2013

Transport infrastructure

Figure 3-9

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Airports, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads, Local Government Areas/2010, Stock Routes/2012; DME: EPC1690 (2010), EPC1080 (2011). Created by:MS

Gas and water

Gas and water infrastructure intersected by the NGBR Project final rail corridor is summarised in Table 3-8 and illustrated in Figure 3-10.

Table 3-8 Gas and water pipeline crossings

Name	Utility	Chainage	Asset owner
SunWater Burdekin Moranbah Pipeline	Water	150.70 km	SunWater
North Queensland Gas Pipeline	Gas	150.77 km	Energy Infrastructure Management Pty Ltd

SunWater constructed the Burdekin to Moranbah Pipeline to deliver water from the Gorge Weir on the Burdekin River to mining customers along the pipeline route to Moranbah (SunWater, 2013). This pipeline is currently being augmented to reach its maximum capacity to service existing customers (SunWater 2013). However, additional supply is required to meet new customer demands. To meet this nominated supply, SunWater is constructing the Gorge Weir to Byerwen Pipeline to run parallel to the existing pipeline and increase available water pipeline capacity (SunWater 2013).

The North Queensland Gas Pipeline and associated facilities provide coal seam methane gas from the Moranbah fields to Townsville's Yabulu 220 MW combined cycle power station, other industrial customers in the Townsville area and the Moranbah power station.

Energy and telecommunications

There are a total of 11 power lines, two high voltage transmission lines and three telecommunication and fibre optic cable services that cross the NGBR Project final rail corridor (refer Figure 3-10 and Table 3-9).

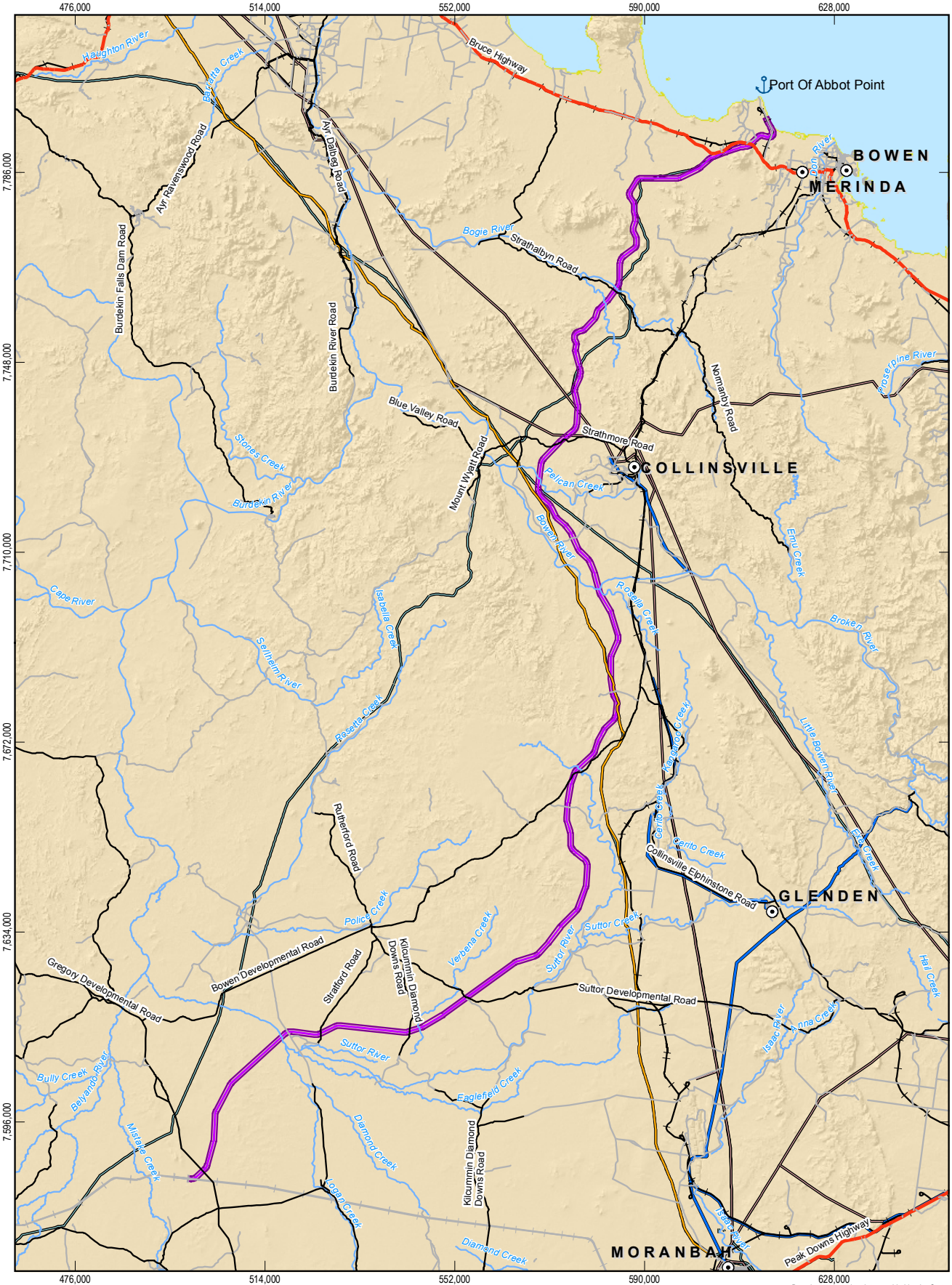
Table 3-9 Energy and telecommunications crossings

Utility	Chainage
Telstra Telecommunications optical fibre cable	12.24 km
Optus Telecommunications optical fibre cable	12.24 km
Reef Network optical fibre cable	12.24 km
Power line	12.55 km
Power line	37.65 km
Power line	50.28 km
Power line	63.45 km
HV power line	89.49 km
HV power line	95.25 km

Utility	Chainage
Power line	101.65 km
Power line	110.82 km
Power line	147.52 km
Power line	155.98 km
Power line	189.54 km
Power line	232.13 km
Power line	266.29 km

Ergon Energy is responsible for electricity supply to the Mackay area (under its Distribution Authority) and has identified emerging limitations in the electricity network supplying Moranbah and the surrounding area (Ergon Energy 2011a).

The existing power supply in Moranbah comprises of Powerlink Queensland's T34 Moranbah substation which has three 132/66/11 kV transformers supplying Moranbah town and the coal mine customers in the surrounding Bowen Basin coalfields (Ergon Energy 2011a). Ergon Energy owns and operates the 66 kV switchyard in T34 Moranbah substation, which connects four privately-owned and two Ergon Energy-owned 66 kV feeders which supply the coal mines in the area (Ergon Energy 2011a). The increase in electricity demand from the mining industry on the electricity supply network into the Bowen and Galilee Basins is expected to result in the need to augment the existing supply network if reliable supply is to be maintained, specifically the network supplying the Moranbah area (Ergon Energy 2012).



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Powerlines
- Petroleum Pipelines
- Gas Pipelines
- Water Pipelines

1:1,100,000 Paper Size A4

0 9 18 36

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Utilities

Job Number	41-26457
Revision	B
Date	28 Aug 2013

Figure 3-10

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145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Water Pipelines/2009, Populated Places, Railway, Airports, Watercourse, Powerlines/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010; DME: Petroleum Pipelines/2013. Created by:MS

3.3.6 Designated areas

Abbot Point State Development Area

Approximately 20 km of the preliminary investigation corridor is located within the APSDA between the southern boundary of the Port of Abbot Point and the south western boundary of the state development area. The NGBR Project falls within the following land use precincts under the Abbot Point State Development Area Development Scheme 2012:

- Environmental management/materials transportation precinct
- Industry precinct
- Restricted development precinct
- Infrastructure and corridors precinct.

The NGBR Project is defined as an 'infrastructure facility' under the Development Scheme and is considered to be a use that 'may meet the purpose of the land use designation', and is therefore a consistent use in the above precincts.

The consistency of the NGBR Project with the general intent and purpose of each precinct has been assessed in Volume 1 Chapter 20 Legislation and approvals.

Protected areas

The NC Act makes provisions for the management of protected areas, each with a rigid management regime. National parks and nature refuges comprise the majority of protected areas in Queensland.

The NGBR Project preliminary investigation corridor does not intersect any mapped protected area estates. A GIS assessment identified seven protected areas that occur within 10 km of the preliminary investigation corridor, these include three national parks, three nature refuges and one resources reserve (refer Table 3-6 and Figure 3-11).

Restricted areas

Restricted areas can be described as areas of land that have varying conditions and restrictions placed over them. The restrictions vary, however they relate primarily to the nature and type of activity that may be undertaken in the restricted area.

The NGBR Project traverses the following restricted areas:

- Restricted area 8 (RA8) Suttor dam site
- Restricted area 126 (RA126) Protection of Magnetite Resources.

The Suttor River dam site (RA8) was created under the *Mineral Resources Regulation 2003* to preserve an identified dam site for future development. The site is located at the junction of Murray Creek, Suttor Creek and Suttor River in the vicinity of Eaglefield. The NGBR Project intersects RA8 between chainage 201.95 km and chainage 203.00 km, and again between chainage 204.55 km to chainage 210.95 km (refer Figure 3-11).

The Suttor River dam site (RA8) has a nominated referral entity. The nominated referral entities for an application for a mining tenement (other than a prospecting permit relating to the restricted area) are DNRM (Water) and the Department of Energy and Water Supply (DEWS).

DNRM (Water) and DEWS are committed to identifying and preserving dam sites that may be required for future development. Consultation with DNRM (Water) and DEWS is required to

identify requirements relating to development and location of the NGBR Project final rail corridor within RA8.

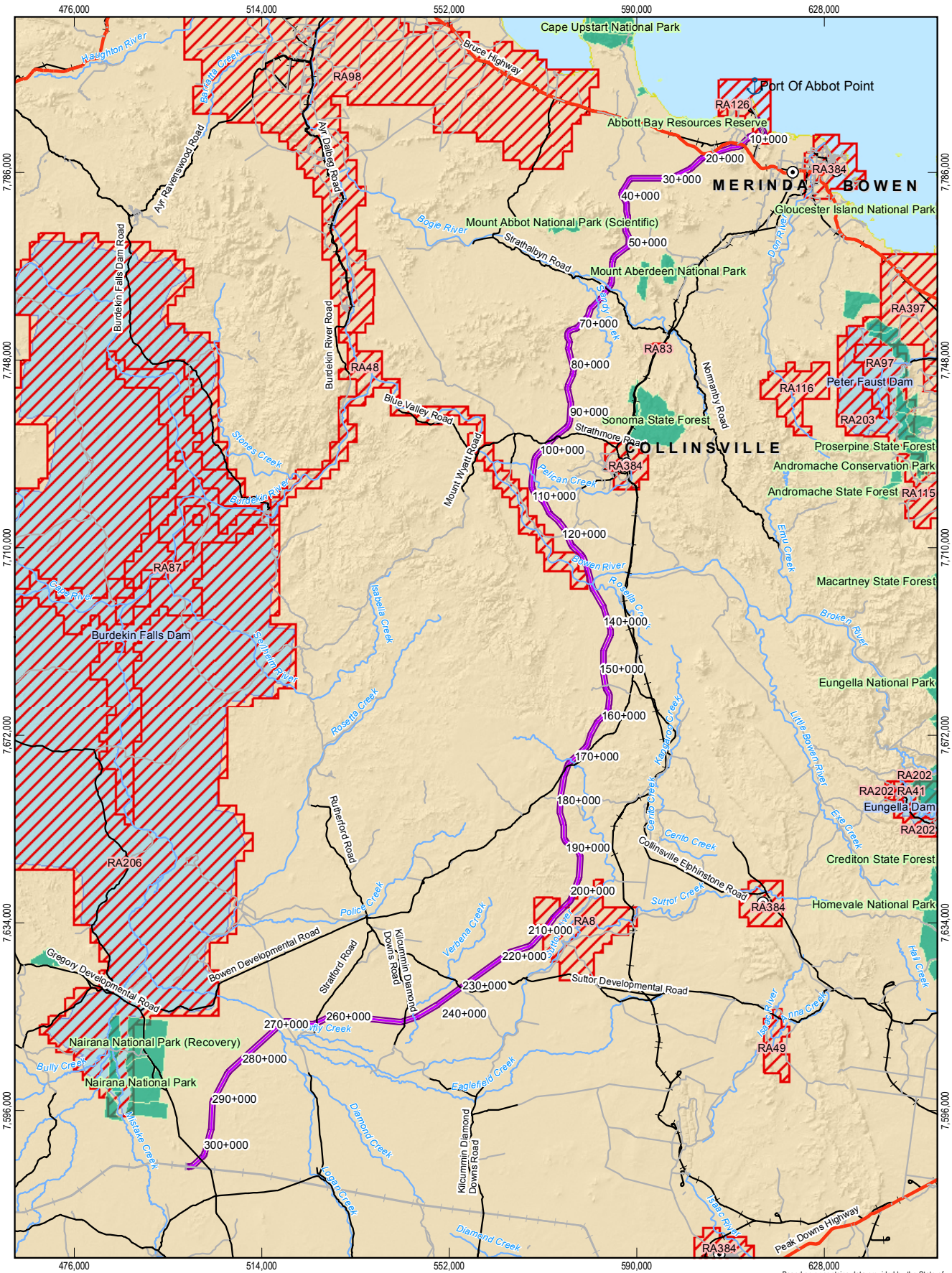
RA126 is also defined as a restricted area under the *Mineral Resources Regulation 2003* to preserve magnetite resources. The restriction on the Abbot Point area as a result of the RA designation is that all mining tenements are prohibited in this area. The NGBR Project final rail corridor intersects RA126 between chainage 3.0 km and chainage 8.0 km.

Declared water storage catchments

The NGBR Project does not traverse any declared water storage catchment, but is approximately 15 km distant from the Burdekin Falls Dam declared catchment between approximate chainage 270 km and 300 km. The Peter Faust Dam declared catchment is the next nearest, approximately 50 km distant at approximate chainage 60 km.

Key resource areas

Key Resource Areas (KRAs) are extractive resources of State or regional significance as defined in State Planning Policy 2/07 Guideline – Protection of Extractive Resources. Development in KRAs is restricted to protect the limited supply of raw construction materials that they contain. There are no KRAs within the preliminary investigation corridor. The closest KRA to the NGBR Project is KRA 37 – West Euri Creek, Bowen, which is located approximately 8.7 km south of the final rail corridor at approximate chainage 14.6 km (refer Figure 3-3).



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Protected Area
- Restricted Areas
- Declared Water Storage Catchment
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 9 18 36

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number	41-26457
Revision	A
Date	30 Aug 2013

Designated Areas

Figure 3-11

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Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

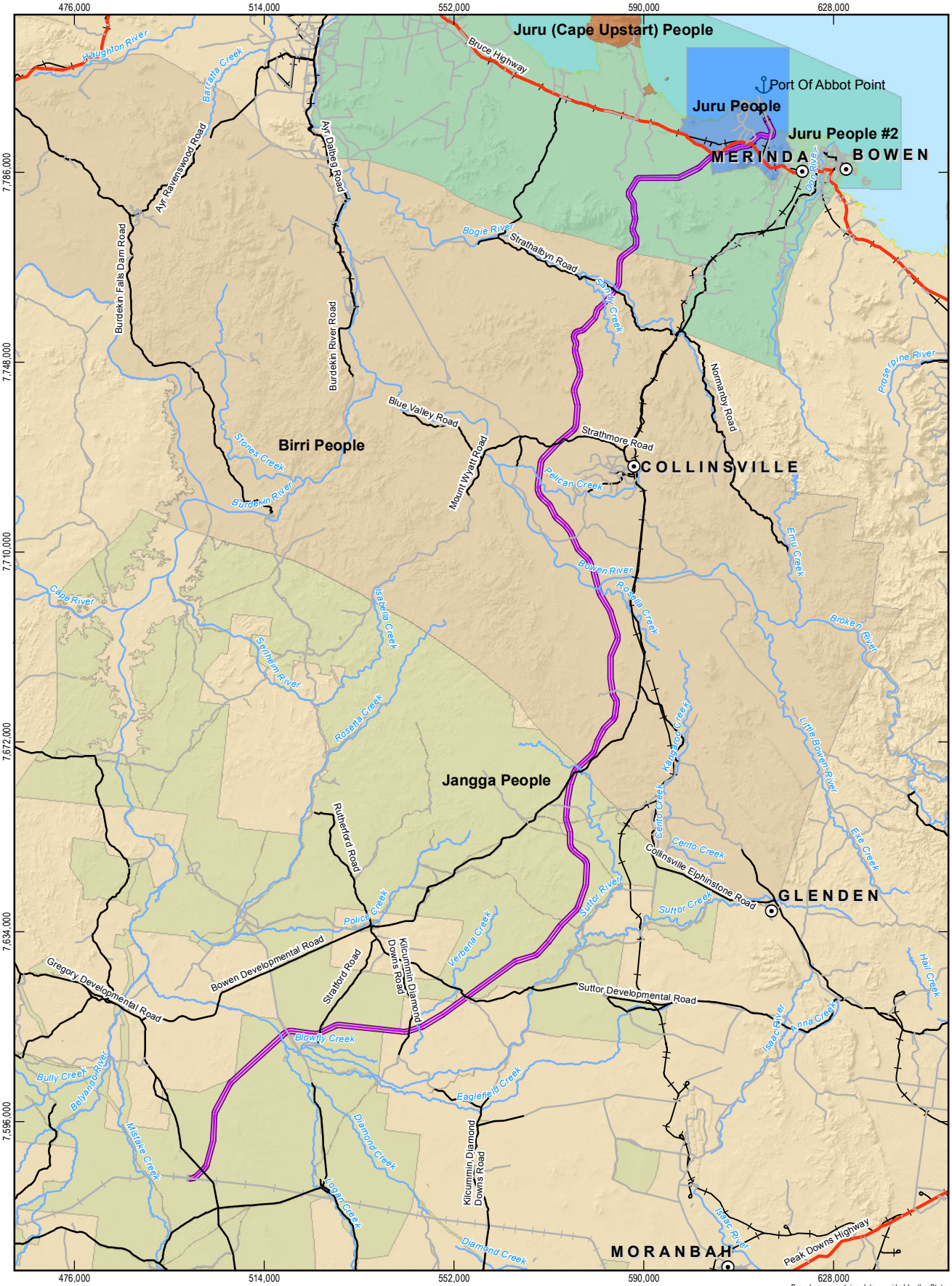
Data source: GA: Populated Places, Railway, Airports, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010, Declared Water Storage Catchments/2010, Protected Areas/2012; DME: Restricted Area/2013. Created by:MS

3.3.7 Native Title

The *Native Title Act 1993* (NT Act) recognises the rights and interests of Indigenous people under their traditional laws and customs. A Native Title search on potentially impacted properties indicates that parts of the final rail corridor are located within the external boundaries of the following registered native title claims:

- Jangga People (QUD6230/98, QC98/10)
- Birri People (QUD6244/1998, QC98/12)
- Juru People (QUD554/2010, QC10/5)
- Juru People No.2 (QUD07/2012, QC12/1).

Native Title is discussed further in Volume 1 Chapter 15 Cultural heritage.



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Local Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Native Title Claim
- Barada Barna People
- Birri People
- Juru People
- Juru People #2
- Jangga People
- Juru (Cape Upstart) People
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 9 18 36

Kilometres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55

N

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number	41-26457
Revision	A
Date	29 Aug 2013

Native Title claims

Figure 3-12

Level 9, 145 Ann Street Brisbane QLD 4000 Australia T 61 7 3316 3000 F 61 7 3316 3333 E bnemail@ghd.com W www.ghd.com

Data source: GA: Populated Places, Railway, Airports, Watercourse/2007; NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Carmichael Project (Rail) 18/06/2013; DNRM: Roads/2010; NNTT: Native Title Cliams/2013. Created by:MS

3.4 Potential impacts and mitigation measures

The construction and operation of the NGBR Project has the potential to directly impact upon land use and tenure within the local study area. The impacts will be consistent across both construction and operation stages, with the majority of the change occurring immediately on commencement of construction of the NGBR Project.

The potential impacts to land use and tenure associated with the NGBR Project in both the construction and operation phases relate to:

- Land use and accessibility
- Mining tenure and resource areas
- GQAL and SCL
- Existing and proposed infrastructure
- Restricted areas
- Native Title.

3.4.1 Land use and accessibility

Development of the NGBR Project will directly impact approximately 3,248 ha of land across 64 properties (refer Figure 3-2) resulting in a permanent land use change for impacted areas. The land use change would be from predominantly cattle breeding and fattening activities to rail infrastructure. Landholders of impacted areas will permanently (at least for the project 90 year life of the NGBR Project) lose the use of the final rail corridor area thus reducing the total area of productive agricultural land available on their properties. Compensation packages relating to this loss are the subject of ongoing discussion and negotiations with affected landholders.

Land acquisition for the NGBR Project will be approached in accordance with a land acquisition protocol (refer Volume 2 Appendix R). In accordance with the protocol, Adani will consult with stakeholders of potentially affected properties. Voluntary land access agreements and acquisition through voluntary negotiation will be sought. Where voluntary acquisition is unsuccessful, Adani will pursue compulsory acquisition through an approvals strategy including designations under the SDPWO Act (or other statutory mechanism/s):

- State Development Area (SDA)
- Private Infrastructure Facility (PIF).
- Land acquisition for the NGBR Project is further discussed in Volume 1 Chapter 2 Project description.

The majority of the properties immediately affected by the NGBR Project are zoned as rural, and are located within the jurisdictions of the following planning schemes:

- Properties within the WRC LGA (chainage 21 km – chainage 271 km) regulated by the Bowen Shire Planning Scheme (2006)
- Properties within IRC LGA (chainage 271 km – chainage 306.9 km) regulated by the Belyando Shire Planning Scheme (2008).

The NGBR Project final rail corridor also traverses the restricted development area of the APSDA (chainage 3.49 km to 21 km) regulated by the Abbot Point State Development Area

Development Scheme (2009). As the NGBR Project is for the purpose of rail infrastructure to support extractive industries, it is considered consistent with the purpose of the APSDA.

A summary of the development intent for each zone and an assessment of the NGBR Project's consistency with the objectives of the respective planning instruments are provided in Volume 1 Chapter 20 Legislation and approvals.

The potential for indirect impacts on land use at directly affected properties and properties adjacent to the final rail corridor includes dust and noise impacts. The potential dust and noise impacts of the NGBR Project are assessed in Volume 1 Chapter 10 Air quality and Volume 1 Chapter 12 Noise and vibration respectively.

The closest residential land use to the NGBR Project final rail corridor, Stratford Homestead, is approximately one kilometre from the final rail corridor boundary. The NGBR Project has been designed to maximise the distance of the NGBR Project from homesteads and associated structures and hence to minimise potential impacts on residential land uses.

The NGBR Project may also result in land fragmentation through the restriction of access between sections of a property and potentially impact the current operations of the properties in terms of vehicle, machinery and cattle movements. Private tracks and occupational crossings within and between properties will be maintained to assist in mitigating fragmentation and facilitate access to other portions of land that have been severed by the corridor. Private tracks will be joined to local roads or grade-separated to preserve their utility. Occupational crossings will be constructed to provide access typically under the NGBR Project. In other instances it may be necessary to provide occupational crossings and/or stock crossings at-grade, including appropriate treatment measures. Any modifications to existing access tracks or occupational crossings will be undertaken in consultation with relevant affected landholders.

The NGBR Project does not traverse any public recreation reserves. However, the final rail corridor does traverse the Bicentennial National Trail - a long distance, multi-use recreational trekking route that follows local rivers from the Burdekin Dam to Collinsville. The design of the NGBR Project will allow users of the Bicentennial National Trail safe and uninterrupted access through the corridor.

During construction, temporary laydown areas, temporary quarries and borrow areas, turning circles, construction depot, concrete batching sites and construction camps will be required as shown in Volume 1 Chapter 2 Project description. The five construction camps will require approximately 9.46 ha of land each. Approximately 150 ha of land will be required for laydowns and batching plants. The construction depot will require approximately 113 ha. Construction infrastructure that will not be retained in perpetuity for the purposes of operational maintenance activities will be decommissioned as soon as they cease to serve their intended purpose. The sites of the decommissioned infrastructure will then be rehabilitated to a state consistent with their original land use. The general approach will be to rip and/or regrade the site, followed by reapplication of topsoil and seeding.

Further mitigation measures that would be implemented to minimise potential impacts to land use and tenure are provided in Table 3-10.

3.4.2 Mining tenure and resource areas

The NGBR Project traverses 11 EPCs, six EPC applications, 15 EPMs, six EPM applications, an EPP and a PPL (refer to Section 3-5). However, the NGBR Project does not cross any existing mining lease or mineral development licence areas and therefore is not considered to sterilise any publically notified or known mineral resources by restricting the potential of the

resource to be mined. There are no KRAs within or impacted by the preliminary investigation corridor.

An historic literature review conducted to assess the areas encountered by the NGBR Project preliminary investigation corridor was undertaken by Xenith Consulting in March 2013. The results of the study determined that no potential major resource areas for coal, hydrocarbons or minerals are likely to be sterilised by the NGBR Project.

The following three properties were further assessed by Xenith Consulting in September 2013, due to their position in the northern Bowen Basin, and the interests in the land held by resource companies currently exploring or extracting coal reserves:

- 2DK232
- 618PH2106
- 62SP195387

The report concluded that coal resources intersected by the NBGR Project at these properties were generally thin, interbedded and/or heat affected. Six current EPCs over these properties were identified and ranked according to potential for coal resource and the area effectively sterilised by the NGBR Project. Three of the EPCs ranked 'Mid – Low', one ranked 'Low' and the remaining two ranked 'Very Low' (refer Appendix A of Volume 2 Appendix C Land use and tenure). Potentially affected EPC, PPL and EPM holders were informed of the NGBR Project and offered the opportunity to discuss the NGBR Project, as detailed in Volume 2, Appendix B - Public consultation, Section 2.6.

3.4.3 Good Quality Agricultural Land and Strategic Cropping Land

Development of the NGBR Project has the potential to isolate and sterilise areas of GQAL and SCL within the final rail corridor. Approximately 1,264 ha of GQAL will become sterilised due to the final rail corridor and permanent ancillary infrastructure and a further 405 ha will be sterilised due to temporary ancillary infrastructure.

A total of 12.01 ha of SCL passed the history of cropping test within the final rail corridor, and 5.09 ha of SCL passed the history of cropping test within the temporary ancillary infrastructure footprints.

The potential impacts of the NGBR Project on GQAL and SCL as well as proposed mitigation and management measures are discussed further in Volume 1 Chapter 5 Topography, geology, soils and land contamination.

3.4.4 Existing and proposed infrastructure

Road network

A total of 20 public roads and road reserves are likely to be intersected by the NGBR Project, of which four are considered major roads (State-controlled roads), 11 are minor roads (Council owned roads), one is a private road owned by North Queensland Bulk Ports (crossed in three locations) and four are road reserves. Road crossing treatments will include grade-separation of major roads and active protection and signalling of minor roads.

The potential for construction and operation of the NGBR Project to impact the road network, including access to properties, network performance and road pavement damage, are considered in Volume 1 Chapter 14 Transport. Potential impacts on access within properties causing disruption to existing stock and/or vehicle movements are considered in Section 3.4.1.

Stock route network

There are seven gazetted stock routes that will be traversed by the NGBR Project final rail corridor. Of these, one stock crossing (gazetted but not constructed), located at chainage 117.11 km, is proposed to be permanently closed.

The NGBR Project will potentially constrain the movement of stock on existing crossings, increasing wait times for stock on foot or truck, stressing animals and incurring delays for landholders trying to transport stock for sale. Potential delay times for vehicular stock movements are expected to be minimal and similarly of a minor nature for movements of stock on foot.

Consultation with Department of Natural Resources and Mines (DNRM) and landholders will continue regarding existing stock routes to be traversed by the NGBR Project. Where deemed necessary, holding yards may be established at either side of stock crossings or underpasses provided.

Rail network

The NGBR Project interfaces with the Collinsville-Newlands Branch Railway line, the North Coast line and two future rail corridors planned by other proponents (refer Section 3.3.5). The NGBR Project final rail corridor is situated to the west of the Newlands rail network only interacting with this rail service (via grade-separated crossing) in the northern section of the project, in the vicinity of Abbot Point.

Further details regarding the potential impacts on the rail network and associated mitigation measures are presented in Volume 1 Chapter 14 Transport.

Power lines and telecommunication cables

The NGBR Project final rail corridor intersects with the following energy and telecommunication infrastructure:

- A total of 11 power lines
- Two high voltage power lines
- Three telecommunication fibre optic cables.

Potential construction and operation impacts of the NGBR Project on power lines and telecommunications cables include:

- Impacts upon infrastructure corridor access for maintenance requirements
- Temporary disruption of services to end users of services to end users during construction
- Temporary raising or realignment during construction.

Any disturbance or potential damage to existing underground infrastructure specifically telecommunication cables will be temporary, appropriately managed and confined to the proposed construction period.

Discussions with the telecommunications service providers (Telstra, Optus, Reef Networks) are planned during detailed design to establish the most effective protection, relocation or modification for each service crossing in accordance with *AS 4799—Installation of Underground Utility Services and Pipelines within Railway boundaries*.

Additionally, ongoing consultation is being undertaken with the relevant electricity infrastructure owners (Ergon Energy, Powerlink) regarding potential disruptions to their infrastructure, including appropriate and acceptable protection measures.

Water and gas pipelines

The NGBR Project final rail corridor crosses one gas pipeline and one water pipeline namely the North Queensland Gas Pipeline and SunWater Burdekin Moranbah Pipeline. Potential impacts of the NGBR Project on water and gas infrastructure include construction activities such as bulk earthworks causing damage to underground pipes. Any disturbance or potential damage to existing underground infrastructure will be temporary, appropriately managed and confined to the proposed construction period. For example, a portal frame structure may be constructed at each existing underground pipeline to protect the asset from damage.

Further discussions with the service providers (SunWater, North Queensland Gas Pipeline Pty Ltd) are planned during detailed design to establish the most effective protection, relocation or modification for each service crossing in accordance with AS 4799—Installation of Underground Utility Services and Pipelines within Railway boundaries.

3.4.5 Restricted areas

The NBGR Project intersects the Suttor River dam site (RA8) between chainage 210.95 km to chainage 204.55 km and chainage 203.00 km to chainage 201.95 km (refer Section 3.3.6). The RA8 Dam has not yet been constructed and is currently considered a low risk site. The impacts of the NGBR Project to this area have been minimised by locating the final rail corridor as far from the dam site as practicable.

Consultation with DNRM (Water) and DEWS will be undertaken to confirm the mitigation requirements relating to development and location of the final rail corridor within RA8.

The NGBR Project final rail corridor also intersects RA126 (protection of magnetite resources) at the Port of Abbot Point between chainage 3.0 km and chainage 8.0 km. The restriction on the Abbot Point area as a result of the RA designation is that all mining tenements are prohibited in this area. The NGBR Project is not defined as a mining tenement, and is therefore considered a permissible activity in RA126.

3.4.6 Native Title

Parts of the NGBR Project final rail corridor is located within the external boundaries of the following registered native title claims detailed in Section 3.3.7.

Adani have entered into Indigenous Land Use Agreements with the Jangga People and Birri People regarding the NGBR Project. ILUAs with the Juru and Juru No. 2 People yet to be finalised, with discussions expected to commence in the third quarter of 2013. Adani will continue to engage with the Jangga, Birri and Juru Peoples, and any others as identified in accordance with the ILUAs.

Further discussions regarding the potential impacts and mitigations measures associated with indigenous cultural heritage are presented in Volume 1 Chapter 15 Cultural heritage.

3.4.7 Summary of mitigation and management measures

The mitigation and management measures outlined in Table 3-10 will be implemented to minimise and avoid the potential impacts of the NGBR Project on land use and tenure. These

mitigation and management measures will be implemented in combination with measures outlined in other chapters, including:

- Volume 1 Chapter 5 Topography, geology, soils and land contamination
- Volume 1 Chapter 10 Air quality
- Volume 1 Chapter 14 Transport.

Table 3-10 Summary of mitigation and management measures

Timing	Mitigation
Pre-construction	Consultation will be undertaken with affected landowners regarding potential loss of land during construction and operation. Where necessary, compensation with affected landholders will be negotiated.
Pre-construction and ongoing	Consultation with DEHP and affected landholders will continue throughout the NGBR Project regarding existing stock routes traversed by the final rail corridor.
Pre-construction	Consultation will be undertaken with Ergon Energy, Powerlink, Telstra, Optus, Reef Networks SunWater and North Queensland Gas Pipeline regarding potential disruptions to their infrastructure and appropriate protection measures will be developed.
Pre-construction	Consultation will be undertaken with gas and water service providers to establish the most effective protection, relocation or modification for each service crossing in accordance with AS 4799—Installation of Underground Utility Services and Pipelines within Railway boundaries.
Pre-construction	Consultation with DEHP and DNRM will be undertaken to confirm the mitigation requirements relating to development and location of the final rail corridor within RA8.
Pre-construction	Limit overall areas of disturbance during construction. Any modifications to existing access tracks or occupational crossings will be undertaken in consultation with affected landholders.
Detailed design	To minimise the potential land use impacts on affected properties, the following will be considered during detailed design: Private tracks and occupational crossings within and between properties will be maintained to assist in mitigating fragmentation and facilitate access to other portions of land that have been severed by the final rail corridor. Private tracks will be joined to local roads or grade-separated to preserve their utility. Occupational crossings will be constructed to provide access typically under the NGBR Project final rail corridor. In other instances it may be necessary to provide occupational crossings and/or stock crossings at-grade, including appropriate protection measures. Minimise the extent of intrusion of the final rail corridor into the property, including the location of the corridor adjacent to property boundaries. Limit overall areas of disturbance during construction.
Detailed design	Detailed design of the NGBR Project will include measures that allow users of the Bicentennial National Trail safe and uninterrupted access through the final rail corridor.
Detailed design	‘Spear gates’ (i.e. non-lethal exit-only gates) or similar mechanisms will be considered that allow for stock to escape the rail corridor.

Timing	Mitigation
Construction and operation	A register of wildlife incidents (fauna strike and mortality including stock incidents) will be established and maintained for the construction of the NGBR Project, recording the location and nature of the incident. This will allow for identification of trouble-spots and potential adaptive management
Construction and operation	Procedures in the event that an animal is injured will be developed. Depending on the type and extent of injuries, animals would either be taken to the nearest veterinary practitioner or wildlife care network or humanely euthanized on site by a suitably authorised and trained practitioner.

3.1 Conclusion

Construction and operation of the NGBR Project has the potential to directly impact land use and tenure within the local study area, including:

- Land use and accessibility
- Mining tenure and resource areas
- GQAL and SCL
- Existing and proposed infrastructure
- Restricted areas
- Native Title.

Operation of the NGBR Project will directly impact approximately 3,248 ha of land across 64 properties resulting in a permanent land use change for impacted areas. The land use change would be from predominantly cattle breeding and fattening activities to rail infrastructure. During construction, sites including temporary laydown areas, temporary quarries and borrow areas, a construction depot, concrete batching sites and construction camps will directly impact an additional 280 ha. However, as these areas are temporary, following decommissioning of infrastructure these sites will be rehabilitated to a state consistent with their original land use. Ongoing consultation will be undertaken with affected landowners regarding potential loss of land during construction and operation.

The majority of the properties immediately affected by the NGBR Project are zoned rural under the Bowen Shire Planning Scheme 2006 and Belyando Shire Planning Scheme 2008. The NGBR final rail corridor also traverses the APSDA.

A total of 20 public roads and road reserves are likely to be intersected by the NGBR Project. Seven stock routes are crossed, three of which are shared public road crossings. The alignment also crosses the Bicentennial National Trail - a long distance, multi-use recreational trekking route.Detailed design of the NGBR Project will include measures that allow users of the Bicentennial National Trail uninterrupted, safe access through the final rail corridor. Consultation with DEHP and affected landholders will continue regarding existing stock routes traversed by the NGBR Project. Where deemed necessary, holding yards either side of stock crossings or corridor underpasses will be incorporated into detailed design.

The NGBR Project traverses a number of existing utilities including one gas pipeline and one water pipeline, three telecommunications cables and 13 power lines (including two high voltage transmission lines). Ongoing consultation will also be undertaken with relevant asset owners and operators regarding potential disruptions to their infrastructure and appropriate protection measures during construction.

Approximately 1,264 ha of GQAL will become sterilised due to the final rail corridor and permanent ancillary infrastructure and a further 405 ha will be sterilised due to temporary ancillary infrastructure. A total of 12.01 ha of SCL passed the history of cropping test within the final rail corridor, and 5.09 ha of SCL passed the history of cropping test within the temporary ancillary infrastructure footprints.

The Suttor River dam site, defined as restricted area 8 (RA8), and restricted area 126 (RA126) (protection of magnetite resources) will be intersected by the NGBR Project final rail corridor. The NBGR Project intersects RA8 between chainage 201.95 km and chainage 203.00 km, and again between chainage 204.55 km to chainage 210.95 km. Ongoing consultation with DEHP and DNRM

will be undertaken to confirm the mitigation requirements relating to development and location of the final rail corridor within RA8.

The NGBR Project final rail corridor intersects RA126 between chainage 3.0 km and chainage 8.0 km. The restriction on the Abbot Point area as a result of the RA designation is that all mining tenements are prohibited in this area. The NGBR Project is not defined as a mining tenement, and is therefore considered a permissible activity in RA126.

After the implementation of the proposed management and mitigation measures, residual land use impacts resulting from the NGBR Project are anticipated to be minimal.

The potential cumulative impacts of the NGBR Project on land use and tenure are assessed within Volume 1 Chapter 19 Cumulative impacts.