Adani Mining Pty Ltd

NORTH GALILEE BASIN RAIL PROJECT

Environmental Impact Statement

Appendix L Cultural Heritage

November 2013

This North Galilee Basin Rail Project cultural heritage ("the Report") has been prepared by GHD Pty Ltd ("GHD") and UniQuest Pty Ltd on behalf of and for Adani Mining Pty Ltd ("Adani") in accordance with an agreement between GHD and Adani.

The Report may only be used and relied on by Adani for the purpose of informing environmental assessments and planning approvals for the proposed North Galilee Basin Rail Project ("the Purpose") and may not be used by, or relied on by any person other than Adani.

The services undertaken by GHD in connection with preparing the Report were limited to those specifically detailed in section 2.5.3 of the Report.

The Report is based on conditions encountered and information reviewed, including assumptions made by GHD, at the time of preparing the Report. Assumptions made by GHD are contained through the Report, including (but not limited to) concept design and operations information provided by Adani.

To the maximum extent permitted by law GHD expressly disclaims responsibility for or liability arising from:

- *any error in, or omission in connection with assumptions, or*
- *reliance on the Report by a third party, or use of the Report other than for the Purpose.*

Executive summary

This cultural heritage report has been prepared to describe the existing Indigenous and non-Indigenous cultural heritage values related to construction and operation of the North Galilee Basin Rail Project (NGBR Project).

The study area for this cultural heritage report, is defined by a two kilometre buffer each side of the centreline of the final rail corridor (nominal 100 m wide corridor). This four kilometre wide study area encompasses the NGBR Project footprint, comprised of the 100 m final rail corridor and ancillary infrastructure.

A search of the Native Title Tribunal database and the Department of Aboriginal and Torres Strait Islanders and Multicultural Affairs (DATSIMA) Cultural Heritage Database and Register was undertaken for the study area

The search identified four Native Title groups and one cultural heritage body as follows:

- Juru People (North Queensland Land Council Aboriginal Corporation) registered Native Title claimants (QC10/5 - QUD554/10)
- Juru People #2 (North Queensland Land Council) registered Native Title claimants (QC12/1 - QUD0007/12)
- Birri registered Native Title claimants (QC98/12 - QUD6244/98)
- Jangga People (Bulganunna Aboriginal Corporation) determined Native Title holders (QC98/10 PRC - QUD6230/98; QC98/10 DET - QUD6230/98) and its associated Jangga Operations Pty Ltd Cultural Body.

A search of the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register for the NGBR Project footprint returned a total of 21 sites, consisting of 16 artefact scatters, one stone arrangement, one quarry site with artefacts, one rock art site with associated shell midden, a second shell midden site and one isolated artefact.

Published cultural heritage surveys undertaken within the Port of Abbot Point have confirmed presence Indigenous cultural sites. However, none of these sites are listed in the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register.

The majority of the study area is located within areas extensively modified by farming (grazing and pastures) and clearing activities and therefore, the potential for in situ or largely undisturbed archaeological deposits is low. If Aboriginal cultural material has survived in the study area, it would most likely be represented by stone artefacts on raised landforms overlooking watercourses. A specific archaeological survey across the NGBR Project final rail corridor is yet to be completed.

The National Heritage List and Commonwealth Heritage List did not contain any non-Indigenous heritage places relevant to the study area. Furthermore, a search of the Queensland Heritage Register did not identify any non-Indigenous heritage places within the NGBR Project footprint. However, the search did identify ten non-Indigenous heritage sites in the wider region which help characterise the kinds of heritage places typical to the wider area. The majority of these sites are associated with the historic township of Bowen (formerly Port Denison) and with early mining or pastoral activities in the northern Bowen Basin. Community consultation in the Bowen and Collinsville areas did not identify any further non-Indigenous heritage places within the study area.

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Terms and abbreviations

Terms and abbreviations	Definition
Adani	Adani Mining Pty Ltd
CHMP	Cultural Heritage Management Plan
DATSIMA	Department of Aboriginal and Torres Strait Islander and Multicultural Affairs
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
Final NGBR Project footprint	The final rail corridor (100 m corridor) including all ancillary activities will be known as the final NGBR Project footprint. The final NGBR Project footprint will accommodate all rail infrastructure required for construction and operation, scalable to accommodate 100 mtpa product coal transport, including 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 NGBR Project. Temporary construction facilities are expected to include 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 NGBR Project. This terminology should be used in both the EIS chapter and the technical reports
Final rail corridor	The final rail corridor is a nominal 100 m wide corridor
ICOMOS	Australia International Council on Monuments and Sites
ILUA	Indigenous Land Use Agreement
mtpa	Million tonnes per annum
NGBR	North Galilee Basin Rail
Preliminary investigation corridor	The preliminary investigation corridor is a 1,000 m wide corridor
the NGBR Project	North Galilee Basin Rail Project
TOR	Terms of Reference

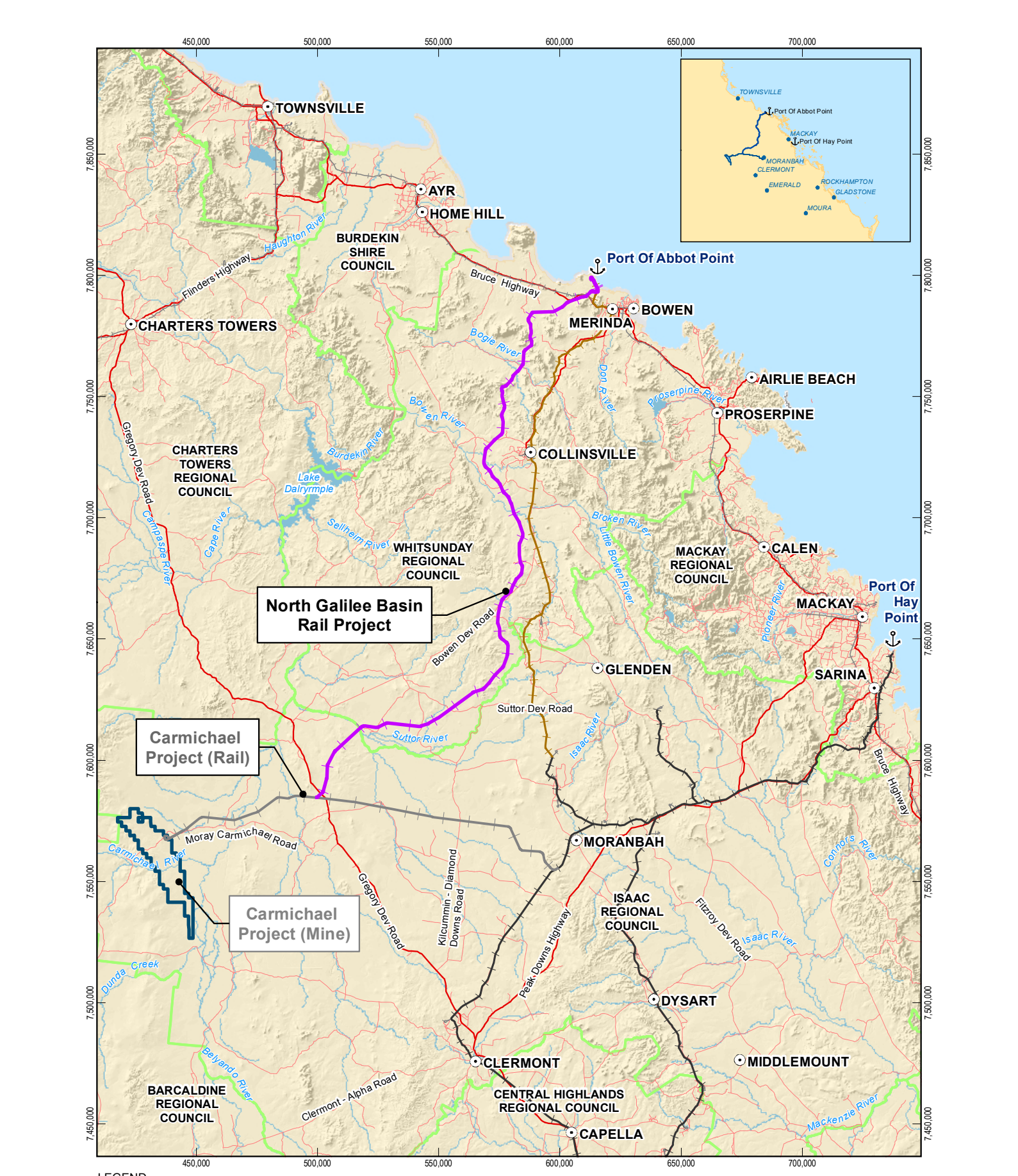
1. Introduction

1.1 Project overview

Adani Mining Pty Ltd (Adani) proposes the construction and operation of the North Galilee Basin Rail Project (the NGBR Project), a multiuser, standard gauge, greenfield rail line that will transport coal from mines in the northern Galilee Basin to the Port of Abbot Point. The NGBR Project is approximately 300 km in length and connects the proposed Carmichael Coal Mine and Rail Project's east-west rail corridor, approximately 70 km east of the proposed Carmichael Coal Mine in the vicinity of Mistake Creek, with supporting infrastructure at the Port of Abbot Point (refer Figure 1-1). The NGBR Project will have an operational capacity of up to 100 million tonnes per annum (mtpa) of coal product expected to be sourced from both Adani and third-party mines in the northern Galilee Basin. Key features of the NGBR Project include:

- Approximately 300 km of standard gauge, bi-directional rail track located within a nominal 100 m wide rail corridor (the final rail corridor)
- A rail maintenance access road running parallel to the rail track for approximately 300 km and wholly within the final rail corridor
- Seven passing loops, each 4.3 km in length
- Signalling infrastructure
- Approximately 4.5 km of fill greater than 15 m in depth (11 locations) and approximately 3.4 km of cut greater than 15 m in depth (nine locations)
- At-grade and grade-separated road, rail, stock and occupational crossings
- Bridge and culvert structures at major waterways and drainage lines, and various other longitudinal and cross drainage structures
- A rolling stock maintenance facility near the Port of Abbot Point including provisioning line, train maintenance line, wagon and locomotive service sheds, wash bay and queuing line
- Five temporary accommodation camps for construction workers
- A temporary construction depot at the southern end of NGBR Project
- Temporary construction yards, concrete batching plants, bridge and track laydown areas and heavy vehicle turning circles.

During construction, quarries and borrow pits within acceptable haulage distances will be required to provide a cost effective source of fill, gravel, aggregate and ballast. The number and location of borrow pits and quarries will be investigated further during detailed design and each may require screening and crushing plants to process material.



LEGEND

- Town
- Major Port
- Other Rail Network
- Goonyella System
- Newlands System
- Major Road
- Local Road
- Watercourse
- Local Government Area
- Carmichael Project (Rail)
- North Galilee Basin Rail
- Carmichael Project (Mine)

1:2,000,000 (at A4)

0 10 20 30 40 50

Kilometres

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55

N

Adani Mining Pty Ltd

North Galilee Basin Rail Project

Project location

Job Number 41-26457
Revision B
Date 29 Aug 2013

Figure 1-1

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

Data Source: © Commonwealth of Australia (Geoscience Australia): Town, Railways, Watercourses (2007); DNRM: LGA, (2011), Hillshade (2009); DMR: State Roads (2008); DME: EPC1690 (2010), EPC1080 (2011); Adani: Alignment Opt9 Rev3 (2012), NGBR: Alignment Opt6 Rev 2 (2013).

1.2 Scope of report

The objective of this cultural heritage report is to provide a technical assessment of the existing Indigenous and non-Indigenous cultural heritage values within the NGBR Project. The scope of this report is defined by the following values:

- Native Title claims and determinations
- Indigenous cultural heritage and historic land use
- Non-Indigenous cultural heritage and settlement history

The preparation of a Cultural Heritage Management Plan (CHMP) and Indigenous Land Use Agreement (ILUA) for the NGBR Project is being undertaken by Adani in parallel to the Environmental Impact Statement (EIS) process and as such, this report excludes dealings around native title and representative bodies that are typically covered by the CHMP or ILUA.

Adani and the Juru and Juru # 2 people have signed a CHMP that includes the NGBR Project. Discussions for the ILUA are scheduled to commence in September 2013.

Adani and the Bulganunna Aboriginal Corporation (Jangga People) have signed a CHMP that includes the NGBR Project. In-principle agreement has been reached on the terms of the ILUA, which is currently pending execution by Adani and the Jangga People.

Adani and the Birri People have signed on 28 May 2013 a CHMP and are currently negotiating the terms of an ILUA.

This cultural heritage report was prepared in accordance with the Terms of Reference (TOR) for the NGBR Project. A table that cross-references the contents of this report and the TOR is included as Volume 2 Appendix A Terms of reference cross-reference.

2. Methodology

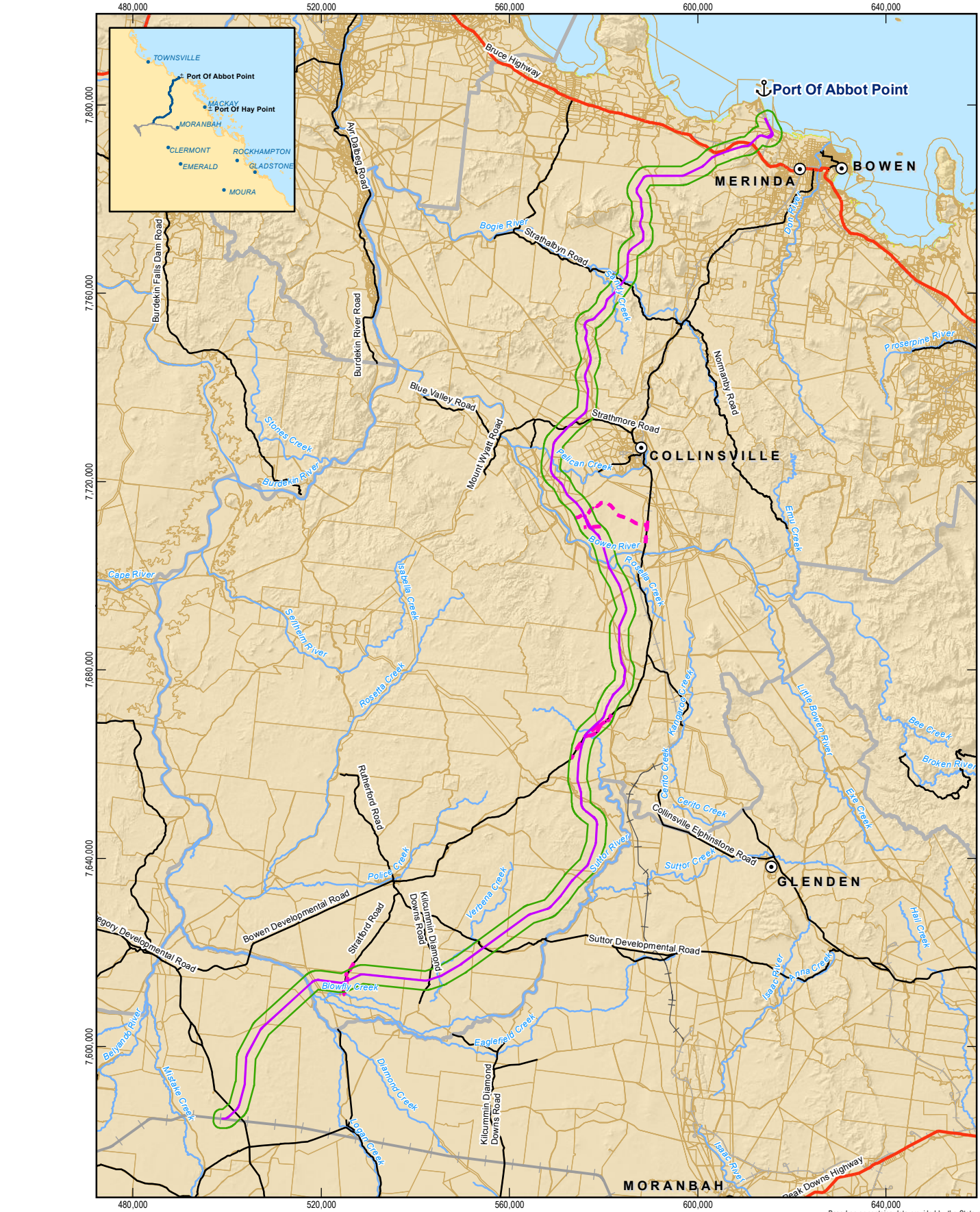
2.1 Study area

The study area for this cultural heritage report is defined by a two kilometre buffer each side of the centreline of the final rail corridor (nominal 100 m wide corridor) to allow for any minor alignment alterations (refer to Figure 2-1). This four kilometre wide study area encompasses the NGBR Project footprint, comprised of the 100 m final rail corridor and ancillary infrastructure.

2.2 Data sources

This cultural heritage report relied on the following data sources.

- North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013)
- Publicly available literature on the cultural heritage of the study area (refer section 5)
- Adani supplied CHMPs (as at 31/05/2013)
  - Birri registered native title claim CHMP
  - Jangga People (Bulganunna Aboriginal Corporation) registered native title claim CHMP
- Previous cultural heritage reports and predictive models relevant to the study area
- Archival material including survey plans and photographs
- Publicly available aerial or satellite imagery, such as Google Earth
- Indigenous cultural heritage databases
  - Aboriginal Cultural Heritage Register
  - Register of the National Estate
  - National Native Title Register
- Non-Indigenous cultural heritage databases
  - The National and Commonwealth Heritage Lists
  - The Register of the National Estate
  - The Queensland Heritage Register
  - Local heritage lists maintained by relevant councils
  - Places classified by the National Trust
  - Places listed on register maintained by the Australian Institute of Architects.



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Cadastre
- Local Government Area
- Carmichael Project (Rail)
- Proposed Access Road
- Study Area (2000m wide)
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40

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	26 Aug 2013

Study Area

Figure 2-1

G:\41\26457\06 GIS\Maps\MXD\1500_Cultural_Heritage\41_26457_1501_rev_a.mxd

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, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010, Local Government Boundaries/2010, Cadastre/2012. Created by:MS

2.3 Legislation and guidelines

Aboriginal cultural heritage in Queensland is protected under the *Aboriginal Cultural Heritage Act 2003*, and penalty provisions apply for any unauthorized harm done to Aboriginal cultural heritage as defined by the Act. Under the legislation a person carrying out an activity has a duty of care to take all reasonable and practical measures to ensure the activity does not harm Aboriginal cultural heritage. This applies whether or not such places are recorded in the Department of Aboriginal and Torres Strait Islanders and Multicultural Affairs (DATSIMA) Cultural Heritage Database and Register.

The DATSIMA website publishes the gazetted cultural heritage duty of care guidelines, which set out reasonable and practical measures for meeting the duty of care under the *Aboriginal Cultural Heritage Act 2013*. These inform the recommendations contained in this report. In order to meet the duty of care, appropriate consultation must be undertaken with the relevant Aboriginal Parties for the area. Further, Part 7 of the Act provides that a CHMP is required for projects requiring an EIS. Consultation with relevant Aboriginal parties and development of CHMPs for the NGBR Project is currently being undertaken by Adani and is outside the scope of this report.

Further explanation of relevant cultural heritage legislation and necessary approvals for the NGBR Project is provided in Volume 1 Section 20 Legislation and approvals.

2.4 Desktop assessment

2.4.1 Identification of Indigenous cultural heritage

A desktop Indigenous cultural heritage assessment was undertaken to identify known cultural heritage values in the study area in accordance with the *Aboriginal Cultural Heritage Act 2003*, associated guidelines and standard industry archaeological practice. The desktop assessment methodology for Indigenous cultural heritage involved the following tasks:

- Review of the North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013)
- Review of the relevant legislation in regard to the nature of the NGBR Project
- Review of previous cultural heritage reports and predictive models
- Search of Indigenous cultural heritage databases (as outlined in Section 2.2).

2.4.2 Classification of significance of Indigenous cultural heritage

Through the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003*, the State government seeks to provide a strategy for the protection and mitigation of significant Indigenous cultural heritage by offering a standardised process for managing cultural heritage.

The assessment of cultural heritage value, or 'significance', is a fundamental component of the heritage management process in that it assists in determining which sites, places, landscapes environments and items are of sufficient importance that they require protection, or further investigation. The significance assessment process underpins the legislative framework for heritage site protection by establishing a framework within which various types (assessment criteria) and levels (significance ratings) of heritage value can be defined. The effective assessment of these values will in turn facilitate the formulation of appropriate management decisions for a specific heritage item, whether an archaeological site, place or landscape.

A process for establishing cultural significance is outlined in the Australia International Council on Monuments and Sites (ICOMOS) Charter for the Conservation of Places of Cultural Significance, otherwise known as 'The Burra Charter'. The Australia ICOMOS Burra Charter (1999) is itself based on preceding international charters formulated by ICOMOS.

The Burra Charter (Australia ICOMOS 1999a) defines cultural heritage significance as the "aesthetic, historic, scientific, social or spiritual value for past, present or future generations" (Article 1.2). The Burra Charter and its associated guidelines (Australia ICOMOS 1999b) define the basic principles, processes and practices upon which statutory assessments of heritage significance are based. Sometimes, assessment criteria are broadly grouped into the following two categories, for the purposes of assessing Indigenous heritage places.

- Social/spiritual significance
- Scientific significance

These categories are described below, in accordance with the Burra Charter and guidelines.

Social/spiritual significance refers to the ways in which a place may become a focus of spiritual, political, national or other cultural sentiment to a majority or minority group. For most Aboriginal groups, cultural heritage places hold a strong social or spiritual significance. Aboriginal tradition is not static and unchanging from a distant 'authentic past'; 'tradition' is the handing down of beliefs and practices from one generation to the next. Cultural heritage may acquire 'significance in accordance with Aboriginal tradition' with the passage of time. A statement of the significance of the Aboriginal cultural heritage found, discovered and/or subject to investigation in terms of this definition of 'cultural heritage significance' is an essential step in the process of developing cultural heritage management recommendations.

Scientific significance of cultural heritage places represents the quality and quantity of (usually) archaeological data that can provide insight into past cultural and/or environmental conditions. Scientific significance is assessed by examining the research potential and representativeness of archaeological sites recorded. Research potential is in turn assessed by examining site contents and site condition. Archaeologists commonly ask three general questions in assessing the scientific significance of archaeological places:

- Can the site yield data that no other resource can?
- Can the site yield data that no other site can?
- Can the site yield any other data of relevance to substantive questions relating to human history?

The ways in which these questions will be answered will depend on such things as the condition and integrity of identified sites. It should be noted that the approach advocated here is specifically designed for the assessment of archaeological sites, and may not necessarily apply to the assessment of other types of cultural heritage.

An assessment of significance for all known and potential Indigenous cultural heritage identified in this desktop research has not been undertaken. For this to occur, it would be necessary to consult with the relevant Aboriginal parties, a matter outside the scope of this assessment. However, a search of the cultural heritage sites contained within the DATSIMA Cultural Heritage Database and Register has been undertaken. The Database and Register search identified places but did not include a statement of the ways in which these places may be significant to the relevant Aboriginal party. For the purposes of this report, all cultural heritage places identified by the search of the Database and Register have been conservatively assessed to have a potentially high social/spiritual significance rating.

For those places on the Database and Register that are demonstrated as being within the NGBR Project final rail corridor, scientific significance must be assessed against the significance criteria provided in Table 2-1, which considers site contents, condition, and representativeness. Furthermore, any sites identified through future cultural heritage survey of the final rail corridor will be assessed according to the same criteria.

Table 2-1 Indigenous cultural heritage significance criteria

Type	Score			
	0	1	2	3
Site contents	No cultural materials remaining	Site contains a small number or limited range of cultural materials with no evident stratification	Site contains a larger number, but limited range of cultural materials and/or some intact stratified deposit remains	Site contains a large number and diverse range of cultural materials and/or largely intact stratified deposit and/or surface spatial patterning of cultural materials that still reflect the way in which the cultural materials were laid down
Site condition	Site destroyed	Site in a deteriorated condition with a high degree of disturbance; some cultural materials remaining	Site in a fair to good condition, but with some disturbance	Site in an excellent condition with little or no disturbance
Representativeness	N/A	Common occurrence	Occasional occurrence	Rare occurrence

Overall scientific significance ratings for sites, based on a cumulative score for site contents, site condition and representativeness are as follows:

- 1 to 4 - low scientific significance
- 5 to 7 - moderate scientific significance
- 8 to 9 - high scientific significance.

2.4.3 Identification of non-Indigenous cultural heritage

A desktop non-Indigenous cultural heritage assessment was undertaken to identify known cultural heritage values in the study area. The desktop assessment methodology for non-Indigenous cultural heritage involved the following tasks:

- Review of the North Galilee Basin Rail Concept Design Report (Aarvee 2013)

- Review of the relevant legislation in regard to the nature of the NGBR Project
- Review of publicly available aerial or satellite imagery, such as Google Earth
- Search of appropriate non-Indigenous cultural heritage databases.

The assessment sought to identify potential heritage places within the study area, including the following:

- Historic homesteads, outstations and shearing sheds
- Historic bridges, roads and culverts
- Historic railway stations and railway lines
- Cemeteries, parks and recreational areas
- Cultural plantings such as windbreaks
- Historic mining infrastructure and facilities.

2.4.4 Classification of significance of non-Indigenous cultural heritage

The identification of non-Indigenous heritage items (refer Section 2.4.3), formed the basis for an assessment of heritage item significance in according with the following heritage assessment criteria derived from the *Queensland Heritage Act 1992*:

- Criterion (a) – Historical significance
- Criterion (b) – Rare, uncommon, endangered
- Criterion (c) – Potential to yield information
- Criterion (d) – Representativeness of a class or place
- Criterion (e) – Aesthetic significance
- Criterion (f) – Creative or technical achievement
- Criterion (g) – Special associations with community or cultural group
- Criterion (h) – Special associations with person, group or organization.

2.4.5 Theme Groups within the Australian Historic Themes Framework

The Australian Historic Themes Framework (2001) is a research tool that assists in the identification, assessment, interpretation and management of nationally, state or locally significant heritage. The framework comprises nine Theme Groups which encompass more specific themes and sub-themes. The theme groups include:

- Tracing the Evolution of the Australian Environment
- Peopling Australia
- Developing Local, Regional and National Economies
- Building Settlements, Towns and Cities
- Working
- Educating
- Governing
- Developing Australia's Cultural Life
- Marking the Phases of Life.

2.5 Stakeholder engagement

2.5.1 Traditional owners

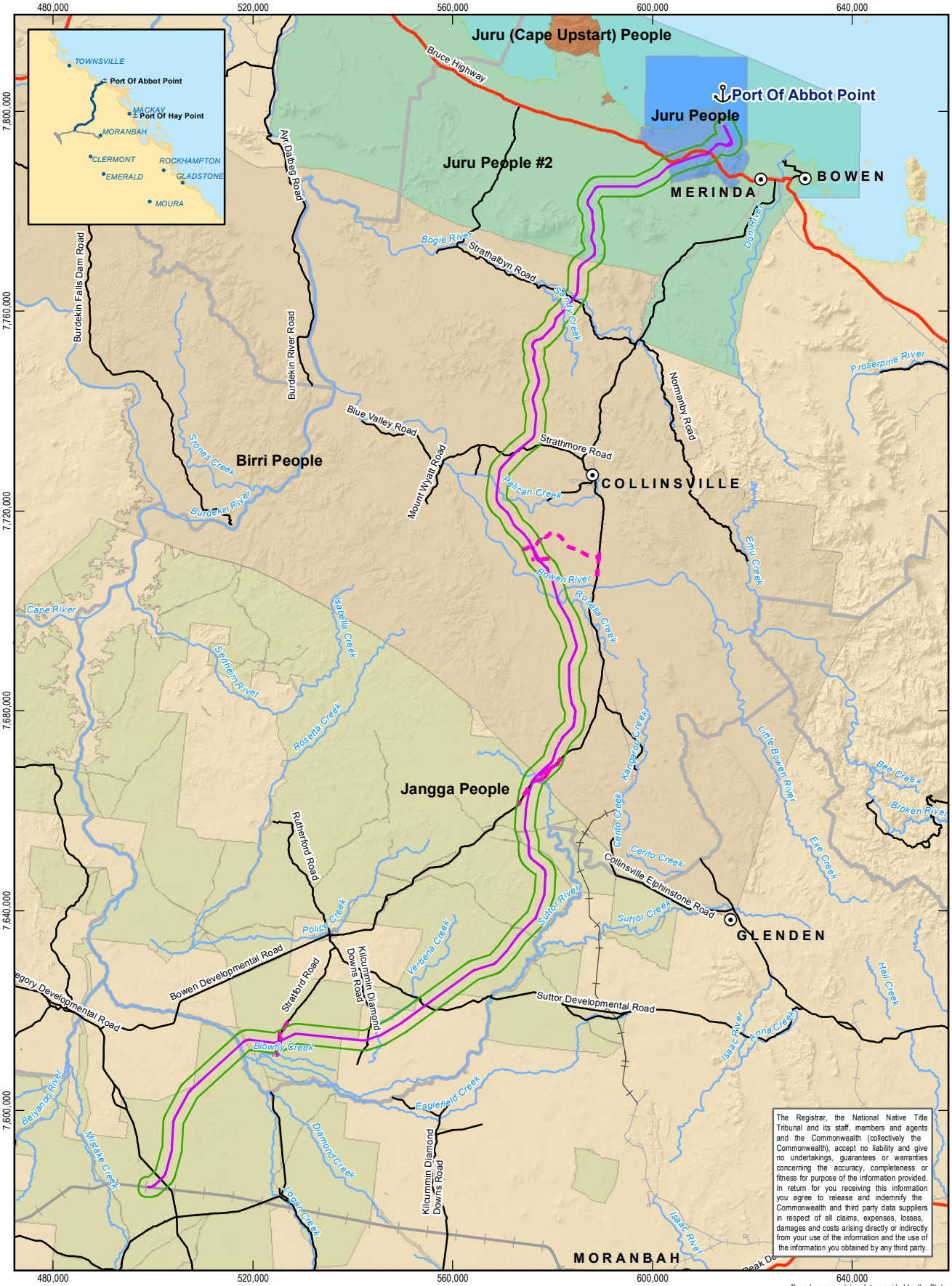
A search of the National Native Title Tribunal database and the DATSIMA Cultural Heritage Database and Register search identified four Native Title groups and one cultural heritage body as follows:

- The first 10 km (approximately) of the NGBR Project is located within the external boundaries of the Juru People (North Queensland Land Council Aboriginal Corporation) registered native title claim (QC10/5 - QUD554/10)
- Approximately 30 km of the NGBR Project is located within the external boundaries of the Juru People #2 (North Queensland Land Council) registered native title claim (QC12/1 - QUD0007/12)
- Approximately 120 km of the NGBR Project is located within the external boundaries of the Birri registered native title claim (QC98/12 - QUD6244/98)
- Approximately 180 km of the NGBR Project is located within the external boundaries of the Jangga People (Bulganunna Aboriginal Corporation) native title determination area (QC98/10 PRC - QUD6230/98; QC98/10 DET - QUD6230/98) and the associated Jangga Operations Pty Ltd Cultural Heritage Body.
- Approximately 19 km of the NGBR Project is located within an unclaimed area. One leasehold lot and three freeholds lots are traversed by the NGBR Project in this area.

Consultation with relevant Aboriginal parties is being undertaken by Adani. This consultation has included negotiation regarding CHMPs with the Aboriginal parties and included the following:

- A process for undertaking cultural heritage surveys within the NGBR Project footprint
- A process for including Indigenous people associated with the NGBR Project footprint area in assessment of the Indigenous cultural heritage values of the NGBR Project footprint and the protection and management of Indigenous cultural heritage
- Processes for mitigating, managing and protecting identified cultural heritage sites and objects in the NGBR Project footprint, including associated infrastructure developments, during both the construction and operational phases of the project
- Provisions for managing the accidental discovery of cultural material, including burials
- A clear recording process to assist initial management and recording of accidental discoveries
- A cultural heritage induction for NGBR Project staff
- Developing a cultural heritage awareness program to be incorporated into the contractor/employee manual and induction manual. This is likely to be in the form of a plain language, short document that is easy for contractors and staff 'on the ground' to understand
- A conflict resolution process.

Details of CHMPs are confidential to the signatories and are not provided within this report. Figure 2-2 illustrates the location of Aboriginal parties with an interest in the area potentially affected by the NGBR Project.



The Registrar, the National Native Title Tribunal and its staff, members and agents and the Commonwealth (collectively the Commonwealth), accept no liability and give no undertakings, guarantees or warranties concerning the accuracy, completeness or fitness for purpose of the information provided. In return for you receiving this information you agree to release and indemnify the Commonwealth and third party data suppliers in respect of all claims, expenses, losses, damages and costs arising directly or indirectly from your use of the information and the use of the information you obtained by any third party.

LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Local Government Area
- Native Title Claim
- Jangga People
- Juru (Cape Upstart) People
- Birri People
- Juru People
- Juru People #2
- Carmichael Project (Rail)
- Proposed Access Road
- Study Area
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40

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 claim boundaries

Figure 2-2

G:\41\26457\06 GIS\Maps\MXD\1500_Cultural_Heritage\41_26457_1502_rev_a.mxd

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, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010, Local Government Boundaries/2010; NNTT: Native Title Claims/2013. Created by:MS

2.5.2 Non-Indigenous community groups

In order to produce a list of potential non-Indigenous cultural heritage places, and potential adverse impacts, searches of relevant non-Indigenous cultural heritage databases were supplemented by strategic consultation with a small number of community groups and local government authorities.

Consultation was undertaken with community groups and historical societies in Bowen and Collinsville, as well as relevant local government authorities. These consultations were aimed at supplementing the known heritage values obtained from national and state level heritage registers. Community consultation also assisted in the identification of places of 'social significance' which might not be picked up in desktop research alone. Table 2-2 summarises the extent and nature of these consultations.

Table 2-2 Non-Indigenous cultural heritage consultation summary

Group	Contact	Nature	Date	Result
Whitsunday Regional Council	Manager - Strategic Planning	Letter Phone Phone Email Phone Meeting	7/6/13 19/6/13 20/6/13 24/6/13 26/6/13 27/6/13	Draft local heritage register indicates no historical sites within NGBR Project footprint. Nor will historical areas within existing planning scheme be affected by works within the study area.
Isaac Regional Council	Switchboard	Letter Phone	7/6/13 19/6/13	No local heritage register
Collinsville Memoirs Online	Telecentre co-ordinator	Letter Phone Meeting	7/6/13 19/6/13 27/6/13	Deferred to local historians Ray Wallace and Lorraine Fisher
Coalface Experience (Collinsville)	Manager	Letter Phone	7/6/13 19/6/13	Deferred to Mining Communities United
Mining Communities United (Collinsville)	Manager	Letter Phone Meeting	7/6/13 19/6/13 27/6/13	No known cultural heritage impacts
Bowen Historical Society and Museum	Local historian	Letter Phone Meeting	7/6/13 19/6/13 26/6/13	No known heritage impacts.
Queensland Chapter of the Australian Railway Historical Society	Curator	Letter Phone Phone	7/6/13 19/6/13 24/6/13	Awaiting return call from railway historian.

2.5.3 Limitations

The level of detail of this cultural heritage report was limited by the information provided in the North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013) and publicly available literature for similar projects. This cultural heritage report relied upon a number of data sources, including cultural heritage registers. Cultural heritage registers do not represent an exhaustive list of cultural heritage for a given site. The absence of recorded cultural heritage for a given area may reflect a lack of prior cultural heritage surveys having taken place rather than an actual absence of cultural heritage.

3. Existing environment

3.1 Environmental context

The study area is within the drainage areas of the Suttor River, Bowen River and Lower Burdekin River catchments (all within the Burdekin River Basin), and the Don River Basin. Within the Don River Basin, the study area is within minor coastal drainage areas such as Splitters Creek, Saltwater Creek and Elliot River (refer Figure 3-1). A more detailed description of the catchments and surface water characteristics relevant to the NGBR Project is provided in Volume 2 Appendix H1 Water Resources.

According to data obtained from National Mapping Division, Geoscience Australia, the study area falls within the region of the Brigalow Belt biogeographic region, which is generally defined by the distributional limits of open forests and woodland communities dominated by brigalow (*Acaia harpophylla*). An interpretation of pre 1788 native vegetation of the study area suggests low and medium-storey acacia communities, as well as low and medium-storey eucalyptus communities were once present (refer Figure 3-2). The pre 1788 mapping was used to guide the assessment of the likely history of Aboriginal land use in the area. A more detailed description of the vegetation characteristics relevant to the NGBR Project is provided in Volume 2 Appendix F Nature conservation.

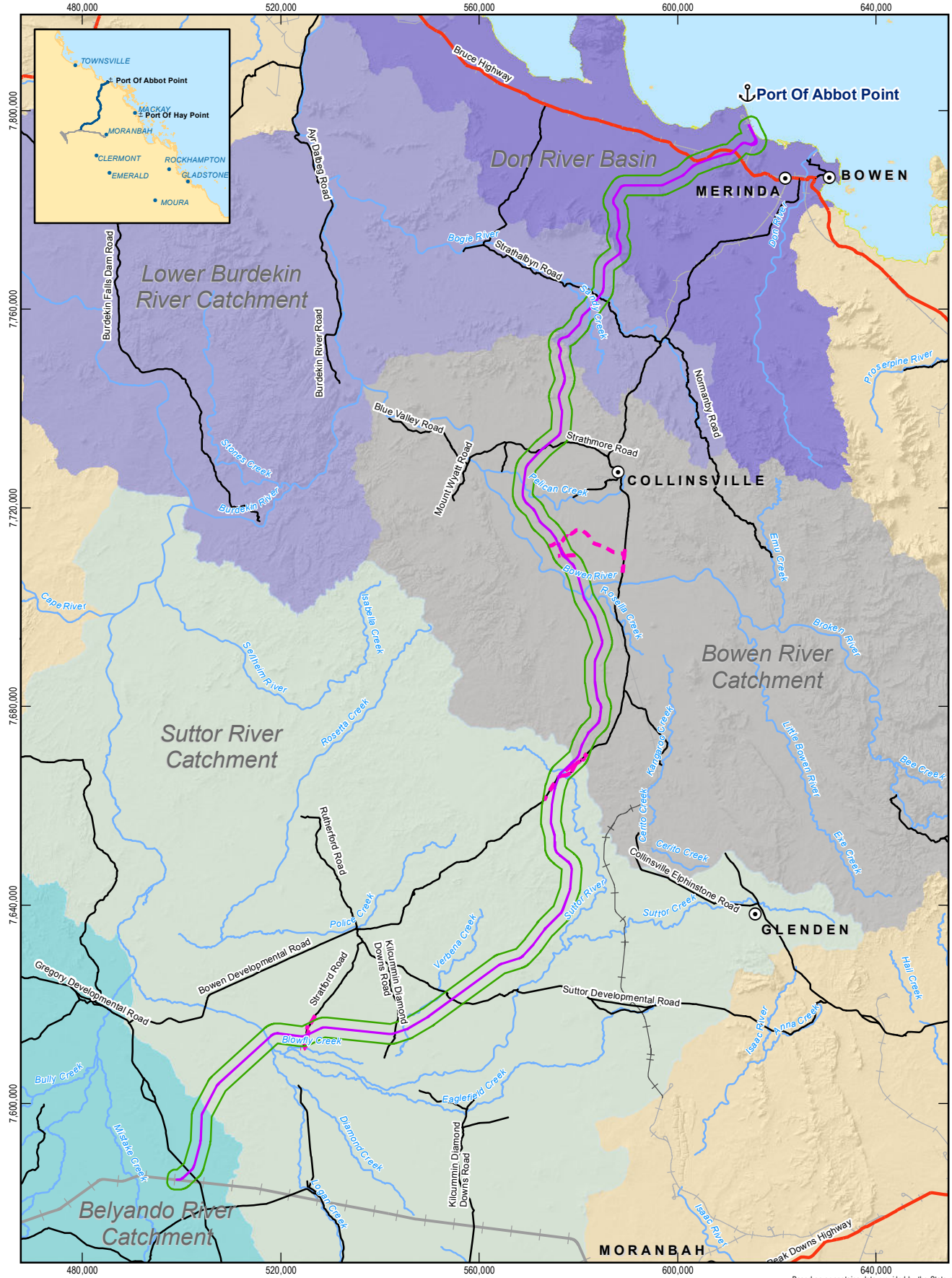
The region today is still dominated by Acacia and Eucalyptus open forest and woodlands, although much of the NGBR Project has been widely cleared of the original brigalow/softwood scrub with occasional stands of regrowth, usually sclerophyll (e.g. eucalypts, acacias, tea trees), found scattered over the undulating terrain.

The northern Bowen Basin has lithostratigraphic units that range from the Permian through to the Quaternary periods. The sea entered the Bowen Basin for the first time in the Early Permian resulting in major subsidence and widespread deposition (Dobbie 1995). Late Permian non-marine coal bearing sediments over-lie Early Permian marine sediments and are composed of sandstone, siltstone, carbonaceous shale, cherty mudstone, coal and conglomerate. Surface outcrops are mostly of the sedimentary type (e.g. sandstone, shale), while smaller localised exposures of granite and basalt also occur (Finney 1982). Stone resources in the area are relatively poor, with an abundance of crumbly mudstone and brittle basalt.

The southern half of the NGBR Project traverses gently undulating to flat elevated tablelands with steeply incised water lines surrounded by occasional raised landforms associated with the margins of the Leichhardt Range and Clarke Range, while the northern half of the alignment traverses gently undulating lowland plains with incised water lines and which slope gently down to the coastal plain (refer Figure 3-3).

The study area is characterised by a complex pattern of soils, the distribution of which is determined by lithography, topography, past and present climate, weathering, denudation and deposition patterns in alluvial areas. The soils of the raised landforms are predominantly red and yellow earths, while the deflated lowland plains are widely characterised by deep cracking clay soils (Trueman 2003). A more detailed description of the soil characteristics relevant to the NGBR Project is provided in Volume 2 Appendix E Topography, geology, soils and land contamination.

The climate of each meteorological region can be described by the modified Koeppen classification for climate classification in Australia (Stern et al., 2000), with 'tropical', 'subtropical' and 'grassland' all possible climate descriptors within the study area. The annual mean rainfall across the study area is dominated by the wet season (December to March) producing convectively driven rainfall (refer Volume 2 Appendix I Air Quality).



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Major Drainage Areas
- Belyando River Catchment
- Suttor River Catchment
- Bowen River Catchment
- Don River Basin
- Lower Burdekin River Catchment
- Carmichael Project (Rail)
- Proposed Access Road
- Study Area
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40

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	26 Aug 2013

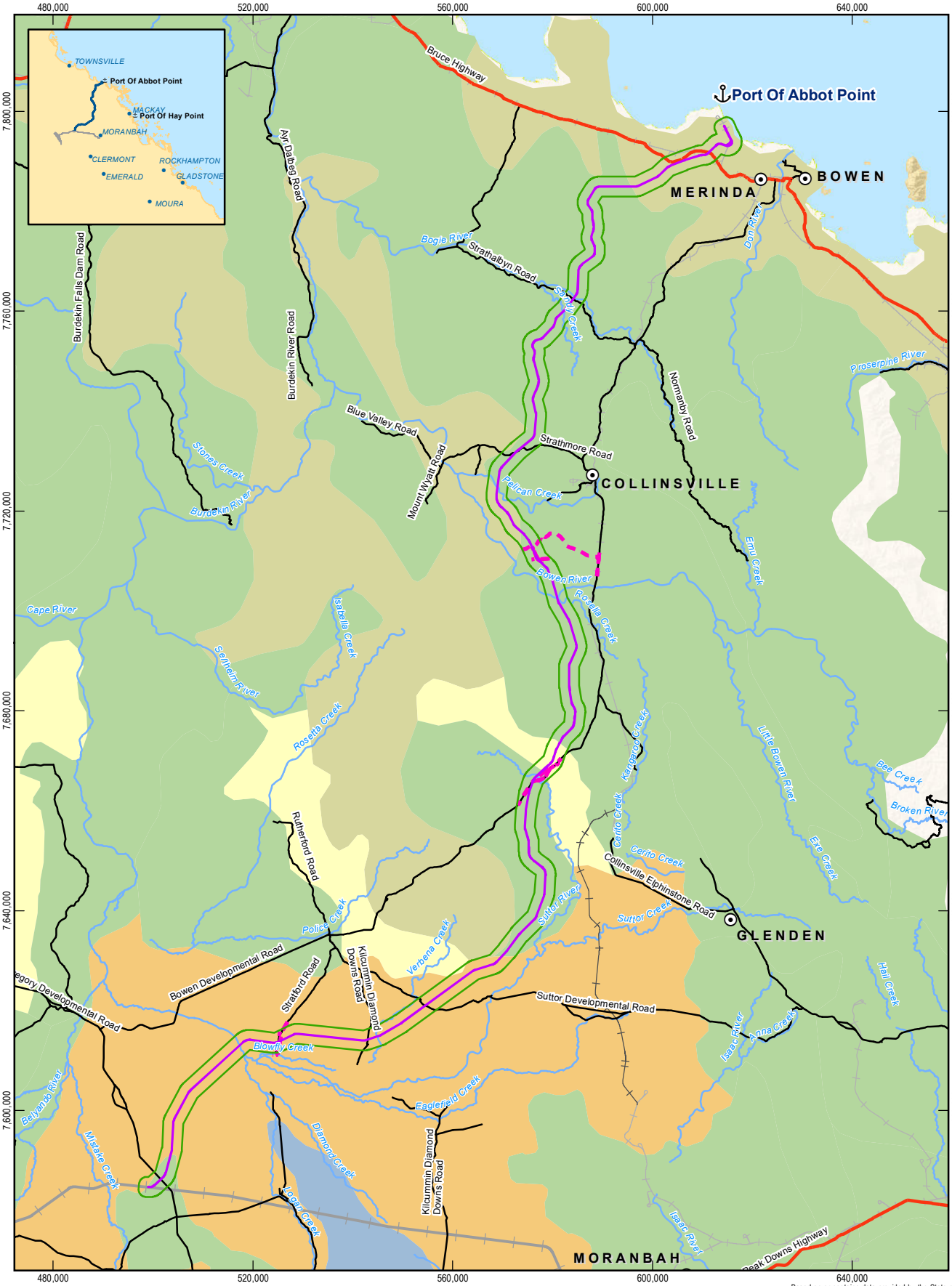
River Catchments

Figure 3-1

G:\41\26457\06 GIS\Maps\MXD\1500_Cultural_Heritage\41_26457_1503_rev_a.mxd

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, Burdekin River Basin/2007; Adani: NGBR Corridor 13/05/2013 NGBR Corridor 06/06/2013, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010, River Basins/2009. Created by:MS



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Vegetation Communities
- Bluegrass
- Low acacia
- Low eucalypts
- Medium acacia
- Meduim eucalypts
- Carmichael Project (Rail)
- Proposed Access Road
- Study Area
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40

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

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Date	26 Aug 2013

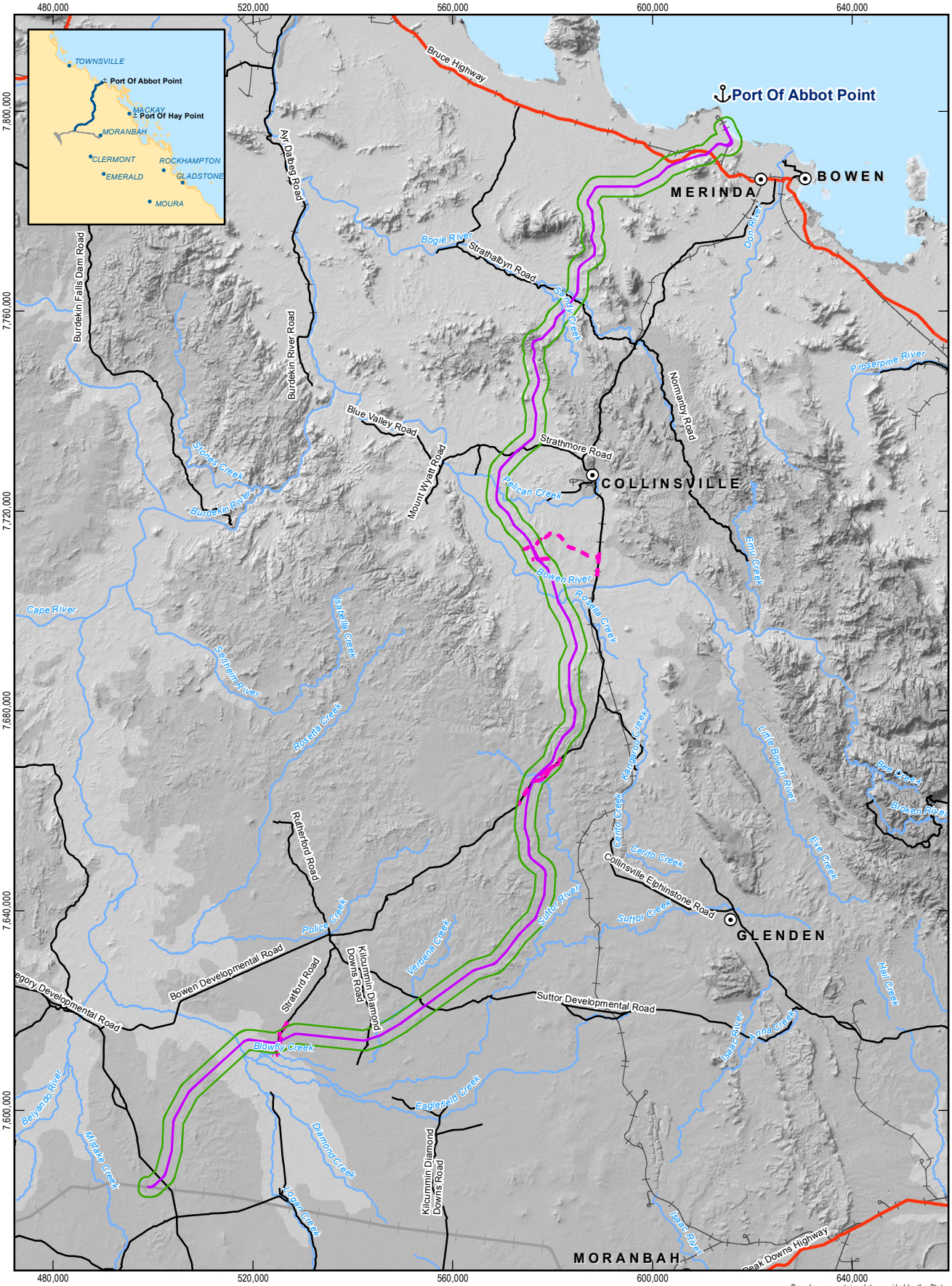
Pre-1788 Native Vegetation Communities

Figure 3-2

G:\41\26457\06 GIS\Maps\MXD\1500_Cultural_Heritage\41_26457_1504_rev_a.mxd

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, Drainage Basins, Pre 1788 Vegetation/2007; Adani: NGBR Corridor 13/05/2013 NGBR Corridor 06/06/2013, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010. Created by:MS



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Elevation (mAHD)
- 0 to 200 metres
- 200 to 500 metres
- 500 to 1000 metres
- 1000 to 1500 metres
- Carmichael Project (Rail)
- Proposed Access Road
- Study Area
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40

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	26 Aug 2013

Elevation

Figure 3-3

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, Drainage Basins, Pre 1788 Vegetation/2007; Adani: NGBR Corridor 13/05/2013 NGBR Corridor 06/06/2013, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010,Elevation/2012. Created by:MS

3.2 Indigenous cultural heritage

3.2.1 Heritage values

A search of the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register for the NGBR Project footprint was undertaken on 13 May 2013. A total of 21 sites were identified consisting of 16 artefact scatters (most of which include multiple coordinates), one stone arrangement, one quarry site with artifacts, one rock art site with associated shell midden, one shell midden and one isolated artifact (Table 3-1 and Figure 3-4). The search results do not include data on the contents, context and level of preservation of the registered sites, and therefore the scientific significance of each site cannot be assessed. Similarly, the search results do not include a statement of broader cultural significance (information that can only be established through consultation with the appropriate Traditional Owner groups).

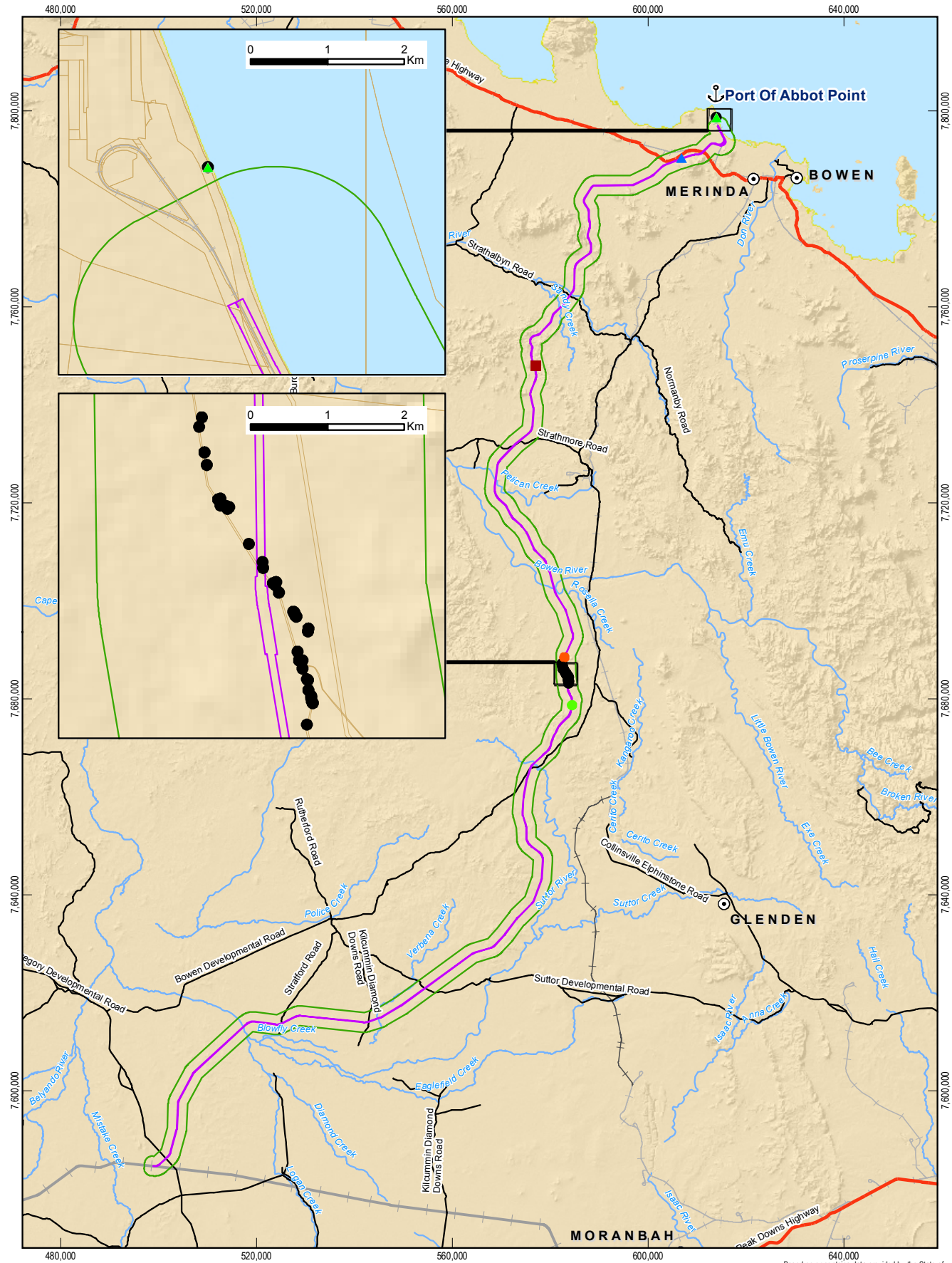
A number of cultural heritage surveys have been undertaken within the Port of Abbot Point that have confirmed the coastline is an area rich in Aboriginal cultural sites 1999 (Barker), 2005 and 2009 (Bird) (NQBP 2010).The Port of Abbot Point Environmental Management Plan (EMP) (NQBP 2010) references the recording of extensive sites associated with middens, camping grounds and sites that contained “a diversity of marine and estuarine shellfish, stone artefacts, stone manuports (large granitic river cobbles), turtle and dugong bone”. However, none of these sites are recorded within the EMP or are listed in the Aboriginal and Torres Strait Islander Cultural Heritage Database and Register.

Coordinates for each registered site have not been included in this result because such information can only be provided subject to the agreement of relevant Aboriginal parties.

Table 3-1 Results of the cultural heritage database and register search

Site Id	Site type	Aboriginal party	Significance	
			Cultural	Scientific
GJ:A02	Stone Arrangement	Birri	Potentially High	Unknown
GJ:A31	Painting, Shell Midden	Juru People	Potentially High	Unknown
GJ:A99	Artefact Scatter, Quarry	Birri	Potentially High	Unknown
GJ:C43	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C44	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C45	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C46	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C47	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C48	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C49	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C50	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C51	Artefact Scatter	Birri	Potentially High	Unknown

Site Id	Site type	Aboriginal party	Significance	
			Cultural	Scientific
GJ:C52	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C53	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C54	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C55	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C56	Artefact Scatter	Birri	Potentially High	Unknown
GJ:C57	Artefact Scatter	Birri	Potentially High	Unknown
GJ00000134	Isolated Find	Birri	Potentially High	Unknown
GK:A30	Artefact Scatter	Juru People #2	Potentially High	Unknown
GK:A34	Shell Midden	Juru People #2	Potentially High	Unknown



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Existing/Other Rail Network
- Watercourses (Major)
- Study Area
- Artefact Scatter
- Artefact Scatter, Quarry
- Isolated Find
- Painting, Shell Midden
- Shell Midden
- Stone Arrangement
- Carmichael Project (Rail)
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40 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

Results of the Cultural Heritage Database and Register Search

Figure 3-4

G:\41\26457\06 GIS\Maps\MXD\1500_Cultural_Heritage\41_26457_1506_rev_b.mxd

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, Camichael Rail Project/2012, Cultural Heritage Study Area/2013; DNRM: Roads/2010; UQCHU: Cultural Heritage Results/2013. Created by:MS

3.2.2 Historical Indigenous land use within the study area

Aboriginal peoples' occupation of the study area and the wider region extends over thousands of years. This occupation would likely have taken the form of temporary camps used on a seasonal basis and that made use of diverse resources in the area. The landscape was undoubtedly well known to generations of people and it is probable that associations extended to spiritual attachments. Historical European activity within the northern Bowen Basin and Bowen coastal region (refer Section 3.3.1) has impacted on the study area both in terms of historical archaeological materials and disturbance to Aboriginal cultural materials. In particular, agriculture and industry have great potential to disturb cultural material, cultural places, and entire cultural landscapes. For these reasons an understanding of the history of land use is a necessary precursor to any attempt to determine the potential for *in situ* archaeological material.

Prior to European occupation of the region, the study area was occupied by several Indigenous people groups (i.e. the Juru, Jangga and Birri peoples) who used this area for a combination of activities; e.g. seasonal habitation, resource procurement, spiritual connection with country. Following the settlement of Europeans in the area, conflict became a regular occurrence between both groups (e.g. Mount Gotthardt Copper Mine, Avon Downs; see also Elder 2003: 175-182; Loos 1970; Breslin 1992; Wright 1981: 146ff; Barker 2007: 3). Historical accounts indicate that Aboriginal resistance was considerably strong in the northern Bowen Basin and continued for a longer period than most areas of Queensland, possibly into the early 1880s. Historical sources from the 1880s record semi-traditional Aboriginal camps located at the junction of Suttor Creek and the Bowen River (presumably near Glenden) and at Mount Coolon; areas adjacent to the southern half of the NGBR Project (Wright 1981).

Armed conflict, combined with the introduction of smallpox, influenza and syphilis and the adoption of alcohol and opium use, decimated Indigenous populations by the 1860s (L'Oste-Brown *et al*. 1998: 54-70). European peoples' fear of Aboriginal people further exacerbated the situation. As a result, property owners often found it difficult to recruit Europeans for work in the area, which opened the way for Aboriginal employment. For those who had the opportunity, the pastoral life and station work offered Aboriginal workers the possibility to stay on traditional lands, while work provided food and necessities. For others less fortunate, there was little option but to drift from town to town looking for work. With the widespread destruction of traditional food sources, due to land clearance as well as the close cropping and trampling of the vegetation by cattle and sheep, the collection of traditional resources was no longer viable in many areas of the northern Bowen Basin (Reynolds 1981: 130).

In 1897, the *Aboriginals Protection and Restriction of the Sale of Opium Act* was passed by the Queensland government for the purpose of establishing a series of reserves whereby Aboriginal people could be separated from the destructive elements of European society. The clear intention of the reserve system was 'protection' and, later, assimilation when Queensland's first Aboriginal Reserve was established at Baker's Creek near Mackay.

3.2.3 Previous archaeological investigations

In 1998 an extensive study on Aboriginal cultural heritage of the Bowen Basin was undertaken (L'Oste-Brown *et al*. 1998: 210-233). The report summarised known archaeological investigations of the Bowen Basin, including a number of archaeological investigations across the northern Bowen Basin within the catchments of the Isaac River, Suttor River and Bowen River; the latter two, which will be crossed by the NGBR Project, form part of the broader Burdekin River catchment system.

In 1978, archaeological investigations were undertaken of the extensive Newlands Mine site located 75 km south of Collinsville and less than 20 km east of chainage 195 km of the NGBR Project (Hill 1978). The survey included the proposed mine site, a water pipeline, and proposed 71 km rail corridor connecting Collinsville and the Newlands Mine site (Hill 1978). The landform of the mining lease consisted largely of predominantly flat, undulating plains with deeply inscribed erosion gullies and occasional steep rocky ridges. Hill (1978: 9) noted the consistent, widespread presence of Aboriginal cultural material across the mining lease, which he interpreted as "one vast scatter of lithic artefacts". Hill also noted a distinct decrease in artefact density within the mining lease from south to north. All identified stone artefacts belonged to the flaking tradition, with no edge ground implements recorded. Instead, local inhabitants informed Hill (1978: 11) that "edge-ground tools had only been recovered in any quantity in areas to the north of [Collinsville]". Hill concluded that this large artefact scatter was greatly disturbed and therefore of little scientific significance. In total, Hill identified one scarred tree, one hearth, three source sites with associated artefact scatters, and 36 'camp' sites (consisting of nearly 400 artefacts) within the mining lease; the majority of cultural heritage was located in proximity to Cerito Creek or other minor waterways (Hill 1978: 10). Although Aboriginal cultural heritage material was also identified in the water pipeline and rail easements, Hill interpreted their distribution as largely random and, therefore, archaeologically of low significance (Hill 1978: 11-20).

In 1987 an archaeological survey was undertaken of the proposed Wirralie Gold mine located approximately 50 km west of chainage 185 km of the proposed NGBR alignment and 30 km north of Mount Coolon (Alfredson 1987). All areas scheduled for impact, such as the mine site, dam and surface facilities, were inspected by pedestrian survey. Alfredson (1987) identified eight areas containing Aboriginal cultural heritage, consisting of five artefact scatters and three isolated artefacts. All recorded sites were found within 300 m of creek lines, with the largest artefact scatter located on a higher landform overlooking the headwaters of a major creek line (Alfredson 1987: Appendix A). Alfredson (1987: 7) expressed some hesitation in the identification of many stone flakes as Aboriginal in origin, largely due to the general absence of conchoidal fractures and presence of straight edges similar to natural block shatter fracturing. Alfredson (1987: 8) concluded that the limited presence of clear artefact material was related to the general lack of local resources (e.g. fauna, flora, water).

In 1988 an archaeological survey was undertaken of the proposed Belyando Gold mine property, located on a large quartz outcrop approximately 10 km south east of chainage 280 km on the NGBR Project (Alfredson 1988). Survey was undertaken across each of the landforms due to be impacted by the mine's construction: the quartz outcrop, scree slope and surrounding plain (Alfredson 1988: 7). Survey revealed only three 'probable Aboriginal stone artefacts', all of which were quartz flakes, a raw material notoriously difficult to attribute to human activity. Alfredson (1988:10) stated that "positive identification of such material as artefacts is often dubious and, taking into account the extent of ground surface disturbance due to scrub pulling and the installation of the power line, a conservative approach was adopted in this survey". Hence, Alfredson (*ibid*) concluded that the survey area was "devoid of Aboriginal artefacts".

Archaeological surveys of a proposed water pipeline easement, due to connect the Eungella Dam with Moranbah, were undertaken by Hatte (1996). The 120 km easement route, which passes within 30 km of chainage 210 km of the NGBR Project, traversed numerous watercourses and a wide variety of landforms. Nevertheless, the entire route was surveyed on foot (Hatte 1996: 7). During survey, Hatte (1996: Appendix 1) identified 41 areas containing Aboriginal cultural heritage, 31 of which were artefact scatters (17 contained more than 100 artefacts), three extraction sites (artefacts associated with the raw material source extraction),

four isolated artefacts, one scarred tree, one rock art site, and one area containing 'usable plants'. Hatte also noted a discernible shift in raw material type along the route, with basalt and silcrete predominant in the volcanic north and chert and silcrete predominant in the sandstone landscapes of the south. An array of formal artefact types were noted throughout the pipeline route, including anvils, hammerstones, axes and an abundance of grind stones (*ibid*). Numerous amorphous flake tools, such as retouched flakes, blades, and the generic 'scraper' class were also recorded. A rockshelter containing an array of white hand and foot stencils was recorded on an elevated landform overlooking a creekline. The majority of cultural heritage sites, including ochre resource areas and a scarred tree, were located on raised landforms associated with permanent watercourses.

3.3 Non-Indigenous cultural heritage

3.3.1 Non-Indigenous historical land use of the study area

European settlement and use of extensive areas of the northern Bowen Basin quickly followed the exploration parties by Captain Whickham in 1840 and Dr Leichardt in 1844-5 (Hatte 1997). Landsborough took up Fort Cooper Station and Oxford Downs in 1857, and by the 1860s pastoralists had begun grazing large runs, with sheep (initially) and beef cattle (later) becoming major industries in the region (Burdekin Project Committee 1977: 8). The heavy reliance of the early settlers and their huge sheep flocks upon permanent water meant well watered areas were favoured over prime downs country with poor access to permanent water (L'Oste-Brown *et al*. 1998: 40-43). Initially, sheep were preferred to cattle because wool could be stored and was easy to transport, however, sheep ultimately proved unsuitable for the native environment; the harsh vegetation and high rate of predation resulted in a pastoral shift toward cattle.

Bowen was founded in 1861 and quickly became the primary port facility for areas north of Rockhampton to service the ever-expanding network of pastoralists along the coast and within the new outback stations (Barker 2007: 2-3).

Discoveries of gold at Mount Wyatt in 1867 resulted in a mineral boom in the 1870s giving a major impetus to development across the region (Barker 2007: 3). The influx of population associated with the gold rush provided a local market for beef cattle, which resulted in a sharp increase in cattle numbers, as well as pastoralists. Commercial gold mining continued, although in a reduced capacity, until the 1920s.

Although today the main focus of mining in the region is coal extraction, this was not a significant activity in the 1800s. Even with the expansion of a coal rail network across Queensland in the second half of the nineteenth century, the extensive coal reserves, first identified in the mid-1860s, were only accessed to supply local demand. Gold and copper mining continued at various sites across Central Queensland during the early twentieth century, while coal mining operations in the northern Bowen Basin (e.g. Collinsvale and nearby Scottville) remained relatively small. Coal mining did not begin in earnest until the second half of the twentieth century following explorative drilling by Theiss Bros. Pty Ltd in the Bowen Basin in 1957. Plans for a coal export facility at Bowen in the 1920s was proposed, but did not eventuate until the 1980s, largely because the local railway locomotives accounted for the majority of the Collinsville coal supply; there was little excess coal production available for export.

The coastal area around Bowen and Abbot Point was recognised as ideal for sugar cane farming. Due to favourable climatic factors, suitable soils and the availability of water supplies for irrigation, sugar yields were often among the highest in Australia (Burdekin Project

Committee 1977). Other significant agricultural industries along the coastal lowlands are rice, bean seed and horticultural supplies.

The original woodlands within the study area have been cleared and logged for several generations, with fires contributing to current woodland densities. The regime of clearing and fires has resulted in new growth; closely-spaced treed areas supporting mostly Ironbark and Cypress Pines and occasional stands of Eucalyptus. Brigalow, the dominant woodland prior to European clearing practices, is rarely encountered and now endangered. Land clearing has contributed to erosion within the activity area, with evidence for poor water absorption/runoff resulting in silty deposits and/or deep incision in some areas, mostly near creeks.

3.3.2 Identified non-Indigenous heritage places

In order to generate a preliminary list of non-Indigenous heritage places potentially impacted by the NGBR Project, a search of national and state heritage registers was undertaken (refer Section 2.4). These results of which were supplemented by consultation with relevant community groups and local government authorities in the Bowen and Collinsville areas (refer Section 2.5.2).

The National Heritage List and Commonwealth Heritage List did not contain any non-Indigenous heritage places relevant to the study area. Furthermore, a search of the Queensland Heritage Register did not identify any non-Indigenous heritage places within the NGBR Project footprint. However, the search did identify 10 non-Indigenous heritage sites in the wider region which help characterise the kinds of heritage places typical to the wider area (refer Table 3-2). The majority of these sites are associated with the historic township of Bowen (formerly Port Denison) and with early mining or pastoral activities in the northern Bowen Basin. Community consultation in the Bowen and Collinsville areas similarly did not identify any non-Indigenous heritage places likely to be impacted by the NGBR Project. Figure 3-5 shows the location of the non-Indigenous heritage places identified on Queensland Heritage Register.

The significance of all identified non-Indigenous cultural heritage places was assessed in accordance with the assessment criteria outlined in the *Queensland Heritage Act 1992* (refer Section 2.4). In addition, the assessment of non-Indigenous heritage values includes reference to the Australian Historic Themes Framework (2001), a research tool that assists in the identification, assessment, interpretation and management of nationally, state or locally significant heritage places. The Australian Historic Themes Framework is as follows:

1. Tracing the Evolution Of The Australian Environment
2. Peopling Australia
3. Developing Local, Regional and National Economies
4. Building Settlements, Towns and Cities
5. Working
6. Educating
7. Governing
8. Developing Australia' s Cultural Life
9. Marking the Phases of Life.

Table 3-2 assesses the identified non-Indigenous cultural heritage places against the *Queensland Heritage Act 1992* criteria and Australian Historic Themes Framework

Table 3-2 Identified heritage places in the vicinity of the NGBR Project

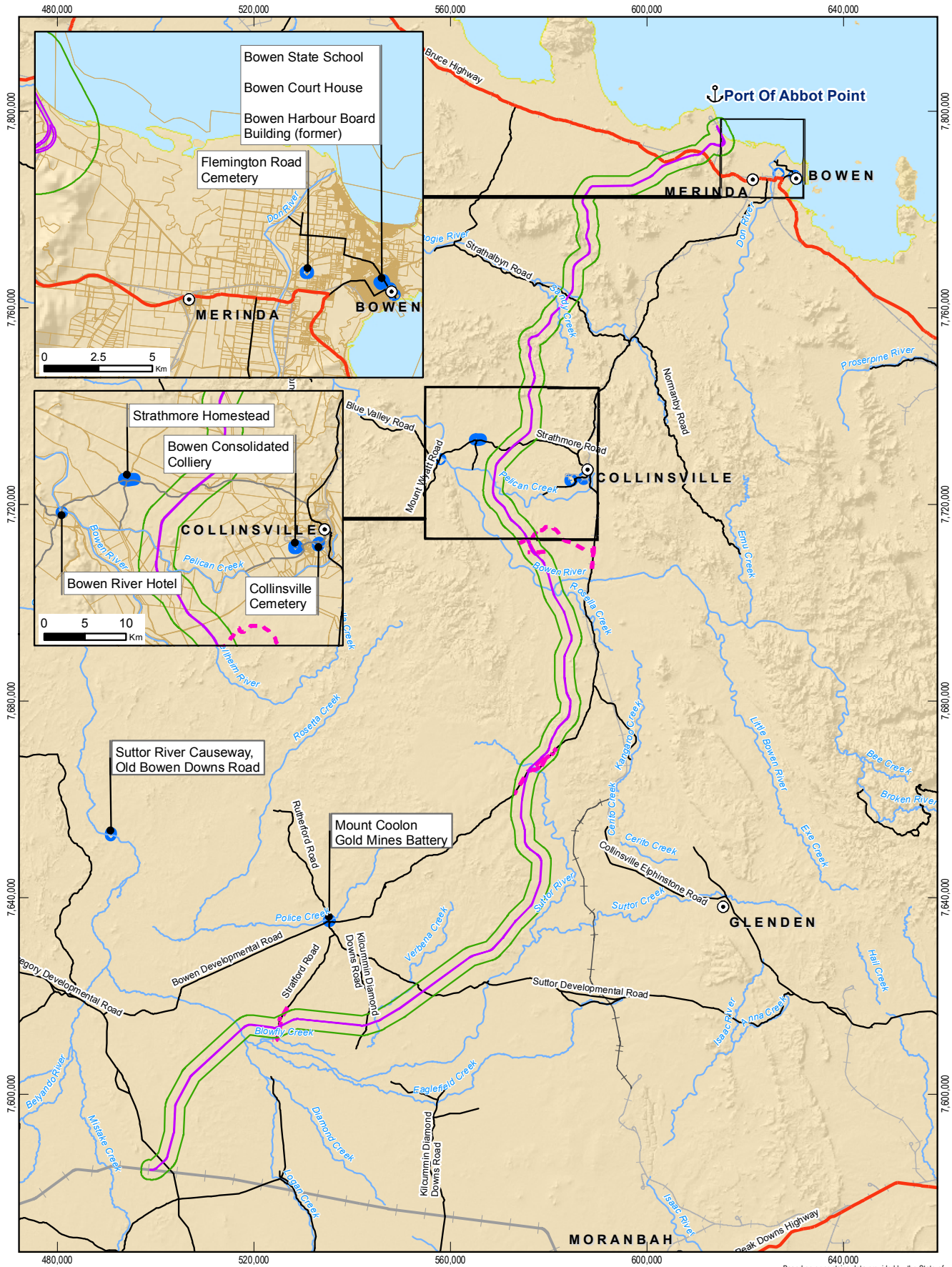
Place	Location	Comment	*Queensland Heritage Act 1992* criteria[1]	Australian Historic Themes Framework	Distance to final rail corridor (km)
Queensland Heritage Register					
Bowen River Hotel (former)	Strathbowen-Leichhardt range road, Strathbowen (30 km west of Collinsville)	A single storey structure of slabs laid horizontally between upright posts, with surrounding verandah and corrugated iron roof. The building is transitional between the slab house on the ground and the stump-supported house. Restoration is proceeding with local materials and building techniques, as originally employed, being used.	a, b, d, f	3	11.3
Strathmore Homestead	Strathmore Road, Springlands	The complex comprises a homestead, laundry, slab hut (used to accommodate the kitchen and dining room for station personnel), office, stables, meat houses, swimming pool complex, various cottages, homestead gardens, sheds, former school, former zoo, weir and private cemetery.	a, b, d e, h	4	5.5
Collinsville Cemetery	Accessed via a long lane from Collinsville-Scottville Road between the townships of Collinsville and Scottville.	Collinsville Cemetery was gazette in 1927 and contains a headstone section, a lawn section and a columbarium. There is a small shelter in the grounds. The cemetery is the burial place of at least 23 miners killed between 1928 and 1954.	a, g	2, 8, 9	14.4
Bowen Consolidated Colliery (No 1	Located on the edge of the township of Scottville,	The large, former colliery covers an area of approximately five hectares. The major structures include the headframe and gantry, Number One	a, b, c, d	3, 4, 5	12.6

Place	Location	Comment	*Queensland Heritage Act 1992* criteria[1]	Australian Historic Themes Framework	Distance to final rail corridor (km)
underground mine)	approximately 3.5 km south-west of Collinsville.	shaft winding house, boiler house, Number Two shaft fan house, powerhouse, bathhouse, mine office, workshop, Garrick Shaft Fan House, sawmill, detonator magazine, lamp shed, water tanks, and single men's quarters. Remains of railway and tramline formations still remain. The remains of other structures include the workshop and stores site, Number Two shaft winding engine, lime store, cement shed, ramps, early bathhouse and fitting shop. Part of the site is surrounded by a recent wire security fence including the headframe, Number One winding house, boiler house and power house. Much of the site is overgrown with grasses, trees and other vegetation.			
Mount Coolon Gold Mine's Battery (Barclay's Battery)	Extends from the northern perimeter of Mount Coolon township, northeast along Police Creek to include weir and former Hammond house.	The mill site includes a square brick chimney, concrete foundations of a 10 head stamp battery, two mortar boxes, gas producer, two-cylinder gas engine (partly demolished), one-cylinder Crossley engine, ball mill and a steel vat. Timber, stone and concrete foundations of the cyanide plant are located south of the mill, closer to the Mount Coolon Hotel.	a, b, g	3, 4, 5	20.4
Bowen State School	29 Kennedy Street, Bowen	Bowen State School is located on the northern perimeter of the central business district in the town of Bowen. The school site is a level, two-hectare block bound by Gregory, Kennedy, Poole	a, d, g	4, 6	15.5

Place	Location	Comment	*Queensland Heritage Act 1992* criteria[1]	Australian Historic Themes Framework	Distance to final rail corridor (km)
		and Herbert streets. Centrally located on the site, the school complex comprises a number of high-set, timber-framed buildings, some forming a U shape around a central parade ground.			
Bowen Court House	Corner of Williams and Herbert Street, Bowen	The Bowen Court House is a two storey classical revival building constructed of rendered brick, with a corrugated galvanised iron roof. It is located on the corner of Williams and Herbert Street, the main street of Bowen, and addresses both streets with major facades	a, b, d, e, h	4, 7	16
Bowen Harbour Board Building (former)	6 Herbert Street, Bowen	A two-storeyed masonry building with a hipped corrugated iron roof. A single-storey wing projects from the rear of the building, with gabled roof and brick chimney. There is a timber verandah on the two street sides, which also returns to the rear of the building. At the corner is a hexagonal turret with a pyramid roof.	a, e, h	3, 4, 7	16.3
Flemington Road Cemetery	Flemington Road, Bowen	The cemetery is currently unfenced, although physical evidence on site suggests that several fencing efforts have been previously undertaken to protect particular family plots. The practice of inscribing the names of several deceased family members on a single headstone has resulted in the twenty-two observable headstones actually representing 39 burials. Given the small number of observable graves, a broad range of grave	a, d, g	2, 9	12.4

Place	Location	Comment	*Queensland Heritage Act 1992* criteria[1]	Australian Historic Themes Framework	Distance to final rail corridor (km)
		styles is represented. Headstones are predominantly of limestone, with sandstone and concrete also present.			
Suttor River Causeway (St Ann Crossing)	Bowens Downs Road, between Strathmore and Mount Douglas	Evidence of stone pitching over Percy Douglas Creek and an intact stone causeway at St Anne's Station.	a, b, d e	2, 3, 4	47.5
Register of the National Estate (non-statutory)					
Seaward House, Bowen	11 Thomas Street, Bowen	Kitchen wing gone, verandahs on three sides enclosed. Main core of four rooms with central hallway in good condition. Original balustrading pattern still on beach frontage materials enclosing verandahs could be removed.	a	4	16

[1] refer to Section 2.4.4 for the criteria derived from the *Queensland Heritage Act 1992*



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Watercourses (Major)
- Existing/Other Rail Network
- State Heritage Register
- Study Area
- Proposed Access Road
- Carmichael Project (Rail)
- North Galilee Basin Rail 100m Corridor

1:1,100,000 Paper Size A4

0 10 20 40 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

State Heritage Register Search Results

Figure 3-5

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013 NGBR Corridor 06/06/2013, Camichael Rail Project/2012, Proposed Access Roads/2013, Cultural Heritage Study Area/2013; DNRM: Roads/2010,State Heritage Register/2013. Created by:MS

4. Key findings

4.1 Indigenous heritage

The contextual study of environment, land-use, ethnographic data, and archaeological evidence indicates that Aboriginal cultural heritage places are likely to occur within the study area, with particularly high concentrations expected upon raised terraces overlooking the many permanent fresh water sources that traverse the proposed alignment. By comparing the results of the background research and the archaeological investigations previously undertaken across the northern Bowen Basin, the following conclusions can be drawn regarding the nature of potential Aboriginal cultural heritage material for the NGBR Project:

- The landscape has been utilised for agricultural activities in the recent past and consists of grazing, pastures and sugar cane farming. The wider area has been extensively cleared of native vegetation for pastoral purposes, and today is densely grassed with small pockets of open shrub-land regrowth. The majority of the study area is located within areas extensively modified by clearing, animal grazing, and some erosion, and in these areas the potential for in situ or largely undisturbed archaeological deposits is low.
- Previous archaeological work in the northern Bowen Basin has demonstrated a pattern of archaeological site distribution influenced by the occurrence of raised terraces associated with rivers and permanent watercourses, where sites are often characterised by diffuse surface scatters or isolated occurrences of stone artefacts. Site frequency and size tends to reduce with distance from permanent fresh water.
- The study area is located upon the gently undulating lowland plains with incised creek lines, and occasional flat, elevated tablelands with steeply incised creek lines. High creek banks and ridges overlooking creeks hold the highest potential to contain archaeological cultural heritage material. The NGBR Project footprint crosses numerous creeks and rivers and, therefore, has high potential for Aboriginal cultural heritage material at those locations.
- Previous surveys in the surrounding region have demonstrated the existence of a 'background' of isolated Aboriginal archaeological artefacts in the northern Bowen Basin, as well as a small number of more scientifically significant sites (e.g. large artefact scatters, possible stone quarries and rock art sites).
- Scarred trees have previously been encountered along larger watercourses where remnant vegetation communities exist. The study area is likely to contain only small pockets of original vegetation communities and therefore holds low potential for scarred trees. Future archaeological survey would be undertaken prior to the removal of any mature native trees to investigate the potential presence of culturally scarred trees.
- If Aboriginal cultural material has survived in the area of the NGBR Project footprint this would most likely be represented by stone artefacts on raised landforms overlooking watercourses. Stone artefacts are also the most likely cultural material to be encountered away from watercourses, although less frequently and in less dense concentrations.
- Historical and ethnographic accounts of early interactions between settlers and the Aboriginal population reveal the close association Aboriginal people have maintained with their country in spite of imposed stresses. Hence, there remains considerable potential for historical and contemporary Aboriginal cultural heritage places to be identified within the NGBR Project footprint.

The above summary of key findings includes no assessment of the broader significance of potential archaeological sites in the study area to Aboriginal people. Previous archaeological research in the wider region suggests that Aboriginal people may assess potential disturbed archaeological sites and isolated artefacts in the study area to have high cultural significance. This is a matter that can only be determined through consultation with relevant Aboriginal parties.

4.2 Non-Indigenous heritage

The contextual study of environment, land-use, historic data, and archaeological evidence indicates that there is a low potential for non-Indigenous cultural heritage to occur within the study area. By comparing the results of the background research and the archaeological investigations previously undertaken across the northern Bowen Basin, the following conclusions can be drawn regarding the nature of potential non-Indigenous heritage values within the study area:

- The current NGBR Project footprint is unlikely to encounter any known places of non-Indigenous heritage value.
- There is low potential for previously unidentified non-Indigenous heritage places to be found within the final rail corridor.
- The wider area surrounding the study area is historically characterised by agricultural and mining activities, with low-density human settlements. In relatively close proximity to the study area, these activities have produced a range of heritage places including scattered homesteads, informal cemeteries, mine operations and farming infrastructure.
- The ground surface in the region of the NGBR Project has been significantly disturbed through intensive mining and pastoral activities, including vegetation clearing, coal extraction, grazing and sugar cane production. This kind of ground disturbance reduces the potential for historical archaeology to exist in the study area, although some of these activities actually generate isolated examples of historical heritage (e.g. abandoned machinery, forgotten mine shafts, isolated huts).

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