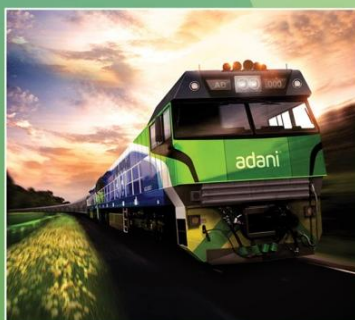




Adani Mining Pty Ltd

NORTH GALILEE BASIN RAIL PROJECT

Environmental Impact Statement

Appendix E Topography, geology, soils and land contamination

November 2013

This North Galilee Basin Rail Project topography, geology, soils and land contamination report (“the Report”) has been prepared by GHD Pty Ltd (“GHD”) 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 1.2 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 report has been prepared to describe the existing topography, geology, soils and land contamination values relevant to the North Galilee Basin Rail Project (NGBR Project). The assessment has been undertaken in accordance with the Terms of Reference (TOR) for the NGBR Project; a detailed cross-reference of the NGBR Project TOR is provided in Volume 2 Appendix A Terms of Reference cross-reference.

The study area, for the description of existing topography, geology and soils, was a two kilometre buffer extending 1,000 m from each side of the centreline of the NGBR Project final rail corridor (a nominal 100 m wide corridor). The study area included all ancillary infrastructure.

The final rail corridor was defined for the quantification of agricultural land and potentially contaminated land. Ancillary infrastructure footprints were considered separately to the linear study area to allow for calculations to be undertaken separately.

Distinctive topographical features include, from north to south, the Coastal floodplain, Clarke Range, Bowen River Valley, Leichhardt Range and the Suttor River floodplain. At the northern end of the NGBR Project (chainage 3.49 km), surface elevation is at its lowest, at three metres Australian Height Datum (mAHD). At the southern end of the NGBR Project (chainage 306.9 km), surface elevation is approximately 300 mAHD. Areas of increased and decreased surface elevation occur along the NGBR Project, in association with mountains and river beds.

Given its length, the underlying geology of the study area varies extensively. Younger, Quaternary-aged geology is associated with the river beds and flood plains, whereas older geology of varying ages and composition is found along the rest of the study area. Geology in the study area includes alluvial, colluvial, sedimentary and metamorphic formations.

Soil information for the study area ranges in accuracy. At the northern end, approaching Abbot Point, a detailed soil map has been published at 1:100,000 scale. This detailed mapping is considered to be fairly accurate; however, the majority of the study area is covered by exploratory scale soil mapping of 1:1,000,000 scale. This mapping coarsely identifies the predominant expected soil type of the area. At the southern end, land system mapping of 1:250,000 scale is present. The associated land system report connects soils with landform and vegetation and provides a land suitability assessment for each soil unit. Land system mapping defines the major soil type, but does not incorporate the finer details associated with landform and vegetation. To facilitate consistency and comparison, the mapped polygons across all maps have also been identified using the Australian Soil Classification so that soil types can be compared with other maps.

Multiple soil types are intersected by the study area. These soil types and a brief definition of each are listed below:

- Rudosols: soils with limited structural development, commonly associated with hill tops
- Tenosols: soils with less than 15 per cent clay, with limited structure, commonly associated with hill tops and upper slopes
- Kandosols: soils with greater than 15 per cent clay, with a massive or weakly structured subsoil
- Hydrosols: soils where a greater part of the profile is saturated for at least several months of the year

- Chromosols: soils with a clear or abrupt texture change between the upper sandy material and lower clayey material. The underlying clay is not acidic ($\text{pH} > 5.5$) and not sodic (exchangeable sodium percentage less than 6).
- Sodosols: soils with a clear or abrupt texture change between the upper sandy material and underlying clay material. The underlying clay material is sodic (dispersive) and not strongly acidic ($\text{pH} > 5.5$).
- Dermosols: structured soils which do not have a strong texture change between top soil and subsoil. These soils are commonly described as uniform or gradational soils.
- Vertosols: colloquially known as cracking or expansive clays, these soils swell when wet and shrink when dry.

The State Planning Policy 2/02 requires acid sulfate soil to be considered when surface elevations of 20 mAHD or less are encountered. There are two portions of the study area that are at or below 20 mAHD.

- The initial 9.3 km portion (chainages 3.49 km to 12.7 km), which has multiple minor ephemeral creeks, including Saltwater Creek
- A 3.6 km portion between chainage 19.1 km and chainage 22.7 km, which is associated with Splitters Creek.

Areas of potential good quality agricultural land (GQAL) and strategic cropping land (SCL) trigger areas were also identified within the final rail corridor. Within the Whitsunday Regional Council area, 314.64 ha of GQAL A and 609.7 ha of GQAL B are within the final rail corridor area. Within the Isaac Regional Council area, no land considered to be GQAL A, and 58.54 hectares (ha) of GQAL B and 129.24 ha of GQAL C1 are within the final rail corridor. Ancillary footprints cover 93.59 ha of GQAL A and 119.43 ha of GQAL B within the Whitsunday Regional Council area, and 3.05 ha and 341.33 ha of GQAL B and C1 respectively within the Isaac Regional Council area.

The SCL assessment identified eighteen individual polygons within the final rail corridor and eight polygons within the ancillary infrastructure footprints; these were encompassed by seven properties within the Western Cropping zone and three properties within the Coastal Queensland zone. The history of cropping (HOC) analysis indicates that nine of the ten properties fail the HOC analysis. Birralelee, within the Western Cropping zone, was the only property to have cropping identified from LANDSAT and Google Imagery.

Six SCL polygons, four within the final rail corridor and two within ancillary infrastructure footprints, were within the Birralelee property. A total of 12.01 ha of SCL passed the HOC within the final rail corridor, and 5.09 ha of SCL passed the HOC within the ancillary infrastructure footprints. These SCL polygons also passed the slope criterion of slopes of less than three per cent.

A review of the Environmental Management Register (EMR) and Contaminated Land Register (CLR) was conducted for all lot on plans intersected by the final rail corridor. Of these, six lots were identified as listed on the EMR and no lots were listed on the CLR.

The Department of Environment and Heritage Protection (DEHP) was contacted for further information pertaining to those properties that are listed on the EMR. The search conducted by DEHP on their database did not yield any substantial information regarding the location, condition or environmental incidences associated with the EMR listings. Three land parcels were registered for contamination on the EMR at chainage 117 km to 132 km for livestock dip or

spray race and petroleum product or oil storage, at chainage 42 km to 47 km for livestock dip or spray race, and at chainage 4 km to 5.7 km for petroleum product or oil storage.

Prior to construction, a soil survey is proposed to be undertaken to verify soil types, confirm management requirements for confirmed soil types and validate the agricultural resource status of the soils. An overview of the soil survey methodology has been included in this report (refer Section 4).

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Appendices

Appendix A – Strategic Cropping Land Assessment

Appendix B – EMR/CLR search records

Appendix C – Ancillary infrastructure details

Terms and abbreviations

Terms and abbreviation	Description
AASS	Actual acid sulfate soils
ABARES	Australian Bureau of Agriculture and Resource Economics and Sciences
Adani	Adani Mining Pty Ltd
ASC	Australian soil classification
ASS	Acid sulfate soil
BTEXN	Benzene, toluene, ethyl benzene, xylenes, and naphthalene
BOM	Bureau of Meteorology
CLR	Contaminated land register
DEHP	Department of Environment and Heritage Protection
DNRM	Department of Natural Resources and Mines
EIS	Environmental impact statement
EMR	Environmental management register
EP Act	<i>Environmental Protection Act 1994</i>
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.
Final rail corridor	The final rail corridor is a nominal 100 m wide corridor
GQAL	Good quality agricultural land
ha	Hectare
HOC	History of cropping
LIDAR	Light Detection and Ranging
mAHD	Metres Australian height datum
NCST	National Committee on Soil and Terrain
NEPM	National Environmental Protection Measures

Terms and abbreviation	Description
NGBR	North Galilee Basin Rail
NGBR Project	North Galilee Basin Rail Project
OCP	Organochlorine pesticides
PAH	Polycyclic aromatic hydrocarbons
PASS	Potential acid sulfate soils
PCOC	Potential contaminants of concern
SCL	Strategic cropping land
SCL Act	<i>Strategic Cropping Land Act 2011</i>
SPOCAS	Suspension peroxide oxidation combined acidity and sulfur
SPP	State Planning Policy
TOR	Terms of Reference
TRH	Total recoverable hydrocarbons
UXO	Unexploded ordnance

1. Introduction

1.1 Project overview

Adani Mining Pty Ltd (Adani) proposes the construction and operation of the North Galilee Basin Rail Project (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.

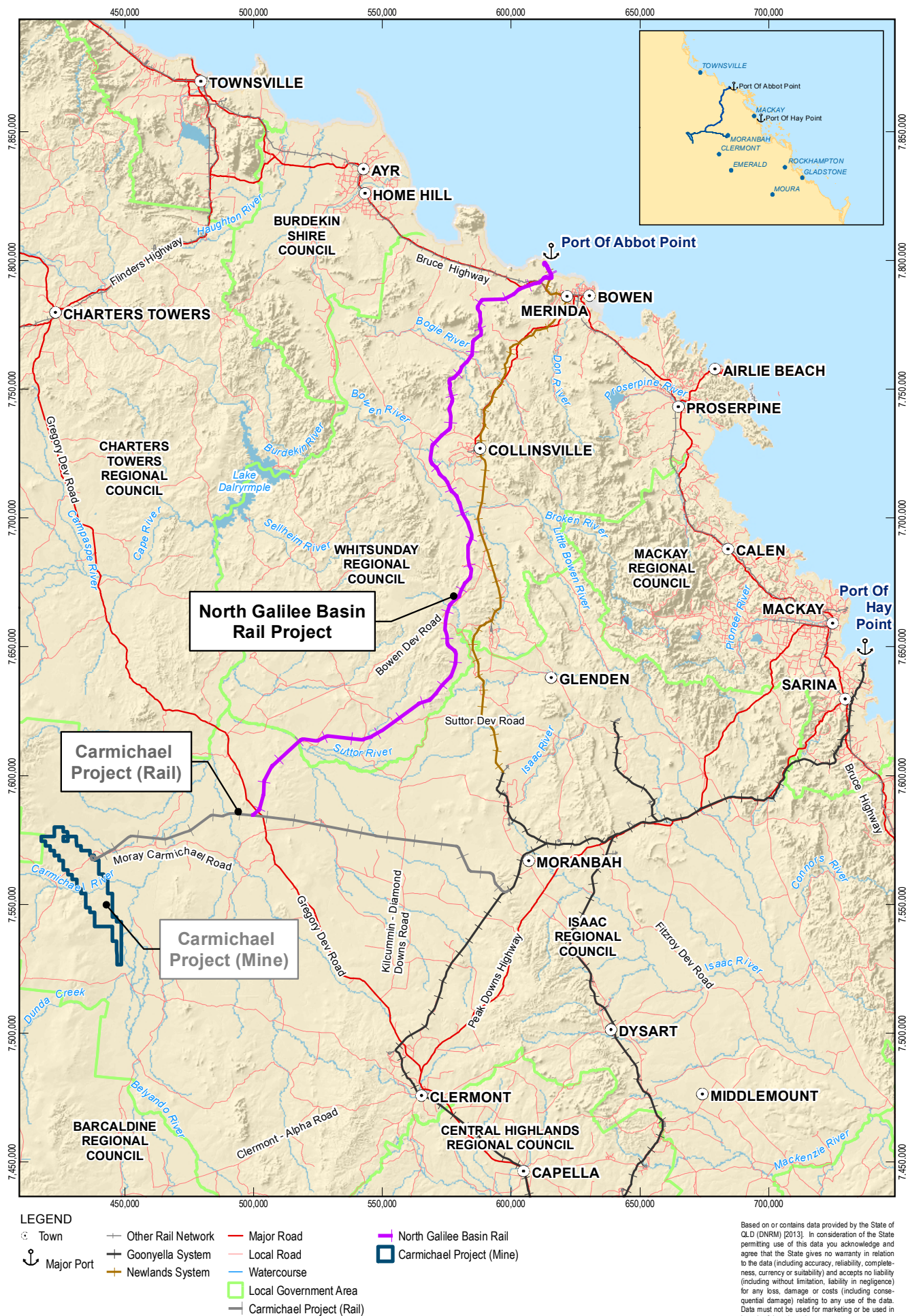
1.2 Scope of report

The scope of this topography, geology, soils and land contamination report was defined by the following tasks:

- Description of existing topography
- Description of existing geology
- Description of existing soils

- Quantification of existing agricultural values, including:
 - Good quality agricultural land
 - Strategic cropping land
- Identification of potential acid sulfate soils
- Identification of potentially contaminated land.

This topography, geology, soils and land contamination 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, TOR cross-reference.



Based on or contains data provided by the State of QLD (DNRM) (2013). In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

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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



adani

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision B
Date 29 Aug 2013

Project location

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 bne@mail@ghd.com W www.ghd.com

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Data Sources: © 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).

2. Methodology

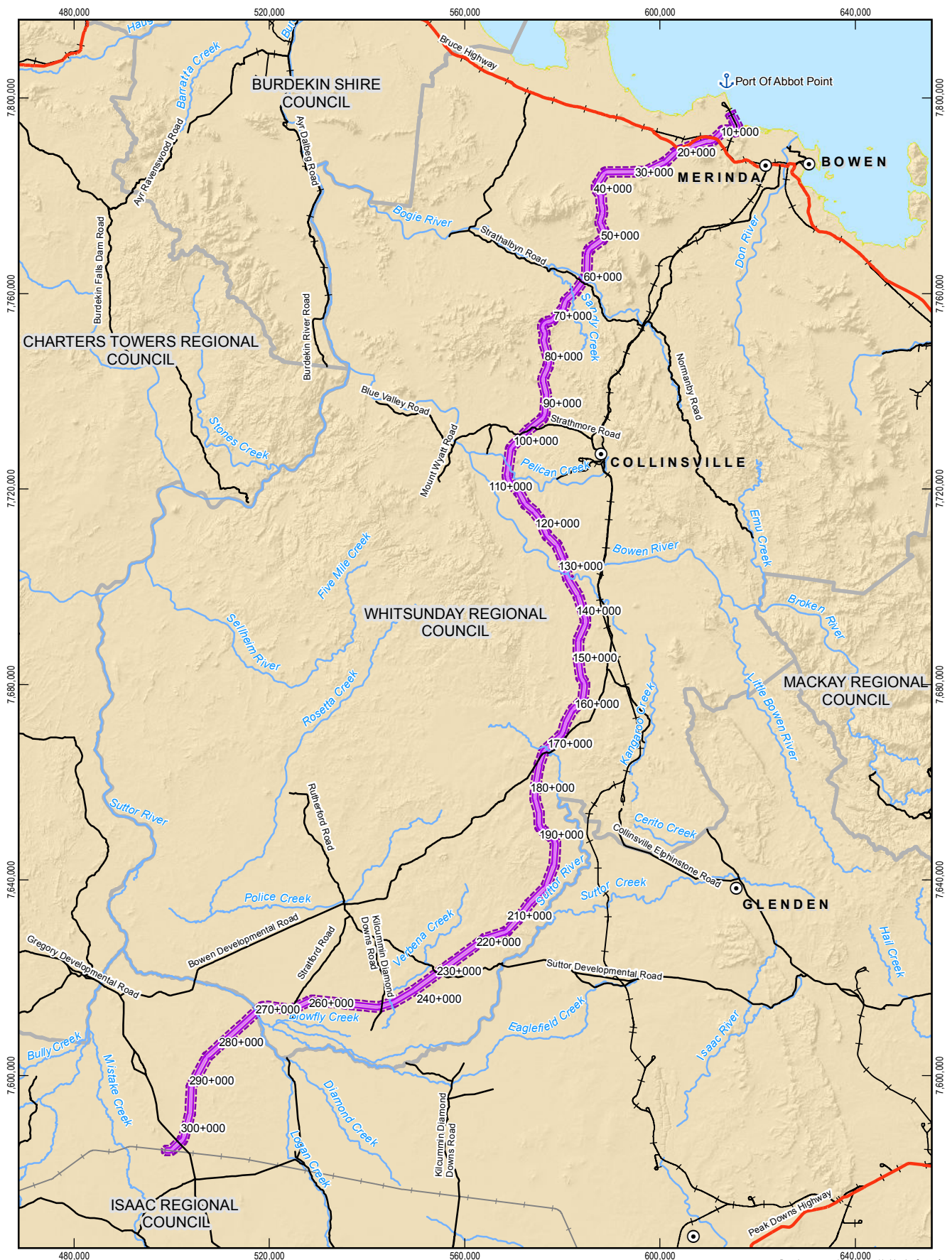
2.1 Study area

The study area for the description of existing topography, geology and soils was defined by a 1,000 m buffer from each side of the centreline of the NGBR Project final rail corridor (i.e. the study area comprised a 2,000 m wide corridor). This wide range was reviewed to allow for movement of ancillary infrastructure footprints in later stages of design, should it be required. The study area for the quantification of agricultural land and potentially contaminated land was defined by the NGBR Project final rail corridor, a nominally 100 m wide rail corridor. Ancillary infrastructure footprints were considered separately to the final rail corridor to allow for the area to be calculated separately. Figure 2-2 displays the study area, the final rail corridor and the ancillary infrastructure footprints.

2.2 Data sources

This report relied on the following data sources.

- North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013)
- Climatic data from the Bureau of Meteorology
- Topographical data and contour data at 10 m intervals (Queensland government information service website)
- A digital elevation model, created from light detection and ranging (LIDAR) reconnaissance
- LANDSAT satellite imagery (1999 – 2010)
- Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES)
- The Environmental Management Register (EMR) and Contaminated Land Register (CLR)
- Google imagery
- Geology maps and supporting explanatory notes (refer to Section 2.2.1)
- Soil and land system maps and accompanying reports (refer to Section 2.2.2)
- Acid sulfate soil information (refer to Section 2.2.3)
- Good Quality Agricultural Land (GQAL) mapping (refer to Section 2.2.3)
- Strategic Cropping Land (SCL) trigger mapping and associated information.

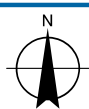


LEGEND

- Population Centres
- ⚓ Major Port
- Highway
- Main Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Local Government Area
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail Baseline study area (1km buffer)

Based on or contains data provided by the State of QLD (DNRM) [2013]. In consideration of the State permitting use of this data you acknowledge and agree that the State gives no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accepts no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for marketing or be used in breach of the privacy laws.

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0 10 20 40
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision B
Date 26 Aug 2013

Study Area

Figure 2-1

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project (Rail) 23/07/2012; DNRM: Roads/2010; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Project Rail/2013, Chainage 06/06/2013; GHD: Study Area (2013). Created by:MS

2.2.1 Geological data

The geology data sources that were used to discuss the geological properties in the study area are detailed in Table 2-1.

Table 2-1 Geological data

Reference	Scale
Fitzell, M. J., Withnall I. W., Denaro, T. J., Morwood, D. A., Drover, C., Pascoe, G. S., & Turner S. M. (2008) Bulliwallah 1:100 000 First Edition (8254) Department of Mines And Energy	1:100,000
Hutton, L.J, Grimes, K.G., Denaro, T.J., Morwood, D.A., Garrard, P.D., Blake, P.R., Pascoe, G.S. (2011) Gunjulla Sheet 8354 - 1:100 000 Geological Series Map Department of Mines And Energy	1:100,000
Hutton, L.J., Grimes, K.G., Denaro, T.J., Burrows, P.E., Blake, P.R., Pascoe, G.S. & Gatehouse, N.C. Wyena 1:100 000 First Edition (8454) Department of Mines And Energy	1:100,000
Olgers, F. (1970) Queensland 1:250,000 Geological Series – explanatory notes Buchanan Sheet SF/55-6. Bureau of Mineral Resources Geology and Geophysics	1:250,000
Geology of Mount Coolon, Australia 1:250,000 Geological Series, Sheet SF 55-7 (1997) and; Hutton, L.J., Grimes, K.G., Law, S.R., McLennan, T.P.T. (1998) Queensland 1:250,000 Geological Series – explanatory notes Mount Coolon Second Edition Sheet SF/55-7. Department of Mines and Energy Geology Survey of Queensland.	1:250,000
Geology of Bowen, Australia 1:250,000 Geological Series, Sheet SF 55-3 (1971), and; Paine, A.G.L., Camron, R.L. (1972) 1:250,000 Geological series – explanatory notes Bowen Queensland Sheet SF/55-3 International index. Bureau of Mineral Resources, Geology and Geophysics and Department of Mines, State of Queensland.	1:250,000
Geology of Ayr, Australia 1:250,000 Geological Series, Sheet SE 55-15 (1968)	1:250,000

2.2.2 Soil and land system information

Soil maps and land system maps are defined by the Australian Natural Resource Atlas as follows:

- Soils maps
 - Single soil types or associations
 - Associated attributes include soil type, soil proportion, land quality and land suitability
- Land system maps
 - Associations of soil, vegetation, geology and geomorphology
 - Usually broad in scale (1:250,000 to 1:500,000)
 - Associated attributes include soil, vegetation, land condition and land capability.

A combination of soil and land system maps and reports were used to describe the existing soil environment. The various maps and reports, along with their mapping scales, are provided in Table 2-2 below. Figure 2-2 displays the spatial relevancy of each of the soil data sources referenced above with relation to the study area.

Table 2-2 Soil and land system data sources

Reference	Type	Scale
Gunn, R.H., Galloway, R.W., Pedley, L., Fitzpatrick, E.A. (1967). Lands of the Nogoa - Belyando Area, Queensland, Land Research Series No. 18. CSIRO, Australia, Melbourne, Victoria.	Land system	1:500,000
Isbell, R.F. and Murtha, G.G. (1970) Burdekin-Townsville Region Queensland Resource Series, Soils. Geographic section, Department of National Development, Canberra, Australian Capital Territory.	Soil	1:1,000,000
Aldrick, J.M. (1988). Soils of the Elliot River - Bowen Area, North Queensland, Resource Series. DPI, Queensland Government.	Soil	1:100,00

2.2.3 Acid sulfate soil

The following data sources were used to identify acid sulfate soil, in lieu of any available Queensland Government mapping:

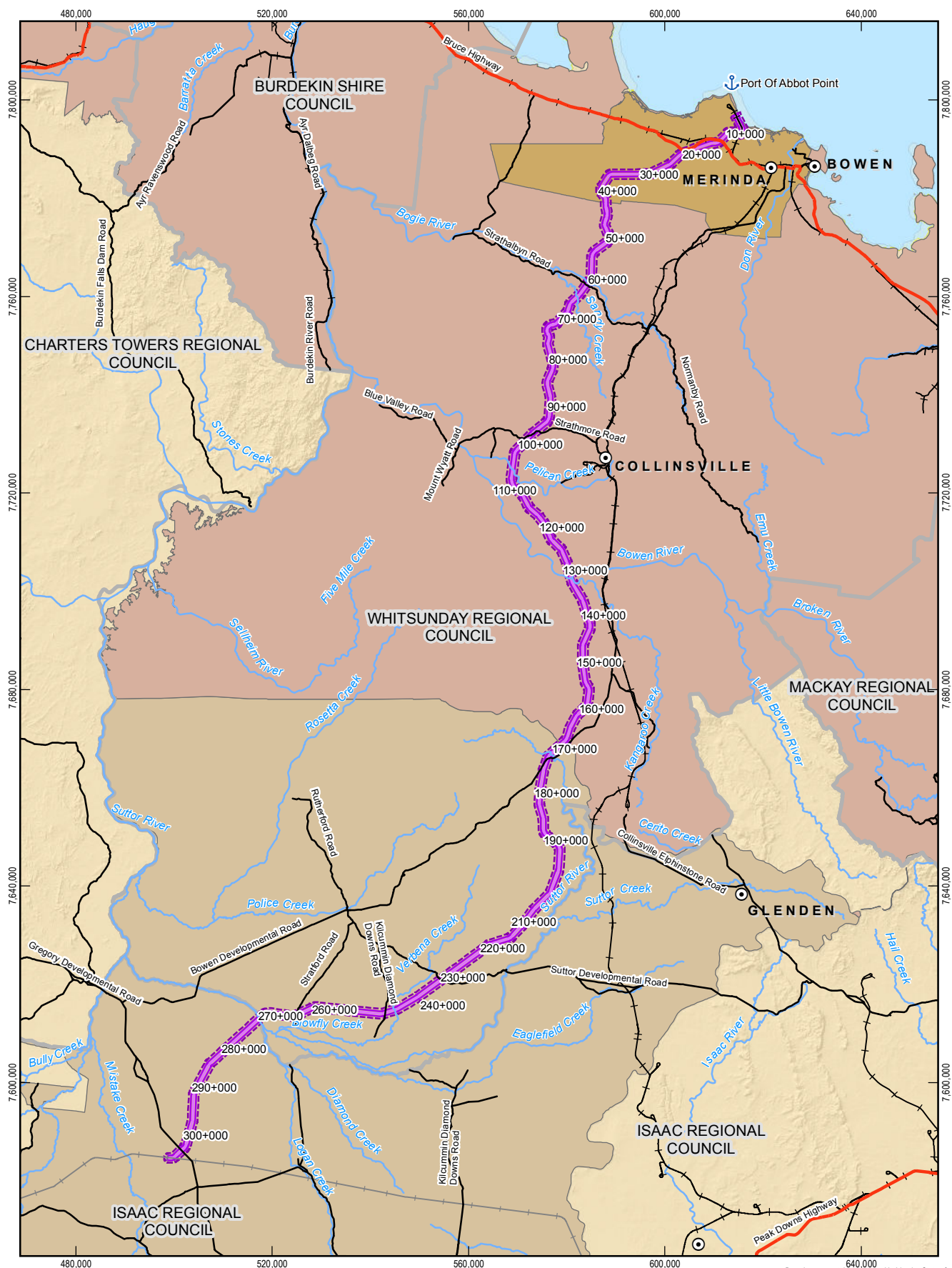
- Topographical data and contour data at 10 m intervals
- Geology maps and supporting explanatory notes (refer to Section 2.2.1)
- Abbot Point Coal Terminal Stage 3 Expansion Environmental Impact Statement (WBM 2006)
- Abbot Point Coal Terminal X110 and X80 Expansion Acid Sulfate Soils Investigation Report and Management Plan (Aurecon Hatch 2009)
- Abbot Point Coal Terminal X110 Expansion Acid Sulfate Soils Investigation Report (GHD 2009).

2.2.1 Good quality agricultural land

Several data sources were referenced to assign GQAL status to soil (refer to Table 2-3). Where applicable, soils were assigned GQAL status based on soils and land system maps, as per the Planning Guidelines: The Identification of Good Quality Agricultural Land (Department of Primary Industry (DPI) and Department of Housing, Local Government and Planning, 1993).

Table 2-3 GQAL data sources

Reference	Type published	DPI (1993) conversion	Scale
Central West Region digital dataset	Digital dataset	n/a	n/a
Gunn, R.H., Galloway, R.W., Pedley, L., Fitzpatrick, E.A. (1967). Lands of the Nogoa - Belyando Area, Queensland, Land Research Series No. 18. CSIRO, Australia, Melbourne, Victoria.	Land capability classification	yes	1:500,000
Shields, P.G. (1984) Land suitability study of the Collinsville-Nebo-Moranbah Region, Queensland Department of Primary Industry.	Land capability	yes	1:250,000
Aldrick, J.M. (1988). Soils of the Elliot River - Bowen Area, North Queensland, Resource Series. DPI, Queensland Government.	Soil	yes	1:100,00



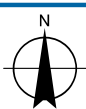
LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)
- Local Government Area
- Aldrick (1988). Soils of the Elliot River - Bowen Area (Scale 1:100,000)
- Gunn, et al. (1967). Lands of the Nogoa - Belyando Area, Queensland, (Scale 1:500,000)
- Isbell and Murtha (1970). Burdekin-Townsville Region (Scale 1:1,000,000)
- Mapping outside the study area

- North Galilee Basin Rail Baseline study area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor

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



Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision B
Date 26 Aug 2013

**Soil and Land System Reports
Intersected by the Study Area Figure 2-2**

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

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project (Rail) 23/07/2012; DNRM: Roads/2010; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013, Project Rail/2013, Chainage 06/06/2013; GHD: Study Area (2013). Created by:MS

2.3 Legislation and guidelines

The legislation and guidelines relevant to this topography, geology, soils and land contamination report is as follows:

- *Environmental Protection Act 1994* (EP Act)
- *Strategic Cropping Land Act 2011* (SCL Act)
- *Sustainable Planning Act 2009*
- State Planning Policy 1/92 Development and the Conservation of Agricultural Land
- State Planning Policy 1/12: Protection of Queensland's Strategic Cropping Land
- State Planning Policy 2/02: Planning and Managing Development involving Acid Sulfate Soils.

An explanation of the above legislation is provided in Volume 1 Chapter 20 Legislation and approvals.

The guidelines not detailed within Volume 1 Chapter 20 Legislation and approvals which are relevant to this assessment, are outlined below:

Planning Guidelines: The Identification of Good Quality Agricultural Land 1993

The planning guidelines assist in the implementation of SPP 1/92, through the provision of a methodology for assessing and identifying agricultural land classes and subsequently GQAL.

Under the planning guidelines, land is designated into classes, ranging from Class A being cropping land with negligible to moderate production limitations, to Class D being land not suitable for agriculture due to extreme limitations. Agricultural land classes that are considered to be GQAL within local government areas were established during the preparation of the planning guidelines in 1993, based on publically available land resource mapping. The planning guidelines acknowledge that much of this mapping is at a broad scale, and that site-specific assessments may be needed to confirm the distribution of GQAL.

Guideline for contaminated land professionals (Department of Environment and Heritage Protection, 2012)

The purpose of this guideline is to establish best practice for managing land contamination through the planning and development control process. These guidelines have been prepared particularly for use by contaminated land professionals and outline the roles and responsibilities of relevant personnel, how it relates to other legislation, the assessment and remediation process and the process for disposal of contaminate soil.

National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)), henceforth referred to as the ASC NEPM 2013.

The ASC NEPM 2013 was released as the premier guidance document in Australia for the assessment of site contamination. The ASC NEPM 2013 establishes a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community, including regulators, site assessors, environmental auditors, landowners, developers and industry. In doing so it provides adequate regulation of human health and the environment where site contamination has occurred, through development of an efficient and effective national approach to the assessment of site contamination.

In keeping with the *National Environment Protection Council Act 1994*, the administering authority has adopted the ASC NEPM 2013 for the assessment of contaminated land.

A full list of the ASC NEPM 2013 technical guidelines (included as schedules to the ASC NEPM 2013) cover:

- The investigation levels for soil and groundwater
- Data collection, sample design and reporting
- Laboratory analysis of potentially contaminated soils
- Health risk assessment methodology
- Ecological risk assessment
- Risk based assessment of groundwater contamination
- Health-based investigation levels
- Exposure scenarios and exposure settings
- Community consultation and risk communication
- Protection of health and the environment during the assessment of site contamination
- Competencies and acceptance of environmental auditors and related professionals.

2.4 Desktop assessment

2.4.1 Topography, geology and soils

Topographical information was reviewed to identify key morphological features of the study area, and assist in geological descriptions.

Topographical maps, Google imagery and contour data generated from LIDAR information, were used in the desktop assessment to characterise the main topographical features and understand the relationship between soils and geology. Geology maps were reviewed to identify parent material and likely soil associations. A digital elevation model of the study area was also created which allowed for the modelling of landform patterns, as defined by the *Australian Soil and Land Survey Field Handbook* (NCST 2009). Landform patterns are established based on a combination of relief, modal slope, stream channel occurrence, mode of geomorphological activity, status of geomorphological agent, and component of landform elements.

Soil mapping was reviewed to identify soils that have potentially adverse physical and chemical properties in the topsoil or subsoil profiles when considered in the context of developing the NGBR Project. Three maps and associated reports were identified that overlaid the study area, these reports are identified in Table 2-2 (refer Section 2.2.2). Two of these maps were identified as soil maps although of different scales of 1:100,000 and 1:1,000,000, with the third (Gunn *et al.* 1967) identified as a land system map at 1:250,000 scale.

2.4.2 Acid sulfate soils

State Planning Policy 2/02 Planning and Managing Development Involving Acid Sulfate Soils (SPP 2/02) designates a number of conditions where assessment of acid sulfate soil (ASS) is required, in relation to elevation on the Australian Height Datum (mAHD).

- If surface elevation is over 20 mAHD, no further assessment is required

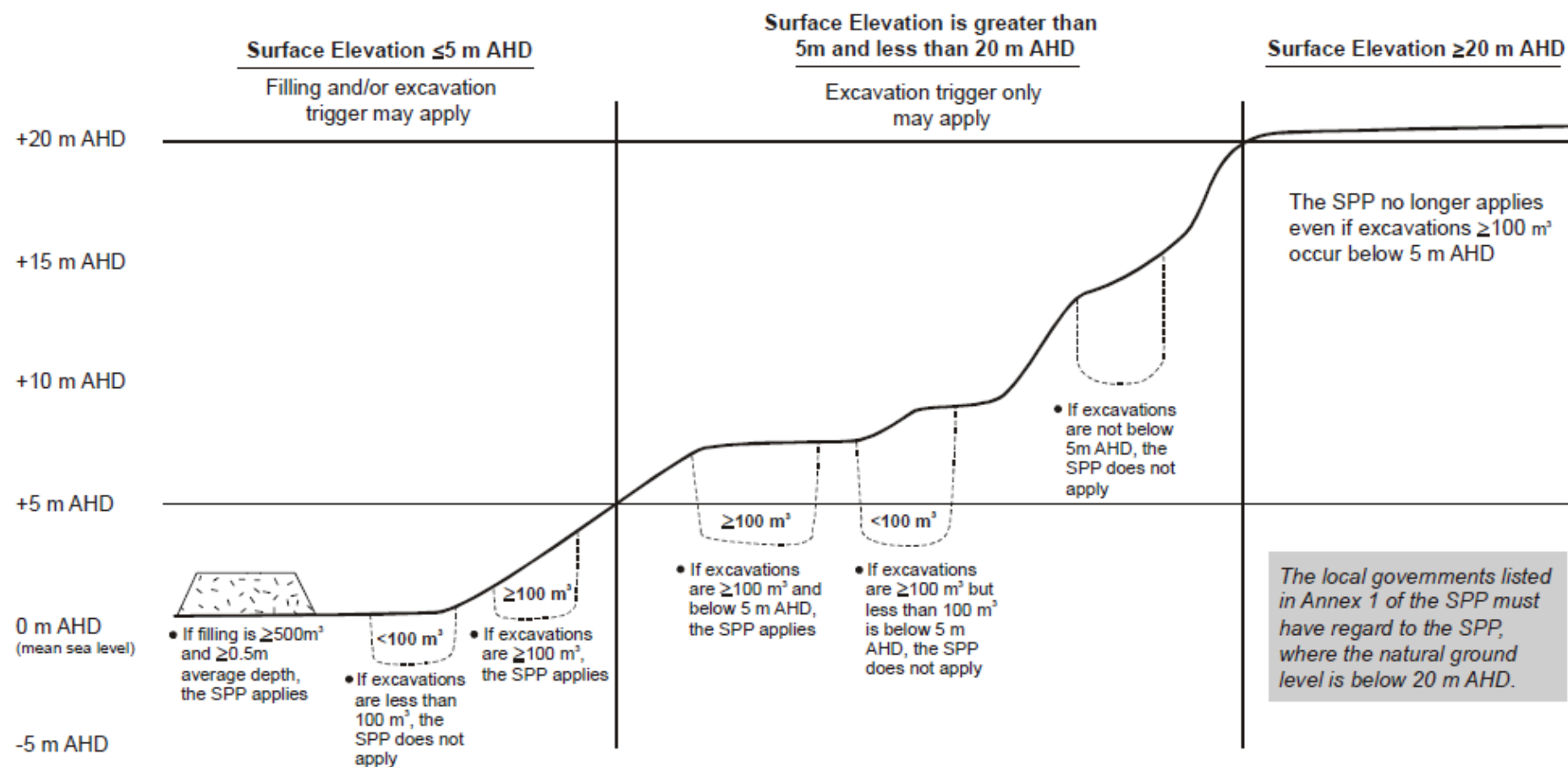
- If surface elevation is greater than five mAHD and less than 20 mAHD and no excavation is proposed, no further assessment is required
- If surface elevation is greater than five mAHD and less than 20 mAHD, and excavation is proposed below five mAHD but is less than 100 m³, no further assessment is required
- If surface elevation is between five mAHD and 20 mAHD, and excavation of more than 100 m³ is proposed below five mAHD, further assessment is required
- If surface elevation is at or below five mAHD, further assessment is required.

These conditions are depicted in Figure 2-3.

Areas with a risk of acid sulfate soils were identified through a review of topographic and geological mapping. This assessment was supplemented by a review of previous studies conducted within the study area (refer to Section 2.2.3).

Figure 2-3 Application of SPP 2/02

Areas and Development to which SPP 2/02 Applies



2.4.3 Good quality agricultural land

The term GQAL applies to any set of agricultural land classes that are determined by a local government to have agricultural characteristics important to the local economy. Agricultural land classes are defined in Table 2-4.

The Isaac Regional Council considers class A, B and C1 as GQAL, whereas the Whitsunday Regional Council considers class A and B as GQAL. From these definitions of GQAL, it can be seen that Isaac Regional Council considers grazing to be an important activity in the region, whereas Whitsunday Regional Council consider grazing to be of less significance.

Table 2-4 Agricultural land classes

Class	Definition
A	Crop land - land that is suitable for current and potential crops with limitations to production that ranges from none to moderate.
B	Limited crop land - land that is marginal for current and potential crops due to severe limitations; and suitable for pastures. Engineering and/or agronomic improvements may be required before the land is considered suitable for cropping.
C1	Pasture land – suitable for grazing high quality pastures, either sown pastures where ground disturbance is possible for pasture establishment or native pastures on higher fertility soils. Land that is suitable only for pastures due to limitations which preclude continuous cultivation for crop production.
C2	Pasture land – suitable for grazing native pastures with or without the addition of pasture species introduced without ground disturbance. Land that is suitable only for pastures due to limitations which preclude continuous cultivation for crop production.
C3	Pasture land – suitable for light grazing of native pastures in accessible areas, otherwise very steep land more suited to forestry, conservation or catchment protection. Land that is suitable only for pastures due to limitations which preclude continuous cultivation for crop production.
D	Non-agricultural land - land not suitable for agricultural uses due to extreme limitations. This may be undisturbed land with significant habitat, conservation and/or catchment values or land that may be unsuitable because of very steep slopes, shallow soils, rock outcrop or poor drainage.

Source: DPI 1993

2.4.4 Strategic cropping land

SCL is divided into five zones across Queensland, which reflects regional differences in climate, land forms and cropping systems. These zones are sub-divided into management areas and protection areas. The NGBR Project study area intersects two of the five zones, the Western Cropping and Coastal Queensland zones. The criteria for assessing SCL are slightly different between the Western Cropping and Coastal Queensland zones, and are provided in Table 2-5. An assessment of the SCL trigger mapping of the relevant zones and constituent management and protection areas was conducted to identify potential SCL in the study area. As LIDAR data was available across the study area, a slope analysis was derived on a 20 m grid. The slope analysis was applied to the relevant portions of identified potential SCL polygons. The remaining seven criteria are required to be undertaken in a field assessment.

Table 2-5 SCL Field Criteria for Western Cropping and Coast Queensland

Criteria	SCL zone	
	Western Cropping	Coastal Queensland
Slope	Less than or equal to three per cent	Less than or equal to five per cent
Rockiness	Less than or equal to 20% for rocks greater than 60 mm in diameter	
Gilgai microrelief	Greater than 50% of land surface being gilgai microrelief of greater than 500 mm in depth	
Soil depth	Greater than or equal to 600 mm	
Soil wetness	Has favourable drainage	
Soil pH	For non-rigid soils, the soil at 300 mm and 600 mm soil depth must be greater than pH 5.0. For rigid soils, the soil at 300 mm and 600 mm soil depth must be within the range of pH 5.1 to pH 8.9 inclusive.	
Salinity	Chloride content less than 800 mg/kg within 600 mm of the soil surface	Electrical conductivity (one part soil to five parts water) less than 0.56 dS/m within 600 mm of the soil surface
Soil water storage	Greater than or equal to 100 mm to a soil depth or soil physico-chemical limitation of less than or equal to 1000 mm	Greater than or equal to 75 mm to a soil depth or soil physico-chemical limitation of less than or equal to 1000 mm

History of Cropping

In accordance with the SCL Act, SCL areas within a management zone are required to pass the history of cropping (HOC) test. If the SCL area fails this test, the site does not qualify as SCL. Sections 46, 49 and 50 of the SCL Act set out the requirements for demonstrating whether or not a property has the required HOC.

A cropping history assessment requires that at least three cropping events occurred on the property from 1 January 1999 to 31 December 2010. This period, which is static, was specifically chosen because it includes at least two periods of above average rainfall for most areas of the state in which cropping occurs. All types of cultivated food, fibre, timber, medicinal and fodder crops are considered to be crops for demonstrating cropping history.

The cropping history assessment applies at a property level; that is the entire property is assessed even if only a portion of the property was used for cropping. A property is defined as a single lot or a set of contiguous lots that are owned by the same person, have one or more common owners, or are managed as a single agricultural unit. The definition of a property includes lots separated by a road or watercourse (as described under Section 5 of the *Water Act 2000*). For example, if a landowner owned two lots adjacent to each other on either side of a road it would be defined as a single property. If a property consists of multiple lots with different owners, it can only be considered as a single property where it is managed as a single agricultural unit.

A HOC test was undertaken on those properties that contained mapped SCL polygons intersected by the study area. The HOC test incorporated a review of Australian Bureau of Agriculture and Resource Economics and Sciences (ABARES); however information at a relevant scale was not available. Therefore, HOC was undertaken using available LANDSAT imagery and Google Imagery to identify evidence of past or current cropping.

2.4.5 Contaminated land

The legislative requirements covering contaminated land in Queensland are primarily contained in the EP Act and subordinate regulations and policies. Schedule 3 of the EP Act lists a number of notifiable activities related to land contamination.

The EMR is a land-use planning and management register. Land that has been or is being used for a notifiable activity, and about which the department is notified, is recorded on the EMR. The EMR provides information on historic and current land use- including whether the land has been or is currently used for a notifiable activity, or has been contaminated by a hazardous contaminant. Sites recorded on the EMR pose a low risk to human health and the environment under the current land use. Entry on the EMR does not mean the land must be cleaned up or that the current land use must stop.

Land affected by unexploded ordnance (UXO) is not recorded on the EMR. However, for convenience, it is listed on an administrative adjunct to the EMR. While UXO-affected lots are not 'registered' as such, this action provides for the information to be provided as 'additional advice' in response to any search of such lots on the EMR.

The CLR is a register of 'risk' sites - proven contaminated land which is causing or may cause serious environmental harm. Land is recorded on the CLR when scientific investigation shows it is contaminated and action needs to be taken to remediate or manage the land. A desktop land contamination study identified potentially contaminated lots in the study area based on searches of the CLR and EMR. It is recognised that contaminated lots not registered or that are notifiable in the EMR or CLR may be later identified. A detailed survey of potentially contaminated land will need to be undertaken during the detailed design phase of the NGBR Project, when defined areas of impact are finalised.

Furthermore, it is an offence under the EP Act to remove contaminated soil from a site listed on the CLR or EMR without a permit. Contaminated land assessment in Queensland, is undertaken in accordance with:-

- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)), henceforth referred to as the NEPM 2013
- DEHP. 2006. Guideline for contaminated land professionals. Brisbane: Department of Environment and Heritage Protection, Queensland Government. October 2012.

The contaminated land assessment was based on a review of the EMR and CLR listing for each individual lot and plan within the study area (refer to Section 2.1), with the exception of easements. A total of 67 lots were searched.

2.5 Limitations

The level of detail of the topography, geology, soils and contaminated land reporting was limited to the information provided in the North Galilee Basin Rail Concept Design Report (Aarvee Associates 2013) and publicly available information (refer to Section 2.2).

Mapping datasets (geology, soils, SCL and GQAL) supplied by the Queensland Government and Local Governments have been used as part of the desktop assessment and are assumed to be accurate.

No field works have been undertaken to verify the findings from this desktop assessment. An overview of a soil survey methodology has been developed (refer to Section 4), which is proposed to be implemented following the EIS process.

3. Existing environment

3.1 Topography

The study area traverses two mountain ranges, the Clarke Range and the Leichhardt Range, and three floodplains/valleys, the Suttor River Floodplain, the Bowen River Valley and the Coastal floodplain. The study area begins at chainage 3.49 km on the Coastal floodplain at approximately three mAHD and gradually increases in elevation as it approaches the crossing over the Bruce Highway. The study area passes through the foothills of Mount Roundback, and continues west across level to undulating plains.

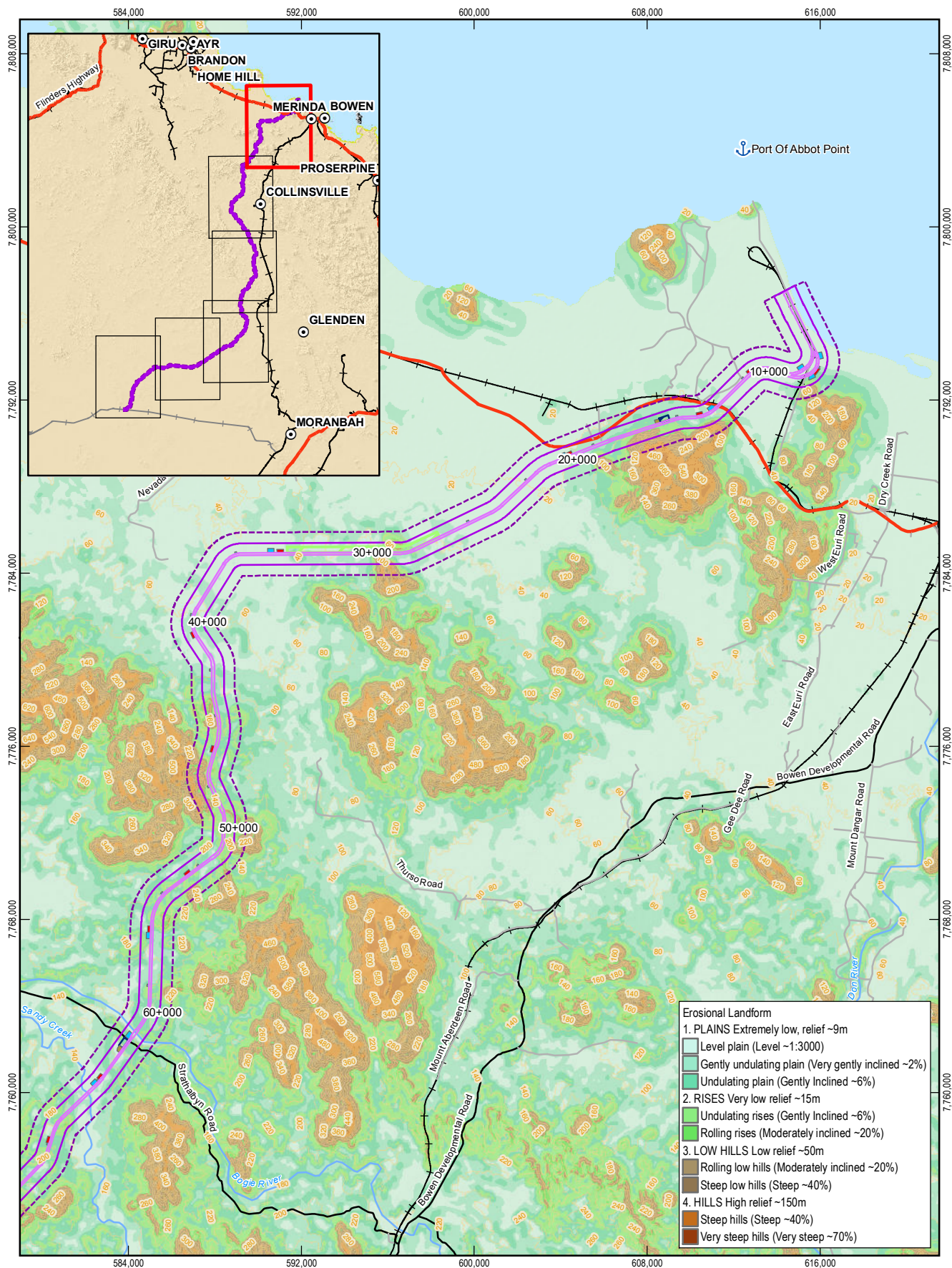
The study area turns south and crosses into the Clarke Range, which runs parallel to the coast in a south-easterly direction. The study area passes through the eastern foothills of Mount Abbot, at elevations of over 100 mAHD. The study area moves into rises associated with the rolling hills to the southeast, including Highlanders Bonnet, Pine Hill and Mount Abbot Pass, and crosses over Bogie River at elevations of 140 mAHD. Elevations continue to increase as the study area bypasses Macgregor Peak and enters the pass separating the Herbert Range to the west, and Peter Gordon Range to the east. The study area traverses rolling low hills with slopes of up to 20 per cent and steep low hills, with slopes of up to 40 per cent, are crossed at chainages 71.3 km to 71.7 km, 72.1 km to 72.9 km, 78.0 km to 78.3 km, 80.5 km to 80.9 km and 82.2 km to 82.3 km. Elevations increase to up to 300 mAHD throughout the pass and decrease to approximately 160 mAHD as the study area leaves the pass, to the east of Table Mountain.

The study area continues across undulating plains to undulating rises, crossing over Pelican Creek and the Bowen River. The relief is gradual around Pelican Creek; however undulating rises border the Bowen River, which flows in a trough. The study area progressing past the Bowen River onto rolling plains with increasing elevation as it approaches the Leichhardt Range.

The study area passes into the Leichhardt Range to the east of Mount Sambo, and moves onto rolling low hills at chainages 155.5 km to 156.8 km and rolling to steep rises between chainages 157.6 km and 166.6 km. Surface elevations increase up to approximately 350 mAHD within this section of the study area. Surface elevation gradually decreases to 330 mAHD as landforms change from rises to plains, associated with the Suttor River at chainage 172.0 km before gradually increasing with slopes of less than two per cent.

The study area skirts the edges of the Suttor River floodplain, on undulating to rolling plains, with localised crossings of undulating rises as it progresses south, parallel with the Suttor River. The study area passes between areas of low hills before crossing into the level floodplain of the Suttor River at chainage 220.0 km, with a surface elevation of 290 mAHD. The study area crosses onto undulating plains associated with isolated rises at chainages as it approaches Verbena Creek. Beyond Verbena Creek, the floodplain returns to a level plain landform and continues with isolated undulating plain areas of low relief to the southern end of the study area, at chainage 306.9 km at a surface elevation of 200 mAHD.

Figure 3-1 shows the landform patterns in relation to the study area from north to south. Details on topographical features interpreted from the desktop soils and land systems information was also used in discussing the topography of the study area.



Erosional Landform	
1. PLAINS Extremely low, relief ~9m	
Level plain (Level ~1:3000)	
Gently undulating plain (Very gently inclined ~2%)	
Undulating plain (Gently Inclined ~6%)	
2. RISES Very low relief ~15m	
Undulating rises (Gently Inclined ~6%)	
Rolling rises (Moderately inclined ~20%)	
3. LOW HILLS Low relief ~50m	
Rolling low hills (Moderately inclined ~20%)	
Steep low hills (Steep ~40%)	
4. HILLS High relief ~150m	
Steep hills (Steep ~40%)	
Very steep hills (Very steep ~70%)	

LEGEND

Population Centres	Main Road	Watercourse (Major)	North Galilee Basin Rail 1000m Corridor	Ancillary Infrastructure Areas	Rolling Stock Maintenance Depot
Major Port	Local Road	20m Contours	North Galilee Basin Rail 100m Corridor	Bridge Laydown Area	Track Laydown Area
Highway	Railway	North Galilee Basin Rail Baseline study area (1km buffer)	Construction Camp	Turning Circle	

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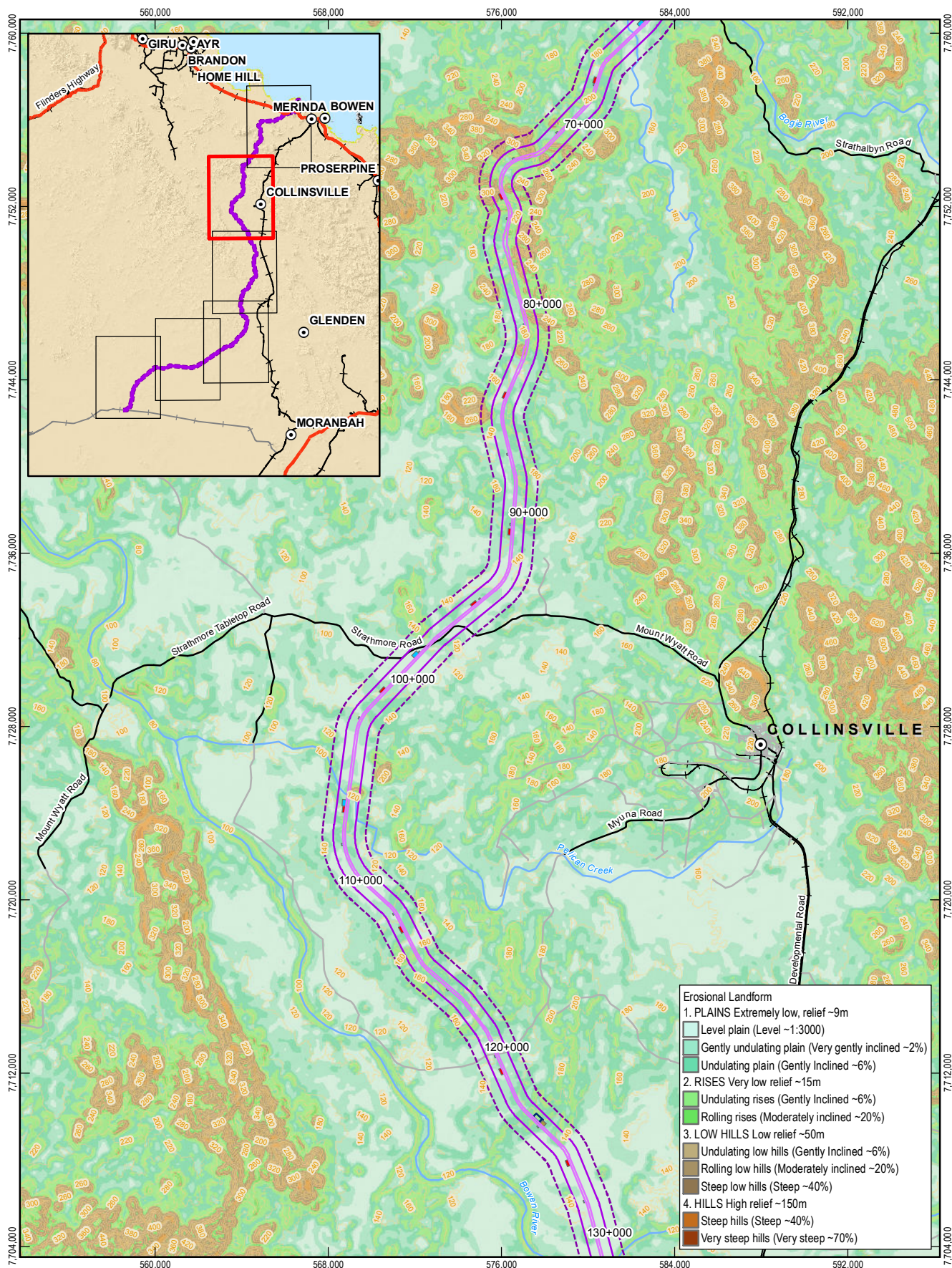
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Figure 3-1
Topography and Landform Sheet 1 of 6

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project Rail 23/07/2012, Ancillary Infrastructure 2013; DNRM: Roads/2010, Contour - 10m/2011, Landform/2011. Created by:MS



- Erosional Landform**
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 - Rolling rises (Moderately inclined ~20%)
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 - Steep low hills (Steep ~40%)
 - HILLS** High relief ~150m
 - Steep hills (Steep ~40%)
 - Very steep hills (Very steep ~70%)

LEGEND

- | | |
|---|--|
| <ul style="list-style-type: none"> Population Centres Main Road Local Road Railway Watercourse (Major) 20m Contours North Galilee Basin Rail 1000m Corridor North Galilee Basin Rail 100m Corridor North Galilee Basin Rail Baseline study area (1km buffer) | <ul style="list-style-type: none"> Ancillary Infrastructure Areas Bridge Laydown Area Concrete Batch Plant Construction Camp Track Laydown Area Turning Circle |
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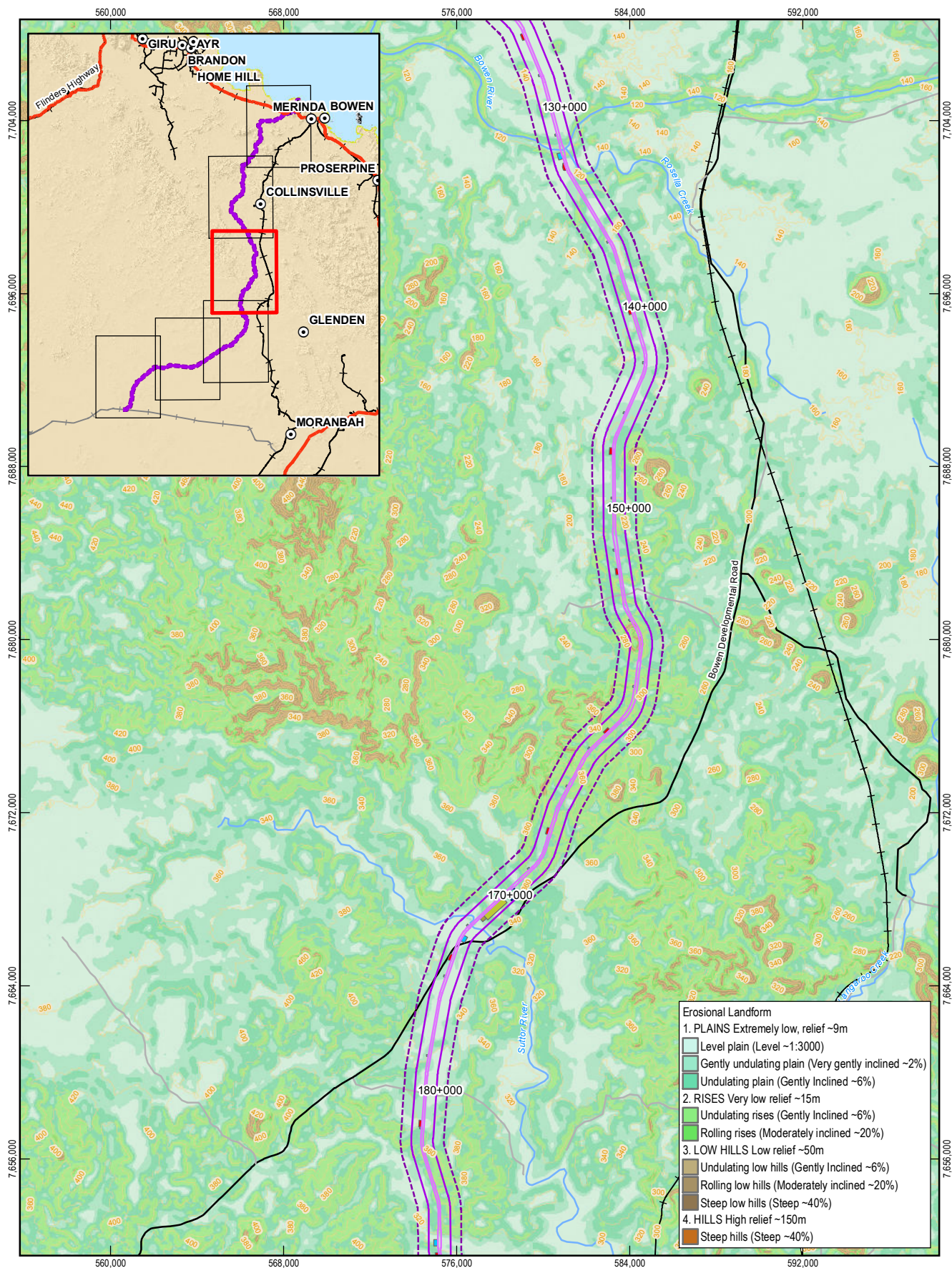


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Figure 3-1
Topography and Landform Sheet 2 of 6

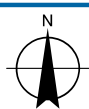


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 - Steep low hills (Steep ~40%)
 - HILLS** High relief ~150m
 - Steep hills (Steep ~40%)

LEGEND

- Local Road
- Main Road
- Watercourse (Major)
- 20m Contours
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail Baseline study area (1km buffer)
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Construction Yard
- Track Laydown Area
- Turning Circle

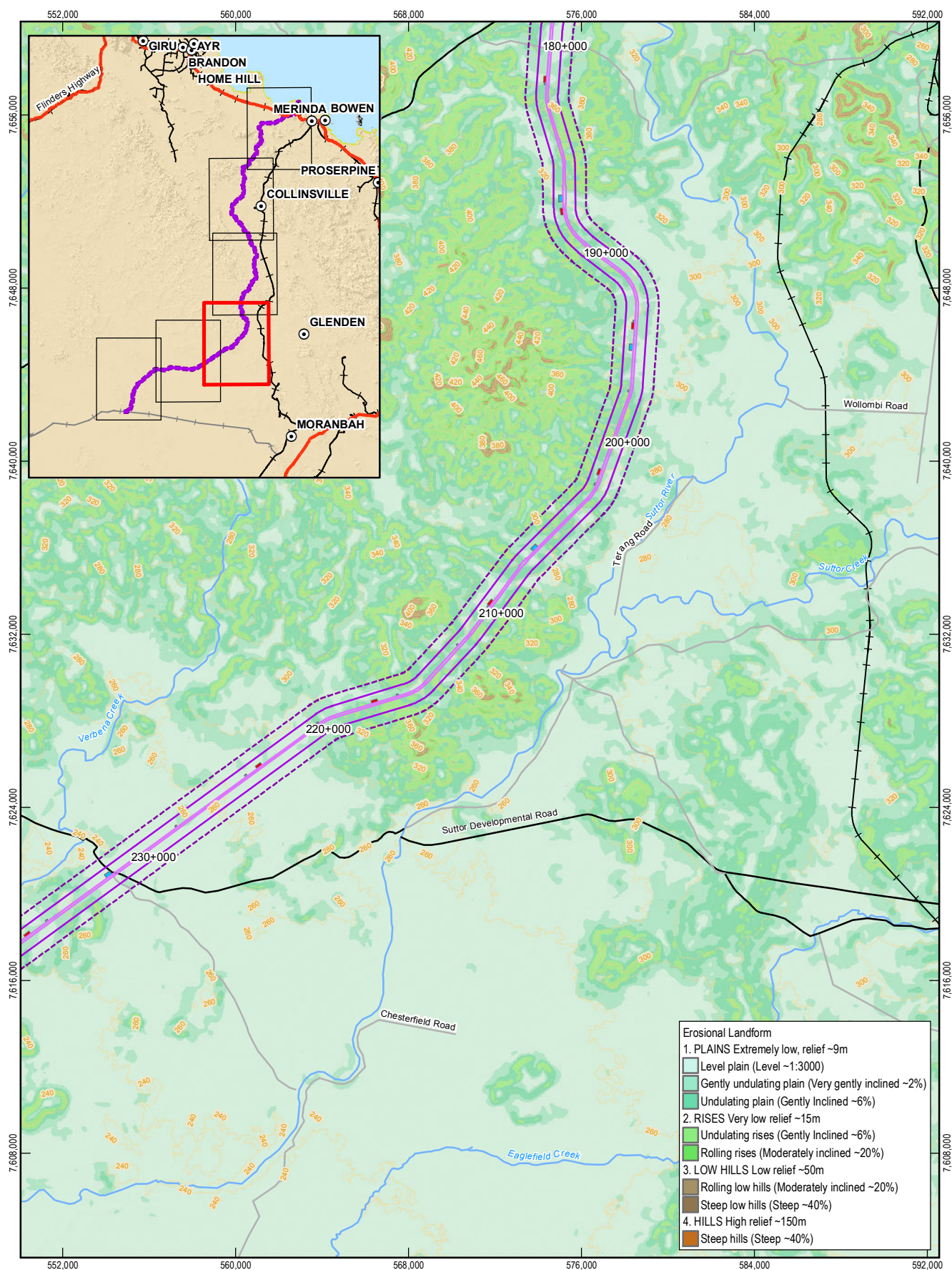
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Topography and Landform Sheet 3 of 6



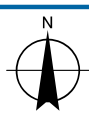
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Steep hills (Steep ~40%)	

LEGEND

Local Road	Watercourse (Major)	North Galilee Basin Rail 1000m Corridor	Ancillary Infrastructure Areas	Track Laydown Area
Main Road	20m Contours	North Galilee Basin Rail 100m Corridor	Bridge Laydown Area	Turning Circle
Railway	North Galilee Basin Rail Baseline study area (1km buffer)			

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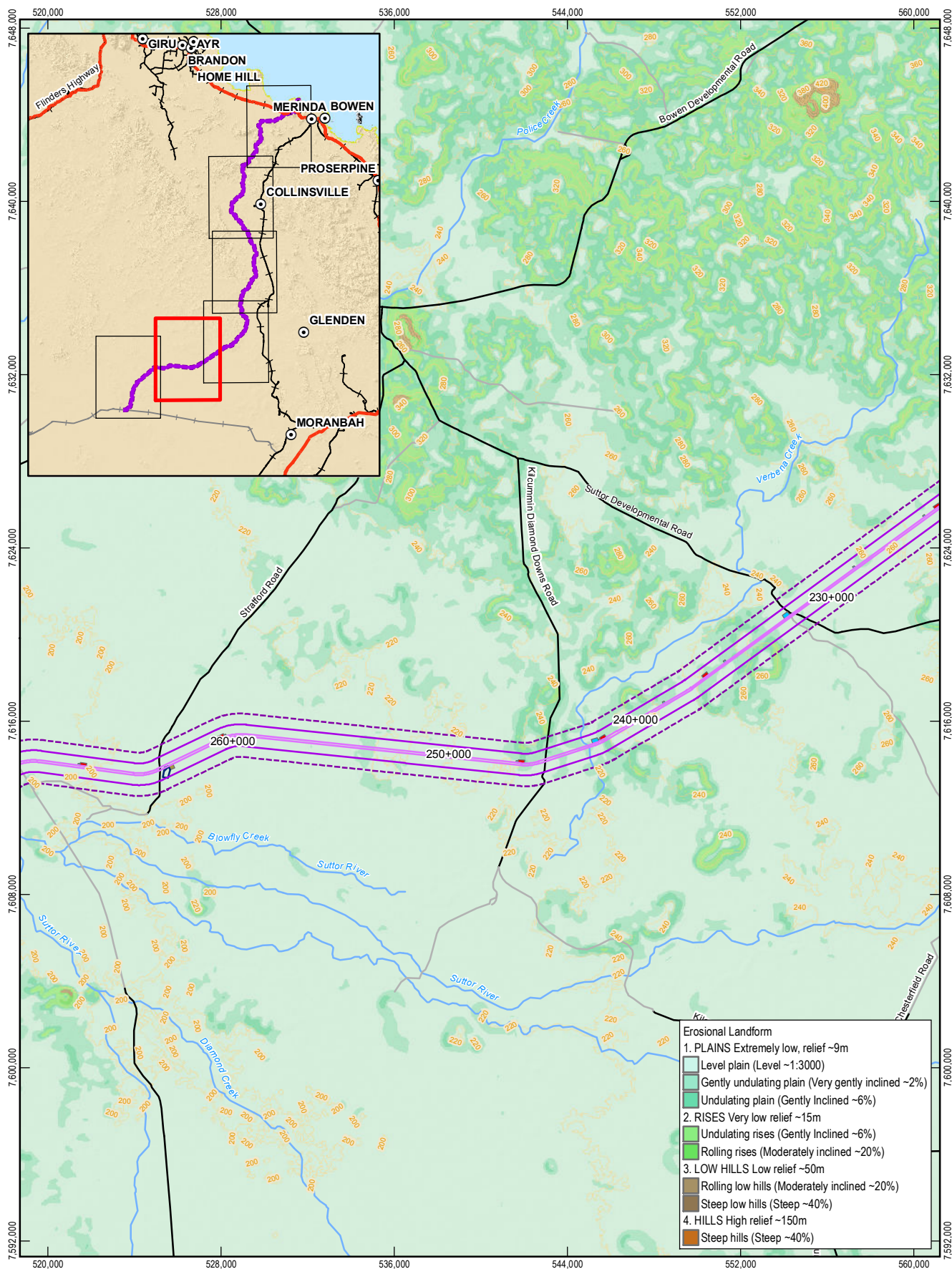
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North Galilee Basin Rail Project

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Topography and Landform Sheet 4 of 6



- Erosional Landform**
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LEGEND

- Local Road
- Watercourse (Major)
- 20m Contours
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail Baseline study area (1km buffer)
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Track Laydown Area
- Turning Circle

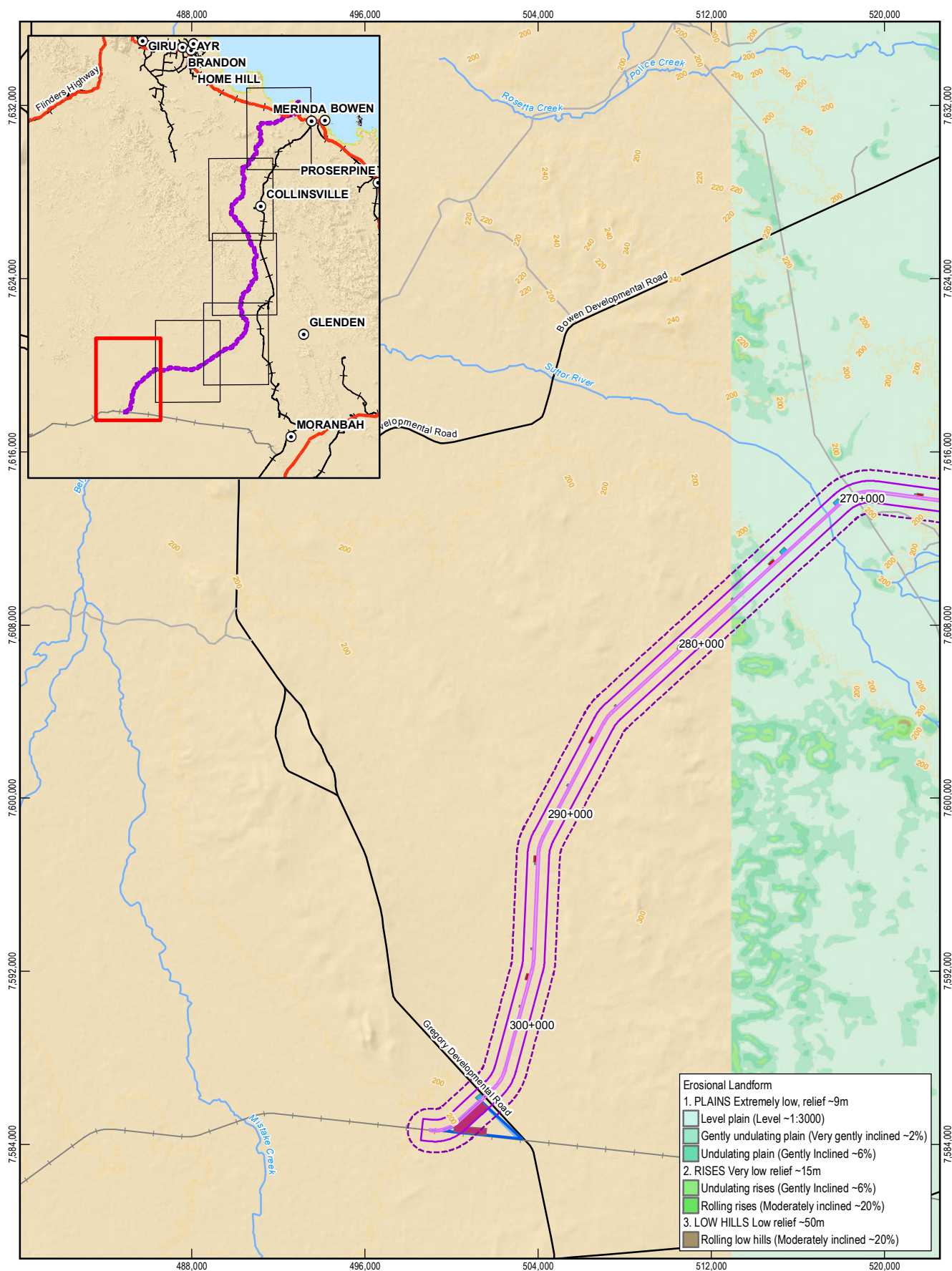
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Topography and Landform Sheet 5 of 6



LEGEND

— Main Road	— Local Road	— Watercourse (Major)	— North Galilee Basin Rail 1000m Corridor	— Ancillary Infrastructure Areas	— Rail Precinct Area
— Carmichael Project (Rail)	— 20m Contours	— North Galilee Basin Rail 100m Corridor	— Bridge Laydown Area	— Construction Depot Area	— Turning Circle
— North Galilee Basin Rail Baseline study area (1km buffer)					

Erosional Landform	
1. PLAINS Extremely low, relief ~9m	
Level plain (Level ~1:3000)	
Gently undulating plain (Very gently inclined ~2%)	
Undulating plain (Gently inclined ~6%)	
2. RISES Very low relief ~15m	
Undulating rises (Gently inclined ~6%)	
Rolling rises (Moderately inclined ~20%)	
3. LOW HILLS Low relief ~50m	
Rolling low hills (Moderately inclined ~20%)	

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1:250,000 Paper Size A4
0 2 4 8
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision B
Date 29 Aug 2013

Topography and Landform Sheet 6 of 6

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project Rail 23/07/2012, Ancillary Infrastructure 2013; DNRM: Roads/2010, Contour - 10m/2011, Landform/2011. Created by:MS

3.2 Geology

The geology associated with the study area has been divided into four areas, associated with major rivers. Beginning in the north, the study area is divided into:

- Abbot Point to Bogie River (chainages 3.49 km to 61.1 km)
- Bogie River to Bowen River, including the Herbert and Peter Gordon Ranges(chainages 61.1 km to 132.2 km)
- The ranges and hills between the Bowen River and Verbena Creek (chainages 132.2 km to 242.7 km)
- The Mistake and Suttor River floodplains (chainages 242.7 km to 306.9 km).

Figure 3-2 shows the mapped geology of the area and the associated relief. Map symbols with question marks (?) indicate uncertainty in accuracy.

An assessment of the geological properties relating to erosion risk and impact on stormwater quality and receiving environments has been provided. A high, low rating has been allocated for each geological unit that is identified within the available mapping. Geological units classified as high risk are the sedimentary deposits which are more susceptible to erosion. Igneous and metamorphic formations are more stable than sedimentary deposits in general, and have been allocated a lower risk. Weathered igneous and metamorphic materials are less stable, as are Mesozoic and Cainozoic/Quaternary sedimentary deposits, and are therefore given a higher risk.

3.2.1 Abbot Point to Bogie River

The regional geology of Abbot Point to Bogie River is described by the Bureau of Mineral Resources, Geology and Geophysics 1969 1:250,000 Geological Series for Ayr (Sheet SE/55-15) (Table 3-1) and 1:100,000 Geological Series for Bogie (Sheet 8457) (Table 3-2), and the accompanying explanatory notes compiled by Gregory, and Paine and Cameron (1:250,000) respectively.

At Abbott Point the dunes are identified as Quaternary sand and interbedded silt. Towards the south west, between Mt Little and Mt Roundback, the corridor traverses an area of largely unconsolidated, Cainozoic-aged (Tertiary-aged) materials on flat to gently undulating land. While some of this material is semi-consolidated, the majority of the lithology comprises alluvial (river-channel and flood-deposited) sand, silt, mud and gravels. South of Mount Roundback, the geology changes, with Upper Carboniferous to Lower Permian-aged units influenced by sheared or foliated structure (forming Mt Roundback) being interspersed with small areas of unconsolidated recent, gravel and sand, which occur on colluvial hill-slopes.

The study area continues southwest, across Late Carboniferous to Early Permian-aged diorite and Early Permian-aged granodiorite interspersed with Later Tertiary to Quaternary-aged colluvium, with minor areas of Early Cretaceous granodiorite. As the study area turns south towards Pine Hill and Mount Abbot Pass, the geology is dominated by granodiorite of varying ages. Quaternary-aged material is not encountered again until the Bogie River is reached.

Table 3-1 Geology from Abbot Point Mount Roundback

Age	Map symbol	Structural/ depositional	Topography	Lithology summary	Potential risk
Quaternary	Qa	Outwash fans, essentially stable at present	Colluvial hillslopes	Gravel and sand, semi-consolidated in places	High
	Qr	Ancient and present shore dunes	Low linear dunes up to 7 m	Sand, some interbedded silt	Low
Cainozoic	Cza	Levees, flood plains and deltas	Flat to gently undulating	Sand, silt, mud and gravel, semi-consolidated in places	High
	Czs	Residual soil developed on deeply weathered granitic rocks. Some colluvium	Gently undulating	Soil, sand and rubble, semi-consolidated in places. Unconsolidated ¹	High
				Soil, sand and rubble, semi-consolidated in places. Semi-consolidated	Low
Upper Carboniferous to Lower Permian	C-Pd	Sheared or foliated in places, as is primary layering	Undulating rises, uneven hills and dyke ridges south of Home Hill, Low-lying country south of Guthalungra	Diorite, quartz diorite, tonalite, gabbro, norite, minor granodiorite, adamellite and granite	Low
	C-Pg	Sheared or foliated in places	Coastal inselbergs up to 200 m, uneven hills and undulating country, some dyke ridges	Adamellite, granite, some granodiorite, with minor fine-grained variants	Low Weathered: High

¹ Where geological maps included information regarding the consolidated or weather nature of geology, this information has been included and the potential stability risk provided.

Table 3-2 Geology from Mount Roundback to Bogie River

Age	Map Symbol	Dominant formation type	Formation Name	Lithology Summary	Potential risk
Quaternary	Qa	Alluvium	-	Clay, silt, sand, gravel; flood-plain alluvium	High
Late Tertiary to Quaternary	TQr	Colluvium	-	Clay, silt, sand, gravel and soil; colluvial and residual deposits (generally on older land surfaces)	High
Early Cretaceous	Kg/b1	Granodiorite	-	Fine-grained highly porphyritic granite; extensively altered and locally deformed, with minor associated copper and molybdenum mineralisation	Low
	Kgsh? ²	Granodiorite	Summer Hill Gabbro?	Dark grey to dark greenish-grey, fine to medium-grained, uneven-grained gabbro, norite and subordinate anorthosite, diorite, quartz diorite; minor chromitite	Low
	Kg/b2	Granodiorite	-	Pale pink, medium-grained, slightly porphyritic, leucocratic biotite monzogranite to quartz monzonite	Low
Early Permian	Pgfc	Granodiorite	Fence Creek Granodiorite	Pale pink, fine to medium-grained, uneven-grained to moderately porphyritic biotite-hornblende and hornblende-biotite granodiorite	Low
	Pvk	-	Karungle Volcanics	Andesite, dacite?, rhyolite (commonly flow banded and locally brecciated), volcanic breccia, tuff, polymictic conglomerate	Low
	Pg/d	Granodiorite	-	Dark grey, fine-grained, porphyritic biotite-hornblende quartz diorite	Low

Age	Map Symbol	Dominant formation type	Formation Name	Lithology Summary	Potential risk
Late Carboniferous to Early Permian	CPgsu	Diorite	Sundown Creek Diorite	Grey, fine-grained hornblende- diorite; deeply weathered and poorly exposed	High
	CPg/b5	Granodiorite	-	unit characterised on radiometric images and on aeromagnetic images	Low
	CPgec	Granodiorite	Euri Creek Granodiorite	Pale grey, medium-grained, uneven-grained to slightly porphyritic biotite-hornblende granodiorite to hornblende-biotite tonalite, generally deeply weathered	High ¹
				Pale grey, medium-grained, uneven-grained to slightly porphyritic biotite-hornblende granodiorite to hornblende-biotite tonalite, generally deeply weathered however when unweathered	Low ¹
	CPggr	Diorite	Glenore Road Quartz Diorite	Grey, medium-grained, slightly uneven-grained pyroxene-hornblende-biotite and cpyroxene-biotite-hornblende quartz diorite; massive; deeply weathered and poorly exposed	High
	CPgmm? ²	Granodiorite	Mount Mackenzie Granite?	Buff to pale brown, medium-grained, slightly porphyritic, leucocratic muscovite-biotite monzogranite; granophyric.	Low

¹ Where geological maps included information regarding the consolidated or weather nature of geology, this information has been included and the potential stability risk provided

² A question mark (?) indicates uncertainty of the classification in original geological mapping dataset. The geology identified is the most likely.

3.2.1 Bogie River to Bowen River

The regional geology adjoining the Bogie and Bowen Rivers is depicted by the Bureau of Mineral Resources, Geology and Geophysics 1972 1:250,000 Geological Series for Bowen (Sheet SF/55-3), 1:100,000 Geological Series for Bogie (Sheet 8457) and the accompanying 1:250 000 Explanatory Notes compiled by Paine and Cameron.

Immediately south of the Bogie River, stable, crystalline granodiorite and diorite (igneous rocks) of Late Carboniferous to Early Permian age, dominate (Table 3-3). across Sandy Creek and continuing southwest, the underlying lithology changes to the variable early Permian Lizzie Creek Volcanic Group of both igneous and sedimentary rocks. Fossil material of flora is common in the sedimentary material within this formation, and these sediments can be unstable. This underlying geology is present as the study area intersects the Peter Gordon Ranges to the east and Herbert Ranges to the west. The Lizzie Creek Volcanic group remains the dominant underlying geology up until the Bowen River. However, Quaternary alluvial deposits are present at the junction with both Strathmore Creek and Pelican Creek prior to the study area intersecting the Bowen River (Table 3-4). Additionally, immediately prior to the Bowen River, pockets of lower Cretaceous igneous intrusions, surrounded by hills of hornfels and low tors, occur along the study area.

The junction of the study area with the Bowen River is characterised by soil covered plains and low rises underlain by various forms of sandstone, siltstone, shale and coal seams derived from the lower to upper Permian. These can prove to be unstable and erodible.

Table 3-3 Geology from Bogie River to Bowen River

Age	Map Symbol	Dominant Formation	Formation name	Lithology	Potential risk
Quaternary	Qa	Alluvium	-	Clay, silt, sand, gravel; flood-plain alluvium	High
Early Permian	Pvz	Mafites (lavas, clastics and high-level intrusives)	Lizzie Creek Volcanic Group	Basalt, andesite, and interbedded volcanic breccia; generally subordinate dacite, rhyolite, trachyte; conglomerate, labile arenite, siltstone, calcareous siltstone, shale, carbonaceous shale; minor coal; fossil plant fragments common in sedimentary rocks. Volcanics	Low
				Basalt, andesite, and interbedded volcanic breccia; generally subordinate dacite, rhyolite, trachyte; conglomerate, labile arenite, siltstone, calcareous siltstone, shale, carbonaceous shale; minor coal; fossil plant fragments common in sedimentary rocks. Sediments	High
Early Permian	Pvz/r	Felsites (lavas, clastics and high-level intrusives)	Lizzie Creek Volcanics/r	Mainly dacitic, trachytic to rhyolitic volcanic and intrusive rocks, and associated volcanoclastic sediments	Low
Late Carboniferous to Early Permian	CPg/b7	Granodiorite	-	Unit characterised on radiometric images, and on airborne magnetic images	Low
	CPgga	Granodiorite	Glen Alpine Granite	Pink to brown, medium-grained, slightly to moderately porphyritic, biotite monzogranite; leucocratic; granophytic; deeply weathered and poorly exposed	High
	CPg/b5	Granodiorite	-	Unit characterised on radiometric images, and on airborne magnetic images	Low
	CPgsu	Diorite	CPgsu	Grey, fine-grained hornblende-pyroxene diorite; deeply weathered and poorly exposed	High

Table 3-4 Geology in the vicinity of the Bowen River (raster map)

Age	Map Symbol	Formation name	Topography	Lithology	Potential risk
Lower Cretaceous	Ki	-	Pockets surrounded by hills of hornfels; low tors	Granodiorite, diorite, rhyolite, porphyry, gabbro, microdiorite	Low
Upper Permian	Puw	Blackwater Group	Soil-covered plains, some strike ridges. Rugged where hornfelsed	Cross-bedded well-sorted lithic sandstone, siltstone, quartzose sandstone; carbonaceous shale with some coal seams, pebble and cobble conglomerate, dolomitic and calcareous sandstone, tuff. Lithic/quartzose	Low
				Cross-bedded well-sorted lithic sandstone, siltstone, quartzose sandstone; carbonaceous shale with some coal seams, pebble and cobble conglomerate, dolomitic and calcareous sandstone, tuff. Hornfelsed	Low
				Cross-bedded well-sorted lithic sandstone, siltstone, quartzose sandstone; carbonaceous shale with some coal seams, pebble and cobble conglomerate, dolomitic and calcareous sandstone, tuff. Remainder	High

Age	Map Symbol	Formation name	Topography	Lithology	Potential risk
Lower to Upper Permian	Pue	Blenheim Subgroup	Low rises; subdued cuestas	Siltstone, pebbly sublabile sandstone, fossiliferous calcareous siltstone and sandstone, coquinite, limestone (abundance fossils)	High
	Plc	Collinsville Coal Measures	Subdued, some hills	Quartzose sandstone, conglomerate, siltstone, calcareous sublabile sandstone, coal seams, carbonaceous shale (fossiliferous marine horizon)	High
Lower Permian	Plz	Lizzie Creek Volcanics	Gentle rises and black-soil plains in north; high hills in east; some low strike ridges	Basalt, andesite, agglomerate, lithic and tuffaceous sediments, minor acid volcanics	Low

3.2.2 Ranges and hills between the Bowen River and Verbena Creek

The majority of the ranges and hills between the Suttor River flood plain and the Bowen River are mapped in Byerwen Sheet 8455 of the Mount Coolon Sheet SF/55-7, the northern portion, between chainages 132.2 km and 153.7 km, approaching the Bowen River, is mapped in the 1:250,000 Bowen Sheet SF/55-3 and the Bowen Explanatory Notes (Paine and Cameron, 1972).

Southward of the Bowen River, the underlying geology is Late Permian and Permian sedimentary rock formations in the study area. Southward again of Rosella Creek, the sedimentary rocks are interspersed with Tertiary basalts. Nearer the Suttor River, the substrate is dominantly Tertiary arenite and Tertiary and Quaternary-aged colluvial soils (Table 3-5). South of the Suttor River, the corridor traverses Tertiary-aged sedimentary rock formations, interspersed with Permian-aged sedimentary rock, Carboniferous-aged felsites, Tertiary-aged ferricretes and Carboniferous to Permian-aged granitoids. As one continues southward, the granitoid geology remains to the west, with Quaternary-aged alluvium soils and Tertiary to Quaternary-aged colluvia present along the rail corridor and to the east.

At Murray Creek, when the study area alters to a southwest – northeast direction, the geology changes to Carboniferous felsites. Before the study area intersects Verbena Creek, Quaternary-aged alluvial soils are encountered interspersed with Tertiary-aged sedimentary rocks and late Devonian to early Carboniferous-aged felsites (Table 3-5).

Table 3-5 Geology encountered between the Bowen River and Verbena Creek

Age	Map symbol	Formation name	Dominant rock type	Lithology summary	Potential stability risk
Quaternary	Qa	-	Alluvium	Clay, silt, sand, gravel; flood plain alluvium	High
	Qrls	-	Colluvium	Residual soil, colluvium (sandy soils)	High
	Qrlf>Ts,Pb	Overlying Suttor Formation and/or Back Creek Group		Residual soil, colluvium (red soils)	High
	Qr,Pb	Overlying Back Creek Group		Clay, silt, sand, gravel and soil; colluvial and residual deposits	High
	Qr>CPgb	Overlying Bluegrass Creek Granite		Clay, silt, sand, gravel and soil; colluvial and residual deposits	High
Quaternary (Pleistocene)	Qpa	-	Alluvium	Older alluvium	High
Tertiary to Quaternary	TQr>Ts	Overlying Suttor Formation	Colluvium	Older residual soils, colluvium	High
	TQr>Pb	Overlying Back Creek Group		Older residual soils, colluvium	High
	TQr>CPgb	Overlying Bluegrass Creek Granite		Older residual soils, colluvium	High
	TQr>Cub	Overlying Bulgonunna Volcanic Group		Older residual soils, colluvium	High
Tertiary	Ts	Suttor Formation	Sedimentary Rock	Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt Qtz sst	Low

Age	Map symbol	Formation name	Dominant rock type	Lithology summary	Potential stability risk
				Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt. Basalt	Low
				Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt. Remainder	High
	Ts,TQr	Suttor Formation		Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt. Qtz sst	Low
				Quartz sandstone, clayey sandstone, mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt. Basalt	Low
				Quartz sandstone, clayey sandstone,	High

Age	Map symbol	Formation name	Dominant rock type	Lithology summary	Potential stability risk
				mudstone and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt. Remainder	
	Tn	-		Clayey sandstone, sandy claystone, feldspathic sandstone, conglomerate, minor siltstone, rare oil shale	High
	Tslc	Suttor Formation	Mudrock	Fluvial and lacustrine sediments (clayey)	High
	Tsls	Suttor Formation	Arenite	Fluvial and lacustrine sediments (sandy)	High
	Td	-	Ferricrete	Duricrusted surfaces/scarps	High
	Tdf	-		Duricrusted surfaces/scarps (ferricrete)	High
Tertiary	Tb		Basalt	Olivine basalt	Low
Cretaceous	Ki	-	Granitoid	Granodiorite, diorite, rhyolite, porphyry, gabbro, microdiorite	Low
Late Permian	Pwb	Moranbah Coal Measures	Arenite-Mudrock	Labile sandstone, siltstone, mudstone, coal, conglomerate in the east	High
	Pw	Blackwater Group	Sedimentary Rock	Feldspathic and lithic sandstone, silty sandstone, calcareous sandstone, ashstone	High

Age	Map symbol	Formation name	Dominant rock type	Lithology summary	Potential stability risk
				and cherty mudstone, carbonaceous mudstone and coal; commonly abundant plant fossils and fossil wood	
Permian	Pb	Back Creek Group	Sedimentary Rock	Quartzose to lithic sandstone, siltstone, carbonaceous shale, minor coal and sandy coquinite. Sst	Low
				Quartzose to lithic sandstone, siltstone, carbonaceous shale, minor coal and sandy coquinite. Remainder	High
Early Permian	Pbc	Collinsville Coal Measures	Sedimentary Rock	Quartzose sandstone, conglomerate, siltstone, coal. Sst	Lo
				Quartzose sandstone, conglomerate, siltstone, coal. Remainder	High
	Pvz	Lizzie Creek Volcanics	Mafites (lavas, clastics and high-level intrusives)	Basaltic to andesitic lava and volcanoclastic rocks (including breccia and arenite), rhyolitic to dacitic lava and volcanoclastic rocks (including ignimbrite); local siltstone, shale and polymictic conglomerate	Low

Age	Map symbol	Formation name	Dominant rock type	Lithology summary	Potential stability risk
Carboniferous to Permian	CPgb	Bluegrass Creek Granite	Granitoid	Medium to coarse-grained biotite granite and granodiorite	Low
Carboniferous	Cub/n	Bulgonunna Volcanic Group	Mafites (lavas, clastics and high-level intrusives)	Andesitic pyroclastic flow deposit	Low
	Cub/po	Bulgonunna Volcanic Group	Felsites (lavas, clastics and high-level intrusives)	Undifferentiated intrusive rhyolite, quartz-feldspar porphyry, feldspar porphyry and microgranite	Low
	Cubl/d	Locharwood Rhyolite		Crystal rich, lithic poor rhyolitic ignimbrite.	Low
	Cubl/b, Cubl/c	-		Crystal rich rhyolitic ignimbrite.	Low
	Cubl/b	-		Crystal rich rhyolitic ignimbrite.	Low
	Cubi	Pinang Rhyolite		Crystal rich rhyolitic ignimbrite.	Low

3.2.3 Mistake and Suttor River flood plains

The regional geology of the Suttor River Flood Plains area and Mistake Creek are depicted by the Bulliwallah Sheet 8354 (Fitzell *et al.*, 2008), Gunjulla Sheet 8354 (Hutton *et al.*, 2011) and Wyena Sheet 8454 (Hutton *et al.*, 2011) 1:100,000 geological map series (Department of Mines and Energy) and the accompanying 1:250,000 Buchanan and Mount Coolon Explanatory Notes compiled by Olgers (1970) and Hutton *et al.* (1998) respectively.

Extending westward from Verbena Creek, the geology is dominated by Pleistocene alluvial soils. These are interspersed with Late Tertiary to Quaternary-aged colluvium up to the Suttor River. Westwards of the Suttor River a range of geological features is encountered in, the study area associated with rises and plateaux (Table 3-6). These include Tertiary-aged ferricrete, Tertiary to Quaternary-aged colluvium, Early Carboniferous-aged sedimentary rocks and felsites, and arenite-rudite and pelite (Anakie Metamorphic Group) of uncertain (Palaeozoic – pre-Cambrian) age. The southern end of the study area is within Pleistocene-aged alluvium, associated with Mistake Creek, and the elevated southern extremity extending into Early Carboniferous mixed sedimentary rocks with arenite-rudite.

Table 3-6 Geology encountered in the Mistake Creek and Suttor River Flood Plain

Age	Map symbol	Dominant rock type	Formation name	Lithology summary	Potential risk
Quaternary	Qa	Alluvium	-	Clay, silt, sand, gravel; floodplain alluvium	High
	Qr	Colluvium	-	Clay, silt, sand, gravel and soil; colluvial and residual deposits	High
	Qr,Cs		Overlying Star Of Hope Formation	Clay, silt, sand, gravel and soil; colluvial and residual deposits	High
	Qr,Tu? ¹		Overlying Suttor Formation?	Clay, silt, sand, gravel and soil; colluvial and residual deposits	High
Quaternary (Pleistocene)	Qpa	Alluvium	-	Clay, silt, sand, gravel; flood plain alluvium on high terraces	High
Late Tertiary to Quaternary	TQr	Colluvium	-	Clay, silt, sand, gravel and soil; colluvial and residual deposits (generally on older land surfaces)	High
	TQrIf>Tu		Overlying Suttor Formation	Older residual soils, colluvium (ferruginous soils)	High
	TQr>Ts		-	Clay, silt, sand, gravel and soil; colluvial and residual deposits (generally on older land surfaces)	High
Tertiary	Ts	Arenite-Mudrock	-	Clayey sublabile to quartzose sandstone, sandy claystone, laminated siltstone, and minor conglomerate	High

Age	Map symbol	Dominant rock type	Formation name	Lithology summary	Potential risk
	Td	Ferricrete	-	Duricrusted palaeosols at the top of deep weathering profiles, including ferricrete and silcrete; duricrusted old land surfaces.	Low
				Duricrust.	Low
Carboniferous	Cvbl/b	Felsites (lavas, clastics and high-level intrusives)	Locharwood Rhyolite	Moderately crystal rich to crystal rich rhyolitic ignimbrite.	Low
Early Carboniferous	Cs	Mixed sedimentary rocks and felsites	Star of Hope Formation	Lithic conglomerate, feldspatholithic sandstone, rhyolitic to dacitic ignimbrite and flows, tuffaceous siltstone and rare sinter	Low
	Ch	Arenite-Rudite	Mount Hall Formation	Quartzose to feldspathic sublabile sandstone, quartz-pebble conglomerate, mudstone and red and green siltstone. Qtz sst	Low
				Quartzose to feldspathic sublabile sandstone, quartz-pebble conglomerate, mudstone and red and green siltstone. Remainder	High
Late Devonian to Early Carboniferous	DCs	Felsites (lavas, clastics and high-level intrusives)	Silver Hills Volcanics	Rhyolite, dacite, rhyolitic ignimbrite, volcanoclastic sediments, sinter, minor sandstone and siltstone	Low

Age	Map symbol	Dominant rock type	Formation name	Lithology summary	Potential risk
Neo-proterozoic to Cambrian?	PLEa	Pelite	Anakie Metamorphic Group	Siltstone, fine sandstone, phyllite, schist.	Low

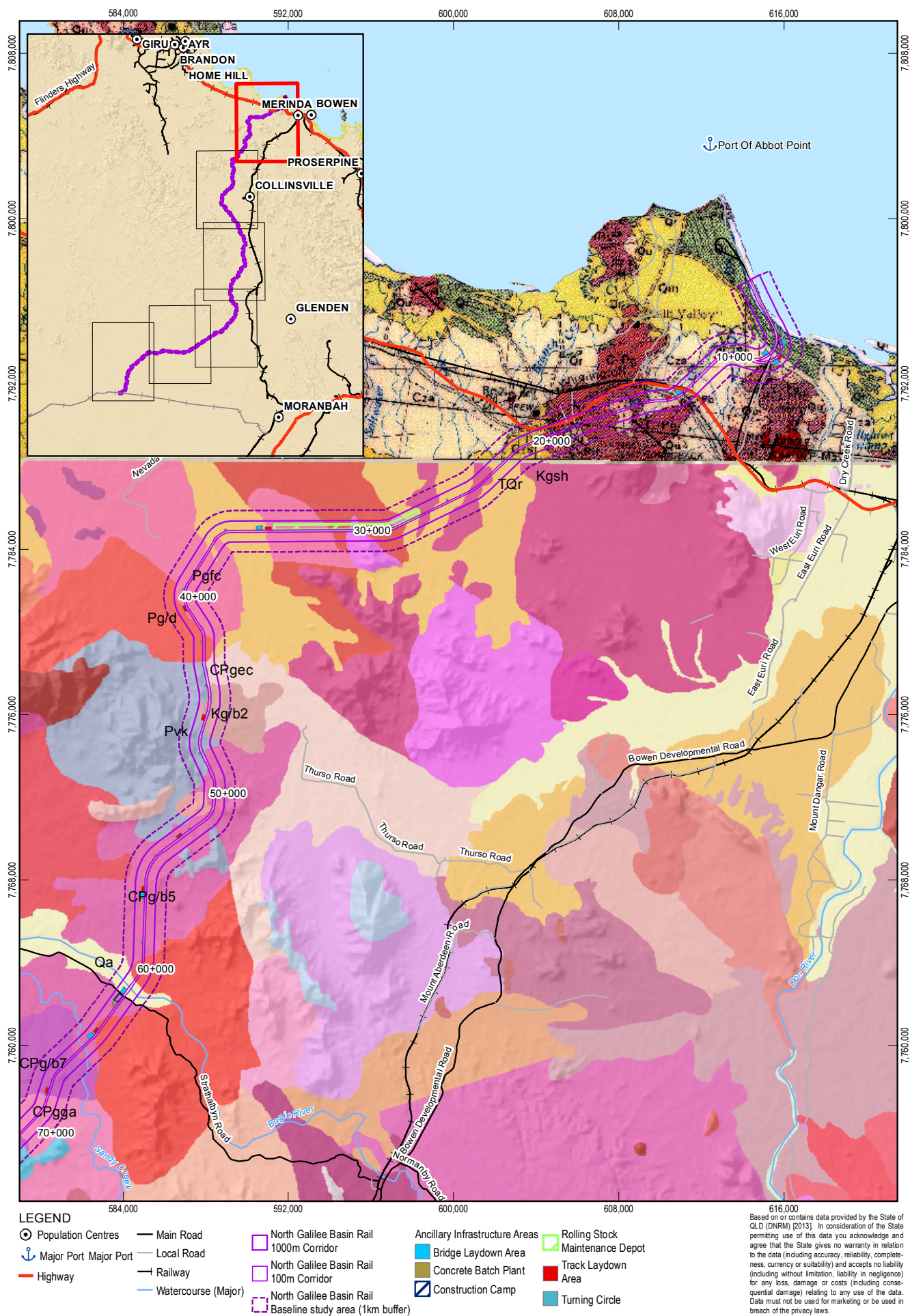
Note: 1. A question mark (?) indicates uncertainty of the classification in original geological mapping dataset. The geology identified is the most likely.

DRAFT ONLY*

3.2.4 Fossil presence

In Queensland, fossils are typically found in sedimentary rocks, commonly shale, sandstone, and limestone. The types of rock that normally lack fossils are metamorphic rocks and igneous rocks due to the harsh manner in which they form, which usually destroys or severely deforms any remains of biological organisms.

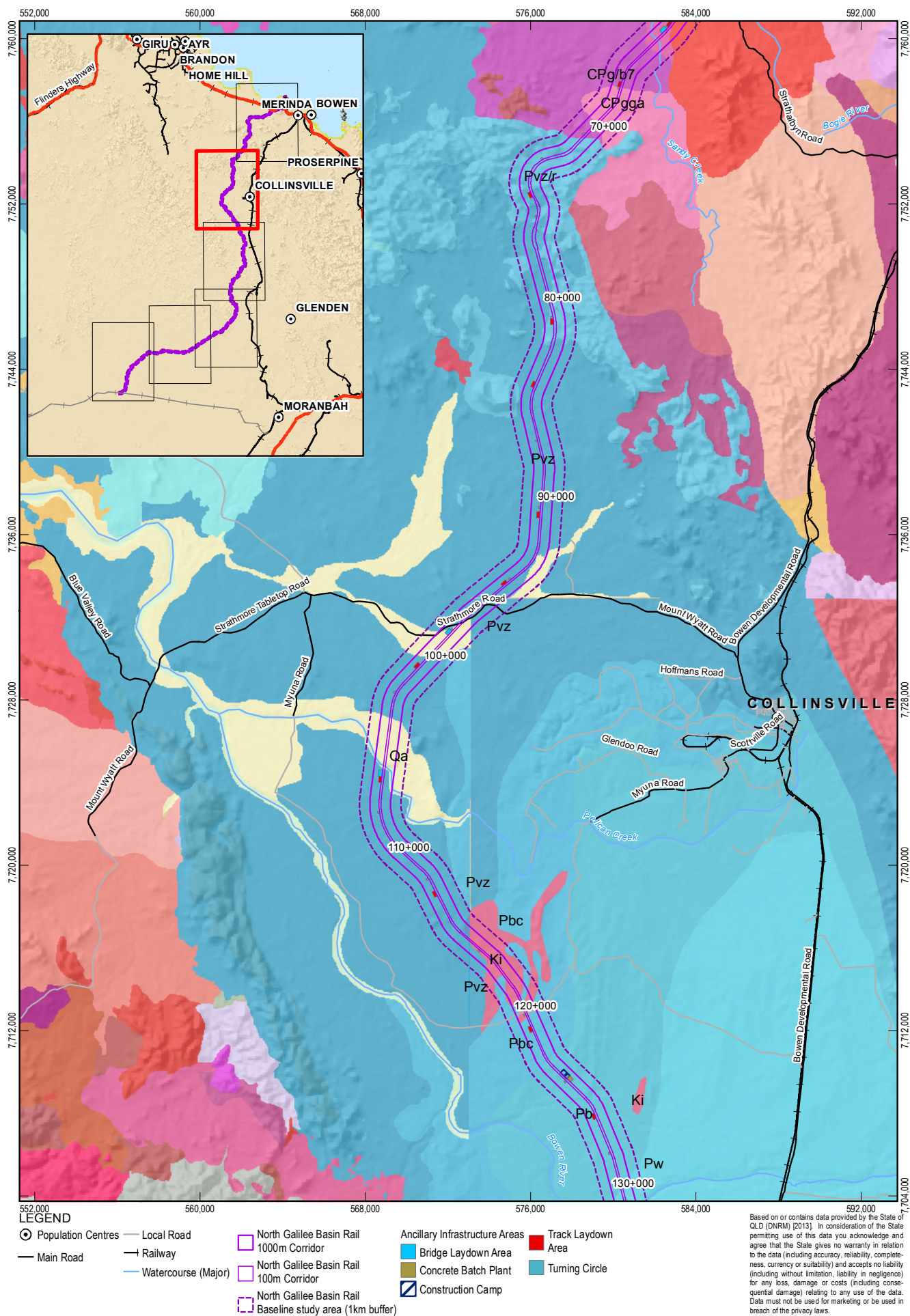
The study area traverses the Blackwater Group formation between chainages 130.4 km to 158.3 km. This Late Permian-aged sedimentary rock is reported to have an abundance of fossil presence (Paine and Camron 1972). Formations in the Blenheim subgroup and Collinsville Coal Measures, from chainage 113.2 km to chainage 130.4 km may give rise to fossil remains. Fossil material of flora is common in sedimentary material within the Lizzie Creek Volcanic Group formation immediately south of Pelican Creek.



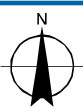
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Data source: GA: Populated Places, Railway, Watercourse 2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project Rail 23/07/2012, Ancillary Infrastructure 2013; DNRM: Roads/2010; Combined Soils/2010. Created by:MS



1:250,000
0 2 4 8
Kilometres
Map Projection: Transverse Mercator
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Revision A
Date 30 Aug 2013

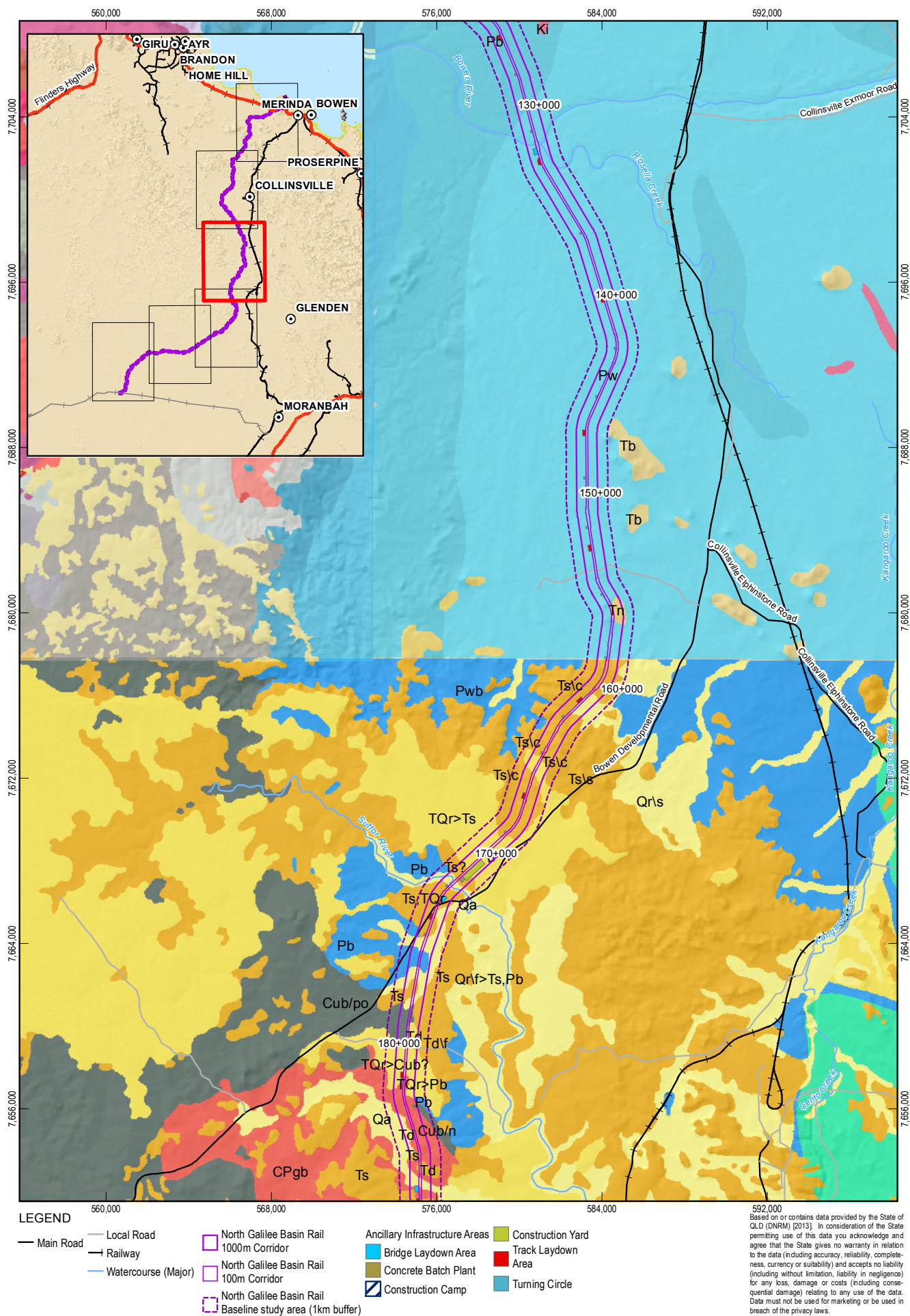
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Figure 3-2
Sheet 2 of 7

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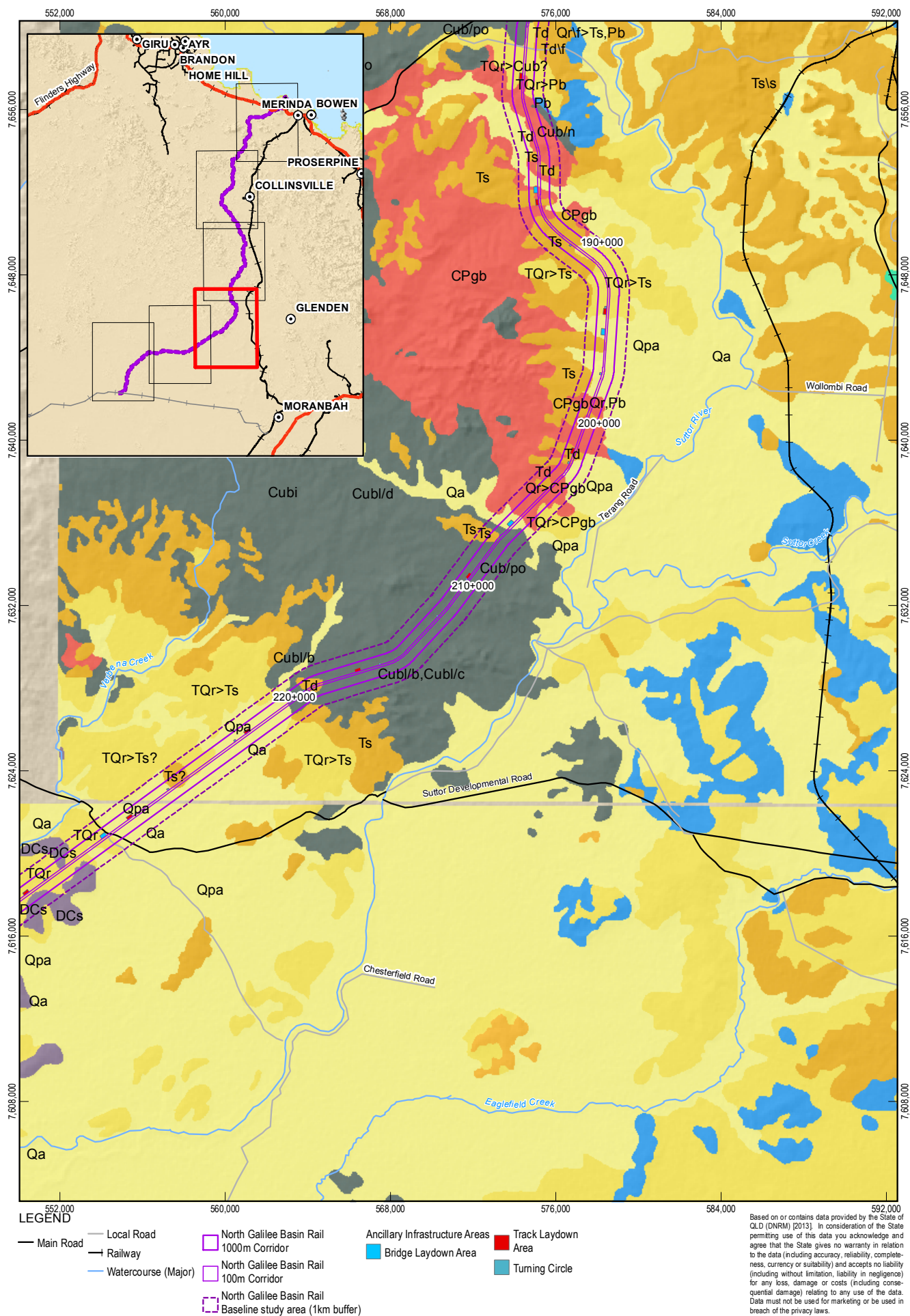
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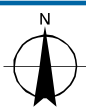
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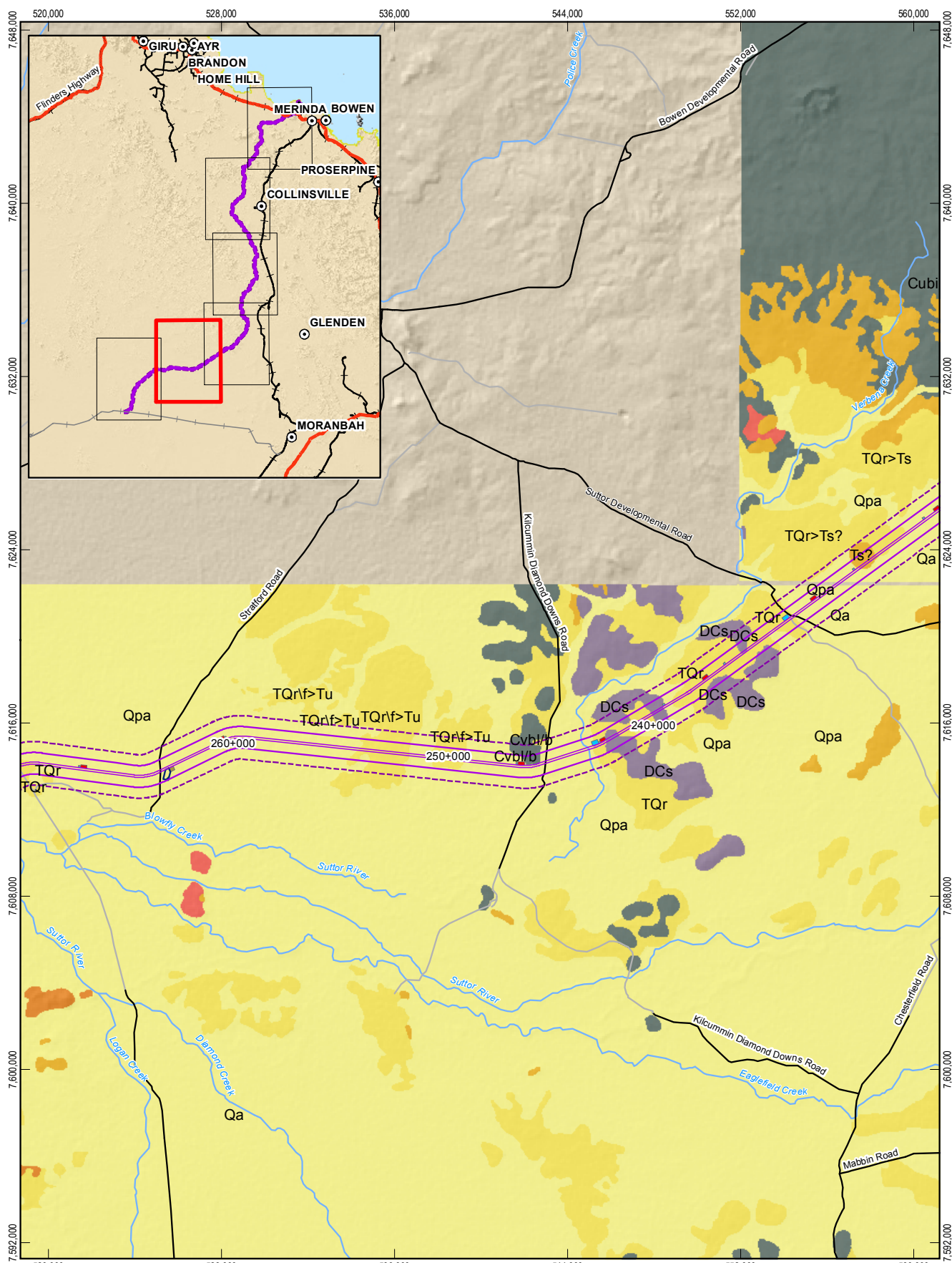
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Figure 3-2
Sheet 4 of 7

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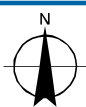


LEGEND

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|-----------------------|--------------|---|----------------------------------|------------------------|
| — Main Road | — Local Road | □ North Galilee Basin Rail 1000m Corridor | □ Ancillary Infrastructure Areas | ■ Track Laydown Area |
| — Watercourse (Major) | | □ North Galilee Basin Rail 100m Corridor | ■ Bridge Laydown Area | ■ Concrete Batch Plant |
| | | □ North Galilee Basin Rail Baseline study area (1km buffer) | ■ Construction Camp | ■ Turning Circle |

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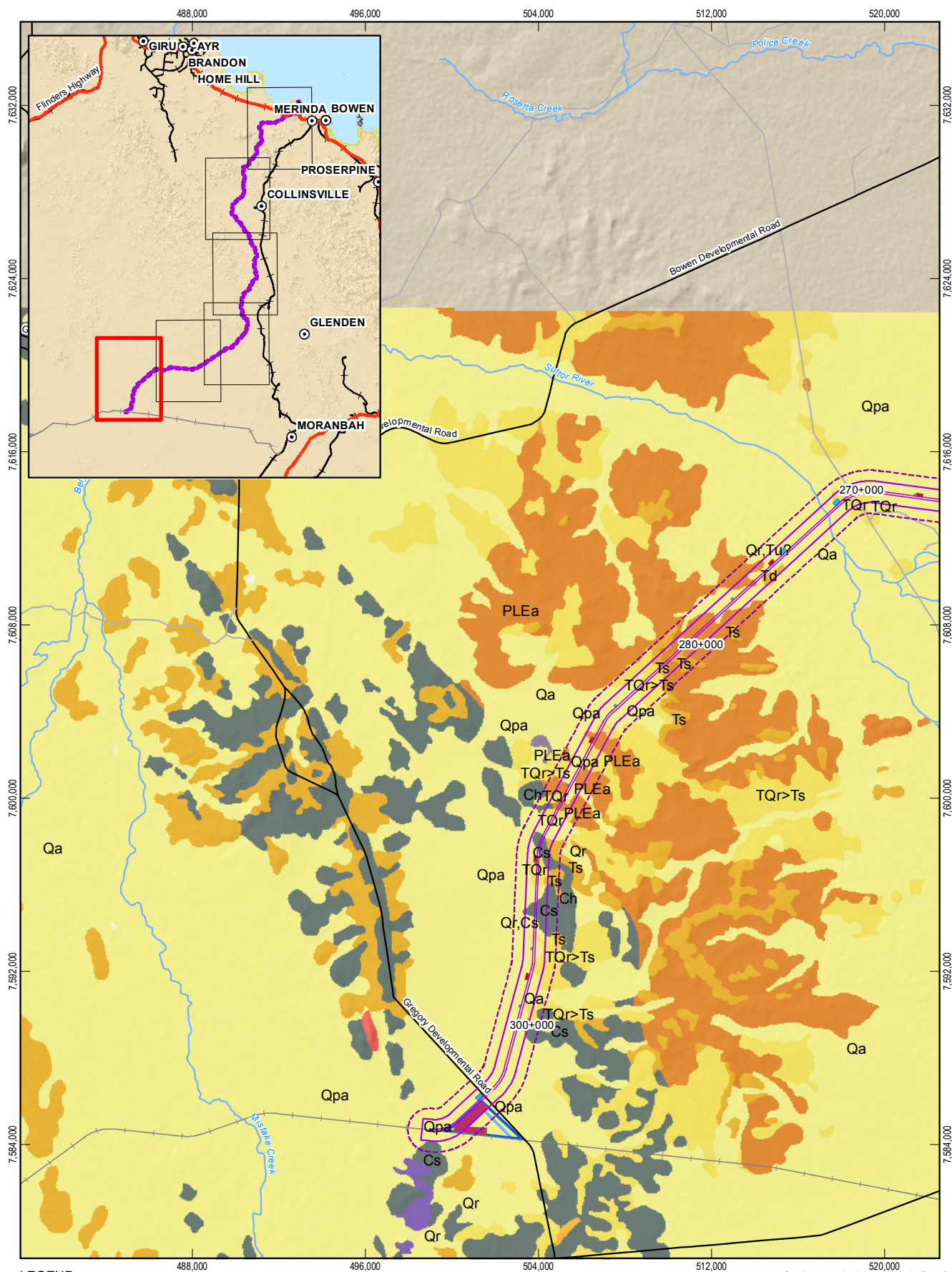
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Figure 3-2
Sheet 5 of 7

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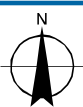


LEGEND

- Main Road
- Local Road
- Watercourse (Major)
- Carmichael Project (Rail)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail Baseline study area (1km buffer)
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Construction Depot Area
- Rail Precinct Area
- Track Laydown Area
- Turning Circle

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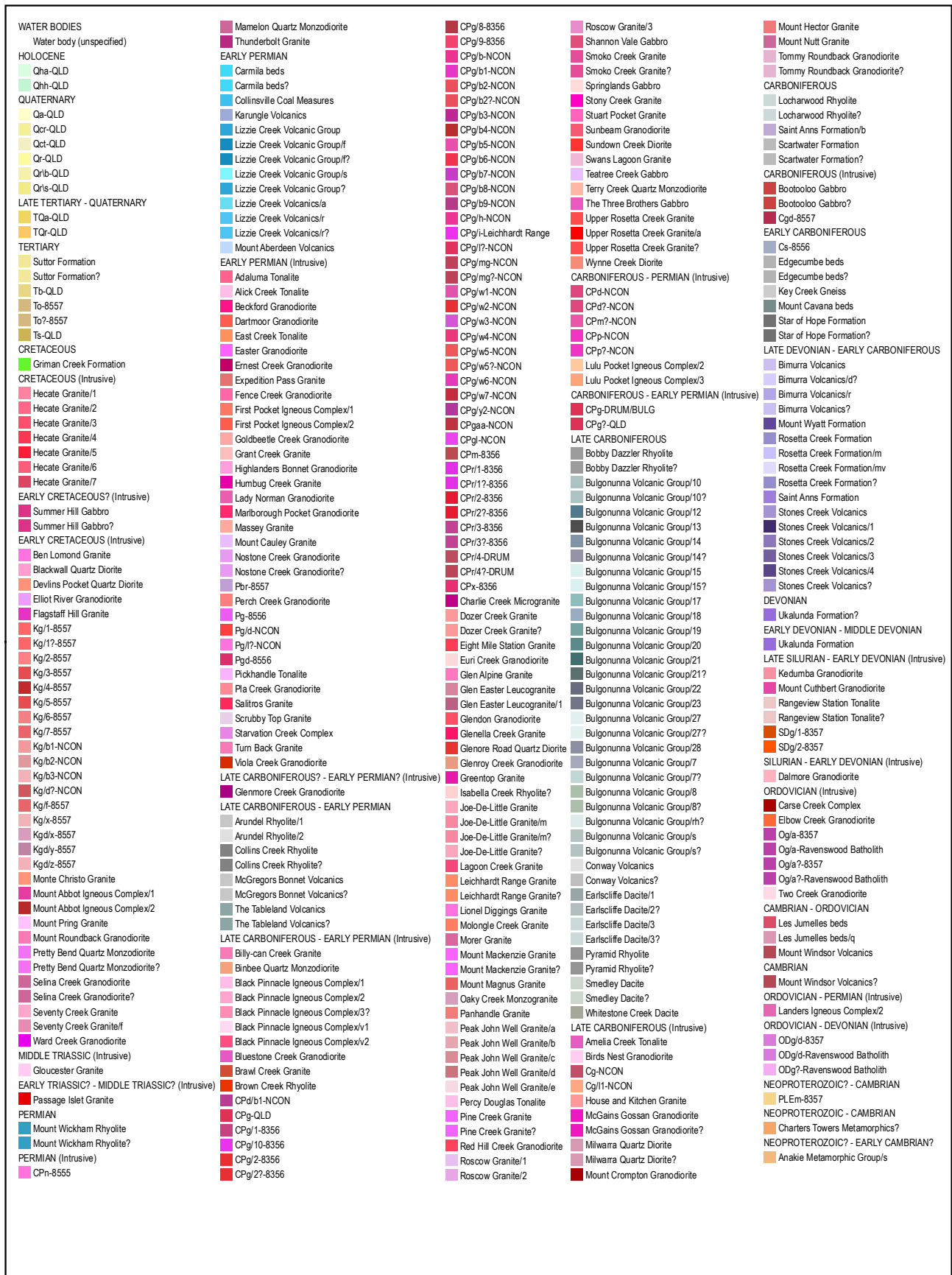
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Figure 3-2
Sheet 6 of 7

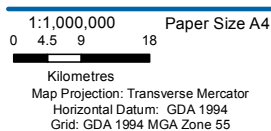
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Figure 3-2
Sheet 7 of 7

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3.3 Soils

Three soil-related reports cover the study area, as detailed in Section 2.2.2 and displayed on Figure 2-2. To provide a broad overview of soils within the study area, the Queensland Combined Soils Database was used to map the area in terms of the Australian Soil Classification (ASC). The ASC is the classification system currently used to describe and classify soils in Australia and is a general-purpose, hierarchical classification system, consisting of five categorical levels from the most general to the most specific: Order, Suborder, Great group, subgroup, and family.

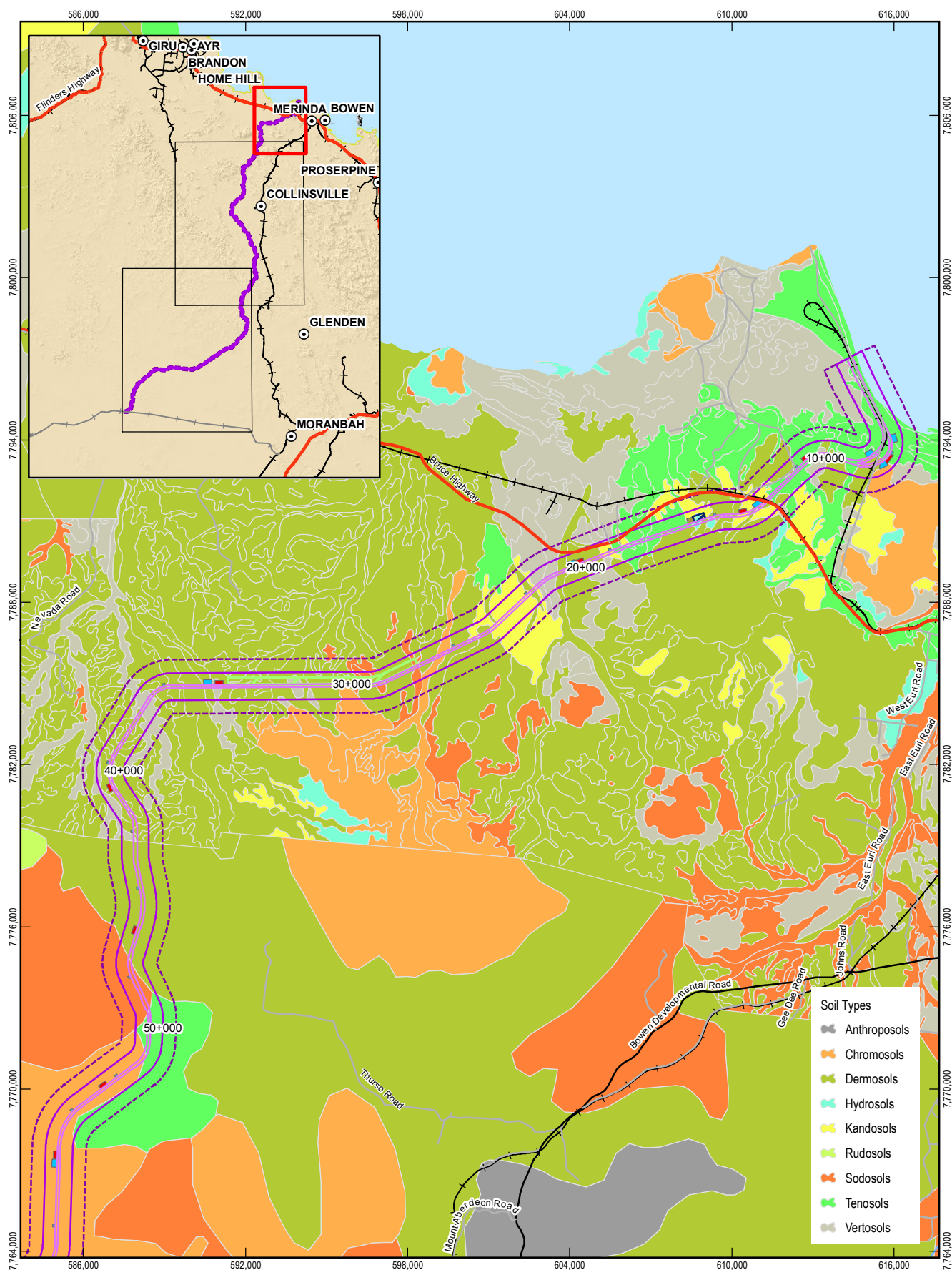
The study area has been classified by soil order under the ASC. Figure 3-3 below details the ASC for the study area and Table 3-7 provides a definition of soil Orders crossed by the study area.

Table 3-7 Australian Soil Classification definitions of soil orders

Soil Order	Definition
Chromosol	Soils with a clear or abrupt textural change at the B2 horizon where the pH is 5.5 (water) or greater in the upper B2 horizon. The B2 horizon is often brightly coloured.
Dermosol	Soils that have structured B2 Horizons more developed than weak throughout the major part of the horizon. They also lack strong texture contrast between the A and B horizons.
Hydosol	These are soils where a greater part of the profile is saturated for at least several months per year.
Kandosol	These soils lack strong texture contrast and have massive or only weakly structured B horizons. The B2 horizon is well developed and has a maximum clay content in some part of the B2 Horizon which exceeds 15%. They are also not calcareous throughout.
Rudosol	These soils have limited pedological organisation as well as minimal development of the A1 horizon.
Sodosol	These soils have a clear or abrupt textural change between the A Horizons and B Horizons. The top 20 cm of the B2 horizon is sodic and is not strongly acid. Soils with a subplastic B2 horizon are excluded.
Tenosol	These soils generally have weak pedological organisation throughout the profile apart from the A Horizon. Tenosols display more profile development than Rudosols and may include a weakly developed B Horizon with 15% clay or less.
Vertosol	These are clay soils with shrink/swell properties that display strong cracks when dry and have slickensides and/or lenticular structural aggregates at depth.

A discussion based on the information contained within each of the soils and land systems reports covering the study area is provided. Owing to the different scales, authors and timings of these original studies, a discussion on the information provided in each report is required independently of the others. No reference to the ASC is provided in the original reports, as they were published prior to the introduction of that classification scheme. However the Queensland Government has assigned an ASC Order on issuing the digital datasets for these reports, based on a review of the information. The original reports used a unique naming system that was assigned to each different soil / land system, and was more specific than the generalised soil Orders of the ASC. However the ASC provides a more informative overview for the study area at the scale of this assessment. Soils have been classified as high, moderate or low risk based on the potential for erosion relating to impact on stormwater quality and receiving environments. This allocation was asserted following consideration of the expected soil physical and chemical

properties. Soils allocated a higher risk are those with poor structure, those susceptible to structural decline following disturbance, and those with naturally high sodium levels. This would mean high risk of dispersivity and high suspended loads in stormwater. Further refinement of erosion risk will be established following a soil survey that will confirm soil types and distribution, prior to commencement of construction.

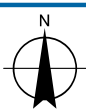


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|---|--|--|---|--|

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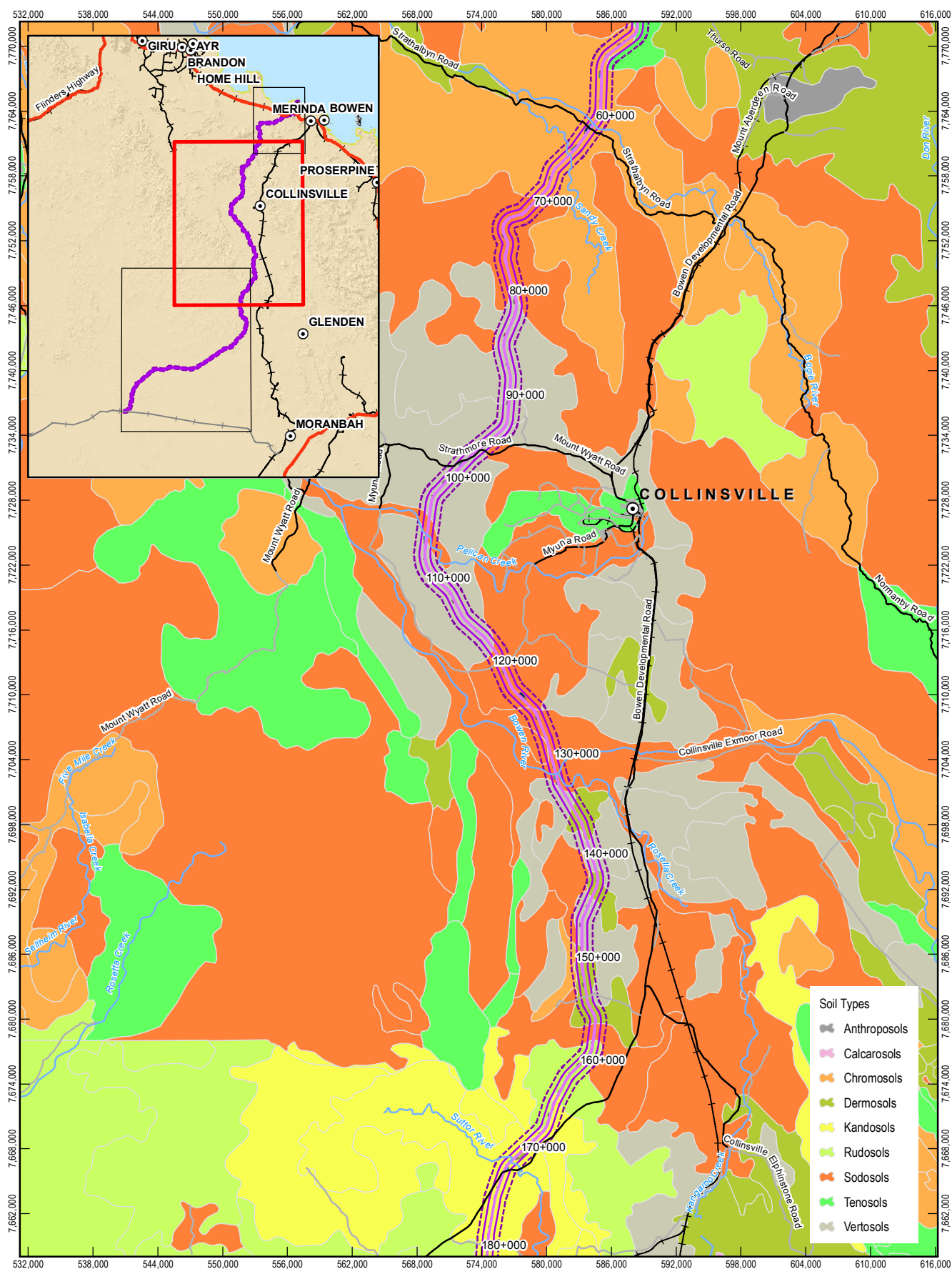
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Figure 3-3
Sheet 1 of 3

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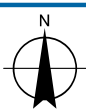
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- Population Centres
- Main Road
- Local Road
- Watercourse (Major)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail Baseline study area (1km buffer)
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Construction Yard
- Track Laydown Area
- Turning Circle

- Soil Types**
- Anthroposols
 - Calcarosols
 - Chromosols
 - Dermosols
 - Kandosols
 - Rudosols
 - Sodosols
 - Tenosols
 - Vertosols

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Australian Soil Classification

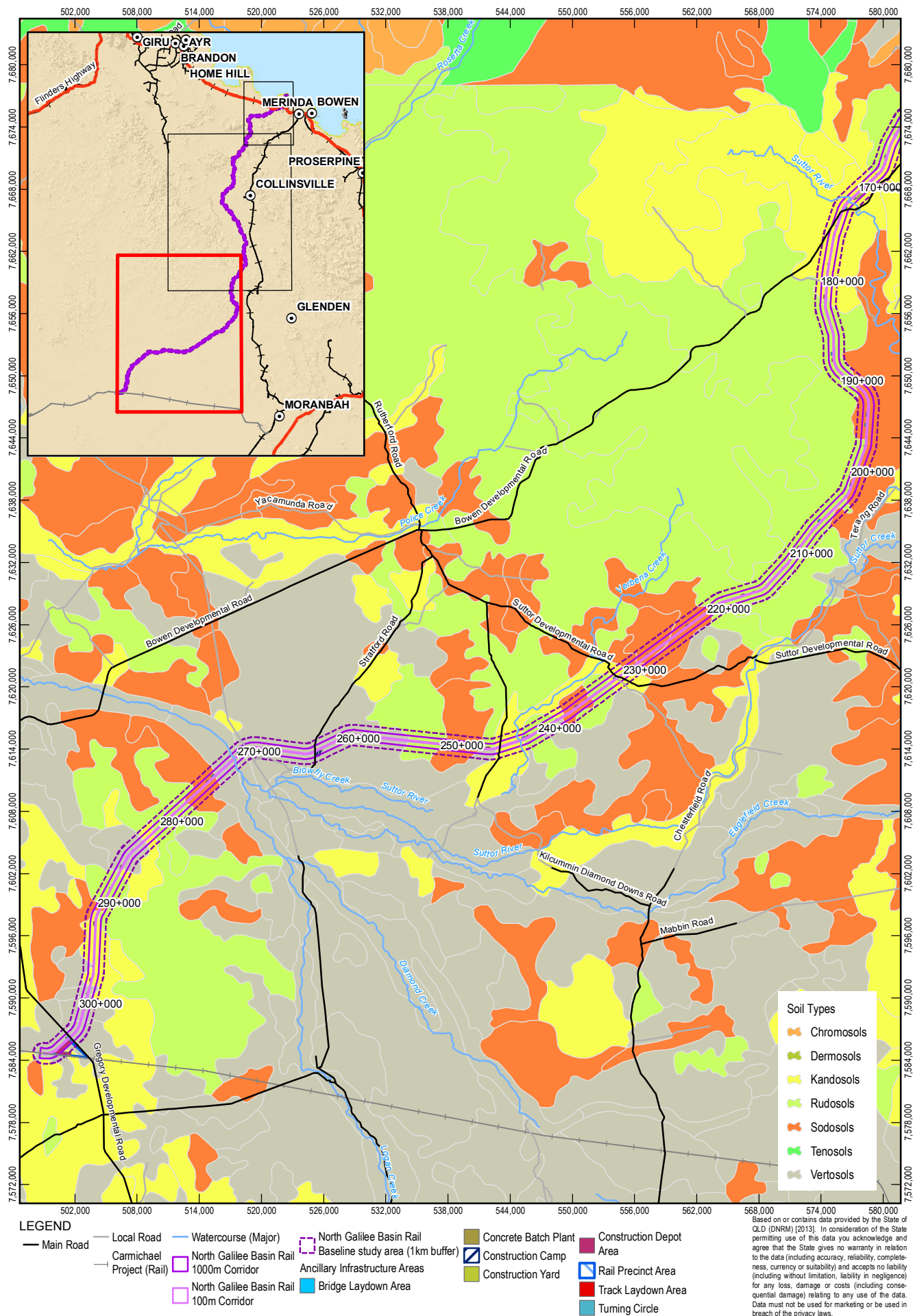
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Figure 3-3
Sheet 2 of 3

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3.3.1 1:100,000 Soil mapping (Aldrick, 1998)

The northern extent of the study area, between chainage 3.49 km and 42.9 km, is covered by existing 1:100,000 mapping. Aldrick (1998) described and mapped the soils and landforms of the Elliot River to Bowen area. This report aims to provide an overview of the morphological, chemical and physical characteristics of the soils, and to assess the suitability of the soils for irrigated and dryland agriculture.

A total of 24 different soil units, excluding miscellaneous units such as “creek flats” and “hills and mountains” are traversed by the study area. This report details morphological descriptions and chemistry information for each soil unit. It also details physical and chemical characteristics that would limit the potential for irrigated cropping.

Relevant soil units intersected by the study area are summarised in Table 3-8 along with the distinguishing features, landscape units, limitations and associated GQAL status of the mapped soil units. Figure 3-4 details the location and extent of each of the soil units in relation to the study area.

Table 3-8 Soil units and key detail

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Carew (Vertosol)	Alluvial terraces, stagnant alluvial plains. Self-mulching dark medium heavy clay over neutral to alkaline very dark grey heavy clay, over dark yellowish brown heavy clay; some carbonate; normal gilgai.	Internal (and surface) drainage impeded; likely surface soil consistence hazard, mild gilgai	Sodic lower B horizons; high salinisation risk, likely zinc deficiencies	A	7	High
Dillion (Dermosol)	Alluvial terraces. Poorly drained gentle slopes, plains and prior streams. 300-450 mm dark greyish brown coarse sand to clayey sand with mainly unbleached A2 over neutral yellowish-brown mottled clayey coarse sand to sandy clay loam B horizon; some ferruginous nodules.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodicity alkalinity, mild salinity in some cases, and potential for salinisation	N/A	1	High
Finley (Dermosol)	Undulating plains on intermediate intrusive rocks. 150-300 mm brownish sandy clay loam to light clay A horizon over neutral reddish-brown medium clay B horizon.	Minor slope, rock, and soil variability	Downslope salinisation hazard	A	1	Low
Glenroc (Dermosol)	Dissected undulating rises on intermediate intrusive rocks. 250-450 mm dark greyish or brownish sand to light sandy clay loam with unbleached A2 over neutral to alkaline yellowish-brown mottled medium clay B horizon; some carbonate.	Impeded drainage, surface stone, rock outcrop, slope and soil variability	Sodic subsoils and salinisation hazard	B	7	High
Glenroc stony phase	Dissected undulating rises on intermediate intrusive rocks. As for Glenroc, but with 10% stony phase surface and profile stone.	Impeded drainage, surface stone, rock outcrop, slope and soil variability	Sodic subsoils and salinisation hazard	B	1	High
Goodbye (Dermosol)	Alluvial terraces: stagnant alluvial plains. 150-250 mm dark greyish brown sandy clay loam with sporadically bleached A2 over alkaline dark greyish mottled heavy clay B horizon; some carbonate.	Impeded drainage, soil variability, microrelief	Strongly sodic subsoils, salinisation hazard	B	7	High

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Greentop (Dermosol and Sodosol)	Alluvial terraces: level plains on cemented fine gravel. 600-900 mm greyish or yellowish brown coarse sand with conspicuously bleached A2 over neutral yellowish clayey coarse sand colour B horizon; minor ortstein.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodicity alkalinity, mild salinity in some cases, and potential for salinisation	N/A	2	High

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Kailla (Tenosol)	Undulating plains on acid intrusive rocks. 350-550 mm dark loamy sandy with unbleached A2 horizon over acid-neutral yellowish brown mottled sandy clay B horizon.	Highly erodible, slopes to 5%, some rock, low plant available water capacity	Moderate sodicity	B	1	High
Kangaroo (Dermosol)	Alluvial terraces: level plains on cemented fine gravel. 300-450 mm greyish or yellowish loamy coarse sand or coarse sandy clay loam with bleached A2 over neutral brownish mottled coarse sandy clay to medium clay B horizon.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodicity alkalinity, mild salinity in some cases, and potential for salinisation	N/A	8	High
Knobbies (Sodosol, Chromosol and Dermosol)	Pediments: active upper colluvial slopes. 100 mm dark sandy clay loam over alkaline reddish light clay B horizon; some carbonate.	Erodible slopes, stony, sometimes shallow soils, receives run-off; minor surface soil compaction hazard	No serious limitation	N/A	5	High
Maiden (Hydrosol)	Pediments: active upper colluvial slopes. 600-750 mm brownish sand to sandy loam with sporadically bleached A2 over neutral yellowish-brown mottled sandy clay or medium clay B horizon. Few ferruginous nodules.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodicity alkalinity, mild salinity in some cases, and potential for salinisation	N/A	3	Moderate
Pring (Vertosol)	Pediments: active upper colluvial slopes. 150-250 mm brownish or reddish clay loam to light clay over neutral reddish medium clay B horizon with strong structure.	Erodible slopes, stony, sometimes shallow soils, receives run-off; minor surface soil compaction hazard	No serious limitation	B	3	High
Roundback (Kandosol)	Pediaplanes: relict lower colluvial slopes. 200-350 mm brownish sandy or sandy clay loam with conspicuously bleached or sporadically bleached A2 over neutral to alkaline yellowish-brown medium or heavy clay B horizon; some carbonate.	Poor internal drainage, erodible B horizons ; low surface plant available water capacity	Strongly sodic in lower B horizon; salinisation risk	A	7	High

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Salisbury (Dermosol)	Pediaplanes: relict lower colluvial slopes. Self-mulching black medium or heavy clay over neutral to alkaline black heavy clay B horizon, over greyish dark clay some carbonate; linear and normal gilgai.	Erodible slopes, susceptible to surface compaction, mild linear gilgai	Minor B horizon sodicity; minor salinisation risk, possible zinc deficiency	A	1	Moderate
Seven Sisters (Dermosol)	Alluvial terraces: poorly drained gentle slopes, plains and prior streams. 200-450 mm dark greyish loamy sand to sandy clay loam with conspicuously bleached A2 over yellowish-brown mottled medium clay or heavy sandy clay B horizon; some carbonate.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodic alkalinity, mild salinity in some cases, and potential for salinisation	N/A	2	High
Sixmile (Tenosol, Dermosol and Vertosol)	Pediments: active upper colluvial slopes. 200-300 mm dark brown sand with sporadically bleached A2 over alkaline brownish sandy clay to medium clay B horizon; some carbonates.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodic alkalinity, mild salinity in some cases, and potential for salinisation	N/A	5	High
Splitters (Kandosol)	Alluvial terraces: stagnant alluvial plains. 100-250 mm dark brownish loamy sand or sandy clay loam with sporadically bleached A2 over neutral to alkaline brown heavy sandy clay or light-medium clay B horizon.	Minor internal drainage and surface soil consistence limitations	Sodic lower B horizons, possible salinisation	A	1	Moderate
Tabletop (Vertosol)	Floodplains of minor streams. Self-mulching black medium-heavy clay over neutral to alkaline black heavy clay, over dark brown heavy clay; some carbonate; normal gilgai.	Periodic flooding; mild drainage impedance; susceptible to surface compaction	Salinisation hazard from possible rising water-table	A	1	Low
Tabletop – Gumlu complex (Vertosol)	A mix of the above description with alluvial terraces: relict levees and backplains with associated soils of 150-350 mm dark brownish pulverulent fine sandy loam or light sandy clay, often with bleached A2, over alkaline dark brown sandy clay or medium clay B horizon. Some carbonate.	Minor internal drainage and surface soil consistence limitations	Sodic lower B horizons, possible salinisation	A	2	Moderate

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Thurso (Dermosol and Chromosol)	Intensely dissected undulating rises on intrusive rocks. 250-350 mm brownish loamy sand with unbleached A2 over neutral yellowish-brown sandy clay loam B horizon; rock fragments throughout and increasing below; shallow soils.	Relief, rockiness, poor drainage, low plant available water capacity, erodibility	Sodicity alkalinity, mild salinity in some cases, and potential for salinisation	N/A	4	High
Wathana (Kandosol)	Pediaplains: relict lower colluvial slopes. 200-350 mm brownish sand or sandy loam with conspicuously bleached A2 over alkaline yellowish-brown mottled sandy clay or medium clay B horizon; some ferruginous concretions.	Poor internal drainage, erodible B horizons; low surface plant available water capacity	Very strongly sodic; salinisation risk	B	1	High
Wathana heavier textured variant (Dermosol)	Alluvial terraces: stagnant alluvial plains. As for Flathana soils, but with heavier- textured (medium-heavy or heavy clay) B horizon.	Poor internal drainage, erodible B horizons; low surface plant available water capacity	Very strongly sodic; salinisation risk	A	1	High
Wilmington (Tenosol)	Floodplains of minor streams. 250-350 mm black structured organic clay loam to silty clay over buried soil material, mainly very dark neutral heavy clay, over layered estuarine deposits.	Regular flooding, subsoil drainage impeded, susceptible to surface compaction	Very strongly sodic and saline at shallow depth, saline water-table at shallow depth	A	2	High
Wygong (Dermosol)	Dissected undulating rises on intermediate intrusive rocks. Self-mulching black medium-heavy clay over neutral to alkaline black heavy clay, over weathering rock; weak normal and linear gilgai.	Erodible slopes, susceptible to surface compaction, mild linear gilgai	Minor B horizon sodicity; minor salinisation risk, possible zinc deficiency	A	2	Moderate
Creek flats and stream channels	Undifferentiated group of alluvial soils, siliceous sands, minimal prairie soils, black earths and marginal sodic soils adjacent to stream channels; flooded annually or more frequently.	-	-	N/A	11	High

Soil unit	Landscape unit and distinguishing features	Physical limitations	Chemical limitations	GQAL*	Number of occurrences	Potential risk
Miscellaneous	Units such as 'hills and mountains', 'gullied and eroded areas', 'sand dunes and sheets'.	-	-	N/A	27	n/a

Notes:

* – Taken from DPI, 1993

N/A – not applicable (conversion not supplied)

3.3.2 1:1,000,000 Soil mapping (Isbell and Murtha, 1970)

This mapping dataset is at a very broad scale (1:1,000,000) which is regarded as exploratory intensity (McKenzie *et al.* 2008). This mapping begins, in relation to the study area, at chainage 42.9 km and continues to chainage 169.1 km. It begins just after Mount Abbot, and continues over the Bogie and Bowen Rivers until just before the second crossing of the Suttor River.

A brief summary of the soil types identified within the study area are presented in Table 3-9, and are depicted on Figure 3-4. This report is limited to identifying soil types, and does not provide potential land suitability for the soils. Due to this, GQAL classification was unable to be assigned to soil types and is therefore not included in the table.

Table 3-9 Soil types

Soil code (ASC)	Description	Number of occurrences	Potential risk
Cc 18 (Vertosol)	Level or gently undulating plains: medium to deep dark cracking clays with a very stony surface but usually stone free at depth. Some slight gilgai may occur. Small areas of neutral, friable, red earths are associated.	3	Low
Cc 5 (Vertosol)	Moderate to gently undulating plains: moderately deep grey clays. Gilgai may occur in a linear pattern. Deep grey or dark clays and alkaline red, brown or grey duplex soils are associated.	1	Moderate
Cd 15 (Vertosol)	Alluvial plains: deep brown clays and minor grey clays. Slight to moderate gilgai may occur (0.3 to 0.6 m). Patches of loamy brown and grey alkaline duplex soils are associated.	1	Moderate
Cf 17 (Vertosol)	Gently undulating plains, stony ridges (moderate to high) and basalt hills (low): medium to deep dark cracking clays on plains and low hills. Gilgai may occur in a linear pattern. Shallow red or dark cracking clays, friable clays, red friable earths and loamy duplex soils are associated on ridges and low hills.	1	Moderate
GF 5 (Sodosol)	Gently undulating plains: neutral mottled yellow and grey bleached duplex soils with sandy A horizons moderately deep. Associated soils include alkaline duplex soils (with or without sandy loose A horizon), dark alkaline and bleached duplex soils as well as grey gilgaied deep cracking clays, which may occur in lower sites.	1	High
GG 6 (Sodosol)	Moderately undulating plains and valley: alkaline mottled yellow and grey bleached duplex soils with sandy or loamy A horizons. Located on lower sites are grey or brown deep cracking clays. Red and brown duplex soils are associated.	1	High
GG 9 (Sodosol)	Moderately to strongly undulating plains, sporadic sandstone outcrops and high strike ridges: alkaline mottled yellow and grey bleached duplex soils with a loamy A horizon. Neutral and alkaline red duplex soils, deep yellow-grey soils (alluvial plains) and stony loams and sands (high ridges) are associated.	2	High
mb 21 (Kandosol)	Gently undulating plateau: slightly acidic and deep red massive loamy earths. Small areas of yellow massive loamy earths and shallow stony loams are associated.	1	Moderate
md 4 (Kandosol)	Gently undulating plateau: slightly acidic and moderately deep yellow massive loamy earths. Commonly characterised by a horizon with prominent ironstone nodules. Loamy mottle bleached duplex soils are associated with shallow drainage lines.	1	High
RC 12 (Tenosol)	Slight to strongly undulating hills: shallow and stony neutral red duplex soils, often on rocky outcrops. Red neutral earths, mottled bleached duplex soils and shallow stony loams are associated.	1	Low

Soil code (ASC)	Description	Number of occurrences	Potential risk
RC 13 (Sodosol)	Strongly undulating hills, some mountains: shallow and stony neutral red duplex soils, often on rocky outcrops. Brown or yellow duplex soils and shallow stony loams or sands are associated.	2	High
RC 15 (Chromosol)	Moderately to strongly undulating plains, occasional hills: shallow to moderately deep neutral red duplex soils that may be stony. Brown, yellow, mottled bleached duplex soils are associated.	2	Low
RD 2 (Sodosol)	Gently undulating alluvial floodplains, some terraces and depressions: neutral red duplex soils, deep sandy surface and A2 horizon. Yellow-grey, mottled, brown duplex, deep friable loams are associated.	2	High
RE 5 (Dermosol)	Undulating plains with valleys: shallow to moderately deep alkaline and red duplex soils. May be stony. Brown duplex soils and cracking clays are associated.	3	Low
Sb 10 (Rudosol)	Slight to strongly undulating hills with mesas: moderately deep, uniform sands and sandy loams. Leached sands or massive red sandy earths dominate mesas.	1	Low
YD 11 (Vertosol)	Undulating plains, occasional hills: shallow to moderately deep alkaline yellow or grey bleached duplex soils. May be stony. Dark, brown, mottled bleached duplex soils are associated.	1	High
YE 6 (Sodosol)	Alluvial plains: deep alkaline yellow or grey bleached duplex soils. Subsoils are characterised by grey clay. Brown duplex soils, deep grey gilgaied clays and yellow massive loamy earths are associated.	1	High

3.3.3 1:250,000 Land systems

Gunn *et al.* (1967) reported on land systems at a broad scale of 1:250,000, which encompasses chainages 169.1 km to 306.9 km. Creek crossings of the Suttor River, Verbena River, and the Suttor River again, just north of where it divides into Blowfly Creek and Diamond Creek, are included in these descriptions.

A brief summary of each of the land systems within the study area has been extracted from the report and is provided in Table 3-10, with the estimated ASC assigned for the major soil type identified within the land system. As the report also included land suitability of soils within the land systems, the DPI (1993) converted the land suitability classification into an overall GQAL classification for each land system (Section 2.2.3). Figure 3-4 presents the land systems crossed by the study area.

Table 3-10 Land systems intersected by the study area

Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Alpha (Kandosol)	Alluvial plains with box and texture-contrast soils in non-basaltic alluvium	Widespread red and yellow earths, and texture-contrast soils on plains and terraces	Some coarse-textured alluvial soils on sand, sporadic areas of cracking clays associated with swamps and old channels	1	B	High
Banchory (Vertosol)	Alluvial plains with gidgee and cracking clay soils	Alkaline cracking clay soils on alluvial clay plains	Minor texture-contrast soils associated with broad levees and slightly higher alluvial plains (not flooded), alkaline subsoils	1	B	Moderate
Blackwater (Vertosol)	Brigalow plains with cracking clay soils on acid clay exposed within Tertiary weathered zone	Widespread cracking clay soils on plains (slope <2%), commonly strongly alkaline at/near surface and acidic at depth, minor strongly alkaline throughout, minor neutral to alkaline, sporadic areas of gilgaied clays, billy gravel common	Texture-contrast soils with alkaline subsoils typically on slopes (up to 5%), occasionally present on shallow strike vales on weathered sedimentary rock, gravelly surface horizons associated with rocky areas	2	B	High
Borilla (Rudosol)	Rocky hills with ironbark and shallow, rocky soils cut below the Tertiary weathered zone on volcanics	Mainly shallow rock soils on hills, strike ridges, slopes up to 80%, often extremely rocky	Texture-contrast soils on alluvial flats of less than 0.6 km width and minor areas of uniform, coarse-textured soils on hills	3	N/A	Low

Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Comet (Vertosol)	Flooded alluvial plains with brigalow and cracking clay soils	Cracking clays on broad low levees and higher alluvial plains (not flooded) as well as weathered alluvial clay plains and channels.	Texture-contrast soils on higher alluvial plains and levees, loamy yellow earths and uniform coarse-textured alluvial soils associated with broad, shallow, dry channels and sandy levees	2	B	High
Disney (Kandosol)	Small lateritic mesas with ironbark and red or yellow earths on Tertiary sandstone; surrounding lowlands with box and brigalow and texture-contrast soils on weathered Drummond Basin sediments	Loamy red and yellow earths and some sandy earths on gently undulating to undulating rises (1-5%, up to 8%) and low mesas, uniform and gravelly coarse-textured soils on aprons, sheet erosion on steeper margins	Shallow to moderately deep texture-contrast soils on gently undulating to undulating, lowlands and alluvial flats.	1	B	Low
Durrandella (Rudosol)	Stony hills with lancewood or bendee and shallow rocky soils or shallow red earths on pre-Tertiary rocks within the Tertiary weathered zone	Shallow rocky soils and red earths on dissected scarps and hills on slopes of 10-60%, rocky with strong sheet erosion and some gently sloping benches and quartz sandstone ridges	Sandy red earths and uniform coarse-textured soils on undulating mesa tops.	1	N/A	Low

Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Funnel (Vertosol)	Flooded alluvial plains with coolabah and cracking clay soils	Cracking clay soils on wide alluvial clay plains, may have channels and levees, partial to flooding	Cracking clay soils on alluvial terraces (not flooded) and wide alluvial clay plains demonstrating partial flooding	1	B / C	Moderate
Humboldt (Sodosol)	Lowlands and plains with blackbutt and brigalow with texture-contrast soils formed on acid clay exposed within the Tertiary weathered zone	Texture-contrast soils with thin loamy surfaces and strongly alkaline subsoils, frequently incorporates billy or quartz gravel in subsoil, on wide plains and lowlands (slope <2%), Tertiary clay and older rocks deeply weathered, some hills	Widespread texture-contrast soils with sandy surfaces on slight rises gullying and sheet erosion evident. Patches of texture-contrast soils with thin sandy / loamy surfaces and strongly alkaline subsoils on plains and shallow depressions (slope <1%)	3	B	High
Islay (Vertosol)	Gidgee plains with gilgaied clay soils on acid clay exposed within the Tertiary weathered zone	Deep clay soils, gilgaied, generally displays strong alkalinity at or near the surface, becoming strongly acidic at depth, some areas strongly alkaline throughout the profile, situated on very gently undulating plains, lowlands and depressions	Texture-contrast soils	4	B	Moderate

Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Lennox (Kandosol)	Plains and lowlands with silver-leaved ironbark and yellow and red earths on intact Tertiary land surface	Loamy yellow and red earths, minor sandy red and yellow earths on level to very gently undulating plains (<1.5%), generally stable but may be susceptible to sheet erosion	Loamy or sandy red and yellow earths, some shallow, minor deep uniform coarse-textured soils on rises and level to gently undulating plains (slope <2%), patchy areas of loose sand and ironstone gravel. Minor loamy and sandy red and yellow earths in lowlands, some gullying	1	N/A	Moderate
Loudon (Rudosol)	Low hills and lancewood and some ironbark on weathered volcanics and Drummond Basin sediments plus intervening lowlands with box, brigalow, and blackwood; shallow rocky soils	Predominantly shallow rocky soils, some red and yellow earths on breakaways, rocky hills and steep ridges, gully and sheet erosion occurs rapidly	Widespread loamy and sandy red earths on small lateritic level to undulating mesa tops. Minor shallow rocky soils north-east of Mt Coolon, situated on low rocky hills.	5	N/A	High
Monteagle (Sodosol)	Lowlands with box and texture-contrast soils on slightly stripped Tertiary land surface	Deep texture-contrast soils and shallow texture-contrast soils with columnar structure, widespread across plains, colluvial foot slopes, lowlands, low hills (slope <2%, though can be up to 10%), some stony patches and gully erosion	Sporadic shallow rocky soils, shallow texture-contrast soils on rubbly lower slopes, susceptible to sheet and gully erosion. Texture-contrast soils with thin loamy surface, situated in depressions, lowlands, level plains and channels	3	B	High

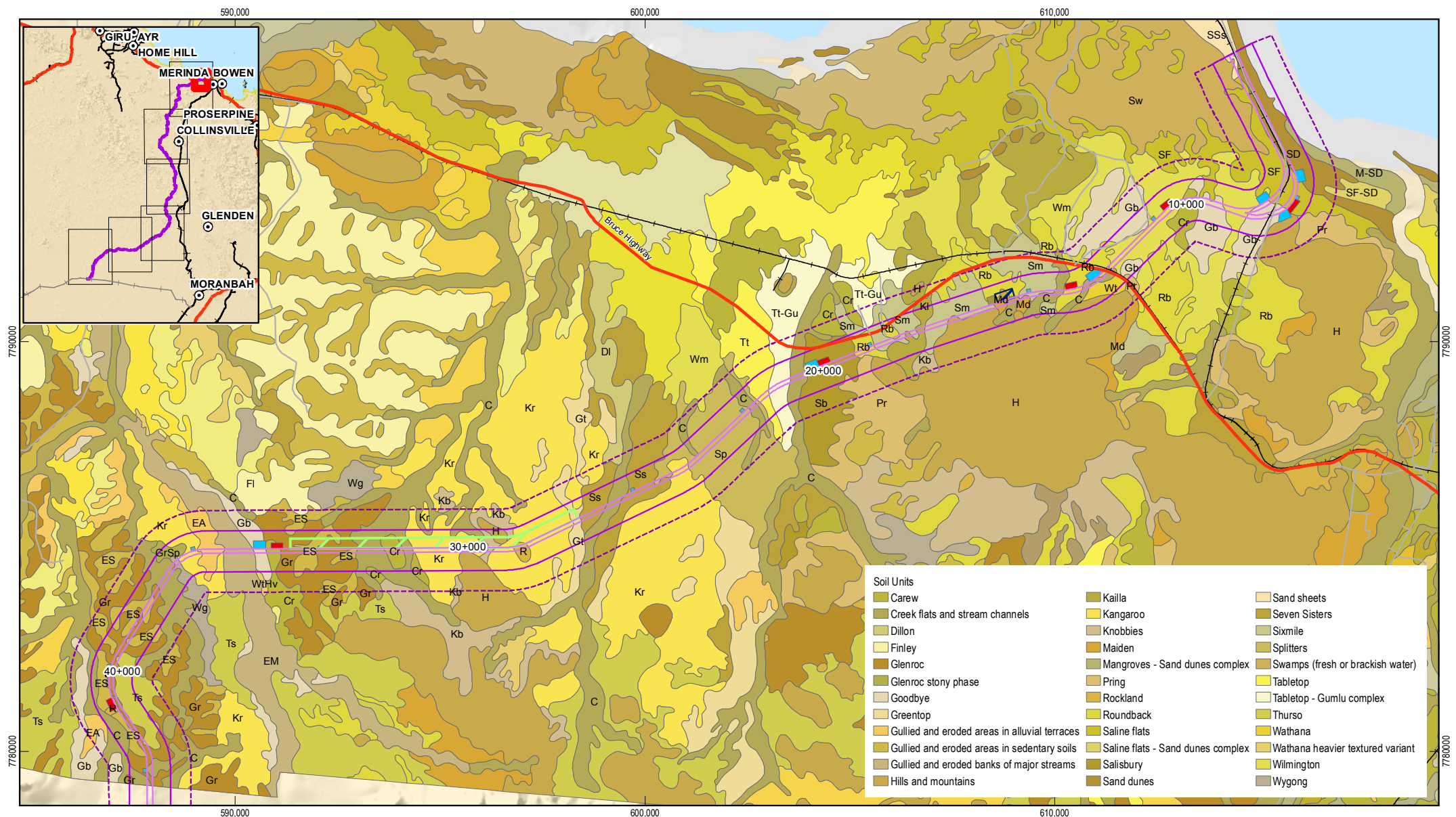
Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Peak Vale (Sodosol)	Undulating country with silver-leaved ironbark and texture-contrast soils on granite exposed below the Tertiary weathered zone	Deep texture-contrast soils typified by a thin sandy or loamy surface, subsoils range from red netral to strongly alkaline, situated on rolling country and low hills (slope up to 10%), deep dendritic valleys, quartz gravels common on the surface, prone to sheet and gully erosion on steeper slopes. Shallow and more sandy soils are located on ridge crests	Sporadic texture-contrast soils on gently undulating lowlands. Minor shallow texture-contrast soils on basalt cones and granite tors	1	B	High
Somerby (Vertosol)	Gilgaied plains with brigalow and cracking clay soils on acid clay exposed within the Tertiary weathered zone	Deep cracking clay soils, gilgaied, predominantly strong alkaline upper horizon overlying mottled acid subsoils, distributed across plains, some billy and ironstone gravel, gilgai up to 1.8 m deep	Deep cracking clay soils on weathered materials, mostly alkaline horizon overlying acidic and mottle subsoils on plains. Sporadic cracking clay soils on alluvial flats (flooded), small channels	3	B	Low

Land system (ASC)	Concept	Major soil type	Minor types	Number of occurrences	GQAL*	Potential risk
Tichbourne (Kandosol)	Undulating country with silver-leaved ironbark or melaleuca and red yellow earths on partially stripped Tertiary land surface	Loamy red and yellow earths with minor sandy earths, located on level to low undulating plains (slopes frequently <2% but up to 5%), sandy or loamy surface,	Loamy and sandy yellow earths frequently overlying concretionary or massive laterite at shallow depth, located on level to gently sloping interfluvies (slope 1-3%). Sporadic loamy red earths, overlying concretionary ironstone and materials in the mottle zone, on moderately sloping margins (slope 2-9%), prone to sheet erosion. Minor texture-contrast soils	2	N/A	High
Ulcanbah (Sodosol)	Clay plains with gidgee and cracking clay soils on shales and acid clay exposed within the Tertiary weathered zone	Texture-contrast soils characterised by a thin loamy surface and alkaline subsoils, merging into deep cracking clays, occurring on level to gently undulating plains (slope <2%), on lower parts of colluvial aprons, weathered clay and shale, some shallow channels in depressions	Sporadic texture-contrast soils with a thin and loamy surface, on level to gently undulating plains (slope <5%) and the upper portions of colluvial aprons, weathered clay and shale, minor stony /shaly rises and scarps.	1	B	High

Notes:

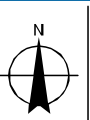
* – Taken from DPI, 1993

N/A – not applicable (conversion not supplied)



Soil Units		
Carew	Kailla	Sand sheets
Creek flats and stream channels	Kangaroo	Seven Sisters
Dillon	Knobbies	Sixmile
Finley	Maiden	Spliters
Glenroc	Mangroves - Sand dunes complex	Swamps (fresh or brackish water)
Glenroc stony phase	Pring	Tabletop
Goodbye	Rockland	Tabletop - Gumlu complex
Greentop	Roundback	Thurso
Gullied and eroded areas in alluvial terraces	Saline flats	Wathana
Gullied and eroded areas in sedentary soils	Saline flats - Sand dunes complex	Wathana heavier textured variant
Gullied and eroded banks of major streams	Salisbury	Wilmington
Hills and mountains	Sand dunes	Wygong

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Metres
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Horizontal Datum: Geocentric Datum of Australia (GDA)
Grid: Map Grid of Australia 1994, Zone 55



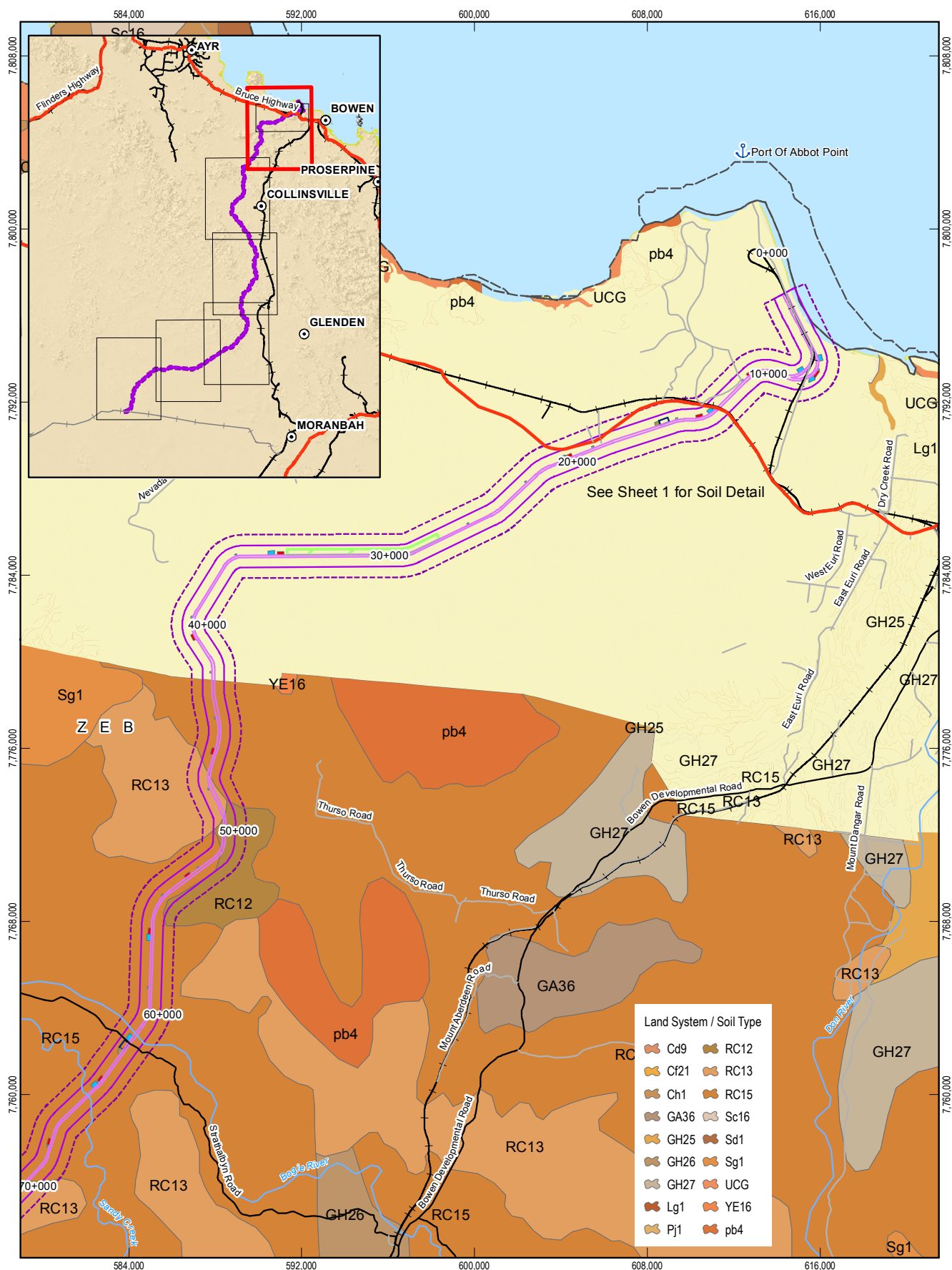
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 Highway
 Local Road
 Railway
 North Galilee Basin Rail
 100m Corridor
 North Galilee Basin Rail
 Baseline Study Area (1km buffer)
 1000m Corridor

Ancillary Infrastructure Areas
 Bridge Laydown Area
 Concrete Batch Plant
 Construction Camp
 Rolling Stock Maintenance Depot
 Track Laydown Area
 Turning Circle

Adani Mining Pty Ltd
 North Galilee Basin Rail Project

Job Number 41-26457
 Revision A
 Date 30-08-2013

Figure 3-4
Sheet 1 of 7



LEGEND

- Population Centres
- Main Road
- Watercourse (Major)
- Major Port
- Local Road
- North Galilee Basin Rail
- Baseline Study Area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Rolling Stock
- Maintenance Depot
- Track Laydown Area
- Turning Circle

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Revision A
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Land systems and soils

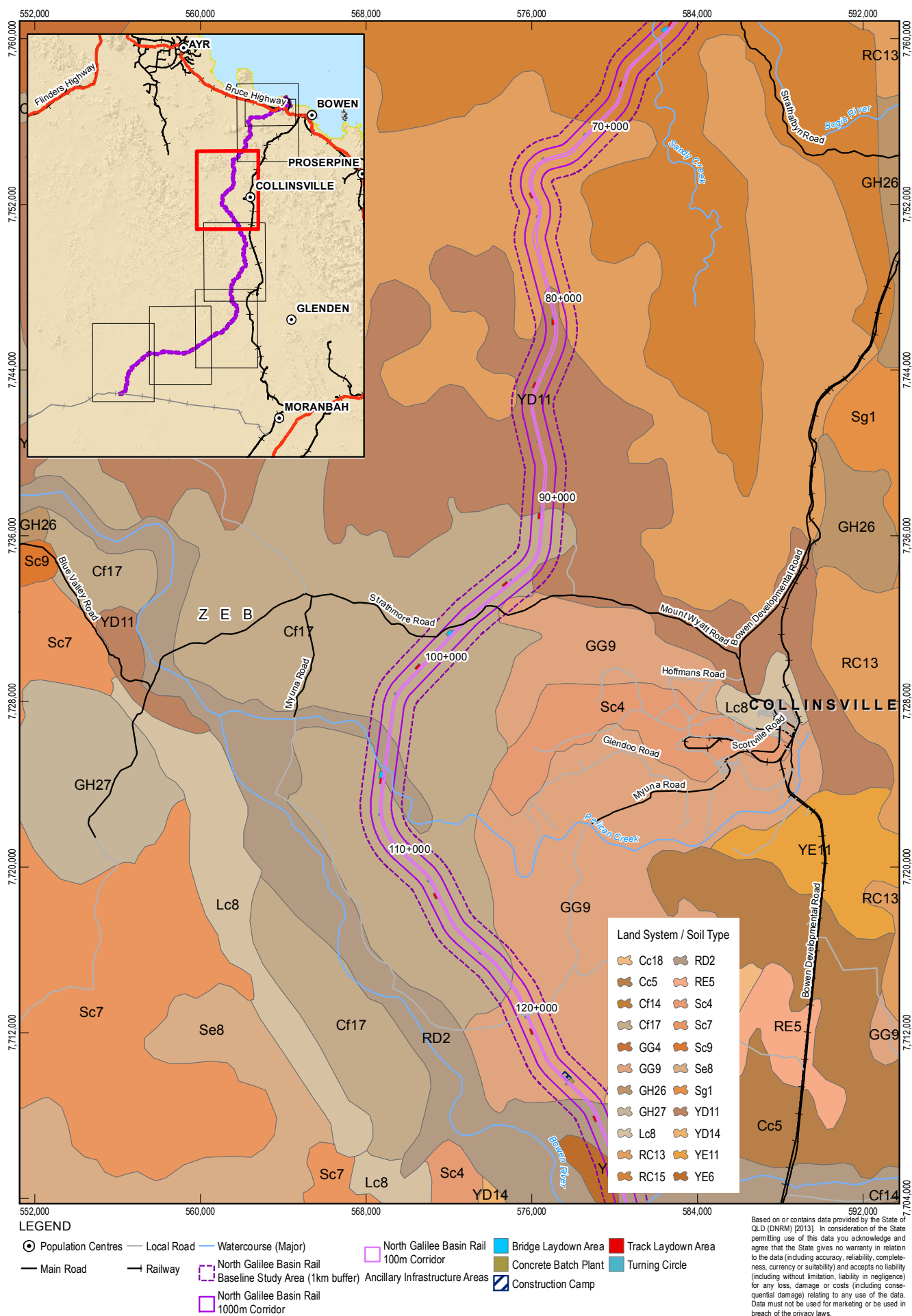
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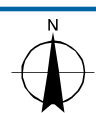
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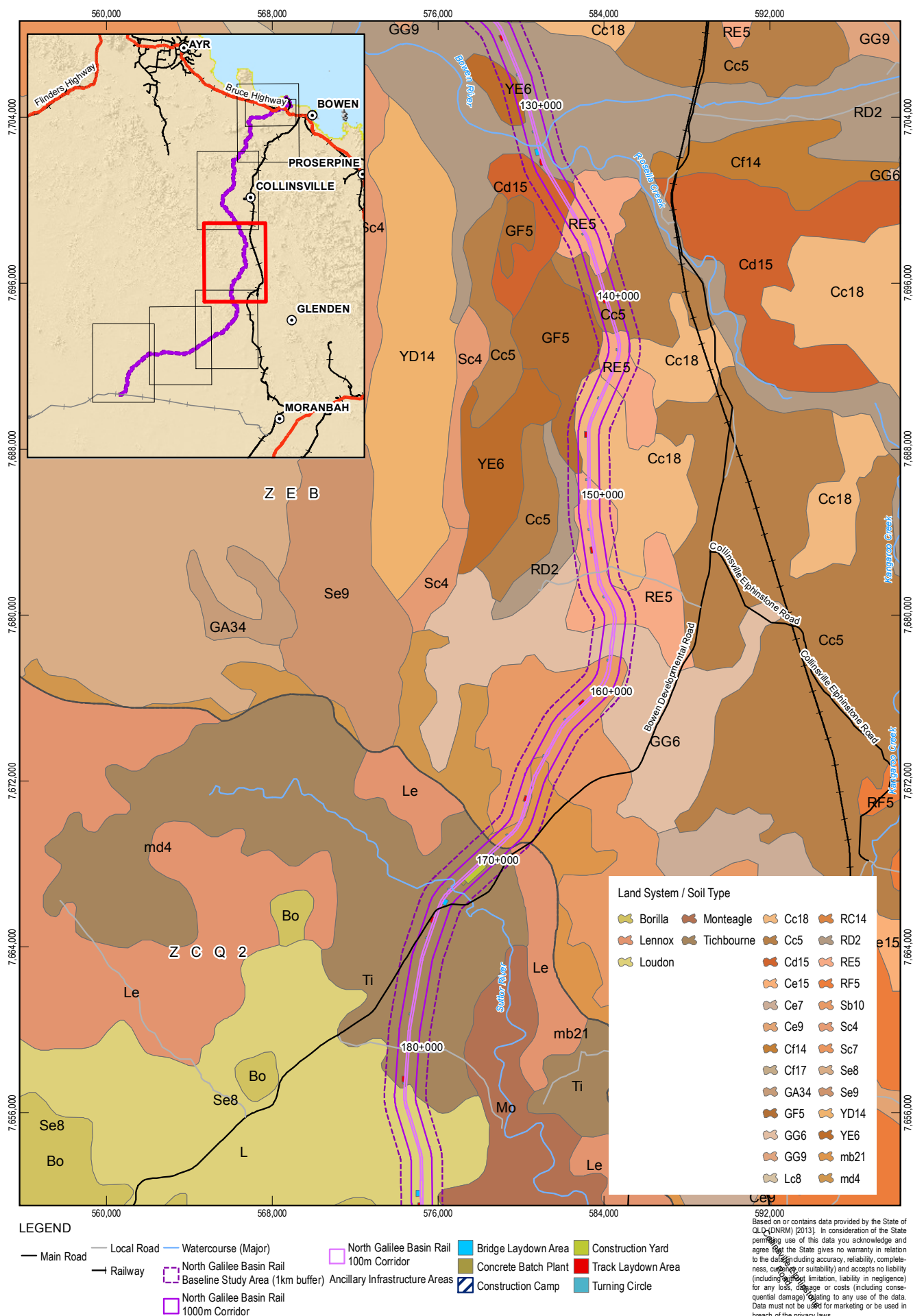
Land systems and soils

Figure 3-4
Sheet 3 of 7

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Date 30 Aug 2013

Land systems and soils

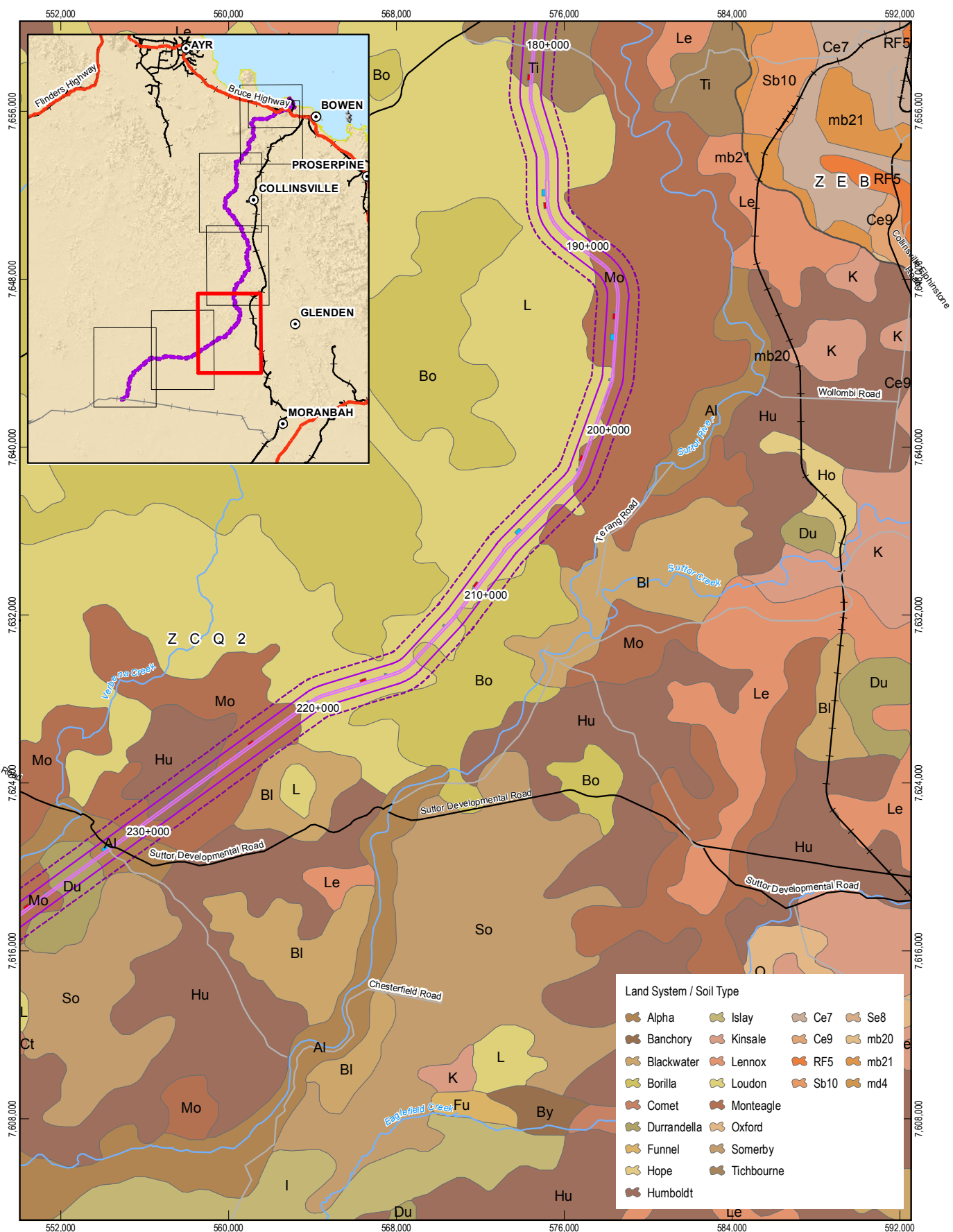
Figure 3-4
Sheet 4 of 7

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Land System / Soil Type			
Alpha	Islay	Ce7	Se8
Banchoory	Kinsale	Ce9	mb20
Blackwater	Lennox	RF5	mb21
Borilla	Loudon	Sb10	md4
Comet	Monteagle		
Durrandella	Oxford		
Funnel	Somerby		
Hope	Tichbourne		
Humboldt			

LEGEND

- Main Road
- Local Road
- Watercourse (Major)
- North Galilee Basin Rail 100m Corridor
- North Galilee Basin Rail Baseline Study Area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- Bridge Laydown Area
- Track Laydown Area
- Turning Circle
- Ancillary Infrastructure Areas

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North Galilee Basin Rail Project

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Revision A
Date 30 Aug 2013

Land systems and soils

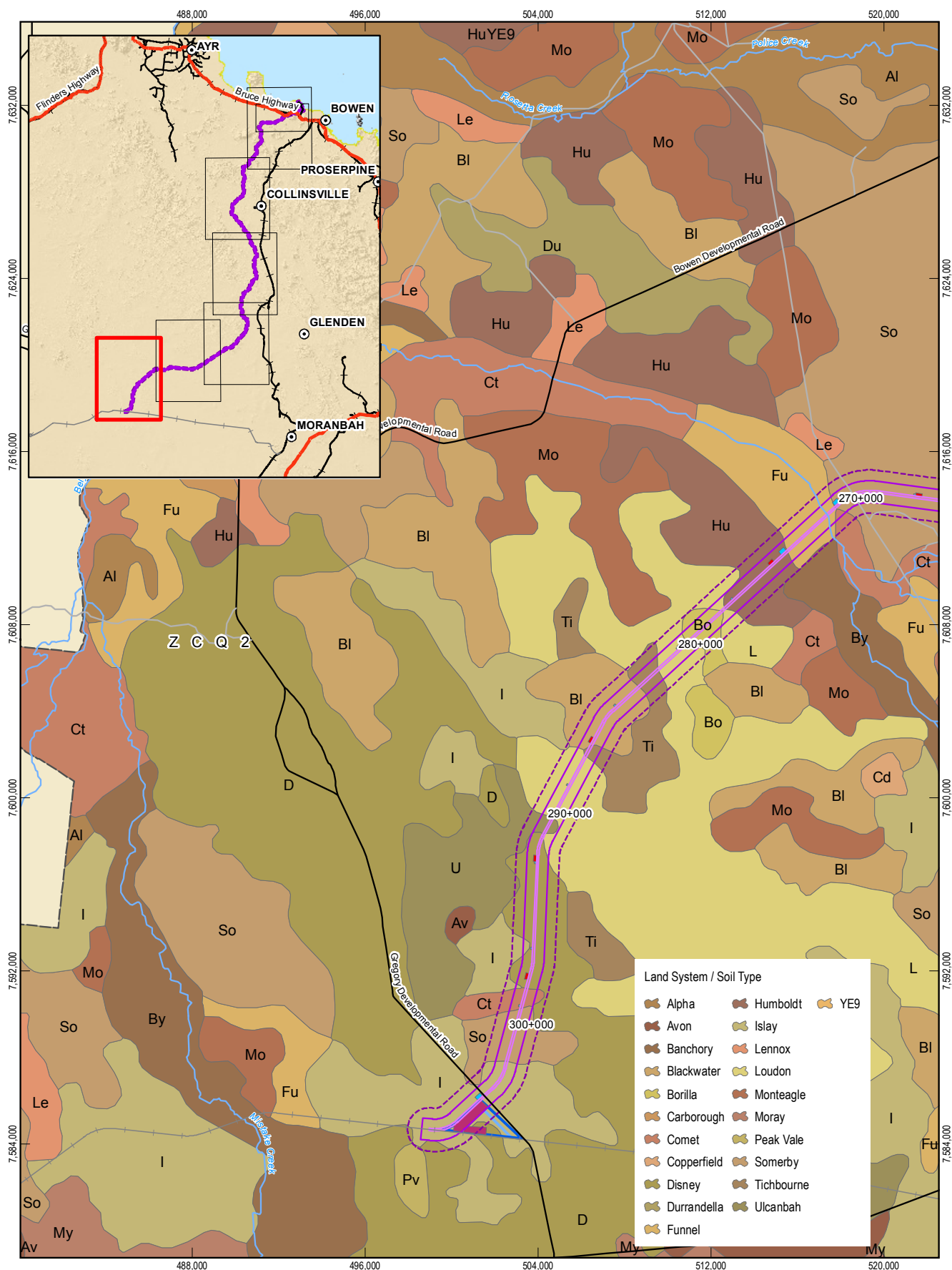
Figure 3-4
Sheet 5 of 7

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project Rail 23/07/2012, Ancillary Infrastructure 2013; DNRM: Roads/2010, Combined Soils/2010. Created by:MS



LEGEND

- Main Road
- Local Road
- Watercourse (Major)
- Carmichael
- North Galilee Basin Rail
- Project (Rail)
- Baseline Study Area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Construction Depot Area
- Rail Precinct Area
- Track Laydown Area
- Turning Circle

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1:250,000
Paper Size A4
0 2 4 8
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



adani

Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision A
Date 30 Aug 2013

Land systems and soils

Figure 3-4
Sheet 7 of 7

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 06/06/2013, NGBR Corridor 13/05/2013, Carmichael Project Rail 23/07/2012, Ancillary Infrastructure 2013; DNRM: Roads/2010, Combined Soils/2010. Created by:MS

3.4 Acid sulfate soils

3.4.1 Relevance of ASS to landform

ASS occurs mainly in Quaternary aged (1.8 Ma – Present) sediments of marginal marine or estuarine origin, and are predominantly confined to coastal lowlands with elevations, typically below five mAHD. The majority of soils that present an environmental risk occur in deposits of Holocene age (<10,000 years). Such sediments are formed under anaerobic, highly reducing conditions where there are sources of sulfate, which is reduced and precipitated as sulfide minerals (typically the iron sulfide, pyrite) within the sediments.

Subsequent disturbance of these materials, by excavation or via lowering of the water table, can result in substantial contact with atmospheric oxygen and oxidation of the sulfide minerals. This reaction produces sulfuric acid and can generate significant quantities of acidity. Surrounding land and nearby waterways may become highly acidic, particularly from acidic runoff after rain. As a further consequence, common metals, including aluminium and iron, as well as trace heavy metals can become mobilized by infiltrating acidic waters. This can result in significant degradation of ecosystems, contamination of water bodies, and unsightly discolouration of surface waters and associated substrates. Acidic conditions can also corrode concrete and steel (pipes, bridge abutments, underground services, and other infrastructure) and can result in the rapid deterioration of asphalt surfaces where they overlie ASS (SPP 2/02).

ASS are classified as Actual Acid Sulfate Soils (AASS) and Potential Acid Sulfate Soils (PASS). AASS are formed from PASS when oxidation has taken place and significant acidity has been generated. PASS are naturally located below the water table, where atmospheric oxygen is generally absent and the potential acidity remains locked up in the sulfide minerals. A specific parcel of ASS may contain both AASS and PASS material, where by convention it is classified as PASS.

A review of available desktop information suggests the presence of ASS is likely to be restricted to the area below 20 mAHD, approaching the Port of Abbot Point. The area most likely to contain ASS is the Quaternary aged coastal mud flat associated with the Caley Valley Wetlands and to a lesser extent the coastal sand dune geology and alluvial and deltaic deposits extending west from Abbot Point (refer to Figure 3-2).

The primary management tool for ASS involves minimisation of disturbance to such soils and the prevailing groundwater regime. Where exposure of significant volumes of ASS material cannot be avoided, neutralisation of the acidity and careful control of water movement are commonly used approaches to prevent impacts to the environment.

3.4.2 Geology relating to ASS

The Geological Survey of Queensland 1:250,000 geology map for Ayr (Sheet SE55-15, provided as Figure 3-2 (with reference to the NGBR Project), shows that four different geologies are present within the project area, Coastal Sand Dunes (Qr) deposited with the Quaternary period and are derived primarily from wind and wave action, Coastal Mudflat (Qm), associated with Caley Valley Wetlands, Alluvial and Deltaic Deposits (Cza), a small area of Diorite, quartz diorite, tonalite, gabbro, norite; minor granodiorite, adamellite and granite (CPd). It is expected and understood through previous investigations (outlined in Section 3.4.3) that ASS will most likely be within the Qm and possibly the Qr geologies.

3.4.3 Previous studies

This section summarises the findings of three previous studies undertaken in the vicinity of Abbot Point, but outside of the study area. As such, the findings of these studies are considered to provide in principle evidence regarding the potential for acid sulfate soil in the vicinity of the study area.

Abbot Point Coal Terminal Stage 3 Expansion Environmental Impact Statement

This study was undertaken on the Qr geology in relation to acid sulfate soils (WBM 2006). The landform and geology of the area was reported as comprising of low Quaternary coastal sand plains derived primarily from wind and wave action with the crest and swale formation within the plain partly removed by previous clearing activity. The surface soils, to below one meter, were deep homogenous fine to medium-grained sands. The site elevation varied between 2.8 m and five mAHD and the prevailing groundwater level was approximately at zero mAHD.

The investigation found that there was no evidence of conditions that may have caused the formation of pyritic material in the soils. The pH screening and SPOCAS laboratory analyses indicated an absence of ASS material within the potential area to the investigation depth of one mBGL.

Abbot Point Coal Terminal X110 and X80 Expansion Acid Sulfate Soils Investigation Report and Management Plan

This study extended into the wetland (Qm geology), as well as within the Qr geology towards Bald Hill and the existing rail loop. The majority of sampling locations were progressed to four meters below ground level (BGL), with four locations within the existing rail loop progressed to between 15 and 20 mBGL. Laboratory analysis was conducted using the suspension peroxide oxidation combines acidity and sulfur (SPOCAS) method. Peroxide oxidisable sulfur (S_{POS}) was used to determine the presence of PASS, and a pH of less than four was used to identify AASS. PASS was reported from 0.25 mBGL to the extent of investigation, up to 15.25 mBGL in areas. A brief summary of PASS areas is provided below:

- The existing rail loop had S_{POS} levels of up to 0.1 per centS. S_{POS} results exceeded the action criteria at four of the 31 locations at depths of between 0.22 and 15.25 mBGL.
- The areas investigated in the vicinity of Bald Hill, to the north of the rail loop had S_{POS} results recorded as equal to or less than the laboratory LOR ($<0.02\%$).
- Areas immediate to the south of the existing rail loop, on Qr geology, had S_{POS} levels of less than the laboratory limit of reporting (LOR) ($<0.02\%$).
- The areas to the south the existing rail loop, moving west, located along the edge of the wetland, but not Qm geology had S_{POS} levels of up to 3.25 per centS. S_{POS} results exceeded the action criteria in nine locations, between the ground surface and four mBGL.
- The areas to the south and west of the existing rail loop located within the mapped Qm geology had S_{POS} levels of up to 0.76 per centS. S_{POS} results exceeded the action criteria in five locations, between depths of 0.25 and four mBGL.
- The areas within the wetland had S_{POS} levels of up to 0.91 per centS. S_{POS} results exceeded the action criteria at six locations, at depths of between 0.75 and four mBGL.

In summary, a total of 23 out of the 101 locations investigated were identified as having PASS within the soil profiles. No locations were identified as having AASS within the soil profiles.

Abbot Point Coal Terminal X110 Expansion Acid Sulfate Soils Investigation Report

This study was to the north of the existing rail loop in the Qr geology. Eight locations were investigated with low levels of S_{POS} reported in locations three locations at depths of between 0.25 and 1.0 mBGL. These levels were less than the action criteria. The GHD 2009 investigation reported that there was no evidence of PASS or AASS within the investigation area.

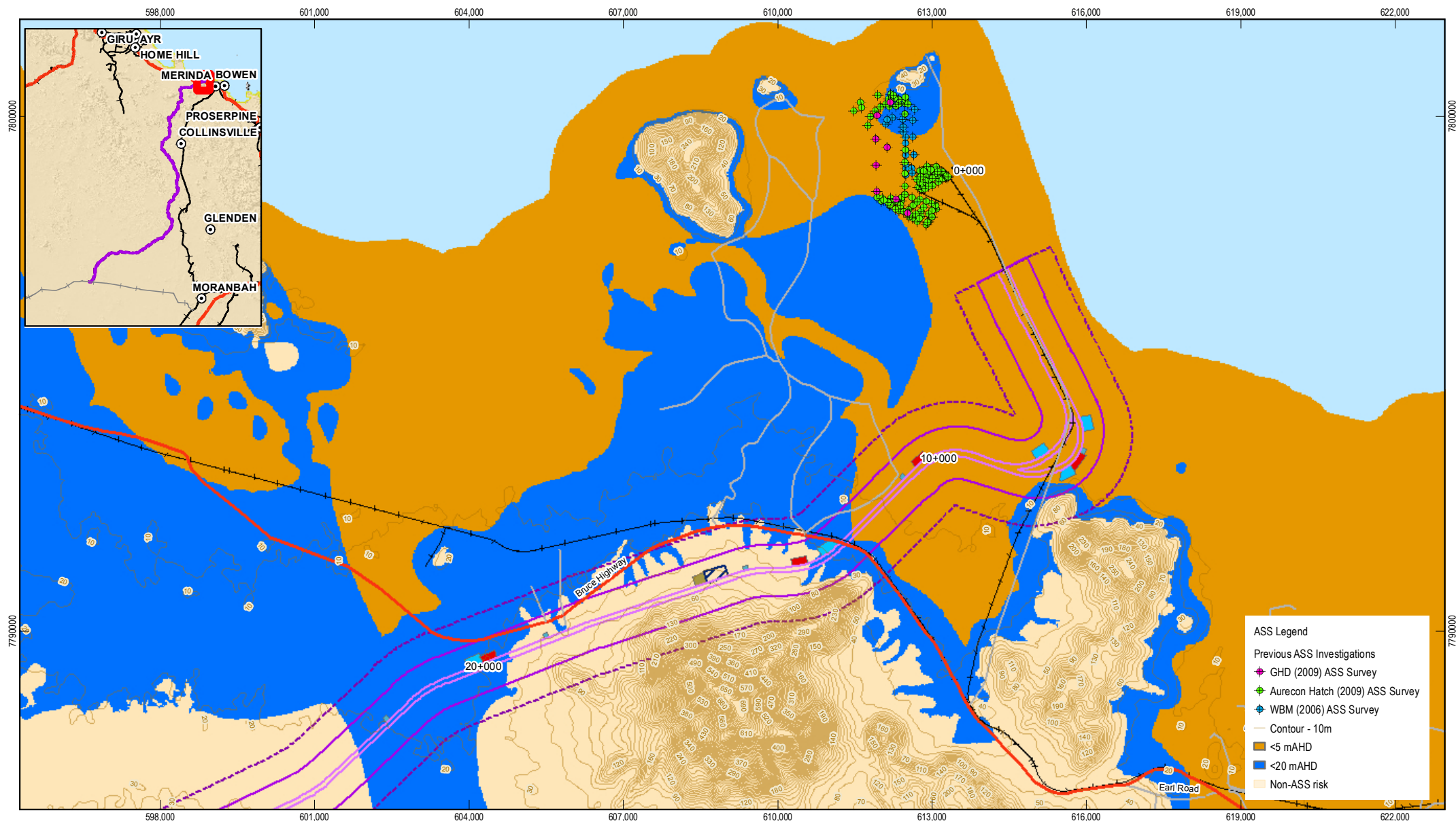
3.4.4 Potential areas for ASS within study area

Two portions of the study area were identified as at or below 20 mAHD.

- The initial 9.3 km portion (chainages 3.4 km to 12.7 km), which has multiple minor ephemeral creeks, including Saltwater Creek
- A 3.6 km portion between chainage 19.1 km and chainage 22.7 km, which is associated with Splitters Creek.

Included within the initial 9.3 km portion, 8.6 km of this, between chainages 3.4 km and chainage 12.0 km, is at or below five mAHD.

Under SPP 2/02, further assessment could be triggered in these areas, depending on the nature of the activity to be undertaken.



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



LEGEND

- Highway
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail Baseline Study Area (1km buffer)
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure Areas
- Bridge Laydown Area
- Concrete Batch Plant
- Construction Camp
- Track Laydown Area
- Turning Circle



Adani Mining Pty Ltd
North Galilee Basin Rail Project

Job Number 41-26457
Revision A
Date 30-08-2013

Acid Sulfate Soils

Figure 3-5

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Data source: DNRM: DEM (2008), © Commonwealth of Australia (Geoscience Australia); Localities, Railways, Roads, Watercourse (2007); Adani: Project Rail Alignment, Camp Sites, Alignment Functional Areas (2013). Created by: MS

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3.5 Good quality agricultural land

Within the study area, the definition of GQAL is determined by the following local councils:

- Whitsunday Regional Council, from chainage 3.49 km to 271.2 km
- Isaac Regional Council, from chainage 271.2 km to 306.9 km.

The area of GQAL within the final rail corridor is provided in Table 3-11, and Figure 3-6 displays the coverage of GQAL along the final rail corridor, including the corridor study area and the ancillary infrastructure footprints. The coverage of GQAL within the study area is proposed to be confirmed in accordance with the proposed field survey methodology (refer to Section 4.1.2).

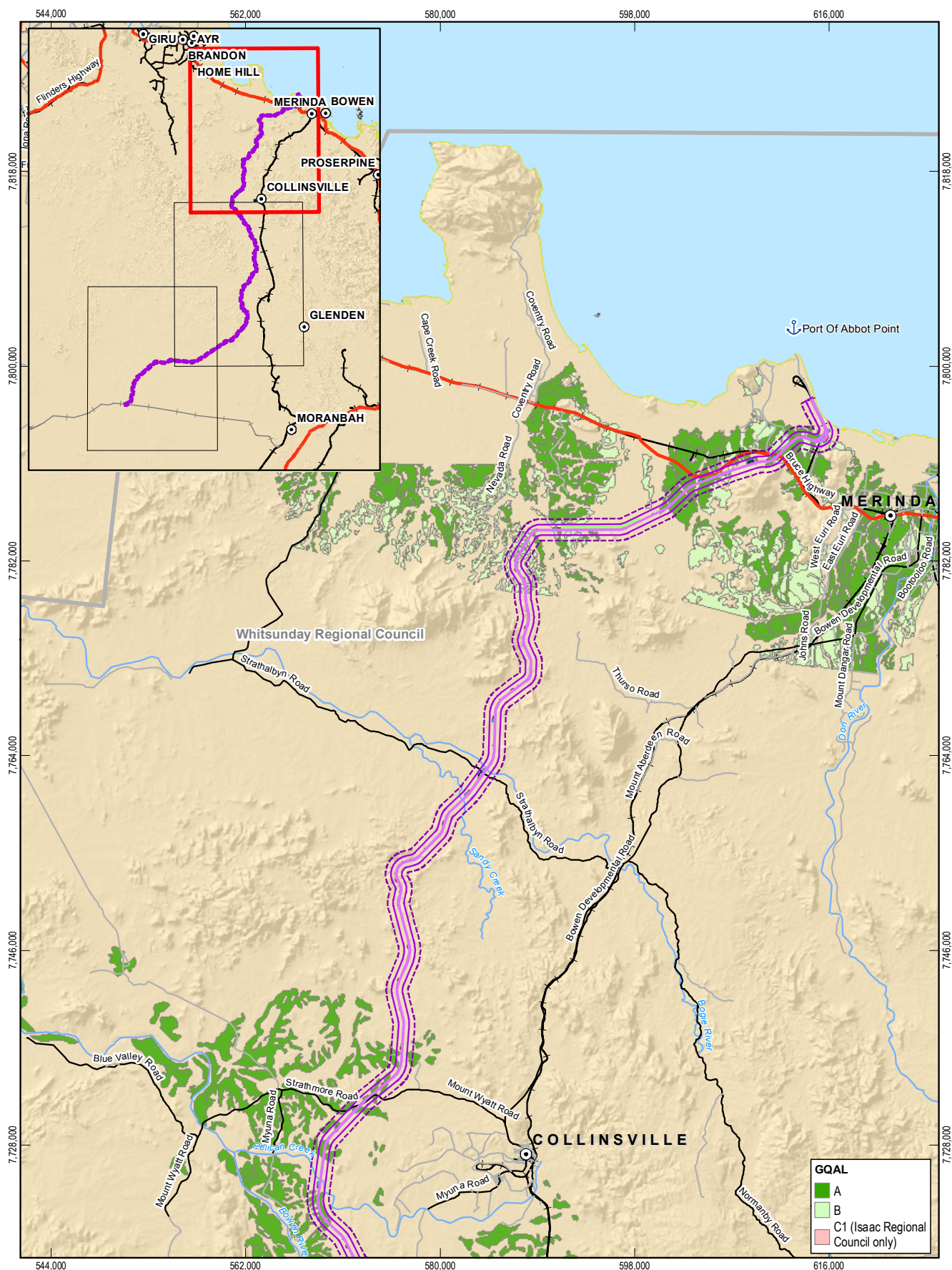
A detailed table with the individual ancillary infrastructure footprints is provided in Appendix C.

Table 3-11 GQAL within study area

Regional council	Footprint	GQAL	Area (ha)
Whitsunday	Corridor (100 m)	A	314.64
		B	609.7
	Ancillary infrastructure footprint	A	93.59
		B	119.43
Isaac	Corridor (100 m)	A	0
		B	58.54
		C1	129.24
	Ancillary infrastructure footprint	A	0
		B	3.05
		C1	341.33

3.1 Strategic Cropping Land

The extent of potential SCL throughout the rail corridor is provided in Figure 3-7. A slope analysis on SCL within the study area footprints is provided in Figure 3-8. Data was not available for all SCL polygons, and these polygons are highlighted in the below Table 3-12. The HOC was based on LANDSAT imagery, provided in Appendix A. Table 3-12 provides a summary of the SCL polygons identified within the final rail corridor and the ancillary infrastructure footprints, the HOC analysis and the slope analysis results. A detailed table of the ancillary infrastructure information is provided in Appendix C.

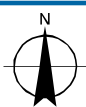


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LEGEND

- 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
- North Galilee Basin Rail Baseline study area (1km buffer)
- 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



Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Good Quality
Agricultural Land**

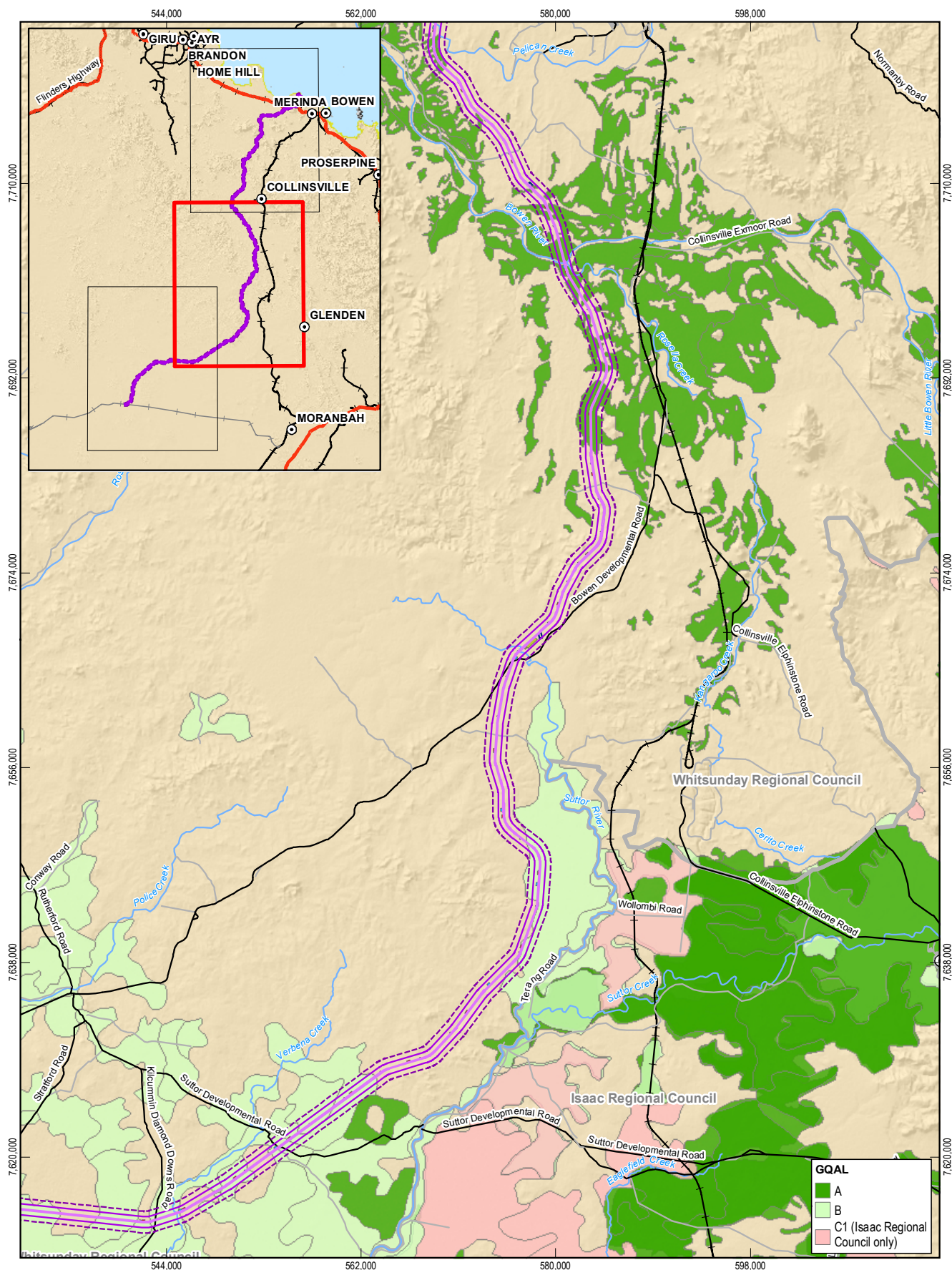
Job Number 41-26457
Revision A
Date 29 Aug 2013

**Figure 3-6
Sheet 1 of 3**

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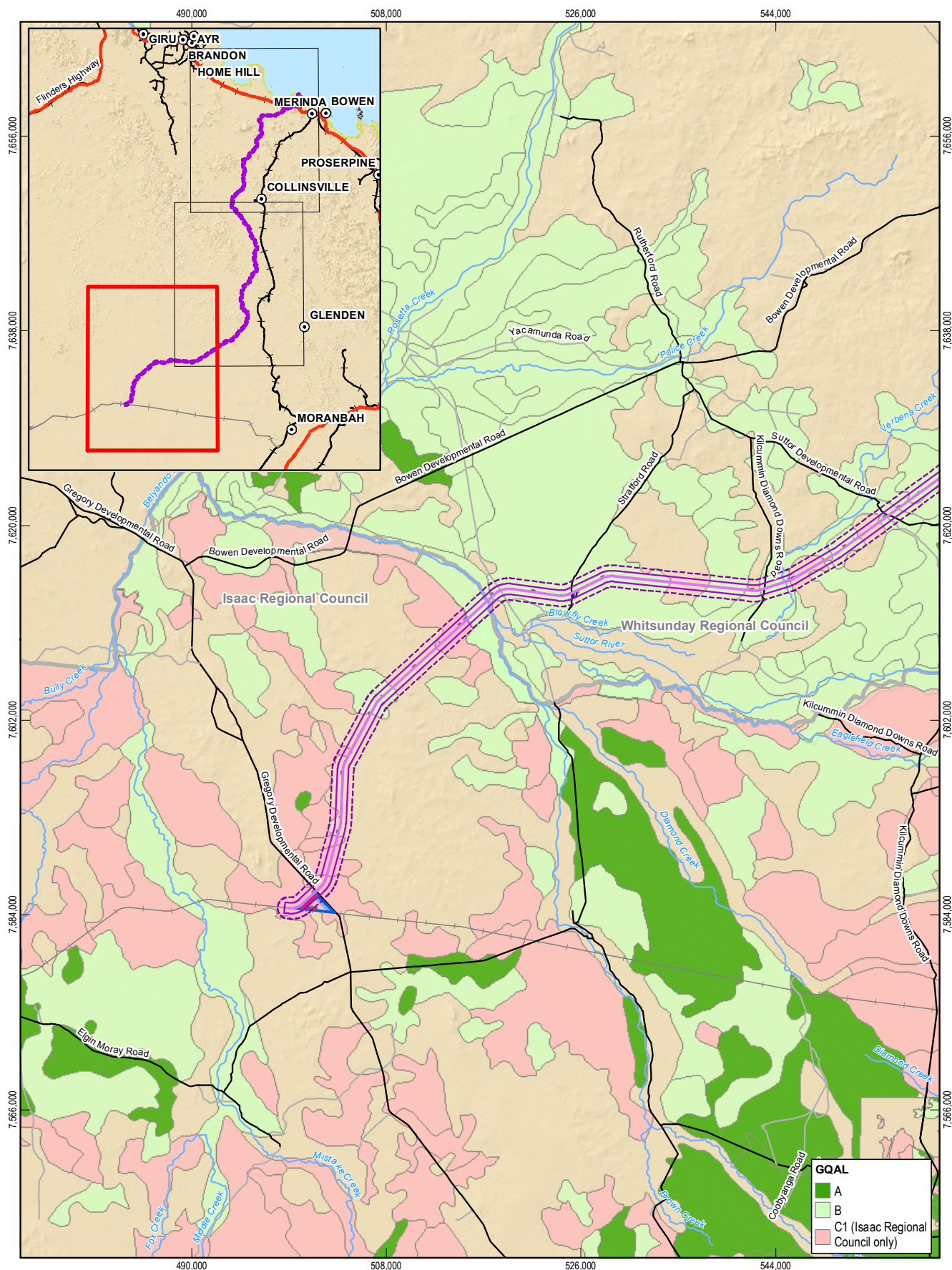


Table 3-12 SCL information

SCL polygon	Area of directly impacted SCL (ha)	Property / homestead	Lot on Plan	Slope criteria assessment	Evidence (LANDSAT and current Google imagery)	HOC Pass / Fail
Coastal Queensland						
SCL-01	3.90	MIDQ	Lot 3 on RP748508; Lot 1 on RP705785; Lot 3 HR1686	No available data	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-02	9.26	Salisbury Plains	Lot 3 on HR1712	Pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-03	2.99			No available data		
SCL-19	8.31			Pass		
SCL-04	4.55	Nevada	Lot 4 on SB687	~0.05 ha fail ~4.5 ha pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
Western Cropping						
SCL-05	1.38	Strathmore	Lot 3 on SP132678	Pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-06	1.39			Pass		
SCL-07	4.05			Pass		
SCL-08	8.01	Myuna	Lot 14 on DK18	~2.45 ha fail ~5.56 ha pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-20	0.21			Pass		
SCL-09	0.85	Birralee	Lot 618 on PH2106	Pass	Evidence of three cropping events were not observed from LANDSAT imagery; however Google imagery showed a small area of cropping near the homestead	Pass
SCL-10	3.24			Pass		
SCL-11	7.82			Pass		

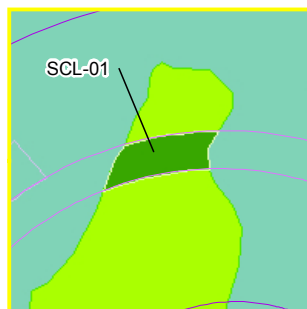
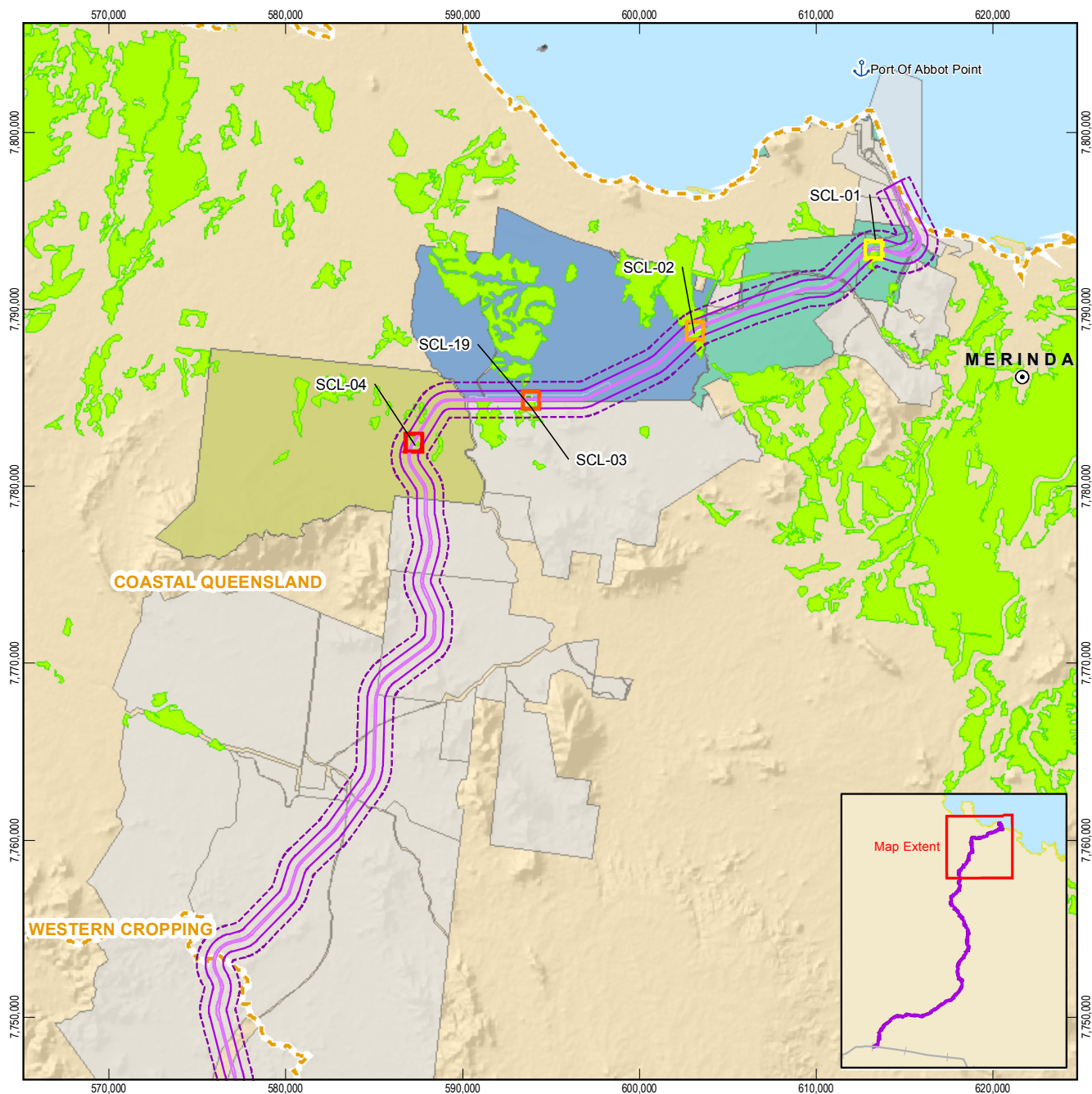
SCL polygon	Area of directly impacted SCL (ha)	Property / homestead	Lot on Plan	Slope criteria assessment	Evidence (LANDSAT and current Google imagery)	HOC Pass / Fail
SCL-12	0.10			Pass		
SCL-21	4.5			Pass		
SCL-22	0.59			Pass		
SCL-13	26.12	Havilah	Lot 62 SP195387	~5.2 ha fail ~20.92 ha pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-14	38.69			~3.4 ha fail ~35.29 ha pass		
SCL-23	4.5			~1.5 ha fail ~3 ha pass		
SCL-24	1.00			Pass		
SCL-25	4.54			Pass		
SCL-15	5.35	Fig Tree	Lot 4 on SP171921	Pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-16	8.75			~6.8 ha fail ~1.95 ha pass		
SCL-17	4.94	Cantaur Park	Lot 3 on DC91	Pass	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail
SCL-26	0.17			Pass		
SCL-18	7.48	Glen Avon	Lot 5 on DC90	No available data	Evidence of three cropping events were not observed from LANDSAT imagery, no cropping observed in Google imagery	Fail

Of the ten properties identified as containing potential SCL and being intersected by the final rail corridor and ancillary infrastructure footprints, only one property, Birralee, was identified as having cropping undertaken on the property. The cropping was localised and positioned near the homestead. Birralee is located within the Western Cropping management zone. SCL polygons intersected by the final rail corridor, SCL-09 through SCL-12, included a total of 12.01 ha of potential SCL. Two SCL polygons, a total of 5.09 ha, were intersected by the ancillary infrastructure footprints, SCL-21 and SCL-22.

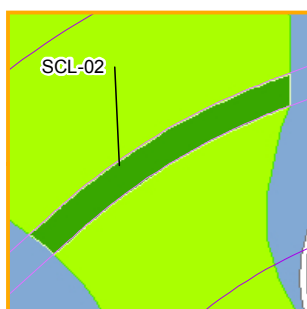
Slope assessment was undertaken on the Birralee property using LIDAR data to smooth slope to a 20 m grid. Slope across these SCL polygons was less than three per cent, indicating that these polygons pass the first of the eight verification criteria.

For the properties containing SCL that failed the preliminary HOC assessment, Adani will submit the Strategic Cropping Land Validation – Cropping History (Part B) forms separate to this EIS submission. Consultation with the Department of Natural Resources and Mines (DNRM) will occur prior to the submission of these forms to ensure the application process is streamlined.

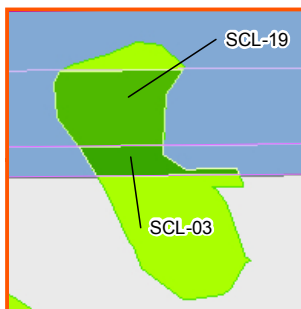
If DNRM confirm that the properties do not have a HOC, then the potential SCL will not be considered to be SCL and no further work is required. Such a decision will incorporate polygons SCL-01 through SCL-08, SCL-13 through SCL-20 and SCL-23 through SCL-26.



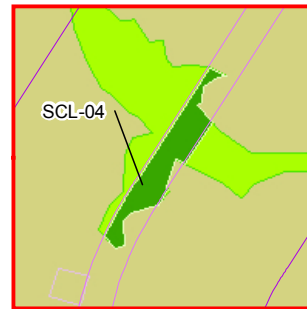
Property: MIDQ



Property: Salisbury Plains



Property: Salisbury Plains



Property: Nevada

LEGEND

- Population Centres
- Major Port
- Strategic Cropping Land within Project Footprint
- Strategic Cropping Land
- Strategic Cropping Land Zones
- Intersected Properties
- MIDQ
- Nevada
- Salisbury Plains
- No Impact
- North Galilee Basin Rail Baseline study area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure

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Revision D
Date 30 Aug 2013

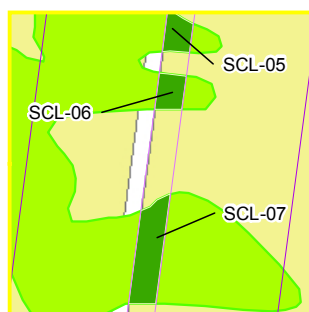
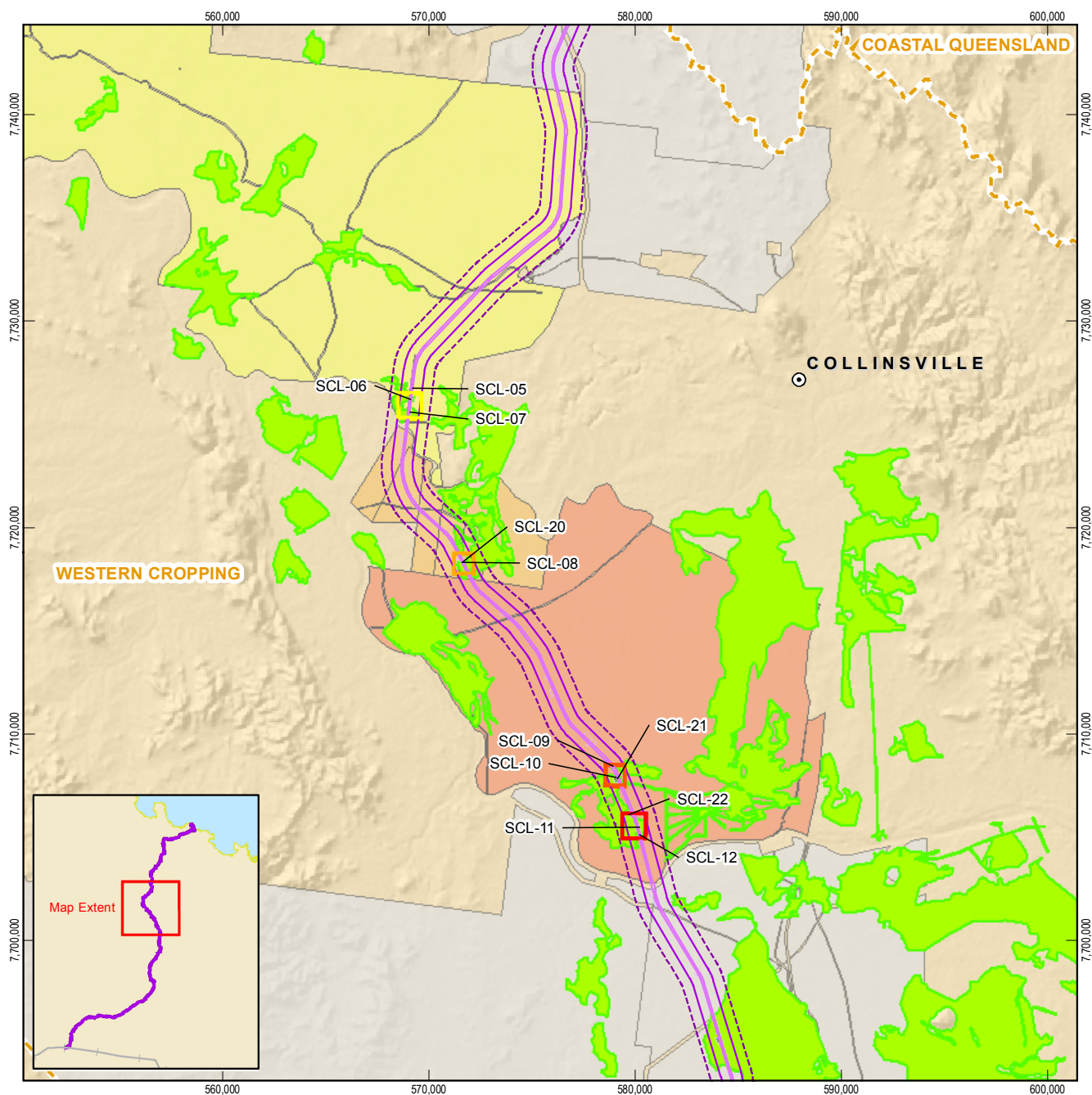
Strategic Cropping Land

Figure 3-7
Sheet 1 of 4

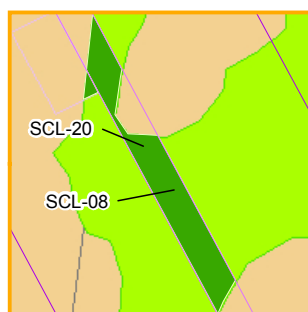
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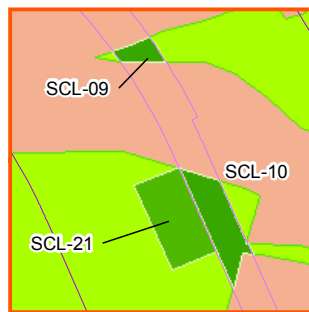
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Data source: GA: Populated Places/2007; Adani: NGBR Corridor 06/06/2013; NGBR Corridor 13/05/2013; Ancillary Infrastructure/2013; DNRM: Strategic Cropping Land Zones/2012, Strategic Cropping Land/2012, Cadastre/2013. Created by:MS



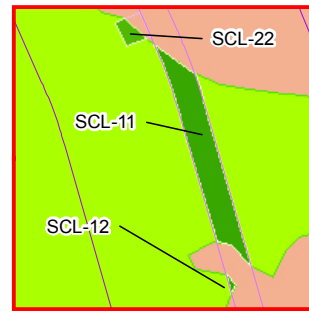
Property: Strathmore



Property: Myuna



Property: Birralelee

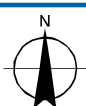
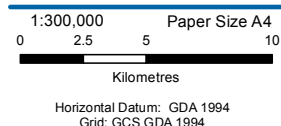


Property: Birralelee

LEGEND

- Population Centres
- Strategic Cropping Land within Project Footprint
- Strategic Cropping Land
- Strategic Cropping Land Zones
- Intersected Properties
- Birralelee
- Myuna (Pt)
- Strathmore
- No Impact
- North Galilee Basin Rail Baseline study area (1km buffer)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure

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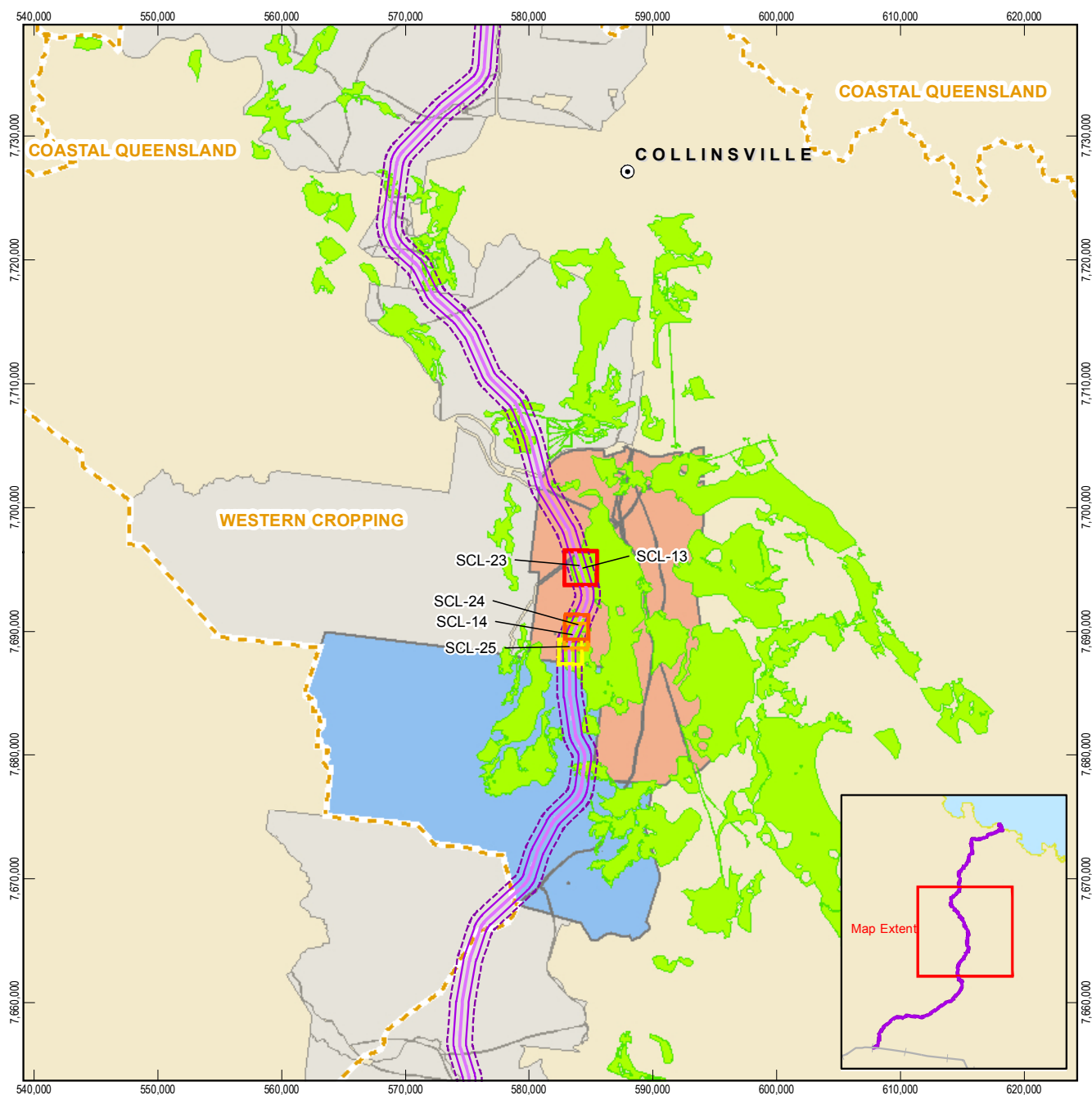
Strategic Cropping Land

Figure 3-7
Sheet 2 of 4

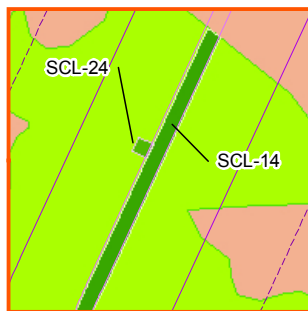
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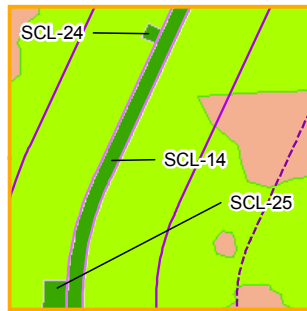
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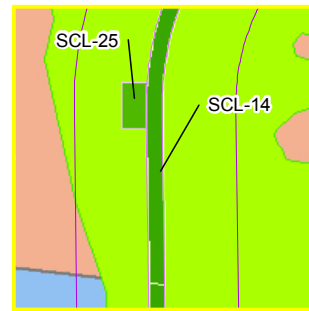
Property: Havilah



Property: Havilah



Property: Havilah

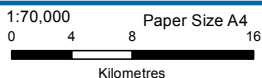


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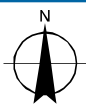
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- Population Centres
- Strategic Cropping Land within Project Footprint
- Strategic Cropping Land
- Strategic Cropping Land Zones
- Intersected Properties
 - Fig Tree
 - Havilah
- No Impact
- North Galilee Basin Rail
 - Baseline study area (1km buffer)
 - North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Ancillary Infrastructure

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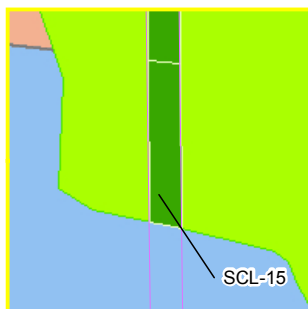
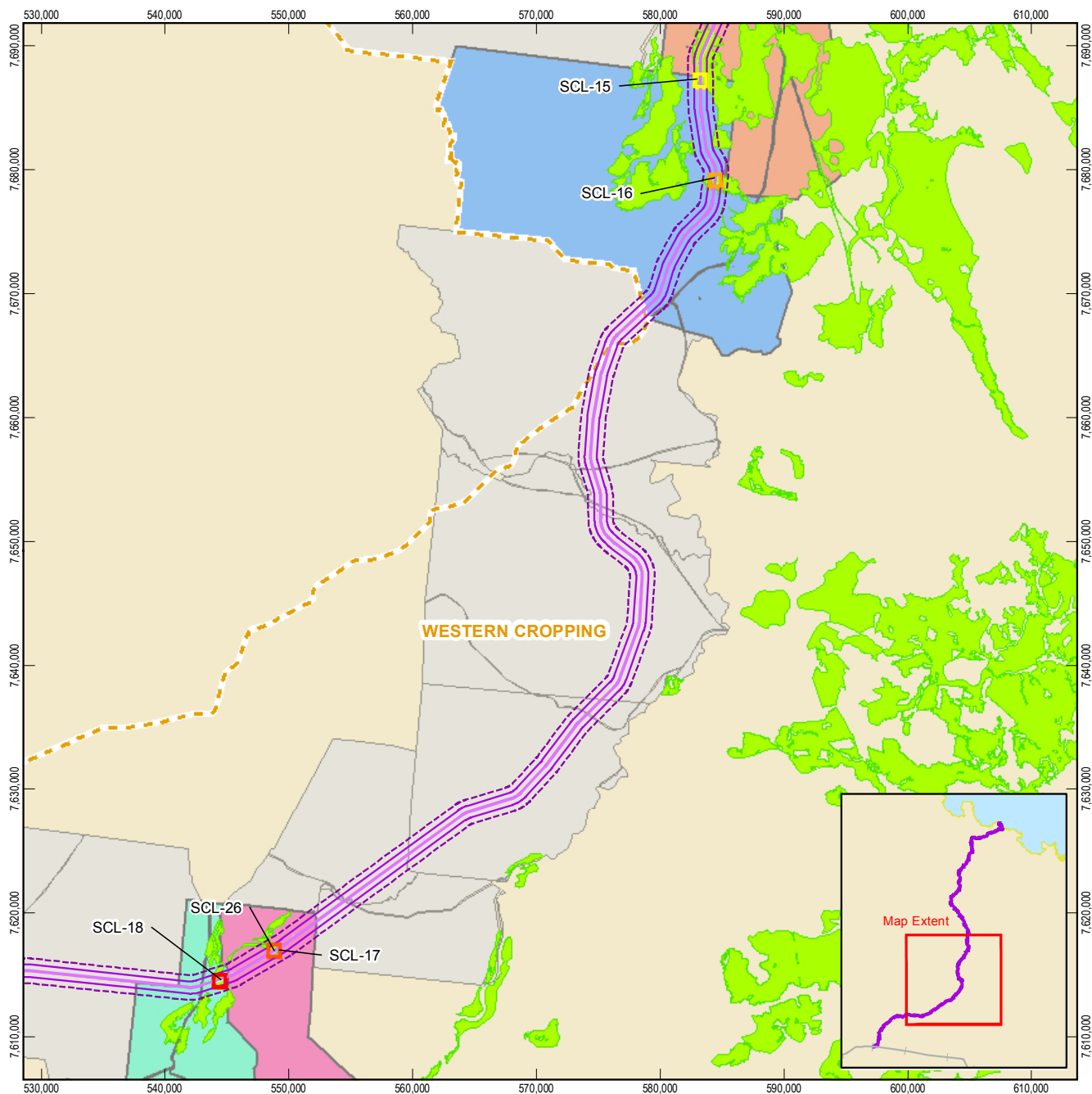
Strategic Cropping Land

Figure 3-7
Sheet 3 of 4

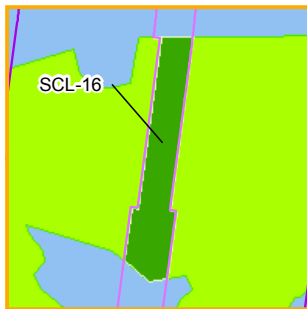
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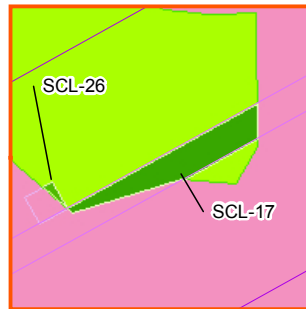
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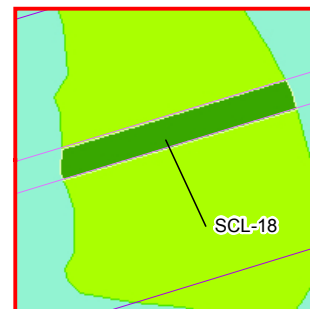
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Property: Fig Tree



Property: Cantaur Park

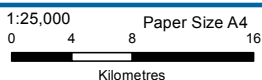


Property: Glen Avon

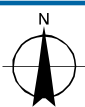
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- Strategic Cropping Land within Project Footprint - Strategic Cropping Land - Strategic Cropping Land Zones	- Intersected Properties - Cantaur Park - Fig Tree - Glen Avon - Havilah	- No Impact - North Galilee Basin Rail 1000m Corridor - North Galilee Basin Rail 100m Corridor	- North Galilee Basin Rail - Baseline study area (1km buffer) - Ancillary Infrastructure
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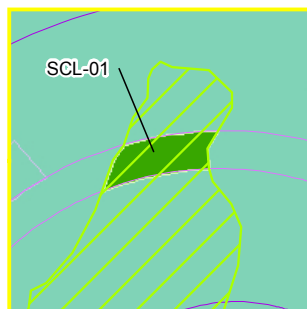
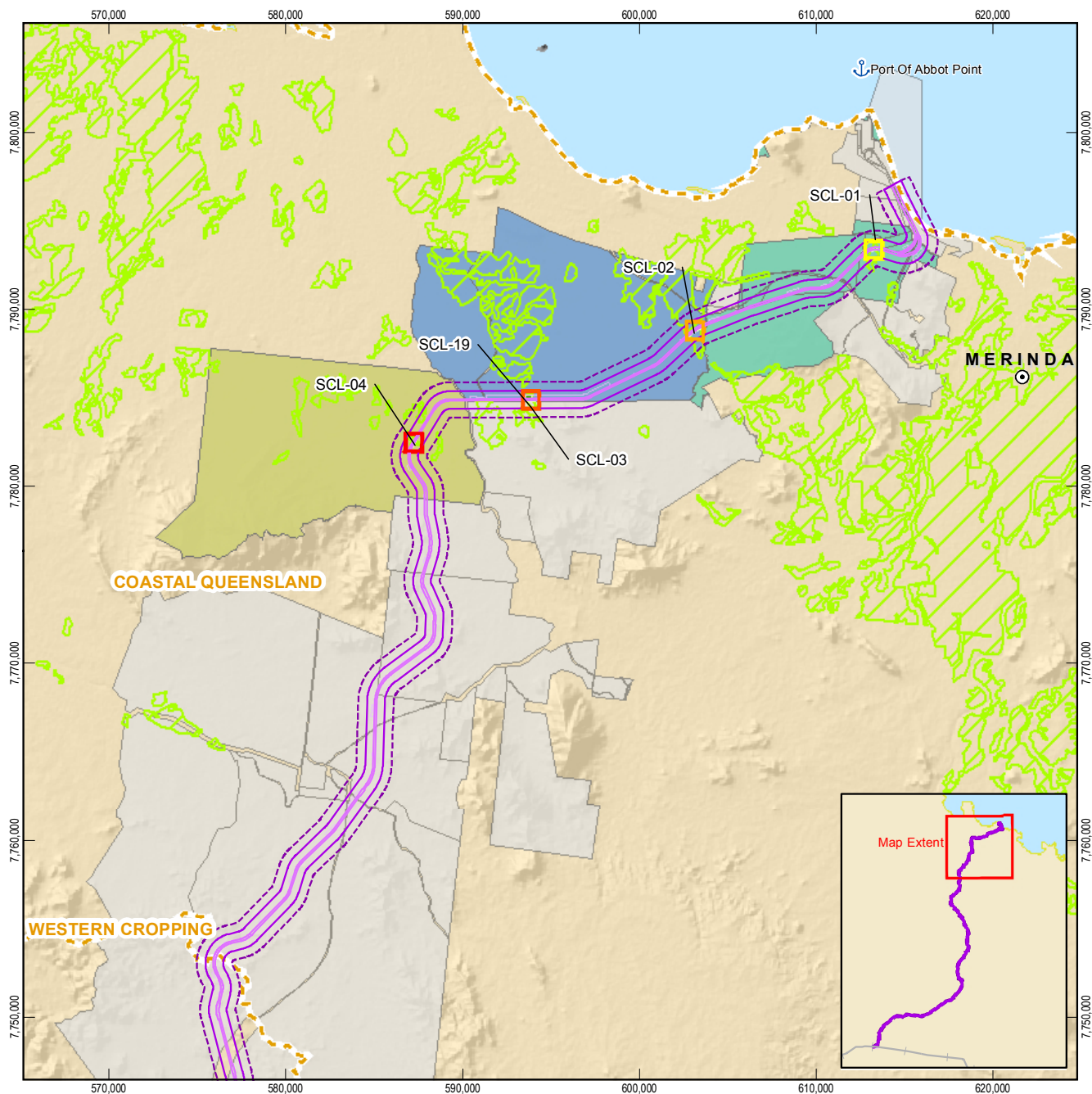
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Figure 3-7
Sheet 4 of 4

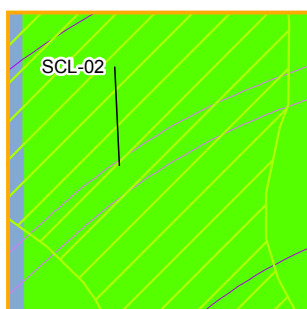
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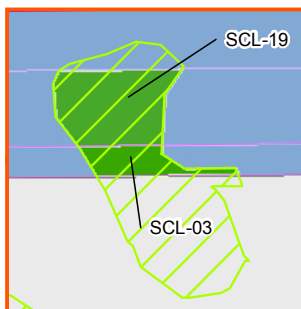
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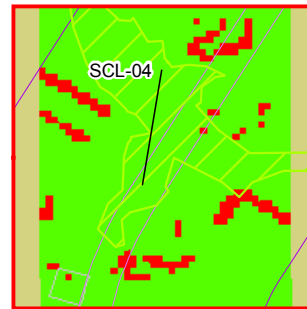
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Property: Salisbury Plains



Property: Salisbury Plains



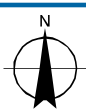
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Strategic Cropping Land

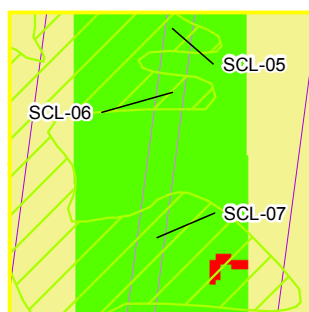
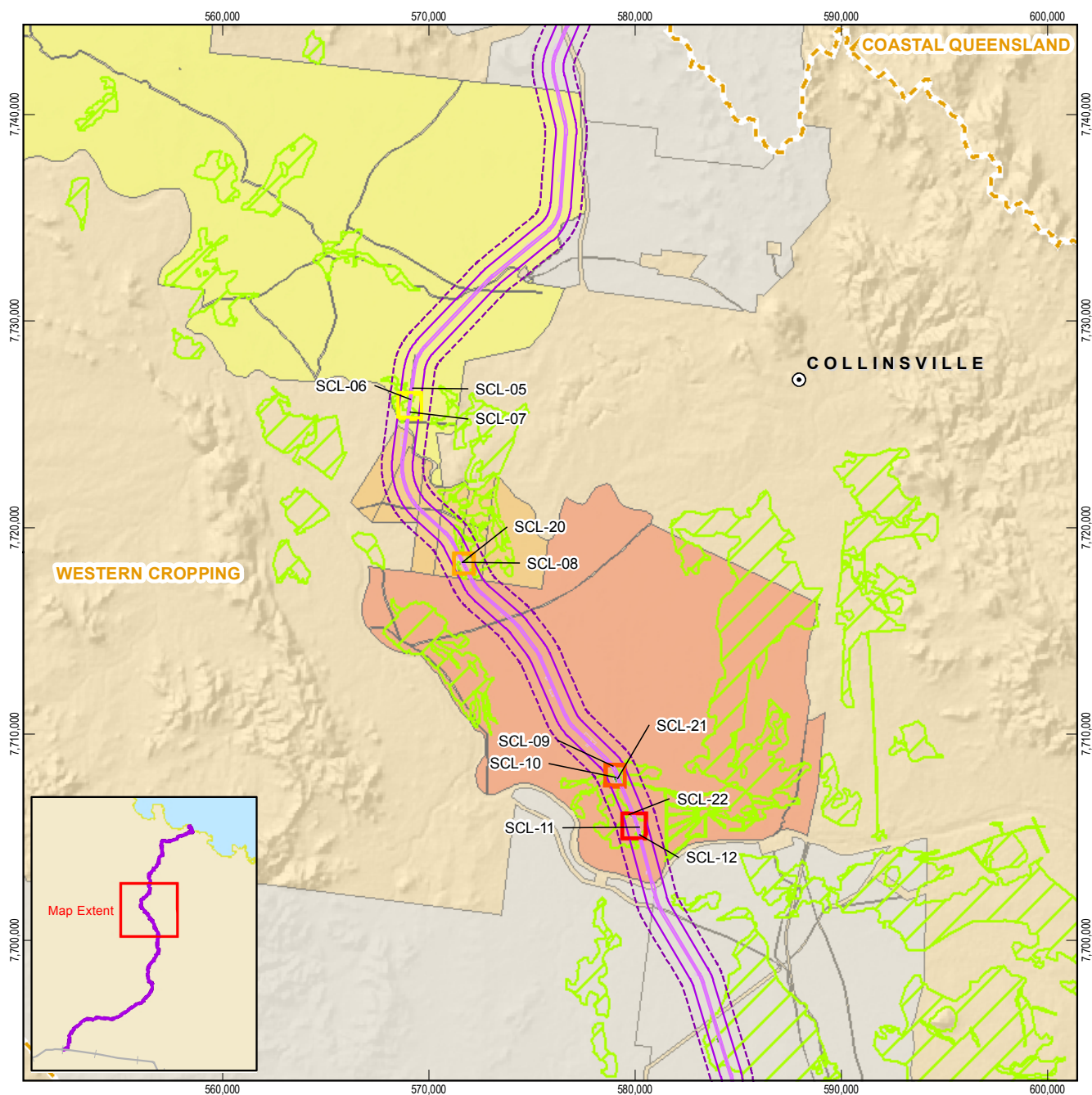
Job Number 41-26457
Revision C
Date 30 Aug 2013

Figure 3-8
Sheet 1 of 4

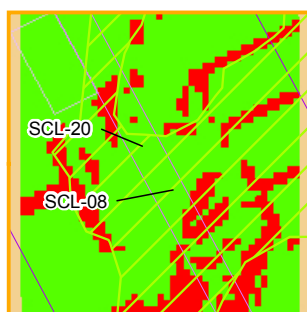
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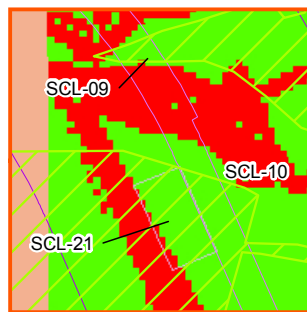
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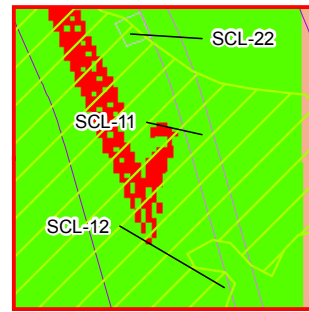
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Property: Myuna



Property: Birrale

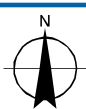
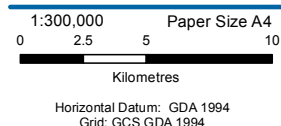


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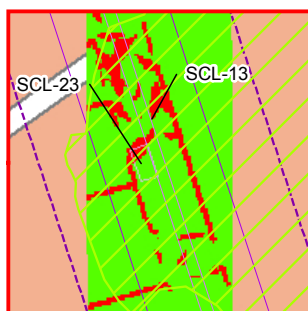
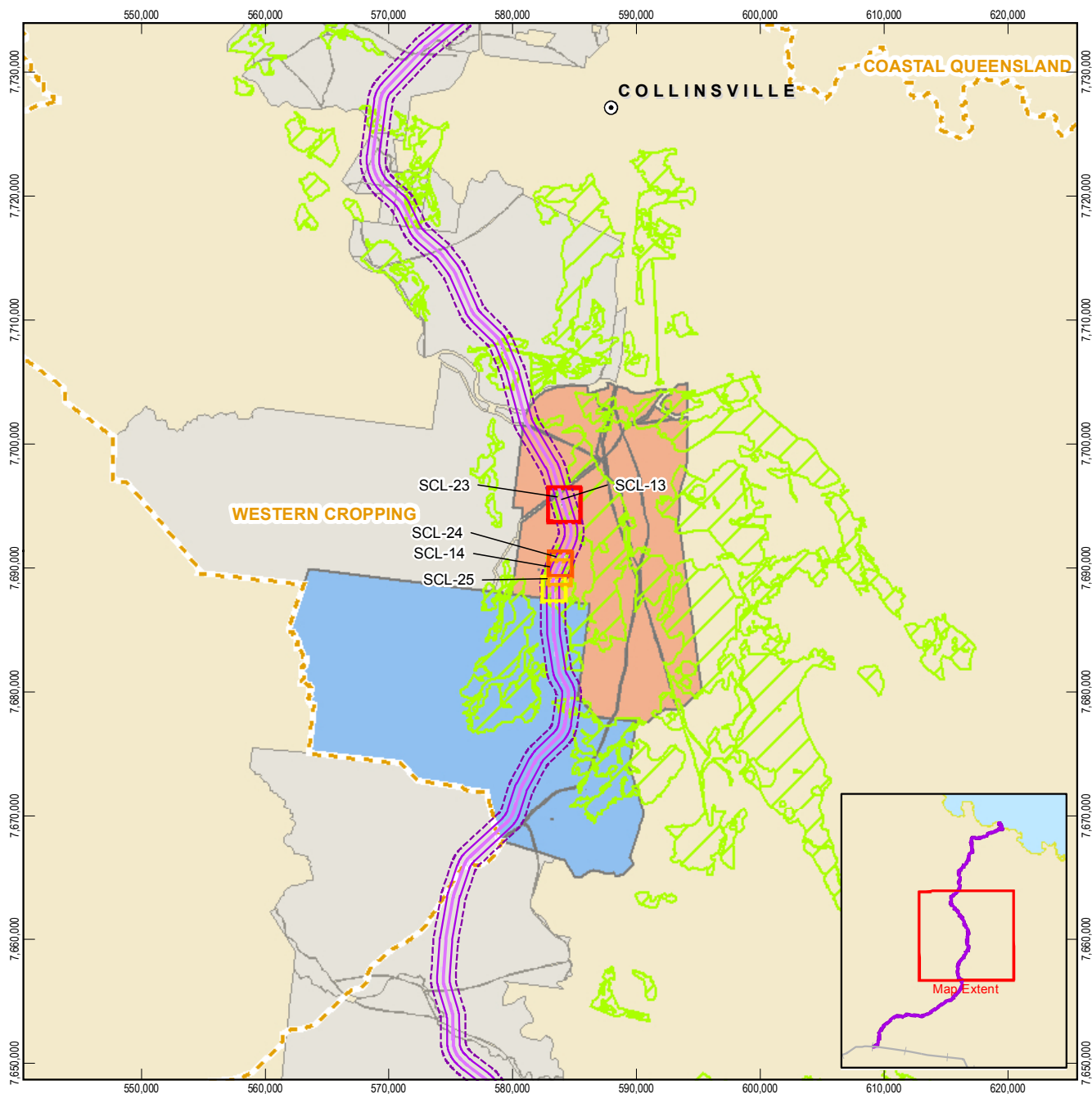
Job Number 41-26457
Revision B
Date 30 Aug 2013

Figure 3-8
Sheet 2 of 4

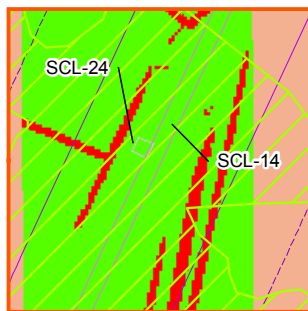
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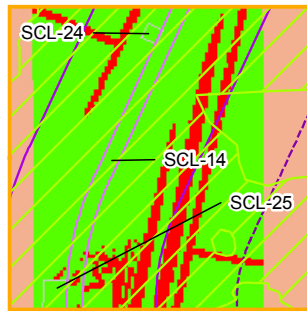
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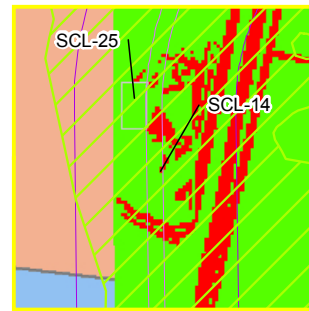
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Property: Havilah



Property: Havilah

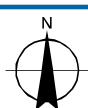
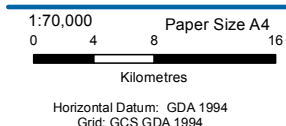


Property: Havilah

LEGEND

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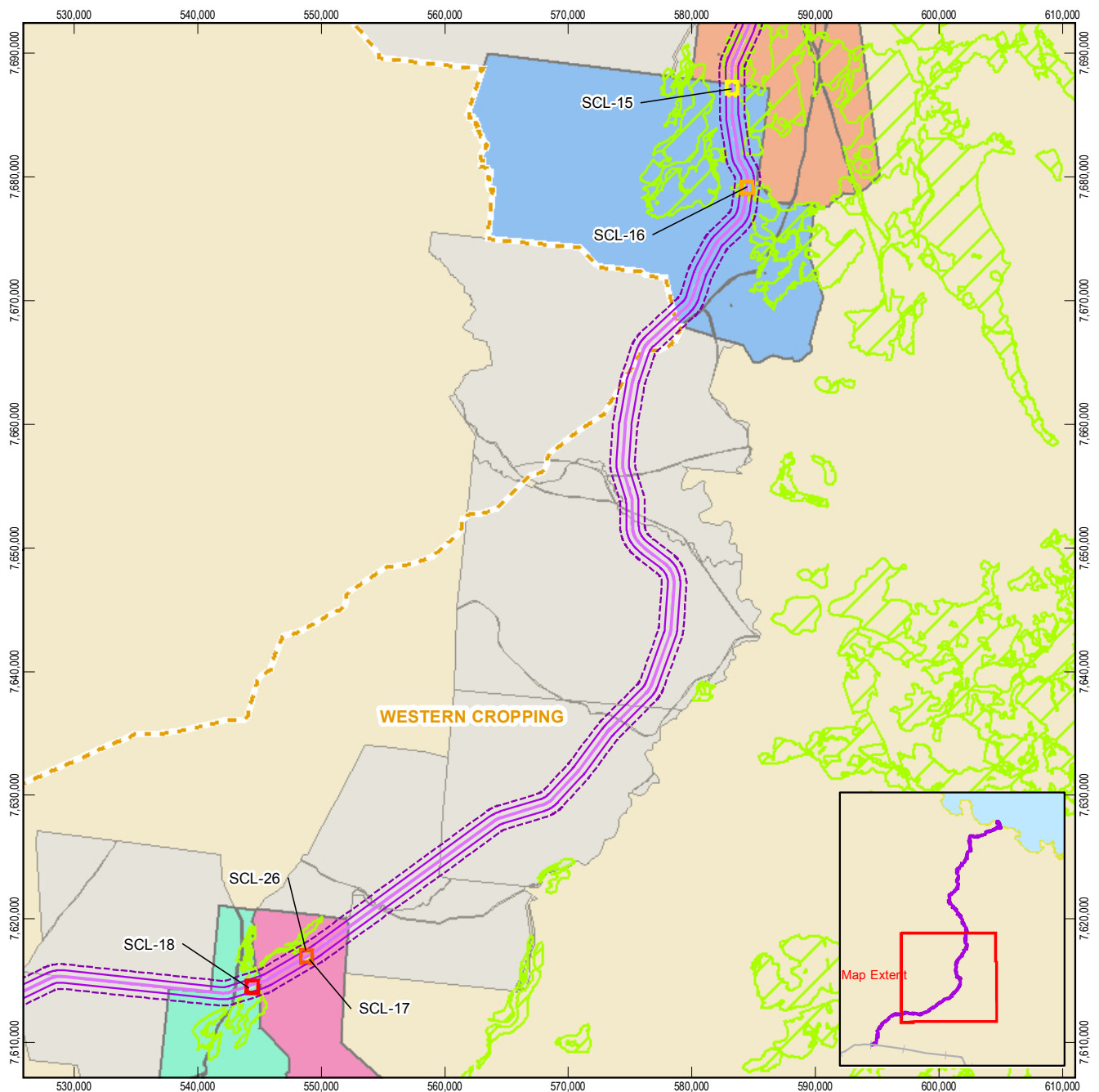
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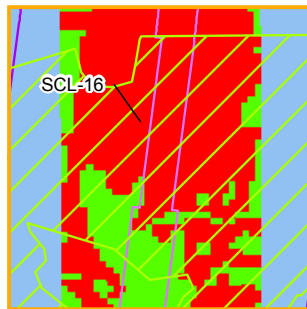
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Slope analysis on
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Date 30 Aug 2013

Figure 3-8
Sheet 3 of 4



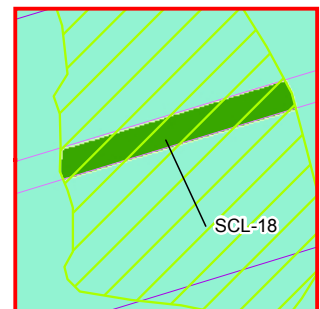
Property: Fig Tree



Property: Fig Tree



Homestead: Cantaur Park

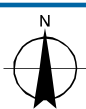
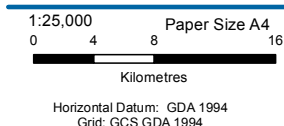


Homestead: Glenavon

LEGEND

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Figure 3-8
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3.2 Contaminated land

3.2.1 Notifiable activities

The results of searches of the EMR and CLR, including details of the potential contaminants of concern, are provided in Appendix B and summarised in Table 3-13. Two notifiable activities ('petroleum product or oil storage' and 'livestock dip or spray race') were listed over six lots within the final rail corridor.

For a property to be listed as a notifiable activity for 'petroleum product or oil storage' the property must have historically or presently been used for the storage of petroleum products or oil as outlined below:

- In underground tanks with more than 200 L capacity
- In above ground tanks with -
 - For petroleum products or oil in class three in packaging groups one and two of the dangerous goods code - more than 2,500 L capacity
 - For petroleum products or oil in class three in packaging groups three of the dangerous goods code - more than 5,000 L capacity
 - For petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25,000 L capacity.

For a property to be listed as a notifiable activity for a 'livestock dip or spray race', operating a livestock dip or spray race facility must have been either historically or presently undertaken on the property. In general, on the majority of rural properties where this activity has been undertaken, the area affected by the chemicals used in livestock dips and spray races is relatively small and localised.

Table 3-13 Property detail and EMR listing

Lot on Plan	Location of property	Petroleum Product Or Oil Storage	Livestock Dip Or Spray Race
Lot 618 PH2106	Chainage 117 km to 132 km	✓	✓
Lot 1 SB279	Chainage 42.6 km to 47 km		✓
Lot 3 SP194889 (subdivided from Lot 1 RP738758)	Chainage 4.3 km to 5.7 km	✓	
Lot 4 SP194889 (subdivided from Lot 1 RP738758)	Chainage 5.3 km to 5.6 km	✓	
Lot 1 RP748627 (subdivided from Lot 1 RP738758)	Chainage 5.3 km to 5.6 km	✓	
Lot 2 RP748627 (subdivided from Lot 1 RP738758)	Chainage 5.3 km to 5.5 km	✓	

As shown in the table above, one property (Lot 618 on PH2106) has two notifiable activities registered to it which increases the number of potential contaminants that may be within the soils and / or ground water on this site.

When lots are reconfigured, all child parcels remain on the EMR/CLR until an application to DEHP to have them removed is accepted. As such, the number of lots on EMR and CLR may be overstated, where subdivision has occurred (as is the case of child parcels derived from Lot 1 on RP738758). The exact locations of the notifiable activities are not yet known at this time and it is unknown if these activities are ongoing or historic. It is noted that no properties were listed on the CLR.

The area of potentially contaminated land within the footprint of ancillary infrastructure of the NGBR Project is summarised in Appendix C.

3.2.2 Additional information from DEHP

DEHP was contacted for further information pertaining to those properties that are listed on the EMR. The search conducted by DEHP on their database did not yield any substantial information regarding the location, condition or environmental incidences associated with the EMR listings. However, the following information was provided:

- Lot 618 PH2106, listed on the EMR in November 2011 for livestock dip or spray race, and petroleum product or oil storage, as notified by the land owner at that time
- Lot 1 SB279, listed on the EMR in December 1993 for livestock dip or spray race, as notified by the land owner at that time
- Lots 3 and 4 SP194889, and lots 1 and 2 RP748627 are new parcels of former larger parcel being Lot 1 RP738758, and listed on the EMR in 1994 for petroleum product or oil storage, as the site being part of the Abbot Point Bulk Handling Port with underground fuel storage tanks.

3.2.3 Potential contaminants of concern

As a guide, there are potential contaminants of concern (PCOC) for the notifiable activities identified in Table 3-13. These PCOC are detailed below for petroleum product and oil storage and for livestock dips or spray races.

Petroleum Product or Oil Storage

Total recoverable hydrocarbons (TRH), lead, benzene, toluene, ethyl benzene, xylenes, and naphthalene (BTEXN), polycyclic aromatic hydrocarbons (PAH).

Livestock Dip or Spray Race

Contamination by these and other agricultural chemicals may occur in localised areas associated with storage of the chemicals and the dip process itself. In general, contamination is restricted to localised areas of use but may become more widespread if chemicals reach the groundwater table. PCOCs relating to livestock dips or spray races are arsenic, Organochlorine Pesticides (OCP's) and Organophosphorus Pesticides (OCP's).

3.2.4 Sensitive environmental receptors

The sensitive environmental receptors within the study area are the major rivers and creeks, and associated drainage lines. In addition to surface water environments, the groundwater aquifers are also regarded as sensitive receptors to PCOC. Watercourses are used as sources

of stock water, either directly during the wet season or indirectly from impoundments during the dry season. Ground water resources are used for water extraction for various purposes. Details regarding existing water resources are provided in Volume 2 Appendix H1 Water resources.

3.2.5 Additional investigations required

The contaminated land assessment undertaken to date has been limited to a search of DEHP's EMR and CLR for the properties intersected by the NGBR Project. It is likely that the EMR/CLR register does not contain all information relevant to activities that have the potential to cause contamination for the properties being intersected by the NGBR Project. Additional information will be required to be gathered for each of the properties that will be intersected by the NGBR Project, inclusive of those sites not currently listed on the EMR/CLR.

All contaminated land assessments related to the NGBR Project, are to be undertaken in accordance with the following guidelines:

- National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 (No. 1)), henceforth referred to as the NEPM 2013
- DEHP. 2006. Guideline for contaminated land professionals. Brisbane: Department of Environment and Heritage Protection, Queensland Government. October 2012.

The extent of the contaminated land investigations can vary depending on the findings and assessment undertaken at each key stage of contaminated land assessment. Any intrusive investigations to assess contaminated land will need to be done only if there is a risk of potentially contaminated land being present within any areas to be disturbed by the NGBR Project. An assessment of all properties to assess the presence (if any) of potentially contaminated land will need to be undertaken.

Any additional work relating to the assessment of contaminated land will need to be undertaken by a suitably qualified professional in accordance with the Guideline for contaminated land professionals (DEHP, 2012).

Consultation with affected land holders will be required to ascertain the presence of any additional notifiable activities or potentially contaminating activities in the vicinity of property areas to be disturbed by the NGBR Project final rail corridor. Depending on the availability and reliability of information learned from this consultation, additional assessments may be required. The landholder consultation will be required to be undertaken in conjunction with further desktop assessments.

A preliminary site investigation is proposed to be undertaken which includes a review of:

- Historical aerial photographs to assess historical land usage
- Available previous investigation reports held by local Councils
- Available DEHP and local Council review including any relevant licences held for the site
- Available services and drainage plans for the site
- Available site specific geological and hydrogeological plans/databases to ascertain underlying lithology and hydrogeology in the context of identifying the potential for contamination to impact the surrounding environment
- 'Dial Before You Dig' plans to ascertain underground service location and previous filling activities

- Interviews with personnel conversant with the current and historical operation of the site and locations of site infrastructure
- Surrounding land uses and identification of potentially environmentally sensitive receptors and/or potential offsite contamination sources that may impact the site.

Ground-truthing

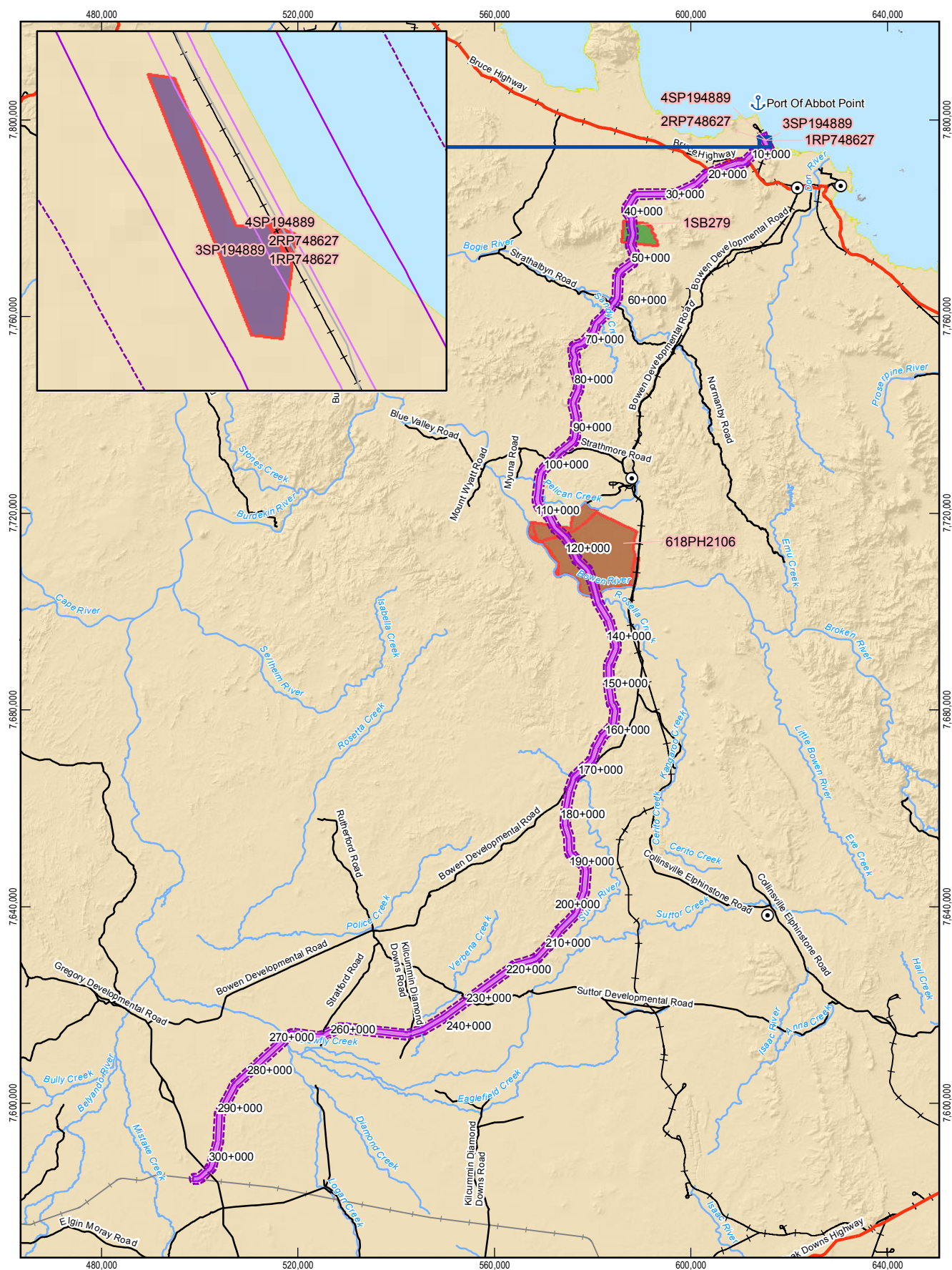
The ground-truthing exercise will be required to be undertaken if the preliminary site investigation of the properties identifies the likelihood of any contamination within the final rail corridor or ancillary infrastructure areas. This ground-truthing will involve a visual inspection of the following:

- Recording of site features and layout of structures
- Inspection for visual signs of potential contamination – disturbed, distressed vegetation; soil staining etc.
- Presence/location of the following – fill; stockpiled soils/material; chemicals; fuel storage; waste material; equipment/machinery relevant to potential site contamination
- Inspection for evidence of former infrastructure; previous fuel/chemical storage, evidence of spills/leaks; condition of roads and infrastructure.

Sampling and analysis plan

Following the ground-truthing exercise, any intrusive investigations and sampling needs will be identified. A sampling and analysis plan (SAP) will need to be subsequently developed and tailored to each property / potentially contaminated area. The SAP will cover the following information:

- Description of proposed activity / disturbance
- Pollution sources
- Sampling and analysis methodology
- Quality assurance and quality control procedures
- Data assessment and reporting.



LEGEND

- Population Centres
- Major Port
- Highway
- Main Road
- Carmichael Project (Rail)
- Railway
- Watercourse (Major)

EMR Detail

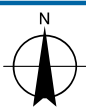
- Petroleum Product Or Oil Storage
- Livestock Dip Or Spray Race
- Petroleum Product Or Oil Storage and Livestock Dip Or Spray Race

- North Galilee Basin Rail Baseline Study Area (1km buffer)
- North Galilee Basin Rail 1000m Corridor

- North Galilee Basin Rail 100m Corridor

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0 10 20 40
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



Adani Mining Pty Ltd
North Galilee Basin Rail Project
Lot on Plans Listed
on the EMR

Job Number 41-26457
Revision A
Date 26 Aug 2013

Figure 3-9

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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, Cadastre/2013. Created by:MS

4. Soil survey methodology for linear infrastructure overview

A detailed soil survey methodology will be developed following the EIS process and will be constructed to meet requirements of relevant guidelines and legislation. The key purposes for undertaking a soil survey are provided below.

4.1 Key purposes of a soil survey

4.1.1 Identification of soil types

The initial and overriding need for a soil survey is to identify the soil types and distributions within the NGBR Project final rail corridor at a scale that will allow management measures to be effectively implemented throughout construction, rehabilitation and operations phases. This is to be achieved by the following:

- Identification of the different soil types that will require special attention and the development of appropriate management strategies for inclusion into relevant management plans. Examples include but are not limited to:
 - Cracking clays which have the potential to impact construction schedules due to trafficability hindrances during wet weather
 - Dispersive and unstable soils which require additional provisions for the design of drainage structures and for erosion and sediment control management
 - Saline soils which will be typically unsuitable for use in rehabilitation
 - Acidic or sodic soils that may require amelioration and management prior to rehabilitation.
- Identification of the different landscapes that will require special attention in the development of management strategies. Examples include:
 - Low lying areas prone to seasonal water logging. These areas have the potential to impact construction schedules due to trafficability / workability hindrances whilst wet
 - Permanent and ephemeral watercourses and drainage lines that require constructability consideration for erosion and sediment control during construction
 - Areas where moderately inclined to steep lands are present, and/or external catchments that may be impacted by the construction process by increased erosion and decreased water quality, and impact the environmental performance of the project.
- Assessment of good quality re-usable topsoil or subsoil material. Information from this assessment is vital for the rehabilitation phase of the NGBR Project, as is identification of poor quality topsoil and subsoils requiring amelioration for use in rehabilitation.

In addition to the requirements of 'normal' soil surveys, such as those highlighted above, there is an additional need to assess the agricultural values of the soil types and the spatial distribution and management requirements of ASS.

4.1.2 Agricultural values

Agricultural values of land to be disturbed within the final rail corridor will be assessed by:

- Completing a field assessment of mapped good quality agricultural land (GQAL)
- Completing an agricultural assessment on all soil types encountered
- Potential SCL may be validated in the field, or may be accepted as true, negating the need for the more intensive soil survey requirements.

Assessing the agricultural values is important to inform Adani, regulators, and the community of existing agricultural land uses that could potentially be impacted on by the NGBR Project. It is expected that this information will have a strong influence on rehabilitation standards and management practices. This assessment will inform the necessary approvals required for disturbing GQAL and SCL.

4.1.3 Acid sulfate soils

The purpose of the ASS investigation is to establish whether there is potential and/or actual ASS within the study area. ASS investigations have different density and analysis intensity requirements in comparison to a 'normal' soil survey. Based on the information contained in Section 3.4, the Abbot Point region has a high likelihood of ASS present. The analytical results will be used to establish the occurrence and distribution of ASS within the study area. The findings from this investigation will be used to develop appropriate management measures detailed in an acid sulfate soils management plan.

4.2 Mapping scale and ground observation intensity for linear projects

All areas, with the exception of GQAL, SCL and ASS, of the majority of the NGBR Project final rail corridor will be surveyed at a scale of 1:50,000 to 1:100,000. (i.e. one survey location every 500 to 1,000 m along the linear alignment). Scale will be determined in the field based on landscape complexity. Landscapes that are highly varied, such as hilly landscapes, will have a more intensive (1:50,000) scale, while landscapes that are more uniform, such as alluvial plains, will be investigated at a broader scale (1:100,000). ASS sampling density will be adjusted depending on an adaptive field survey. The intensity of ground observations is directly related to scale and is provided in Table 4-1. Sampling locations will be positioned within the landscape that represents the majority of the disturbance footprint for that 500 m to 1,000 m.

Table 4-1 Ground observation intensity for linear projects

Soil survey aim	Mapping scale	Ground observation density	Desktop information
General soil assessment	1:50,000 to 1:100,000	1 location per 500 m to 1,000 m (Forster, 2011)	Section 3.3
Soil assessment in existing 1:100,000 mapping	1:100,000	1 location per mapped soil unit	Section 3.3.1
GQAL	1:50,000	1 location per 500 m in mapped areas of GQAL	Section 3.5
Potential SCL Coastal Queensland	1:25,000	1 site per 12 hectare, with a minimum of 2 observations per SCL polygon (refer Section 3.1)	Section 3.7

Soil survey aim	Mapping scale	Ground observation density	Desktop information
Potential SCL Western Cropping	1:50,000	1 site per 50 hectare, with a minimum of 2 observations per SCL polygon (refer Section 3.1)	Section 3.7
ASS	NA	1 location per 200 m (adaptive survey) in areas potentially containing ASS (≤ 20 mAHd)	Section 3.4

The various outputs of the soil related investigations require different approaches to the density, type of information to be captured and assessment methodology.

4.3 Ground observation types for a linear soil survey

In general, linear investigations require a larger number of intrusive investigations than that of a standard area investigation (Forster, 2011). The objective of the field survey will be to ensure that every unique mapping area identified in the resultant mapping has at least one associated detailed location description. A brief description of the various kinds of ground observation types and approximate proportion of these sites is provided in Table 4-2.

Table 4-2 Ground observation types for linear soil survey (excluding ASS)

Ground observation types	Approximate proportion of sites
1. Full morphological description with full analysis Detailed descriptions of one or more representative profile soil types (more for major soils) with full profile laboratory analysis to 1.5 m, rock or trench depth.	~5 – 10%
2. Full morphological description with diagnostic analysis Detailed profile descriptions to 1.5 m or rock, or to proposed trench or excavation depth for pipelines or channels if depth >1.5 m; adequate subsoil chemical analysis (diagnostic sampling) to identify and classify the soils to an extent that will allow determination of soil type, key management measures required and mapping boundaries.	~20 – 50%
3. Brief morphological observation Less detailed soil descriptions with cores to sufficient depth to identify the soil; minimum description and recording. These sites are to confirm soil types to match against the full morphological descriptions and mapping boundaries.	~20 – 50%
4. Brief surface observation Description of surface and landscape features. Check sites are generally used in large uniform areas to establish soil boundaries. Check sites should have a minimum of data recorded to confirm the mapped soil type, such as location, landform, vegetation, surface characteristics, surface horizon characteristics, relevant notes, and soil type.	~20 – 50%

Source: adapted from Forster 2011

The breakdown above is to be adapted depending on the complexity of the landscape. In general, more complex landscapes tend to require more detailed morphological descriptions.

Whilst within larger more uniform areas (alluvial plains) the assessment can be less intrusive and more confirmatory to compliment the morphological and laboratory analysis.

ASS investigations require intrusive investigations, with sampling depths and analyses as specified in Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils in Queensland (Ahern et al. 1998).

4.4 Ancillary infrastructure

Additional soils investigations may be required for ancillary infrastructure depending on the type of disturbances that will occur. Such assessments may relate to soil assessments of temporary construction camps (i.e. potential effluent irrigation areas), laydown areas, quarries, borrow pits, temporary access tracks and turning circles.

Free form surveys will be used to allow some flexibility in sampling extent. For instance, ancillary infrastructure in close proximity to the NGBR Project may be sampled as check sites if landform and soil type is undifferentiated from the full morphological sample collected from the nearby footprint of rail infrastructure. However, detailed and analysed samples should be collected from sites where soil types are clearly different from that within the rail corridor. A soil survey of 1:10,000, which equates to one location per 0.8 to four hectares, is recommended for areas of less than 10 ha in size, for infrastructure footprints greater than 10 ha in size, a scale of 1:25,000 is recommended, which equates to one location per five to 25 ha. ASS investigations will be undertaken at scales adapted to the area and type of disturbance.

Table 4-3 Ground observation types and proportions for quarry and ancillary infrastructure surveys (excluding potential ASS areas)

Ground observation types	Approximate proportion of sites
1. Full morphological description with full analysis Detailed descriptions of one or more representative profile soil types (more for major soils) with full profile laboratory analysis to 1.5 m, rock or trench depth. Sampling is to characterise the typical / reference soils in a survey or to target selected soil attributes such as fertility sodicity or salinity.	~five – 10%
2. Full morphological description with diagnostic analysis Detailed profile descriptions to 1.5 m or rock that can be used to characterise the main soil and landscapes in a survey area.	~10 – 30%
3. Brief morphological observation / surface observations Surface features check sites in large uniform areas and to establish soil boundaries. Check sites should have a minimum of data recorded to confirm the mapped soil type, such as location, landform, vegetation, surface characteristics, surface horizon characteristics, relevant notes, and soil type.	~60 – 88%

Source: McKenzie *et al.*, 2008

Agricultural land values for ancillary infrastructure footprints should be developed and verification of mapped GQAL and potential SCL intersected by ancillary infrastructure footprints should also be completed.

4.5 Reporting

Due to the range of assessments that will be undertaken relating to soils, a number of reports will be required to be produced. These reports are likely to form part of the overarching

construction environmental management plan and operational environmental management plan, as relevant. The types of reports to be produced from additional soil surveys are summarised in Table 4-4.

Table 4-4 Reports to be produced from Soil Surveys

Study	Master Report	Other Documents Generated
General Soil Survey	Soils and Land Suitability Report	Soil Management Plan Rehabilitation Management Plan
GQAL		
ASS	Acid Sulfate Soils Technical Report	Acid Sulfate Soils Management Plan Groundwater Management Plan

5. Key findings

Topography

Distinctive topographical features include, from north to south, the Coastal floodplain, Clarke Range, Bowen River Valley, Leichhardt Range and the Suttor River floodplain. At the northern end (chainage 3.49 km), surface elevation is at its lowest, at three mAHd, surface elevation at the southern end (chainage 306.0 km) is approximately 300 mAHd. Throughout the study area, decreased surface elevation is associated with river beds, and increased surface elevation is associated with mountain ranges.

Geology

Given its length, the underlying geology of the study area varies extensively. Younger, Quaternary-aged geology is associated with the river beds and flood plains and older geology of varying ages and composition is found along the rest of the study area. Geology includes alluvial, colluvial, sedimentary and metamorphic formations.

Soils

Soil information for the study area ranges in precision. At the northern end, approaching Abbot Point, a detailed soil map has been published at 1:100,000 scale. This detailed mapping is considered to be a fairly accurate; however, the majority of the study area is covered by exploratory scale soil mapping of 1:1,000,000 scale. This mapping coarsely identifies the predominant expected soil type of the area. At the southern end, land system mapping of 1:250,000 scale is present. The associated land system report connects soils with landform and vegetation and provides a land suitability assessment for each soil unit. Land system mapping defines the major soil type, but does not incorporate the finer details associated with landform and vegetation. For consistency and comparative purposes, the mapped polygons across all maps have also been identified using the Australian Soil Classification so that soil types can be compared with other maps.

Multiple soil types are intersected by the study area. These soil types and a brief definition of each are listed below:

- Rudosols: soils with limited structural development, commonly associated with hill tops
- Tenosols: soils with less than 15 per cent clay, with limited structure, commonly associated with hill tops and upper slopes
- Kandosols: soils with greater than 15 per cent clay, with a massive or weakly structure subsoil
- Hydrosols: soils where a greater part of the profile is saturated for at least several months of the year
- Chromosols: soils with a clear or abrupt texture change between the upper sandy material and lower clayey material. The underlying clay is not acidic ($\text{pH} > 5.5$) and not sodic (exchangeable sodium percentage less than 6).
- Sodosols: soils with a clear of abrupt texture change between the upper sandy material and underlying clay material. The underlying clay material is sodic (dispersive) and not strongly acidic ($\text{pH} > 5.5$).

- Dermosols: structured soils which do not have a strong texture change between top soil and subsoil. These soils are commonly described as uniform or gradational soils.
- Vertosols: colloquially known as cracking clays, these soils swell when wet and shrink when dry. They are typically impassable when wet.

Acid sulfate soil

The State Planning Policy 2/02 requires acid sulfate soils (ASS) to be considered when surface elevations of 20 mAHD or less are encountered. There are two portions of the baseline study area that are at or below 20 mAHD:

- The initial 9.3 km portion, between chainages 3.49 km to 12.7 km, which has multiple minor ephemeral creeks, including Saltwater Creek
- A 3.6 km portion between chainage 19.1 km and chainage 22.7 km, which is associated with Splitters Creek.

Agricultural land resource

Agricultural land resources were considered separately within the final rail corridor and ancillary infrastructure footprints, primarily for the purpose of undertaking separate calculations.

Within the Whitsunday Regional Council area, 314.64 ha of GQAL A and 609.7 ha of GQAL B are traversed within the final rail corridor and within the Isaac Regional Council area, the final rail corridor traverses no land considered to be GQAL A, but traverses 58.54 ha classed as GQAL B and 129.24 ha classed as GQAL C1. Ancillary footprints cover 93.59 ha of GQAL A and 119.43 ha of GQAL B within the Whitsunday Regional Council area, and 3.05 ha and 341.33 ha of GQAL B and C1 respectively within the Isaac Regional Council area.

The SCL assessment identified eighteen individual polygons within the final rail corridor and eight polygons within the ancillary infrastructure footprints encompassed by ten properties within the Western Cropping zone and Coastal Queensland zone. The HOC analysis indicated that nine of the ten properties fail the HOC analysis, with Birralelee, within the Western Cropping zone, the only property to have cropping identified from LANDSAT and Google Imagery. Six SCL polygons, four within the final rail corridor and two within ancillary infrastructure footprints were within the Birralelee property. A total of 12.01 ha of SCL passed the HOC within the final rail corridor, and 5.09 ha of SCL passed the HOC within the ancillary infrastructure footprints. These SCL polygons also passed the slope criterion of slopes of less than three per cent.

Contaminated land

A review of the EMR and CLR was conducted for all lot on plans intersected by the final rail corridor. Of these, six lots were identified as listed on the EMR, four of which were lots split from a single parent lot which was listed on the EMR; no lots were listed on the CLR. DEHP was contacted for further information pertaining to those properties that are listed on the EMR. The search conducted by DEHP on their database did not yield any substantial information regarding the location, condition or environmental incidences associated with the EMR listings; however the following information was provided:

- Lot 618 PH2106, listed on the EMR in November 2011 for Livestock Dip or Spray Race, and Petroleum Product or Oil Storage, as notified by the land owner at that time
- Lot 1 SB279, listed on the EMR in December 1993 for Livestock Dip or Spray Race, as notified by the land owner at that time

- Lots 3 and 4 SP194889, and Lots 1 and 2 RP748627 are new parcels of former larger parcel being Lot 1 RP738758, and listed on the EMR in 1994 for Petroleum Product or Oil Storage, as the site being part of the Abbot Point Bulk Handling Port with underground fuel storage tanks.

Soil survey methodology

A summary of key aspects in developing a soil survey methodology has been included in this report. A soil survey will be required to be undertaken prior to construction. This soil survey will verify management requirements for confirmed soil types and validate the agricultural resource status of the soils.

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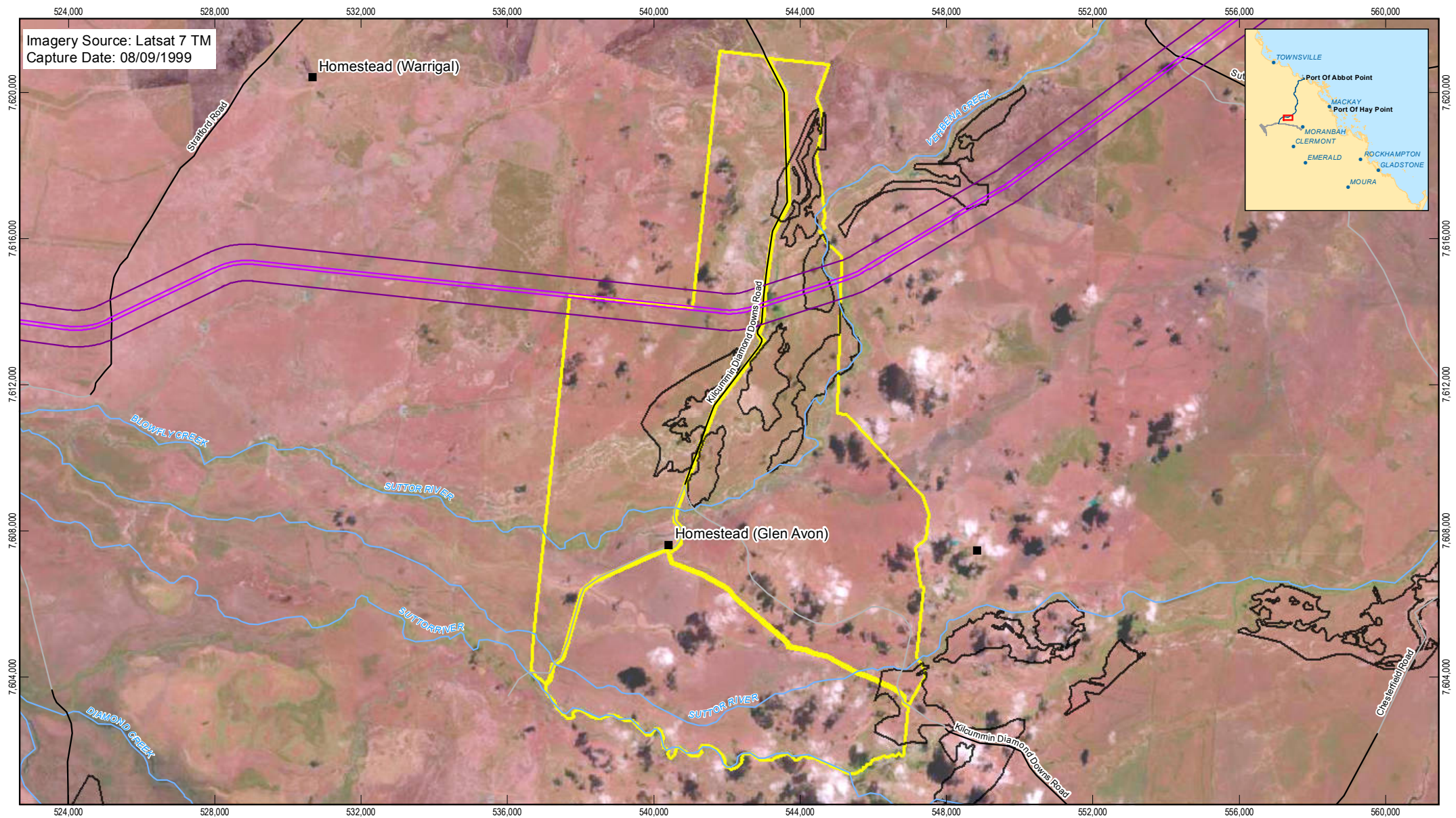
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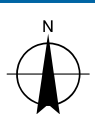
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Appendices

Appendix A – Strategic Cropping Land Assessment



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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



adani™

Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Glen Avon 1999**

Job Number 41-26457
Revision A
Date 26-08-2013

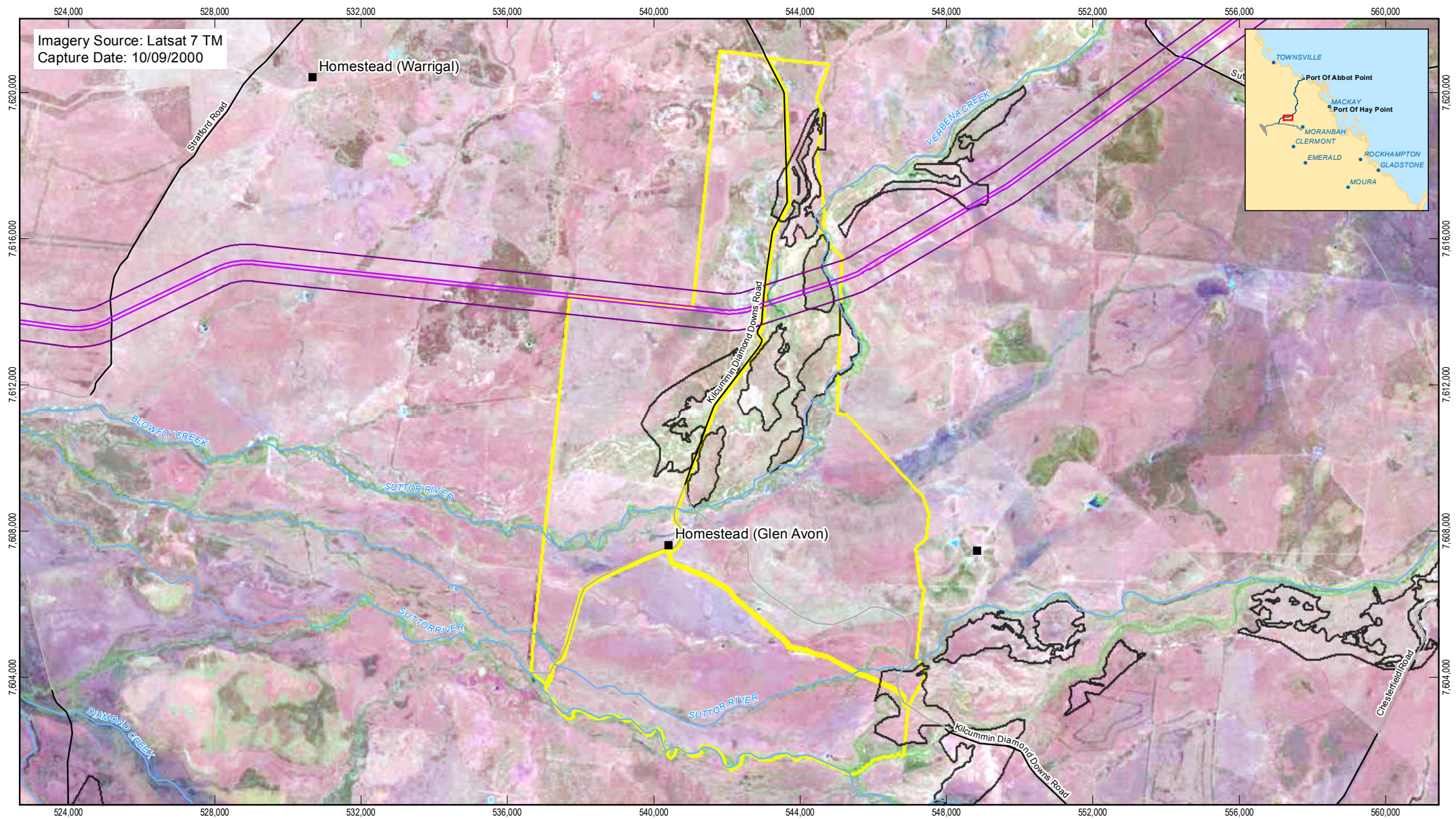
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/1999. Created by MS

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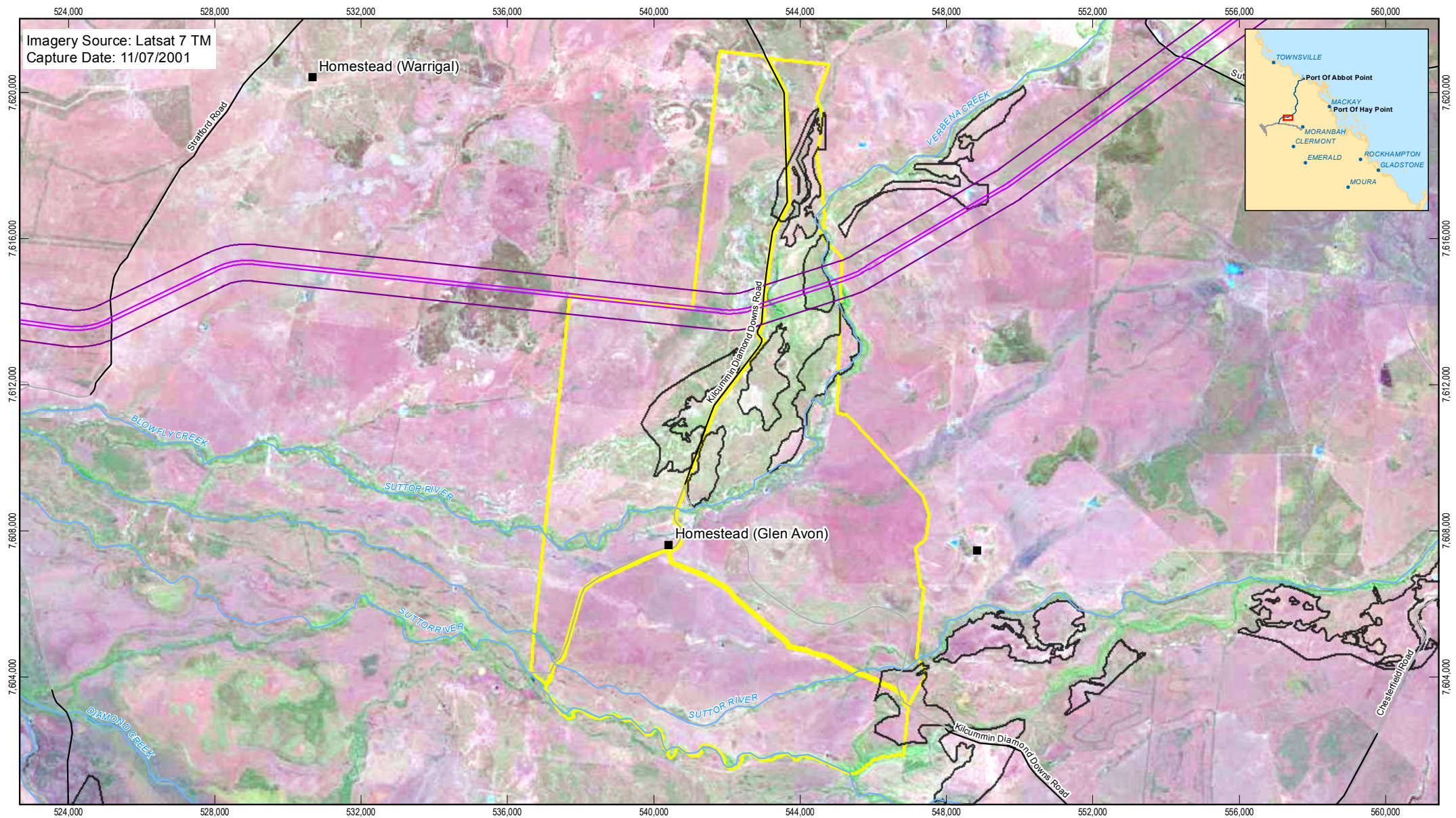
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2000. Created by MS

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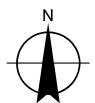


Imagery Source: Latsat 7 TM
Capture Date: 11/07/2001

Homestead (Warrigal)

Homestead (Glen Avon)

1:140,000 Paper Size A4
0 2 4
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Glen Avon 2001**

Job Number 41-26457
Revision A
Date 26-08-2013

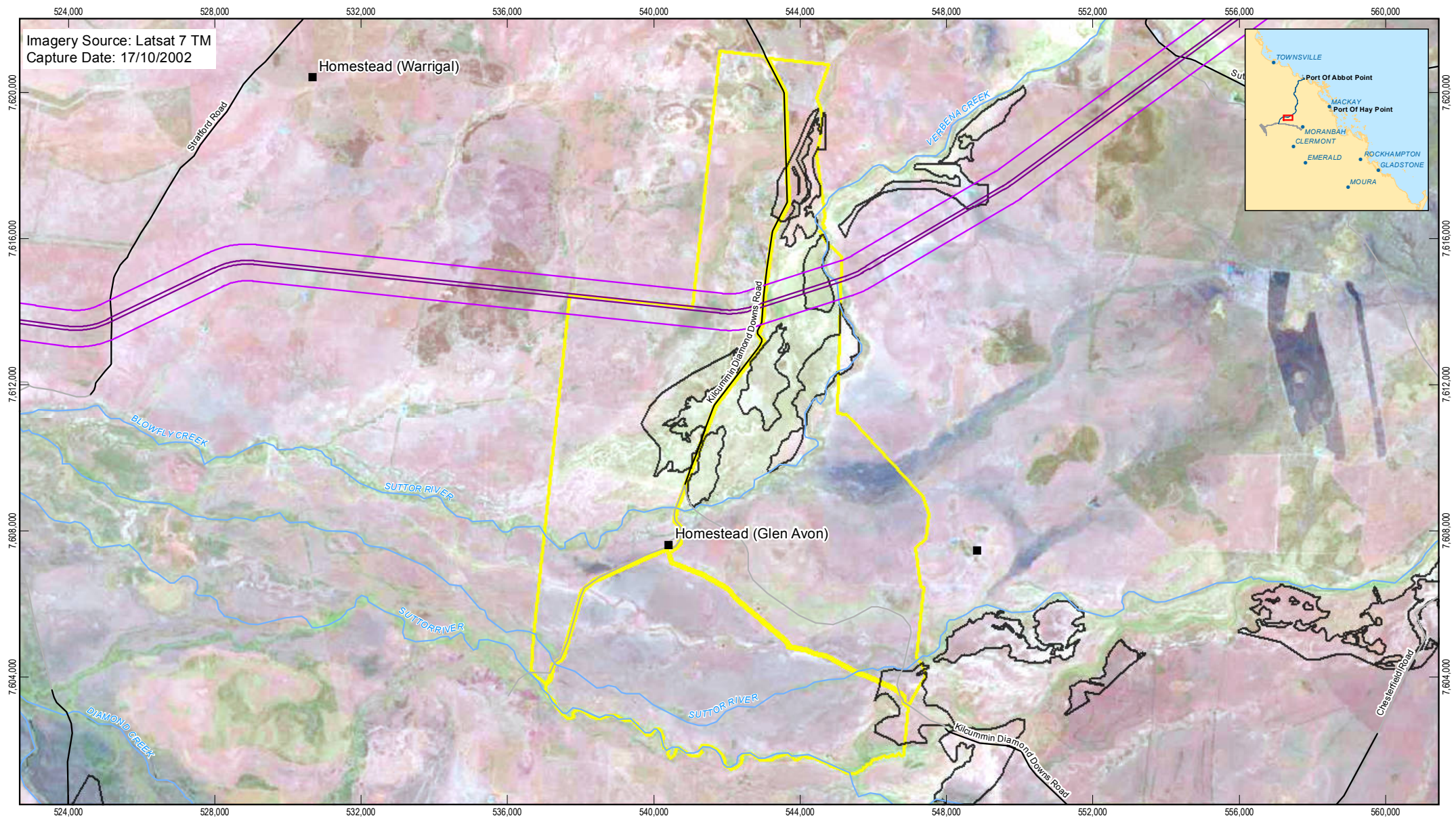
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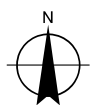
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1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road

— Watercourse (Major)
— Potential Strategic Cropping Land
— Property Boundary
— North Goonyella Basin Rail 1000m Corridor
— North Goonyella Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Glen Avon 2002**

Job Number 41-26457
Revision A
Date 26-08-2013

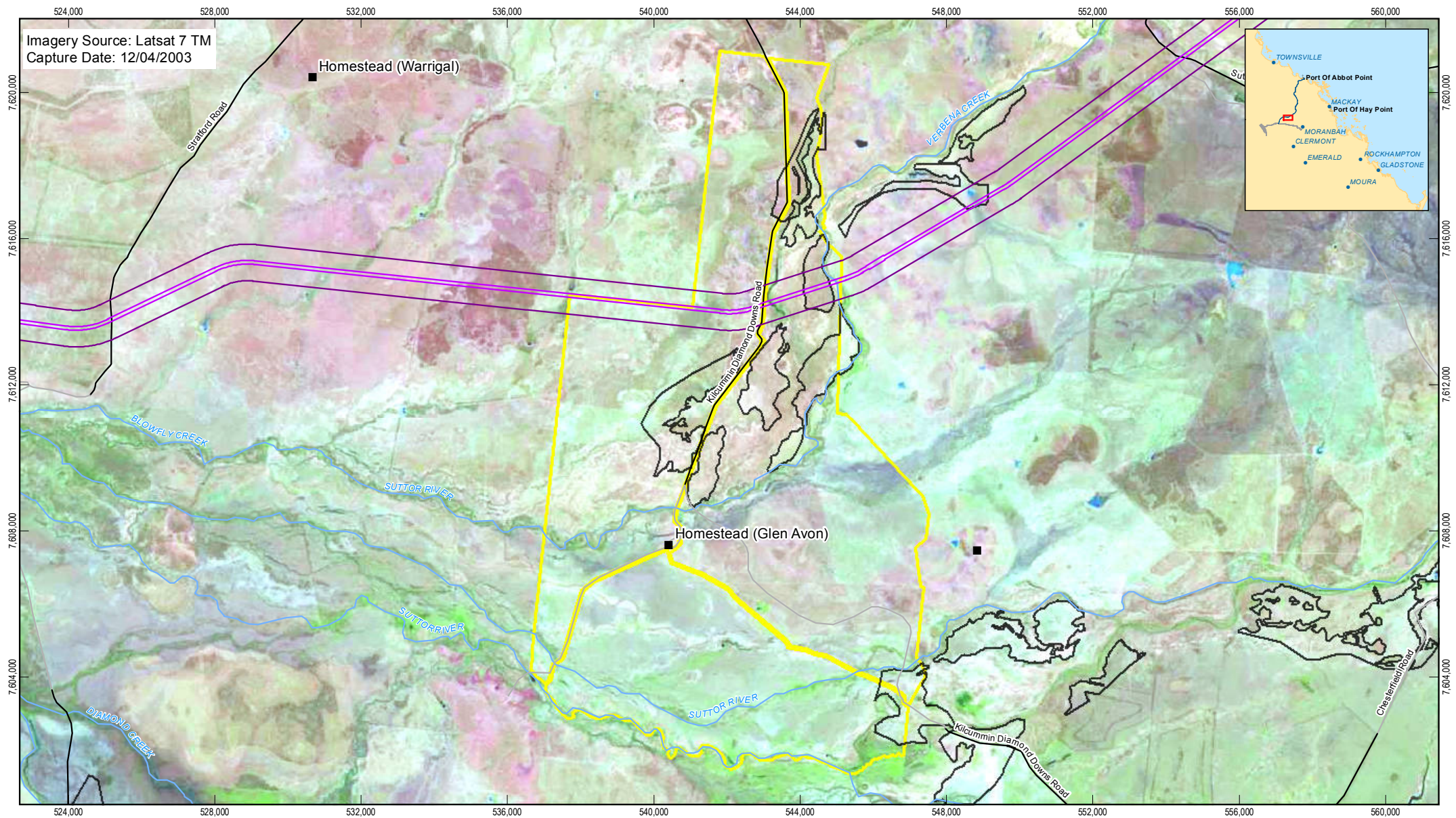
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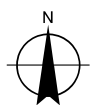
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Glen Avon 2003**

Job Number 41-26457
Revision A
Date 26-08-2013

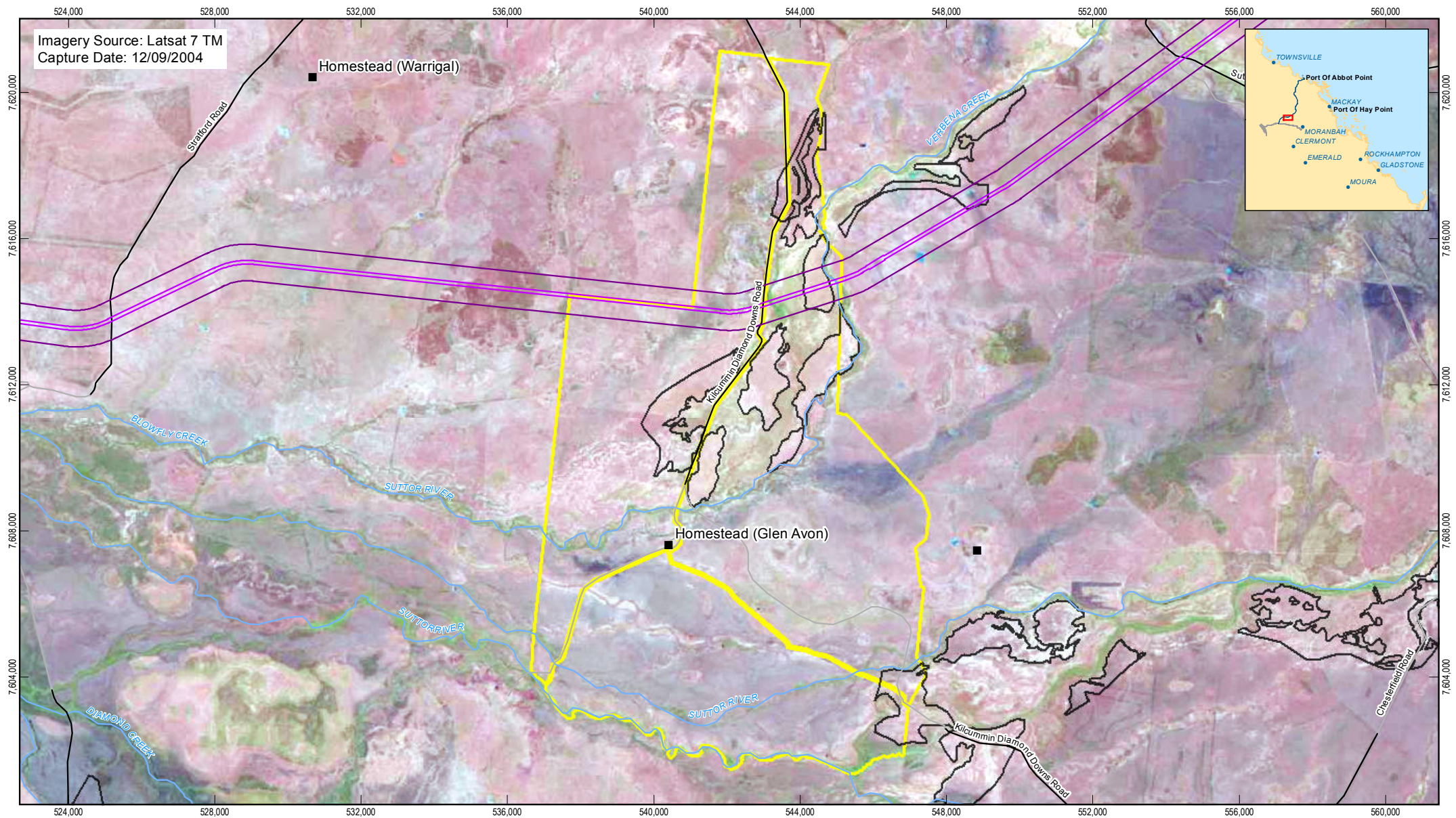
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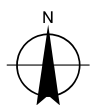


Imagery Source: Latsat 7 TM
Capture Date: 12/09/2004

Homestead (Warrigal)

Homestead (Glen Avon)

1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Glen Avon 2004**

Job Number 41-26457
Revision A
Date 26-08-2013

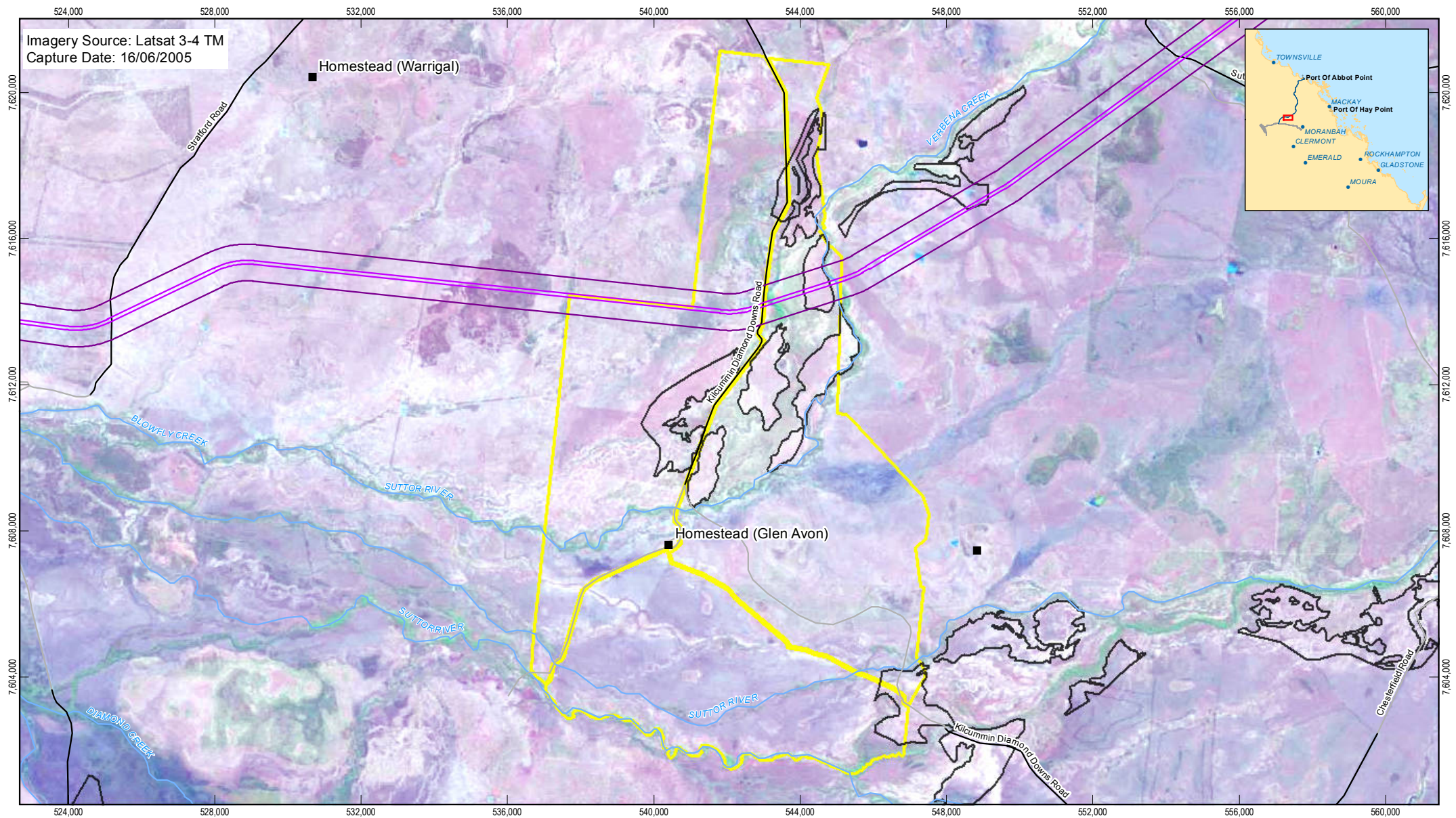
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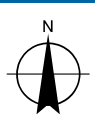


Imagery Source: Latsat 3-4 TM
Capture Date: 16/06/2005

Homestead (Warrigal)

Homestead (Glen Avon)

1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Assessment - Glen Avon 2005**

Job Number 41-26457
Revision A
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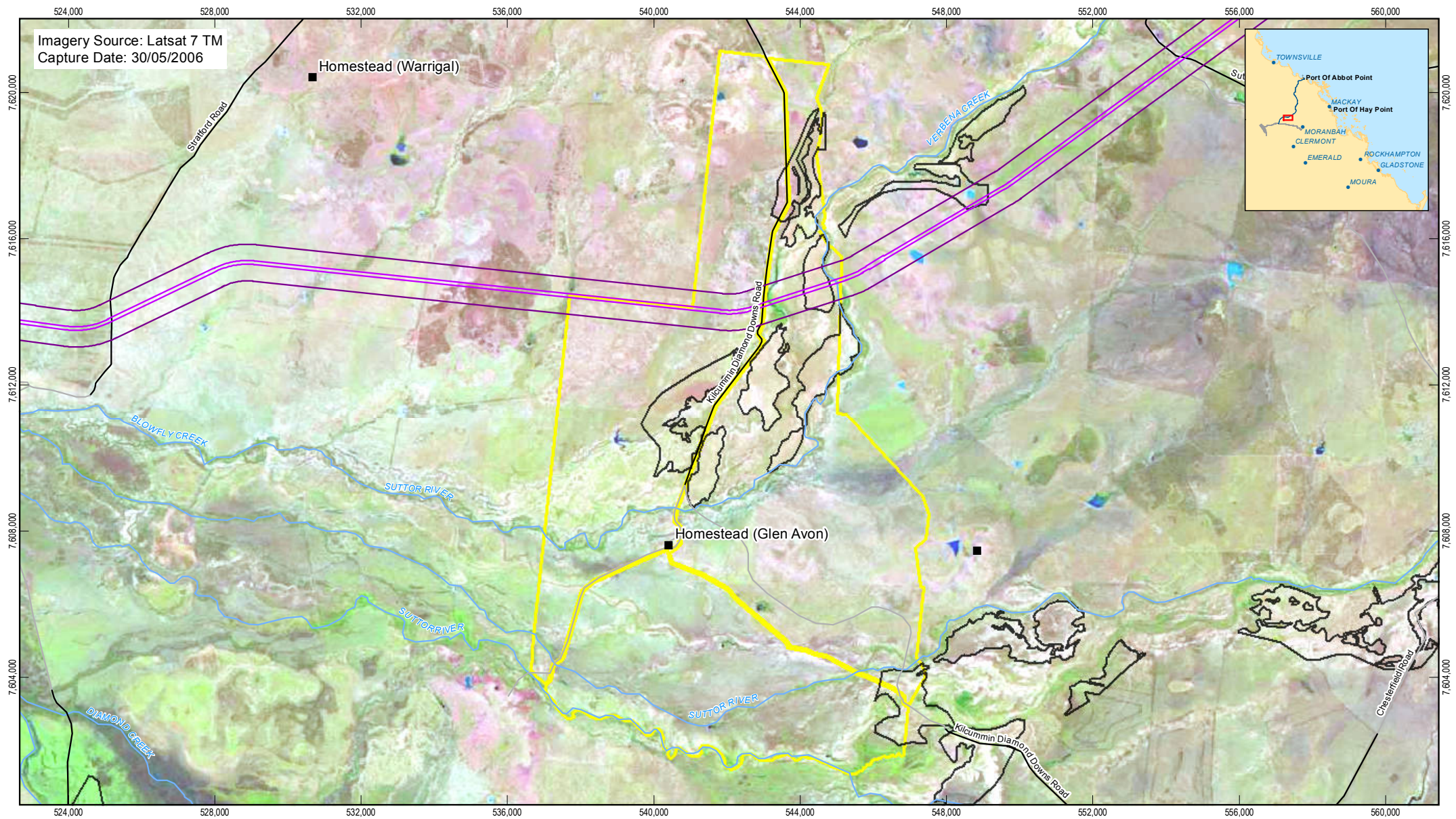
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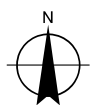
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Glen Avon 2006**

Job Number 41-26457
Revision A
Date 26-08-2013

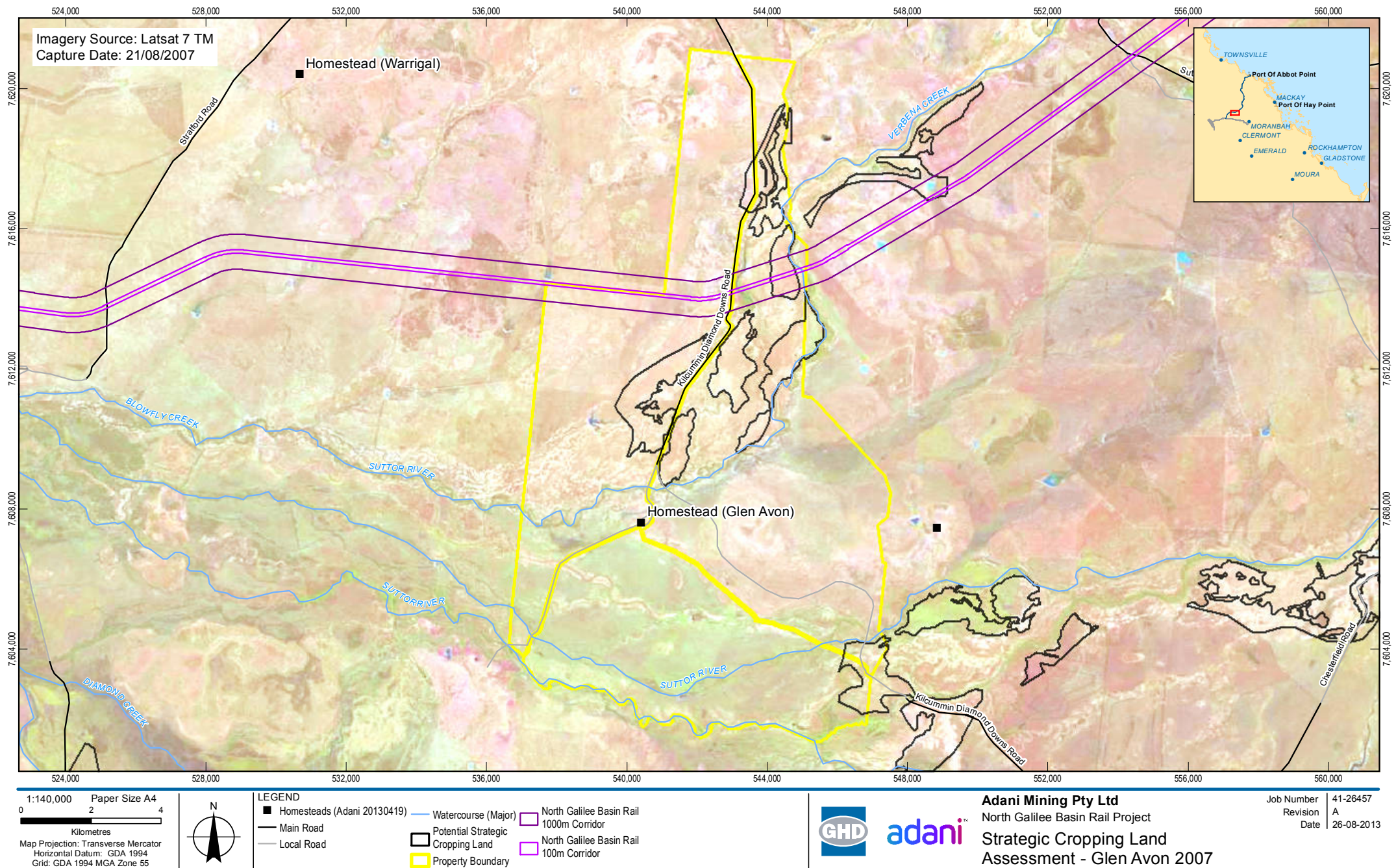
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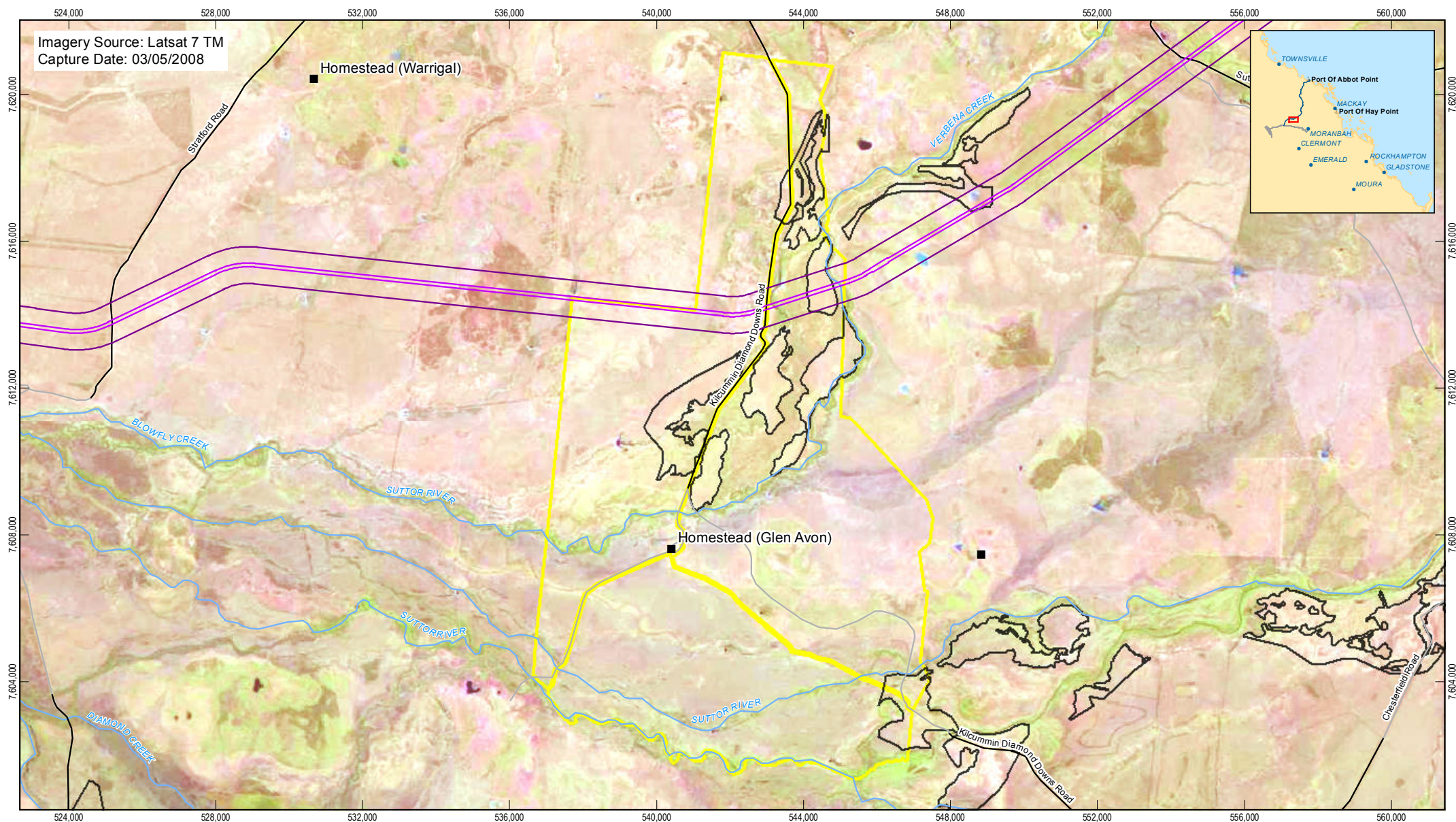
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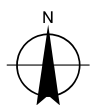


Imagery Source: Latsat 7 TM
Capture Date: 03/05/2008

Homestead (Warrigal)

Homestead (Glen Avon)

1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Glen Avon 2008**

Job Number 41-26457
Revision A
Date 26-08-2013

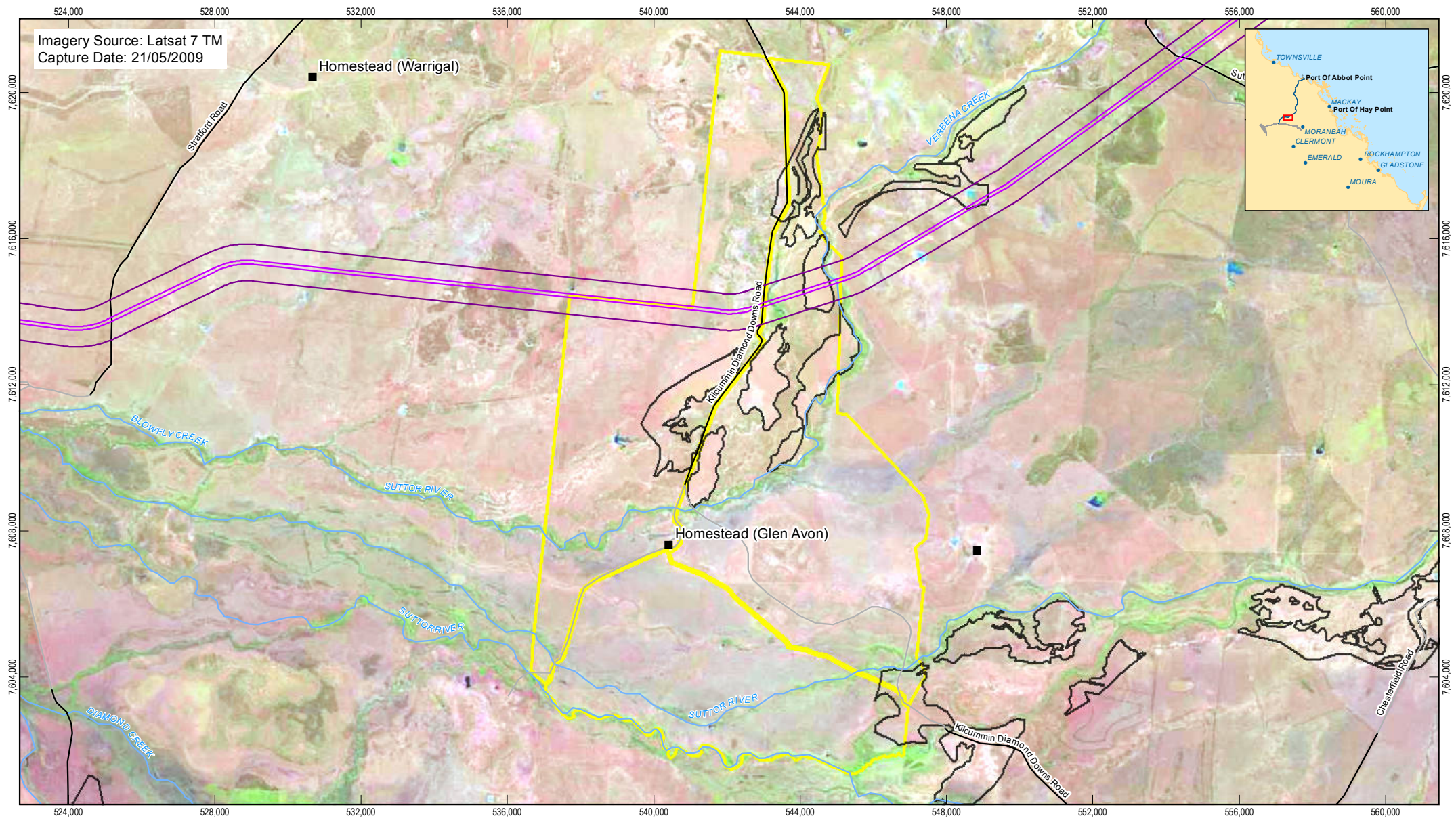
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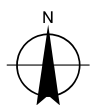


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Homestead (Warrigal)

Homestead (Glen Avon)

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Glen Avon 2009**

Job Number 41-26457
Revision A
Date 26-08-2013

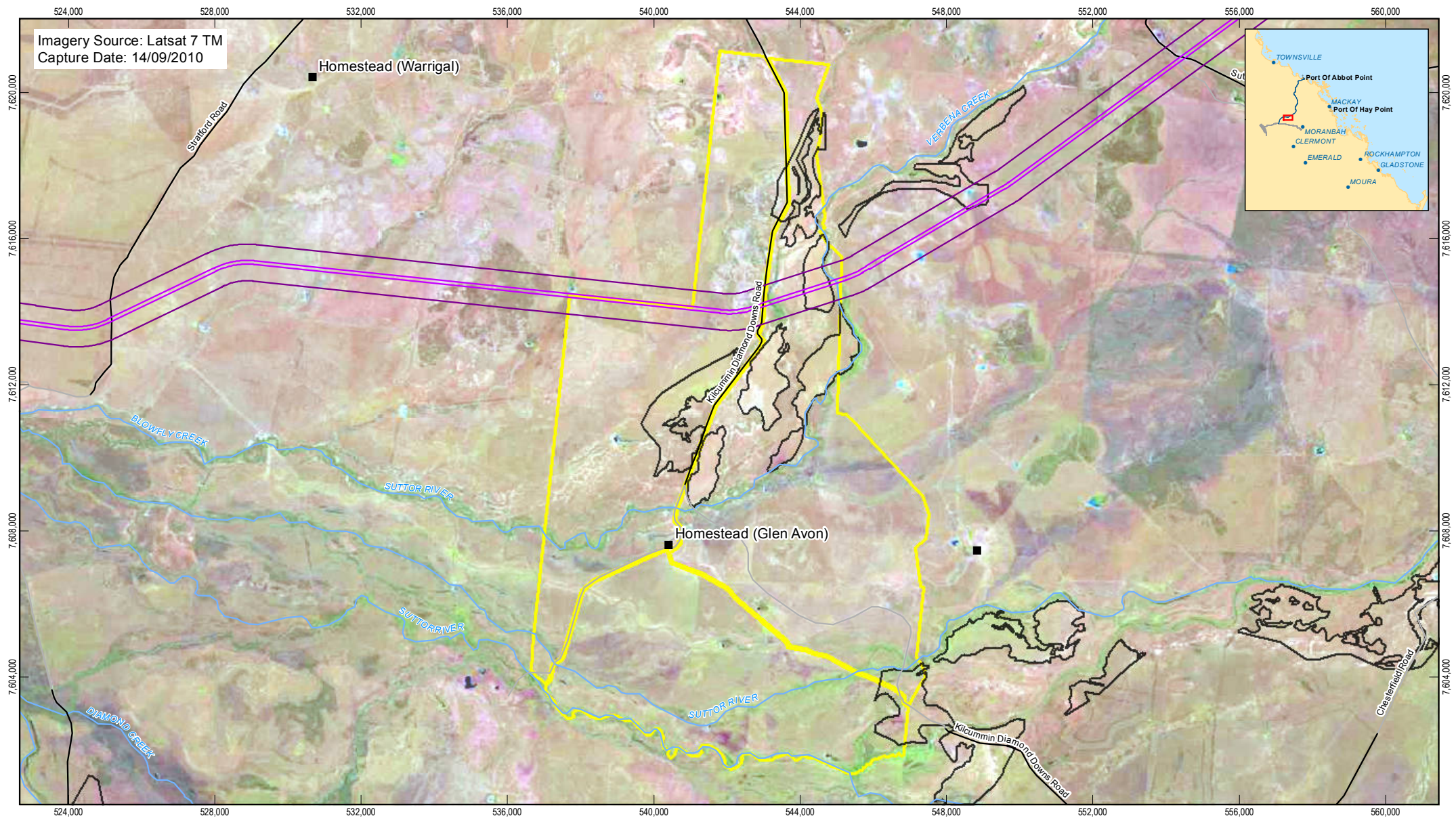
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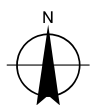


Imagery Source: Latsat 7 TM
Capture Date: 14/09/2010

Homestead (Warrigal)

Homestead (Glen Avon)

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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road

— Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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 North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Glen Avon 2010

Job Number 41-26457
 Revision A
 Date 26-08-2013

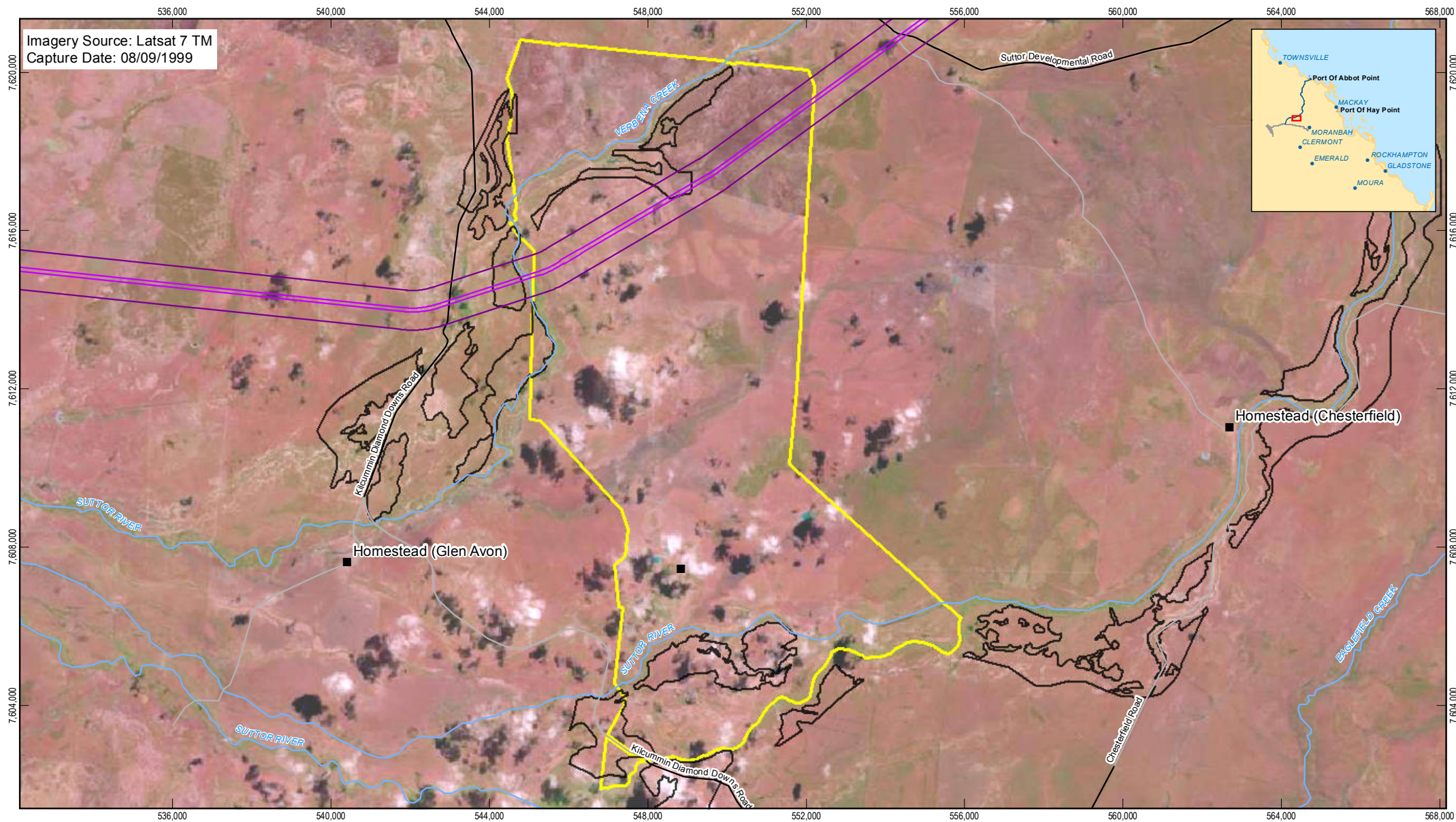
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2010. Created by MS

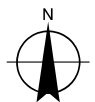
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Capture Date: 08/09/1999

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Cantaur Park 1999

Job Number 41-26457
Revision A
Date 26-08-2013

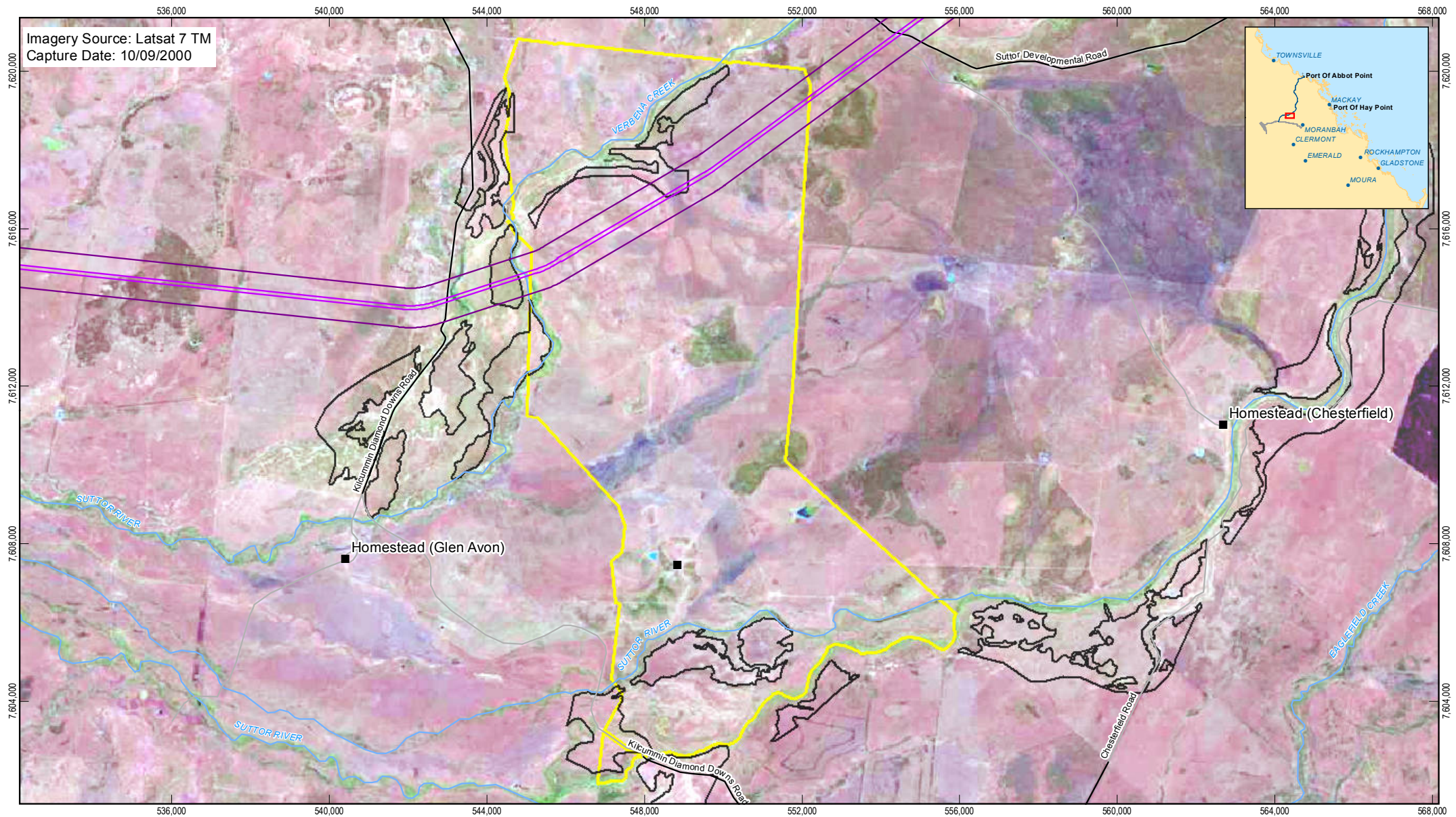
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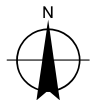
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/1999. Created by MS

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road

- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary

- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Cantaur Park 2000**

Job Number 41-26457
Revision A
Date 26-08-2013

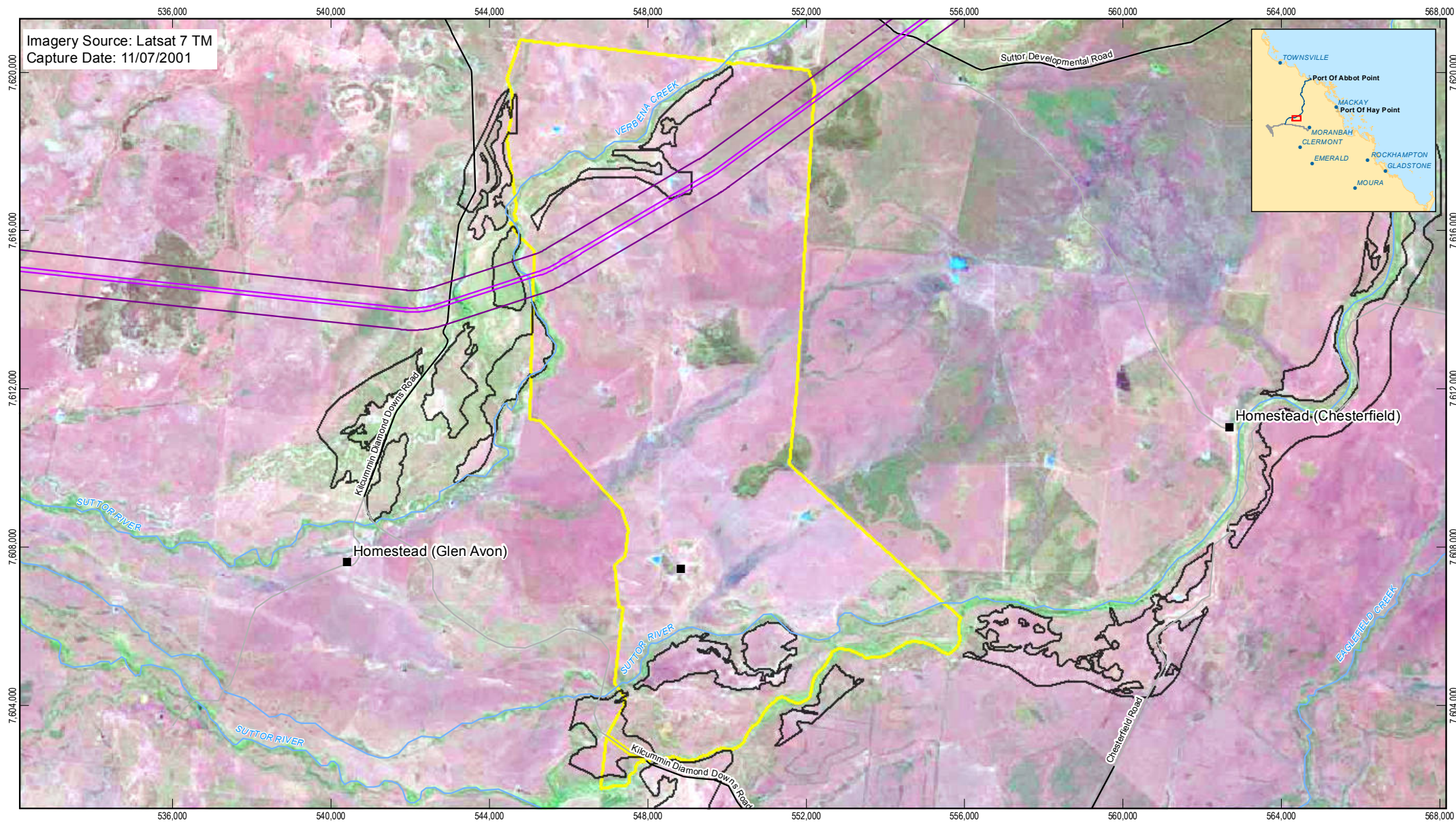
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2000. Created by MS

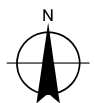
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Capture Date: 11/07/2001

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Strategic Cropping Land
Assessment - Cantaur Park 2001

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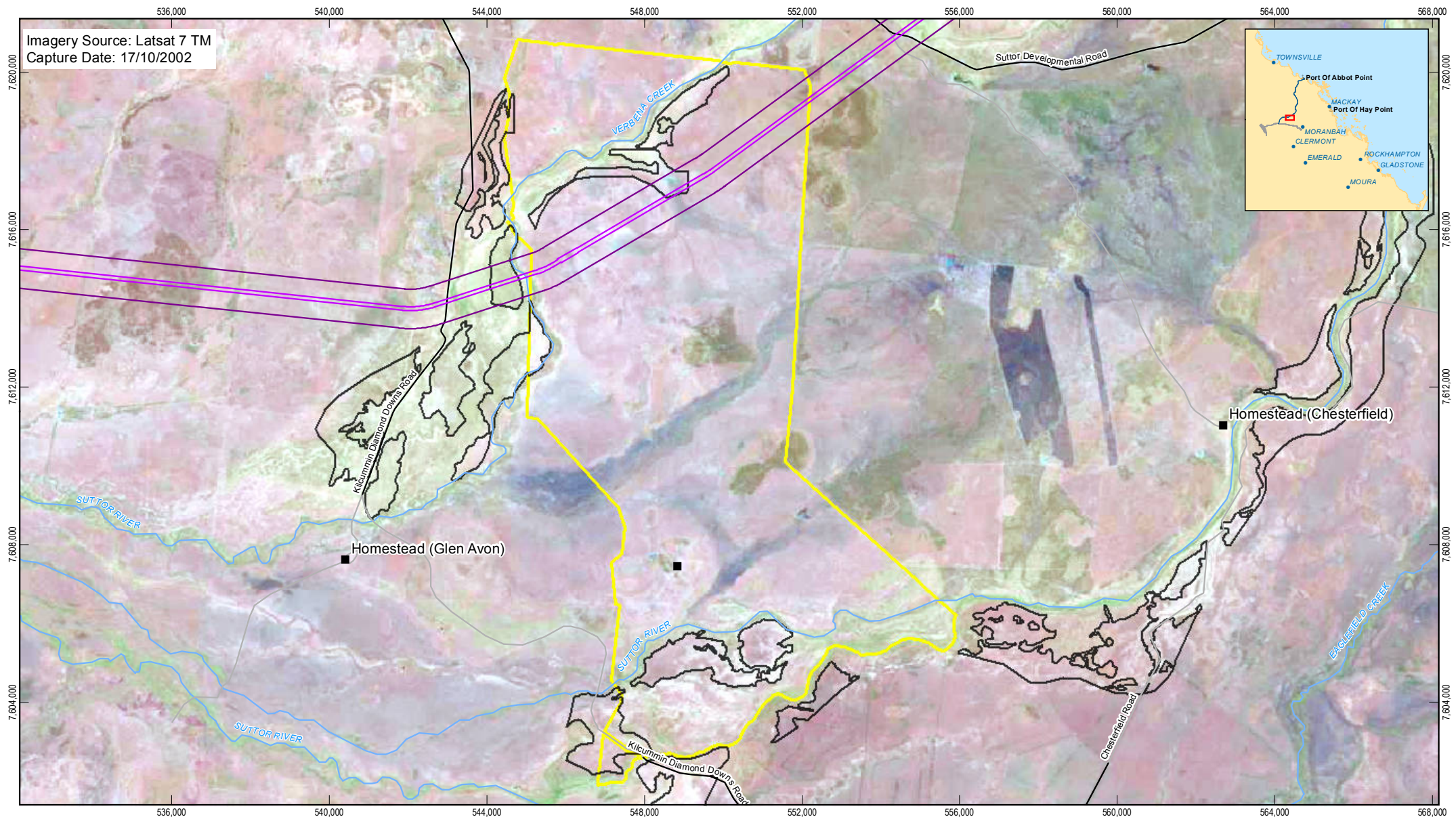
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012;

USGS: LatSat Imagery/2001. Created by MS

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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Strategic Cropping Land
Assessment - Cantaur Park 2002

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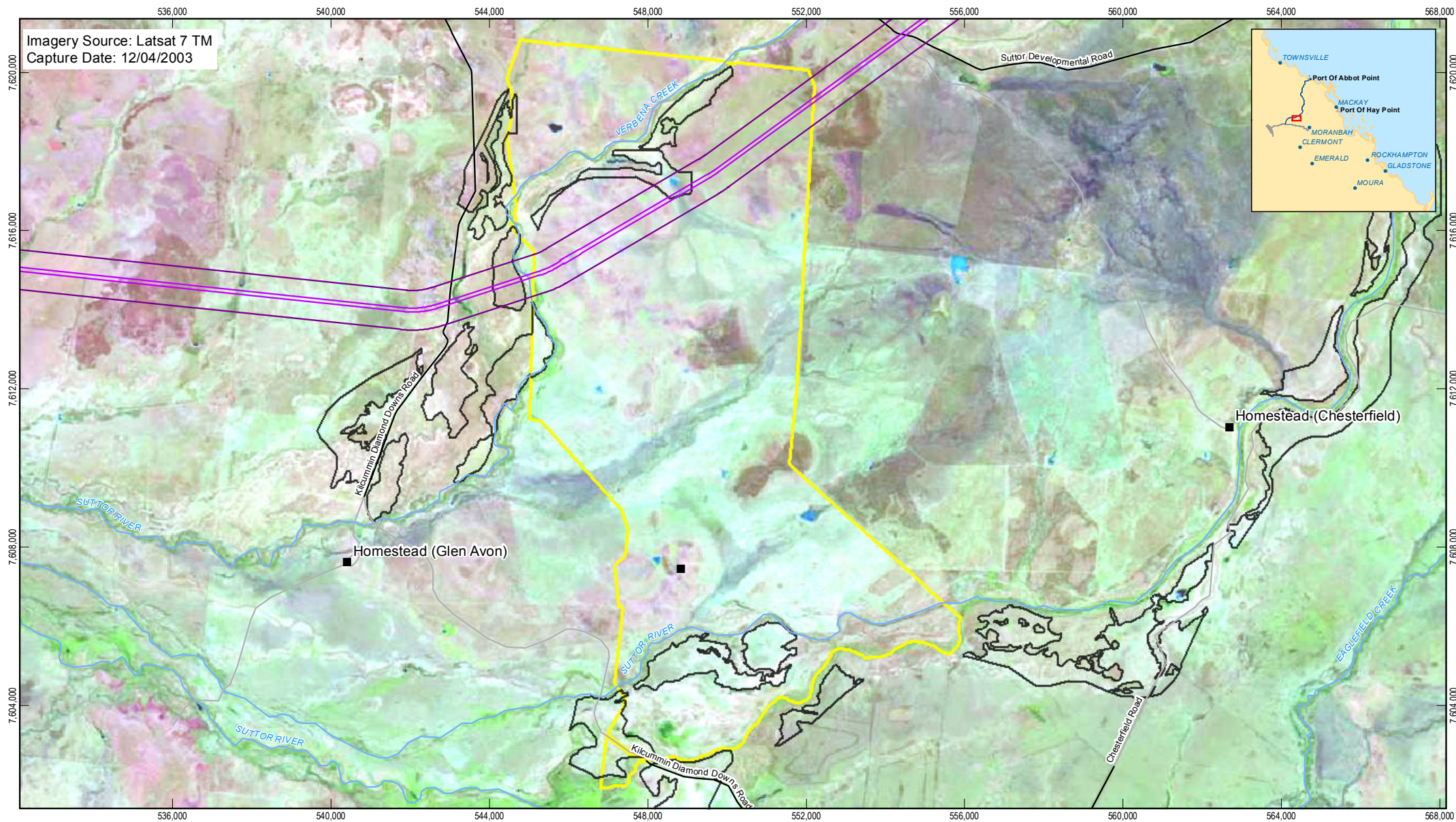
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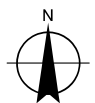
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LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Cantaur Park 2003**

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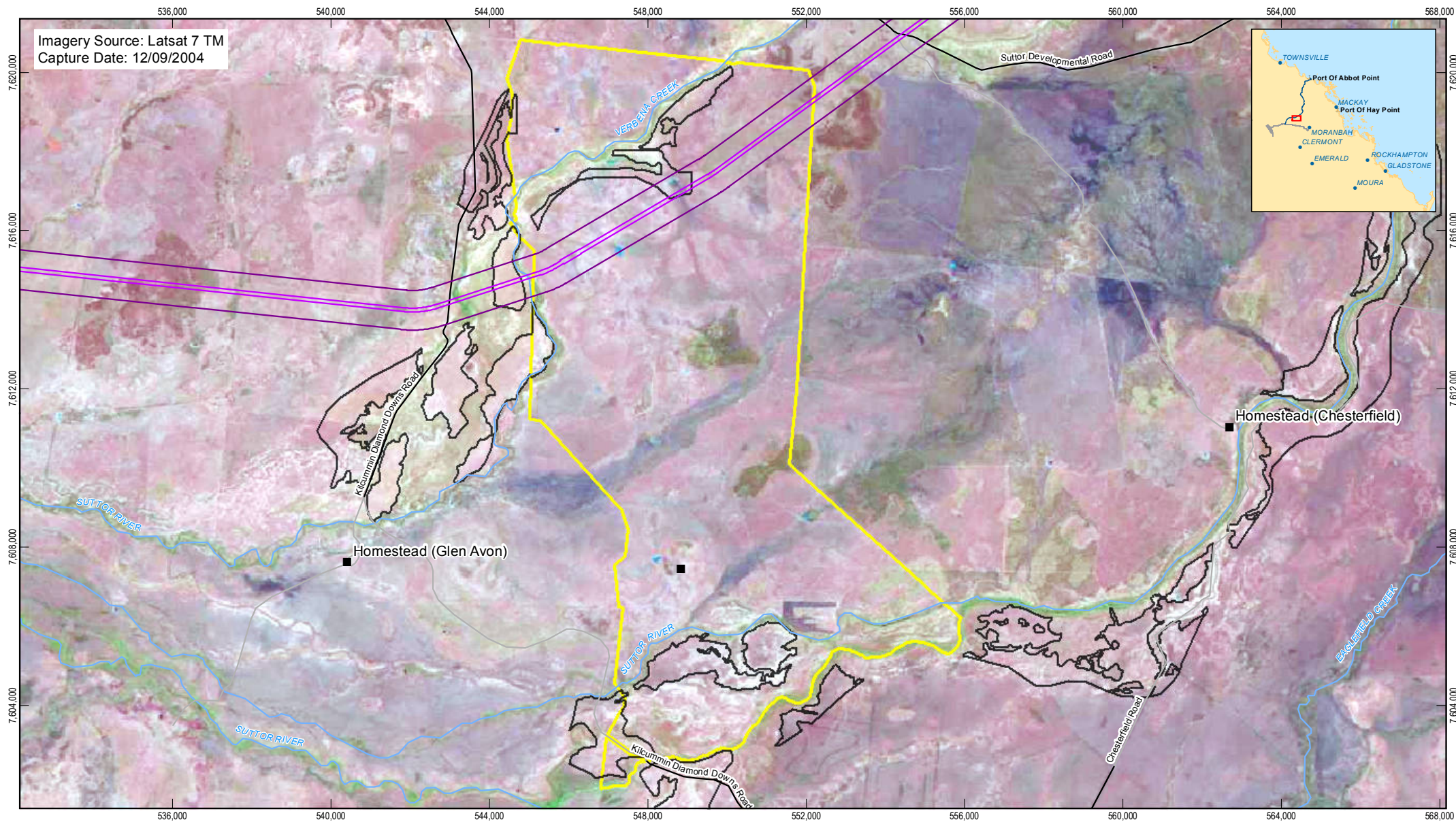
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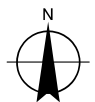
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Map Projection: Transverse Mercator
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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Cantaur Park 2004**

Job Number 41-26457
Revision A
Date 26-08-2013

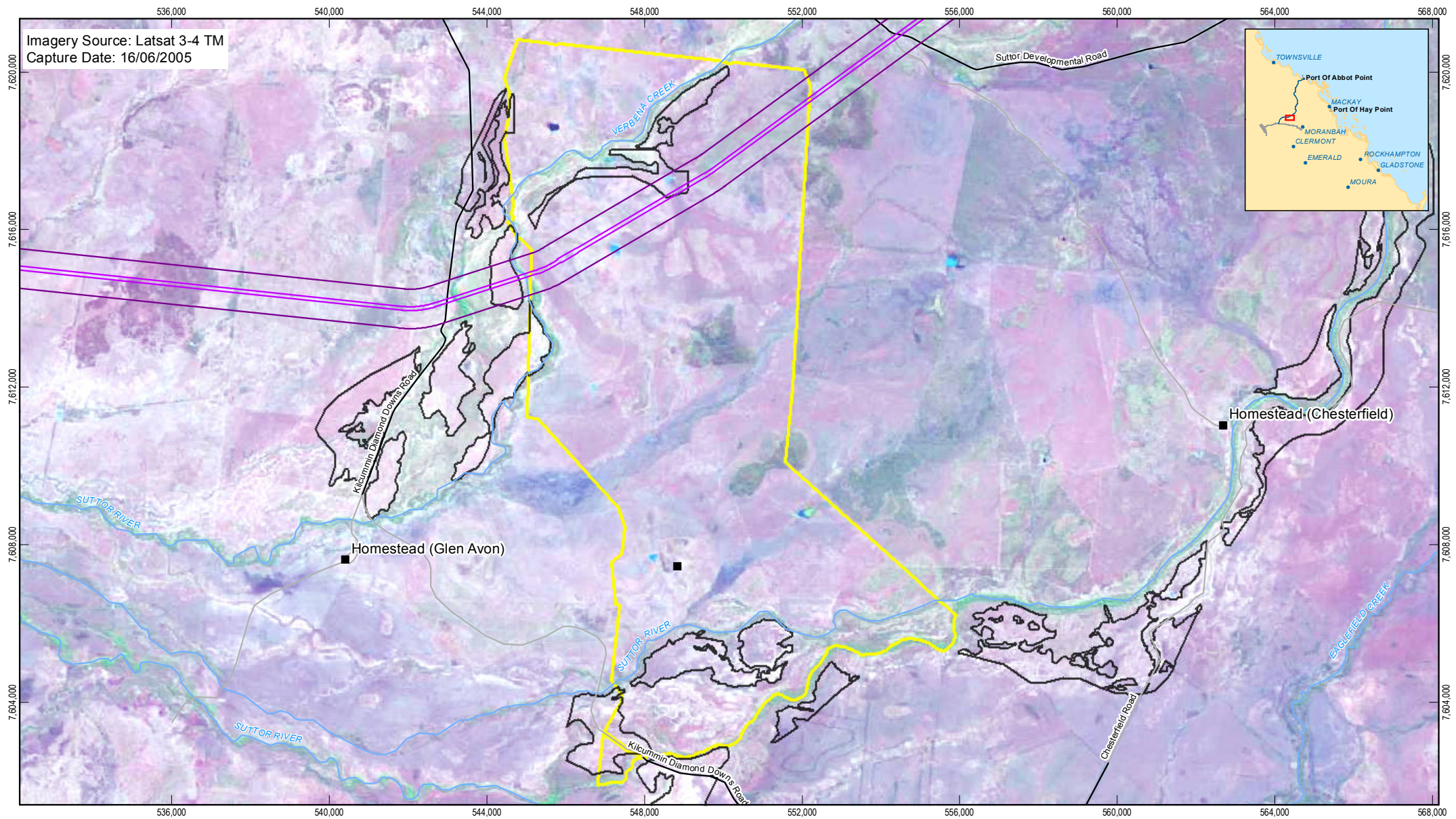
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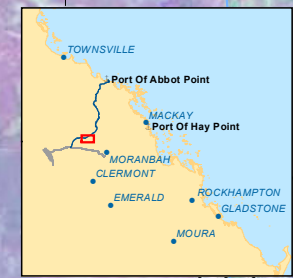
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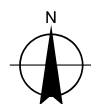
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Capture Date: 16/06/2005



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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Watercourse (Major)
 — Potential Strategic Cropping Land
 ■ Property Boundary
 ■ North Galilee Basin Rail 1000m Corridor
 ■ North Galilee Basin Rail 100m Corridor



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 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Cantaur Park 2005

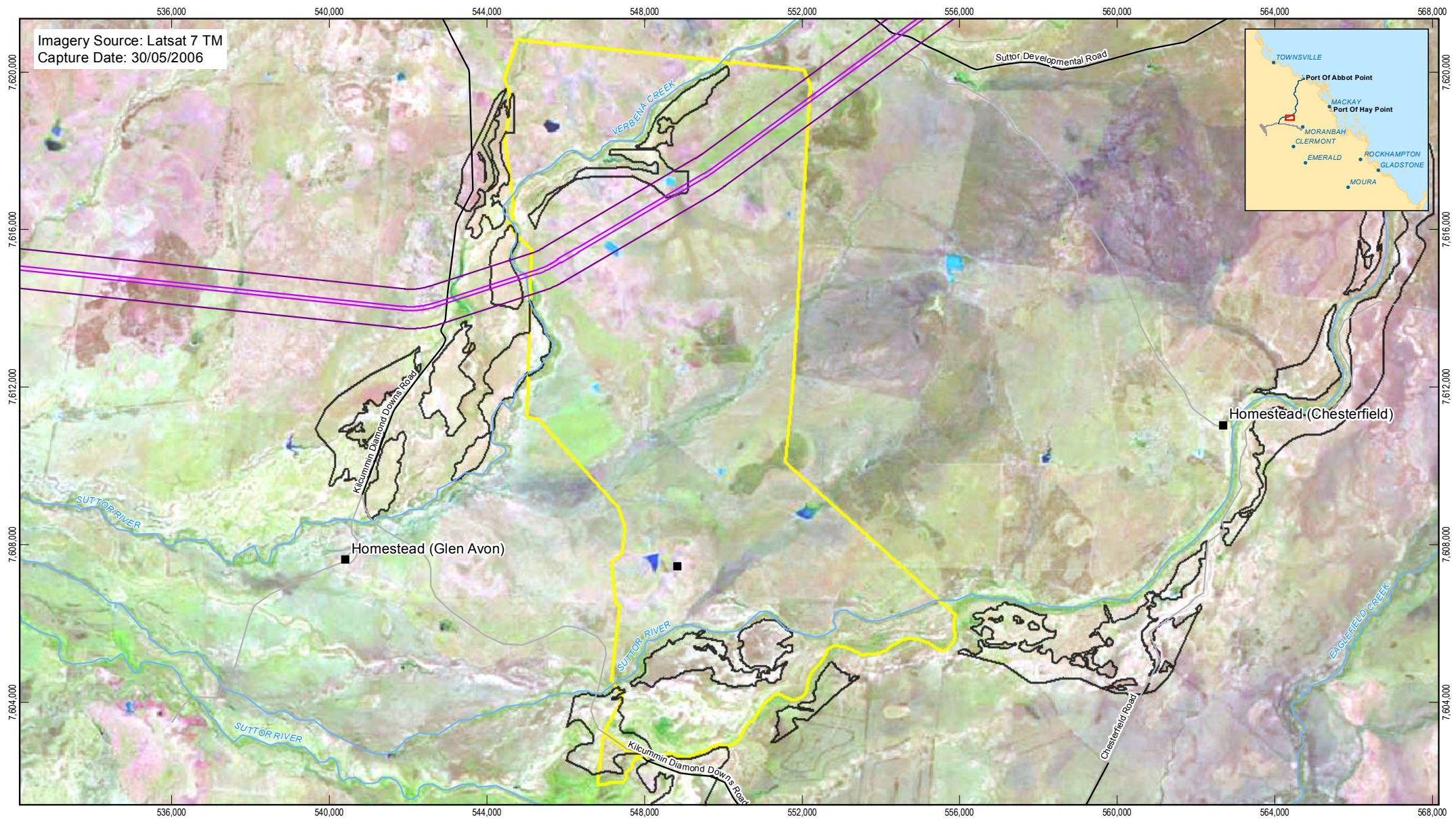
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Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)
— Main Road
— Local Road

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Cantaur Park 2006

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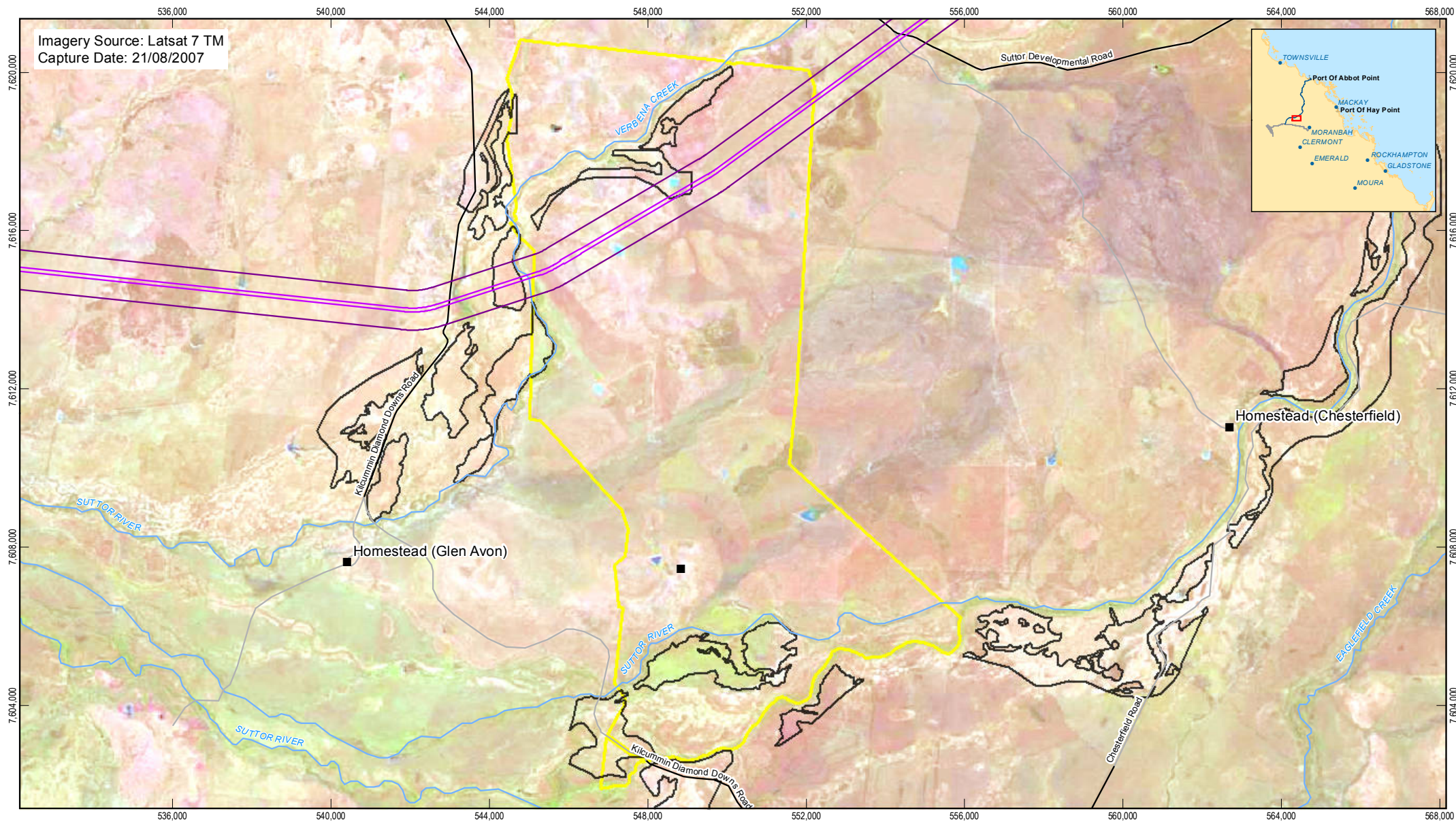
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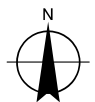
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)
— Main Road
— Local Road

□ Potential Strategic Cropping Land
□ Property Boundary

— Watercourse (Major)
□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Cantaur Park 2007

Job Number 41-26457
Revision A
Date 26-08-2013

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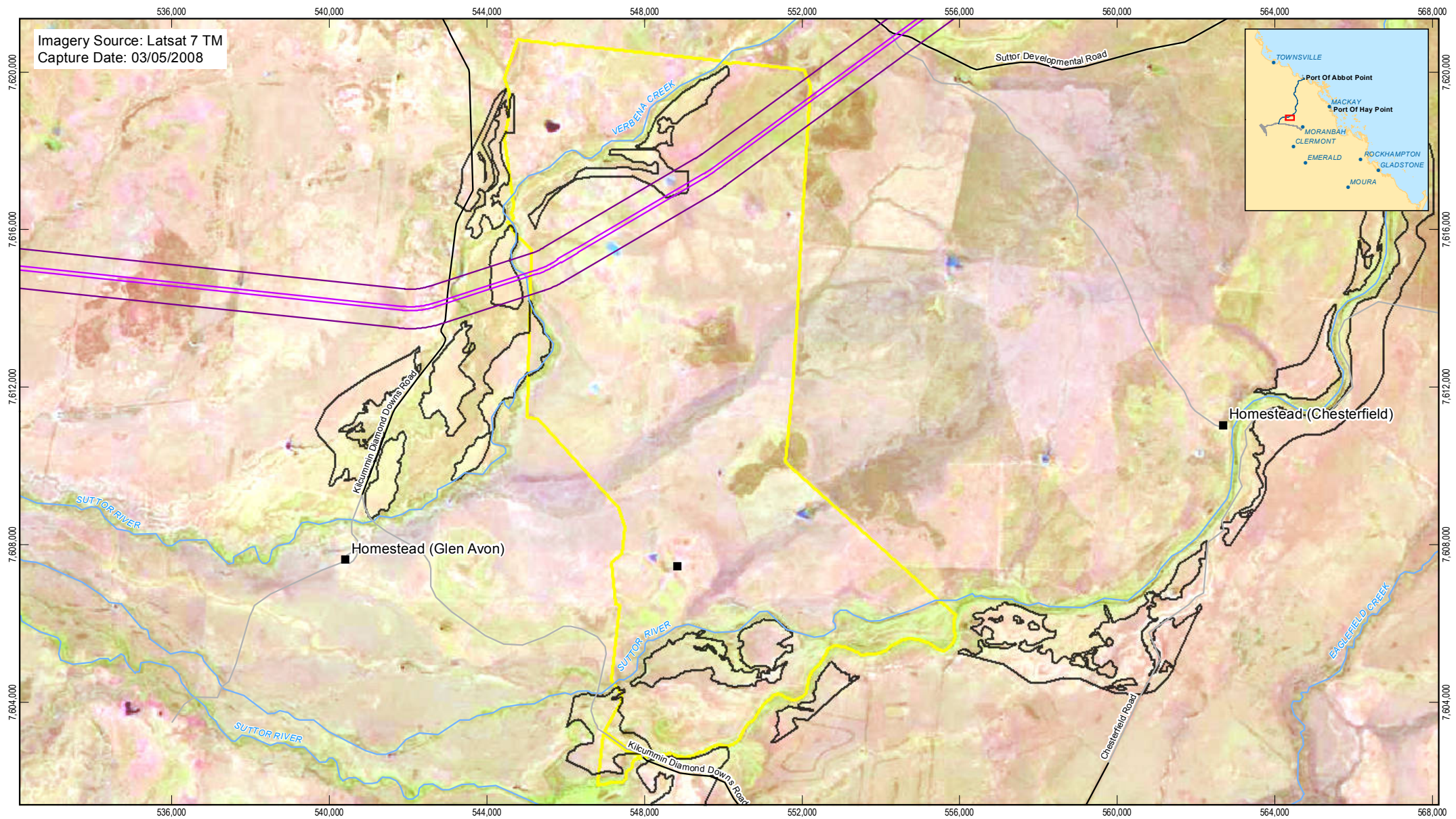
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Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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 North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Cantaur Park 2008

Job Number 41-26457
 Revision A
 Date 26-08-2013

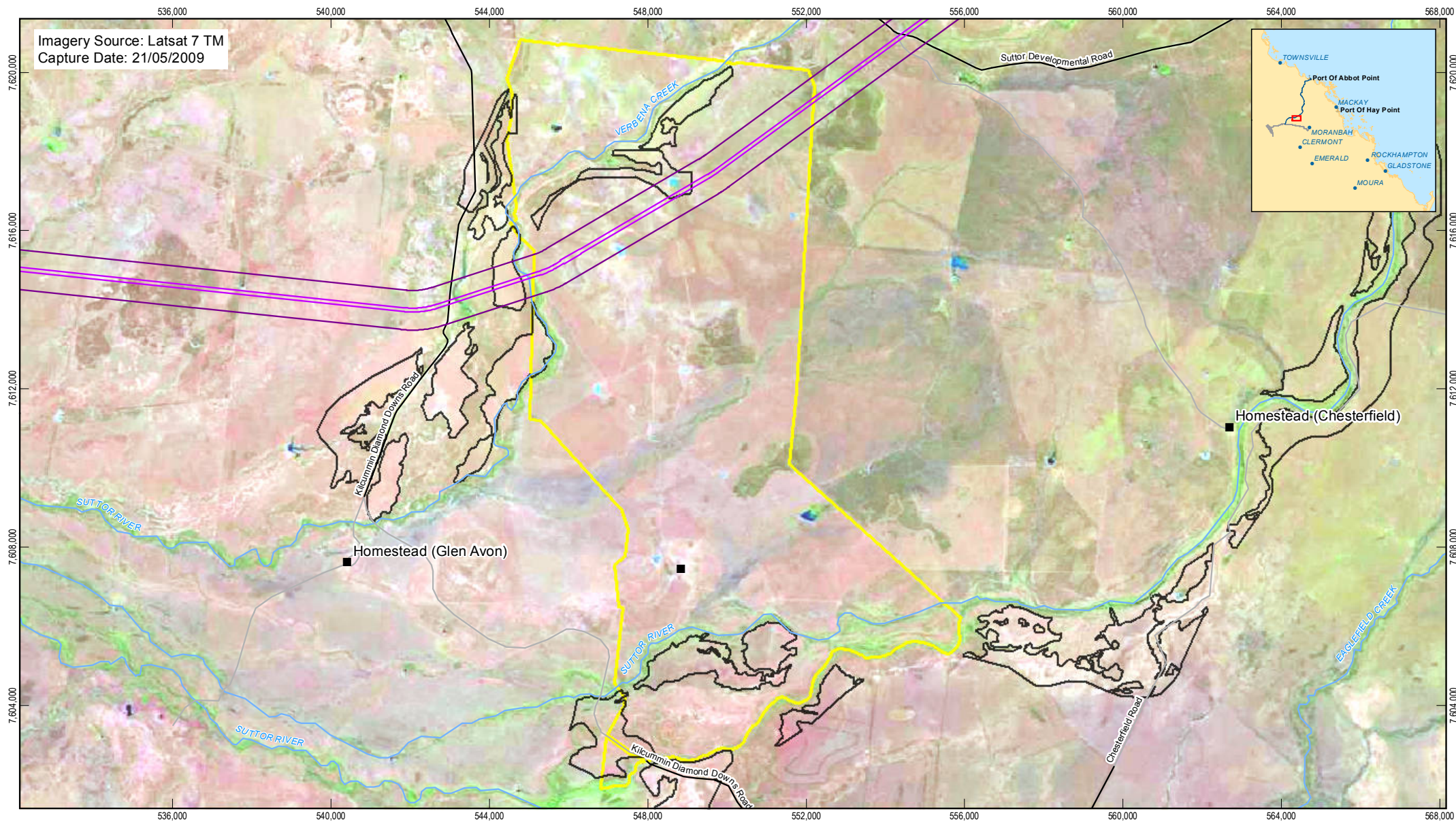
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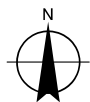
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- Watercourse (Major)
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Cantaur Park 2009**

Job Number 41-26457
Revision A
Date 26-08-2013

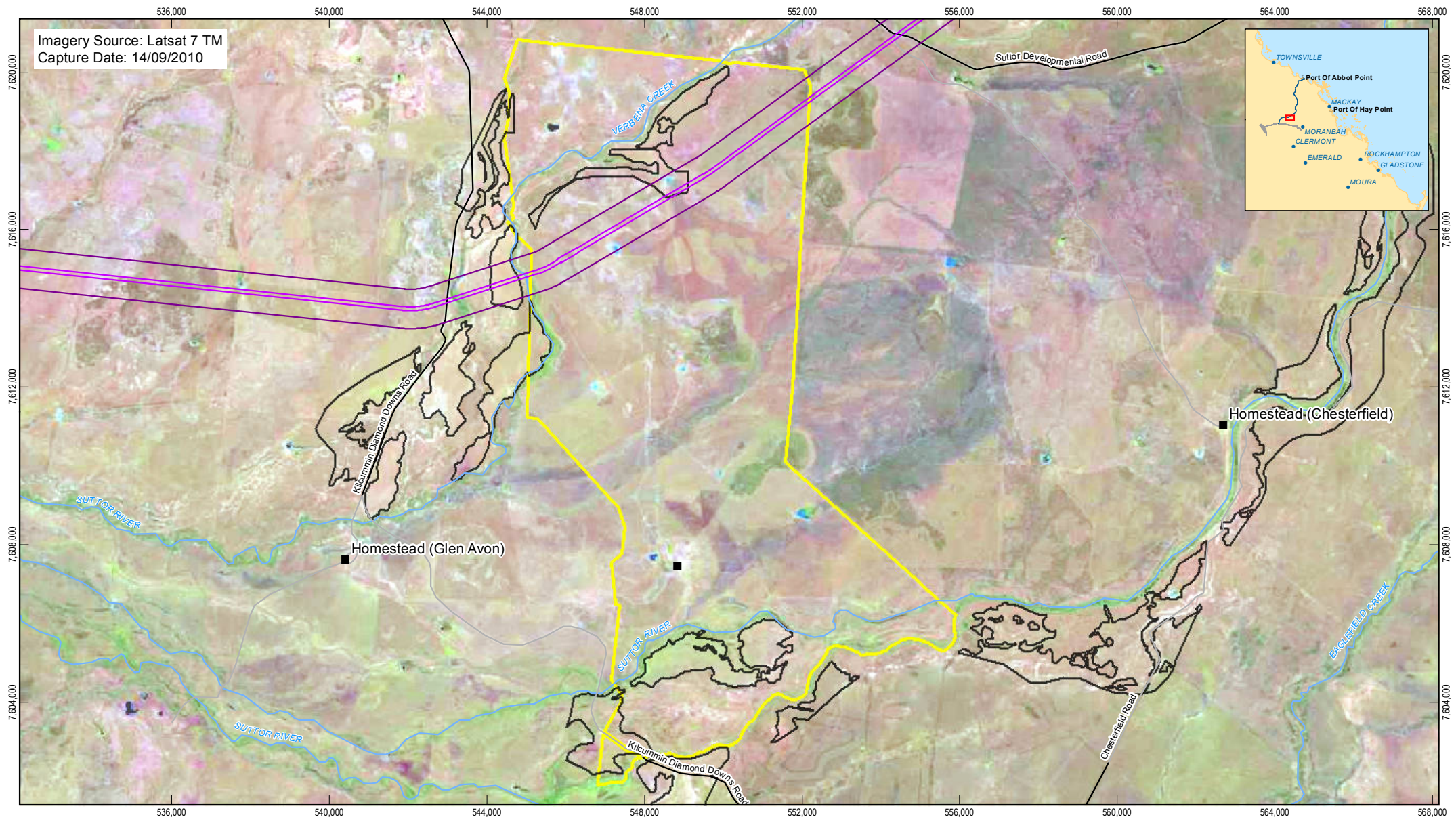
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2009. Created by MS

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Imagery Source: Latsat 7 TM
Capture Date: 14/09/2010



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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Watercourse (Major)
 — Potential Strategic Cropping Land
 — Property Boundary
 — North Galilee Basin Rail 1000m Corridor
 — North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Cantaur Park 2010

Job Number 41-26457
Revision A
Date 26-08-2013

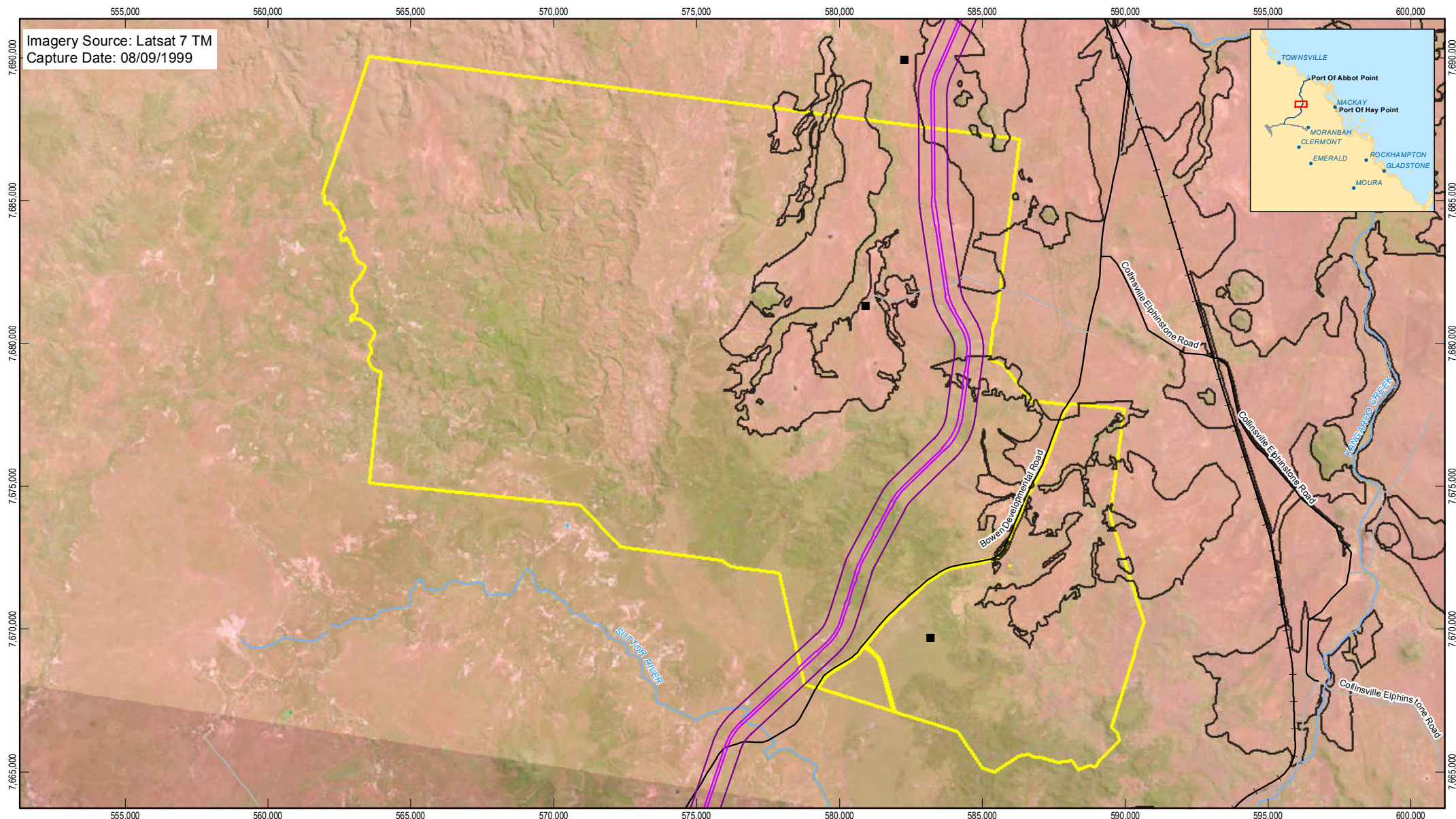
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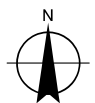
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway
— Watercourse (Major)
□ Potential Strategic Cropping Land
■ Property Boundary
■ North Galilee Basin Rail 1000m Corridor
■ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Fig Tree 1999**

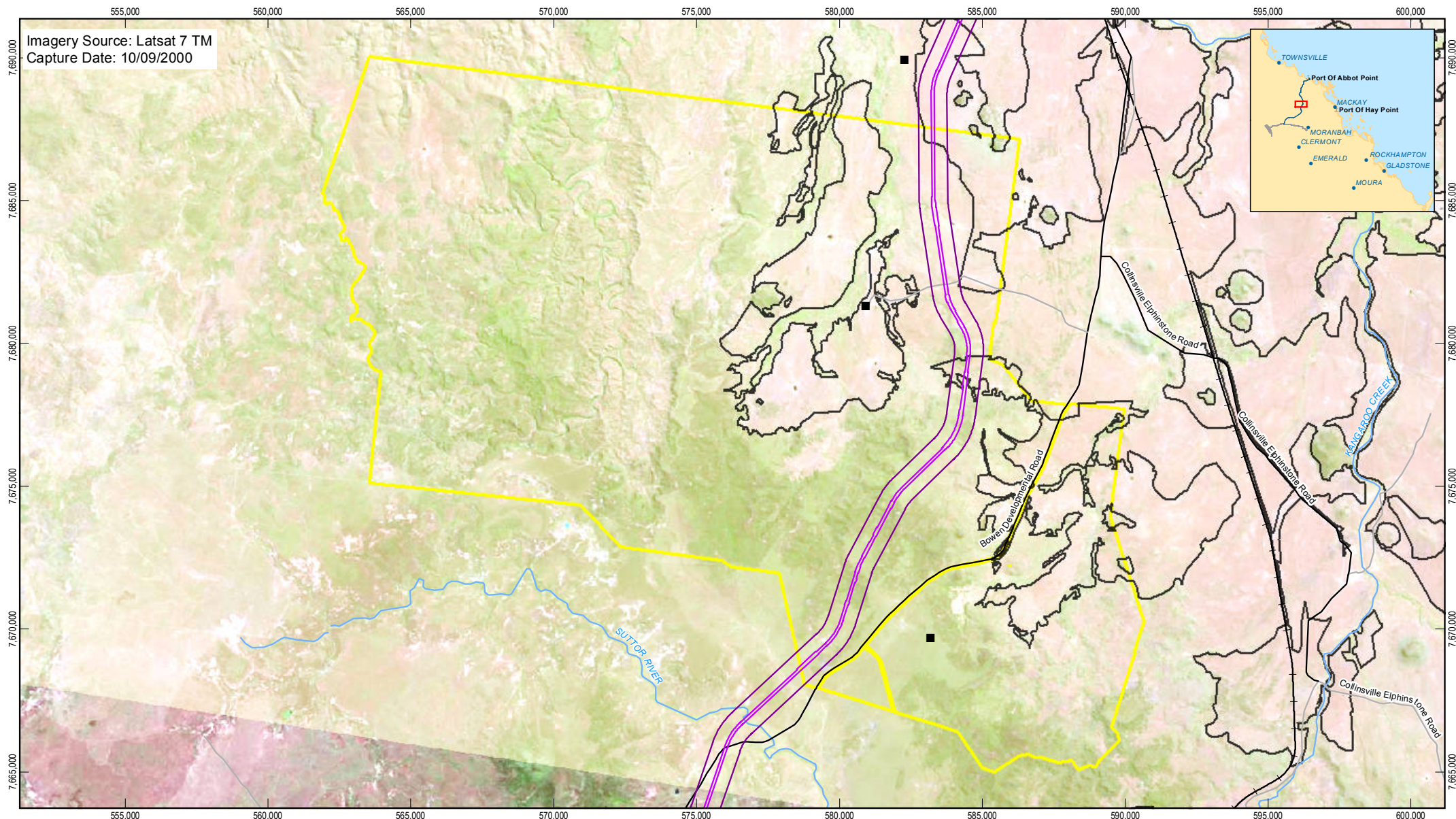
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Revision A
Date 26-08-2013

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNR/GHD: Property Boundary/2013; DNR: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/1999. Created by MS

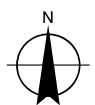
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Imagery Source: Latsat 7 TM
Capture Date: 10/09/2000



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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Fig Tree 2000**

Job Number 41-26457
Revision A
Date 26-08-2013

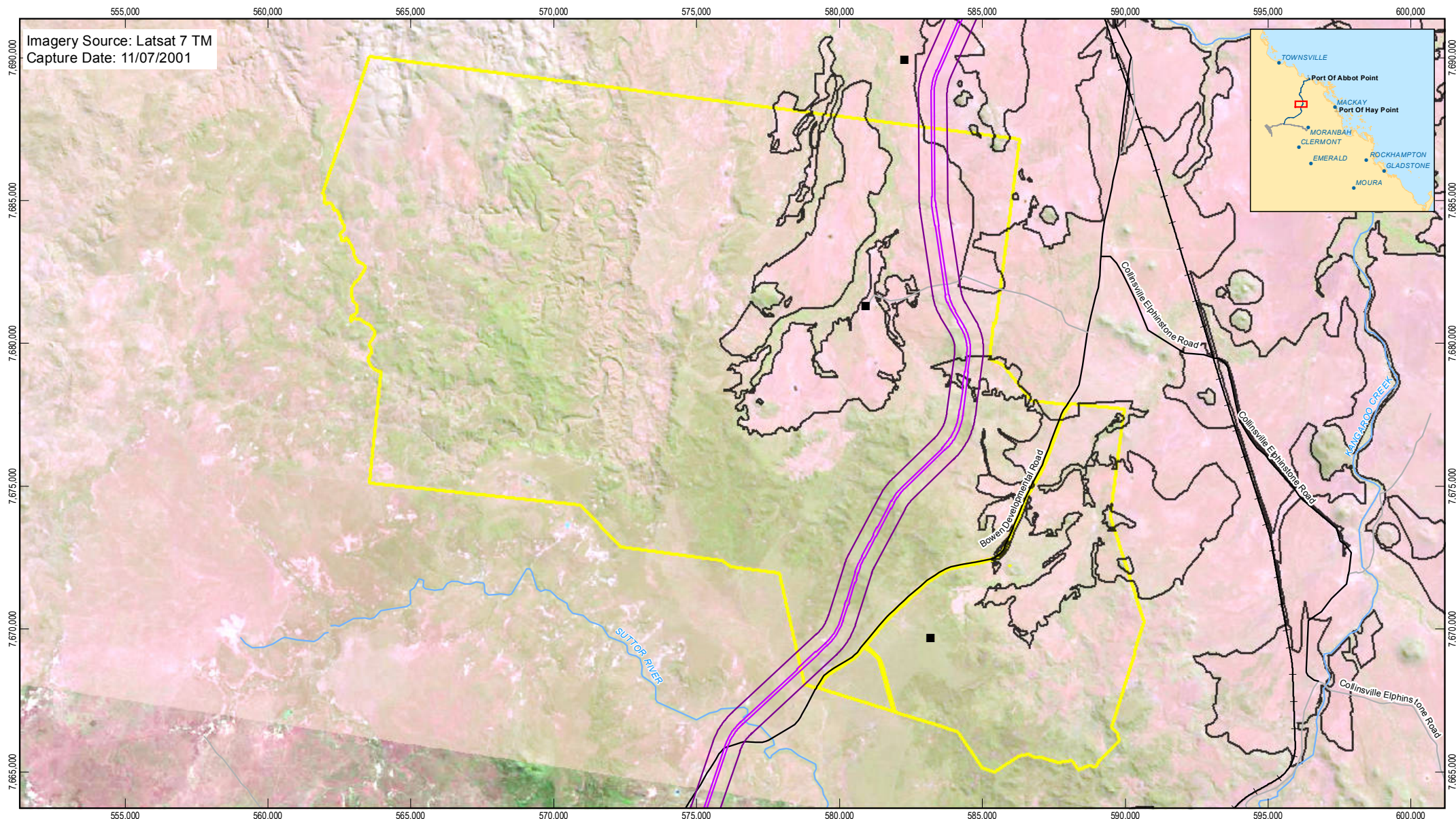
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2000. Created by MS.

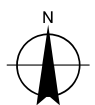
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Capture Date: 11/07/2001

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



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major)
 — Main Road — Potential Strategic Cropping Land
 — Local Road — North Galilee Basin Rail 1000m Corridor
 — Railway — North Galilee Basin Rail 100m Corridor
 ■ Property Boundary



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Strategic Cropping Land
Assessment - Fig Tree 2001

Job Number 41-26457
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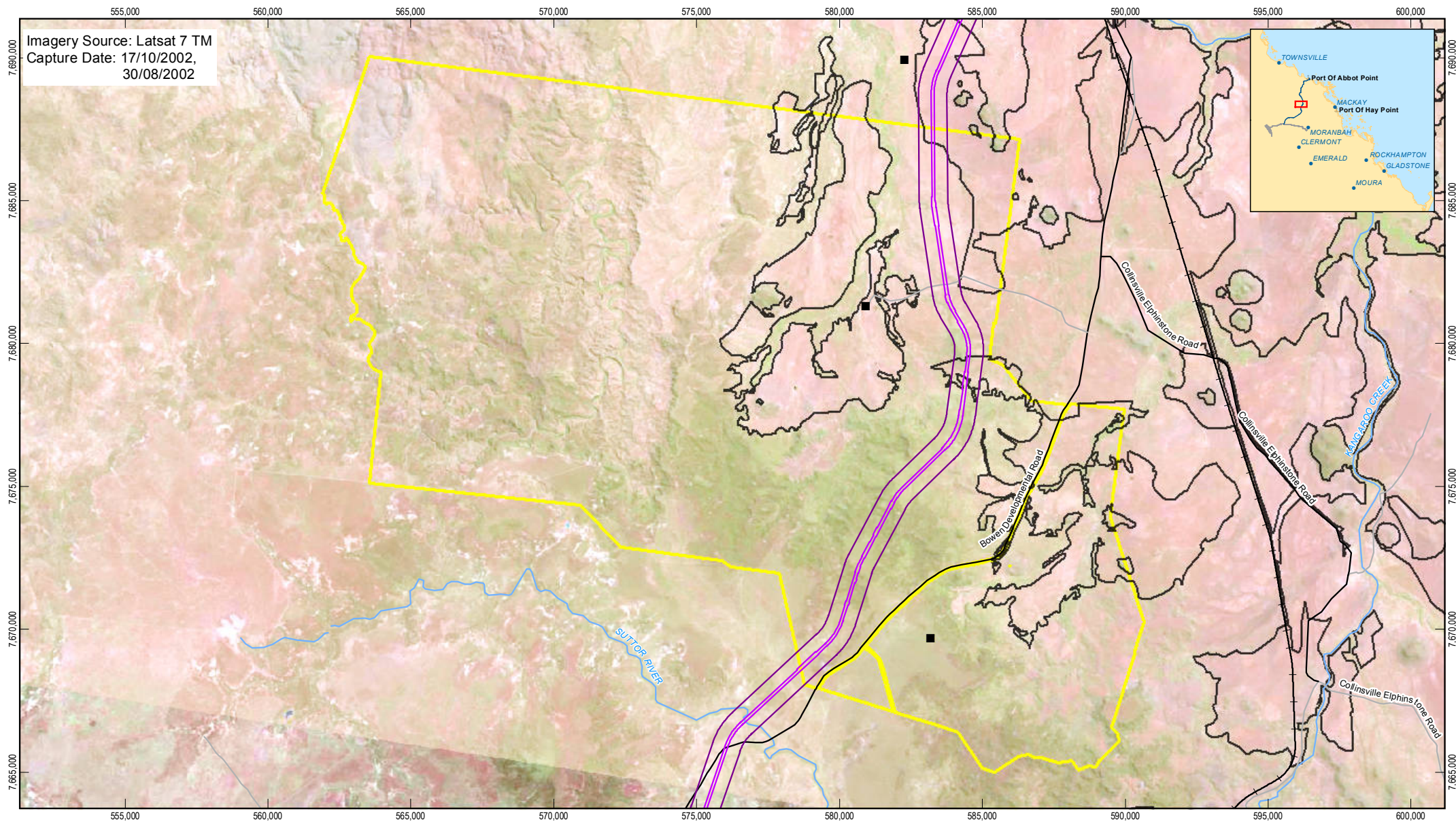
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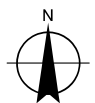
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Fig Tree 2002**

Job Number 41-26457
Revision A
Date 26-08-2013

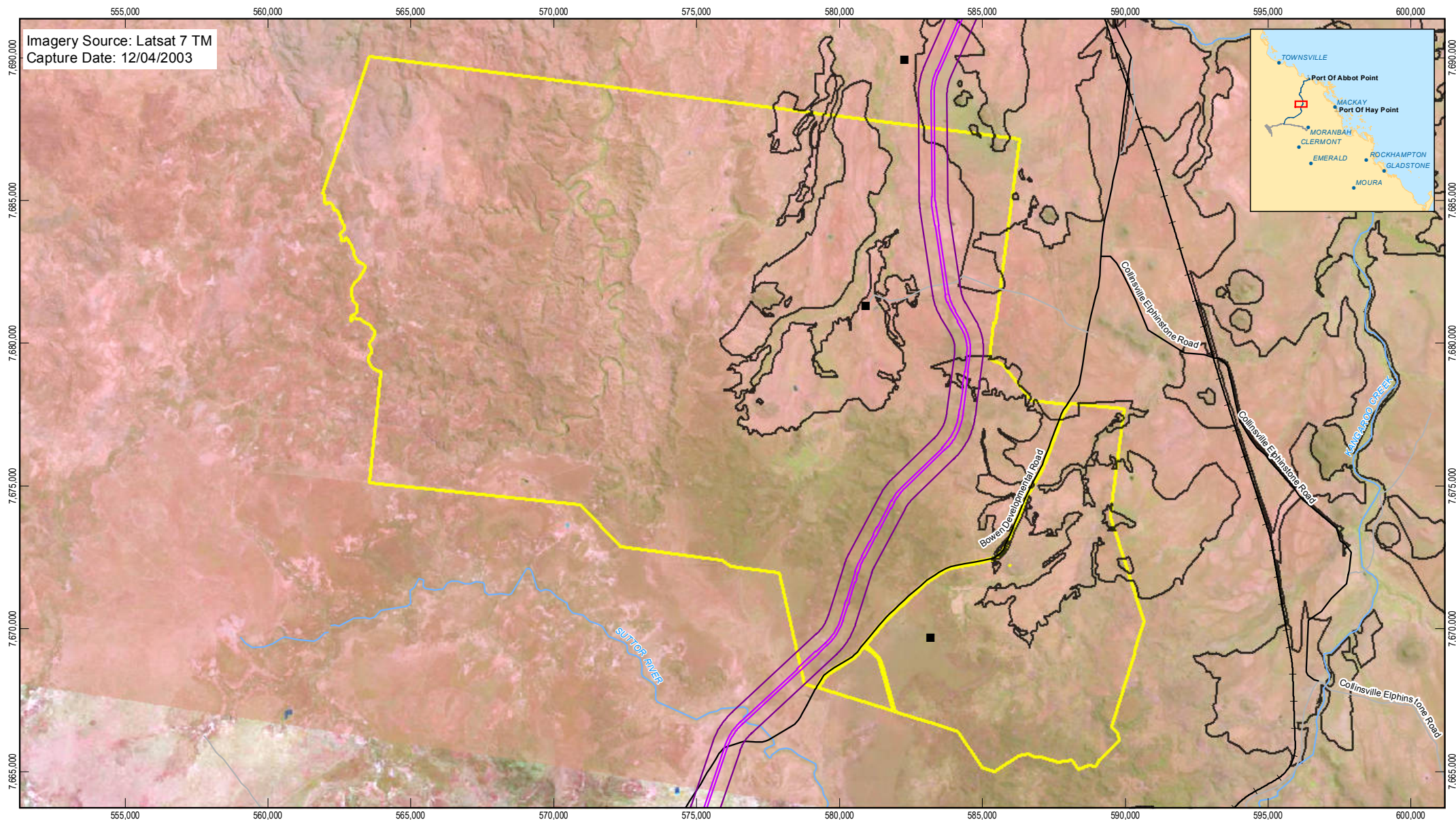
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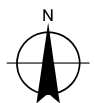
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Imagery Source: Latsat 7 TM
Capture Date: 12/04/2003

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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Railway
 — Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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Strategic Cropping Land
Assessment - Fig Tree 2003

Job Number 41-26457
Revision A
Date 26-08-2013

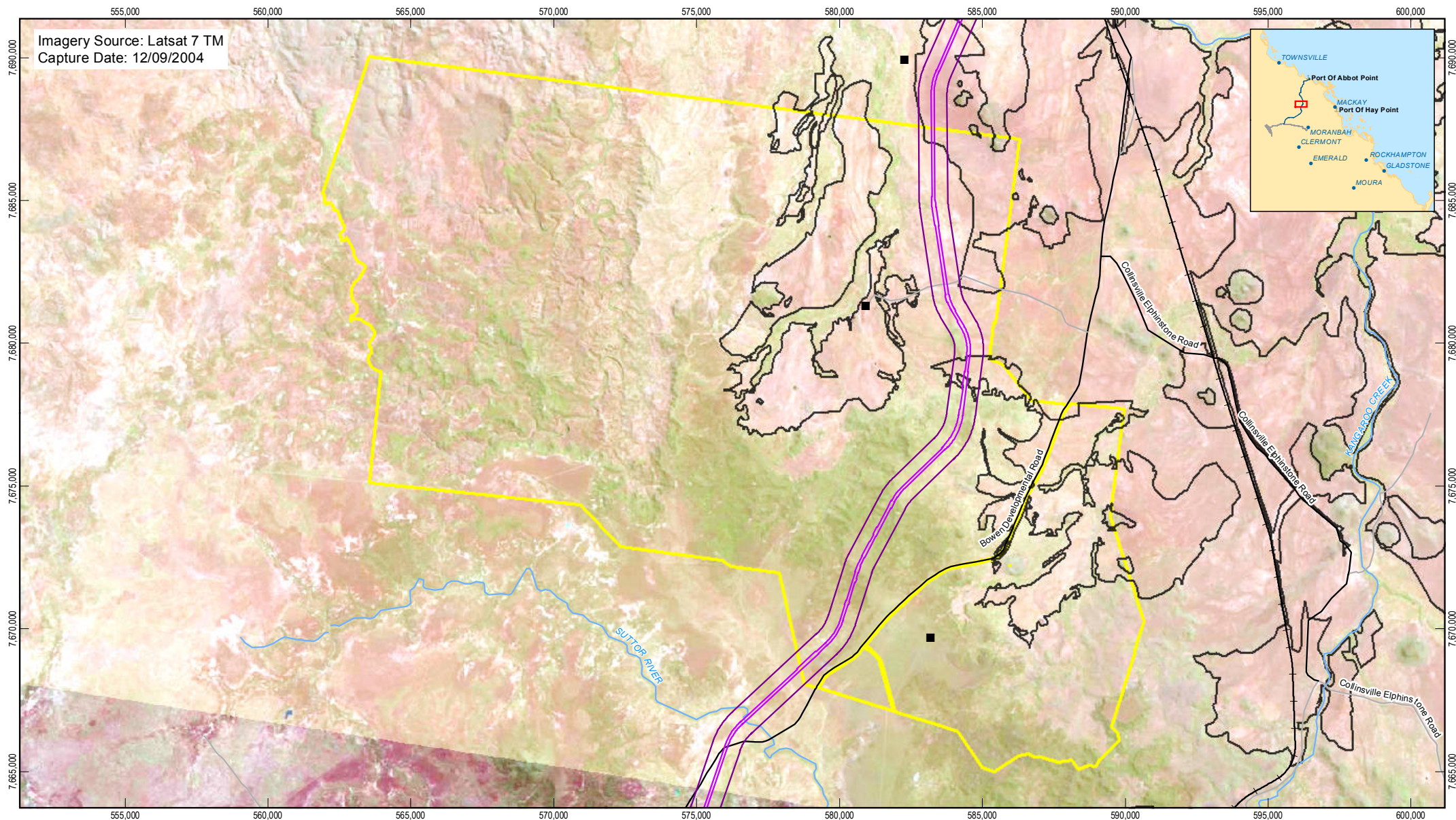
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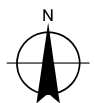
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Imagery Source: Latsat 7 TM
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Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major) — North Galilee Basin Rail 1000m Corridor
 — Main Road — Potential Strategic Cropping Land — North Galilee Basin Rail 100m Corridor
 — Local Road — Property Boundary



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 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Fig Tree 2004

Job Number 41-26457
 Revision A
 Date 26-08-2013

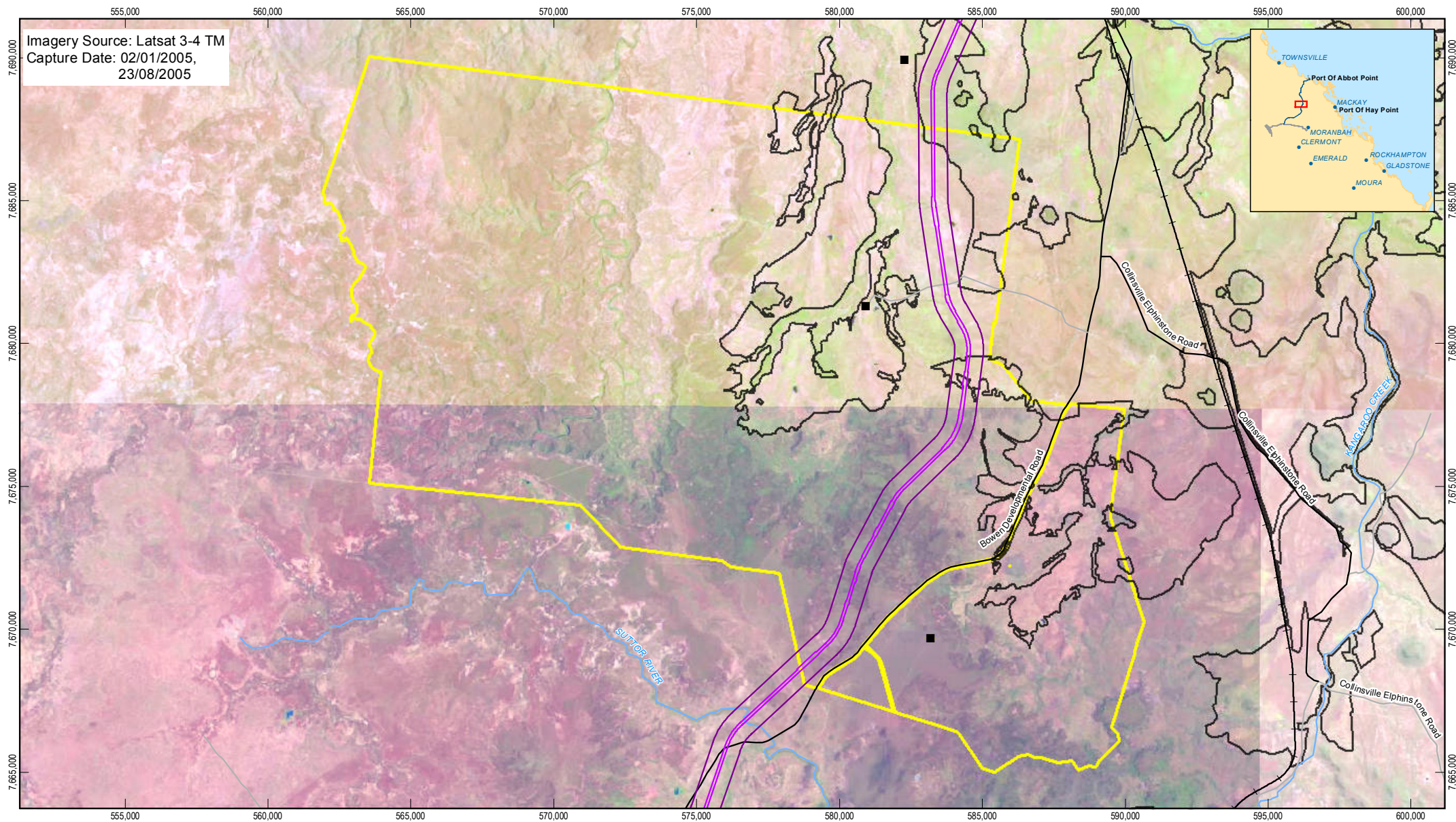
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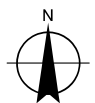
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Fig Tree 2005**

Job Number 41-26457
Revision A
Date 26-08-2013

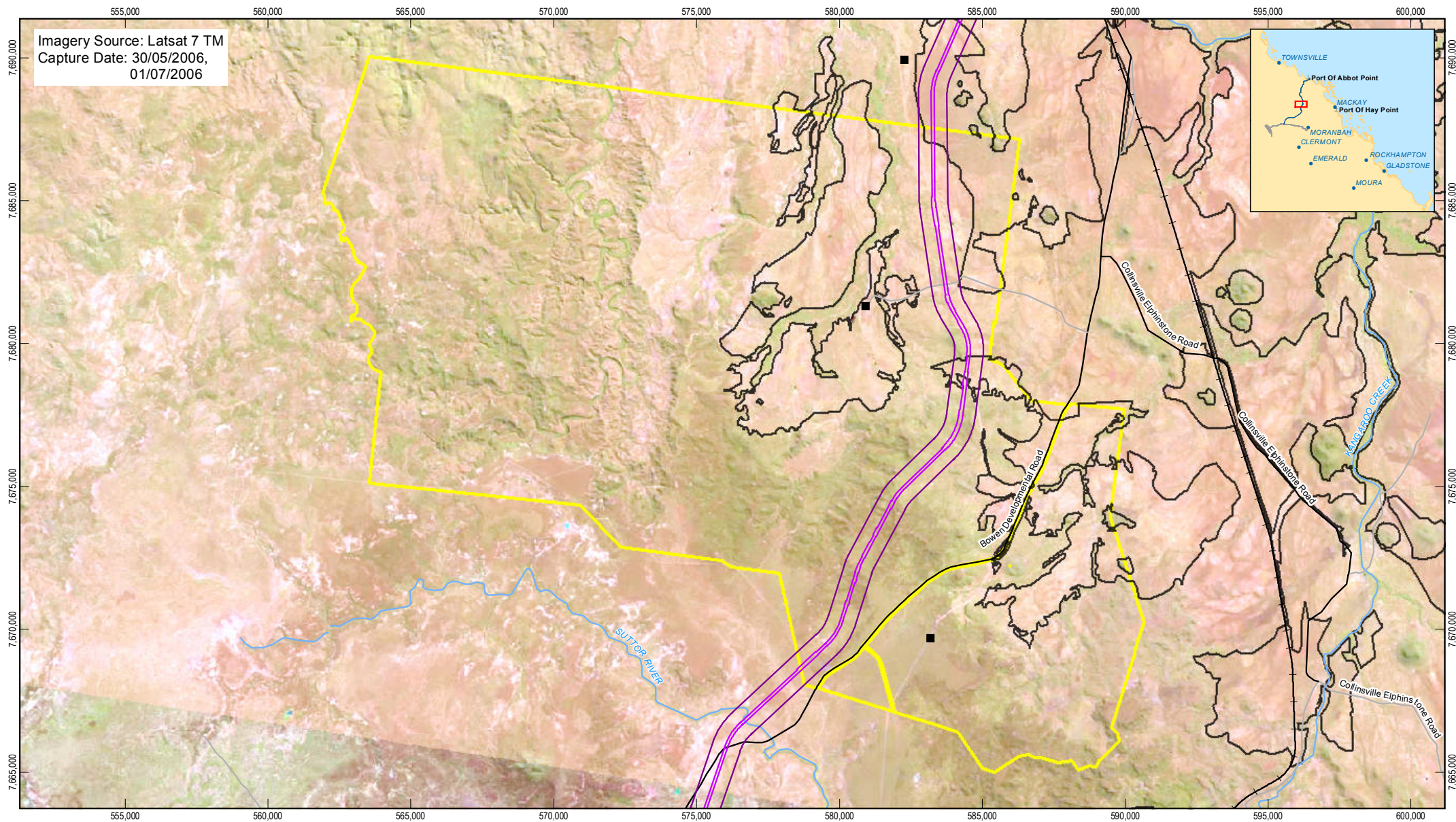
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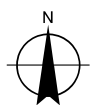
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Fig Tree 2006**

Job Number 41-26457
Revision A
Date 26-08-2013

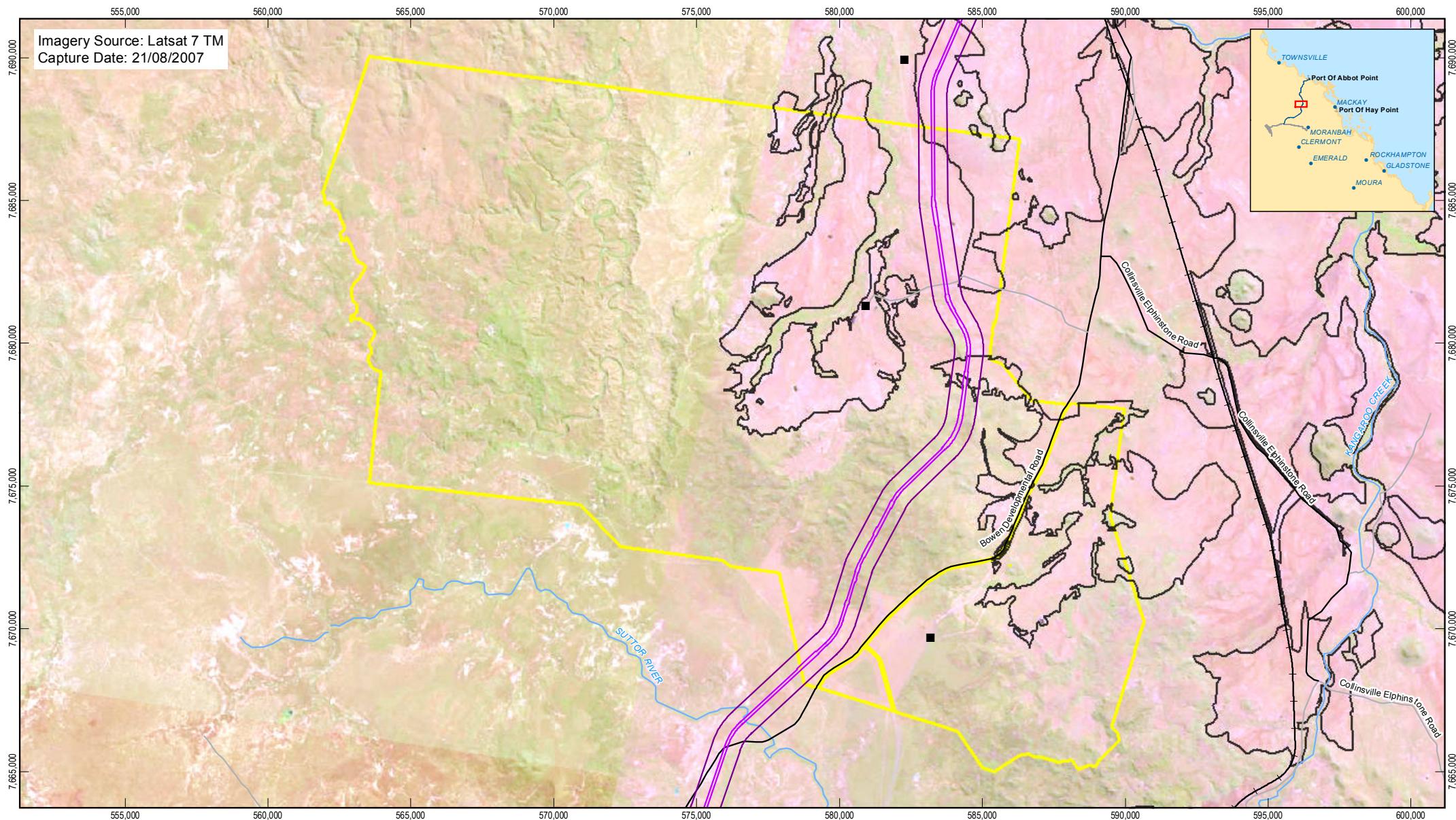
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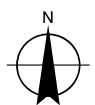
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Imagery Source: Latsat 7 TM
Capture Date: 21/08/2007



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Kilometres
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major)
 — Main Road — Potential Strategic Cropping Land
 — Local Road — North Galilee Basin Rail 1000m Corridor
 — Railway — North Galilee Basin Rail 100m Corridor
 ■ Property Boundary



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 North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Fig Tree 2007

Job Number 41-26457
 Revision A
 Date 26-08-2013

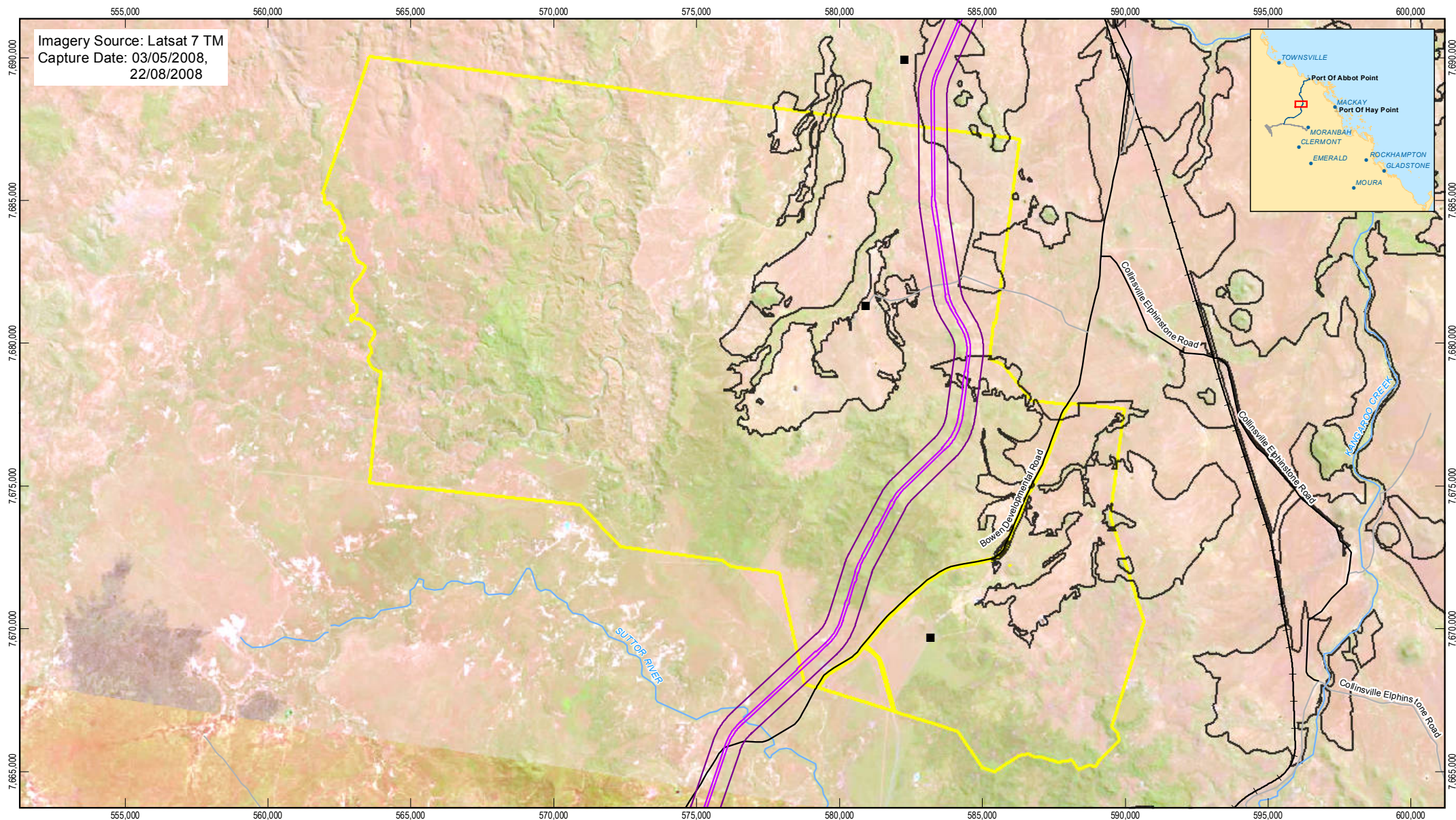
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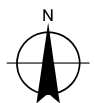
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Imagery Source: Latsat 7 TM
Capture Date: 03/05/2008,
22/08/2008

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



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major)
 — Main Road — Potential Strategic Cropping Land
 — Local Road — North Galilee Basin Rail 1000m Corridor
 — Railway — North Galilee Basin Rail 100m Corridor
 ■ Property Boundary



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Fig Tree 2008

Job Number 41-26457
Revision A
Date 26-08-2013

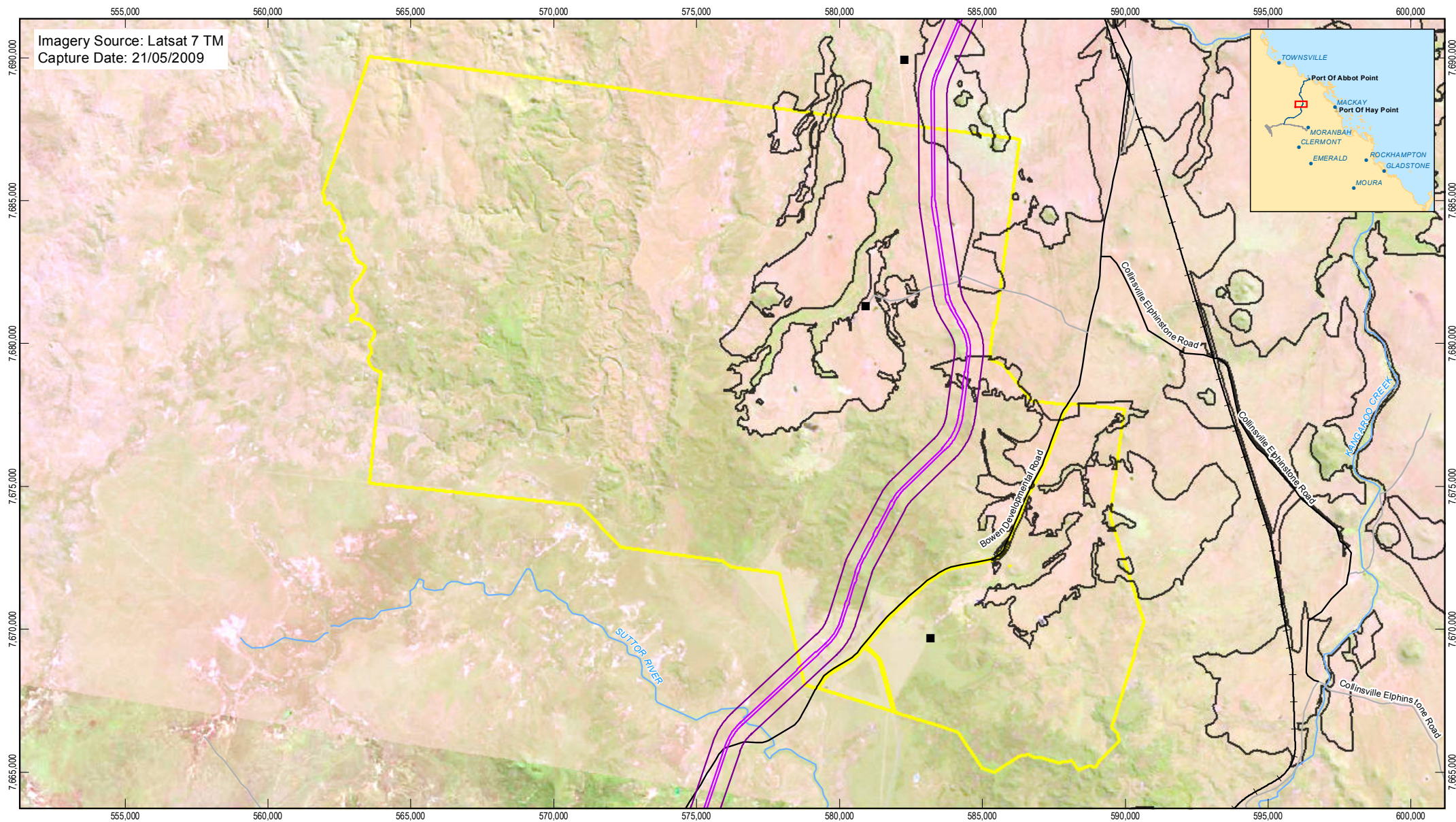
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNR/GHD: Property Boundary/2013; DNR: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2008. Created by MS

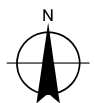
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Imagery Source: Latsat 7 TM
Capture Date: 21/05/2009

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



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major)
 — Main Road — Potential Strategic Cropping Land
 — Local Road — North Galilee Basin Rail 1000m Corridor
 — Railway — North Galilee Basin Rail 100m Corridor
 ■ Property Boundary



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 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Fig Tree 2009

Job Number 41-26457
 Revision A
 Date 26-08-2013

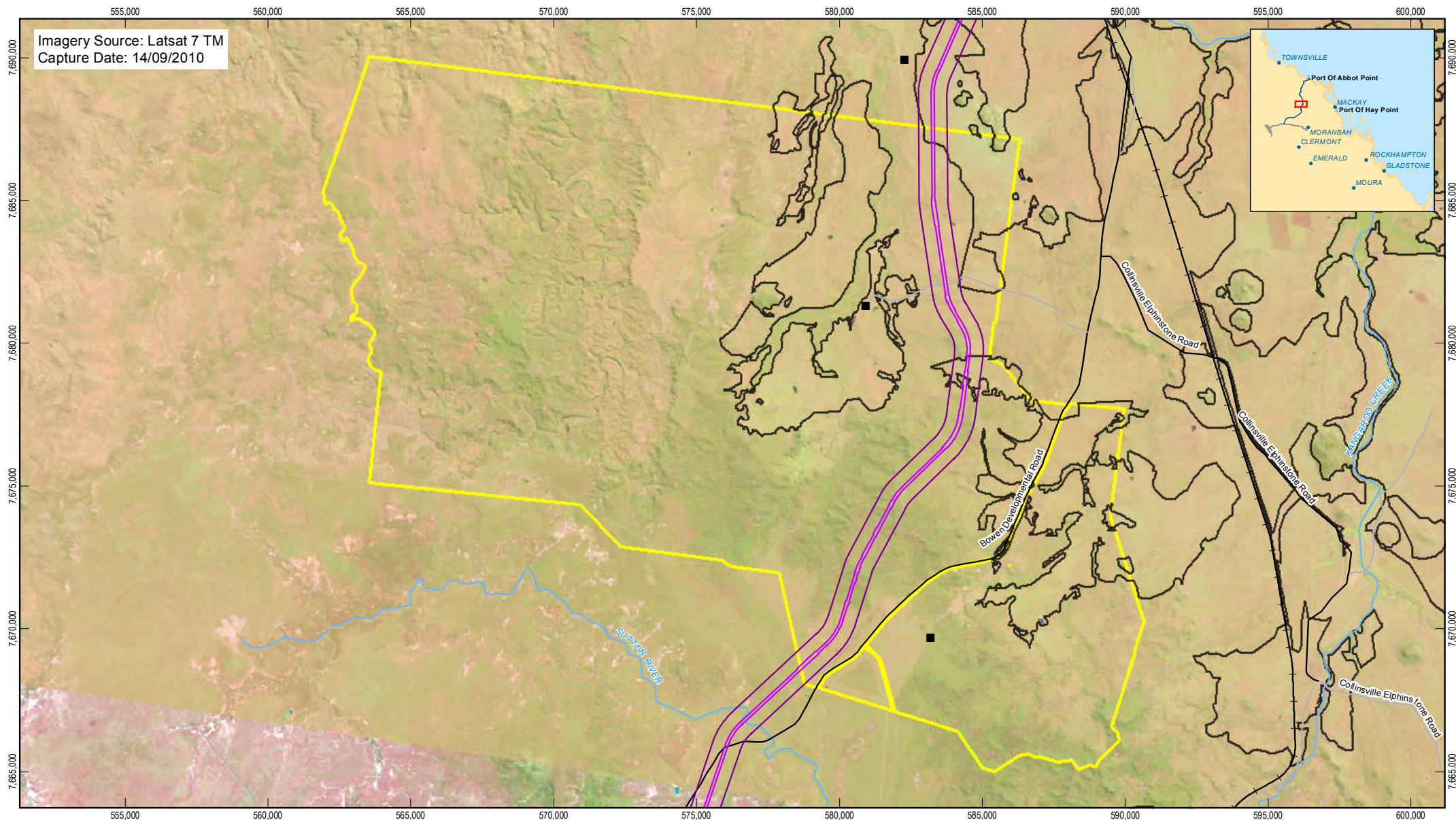
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2009. Created by MS

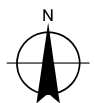
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Capture Date: 14/09/2010

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



LEGEND
 ■ Homesteads (Adani 20130419) — Watercourse (Major)
 — Main Road — Potential Strategic Cropping Land
 — Local Road — North Galilee Basin Rail 1000m Corridor
 — Railway — North Galilee Basin Rail 100m Corridor
 ■ Property Boundary



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 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Fig Tree 2010

Job Number 41-26457
 Revision A
 Date 26-08-2013

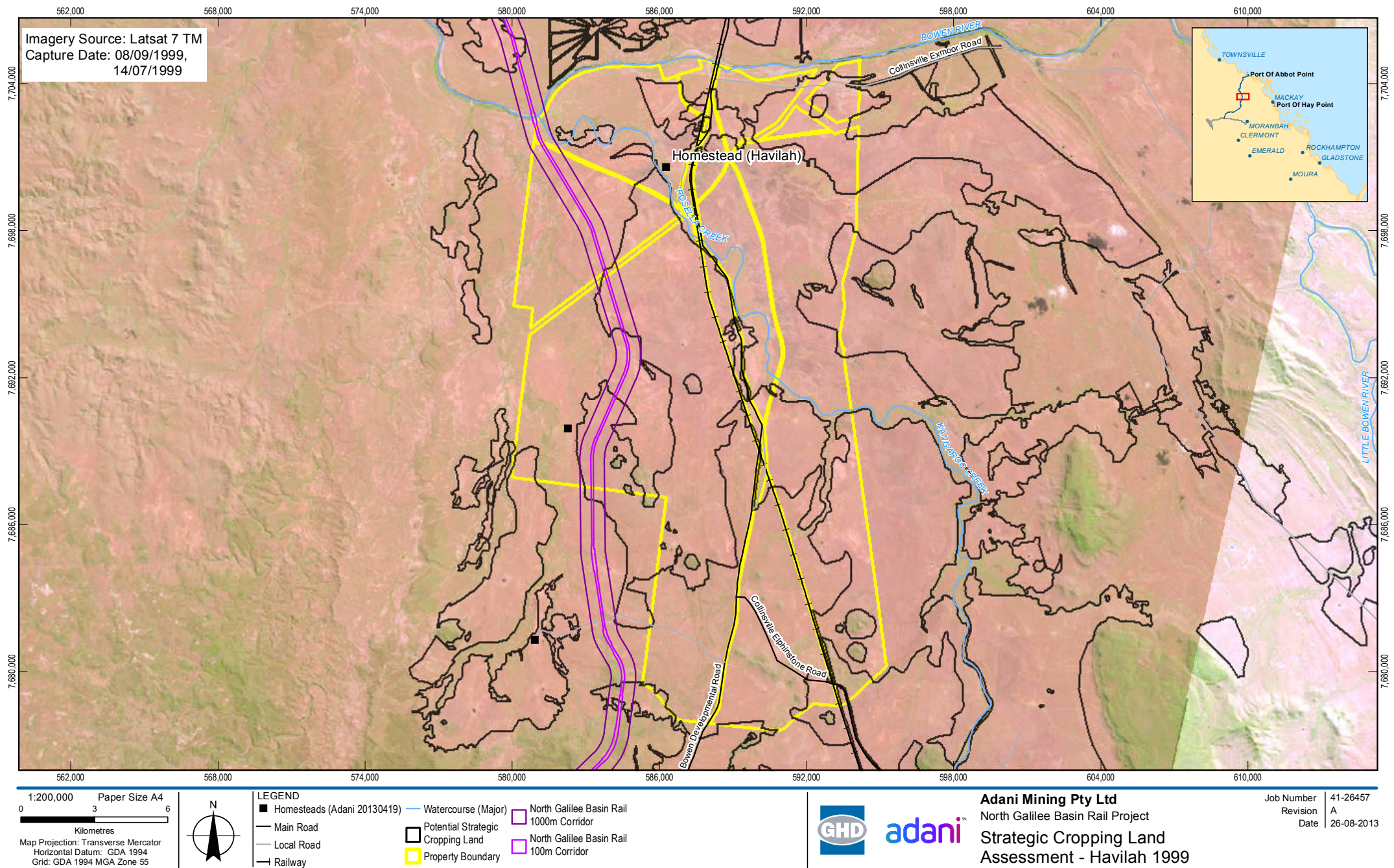
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2010. Created by MS

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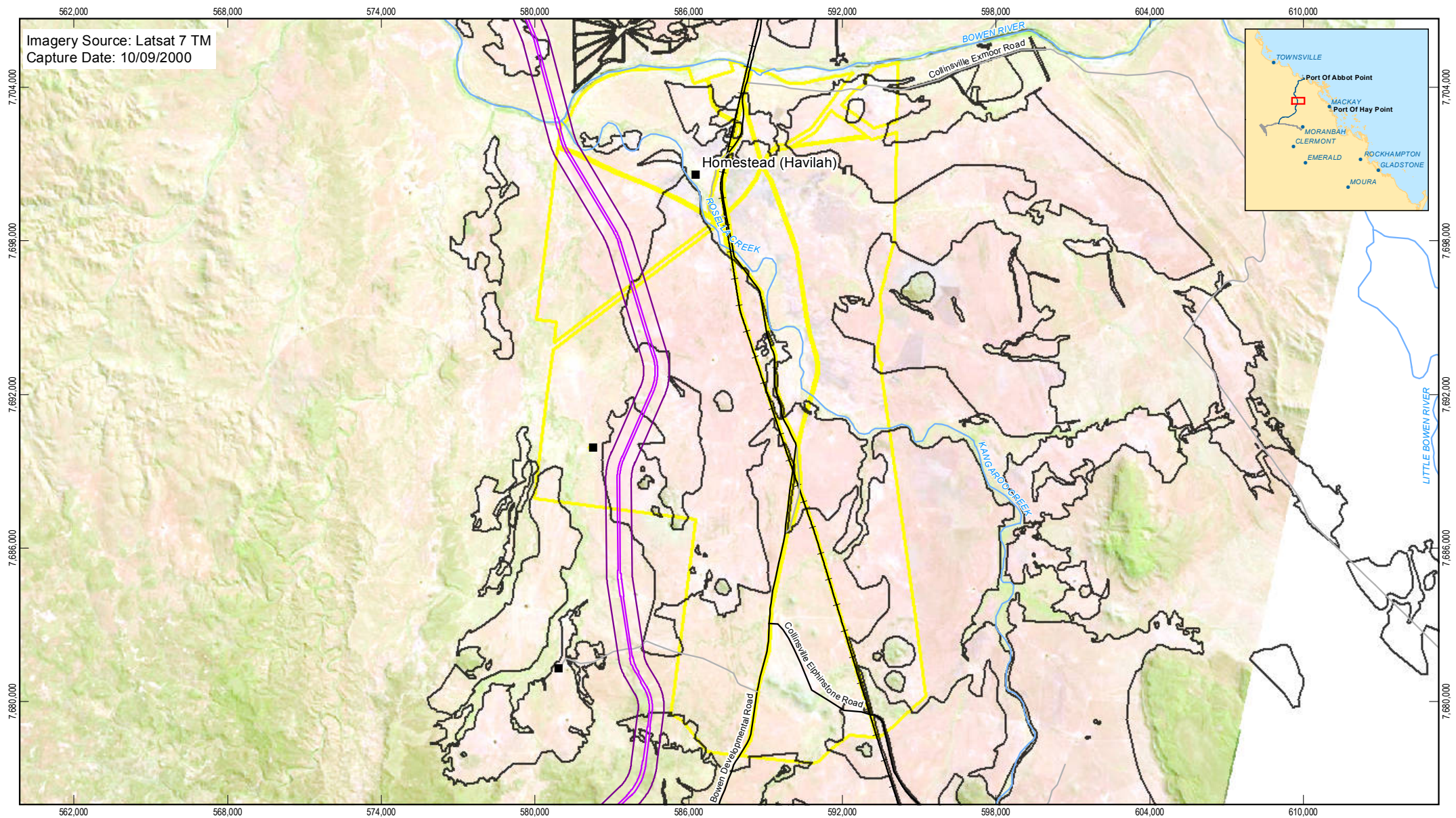
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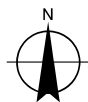
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1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Havilah 2000**

Job Number 41-26457
Revision A
Date 26-08-2013

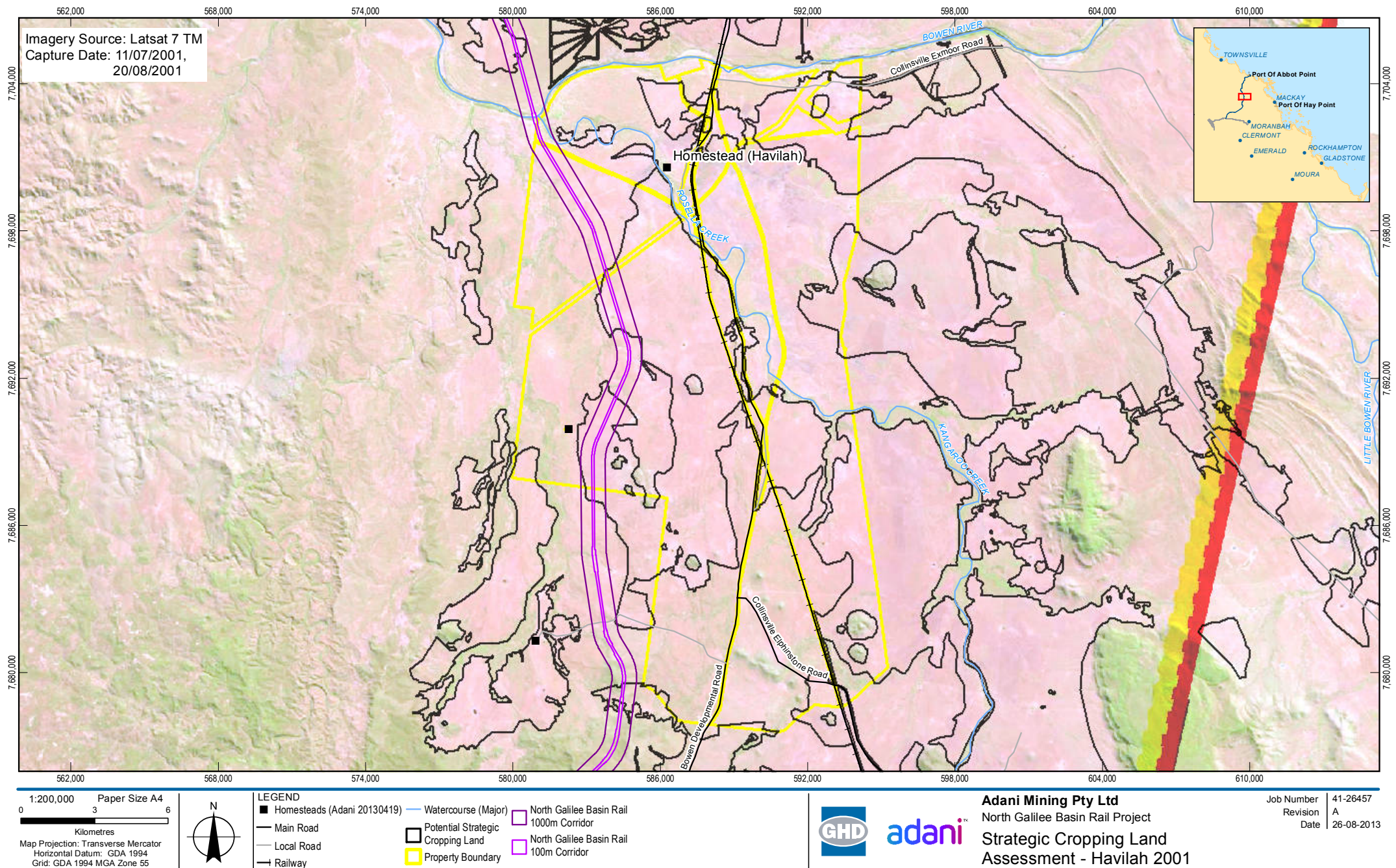
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2000. Created by MS

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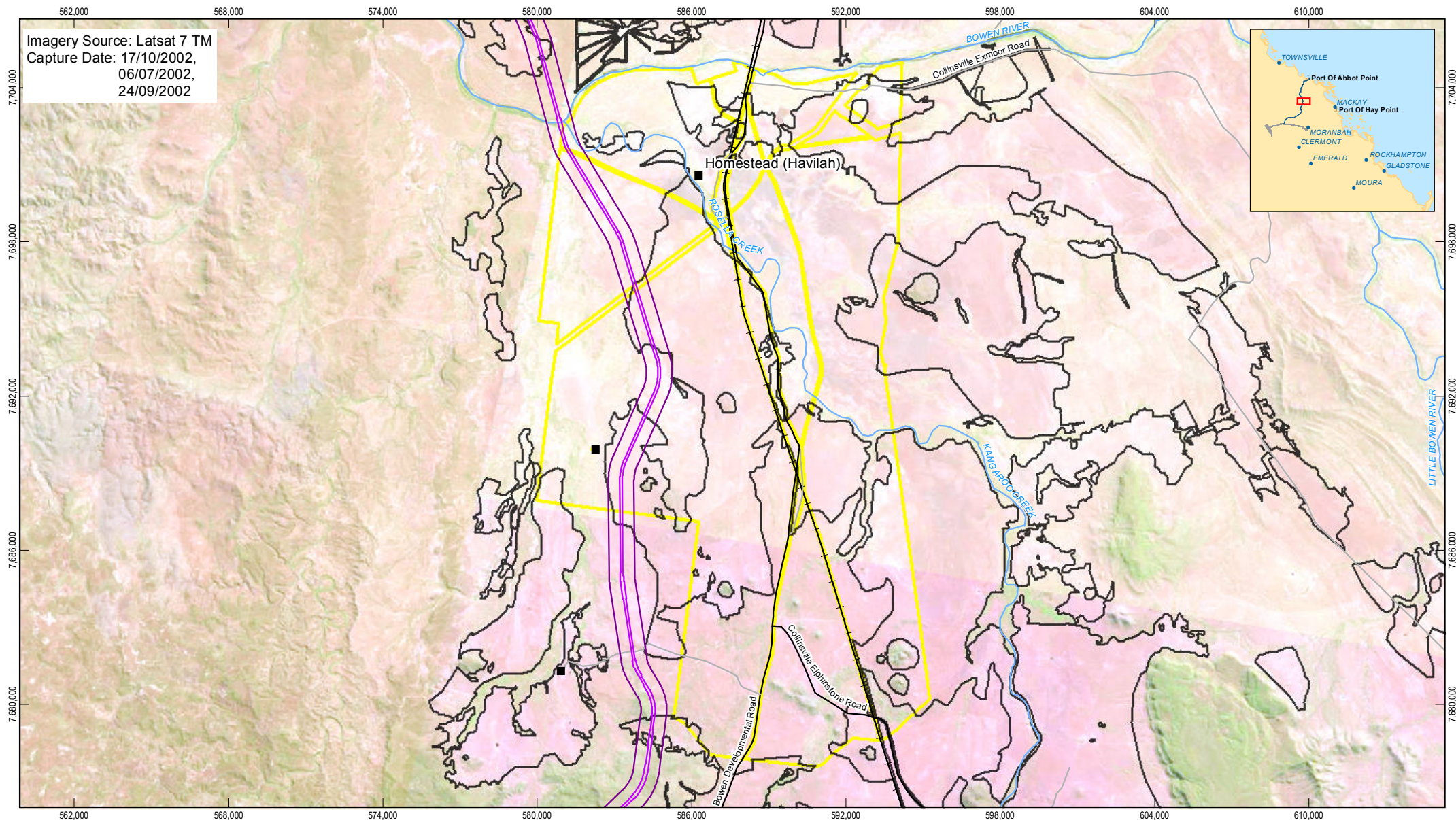
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2001. Created by MS

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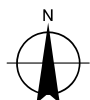
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Imagery Source: Latsat 7 TM
 Capture Date: 17/10/2002,
 06/07/2002,
 24/09/2002



1:200,000 Paper Size A4
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 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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 North Galilee Basin Rail Project
**Strategic Cropping Land
 Assessment - Havilah 2002**

Job Number 41-26457
 Revision A
 Date 26-08-2013

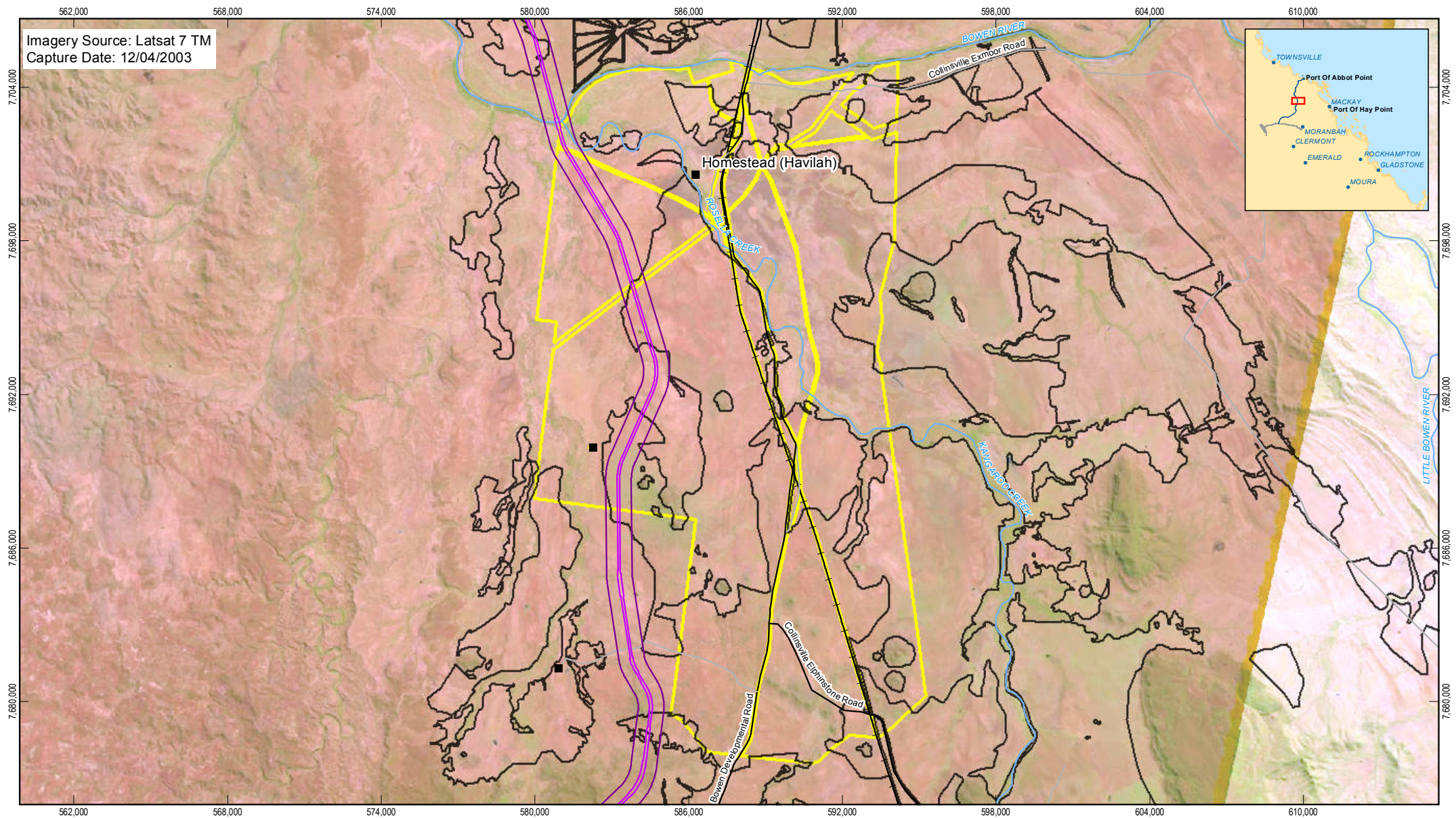
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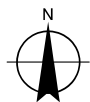
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1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Havilah 2003**

Job Number 41-26457
Revision A
Date 26-08-2013

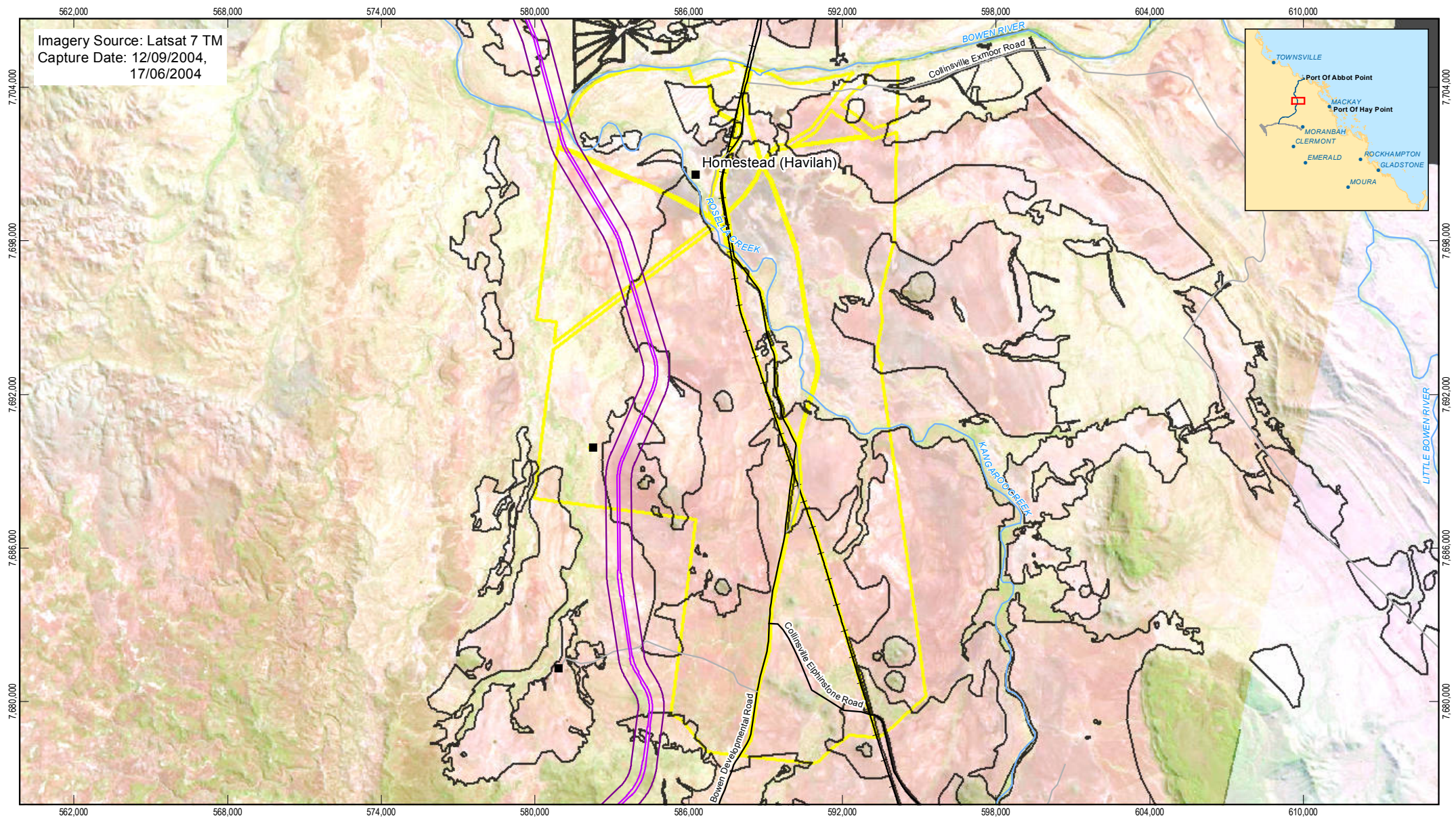
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNR/GHD: Property Boundary/2013; DNR: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012;
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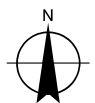
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Imagery Source: Latsat 7 TM
Capture Date: 12/09/2004,
17/06/2004



1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Havilah 2004**

Job Number 41-26457
Revision A
Date 26-08-2013

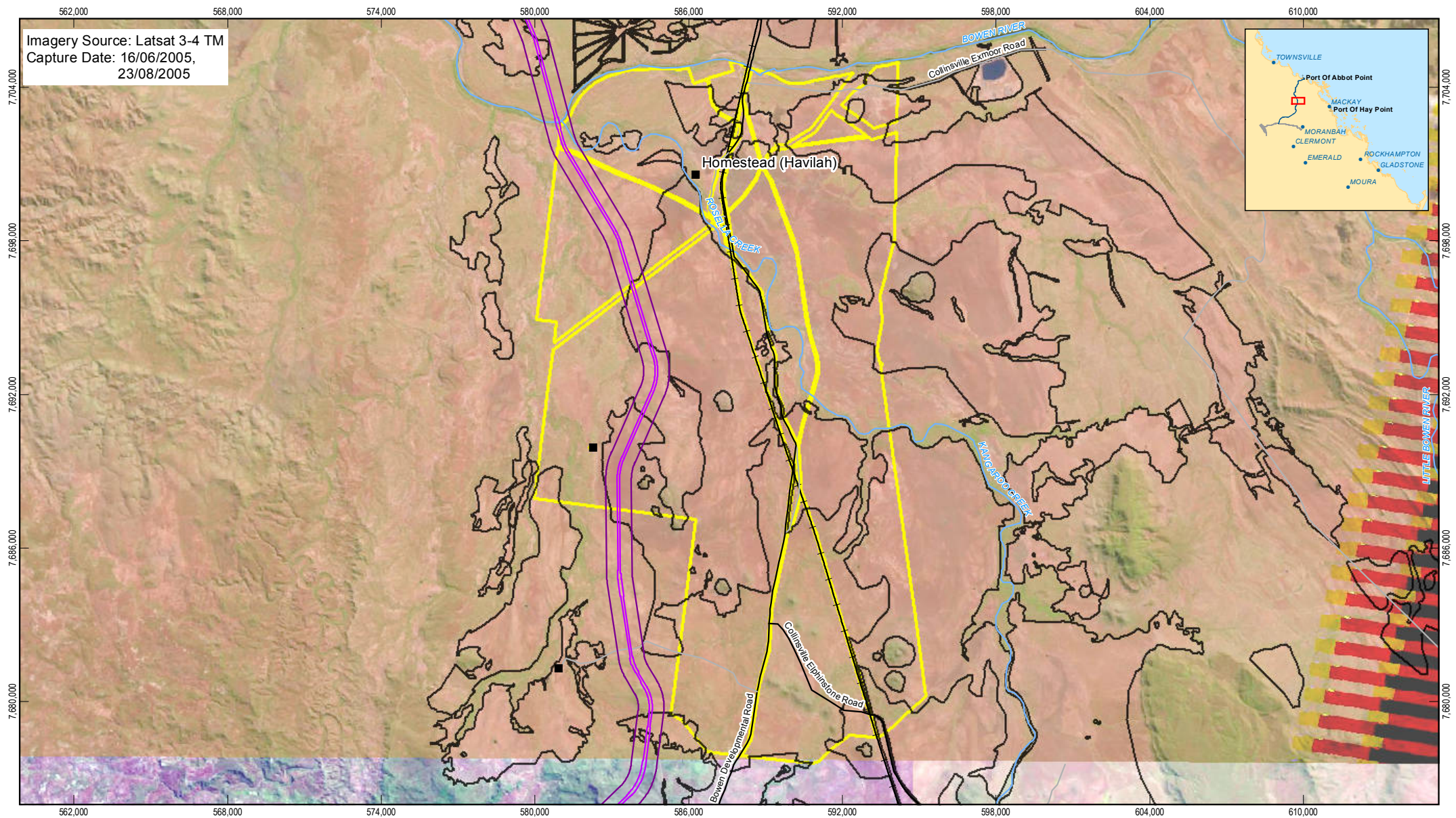
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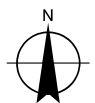
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Imagery Source: Latsat 3-4 TM
Capture Date: 16/06/2005,
23/08/2005



1:200,000 Paper Size A4
0 3 6
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Havilah 2005**

Job Number 41-26457
Revision A
Date 26-08-2013

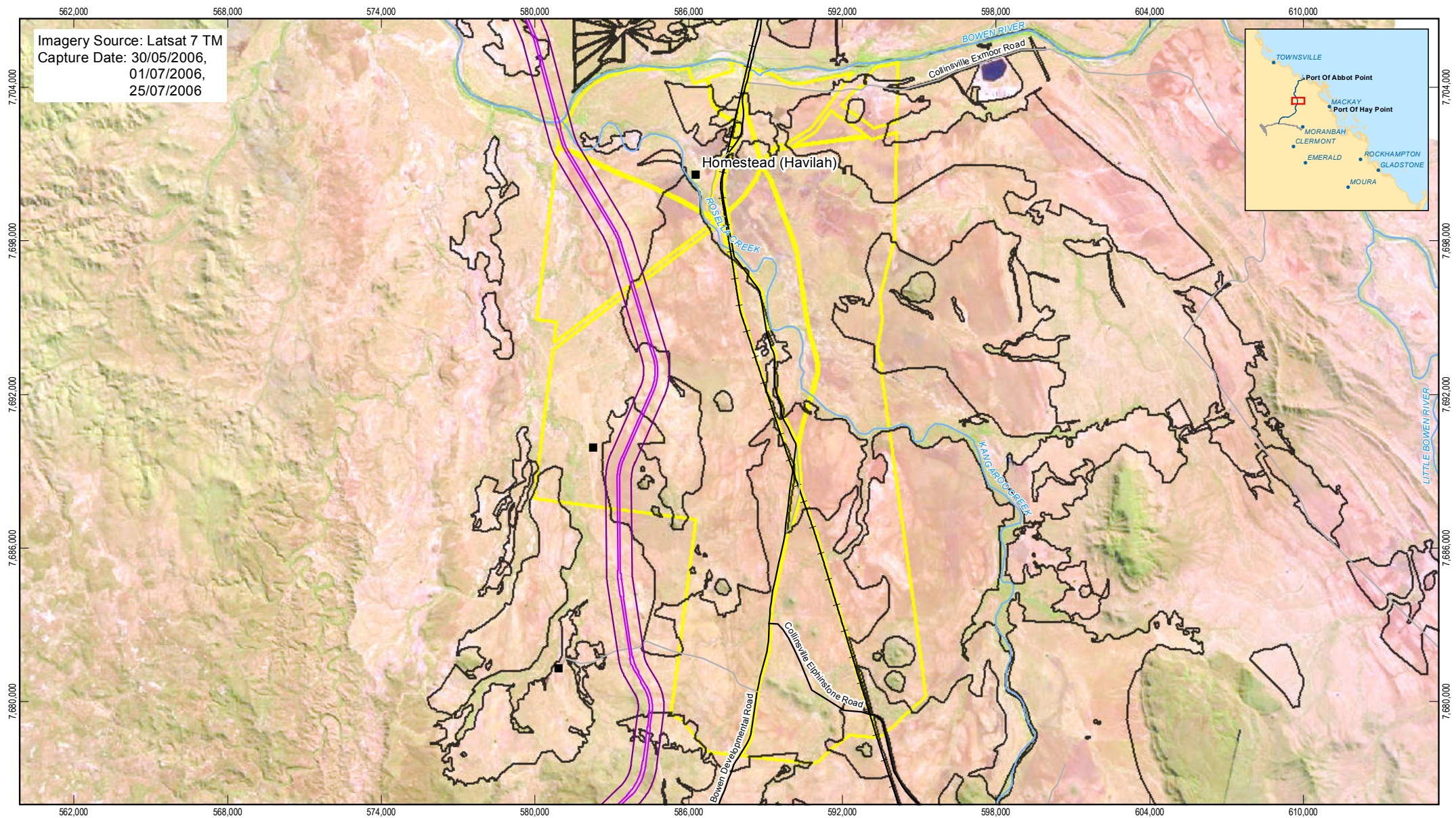
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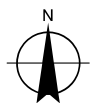
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Capture Date: 30/05/2006,
01/07/2006,
25/07/2006



1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Havilah 2006**

Job Number 41-26457
Revision A
Date 26-08-2013

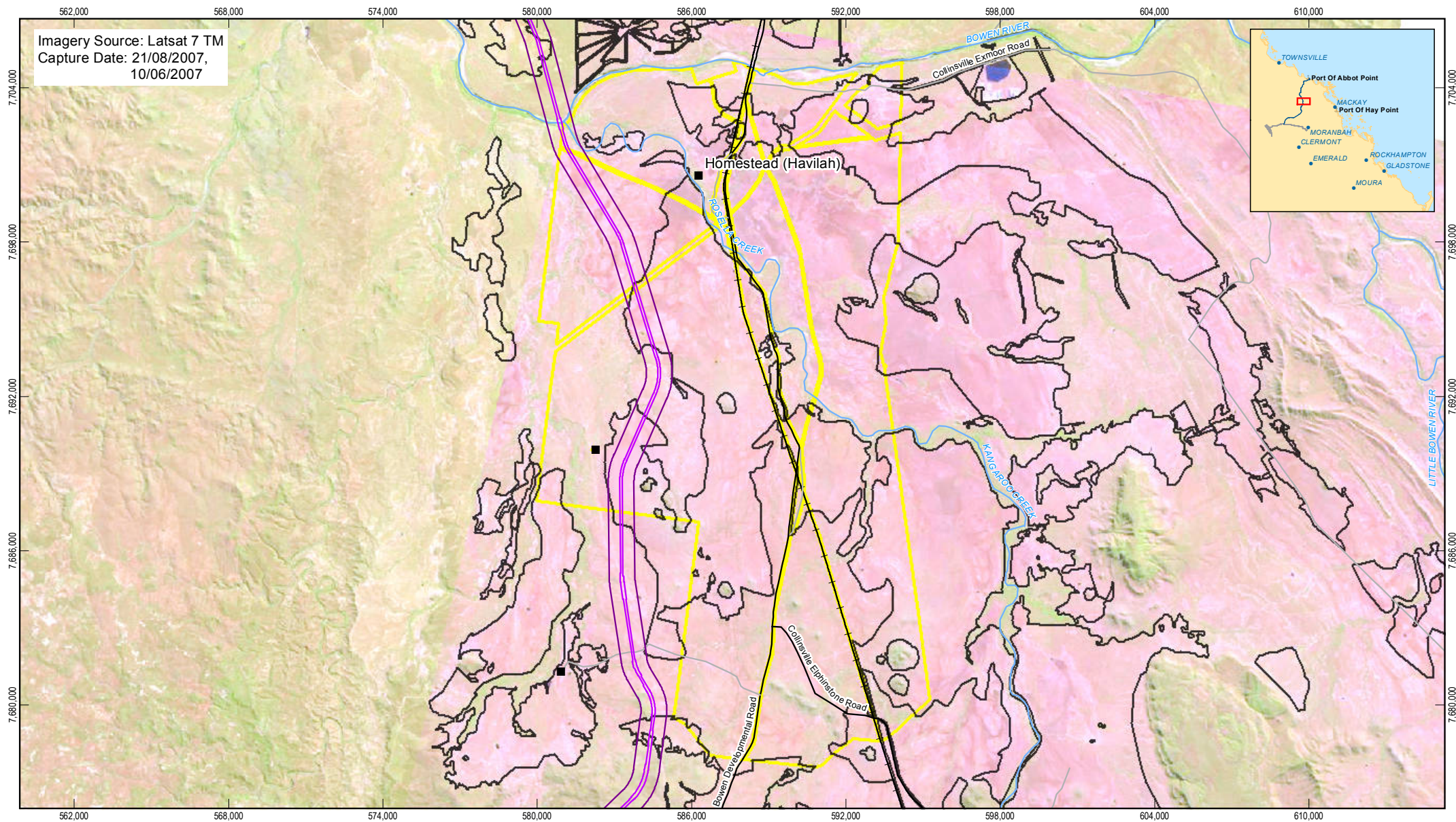
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2006. Created by MS.

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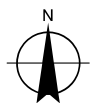
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Imagery Source: Latsat 7 TM
Capture Date: 21/08/2007,
10/06/2007



1:200,000 Paper Size A4
0 3 6
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Havilah 2007**

Job Number 41-26457
Revision A
Date 26-08-2013

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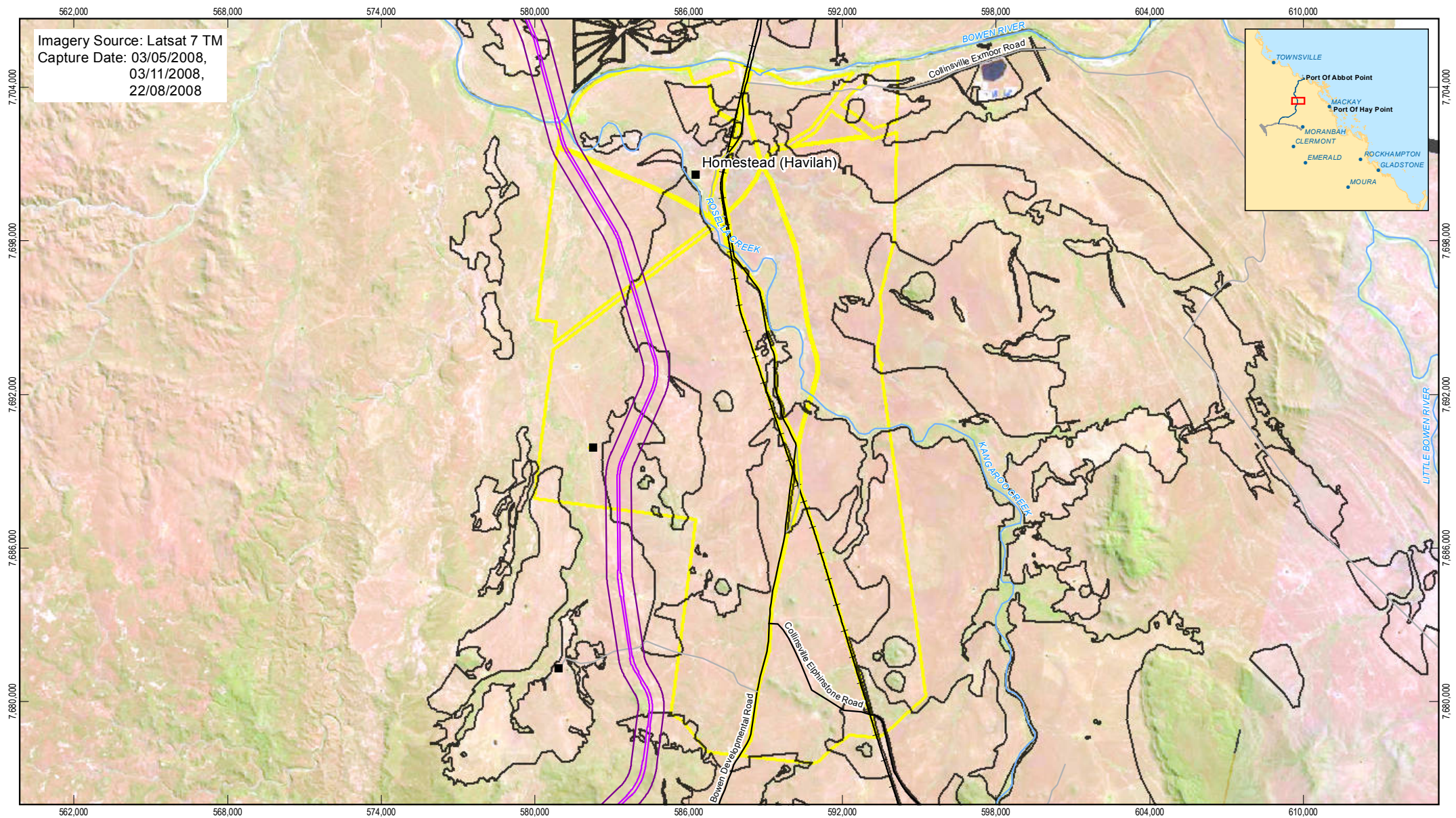
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012;

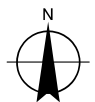
USGS: LatSat Imagery/2007. Created by MS

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1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Havilah 2008**

Job Number 41-26457
Revision A
Date 26-08-2013

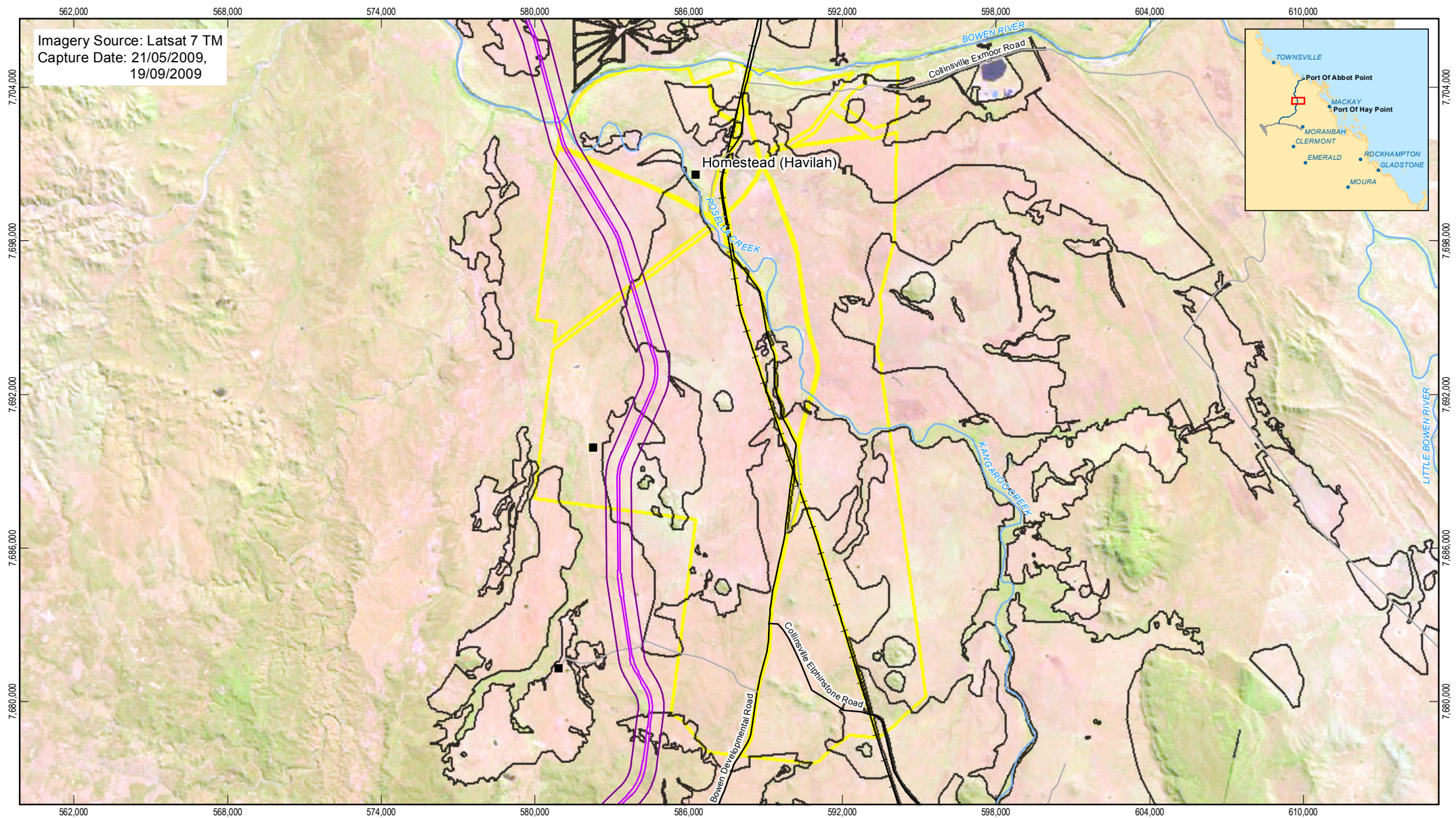
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2008. Created by MS.

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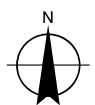
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Imagery Source: Latsat 7 TM
Capture Date: 21/05/2009,
19/09/2009



1:200,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Havilah 2009**

Job Number 41-26457
Revision A
Date 26-08-2013

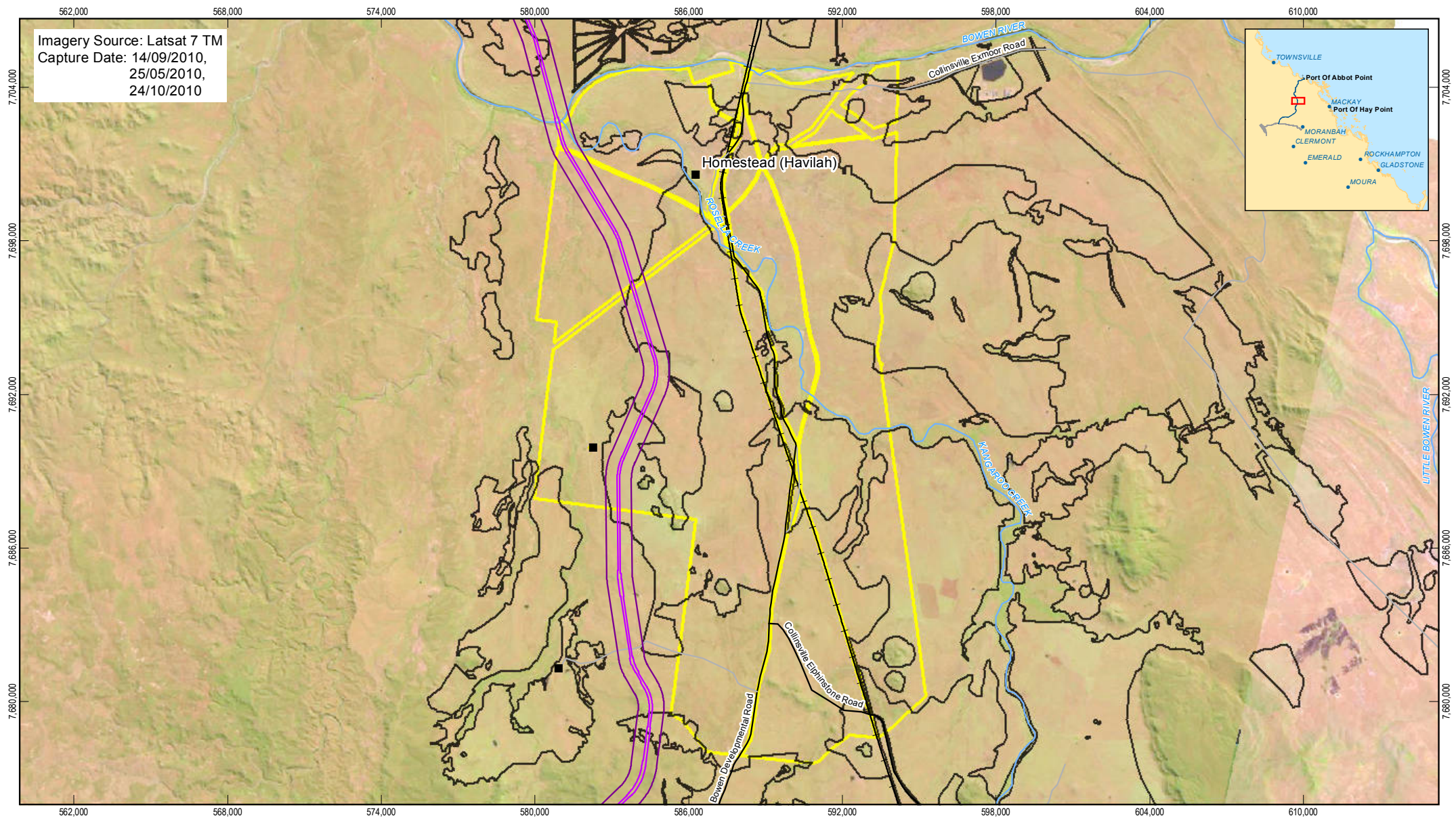
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2009. Created by MS.

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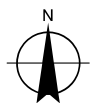
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Imagery Source: Latsat 7 TM
Capture Date: 14/09/2010,
25/05/2010,
24/10/2010



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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Havilah 2010**

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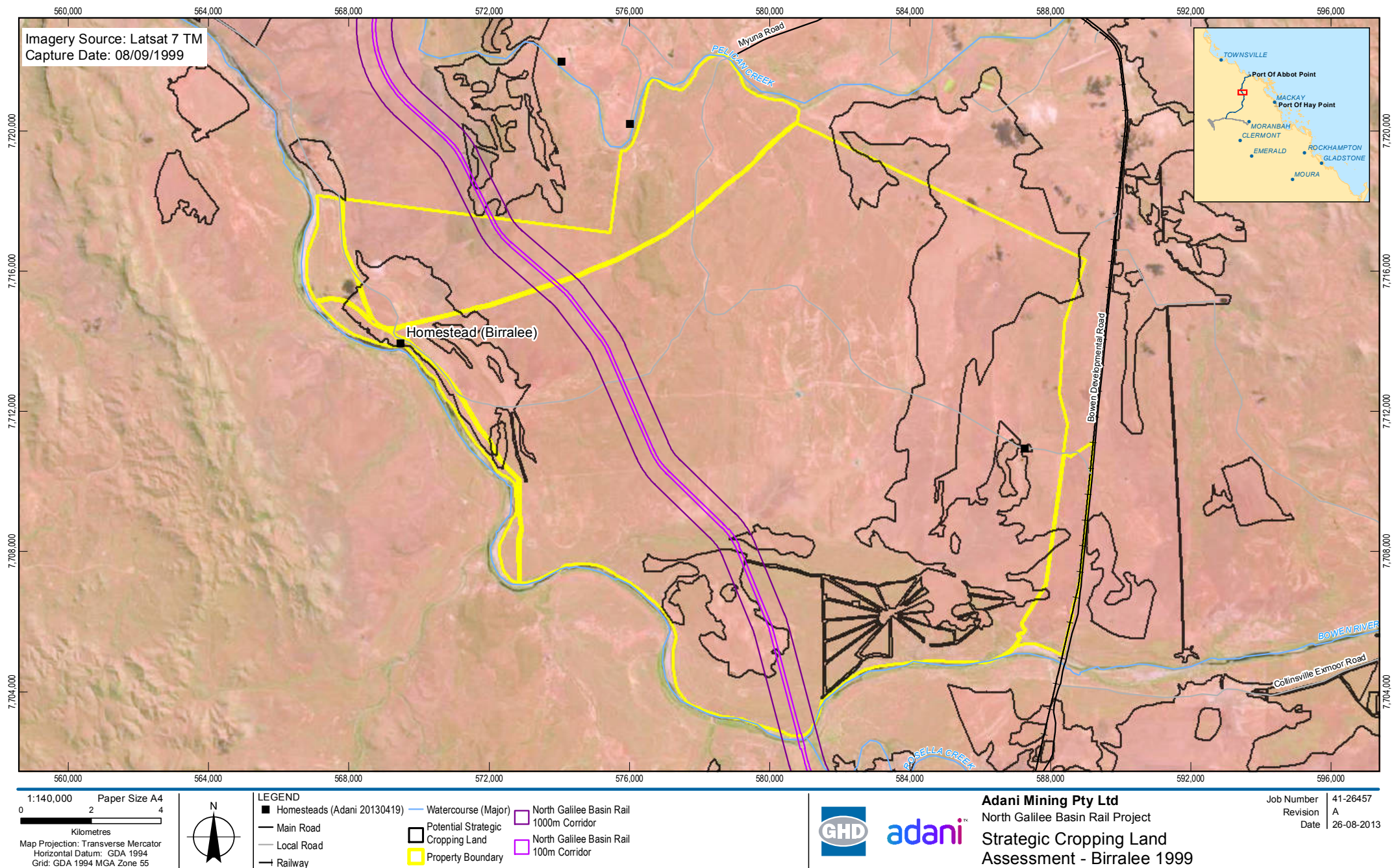
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2010. Created by MS

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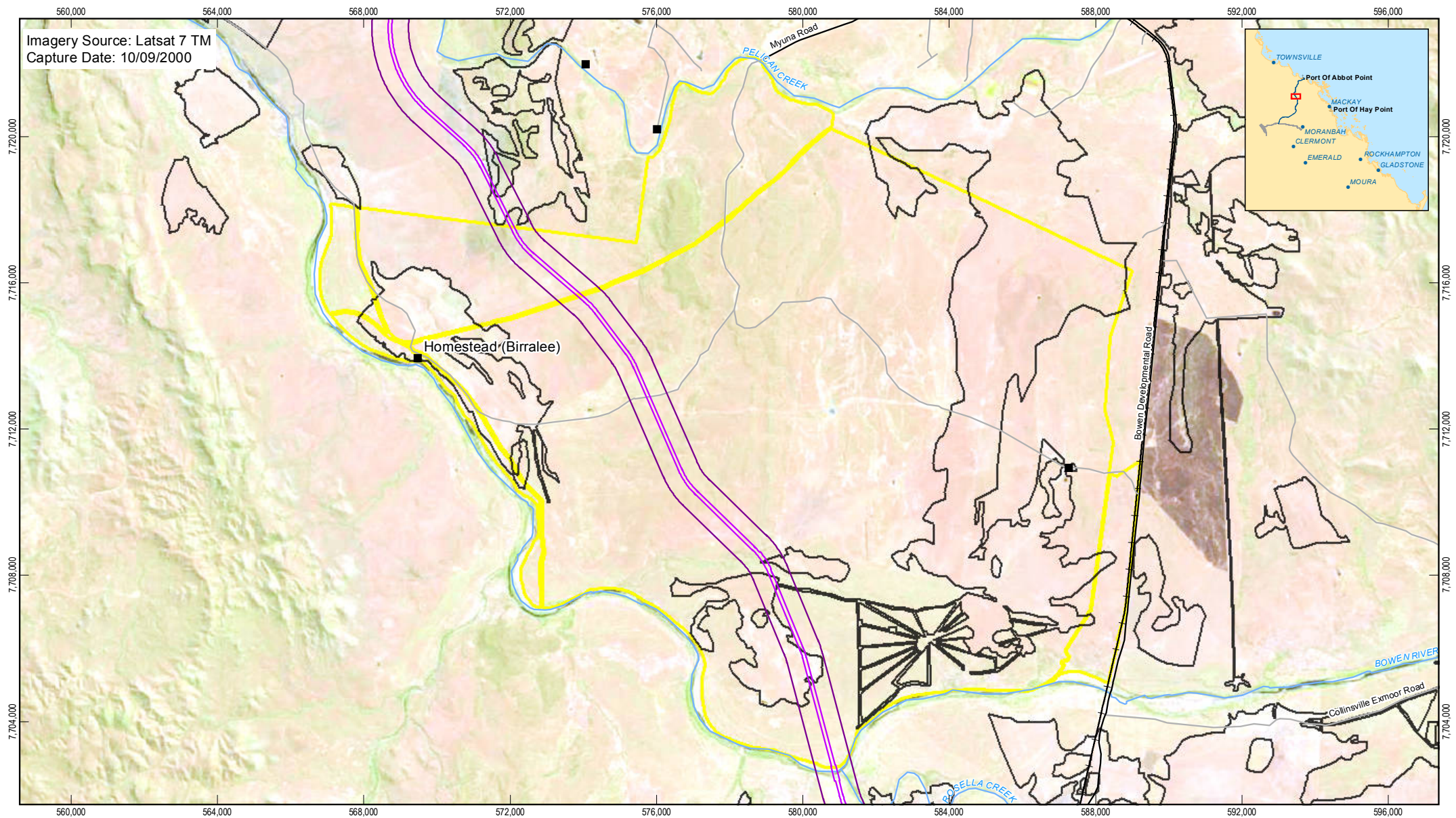
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/1999. Created by MS.

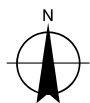
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Imagery Source: Latsat 7 TM
Capture Date: 10/09/2000

1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Birrlee 2000**

Job Number 41-26457
Revision A
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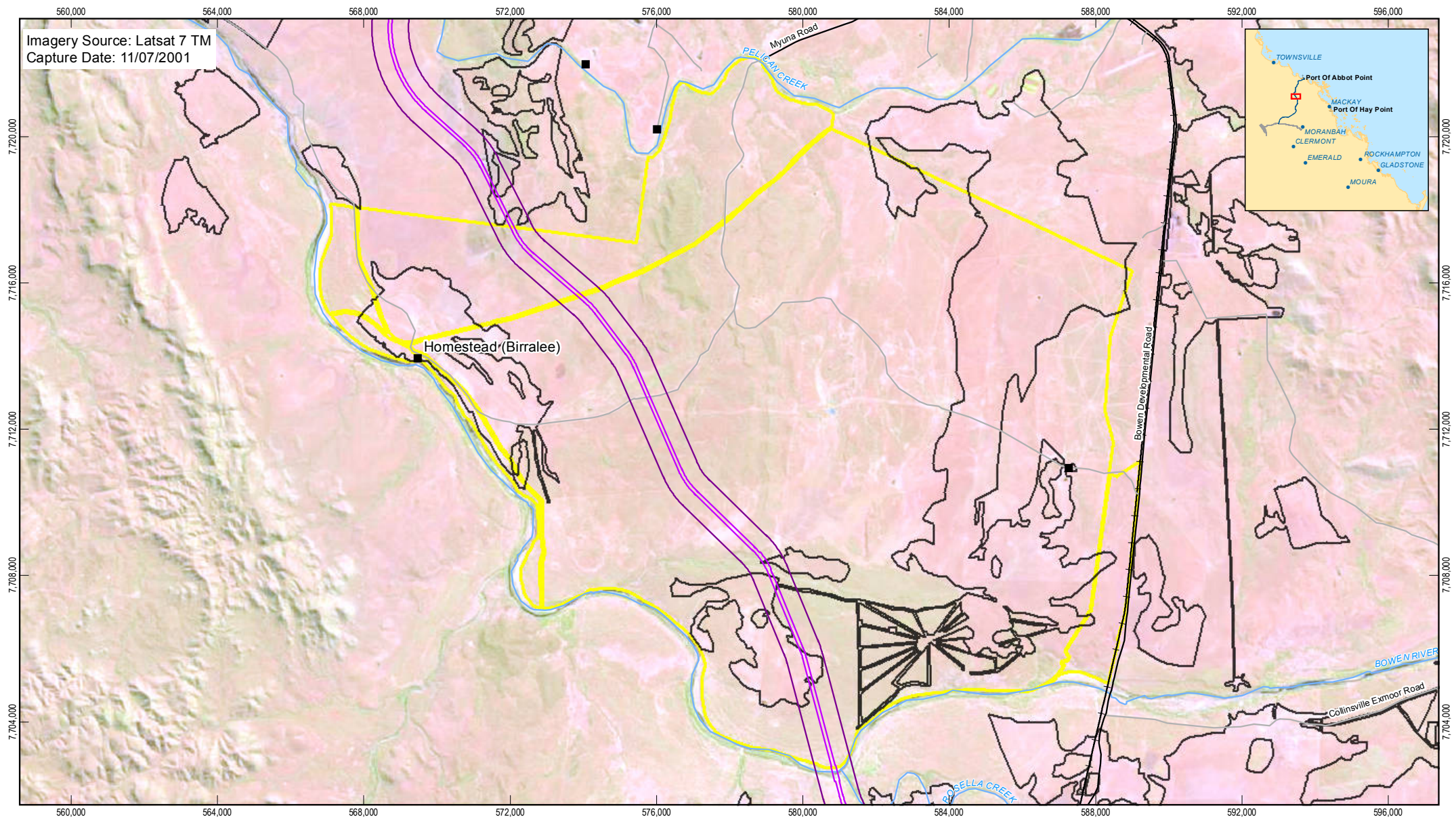
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2000. Created by MS.

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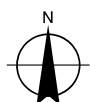
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Imagery Source: Latsat 7 TM
Capture Date: 11/07/2001



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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrilee 2001**

Job Number 41-26457
Revision A
Date 26-08-2013

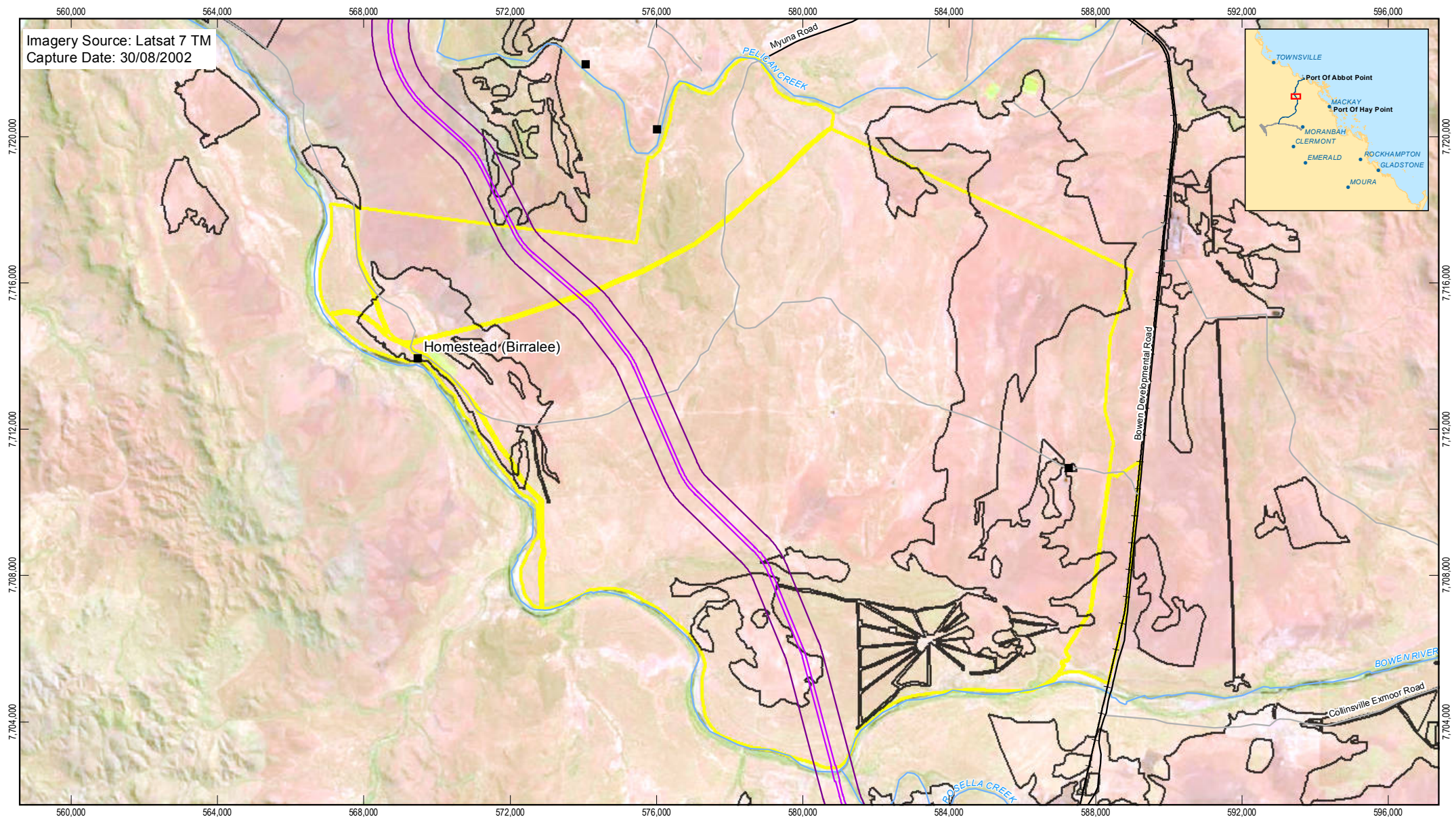
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2001. Created by MS

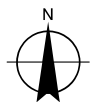
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Imagery Source: Latsat 7 TM
Capture Date: 30/08/2002

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrilee 2002**

Job Number 41-26457
Revision A
Date 26-08-2013

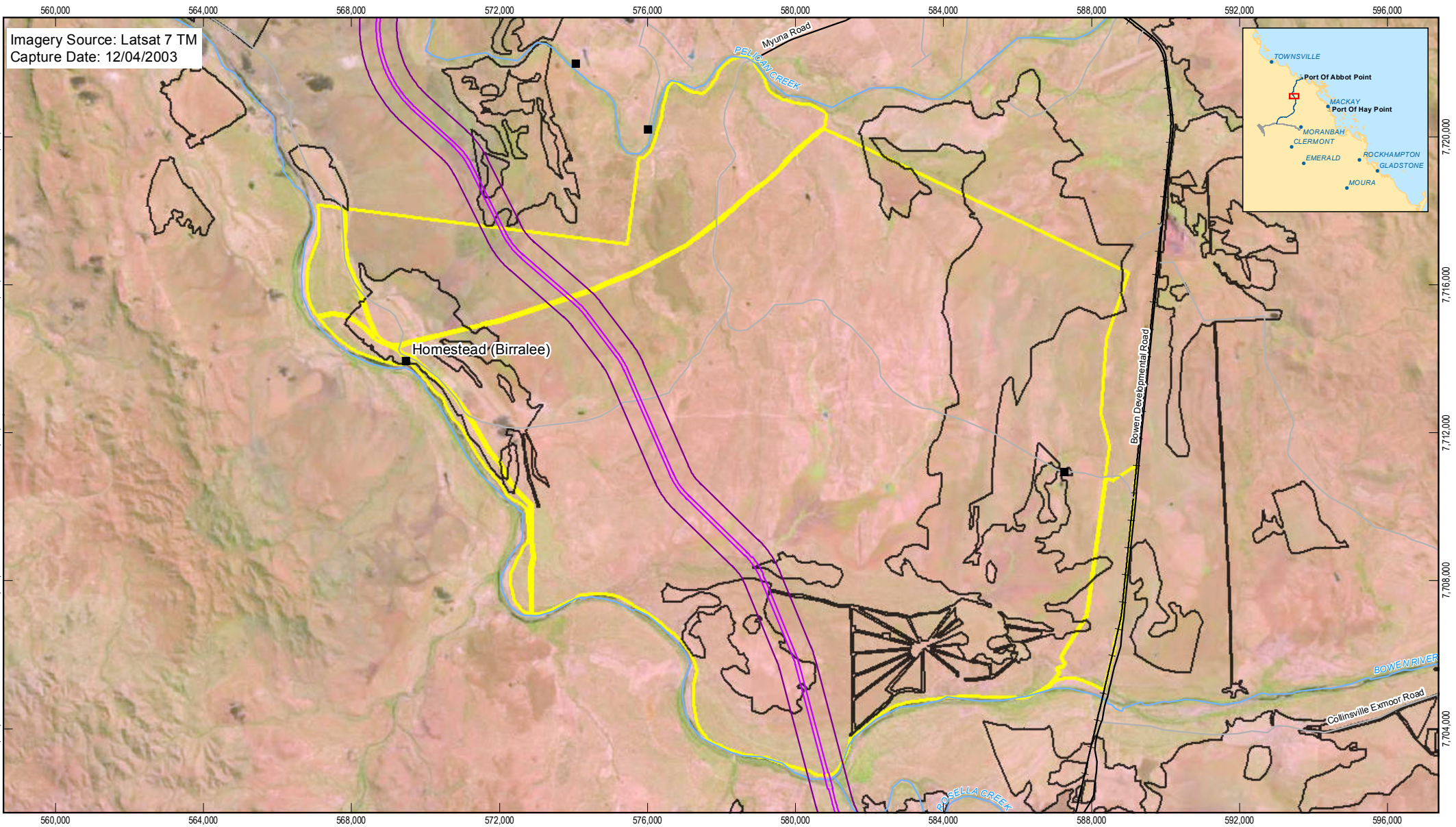
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2002. Created by MS

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrlee 2003**

Job Number 41-26457
Revision A
Date 26-08-2013

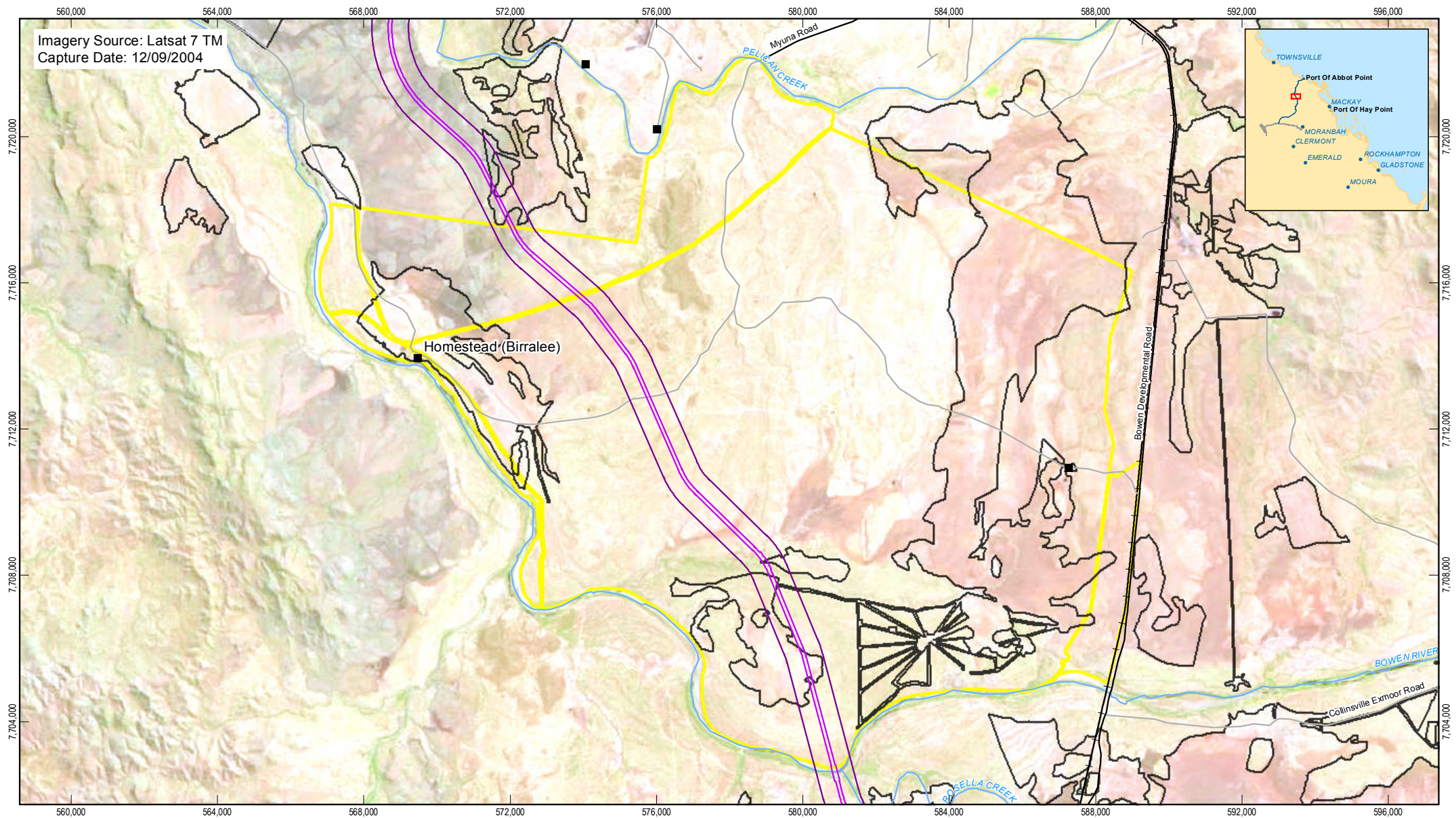
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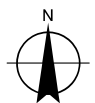
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USGS: LatSat Imagery/2003. Created by MS

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Birrlee 2004**

Job Number 41-26457
Revision A
Date 27-08-2013

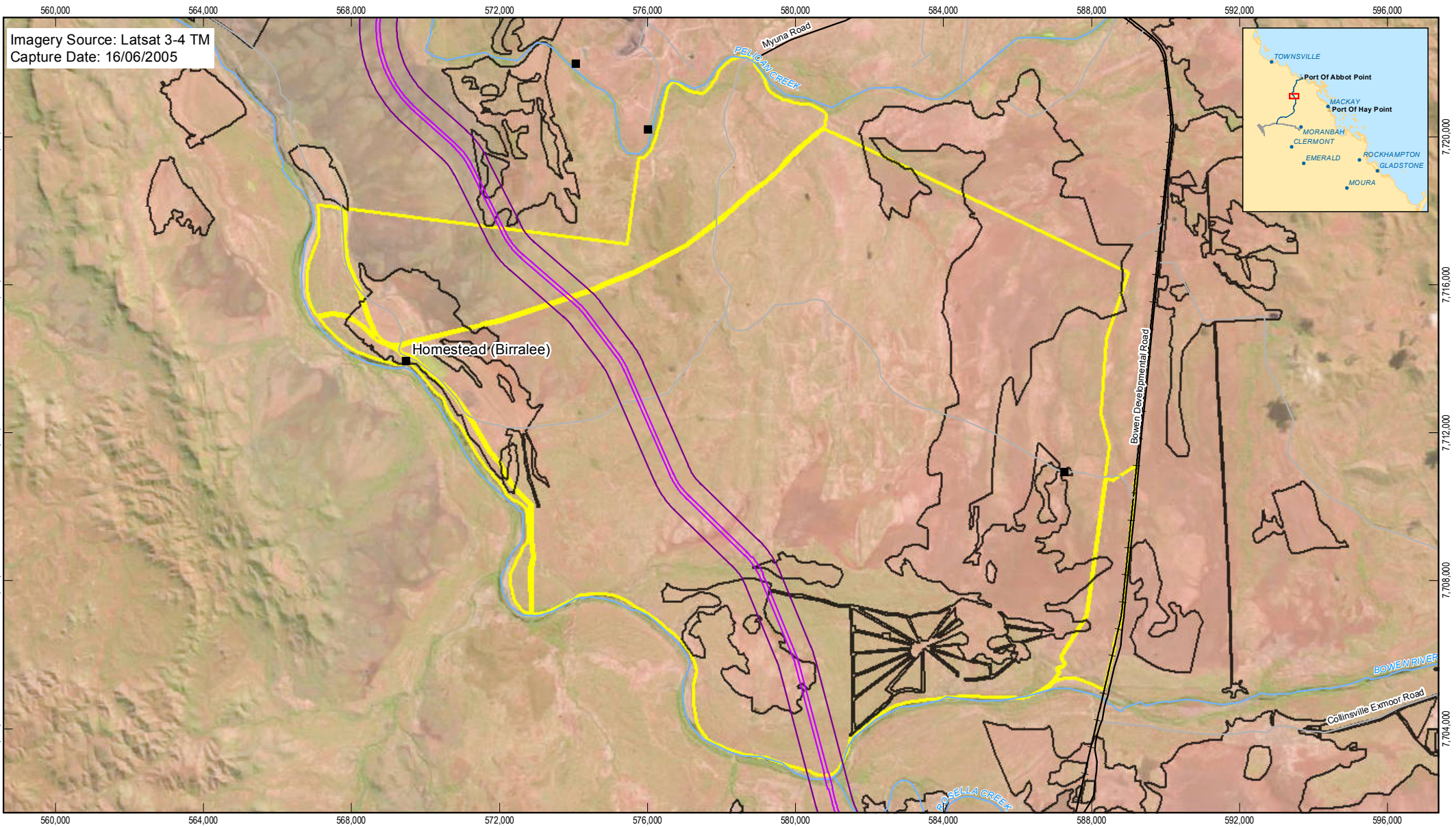
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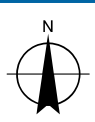
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1:140,000 Paper Size A4
0 2 4
Kilometres
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LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

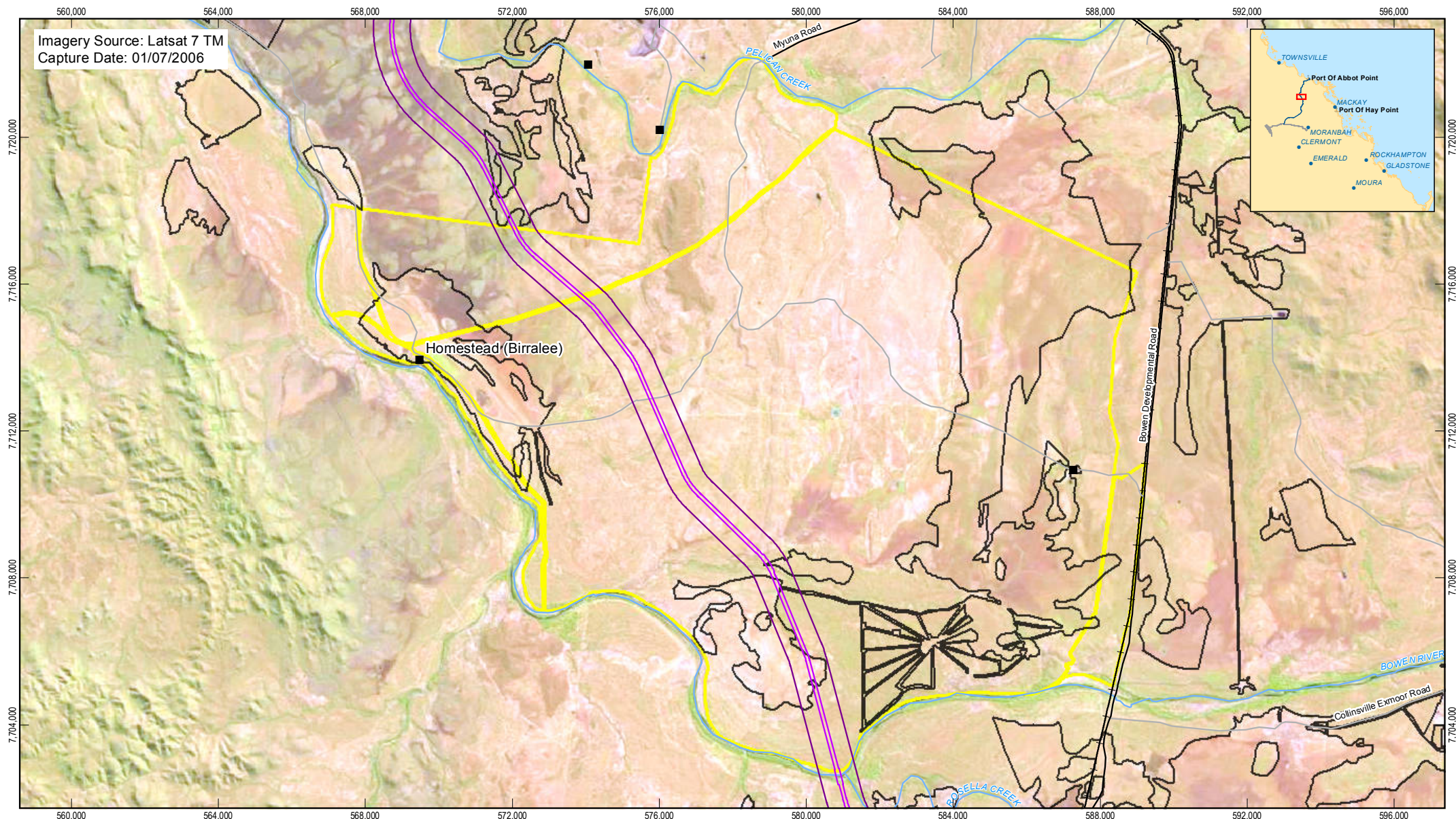
— Watercourse (Major)
□ Potential Strategic Cropping Land
■ Property Boundary
□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrilee 2005**

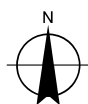
Job Number 41-26457
Revision A
Date 27-08-2013



Imagery Source: Latsat 7 TM
Capture Date: 01/07/2006



1:140,000 Paper Size A4
0 2 4
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

— Watercourse (Major)
— Potential Strategic Cropping Land
— Property Boundary
— North Galilee Basin Rail 1000m Corridor
— North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrilee 2006**

Job Number 41-26457
Revision A
Date 27-08-2013

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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRm/GHD: Property Boundary/2013; DNRm: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2006. Created by MS.

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Imagery Source: Latsat 7 TM
Capture Date: 21/08/2007

1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrlee 2007**

Job Number 41-26457
Revision A
Date 27-08-2013

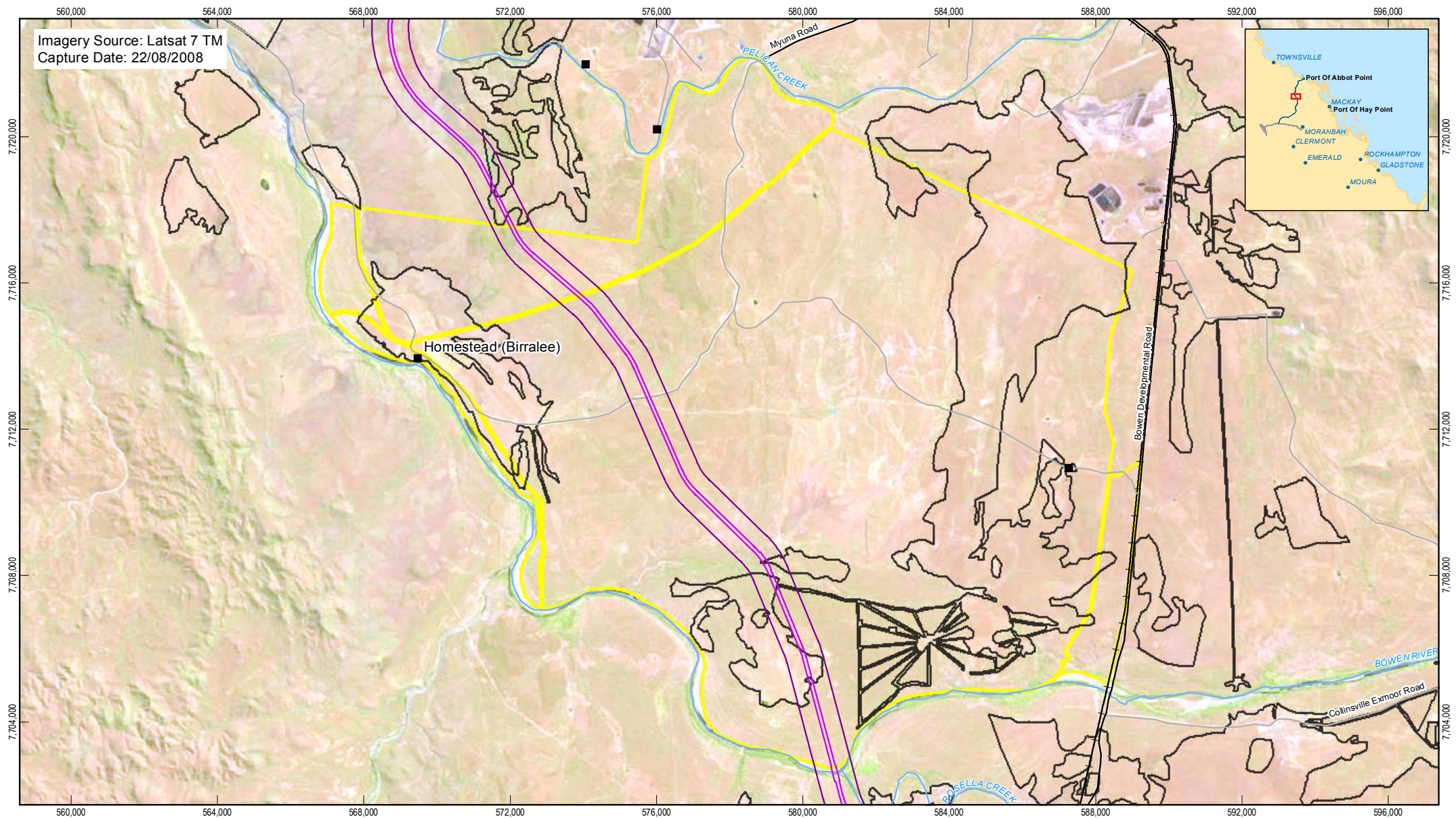
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB/2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2007. Created by MS.

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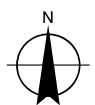
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Imagery Source: Latsat 7 TM
Capture Date: 22/08/2008



1:140,000 Paper Size A4
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Birrilee 2008**

Job Number 41-26457
Revision A
Date 27-08-2013

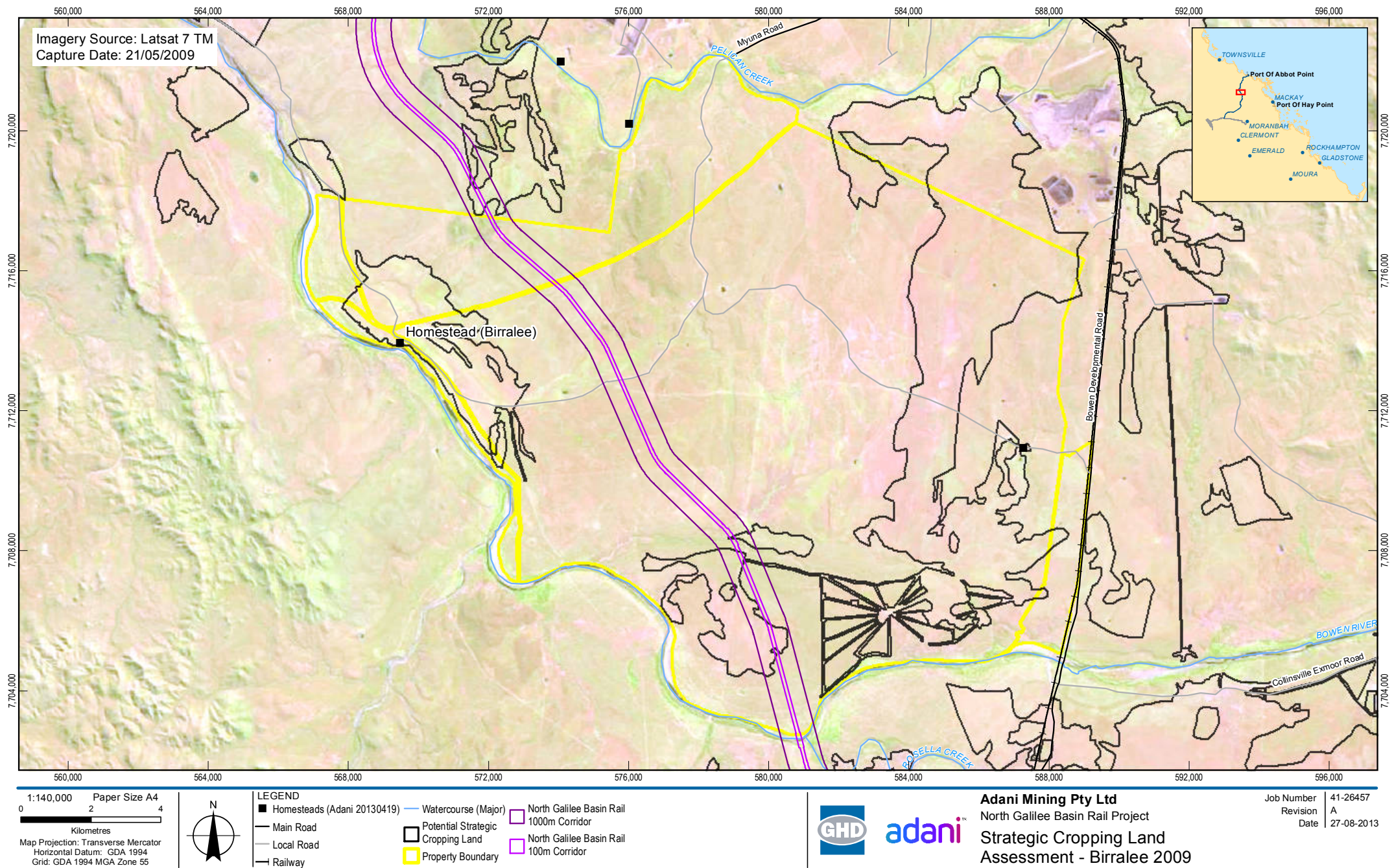
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2008. Created by MS.

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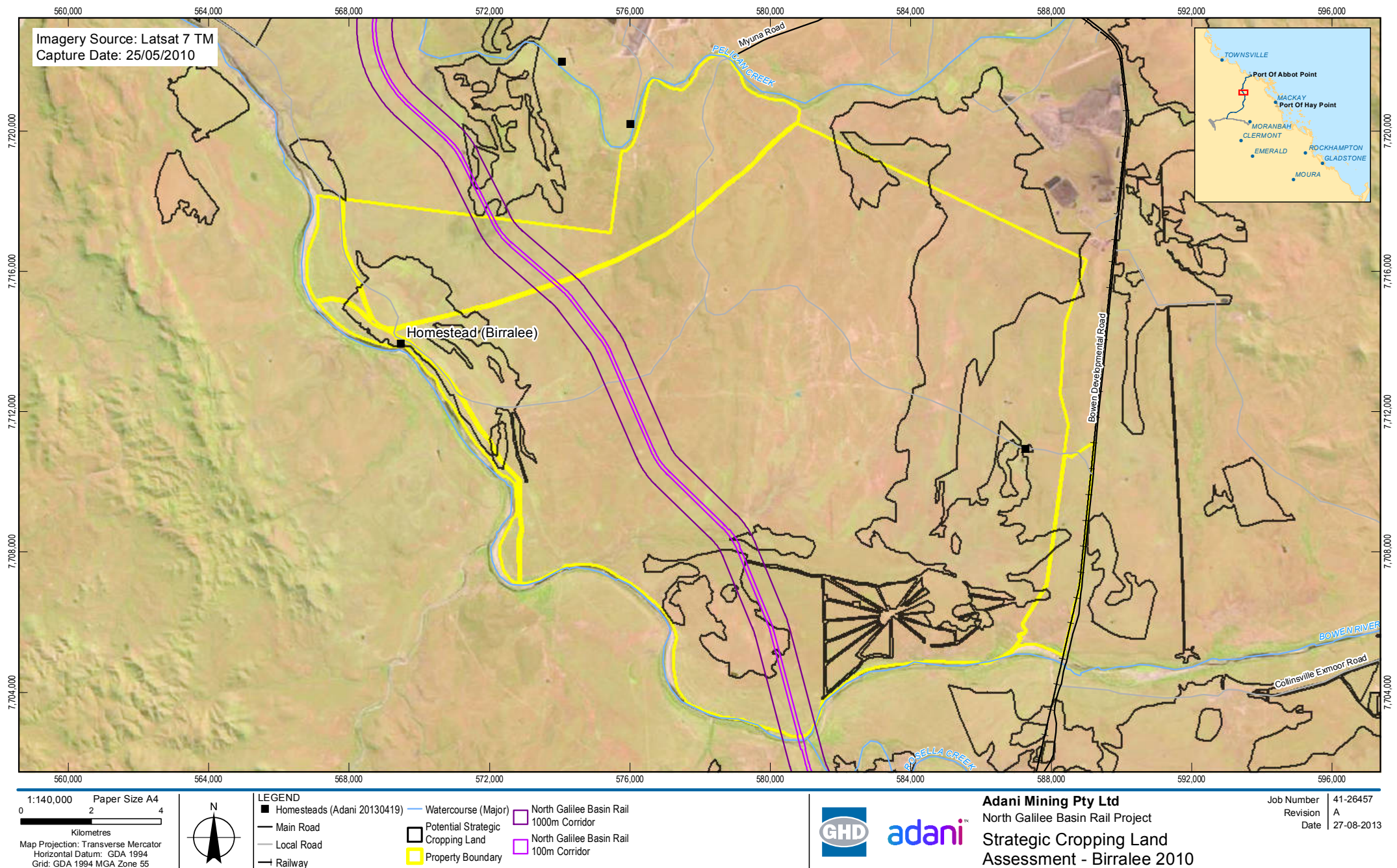
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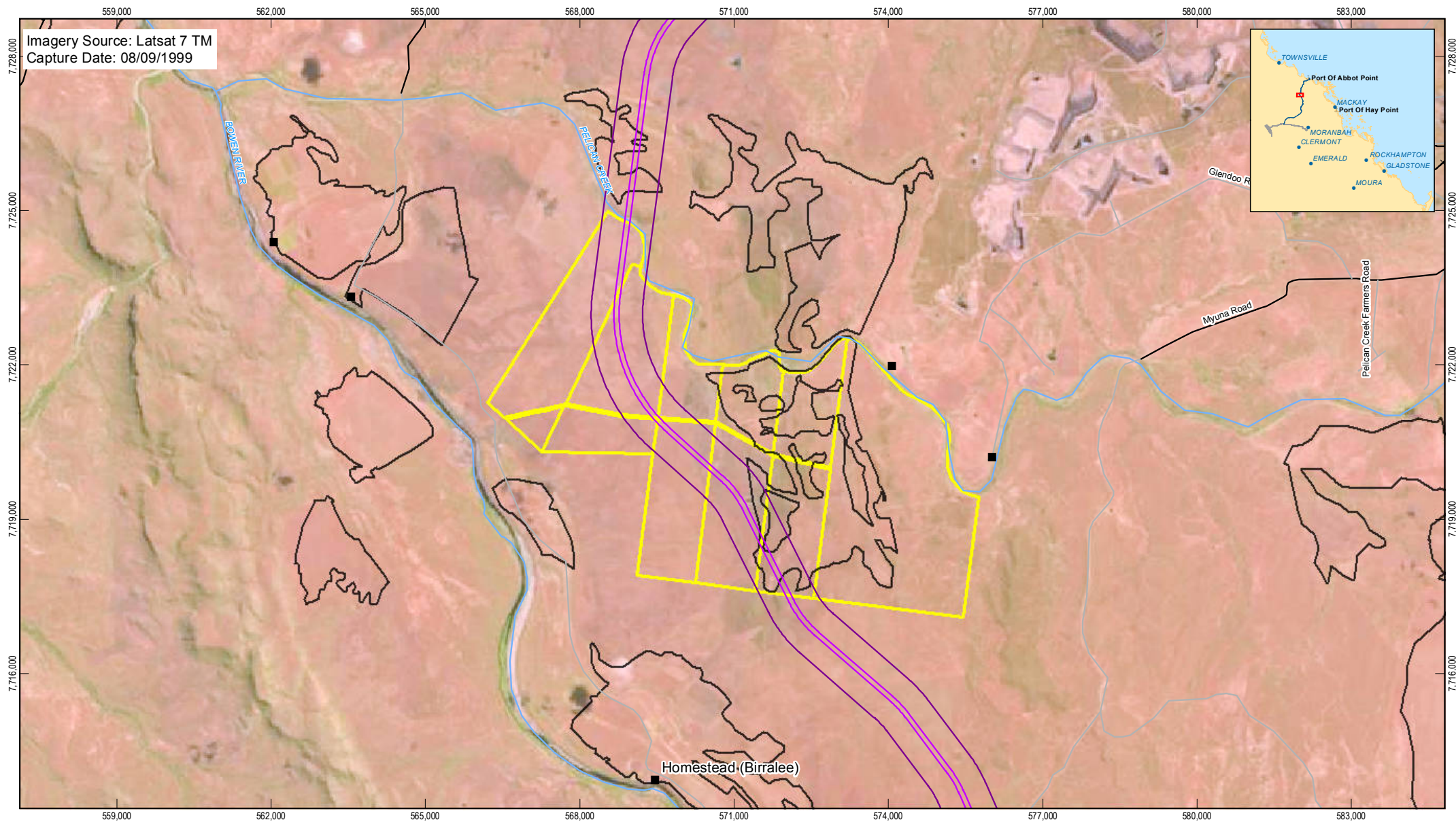
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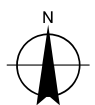
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Imagery Source: Latsat 7 TM
Capture Date: 08/09/1999

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Job Number 41-26457
Revision A
Date 27-08-2013

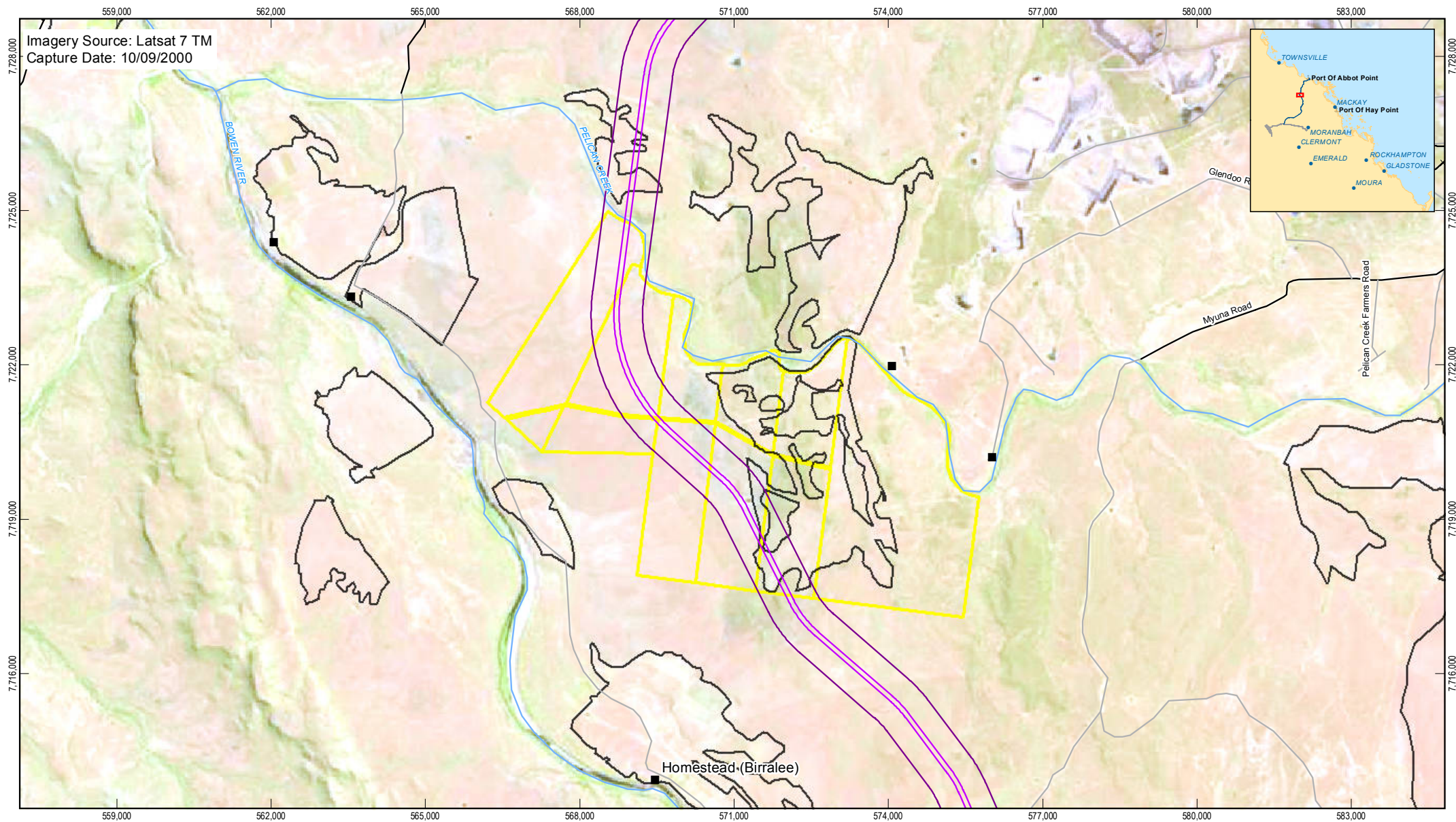
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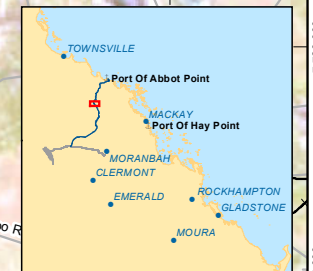
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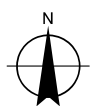
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Imagery Source: Latsat 7 TM
Capture Date: 10/09/2000



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



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Myuna 2000**

Job Number 41-26457
Revision A
Date 27-08-2013

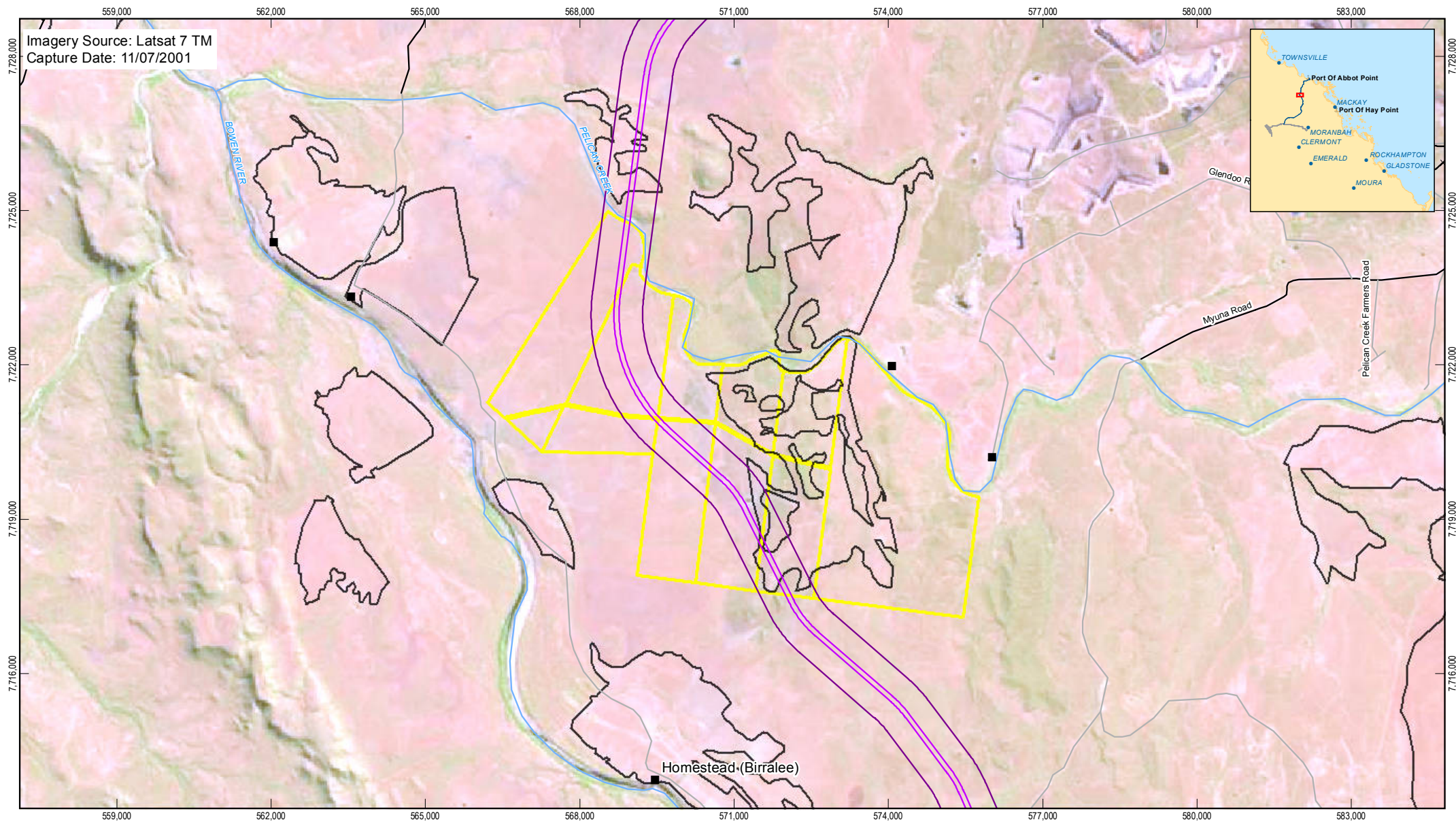
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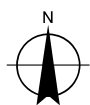
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Imagery Source: Latsat 7 TM
Capture Date: 11/07/2001



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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Myuna 2001**

Job Number 41-26457
Revision A
Date 27-08-2013

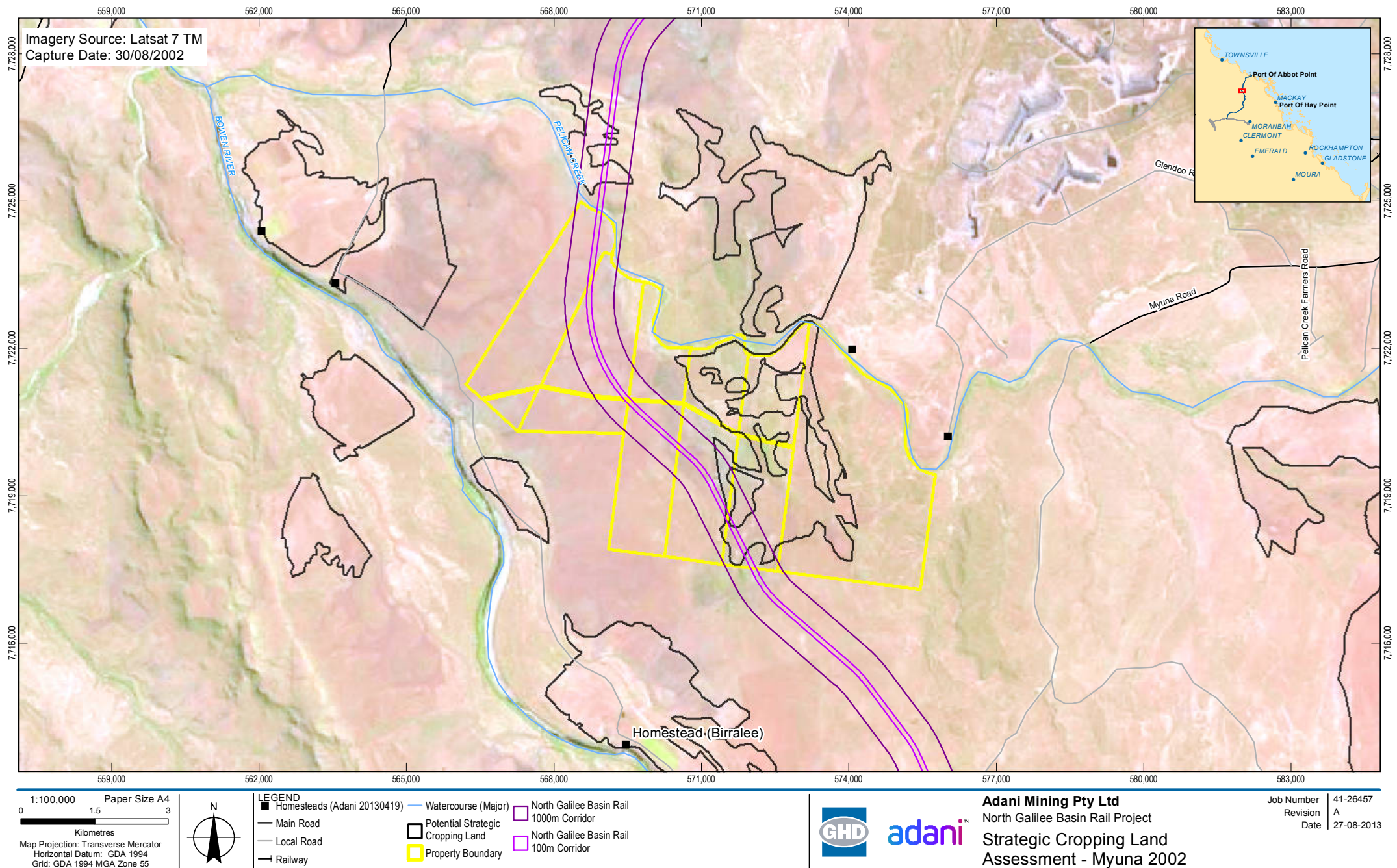
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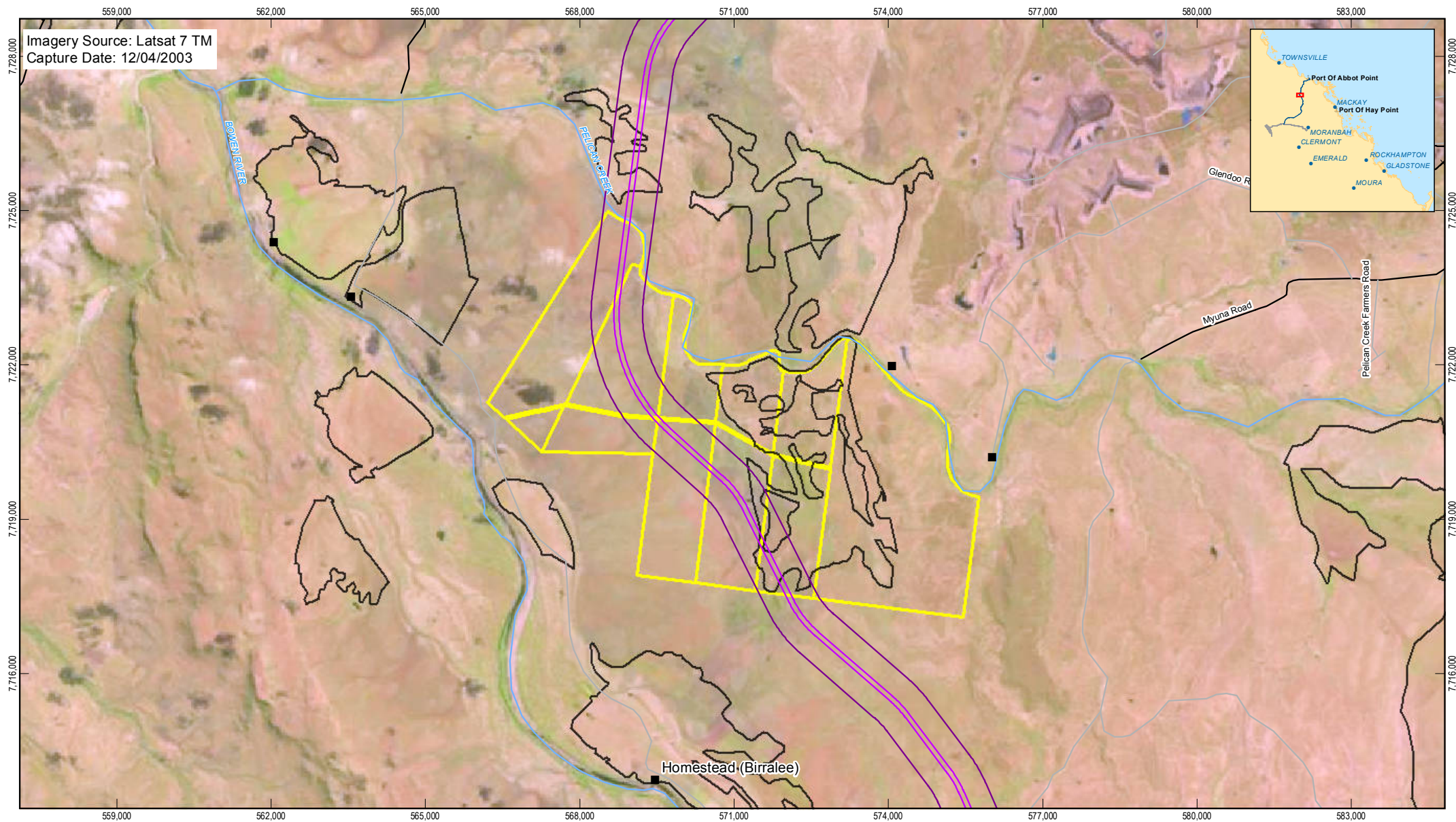
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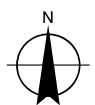
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Imagery Source: Latsat 7 TM
Capture Date: 12/04/2003



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



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Myuna 2003**

Job Number 41-26457
Revision A
Date 27-08-2013

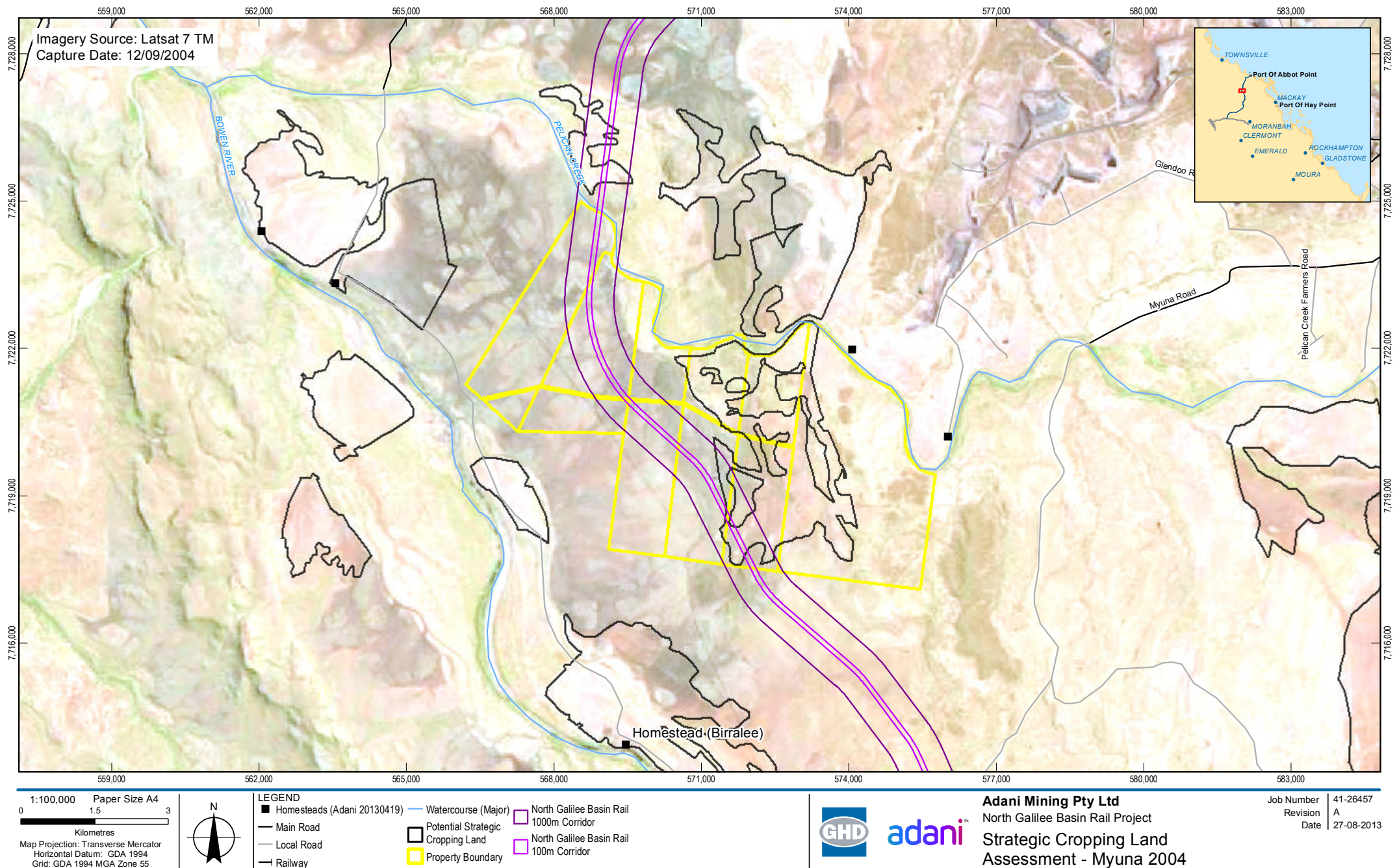
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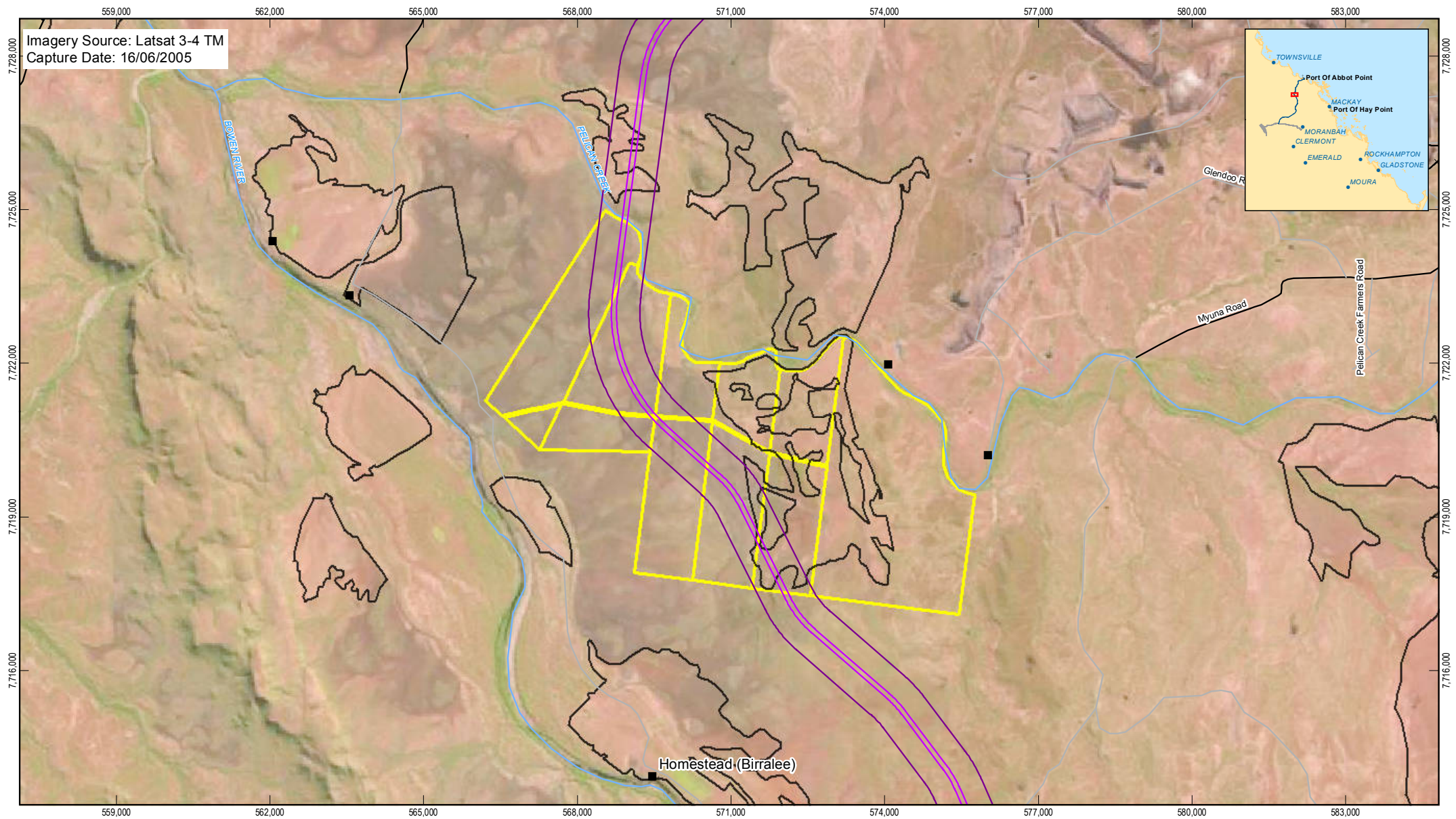
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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Myuna 2004**

Job Number 41-26457
Revision A
Date 27-08-2013

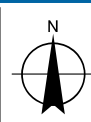
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Imagery Source: Latsat 3-4 TM
Capture Date: 16/06/2005

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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Railway

— Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Myuna 2005

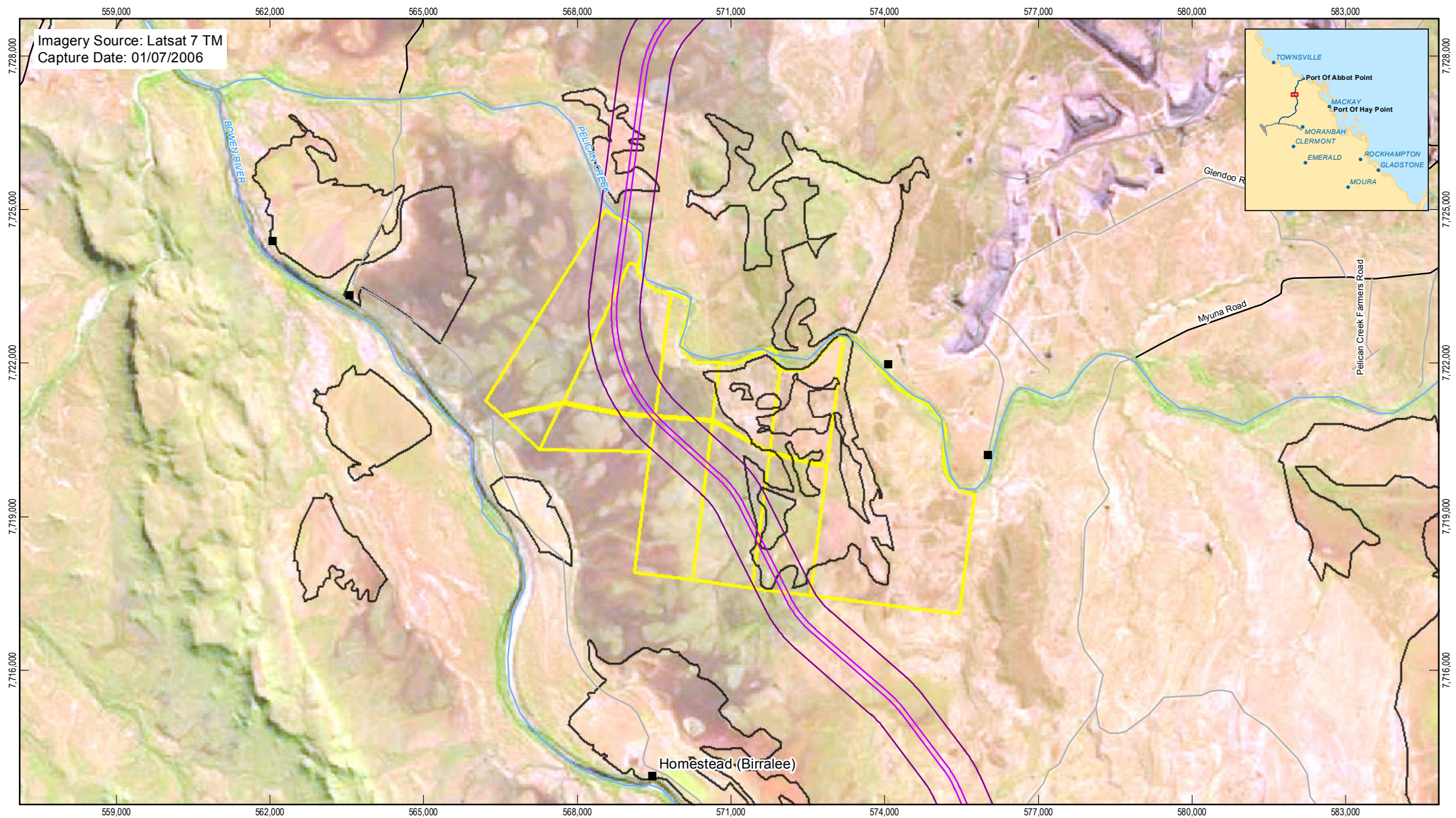
Job Number 41-26457
 Revision A
 Date 27-08-2013

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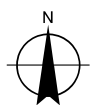
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1:100,000 Paper Size A4
0 1.5 3
Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Myuna 2006**

Job Number 41-26457
Revision A
Date 27-08-2013

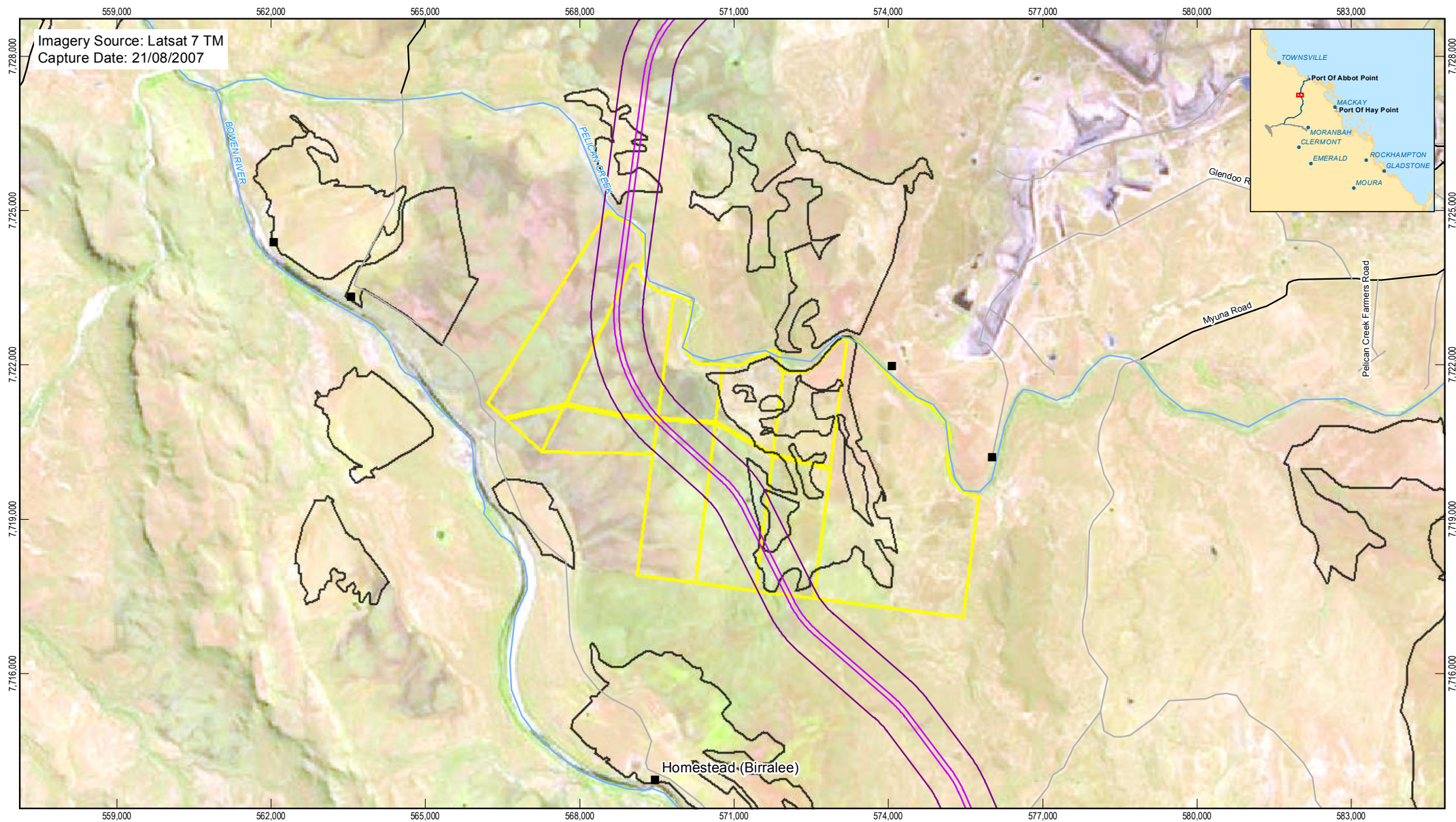
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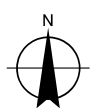
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Railway

— Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
 Assessment - Myuna 2007**

Job Number 41-26457
 Revision A
 Date 27-08-2013

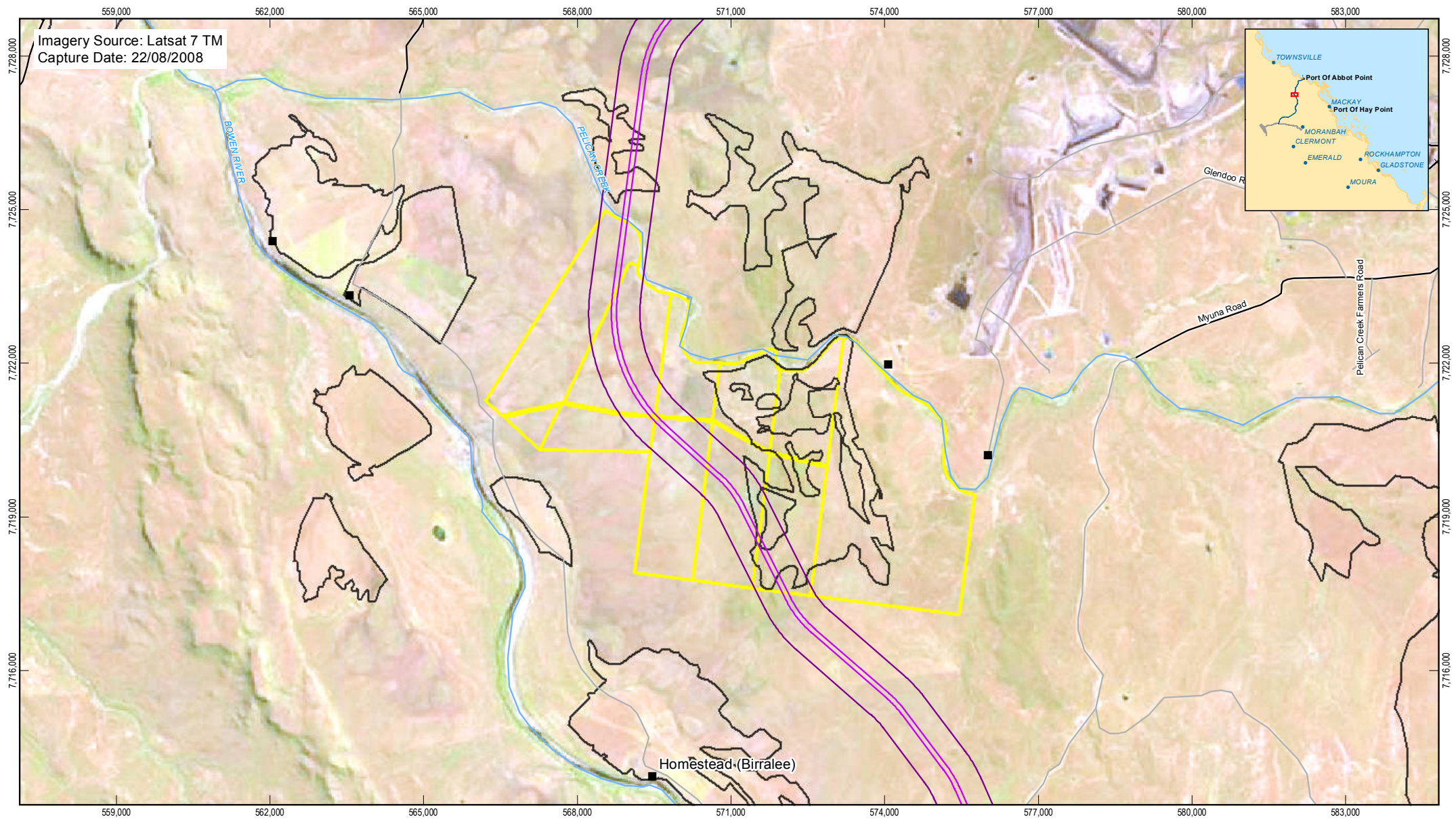
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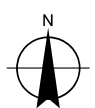
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Homestead (Birralee)

1:100,000 Paper Size A4

0 1.5 3
Kilometres

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Assessment - Myuna 2008**

Job Number 41-26457
Revision A
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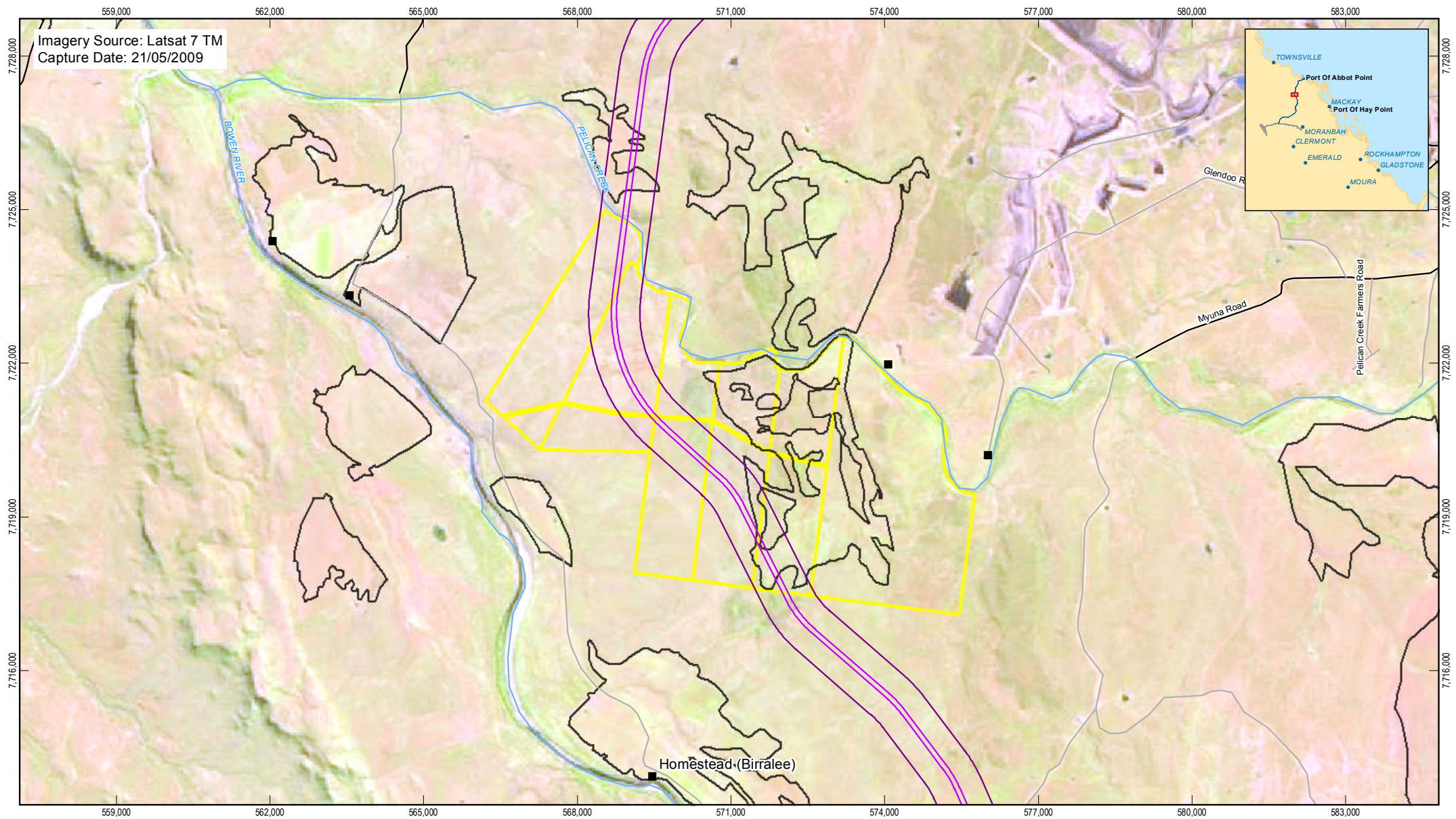
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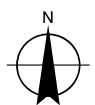
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Imagery Source: Latsat 7 TM
Capture Date: 21/05/2009



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



LEGEND
 ■ Homesteads (Adani 20130419)
 — Main Road
 — Local Road
 — Railway

— Watercourse (Major)
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
 Assessment - Myuna 2009**

Job Number 41-26457
 Revision A
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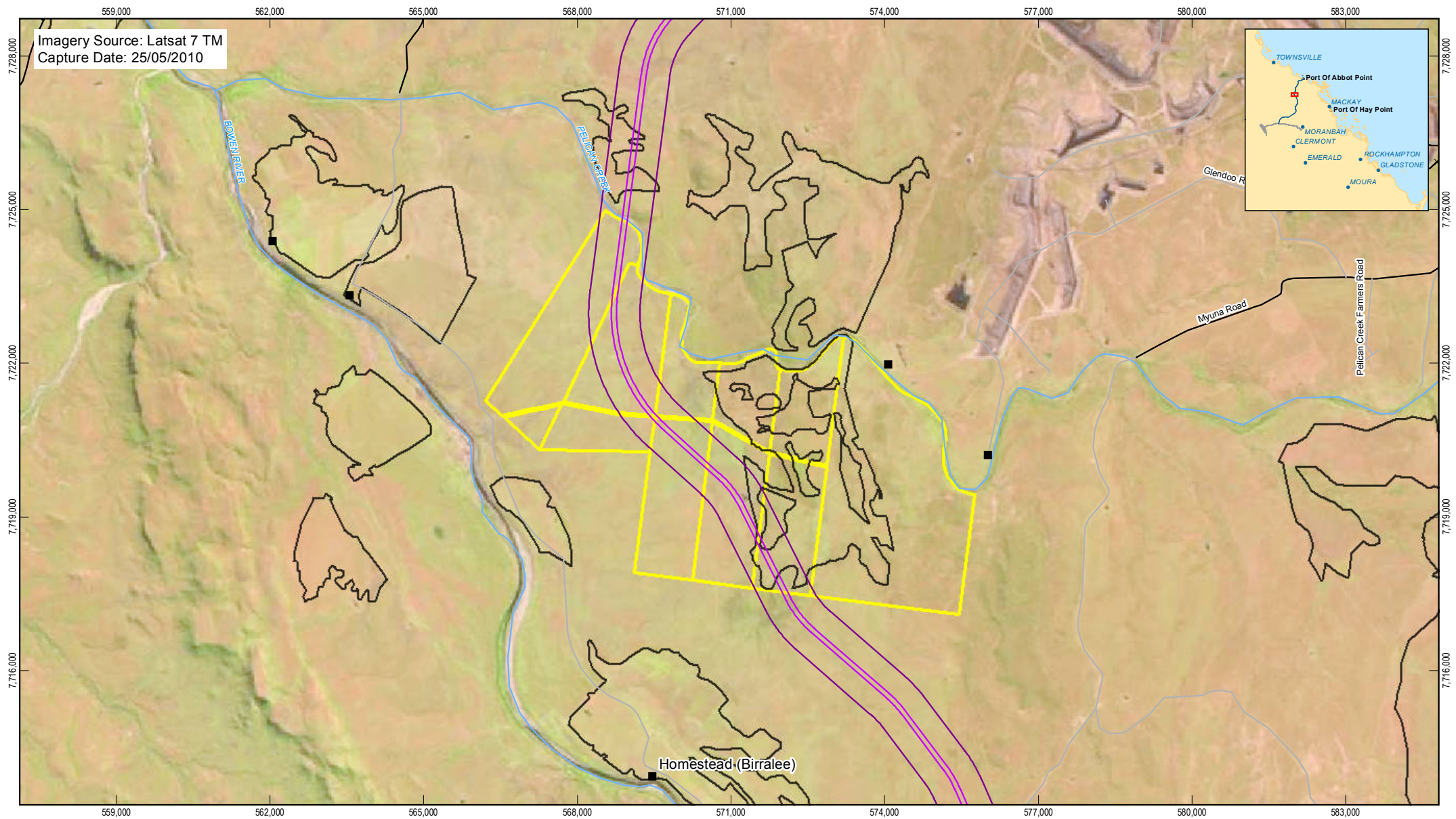
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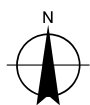
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Myuna 2010**

Job Number	41-26457
Revision	A
Date	27-08-2013

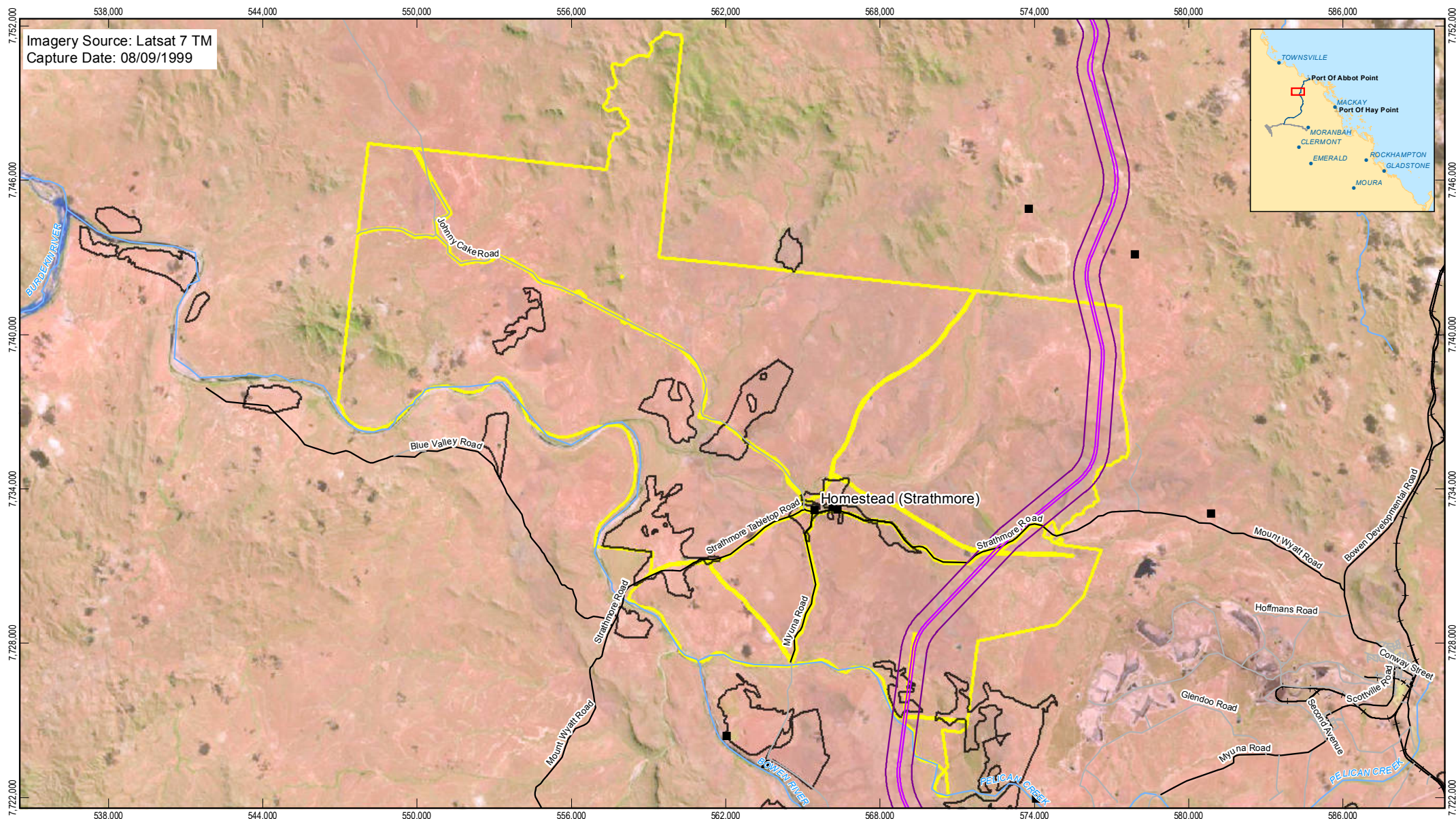
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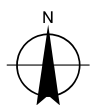
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1:200,000 Paper Size A4

0 3 6
Kilometres

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 1999**

Job Number 41-26457
Revision A
Date 27-08-2013

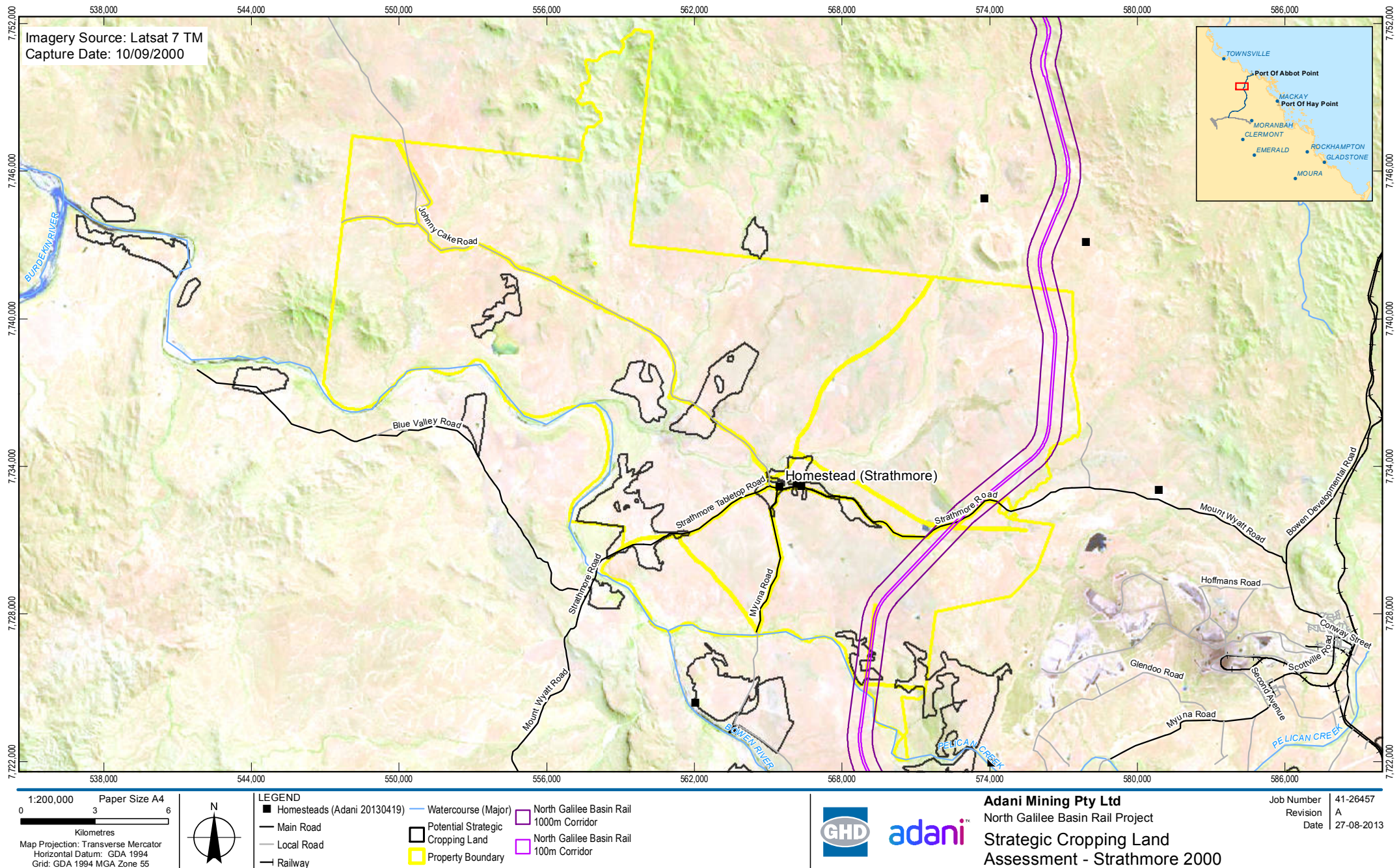
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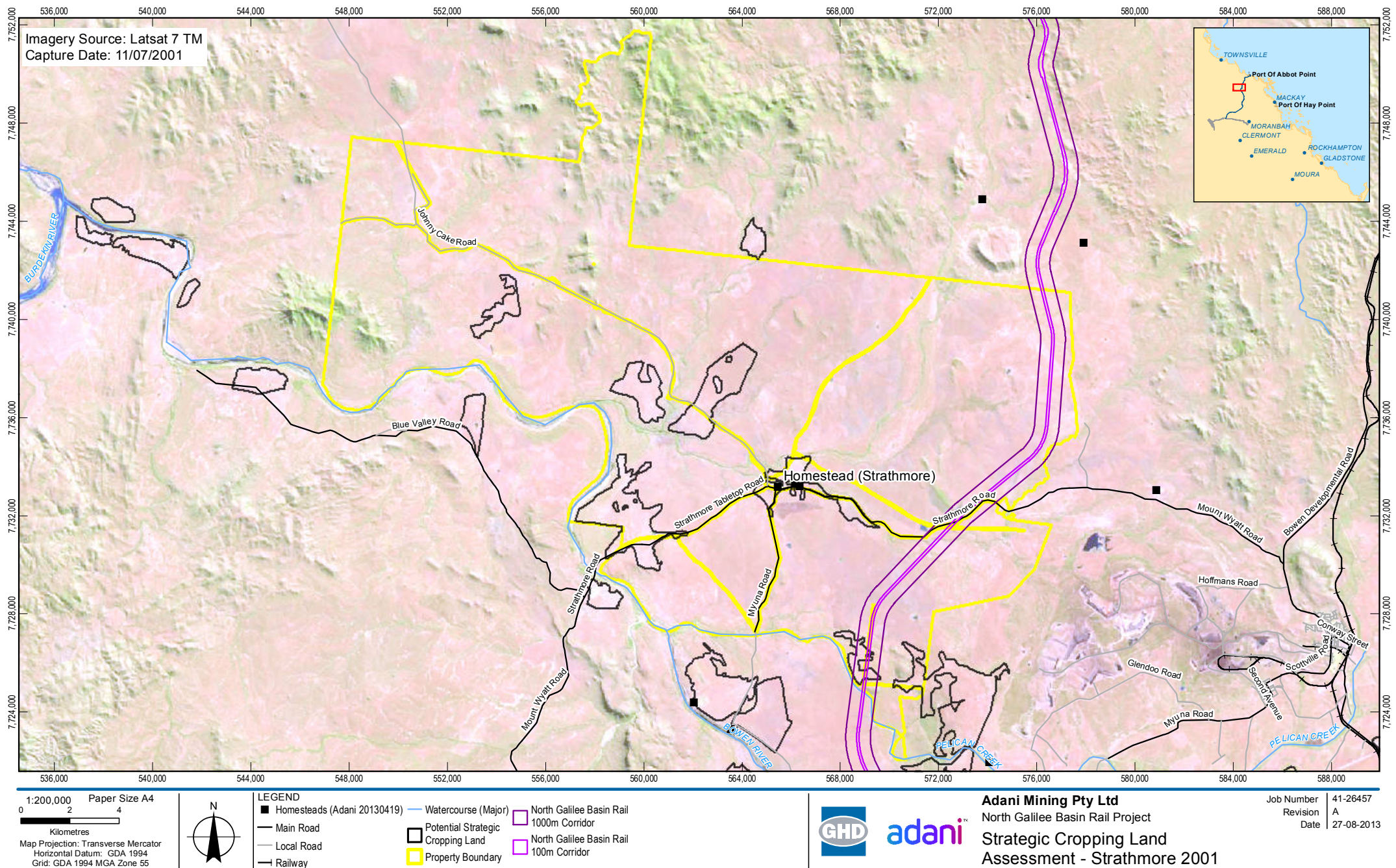
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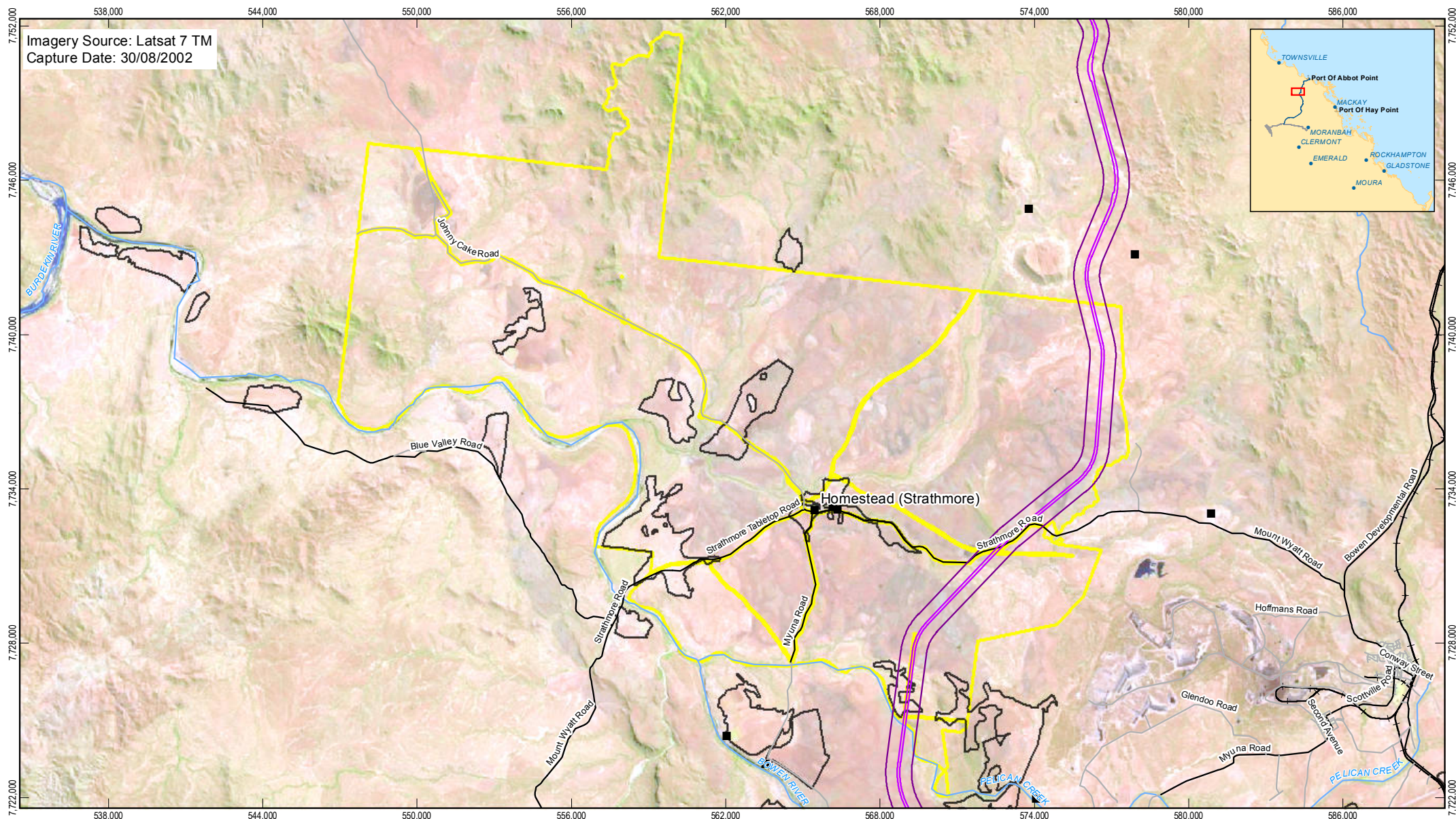
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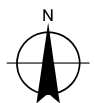
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Imagery Source: Latsat 7 TM
Capture Date: 30/08/2002

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



LEGEND

- Homesteads (Adani 2013/0419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 2002**

Job Number 41-26457
Revision A
Date 27-08-2013

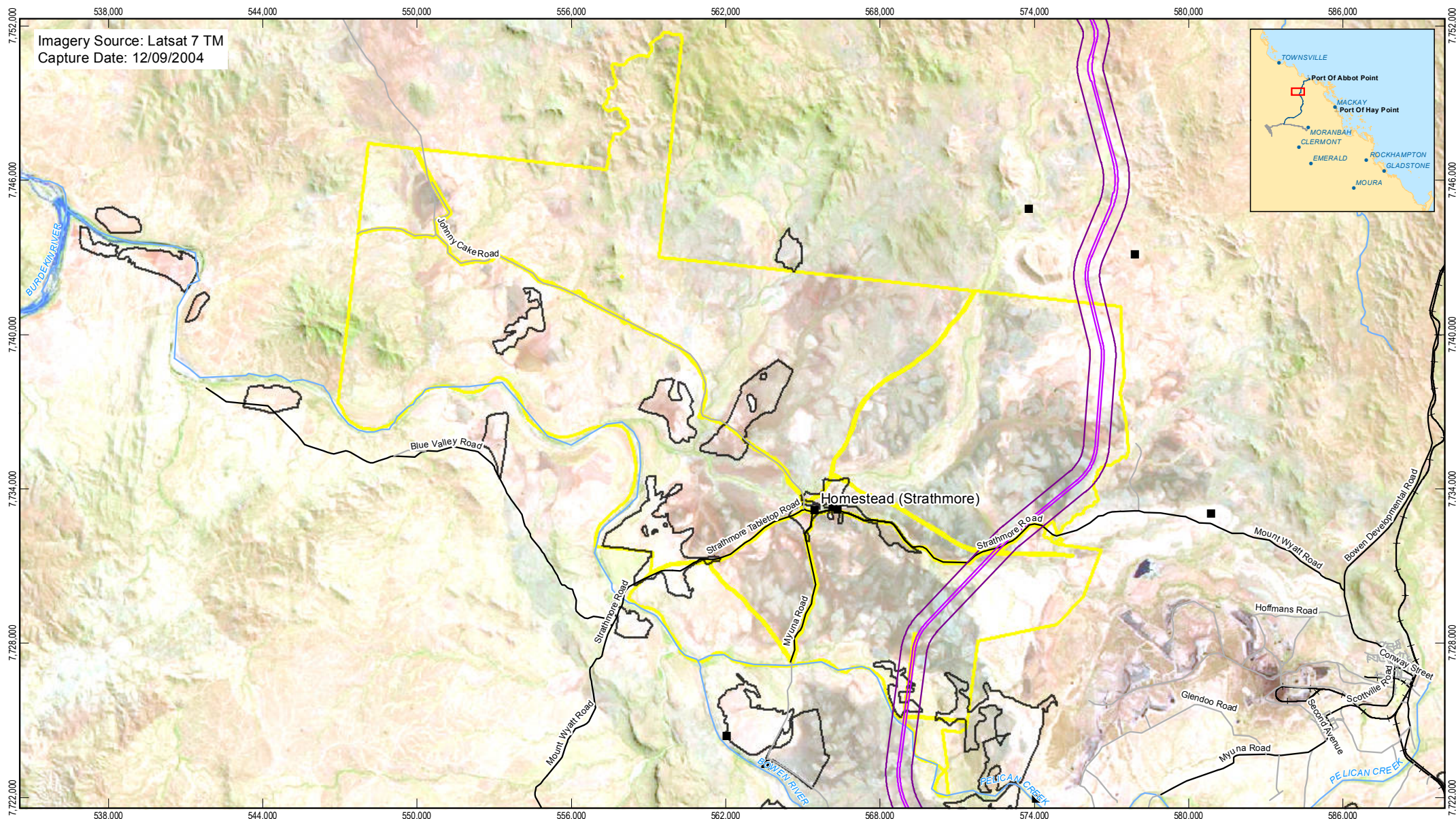
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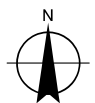
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 2004**

Job Number 41-26457
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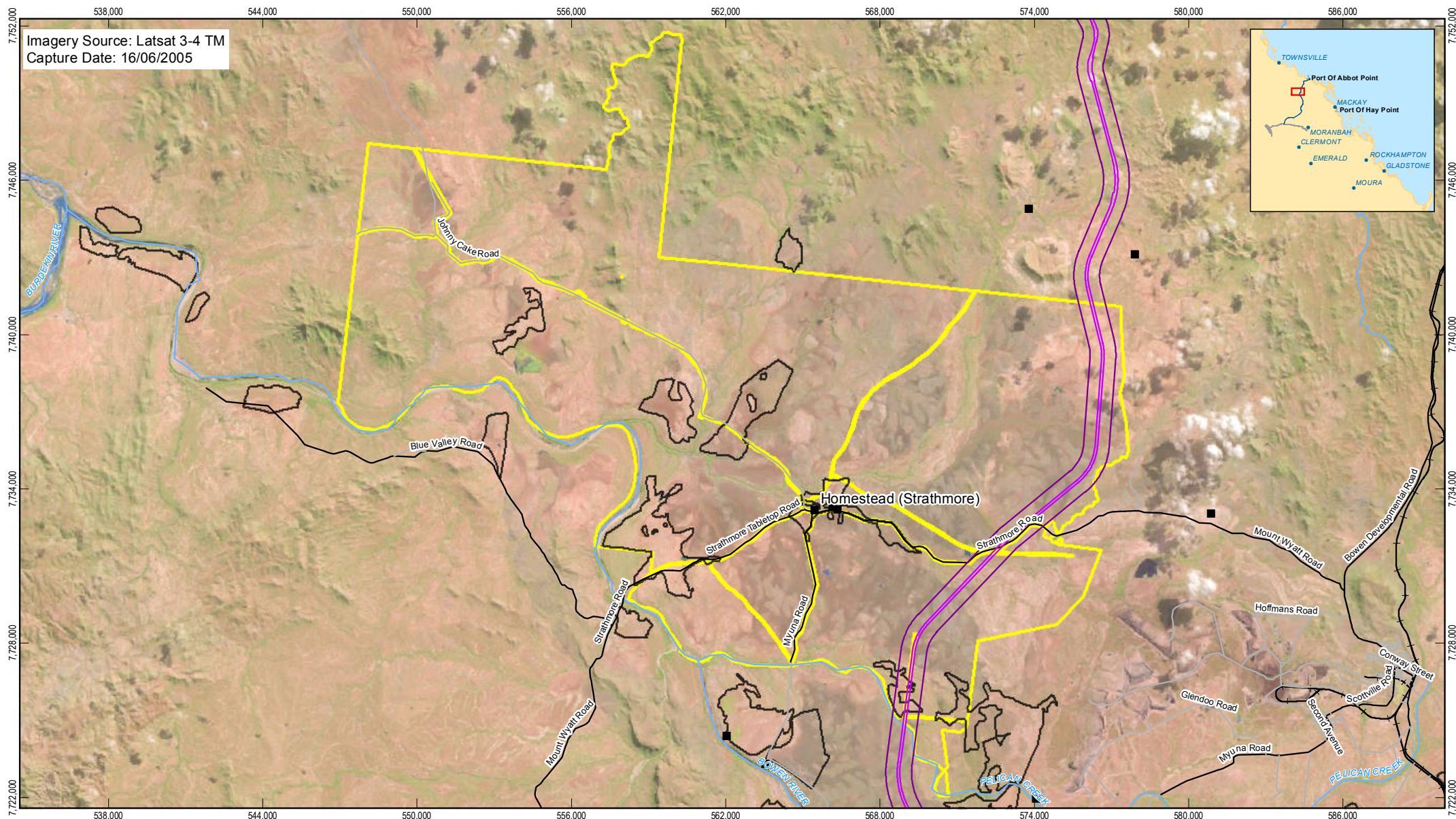
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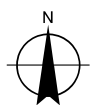
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1:200,000 Paper Size A4
0 3 6
Kilometres
Map Projection: Transverse Mercator
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LEGEND
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— Local Road
— Railway

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 2005**

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Revision A
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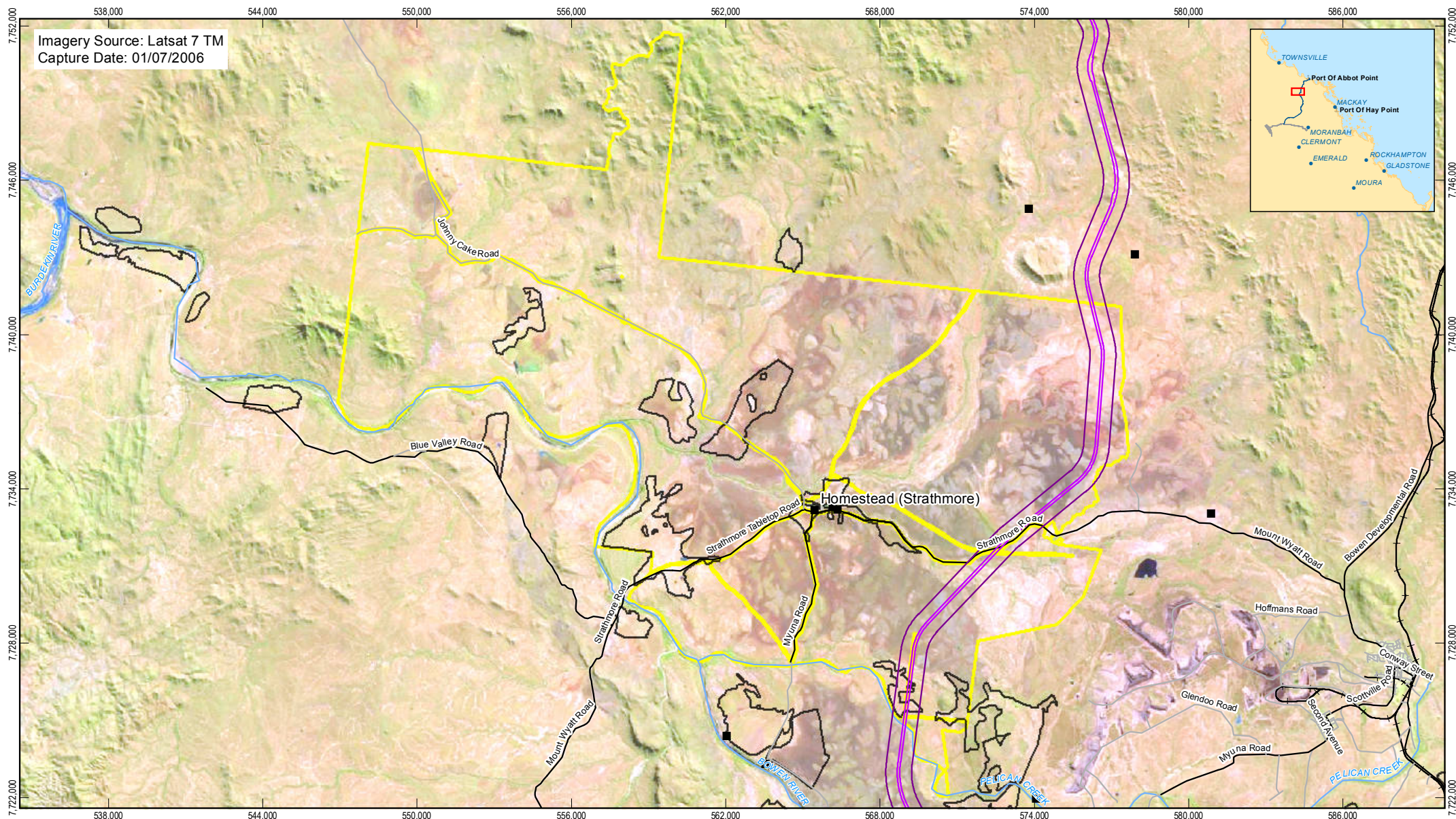
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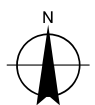
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Imagery Source: Latsat 7 TM
Capture Date: 01/07/2006

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



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 2006**

Job Number 41-26457
Revision A
Date 27-08-2013

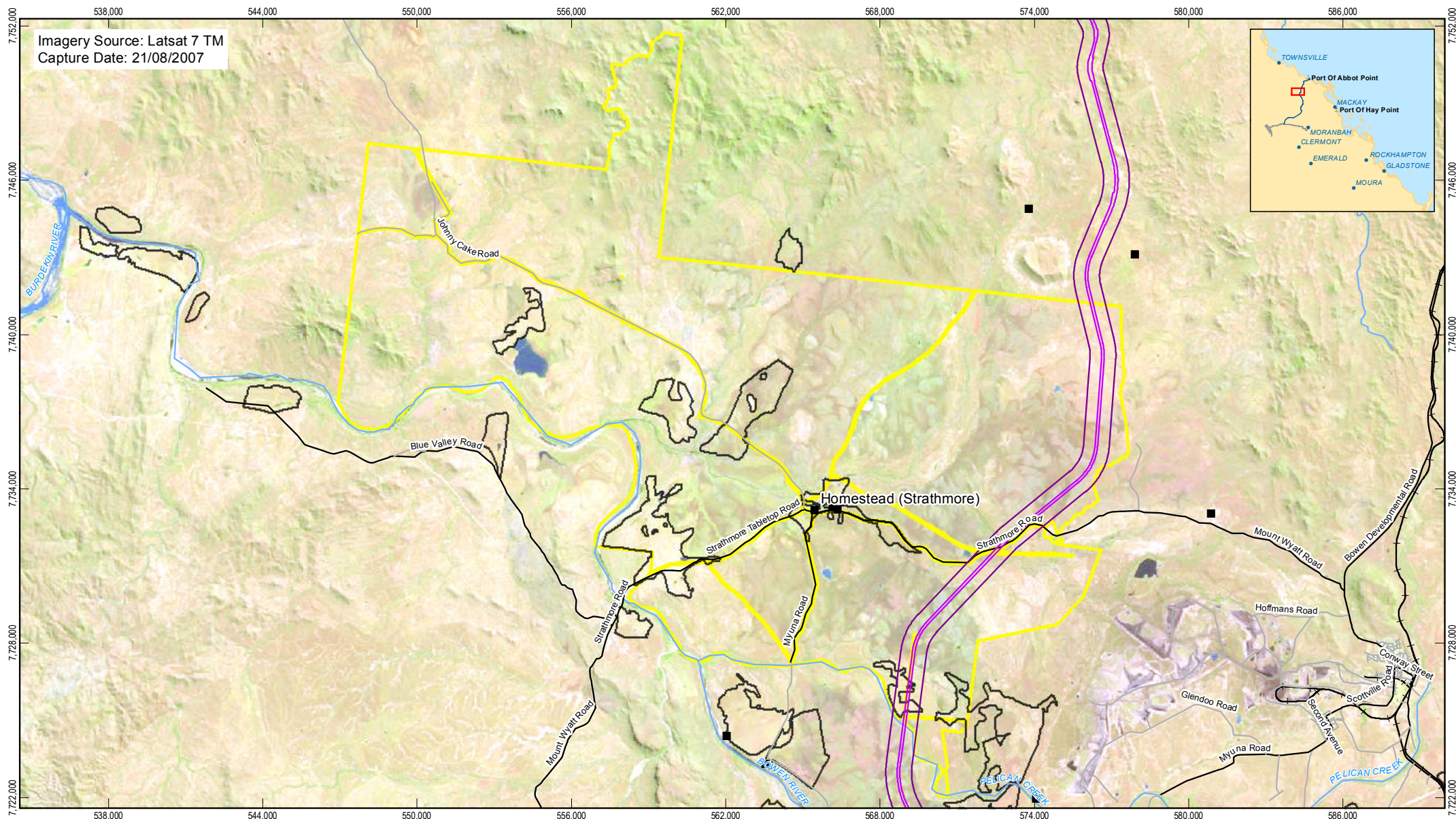
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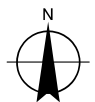
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LEGEND
■ Homesteads (Adani 20130419)
— Main Road
— Local Road
— Railway

— Watercourse (Major)
□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Strathmore 2007**

Job Number 41-26457
Revision A
Date 27-08-2013

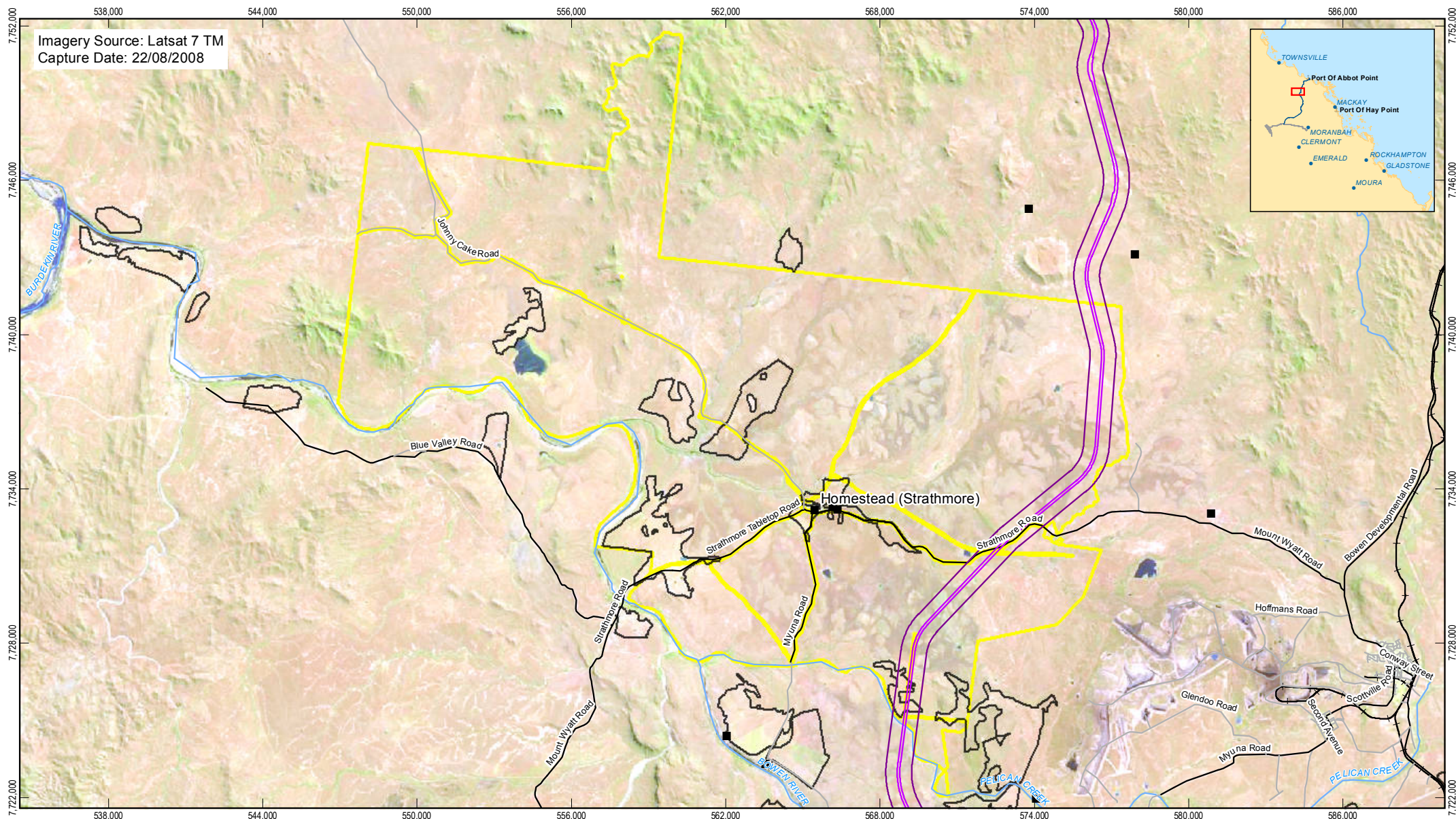
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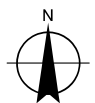
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LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Strathmore 2008**

Job Number 41-26457
Revision A
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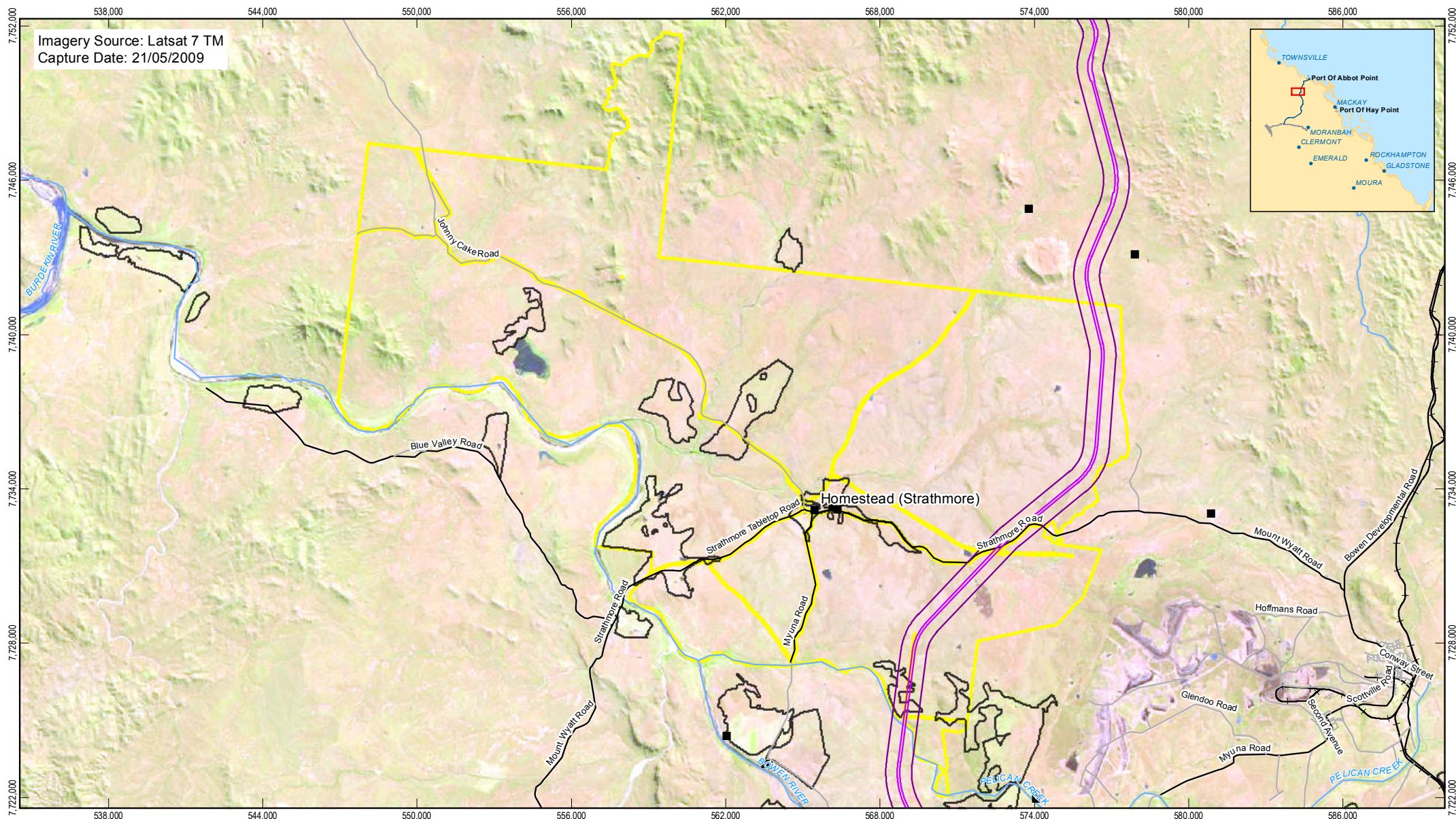
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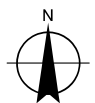
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LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Strathmore 2009**

Job Number 41-26457
Revision A
Date 27-08-2013

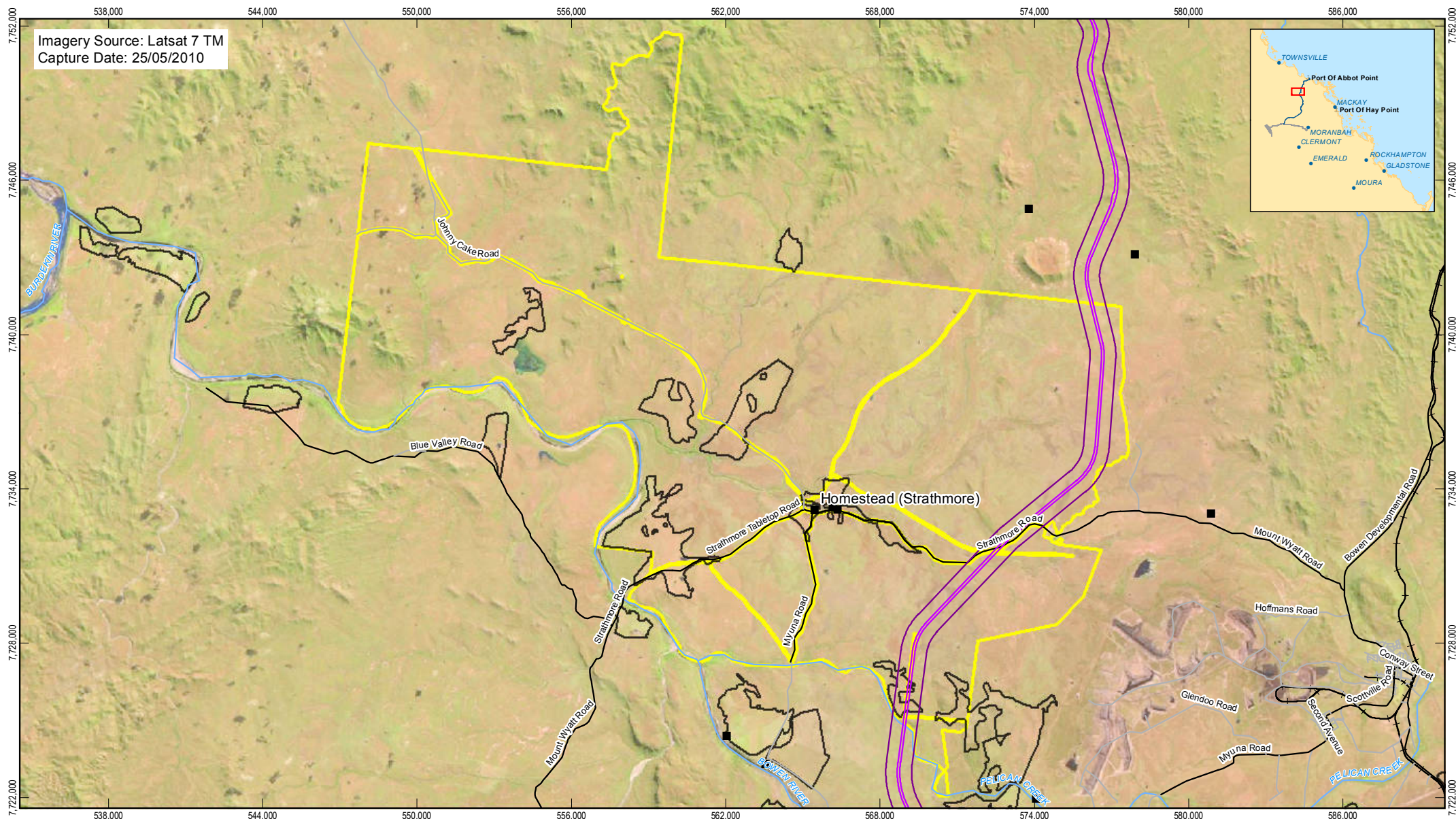
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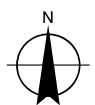
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Imagery Source: Latsat 7 TM
Capture Date: 25/05/2010



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



LEGEND

- Homesteads (Adani 2013/0419)
- Main Road
- Local Road
- Railway
- Watercourse (Major)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Strathmore 2010**

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Revision A
Date 27-08-2013

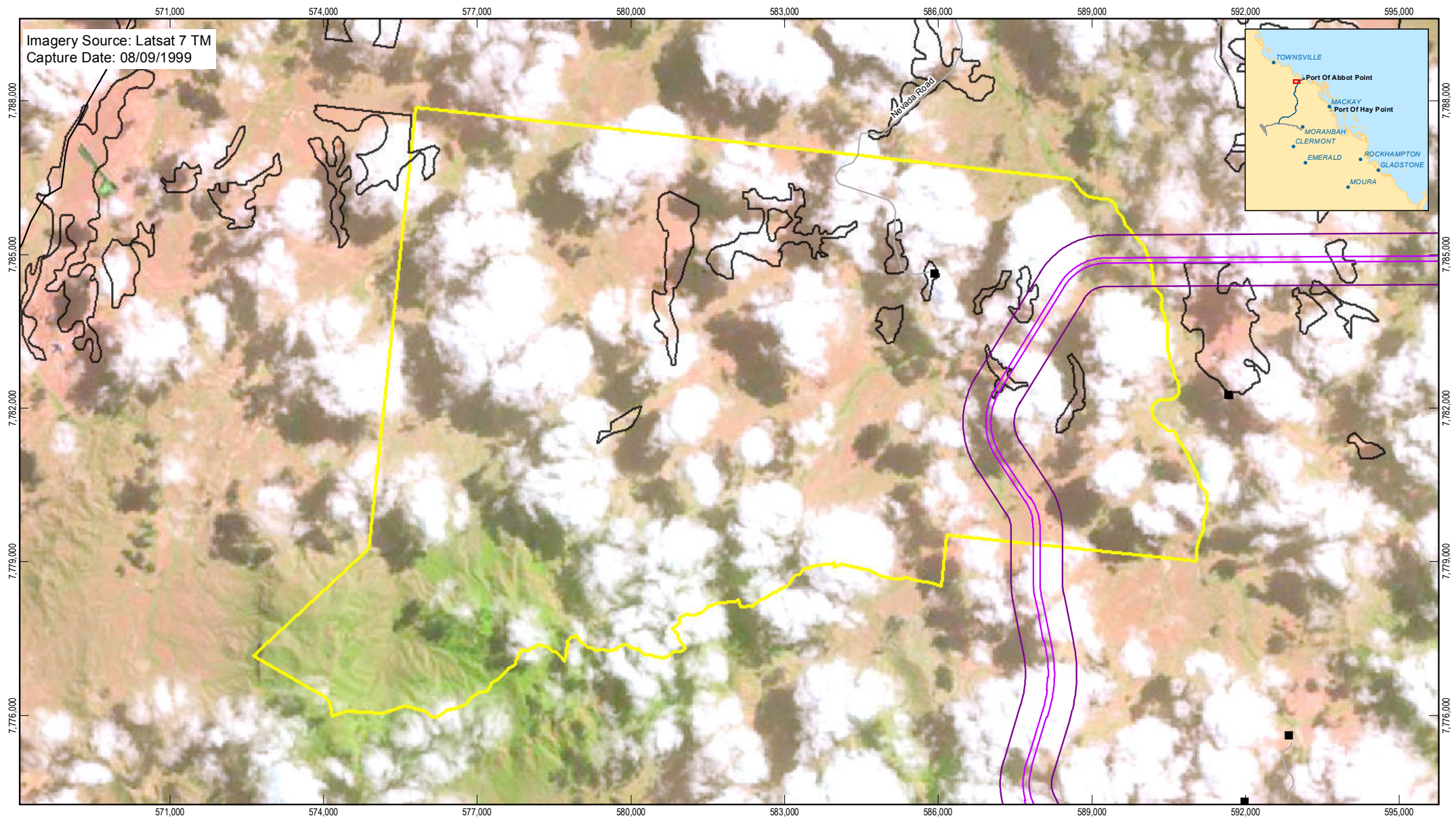
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2010. Created by MS.

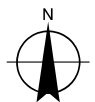
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Imagery Source: Latsat 7 TM
Capture Date: 08/09/1999

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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Assessment - Nevada 1999**

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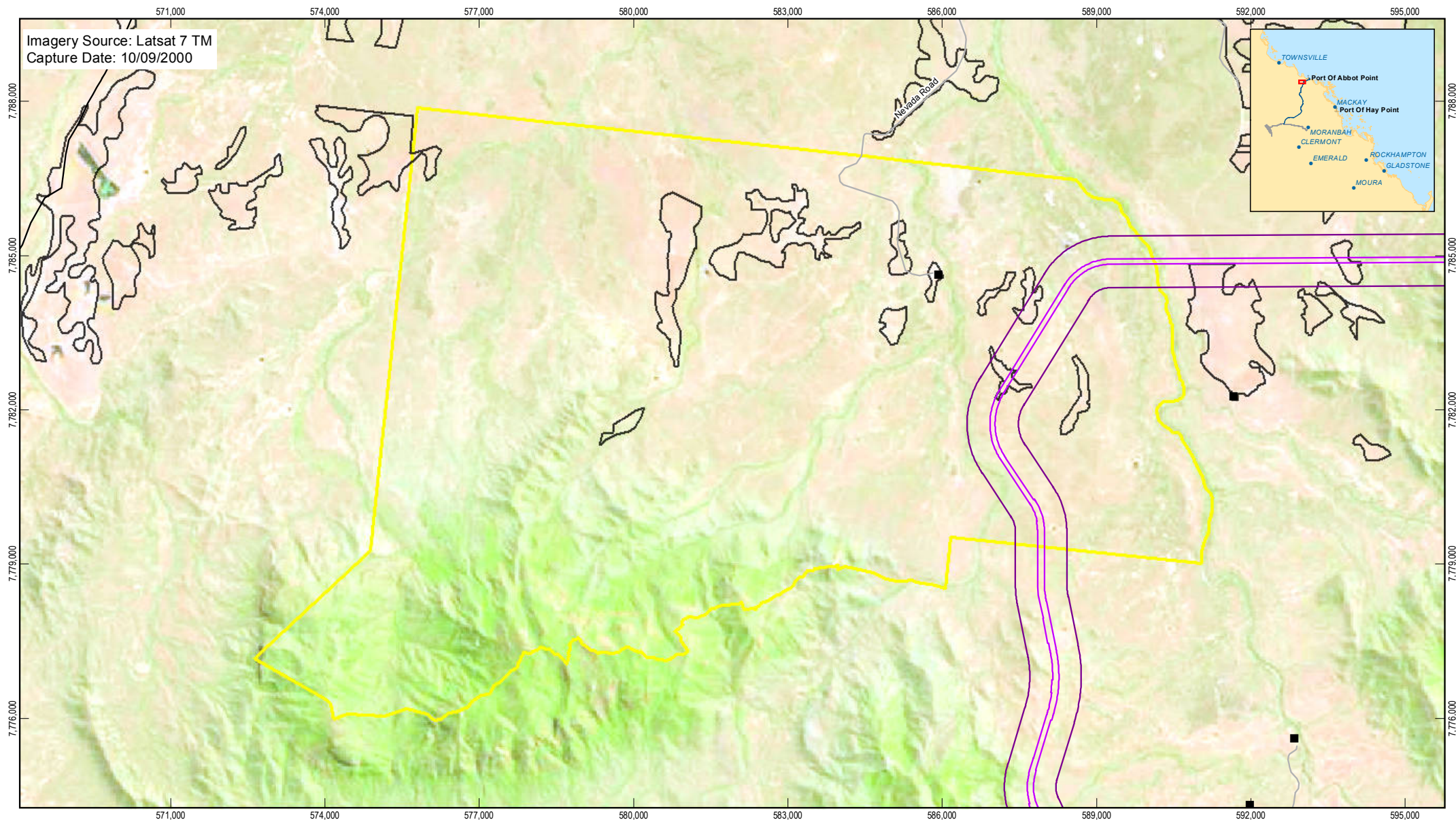
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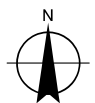
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNR/GHD: Property Boundary/2013; DNR: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/1999. Created by MS

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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2000**

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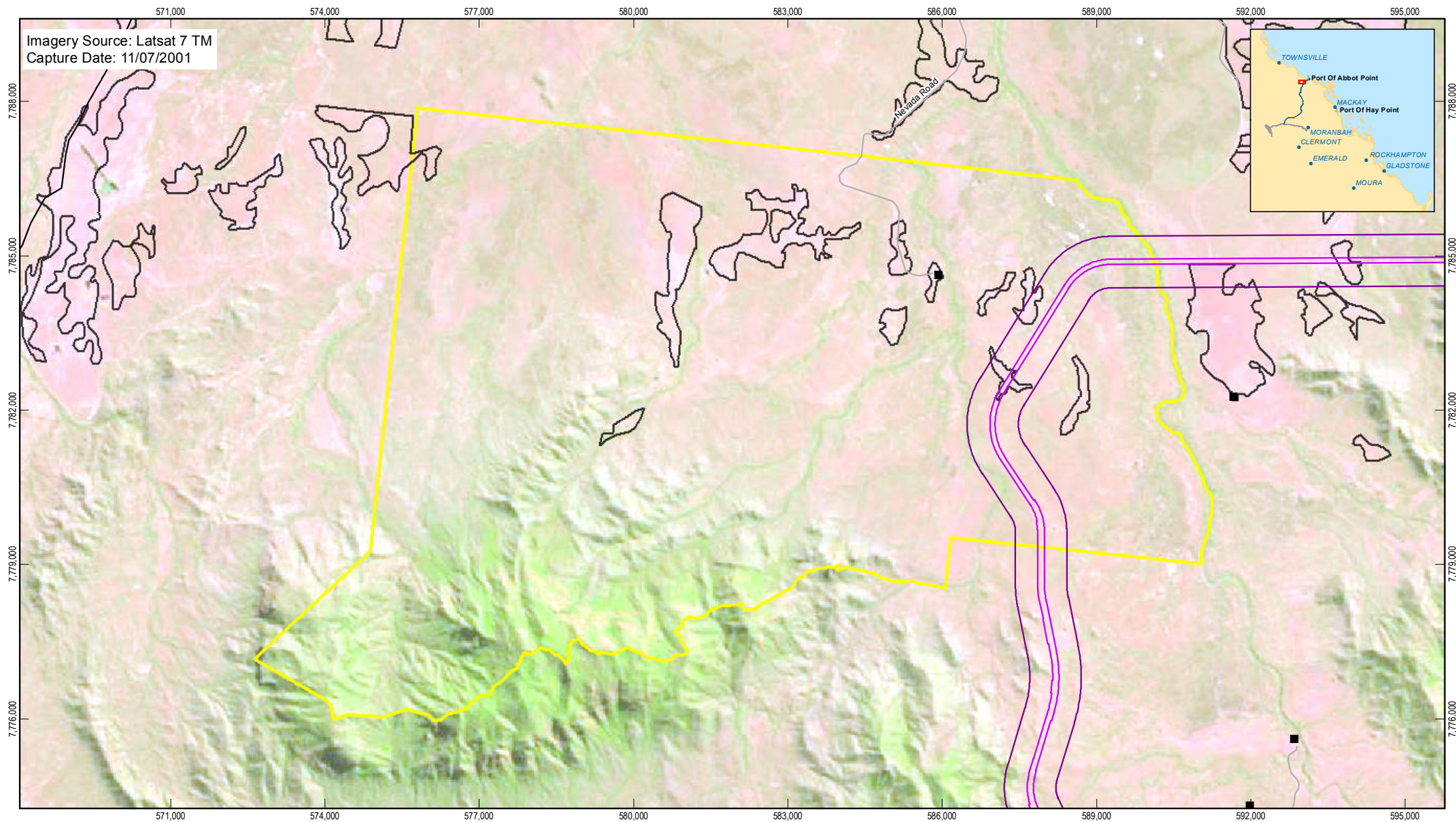
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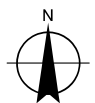
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2001**

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Date 27-08-2013

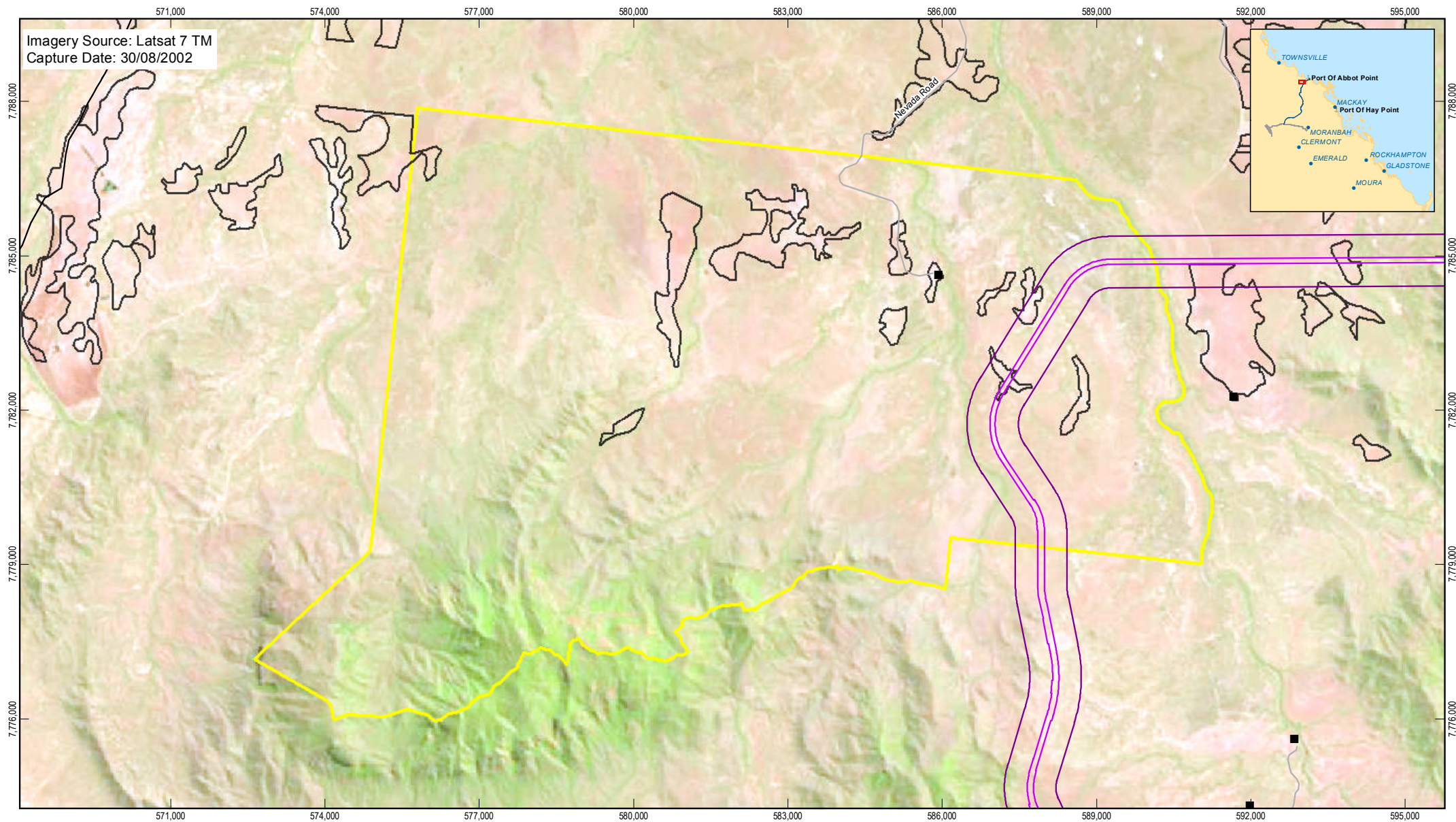
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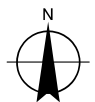
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)

— Main Road

— Local Road

□ Potential Strategic Cropping Land

□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor

□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project

**Strategic Cropping Land
Assessment - Nevada 2002**

Job Number 41-26457
Revision A
Date 27-08-2013

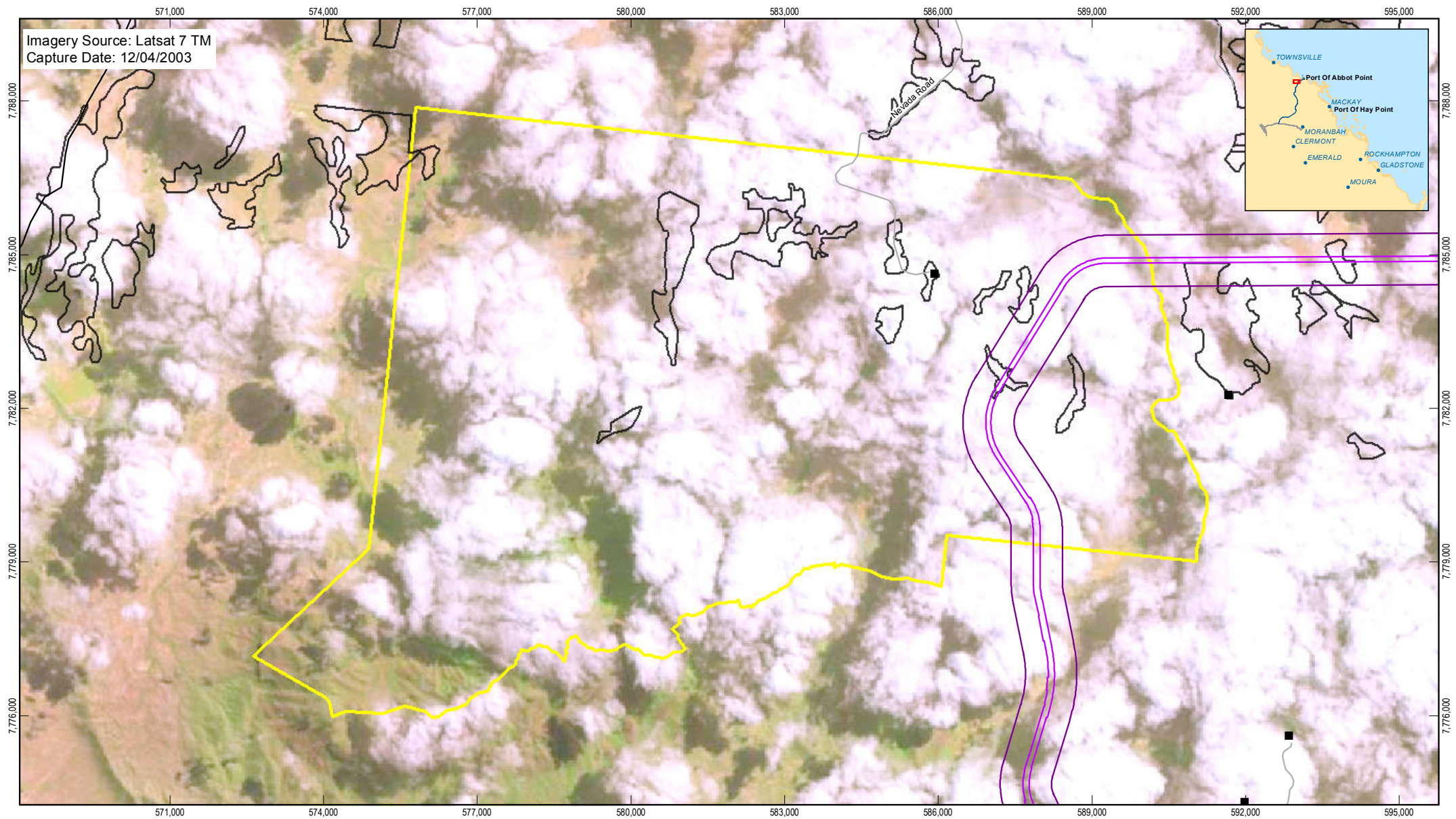
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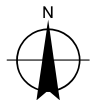
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)
— Main Road
— Local Road

□ Potential Strategic
Cropping Land
■ Property Boundary

■ North Galilee Basin Rail
1000m Corridor
■ North Galilee Basin Rail
100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Nevada 2003**

Job Number	41-26457
Revision	A
Date	27-08-2013

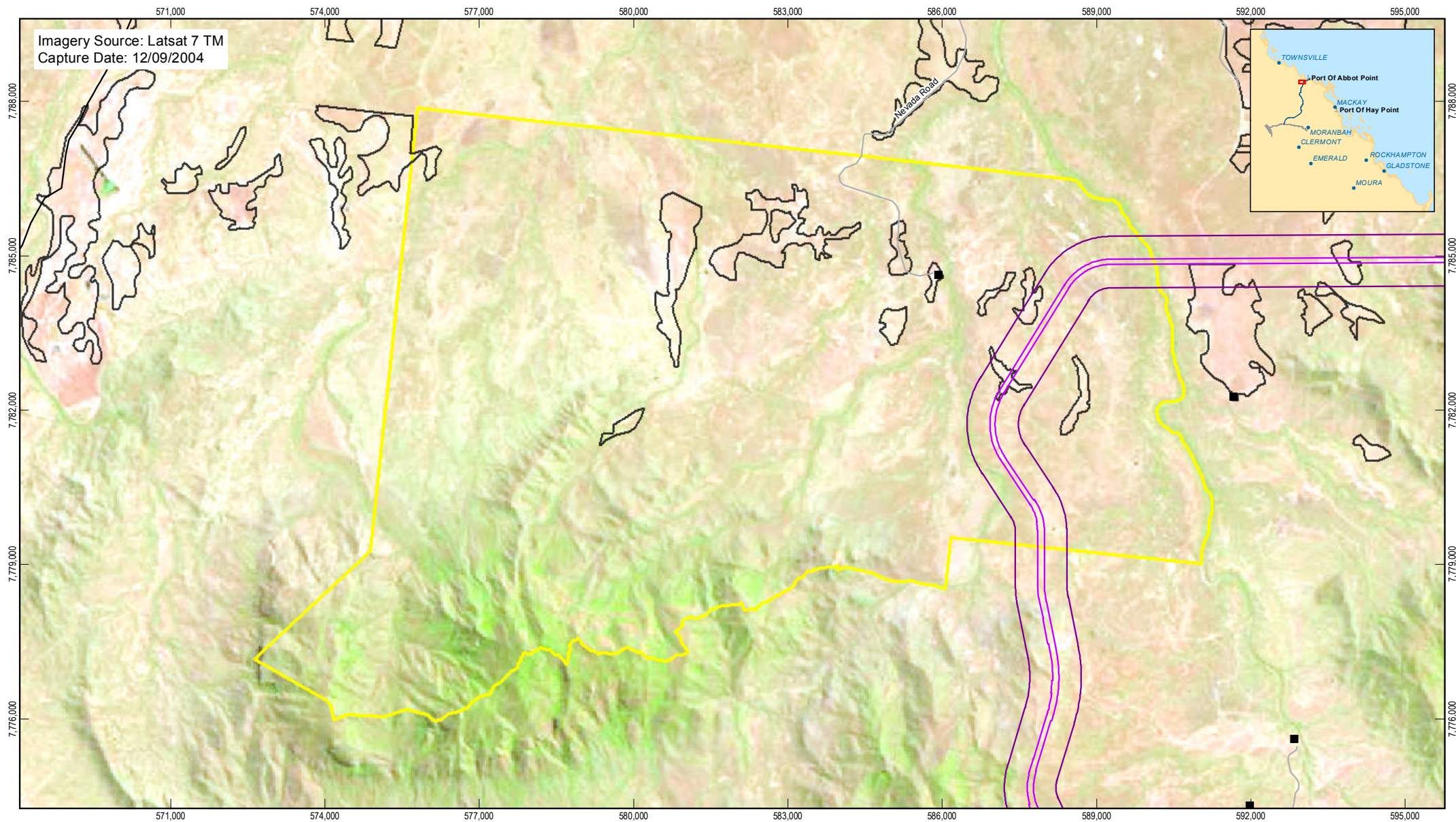
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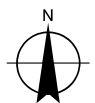
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Imagery Source: Latsat 7 TM
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)

— Main Road

— Local Road

□ Potential Strategic Cropping Land

□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor

□ North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project

**Strategic Cropping Land
Assessment - Nevada 2004**

Job Number 41-26457
Revision A
Date 27-08-2013

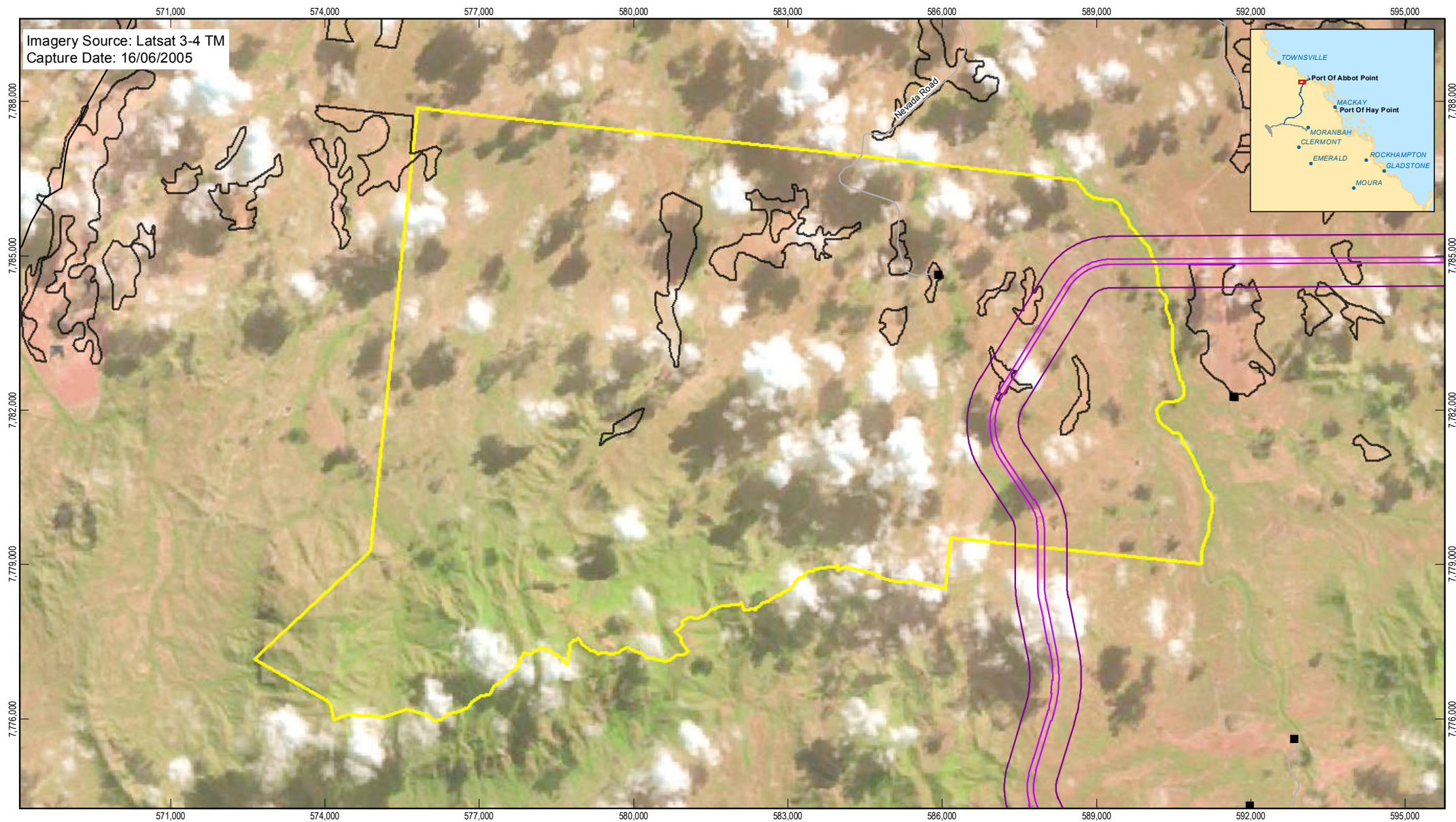
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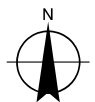
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Imagery Source: Latsat 3-4 TM
Capture Date: 16/06/2005

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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Nevada 2005**

Job Number 41-26457
Revision A
Date 27-08-2013

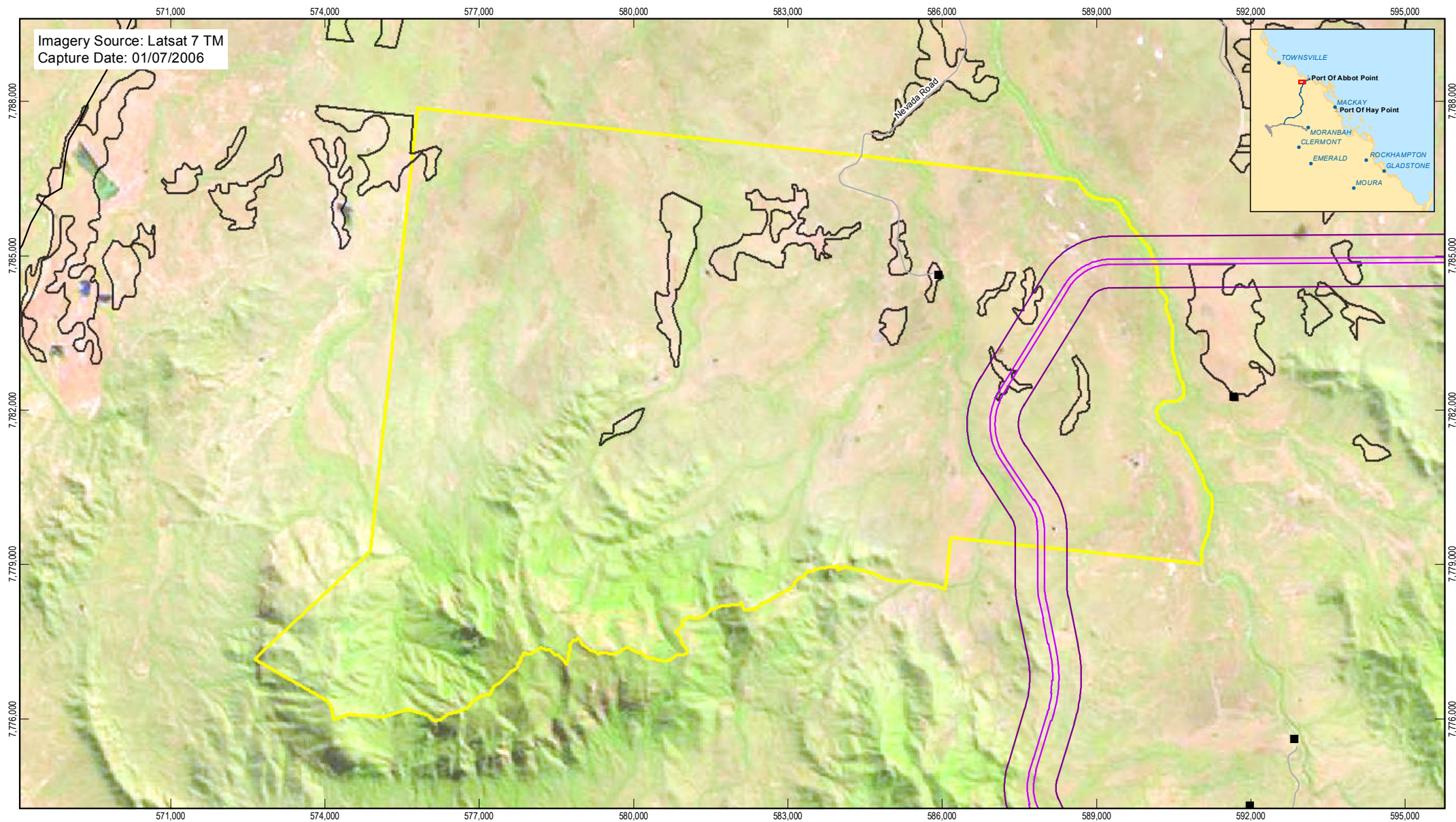
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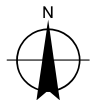
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

■ Homesteads (Adani 20130419)

— Main Road

— Local Road

□ Potential Strategic Cropping Land

■ Property Boundary

□ North Galilee Basin Rail 1000m Corridor

□ North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Nevada 2006**

Job Number 41-26457
Revision A
Date 27-08-2013

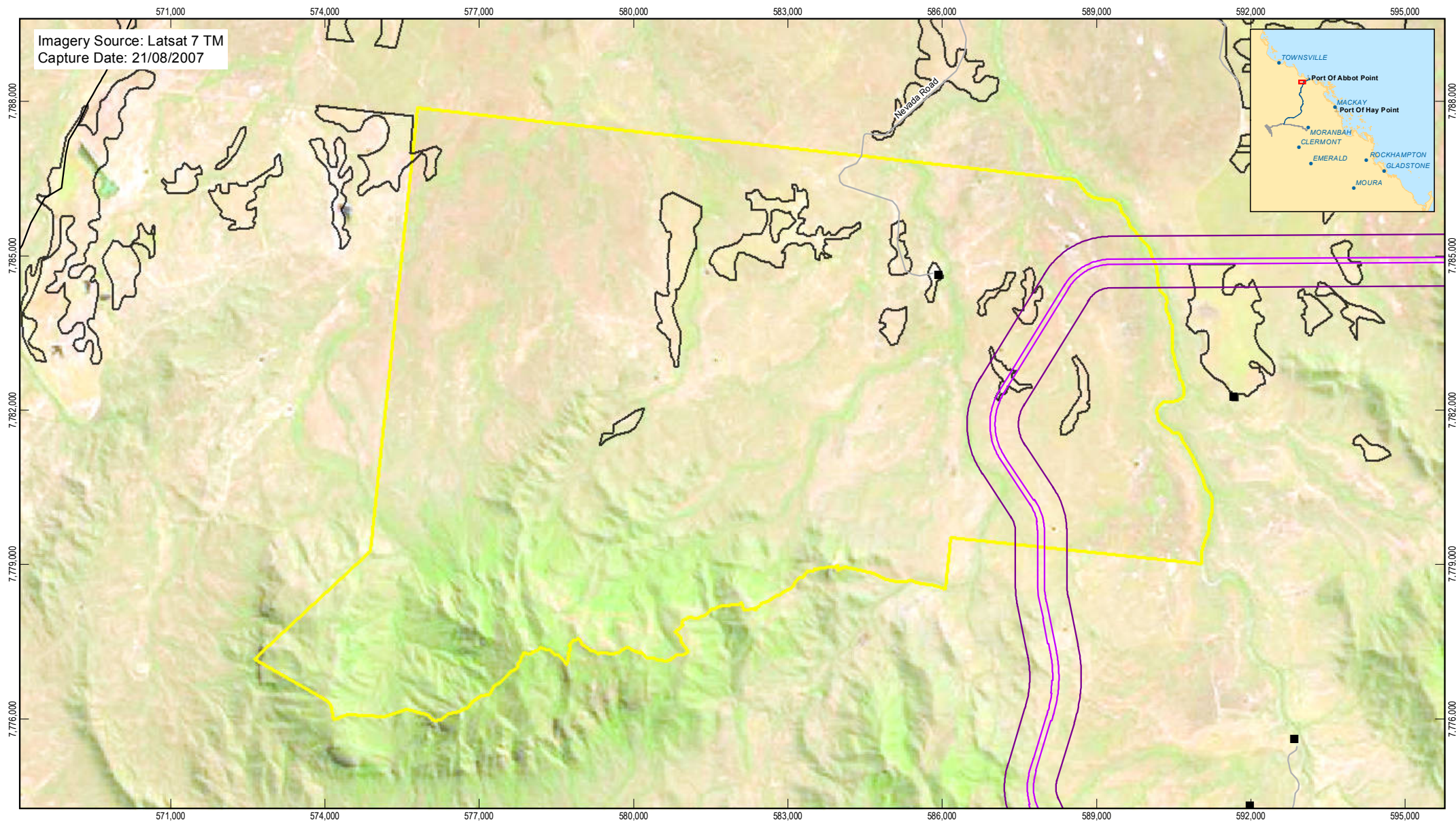
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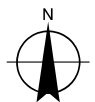
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Capture Date: 21/08/2007

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



LEGEND

■ Homesteads (Adani 20130419)
— Main Road
— Local Road

□ Potential Strategic Cropping Land
□ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
□ North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2007**

Job Number 41-26457
Revision A
Date 27-08-2013

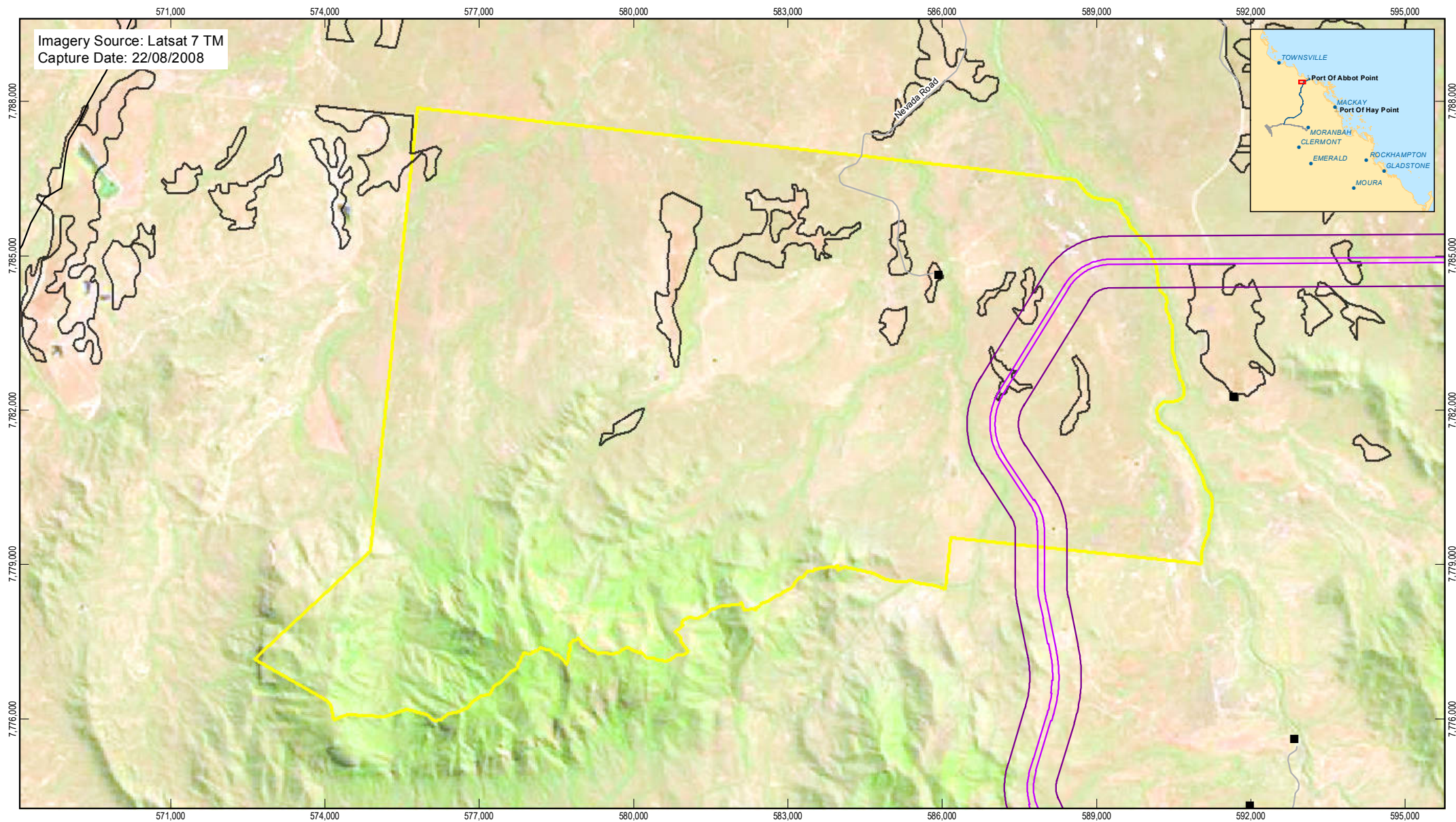
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Data source: GA: Populated Places, Railway, Watercourse/2007; Adani: NGBR Corridor 13/05/2013, NGBR Corridor 06/06/2013; DNRM/GHD: Property Boundary/2013; DNRM: Roads/2010, DCDB /2013, SCL Trigger (v2)/2012; USGS: LatSat Imagery/2007. Created by MS.

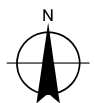
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Capture Date: 22/08/2008

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



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Main Road
- Local Road
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2008**

Job Number 41-26457
Revision A
Date 27-08-2013

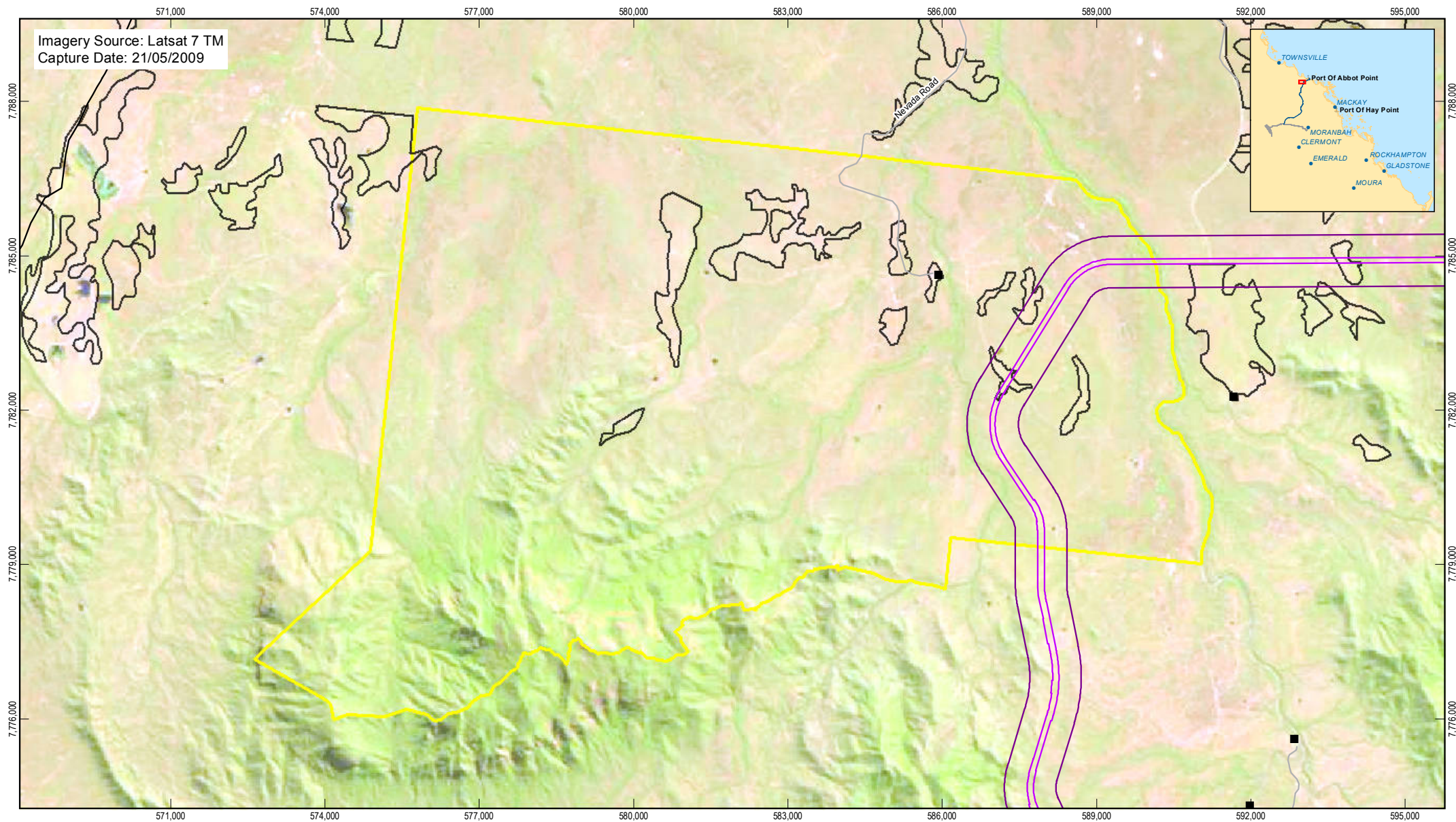
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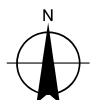
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Imagery Source: Latsat 7 TM
Capture Date: 21/05/2009



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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2009**

Job Number 41-26457
Revision A
Date 27-08-2013

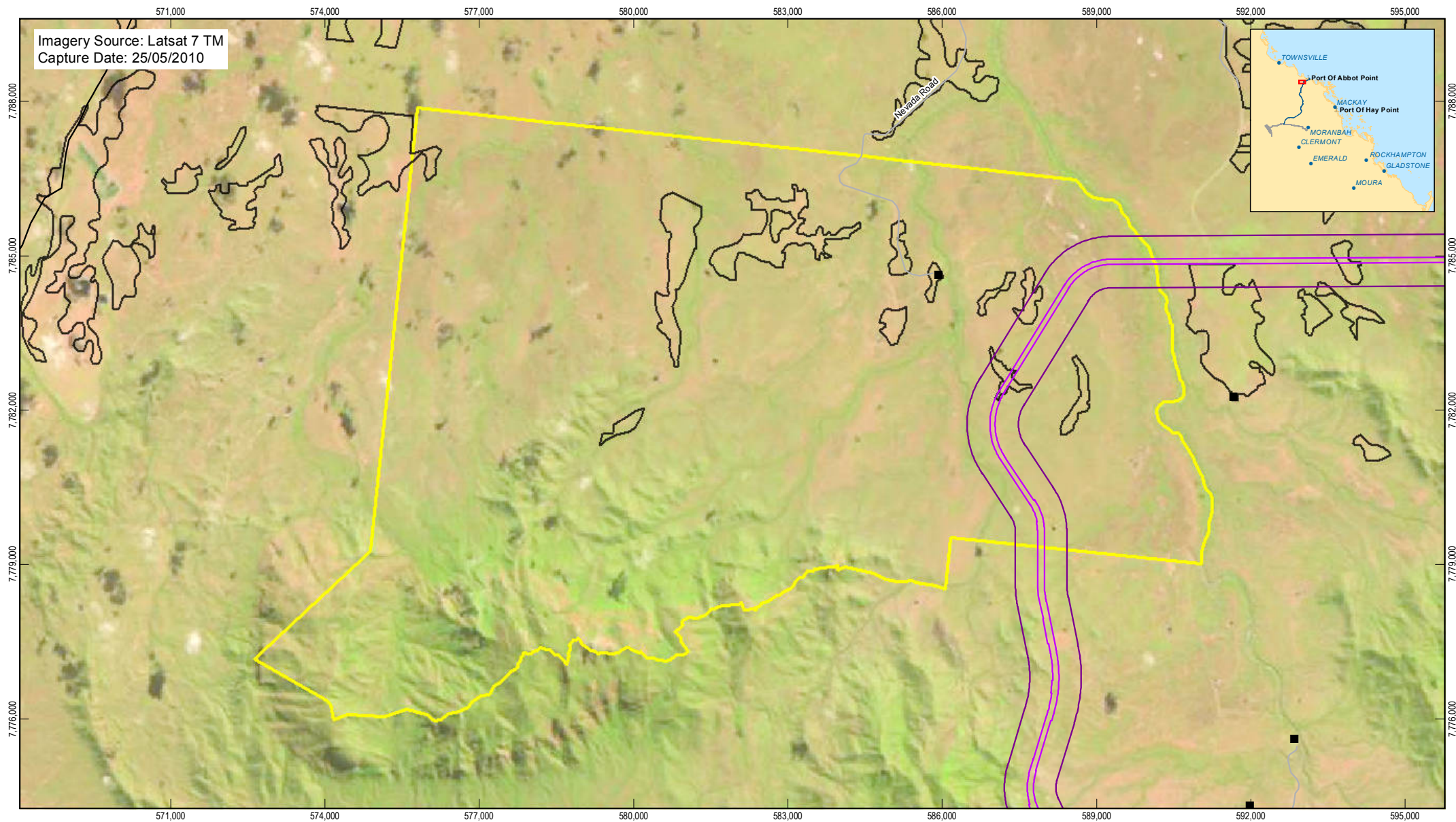
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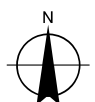
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Imagery Source: Latsat 7 TM
Capture Date: 25/05/2010



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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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**Strategic Cropping Land
Assessment - Nevada 2010**

Job Number 41-26457
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Date 27-08-2013

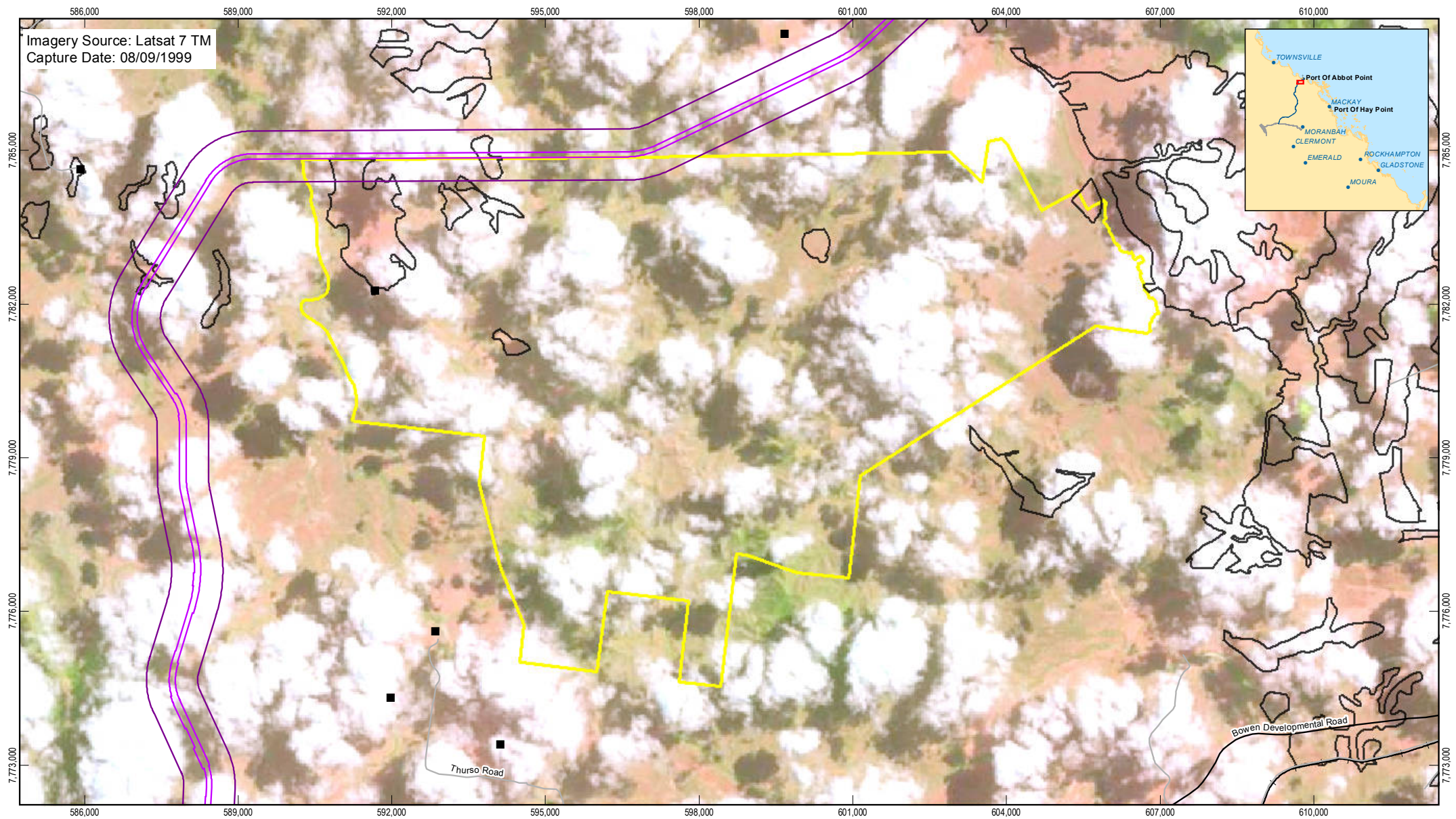
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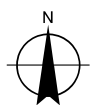
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor
- Main Road
- Local Road
- Railway



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 1999**

Job Number 41-26457
Revision A
Date 27-08-2013

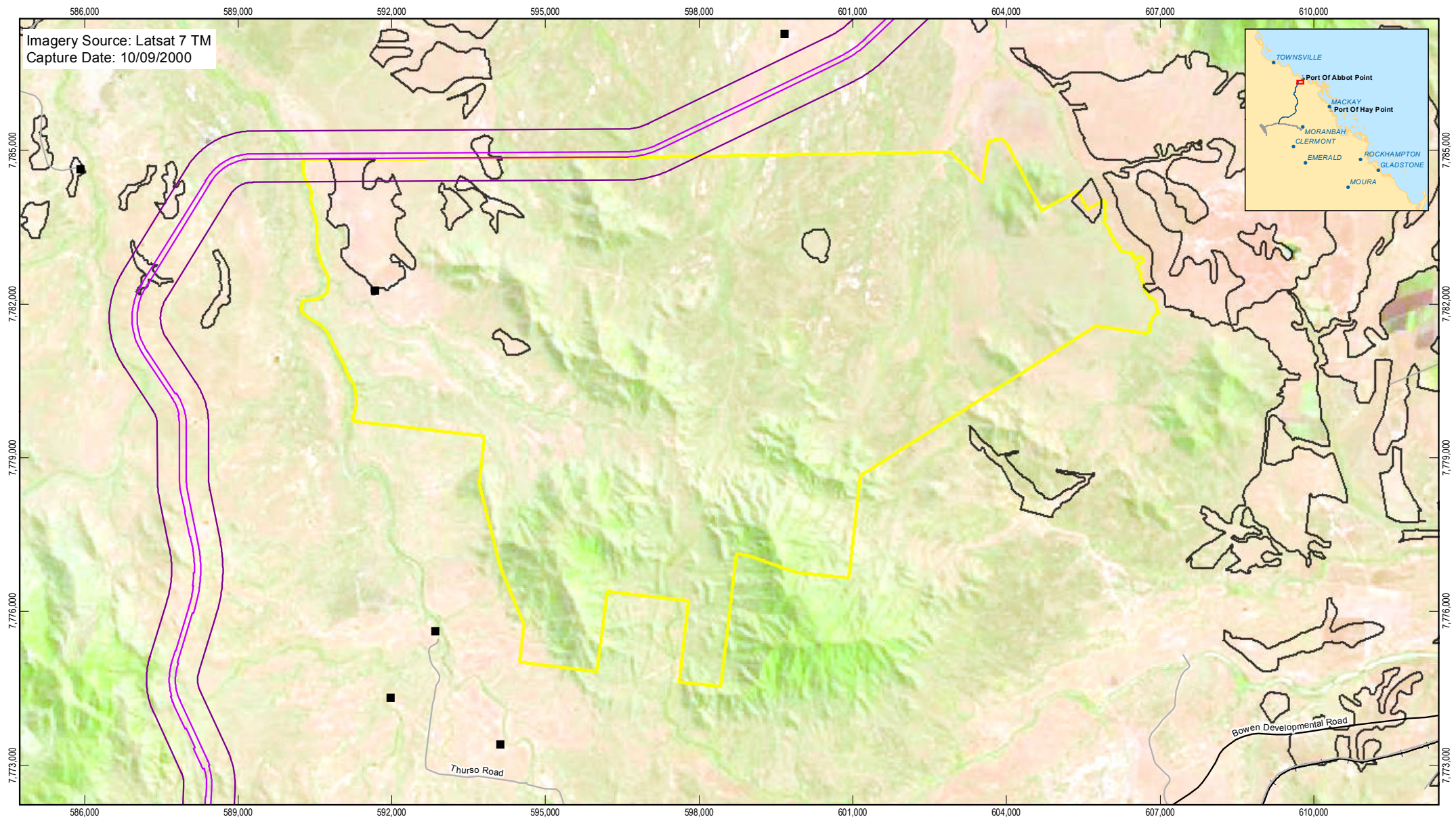
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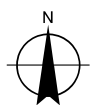
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LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Main Road
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2000**

Job Number 41-26457
Revision A
Date 27-08-2013

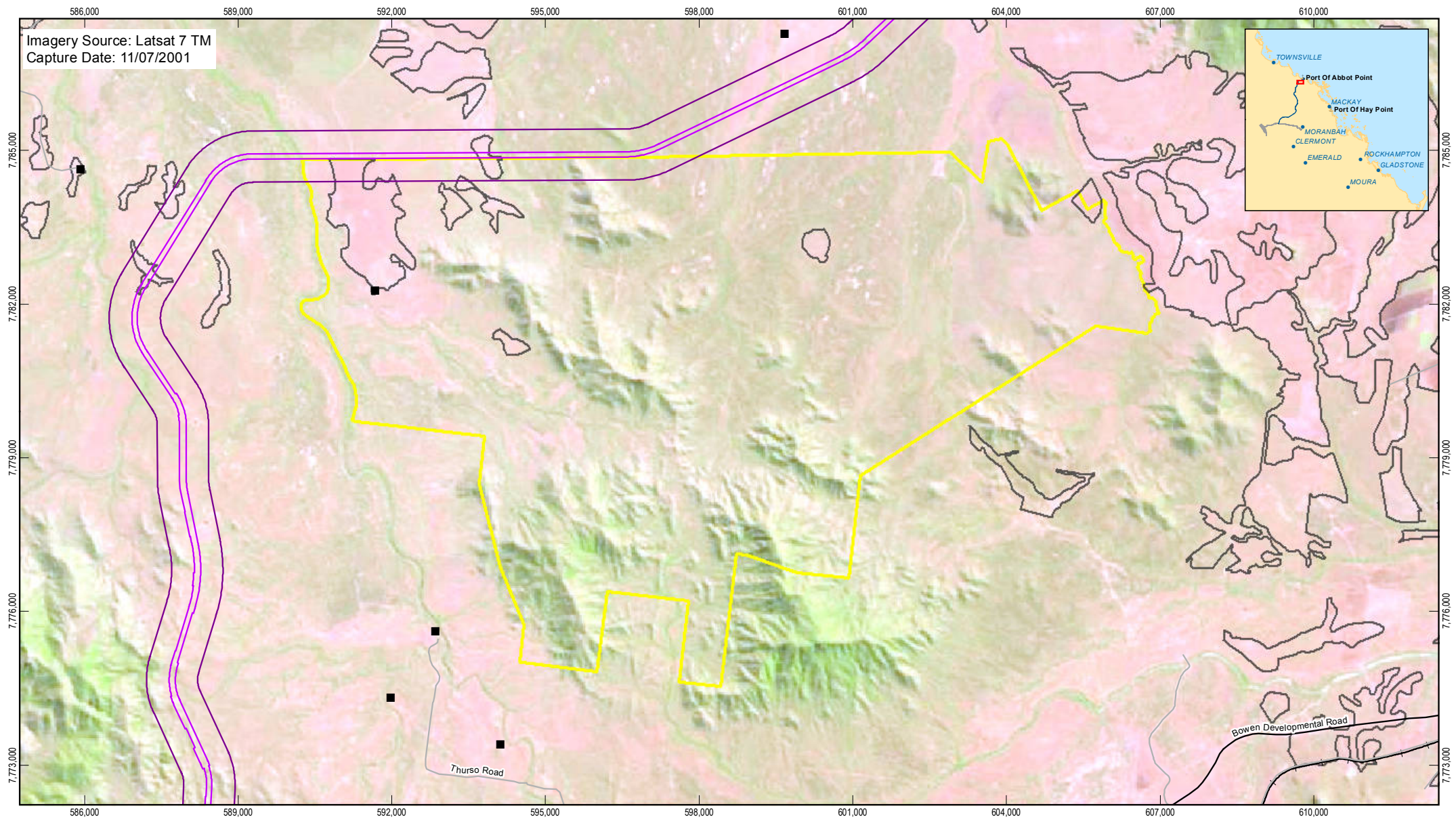
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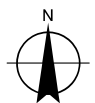
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Main Road
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2001**

Job Number 41-26457
Revision A
Date 27-08-2013

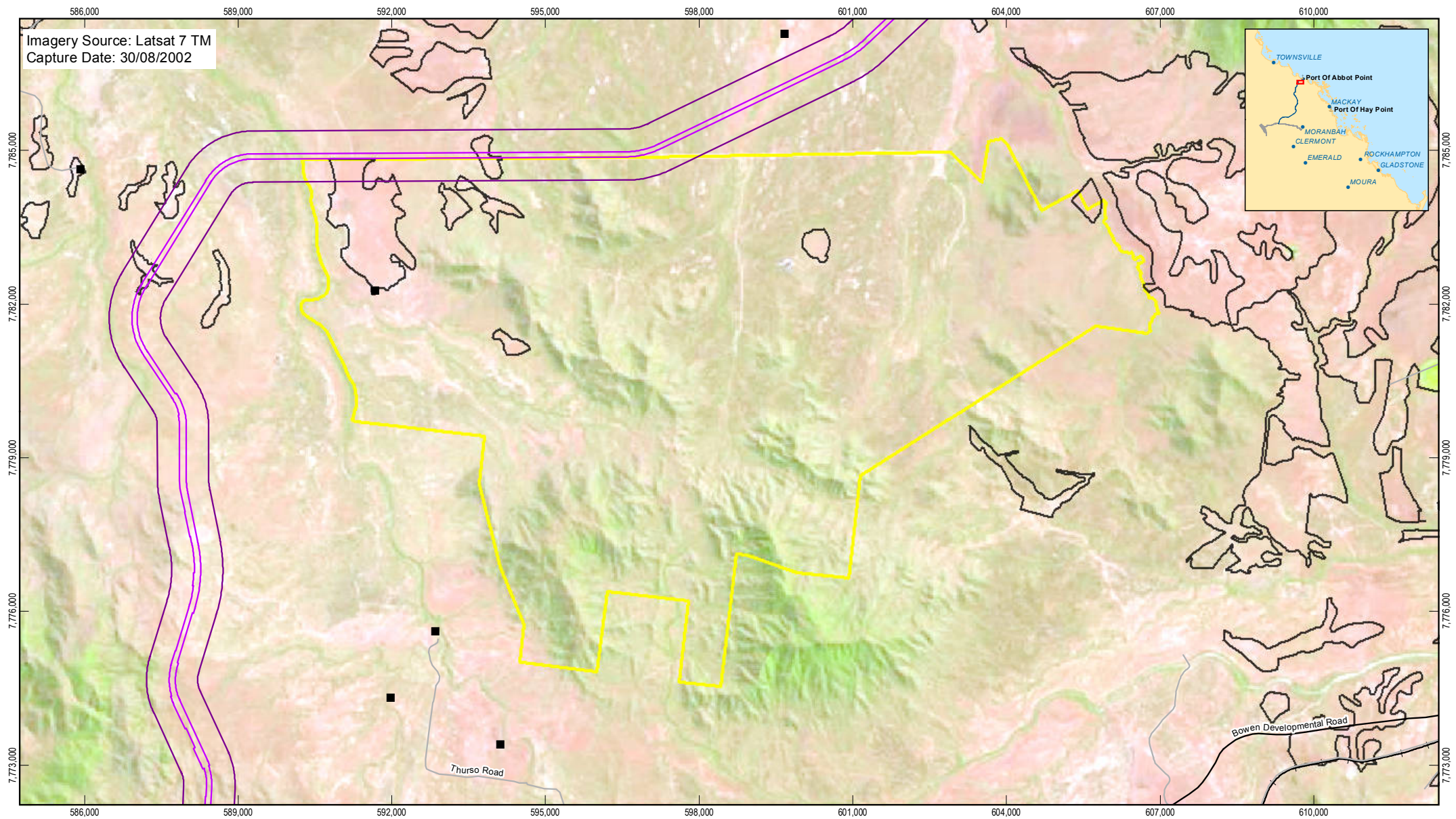
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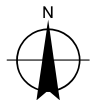
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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2002**

Job Number 41-26457
Revision A
Date 27-08-2013

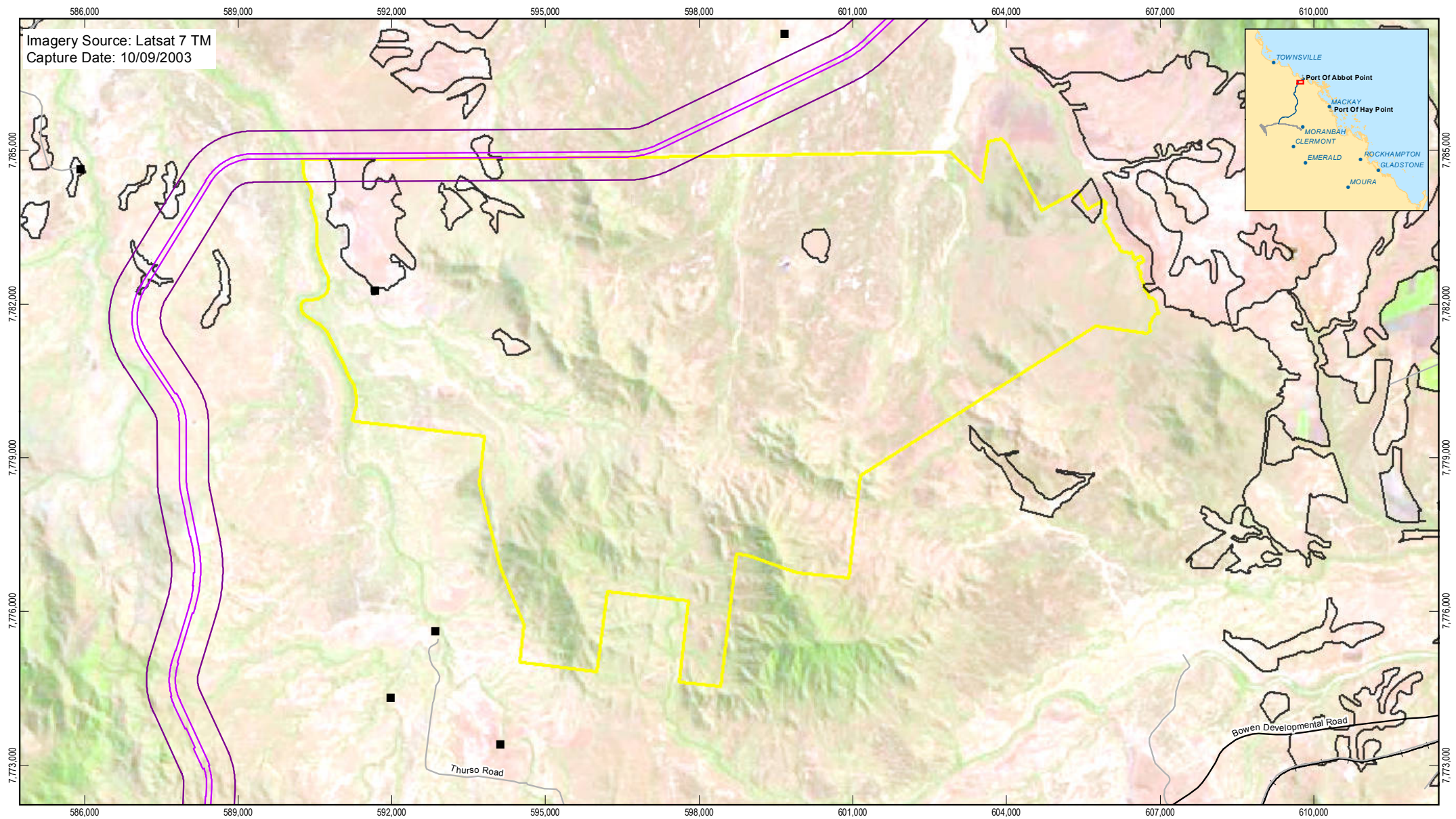
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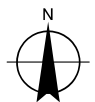
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2003**

Job Number 41-26457
Revision A
Date 27-08-2013

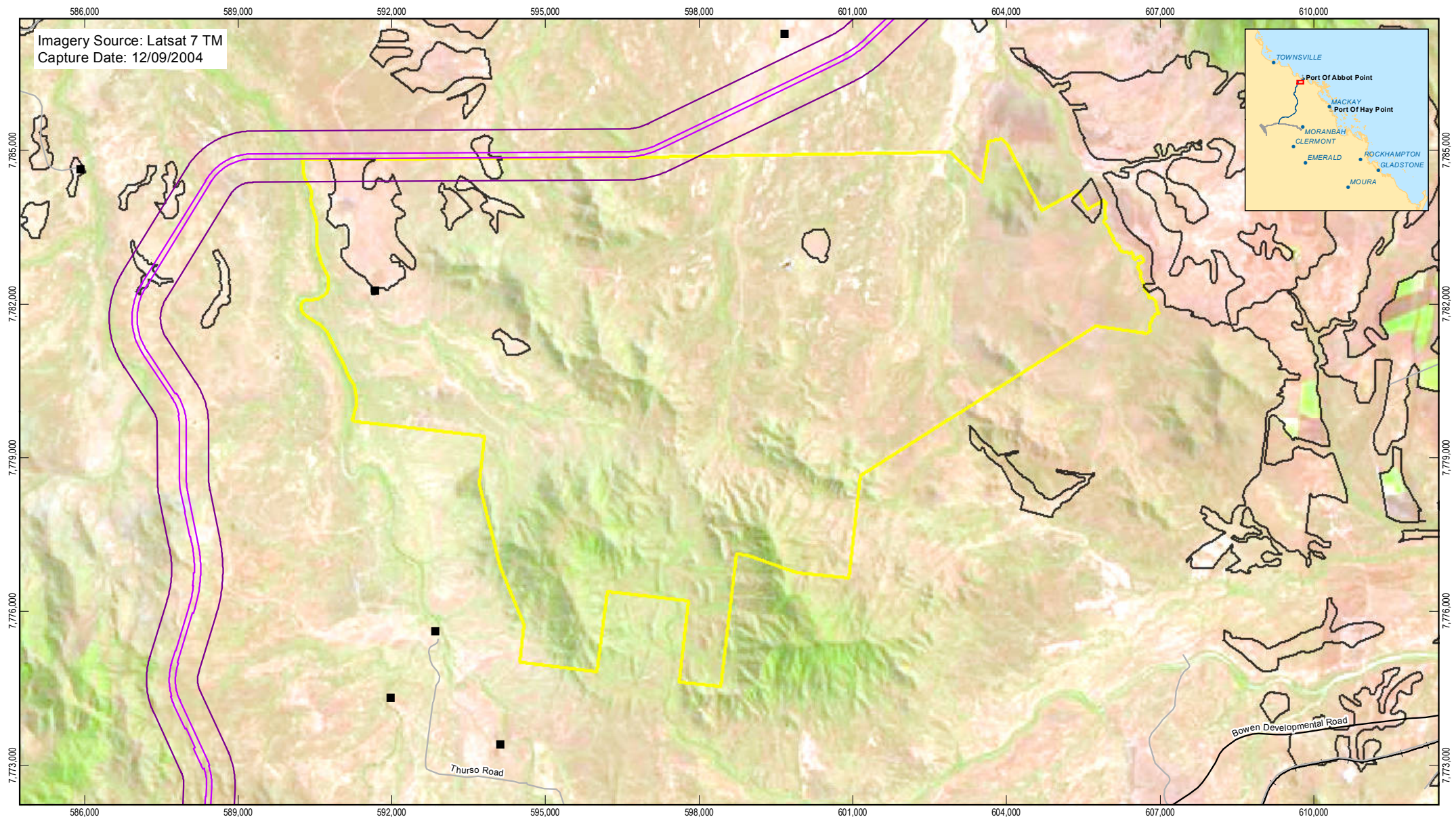
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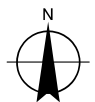
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Main Road
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2004**

Job Number 41-26457
Revision A
Date 27-08-2013

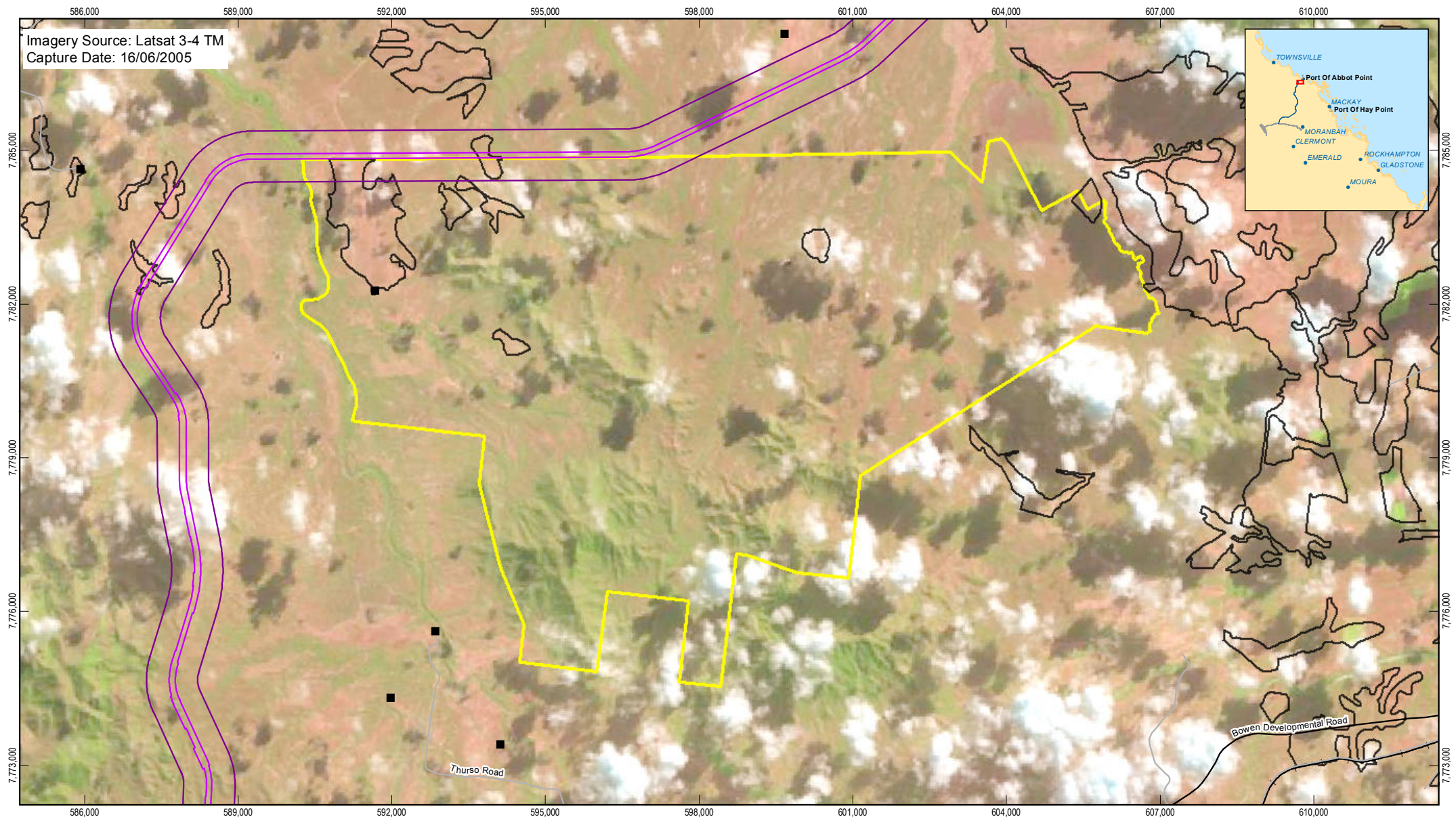
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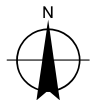
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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Main Road
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2005**

Job Number 41-26457
Revision A
Date 27-08-2013

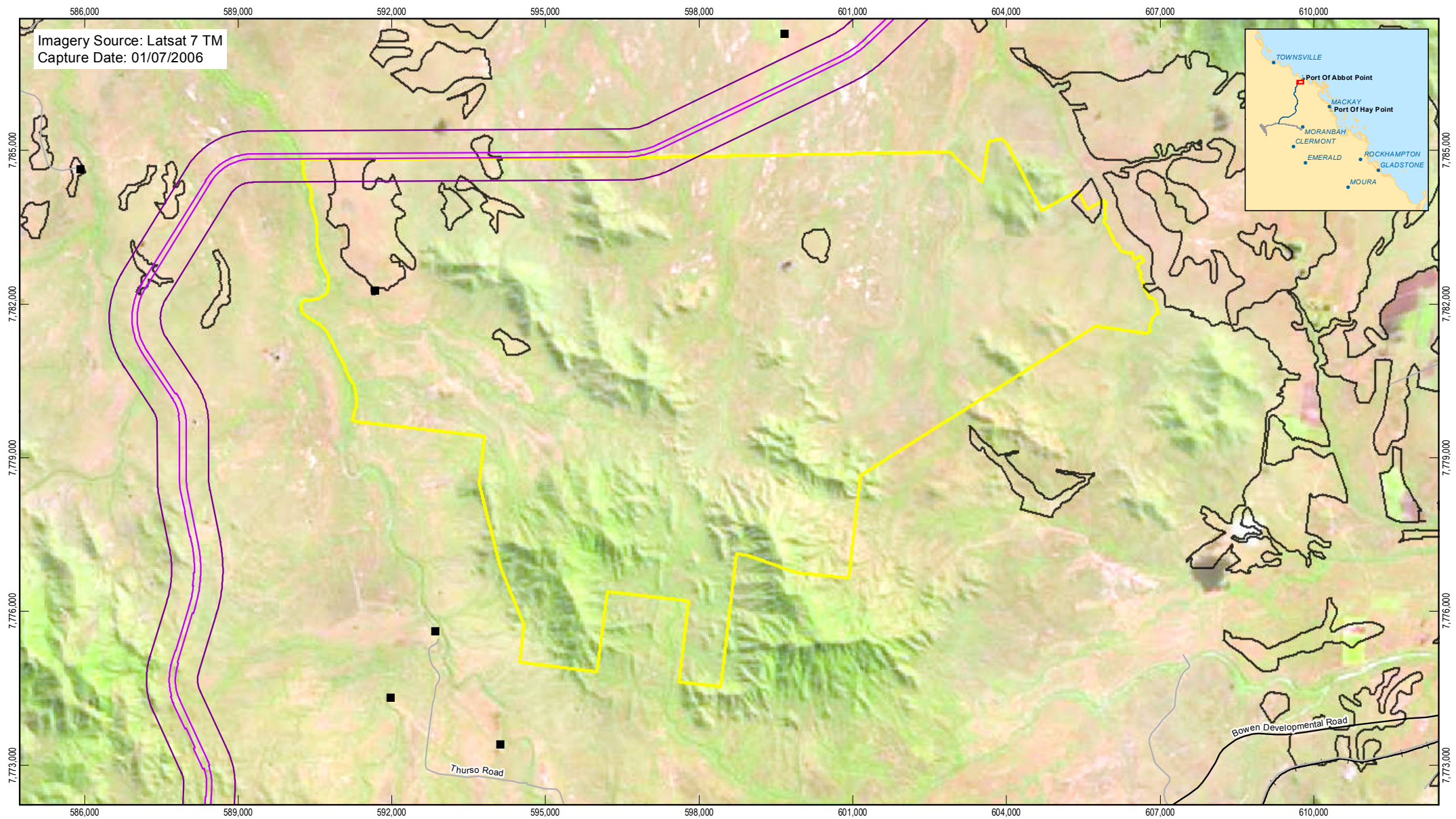
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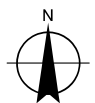
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Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Main Road
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2006**

Job Number 41-26457
Revision A
Date 27-08-2013

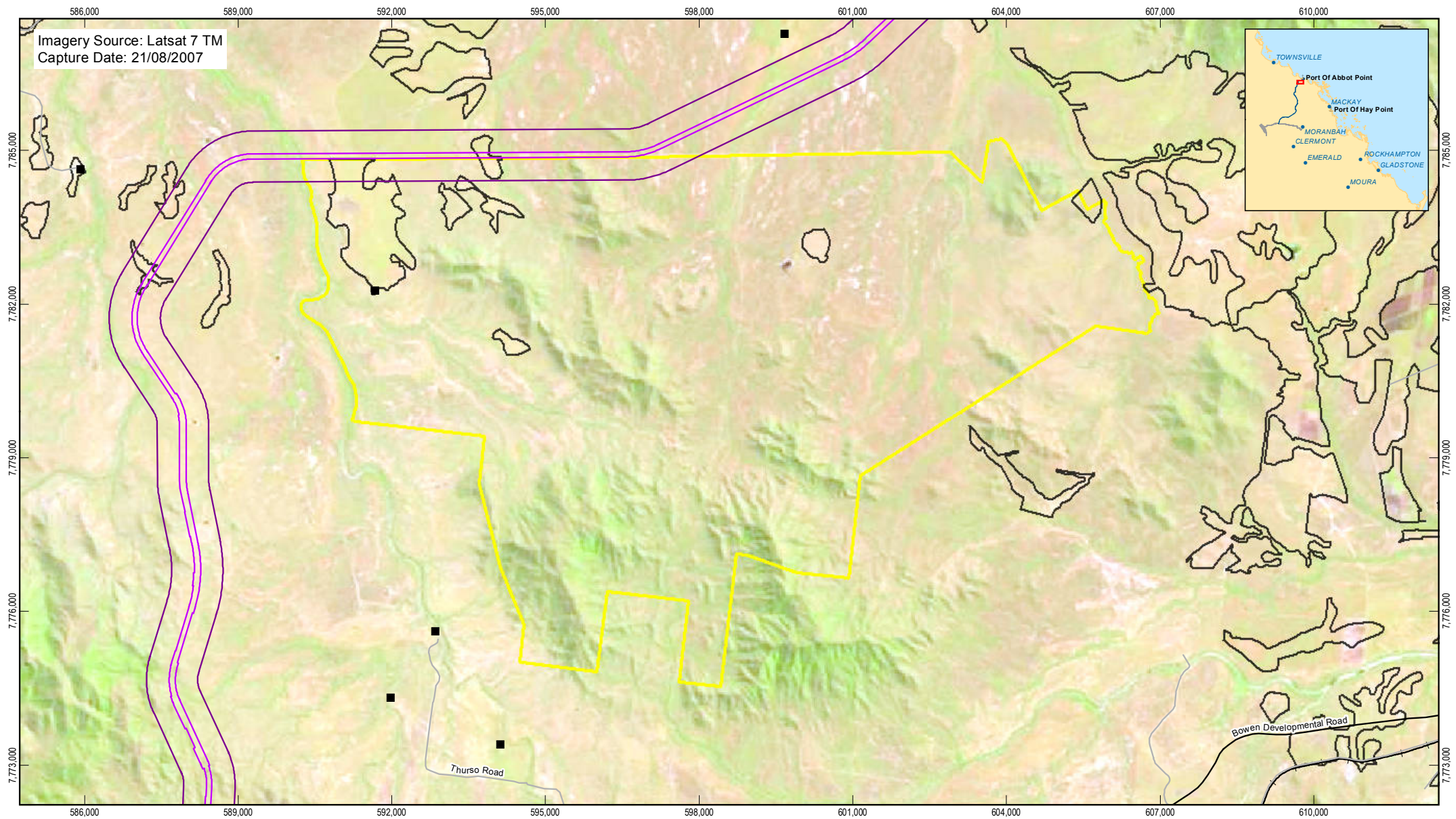
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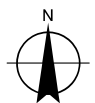
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2007**

Job Number 41-26457
Revision A
Date 27-08-2013

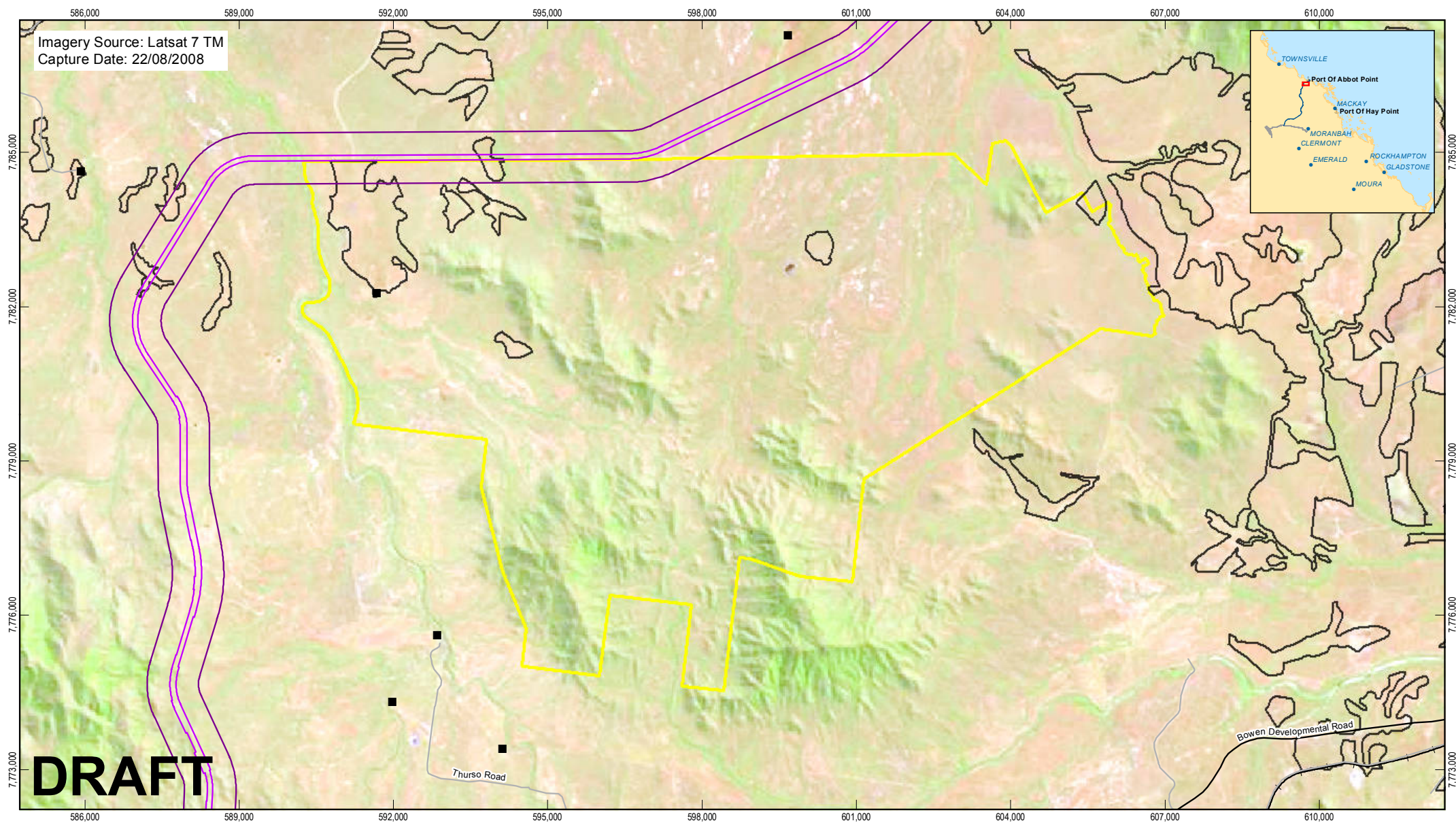
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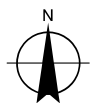
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LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Main Road
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2008**

Job Number 41-26457
Revision A
Date 27-08-2013

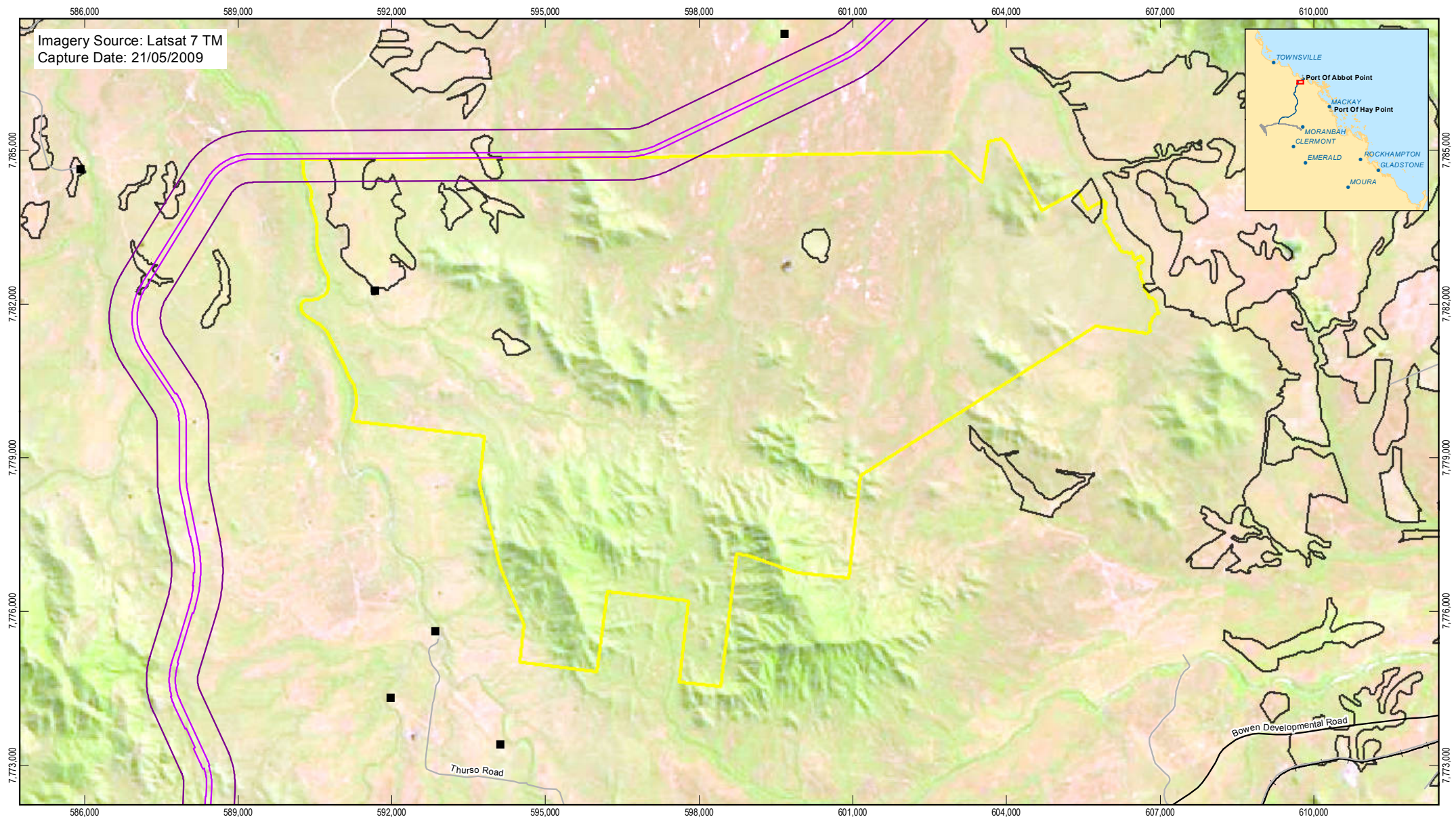
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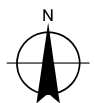
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Capture Date: 21/05/2009

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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2009**

Job Number 41-26457
Revision A
Date 27-08-2013

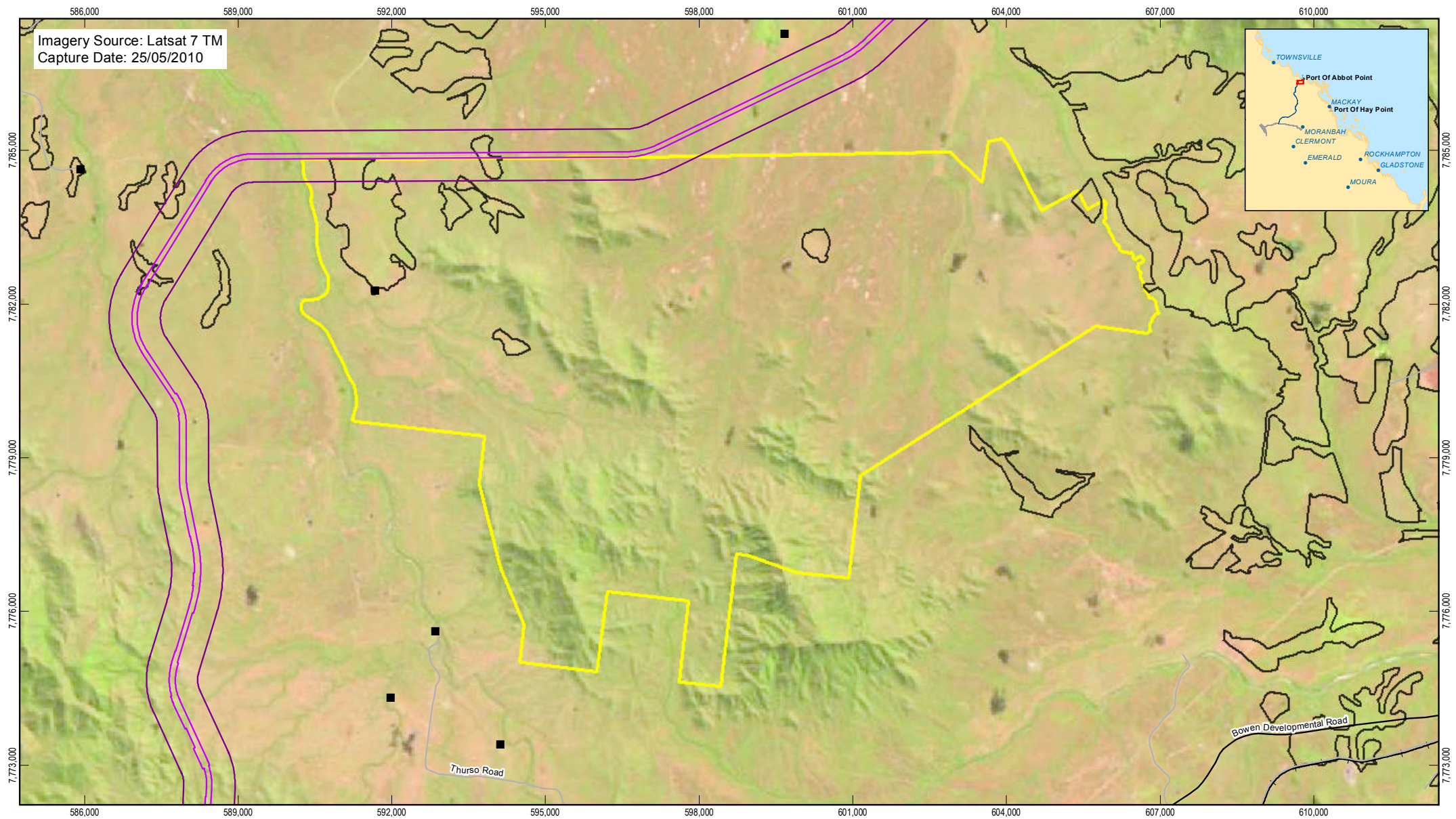
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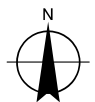
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Main Road
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Unknown 2010**

Job Number 41-26457
Revision A
Date 27-08-2013

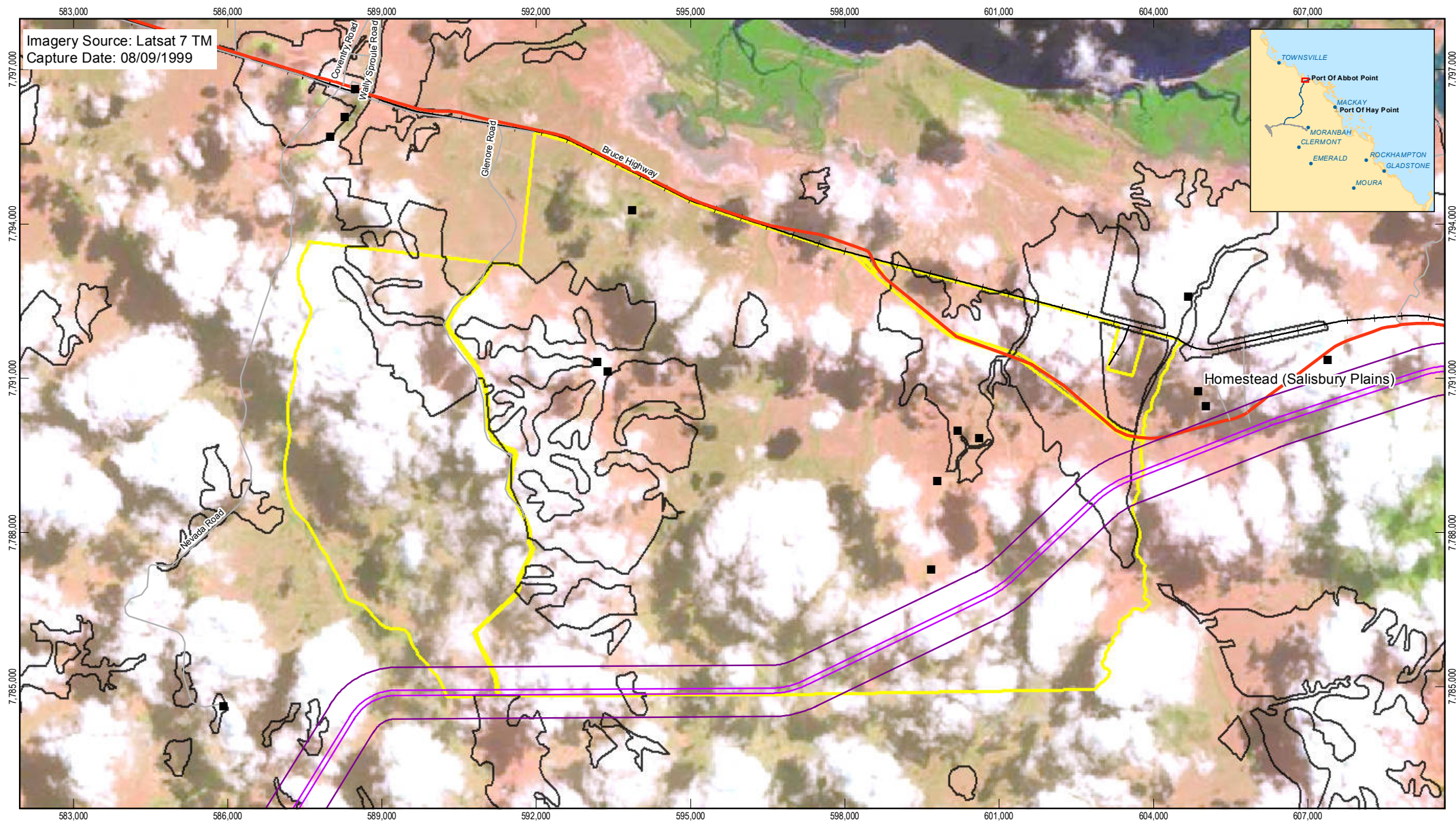
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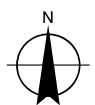
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Imagery Source: Latsat 7 TM
Capture Date: 08/09/1999



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



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Highway
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 1999

Job Number 41-26457
Revision A
Date 27-08-2013

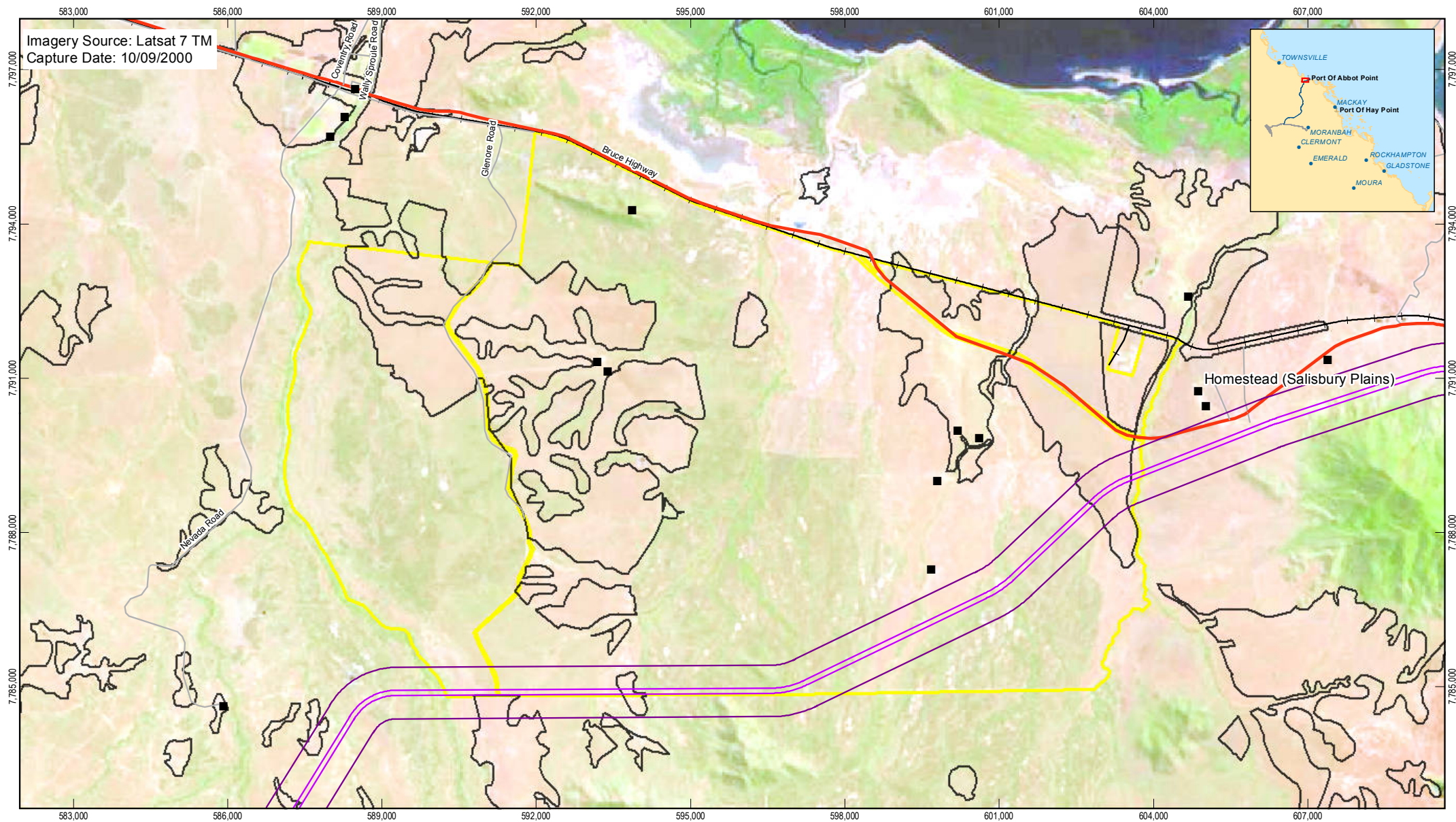
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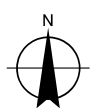
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Horizontal Datum: GDA 1994
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LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Property Boundary
- Highway
- Local Road
- Railway
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2000

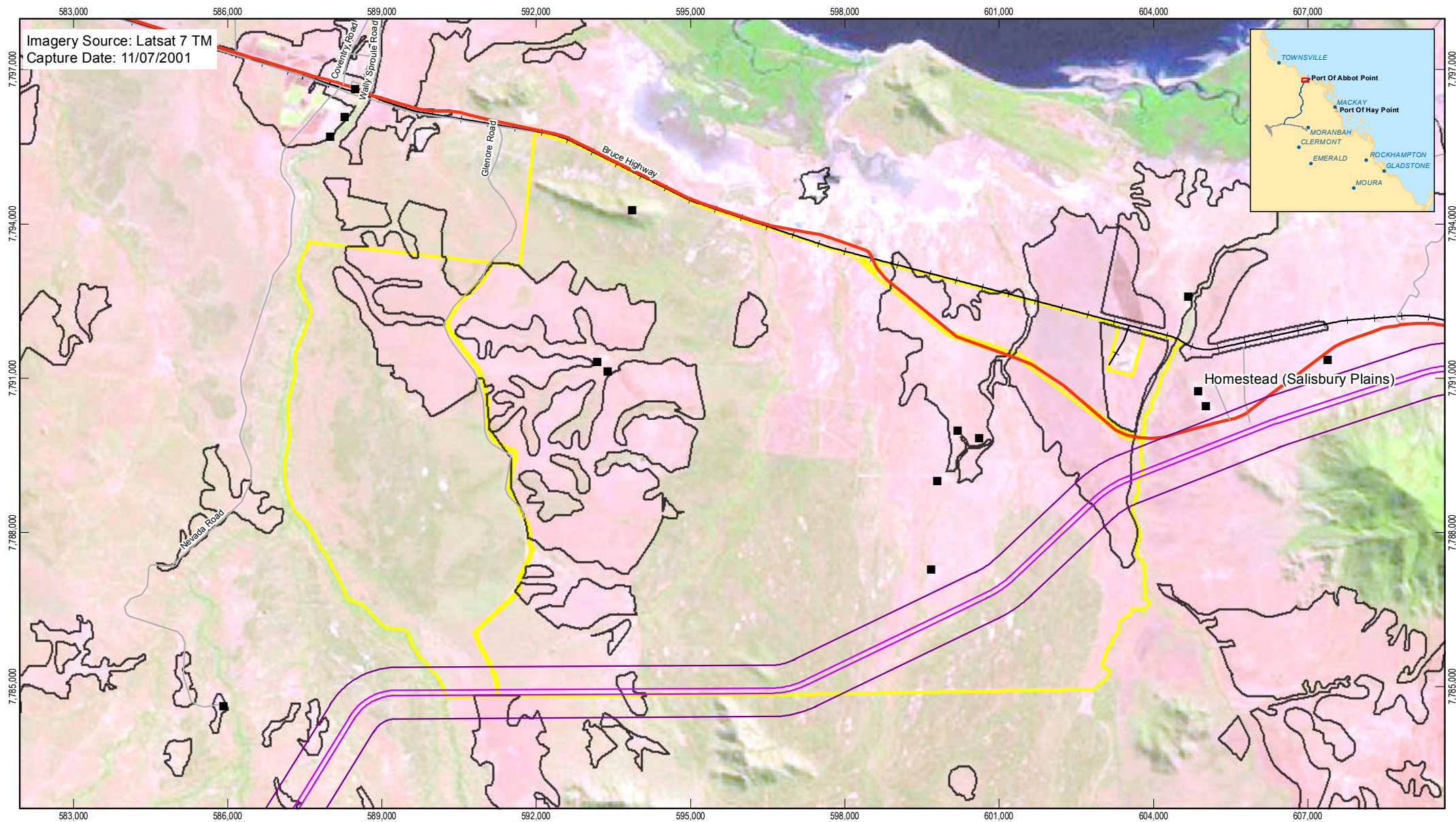
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Date 27-08-2013

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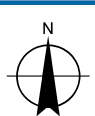
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Imagery Source: Latsat 7 TM
Capture Date: 11/07/2001



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LEGEND

- Homesteads (Adani 20130419)
- Highway
- Local Road
- Railway
- Potential Strategic Cropping Land
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2001

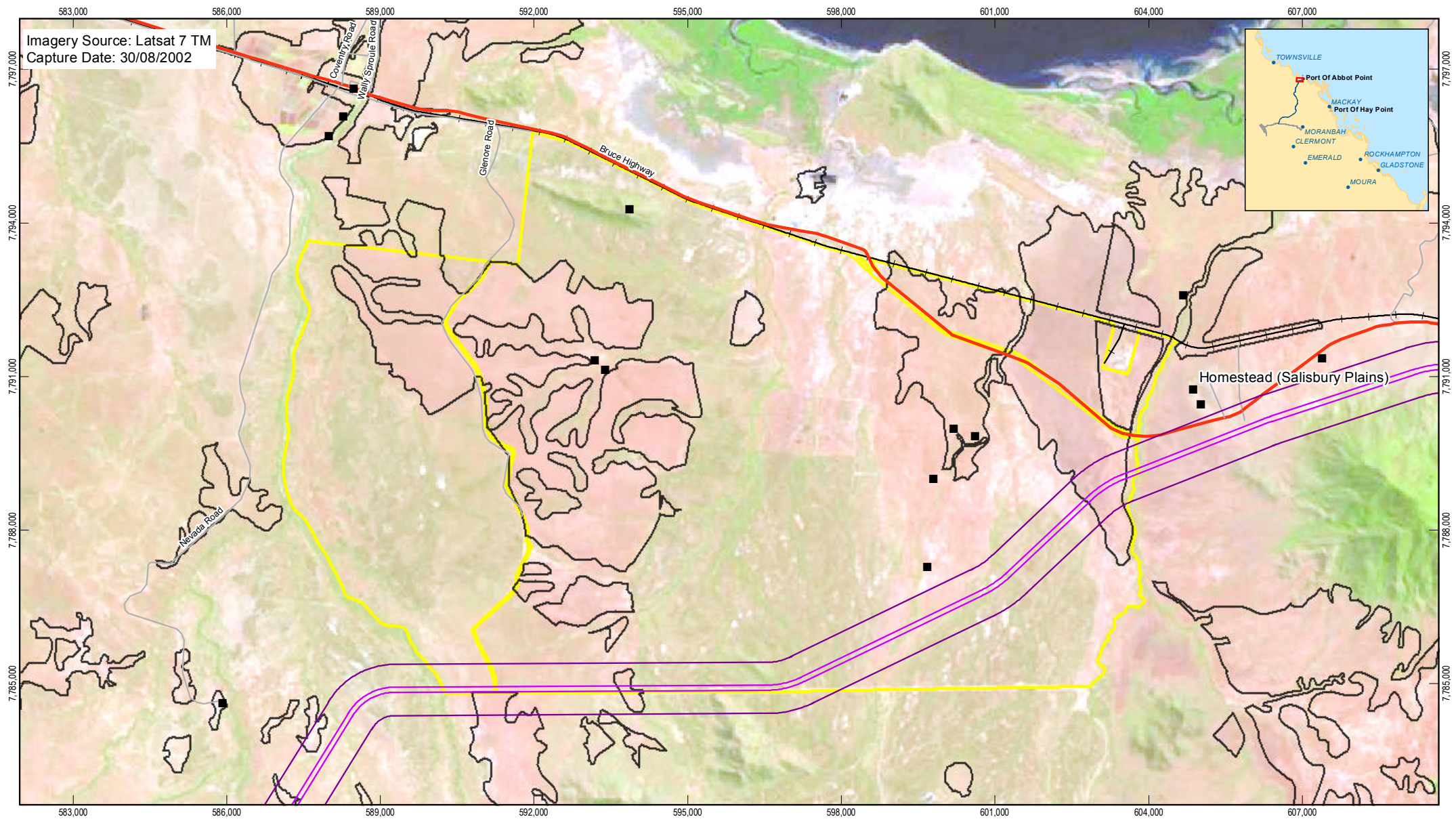
Job Number 41-26457
Revision A
Date 27-08-2013

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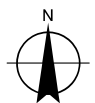
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Kilometres
Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Highway
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2002

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Revision A
Date 27-08-2013

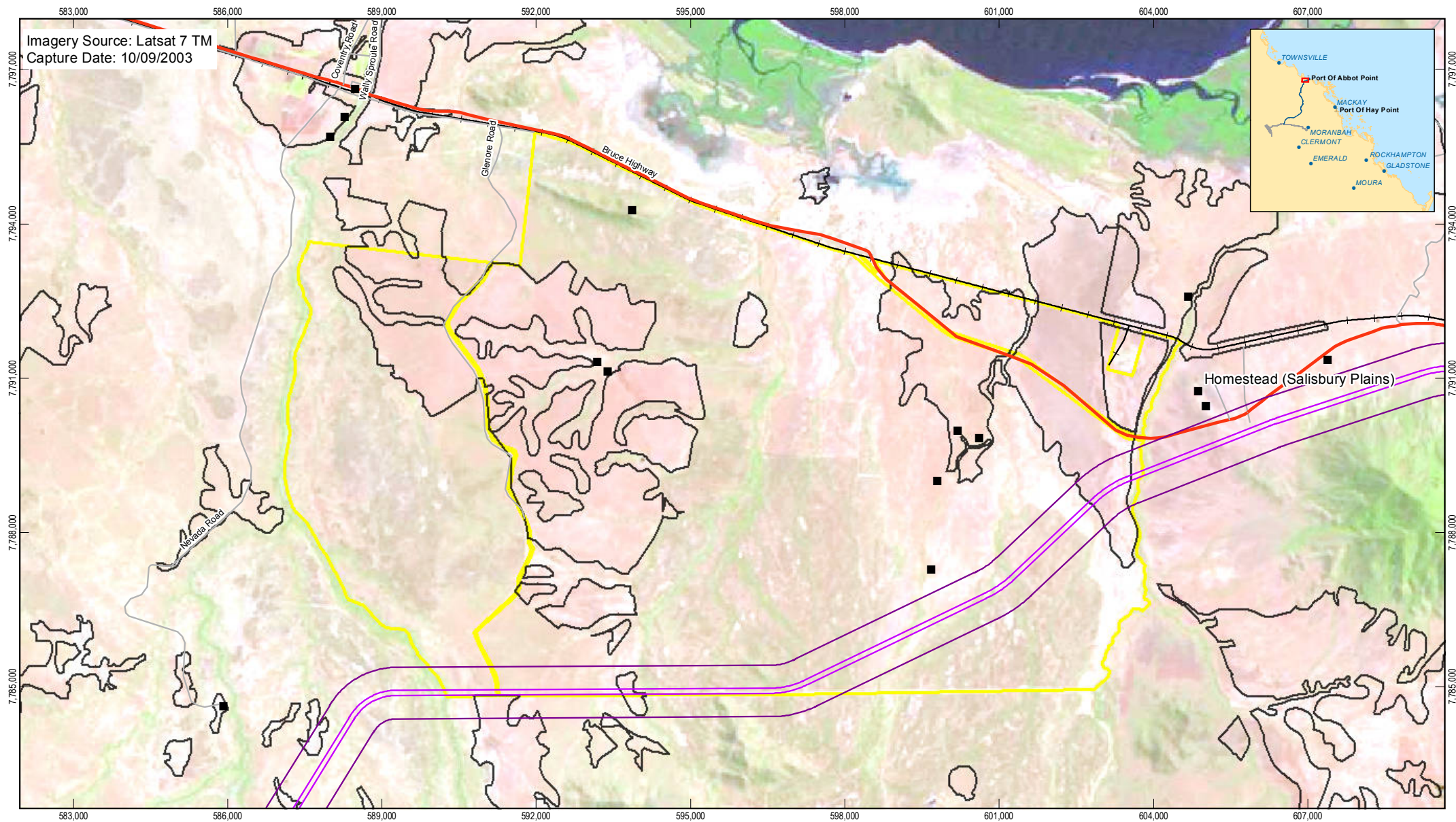
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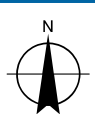
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Imagery Source: Latsat 7 TM
Capture Date: 10/09/2003



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Kilometres
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Highway
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2003

Job Number 41-26457
Revision A
Date 27-08-2013

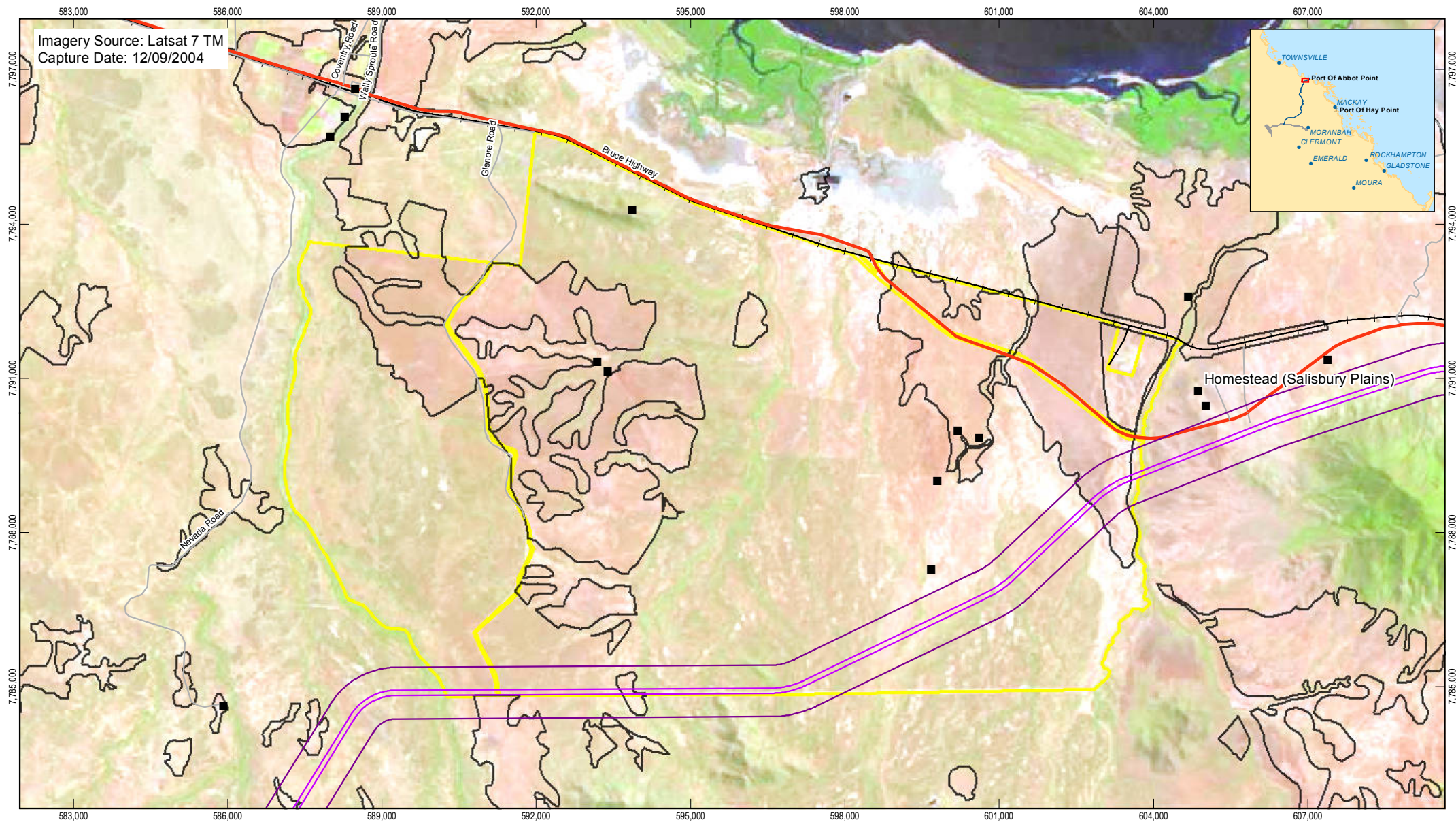
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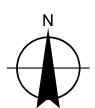
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Capture Date: 12/09/2004



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



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Highway
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Strategic Cropping Land
Assessment - Salisbury Plains 2004

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Revision A
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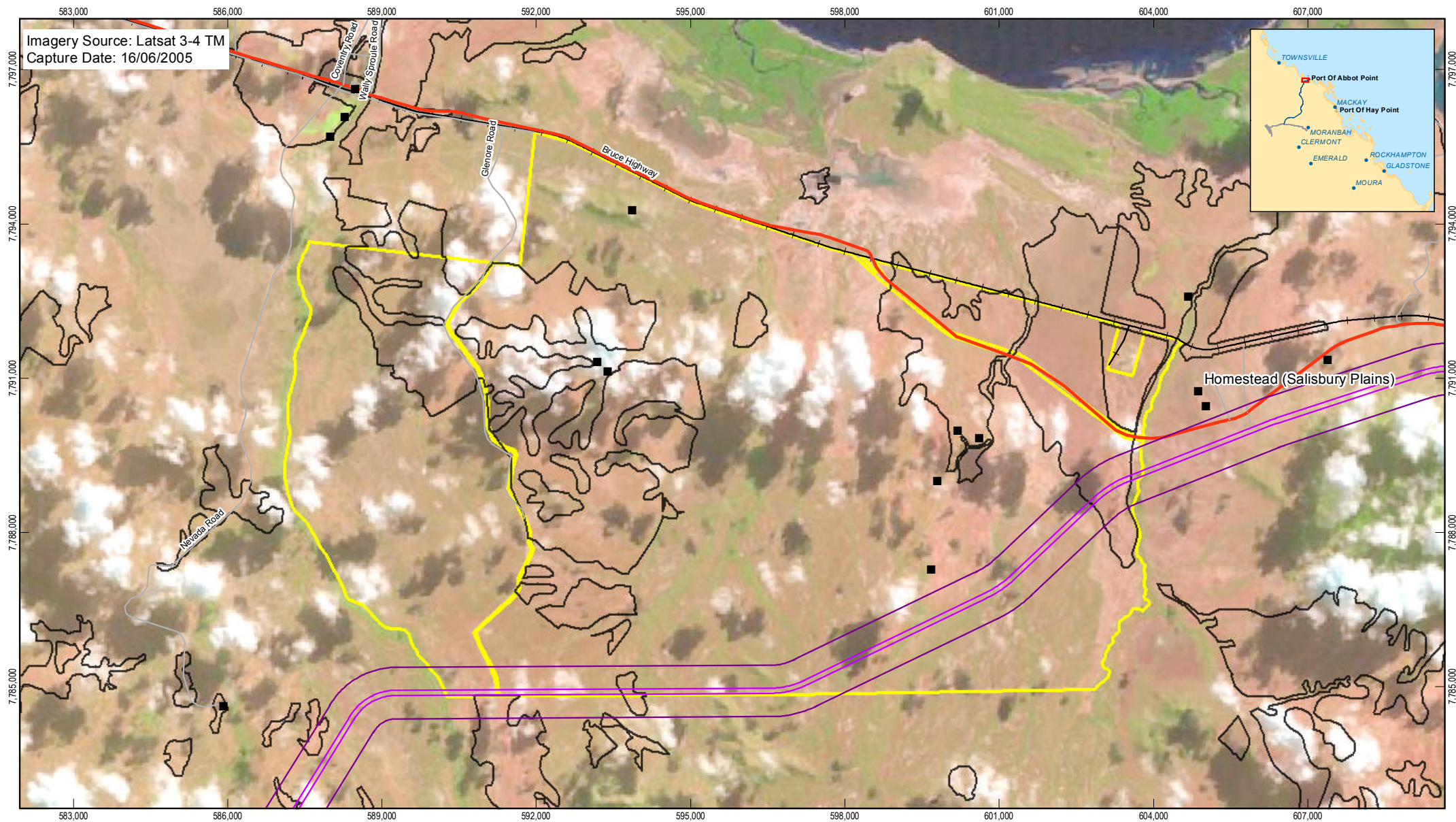
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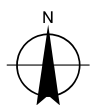


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Homestead (Salisbury Plains)

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



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Highway
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Strategic Cropping Land
Assessment - Salisbury Plains 2005

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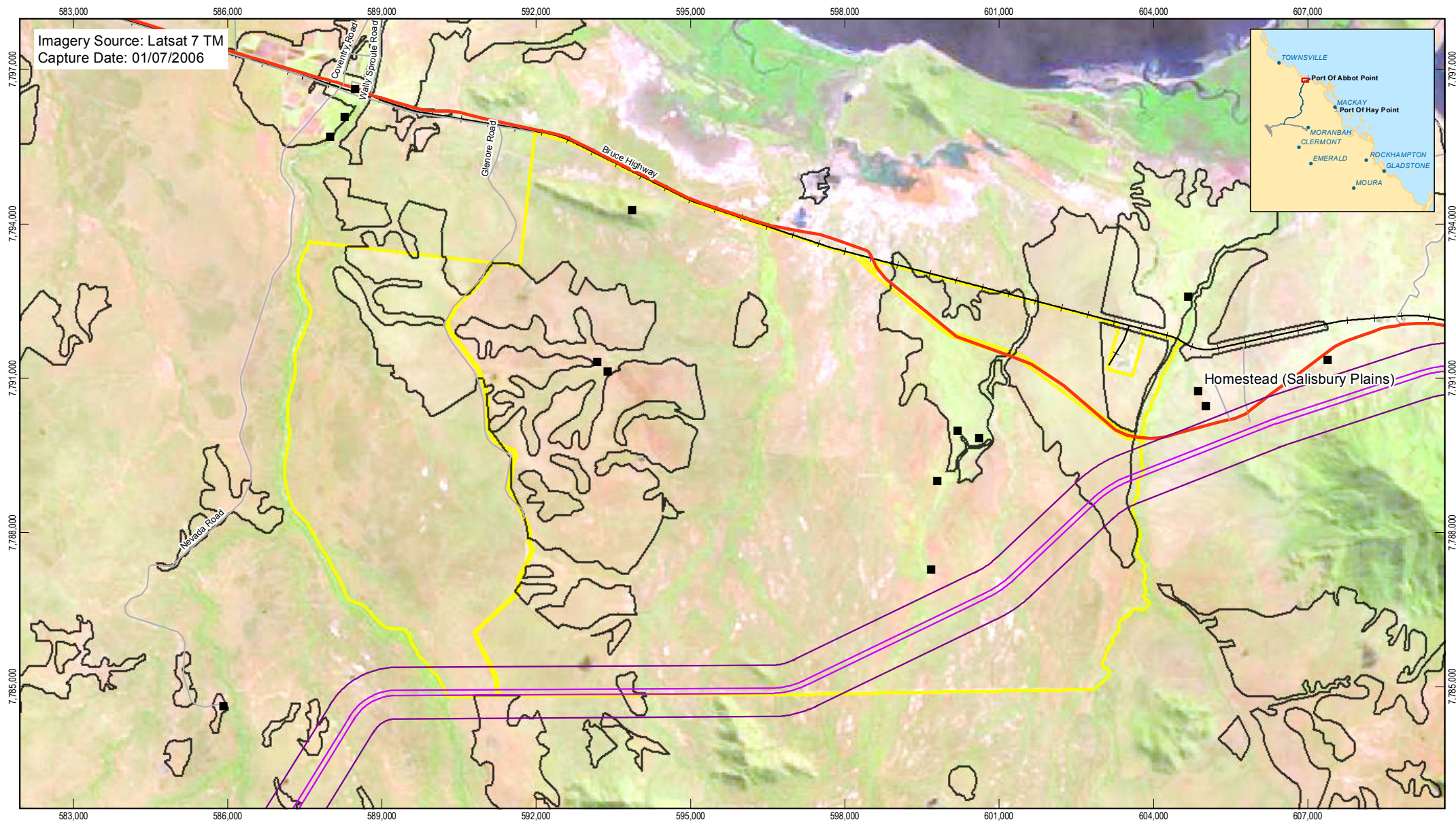
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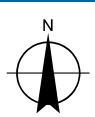
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419)
 — Highway
 — Local Road
 — Railway
 □ Potential Strategic Cropping Land
 □ Property Boundary
 □ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
 North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2006

Job Number 41-26457
 Revision A
 Date 27-08-2013

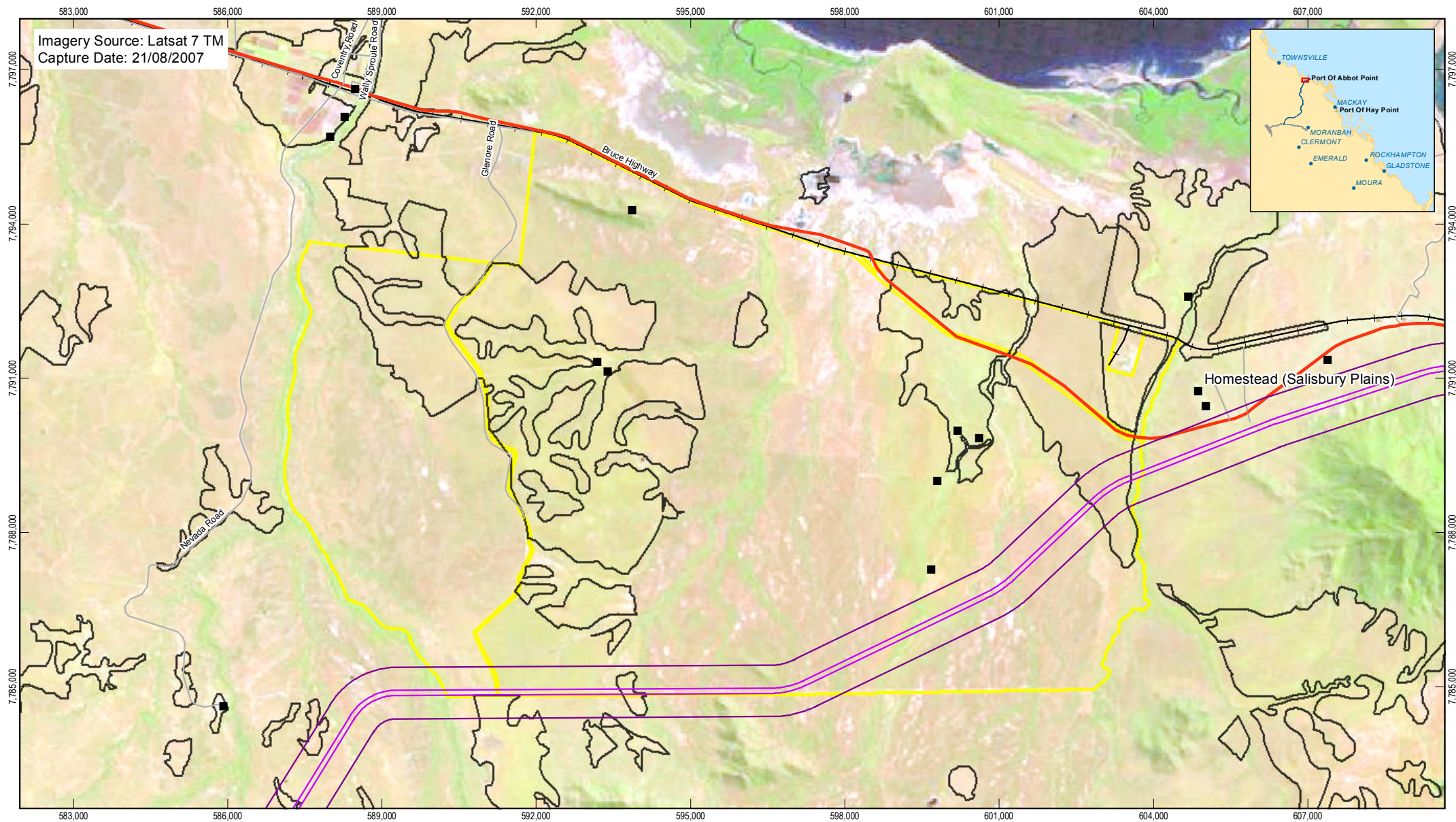
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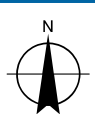
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Imagery Source: Latsat 7 TM
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Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419)
 — Highway
 — Local Road
 — Railway
 □ Potential Strategic Cropping Land
 □ Property Boundary

□ North Galilee Basin Rail 1000m Corridor
 □ North Galilee Basin Rail 100m Corridor



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 North Galilee Basin Rail Project
 Strategic Cropping Land
 Assessment - Salisbury Plains 2007

Job Number 41-26457
 Revision A
 Date 27-08-2013

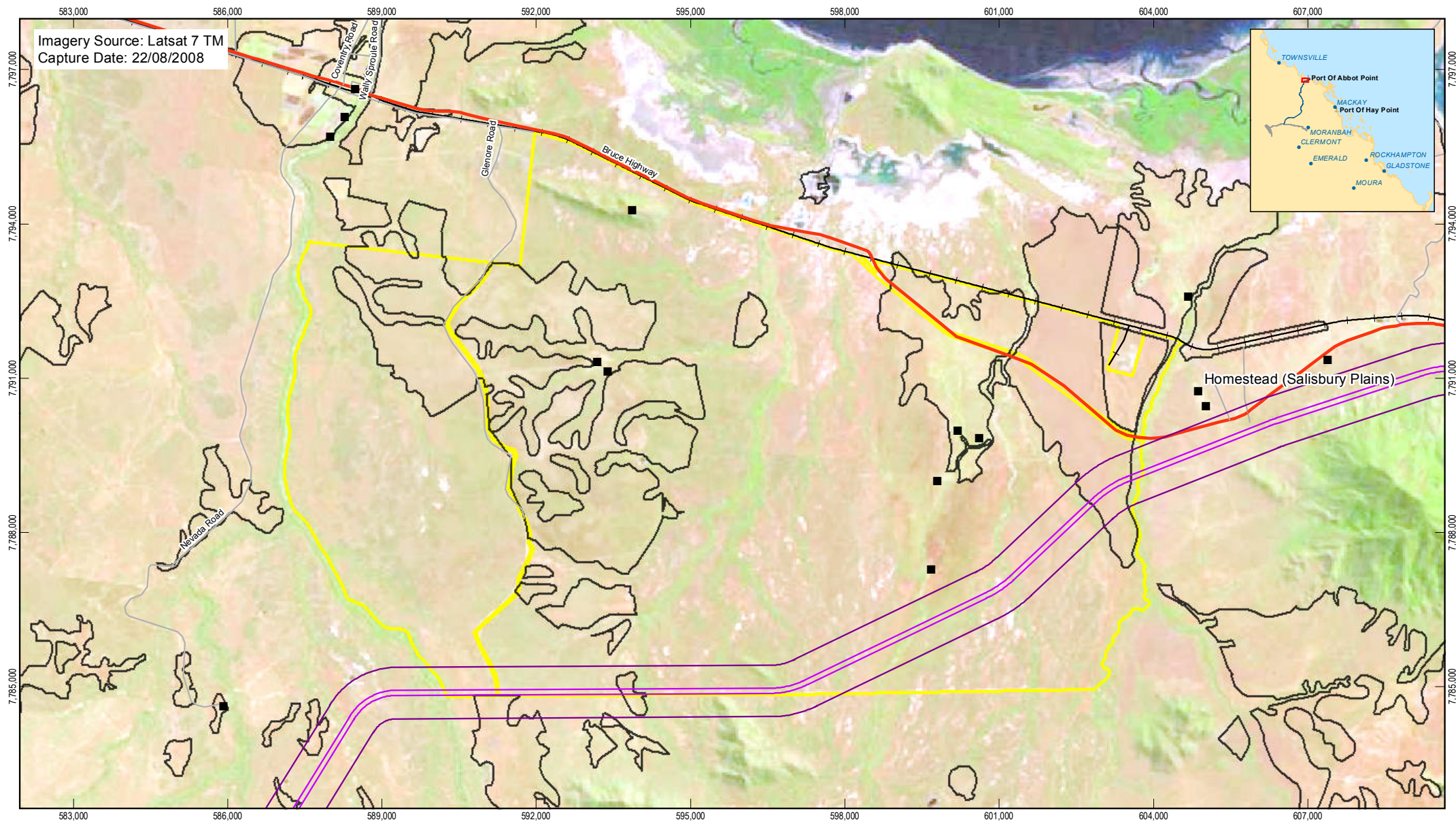
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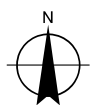
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND

- Homesteads (Adani 20130419)
- Potential Strategic Cropping Land
- Highway
- Local Road
- Railway
- Property Boundary
- North Galilee Basin Rail 1000m Corridor
- North Galilee Basin Rail 100m Corridor



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Adani Mining Pty Ltd
North Galilee Basin Rail Project
Strategic Cropping Land
Assessment - Salisbury Plains 2008

Job Number 41-26457
Revision A
Date 27-08-2013

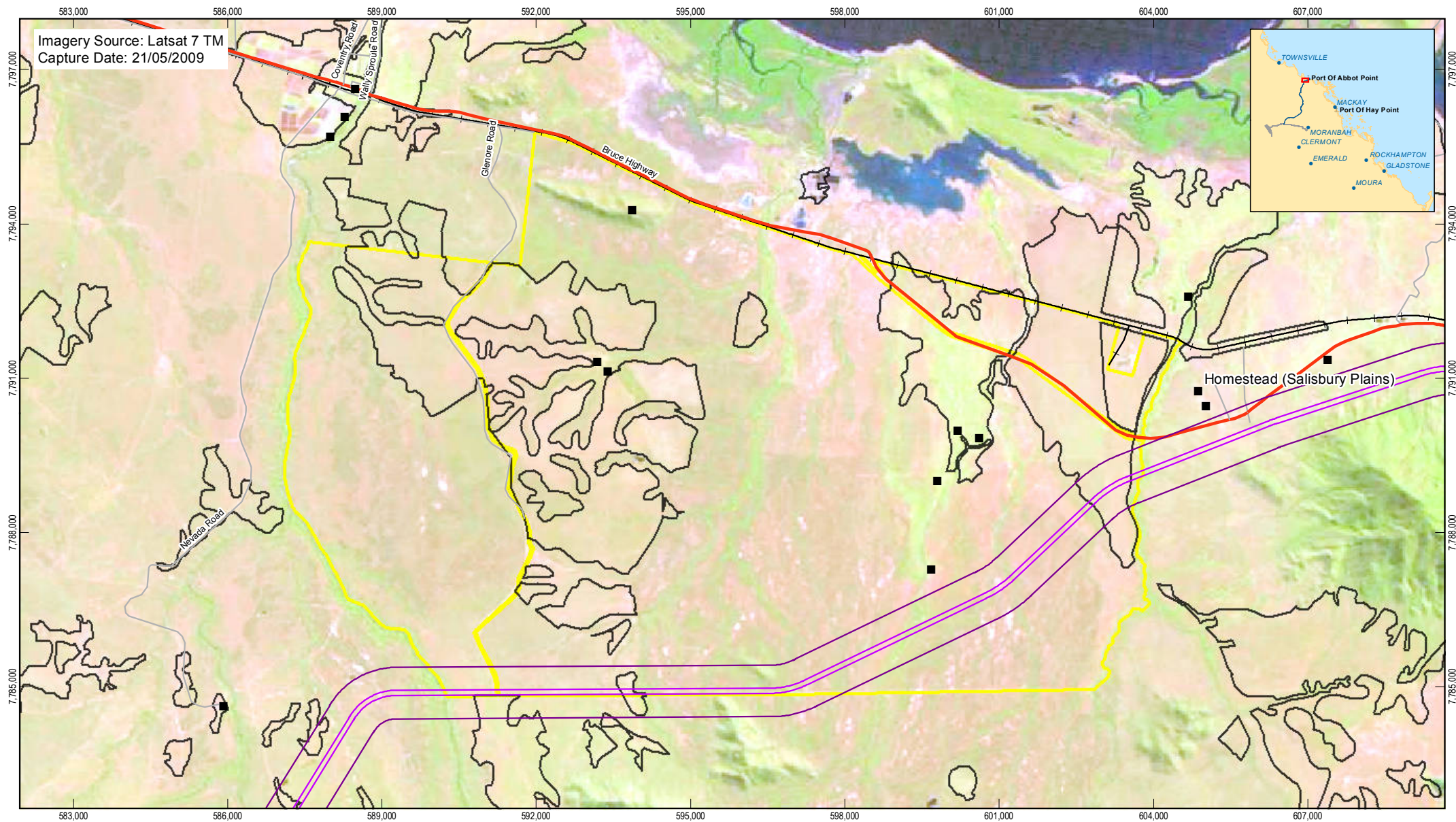
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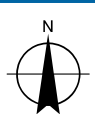
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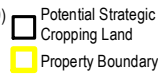
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Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
■ Homesteads (Adani 20130419)
□ Potential Strategic Cropping Land
— Highway
— Local Road
— Railway



North Galilee Basin Rail
1000m Corridor
North Galilee Basin Rail
100m Corridor



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North Galilee Basin Rail Project
**Strategic Cropping Land
Assessment - Salisbury Plains 2009**

Job Number 41-26457
Revision A
Date 27-08-2013

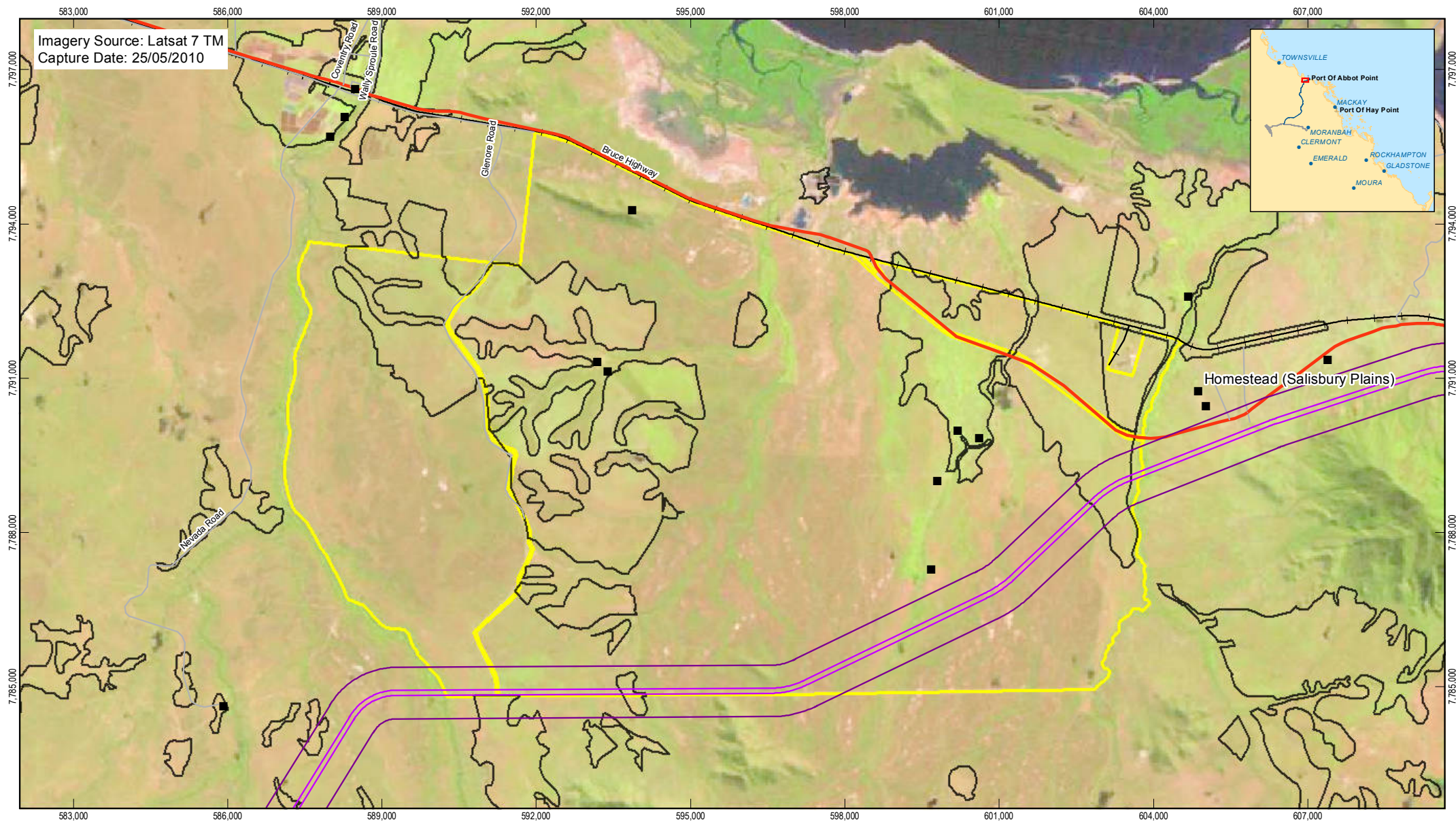
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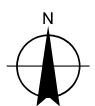
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Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 55



LEGEND
 ■ Homesteads (Adani 20130419)
 — Highway
 — Local Road
 — Railway

□ Potential Strategic
Cropping Land
 □ Property Boundary

□ North Galilee Basin Rail
1000m Corridor
 □ North Galilee Basin Rail
100m Corridor



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 North Galilee Basin Rail Project
**Strategic Cropping Land
 Assessment - Salisbury Plains 2010**

Job Number 41-26457
 Revision A
 Date 27-08-2013

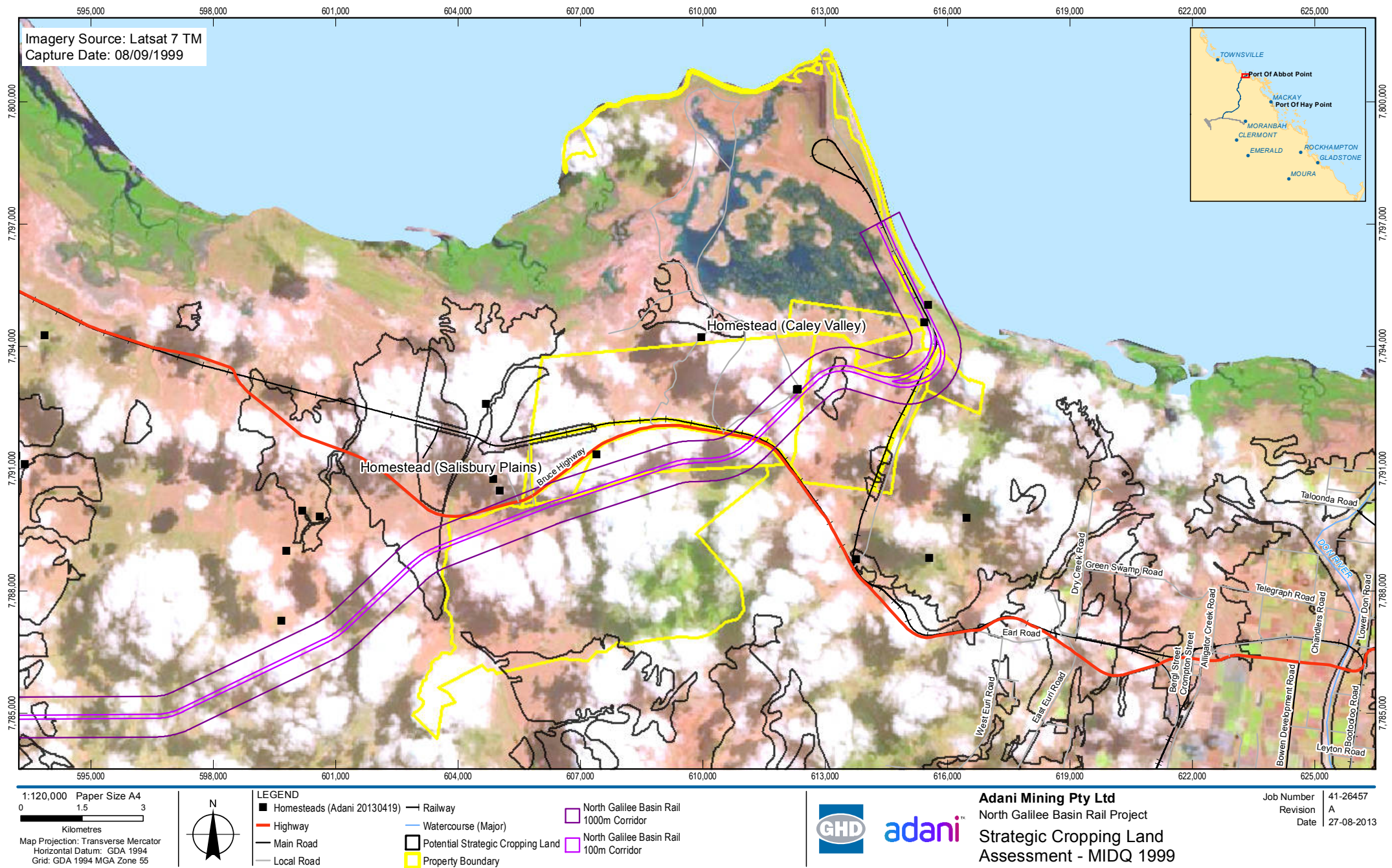
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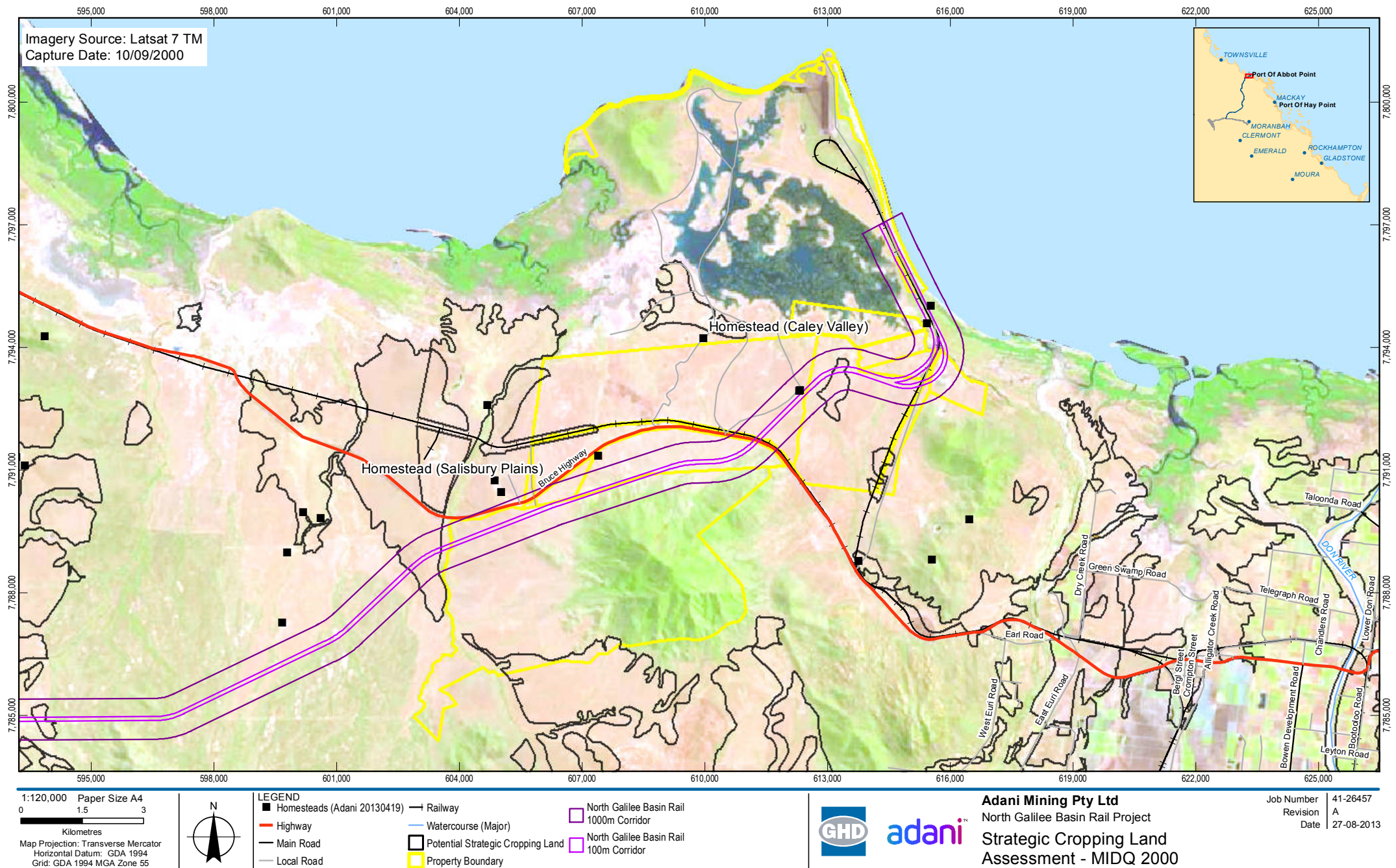


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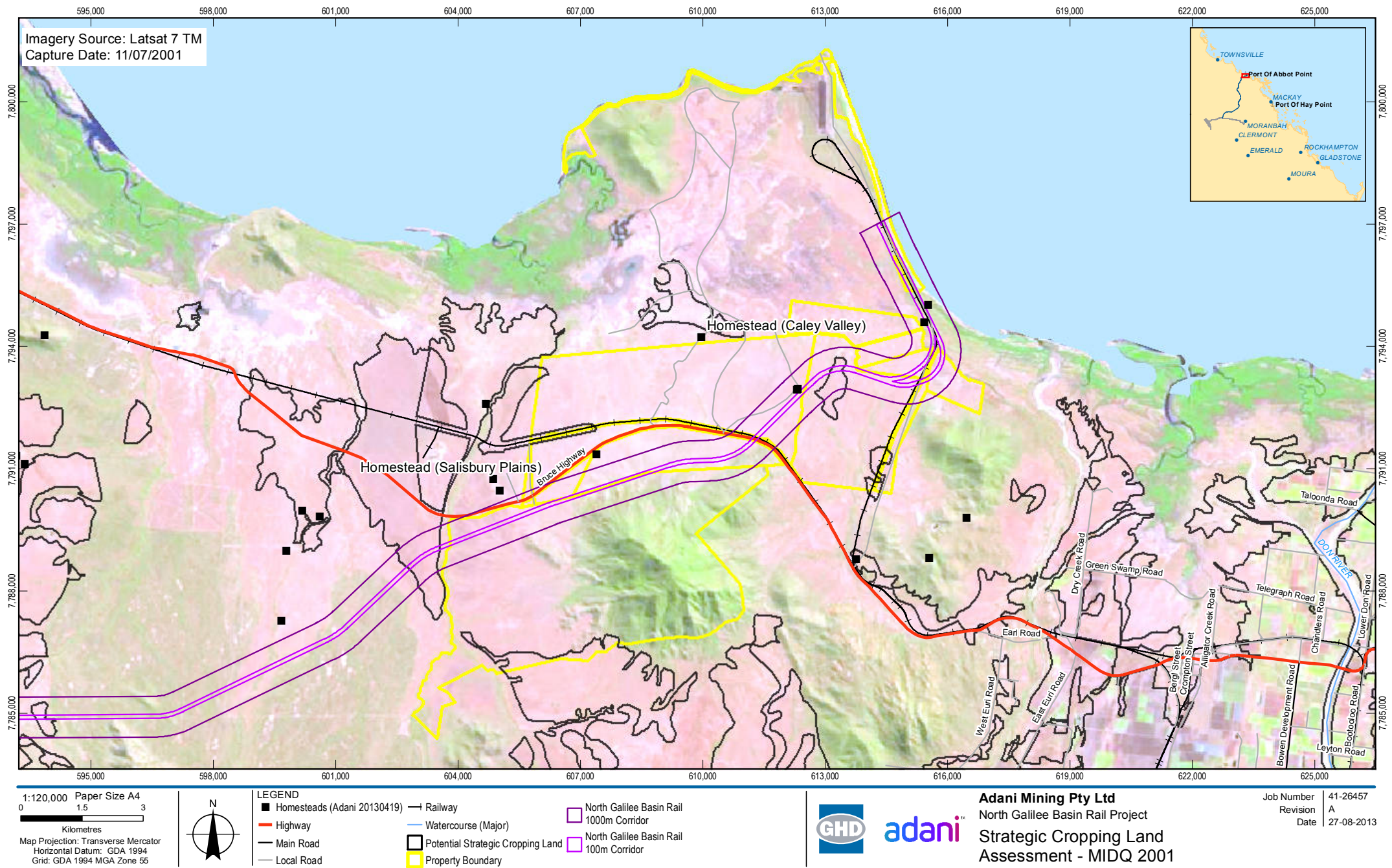
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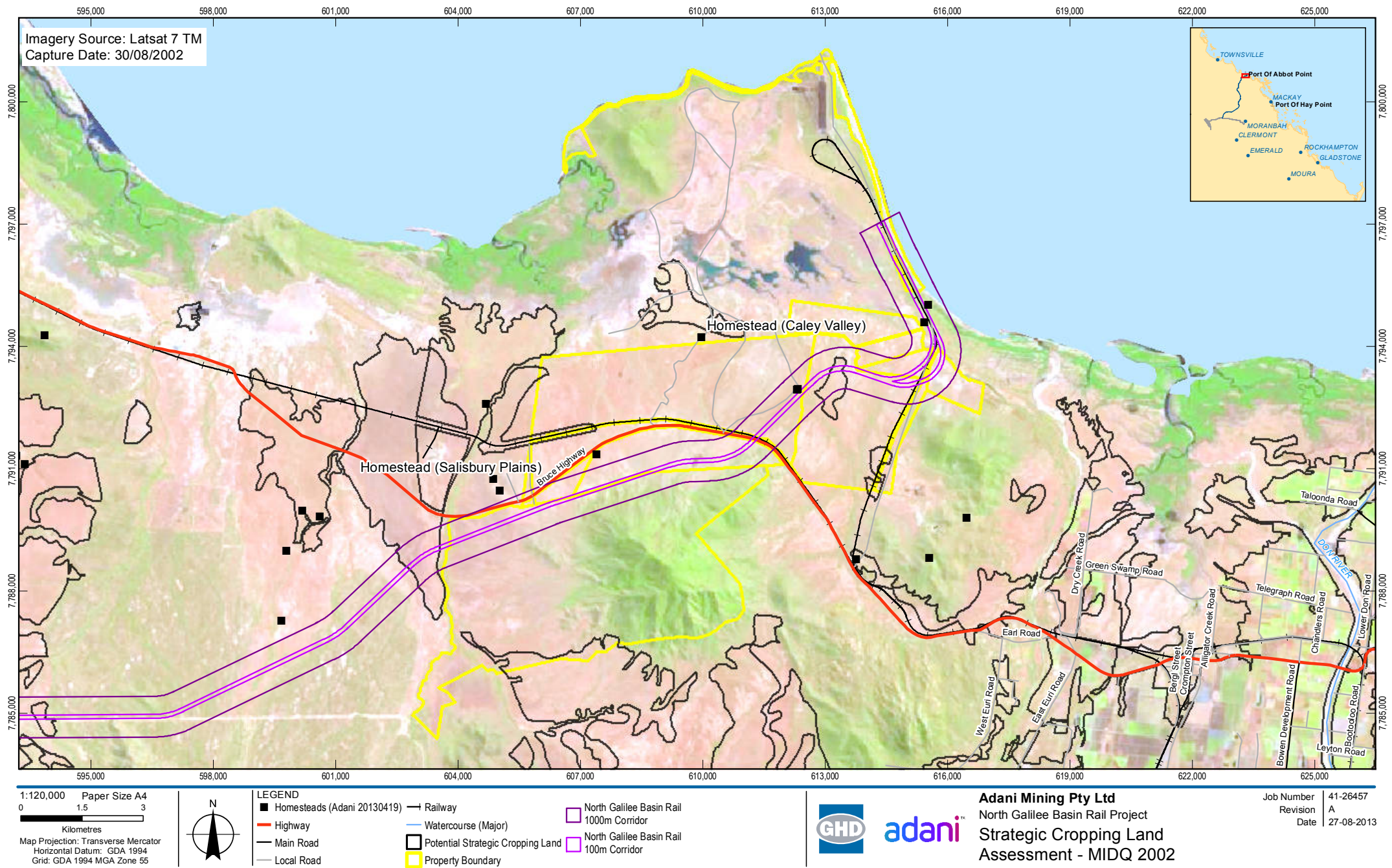
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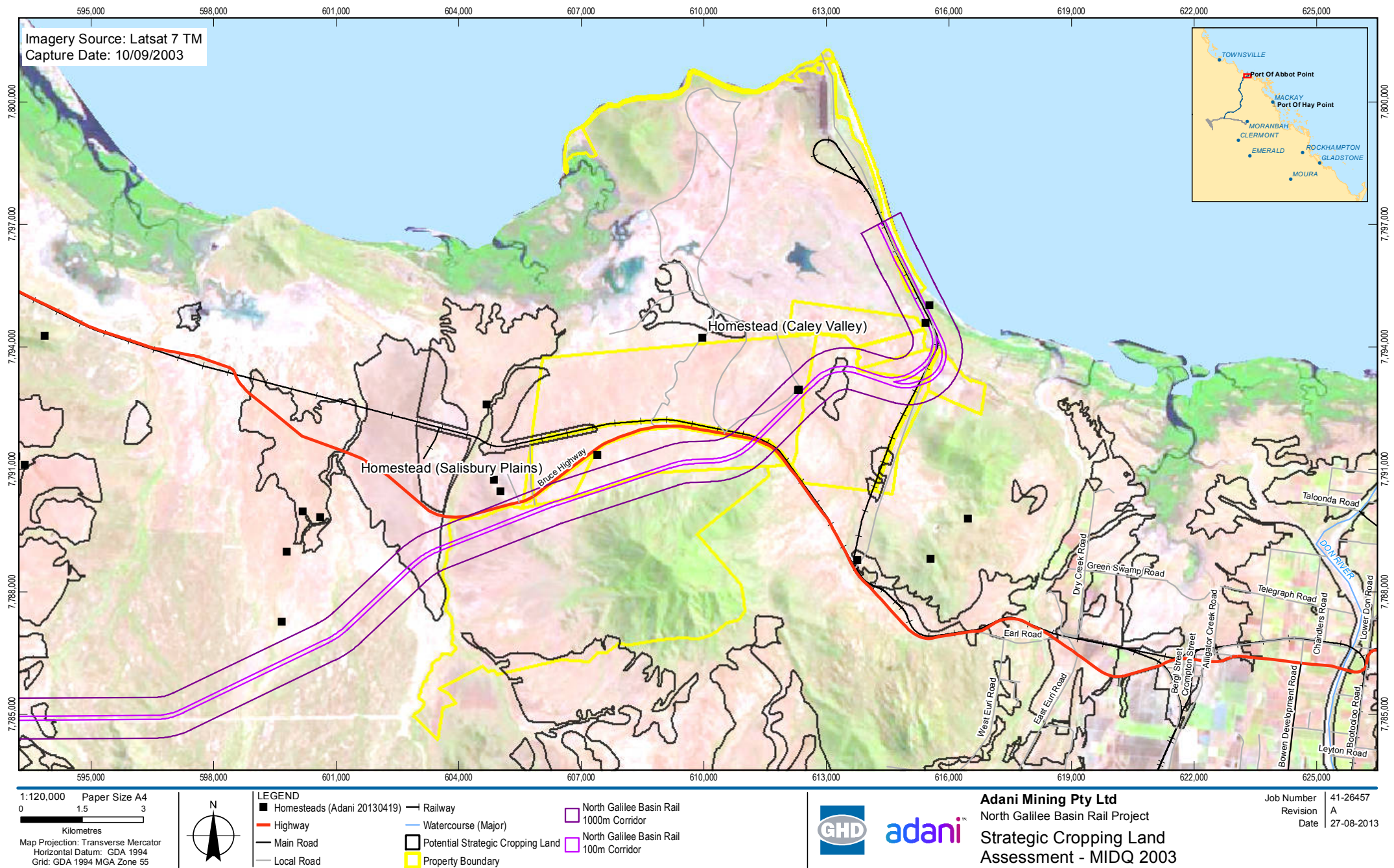
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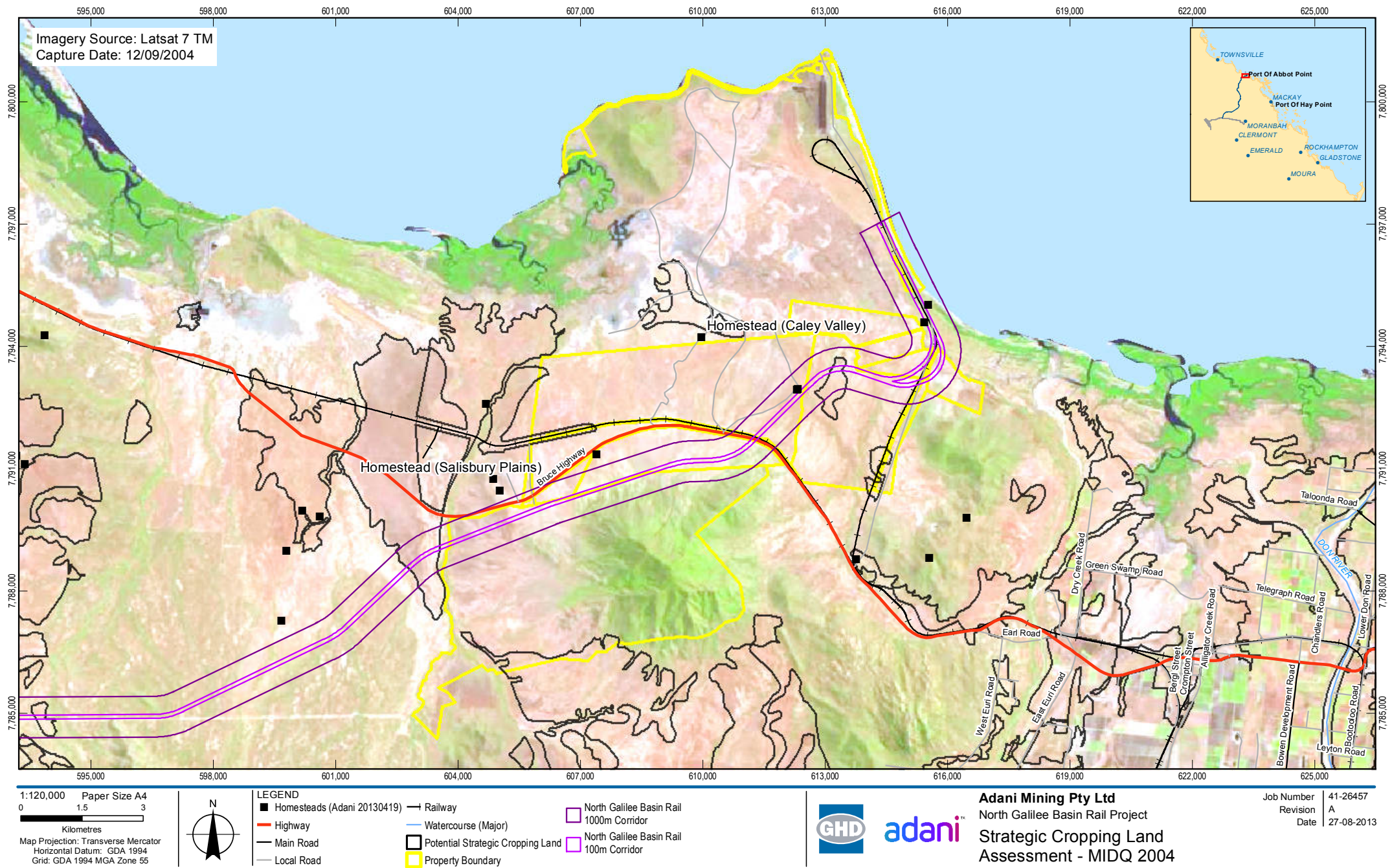
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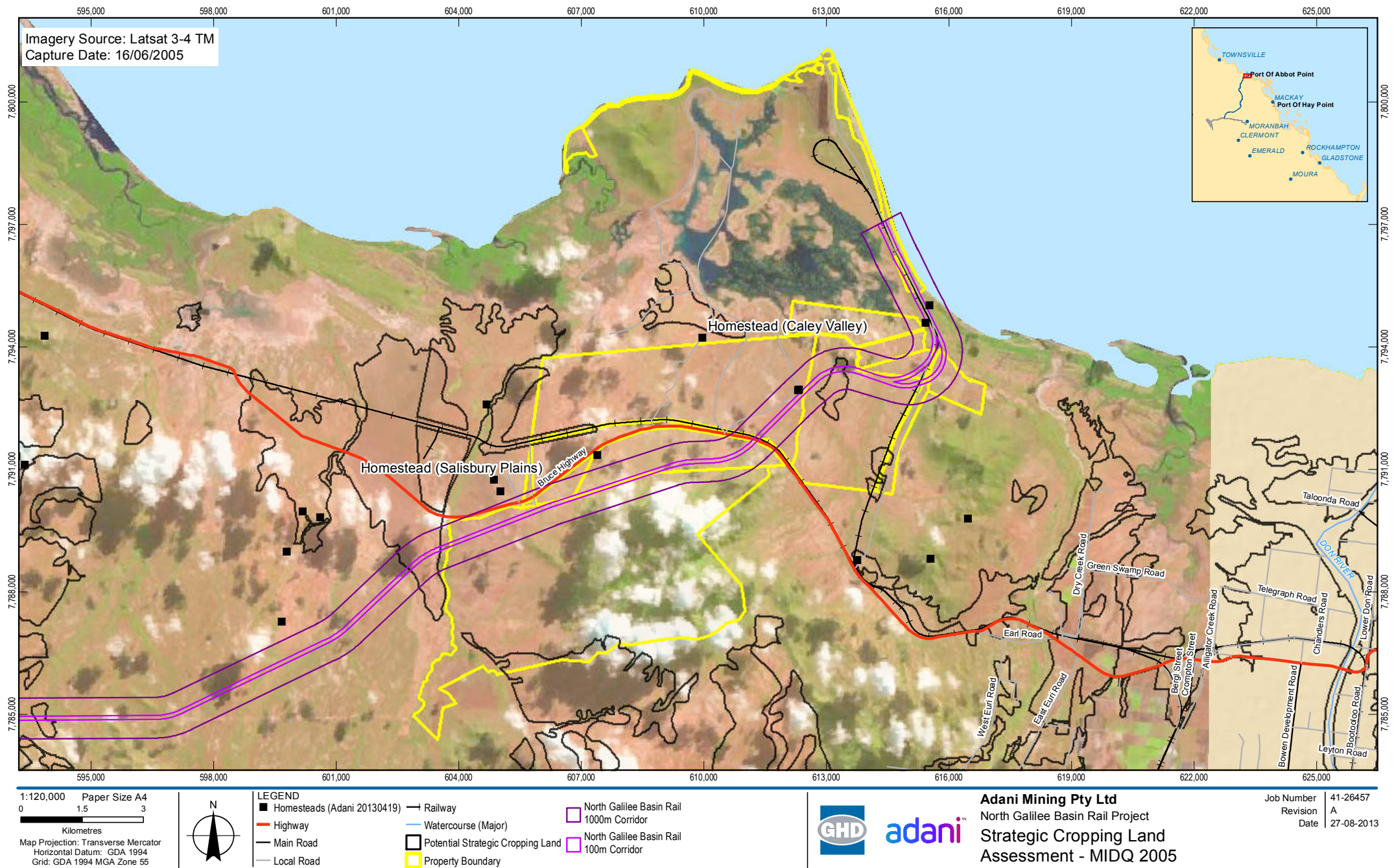
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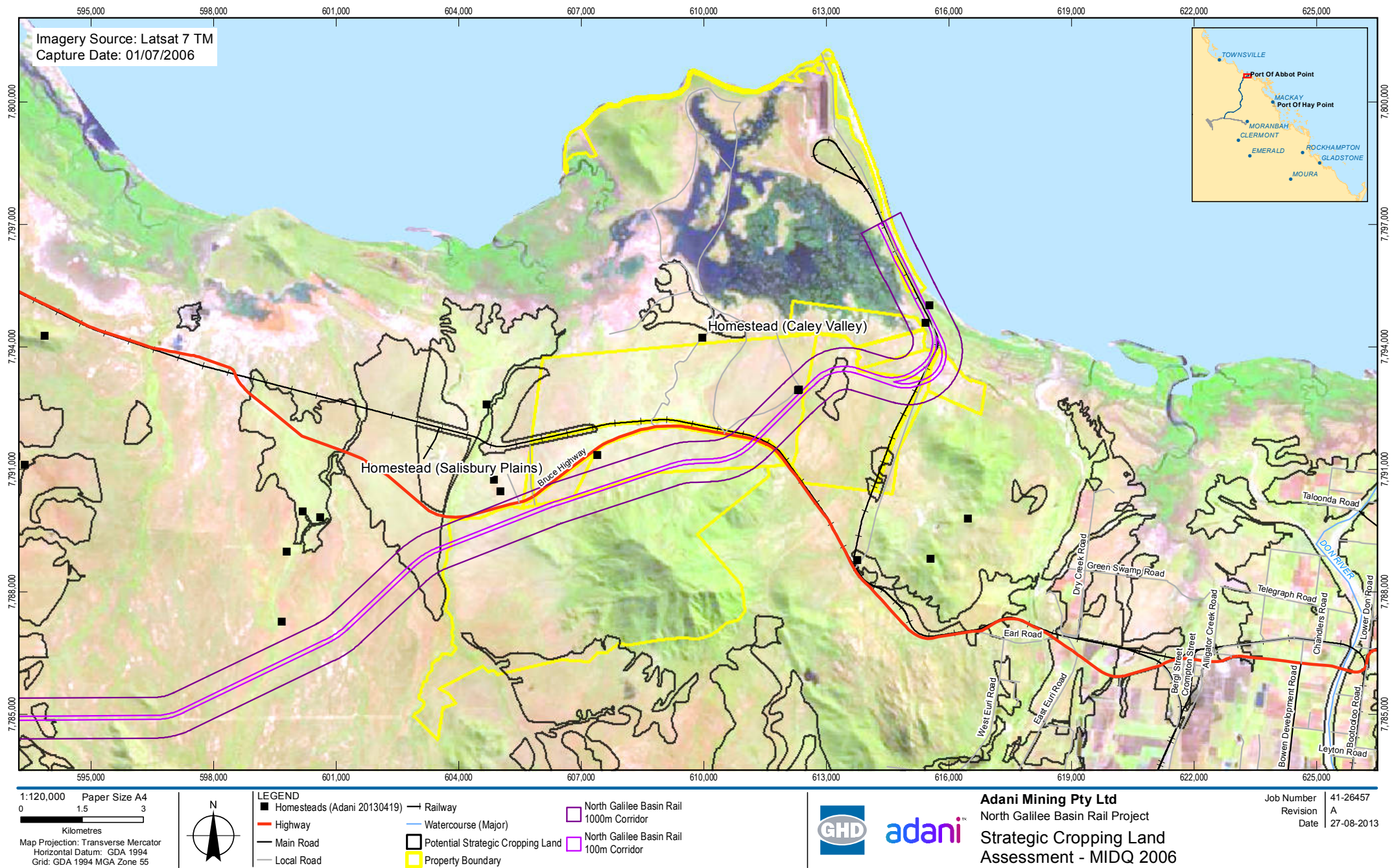
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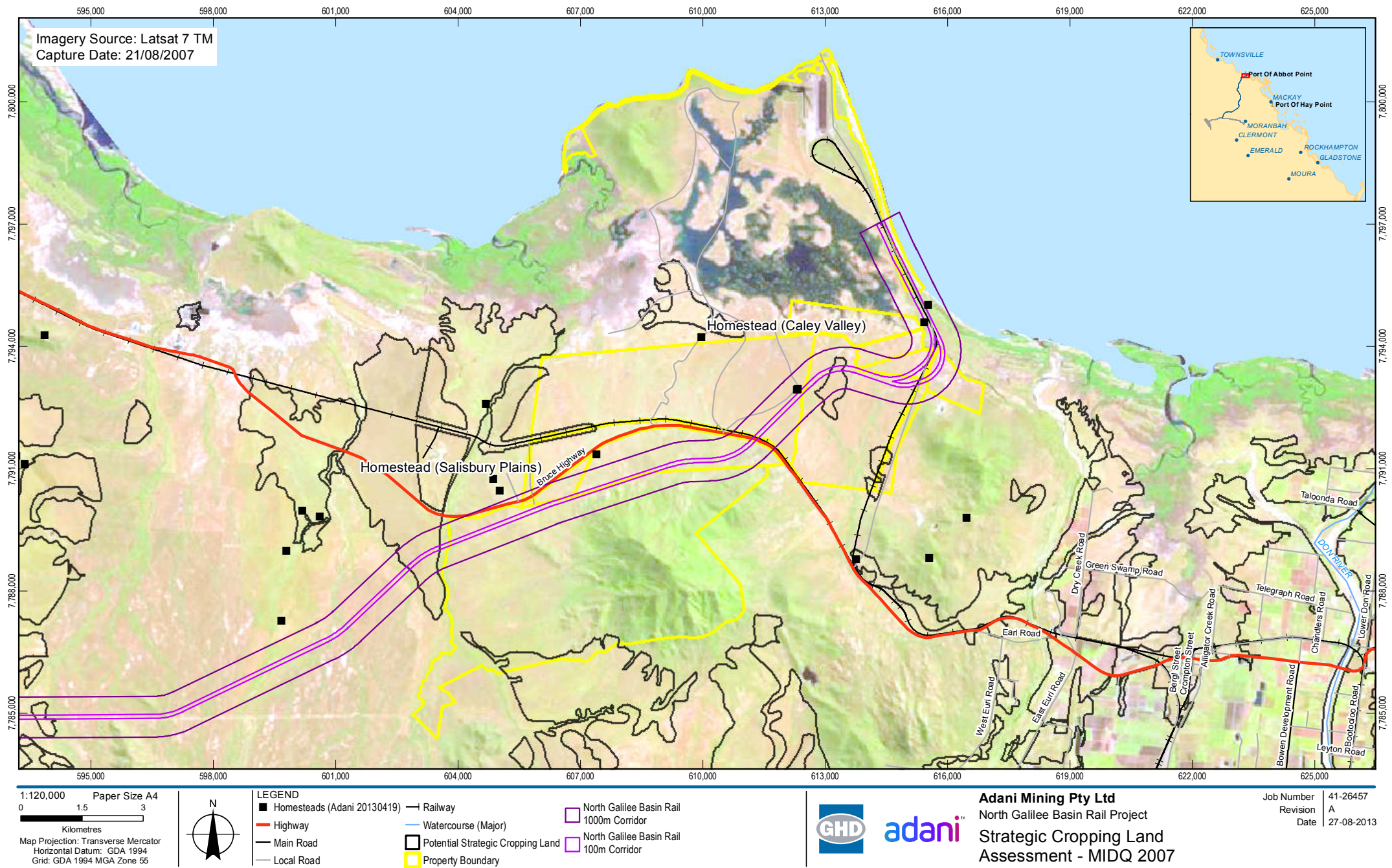
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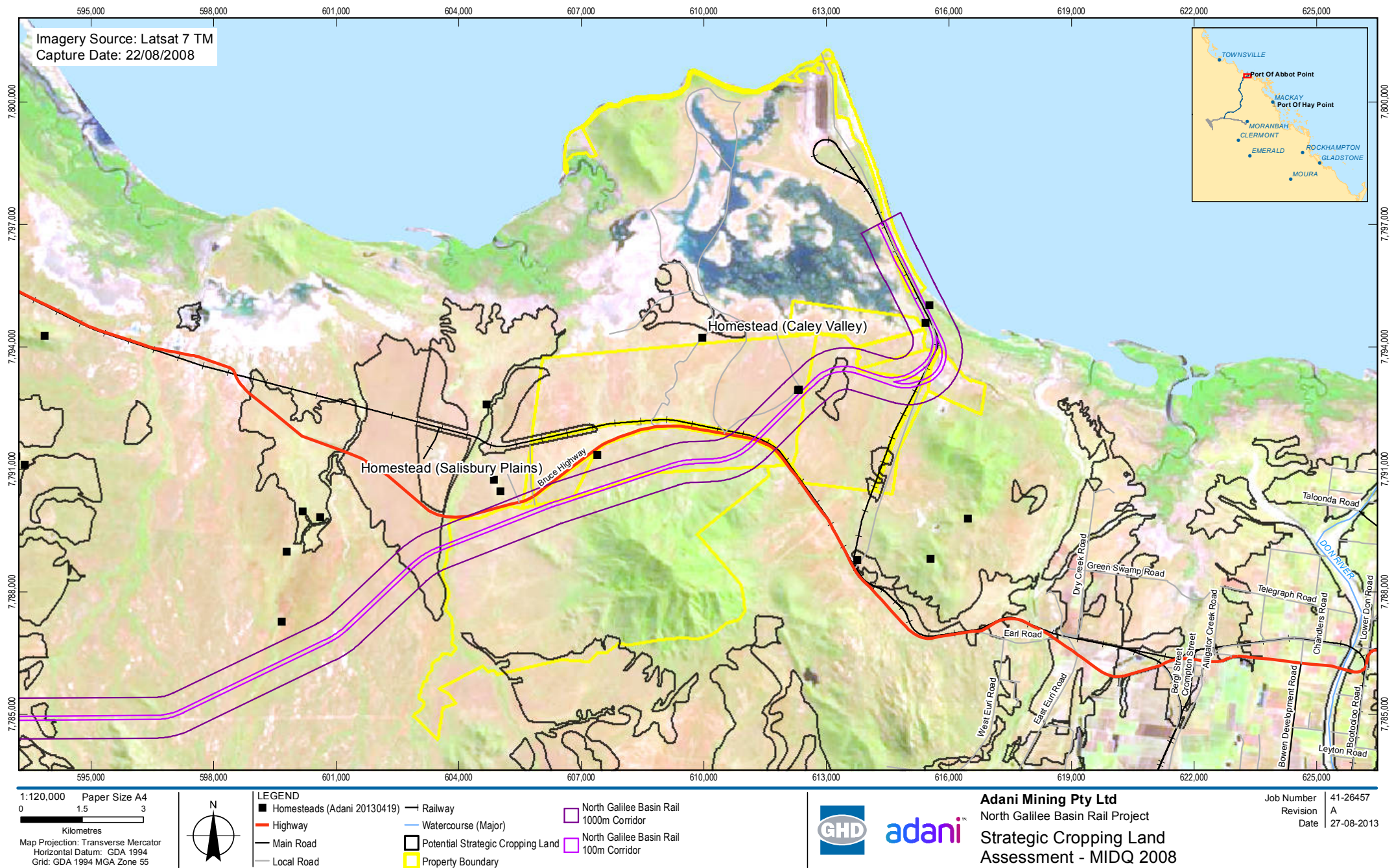


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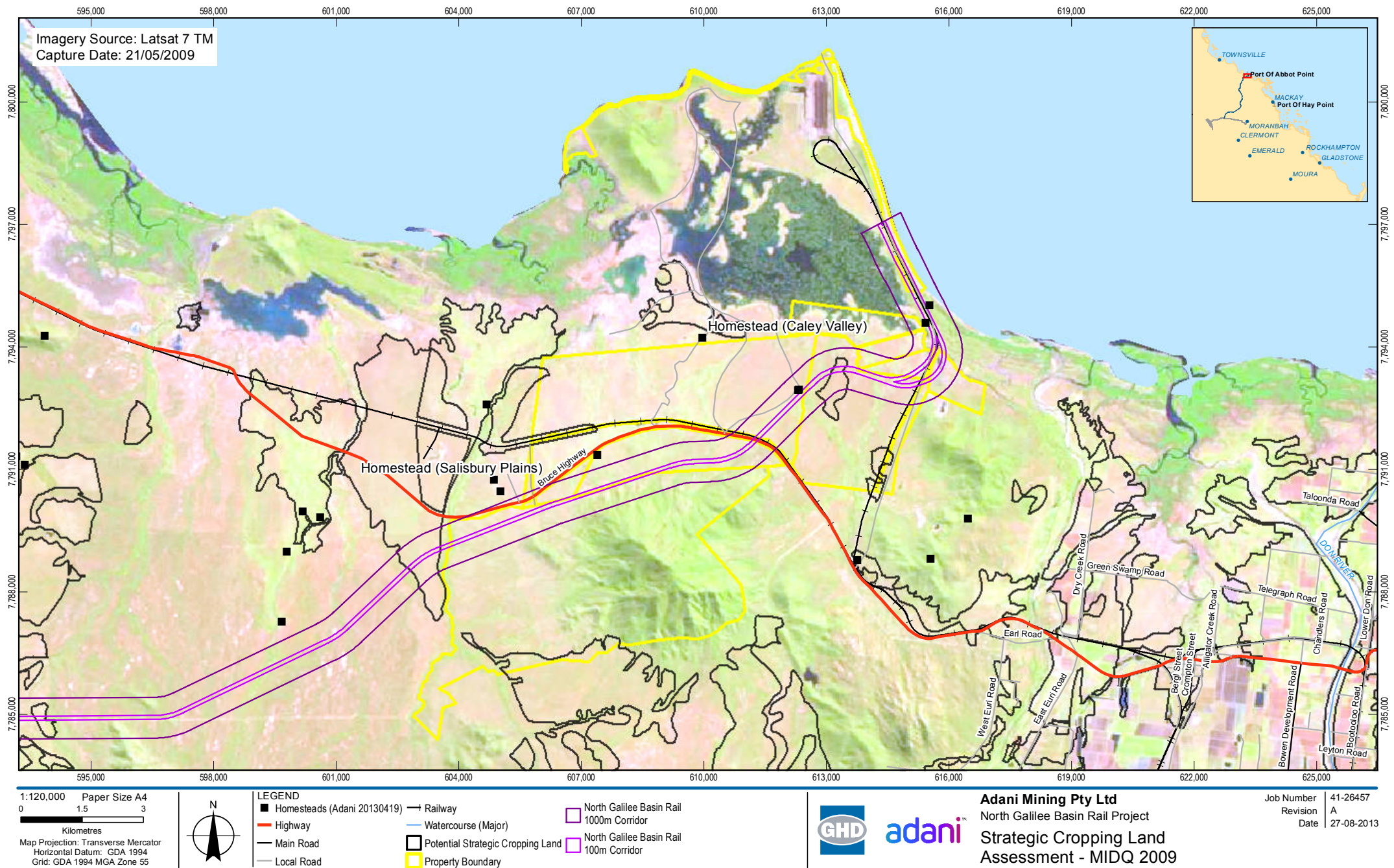
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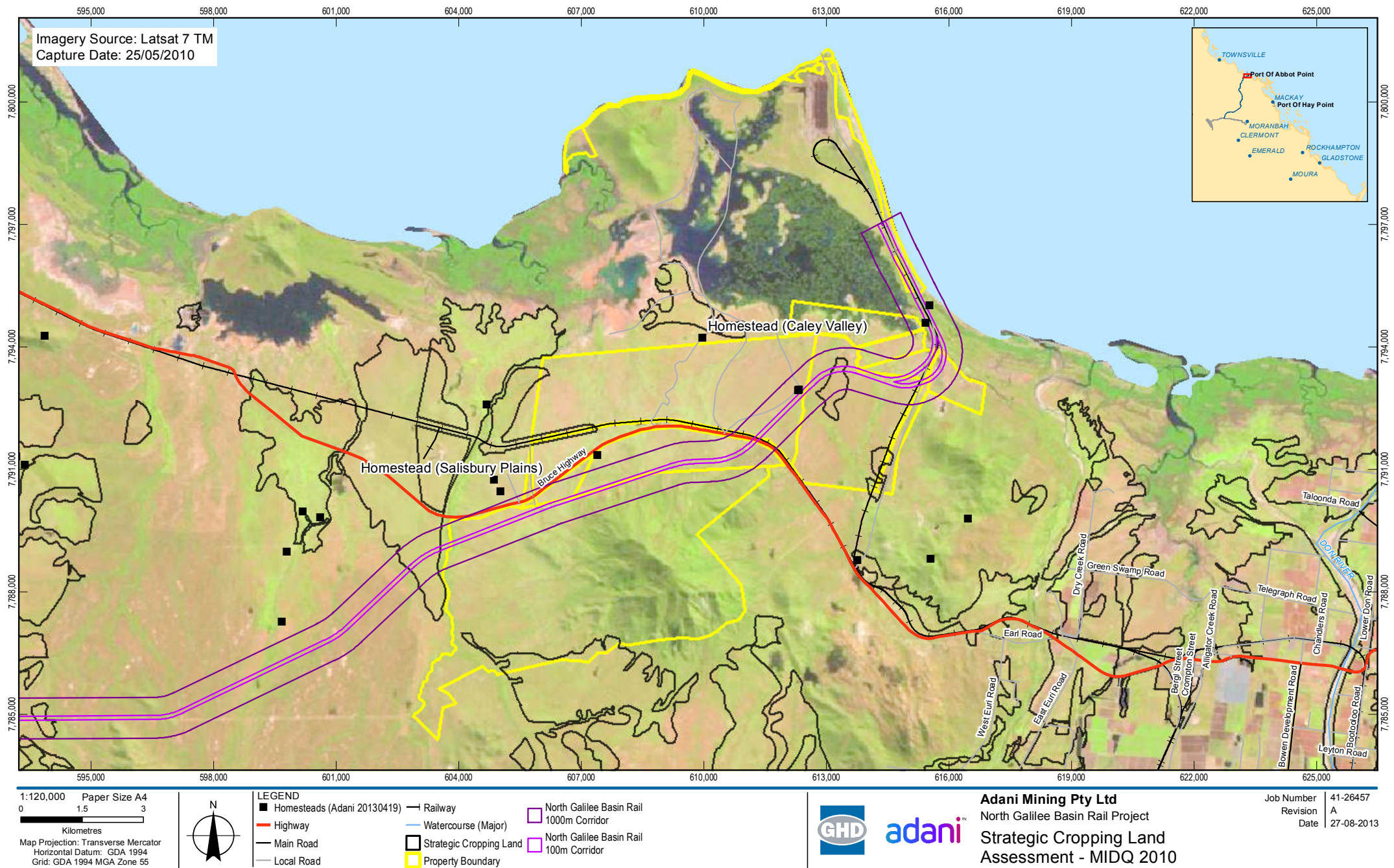
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Appendix B – EMR/CLR search records



Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361790 EMR Site Id: 98937 17 June 2013
This response relates to a search request received for the site:
Lot: 618 Plan: PH2106

This response relates to a search request received for the site:
Lot: 618 Plan: PH2106
Address: 2573 MYUNA RD
COLLINSVILLE 4804

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.
LIVESTOCK DIP OR SPRAY RACE - operating a livestock dip or spray race facility.

For the majority of rural properties only a small area may be affected by the chemicals used in livestock
dips and spray races. The Department of Environment and Heritage Protection may hold further
information relating to the location of the dip site within this property.

PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -

(a) in underground tanks with more than 200L capacity; or

(b) in above ground tanks with -

(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2,
500L capacity; or

(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L
capacity; or

(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The
storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for
internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the
internet.**

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

Registrar
Administering Authority



Department of Environment and Heritage Protection (EHP)
ABN 46 640 294 485
400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362215 EMR Site Id: 75920 18 June 2013
This response relates to a search request received for the site:
Lot: 4 Plan: SP194889

This response relates to a search request received for the site:
The site you have searched has been subdivided from the following site, which is included on the EMR.
Subdivided new parcels will remain on the EMR unless it can be shown that they are not located near the
contaminating activity.

Lot: 1 Plan: RP738758
Address: ABBOT POINT
BOWEN 4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.

PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -

(a) in underground tanks with more than 200L capacity; or

(b) in above ground tanks with -

(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2,
500L capacity; or

(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L
capacity; or

(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The
storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

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If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362159 EMR Site Id: 75919 18 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: SP194889

This response relates to a search request received for the site:
The site you have searched has been subdivided from the following site, which is included on the EMR.
Subdivided new parcels will remain on the EMR unless it can be shown that they are not located near the
contaminating activity.

Lot: 1 Plan: RP738758
Address: ABBOT POINT
BOWEN 4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2,
500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L
capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The
storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for
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If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362195 EMR Site Id: 21766 18 June 2013
This response relates to a search request received for the site:
Lot: 2 Plan: RP748627

This response relates to a search request received for the site:
The site you have searched has been subdivided from the following site, which is included on the EMR.
Subdivided new parcels will remain on the EMR unless it can be shown that they are not located near the
contaminating activity.

Lot: 1 Plan: RP738758
Address: ABBOT POINT
BOWEN 4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2,
500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5, 000L
capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The
storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25, 000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

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www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361990 EMR Site Id: 14694 17 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: SB279

This response relates to a search request received for the site:
Lot: 1 Plan: SB279
Address: COLLINSVILLE ROAD
BOWEN QLD4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.
LIVESTOCK DIP OR SPRAY RACE - operating a livestock dip or spray race facility.

For the majority of rural properties only a small area may be affected by the chemicals used in livestock
dips and spray races. The Department of Environment and Heritage Protection may hold further
information relating to the location of the dip site within this property.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

**From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for
internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the
internet.**

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362198 EMR Site Id: 21765 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748627

This response relates to a search request received for the site:
The site you have searched has been subdivided from the following site, which is included on the EMR.
Subdivided new parcels will remain on the EMR unless it can be shown that they are not located near the
contaminating activity.

Lot: 1 Plan: RP738758
Address: ABBOT POINT
BOWEN 4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the
Environmental Protection Act 1994.
PETROLEUM PRODUCT OR OIL STORAGE - storing petroleum products or oil -
(a) in underground tanks with more than 200L capacity; or
(b) in above ground tanks with -
(i) for petroleum products or oil in class 3 in packaging groups 1 and 2 of the dangerous goods code - more than 2,
500L capacity; or
(ii) for petroleum products or oil in class 3 in packaging groups 3 of the dangerous goods code - more than 5,000L
capacity; or
(iii) for petroleum products that are combustible liquids in class C1 or C2 in Australian Standard AS1940, 'The
storage and handling of flammable and combustible liquids' published by Standards Australia - more than 25,000L capacity.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

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internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the
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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361728 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 5 Plan: DK103

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362155 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 6 Plan: SP194888

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362123 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 6 Plan: DK17

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361802 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 667 Plan: PH1321

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361945 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 62 Plan: SP195387

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49363523 EMR Site Id: 24 June 2013
This response relates to a search request received for the site:
Lot: 5 Plan: SP194888

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362141 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 5 Plan: DK17

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361977 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 5 Plan: DC90

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362011 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 58 Plan: SP243726

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361953 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 5047 Plan: PH370

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361744 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 4 Plan: SP171921

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361748 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 4 Plan: SP116046

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361976 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 4 Plan: SB687

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362151 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 47 Plan: SP227557

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361772 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: SP132678

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361958 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: SB514

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361989 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: SB236

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362147 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: RP748510

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362145 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: RP748509

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362000 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: RP748508

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362150 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: RP737838

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362218 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: HR1711

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361991 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: HR1686

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361973 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3 Plan: DC91

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361764 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 3821 Plan: PH1304

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362168 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 336 Plan: SP227560

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362156 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 335 Plan: SP227560

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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400 George St Brisbane, Queensland 4000
GPO Box 2454 Brisbane QLD 4001 AUSTRALIA
www.chp.qld.gov.au

SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362169 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 3235 Plan: PH752

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362154 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 2 Plan: RP748626

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362205 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 2 Plan: RP748511

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362003 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 2 Plan: HR1724

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362165 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 2 Plan: DK232

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361951 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 24 Plan: RP805036

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361990 EMR Site Id: 14694 17 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: SB279

This response relates to a search request received for the site:

Lot: 1 Plan: SB279
Address: COLLINSVILLE ROAD
BOWEN QLD4805

The site has been subject to the following Notifiable Activity pursuant to section 374 of the *Environmental Protection Act 1994*.

LIVESTOCK DIP OR SPRAY RACE - operating a livestock dip or spray race facility.

For the majority of rural properties only a small area may be affected by the chemicals used in livestock dips and spray races. The Department of Environment and Heritage Protection may hold further information relating to the location of the dip site within this property.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362157 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748626

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

If you have any queries in relation to this search please phone 13QGOV (13 74 68)

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362189 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748625

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362219 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748512

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362207 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748511

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362194 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748510

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49363520 EMR Site Id: 24 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748509

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362167 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP748508

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362143 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP737838

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362137 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: RP705785

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361768 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: DK244

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362004 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 1 Plan: DK150

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361987 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 1943 Plan: SP221555

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362209 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 152 Plan: SP122339

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361785 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 1510 Plan: SP171920

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361980 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 13 Plan: SP232519

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362140 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 10 Plan: DK17

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361966 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 10 Plan: BL49

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49363526 EMR Site Id: 24 June 2013
This response relates to a search request received for the site:
Lot: 151 Plan: SP1223

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362005 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 9 Plan: DK17

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49361979 EMR Site Id: 17 June 2013
This response relates to a search request received for the site:
Lot: 86 Plan: DK154

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49363525 EMR Site Id: 24 June 2013
This response relates to a search request received for the site:
Lot: 80 Plan: K12450

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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SEARCH RESPONSE
ENVIRONMENTAL MANAGEMENT REGISTER (EMR)
CONTAMINATED LAND REGISTER (CLR)

Transaction ID: 49362139 EMR Site Id: 18 June 2013
This response relates to a search request received for the site:
Lot: 7 Plan: DK17

EMR RESULT

The above site is NOT included on the Environmental Management Register.

CLR RESULT

The above site is NOT included on the Contaminated Land Register.

ADDITIONAL ADVICE

From the 1st August 2012, the price of an EMR/CLR search will increase to \$41.55 per lot for internet based searches and \$48.85 per lot for EMR/CLR searches done by means other than the internet.

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Appendix C – Ancillary infrastructure details

Regional Council	Infrastructure	Ancillary identifier	Disturbance area (ha)	ASC	Soil	Project code	GQAL status	GQAL ha (if different)	SCL status	SCL ha (if different)	ASS risk (20mAHD or less)
Whitsunday	CONCRETE BATCH PLANT	0	0.54	TE	Sixmile	BER					
Whitsunday	CONCRETE BATCH PLANT	0	2.23	HY	Maiden	BER					
Whitsunday	CONCRETE BATCH PLANT	0	1.83	KA	Roundback	BER	A				
Whitsunday	Turning Circle	1	1.00	TE	Wilmington	BER	A				Yes
Whitsunday	Turning Circle	2	1.00	DE	Sixmile	BER					
Whitsunday	Turning Circle	3	1.00	KA	Roundback	BER	A				
Whitsunday	Turning Circle	4	1.00	KA	Splitters	BER	A				Yes
Whitsunday	Turning Circle	5	1.00	DE	Seven Sisters	BER					
Whitsunday	Turning Circle	6	0.99	DE	Glenroc	BER	B				
Whitsunday	Turning Circle	6	0.01	DE	Creek flats and stream channels	BER					
Whitsunday	Turning Circle	7	1.00	SO	RC13	ZEB					
Whitsunday	Turning Circle	8	1.00	CH	RC15	ZEB					
Whitsunday	Turning Circle	9	1.00	CH	RC15	ZEB					
Whitsunday	Turning Circle	10	1.00	CH	RC15	ZEB					
Whitsunday	Turning Circle	11	1.00	CH	RC15	ZEB					
Whitsunday	Turning Circle	12	1.00	SO	RC13	ZEB					
Whitsunday	Turning Circle	13	1.00	SO	RC13	ZEB	C				
Whitsunday	Turning Circle	14	1.00	VE	YD11	ZEB	C				
Whitsunday	Turning Circle	15	1.00	VE	YD11	ZEB	C				
Whitsunday	Turning Circle	16	1.00	VE	Cf17	ZEB	A				
Whitsunday	Turning Circle	17	0.33	VE	Cf17	ZEB	C				
Whitsunday	Turning Circle	17	0.67	VE	Cf17	ZEB	A				
Whitsunday	BRIDGE LAYDOWN AREA	18	6.00	DE	Salisbury	BER	A				Yes
Whitsunday	BRIDGE LAYDOWN AREA	19	0.24	DE	Glenroc	BER	B				
Whitsunday	BRIDGE LAYDOWN AREA	19	0.35	VE	Carew	BER	A				
Whitsunday	BRIDGE LAYDOWN AREA	19	5.41	DE	Goodbye	BER	B				
Whitsunday	BRIDGE LAYDOWN AREA	20	4.88	VE	Cf17	ZEB	C				
Whitsunday	BRIDGE LAYDOWN AREA	20	1.12	VE	Cf17	ZEB	A				
Whitsunday	TRACK LAYDOWN AREA	21	4.50	DE	Salisbury	BER	A				Yes
Whitsunday	TRACK LAYDOWN AREA	22	1.71	DE	Glenroc	BER	B				
Whitsunday	TRACK LAYDOWN AREA	22	2.79	VE	Carew	BER	A				
Whitsunday	TRACK LAYDOWN AREA	23	4.50	DE	RC15	ZEB					
Whitsunday	TRACK LAYDOWN AREA	24	4.50	CH	RC15	ZEB					
Whitsunday	TRACK LAYDOWN AREA	25	4.50	CH	RC15	ZEB					
Whitsunday	TRACK LAYDOWN AREA	25	0.00	CH	RC15	ZEB					
Whitsunday	TRACK LAYDOWN AREA	26	4.50	CH	RC15	ZEB					
Whitsunday	TRACK LAYDOWN AREA	27	4.50	VE	YD11	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	28	4.50	VE	Cf17	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	29	1.22	VE	Cf17	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	29	3.28	VE	Cf17	ZEB	A				
Whitsunday	CONSTRUCTION CAMP 1	30	0.55	DE	Creek flats and stream channels	BER					
Whitsunday	CONSTRUCTION CAMP 1	30	5.71	HY	Maiden	BER					
Whitsunday	CONSTRUCTION CAMP 1	30	3.20	KA	Roundback	BER	A				
Whitsunday	Turning Circle	31	1.00	VE	Cf17	ZEB	C				
Whitsunday	Turning Circle	32	1.00	VE	Cf17	ZEB	C				
Whitsunday	Turning Circle	33	1.00	SO	GG9	ZEB	C				

Regional Council	Infrastructure	Ancillary identifier	Disturbance area (ha)	ASC	Soil	Project code	GQAL status	GQAL ha (if different)	SCL status	SCL ha (if different)	ASS risk (20mAHD or less)
Whitsunday	Turning Circle	34	0.01	SO	GG9	ZEB	C				
Whitsunday	Turning Circle	34	0.99	SO	GG9	ZEB	A				
Whitsunday	Turning Circle	35	1.00	SO	RD2	ZEB	C		Yes	0.59	
Whitsunday	Turning Circle	36	1.00	SO	RD2	ZEB	A				
Whitsunday	Turning Circle	37	1.00	DE	RE5	ZEB	C				
Whitsunday	Turning Circle	38	1.00	VE	Cc18	ZEB	A		Yes		
Whitsunday	Turning Circle	39	1.00	DE	RE5	ZEB	A				
Whitsunday	Turning Circle	40	1.00	DE	RE5	ZEB	C				
Whitsunday	Turning Circle	41	1.00	RU	Sb10	ZEB	C				
Whitsunday	Turning Circle	42	1.00	RU	Sb10	ZEB	C				
Whitsunday	Turning Circle	43	1.00	KA	mb21	ZEB	C				
Whitsunday	Turning Circle	44	1.00	KA	Tichbourne	ZCQ2	D				
Whitsunday	Turning Circle	45	1.00	KA	Tichbourne	ZCQ2	D				
Whitsunday	Turning Circle	46	1.00	KA	Tichbourne	ZCQ2	D				
Whitsunday	Turning Circle	47	1.00	KA	Tichbourne	ZCQ2	D				
Whitsunday	Turning Circle	48	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	49	1.00	SO	Monteagle	ZCQ2	B				
Whitsunday	Turning Circle	50	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	51	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	51	0.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	52	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	53	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	54	1.00	RU	Loudon	ZCQ2	D				
Whitsunday	Turning Circle	55	1.00	SO	Monteagle	ZCQ2	B				
Whitsunday	Turning Circle	56	1.00	SO	Humboldt	ZCQ2	B				
Whitsunday	Turning Circle	57	1.00	SO	Monteagle	ZCQ2	B				
Whitsunday	Turning Circle	58	0.17	KA	Alpha	ZCQ2	B				
Whitsunday	Turning Circle	58	0.83	RU	Loudon	ZCQ2	D		Yes	0.17	
Whitsunday	Turning Circle	59	1.00	VE	Somerby	ZCQ2	B				
Whitsunday	Turning Circle	60	1.00	VE	Somerby	ZCQ2	B				
Isaac	Turning Circle	61	1.00	SO	Humboldt	ZCQ2	C1				
Isaac	Turning Circle	62	1.00	RU	Loudon	ZCQ2	C3				
Isaac	Turning Circle	63	1.00	VE	Blackwater	ZCQ2	B				
Isaac	Turning Circle	64	1.00	RU	Loudon	ZCQ2	C3				
Isaac	Turning Circle	65	1.00	KA	Disney	ZCQ2	C2				
Isaac	Turning Circle	66	1.00	KA	Disney	ZCQ2	C2				
Isaac	Turning Circle	67	1.00	VE	Comet	ZCQ2	C1				
Whitsunday	BRIDGE LAYDOWN AREA	68	6.00	KA	Alpha	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	69	0.10	VE	Cf17	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	69	4.40	VE	Cf17	ZEB	A				
Whitsunday	TRACK LAYDOWN AREA	70	4.50	VE	Cf17	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	71	0.13	VE	Cf17	ZEB	C		Yes	0.21	
Whitsunday	TRACK LAYDOWN AREA	71	4.37	VE	Cf17	ZEB	C		Yes	0.21	
Whitsunday	TRACK LAYDOWN AREA	72	2.08	SO	GG9	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	72	2.42	SO	GG9	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	73	0.00	SO	RD2	ZEB	C		Yes		

Regional Council	Infrastructure	Ancillary identifier	Disturbance area (ha)	ASC	Soil	Project code	GQAL status	GQAL ha (if different)	SCL status	SCL ha (if different)	ASS risk (20mAHD or less)
Whitsunday	TRACK LAYDOWN AREA	73	4.01	SO	RD2	ZEB	A		Yes		
Whitsunday	TRACK LAYDOWN AREA	73	0.49	SO	RD2	ZEB	C		Yes		
Whitsunday	TRACK LAYDOWN AREA	74	4.49	VE	Cc5	ZEB	A		Yes		
Whitsunday	TRACK LAYDOWN AREA	74	0.01	VE	Cc5	ZEB	C		Yes		
Whitsunday	TRACK LAYDOWN AREA	75	4.50	DE	RE5	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	76	4.50	RU	Sb10	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	77	4.50	RU	Sb10	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	78	4.50	KA	Tichbourne	ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	79	4.50	SO	Monteagle	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	80	0.05	RU	Loudon	ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	80	4.45	SO	Monteagle	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	81	4.50	RU	Loudon	ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	82	4.50	SO	Monteagle	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	83	4.50	SO	Monteagle	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	84	4.50	SO	Monteagle	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	85	4.50	VE	Somerby	ZCQ2	B				
Isaac	TRACK LAYDOWN AREA	86	4.50	SO	Humboldt	ZCQ2	C1				
Isaac	TRACK LAYDOWN AREA	87	4.50	RU	Loudon	ZCQ2	C3				
Isaac	TRACK LAYDOWN AREA	88	2.45	VE	Blackwater	ZCQ2	C2				
Isaac	TRACK LAYDOWN AREA	88	2.05	VE	Tichbourne	ZCQ2	B				
Isaac	TRACK LAYDOWN AREA	89	4.50	KA	Disney	ZCQ2	C2				
Isaac	TRACK LAYDOWN AREA	90	4.50	KA	Disney	ZCQ2	C2				
Whitsunday	TRACK LAYDOWN AREA	91	4.50	RU	Loudon	ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	91	0.00	RU	Loudon	ZCQ2	D				
Whitsunday	BRIDGE LAYDOWN AREA	92	5.28	KA	Roundback	BER	A				Yes
Whitsunday	BRIDGE LAYDOWN AREA	92	1.24	DE	Creek flats and stream channels	BER					Yes
Whitsunday	BRIDGE LAYDOWN AREA	93	5.78	VE	Somerby	ZCQ2	B				
Whitsunday	BRIDGE LAYDOWN AREA	93	0.22	VE	Funnel	ZCQ2	B				
Isaac	BRIDGE LAYDOWN AREA	94	0.52	SO	Funnel	ZCQ2	C2				
Isaac	BRIDGE LAYDOWN AREA	94	5.48	SO	Humboldt	ZCQ2	C1				
Whitsunday	Rolling Stock Maintenance Depot	95	7.83	SO	Knobbies	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	41.35	DE	Kangaroo	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	27.24	DE	Glenroc	BER	B				
Whitsunday	Rolling Stock Maintenance Depot	95	3.94	SO	Greentop	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	11.53	VE	Carew	BER	A		Yes	8.31	
Whitsunday	Rolling Stock Maintenance Depot	95	22.67	DE	Creek flats and stream channels	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	1.80	SO	Rockland	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	4.36	SO	Hills and mountains	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	44.98	DE	Kangaroo	BER					
Whitsunday	Rolling Stock Maintenance Depot	95	12.52	DE	Gullied and eroded areas in sedentary soils	BER					
Whitsunday	BRIDGE LAYDOWN AREA	96	6.00	RU	Loudon	ZCQ2	D				
Whitsunday	BRIDGE LAYDOWN AREA	97	6.00	RU	Loudon	ZCQ2	D				
Whitsunday	BRIDGE LAYDOWN AREA	98	1.71	VE	RD2	ZEB	C				
Whitsunday	BRIDGE LAYDOWN AREA	98	4.29	SO	Cf17	ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	99	4.75	VE	Somerby	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	100	4.80	RU	Loudon	ZCQ2	D				

Regional Council	Infrastructure	Ancillary identifier	Disturbance area (ha)	ASC	Soil	Project code	GQAL status	GQAL ha (if different)	SCL status	SCL ha (if different)	ASS risk (20mAHD or less)
Whitsunday	Turning Circle	101	0.95 RU	Loudon		ZCQ2	D				
Whitsunday	Turning Circle	101	0.00 RU	Loudon		ZCQ2	D				
Whitsunday	Turning Circle	102	1.00 RU	Loudon		ZCQ2	D				
Whitsunday	BRIDGE LAYDOWN AREA	103	6.12 KA	Tichbourne		ZCQ2	D				
Whitsunday	Turning Circle	104	1.00 RU	Sb10		ZEB	C				
Whitsunday	BRIDGE LAYDOWN AREA	105	6.29 SO	RD2		ZEB	A				
Whitsunday	Turning Circle	106	0.96 VE	YD11		ZEB	C				
Whitsunday	TRACK LAYDOWN AREA	107	4.57 VE	YD11		ZEB	C				
Whitsunday	BRIDGE LAYDOWN AREA	108	6.04 CH	RC15		ZEB					
Whitsunday	Turning Circle	109	0.96 CH	RC15		ZEB					
Whitsunday	Turning Circle	109	0.00 CH	RC15		ZEB					
Whitsunday	TRACK LAYDOWN AREA	110	4.45 CH	RC15		ZEB					
Whitsunday	TRACK LAYDOWN AREA	110	0.00 CH	RC15		ZEB					
Whitsunday	BRIDGE LAYDOWN AREA	111	6.51 CH	RC15		ZEB					
Whitsunday	BRIDGE LAYDOWN AREA	112	0.58 TE	Saline flats		BER					Yes
Whitsunday	BRIDGE LAYDOWN AREA	112	0.02 DE	Goodbye		BER	B				Yes
Whitsunday	BRIDGE LAYDOWN AREA	112	5.53 TE	Wilmington		BER	A				Yes
Whitsunday	TRACK LAYDOWN AREA	113	4.67 TE	Saline flats		BER					Yes
Whitsunday	TRACK LAYDOWN AREA	113	0.26 DE	Goodbye		BER	B				Yes
Whitsunday	BRIDGE LAYDOWN AREA	114	1.08 TE	Saline flats		BER					Yes
Whitsunday	BRIDGE LAYDOWN AREA	114	5.08 TE	Sand dunes		BER					Yes
Whitsunday	TRACK LAYDOWN AREA	115	4.56 RU	Loudon		ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	116	4.54 VE	Cc18		ZEB	A		Yes		
Whitsunday	Turning Circle	117	1.00 DE	RE5		ZEB	A				
Whitsunday	Turning Circle	118	1.00 VE	Cf17		ZEB	C				
Whitsunday	Turning Circle	119	1.00 VE	Cf17		ZEB	A				
Whitsunday	TRACK LAYDOWN AREA	120	4.55 SO	RC13		ZEB	C				
Whitsunday	Turning Circle	121	1.00 SO	RC13		ZEB					
Whitsunday	Turning Circle	122	1.01 DE	Gullied and eroded areas in sedentary soils		BER					
Whitsunday	Turning Circle	122	0.00 DE	Glenroc		BER	B				
Whitsunday	Turning Circle	123	1.01 DE	Kangaroo		BER					
Whitsunday	TRACK LAYDOWN AREA	124	4.65 KA	Roundback		BER	A				
Whitsunday	TRACK LAYDOWN AREA	124	0.02 DE	Creek flats and stream channels		BER					
Whitsunday	TRACK LAYDOWN AREA	125	4.60 TE	Wilmington		BER	A				Yes
Whitsunday	BRIDGE LAYDOWN AREA	126	6.00 SO	Monteagle		ZCQ2	B				
Whitsunday	CONSTRUCTION CAMP 2	127	9.46 CH	RC15		ZEB					
Whitsunday	CONCRETE BATCH PLANT	128	4.72 CH	RC15		ZEB					
Whitsunday	BRIDGE LAYDOWN AREA	129	6.00 CH	RC15		ZEB					
Whitsunday	BRIDGE LAYDOWN AREA	129	0.00 CH	RC15		ZEB					
Whitsunday	TRACK LAYDOWN AREA	130	4.35 KA	Tichbourne		ZCQ2	D				
Whitsunday	Turning Circle	131	0.97 DE	RC15		ZEB					
Whitsunday	BRIDGE LAYDOWN AREA	132	0.00 TE	Saline flats		BER					Yes
Whitsunday	BRIDGE LAYDOWN AREA	132	5.12 DE	Goodbye		BER	B				Yes
Whitsunday	BRIDGE LAYDOWN AREA	132	0.48 CH	Hills and mountains		BER					Yes
Whitsunday	Turning Circle	133	0.99 TE	Saline flats		BER					Yes
Isaac	RAIL PRECINCT AREA	134	112.45 VE	Islay		ZCQ2	C1	145			

Regional Council	Infrastructure	Ancillary identifier	Disturbance area (ha)	ASC	Soil	Project code	GQAL status	GQAL ha (if different)	SCL status	SCL ha (if different)	ASS risk (20mAHD or less)
Isaac	RAIL PRECINCT AREA	134	38.79	KA	Disney	ZCQ2	C2	61			
Isaac	RAIL PRECINCT AREA	134	93.24	VE	Islay	ZCQ2	C1	85			
Isaac	RAIL PRECINCT AREA	134	20.08	KA	Disney	ZCQ2	C2	28			
Whitsunday	Turning Circle	135	1.04	DE	RE5	ZEB	C				
Isaac	BRIDGE LAYDOWN AREA	136	6.00	VE	Islay	ZCQ2	C1				
Whitsunday	TRACK LAYDOWN AREA	137	3.40	VE	Somerby	ZCQ2	B				
Whitsunday	TRACK LAYDOWN AREA	137	1.28	RU	Loudon	ZCQ2	D				
Whitsunday	TRACK LAYDOWN AREA	138	4.71	SO	RD2	ZEB	C				
Whitsunday	CONSTRUCTION CAMP 3	139	2.03	SO	GG9	ZEB	C				
Whitsunday	CONSTRUCTION CAMP 3	139	7.41	SO	GG9	ZEB	C				
Whitsunday	CONSTRUCTION CAMP 3	139	0.02	SO	GG9	ZEB	A				
Whitsunday	CONSTRUCTION CAMP 3	139	0.00	SO	GG9	ZEB	C				
Whitsunday	CONSTRUCTION CAMP 3	139	0.00	SO	GG9	ZEB	A				
Whitsunday	CONCRETE BATCH PLANT	140	0.06	SO	GG9	ZEB	C				
Whitsunday	CONCRETE BATCH PLANT	140	4.54	SO	GG9	ZEB	A				
Whitsunday	CONCRETE BATCH PLANT	140	0.00	SO	GG9	ZEB	C				
Whitsunday	CONCRETE BATCH PLANT	140	0.00	SO	GG9	ZEB	C				
Whitsunday	CONCRETE BATCH PLANT	140	0.00	SO	GG9	ZEB	A				
Whitsunday	CONCRETE BATCH PLANT	141	4.60	KA	Tichbourne	ZCQ2	D				
Whitsunday	CONSTRUCTION YARD	142	36.00	KA	Tichbourne	ZCQ2	D				
Whitsunday	CONSTRUCTION CAMP 4	143	10.85	KA	Tichbourne	ZCQ2	C				
Whitsunday	CONSTRUCTION CAMP 4	143	10.85	DE	mb21	ZEB	C				
Whitsunday	Turning Circle	144	1.00	VE	Somerby	ZCQ2	B				
Whitsunday	CONCRETE BATCH PLANT	145	4.59	VE	Somerby	ZCQ2	B				
Whitsunday	CONCRETE BATCH PLANT	145	0.01	VE	Somerby	ZCQ2	B				
Whitsunday	CONSTRUCTION CAMP 5	146	11.74	VE	Somerby	ZCQ2	B				
Whitsunday	CONSTRUCTION CAMP 5	146	0.01	VE	Somerby	ZCQ2	B				
Isaac	Construction Depot Area	147	0.01	VE	Islay	ZCQ2	C1				
Isaac	Construction Depot Area	147	93.24	VE	Islay	ZCQ2	C1				
Isaac	Construction Depot Area	147	20.08	KA	Disney	ZCQ2	C2				
Whitsunday	Track Laydown Area	148	2.26	DE	Gullied and eroded areas in sedentary soils	BER					
Whitsunday	Track Laydown Area	148	2.32	DE	Rockland	BER					
Whitsunday	Bridge Laydown Area	149	1.80	KA	Alpha	ZCQ2	B				
Whitsunday	Bridge Laydown Area	149	4.29	RU	Loudon	ZCQ2	D				
Whitsunday	Bridge Laydown Area	149	0.00	RU	Loudon	ZCQ2	D				

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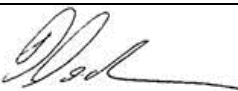
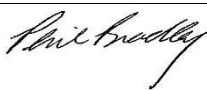
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A	I. Tvede	D. Doolan	Draft	P. Bradley	Draft	05/07/2013
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