MDS Mine
Regional Planning Interests Assessment

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1. INTRODUCTION

U&D Coal Ltd (U&D) proposes to develop a small open cut coal mining operation, located between Rolleston and Springsure in the Central Highlands region, Queensland. The Meteor Downs South (MDS) Project involves the development of a small, open cut coal mine producing approximately 1.5 million tonnes per annum (Mtpa) of thermal coal.

Central Queensland is an area of social and environmental significance, with diverse range of built and natural environments, including areas and aspects of national importance. The importance of these environments and the potential impacts that the MDS Project could have is recognised and has been considered in the development of the project.

Approval by law is required to construct and operate the MDS Project. Referral of the project to Commonwealth and Queensland governments has occurred. A Regional Interests Development Approval (RIDA) is now sought.

1.1 Project Proponent

The Proponent for the proposed MDS Project is U&D Coal Ltd (U&D) ACN 165 894 806, a newly formed public company incorporated in Australia and successfully listed on the ASX in February 2014. U&D's majority shareholder is China's third largest coal producer; China Henan Energy and Chemical Group Co. Ltd.

1.2 MDS Project

1.2.1 Location

The proposed project comprises a small open cut coal mining operation, located between Rolleston and Springsure in the Central Highlands region, Queensland. The MDS Project is located along the Dawson Highway, approximately 25km west of Rolleston and 45km south east of Springsure in Central Queensland located in the Orion Downs tenement (EPC1517) as shown in **Figure 1**. The project would be developed within MLA 7042 (1607ha) and have a footprint of approximately 426ha. The nearest regional town is Emerald, approximately 110km to the north. The MDS Project falls within the Central Highlands Regional Council area. The MDS Project is surrounded by several other MLs and MLAs, most of which are associated with the adjacent Rolleston Coal Mine. Immediately to the east of the MDS Project is the Rolleston Coal Mine (**Figure 2**). The relevant lot/plans are shown on the cadastre map (**Figure 3**).

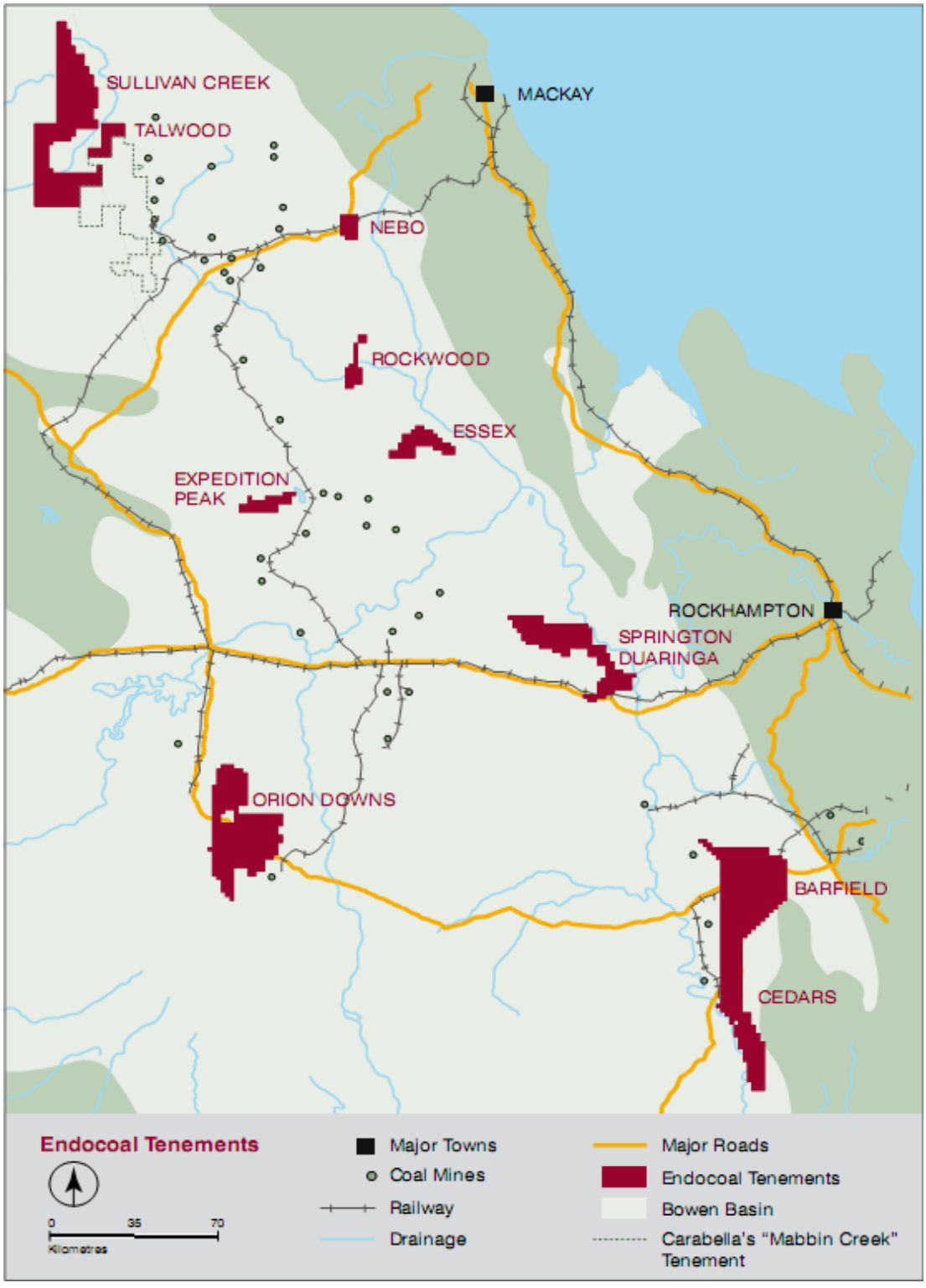

Figure 1. Regional location map

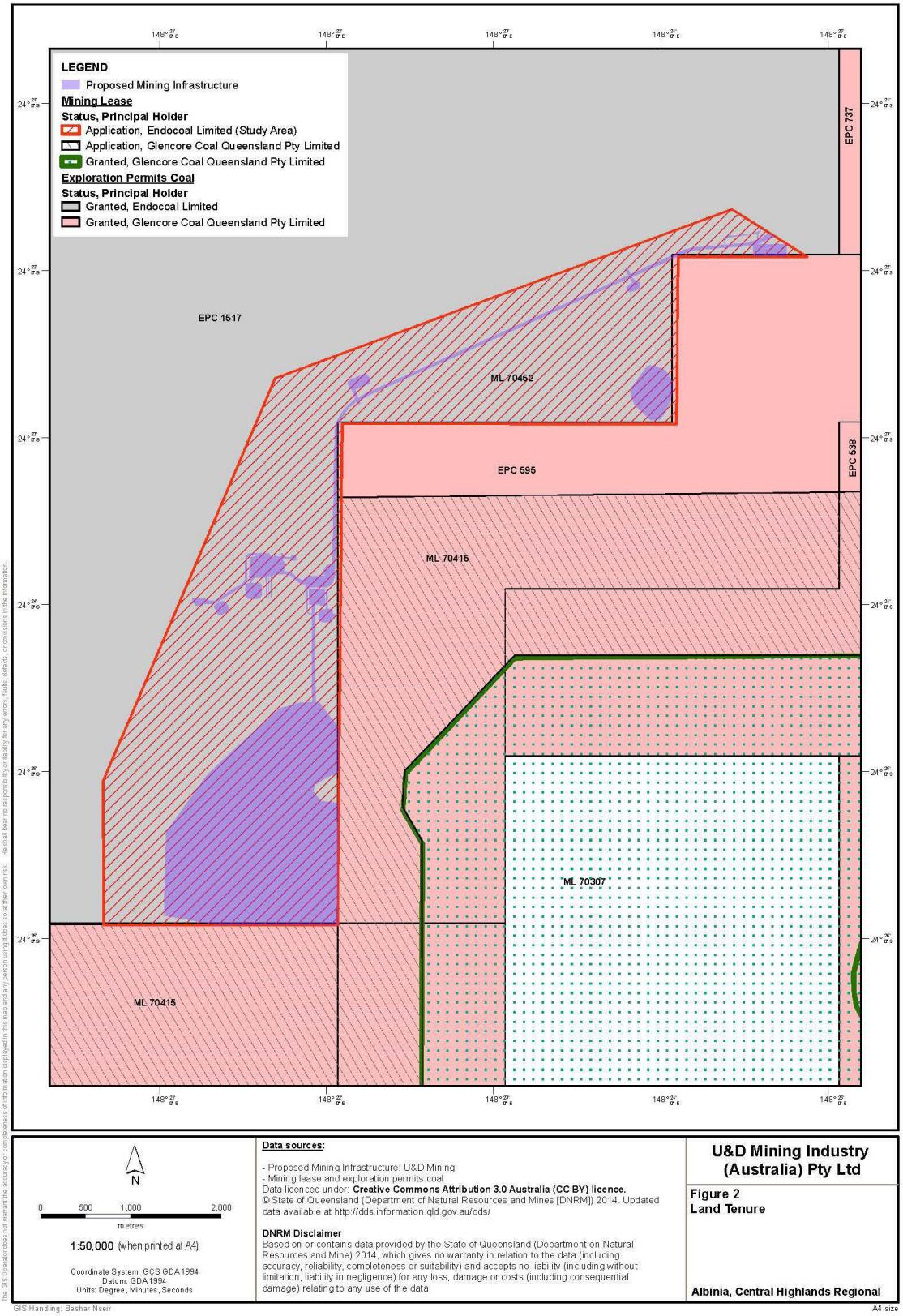

Figure 2. Land tenure

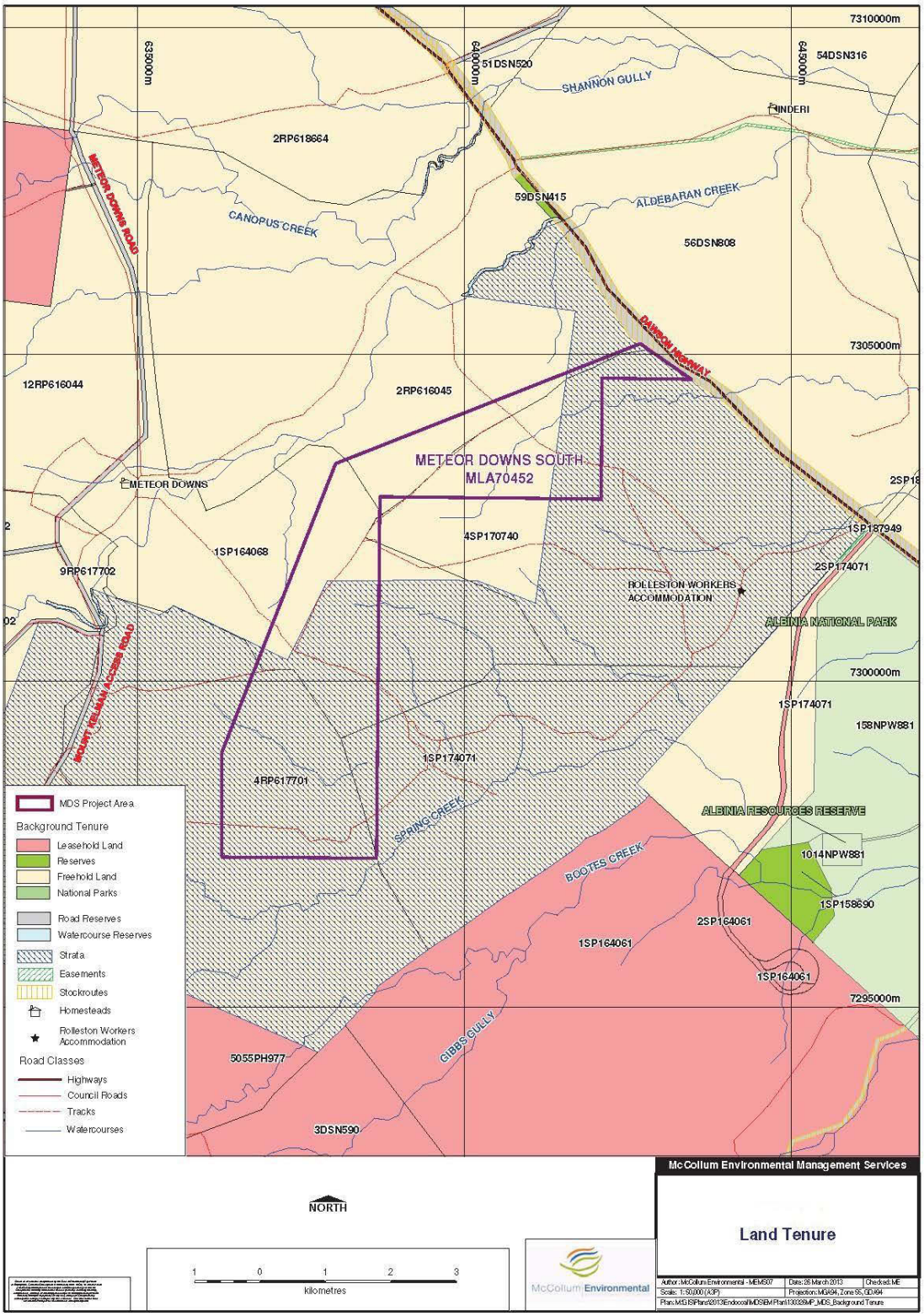

Figure 3. Cadastre

1.2.2 Project Description

The Project would produce 1.5 Mtpa of low ash export grade thermal coal. The proposed mining lease term is 15 years. This time period would support a mine life of just over 8 years at the proposed production rate of 1.5 Mtpa with sufficient time before and after mining to allow for site infrastructure construction, box cut development and site closure activities.

Given the coal mining requirement is limited to 1.5Mtpa, it is proposed that the overburden would be moved by a single truck and excavator fleet that would also be used to mine coal ie a separate dedicated coal mining fleet would not be required to load and haul coal from the open cut pit. Coal would be hauled via a 6.5km haul road to a Crushing/Sizing Plant.

The target coal seam at the proposed Meteor Downs South Coal Mine Project has an ash content of 11.2% (a.d) so no wash plant or tailings disposal facility is required. The water requirements for the project are also minimised.

Transportation of product coal is currently being reviewed with two potential options available. The first, and most preferable option, is for a Joint Venture arrangement with an established nearby operator for removal of coal and subsequent transport of product to their site for further transportation via rail. The second, less favoured, option is for product coal to be transported by a new rail connection to the Port of Gladstone.

The open cut mine will comprise only one pit, which will be developed using a “centre pit basal seam ramp” configuration. This configuration provides the operational flexibility necessary to run a safe and productive operation. The open cut pit is located on the eastern side of a small ridge that runs north – south inside the proposed ML boundary. Out of pit waste dumping activity is planned to complement the existing topography on the eastern side of this ridge but remain at an elevation lower than the ridge. This waste dump design enables full capture of surface water runoff. The out of pit waste dump can be constructed in such a way that all surface runoff water is made to pass through sediment dams before being released offsite into the eastern catchment coinciding with Glencore/Xstrata Coal’s Rolleston Mining Lease.

Waste dumping activities can be limited to a single lift 20m high above the current topography. Because of this, large parcels of land can be rehabilitated early in the life of the mine as there will be no requirement for a second dump lift to be created over the life of the mine. The ability to rapidly rehabilitate mine affected areas will improve management of water quality released from site into the eastern catchment.

Water management infrastructure will include three new dams and two sediment basins. All mine affected water will be pumped to and stored in the mine water dam. Water stored in the mine water dam will be released into an accompanying sediment dam first prior to being released in a controlled fashion from site. Sediment dams will be located so that all affected surface flows are captured allowing suspended solids to settle out before water is released from site.

It is expected that the total workforce employed during the production phase could be up to 88 people. The number of people required to operate the mine at any point in time is expected to be 20.

1.3 Purpose of this document and structure

The purpose of this document is to support an application for a regional interests development approval (RIDA) required under Part 3 Division 2 of the *Regional Planning Interests Act 2014* (RPI Act). This document has been structured to assist the reader to understand the project and its relationship to the RPI Act:

- Chapter 1 – provides and introduction and overview of the proposed MDS project;
- Chapter 2 – describes the RPI Act and how it applies to the MDS;
- Chapter 3 – outlines the methodology used to assess the MDS project against the RPI Act;
- Chapter 4 - provides an overview of key physical and economic attributes relevant to agricultural use of the site;
- Chapter 5 – discusses the results of the site analysis, including historic context and assessment against PALU triggers; and
- Chapter 6 – conclusions and recommendations for progressing the approval of the MDS project.

2. Legislative Context

This chapter discusses the *Regional Planning Interests Act 2014* and how it applies to the MDS project.

2.1 Central Queensland Regional Plan

On 14 October 2013, the Deputy Premier and Minister for State Development, Infrastructure and Planning approved the Central Queensland Regional Plan (DSDIP 2013). The policies contained in the regional plan contribute towards the protection of strategic areas of priority agricultural land use from potentially incompatible resource activities and maximise opportunities for co-existence of resources and agricultural land use. This is done through the identification of Priority Agricultural Areas (PAA) and Priority Living Areas (PLA). PAAs are strategic areas, identified on a regional scale, that contain significant clusters of what are considered to be the regions' high value intensive agricultural uses.

Any resource development seeking to operate in a PAA will need to meet co-existence criteria which will ensure no material loss of land, no threat to continued agricultural use and no material impact on irrigation aquifers or overland flow. The MDS project falls within a mapped PAA, but is outside any PLAs (**Appendix A**).

2.2 Regional Planning Interests Act

The *Regional Planning Interests Act 2014* (RPI Act) seeks to resolve the potential conflicts which arise from the interaction between competing land uses, including agriculture and resources. It aims to strike an appropriate balance between protecting priority land uses and delivering a diverse and prosperous economic future for our regions.

The RPI Act provides the framework for implementing the policies of the government's new generation statutory regional plans. It ensures land use planning can protect:

- Priority living areas in regional communities;
- High-quality agricultural areas from dislocation; and
- Important environmental areas.

A key obligation imposed by the RPI Act is to require resource companies to apply for a Regional Impact Development Approval (RIDA) in order to undertake resource activities in areas of regional interest.

The RPI Act identifies four areas of regional interest:

- Priority Agricultural Areas (PAA);
- Priority Living Areas (PLA);

- Strategic Cropping Areas; and
- Strategic Environmental Areas.

This report focuses solely on PAA and seeks to demonstrate that the site currently does not, and throughout its history has never been used for intensive agricultural use (PALU) as defined by the RPI Act.

2.2.1 Priority Agricultural Area (PAA) and Priority Agricultural Land Uses (PALU)

2.2.1.1 Priority Agricultural Areas

The RPI Act establishes a PAA as an area of regional interest. A PAA is defined under Section 8 of the RPI Act and each PAA is mapped in a regional plan or prescribed in a regulation. Each PAA is a strategic areas identified by the government as containing significant clusters of what are considered to be priority agricultural land uses (PALUs) – high value, intensive agricultural land uses.

The Meteor Downs South Site triggers the RPI Act by being located within the Priority Agricultural Area (PAA) described by the Central Queensland Regional Plan. (**Appendix A**).

2.2.1.2 Priority Agricultural Land Use

RPI Act section 8 (2) describes Priority Agricultural Land Use (PALU) as highly productive agriculture:

(a) Of a type identified in a regional plan for an area of regional interest; or

(b) Of a type prescribed under a regulation for an area of regional interest.

PALU is defined as a land use included in Class 3.3, 3.4, 3.5, 4 or 5.1 under the Australian Land Use and Management Classification (ABARES 2010). The following is a high level description of the land classes that would trigger a PALU:

- Class 3.3 – Cropping. Land that is under cropping. Land in a rotation system should be classified according to the land use at the time of mapping. Production of fodder, such as lucerne hay, is considered cropping as there is no harvesting by stock.
- Class 3.4 – Perennial horticulture. Crop plants living for more than two years that are intensively cultivated, usually involving a relatively high degree of nutrient, weed and moisture control. Includes fruit trees, oleaginous fruits, tree nuts, fruit vines, shrub nuts, fruits and berries, perennial flowers and bulbs, perennial vegetables and herbs.
- Class 3.5 – Seasonal Horticulture. Crop plants living for less than two years that are intensively cultivated, usually involving a relatively high degree of nutrient, weed and moisture control. Includes seasonal fruits, nuts, flowers and bulbs, vegetables and herbs.

- Class 4 – Production from irrigated agriculture and plantations. This class includes agricultural land uses where water is applied to promote additional growth over normally dry periods, depending on the season, water availability and commodity prices.

  This includes land uses that receive only one or two irrigations per year, through to those uses that rely on irrigation for much of the growing season. Sub classes include:

  - 4.1 Irrigated plantation forestry;
  - 4.2 Grazing irrigated modified pastures;
  - 4.3 Irrigated cropping;
  - 4.4 Irrigated perennial horticulture;
  - 4.5 Irrigated seasonal horticulture; and
  - 4.5 Irrigated land in transition (evidence or knowledge of irrigation or irrigation infrastructure present. Active rehabilitation does not count).

- Class 5.1 – Intensive Horticulture. Intensive forms of plant production, often with special-purpose improvements used for horticultural production e.g. shadehouses and glasshouses.

2.2.1.3 Frequency of agricultural activity – the 'three in ten test'

For land to be considered PALU it has to pass a frequency of use test. Schedule 2 of the RPI Regulation states that land or a property used for a PALU means the land has been used for a PALU for at least three years during the ten years immediately before an assessment application. The years of PALU use need not be consecutive.

3. Assessment Methodology

The chapter provides a brief summary of the methods used to assess the MDS project against the RPI Act.

- Step 1 – Confirm that the MDS project lies within a PAA;
- Step 2 – Describe site and its values with respect to agriculture:
  - Desktop study; and
  - Review of historical records to determine historical land uses in the region and thus provide context for the MDS site;
- Step 3 – Determine whether site is PALU:
  - Review of existing documents and mapping;
  - Assessment of aerial imagery covering the site to determine if any evidence exists which support the operation of intensive agriculture as defined by RPI (e.g. greenhouses, irrigation schemes, or infrastructure supporting intensive agricultural use);
  - Telephone interviews with local landowners and representatives from relevant government agencies to determine if any knowledge or evidence exists which support the operation of intensive agricultural land uses on the site; and
  - Frequency of agricultural activity test;
- Step 4 – Determine impact of project on PALU.

The MDS MLA affects lots owned by Glencore Coal Queensland Pty Ltd, but principally lots 4RP617701 and 1SP174071 (**Figures 3** and **4**). However, while the portion of lot 1SP174071 affected by the MDS MLA is managed by Colinta Holdings, Colinta Holdings is a wholly owned subsidiary of Glencore and therefore, for the purposes of the RPI Act, can be treated as a single property.

This means that there is no requirement to address the proscribed solution for outcome 2 for projects located within a PAA. None the less, for completeness this has assessment has been undertaken to demonstrate how the project also meets outcome 2.

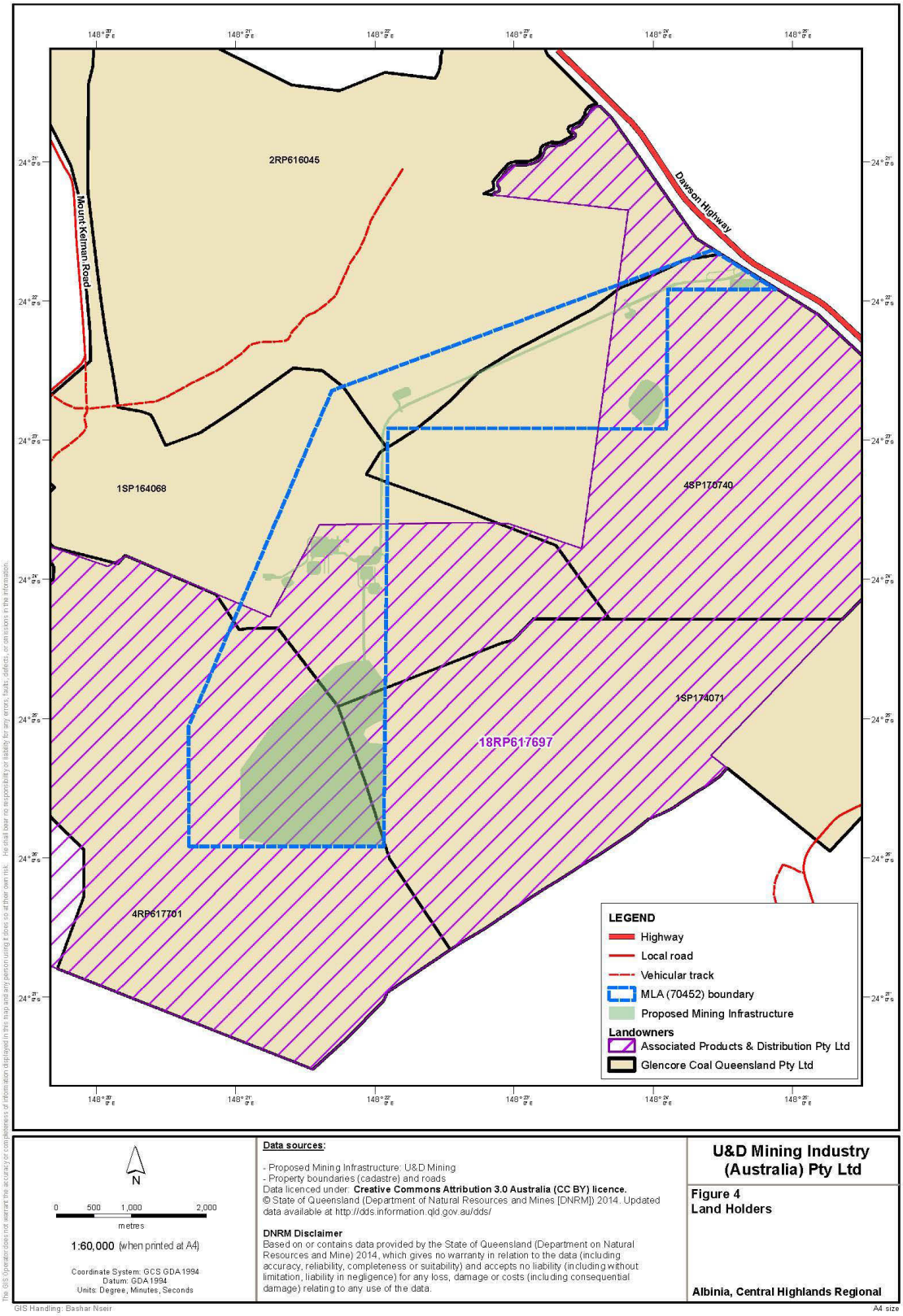

Figure 4. Landholder map

4. Physical and Economic Setting

4.1 Site Description

4.1.1 Geology, Topography and Soils

The topography of the MDS project area comprises undulating plains, lowlands and low hills at the base of the Carnarvon National Park (approximately 30km south-west of the site). The project site is dominated by the ridgeline on which the mine infrastructure area is located. This ridgeline separates the catchments of Spring and Aldebaran creeks, and elevations at the highest point are as high as 285mAHD. Elevations near Spring Creek in the south-eastern corner of the project site (the lowest point) are approximately 241mAHD.

Several small well defined drainage paths located on the MDS Project site flow to Spring Creek and Aldebaran Creek, both of which form part of the larger Meteor Creek catchment area. The drainage features within the project site are generally well defined and although affected by access for stock watering, generally well vegetated along the banks. The drainage feature channels at the project site are typically between 5m and 10m wide, and up to 1m deep. There are numerous minor overland flow paths evident at the project site, typically characterised by small gullies and rills draining into the major drainage features.

In the upper portions of the drainage feature catchments, the channels are steep, often with exposed rock in the bed (Figure 5a). In the lower parts of the catchment, the drainage feature channels are sandy, with signs of significant erosion (**Figure 5b**).

a)  b) 

Figure 5: (a)Upper catchment drainage feature. (b) Lower catchment drainage feature. Photos: WRM

Soil types range from shallow to deep uniform and gradational cracking clay soils on gently undulating plains which have developed from Tertiary age basalts (GSSE 2013).

The MDS project traverses two land systems (Story *et al* 1967) (**Figure 6**):

- Oxford Undulating Lowlands and Plains – represents typical downs country of black soils and grassland developed on basalt; and

- Waterford Low Hills – characterised as fresh or little-weathered basalt comprising low rocky hills and undulating colluvial foot slopes underlain by Tertiary Basalt Unit. Soils reddish rather than black.

MDS lies within Provence 6 (Northern Bowen Basin) in the Brigalow Belt Bioregion (Young *et al* 1999). Soils of the MDS project area are described as being associated with Land Zones 2 and 8:

- 3 – Quaternary alluvial systems, including floodplains, alluvial plains, alluvial fans, terraces, levees, swamps, channels, closed depressions and fine textured palaeostuarine deposits; and
- 8 – Cainozoic igneous rocks, predominantly flood basalts forming extensive plains and occasional low scarps. Also includes hills, cones and plugs on trachytes and rhyolites, and associated interbedded sediments and talus (DEHP 2012c;d).

The State government's Strategic Cropping Land (SCL) Trigger Maps, which identify land likely to be highly suitable for cropping (called SCL), indicate potential SCL on the MDS MLA. Field validation of mapped SCL has been undertaken and the mapped areas confirmed to be SCL (SLR 2014) as shown by the orange boundary on **Figure 7**. Field visits also confirmed that the areas of SCL are currently dominated by native pastures and grazing, ie not PALU.

Furthermore, the mine footprint has been refined as part of the mine plan development so that areas validated as SCL would not be impacted. **Figure 7** shows the SCL boundary in orange and the mine footprint in grey.

4.1.2 Air Quality

The local air shed is typically rural, which is generally influenced by pastoral activities such as cleared land, the movement of cattle, other landowner activities in dry conditions and bushfires. The existing air quality within the MDS Project area is considered reasonably good, with acceptable levels of pollutants for the majority of the time. This is based on the undeveloped nature of the MDS Project area.

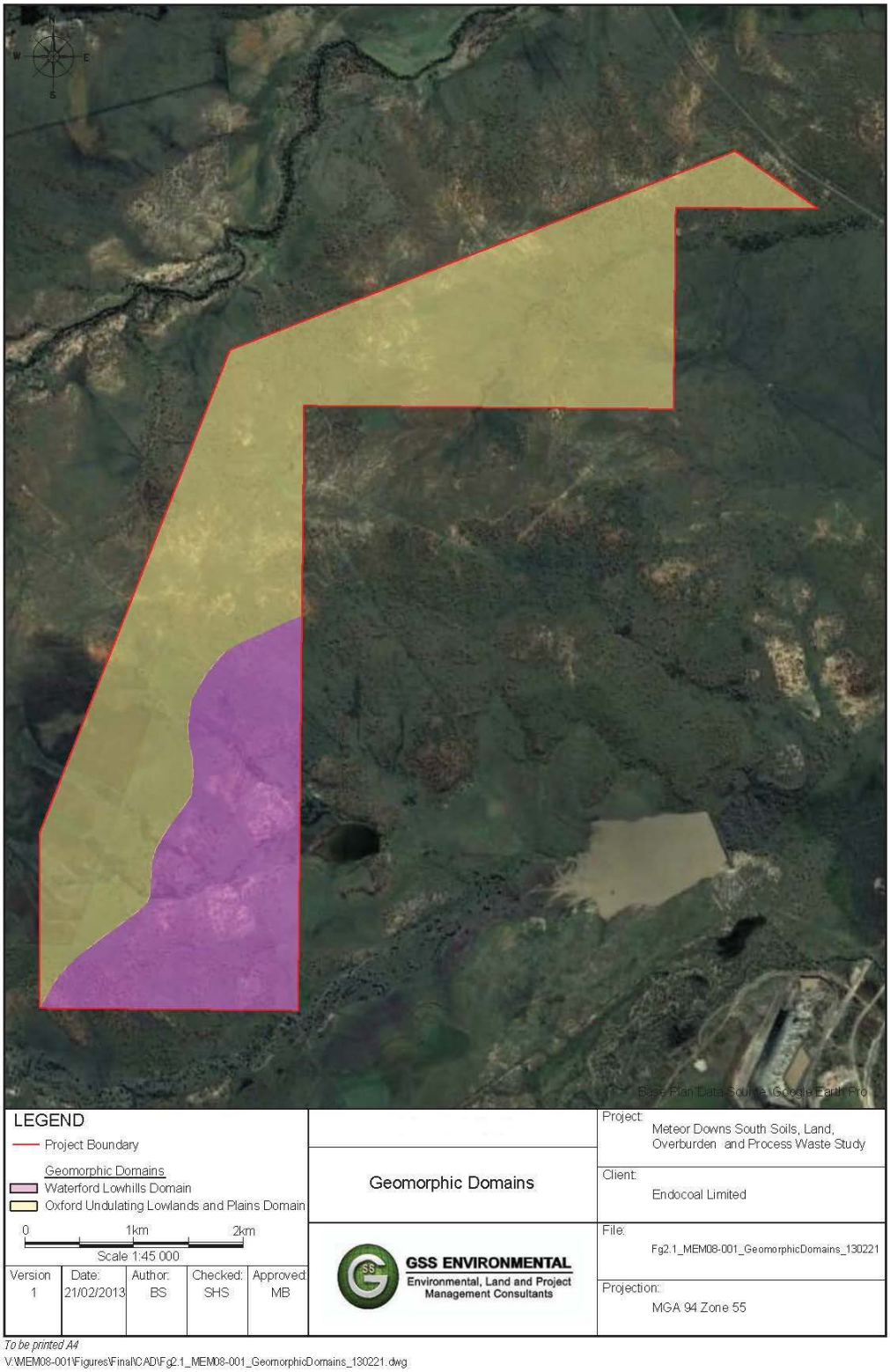

Figure 6: Land systems within the MDS site

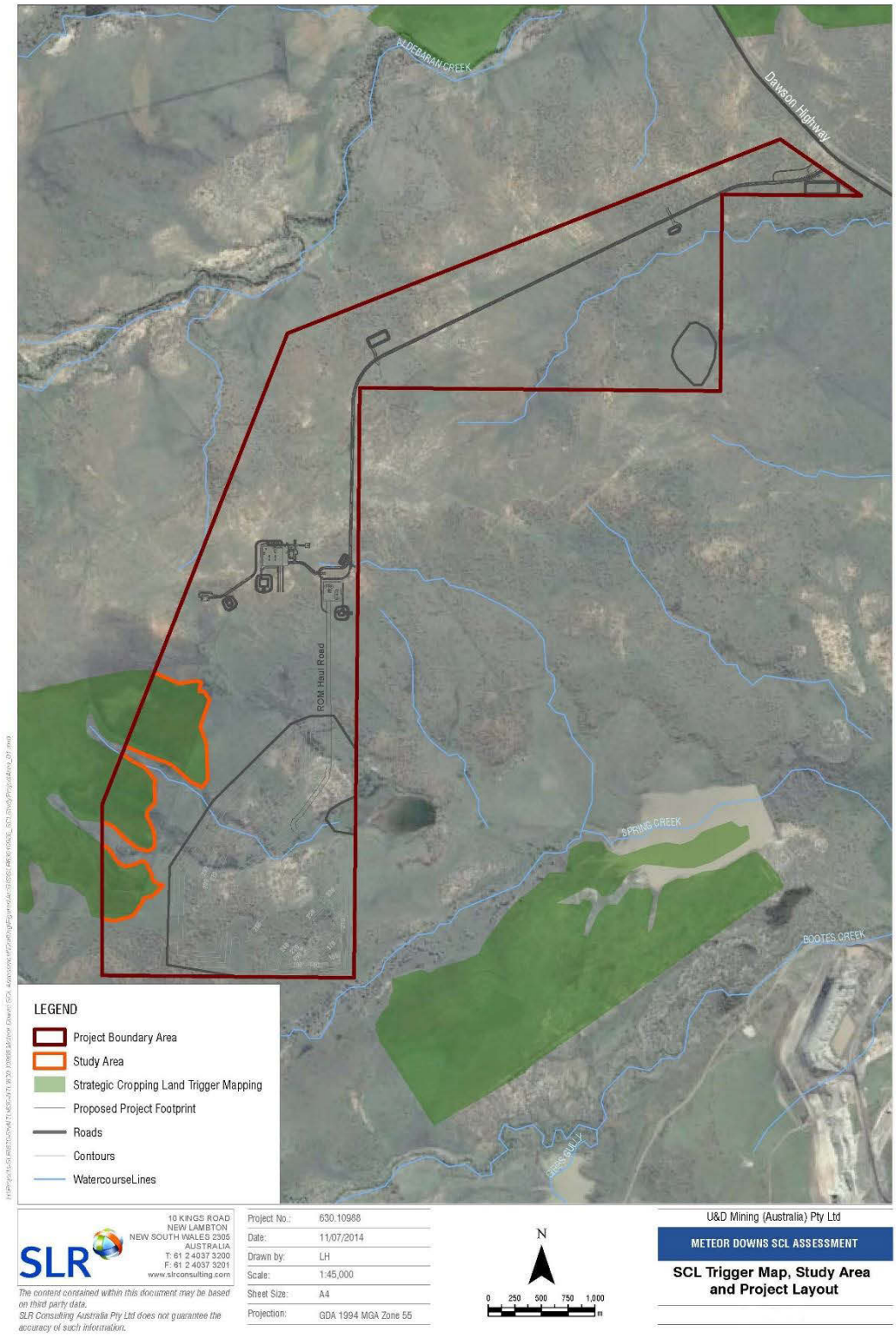

Figure 7: SCL trigger map, SCL on MLA (bounded by orange) and MDS project footprint.

4.1.3 Water Resources

4.1.3.1 Groundwater

Three primary hydrogeological units have been identified in the area of the MDS Project. They are:

- Tertiary basalt aquifers;
- Permian sandstone (coal bearing Bandana Formation) aquifers; and
- Black Alley Shale Bedrock aquifers.

The potentiometric level is observed to be generally higher in the north western portion of the MDS Project area for both the basalt layer and Bandana Formation. This indicates that groundwater flow is towards the south east, which is consistent with regional groundwater flow direction.

Agricultural uses

Agricultural use of groundwater in the MDS Project area is primarily related to livestock watering and irrigation activities. Licenced bores within a 10km radius of the MDS Project that are used for stock purposes target both the Tertiary basalt and Permian sediments. The only bore within a 10km radius which is licenced specifically for irrigation purposes targets the Meteor Creek alluvium, this bore is located outside of the MDS Project area, approximately 10km to the south (down-gradient, considering groundwater flow direction).

Industrial uses

Rolleston Coal Mine has registered water bore with a water extraction permit to extract up to 80ML per year for amenities and industrial purposes. This bore targets the Tertiary Basalt aquifers. No other bores in the vicinity of the MDS Project are licenced for industrial purposes.

4.1.3.2 Surface Water

General drainage features are described in **Section 4.1.1**. The catchment for Naroo Dam is the largest of the drainage paths for the MDS Project site with a total catchment area of 10.1km^2, 6.6km^2 of which is located within the MDS Project site. Naroo Dam is to the east of the MDS site and is currently utilised for stock watering and water for Rolleston Mine.

Current water quality information is limited for the MDS Project. Furthermore, there is limited water quality information available for the Comet River and Meteor Creek. The available receiving water quality information has been compared against the Water Quality Objectives (WQO's) for the Comet River sub-basin waters, for an Aquatic Ecosystem – moderately disturbed. This comparison is shown in **Table 1**.

Table 1: Comparison of Comet River WQO's against Waterway Quality Data

Parameter	Comet River WQO's	Meteor Creek (GS 130508A)			Comet River (GS 130506A)		
		20th %ile	Median	80th %ile	20th %ile	Median	80th %ile
EC (µS/cm)	375/210 (base flow/high flow)	499	635	716	204	305	503
pH	6.5 – 8.5	8.1	8.3	8.5	7.5	8.3	9.3
TSS (mg/l)	30	5.0	10.0	57.4	17.0	130.0	946.0
Sulphate (mg/L)	5	3.7	6.4	11.0	1.6	2.7	5.0

Water quality indicators (TS, SS, TN and conductivity) in the creeks and dam are generally outside of the recommended guideline levels for moderately disturbed aquatic ecosystems in the Comet River sub-catchment, but do meet ANZECC guidelines for livestock use. The water quality is similar to other areas that are affected by grazing and mining that do not have continuous flows (Wormington *et al* 2012).

4.1.4 Economic viability and current trends

Fitzroy region

The Fitzroy Region covers a large area within Central Queensland, including the cities of Emerald, Rockhampton and Gladstone. **Table 2** shows the comparative income derived from the three major industries earning income within the Fitzroy region.

Central Highlands economy

Mining is currently the largest contributor to the economy in the CHRC region. Tourism is also a large contributor to the economy with holiday visitors (not including spending by non-holiday visitors) identified as spending approximately $34m.

Land use within the CHRC area is dominated by the agriculture industry, predominately cattle breeding and fattening. The latest figures available on agricultural production at the time of the assessment were from 2006, which indicate the value of cropping in the area at approximately $33m and livestock production at $131m, giving a total of $164m (NARG, 2012).

Table 2: Fitzroy region – major base industries

Base industries	Year	Income ($m)
Mining	2010/11	$9532m
Agriculture (farm gate prices)	2009/10	$757m
Tourism (oversight visit expenditure)	2011	$470m

Source: Cummings Economics from ABS data (NARG, 2012).

Opportunity costs of the MDS Project

The opportunity costs of proceeding with the MDS Project are the costs involved in the loss of cattle grazing land and associated income over the lifespan of the MDS Project. If the whole MDS mining lease is taken out of agricultural production, the value of the loss of beef production is $161,500 to $204,000 per annum over a 10-year period, as outlined by the NARG (2012).

The opportunity costs identified should the MDS Project not proceed include:

- Total export earnings of approximately $1.35bn over 10-year period;
- Increased income and company tax receipts to the Australian government;
- Royalty payments to the Queensland government of approximately $70m to $83m over the life of the MDS project;
- Carbon tax payments of approximately $5.6m to $7.1m over the life of the MDS project (unless tax repealed);
- Increased direct employment in the regional area of 55 workers in the construction phase and 67 workers in the operational stage;
- Increased indirect employment in the regional, state and national economies; and
- Further expansion of the mining services supply chain in the Fitzroy region and other parts of Queensland.

In economic terms, the loss of value to cattle production from the MDS Project is relatively small when compared to the opportunity costs for the Local, Regional and State economies.

4.1.5 Flora

The site was originally vegetated with woodland communities and associated grasslands, but has been almost completely cleared to increase grazing capacity. Figure 8 shows the Regional Ecosystems (RE) versus non-remnant vegetation mapped on the site. The REs shown include:

- 11.3.3a – Riverine wetland. *Melaleuca bracteata* woodland on alluvial plains;
- 11.3.4– *Eucalyptus tereticornis* and/or *Eucalyptus* spp. woodland on alluvial plains;
- 11.8.5 – *Eucalyptus orgadophila* open woodland on Cainozoic igneous rocks; and
- 11.8.11 – *Dicanthium sericeum grassland* on Cainozoic igneous rocks.

Native grasslands make up the largest floristic group on the site and are most impacted by the proposed mine footprint.

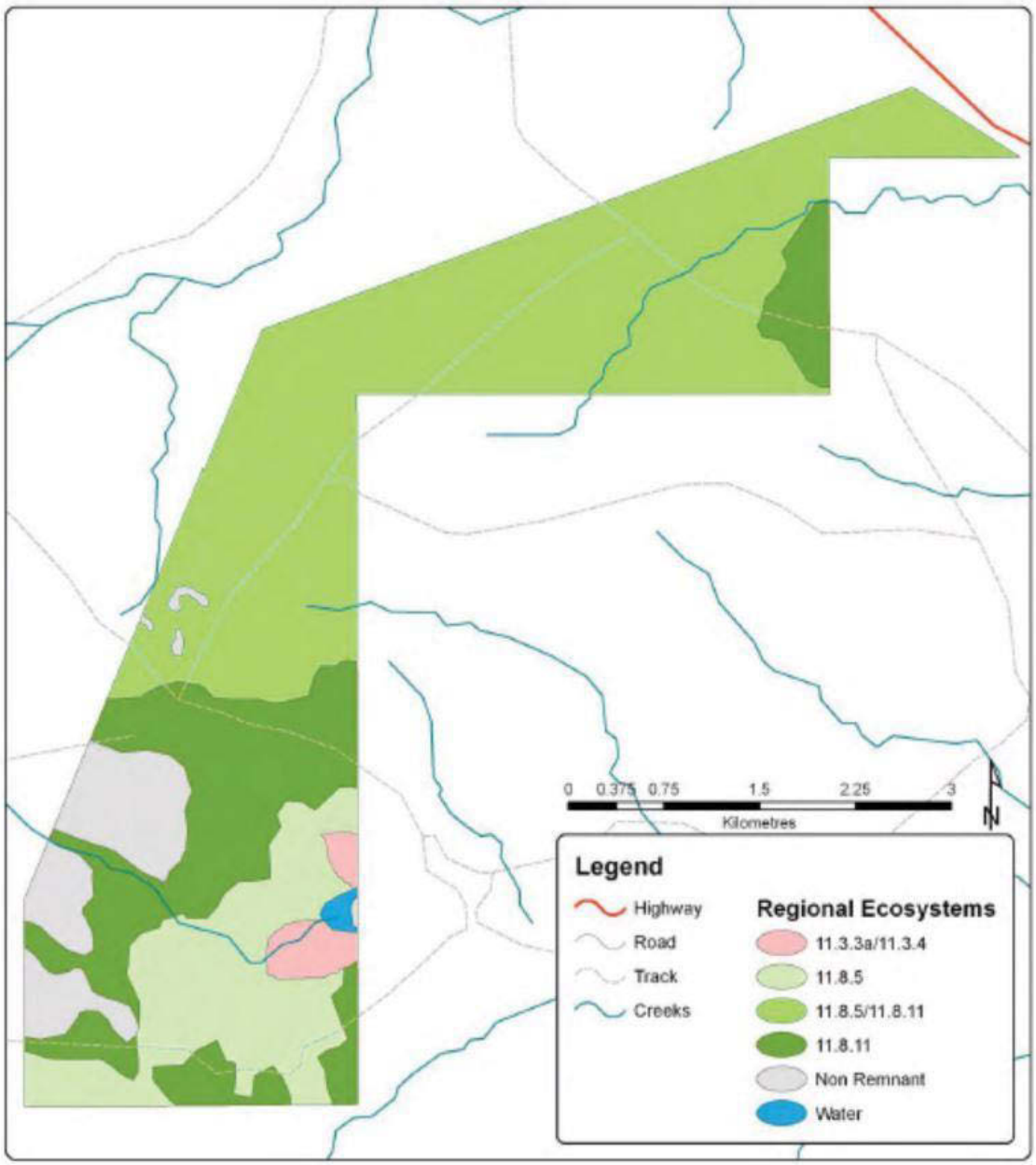

Figure 8: Regional Ecosystems (REs) on MDS lease.

5. Results

This chapter presents the results of the assessment of the site in terms of its historical use, its soils and their suitability to intensive agriculture, PALU triggers, meeting the regional and local policies.

5.1 Historical Context

The MDS MLA covers land that has been used primarily for grazing, with a small area suitable for cropping to the west of the proposed mine pit (Figure 9). The mine footprint has been designed to avoid any SCL or PALU and therefore the area being investigated (the site) is the area that would be affected by the MDS mine footprint.

Table 3 provides a summary of investigations into the sites history which concludes no evidence of Priority Agricultural Land Use has existed on areas that will be impacted by the MDS mine footprint since the districts first colonial discovery in 1844.

Table 3: Historical Context.

Year	Commentary	Agricultural land uses on site / within district
1844	The first recorded colonial incursions into the Project Site occurred in late 1844, as Ludwig Leichhardt's party passed through the region seeking a route from Sydney to Port Essington (near present day Darwin) (ERM 2002, Leichhardt 1847). Travelling through the area near present day Rolleston on December 28 1844, the party came across '*a fine open undulating country…extending far to the south-west and west, in which direction the loom of distant ranges was seen. These plains, which had some patches of open forests land, were…named "Albinia Downs" (Leichhardt 1847:86).'* While camped beside a dry creek bed, Leichhardt's Aboriginal guide *'… pointed out to me a fine comet in a small clear spot of the western sky… The creek received the appropriate name of "Comet Creek" [now Comet River] (Leichhardt 1847:87).*	Colonial discovery
1854	European settlement commences. Leichhardt Pastoral District was opened for selection (ERM 2002) and a number of blocks in the area were taken up, primarily for sheep grazing. Initially, the area was made up of six separate runs including Meteor Creek No 1- 7, Muchamulla, and Muchamulla West (QSA 26836)	First pastoral run – Sheep grazing
1860's	After initially "squatting" on the site, William Kelman became the owner of Meteor Downs.	Sheep grazing

Year	Commentary	Agricultural land uses on site / within district
1870's	Until the 1870's sheep provided the primary agricultural income source for the district. The introduction of spear grass around this time increased the appeal of the area for cattle grazing and progressively lessened the appeal for sheep (spear grass is unfit for grazing sheep and retards wool production)	Sheep and cattle grazing
1887	Consolidated into Meteor and Albina Downs Run. The run contained a variety of infrastructure including yards, fences huts and wells.	Sheep and cattle grazing
1888	Meteor-Albina Property purchased by James Tyson	Sheep and cattle grazing
1902	Property transferred to Frederick William Donkin 1902 also saw a major drought in the district where Donkin lost 6,000 head of cattle and a reduction in his sheep flock from 100,000 to 1,200 (Johnson & Campbell 1979)	Sheep and cattle grazing
1930's	Subdivision of a number of parcels of land from the original run to establish new grazing farms	Sheep and cattle grazing
1950's	Cropping was not common in the district (due to the highly variable weather) until the 1950's when southern farmers experienced in dryland farming methods came to region.	Sheep and cattle grazing
1954-5	749ha of sorghum grasses grown in the district.	Sheep and cattle grazing, first dry land cropping
1960's	Significant clearing of Brigalow began during the 1960's as part of the Fitzroy Basin Brigalow Land Development Scheme to encourage the development of "unimproved fertile land"	Sheep and cattle grazing
1975-6	As a result of influx of southern farmers, sorghum grasses grown in the area increased from 749ha in 1954-5 to 20,900 ha by 1975-6. Sunflowers, wheat and safflower were also grown extensively in the region, however no evidence of silo's, sheds or associated infrastructure associated with such agriculture exists on-site.	Sheep and cattle grazing / breeding, dry land cropping expanding in district
1986	Lot 4 RP 617701 created (potential cropping area in southern area of MDS site) created	Sheep and cattle grazing / breeding
2011	Sale of site to Glencore Coal Qld Pty Ltd from Naroo Pastoral Company	Cattle breeding & fattening
Current Day	No evidence of intensive agriculture exists on site throughout its history.	

As **Table 3** shows, there is no evidence of intensive agriculture (PALU) throughout the 170 year history of the area covered by the proposed mine footprint. Clear evidence exists which identifies a continuous use of the MDS site for low intensive agricultural land uses from the 1850's to recent times. Areas of PALU lie to the west and east of the proposed MDS mine (Figure 9) and will not be impacted by the project.

Minerals exploration and mining now form the cornerstone of the district economy, which together with low intensive agricultural land uses on site (cattle breeding and fattening) ensure no conflict with the intentions of the RPI Act.

5.2 Recent Overlying and Surrounding Mining Tenures

The MDS Project is surrounded by several other MLs and MLAs, most of which are associated with the adjacent Rolleston Coal Mine (**Table 4**).

The entire MDS MLA area is located within Exploration Permit for Coal (EPC) 1517, "Orion Downs". MLA70452 was lodged on 29 April 2011.

Table 4: Overlying and surrounding mining tenure.

Underlying tenure			
Tenure type and number	**Status**	**Expiry date**	**Principal holder**
EPC1517	Granted	9 Feb 2017	U&D Limited
ATP756	Application	-	OME Resources Australia Pty Ltd
Surrounding tenure			
Tenure type and number	**Status**	**Expiry date**	**Principal holder**
ML70307	Granted	31 May 2033	Xstrata Coal Queensland Pty Ltd
ML70415	Application (COA issued)	-	Xstrata Coal Queensland Pty Ltd
ML40458	Application (COA issued)	-	Xstrata Coal Queensland Pty Ltd
ML70416	Application (COA issued)	-	Xstrata Coal Queensland Pty Ltd
ML70418	Application (proceed)	-	Xstrata Coal Queensland Pty Ltd
MDL227	Granted	30 Nov 2015	Xstrata Coal Queensland Pty Ltd
ATP817	Granted	28 Feb 2018	Eureka Petroleum Pty Ltd
EPC595	Granted	14 Jan 2017	Xstrata Coal Queensland Pty Ltd
EPC538	Granted	30 Nov 2016	Xstrata Coal Queensland Pty Ltd

EPC1771	Granted (renewal lodged)	14 Jan 2013	Xstrata Coal Queensland Pty Ltd
EPC737	Granted (renewal lodged)	22 May 2011	Xstrata Coal Queensland Pty Ltd
EPC2001	Granted	23 Jan 2017	Spinifex Rural Management Pty Ltd

5.2.1 History of Naroo Dam

Glencore's water manager, S.Downes, provided the following information. Naroo Dam was built about 40 years ago by prior owners of Meteor Downs. From the time it was built until the time Glencore (through its predecessor, MIM) acquired rights to use water from the dam, it was used for agricultural purposes, principally stock watering. MIM became interested in Naroo Dam around 2002 following initial water studies for the proposed Rolleston Mine indicated that there was a potential water supply shortfall for mine construction and operation. MIM negotiated with Australian Agricultural Company Pty Ltd (AACo), the then-owners of Meteor Downs, and obtained access and rights to the dam and its water. The Mining Lease boundary was adjusted to include the Naroo Dam wall (to avoid being subject to a moratorium on overland flow works) in December 2002.

Naroo Dam became the main raw water supply for the Rolleston Mine site during construction and in 2005 subsequently became the back-up raw water supply for the mine following construction of Lake McDonald Dam.

In late 2010, Naroo Dam once again became the primary raw water source for Rolleston Mine.

5.3 Land Use

5.3.1 Land systems within the MDS Site

With a view to identification of those areas within the MDS site which have the greatest capacity for intensive agriculture, an analysis of the sites land systems has been undertaken. The Queensland Government has produced a series of maps identifying broad land use under the Queensland Land Use Mapping Program (QLUMP). **Figures 9** show the QLUMP map for area covered by the MDS MLA and surrounds. This map shows that land suitable cropping is restricted to the south-west portion of the MLA (as also shown on **Figure 7** – SCL trigger map) and is not impacted by the proposed mine.

The MDS project area traverses undulating hills and plains sequences of two land systems (i) Oxford Undulating Lowlands and Plains and (ii) Waterford Low Hills (Storey *et al.* 1967). With a long history of grazing throughout the site, the southern Waterford system is confirmed in the project EMP as the area with the best potential for cropping, and accordingly more intensive agricultural land use. This southern area of the MDS site forms the key focus area and consequently investigations have focused on that area contained by 4RP617701 and 1SP164068. Figure See Appendix C for the lands tenure and real property descriptions covering the entire MDS project site. The MDS Project is surrounded by

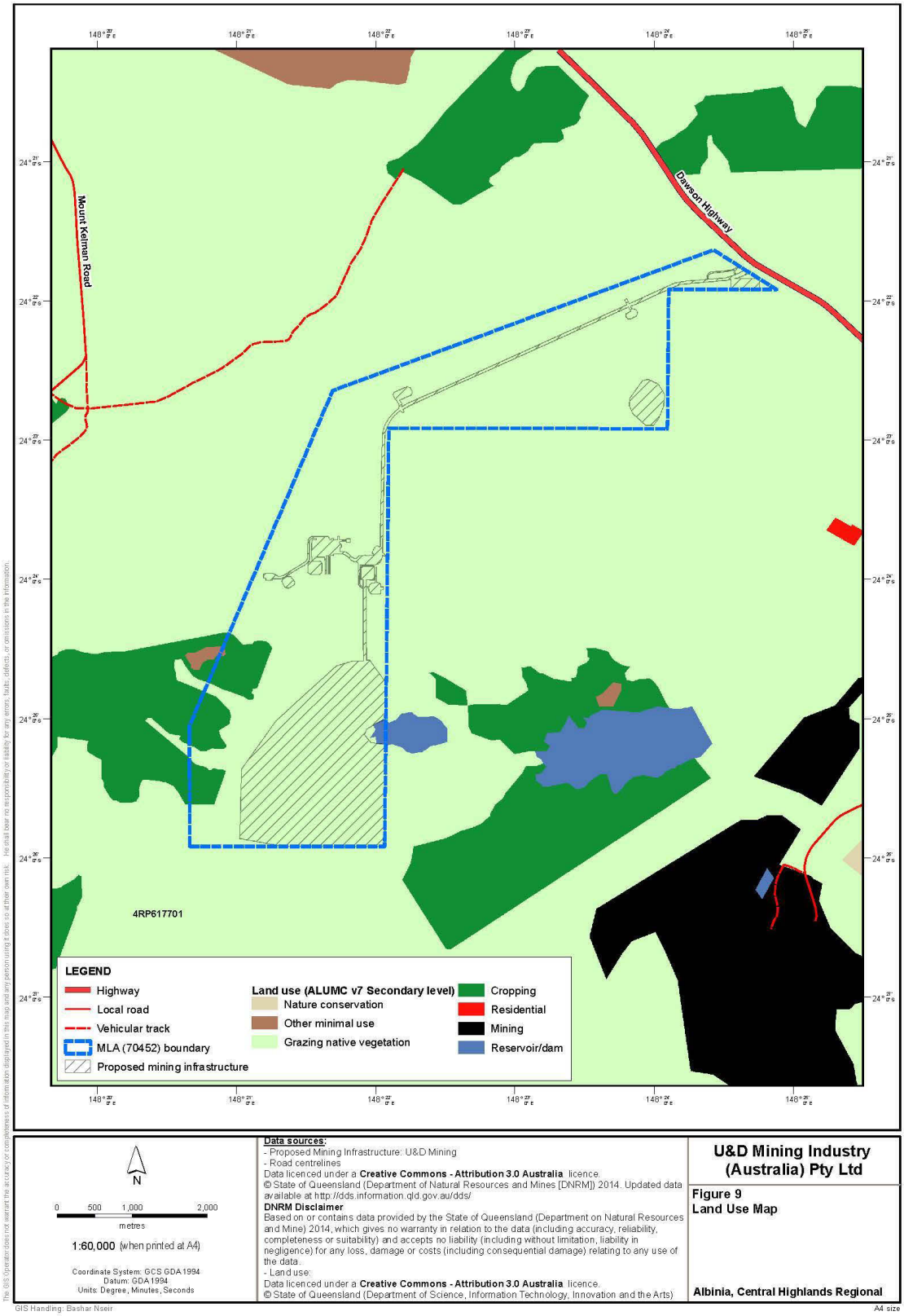

Figure 9. QLUMP map for 1SP164068

several other MLs and MLAs, most of which are associated with the adjacent Rolleston Coal Mine (**Figure 2**).

Intensive Agriculture localities in the district

Significant agricultural land use exits elsewhere in the district including:

- North of the MDS site (south of Rolleston);
- North of Rolleston; and
- Between Rolleston and Emerald.

Investigations of recent imagery confirms these areas as containing well defined fields, significant infrastructure (roads, water & power sources) to support cropping and higher agricultural land uses (PALUs). However, analysis of images of the MDS project area from 2003, 2006 and 2011 (Appendix D) revealed no PALU within the footprint of the mine.

In recognition of the limited quality soil groups existing on the MDS site, and significant quality soil and supporting infrastructure in nearby locations, no loss of agricultural viability for the district would occur with the MDS site being developed for minerals extraction.

Environmentally Sensitive Areas

There are a number of Classified Environmentally Sensitive Areas (ESAs) in the district including the Albinia National Park (3.5km south east) and the Albinia Resources Reserve (6km south east). The Albinia Conservation Park is located approximately 16km to the south east of the MLA within the Albinia National Park. Additionally, the Mount Hope, Mount Pleasant and Cairdbeign State Forests are located approximately 6km west, 10.5km south and 21km north-west of the MDS Project respectively. Furthermore, Carnarvon Gorge National Park is approximately 30km south west of the MDS Project.

5.4 Land Suitability for Intensive Agriculture

As shown in **Figure 7 and Figure 9**, the proposed MDS mine will not impact upon land mapped as suitable for intensive agriculture i.e. SCL. None the less, this section has been included in this report for context and completeness.

Land suitability on the MDS site has been assessed according to Queensland technical guidelines for mining (DME 1995). The method accounts for climate, soils, geology, geomorphology, soil erosion, topography and past land uses.

The MDS MLA was also assessed for agricultural land class in accordance with QDPI (1993) to be:

- Class B - land that is marginal for 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 (227ha);
- Class C1 pasture land – land that is good quality grazing and/or highly suitable for pasture improvement (126ha); and

- Class C2 – land that can be managed for moderate quality grazing and or moderately suitable for pasture improvement (1253ha).

As shown by the areas noted above and the distributions for the Agricultural Land Classes (**Figure 6**) the majority of the MDS site consists of soils that are not suitable for cropping (86%) with the remainder being marginal. The proposed mine footprint does not impact any areas that have been identified as suitable for intensive agriculture.

Five land suitability classes have been defined for use in Queensland, with land suitability decreasing progressively from Class 1 to Class 5. These classes are used to describe an area of land in terms of suitability for a particular land use which allows optimum, sustainable production with current technology while minimising degradation to the land resource in the short, medium or long-term (NRM 2013).

Based on the land suitability guidelines for Rainfed Cropping and Beef Cattle Grazing, most of the site, particularly those areas that will be impacted by the project are either Class 5 or Class 3, as illustrated in **Figures 10** and **11**.

Rainfed and/or dryland farming relies on natural rainfall to maintain soil moisture, that is, no engineered irrigation systems are used. Therefore rainfed/dryland farming does not represent intensive agriculture of the type covered by the RPI Act.

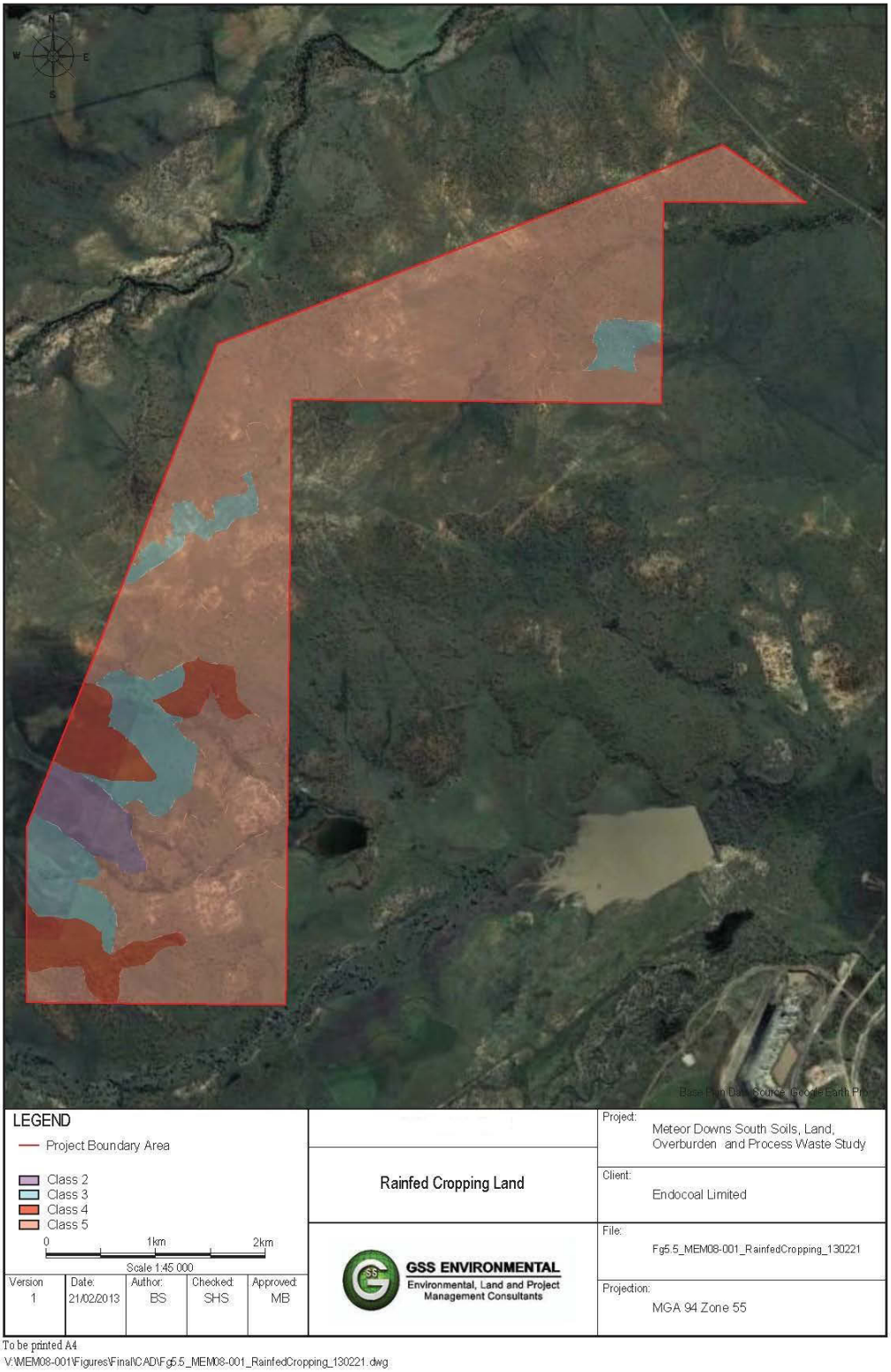

Figure 10: Rainfed cropping land on the MDS lease.

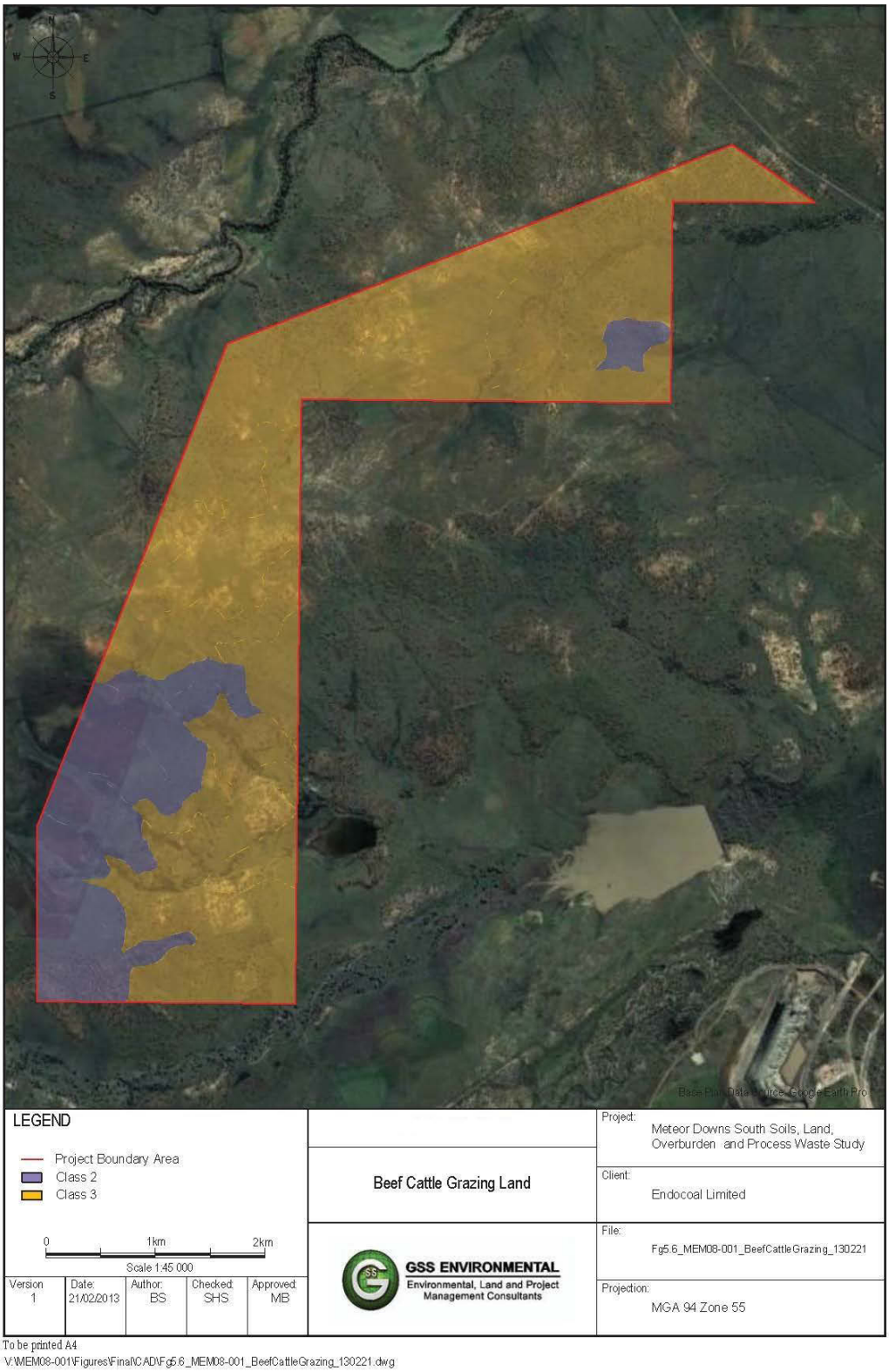

Figure 11: Beef cattle grazing land on the MDS lease.

5.5 Assessment of PALU Indicators

An assessment of current and historic land uses against the aspects defined as indicating a PALU in the RPI Act was undertaken. **Table 5** summaries the assessment and shows that no evidence has been discovered of land uses practices that would lead to the area impacted by the MDS mine being a PALU, that is there is no evidence of the project site (ie footprint area) been used for any intensive agricultural land use throughout its history.

Table 5: Assessment MDS mine footprint against PALU triggers - pre-2003 to current day.

PALU Trigger		2014 Interview with Owners rep	Existing documents	Imagery 2003, 2006, 2012	Interviews with local landholders & agencies
3.3 Cropping	Cereals, beverage & spice crops, hay & silage, oil seeds, sugar, cotton, alkaloid poppies, pulses	No	No	No evidence within footprint of mine	No
3.4 Perennial horticulture	Tree fruits, oleaginous fruits, tree nuts, vine fruits, shrub nuts, fruits & berries, perennial flowers & bulbs, perennial veg & herbs, citrus, grapes	No	No	No evidence	No
3.5 Seasonal horticulture	Seasonal fruits, nuts, flowers & bulbs	No	No	No evidence	No
4 Irrigated agriculture & plantations	Production from irrigated agriculture & plantations	No	No	No evidence	No
5.1 Intensive horticulture	Shade houses, glasshouses, glass houses (hydroponic), abandoned intensive horticulture	No	No	No evidence	No
Agricultural Land use		Cattle breeding & fattening	Cattle breeding & fattening	Cattle breeding & fattening	Cattle & sheep grazing

5.6 Assessment of Regional and Local Policies

5.6.1 Central Queensland Regional Plan

The Central Queensland Regional Plan identifies acceptable land uses within a PAA. The Central Queensland Regional Plan has the following as one of its Regional Outcomes: "Agriculture and resources industries within the Central Queensland region continue to grow with certainty and investor confidence". To achieve this the Plan contains two Regional Policies:

1. Protect Priority Agricultural Land Uses within Priority Agricultural Areas; and
2. Maximise opportunities for co-existence of resource and agricultural land uses within Priority Agricultural Areas.

Regional policies 1 and 2 are implemented by:

- Defining PALUs;
- Mapping the region's Priority Agricultural Areas (PAA);
- PAA co-existence criteria protects PALUs within a PAA from the impacts of incompatible resource activities while maximising opportunities for the co-existence of resource and agricultural land uses;
- Local planning instruments incorporating planning and development provisions that reflect Regional Policy 1: protecting PALUs within PAAs; and
- By complying with Regional Policies 1 and 2 the MDS Project is in line with the Governments desired regional outcome of growth of agriculture and resource industries in Central Queensland.

5.6.2 Local Planning Instruments

A review of the local planning instruments as they pertain the Regional Policy 1 was undertaken. The relevant local planning instruments can be summarised as:

- Local government area – Central Highlands Regional Council is the relevant local government authority for the Project Area;
- There are two relevant planning instruments:
  - Central Highlands Strategic Framework (CHSF) – establishes the future directions for land use planning to 2031. It informs development assessment and the preferred land use in the emerging Central Highlands Regional Council Planning Scheme. The Strategic Framework is a contextual policy document which acknowledges "mineral resource areas are recognised as valuable assets and the ongoing operation of established mineral resources are protected from encroachment of incompatible urban land uses"; and

Relevant Planning Scheme – former Shire of Bauhinia Town Planning Scheme which came into effect 23rd February 2007;

- Zoning – Rural; considered an appropriate designation for the proposed land use;
- Land Use Definition – extractive industry;
- Level of Assessment – impact;
- Overlays – Economic Resources Overlays:
  - Map No Res1 – Agricultural Land Class Overlay; and
  - Map No Res2 – Mineral Resources & Extractive Industries Overlay; and
- Planning Schemes Policies – planning policies do not specifically relate to the MDS proposal.

Overall the Project is considered consistent with the intent and directions established in the local government authority strategic framework and relevant planning scheme.

The local government requirements do not present any major impediments to the development.

6. Conclusions and Recommendations

6.1 Conclusions

This report concludes the area that would be impacted by the MDS mine footprint has not been used for any Priority Agricultural Land Use as defined by the RPI Act throughout its history, and consequently no conflict exists been intensive agricultural land uses and potential resource industry development.

MDS is not in conflict with the new Central Queensland Regional Plan with respect to acceptable uses within a PAA as it does not adversely impact on a PALU. By complying with Regional Policies 1 and 2 the MDS Project is in line with the Governments desired regional outcome of growth of agriculture and resource industries in Central Queensland.

In summary:

- The project meets the proscribed solution 1 for required outcome 1 as the MDS project is not located on land in a PAA that is used for a PALU;
- The project meets the proscribed solution for required outcome 2 for projects located within a PAA as the:
    a) Regional outcomes and regional polices in the Central Queensland Regional Plan are adequately addressed;
    b) Project has been located on land that is not used for a PALU;
    c) Project footprint has been minimalised to the greatest extent possible to avoid strategic cropping land;
    d) Project will not result in the widespread or irreversible impacts on the future use of any PALUs;
    e) Project will not constrain, restrict or prevent the ongoing use of any PALUs in the region; and
    f) Project area does not include the Condamine Alluvium, the only prescribed regionally significant water source in the RPI Regulation, and therefore will not impact upon its replenishment.

6.2 Recommendations

Based on the information contained within this assessment, U&D commends to the chief executive of the Department of State Development Infrastructure and Planning the favourable assessment of the RIDA for the MDS project.

7. References

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http://www.centralhighlands.qld.gov.au/planning-schemes (see former Shire of Bauhinia Town Planning Scheme).

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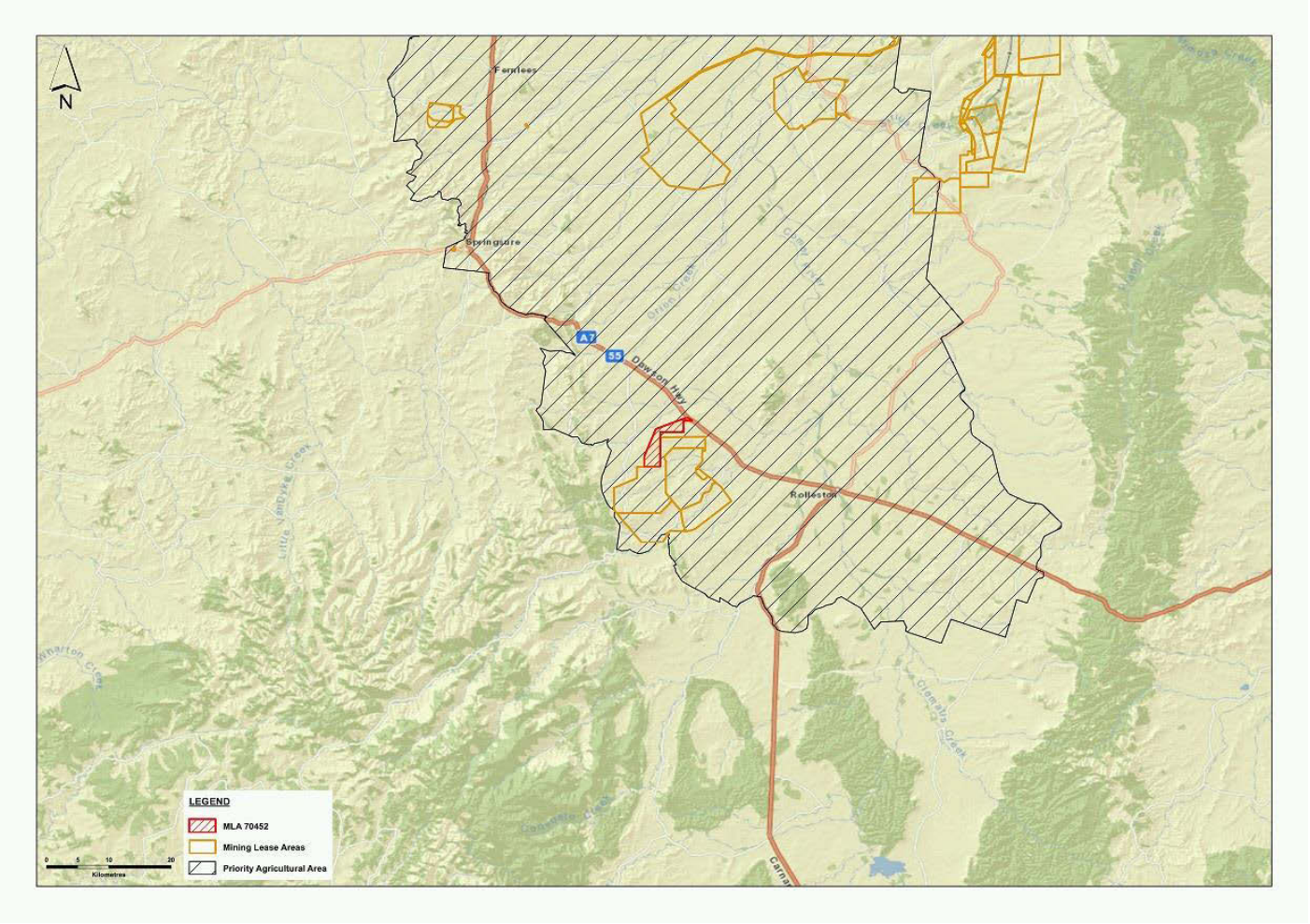
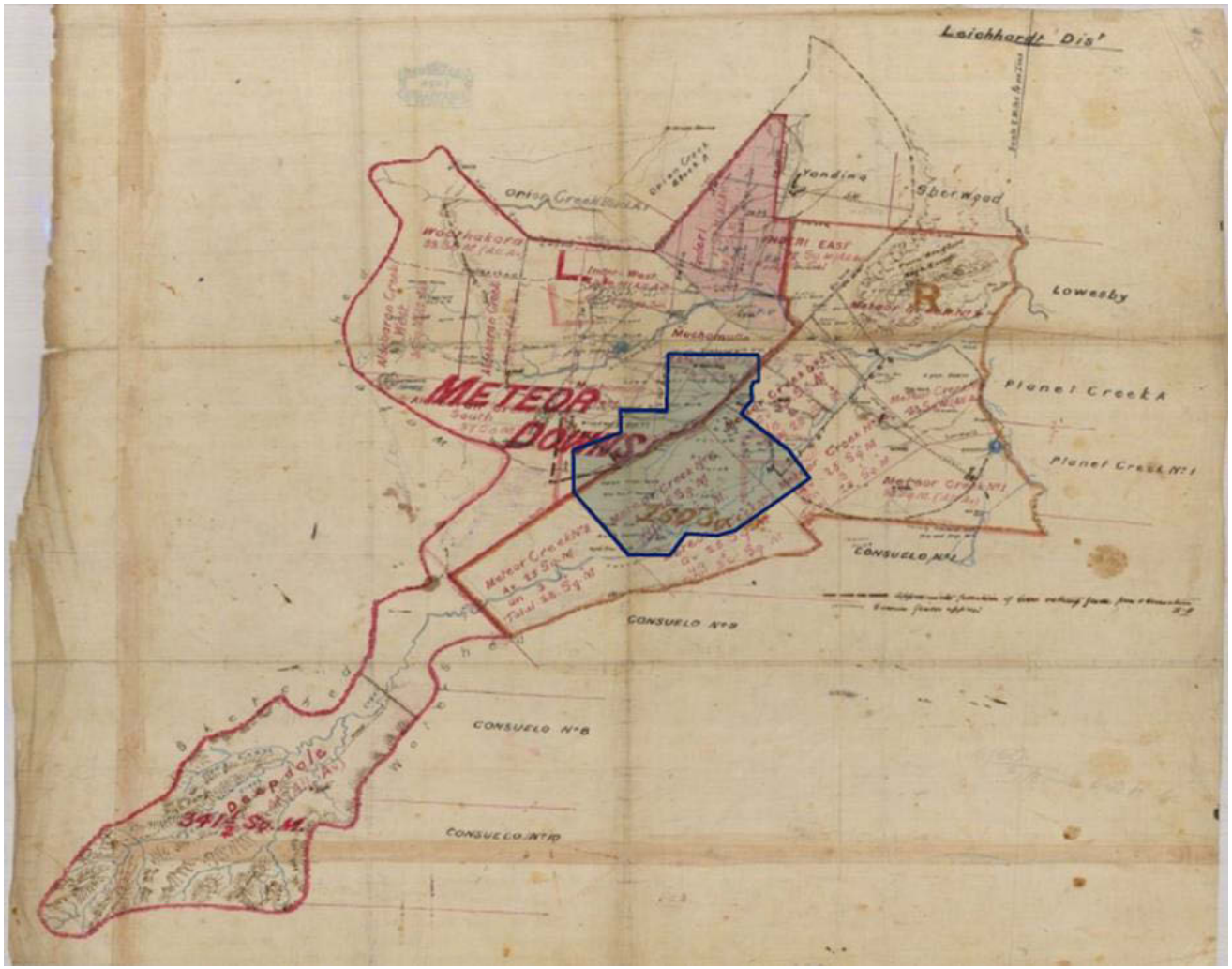
APPENDICES

Appendix A – CQ Regional Plan, Priority Agricultural Area



Map showing relationship between PAA and MDS project site (area shown in red).

Appendix B – Meteor & Albina Downs Run c.1887



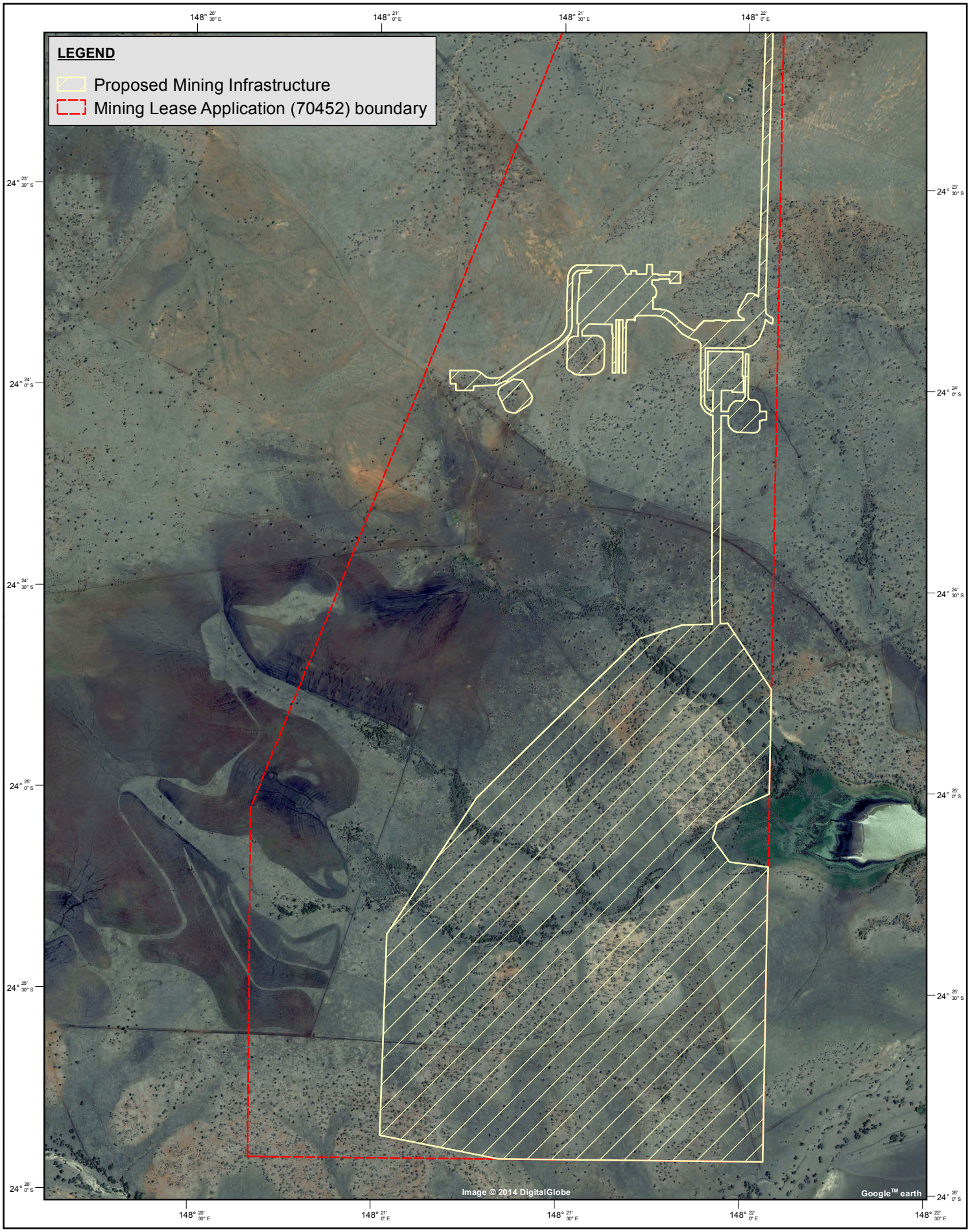
Map of consolidated Meteor and Albinia Downs run c. 1887, showing main improvements and indicating approximate location of the Rolleston Mine Expansion

Appendix C – Land Tenure

Real property description	Tenure type	Owner	Current land use	Total property area (ha)	Approx. area affected by MDS MLA (ha)	Approximate area affected by the project footprint (ha)
4RP617701	Freehold	Glencore Coal Queensland Pty Ltd	Cattle breeding & fattening	2277.35	507.92	259.04
1SP164068	Freehold	Glencore Coal Queensland Pty Ltd	Cattle breeding & fattening	1791.72	469.13	68.08
4SP170740	Freehold	Glencore Coal Queensland Pty Ltd	Cattle breeding & fattening	2175.01	409.55	40.29
2RP616045	Freehold	Glencore Coal Queensland Pty Ltd	Cattle breeding & fattening	2881.25	163.44	8.52
1SP174071	Freehold	Glencore Coal Queensland Pty Ltd	Cattle breeding & fattening	1899.55	56.76	50.72
18RP617697	Freehold (below depth plans)#	Associated Products & Distribution Pty Ltd	Extractive	6542.16	1010.48	404.66

below depth plan defined in DERM Qld Interchange Format Specification 2011, as “a registered right or interest over a parcel of land whose location is defined as below a depth or to a depth below the surface of the earth”

Appendix D – Aerial Images of MDS Site



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Coordinate System: GCS GDA 1994
Datum: GDA 1994
Units: Degree, Minutes, Seconds

Data sources:

- Proposed Mining Infrastructure: U&D Mining
- Mining lease licenced under a **Creative Commons - Attribution 3.0** licence.

Image date: 2003

U&D Mining Industry (Australia) Pty Ltd

Appendix D – 1
Aerial Images of MDS Site (2003)

Albinia, Central Highlands Regional

GIS Handling: Bashar Nseir

A4 size

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Datum: GDA 1994
Units: Degree, Minutes, Seconds

Data sources:

- Proposed Mining Infrastructure: U&D Mining
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Image date: 2006

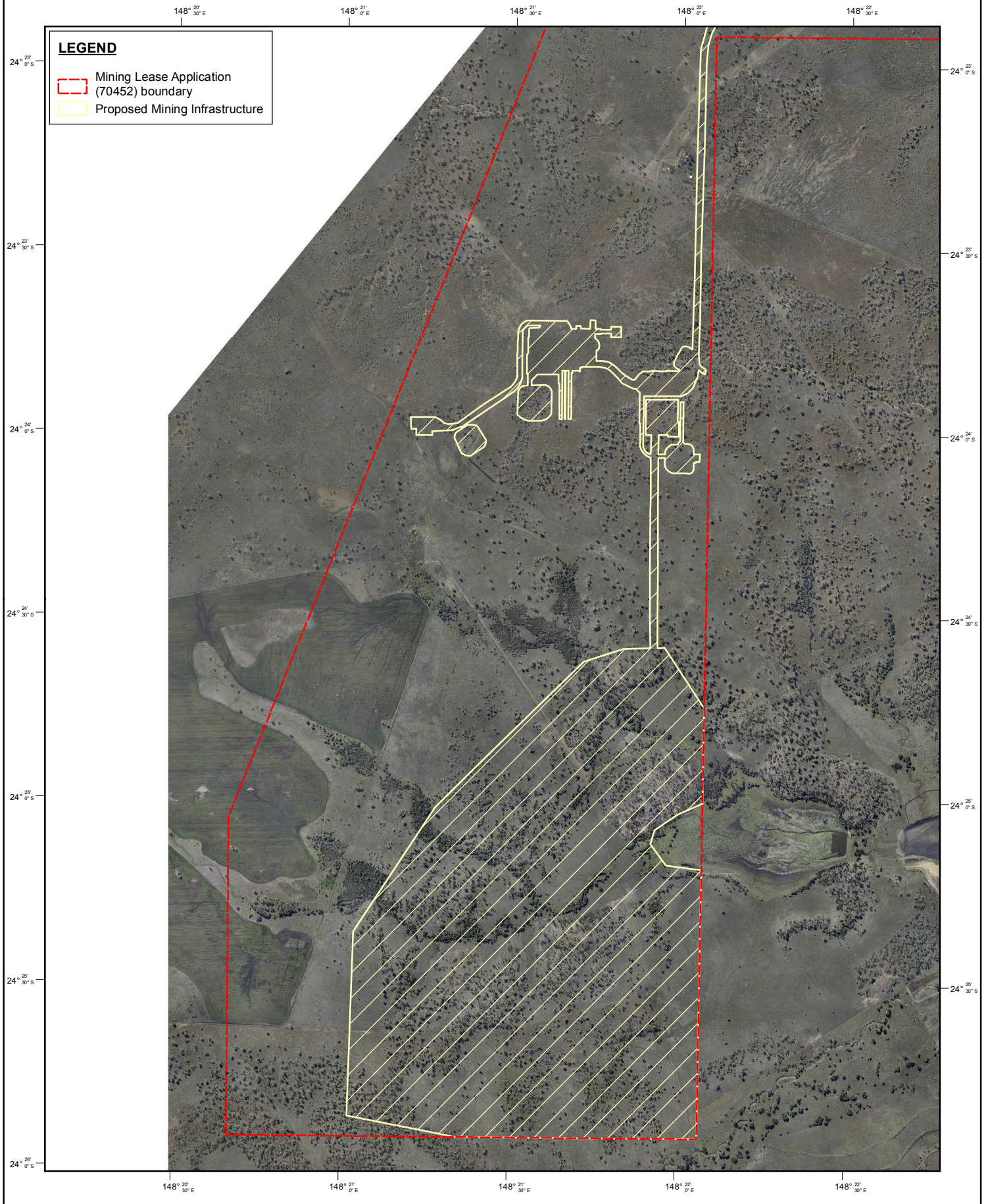
U&D Mining Industry (Australia) Pty Ltd

Appendix D – 1
Aerial Images of MDS Site (2006)

Albinia, Central Highlands Regional

GIS Handling: Bashar Nseir

A4 size



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Datum: GDA 1994
Units: Degree, Minutes, Seconds

Data sources:

- Proposed Mining Infrastructure and background aerial photographs: U&D Mining
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Image date: 2012

U&D Mining Industry (Australia) Pty Ltd

Appendix D – 3
Aerial Images of MDS Site (2012)

Albinia, Central Highlands Regional

GIS Handling: Bashar Nseir

A4 size