

Taroborah Coal Project

Appendix 8 – Contaminated Land Assessment




Taroborah Coal Project

Taroborah Coal Mine - Preliminary Non-intrusive Contaminated Land Assessment Report

Prepared for:

Shenhuo International Group Pty Ltd

December 2013

aarc
AustralAsian Resource Consultants

Document History and Status

Issue	Rev.	Issued To	Qty	Date	Reviewed	Approved
1	0	Dave Thomas	1	12/11/12	Paul ackson	Andrew Pearce
2	1	Dave Thomas	1	03/10/13	Paul ackson	Andrew Pearce
3	2	Dave Thomas	1	04/12/13	Paul ackson	Andrew Pearce

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Name of Client :	Shenhuo International Group Pty Ltd
Name of Project:	Taroborah Coal Project
Title of Document:	Taroborah Coal Mine - Preliminary Non-intrusive Contaminated Land Assessment Report
Document Version:	Final

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LIST OF ABBREVIATIONS

^{o}C	-	Degrees Celsius
AARC	-	AustralAsian Resource Consultants
AGE	-	Australasian Groundwater & Environmental Consultants
AN ECC	-	Australian and New ealand Environment and Conservation Council
ARMCAN	-	Agriculture and Resource Management Council of Australia and New ealand
AS	-	Australian Standard
ASTM	-	American Society for Testing and Materials
CHPP	-	Coal Handling and Processing Plant
CHRC	-	Central Highlands Regional Council
CLR	-	Contaminated Land Register
DAFF	-	Department of Agriculture, Fisheries and Forestry
EHP	-	Department of Environment and Heritage Protection
DERM	-	Department of Environment and Resource Management
DoE	-	Department of the Environment
DPI	-	Department of Primary Industry
EIS	-	Environmental Impact Statement
EMR	-	Environmental Management Register
EPC	-	Exploration Permit for Coal
EPP	-	Environmental Protection Policies
ERA	-	Environmentally Relevant Activities
Ha	-	Hectare
km	-	kilometres
MDL	-	Mineral Development Licence
Mtpa	-	million tonnes per annum
NEPC	-	National Environmental Protection Council
NEPM	-	National Environmental Protection Measure
NHMRC	-	National Health and Medical Research Council
Pb (aquifer)	-	Aldebaran Sandstone
PCoC	-	Potential Contaminants of Concern
Qa	-	Quaternary alluvium
QLD	-	Queensland
ROM	-	run of mine
Shenhuo	-	Shenhuo International Group
STP	-	sewerage treatment plant

Tb	-	tertiary basalt
ToR	-	Terms of Reference
U O	-	Unexploded ordnance

EXECUTIVE SUMMARY

Background

AustralAsian Resource Consultants Pty Ltd was commissioned by Shenhuo International Group Pty Ltd (the Proponent) to conduct a preliminary, non-intrusive contaminated land site-investigation for the proposed Taroborah Coal Project.

Shenhuo International Group Pty Ltd is a wholly-owned unit of the Henan Shenhuo Group Company Limited, based in the city of Yongcheng, Henan Province, China.

The Taroborah Project is located approximately 22 km due west of the city of Emerald and is a proposed open-cut and underground thermal-coal mining operation, which is expected to commence construction works in Q4 2017. The planned maximum mining rate for the open-cut operation is approximately 2.28 Million tonnes per annum run, whilst the underground operation (longwall) has a planned maximum mining rate of up to 5.75 Million tonnes per annum run of mine. The open-cut operation has a projected life of 7 years and the underground operation a projected life of 17 years, beginning in the fifth year of open-cut operations.

A Coal Handling and Preparation Plant will also be constructed on site to process the mined coal, before it is transported via the local railway system to the Port of Gladstone.

The potential for fuel, oil, agricultural chemicals and un-bonded / exposed asbestos fibres to contaminate local shallow soil, surface water and / or groundwater, was assessed visually across the Project site at each storage / dispensing location and farm infrastructure / homestead.

The Project site has previously been and is currently used for both pastoral and cropping activities. It is anticipated that land in the vicinity of the underground mine will continue to be used for pastoral and cropping purposes during mining operations. Following closure of the mine at the end of its life, it is anticipated that land on the Project site will be returned to its original use, however, areas which have been permanently impacted (such as the final open-cut pit void) will not be available for pastoral or cropping uses.

Objectives of the Investigation

The objectives of this preliminary, non-intrusive contaminated land site-investigation were as follows:

- Identify both historical and current potentially contaminating Project site activities;
- Define the local and regional geology and hydrogeology of the Project site;
- Identify potential contaminants of concern on site and assess whether or not these contaminants have potentially resulted in sectors of contaminated land;
- Report upon the findings of this preliminary, non-intrusive contaminated land site-investigation ; and
- Assess the need for any additional, intrusive site investigations and remedial actions that may be required.

Scope of Works

The following scope of works was developed for this Project:

- Identification of potential land contamination via historical land-ownership titles, aerial photos, preliminary site walkovers and conversations with local landholders;
- Development of a potential contaminants of concern schedule from historic and current land uses;
- Searches of the Queensland Environmental Management Register, Contaminated Land Register and Unexploded Ordnance Register to determine whether or not any Project Lots are recorded on these contaminated land registers;
- Generation of a regional and local geology and hydrogeology summary;
- Production of a preliminary, non-intrusive contaminated land site-investigation report; and
- Determination of the need for any additional intrusive site investigations.

Site Location, Description, Landuse and Ownership

The Taroborah Project is located entirely within the Central Highlands Regional Council boundary, located approximately 22 km due west of Emerald. The Project site lies either side of the Capricorn Highway and the Central West railway line and site access is currently achieved via a number of homestead roads which connect to the Capricorn Highway.

The Project site was originally defined by Exploration Permit for Coal 1011 (covering an area of approximately 10,667 hectares and with a site centroid of 596500 m East and 7396000 m South), but the Project boundaries have subsequently been redefined by Mineral Development License 467 (covering an area of approximately 7,966 hectares), which more closely encompasses the resource and proposed site-disturbance areas and now excludes the State forest.

The lease MDL467 covers an area of approximately 7,966 hectares (approximately 8.5 km wide (maximum) and 13 km long) and exhibits a site centroid of 596500 m East and 7396000 m South. The Project site is comprised of both cropping and pasture land.

The following homesteads lie within the MDL boundary: Walther, Iona Downs, Donnelly and St Helens. These homesteads represent sensitive receptors (human health) in the context of any contaminated land that may exist on the Project site.

The proposed layout of the mine infrastructure includes an open-cut mine (which will produce the greatest degree of disturbance), spoil dumps, Coal Handling and Processing Plant, associated coal storage / transport infrastructure and an underground mine (which will result in surface subsidence of around 2 m).

Project construction is anticipated to last up to 12 months, with a target construction commencement date of Q4 2017. Note that this timing depends upon the availability of services, equipment and materials for Project / infrastructure construction and port stockpiling / shipping availability.

Desktop Assessment of Local Geology and Hydrogeology

Regional Geology

The Project site lies within the Bowen Basin, which is part of a connected group of Permian coal basins in Eastern Australia. Coal deposits developed in the Bowen Basin during most of the Permian period, in large areas of shallow water. By the late Permian period, coal deposits had formed across the whole of the basin.

The eastern sector of this basin was subject to severe deformation during the Triassic period, and mineable coals were preserved on NNW-SSE trending platforms or shelves, separated by sedimentary troughs.

Local Geology

The Project site consists of Lower Permian sediments, unconformably overlain by Tertiary sediments on the western extent of the Denison Trough. The following main near surface lithologies were identified on the Project site:

- Qa: Quaternary alluvium – mainly occurs in the north of the Project site;
- Pb: Upper Permian quartz sandstone, feldspathic mudstone and coal- located mainly in the east of the Project site;
- Tb: Tertiary olivine basalt, trachy basalt minor agglomerate and tuff - mainly occurs in the west and south of the Project site; and
- Cz: undifferentiated soil sand and gravel – located in the west of the Project site.

Permian coal seams are encountered at shallow depths in the southern area of the lease and deepen towards the north. The coal measures are comprised of a sandstone / coal sequence, with the regionally extensive Aldebaran Sandstone directly overlying the coal seams.

At Taroborah, two successions of coal measures occur among marine beds, unconformably overlying the Retreat Granite and Devonian-Carboniferous sediments. Of the 5 seams occurring in the upper succession, the top 2 seams (“A” and “B” seam) are the most developed and thickest.

Regional Hydrogeology

The Project site lies within the Fitzroy Basin and the Nogoa River subarea. This basin represents a major inland river system which drains through the Great Dividing Range to the east central coast of Queensland.

Almost 90 % of land in the region is used for agriculture; the remainder of this land is used for irrigation, grazing, mining, power generation, with significant areas of state forest and national park.

Two major groundwater chemical categories have been identified for the Fitzroy Basin as follows:

- Alluvial sequence – characteristic of both alluvial groundwater and surface waters along the eastern coastal and western areas of the Fitzroy Basin; and
- Sodic sequence – associated with older sedimentary rocks and mainly present in deep aquifers (also occasionally in shallow groundwater). The major ion balance of this groundwater approaches that of sea water and has been identified in the central and southern sections of the Fitzroy basin.

Other minor water types also occur locally in the Fitzroy Basin.

Local Hydrogeology

Three local aquifer types have been identified as follows:

- Tertiary basalt (Tb) - mainly found in the western portion of the Project site, directly overlying the underground mine workings and within the open-cut area;
- Aldebaran Sandstone (Pb) - outcropping over the eastern portion of the Project site. This aquifer may act as a recharge area for the regionally extensive Aldebaran Sandstone aquifer; and
- Quaternary alluvium (Qa) - associated with streams that drain to the east and south of the Project site.

The local hydrogeology is potentially complicated by the presence of geological structures, such as the north-west trending graben faults and a major south-west trending basement structure that lies across the Project site.

The Capricorn Highway follows a regional catchment divide where groundwater flow may drain southwards to the south of the Capricorn Highway and northwards north of the highway. The Basalt deposits seem to follow former palaeochannels, whose shape may be different to that of the current topography.

A number of the resource exploration drill holes that had been installed across MDL467 in 2006 - 2009 were converted into groundwater monitoring bores. Most of these bores were screened within the Aldebaran Sandstone aquifer, which overlies the major Taroborah resource area. Further groundwater monitoring bores have been installed in 2013 both inside and outside of MDL467, in order to assess the potential impacts of local faults upon groundwater flow direction and drawdown profiles.

Groundwater data has been obtained from the earlier monitoring locations - standing water levels, pH, electrical conductivity, total dissolved solids, temperature and groundwater yield (Matrix Plus 2008, 2009a and 2009b).

Local groundwater was found to be of adequate quality by surrounding landholders for stock and domestic use.

An initial, Phase I local groundwater bore census was conducted by Australasian Groundwater & Environmental Consultants in December 2011 both within and around EPC1011 (AGE, 2011) This census identified the position, status, standing water level and water quality (pH and electrical conductivity) of the Department of Environment and Heritage Protection registered and private groundwater bores in the local area. A phase II groundwater bore census has also been recently conducted, in order to complete the general assessment of groundwater bores and quality within and around MDL467.

Historical Landuse

A landuse history for the Project site was generated from both historical landownership titles and three sets of historical aerial photographs that were obtained from the Queensland Government Land Office. The general area was first sighted by Leichhardt in 1844 and pastoral runs were taken up in the 1850's / 1860's.

Dry -land cropping (wheat and sorghum) and low-intensity cattle grazing) has been the overriding land use on the Project site for many years. No known commercial or industrial activities have historically occurred on site.

An assessment of historical landuse via aerial photography has been conducted and summarised as follows:

- 1946 aerial photographs – the local landscape appears largely undeveloped with relatively low anthropogenic impacts within the Project area. Cleared agricultural and pastoral paddocks are evident, concentrated around the Taroborah Station;

- 1964 aerial photographs – by 1964, an expansion of agricultural activities had occurred across the Project site with fragmentation of large, intact stands of vegetation. Agricultural activity intensified around both the Taroborah Station and St Helens homestead. Several tracks intersected the landscape, leading to dams and other agricultural areas; and

- 1983 aerial photographs - further fragmentation of the local vegetation was evident in the 1983 aerial photographs, particularly in the northern and western sections of the Project site. Broad-scale vegetation clearing and development of agricultural land across the majority of the site north of the Capricorn highway is apparent, including clearing for a number of additional tracks and fence lines throughout the site. The vegetation located to the east of the Project site does not appear to have undergone significant clearing and represents a large patch of consistent vegetation, within a fragmented landscape.

In order to determine the potential for historical land contamination, a review of the available aerial photography, interviews with land holders and Queensland land register searches were conducted.

Potential Contaminants of Concern

The following potential contaminants of concern have been identified for the Project site:

- Agricultural chemicals – storage, handling and use of agricultural chemicals for crop protection, weed and pest management;

- Vehicle fuel – storage, dispensing and usage of vehicle fuel on the Project site;

- Hydraulic oil and lubricating hydrocarbons – employed for the operation of agricultural machinery;

- Livestock pesticides – leakage from dips and run-off from livestock;

- Residential sewage – leakage of treated grey water from sewerage treatment plants; and

- Asbestos in building materials – damage to bonded asbestos (fibro sheeting) resulting in the release of free asbestos fibres.

Contaminated Land, Unexploded Ordnance and Underground Services Registers

Only one Lot on Exploration Permit for Coal 1011 (Lot 223 on FTY1531) is recorded on the Environmental Management Register (Notifiable Activity 22 - Livestock Dip or Spray Race). However, since this Lot does not lie within the Mineral Development License area, the livestock dip in question has not been considered in this report.

In contrast, none of the Lots which lie within the Exploration Permit for Coal or Mineral Development License Application areas are recorded on the Contaminated Land Register.

A search of the unexploded ordnance register revealed that no unexploded ordnance has been recorded in the former Emerald Shire boundary and therefore, the risk of unexploded ordnance being present on the Project site was considered to be low.

The only underground services that were identified for the Project site from the Dial Before You Dig website (2010), was an underground cable which runs parallel to the Capricorn Highway.

Therefore, no potential sources of land contamination have been identified within the Mineral Development License Application area via the Queensland contaminated land / unexploded ordnance / underground service registers.

Condition of Local Flora and Fauna

No evidence of contaminated land impacts upon local flora and fauna were observed on the Project site.

Vegetation die back and / or discolouration which can occur as a result of local land contamination, was not recorded on the Project site.

Contaminated Land

Potential sources of land contamination within the Project site have been identified as follows:

- **Livestock dips –** only one livestock dip has been identified on the Project site. Since this dip was buried about 4 m below ground level, the risk of contaminants impacting the local environment and human health are considered to be limited. Potential impacts upon local groundwater have yet to be determined;

- **Chemical storage and handling -** chemical drums in various states of decay were observed on the Project site at various homesteads. Minor product dispensing spills were observed at some of these locations;

- **Hydrocarbon spills –** un-bunded above-ground fuel storage tanks were recorded at various homesteads, with minor product dispensing spills observed at some of these locations;

- **Domestic Sewage Treatment Plants –** no domestic sewage treatment plant malfunctions were reported by local landowners; and

- **Asbestos fibres (un-bonded and exposed)** – two structures that were built with asbestos fibre re-enforced cement sheeting were observed on the Project site (an abandoned and dilapidated house at Yarrawonga Station and the house at Taroborah Siding – refer to the Taroborah Historic Heritage Management Plan (Converge, 2012) for further details. Although these properties represent a potential source of land contamination, such field observations are anecdotal and do not represent a full asbestos-survey of buildings and land within the Project area.

Contaminated Surface Water and Sediment

The chemical analytical data that has been produced to date for local surface water and sediments has not indicated any significant contamination. However, contamination from hydrocarbons and agrichemicals has not been assessed for these particular environments.

Surface water or sediment samples which have exceeded guideline trigger values for electrical conductivity, Al, Cr, Cu, Mn, Ni, ammonia nitrate / nitrite and phosphorus are assumed to exhibit naturally-elevated concentrations of these elements / compounds.

In addition, no visual contamination of local surface waters was recorded during the field surveys.

Contaminated Groundwater

Although somewhat saline at certain locations, the local groundwater is currently used on site for both livestock and domestic consumption, with no recorded ill-effects. Therefore, there is currently no anecdotal evidence to suggest that local groundwater is contaminated.

However, groundwater sampling and analysis will be conducted as part of the Environmental Impact Statement studies and any contamination of the local groundwater identified.

Conclusions

The following conclusions have been developed for this contaminated land assessment:

- **Historical landuse -** The Project site has been used for agricultural purposes since the 1880's. Following a review of the available historical aerial photographs, no industrial or commercial activities have been identified on the Project site. Therefore, this preliminary, non-intrusive site investigation has focused upon the potential for agricultural activities to have contaminated land on the Project site. Eleven private / commercial land owners currently exist within MDL467;

- **Potential contaminants of concern** – a list of potential contaminants of concern has been developed, based upon the agricultural use of the Project site;

- **Queensland Contaminated Land / Unexploded Ordnance / Underground service register search results –** no Lots within Mineral Development Licence 467 were found to be recorded on any of the following registers: Environmental Management, Contaminated Land, or Unexploded Ordnance;

- **Chemical storage drums / vessels** – although both agrichemical and lubrication storage drums / vessels were identified at a number of homesteads, no significant chemical spillages were observed on the Project site, except for limited dispensing spills;

- **Above and below ground storage tanks –** a number of above-ground fuel storage tanks were identified across the Project site, but no significant spillages of product were visually identified, only small dispensing spills. Although no underground storage tanks were identified via discussions with local landholders, historical, un-recorded below-ground storage tanks may exist on the Project site;

- **Contaminated land –** sectors of land which may have been contaminated and need to be investigated further include: potential impacts of buried livestock dips upon local groundwater, residences which have been constructed with fibro sheeting, potential localised spillages of fuel, agrichemicals and lubricants from above-ground storage tanks, drums and vessels;

- **Surface water and sediment –** no anthropogenic contamination has currently been identified in the surface water and sediment samples that have been collected from the Project site and chemically analysed. Samples of surface water or sediment which have exceeded guideline trigger values for electrical conductivity, Al, Cr, Cu, Mn, Ni, ammonia nitrate / nitrite and phosphorus are assumed to be naturally elevated above these values; and

- **Groundwater –** no visual, chemical or olfactory evidence of anthropogenic groundwater contamination has currently been identified. However a further assessment of groundwater quality will be conducted as part of the Environmental Impact Statement studies.

Recommendations

In response to these conclusions, the following recommendations have been generated for particular sectors of the environment:

- **Above-ground storage tanks –** land around above-ground storage tanks should be investigated, to confirm whether or not product leakages / spillages from these tanks have resulted in contaminated land;

- **Residences constructed with Fibro sheeting –** if a significant risk arises of asbestos fibres impacting either human health or the environment, then the safe demolition and removal of these buildings should be considered prior to conducting any mining activities;

- **Chemical drums and vessels –** potential product leakages / spillages into shallow soil around drum and vessel storage areas should be assessed; and

- **Local groundwater –** assess the quality of local groundwater, particularly in areas where livestock dips have been buried, drum stores and above-ground storage tanks exist (assuming that groundwater bores are located in these areas).

1.0 INTRODUCTION

AustralAsian Resource Consultants Pty Ltd (AARC) was commissioned by Shenhuo International Group Pty Ltd (Shenhuo - the Proponent) to conduct a Stage 1 preliminary, non-intrusive site assessment for potentially contaminated land for the proposed Taroborah Coal Project, located west of Emerald, Queensland (herein referred to as the "Project site").

Shenhuo International Group Pty Ltd is a wholly-owned unit of the Henan Shenhuo Group Company Limited, based in the city of Yongcheng, Henan Province, China.

This assessment represents part of the requirements of the Terms of Reference (ToR) for the Project's Environmental Impact Statement (EIS) as required by the *Environmental Protection Act 1994* (*EP Act 1994*).

Potential sources of contamination which may lie outside the Project site boundary have been excluded from this preliminary, non-intrusive site assessment (refer to Figure 2 for the areal extent of Mineral Development License (MDL) 467 – the Project site).

An assessment of the Taroborah site history and knowledge of activities that have been and are currently occurring on this site has been conducted. The results of this assessment indicated that potential sources of contamination were present within the Project site.

For example, one buried livestock dip was identified on the Project site and a second, off-lease, livestock dip was identified via conversations with local landholders and an Environmental Management Register (EMR) search.

Note that although an assessment of groundwater quality beneath the Taroborah site was not conducted for this site assessment, an initial assessment of groundwater quality beneath and around the Project site and further groundwater assessments will be conducted as part of the EIS.

The previous and current land uses have been mainly pastoral and cropping. It is anticipated that during mining, land in the vicinity of the underground mine will still be used for pastoral and cropping purposes. Following closure of the mine at the end of its life, the land will be returned to its current uses, except for areas which have been permanently impacted such as the final open-cut pit void.

1.1 PROJECT UNDERSTANDING

It is understood that the Proponent proposes to develop a combined open-cut and underground coal mining operation on the Project site, which is located approximately 22 kilometres (km) west of Emerald, in Central Queensland. The Project is expected to commence construction works during 2017.

The open-cut operation has a projected maximum mining rate of approximately 2.28 Million tonnes per annum (Mtpa) run of mine (ROM), with production planned over a period of 7 years. The underground longwall operation has a projected maximum mining rate of up to 5.75 Mtpa ROM, with reserves sufficient for 17 years of production. The operations are not scheduled to operate concurrently, with underground mining expected to replace open-cut mining beginning in Year 5 of the 21 year Project life.

The proposed mine infrastructure includes an open-cut mine, spoil dumps, Coal Handling and Processing Plant (CHPP), associated coal storage / transport infrastructure and an underground mine (which will result in surface subsidence of around 2 m).

The Project site has been farmed for many years (via both dry-land cropping (wheat and sorghum) and low-intensity cattle grazing) and no known commercial or industrial activities have occurred on site. Refer to Section 3.0 - Site Development History for details.

Therefore, the magnitude of soil and / or groundwater contamination on the Project site is considered to be relatively low, assuming that any chemicals which are applied to the land are not persistent (e.g. pesticides and herbicides) and whose residual concentrations pose a minimal risk to the environment and / or human health.

The potential for fuel, oil, agricultural chemicals and un-bonded / exposed asbestos fibres to contaminate local shallow soil was assessed visually across the Project site at each storage / dispensing location and farm infrastructure / homestead.

1.2 PURPOSE OF INVESTIGATION

The purpose of this preliminary, non-intrusive site assessment was to determine whether or not historical or current land use within the Project site has potentially resulted in soil / surface water / groundwater contamination.

The results of this study also provide a preliminary, non-intrusive, baseline assessment of land contamination on the Project site, before any mining activities commence.

1.3 OBJECTIVES

The main aim of this preliminary, non-intrusive site assessment was to determine whether or not historical and current activities conducted on the Project site may have resulted in soil contamination (and subsequently groundwater / surface water) that poses a potential or actual risk to sensitive receptors (e.g. human health and / or the environment both on and / or off-site).

The main objectives of the Taroborah preliminary, non-intrusive site investigation were as follows:

- Identify past and present potentially-contaminating activities that have been conducted on the Project site;
- Summarise the local and regional geology and hydrogeology of the Project site;
- Identify Potential Contaminants of Concern (PCoC) which may exist on the Project site and assess whether or not these potential contaminants have created sectors of contaminated land;
- Generate a site assessment report which presents the findings of this preliminary investigation; and
- Assess the need for any further investigations that may be required, in order to devise effective remediation strategies (if necessary).

1.4 SCOPE OF WORKS

The following scope of works was developed for this site assessment:

- Identification of potential land contamination – both historical and current potential contamination was determined via historical aerial photos, historical landownership titles, preliminary site-walkover inspections, reports which detail historical uses of the site and local information and knowledge of landholders who have worked on site for a number of years;
- Development of a potential contaminants of concern schedule - the historic and current PCoC present on site which could pose a risk to human health and / or the environment were identified via the agricultural activities / equipment / buildings that were known to have occurred / operated / used on the Project site (e.g. cropping, livestock grazing, chemical and hydrocarbon storage);
- Queensland Environmental Management, Contaminated Land and Unexploded Ordnance register searches – any potential sources of contamination on each Project Lot were identified via searches of the Environmental Management, Contaminated Land and Unexploded Ordnance registers;
- Summary of the regional and local geology and hydrogeology – a variety of published sources were reviewed, in order to produce this summary;
- Production of a preliminary, non-intrusive contaminated land report – the results of the Taroborah non-intrusive site assessment have been presented in this preliminary report; and
- Intrusive site investigations – any intrusive site investigations that may be required for the Project site were identified.

1.5 INVESTIGATION TEAM

The investigation team employed for this preliminary site assessment possess technical skills in the following disciplines:

- Contaminated Land;
- Soil Remediation;
- Health and Safety;
- Environmental Site Assessments; and
- Environmental Management Plans and Systems.

1.6 SITE CONDITION AND ASSESSMENT OF SITE CONTAMINATION

The Project site is currently a greenfield area which has been used for agricultural purposes (both cropping and livestock) for many years. Infrastructure on the Project site is currently limited to farm residences, farm buildings, agricultural infrastructure, storage sheds, cattle yards, water storage tanks, windmills, dams, constructed and non-constructed roads.

The boundary fencing across the Project site was mainly found to be in good condition, with limited evidence of soil erosion, except along some of the local creeks.

No indications of plant stress or visual / olfactory signs of soil contamination were identified during site visits. However, a number of above-ground storage tanks, drums and chemical storage containers were recorded on site. It is understood that product spill and loss registers are not maintained by local landholders.

Although the unsealed roads which run across the Project site are generally in a reasonable condition, a number of the homesteads were found to be relatively old.

The flood history of the Project site and potential for further flood events has not yet been assessed. However, as part of the EIS process, an assessment of local flood history and potential for further flooding will be conducted.

The following local sensitive receptors have been identified within or near the Project site:

- Creeks – Retreat Creek to the north and Taroborah Creek to the south of the Project site (refer to Figure 2 for details);
- Lakes – Lake Maraboon is located approximately 12 km to the southeast of the Project site;
- Dams – a number of pastoral dams exist on the Project site, with a relatively large man-made dam located near the centre;
- Wetlands – a number of wetlands are present in the north of the Project site (refer to Figure 10 for details);
- Endangered flora and fauna species – areas of Brigalow, Belah Open Woodland and Dawson Gum Open Woodland (Endangered floral species) plus Cattle egret (Migratory species) and the Little Pied Bat (Near Threatened fauna species) have been identified on the Project site; and
- Local residents – a limited number of landholders live on the Project site.

This Stage 1 preliminary site assessment report provides a summary of the historical and current uses and condition of the site and potential for site contamination.

1.7 EIS REQUIREMENTS

This investigation has been produced in response to the requirements for the production of an EIS, under the *EP Act 1994*. The Final ToR for this Project (EHP, 2012a), provides the scope of works for this Project.

The assessment was based upon the following guidelines: *Guideline for contaminated land professionals* (EHP, 2012b), *National Environment Protection (Assessment of Site Contamination) Measure* (NEPC, 1999) and *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland,* Department of Environment (1998) (DoE - now EHP).

2.0 SITE IDENTIFICATION

2.1 SITE LOCATION

The Taroborah Project site is located 22 km due west of the city of Emerald. The site area extends either side of the Capricorn Highway / Central West railway line corridor, which runs between Emerald and Longreach (refer to Figure 1 for the regional location of the Project).

Access to the Project site is currently via a number of the homestead roads which connect to the Capricorn Highway.

The Project is located entirely within Central Highlands Regional Council (CHRC) boundary.

2.2 SITE DESCRIPTION

For the purposes of this preliminary site investigation, the Project site is delineated by MDL467, which covers an area of approximately 7,966 hectares (Ha) and exhibits a site centroid of 596500 m East and 7396000 m South (refer to Figure 1 and Figure 2 for site location details).

In terms of dimensions, the Taroborah Project site is approximately 8.5 km wide (maximum) and 13 km long and is comprised of both cropping and pasture land.

Note that the Project site was originally defined by Exploration Permit for Coal (EPC) 1011, but following the application and grating of an MDL, the Project area has now been reduced (refer to Figure 2 for MDL467 location details). The MDL-based Project area more closely encompasses the mineable resource and proposed site-disturbance areas and now excludes the State forest from the Project site.

For a summary of the local topography of the Project site refer to Figure 3. Note that the centre of the Project site appears flatter, with more undulating countryside to the east and south east of MDL467.

The following homesteads lie within MDL467 (refer to Figure 4 for homestead location details):

- Walther - near the eastern boundary of MDL467;
- Iona Downs - near the centre of MDL467;
- Donnelly – adjacent to the Central West railway line; and
- St Helens – to the south of MDL467.

These homesteads represent sensitive receptors (human health) in the context of any contaminated land that may exist on the Project site.

A cadastral plan which indicates the various Lot on Plans which lie within and around MDL467 is presented in Figure 5.

The proposed layout of the mine infrastructure and associated disturbance areas is presented in Figure 6. The open-cut mine will produce the greatest degree of disturbance in the form of an open-cut pit, spoil dumps, CHPP and associated infrastructure, whilst the underground mine will result in surface subsidence of around 2 m.

Project construction (prior to coal production) is anticipated to last up to 16 months.

The target commencement date for mine production is 2018; however this timing depends upon the availability of services, equipment and materials for Project / infrastructure construction and port stockpiling / shipping availability.

2.3 LOCAL METEOROLOGY

2.3.1 Rainfall

The Project site is located to the north of the Tropic of Capricorn and experiences a subtropical climate, with a wet summer season between November and March and a drier winter season from April through to October.

Meteorological data obtained from Emerald Airport Station and Anakie Richardson St Station, indicated mean annual rainfall indicative values of between 649.4 mm (Anakie Station) and 558.6 mm (Emerald Airport Station). The rainfall is highly seasonal, with the dry season peaking between uly and September and the wet season peaking from anuary through to February.

2.3.2 Temperature

Statistical records sourced from the Emerald Post Office indicates that uly is the coolest month of the year with mean minimum temperature of 6.9 degrees Celsius (C) and mean maximum temperature of 22.4 C. The warmest month of the year is December, with a mean maximum temperature of 34.2 C and mean minimum temperatures recorded in anuary and February of 21.4 C and 2.10 C respectively.

2.3.3 Humidity

Monthly mean relative humidity data from the Emerald Post Office indicate that the highest means for relative humidity were recorded in anuary. Equally high morning humidity was also registered in une. The lowest mean relative humidity for morning and evening was recorded in October and is typical for the spring season September through to November.

2.3.4 Wind

One hundred years of wind data from the Emerald Post Office Weather Station indicated that September is the windiest month, whilst the calmest month was recorded as May.

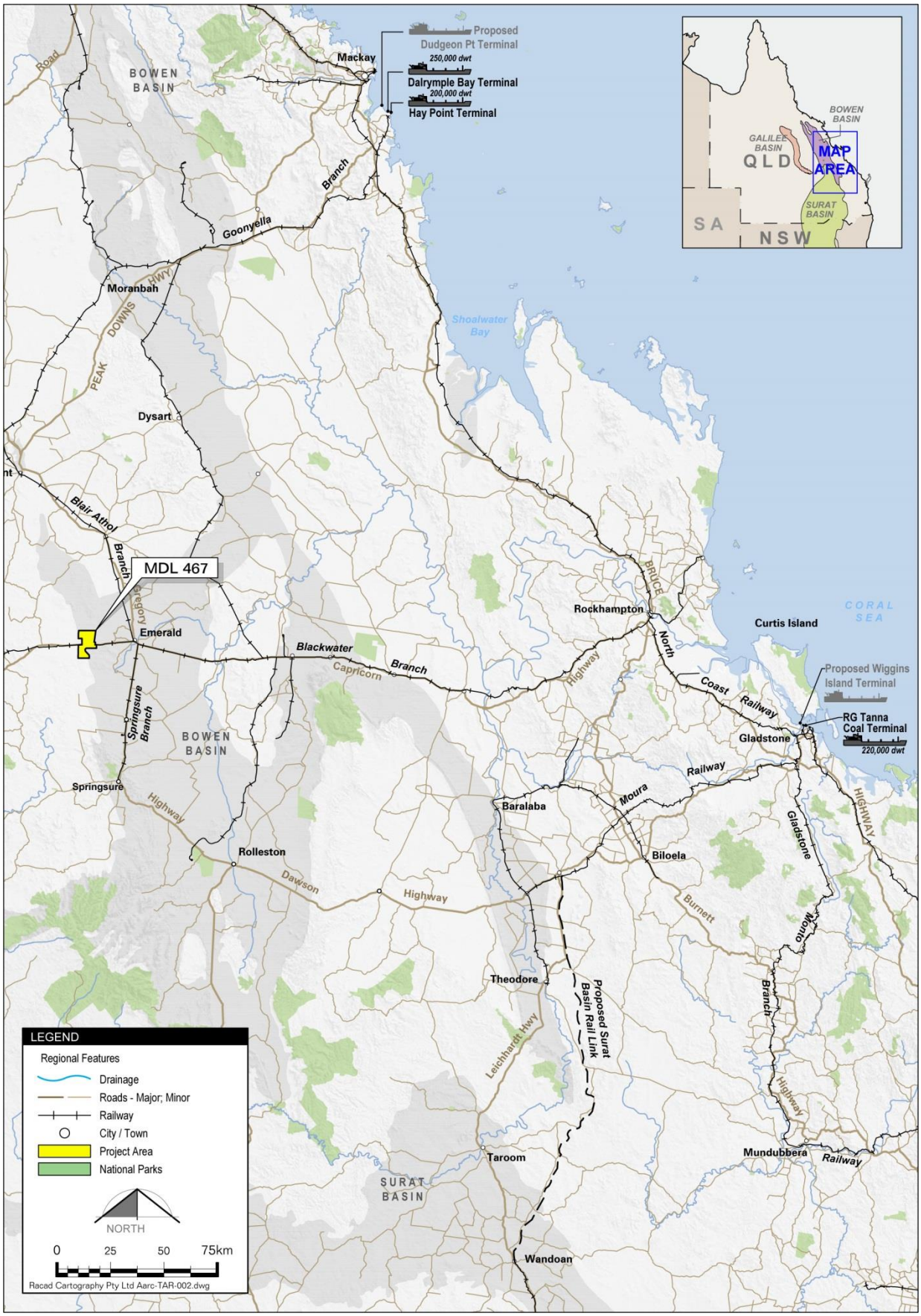


Figure 1 Regional Site Location

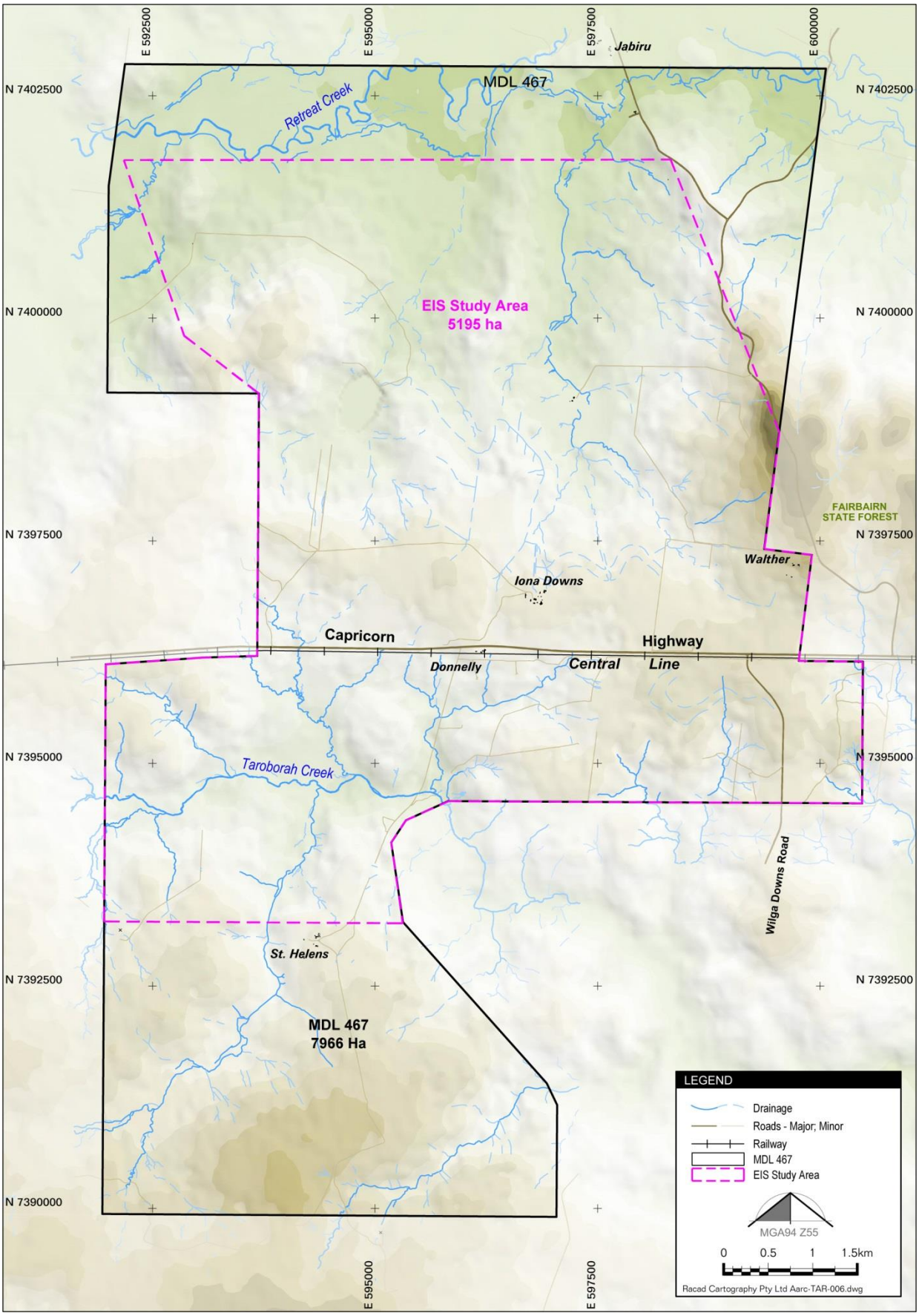


Figure 2 Location of MDL467 on the Capricorn Highway and Central West railway line

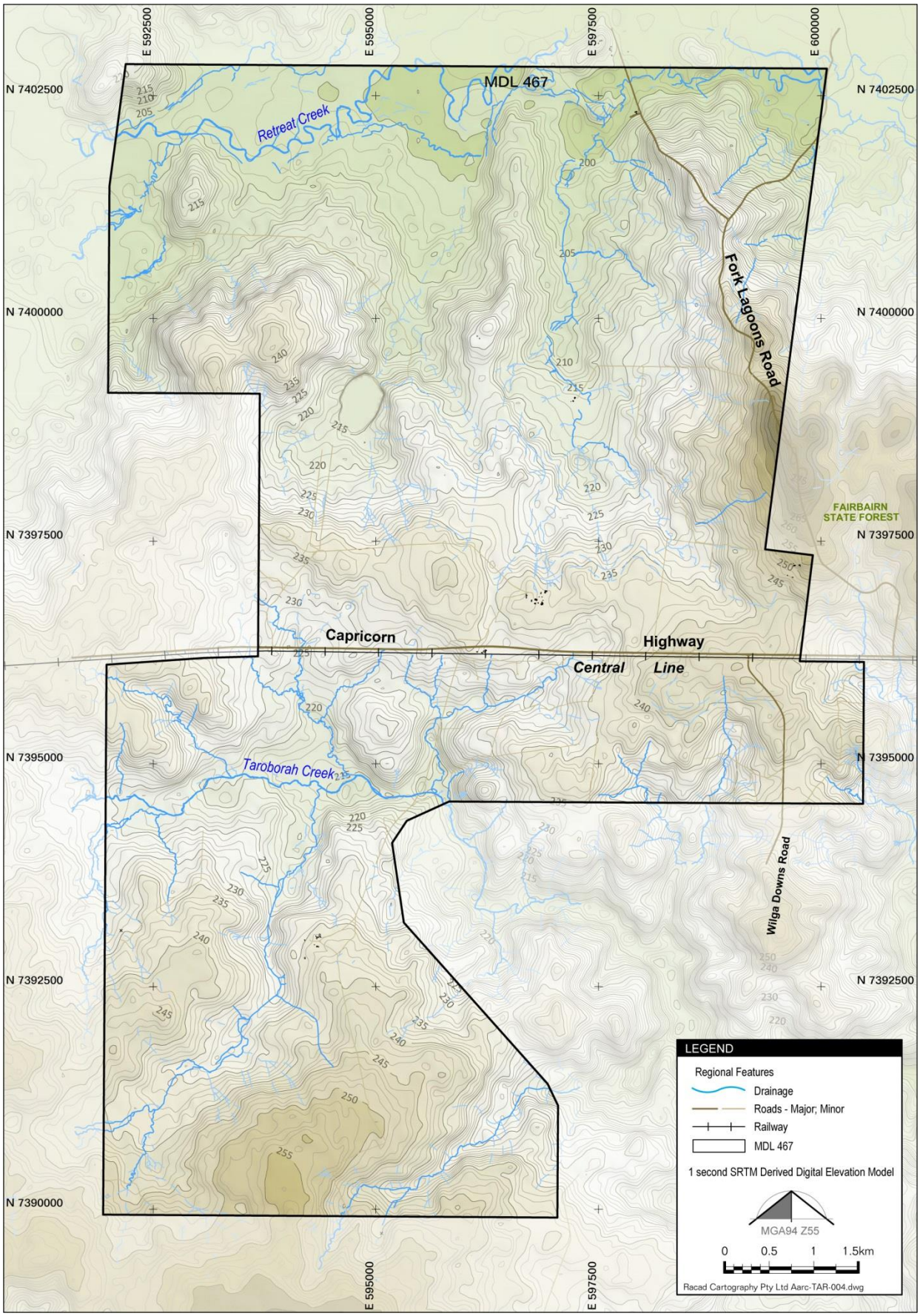


Figure 3 Local Topography of the Project site

2.4 SITE OWNERSHIP

A summary of the various landholders who own land within MDL467 is presented in Table 1. Note that not all Lots include homesteads. Refer to Figure 4 and Figure 5 for location details of the Taroborah homesteads and Lots.

Table 1 Summary of Landholders within MDL467

Lot Number	Plan Number	Current Landholder(s)
Lot 124	PT367	Brian and Elizabeth Donnelly
Lot 4	PT352	Colin and oy Fernie
Lots 20 and 203	DSN377	ohn and Gary Walters as trustees and leased by ohn, Gary, George and Gloria Walters.
Lot 201	DN40176	Kenneth ohn Anthony
Lot 126	PT372	Kenneth ohn Anthony
Lot 23	DN40176	Lester and Irene Matheson
Lot 24	DN40201	Michael and Anne-Marie Walther
Lot 21	DSN29	Stanley and Patricia Knight
Lot 15	PLA4029	Stanley and Patricia Knight
Lots 12 to 14	RP881318	Stanley and Patricia Knight
Lot 5	PT132	Queensland (QLD) Rail Limited
Lot 12	PT352	Bruce and Trudy Roberts
Lot 81 and 82	SP122079	Department of Transport and Main Roads and Sub-leased by QLD Rail Limited
Lot 101	SP122080	Department of Transport and Main Roads and Sub-leased by QLD Rail Limited
Lot 76	PT372	Shirley Margaret Nixon

Source: AARC

2.5 SITE VISITS

The following site visits were conducted during 2011 and 2012, in order to perform a variety of studies associated with the EIS. During these visits, local landholders were interviewed on the subject of potential sources of contaminated land / groundwater / surface water as follows:

- Non-indigenous cultural heritage (November 2011) – initial discussions re location of livestock dips;
- Surface water and sediment monitoring (March 2012) – further discussions concerning buried livestock dip location; and
- Dust and surface water monitoring (October 2012) - site inspection for fuel / chemical storage areas, STPs and un-bonded, exposed asbestos fibres.

2.6 SOIL LITHOLOGIES

The soil lithologies that were encountered during resource drilling are presented as geological logs in the 2008 / 2009 Matrix Plus reports (Matrix Plus 2008, 2009a and 2009 b). Refer to Appendix E for details of these geological logs. Further shallow-soil lithologies were also assessed and recorded during the EIS soil survey.

2.7 POTENTIAL SITE IMPACTS AND DOCUMENTATION

Since the Project site has been used for private agricultural purposes for many years, no inventory of chemicals and wastes for each of the Lots in question was identified.

No industrial uses of the Project site (either current or historical) were encountered or recorded and therefore, industrial layout plans and manufacturing process descriptions do not apply to this site. It is understood that local sewer lines and service plans are not readily available for the Project site due to the rural nature of this location.

Records of planned or accidental discharges of contaminants to land, water and air have not been identified. Similarly, no complaints register has been generated by the local landholders because such a register is not required in rural settings.

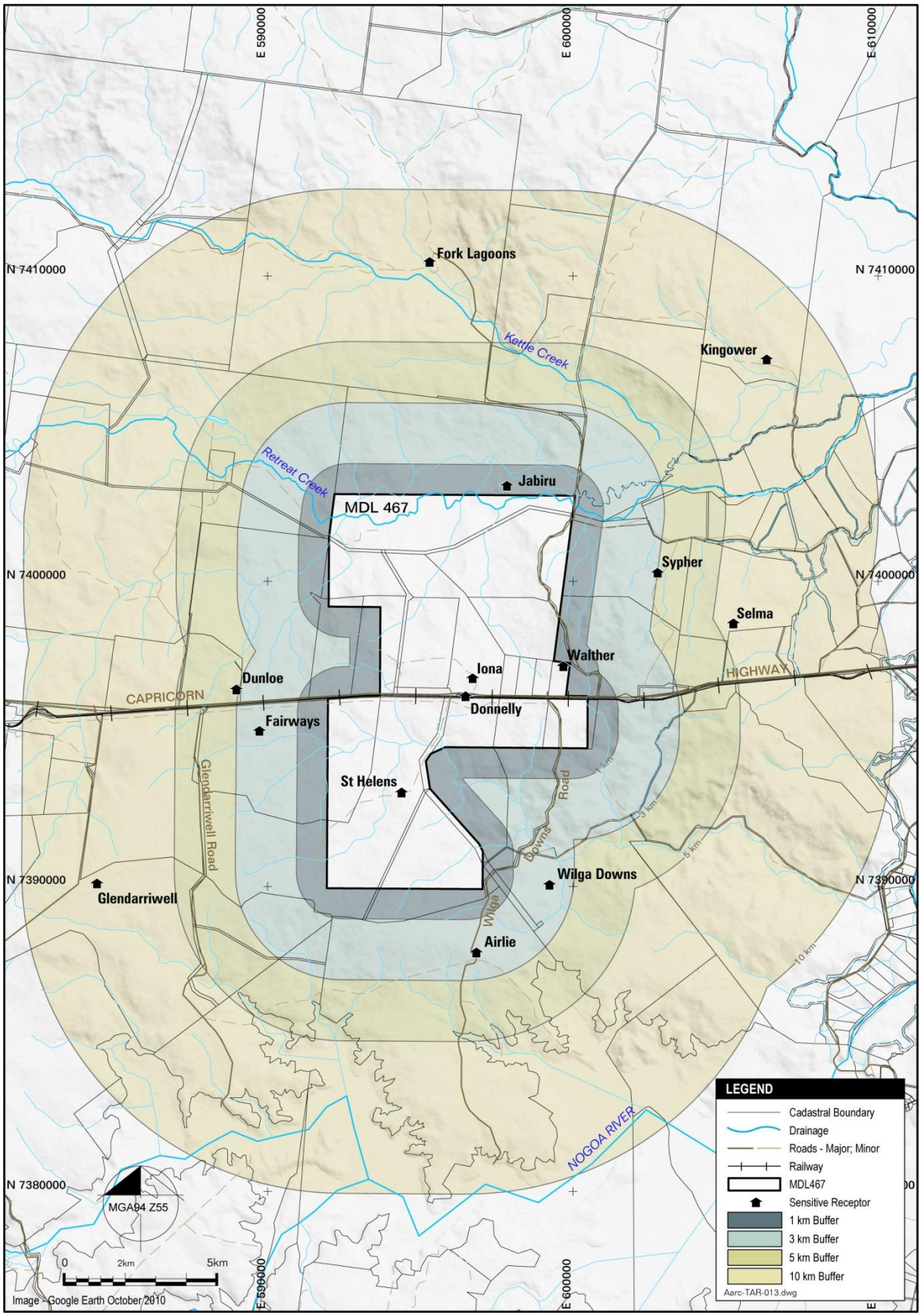


Figure 4 Location of Homesteads within MDL467

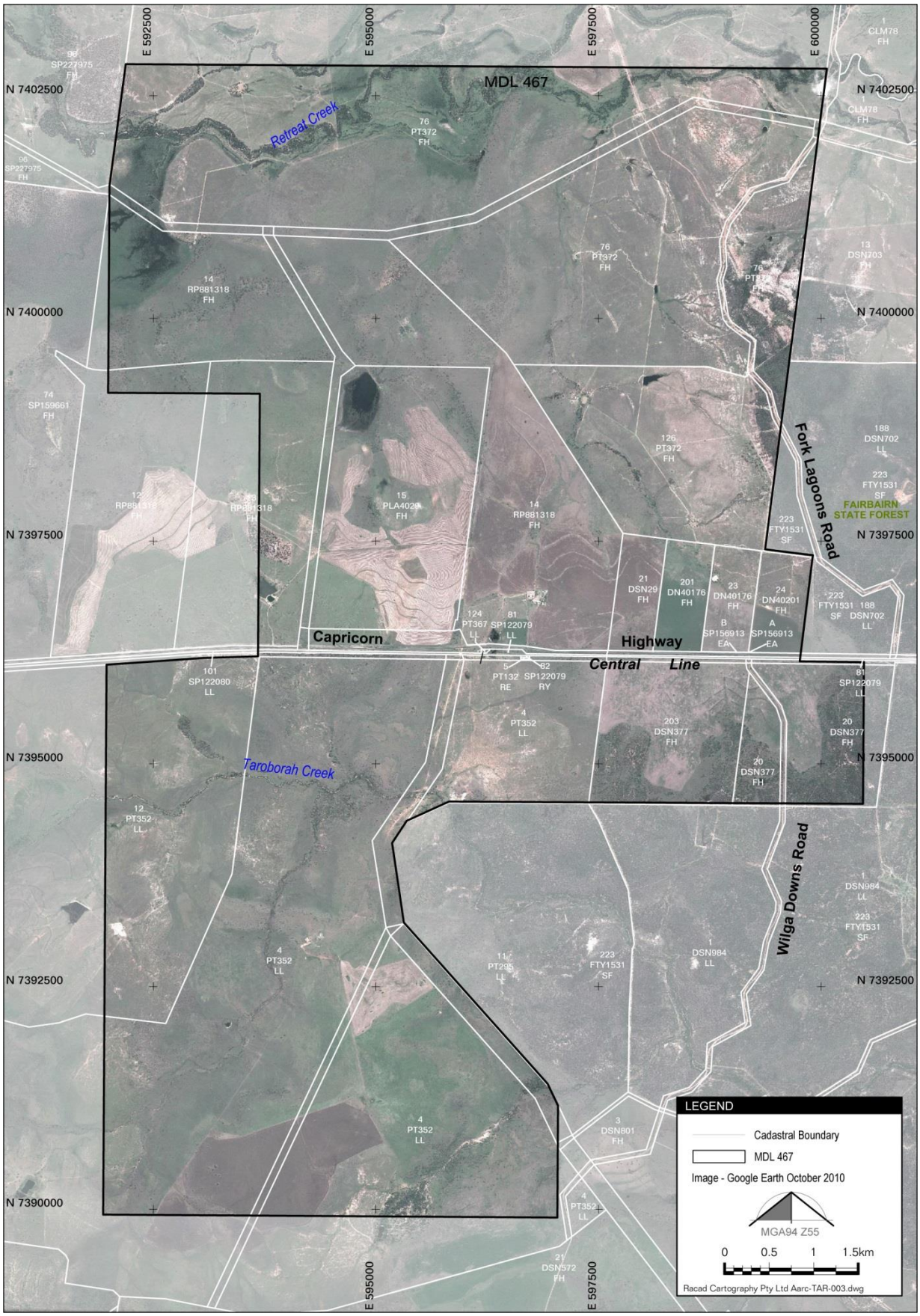


Figure 5 Landownership Cadastre for MDL467

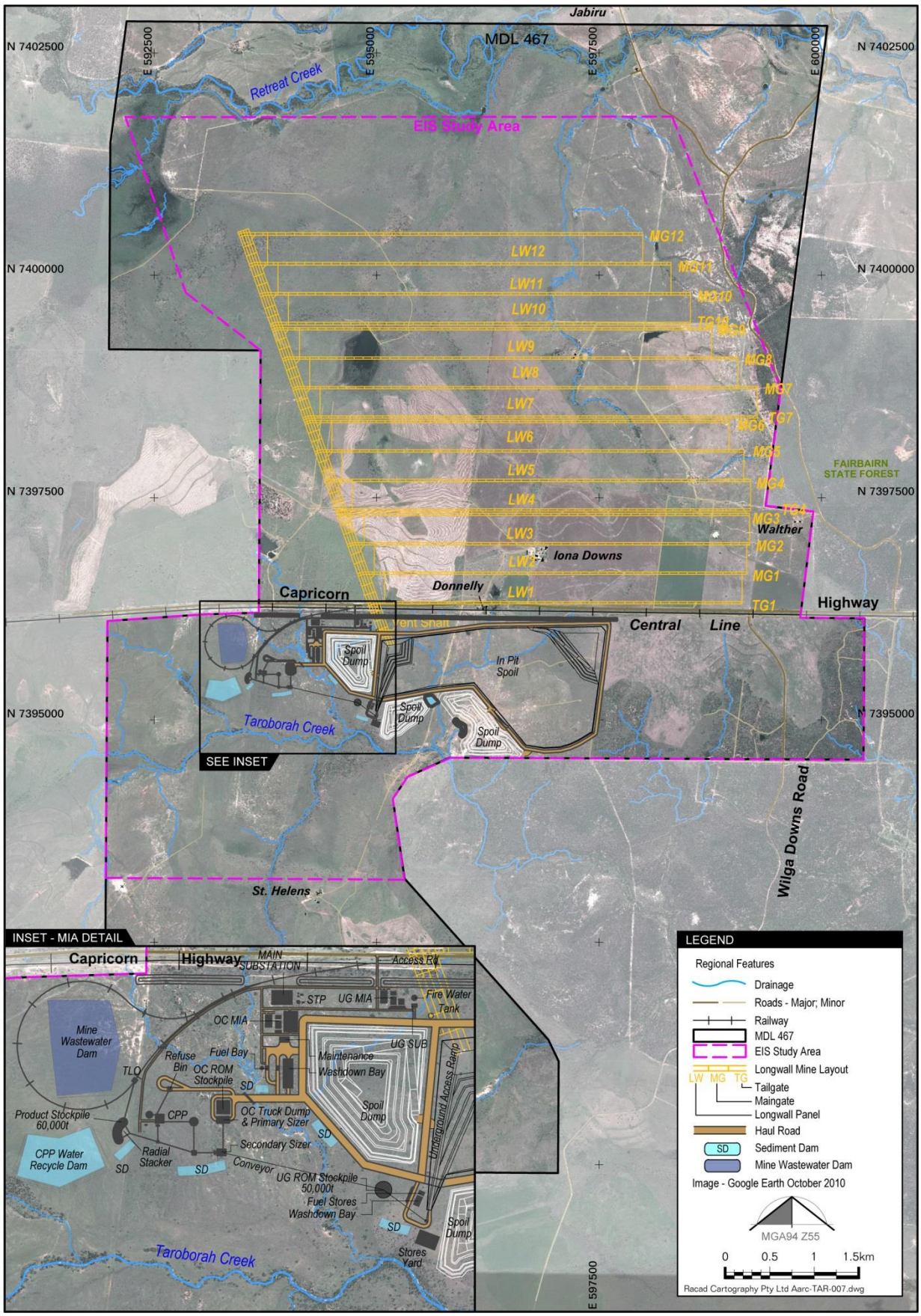


Figure 6 Proposed Mine Infrastructure Layout

2.8 REGIONAL AND LOCAL GEOLOGY

The local and regional geology of the Project site was assessed via a desktop study. A summary of the regional geology is presented in Figure 7, whilst the local geology of the Project site is presented in Figure 8.

The majority of the Project site is situated on undulating plains and hills, with a sandstone plateau to the far west. In terms of regional hydrology, the Project site lies within the Fitzroy Basin catchment.

Regional Geology

The Project site is located in the Queensland Bowen Basin, which was the source of up to 60 % of exported Australian coking coal in 2006.

The Bowen Basin forms part of a connected group of Permian coal basins in Eastern Australia, including the Sydney and Gunnedah basins. During the Triassic period, the eastern sector of this basin was severely deformed, with mineable coals preserved on NNW-SSE trending platforms or shelves separated by sedimentary troughs (protected tectonic platforms or syncline margins), which roughly parallels the late Palaeozoic continental margin. During most of the Permian period, the Bowen Basin was comprised of shallow water and terrestrial sedimentation and coals accumulated across the whole of the basin by the late Permian.

Local geology

The Taroborah Coal Exploration Project is located on the western extent of the Denison Trough and contains a considerable thickness of Lower Permian sediments, unconformably overlain by Tertiary sediments.

The main near surface geology which occurs within MDL467 is comprised of the following lithologies (refer to Figure 8 for their spatial distribution and annotations (source: http://www.geoscience.gov.au/geoportal-geologicalmaps/download_map_250dpi/sf5515.jpg)):

- Qa: Quaternary alluvium – mainly occurs in the north of the Project site;
- Pb: Upper Permian quartz sandstone, feldspathic mudstone and coal- located mainly in the east of the Project site;
- Tb: Tertiary olivine basalt, trachy basalt minor agglomerate and tuff - mainly occurs in the west and south of the Project site; and
- Cz: undifferentiated soil sand and gravel – located in the west of the Project site.

Permian coal seams are encountered at shallow depths in the southern area of the lease and deepen towards the north. The coal measures are comprised of a sandstone / coal sequence, with the regionally extensive Aldebaran Sandstone directly overlying the coal seams.

At Taroborah, two successions of coal measures occur among marine beds, unconformably overlying the Retreat Granite and Devonian-Carboniferous sediments. Of the 5 seams occurring in the upper succession, the top 2 seams ("A" and "B" seam) are the most developed and thickest. The A and B seams are probably equivalent to the Cetus and Cygnus seams in the Freitag Formation near Tieri. The Freitag Formation subcrops near Tieri to the northeast of Emerald, and contains thin and often split paralic coals. Exploration experience in the Denison Trough indicates that coal seams are often locally developed in this unit and consistent, widespread seams are not present.

Coal seams A and B are separated by an interburden sandstone / siltstone interbedded with carbonaceous mudstone unit. Resource drilling to date indicates average coal seam thicknesses of 1.19 m (A seam) and 2.96m (B Seam), separated by 6 - 12m of interburden.

2.8.1 Regional and Local Hydrogeology

The local and regional hydrogeology of the Project site was assessed via a desktop study. The following sections provide a summary of this assessment.

Regional Hydrogeology

In terms of regional hydrogeology, the Project site lies within the Fitzroy Basin (covering an area of 156,000 km^2) and the Nogoa River subarea. The main land use in the region is agriculture, with almost 90% of the area under agricultural production. In addition, land is also used for irrigation, grazing, mining, power generation, with significant areas of state forest and national park.

The Fitzroy Basin includes a major inland river system, which drains through the Great Dividing Range to the east central coast of Queensland. The basin includes six large, discrete sub-catchments which exhibit heterogeneous patterns of rainfall and geology.

Two major groundwater chemical categories have been identified for the Fitzroy Basin as follows:

- Alluvial sequence – recorded in both surface waters and alluvial groundwater along the eastern coastal strip and western areas of the Fitzroy Basin in areas of relatively high rainfall; and
- Sodic sequence – identified in deep aquifers, but also occasionally in shallow groundwater. These water bodies are associated with older sedimentary rocks in lower rainfall areas of the central and southern sections of the Fitzroy basin The major ion balance of this groundwater approaches that of sea water.

Note that other minor water types also occur locally in the Fitzroy Basin.

Local Hydrogeology

The local hydrogeology includes three aquifer types that might prove to be moderate or high beneficial use as follows:

- Tertiary basalt (Tb) - mainly over the western portion of MDL467, overlying the underground workings and within the area of proposed excavation for open-cut mining;
- Aldebaran Sandstone (Pb) - outcropping over the eastern portion of MDL467, it may actually prove to be a recharge area for the regionally extensive Aldebaran Sandstone aquifer that extends across much of the Denison Trough; and
- Quaternary alluvium (Qa) - associated with streams that drain to the east and south, may be vulnerable to contamination with salt and / or acid discharge from stockpiles.

Note that the local hydrogeology is potentially complicated by the presence of geological structures. Such structures include the north-west trending graben faults located to the east and west of MDL467 and a major south-west trending basement structure that cross cuts MDL467.

The Capricorn Highway follows a regional catchment divide, meaning that the watertable may also be divided. Consequently groundwater flow might drain in a general southerly direction south of the Capricorn Highway and in a general northerly direction north of the highway. The Basalt deposits seem to follow former palaeochannels that may have a shape different to the current topography.

South of the Capricorn highway is a pebble conglomerate horizon at 50 – 80 m below natural land surface, which is not found north of the highway. The extent of this prospective aquifer rock type south of the open-cut mining area is not yet determined.

At present there is not sufficient information to map the groundwater aquifers with full certainty. Furthermore due to the compartmentalization of the groundwater environment, the sources of recharge, directions of groundwater flow in the various aquifers, and groundwater discharge points, is still only partially understood.

A number of the resource exploration bore holes that were drilled across EPC1011 in 2006 - 2009 were converted into groundwater monitoring bores. This conversion process was supervised by Matrixplus in 2008 / 2009, who also recorded standing water levels, groundwater quality (pH, electrical conductivity, total dissolved solids and temperature), groundwater yield, bore lithology and monitoring bore construction details (Matrix Plus 2008, 2009a and 2009 b).

Drill holes that were rehabilitated rather than being converted into groundwater monitoring bores, are described in the MET Serve 2010 drill hole rehabilitaiton report (MET Serve 2010). Refer to Appendix E for details of these reports.

Most of the groundwater bores were screened within the Aldebaran Sandstone aquifer, which overlies the major Taroborah resource area. The quality of local groundwater was found to be adequate and is utilised by surrounding landholders for stock watering and domestic purposes.

An initial, Phase I local groundwater bore census was conducted by Australasian Groundwater & Environmental Consultants (AGE) in December 2011 both within and around EPC1011 (AGE, 2011) This census identified the position, status, standing water level and water quality (pH and electrical conductivity) of EHP registered and private groundwater bores in the local area.

A phase II groundwater bore census will also be condcuted, in order to complete the general assessment of groundwater quality within and around EPC1011.

Several groundwater monitoring bores have been installed across the Project site, in addition to bores that have been registered with the EHP (formerly the Department of Environment and Resource Management (DERM)) and local, private landholder bores.

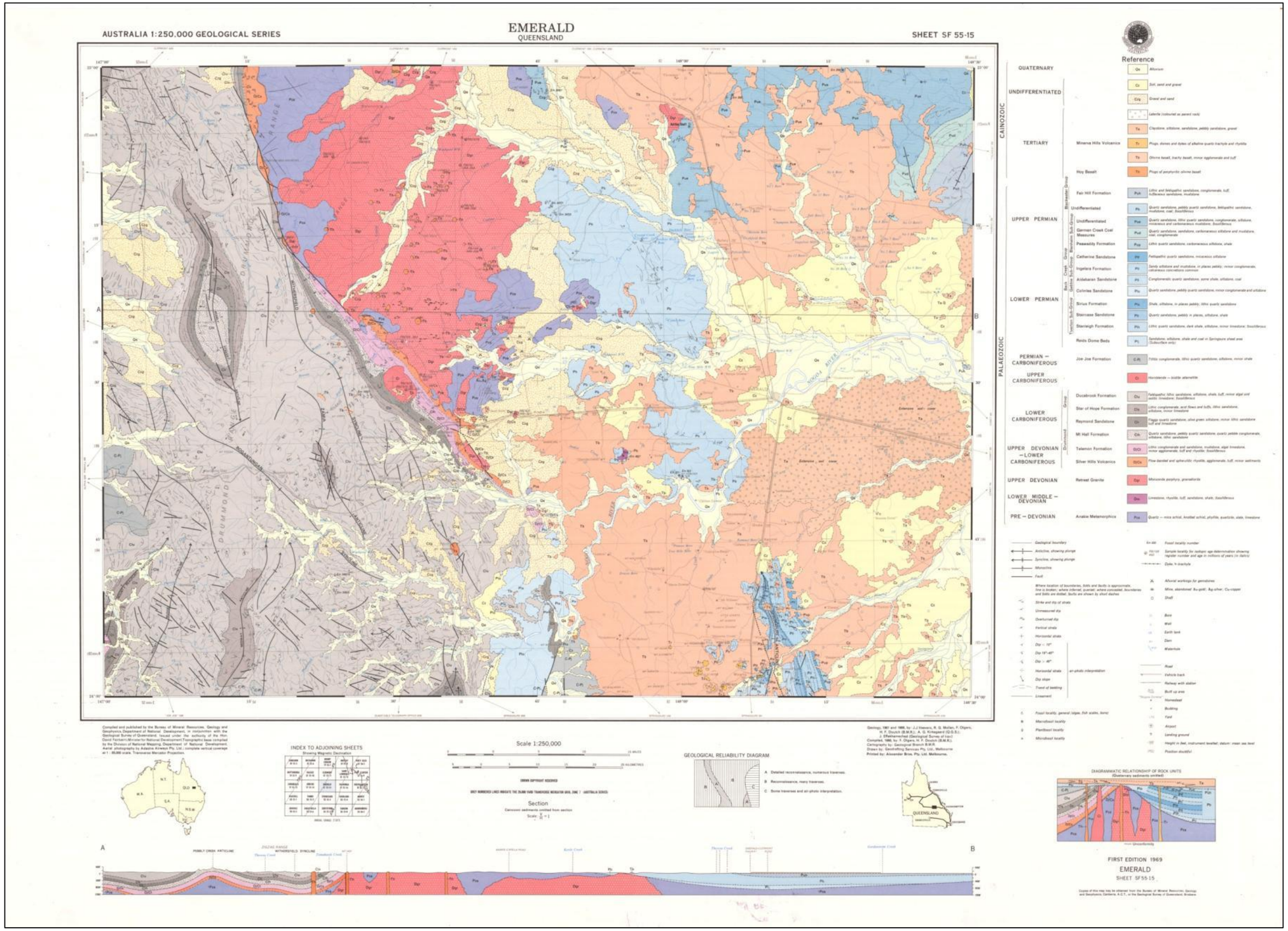
Groundwater bores that have been installed across the Project site and EHP registered installations are presented in Figure 9.

2.8.2 Local Hydrology

The Project site is located within the Fitzroy River Basin and is traversed by numerous ephemeral drainage lines and two primary ephemeral creeks (refer to Figure 10 for creek and wetland location details). The main watercourse in the north is Retreat Creek and in the south is Taroborah Creek. Both of these waterways flow in an easterly direction and ultimately flow into the Nogoa River, downstream of Fairbairn Dam.

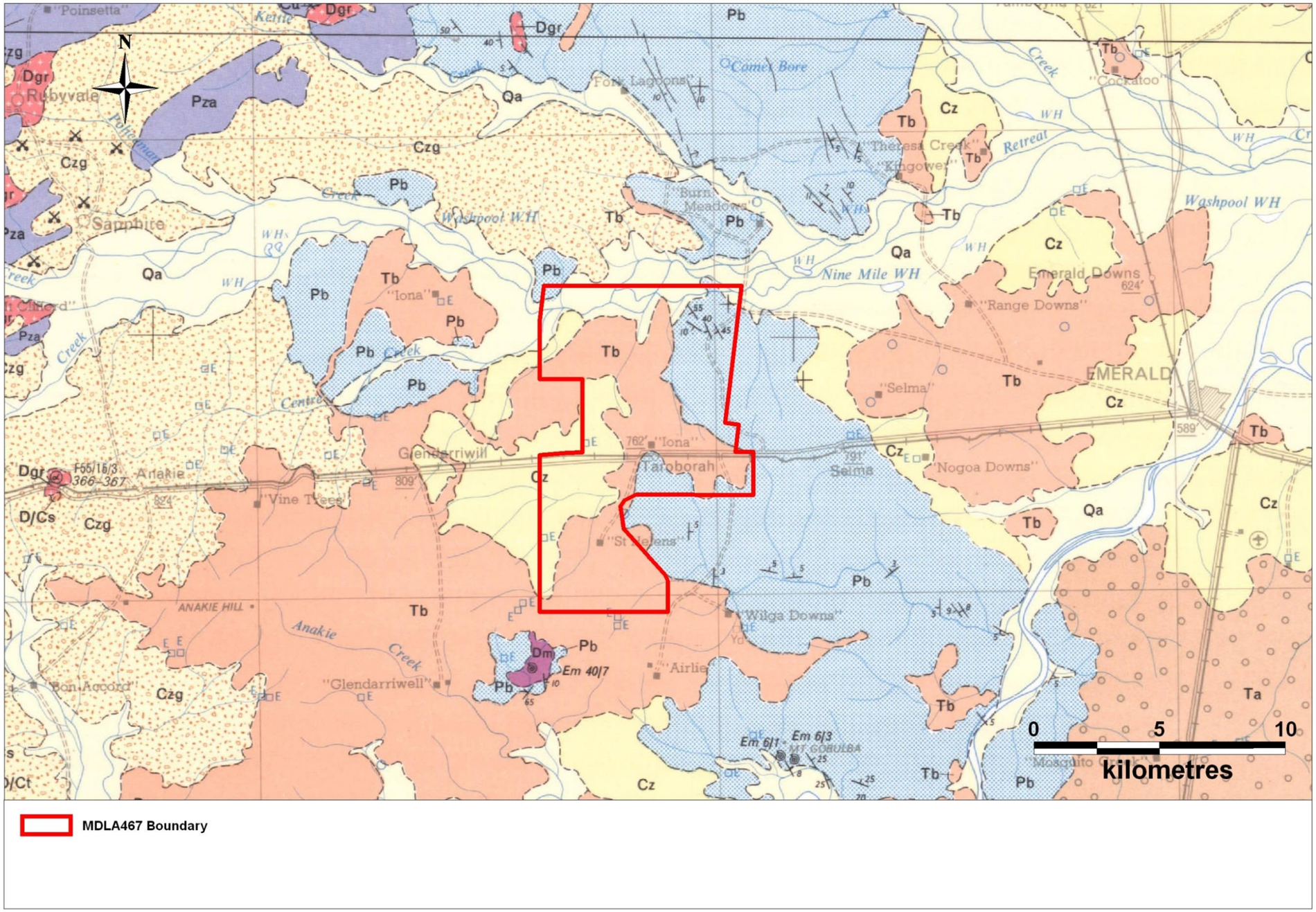
There are several pastoral dams within the Project site, including one large dam in the centre of the site, marked as a Lacustrine Wetland (refer to Figure 10 for location details of this dam). Surface water within the Project site is used for stock drinking water.

The surface water, sediment and aquatic sampling locations that were employed for this Project, are presented in Figure 11.



Source: geoscience.gov.au 2012

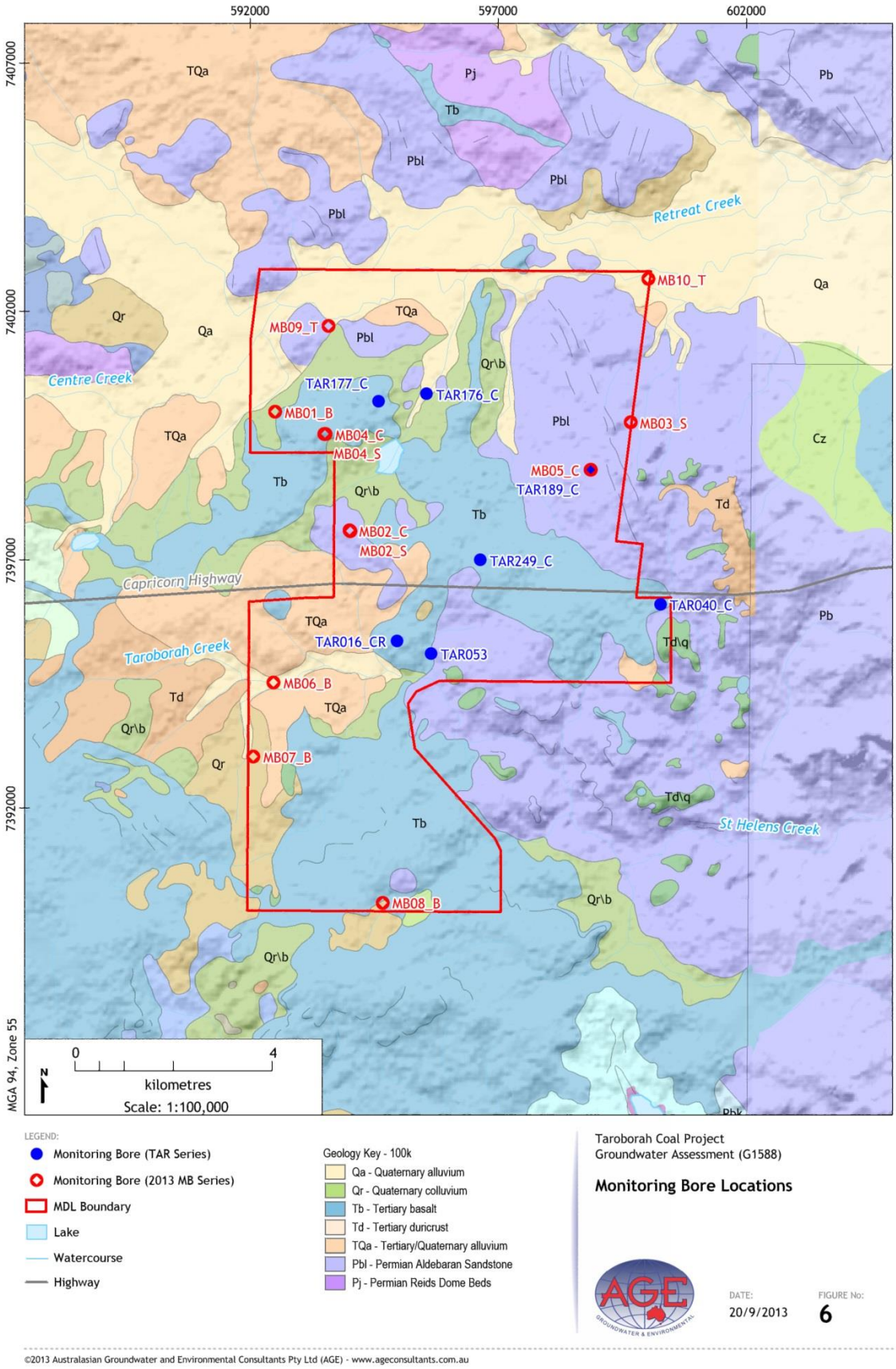
Figure 7 Regional Geology of Taroborah



Source: geoscience.gov.au and AARC 2012

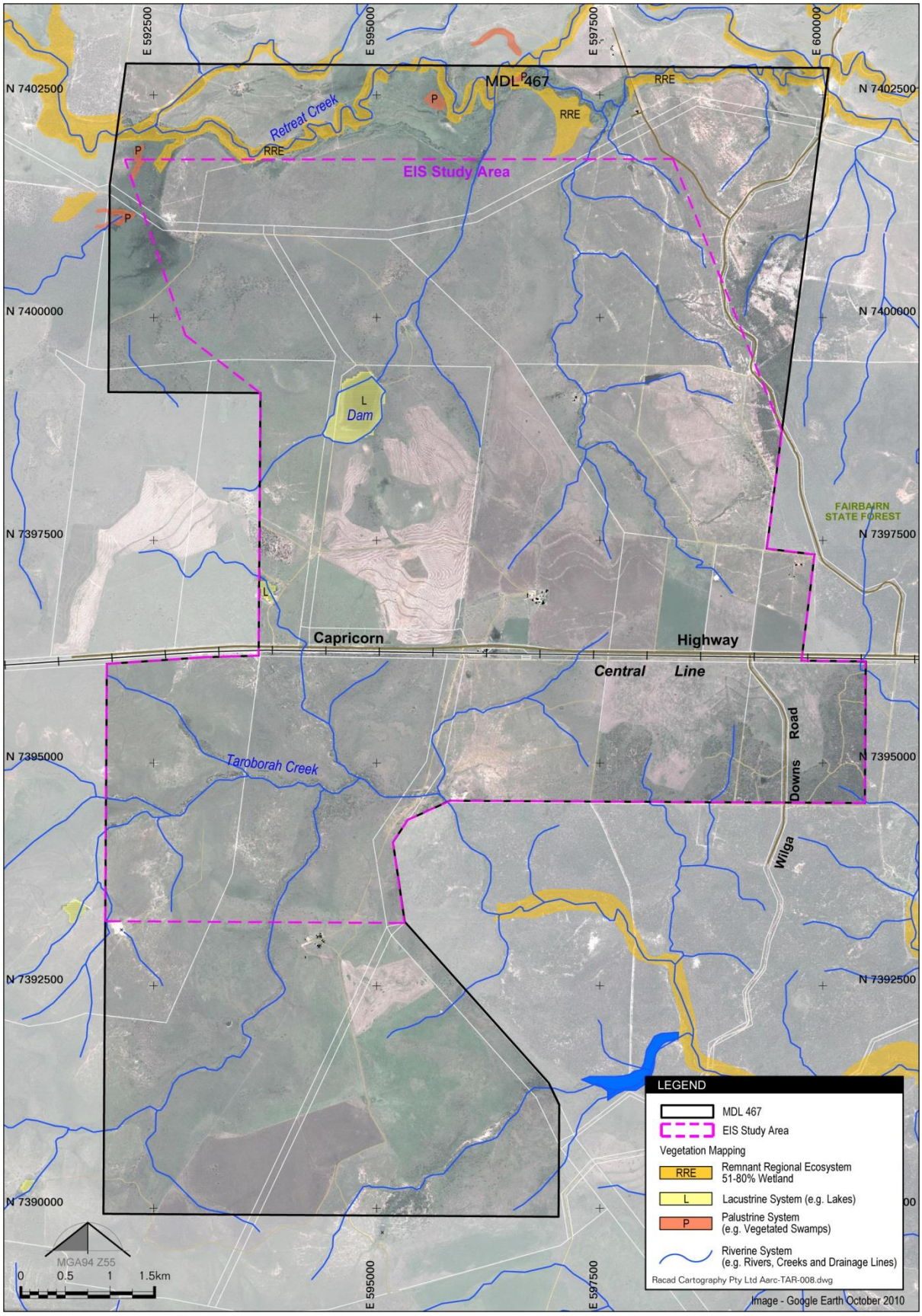
Figure 8 Local Geology of Taroborah and MDL467 Location (red line)

Refer to Figure 7 for this Figure's Geological Legend.



Source: AGE 2013

Figure 9 Groundwater Bore Locations on and adjacent to the Taroborah Project site



Source: AARC and EHP 2013

Figure 10 Watercourses and wetlands on the Project site

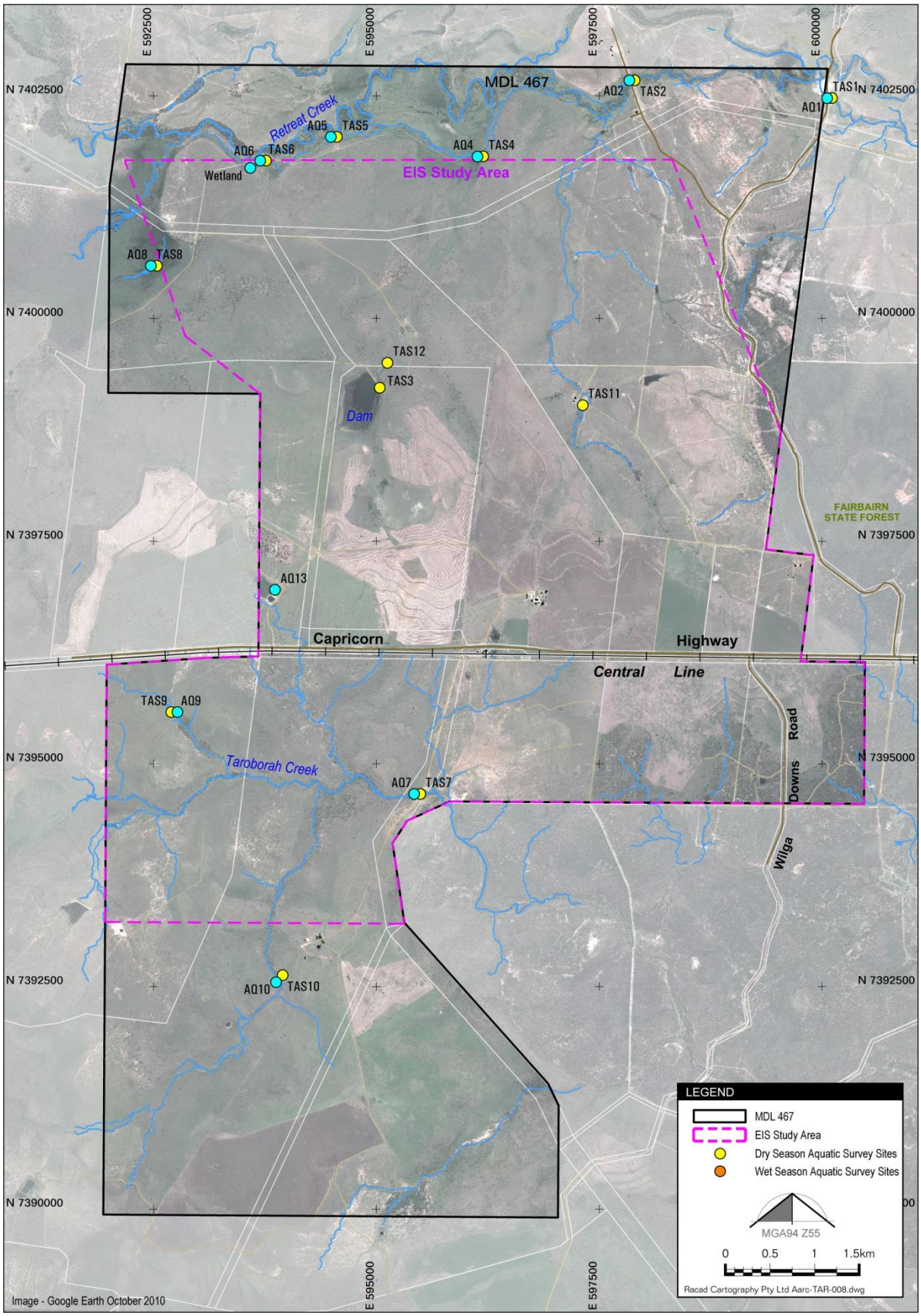


Figure 11 Surface Water, Sediment and Aquatic Sampling Locations

3.0 SITE DEVELOPMENT HISTORY

3.1 HISTORICAL TITLES AND PHOTOGRAPHS

The Project site landuse history was developed via historical land ownership titles (refer to Appendix A for full details of land ownership) and historical aerial photographs (refer to Appendix B for details). Land ownership information and aerial photographs were obtained from the QLD Government Land Office.

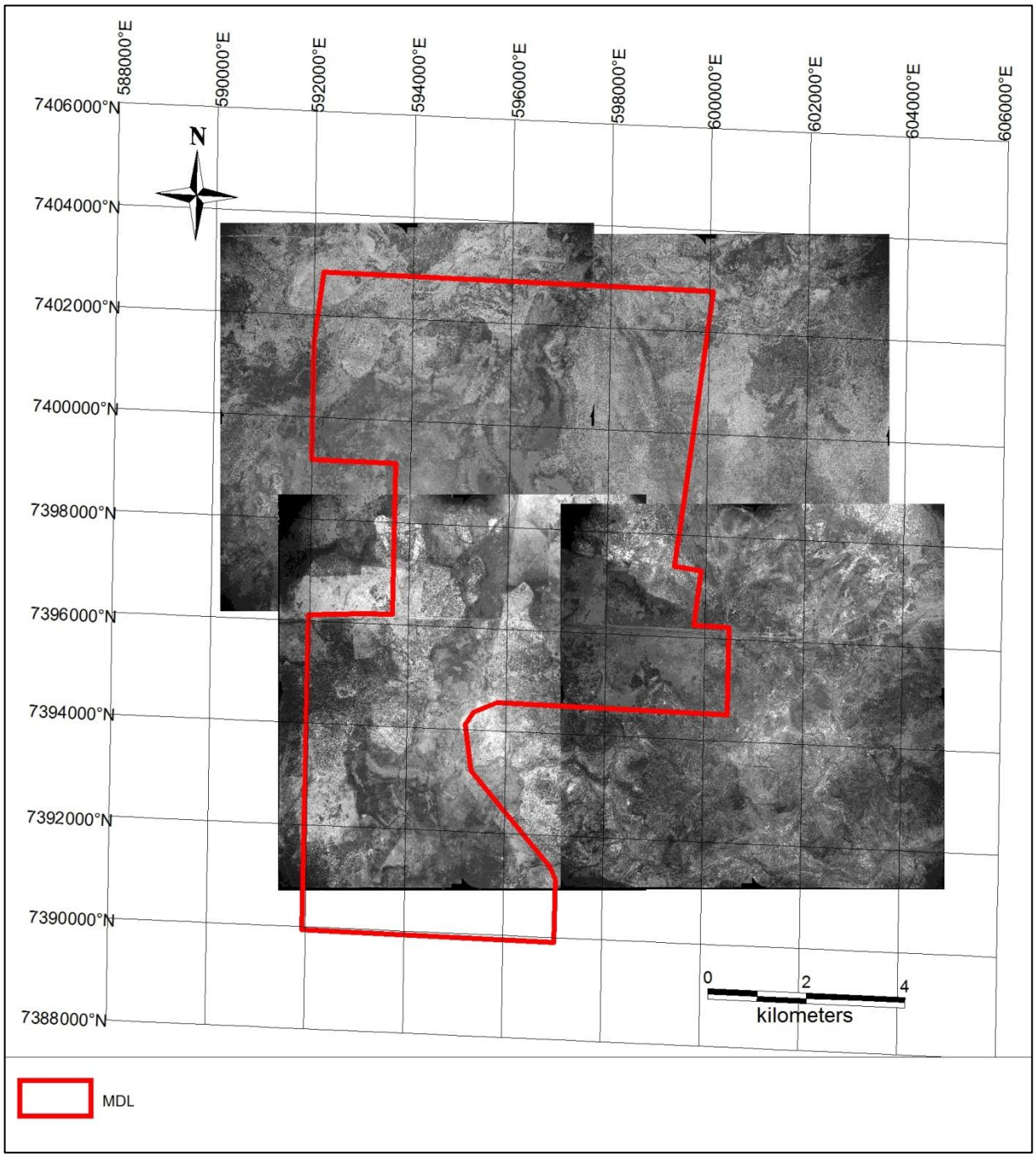
Three sets of historical aerial photographs have been assessed (taken in 1946, 1964 and 1983) since these particular years were found to be representative of changes in landuse. Over the years, the changes in land ownership across the Project site has been considerable and therefore, land ownership details are presented in Appendix A rather than summarised in this section.

The general area was first sighted by Leichhardt in 1844 and pastoral runs were taken up in the 1850's / 1860's. No industrial or commercial activities appear to have been conducted within MDL467 since records began in the mid 1800's. The main agricultural works that have been conducted on the Project site over these years are pastoral and cropping activities.

In order to determine the potential for land contamination to have occurred, an assessment of potentially contaminating activities was conducted via a review of the available aerial photography, interviews with land holders and QLD land register searches.

The Project site historical aerial photographs that were available from the QLD Government Land Office for each year of interest have been merged to form composite photos and presented in the following sections. Any changes in landuse during these periods have been summarised.

1946 Aerial Photograph History



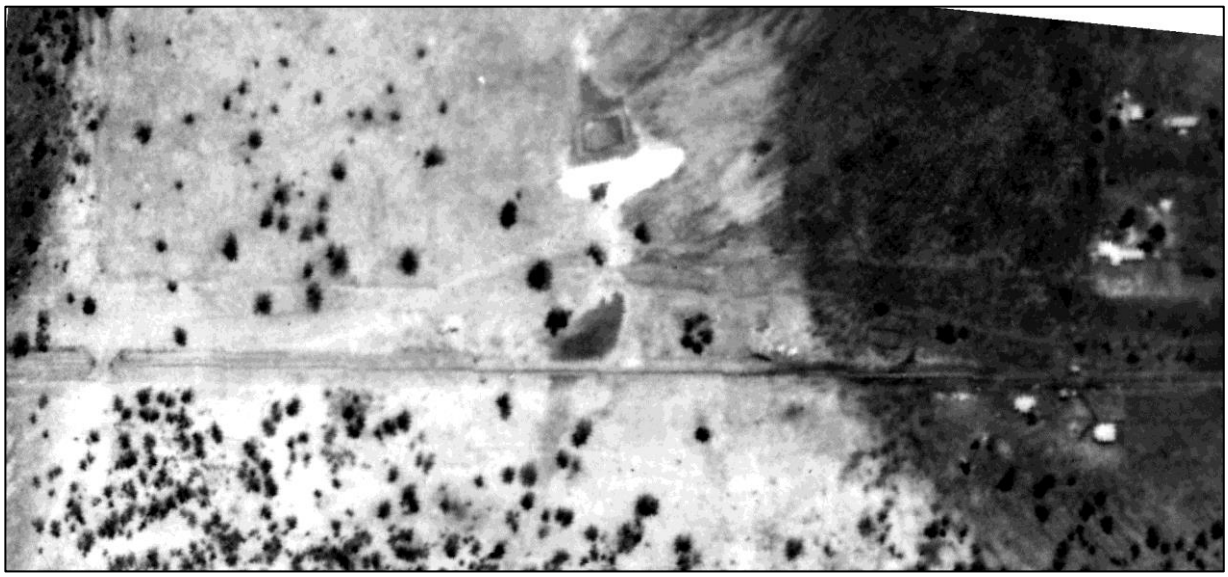
Source: QLD Land Office and AARC – composite figure 2012

Figure 12 Historical Aerial Photo (whole site) and MDL467 – 1946

The composite 1946 aerial photography presented in Figure 12 shows a largely undeveloped landscape with a relatively low level of anthropogenic influence within the Project area (MDL467).

Cleared paddocks that are associated with agricultural and pastoral activities are evident, however they appear to be concentrated around the Taroborah Station (currently known as the Iona Downs homestead), located just to the north of the Capricorn Highway and towards the middle of the proposed MDL.

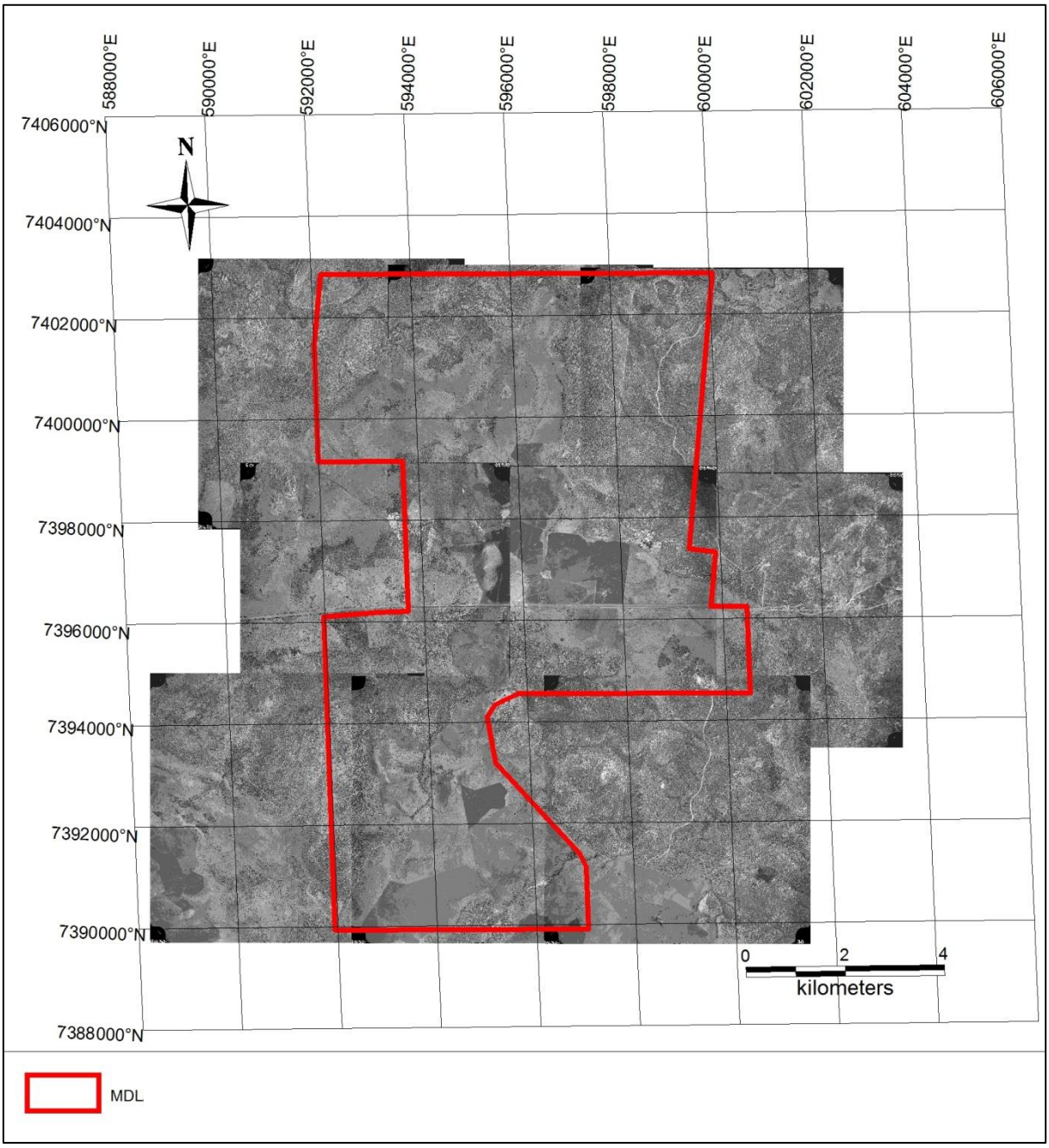
A 1946 photograph of Taroborah Station is presented at higher resolution in Figure 13 below. No other anthropogenic structures can be seen within the proposed Project area, with the exception of small dams which are probably associated with cattle raising, scattered sporadically throughout.



Source: QLD Land Office 2011

Figure 13 Taroborah Station - 1946

1964 Aerial Photograph History



Source: QLD Land Office and AARC – composite figure 2012

Figure 14 Historical Aerial Photo (whole site) and MDL467 - 1964

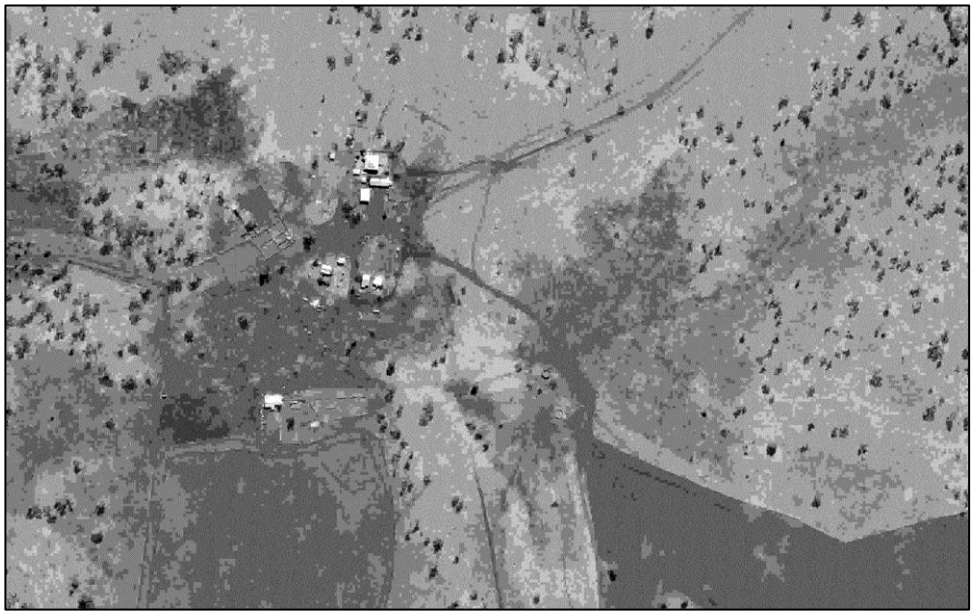
The composite 1964 aerial photography presented in Figure 14 indicates an expansion of the influence of agricultural activities across the Project site and a higher level of fragmentation of large intact stands of vegetation within the proposed Project area.

Agricultural activity has intensified surrounding the Taroborah Station and also surrounding the St Helens homestead which has been established on what is currently Lot 4 on PT352 (refer to Figure 15 and Figure 16 for details of these agricultural developments).

Several tracks intersect the landscape, leading to dams and other areas that are associated with agricultural activities.

Source: QLD Land Office 2011

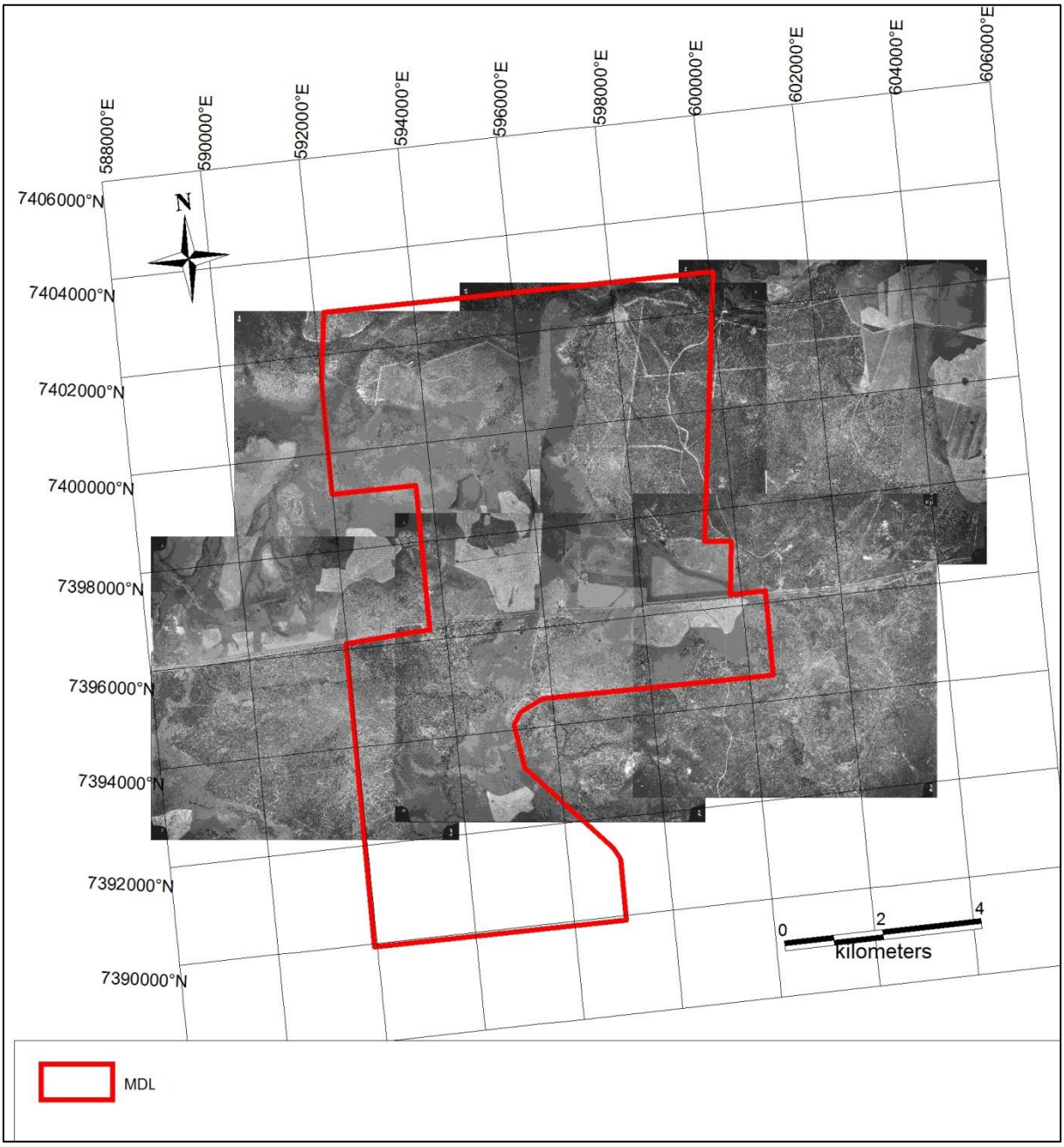
Figure 15 Taroborah Station - 1964



Source: QLD Land Office 2011

Figure 16 St Helens Homestead and associated infrastructure - 1964

1983 Aerial Photograph History



Source: QLD Land Office and AARC – composite figure 2012

Figure 17 Historical Aerial Photo (whole site) and MDL467 - 1983

The aerial photography taken in 1983 and presented in Figure 17 demonstrates that further fragmentation has occurred within the Project area, which is particularly pronounced in the northern and western sections of the site. Broad-scale vegetation clearing has been undertaken and agricultural land established across the majority of the site north of the Capricorn highway.

A number of additional tracks and fence lines have been cleared and established throughout the site, further fragmenting the remaining stands of vegetation.

The vegetation that is located to the east of the Project site does not appear to have undergone significant clearing and represents a large patch of consistent vegetation, within in a fragmented landscape.

A review and comparison of the historical aerial photographs that were available from the Land Office for the Project site did not identify any potentially contaminating activities on the Project site, for the years that aerial photographs were taken. However, it should be noted that the identification of livestock dips from these historical aerial photos is very difficult, due to the limited footprint of the livestock dips and the relatively-low resolution of the available photographs. Such dips are also not easily distinguishable from other items of common agricultural infrastructure, such as dams and enclosures. Due to these limitations, the livestock dip that was identified on the Project site and discussed in this report was not identified from the aerial photographs, but from anecdotal evidence.

4.0 STATUTORY CONTEXT

4.1 LOCAL, STATE AND FEDERAL LEGISLATION

4.1.1 Zoning

The entire Taroborah site is zoned as “Rural” within the CHRC Planning Scheme (Formerly the Emerald Shire Planning Scheme). Adjacent land uses consist of “Rural” and “Open Space” areas. It is understood that this zoning category will not be changed throughout or following the coal mine project.

4.1.2 Legislation

4.1.2.1 Local Legislation

Former Emerald Shire Planning Scheme - Division 9: Extractive Industry Code

The former Emerald Shire Planning Scheme has been amalgamated with the CHRC Planning Scheme and provides provisions for protecting surface water and groundwater from adverse impacts of extractive industries. Section 3 of the division requires that:

- Water from, around and within the area of operation is managed so that it does not adversely affect the quantity and quality of groundwater or receiving surface waters; and
- Erosion and stormwater control measures are designed and constructed in accordance with the *Soil Erosion and Sediment Control – Engineering Guidelines for Queensland Construction Sites 1996*.

In terms of contaminated land, the Former Emerald Shire Planning Scheme does not provide any detailed guidance on this subject; therefore, State legislation provides the main legislative instruments for contaminated land matters.

4.1.2.2 State Legislation

The proposed Project is defined and assessed under the Queensland *EP Act 1994* as a Level 1 Mining Activity. The following State legislation applies to the Project in terms of administering contaminated land:

Environmental Protection Act 1994

The *EP Act 1994* was established to protect Queensland’s environment, while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes, on which life depends.

The *EP Act 1994* utilises a number of mechanisms to achieve its objectives, which include:

- Licensing or approving all ERAs;
- Issuing Environmental Protection Policies (EPP);
- Allowing for improvement through Environmental Management Programs; and
- Creating a general Environment Duty.

Under the *EP Act 1994*, EHP (formerly DERM) has assumed responsibility for environmental impact assessment, administration of environmental authorities, as well as compliance, auditing and monitoring of the environmental management of mining.

The amendments to the *EP Act 1994* as presented in the *Environmental Protection and Other Legislation Amendment Act 2000* created a head of power for EHP to facilitate government decision-making on environmental matters associated with mining activities.

Section 36 of the *EP Act 1994* established a duty for a person to take all reasonable and practicable measures for protecting the environment from harm when carrying out an activity that causes, or is likely to cause, environmental harm. The general environmental duty places a clear onus on operators of industrial sites to develop and implement measures for preventing environmental harm.

The contaminated land provisions that are referred to in the *EP Act 1994* are addressed by Part 9B of the Act.

Note that in November 1997 the Queensland Parliament passed the *Environmental and Other Legislation Amendment Act 1997* to integrate the provisions of the superseded *Contaminated Land Act 1991* and *Contaminated Land Management Regulation 2008* with the existing provisions of the *EP Act 1994*. The amendments relevant to contaminated land are in sections 16–19 and 21–37 and Schedule 3 of the *Environmental and Other Legislation Amendment Act 1997*.

Environmental Protection Regulation 2008

The objective of the *Environmental Protection Regulation 2008 (EP Regulation)* is to provide the basis for effective and efficient administration and enforcement of the object and provisions of the *EP Act 1994*.

The *EP Regulation 2008* sets out the criteria that define what constitutes a level 1 or 2 mining activity. Level 1 mining activities have a potentially greater risk of causing environmental harm, whilst in contrast; Level 2 mining activities exhibit lower risks which have comparatively less potential to cause environmental harm. Schedule 6 of the *EP Regulation 2008* provides guidance on how to calculate an aggregate environmental score for Level 1 mining activities.

This score is emissions based and is used to calculate the fees for mining. In addition, the *EP Regulation 2008* defines ERAs that may also be undertaken on a mine site, such as crushing and grinding. If ERAs are conducted on site, then the site in question should be registered on the EMR.

The fees related to contaminated land (including undertaking a search of the registers and consideration of site investigation reports) are presented in Schedule 10 of *EP Regulation 2008*. In addition, Schedule 8A lists the prescribed organisations for the contaminated land provisions. Members of these organisations with the appropriate qualifications and experience in dealing with contaminated land can submit reports to EHP for assessment.

Mineral Resources Act 1989

The *Mineral Resources Act 1989* (*MR Act 1989*) provides for the authorisation of mining tenures in the form of Prospecting Permits, Mining Claims, Exploration Permits, Mineral Development Licenses and Mining Leases. Schedule 4 of the *Mineral Resources Regulation 2003* administers restricted areas, including the construction of water reservoirs. 'Mining' itself is defined in Section 6A of the *MR Act 1989*.

In terms of contaminated land, two principal objectives of the *MR Act 1989* apply to this subject as follows:

- Promote responsible land care management; and
- Encourage environmental responsibility.

4.1.2.3 Commonwealth Legislation

Environment Protection and Biodiversity Conservation Act 1999

Approval is required under the *Environment Protection and Biodiversity Conservation Act 1999* for proposals that are likely to have a significant impact on a matter of 'national environmental significance' or the environment of Commonwealth land (even if conducted outside Commonwealth land). The Commonwealth provides guidelines on matters of national environmental significance but, where there is some doubt, the matter must be referred to the Commonwealth Environment Minister for a decision.

This Commonwealth legislation only applies to contaminated land issues if the land in question poses a significant impact on a matter of 'national environmental significance' or the environment of Commonwealth land.

5.0 POTENTIAL CONTAMINANT SOURCES, PATHWAYS AND RECEPTORS

5.1.1 Potential Contaminant Sources Pathways and Receptors

In light of the site's land-use history, the only contaminant sources potentially present on the Project site are associated with agricultural activities, homesteads and residential / farm infrastructure.

These sources include the storage, handling and use of agricultural chemicals, fuels, oils, livestock dips, residential sewerage treatment systems and the use of asbestos in building materials, . No other significant sources of contamination are anticipated on the Project site.

The potential sources and contaminants identified for the Project site are presented in Table 2, whilst PCoC sources, pathways and receptors which may exist on the Project site are presented in Table 3.

Note that if contaminant pathways do not exist for any particular source, then the associated receptors will not be impacted.

An assessment of groundwater quality beneath the site has yet to be completed; however groundwater quality will be assessed as part of the EIS.

Table 2 Summary of Project PCoC

Historic and Current Farming Activity / Equipment / Buildings	PCoC
Management of pest and weeds	Pesticide and herbicide run-off
Chemical storage and handling	Herbicides, insecticides, pesticides and other agrochemicals
Vehicle fuel storage and handling	Fuel hydrocarbons
Machinery operation	Fuel, hydraulic oil and lubricating hydrocarbons
Livestock dip	Pesticides
Residential sewerage treatment plant (STP)	Sewage
Building material	Un-bonded, exposed asbestos fibres in buildings constructed of fibro

Source: AARC

Table 3 Potential Contaminant Sources, Pathways and Receptors

Potential Sources
Agricultural chemical (herbicide, pesticide and insecticide) storage, handling and spray residues
Underground / above-ground fuel storage tanks
Hydrocarbon (fuel and lubricants) spillages
Livestock dips
Residential sewerage treatment systems
Un-bonded, exposed asbestos fibres in farm building construction materials and insulation
Potential Pathways
Soil to groundwater
Soil to surface water
Groundwater to surface water
Soil to air
Air to humans
Underground service ducts
Potential Receptors
Groundwater
Surface water
Soil
Air
Humans
Local Flora and Fauna

Source: AARC

6.0 QUEENSLAND DATABASE SEARCHES AND SERVICE LOCATIONS

The Queensland Environmental Management Register (EMR) and Contaminated Land Register (CLR) are managed and maintained by the Department of Environment and Heritage Protection (EHP).

The EMR is a land-use planning and management register. Land that has been or is being used for an Environmentally Relevant Activity (ERA) which is likely to cause land contamination (a Notifiable Activity - refer Schedule 3 of the *EP Act 1994* for details of Notifiable Activities), or land which has been shown via a site assessment to be contaminated, is recorded on the EMR by EHP.

In general terms, sites that are recorded on the EMR exhibit a low risk to human health or the environment, under the current land use.

In contrast, the CLR is a register of 'at risk' sites – where proven land contamination 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, to prevent serious environmental harm or adverse public health risks.

It should be noted that potentially contaminated sites that are not recorded on the EMR and CLR can exist and should be considered, whilst undertaking historical analysis. However, apart from the two livestock dips referred to in this report, no other historic or current notifiable activities or hazardous contaminants have been registered or identified on the Project site.

6.1.1 EMR and CLR Search Results

The outputs from both the EMR and CLR searches have been summarised in this section of the report.

6.1.1.1 EMR Results

One property was found to be recorded on the EMR - Lot 223 on FTY1531. This property was identified as being subject to a 'Notifiable Activity' pursuant to section 374 of the *EP Act 1994*, in the form of a Livestock Dip or Spray Race (Notifiable Activity 22).

The livestock dip on Lot 223 on Plan FTY1531 was reported to DERM (now EHP) in November 1998 by the Department of Primary Industries (DPI – now Department of Agriculture, Fisheries and Forestry (DAFF)), which is located on Special Lease 45492.

However, since this Lot lies to the east and outside of MDL467, this particular livestock dip been excluded from the site assessment.

Details of the EMR search are presented in Appendix C of this report.

6.1.1.2 CLR Results

No properties within MDL467 were found to be recorded on the CLR.

Full results of the CLR search are presented in Appendix C of this report.

6.1.2 Unexploded Ordnance Register

The Department of Defence Property Services and the National Unexploded Ordnance Office maintain a register of sites that are likely to contain Unexploded Ordnance (U O). A search of this register revealed that no U O are registered within the former Emerald Shire boundary and therefore are unlikely to be located within the Project site.

6.1.3 Industrial Processes

No industrial processes are known to have been conducted on the Project site, since it had originally been developed for agricultural development and has always been used for this purpose.

6.1.4 Underground Services

The results of a Dial Before You Dig internet search (www.1100.com.au) for the Project site are presented in Appendix D. Very few underground services were found to be associated with the Project site, with the exception of an underground Nextgen fibre optic cable which runs parallel to the Capricorn Highway and Telstra infrastructure.

Note that the Dial Before You Dig internet search does not indicate underground services associated with private dwellings and therefore, underground sewerage networks and other services may be present on the Project site that have not been identified by the Dial Before You Dig internet search.

Service ducts can act as shallow, artificial contaminant-transport pathways.

6.1.5 Above and Below Ground Storage Tanks

A number of above ground storage tanks were observed across MDL467. All of these tanks were associated with homesteads and the stored products used for re-fuelling landholder vehicles.

Although small product-dispensing spills were observed at some of these storage tanks, no significant fuel spillages were visually evident.

No below ground storage tanks were identified by the local landholders that were interviewed.

6.1.6 Local Site Knowledge

Landholder consultation was conducted by Converge Heritage and Community in November 2011, as part of a Non-Indigenous Cultural Heritage Assessment, in order to acquire information about the developmental history of the site.

During this period of stakeholder consultation, the local landholders only identified livestock dips as activities that could potentially cause land contamination.

Further landholder consultation was also conducted during AARC's field surveys for surface water, sediment and dust assessments (refer to Section 2.4 of this report for further details).

7.0 CONTAMINATED LAND ASSESSMENT RESULTS

7.1 CONTAMINATED LAND

The results of the non-invasive contaminated land assessment are presented in this section.

7.1.1 Livestock Dips

No contaminated land was identified within the Project site via this preliminary, non-intrusive site investigation (either visually or from historical records), except for a buried livestock dip and limited, localised fuel / chemical dispensing spills.

This dip was identified on the Iona Downs property (Lot 14 on Plan RP881318) by the landowner Mr Stan Knight (refer to Figure 18 for the potential location of the buried livestock dip).

Since the livestock dip in question was buried about 4 m below ground level, underneath the disused cattle yards (*pers comm.* – Stan Knight), a preliminary intrusive site investigation was not conducted for this potential source of contamination. Minimal contaminant impacts upon both the environment and human health are anticipated, due to the depth at which this livestock dip has been buried and local depths to standing groundwater.

Another buried livestock dip was also identified via conversations with local landholders and an EMR search. However, since the location of this livestock dip is off-lease, no further investigation of this potential source of contamination was conducted. Refer to Section 6.1.1.1 for further details of this particular livestock dip.

7.1.2 Chemical and Hydrocarbon Spills

Although limited, localised fuel / chemical dispensing spills were observed during the October 2012 site visit, no significant fuel or chemical spillages were visually / olfactorially evident at each of the homesteads that were investigated.

7.1.3 Un-bonded and Exposed Asbestos Fibres

Un-bonded and exposed asbestos fibres were observed at two locations on the Project site - an abandoned and dilapidated house at Yarrawonga Station and the house at Taroborah Siding – refer to the Taroborah *Historic Heritage Management Plan* (Converge, 2012) for further details. However, no visual inspection can ever provide complete assurance that asbestos fibres are not present. Therefore, if asbestos fibres are ever encountered on the Project site, further assessment and appropriate remedial measures should be adopted, in order to manage potential impacts upon human health and the environment.

7.1.4 Sewerage Treatment Plants

Details of the STPs that are installed at each homestead were not readily available. Although such systems represent a potential source of soil contamination, none of the local landholders identified any leakages in their sewerage treatment systems. Therefore, it has been assumed that land contamination from sewage is not an issue within the Project site.

7.1.5 Flora Condition

Flora and fauna studies were conducted across the Project site by AARC during both the wet and dry seasons. These studies were employed to assess the abundance and condition of flora and fauna on the Project site.

The vegetation was found to be in a fair condition, with flora stands in the east of the Project site forming contiguous vegetation with the relatively undisturbed forest area, which lies to the east of the Project site. Vegetation stands are interspersed with cleared pastures that are utilized for agricultural purposes.

No visual evidence of contaminated land was observed on site during the wet and dry season flora / fauna surveys in terms of vegetation burning, deformities or die-back.

Note that the condition of local fauna has not been reviewed in terms of land contamination, since this mobile biota is not considered to be impacted by contamination to the same extent as vegetation would be.

7.2 CONTAMINATED SURFACE WATER

Local surface water and sediment quality data has been acquired and compared with the surface water and sediment trigger values provided in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality, Volume 1, Chapters 1–7* (Australian and New ealand Environment and Conservation Council (AN ECC) & Agriculture and Resource Management Council of Australia and New ealand (ARMCAN), 2000).

Electrical conductivity, Al, Cr, Cu, Mn, Ni, ammonia nitrate / nitrite and phosphorus concentrations that have been recorded for surface water or sediment samples above guideline trigger values, are assumed to be natural characteristics of these environments.

No visual, olfactory or analytical evidence of anthropogenic surface-water contamination has been identified to date.

7.3 CONTAMINATED GROUNDWATER

Groundwater on site was found to be of adequate quality (albeit with NaCl concentrations above the AN ECC Irrigation guidelines (AN ECC & ARMCAN , 2000) at certain sampling locations) and is currently utilised on site for both stock and domestic purposes.

Although no targeted assessment of groundwater contamination beneath the Project site has been conducted, no visual / olfactory or specific analytical evidence of groundwater contamination has been identified to date.

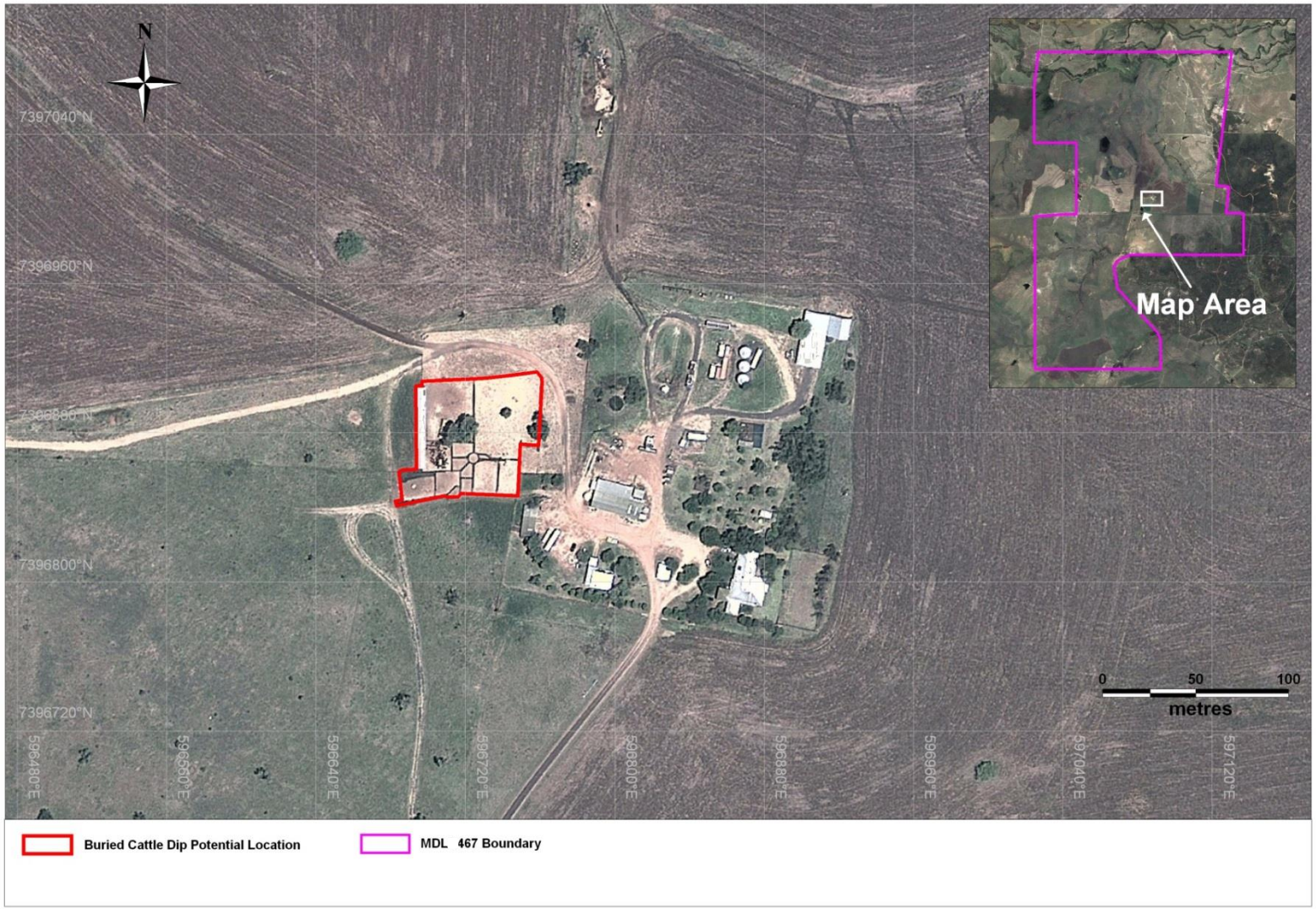


Figure 18 Potential location of Buried Livestock Dip on Lot 14 on RP881318

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

8.1.1 Historical Landuse

The Project site has, according to historical titles, been used for agricultural purposes since the 1880's. A review of the available historical aerial photographs (1946 to 2012) did not indicate any industrial or commercial activities having been conducted on the Project site. Therefore, this preliminary, non-intrusive site investigation has focused upon the potential for agricultural activities to have contaminated land on the Project site.

Note that eleven private / commercial land owners currently exist within MDL467.

8.1.2 Queensland Contaminated Land Database Search Results

A search of the QLD EMR revealed that only one property in the local area is registered on the EMR, due to the historical operation of a livestock dip on this Lot. However, since this Lot lies to the east and outside of MDL 467, potential land contamination that may have arisen from the use of this livestock dip has been excluded from this assessment.

None of the Lots in question were found to be recorded on the CLR.

Similarly, none of the Lots within MDL467 were found to be recorded on the U O register.

8.1.3 Underground services

In terms of underground services, the only commercial infrastructure that was identified from the Dial Before You Dig database was an underground cable which runs parallel to the Capricorn Highway.

8.1.4 Above and Below Ground Storage Tanks

Although no significant fuel or chemical spillages were observed within the Project site, the limited and localised fuel and chemical dispensing spills that were noted should be excavated, removed off-site by a registered waste management contractor and the resulting void backfilled with clean material.

8.1.5 Contaminated Land

The main potential sources for land contamination that has been identified by this study within MDL467 are from the livestock dip that was buried approximately 4 m below ground level on Lot 14 on RP881318 and limited, localised fuel and chemical dispensing spills.

However, due to the depth to which this dip was buried, potential impacts upon sensitive receptors such as human health, local groundwater and surface water are not considered to be significant and therefore, an intrusive site investigation was not conducted in order to assess this livestock dip.

The other livestock dip that is recorded on the EMR lies outside MDL467 and therefore, has been excluded from this study.

Additionally, un-bonded and exposed asbestos fibres were identified at two locations within MDL467 at Yarrawonga Station and Taroborah Siding.

No visual or anecdotal evidence of significant chemical or hydrocarbon spills were identified on the Project site, however, product storage tanks, drums and vessels were observed on the Project site and represent a potential source of contamination. However, none of the local stands of vegetation exhibited any visual evidence of impaction from soil contamination.

Since none of the landholders or residences have reported leaking or problematic STPs, these systems are not considered to represent a local source of land contamination.

8.1.6 Surface Water and Sediment

The analytical data that has currently been acquired for surface water and sediment sampling locations across the Project site does not indicate the presence of any significant anthropogenic source of contamination that has, or is, contaminating surface water drainage channels. Refer to Figure 11 for location details of these sampling locations.

8.1.7 Groundwater

Although only preliminary water chemistry data has been obtained to date for the Taroborah area (Matrix Plus 2008, 2009a and 2009b), no visual, chemical or olfactory evidence of anthropogenic groundwater contamination has been identified within or adjacent to the Project site.

Further and more comprehensive groundwater analytical data will need to be acquired and assessed, in order to demonstrate that local aquifers have not been impacted by commercial activities on and around the Project site.

8.1.8 Assumptions

The following assumptions have been employed for this investigation:

- The historical titles, aerial photographs and visual / olfactory site assessments relied upon for this investigation are representative of the historical and current land uses and PCoC for the Project site;
- All notifiable activities conducted within the Project site have been recorded on the EMR / CLR;
- No supplementary, un-recorded storage tanks, drums and chemical storage vessels exist on the Project site;
- No additional PCoC, other than those identified in this investigation, have impacted the Project site;
- The buried livestock dip on Lot 14 on RP881318 has not contaminated local groundwater; and
- Surface water and groundwater has not been contaminated via agricultural activities.

8.1.9 Site Usage Limitations and Constraints

The proposed use of the Project site is for an open-cut and underground coal mine. The following contaminated land issues represent potential site-usage limitations / constraints which should be addressed either before or during Project construction, in order to resolve potential restrictions to Project development:

- Underground mining will lead to land subsidence, which could disrupt the current orientation and condition of the buried cattle dip located on MDL467;

- Above-ground storage tanks, which have been identified on the Project site, may be disrupted and / or collapse during underground mining and associated land subsidence. Therefore, these tanks should be stabilised / removed before underground mining commences in order to resolve this potential site use limitation;

- Disused and dilapidated buildings that contain fibro sheeting could also be disrupted as a result of land subsidence and should therefore be carefully and safely demolished and removed from the Project site; and

- Localised spillages of hydrocarbons, pesticides and herbicides may be present on the Project site and could restrict development of these areas for mining infrastructure. Where required, these areas should be remediated before development.

8.2 RECOMMENDATIONS

The following recommendations have been developed for the Project site, in terms of assessing and managing contaminated land:

- **Pre-construction land contamination –** if any additional, significant land, surface water or groundwater contamination is identified before Project construction commences, a site assessment should be conducted for the area in question, in line with the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (DoE, 1988) and the *Guidelines for contaminated land professionals* (2012b);
- **Additional groundwater studies -** further hydrogeological studies are recommended, in order to investigate and more fully understand the movement of groundwater through the underlying aquifers. The risks of potential groundwater contamination which arise during the Projects construction and operational phases should be characterised;
- **Notifiable activities –** if any additional notifiable activities are identified within the Project site, the Lot(s) in question should be registered on the EMR. This recommendation applies to activities that occur before, during and after mining activities;
- **Site management –** if sources of contamination are confirmed on site (e.g. un-bunded fuel tanks, leaking fuel tanks and product-dispensing procedures) that could or have already impacted sensitive receptors, these sources should be repaired / remediated / managed, in order to minimise further contaminated land impacts upon these receptors;
- **Project construction, commissioning, operations and decommissioning –** if any land, surface water or groundwater contamination occurs during and as a result of Project development / operations, then a site assessment should be conducted for the area in question, as prescribed by the *Draft Guidelines for the Assessment and Management of Contaminated Land in Queensland* (DoE, 1988) and *Guidelines for contaminated land*

professionals (2012b). Remedial actions will be required to address such contamination, if the contamination in question poses a significant risk to sensitive receptors such as human health, flora / fauna and local habitat; and

- **Management of PCoCs during Project development and operations –** Any PCoC that are present during Project development and operations must be managed to ensure that the sensitive receptors identified by this study are not impacted by these PCoC during the Project (e.g. hydrocarbons, pesticides and herbicides).

8.3 FURTHER INVESTIGATION

As well as the potential for historic and current land contamination, future use of the site as a coal mine could also result in land contamination should any of the following incidents occur during the construction, commissioning, operations or decommissioning phases of the mine:

- Accidental spillages of fuel, lubricating oil and / or herbicides / pesticides;
- Leakage of fuel from above and below ground storage tanks;
- Demolition of old buildings which contain asbestos;
- Unintended release of coal product and / or fine rejects into the environment; and
- Leakage of the on-site sewerage treatment system.

If intrusive site investigations are found to be required in the future, the following additional site investigation stages will be considered and where necessary, deployed:

- Stage 1 intrusive site investigation – based upon the following State and Federal contaminated land assessment guidelines: Australian and New ealand Environment and Conservation Council / National Health and Medical Research Council (AN ECC) / NHMRC (1992), AN ECC (1996), American Society for Testing and Materials (ASTM) D2487 (1985), Australian Standards AS4482.1 (Part 1 – 2005 and Part 2 - 1999), AS1726 (1993), Australian and New ealand Environment and Conservation Council / Agriculture and Resource Management Council of Australia and New ealand (AN ECC / ARMCAN) (2000), DoE (1998), EHP (2012b) and National Environmental Protection Council (NEPC) (1999);
- Stage 2 detailed site investigation – also based upon the above guidelines;
- Site remedial action plan; and
- Site validation and ongoing monitoring.

These investigation / remediation / validation stages would be conducted in order to assess the contaminated land risks associated with the current or proposed land use and to adequately protect human health and the environment from contaminants via remediation, if required.

9.0 PROJECT LIMITATIONS

AustralAsian Resource Consultants Pty Ltd (AARC) has selected an appropriate level of effort for delivering this Preliminary Non-intrusive Contaminated Land Report for Shenhuo concerning the Taroborah Site, Emerald, Queensland. Note that some of this report has relied upon information contained in reports that were supplied by IMC and third parties.

The activities performed constitute all activities considered appropriate and necessary under the circumstances to conduct a desktop assessment of this site and production of this Preliminary Non-intrusive Contaminated Land Report. Based on site inspections and a review of available historical site usage records, it is AARC's opinion that the potential environmental liabilities associated with the site that have been assessed via a preliminary, non-intrusive site investigation, are as discussed in this report.

We do not assume any liability for misrepresentation or items not visible, accessible or present during the site inspections and / or meetings. We also do not assume any liability for materials or works, which are imported onto or undertaken on the site after October 2012. There is no investigation that is thorough enough to preclude the presence of material, which presently, or in the future, may be considered hazardous at the site.

Furthermore, to completely understand the recommendations and conclusions outlined in this and any previous site investigation documents, all reports associated with the Project site must be read in their entirety. This is because these reports are site-specific with relevant information contained in the body of the reports as well as supporting tables and documentation.

Opinions and judgements expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions. The conclusions contained in this report are based upon information, data and reports provided to AARC and others, periodic site inspections and the assumption that all relevant information has been provided by Shenhuo. Where assessments of the works conducted to reduce or mitigate any environmental liability identified in this report are made, such assessments are based upon the information available at the time.

We do not assume any liability for misrepresentation or items not visible, accessible or present at the subject site, during the time of the monitoring.

Because regulatory evaluation criteria are constantly changing, concentrations of contaminants presently considered low may, in the future, fall under different regulatory standards that require remediation.

AARC has prepared this report solely for the benefit of Shenhuo, in accordance with generally accepted consulting practices and for the intended purposes. This report may not be relied upon by any other party, excluding the EHP, without the explicit written agreement of AARC Pty Ltd. No other warranty, expressed or implied, is made as to the professional advice included in this report.

10.0 REFERENCES

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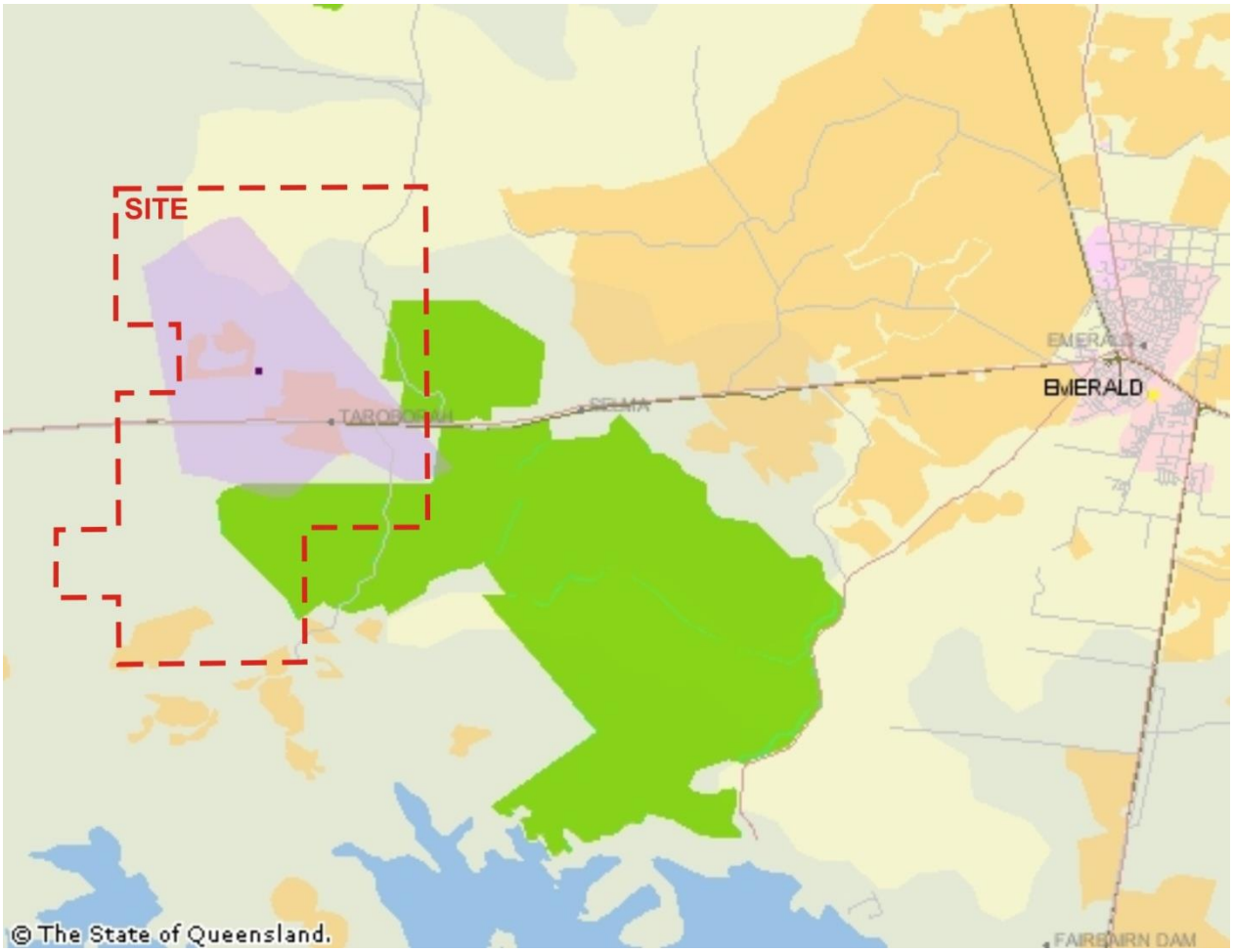
Appendix A Taroborah Title History

TAROBORAH CURRENT TITLES

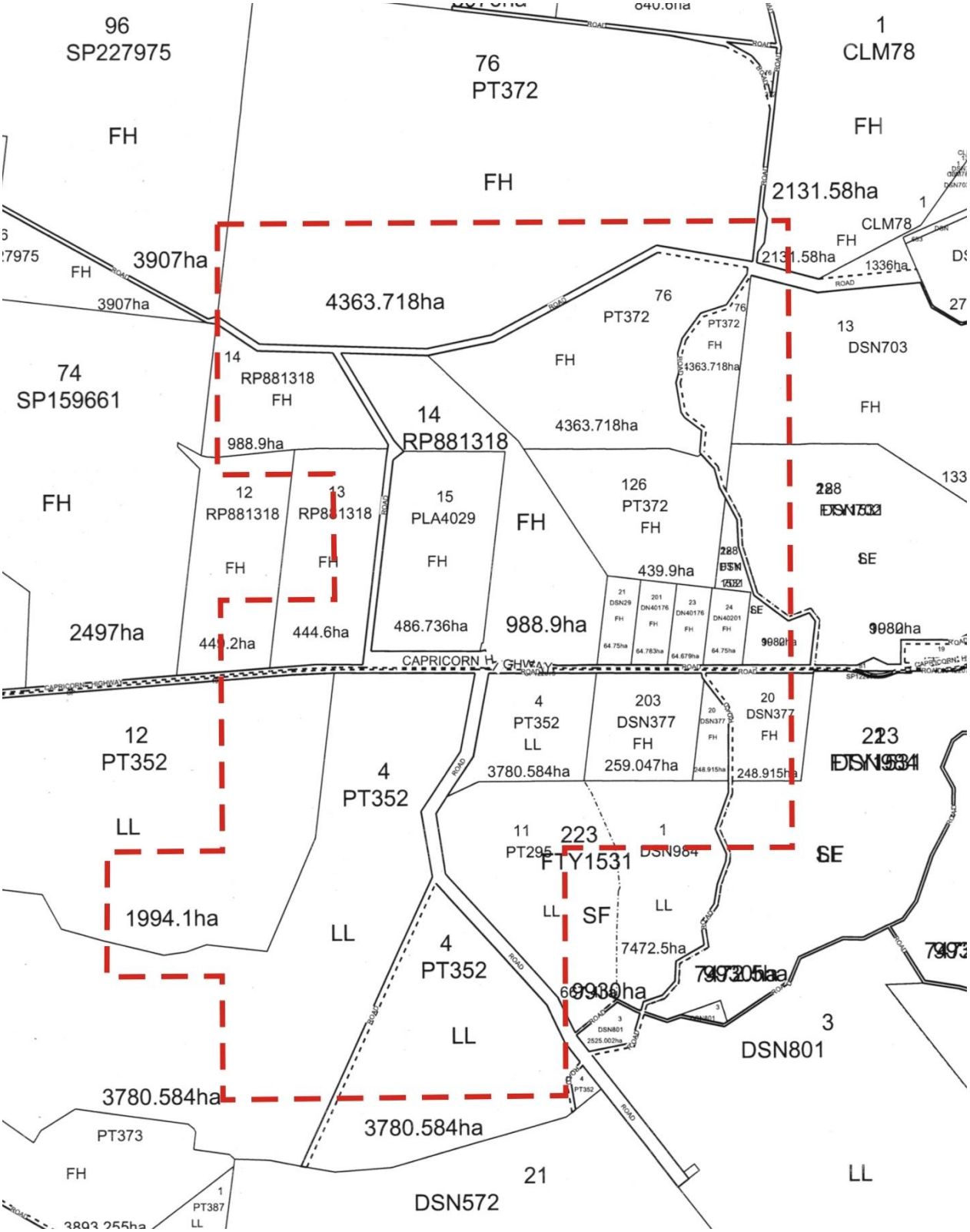
Taroborah, the site of a proposed mining operation, lies some 15 km west of Emerald, itself 270 km west of Rockhampton along the Capricorn Highway. The site straddles the highway and the parallel Central railway Line.



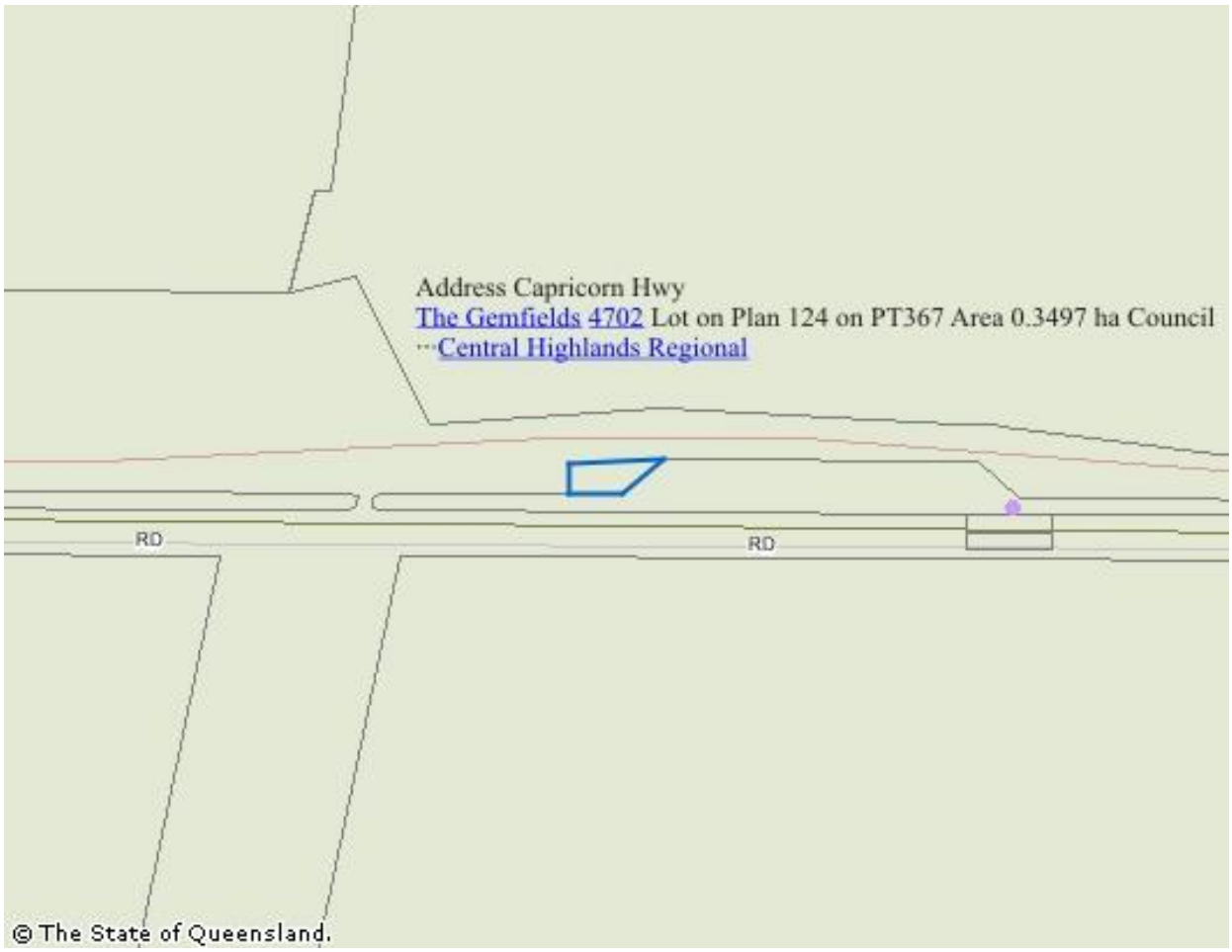
A list (below) of lots affected by the proposed mining operation has been supplied by the client. In August 2011 current land titles for the lots on this list were obtained from government sources.

Lot 124	**PT367**
Lot 4	**PT352**
Lot 13	**DSN703**
Lots 20, 203	**DSN377**
Lot 201	**DN40176**
Lot 126	**PT372**
Lot 23	**DN40176**
***Lot 95**	**PT395**
Lot 24	**DN40201**
Lot 1	**CLM78**
Lot 21	**DSN29**
Lot 15	**PLA4029**
Lots 12-14	**RP881318**
Lot 5	**PT132**
Lot 12	**PT352**
Lot 81, 82	**SP122079**
Lot 101	**SP122080**
Lot 76	**PT372**
Lot 223	**FTY1531**

*Subsequently **Lot95** **SP227975**



Based on DERM Smartmap dated 16/8/2011

Registered Owner or Lessee:	Period of Ownership or Lease:	Comments:
Lot 124 on PT367, 3497m^2, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area		
		
Crown Land leased by Brian William Donnelly and Elizabeth Mary Donnelly as joint tenants	12 September 1986 to Present	Block subject to Crown (residential) Lease (Special Lease 37/48366, No.17591074) with 30 year term commencing 12 September 1986 and expiring on 11 September 2016

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17591074
Date Created: 22/10/1995

DESCRIPTION OF LAND

Tenure Reference: SL 37/48366

LOT 124 CROWN PLAN PT367
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

Area: 0.349700 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted:
RESIDENTIAL

TERM OF LEASE

Term and day of beginning of lease

Term: 30 years commencing on 12/09/1986

Expiring on 11/09/2016

REGISTERED LESSEE

BRIAN WILLIAM DONNELLY
ELIZABETH MARY DONNELLY JOINT TENANTS

CONDITIONS

C1 The right of resuming the whole or any part of the leased land at any time on giving six (6) months notice and compensating for improvements only shall be reserved to the State.

C5 The lessee shall allow any person authorised under the Forestry Act 1959 access to the leased land for the purpose of cutting and removing timber or removing other forest products, or quarry material, or other material from the leased land.

C173 The lessee shall not interfere with any forest products or remove any quarry material (including any stone, gravel, sand, earth, soil, rock, guano or clay which is not a mineral within the meaning of the Mining Act 1968) or other material upon the leased land without the permission of the Minister except under the authority of and in compliance in every respect with the requirements of a permit, license, agreement or contract granted or made under the Forestry Act 1959.

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17591074
Date Created: 22/10/1995

CONDITIONS

C179 No compensation for improvements or developmental works shall be payable by the State at the expiration of the term of the lease, but the lessee shall have the right to remove movable improvements within a period of three months, provided all moneys due by the lessee to the State on any account whatsoever have been paid. However should the leased land revert to the State and be again made available for lease or purchase the former lessee shall be entitled to receive payment for the value of his improvements or developmental work in accordance with the principles set out in the said Act.

C183 The lessee shall not at any time destroy any tree upon the leased land without the prior permit in writing of the Land Commissioner or contrary to any terms and conditions of such permit.

E10 The lessee shall pay the cost of any required survey of the leased land.

K1 The lessee shall maintain the leased land free from noxious plants.

M76 The Lessee shall use the leased land for residential purposes.

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Lease No. 17591074

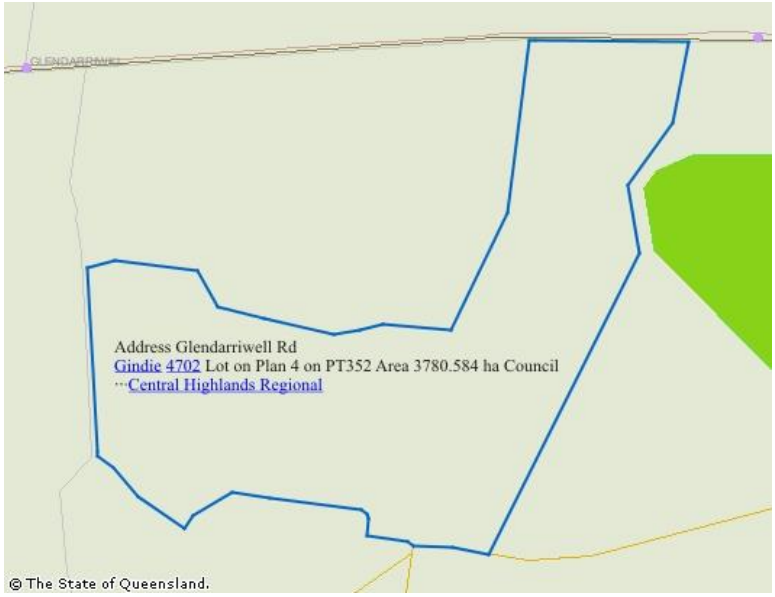
ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)

Requested By: External Supervisor

Lot 4 on PT352, 3780.584 ha, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area



Crown Land leased by Colin Geoffrey Fernie and Joy Louise Fernie as joint tenants	27 June 2000 to Present	Block subject to Crown Lease (Grazing Homestead Freeholding Lease 37/3729D, No.17632035) with 39 year 3 months term commencing 1 October 1984. Block subject to Vegetation Notice 713568192 from 12 November 2010

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17632035
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: GHFL 37/3729 B

LOT 4 CROWN PLAN PT352
County of PLANTAGENET Parish of GLENDARRIWELL
Local Government: CENTRAL HIGHLANDS

Area: 3780.583800 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted:
NO PURPOSE DEFINED

TERM OF LEASE

Term and day of beginning of lease and purchase price

Term: 39 years 3 months commencing on 01/10/1984

Purchase Price: $210080.00

REGISTERED LESSEE

Dealing No: 704134890 27/06/2000

COLIN GEOFFREY FERNIE
JOY LOUISE FERNIE JOINT TENANTS

CONDITIONS

Nil

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Lease No. 17632035

2. MORTGAGE No 704134953 27/06/2000 at 15:46
AUSTRALIA AND NEW ZEALAND BANKING GROUP LIMITED A.C.N. 005 357 522

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713568192	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	12/11/2010 13:05	CURRENT

UNREGISTERED DEALINGS - NIL

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17632035
Date Created: 21/10/1995

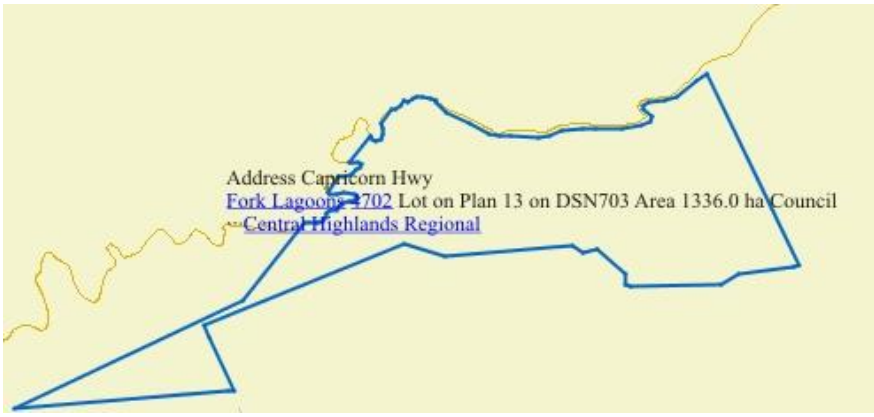
Caution - Charges do not necessarily appear in order of priority

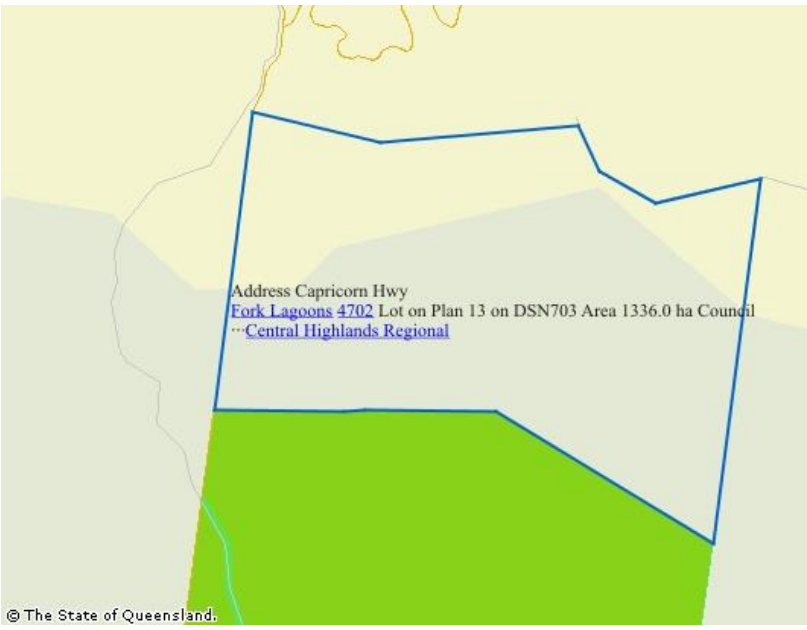
** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

Requested By: External Supervisor

Lot 13 on DSN703, 1336.0 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area





Ian Lorne Spyher and Francis Lynette Spyher as tenants in common (1/2 shares each)	17 September 1996 to Present	Block subject to Vegetation Notice 712780398 from 8 October 2009

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 50142204
Date Created: 26/09/1996

Previous Title: 40007114

REGISTERED OWNER Interest

Dealing No: 701554069 17/09/1996

IAN LORNE SYPHER 1/2
FRANCES LYNETTE SYPHER 1/2

AS TENANTS IN COMMON

ESTATE AND LAND

Estate in Fee Simple

LOT 13 CROWN PLAN DSN703
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

For exclusions / reservations for public purposes refer to
Plan CP DSN703

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 40007114 (Lot 13 on CP DSN703)

2. MORTGAGE No 602800619 (L352513M) 28/01/1993
   to
   WESTPAC SAVINGS BANK LIMITED ACN 000 161 624
   under Section 467 (2) of the Land Act 1994

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
712780398	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	08/10/2009 12:39	CURRENT

UNREGISTERED DEALINGS - NIL

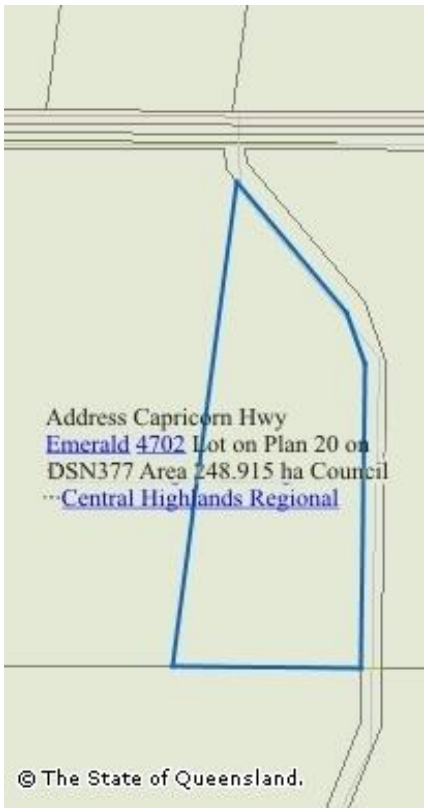
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 20 on DSN377, 248.915 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area



John Henry Walter and Gary Kim Walter as trustees and leased by John Henry Walter, Gary Kim Walter, George Oliver Walter and Gloria Walter as joint tenants	30 June 2000 to Present	Block subject to lease of undetermined term commencing 15 October 2001. Block subject to Water Notice 711208761 from 23 November 2007. Block subject to Water Notice 711208982 from 23 November 2007. Block subject to Vegetation Notice 712557544 from 30 June 2009

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30487108
Date Created: 26/10/1981

Previous Title: 30297139
30297140
30297141

REGISTERED OWNER

Dealing No: 704145653 30/06/2000

JOHN HENRY WALTER
GARY KIM WALTER TRUSTEE
UNDER INSTRUMENT 704145653

ESTATE AND LAND

Estate in Fee Simple

LOT 20 CROWN PLAN DSN377
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

For exclusions / reservations for public purposes refer to
Plan CP DSN377

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 30297139 (POR 20V)
   Deed of Grant No. 30297140 (POR 20V)
   Deed of Grant No. 30297141 (POR 20V)

2. LEASE No 705114221 15/10/2001 at 12:21
   JOHN HENRY WALTER
   GARY KIM WALTER
   GEORGE OLIVER WALTER
   GLORIA WALTER JOINT TENANTS

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711208761	WATER NOTICE WATER ACT 2000	23/11/2007 11:23	CURRENT
711208982	WATER NOTICE WATER ACT 2000	23/11/2007 11:38	CURRENT
712557544	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	30/06/2009 08:33	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 203 on DSN377, 259.047 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area

John Henry Walter and Gary Kim Walter as trustees and leased by John Henry Walter, Gary Kim Walter, George Oliver Walter and Gloria Walter as joint tenants	30 June 2000 to Present	Block subject to lease of undetermined term commencing 15 October 2001. Block subject to Water Notice 711208761 from 23 November 2007. Block subject to Water Notice 711208982 from 23 November 2007. Block subject to Vegetation Notice 712557544 from 30 June 2009

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30487107
Date Created: 26/10/1981

Previous Title: 30297136
30297137
30297138

REGISTERED OWNER

Dealing No: 704145567 30/06/2000

JOHN HENRY WALTER
GARY KIM WALTER TRUSTEE
UNDER INSTRUMENT 704145567

ESTATE AND LAND

Estate in Fee Simple

LOT 203 CROWN PLAN DSN377
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 30297136 (POR 18V)
   Deed of Grant No. 30297137 (POR 18V)
   Deed of Grant No. 30297138 (POR 18V)

2. LEASE No 705114221 15/10/2001 at 12:21
   JOHN HENRY WALTER
   GARY KIM WALTER
   GEORGE OLIVER WALTER
   GLORIA WALTER JOINT TENANTS

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711208761	WATER NOTICE WATER ACT 2000	23/11/2007 11:23	CURRENT
711208982	WATER NOTICE WATER ACT 2000	23/11/2007 11:38	CURRENT
712557544	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	30/06/2009 08:33	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 201 on DN40176, 64.783 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area

Kenneth John Anthony	29 January 2004 to Present	Block benefits from Easements A and B on SP156913 from 22 April 2003. Block subject to Vegetation Notice 713339261 from 8 July 2010

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30464008
Date Created: 15/10/1979

Previous Title: 30326142
30326143

REGISTERED OWNER

Dealing No: 707425547 29/01/2004

KENNETH JOHN ANTHONY

ESTATE AND LAND

Estate in Fee Simple

LOT 201 CROWN PLAN DN40176
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30093055 (POR 22V)

2. EASEMENT No 706545367 22/04/2003 at 16:08
benefiting the land over
EASEMENT A AND B ON SP156913

3. MORTGAGE No 707425548 29/01/2004 at 11:22
COMMONWEALTH BANK OF AUSTRALIA A.B.N. 48 123 123 124

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713339261	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	08/07/2010 09:44	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 126 on PT372, 439.9 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area

Kenneth John Anthony	8 April 1997 to Present	Subject to lease over part of the land to Telstra Corporation Limited A. C. N. 051 775 556 from 23 May 1997. Block subject to Vegetation Notice 713339261 from 8 July 2010

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 50436007
Date Created: 15/04/2003

Previous Title: 40036839

REGISTERED OWNER

Dealing No: 706525355 14/04/2003

SHIRLEY MARGARET NIXON

ESTATE AND LAND

Estate in Fee Simple

LOT 76 CROWN PLAN PT372
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 40036839 (Lot 76 on CP PT372)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713605998	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	03/12/2010 12:03	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

Requested By: External Supervisor

Lot 23 on DN40176, 64.679m^2, Parish of Selma, County of Denison, Central Highlands Local Government Area

Lester Vivian Matheson and Irene Ann Matheson as joint tenants	19 June 2003 to Present	Block benefits from Easement A on SP156913 from 22 April 2003. Block burdened by Easement B on SP156913 in favour of Lot 201 on DN40176 from 22 April 2003

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30464010
Date Created: 15/10/1979

Previous Title: 30326146
30326147

REGISTERED OWNER

Dealing No: 706713268 19/06/2003

LESTER VIVIAN MATHESON
IRENE ANN MATHESON JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 23 CROWN PLAN DN40176
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30099004 (POR 23V)

2. EASEMENT No 706545346 22/04/2003 at 16:07
benefiting the land over
EASEMENT A ON SP156913

3. EASEMENT No 706545367 22/04/2003 at 16:08
burdening the land to
LOT 201 ON CP DN40176
OVER EASEMENT B ON SP156913

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

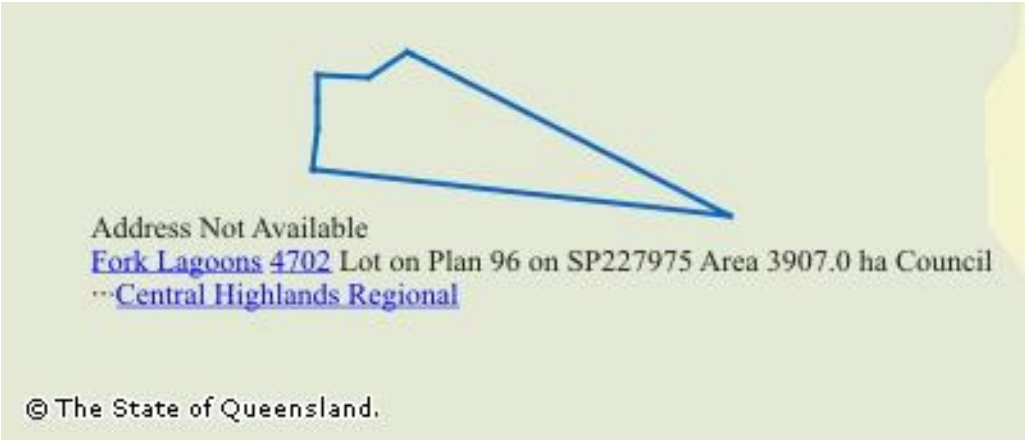
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 95 on PT395, subsequently **Lot 96 on SP227975**, 3907 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



William James Crowther	10 June 2011 to Present	Block benefits from Easement A on SP227975 from 5 November 2009. Block subject to Water Notice 710672454 from 13 June 2007. Block subject to Vegetation Notice 712019778 from 31 October 2008

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12148192
Search Date: 19/08/2011 09:51

Title Reference: 50790155
Date Created: 13/11/2009

Previous Title: 50780390

REGISTERED OWNER

Dealing No: 713902270 10/06/2011

WILLIAM JAMES CROWTHER

ESTATE AND LAND

Estate in Fee Simple

LOT 96 SURVEY PLAN 227975
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 40059017 (Lot 95 on CP PT395)

2. EASEMENT No 712844027 05/11/2009 at 11:16 benefiting the land over EASEMENT A ON SP227975

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
710672454	WATER NOTICE WATER ACT 2000	13/06/2007 08:39	CURRENT
712019778	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	31/10/2008 10:24	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 24 on DN40201, 64.75 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area

Michael John Walther and Ann-Marie Walther as joint tenants	6 May 2003 to Present	Block burdened by Easement A on SP156913 in favour of Lot 23 on DN40176 and Lot 201 on DN401176 from 22 April 2003

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30464011
Date Created: 15/10/1979

Previous Title: 30326148
30326149

REGISTERED OWNER

Dealing No: 706576948 06/05/2003

MICHAEL JOHN WALTHER
ANN-MARIE WALTHER JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 24 CROWN PLAN DN40201
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30111035 (POR 24V)

2. EASEMENT No 706545346 22/04/2003 at 16:07
burdening the land to
LOT 23 ON CP DN40176
OVER EASEMENT A ON SP156913

3. EASEMENT No 706545367 22/04/2003 at 16:08
burdening the land to
LOT 201 ON CP DN40176
OVER EASEMENT A ON SP156913

4. MORTGAGE No 713067705 19/02/2010 at 09:57
WESTPAC BANKING CORPORATION A.B.N. 33 007 457 141

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

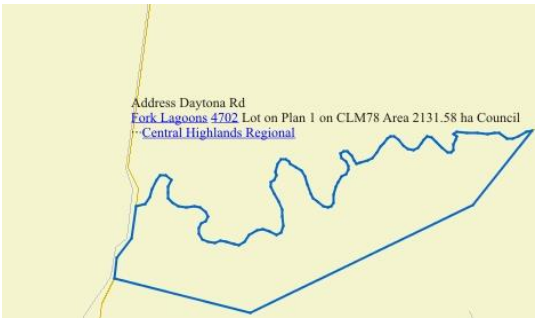
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 1 on CLM78, 2131.58 ha, Parish of Burn, County of Clermont, Central Highlands Local Government Area



Donald Allan Gordon and Kay Lorraine Gordon as joint tenants	2 January 2009 to Present	

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30632071
Date Created: 16/10/1992

REGISTERED OWNER

Dealing No: 712137501 02/01/2009

DONALD ALLAN GORDON
KAY LORRAINE GORDON JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 1 CROWN PLAN CLM78
County of CLERMONT Parish of BURN
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30632071 (Lot 1 on CP CLM78)

2. MORTGAGE No 712137503 02/01/2009 at 11:42
NATIONAL AUSTRALIA BANK LIMITED A.B.N. 12 004 044 937

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 21 on DSN29, 64.75 ha, Parish of Selma, County of Denison, Central Highlands Local Government Area

Stanley Gordon Knight and Patricia Ann Knight as joint tenants	15 October 1979 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30464009
Date Created: 15/10/1979

Previous Title: 30326144
30326145

REGISTERED OWNER

STANLEY GORDON KNIGHT
PATRICIA ANN KNIGHT JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 21 CROWN PLAN DSN29
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30093227 (POR 21V)

2. MORTGAGE No 601070266 (C552071R) 31/05/1988
TO WESTPAC BANKING CORPORATION

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711253596	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	07/12/2007 14:30	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 15 on PLA4029, 486.736, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area

Stanley Gordon Knight and Patricia Ann Knight as joint tenants	15 October 1979 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 30464007
Date Created: 15/10/1979

Previous Title: 30326140
30326141

REGISTERED OWNER

STANLEY GORDON KNIGHT
PATRICIA ANN KNIGHT JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 15 CROWN PLAN PLA4029
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30115103 (POR 15V)

2. MORTGAGE No 601070266 (C552071R) 31/05/1988 TO WESTPAC BANKING CORPORATION

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711253596	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	07/12/2007 14:30	CURRENT

UNREGISTERED DEALINGS - NIL

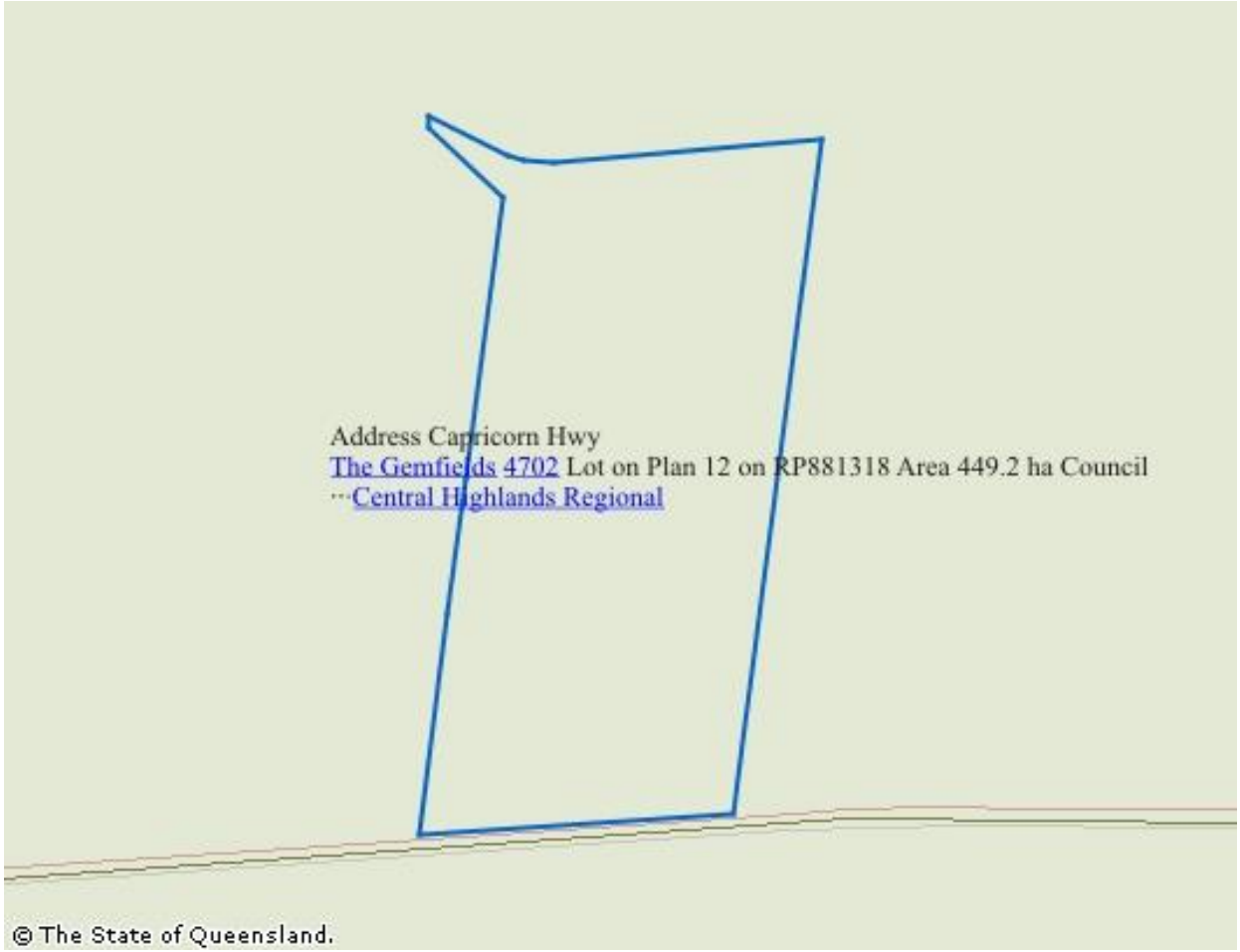
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 12 on RP881318, 449.2 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



Stanley Gordon Knight and Patricia Ann Knight as joint tenants	24 October 1994 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 50026490
Date Created: 31/10/1994

Previous Title: 30550141

REGISTERED OWNER

Dealing No: 700300245 24/10/1994

STANLEY GORDON KNIGHT
PATRICIA ANN KNIGHT JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 12 REGISTERED PLAN 881318
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30550141 (Lot 101 on CP PT341)

2. MORTGAGE No 601070266 (C552071R) 31/05/1988
TO WESTPAC BANKING CORPORATION

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711253596	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	07/12/2007 14:30	CURRENT

UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 13 on RP881318, 444.6 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area

Stanley Gordon Knight and Patricia Ann Knight as joint tenants	31 October 1994 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12177045
Search Date: 24/08/2011 10:46

Title Reference: 50026491
Date Created: 31/10/1994

Previous Title: 30550141

REGISTERED OWNER

Dealing No: 700300245 24/10/1994

STANLEY GORDON KNIGHT
PATRICIA ANN KNIGHT JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 13 REGISTERED PLAN 881318
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 30550141 (Lot 101 on CP PT341)

2. MORTGAGE No 601070266 (C552071R) 31/05/1988 TO WESTPAC BANKING CORPORATION

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711253596	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	07/12/2007 14:30	CURRENT

UNREGISTERED DEALINGS - NIL

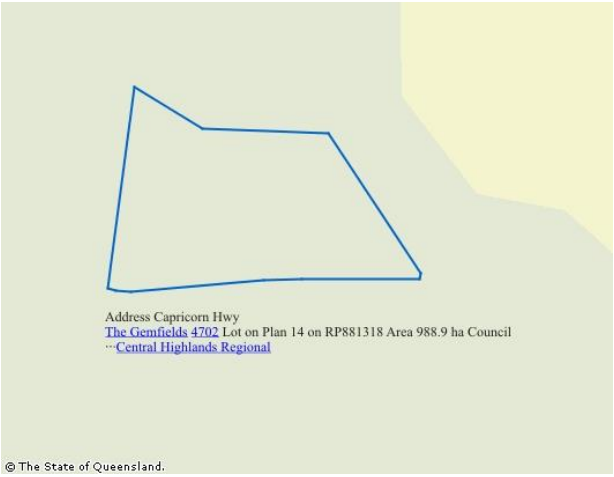
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 14 on RP881318, 988.9 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



Stanley Gordon Knight and Patricia Ann Knight as joint tenants	31 October 1994 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 50026492
Date Created: 31/10/1994

Previous Title: 30550141

REGISTERED OWNER

Dealing No: 700300245 24/10/1994

STANLEY GORDON KNIGHT
PATRICIA ANN KNIGHT JOINT TENANTS

ESTATE AND LAND

Estate in Fee Simple

LOT 14 REGISTERED PLAN 881318
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

For exclusions / reservations for public purposes refer to
Plan RP 881318

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by
   Deed of Grant No. 30550141 (Lot 101 on CP PT341)

2. MORTGAGE No 601070266 (C552071R) 31/05/1988
   TO WESTPAC BANKING CORPORATION

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711253596	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	07/12/2007 14:30	CURRENT

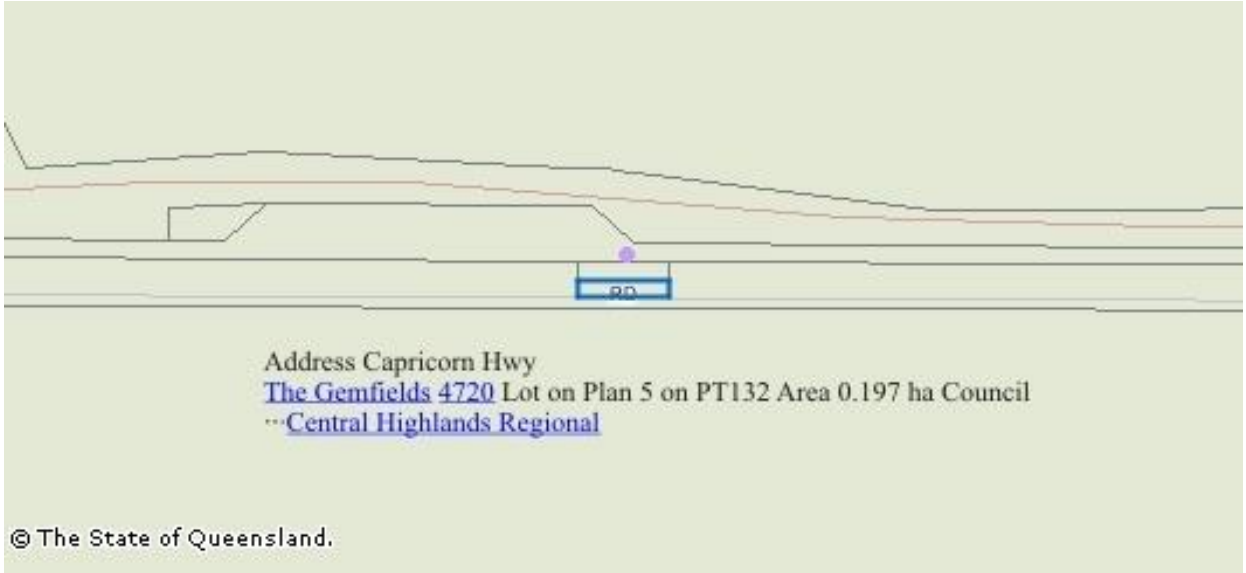
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current Title Search **

Requested By: External Supervisor

Lot 5 on PT132, 1973m^2, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area  		
Queensland Rail Limited A. C. N. 132 181 090 as trustee	1 September 2010 to Present	Reserve for railway purposes (R58 Plantagenet – Res 7518) gazette 6 October 1945

CURRENT RESERVE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 49005404
Date GAZETTED: 06/10/1945
PAGE: 737

Opening Ref: SPG 45-14787
Purpose: RAILWAY
Sub-Purpose:
Local Name:
Address: TAROBORAH
County (R) No: R58 PLANTAGENET
File Ref: RES 7518

TRUSTEES

QUEENSLAND RAIL LIMITED A.C.N. 132 181 090 AMENDED on 01/09/2010
GPO BOX 1429 BRISBANE QLD 4001

LAND DESCRIPTION

LOT 5 CROWN PLAN PT132 GAZETTED ON 06/10/1945 PAGE 737
County of PLANTAGENET Parish of GLENDARRIWELL
Local Government: CENTRAL HIGHLANDS

Area: 0.197300 Ha. (SURVEYED)

EASEMENTS AND ENCUMBRANCES

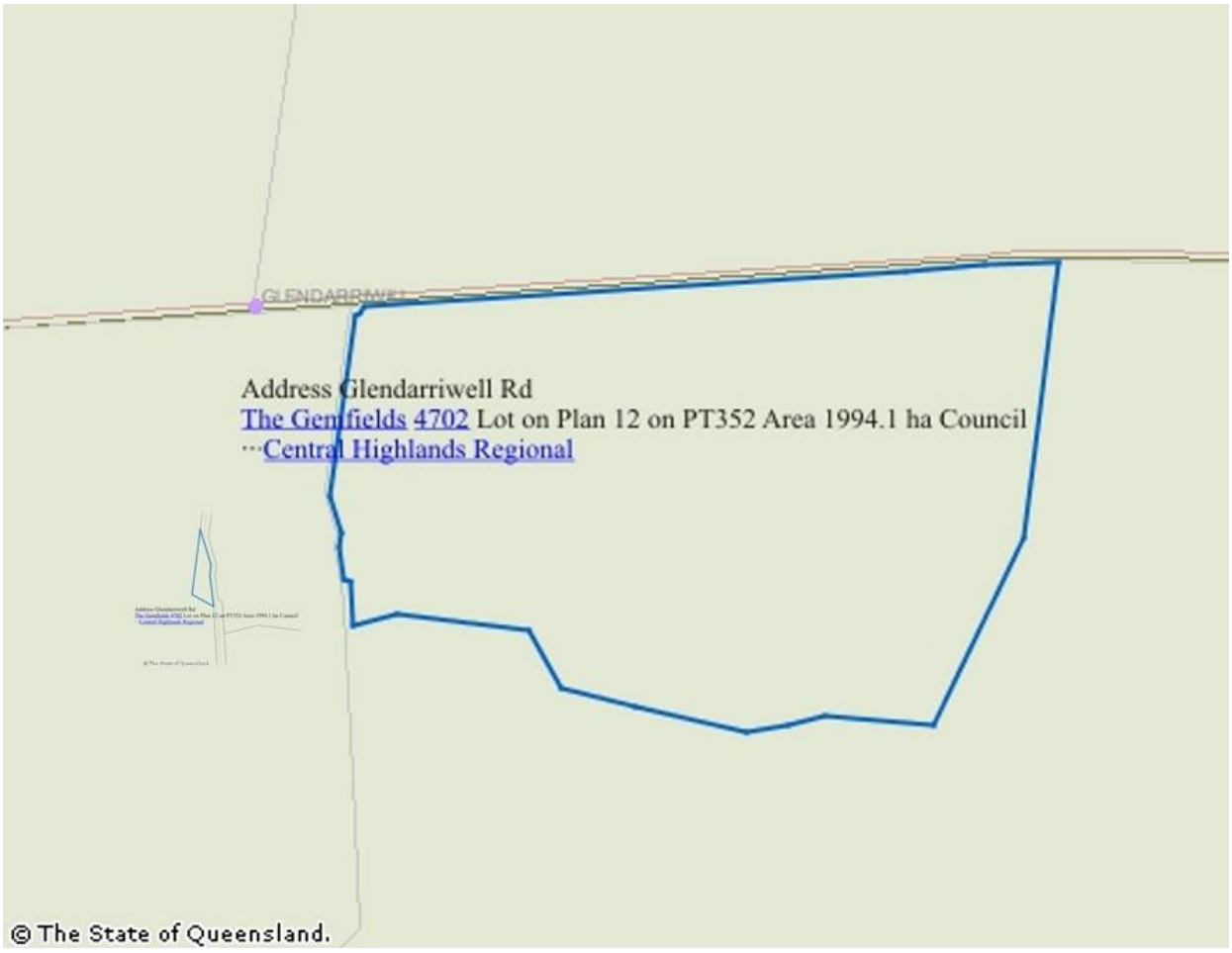
ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Reserve Search **

Requested By: External Supervisor

Lot 12 on PT352, 1994.1 ha, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area



Crown Land leased by Bruce Peter Roberts and Trudy Anne Roberts as tenants in common (1/2 shares each)	1 February 2007 to Present	Block subject to Crown Lease (Grazing Homestead Freeholding Lease 37/3729A, No.17632034) with 39 year 3 months term commencing 1 October 1984. Block subject to Vegetation Notice 711198063 from 20 November 2007. Block subject to Vegetation Notice 712278002 from 13 March 2009

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17632034
Date Created: 21/10/1995

DESCRIPTION OF LAND

Tenure Reference: GHFL 37/3729 A

LOT 12 CROWN PLAN PT352
County of PLANTAGENET Parish of GLENDARRIWELL
Local Government: CENTRAL HIGHLANDS

Area: 1994.100000 Ha. (SURVEYED)

No Land Description

No Forestry Entitlement Area

No Future Conservation Area

Purpose for which granted:
NO PURPOSE DEFINED

TERM OF LEASE

Term and day of beginning of lease and purchase price

Term: 39 years 3 months commencing on 01/10/1984

Purchase Price: $159520.00

REGISTERED LESSEE Interest

Dealing No: 710301700 01/02/2007

BRUCE PETER ROBERTS 1/2
TRUDY ANNE ROBERTS 1/2

AS TENANTS IN COMMON

CONDITIONS

Nil

ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Lease No. 17632034

2. MORTGAGE No 710301718 01/02/2007 at 11:29
WESTPAC BANKING CORPORATION A.B.N. 33 007 457 141

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
711198063	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	20/11/2007 14:49	CURRENT
712278002	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	13/03/2009 14:15	CURRENT

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 17632034
Date Created: 21/10/1995

UNREGISTERED DEALINGS - NIL

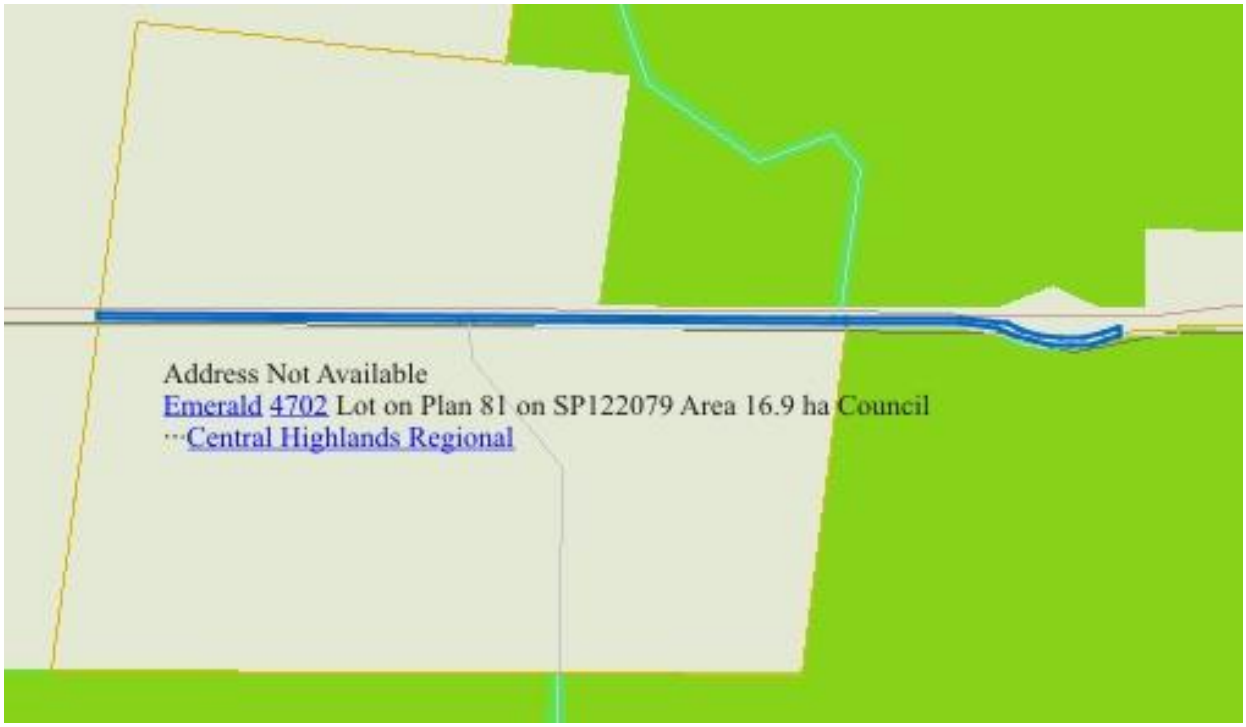
Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

Requested By: External Supervisor

Lot 81 on SP122079, 16.9 ha, Parish of Anakie and Parish of Glendarriwell, County of Plantagenet and Parish of Selma, County of Denison, Central Highlands Local Government Area



Crown Land leased by the State represented by the Department of Transport and Main Roads and Sub-leased by Queensland Rail Limited A. C. N. 132 181 090	7 June 2009 to Present	Sub-lease term 30 June 2010 to 30 June 2110 with options

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 48004453
Date Created: 27/02/2010

Previous Title: 40008706

LAND DESCRIPTION

Estate in PERPETUITY

LOT 81 SURVEY PLAN 122079
County of PLANTAGENET Parish of ANAKIE
County of PLANTAGENET Parish of GLENDARRIWELL
County of DENISON Parish of SELMA
Local Government: CENTRAL HIGHLANDS

REGISTERED LESSEE

Dealing No: 712575658 07/07/2009

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF TRANSPORT AND MAIN ROADS)

PERPETUAL TENURE INFORMATION

For Conditions, Primary Tenure information including Purpose and Term of Tenure, refer to title reference 40008706

ENCUMBRANCES, EASEMENTS AND INTERESTS

1. SUB LEASE No 713429425 26/08/2010 at 11:17
   QUEENSLAND RAIL LIMITED A.C.N. 132 181 090
   OF THE WHOLE OF THE LAND
   TERM: 30/06/2010 TO 30/06/2110 OPTION AS THEREIN STATED

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

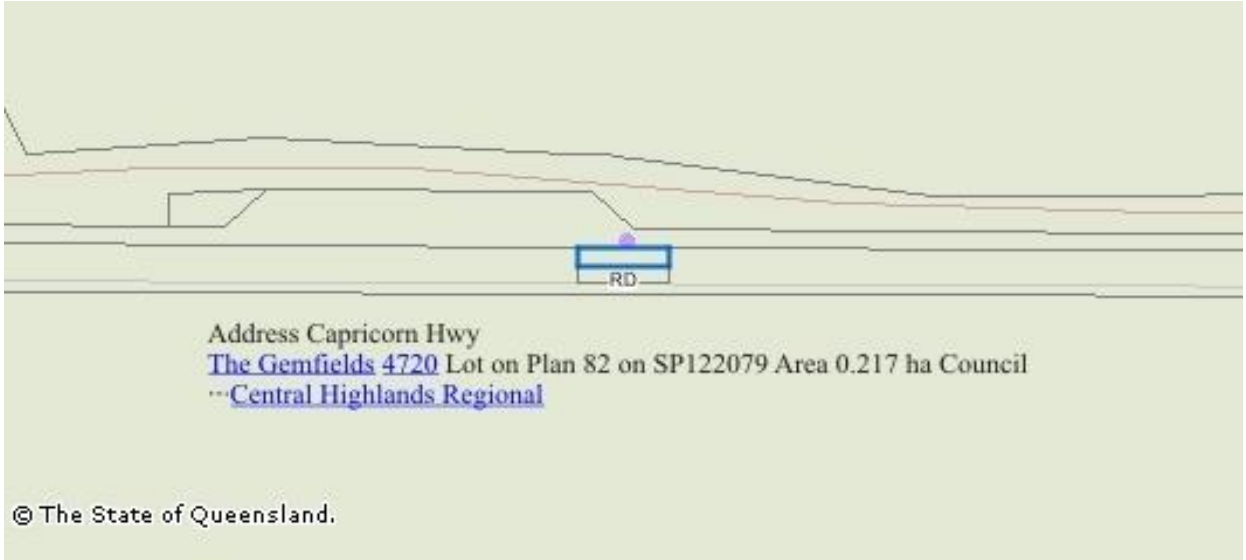
CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)

Requested By: External Supervisor

Lot 82 on SP122079, 2170m^2, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area  		
Queensland Rail Limited A. C. N. 132 181 090	25 August 2010 to Present	

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 47501191
Date Created: 28/11/2006

OWNER

Dealing No: 713429472 26/08/2010

QUEENSLAND RAIL LIMITED A.C.N. 132 181 090

ESTATE

Estate in Queensland Rail Land (Vested)

LOT 82 SURVEY PLAN 122079
County of PLANTAGENET Parish of GLENDARRIWELL
Local Government: CENTRAL HIGHLANDS

EASEMENTS AND ENCUMBRANCES

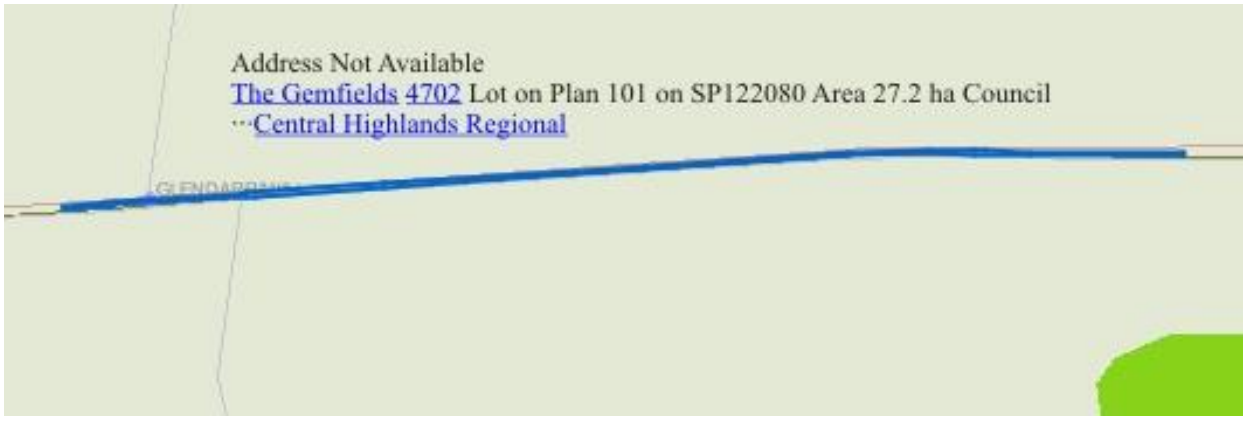
ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or
section 281 Land Act(1994)

Requested By: External Supervisor

<table>
<tr><td colspan="3">Lot 101 on SP122080, 27.2 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area
 
</td></tr>
<tr><td>Crown Land leased by the State represented by the Department of Transport and Main Roads and Sub-leased by Queensland Rail Limited A. C. N. 132 181 090</td><td>7 June 2009 to Present</td><td>Sub-lease term 30 June 2010 to 30 June 2110 with options</td></tr>
</table>

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12147769
Search Date: 19/08/2011 09:30

Title Reference: 48004452
Date Created: 27/02/2010

Previous Title: 40008706

LAND DESCRIPTION

Estate in PERPETUITY

LOT 101 SURVEY PLAN 122080
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

REGISTERED LESSEE

Dealing No: 712575658 07/07/2009

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF TRANSPORT AND MAIN ROADS)

PERPETUAL TENURE INFORMATION

For Conditions, Primary Tenure information including Purpose and Term of Tenure, refer to title reference 40008706

ENCUMBRANCES, EASEMENTS AND INTERESTS

1. SUB LEASE No 713429425 26/08/2010 at 11:17
   QUEENSLAND RAIL LIMITED A.C.N. 132 181 090
   OF THE WHOLE OF THE LAND
   TERM: 30/06/2010 TO 30/06/2110 OPTION AS THEREIN STATED

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

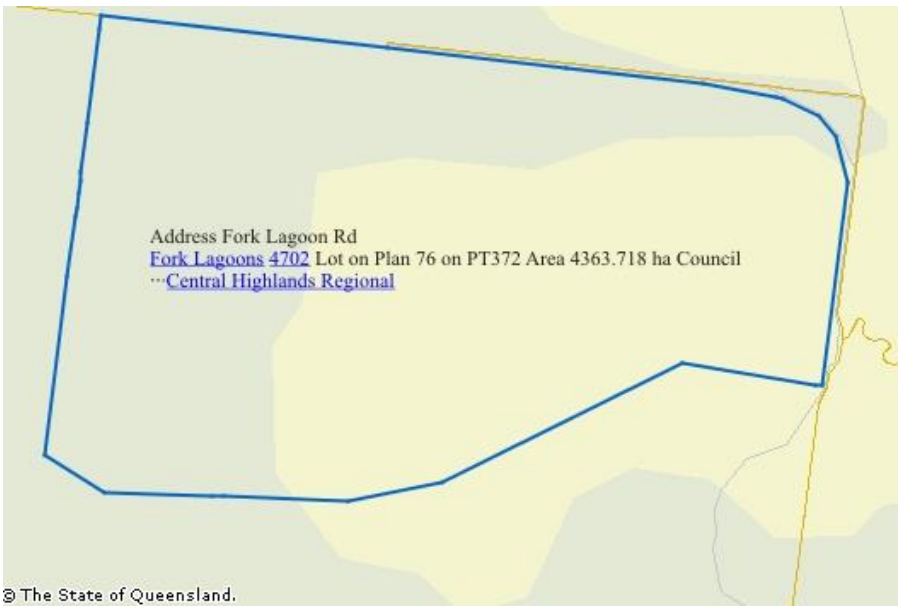
Caution - Charges do not necessarily appear in order of priority

** End of Current State Tenure Search **

Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)

Requested By: External Supervisor

Lot 76 on PT372, 4363.718 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



Shirley Margaret Nixon	14 April 2003 to Present	Block subject to Vegetation Notice 713605998 from 1 December 2010

CURRENT TITLE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 50436007
Date Created: 15/04/2003

Previous Title: 40036839

REGISTERED OWNER

Dealing No: 706525355 14/04/2003

SHIRLEY MARGARET NIXON

ESTATE AND LAND

Estate in Fee Simple

LOT 76 CROWN PLAN PT372
County of PLANTAGENET Parish of ANAKIE
Local Government: CENTRAL HIGHLANDS

EASEMENTS, ENCUMBRANCES AND INTERESTS
ENCUMBRANCES AND INTERESTS

1. Rights and interests reserved to the Crown by Deed of Grant No. 40036839 (Lot 76 on CP PT372)

ADMINISTRATIVE ADVICES

Dealing	Type	Lodgement Date	Status
713605998	VEG NOTICE VEGETATION MANAGEMENT ACT 1999	03/12/2010 12:03	CURRENT

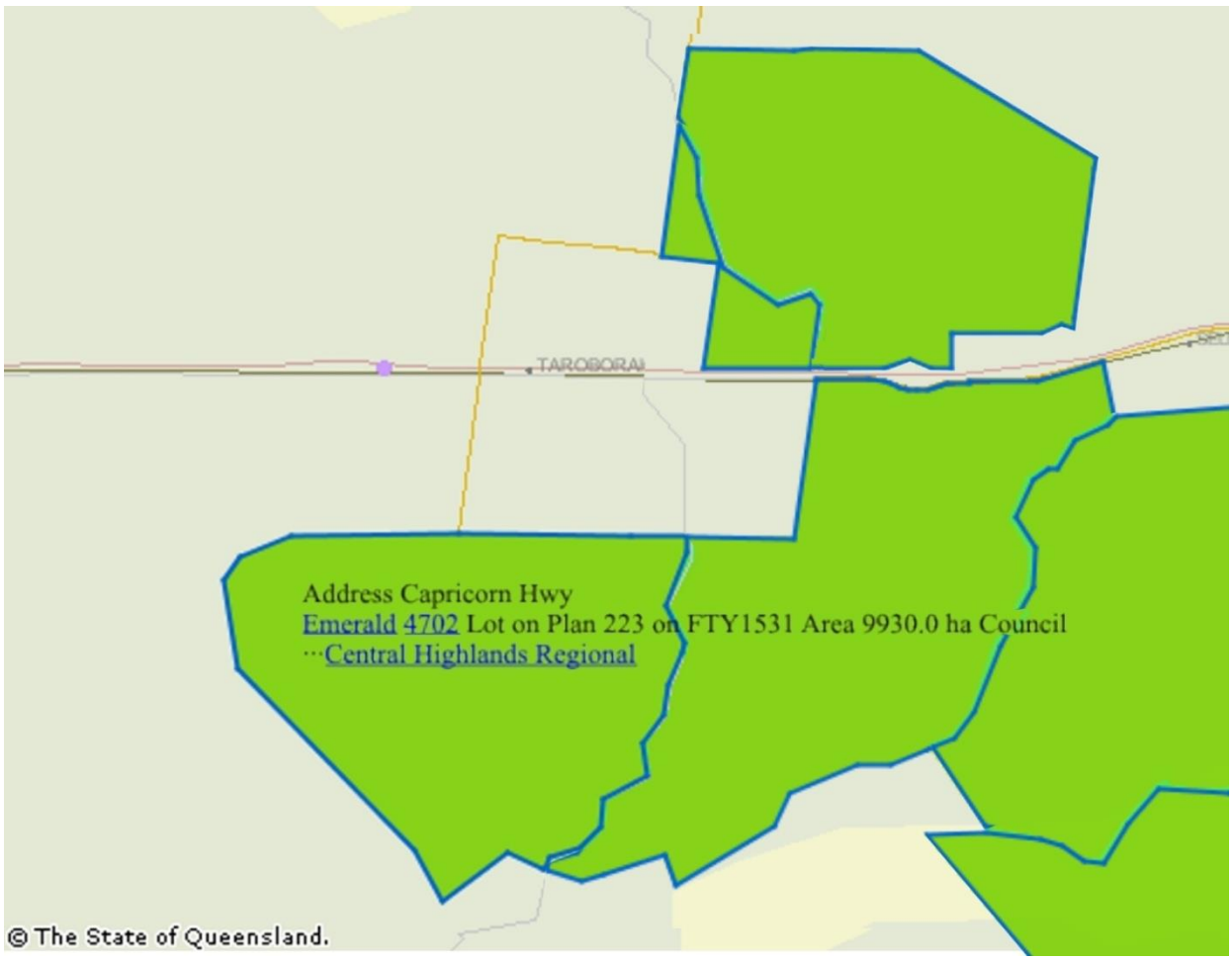
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

** End of Current Title Search **

Requested By: External Supervisor

Lot 223 on FTY1531, 9930 ha, Parish not recorded, County not recorded, Central Highlands Local Government Area



Crown Land leased by The State of Queensland represented by the Department of Environment and Resource Management under the Forestry Act	14 August 2007 to Present	Fairbairn State Forest. Block subject to Crown Special Leases No.701416837, No. 701416838 and No. 701416839 from 5 July 1996. State lease created 17 November 2009

CURRENT STATE TENURE SEARCH

ENVIRONMENT AND RESOURCE MANAGEMENT, QUEENSLAND

Request No: 12142959
Search Date: 18/08/2011 13:43

Title Reference: 47542189
Date Created: 14/08/2007

Opening Ref:
Purpose: STATE FOREST
Local Name: FAIRBAIRN STATE FOREST

OWNER

THE STATE OF QUEENSLAND
(REPRESENTED BY DEPARTMENT OF ENVIRONMENT AND RESOURCE MANAGEMENT - FORESTRY ACT)

ESTATE

Estate in Forest Estate

LOT 223 CROWN PLAN FTY1531
County of (Not Recorded) Parish of (Not Recorded)
Local Government: CENTRAL HIGHLANDS

EASEMENTS AND ENCUMBRANCES

1. CREATION OF SPECIAL LEASE No 701416837 05/07/1996 at 00:27
   A SPECIAL LEASE ON TITLE REFERENCE 17590128 HAS BEEN ISSUED

2. CREATION OF SPECIAL LEASE No 701416838 05/07/1996 at 00:27
   A SPECIAL LEASE ON TITLE REFERENCE 17591032 HAS BEEN ISSUED

3. CREATION OF SPECIAL LEASE No 701416839 05/07/1996 at 00:27
   A SPECIAL LEASE ON TITLE REFERENCE 17591045 HAS BEEN ISSUED

4. STATE LEASE No 712868988 17/11/2009 at 08:23
   A State Lease has been created see Title Reference 17590147

ADMINISTRATIVE ADVICES - NIL
UNREGISTERED DEALINGS - NIL

CERTIFICATE OF TITLE ISSUED - No

Caution - Charges do not necessarily appear in order of priority

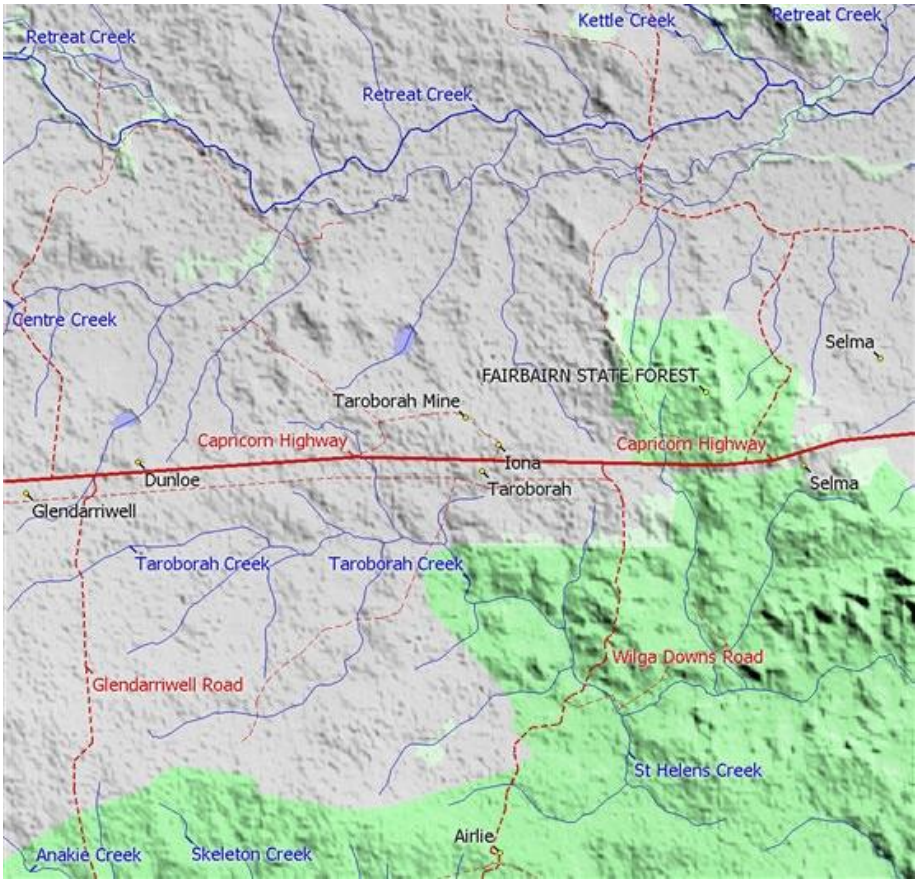
** End of Current State Tenure Search **

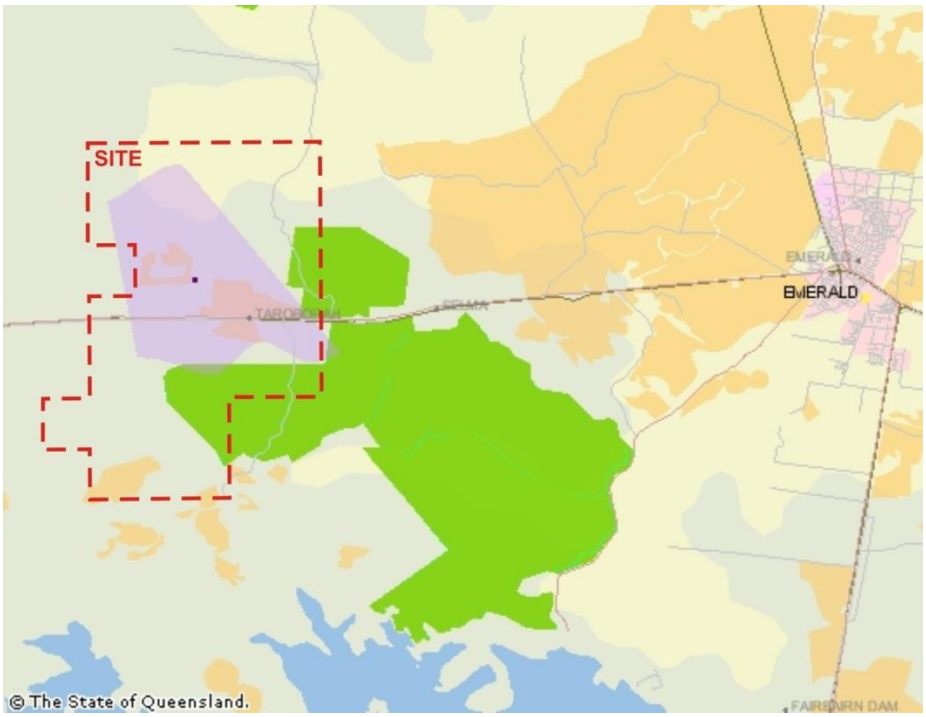
Information provided under section 34 Land Title Act(1994) or section 281 Land Act(1994)

Requested By: External Supervisor

TAROBORAH TITLE HISTORY

Taroborah, the site of a proposed mining operation, lies some 20 km west of Emerald, itself 270 km west of Rockhampton along the Capricorn Highway. The site straddles the highway and the parallel Central Railway Line. The general area was first sited by Leichardt in 1844 and pastoral runs were taken up in the 1850/60's

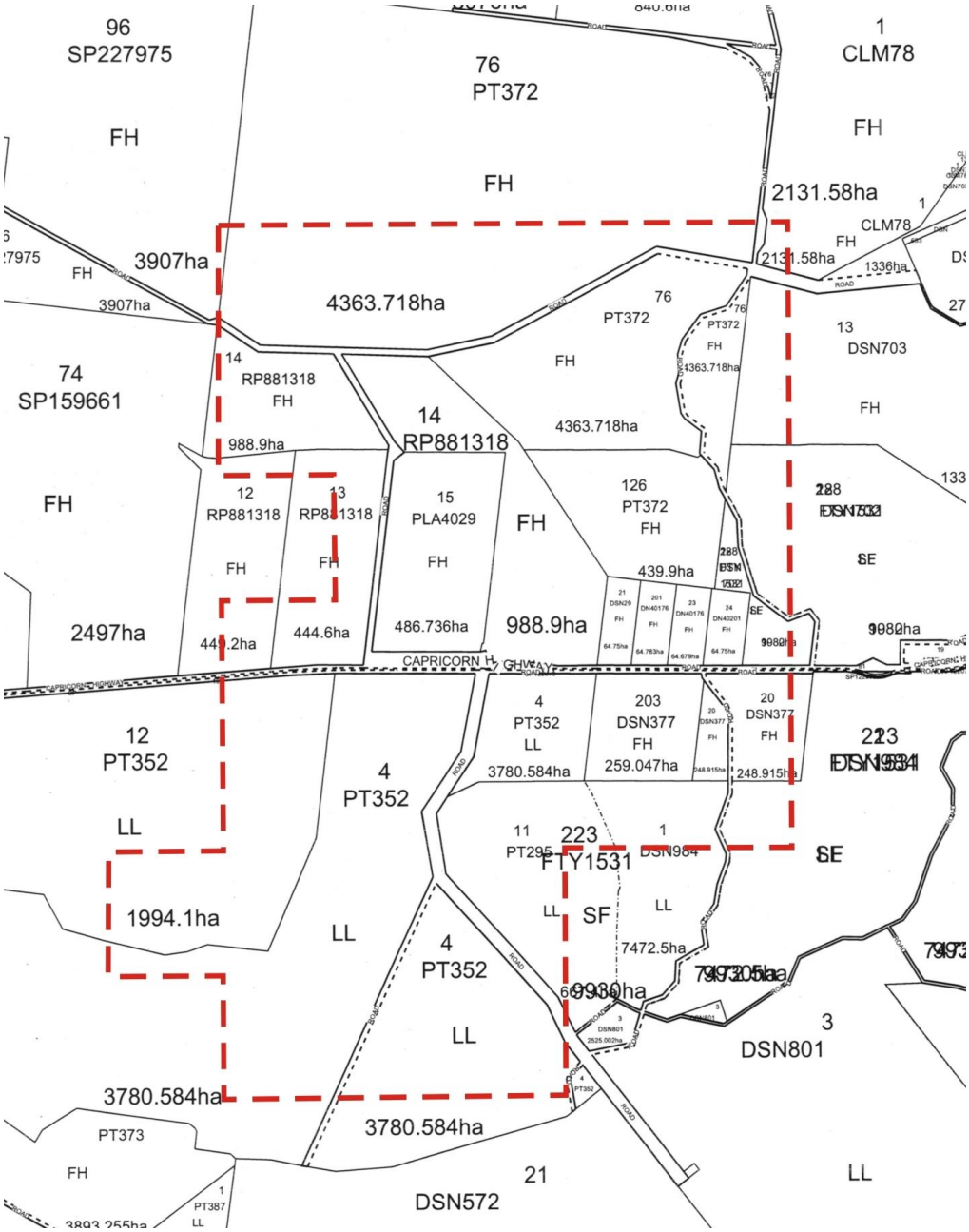




A list (below) of lots affected by the proposed mining operation has been supplied by the client. In August 2011 current land titles for the lots on this list were obtained from government sources.

Lot 124	**PT367**
Lot 4	**PT352**
Lot 13	**DSN703**
Lots	
20, 203	**DSN377**
Lot 201	**DN40176**
Lot 126	**PT372**
Lot 23	**DN40176**
***Lot 95**	**PT395**
Lot 24	**DN40201**
Lot 1	**CLM78**
Lot 21	**DSN29**

Lot 15	**PLA4029**
Lots	
12-14	**RP881318**
Lot 5	**PT132**
Lot 12	**PT352**
Lot 81,	
82	**SP122079**
Lot 101	**SP122080**
Lot 76	**PT372**
Lot 223	**FTY1531**
***Subsequently**	**Lot96 SP227975**



Based on DERM Smartmap dated 16/8/2011

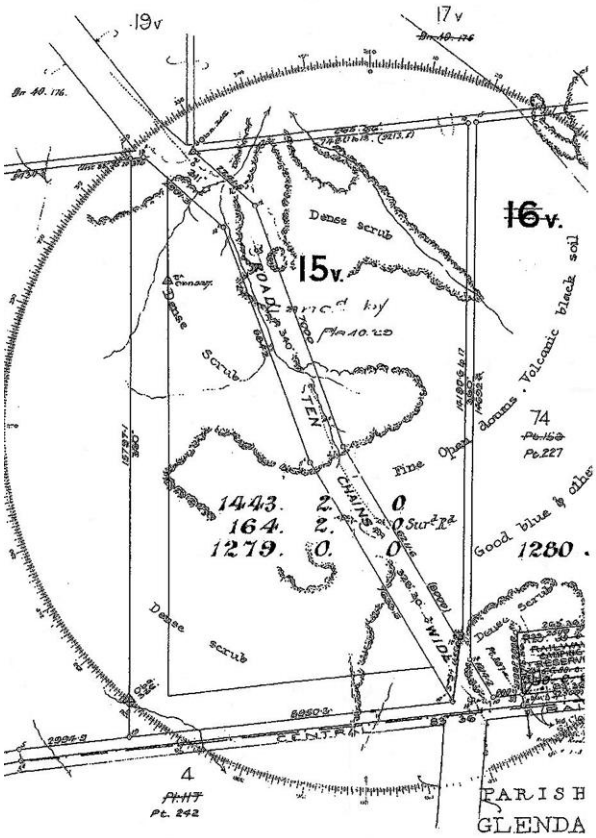
Registered Owner or Lessee:	Period of Ownership or Lease:	Comments:

North of Capricorn Highway

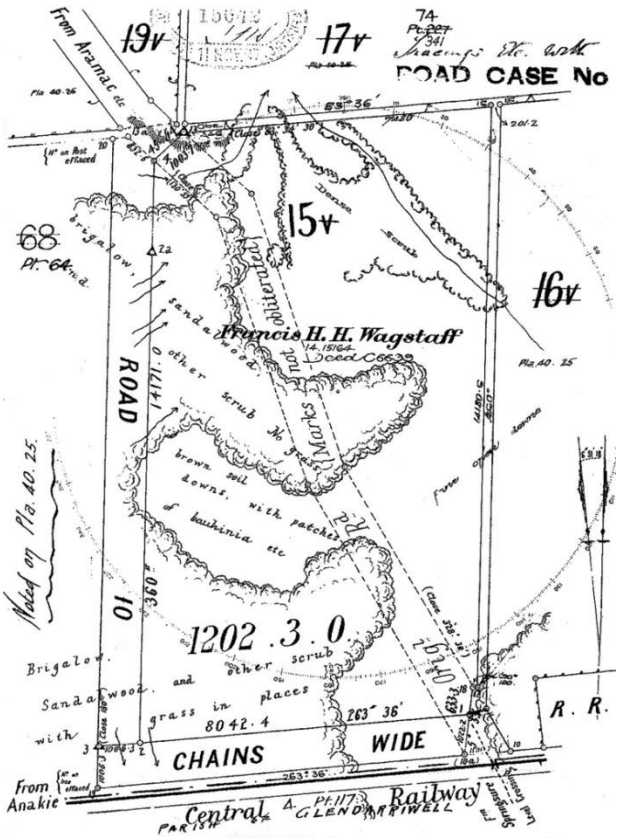
Pre 1897 the area north of the Capricorn Highway would appear to be part of the "Iona Holding and possibly the "Retreat Holding" before that.

Portion 15v, Parish of Anakie, County of Plantagenet, on PLA4026, 1279 acres (517.5929 ha) exclusive of roads. Central Highlands Local Government Area.

Lot 15, formerly Portion 15v, **on PLA4029**, 1202 acres 3 roads (486.736 ha), Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area

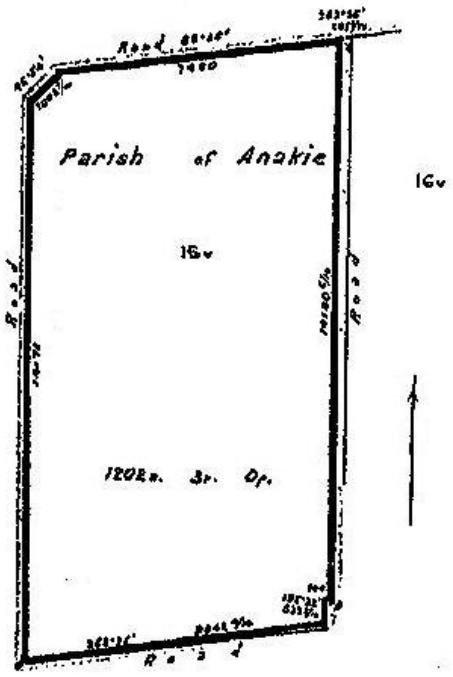


Part of PLA4026 surveyed February 1897

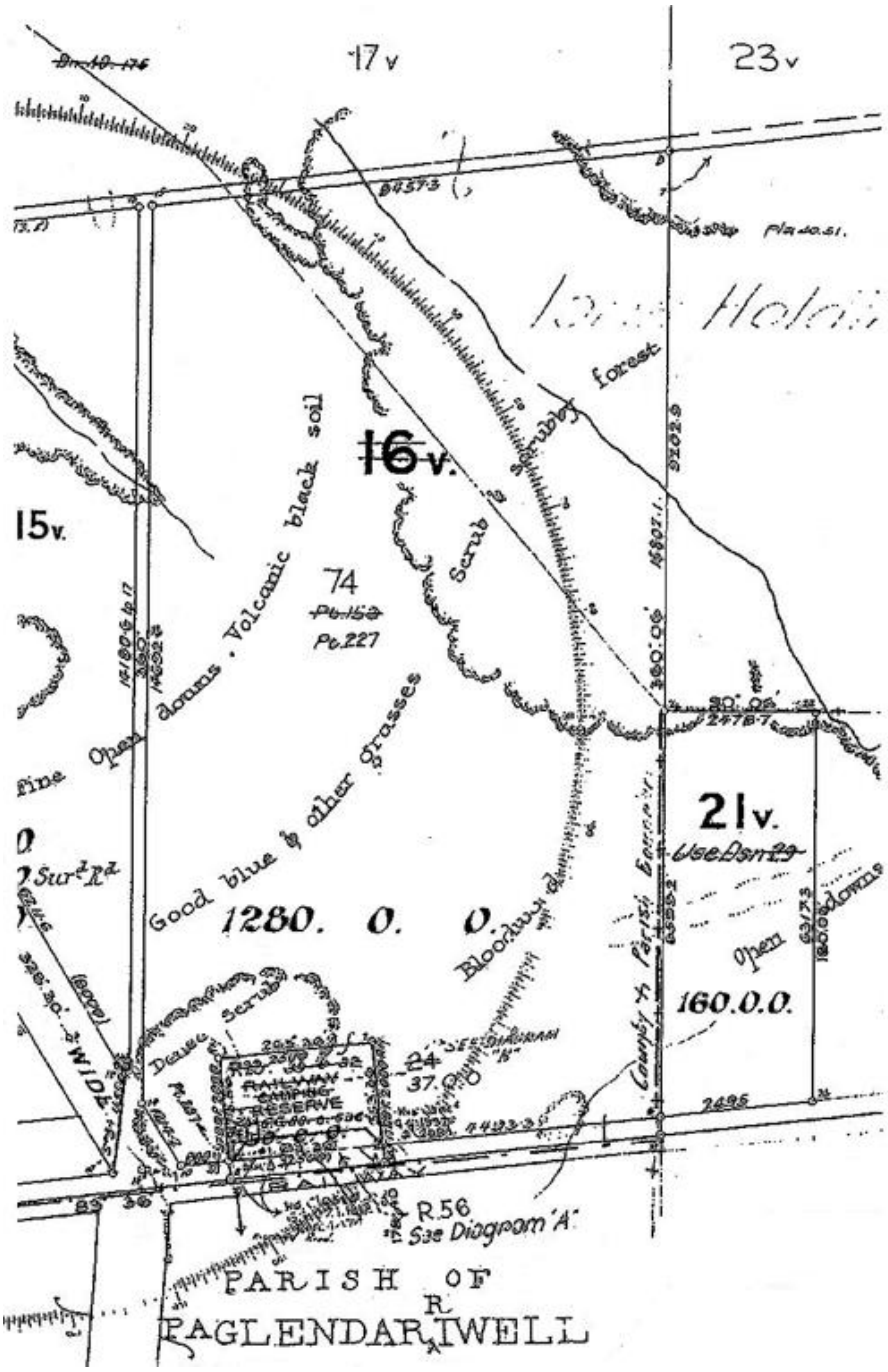


Part of PLA4029, October 1897 resurvey

T. S. E. Griffith as Crown lessee	2 April 1897 to 12 April 1898	Block subject to Crown lease (Agricultural Farm Lease No. 208). Internal 10 chain (201.168 m) stock route (road) repositioned to southern and western boundaries by PLA4029 in October 1897
T. S. E. Griffith as Crown lessee	12 April 1898 to 11 February 1908	Lease amended
Edward Albert Hawkins as Crown lessee	11 February 1908 to 6 August 1913	Block subject to Crown lease (Agricultural Farm Lease No. 768)
Francis Henry Hardy Wagstaff as Crown lessee	6 August 1913 to 17 September 1914	Lease transferred

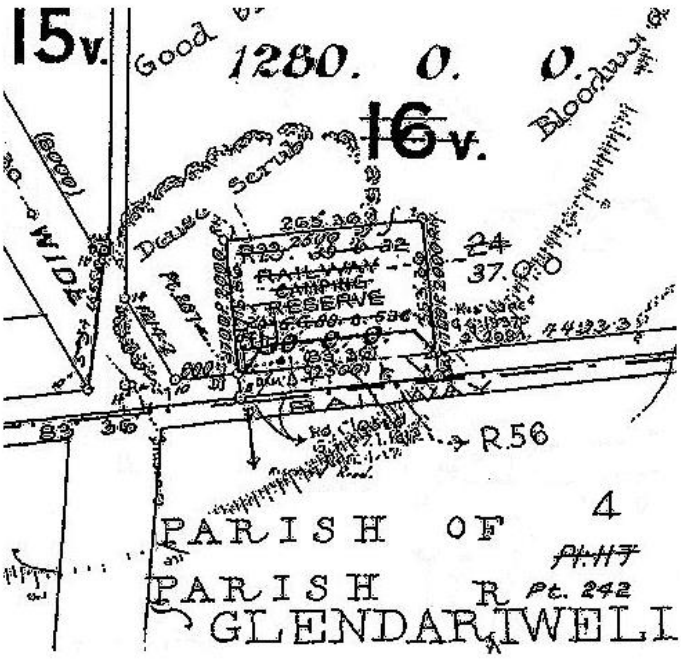
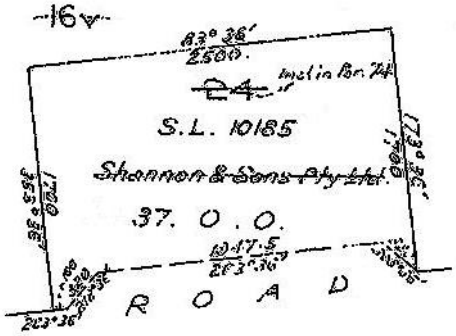
Francis Henry Hardy Wagstaff	17 September 1914to 19 February 1924	Dead of Grant issued September 1914 
Shannon and Sons Pty Ltd (formerly Shannon and Sons Limited)	19 February 1924 to 17 October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as tenants in common	17 October 1955 to 20 March 1959	
Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	20 March 1959 to 18 July 1966	
Kathleen Mary Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	18 July 1966 to 18 July 1966	
Harold James Mortimer and Ross James Mortimer as tenants in common	18 July 1966 to 27 April 1967	
Ross James Mortimer and John Edward Auriac as tenants in common with 2/3 and 1/3 shares resp.	27 April 1967 to 8 October 1979	
Barry Kinnear Robertson, Colleen Robertson and John Dudley McPhee as tenants in common	8 October 1979 to 18 January 1983	
Colleen Robertson and John Dudley McPhee as tenants in common with 2/3 and 1/3 shares resp.	18 January 1983 to 16 April 1985	
Roy Walter Tindale, Dorothy Tindale, Dallas Roy Tindale, Dorothy Lois Davis, Phyllis June Nolan and Enid Vivienne Cooksley as tenants in common	16 April 1985 to 2 June 1988	
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	2 June 1988 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007. Contact:- “Iona Downs” c/o PO Box 764, Emerald, Q4720, ph 07 4982 2499, 0427 822 958

Portion 16v, Parish of Anakie, County of Plantagenet, on PLA4025, 1280 acres (517.9976 ha). Central Highlands Local Government Area

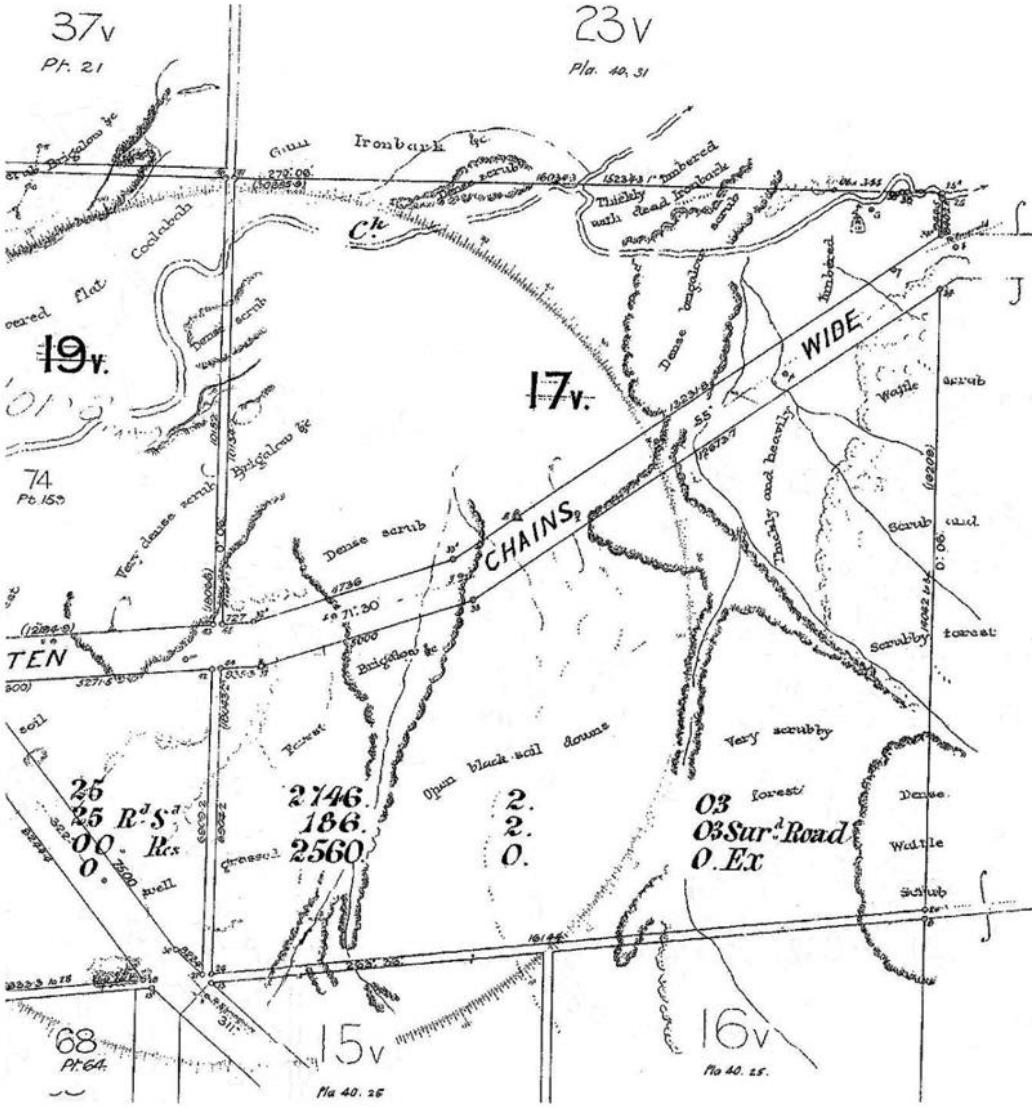


Part of PLA4025 surveyed February 1897

J. R. R. Griffith as Crown lessee	2 April 1897 to 24 July 1906	Block subject to Crown lease (Agricultural Farm Lease No. 209 later Grazing Farm Lease No. 582)
Edward Albert Hawkins as Crown lessee	24 July 1906 to 21 September 1920	Lease transferred
Francis Henry Hardy Wagstaff as Crown lessee	21 September 1920 to date unknown	Block subject to Crown lease (Grazing Homestead Lease No. 2448). Lease surrendered
Mona Shannon Gillham as Crown lessee	Date unknown to 16 June 1936	Lease surrendered

Vacant Crown Land	16 June 1936 to 4 December 1962	Block amalgamated with Portions 17v and 19v on PLA4026, 22v on PLA4028, 23v on PLA4031, 24 on PLA4025, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962
Portion 24, Parish of Anakie, County of Plantagenet, on PLA4026, 50 acres (20.2343 ha). Central Highlands Local Government Area  Part of PLA4025, February 1897  From 1937		
Commissioner of Railways as trustee	Circa 1888 to circa 1937	Reserve for Railway Camping Purposes (R23 Plantagenet) gazetted 1888. Railway Reserve transferred to opposite side of highway adjoining rail line in 1937 (R23 cancelled) and shape altered to reposition highway. Area reduced to 37 acres (14.9734 ha)
Vacant Crown Land	Circa 1937 to circa October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as Crown lessees as tenants in common	Circa October 1955 to 2 February 1959	Block subject to Crown lease (Special Lease10185 No. 208). Noting of "Seed/Grain" on plan
Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as Crown lessees as joint tenants	2 February 1959 to 4 December 1962	Lease renewed. Lease surrendered and block amalgamated with Portions 16v on PLA4025, 17v and 19v on PLA4026, 22v on PLA4028, 23v on PLA4031, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962

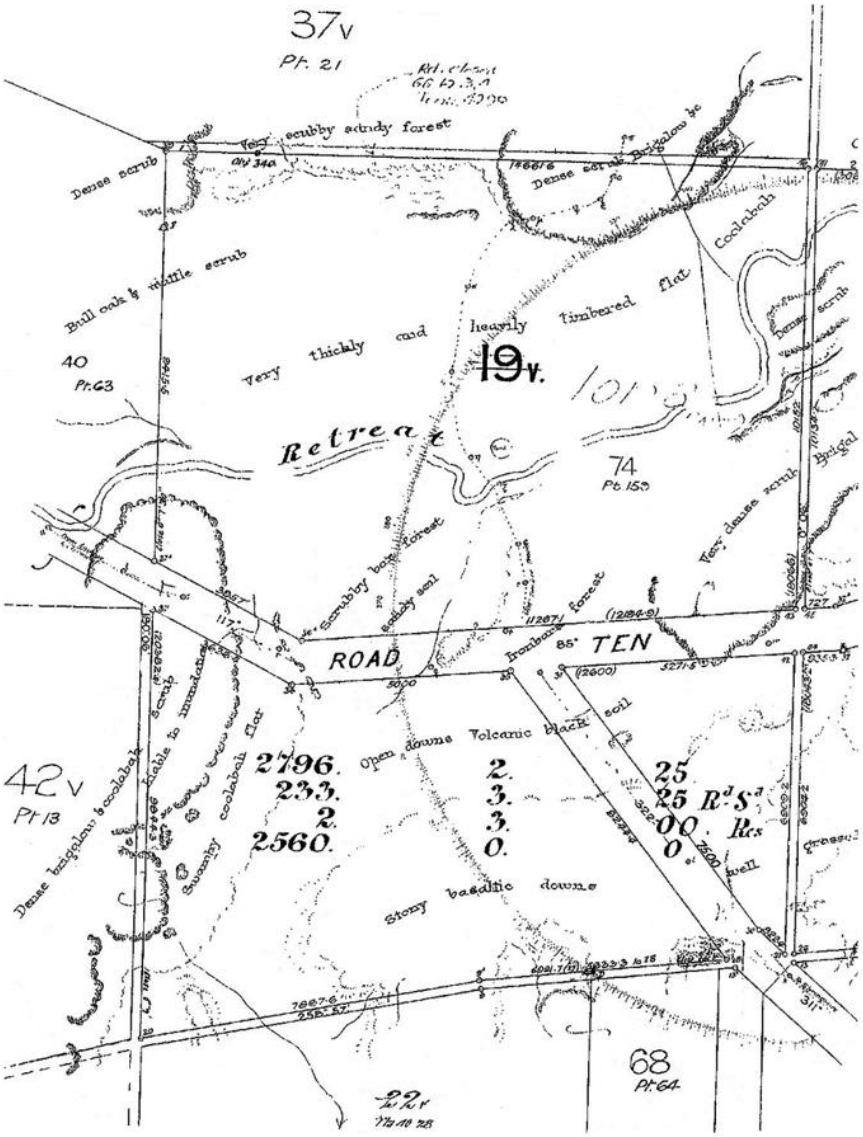
Portion 17v. Parish of Anakie, County of Plantagenet, on PLA4026, 2560 acres (1035.9951 ha) exclusive of roads, Central Highlands Local Government Area



Part of PLA4026 surveyed February 1897

J. R. R. Griffith as Crown lessee	27 January 1898 to 28 February 1908	Block subject to Crown lease (Grazing Homestead, later Grazing Farm, Lease No. GH216)
Edward Albert Hawkins as Crown lessee	28 February 1908 to date unknown (probably 1913)	Lease transferred
Francis Henry Hardy Wagstaff as Crown lessee	Date unknown (probably 1913) to date unknown	Lease transferred
Mona Shannon Gillham as Crown lessee	Date unknown to 17 June 1936	Lease surrendered
Vacant Crown Land	17 June 1936 to 4 December 1962	Internal roads resurveyed by PT153 in March 1961. Block amalgamated with Portions 16v and 24 on PLA4025, 19v on PLA4026, 22v on PLA4028, 23v on PLA4031, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962

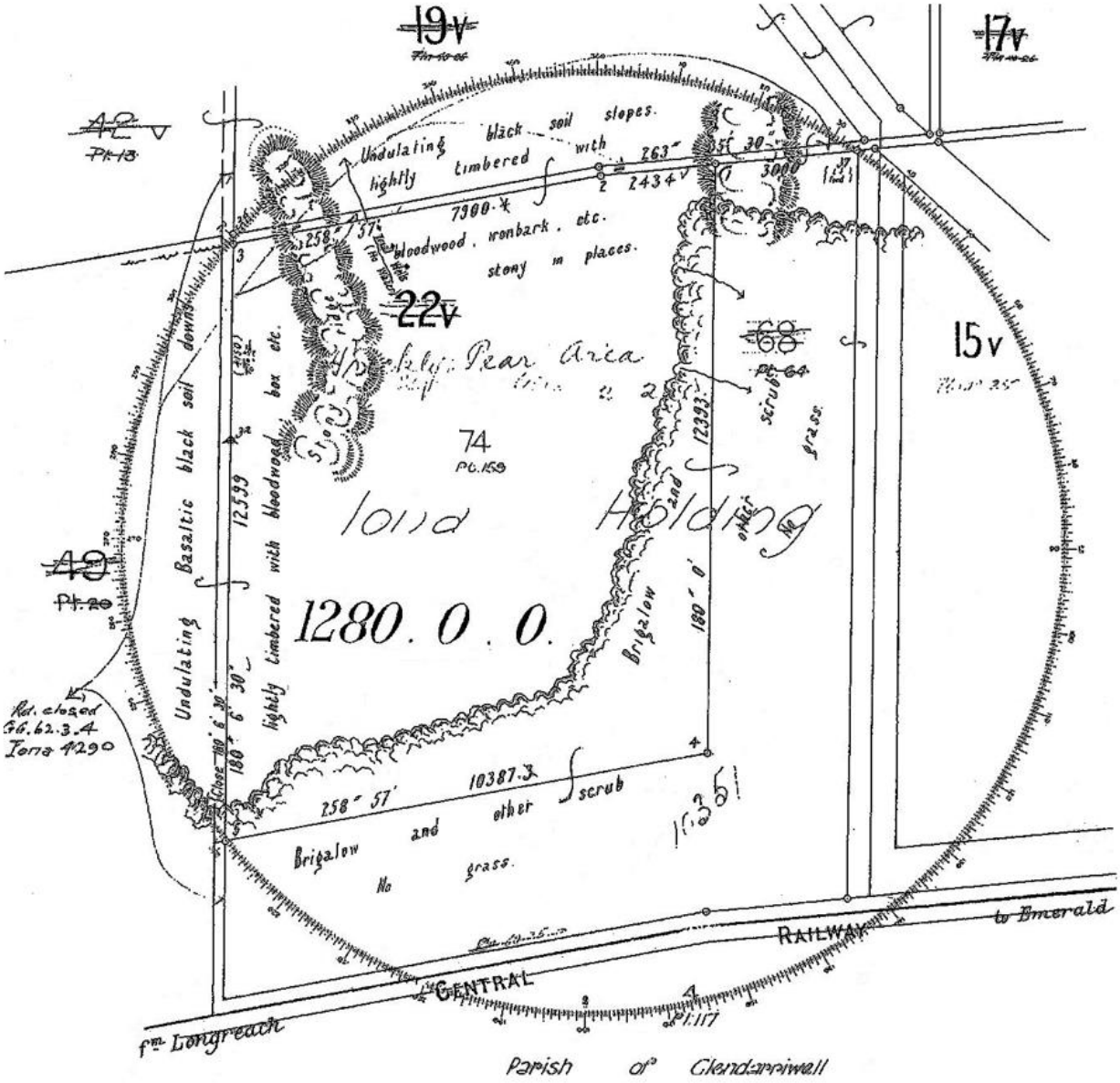
Portion 19v. Parish of Anakie, County of Plantagenet, on PLA4026, 2796 acres 2 roods 25 perches (1131.3618 ha) exclusive of roads and reserve, Central Highlands Local Government Area



Part of PLA4026 surveyed February 1897

R.W. Warrick as Crown lessee	27 July 1897 to 28 February 1908	Block subject to Crown lease (Grazing Homestead Lease No. GH224)
Edward Albert Hawkins as Crown lessee	28 February 1908 to date unknown (probably 1913)	Lease transferred
Francis Henry Hardy Wagstaff as Crown lessee	Date unknown (probably 1913) to date unknown	Lease transferred
Mona Shannon Gillham as Crown lessee	Date unknown to 17 June 1936	Lease surrendered
Vacant Crown Land	17 June 1936 to 4 December 1962	Internal roads resurveyed by PT153 in March 1961. Block amalgamated with Portions 16v and 24 on PLA4025, 17v on PLA4026, 22v on PLA4028, 23v on PLA4031, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962

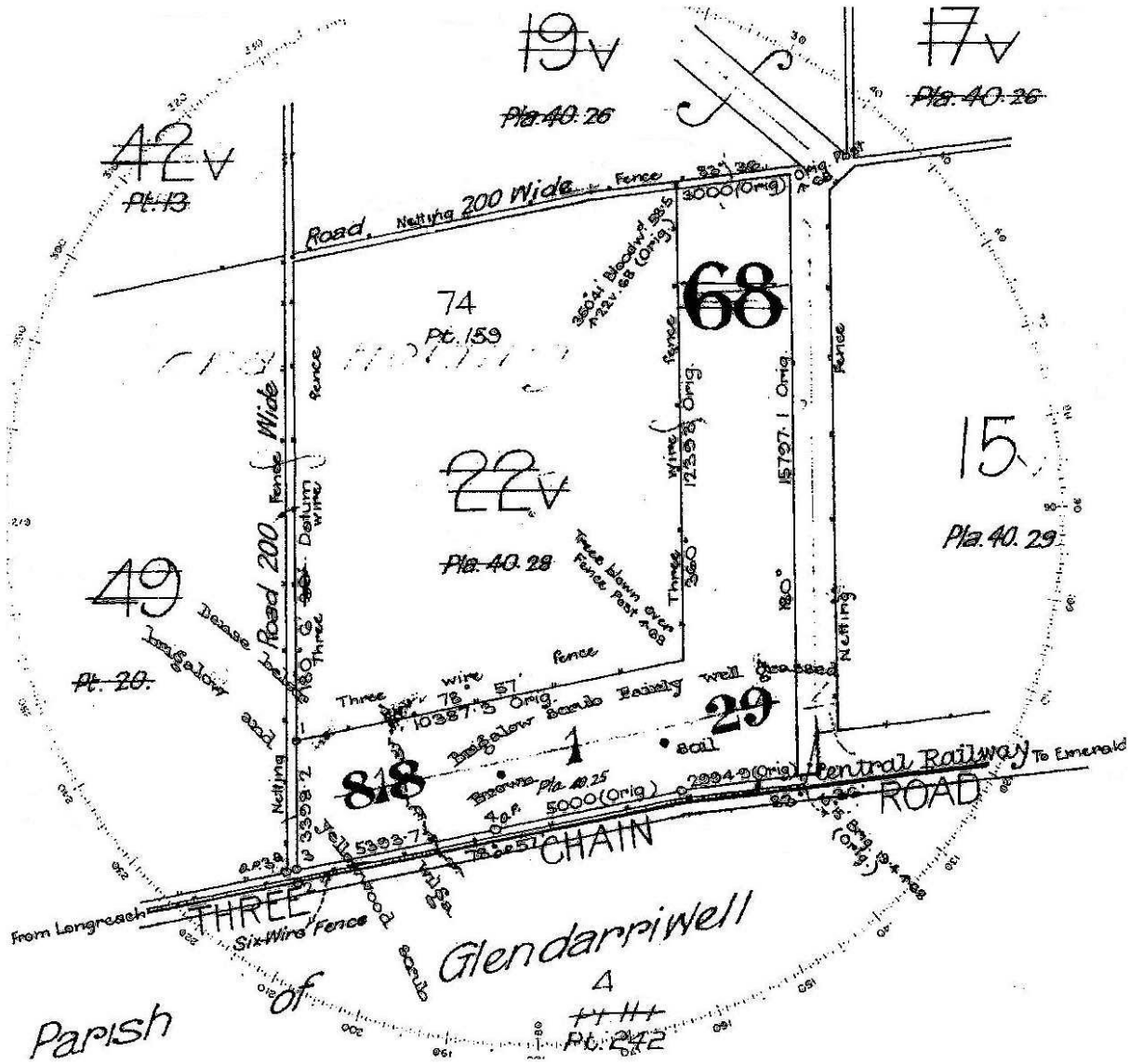
Portion 22v. Parish of Anakie, County of Plantagenet, on PLA4028, 1280 acres (517.9976 ha) Central Highlands Local Government Area



Part of PLA4028 surveyed October 1897

J. White as Crown lessee	23 October 1897 to circa 1914	Block subject to Crown lease (Agricultural Farm Lease No. 233)
William. J. and A. Sander as Crown lessees	Circa 1914 to date unknown	Lease transferred
Alice Gynnie R. Wagstaff as Crown lessee	Dates unknown	Lease transferred
Mona Shannon Gillham as Crown lessee	Date unknown to 16 June 1936	Lease surrendered
Vacant Crown Land	16 June 1936 to 4 December 1962	Block amalgamated with Portions 16v and 24 on PLA4025, 17v and 19v on PLA4026, 23v on PLA4031, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962

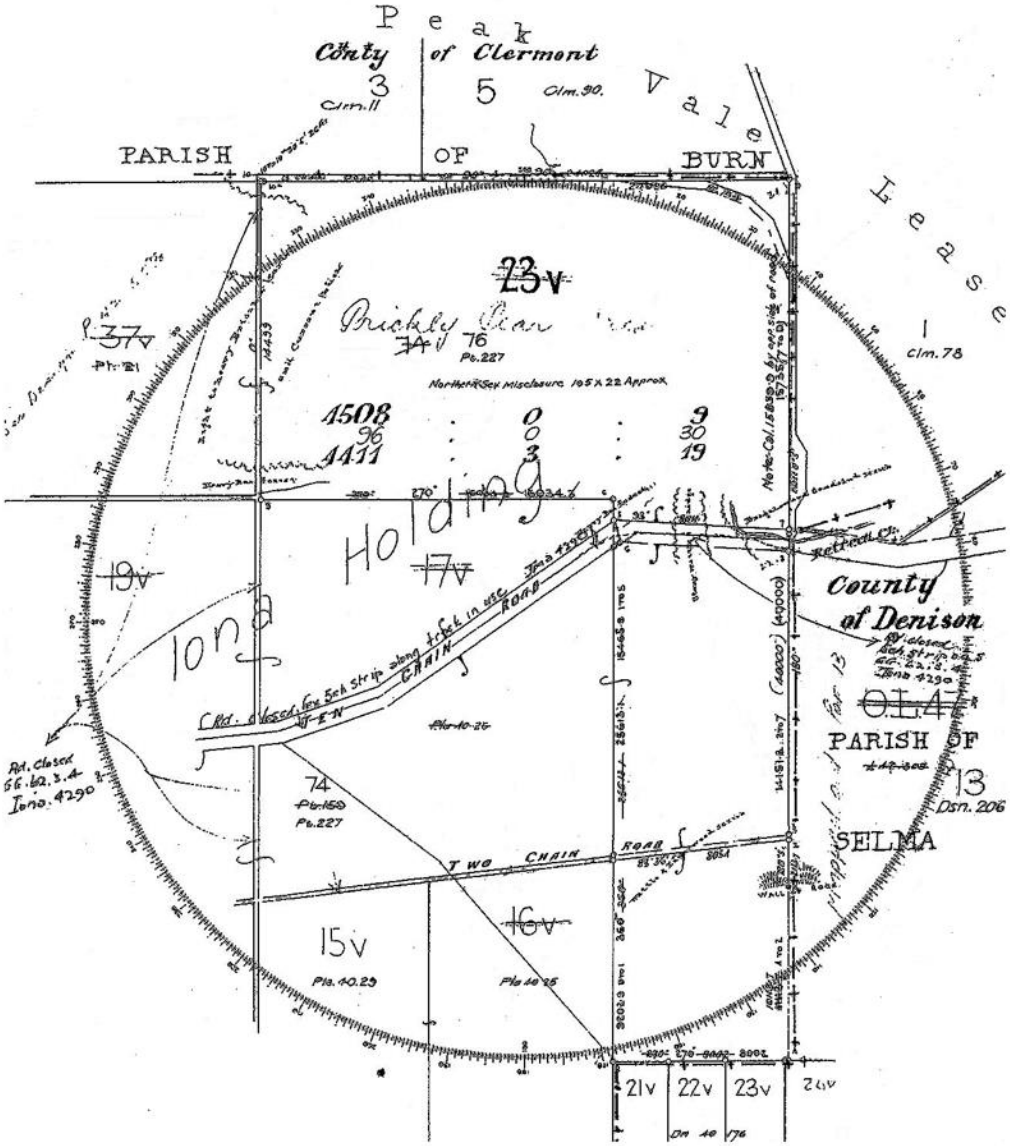
Portion 68. Parish of Anakie, County of Plantagenet, on PT64, 818 acres 1 rood 29 perches (331.2073 ha), Central Highlands Local Government Area



Part of PT64 surveyed May 1914

William J.Sander as Crown Lessee	2 September 1914 to date unknown	Block subject to Crown lease (Grazing Farm Lease No. 2117)
Alice Gynnis R. Wagstaff as Crown lessee	Dates unknown	Lease transferred
Mona Shannon Gillham as Crown lessee	Date unknown to 16 June 1936	Lease surrendered
Vacant Crown Land	16 June 1936 to 4 December 1962	Block amalgamated with Portions 16v and 24 on PLA4025, 17v and 19v on PLA4026, 22v on PLA4028, 23v on PLA4031, part of 37v on PT21 and land to the west by PT159 in April 1962

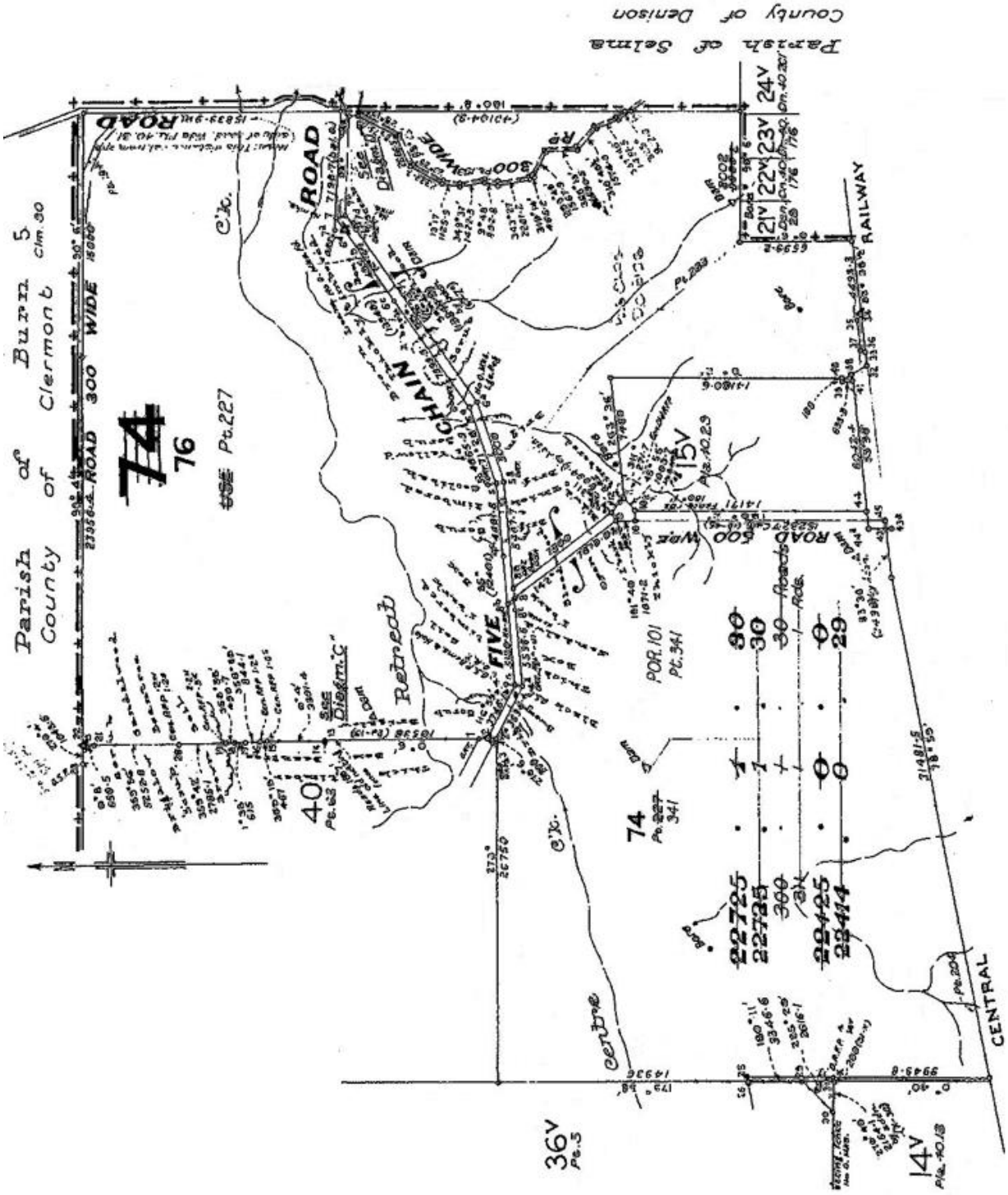
Portion 23v. Parish of Anakie, County of Plantagenet, on PLA4031, 4411 acres 3 roods 19 perches (1785.4198 ha) exclusive of roads and reserve, Central Highlands Local Government Area



Part of PLA4031 surveyed August 1898

Richard Griffith as Crown lessee	17 February 1906 to 11 February 1908	Block subject to Crown lease (Grazing Selection Lease No. 388 – possibly a Prickly Pear Lease)
Edward Albert Hawkins as Crown lessee	11 February 1908 to date unknown (probably 1913)	Block subject to Crown lease (Grazing Farm Lease No. 767)
Francis Henry Hardy Wagstaff as Crown lessee	Date unknown (probably 1913) to date unknown	Lease transferred
Mona Shannon Gillham as Crown lessees	Date unknown to 17 June 1936	Lease surrendered
Vacant Crown Land	17 June 1936 to 4 December 1962	Internal roads resurveyed by PT153 in March 1961. Block amalgamated with Portions 16v and 24 on PLA4025, 17v and 19v on PLA4026, 22v on PLA4028, 68 on PT64, part of 37v on PT21 and land to the west by PT159 in April 1962

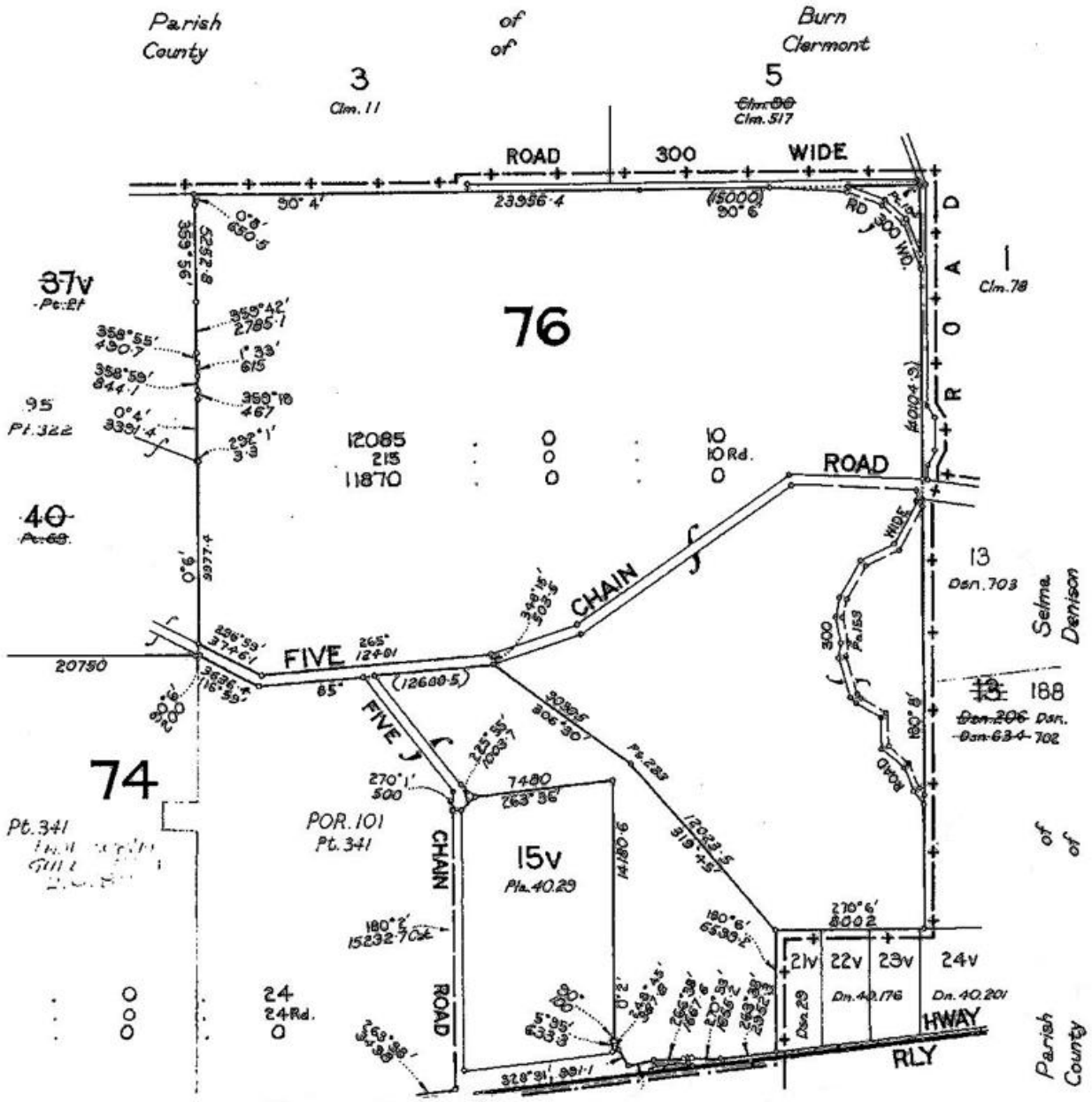
Portion 74, Parish of Anakie, County of Plantagenet, on PT159, 22425 acres (9075.0746 ha) exclusive of roads, Central Highlands Local Government Area



Part of PT159 surveyed April 1962

Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson Crown lessees	4 December 1962 to 11 May 1970	Surveyed April 1962. Block subject to Crown lease (Grazing Homestead Lease No. 3559) commencing December 1962. Block subdivided by PT227 into Portions 74 (SW half) and 76 (NE half) in August 1969

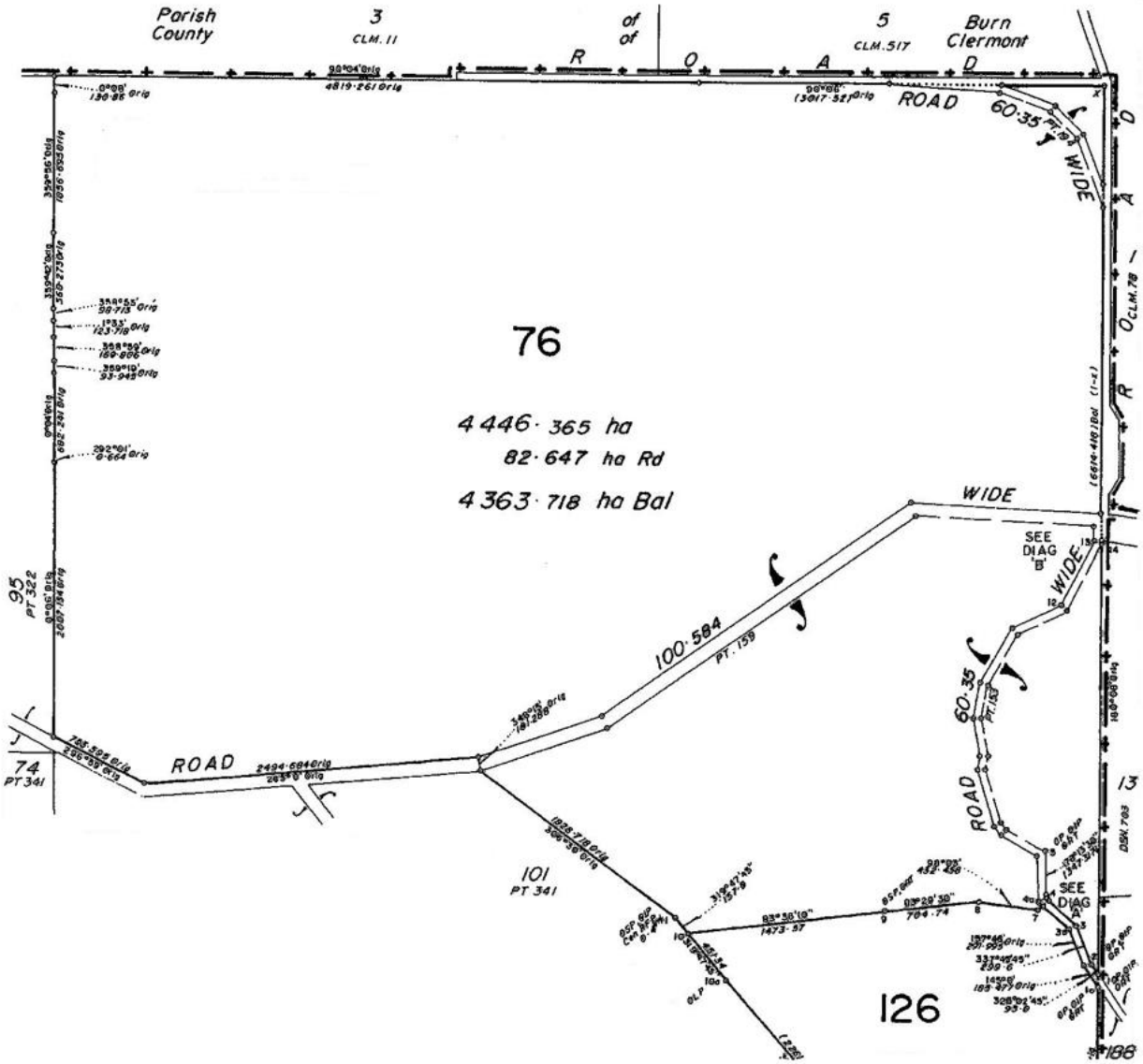
Portion 76, Parish of Anakie, County of Plantagenet, on PT227, 11870 acres (4803.6181 ha) exclusive of roads, Central Highlands Local Government Area



Part of PT227 compiled August 1969

Leon Fred Weise and Valerie Ellen Weise Crown lessees as joint tenants	11 May 1970 to 27 March 1987	Block subject to Crown leases (Special Lease No. 37105, later Special Lease Perpetual Free holding No. 1202) Block subdivided by PT372 into Lots 76 and 126 in September 1986

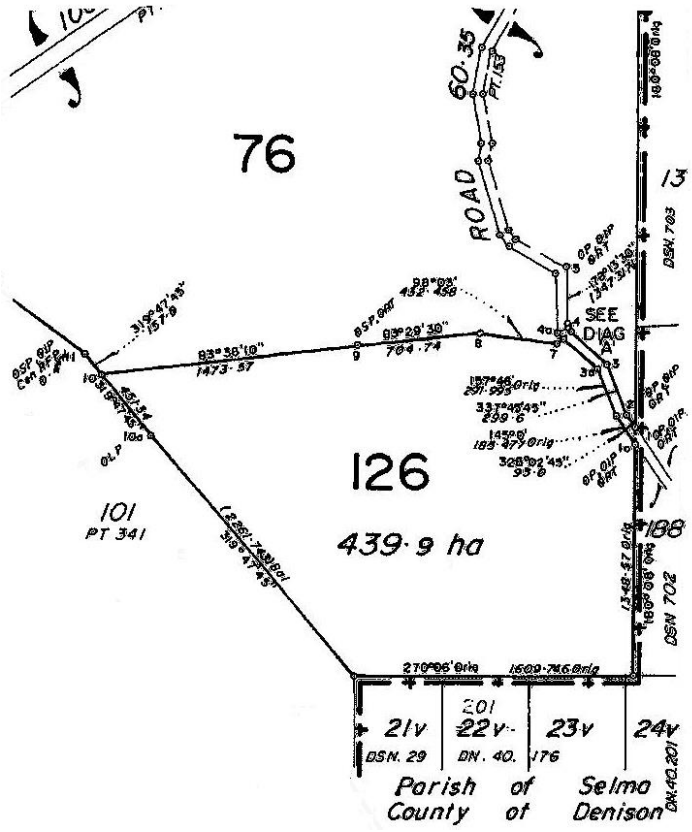
Lot 76 on PT372, 4363.718 ha exclusive of roads, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



Part of PT372 surveyed September 1986

Leon Fred Weise and Valerie Ellen Weise as Crown lessees as joint tenants	27 March 1987 to 16 January 1992	Block subject to Crown lease (Special Lease Perpetual Free holding No. 37/1202B) with 15 year term commencing March 1987
Shirley Margaret Nixon as Crown lessee	16 January 1992 to 14 April 2003	Lease transferred
Shirley Margaret Nixon	14 April 2003 to Present	Deed of Grant issued April 2003. Block subject to Vegetation Notice 713605998 from 1 December 2010 Contact:- "Jabiru Homestead" (Black Drive) c/o PO Box 529, Emerald, Q4720, ph 07 4982 2095, 0447 826 679

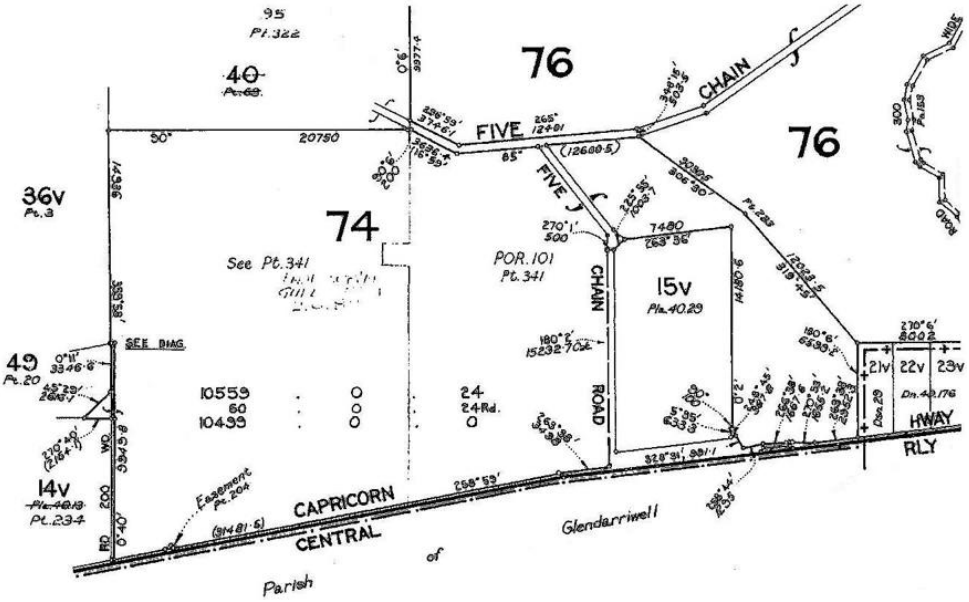
Portion 126, Parish of Anakie, County of Plantagenet, on PT227, 439.9 ha, Central Highlands Local Government Area



Part of PT372 surveyed September 1986

Leon Fred Weise and Valerie Ellen Weise as joint tenants	16 July 1987 to 2 October 1987	Deed of Grant issued July 1987
Kenneth John Anthony and Margaret Ann Anthony as joint tenants	2 October 1987 to 8 April 1997	
Kenneth John Anthony	8 April 1997 to Present	Subject to lease over part of the land to Telstra Corporation Limited A. C. N. 051 775 556 from September 1997. Block subject to Vegetation Notice 713339261 from 8 July 2010. Contact:- 4 Pryor Place, Emerald, Q4720, ph 4982 1316

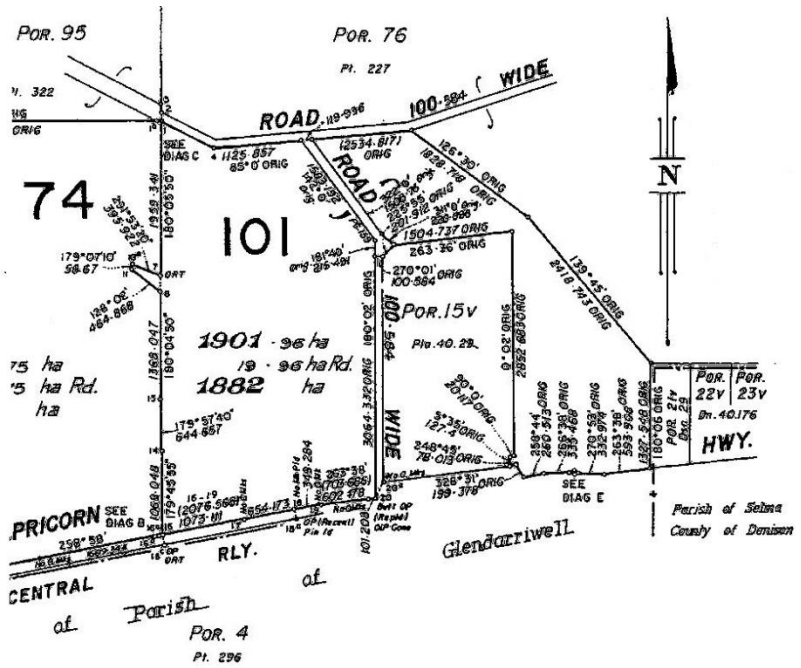
Portion 74, Parish of Anakie, County of Plantagenet, on PT227, 10499 acres (4248.7941 ha) exclusive of roads, Central Highlands Local Government Area



Part of PT227 compiled August 1969

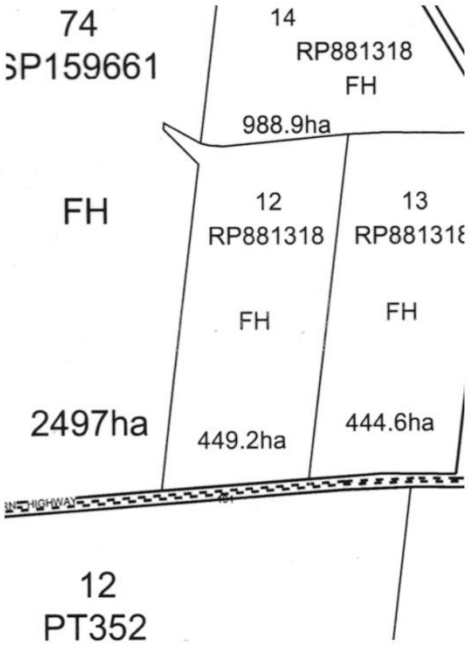
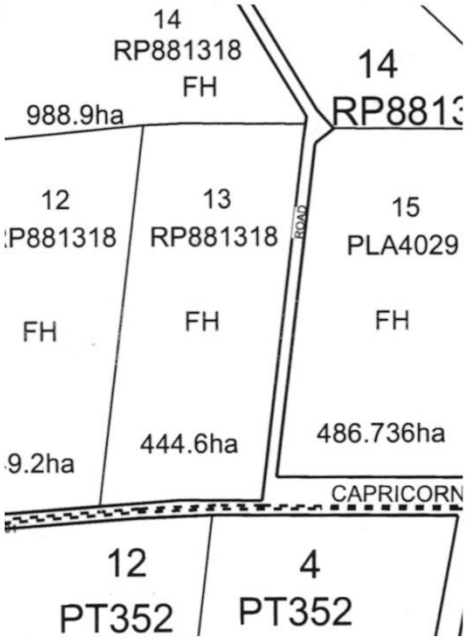
Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson Crown lessees	11 May 1970 to circa May 1983	Crown lease (Grazing Homestead Lease No. 3559 later Grazing Homestead Free holding Lease No. 3559) retained. Block subdivided by PT341 into Portions 74 and 101 in November 1982

Portion 101, Parish of Anakie, County of Plantagenet, on PT341, 1882 ha exclusive of roads, Central Highlands Local Government Area

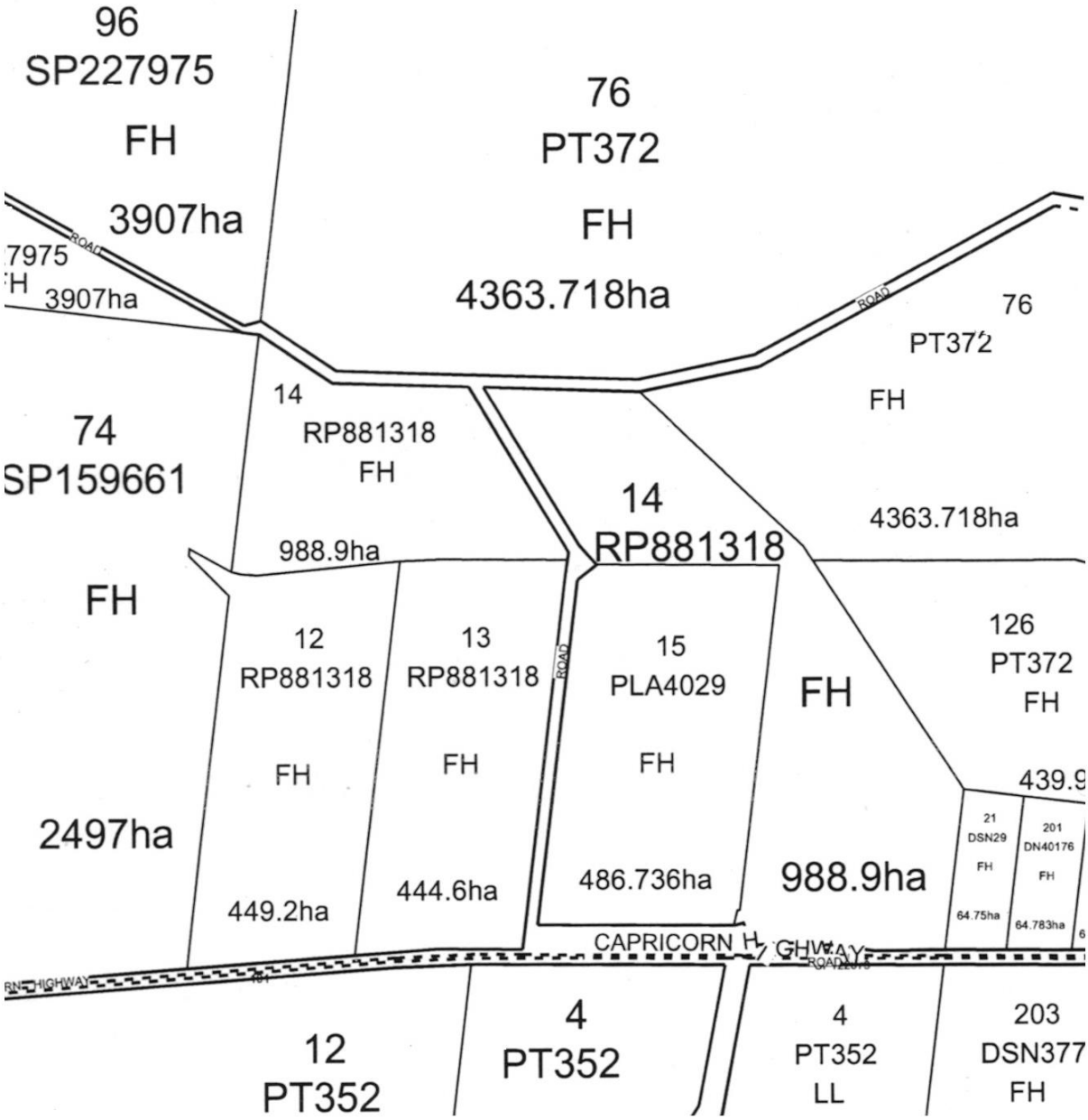


Part of PT341 surveyed November 1982

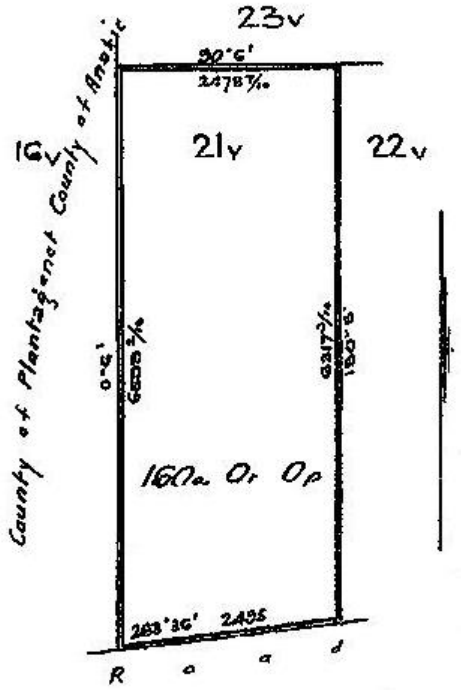
Crown lessees unknown. Possibly McPhee's then Tindales	Circa May 1983 to 31 October 1994	Block subject to Crown lease (Grazing Homestead Free holding Lease No. 3559). Block subdivided by RP881318 into Lots 12, 13 and 14 in July 1994

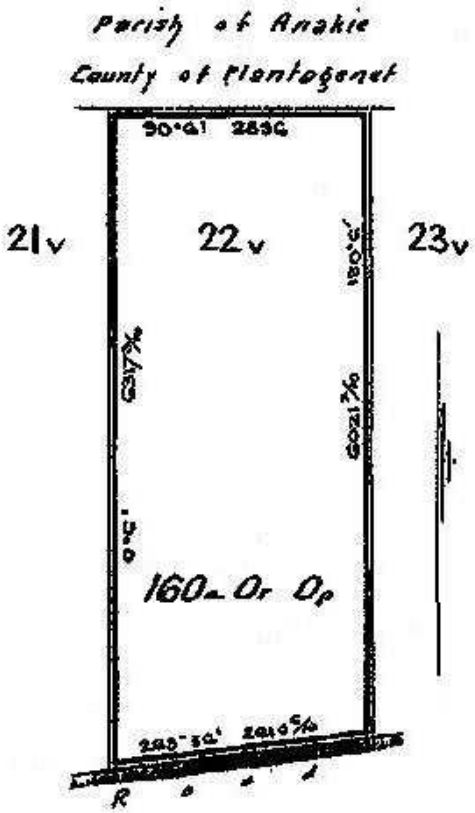
Lot 12 on RP881318, 449.2 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area		
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	31 October 1994 to Present	Deed of Grant issued October 1994.  Block subject to Vegetation Notice 711253596 from 7 December 2007. Contact:- "Iona Downs" c/o PO Box 764, Emerald, Q4720, ph 07 4982 2499, 0427 822 958
Lot 13 on RP881318, 444.6 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area		
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	31 October 1994 to Present	Deed of Grant issued October 1994.  Block subject to Vegetation Notice 711253596 from 7 December 2007. Contact:- "Iona Downs" c/o PO Box 764, Emerald, Q4720, ph 07 4982 2499, 0427 822 958

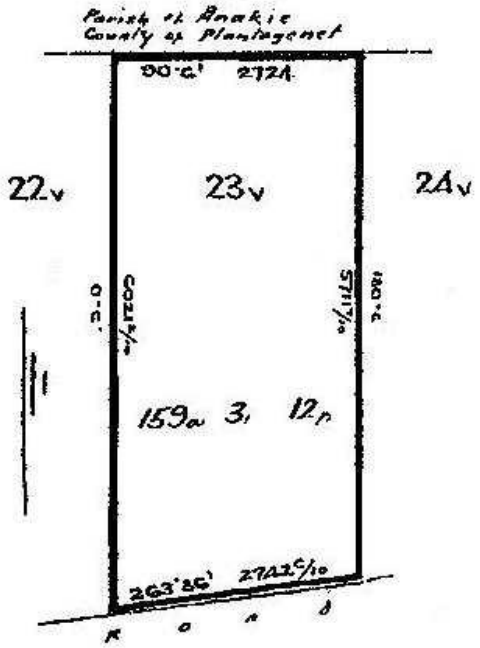
Lot 14 on RP881318, 988.9 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



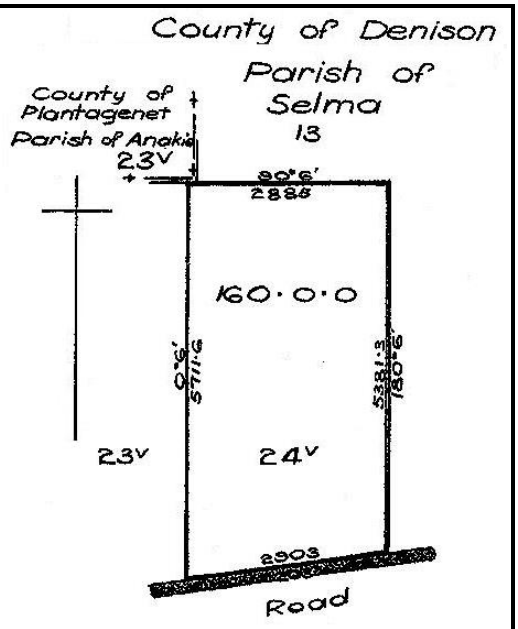
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	31 October 1994 to Present	Deed of Grant issued October 1994. Block subject to Vegetation Notice 711253596 from 7 December 2007. Contact:- "Iona Downs" c/o PO Box 764, Emerald, Q4720, ph 07 4982 2499, 0427 822 958

Lot 21, formerly Portion 21v, **on DSN29**, 160 acres (64.75 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
Frederick William Gilmore as Crown lessee	27 July 1897 to 1 June 1904	Block subject to Crown lease (Grazing Farm Lease No. 230? – see Lot 201 following)
Frederick William Gilmore	1 June 1904 to 7 June 1908	Dead of Grant issued June 1904 
Edward. Albert Hawkins	7 June 1908 to 6 August 1913	
Francis Henry Hardy Wagstaff	6 August 1913 to 19 February 1924	
Shannon and Sons Pty Ltd (formerly Shannon and Sons Limited)	19 February 1924 to 17 October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as tenants in common	17 October 1955 to 20 March 1959	
Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	20 March 1959 to 18 July 1966	
Kathleen Mary Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	18 July 1966 to 18 July 1966	
Harold James Mortimer and Ross James Mortimer as tenants in common	18 July 1966 to 27 April 1967	
Ross James Mortimer and John Edward Auriac as tenants in common with 2/3 and 1/3 shares resp.	27 April 1967 to 8 October 1979	
Barry Kinnear Robertson, Colleen Robertson and John Dudley McPhee as tenants in common	8 October 1979 to 18 January 1983	
Colleen Robertson and John Dudley McPhee as tenants in common with 2/3 and 1/3 shares resp.	18 January 1983 to 16 April 1985	
Roy Walter Tindale, Dorothy Tindale, Dallas Roy Tindale, Dorothy Lois Davis, Phyllis June Nolan and Enid Vivienne Cooksley as tenants in common	16 April 1985 to 2 June 1988	

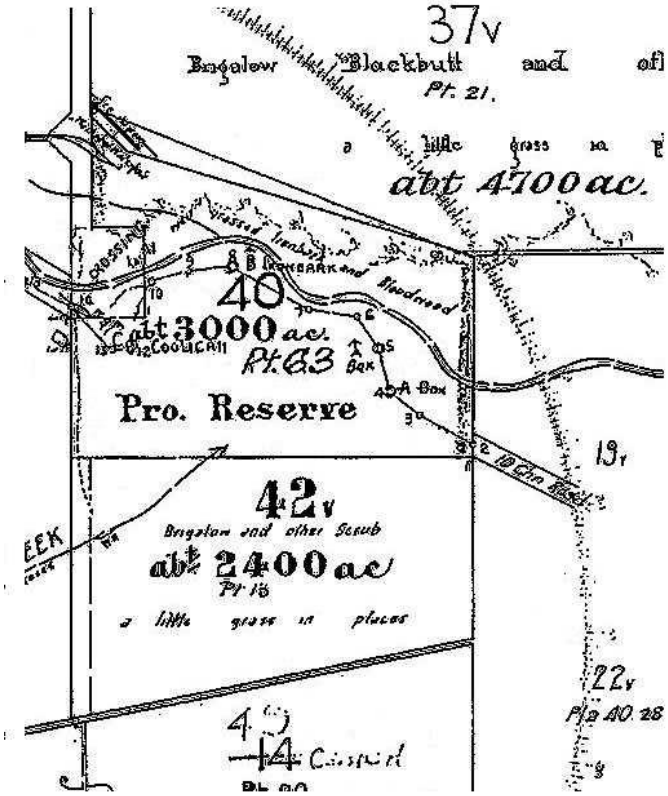
Stanley Gordon Knight and Patricia Ann Knight as joint tenant	2 June 1988 to Present	Block subject to Vegetation Notice 711253596 from 7 December 2007. Contact:- PO Box 764, Emerald, Q4720
Lot 201, formerly Portion 22v, **on DN40176**, 160 acres (64.75 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area. Note:- on original survey (for lease) the area was given as 160 acres 13 perches (64.78 ha).		
Richard Griffiths as Crown lessee	27 July 1897 to 11 November 1903	Block subject to Crown lease (Grazing Farm Lease No. 230? - see Lot 21 above)
Richard Griffiths	11 November 1903 to 9 July 1910	Dead of Grant issued November 1903 
Edward. Albert Hawkins	9 July 1910 to 6 August 1913	
Francis Henry Hardy Wagstaff	6 August 1913 to 19 February 1924	
Shannon and Sons Pty Ltd (formerly Shannon and Sons Limited)	19 February 1924 to 17 October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as tenants in common	17 October 1955 to 20 March 1959	
Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	20 March 1959 to 18 July 1966	
Kathleen Mary Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	18 July 1966 to 18 July 1966	
Harold James Mortimer and Ross James Mortimer as tenants in common	18 July 1966 to 27 April 1967	
Ross James Mortimer and John Edward Auriac as tenants in common with 2/3 and 1/3 shares resp.	27 April 1967 to 8 October 1979	
Barry Kinnear Robertson, Colleen Robertson and John Dudley McPhee as tenants in common	8 October 1979 to 18 January 1983	
Colleen Robertson and John Dudley McPhee as tenants in common with 2/3 and 1/3 shares resp.	18 January 1983 to 16 April 1985	

Roy Walter Tindale, Dorothy Tindale, Dallas Roy Tindale, Dorothy Lois Davis, Phyllis June Nolan and Enid Vivienne Cooksley as tenants in common	16 April 1985 to 2 June 1988	
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	2 June 1988 to 29 January 2004	Block benefits from Easements A and B on SP156913 in Lot 24 on DN40201 and Lot 23 on DN40176 resp. from April 2003.
Kenneth John Anthony	29 January 2004 to Present	Block subject to Vegetation Notice 713339261 from 8 July 2010. Contact:- 4 Pryor Place, Emerald, Q4720, ph 4982 1316
Lot 23, formerly Portion 23v, **on DN40176**, 159 acres 3 roods 12 perches (64.679 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
J. Cooper as Crown lessee	27 July 1897 to 15 November 1899	Block subject to Crown lease (Grazing Farm Lease No. 231)
Richard Griffiths as Crown lessee	15 November 1899 to 26 December 1907	Lease transferred
Richard Griffiths	26 December 1907 to 23 July 1908	Dead of Grant issued December 1907 
Edward. Albert Hawkins	23 July 1908 to 6 August 1913	
Francis Henry Hardy Wagstaff	6 August 1913 to 19 February 1924	
Shannon and Sons Pty Ltd (formerly Shannon and Sons Limited)	19 February 1924 to 17 October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as tenants in common	17 October 1955 to 20 March 1959	
Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	20 March 1959 to 18 July 1966	
Kathleen Mary Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	18 July 1966 to 18 July 1966	
Harold James Mortimer and Ross James Mortimer as tenants in common	18 July 1966 to 27 April 1967	

Ross James Mortimer and John Edward Auriac as tenants in common with 2/3 and 1/3 shares resp.	27 April 1967 to 8 October 1979	
Barry Kinnear Robertson, Colleen Robertson and John Dudley McPhee as tenants in common	8 October 1979 to 18 January 1983	
Colleen Robertson and John Dudley McPhee as tenants in common with 2/3 and 1/3 shares resp.	18 January 1983 to 16 April 1985	
Roy Walter Tindale, Dorothy Tindale, Dallas Roy Tindale, Dorothy Lois Davis, Phyllis June Nolan and Enid Vivienne Cooksley as tenants in common	16 April 1985 to 2 June 1988	
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	2 June 1988 to 19 June 2003	Block benefits from Easement A on SP156913 in Lot 24 on DN40201 from April 2003. Block burdened by Easement B on SP156913 in favour of Lot 201 on DN40176 from April 2003
Lester Vivian Matheson and Irene Ann Matheson as joint tenants	19 June 2003 to Present	Contact:- PO Box 799, Emerald, Q4720, (21 Pritchard Road) ph 07 4982 1957, 0429 648 133
Lot 24, formerly Portion 24v, **on DN40201**, 160 acres (64.75 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
Alexander May as Crown lessee	12 September1899 to 19 April 1912	Block subject to Crown lease (Agricultural Holding Lease No. 256, later, 1902, Agricultural Farm Lease No. 1303)
Elizabeth Rosena Hawkins as Crown lessee	19 April 1912 to 26 February 1913	Block subject to Crown lease (Agricultural Farm Lease No. 1361)
Elizabeth Rosena Hawkins	26 February 1913 to 6 August 1913	Dead of Grant issued February 1913
Francis Henry Hardy Wagstaff	6 August 1913 to 19 February 1924	
Shannon and Sons Pty Ltd (formerly Shannon and Sons Limited)	19 February 1924 to 17 October 1955	
Vernon Lawrence Hilord Wettenhall, Mabel Agnes Wettenhall, Hugh Carlyle Taylor and John Corbett Taylor as tenants in common	17 October 1955 to 20 March 1959	

Alexander Kinnear Robertson (d. 1957), Kathleen Mary Robertson, Barry Kinnear Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	3 April 1959 to 18 July 1966	
Kathleen Mary Robertson, Anthony Kinnear Robertson and Mark Kinnear Robertson as joint tenants	18 July 1966 to 18 July 1966	
Harold James Mortimer and Ross James Mortimer as tenants in common	18 July 1966 to 27 April 1967	
Ross James Mortimer and John Edward Auriac as tenants in common with 2/3 and 1/3 shares resp.	27 April 1967 to 8 October 1979	
Barry Kinnear Robertson, Colleen Robertson and John Dudley McPhee as tenants in common	8 October 1979 to 18 January 1983	
Colleen Robertson and John Dudley McPhee as tenants in common with 2/3 and 1/3 shares resp.	18 January 1983 to 16 April 1985	
Roy Walter Tindale, Dorothy Tindale, Dallas Roy Tindale, Dorothy Lois Davis, Phyllis June Nolan and Enid Vivienne Cooksley as tenants in common	16 April 1985 to 2 June 1988	
Stanley Gordon Knight and Patricia Ann Knight as joint tenants	2 June 1988 to 6 May 2003	Block burdened by Easement A on SP156913 in favour of Lot 23 on DN40176 and Lot 201 on DN401176 from April 2003
Michael John Walther and Ann-Marie Walther as joint tenants	6 May 2003 to Present	Contact:- PO Box 2190, Emerald, Q4720, ph 4987 7909, 0408 141 076

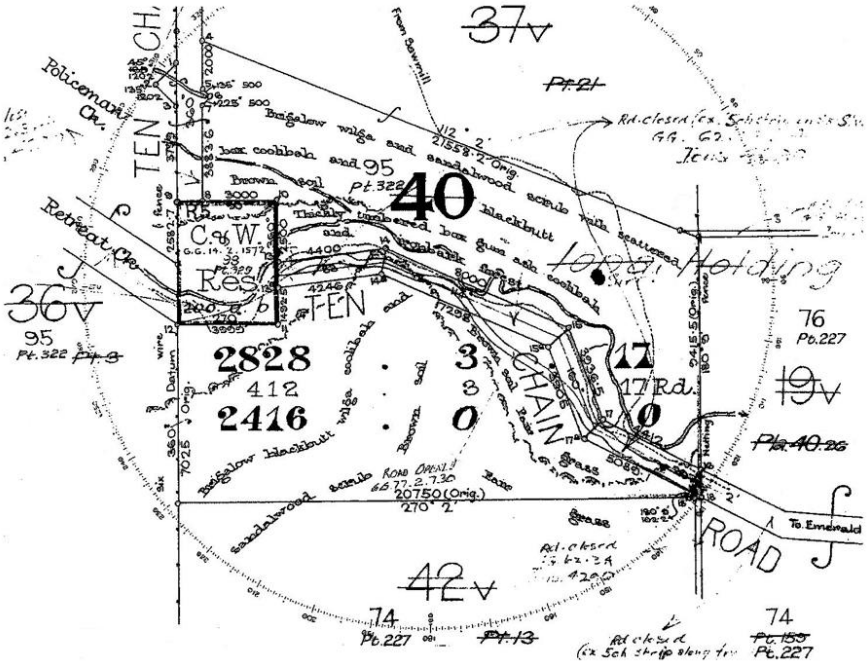
Portion 40. Parish of Anakie, County of Plantagenet, on P42552, 3000 acres (1214.0568 ha) Central Highlands Local Government Area



Part of P42552 surveyed September 1900

Crown Land	Circa September 1900 to 27 October 1914	Proposed (Camping and Water?) Reserve. Road and Camping and Water Reserve excised by PT63 in May 1914

Portion 40. Parish of Anakie, County of Plantagenet, on PT63, 2416 acres (977.7204 ha) exclusive of roads, Central Highlands Local Government Area

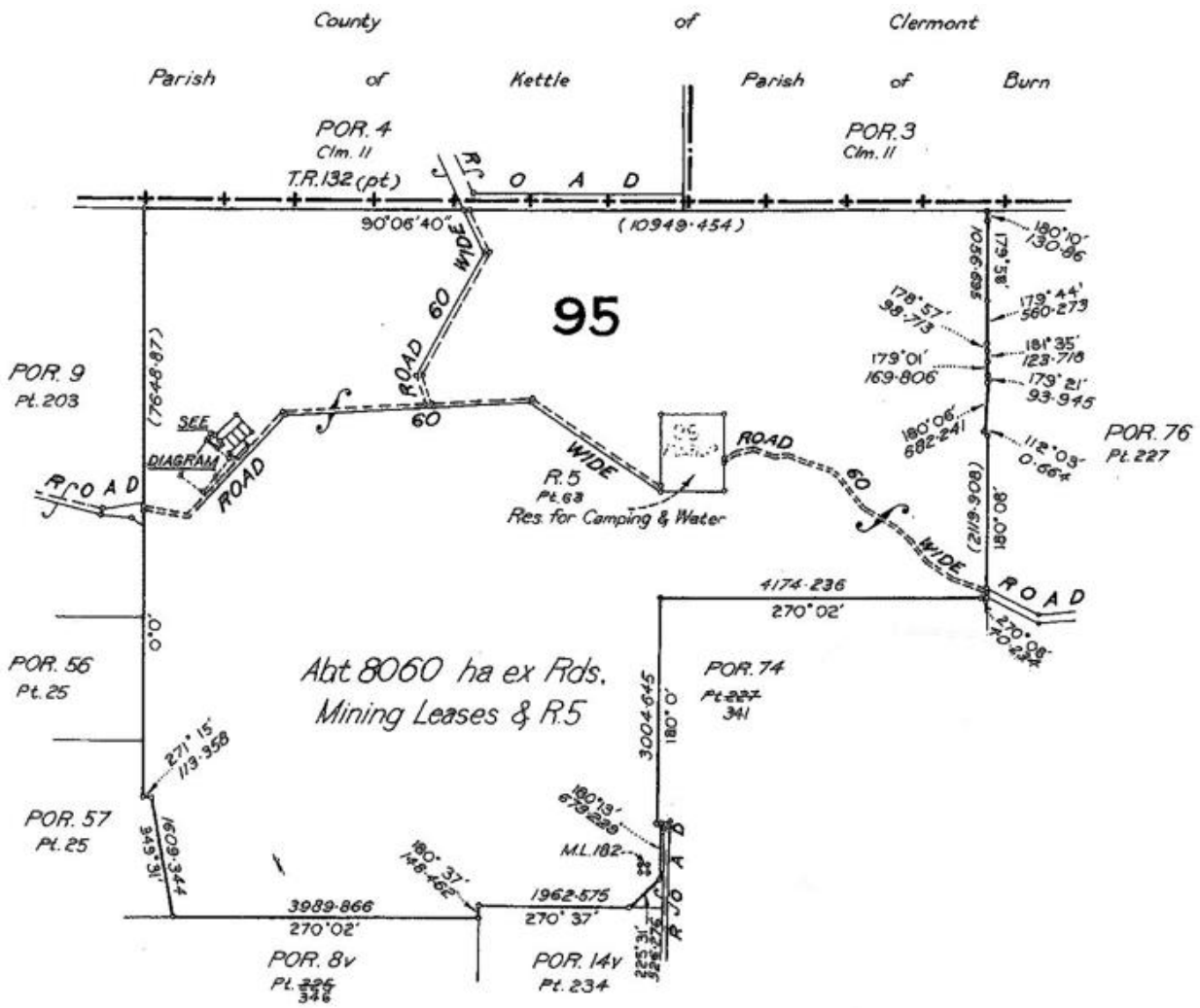


Part of PT63 surveyed May 1914

Percy G. Jones as Crown lessee	27 October 1914 date unknown	Block subject to Crown lease (Grazing Homestead Lease No. 2191)

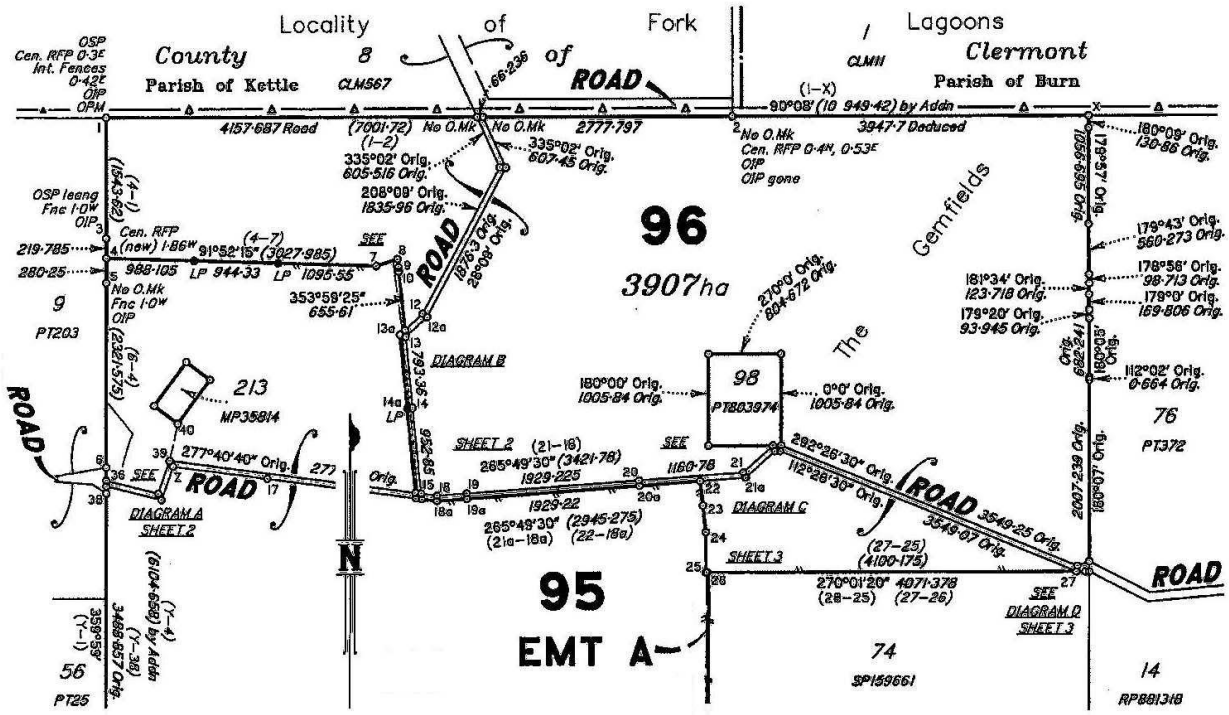
William S. Shannon as Crown lessee	Date unknown to circa June 1936	Lease transferred. Lease surrendered June 1936. Block, together with blocks to the north, west and south west, part of Policeman's Creek Holding. This holding was surrendered, probably in June 1936 – see blocks to the east, at which time the land would have become Vacant Crown land
Vacant Crown Land	Circa June 1936 to circa August 1980	Block amalgamated with blocks to the north, west and south west by PT322 in August 1980

Lot 95 on PT322, About 8060 ha exclusive of roads, reserve and mining leases, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area

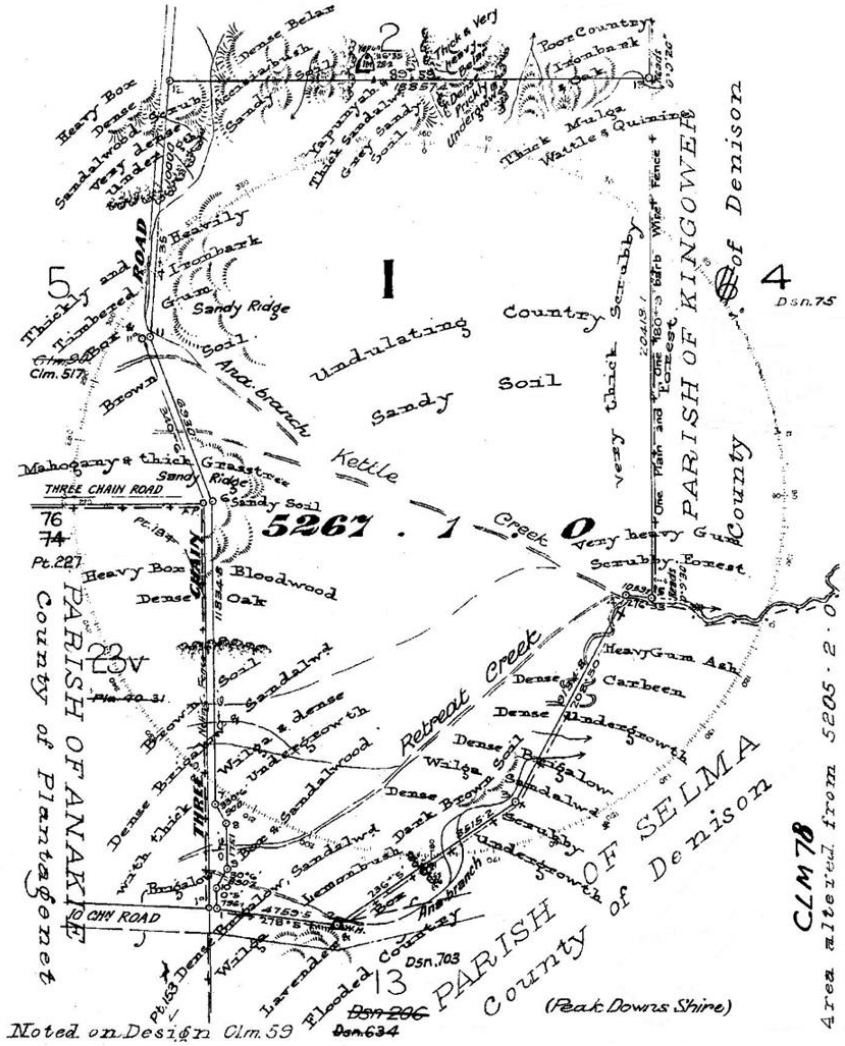


Part of PT322 compiled August 1980

Crown lessee unknown	Circa September 1980 to circa September 1990	Block subject to Crown lease (Grazing Homestead Lease No. 3738). Block surveyed by PT395 in July 1989

Lot 95 on PT395, 8061 ha exclusive of roads, reserve and mining leases, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area		
Douglas David Staines and Barbara Julien Staines as Crown lessees as joint tenants	18 July 1991 to 25 August 1992	Block subject to Crown lease (Grazing Homestead Free holding Lease No. GHFL37/3738) with 40 year term commencing October 1988
Michael Dolf Schmidt and Susan Joan Schmidt as Crown lessees as joint tenants	25 August 1992 to 21 August 2009	Lease transferred
Michael Dolf Schmidt and Susan Joan Schmidt as joint tenants	21 August 2009 to 13 November 2009	Dead of Grant issued August 2009. Block subdivided into Lots 95 and 96 and Easement A in Lot 95 by SP227975 in November 2009
Lot 96 on SP227975, 3907 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area  Part of SP227975 surveyed August 2009		
William James Crowther	13 November 2009 to Present	Block benefits from Easement A in Lot 95 on SP227975 from November 2009. Block subject to Water Notice 710672454 from June 2007. Block subject to Vegetation Notice 712019778 from October 2008

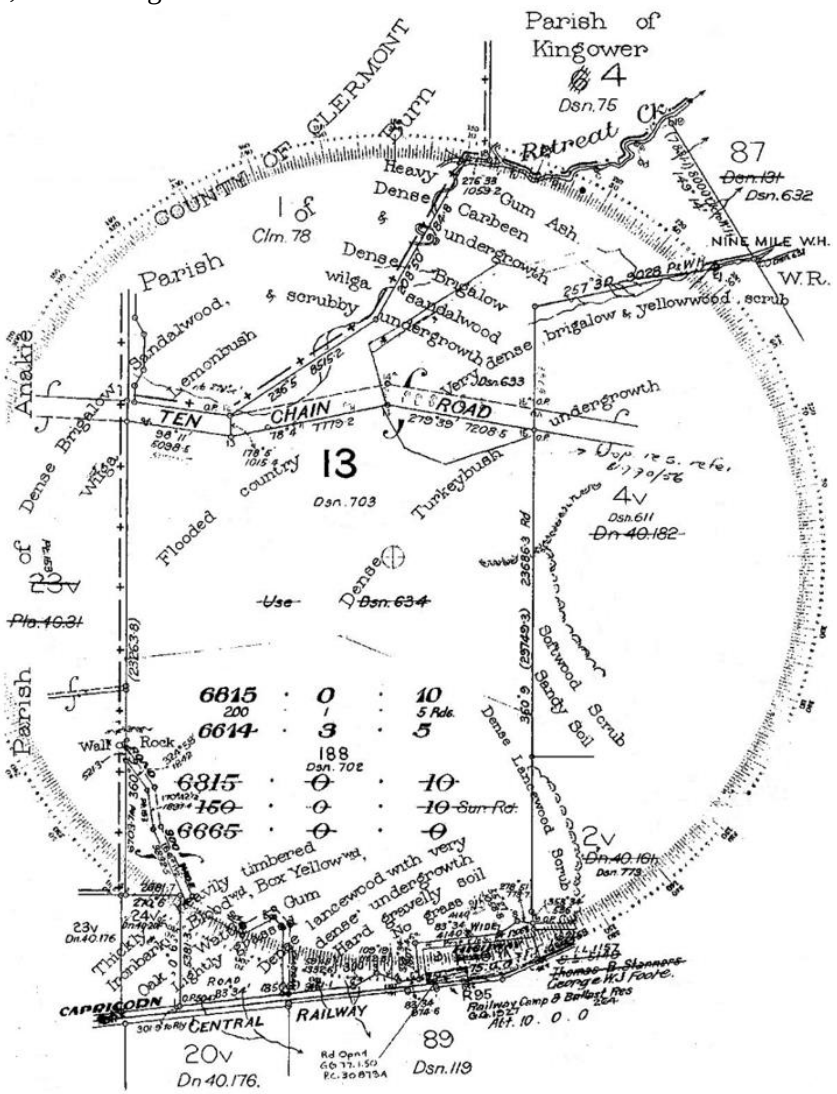
Lot 1 on CLM78, formerly Portion 1, 5267 acres 1 rood (2131.5804 ha), Parish of Burn, County of Clermont, Central Highlands Local Government Area



Part of CLM78 surveyed September 1912

James Wilson as Crown lessee	November 1912 to date unknown	Block previously part of Peak Vale Lease. Block subject to Crown lease (Grazing Homestead Lease No. 655). Renewed as GH 2652
Agnes S. Wilson as Crown lessee	Dates unknown	Lease transferred
Edward R. ????? as Crown lessee	Dates unknown	Lease transferred
Lawrence T. Mathews as Crown lessee	Dates unknown	Lease transferred. Renewed as Grazing Homestead Free holding Lease No. 3102
George H Beazley and Daisy V. Beazley as Crown lessees	Date unknown (circa 1958) to 8 October 1992	Lease transferred
Albert Neil Sommerlad and Norma Ashton Sommerlad as tenants in common	8 October 1992 to 2 January 2009	Dead of Grant issued October 1992
Donald Allan Gordon and Kay Lorraine Gordon as joint tenants	2 January 2009 to Present	

Portion 13. Parish of Selma, County of Denison, on DSN206, 6815 acres 10 perches (2757.9577 ha) exclusive of roads, Central Highlands Local Government Area

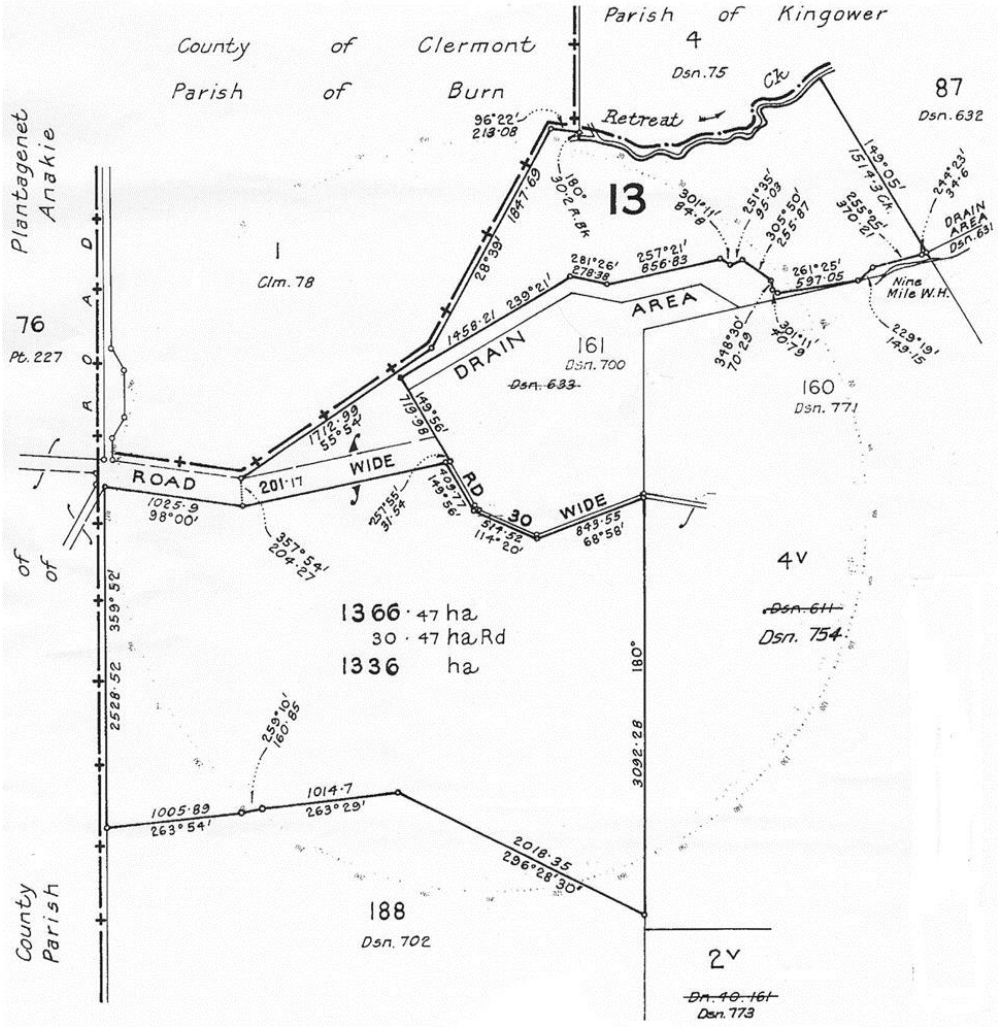


Part of DSN206 surveyed May 1917

Thomas B. Stanners as Crown lessee	6 October 1917 to date unknown	Block subject to Crown lease (Grazing Homestead Lease No. GH2339)
George W. J. Foote as Crown lessee	Dates unknown	Block subject to Crown lease (Grazing Homestead Lease No. GH2889, later Grazing Homestead Lease No. GH3164)
Ian H. Costello as Crown lessee	Date unknown to 30 January 1964	Lease transferred. 3 chain (60.35m) wide road excised from south western corner of block by PT153 in January 1964 and boundaries and area adjusted. New area 6815 acres 10 perches (2757.9577 ha) exclusive of roads. Part of block (north east corner, upstream of Nine Mile waterhole, plan DSN633) excised by gazettal by the Commissioner of Irrigation and Water Supply, in January 1974 for the Emerald Irrigation Project. Crown lease reissued as Irrigation Lease No. IL1157 over balance of block on DSN634

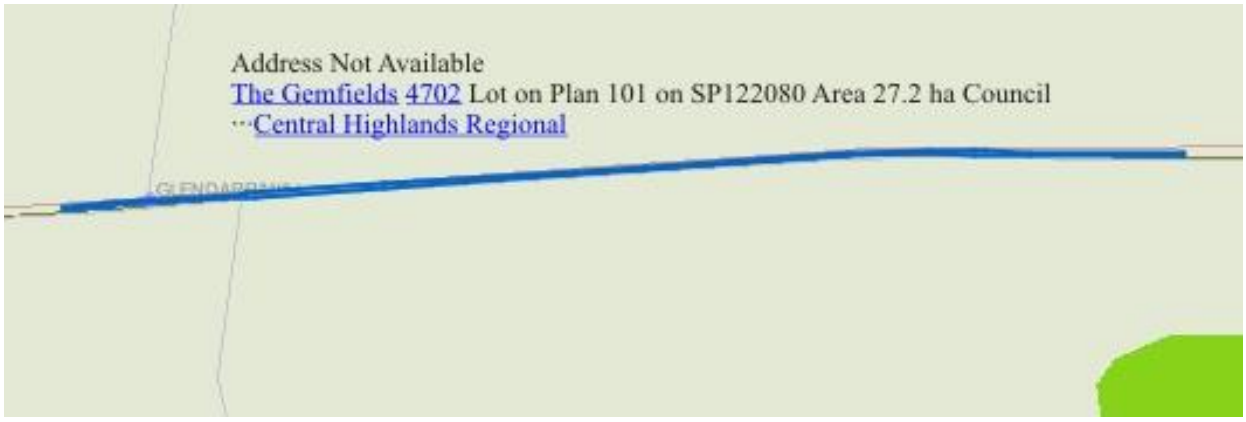
Portion 13. Parish of Selma, County of Denison, on DSN634, 2425.107 ha exclusive of roads, Central Highlands Local Government Area		
Ian H. Costello as Crown lessee	30 January 1964 to circa February 1976	Block subject to Crown lease (Grazing Homestead Perpetual Lease No. GHPL37/3164). South half of block (shown on plan DSN702 as Portion 188) excised by gazettal in February 1976 to become part of the Fairbairn State Forest (see at end of report)

Lot 13, formerly Portion 13, **on DSN703**, 1336.0 ha exclusive of roads, Parish of Selma, County of Denison, Central Highlands Local Government Area

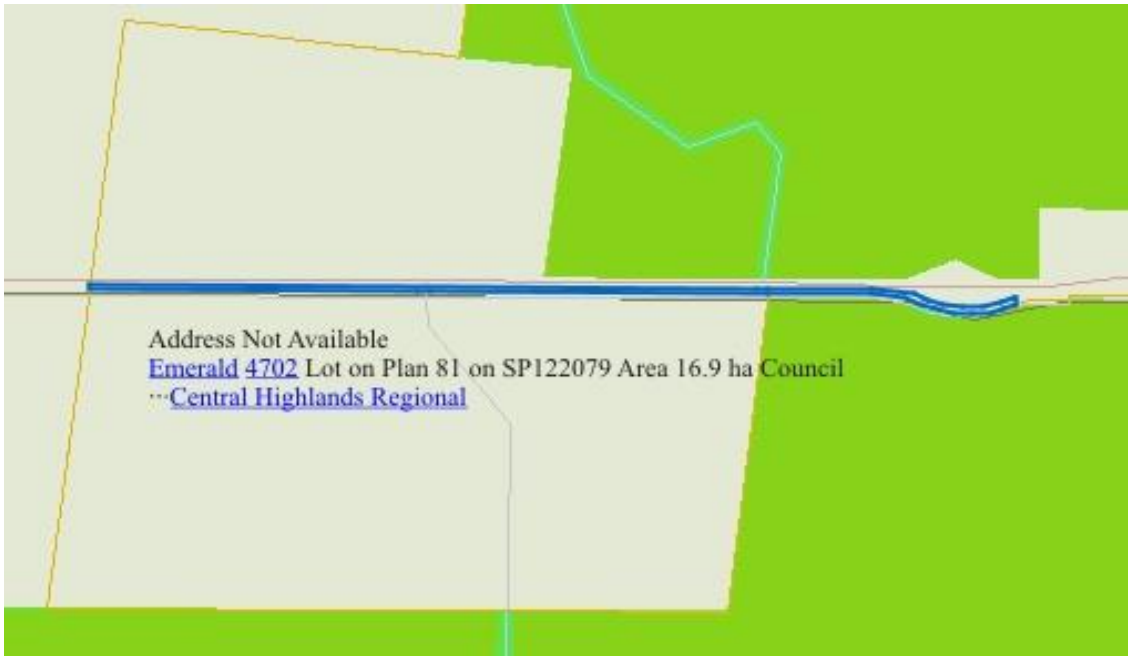


Part of DSN703 compiled February 1975

Ian H. Costello as Crown lessee	Circa February 1976 to 1 January 1985	Lease reissued
Ian Lorne Spyher and Francis Lynette Spyher as Crown lessees as tenants in common	1 January 1985 to 12 September 1996	Block subject to Crown lease (Grazing Homestead Free holding Lease No. GHFL37/3164) with 40 year term commencing January 1985
Ian Lorne Spyher and Francis Lynette Spyher as tenants in common	12 September 1996 to Present	Dead of Grant issued September 1996 Block subject to Vegetation Notice 712780398 from 8 October 2009. Contact:- PO Box 234, Emerald, Q4720, ph 4982 1897, 0408 821 897

Road Railway Corridor		
The blocks, Lot 101 and 81 below, were originally part of the Queensland Railway Department's Central Railway Main Line. This line was the main impetus for the founding of the township of Emerald some 20 kilometers east of this block which was reached by the railway construction from Rockhampton in 1879. Construction then proceeded westward another 170 odd kilometers to the next major rail terminus of Alpha which was also founded as a railway town in 1884. The blocks probably were excised out of the surrounding road area (**Stock Route**) early in the intervening period (probably shown on plan L42385).		
Railway Department	Circa 1884 to 5 December 1996	Held under Act of Parliament
Lot 1 on CP825707, 40,000.00ha (Note; plan and title covered all previous Railway Department land in Queensland prior to corporatization of the department, the plan being a map of Queensland showing a generalized layout of the rail network and the area being an approximation.		
The State of Queensland (represented by the Department of Transport)	5 December 1996 to 27 February 2010	Block held as Lease in Perpetuity for the purpose of transport, purposes ancillary to transport and other commercial and community purposes commencing July 1995. Block subject to sub-lease No. 701720343 in favour of Queensland Rail, over the whole of the land for a term commencing July 1995 and terminating June 2095. Sub-lease amended to include a 100 year option September 2008. Sub-lease transferred to QR Network Pty Ltd, A. C. N. 132 181 116, October 2008. Sub-lease No. 701720343 cancelled August 2010
Lot 101 on SP122080, 27.2 ha, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area  		
The State of Queensland represented by the Department of Transport and Main Roads	27 February 2010 to Present	Block held as Lease in Perpetuity as above. Block subject to sub-lease No. 713429425 in favour of Queensland Rail Limited, A. C. N. 132 181 090, for the term 30 June 2010 to 30 June 2110 with options. Contact:- Queensland Rail c/o Asset Facilities Manager , Railway Station, Clermont Street, Emerald, Q4720, ph Cec Carter 07 4983 8363

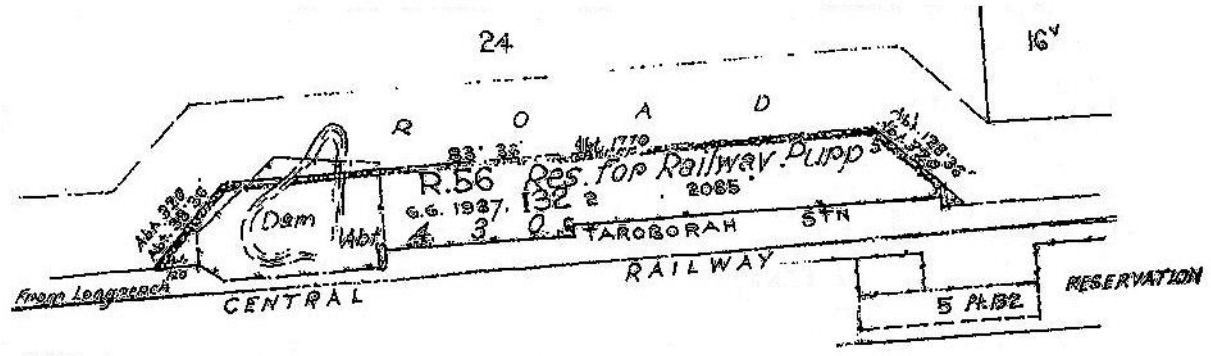
Lot 81 on SP122079, 16.9 ha, Parish of Anakie and Parish of Glendarriwell, County of Plantagenet and Parish of Selma, County of Denison, Central Highlands Local Government Area



Lot 81, immediately east of Lot 101 above, has an identical history to Lot 101 up to February 2010

Crown Land leased by the State represented by the Department of Transport and Main Roads	27 February 2010 to Present	Block held in Perpetuity as above. Block subject to sub-lease No. 713429425 in favour of Queensland Rail Limited, A. C. N. 132 181 090, for the term 30 June 2010 to 30 June 2110 with options. Contact:- Queensland Rail c/o Asset Facilities Manager , Railway Station, Clermont Street, Emerald, Q4720, ph Cec Carter 07 4983 8363

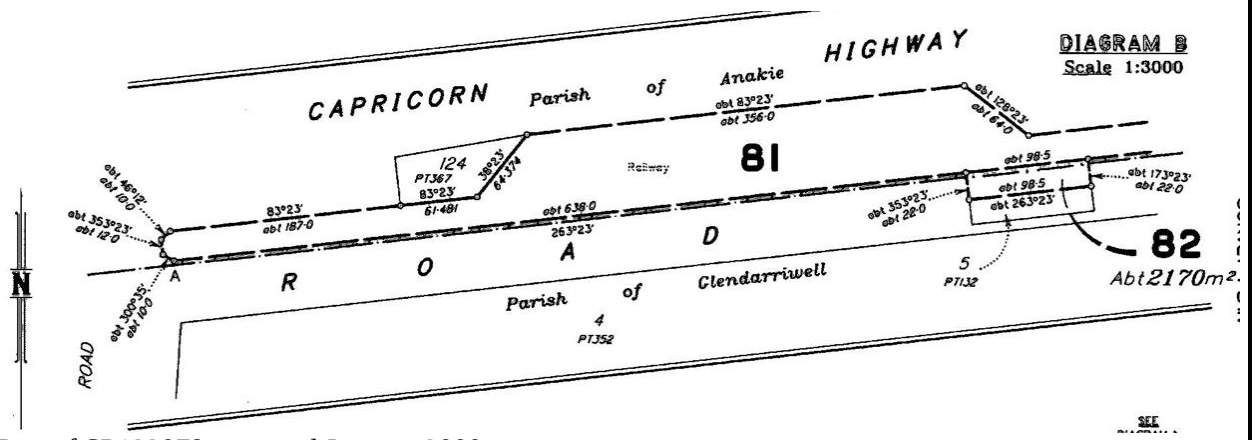
Portion 132, Parish of Anakie, County of Plantagenet, on PLA4026, 4 acres 3 roods 0.6 perches (1.9238 ha). Central Highlands Local Government Area



Part of PLA4025

Commissioner of Railways	Circa 1937 to 5 December 1996 (for later history see Lot 1 on CP825707 then Lot 81 on SP122079 above)	Reserve for Railway Purposes gazette 1937 (from former road reserve)

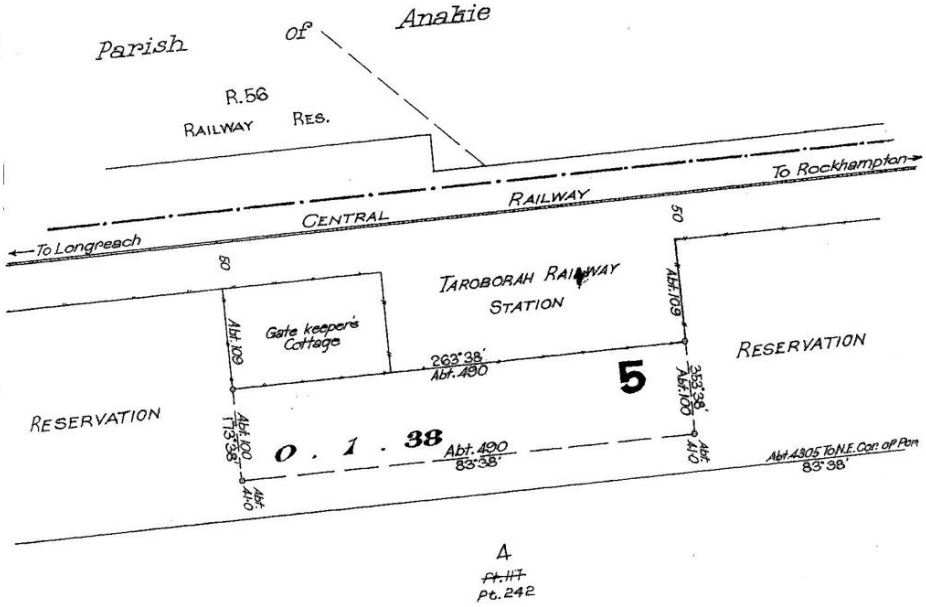
Lot 82 on SP122079, 2170m^2, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area



Part of SP122079 surveyed January 2000

The State of Queensland (represented by the Department of Transport)	Circa January 2000 to 26 August 2010	Block excised from public road adjoining southern boundary of rail corridor in January 2000
Queensland Rail Limited A. C. N. 132 181 090	26 August 2010 to Present	Contact:- Queensland Rail c/o Asset Facilities Manager , Railway Station, Clermont Street, Emerald, Q4720, ph Cec Carter 07 4983 8363

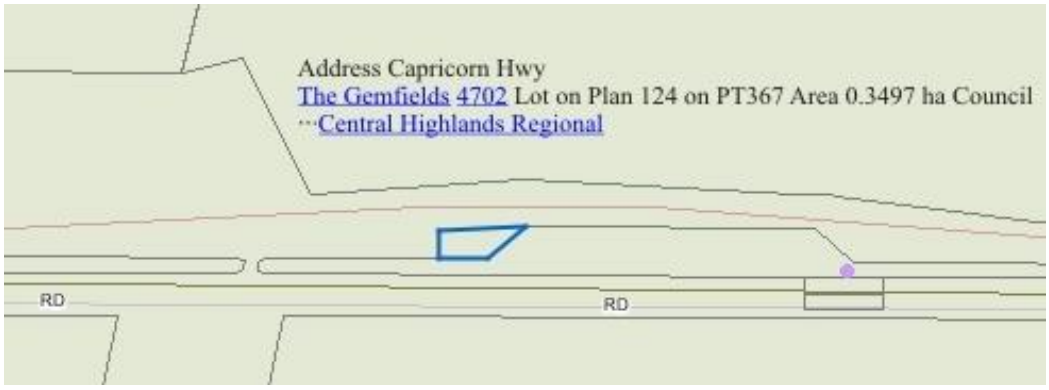
Lot 5, formerly Portion 5, **on PT132**, 1 rood 38 perches (1973m^2), Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area



Part of PT132 compiled August 1945

Commissioner of Railways as trustee	6 October 1945 to 5 September 2005	Block previously part of road reserve. Reserve for Railway Purposes (R58 Plantagenet – Res 7518) gazetted October 1945 page 737
Queensland Rail as trustee	9 September 2005 to 30 August 2010	
Queensland Rail Limited A. C. N. 132 181 090 as trustee	1 September 2010 to Present	Contact:- Queensland Rail c/o Asset Facilities Manager , Railway Station, Clermont Street, Emerald, Q4720, ph Cec Carter 07 4983 8363

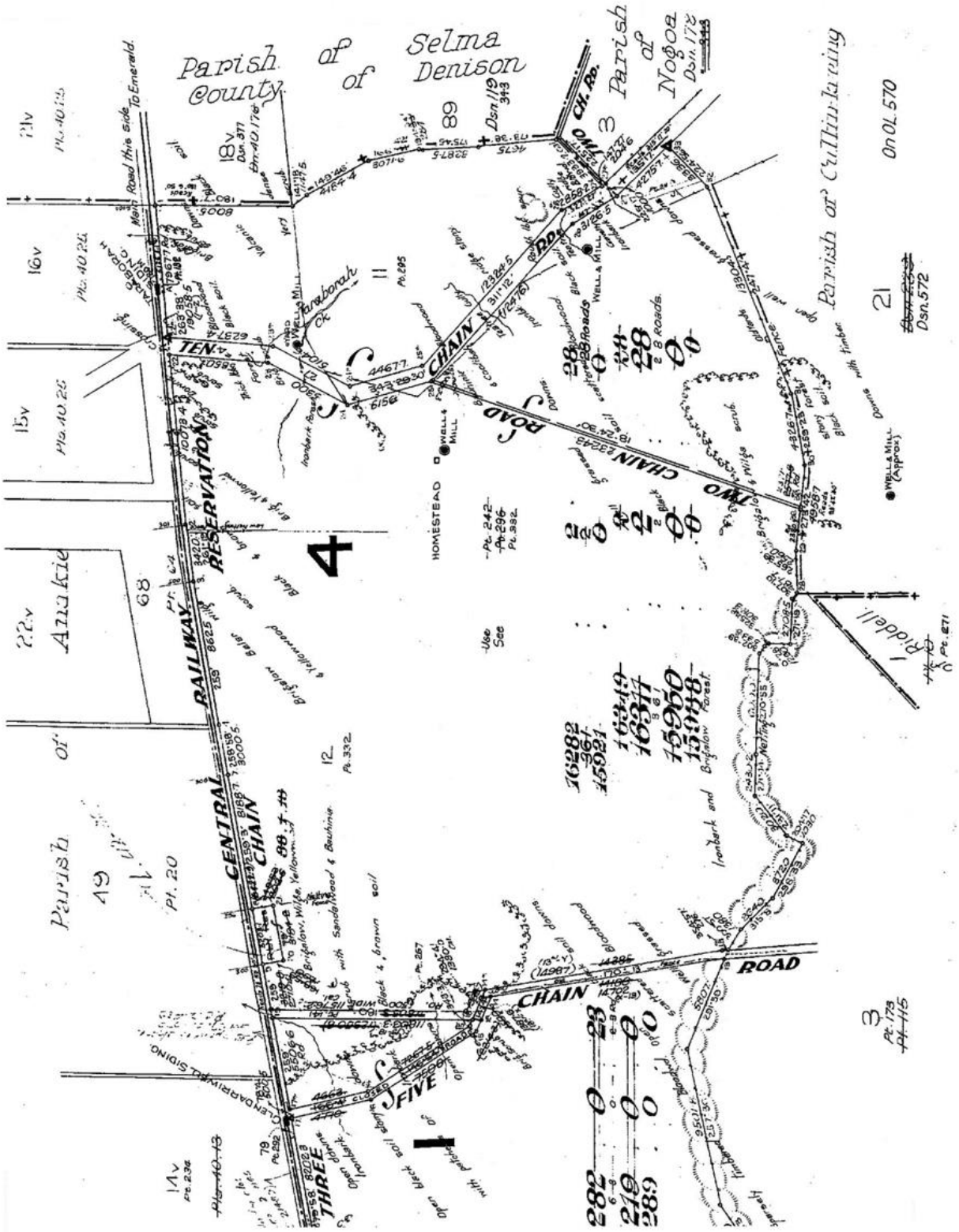
Lot 124 on PT367, 3497m^2, Parish of Anakie, County of Plantagenet, Central Highlands Local Government Area



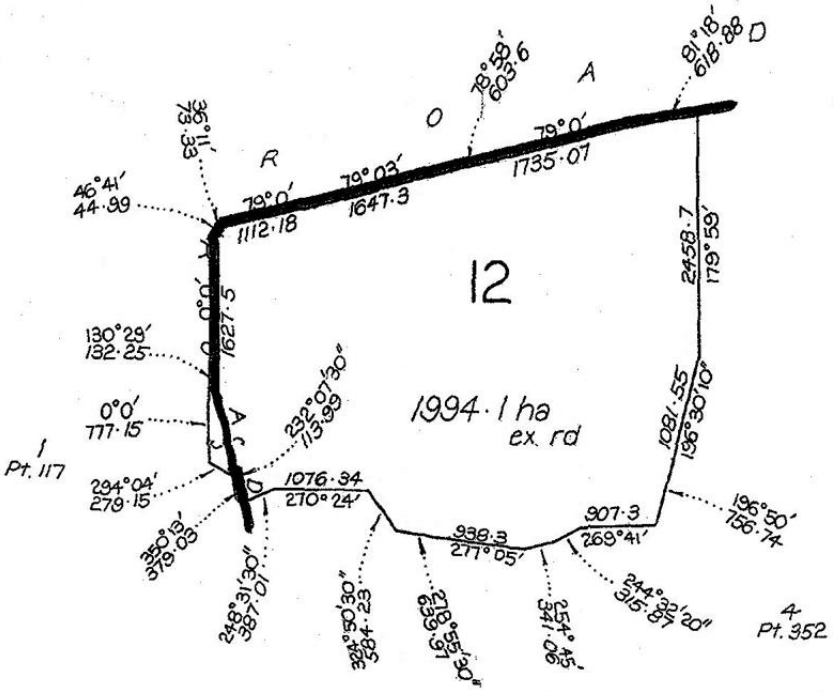
Elrad Malcom Patterson and Elaine Clarice Patterson Crown lessees as joint tenants	12 September 1986 to 25 October 1990	Block, previously part of road reserve, surveyed March 1986. Block subject to Crown (residential) lease (Special Lease 37/48366, No.17591074) with 30 year term commencing September 1986 and expiring on September 2016
Brian William Donnelly and Elizabeth Mary Donnelly as joint tenants	25 October 1990 to Present	Lease transferred. Contact:- PO Box 1049, Emerald, Q4720, ph 07 4982 1708

South of Highway

Portion 4. Parish of Glendarriwell, County of Plantagenet, on PT117, 15950 acres (6454.7353 ha), Central Highlands Local Government Area

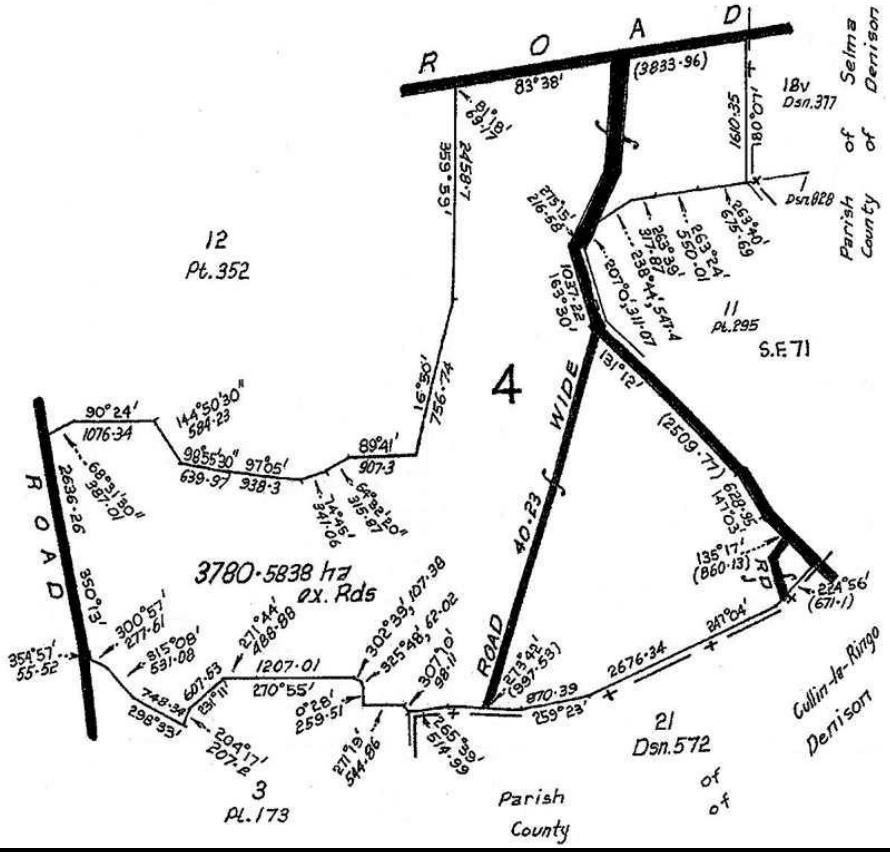


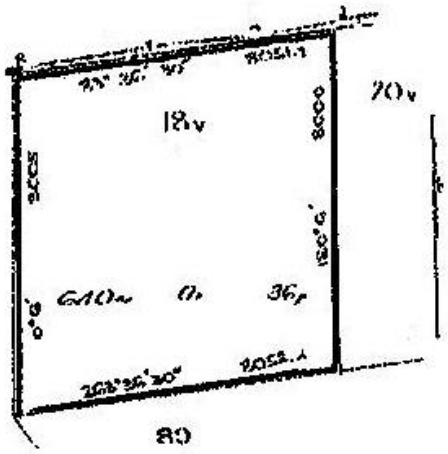
Part of PT117 surveyed June 1928

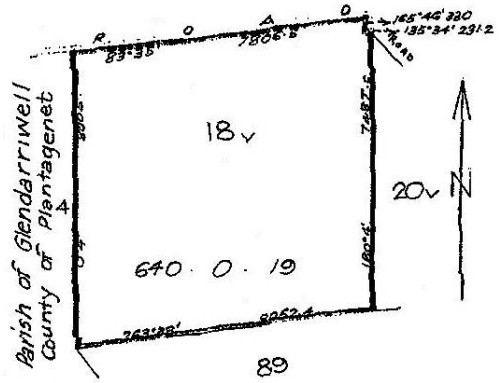
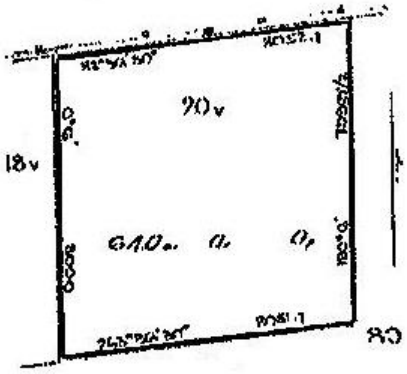
Johanna Martin as Crown lessees	Circa 1929 to date unknown	Previously block could have been subject to larger Crown lease (Grazing Homestead No.1289 – the Glendarriwell Block) probably back to circa 1893. Railway Reserve adjoining northern boundary absorbed into block in February 1932 and boundaries and area adjusted. New area 15988 acres (6470.1134 ha).
Edward J. Martin, Thomas B. Martin and Francis M. Martin as Crown lessees	Date unknown to 1 October 1984	Block subject to Crown lease (Grazing Homestead No.3247). 5 chain (100.584m) wide road reservation excised along block's western boundary in January 1958 and boundaries and area adjusted. New area 15921 acres (6442.9994 ha). 3 chain (60.35m) wide road reservation excised from south eastern corner of block by PT211 in June 1968 and boundaries and area adjusted. New area 15921 acres (6442.9994 ha). 667.4 ha eastern segment of block (shown on plan PT295 as Portion 11) excised in September 1974 to eventually become part of the Fairbairn State Forest (see at end of report). Portion 4 subdivided into Portions 4 and 12 by PT352 in March 1984 with part of road on western boundary realigned
Lot 12, formerly Portion 12, **on PT352**, 1994.1 ha exclusive of roads, Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area  		
Francis Michael Martin and Doreen Bernadette Martin as Crown lessees as joint tenants	1 October 1984 to 21 April 1988	Block subject to Crown lease (Grazing Homestead Free holding Lease 37/3729A) with 39 year 3 months term commencing October 1984.

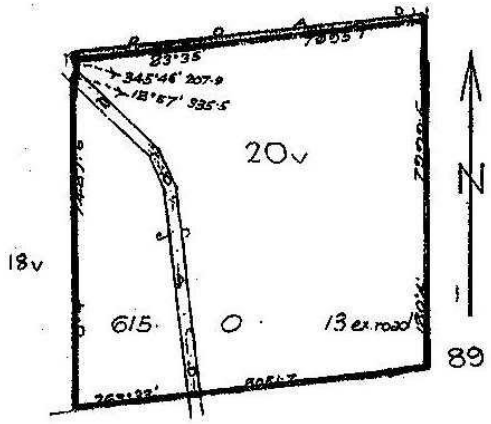
Frank Reid Welch and Denis Byrne Hogan as Crown lessees as tenants in common	21 April 1986 to 4 October 1988	Lease transferred
Denis Byrne Hogan as Crown lessee	4 October 1988 to 4 October 1988	Lease transferred
Russell William Pearson. Patricia Valentine Pearson and James Russell Pearson as Crown lessees as tenants in common	4 October 1988 to 17 August 1989	Lease transferred
William James Mylrea and Deborah Ruth Mylea as Crown lessees as joint tenants	17 August 1989 to 4 November 2005	Lease transferred. Block subject to Permit to Occupy from March 1996. PO no longer current. Lease transferred November 2005
Reginald Joseph Pedracini and Beverley Isabell Jane Pedracini as Crown lessees as tenants in common	4 November 2005 to 1 February 2007	Lease transferred
Bruce Peter Roberts and Trudy Anne Roberts as Crown lessees as tenants in common	1 February 2007 to Present	Lease transferred Block subject to Vegetation Notice 711198063 from November 2007. Block subject to Vegetation Notice 712278002 from March 2009. Contact:- “Callistemon Station”, Springsure, Q4722, ph 07 4984 4912

Lot 4, formerly Portion 12, **on PT352**, 3780.584 ha exclusive of roads , Parish of Glendarriwell, County of Plantagenet, Central Highlands Local Government Area



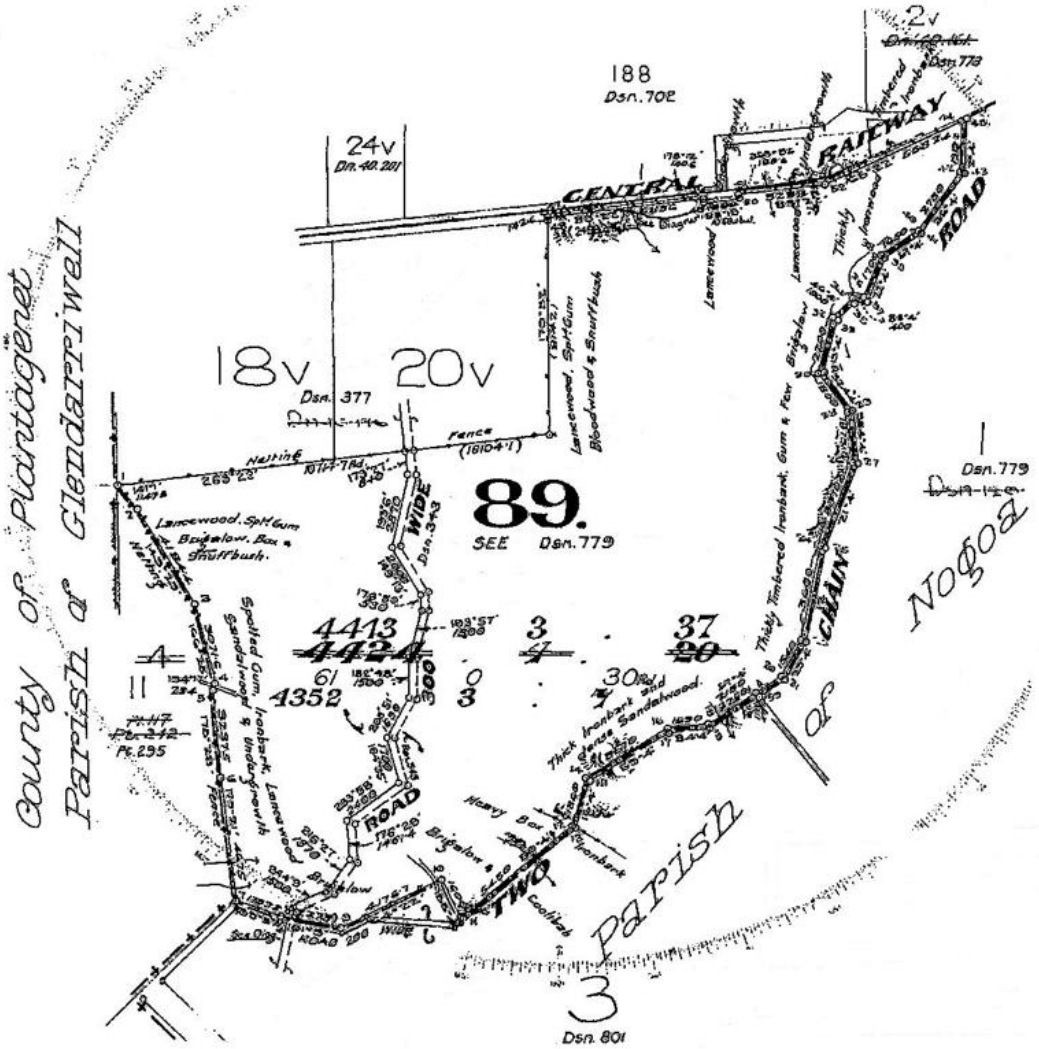
Francis Michael Martin and Doreen Bernadette Martin as Crown lessees as joint tenants	1 October 1984 to 27 July 1993	Block subject to Crown lease (Grazing Homestead Free holding Lease 37/3729B) with 39 year 3 months term commencing October 1984
Francis Michael Martin as Crown lessees	27 July 1993 to 18 January 1994	Lease transferred
Colin Geoffrey Fernie and Tony James Fernie as Crown lessees as tenants in common	18 January 1994 to 27 June 2000	Lease transferred
Colin Geoffrey Fernie and Joy Louise Fernie as Crown lessees as joint tenants	27 June 2000 to Present	Block subject to Crown lease (Grazing Homestead Free holding Lease 37/3729D, No.17632035) with 39 year 3 months term commencing 1 October 1984. Block subject to Vegetation Notice 713568192 from 12 November 2010. Contact:- "Yarrawonga", Yarrawonga Street, Blackwater, Q4717, ph 07 4982 5108, 0428 122 250
Portion 18v on DN40176, 640 acres 36 perches (259.0898 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
C. and N. Warrie as Crown Lessees	8 November 1897 to date unknown	Block surveyed March 1897. Block subject to Crown lease (Agricultural Farm No.228)
Barry ??? as Crown lessee	Dates unknown	Lease transferred
Helena Wright, wife of James Wright, as Crown lessee	Date unknown to 25 September 1912	Lease transferred
Helena Wright	25 September 1912 to 2 February 1922	Dead of Grant issued September 1912  The block was temporarily seized by the Crown in September 1963 to affect a small road opening in the block's north east corner. New deeds were then re-issued to the owners in March 1964
Johanna Martin and Joseph James Martin as joint tenants	2 February 1922 to 10 November 1936	
Johanna Martin (d. 1950)	10 November 1936 to 10 August 1954	
Edward John Martin, Thomas Bernard Martin and Francis Michael Martin as tenants in common	10 August 1954 to 10 September 1963	
The Crown (State of Queensland)	10 September 1963 to 5 March 1964	

Lot 203, formerly Portion 18v, **on DSN377**, 640 acres 19 perches (259.047 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
Edward John Martin, Thomas Bernard Martin and Francis Michael Martin as tenants in common	5 March 1964 to 9 October 1981	Deeds of Grant issued March 1964 
Francis Michael Martin and Doreen Bernadette Martin as joint tenants	9 October 1981 to 13 December 1990	
George Oliver Walter, Gary Kim Walter and John Henry Walter as tenants in common	13 December 1990 to 30 June 2000	
John Henry Walter and Gary Kim Walter as trustees	30 June 2000 to Present	Block subject to lease of undetermined term in favour of John Henry Walter, Gary Kim Walter, George Oliver Walter and Gloria Walter as joint tenants commencing 15 October 2001. Block subject to Water Notice 711208761 from 23 November 2007. Block subject to Water Notice 711208982 from 23 November 2007. Block subject to Vegetation Notice 712557544 from 30 June 2009. Contact:- see Lot 20 following
Portion 20v on DN40176, 640 acres (258.9988 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
L. and J. Warrie as Crown Lessees	27 July 1897 to date unknown	Block surveyed March 1897. Block subject to Crown lease (Agricultural Farm No.229)
Harriette ??? as Crown lessee	Dates unknown	Lease transferred
J. and S. Wright as Crown lessee	Date unknown to 25 September 1912	Lease transferred
James Wright (d.1919)	25 September 1912 to 14 October 1921	Dead of Grant issued September 1912 
Helena Wright, widow	14 October 1921 to 11 January 1922	
Johanna Martin and Joseph James Martin as joint tenants	11 January 1922 to 10 November 1936	
Johanna Martin (d. 1950)	10 November 1936 to 10 August 1954	
Edward John Martin, Thomas Bernard Martin and Francis Michael Martin as tenants in common	10 August 1954 to 10 September 1963	
The Crown (State of Queensland)	10 September 1963 to 5 March 1964	The block was temporarily seized by the Crown in September 1963 to effect a road opening bisecting the block. New deeds were then re-issued to the owners in March 1964

Lot 20, formerly Portion 20v, **on DSN377**, 615 acres 13 perches (248.915 ha), Parish of Selma, County of Denison, Central Highlands Local Government Area		
Edward John Martin, Thomas Bernard Martin and Francis Michael Martin as tenants in common	5 March 1964 to 9 October 1981	Deeds of Grant issued March 1964 
Francis Michael Martin and Doreen Bernadette Martin as joint tenants	9 October 1981 to 13 December 1990	
George Oliver Walter, Gary Kim Walter and John Henry Walter as tenants in common	13 December 1990 to 30 June 2000	
John Henry Walter and Gary Kim Walter as trustees and leased by John Henry Walter, Gary Kim Walter, George Oliver Walter and Gloria Walter as joint tenants	30 June 2000 to Present	Block subject to lease of undetermined term commencing 15 October 2001. Block subject to Water Notice 711208761 from 23 November 2007. Block subject to Water Notice 711208982 from 23 November 2007. Block subject to Vegetation Notice 712557544 from 30 June 2009. Contact:- Waterways Super Fund, PO Box 279, Emerald Q4720, ph 07 4982 0505, 0417 696 560

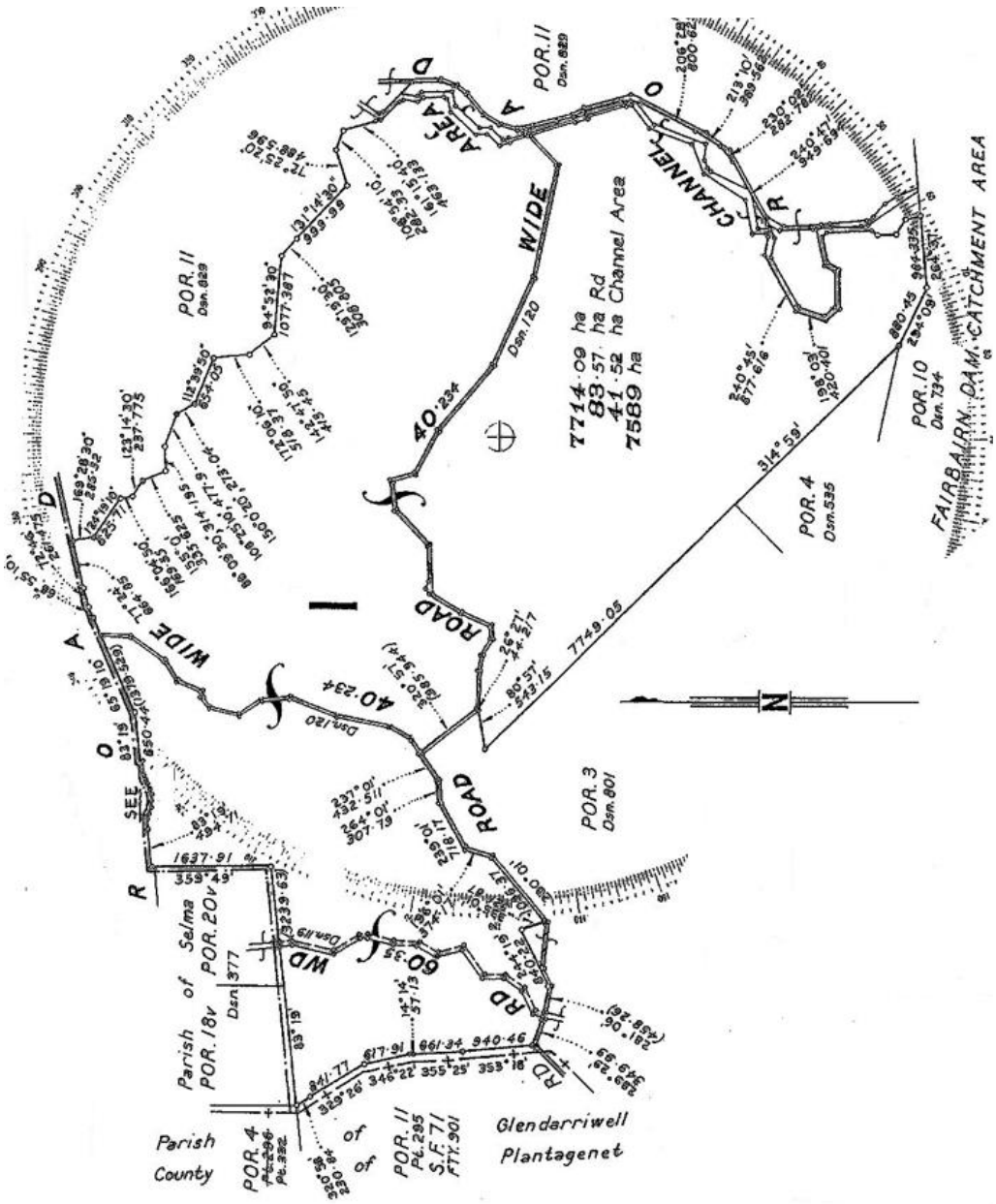
Fairbairn State Forest

Portion 89, Parish of Selma, County of Denison, on DSN119, 4352 acres 3 roods 7 perches (1761.513 ha) exclusive of roads, Central Highlands Local Government Area

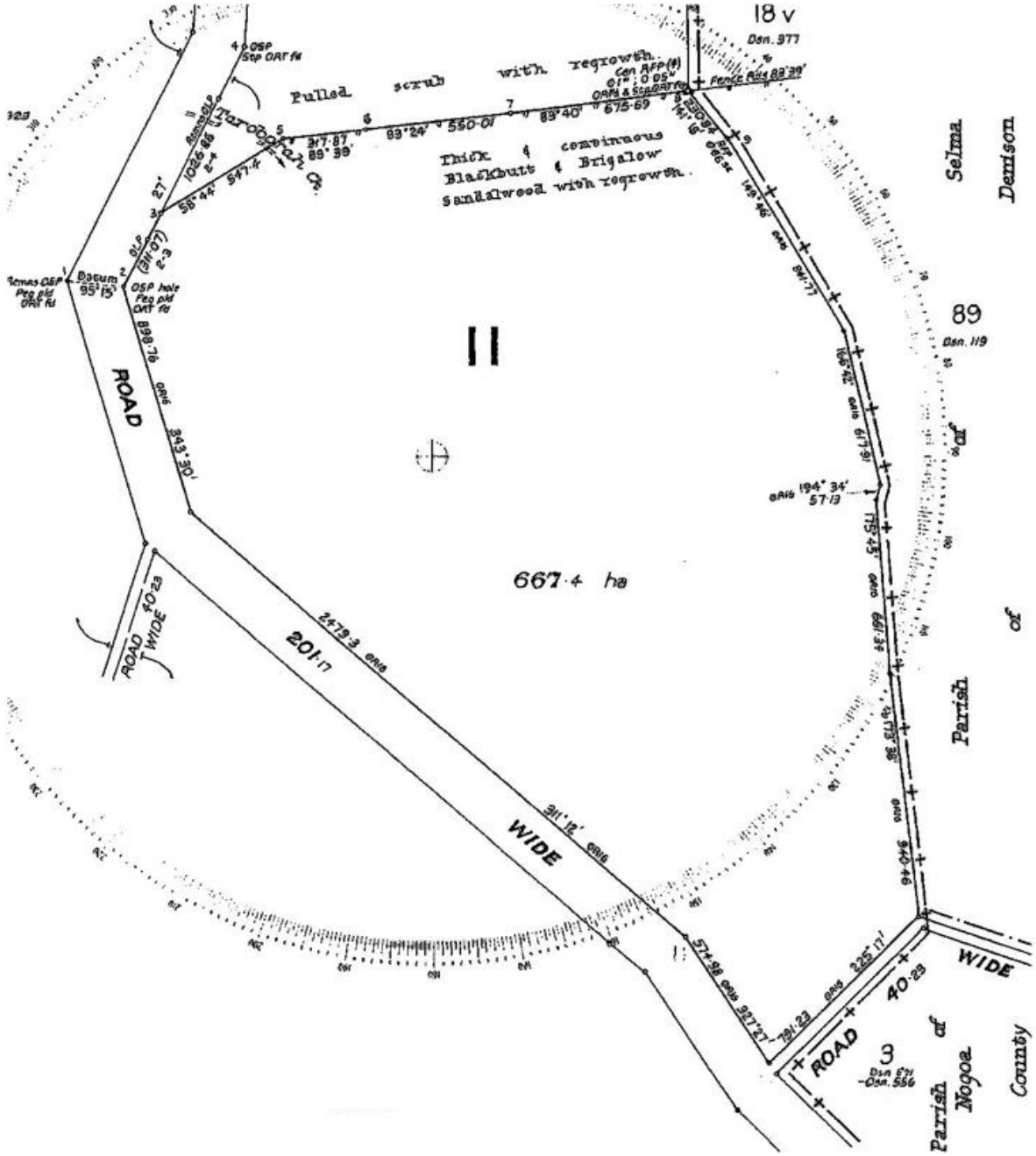


Part of DSN119 surveyed March 1910

R. K. Symons as Crown lessee	8 July 1910 to 20 July 1912	Block subject to Crown lease (Grazing Homestead Lease No. 1045)
Norman Keith Gibson as Crown lessee	20 July 1912 to date unknown	Block subject to Crown lease (Grazing Farm Lease No. 1450)
John H. Walsh and Henry M. Weld as Crown lessees	Dates unknown	Block subject to Crown lease (Grazing Farm Lease No. 2941)
John A. Staunton Jnr and Michael Staunton as Crown lessees	Dates unknown	Lease transferred. New Lease issued (Grazing Homestead Lease No. 3318) in October 1955. Lease doubled in area to south east
Leon E. G. Mills as Crown lessee	Dates unknown	Lease transferred
Frederick A. F. Knowling and Clover M. Knowling as Crown lessees	Date unknown to 14 November 1968	Lease transferred
William J. Ware as Crown lessee	14 November 1968 to circa August 1977	Lease transferred. New plan (DSN779) of block (and blocks to the south east) compiled August 1977

Portion 89, Parish of Selma, County of Denison, on DSN779, 1761.513 ha exclusive of roads, Central Highlands Local Government Area		
Crown Land (probably State Forest)	circa August 1977 to circa March 1980	Lease No. 3318 amended. Lessee probably previous lessee. Block and blocks to the south east amalgamated by DSN828 in March 1980. Lease surrendered
Portion 1. Parish of Nogoa, County of Denison, on DSN828, 7589 ha exclusive of roads and Channel Area, Central Highlands Local Government Area  Part of DSN828 compiled March 1980		
Crown Land (probably State Forest)	Circa March 1980 to circa 1981	Block subject to Crown lease (Special Lease No.45492 – lessee probably previous lessee). Amalgamated with land to the north and west (by FTY1178 – plan unavailable) and becomes Fairbairn State Forest probably 1981

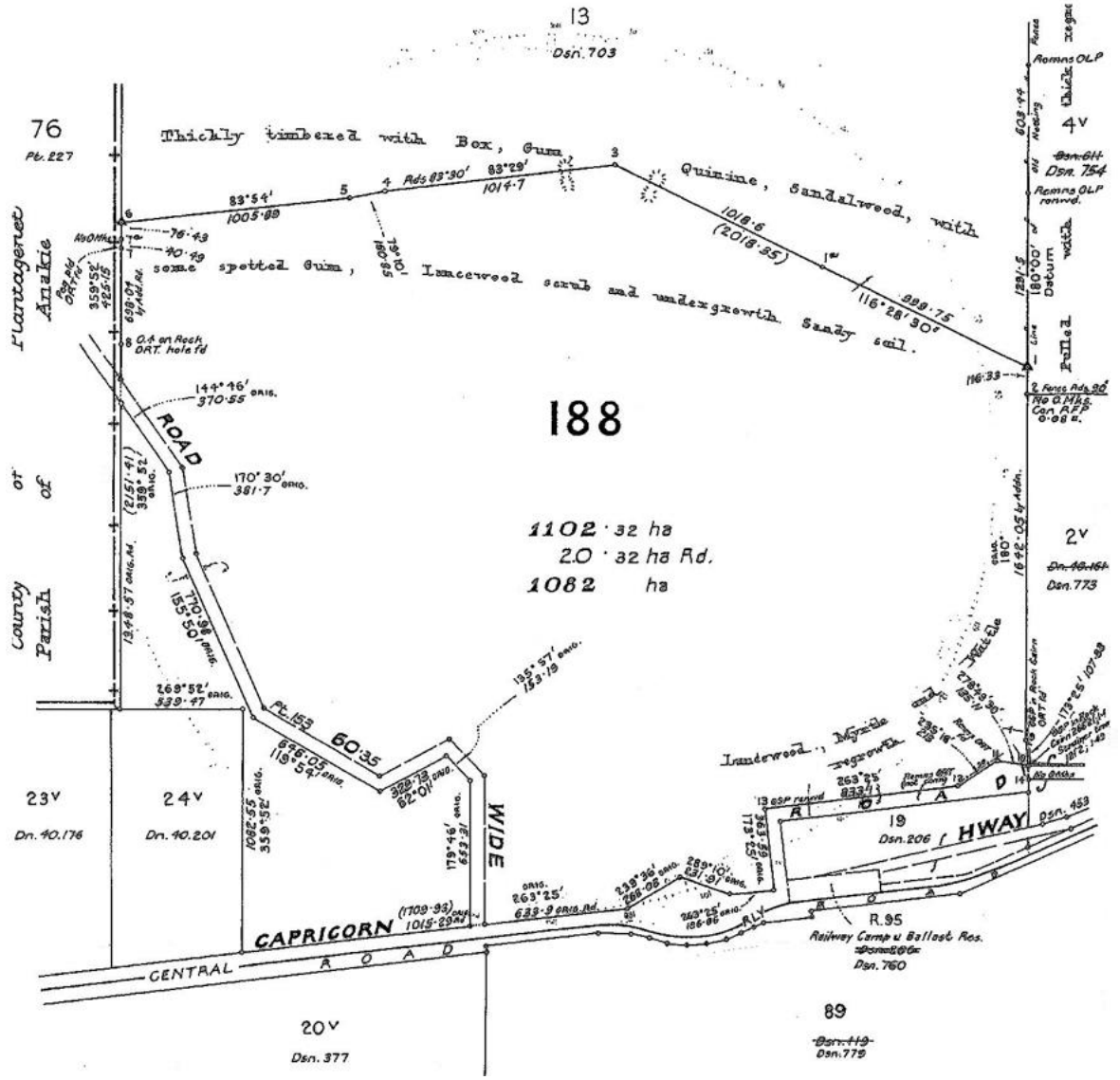
Portion 11, Parish of Glendarriwell, County of Plantagenet, on PT295, 667.4 ha, Central Highlands Local Government Area (formerly part of Portion 4 on PT117 – see above)



Part of PT295 surveyed September 1974

Edward J. Martin, Thomas B. Martin and Francis M. Martin as Crown lessees	Circa September 1974 to circa February 1976	Block still subject to Crown lease (Grazing Homestead No.3247 – see Portion 4 on PT117 above)
Crown Land (probably State Forest)	Circa February 1976 to circa 1981	Block then subject to Crown lease (Special Lease No.41644 – lessee probably previous lessee, the Martins, term indeterminate). Amalgamated with land to the east (by FTY1178 – plan unavailable) and becomes Fairbairn State Forest probably 1981

Portion 188. Parish of Selma, County of Denison, on DSN702, 1082 ha exclusive of roads, Central Highlands Local Government Area (formerly part of Portion 13 on DSN634 – see above)



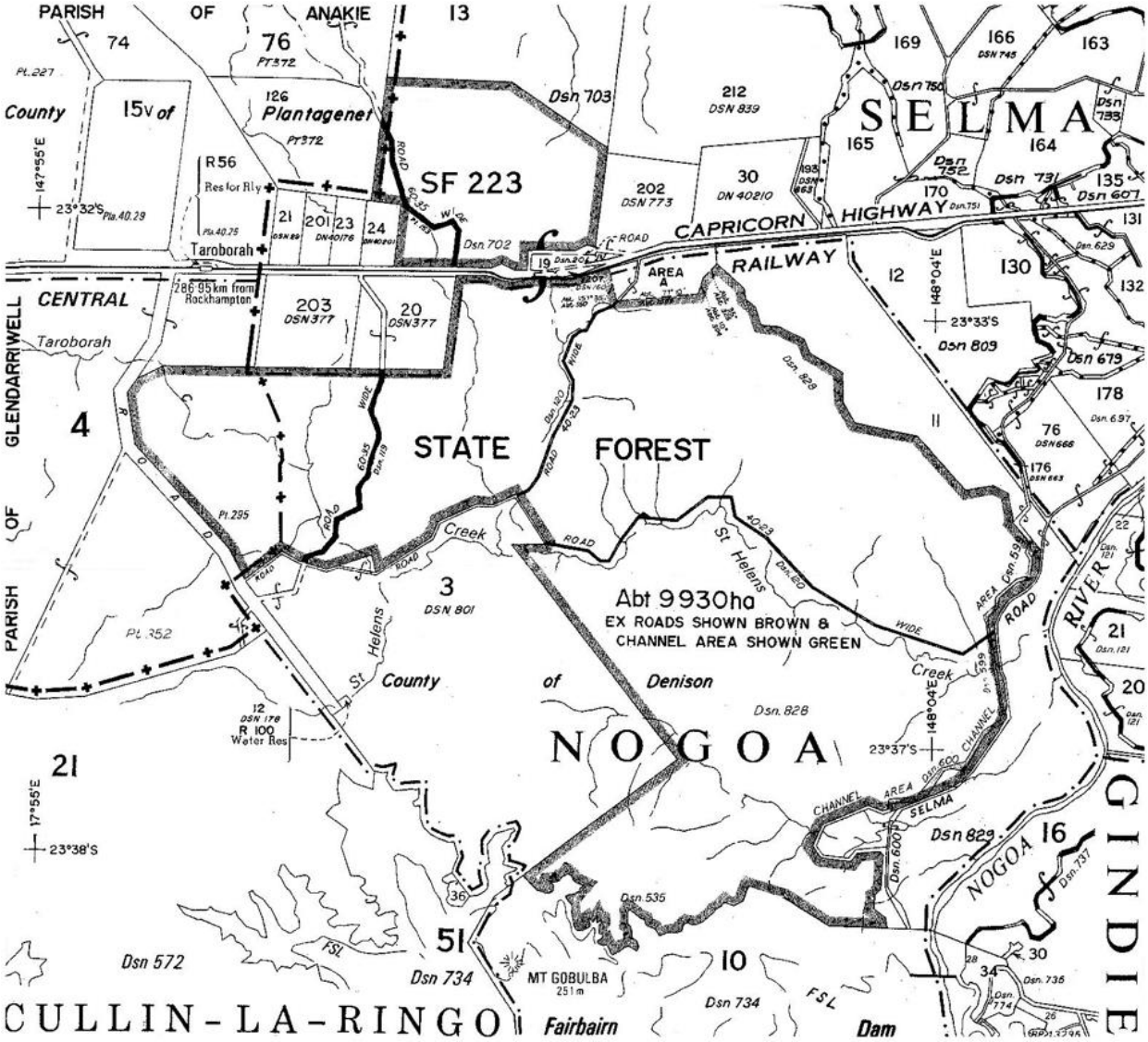
Part of DSN702 surveyed December 1974

Crown Land	Circa February 1976 to circa 1981	Gazetted as State Forest in February 1976. Block subject to Crown lease (Special Lease No.40355 – lessee probably previous lessee, Ian H. Costello, term indeterminate). Amalgamated with land to the south (by FTY1178 – plan unavailable) and becomes Fairbairn State Forest probably 1981

SF 223 on FTY1178 (plan unavailable) circa 1981 shows Fairbairn State Forest.

SF 223 on FTY1274, Parishes of Selma and Nogoa, County of Denison, circa August 1984 shows amended Fairbairn State Forest. Area 10041.946 ha exclusive of roads and Channel Area. Area in north east excised by FTY1531 in October 1988

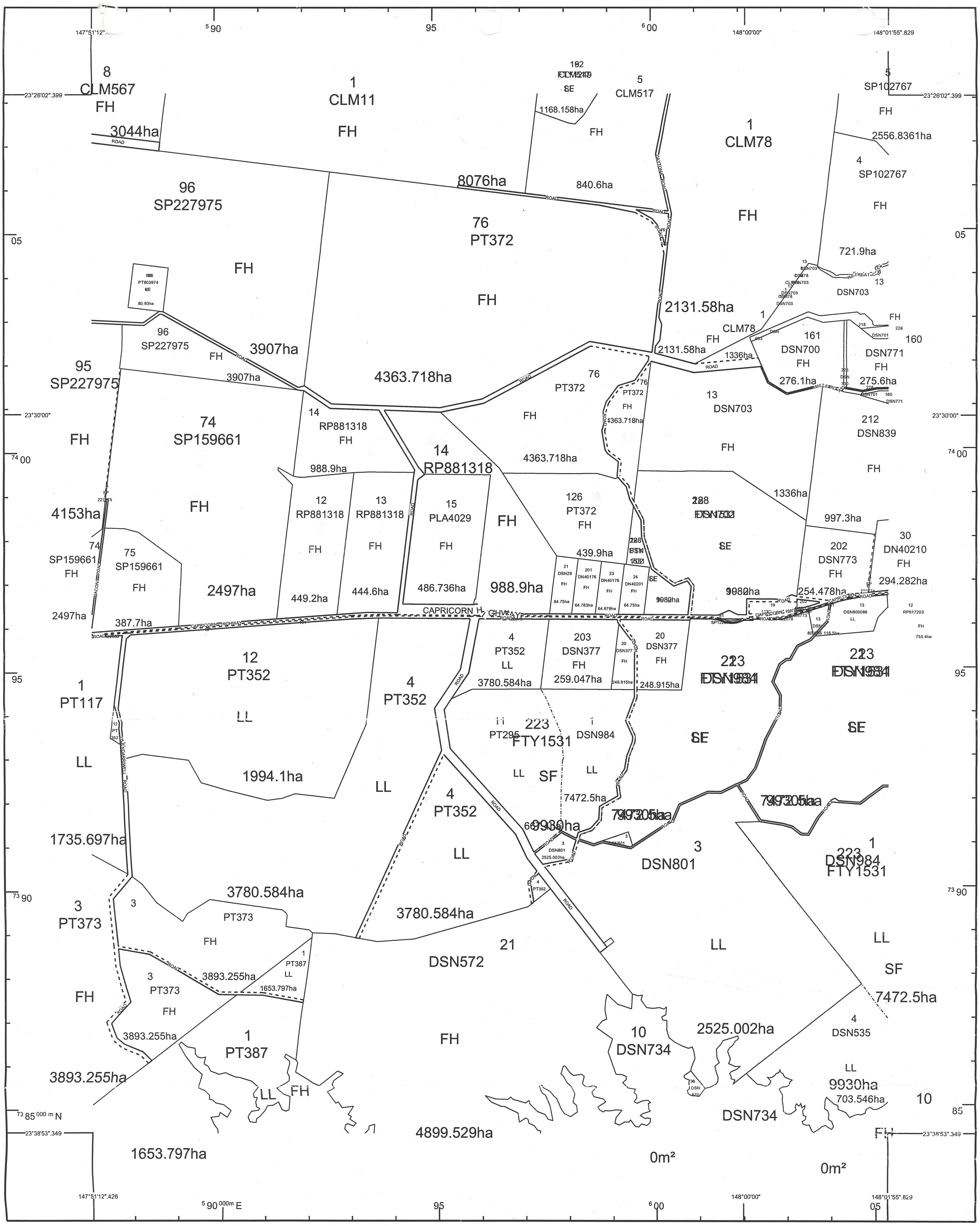
Lot 223 on FTY1531, About 9930 ha exclusive of roads and Channel Area, Parishes of Selma and Nogoa, County of Denison, Central Highlands Local Government Area



Part of FTY1531 prepared October 1988

Fairbairn State Forest	Circa October 1988 to 14 August 2007	
Crown Land leased by The State of Queensland represented by the Department of Environment and Resource Management under the Forestry Act	14 August 2007 to Present	Fairbairn State Forest. Block subject to Crown Special Leases No.701416837, No. 701416838 and No.701416839 from 5 July 1996. State lease created November 2009. Contact:- Department of Agriculture, Fisheries and Forestry, Blackall Street, Barton, ACT, ph 02 6272 3933

Appendix B Taroborah Historical Aerial Photos



STANDARD MAP NUMBER
8450-11134

MAP WINDOW POSITION & NEAREST LOCATION

147°56'34".128
23°32'27".874
THE GEMFIELDS
13.25 KM

0 1.6 3.2 4.8 6.4 8.0 km

HORIZONTAL DATUM:GDA94 ZONE:55 SCALE 1 : 80000

GDA

SUBJECT PARCEL DESCRIPTION

DCDB

Lot/Plan	/
Area/Volume	
Tenure	UNKNOWN
Local Government	
Locality	
Parish	
County	
Segment/Parcel	

CLIENT SERVICE STANDARDS

PRINTED (dd/mm/yyyy) 16/08/2011

DCDB 15/08/2011 (Lots with an area less than 4.000ha are not shown)

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SmartMap

An External Product of SmartMap Information Services

Based upon an extraction from the Digital Cadastral Data Base

Queensland Government

Appendix C EMR and CLR Search Results

Queensland Government

Level 8, 400 George St • Brisbane, Queensland • GPO Box 2454 • Brisbane • QLD 4001 • AUSTRALIA
Telephone (07) 3330 5685 • Facsimile (07) 3330 5754 •
www.derm.qld.gov.au/environmental_management/land/contaminated_land

SEARCH RESPONSE

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

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240827 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 76 Plan: PT372
null FORK LAGOON ROAD
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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 (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

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Telephone (07) 3330 5685 • Facsimile (07) 3330 5754 •
www.derm.qld.gov.au/environmental_management/land/contaminated_land

SEARCH RESPONSE

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

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240828 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 96 Plan: SP227975
null NO STREET ADDRESS
UNABLE TO VALIDATE (SEARCH MAY PROCEED)

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240829 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 1 Plan: CLM78
null DAYTONA ROAD
FORK LAGOONS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240830 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 12 Plan: RP881318
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240831 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 13 Plan: RP881318
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240832 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 14 Plan: RP881318
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240833 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 15 Plan: PLA4029
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240834 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 126 Plan: PT372
null FORK LAGOON ROAD
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240835 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 13 Plan: DSN703
null CAPRICORN HIGHWAY
FORK LAGOONS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240836 EMR Site Id: 24751 18 August 2011
Client Reference: 15626629
Cheque Number:

This response relates to a search request received for the site:
Lot: 223 Plan: FTY1531

EMR RESULT

The above site IS included on the Environmental Management Register.
Lot: 223 Plan: FTY1531
Address: CAPRICORN HIGHWAY
LEFT BANK 4720

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 Resource Management 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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240837 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 24 Plan: DN40201
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240838 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 23 Plan: DN40176
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240839 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 201 Plan: DN40176
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240840 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 21 Plan: DSN29
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240841 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 12 Plan: PT352
null GLENDARRIWELL ROAD
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240842 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 4 Plan: PT352
null GLENDARRIWELL ROAD
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240843 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 203 Plan: DSN377
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240844 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 20 Plan: DSN377
null CAPRICORN HIGHWAY
EMERALD

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240845 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 124 Plan: PT367
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240846 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 5 Plan: PT132
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240847 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 81 Plan: SP122079
null NO STREET ADDRESS
UNABLE TO VALIDATE (SEARCH MAY PROCEED)

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240848 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 82 Plan: SP122079
null CAPRICORN HIGHWAY
THE GEMFIELDS

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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)

Michelle O'Rourke
Suite 5b, 1 Swann Road
Taringa QLD 4068

Transaction ID: 14240849 EMR Site Id: 18 August 2011
Cheque Number:
Client Reference: 15626629

This response relates to a search request received for the site:
Lot: 101 Plan: SP122080
null NO STREET ADDRESS
UNABLE TO VALIDATE (SEARCH MAY PROCEED)

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 2011, the price of an EMR/CLR search will increase to $40.15 per lot for internet based searches and $47.20 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 (07) 3330 5685.

Darryl Byers
Registrar, Contaminated Land Unit

Appendix D Dial Before You Dig Plans

Job No 5536785

Phone: 1100
www.1100.com.au

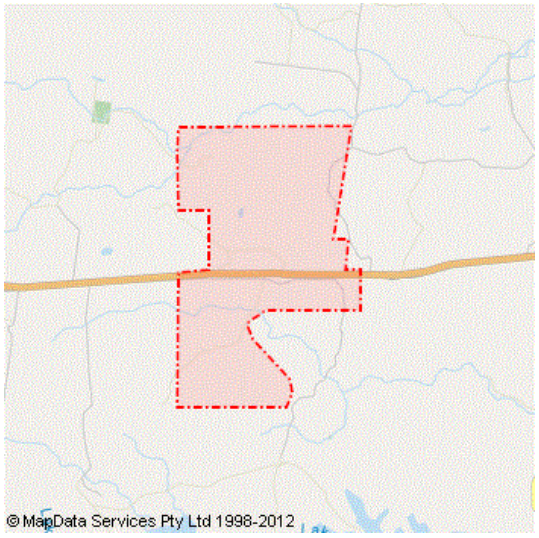
Caller Details

Contact: Mr Mitch Gregory
Company: AARC
Address: Suite 5B 1 Swann Rd
TARINGA QLD 4068

Caller Id: 1106818
Phone: 0732178772
Mobile: Not Supplied
Fax: Not Supplied
Email: mgregory@aarc.net.au

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: Not Supplied
Working on Behalf of:
Not Supplied
Enquiry Date: 15/06/2012
Start Date: 19/06/2012
End Date: 20/07/2012
Address:
Capricorn Hwy
GEMFIELDS QLD 4702
Job Purpose: Excavation
Onsite Activity: Mechanical Excavation
Location of Workplace: Both
Location in Road: CarriageWay,Footpath,Nature Strip

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
*** Non conformance Start Date ***
Proposed Mining Works.

Your Responsibilities and Duty of Care

- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
25415373	Nextgen	1800336886	NOTIFIED
25415374	Central Highlands Regional Council	0749828308	NOTIFIED
25415375	Ergon Energy, Rockhampton	131046	NOTIFIED
25415376	Telstra QLD, Regional	1800653935	NOTIFIED

END OF UTILITIES LIST

Plant Location Details

15/06/2012

Mr Mitch Gregory
AARC
Suite 5B 1 Swann Rd
Taringa, QLD 4068
Phone: 0732178772
Fax: Not Supplied

Visionstream Pty Limited
ABN 80 062 604 193
236 East Boundary Rd 2 North Drive
Virginia Park East Bentleigh, Victoria 3165
T 1800 336 886 F 03 92585879
E dbydnext@visionstream.com.au
W www.visionstream.com.au

Dear Mr Mitch Gregory,

The following is a response to your Dial Before You Dig enquiry

Assets Affected: Nextgen Assets

Sequence No: 25415373
Location: Capricorn Hwy GEMFIELDS, QLD 4702
Commencement Date: 19/06/2012 12:00:00 AM

IMPORTANT:

- Please read and understand all the information and disclaimers provided below
- Sketches and Plans provided by Nextgen Networks are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position
- The accuracy and/or completeness of the information in the plans can not be guaranteed often due to changes in the surrounding land subsequent to Nextgen's deployment and, accordingly the plans are intended to be indicative only

"DUTY OF CARE"
When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed. The following points must be considered:

1. It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Nextgen Networks plant. Nextgen Networks will provide free plans and sketches showing the presence of its network to assist at this design stage.
2. It is the owner's (or constructor's) responsibility to:
   a) Request plans of Nextgen Networks plant for a particular location at a reasonable time before construction begins
   b) Visually locate Nextgen Networks plant by vacuum excavation (pot-holing) where construction activities may damage or interfere with Nextgen Networks plant (see "Essential Precautions and Approach Distances" section for more information)
   c) Contact Nextgen Networks Network (see below for details) if Nextgen Networks plant is wholly or partly located near planned construction activities

DAMAGE
ANY DAMAGE TO Nextgen Networks NETWORK MUST BE REPORTED TO 1800 032 532 IMMEDIATELY

- The owner is responsible for all plant damage when works commence prior to obtaining Nextgen Networks plans, or failure to follow agreed instructions
- Nextgen Networks reserves all rights to recover compensation for lose or damage to its cable network or other property including consequential losses

CONCERNING NEXTGEN NETWORK PLANS

- Phone 1100. Dial Before You Dig for free plans of Nextgen Networks plant locations. Please give at least 2 business days notice
- Nextgen Networks plans and information provided are valid for 50 days from the date of issue
- Nextgen Networks retains copyright in all plans and details provided in conjunction with your request. These plans and or details should be disposed of by shredding or any other secure disposal method after use
- Nextgen Networks plans or other details are provided for the use of the applicant, its servants, or agents, and shall not be used for any unauthorised purpose
- Please contact the Network Help Desk (see below for details) immediately should you locate Nextgen Networks assets not indicated on these plans
- Nextgen Networks, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Nextgen Networks against any claim or demand for any such loss or damage
- Please ensure Nextgen Networks plans and information provided remains on-site at all times throughout your construction phase

ESSENTIAL PRECAUTION AND APPROACH DISTANCE

NOTE: If the following clearances cannot be maintained, please contact the Nextgen Network Help Desk (see below for details) for advice on how best to resolve this situation

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Nextgen Networks plant, carefully locate this plant first to avoid damage. Undertake prior exposure (vacuum excavation) such as potholing when intending to excavate or work closer to Nextgen Networks plant than the following approach distances:

- Where Nextgen Networks plant is in an area where load and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside
- In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres
- In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:
  a) Parallel to major plant: 10 metres (for optic fibre cable)
  b) Parallel to other plant: 5 metres

Note: Even pot-holing needs to be undertaken with extreme care, common sense and employing techniques least likely to damage cables. For example - vacuum excavation.

- If construction work is parallel to Nextgen Networks plant, then careful pot-holing at least ever 5m is required to establish the location of all plant, hence continuing nominal locations before work can commence

2. Maintain the following minimum clearance between construction activity and actual location of Nextgen Networks Plant.

Jackhammers/Pneumatic Breakers	*Not within 1.0m of **actual locations***
Vibrating Plate or Wackers Packer Compactors	*Not within 0.5m of Nextgen Networks ducts 300mm compact clearance cover before compactor can be used across Nextgen Networks ducts, and 600mm clearance across Nextgen Networks cables in the solid*
Boring Equipment (in-line, horizontal and vertical)	*Not within 2.0m of **actual location** Constructor to check depth via vacuum excavation (pot-hole)*
Heavy Vehicle Traffic (over 3 tonnes)	*Not to be driven across Nextgen Networks ducts with less than 600mm cover. Not to be driven across Nextgen Networks fibre with less than 1.2m cover Constructor to vacuum excavate(pot-hole) and expose plant*
Mechanical Excavators, Boring and Tree Removal	*Not within 1.0m of actual location Constructor to vacuum excavate (pot-hole) and expose plant*

- All Nextgen Networks pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work
- All Nextgen Networks conduit should have the following minimum depth of cover after the completion of your work:

  Footway 450mm
  Roadway 450mm at drain invert and 600mm below the pavement subgrade level invert

- All Nextgen Networks ⍰fibre in the solid⍰ should have the following minimum depth of cover after the completion of your work:

  Footway 600mm
  Roadway 1200mm at drain invert and 1200mm below the pavement subgrade level invert

- For clearance distances relating to Nextgen Networks above ground infrastructure please contact the Network Help Desk (see below for details)

FURTHER ASSISTANCE

Over-the-phone assistance can be obtained by calling the Network Help Desk below.
Nextgen require 5 clear business days notice to conduct an on-site location. The initial on site location visit will not normally incur a charge, but at the discretion of Nextgen subsequent site visits may incur a charge to be applied at an hourly rate.
Where an on-site location is provided, the owner is responsible for all vacuum excavation work (pot-holing) to visually locate and expose Nextgen Networks plant.
If plant location plans or visual location of Nextgen Networks plant by vacuum excavation reveals that the location of Nextgen Networks plan is situated wholly or partly where the owner plans to work, then **Nextgen Networks** must be contacted through the **Network Help Desk** to discuss possible engineering solutions.
The contact number for the **Network Help Desk** is 1800 032 532.

NOTE:
If Nextgen Networks relocation or protection works are part of the agreed solution, then payment to Nextgen Networks for the cost of this work shall be the responsibility of the principal developer. The principal developer will be required to provide Nextgen Networks with the details of their proposed work showing how Nextgen Networks plant is to be accommodated and these details must be approved by the Nextgen National Operations Manager prior to the commencement of site works.

RURAL LANDOWNER - IMPORTANT INFORMATION

Where Nextgen Networks owned cable crosses agricultural land Nextgen Networks will provide a one off free-on-site electronic cable location. Please note that the exact location of cables can only be verified by visual proving by pot holing, which is not covered by this service. The Network Integrity HelpDesk Officer will provide assistance in determining whether a free-on-site location is required. Please ring the Nextgen Network Help Desk as listed above.

PRIVACY NOTE

Your information has been provided to Nextgen Networks by DBYD to enable Nextgen Networks to respond to your DBYD request. Nextgen Networks keeps your information in accordance with its privacy statement entitled 'Protecting Your Privacy' which can be obtained from Nextgen Networks either by calling 1800 032 532 or visiting our website www.nextgennetworks.com.au

Warning: Nextgen Networks plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc, at the time of installation and Nextgen Networks does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.
DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.
The customer has A DUTY OF CARE when excavating near Nextgen Networks cables and plant.
Before using machine excavators NEXTGEN PLANT MUST FIRST BE PHYSICALLY EXPOSED BY VACUUM EXCAVATION (potholing} to identify its location.
Nextgen Networks will seek compensation for damages caused to its property and losses caused to Nextgen Networks and its customers.

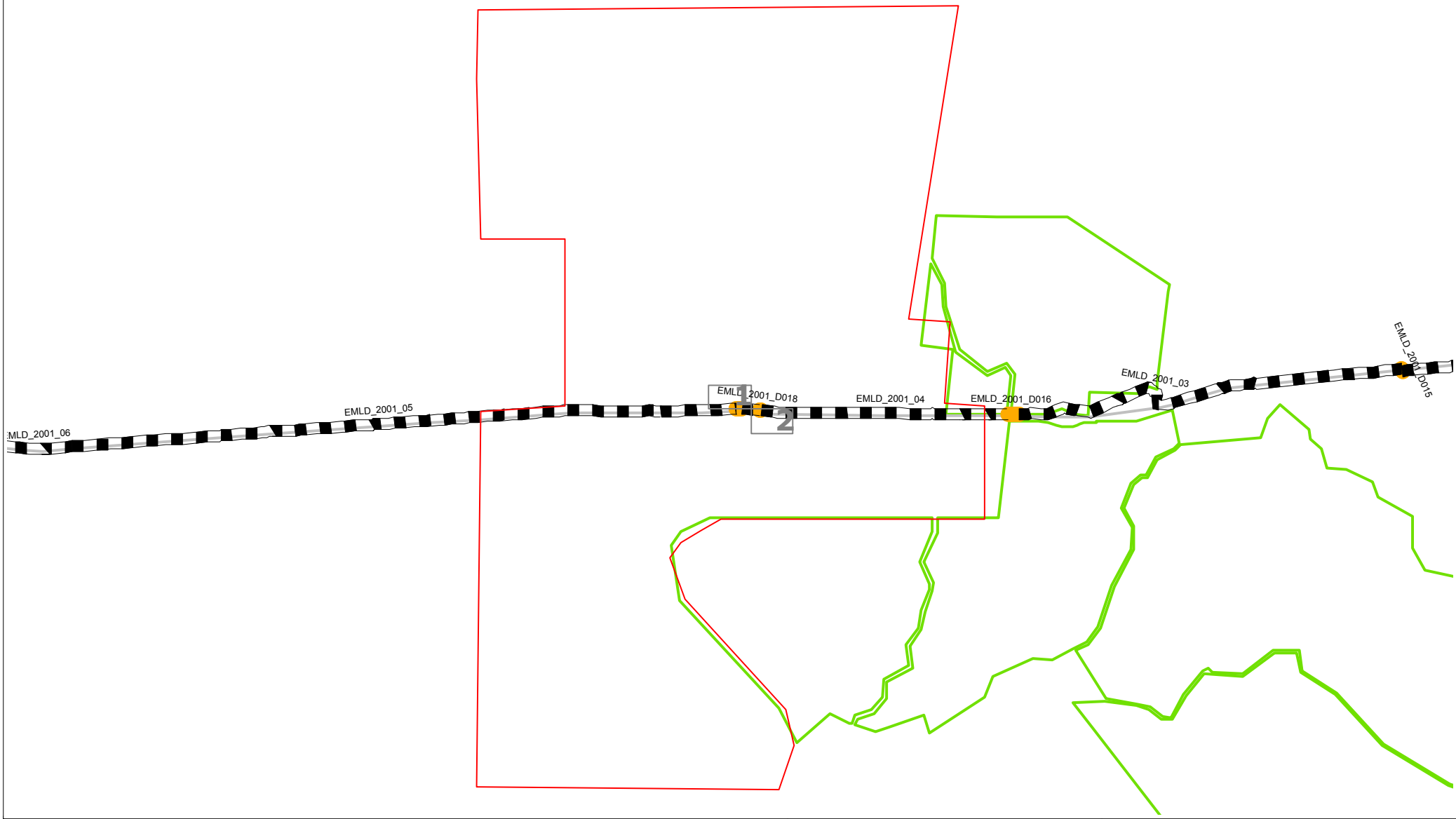
EXPERIENCED PLANT LOCATORS (for your area)

On-site assistance should be sought from an Experienced Plant Locater if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided. On-site advice should be obtained from a suitably qualified contractor highly skilled in locating Nextgen Networks plant. If there is any doubt whatsoever about the actual location of the telecommunications plant, the best method for locating the telecommunications plant or the correct interpretation of the drawings provided. In the case where Nextgen Networks plant is outside a recognised road reserve Nextgen Networks recommends that the **Network Help Desk** is contacted for assistance prior to engaging an Experienced Plant Locater.

For the assistance of customers Nextgen Networks has established strict criteria to assess the skill of contractors that may be engaged by owners requiring Nextgen Networks plant locating services to perform any of the following activities if requested to do so by the owner:

- Review Nextgen Networks plans to assess the approximate location of Nextgen Networks plant
- Advise owners of the approximate location of Nextgen Networks plant according to the plans
- Advise the owners of the best method for locating Nextgen Networks plant
- Advise owners of the hazard of unqualified persons attempting to find the exact location of Nextgen Networks plant and working in the vicinity of Nextgen Networks plant without first locating its exact position
- Perform trial hole explorations by vacuum excavation (pot-holing) to expose Nextgen Networks plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment

Nextgen Networks does not accept any liability or responsibility for the performance of or advice given by any Plant Locater engaged by you but we will, if requested, recommend suitably qualified plant locators that Telstra has accredited.



Sequence Number: 25415373

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LEGEND

Digsite

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- Area

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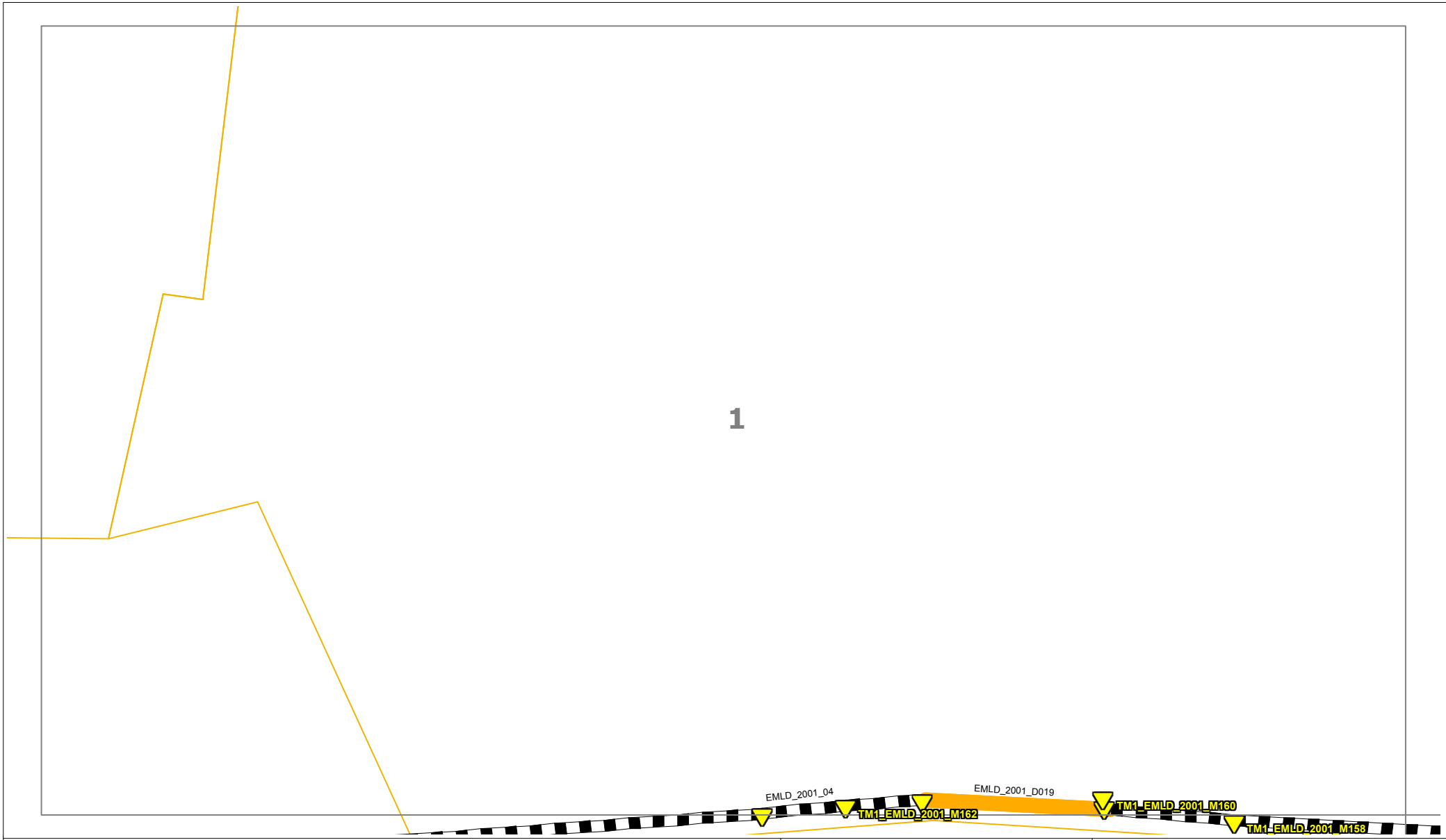

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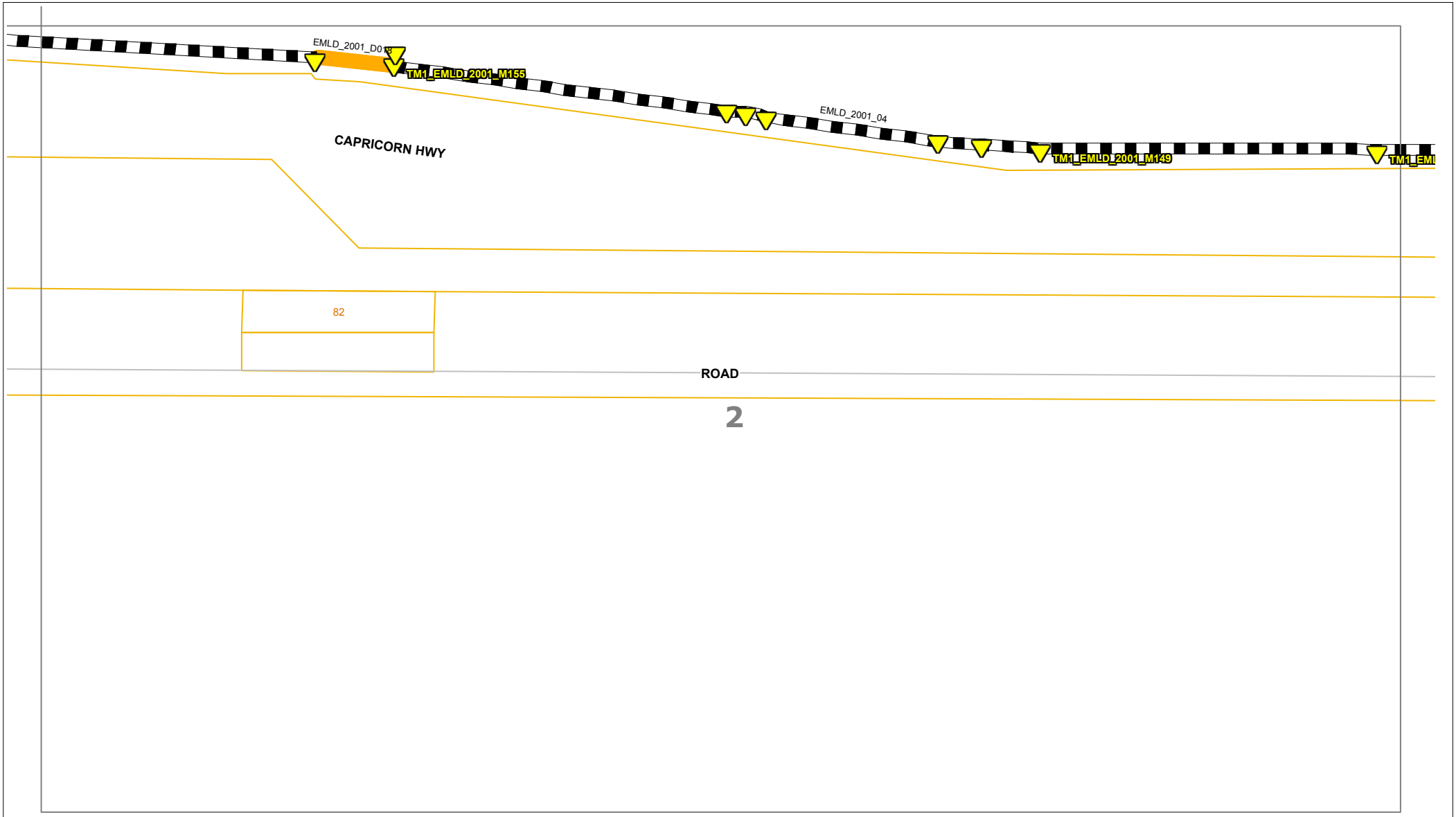

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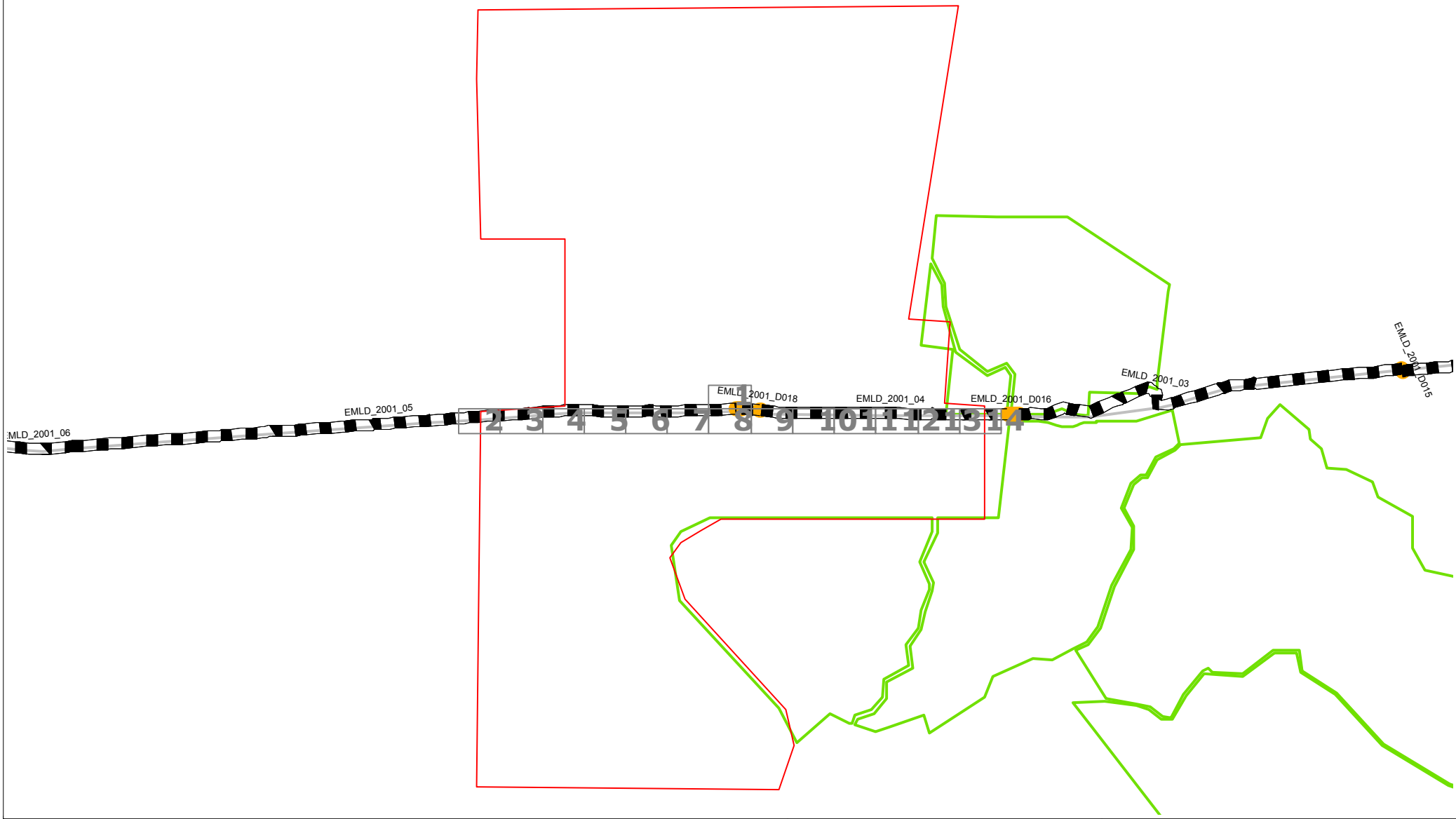

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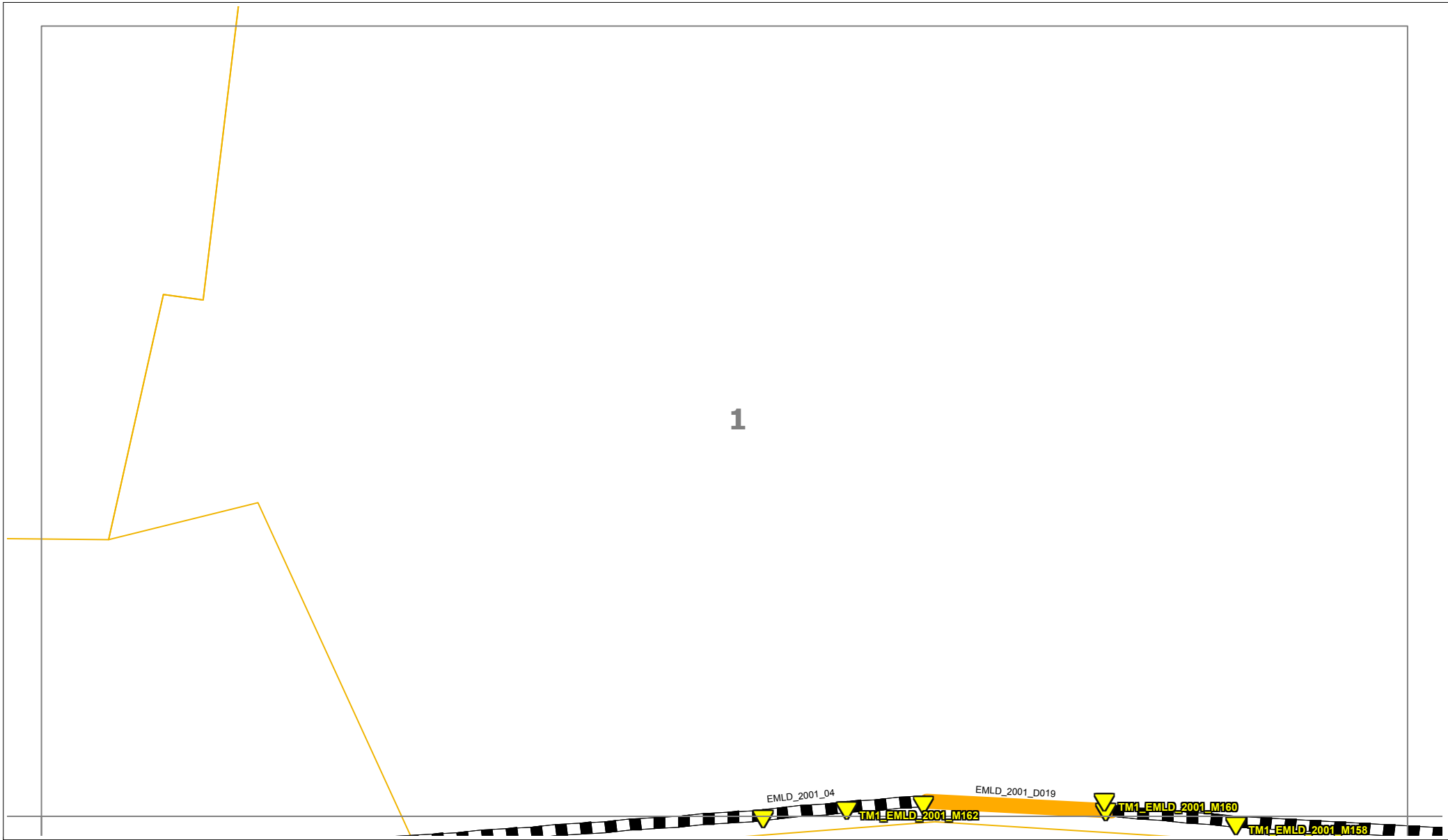

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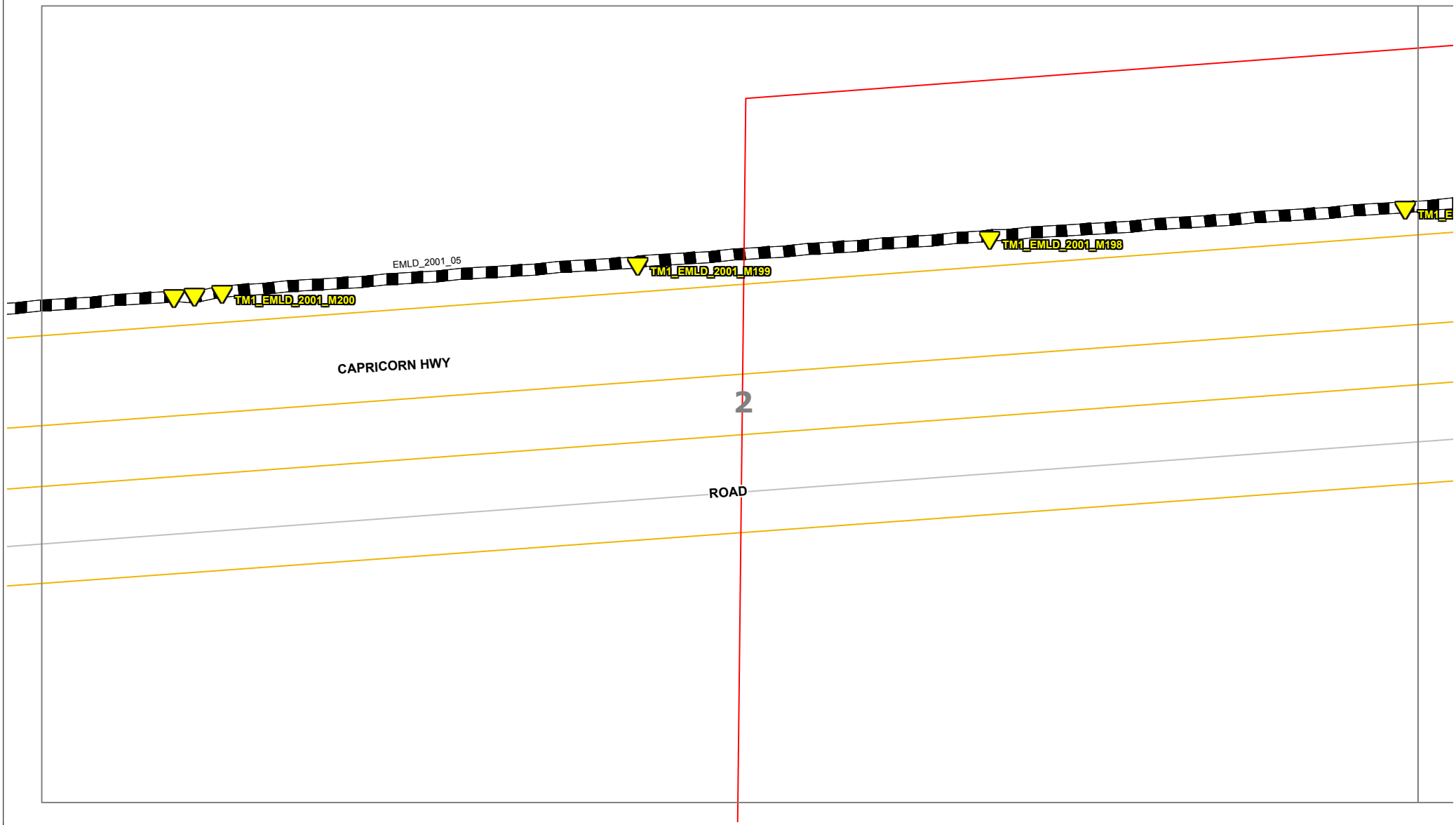

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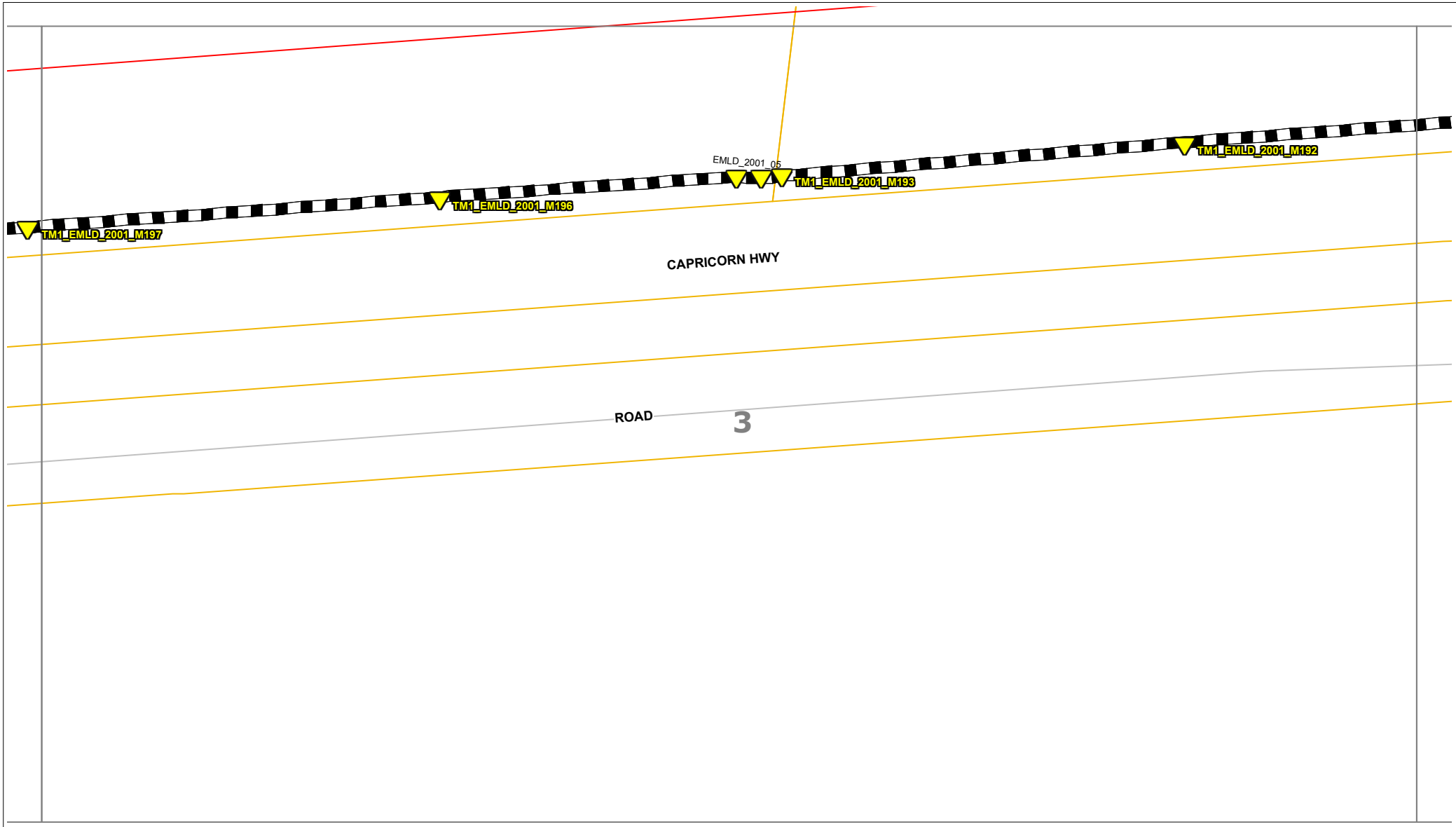

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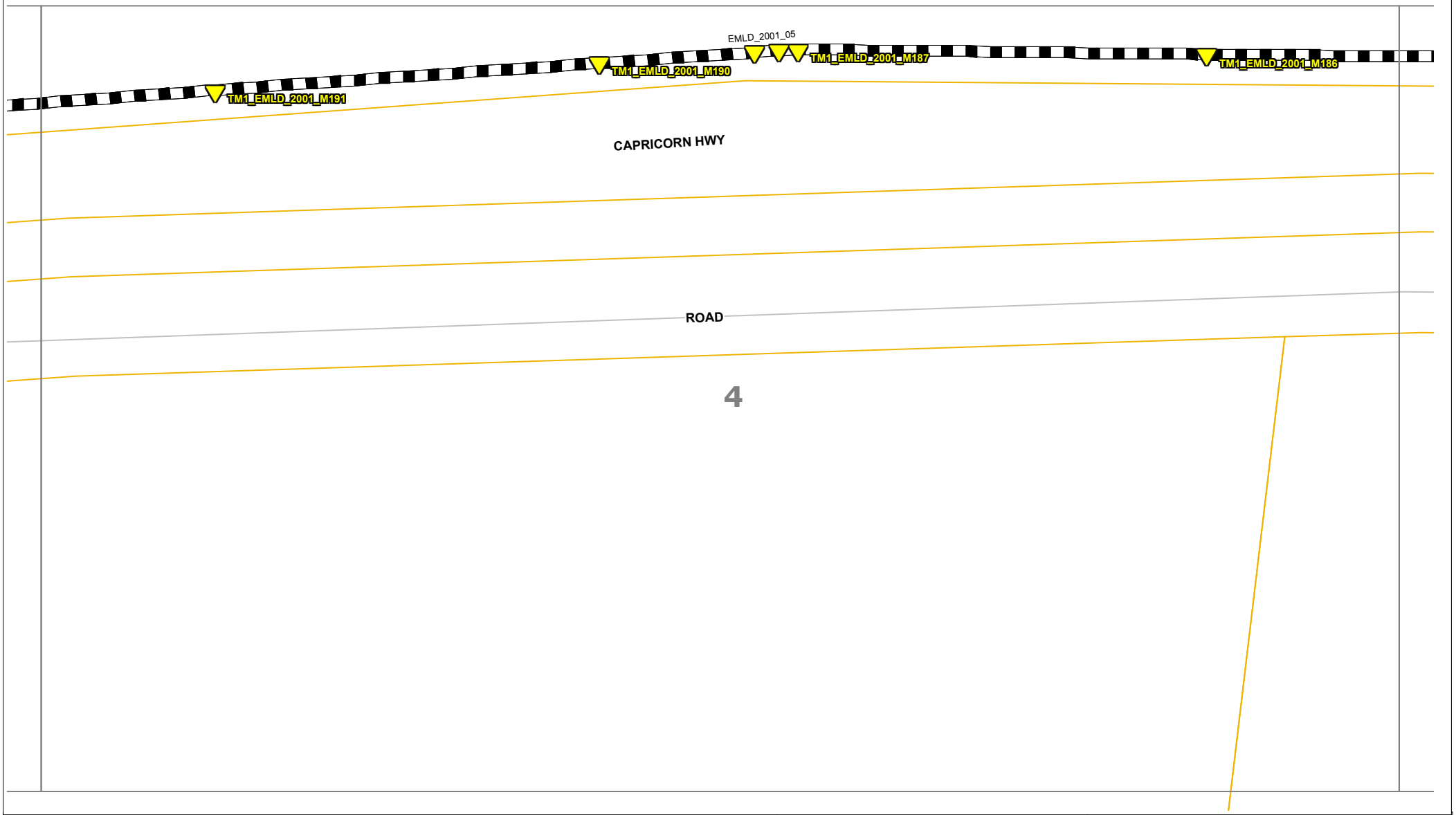

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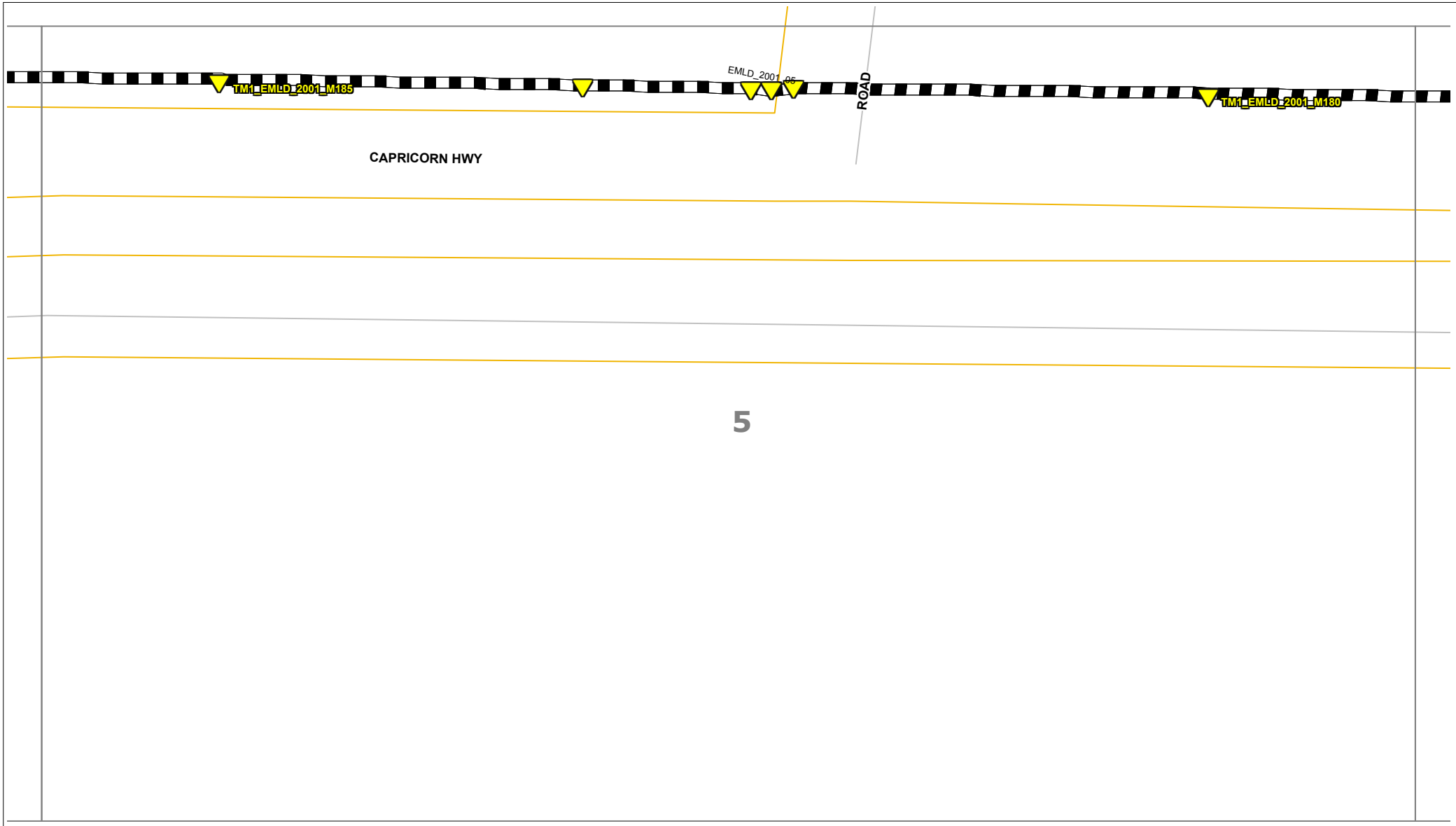

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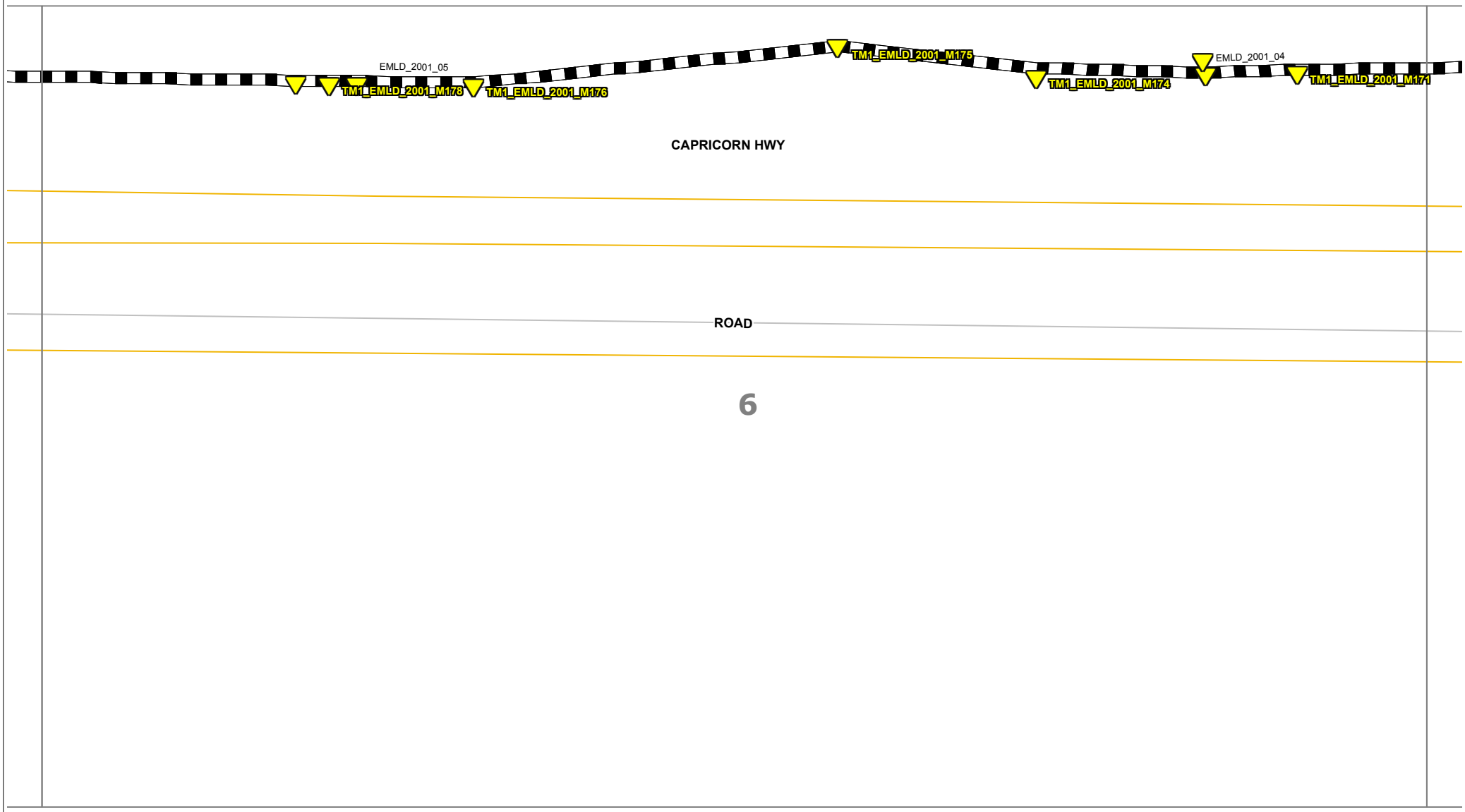

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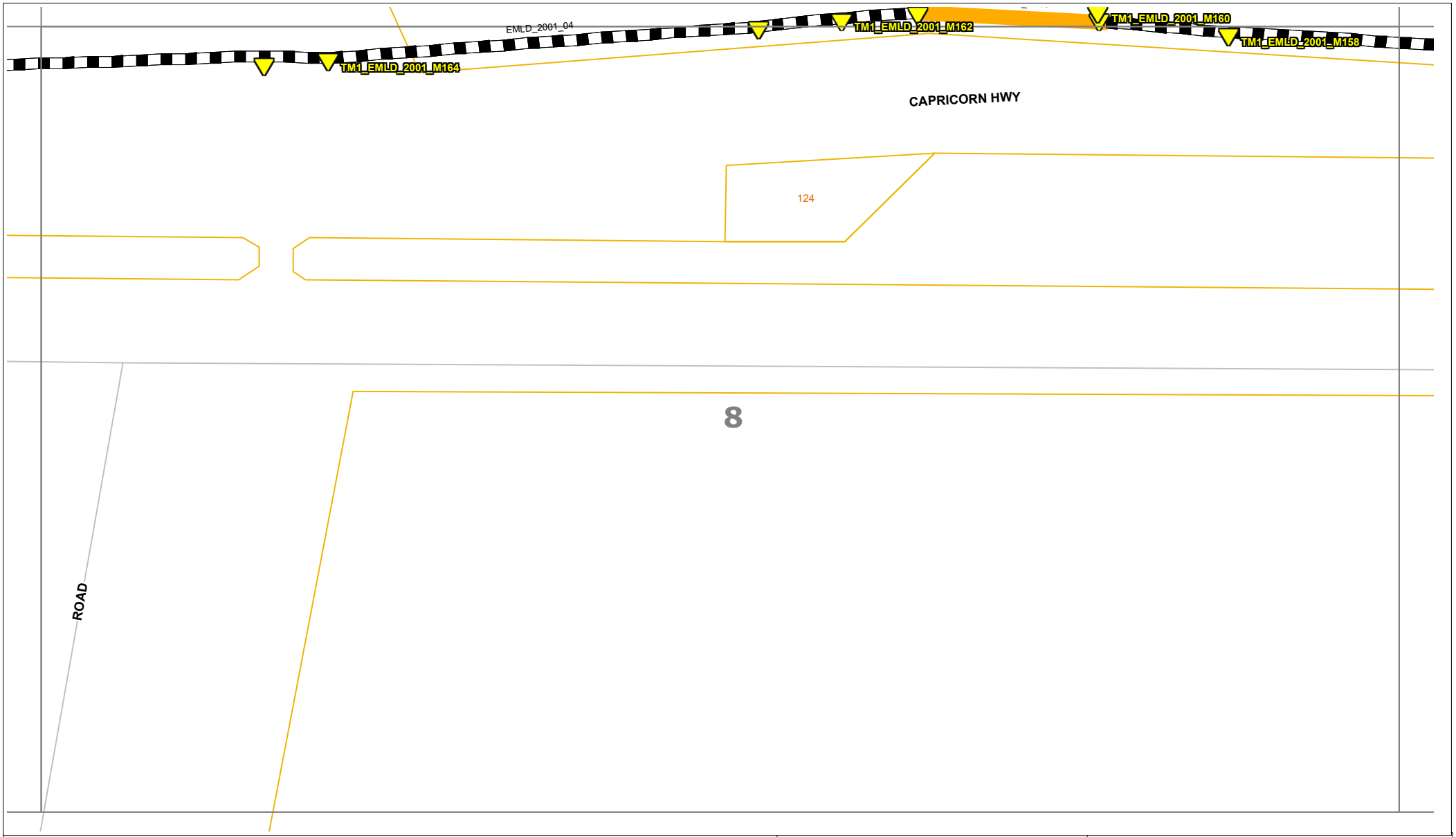

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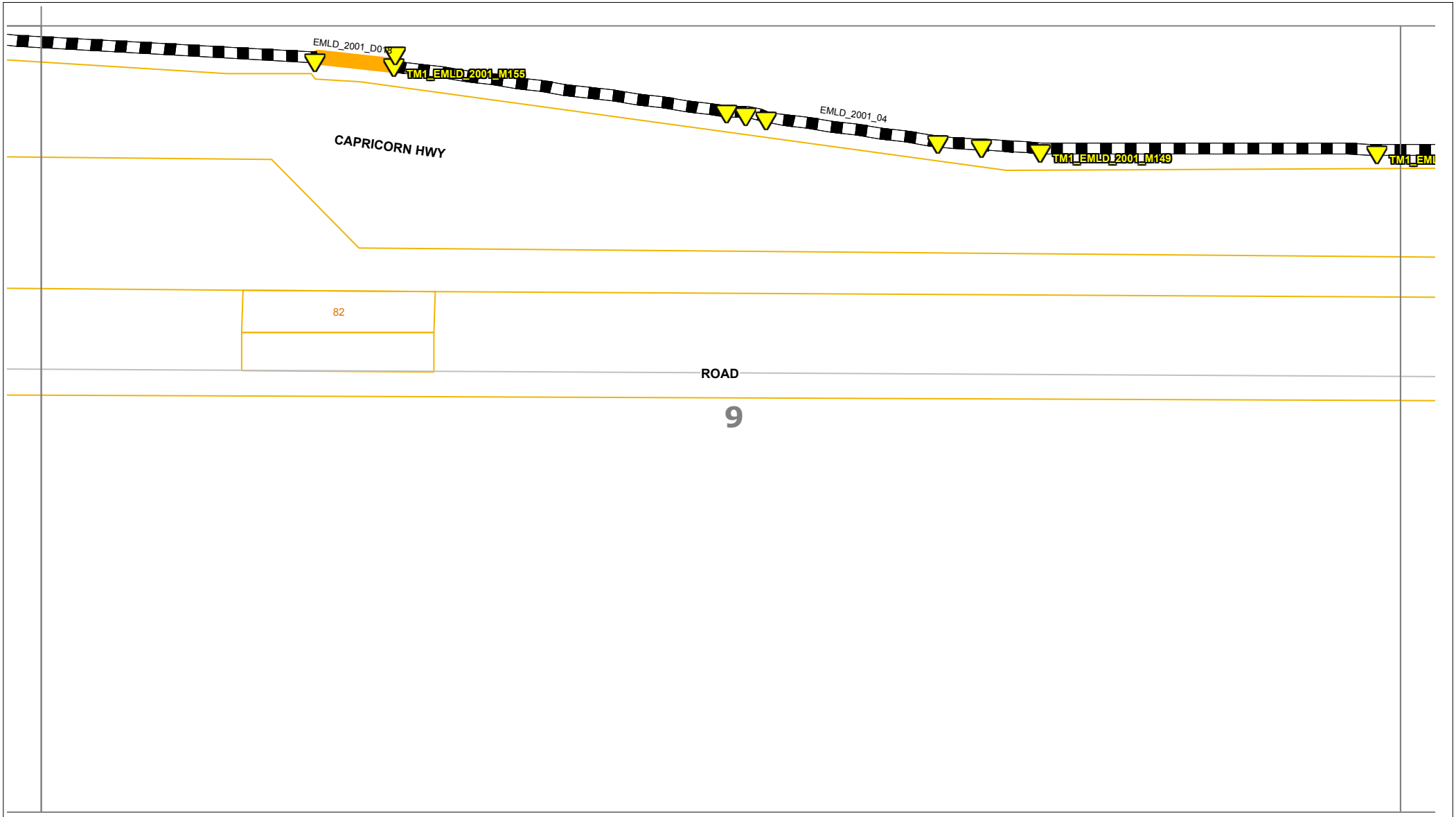

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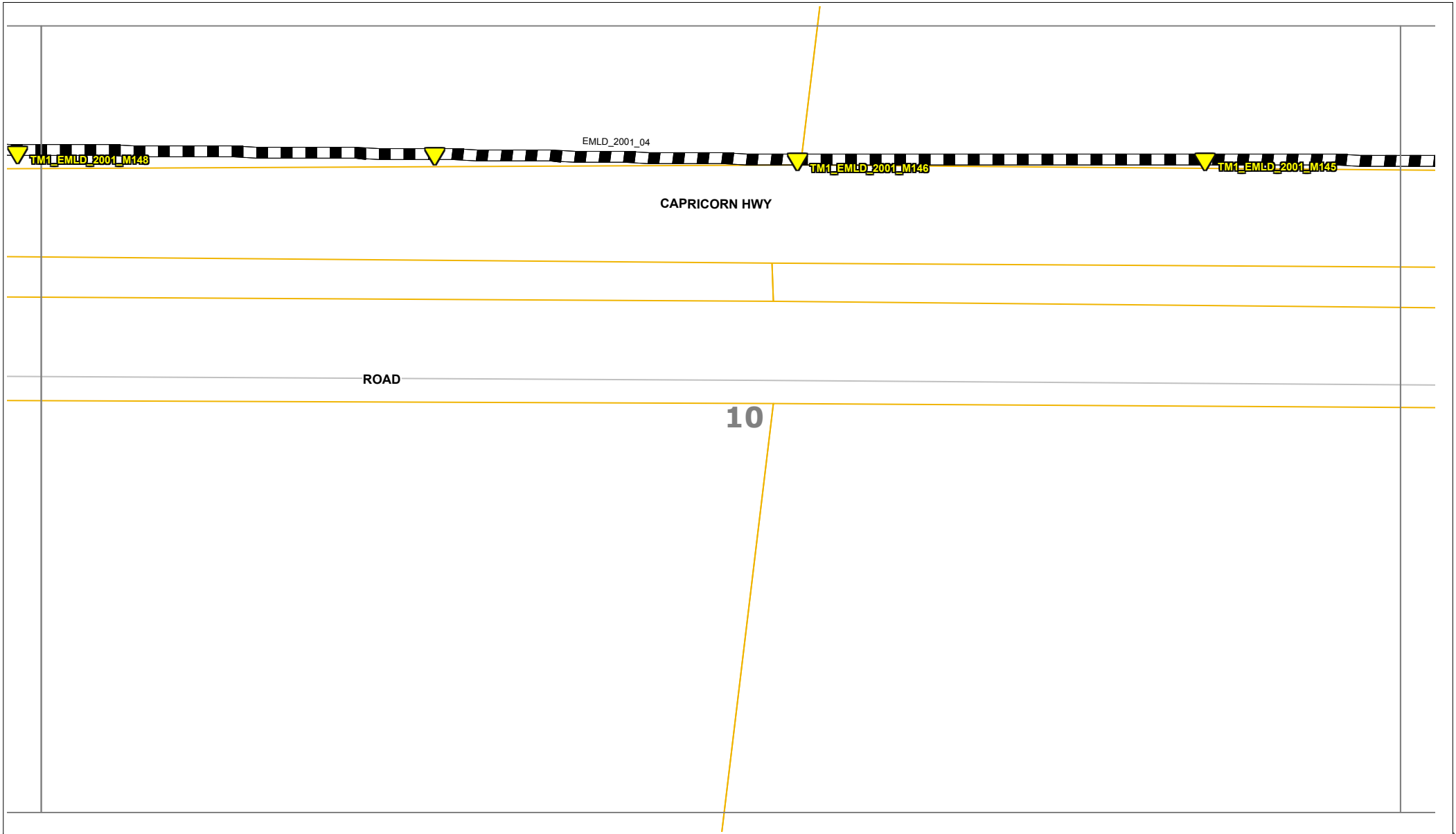


Sequence Number: 25415373

Date: 15/06/2012

DISCLAIMER: THIS DRAWING SHOULD NOT BE SCALED TO LOCATE CABLES. NO WARRANTY IS GIVEN THAT THE INFORMATION IS ACCURATE OR COMPLETE. IF YOU REQUIRE INFORMATION REGARDING LOCATING THE CABLE PLEASE CALL VISIONSTREAM. THIS DOCUMENT HAS BEEN PREPARED SOLELY FOR DIAL BEFORE YOU DIG USE. THIS PLAN CONTAINS COMMERCIALLY SENSITIVE INFORMATION AND IS TO BE TREATED ACCORDINGLY. NO SUCH INFORMATION IS TO BE PASSED ONTO OTHER PARTIES WITHOUT WRITTEN CONSENT FROM VISIONSTREAM PTY LTD.

nextgen networks

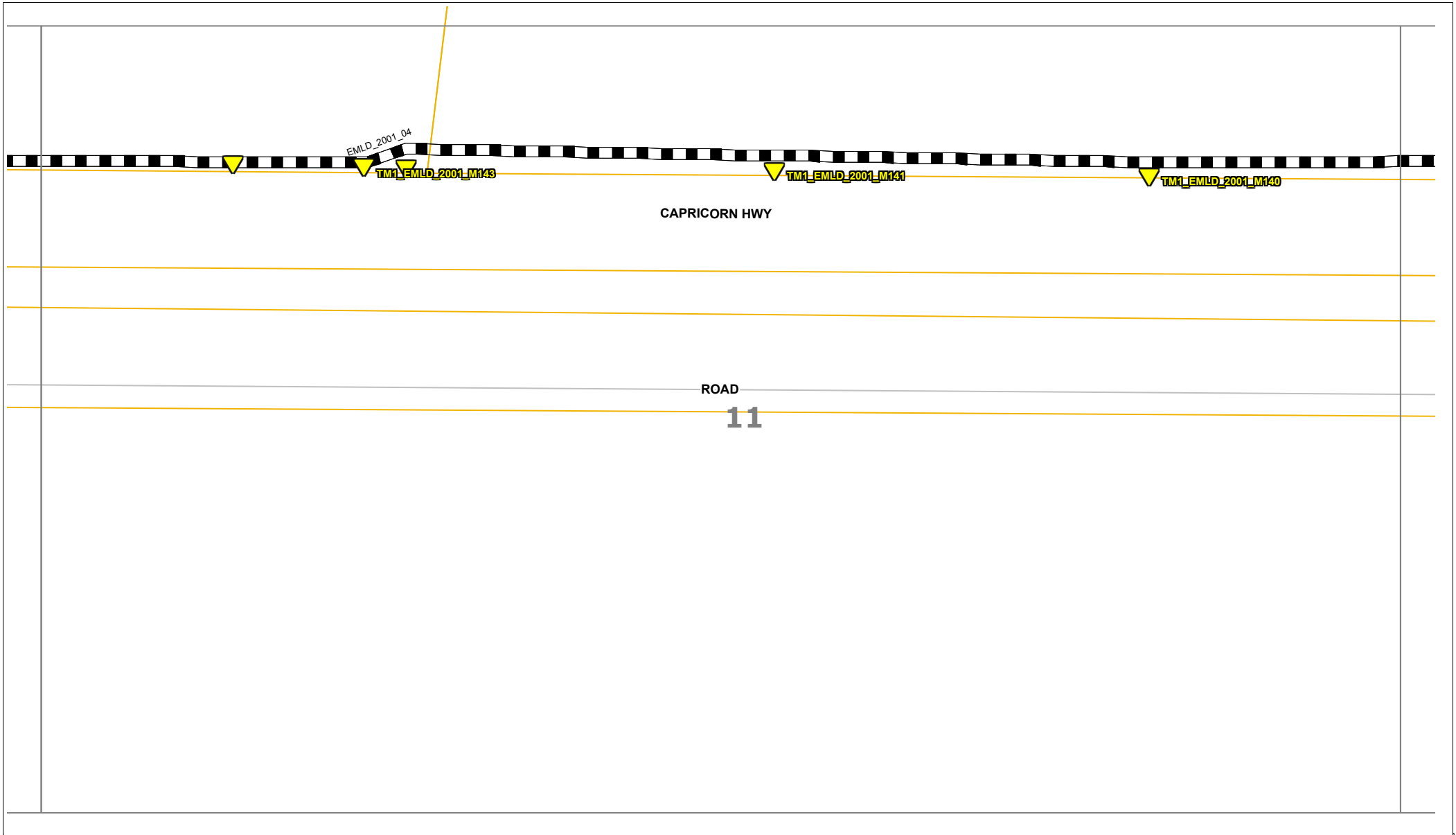
LEGEND

Digsite

- Point
- Line
- Area

Assets

- Cable
- 3rd Party Duct
- Marker Post



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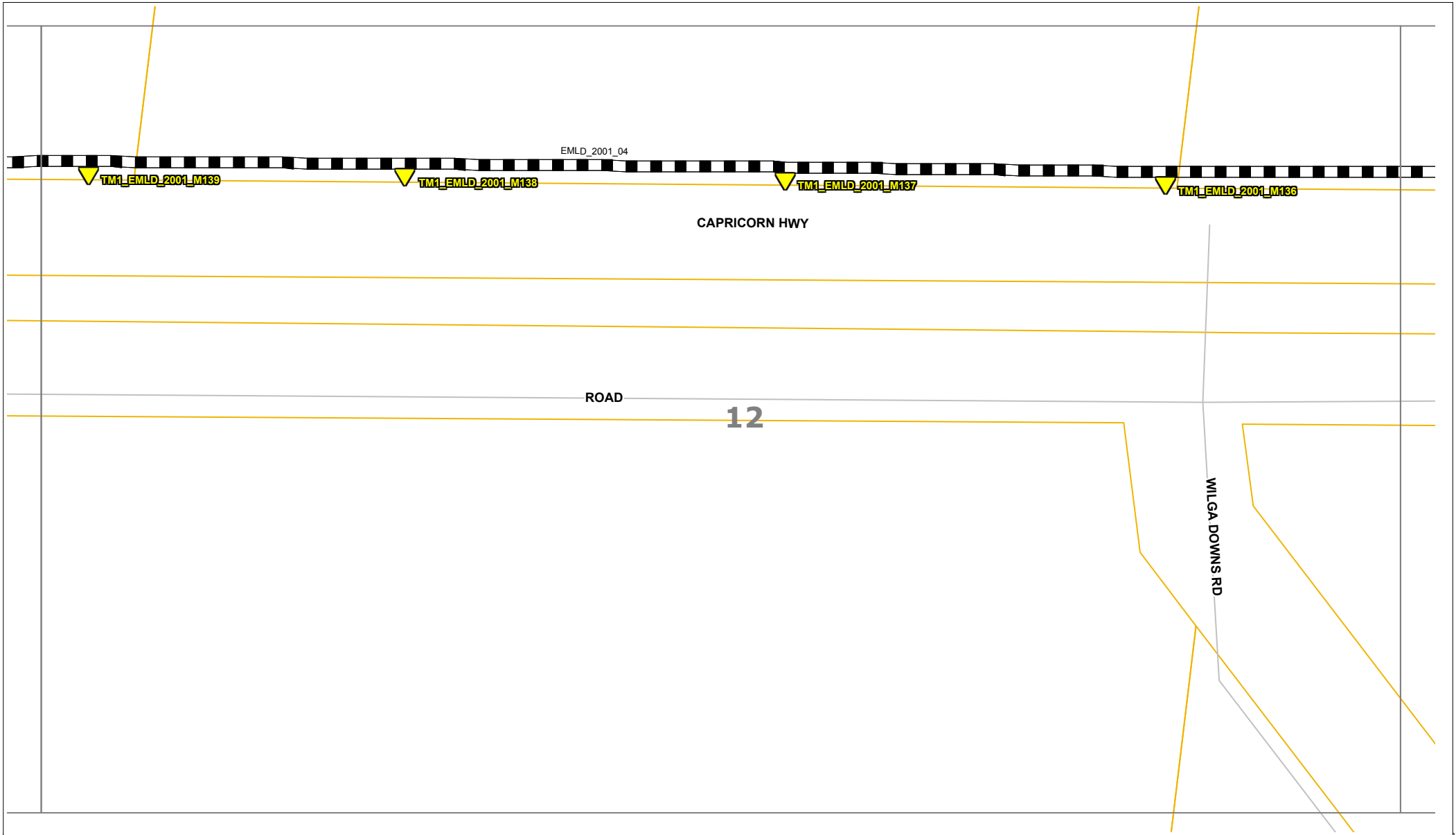
nextgen networks

LEGEND

Digsite	Assets
Point	Cable
Line	3rd Party Duct
Area	Marker Post



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nextgen networks

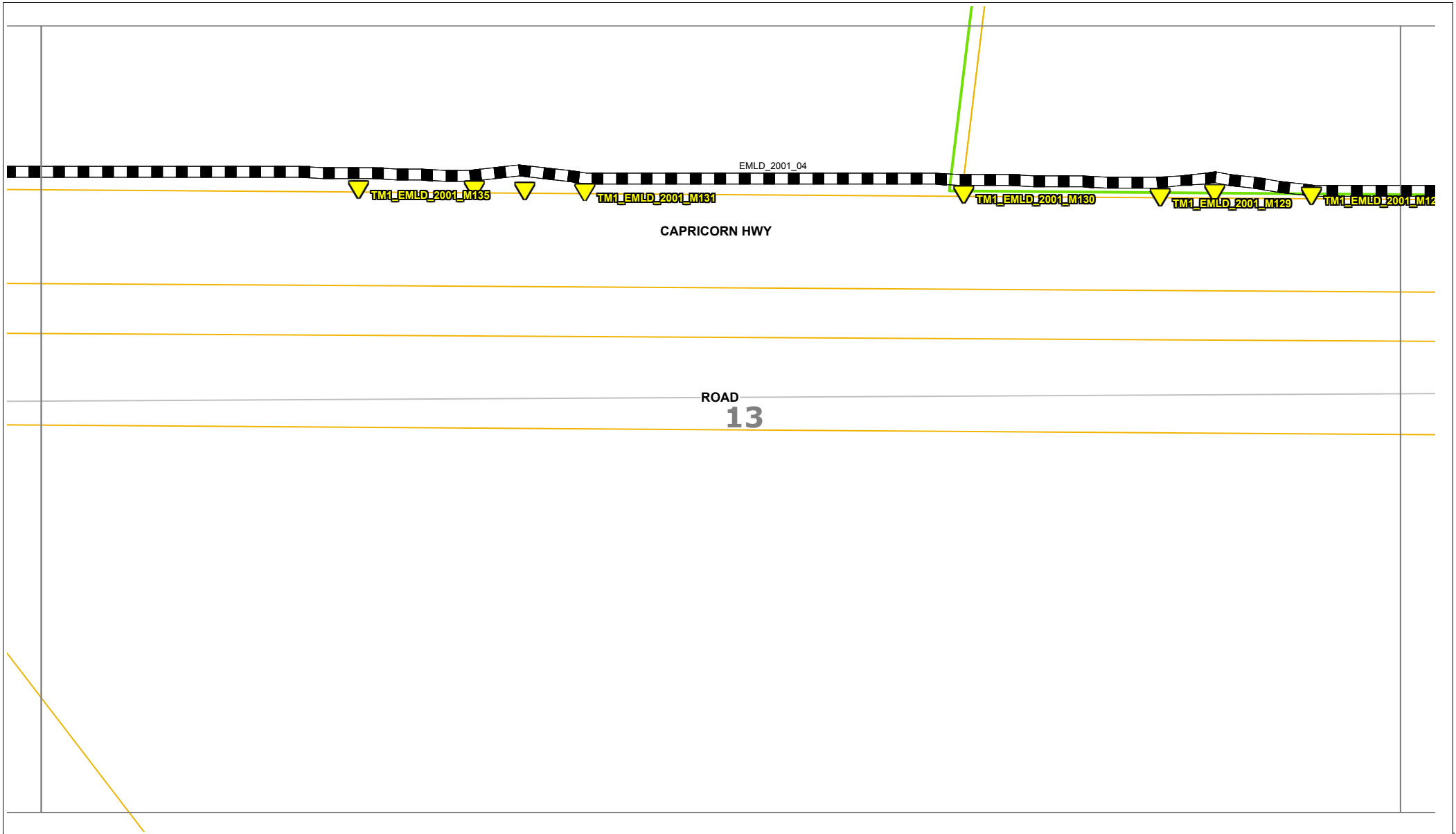
LEGEND

Digsite

- Point
- Line
- Area

Assets

- Cable
- 3rd Party Duct
- Marker Post



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nextgen networks

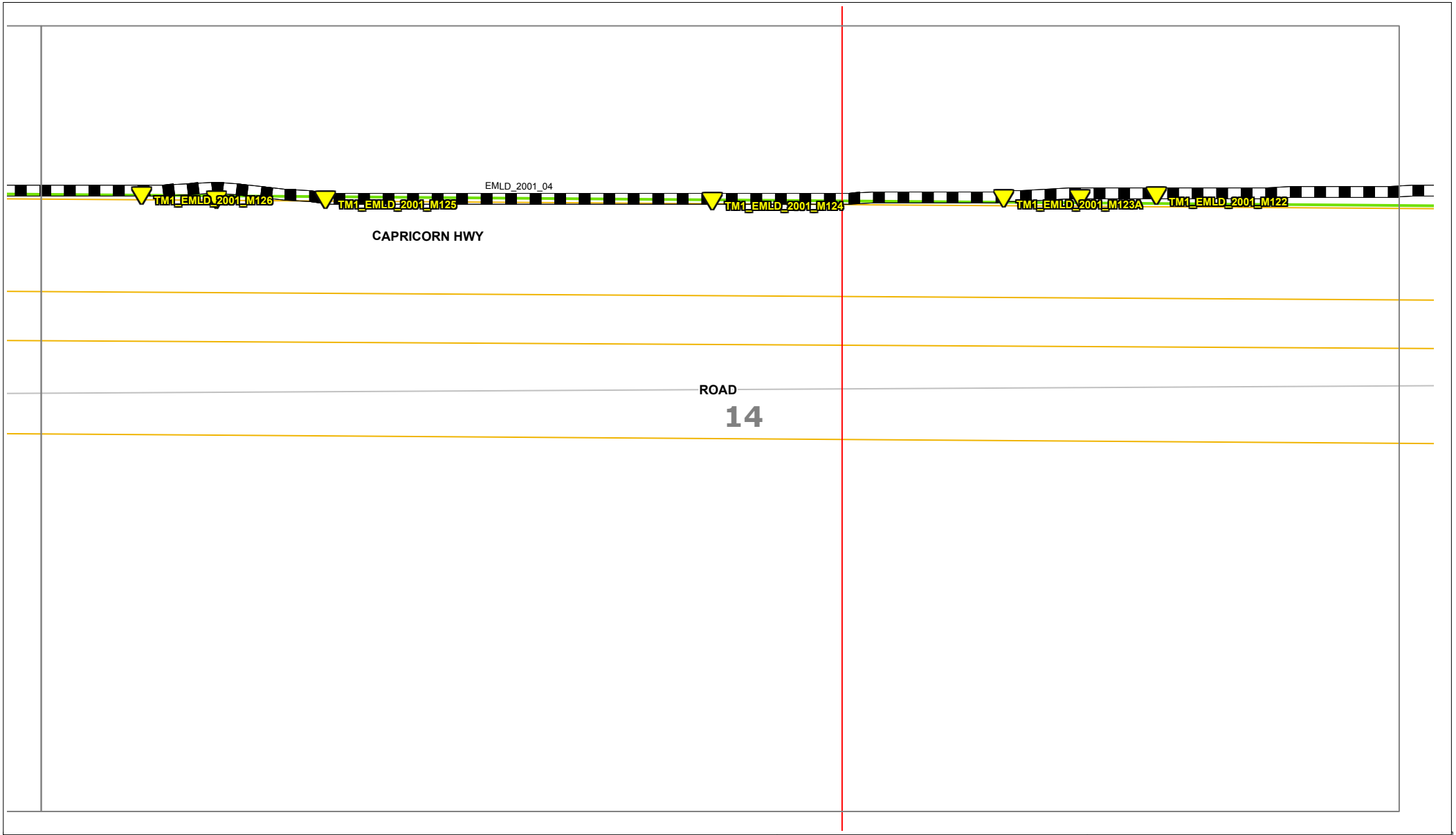
LEGEND

Digsite

- Point
- Line
- Area

Assets

- Cable
- 3rd Party Duct
- Marker Post



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nextgen networks

LEGEND

Digsite

- Point
- Line
- Area

Assets

- Cable
- 3rd Party Duct
- Marker Post

Telstra Accredited Plant Locators - Queensland Regional

Regions - Far North, North, Central, South

If a physical location is required please contact a Telstra accredited locator from the list below. (fees apply)

Far North Qld

Name & areas covered	Contact details
Aussie Drill Kings Pty Ltd - *Smithfield.* *Cairns & Remote Areas*	(07) 4037 0604 or 0420 300 656 Fax: (07) 07 4037 0634
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Barry & Jill Henderson Plumbing - *Mareeba* *Mareeba, Mt Molloy, Dimbulah, Atherton*	(07) 4092 2756 or 0419 796 434 Fax: (07) 4092 2756
BJS Plumbing & Civil Contracting - *Atherton* *Tablelands*	0419 975 928 Fax: (07) 4091 3239
Cairns Cable Locators - *Cairns*	0447 562 283
Cairns Underground Service Locators - *Earlville* *Cairns, Cardwell to Cape York*	0402 234 967 Fax: (07) 4054 4797
Cape Crusaders Pty Ltd - *Cooktown* *Cooktown District - Wujal Wujal to Laura. Cape York Peninsula*	(07) 4069 5564 or 0427 695 564
Capvac - *Yeppoon*	0418 579 612 Fax: (07) 4927 9544
Chris Page Pipe & Cable Pty Ltd - *Thuringowa* *Townsville, Ingham, Cardwell, Ayr, Charters Towers, Bowen, Home Hill and surrounding areas*	Ph: 07 4788 8976 or 0419 720 278 Fax (07) 4788 8397
D. C. Locators Pty Ltd - *Redbank Plains* *Ipswich, Boonah, Gatton, Aratula, Beaudesert, Esk, Laidley*	(07) 3389 2313 or 0439 379 741 Fax (07) 3424 2370
Hydrovac Excavations (Aust) Pty Ltd - *Morayfield*	(07) 5433 1811 Fax: (07) 5433 1911
iFind PIPES 'N' CABLES PTY LTD - *Winellie* *Northern Qld, NT*	0419 612 476 Fax: (08) 8941 2615 k.phelps1970 hotmail.com
Jacksons Utility Location Service - *Pakenham*	0417 511 114
Katacole - *Greenbank*	(07) 3297 6090 or 0438 873 683 Fax: (07) 3297 7068
Lambert Locations - *Gold Coast* *South East Queensland, Northern NSW*	1300 150 035 or 0418 150 035
Lost Pipe & Cable Pty Ltd - *Everton Park*	0438 747 500
NQ Civil Pty Ltd - *Gordonvale*	0458 561 572 (07) 4056 1984
Online Communications - *Yungaburra* *All Areas*	0428 775 655
Orbital Underground Service Location - *Morayfield*	1300 672 482 or 0423 006 286 Fax (07) 5497 8384
Pipeline Technology Services	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Rex Petersen's Bobcat Hire - *Mareeba*	0407 159 727 Fax (07) 4092 7659
Riverina Horizontal Boring Pty Ltd - *Wodonga*	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
Rock Drilling Australia Pty Ltd - *Upper Coomera*	(07) 5573 1578 or 0407 319 997 Fax: (07) 5665 7233
Safe Dig Vacuum Excavation - *Greenbank*	0439 220 076 or 0408 880 262 Fax: (07) 3297 6639
Shamrock Civil - *Birkdale*	0424 605 497
Vac-U-Digga Pty Ltd - *Ormeau*	1300 822 834 Mob: 0409 468 711 Fax: 07 3807 5599

North Qld

'A one' Locations & Consulting - *Wulgurn, Townsville* *Townsville, Thuringowa, Ingham, Burdekin, Bowen, Charters Towers and their surrounding Districts*	(07) 4778 1413 or 0407 405 845 Fax (07) 4778 1461
Andentyl Pty Ltd - *Longreach* *Western Queensland*	(07) 4658 0013 or 0429 820 702 Fax: (07) 4658 1003
Aussie Drill Kings Pty Ltd - *Smithfield* *Cairns & Remote Areas*	(07) 4037 0604 or 0420 300 656 Fax: (07) 07 4037 0634
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Capvac - *Yeppoon*	0418 579 612 Fax: (07) 4927 9544
Chris Page Pipe & Cable Pty Ltd - *Thuringowa* *Townsville, Ingham, Cardwell, Ayr, Charters Towers, Bowen, Home Hill and surrounding areas*	Ph: 07 4788 8976 or 0419 720 278 Fax (07) 4788 8397
D. C. Locators Pty Ltd - *Redbank Plains* *Ipswich, Boonah, Gatton, Aratula, Beaudesert, Esk, Laidley*	(07) 3389 2313 or 0439 379 741 Fax (07) 3424 2370
Ernst Communications P/L - *Cloncurry*	0429 421 746 Fax: (07) 4742 1747)
Hydrovac Excavations (Aust) Pty Ltd - *Morayfield*	(07) 5433 1811 Fax: (07) 5433 1911
iFind PIPES 'N' CABLES PTY LTD - *Winellie* *Northern Qld, NT*	0419 612 476 Fax: (08) 8941 2615 k.phelps1970 hotmail.com
IRT Plumbing Services Pty Ltd - *Bribie Island*	(07) 5497 6345 or 0417 668 069
Jacksons Utility Location Service - *Pakenham*	0417 511 114
Katacole - *Greenbank*	(07) 3297 6090 or 0438 873 683 Fax: (07) 3297 7068
Lambert Locations - *Gold Coast* *South East Queensland, Northern NSW*	1300 150 035 or 0418 150 035
Lost Pipe & Cable Pty Ltd - *Everton Park*	0438 747 500

NQ Civil Pty Ltd - *Gordonvale*	0458 561 572 (07) 4056 1984
Orbital Underground Service Location - *Morayfield*	1300 672 482 or 0423 006 286 Fax (07) 5497 8384
Pipeline Technology Services	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
QDP Directional Boring - *Garbutt*	(07) 4728 5569
Riverina Horizontal Boring Pty Ltd - *Wodonga*	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
Rock Drilling Australia Pty Ltd - *Upper Coomera*	(07) 5573 1578 or 0407 319 997 Fax: (07) 5665 7233
Safe Dig Vacuum Excavation - *Greenbank*	0439 220 076 or 0408 880 262 Fax: (07) 3297 6639
Sarajaw Pty Ltd - *Hermit Park*	0434 146 564 Fax (07) 4779 9638
Shamrock Civil - *Birkdale*	0424 605 497
Subsite Locators - *Mackay* *Bowen Basin Mines*	0401 444 911
Terrascan - *Mackay* *Central Qld*	(07) 4952 5332 or 0422 991 064 Fax: (07) 4952 6701
Vac-U-Digga Pty Ltd - *Ormeau*	1300 822 834 Mob: 0409 468 711 Fax: 07 3807 5599

Central Qld

1300 Locate Pty Ltd	07 5499 3350 or 0407 570 441 Fax (07) 5499 3353
ABC Locators Pty Ltd - *Toowoomba* *Darling Downs, Southern Downs, Burnett, Lockyer Valley, Brisbane Valley, South East QLD, Southern QLD, Northern NSW*	(07) 4632 3499 or 0407 423 499
Abletech Underground - *Doonan* *South East Qld, Northern NSW, Rockhampton, Gladstone, Roma, Goondiwindi, Toowoomba, Charleville, Cunnamulla*	(07) 5449 1382 or 0418 511 767 Fax (07) 5471 0872
Accredited Cable Locating - *Yeppoon* *Central Queensland - all areas including Mines area.*	(07) 4939 5615 0417 616 314
Accurate Service Locators - *Morayfield*	(07) 5498 5020 or 0413 742 911 Fax (07) 5498 5402
Andentyl Pty Ltd - *Longreach* *Western Queensland*	(07) 4658 0013 or 0429 820 702 Fax: (07) 4658 1003
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Bsure Locations - *Bundaberg*	0488 520 688
Capvac - *Yeppoon*	0418 579 612 Fax: (07) 4927 9544
Central Qld Cable & Pipe Locations - *Gladstone* *Bundaberg to Macakay, West to Longreach*	(07) 4978 5571 or 0427 311 317 Fax (07) 4978 7571
Copp & Co Plant Hire - *Proserpine* *Bowen, Proserpine, Whitsundays and surrounding areas*	(07) 4945 3169 or 0409 776 277 Fax: (07) 4945 4783
D. C. Locators Pty Ltd - *Redbank Plains* *Ipswich, Boonah, Gatton, Aratula, Beaudesert, Esk, Laidley*	(07) 3389 2313 or 0439 379 741 Fax (07) 3424 2370
Georadar - *Moorooka*	(07) 3103 9464 or 0411 725 724 Fax: (07) 3848 7610
Hydrovac Excavations (Aust) Pty Ltd - *Morayfield*	(07) 5433 1811 Fax: (07) 5433 1911
IRT Plumbing Services Pty Ltd - *Bribie Island*	(07) 5497 6345 or 0417 668 069
Jackos Back-O Hire - *Pleystone* *Mackay & District Areas*	(07) 4954 0760 or 0429 158 788 Fax: (07) 4954 0760
Jacksons Utility Location Service - *Pakenham*	0417 511 114
Jai-Cor Communications Solutions - *Eimeu*	(07) 4954 9905 or 0438 556 096 Fax: (07) 4954 9844
Katacole - *Greenbank*	(07) 3297 6090 or 0438 873 683 Fax: (07) 3297 7068
Lambert Locations - *Gold Coast* *South East Queensland, Northern NSW*	1300 150 035 or 0418 150 035
Lost Pipe & Cable Pty Ltd - *Everton Park*	0438 747 500
M & K Farmer Enterprises - *Goondiwindi*	(07) 4671 2443 or 0429 622 897
Orbital Underground Service Location - *Morayfield*	1300 672 482 or 0423 006 286 Fax (07) 5497 8384
Pipeline Technology Services	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Riverina Horizontal Boring Pty Ltd - *Wodonga*	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
Rock Drilling Australia Pty Ltd - *Upper Coomera*	(07) 5573 1578 or 0407 319 997 Fax: (07) 5665 7233
Safe Dig Vacuum Excavation - *Greenbank*	0439 220 076 or 0408 880 262 Fax: (07) 3297 6639
Shamrock Civil - *Birkdale*	0424 605 497
Subsite Locators - *Mackay* *Bowen Basin Mines*	0401 444 911
Terrascan - *Mackay* *Central Qld*	(07) 4952 5332 or 0422 991 064 Fax: (07) 4952 6701
Vac-U-Digga Pty Ltd - *Ormeau*	1300 822 834 Mob: 0409 468 711 Fax: 07 3807 5599

South Qld

1300 Locate Pty Ltd	07 5499 3350 or 0407 570 441 Fax (07) 5499 3353
AAA Locating - *Toowoomba* *Darling Downs, Western Downs, Lockyer Valley, Northern NSW, Burnett, Brisbane Valley, Maryborough, Gladstone*	0418 718 449 Fax (07) 4630 1748
ABC Locators Pty Ltd - *Toowoomba* *Darling Downs, Southern Downs, Burnett, Lockyer Valley, Brisbane Valley, South East QLD, Southern QLD, Northern NSW*	(07) 4632 3499 or 0407 423 499
Abletech Underground - *Doonan* *South East Qld, Northern NSW, Rockhampton, Gladstone, Roma, Goondiwindi, Toowoomba, Charleville, Cunnamulla*	(07) 5449 1382 or 0418 511 767 Fax (07) 5471 0872
Accurate Service Locators - *Morayfield*	(07) 5498 5020 or 0413 742 911 Fax (07) 5498 5402
Ace Cable Locations - *Maryborough* *Maryborough, Hervey Bay, Childers, Biggenden, & Wide Bay-Burnett*	0431 517 837 Fax: (07) 4122 4428
All Underground Pipe & Cable Location- *Beerwah*	0437 687 709
Alpha Plant Locations - *Camira* *SE Qld, S Qld, NSW - NTH*	0429 968 812 Fax: (07) 3818 6595
Andentyl Pty Ltd - *Longreach* *Western Queensland*	(07) 4658 0013 or 0429 820 702 Fax: (07) 4658 1003
Anton Seng Plumbing - *Toowoomba* *Toowoomba, the Downs region*	(07) 4634 2427 0408 716 821
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Bsure Locations - *Bundaberg*	0488 520 688
D. C. Locators Pty Ltd - *Redbank Plains* *Ipswich, Boonah, Gatton, Aratula, Beaudesert, Esk, Laidley*	(07) 3389 2313 or 0439 379 741 Fax (07) 3424 2370
Dingo Home & Rural Services - *Moogerah* *South East Queensland, Boonah, Beaudesert, Warwick, Ipswich, Amberley*	(07) 5463 5504 or 0418 769 149
Hydrovac Excavations (Aust) Pty Ltd - *Morayfield*	(07) 5433 1811 Fax: (07) 5433 1911
I.R &M Johnson Pty Ltd - *Mudgeeraba* *Northern NSW & South East QLD*	(07) 5530 5773 0427 305 773
IRT Plumbing Services Pty Ltd - *Bribie Island*	(07) 5497 6345 or 0417 668 069
Jacksons Utility Location Service - *Pakenham*	0417 511 114
Katacole - *Greenbank*	(07) 3297 6090 or 0438 873 683 Fax: (07) 3297 7068
Lambert Locations - *Gold Coast* *South East Queensland, Northern NSW*	1300 150 035 or 0418 150 035
Look-N-Locate - *Ashgrove*	0418 745 562 Fax: (07) 3366 0233
Locom Locations - *Nambour* *Brisbane, Sunshine Coast, Gympie*	0439 983 520 Fax (07) 5441 3168
Lost Pipe & Cable Pty Ltd - *Everton Park*	0438 747 500
M & K Farmer Enterprises - *Goondiwindi*	(07) 4671 2443 or 0429 622 897
National Tapping Service Pty Ltd - *Ashmore*	(07) 5564 7788 Fax: (07) 5564 9931
Network Locations - *Gympie* *Cooroy, Eumundi, Gympie, Maryborough, Pomona, South Burnett*	0407 758 165
Orbital Underground Service Location - *Morayfield*	1300 672 482 or 0423 006 286 Fax (07) 5497 8384
Patriot Tankers - *Ormeau* *Gold Coast, Brisbane, Ipswich, Sunshine Coast*	1800 Patriot or 0414 493 904 Fax: (07) 3287 5987
Pipeline Locators Australia Pty Ltd - *Greenbank*	(07) 3200 0340 or 0418 183 858 Fax: (07) 3200 0170
Pipeline Technology Services	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Protec Cable Locations - *Nambour* *Nambour, Sunshine Coast & Hinterland, Mary Valley, Gympie*	0417 607 515 Fax (07) 5441 7048

Riverina Horizontal Boring Pty Ltd- *Wodonga*	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
Rock Drilling Australia Pty Ltd- *Upper Coomera*	(07) 5573 1578 or 0407 319 997 Fax: (07) 5665 7233
Safe Dig Vacuum Excavation - *Greenbank*	0439 220 076 or 0408 880 262 Fax: (07) 3297 6639
Shamrock Civil - *Birkdale*	0424 605 497
Subsite Locators - *Mackay* *Bowen Basin Mines*	0401 444 911
Vac-U-Digga Pty Ltd - *Ormeau*	1300 822 834 Mob: 0409 468 711 Fax: 07 3807 5599

Telstra Corporation Limited

DUTY OF CARE

IMPORTANT:

Please read and understand all the information and disclaimers provided below.
Sketches and Plans provided by Telstra are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position.
Due to the nature of Telstra plant and the age of some cables and records, it is impossible to ascertain the location of all Telstra plant. The accuracy and/or completeness of the information can not be guaranteed and, accordingly Telstra plans are intended to be indicative only.

"DUTY OF CARE"

When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed.

It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Telstra plant. Telstra will provide plans and sketches showing the presence of its network to assist at this design stage.

It is the owner's (or constructor's) responsibility to:-

a) request plans of Telstra plant for a particular location at a reasonable time before construction begins. If you have any doubts as to the exact location of Telstra Plant, we strongly recommend that you engage an Accredited plant Locator in your area;

b) visually locate Telstra plant by hand digging or using non destructive water jet method (pot holing) where construction activities may damage or interfere with Telstra plant (see "Essential Precautions and Approach Distances" section for more information); and

c) contact Telstra's **Plan Services** (see below for details) if Telstra plant is wholly or partly located near planned construction activities.

DAMAGE:

ANY DAMAGE TO TELSTRA'S NETWORK MUST BE REPORTED TO 132203 IMMEDIATELY.

The owner is responsible for all plant damage when works commence prior to obtaining Telstra plans, or failure to follow agreed instructions.

Telstra reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

EMERGENCY SITUATIONS

Emergency situations are unplanned and include (amongst other things):

- damaged or faulty underground or aerial power cables / poles
- burst/leaking water mains
- burst/leaking sewer mains.
- burst/leaking gas pipes
- any other emergency situation that may impact Telstra network.

NOTE: failure to lodge requests in time for normal maintenance work is not deemed as an emergency.

During working hours - in emergency situations, urgent requests for plans or information relating to the location of Telstra network are to be made direct to the Dial Before You Dig Service.
Note that a fast response can be provided if a request is made on line with a supplied return email address between 5am-10pm AEST 7days a week.

Outside Normal Business hours or outside hours of automated responses - in emergency situations , urgent requests for plans or information relating to the location of Telstra network are to be made direct to Telstra on phone **1800 801 801**

NATURAL DISASTERS

Natural Disasters include (amongst other things):

- Earthquakes
- Cyclones
- Floods; and
- Tsunami

In the case of such events, urgent requests for plans or information relating to the location of Telstra network can be made directly to Telstra Network Integrity Team Managers as follows:

NSW - Peter Garth 0419 263 445

QLD - Tony Kent 0419 727 397

VIC/TAS - David Povazan 0417 300 947

SA/NT/WA - Dave Ballard 0419 807 901

PLAN SERVICES

For all Telstra DBYD (Dial Before You Dig) map enquiries please contact Telstra Plan Services

email - **Telstra.Plans@team.telstra.com**

fax - **(02) 4961 3714**

phone - **1800 653 935** (for urgent, onsite or optic fibre enquiries)

Please note - to make an enquiry the plans must be current (within 60 days of issue). If your plans have expired you will need to submit a new request via DBYD.

ASSET RELOCATIONS

You are not permitted to relocate or alter any Telstra assets or network under any circumstance.

For all enquiries relating to the relocation of Telstra assets please phone **1800 810 443** or email **F1102490@team.telstra.com**

CONCERNING TELSTRA PLANS:

Please note the following:

- For plans of Telstra locations contact **Dial Before You Dig** at least 2 business days prior to digging. (**www.1100.com.au** or phone **1100**)
- Fast response can be provided by Telstra if an email address is supplied. (if posted, this may take up to one week or longer to receive plans)
- Telstra plans and information provided are **valid for 60 days** from the date of issue.
- Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose. The plans and details should be disposed of by shredding or any other secure disposal method after use.
- Telstra plans or other details are provided only for the use of the applicant, its servants, or agents. **The applicant may not give the plans or details to other parties, and may not generate profit from commercialising the plans or details.**
- Please contact Telstra **Plan Services** (see above for details) immediately should you locate Telstra assets not indicated on these plans.
- Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.
- Please ensure Telstra plans and information provided remains on-site at all times throughout your construction phase.

ESSENTIAL PRECAUTIONS and APPROACH DISTANCES:

NOTE: If the following clearances cannot be maintained, please contact Telstra Plan Services (see above for details) for advice on how best to resolve this situation.

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Telstra's plant, **carefully locate this plant first** to avoid damage. Undertake prior manual exposure such as potholing when intending to excavate or work **closer** to Telstra plant than the following approach distances.

Where Telstra's plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside.

In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres.

In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:

a) Parallel to major plant: 10 metres (for IEN, optic fibre and copper cable over 300 pairs)
b) Parallel to other plant: 5 metres

NOTE: Even manual pot-holing needs to be undertaken with extreme care, commonsense and employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable.

If construction work is parallel to Telstra plant, then careful hand digging or using non destructive water jet method (pot-holing) at least every 5m is required to establish the location of all plant, hence confirming nominal locations before work can commence.

2. Maintain the following minimum clearance between construction activity and **actual location** of Telstra Plant.

Jackhammers/Pneumatic Breakers	*Not within 1.0m of **actual location.***
Vibrating Plate or Wacker Packer Compactor	*Not within 0.5m of Telstra ducts.* *300mm compact clearance cover before compactor can be used across Telstra ducts.*
Boring Equipment **(in-line, horizontal and vertical)**	*Not within 2.0m of **actual location**.* *Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.*
Heavy Vehicle Traffic (over 3 tonnes)	*Not to be driven across Telstra ducts (or plant)* *with less than 600mm cover.* *Constructor to check depth via hand digging.*
Mechanical Excavators, Farm ploughing and Tree Removal	*Not within 1.0m of **actual location.*** *Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.*

All Telstra pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work.

All Telstra conduit should have the following minimum depth of cover **after the completion of your work**:-

- **Footway 450mm**
- **Roadway 450mm at drain invert and 600mm at road centre crown**

For clearance distances relating to Telstra pillars, cabinets and RIMs/RCMs please contact Telstra Plan Services (see above for details).

FURTHER ASSISTANCE:

Assistance can be obtained by contacting Telstra **Plan Services**

Where on-site location is provided, the owner is responsible for all hand digging or use non-destructive water jet method (pot-holing) to visually locate and expose Telstra plant.

If plant location plans or visual location of Telstra plant by digging reveals that the location of Telstra plant is situated wholly or partly where the owner plans to work, then **Telstra's Network Integrity Group** must be contacted through Telstra **Plan Services** to discuss possible engineering solutions.

NOTE:

If Telstra relocation or protection works are part of the agreed solution, then payment to Telstra for the cost of this work shall be the responsibility of the principal developer or constructor. The principal developer or constructor will be required to provide Telstra with the details of their proposed work showing how Telstra's plant is to be accommodated and these details must be approved by the Regional Network Integrity Manager prior to the commencement of site works.

RURAL LANDOWNERS - IMPORTANT INFORMATION

Where Telstra owned cable crosses agricultural land, Telstra may provide a once off free on-site electronic cable location. The Telstra Plan Services operator will provide assistance in determining whether a free on-site location is required.

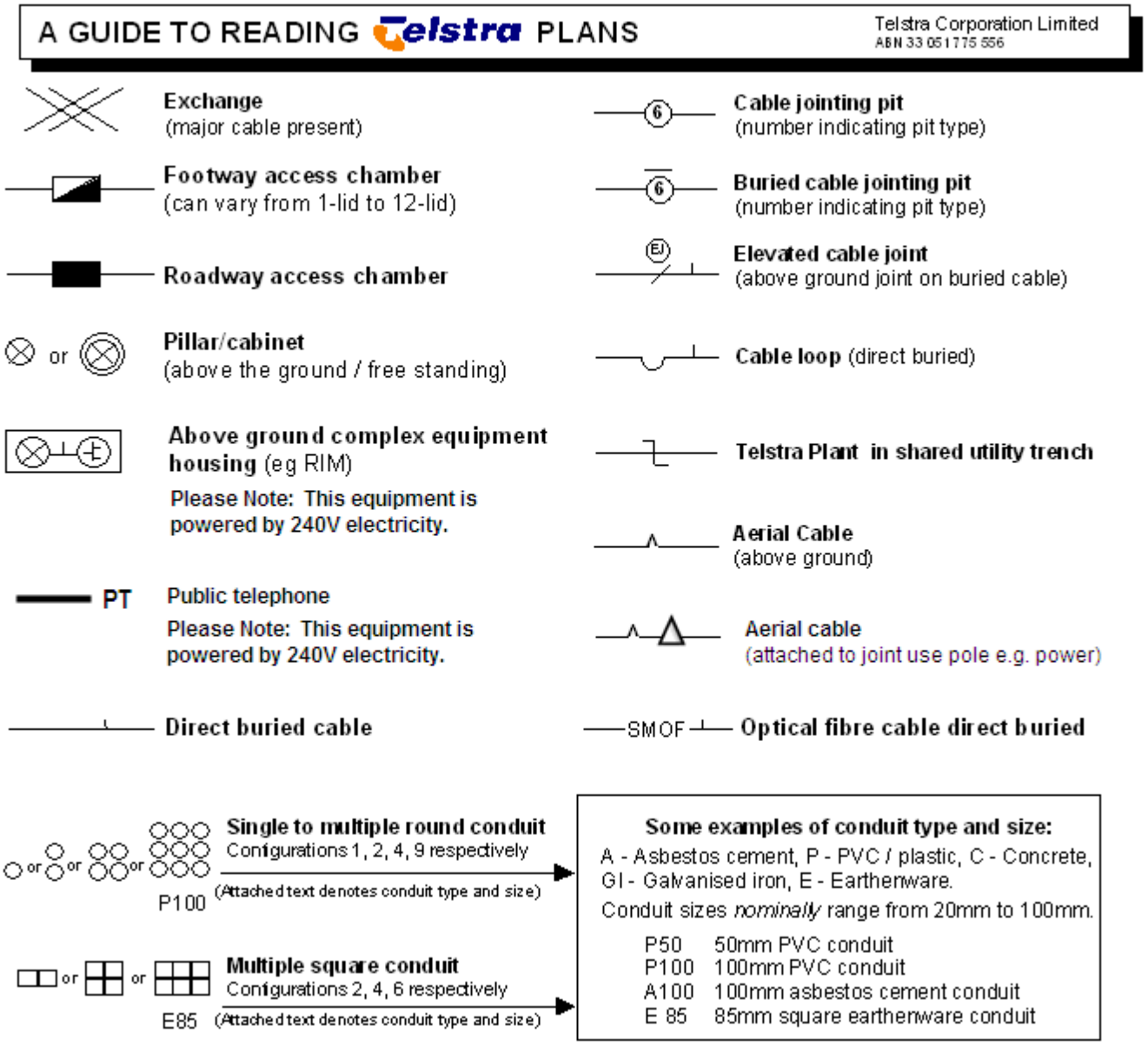
Please note:

- The exact location, including depth of cables can only be verified by pot holing, which is not covered by this service.
- This service is only available to assist private rural land owners.
- This service covers one hour on-site only. Additional time can be purchased directly from the Accredited Plant Locator.

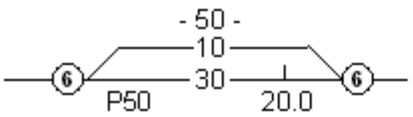
For further information including terms and conditions, please contact Telstra Plan Services on phone **1800 653 935**.

PRIVACY NOTE

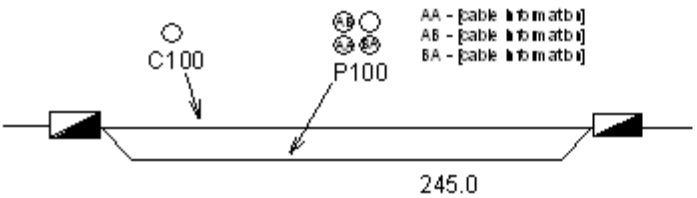
Your information has been provided to Telstra by DBYD to enable Telstra to respond to your DBYD request. Telstra keeps your information in accordance with its privacy statement entitled "Protecting Your Privacy" which can be obtained from Telstra either by calling 1800 039 059 or visiting our website at www.telstra.com.au/privacy



Some examples of how to read Telstra plans:



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

WARNING: Telstra's plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc. at the time of installation and Telstra does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.
DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.
The customer has a DUTY OF CARE when excavating near Telstra cables and plant. Before using machine excavators TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG (potholing) to identify its location.
Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

Electronic plans - PDF and DWF maps

If you have received Telstra maps via email you will have received the maps as either a PDF file (for smaller areas) or DWF file (for larger area requests). If you are unable to launch any one of the softcopy files for viewing and printing, you may need to download and install one or more of the free viewing and printing products such as Adobe Acrobat Reader (for PDF files) or Autodesk Design Review 2010 (for DWF files) available from the internet.

PDF files

PDF is the default softcopy format for all requests that range in size from 0 metres (eg point requests) to requests up to approx *500m in length. (*depends on geographic location of request). The PDF file is formatted to A3 portrait sheet however it can be printed on any size sheet including from A4 to AO, either as the full sheet or selected areas to suit needs and legibility. (to print a selected area zoom up and print "current view"). If there are multiple layers of Telstra network you may receive up to 2 sheets in the single PDF file attachment supplied. There are three types or layers of network normally recorded - local network, mains cables or a combined layer of local and mains (usually displayed in rural or semi rural areas). If mains cable network is present in addition to local cables (ie as separate layer in a particular area), the mains will be shown on a separate sheet. The mains cable information should be read in conjunction with the local cable information.

DWF files

This is the default softcopy format for all requests that are over 500m in length. Maximum length for a DWF automated response is approx 2500m - depending on geographic location of request (non automated longer). The DWF files differ from PDF in that DWF are vector files made up of layers that can be turned on or off and are not formatted to a specific sheet size. This makes them ideal for larger areas and for transmitting over email etc.

How to view Telstra DWF files -

Telstra DWF files come with all layers turned on. You may need to turn individual layers on or off for viewing and printing clarity. Individual layer names are CC (main cable/conduit), DA (distribution or local area network) and sometimes a combined layer - CAC. Layer details can be viewed by either picking off the side menu or by selecting 'window' then 'layers' off the top menu bar. Use 'layers' to turn individual layers off or on. (double click or right click on layer icon.)

How to print Telstra DWF files -

DWF files can be printed on any size sheet. They can be printed in their entirety or by selected areas of interest. Some DWF coverage areas are large and are not suited to printing legibly on a single A4 sheet - you may need several prints if you only have an A4 printer. Alternately an A3, A1 or larger printer should be used. To print, zoom in or out and then by changing the 'print range' settings you can print what is displayed on your screen to suit your paper size. If you only have a small printer eg A4 you may need to zoom until the text legible on your screen for it to be legible on the print. (which is why you may need several prints). To print what is displayed on your screen the 'view' setting should be changed from 'full page' to 'current view'. The 'current sheet' setting should also be selected. You may need to print layers separately for clarity and legibility. (details above on how to turn layers on or off)

How to change the background colour from white to black (when viewing) Telstra DWF files -

If using Autodesk Design Review the background colour can be changed by selecting "Tools" then "options" then "sheet". Tick the box "override published paper colors" and select the colour required using the tab provided.

Further information

If you require further assistance with supplied PDF or DWF plans eg with legibility or you believe there maybe missing information please contact Telstra Plan Services. (contact details above - you will need to supply the Telstra sequence number of the plan request.)

Telstra automated plan service

Telstra provides an automated plan response for the majority of DBYD requests received (currently around 80%). Requestors must supply a current email address on their request to DBYD and must also be able to accept a standard format ie PDF or DWF. An automated response can be provided a lot faster than the alternative which is a mailed hardcopy. This can avoid unnecessary

delays in waiting for plans to arrive. Being softcopy it can easily be sent directly to a worksite and can be available 7 days a week. The automated system can be configured for individual requestors to receive either PDF/DWF (where small requests are PDF and larger requests are DWF) or alternately all in DWF (both small and large requests). Please contact Plan Services for further details or to be configured. Please note all requests over *500m (approx) in size can only be supplied in DWF format and there are size limits on what can be provided. (* actual size depends on geographic location of requested area)

Data Extraction Fees

In some instances a data extraction fee may be applicable for the supply of Telstra information. Typically a data extraction fee may apply to - large projects, requests to be supplied in non standard formats, excessive hardcopy printing or requests for non digging purposes. Further details can be obtained by contacting Telstra Plan Services.

ACCREDITED PLANT LOCATORS (For your area)

On-site assistance should be sought from an **Accredited Plant Locator** if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided.

On-site advice should be obtained from a Telstra accredited Asset Plant Locator who is highly skilled in locating Telstra plant. In the case where Telstra plant is outside a recognised road reserve Telstra recommends that Telstra Plan Services are contacted for assistance prior to engaging an accredited Asset Plant Locator.

Telstra does not permit external parties (non-Telstra) to conduct work on our network. Only Telstra staff or Telstra contractors are allowed to enter our manholes, open our pits, ducts, etc.

Please note it is a criminal offence under the *Criminal Code Act 1995*(Cth) to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by Telstra as a result of any such unauthorised works may be claimed against you.

Should your projects require cable location, you MUST engage an accredited Asset Plant Locator (a list of which is provided with the Dial Before You Dig plans). Alternatively you may seek your own accreditation through our registered training partner Coates Hire Training which is the only approved training provider for Asset Plant Location accreditation for Telstra's network. You may contact Coates Hire Training on

1300 657 867or visit ***www.coateshire.com.au***

For the assistance of customers an accredited Asset Plant Locator can perform any of the following activities if requested to do so by the owner:

- review Telstra's plans to assess the approximate location of Telstra plant;
- advise owners of the approximate location of Telstra plant according to the plans;
- advise owners of the best method for locating Telstra plant;
- advise owners of the hazards of unqualified persons attempting to find the exact location of Telstra plant and working in the vicinity of Telstra plant without first locating its exact position; and
- perform trial hole explorations by hand digging (pot-holing) to expose Telstra plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment.

A list of Accredited Plant Locators operating in your area is attached. Accredited Plant Locators are certified by Telstra to perform the tasks listed above. Owners may engage Accredited Plant Locators to perform these services, however Telstra does not give any warranty in relation to these services that Accredited Plant Locators are competent or experienced to perform any other services.

The attached list provides the names and contact details for Accredited Plant Locators who service your area and can provide you with assistance in locating Telstra plant on site. These organisations have been able to satisfy Telstra that they have a sound knowledge of telecommunications plant and its sensitivity to disturbance; appropriate equipment for locating telecommunications plant and competent personnel who are able to interpret telecommunications plans and sketches and understand safety issues relevant to working around telecommunications plant. They are also able to advise you on the actions which should be taken if the work you propose will/could result in a relocation of the telecommunications plant and/or its means of support.

We recommend that you engage the assistance of one of these Accredited Plant Locators as a step towards discharging your Duty of Care obligations when seeking the location of Telstra's telecommunications plant.

Please Note:

- Each Accredited Plant Locator is NOT permitted to provide depth of communications plant unless physically exposed by hand digging.
- The details of any contract, agreement or retainer for site assistance to locate telecommunications plant shall be for you to decide and agree with the organisation engaged. Telstra is not a party to any contract entered into between an owner and an Accredited Plant Locator. The Accredited Plant Locators are able to provide guidance concerning the extent of site investigations required.
- Payment for the site assistance will be your responsibility and payment details should be agreed before the engagement is confirmed.
- Telstra does not accept any liability or responsibility for the performance of or advice given by an Accredited Plant Locator. Accreditation is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.
- Each Accredited Plant Locator has been issued with a certificate which confirms the Accreditation. Every 2 years Telstra will reassess the accreditation and where appropriate will issue a letter confirming the accreditation for the next 2 years. You

have the right to request the organisation you engage to show evidence of their ID card.

- Neither the Accredited Plant Locator nor any of its employees are an employee or agent for Telstra and Telstra is not liable for any damage or loss caused by the Accredited Plant Locator or its employees.
- The attached list contains the current names and contact details of Accredited Plant Locators who service your area, however, these details are subject to change.

IDEA FOR CONSIDERATION:

Telstra offer free Cable Awareness Presentations & Advanced Cable Reading Presentations, if you believe you or your company would benefit from this offer please contact Network Integrity on 1800 810 443 or **F1102490@team.telstra.com**

Appendix E Groundwater Conversion and Bore Census Reports

Australasian Groundwater & Environmental Consultants Pty Ltd
ABN 64 080 238 642
Level 2 / 15 Mallon St, Bowen Hills, Qld. 4006 Australia
Phone (617) 3257 2055 Fax (617) 3257 2088
email: Brisbane@ageconsultants.com.au
web: www.ageconsultants.com.au

MEMORANDUM

TM/AMD:ae (Project No. G1588)

To	**:**	Dr. Paul Jackson
Company	:	Australasian Resource Consultants Pty Ltd
From	**:**	Thomas Muehe
Date	**:**	14 December 2011
RE	**:**	**OUTCOME BORE CENSUS PART 1** **TAROBORAH COAL PROJECT**

1.0 INTRODUCTION

The Taroborah coal project is located about 20km to the east of Emerald in Central Queensland. It involves the development of a greenfield site as a combination of an open cut and underground coal mine.

Exploration drilling has currently been undertaken within the boundary of Exploration Permit Coal (EPC) 1011 to characterize the coal resource.

A bore census is required to assist in the characterization of the groundwater resource, which is a requirement of the Environmental Impact Statement (EIS). This memo describes the outcome of part one of the bore census, which was undertaken from 07 to 09 December 2011.

2.0 BORE CENSUS

Planned Bore Visits

It was planned to visit a total of 31 bores during the bore census, comprising:

- Seven IMC monitoring bores (IMC Mining Group Pty Ltd);
- Fifteen bores registered with the Department of Environment and Resource Management (DERM) within the EPC or mentioned in the previous groundwater report;
- Nine bores registered with DERM outside of the EPC; these bores have been identified for a visit as they are relatively close to the EPC, but were not involved in the previous investigation.

Bores Visited

Twenty-five bores have been visited during part one of the bore census, some of which were newly identified during the site visit. All bores visited are summarised in Table 1 and shown in Drawing No. 1.

TABLE 1: BORES VISITED DURING BORE CENSUS

Bore ID	Property	Landowner	Easting	Northing
37769	Airlie Station	Andrew Chapman	596523	7387519
37770	Airlie Station	Andrew Chapman	592914	7386412
44473	Glendarriwell	John Prewitt	583654	7389078
47221	Selma	Craig McCamley	605177	7398398
47238	Selma	Craig McCamley	605840	7400508
57602	Nogoa Downs	Morrey Iddles	605902	7391555
57603	Nogoa Downs	Morrey Iddles	600739	7393663
67302		John Walters	598517	7395249
67303	Yarrawonga	C.G. Fernie	595087	7394403
67349	Iona Station	Stan Knight	592950	7400839
84184	Bluewater Station	R.J. Pedracini	593437	7396628
90064	Iona Station	Stan Knight	596819	7396888
13020220	road reserve	DERM	600036	7402233
Anakie Tank Bore	Glendarriwell	John Prewitt	583770	7388871
Camp Bore	Iona Station	Stan Knight	594281	7397364
Community Bore	Three small blocks	John Walters /Kenneth Anthony/Lester Madison	599192	7396247
House Bore	Glendarriwell	John Prewitt	584183	7390171
TAR016_CR	Yarrawonga	C.G. Fernie	594956	7395372
TAR040_C		John Walters	600263	7396106
TAR053	Yarrawonga	C.G. Fernie	595643	7395108
TAR176_C	Iona Station	Stan Knight	595548	7400346
TAR177_C	Iona Station	Stan Knight	594584	7400196
TAR189_C		Kenneth Anthony	598843	7398818
TAR249_C	Iona Station	Stan Knight	596634	7396971
Twin Bore	Iona Station	Stan Knight	591671	7399335

Notes: - approximate locations identified by handheld GPS
- Coordinates datum WGS84 Zone 55

The following should be noted:

- Bore 13020220 was found destroyed, and as such the record from the DERM database was confirmed.
- Bore 47238 was found to exist (contradicting the record from the DERM database).
- Bore 67302 was not found, and the landowner did not know of this bore.
- Bore 103381 is likely to be located on a different property other than 'Nogoa Downs', or the bore does not exist, as the landowner does not know of this bore.

The bores were located with a handheld GPS in the field. Some of these GPS locations were identical with those presented in the DERM database; however, for some bores there was a difference of a few hundred metres. Part of this difference is due to a potential GPS error, but it is probably primarily due to an error in the DERM database location.

Additional Bores Identified

During the site visit and conversations held with the landowners twelve additional bores have been identified. viz:

- two bores on 'Iona Station': Twin Bore, Camp Bore (bores visited);
- one bore supplying the three small blocks along the highway: Community Bore (bore visited);
- two bores on 'Vinetree' (bores not visited);
- seven bores on 'Glendarriwell Station' (2 bores visited: House Bore, Anakie Tank Bore, 5 bores not visited).

The locations of these bores are summarised in Table 2.

TABLE 2: ADDITIONAL BORES IDENTIFIED DURING THE SITE VISIT					
Approximate locations by handheld GPS					
	Bore ID	**Property**	**Landowner**	**East WGS84 z55**	**North WGS84 z55**
1	Twin Bore	Iona Station	Stan Knight	591671	7399335
2	Camp Bore	Iona Station	Stan Knight	594281	7397364
3	Community Bore	Three small blocks	John Walters/ Kenneth Anthony/ Lester Madison	599192	7396247
4	House Bore	Glendarriwell	John Prewitt	584183	7390171
5	Anakie Tank Bore	Glendarriwell	John Prewitt	583770	7388871
Approximate locations taken from map					
	Bore ID	**Property**	**Landowner**	**East GDA94 z55**	**North GDA94 z55**
6	Railway Paddock Bore	Vinetree	George Cross	587103	7394693
7	Bore at Road	Vinetree	George Cross	584334	7392405
8	Cotton Seed Shed Bore	Glendarriwell	John Prewitt	588003	7387427
9	Bore SW of Limestone	Glendarriwell	John Prewitt	589187	7387097
10	John Paul's Bore	Glendarriwell	John Prewitt	588003	7385635
11	Anakie Creek Bore	Glendarriwell	John Prewitt	584523	7388725
12	Bore	Glendarriwell	John Prewitt	583269	7389220

3.0 WATER LEVELS

The water level was measured in all bores where access was possible. This consisted of all non-equipped bores and only some of the equipped (i.e. pump or windmill) bores.

It was possible to measure water levels in 14 bores of the 25 visited bores. Bore 47221 was dry. The measured water levels ranged from 0.31m below ground level (mbgl) in bore 37770 (at Airlie Station south of the EPC close to Fairbairn Dam), and 47.08mbgl in TAR249_C (at Iona Station within the EPC). All water levels are summarised in Table 3.

TABLE 3: WATER LEVELS			
Bore ID	**Date / Time**	**SWL (mbtoc)**	**SWL (mbgl)**
37769	8/12/2011 15:15	21.5	20.68
37770	8/12/2011 15:50	1.29	0.31
44473	9/12/2011 11:40	equipped	
47221	8/12/2011 18:15	dry at 9.66	
47238	8/12/2011 18:40	25.13	25.07
57602	9/12/2011 8:40	5.48	5.02
57603	9/12/2011 9:20	equipped	
67302	7/12/2011 14:30	no bore found	
67303	7/12/2011 17:00	equipped	
67349	8/12/2011 11:30	8.46	7.83
84184	8/12/2011 13:00	equipped	
90064	8/12/2011 10:00	equipped	
13020220	7/12/2011 11:10	destroyed	
Anakie Tank Bore	9/12/2011 11:50	equipped	
Camp Bore	8/12/2011 12:00	43.52	43.38
Community Bore	8/12/2011 12:30	equipped	
House Bore	9/12/2011 11:30	equipped	
TAR016_CR	7/12/2011 16:25	39.94	38.58
TAR040_C	7/12/2011 12:40	36.98	35.77
TAR053	7/12/2011 15:50	26.03	24.76
TAR176_C	8/12/2011 10:45	12.48	11.51
TAR177_C	8/12/2011 11:00	9.5	8.59
TAR189_C	9/12/2011 10:10	44.75	44.07
TAR249_C	8/12/2011 10:15	47.8	47.08
Twin Bore	8/12/2011 11:45	19.27	19.00

Notes: - approximate locations identified by handheld GPS, coordinate datum WGS84 zone 55
- mbtoc - metres below top of casing
- mbgl - metres below ground level

4.0 WATER QUALITY

When the landowner was able to turn on the pump in an equipped bore, groundwater was pumped for a few minutes before a sample was collected. Electrical conductivity (EC) and pH was measured on site using a handheld pH/EC meter.

When a bore was not equipped, a bailer was used to collect a groundwater sample; in this case the bore was not purged prior to sampling.

It was possible to measure pH and EC in groundwater from 13 bores. The results are summarised in Table 4.

TABLE 4: FIELD MEASURED WATER QUALITY						
Bore ID	**Property**	**Easting**	**Northing**	**Date/Time**	**EC uS/cm**	**pH**
37769	Airlie Station	596523	7387519	8/12/2011 15:15	1267	7.19
37770	Airlie Station	592914	7386412	8/12/2011 15:50	i)	
44473	Glendarriwell	583654	7389078	9/12/2011 11:40	equipped	
47221	Selma	605177	7398398	8/12/2011 18:15	dry	
47238	Selma	605840	7400508	8/12/2011 18:40	506	7.00
57602	Nogoa Downs	605902	7391555	9/12/2011 8:40	ii)	
57603	Nogoa Downs	600739	7393663	9/12/2011 9:20	equipped	
67302		598517	7395249	7/12/2011 2:30	no bore found	
67303	Yarrawonga	595087	7394403	7/12/2011 17:00	equipped	
67349	Iona Station	592950	7400839	8/12/2011 11:30	1602	7.28
90064	Iona Station	596819	7396888	8/12/2011 10:00	1904	7.44
13020220	road reserve	600036	7402233	7/12/2011 11:10	destroyed	
Anakie Tank Bore	Glendarriwell	583770	7388871	9/12/2011 11:50	equipped	
Camp Bore	Iona Station	594281	7397364	8/12/2011 12:00	1293	7.16
Community Bore	Three small blocks	599192	7396247	8/12/2011 12:30	equipped	
House Bore	Glendarriwell	584183	7390171	9/12/2011 11:30	equipped	
TAR016_CR	Yarrawonga	594956	7395372	7/12/2011 16:25	1802	7.23
TAR040_C		600263	7396106	7/12/2011 12:40	1146	7.22
TAR053	Yarrawonga	595643	7395108	7/12/2011 15:50	1340	7.27
TAR176_C	Iona Station	595548	7400346	8/12/2011 10:45	688	9.67
TAR177_C	Iona Station	594584	7400196	8/12/2011 11:00	1871	7.38
TAR189_C		598843	7398818	9/12/2011 10:10	3965	8.22
TAR249_C	Iona Station	596634	7396971	8/12/2011 10:15	740	10.24
Twin Bore	Iona Station	591671	7399335	8/12/2011 11:45	7286	6.97

Notes:
- approximate locations identified by handheld GPS, coordinate datum WGS84 zone 55
- EC - electrical conductivity
- i) equipped, groundwater could not be accessed at time of visit
- ii) polypipe blocked access into bore

EC ranged from fresh in Bores 47238 and TAR249_C to 7286µS/cm in Twin Bore at Iona Station.

pH was generally neutral between 7 and 7.44. A significantly higher pH at 8.22, 9.67 and 10.24 was identified in bores TAR189_C, TAR176_C and TAR249_C in the northern part of the EPC.

5.0 RECOMMENDATIONS

It is recommended to undertake a 'bore census part 2' to inspect the following bores:

TABLE 5: BORES RECOMMENDED FOR VISIT					
Site visit originally planned, not visited during bore census part 1 (coordinates from DERM database)					
	Bore_ID	**Property**	**Landowner**	**East GDA94 Z55**	**North GDA94 Z55**
1	44470	Glendarriwell	John Prewitt	588095	7388255
2	44471	Glendarriwell	John Prewitt	588155	7388763
3	57649	Jabiru	Mark	596184	7402744
4	90250		John Robertson	589241	7398551

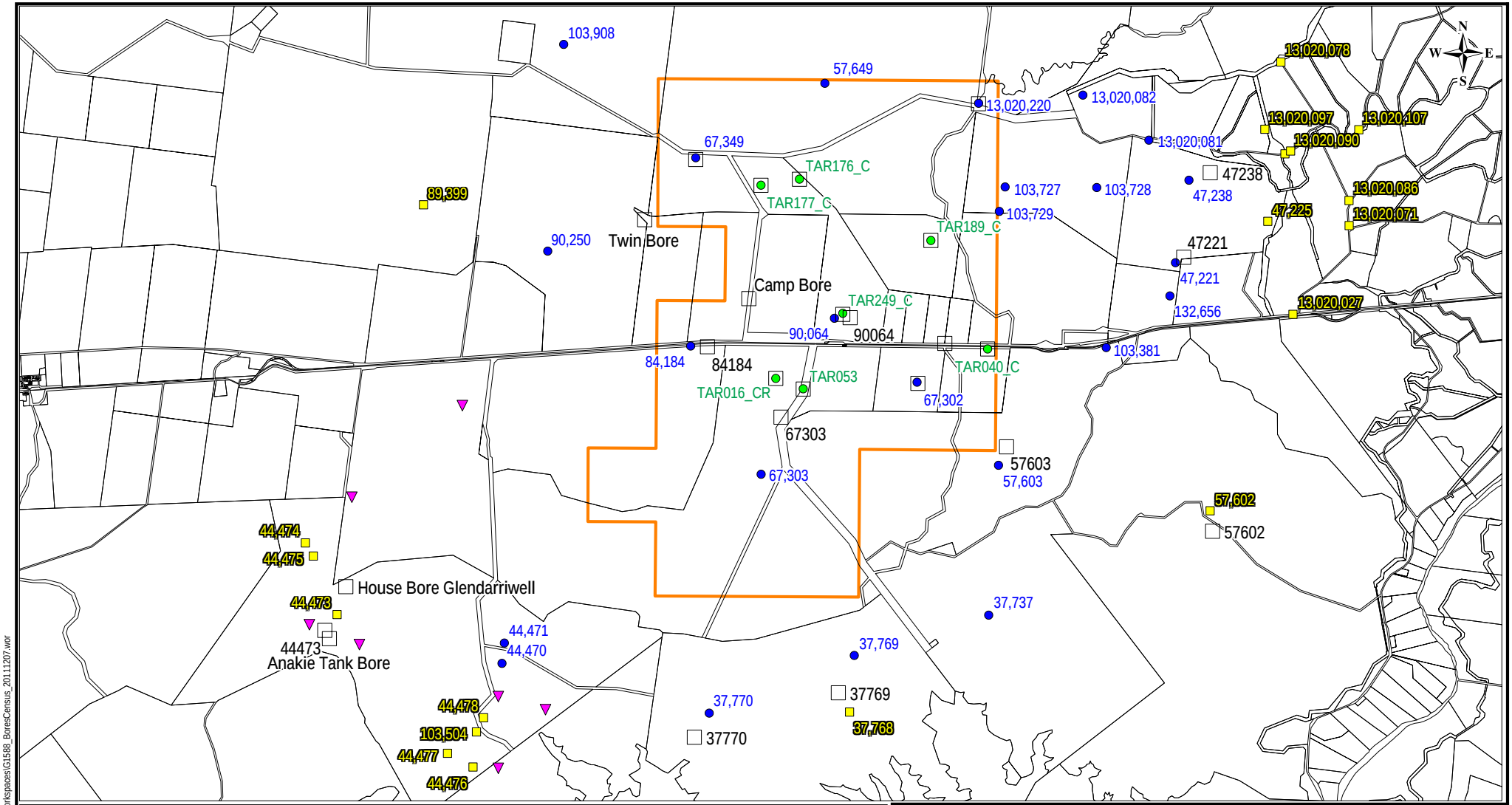
TABLE 5: BORES RECOMMENDED FOR VISIT					
Site visit originally planned, not visited during bore census part 1 (coordinates from DERM database)					
5	103381		NOT Morrey Iddles	603235	7396143
6	103727		Ian Sypher	600703	7400154
7	103728		Ian Sypher	602997	7400138
8	103729		Ian Sypher	600558	7399542
9	103908		William Crowther	589641	7403715
10	132656		Andrew Mitchell	604831	7397432
11	13020081	Road Reserve	DERM	604305	7401322
12	13020082		Cameron Geddes	602650	7402448
Additional bores identified during bore census part 1 (approx. coordinates estimated from map)					
	Bore_ID	**Property**	**Landowner**	**East GDA94 Z55**	**North GDA94 Z55**
1	Railway Paddock Bore	Vinetree	George Cross	587103	7394693
2	Bore at Road	Vinetree	George Cross	584334	7392405
3	Cotton Seed Shed Bore	Glendarriwell	John Prewitt	588003	7387427
4	Bore SW of Limestone	Glendarriwell	John Prewitt	589187	7387097
5	John Paul's Bore	Glendarriwell	John Prewitt	588003	7385635
6	Anakie Creek Bore	Glendarriwell	John Prewitt	584523	7388725
7	Bore, additional	Glendarriwell	John Prewitt	583269	7389220

Should you have any queries regarding this memorandum, please, do not hesitate to contact the undersigned.

Yours faithfully,

THOMAS M. MUEHE
Senior Environmental Scientist

Attachment: Drawing No. 1 – Bore Census Bore Locations



- LEGEND -

- Bore visited 07-09 Dec 2011
- additional bore identified during bore census and not yet visited
- Registered bore included in bore census
- IMC monitoring bore
- Registered bore - no visit planned
- Boundary EPC 1011

AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD
LEVEL 2, 15 MALLON ST, BOWEN HILLS, 4006, AUSTRALIA

TITLE: TAROBORAH COAL PROJECT
ENVIRONMENTAL IMPACT STATEMENT
BORE CENSUS BORE LOCATIONS

CLIENT: AARC			OFFICE: Brisbane
DRAWN BY: TM	SCALE: 1 : 140,000 (A4)	PROJECT No: G1588	DRAWING No: 1
APPROVED BY:		DATE: December 2011	

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Taroborah Coal Exploration Project

Groundwater Monitoring Bore Conversion Report

August 2008

This report has been prepared solely for the benefit of IMC Mining Solutions Pty Ltd. Matrix Plus Consulting Pty Limited accepts no liability for the use or interpretation of any information contained in this report for any other purpose other than intended, or for its use by any party other than the above named Client.

Document History and Status

Issue	Revision	Issued to	Qty	Date	Reviewed by
1	1 (Draft)	Internal	1	23/7/2008	Dr John Harbison
2	2 (Draft)	Internal	1	24/7/2008	Randal Hinz
3	3 (Final draft)	Dave Thomas	1	25/7/2008	Bonny O'Neal
4	4 (Final)	Dave Thomas	2	11/8/2008	Bonny O'Neal

Matrix+ Project Delivery System

Printed:	**11 August 2008**
Last saved:	**11 August 2008**
File Name:	**p:\projects\imc\imc_802_bore_conversions\wip\drafts\matrix_taroborah_gw_bore_report_v3.doc**
Project Manager:	**Bonny O'Neal**
Name of Organisation:	**Matrix+ Consulting Pty Limited**
Name of Project:	**Taroborah Coal Exploration Project – Groundwater Monitoring Bore Conversion**
Name of Document:	**Final**
Document Version:	**Version 4.0**
Project Number:	**IMC 802**

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EXECUTIVE SUMMARY

Matrix+ Consulting was commissioned by IMC Mining Solutions Pty Ltd (IMC) to supervise the conversion of exploration holes into groundwater monitoring bores to provide baseline groundwater data for the Taroborah Exploration Coal Project. Three exploration holes within EPC1011 were successfully converted into groundwater monitoring bores as part of this program. The converted monitoring bores were screened in the Aldebaran Sandstone aquifer which overlies the Taroborah project area target coal seam(s). Groundwater within the Aldebaran aquifer was found to be of good quality and utilised by surrounding landholders for stock and domestic use. Groundwater inflows estimated during exploration drilling ranged from 0.01 – 10.31 L/s.

1 INTRODUCTION

The Taroborah Coal Exploration Project is located approximately 16km west of Emerald, along the Capricorn highway. The land use is divided into roughly two halves; the northern area is arable cropping land, and the southern area is grazing shrub land. The Taroborah Coal Exploration Project resource is currently undergoing feasibility studies to become an open cut and underground operation for the extraction and export of thermal coal.

The objectives of the program were to review all available groundwater information and convert a number of previously drilled exploration holes into groundwater monitoring bores, allowing the determination of:

- the existing groundwater environment (i.e. aquifer/groundwater occurrence);
- baseline groundwater levels and groundwater quality data; and
- the characterisation of groundwater environment and its implication on mine development.

Exploration holes chosen to be converted were based primarily on bore position and intersection with the Aldebaran Sandstone. Holes selected for conversion were made following the review of:

- preliminary mine plans;
- exploration logs;
- information on each exploration hole, such as drilling techniques and hole diameter;
- V-notch test;
- geophysics; and
- groundwater quality data.

2 EXISTING GROUNDWATER ENVIRONMENT

2.1 GEOLOGY

The Taroborah Coal Exploration Project is located on the western extent of the Denison Trough and contains a considerable thickness of Lower Permian sediments, unconformably overlain by Tertiary sediments. Permian coal seams are encountered at shallow depths in the southern area of the lease and deepen towards the north. The coal measures are compromised of a sandstone/coal sequence, with the regionally extensive Aldebaran Sandstone directly overlying the coal seams. Coal seams A and B are separated by an interburden sandstone/siltstone interbedded with carbonaceous mudstone unit. Resource drilling to date indicates average coal seam thicknesses of 1.19 m (A seam) and 2.96 m (B seam). Coal is low in volatile matter and is suitable for thermal export.

2.2 GROUNDWATER OCCURRENCE

The principal aquifers within the Taroborah lease area and in the surrounding region are the Permian Aldebaran Sandstone and, to a lesser extent, the coal seams. Exploration logs and viewed core samples (**Figure 1**) indicate that the Aldebaran Sandstone is quartz-lithic, grain-supported, medium to coarse-grained with occasional slag layers of gravel (<1 cm sub-rounded).

The Aldebaran Sandstone aquifer contains both primary and secondary porosity with groundwater contained within pore spaces and/or jointed/fractured sections.

Information to date suggests that the Aldebaran Sandstone aquifer can act as both a confined or unconfined (leaky) aquifer depending on its contact type with the underlying coal seams. Where the roof contact is erosional (i.e. high energy) groundwater will leak from the overlying Aldebaran Sandstone aquifer into the coal seam. In contrast, where a siltstone and mudstone gradational contact directly overlies the coal seams, vertical hydraulic connection between the Aldebaran Sandstone aquifer and coal seams is limited.

Figure 1 4" core hole TAR004 showing the Aldebaran Sandstone

The Aldebaran Sandstone aquifer may receive groundwater recharge where the unit outcrops or subcrops (i.e. the sandstone ridge on the eastern extent of EPC1011). The Aldebaran Sandstone aquifer may also receive recharge via rainfall percolation from overlying units.

Groundwater is known to exist within the coal seams and occurs within cleated and fractured sections of the seam. In cases where this occurs, the coal seams can be described as being a part of the Aldebaran Sandstone aquifer.

2.3 GROUNDWATER INFLOWS AND ESTIMATE YIELDS

Groundwater flows have previously been estimated during exploration drilling with V-notch tests conducted when groundwater was intersected. **Table 1** shows that groundwater was intercepted in the majority of exploration holes. Lithology logs suggest that groundwater was primarily found in the overlying Aldebaran Sandstone unit and within the coal seams.

V-notch results varied from 0.1 L/s to 10.31 L/s depending on the unit's structure and permeability (i.e. primary porosity cf. secondary porosity).

Table 1 Exploration Hole Groundwater Flow – V-notch Tests

Bore ID	Upper V-notch test			Lower V-notch test		
	Depth (m)	Height (mm)	Flow (L/s)	Depth (m)	Height (mm)	Flow (L/s)
TAR002_C	39	75	2.17			
TAR003_C	67	30	0.22			
TAR004_C	61.3	25	0.14			
TAR005_C	90.5	70	1.82			
TAR006_C	90	36	0.35			
TAR007_C	97	55	1.00	118	73	2.02
TAR008_C	104	55	1.00			
TAR009_C	132.7	50	0.79			
TAR010_CR	107	50	0.79			
TAR011_C	91	35	0.32			
TAR013_C	93.5	90	3.42			
TAR016_C	65.5	140	10.31	84	140	10.31
TAR018_C	79	40	0.45	108	40	0.45
TAR019_C	62	33	0.28			
TAR020_C	67	50	0.79			
TAR021_C	56.5	25	0.14			
TAR022_C	71	48	0.71			
TAR024_C	61.6	34	0.30	80	61	1.29
TAR025_C	72.7	25	0.14			
TAR026_C	78	90	3.42	93.8	54	0.95
TAR027_C	83.4	54	0.95			
TAR028_C	78	55	1.00			
TAR029_C	80.5	54	0.95	103	68	1.70
TAR030_C	100	55	1.00			
TAR031_C	116	60	1.24			
TAR032_C	85	68	1.70			
TAR033_C	119.2	66	1.57			
TAR034_C	102	38	0.40			
TAR035_C	95.9	45	0.60	114	65	1.51
TAR036_C	80	36	0.35			
TAR037_C	83	30	0.22			
TAR039_C	85	40	0.45			
TAR040_C	84.1	40	0.45			
TAR041	110	15	0.04			
TAR042	109	95	3.91			
TAR043	85	85	2.96			
TAR044	60	30	0.22			
TAR048	102	95	3.91			
TAR049	78	25	0.14			
TAR053	97	80	2.55			
TAR054	67	10	0.01			
TAR055	91	70	1.82			
TAR056	73	10	0.01			
TAR057	85	11	0.02			

2.4 GROUNDWATER QUALITY

Table 2 summarises field groundwater quality test results conducted during exploration drilling. These results suggest that the groundwater from the Aldebaran Sandstone and coal seam aquifer is most likely suitable for domestic, irrigation and stock use. Water quality records indicate that pH values are typically within the recommended drinking range of 6.5 to 8.5 required by the Australian Drinking Water Guidelines (ADWG). The majority of holes meet the Electrical Conductivity (EC) of 1,250 µS/cm recommended for irrigation by the Australian and New Zealand Environment and Conservation Council (ANZECC).

Table 2 Field Groundwater Quality Tests

Bore ID	Depth (m)	pH	EC (µS/cm)
TAR021_C	57	7.63	1200
TAR022_C	68	7.82	1400
TAR024_C	80	7.72	1200
TAR025_C	73	7.17	1800
TAR026_C	78	7.87	1200
TAR027_C	94	7.93	1300
TAR028_C	78	7.38	1400
TAR033_C	119	7.37	800
TAR035_C	-	8.21	200
TAR037_C	83	7.45	600
TAR040_C	85	7.94	700

2.5 GROUNDWATER USE

A search of the DNRW (Queensland Department of Natural Resources and Water) database within EPC1011 and its surrounds indicates that the Aldebaran Sandstone aquifer is the principal aquifer utilised by landholders for domestic, irrigation and stock water supply. Bore locations are shown in **Figure 2** with bore details presented in **Table 3**.

In addition, a number of unregistered landholder bores were located during fieldwork and are shown on **Figure 2**. Iona's property owner stated that the property had 4 bores: 2 operational and extracting water from the sandstone/coal aquifer; House bore (RN 90064) and Swamp bore. Swamp bore and Iona's 2 abandoned bores were not located during initial fieldwork.

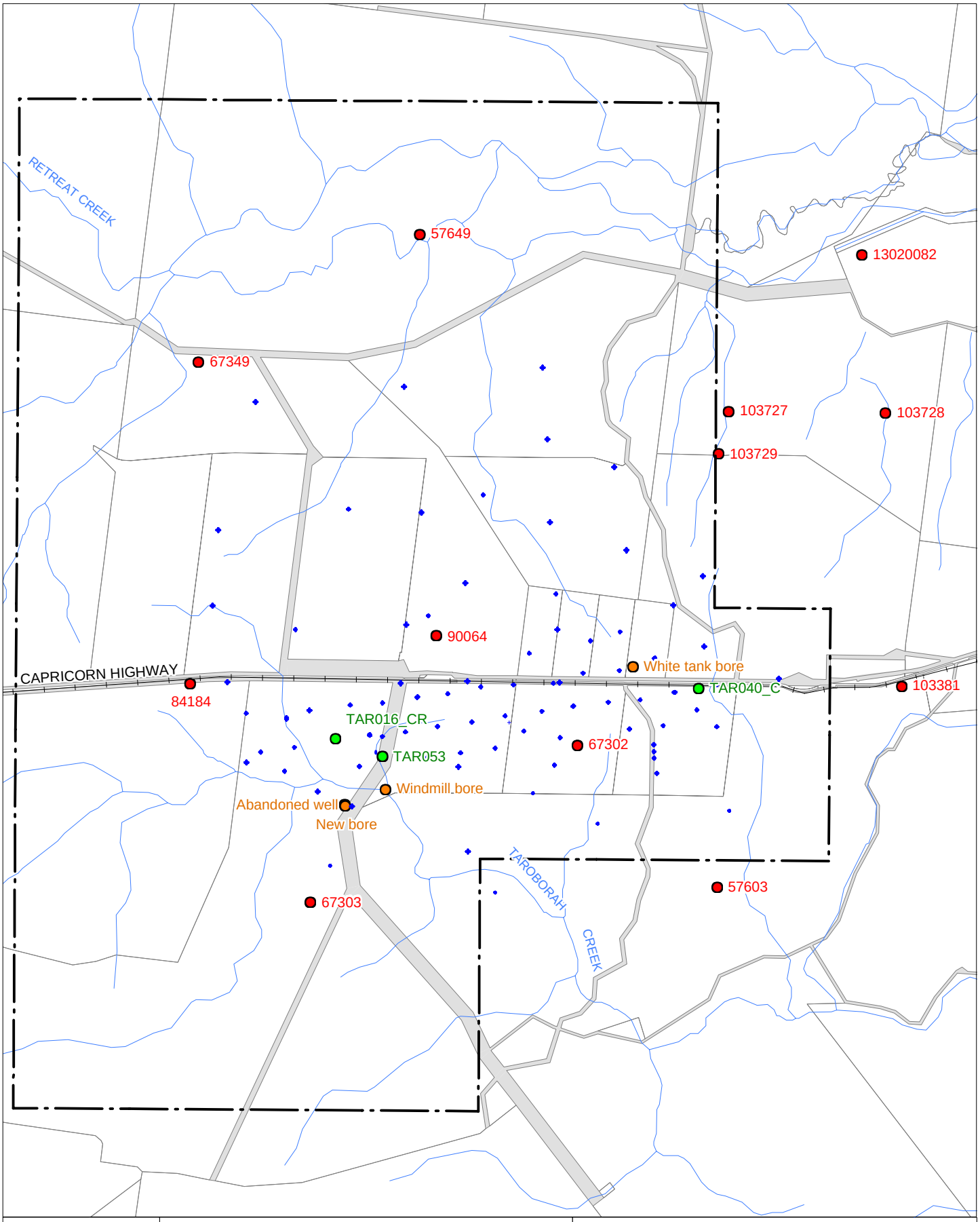
Three bores were located on St Helens property including New bore drilled by Phoenix in early 2008. This bore was drilled to replace an older well which had collapsed. New bore is 74 m deep and screened (68-74 m) within the sandstone. At the time of drilling, New bore was yielding 4.2 L/s.

White Tank bore is located on the edge of Capricorn Highway. Anecdotal evidence suggests the bore is screened within the sandstone/coal aquifer, is >130 m deep and yields 1.89 L/s. This bore is collectively used by landholders on the eastern edge of EPC1011. A standing water level within the bore was unmeasurable due to headworks.

Other properties and landholders within EPC1011 were not visited during this program.

Table 3 Landholder DNRW Registered Groundwater Bores

RN	Date Drilled	Eastings GDA94	Northings GDA94	Original Bore Name	Total Depth (m)	Aquifer Lithology	Screened Interval (m)	Yield (L/s)	Standing Water Level (mBGL)	Water Quality
57603	1/01/1900	600537	7393202	Eighty-Nine Bore	-	-	-	-	-	-
57649	1/01/1980	596184	7402744	Monopump Bore	16	Alluvium	-	-	-	Stock
67302	-	598494	7395279	GSQ. Coal Exploration Hole	420.45	-	-	-	-	-
67303	-	594587	7392978	GSQ. Coal Exploration Hole	585.85	-	-	-	-	-
67349	18/07/1986	592950	7400883	Lower Retreat	32	Aldebaran Sandstone	12.2-18.2	0.45	2.7	Good
84184	6/12/1987	592824	7396181	Fairways No 1 Bore	76	Aldebaran Sandstone	58-76	0.12	42	EC 1500
90064	26/07/1993	596426	7396876	House Bore	103	Aldebaran Sandstone	86-102	1.9	48	EC 1550
103381	1/01/1900	603235	7396143	Old Timber Sawmill Bore	14.49	Back Creek Group - Undiff.	-	-	3.91	EC 252
103727	12/08/2003	600703	7400154	-	133.5	Dry Hole	-	-	-	-
103728	20/08/2003	602997	7400138	-	121.5	Aldebaran Sandstone	103.5-121.5	0.96	35.7	Potable
103729	25/08/2003	600558	7399542	-	121.5	Aldebaran Sandstone		0.92	55.1	EC 1690
13020082	9/06/1976	602650	7402448	R29	13	Dry Hole	-	-	-	-



LEGEND

- Road / Track
- Watercourse
- Rail line
- EPC 1011
- Groundwater Monitoring Bores
- DNRW Registered Bores
- Landholder Bores
- Exploration Holes

PRINTED: 10/07/08

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Taroborah Coal Exploration Project

Bore Locations

0 2 4

Kilometres

Scale: 1:75,000 at A4.

N

MGA Zone 55 GDA94

Source: © Geoscience Australia 2008

Figure 2

3 BORE CONVERSION METHODOLOGY

Department of Natural Resources and Water (DNRW) bore data and Resolve/IMC exploration logs suggest that the main aquifers within the Project area are the Aldebaran Sandstone and, to a lesser extent, the coal seams. Exploration holes TAR016_CR, TAR040_C and TAR053 were selected to be converted as these holes intersected the Aldebaran sandstone and are in positions outside the possible footprint of the mine: as such, these bores have the potential to provide long-term data.

3.1 QUEENSLAND LEGISLATION AND PERMITTING

Declared under the Water Act 2000, the Taroborah Project area is located within the Highlands subartesian zone. According to Schedule 11 of the Water Regulation 2002, neither a water licence nor a development permit is required to construct (i.e. convert) monitoring bores within the Highlands subartesian declared zone. Nevertheless, DNRW was made aware of the program and advice regarding bore usage and regional aquifers was sort.

3.2 BORE CONSTRUCTION

Exploration drilling was completed prior to the bore conversion program. Exploration drilling was undertaken by numerous contractors to determine the lithological sequence, depth and quality of coal. Upper tertiary sediments were cased-off to maintain hole stability. Once water was struck, V-notch readings were taken. Groundwater quality was measured where water was intersected. Physico-chemical parameters of pH and EC were measured.

Suitable exploration holes were converted into groundwater monitoring bores. Bores were constructed in accordance with the requirements of the Water Act 2000 and with the requirements of the 'Minimum Construction Requirements for Water Bores in Australia, Edition 2, September 2003'. Bore construction was conducted by a Class 2 Water Bore Driller and supervised by a Matrix+ Consulting hydrogeologist.

Each hole was backfilled from total depth to the coal - Aldebaran Sandstone contact, where a bentonite seal was emplaced to isolate the Aldebaran Sandstone aquifer. Backfill consisted of 10 mm quartz, washed, rounded gravel. Bores were cased using Class 18, 50 mm-diameter uPVC. The screen comprised a length of Class 18, 50 mm-diameter uPVC, with 1 mm machine cut slots. Slotted sections were either 3 m or 6 m in length depending on the thickness of the aquifer. The joints of the uPVC casing were glued and screwed together to strengthen the welds. The casing was lowered and suspended in the hole and the gravel pack was emplaced in the annulus between monitoring bore casing and the drill hole wall. The gravel pack, consisting of 4 mm quartz, washed, rounded gravel, was inserted into the annulus to fill the void from the bentonite seal to a minimum 1.5 m above the top of the screened interval. The gravel pack was covered with bentonite pellets to create a minimum seal of 2 m to seal all overlying aquifers. The annulus was then backfilled with 10 mm gravel to 6m below ground surface. The top 6 m of annulus was then grouted up to the ground surface to provide a surface seal.

Lockable steel covers were installed over each bore and concreted in place.

Minimum bore construction standards require that monitoring bores are developed after installation: this involves cleaning the aquifer of fine lithological material (e.g. sand) and drilling products. The process involves running 30 mm PVC pipe inside the monitoring bore casing and pumping air into the aquifer to lift the dirty water from the hole. Groundwater quality was measured periodically. After three times the volume of the water column had been lifted from the hole and three water quality samples showed proximal results development ceased.

3.3 SAFETY MANAGEMENT

All work was conducted in accordance with the Coal Mine Health and Safety Act (1999) and the Coal Mine Health and Safety Regulations (2001).

Matrix+ Consulting and Phoenix Drilling Services each prepared their own safety management plans, and safe operating procedures for specific activities to be undertaken during the course of the program.

Prior to the commencement of the program, Phoenix Drilling Services were issued with Technical Specifications describing tasks to be carried out during bore conversions. All procedures were based on 'Minimum Construction Requirements for Water Bores in Australia, Edition 2, September 2003'.

3.4 ENVIRONMENTAL IMPACT

At cessation of work at each site, drilling contractors and Matrix+ Consulting ensured that all materials not present at the site prior to the drilling program were removed; all plastics, paper and steel were disposed of suitably.

4 RESULTS

At the conclusion of the program three exploration holes; TAR016_CR, TAR040_C and TAR053, were successfully converted to groundwater monitoring bores. The locations of these bores are illustrated in **Figure 2**. Data collected during drilling and installation of these bores is shown in **Table 4** and **Table 5** with bore logs in **Appendix A**.

Table 4 Groundwater Monitoring Bore Aquifer Details Summary

Bore ID	Total Depth (m)	Aquifer	Screened Interval (m)	Standing Water Level (mAHD)	Yield (L/s)
TAR016_CR	85.0	Sandstone	58-64	189.36	10.31
TAR040_C	84.1	Sandstone	55-58	184.12	0.45
TAR053	97.0	Sandstone	52-68	188.86	2.55

Table 5 Groundwater Monitoring Bore Water Quality

Bore ID	Water Quality			
	EC (µS/cm)	TDS (ppm)	pH	Temp (°C)
TAR016_CR	1336	931	8.01	24.4
TAR040_C	1145	800	8.11	21.8
TAR053	954	656	8.00	24.6

5 DISCUSSION

The purpose of the newly-installed groundwater monitoring bores is to assist in characterising the existing groundwater environment at the Taroborah Project area by providing background groundwater level and quality data. Matrix+ Consulting recommends monthly measurement of water levels within each monitoring bore and quarterly water quality analysis of physico-chemical parameters (pH, EC, temperature and Total Dissolved Solids (TDS)).

The data obtained from the field investigation and data review have provided valuable information on:

- the distribution of the Aldebaran Sandstone aquifer;
- groundwater levels in the aquifer;
- groundwater quality in the aquifer; and
- regional groundwater use.

The Aldebaran Sandstone aquifer is homogeneous, with both primary and secondary porosity. The Aldebaran Sandstone aquifer is the principal source of water supply for local landholders for stock and domestic use. The spatial occurrence of groundwater throughout EPC1011 is widespread however groundwater yields vary (0.01 – 10.31 L/s) owing to the unit's structure and permeability (i.e. primary porosity cf. secondary porosity).

Coal seams are found to directly underlie the Aldebaran Sandstone; exploration drilling is known to have intersected groundwater within these coal seams. Anecdotal evidence suggests that a portion of regional production bores may be screened across both the Aldebaran Sandstone and coal. Further investigation is required to delineate if the sandstone and coal are indeed one aquifer or exhibit individual groundwater characteristics, i.e. different water levels and hydrodynamics.

Groundwater sampled during bore development was of good quality, pH values were within the recommended drinking range required by the Australian Drinking Water Guidelines (ADWG) however TDS values were slightly higher than relevant recommended thresholds.

6 RECOMMENDATIONS

Groundwater management issues which may affect the Taroborah Coal Project feasibility for development included:

- potential groundwater impacts from proposed mining;
- groundwater pit inflows and underground flooding, requiring advance dewatering to facilitate safe mining operations; and
- water supply for proposed mine operations.

The following list of potential future technical assessments is provided below to assist IMC with the future management of groundwater issues. These assessments include;

- regional landholder bore census;
  - to confirm assumptions regarding groundwater use, occurrence and yield.
- expansion of the existing groundwater monitoring network;
  - as feasibility assessments continue it is recommended that the network be expanded as part of an ongoing effort to increase knowledge of the regional groundwater system and to monitor groundwater levels and water quality surrounding the EPC1011.
- pumping tests;
  - to measure aquifer hydraulic parameters which can be utilised in analytical modelling to assess and plan advance dewatering.

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APPENDIX A

BOREHOLE LITHOLOGY AND CONSTRUCTION LOGS

Borehole Log: TAR016_CR

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 594956
Northing: 7395372
Ground Surface RL: 228.10
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 10/04/2008

Drilling Company: Phoenix Drilling Services
Date Installed: 27/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 39m
Total Depth: 85m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			150mm steel lockable protective collar
SOIL		0			
BASALT		1			175mm diam. casing UPVC PN9 0-39m
		2			50mm diam. casing UPVC PN18 blank 0-58m
		3			
		4			
		5			Concrete seal
		6			
		7			
SILTSTONE		8			
		9			
		10			
		11			
		12			
SANDSTONE AND SILTSTONE		13			
		14			
		15			
		16			
		17			
		18			
		19			

Borehole Log: TAR016_CR

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 594956
Northing: 7395372
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Hole Diameter: 150mm
Depth of Casing: 7" 39m
Total Depth: 85m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
SANDSTONE		20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37			10mm quartz, rounded, washed, gravel backfill
SANDSTONE		38, 39			Standing water level; 38.74(mbgl) on 29/05/2008

Borehole Log: TAR016_CR

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 594956
Northing: 7395372
Ground Surface RL: 228.10
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 10/04/2008

Drilling Company: Phoenix Drilling Services
Date Installed: 27/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 39m
Total Depth: 85m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54			
SANDSTONE		55, 56, 57, 58, 59			Bentonite seal Centraliser @ 56m

Borehole Log: TAR016_CR

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 594956
Northing: 7395372
Ground Surface RL: 228.10
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 10/04/2008

Drilling Company: Phoenix Drilling Services
Date Installed: 27/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 39m
Total Depth: 85m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		60			4mm quartz,rounded, washed, gravel pack
					Water quality tested during bore development
		61			EC = 1336 µS/cm TDS = 931 mg/L Temp = 24.4 C pH = 8.01
		62			
		63			50mm diam. UPVC PN18 1mm machine slotted screen
SANDSTONE		64			
		65			Centraliser @ 65m
					Bottom end cap
		66			
COAL - A Seam Corrected to geophysics.					Bentonite seal
		67			
CARBONACEOUS SHALE					
		68			
SANDSTONE					
SANDSTONE		69			
SANDSTONE					
SANDSTONE		70			
		71			
		72			
		73			
		74			
		75			
COAL - B Seam Corrected to geophysics.		76			
		77			
		78			
SANDSTONE					
SANDSTONE		79			

Borehole Log: TAR016_CR

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 594956
Northing: 7395372
Ground Surface RL: 228.10
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 10/04/2008

Drilling Company: Phoenix Drilling Services
Date Installed: 27/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 39m
Total Depth: 85m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		80			
SANDSTONE Above description of TAR016_CR lithology descripted at time of drilling by IMC geologist B.Humphries.		81 82 83 84			
End of Drill Hole		85 86 87 88 89 90 91 92 93 94 95 96 97 98 99			

Borehole Log: TAR040_C

Project: Taroborah Coal Exploration Project
Location: Wilga Downs | **Converted by: Bonny O'Neal**

Easting: 6000263
Northing: 7396107
Ground Surface RL: 230.64
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 27/08/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 30/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 55m
Total Depth: 84.1m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			150mm steel lockable protective collar
SOIL		0			
SAND		1			50mm diam. casing UPVC PN18 blank 0-55m
SILTSTONE		2			175mm diam. casing UPVC PN9 0-55m
CLAYSTONE		3			
CLAYSTONE		4			
		5			Concrete seal
		6			
		7			
CLAYSTONE		8			
		9			
		10			
CLAYSTONE		11			
		12			10mm quartz, rounded, washed, gravel backfill
		13			
		14			
		15			
		16			
		17			
		18			
		19			

Borehole Log: TAR040_C

Project: Taroborah Coal Exploration Project
Location: Wilga Downs | **Converted by: Bonny O'Neal**

Easting: 6000263
Northing: 7396107
Ground Surface RL: 230.64
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 27/08/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 30/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 55m
Total Depth: 84.1m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		20, 21, 22			
CLAYSTONE		23, 24, 25, 26, 27, 28, 29, 30			
CLAYSTONE		31, 32			
SILTSTONE		33			
SILTSTONE		34, 35, 36, 37, 38, 39			

Borehole Log: TAR040_C

Project: Taroborah Coal Exploration Project
Location: Wilga Downs | **Converted by: Bonny O'Neal**

Easting: 6000263
Northing: 7396107
Ground Surface RL: 230.64
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 27/08/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 30/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 55m
Total Depth: 84.1m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		40			
SILTSTONE		41			
		42			
SILTSTONE		43			
		44			
		45			
		46			
					Standing water level; 46.52(mbgl) on 30/05/2008
		47			
SANDSTONE		48			
		49			
		50			
		51			
		52			Bentonite seal
		53			
		54			4mm quartz,rounded, washed, gravel pack
		55			50mm diam. UPVC PN18 1mm machine slotted screen
		56			Water quality tested during bore development
		57			EC = 1145 µS/cm TDS =800 mg/L Temp = 21.8 C pH = 8.11
		58			
		59			Bottom end cap

Borehole Log: TAR040_C

Project: Taroborah Coal Exploration Project
Location: Wilga Downs | **Converted by: Bonny O'Neal**

Easting: 6000263
Northing: 7396107
Ground Surface RL: 230.64
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 27/08/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 30/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 55m
Total Depth: 84.1m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
					Bottom end cap
SANDSTONE		60			Bentonite seal
COAL - A Seam Corrected to geophysics.		61			
SILTSTONE		62			
SANDSTONE		63 64 65			
SANDSTONE		66 67 68 69 70 71 72			
SANDSTONE		73 74			
COAL - B Seam Corrected to geophysics.		75 76 77			
SANDSTONE Lithology description from 0-59.61m taken from pilot hole TAR046. Lithology description from 59.61-84.1m described from TAR040_C core.		78 79			

Borehole Log: TAR040_C

Project: Taroborah Coal Exploration Project
Location: Wilga Downs | **Converted by: Bonny O'Neal**

Easting: 6000263
Northing: 7396107
Ground Surface RL: 230.64
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 27/08/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 30/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 7" 55m
Total Depth: 84.1m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		80			
		81			
		82			
		83			
		84			V-notch @ 84.1m = 0.458 L/s
End of Drill Hole		85			
		86			
		87			
		88			
		89			
		90			
		91			
		92			
		93			
		94			
		95			
		96			
		97			
		98			
		99			

Borehole Log: TAR053

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 595641
Northing: 7395113
Ground Surface RL: 213.827
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 01/11/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 29/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 5" 49m
Total Depth: 97m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			150mm steel lockable protective collar
SOIL		0			
CLAYSTONE		1			50mm diam. casing UPVC PN18 blank 0-55m
		2			175mm diam. casing UPVC PN9 0-55m
		3			
		4			
CLAYSTONE		5			Concrete seal
		6			
CLAYSTONE		7			
CLAYSTONE		8			
		9			
		10			
		11			
		12			10mm quartz, rounded, washed, gravel backfill
SILTSTONE		13			
CLAYSTONE		14			
		15			
CLAYSTONE		16			
CLAYSTONE		17			
SANDSTONE		18			
		19			

Borehole Log: TAR053

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 595641
Northing: 7395113
Ground Surface RL: 213.827
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 01/11/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 29/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 5" 49m
Total Depth: 97m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		20			
SANDSTONE		21			
SANDSTONE		22			
		23			
SANDSTONE		24			
CLAYSTONE		25			Standing water level; 24.98(mbgl) on 29/05/2008
		26			
		27			
		28			
		29			
SANDSTONE		30			
		31			
		32			
		33			
SILTSTONE		34			
		35			
		36			
		37			
		38			
		39			

Borehole Log: TAR053

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 595641
Northing: 7395113
Ground Surface RL: 213.827
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 01/11/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 29/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 5" 49m
Total Depth: 97m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		40, 41, 42			
SANDSTONE		43, 44			
CLAYSTONE		45			Bentonite seal
SANDSTONE		46, 47, 48, 49, 50			
		51			4mm quartz,rounded, washed, gravel pack
		52, 53			50mm diam. UPVC PN18 1mm machine slotted screen
		54			Water quality tested during bore development
		55, 56, 57, 58			EC = 953 µS/cm TDS =656 mg/L Temp = 24.6 C pH = 8.00
		59			Bottom end cap

Borehole Log: TAR053

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 595641
Northing: 7395113
Ground Surface RL: 213.827
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 01/11/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 29/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 5" 49m
Total Depth: 97m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		60			Bottom end cap
COAL - A Seam		61			Bentonite seal
CLAYSTONE		62			
		63			
		64			
		65			
		66			
SANDSTONE		67			
Above description of TAR053 lithology descripted at time of drilling by Resolve geologist MAM.		68			
		69			
		70			
		71			
		72			
		73			
		74			
		75			
		76			
		77			
		78			
		79			

Borehole Log: TAR053

Project: Taroborah Coal Exploration Project
Location: St Helens | **Converted by: Bonny O'Neal**

Easting: 595641
Northing: 7395113
Ground Surface RL: 213.827
Co-ord System: AGD84
Datum: AMG Zone 55
Date Drilled: 01/11/2006

Drilling Company: Phoenix Drilling Services
Date Installed: 29/05/2008
Hole Type: Cored
Hole Diameter: 150mm
Depth of Casing: 5" 49m
Total Depth: 97m

Lithological Description	Graphic Log	Depth	Well Design	Sample	Bore Construction and Drilling Details
		80			
		81			
		82			
		83			
		84			
		85			
		86			
		87			
		88			
		89			
		90			
		91			
		92			
		93			
		94			
		95			
		96			
		97			V-notch @ 97m = 2.55L/s
End of Drill Hole		98			
		99			

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MATRIX CONSULTING

IMC

Groundwater Monitoring Bore Conversion – Phase 2 Report for

TAROBORAH COAL EXPLORATION PROJECT

April 2009

IMC Consultants Pty Ltd

matrixplus

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Document History and Status

Issue	Revision	Issued to	Qty	Date	Reviewed by
1	1 (Draft)	Internal	1	31/03/2009	Neil Manewell
2	2 (Draft)	Internal	1	01/04/2009	Bonny O'Neal
3	3 (Final draft)	IMC	1	02/04/2009	Dave Thomas
4	4 (Final)				

Matrixplus Project Delivery System

Printed:	**2 April 2009**
Last saved:	**2 April 2009**
File Name:	**p:\projects\imc\imc_802_bore_conversions\wip\drafts\matrixplus taroborah 20090402 gw bore report phase 2 v1.0.doc**
Project Manager:	**Bonny O'Neal**
Name of Organisation:	**Matrixplus**
Name of Project:	**Groundwater Monitoring Bore Conversions – Phase 2**
Name of Document:	**Final draft**
Document Version:	**V 3.0**
Project Number:	**IMC802**

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APPENDIX

TABLES

FIGURES

1 INTRODUCTION

Matrixplus Consulting was commissioned by IMC Mining Solutions Pty Ltd (IMC) to supervise the conversion of exploration holes into groundwater monitoring bores to provide baseline groundwater data for the Taroborah Exploration Coal Project.

The Taroborah Coal Exploration Project is located approximately 16 km west of Emerald, along the Capricorn highway. The land use is divided into roughly two halves; the northern area is arable cropping land, and the southern area is grazing shrub land. The Taroborah Coal Exploration Project resource is currently undergoing feasibility studies to become an open cut and underground operation for the extraction and export of thermal coal.

Previously in 2008 three exploration holes were successfully converted into groundwater monitoring bores, this phase of conversions is apart of a continuing programme to install a groundwater monitoring network within and surrounding the Taroborah Coal Exploration Project area.

The expanded monitoring programme will assist in the determination of:

- the existing groundwater environment (i.e. aquifer/groundwater occurrence);
- baseline groundwater levels and groundwater quality data; and
- the characterisation of groundwater environment and its implication on mine development.

2 EXISTING GROUNDWATER ENVIRONMENT

2.1 GEOLOGY

The Taroborah Coal Exploration Project is located on the western extent of the Denison Trough and contains a considerable thickness of lower Permian sediments, unconformably overlain by Tertiary derived sediments and volcanic units. Permian coal seams are encountered at shallow depths in the southern area of the lease and deepen towards the north. The coal measures are compromised of a sandstone/coal sequence, with the regionally extensive Aldebaran Sandstone directly overlying the coal seams. Coal seams A and B are separated by an interburden of sandstone/siltstone interbedded with a carbonaceous mudstone unit. Resource drilling to date indicates average coal seam thicknesses of 1.16 m (A seam) and 2.97 m (B seam). Coal is low in volatile matter and is suitable for thermal export.

2.2 GROUNDWATER OCCURRENCE

Three distinct aquifers occur beneath the Taroborah Coal Exploration Project area:

- Tertiary basalt aquifer;
- Permian Aldebaran Sandstone; and
- Permian coal seams.

2.2.1 Tertiary basalt aquifer

The Tertiary basalt aquifer is unconfined to semi-confined and consists of multiple individual basalt flows separated by layers of clay (several metres thick). Groundwater typically occurs within the fractured and vesicular horizons of the basalt. This aquifer is heterogeneous and can have highly variable hydraulic properties within a proximal area.

The Tertiary Basalt aquifer receives groundwater recharge via rainfall percolation from overlying soil and clay units, as well as where the unit outcrops or subcrops.

2.2.2 Permian Aldebaran Sandstone aquifer

The principal aquifer within the Taroborah lease area and in the surrounding region is the Permian Aldebaran Sandstone. Exploration logs and viewed core samples indicate that the Aldebaran Sandstone is quartz-lithic, grain-supported, medium to coarse-grained with occasional slag layers of gravel (<1 cm sub-rounded).

The Aldebaran Sandstone aquifer contains both primary and secondary porosity, with groundwater contained within pore spaces and/or jointed/fractured sections.

Information to date suggests that the Aldebaran Sandstone aquifer can act as both a confined or unconfined (leaky) aquifer depending on its contact type with the underlying coal seams. Where the roof contact is erosional (i.e. high energy) groundwater will leak from the overlying Aldebaran Sandstone aquifer into the coal seam. In contrast, where a siltstone and mudstone gradational contact directly overlies the coal seams, vertical hydraulic connection between the Aldebaran Sandstone aquifer and coal seams is limited.

The Aldebaran Sandstone aquifer may receive groundwater recharge where the unit outcrops or subcrops (i.e. the sandstone ridge on the eastern extent of EPC1011). The Aldebaran Sandstone aquifer may also receive recharge via rainfall percolation from overlying units.

A search of the DNRW (Queensland Department of Natural Resources and Water) database within EPC1011 and its surrounds indicates that the Aldebaran Sandstone aquifer is the principal aquifer utilised by landholders for domestic, irrigation and stock water supply.

2.2.3 Permian coal seams

Coal seams are found to directly underlie the Aldebaran Sandstone; exploration drilling is known to intersected groundwater within these coal seams with groundwater present within cleated and fractured sections of the seam.

Anecdotal evidence suggests that a portion of regional landholder production bores may be screened across both the Aldebaran Sandstone and coal. Further investigation is required to delineate if the sandstone and coal are indeed one aquifer or exhibit individual groundwater characteristics, i.e. different water levels and hydrodynamics.

2.3 GROUNDWATER INFLOWS AND ESTIMATE YIELDS

Groundwater flows have previously been estimated during exploration drilling with V-notch tests conducted when groundwater was intersected. **Table 2-1** shows that groundwater was intercepted in the majority of the latest exploration holes. Lithology logs suggest that groundwater was primarily found in the overlying Aldebaran Sandstone unit, within the coal seams and to a lesser extend within the Tertiary basalt.

V-notch results varied from 0.2 L/s to 7.0 L/s during the last round of exploration drilling with flow rates depending on the unit's structure and permeability (i.e. primary porosity cf. secondary porosity).

Table 2-1 Exploration hole groundwater flow – V-notch tests

Bore ID	Upper V-notch test			Lower V-notch test		
	Depth (m)	Height (mm)	Flow (L/s)	Depth (m)	Height (mm)	Flow (L/s)
TAR174	150.4	42	0.5			
TAR175	12	55	1	54	120	7
TAR176	21	55	1	97	96	4
TAR177	21	105	5	95	163	7
TAR182	183.2	80	2.5			
TAR183	23	42	0.5	55	42	0.5
TAR184	212.6	105	5			
TAR185	63	55	1			
TAR186	81	55	1			
TAR187	179.1	55	1			
TAR188	91	55	1	129	42	0.5
TAR189	87	30	0.2			
TAR190	137	42	0.5			

3 BORE CONVERSION METHODOLOGY

In order to provide baseline groundwater data for the Taroborah Exploration Coal Project, groundwater monitoring bores are required. Rather than drilling specific groundwater bores exploration holes were converted.

Exploration holes chosen to be converted were based primarily on bore location and groundwater intersections within the Tertiary basalt and the Permian Aldebaran Sandstone. Holes selected for conversion were made following the review of:

- preliminary mine plans;
- exploration logs;
- information on each exploration hole, such as drilling techniques and hole diameter;
- V-notch test;
- geophysics; and
- groundwater quality data.

Exploration holes TAR170_C, TAR175_C, TAR176_C, TAR177_C and TAR189_C were selected as potential conversion holes as they intersected the Tertiary basalt and Aldebaran Sandstone aquifers. These holes are in positions outside the possible footprint of the mine and as such, these bores have the potential to provide long-term data.

3.1 QUEENSLAND LEGISLATION AND PERMITTING

Declared under the Water Act 2000, the Taroborah Project area is located within the Highlands subartesian zone. According to Schedule 11 of the Water Regulation 2002, neither a water licence nor a development permit is required to construct (i.e. convert) monitoring bores within the Highlands subartesian declared zone. Nevertheless, DNRW was made aware of the programme.

3.2 BORE CONSTRUCTION

Exploration drilling was completed prior to the bore conversion programme. Exploration drilling was undertaken to determine the lithological sequence, depth and quality of coal. Upper Tertiary sediments were cased-off to maintain hole stability. Once water was struck, V-notch readings were taken. Groundwater quality was measured where water was intersected. Physico-chemical parameters of pH and EC were measured.

Suitable exploration holes were converted into groundwater monitoring bores. Bores were constructed in accordance with the requirements of the Water Act 2000 and with the requirements of the 'Minimum Construction Requirements for Water Bores in Australia, Edition 2, September 2003'. Bore construction was conducted by a Class 2 Water Bore Driller and supervised by a Matrixplus Consulting hydrogeologist.

Exploration holes were cased with 6" steel casing in order to prevent collapse during drilling. This casing was pulled up above the target aquifer in order to allow the inflow of groundwater into the bore screen. Each hole was cemented from total depth to within close proximity of the base of the target aquifer in order to isolate the target aquifer and seal overlying and underlying aquifers. Holes were then backfilled where a bentonite seal was emplaced to isolate the aquifer, backfill consisted of 10 mm quartz, washed, rounded gravel.

Bores were cased using Class 18, 50 mm-diameter uPVC. The screen comprised a length of Class 18, 50 mm-diameter uPVC, with 1 mm machine cut slots. Slotted sections were either 3 m or 6 m in length depending on the thickness of the aquifer. The joints of the uPVC casing were glued and screwed together to strengthen the welds. The casing was lowered and suspended in the hole and the gravel pack was emplaced in the annulus between the monitoring bore casing and the drill hole wall. The gravel pack, consisting of 3 mm quartz, washed, rounded gravel, was inserted into the annulus to

fill the void from the bentonite seal to a minimum of 2 m above the top of the screened interval. The gravel pack was covered with bentonite pellets to create a minimum seal of 1 m to seal all overlying aquifers. The annulus was then backfilled with 10 mm gravel to 6m below ground surface. The top 6 m of annulus was then grouted up to the ground surface to provide a surface seal.

Lockable steel covers were installed over each bore and concreted in place.

Minimum bore construction standards require that monitoring bores are developed after installation, this involves cleaning the aquifer of fine lithological material (e.g. sand) and drilling products. The process involves running 25 mm PVC pipe inside the monitoring bore casing and pumping air into the aquifer to lift the dirty water from the hole. Groundwater quality was measured periodically during this process. After three times the volume of the water column had been lifted from the hole and three water quality samples showed proximal results, development ceased.

3.3 SAFETY MANAGEMENT

All work was conducted in accordance with the Coal Mine Health and Safety Act (1999) and the Coal Mine Health and Safety Regulations (2001).

Matrixplus Consulting and Drill Torque Drilling Services each prepared their own safety management plans, and safe operating procedures for specific activities to be undertaken during the course of the programme.

Prior to the commencement of the programme, Drill Torque Drilling Services were issued with Technical Specifications describing tasks to be carried out during bore conversions. All procedures were based on 'Minimum Construction Requirements for Water Bores in Australia, Edition 2, September 2003'.

3.4 ENVIRONMENTAL IMPACT

At cessation of work at each site, drilling contractors and Matrixplus Consulting ensured that all materials not present at the site prior to the drilling programme were removed; all plastics, paper and steel were disposed of suitably.

4 RESULTS

Due to accessibility difficulties, as well as the inability to pull casing; holes TAR_170, TAR175_C and TAR189_C were unable to be converted. At the conclusion of the programme only two exploration holes, were successfully converted to groundwater monitoring bores; TAR176_C and TAR177_C. The locations of these bores along with previously converted monitoring bores are illustrated in **Figure 4-1**. Data collected during the conversion of these bores is shown in **Table 4-1** and **Table 4-2** with bore logs in **Appendix A**.

Table 4-1 Groundwater monitoring bore details summary

Bore ID	Total depth (m)	Aquifer	Screened interval (m)	Standing water level (mbgl)	Yield (L/s)
TAR176_C	168	Sandstone	97-103	12.40	7.0
TAR177_C	202	Basalt	18-21	17.96	5.0

Table 4-2 Groundwater monitoring bore water quality

Bore ID	Water quality			
	EC (µS/cm)	TDS (ppm)	pH	Temp (°C)
TAR176_C	1020	697	8.21	27.4
TAR177_C	1216	836	8.26	27.6

4.1 OBSERVATIONS AND CONSTRUCTION NOTES

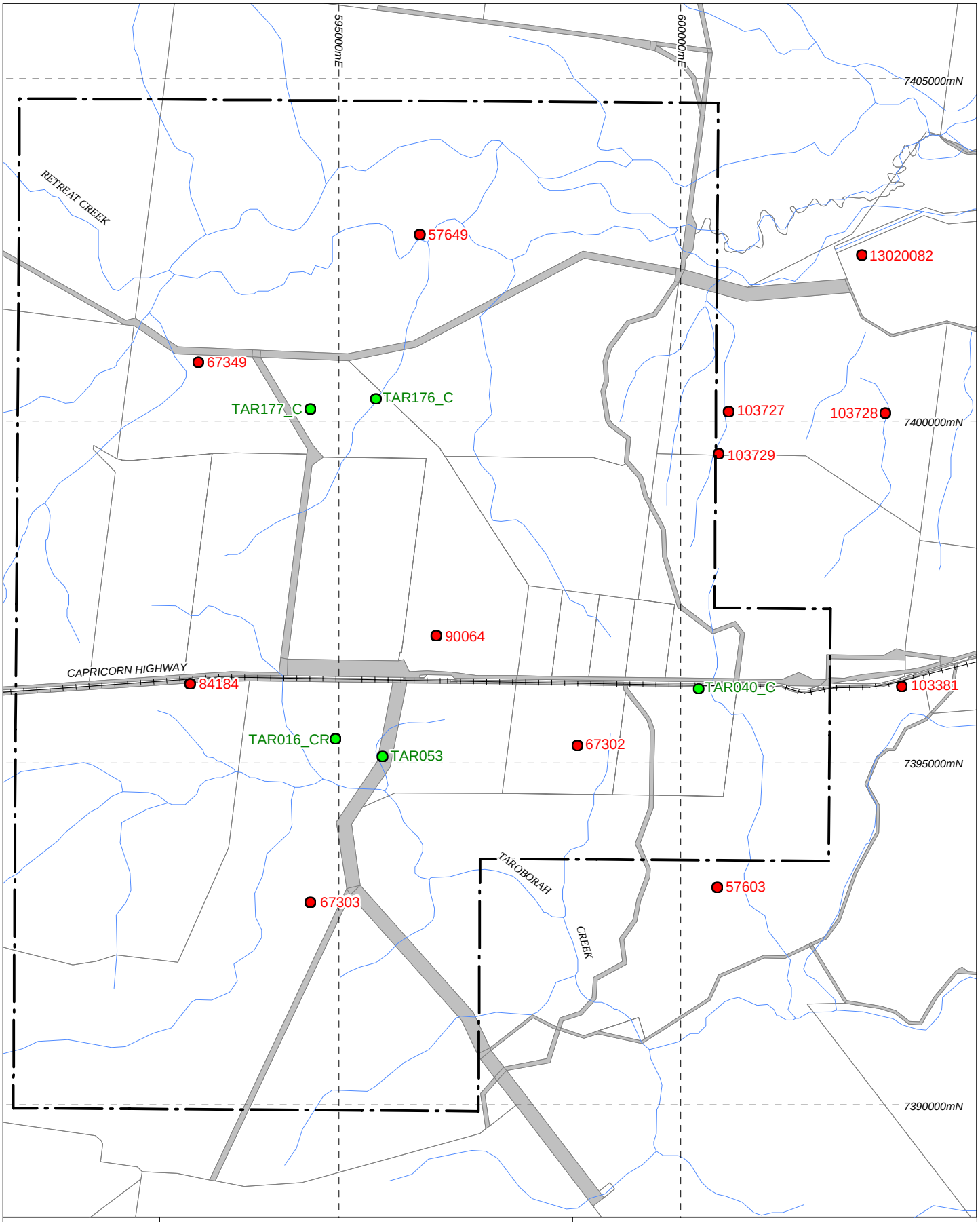
4.1.1 TAR176_C

The target Permian aquifer was located below the steel casing and therefore, casing did not need to be removed. Bentonite was used to seal off the upper sandstone aquifer 1 m below the base of the steel casing. Standing water levels dropped from 11.54 mbgl (open hole) to 12.40 mbgl (within the bore) due to the loss of pressure from the influence of the upper sandstone aquifer at 21 m.

4.1.2 TAR177_C

Steel casing was initially pulled to 15 m, above the designed upper bentonite seal. Problems associated with collapses at 23-36 m resulted in casing being removed entirely so that the collapsed hole could be cleaned out with a 7” blade. Once cleared, the hole was then gravel packed from the cement seal to the target aquifer. Standing water levels rose from 27.90 mbgl (open hole) to 17.96 mbgl during the construction of the monitoring bore. This is due to the exclusion of the lower sandstone high yielding aquifer bore and the isolation of the shallower Tertiary basalt aquifer at 21 m.

V-notch readings taken during the exploration drilling in this hole suggest that groundwater yields within the basalt aquifer are high (5 L/s). Upon bore completion, standing water levels observed are indicative of a lower yielding aquifer. This likely due to data entry error upon exploration drilling V-notch testing and the possibility that groundwater may also be present within the underlying sands (i.e. Tertiary undefined) unit.



matrixplus

PRINTED: 31/03/09

LEGEND

- Road / Track
- Watercourse
- Railway
- EPC 1011
- Groundwater Monitoring Bore
- DNRW Registered Bore

Taroborah Coal Exploration Project

Monitoring Bore Network

0 2 4
Kilometres
Scale: 1:75,000 at A4.

N

MGA Zone 55 GDA94
Source: © Geoscience Australia 2008

Figure 4-1

P:\Projects\IMC\MapInfo\Workspaces\IMC0802_M001A.wor

5 DISCUSSION

Two exploration holes within EPC1011 were successfully converted into groundwater monitoring bores as part of Phase 2 conversions. The converted monitoring bores were screened within the Tertiary basalt and Permian Aldebaran Sandstone aquifers which overlie the Taroborah project area target coal seam(s). Groundwater within the Aldebaran Sandstone aquifer was found to be of good quality and utilised by surrounding landholders for stock and domestic use. Groundwater within the Tertiary basalt aquifer is of similar quality to the Permian Aldebaran Sandstone aquifer. However due to the basalt aquifers isolated occurrence it is not as widely utilised by proximal landholders.

The two newly converted monitoring bore will incorporated into the current monitoring programme. The purpose of the expanded groundwater monitoring bore network is to assist in characterising the existing groundwater environment at the Taroborah Project area by providing background groundwater level and quality data. Matrixplus Consulting recommends monthly measurements of water levels within each monitoring bore and annual water quality analysis of physico-chemical parameters (pH, EC, temperature and Total Dissolved Solids (TDS).

APPENDIX A

BOREHOLE LITHOLOGY AND CONSTRUCTION LOGS

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			4" steel lockable protective collar
SOIL Dark brown and decomposed.		0			
		1			0-61m 8" hammer
		2			Cement seal
		3			
		4			150mm diam. steel casing 0-61m
SANDSTONE Light white to brown, weathered and fine to medium grained.		5			
		6			
		7			
		8			50mm diam. casing uPVC PN18 0-97m
		9			
		10			
		11			
		12			SWL @ 18/3/09 = 12.40m (RL)
		13			
		14			
		15			Cave-in
		16			
		17			10mm quartz rounded washed gravel backfill
		18			
		19			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		20			
SANDSTONE Light brown to orange, weathered and very coarse grained.		21			Groundwater inflow @ 21m V-notch reading @ 21m = 1 L/s
		22			
		23			
		24			
		25			
		26			
		27			
		28			
		29			
		30			
CLAY Mottled and weathered.		31			
SANDSTONE Light grey, weathered and medium grained.		32			
		33			
		34			
		35			
		36			
SANDSTONE Light grey to brown, weathered and fine to medium grained.		37			
		38			
		39			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
Base of weathering		40, 41, 42, 43, 44, 45, 46, 47			
SANDSTONE Light grey, fresh and very fine to fine grained.		48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		60			
		61			61-145m 5 3/4" blade
		62			Bentonite seal
		63			
		64			
		65			
		66			
		67			
		68			
		69			
		70			
		71			
		72			
		73			
SANDSTONE Light grey, fresh and fine grained.		74			
		75			
		76			
		77			
		78			
		79			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		80			
		81			
		82			
		83			
		84			
		85			
		86			
		87			
		88			
		89			
		90			
		91			
		92			
		93			
		94			Bentonite seal
		95			
		96			5mm quartz rounded washed gravel pack
		97			Groundwater inflow @ 97m V-notch reading @ 97m = 7 L/s
		98			
		99			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		100			97-103m PVC 1mm machine slotted screen
		101			
		102			
		103			
		104			
		105			Bentonite seal
		106			
		107			Groundwater quality @ 105m Electrical Conductivity = 1020 µS/cm Total Dissolved Solids = 697.4 ppm pH = 8.21 Temperature = 27.4 °C
		108			
		109			
		110			10mm quartz rounded washed gravel backfill
		111			
		112			
		113			
		114			
		115			
		116			
		117			
		118			
		119			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		120			
		121			
		122			
		123			
		124			
		125			
		126			
		127			
		128			
		129			
		130			
		131			
		132			
		133			
		134			
		135			Cement seal
		136			
		137			
		138			
		139			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		140, 141, 142, 143			
SANDSTONE Light grey, fresh and medium to coarse grained.		144			
SANDSTONE Light grey, fresh, fine to medium grained, interbedded with carbonaceous mudstone.		145, 146, 147, 148			145-162m 5 1/2" cored
COAL Black, fresh and dull with minor black bright bands (65%) (A SEAM).		149			
SANDSTONE Light grey, fresh, fine to medium grained, interbedded with carbonaceous mudstone		150, 151, 152			
CARBONACEOUS MUDSTONE Dark grey and fresh.		153			
SANDSTONE Light grey, fresh, fine to medium grained and interbedded with carbonaceous mudstone.		154, 155, 156			
COAL Black, fresh, dull with minor bright bands (95%), (B SEAM 1).		157			
COAL Black, fresh, laminations, pyritic and contains a thin band of carbonaceous mudstone (B SEAM 1).		158, 159			

Borehole Log: TAR176_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 595435
Northing: 7400168
Collar RL: 208m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 15/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 104m
Total Depth: 168.2m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
MUDSTONE Mottled, fresh and interbedded with carbonaceous mudstone. **CARBONACEOUS MUDSTONE** Black and fresh. **COAL** Black, fresh and dull with common bright bands (B SEAM 2). **SANDSTONE** Light grey, fresh, fine grained and interbedded wtih carbonaceous mudstone. Above description of TAR176_C lithology descripted at time of drilling by IMC geologist.		160 161 162 163 164 165 166 167 168			162-168.2m 4 3/4" blade
End of Drill Hole		169 170 171 172 173 174 175 176 177 178 179			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			4" steel lockable protective collar
BASALT Light brown to grey and weathered.		0			
		1			0-88.5m 8" hammer
		2			Cement seal
		3			
		4			
		5			
		6			
		7			
		8			50mm diam. casing UPVC PN18 0-17.5m
		9			
		10			
		11			
		12			10mm quartz washed gravel backfill
BASALT Dark grey and fresh.		13			
		14			
		15			Bentonite seal
		16			
		17			
		18			SWL @ 18/3/09 = 17.96m (RL)
		19			50mm PVC 1mm machine slotted screen

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		20			3mm quartz rounded washed gravel pack
		21			Groundwater inflow @ 21m
		22			V-notch reading @ 21m = 5 L/s
CLAY Mottled and weathered.		23			Bentonite seal
		24			Groundwater quality @ 21m Electrical Conductivity = 1216 µS/cm Total Dissolved Solids = 836.1 ppm pH = 8.26 Temperature (C) 27.9 °C
		25			
		26			
		27			
		28			
		29			
		30			
		31			
		32			
SAND Light brown to orange and weathered.		33			
		34			
		35			
		36			
		37			
SAND Mottled, weathered, and interbedded with clay.		38			
		39			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		40			
		41			
		42			Cement seal
		43			
		44			
		45			
		46			
		47			
		48			
		49			
		50			
		51			
		52			
		53			
		54			
SAND Light brown, weathered and contains pebbles.		55			
		56			
		57			
		58			
		59			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		60			
SAND Mottled, weathered and interbedded with clay.		61 62 63 64 65 66 67 68			
CLAYSTONE Dark brown, weathered, laminated and contains cabonaceous material.		69 70 71 72			
CLAYSTONE Dark brown, weathered and interbedded with sandstone.		73 74 75 76 77 78 79			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		80			
		81			
		82			
		83			
		84			
		85			
		86			
		87			
		88			88.5-159m 5 3/4" blade
		89			
SANDSTONE Light grey, fresh, fine to medium grained and interbedded with clay.		90			
		91			
		92			
		93			
		94			
		95			Groundwater inflow @ 95m
		96			V-notch reading @ 95m = 7 L/s
		97			
SANDSTONE Light grey and fresh.		98			
		99			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		120			
SANDSTONE Light grey, fresh and very coarse grained.		121 122			
SANDSTONE Light grey, fresh, fine to medium grained and interbedded with carbonaceous mudstone.		123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		140			
		141			
		142			
		143			
		144			
		145			
		146			
		147			
		148			
		149			
		150			
		151			
		152			
		153			
SANDSTONE Mottled, fresh, fine grained and interbedded with carbonaceous mudstone.		154			
		155			
		156			
		157			
		158			
		159			159-191m 5 1/2" cored

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
CARBONACEOUS MUDSTONE Mottled, fresh and interbedded with sandstone.		160 161 162			
SANDSTONE Light grey, fresh, very fine grained and interbedded with carbonaceous mudstone and clay.		163 164 165 166 167			
SANDSTONE Mottled, fresh, fine to medium grained and interbedded with peblle conglomerate and carbonaceous mudstone.		168 169			
SANDSTONE Light grey, fresh, fine to medium grained and contains pebbles.		170 171 172			
SANDSTONE Light grey, fresh, fine to medium grained and contains carbonaceous material.		173 174 175 176			
SANDSTONE Light grey, fresh, fine to medium grained with interbedded coal layers, mudstone and pebble conglomerate.		177 178 179			

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		180			
SANDSTONE Light grey, fresh and medium to very coarse grained.		181			
COAL Dark black, fresh and dull with bright bands (80%) (A SEAM).		182			
SANDSTONE Light grey, fresh, very fine grained with interbedded coal.		183			
SANDSTONE Light grey, fresh, fine grained with interbedded carbonaceous mudstone.		184			
SANDSTONE Loight grey, fresh, fine to medium grained with interbedded coal and carbonaceous mudstone.		185 186 187 188			
SANDSTONE Light grey, fresh, medium to very coarse grained and contains pebbles.		189			
COAL Black, fresh and pyritic (B SEAM 1).		190			
COAL Black, fresh, dull, pyritic and contains thin layer of carbonaceous mudstone (B SEAM 1).		191 192			191.5-202.55m 4 3/4" blade
MUDSTONE Mottled, fresh and is interbedded with coal.		193			
COAL Black, fresh, pyritic and interbedded with carbonaceous mudstone (B SEAM 2).		194			
SANDSTONE Light grey, fresh, fine to medium grained and interbedded with carbonaceous mudstone.		195 196			
Above description of TAR177_C lithology descripted at time of drilling by IMC geologist.		197 198 199			NB: Cave in at 23-36 m during conversion resulted in the removal of 6" steel casing and cleanout of hole using a 7" blade.

Borehole Log: TAR177_C

Project: Taroborah Groundwater Monitoring Bore Conversion Programme
Location: Iona

Easting: 594474
Northing: 7400013
Collar RL: 227m
Co-ord System: Zone 55
Datum: AGD84
Date Converted: 12/3/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 8"
Depth of Casing: 17.5m
Total Depth: 202.55m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		200 201 202			
End of Drill Hole		203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219			

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Groundwater Monitoring Bore Conversion – Phase 3 Report

TAROBORAH COAL EXPLORATION PROJECT

October 2009

IMC Consultants Pty Ltd

matrixplus

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Document History and Status

Issue	Revision	Issued to	Qty	Date	Reviewed by
1	1 (Draft)	Internal	1	9/10/2009	Bonny O'Neal
2	2 (Final)	IMC	1	9/10/2009	Dave Thomas

Matrixplus Project Delivery System

Printed:	**9 October 2009**
Last saved:	**9 October 2009**
File Name:	**p:\projects\imc\imc_802_bore_conversions\wip\drafts\matrixplus taroborah 20090402 gw bore report phase 2 v1.0.doc**
Project Manager:	**Bonny O'Neal**
Name of Organisation:	**Matrixplus**
Name of Project:	**Groundwater Monitoring Bore Conversions – Phase 3**
Name of Document:	**Final**
Document Version:	**V 2.0**
Project Number:	**IMC802**

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FIGURES

APPENDIX

1 INTRODUCTION

Matrixplus was commissioned by IMC Mining Solutions Pty Ltd (IMC) to supervise the conversion of exploration holes into groundwater monitoring bores to provide baseline groundwater data for the Taroborah Exploration Coal Project.

The Taroborah Coal Exploration Project is located approximately 16 km west of Emerald, along the Capricorn highway. The land use is divided into roughly two halves; the northern area is arable cropping land, and the southern area is grazing shrub land. The Taroborah Coal Exploration Project resource is currently undergoing feasibility studies to become an open cut and underground operation for the extraction and export of thermal coal.

Previously in 2008 and 2009 five exploration holes were successfully converted into groundwater monitoring bores, this phase of conversions is a part of a continuing program to install a groundwater monitoring network within and surrounding the Taroborah Coal Exploration Project area.

The expanded monitoring programme will assist in the determination of:

- the existing groundwater environment (i.e. aquifer/groundwater occurrence);
- baseline groundwater levels and groundwater quality data; and
- the characterisation of groundwater environment and its implication on mine development.

2 BORE CONSTRUCTION

Exploration drilling was completed prior to the bore conversion program. Exploration drilling was undertaken to determine the lithological sequence, depth and quality of coal. Upper Tertiary sediments were cased-off to maintain hole stability. Once water was struck, V-notch readings were taken. Physico-chemical parameters of pH and EC were measured where groundwater was intersected.

Suitable exploration holes were converted into groundwater monitoring bores. Bores were constructed in accordance with the requirements of the Water Act 2000 and with the requirements of the 'Minimum Construction Requirements for Water Bores in Australia, Edition 2, September 2003'. Bore construction was conducted by a Class 2 Water Bore Driller and supervised by a Matrixplus hydrogeologist.

Exploration holes were cased with 5-6" steel casing in order to prevent collapse during drilling. This casing was pulled up above the target aquifer in order to allow the inflow of groundwater into the bore screen. Each hole was cemented from total depth to within close proximity of the base of the target aquifer in order to isolate the target aquifer and seal overlying and underlying aquifers. Holes were then backfilled where a bentonite seal was emplaced to isolate the aquifer, backfill consisted of 10 mm quartz, washed, rounded gravel.

Bores were cased using Class 18, 50 mm-diameter uPVC. The screen comprised a length of Class 18, 50 mm-diameter uPVC, with 1 mm machine cut slots. Slotted sections were either 3 m or 6 m in length depending on the thickness of the aquifer. The joints of the uPVC casing were glued and screwed together to strengthen the welds. The casing was lowered and suspended in the hole and the gravel pack was emplaced in the annulus between the monitoring bore casing and the drill hole wall. The gravel pack, consisting of 3 mm quartz, washed, rounded gravel, was inserted into the annulus to fill the void from the bentonite seal to a minimum of 2 m above the top of the screened interval. The gravel pack was covered with bentonite pellets to create a minimum seal of 1 m to seal all overlying aquifers. The annulus was then backfilled with 10 mm gravel to 6m below ground surface. The top 6 m of annulus was then grouted up to the ground surface to provide a surface seal.

Lockable steel covers were installed over each bore and concreted in place.

Minimum bore construction standards require that monitoring bores are developed after installation, this involves cleaning the aquifer of fine lithological material (e.g. sand) and drilling products. The process involves running 25 mm PVC pipe inside the monitoring bore casing and pumping air into the aquifer to lift the dirty water from the hole. Groundwater quality was measured periodically during this process. After three times the volume of the water column had been lifted from the hole and three water quality samples showed proximal results, development ceased. Water samples were collected from each hole and analysed for major anion and cations.

3 RESULTS

At the conclusion of the third phase of the program two exploration holes, TAR189_C and TAR249_C were successfully converted to groundwater monitoring bores. The locations of these bores along with previously converted monitoring bores are illustrated in **Figure 3-1**. Data collected during the conversion of these bores is shown in **Table 3-1** and **Table 3-2** with bore logs in **Appendix A**.

Table 3-1 Groundwater monitoring bore details summary

Bore ID	Total depth (m)	Aquifer	Screened interval (m)	Standing water level (mbgl)	Yield (L/s)
TAR189_C	164	Aldebaran MCG Sandstone	137.5 – 140.5	45.55	0.5
TAR249_C	110.4	Aldebaran MCG Sandstone	84.5 – 87.5	41.55	No recorded

MCG = Medium to coarse grained/pebble

Table 3-2 Groundwater monitoring bore water quality

Parameter	Units	ANZECC guidelines (1)			Drinking water guidelines (2,4)	Bore	
		Aquatic ecosystem (3)	Irrigation	Stock water		TAR189	TAR249
Alkalinity	mg/L	N/a	N/a	N/a	N/a	24	385
TDS	mg/L	150	highly dependent on crop type and soils	**4,000** (beef), 2,500 (dairy), 5,000 (sheep), 4,000 horses), 4,000 (pigs), 2,000 (poultry)	500	1,690	898
pH	-	N/a	N/a	N/a	**6.5 to 8.5**	8.22	8.03
Sulphate	mg/L	N/a	N/a	**1000**	250	92	76
Chloride	mg/L	N/a	175 (sensitive crops) to >**700** (tolerant crops)	N/a	250	**903**	167
Calcium	mg/L	N/a	N/a	**1,000**	N/a	128	50
Magnesium	mg/L	N/a	N/a	**2,000**	N/a	21	80
Sodium	mg/L	N/a	115 (sensitive crops) to >460 (tolerant crops)	N/a	**180**	**494**	128
Potassium	mg/L	N/a	N/a	N/a	N/a	28	12

The water quality data indicates that groundwater extracted from the medium to coarse grained aquifer on site is typically neutral to slightly alkaline, with an average pH of 8.13. Total dissolved solids ranges from 898 to 1,690 mg/L. This indicates that the salinity of groundwater is suitable for stock water and mining purposes.

Sulphate levels within the aquifer appear to be well below ANZECC guidelines, and can be considered low compared to the level of sulphur within the A and B coal seams. Levels of chloride and sodium in TAR189 appear to be elevated above ANZECC guidelines. This could however be anomalous due to the introduction of drilling fluids and hydration suppression methods during drilling, but should be explored further with continued water quality analysis across the project site.

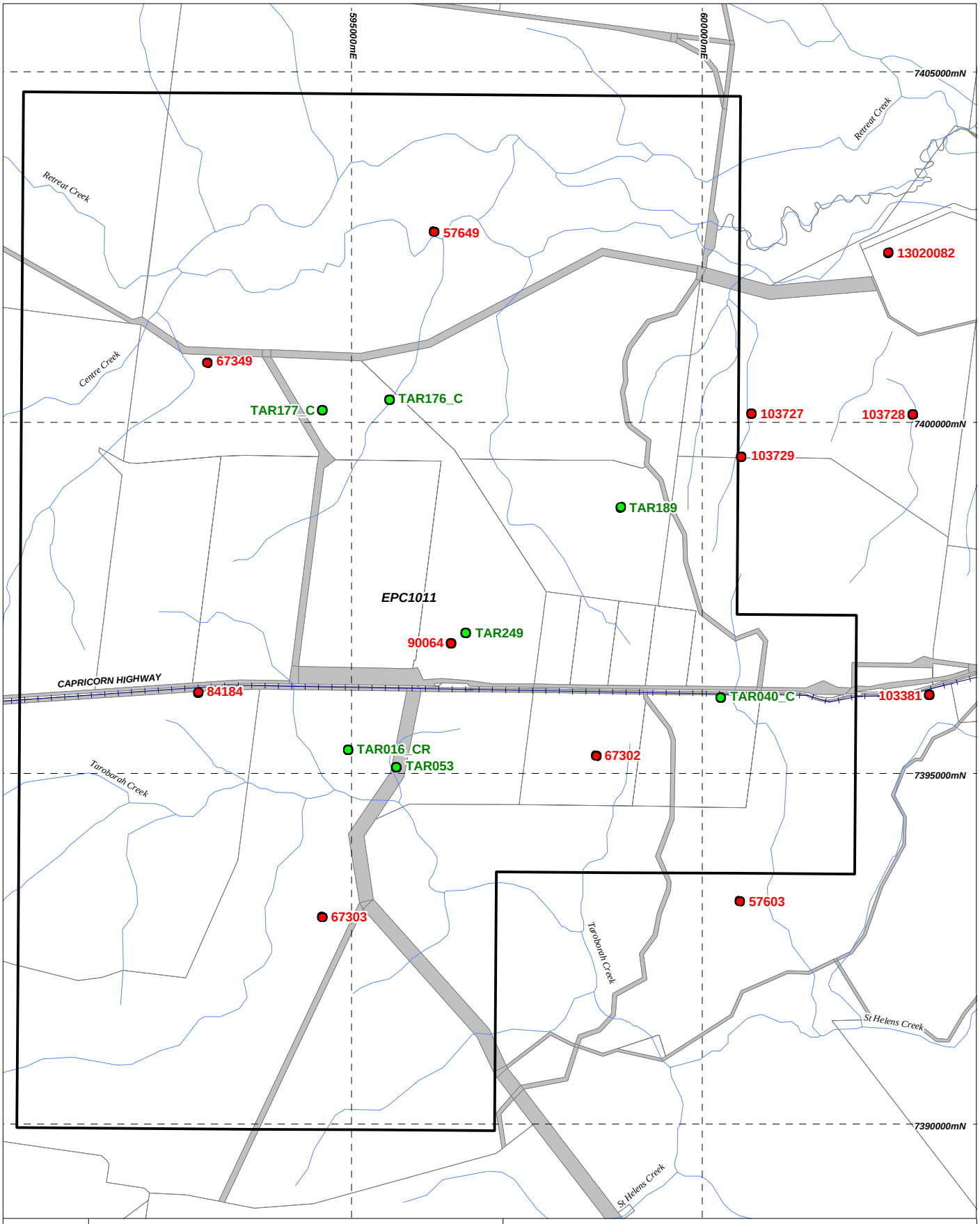
3.1 Observations and Construction Notes

3.1.1 TAR189_C

The target Permian aquifer was located below the steel casing and therefore, casing did not need to be removed. Bentonite was used to seal off the upper sandstone aquifer 1 m below the base of the steel casing. Standing water levels dropped from 45.08 mbgl (open hole) to 45.99 mbgl (within the bore) due to the loss of pressure from the influence of the upper sandstone aquifer at 87 m.

3.1.2 TAR249_C

The target Permian aquifer was located below the steel casing and therefore, casing did not need to be removed. Bentonite was used to seal off the upper sandstone aquifer 1 m below the base of the steel casing. Standing water levels dropped from 39.50 mbgl (open hole) to 47.55 mbgl during the construction of the monitoring bore. This is due to the exclusion of possible upper water bearing units, and the possibility of the exclusion of the groundwater influence from the underlying coal seams.



LEGEND

- Project tenement
- Property boundary
- Road casement
- Railway
- Watercourse

Proposed Infrastructure

- DERM registered bore
- Monitoring bore

Data Source:
Topography (250k) - Geoscience Australia. Infrastructure, Tenement - EEDI.

Taroborah Coal Exploration Project

Surrounding groundwater user and monitoring bore locations

0 2 4

Kilometres

Scale: 1:75,000 (A4)

09/10/2009

Datum: GDA94
Projection: MGA55

FIGURE 3-1

P:\Projects\IMC\MapInfo\Workspaces\IMC0802_M003B.wor

4 DISCUSSION

Two exploration holes within EPC1011 were successfully converted into groundwater monitoring bores as part of Phase 3 conversions. The converted monitoring bores were screened within the Permian Aldebaran Sandstone medium to coarse grained aquifers which overlie the project area target coal seam(s). Groundwater within the Aldebaran Sandstone aquifer was found to be of good quality and utilised by surrounding landholders for stock and domestic use.

The two newly converted monitoring bore will incorporated into the current monitoring program. The purpose of the expanded groundwater monitoring bore network is to assist in characterising the existing groundwater environment at the project area by providing background groundwater levels and quality data. Data loggers have been installed in the five other monitoring bores with data loggers to be installed in TAR189_C and TAR249_C in late October. Matrixplus recommends annual water quality analysis of physico-chemical parameters (pH, EC, temperature and Total Dissolved Solids (TDS) and major cation and anions within all monitoring bores.

Appendix A

Borehole Lithology and Construction Logs

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			4" steel lockable cover
CLAYSTONE Off-White to pink and weathered.		0			
		1			Cement seal
		2			
		3			
		4			
		5			150mm steel casing 0-97m
		6			
		7			
		8			50mm diam. casing UPVC PN18 0-137.5m
		9			
		10			
		11			
		12			
		13			10mm quartz rounded backfill
		14			
		15			
		16			Cave-in
		17			
		18			
		19			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		20			
		21			
		22			
		23			
		24			
		25			
		26			
		27			
		28			
		29			
		30			
		31			
		32			
		33			
		34			
		35			
		36			
		37			
		38			
		39			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		40			
		41			
		42			
		43			
		44			
		45			
		46			SWL @ 4/09/09 = 45.99 m (RL)
		47			
		48			
		49			
		50			
		51			
		52			
		53			
		54			
		55			
		56			
		57			
SILTSTONE Grey and fresh.		58			
		59			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		60			
		61			
		62			
		63			
		64			
		65			
		66			
		67			
		68			
		69			
		70			
		71			
		72			
		73			
		74			
		75			
		76			
		77			
		78			
		79			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		80			
		81			
		82			
		83			
		84			
SANDSTONE Grey, fresh, fine to medium grained and contains quartz lithics.		85			
		86			
		87			Groundwater @ 87m V-notch reading @ 87m = 0.2 L/s
		88			
		89			
		90			
		91			
		92			
		93			
		94			
		95			
		96			
		97			Bentonite seal
SILTSTONE Grey and fresh.		98			
		99			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114			
SANDSTONE Grey, fresh and fine to medium grained.		115, 116, 117, 118, 119			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134			
CLAYSTONE Light orange and weathered.		135			Groundwater @ 135m V-notch reading @ 135m = 0.5 L/s
SANDSTONE Grey, fresh, fine to medium grained and contains pebbles.		136, 137, 138, 139			Bentonite seal 50mm PVC 1mm machine slotted screen

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		140, 141, 142			5mm quartz rounded washed gravel pack
COAL Black, fresh, pyritic and dull with minor bright bands (A SEAM).		143, 144			Bentonite seal 10mm quartz rounded backfill
CARBONACEOUS MUDSTONE Grey and fresh.		145			
SANDSTONE Grey, fresh, very fine grained and interbedded with mudstone.		146			Groundwater quality @ 142 m Total Dissolved Solids = 1,690 ppm pH = 8.41 Temperature = 25.9 °C
SANDSTONE Grey, fresh, medium grained, pyritic, pebbley and interbedded with mudstone.		147, 148, 149, 150			Cement seal
MUDSTONE Dark grey, fresh with interbedded sandstone.		151			
COAL Black, fresh, dull with minor bright bands and pyritic (B SEAM).		152, 153, 154			
CARBONACEOUS MUDSTONE Dark grey and fresh.		155			
SANDSTONE Grey, fresh, fine to medium grained and interbedded with carbonaceous mudstone.		156, 157			
Above description of TAR189_C lithology descripted at time of drilling by IMC geologist B.Humphries.		158, 159			

Borehole Log: TAR189_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 598843
Northing: 7398818
Collar RL: 236.76 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 2/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 150 mm
Depth of Casing: 141.5 m
Total Depth: 164 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		160 161 162 163 164			
End of Drill Hole		165 166 167 168 169 170 171 172 173 174 175 176 177 178 179			

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
Ground Surface		-1			4" steel lockable cover
SOIL Dark brown and weathered.		0			
CLAY Brown and weathered.		1			Cement seal
BASALT Green, weathered and contains brown clay lenses.		2			
		3			
		4			
		5			140mm steel casing 0-75m
		6			
		7			
		8			50mm diam. casing UPVC PN18 0-88.5m
		9			
		10			
		11			
		12			
		13			10mm quartz rounded backfill
		14			
		15			
		16			Cave-in
		17			
		18			
		19			

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		20, 21, 22, 23, 24, 25			
BASALT Green and weathered.		26, 27, 28			
CLAY Light grey.		29, 30, 31, 32, 33			
SAND Brown, medium grained, weathered and contains brown clay lenses.		34, 35, 36, 37, 38, 39			

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		40, 41, 42, 43, 44, 45, 46, 47, 48, 49			SWL @ 4/09/09 = 47.55 m (RL)
SANDSTONE Grey, fine grained, weathered and interbedded with siltstone.		50, 51, 52, 53, 54, 55, 56, 57, 58, 59			

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
		60			
		61			
		62			
		63			
		64			
		65			
		66			
		67			
		68			
		69			
		70			
		71			
		72			
		73			
		74			
		75			Bentonite seal
		76			
		77			
		78			
		79			

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
SANDSTONE Grey, fine to medium grained and fresh.		80 81 82			10mm quartz rounded backfill
SANDSTONE Grey, medium to coarse gained, fresh and contains pebbles.		83 84 85 86 87 88 89 90			Bentonite seal 50mm PVC 1mm machine slotted screen 5mm quartz rounded washed gravel pack Groundwater quality @ 88.5 m Total Dissolved Solids = 898 ppm pH = 8.03 Temperature = 20.9°C
COAL Black and fresh (A SEAM).		91 92			
SILTSTONE Grey and fresh.		93			
SILTSTONE Grey, fresh and interbedded with fine grained sandstone.		94			
SANDSTONE Brown, medium to coarse grained and fresh.		95 96 97 98 99			Cement seal

Borehole Log: TAR249_C

Project: Taroborah Groundwater Monitoring Bore Conversion Program
Location: Iona

Easting: 596635
Northing: 7397010
Collar RL: 234.00 mAHD
Co-ord System: Zone 55
Datum: GDA94
Date Converted: 3/09/2009

Drilling Company: Drill Torque Drilling
Converted by: Neil Manewell
Hole Diameter: 140 mm
Depth of Casing: 88.5 m
Total Depth: 110.4 m

Lithological Description	Graphic Log	Depth	Bore Design	Sample	Bore Construction and Drilling Details
COAL Black and fresh (B SEAM).		100 101 102 103			
SILTSTONE Grey and fresh.					
SANDSTONE Grey, fine to medium grained and fresh.		104 105 106 107 108 109 110			
End of Drill Hole		111 112 113 114 115 116 117 118 119			

matrixplus

www.matrixplus.com.au

Drill Hole Rehabilitation Report for Taroborah EPC 1011

IMC Mining Solutions Pty Ltd

November 2010

MET Serve

MINING & ENERGY TECHNICAL SERVICES PTY LTD

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Document History and Status

Issue	Revision	Issued to	Qty	Date	Reviewed by
1	1 (Draft)	Internal	1	17-11-10	Dave Moss
2	2 (Draft)				
3	3 (Final draft)	IMC	1		Dave Thomas
4	4 (Final)				

MET Serve Project Delivery System

Printed:	**23 November 2010**
Last saved:	**23 November 2010**
File Name:	**\\tsclient\s\projects\im001 taroborah rehab audit\wip\taroborah report\metserve**_taraborah_drillhole_rehab_rep_20101123.docx
Project Manager:	**Dave Moss**
Name of Organisation:	**MET Serve**
Name of Project:	**Taroborah Drill Hole Audit**
Name of Document:	**Drill Hole Rehabilitation Report Taroborah EPC1011**
Document Version:	**Draft**
Project Number:	**IM001**

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TABLE OF CONTENTS

APPENDIX

FIGURES

TABLES

1 INTRODUCTION

1.1 TAROBORAH PROJECT DESCRIPTION

The Taroborah project site on EPC 1011 is located approximately 20 km to the west of Emerald in Central Queensland, refer to **Figure 1-1**. Exploration activities undertaken on site comprised the drilling of 302 drill holes, as indicated on the drill hole location map **Figure 1-2**. **Table 1-1** below summarises project specific details.

Table 1-1 Taroborah Project Details

Environmental Authority (EA) holder's details:	Shenhuo International Group Pty Ltd 27 Cooksley Street, Hamilton, QLD. 4007. Tim Southwell (Project Manager) – (07) 4982 2568
Environmental Authority (EA) number:	MIN100468206
Tenure number(s) and termination date(s):	EPC 1011

1.2 STUDY PURPOSE

The purpose of this study is to describe the status of the rehabilitation of the 302 drill holes on site in a drill hole rehabilitation report. Further exploration drilling has recently taken place on the EPC and a number of disturbance categories such as tracks are yet to be rehabilitated. Therefore this report is not categorised as a Final Rehabilitation Report (FRR) for the EPC, but can be used for compilation of an FRR for the EPC once this additional disturbance has been rehabilitated in accordance with the Guideline; *Final rehabilitation report and audit statement for non-standard exploration and mineral development projects 2008,* issued by the Environmental Protection Agency (now Department of Environment and Resource Management (DERM)).

The land use on EPC 1011 includes; cropping land, improved pasture grazing with cattle, and undisturbed native bushland.

Drill pads are often the most visible evidence of mineral exploration activity and if allowed to remain un-rehabilitated, can affect ecosystem function and land use capabilities. The main goal in environmental management of exploration activities is to minimise, or prevent unnecessary impacts and rehabilitate sites where disturbance cannot be avoided.

1.3 STUDY METHODOLOGY

A site survey of EPC 1011 was undertaken by MET Serve over nine days from the 16th to the 24th of August 2010, covering a survey area of approximately 5,343 Ha.

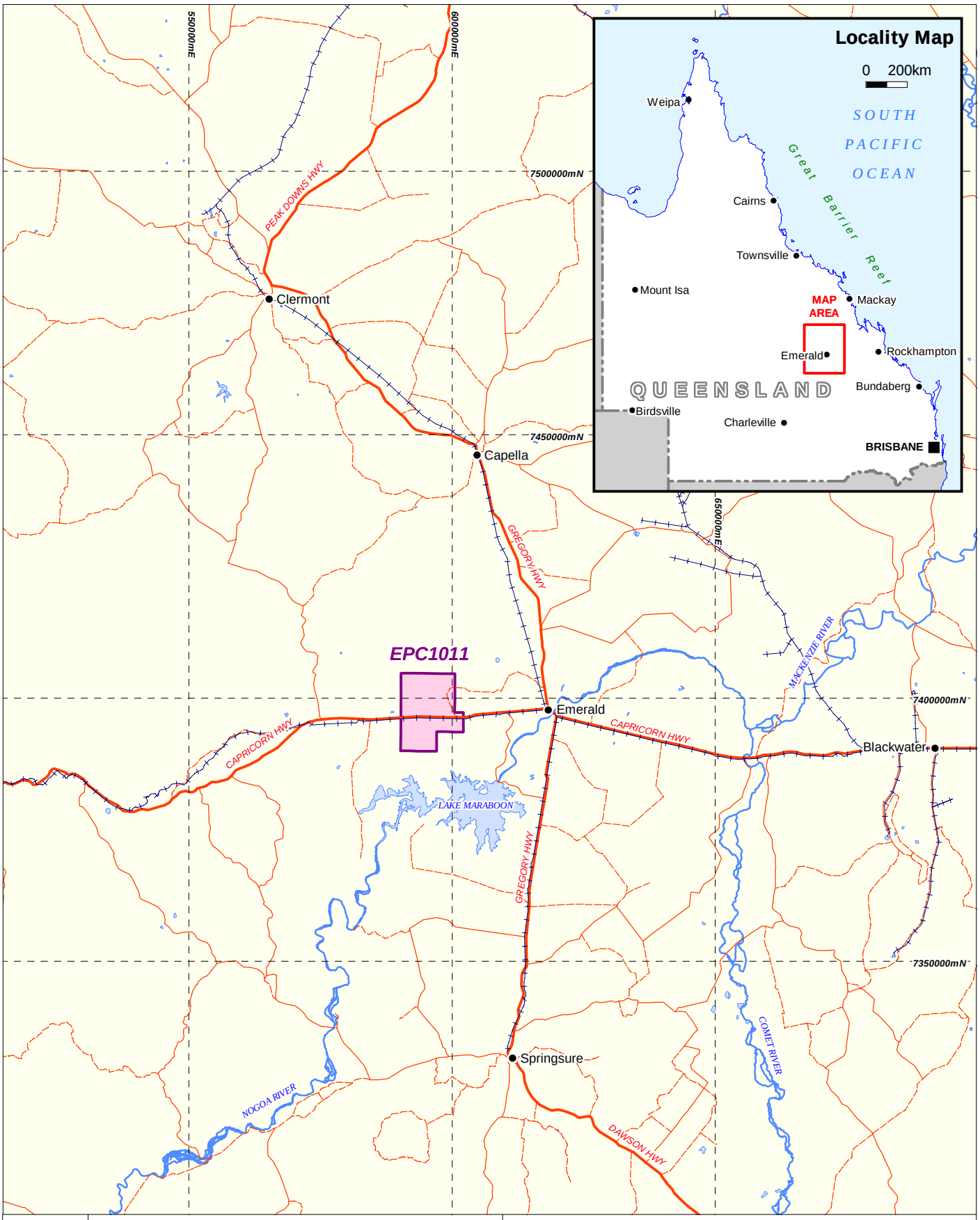
IMC Mining Solutions provided GPS coordinates for all drill holes, and these were located using a handheld GPS and map. Once located each drill hole was surveyed, photographed and its condition described and assessed against rehabilitation requirements detailed in the EA and Environmental Management Plan (EMP) issued for the EPC.

Five key indicators of rehabilitation success were assessed for each drillhole comprising:

1. **Casing visible**. If casing is visible at the surface it indicates that the drill hole requires capping;
2. **Sump present**. Where sumps are present they require backfilling and revegetation;
3. **Unvegetated area visible**. These were areas of bare earth that require revegetation with appropriate species;
4. **Excavated material present**. Such material requires backfilling or spreading, then revegetation; and

5. **Refuse material present**. Refuse typically includes stakes, pipes and general rubbish, which needs to be removed from site.

Where a drill hole was deemed to require rehabilitation, the area to be rehabilitated was estimated in square metres.



MET SERVE

LEGEND

- Project tenement
- Principal road
- Road (sealed)
- Road (unsealed)
- Railway
- River
- Town

No Window

Data Source:
Topography - Geoscience Australia. Tenement - Minserve.

Drill hole rehabilitation report
Taroborah EPC1011

Site Location Plan

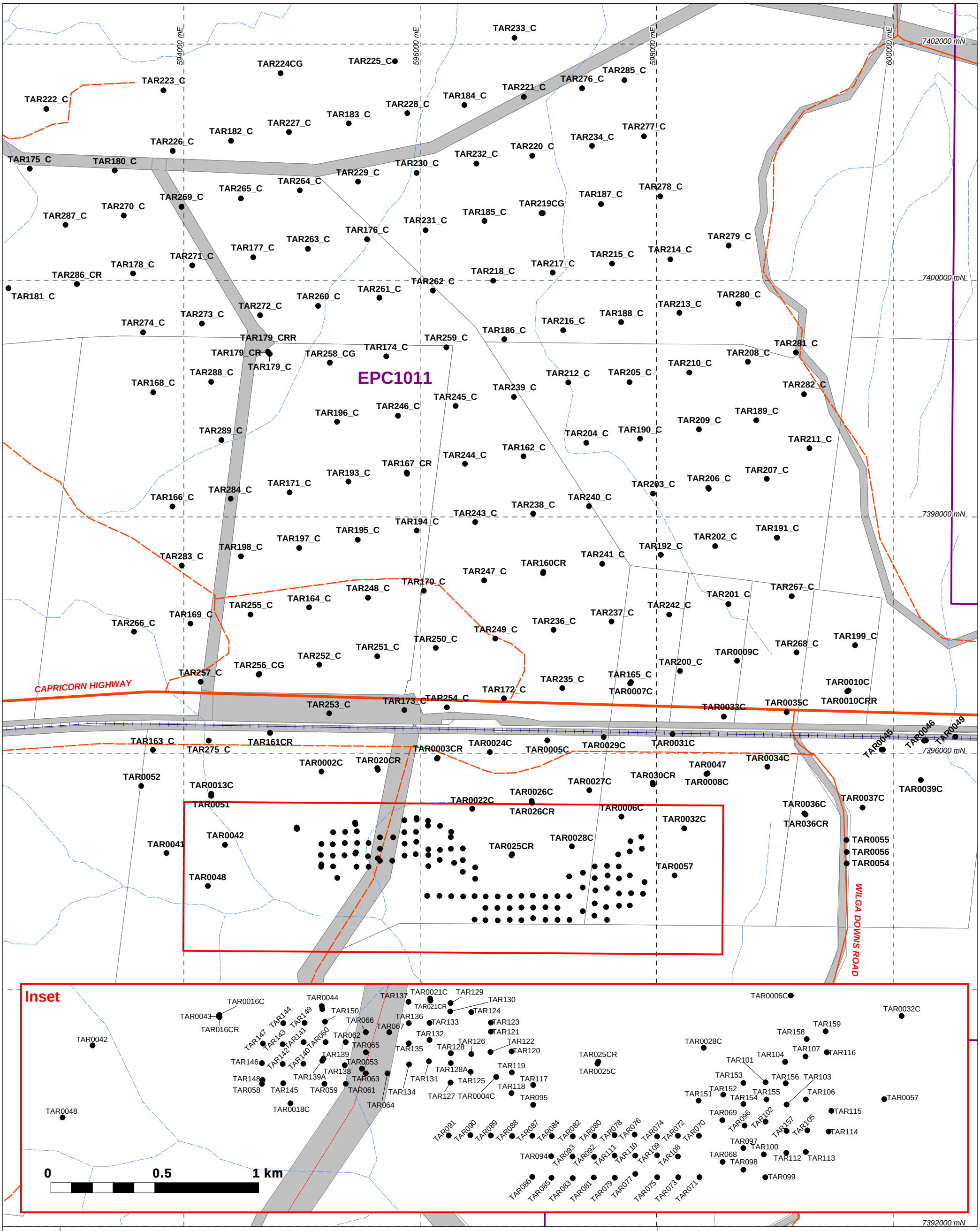
0 20 40
Kilometres
Scale: 1:1,000,000 (A4)

18/11/2010

Datum: GDA94
Projection: MGA55

FIGURE 1-1

S:\Projects\1M001 Taroborah rehab audit_MapInfo\Workspaces\M001_M002A.wor



MET SERVE

LEGEND

- Project tenement
- Property boundary
- Road casement
- Principal road
- Road (sealed)
- Road (unsealed)
- Railway
- Watercourse
- Drill hole

Data Source:
Topography (250k) - Geoscience Australia. Infrastructure, Tenement - EEDI.
Cadastral (Emerald 2005) - DERM.

Drill hole rehabilitation report Taroborah EPC1011

Drill hole Location Plan

0 1
Kilometres
Scale: 1:30,000 (A3)

18/11/2010

Datum: GDA94
Projection: MGA??

FIGURE 1-2

S:\Projects\M001 Taroborah rehab audit_MapInfo\Workspaces\M001_M001B.wor

2 SURVEY FINDINGS AND STATUS REPORT

A total of 302 exploration drill holes were surveyed. Of those 267 were found to be adequately rehabilitated and 35 drill holes were found to require further rehabilitation work. The drill holes requiring further rehabilitation work are described in **Table 2-1** below, and the holes where rehabilitation is complete are described in **Table A-1** in **Appendix A.** Photos from all the drill hole sites have been provided in an enclosed CD.

The typical rehabilitation issues for the 35 holes requiring further work include:

- holes that have only recently been drilled and thus require all rehabilitation works to be undertaken upon the completion of operations;
- holes that have not been adequately capped, and soil subsidence has occurred around the casing;
- sites where stockpiled soil and/or sumps remain. These sites require backfilling of the sumps, the respreading of topsoil, and revegetation;
- sites where refuse such as PVC pipe and old stakes need to be removed as required by the EA; and
- sites with bare ground that requires revegetation. In many of these cases cattle have stripped the sown grass bare, and consideration should be given to installation of measures to exclude cattle from areas being rehabilitated.

Following rehabilitation of these sites it is recommended that they are monitored again in 12 – 18 months to assess the success of the revegetation.

Table 2-1 Drill hole sites which require action - rehabilitation or waste removal

Drill Hole Number	Photo Number	GDA 94 Easting	GDA 94 Northing	Casing visible	Sump present	Unvege-tated area visible	Excava-ted material	Refuse material present	Approximate area to be rehabilitated	Comments and recommended actions
TAR0002C	306 - 310	595162.98	7395845.43	Y	N	Y	N	N	40 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
*TAR0013C TAR0051	214 - 220	594232.55 594231.91	7395657.94 7395640.52	Y	N	N	N	N	1 m^2	Dirt has collapsed into the drill hole to approximately 1 - 2 m deep around the casing. Needs to be re-filled and compacted. Blue flagging tape was used to mark the area.
*TAR0020C TAR020CR	302 - 305	595635.89 595640.55	7395875.41 7395862.43	Y	N	Y	Y	N	40 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
TAR0022C	319 & 320	596439.94	7395531.21	Y	N	Y	Y	N	30 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
TAR0024C	313 - 316	596589.71	7396010.90	Y	N	Y	N	N	40 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
TAR0027C	423 - 426	597429.06	7395687.49	Y	N	Y	N	N	40 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
TAR0028C	351 & 352	597283.04	7395214.24	Y	N	Y	N	N	40 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
*TAR0030C TAR030CR	457 - 459	597966.40 597967.71	7395752.02 7395737.72	Y	N	Y	Y	N	30 m^2	Only recently drilled with casing and sump visible. This site should be rehabilitated following the completion of works.
TAR0034C	433 - 438	598936.81	7395886.07	Y	N	Y	Y	N	30 m^2	Only recently drilled with casing, sump and drill chips visible. This site should be rehabilitated following the completion of works.
TAR0042	210 - 213	594347.50	7395225.10	Y	Y	Y	Y	N	30 m^2	The casing, sump, and some stockpiled topsoil were visible. The casing needs to be capped and this site requires the topsoil to be backfilled into the sump followed by re-vegetation.
TAR0048	207 - 209	594203.10	7394878.60	Y	Y	Y	Y	N	30 m^2	The casing, sump, and some stockpiled topsoil were visible. The casing needs to be capped and this site requires the topsoil to be backfilled into the sump followed by re-vegetation.
TAR068	387 & 388	597373.67	7394666	Y	N	Y	N	N	10 m^2	The casing was visible so needs to be capped and covered with topsoil and the area of disturbance needs to be re-vegetated.
TAR113	484 - 486	597773.57	7394713.74	N	N	N	N	Y	0 m^2	PVC pipe to be removed from this site - No rehabilitation action required
TAR144	238 & 239	595263.46	7395332.37	N	N	N	N	Y	0 m^2	PVC pipe to be removed from this site - No rehabilitation action required
TAR149	240 & 241	595365.12	7395334.19	N	N	N	N	Y	0 m^2	Stakes to be removed from this site - No rehabilitation action required
TAR166_C	130 & 131	593903.09	7398087.72	N	N	Y	N	N	30 m^2	Grass has started to grow however the ground was still quite bare. It is recommended that this site is re-vegetated.
TAR175_C	14 – 16	592698.46	7400945.62	N	N	Y	N	N	10 m^2	Drill chips on this site in a mound; it needs to be spread out.

Drill Hole Number	Photo Number	GDA 94 Easting	GDA 94 Northing	Casing visible	Sump present	Unvege-tated area visible	Excava-ted material	Refuse material present	Approximate area to be rehabilitated	Comments and recommended actions
TAR181_C	46 - 50	592516.692	7399934.658	N	N	Y	N	Y	10 m^2	Waste to be removed from this site and area revegetated.
TAR199_C	528 – 532	599676.56	7396915.124	Y	N	Y	N	N	20 m^2	The casing needs to be capped and some topsoil will be required to cover the casing. Bare area to be revegetated.
TAR202_C	554 -556	598493.458	7397752.729	N	N	Y	Y	Y	10 m^2	PVC pipe to be removed from this site. Bare ground to be revegetated.
TAR205_C	573 – 575	597771.197	7399141.11	N	N	Y	N	N	30 m^2	Grass has started to grow however the ground was still quite bare. It is recommended that this site is re-vegetated.
TAR254_C	187 – 192	596225.184	7396390.344	N	N	Y	N	N	10 m^2	Soil has collapsed creating a dip which may indicate failure of drill hole capping. Capping should be checked and replaced if necessary, then re-topsoiled and revegetated.
*TAR258_C TAR258_CG	3 & 4	595235.81 595235.58	7399305.3 7399305.375	N	N	Y	N	N	10 m^2	Bare ground should be re-vegetated. Two holes in one location
TAR263_C	8 & 9	595050.882	7400269.18	N	N	Y	N	N	10 m^2	Bare ground should be re-vegetated.
TAR264_C	53 & 54	594981.011	7400762.626	N	N	Y	N	N	30 m^2	Bare ground should be re-vegetated.
TAR265_C	10 & 11	594482.149	7400695.947	N	N	Y	N	N	20 m^2	Bare ground should be re-vegetated.
TAR268_C	519 - 521	599181.536	7396854.464	N	N	N	N	Y	0 m^2	Steel pipe to be removed from this site - No rehabilitation action required
TAR270_C	19 - 23	593493.048	7400551.243	N	N	Y	N	N	20 m^2	Bare ground should be re-vegetated. Parthenium weed species present at this site. It is recommended that these species are removed and replaced with native grass seeds.
TAR272_C	40 & 41	594646.375	7399706.287	N	N	Y	N	N	10 m^2	Bare ground should be re-vegetated. Parthenium weed species present at this site. It is recommended that these species are removed and replaced with native grass seeds.
TAR274_C	28 & 29	593656.212	7399561.462	N	N	Y	N	N	40 m^2	Bare ground should be re-vegetated. Parthenium weed species present at this site. It is recommended that these species are removed and replaced with native grass seeds.
TAR281_C	533 & 534	599177.154	7399390.893	N	N	Y	N	N	40 m^2	Bare ground should be re-vegetated.
TAR286_CR (IMC Drill Hole ref: 09-31)	44 & 45	593095.311	7399971.278	N	N	Y	N	N	30 m^2	Bare ground should be re-vegetated. Parthenium weed species present at this site.

* Includes sites where more than one drill hole is located on one drill pad.

2.1 ASSESSMENT AGAINST REGULATORY REQUIREMENTS

The rehabilitation of the EPC drill holes has been assessed against relevant regulatory requirements prescribed in the EM Plan in **Table 2-2** and the conditions of the EA in **Table 2-3**. Only requirements that relate to rehabilitation which could be readily observed in a field survey following the completion of rehabilitation works have been assessed here.

Table 2-2 EM Plan commitments relevant to rehabilitation

EM Plan Commitment	Assessment	Commitment satisfied or not satisfied	Comments
Nature Conservation: All exploration drill sites will, as far as practicable, be located in disturbed, non-remnant areas with scattered isolated trees and regrowth areas. All care will be taken to ensure all disturbances within the exploration area will be kept to a minimum.	From the field investigation conducted in mid-August 2010, it was observed that the majority of drill sites were located in disturbed, non-remnant areas. However, there were a number of sites located in timbered areas where some clearing would have been required.	Yes	
Land: The environmental protection objectives for land include; ensuring a stable land form with no visible active erosion and returning the land to a similar suitability which existed prior to the exploration works, or, to an agreed alternative use(s).	Based on the field assessment conducted, the land uses across the Taroborah site included a mixture of cropping land, grazing pasture and timbered areas. Generally, it was evident that the rehabilitation efforts were satisfactory in returning the land to the land use which existed prior to the exploration works.	Yes, except where noted.	Limited vegetation re-growth was observed at a number of sites listed in **Table 2**. It is recommended that further efforts are concentrated on re-vegetating these drill sites.
Rehabilitation and Decommissioning: Return the land to a state similar in appearance and utility to that which existed prior to the disturbance from the Taroborah Exploration Project.	The land appeared to be in a similar state to that which would have existed prior to the disturbance resulting from the Taroborah Exploration Project. Drill sites which were located in cropping areas had reverted back to cropping land, and similarly for pasture land.	Yes, except where noted.	As above
Waste: All solid waste will be removed from site on a daily basis to a Licensed General Waste Facility.	Only nine of the 302 drill sites surveyed had some waste present that should be collected. Mostly it was extra casing or site markers (stakes) left at these sites.	Yes, except where noted.	There are a number of sites listed in **Table 2-1** at which casing/drilling waste, stakes and/or general waste should be removed.
Cultural Heritage: Cultural heritage surveys will be completed for all drill sites and access routes through appointed Surveyors from the Gurang Land Council (standard survey agreement applies). All proposed drillhole sites and access tracks will be surveyed and approved.	The Cultural Heritage database has highlighted two significant areas within EPC 1011, none closer than 2.7 km to the nearest proposed drill site or access route. No evidence of artefacts or other items of cultural heritage was observed.	Yes	

Table 2-3 Conditions of the Environmental Authority relevant to rehabilitation

Conditions of the EA	Assessment	Condition satisfied or not satisfied	Comments
C2 - Erosion and Sediment Control: The holder of the EA must design, install and maintain adequate: - Banks and/or diversion drains to minimise the potential for storm water runoff to enter disturbed areas; and - Erosion and sediment controls wherever necessary to prevent erosion of disturbed areas and sedimentation of any waters.	Diversion drains were noted at a couple of the recent drill sites, however as the majority of drill holes had been rehabilitated, diversion drains and/or banks were not generally observed. Similarly, evidence of erosion and/or sediment build up was generally not observed across the Taroborah site as the majority of drill sites were rehabilitated adequately.	Yes	
E1 - Waste Management: The holder of the EA must not: - Dispose of general waste on the mining tenement; or - Directly or indirectly release waste from the project area to any waters or the bed or banks of any waters.	Only nine of the 302 drill sites surveyed had some waste present that should be collected. Mostly it was extra casing or site markers (stakes) left at these sites.	Yes, except where noted.	There are a number of sites listed in **Table 2-1** at which casing/drilling waste, stakes and/or general waste should be removed.
F1 - Land Disturbance: The holder of the EA must ensure that: - The area and duration of disturbance to land and vegetation is minimized; - Not more than 1000 m^3 can be disturbed at any one location, excluding campsites; and - A total of not more than 1.3 hectares is disturbed within the Category B Endangered Regional Ecosystems (EREs).	Based on the field assessment conducted; the cleared, disturbed areas associated with the drill hole sites were minimised as much as possible. Furthermore, the disturbed areas were well below 1000 m^3 at all locations across the site and it appeared that much less than 1.3 hectares were disturbed in the Category B ERE.	Yes	
F2 - Topsoil and Overburden Management: The holder of the EA must: - Ensure that topsoil is removed and stockpiled prior to carrying out any mining activity; and - Prevent or minimise the mixing and erosion of topsoil and overburden stockpiles.	Topsoil was observed to be respread at all drill sites surveyed except 4 sites as noted.	Yes, except where noted.	There are a number of sites where stockpiled topsoil is still present, as listed in **Table 2-1**. It is recommended that topsoil is respread and re-vegetated at these sites.
F3 - Endangered Regional Ecosystems: The holder of the EA must not carry out activities in a category A ERE. Activities involving machinery must not be carried out within 1 km of a Category A ERE.	No drillholes were observed within 1 km of a Category A ERE.	Yes	

Conditions of the EA	Assessment	Condition satisfied or not satisfied	Comments
F4 - The holder of the EA must implement the following measures to limit disturbance within a Category B ERE: - Drill site areas must not exceed 500 m^2; - Drill holes must not exceed 200 mm in diameter; - The construction of sumps within the ERE will not exceed 10 m^2; - Topsoil stripping must be limited to the sump area of 10 m^2; - Disturbance must be minimised and mature tree clearance should be avoided; and - The administering authority must be notified of any exploration activities, beyond the access tracks to and exploration boreholes identified as TAR0001_C to TAR0045, within any Category B ERE and the buffer zones, at least 14 days prior to any disturbance.	Based on the observations made during the field survey these conditions were complied with.	Yes	
F7 - Rehabilitation: The holder of the EA must: - Rehabilitate areas disturbed by mining activities to a stable landform similar to that of surrounding undisturbed areas; - Complete the rehabilitation processes on all areas disturbed by mining activities, apart from those areas currently being utilised for mining activities; - Complete the rehabilitation processes in riverine areas as soon as practical and prior to the onset of the wet season; and - Complete the rehabilitation processes for all other areas on the mining tenement as soon as practical and at least within six months of the completion of works in those areas.	Generally, the majority of drill hole sites had been rehabilitated to a stable landform similar to that of the surrounding undisturbed areas.	Yes	
F8: The holder of the EA must backfill all excavations, drill holes or sampling sites as soon as practical following the completion of exploration activities, unless drill holes or sampling sites are to remain after the completion of exploration activities, by agreement with the land owner.	Most excavations and drill holes have been backfilled, except where noted.	Yes, except where noted in **Table 2-1**.	

Conditions of the EA	Assessment	Condition satisfied or not satisfied	Comments
F9 - Revegetation: The holder of the EA must: Spread seeds or plant species that will promote vegetation of a similar species and density of cover to that of the surrounding undisturbed areas or vegetation that is appropriate for providing erosion control and stabilisation of the disturbed areas. To revegetate disturbed areas the following measures or similar measures can be used: - For areas which have become compacted during the project, break up the soil surface to a depth that is suitable for establishing vegetation; - Spread stockpiled topsoil over disturbed areas to a depth that is suitable as a rooting medium for the revegetation process; - Provide suitable nutrient conditions for planting by using fertiliser if necessary; - Collect and store native seeds to be used in rehabilitation; - Plant native species endemic to the area and location in the landscape (e.g. if clearing has occurred in a riverine area, revegetate the disturbed area using local riverine species); and - Vegetation used to provide erosion protection and stabilise disturbed areas in the short term should be comprised of sterile, short-lived species (e.g. a cover crop). However, the long term aim of revegetating any disturbed area is to establish a stable vegetation community that is similar to that of the surrounding undisturbed areas or endemic species.	The majority of drill sites have been revegetated adequately with the exception of some sites which comprise bare ground or weed species. The suggested measures in condition F9 should be adhered to in order to promote vegetation growth and weed management at the sites which require it.	Yes, except where noted in **Table 2-1**.	It is recommended that any drill sites which require any sort of rehabilitation action, whether it is addition of topsoil or removal of waste be assessed again in 12 – 18 months' time.
G2 - The holder of the EA must ensure: - All marker pegs are marked with contrasting colour so as to be clearly visible; - All marker pegs are removed from the tenement at the completion of exploration activities; and - All permanent markers, concrete and / or steel plates are installed at ground level and made safe.	Generally marker pegs were not observed at most sites.	Yes, except where noted.	There are a number of sites listed in **Table 2-1** at which marker pegs were observed. These should be removed from site.
G3 - The holder of the EA must decommission all non-artesian drill holes, apart from those still required for monitoring purposes as soon as practical, but no later than 6 months after the hole was drilled by undertaking the following actions: - Where practical dispose of all unused drill chips to the hole or to a sump pit; - Cap the hole at a depth that is appropriate for the previous land use of the area (unless the land owner stipulates a future use which requires the cap to be placed deeper); and - Backfill the hole above the cap with soil or material similar to the surrounding soil or material.	All non-artesian drill holes constructed as part of the 2006, 2007, 2008 and 2009 programs that were not maintained for monitoring purposes were decommissioned. Almost all holes appeared to have been adequately capped and backfilled.	Yes, except where noted.	There are a number of sites listed in **Table 2-1** where holes have not been capped and/or adequately backfilled.

2.2 LANDHOLDER/LANDOWNER ISSUES

A list of the properties underlying the EPC and the relevant landowners is presented in **Table 2-4**. During the field investigation conducted in mid-August 2010 discussions were held with the majority of landholders/landowners. No issues were raised or observed that were of significance for the rehabilitation of the drill hole sites.

Table 2-4 Properties Surveyed and Lot and Plan numbers

Owner of Property	Property area	Lot and Plan
Patricia & Stanley Knight	1897 Ha	13 RP881318 – Free Hold (FH) 14 RP881318 – FH 15 PLA4029 – FH
Col Fernie	627 Ha	4 PT352 – Land Lease (LL)
John & Gary Walters	519 Ha	20 DSN377 - FH
Kenneth Anthony	506 Ha	126 PT372 - FH
Lester Matheson	62 Ha	23 DN40176 - FH
Michael Walther	64 Ha	24 DN40201 - FH
Shirley Nixon	1668 Ha	76 PT372 - FH

2.3 CONTAMINATED LAND ASSESSMENT

There were no observations made of oil spills or other contaminants across the drill hole sites during the field survey. Therefore it appeared that the Taroborah site was free of contamination from drilling activities at the time of the survey in mid-August 2010.

3 REFERENCES

Environmental Protection Agency (2008) *Final rehabilitation report and audit statement for non-standard exploration and mineral development projects.*

APPENDIX A

LIST OF DRILL HOLES APPROPRIATELY REHABILITATED

Table A-1 Drill hole sites which have been rehabilitated appropriately

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
*TAR0003CR TAR0003C	NA	313 - 316	596147.42 596142.74	7395963.97 7395955.08	Two holes in one location
TAR0004C	NA	333 & 334	596286.49	7395074.38	
TAR0005C	NA	317 & 318	597073.37	7396109.09	
TAR0006C	NA	460 & 461	597702.48	7395465.32	
*TAR0007C TAR165_C	NA NA	106 & 107	597781.99 597775.85	7396601.83 7396593.51	Sorghum crop at time of survey – Two holes in one location
*TAR0008C TAR0047	NA NA	431 & 432	598420.42 598429.83	7395825.93 7395830.00	Two holes in on location
TAR0009C	NA	559 & 560	598679.10	7396783.31	
*TAR0010C, TAR0010CR TAR0010CRR	NA	524 - 527	599610.86 599621.03 599620.95	7396524.62 7396531.95 7396531.89	Three holes in one location
*TAR0011C TAR0045	NA NA	443 & 444	599901.27 599914.51	7396030.62 7396031.97	Two holes in one location
*TAR0016C TAR016CR TAR0043	NA NA	221	594956.01 594957.86 594954.17	7395372.29 7395360.37 7395364.57	Appeared to be a monitoring bore – No action required. Three holes in one location
TAR0018C	NA	230 & 231	595298.06	7394946.92	
TAR0019C	NA	258 & 259	595447.74	7395414.56	
*TAR021CR TAR0021C	NA	288 & 289	595969.21 595969.21	7395451.12 7395451.12	Two holes in one location
*TAR0025C TAR025CR	NA NA	349 & 350	596776.91 596772.44	7395147.19 7395137.84	Two holes in one location
*TAR0026C TAR026_CR	NA NA	421 & 422	596941.84 596944.28	7395596.17 7395582.78	Two holes in one location
TAR0029C	NA	427 & 428	597552.30	7396139.23	
TAR0031C	NA	429 & 430	598133.95	7396163.22	
TAR0032C	NA	462 & 463	598233.61	7395366.61	
TAR0033C	NA	561 & 562	598567.68	7396310.38	
TAR0035C	NA	517 & 518	599098.55	7396348.82	
*TAR0036C TAR036CR	NA NA	439 & 440	599248.75 599257.47	7395493.82 7395482.76	Two holes in one location
TAR0037C	NA	441 & 442	599741.19	7395541.86	
TAR0039C	NA	447 & 448	600234.21	7395773.66	
*TAR0040C TAR0046	NA NA	445 & 446	600263.13 600276.33	7396107.92 7396109.37	Two holes in one location
TAR0041	NA	203 & 204	593852.70	7395156.80	
TAR0044	NA	256 & 257	595450.62	7395400.22	
TAR0049	NA	NA	600527.17	7396141.82	This hole was already signed off so did not require survey.
TAR0052	NA	201 & 202	593641.11	7395724.54	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
TAR0053	NA	270 & 271	595641.58	7395113.12	
TAR0054	NA	453 – 456	599607.48	7395069.72	Includes photos of the new road in this location
TAR0055	NA	449 & 450	599604.55	7395266.22	
TAR0056	NA	451 & 452	599606.12	7395165.00	
TAR0057	NA	464 & 465	598150.80	7394967.10	
TAR058	NA	226 & 227	595161.34	7395041	
TAR059	NA	266 & 267	595461.5	7395040.65	
TAR060	NA	260 & 261	595466.21	7395241.14	
TAR061	NA	248 & 249	595562.88	7395041.39	
TAR062	NA	252 & 253	595563.02	7395241.34	
TAR063	NA	268 & 269	595659.91	7395091.3	Appeared to be a monitoring bore - No action required
TAR064	NA	278 & 279	595764.1	7395091.7	
TAR065	NA	272 & 273	595660.06	7395192.01	
TAR066	NA	274 & 275	595659.97	7395288.6	
TAR067	NA	276 & 277	595771.96	7395288.94	
TAR069	NA	383 & 384	597373.45	7394866.05	
TAR070	NA	385 & 386	597259.7	7394791.04	
TAR071	NA	389 & 390	597262.81	7394592.22	
TAR072	NA	375 & 376	597159.53	7394791.75	
TAR073	NA	391 & 392	597160.08	7394591.49	
TAR074	NA	373 & 374	597059.4	7394788.13	
TAR075	NA	393 & 394	597059.97	7394591.72	
TAR076	NA	371 & 372	596951.64	7394796.69	
TAR077	NA	395 & 396	596954.29	7394607.33	
TAR078	NA	369 & 370	596855.31	7394794.69	
TAR079	NA	397 & 398	596855.73	7394589.04	
TAR080	NA	367 & 368	596757.49	7394789.89	
TAR081	NA	399 & 400	596755.54	7394590.14	
TAR082	NA	365 & 366	596654.07	7394788.79	
TAR083	NA	401 & 402	596654.35	7394587.08	
TAR084	NA	363 & 364	596553.65	7394789.9	
TAR085	NA	403 & 404	596551.43	7394588.62	
TAR086	NA	405 & 406	596459.43	7394593.01	
TAR087	NA	361 & 362	596459.93	7394790.59	
TAR088	NA	359 & 360	596362.44	7394789.53	
TAR089	NA	353 & 354	596260.3	7394792.08	
TAR090	NA	355 & 356	596161.5	7394794.43	
TAR091	NA	357 & 358	596057.66	7394793.21	
TAR092	NA	411 & 412	596756.26	7394689.95	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
TAR093	NA	409 & 410	596652.88	7394692.15	
TAR094	NA	407 & 408	596549.78	7394693.32	
TAR095	NA	343 & 344	596463.49	7394940.23	
TAR096	NA	478 & 479	597479.54	7394840.28	
TAR097	NA	499 - 503	597474.37	7394731.56	
TAR098	NA	480 & 481	597474.13	7394627.7	
TAR099	NA	482 & 483	597578.82	7394591.45	
TAR100	NA	491 & 492	597572.14	7394701.31	
TAR101	NA	506 & 507	597580.56	7395048.05	
TAR102	NA	497 & 498	597580.41	7394859.4	
TAR103	NA	510 - 514	597681.62	7394941.04	
TAR104	NA	472 & 473	597673.9	7395146.06	
TAR105	NA	510 - 514	597781.84	7394817.14	
TAR106	NA	515 & 516	597773.32	7394966.04	
TAR107	NA	470 & 471	597772.69	7395171.55	
TAR108	NA	419 & 420	597159.67	7394691.64	
TAR109	NA	417 & 418	597059.49	7394696.62	
TAR110	NA	415 & 416	596954.18	7394696.53	
TAR111	NA	413 & 414	596854.75	7394695.37	
TAR112	NA	487 & 488	597680.19	7394709.41	
TAR114	NA	493 & 494	597883.7	7394811.5	
TAR115	NA	495 & 496	597896.95	7394910.45	
TAR116	NA	474 & 475	597875.12	7395192.11	
TAR117	NA	345 & 346	596463.5	7395035.06	
TAR118	NA	341 & 342	596360.2	7394996.62	
TAR119	NA	335 & 336	596360.75	7395095.47	
TAR120	NA	347 & 348	596360.24	7395196.31	
TAR121	NA	321 & 322	596259.91	7395291.88	
TAR122	NA	327 & 328	596259.01	7395193.6	
TAR123	NA	323 & 324	596260.71	7395335.14	
TAR124	NA	294 & 295	596166.2	7395385.63	
TAR125	NA	337 & 338	596164.29	7395098.81	
TAR126	NA	325 & 326	596166.27	7395183.85	
TAR127	NA	339 & 340	596067.48	7395045.9	
TAR128	NA	329 & 330	596068.29	7395187.85	
TAR128A	NA	331 & 332	596068.35	7395141	
TAR129	NA	290 & 291	596066.86	7395429.02	
TAR130	NA	292 & 293	596065.75	7395388.9	
TAR131	NA	296 & 297	595962.86	7395148.26	
TAR132	NA	298 & 299	595965.59	7395251.41	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
TAR133	NA	300 & 301	595965.4	7395334.32	
TAR134	NA	280 & 281	595868.38	7395133.91	
TAR135	NA	282 & 283	595866.99	7395235.62	
TAR136	NA	284 & 285	595865.96	7395332.41	
TAR137	NA	286 & 287	595865.32	7395434.32	
TAR138	NA	250 & 251	595558.62	7395130.16	
TAR139	NA	246 & 247	595456.01	7395161.94	
TAR139A	NA	263	595451.35	7395152	
TAR140	NA	244 & 245	595360.37	7395137.41	
TAR141	NA	242 & 243	595361.71	7395240.85	
TAR142	NA	232 & 233	595259.86	7395135.69	
TAR143	NA	234 & 235	595260.09	7395231.93	
TAR145	NA	228 & 229	595262.74	7395043.91	
TAR146	NA	222 & 223	595160.25	7395139.88	
TAR147	NA	236 & 237	595164.56	7395233.93	
TAR148	NA	224 & 225	595164.34	7395060	
TAR150	NA	254 & 255	595464.3	7395339.74	
TAR151	NA	377 & 378	597259.2	7394960.53	
TAR152	NA	379 & 380	597376.71	7394989.52	
TAR153	NA	476 & 477	597474.35	7395044.47	
TAR154	NA	381 & 382	597474.55	7394943.52	
TAR155	NA	504 & 505	597584.28	7394966.18	
TAR156	NA	508 & 509	597677.53	7395043.01	
TAR157	NA	489 & 490	597681.55	7394813.56	
TAR158	NA	468 & 469	597777.86	7395255.75	
TAR159	NA	466 & 467	597869.31	7395293.7	
*TAR160_C TAR160_CR	NA NA	106 & 107	597037.87 597041.14	7397525.65 7397534.86	Sorghum crop at time of survey – Two holes in one location
*TAR161_C TAR161_CR	NA	193 & 194	594729.96 594730.68	7396174.56 7396172.56	Two holes in one location
TAR162_C	NA	104 & 105	596874.21	7398512.05	Sorghum crop at time of survey
TAR163_C	NA	195 & 196	593737.99	7396029.99	
TAR164_C	NA	63 & 64	595061.15	7397234.66	Barley crop at time of survey
*TAR167_C TAR167_CR	NA	79 & 80	595886.87 595884.56	7398366.76 7398375.0	Barley crop at time of survey – Two holes in one location
TAR168_C	NA	132 & 133	593740.78	7399053.1	
TAR169_C	NA	145 & 146	594056.68	7397097.37	
TAR170_C	NA	112 - 114	596030.1	7397373.9	Sorghum crop at time of survey
TAR171_C	NA	69 & 70	594895.8	7398208.04	Barley crop at time of survey
TAR172_C	NA	108 & 109	596708.93	7396466.0	Sorghum crop at time of survey
TAR173_C	NA	181 - 184	595864.93	7396365.91	Weed species visible however good

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
					grass cover and likely to improve with time – No rehabilitation action required.
TAR174_C	NA	87 & 88	595713.51	7399359.86	
TAR176_C	NA	55 & 56	595549.05	7400348.73	Appeared to be a monitoring bore - No action required
TAR177_C	NA	57 & 58	594586.37	7400197.04	Appeared to be a monitoring bore - No action required
TAR178_C	NA	26 & 27	593571.46	7400059.66	
*TAR179_C TAR179_CR TAR179_CRR	NA	1 & 2	594728.21 594717.65 594713.09	7399378.39 7399389.17 7399397.51	Three holes in one location
TAR180_C	NA	12 & 13	593417.422	7400931.291	
TAR182_C	NA	637 & 638	594399.785	7401182.735	
TAR183_C	NA	629 & 630	595394.068	7401328.834	
TAR184_C	NA	652 & 653	596373.811	7401484.601	
TAR185_C	NA	594 & 595	596543.049	7400503.988	
TAR186_C	NA	598 & 599	596712.001	7399502.701	
TAR187_C	NA	614 & 615	597528.908	7400647.597	
TAR188_C	NA	604 & 605	597697.833	7399647.405	
TAR189_C	NA	542 - 545	598843.276	7398818.278	Appeared to be a monitoring bore - No action required
					Some gravel material was present at this site that could be used for something.
TAR190_C	NA	546 & 547	597860.044	7398664.112	
TAR191_C	NA	552 & 553	599018.095	7397825.195	
TAR192_C	NA	563 & 564	598034.076	7397679.595	
TAR193_C	NA	77 & 78	595392.353	7398298.589	Barley crop at time of survey
TAR194_C	NA	75 & 76	595970.141	7397886.113	Barley crop at time of survey
TAR195_C	NA	73 & 74	595470.395	7397808.162	
TAR196_C	NA	61 & 62	595296.184	7398804.257	
TAR197_C	NA	71 & 72	594975.898	7397738.105	
TAR198_C	NA	65 & 66	594482.743	7397666.692	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
TAR200_C	NA	559 & 560	598196.551	7396696.407	
TAR201_C	NA	557 & 558	598606.8	7397264.096	
TAR203_C	NA	565 & 566	597967.754	7398198.091	
TAR204_C	NA	578 & 579	597404.217	7398628.63	
*TAR206_C TAR206_CG	NA	567 & 568	598436.02 598441.577	7398247.4 7398239.827	Two holes in one location
TAR207_C	NA	569 - 572	598930.47	7398321.655	
TAR208_C	NA	535 & 536	598770.569	7399311.966	
TAR209_C	NA	548 & 549	598355.864	7398740.588	
TAR210_C	NA	537 - 539	598276.237	7399222.266	
TAR211_C	NA	550 & 551	599291.651	7398581.454	
TAR212_C	NA	576 & 577	597251.968	7399137.497	
TAR213_C	NA	608 & 609	598192.782	7399726.713	
TAR214_C	NA	606 & 607	598115.544	7400180.009	
TAR215_C	NA	610 & 611	597623.058	7400143.196	
TAR216_C	NA	600 - 603	597208.959	7399580.839	
TAR217_C	NA	612 & 613	597119.648	7400067.795	
TAR218_C	NA	596 & 597	596616.726	7399999.375	
*TAR219_C TAR219_CG	NA NA	616 & 617	597037.388 597027.169	7400570.224 7400570.933	Two holes in one location
TAR220_C	NA	590 & 591	596948.339	7401054.668	
TAR221_C	NA	622 & 623	596875.065	7401553.847	
TAR222_C	NA	644 & 645	592837.472	7401452.588	
TAR223_C	NA	642 & 643	593828.576	7401608.939	
TAR224_CG	NA	646 & 647	594817.543	7401753.343	
TAR225_C	NA	639 - 641	595786.876	7401856.113	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
TAR226_C	NA	635 & 636	593905.84	7401097.063	
TAR227_C	NA	633 & 634	594890.362	7401256.503	
TAR228_C	NA	648 & 649	595891.059	7401415.442	
TAR229_C	NA	631 & 632	595473.448	7400836.118	
TAR230_C	NA	624 & 625	595969.74	7400910.927	
TAR231_C	NA	626 - 628	596046.261	7400425.339	
TAR232_C	NA	592 & 593	596473.947	7400990.597	
TAR233_C	NA	650 & 651	596796.951	7402054.224	
TAR234_C	NA	588 & 589	597453.467	7401138.26	
TAR235_C	NA	106 & 107	597201.449	7396551.339	Sorghum crop at time of survey
TAR236_C	NA	106 & 107	597127.866	7397044.596	Sorghum crop at time of survey
TAR237_C	NA	106 & 107	597617.357	7397117.267	Sorghum crop at time of survey
TAR238_C	NA	106 & 107	596953.978	7398029.058	Sorghum crop at time of survey
TAR239_C	NA	106 & 107	596793.104	7399014.893	Sorghum crop at time of survey
TAR240_C	NA	100 & 101	597428.509	7398092.161	
TAR241_C	NA	102 & 103	597538.569	7397603.909	
TAR242_C	NA	104 & 105	598104.575	7397174.974	Sorghum crop at time of survey
TAR243_C	NA	96 & 97	596464.963	7397956.823	Sorghum crop at time of survey
TAR244_C	NA	83 & 84	596377.497	7398448.528	Sorghum crop at time of survey
TAR245_C	NA	94 & 95	596298.674	7398938.848	Sorghum crop at time of survey
TAR246_C	NA	81 & 82	595810.528	7398856.249	
TAR247_C	NA	104 & 105	596541.297	7397462.917	Sorghum crop at time of survey
TAR248_C	NA	63 & 64	595558.896	7397317.823	Barley crop at time of survey
TAR249_C	NA	110 & 111	596634.427	7396971.632	Sorghum crop at time of survey
TAR250_C	NA	63 & 64	596131.957	7396893.542	Barley crop at time of survey
TAR251_C	NA	63 & 64	595636.579	7396822.21	Barley crop at time of survey

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
				5	
TAR252_C	NA	63 & 64	595145.382	7396749.334	Barley crop at time of survey
TAR253_C	NA	185 & 186	595229.067	7396338.657	
TAR255_C	NA	63 & 64	594564.208	7397174.266	Barley crop at time of survey
*TAR256_C TAR256_CG	NA NA	179 & 180	594634.087 594637.188	7396667.572 7396671.337	Two holes in one location
TAR257_C	NA	179 & 180	594143.768	7396606.051	
TAR259_C	NA	85 & 86	596219.607	7399436.194	
TAR260_C	NA	5 – 7	595135.712	7399785.509	Site contains some Parthenium
TAR261_C	NA	89 & 90	595653.123	7399853.489	
TAR262_C	NA	91 -93	596105.911	7399914.36	
TAR266_C	NA	147 & 148	593580.187	7397029.495	
TAR267_C	NA	522 & 523	599141.874	7397330.643	
TAR269_C	NA	24 & 25	593979.293	7400624.852	
TAR271_C	NA	51 & 52	594072.183	7400129.685	
TAR273_C	NA	37 -39	594152.377	7399634.747	
TAR275_C	NA	199 & 200	594210.341	7396108.309	
TAR276_C	09-08	618 & 619	597367.759	7401627.159	
TAR277_C	09-25	586 & 587	597892.975	7401220.282	
TAR278_C	09-26	584 & 585	598030.4	7400711.7	
TAR279_C	09-42	582 & 583	598609.563	7400295.227	
TAR280_C	09-43	580 & 581	598691.062	7399802.645	
TAR282_C	09-63	540 & 541	599245.431	7399039.238	
TAR283_C	09-70	128 & 129	593983.99	7397587.432	
TAR284_C	09-68	63 & 64	594397.057	7398156.135	Barley crop at time of survey
TAR285_C	09-07	620 & 621	597727.712	7401695.419	
TAR287_C	09-15	17 & 18	593000.587	7400471.14	

Drill hole Number	IMC Reference Number	Photo Numbers	GDA 94 Easting	GDA 94 Northing	Comments
				2	
TAR288_C	09-52	134 -137	594231.328	7399142.792	
TAR289_C	09-53	143 & 144	594317.12	7398651.304	

* Includes sites where more than one drill hole is located on one drill pad.

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