VENUS PHOSPHATE

SUPPORTING INFORMATION FOR THE MAJOR ENVIRONMENTAL AUTHORITY AMENDMENT

Proposed Venus Phosphate Mine site.

Report prepared for:
Australia Venus Resource Pty Ltd

Date:
8th May 2015
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Dr Chris Cuff
Director
08/05/2015
Date

Dr Cecily Rasmussen
Director
08/05/2015
Date
# SUMMARY OF RELEVANT INFORMATION

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Venus Phosphate Biodiversity Offset Strategy</th>
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<tr>
<td>Property Location</td>
<td>Venus Phosphate (ML90209)</td>
</tr>
<tr>
<td>Project Purpose</td>
<td>Manage potential impacts to environmental values associated with the site.</td>
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</table>

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1. INTRODUCTION

The Venus Phosphate Project (the project) is located on ML90209, approximately 140 km southeast of Mount Isa and 150 km southwest of Cloncurry in northwest Queensland, immediately adjacent to Phosphate Hill Mine (PHM) (Figure 1). The ML covers approximately 1,602 ha of grazing land on Chatsworth Station in the Shire of Cloncurry. Although significant exploration works have been conducted across ML90209 it is currently considered a Greenfield site.

Several environmental assessments have been completed across the project site, with an Environmental Management (EM) Plan (GHD 2012) submitted to the administering authority in 2011 by the previous owners (Krucible Metals Pty Ltd) to gain approval for the development of a bulk sampling trial pit. The development of a 10,000 tonne trial pit was approved in 2012 under Environmental Authority (EA) EPML00975013. The project site was subsequently purchased by Australia New Agribusiness and Chemical Group Pty Ltd (ANB) at the end of 2013. Works on the trial pit are scheduled to commence by the end of May 2015.

Initial scoping studies into the possible expansion of mining operations by Krucible Metals Pty Ltd split the phosphate resource into two areas to be mined in different stages. The first stage of the proposed expansion targets the high grade phosphate ore (>25%) requiring no beneficiation prior to shipping, while the second stage targets the lower grade ore where beneficiation will be required. ANB propose to develop the current trial pit operations further by undertaking the first stage of the proposed expansion. This will result in the mine processing up to 600,000 tonne per annum of phosphate ore. This expansion is considered to be a major change in the scale of works currently approved under the EA.

Representatives from C&R Consulting (Geochemical and Hydrobiological Solutions) Pty Ltd (C&R), Trident Mining and Marine Services and Australia Venus Resource Pty Ltd (AVR), a wholly owned subsidiary of ANB, met with delegates from the Department of Environment and Heritage Protection (EHP) in Cairns on the 2nd of March 2015 to discuss the requirements for amending the EA. It was suggested by the EHP delegates that an Environmental Impact Statement (EIS) was not required as sufficient information already exists within the original EM Plan (GHD 2012). Instead, ANB was advised to further assess the available data and discuss the environmental values, potential impacts, risk, and any mitigation measures associated with the proposed expansion. As such, C&R have been commissioned by AVR to produce supporting documentation for the major EA amendment to increase mining operations to 600,000 tpa for the project.

1.1 SCOPE

To appropriately determine the potential impacts and level of risk posed to the environmental values of the project site all schedules generally addressed within an EA are discussed within this document. Therefore, this document:

- Defines the operations and processes involved with the proposed mining expansion;
- Identifies environmental values both across the project site and within the region; and
- The potential impacts, proposed mitigation measures and amended EA conditions for:
  - General requirements;
  - Waste;
  - Air;
  - Land;
  - Water;
  - Regulated dams; and
  - Noise and vibration.
Figure 1: ML90209 regional setting
2. PROJECT DESCRIPTION

2.1 NAME AND LOCATION

The Venus Phosphate project is located in northwest Queensland approximately 150 km southeast of Mount Isa and 5 km south of PHM (owned and operated by Incitec Pivot Ltd), on ML90209. The ML covers approximately 1,602 ha of grazing land on Chatsworth Station in the Shire of Cloncurry.

The target resource is the Korella phosphate deposit containing an estimated 19.31 million tonnes of phosphate ore grading 19% phosphate, with high grade (>30% P₂O₅) areas included in the resource. The deposit occurs at depths between 30 and 80 meters below ground level and has an average thickness of 6.5 meters.

2.2 OWNER AND OPERATOR

Australia New Agribusiness and Chemical Group Limited (ANB) is the holder of Mining Lease ML90209 and associated Level 1 Environmental Authority EPML00975013. Australia Venus Resource Pty Ltd (AVR), a wholly owned subsidiary of ANB, will oversee management of mining operations across the project site.

2.3 TENEMENTS AND LAND TENURE

ML90209 (named the Korella 2 lease) was granted on the 16/08/2012 and is due to expire on the 31/08/2033. The Korella 2 lease covers 1,602 hectares. The mining lease is located wholly on Lot 13 SP223510 (formerly Lot 13 on SP150177) within the Cloncurry Shire of the locality Selwyn in the parish of Taplin in the county of Chatsworth (Segment Parcel 705/927). The site is located on Chatsworth Station (MDH Pty Ltd) which is owned by Mr Bob McDonald.

2.4 RELEVANT STAKEHOLDERS

The project has a range of stakeholders both internal and external to the operation. Stakeholder influence can vary from minor to significant and may vary through time as the operation matures. The project’s key stakeholders include:

Native Title Holder: The Yulluna People;

Local Communities: Chatsworth Station, Duchess and Dajarra;

Mining Operators: Incitec Pivot Ltd (own and operate The Monument and Phosphate Hill Mine);

Local Councils: Cloncurry Shire Council, Boulia Shire Council and Mount Isa City Council;

Queensland Government: EHP, Department of Natural Resources and Mines (NRM), Department of Employment, Economic Development and Innovation (DEEDI), and additional Departments managing transport and infrastructure; and

Utility companies: Ergon Energy and Origin.
2.5 NATIVE TITLE & CULTURAL HERITAGE

The recognised native title holders of the area in and around ML90209 are the Yulluna People. On the 16/04/2014 the Federal Court recognised the Native Title rights and interests of the Yulluna People’s native title rights and interests over their traditional lands (Claim No.: QC99/9 (A) & (B)). The regulatory requirements for the original mining lease application including a Native Title Agreement and Cultural Heritage Management Agreement (CHMA) were completed and signed prior to the application (Appendix A).

2.5.1 INDIGENOUS CULTURAL HERITAGE

Previous investigations undertaken by Krucible Metals Pty Ltd through its wholly owned subsidiary Korella Phosphate Pty Ltd and the Yulluna People confirmed that within project area (EPM15572) there was no evidence of Indigenous Cultural Heritage. Note; ML90209 is situated within Exploration Lease EPM15572.

Despite this the current CHMA provides comprehensive processes and procedures for the assessment and management of Aboriginal cultural heritage potentially present within ML90209 for both current operations and future development requirements of the project. The continued implementation of the CHMA will fulfil the Project proponent’s duty of care obligations under the Aboriginal Cultural Heritage Act 2003 (ACH Act).

2.5.2 EUROPEAN CULTURAL HERITAGE

No dwellings, historical or otherwise, were constructed on the mining lease prior to the development of the proposed mine. A search of the DERM Queensland Heritage Register identifies that the Project area will not affect any Heritage Registered Place. Evidence of European settlement is limited to existing tracks, fencing, a dam and a bore with a windmill.
3. MINING ACTIVITIES

3.1 OVERVIEW

The target resource is the Korella phosphate deposit containing 19.31 million tonnes of phosphate ore grading 19% phosphate, with high grade areas included in the resource. The deposit occurs at depths between 30 and 80 meters below ground level and has an average thickness of 6.5 meters.

Mining operations will involve the development of an open cut pit. Principle areas of disturbance will include dams, roads, infrastructure areas (administration, workshop, etc.), out-of-pit waste rock dumps and the open cut excavations (Figure 2). All topsoil will be stripped and stockpiled, separate of other waste, for use in rehabilitation.

Drilling has indicated that the overburden is likely to be free digging with no blasting required. Therefore the overburden will be pre-stripped and initially dumped in an out-of-pit dump. Upon mining the limit of the pit in the south in-pit dumping will be adopted to partly back fill the mining void to reduce haulage cycles to a minimum. To mine 600,000 tonnes of phosphate rock each year requires the removal of an accompanying 5.4 million tonnes of waste rock or overburden.

The principle equipment used in the mining process includes scrapers for topsoil stripping, excavators, trucks, dozers, graders, service trucks, water trucks and light support vehicles. Mining activities may operate up to 24 hrs/day on a seven days a week basis but are generally limited to 24 hrs/day 5 days per week.

As part of the mining operation, rehabilitation work will proceed concurrently with mining. This includes profiling and seeding of overburden dumps. As much of the land as possible will be returned to grazing country at the end of the mine life.

Run of mine (ROM) ore will be hauled from the pit to a ROM dump hopper for crushing prior to feeding into secondary and tertiary crushing plants. Screening between crushing will be used to provide grade improvement. The final crushed product will be analysed and then stockpiled.

3.1.1 MINE SEQUENCING

At this stage the mine aims to produce commercial grade (>30% P₂O₅) product for direct shipping. Early investigations by Mining Associates Pty Ltd (2009) suggest there is sufficient high grade resource to allow the mine to extract and ship without beneficiation for 6.4 years.

Access to the pit has been designed to drop into the pit floor in the mid section of the pit targeting the best grade product on the footwall (10 m depth) with a 10% ramp (Mining Associates Pty Ltd 2009). The pit will then be opened up to the fault that delineates the western high wall and a number of 10 m work benches on the active faces will be established to enable mining to proceed both north and south with a series of pushbacks (Mining Associates Pty Ltd 2009). It is proposed that in the first instance mining advance should be northwards to the PHM boundary with overburden initially being dumped out of pit, but adjacent to the pit (Mining Associates Pty Ltd 2009). If the lesser grade ore is not to be recovered, then in-pit dumping can be commenced after the completion of mining the high grade.
The calculated average strip ratio is 10.43 t of waste rock to every tonne of ore. Therefore the proposed schedule for mining operations is outlined in Table 1.

**Table 1: Mine schedule**

<table>
<thead>
<tr>
<th>Year</th>
<th>Ore (t/yr)</th>
<th>Overburden (t/yr)</th>
<th>Total material mined (t/yr)</th>
</tr>
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<tr>
<td>1</td>
<td>300,000</td>
<td>3,129,000</td>
<td>3,429,000</td>
</tr>
<tr>
<td>2</td>
<td>450,000</td>
<td>4,693,500</td>
<td>5,143,500</td>
</tr>
<tr>
<td>3</td>
<td>600,000</td>
<td>6,258,000</td>
<td>6,858,000</td>
</tr>
<tr>
<td>4</td>
<td>600,000</td>
<td>6,258,000</td>
<td>6,858,000</td>
</tr>
<tr>
<td>5</td>
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<td>6,258,000</td>
<td>6,858,000</td>
</tr>
<tr>
<td>6</td>
<td>600,000</td>
<td>6,258,000</td>
<td>6,858,000</td>
</tr>
<tr>
<td>7</td>
<td>231,000</td>
<td>2,409,330</td>
<td>2,640,330</td>
</tr>
<tr>
<td>Total</td>
<td>3,381,000</td>
<td>35,263,830</td>
<td>38,644,830</td>
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**3.1.2 TRANSPORT**

Crushed phosphate rock will be loaded on to road trucks for transport to a rail siding where it will be stockpiled and blended into a rail loading system located at the former Osborne (Chinova) Rail Load-out Facility prior to transportation to the Port of Townsville facility for shipping to an overseas market.

Discussions with several operators, including NSS and Queensland Sugar, regarding ship loading facilities within the Port of Townsville are ongoing with the aim of being finalised prior to approval of the amended EA. Minor modifications would be required to the Queensland Sugar facilities to allow phosphate to be handled as well as the sugar.

**3.1.3 POWER**

Current trial mine operations are powered via solar power generation or diesel generator. However, additional electricity will need to be sourced once the mine is expanded. A power line easement crosses the mining lease on the eastern side of the proposed mine location running in a north to south direction. Additional electricity required for the day to day running of mining operations as well as the site accommodation facility will be sourced from this already established infrastructure (GHD 2012).

**3.1.4 WATER**

The landscape is an arid environment with no permanent sources of water located on the surface. Therefore, potable water supply for the project must be sourced from groundwater systems. There are three already established bores located on the site with one (known as the Western Bore) utilised by the landowner for the supply of cattle drinking water. This bore will be developed and used for the mine infrastructure area and site office. A second production bore will be installed in close proximity to the site accommodation, supplying potable water for the daily running of the camp.

The groundwaters in the region are known to be elevated in salts and other analytes and must be treated prior to human consumption. Therefore two water treatment facilities will also be required associated with each production bore.
Figure 2: Proposed mine plan
3.2 INFRASTRUCTURE & EQUIPMENT

At full scale the mine is still considered a small operation. Therefore, the equipment and infrastructure required to support these activities are also limited, including (Figure 2):

- Topsoil stockpiles;
- Waste rock dump;
- ROM stockpiles;
- Settlement ponds;
- Crushing and screening plants;
- Roads;
- Site accommodation;
- Site office;
- Light vehicles;
- Heavy vehicles include:
  - 200 tonne excavator – 1 x Komatsu PC 2000;
  - 3 x Komatsu HD 785 haul trucks (91 t capacity);
  - 16 H Caterpillar grader;
  - Caterpillar 30 tonne excavator;
  - 12,000 litre water cart; and
  - 3 x 657 Caterpillar scrapers.

3.2.1 WASTE ROCK DUMP DESIGN

The out of pit waste rock dump is designed to receive a minimum of two (2) years waste production, after which the extraction area to the south of the pit should be exhausted enabling in-pit dumping to commence (Figure 2). Dumps will be constructed with 10 m lifts and 5 m berms rising at 3%, promoting runoff and allowing for settling and compaction by traffic. The tipping face shall reside at 32 degrees, with the final landform battered to 20 degrees. Windrows (half the height of the largest vehicle will be established around all areas adjacent to tipping areas. A detailed Waste Rock and Spoil Management Plan and Post Mine Land Use Plan has already been developed for the trial pit operations that currently occur on site (refer to Appendices B & C). These management plans will be easily amended to adopt the same best practice management principles to the proposed large scale operations.

3.2.2 ROAD DESIGN AND CONSTRUCTION

Road and stockpile areas will be constructed with sufficient sub-base and surface gravel compacted in layers to provide a stable running surface for vehicle movements. This requires a California Bearing Ratio of 80 to provide a stable base for 90 t class haul trucks. Roads will be constructed to 3.5 times the width of the widest vehicle and profiled with a crown at the centre and 2% cross fall with spoon drains along either side.

Ramps will be sheeted with suitable material to ensure safe traction for heavy vehicles descending into and ascending from the pit. The soils within the area become extremely slippery when wet. Therefore, appropriate sheeting of inclined roads is necessary as well as maintaining measured dust suppression watering operations on all roads.
3.2.3 **ROM STOCKPILE DESIGN**

The ROM stockpile will require a 100 m x 100 m square area in front of the processing facility (i.e. crushing and screening plant) dump hopper (Figure 2). This sized stockpile area can hold one months production supply (~50,000 t) in two separate piles; a 20,000 t and a 30,000 t pile. In addition to these two short term stockpiles it is proposed a long term stockpile of low grade material accumulated over the life of the current project also be established. A concept plan of the ROM stockpiles is provided in Figure 3.

3.2.4 **SITE ACCOMMODATION**

The project will develop accommodation for the required workforce within the confines of the mining lease (Figure 2). This accommodation will be able to house a maximum of 50 people at any one time with an expected workforce of ~45 people for daily mining operations. The camp will be situated at least 1 km from all mining operations to ensure the health and well being of all staff members while on shift work.

![ROM Dump Stockpile Design](image)

*Figure 3: Concept layout of the ROM stockpiles (extracted from Mining Associates Pty Ltd 2009)*

3.3 **NOTIFIABLE & ENVIRONMENTALLY RELEVANT ACTIVITIES**

Two notifiable activities, as listed under Schedule 2 of the *Environmental Protection Act* (1994), are to take place as part of the project (Table 2). Additionally, several environmentally relevant activities (ERAs) as listed in the *Environmental Protection Regulation* (1998) are relevant to the site as per the current EA (Table 3).
Table 2: Notifiable activities to be undertaken on site

<table>
<thead>
<tr>
<th>Activity No.</th>
<th>Description</th>
<th>Detail</th>
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<tr>
<td>24(b)</td>
<td>Mine waste</td>
<td>Exploring for, or mining or processing, minerals in a way that exposes faces, or releases groundwater containing deleterious substances</td>
</tr>
<tr>
<td>29(b)(iii)</td>
<td>Petroleum product or oil storage – storing petroleum products or oil</td>
<td>For petroleum products that are combustible liquids in class C1 or C2 in AS 1940 ‘The storage and handling of flammable and combustible liquids’ – more than 25,000 L capacity</td>
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Table 3: Environmentally Relevant Activities listed within the EA

<table>
<thead>
<tr>
<th>ERA number</th>
<th>Activity description</th>
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<tbody>
<tr>
<td>15</td>
<td>Fuel burning &gt;500 kg/hr</td>
</tr>
<tr>
<td>16 (2b)</td>
<td>Extractive &gt;100 000t but &lt;1 000 000 t/yr</td>
</tr>
<tr>
<td>16 (3b)</td>
<td>Screening &gt;100 000t but &lt;1 000 000 t/yr</td>
</tr>
<tr>
<td>33</td>
<td>Crushing, milling, grinding or screening &gt;5000 t/yr</td>
</tr>
<tr>
<td>50 (1b)</td>
<td>Bulk mineral handling &gt;100t or 50000 t/day</td>
</tr>
</tbody>
</table>
4. SETTING

4.1 REGIONAL CONTEXT

The project is situated in the Georgina Basin of the Burke River catchment. The site lies on the margin of the Mitchell Grass Downs Bioregion, immediately to the south of the existing PHM.

The surrounding landscape is a combination of various habitat types, four of which occur throughout the study area, including:

- Mitchell Grass Plains on heavy clay soils;
- Spinifex Hummock Grasslands on red earths with lateritic gravel;
- Hummock Grasslands with Snappy Gum (*Eucalyptus leucophloia*) emergents; and
- Mixed Shrublands.

Tree cover is generally limited to sparse open fringing woodland along the small water courses with scattered trees generally reflecting drainage lines or other low lying areas. The terrain is generally flat with vegetation communities altered by historic grazing practices.

The main land uses in the surrounding area include pastoral (in particular cattle grazing), and mining, with PHM immediately to the north. Other large mines operating within 100km of the site including Osborne Mine which was recently placed in Care and Maintenance. A number of smaller mines also operate within this area.

4.2 CLIMATE

The area is within the seasonally arid tropics where rain of any significance only falls during the November to March wet season. Rainfall data collected at neighbouring Bureau of Meteorology (BOM) gauges (Phosphate Hill, BOM Station 36016; and The Monument, BOM Station 36017) show the average annual rainfall for the area is approximately 330 mm with a maximum of 826.8 mm and minimum of 80.4 mm (Figure 4). Approximately 75% of this rain falls between November and March (Table 4). This is typical of the seasonally arid tropics where long periods of aridity are interspersed by short periods of rainfall.

Rainfall at Phosphate Hill has been monitored since 1975, but missing data limits the usable rainfall information in this data set to an intermittent 30 year period (Figure 4). No supporting climatic data (i.e. temperature, etc.) has been collected at the Phosphate Hill monitoring station. Rainfall has been monitored at The Monument since 1976, although missing data limits the usable rainfall information in this data set to an intermittent 35 year period. In addition, The Monument is located approximately 20km from the project site and may, therefore, be subject to local variability.

Based on previous experience in the region, it is common to have over 300 days in any year where evaporation exceeds rainfall, even on days of intense rainfall. Therefore, very little rainfall may actually remain on site, or be available for groundwater recharge.

The high variability within the climatic data suggests that the use of averages is not appropriate for any assessment of the environment. For example, in 1981 The Monument received 299 mm of rainfall within one month (almost equivalent to the yearly average),
with almost half the annual total (150 mm) falling in a single day. These intense rainfall events are not uncommon in this area, with at least five events occurring in the past 35 years that have resulted in more than 100 mm rainfall in one day. Further, maximum rainfall for the area is over double the yearly average, with the minimum rainfall nearly a quarter of the annual average (Figure 4 and Table 4). Therefore, to accurately reflect the climatic conditions at the site it is important to consider this intense variation.

![Annual rainfall graph](image)

**Figure 4:** Recorded annual rainfall at The Monument and Phosphate Hill

**Table 4:** Average and maximum monthly rainfall

<table>
<thead>
<tr>
<th>Month</th>
<th>The Monument (mm)</th>
<th>Phosphate Hill (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Maximum</td>
</tr>
<tr>
<td>January</td>
<td>89.5</td>
<td>459.4</td>
</tr>
<tr>
<td>February</td>
<td>72.4</td>
<td>223.2</td>
</tr>
<tr>
<td>March</td>
<td>28.6</td>
<td>232.0</td>
</tr>
<tr>
<td>April</td>
<td>13.7</td>
<td>125.2</td>
</tr>
<tr>
<td>May</td>
<td>17.5</td>
<td>103.0</td>
</tr>
<tr>
<td>June</td>
<td>10.7</td>
<td>79.4</td>
</tr>
<tr>
<td>July</td>
<td>10.4</td>
<td>75.0</td>
</tr>
<tr>
<td>August</td>
<td>4.8</td>
<td>47.8</td>
</tr>
<tr>
<td>September</td>
<td>6.7</td>
<td>46.1</td>
</tr>
<tr>
<td>October</td>
<td>11.6</td>
<td>41.6</td>
</tr>
<tr>
<td>November</td>
<td>31.1</td>
<td>119.0</td>
</tr>
<tr>
<td>December</td>
<td>52.2</td>
<td>220.0</td>
</tr>
</tbody>
</table>
4.3 TERRESTRIAL VALUES

A preliminary environmental investigation to document the flora, fauna and habitat types present within the project site was undertaken in 2009/2010 by C&R Consulting for Krucible Metals Pty Ltd. This was the first recorded survey of flora and fauna at the project site. The site is located within the Mitchell Grass Downs bioregion (Bioregion 4), within close proximity (<20km) of the Northwest Highlands bioregion (Bioregion 1). Because of this close proximity the site exhibits characteristics of both the Mitchell Grass Downs bioregion and the Northwest Highlands bioregion.

4.3.1 FLORA/REGIONAL ECOSYSTEMS

No official regional ecosystem mapping exists for the site. Regional ecosystem mapping was undertaken by a certified regional ecosystem assessor as part of the 2009/2010 survey by C&R. The regional ecosystems present within ML90209 are presented in Table 5. The distribution of these regional ecosystems is shown in Figure 5. It should be noted that all regional ecosystems assessed for the site have a Vegetation Management Status of least concern and a biodiversity status of no concern at present. No floras of conservation significance were observed during this study.

Table 5: Regional ecosystems present within ML90209

<table>
<thead>
<tr>
<th>Regional Ecosystem</th>
<th>Vegetation management status</th>
<th>Biodiversity status</th>
<th>Regional ecosystem description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.3.1</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Mitchell grass (Astrebla spp.) grassland on alluvial plains. Within the site, these areas comprise current alluvium associated with creek lines.</td>
</tr>
<tr>
<td>4.3.5</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Eucalyptus coolabah +/- E. camaldulensis +/- Acacia georginae open woodland on drainage lines/plains.</td>
</tr>
<tr>
<td>4.4.1</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Astrebla pectinata +/- Aristida latifolia +/- Eulalia aurea grassland on Tertiary sediments overlying limestone.</td>
</tr>
<tr>
<td>4.5.3</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Acacia aneura, Triodia brizoides or Triodia molesta tall open shrubland on Tertiary sand sheets.</td>
</tr>
<tr>
<td>4.5.8</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Triodia pungens hummock grassland wooded with Acacia spp. +/- Eucalyptus spp. on Quaternary sand sheets.</td>
</tr>
<tr>
<td>1.5.7</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Bloodwood (Corymbia terminalis) and/or mulga (Acacia aneura) low open woodland on sandy red earth plains.</td>
</tr>
<tr>
<td>4.7.4</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Acacia cambagei tall open shrubland with Triodia spp. +/- Senna spp. Near eroding edges of Tertiary plateaus</td>
</tr>
<tr>
<td>4.7.6</td>
<td>Least concern</td>
<td>No concern at present</td>
<td>Acacia chisholmii low shrubland. Other Acacia species and or scattered Eucalyptus spp. may be present. The ground layer is dominated by Triodia spp. Acacia chisholmii low shrubland.</td>
</tr>
</tbody>
</table>
Figure 5: On site distribution of regional ecosystems in relation to proposed mine footprint
4.3.2 **Fauna**

A total of 109 terrestrial fauna species were recorded during the C&R (2010) Environmental Investigation. One species (the Common Death Adder), listed as near threatened under the *Nature Conservation Regulation 2006*, was sighted at The Monument approximately 20 km from the site. Two species, the Rainbow Bee-eater (*Merops ornatus*) and the Great Egret (*Ardea alba*), listed as migratory under the *Environmental Protection and Biodiversity Conservation Act 1994* (EBPC) were also recorded outside the survey area not in close proximity to the site.

4.4 **Geology**

The project will target the Korella phosphate deposit (also known as the Corella Bore Prospect). The Korella phosphate deposit is a marine sedimentary phosphorite hosted in the Beetle Creek Formation of the early Palaeozoic Georgina Basin, northwest Queensland. The Korella deposit lies 5 km south of PHM, Queensland’s most significant producer of high-quality diammonium and monoammonium phosphate fertilizer for domestic and export markets (Denaro et al., 2013).

The Beetle Creek Formation (BCF) is a Middle Cambrian package of basal siltstone (up to 60 m thick) and overlying phosphorite, phosphatic siltstone, chert and limestone (up to ~ 40 m). At Korella, the BCF forms part of the Narpa Group of the Burke River Structural Belt, a fault bounded north-south elongate basin of mostly Palaeozoic strata about 180 km long and 60 km wide. The BCF overlies the Thorntonia Limestone and is overlain by the Inca Formation, comprising up to 150 m of silty siliceous shale, chert and carbonaceous calcareous mudstone (Jell, 2013). Regionally, this contact is interpreted as an onlapping disconformity (Jell, 2013) but mine-scale interpretation of this surface is as a fault disconformity (GDH, 2011).

At Korella, high grade phosphatic ore is associated with the BCF and Inca Formation contact, with subordinate, lower grade ore in two stratigraphic zones lower in the BCF. This distribution contrasts with the 9 phosphate ‘lodes’ confined to lower Beetle Creek strata at PHM, where the BCF and Inca Formation contact is largely absent through erosion.

The BCF is interpreted as a deepening upward succession (GHD, 2011) and the PHM phosphate deposits are associated with older shallow marine deposition, whereas the Korella phosphatic deposits are of younger, deeper water affinity. Additionally, the fault disconformity at Korella is interpreted as fluid pathway for post burial diagenetic phosphate enrichment beneath the contact (GDH, 2011). Whereas post-depositional uplift has eroded the upper units of the BCF at PHM, local down-faulting at Korella resulted in preservation of the high grade and relatively pure (low iron, aluminum and cadmium) phosphate ore.

4.5 **Soils**

No detailed soil information currently exists for the project site. The Atlas of Australian Soils recognises three distinct soil groups within the mine lease (Figure 6):

1. **Atlas of Australian Soils Code FA41** – Undulating to moderately undulating with some strongly undulating areas; rock outcrop is common: dominant soils are very shallow gravelly loams (Um5.51), with (Um1.43) and (K-Um1.43) more common on phosphatic rock outcrops. Associated are other shallow gravelly loams (Um5.2), (Um1.41), (Um1.3), and lesser (Um5.11). On some outwash slopes are calcareous earths (Gc2.22) and gravel-free red earths (Gn2.13).

Cursory landform observations across the site indicate the description and distribution of this soil unit as mapped by the Atlas of Australian Soils is accurate with some
amendments. Within the site no rock outcrop was observed within this unit. The soil unit on the site is dominated by red gravelly loams to a depth greater than 0.75m.

The majority of the trial pit infrastructure is located within this soil unit (Figure 7), including:
- Parts of the pit;
- Waste Rock Dump;
- A settlement pond; and
- Parts of the Pit Access Road.

2. *Atlas of Australian Soils Code MM46* – Alluvial plains with some slightly higher scalded areas that are often gravel-strewn: dominant soils are deep red-brown cracking clays (Ug5.38), with associated deep brown (Ug5.34) or occasionally grey (Ug5.24) cracking clays in lower sites. In some areas the clays are slightly gravel-strewn. On the low rises and adjacent to streams are gravel-strewn loamy red duplex soils (Dr2.33), (Dr2.43), and (Dr2.13) and occasional uniform clays (Uf6.31). Crusty duplex soils (Dr1.33) and (Dr1.43) may also occur. On some stream levees are deep loamy or occasionally sandy red earths (Gn2.13, Gn2.12)

   Cursory landform observations across the site indicate this description and distribution of this soil as mapped by the Atlas of Australian Soils are accurate. The MM46 soil unit on this site is varied. To the west of the unit there is a strong interaction with the FA41 soil unit. It is likely that gravel has washed out of the FA41 soil unit and is strewn atop of grey cracking clays (the MM46 soil unit). This strewn zone extends for approximately 300 m from the mapped border of these two units. In effect this is a mixing zones of the two units. Outside of this 300 m mixing zone the soils are considerably more uniform, being observed as grey cracking clays.

   Mine infrastructure that is present within the MM46 soil unit include (Figure 7):
   - Parts of the Pit;
   - Sections of the Pit Access Road;
   - Haul Road;
   - Site accommodation and Camp Access Road;
   - Site office; and
   - The ROM/MIA and associated settlement pond.

3. *Atlas of Australian Soils Code MN6* – Broadly undulating lands with granite tor outcrop on some ridge crests: dominant soils are quartz-gravel-strewn moderately deep loamy red friable earths (Gn3.13), with lesser (Gn3.12). Associated on some slopes are gravel-strewn loamy red duplex soils (Dr2.12, Dr2.13) and gravel-strewn red clays (Uf6.31). Deep brown or red-brown cracking clays occur on some lower areas (Ug5.32, Ug5.37). Shallow to moderately deep Fitty red earths (Gn2.11, Gn2.12) and shallow gravelly loams (Um5.51) occur near rock outcrop.

   Only a small proportion of this soil unit is present on the site. No mine infrastructure is located within this soil unit (Figure 6).
Figure 6: Mapped soil units from the Atlas of Australian Soils within ML90209
Figure 7: Location of trial pit infrastructure in relation to Atlas of Australian soil units
4.6 RECEIVING ENVIRONMENT

The mining lease is located in the upper reaches of several small drainage lines. These un-named drainage features flow in various directions from the project site in response to a very shallow ridge line that passes through the centre of the mining lease running in a north-south direction. Flows exiting the lease in the north report to Mahaffey Creek before entering Kolar Creek and subsequently the Burke River (Figure 8). Flows exiting the lease to the east accumulate in a small unnamed gully (hereon referred to as Eastern Gully) before entering Kolar Creek ~8 km downstream (Figure 8). Westerly gullies report directly to the headwaters of Middle Creek while southerly flows exit the site via an unnamed creek (hereon referred to as Southern Creek) before reporting to Middle Creek which confluences with Burke River over 70km downstream (Figure 8). The Burke River flows directly into the larger Georgina River before entering Lake Eyre.

4.6.1 AQUATIC FAUNA

Aquatic fauna occurring in the greater Lake Eyre catchment must be resilient and tolerant of extreme fluctuations in water quality and flow conditions. Many watercourses throughout the system remain totally dry for extensive periods throughout the year. This makes permanent waterholes critical to the survival of many aquatic fauna, especially fish. No other aquatic vertebrates (i.e. freshwater turtles, platypus, etc.) are known to inhabit the Georgina River catchment.

4.6.1.1 FISH

McNeil et al. 2009 identified a possible nine (9) species of fish occurring in the Georgina River catchment, including:

- *Scortum barcoo* – the Barcoo Grunter, growing up to 200 mm long this species spawns in the summer months during flood events. It is a schooling species that occurs in deeper waterholes;
- *Amniataba percoides* – the Banded Grunter also grows up to 200 mm long, spawning at night during warmer periods. This species will utilise the entire river, travelling extensive distances during periods of flow;
- *Nematolosa erebi* – the Bony Bream can reach lengths of up to 300 mm. This is a schooling species that breeds in the spring to summer months depending on flood events;
- *Neosilurus hyrtlii* – Hyrtl’s Tandan grows up to 350 mm long. The species can utilise all habitats within a catchment including rivers, waterholes, billabongs, pools and dams. They are known to breed during the summer months;
- *Macquaria* species – the Lake Eyre Golden Perch can reach lengths of up to 600 mm and is a much sought after recreational fishing species. This species generally inhabit larger watercourses, spawning on the first flood of the summer;
- *Melanotaenia splendida* – the Desert Rainbowfish grows up to 80 mm long, inhabiting waterholes and lakes within all the major tributaries of Lake Eyre. The species generally breeds in autumn following seasonal rains;
- *Leiopotherapon unicornus* – The Spangled Perch is the most common and widely distributed freshwater fish species in Australia. It utilises all aquatic habitats and displays plasticity in diet. This species generally spawns over the summer months but can breed at anytime from spring through to autumn;
- *Bidyanus welchi* – Welch’s Grunter can grow to lengths of 375 mm. This species generally occurs in larger watercourses and waterholes, spawning through the summer months after flood events; and
Ambassis mulleri – the Western Chanda Perch or Western Glassfish grows up to 60 mm in length. Little is known about their spawning habits although they can migrate upstream extensive distances during flood events. They mostly occur clear water bodies but can utilise most habitats.

Of these nine species, C&R have encountered six within local watercourses during past assessments, including:

- Amniataba percioides;
- Nematalosa erebi;
- Neosilurus hyrtlii;
- Melanotaenia splendida;
- Leiopotherapon unicolor; and
- Ambassis mulleri.

The three species not previously identified in the local area are all larger species that generally inhabit large permanent water bodies and generally do not migrate large distances. The nearest permanent waterhole to the project site is >100km downstream on the Burke River. Therefore, it is highly unlikely that these three species will occur in watercourses associated with the project site.

4.6.1.2 MACROINVERTEBRATES

Little information is available on the macroinvertebrate assemblages of the watercourses associated with the project site. However, Choy et al. (2002) undertook a health assessment of arid-zone rivers (including Georgina River) in western Queensland using macroinvertebrate communities as biological indicators. Choy et al. (2002) identified 74 higher level taxa (mostly families) within the Georgina, Diamantina, Cooper-Thomson and Bulloo Rivers. This equates to ~44% of all macroinvertebrate families known to inhabit Queensland waters occurring within this region. Of these higher order taxa Copepoda, Palaemonidae, Chironomidae (Chironominae and Tanypodinae), Corixidae and Caenidae are the most widespread and abundant (Choy et al. 2002).

As with many ephemeral watercourses throughout Queensland the edge habitats were found to be more diverse than the sandy bed habitats (Choy et al. 2002). This is expected to be related to the increased primary production noted around the margins of standing pools as well as the increased structural complexity (Choy et al. 2002).

While undertaking the macroinvertebrate monitoring Choy et al. (2002) also recorded water quality ranges throughout the targeted watercourses (Table 6). The majority of sites sampled by Choy et al. (2002) were described as reference sites using AusRivAS methods with moderate influence from grazing practices noted. Therefore, this background water quality data for the region should be taken into consideration when determining site specific water quality objectives. All sites were sampled under base flow conditions with Choy et al. (2002) surmising that variability in results will increase under high flow conditions.

Table 6: Regional water quality recorded by Choy et al. (2002)

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Units</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical conductivity</td>
<td>μS/cm</td>
<td>52 – 620</td>
</tr>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.7 – 9</td>
</tr>
<tr>
<td>Dissolved oxygen</td>
<td>mg/L</td>
<td>3.3 – 14</td>
</tr>
<tr>
<td>Turbidity</td>
<td>NTU</td>
<td>4 – 1000</td>
</tr>
<tr>
<td>Total Nitrogen</td>
<td>mg/L</td>
<td>0.3 – 3</td>
</tr>
<tr>
<td>Total Phosphorus</td>
<td>mg/L</td>
<td>0.03 – 0.85</td>
</tr>
</tbody>
</table>
Figure 8: Site drainage
5. POTENTIAL IMPACTS, MITIGATION MEASURES AND EA CONDITIONS

5.1 GENERAL

5.1.1 LEGISLATIVE REQUIREMENTS

The major legislative instruments that govern the project include:

- Mineral Resource Act 1989; and

This document proposes environmental protection commitments to satisfy the requirements of the EP Act and all other Acts to protect the environmental values affected by the proposed expansion.

5.1.2 ENVIRONMENTAL COMMITMENT

ANB are committed to protecting environmental values associated with the project site. As such, ANB are currently in negotiations with contractors for the proposed expansion of mining activities with a sound environmental compliance track record a key requirement of the successful tenderer.

Environmental compliance and proactive stakeholder engagement by the successful contractor will be reviewed every year with set contractual requirements/milestones to be achieved.

5.1.2.1 ENVIRONMENTAL RISK MANAGEMENT SYSTEM

An Environmental Risk Management System (ERMS) has already been developed for the site to ensure environmental hazards, aspects and opportunities are identified and their resulting risks to people, property, assets and the environment evaluated, managed and recorded in a common register. This ERMS has been developed in accordance with the ISO14001:2004 and HB 203:2012 standards allowing for ongoing reviews and maintenance of the system. If the expansion proposal is approved the ERMS and associated register will be amended to include up to date information relevant to any new/additional risks.

5.1.2.2 RESPONSIBILITIES

All Venus Phosphate staff will be trained in the environmental requirements of their roles. This training will include an outline of their responsibilities in regards to the environmental performance of their activities and their environmental duty as outlined in Section 319(1) of the EP Act ‘a person must not carry out any activity that causes, or is likely to cause, environmental harm unless the person takes all reasonable and practicable measures to minimize the harm’.

Specific environmental responsibilities of all staff are detailed in the Environmental Protection Objectives and Control Strategies in Sections 5.2 to 5.9. Regular training and awareness of changed conditions and/or environmental requirements will be undertaken via:
• Regular staff toolbox meetings;
• Debriefs following environmental incidents; and
• Refresher training on an annual basis or following significant changes to the site environmental management protocols.
5.1.3 **EXISTING & PROPOSED EA CONDITIONS**

Table 7 outlines the current and proposed EA condition for Schedule A of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014).

**Table 7: Schedule A – General; current and proposed EA amendments**

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1</td>
<td>Words and phrases used throughout this environmental authority are defined in Schedule H – Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the <em>Environmental Protection Act 1994</em>, its Regulations and Environmental Protection Policies must be used.</td>
<td>Replace with A1 from Model Mining Conditions.</td>
<td>A1</td>
<td>This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.</td>
</tr>
<tr>
<td>A2</td>
<td>This environmental authority authorises the investigation of the potential development of a mineral resource by bulk sampling up to 10,000t of phosphate material from ML90209.</td>
<td>This current condition is site/task specific to the original trial pit. It is proposed that on approval of the larger mining operation the EA will adopt the A2 condition from the Model Mining Conditions. The Model Mining Conditions state that condition A2 can be adopted if sufficient data exists for the site to clearly delineate areas that require protecting across the mining lease. Throughout the following Sections of this supporting information document it will be proven that the only areas requiring protection</td>
<td>A2</td>
<td>In carrying out the mining activity authorised by this environmental authority, disturbance of land: a) may occur in the areas marked ‘A’ b) must not occur in the areas marked ‘B’ on the map in Schedule J – Figure J1 (Protected areas) to this environmental authority.</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>within ML90209 are those associated with mapped watercourses under the Vegetation Management Act. These areas are protected under the requirements of the EOP with a 25 m buffer imposed. Therefore Figure J1 of the amended EA clearly defines protected areas within the mining lease as defined under the EOP.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>The environmental authority does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the environmental authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.</td>
<td>This condition can be removed as it is now covered by Proposed Condition A1.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A4</td>
<td>The only mining activities to be carried out under this environmental authority are the mining activities identified in Schedule I – Map 1 (Trial Mining Operations Layout) and within the parameters in Schedule A – Table 1 (Authorised Mining Activities).</td>
<td>This condition can be removed as it is now covered by Proposed Condition A2.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
| A5                    | The environmental authority holder must:  
  • Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;  
  • Maintain such measures, plant and equipment in a proper condition; and | This condition is still relevant. However, the wording has changed within the Model Mining Conditions to include the below Current Condition A6 as another bullet point. Therefore, the Proposed Condition will be amended to the adopt Model Mining Condition A4. Note it is numbered A3 within the Proposed Conditions as Condition A3 within the Model Mining Conditions is not relevant | A3 | The holder of this environmental authority must:  
  a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority  
  b) maintain such measures, plant and equipment in a proper and efficient condition |
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A6</td>
<td>All instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority must be calibrated, and appropriately operated and maintained</td>
<td>This condition can be removed as it is now covered by Proposed Condition A3.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A7</td>
<td>No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increase, or is likely to increase, the risk of environmental harm.</td>
<td>This condition has been removed as it is no longer included in the current Model Mining Conditions.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Monitoring**

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
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<tr>
<td>A8</td>
<td>The Environmental Authority holder must record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.</td>
<td>This condition is considered still relevant, although the wording will be amended to conform to the relevant Model Mining Conditions (i.e. Condition A5).</td>
<td>A4</td>
<td>Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years.</td>
</tr>
<tr>
<td>A9</td>
<td>Where monitoring is a requirement of this environmental authority, ensure that an appropriately qualified person conducts all monitoring.</td>
<td>This condition is no longer relevant within Schedule A. Instead, the Model Mining Conditions state this where necessary within subsequent Schedules</td>
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<td>to ensure compliance. Therefore, it is proposed that this condition is removed from this section of the EA in accordance with current best practices.</td>
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<tr>
<td>A10</td>
<td>All analyses, monitoring and tests required to be conducted under this environmental authority must be carried out by a laboratory that has a NATA certification for such analyses, monitoring and tests, except as otherwise authorised by the administering authority.</td>
<td>This condition is no longer relevant within Schedule A. Instead, the Model Mining Conditions state this where necessary within subsequent Schedules to ensure compliance. Therefore, it is proposed that this condition is removed from this section of the EA in accordance with current best practices.</td>
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### Financial Assurance

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<tr>
<th>Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
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<tbody>
<tr>
<td>A11</td>
<td>The Environmental Authority holder must provide a financial assurance of an amount determined by the administering authority in accordance with the administering authority’s Guideline – Calculating Financial Assurance for Mining Activities, and in a form acceptable to the administering authority.</td>
<td>Financial Assurance conditions are relevant to the proposed mining operations. However, the Model Mining Conditions document has simplified these into two succinct conditions. It is proposed that the two Financial Assurance conditions outlined within the Model Mining Conditions (i.e. A6 and A7) replace conditions A11, A12 and A13 from the current EA.</td>
<td>A5</td>
<td>The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.</td>
</tr>
<tr>
<td>A12</td>
<td>The amount of financial assurance may be reviewed at any time by the administering authority including when a Plan of Operations is amended or replaced.</td>
<td>Financial Assurance conditions are relevant to the proposed mining operations. However, the Model Mining Conditions document has simplified these into two succinct conditions. It is proposed that the two Financial Assurance conditions outlined within the Model Mining Conditions (i.e. A6 and A7) replace conditions A11, A12 and A13 from the current EA.</td>
<td>A6</td>
<td>The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
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<tr>
<td>A7) replace conditions A11, A12 and A13 from the current EA.</td>
<td>A13 The financial assurance must remain in force until the administering authority is satisfied that no claim on the assurance will be required.</td>
<td>Financial Assurance conditions are relevant to the proposed mining operations. However, the Model Mining Conditions document has simplified these into two succinct conditions. It is proposed that the two Financial Assurance conditions outlined within the Model Mining Conditions (i.e. A6 and A7) replace conditions A11, A12 and A13 from the current EA.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Emergency Response/Contingency</td>
<td>An emergency response/contingency plan must be developed, contained within the plan of operations and implemented to respond to emergency events and incidents.</td>
<td>This condition is no longer viewed as a requirement within Schedule A. Instead, it is addressed in subsequent schedules within the EA. Therefore, it is recommended this condition be removed from the EA to comply with current best practice environmental management measures.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>A14</td>
<td>The emergency response/contingency plan required under condition A14 must address the following matters as a minimum: (a) Response procedures to be implemented to prevent or minimise the risk of environmental harm arising from incidents; (b) Response procedures to minimise the extent and duration of environmental harm caused by an incident;</td>
<td>This condition is no longer viewed as a requirement within Schedule A. Instead, it is addressed in subsequent schedules within the EA. Therefore, it is recommended this condition be removed from the EA to comply with current best practice environmental management measures.</td>
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</tr>
<tr>
<td>Current Condition No.</td>
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<td>Justification for amendment</td>
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<tr>
<td>(c) The practices and procedures to be employed to restore the environment or mitigate any environmental harm caused; (d) The resources to be used in response to an incident; (e) Procedures to investigate the cause of any incidents, including releases, and where necessary, implement remedial actions to reduce the likelihood of recurrence of similar events; (f) The provision and availability of documented procedures to staff attending any incident to enable them to effectively respond; (g) Training of staff that will be called upon to respond to incidents to enable them to effectively respond; (h) Timely and accurate reporting of the circumstance and nature of incidents to the administering authority in accordance with conditions of this Environmental Authority; (i) Procedures for accessing monitoring points during incidents; and (j) Procedures to notify any potentially impacted Stakeholder who may be affected by the event within 24 hours, with information to be provided at a minimum: i. The location of the release;</td>
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<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
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<td>ii. The date and time of the release; ii. The date and time of the release; iii. The estimated quantity and type of any substances (if available concentrations) involved in the incident; and iv. The potential impacts to environmental values caused by the release.</td>
<td>This condition is considered to be relevant to the proposed mining operations and is included in the Model Mining Conditions. Therefore, it is recommended that this condition be retained.</td>
<td>A7</td>
<td>Other than altering the condition number, no amendment to this EA condition is proposed.</td>
<td></td>
</tr>
<tr>
<td>Risk Management A16</td>
<td>The holder of this environmental authority must develop and implement an environmental risk management system for mining activities, which conforms to a recognised Standard for Environmental Risk Management, within 6 months from the date this Environmental Authority takes effect.</td>
<td>A7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notification of Emergencies, Incidents and Exceptions A17</td>
<td>The holder of this environmental authority must notify the administering authority by telephone, email or facsimile as soon as reasonably practicable but within twenty-four (24) hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this approval.</td>
<td>A8</td>
<td>The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.</td>
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</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
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</table>
| A18                   | The notification in condition (A17) must include, but not be limited to, the following:  
  a) the environmental authority number and name of holder;  
  b) the name and telephone number of the designated contact person;  
  c) the location of the emergency or incident;  
  d) the date and time of the release;  
  e) the time the holder of the environmental authority became aware of the release;  
  f) the estimated quantity and type of substances involved in the incident;  
  g) the actual or potential cause of the incident;  
  h) a description of the nature and effects of the incident including environmental risks, any risks to public health or live stock;  
  i) any sampling conducted or proposed, relevant to the emergency or incident;  
  j) Immediate actions taken to prevent or mitigate any further environmental harm and/or environmental nuisance caused by the release; and  
  k) What notification of persons who may be affected by the event has occurred/is being undertaken. | The conditions relevant to the Notification of Emergencies, Incidents and Exceptions section of Schedule A is still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the six conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. | A9 | Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:  
 a) results and interpretation of any samples taken and analysed  
 b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm  
 c) proposed actions to prevent a recurrence of the emergency or incident. |
<table>
<thead>
<tr>
<th>Current Condition No.</th>
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<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
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</table>
| A19                   | Within fourteen (14) days or another nominated time agreed to by the administering authority, following initial notification of an emergency or incident, further written advice must be provided to the administering authority, including the following:  
  a) Results and interpretation of any samples taken and analysed;  
  b) Outcomes of actions taken at time to prevent or minimise unlawful environmental harm; and  
  c) Proposed actions to prevent a recurrence of the emergency or incident. | The conditions relevant to the Notification of Emergencies, Incidents and Exceptions section of Schedule A is still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the six conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. See above. | - | - |
<p>| A20                   | The holder of this environmental authority must notify the administering authority by telephone, email or facsimile as soon as practicable but within forty-eight hours, after becoming aware of any monitoring results that demonstrates an exceedance of any approval limit. | The conditions relevant to the Notification of Emergencies, Incidents and Exceptions section of Schedule A is still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the six conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. See above. | - | - |
| A21                   | The holder of this environmental authority must notify any potentially impacted stakeholders by telephone, | | - | - |</p>
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<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
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</table>
| A22                   | The notification in condition A21 must include the following:  
  a) The location of the release;  
  b) The date and time of the release;  
  c) The estimated quantity and type of any substances involved in the incident;  
  d) The potential impacts to environmental values caused by the release; and  
  e) Where there is potential impact on livestock or human health, precautionary measures that should be taken. | The conditions relevant to the Notification of Emergencies, Incidents and Exceptions section of Schedule A is still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the six conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. See above. | - | - |

**Complaints**

| A23 | Records must be kept of all environmental complaints received about the mining activities including the following details:  
  a) Name, address and contact number for complainant (if not | The conditions within the Complaints section of Schedule A are still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have | A10 | The holder of this environmental authority must record all environmental complaints received about the mining activities including:  
  a) name, address and contact number for |

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<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
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</table>
| A22                   | The notification in condition A21 must include the following:  
  a) The location of the release;  
  b) The date and time of the release;  
  c) The estimated quantity and type of any substances involved in the incident;  
  d) The potential impacts to environmental values caused by the release; and  
  e) Where there is potential impact on livestock or human health, precautionary measures that should be taken. | The conditions relevant to the Notification of Emergencies, Incidents and Exceptions section of Schedule A is still a requirement under the current Model Mining Conditions, although the number of conditions and the wording has changed. These changes have simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the six conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. See above. | - | - |
<table>
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<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
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<td>available, record – not identified); b) Time and date of compliant; c) Reasons for the complainant; d) Investigations undertaken; e) Conclusions formed; f) Actions taken to resolve compliant; g) Any abatement measures implemented; and h) Person responsible for resolving the compliant.</td>
<td>simplified the process to limit any ambiguity of requirements. Therefore, it is recommended that the four conditions outlined in the current Venus Phosphate EA be replaced with the two new conditions outlined in the Model Mining Conditions within the amended EA. However, while not included in the Model Mining Conditions, it is recommended that current condition A24 be retained.</td>
<td>of the complainant b) time and date of complaint c) reasons for the complaint d) investigations undertaken e) conclusions formed f) actions taken to resolve the complaint g) any abatement measures implemented h) person responsible for resolving the complaint.</td>
<td></td>
</tr>
<tr>
<td>A24</td>
<td>Records of all environmental complaints must be made available for inspection by the administering authority on request.</td>
<td>This condition is still considered relevant and is not simply stated anywhere else within the Model Mining Conditions. Therefore, it is suggested that this condition be retained.</td>
<td>A11</td>
<td>Other than altering the condition number, no amendment to this EA condition is proposed.</td>
</tr>
<tr>
<td>A25</td>
<td>When requested by the administering authority, undertake relevant specific monitoring within a timeframe nominated by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within fourteen (14) days of completion of the investigation unless otherwise agreed to by the administering authority, and no later than fourteen (14) days after the end of the timeframe nominated by the administering authority to undertake relevant specific monitoring.</td>
<td>This condition has been re-written with differing timeframes within the Model Mining Conditions. It is recommended that the new Model Mining Condition be adopted to comply with current best practice methods.</td>
<td>A12</td>
<td>The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority.</td>
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<td>Current Condition No.</td>
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<td></td>
<td>undertake the investigation.</td>
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<td>to undertake the investigation.</td>
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<tr>
<td>A26</td>
<td>The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents, stakeholders and land owners reasonably expected to be affected by the activities to ensure that social and cultural heritage impacts are identified and managed.</td>
<td>The establishment of good/effective communication lines between the EA holder and stakeholders is considered in the best interest of the holder. However, it is no longer a requirement of the EA in the Model Mining Conditions. Therefore, it is suggested that this condition be removed from the amended EA.</td>
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<tr>
<td><strong>Third-Party Reporting</strong></td>
<td></td>
<td></td>
<td>A13</td>
<td>The holder of this environmental authority must: a) within one year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above c) provide each report to the administering authority within 90 days of its completion.</td>
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<td></td>
<td>Not currently a requirement under the Venus Phosphate EA. However, it is recommended this new condition from the Model Mining Conditions be adopted to comply with</td>
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<tr>
<td><strong>Exploration</strong></td>
<td>All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the most recent version of the Code of Environmental Compliance for exploration and mineral development</td>
<td>Compliance of exploration activities with the Standard Environmental Conditions in the Code of Environmental Compliance is considered best practice. However, this is a requirement that governs all exploration activities either inside or external to the mining leases.</td>
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<td>Current Condition No.</td>
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<td>projects (the Code). Where there is a discrepancy between the Code and this environmental authority, the conditions of the environmental authority apply.</td>
<td>Therefore, the inclusion of this condition within the EA is considered a little redundant. Further, this condition is not included in the Model Mining Conditions. Therefore it is recommended that this condition be removed from the amended EA.</td>
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</table>

**Transition to New Standards**

A28 Where a condition requires compliance with a standard published externally to this environmental authority and the standard is amended or changed subsequent to the issues of this environmental authority, then the holder of this environmental authority must:

a) Until compliance with the amended or changed standard can be achieved, continue to remain in compliance with the standard that was current immediately prior to the relevant amendment or change; and

b) Comply with the amended or changed standard within 2 years, unless a different period is specified in the amended standard or relevant legislation.

This condition is included in the Model Mining Conditions although the wording has been amended. Therefore, it is recommended that the amend Venus Phosphate EA adopt the new wording for this condition.

A14 Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must:

a) comply with the amended or changed standard, policy or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in Schedule I, the time specified in that condition

b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.
5.2 AIR

5.2.1 ENVIRONMENTAL VALUES

The site has a local air shed of high quality due to its remote nature and the limited amount of activity in the area. The project site is generally isolated from sensitive receivers with the nearest residences, located 20 km north of the site in the PHM camp at The Monument.

The environmental values applicable to air quality are contained in the Queensland Environmental Protection (Air) Policy 2008 (EPP Air). The objective of the policy is to achieve compliance with the Environmental Protection Act 1994 (EP Act) in relation to Queensland’s air environment. The EHP Guideline “Preparing an Environmental Management Overview Strategy (EMOS) for Non-Standard Mining Projects” contains design limits for the release of dust and particulate matter. It states that dust or particulate matter or both resulting from a mining activity must not cause an environmental nuisance at any sensitive or commercial place. The maximum permissible measured levels at a sensitive or commercial place comprise:

- Dust deposition of 120 mg/m²/day, averaged over one month (equivalent to 3.6 g/m²/month of total insoluble matter);
- PM10 suspended particulate matter in the atmosphere of 50 µg/m³ over a 24 hour averaging time;
- PM2.5 suspended particulate matter in the atmosphere of 25 µg/m³ over a 24 hour averaging time; and
- A concentration of particulate matter suspended in the atmosphere of 90 µg/m³ over a one (1) year averaging time.

Existing contributors of emissions within the local area include diffuse particulates and dust haze from surrounding grazing lands during dry periods, and significant air emissions from PHM immediately north of the project. PHM’s emissions can include dust and particulate matter from mining operations of a larger scale than that proposed for this project, and fluoride, ammonia and sulphur dioxide from the accompanying beneficiation and fertiliser plants. Poor air quality can impact on the health and wellbeing of site staff and interfere with normal site operations.

The mine operator aims to meet these indicator criteria through the implementation of the control strategies detailed within Section 5.2.3.

5.2.1.1 BACKGROUND CONDITION

Depositional dust gauges were installed in April 2010, at six monitoring locations across the project site (Figure 9). The location of these gauges is appropriate for initial mine establishment. However, it is recommended that two of these gauges be relocated as they are within the proposed pit footprint (Figure 9).

The monitoring results from the baseline air quality data show there have been several exceedences of the defined dust deposition guideline values stipulated within the current EA (Table 8). All samples were collected prior to any works commencing on site. This suggests that the levels of total insoluble matter are already elevated within the area. The majority of the elevated levels occurred between mid-2012 and mid-2013. Section 4.2 shows that this was a period of below average rainfall and may partially explain the elevated dust levels.
Figure 9: Dust monitoring sites
Table 8: Results of baseline air quality monitoring undertaken at six sites across the project area prior to development

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>DD1 (g/m²/month)</th>
<th>DD2 (g/m²/month)</th>
<th>DD3 (g/m²/month)</th>
<th>DD4 (g/m²/month)</th>
<th>DD5 (g/m²/month)</th>
<th>DD6 (g/m²/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean 80th Max</td>
<td>Mean 80th Max</td>
<td>Mean 80th Max</td>
<td>Mean 80th Max</td>
<td>Mean 80th Max</td>
<td>Mean 80th Max</td>
</tr>
<tr>
<td>Ash Content</td>
<td>1.175 1.58 6.3</td>
<td>2.043 2.7 9.8</td>
<td>5.939 10.82 27.1</td>
<td>1.654 1.98 9.5</td>
<td>1.279 1.96 4.3</td>
<td>1.629 0.9 13.3</td>
</tr>
<tr>
<td>Combustible matter</td>
<td>0.957 1.68 4.2</td>
<td>2.15 3.22 9.0</td>
<td>2.264 3.74 10.3</td>
<td>1.477 2.6 5.4</td>
<td>1.504 1.76 6.5</td>
<td>0.421 0.72 1.9</td>
</tr>
<tr>
<td>Total soluble matter</td>
<td>3.4 1.92 32.0</td>
<td>2.096 3.96 7.0</td>
<td>1.696 3.64 5.4</td>
<td>1.808 2.82 5.3</td>
<td>1.454 2.04 3.5</td>
<td>0.592 0.86 1.9</td>
</tr>
<tr>
<td>Total insoluble matter</td>
<td>2.146 2.6 8.0</td>
<td>4.22 6.58 15.0</td>
<td>8.239 15.48 37.4</td>
<td>3.138 4.26 15.0</td>
<td>2.768 4.6 9.9</td>
<td>2.096 1.58 15.2</td>
</tr>
<tr>
<td>Total Solids</td>
<td>3.5 4.48 11.3</td>
<td>6.286 9.5 20.4</td>
<td>9.936 18.42 41.1</td>
<td>4.962 6.82 20.3</td>
<td>5.7 7.68 23.0</td>
<td>2.725 2.38 17.1</td>
</tr>
</tbody>
</table>

80th = 80th percentile value as calculated in Excel. **Bolded values** indicate an exceedence of the EA guideline value for Total insoluble matter of 3.6 g/m²/month.
Table 8 shows that the samples were generally collected every quarter. Therefore, the sampling regime does not comply with appropriate standards that require the depositional bottles to be collected every 30 days ± 2 days. All future dust monitoring must be undertaken in accordance with the most recent version of Australian Standard AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method.

5.2.2 POTENTIAL IMPACTS

Potential impacts on air quality as a result of the project may occur during both the construction and operational phases. The impacts may be in the form of dust or other emissions and can influence visibility, human health, ecosystem function and/or aesthetics.

5.2.2.1 DUST

Potential dust emission sources include materials handling, ore movement, stockpiles, exposed surfaces and unpaved roads. Some construction activities may also have the potential for short-term dust generation. However, it is envisaged that the majority of dust will be generated during standard operational procedures, including:

- Heavy and light vehicle movement;
- Vegetation clearing;
- Topsoil stripping;
- Overburden and interburden extraction;
- Overburden and interburden loading, haulage and dumping;
- Ore loading and haulage;
- Ore crushing and screening; and
- Wind erosion of cleared or exposed areas and stockpiles/dumps.

5.2.2.2 OTHER EMISSIONS

Other emissions from activities undertaken for the project include sulphur dioxide and nitrogen oxides generated by the diesel-powered plant and machinery. The emission rates of these oxides are predicted to be minimal. As no beneficiation process is proposed at this stage of the mine’s life there is expected to be minimal impact from ‘other emissions’.

5.2.3 ENVIRONMENTAL PROTECTION OBJECTIVES AND CONTROL STRATEGIES

Based on the background assessment of environmental values associated with air, Table 9 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Environmental Protection Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing ambient air quality.</td>
<td>Maintain ambient air quality levels and take all reasonable and practicable measures to avoid or minimise impacts from the project on sensitive receptors. Dust and particulate levels, as a consequence of the project, should satisfy EA</td>
</tr>
</tbody>
</table>
### Environmental Protection Objectives and Control Strategies – Air

<table>
<thead>
<tr>
<th>Performance Indicators/Criteria</th>
<th>Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>limits at all times.</td>
<td></td>
</tr>
<tr>
<td>Number of air quality complaints.</td>
<td>Air/Dust</td>
</tr>
<tr>
<td>Dust monitoring results.</td>
<td></td>
</tr>
</tbody>
</table>

**Air/Dust**

- Internal roads traversed by vehicles associated with the project will be watered on an as needs basis. Vehicular access internally within the project will be restricted to authorised vehicles and designated routes.
- Internal speed limit on unsealed roads will be 60 km/h.
- Ore stockpile residence time will be minimised.
- Investigate any dust complaint expeditiously and respond to complainant.
- Record complaints in the project's Complaints/Incidents Register.
- Report all emissions as required by the National Pollution Inventory (NPI).
- Site machinery and equipment will be serviced regularly and maintained to minimise emissions.
- Regular watering of operational areas, including gravel products stockpiles, to be undertaken during operations.

**Greenhouse Gas Emissions**

**Diesel**

- Diesel efficiency considerations will be included in assessments and subsequent purchases of new mobile and fixed equipment. **Verifiable Action:** Energy efficiency considerations will be included in purchasing protocols.
- Ensuring both mobile equipment and stationary plant *i.e.* generators, are maintained to retain high levels of energy efficiency. **Verifiable Action:** Energy efficiency considerations included in maintenance procedures.
- Annual audit of total diesel usage per unit of ore production.
  **KPI:** Improvement in diesel efficiency per tonne of product ore.

**Electricity**

- Electrical efficiency considerations will be included in assessments and subsequent purchases of new equipment. **Verifiable Action:** Energy efficiency considerations will be included in purchasing protocols.
- Ensuring plant is properly maintained.
  **KPI:** Improvement in electricity efficiency per tonne of product ore.

**Greenhouse Emission Management**

- Energy audits will be arranged to ensure that the mine is using best practicable techniques to minimise energy use and is operating at optimum energy levels. **Verifiable Action:** Preparation of an energy audit schedule.
- Development and maintenance of an inventory of site emissions and sinks.
  **KPI:** Improvement in electricity and diesel efficiency per tonne of product ore. *Note:* KPIs and verifiable actions for greenhouse gas emission control
<table>
<thead>
<tr>
<th>Environmental Protection Objectives and Control Strategies – Air</th>
</tr>
</thead>
<tbody>
<tr>
<td>strategies will be monitored on an annual basis.</td>
</tr>
</tbody>
</table>

**Commitment**

Despite the anticipated low levels of air quality impacts, routine dust management (including dust suppression by using water trucks) will be implemented during construction activities and the operational and rehabilitation phases. Air quality management will involve investigations into all complaints and their resolution in a reasonable and practicable manner.

**Commitment**

AVR will respond to air nuisance complaints within 48 hours. Where monitoring is required to verify a complaint or as directed by the Administering Authority, it will involve dust deposition and/or particulate monitoring and comparison against the licence limits of 120 mg/m²/day (averaged over one month) at the complainant's residence. The method of monitoring will be in accordance with the AS/NZS 3580 Method for Sampling and Analysis of Ambient Air.

**Commitment**

AVR will maintain the existing dust deposition monitoring network, for the foreseeable future and assess the monthly depositional results. These results will be critically reviewed on a quarterly basis to determine if the mine is causing an increase in dust deposition above that predicted by the modelling, and to ensure that they comply with EPA guidelines. The review of the dust deposition data will include an assessment of the prevailing meteorological conditions and mining rates/mining processes, as well as other activities external to the projects activities that could influence results. If dust depositional levels are found to exceed EPA guideline levels for three (3) consecutive months, the results will be assessed by a competent person. If they are found to be likely a consequence of mining operations, then dust concentration sampling will be carried out using a high volume sampler to verify compliance with the EPA guidelines. The sampling will be carried out at the monitoring site(s) near to where the source(s) is expected to have contributed to the higher level(s) of dust depositional rates.

**Commitment**

All monitoring and sampling techniques will be consistent with the EPA’s current version of the Air Quality Sampling Manual and applicable Australian Standards.

**Commitment**

Energy considerations will be included in purchasing protocols.

**Commitment**

Develop a land clearing permit system.

**Commitment**

Regular energy audits will be carried out.

**Commitment**

Provision of energy use and greenhouse emission data for incorporation in Vale’s annual published GRI Report.

**Commitment**

Training of staff in fire fighting techniques will be provided on-site.

**Commitment**

Covering all transporters of ore materials.

**Commitment**

Enclosure of the transfer point and dust suppression will occur within the crushing and screening area.
5.2.4 Existing and Proposed EA Conditions

Table 10 outlines the current and proposed EA condition for Schedule B of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014). However, as no beneficiation of ore is to occur on site it is suggested the first two condition within Schedule B of the Model Mining Conditions are inappropriate for the proposed activities. Therefore, they have not been included in the proposed EA conditions provided in Table 10.

Table 10: Schedule B – Air; current and proposed EA Conditions

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>B1</td>
<td>The release of noxious or offensive odour or any other airborne contaminant resulting from the mining activities must not cause any environmental harm at any sensitive place or commercial place.</td>
<td>The current condition is similar to the Model Mining Conditions B3. However, the current wording is suggested to be of greater relevance to the proposed mining activities for the site. Therefore, it is recommended that the current B1 condition remains unchanged.</td>
<td>B1</td>
<td>No amendment to this EA condition is proposed.</td>
</tr>
<tr>
<td>B2</td>
<td>The holder of this environmental authority must ensure that vehicles (including trains) used for transporting bulk materials to and from the mining tenement, enter and leave the site with appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust to the receiving environment during transport.</td>
<td>This condition is not required under the Model Mining Conditions. However, as the rail load out facility that the mine will utilise is located a short distance off lease it is recommended that this condition be retained in the proposed EA.</td>
<td>B2</td>
<td>No amendment to this EA condition is proposed.</td>
</tr>
<tr>
<td><strong>Dust and Particulate Monitoring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B3</td>
<td>When requested by the administering authority or as a result of a compliant (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken and the results thereof</td>
<td>While this condition is no longer a requirement in the Model Mining Conditions it is suggested to be relevant to the proposed mining activities because of the remote nature of the site. Therefore, it is recommended that</td>
<td>B3</td>
<td>No amendment to this EA condition is proposed.</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
</tr>
<tr>
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</tr>
<tr>
<td>notified to the administering authority within fourteen (14) days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place.</td>
<td>this condition be retained.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
| B4 | Dust and particulate matter must not exceed the following levels when measured at any sensitive or commercial place:  
   a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method.  
   b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of Australian Standard AS3580.9.6 Determination of suspended particulate matter – PM (sub) 10 high volume sampler with size-selective inlet – Gravimetric method.  
   c) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:  
   2. Australian Standard AS3580.9.6 Determination of suspended particulate matter – PM (sub) 10 high volume sampler with size-selective inlet – Gravimetric method. | This condition is still a requirement of the Model Mining Conditions although the wording has slightly changed. It is recommended that the new wording be adopted for this condition. | B4 | The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:  
   a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter—Gravimetric method.  
   b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:  
### Current Condition

<table>
<thead>
<tr>
<th>No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>diameter of less than 2.5 micrometre (PM2.5) suspended in the atmosphere of 25 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with the most recent version of Australian Standard AS/NZ3580.9.10 Determination of suspended particulate matter – PM (sub) 2.5 (/sub) low volume sampler – Gravimetric method.</td>
<td></td>
<td></td>
<td>Methods for sampling and analysis of ambient air— Determination of suspended particulate matter— PM10 high volume sampler with sizeselective inlet – Gravimetric method, or</td>
</tr>
<tr>
<td>2</td>
<td>A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a one (1) year averaging time, when monitored in accordance with the most recent version of Australian Standard AS/NZ3580.9.3:2003 Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High volume sampler gravimetric method.</td>
<td></td>
<td></td>
<td>Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter— PM10 low volume sampler— Gravimetric method.</td>
</tr>
<tr>
<td>c)</td>
<td>A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM2.5) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—PM (sub)2.5(/sub) low volume sampler—Gravimetric method.</td>
<td></td>
<td></td>
<td>Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter— PM10 low volume sampler— Gravimetric method.</td>
</tr>
<tr>
<td>d)</td>
<td>A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.</td>
<td></td>
<td></td>
<td>Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air— Determination of suspended particulate matter— PM10 low volume sampler— Gravimetric method.</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
</tr>
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<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------</td>
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</tr>
<tr>
<td>B5</td>
<td>If monitoring indicates the limits in condition B4 have been exceeded, the environmental authority holder must promptly implement dust abatement measures so that emissions of dust generated by mining activities cease to exceed the limits in condition B4.</td>
<td>This condition is no longer a requirement of the Model Mining Conditions. Instead, this condition is now covered by Proposed Condition No. A8 and A9. Therefore, this condition is now seen as redundant.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>B6</td>
<td>The holder must implement and maintain best practice environmental management dust control procedures that incorporate a program for continuous improvement for the management of dust resulting from the mining activities with respect to, but not limited to equipment selection, mine planning, design and operation, and staff training.</td>
<td>This condition is no longer a requirement of the Model Mining Conditions. Instead, this condition is now covered by Proposed Condition No. A3. Therefore, this condition is now seen as redundant.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
5.3 **WASTE**

Waste management in Queensland is controlled using the Environmental Protection Regulation 2008 (EP Regulation); Environmental Protection (Waste Management) Policy 2000 (EPP Waste), and Environmental Protection (Waste Management) Regulation 2000 (EPWMR) under the EP Act.

The EP Regulation defines ‘general waste’ as waste other than regulated waste. Regulated wastes are wastes that:
- contain a significant quantity and concentration of a hazardous contaminant;
- the hazardous contaminant exhibits hazardous characteristics because of its toxicity, carcinogenicity, mutagenicity, teratogenicity, flammability, corrosivity, reactivity, ignitability or infectiousness, through its physical, chemical or biological characteristics; or
- may cause environmental harm if improperly transported, treated, stored, disposed or otherwise managed.

Waste tracking for the project will be undertaken in accordance with the EP Regulation.

5.3.1 **ENVIRONMENTAL VALUES**

The project site has no recorded history of waste disposal although the land has historically been used for low intensity grazing practices. Therefore, the project would aim to manage waste from the project without adversely affecting the following:
- safety and wellbeing of employees and the wider community;
- diversity of ecological processes and ecosystems;
- land use capability;
- local soil health; and
- groundwater quality.

5.3.2 **POTENTIAL IMPACTS**

Potential sources of waste and land contamination from the project include:
- vehicle and plant maintenance operations;
- refuelling operations and fuel storage areas;
- chemical storage areas;
- tyre disposal;
- coarse and fine reject material;
- overburden material;
- general waste material;
- putrescible waste; and
- sewage waste.

5.3.2.1 **WASTE ROCK CHARACTERISATION**

GHD (2011) conducted an overburden characterisation assessment across the project site. Sixty six (66) samples were tested from varying depths within exploration holes for a range of parameters (GHD 2011).
**Total Metals**

The results were compared against threshold levels for soil contaminants as outlined in Attachment 2 of the Assessment and Management of Acid Drainage (DME, 1995) as well as background ranges for the region noted in the National Environmental Protection Council guidelines (NEPC, 1999) based on Berkman (1989).

Although the median values for all tested parameters were compliant with available guideline values, several parameters were found to regularly exceed threshold and background levels, including:

- Arsenic;
- Molybdenum;
- Barium;
- Nickel;
- Cadmium;
- Selenium;
- Chromium;
- Sulphur; and
- Copper;
- Zinc;
- Manganese;
- Sulphur.

No leachate tests have been performed on the samples to determine the potential for these parameters to mobilise when hydrated. However, GHD (2012) postulated that based on existing surface water quality data for the area there is "**no significant potential for leaching of these metals**" from the designated spoil dumps.

Geochemical modelling undertaken by C&R of the overburden and rainfall interactions found that several metals have the potential to leach from the waste rock dump and exceed aquatic ecosystem guideline levels (refer to Appendix D for a more detailed assessment). Cadmium, chromium, copper, lead, nickel, vanadium and zinc were regularly modelled above both the 95th and 80th percentile Species Protection Levels (ANZECC & ARMCANZ 2000). However, all metals generally comply with Livestock Drinking Water Guidelines (ANZECC & ARMCANZ 2000) within modelled runoff (Appendix D). This suggests runoff from the waste rock dump is of little concern if managed correctly and direct release into the receiving environment is limited (Appendix D).

**Acid Producing Potential**

Overburden across the project site is comprised predominantly of alkaline marine sediments (refer to Section 4.4). Systematic drilling undertaken by Krucible Metals Pty Ltd showed that these sediments are comprised of limey shales, siltstones and sandstones as well as clays, laterites, limestones and dolomites. GHD’s (2012) characterisation showed that these sediments display a high calcium carbonate (lime) to sulphide ratio suggesting an extremely low potential to produce acidic runoff. This outcome reinforces historic findings by Russell & Truman (1971) that found limited sulphide materials within the Beetle Creek and Inca Formations.

During the drilling regime very little groundwater was intersected with only minor iron enrichment noted in fractures opposed to PHM where a palaeo-aquifer increases the occurrence of iron enrichment. Based on this assessment, GHD (2012) stated that there is no likelihood of producing acid waters from the Inca sediments which comprise the majority of the overburden.

**Radioactive Potential**

GHD (2012) also undertook an assessment of the radioactive potential of the overburden material through a comparison with the requirements of the NSW Radiation Control Regulation (2003). The regulation states a material is classified as radioactive if the uranium and thorium ratios are equal to or greater than 1. The maximum ration observed within the overburden samples collected was 0.084 (GHD 2012). Therefore the overburden waste is not classified as radioactive.
5.3.3 **Environmental Protection Objectives and Control Strategies**

Based on the background assessment of environmental values associated with waste, Table 11 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

**Table 11: Environmental Protection Objectives and Control Strategies – Waste**

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Environmental Protection Objective</th>
<th>Performance Indicators/Criteria</th>
<th>Control Strategies</th>
</tr>
</thead>
</table>
| Environmental Value | Wastes are managed to ensure no environmental harm is caused. | Waste will be managed to avoid adverse impacts on the health of the workforce; to minimise risk of impact on land, air and water, and to acknowledge that waste is a resource that can often be realised with good waste management practices. | Waste will be managed by:  
- identifying, categorising and quantifying waste types; and  
- identifying methods for waste avoidance, minimisation, recycling, treatment and disposal.  
Waste will be classified and segregated at source to facilitate waste management.  
Where possible wastes will be recycled.  
Tyres will be stored and/or disposed of in accordance with the proposed EA. It is the intention that a minimal number of scrap tyres will be kept on-site.  
Regulated waste will be removed from the site by licensed regulated waste transport contractors for recycling by a licensed recycler or disposal in a licensed regulated waste disposal facility.  
Waste tracking records for regulated wastes shall be maintained.  
General waste will be place in the approved on site landfill location.  
Landfill will be appropriately managed and rehabilitated. |

- Volume or mass of recycled materials.  
- Temporary storage of waste types in authorised locations.  
- Stock excluded from waste storage/disposal areas.  
- Presence and use of appropriate bins and containers.  
- Presence of appropriate signage.  
- Rehabilitation success of waste rock dumps.  
- Water quality compliance of runoff in sediment dams associated with the waste rock dumps. |
## Contamination

All petroleum products, and other hazardous goods (chemicals), will be stored in accordance with AS1940 Storage and Handling of Flammable and Combustible Liquids.

Soil contaminated by hydrocarbons will be removed and placed in a “regulated waste storage area” or will be remediated on-site (i.e. land farm).

The following general control strategies will be implemented across the site to avoid and mitigate potential contamination to land and water:

- Control the movement of chemicals onto the project site by means of an approval process which takes into account all environmental aspects of use, handling and disposal.
- Store hydrocarbons in accordance with AS1940: Storage and Handling of Flammable and Combustible Liquids.
- Investigate any potential contamination within the project site.
- Remediate contaminated land as required.
- All hazardous waste products as prescribed by the Environmental Protection Regulation 1998 will be removed from the project site by an appropriately licensed carrier for disposal at an appropriately licensed facility.

Note; a Spillage Management and Emergency Plan is already established for trial pit operations at the site (Appendix E). This document will be easily amended to ensure these best practice methods/procedures for reducing the risks from spills of hazardous materials are adopted for the major expansion works.

Any sites that become contaminated will be investigated and managed in accordance with the requirements of the contaminated land provisions of the EP Act. Assessment would be against the Draft Guidelines for the Assessment & Management of Contaminated Land in Queensland (1998) or subsequent versions.

## Waste Rock Dump

The following general control strategies will be implemented for the waste rock dump area to avoid and mitigate potential contamination to land and water:

- The entire area will be bunded to limit the impacted catchment area and divert clean waters.
- Continual analysis of overburden geochemistry to determine level of risk and improve waste management across the site. This will include using inert overburden for the development of structures (i.e. bunds, road base, etc.) within the mine area
- Shaping of dumps to achieve safe and stable final landforms.
- Adopting contours, drop structures and other drainage devices to limit erosion processes.
- Install limestone keys within drainage structures to reduce the concentrations of potential contaminants within runoff from the waste rock dumps in accordance with recommendations from the modelling undertaken in Appendix D.
Environmental Protection Objectives and Control Strategies - Waste

<table>
<thead>
<tr>
<th>Commitment</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>Establish sediment dams that capture runoff from the dumps and allow suspended solids to be captured prior to reuse.</td>
</tr>
<tr>
<td>-</td>
<td>Ensure no runoff is released directly into the downstream receiving environment.</td>
</tr>
<tr>
<td>-</td>
<td>Progressively rehabilitate the waste rock dump to ensure it becomes a safe and stable landform with minimal erosion and sediment laden runoff.</td>
</tr>
<tr>
<td>-</td>
<td>Development of a Waste Rock and Spoil Management Plan to ensure the proposed control strategies are successfully adopted.</td>
</tr>
<tr>
<td>Note; a Waste Rock and Spoil Management Plan has already been established for trial pit operations at the site (Appendix B). This document will be easily amended to ensure these best practice methods/procedures for reducing the risks from runoff associated with the waste rock dumps are adopted for the major expansion works.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>All regulated waste will be appropriately disposed of to a facility licensed to receive such wastes and, where required, be tracked.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Development and implementation of a Waste Management Plan.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Re-use and recycling will be included as part of the staff awareness and induction program.</td>
</tr>
<tr>
<td>Commitment</td>
<td>General waste will only be disposed of on site in approved waste facilities.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Hazardous waste will be treated in accordance with the appropriate Australian Standards.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Development and implementation of a Spillage Management and Emergency Plan for the expanded operations.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Progressive rehabilitation will commence when areas become available within the operational land.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Catchment area impacted by the disposal of waste rock will be limited through the installation of bunds and associated drainage structures.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Development and implementation of a Waste Rock and Spoil Management Plan for the expanded operations.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Runoff from the waste rock dump will not be allowed to release into the receiving environment prior to treatment.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Monitor water quality contained within the sediment dams associated with the waste rock runoff treatment system.</td>
</tr>
</tbody>
</table>
5.3.4 Existing and Proposed EA Conditions

Table 10 outlines the current and proposed EA condition for Schedule B of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014). Note; no conditions relating to tailings disposal are included within the Schedule as there will be no beneficiation process conducted on site and therefore no tailings generated. Further, the condition within the Model Mining Conditions relating to acid sulphate soils has been omitted from the proposed Schedule as it is considered irrelevant to the location of the site and the types of soils identified in the area (refer to Section 4.5).

Table 12: Schedule C – Waste; current and proposed EA Conditions

<table>
<thead>
<tr>
<th>Current Condition N°</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contaminated Land</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E1</td>
<td>Prior to making an application for Surrender or approval for Progressive Rehabilitation the holder of this environmental authority must undertake a contaminated land assessment / investigation of the relevant areas of the licensed place in accordance with the Administering Authority Guidelines for the Assessment &amp; Management of Contaminated Land in Queensland.</td>
<td>Under the Model Mining Conditions contaminated lands are no longer included in the Waste Schedule. Instead, they are discussed in the Land Schedule. Therefore, conditions relating to contaminated lands will be outlined in Schedule H – Land and rehabilitation of the amended EA. Hence it is recommended this condition will be removed for the Waste Schedule.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Waste Disposal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E2</td>
<td>The only waste that can be disposed of on site is waste generated on site and is limited to: (a) Waste rock; and (b) Tyres in accordance with conditions E8 – E10.</td>
<td>With the expansion of the mining operations additional waste will be generated on site. Further, the remoteness of the project site makes it inefficient (both in cost and potential for environmental harm) to transport this waste to registered landfills. Instead, it is recommended that this condition be amended to include general waste.</td>
<td>C1</td>
<td>The only waste that can be disposed of on site is waste generated on site and is limited to: (a) Waste rock; (b) General waste (including construction and demolition waste, green waste and putrescible and domestic waste; and (c) Tyres/Conveyor belt/Rubber moulded products.</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3</td>
<td>All general and regulated waste (other than authorised under condition (E2)) must be removed from the site to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994.</td>
<td>The proposed condition C1 makes new provisions for the management of general waste. Further, conditions addressing regulated waste are outlined below. Therefore, this condition is now seen as redundant. Instead, this condition should outline the requirements for disposal of general waste on-site. Hence, it is proposed that condition C1 of the Model Mining Conditions be adopted.</td>
<td>C2</td>
<td>General waste must only be disposed of into the waste disposal trench facility of and identified in Schedule J – Figure J2 (Mine layout).</td>
</tr>
</tbody>
</table>

**Regulated Waste**

<table>
<thead>
<tr>
<th>Condition No.</th>
<th>Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E5</td>
<td>Regulated waste, other than that authorised to be disposed of on site under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the Environmental Protection Act 1994.</td>
<td>No provisions for the management of regulated waste are outlined within the Model Mining Conditions. Therefore, it is recommended that the current regulated waste conditions be retained.</td>
<td>C4</td>
</tr>
<tr>
<td>E6</td>
<td>Regulated waste generated as a result of the mining activity can be temporarily stored on site awaiting removal provided it is stored to ensure there is minimal risk of causing fire or contamination to land or water.</td>
<td>No provisions for the management of regulated waste are outlined within the Model Mining Conditions. Therefore, it is recommended that the current regulated waste conditions be retained.</td>
<td>C5</td>
</tr>
<tr>
<td>E7</td>
<td>Each container of regulated waste</td>
<td>No provisions for the management of regulated waste are outlined within the Model Mining Conditions. Therefore, it is recommended that the current regulated waste conditions be retained.</td>
<td>C6</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>stored awaiting movement off-site must be clearly marked to identify the contents.</td>
<td>regulated waste are outlined within the Model Mining Conditions. Therefore, it is recommended that the current regulated waste conditions be retained.</td>
<td>proposed.</td>
<td></td>
</tr>
</tbody>
</table>

**Tyres Storage and Disposal**

| E8 | Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options - should be stockpiled in volumes less than 3m in height and 200m² in area and at least 10m from any other tyre storage area. | This condition is still considered relevant to the proposed mining activities.                                                                                                                                                    | C7 | No amendment to this EA condition is proposed. |

| E9 | Fire prevention measures must be implemented including the removal of all combustible materials, including grass and vegetation, within a 10m radius of any tyre storage area. | This condition is still considered relevant to the proposed mining activities.                                                                                                                                                  | C8 | No amendment to this EA condition is proposed. |

| E10 | Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practically implemented, waste tyres generated from mining activities may be disposed of on site in non acid forming waste rock dumps. | This condition is still considered relevant to the proposed mining activities.                                                                                                                                                  | C9 | No amendment to this EA condition is proposed. |

**Waste Rock Disposal**

| E11 | The holder must develop, implement and submit to the administering authority a waste rock and spoil management plan with the Plan of Operations and update and resubmit the plan with each subsequent Plan of Operations. | Current conditions E11 and E12 are still considered relevant to the proposed mining activities. However, these to conditions can be simplified into one overarching condition. | C10 | The holder if this authority must develop, implement and annually review a Waste Rock and Spoil Management Plan that includes:  
(a) A rehabilitation strategy;  
(b) That all seepage (including subsurface) from the waste rock dump is collected in either the open |
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
</table>
| E12                   | The waste rock and spoil management plan must include:  
(g) A Rehabilitation strategy which meets the rehabilitation objective specified in Schedule F;  
(h) That all seepage (including subsurface) from the waste rock dump is collected in either the open pit or the sediment dam;  
(i) Monitoring of seepage/run off from the waste rock dump to the sediment pond or open pit is undertaken to validate geochemistry;  
(j) Measures to ensure that clean water is diverted away from the waste rock dump to avoid | Current conditions E11 and E12 are still considered relevant to the proposed mining activities. However, these conditions can be simplified into one overarching condition provided as proposed condition C10. | - | - |

- Monitoring of seepage/run off from the waste rock dump to the sediment pond or open pit is undertaken to validate geochemistry;  
- Measures to ensure that clean water is diverted away from the waste rock dump to avoid possible contamination;  
- A program of progressive sampling to validate pre-mine waste rock and spoil characterisation; and  
- Waste rock dump construction and maintenance requirements in accordance with current best practice methods.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>possible contamination; (k) A program of progressive sampling to validate pre-mine waste rock and spoil characterisation; and (l) Waste rock dump must be constructed and maintained in accordance with the Korella Phosphate Project Environmental Management Plan (March 2012).</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E13</td>
<td>The waste rock dump must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E14</td>
<td>All seepage from the waste rock dump must be captured and stored in infrastructure and open pits located on site.</td>
<td>This condition is captured in proposed condition C10 and is therefore considered redundant. It is recommended that this condition be omitted from the amended EA.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E15</td>
<td>Only waste rock that is characterised as un-reactive and/or benign material (i.e. material that does not cause acid, neutral or saline mine drainage) may be used for the construction of temporary or permanent structures within the operation areas.</td>
<td>As limited waste rock characterisation has been undertaken at this point in time it is suggested that this condition is still relevant to the proposed mining operations.</td>
<td>C11</td>
<td>No amendment to this EA condition is proposed.</td>
</tr>
</tbody>
</table>
5.4 NOISE AND VIBRATION

5.4.1 ENVIRONMENTAL VALUES

The Environmental Protection (Noise) Policy 2008 (EPP Noise) provides the framework for the management of obtrusive nuisance noise and vibration in Queensland under the EP Act. The environmental values to be enhanced or protected under the EPP Noise include the qualities of the acoustic environment that are conducive to:

- the well-being of the community or a part of the community, including its social and economic amenity; or
- the wellbeing of an individual, including the individual’s opportunity to have sleep, relaxation and conversation without unreasonable interference from intrusive noise.

The proposed site for the project is generally isolated from sensitive receivers with the nearest residence; in the township of Monument located ~20 km north of the project site. Due to this isolation, background noise and vibration levels in the locality have historically been low however the operation of the PHM will have increased noise and vibration levels.

5.4.2 POTENTIAL IMPACTS

5.4.2.1 CONSTRUCTION PHASE

During the construction of the mine, noise and vibration will be generated from a number of different activities. The construction phase of the project will generate noise and vibration from the use of dozers, scrapers, haul trucks, graders, excavators and water trucks to manage dust. Given the remote location of the site and the principal activities associated with the construction of the project, the noise and vibration limits defined by the EPA’s Noise Measurement Manual and Noise and Vibration from Blasting Guideline are not expected to be exceeded due to the distance (greater than 20 km) to the nearest sensitive receiver.

5.4.2.2 OPERATIONAL PHASE

Noise and vibration as a result of the proposed mining activities may impact on the health and wellbeing of site staff and interfere with normal site operations. Noise and vibration are likely to be generated from the following activities on site:

- Vehicles (including water trucks, dozers, loaders, haul trucks and excavators);
- Drilling; and operation of the crushing and screening plant.

However, the noise and vibration limits defined by the EPA’s Noise Measurement Manual and Noise and Vibration from Blasting Guideline, are not expected to be exceeded due to the distance (greater than 20 km) to the nearest sensitive receiver. It is unlikely that the activities associated with the operation of the mine will provide any significant sources of noise nuisance.

5.4.3 ENVIRONMENTAL PROTECTION OBJECTIVES AND CONTROL STRATEGIES

Based on the background assessment of environmental values associated with noise, Table 13 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.
<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Existing noise and vibration levels at noise sensitive receptors (local rural residences).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection Objective</td>
<td>To take all reasonable and practicable measures to avoid or minimize the potential for nuisance noise and vibration impacts from the mining activities on noise sensitive receptors.</td>
</tr>
<tr>
<td>Performance Indicators/Criteria</td>
<td>Number of noise and vibration complaints at noise sensitive receptors. Noise and vibration monitoring in accordance with the Environmental Protection (Noise) Policy 1997. In the event of a nuisance complaint, noise from the mining activities will be measured at the sensitive receptors if the complaint is regarded as genuine operations will be modified to be compliant with relevant guidelines.</td>
</tr>
<tr>
<td>Control Strategies</td>
<td><strong>Noise</strong>&lt;br&gt;In accordance with best practice industry standards, the following noise control measures will be implemented.&lt;br&gt;- All equipment, including mufflers, will be well maintained.&lt;br&gt;- Truck speeds will be restricted to 60 km/hr.&lt;br&gt;Any noise complaints will be investigated expeditiously to determine the source of the nuisance noise and where appropriate, noise monitoring will be conducted at the affected residence and residents informed of the outcome.&lt;br&gt;Should monitoring determine that the noise level is persistently causing nuisance, AVR will seek to reach an agreement with the resident to provide noise ameliorative treatment of the dwelling to minimize the nuisance.&lt;br&gt;Measurement and monitoring will be undertaken in accordance with the EPA’s current version of the Noise Measurement Manual.&lt;br&gt;Complaints will be recorded in the AVR Complaints/Incidents Register. <strong>Vibration</strong>&lt;br&gt;Blasting will be undertaken in accordance with the relevant Australian Standard AS 2187 and the Environmental Protection Regulation 1998. Although no blasting is currently planned.&lt;br&gt;Surface air blasting will ensure that all relevant air blast and ground vibration criteria are satisfied at surrounding sensitive locations.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Noise monitoring carried out in response to complaints will be undertaken in accordance with the requirement of the Environmental Protection (Noise) Policy 1997. Results will be assessed against the noise limits provided above.</td>
</tr>
</tbody>
</table>
5.4.4 **EXISTING AND PROPOSED EA CONDITIONS**

Table 14 outlines the current and proposed EA condition for Schedule B of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014).

**Table 14: Schedule D – Noise; current and proposed EA conditions**

<table>
<thead>
<tr>
<th>Current Condition N°</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1</td>
<td>Noise and vibration from any mining activity must not cause an environmental harm at any sensitive or commercial place.</td>
<td>The Model Mining Conditions have altered this condition to now clearly state that noise limits that must not be exceeded at any sensitive or commercial place. It is recommended this condition be amended to comply with current best practice methods.</td>
<td>D1</td>
<td>The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise limits to be exceeded at a sensitive place or commercial place.</td>
</tr>
</tbody>
</table>

**Table D1 – Noise limits**

<table>
<thead>
<tr>
<th>Noise level dB(A) measured as:</th>
<th>Monday to Saturday</th>
<th>Sunday and public holidays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7am to 6pm</td>
<td>6pm to 10pm</td>
</tr>
<tr>
<td><strong>L_{A_{eq}}, adj, 15 mins</strong></td>
<td>CV = 50</td>
<td>AV = 5</td>
</tr>
<tr>
<td><strong>L_{A_{1}}, adj, 15 mins</strong></td>
<td>CV = 55</td>
<td>AV = 10</td>
</tr>
</tbody>
</table>

**Commercial place**

<table>
<thead>
<tr>
<th>Noise level dB(A) measured as:</th>
<th>Monday to Saturday</th>
<th>Sunday and public holidays</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7am to 6pm</td>
<td>6pm to 10pm</td>
</tr>
</tbody>
</table>

Table D1 – Noise limits notes:

1. CV = Critical Value  
2. AV = Adjustment Value  
3. To calculate noise limits in Table D1:
   - If bg ≤ (CV – AV): Noise limit = bg + AV  
   - If (CV – AV) < bg ≤ CV: Noise limit = CV  
   - If bg > CV: Noise limit = bg + 0  
4. In the event that measured bg (LA90, adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level  
5. bg = background noise level (LA90, adj, 15 mins) measured over 3-5 days at the nearest sensitive receptor  
6. If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the “Planning for Noise Control” guideline.

Airblast overpressure nuisance

D2 The holder of this environmental authority must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in Table D2 – Blasting noise limits to be exceeded at a sensitive place or commercial place.

Table D2 – Blasting noise limits

<table>
<thead>
<tr>
<th>Blasting noise limits</th>
<th>Sensitive or commercial blasting noise limits place limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airblast overpressure</td>
<td>115 dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>No.</td>
<td>than 120 dB (Linear) Peak at any time</td>
</tr>
</tbody>
</table>

**Monitoring and reporting**

**D2**  
In the event of a compliant made to the administering authority (which is neither frivolous or vexatious) about noise generated in carrying out the licensed activity and the noise is considered by the administering authority to be an unreasonable noise, the holder of this environmental authority must take action to ensure that it is no longer an unreasonable noise.

This condition is no longer required under the Model Mining Condition and is suggested to be covered under the overarching conditions outlined in Schedule A. Therefore it is recommended that this condition be omitted from the amended EA.

- -

**D3**  
Ensure that noise generated by the mining activities does not cause the criteria in Schedule D – Table 1 (Noise Limits) to be exceeded.

This condition is now addressed in Proposed Condition D1 and D2.

- -

**D4**  
Noise monitoring must include the following descriptors, characteristics and conditions:

(a) LA eq,adj, 15 mins, LA1,adj, 15 mins recorded at 15 minute intervals;

(b) The level and frequency of occurrence and adjustments for impulsive or tonal noise;

(c) Atmospheric conditions including

This condition has been slightly amended within the Model Mining Conditions. It is recommended that the amended EA adopt the altered wording to comply with current best practice methods.

D3 Noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)

b) background noise LA90

c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>wind speed and direction; (d) Effects due to extraneous factors such as traffic noise, insects, etc.; and (e) Location, date and time of monitoring.</td>
<td>D5 When requested by the administering authority, noise monitoring and recording must be undertaken within a timeframe nominated by the administering authority to investigate any complaint of environmental nuisance at any sensitive place or commercial place and the results must be provided to the administering authority within 14 days following completion of monitoring. Due to the remote location of the project site relative to sensitive receptors it is suggested that this condition is still relevant.</td>
<td>D4 Other than updating the Condition Number, no amendment to this EA condition is proposed.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>d) atmospheric conditions including temperature, relative humidity and wind speed and directions e) effects due to any extraneous factors such as traffic noise f) location, date and time of monitoring g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.</td>
<td>D6 The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority’s Noise Measurement Manual or the most recent version of AS1055 Acoustics – Description and measurements of environmental noise. This condition is no longer a requirement of the Model Mining Conditions. Therefore, it is suggested that this condition be omitted from the final EA.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
5.5 GROUNDWATER

The Environmental Protection Policy (Water) 2009 (EPP Water) provides the framework for the management of water quality in Queensland under the EP Act. The EPP Water outlines:

- the environmental values to be enhanced or protected;
- specific water quality guidelines;
- decision making with respect to promoting efficient use of resources and best practice environmental management; and
- community consultation through communication and liaison.

5.5.1 BACKGROUND CONDITION

5.5.1.1 DEPTH TO GROUNDWATER

Groundwater monitoring within the project site in the late 1980s and early 1990s noted groundwater depth between 62.5 m and 61.6 m. This is in contrast to PHM where the aquifers are known to occur as shallow as ~30 m depth (GHD 2012). As there are no major watercourses traversing the project site there is predicted to be no alluvial aquifers within the mining lease boundary.

The majority of the high grade phosphate targeted by the proposed mining operations does not occur below 60 m depth. However, if accessed, the north-east corner of the pit will dip down to ~85 m deep.

5.5.1.2 GROUNDWATER QUALITY

There is no groundwater chemistry data available for the aquifers at the project site. However, GHD (2011) performed an assessment of groundwater quality within aquifers associated with the neighbouring PHM. This assessment identifies the likely aquifer occurring across the project site is within the Bettle creek formation and also occurs at PHM. Table 15 displays the range of concentrations experienced for monitored quality characteristics within groundwater at PHM.

Groundwater chemistry was found to be highly variable dependent on aquifer intercepted. The shallow aquifer (<50 m) chemistry is characterised by fresh, high-quality water, generally within guideline limits for freshwater aquatic ecosystems (ANZECC & ARMCANZ 2000) and drinking water (GHD 2012). Deeper aquifers are relatively saline with elevated levels of metals, nutrients as well as major and minor ions exceeding the ANZECC & ARMCANZ (2000) guidelines (GHD 2012). There appears to be little influence of seasonality in any aquifers, although infrequent rainfall events coupled with infrequent monitoring limits any seasonality conclusions that can be drawn (GHD 2012).

As the groundwater across the project site is located at depths of over 60 m it is predicted that the water quality will be similar to the saline groundwater associated with PHM. Initial water level investigations of three Department of Natural Resources and Mines (DNRM) bores located within and immediately adjacent to, the project site suggests the aquifer is flowing in a relatively easterly direction.

The full GHD (2011) hydrogeological assessment is provided in Appendix F.
Table 15: Regional groundwater chemistry extract from GHD 2011 (Appendix F)

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Units</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.9 – 7.9</td>
</tr>
<tr>
<td>Electrical conductivity</td>
<td>µS/cm</td>
<td>950 – 1530</td>
</tr>
<tr>
<td>Fluoride</td>
<td>mg/L</td>
<td>0.48 – 1.5</td>
</tr>
<tr>
<td>Chloride</td>
<td>mg/L</td>
<td>88 – 260</td>
</tr>
<tr>
<td>Total dissolved solids</td>
<td>mg/L</td>
<td>610 – 1600</td>
</tr>
<tr>
<td>Calcium</td>
<td>mg/L</td>
<td>53 – 120</td>
</tr>
<tr>
<td>Potassium</td>
<td>mg/L</td>
<td>4 – 7</td>
</tr>
<tr>
<td>Magnesium</td>
<td>mg/L</td>
<td>32 – 50</td>
</tr>
<tr>
<td>Sodium</td>
<td>mg/L</td>
<td>84 – 170</td>
</tr>
<tr>
<td>Total Kjeldahl nitrogen</td>
<td>mg/L</td>
<td>0.05 – 6.2</td>
</tr>
<tr>
<td>Total phosphorus</td>
<td>mg/L</td>
<td>0.007 – 0.28</td>
</tr>
<tr>
<td>Arsenic</td>
<td>mg/L</td>
<td>0.0006 – 0.0065</td>
</tr>
<tr>
<td>Cadmium</td>
<td>mg/L</td>
<td>0.002 – 0.01</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>0.001 – 0.19</td>
</tr>
<tr>
<td>Total alkalinity</td>
<td>mg/L</td>
<td>230 – 360</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/L</td>
<td>33 – 135</td>
</tr>
<tr>
<td>Silica</td>
<td>mg/L</td>
<td>0.3 – 46</td>
</tr>
</tbody>
</table>

5.5.2 Environment Values

No environmental values are designated for groundwaters within the region under the EPP Water. Therefore, the background condition of groundwater across the project site as well as the potential users must be taken into consideration when determining site specific environmental values and required water quality objectives (WQOs).

The GHD (2011) assessment found the aquifer most likely associated with the project site regularly exceeds 95th percentile Species Protection Level guidelines (ANZECC & ARMCANZ 2000) suggesting surface water guideline values are inappropriate for naturally carbonate/bicarbonate rich groundwaters (GHD 2011). Further, the groundwater will not be released in the surface water receiving environment. Instead, it is used locally by the landowner for stock drinking water, for industrial purposes by neighbouring PHM in processing and is proposed to be drawn by the mining operations for potable water. Based on this assessment it is proposed that the environmental values and WQOs required to protect and enhance these values are:

- Biological integrity of groundwater systems – site specific guideline values must be developed from reference bore data for the site as surface water guidelines have been proven to be inappropriate;
- For water that may be used for agricultural purposes – the suitability of the water for agricultural purposes (i.e. irrigation, livestock drinking water, etc.);
- For waters that may be used for drinking water – the suitability of the water for human consumption; and
- For waters that may be used for industrial purposes – the suitability of the water for industrial uses.
5.5.3 **POTENTIAL IMPACTS**

Potential adverse impacts on groundwater as the result of mining activities associated with the project include:

- Contamination of local aquifer;
- Groundwater extraction for consumptive use;
- Potential groundwater – surface water interaction; and
- Contamination of groundwater by infiltration of surface water through mine workings.

The risk of impact to groundwater from proposed mining activities is suggested to be minimal. This is because the vast majority of the pit will not exceed 60 m depth while the aquifer on site appears to occur at >60 m deep. The north-east corner of the pit will reach depths of ~85 m as the targeted ore body dips in this zone (Figure 10). At this stage it is unclear of the impacts to groundwater in this north-east corner as there is limited information on the flow path of the aquifer. There are two possible scenarios for groundwater interaction in this zone:

1. The aquifer remains at ~60m depth and dewatering is required to access this section of the proposed pit. This will increase the potential for groundwater – surface water interactions as well as draw down on the effected aquifer. This may result in a large volume of water requiring storage through the dewatering process, although aquifer flow rates are also unknown at this stage; or
2. The aquifer also dips in the north-east and follows the stratigraphy of the ore body. This will result in little to no impact on the aquifer.

Further groundwater monitoring and assessment are required before definitive conclusions can be drawn on the potential impacts to the aquifer from mining activities in the north-east corner of the proposed pit. Therefore, at this stage the worst case scenario approach will be taken when devising control strategies for achieving environmental protection objectives for potential groundwater impacts.

5.5.3.1 **CUMULATIVE IMPACTS**

Groundwater flows and quality may be impacted by the infrastructure associated with PHM activities. Further, there is the potential for additional mining leases to be granted in close proximity to the project site in the future. Therefore, the potential cumulative impacts affecting the groundwater system associated with the site must be taken into consideration when devising environmental protection objectives.

The cumulative impacts of greatest concern to the groundwater systems of the region are:

- Groundwater contamination; and
- Dewatering/draw down of aquifers.

At this stage there is limited data to determine the extent of connectivity between the aquifers associated with PHM and the one across the project site. Additional monitoring of a strategically positioned monitoring bore network is essential for ensuring cumulative impacts to groundwater systems are minimised.
Figure 10: Cross section of the north-east corner of the target ore body (extracted from Mining Associates Pty Ltd 2009)
5.5.4 **ENVIRONMENTAL PROTECTION OBJECTIVES AND CONTROL STRATEGIES**

Based on the background assessment of environmental values associated with groundwater, Table 16 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

**Table 16: Environmental Protection Objectives and Control Strategies – Noise**

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Control Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological and structural integrity of on-site groundwater systems.</td>
<td><strong>Mine Water Management System</strong></td>
</tr>
<tr>
<td>Water quality values for livestock drinking water.</td>
<td>The project's mine water management system will define, monitor and manage the impact of mine operations on the local natural surface water and groundwater systems.</td>
</tr>
<tr>
<td>Water quality values for drinking water.</td>
<td>Using this system groundwater will be managed based on the following broad principles:</td>
</tr>
<tr>
<td>Water quality values for industrial purposes.</td>
<td>- an extensive monitoring bore network will be established to determine potential impacts to groundwater quality and volume/flows;</td>
</tr>
<tr>
<td></td>
<td>- monitoring will be undertaken on all water storages by suitably qualified personnel;</td>
</tr>
<tr>
<td></td>
<td>- all possible measures will be taken to ensure groundwater and surface water interactions are kept to a minimum;</td>
</tr>
<tr>
<td></td>
<td>- any extracted groundwater will be stored on site prior to re-use for dust suppression or rehabilitation;</td>
</tr>
<tr>
<td></td>
<td>- all water storages must be designed to the appropriate standards to ensure no uncontrolled releases occurred during storm events;</td>
</tr>
<tr>
<td></td>
<td>- there will be no uncontrolled release of waters from any water storage infrastructure on site;</td>
</tr>
<tr>
<td></td>
<td>- where possible water from the mine water management system will be beneficially reused to reduce the demands on off-site water supplies;</td>
</tr>
<tr>
<td></td>
<td>- bunding and channels around operational areas to divert overland flow;</td>
</tr>
<tr>
<td></td>
<td>- sedimentation dams and silt traps to collect potentially sediment-laden and contaminated water from infrastructure areas;</td>
</tr>
<tr>
<td></td>
<td>- regular maintenance and monitoring of water management structures; and</td>
</tr>
<tr>
<td></td>
<td>- regular review of water management procedures to allow for</td>
</tr>
</tbody>
</table>
identification of areas for improvement. Unless exceedance is already demonstrated from background sites, water quality within monitoring bores will not exceed the maximum levels specified in the EA / ANZECC & ARMCANZ (2000) primary industry/livestock drinking water guidelines for pH, EC and total dissolved solids. Water samples will be collected in accordance with the EHP Water Quality Sampling Manual and samples will be analysed by a (NATA) accredited laboratory.

A programme will be presented in the PoO for the regular inspection and maintenance of the water management system.

Sediment control structures will be designed in accordance with the Institute of Engineers Australia (Qld Division) Soil Erosion and Sediment Control Guidelines (1996) to operate efficiently, particularly during the wet season or times of high rainfall. Sediment that is removed from structures will be disposed of in a manner that will not cause environmental harm. Any new sediment dams that may be required (although not anticipated) will follow similar practices. The efficiency of key water management structures along with representative upstream and downstream points on the leases will be monitored through a water sampling and analysis programme.

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The frequency of groundwater monitoring and the range of parameters analysed during routine monitoring will be reviewed after the first two years of operation of the project.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An annual review of the groundwater monitoring data will be conducted and includes:</td>
<td></td>
</tr>
<tr>
<td>- a review of observed groundwater levels and assessment of climatic effects and any mine dewatering impacts;</td>
<td></td>
</tr>
<tr>
<td>- a review of the monitoring locations and determination if additional monitoring points are required; and</td>
<td></td>
</tr>
<tr>
<td>- a comparison of observed groundwater levels with those predicted in the EM plan and assessment of the need for any additional monitoring.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water levels in all onsite water storages will be monitored on a monthly basis.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Undertake further assessment of water quality from waste rock areas.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Control measures will be implemented prior to mine closure to ensure there will be no long-term impacts from the mine operation to the water quality of the receiving environment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>The Proponent will conduct a ground sampling and analysis survey just prior to mine closure to determine soil values of EC, chloride and pH at depth in all areas (i.e. roads and hardstand areas) that have been regularly sprayed with dust suppression water and are to be revegetated. Any saline soil materials which are not suitable as a growth medium for vegetation for the nominated land use (i.e. natural ecosystem or grazing), will be scraped and removed for disposal in the final void.</td>
<td></td>
</tr>
</tbody>
</table>
### 5.5.5 Existing and Proposed EA Conditions

Table 17 outlines the current and proposed EA condition for Schedule E of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014).

**Table 17: Schedule E – Groundwater; current and proposed EA conditions**

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contaminant release</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>New conditions outlined within the Model Mining Conditions should be adopted.</td>
<td>E1</td>
<td>The holder of this environmental authority must not release contaminants to groundwater.</td>
</tr>
<tr>
<td><strong>Monitoring and reporting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>New conditions outlined within the Model Mining Conditions should be adopted.</td>
<td>E2</td>
<td>All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.</td>
</tr>
<tr>
<td>C11</td>
<td>Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in the latest edition of the ARMCAZ manual titled Minimum Construction Requirements for Water Bores in Australia.</td>
<td>While this is still considered best practice it is no longer a requirement to state this in the EA. All water monitoring bores must be constructed by an appropriately licensed water bore driller. This condition is now addressed further in Proposed Condition No. E8.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C12</td>
<td>Annual groundwater monitoring reports analysing groundwater chemistry, water level and hydro-geological status of all groundwater bores and groundwater conditions must be prepared by an appropriately qualified person and submitted to the administering authority with each annual return.</td>
<td>It is no longer a requirement of the Model Mining Conditions to submit yearly reports to the administering authority. Instead, they should be conducted and presented to the administering authority if requested.</td>
<td>E3</td>
<td>Annual groundwater monitoring reports analysing groundwater chemistry, water level and hydro-geological status of all groundwater bores and groundwater conditions must be prepared by an appropriately qualified person and supplied to the administering authority upon request.</td>
</tr>
</tbody>
</table>
Groundwater quality and level must be monitored at the locations and frequencies defined in Schedule C – Table 3 (Groundwater Monitoring Locations and Frequency) & Schedule I – Map 2 (Environmental Management Plan Monitoring Sites) for quality characteristics identified in Schedule C – Table 4 (Groundwater Contaminant Trigger Levels and Contaminant Limits).

This condition remains similar although the wording and referencing of tables must be amended.

Note: proposed water quality objectives within this condition have been based on the background condition of the groundwater associated with the site and the subsequent environmental protection objectives (refer to Section 5.5).

Also monitoring bore locations and the allocation of reference bores have been based on initial water level data that suggests the aquifer associated with the site flows in a general west to east direction. The allocation of reference bores should be reviewed once further data on groundwater quality and flows has been collected.

Groundwater quality and levels must be monitored at the locations and frequencies defined in Table – E1 Groundwater monitoring locations and frequency and Schedule J – Figure J3 (Groundwater bore monitoring locations) for quality characteristics identified in Table E2 - Groundwater quality triggers and limits.

<table>
<thead>
<tr>
<th>Monitoring point</th>
<th>Northing (GDA94)</th>
<th>Easting (GDA94)</th>
<th>Monitoring frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compliance Bores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GW01</td>
<td>394476</td>
<td>7572908</td>
<td></td>
</tr>
<tr>
<td>GW02</td>
<td>394573</td>
<td>7572642</td>
<td></td>
</tr>
<tr>
<td>GW04</td>
<td>393923</td>
<td>7573571</td>
<td></td>
</tr>
<tr>
<td>GW07</td>
<td>394611</td>
<td>7574126</td>
<td></td>
</tr>
<tr>
<td>GW08</td>
<td>394721</td>
<td>7573533</td>
<td></td>
</tr>
<tr>
<td>GW09</td>
<td>394716</td>
<td>7573815</td>
<td></td>
</tr>
<tr>
<td><strong>Quarterly</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reference Bores</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
1. Monitoring is not required where a bore has been removed as a direct result of the mining activity.
2. RL must be measured to the nearest 5cm from the top of the bore casing.
3. Reference sites must:
   (a) have a similar flow regime
   (b) be from the same bio-geographic and climatic region
   (c) have similar geology, soil types and topography
   (d) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.

Schedule E – Table E2 (Groundwater quality triggers and limits)

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Units</th>
<th>Trigger level</th>
<th>Contaminant limit$^3$</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.0 – 7.5$^1$</td>
<td>5.0 – 9.0</td>
</tr>
<tr>
<td>Electrical</td>
<td>µS/cm</td>
<td>1500 or 80th percentile of reference$^2$, whichever is higher</td>
<td>5970</td>
</tr>
<tr>
<td>Fluoride</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>2.0</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>1000</td>
</tr>
<tr>
<td>Total nitrogen</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>95th percentile of reference$^2$</td>
</tr>
<tr>
<td>Filterable reactive phosphorus</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>95th percentile of reference$^2$</td>
</tr>
<tr>
<td>Total phosphorus</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>95th percentile of reference$^2$</td>
</tr>
<tr>
<td>Aluminium</td>
<td>mg/L</td>
<td>80th percentile of reference$^2$</td>
<td>5</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Arsenic</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.5</td>
</tr>
<tr>
<td>Cadmium</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.01</td>
</tr>
<tr>
<td>Chromium</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.5</td>
</tr>
<tr>
<td>Cobalt</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>1</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>1</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.1</td>
</tr>
<tr>
<td>Mercury</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.002</td>
</tr>
<tr>
<td>Nickel</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>1</td>
</tr>
<tr>
<td>Selenium</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.02</td>
</tr>
<tr>
<td>Uranium</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>0.2</td>
</tr>
<tr>
<td>Zinc</td>
<td>mg/L</td>
<td>80th percentile of reference²</td>
<td>20</td>
</tr>
<tr>
<td>Chloride</td>
<td></td>
<td>For interpretational purposes only</td>
<td></td>
</tr>
<tr>
<td>Hardness</td>
<td></td>
<td>For interpretational purposes only</td>
<td></td>
</tr>
<tr>
<td>Alkalinity</td>
<td></td>
<td>For interpretational purposes only</td>
<td></td>
</tr>
</tbody>
</table>

1 Levels based on the ANZECC & ARMCANZ (2000) trigger values for aquatic ecosystems indicative of slightly to moderately disturbed systems in this region.

2 Site specific triggers and limits to be determined using appropriate ANZECC & ARMCANZ (2000) and QWQG 2009 methods.

3 All contaminant limit values, except those deemed to be site specific, are based on the Livestock Drinking Water Guideline values (ANZECC & ARMCANZ 2000).

Note: Dissolved metal concentrations should be compared against the trigger levels, while contaminant limits are based on total metal concentrations.

- - The Model Mining Conditions now make reference to the groundwater level monitoring and Level trigger thresholds. E5 Groundwater levels when measured at the monitoring locations specified in Table E1 - Groundwater monitoring.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>It is recommended that the amended EA adopt these new guidelines as they are considered best practice.</td>
<td></td>
<td>locations and frequency must not exceed the groundwater level trigger change thresholds specified in Table E3 - Groundwater level monitoring below.</td>
</tr>
</tbody>
</table>

### Schedule E – Table E3 (Groundwater level monitoring below)

<table>
<thead>
<tr>
<th>Monitoring location</th>
<th>Level trigger threshold</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Compliance Bores</strong></td>
<td></td>
</tr>
<tr>
<td>GW01</td>
<td>TBA</td>
</tr>
<tr>
<td>GW04</td>
<td>TBA</td>
</tr>
<tr>
<td>GW05</td>
<td>TBA</td>
</tr>
<tr>
<td>GW08</td>
<td>TBA</td>
</tr>
<tr>
<td>GW09</td>
<td>TBA</td>
</tr>
<tr>
<td><strong>Observation bores</strong></td>
<td></td>
</tr>
<tr>
<td>GW02</td>
<td>TBA</td>
</tr>
<tr>
<td>GW03</td>
<td>TBA</td>
</tr>
<tr>
<td>GW06</td>
<td>TBA</td>
</tr>
<tr>
<td>GW07</td>
<td>TBA</td>
</tr>
<tr>
<td><strong>Reference Bores</strong></td>
<td></td>
</tr>
<tr>
<td>69354/1502</td>
<td>TBA</td>
</tr>
<tr>
<td>69355/1503</td>
<td>TBA</td>
</tr>
</tbody>
</table>

TBA – To be advised. Insufficient data exists for the reference bores with no monitoring undertaken since the 1990s and the other bores are yet to be installed. Therefore, once up to date has been captured Level trigger thresholds will be assigned for each bore.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>C15</td>
<td>compliance bores identified in Schedule C – Table 3 (Groundwater Monitoring Locations and Frequency), must not exceed any of the contaminant limits defined in Schedule C – Table 4 (Groundwater Contaminant Trigger Levels and Contaminant Limits).</td>
<td>Mining Conditions, although the wording has been slightly altered. Adopt the new wording.</td>
<td>E7</td>
<td>from compliance bores identified in Table E1 - Groundwater monitoring locations and frequency, must not exceed any of the limits defined in Table E2 - Groundwater quality triggers and limits.</td>
</tr>
<tr>
<td></td>
<td>This condition is retained in the Model Mining Conditions, although the wording has been altered and simplified. Adopt the new wording.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>If quality characteristics of groundwater from compliance bores identified in Schedule C – Table 3 (Groundwater Monitoring Locations and Frequency) exceed any of the trigger levels stated in Schedule C – Table 4 (Groundwater Contaminant Trigger Levels Contaminant Limits), the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If the level of contaminants at the compliance monitoring bore does not exceed the reference bore results, then no action is to be taken; and</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC &amp; ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within three (3) months outlining: Details of the investigation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E7</td>
<td>If quality characteristics of groundwater from compliance bores identified in Table E1 - Groundwater monitoring locations and frequency exceed any of the trigger levels stated in Table E2 - Groundwater quality triggers and limits or exceed any of the groundwater level trigger threshold stated in Table E3 - Groundwater level monitoring, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
<td>------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>carried out; and Actions taken to prevent environmental harm. <em>Note: Where an exceedance of a trigger level has occurred and is being investigated no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Bore construction, maintenance and decommissioning**

- Adopt new condition as outlined within the Model Mining Conditions.

- The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
5.6 WATER

The Environmental Protection Policy (Water) 2009 (EPP Water) provides the framework for the management of water quality in Queensland under the EP Act. The EPP Water outlines:

- the environmental values to be enhanced or protected;
- specific water quality guidelines;
- decision making with respect to promoting efficient use of resources and best practice environmental management; and
- community consultation through communication and liaison.

5.6.1 BACKGROUND CONDITION

All waterways associated with the lease are classed as ‘upland rivers’ under the ANZECC & ARMCANZ (2000) guidelines as the project site has an elevation of greater than 150 m. Further, due to the historic land uses associated with the area (e.g. mining and grazing) these tributaries are also categorised as ‘slightly to moderately disturbed’ as the riparian zones throughout much of the catchments are still relatively intact (ANZECC & ARMCANZ 2000). ‘Slightly to moderately disturbed’ waterways are defined under ANZECC & ARMCANZ (2000) as “ecosystems in which aquatic biological diversity may have been adversely affected to a relatively small but measurable degree by human activity”.

The mine is situated on the eastern facing slope of a shallow ridge in the northern half of the mining lease. Therefore the receiving environments of most concern from the development of the mine and its associated infrastructure are Eastern Gully and Southern Creek as well as the subsequent Kolar Creek and Middle Creek respectively. These drainage lines are highly ephemeral with the larger watercourses generally containing water for less than two months of the year, while Eastern Gully and Southern Creek are predicted to hold water for less than two weeks each year.

Kolar Creek and Middle Creek are highly braided systems. Erosion and sedimentation processes operating within these creeks can be extensive following intense, localised rainfall events. Previous observations have noted significant sediment slugs progressing through the watercourse over a number of wet seasons.

5.6.1.1 WATER & SEDIMENT QUALITY

Sampling of the drainages covered by the mining lease has been limited to sediment quality as the highly ephemeral nature of these tributaries has restricted water sample collection to date. The results of the sediment sampling suggest that the majority of quality characteristics were compliant with ANZECC & ARMCANZ (2000) guideline values as well as relevant human health based investigation levels (C&R 2010; Appendix F). However, chromium was found to be elevated in some of the samples collected from the westward flowing drainage lines. Across the lease chromium levels ranged from 18 mg/kg to 136 mg/kg (C&R 2010; Appendix F). As no development of the site had commenced when these samples were collected, it is suggested that these results depict natural variation in chromium concentrations.

GHD (2012) analysed water quality sampling results collected by PHM in Kolar Creek’s feeder creeks, Deadhorse Gully and Galah Creek. A summary of the results displayed in Table 18 found:
- Total nitrogen, reactive phosphorus and total phosphorus were regularly recorded above guideline values for ‘upland rivers’ in ‘Tropical Australia’ (ANZECC & ARMCANZ 2000);
- Copper and zinc levels were regularly recorded above ANZECC & ARMCANZ (2000) 95% Species Protection Levels; and
- All other monitored analytes were generally compliant with guideline values where available.

The elevated nutrient results correspond with the findings of Choy et al. (2002) that recorded elevated levels of Total Nitrogen and Total Phosphorus (compared to ANZECC & ARMCANZ (2000) guidelines) regularly within watercourses in the Georgina River catchment. The majority of sites within this study were allocated as reference sites in accordance with AusRivAS guidelines with only moderate grazing activity observed in the surrounding landscape (Choy et al. 2002; refer to Section 4.6.1.2). This suggests that nitrogen and phosphorus levels occur high naturally within watercourses in the region.

Note, the Queensland Water Quality Guidelines (2009) state that no guideline values are available for the area and those allocated within ANZECC & ARMCANZ (2000) are most likely irrelevant. Therefore, site specific water quality objectives (WQOs) must be determined as soon as possible.

Table 18: Water quality data in relation to the project site (data extracted from GHD 2012)

<table>
<thead>
<tr>
<th>Quality characteristic</th>
<th>Units</th>
<th>ANZECC &amp; ARMCANZ (2000)*</th>
<th>Galah Creek</th>
<th>Deadhorse Gully</th>
<th>Preliminary sample from Kolar Creek Crossing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Count</td>
<td>Median</td>
<td>Count</td>
</tr>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.0 – 7.5</td>
<td>11</td>
<td>7.39</td>
<td>9</td>
</tr>
<tr>
<td>Electrical conductivity</td>
<td>µS/cm</td>
<td>250</td>
<td>11</td>
<td>73</td>
<td>9</td>
</tr>
<tr>
<td>Alkalinity (Bicarbonate as CaCO₃)</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>29</td>
<td>9</td>
</tr>
<tr>
<td>Alkalinity (Carbonate as CaCO₃)</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>0.5</td>
<td>9</td>
</tr>
<tr>
<td>Alkalinity (Hydroxide as CaCO₃)</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>0.5</td>
<td>9</td>
</tr>
<tr>
<td>Alkalinity (Total as CaCO₃)</td>
<td>mg/L</td>
<td>-</td>
<td>8</td>
<td>27.5</td>
<td>8</td>
</tr>
<tr>
<td>TDS</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>94</td>
<td>9</td>
</tr>
<tr>
<td>TSS</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>95</td>
<td>9</td>
</tr>
<tr>
<td>Calcium</td>
<td>mg/L</td>
<td>-</td>
<td>1</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Chloride</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Fluoride</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>0.2</td>
<td>9</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>0.8</td>
<td>10</td>
</tr>
<tr>
<td>Nitrate (as N)</td>
<td>mg/L</td>
<td>0.7</td>
<td>1</td>
<td>0.005</td>
<td>1</td>
</tr>
<tr>
<td>Quality characteristic</td>
<td>Units</td>
<td>ANZECC &amp; ARMCANZ (2000)*</td>
<td>Galah Creek</td>
<td>Deadhorse Gully</td>
<td>Preliminary sample from Kolar Creek Crossing</td>
</tr>
<tr>
<td>-------------------------</td>
<td>-------</td>
<td>--------------------------</td>
<td>------------</td>
<td>----------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Count</td>
<td>Median</td>
<td>Count</td>
</tr>
<tr>
<td>Nitrite (as N)</td>
<td>mg/L</td>
<td>-</td>
<td>1</td>
<td>0.005</td>
<td>1</td>
</tr>
<tr>
<td>Nitrogen (Total)</td>
<td>mg/L</td>
<td>0.15</td>
<td>11</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Ammonia</td>
<td>mg/L</td>
<td>0.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reactive Phosphorus</td>
<td>mg/L</td>
<td>0.005</td>
<td>10</td>
<td>0.0175</td>
<td>8</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>mg/L</td>
<td>0.01</td>
<td>1</td>
<td>0.04</td>
<td>1</td>
</tr>
<tr>
<td>Sodium</td>
<td>mg/L</td>
<td>-</td>
<td>11</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/L</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Arsenic</td>
<td>mg/L</td>
<td>0.024</td>
<td>11</td>
<td>0.0005</td>
<td>9</td>
</tr>
<tr>
<td>Barium</td>
<td>mg/L</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cadmium</td>
<td>mg/L</td>
<td>0.0002</td>
<td>11</td>
<td>0.00005</td>
<td>9</td>
</tr>
<tr>
<td>Chromium</td>
<td>mg/L</td>
<td>0.001</td>
<td>10</td>
<td>0.0005</td>
<td>8</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/L</td>
<td>0.0014</td>
<td>10</td>
<td>0.008</td>
<td>8</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>0.0034</td>
<td>11</td>
<td>0.0005</td>
<td>9</td>
</tr>
<tr>
<td>Magnesium</td>
<td>mg/L</td>
<td>-</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Manganese</td>
<td>mg/L</td>
<td>1.9</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mercury</td>
<td>mg/L</td>
<td>0.0006</td>
<td>11</td>
<td>0.00005</td>
<td>9</td>
</tr>
<tr>
<td>Nickel</td>
<td>mg/L</td>
<td>0.011</td>
<td>10</td>
<td>0.0015</td>
<td>8</td>
</tr>
<tr>
<td>Uranium</td>
<td>mg/L</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Zinc</td>
<td>mg/L</td>
<td>0.008</td>
<td>10</td>
<td>0.027</td>
<td>8</td>
</tr>
</tbody>
</table>

* Guidelines based on the 95th percentile Species Protection Levels.

5.6.2 ENVIRONMENTAL VALUES

The EPP Water describes environmental values that must be protected and/or enhanced for many regions throughout Queensland. To ensure the protection of these environmental values the EPP Water also outlines associated water quality objectives (WQOs) that must be maintained. However, the EPP Water has not prescribed catchment specific environmental values and subsequent WQOs for the Upper Channel Country region. The following is a list of all potential environmental values as discussed within the EPP Water:

- For all waters – the biological integrity of an aquatic system and the ecological value;
- For waters that may be used for producing aquatic foods for human consumption – the suitability of the water for producing the foods for human consumption;
- For water that may be used for agricultural purposes – the suitability of the water for agricultural purposes (i.e. irrigation, livestock drinking water, etc.);
- For waters that may be used for recreation or aesthetic purposes, the suitability of the water for –
  - Primary recreational use; or
  - Secondary recreational use; or
- Visual recreational use;
- For waters that may be used for drinking water – the suitability of the water for human consumption;
- For waters that may be used for industrial purposes – the suitability of the water for industrial uses; and
- The cultural and spiritual values of waters.

Based on a detailed knowledge of the environmental processes and land use practices within the area and up to 15 km downstream of the project site (e.g. within the mines potential receiving environment) it is recommended that the following environmental values must be protected by adopting the WQOs proposed:

- The biological integrity of the slightly to moderately disturbed systems. Generally requiring the adoption of ANZECC & ARMCANZ (2000) 95% Species Protection Levels for WQOs until site specific triggers can be determined;
- Water for agricultural purposes. Significant grazing practices are undertaken within the area and WQOs must also comply with ANZECC & ARMCANZ (2000) Livestock Drinking Water guidelines; and
- Cultural and spiritual values of the water.

Of the WQOs outlined above the ANZECC & ARMCANZ (2000) 95% Species Protection Levels are the most stringent and the most likely to be adopted. However, as discussed in Section 5.6.1.1 several quality characteristics already exceed these guideline levels naturally within the receiving environment. It is suggested that the highly ephemeral nature of Eastern Gully and Southern Creek limits their aquatic ecological value. Therefore, the more appropriate interim guideline levels for water quality associated with the site (especially within on-site water storage structures) are the ANZECC & ARMCANZ (2000) Livestock Drinking Water guidelines.

Note; the potential aquatic ecological values for larger watercourses within the region are discussed further in Section 4.6.1 with respect to the utilisation of watercourses by organisms.

5.6.3 POTENTIAL IMPACTS

The mine site is located in the headwaters of several small catchments. There are no major watercourses that traverse the proposed development site and no natural permanent water bodies or wetlands associated with the site. Therefore, no major works are required or proposed to be undertaken that will significantly impact water movement within the landscape. Further, no beneficiation process is proposed to be undertaken on-site, suggesting limited potential contaminants associated with the proposed mining activities. However, potential water contamination from the proposed mining activities is still considered the major issue with the potential to influence environmental values associated with water across the site.

The principal sources of potential water contamination from the site include:
- runoff from ROM stockpiles containing sediment and dissolved contaminants;
- runoff and seepage from the waste rock dump containing sediment and dissolved contaminants;
- potential releases of water from mine dams containing sediment and dissolved contaminants;
- runoff from un-vegetated spoil containing sediment;
- runoff from infrastructure areas such as roads, etc. potentially containing oils, sediment, ore fines, etc.
- erosion and increased sediment loading in local waterways; and
• vegetation clearing and earthworks during construction causing sediment-laden runoff to enter the nearby waterways.

The entire project site is proposed to be bunded to limit the clean water catchment influenced by mining operations and thereby limiting the volume of water to be processed via the sites water management system. This should be relatively easy to achieve, with minimal earthworks involved, as the site is at the top of the catchment and does not cross any major watercourses.

The waste rock dump and the ROM pad pose the greatest risk to runoff quality. However, this risk can be easily managed. The ROM pad is to be bunded with all flows diverted to a settlement pond. This pond will be designed and built to the appropriate standards to manage all waters associated with the pad, with no other catchments reporting to this facility. Similarly the waste rock dump will be bunded to reduce the catchment area influenced by mining activities.

Section 5.3 and Appendix D discuss the potential quality of runoff associated with the waste rock dump. Several metals may occur at elevated levels compared to 95th percentile Species Protection Level guidelines (ANZEC & ARMCANZ 2000) within this runoff. Appendix D details appropriate and cost effective treatment techniques for runoff from the waste rock to ensure risk of impact is reduced. All water collected within the waste rock dump area will be captured in a series of sediment dams to allow suspended solids to drop out of suspension prior to passively releasing into the next cell. Limestone keys will be placed at the entrance to these dams to strip out elevated levels of potential contaminants. No untreated waters will be released from the waste rock dump water management system to the receiving environment. A Waste Rock and Spoil Management Plan (C&R 2015) already exists for the site and will be amended to incorporate the proposed mining activities once approved (Appendix D).

5.6.3.1 FLOODING

Accurate flood modelling has not been undertaken for the project site. However, based on the location of the site within the landscape several inferences into the potential risk from flooding can be made. The project site is situated at the top of the catchment with few watercourses traversing the site the risk of riverine flooding in the area is extremely low. The mining lease is not located on a floodplain. Further, the majority of the site will be bunded to re-direct overland flows away from infrastructure suggesting the greatest concern from flooding is direct precipitation.

The climate of the region is arid with the highest average monthly rainfall being ~90 mm (refer to Section 4.2). Review of the climate records found that rainfall incidences generally occur in short (<24 hr) bursts rather than prolonged (days) events, suggesting there is sufficient time to manage waters collected on site between events.

In summary, it is suggested that the risk of impacts from flooding of the mine site are minimal. However, it is recommended an accurate water balance model be developed for the project site that will identify appropriate management techniques to be employed for water storages on site to ensure sufficient freeboard is available prior to the on set of each wet season.

5.6.3.2 CUMULATIVE IMPACTS

Surface water quality and flows within Kolar Creek may be impacted by the upstream infrastructure associated with activities on PHM. Further, there is the potential for additional mining leases to be granted in close proximity to the project site in the future. This suggests that the potential cumulative impacts affecting surface waters must be considered when devising appropriate control measures.
PHM currently release into both Kolar Creek and Railway Creek. However, the proposed release point associated with the project feeds into Southern Creek and the subsequent middle creek. Therefore the cumulative impacts with the greatest potential to occur from operational activities include vehicular traffic and infrastructure development (i.e. roads and the pit in the north of the proposed footprint) within the greater Kolar Creek catchment. These effects may be most concentrated at the main creek crossings on the access road.

It is expected that any future developments around the area would include some if not all of the proposed mitigation measures suggested for the project (refer to Section 5.6.4). Adopting such mitigation measures will minimise the cumulative impacts to the downstream environment.

5.6.4 ENVIRONMENTAL PROTECTION OBJECTIVES AND CONTROL STRATEGIES

Based on the background assessment of environmental values associated with water and the potential impacts of concern, Table 19 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

**Table 19: Environmental Protection Objectives and Control Strategies – Water**

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Biological and structural integrity of on-site and downstream drainages. Water quality values for primary industry. Cultural and spiritual values of water.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection Objective</td>
<td>To take all reasonable and practicable measures to avoid degradation of the environmental values of drainages within the vicinity of the project.</td>
</tr>
<tr>
<td>Performance Indicators / Criteria</td>
<td>Water quality meets the limits specified in the EA. Surface water monitoring in accordance with Control Strategies and EA requirements. Laboratory analyses to be undertaken by a Nation Association of Testing Authorities (NATA) accredited laboratory.</td>
</tr>
</tbody>
</table>
| Control Strategies | Mine Water Management System  
The project’s mine water management system will define, monitor and manage the impact of mine operations on the local natural surface water and groundwater systems.  
Using this system water will be managed based on the following broad principles:  
- where possible, clean water will be diverted around disturbance areas so that the size of mine effected catchments is minimised to ensure a reduced potential for the mixing of mine effected water and clean water;  
- runoff from mine infrastructure area will be directed into settlement ponds;  
- runoff from waste rock dump will be captured and treated onsite via a series of sediment ponds and limestone keys;  
- surface water quality monitoring of stored waters and the receiving environment will be undertaken throughout the year and especially during times of flow;  
- if a controlled release is undertaken from a licensed release point the flow rate, quality and total volume must all be measured during the release; |
## Environmental Protection Objectives and Control Strategies – Water

- an extensive monitoring bore network will be established to determine potential impacts to groundwater quality and volume/flows;
- monitoring will be undertaken on all water storages by suitably qualified personnel;
- all possible measures will be taken to ensure groundwater and surface water interactions are kept to a minimum;
- any extracted groundwater will be stored on site prior to re-use for dust suppression or rehabilitation;
- all water storages must be designed to the appropriate standards to ensure no uncontrolled releases occurred during storm events;
- there will be no uncontrolled release of waters from any water storage infrastructure on site;
- erosion and sediment control measures will be implemented where required and designed in accordance with the Institution of Engineers Australia (Queensland Division) Erosion and Sediment Control Guidelines for Queensland Construction Sites and the Best Practice Environmental Management Guidelines for Queensland (2009);
- an erosion and sediment control plan will be developed for the site;
- where possible water from the mine water management system will be beneficially reused to reduce the demands on off-site water supplies;
- bunding and channels around operational areas to divert overland flow;
- sedimentation dams and silt traps to collect potentially sediment-laden and contaminated water from infrastructure areas;
- regular maintenance and monitoring of water management structures;
- regular review of water management procedures to allow for identification of areas for improvement; and
- a Water Management Plan containing a site specific water balance will be developed for the site.

Unless exceedance is already demonstrated from background sites, water quality at monitoring stations downstream of the mine will not exceed the maximum levels specified in the EA / ANZECC 2000 primary industry/stock watering guidelines for pH, EC and total dissolved solids. Water samples will be collected in accordance with the DEHP Water Quality Sampling Manual and samples will be analysed by a (NATA) accredited laboratory.

A programme will be presented in the PoO for the regular inspection and maintenance of the water management system.

Sediment control structures have been designed in accordance with the Institute of Engineers Australia (Qld Division) Soil Erosion and Sediment Control Guidelines (1996) to operate efficiently, particularly during the wet season or times of high rainfall. Sediment that is removed from structures will be disposed of in a manner that will not cause environmental harm. Any new sediment dams that may be required (although not anticipated) will follow similar practices. The efficiency of key water management structures along with representative upstream and downstream points on the leases will be monitored through a water sampling and analysis programme.

### Water Management of Waste Rock Dump

The following general control strategies will be implemented for the waste
Environmental Protection Objectives and Control Strategies – Water

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>All potential disturbance areas will be bunded and/or encompassed by spoon drains to limit the catchment area affected by mining activities as well as reduce the risk of flooding from sheet flows across the landscape.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>The frequency of surface water monitoring and the range of parameters analysed during flow and routine monitoring will be reviewed after the first two years of operation of the project.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>An annual review of the groundwater monitoring data will be conducted and includes:</td>
</tr>
<tr>
<td>- a review of observed groundwater levels and assessment of climatic effects and any mine dewatering impacts;</td>
</tr>
<tr>
<td>- a review of the monitoring locations and determination if additional monitoring points are required; and</td>
</tr>
<tr>
<td>- a comparison of observed groundwater levels with those predicted in the EM plan and assessment of the need for any additional monitoring.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water levels in all onsite water storages will be monitored on a monthly basis.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop and implement the recommendations of a site specific water balance model to be included within the Water Management Plan.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Commitment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop and implement a Water Management Plan for the site.</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>------------</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
<tr>
<td>Commitment</td>
</tr>
</tbody>
</table>
### 5.6.5 **Existing and Proposed EA Conditions**

Table 20 outlines the current and proposed EA condition for Schedule F of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014). However, these Model Mining Conditions target coal mines within the Fitzroy Catchment with many considered not appropriate for the project’s environmental setting. Therefore, several conditions within this schedule have been developed from other metalliferous and phosphate mine EAs within the region.

#### Table 20: Schedule F – Water; current and proposed EA conditions

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contaminant release</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>Water must not be released directly or indirectly to the receiving environment from the Settlement Pond, trial mining pit or any other water containment infrastructure within ML90209.</td>
<td>This condition is retained within the Model Mining Conditions although it has been reworded. It is recommended that the new wording be adopted.</td>
<td>F1</td>
<td>Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.</td>
</tr>
<tr>
<td>-</td>
<td></td>
<td>The current EA does not allow for any releases from water storages located on site. However, with the expansion of the mine additional storages and capacity will be required. It is recommended that conditions pertaining to releases be adopted within the EA. However, the Model Mining Conditions for water are targeted to coal mines within the Fitzroy Catchment and are considered not appropriate in the project’s environmental setting. Therefore, conditions related to releases within this schedule have been developed from other mine’s EAs within the region. Note: proposed water quality objectives</td>
<td>F2</td>
<td>The Release of contaminants to waters must: a) Only occur during flow events; b) Only occur from a release point designated in Table F1 (Mine affected water release points, sources and receiving waters) and identified in Schedule J – Figure J2 (Mine layout). c) Be monitored at the release point and frequency specified in Table F2 (Mine affected water release points, sources and receiving waters) for each parameter specified in Table F2 (Release quality objectives).</td>
</tr>
</tbody>
</table>
within this condition have been based on the background condition of the surface waters associated with the site and the subsequent environmental protection objectives (refer to Section 5.6).

<table>
<thead>
<tr>
<th>Current Condition</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>No.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Schedule F – Table F1 (Mine affected water release points, sources and receiving waters)**

<table>
<thead>
<tr>
<th>Release point</th>
<th>Easting (GDA94)</th>
<th>Northing (GDA94)</th>
<th>Mine affected water source and location</th>
<th>Monitoring point</th>
<th>Receiving waters description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP1</td>
<td>394545</td>
<td>757255</td>
<td>MIA Dam spillway overflow</td>
<td>Dam spillway</td>
<td>Southern Creek</td>
</tr>
</tbody>
</table>

**Schedule F – Table F2 (Release quality objectives)**

<table>
<thead>
<tr>
<th>Quality characteristics</th>
<th>Units</th>
<th>Release quality objectives¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.0² or 20² percentile of reference concentration³, whichever is lower. 7.5² or 80² percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>EC</td>
<td>µS/cm</td>
<td>Dilution factor⁴ x 1000² or Dilution factor⁴ x 80² percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Suspended solids</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Dissolved oxygen</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 80² percentile of reference concentration³</td>
</tr>
<tr>
<td>Fluoride</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 80² percentile of reference concentration³</td>
</tr>
<tr>
<td>Total nitrogen</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.15² or Dilution factor⁴ x 80² percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Filterable reactive phosphorus</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 80² percentile of reference concentration³</td>
</tr>
<tr>
<td>Total phosphorus</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 80² percentile of reference concentration³</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
</tr>
<tr>
<td>----------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Major cations</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Major anions</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Aluminium</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.055^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Arsenic</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.013^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Cadmium</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0002^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Chromium</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0001^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Cobalt</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0028^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0014^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0034^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Mercury</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.0006^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Nickel</td>
<td>mg/L</td>
<td>Dilution factor$^4 \times 0.011^2$ or Dilution factor$^4 \times 80^{th}$ percentile of reference concentration$^3$, whichever is higher.</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Higher.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Selenium</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.005² or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dilution factor⁴ x 80th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Uranium</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.0005² or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dilution factor⁴ x 80th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Zinc</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.008² or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dilution factor⁴ x 80th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Petroleum hydrocarbons (C6-C9)</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.020² or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dilution factor⁴ x 80th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Petroleum hydrocarbons (C10-C36)</td>
<td>mg/L</td>
<td>Dilution factor⁴ x 0.100² or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Dilution factor⁴ x 80th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Total hardness</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Alkalinity</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
</tr>
</tbody>
</table>

1 Quality of released waters must be monitored for both total (unfiltered) and dissolved (field filtered) metals and metalloids. Release quality objectives relate to dissolved metals and metalloids concentrations.
2 Objectives are based on the ANZECC & ARMCANZ (2000) values for aquatic ecosystems indicative of slightly to moderate disturbed systems in northern tropical Australia upland rivers.
3 Reference site concentration determined from reference points specified in Table F3 – Receiving water monitoring locations and frequency.
4 Dilution factor is the volume ratio of receiving water flow to contaminated water release. The volume of flow in the receiving water must be at least 20 times the volume of contaminated waters released.

Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are F3. The release of mine affected water to internal water management infrastructure installed and operated in accordance...
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>considered best practice for the project site’s environmental setting should be adopted into the amended EA.</td>
<td></td>
<td>with a water management plan that complies with condition F26 is permitted.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The current EA does not allow for any releases from water storages located on site. However, with the expansion of the mine additional storages and capacity will be required. It is recommended that conditions pertaining to releases be adopted within the EA. However, the Model Mining Conditions for water are targeted to coal mines within the Fitzroy Catchment and are considered not appropriate in the project’s environmental setting. Therefore, conditions related to releases within this schedule have been developed from other mine’s EAs within the region.</td>
<td>F4</td>
<td>At the time of release from the authorised release point specified in Table F1 (Mine affected water release points, sources and receiving waters) the flow volume within the receiving environment must be at least twenty (20) times the volume at which respective contaminated waters are released.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA.</td>
<td>F5</td>
<td>The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in Table F3 (Flow gauging station location and frequency).</td>
</tr>
</tbody>
</table>

**Schedule F – Table F3 (Flow gauging station location and frequency)**

<table>
<thead>
<tr>
<th>Gauging station</th>
<th>Easting (GDA94)</th>
<th>Northing (GDA94)</th>
<th>Mine affected water source and location</th>
<th>Receiving waters description</th>
<th>Frequency of monitoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>GS1</td>
<td>394673</td>
<td>7572551</td>
<td>MIA Dam spillway overflow</td>
<td>Southern Creek</td>
<td>Continuous</td>
</tr>
</tbody>
</table>

- The current EA does not allow for any releases from water storages located on site. However, with the expansion of the mine additional storages and capacity will be required. It is recommended that conditions pertaining to releases be adopted within the EA. However, the Model Mining Conditions for water are targeted to coal mines within the Fitzroy Catchment and are considered not appropriate in the project’s environmental setting. Therefore, conditions related to releases within this schedule have been developed from other mine’s EAs within the region.

- The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in Table F3 (Flow gauging station location and frequency). The release of contaminants to waters must not exceed the release quality objectives stated in Table F2 (Release quality objectives) for each quality.
<table>
<thead>
<tr>
<th>Current Condition</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>No.</td>
<td>capacity will be required. It is recommended that conditions pertaining to releases be adopted within the EA. However, the Model Mining Conditions for water are targeted to coal mines within the Fitzroy Catchment and are considered not appropriate in the project's environmental setting. Therefore, conditions related to releases within this schedule have been developed from other mine's EAs within the region.</td>
<td>No.</td>
<td>characteristic.</td>
</tr>
</tbody>
</table>

**Notification of release event**

- Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site's environmental setting should be adopted into the amended EA.

F7 The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:

  a) release commencement date/time
  b) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)
  c) release point/s
  d) release rate
  e) release salinity
  f) receiving water/s including the natural flow rate.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
</table>
|                      |                   | Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA. | F8 | The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition F7 and within 28 days provide the following information in writing: 
   a) release cessation date/time 
   b) natural flow rate in receiving water 
   c) volume of water released 
   d) details regarding the compliance of the release with the conditions of Department Interest; Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume) 
   e) all in-situ water quality monitoring results 
   f) any other matters pertinent to the water release event. 
   Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions F7 and F8, provided the relevant details of the release are included within the notification provided. 

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile. |
<table>
<thead>
<tr>
<th>Current Condition N°</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>in accordance with conditions F7 and F8.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notification of a release event exceedance**

- Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA.

F9 If the release limits defined in Table F2 (Release quality objectives) are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.

- Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA.

F10 The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:
  a) the reason for the release
  b) the location of the release
  c) the total volume of the release and which (if any) part of this volume was non-compliant
  d) the total duration of the release and which (if any) part of this period was non-compliant
  e) all water quality monitoring results (including all laboratory analyses)
  f) identification of any environmental harm as a result of the non compliance
  g) all calculations
  h) any other matters pertinent to the water release event.

**Receiving environment monitoring and contaminant trigger levels**

- Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are

F11 The quality of the receiving waters must be monitored at the locations specified in Table F4 (Receiving water upstream
considered best practice for the project site’s environmental setting should be adopted into the amended EA. Note: proposed WQOs within this condition have been based on the background condition of the surface waters associated with the site and the subsequent environmental protection objectives (refer to Section 5.6). Insufficient data currently exists to produce site specific WQOs therefore it is recommended best practice guidelines be adopted in the interim.

background sites and downstream monitoring points) and depicted in Schedule J – Figure J4 (Receiving environment monitoring locations) for each quality characteristic and at the monitoring frequency stated in Table F5 (Receiving water trigger levels and contaminant limits).

<table>
<thead>
<tr>
<th>Monitoring point</th>
<th>Site description</th>
<th>Easting (GDA94)</th>
<th>Northing (GDA94)</th>
<th>Monitoring frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compliance sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KCDS</td>
<td>Kolar Creek downstream of the confluence with Eastern Gully</td>
<td>401765</td>
<td>7572683</td>
<td>Each stream flow event</td>
</tr>
<tr>
<td>SC</td>
<td>Southern Creek on the lease boundary</td>
<td>393820</td>
<td>7570655</td>
<td>Each stream flow event</td>
</tr>
<tr>
<td>Reference sites</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KC</td>
<td>Kolar Creek crossing on the access road</td>
<td>394947</td>
<td>7577250</td>
<td>Each stream flow event</td>
</tr>
<tr>
<td>MC</td>
<td>Middle Creek upstream of the confluence with Southern Creek</td>
<td>392811</td>
<td>7568755</td>
<td>Each stream flow event</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality characteristics</th>
<th>Units</th>
<th>Trigger level(^1)</th>
<th>Contaminant Limit(^1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>pH</td>
<td>6.0 (minimum)</td>
<td>5.0 (minimum) or 5(^{th}) percentile of reference</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>-----------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>No.</td>
<td>units</td>
<td>7.5 (maximum)</td>
<td>concentration², whichever is lower. 9.0 (maximum) or 95th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>EC</td>
<td>µS/cm</td>
<td>250 or 80th percentile of reference concentration³, whichever is higher.</td>
<td>1000 or 95th percentile of reference concentration³, whichever is higher.</td>
</tr>
<tr>
<td>Suspended solids</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Dissolved oxygen</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Sulphate</td>
<td>mg/L</td>
<td>80th percentile of reference concentration³</td>
<td>1000 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Fluoride</td>
<td>mg/L</td>
<td>80th percentile of reference concentration³</td>
<td>2 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Total nitrogen</td>
<td>mg/L</td>
<td>0.15² or 80th percentile of reference concentration³, whichever is higher.</td>
<td>95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Filterable reactive phosphorus</td>
<td>mg/L</td>
<td>80th percentile of reference concentration³</td>
<td>95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Total phosphorus</td>
<td>mg/L</td>
<td>80th percentile of reference concentration³</td>
<td>95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Major cations</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Major anions</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Aluminium</td>
<td>mg/L</td>
<td>0.055² or 80th percentile of reference concentration³, whichever is higher.</td>
<td>5 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Arsenic</td>
<td>mg/L</td>
<td>0.013² or 80th percentile of reference concentration³, whichever is higher.</td>
<td>0.5 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Cadmium</td>
<td>mg/L</td>
<td>0.0002² or 80th percentile of reference concentration³, whichever is higher.</td>
<td>0.01 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Chromium</td>
<td>mg/L</td>
<td>0.0001² or 80th percentile of reference concentration³, whichever is higher.</td>
<td>1 or 95th percentile of reference concentration³, whichever is higher</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------</td>
<td>----------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>concentration(^2), whichever is higher.</td>
<td>concentration(^2), whichever is higher.</td>
</tr>
<tr>
<td>Cobalt</td>
<td>mg/L</td>
<td>0.0028(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>1 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Copper</td>
<td>mg/L</td>
<td>0.0014(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>1 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Lead</td>
<td>mg/L</td>
<td>0.0034(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>0.1 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Mercury</td>
<td>mg/L</td>
<td>0.0006(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>0.002 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Nickel</td>
<td>mg/L</td>
<td>0.011(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>1 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Selenium</td>
<td>mg/L</td>
<td>0.005(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>0.02 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Uranium</td>
<td>mg/L</td>
<td>0.0005(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>0.2 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Zinc</td>
<td>mg/L</td>
<td>0.008(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>20 or 95(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
</tr>
<tr>
<td>Petroleum hydrocarbons (C6-C9)</td>
<td>mg/L</td>
<td>0.020(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>95(^{th}) percentile of reference concentration(^3)</td>
</tr>
<tr>
<td>Petroleum hydrocarbons (C10-C36)</td>
<td>mg/L</td>
<td>0.100(^2) or 80(^{th}) percentile of reference concentration(^3), whichever is higher.</td>
<td>95(^{th}) percentile of reference concentration(^3)</td>
</tr>
<tr>
<td>Total hardness</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
<tr>
<td>Alkalinity</td>
<td>mg/L</td>
<td>For interpretational purposes only</td>
<td>For interpretational purposes only</td>
</tr>
</tbody>
</table>

1 Quality of released waters must be monitored for both total (unfiltered) and dissolved (field filtered) metals and metalloids. Release quality objectives relate to dissolved metals and metalloids concentrations.

2 Objectives are based on the ANZECC & ARMCANZ (2000) values for aquatic ecosystems indicative of slightly to moderate disturbed systems in northern tropical Australia upland rivers.

3 Reference site concentration determined from reference points specified in Table F3 – Receiving water monitoring locations and frequency.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
</table>
|                      |                   | Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA. | F12 | If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table F5 (Receiving water trigger levels and contaminant limits) during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and:  

a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken, or  

b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining:  

1. details of the investigations carried out  
2. actions taken to prevent environmental harm.  

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F12 b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic. |
<p>|                      |                   |                             | F13 | All determinations of water quality and biological monitoring must be performed by an appropriately qualified person. |</p>
<table>
<thead>
<tr>
<th>Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>adopted into the amended EA.</td>
<td>F14</td>
<td>The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Eastern Gully and Southern Creek and connected or surrounding waterways within 15 km downstream of the release point. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F15</td>
<td>A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administrating authority upon request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F16</td>
<td>A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request.</td>
</tr>
</tbody>
</table>

Receiving environment monitoring program (REMP)
<table>
<thead>
<tr>
<th>Current Condition</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site’s environmental setting should be adopted into the amended EA.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Water reuse

- **Proposed Condition F17**

Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).

### Onsite water storages

- **Proposed Condition C2**

Within the Model Mining Conditions no conditions relevant to water quality monitoring within water storages are contained within Schedule F. These structures require monitoring prior to and during releases as stipulated in Proposed Condition F2. Instead of stipulated monitoring regimes it is recommended that access to all on site water storages by cattle be limited and if controlled releases are to take place a dilution factor must be applied. Further assessment of the water quality is required under Schedule I – Regulated Dams. Therefore, these conditions

- -
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>relating to water quality monitoring of storages are viewed as redundant and should be omitted from the amended EA.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3</td>
<td>In the event that water storages defined in Schedule C – Table 1 (Water Storage Monitoring) exceed the contaminant limits defined in Schedule C – Table 2 (Onsite Water Storage Contaminant Limits), the holder of the environmental authority must implement measures, where practical, to prevent access to waters by all livestock and native fauna.</td>
<td>As above.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
| C4                   | All determinations of water quality must be:  
  a) Performed by a person or body possessing appropriate experience and qualifications to perform required measurements;  
  b) Made in accordance with the methods prescribed in the latest edition of the administering authority’s monitoring and sampling manual;  
  c) Collected from the monitoring locations identified within this environmental authority within two (2) hours of each other where possible;  
  d) Carried out on representative samples; and  
  e) Laboratory testing must be undertaking using a laboratory accredited (e.g. NATA) method of | As above. | - | - |
<table>
<thead>
<tr>
<th>Current Condition</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>analysis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C5</td>
<td>The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return: a) the date on which the sample was taken; b) the time at which the sample was taken; c) the monitoring point at which the sample was taken; d) the measured or estimated daily quantity of the contaminants released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances with the conditions of this environmental authority; and g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.</td>
<td>As above.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

### Annual water monitoring reporting

<p>| - | - | Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be | F25 | The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority |</p>
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>adopted into the amended EA.</td>
<td></td>
<td>in the specified format:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>a) the date on which the sample was taken</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>b) the time at which the sample was taken</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>c) the monitoring point at which the sample was taken</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>d) the measured or estimated daily quantity of mine affected water released from all release points</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>e) the release flow rate at the time of sampling for each release point</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.</td>
</tr>
</tbody>
</table>

**Water Management Plan**

| -                     | -                 | Additional conditions from the Model Mining Conditions that relate to the release of contaminated waters and are considered best practice for the project site’s environmental setting should be adopted into the amended EA. | F26 | A Water Management Plan must be developed by an appropriately qualified person and implemented. |

**Stormwater and water sediment control**

| C8                   | An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to prevent or minimise erosion and the release of sediment to receiving | This condition is retained in the Model Mining Conditions and should be retained in the amended EA. | F27 | Other than amending the condition number this condition will remain unchanged. |
waters and the contamination of storm water.

C7 The Erosion and Sediment Control Plan must be included in the Plan of Operations, and provides for at least the following stormwater management functions. A copy of the erosion and sediment control plan and/or a review of the erosion and sediment control plan must be provided to the administering authority on request:
   (a) Prevent or minimise the contamination of stormwater;
   (b) Diverting uncontaminated stormwater run-off around areas disturbed by mining activities or where contaminants or wastes are stored or handled;
   (c) Contaminated stormwater runoff, incident rainfall and leachate is to be collected;
   (d) Roofing or minimising the size of areas where contaminants or wastes are stored or handled;
   (e) Using alternate materials and or processes (such as dry absorbents) to clean up spills that will minimise the generation of contaminated waters;
   (f) Erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters;
   (g) Procedures to ensure that erosion

The requirements for inclusion in the Erosion and Sediment Control Plan are no longer outlined within the Model Mining Conditions. Instead, this condition is replaced by outlining appropriate handling methods for stormwater un-affected by the mining activities. Therefore, this condition should be aligned with current best practice methods.

F28 Stormwater, other than mine affected water, is permitted to be released to waters from: a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F28 b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F27, for the purpose of ensuring water does not become mine affected water.
<table>
<thead>
<tr>
<th>Current Condition N°</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>C8</td>
<td>and sediment control structures are maintained and adequate storage is available in sediment dams in accordance with design criteria; and (h) Training of staff that will be responsible for maintenance and operations of sediment and erosion control structures.</td>
<td>This condition is no longer required under the Model Mining Conditions.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C9</td>
<td>Erosion protection measures and sediment control measures must be implemented and maintained to minimize erosion.</td>
<td>This condition is no longer required under the Model Mining Conditions.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>C10</td>
<td>The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.</td>
<td>This condition is no longer required under the Model Mining Conditions.</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to ensure no release to wastes, contaminants or materials to any stormwater drainage system or receiving waters.</td>
<td>This condition is no longer required under the Model Mining Conditions.</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
5.7 SEWAGE

Septic systems will be required at the site office as well as the site accommodation. These systems will produce treated effluent that must be released on site. This effluent will be beneficially used to irrigate grasslands adjacent to both these areas. Therefore, the environmental values of relevance to treated effluent are:

- Waters for the use of irrigating grasslands for primary industry.

5.7.1 POTENTIAL IMPACTS

Inappropriately treated and/or released treated effluent has the potential to adversely impact:

- Vegetation survival and growth;
- Soil erosion rates;
- Human health; and
- Fauna health.

Appropriate monitoring of effluent and routine maintenance of the treatment system can greatly reduce the risk of impacts occurring from released treated effluent.

5.7.2 MONITORING

Monitoring of vegetation, soil erosion and structure as well as surface ponding of treated effluent will be conducted via visual observations. Key targets for monitoring for the irrigation of sewage effluent are provided within the proposed EA conditions. The methods used to assess these parameters are as follows:

- The area being irrigated will be monitored visually on a fortnightly basis by a responsible person to identify whether any ponding or serious rilling is occurring. If such an impact is identified then the rate of effluent application in the affected area will be changed or irrigation terminated at that place and transferred to another approved site. Key indicators of soil erosion will be the maximum depth of rilling and the number of rills (deeper than 25 mm depth) occurring per metre length of transect perpendicular to the rilling. A baseline transect will be run perpendicular to the slope prior to irrigating. Measurement after irrigation starts will be performed every three (3) months).

- Monitoring on a 3-monthly basis will be conducted for vegetation being subjected to irrigation with sewage effluent. Before and after visual assessments will be used to determine any impacts. Before irrigation commences in an area photographs will be taken of the vegetation at set intervals (e.g. 10 m spacing) within the irrigation area. These ‘baseline’ photos will then be used to visually compare the vegetation status at each 3-monthly monitoring exercise. If there is any evidence of impact on the vegetation, either the irrigation will be terminated in that area or photos will be taken and forwarded to a competent ecologist for assessment. If impacts are suspected, the frequency of visual monitoring will be increased to fortnightly until an impact is clear and a management decision is made on the appropriate remediation measure.

- If there is any negative impact on vegetation observed during the vegetation monitoring, then an assessment will be made on the likely cause. If deemed to be related to soil structure then a simple assessment will be made in accordance with the methodology of the Cooperative Research Centre for Viticulture, Vineyard Activities: Assessing soil structure.
• Biennial oil chemistry testing for sodium absorption capacity (by measuring sodium adsorption ratio; SAR) and nitrogen accumulation will help determine suitable percolation rates and the ability of the soil to assimilate nutrients.

5.7.3 ENVIRONMENTAL PROTECTION OBJECTIVES AND CONTROL STRATEGIES

Based on the background assessment of environmental values associated with sewage and the potential impacts of concern, Table 21 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

Table 21: Environmental Protection Objectives and Control Strategies – Sewage

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>Water quality values for irrigation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental Protection Objective</td>
<td>To take all reasonable and practicable measures to avoid degradation of the environmental values treated effluent reuse.</td>
</tr>
<tr>
<td>Performance Indicators / Criteria</td>
<td>Water quality meets the limits specified in the EA. Water monitoring in accordance with Control Strategies and EA requirements. Laboratory analyses to be undertaken by a Nation Association of Testing Authorities (NATA) accredited laboratory.</td>
</tr>
<tr>
<td>Control Strategies</td>
<td>Mine Water Management System</td>
</tr>
<tr>
<td>Control Strategies</td>
<td>The project’s mine water management system will define, monitor and manage the impact of mine operations on the local natural surface water and groundwater systems. Treated effluent volumes will be included in any site water balance calculations undertaken for the site.</td>
</tr>
<tr>
<td>Control Strategies</td>
<td>Sewage treatment facilities must be maintained and operated in accordance with the manufacturer’s guidelines. Designated irrigation areas will be large enough to allow for regular rotation of irrigated and non-irrigated zones. This will reduce the potential for erosion and for large die back of water dependent or water intolerant plant species. Watering periods should be kept as short as possible every day.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Sewage effluent from the treatment plant will be monitored on a monthly basis to ensure that quality is suitable for irrigation.</td>
</tr>
<tr>
<td>Commitment</td>
<td>A responsible person will conduct fortnightly inspections of the areas being used for treated effluent discharge. Key indicators for visual monitoring are provided in Section 5.7.2.</td>
</tr>
<tr>
<td>Commitment</td>
<td>In areas that are irrigated with sewage effluent, soil chemistry testing for sodium absorption capacity (by measuring sodium adsorption ratio; SAR) and nitrogen accumulation will be conducted every two years, which will help determine suitable percolation rates and the ability of the soil to assimilate nutrients.</td>
</tr>
</tbody>
</table>
5.7.4 **EXISTING AND PROPOSED EA CONDITIONS**

Table 22 outlines the current and proposed EA condition for Schedule G of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014).

**Table 22: Schedule G – Sewage treatment; current and proposed EA conditions**

<table>
<thead>
<tr>
<th>Current Condition N°</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition N°</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sewage treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G1</td>
<td>The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table G1 (Contaminant release limits to land).</td>
</tr>
</tbody>
</table>

**Schedule G – Table G1 (Contaminant release limits to land)**

<table>
<thead>
<tr>
<th>Contaminant</th>
<th>Unit</th>
<th>Release limit</th>
<th>Limit type</th>
<th>Monitoring frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 day Biological Oxygen Demand (BOD)</td>
<td>mg/L</td>
<td>20</td>
<td>Maximum</td>
<td>Monthly</td>
</tr>
<tr>
<td>Total suspended solids</td>
<td>mg/L</td>
<td>30</td>
<td>Maximum</td>
<td>Monthly</td>
</tr>
<tr>
<td>Nitrogen</td>
<td>mg/L</td>
<td>30</td>
<td>Maximum</td>
<td>Monthly</td>
</tr>
<tr>
<td>Phosphorous</td>
<td>mg/L</td>
<td>15</td>
<td>Maximum</td>
<td>Monthly</td>
</tr>
<tr>
<td>E-coli</td>
<td>Organisms/100 ml</td>
<td>1000</td>
<td>Maximum</td>
<td>Monthly</td>
</tr>
<tr>
<td>pH</td>
<td>pH units</td>
<td>6.0 – 9.0</td>
<td>Range</td>
<td>Monthly</td>
</tr>
</tbody>
</table>

- The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.

- The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table G1 (Contaminant release limits to land).

- Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:
  a) within the nominated area(s) identified in Schedule J — Figures J5 & J6
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G3</td>
<td>The application of treated effluent to land must be carried out in a manner such that: a) vegetation is not damaged b) there is no surface ponding of effluent c) there is no run-off of effluent.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G4</td>
<td>If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G5</td>
<td>All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Table G1 (Contaminant release limits to land).</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G6</td>
<td>The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G7</td>
<td>When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be</td>
</tr>
</tbody>
</table>

(Sewage treatment plant and effluent disposal – camp & office) b) other land for the purpose of dust suppression and/or fire fighting.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mining Conditions.</td>
<td>directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The current EA contains no reference to sewage treatment. Therefore all conditions within this schedule have been directly extracted from the Model Mining Conditions.</td>
<td>G8</td>
<td>A minimum area of 1200m² of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.</td>
</tr>
</tbody>
</table>
5.8 LAND

5.8.1 ENVIRONMENTAL VALUES

The following Section provides a description of the pre-mining land use, soils, flora and fauna that occur across the project site.

5.8.1.1 LAND USE

The project site has historically experienced low intensity cattle grazing. Surrounding parcels of land have either been used for similar grazing or mining. Land suitability classes, as defined by the Department of Primary Industries Guidelines for Land Evaluation in Queensland (1991), are outlined in Table 23. The GHD (2012) EM Plan designated a pre-mining land suitability of Class 3 to Class 4 for the project site.

Table 23: Agriculture and conservation land suitability class definitions

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Agricultural</td>
<td>Conservation</td>
</tr>
<tr>
<td>Class 1</td>
<td>Suitable land with negligible limitations. Land which is well suited to a proposed use.</td>
<td>Areas well suited for conservation uses must possess significant conservation benefits in the pre mining environment and be capable of being returned to that use post-mining.</td>
</tr>
<tr>
<td>Class 2</td>
<td>Suitable land with minor limitations. Land which is suited to a proposed use but which may require minor changes in management to sustain that use.</td>
<td>These areas are suited to conservation use in that a significant component of the pre mining conservation values can be restored post mining. There will however be some loss in conservation values where soil terrain or hydrological post mining conditions may inhibit the full replication of the pre mining values.</td>
</tr>
<tr>
<td>Class 3</td>
<td>Suitable land with moderate limitations. Land which is moderately suited to a proposed use but which requires significant inputs to ensure sustainable use</td>
<td>These lands contain significant conservation values pre-mining however restoration of all of these values may not be feasible. These areas could however be restored to a form of conversation use which provides alternative conservation benefits</td>
</tr>
<tr>
<td>Class 4</td>
<td>Marginally suitable land. Land which is marginally suited for a proposed use and would require major inputs to ensure sustainability. These inputs may not be justified by the benefits to be obtained in using the land for the particular purpose and is hence considered presently unsuited.</td>
<td>These lands contain limited conservation value pre mining and/or are incapable of being effectively restored post mining to any alternative conservation use which provides similar benefits. The area could however be restored to provide a stable form of use which does not impact on surrounding conservation values.</td>
</tr>
<tr>
<td>Class 5</td>
<td>Unsuitable land with extreme limitations. Land which is unsuited</td>
<td>These lands contain no significant conservation values.</td>
</tr>
</tbody>
</table>
5.8.2 Soils

As discussed in Section 4.5, no detailed soil information currently exists for the project site. However, the Atlas of Australian Soils outlines three distinct soil groups with the potential to occur in the mine lease and initial inspections have provided a reasonably accurate assessment of the three soil groups occurring onsite (Section 4.5):

1. **Soil Group 1** – Based on the Atlas of Australian soils code FA41 with minor amendments, this soil group is described as undulating to moderately undulating areas: dominant soils are red gravelly loams to a depth of ~0.75 m and (K-Um1.43) more common on phosphatic rock outcrops.

2. **Soil Group 2** – The Atlas of Australian soils code MM46 is accurate although the distribution across the site varies. To the west of the unit there is a strong interaction with the FA41 soil unit. It is likely that gravel has washed out of the FA41 soil unit and is strewn atop of grey cracking clays (the MM46 soil unit). This strewn zone extends for approximately 300 m from the mapped border of these two units. In effect this is a mixing zones of the two units. Outside of this 300 m mixing zone the soils are considerably more uniform, being observed as grey cracking clays.

3. **Soil Group 3** – Is accurately portrayed as Atlas of Australian soils code MN6. However, there is only a small proportion of this soil unit is present on the site. No mine infrastructure is located within this soil unit (refer to Figure 6 in Section 4.5).

5.8.3 Flora

Seventy three (73) flora species were identified during the surveys conducted within the mine lease with no flora of conservation significance found occurring on the project site (C&R 2010; Appendix G). As discussed in Section 4.3, no official regional ecosystem mapping exists for the site. Regional ecosystem mapping undertaken C&R Consulting in 2010 identified eight different regional ecosystems occurring across the mining lease, including:

- 1.3.1 – Mitchell grass (*Astrebla spp.*) grassland on alluvial plains). Within the site, these areas comprise current alluvium associated with creek lines;
- 4.3.5 – Eucalyptus coolabah +/- E. camaldulensis +/- Acacia georginae open woodland on drainage lines/plains;
- 4.4.1 – *Astrebla pectinata* +/- *Aristida latifolia* +/- *Eulalia aurea* grassland on Tertiary sediments overlying limestone;
- 4.5.3 – *Acacia aneura*, *Triodia brizoides* or *Triodia molesta* tall open shrubland on Tertiary sand sheets;
- 4.5.8 – *Triodia pungens* hummock grassland wooded with *Acacia spp.* +/- Eucalyptus spp. on Quaternary sand sheets;
- 1.5.7 – Bloodwood (*Corymbia terminalis*) and/or mulga (*Acacia aneura*) low open woodland on sandy red earth plains;
- 4.7.4 – *Acacia cambagei* tall open shrubland with *Triodia spp.* +/- *Senna* spp. Near eroding edges of Tertiary plateaus; and
- 4.7.6 – *Acacia chisholmii* low shrubland. Other *Acacia* species and or scattered *Eucalyptus* spp. may be present. The ground layer is dominated by *Triodia* spp. *Acacia chisholmii* low shrubland.
All of these regional ecosystems have a Vegetation Management Status of least concern and a biodiversity status of no concern at present. For a full description and distribution mapping of these regional ecosystems please refer to Section 4.3.

### 5.8.1.4 Fauna

C&R (2010) identified 109 terrestrial fauna species occurring within the local area (Appendix G). One species (the Common Death Adder; *Acanthophis antarcticus*), listed as near threatened under the *Nature Conservation Regulation 2006*, was sighted at The Monument approximately 20 km from the site.

The Common Death Adder is one of the most venomous snakes in Australia. It has maintains a wide spread distribution throughout the east coast of Australia and into western Queensland, South Australia and south-eastern parts of Western Australia. It is considered a generalist in a habitat preference able to utilise eucalypt forests, woodlands, grasslands and coastal heaths (Queensland Museum 2015). The main threat to this species is the continuous spread of the cane toad (*Bufo marinus*) which is poisonous to the snake when eaten (Queensland Museum 2015).

Two species, the Rainbow Bee-eater (*Merops ornatus*) and the Great Egret (*Ardea alba*), listed as migratory species under the *Environmental Protection and Biodiversity Conservation Act 1994* (EPBC), were also recorded outside the survey area not in close proximity to the site. These two species have distributions spanning the entirety of Australia. The Rainbow Bee-eater prefers open forest/woodland habitats while the Great Egret generally inhabits wetlands. No wetlands occur across the project site with only a single farm dam noted holding water for extended periods throughout the year. Further, the only open woodlands observed on site occur in the north-east corner of the mining lease well away from any proposed mining activities.

Based on the C&R (2010) study and the known preferred habitat types of listed species it is unlikely that the overall habitat value on the site for these listed species will be significantly affected in the long-term. Therefore, any impacts associated with the proposed mining operations to these listed species are expected to be minor.

### 5.8.2 Environmental Offset Policy

An offset is required under Environmental Offset Policy 2014 (EOP) legislation where an assessment of a proposed activity has demonstrated that a significant environmental impact on Matters of State Environmental Significance (MSES) cannot be avoided or substantially reduced. MSES are documented in the Queensland Environmental Offsets Policy Significant Residual Impact Guideline (December 2014). If the project is likely to have an unavoidable significant residual impact to MSES, the holder of the EA must provide a site specific Environmental Offset Strategy (EOS).

### 5.8.3 Significant Residual Impact Guideline Assessment – Site Assessment

An assessment of the environmental values present on the site against the significant residual impact guidelines is outlined in Table 24.

On the basis of the Table 24 assessment no residual impacts to MSES are likely to be a result of the proposed development within ML90209. Therefore it is suggested that no environmental offsets under the EOP will be required for the project to proceed. Further, it is recommended that based on this assessment there is no need to include conditions relating to the EOP within the amended EA.
5.8.4 POTENTIAL IMPACTS

The project is situated in an area that has been extensively been used for pastoral purposes. The total area of the mine lease is 1605ha. A total area of approximately 82 ha (5% of the ML) will be disturbed during the life of the mine. This disturbance area will be subject to clearing, soil removal and subsequent earthworks. The remaining 1523 ha (95% of the ML) will remain undisturbed.

Based on the detailed background assessment of the environmental values associated with land on the project site, the potential adverse impacts to these values from the proposed mining operations are:

- Reduction in the area of land available for primary production;
- Reduction in potential productivity of the land due to topsoil loss and modification of surface topography/hydrology;
- Direct loss of topsoil and degradation of topsoil quality, in areas of disturbance;
- Increased potential for erosion due to localised changes in topography and surface hydrology;
- Increased sediment loads in local drainage lines;
- The reduction to the extent of Least concern remnant vegetation; and
- The reduction in quantity and quality of habitat for flora and fauna.
Table 24: Assessment of site environmental values against the requirements of the EOP

<table>
<thead>
<tr>
<th>Matters of State Environmental Significance</th>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
</table>
| Regulated vegetation                      | Regulated vegetation is a ‘prescribed regional ecosystem’ that:  
  - is an endangered or of concern regional ecosystem, as defined under the Vegetation Management Act 1999; or  
  - intersects with an area shown on the vegetation management wetlands map, as defined under the Vegetation Management Act 1999, to remove doubt this refers to that component of a regional ecosystem that lies within a mapped wetland; or  
  - is located within the defined distance from the defining banks of a watercourse identified on the vegetation management watercourse map, as defined under the Vegetation Management Act 1999 | Remnant vegetation is present on the site as documented in the Vegetation Management Map (Appendix H – Regulated Vegetation Management Map). However, no official delineation of regional ecosystems is available for the mining lease or the local area (Appendix I – Vegetation Management Support Map). An Environmental Study conducted across the project site by Certified Regional Ecosystem Assessors identified the regional ecosystems present within ML 90209 (C&R Consulting, 2010). All vegetation communities identified on the site are consistent with regional ecosystems that are classified as Least Concern under the Vegetation Management Act 1999 (C&R 2010). The distribution and status of regional ecosystems are displayed in the C&R (2010) Environmental Study contained in Appendix G. This is replicated in Section 4.3.1 of this report. No wetlands as designated on the Vegetation Management Wetlands Map are present on the site. (Appendix J – Map of Referable Wetlands) Three watercourses, as identified on the Vegetation Management Remnant Watercourse Map, traverse ML90209 (Appendix I – Vegetation Management Support Map). These are all 1st order streams. Within the site none of these first order streams are likely to be disturbed or impacted by the mining activities (refer to Figure 11). All infrastructure and mining activities/operations will be sighted at least 50 m from the high bank of a mapped watercourse. The defined distance from a first order stream in a non-coastal bioregion is 25 m. | No |
<table>
<thead>
<tr>
<th>Matters of State Environmental Significance</th>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
</table>
| Connectivity areas                          | A development impact on connectivity areas is determined to be significant if either of the following tests are true:  
1. The change in the core remnant ecosystem extent at the local scale (post impact) is greater than a threshold determined by the level of fragmentation at the regional scale (see table below); or  
2. Any core area that is greater than or equal to 1 hectare is lost or reduced to patch fragments (core to non-core). | The Assessment of Connectivity under the EOP relies on an analysis of regional ecosystem mapping at a broad scale. No broad scale regional ecosystem mapping occurs for the site.  
As stated within the Significant Residual Impact Guideline, EHP can undertake an Assessment of Connectivity on the proponent's behalf if they do not have access to the required software.  
C&R Consulting requested EHP to undertake the assessment but were informed that the analysis could not be carried out as regional ecosystem mapping is not available for the area.  
It is predicted that connectivity is not likely to be impacted as the proposed disturbance area is located within and completely surrounded by a much larger area of remnant vegetation that is not likely to lead to fragmentation. | No |
| Wetland and waterways                       | An offset may be required for the following wetlands:  
- wetland in a wetland protection area as shown on the Map of referable wetlands under schedule 12, part 2 of the Environmental Protection Regulation 2008;  
- wetlands of high ecological significance as shown on the Map of referable wetlands under schedule 12, part 2 of the Environmental Protection Regulation 2008; and  
- wetland or watercourse in a high ecological value waters as identified under the Environmental Protection (Water) Policy 2009, Schedule 2. | No wetland protection areas as shown on the Map of Referable Wetlands Wetland Protection Areas map are present on the site (Appendix J – Map of Referable Wetlands).  
No high ecological significance wetlands as shown on the Map of referable wetlands are present on the site. (Appendix J – Map of Referable Wetlands).  
No wetlands are recognised on the site.  
There are watercourses present on the site as designated by the vegetation management map (Appendix I – Vegetation Management Support Map). These watercourses are not recognised under the Water Act. They are not likely to be high ecological value waters (i.e. waters in which the biological integrity of the water is | No |
### Matters of State Environmental Significance

<table>
<thead>
<tr>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
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</thead>
<tbody>
<tr>
<td>An action is likely to have a significant residual impact on prescribed wetlands or watercourses if it is likely that the action will result in environmental values being affected in any of the following ways:</td>
<td>effectively unmodified or highly valued) as the water is only likely to be present within these channels for a very short time during very successful wet seasons limiting their ecological value. Further, in relation to two of the watercourses they flow into Kolar Creek shortly after the exiting ML90209. PHM has been located on Kolar Creek upstream of the project site since the 1970s and it is assumed this would constitute as a modification to flows within the catchment.</td>
<td>No</td>
</tr>
</tbody>
</table>

- areas of the wetland or watercourse being destroyed or artificially modified;
- a measurable change in water quality of the wetland or watercourse—for example a change in the level of the physical and/or chemical characteristics of the water, including salinity, pollutants, or nutrients in the wetland or watercourse, to a level that exceeds the water quality guidelines for the waters; or
- the habitat or lifecycle of native species, including invertebrate fauna and fish species, dependent upon the wetland being seriously affected; or
- a substantial and measurable change in the hydrological regime or recharge zones of the wetland, e.g. a substantial change to the volume, timing, duration and frequency of ground and surface water flows to and within the wetland; or
- an invasive species that is harmful to the environmental values of the wetland being established (or an existing invasive species being spread) in the wetland.

| Protected wildlife habitat | This section applies to the following MSES prescribed in the Environmental Offsets Regulation 2014: | There is no mapped essential habitat for endangered, vulnerable or special least concern wildlife on the site (Appendix I – Vegetation Management Support Map). | No |
| Matters of State Environmental Significance | Description | On site assessment | Offset required?
---|---|---|---
an area of essential habitat on the essential habitat map for an animal or plant that is endangered or vulnerable wildlife (section 2(3)(b), Schedule 2, EO Reg); an area that is shown as a high risk area on the flora survey trigger map and that contains plants that are endangered or vulnerable wildlife (section 6(1), Schedule 2, EO Reg); an area that is not shown as a high risk area on the flora survey trigger map, to the extent the area contains plants that are endangered or vulnerable wildlife (section 6(2), Schedule 2, EO Reg); an area of habitat (e.g., foraging, roosting, nesting or breeding habitat) for an animal that is endangered, vulnerable or a special least concern animal (section 6(4), EO Reg); |

An action is likely to have a significant impact on endangered and vulnerable wildlife if the impact on the habitat is likely to:
- lead to a long-term decrease in the size of a local population; or
- reduce the extent of occurrence of the species; or
- fragment an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- result in invasive species that are harmful

The closest patch of essential habitat is 750 m from the mine lease boundary and approximately 3 km from any potential mine operations within ML90209 (Appendix B Vegetation Management Support Map). The authenticity of this essential habitat record is also debatable as it is in the middle of Phosphate Hill Mine’s operations and the area is not likely to contain three of the essential habitat factors for the species in question; the purple-necked rock wallaby (*petrogale purpureicollis*). The purple-necked rock wallaby is known to occur around the Phosphate Hill Mine’s camp, located over 16 km from the mine at The Monument.

The C&R (2010) Environmental Study consisted of flora and fauna investigations across ML90209. The investigation found no endangered or vulnerable species listed within the Nature Conservation Regulations present on the site.

Several species listed as rare were found to occur in the area during these surveys. However, the listing of rare under the Nature Conservation Regulation was abandoned after the C&R (2010) report was completed.

The action is not located in an area shown as a high risk area on the flora survey trigger map (Appendix K) and no plants that are listed as endangered or vulnerable were identified in the fauna survey.

The proposed action is *not* likely to have a significant impact on endangered or vulnerable wildlife as none are known to occur on the site.

The proposed action is not likely to *fragment an existing population* of endangered or vulnerable wildlife as no existing population of occur on the project site. The action is not likely to fragment the nearby essential habitat of the purple necked rock wallaby, located ~3 km north of the
### Matters of State Environmental Significance

<table>
<thead>
<tr>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>to an endangered or vulnerable species becoming established in the endangered or vulnerable species’ habitat; or</td>
<td>project site. No other essential habitat is recognised to the south of the project site. This would indicate that habitat will not be fragmented. Therefore, there is little likelihood the action will result in genetically distinct populations forming as a result of habitat isolation.</td>
<td></td>
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<tr>
<td>introduce disease that may cause the population to decline, or</td>
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<tr>
<td>interfere with the recovery of the species; or</td>
<td></td>
<td></td>
</tr>
<tr>
<td>cause disruption to ecologically significant locations (breeding, feeding, nesting, migration or resting sites) of a species.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Special least concern (non-migratory) animal wildlife habitat.**

An action is likely to have a significant impact on a special least concern (non-migratory) animal wildlife habitat if it is likely that it will result in:

- a long-term decrease in the size of a local population; or
- a reduced extent of occurrence of the species; or
- fragmentation of an existing population; or
- result in genetically distinct populations forming as a result of habitat isolation; or
- disruption to ecologically significant locations (breeding, feeding or nesting sites) of a species.

<p>| Koala habitat | An offset may be required for significant residual impacts on habitat for the koala in the South East Queensland planning area | The action is not located within the South East Queensland Planning Area. | No |</p>
<table>
<thead>
<tr>
<th>Matters of State Environmental Significance</th>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
</table>
| Protected areas | Protected areas are declared under the Nature Conservation Act 1992 for the conservation of Queensland's natural and cultural resources. An offset may be required for the following classes of protected areas:  
- national parks; and  
- national parks (Aboriginal land); and  
- national parks (Torres Strait Islander land); and  
- national parks (Cape York Peninsula Aboriginal land);  
- regional parks; and  
- nature refuges.  
Under section 8(2) of the Environmental Offsets Act 2014, an impact on a protected area is significant if a prescribed activity results, or will or is likely to result, in one or more of the following:  
- the authorised clearing or inundation of all or part of the protected area for the construction of private or publicly owned infrastructure on the area;  
- the exclusion of, or reduction in, the public use or enjoyment of all or part of the protected area;  
- a reduction in the natural or cultural values of all or part of the protected area. | The action is not likely to impact on any protected areas. The closest National Park is ~120 km away. | No |
<p>| Fish Habitat Areas and Highly Protected Zones of State | Works are considered to result in a significant residual impact to a declared FHA or highly protected zones of marine parks if: | The action is not likely to impact on any Fish Habitat Areas. The closest Fish Habitat Area is Karumba (~500km away) and within a different catchment. | No |</p>
<table>
<thead>
<tr>
<th>Matters of State Environmental Significance</th>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine Parks</td>
<td>- the works are not for a purpose or a structure type listed below; and - the works will result in a residual disturbance footprint within the declared FHA and/or highly protected marine park zone of 40m² or greater in area.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterway providing for fish passage</td>
<td>An action is likely to have a significant impact on a waterway providing for fish passage if there is a real possibility that it will: - result in the mortality or injury of fish; or - result in conditions that substantially increase risks to the health, wellbeing and productivity of fish seeking passage such as through the depletion of fishes energy reserves, stranding, increased predation risks, entrapment or confined schooling behaviour in fish; or - reduce the extent, frequency or duration of fish passage previously found at a site; or - substantially modify, destroy or fragment areas of fish habitat (including, but not limited to in-stream vegetation, snags and woody debris, substrate, bank or riffle formations) necessary for the breeding and/or survival of fish; or - result in a substantial and measurable change in the hydrological regime of the waterway, for example, a substantial change to the volume, depth, timing, duration and frequency of flows; or - lead to significant changes in water quality parameters such as temperature,</td>
<td>None of the waterways present on the site sustain water for greater than ~2 weeks a year. Therefore there ability to provide ecological value to the aquatic environment or provide habitat for fish is limited.</td>
<td>No</td>
</tr>
<tr>
<td>Matters of State Environmental Significance</td>
<td>Description</td>
<td>On site assessment</td>
<td>Offset required?</td>
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<tr>
<td>Dissolved oxygen, pH and conductivity that provide cues for movement in local fish species.</td>
<td>The action is not likely to impact on marine plants. The closest marine environment is over 450 km away. Further, the site is within the Lake Eyre catchment.</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>
| Marine plants | An action is likely to have a significant residual impact on marine plants where the, impacts of the development shall result in:  
- private infrastructure works impacting more than 17m2 of fish habitat or public infrastructure works impacting more than 25m2 of fish habitat; and  
  - temporary impacts are expected to take 5 years or more for the impact area to be restored to its pre-development condition; or  
  - a proposed reduction in the extent of marine plants through removal, destruction or damage of marine plants; or  
  - fragmentation or increased fragmentation of a marine ecological community; or  
  - adverse changes affecting survival of marine plants through modifying or destroying abiotic (non-living) factors (such as water, nutrients, or soil) necessary for a marine plant's survival; or  
  - alteration in the species composition of marine plants in an ecological community, that causes a decline or loss of functionally important species; or  
  - interference with the natural recovery of | | |
<table>
<thead>
<tr>
<th>Matters of State Environmental Significance</th>
<th>Description</th>
<th>On site assessment</th>
<th>Offset required?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legally secured offset areas</td>
<td>Legally secured offset areas are any areas declared as an environmental offset protection area, high nature conservation value under the Vegetation Management Act 1999 or another area prescribed under a regulation. Under section 8(4) of the Environmental Offsets Act 2004, an action is likely to have a significant residual impact on a legally secured offset area or other prescribed environmental matters within the legally secured offset area where the impacts of the development is likely to result in one or more of the following: for the prescribed environmental matter, or matters, for which the area was set aside for the purposes of an environmental offset—a use of the area that is inconsistent with how the environmental offset was or is required to be undertaken to achieve a conservation outcome for the prescribed environmental matter under a delivery or management plan or agreement; for any other prescribed environmental matter in the area—a significant residual impact as mentioned elsewhere in this guideline.</td>
<td>There are no known legally secured offsets currently associated with the project site.</td>
<td>No</td>
</tr>
<tr>
<td>marine plant communities.</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>
Figure 11: Location of watercourses as per the Vegetation Management Remnant Watercourse Map in relation to mine operations
5.8.5 **Environmental Protection Objectives and Control Strategies**

Based on the background assessment of environmental values associated with land and the potential impacts of concern, Table 25 outlines the protection objectives and the proposed mitigation measures to ensure these objectives are achieved.

**Table 25: Environmental Protection Objectives and Control Strategies – Land**

<table>
<thead>
<tr>
<th>Environmental Value</th>
<th>The environmental value for the land is regarded as the existing land suitability classification as well as the natural ecosystems and conservation values for flora and fauna that are present within the site.</th>
</tr>
</thead>
</table>
| Environmental Protection Objective | Ensure post-mining landforms are:
1) safe;  
2) suitable so that the agreed post-mining land use is not compromised;  
3) non-polluting; and  
4) all disturbed land is returned to pre-mining land suitability and natural value, where practicable, or alternative suitability subject to the agreement of the underlying landholder. |
| Performance Indicators / Criteria | 1) Safe – no unprotected steep slopes all hazardous areas are suitably fenced or bunded.  
2) Non-polluting:  
a) protection of soil and surface water quality to maintain suitability for agricultural use; and  
b) no uncontrolled contamination.  
3) Stable – high walls are geo-technically stable and there is no active gully erosion.  
4) Post mine land use – suitable for agriculture, especially grazing; native vegetation or a predetermined, agreed land use. |
| Control Strategies | General  
The following general control strategies will be implemented across the site to ensure the protection of land values from potential impacts:  
- All land surface disturbance required for the project will be conducted under appropriate approvals to ensure no impact to Matters of State Environmental Significance.  
- Where clearing is considered the only option the footprint of the clearing is minimised to the smallest extent possible. Areas to be cleared should be clearly defined before clearing occurs. No clearing of remnant vegetation will be carried out beyond that needed for safe operations.  
- Suitable A-horizon topsoil is to be salvaged from areas of planned disturbance for later use in rehabilitation activities. Topsoil stockpiles are to be mapped and volume recorded and revegetated until reuse.  
- Rehabilitate landforms will be as per a designated landform design criteria and land capability.  
- Landforms to be retained on mine closure will be designed by a professional engineer, as appropriate, to ensure all goals for the final landform are achieved. |
## Environmental Protection Objectives and Control Strategies - Land

- Monitor rehabilitation and carry out maintenance where required.
- Conduct the monitoring necessary to identify and quantify any impact that the project may have on land capability.
- Prior to mine closure, a plan or plans will be provided to the EHP at a suitable scale showing the final topography of rehabilitated landforms.
- Implementation of a weed management strategy.
- Subsoils will not be exposed without suitable erosion controls being implemented.
- Minimise the period of time the land is not available for agricultural use.
- Adoption of improved land management practices that enhance the sustainability of the post-mining land use on areas affected by the project.

### Soil Erosion

The following strategies have been formulated on the basis of industry wide research and experience:

- For broader areas of disturbance, erosion and sediment controls will be integrated into landform and rehabilitation design.
- Measures will be put in place to exclude livestock and surface traffic from disturbed areas until adequately rehabilitated.
- Areas of disturbance that requiring reshaping will be incorporated into the final landform. This will insure that slope angles, lengths and shapes are compatible with the proposed land use and not prone to an unacceptable rate of erosion.
- Runoff from disturbed areas will be intercepted and diverted down-slope in a controlled manner to silt traps and/or sediment dams (existing or purpose built). Appropriate erosion and sediment control structures, such as catch drains, silt traps and sedimentation dams, will be established to prevent degradation of downstream drainage lines.
- Contour ripping will be considered for larger disturbance areas requiring rehabilitation. Contour ripping is by far the most common form of structural erosion control on mine sites as it simultaneously provides some measure of erosion protection and cultivates the surface in readiness for sowing.
- In the vicinity of drainage lines, special care will be taken to re-contour the land to ensure no interruption to surface flow. Where warranted, beds of drainage lines will be re-established to approximate the pre-disturbance cross-sectional profile no disturbance’s near drainage lines within the project site are currently planned.
- Monitoring will be undertaken to measure downstream impacts if disturbance to the drainages ins anticipated.

Erosion and sediment control will be implemented where required and designed in accordance with the Institution of Engineers Australia (Queensland Division) Erosion and Sediment Control Guidelines for Queensland Construction Sites.

Note; an Erosion and Sediment Control Plan is already established for trial pit operations at the site (Appendix L). This document will be
Environmental Protection Objectives and Control Strategies - Land

Easily amended to ensure these best practice methods/procedures for reducing the risks from erosion and sedimentation are adopted for the major expansion works.

Contamination
The following general control strategies will be implemented across the site to avoid and mitigate potential contamination to land and water:

- Control the movement of chemicals onto the project site by means of an approval process which takes into account all environmental aspects of use, handling and disposal.
- Store hydrocarbons in accordance with AS1940: Storage and Handling of Flammable and Combustible Liquids.
- Investigate any potential contamination within the project site.
- Remediate contaminated land as required.
- All hazardous waste products as prescribed by the Environmental Protection Regulation 1998 will be removed from the project site by an appropriately licensed carrier for disposal at an appropriately licensed facility.

Note: a Spillage Management and Emergency Plan is already established for trial pit operations at the site (Appendix F). This document will be easily amended to ensure these best practice methods/procedures for reducing the risks from spills of hazardous materials are adopted for the major expansion works.

Rehabilitation
Rehabilitation on the site will included the following practices and, where appropriate, these will be applied to all areas within the ML:

- Topsoil will be spread evenly and tyned into the underlying material.
- Where required, shallow or deep ripping may be undertaken to break up compacted surface layers or to key in the topsoil to the underlying materials.
- Suitable types and rates of fertilizer may be applied to assist vegetation establishment depending on the physical and chemical properties of the soil and see species requirements.
- Seeds of selected pasture grasses, legumes, native tree and shrub species appropriate to the desired land use will be sown at times dependent on seasonal conditions and operational requirements. Native grasses are the preferred groundcover for the area as an erosion control measure.
- Weed management will be undertaken in accordance with the landowner's protocol and Local and State government guidelines.
- Revegetated areas will be monitored annually to ensure the performance objective of 70% groundcover by non-declared weed species for three consecutive years of monitoring are met.
- Maintenance will be performed to promote acceptable cover or to repair failed areas.

Rehabilitation Landform Criteria are provided in the proposed EA conditions. An EA condition requiring the development of a
Environmental Protection Objectives and Control Strategies - Land

<table>
<thead>
<tr>
<th>Commitment</th>
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<tbody>
<tr>
<td>Rehabilitation Management Plan will be proposed. This will include the provision for determining success factors for rehabilitated land. Note; a Post Mine Land Use Plan already exists for trial pit operations at the site (Appendix C). This document will be easily amended to ensure these best practice methods/procedures for rehabilitating lands are adopted into the proposed Rehabilitation Management Plan for the major expansion works. Monitoring of vegetation used for rehabilitation will be conducted annually until criteria for successful progressive and final rehabilitation have been confirmed. After this time, monitoring of vegetation will occur every three years until relinquishment of the ML. The details of required monitoring and the frequency of that monitoring will be provided in a rehabilitation management plan.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>There will be no impact to Matters of State Environmental Significance from the proposed project.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>A Rehabilitation Management Plan will be created. This will include success criteria for the rehabilitation of all domains within the lease to a predefined land use.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>All areas significantly disturbed by mining activities will be rehabilitated to a safe, stable, non polluting landform with a self-sustaining vegetation cover in accordance with the requirements of the Rehabilitation Management Plan.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>Progressive rehabilitation will commence when areas become available within the operational land.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>All rehabilitated areas will be monitored on an annual basis with the results documented in an annual rehabilitation inspection report.</td>
<td></td>
</tr>
<tr>
<td>Commitment</td>
<td>Residual voids will not cause any serious environmental harm to land, surface waters or any recognised ground water aquifer, other than the environmental harm constituted by the existence of the residual void itself, and subject to any other condition within this environmental authority.</td>
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</tr>
<tr>
<td>Commitment</td>
<td>All infrastructure constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining land owner / holder.</td>
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</tbody>
</table>
5.8.6 **EXISTING AND PROPOSED EA CONDITIONS**

Table 26 outlines the current and proposed EA condition for Schedule H of the EA. As the current EA was established in 2012 the proposed conditions have sought to comply with the most recent version of EHP’s Model Mining Conditions (November 2014).

**Table 26: Schedule H – Land and rehabilitation; current and proposed EA conditions**

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F1</td>
<td>Contaminants that will or may cause environmental harm must not be directly or indirectly released to land except as permitted under this environmental authority.</td>
<td>This condition is no longer a requirement of the Model Mining Conditions. Instead, conditions addressing contamination are included as Proposed Conditions H3, H4 and H5.</td>
<td>-</td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td>F2</td>
<td>Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable. Such spillages must be cleaned up using dry methods that minimise the release of waters, contaminants or materials to any stormwater drainage system, roadside gutter or waters.</td>
<td>This condition is no longer a requirement of the Model Mining Conditions. Instead, conditions addressing contamination are included as Proposed Conditions H3, H4 and H5.</td>
<td>-</td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td><strong>Rehabilitation requirements</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>Model Mining Conditions table the rehabilitation requirements at the front of this Schedule.</td>
<td>H1</td>
<td>Land disturbed by mining must be rehabilitated in accordance with Table H1 (Rehabilitation requirements).</td>
</tr>
<tr>
<td>Mine domain</td>
<td>Mine feature Name</td>
<td>Rehabilitation goal</td>
<td>Rehabilitation objective</td>
<td>Indicators</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>---------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Open Pit</td>
<td>TBA</td>
<td>Safe</td>
<td>Site safe for humans, live stock and wild animals</td>
<td>Engineered structures and signage to exclude humans and animals</td>
</tr>
<tr>
<td>Non-Polluting</td>
<td></td>
<td>Hazardous and contaminated material adequately managed</td>
<td>Assessment of hazardous materials by suitably qualified person</td>
<td>Rehabilitation report documenting that appropriate hazard assessments have been undertaken and suitable mitigation measures implemented</td>
</tr>
<tr>
<td>Stable</td>
<td></td>
<td>Low probability of rock fall or wall failure that will cause significant environmental harm</td>
<td>Geotechnical investigation of final void</td>
<td>Geotechnical study to determine if final landform is stable</td>
</tr>
<tr>
<td>Waste Rock dump</td>
<td>TBA</td>
<td>Safe</td>
<td>Site safe for humans, live stock and wild animals</td>
<td>Assessment of final landform by suitably qualified person</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-Polluting</td>
<td>Hazardous and contaminated material</td>
<td>Engineering assessment of final landform design</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
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<tr>
<td></td>
<td></td>
<td>adequately managed</td>
<td>environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rehabilitation monitoring plan in place to monitor downstream effects and impacts to groundwater</td>
<td>Monitoring reports demonstrating that the waste rock dumps are functioning with minimal release of contamination to the environment</td>
<td></td>
</tr>
<tr>
<td>Stable</td>
<td>Low probability of rock fall or wall failure that will cause significant environmental harm</td>
<td>Geotechnical/rehabilitation Study of final landform</td>
<td>Rehabilitation report documenting that the final landform is stable</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vegetation cover to minimise erosion</td>
<td>Rehabilitation / vegetation assessment</td>
<td>Rehabilitation report documenting that revegetation is comparable to a relevant reference site or a documented acceptable standard</td>
<td></td>
</tr>
<tr>
<td>Self sustaining</td>
<td>Soil properties support desired pre-determined land use</td>
<td>Rehabilitation / vegetation assessment</td>
<td>Rehabilitation report documenting that the chemical, physical and biological properties of the soil are able to support the agreed post mine land use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self-sustaining vegetation</td>
<td>Rehabilitation / vegetation assessment</td>
<td>Rehabilitation report documenting that vegetation is comparable to a relevant reference site or a documented acceptable standard</td>
<td></td>
</tr>
<tr>
<td>Infrastructure,</td>
<td>Infrastructure area, ROM, effluent disposal</td>
<td>Safe</td>
<td>Assessment of final landform by suitably qualified person</td>
<td>Rehabilitation report stating that final landform is structural sound and safe</td>
</tr>
<tr>
<td>Accommodation</td>
<td></td>
<td>Site safe for humans, live stock and wild animals</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Condition N°</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition N°</td>
<td>Proposed Condition</td>
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</tr>
<tr>
<td></td>
<td>site office water pipelines drains roads berms TBA</td>
<td>Non-Polluting Hazardous and contaminated material suitably managed</td>
<td>Contaminated land assessment</td>
<td>Contaminated land assessment against relevant land use criteria</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Runoff and seepage is a good quality unlikely to cause environmental harm</td>
<td>Rehabilitation monitoring plan in place to monitor downstream effects and impacts to groundwater</td>
<td>Rehabilitation report documenting that monitoring data is compliant with trigger levels and environmental values have not been compromised</td>
</tr>
<tr>
<td></td>
<td>Stable</td>
<td>Landform archives appropriate erosion rates</td>
<td>Engendering assessment and design and construction of suitable erosion and sediment control measures</td>
<td>Rehabilitation report stating that infrastructure sites have the required soil erosion and sediment control measures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vegetation cover to minimise erosion</td>
<td>Rehabilitation/ vegetation assessment</td>
<td>Rehabilitation report documenting that vegetation is comparable to a relevant reference site or a documented acceptable standard</td>
</tr>
<tr>
<td></td>
<td>Self sustaining</td>
<td>Soil properties support</td>
<td>Rehabilitation / vegetation</td>
<td>Rehabilitation report documenting that the chemical physical and</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition N°</td>
<td>Proposed Condition</td>
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<tr>
<td></td>
<td>desired pre determined land use</td>
<td>assessment</td>
<td>biological properties of the soil are able to support the agreed post mine land use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self sustaining vegetation</td>
<td>Rehabilitation / vegetation assessment</td>
<td>Rehabilitation report documenting that vegetation is comparable to a relevant reference site or a documented acceptable standard</td>
<td></td>
</tr>
<tr>
<td>Dams</td>
<td>Safe</td>
<td>Site safe for humans, livestock and wild animals</td>
<td>Assessment of final landform by suitably qualified person</td>
<td>Rehabilitation report / geotechnical stating that final landform is structural sound and safe with all suitable precautions implemented</td>
</tr>
<tr>
<td></td>
<td>Non-Polluting</td>
<td>Dams that remain will not contribute contaminate to the environment</td>
<td>Monitoring in place to monitor water in dams and downstream</td>
<td>Monitoring report documenting that water quality is complaint and within acceptable limits</td>
</tr>
<tr>
<td></td>
<td>Stable</td>
<td>Low probability of dam failure that will cause significant environmental harm</td>
<td>Geotechnical investigation of dams and final landform</td>
<td>Geotechnical investigation to determine if final landform is stable</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Risk assessment of final landform</td>
<td>Rehabilitation report outlining that appropriate risk mitigation measures have been implemented</td>
<td></td>
</tr>
</tbody>
</table>

**F3** Progressive rehabilitation must commence when operational areas become available in accordance with the Plan of Operations.

Although the wording has slightly changed, this condition is included in the Model Mining Conditions. It is recommended the new wording be

**H2** Rehabilitation must commence progressively in accordance with the plan of operations.
<table>
<thead>
<tr>
<th>Current Condition</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>F4</td>
<td>All land subject to mining activities must be rehabilitated to: &lt;br&gt; (a) a stable landform with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas; &lt;br&gt; (b) a safe landform, which is non-polluting, geo-chemically and geo-technically stable; &lt;br&gt; (c) ensure that the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance by mining activities; and &lt;br&gt; (d) ensure that the water quality of any residual void or water bodies constructed by mining activities meets criteria for subsequent uses and does not have potential to cause environmental harm.</td>
<td>This condition is now covered by Table H1 (Rehabilitation requirements) and is no longer needed within the EA.</td>
<td>Remove condition from the EA.</td>
<td></td>
</tr>
<tr>
<td>F5</td>
<td>Maintenance of rehabilitated areas must take place to ensure and demonstrate: &lt;br&gt; (a) Stability of landform; &lt;br&gt; (b) Erosion control measures remain effective; &lt;br&gt; (c) Stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any</td>
<td>Again, this condition is no longer required within the EA as assessment against Proposed Condition H1 will result in maintenance being triggered.</td>
<td>Remove condition from the EA.</td>
<td></td>
</tr>
<tr>
<td>Current Condition N°</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition N°</td>
<td>Proposed Condition</td>
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</tr>
<tr>
<td></td>
<td>(d) Plants show healthy growth and recruitment is occurring; and (e) Rehabilitated areas are free of any declared pest plants.</td>
<td>This condition is now covered by Table H1 (Rehabilitation requirements) and is no longer needed within the EA.</td>
<td></td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td>F6 Rehabilitation can be considered successful when: (a) The site can be managed for its designated land-use (e.g. similar to that of surrounding undisturbed areas); (b) No greater management input than for other land in the area being used for a similar purpose is required and there is evidence that the rehabilitation has been successful for at least three (3) years; (c) The rehabilitation is carried out in accordance with the goals, objectives, indicators and completion criteria as specified in the Post Mine Land Use Plan (refer to PMLUP conditions of EA – F10 and F11); and (d) Written agreement is obtained from the landowner/holder and administering authority.</td>
<td></td>
<td>Retain condition within amended EA only altering associated condition number.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F7 Topsoil and subsoil stockpiles must be managed to ensure stability and minimise the release of contaminants. Measures must include:</td>
<td>Although not included in the Model Mining Conditions, this condition is considered applicable to the project and should therefore be retained within the</td>
<td></td>
<td></td>
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<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
<td>Proposed Condition</td>
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</tr>
<tr>
<td>(a) Vegetating stockpiles; (b) Minimising the height of stockpiles; and (c) Re-using stockpiles as soon as possible.</td>
<td>amended EA.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Residual Void Outcomes**

| F8 | Residual voids must comply with the following outcomes: (a) Residual voids must not cause any environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself and subject of any other condition within this environmental authority; and; (b) Residual voids must comply with design criteria (e.g. void identification, maximum surface area, void wall competent rock slope (%), and void wall in competent rock slope (%)) defined in the Post Mine Land Use Plan which is included in each Plan of Operations. | This condition is now covered by Table H1 (Rehabilitation requirements) and is no longer needed within the EA. | - | Remove condition from the EA. |

<p>| F9 | Acceptance criteria to meet the outcomes in condition F8 and landform design criteria must be defined in the Post Mine Land Use Plan which is included in each Plan of Operations | This condition is now covered by Table H1 (Rehabilitation requirements) and is no longer needed within the EA. | - | Remove condition from the EA. |</p>
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
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</thead>
<tbody>
<tr>
<td>Infrastructure</td>
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<tr>
<td>F10</td>
<td>All infrastructure constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mineral development licence surrender, except where agreed in writing by the post mining land owner/holder.</td>
<td>This condition is now covered by Table H1 (Rehabilitation requirements) and is no longer needed within the EA.</td>
<td>-</td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td>Post Mine Land Use Plan</td>
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<tr>
<td>F11</td>
<td>The Post Mine Land Use Plan must be included in the plan of operations and be reviewed and updated with each subsequent Plan of operations, describing how the rehabilitation objectives/ requirements will be achieved.</td>
<td>This condition is no longer a requirement of the Model Mining Conditions. However, it is recommended that as this is essentially a Greenfield site appropriate rehabilitation success criteria, etc. must be developed for the site to include in Table H1. Therefore, it is recommended that a Rehabilitation Management Plan be developed for the site within its first year of operation.</td>
<td>H4</td>
<td>A Rehabilitation Management Plan must be developed for the site and reviewed every two years based on the outcomes of annual rehabilitation monitoring.</td>
</tr>
<tr>
<td>F12</td>
<td>The Post Mine Land Use Plan must include: (a) Rehabilitation objectives for all land disturbed by mining activities and infrastructure include of: I. Pre and post disturbance land use for each mining activity; II. Pre and post disturbance</td>
<td>This condition is no longer a requirement of the Model Mining Conditions or relevant to the proposed conditions within the amended EA.</td>
<td>-</td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td>Current Condition</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition</td>
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<tr>
<td>No.</td>
<td>No.</td>
<td>land suitability for each mining activity;</td>
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<tr>
<td></td>
<td></td>
<td>III. The maximum disturbance area (ha) of each mining activity; and</td>
<td></td>
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<td></td>
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<td>IV. The latitude and longitude (GDA94 of each mining activity;</td>
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<td></td>
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<td>(b) Schematic representations of final land form of the residual voids, waste rock dumps inclusive of:</td>
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<td></td>
<td></td>
<td>I. Drainage feature;</td>
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<td></td>
<td></td>
<td>II. Slope design;</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>III. Cover Design; and</td>
<td></td>
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<td></td>
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<td>IV. Erosion controls proposed on reformed land;</td>
<td></td>
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<td></td>
<td></td>
<td>(c) Descriptions of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design;</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>(d) Proposed revegetation criteria including (if appropriate):</td>
<td></td>
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<td></td>
<td></td>
<td>I. Species diversity, abundance and composition;</td>
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<tr>
<td></td>
<td></td>
<td>II. Projective cover;</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>III. Dry matter production; and</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>IV. Stocking rates to ensure self-sustaining vegetation is maintained;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>(e) Proposed revegetation methods</td>
<td></td>
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</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
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<td>inclusive of plant species selection, re-profiling, respraying soil, soil ameliorants/amendments, surface preparation and methods of propagation; (f) Material balance including available topsoil and low permeability capping material; (g) Research programme and associated milestones; (h) Geotechnical, geochemical and hydrological studies; (i) Chemical, physical and biological properties of soil and water; (j) Clear objectives and success criteria for each land unit including establishment in accordance with outcomes stipulated in the administering authority’s guideline for Rehabilitation Requirements for mining projects; (k) Measurable completion criteria of rehabilitation success for each disturbance type (or land unit); and (l) Rehabilitation monitoring programme which includes sufficient replication to enable statistical analysis of results at an acceptable power.</td>
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<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
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</tr>
<tr>
<td><strong>Contaminated land</strong></td>
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<tr>
<td>-</td>
<td>-</td>
<td>The Model Mining Conditions outline new requirements for administering contaminated lands produced during mining operations. It is recommended these best practice management methods be adopted within the amended EA.</td>
<td>H5</td>
<td>Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The Model Mining Conditions outline new requirements for administering contaminated lands produced during mining operations. It is recommended these best practice management methods be adopted within the amended EA.</td>
<td>H6</td>
<td>Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.</td>
</tr>
<tr>
<td>-</td>
<td>-</td>
<td>The Model Mining Conditions outline new requirements for administering contaminated lands produced during mining operations. It is recommended these best practice management methods be adopted within the amended EA.</td>
<td>H7</td>
<td>Minimise the potential for contamination of land by hazardous contaminants.</td>
</tr>
<tr>
<td>Current Condition No.</td>
<td>Current Condition</td>
<td>Justification for amendment</td>
<td>Proposed Condition No.</td>
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<td>amended EA.</td>
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</tr>
</tbody>
</table>

**Chemicals and flammable or combustible liquids**

**F13**  
All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standards where such is applicable.  
This condition is considered best practice and covered under other legislation (i.e. other than environmental). Further, this is now covered under the broad Proposed Condition H7.  
- Remove condition from the EA.

**F14**  
Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land.  
This condition is considered best practice and covered under other legislation (i.e. other than environmental). Further, this is now covered under the broad Proposed Condition H7.  
- Remove condition from the EA.

**F15**  
Where no relevant Australian Standard is available, the following must be applied:  
(a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and  
(b) Drum storages must be bunded  
This condition is considered best practice. Further, this is now covered under the broad Proposed Condition H7.  
- Remove condition from the EA.
<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.</td>
<td>This condition is considered best practice. Further, this is now covered under the broad Proposed Condition H7.</td>
<td>-</td>
<td>Remove condition from the EA.</td>
</tr>
<tr>
<td>F16</td>
<td>All containment systems must be designed to minimise rainfall collection within the system.</td>
<td>This condition is no longer required under the Model Mining Conditions. However, it is still considered a useful tool for on site staff. Therefore, it is recommended that this condition be retained with a slight amendment to the wording.</td>
<td>H8</td>
<td>A Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.</td>
</tr>
<tr>
<td>F17</td>
<td>A Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Biodiversity offsets</strong></td>
<td><strong>-</strong></td>
<td><strong>The Model Mining Conditions make reference to the Biodiversity Offset Policy 2011. However, this policy has now been replaced by the Environmental Offset Policy 2014. Section 5.8.3 found that the project poses no risk to MSES. Therefore, it was recommended that conditions relating to environmental offsets were not required within the amended EA. Note; if an amendment to the approved disturbance areas or activities is requested, the application process will trigger assessment against the EOP.</strong></td>
<td><strong>-</strong></td>
<td><strong>-</strong></td>
</tr>
</tbody>
</table>
5.9 SCHEDULE I – REGULATED DAMS

The environmental values, potential impacts, environmental protection objectives and subsequent control strategies relevant to dams across the site are discussed within Section 5.6. Further, the Model Mining Conditions no longer have a Schedule dedicated to the requirements of regulated dams. Therefore the proposed Schedule I within the amended EA is based on the adoption of the current EA requirements for regulated dams.
### 5.9.1 Existing and Proposed EA Conditions

Table 27 outlines the current and proposed EA condition for Schedule I of the EA. EHP’s Model Mining Conditions (November 2014) have no requirements for regulated dams, instead the conditions presented within this section remain unchanged from the original EA.

**Table 27: Schedule I – Regulate Dams; current and proposed EA conditions**

<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
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</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td></td>
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</tr>
<tr>
<td>G1</td>
<td>The Design Storage Allowance of Dams specified in the Code for Mining Lease Projects and this Environmental Authority are a minimum design storage requirement.</td>
<td>Retain current condition.</td>
<td>I1</td>
<td>The Design Storage Allowance of Dams specified in the Code for Mining Lease Projects and this Environmental Authority are a minimum design storage requirement.</td>
</tr>
<tr>
<td><strong>Decommissioning and rehabilitation</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>G2</td>
<td>On cessation of operation of any dam, that dam must be maintained so as to avoid environmental harm until that dam is decommissioned.</td>
<td>Retain current condition.</td>
<td>I2</td>
<td>On cessation of operation of any dam, that dam must be maintained so as to avoid environmental harm until that dam is decommissioned.</td>
</tr>
<tr>
<td>G3</td>
<td>Prior to the cessation of the environmentally relevant activity, each dam must be decommissioned such that it either: a) Becomes a stable landform, that no longer contains flowable substances; or b) Is approved or authorised under relevant legislation for a beneficial use; or c) Is a void authorised by the administering authority to remain</td>
<td>Retain current condition.</td>
<td>I3</td>
<td>Prior to the cessation of the environmentally relevant activity, each dam must be decommissioned such that it either: a) Becomes a stable landform, that no longer contains flowable substances; or b) Is approved or authorised under relevant legislation for a beneficial use; or c) Is a void authorised by the administering authority to remain</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Current Condition No.</th>
<th>Current Condition</th>
<th>Justification for amendment</th>
<th>Proposed Condition No.</th>
<th>Proposed Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>after decommissioning; or d) Is compliant with all rehabilitation requirements of this environmental authority.</td>
<td>Retain current condition with minor amendments to update wording.</td>
<td></td>
<td>after decommissioning; or d) Is compliant with all rehabilitation requirements of this environmental authority.</td>
</tr>
</tbody>
</table>

**Standards and Criteria**

G4 The holder of the environmental authority must design, construct, repair, maintain, operate and decommission the dams containing hazardous and non-hazardous waste in accordance with the criteria outlined in Appendix B of the Code of Environmental Compliance for Mining Lease Projects.

I4 The holder of the environmental authority must design, construct, repair, maintain, operate and decommission the dams containing hazardous and non-hazardous waste in accordance with the criteria outlined in Appendix B of the Code of Environmental Compliance for Mining Lease Projects and the latest version of *Manual for Assessing the Consequence Categories and Hydraulic Performance of Structures (EM635)*.
5.10 SCHEDULE J – MAPS
Figure 12: Proposed Schedule J – Figure J1 (Protected areas)
Figure 13: Proposed Schedule J – Figure J2 (Mine layout)
Figure 14: Proposed Schedule J – Figure J3 (Groundwater bore monitoring locations)
Figure 15: Schedule J – Figure J4 (Receiving environmental monitoring locations)
Figure 16: Proposed Schedule J – J5 (Sewage treatment plant and effluent disposal – camp)
Figure 17: Proposed Schedule J – Figure J6 (Sewage treatment plant and effluent disposal – office)
6. REFERENCES


APPENDIX A – NATIVE TITLE AGREEMENT & CULTURAL HERITAGE MANAGEMENT AGREEMENT
Agreement relating to Native Title and Mining

Korella Phosphate Project
ML 90209

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Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Naumann on their own behalf and on behalf of the Yulluna People

Korella Phosphate Pty Ltd
ACN 143 350 690
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Agreement relating to Native Title & Mining

DATE 2011

PARTIES

Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Naumann on their own behalf and on behalf of the Yulluna People (Native Title Party)

AND

Korella Phosphate Project
ACN 143 350 690 (Grantee Party)

RECITALS

A. The Grantee Party is the applicant for the Project Tenement, ML90209, under the MRA.

B. As at the Commencement Date, the Native Title Party has made the Native Title Claim which covers the Project Area.

C. The State of Queensland has given notice pursuant to section 29 of the NTA of its intention to grant the Project Tenement.

D. The Parties have negotiated in good faith in accordance with Subdivision P, Division 3, and Part 2 of the NTA in relation to the grant of the Project Tenement.

E. The Native Title Parties and the Grantee Party agree to enter into a Section 31 Deed with the State in relation to the grant of the Project Tenement.

F. This Agreement is ancillary to the Section 31 Deed.
THE PARTIES AGREE AS FOLLOWS:

1. DEFINITIONS AND INTERPRETATIONS

1.1 Definitions

The meanings of the terms used are set out below and will apply unless otherwise specified in this Agreement:

**Aboriginal Tradition** has the same meaning as the phrase “Aboriginal tradition” contained in Section 36 of the Acts Interpretation Act (Qld) 1954.

**Accounting Standards** means the accounting standards required to be complied with under the Corporations Act and any other relevant accounting standards approved by the Australian Accounting Standards Board and generally accepted accounting principles applied from time to time in Australia.

**Agreement** means this document and includes the Recitals, Schedules and Annexures.

**Ancillary Agreement** means a negotiated agreement ancillary to a section 31 Deed in relation to the same Project Tenement.

**Anniversary Date** means the anniversary day and month of each year of the date on which this agreement commenced.

**Anti-Discrimination Acts** means the Anti-Discrimination Act 1991 (Qld) or the Racial Discrimination Act 1975 (Cth) and any other applicable Australian legislation relating to discrimination.

**Applicable Law** means every law and regulation (whether of the Commonwealth or of the State of Queensland) from time to time in operation in the State of Queensland which is applicable to a Party including any such laws relating to native title, mining, the environment, or Aboriginal Cultural Heritage.

**Assign** means to assign, transfer or otherwise dispose of the whole or part of any legal or other interest.

**Benefit** means the financial and other community benefits as set out in Schedules 2 and 3.

**CHMA** means the Aboriginal cultural heritage management agreement entered into by the Parties on 29 September 2011, in relation to the protection and management of Aboriginal cultural heritage in the Project Area.

**Commencement Date** means the date on which this Agreement is executed by the Parties and, if executed on different days, the later of those days.

**Confidential Information** means:

(a) The terms of this Agreement including information about the negotiations preceding execution of this Agreement;

(b) All information acquired by a Party about another Party as a result of the entry into and implementation of this Agreement;

(c) For the Native Title Party, all anthropological, archaeological or other information concerning any of the Native Title Party’s laws, customs and Aboriginal Traditions, all of the Native Title Party’s rights and interests in and to any Aboriginal Cultural Heritage as defined under ACHA 2003; and

(b) For the Grantee Party, commercial information that the Grantee Party considers is of a confidential nature relating to the business and financial activity of the Grantee Party.
including but not limited to information about theories of mineral occurrences and recovery methods.

**Contrary Determination** means an approved determination of native title that common law holders other than the Native Title Claim Group hold Native Title to all or part of the Project Area.

**Coordinating Committee** means the committee established under clause 7 and Schedule 4 of this Agreement.

**Coordinated Tendering** means a process, established under Schedule 3 of receiving tenders from any Native Title Claim Group Business for the provision of services to the Project.

**Cultural Event** means a funeral for a member of the Native Title Claim Group, or a cultural event involving Aboriginal Tradition requiring the temporary suspension of the Native Title Party's obligations under this Agreement for cultural reasons.

**EBITDA** means the Gross Receipts minus the Gross Expenses before providing for any Interest, Taxes, Depreciation and Amortisation charges.

**Employment Register** The register established in accordance with schedule 3 of this Agreement.

**Environmental Authority** means the environmental authority for the Project Tenement issued under the *Environmental Protection Act* 1994.

**Financial Benefits** means the benefits described in clause 3 of Schedule 2.

**Force Majeure** means any act, event or cause which is beyond the reasonable control of the Party concerned including war, insurrection, civil disturbance, blockade, riot, embargo, epidemic, earthquake, storm, flood, explosion, fire or lightning, strikes and other labour conflicts, government action or inaction (including a change of law), breakdown of machinery, equipment or facilities or shortages of material or equipment.

**Governmental Agency** means any government, or any governmental, semi-governmental, administrative, fiscal or judicial body, department, commission, authority, tribunal, government Minister, agency or entity.

**Gross Expenses** means the aggregate of all expense and liabilities of the Grantee Party net of GST in connection with the Products including, but not limited to:

a) Operating Expenses;

b) Distribution Expenses;

c) Marketing Expenses;

d) Exploration Expenses;

e) Corporate Expenses;

f) Royalty Expenses;

**Gross Receipts** means the aggregate of all amounts net of GST received by the Grantee Party in connection with the sale or other disposal of Products

**Industry Best Practice** means industry accepted procedures and practices for the development and implementation of comprehensive strategies to minimise the environmental impact of the Project Operations.

**Infrastructure** means all developments, installations, constructions and activities within the Project Tenement, in addition to the Project Operations, necessary to allow the extraction of phosphate within the Project Area.
Job Applicant means a person whose name appears on the Employment Register who applies for a Job Vacancy.

Job Vacancy means a position of employment with the Grantee Party that becomes vacant in relation to the Project Operation.

Korella Phosphate ASX Announcement means an announcement to the Australian Stock Exchange that the Grantee party will proceed with the development of the Korella Phosphate Project.

Make Good Notice means a written notice issued by the Grantee Party under clause 8.2 requiring the Native Title Claim Group to discontinue any compensation claim.

Mine and Mining have the same meaning as given in the MRA.

MRA means the Mineral Resources Act 1989 (Qld).

Native Title has the meaning given in the NTA.

Native Title Claim means the native title determination application made by the Yulluna People and given Federal Court file no: QUD 189/2010 as amended from time to time.

Native Title Claim Area means the area of land and waters described in the Native Title Claim.

Native Title Claim Group has the same meaning given in the NTA in relation to the Native Title Claim. For the purposes of this Agreement a reference to the Native Title Claim Group is a reference to the claim group described in the Native Title Claim.

Native Title Claim Group Business means any business owned or controlled by the Native Title Claim Group and includes any business to which the Native Title Claim Group or its nominee is a joint venture partner.

Native Title Party means Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Naumann on their own behalf and on behalf of the Native Title Claim Group, or such other person or persons who may from time to time be the registered native title claimant for the Native Title Claim.

Nominated Account means the bank account of the Nominated Entity in accordance with Schedule 2.

Nominated Entity means the entity receiving benefits which is established in accordance with Schedule 2.

Non-Extinguishment Principle has the same meaning given in section 238 of the NTA.

Notice of Dispute means a written notice from one Party to the other Party that a dispute exists in relation to a matter arising under this Agreement and which describes the dispute the subject of the notice.

NTA means the Native Title Act 1993 (Cth).

Party or Parties refers to the Native Title Party or the Grantee Party, or both, as the context requires.

Payment Period means the annual period or part thereof described in item 3.1(d) and 3.1(e) of Schedule 2 for the purposes of calculating the annual component of the Financial Benefit.

Payment Records means the books, accounts and records maintained by or on behalf of a Grantee Party showing reasonable detail in relation to:
(a) the quantity of rock phosphate produced in a Payment Period;
(b) the calculation of the payments made and to be made under item 3 of schedule 2; and
(c) the making of payments under item 3 of schedule 2.

Payments mean any payment to be paid by the Grantee Party to the Native Title Party in accordance with this Agreement.

Prescribed Body Corporate means if one or more Successful Determinations have been made, the prescribed body corporate, or prescribed bodies corporate whose name or names appear in the entry on the National Native Title Register for the Native Title Claim, in relation to the Project Area.

Production Commencement Date means the date, occurring after the Korella Phosphate ASX Announcement, on which the first tonne of rock phosphate is extracted from the ground in the Project Area.

Project Area means the area of land and waters the subject of the Project Tenement.

Project Authorisation Documents means any document reasonably necessary to comply with section 31(1)(b) of the NTA.

Project Operations means the phosphate mining operation authorised by the terms and conditions of the Project Tenement, to be located in the Project Area and includes, but is not limited to bulk sampling and road and rail transport of unprocessed rock phosphate to Townsville.

Project Tenement means the mining lease listed in Schedule 1, including necessary permits and authorities for activities required to give effect to the Project Operations provided those permits and authorities do not create rights and interests that have a greater impact on native title than the rights and interests expressly created by the mining lease listed at Schedule 1.

RDA means the Racial Discrimination Act 1975 (Cth).

Regulations mean the Mineral Resources Regulations 2003.

Rehabilitation means the taking of such measures as to encourage an area or site disturbed by Project Operations to return as near as reasonably practicable to its original condition, in accordance with the approved rehabilitation plan in the Environmental Authority for the Project Tenement.

Related Body Corporate has the same meaning as in the Corporations Act 2001 (Cth).

Section 29 Notification Period means the period of 4 months from the notification day as prescribed under section 29 of the NTA.

Section 31 Deed means the agreement referred to under section 31(1) (b) of the NTA between the State and the Parties in relation to the grant of the Project Tenement.

State means the State of Queensland and any Departments of, or entities owned or controlled by, the State.

Statement means a written statement setting out in reasonable detail:
(a) the quantity, measured in metric tonnes, of direct shipping ore rock phosphate recovered and sold during the Payment Period;
(b) the individual elements which make up the payment calculation under item 3 of Schedule 2;
(c) the amount of the payment due; and
(d) any other material information which is relevant in explaining the calculation of the payment.

Successful Determination means a determination of the native title rights and interests described in the Native Title Claim by the Federal Court which has not been appealed, or if an appeal has been lodged, the final determination of that appeal or any subsequent appeal resulting in a determination that native title exists in all or part of the Project Area.
Suspension Event means a claim for compensation against the State or the Grantee Party, in respect of the grant of the Project Tenements, made by the Native Title Party or any member or members of the Native Title Claim Group.

Traditional Activities means activities arising from or related to any of the rights and interests claimed by the Native Title Party in their Native Title Claim including the following:

(a) hunting, fishing, gathering or camping;
(b) performing rites or other ceremonies; and
(c) visiting sites of significance

Yulluna Aboriginal Corporation means the Yulluna Aboriginal Corporation registered with the Office of the Registrar of Aboriginal Corporations and given Indigenous Corporation Number (ICN) 7112

1.2 Interpretation

In this Agreement, except to the extent that the context otherwise requires:

(a) Headings may be used to interpret this Agreement;
(b) the singular includes the plural and vice versa and words importing a gender includes the other gender;
(c) other grammatical forms of defined words or expressions have corresponding meanings;
(d) reference to a clause, paragraph, and schedule is a reference to a clause or paragraph of or schedule to this Agreement and a reference to this Agreement includes any schedules;
(e) a reference to a document or agreement, including this Agreement, includes a reference to that document or agreement as enacted, altered or replaced from time to time;
(f) a reference to "dollar" or "$" is a reference to Australian currency;
(g) a reference to a specific time for the performance of an obligation is a reference to that time in the State;
(h) a reference to a party includes its successors, administrators and permitted assigns;
(i) words and expressions importing natural persons include partnerships;
(j) bodies corporate, associations, governments and governmental and local authorities and agencies;
(k) a reference to any legislation or statutory instrument or regulations is construed in accordance with the Acts Interpretation Act 1901 (Cth) or the equivalent State legislation as in force on the commencement date, as applicable; and
(l) a reference to a person includes a natural person and a body corporate.

1.3 Words and expressions in NTA

Unless the context requires otherwise, words and expressions defined in the NTA have the same meanings when used in this Agreement.
2. **TERM**

2.1 **Commencement**

This Agreement takes effect from the Commencement Date.

2.2 **Duration**

This Agreement continues to operate for so long as the Project Tenement continues in force, but will terminate if:

(a) The Project Tenement is the subject of a permanent refusal of grant, cancelled, surrendered or relinquished;

(b) The Project Operations permanently cease; or

(c) There is a Contrary Determination.

2.3 **Restraint following termination**

If this Agreement terminates because of clause 2.2(b) the Native Title Parties agree that they will not at any time after termination seek to declare invalid any part of the Project Operations or grant of the Project Tenements.

2.4 **Continuation of rights after termination**

The rights and obligations of the Parties under this Agreement which have accrued at the date of termination of this Agreement will continue beyond such date of termination until the particular obligation is fulfilled and the provisions of this Agreement dealing with procedural matters will continue to apply until the fulfilment of such obligations.

2.5 **Suspension of Agreement for Breach**

Either Party may at any time at its option, suspend the operation of this Agreement during any period of time where the other Party is in breach of an essential term, other than clause 6, of this Agreement, by providing notice to the other Party in accordance with clause 14 of this Agreement and may only be so suspended after all steps up to and including mediation have failed to resolve the allegation of breach.

3. **TEMPORARY CESSIONATION OF PROJECT OPERATIONS**

3.1 **The Grantee Party may suspend Agreement where temporary cessation of Project Operations**

The Grantee Party may by written notice to the Native Title Party at any time, and on more than one occasion, suspend the operation of this Agreement if the Project Operations have temporarily ceased. Such suspension will commence on the date the written notice is given and will cease if and when the Grantee Party gives notice to the Native Title Party that it intends to recommence the Project Operations. If Project Operations recommence, the Grantee Party must provide the notice to the Native Title Party no later than 24 hours after that recommencement.

3.2 **Effect of suspension for cessation**

Where the Grantee Party suspends the operation of this Agreement then the rights and obligations of the parties under this Agreement shall be suspended for the period of the temporary cessation and the time for performance of any obligations of the parties under this Agreement shall be extended by the period of such temporary cessation save for:

a) Clause 6 and
4. DECLARATIONS AND WARRANTIES

4.1 Authority to enter into Agreement

(a) The Native Title Party represents and warrants that pursuant to section 251B of the NTA it is authorised to enter into this Agreement on behalf of the Native Title Claim Group and that pursuant to section 41(2) of the NTA, this Agreement is valid and binding and enforceable in accordance with its terms against the Native Title Party and all those persons on whose behalf the Native Title Claim is made.

(b) The Grantee Party warrants that it has full power and authority to enter into this Agreement and can perform all and any of its obligations as contemplated by this Agreement.

4.2 Continuation of rights and obligations

Subject to clause 2.2 (c) the Parties agree that the rights and obligations under this Agreement continue notwithstanding any variations or amendments to the Native Title Claim Area or the description of the Native Title Claim Group or of the Native Title Party in the Native Title Claim.

5. ACKNOWLEDGEMENTS

5.1 Native Title

(i) Except at the request of the Native Title Party, the Grantee Party agrees not to become or seek to become a respondent party to the Native Title Claim as a result of the grant of the Project Tenement.

(ii) The Grantee Party agrees that it will not oppose the Native Title Claim nor any other application for a native title determination made in replacement or substitution of the Native Title Claim by the Native Title Claim Group provided that its rights under this Agreement and the Project Tenement is recognised in any Approved Determination of Native Title.

5.2 Access to Project Area to perform Traditional Activities

To the extent that it is lawfully able, as the holder of the Project Tenement the Grantee Party will grant access to the Native Title Claim Group to enter the Project Area for Traditional Activities that do not unreasonably interfere with the Project Operations. Access will be subject to the Native Title Claim Group obtaining all other necessary permissions and consents, and abiding by all Applicable Laws relating to entry onto the Project Area.

5.3 Non-extinguishment Principle

The Non-Extinguishment Principle will apply to the grant of the Project Tenement.

5.4 Utmost Good Faith

Each of the parties will at all times and in respect of any matter arising under this Agreement (or as a consequence of it) throughout the term of this Agreement fully comply with their obligations under this Agreement and in doing so shall act and deal with each other with utmost good faith.

6. CONSENT TO GRANT OF PROJECT TENEMENT

6.1 Consent to grant

The Native Title Party consents to and will not object to the grant of the Project Tenement.
7. **COORDINATING COMMITTEE**

7.1 **Coordinating Committee and Future Policies and Programs**

- This clause provides for a mechanism (Coordinating Committee) through which the Parties will:
  
  (a) review, monitor and coordinate the performance and implementation of this Agreement and the CHMA;
  
  (b) have a formal system of ongoing communication on any issues relating to this Agreement and the CHMA;
  
  (c) discuss over time the possible development, adoption, resourcing and implementation of future policies and programs on which they can work together for the advancement of the Native Title Claim Group and the local community as a whole; and
  
  (d) engage in dispute resolution in accordance with clause 14.3(b) and the CHMA.

However the Coordinating Committee will have no authority in relation to decision making directly related to Project Operations.

7.2 **Coordinating Committee**

- Within three (3) months of the grant date of the Project Tenement the Parties will establish a Coordinating Committee.

- The Coordinating Committee will continue to exist for the longer of the term of this Agreement or the term of the CHMA.

- The Coordinating Committee will operate in the way detailed in Schedule 4.

8. **FINANCIAL BENEFITS**

8.1 **Provision of financial Benefit**

The Grantee Party will provide the Native Title Party with the financial Benefit set out in Schedule 2.

8.2 **Make Good Notice**

- If a Suspension Event occurs, the Grantee Party may issue a Make Good Notice to the Native Title Party. If the Make Good Notice is not complied with the Grantee Party may, within one month of issue, suspend the making of Payments to the Native Title Party under this Agreement until the Suspension Event has been decided by the court or otherwise resolved.

- If the Grantee Party suspends Payments under this Agreement it must hold all suspended Payments on trust until the Suspension Event ends and when it does end pay such suspended Payments pursuant to this Agreement or, if a compensation order has been made, make payments from the funds held on trust to the Native Title Party pursuant to that order and if the order is for less than the funds held the trust shall with respect to the balance of funds held, terminate upon the making of such order.

8.3 **Full and final compensation**

Provided the Grantee Party complies with this Agreement the Native Title Party acknowledges and agrees that:

- the financial Benefits under this clause 8 and Schedule 2 and community Benefits under clause 9 and Schedule 3 are in full and final compensation for the grant of the Project Tenement and the impact of the Project Operations in the Project Area on their Native Title rights and interests;
the Native Title Party or any member or members of the Native Title Claim Group will not make any claim for compensation against the Grantee Party for the effect of the grant of the Project Tenement on their native title rights and interests or the effect of the Project Operations on their native title rights and interests; and

(c) the Grantee Party may plead the terms of this Agreement in bar to any claim made against the Grantee Party in breach of this clause 8.3.

(d) The Parties do not intend this clause to apply to any lawful claim relating to Aboriginal cultural heritage.

8.4 Payment Statement

Within 30 days after the date on which a payment under items 3.1(d) and 3.1(e) of Schedule 2 falls due, the Grantee Party must:

(a) calculate the amount to be paid in the relevant Payment Period;
(b) give to the Native Title Party a Statement in respect of the relevant Payment Period even if there is no payment due in respect of that Payment Period; and
(c) if payment is due, make payment to the Nominated Entity as provided for in Schedule 2.

8.5 Payment Records

The Grantee Party must keep, or cause to be kept, true and accurate Payment Records in accordance with the Accounting Standards and generally accepted Australian mining industry practice.

8.6 Inspection and audit of Payment Records

(a) The Native Title Party may, upon reasonable notice to the Grantee Party and at reasonable times and at its own cost, within 60 days of receiving a payment under item 3 of Schedule 2, appoint a registered company auditor under the Corporations Act to inspect, audit and report on the Payment Records of the Grantee Party to the Native Title Party in respect of that payment.

(b) The Grantee Party must give the auditor appointed by the Native Title Party full and free access to the relevant Payment Records of the Grantee Party at its offices, or elsewhere as agreed, in respect of the relevant payment.

8.7 Consequences of financial audit

(a) If the Native Title Party notifies the Grantee Party of any underpayment or overpayment which the Native Title Party's auditor, in its reasonable opinion, considers exists or the audit determines that any payment made has been calculated in error, the Grantee Party must, on being provided with a copy of the report of the Native Title Party's auditor, make an adjustment of the next payment due under item 3 of Schedule 2 accordingly unless the Grantee Party gives a Notice of Dispute under clause 14 of the Agreement within 1 month of receiving the report of the Native Title Party's auditor.

(b) If the relevant payment under item 3 of Schedule 2 is established by audit to be more than 5% less than the actual amount paid by the Grantee Party, the Grantee Party must refund to the Native Title Party forthwith the costs of the audit.
9. COMMUNITY BENEFITS

9.1 Employment and Contracting Plan

The Grantee Party will comply with and implement its obligations and undertakings set out in the Employment & Contracting Plan at Schedule 3 as amended from time to time.

9.2 Anti-Discrimination

(a) This clause 9 and Schedule 3 do not apply to the extent that their operation causes the Grantee Party to be in breach of the Anti-Discrimination Acts.

(b) Where in order for this clause 9 or Schedule 3 to operate, it is necessary to obtain an exemption by an authority, court or tribunal under the Anti-Discrimination Acts, the Parties must do such things, at no cost to the Native Title Party, as are reasonable and necessary to obtain such consent or approval.

10. DELAYS IN PERFORMANCE OF OBLIGATIONS

10.1 Delay due to Force Majeure

(a) The Parties will not be liable for any delay or failure to perform their obligations under this Agreement if such delay is due to a Cultural Event for which advance notice has been given to the Grantee Party or to Force Majeure.

(b) Where any Party is unable by reason of Force Majeure to carry out wholly or in part their obligations under this Agreement, the obligations of that Party so far as they are affected by the Force Majeure will be suspended during, but no longer than the continuance of the Force Majeure.

11. ASSIGNMENT

11.1 Assignment by the Grantee Party

Providing the Grantee Party:

(a) is not in breach of this Agreement at the time of the proposed assignment; or

(b) is not in receipt of a Notice of Dispute at the time of the proposed assignment; or

(c) ensures that the assignee enters into a deed of covenant (upon terms acceptable to the Native Title Party) whereby the assignee covenants to unconditionally observe, perform, comply with and be bound by the terms of this Agreement to the extent of the interest assigned as if expressly named in this Agreement as the Grantee Party;

(d) has given notice of the proposed assignment to the Native Title Party which notice is to include details of the interest to be assigned and the terms and conditions of the assignment; and

(e) discharges any obligations to the Native Title Party under this Agreement which remain outstanding as at the date of assignment,

then the Grantee Party may assign the whole or any part of its interests in the Project Tenement and the Project Operations under this Agreement.
11.2 **Effect of assignment**

Subject to clause 11.1 and 11.2(c), if the Grantee Party assigns its interest:

(a) in a part only of the Project Tenement in accordance with this Agreement, the Grantee Party will be severally liable with the assignee for the performance of the obligations under this Agreement in respect of the part interest not assigned in the Project Tenement;

(b) in the whole of the Project Tenement in accordance with this Agreement, the Grantee Party will, provided the assignee has executed the deed of covenant referred to in clause 11.1, be released from its obligations under this Agreement in respect of the interest assigned from the time of assignment; and

(c) In relation to the interest or part thereof assigned, the Grantee Party acknowledges that it remains liable for any breach of this Agreement committed prior to the date of assignment.

11.3 **New Native Title Applicant**

If the Native Title Claim Group amends the Native Title Claim to replace or add any person as the Native Title Party, the new Native Title Party must notify the Grantee Party of such amendment within thirty days of the date on which the amendment is made.

11.4 **Assignment by the Native Title Party**

The Native Title Party may not assign its interest under this Agreement except to a Prescribed Body Corporate in circumstances where the whole of the Project Area is the subject of a Successful Determination.

11.5 **Rights of the Prescribed Body Corporate**

Whether or not an assignment is carried out under clause 11.4, upon a Successful Determination, the Prescribed Body Corporate will be entitled to exercise all the powers, rights and benefits of the Native Title Party under this Agreement and will become obliged to observe and perform all obligations of the Native Title Party under this Agreement.

11.6 **Assignment effective**

An assignment by the Native Title Party to the Prescribed Body Corporate will become effective when the Prescribed Body Corporate executes a deed of covenant by which the Prescribed Body Corporate covenants to observe, perform, comply with and be bound by the terms of this Agreement as if expressly named in this Agreement as the Native Title Party.

11.7 **Relinquishment of Tenure**

The Grantee Party must, within 7 days of relinquishing any part of a Project Tenement, notify the Native Title Party that it has done so. The Grantee Party acknowledges and accepts that it will remain liable for all Payments and Benefits under this Agreement until such time as it provides such notice.

12. **REVIEW OF AGREEMENT**

12.1 **Periodic Review of Agreement**

(a) Subject to clause 12.1(b) the Parties (through the Coordinating Committee) will meet to review the Agreement, assess its operation and consider any amendments to improve the Agreement one (1) year after the Production Commencement Date and every three (3) years thereafter.

(b) Clause 8 (Financial Benefits) and Schedule 2 will not be subject to the review provided for in clause 12.1(a).
(c) When the Parties meet for the purpose of review, they must, unless otherwise agreed:

(i) review the Agreement to identify what works effectively, what could be improved and whether agreement can be reached on any amendments to the Agreement suggested by a Party;

(ii) consider whether further review mechanisms for the Agreement would be appropriate;

(iii) formalise any arrangements for a further review mechanism if one is agreed (for example, by amending the Agreement or entering into another agreement providing for further review; and

(iv) minute the discussion and decisions made and distribute the minutes to the Parties.

(d) Where the Parties agree, they may review the Agreement at any time.

12.2 Amendment of Agreement

Where the Parties propose to change the Agreement, other than clause 6, the Parties will jointly consider the following:

(a) whether the change can best be made by amending the Agreement;

(b) whether the change can best be made by entering into another agreement; and

(c) the requirements of any law at the time of the change.

12.3 The Grantee Party will pay the reasonable costs and expenses of the Native Title Party for attending the annual meeting to review the agreement in accordance with this clause 12.

13. CONFIDENTIALITY

13.1 Confidential Information

Subject to clause 13.2, each Party will keep the Confidential Information confidential.

13.2 Permitted disclosures

(a) Confidential Information will not be disclosed without the prior written consent of the Parties and such consent will not be unreasonably withheld;

(b) Confidential Information may only be disclosed to a third party without seeking the consent of another Party if:

(i) to a Related Body Corporate subject to the Related Body Corporate complying with terms of confidentiality similar to this clause 13;

(ii) to the limited extent as is reasonably necessary to comply with any lawful requirements of any Governmental Agency having lawful jurisdiction over that Party;

(iii) to the limited extent as is reasonably necessary to comply with the law;

(iv) to the limited extent as is reasonably necessary to comply with any lawful requirements of any stock exchange on which shares or other securities of the Party or a Related Body Corporate are listed when lawfully required to do so by the regulations of that stock exchange;

(v) to financial and lending institutions for the purpose of obtaining finance subject to the financial and lending institutions complying with terms of confidentiality similar to this clause 13;
(vi) to independent accountants or legal counsel engaged by that Party to give advice subject to the independent accountants or legal counsel complying with terms of confidentiality similar to this clause 13;

(vii) to bona fide potential assignees of a Party’s interest under this Agreement or potential assignees of the whole or part of the Project Tenement; and

(viii) if the information is for the purpose of complying with the provisions of the Corporations Act 2001 (Cth), contained in a prospectus or other disclosure document issued by the disclosing party.

(c) Confidential Information may be disclosed by the Native Title Party to the Native Title Claim Group for the purpose of seeking approval to enter this Agreement or to advise them of their rights, benefits and obligations under this Agreement.

(d) Ownership of any intellectual property in information and reports pertaining to Aboriginal Cultural Heritage or to the Native Title Party’s Confidential Information that may already be in existence prior to this Agreement or which may be generated in the course of this Agreement shall be vested in the Native Title Claim Group.

(e) Ownership of the Grantee Party’s Confidential Information remains with the Grantee Party and the Parties acknowledge that such Confidential Information is both commercial in nature and central to the success of the Grantee Party’s activities under the Project Tenement.

(f) The Native Title Party will allow the Grantee Party to make such use of the Native Title Party’s Confidential Information and reports in such a form that is limited to what is reasonably necessary to enable the Grantee Party to meet its statutory and regulatory obligations and to undertake the Project Operations.

(g) In giving effect to clause 13.2(f), the Grantee Party accepts that it does not require any primary Aboriginal cultural heritage information to meet its statutory or regulatory requirements or in relation to meeting its duty of care under the Aboriginal Cultural Heritage Act 2003.

14. DISPUTE RESOLUTION

14.1 Applicability

(a) This clause 14 applies to any dispute arising under or concerning matters relating to this Agreement.

(b) Each Party agrees to enter into negotiations and attend mediation pursuant to this clause 14 to resolve any disputes.

14.2 Notice and meetings

(a) A dispute will only be deemed to exist where a Party provides a Notice of Dispute to the other Party;

(b) In the interests of resolving any dispute as quickly as possible, the Parties may agree to meet via telephone or video conference links.

14.3 Negotiated resolution and mediation

(a) Stage 1 – Initial Negotiation

(i) Each Party will nominate a representative who will attempt to negotiate a resolution to the dispute in the first instance.
(ii) This resolution will be attempted within 48 hours of a Notice of Dispute being received by a Party.

(iii) Neither Party will be entitled to be legally represented at the initial negotiation.

(b) Stage 2 – Second Negotiation

(i) If the nominated representatives cannot reach agreement after 48 hours, the dispute will (within a further period of 2 days (or such other period as required for the Coordinating Committee to convene) be referred to a meeting of the Coordinating Committee in order to seek to further negotiate a resolution.

(ii) the Coordinating Committee will meet as expeditiously as possible, but no later than 2 days after the referral in clause 14.3(b)(i). If the Coordinating Committee cannot reach agreement within 2 days, any Party may request the dispute be referred to the third negotiation.

(iii) Unless the dispute involves a matter which is beyond the expertise of those persons comprising the Coordinating Committee or concerns the interpretation of a part of this Agreement or a point of law such that the parties will be assisted in the expeditious resolution of the dispute by the presence of either legal or other expert representation or assistance, neither Party shall (unless otherwise agreed) be entitled to be represented at the meeting of the Coordinating Committee.

(c) Stage 3 – Third Negotiation

(i) If the Coordinating Committee cannot reach agreement within the time as set out in clause 14.3(b)(i), a meeting of the Grantee Party and the Native Title Party will be convened within a further period of 2 days (or such other period as required for the Coordinating Committee to convene) in order to seek to further negotiate a resolution.

(ii) If the Grantee Party and the Native Title Party cannot negotiate a resolution of the dispute after 2 days from the day on which they meet, either Party may refer the dispute to mediation.

(iii) Unless the dispute involves a matter which is beyond the expertise of the Grantee Party or the Native Title Party or concerns the interpretation of a part of this Agreement or a point of law such that the parties will be assisted in the expeditious resolution of the dispute by the presence of either legal or other expert representation or assistance, neither Party shall (unless otherwise agreed) be entitled to be represented at the meeting of the Grantee Party and Native Title Party.

(d) Stage 4 – Mediation

(i) The mediator will be a person agreed upon by the Parties within two days of the request for mediation or, failing agreement, a person appointed by the Queensland Law Society within 5 days of the request for mediation.

(ii) The mediator will initially meet the Grantee Party and the Native Title Party together in an attempt to mediate a resolution of the dispute. Unless the mediator is of the view that resolution of the dispute would be assisted and expedited by the presence of legal or other expert assistance neither party shall be entitled to be represented or assisted by legal or other expert assistance at the initial mediation. The duration of the initial mediation shall be at the discretion of the mediator but shall not exceed 1 day.

(iii) Thereafter either Party may be represented during the mediation by a duly qualified legal practitioner or other expert advisor, limited to one legal practitioner and one advisor for each Party, provided the other Party is similarly represented.
The Grantee Party will be responsible for paying the costs of the mediation, up to a maximum of $5000.00 and costs above this amount shall be borne by the parties equally.

In circumstances where the Native Title Party can reasonably demonstrate to the satisfaction of the mediator that it does not have the resources to meet the cost of legal or other expert representation and the Mediator is satisfied that it is necessary to so recommend, the Grantee Party shall in good faith (in order to ensure, so far as the Grantee Party is reasonably able that all Parties are equally represented, have equal access to expert advice and have an equal bargaining position) pay the reasonable costs of legal representation or other expert advice for the Native Title Party throughout the mediation to a maximum of $3,500. After the Grantee Party has met the costs to be paid under this subclause, the Native Title Party shall be responsible for its own costs.

If an agreement is reached in mediation, the Parties agree that it may be enforced by issuing proceedings in a court of law and the terms of such agreement will be deemed to be provisions of this Agreement.

14.4 Judicial Proceedings

(a) Subject to clause 14.4(b), a Party may not commence any court proceedings unless it has first complied with clauses 14.3 (a) to (d).

(b) Nothing in clauses 14.3 or 14.4 is intended to prevent a Party from seeking urgent relief from a court or tribunal for any other order, relief or remedy (including injunctive or declaratory relief) against each other and any other person that may be available to them at law or in equity.

15. ENVIRONMENTAL PROTECTION

15.1 In accordance with Industry Best Practice the Grantee Party will comply with:

(a) the environment protection procedures required by all Applicable Law relevant to the Project Operations; and

(b) the relevant environmental authority for the Project Tenement.

15.2 The Grantee Party must notify the Native Title Party of:

(a) any amendment to the Environmental Authority; or

(b) any breach, of which the Grantee Party has knowledge, of the Environmental Authority or environmental protection procedures required by all Applicable Law.

16. NOTICES

16.1 Any Party wishing to give notice for any purpose under this Agreement must do so in the following manner, unless another manner is agreed upon:

(a) by notice in writing directed to the recipient's address specified in clause 16.3, as varied by any notice; and

(b) hand delivered or sent by prepaid post or facsimile to the address specified in clause 16.3, as varied by any notice.

16.2 A notice given in accordance with this clause is taken to be received:

(a) if hand delivered during Business Hours on a Business Day, on delivery;
(b) if hand delivered at any other time, at 10.00 am on the next Business Day following delivery;

(c) if sent by prepaid post, 4 Business Days after the date of posting;

(d) if sent by facsimile during Business Hours on a Business Day, when the sender’s facsimile system generates a message confirming successful transmission of the total number of pages of the notice unless, within eight Business Hours after that transmission, the recipient informs the sender that it has not received the entire notice; or

(e) if sent by facsimile at any other time, at 10.00 am on the next Business Day following transmission.

(f) if sent by email, upon the email message reflecting as 'sent' in the sender’s email folder system except where a sending failure message is generated and relayed to the sender’s address.

16.3 The Address for Notices for each of the Parties is as follows:

The Grantee Party

Korella Phosphate Pty Ltd ACN: 143 350 690
c/- Krucible Metals Limited
P O Box 499
Hyde Park Castletown
TOWNSVILLE QLD 4812

Ph: (07) 4772 5880
Fax:(07) 4772 4999

Email: admin@kruciblemetals.com.au

The Native Title Party

Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Neumann on their own behalf and on behalf of the Yulluna People.

C/o Yulluna Aboriginal Corporation
P O Box 181
CLONCURRY QLD 4824

Ph: (07) 4742 1090
Fax:(07) 4742 0124

Email: taninkhq2@bigpond.com

17. LEGAL COSTS

(a) The Grantee Party shall upon receipt of a Tax Invoice from the solicitors for the Native Title Party pay those reasonable legal costs as incurred by the Native Title Party for the negotiation, drafting and execution of this Agreement.

(b) Payment of a Tax Invoice issued by the solicitors for the Native Title Party shall represent a full and proper discharge of the Grantee Party’s obligations under clause 17(a).
18. GST GROSS UP AND GST ON CLAIMS

(a) Words defined in *A New Tax System (Goods and Services Tax) Act 1999* (Cth) have the same meaning in this clause 18.

(b) If a Party makes a supply to another Party under or in connection with this Agreement, then (unless the consideration is expressly stated to be inclusive of GST) the consideration for that supply is exclusive of GST, and in addition to paying or providing that consideration the recipient must:

(i) pay to the supplier an amount equal to any GST for which the supplier is liable on that supply, without deduction or set-off of any other amount; and

(ii) make that payment as and when the consideration or part of it must be paid or provided, except that the recipient need not pay unless the supplier has issued to the recipient a tax invoice (or an adjustment note) for that supply.

(c) If a Party provides a payment for or any satisfaction of a claim or a right to claim under or in connection with this Agreement (for example, for misleading or deceptive conduct or for misrepresentation or for a breach of any warranty or for indemnity or for reimbursement of any expense) that gives rise to a liability for GST, the provider must pay, and indemnify the recipient on demand against, the amount of that GST.

(d) If a Party has a claim under or in connection with this Agreement for a cost on which that Party must pay an amount for GST, the claim is for the cost plus the amount for GST (except any amount for GST for which that Party is entitled to an input tax credit).

(e) If a Party has a claim under or in connection with this Agreement whose amount depends on actual or estimated revenue or which is for a loss of revenue, revenue must be calculated without including any amount received or receivable as reimbursement for GST (whether that amount is separate or included as part of a larger amount).

19. GENERAL PROVISIONS

(a) This Agreement constitutes the entire agreement of the Parties with reference to the subject matter and any previous agreements, understandings and negotiations on that subject matter cease to have any effect.

(b) Words used in the schedules have the same meaning as in the body of the Agreement.

(c) Nothing contained in this Agreement is to be construed as creating the relationship between the Parties of partnership, principal and agent or joint venture.

(d) No modification, variation, amendment or alteration of this Agreement is valid unless in writing and executed by all Parties.

(e) A right under this Agreement will only be waived where that waiver is in writing and is signed by the Party whose right is waived. A particular waiver by a Party is not to be construed as a general waiver.

(g) The failure of a Party at any time to require performance of any obligation under this Agreement is not a waiver of that Party’s right:

(i) to insist on the performance of or to claim damages for breach of that obligation unless that Party acknowledges in writing that the failure is a waiver;

(ii) at any other time to require performance of that or any other obligation under this Agreement.
(h) This Agreement is made in the State of Queensland and is to be construed with reference to the laws for the time being in force in Queensland and the Parties submit to the non-exclusive jurisdiction of the courts of Queensland.

(i) This Agreement may consist of a number of counterparts which, taken together, constitute one and the same instrument.

(j) If part or all of any provision of this Agreement is illegal or unenforceable, that part may be severed from this Agreement and the remaining provisions of this Agreement continue in force.

(k) If a part of this Agreement is severed the Parties shall attempt to renegotiate, in good faith that part and seek to achieve a result as near as reasonably practicable as is consistent with the intention of the severed component.

(l) The Grantee Party and the Native Title Party each acknowledge that it has had an opportunity to seek independent legal advice with respect to all aspects of this Agreement.


(n) Subject to clause 11, this Agreement is binding on and ensures to the benefit of the Parties and their registered bodies corporate, administrators, executors, successors and assigns.

(o) The confidentiality, warranty and indemnity provisions in this Agreement are each a continuing obligation, separate and independent from the other obligations of the Parties and survive termination of this Agreement.
SCHEDULES

Schedule 1 ........................................... Project Tenement Area.
Schedule 2 ........................................... Financial Benefits
Schedule 3 ........................................... Community Benefits
Schedule 4 ........................................... Coordinating Committee
SCHEDULE 1 PROJECT TENEMENT AREA

Project Tenement

Mining Lease Number ML 90209 applied for by the Grantee Party to facilitate the Project Operations.
SCHEDULE 2  FINANCIAL BENEFITS

1  Nominated Entity

1.1 The Parties agree to establish the Nominated Entity, if it is not already established, to be used for the purposes of holding the Financial Benefits provided under this Agreement.

1.2 The Nominated Entity must be an entity created at law and must be either:

(a) an incorporated body:

(i) whose membership or shareholding is restricted by its constitution to members of the Native Title Claim Group;

(ii) which is not in administration, receivership or liquidation under any laws applicable to the incorporated body;

(iii) which the Native Title Party has agreed is a Nominated Entity for the purposes of this Agreement; and

(iv) which exists at the date of this Agreement or is established by the Native Title Claim Group for the purposes of this Agreement; or

(b) a trust:

(i) the trustee of which, as a natural person, is not an undischarged bankrupt, or, as an incorporated body, is not in administration, receivership or liquidation under any applicable laws;

(ii) which the Native Title Party has agreed is a Nominated Entity for the purposes of this Agreement; and

(iii) which exists at the date of this Agreement or is established by the Native Title Claim Group for the purposes of this Agreement.

1.3 Subject to clause 2, the Native Title Party may at their sole discretion and from time to time throughout the term of this Agreement provide a written direction (signed by 3 or more of the Native Title Party) to the Grantee Party to pay the whole or a part of any benefits to an additional or alternative Nominated Entity that has been established by the Native Title Party for that purpose.

1.4 Prior to acting on the direction of the Native Title Party, the Grantee Party may request the Native Title Party provide it with such assurances as it may reasonably require in order that it be satisfied that the Nominated Entity has been solely established for and will be solely managed for the overall benefit of all members of the Native Title Claim Group.

2  Nomination of the Nominated Entity

2.1 As soon as practicable after the later of:

(a) the Commencement Date; or

(b) the establishment of the Nominated Entity, if there is no Nominated Entity at the Commencement Date;

the Native Title Party, on behalf of the Native Title Claim Group, must notify the Grantee Party in writing of the name, contact address and bank account details of the Nominated Entity.

2.2 Once the Nominated Entity has been established and the Native Title Party on behalf of the Native Title Claim Group has provided the information under clause 2.1, the Grantee Party will transfer the Benefit to the Nominated Entity.

2.3 In the event that the Nominated Entity has not been established within 1 month of the day on which the first payment due under this Agreement falls due and payable, or if there is no
duty signed notification of a replacement Nominated Entity, the Parties agree that the Benefits will be held in trust by the Grantee until the Native Title Party has given the notification required in clause 2.1.

3. Financial Benefit

3.1 The Grantee Party will pay the following amounts:

(a) $40,000.00 within ten (14) days of the Commencement Date;

(b) $20,000.00 within seven (7) days of the grant of the Project Tenement;

(c) $50,000.00 within seven (7) days of the first anniversary only of the grant of the Project Tenement;

(d) In each year immediately following the end of the First Period;

(i) Where there is more than 1 tonne but less than 200,000 tonne of phosphate produced, the amount of $100,000.00; or

(ii) Where there is 200,000 tonne or more of phosphate produced, the amount of $140,000.00 OR an amount equal to 0.70% of EBITDA, whichever is the greater; and

(e) In respect of the period between the Production Commencement Date and 30 June following such date (‘First Period’) the Grantee Party will pay to the Nominated Entity the relevant amount at 3.1(d)(i) or 3.1(d)(ii) divided by the number of days in the First Period.

3.2 In any year where there is no production, there will be no annual payment under clause 3.1 (d).
SCHEDULE 3 COMMUNITY BENEFITS

EMPLOYMENT AND CONTRACTING PLAN

1. INTRODUCTION

This plan is written to meet the legal obligations in the Korella Phosphate Project section 31 and ancillary agreements for ML90209 and is to be reviewed on an annual basis by the Coordinating Committee.

It should be noted in general that no or limited employment opportunities will be available whilst the bulk trial sampling takes place. Mining operations will only commence if Krucible decides that the Project is viable. This will be determined on the bankable feasibility study which will be completed approximately 12 months from the date of execution of the agreement.

1.1 Location and Ownership of the Korella Project

The Korella Project (the Project) is located in north-west Queensland approximately 20 kilometres (km) south of the Phosphate Hill Mine (South). The Project comprises mining lease (ML) 90209. The Project is owned by Korella Phosphate Pty Ltd (Korella) which is a wholly owned subsidiary of Krucible Metals Limited. Upon grant of ML 90209, bulk sampling activities will be undertaken to test the product with a view to establishing a viable market before full scale phosphate mining operations begin.

In order to mine the forecast 600,000 tonnes per year of phosphate rock, an average of 5.4 million tonnes per year of waste rock or overburden will be extracted. Overburden will initially be stored close to the open pit. If the lower grade phosphate can be upgraded and a market found for this material, then both the low grade and high grade phosphate will be mined concurrently. Alternatively, if the low grade phosphate cannot be sold, then all of the overburden will be stockpiled outside the pit.

As part of the mining operation, rehabilitation work will proceed concurrently with mining including profiling and seeding of overburden dumps. As much of the land as possible will be returned to grazing country at the end of the mine life.

Run-of-mine\(^1\) ore will be hauled from the pit to a run-of-mine dump hopper where it will be crushed and then fed into a secondary and tertiary crushing plant. Screening in between crushing will be used to provide some grade improvement and the final crushed product will be analysed and then stockpiled.

Crushed phosphate rock will be loaded on to road trucks for transport to a rail siding where it will be stockpiled and blended into a rail loading system. The site of the rail loading system has not yet been confirmed but will either be a new system or utilising existing loading system. Although Queensland Rail has agreed to the use of their rail system, access to the rail requires discussion with existing users.

Korella Phosphate also expects to sell phosphate rock directly from the site at Phosphate Hill to local small scale fertiliser producers. Small tonnages are therefore expected to be loaded directly onto road trucks for transport within Queensland and perhaps to interstate fertiliser manufacturers. This may account for around 5% of the output.

Crushed phosphate rock will be transported by rail to Townsville where it will be unloaded from the rail cars and stored at the Queensland Sugar facilities at the Port of

\(^1\) Unscreened extracted material or output from the mine.
Townsville. The Queensland Sugar ship loading facilities will then be used to load ships for the export of the phosphate rock. Minor modifications will be required to the Queensland Sugar facilities to allow phosphate to be handled as well as the sugar.

1.2 Summary of Obligations

Under Clause 9.1 of the ancillary agreement, the Grantee Party will comply with and implement its obligations and undertakings set out in the Employment and Contracting Plan at Schedule 3 as amended from time to time.

2. EMPLOYMENT OPPORTUNITIES

2.1 Korella will maximise employment of Yulluna people during Project Operations. Korella will take all steps reasonably necessary to do this including –

(a) The provision of reasonable and advance notice to the Yulluna Nominated Body through the Coordinating Committee of employment and contracting opportunities in both the Bulk Trial Sampling Phase and the Production Phase of the Project Operations.

(b) The development of a work environment at the operations on the ML Area which is conducive to the recruitment and retention of Aboriginal workers.

(c) Where any members of the Yulluna Native Claim Group are employed on site, allowing them to observe the operation of Korella’s activities, subject to occupational health and safety requirements, and report any practices that are not respectful of the traditional ownership of the ML Area to the Yulluna Coordinating Committee Members.

2.2 During the production phase, Korella will use its best endeavours to achieve at least 10% participation by Yulluna People in the workforce.

2.3 During the production phase, Korella will regularly check the Yulluna Employment and Training Register at Annexure 1 before filling positions.

2.4 FUTURE VACANCIES PLAN

Korella and the Coordinating Committee shall work together to prepare and implement a Future Vacancies Plan and review at least annually. In particular the Plan will be in relation to policies, strategies and programs aimed at maximising (whilst keeping in mind project needs and commercial matters) employment and contracting opportunities for members of the Yulluna Native Title Claim Group and then other Aboriginal People.

2.5 The Future Vacancies Plan will:

(a) Identify, in the Employment Opportunities Register at Annexure 2, all positions in production activities and the numbers of people expected to be employed in the coming 12 month period.

(b) Identify, in the Employment Opportunities Register at Annexure 2, the core competencies required in relation to each position as it becomes available.

(c) Contain information, as provided by Yulluna, about Yulluna People available for employment opportunities and Aboriginal Businesses available for contracting opportunities.
(d) Identify any skills and experience deficits and barriers for Yulluna in relation to the employment or contracting opportunities.

(e) Identify specific programs and actions that could be taken by Korella and Yulluna to assist Yulluna to overcome these deficiencies.

(f) Detail any training courses and other initiatives which will or could be offered to Yulluna People already employed and to Yulluna People in general.

3. BUSINESS OPPORTUNITIES

3.1 Korella agree to give reasonable and advance notice, to the Yulluna Nominated Body through the Coordinating Committee of business opportunities. The business opportunities notified should include Korella’s intention to let or call tenders for contractors for the supply of goods or services, so that the Yulluna Native Title Claim Group can consider the capacity for Aboriginal Businesses to tender (including as a sub-contractor, alliance or joint venture partner or otherwise) for the relevant contract and Aboriginal Businesses can effectively tender for the relevant contracts.

3.2 Korella will include the clauses set out at Annexure 4 in calls for tenders and resulting contracts respectively.

3.3 For tenders less than $100,000 whenever there is an Aboriginal Business with an equally acceptable tender to a non Aboriginal Business, preference will be given to the Aboriginal Business.

3.4 Where there are no satisfactory tenders from Aboriginal Businesses, the offer of the contract must be given to the tenderer that, in the opinion of Korella acting reasonably, best involves Aboriginal People and in particular the Yulluna People provided that the cost offered by the tenderer is within 10% of the cost of the lowest tender received. This may be in the form of joint ventures, direct employment, training opportunities, equipment usage or other arrangements.

3.5 Where two or more Aboriginal Businesses are competing for the same contract and those Aboriginal Businesses offer the most competitive prices or equally competitive prices to the most competitive non-Aboriginal Business, the offer of the contract must be given to the tenderer that, in the opinion of Korella acting reasonably, best involves the Yulluna People. This may be in the form of joint ventures, direct employment, training opportunities, equipment usage or other arrangements. In making its decision, Korella should seek the views of the Coordinating Committee.

4. BUSINESS DEVELOPMENT

Periodically throughout the life of the Project Operations, Korella will:

(a) Identify and notify Yulluna of all relevant contracts let or proposed to be let in relation to production activities, identifying those areas where Aboriginal businesses might successfully contract or form joint ventures or otherwise participate with established suppliers.

(b) Take steps, including consultation with the Coordinating Committee to become aware of existing Aboriginal businesses interested in contracting opportunities.

(c) On the basis of experience throughout the Project, identify deficiencies in capacity or barriers to Aboriginal businesses obtaining and performing contracts.
and communicate suggested programs and actions that could be taken by Korella to overcome these issues.

(d) Identify concerns known by or raised with Korella about the participation of Aboriginal business in the Project and consult with the Coordinating Committee over how these concerns might be addressed.

(e) Advise the Coordinating Committee of any failed tenders on behalf of Aboriginal businesses and provide information on how to improve for future tenders.

In this Plan, ‘Aboriginal Business’ means an Aboriginal owned or controlled business nominated by the Coordinating Committee.

Other terms used in this Plan, where they are defined in the Ancillary Agreement, have the meaning given to them in the Ancillary Agreement.
ANNEXURE 1

Yulluna Employment and Training Register

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<tr>
<th>Name</th>
<th>Position/Opportunity</th>
<th>Date Offered</th>
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## Employment Opportunities Register

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<th>Experience Required</th>
<th>Residency</th>
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ANNEXURE 3

Tender Contract Clauses

Indigenous Training, Employment and Sub-contracting
(Clause for Inclusion in tender)

Clause for inclusion in tender documentation

Korella encourages the contractor to include indigenous people, and in particular the Yulluna people, in the performance of the operational requirements, whether as permanent employees, temporary employees or in a subcontract or other business relationship. In particular, Korella wishes to provide opportunities to indigenous people, and in particular the Yulluna people, to participate in the supply of goods and services necessary for Korella's activities.

Accordingly, Contractors are required to provide details of the following information which will be taken into account by Korella when deciding to award contracts:

1.1 Employment:

(a) Indigenous employment policies;

(b) Indigenous employment initiatives;

(c) Any known members of the Yulluna people to be potentially employed; and

(d) Experience using employment agencies working with local Indigenous communities.

1.2 Indigenous training:

(a) Indigenous training policies;

(b) Indigenous training initiatives;

(c) Any known members of the Yulluna people to be potentially provided with training relevant to the Operational Requirements;

(d) Any experience using group training scheme apprentices/trainees/cadets from the Yulluna people; and

1.3 Indigenous Sub-contracting:

(a) Indigenous sub-contracting policies;

(b) Indigenous sub-contracting initiatives;

(c) Experience and examples of any previous or current sub-contracting to Indigenous groups, entities or individuals.

2. Evidence of initiatives by contractors to employ and train indigenous people and in particular the Yulluna people, will be considered in the evaluation of tenders.

Indigenous Training, Employment and Sub-contracting
(Clause for inclusion in contract)

Clause for inclusion in tender contract

1. The contractor is or will make itself fully aware of Korella's obligations to employment, training and business development with the Yulluna people and will actively pursue opportunities to support these initiatives.

2. In the course of carrying out its obligations under the contract, the contractor must perform all undertakings given in its expression of interest relating to the tender dated [insert date] in relation to indigenous employment, training, business development and sub-contracting.
SCHEDULE 4 COORDINATING COMMITTEE

Existence of committee

1. Within three months of the Commencement Date, the Parties will establish a Coordinating Committee.

2. The Coordinating Committee will continue to exist for the term of this Agreement and deal with the matters referred to it under this Agreement.

Composition of the Coordinating Committee

3. The Parties will be equally represented on the Coordinating Committee with membership to comprise:
   a) at least two members appointed by the Native Title Claim Group and
   b) at least two members appointed by the Grantee Party.

4. Other representatives of the Parties may attend a meeting of the Coordinating Committee if all Coordinating Committee gives prior consent. The Grantee Party will only meet the costs of refreshment/catering for two additional representatives.

Meetings of the Coordinating Committee

5. Unless otherwise agreed by the Parties, all decisions, approvals, advice, directions and recommendations of the Coordinating Committee will be made at meetings by consensus agreement, provided at least 1 representative from each Party is present.

6. Meetings of the Coordinating Committee will be held every six months, or at any other time or interval as determined by the Coordinating Committee.

7. At least five Business Days' notice of a meeting must be given to the other Parties by the Party calling the meeting;

8. At least three (3) days before the meeting is held, the Party calling the meeting will provide all members of the Coordinating Committee any information received, together with an agenda and details of the time and location for the meeting.

9. As soon as practicable, but no later than ten days after each Coordinating Committee meeting, the Grantee Party representatives will circulate draft minutes to the other Coordinating Committee members.

10. Draft minutes are to include details of all decisions, approvals, advice and recommendations made.

11. Each Party will ensure that its Coordinating Committee members consider, and either adopt, or amend those minutes for adoption, at the next following Coordinating Committee meeting.

Responsibilities of the Coordinating Committee

12. The Coordinating Committee will review, monitor and coordinate the performance and implementation of this Agreement and in particular, will:
   (a) review the operation of this Agreement in accordance with clause 12 of this Agreement and, if necessary, recommend to the Parties that this Agreement be varied;
   (b) in accordance with the terms of the CHMA develop, oversee, implement and determine the resource and personnel requirements of the CHMA;
(c) in accordance with the terms of the CHMA, provide on-going advice and guidance to the Grantee Party on cultural heritage issues in relation to all aspects of the Project Operations;

(d) assist the Grantee Party in meeting schedules and timeframes relating to the Project Operations;

(e) assist where requested by the Grantee Party and subject to the terms of this Agreement, to obtain all permits required to implement this Agreement; and

(f) assist the Grantee Party to comply with the CHMA;

(g) engage in dispute resolution in accordance with clause 14.3(b).

13. The Coordinating Committee will ensure that all written records and reports generated under this Agreement and the CHMA, are kept for review by the Parties, and that copies of the written records and reports are provided to the Grantee Party to the extent permitted under this Agreement.

Costs of Coordinating Committee

14. The Grantee Party will meet all costs of the Coordinating Committee including:

(a) the cost associated with conduct of the meetings (for example venue hire and catering);

(b) the reasonable transport costs of members;

(c) administrative support;

(d) attendance fees, equivalent to the daily fee payable for a person attending a Cultural Heritage Survey.

(e) Other representatives of Parties may attend a meeting of the Coordinating Committee if all Coordinating Committee Members give prior consent. Costs associated with other representatives attending meeting will not be met by the Grantee Party. If the Grantee Party is requested to meet any expenses other than those in 14.(a), 14 (b), 14 (c), 14 (d) approval from the Grantee Party must be in writing in accordance with clause 16.
EXECUTED as an agreement.

SIGNED for Korella Phosphate Pty Ltd
ACN 143 350 690 by its duly authorised representative, in the presence of:

Signature of Witness

Signature of Representative

Name

Date signed:

SIGNED for Korella Phosphate Pty Ltd
ACN 143 350 690 by its duly authorised representative, in the presence of:

Signature of Witness

Signature of Representative

Name

Date signed
SIGNED by Brian Sullivan in the presence of:

Signature of Witness

Name

Signature of Party

Date signed

SIGNED by Valerie Punch in the presence of:

Signature of Witness

Name

Signature of Party

Date signed

SIGNED by Hazel Sullivan in the presence of:

Signature of Witness

Name

Signature of Party

Date signed
SIGNED by Stan Sullivan in the presence of:

[Signature of Witness]

Signature of Witness

[Signature of Party]

Signature of Party

6-11-2011

Date signed

STANLEY L. SULLIVAN

Name

WITNESS: [Signature]

Name: Tony Ashton

SIGNED by Allan Naumann in the presence of:

[Signature of Witness]

Signature of Witness

[Signature of Party]

Signature of Party

31-10-2011

Date signed

[Signature]

Name: Farley
CULTURAL HERITAGE
MANAGEMENT AGREEMENT

BRIAN SULLIVAN, VALERIE PUNCH,
HAZEL SULLIVAN, STAN SULLIVAN
AND ALLAN NAUMANN ON THEIR
OWN BEHALF AND ON BEHALF OF
THE YULLUNA PEOPLE

AND

KORELLA PHOSPHATE PTY LTD
ACN 143 350 690
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Cultural Heritage Management Agreement

DATE 2011

PARTIES

Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Naumann on their own behalf and on behalf of Yulluna People (Aboriginal Party)

Korella Phosphate Pty Ltd
ACN 143 350 690 (Sponsor)

RECITALS

A. This CHMA has been prepared in consultation with the Yulluna People, in regards to mining activities by Korella Phosphate Pty Ltd within the CHMA Area.

B. The Aboriginal Party has filed a Native Title Claim covering certain land and waters in Queensland.

C. The CHMA Area forms part of the land and waters which are the subject of the Native Title Claim.

D. The Sponsor is NOT required to prepare an Environmental Impact Statement (EIS) for the Project.

E. The Aboriginal Party consents to the Sponsor undertaking the Significant Ground Disturbance in the CHMA Area strictly in accordance with the terms of this Cultural Heritage Management Agreement (CHMA).

F. At the request of the Sponsor, the Aboriginal Party has agreed to assist the Sponsor in the effective long term protection and conservation of Aboriginal Cultural Heritage by avoiding harm to Aboriginal Cultural Heritage and to the extent that harm cannot reasonably be avoided, to minimise harm to any Aboriginal Cultural Heritage, that may be located within the CHMA Area.

OPERATIVE PROVISIONS

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions

In this Agreement, except to the extent that the context otherwise requires:

Aboriginal Cultural Heritage has the same meaning as in the ACHA in so far as it pertains to the land and waters within the CHMA Area.

Aboriginal Party means Brian Sullivan, Valerie Punch, Haze Sullivan, Stan Sullivan and Allan Naumann on behalf of the Yulluna People on whose behalf a Native Title Claim pertaining to the CHMA Area has been filed in the Federal Court – QUD189/10.

ACHA means the Aboriginal Cultural Heritage Act 2003 (Qld).

Agreement means this CHMA and any other written agreement expressed to be supplemental or collateral to this agreement.
Amended Cultural Heritage Survey Report has the meaning it is given in clause 2(i)(iii) of Schedule 1.

Assignee has the meaning as described in the Shorter Oxford English Dictionary.

Business Day means a day other than a Saturday, Sunday and public holiday in Brisbane.

Business Hours means the hours between 8:30 am and 5:00 pm on a Business Day.

CHMA means this Cultural Heritage Management Agreement and any other written agreement expressed to be supplemental or collateral to this agreement.

CHMA Area means the area of ML90209 and any area where Korella is carrying out activities authorised under ML90209.

Commencement Date means the last date on which one of the Parties sign this Agreement.

Confidential Information means:

(a) for the Aboriginal Party, all anthropological and archaeological information concerning indigenous law and custom, rights and interests, Aboriginal Cultural Heritage and other areas of traditional significance, relating to the Aboriginal Party; and

(b) for the Sponsor, commercial information of a confidential nature relating to the business and financial activity of the Sponsor;

Cultural Heritage Protection and Conservation Strategy means the strategy in clause 2 of Schedule 1 adopted by the Parties for the effective long term protection and conservation of Aboriginal Cultural Heritage in the CHMA Area during the term of this Agreement.

Cultural Heritage Survey means a field survey conducted as part of the Cultural Heritage Protection and Conservation Strategy pertaining to that part of the CHMA Area described in the Work Program.

Cultural Heritage Survey Report means a written report (including maps) produced as part of the Cultural Heritage Protection and Conservation Strategy identifying and reporting upon the existence, significance of and strategies for the long term management, protection and conservation of any Aboriginal Cultural Heritage within that part of the CHMA Area described in a Work Program or any other areas within the CHMA Area.

CPI means the consumer price index published by the Australian Bureau of Statistics in Catalogue 6401.0-Table 1, Consumer Price Index - All Groups - Brisbane, or if that index is suspended or discounted, the index substituted for it by the Australian Bureau of Statistics.

Exclusion Zone means an area within the CHMA Area in which the Parties agree the Sponsor is unable to carry out any Project Activities in order to ensure the long term management, protection and conservation of Aboriginal Cultural Heritage.

Force Majeure Event means an event or circumstance which is beyond the reasonable control of the party affected by the event or circumstance including war, insurrection, civil disturbance, blockade, riot, embargo, epidemic, earthquake, storm, flood, explosion, fire or lightning, strikes and other labour conflict, government action or inaction (including change of law), breakdown of machinery, equipment or facilities or shortages of material or equipment.

GPS means global satellite positioning system.

GST has the meaning given in the GST Law.
GST Law includes the *A New Tax System (Goods and Services Tax) Act 1999* (Cth), order, regulation or ruling which imposes or purports to impose or otherwise deals with the administration or imposition of GST on a supply of goods or services in Australia.

**Harm** has the same meaning as appears in Schedule 2 ACHA.

**Indigenous Cultural Awareness Training** means instruction by a member of the Aboriginal Party of all persons who are engaged directly or indirectly by or on behalf of the Sponsor and who may enter the CHMA Area to:

(a) familiarise such persons with the Aboriginal Parties native title rights and interests and the Aboriginal Parties tradition and culture;

(b) promote a knowledge and understanding of and respect for the Aboriginal Parties traditions and culture;

(c) foster good relationships between the Aboriginal Parties and non-Aboriginal persons; and

(d) assist in the identification of Aboriginal Cultural Heritage.

**Mediator** means a mediator agreed by the Parties or, failing agreement, appointed by the President of the Queensland Law Society Inc.

**NTA** means the *Native Title Act 1993* (Cth) and any amendments, re-enactments or replacement.

**Native Title Claim** means the application for determination of Native Title QUD 189/10 of 2010 (as may be amended from time to time) authorised by the Aboriginal Party to be made to the Federal Court under Part 3 of the NTA which claim has been accepted for registration pursuant to section 190A NTA.

**Nominated Body** means the entity nominated in writing by the Aboriginal Party from time to time to perform the function contemplated by Schedule 1 and 2 which at the date of the Agreement is – [Not Applicable].

**Notice** includes documents, demands and all communications contemplated by or in connection with this Agreement.

**Parties** mean the parties to this Agreement.

**Sponsor** means Korella Phosphate Pty Ltd, ACN 143 350 690

**Project** means the bulk sampling and phosphate mining operations authorised by the terms of the Project Approval.

**Project Activities** means activities authorised to take place on the area of the Project Approval by the terms of the Project Approval that involve Significant Ground Disturbance.

**Project Approval** means ML90209 granted to the Sponsor by which it is entitled, at law, to undertake the Project Activities in the CHMA Area.

**Related Body Corporate** has the meaning given in section 50 of the *Corporations Act 2001*.

**Review Meeting** has the meaning given in clause 22.

**Significant Ground Disturbance** means:

(a) disturbance by machinery of the topsoil or surface rock layer of the ground, such as by grading, bulldozing, trenching, ploughing, drilling or dredging; and

(b) the removal of vegetation by disturbance of root systems and exposing underlying soil.
Survey Team means up to 6 aboriginal people nominated by the Aboriginal Party to conduct a Cultural Heritage Survey.

Tax Invoice has the same meaning given to that term in the A New Tax System (Goods and Services Tax) Act 1999.

Work Program means a document detailing the Project Activities intended to be undertaken by the Sponsor as notified to the Aboriginal Parties under clause 2 of Schedule 1 of this Agreement.

1.2 Interpretation

In this Agreement, except to the extent that the context otherwise requires:

(a) headings to clauses are used for convenience only and do not form part of this Agreement or affect its interpretation or construction;

(b) the singular includes the plural and vice versa, and words importing a gender include all genders;

(c) the schedules form part of this Agreement;

(d) reference to a party includes that party’s personal representatives, successors, administrators and assigns;

(e) a reference to any legislation or legislative provision includes any statutory modification, amendment or re-enactment of, or legislative provision substituted for, and any subordinate legislation issued under, that legislation or legislative provision;

(f) a reference to an individual or person includes a company, corporation, partnership, firm, joint venture, association (whether incorporated or not), body, authority, trust, state, or government and vice versa;

(g) an agreement, representation or warranty on the part of or in favour of 2 or more persons binds or is for the benefit of them jointly, except to the extent expressly provided to the contrary in the Agreement;

(h) reference to an agreement includes all subsequent amendments to it entered into in accordance with its terms to the extent to which those amendments are expressly or impliedly permitted by this Agreement;

(i) reference to time and dates is to Queensland time, even if the relevant obligation is to be performed elsewhere; and

(j) any capitalised term in this Agreement, a definition of which is not included in clause 1.1. but is defined in the NTA or the ACHA has the meaning given to that capitalised term in the NTA or the ACHA.

2. PURPOSE AND INTENTION

2.1 Compliance with ACHA

The Parties intend this CHMA to be an agreement for the purposes of sections 23(3)(a)(iii) and 24(2) (a)(iii) ACHA such that continuing compliance with the terms of this Agreement at all times throughout the term of this Agreement is to be taken as compliance with the ACHA.
3. **CHMA COMMENCEMENT AND TERM**

3.1 **Commencement**

This Agreement commences on the Commencement Date.

3.2 **Termination**

This Agreement terminates upon the earlier of:

(a) the expiration, cancellation or surrender of the Project Approval (including any renewals, replacements or substitutions thereof);

(b) the date upon which the Sponsor notifies the Aboriginal Party that it intends to permanently terminate all Project Activities;

(c) the Aboriginal Party no longer having status under s 35 ACHA; or

(d) The date which is 20 years from the Commencement Date

3.3 **Continuation of rights after termination**

The rights and obligations of the Parties under this Agreement which have accrued at the date of termination of this Agreement will continue beyond such date of termination until the particular obligation is fulfilled and the provisions of this Agreement dealing with procedural matters will continue to apply until the fulfilment of such obligations.

4. **DECLARATIONS AND WARRANTIES**

(a) The Sponsor warrants that it has full power and authority to enter into this Agreement and can perform all and any of its obligations as contemplated by this Agreement.

(b) The Aboriginal Party Endorsed Parties represent and warrants that it is authorized to consult, negotiate and seek agreement with the Sponsor about the effective long term protection and conservation of Aboriginal Cultural Heritage and how the Project is to be managed to avoid harm to Aboriginal Cultural Heritage and to the extent that harm cannot reasonably be avoided, to minimise harm to any Aboriginal Cultural Heritage in the CHMA Area.

5. **ROLES AND RESPONSIBILITIES**

**Aboriginal Party**

5.1 **The Aboriginal Party will:**

(a) at all times throughout the term of this Agreement act in good faith;

(b) meet all of its obligations under this Agreement;

(c) nominate suitable representatives to undertake the tasks as described in this Agreement;

(d) meet such reasonable timetables as may be included by the Sponsor in a Works Program or for any other work undertaken pursuant to the provisions of this Agreement, although the Parties recognise that this must not be at the risk of compromising Aboriginal Cultural Heritage;
subject to clause 13 of this Agreement, provide such information as is reasonably required by the Sponsor to implement any element of this Agreement;

The Sponsor

5.2 The Sponsor will:

(a) at all times throughout the term of this Agreement act in good faith;
(b) meet all of its obligations under this Agreement;
(c) ensure that its staff, agents, contractors and subcontractors are fully aware of their responsibilities under this Agreement to protect Aboriginal Cultural Heritage in the CHMA Area, and of the roles and duties of the Aboriginal Parties and others involved in implementing this Agreement, and shall engage the Aboriginal Parties to assist them in preparing and presenting any materials necessary to give effect to this Agreement;
(d) assist the Aboriginal Parties and their representatives to meet all workplace health and safety legislation procedures established for the CHMA Area by the Sponsor;
(e) provide the Aboriginal Parties with a copy of any Works Program in line with any notification process provided for under this Agreements and ensure the Aboriginal Party receives as much notification as reasonably possible of any Works Program or changes to a Works Program;
(f) on request, provide copies of public environmental reports relevant to the CHMA Area to the Aboriginal Parties;
(g) pay all monies to the Aboriginal Parties in accordance with this Agreement by the due dates; and
(h) comply with all applicable laws and this Agreement in relation to any Aboriginal Cultural Heritage located in the CHMA Area.

6. OWNERSHIP OF ABORIGINAL CULTURAL HERITAGE

Acknowledgment of Custodial Ownership

6.1 Subject to the provisions of the ACHA the Sponsor acknowledges the Aboriginal Parties as being the owners of any Aboriginal Cultural Heritage located in the CHMA Area.

7. WORK PROGRAM AND COMMUNICATIONS BETWEEN PARTIES

Work Programs

7.1 The Sponsor must not undertake Project Activities until there has been compliance with the procedures set out in Schedule 1 to this Agreement in respect of those Project Activities.

7.2 Where no response is provided by the Aboriginal Party within 21 days of receipt of a Works Program Notice, the Sponsor must comply with the following process:

(a) Provide written notice to the Aboriginal Party inviting them to rectify the non-compliance within 7 days of the date the Sponsor contacts the Aboriginal Party.
(b) If no response is received from the Aboriginal Party after that 7 day period, the Sponsor will again contact the Aboriginal Party to ascertain whether there is any legitimate reason for the lack of response. In doing so, the Sponsor shall give written notice to the Aboriginal Party of its willingness to meet and discuss any stated concerns or issues of the Aboriginal Party which pertain to the Sponsor.
including any reasons why the Aboriginal Party has not responded to the Work Program Notice. In the absence of any request for a meeting or of being made aware of any other concerns or issues of the Aboriginal Party, the Sponsor shall give further written advice of its Intention to proceed with the Work Program within a further period of 7 days or such other date as may be appropriate in all of the circumstances after that.

(c) If at the end of that further period of 7 days, the Aboriginal Party has still not responded to the Sponsor and a Dispute Notice has not been given in accordance with clause 15, the Sponsor may proceed with the Work Program subject to the terms and conditions of its Project Approvals, and Applicable Laws.

7.3 Where the Aboriginal Party responds to a Works Program Notice and advises that a Cultural Heritage Survey is required, but there is failure to otherwise comply with this Agreement, the Sponsor must comply with the following process:

(a) Provide written notice to the Aboriginal Party inviting them to rectify the non-compliance within 7 days of the date the Sponsor contacts Aboriginal Party.

(b) If no response is received from the Aboriginal Party after that 7 day period, the Sponsor will again contact the Aboriginal Party directly to ascertain whether there is any legitimate reason for the lack of response. In doing so, the Sponsor shall give written notice to the Aboriginal Party of its willingness to meet and discuss any stated concerns or issues of the Aboriginal Party which pertain to the Sponsor including any reasons why the Aboriginal Party has failed to comply with this Agreement. In the absence of any request for a meeting or of being made aware of any other concerns or issues of the Aboriginal Party, the Sponsor shall give further advise of its Intention to proceed with the Work Program within a further period of 7 days or such other date as may be appropriate in all of the circumstances after that.

(c) If at the end of that further period of 7 days, the Aboriginal Party has still declined to assist the Sponsor to undertake the Work Program in accordance with this Agreement and no Dispute Notice has been given by the Aboriginal Party in accordance with clause 15, the Sponsor may proceed with the Work Program subject to the terms and conditions of its Project Approval and of any Applicable Laws.

Communications

7.4 The Parties agree there will be ongoing communication and liaison between them throughout the term of this Agreement for the purposes of:

(a) reviewing the working of this Agreement and the progress of the Sponsor’s respective Work Programs;

(b) advancing the knowledge of the Aboriginal Party of the effects that any Project Activity may have on the enjoyment of their cultural heritage;

(c) fostering, encouraging and ensuring the ongoing and continuous involvement of the Aboriginal Party in the protection of Aboriginal Cultural Heritage.

7.5 To better assist communications as between the Parties during the term of this Agreement, the Sponsor agrees to provide to the Aboriginal Party with a copy of its annual report each year.
Unauthorised Damage to Aboriginal Cultural Heritage

8.1 If:
(a) Aboriginal Cultural Heritage is damaged as a result of the Project Activities; and
(b) that damage is not authorised by:
   (i) this Agreement;
   (ii) a Cultural Heritage Survey Report;
   (iii) an Amended Cultural Heritage Survey Report; or
   (iv) any other arrangement between the Sponsor and the Aboriginal Party; and
(c) as a result the Sponsor is convicted of an offence under section 24 ACHA; and
(d) the Sponsor is not ordered to pay the costs of repair or restoration of the Aboriginal Cultural Heritage under section 27 ACHA.

then the Sponsor must allow the Aboriginal Party to undertake, if possible, the repair or restoration of the Aboriginal Cultural Heritage and the Sponsor must pay the reasonable costs relating to that repair or restoration on a full indemnity basis.

Breach of Cultural Heritage Protocol

8.2 The Aboriginal Party shall ensure that any alleged breach of the Cultural Heritage Protocol is documented in the first instance, by the person making the allegation completing the Alleged Breach Form in Schedule 5 and handing it to the Sponsors representative.

8.3 Within three (3) days of receipt of the Alleged Breach Form, the Sponsor will convene a meeting with the Aboriginal Party to discuss the alleged breach of the Cultural Heritage Protocols in Schedule 1, by reviewing the Alleged Breach Form, inspecting the site of the alleged breach and thereafter adopting the following process:

(a) initially review the operation and effectiveness this Agreement and any relevant work sheets to determine what management measures were to have been implemented at the site/place/zone in question. They will assess whether such measures were in place, and whether the alleged Breach of the Cultural Heritage Protocol contravened these management measures;

(b) where the Parties agree that there has not been a Breach of the Cultural Heritage Protocol, they will nonetheless determine whether any additional measures are required to appropriately manage the site/place/zone and what those measures should include, and whether there shall be put in place a process by which such additional measures are implemented. The Parties may also agree to amend this Agreement or any existing measures, practices and procedures to reflect the results of their investigation;

(c) where the Parties agree there has been a Breach of the Cultural Heritage Protocol, the Sponsor and the Aboriginal Party will no later than ten (10) business days after receipt of the Alleged Breach Form interview the relevant work crews or personnel identified or any sub-contractors and their employees (as the case may be) to determine where possible if any person has any knowledge of the incident, including how it occurred, when it occurred and who was responsible. The Sponsor and the Aboriginal Party will also establish whether the party/ies responsible had been inducted regarding Aboriginal Cultural Heritage management, and have been appropriately briefed as to the agreed management arrangements and measures if
they were to undertake any work in the vicinity of any site/place/zone identified in this Agreement or in a Cultural Heritage Survey Report.

(d) the Sponsor shall within fifteen (15) business days after receipt of the Alleged Breach Form prepare a provide a written report of the results of its investigations and provide a copy of that report to the Aboriginal Party.

(e) where the person responsible for the Breach of the Cultural Heritage Protocol has been inducted regarding Aboriginal Cultural Heritage management and has been appropriately briefed as to the agreed management arrangements and measures for the protection and conservation of Aboriginal Cultural Heritage which is the subject of the breach, there has been harm to Aboriginal Cultural Heritage which is the subject of the breach and there is no reasonable excuse for that persons actions, that person shall within twenty (20) business days of receipt of the Alleged Breach Form be removed from the CHMA Area and shall not again return without the prior written consent of the Aboriginal Party.

8.4 In the event, the Parties are unable to resolve any matters arising as a result of the meeting held in accordance with the meeting, investigation and reporting process in clause 8.3, either Party shall be at liberty to give a Dispute Notice.

8.5 For the sake of clarity, the Parties note that an allegation of a Breach of the Cultural Heritage Protocol does not necessarily mean the Parties are in dispute.

9. INDIGENOUS CULTURAL AWARENESS TRAINING INDUCTIONS

The Sponsor must ensure that all of its employees, contractors or sub-contractors who are not members of the Aboriginal Party and who are required to enter upon the CHMA Area are aware of the Sponsor’s obligations under this Agreement and under ACHA.

10. PAYMENT OF BENEFITS

10.1 Payment to Aboriginal Party

(a) The Sponsor must pay all of the monies as set out in Schedule 2 at the times as set out in Schedule 2 and in such a manner as the Aboriginal Party may direct from time to time.

(b) Where the Aboriginal Party directs that a Nominated Body is to provide any services to the Sponsor under this Agreement, the costs of the provision of such services is to be reimbursed by the Sponsor to that Nominated Body.

10.2 Adjustment of Benefit

All payments required to be paid by the Sponsor under this Agreement (including the payments under the Schedules) must be indexed yearly throughout the term of this Agreement on the anniversary of the Commencement Date in accordance with the following formula:

\[ P = \frac{XY}{Z} \]

where:

\( P \) = the relevant payment to be made.

\( X \) = the Consumer Price Index for the quarter in which the payment is being calculated.

\( Y \) = the relevant applicable payment specified in this Agreement.
the Consumer Price Index for the quarter which is 12 months prior to the quarter in which the payment is being made.

10.3 Late Payment

(a) The Sponsor shall pay interest upon the amount of any monies not paid by the due date calculated from the date the said monies become due and payable until payment is received by the Aboriginal Party at the rate of 13 per centum per annum;

(b) The Aboriginal Party shall be entitled to commence proceedings in a Court of competent jurisdiction in Queensland for recovery of any monies which remain unpaid for a period of 45 days from the date such monies have become due and payable under this Agreement. The Sponsor shall be liable for all of the costs incurred by the Aboriginal Party in seeking recovery of any unpaid monies on a full indemnity basis;

(c) Until such time as the Sponsor has complied with all of its obligations under this Agreement (where payment of money to the Aboriginal Party is required) the Aboriginal Party shall be entitled to delay performing any of their obligations (in respect of which such payment is required) under this Agreement.

11. INDEMNITY

The Sponsor indemnifies the Aboriginal Parties and the Nominated Body (for the purposes of this clause 11 called the Indemnified Parties) in respect of any claims incurred as a result of any death, personal injury, damage or loss of property to any person or thing on any part of the CHMA Areas resulting from or arising out of or in connection with any negligent act or omission by the Sponsor or any of its employees, agents or contractors (other than the Indemnified Parties) in the performance of this Agreement or in the work carried out by or on behalf of the Sponsor pursuant to this Agreement except to the extent that such liability, loss, harm, damage, cost or expense was caused by the negligence of the Indemnified Parties.

12. DELAY

12.1 If a Party is unable, as a result of a Force Majeure Event, to wholly or in part perform any obligation under this Agreement, that Party must give notice to the other Party of that Force Majeure Event outlining reasonably the full particulars of the Force Majeure Event in which case the obligation is suspended for the duration of the Force Majeure Event.

12.2 Whilst the Aboriginal Party will use their reasonable endeavours to minimise impact on a Works Program and will use their best endeavours to meet any agreed time frames, the Sponsor acknowledges there are some circumstances, particularly with respect to families and bereavement where this may not be possible.

12.3 Where a Works Program is critical to an Sponsor and it cannot be reasonably delayed during the events referred to in this clause 12.3 without causing the Sponsor significant financial hardship and the Aboriginal Party is unable to arrange replacement personnel as required to carry out its obligations under this Agreement, the Sponsor shall give written notice to the Aboriginal Party:

(i) specifying the critical nature of the Work Programme, why it cannot be reasonably delayed and the significant financial hardship the Sponsor would incur as a direct result of delay,

(ii) requesting an urgent meeting with the Aboriginal Party to discuss whether there are any reasonable interim measures that might be implemented either to enable the Aboriginal Party to meet the timetable under the Work Programme or enable the Sponsor to undertake an amended Work programme for the duration of the delay,
and in the event the Parties are unable to agree upon any such interim measures, the Sponsor shall be able to undertake the Works Program subject to the terms and conditions of its Project Approvals, licences or authorities, and of any Applicable Laws, including section 23 ACHA 2003 on the strict understanding that it is a temporary arrangement only for the period of the delay and that the Sponsor will immediately cease undertaking such works under the Works Programme upon the Aboriginal Party again being able to resume their obligations under this Agreement and the Work Programme.

13. CONFIDENTIAL INFORMATION AND OWNERSHIP OF INTELLECTUAL PROPERTY

(a) Each Party undertakes not to disclose Confidential Information of the other Party without the prior written consent of the other Party unless:

(i) required by law;

(ii) it is or becomes public knowledge (other than in breach of this clause);

(iii) it was received from another person having the unrestricted legal right to disclose the information;

(iv) it is disclosed to the Party's accountants, financiers, financial institutions, legal advisers or employees on their undertaking to keep the information confidential in accordance with this Agreement;

(v) it is disclosed to other Aboriginal persons whom the Aboriginal Parties consider it culturally appropriate to consult for the purpose of securing their agreement to this Agreement or a particular course of action countenanced in this Agreement.

(b) Ownership of any intellectual property in information and reports pertaining to Aboriginal Cultural Heritage or to the Aboriginal Party's Confidential Information that may already be in existence prior to this Agreement or which may be generated in the course of this Agreement shall be vested in the Aboriginal Party.

(c) Ownership of the Sponsor's Confidential Information remains with the Sponsor and the Parties acknowledge that such Confidential Information is both commercial in nature and central to the success of the Project Activities.

(d) The Aboriginal Party will grant to the Sponsor a non-exclusive irrevocable licence to make such limited use of such confidential information and reports in such a form as is reasonably necessary to enable the Sponsor to meet its statutory and regulatory obligations and to undertake any of the Project Activities in the CHMA Area.

(e) In giving effect to clause 13(d), The Sponsor accepts that it does not require any primary information about Aboriginal Cultural Heritage to meet its statutory or regulatory requirements or in relation to meeting its duty of care under the ACHA.

14. CHMA ASSIGNMENT

(a) Before the Sponsor applies to assign or transfer the Project Approval and/or the benefit of this CHMA, the Sponsor must:

(i) discharge any obligations to the Aboriginal Party under this CHMA which remain outstanding up until the date of assignment;

(ii) rectify any breach of this CHMA;

(iii) settle any Dispute about which the Sponsor has been notified prior to the date of the assignment,
(iii) notify the Aboriginal Party in writing of the proposed assignment;

(iv) notify the Aboriginal Party of a decision by the Minister (or such other authority as the case may be) in relation to the proposed assignment of the Project Approval within 14 days of the decision being made; and

(v) require the proposed assignee to execute a Deed of Assumption which is effective to bind the proposed assignees (as if they had executed this CHMA) to the terms and conditions of this CHMA, in so far as those terms and conditions are applicable to the Project Approval that is to be assigned.

(b) In relation to any Project Approval so assigned under clause 14(a) above, the Sponsor is relieved of its obligations under this CHMA which fall due after assignment, unless that assignment is to a Related Body Corporate or a company that is part of the Sponsor.

(c) The Sponsor acknowledges that it remains liable for any breach of this CHMA committed prior to the date of assignment.

16. DISPUTES

15.1 Dispute Notice

If:

(a) the Sponsor; or

(b) the Aboriginal Party,

claim that a dispute has arisen under this Agreement (Dispute), they must give notice to the other, providing full details of the Dispute (Dispute Notice).

15.2 Meeting to discuss

Senior representatives of the Sponsor and of the Aboriginal Party (Dispute Parties) must meet within 7 Business Days of the service of a Dispute Notice in accordance with clause 15.1 for the purpose of resolving the Dispute.

15.3 Referral to mediation

(a) If the Dispute Parties do not resolve the Dispute within 10 Business Days after the service of the Dispute Notice, then any Dispute Party may refer the Dispute to the Mediator.

(b) Subject to clause (g) below, the Sponsor agrees to fund the cost of the mediation including the cost of the mediator, venue and the reasonable costs of the Aboriginal Party in attending the mediation including where applicable the reasonable cost of meals, travel and accommodation costs of the Aboriginal Party.

(c) Once a mediator has agreed to mediate the dispute, they may conduct the mediation in any manner they deem appropriate.

(d) Each Party to the dispute agrees to act in good faith and provide all reasonable assistance in the course of the mediation.

(e) The Parties agree that mediation will initially be conducted without legal representation except where the Parties agree or in circumstances where the dispute relates to a question at law such as the interpretation of any provisions of the Agreement.
(f) In circumstances where legal representation is in the opinion of the Mediator required or agreed to and the Aboriginal Party can reasonably demonstrate to the satisfaction of the Mediator that it does not have the resources to meet the cost of legal representation, the Sponsor shall in good faith (in order to ensure that all Parties have an equal bargaining position) pay the reasonable costs of legal representation for the Aboriginal Party, as determined by the Mediator, throughout the mediation.

(g) At the mediation of a Dispute, the Dispute Parties must request the Mediator to provide an opinion, based on the validity of the Dispute, as to which of the Dispute Parties should bear the Mediation Costs and the Dispute Parties agree to abide by such opinion.

(h) If the Dispute is not resolved within 30 Business Days from the date of service of the Dispute Notice, then the Dispute Parties are not bound to resolve the Dispute by mediation.

15.4 Litigation

A Party may not (unless that Party is seeking urgent relief) commence any court proceedings unless it has first complied with clauses 15.1, 15.2 and 15.3.

16. NOTICES

(a) Unless another manner of giving a Notice is expressly provided for, any Party wishing to give notice for any purpose under this Agreement must do so in the following manner:

(i) by notice in writing directed to the recipient Party's address specified in clause 16(c), as varied by any notice;

(ii) hand delivered or sent by prepaid post to the recipient Party's address in clause 16(c), or as varied by any notice;

(iii) sent by facsimile to the recipient Party's address specified in clause 16(c), or as varied by any notice; and

(iv) sent by email to the recipient Party's email address in clause 16(c), or as varied by any notice.

(b) A notice given in accordance with this clause is taken to be received:

(i) if hand delivered during Business Hours on a Business Day, on delivery;

(ii) if hand delivered at any other time, at 10.00 am on the next Business Day following delivery;

(iii) if sent by prepaid post, 4 Business Days after the date of posting;

(iv) if sent by facsimile during Business Hours on a Business Day, when the sender's facsimile system generates a message confirming successful transmission of the total number of pages of the notice unless, within eight Business Hours after that transmission, the recipient informs the sender that it has not received the entire notice; or

(v) if sent by facsimile at any other time, at 10.00 am on the next Business Day following transmission.

(vi) if sent by email, when the sender's email system generates a notification that the email was transmitted in its entirety to the email address of the recipient Party.
(c) The Address for Notices for each of the Parties is as follows:

**The Sponsor**

Korella Phosphate Pty Ltd  ACN: 143 350 690  
P O Box 499  
Hyde Park Castletown  
TOWNSVILLE QLD  4812  

Ph:  (07) 4772 5880  
Fax:  (07) 4772 4999  

**The Aboriginal Party**

Brian Sullivan, Valerie Punch, Hazel Sullivan, Stan Sullivan and Allan Naumann on their own behalf and on behalf of the Yulluna People.  
c/o Yulluna Aboriginal Corporation  
P O Box 161  
CLONCURRY  QLD  4824  

Ph:  (07) 4742 1090  
Fax:  (07) 4742 0124  

Email:  taninkhq2@bigpond.com

17. **REVIEW OF AGREEMENT**

(a) The Parties will meet upon the anniversary of the Commencement Date once in every calendar year after the calendar year in which this Agreement is signed to undertake a review of the operation of this Agreement (Review Meeting).

(b) The Parties agree to act in good faith and use their best endeavours to resolve any issues arising out of the Review Meeting in relation to this Agreement.
18. **LEGAL COSTS**

(a) The Sponsor shall upon receipt of a Tax Invoice from the solicitors for the Aboriginal Party pay those reasonable legal costs as incurred by the Aboriginal Party in the negotiation and execution of this Agreement.

(b) The Aboriginal Party consents to the Sponsor discharging their liability for payment of legal fees by payment of a Tax Invoice issued by their solicitor in accordance with clause 18(a).

19. **GST GROSS UP AND GST ON CLAIMS**

(a) Words defined in *A New Tax System (Goods and Services Tax) Act 1999* (Cth) have the same meaning in this clause 19.

(b) If a Party makes a supply to another Party under or in connection with this Agreement, then (unless the consideration is expressly stated to be inclusive of GST) the consideration for that supply is exclusive of GST, and in addition to paying or providing that consideration the recipient must:

   (i) pay to the supplier an amount equal to any GST for which the supplier is liable on that supply, without deduction or set-off of any other amount; and

   (ii) make that payment as and when the consideration or part of it must be paid or provided, except that the recipient need not pay unless the supplier has issued to the recipient a tax invoice (or an adjustment note) for that supply.

(c) If a Party provides a payment for or any satisfaction of a claim or a right to claim under or in connection with this Agreement (for example, for misleading or deceptive conduct or for misrepresentation or for a breach of any warranty or for indemnity or for reimbursement of any expense) that gives rise to a liability for GST, the provider must pay, and indemnify the recipient on demand against, the amount of that GST.

(d) If a Party has a claim under or in connection with this Agreement for a cost on which that Party must pay an amount for GST, the claim is for the cost plus the amount for GST (except any amount for GST for which that Party is entitled to an input tax credit).

(e) If a Party has a claim under or in connection with this Agreement whose amount depends on actual or estimated revenue or which is for a loss of revenue, revenue must be calculated without including any amount received or receivable as reimbursement for GST (whether that amount is separate or included as part of a larger amount).

20. **GENERAL PROVISIONS**

(a) This Agreement constitutes the entire agreement of the Parties with reference to the subject matter and any previous agreements, understandings and negotiations on that subject matter cease to have any effect.

(b) Words used in the schedules have the same meaning as in the body of the Agreement.

(c) Nothing contained in this Agreement is to be construed as creating the relationship between the Parties of partnership, principal and agent or joint venture.
(d) No modification, variation, amendment or alteration of this Agreement is valid unless in writing and executed by all Parties.

(e) A right under this Agreement will only be waived where that waiver is in writing and is signed by the Party whose right is waived. A particular waiver by a Party is not to be construed as a general waiver.

(f) The failure of a Party at any time to require performance of any obligation under this Agreement is not a waiver of that Party's right:

(i) to insist on the performance of or claim damages for breach of that obligation unless that Party acknowledges in writing that the failure is a waiver;

(ii) at any other time to require performance of that or any other obligation under this Agreement.

(g) This Agreement is made in the State of Queensland and is to be construed with reference to the laws for the time being in force in Queensland and the Parties submit to the non-exclusive jurisdiction of the courts of Queensland.

(h) This Agreement may consist of a number of counterparts which, taken together, constitute one and the same instrument.

(i) If part or all of any provision of this Agreement is illegal or unenforceable, that part may be severed from this Agreement and the remaining provisions of this Agreement continue in force.

(j) If a part of this Agreement is severed the Parties shall attempt to renegotiate, in good faith that part and seek to achieve a result as near as reasonably practicable as is consistent with the intention of the severed component.

(k) The Sponsor and the Aboriginal Party each acknowledge that it has had an opportunity to seek independent legal advice with respect to all aspects of this Agreement.


(m) This Agreement is binding on and endures to the benefit of the Parties and their registered bodies corporate, administrators, executors, and successors.

(p) The confidentiality, warranty and indemnity provisions in this Agreement are each a continuing obligation, separate and independent from the other obligations of the Parties and survive termination of this Agreement.
EXECUTED as an agreement.

SIGNED for Korella Phosphate Pty Ltd
ACN 143 350 690 by its duly authorised representative, in the presence of:

Signature of Representative.

Tony Aiston
Name.

Signature of Witness

Samantha Cranwell
Name.

SIGNED for Korella Phosphate Pty Ltd
ACN 143 350 690 by its duly authorised representative, in the presence of:

Signature of Representative

Signature of Witness

Vanessa Cusick
Name.
SIGNED by Brian Sullivan in the presence of:

Signature of Witness.

Clare Farley

Name.

SIGNED by Valerie Punch in the presence of:

Signature of Witness.

Clare Farley

Name.

SIGNED by Hazel Sullivan in the presence of:

Signature of Witness.

Clare Farley

Name.
SIGNED by Stan Sullivan in the presence of:

[Signature]

Signature of Witness.

Clare Farley

Name.

SIGNED by Allan Naumann in the presence of:

[Signature]

Signature of Witness.

Clare Farley

Name.
Schedule 1

CULTURAL HERITAGE PROTOCOL

1. FUNDAMENTAL ASPECTS OF PROTOCOL

1.1 Mutual Acknowledgment of Fundamental Condition of Agreement

The Parties to this Agreement mutually acknowledge:

(a) the management of their country and the protection and conservation of their Aboriginal Cultural Heritage is of critical and fundamental importance to the Aboriginal Party;

(b) the observance of the protocol set out in this Schedule (Protocol) is an fundamental condition of this Agreement; and

(c) the Aboriginal Party would never (in any circumstances) have entered into this Agreement, but for the existence of this Protocol and the obligations imposed upon the Sponsor to strictly observe and be bound by them.

(d) the Aboriginal Parties as being the only persons whom have the knowledge necessary to identify and understand the significance of Aboriginal Cultural Heritage in accordance with their traditional laws and customs;

(e) the seriousness with which the Aboriginal Party treat the management of their country and the identification, management, conservation and protection of their Cultural Heritage;

(f) the genuine offence, anxiety, anguish, distress, affront and general sense of loss that would be experienced by the Aboriginal Parties should any aspect of their Aboriginal Cultural Heritage be damaged or not respected.

1.2 Negotiation and Consultation to be in Good Faith

Any consultation or negotiation in respect to any matter or activity, directly or indirectly pertaining to the operation of this Protocol, must at all times throughout the term of this Agreement be conducted in good faith.

1.3 Continuing Obligation to Negotiate and Consult

Given the acknowledged fundamental importance of the operation of this Protocol to the Aboriginal Party, the Sponsor will keep the Aboriginal Party informed of all aspects of any present and future Project Activities within the CHMA Area through the submission of Work Programs as required by this Protocol.

1.4 Liability for costs of complying with this Protocol and this Agreement

(a) The Sponsor hereby acknowledges and agrees that it has requested the Aboriginal Party to enter this Agreement to satisfy its duty of care obligations under s 23 ACHA.

(b) The Sponsor will meet the costs of the Aboriginal Party as set out in Schedule 2.

(c) In consideration of the acknowledgement and undertaking of the Sponsor in this clause 1.4, the Aboriginal Party undertakes and agrees that they will at all times:

(i) act reasonably and in good faith to adhere to budgets developed in accordance with this Protocol;
(ii) avoid any unnecessary incurrence of costs and expenses in the satisfaction of their obligations under this Protocol and this Agreement;

(iii) use their best endeavours to proceed with the Cultural Heritage Survey at a rate that will avoid any undue delay or disruption to the Project Activities.

1.5 Recognition of the expertise of the Aboriginal Party

The Sponsor acknowledges the inherent expertise and knowledge of the Aboriginal Party in the management of their country and in the identification, management, protection and conservation of their Aboriginal Cultural Heritage and the desire of the Aboriginal Party to ensure the appropriate identification, management, protection and conservation of their Aboriginal Cultural Heritage takes place before the Project Activities are undertaken.

1.6 Responsibility for safety and storage of Aboriginal Cultural Heritage removed from CHMA Area

(a) The Sponsor acknowledges and agrees that it is responsible for the storage and safety of all Aboriginal Cultural Heritage removed from the CHMA Area in order to facilitate the Project Activities;

(b) The Sponsor’s obligation in clause 1.6(a) of this Protocol can be satisfied by the Sponsor paying the Aboriginal Parties the amount set out in Item 3 of Schedule 2 to so store, manage and ensure the long term safety of the Aboriginal Cultural Heritage referred to in clause 1.6(a);

(c) The Aboriginal Parties undertake and agree that any monies paid by the Sponsor in accordance with clause 1.6 of this Protocol will be deposited into a separate fund established for the sole purpose of providing for the storage and management of Aboriginal Cultural Heritage and that such monies will only be expended for the strict purposes for which the fund was so established.

2. CULTURAL HERITAGE PROTECTION AND CONSERVATION STRATEGY

2.1 Objectives

The objectives of the Cultural Heritage Survey are to:

(a) determine whether the Project Activities are likely to damage, disturb and encroach upon or interfere with any Aboriginal Cultural Heritage;

(b) give advance warning to the Sponsor in order to enable it to (if reasonably possible) relocate the proposed Project Activities and to take such steps as are necessary to avoid any damage, disturbance, encroachment upon or interference with any Aboriginal Cultural Heritage;

(c) identify measures for the avoidance of Harm and the effective management, protection and conservation of Aboriginal Cultural Heritage within the CHMA Area such that the Project Activities can be managed to:

(i) avoid Harm to Aboriginal Cultural Heritage; and

(ii) to the extent that Harm cannot reasonably be avoided, to minimise Harm to Aboriginal Cultural Heritage.

(d) assist the Aboriginal Party to determine the best measures to effectively manage, protect and conserve Aboriginal Cultural Heritage and whether it is appropriate in all of the circumstances for the Sponsor to avoid or where avoidance is not reasonably possible whether the removal, replacement and/or salvage of any Aboriginal Cultural Heritage identified during the course of the Cultural Heritage Survey is an effective form of management, protection and conservation of Aboriginal Cultural Heritage within the CHMA Area or whether some other management strategy should be utilised.
2.2 Strategy

The Parties have agreed to adopt a five stage strategy for the long term protection and conservation of Aboriginal Cultural Heritage in the CHMA Area at all times throughout the term of this CHMA as follows;

(a) Stage One: Submission of Work Program and Response to Work Program

(b) Stage Two: Conduct of Cultural Heritage Survey and production of Cultural Heritage Survey Report.

(b) Stage Three: Agreement as to recommendations contained in Cultural Heritage Survey Report.

(c) Stage Four: Conduct of Project Activities in accordance with agreed recommendations and this CHMA.

(d) Stage Five: Post Construction Inspection

Stage 1

2.3 Submission of Proposed Work Program

Subject to clause 2.5 of this Schedule, which sets out instances where a Cultural Heritage Survey is not required, if the Sponsor proposes to conduct Project Activities, the Sponsor must provide the Aboriginal Party with a copy of the intended Work Program ("Works Programme Notice") prior to undertaking any of the Project Activities.

2.4 Content of Work Program

Each Work Program Notice must include the following minimum information:

(a) a topographical map (at a scale of 1:10,000 or a scale otherwise suitable, produced on A3 size paper) which clearly shows the area of the proposed Project Activities within the CHMA Area;

(b) aerial photographs, if any are held, that show the area of the proposed Project Activities within the CHMA Area;

(c) a detailed description of the program of works;

(d) a description of the proposed types Project Activities and their expected impact on the land;

(e) a description of the type of machinery proposed to be used;

(f) the proposed dates on which the Project Activities are intended to occur;

(g) the expected maximum duration of the proposed Project Activities;

(h) whether existing roads or tracks will be used and, if not, the proposed location and method of constructions of any new roads or tracks, and the proposed dates on which construction is to occur;

(i) any other information reasonably necessary to enable the Aboriginal Party to understand the impact of the proposed Project Activities.

2.5 Response to Work Programme

(a) Within twenty one (21) days of receipt of the Work Programme Notice from the Sponsor, the Aboriginal Parties shall provide written notice to the Sponsor of ("Work Programme Response Notice") whether it is necessary to conduct a Cultural Heritage Survey of the area of land the Sponsor wishes to explore within the CHMA Area.
2.6 Instances where a Cultural Heritage Survey is not be required

The Parties acknowledge and agree that a Cultural Heritage Survey will not be required:

(a) where the Project Activities are planned to occur on land in relation to which that activity or a similar activity was permitted to be conducted with or without conditions, in an earlier Cultural Heritage Survey Inspection Report, in which case the performance of that activity is subject to the same (if any) agreed conditions, recommendations or other qualifications that may have applied to any earlier activity conducted on the land in accordance with the relevant Cultural Heritage Survey Report;

(b) where the proposed activity is of such a nature that it will not involve Significant Ground Disturbance; and

(c) in areas which the Parties agree have previously been subject to Significant Ground Disturbance.

Stage 2

2.7 Arrangements for conduct of Cultural Heritage Survey

(a) Following the Aboriginal Party giving the Work Programme Response Notice, the Parties shall thereafter use their best endeavours to agree upon a budget (calculated in accordance with Schedule 2) for the conduct of and the management of costs associated with the Cultural Heritage Survey. Failure to agree upon a budget shall entitle either Party to give a Dispute Notice.

(b) The Sponsor shall pay the Aboriginal Party to carry out the Cultural Heritage in accordance with the rates as set out in Schedule 2. Where the Aboriginal Party directs that a Nominated Body is to provide or organise the Cultural Heritage Survey, and does so, the costs of the provision of such services is to be reimbursed by the Sponsor to that Nominated Body in accordance with Schedule 2 and this Agreement.

2.8 Conduct of Cultural Heritage Survey

(a) The Cultural Heritage Survey will consist of an opportunity for up to 6 representatives of the Aboriginal Party ("Survey Team") to walk over, inspect, identify and record any Aboriginal Cultural Heritage within the CHMA Area.

(b) The Aboriginal Party shall use their best endeavours to ensure that the Survey Team is representative of those families (if any) whom may speak for the CHMA Area.

(c) The Sponsor may have a representative ("Sponsors Representative") accompany the Survey Team during the Cultural Heritage Survey who has knowledge of the CHMA Area and the Work Program and who is able to assist the Survey Team as required, including by fixing relevant GPS coordinates wherever possible. The Survey Team may request that the Sponsor's representative does not accompany the Survey Team during certain parts of the Cultural Heritage Survey.

(d) The Survey Team shall use its best endeavours to complete the Cultural Heritage Survey as expeditiously as possible and in accordance with the budget developed in accordance with clause 4, having due regard to:
(i) the nature of the terrain to be traversed during the course of the Cultural Heritage Survey;
(ii) the prevailing weather at the time of the conduct of the Cultural Heritage Survey; and
(iii) the number, density and significance of any Aboriginal Cultural Heritage located by the Survey Team during the course of the Cultural Heritage Survey.

(e) The Sponsor will provide the Survey Team with appropriate safety equipment (and any training to use such equipment) including:

(i) hard hats;
(ii) safety glasses;
(iii) hearing protection;
(iv) safety vests;
(v) sunscreen;
(vi) two way radio (if applicable, due to the nature of the terrain); and
(vii) personal global positioning device (if applicable, due to the nature of the terrain).

(f) Members of the Survey Team are responsible for ensuring they are equipped with:

(i) steel – capped safety boots,
(ii) a broad brimmed hat;
(iii) long pants; and
(iv) long sleeved shirts.

(g) The senior member of the Survey Team is to be the principal point of contact for the Sponsors Representative during the course of the Cultural Heritage Survey.

2.9 Provision of Report upon completion of Cultural Heritage Survey

The Aboriginal Party shall provide a report to the Sponsor ("Cultural Heritage Survey Report") within fourteen (14) days after the completion of the Cultural Heritage Survey which shall:

(a) identify those parts of the CHMA Area which has been inspected;
(b) identify those parts of the CHMA Area which have been given a clearance;
(c) provide details of any Aboriginal Cultural Heritage that may have been identified within the CHMA Area and if so their general location;
(d) identify those parts of the CHMA Area which has been denied a clearance because the area contains Aboriginal Cultural Heritage (Exclusion Zone(s)) which is of particular significance to the Aboriginal Party;
(e) identify any suggested alternative nominated areas which the Sponsor may use (in order to avoid Aboriginal Cultural Heritage) for which clearance is given;
(f) provide suggestions and recommendations for amendments to the Work Program in order to minimise harm, damage or disturbance and interference with and
provide for the effective protection and conservation of any Aboriginal Cultural Heritage;

(g) set out any conditions upon which the Survey Team has provided the clearance including any management and protection provisions in relation to Aboriginal Cultural Heritage;

(h) set out any other recommendations the Aboriginal Party may make to the Sponsor for the avoidance of and the proper management, protection and conservation of any Aboriginal Cultural Heritage;

(i) provide recommendations (if any) for monitoring of Project Activities at the Sponsors expense in order to provide for the better management protection and conservation of any areas of Aboriginal Cultural Heritage within the CHMA Area.

Stage 3

2.10 Sponsors response to Cultural Heritage Survey Report

(a) Within fourteen (14) days of receipt of the Cultural Heritage Report, the Sponsor must give a notice to the Aboriginal Party whether or not it accepts the recommendations contained in the Cultural Heritage Survey Report ("Sponsors Response Notice").

(b) The Sponsors Response Notice must state whether:

(i) it accepts the Cultural Heritage Survey Report, in which case, it may proceed in accordance with clause 2.11 to conduct Project Activities strictly in accordance with the recommendations contained in the Cultural Heritage Survey Report.

(ii) it disagrees (acting reasonably) with the recommendations as contained in the Cultural Heritage Survey Report, in which case, it must state the reasons for disputing the Cultural Heritage Survey Report and its suggested amendments including whether it is prepared to amend its Work Programme to accommodate the concerns of the Aboriginal Party or any other options it believes will properly address the concerns of the Aboriginal Party.

(c) If a Sponsors Response Notice is given in accordance with clause 2.10(b)(i), the Parties must within fourteen (14) days meet to discuss the Cultural Heritage Survey Report and the Sponsors Response Notice with a view to reaching agreement upon whether the Work Programme can proceed. If agreement able to be reached, the Parties may proceed in accordance with clause 2.11. If agreement is unable to be reached either Party may give a Dispute Notice.

(d) If the Aboriginal Party fails to provide the Cultural Heritage Survey Report as required by clause 2.9 of this Protocol, the Sponsor must comply with the process set out in clause 7.2 of the Agreement before proceeding further.

Stage 4

2.11 Project Activities may proceed upon agreement as to recommendations contained in Cultural Heritage Survey Report

If agreement is able to be reached as between the Parties in 2.10(b)(i) or 2.10(c):

(a) the Aboriginal Party must within seven (7) days (if agreement is reached in accordance with clause 2.10(c)) prepare and provide to the Sponsor an Amended Cultural Heritage Survey Report and thereafter proceed as expeditiously as possible to take such steps as are necessary to protect and conserve the identified Aboriginal Cultural Heritage in accordance with the Cultural Heritage Survey Report in 2.10(b)(i) or the Amended Cultural Heritage Survey Report in 2.10(c), and
(b) the Sponsor may thereafter proceed to conduct its Project Activities strictly in accordance with this CHMA, the Cultural Heritage Survey Report in 2.10(b)(i) or the Amended Cultural Heritage Survey Report in 2.10(c) and any recommendations attaching to those Reports;

2.12 Safety

Members of the Survey Team will unconditionally observe and comply with any safety and other reasonable procedures and policies implemented by the Sponsor over the CHMA Area. If necessary for the carrying out of the Cultural Heritage Survey, the Sponsor will arrange and pay for the members of the Survey Team to undertake an approved Induction Course or other Safety Course including (where necessary to comply with the law) providing the Survey Team members with a Blue Card. If requested by members of a Survey Team, the Sponsor will provide members of a Survey Team with full details and an explanation of any Safety procedures and policies applicable to the CHMA Area before a Cultural Heritage Survey commences, and if necessary, during the course of the Cultural Heritage Survey.

2.13 Relationship

The Parties acknowledge that, for the purposes of any Survey Team or Monitoring carried out under this Protocol, the Aboriginal Party is a contracting party independent from the Sponsor and nothing in this Protocol or the Agreement shall be construed as creating any other legal relationship as between the Aboriginal Party and the Sponsor.

2.14 Engagement of Archaeologist

If the Aboriginal Party reasonably requests the Sponsor must provide an archaeologist:

(a) to accompany the Survey Team to scientifically record any identified Aboriginal Cultural Heritage; or

(b) to undertake further field work following completion of a Cultural Heritage Survey,

and the Sponsor shall engage an archaeologist acceptable to the Aboriginal Party and the Sponsor and all of the costs and expenses of such engagement shall be met by the Sponsor. The terms of the engagement of such a person will otherwise be on terms and conditions as agreed between the Parties.

Stage 5

2.15 Post Construction Inspection

Upon practical completion of the Project Activities, the Sponsor will allow one (1) member of the Aboriginal Party to conduct a Post Construction Inspection to ensure:

(a) that all recommendations for the long term protection, conservation and management of Aboriginal Cultural Heritage have been fully implemented; and

(b) there is no remnant Aboriginal Cultural Heritage (specifically any significant aboriginal objects as defined in ACHA) remaining on the site which may have been exposed during the course of the Project Activities. In the event that any such objects are located, it will not give rise to a Dispute or allegation of breach of this CHMA and such objects will be removed by the Aboriginal Party.

3. MONITORS

3.1 A Cultural Heritage Survey Report or an Amended Cultural Heritage Survey Report may include a recommendation (where the Project Activities are in the immediate area surrounding any Aboriginal Cultural Heritage identified during a Cultural Heritage Survey or in areas where there is high potential for future subsurface Aboriginal Cultural Heritage) that Monitors are to be present.
3.2 If there is a requirement for Monitors, the Sponsor must pay the Aboriginal Party the amounts set out for 2 Monitors in Schedule 2 including where appropriate any transport, food, drinks and accommodation to enable the monitors to perform their functions under clause 3 of this Protocol.

3.3 The senior Monitor is to be the principal point of contact for the Sponsors Representative during the course of the monitoring.

3.4 The Sponsor must supply the same level of safety equipment to the Monitors as it has provided in clause 2.8(e).

3.5 The Monitors shall be responsible for ensuring that they are equipped to the same level as that in clause 2.8(f).

3.6 The Sponsor must provide Monitors with sufficient access to its operations such that they may monitor the Project Activities. This does not prevent the Sponsor requesting the Monitors to stand down due to occupational health and safety hazards.

3.7 Where the Aboriginal Party directs that a Nominated Body is to provide or organise the provision of Monitors, and does so, the costs of the provision of such services is to be reimbursed by the Sponsor to that Nominated Body in accordance with Schedule 2 and this Agreement.

3.8 Notwithstanding any other provision in this Protocol, the Sponsor shall only be liable to pay the cost of monitoring where the Project Activities are to a depth and of a kind that might reasonably be anticipated to reveal evidence or the existence of sub surface Aboriginal Cultural Heritage.

3.9 The Parties agree that drilling activity undertaken as part of Project Activities does not necessarily require the use of Monitors.

3.10 No later than seven (7) days prior to the commencement of any monitoring:

(a) the Parties shall reach agreement on a budget for the monitoring, which shall be calculated in accordance with Schedule 2; and

(b) the Sponsor will pay 50% of the agreed budget amount for monitoring to the Aboriginal Party.

3.11 Upon completion of monitoring (or at such other time as may be agreed between the Parties, where there is a lengthy period of monitoring involved) the Aboriginal Party will provide the Sponsor with a Tax Invoice for the balance of the agreed budget amount for monitoring. The Sponsor will pay such Tax Invoice, within 14 days of receiving the Tax Invoice. The Sponsor will not withhold payment of any part of those costs unless it disputes the invoiced amount.

3.12 The Aboriginal Party shall be entitled to withhold the provision of Monitors until such time as the Sponsor has complied with clause 3.10.

4. BUDGET AND PAYMENT OF COSTS

4.1 No later than seven (7) days prior to commencement of each Cultural Heritage Survey:

(a) the Parties shall agree on a budget for the proposed Cultural Heritage Survey, calculated in accordance with Schedule 2 and otherwise in accordance with this Protocol;

(b) the Aboriginal Party will provide a Tax Invoice for the full budgeted cost of the Cultural Heritage Survey; and

(c) the Sponsor will pay 50% of the agreed budget for the proposed Survey to the Aboriginal Party.
4.2 The Sponsor will pay the balance of all monies owing under the Tax Invoice provided in accordance with clause 4.1(b) within 7 days after completion of the Cultural Heritage Survey or at such other time as may be agreed between the Parties, where the Cultural Heritage Survey is conducted over a lengthy period of time.

4.3 Any dispute as to the Tax Invoice must be raised (in writing) by either party prior to the commencement of the Cultural Heritage Survey. The Aboriginal Party is entitled to refuse to commence the Cultural Heritage Survey until such time as there has been a resolution of the dispute.

4.4 The Sponsor must not withhold payment of any part of the Tax Invoice unless it has already disputed the Tax Invoice in the manner as set out in clause 4.3. In the event of a dispute being raised by either party as to the Tax Invoice, written notice of the objection shall be provided by the disputing party to the other. Within seven (7) days of receipt of such notice, the Parties shall meet and attempt to negotiate a resolution of the dispute. If agreement is unable to be reached either Party may give a Dispute Notice.

4.5 The Aboriginal Party shall be entitled to refuse to undertake the Cultural Heritage Survey until such time as the Sponsor has complied with clause 4.1 and 4.2 (where applicable).

5. NEW DISCOVERIES

5.1 If the Sponsor locates any Aboriginal Cultural Heritage in the course of its Project Activities that has not previously been identified in a Cultural Heritage Survey or Report ("New Discovery"), it must immediately:

(a) stop work within a 50 meter radius of the New Discovery;  
(b) give notice to the Aboriginal Party ("New Discovery Notice") using the form in Schedule 4; and  
(b) take all reasonable steps to ensure that it does not engage in any activity likely to disturb the New Discovery until inspected by the Aboriginal Party and agreement is reached as between the Parties for the long term protection and conservation of the New Discovery.

5.2 The Aboriginal Party and the Sponsor must meet as soon as is reasonably practicable after the Aboriginal Party receives the New Discovery Notice in an attempt to reach agreement upon the proper measures to be undertaken to minimise harm, preserve, protect and conserve the New Discovery.

5.3 If agreement is unable to be reached either Party may give a Dispute Notice.

6. HUMAN REMAINS

In the event that Human Remains are discovered during the term of this Agreement, the Parties will comply with the procedures set out in Schedule 6.
### Schedule 2

**PAYMENTS TO ABORIGINAL PARTY**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Amount</th>
<th>Date Payable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>General Administration and Work Programme Payment – [See: clause 13 of Agreement]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Cultural Heritage Survey – [See: clause 13 &amp; clause 4 of Protocol]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Survey Team members (up to 6)</td>
<td></td>
<td>In accordance with clause 4 of the Protocol</td>
</tr>
<tr>
<td></td>
<td>• Amount payable for an 8 hour day or any part thereof</td>
<td>$475.00 per person per day or any part thereof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Amount payable for a 4 hour day or any part thereof</td>
<td>$237.50 per person per day or any part thereof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(b) Monitors (up to 2)</td>
<td></td>
<td>In accordance with clause 4 of the Protocol</td>
</tr>
<tr>
<td></td>
<td>• Amount payable for an 8 Hour day or any part thereof</td>
<td>$475.00 per person per day or any part thereof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Amount payable for an 8 Hour day or any part thereof</td>
<td>$237.50 per person per day or any part thereof</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(c) Travel time to and from CHMA Area to undertake survey payable only where travel takes place outside of a normal 8 Hours working day.</td>
<td>$62.50 per person per hour</td>
<td>In accordance with clause 4 of the Protocol</td>
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<tr>
<td></td>
<td>(d) Travel costs</td>
<td></td>
<td>In accordance with clause 4 of the Protocol</td>
</tr>
<tr>
<td></td>
<td>• Hire car, fuel, bus, air transport</td>
<td>Provided by Sponsor at cost</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If provided by Aboriginal Party or Nominated Body</td>
<td>$0.80c/km per vehicle used by the Aboriginal Party</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(e) Vehicle hire and fuel – to assist in travelling to CHMA Area and performance of survey</td>
<td>Provided by Sponsor at cost</td>
<td>In accordance with clause 4 of the Protocol</td>
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<td>(f) Food and accommodation</td>
<td></td>
<td>In accordance with clause 4 of the Protocol</td>
</tr>
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<td></td>
<td>• If provided by Aboriginal Party or Nominated Body</td>
<td>$350.00 per person per day</td>
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<tr>
<td>g)</td>
<td>Administrative payment – payable to Aboriginal Party or Nominated Body</td>
<td>17.5% of the total amount payable under item 2(a) – 2(h)</td>
<td>In accordance with clause 4 of the Protocol</td>
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<tr>
<td>3</td>
<td>Fees payable to Aboriginal Party for negotiation and execution of Agreement and Protocol – [See: clause 13 of Agreement and clause 1.4 of Protocol]</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>(a) Attendance fee payable to each member of the Aboriginal Party to attend meetings with the Sponsor in respect to any matter arising under the Agreement or to</td>
<td></td>
<td>No later than seven (7) days prior to meeting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$475.00 per person per day or any part thereof</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Amount</td>
<td>Date Payable</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------------------------------</td>
<td>----------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td></td>
<td>(b) Transport, Food and Accommodation for out of town Aboriginal Parties to attend meeting</td>
<td>Sponsor’s cost</td>
<td>No later than seven (7) days prior to meeting</td>
</tr>
<tr>
<td></td>
<td>(c) Venue hire, lunch, morning and afternoon tea for meeting</td>
<td>Sponsor’s cost</td>
<td>No later than seven (7) days prior to meeting</td>
</tr>
<tr>
<td></td>
<td>(d) Reasonable legal fees upon production of tax invoice by solicitor for Aboriginal Party</td>
<td>Sponsor’s cost</td>
<td>No later than seven (7) days prior to meeting</td>
</tr>
<tr>
<td>5</td>
<td>5 Medicals, Site Induction, Blue Card, Safety Inductions – [See: clause 2.10 of Protocol]</td>
<td>Sponsors cost</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>6 Indigenous Cultural Heritage Awareness Training - [See: clause 12 of Agreement]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Max aggregate expenditure per work program</td>
<td>1 persons at $475.00 per person per day or any part thereof</td>
<td>No later than seven (7) days prior to provision of training</td>
</tr>
<tr>
<td></td>
<td>• Travel expenses to and from site of induction</td>
<td>See item 2(e) to (h)</td>
<td>No later than seven (7) days prior to provision of training</td>
</tr>
<tr>
<td></td>
<td>• Travel time to and from site of induction</td>
<td></td>
<td>No later than seven (7) days prior to provision of training</td>
</tr>
</tbody>
</table>
Schedule 3

PLAN OF CHMA AREA – ML 90209
## Schedule 4

**NEW DISCOVERY FORM**

<table>
<thead>
<tr>
<th>Sheet No. (one form to be completed for each find site):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of Person Completing Form (Print): Signed:</td>
</tr>
<tr>
<td>Position: Contact No: Date:</td>
</tr>
</tbody>
</table>

**Location of find (GPS coordinates - make sure to include datum):**

<table>
<thead>
<tr>
<th>Datum</th>
<th>Northing</th>
<th>Easting</th>
<th>Description</th>
</tr>
</thead>
</table>

*Attach sketch map of location and any other information as appropriate (use back of form or if additional pages, number 1 of 3, 2 of 3 etc)*

<table>
<thead>
<tr>
<th>Nature of find (e.g. stone artefact, human skeletal remains, etc) (describe)</th>
<th>Find made by (Print Name)</th>
<th>Reported to (Print name of the Sponsors Representative)</th>
<th>Time &amp; Date Reported</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Mitigation measures recommended:**

Refer form to Senior Survey Team Member/Monitor and advise the Sponsors Representative

<table>
<thead>
<tr>
<th>Print Name</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Senior Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Adviser (if involved)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The Sponsor Representative</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cultural Heritage Management Agreement – Korella Phosphate Project and Yuliuna People
Schedule 5
ALLEGED BREACH FORM

Sheet no (one form to be completed for each site):

Name of Person Completing Form (Print): Signed:

Position: Contact No: Date:

Nature of alleged Breach: (describe what has happened and to which site - use appropriate find sheet number, include coordinates for site using GPS)

<table>
<thead>
<tr>
<th>Datum</th>
<th>Northing</th>
<th>Easting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Breach Observed by (Print Name of person who saw Breach):

Breach Reported to (Print name of the person to whom the Breach was reported):

Time & Date of Breach:

Was action taken to remedy Breach (circle one): Yes No

What action (if any) was taken: (describe the action taken - machinery removed from area, contacts made, follow up action)

Was resolution of Breach achieved (circle one): Yes No

Any further action required (circle one): Yes No

What action required: (describe the further action required to remedy situation)


Cultural Heritage Management Agreement – Korella Phosphate Project and Yulluna People
Schedule 6

Process in Relation to Discovery of Human Remains

Human Remains

Contact Police

Police initiate crime scene response preservation and forensic osteologist/pathologist. Cultural Heritage Coordination Unit attends

Material inspection by police in conjunction with the Aboriginal Parties where appropriate for context, form, metrical, and non-metrical data. Full exposure may be required inspection undertaken on site

Second opinion obtained from police or nominated expert

Non-Aboriginal or suspected criminality or other doubts persist

Police and Cultural Heritage Coordination Unit may provide technical advice/assistance as requested

Material removed in controlled method and with appropriate dignity

Formally determined as Aboriginal remains

Likely Aboriginal remains and no suspected criminality

Cultural Heritage Coordination Unit contacts all relevant Aboriginal persons for immediate involvement

Aboriginal Parties decide arrangements with Cultural Heritage Coordination Unit assisting as requested

If you find bones and suspect that they are human it is essential that you do not disturb the material. You must report the findings to the Queensland Police Service. The Police will determine if the remains represent a crime scene. If it is established that the remains are not a crime scene and the Coroner is satisfied that the remains are Aboriginal or Torres Strait Islander the Department of Natural Resources and Mines procedure on The Discovery, Handling and Management of Human Remains under the Provisions of the Aboriginal Cultural Heritage Act 2003 and Torres Strait Cultural Heritage Act 2003 will apply.

1. General Guiding Principles

Death in all human societies is a significant event. It occurs on a regular but unpredictable basis, removing individuals from family, close relations and friends. Death is often associated with complex rituals. This was and is still the case with Aboriginal and Torres Strait Islander people. Disturbance to burials and human remains is therefore of major concern to them, as it is for all members of Australian society.

Aboriginal and Torres Strait Islander people have been in Australia for more than 40,000 years. In that time they have buried hundreds of thousands of their ancestors in a variety of ways. In some cases people were cremated; in others their bones were placed in hollowed-out logs or trees or wrapped in bark cylinders and placed in rock shelters. Many were also buried in the ground with grave goods. Burials commonly occurred in sand dunes and alluvial deposits, which were easy to dig. However, wind and water easily erode such locations and frequently these natural processes expose remains. Other common burial locations are rock shelters, rocky overhangs and hollow trees. All are vulnerable to human disturbance. The close proximity of scarred or carved trees and stone arrangements and the remains of fireplaces, stone artefacts and food refuse may be suggestive of an Aboriginal or Torres Strait Islander burial.

In view of possible natural or human disturbance to Aboriginal or Torres Strait Islander places the Queensland Government has in place a legislative framework that will ensure such burials are treated in a manner consistent with legal requirements and Aboriginal and Torres Strait Islander traditions.

There is also provision for Aboriginal or Torres Strait Islander people who have traditional or familial links with human remains to seek ownership of these remains regardless of who claimed previous ownership.

2 Desired Outcomes

This procedure has a number of general desired outcomes:

(a) While natural or human processes can inadvertently expose Aboriginal or Torres Strait Islander human remains, all attempts will be made to limit further disturbance.

(b) If further investigation and disturbance is required, procedures are in place for the proper handling of such remains.

(c) All such procedures are sensitive to the wishes of the Aboriginal or Torres Strait Islander owners of the remains.
(d) That Aboriginal or Torres Strait Islanders who have traditional or familial links with human remains are able to claim ownership of those remains.

3. Legislative Framework

Criminal Code Act 1899

All persons must be aware that under the Criminal Code Act 1899 (s236) it is an offence to improperly or indecently interfere with a human body or human remains, whether buried or not. An offence under this provision can result in imprisonment for up to two years.

Coroners Act 2003

Provisions of the Coroners Act 2003 provide that when human remains are located it is the duty of the person finding the remains to report the findings to a police officer or Coroner (Part 2 s7 and 8). (NB Part 4, Division 4 Section 82 (1) defines every magistrate as a Coroner (a “local Coroner”).

The Coroner starts having control of human remains when the Coroner starts investigating the deceased person’s death (s26(1)). The Coroner must stop investigating a death if the Coroner’s investigation shows that the body is Aboriginal or Torres Strait Islander traditional burial remains (Part 3 s12(2)(a)). Where this occurs, a Coroner will authorise for the remains to be released to the Minister responsible for administering the Aboriginal Cultural Heritage Act 2003 and Torres Strait Islander Heritage Act 2003. (See s26(2) (a) and Form 12 version 1- Order for release of Traditional remains pub gaz 21 November 2003 p955-6).

To ensure best practice in the coronial system, the State Coroner must develop guidelines in respect to certain matters, including those dealing with investigations of deaths involving human remains found in a suspected traditional burial site, and in particular, must provide for the early notification and involvement of the Aboriginal or Torres Strait Islander community having a connection with the burial site ((Part 3 s14 (3) (b)).

Aboriginal Cultural Heritage Act 2003 and Torres Strait Islander Cultural Heritage Act 2003

The basic intent of the Aboriginal Cultural Heritage Act 2003 and Torres Strait Islander Cultural Heritage Act 2003 (the Acts) is that Aboriginal and Torres Strait cultural heritage should be protected.

It is also the intent of the Acts that (as far as practicable) Aboriginal and Torres Strait cultural heritage should be owned and protected by Aboriginal and Torres Strait Islander people with traditional or familial links to the cultural heritage if it is comprised of any of the following:

- (a) Aboriginal human remains;
- (b) Secret or sacred objects; or
- (c) Aboriginal heritage lawfully taken away from an area.

It is a further intent of the Acts that Aboriginal and Torres Strait Islander cultural heritage that is in the custody of the State, including the Queensland Museum, should continue to be protected by the State until it can be transferred into the protection of its Aboriginal or Torres Strait Islander owners (Part 2 Division 1 s14 (1-4)).

Under the Acts Aboriginal or Torres Strait Islander people who have a traditional or familial link with Aboriginal human remains are the owners of those remains regardless of who may have
owned the Aboriginal or Torres Strait Islander human remains before commencement of the Act (Part 2 Division 2 s15 (1-2)).

An Aboriginal or Torres Strait Islander person who owns human remains may at any time ask the State (or an entity that represents the State) which holds custody of the remains to continue to be the custodian of the human remains or return the human remains to them (Part 2 Division 2 s16 (1-4)).

If a person, other than the State has in their possession Aboriginal or Torres Strait human remains to which they do not have traditional or familial links then the person must take all reasonable steps to ensure that the human remains are taken into the custody of the chief executive as soon as practicable. Penalties apply if a person fails to do this (Part 2 Division 2 s17 (1-2)).

If a person knows of the existence and location of Aboriginal human remains and is not the owner of those remains, or knows or ought reasonably to know that the human remains are Aboriginal or Torres Strait Islander human remains or knows or suspects the chief executive does not know of the remains, the person must as soon as practicable (and after advising the Police or Coroner) advise the chief executive of the extent of the human remains and provide all the details about the nature and location of the human remains the chief executive reasonably requires. Penalties apply if a person fails to do this (Part 2 Division 2 s18).

4 Procedures for dealing with Aboriginal and Torres Strait Islander human remains

In all cases when human remains are located it is important to remember that:

(d) The discovery of any human remains must as soon as possible be reported to the nearest police.

(e) It is an offence to interfere with human remains, whether buried or not.

The Police or Coroner must be advised of the presence of any human remains. An appropriate officer or officers will then establish the area of discovery as a potential crime scene and are responsible for preserving and securing the area.

If a determination is made that satisfies the Coroner that the remains are not a crime scene and that the remains could constitute an Aboriginal or Torres Strait Islander burial site, Police will contact the Cultural Heritage Coordination Unit of the Department of Natural Resources and Mines. Officers of the Cultural Heritage Coordination Unit (or their representatives) may attend the scene and along with the Police scientific officers collect appropriate data on ethnicity, antiquity and evidence of criminal activity or otherwise for submission to the Coroner. Further advice might be sought from forensic osteologists/pathologists or physical anthropologists.

If the remains are thought to be neither Aboriginal nor Torres Strait Islander, related to criminal activity or are of doubtful determination, Officers of the Department of Natural Resources and Mines (or their representatives) may assist the Police in further determinations. This may require controlled removal and analysis by a suitable forensic expert as ordered by the Coroner. In all cases of possible criminal activity the requirements of the Police and Coroner for data collection and site security will have priority. If the remains are determined, to the satisfaction of the Police and Coroner, to be Aboriginal or Torres Strait Islander, Officers of the Department of Natural Resources and Mines will then take responsibility for liaison and reburial with the appropriate Aboriginal or Torres Strait Islander community.
At all stages minimal disturbance to the remains will be a priority and they will be dealt with in a sensitive and caring manner. Advice and guidance from Aboriginal or Torres Strait Islander elders will be taken as soon as the possibility of criminal activity is dismissed.

Where an offence under provisions of the Aboriginal Cultural Heritage Act 2003 or Torres Strait Islander Heritage Act 2003 is suspected to have occurred then the Regional Compliance Team of the Department of Natural Resources and Mines must be advised. Where an offence is suspected the scene must be kept secure until handed over to Department of Natural Resources and Mines compliance officers.

**Explanation of procedures**

2 Police Officers maintain authority and responsibility for a potential crime scene at all times.

3 Cultural Heritage Coordination Unit Officers (or their representatives) may attend the scene and provide advice as required by Police or crime scene officers.

4 Police will nominate a person to provide a second opinion if appropriate. Such opinion may be available on-site if a suitable forensic expert is available. However, if a suitable forensic expert is unavailable to travel to the site, digital images may be sent to them to provide an opinion. All data required for first and second opinions is to be collected on site.

5 The final decision on this rests with Police, on advice from the Coroner.

6 Officers of the Cultural Heritage Coordination Unit will, on request, assist Police in technical aspects of evidence retrieval.

7 Advice on handling may be sought from appropriate sources where this does not compromise the integrity of the crime scene or the quality of evidence.

**Additional procedures and information**

Where the remains are determined to be Aboriginal or Torres Strait Islander the Coroner will authorise for the remains to be released and will complete Form 12 Order for the Release of Traditional Remains. This provides for the release of the remains to the Minister responsible for administering the Aboriginal Cultural Heritage Act 2003 and the Torres Strait Islander Heritage Act 2003.

Should any Police Officer or Officer of the Department of Natural Resources and Mines (or their representative) be in any doubt as to the requirements of the relevant Coroner for their region, then it is essential that the Coroner be directly consulted. Alternatively, as the State Coroner is responsible for all Coroners any perceived difficulties in implementing the policy/procedure should be referred to him/her.

The excavation of human burial remains for whatever reason is not encouraged. However, this may occur if directed by the Coroner of if requested in writing by an Aboriginal or Torres Strait Islander Body.
If a researcher acting under an authority or agreement from the Cultural Heritage Coordination Unit and with the Aboriginal or Torres Strait Islander Body for an area discovers burial remains in the process of excavating a site, they shall immediately stop excavation, cover the remains and contact an Officer of the Cultural Heritage Coordination Unit, who will then follow the procedures set out in this document.

The Queensland Museum acquired human remains from the 1870’s to 1972 including some legally recovered under the Aboriginal Relics Preservation Act 1967. However, by 1972 it was no longer considered appropriate to deposit human remains with the Queensland Museum except in exceptional circumstances and with the permission of the relevant Aboriginal or Torres Strait Islander community. The Museum has now developed a repatriation policy for human remains still in its collection (see — Queensland Museum Policy on Ancestral Remains and Burial Goods – May 2004, Queensland Museum Policy on Secret Sacred Objects – May 2004)). These policies commit the Queensland Museum to returning to Aboriginal and Torres Strait Islander communities, family groups, and individuals, ancestral remains and burial goods, and secret sacred objects held in Museum collections.
APPENDIX B – WASTE ROCK AND SPOIL MANAGEMENT PLAN
VENUS PHOSPHATE

WASTE ROCK AND SPOIL MANAGEMENT PLAN

Report prepared for:
Australia Venus Resource Pty Ltd

Date:
22nd April 2015
IMPORTANT NOTE

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C&R Consulting Pty Ltd do not accept any responsibility in relation to any financial and/or business decisions made for any other property or development other than that for which this information has been provided.

Dr Chris Cuff
Director
22nd April 2015
Date

Dr Cecily Rasmussen
Director
22nd April 2015
Date
SUMMARY OF RELEVANT INFORMATION

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<tr>
<th>Project Title</th>
<th>Venus Phosphate Waste Rock and Spoil Management Plan</th>
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<tr>
<td>Property Location</td>
<td>Venus Phosphate (ML90209)</td>
</tr>
<tr>
<td>Project Purpose</td>
<td>Manage potential impacts from waste rock and spoil associated with the site.</td>
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Clients Details

Nominated Representative: Jack Cheng
Title/Position: Engineer
Company: Australia Venus Resource Pty Ltd
Telephone: (07) 3147 8007
Email: jack.cheng@venusphos.com.au

DOCUMENT CONTROL

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<th>C&amp;R Author(s)</th>
<th>Date issued</th>
<th>Reviewer(s)</th>
<th>Date returned</th>
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<td>Mr. M. Knott</td>
<td>26/03/2015</td>
<td>Mr. B. Cuff (C&amp;R)</td>
<td>26/03/2015</td>
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<tr>
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<td>26/03/2015</td>
<td>Mr. J. Cheng &amp; Mr. M. Li (AVR)</td>
<td>31/03/2015</td>
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1. INTRODUCTION

The Venus Phosphate Project (the project) is located on ML90209, approximately 140 km southeast of Mount Isa and 150 km southwest of Cloncurry in northwest Queensland, immediately adjacent to Phosphate Hill Mine (PHM) (Figure 1). The ML covers approximately 1,602 ha of grazing land on Chatsworth Station in the Shire of Cloncurry. Although significant exploration works have been conducted across ML90209 it is considered a Greenfield site.

Several environmental assessments have been completed across the project site, with an Environmental Management Plan (GHD 2011) submitted to the administering authority in 2011 by the previous owners (Krucible Metals Pty Ltd) to gain approval for the development of a bulk sampling trial pit. The development of a 10,000 t trial pit was approved in 2012 under Environmental Authority (EA) EPML00975013. The project site was subsequently purchased by Australia New Agribusiness and Chemical Group Pty Ltd (ANB) at the end of 2013.

Prior to any works commencing the holder of the EA must submit to the administering authority a Plan of Operations (PoO) including a Financial Assurance (FA) and several management plans for review. As such, C&R Consulting (Geochemical and Hydrobiological Solutions) Pty Ltd (C&R) was commissioned by Australia Venus Resource Pty Ltd (AVR), a wholly owned subsidiary of ANB, to produce a Waste Rock and Spoil Management Plan (WRSMP) for the project.
Figure 1: ML90209 regional setting
1.1 OBJECTIVES

The main objectives of this WRSMP are to clearly outline methods and strategies to manage potential impacts associated with seepage and runoff from waste rock dumps by addressing conditions E11 and E12 of the EA (Table 1). An integral part of this plan is to identify catchment areas and limit the potential for clean water to enter the waste rock dump water treatment system.

These objectives will be achieved by:

- Describing the background conditions present on site that have the potential to influence erosion and sedimentation processes affecting the waste rock dump;
- Characterising spoil chemistry and determining potential risks to downstream environments;
- Outlining management techniques for controlling potential contaminated seepage and runoff, including waste rock dump design, catchment diversions, rehabilitation requirements, etc.;
- Detailing maintenance requirements for waste rock dump infrastructure; and
- Outlining procedures for monitoring as well as reporting incidents.

Table 1: Relevant Environmental Authority conditions

<table>
<thead>
<tr>
<th>Number</th>
<th>Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>E11</td>
<td>The holder must develop, implement and submit to the administering authority a waste rock and spoil management plan with the Plan of Operations and update and resubmit the plan with each subsequent Plan of Operations.</td>
</tr>
</tbody>
</table>
| C7     | The waste rock and spoil management plan must be included:  
(a) A rehabilitation strategy which meets the rehabilitation objectives specified in Schedule F;  
(b) That all seepage (including subsurface) from the waste rock dump is collected in either the open pit or the sediment dam;  
(c) Monitoring of seepage/run off from the waste rock dump to the sediment pond or open pit is undertaken to validate geochemistry;  
(d) Measures to ensure that clean water is diverted away from the waste rock dump to avoid possible contamination;  
(e) A program of progressive sampling to validate pre-mine waste rock and spoil characterisation; and  
(f) Waste rock dump must be constructed and maintained in accordance with the Korella Phosphate Project Environmental Management Plan. |
2. SETTING

2.1 REGIONAL CONTEXT

The project is situated in the Georgina Basin of the Burke River catchment. The site lies on the margin of the Mitchell Grass Downs Bioregion, immediately to the south of the existing PHM.

The surrounding landscape is a combination of various habitat types, four of which occur throughout the study area, including:

- Mitchell Grass Plains on heavy clay soils;
- Spinifex Hummock Grasslands on red earths with lateritic gravel;
- Hummock Grasslands with Snappy Gum (*Eucalyptus leucophloia*) emergents; and
- Mixed Shrublands.

Tree cover is generally limited to sparse open fringing woodland along the small water courses with scattered trees generally reflecting drainage lines or other low lying areas.

The main land uses in the surrounding area include pastoral (in particular cattle grazing), and mining, with the Phosphate Hill Mine immediately to the north. Other large mines operating within 100km of the site include Osborne (recently placed in Care and Maintenance) and Cannington. A number of smaller mines also operate within this area.

The terrain is generally flat and vegetation communities have been altered by grazing practices.

2.2 CLIMATE

The area is within the seasonally arid tropics where rain of any significance only falls during the November to March wet season. Rainfall data collected at neighbouring Bureau of Meteorology (BOM) gauges (Phosphate Hill, BOM Station 36016; and The Monument, BOM Station 36017) show the average annual rainfall for the area is approximately 330 mm with a maximum of 826.8 mm and minimum of 80.4 mm (Figure 2). Approximately 75% of this rain falls between November and March (Table 2). This is typical of the dry tropics where long periods of aridity are interspersed by short periods of rainfall.

Rainfall at Phosphate Hill has been monitored since 1975, but missing data limits the usable rainfall information in this data set to an intermittent 30 year period (Figure 2). No supporting climatic data (i.e. temperature, etc.) has been collected at the Phosphate Hill monitoring station. Rainfall has been monitored at The Monument since 1976, although missing data limits the usable rainfall information in this data set to an intermittent 35 year period. In addition, The Monument is located approximately 20km from the project site and may, therefore, be subject to local variability.

Based on previous experience in the region, it is common to have over 300 days in any year where evaporation exceeds rainfall, even on days of intense rainfall. Therefore, very little rainfall may actually remain on site, or be available for groundwater recharge.

The high variability within the climatic data suggests that the use of averages is not appropriate for any assessment of the environment. For example, in 1981 The Monument received 299 mm of rainfall within one month (almost equivalent to the yearly average), with almost half the annual total (150 mm) falling in a single day. These intense rainfall
events are not uncommon in this area, with at least five events occurring in the past 35 years that have resulted in more than 100 mm rainfall in one day. Further, maximum rainfall for the area is over double the yearly average, with the minimum rainfall nearly a quarter of the annual average (Figure 2 and Table 2). Therefore, to accurately reflect the climatic conditions at the site it is important to consider this intense variation.

![Figure 2: Recorded annual rainfall at The Monument and Phosphate Hill](image)

**Table 2: Average and maximum monthly rainfall**

<table>
<thead>
<tr>
<th>Month</th>
<th>The Monument (mm)</th>
<th>Phosphate Hill (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Maximum</td>
</tr>
<tr>
<td>January</td>
<td>89.5</td>
<td>459.4</td>
</tr>
<tr>
<td>February</td>
<td>72.4</td>
<td>223.2</td>
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<tr>
<td>March</td>
<td>28.6</td>
<td>232.0</td>
</tr>
<tr>
<td>April</td>
<td>13.7</td>
<td>125.2</td>
</tr>
<tr>
<td>May</td>
<td>17.5</td>
<td>103.0</td>
</tr>
<tr>
<td>June</td>
<td>10.7</td>
<td>79.4</td>
</tr>
<tr>
<td>July</td>
<td>10.4</td>
<td>75.0</td>
</tr>
<tr>
<td>August</td>
<td>4.8</td>
<td>47.8</td>
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<tr>
<td>September</td>
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<tr>
<td>October</td>
<td>11.6</td>
<td>41.6</td>
</tr>
<tr>
<td>November</td>
<td>31.1</td>
<td>119.0</td>
</tr>
<tr>
<td>December</td>
<td>52.2</td>
<td>220.0</td>
</tr>
</tbody>
</table>
2.3 GEOLOGY

The project will target the Korella phosphate deposit (also known as the Corella Bore Prospect). The Korella phosphate deposit is a marine sedimentary phosphorite hosted in the Beetle Creek Formation of the early Palaeozoic Georgina Basin, northwest Queensland. The Korella deposit lies 5 km south of PHM, Queensland’s most significant producer of high-quality diammonium and monoammonium phosphate fertilizer for domestic and export markets (Denaro et al., 2013).

The Beetle Creek Formation (BCF) is a Middle Cambrian package of basal siltstone (up to 60 m thick) and overlying phosphorite, phosphatic siltstone, chert and limestone (up to ~ 40 m). At Korella, the BCF forms part of the Narpa Group of the Burke River Structural Belt, a fault bounded north-south elongate basin of mostly Palaeozoic strata about 180 km long and 60 km wide. The BCF overlies the Thortoniana Limestone and is overlain by the Inca Formation, comprising up to 150 m of silty siliceous shale, chert and carbonaceous calcareous mudstone (Jell, 2013). Regionally, this contact is interpreted as an onlapping disconformity (Jell, 2013) but mine-scale interpretation of this surface is as a fault disconformity (GDH, 2011).

At Korella, high grade phosphatic ore is associated with the BCF and Inca Formation contact, with subordinate, lower grade ore in two stratigraphic zones lower in the BCF. This distribution contrasts with the 9 phosphate ‘lodes’ confined to lower Beetle Creek strata at PHM, where the BCF and Inca Formation contact is largely absent through erosion.

The BCF is interpreted as a deepening upward succession (GHD, 2011) and the PHM phosphate deposits are associated with older shallow marine deposition, whereas the Korella phosphatic deposits are of younger, deeper water affinity. Additionally, the fault disconformity at Korella is interpreted as fluid pathway for post burial diagenetic phosphate enrichment beneath the contact (GDH, 2011). Whereas post-depositional uplift has eroded the upper units of the BCF at PHM, local down-faulting at Korella resulted in preservation of the high grade and relatively pure (low iron, aluminum and cadmium) phosphate ore.

2.4 SOILS

No detailed soil information currently exists for the project site. The Atlas of Australian Soils recognises three distinct soil groups within the mine lease (Figure 3):

1. **Atlas of Australian soils code FA41** – Undulating to moderately undulating with some strongly undulating areas; rock outcrop is common: dominant soils are very shallow gravelly loams (Um5.51), with (Um1.43) and (K-Um1.43) more common on phosphatic rock outcrops. Associated are other shallow gravelly loams (Um5.2), (Um1.41), (Um1.3), and lesser (Um5.11). On some outwash slopes are calcareous earths (Gc2.22) and gravel-free red earths (Gn2.13).

Cursory landform observations across the site indicate the description and distribution of this soil unit as mapped by the Atlas of Australian Soils is accurate with some amendments. Within the site no rock outcrop was observed within this unit. The soil unit on the site is dominated by red gravelly loams to a depth greater than 0.75m.

The majority of the trial pit infrastructure is located within this soil unit (Figure 4), including:

- Trial Mining Area;
- Trial pit Dump;
- Site Office;
- Crushing Plant;
- Settlement pond; and
- Parts of the Pit Access road.

2. **Atlas of Australian soils code MM46** – Alluvial plains with some slightly higher scalded areas that are often gravel-strewn: dominant soils are deep red-brown cracking clays (Ug5.38), with associated deep brown (Ug5.34) or occasionally grey (Ug5.24) cracking clays in lower sites. In some areas the clays are slightly gravel-strewn. On the low rises and adjacent to streams are gravel-strewn loamy red duplex soils (Dr2.33), (Dr2.43), and (Dr2.13) and occasional uniform clays (Uf6.31). Crusty duplex soils (Dr1.33) and (Dr1.43) may also occur. On some stream levees are deep loamy or occasionally sandy red earths (Gn2.13, Gn2.12)

Cursory landform observations across the site indicate this description and distribution of this soil as mapped by the Atlas of Australian Soils are accurate. The MM46 soil unit on this site is varied. To the west of the unit there is a strong interaction with the FA41 soil unit. It is likely that gravel has washed out of the FA41 soil unit and is strewn atop of grey cracking clays (the MM46 soil unit). This strewn zone extends for approximately 300 m from the mapped border of these two units. In effect this is a mixing zones of the two units. Outside of this 300 m mixing zone the soils are considerably more uniform, being observed as grey cracking clays.

Trial pit mine infrastructure that is present within the MM46 soil unit include (Figure 4):
- Parts of the Pit Access road; and
- Haul Road.

3. **Atlas of Australian soils code MN6** – Broadly undulating lands with granite tor outcrop on some ridge crests: dominant soils are quartz-gravel-strewn moderately deep loamy red friable earths (Gn3.13), with lesser (Gn3.12). Associated on some slopes are gravel-strewn loamy red duplex soils (Dr2.12, Dr2.13) and gravel-strewn red clays (Uf6.31). On some lower areas are deep brown or red-brown cracking clays (Ug5.32, Ug5.37). Shallow to moderately deep Fitty red earths (Gn2.11, Gn2.12) and shallow gravelly loams (Um5.51) occur near rock outcrop.

Only a small proportion of this soil unit is present on the site. No mine infrastructure is located within this soil unit (Figure 3).
Figure 3: Mapped soil units from the Atlas of Australian Soils within ML90209
Figure 4: Location of trial pit infrastructure in relation to atlas of Australian soil units
2.5 RECEIVING ENVIRONMENT

The mining lease is located in the upper reaches of several small drainage lines. These un-named drainage features flow in various directions from the project site because of a very shallow ridge line that passes through the centre of the mining lease running in a north-south direction. Flows exiting the lease in the north report to Mahaffey Creek before entering Kolar Creek and subsequently the Burke River (Figure 5). Flows exiting the lease to the east cumulate in a small unnamed gully (hereon referred to as Eastern Gully) before confluence with Kolar Creek greater than 8 km downstream (Figure 5). Westerly report directly to the headwaters of Middle Creek while southerly flows exit site via an unnamed creek (hereon referred to as Southern Creek) before reporting to Middle Creek which confluences with Burke River over 70km downstream (Figure 5).

All waterways associated with the lease are classed as ‘upland rivers’ under the ANZECC & ARMCANZ (2000) guidelines as the project site has an elevation of greater than 150 m. Further, due to the historic land uses associated with the area (e.g. mining and grazing) these tributaries are also categorised as ‘slightly to moderately disturbed’ as the riparian zone throughout much of the catchment is still relatively intact (ANZECC & ARMCANZ 2000). ‘Slightly to moderately disturbed’ waterways are defined under ANZECC & ARMCANZ (2000) as “ecosystems in which aquatic biological diversity may have been adversely affected to a relatively small but measurable degree by human activity”.

The trial pit is situated on the eastern facing slope of the shallow ridge in the northern half of the mining lease. Therefore the receiving environments of most concern from the development of the trial pit and its associated infrastructure are the Eastern Gully and subsequent Kolar Creek. These drainage lines are highly ephemeral generally containing water for less than two months of the year with Eastern Gully predicted to hold water for less than two weeks each year.

Kolar Creek is a highly braided system. Erosion and sedimentation processes operating within the creek can be extensive following intense, localised rainfall events. Previous observations have noted significant sediment slugs progressing through the watercourse over a number of wet seasons.
Figure 5: Receiving environments


2.5.1 **BACKGROUND WATER & SEDIMENT QUALITY**

Sampling of the drainages covered by the mining lease has been limited to sediment quality as the highly ephemeral nature of these tributaries restricts the ability to collect water samples. The results of the sediment sampling suggest that the majority of quality characteristics were compliant with ANZECC & ARMCANZ (2000) guideline values as well as relevant human health based investigation levels (C&R 2010). However, chromium was found to be elevated in some of the samples collected from the westward flowing drainage lines. Across the lease chromium levels ranged from 18 mg/kg to 136 mg/kg (C&R 2010). As no development of the site had commenced when these samples were collected, it is suggested that these results depict natural variation in chromium concentrations.

GHD (2011) analysed water quality sampling results collected by PHM in Kolar Creek’s feeder creeks, Deadhorse Creek and Galah Creek. A summary of the results displayed in Table 8 of the GHD (2011) EM Plan found:

- Total nitrogen, reactive phosphorus and total phosphorus were regularly recorded above guideline values for ‘upland rivers’ in ‘Tropical Australia’ ANZECC & ARMCANZ (2000); and
- Copper and zinc levels were regularly recorded above ANZECC & ARMCANZ (2000) 95% Species Protection Levels;

All other monitored analytes were generally compliant with guideline values where available. Note, the Queensland Water Quality Guidelines (2009) state that no guideline values are available for the area and those allocated within ANZECC & ARMCANZ (2000) are most likely irrelevant. Therefore, site specific water quality objectives (WQOs) must be determined as soon as possible.

2.5.2 **ENVIRONMENTAL VALUES**

The Queensland Environmental Protection (Water) Policy, 2009 (EPP) lists several environmental values (EVs) that must be considered when determining watercourse specific values associated with receiving environments. The EPP has not prescribed catchment specific EVs and subsequent WQOs for the Upper Channel Country region to which the project site belongs. Therefore, based on a detailed knowledge of the environmental processes and land use practices within the area and up to 15 km downstream of the project site it is recommended that the following EVs must be protected:

- The biological integrity of the slightly to moderately disturbed system. Generally requiring the adoption of ANZECC & ARMCANZ (2000) 95% Species Protection Levels for WQOs until site specific triggers can be determined;
- Water for agricultural purposes. Significant grazing practices are undertaken within the area and WQOs must also comply with ANZECC & ARMCANZ (2000) Livestock Drinking Water guidelines; and
- Cultural and spiritual values of the water.

2.6 **PROPOSED MINING TECHNIQUES**

The mining authorised under the EA is for bulk sampling of a trial pit. The trial pit and associated infrastructure includes:

- 200 m long ramp to be dug at a 10 % slope to the ore body ~40 m below the surface;
- Overburden stockpile alongside the ramp;
- Topsoil stockpile;
- Crushing and screening plant;
- Package sewage treatment plant (STP);
- Front end loader, excavator and trucks;
• Roads; and
• Power.

The amount of ore to be stockpile on the site at any time during trial mining may be up to 5000 t (approximately 1700 m³) depending on demand from customers.

The access ramp into the trial pit is designed to drop into the pit floor at the shallowest point on the footwall (depth of 20 m) with a 10% ramp. The base of the ramp will open up the work area across to the fault that delineates the Western high wall and a 10 m work bench on the active faces to enable mining to proceed north initially with a series of pushbacks.

The ground is soft and therefore no blasting will be undertaken for the trial mining operations. Instead, truck and shovel methods will be used to remove spoil and target the ore body. Spoil and ore will be removed from the trial pit via haul truck.

All topsoil will be stripped and stockpiled, separate of other waste, for use in rehabilitation. The overburden will be pre-stripped and dumped in an out-of-pit dump. Upon mining the limit of the pit in the south (adjacent to the ROM haul road), in-pit dumping will be adopted to progressively fill the mining void once the ore has been mined and to keep haulage cycles to a minimum.

Run of mine (ROM) ore will be hauled from the pit to a run-of-mine dump hopper where it will be crushed and fed into a secondary crushing plant. Screening in between crushing will be used to provide some grade improvement and the final crushed product will be analysed and then stockpiled.

Crushed phosphate rock will be loaded onto road trucks for transport to the former Osbourne Mine rail load-out facility where it will be stockpiled before loading.

Note the project does not include a beneficiation process.
3. WASTE CHARACTERISATION

GHD (2011) conducted an overburden characterisation assessment across the project site. Sixty six (66) samples were tested from varying depths within exploration holes for a range of parameters (GHD 2011). However, further investigation of the overburden is required to fully characterise the material. This will be undertaken progressively over the life of the mine.

3.1 TOTAL METALS

The results were compared against threshold levels for soil contaminants as outlined in Attachment 2 of the Assessment and Management of Acid Drainage (DME, 1995) as well as background ranges for the region noted in the National Environmental Protection Council guidelines (NEPC, 1999) based on Berkman (1989).

Although the median values for all tested parameters were compliant with available guideline values, several parameters were found to regularly exceed threshold and background levels, including:

- Arsenic;
- Barium;
- Cadmium;
- Chromium;
- Copper;
- Manganese;
- Molybdenum;
- Nickel;
- Selenium;
- Sulphur; and
- Zinc.

No leachate tests have been performed on the samples to determine the potential for these parameters to mobilise when hydrated. However, GHD (2011) postulate that based on existing surface water quality data for the area there is “no significant potential for leaching of these metals” from the designated spoil dumps.

3.2 ACID PRODUCING POTENTIAL

Overburden across the project site is comprised predominantly of alkaline marine sediments (refer to Section 2.3). Systematic drilling undertaken by Krucible Metals Pty Ltd show that these sediments are comprised of limey shales, siltstones and sandstones as well as clays, laterites, limestones and dolomites. GHD’s (2011) characterisation showed that these sediments display a high calcium carbonate (lime) to sulphide ratio suggesting an extremely low potential to produce acidic runoff.

During the drilling regime very little groundwater was intersected with only minor iron enrichment noted in fractures opposed to PHM where a palaeo-aquifer increases the occurrence of iron enrichment. Based on this assessment, GHD (2011) state that there is no likelihood of producing acid waters from the Inca sediments which comprise the majority of the overburden.

3.3 RADIOACTIVE POTENTIAL

GHD (2011) also undertook an assessment of the radioactive potential of the overburden material through a comparison with the requirements of the NSW Radiation Control Regulation (2003). The regulation states a material is classified as radioactive if the uranium and thorium ratios are equal to or greater than 1. The maximum ration observed within the overburden samples collected was 0.084 (GHD 2011). Therefore the overburden waste is not classified as radioactive.
4. MANAGEMENT STRATEGY

4.1 ISSUES

The management and control strategy for mining wastes at the project site must target the following issues:

- Diversion of clean water;
- Seepage through overburden;
- Erosion of overburden;
- Capture and settlement of sediment laden runoff;
- Stability; and
- Rehabilitation.

Only waste rock that has been characterised as un-reactive and/or benign can be used for the construction of temporary and permanent structures within operational areas.

4.2 DIVERSION OF CLEAN WATER

The waste rock dump associated with trial pit operations covers an area of 2.08 ha. The waste rock dump will be bunded to divert all clean water runoff around the disturbance area (Figure 6). This will ensure that runoff collected within the waste rock dump sediment dam has the smallest possible catchment area incorporating incidental rainfall occurring directly on the dump.

The Technical Guidelines for Environmental Management of Exploration and Mining in Queensland (DME 1995) suggest that diversion of overland flows should not cause velocities to exceed 1.0 m/sec. This is the recommended design strategy for diversions across the project site.

4.3 SEEPAGE AND EROSION

Rainfall will seep into the above-ground waste rock dump at the project site. Moisture will slowly move through the overburden and seep out at the toe where the dump meets the natural land surface. Waste rock dumps will not be uniform in texture or have a uniform hydraulic conductivity; therefore there may be several areas up the faces of overburden dumps that will emit seepage. This occurs when areas of lower hydraulic conductivity prevent further downwards migration of water.

Moisture residence time within the overburden, and consequently contact time with the surrounding waste rock, will determine the final chemistry of seepage emanating from the dump. This potentially results in varying chemistries of seepage through the dump and into nearby dams over the long-term. While no seepage data exists for the local region, average hydraulic conductivity of spoil within the Bowen Basin is approximately 3.16 m/yr (Minserve Group et al., 2004) suggesting that seepage through to the base of waste rock dumps takes multiple years to occur.

Control measures to prevent/limit erosion processes occurring and collect potential seepage across the waste rock dump include diversion drains, contour banks, capture drains, sediment dams and drop structures. Refer to the Venus Phosphate Erosion and Sediment Control Plan (C&R 2015) for a detailed description of each of these measures and when/how they should be adopted.
4.4 SEDIMENT LADEN RUNOFF

All sediment laden runoff (including seepage) from the spoil must be collected and channelled into a series of sediment dams. Sediment dams are non-regulated dams that capture overland flows for a proportion of the time. During water detention, when water velocities are greatly reduced, coarse and medium sediment is deposited in the dam.

The greater the retention time for sediment dams, the greater water quality improvement. During the wet season, the retention time in sediment dams can be greatly reduced if the dam is at or near capacity. New waters entering the dam under these conditions have a relatively low residence time and therefore the ability to improve the quality of the water prior to discharge is minimised.
Sediment dams will eventually fill with sediment, thereby reducing the volume of water that can be retained and consequently reducing the retention time of the sediment impacted waters. For the dam to remain effective the accumulated sediment must be removed and either disposed of, or used for other works. If sediment is not removed, small dams can completely silt up, resulting in subsequent damage to nearby and/or associated infrastructure such as embankment walls or roads.

All sediment dams on site should be designed according to the requirements outlined within the Venus Phosphate Erosion and Sediment Control Plan (C&R 2015).

4.5 STABILITY

Waste rock dumps must be classed as stable and safe landforms prior to rehabilitation of the site. The stability of the landform is determined through an assessment of the type of material comprising the dumps and the targeted land use post mining.

PHM intercepts chemically very similar overburden to the project and has the same requirements for post mining land use (i.e. grazing). Through years of trials and assessments of rehabilitation success, PHM has developed final landform slopes for waste rock dumps of 20 degrees. Therefore, it is recommended that the project targets the same 20 degree slopes for the waste rock dump to achieve the required stable and safe landform.

4.6 REHABILITATION

The area presenting the highest risk of soil erosion at the project site is the waste rock dump. As part of ongoing management of erosion at the site, outer faces of the waste rock dump should be progressively rehabilitated. Rehabilitation involves:

- Regrading spoil to a nominal 20 degrees gradient to reduce erosion and increase stability;
- Placement of pre-striped topsoil on erosion at a depth of 200mm to provide a growth medium;
- Installation of temporary graded banks (where applicable) to limit initial topsoil losses prior to vegetation establishment;
- Seeding (via manual seeding or aerial seeding); and
- Manual planting of tree and bush species (as tube-stock).

This method is employed to reduce the overall volume of sediment transported from relatively dispersive tertiary waste rock dumps into the receiving environment.

Inspections of all rehabilitation are required on a yearly basis. These inspections will report on the success of the rehabilitation methods via several indices as well as identifying amendments to rehab techniques that may increase the success in future years. For further information on rehabilitation requirements refer to the Venus Phosphate Post Mine Land Use Plan (C&R 2015).
5. MONITORING AND CHARACTERISATION PROGRAMME

5.1 EROSION

The site’s rehabilitation monitoring programme will ensure that the erosion status of rehabilitation is monitored annually. Ongoing annual monitoring under this arrangement as well as visual inspection by site personnel will ensure compliance with this WRSMP. Significant erosion rills >20cm depth on erosion should be sited and their locations marked.

5.2 SEDIMENT DAM

Monitoring of on site water storages are required under conditions C2 – C5 of the EA. Refer to the EA for further information.

5.3 OVERBURDEN GEOCHEMISTRY

Continued monitoring and characterisation of the overburden is required over the life of the mine to progressively determine the risks to the receiving environment from dumped spoil. Samples should be collected from recently removed spoil and tested on a monthly basis for a wide range of parameters. These parameters have been determined to be of the greatest potential to impact the receiving environment from leaching of spoil based on past analyses and known issues in the region and from neighbouring PHM, including:

- **pH**:
- **EC**:
- Cations and Anions, including:
  - Calcium;
  - Magnesium;
  - Sodium;
  - Potassium;
  - Chloride;
  - Sulphate; and
  - Fluoride.
- Alkalinity, including:
  - Alkalinity as HCO₃⁻; and
  - Total alkalinity as CaCO₃.
- Nutrients, including:
  - Reactive phosphorus; and
  - Total phosphorus.

- Total Metals, including:
  - Aluminium;
  - Antimony;
  - Arsenic;
  - Barium;
  - Beryllium;
  - Boron;
  - Cadmium;
  - Chrome;
  - Cobalt;
  - Copper;
  - Iron;
  - Lead;
  - Manganese;
  - Mercury;
  - Molybdenum;
  - Nickel;
  - Selenium;
  - Silicon;
  - Thorium;
  - Uranium;
  - Vanadium; and
  - Zinc.

Note these parameters do not include testing for Acid Rock Drainage (ARD) because all analyses undertaken to date show there is no likelihood of acid waters occurring from overburden and rainwater interactions (refer to Section 3.2).

Regular overburden characterisation will:

- Validate pre-mining characterisation of spoil;
- Allow runoff quality to be estimated;
- Allow long-term residual void water quality trends to be estimated; and
- Improve management practices for spoil and sediment laden water across the site.
6. WRSMP ADMINISTRATION

6.1 IMPLEMENTATION AND MAINTENANCE OF THE WRSMP

This WRSMP is to be implemented and maintained in accordance with this report. The EA holder has sole and full responsibility for ensuring:

- The waste rock and spoil management measures are adopted across the site; and
- The monitoring and maintenance of these measures is continued.

6.2 PERFORMANCE AND REVIEW OF WRSMP

It is recommended that this WRSMP is reviewed and audited with each Plan of Operations submission. Any changes in operational practices must be incorporated into the WRSMP and communicated to employees and contractors on-site.

The following criteria will be used to determine whether the WRSMP is effective:

- No uncontrolled releases of mining waste;
- No complaints in regards to mining waste management;
- Continual improvement in waste management practices; and
- Full compliance with the requirements of this WRSMP

6.3 RESPONSIBILITIES

Responsibilities of all personnel associated with the site towards the effective management of waste management are outlined in Table 3.

Table 3: Personnel responsibilities towards effective WRSMP management

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Responsibilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Site Senior Executive</td>
<td>• Shall ensure that a formal review of this management plan is made with each Plan of Operations submission.</td>
</tr>
<tr>
<td></td>
<td>• Shall ensure that adequate resources and direction is available to ensure that this management plan is developed and effectively implemented.</td>
</tr>
<tr>
<td>All Superintendents /Supervisors</td>
<td>• Shall ensure that the management plan outlined is followed.</td>
</tr>
<tr>
<td></td>
<td>• Shall recommend or act on recommendations to rectify any deficiencies found in this management plan.</td>
</tr>
<tr>
<td>Mine Workers, Contractors &amp; Visitors</td>
<td>• Shall comply with this management plan and ensure waste management issues are adequately dealt with.</td>
</tr>
</tbody>
</table>

6.4 REPORTING

Monitoring of on site water storages are required under conditions C2 – C5 of the EA. These conditions also state the reporting requirements for the holder of the EA should an exceedence of contaminant limits be determined. Refer to the EA for further information.
7. REFERENCES


