# Permit

***Environmental Protection Act 1994***

## Environmental Authority EPML00899813

*This environmental authority is issued by the administering authority under Chapter 5 of the* Environmental Protection Act 1994*.*

### Environmental authority number: EPML00899813

**Environmental authority takes effect on 30 September 2026.**

The anniversary date of this environmental authority is 1 June each year.

### Environmental authority holder

| Name | Registered address |
|---|---|
| Kempton Minerals Pty Ltd | Suite 9C, Level 9, 144 Edward Street, Brisbane QLD 4000 |

### Environmentally relevant activity and location details

| Environmentally relevant activities | Locations |
|---|---|
| Resource Activity, Schedule 3, 16: Mining gold ore | ML3358, ML3374, ML3409, ML3540, ML3548, ML3591, ML30192, ML30193, ML30195, ML30196, ML30201, ML30203 |
| Ancillary 08 - Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a) | |
| Ancillary 08 - Chemical Storage, 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c) | |
| Ancillary 31 - Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (a) 1000t to 100,000t | |
| Ancillary 33 - Crushing, milling, grinding or screening, Crushing, grinding, milling or screening more than 5000t of material in a year | |
| Ancillary 61 - Waste incineration and thermal treatment, 2: Incinerating or thermally treating, in a year, the following quantity of general waste, (a) less than 5000t | |



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| Environmentally relevant activities | Locations |
|---|---|
| Ancillary 62 – Resource recovery and transfer facility operation, 1(c) – Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 2 regulated waste | |

## Additional information for applicants

### Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

An EA authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the EA specifically authorises environmental harm.

A person carrying out an ERA must also be a registered suitable operator under the *Environmental Protection Act 1994* (EP Act).

### Contaminated land

It is a requirement of the EP Act that an owner or occupier of land give written notice to the administering authority if they become aware of the following:

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term 'duty to notify'.

### Take effect

Please note that, in accordance with section 200(1) of the EP Act, an EA has effect:

(a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority—on the nominated day; or

(b) if the authority states a day or an event for it to take effect—on the stated day or when the stated event happens; or

(c) otherwise—on the day the authority is issued.

However, in accordance with section 200(2) of the EP Act, the day that the EA takes effect may not be before:

(a) if the authority is for a resource activity—the day the relevant tenure is granted to the applicant; or

(b) if a development permit for a material change of use of premises under the *Planning Act 2016* is necessary for carrying out an activity that related to the authority—the day the development permit takes effect; or

(c) if an SDA Approval under the *State Development and Public Works Organisation Act 1971* is necessary for carrying out an activity that relates to the authority—the day the approval takes effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid EA.

| | |
|---|---|
| | 30 September 2026 |
| Signature | Date |

Giles Bezzina

**Department of the Environment, Tourism, Science and Innovation**
Delegate of the administering authority
*Environmental Protection Act 1994*

**Enquiries:**

Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5352
Email: ESCairns@detsi.qld.gov.au

## Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this EA, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to restore the environment (section 319C)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443).

### Other permits required

This permit only provides an approval under the EP Act. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department, and other State and Federal Government agencies prior to commencing any activity at the site. For example, this may include permits or approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (to clear vegetation), and the Department of Primary Industries (to clear marine plants or to obtain a quarry material allocation).

### Obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

Matters of national environmental significance (MNES) are regulated under the Commonwealth EPBC Act rather than under state legislation. You may need to submit a referral if your project potentially impacts any matters protected under the EPBC Act. For more information on self-assessments, and referral and assessment processes, please visit the Australian Government Department of Climate Change, Energy, the Environment and Water's website at www.dcceew.gov.au/environment/epbc/advice.

### Obligations under the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts)

The Cultural Heritage Acts require anyone who carries out a land-use activity to exercise a duty of care. This 'duty of care' means land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, and applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located. For more information on your obligations under this legislation, please visit the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism webpage at, www.dwatsipm.qld.gov.au.

**Conditions of environmental authority**

This environmental authority is subject to the conditions set out in the attached schedules. The conditions of this environmental authority should be read in conjunction with the Environmental Management Plan for the Georgetown Gold Project, dated September 2009. Where there is a discrepancy between the conditions of this environmental authority and the environmental management plan, the conditions of the environmental authority will apply.

This **environmental authority** incorporates the following schedules:

- Schedule A – General
- Schedule B – Air
- Schedule C – Water
- Schedule D – Noise and Vibration
- Schedule E – Waste
- Schedule F – Land
- Schedule G – Hazardous Dams
- Schedule H – Definitions
- Schedule I – Maps

## Location:

| Authorised Mining Tenements | Location (Schedule I – Maps) | Title |
|---|---|---|
| ML3409 | 6.5 km SE of Georgetown | Plant Site |
| ML3540 | | |
| ML3591 | | |
| ML3548 | 14 km NNE of Georgetown | Electric Light |
| ML30203 | 43 km NNE of Georgetown | Red Dam |
| ML3374 | 62.5 km SSE of Georgetown | Jubilee Plunger |
| ML30192 | 31.9 km NNW of Georgetown | Philey's |
| ML30193 | 32.8 km NNW of Georgetown | Rhyolite |
| ML30195 | 22.3 km NNW of Georgetown | Tom's |
| ML30196 | 25.9 km NNW of Georgetown | Sir William Alfred |
| ML30201 | 34 km NNW of Georgetown | Abe's |
| ML3358 | 10.8 km SSW of Georgetown | Try No More |
| **Authorised Third Party Mining Tenements for acceptance of ore only** | | |
| ML100030 | 40km S of Forsayth | Agate Creek |
| ML3278 | 6km SSE of Forsayth | Big Reef |
| ML3279 | | |
| ML3280 | | |
| ML30139 | 60km SSE of Forsayth | Josephine |

## Schedule A – General

**Maintenance of Measures, Plant and Equipment**

**(A2-1)** The environmental authority holder 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 condition; and

(c) operate such measures, plant and equipment in a proper manner.

**(A2-2)** No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm caused by the mining activities.

**(A2-3)** 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.

**Monitoring and Measurements**

**(A3-1)** Except where specified in another condition of this environmental authority, all monitoring, monitoring data, records and reports required by this environmental authority or related to environmental management of the activities must be:

(a) carried out by an appropriately qualified person;

(b) kept for a period of not less than five (5) years;

(c) provided to the administering authority in the specified format within ten (10) business days of a request; and

(d) undertaken in accordance with the most recent version of any applicable standard or guideline for the activity.

**(A3-2)** All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

**Storage and Handling of Flammable and Combustible Liquids**

**(A4-1)** All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids must be stored and handled in accordance with the relevant Australian Standard where such is available.

**(A4-2)** 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. 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) All chemical product drum storages must be bunded so that the capacity of the bund is sufficient to contain at least 100% of the maximum design storage volume within the bund.

**(A4-3)** All containment systems for chemicals and flammable or combustible liquids must be designed to minimise rainfall collection within the system.

**(A4-4)** Spillage of any contaminant must be contained and rectified to prevent environmental harm.

**Activity**

**(A5-1)** This 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.

**(A5-2)** Only oxide material can be extracted and processed.

**(A5-3)** Ore from the Agate Creek Mine (mining lease 100030), Big Reef Mine (mining leases 3278, 3279 and 3280) and Josephine Gold Mine (mining lease 30139) is authorised to be received, stored and processed at the site, provided:

(a) a geochemical assessment of three (3) ore samples is undertaken every 10,000 tonnes; and

(b) a risk assessment is undertaken prior to processing, if the characteristics of the ore are substantially different to the characteristics of material authorised for processing under this environmental authority.

**(A5-4)** The risk assessment undertaken under condition (A5-3), must:

(a) detail controls identified to manage any risks;

(b) be implemented to manage risk; and

(c) be documented and made available to the administering authority upon request.

**(A5-5)** Records must be kept of the quantity and tonnage of ore received from the Agate Creek Mine (mining lease 100030), Big Reef Mine (mining leases 3278, 3279 and 3280) and Josephine Gold Mine (mining lease 30139) in accordance with condition (A3-1).

**Emergency Response/ Contingency**

**(A6-1)** An emergency response/contingency plan must be developed and implemented to respond to emergency events and incidents.

**(A6-2)** The emergency response/contingency plan required under condition A6-1 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;

(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 A7-1 to A7-3;

(i) procedures for accessing monitoring points during incidents; and

(j) procedures to notify any person who may be affected by the event within 24 hours, with information to be provided at a minimum:

(i) the location 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.

**Notification of Emergencies, Incidents and Exceptions**

**(A7-1)** The authority holder must, as soon as possible (no later than 12 hours) after becoming aware of:

(a) 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; or

(b) any monitoring result that indicates an exceedance of any environmental authority limit, notify the administering authority of the release by telephone or facsimile.

**(A7-2)** The notification must include, but not be limited to, the following:

(a) the environmental authority number and name of the 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 incident;

(e) the time the holder of the environmental authority became aware of the incident;

(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) immediate actions taken to prevent or mitigate any further environmental harm caused by the release; and

(j) what notification of persons who may be affected by the event has occurred/is being undertaken.

**(A7-3)** Within fourteen (14) days following the 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 the time to prevent or minimise unlawful environmental harm.

(c) proposed actions to prevent a recurrence of the emergency or incident.

**Water Release Events**

**(A8-1)** For any water release event the authority holder must notify the administering authority as soon as possible (no later than 12 hours of having commenced releasing mine affected water to the receiving environment) and provide the following information in writing:

(a) release commencement date/time;

(b) expected release cessation date/time;

(c) release point/s;

(d) release volume (estimated);

(e) receiving water/s including the natural flow rate;

(f) any details (including available data) regarding likely impacts on the receiving water(s); and

(g) notification of persons who may be affected by the event has occurred/is being undertaken.

**(A8-2)** The authority holder must notify the administering authority as soon as possible (no later within twenty-four (24) hours) of the cessation of a water release and within 28 days provide the following information in writing:

(a) release cessation date/time;

(b) the reason for the release;

(c) the location of the release;

(d) natural flow volume in receiving water;

(e) volume of water released;

(f) all water quality monitoring results;

(g) any general observations;

(h) all calculations;

(i) details regarding the compliance of the release with the conditions of Agency Interest: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume); and

(j) any other matters pertinent to the water release event.

**Complaints and Community**

**(A9-1)** 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 available record – not identified);

(b) time and date of complaint;

(c) reasons for the complaint;

(d) investigations undertaken;

(e) conclusions formed;

(f) actions taken to resolve complaint;

(g) any abatement measures implemented; and

(h) person responsible for resolving the complaint.

This information must be made available for inspection by the administering authority on request.

**(A9-2)** When requested by the administering authority, the environmental authority holder must undertake relevant specified monitoring within a period of 4 weeks to investigate any complaint of environmental harm at any sensitive place or commercial place. 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.

**(A9-3)** The holder of this environmental authority must establish, promote and maintain easily accessible lines of communication between residents and land owners to ensure that social impacts are identified and managed.

**Cultural Heritage**

**(A10-1)** The holder of the environmental authority must develop, implement and maintain a Cultural Heritage Management Plan for protection of the scar tree located on the Red Dam mining lease (ML30203).

**(A10-2)** In the carrying out of the mining activity the holder of this environmental authority must not adversely impact on the cultural heritage values of any place registered on the Queensland Heritage Register.

**Third Party Auditing**

**(A11-1)** Compliance with the conditions of this environmental authority must be audited by an appropriately qualified third party auditor, nominated by the environmental authority holder and accepted by the administering authority, within one year of the commencement of the operation, and then at regular intervals not exceeding once every three years.

**(A11-2)** Upon receipt of the third party audit report, the environmental authority holder must submit a copy to the

administering authority.

**(A11-3)** The third party auditor must certify the independent findings of the audit in the report.

**(A11-4)** The financial cost of the third party audit is the responsibility of the holder of this environmental authority.

**(A11-5)** The holder of this environmental authority must immediately act upon any recommendations arising from the audit report by:

(a) investigating any non-compliance issues identified; and

(b) as soon as practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.

**(A11-6)** Subject to condition (A11-5), and not more than three (3) months following the submission of the audit report to the administering authority, the holder of this environmental authority must provide a written report to the administering authority addressing the:

(a) actions taken by the holder to ensure compliance with this environmental authority; and

(b) actions taken to prevent a recurrence of any non-compliance issues identified.

**Risk Management**

**(A12-1)** The environmental authority holder must develop and implement a risk management system for mining activities which conforms to the Australian Standard for Risk Management (AS/NZ 4360:2004) or the latest edition of Australian Standard for Risk Management by 31 October 2010.

**Transition to New Standards**

**(A13-1)** 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:

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

(b) 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.

**Definitions**

**(A14-1)** Words and phrases used throughout the environmental authority are defined in Schedule H- Definitions. Where a definition for a term used in the environmental authority is sought and the term is not defined within the environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

**Exploration**

**(A15-1)** 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 projects*.

**Western Cutback and Soil Stockpile**

**(A16-1)** The construction and operation of the integrated TSF Western Cutback and Soil Stockpile area must be within the bounds nominated in Schedule I – Map 10 and must not exceed 2.3 hectares and 2.8 hectares, respectively.

**Borrow Pits**

**(A17-1)** The construction and operation of the Borrow Pits must be within the bounds nominated in Schedule I – Map 11 and must not exceed 7.95 hectares.

**END OF CONDITIONS FOR SCHEDULE A**

## Schedule B – Air

**(B1-1)** The release of odour, dust or any other airborne contaminant(s), or light from the mining activity must not cause an environmental nuisance at any sensitive place or commercial place.

**Dust Nuisance**

**(B2-1)** When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

**(B2-2)** If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):

(a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates -Deposited matter - Gravimetric method of 1991.

(b) total suspended particulates (TSP) of 130 micrograms per cubic metre expressed as an 24 hour average, when monitored in accordance with any method for measuring TSP recommended in the latest edition of the administering authority's Air Quality Sampling Manual;

(c) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres ($PM_{10}$) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with the most recent version of Australian Standard AS 3580.9.6 Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method;

(d) total suspended particulates (TSP) of 200 micrograms per cubic metre expressed as a one hour average, when monitored in accordance with any method for measuring TSP recommended in the latest edition of the administering authority's *Air Quality Sampling Manual*.

**(B2-3)** If monitoring indicates exceedance of the relevant limits in Condition (B2-2), then the environmental authority holder must:

(a) address the complaint including the use of appropriate dispute resolution if required; or

(b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

**(B2-4)** Ensure that vehicles (including trains) used for transporting materials to and from the mining tenements, have appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust during transport.

**Point Source Release of Contaminants to the Atmosphere**

**(B3-1)** Contaminants must not be released to the atmosphere from any diesel powered generator or the gold furnace other than:

(a) in accordance with the manufacturers specifications, including combustion efficiency requirements; and

(b) directed vertically upwards, with no impedance.

**END OF CONDITIONS FOR SCHEDULE B**

## Schedule C – Water

### Contaminant Release

**(C1-1)** Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

**(C1-2)** The release of contaminants to waters must only occur from the release points specified in Table C1 and depicted in Schedule I – Maps 2, 3 and 4 attached to this environmental authority.

**(C1-3)** The release of contaminants to waters must not exceed the release limits stated in Table C2 when measured at the release monitoring points specified in Table C1 for each quality characteristic.

**(C1-4)** The release of contaminants to waters from the release points must be monitored at the locations and frequency specified in Table C1 for each quality characteristics specified in Table C2.

**(C1-5)** If quality characteristics of the release exceed any of the trigger levels specified in Table C2 during a release event, the environmental authority holder must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; and

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZG (2018) methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:

(i) details of the investigations carried out; and

(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with* (C1-5) *b (ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

**(C1-6)** If an exceedance in accordance with condition (C1-5) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

**(C1-7)** The holder must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each Release Point as specified in Table C3 for any receiving water into which a release occurs.

**(C1-8)** Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in Table C3 for the contaminant release point(s) specified in Table C1.

**(C1-9)** At the time of release the flow rate in the receiving water must be at least twenty (20) times the rate at which treated waste waters are released.

**(C1-10)** The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in Table C1.

**(C1-11)** Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

***Table C1 (Contaminant Release Points, Sources Monitoring Points and Receiving Waters and Monitoring Frequency)***

| Monitoring Point | Location (GDA94 MGA z54) | | Contaminant Source and Location | Receiving Waters Description | Monitoring Frequency |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| **Release points** | | | | | |
| Tailings Dam (spillway) | 764701 | 7971588 | Release from tailings dam. | Ephemeral Unnamed Creek. | Daily during release (the first sample must be taken within two (2) hours of commencement of release). |
| **Receiving Waters - Impacted sites** | | | | | |
| PSSW2 | 762965 | 7971670 | Plant site | Downstream towards the North West. | Upon commencement of release and thereafter weekly during release.<br>Upon commencement of flow of river and weekly thereafter whilst river is flowing. |
| PSSW3 | 763776 | 7971854 | Plant site | Flowing north from the process plant. | |
| PSSW5 | 765405 | 7971198 | Plant site | Flowing east downstream of the tailings dam. | |
| PSSW6 | 764755 | 7971052 | Plant site | Creek draining south east from tailings dam. | |
| PSSW7 | 763617 | 7970971 | Plant site | Flowing north towards mining lease. | |
| PSSW8 | 765051 | 7971812 | Plant site | Flowing North East from tailings dam. | |
| PSSW9 | 765308 | 7971722 | Plant site | Flowing East from tailings dam. | |
| ELSW2 | 772273 | 7988341 | Electric light | Downstream of extraction pit. | |
| RDSW3 | 787127 | 8015155 | Red Dam | Downstream of extraction pit. | |
| PSSW4 | 765069 | 7971347 | Plant site | Flowing east downstream of tailings dam. | |
| JPSW5 | 784936 | 7913590 | Jubilee Plunger | Downstream of extraction pit. | |
| JPSD1 | 784315 | 7914405 | Jubilee Plunger | Spillway of ROM sediment dam | |

| Monitoring Point | Location (GDA94 MGA z54) | | Contaminant Source and Location | Receiving Waters Description | Monitoring Frequency |
|---|---|---|---|---|---|
| | Easting | Northing | | | |
| JPSD2 | 784193 | 7914135 | Jubilee Plunger | Spillway of WRD sediment dam | |
| **Reference sites[1]** | | | | | |
| PSSW1-Reference | 763113 | 7971189 | Plant Site reference | Upstream of mining activities. | Upon commencement of release and thereafter weekly during release. Upon commencement of flow of river and weekly thereafter whilst river is flowing. |
| RDSW1-Reference | 786261 | 8015157 | Red dam reference | Upstream of mining activities. | |
| ELSW1-Reference | 772080 | 7988855 | Electric light reference | Upstream of mining activities. | |
| RDSW2-Reference | 785965 | 8014265 | Red dam reference | Upstream of mining activities. | |
| JPSW04-Reference | 784205 | 7913122 | Jubilee Plunger reference 1 | Upstream of mining activities. | |
| JPSW09-Reference | 784004 | 7913690 | Jubilee Plunger reference 2 | Upstream of mining activities. | |

1 Reference sites must:

(a) be from the same bio-geographic and climatic region; and
(b) have similar geology, soil types and topography; and
(c) contain a range of habitats similar to those at the test sites; and
(d) have a similar flow regime; and
(e) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site

*Notes:*

*a) The reference / upstream monitoring point should be within 300m the release point.*
*b) The downstream point should not be greater than 500m from the release point.*
*c) The data from reference monitoring points must not be used where they are affected by releases from other mines.*

***Table C2 (Contaminant Release and Trigger Limits)***

| Quality Characteristic | Contaminant Release Limit[6] (mg/L unless otherwise specified) | Trigger Levels[6] (mg/L unless otherwise specified) |
|---|---|---|
| Electrical Conductivity | 1000[2]µS/cm | 500[1]µS/cm |
| pH (pH Unit) | 4.0 [3] (minimum)<br>9.0[3] (maximum) | 6.0[4] (minimum)<br>7.5[4] (maximum) |
| Turbidity (NTU) | Reference value | 80th percentile of reference value |
| Suspended Solids | 50 or reference value, whichever is higher | 80th percentile of reference value |
| Hardness | For interpretation purposes | |
| Sulphate ($SO_4^{2-}$) | 1000[3] | 80th percentile of reference value |
| Aluminium | 5[3] | 0.055[4] |
| Antimony | Reference value | 80th percentile of reference value |
| Arsenic | 0.5[3] | 0.013[4] |
| Bismuth | Reference value | 80th percentile of reference value |

| Quality Characteristic | Contaminant Release Limit[6] (mg/L unless otherwise specified) | Trigger Levels[6] (mg/L unless otherwise specified) |
|---|---|---|
| Cadmium | 0.01[3] | 0.0002[4] |
| Chromium | 1[3] | 0.001[4] |
| Cobalt | 1[3] | 0.0028[4] |
| Copper | 1[3] | 0.0014[4] |
| Iron | Reference value | 0.3[4] |
| Lead | 0.1[3] | 0.0034[4] |
| Manganese | - | 1.9[4] |
| Mercury | 0.002[3] | 0.0006[4] |
| Nickel | 1[3] | 0.011[4] |
| Selenium | 0.02[3] | 0.011[4] |
| Silver | Reference value | 0.00005[4] |
| Tin | Reference value | 0.003[4] |
| Uranium | 0.2[3] | 80th percentile of reference value |
| Zinc | 20[3] | 0.008[4] |
| Cyanide (Free) | 0.5[5] | 0.007[4] |
| Cyanide (WAD) | For interpretation purposes | |

1 Numbers based on table G4 of the Queensland Water Quality Guidelines.
2 Number based on Hart, 2008 Review of the Fitzroy River Water Quality Issues. Water Science Pty Ltd, November 2008
3 Numbers based on ANZECC 2000 Livestock Drinking Water Guidelines.
4 Numbers based on ANZECC 2000 Ecosystems (95%) moderately to slightly disturbed.
5 Number based on Cyanide Management guideline October 2008.
6 All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
7 The list of quality characteristics required to be monitored as per Table C2 will be reviewed once the results of the monitoring data is gathered, or becomes, available and if it is determined that there is no need to monitor for certain individual quality characteristics these can be removed from Table C2.
8 SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
9 LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

***Table C3 (Contaminant Release During Flow Events)***

| Receiving Water Description | Release Point | Gauging Station Description | Location (GDA94 MGA z54) | | Minimum Flow in Receiving Water Required for a Release Event | Flow Recording Frequency |
|---|---|---|---|---|---|---|
| | | | Easting | Northing | | |
| PSSW1-Reference | 200m downstream of gauging location. | Located in ephemeral creek upstream of mining operation. | 7971189 | 763113 | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20th /30th percentiles of the natural flow<br>The volume of flow can be determined by height of water or flow. The actual flow must | Continuous (minimum daily) |

| Receiving Water Description | Release Point | Gauging Station Description | Location (GDA94 MGA z54) | | Minimum Flow in Receiving Water Required for a Release Event | Flow Recording Frequency |
|---|---|---|---|---|---|---|
| | | | Easting | Northing | | |
| | | | | | be a quantifiable measure. Example: > or = 5 $m^3$/sec | |
| RDSW1-Reference | On mining lease. | Located in ephemeral creek upstream of mining operation. | 8015157 | 786261 | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20th /30th percentiles of the natural flow The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure. Example: > or = 5 $m^3$/sec | Continuous (minimum daily) |
| ELSW1-Reference | At the base of collection dam. | Located in ephemeral creek upstream of mining operation. | 7988855 | 772080 | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20th /30th percentiles of the natural flow The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure. Example: > or = 5 $m^3$/sec | Continuous (minimum daily) |
| RDSW2-Reference | 200m south of mining lease boundary. | Located in ephemeral creek upstream of mining operation. | 8014617 | 786865 | Depending on individual catchment this minimum flow trigger will be either the release comprising less than 20th /30th percentiles of the natural flow The volume of flow can be determined by height of water or flow. The actual flow must be a quantifiable measure. Example: > or = 5 $m^3$/sec | Continuous (minimum daily) |

**Receiving Environment Monitoring and Contaminant Trigger Levels**

**(C2-1)** The quality of the receiving waters must be monitored at the locations and frequency specified in Table C1 for each quality characteristic stated in Table C2.

**(C2-2)** If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table C2 the environmental authority holder must compare the downstream results to the reference results in the receiving waters and:

(a) if the level of contaminants at the downstream site is the same or a lower value than the reference value for the quality characteristic then no action is to be taken; and

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:

(i) details of the investigations carried out; and

(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with* (C2-2)(*b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

**(C2-3)** The release of contaminants to waters must not exceed the contaminant release limits stated in Schedule C – Table 2 (Contaminant Release and Trigger Limits) for each quality characteristic.

**Stream Sediment Contaminant Levels**

**(C3-1)** Sediment quality of receiving waters and reference waters must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) at the monitoring locations defined in Table C1 and Schedule I – Map 2 – Surface Water, Groundwater and Sediment Monitoring Sites for the Plant Site (ML3409, ML3540 and ML3591), Map 3 – Surface Water, Groundwater and Sediment Monitoring Sites for Electric Light (ML3548), Map 4 – Surface Water and Sediment Monitoring Sites for Red Dam (ML30203) and Map 5 – Surface Water and Sediment Monitoring Sites for Jubilee Plunger (ML3374) and for the parameters defined in Table C4.

**(C3-2)** If quality characteristics of the release exceed any of the trigger levels specified in Table C4 during a release event, the environmental authority holder must compare the results of the downstream site to the data from reference monitoring sites and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; and

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:

(i) details of the investigations carried out; and

(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with* (C3-2) *b (ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

**(C3-3)** If an exceedance in accordance with condition (C3-2)(b)(ii) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

**(C3-4)** The release of contaminants to water must not result in an exceedance of sediment contaminant limits stated in Table C4 when measured at the monitoring points specified in Table C1 for each quality characteristic.

**(C3-5)** All stream sediment sampling must be undertaken in accordance with AS 5667.12 Guidance on Sampling of Bottom Sediments of 1998.

***Table C4 - Stream sediment trigger and contaminant levels***

| Parameter | Contaminant Limit (mg/kg unless otherwise specified) | Trigger Limit (mg/kg unless otherwise specified) |
|---|---|---|
| Antimony | 25[3] or three times the reference value[1], whichever is higher | Reference value[1] or 2[2], whichever is higher. |
| Arsenic | 70[3] or three times the reference value[1], whichever is higher | Reference value[1] or 20[2], whichever is higher. |
| Bismuth | Three times the reference value[1] | Reference[1] |
| Cadmium | 10[3] or three times the reference value[2], whichever is higher | Reference value[1] or 1.5[3], whichever is higher. |
| Cobalt | Three times the reference value[1] | Reference[1] |
| Copper | 270[3] or three times the reference value[1], whichever is higher | Reference[1]or 65[2], whichever is higher. |
| Lead | 220[3] or three times the reference value[1], whichever is higher | Reference value[1] or 50[2] whichever is higher. |
| Mercury | 1[3] or three times the reference value[1], whichever is higher | Reference value[1] or 0.15[2] whichever is higher. |
| Nickel | 52[3] or three times the reference value[1], whichever is higher. | Reference value[1]or 21[2], whichever is higher |
| Selenium | Three times the reference value[1] | Reference[1] |
| Tin | Three times the reference value[1] | Reference value[1] |
| Zinc | 410[3] or three times the reference value[1], whichever is higher. | Reference value[1] or 200[2], whichever is higher. |
| Total Cyanide | 50[4] or three times the reference value[1] whichever is higher. | Reference value[1] or 25[4] whichever is higher. |
| Particle size distribution on all samples for interpretation purposes | | |

1 Reference sites are defined in Table 1.

2 ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments.

3 ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments.

4 The 25mg/kg is based on half of GHD, 1993. Guidelines for Assessment and Management of Land Contamination. Dept of Mineral and Energy Draft Technical Guidelines for Environmental Management for Mining in Qld.

5 The 50mg/kg is based on the GHD, 1993. Guidelines for Assessment and Management of Land Contamination. Dept of Mineral and Energy Draft Technical Guidelines for Environmental Management for Mining in Qld.

### Receiving Environment Monitoring Program (REMP)

**(C4-1)** A REMP must be developed and implemented by 20 August 2010 to monitor and record the effects of the release of contaminants on the receiving environment periodically and whilst contaminants are being discharged from the site, with the aims of identifying and describing the extent of any adverse impacts to local environmental values, and monitoring any changes in the receiving water. A copy of the REMP must be provided to the administering authority prior to its implementation and due consideration given to any comments made on the REMP by the administering authority. For the purposes of the REMP, the receiving environment is the waters of the downstream environment and connected waterways within 2km downstream of the release.

**(C4-2)** The REMP must address (but not necessarily be limited to) the following:

(a) description of potentially affected receiving waters including key communities and reference water quality and sediment characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality); and

(b) description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the Environmental Protection (Water) Policy); and

(c) any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed; and

(d) water and sediment quality targets within the receiving environment to be achieved, and clarification of

contaminant concentrations or levels indicating adverse environmental impacts during the REMP.

(e) monitoring for any potential adverse environmental impacts caused by the release;

(f) monitoring of stream flow and hydrology;

(g) monitoring of toxicants should consider the indicators specified in Table 3 to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ 2000 guidelines for slightly to moderately disturbed ecosystems;

(h) monitoring of physical chemical parameters as a minimum those specified in Table 2 (in addition to dissolved oxygen saturation and temperature);

(i) monitoring biological indicators (for macroinvertebrates in accordance with the administering authorities' monitoring and sampling manual (AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.*1 Guidance on Sampling of Bottom Sediments*) for permanent, semi-permanent water holes and water storages;

(j) the locations of monitoring points (including the locations specified in Table 8 which are reference/upstream and downstream impacted sites for each release point);

(k) the frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within 2 years (depending on wet season flows) in accordance with the *Queensland Water Quality Guidelines*. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;

(l) specify sampling and analysis methods and quality assurance and control;

(m) any historical datasets to be relied upon;

(n) description of the statistical basis on which conclusions are drawn; and

(o) any spatial and temporal controls to exclude potential confounding factors.

**(C4-3)** A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions C4-2 must be prepared annually, by 1 July, and made available on request to the administering authority. This should include an assessment of reference water quality, any assimilative capacity for those contaminants monitored and the suitability of current discharge limits to protect downstream environment values.

**Monitoring of Water Storage Quality**

**(C5-1)** Water storages stated in Table C5 must be monitored for the water quality characteristics specified in Table C6 at the monitoring locations and at the monitoring frequency specified in Table C5.

**(C5-2)** In the event that water storages defined in Table C5 exceed the contaminant limits defined in Table C6, the holder of the environmental authority must implement measures to prevent access to waters by all livestock and minimise access by native fauna.

***Table C5 (Water Storage Monitoring)***

| Water Storage Description | Location (GDA94 MGA z54) | | Monitoring Location | Frequency of Monitoring |
|---|---|---|---|---|
| | Easting | Northing | | |
| Tailings Storage Facility (TSFWS1 to TSFWS6) | 764294<br>764295<br>764555<br>764855<br>764976<br>764840 | 7971299<br>7971535<br>7971644<br>7971656<br>7971575<br>7971248 | Tailings return pump sampling point. | Quarterly |
| Red Dam Pit (RDPWS1 to RDPWS4) | 786587<br>786549<br>786552<br>785866 | 8014989<br>8015020<br>8015102<br>8015080 | Within the pit. | Quarterly |
| Electric Light Pit (ELPWS1-ELPWS4) | 772219<br>772417<br>772370<br>772164 | 7988826<br>7989168<br>7989195<br>7988867 | Within the pit. | Quarterly |
| Black Blow Midapa Pit (BBPWS1- BBPWS6) | 764911<br>764974<br>765028<br>765027<br>764971<br>764917 | 7971283<br>7971273<br>7971300<br>7971323<br>7971325<br>7971313 | Within the pit. | Quarterly |
| Jubilee Plunger Pit | 783997.9<br>783892.3<br>784009.5<br>784115.1 | 7914500<br>7914429<br>7914255<br>7914326 | Within the pit. | Quarterly |

***Table C6 (Onsite Water Storage Contaminant Limits)***

| Parameter | Test Value | Contaminant Limit (mg/L unless otherwise specified) |
|---|---|---|
| pH (pH unit) | Range | Greater than 5, less than 9[1] |
| EC | Maximum | 5970[1] |
| Aluminium | | 5[1] |
| Antimony | | Reference value |
| Arsenic | | 0.5[1] |
| Bismuth | | Reference value |
| Cadmium | | 0.01[1] |
| Cobalt | | 1[1] |
| Copper | | 1[1] |
| Fluoride | | 2[1] |
| Lead | | 0.1[1] |
| Nickel | | 1[1] |
| Selenium | | 0.02[1] |
| Sulphate | | 1000[1] |
| Zinc | | 20[1] |
| WAD Cyanide | | 50[2] |

1 Contaminant limit based on ANZECC (2000) stock water quality guidelines.

2 Contaminant limit based on the Guideline Cyanide Management May 2008.

**Groundwater**

**(C6-1)** Groundwater quality and level must be monitored at the locations and frequencies defined in Table C7 and Schedule I – Maps for parameters identified in Table C8.

**(C6-2)** If quality characteristics of groundwater from compliance bores identified in Table C7 exceed any of the trigger levels stated in Table C8, the environmental authority holder must compare the compliance monitoring bore results to the reference bore results and:

(a) if the level of contaminants at the downstream site does not exceed the reference monitoring site data, then no action is to be taken; and

(b) if the level of contaminants at the downstream site is greater than the reference monitoring site data, complete an investigation in accordance with the ANZECC & ARMCANZ 2000 methodology, into the potential for environmental harm and provide a written report to the administering authority within 3 months, outlining:

(i) details of the investigations carried out; and

(ii) actions taken to prevent environmental harm.

*Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with C6-2(b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

**(C6-3)** If an exceedance in accordance with condition C6-2 (b)(ii) is identified, the holder of the authority must notify the administering authority within 14 days of receiving the result.

**(C6-4)** Groundwaters from bores identified in Table C7, must not exceed any of the limits defined in Table C8.

**(C6-5)** Groundwater monitoring bores must be constructed and operated in accordance with methods prescribed in

the latest edition of the Agriculture and Resource Management Council of Australia and New Zealand manual titled *Minimum Construction Requirements for Water Bores in Australia.*

**(C6-6)** Annual groundwater monitoring reports analysing groundwater chemistry and hydro-geological status of all groundwater bores and groundwater conditions must be prepared and submitted to the administering authority with each annual return.

**(C6-7)** Groundwater levels must be monitored and ground level fluctuations in excess of 1m per year, not resulting from the pumping of licensed bores the administering authority must be notified within 14 days following completion of monitoring.

***Table C7 - Groundwater Monitoring Locations and Frequency***

| Monitoring Point | Location (GDA94 MGA z54) | | Surface RL[1] (m) or AHD | Monitoring Frequency |
|---|---|---|---|---|
| | Easting | Northing | | |
| **Compliance Bores** | | | | |
| **Plant Site Leases** | | | | |
| PSMB1 | 764148 | 7971110 | 326.691 | Quarterly |
| PSMB2 | 765228 | 7971273 | 309.584 | |
| PSMB3 | 763461 | 7971672 | 319.429 | |
| PSMB4 | 763298 | 7971539 | 316.711 | |
| PSMB5 | 764687 | 7971667 | 324.859 | |
| PSMB7 | 764973 | 7971528 | 317.468 | |
| PSMB8 | 765204 | 7971521 | 320.687 | |
| PSMB9 | 764881 | 7971197 | 319.439 | |
| PSMB10 | 764651 | 7971201 | 319.181 | |
| PSMB11 | 763651 | 7971551 | 330.795 | |
| PSMB12 | 763873 | 7971394 | 326.401 | |
| PSMB13 | 763401 | 7971468 | 319.914 | |
| PSMB14 | 763399 | 7971467 | 319.678 | |
| **Electric Light** | | | | |
| ELMB1 | 772455 | 7989229 | 324.845 | Quarterly |
| ELMB2 | 772264 | 7988601 | 313.625 | |
| **Red Dam** | | | | |
| RDMB1 | 785974 | 8015064 | 301.905 | Quarterly |
| RDMB2 | 786995 | 8015060 | 281.019 | |
| **Reference Bores[2]** | | | | |
| **Plant Site Leases** | | | | |
| PSMB6 | 764891 | 7971672 | 320.127 | Quarterly |
| **Electric Light** | | | | |
| ELMB3 | 772621 | 7989282 | 319.982 | Quarterly |
| **Red Dam** | | | | |
| RDMB3 | 786878 | 8014924 | 282.621 | Quarterly |

1 RL must be measured to the nearest 5cm from top of bore casing.

2 Reference sites must:

(a) be from the same bio-geographic and climatic region; and
(b) have similar geology, soil types and topography; and
(c) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site

***Table C8 - Groundwater Contaminant and Trigger Limits***

| Quality Characteristic | Contaminant Release Limit[6] (mg/L unless otherwise specified) | Trigger Levels[6] (mg/L unless otherwise specified) |
|---|---|---|
| Electrical Conductivity | 1000[2] (µS/cm) | 500[1] (µS/cm) |
| pH (pH Unit) | 4.0[3] (minimum)<br>9.0[3] (maximum) | 6.0[4] (minimum)<br>7.5[4] (maximum) |
| Standing Water Level | For interpretation purposes | |
| Chloride | For interpretation purposes | |
| Sulphate ($SO_4^{2-}$) | 1000[3] | 80th percentile of the reference |
| Aluminium | 5[3] | 0.055[4] |
| Antimony | Reference value | 80th percentile of reference value |
| Arsenic | 0.5[3] | 0.013[4] |
| Bismuth | Reference value | 80th percentile of reference value |
| Cadmium | 0.01[3] | 0.0002[4] |
| Chromium | 1[3] | 0.001[4] |
| Cobalt | 1[3] | 0.0028[4] |
| Copper | 1[3] | 0.0014[4] |
| Iron | Reference value | 0.3[4] |
| Lead | 0.1[3] | 0.0034[4] |
| Manganese | - | 1.9[4] |
| Mercury | 0.002[3] | 0.0006[4] |
| Nickel | 1[3] | 0.011[4] |
| Selenium | 0.02[3] | 0.011[4] |
| Silver | Reference value | 0.00005[4] |
| Tin | Reference value | 0.003[4] |
| Uranium | 0.2[3] | 80th percentile of reference value |
| Zinc | 20[3] | 0.008[4] |
| Cyanide (Free) | 0.5[5] | 0.007[4] |
| Cyanide (WAD) | For interpretation purposes | |

1 Numbers based on table G.4 of the Queensland Water Quality Guidelines.
2 Number based on Hart, 2008 Review of the Fitzroy River Water Quality Issues. Water Science Pty Ltd, November 2008.
3 Numbers based on ANZECC 2000 Livestock Drinking Water Guidelines.
4 Numbers based on ANZECC 2000 Ecosystems (95%) moderately to slightly disturbed.
5 Number based on Cyanide Management guideline May 2008.
6 All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
7 The list of quality characteristics required to be monitored as per Table C2 will be reviewed once the results of the monitoring data is gathered, or becomes, available and if its is determined that there is no need to monitor for certain individual quality characteristics these can be removed from Table C2.
8 SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).

**Water General**

**(C7-1)** All determinations of water quality must be:

(a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;

(b) made in accordance with 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 2 hours of each other (reference/downstream) where possible; and

(d) carried out on representative samples.

(e) laboratory testing must be undertaken using a laboratory accredited (e.g. NATA) for the method of analysis being used.

**Water Monitoring Reporting**

**(C8-1)** 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 when requested:

(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.

**(C8-2)** The release of contaminants directly or indirectly to waters:

(a) must not produce any visible discolouration of receiving waters; or

(b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

**Water Management Plan**

**(C9-1)** A Water Management Plan must be developed and implemented by 1 September 2010 that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

**(C9-2)** The Water Management Plan must be developed in accordance with administering authority *Guideline for Preparing a Water Management Plan 2009* or any updates that become available from time to time and must include at least the following components:

(a) contaminant source study;

(b) site water balance and model;

(c) water management system;

(d) saline and metalliferous drainage prevention and management measures;

(e) acid rock drainage prevention and management measures (if applicable);

(f) emergency and contingency planning; and

(g) monitoring and review.

**(C9-3)** Each year the holder of the environmental authority must undertake a review of the Water Management Plan prior to the wet season (and no later than 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective *measures, practices or procedures are in place so that the mine is* operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

**(C9-4)** A copy of the Water Management Plan and/or a review of the Water Management Plan must be provided to the administering authority on request.

**Saline, Acid Rock and Metalliferous Drainage**

**(C10-1)** The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline, acid rock and/or metalliferous drainage.

**Stormwater, Sediment and Erosion Controls**

**(C11-1)** 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 waters and the contamination of storm water.

**(C11-2)** The Erosion and Sediment Control Plan must provide for at least the following storm water management functions:

(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 collected; and treated, reused, or released in accordance with the conditions of this environmental authority;

(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 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.

**(C11-3)** Erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment and contamination of storm water.

**(C11-4)** 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.

**(C11-5)** Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

**Sewage Treatment**

**(C12-1)** Any release from the sewage treatment system must not result in environmental harm.

**Water Reuse**

**(C13-1)** Mine affected water from Jubilee Plunger Pit must not be used by a third party unless written consent has been obtained from the third party.

**(C13-2)** Records of all transferred mine affected water must be maintained and provided to the administering authority upon request. These records must include the following details:

(a) The source of the transferred water;

(b) The quantity (volume) of water transferred;

(c) The details for the third-party that will receive the transferred water;

(d) The quality of the transferred water, including an assessment against the quality limits specified in Table C6 (Onsite Water Storage Contaminant Limits);

(e) The locations where the quality of the water to be transferred was measured; and

(f) The date of the transfer.

**(C13-3)** A copy of the written consent must be kept by the holder of this environmental authority and made available to the administering authority upon request.

**Seepage Management**

**(C14-1)** The holder of this environmental authority must install, operate and maintain Seepage Management Systems for the Tailings Storage Facility to prevent seepage impacts to groundwater beyond the Tailings Storage Facility.

**(C14-2)** The Seepage Management Systems required by condition C14-1 must, at a minimum:

(a) Include seepage control measures designed, operated and maintained to minimise seepage from the Tailings Storage Facility;

(b) Include measures to recover and reuse supernatant and seepage water;

(c) Include measures to identify, monitor and manage seepage migration and groundwater mounding associated with the Tailings Storage Facility operations;

(d) Include monitoring and verification measures to assess whether seepage mitigation and management measures are achieving compliance with Table C8 limits at the Table C7 monitoring bores; and

(e) Include detection and assessment measures capable of identifying seepage migration, groundwater mounding, and changes in groundwater quality attributable with the Tailings Storage Facility.

**(C14-3)** By 1 March 2027, the holder of this environmental authority must implement and maintain a Seepage Management Plan (SMP), developed and documented by an appropriately qualified person. The SMP must, at a minimum:

(a) Describe the Seepage Management Systems required by condition C14-1;

(b) Identify operational and monitoring measures implemented to prevent seepage impacts to groundwater beyond the Tailings Storage Facility;

(c) Include monitoring, assessment and response measures to ensure monitoring groundwater levels and groundwater quality at the monitoring bores listed in Table C7 comply with the limits specified in Table C8;

(d) Include a framework for assessing groundwater level and groundwater quality trends to identify increasing seepage impacts or groundwater mounding;

(e) Include measures to intercept and manage seepage to ensure groundwater levels and groundwater quality at the monitoring bores listed in Table C7 comply with the limits specified in Table C8;

(f) Include measures to assess the need for additional control measures (e.g. interception bores or interception trenches), and an action plan for implementation of additional seepage interception or control measures where necessary;

(g) Include a map/s showing the location and type of seepage control measures;

(h) Be reviewed annually to assess the effectiveness of seepage management measures, and record any improvements undertaken; and

(i) Record the volumes of seepage collected and/or handled as part of the seepage management system.

**(C14-4)** The SMP required under condition C14-3 must be made available to the administering authority upon request.

**END OF CONDITIONS FOR SCHEDULE C**

## Schedule D – Noise and Vibration

### Noise

**(D1-1)** Ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise limits to be exceeded.

**(D1-2)** When requested by the administering authority, noise monitoring and recording must be undertaken within a reasonable and practicable 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 notified within 14 days to the administering authority following completion of monitoring.

**(D1-3)** 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 percentiles and T = 15 mins);

(b) background noise LA90,T;

(c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;

(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;

(h) if the complaint concerns low frequency noise, one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range; and

**(D1-4)** The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's *Noise Measurement Manual* or the most recent version of AS1055 Acoustics – description and measurement of environmental noise.

***Table D1 Noise Limits***

| Sensitive Place | | | | | | |
|---|---|---|---|---|---|---|
| Noise Level dB(A) measured as: | Monday to Saturday | | | Sundays and Public Holidays | | |
| | 7am to 6pm | 6pm to 10pm | 10pm to 7am | 9am to 6pm | 6pm to 10pm | 10pm to 9am |
| $L_{A10, adj, 10 mins}$ | BG+5 | BG+5 | BG+3 | BG+5 | BG+5 | BG+0 |
| $L_{A1, adj, 10 mins}$ | BG+10 | BG+10 | BG+5 | BG+10 | BG+10 | BG+5 |

### Air Blast and Ground Vibration

**(D2-1)** 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.

***Table D2 Air Blast Overpressure Level Blasting Noise Limits***

| Blasting Noise Limits | Sensitive or Commercial Place |
|---|---|
| Airblast overpressure level | 115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time |
| Ground vibration peak particle velocity | 5mm/second peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/second peak particle velocity at any time |

| | |
|---|---|
| Low frequency noise | At or below 200 Hz measured on the linear weighting scale indoor sound pressure level of 50 dB (Linear), or an outdoor sound pressure level of 55 dB (Linear) |

**(D2-2)** The ground vibration transducer (or array) must be attached to a buried block so as to ensure good coupling with the ground. The mass shall be buried so that its upper most surface is at the same level as the ground surface.

**(D2-3)** The ground vibration transducer (or array) must be placed at the same point at which the air blast is monitored.

**(D2-4)** When requested by the administering authority, air blast and vibration monitoring and recording must be undertaken within a reasonable and practicable 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 notified within 14 days to the administering authority following completion of monitoring.

**(D2-5)** The method of measurement and reporting of vibration levels must comply with the latest edition of the administering authority's *Noise and vibration from blasting guideline.*

**END OF CONDITIONS FOR SCHEDULE D**

## Schedule E – Waste

### Fire Prevention

**(E1-1)** The holder of this environmental authority must not:

(a) burn waste or allow waste to be burnt at the licensed place covered by this environmental authority other then cyanide transport and handling package material; or

(b) remove waste from the licensed place covered by this environmental authority and burn such waste elsewhere except in accordance with the requirements of the *Environmental Protection Act 1994*.

**(E1-2)** Tyres stored awaiting disposal or transport for take-back and recycling or waste-to-energy options must be stockpiled in stable stacks in volumes less than 500 equivalent passenger-tyre units (EPU), less than 3m in height and 200 sq m in area and at least 10m from any other tyre storage area or combustible or flammable material, including vegetation.

**(E1-3)** All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of any tyre storage area.

### Off Site Movement of Regulated Wastes

**(E2-1)** Where regulated waste is removed from the licensed place (other than by a release as permitted under another schedule of this environmental authority), the holder of this environmental authority must ensure that:

(a) the removal and transport of such wastes, where it constitutes an environmentally relevant activity under the *Environmental Protection Regulation 2008*, is carried out by a person licensed for carrying out this activity under the *Environmental Protection Act 1994*; and

(b) records are kept of the following:

(i) the date, quantity and type of waste removed;

(ii) name of the regulated waste transporter that removed the waste; and

(iii) the intended treatment/disposal destination of the waste.

*Note: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this environmental authority condition.*

**(E2-2)** Regulated waste awaiting removal may be temporarily stored on site.

**(E2-3)** Each container of regulated waste stored awaiting movement off-site must be clearly marked to identify the contents.

### Notification of Improper Disposal of Regulated Waste

**(E3-1)** If the holder of this environmental authority becomes aware that a person has removed regulated waste from the licensed place and disposed of the regulated waste in a manner which is not authorised by this environmental authority or improper or unlawful, then the holder of this environmental authority must, as soon as practicable, notify the administering authority of all relevant facts, matters and circumstances known concerning the disposal.

**(E3-2)** Regulated waste generated by maintenance of plant and equipment and absorbent materials used to clean up spills must only be disposed off at a facility whose operator is permitted to accept such waste in accordance with the requirements of the *Environmental Protection Act 1994.*

### Other Wastes

**(E4-1)** The only wastes that may be disposed of on site are those authorised under this environmental authority.

### General Waste Disposal

**(E5-1)** All waste (other than mined waste rock and tailings or their derivatives) produced as part of the mining operation must be transported to the Georgetown licensed waste disposal facility and disposed of correctly at

a minimum on a weekly basis.

**(E5-2)** The environmental authority holder shall not cause, allow or permit any waste generated outside the mine to be received at the mine for storage, treatment, processing or disposal.

**Tailings Management**

**(E6-1)** Construction of the tailings storage facility must be in accordance with the following:

(a) the design criteria set out under Schedule G and Water Management Plan of the tailings dam; and

(b) all investigation and exploration drill holes in the area of the tailings storage facility must be backfilled with concrete to the total depth of the hole.

**(E6-2)** The reclamation of tailings from the tailings storage facility for processing on site must be:

(a) located in the area identified in Schedule I - Map 9 (Dry Stack Tailings Project Layout); and

(b) not exceed an area of 18 hectares.

**(E6-3)** Tailings disposal must be in accordance with the following:

(a) all tailings material must be progressively characterised during disposal for net acid producing potential (NAPP) and the following contaminants: arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, nickel, tin, zinc and fluoride;

(b) tailings characterisation must be undertaken at a minimum rate of 8 regularly spaced samples per 100,000 tonnes of tailings material discharged;

(c) records must be kept of the tailings disposal to indicate locations and characteristics of tailings stored within the tailings storage facility;

(d) where the net acid producing potential of tailings material has not been conclusively determined geochemical kinetic testing must be conducted to indicate oxidation rates, potential reaction products and effectiveness of control strategies; and

(e) maximum duration of surface exposure of potentially acid producing tailings to oxidising conditions is one (1) month.

**(E6-4)** The tailings dam liquor must be sampled for total and WAD cyanide fortnightly.

**(E6-5)** WAD cyanide concentrations in the tailings surface liquor must not exceed 50mg/l.

**(E6-6)** The environmental authority holder must immediately commence cyanide destruction if total cyanide concentrations in the tailings surface liquor exceed 10mg/l.

**(E6-7)** A cyanide balance must be prepared and updated monthly to ensure that cyanide treatment and recovery is maximised.

**Waste Rock Management**

**(E7-1)** The holder of the environmental authority must develop and implement a waste rock management plan, together with the certification of an appropriately qualified person that the plan is compliant with the conditions in this environmental authority and in accordance with best practice environmental management. The waste rock management plan must incorporate the following items;

(a) effective characterisation of the waste rock and spoil to predict under the proposed placement and disposal strategy the quality of runoff and seepage generated concerning potentially environmentally significant effects including salinity, acidity, seepage, leachate, alkalinity and dissolved metals, metalloids and non-metallic inorganic substances;

(b) a program of progressive sampling and characterisation to identify dispersive and non-dispersive spoil and the salinity, acid and alkali producing potential and metal concentrations of waste rock;

(c) a materials balance and disposal plan demonstrating how potentially acid forming and acid forming waste rock will be selectively placed and/or encapsulated to minimise the potential generation of acid

mine drainage;

(d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming and acid forming waste rock;

(e) how often the performance of the plan will be assessed;

(f) the indicators or other criteria on which the performance of the plan will be assessed;

(g) a rehabilitation strategy that must be in accordance with the administering authority's *Guideline for Rehabilitation Requirements for Mining Projects* to ensure waste rock dumps are safe, non polluting, self sustaining and geotechnical and geochemical stable; and

(h) monitoring or rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of the placed materials, including the prevention and management of acid mine drainage, erosion minimisation and establishment of vegetation cover.

**(E7-2)** Research undertaken in accordance with condition number (E7-1) must be finalised at least 36 months prior to mine closure.

**Waste Rock**

**(E8-1)** Waste rock dumps must be constructed to prevent any water other than incidental rainfall from entering the waste rock dump.

**(E8-2)** Any seepage from waste rock dumps on ML3409, ML3540, ML3591, ML3548 and ML30203 must be effectively intercepted and treated at the licensed place.

**(E8-3)** All seepage from waste rock dumps located on ML3374 must be captured and discharged to the open pit.

**(E8-4)** No ore or waste rock characterised as having acid forming potential can be mined or disposed of as part of the mining activity.

**END OF CONDITIONS FOR SCHEDULE E**

## Schedule F – Land

### Rehabilitation Landform Criteria

**(F1-1)** All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with Schedule F – Table F1 and F2.

***Table F1 (Final Land Use and Rehabilitation Approval Schedule)***

| Item | Pits | Pits (previously rehabilitated) | Waste Dumps | TSF, diversion drains and Western Cutback | Infrastructure, ROM, borrow pits and soil stockpile | Roads & tracks | Raw water pond |
|---|---|---|---|---|---|---|---|
| **Tenure ID** | **ML3548 ML30203 ML3409 ML3374** | **ML3540 ML3591** | **ML 3548, ML30203 ML3374** | **ML3540** | **ML3540 ML3374 ML3591** | **ML3548 ML30203 ML3409 ML3374 ML3358 ML3591 ML3540 ML30192 ML30193 ML30195 ML30196 ML30201** | **ML3540** |
| **Projective surface area (ha)** | 7 | 28 | 9.5 | 16.3 | 16.8 | 10 | 1 |
| **Post mine land use** | Void | Grazing/Native Bushland | Grazing/Native Bushland | Grazing/ Native Bushland | Grazing/ Native Bushland | Grazing/ Native Bushland | Grazing and stock watering |
| **Post mine land classification** | VIII | No more than 10% of all disturbed land is class VII | No more than 30% of all disturbed land is class VII | No more than 10% of all disturbed land is class VII | No more than 10% of all disturbed land is class VII | No more than 30% of all disturbed land is class VII | VII |
| **Cover (%)** | N/A | 60 | 60 | 60 | 60 | 60 | N/A |
| **Species** | N/A | Native shrubs, tree and groundcover species | Native shrubs, tree and groundcover species | Native shrubs, tree and groundcover species | Native shrubs, tree and groundcover species | Native shrubs, tree and groundcover species | N/A |

***Table F2 (Landform Design)***

| Disturbance Type | Slope Range (%) | Projective Surface Area (ha) |
|---|---|---|
| Residual void Black Blow | N/A | 1 |
| Residual void Electric Light | | 1.4 |
| Residual void Red Dam | | 2.6 |
| Residual void Jubilee Plunger | | 2 |
| Waste Dump Electric Light – upper surface | <2 | 0.4 |
| Waste Dump Electric Light – batters | 20 | 0.1 |
| Waste Dumps Red Dam – upper surface | <2 | 2 |
| Waste Dumps Red Dam – batters | 20 | 0.5 |
| Waste Dump Jubilee Plunger | 20 | 6.5 |
| Previously back-filled pits - rehabilitated | <5 | 28 |
| TSF - upper surface, diversion drain and Western Cutback | <2 | 13.8 |
| TSF – embankment and spillway | <40 | 2.5 |
| Infrastructure, ROM, borrow pits, soil stockpile | 1 to 7 | 16.8 |
| Raw water pond | N/A | 1 |
| Internal roads and pipelines | Natural slopes | 10 |

**(F1-2)** Progressive rehabilitation must commence when operational areas become available in accordance with the plan of operations.

**(F1-3)** Rehabilitated areas must be managed to minimise the proliferation of species not consistent with rehabilitation objectives.

**(F1-4)** All land subject to mining activities must be rehabilitated to:

(a) a stable landform and with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;

(b) a safe landform, which is non-polluting, geo-chemically and geo-technically stable.

(c) ensure that all land is reinstated to the pre-disturbed land use and suitability class (excluding open pits);

(d) 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

(e) 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.

**(F1-5)** Maintenance of rehabilitated areas must take place to ensure and demonstrate:

(a) stability of landforms;

(b) erosion control measures remain effective;

(c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;

(d) plants show healthy growth and recruitment is occurring; and

(e) rehabilitated areas are free of any declared pest plants.

**(F1-6)** 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 Schedule F – Table F1 and F2 and in the Post Mine Land Use Plan; and

(d) written agreement is obtained from the landowner/holder and administering authority.

**(F1-7)** Topsoil and subsoils must be stripped and stockpiled ahead of mining to a depth determined from soil surveys to ensure that useable soil resources are preserved for rehabilitation.

**(F1-8)** When topsoil is stored in stockpiles it should be in a manner that ensures stability. Measures must include:

(a) vegetating stockpiles;

(b) minimising the height of stockpiles; and

(c) re-using stockpiles as soon as possible.

**Post Mine Land Use Plan**

**(F2-1)** The Post Mine Land Use Plan must be included in the plan of operations by 1 March 2011 and updated with each subsequent plan of operations, describing how the rehabilitation objectives in Schedule F – Table F1 and landform design criteria in Schedule F – Table F2 will be achieved. The Post Mine Land Use Plan must include:

(a) schematic representation of final land form inclusive of drainage features;

(b) slope designs;

(c) cover design;

(d) drainage design;

(e) erosion controls proposed on reformed land;

(f) description of experimental design for monitoring of analogue and rehabilitated areas inclusive of statistical design; and

(g) proposed revegetation criteria including:

(i) species diversity, abundance and composition;

(ii) projective cover;

(iii) dry matter production; and

(iv) stocking rates to ensure self-sustaining vegetation is maintained.

(h) proposed revegetation methods inclusive of plant species selection, re-profiling, respreading soil, soil ameliorants/amendments, surface preparation and method of propagation;

(i) materials balance including available top soil and low permeability capping material;

(j) research program and associated milestones;

(k) geotechnical, geochemical and hydrological studies;

(l) chemical, physical and biological properties of soil and water;

(m) clear objectives and success criteria for the each land unit including establishment in accordance with outcomes stipulated in the administering authority's *Guideline for Rehabilitation Requirements for Mining Projects*;

(n) measurable completion criteria for each rehabilitation indicator (for each land unit) that enables determination of rehabilitation success for each disturbance type (or land unit); and

(o) rehabilitation monitoring program.

**Rehabilitation Monitoring Program**

(**F3-1**) The holder of the environmental authority must conduct a Rehabilitation Monitoring Program on at least a yearly basis, which must include sufficient spatial and temporal replication to enable scientifically justifiable conclusions as established under the rehabilitation program or other methodology to the satisfaction of the administering authority.

(**F3-2**) The rehabilitation monitoring program must be developed by 31 December 2010 and be implemented by a person nominated by the environmental authority holder possessing appropriate qualifications and experience in the field of mine site rehabilitation.

**Pest Management**

**(F4-1)** In carrying out the mining activity(ies) the holder of this environmental authority must develop and implement an effective pest management program that includes but is not limited to the following:

(a) identification of pest species and infestation areas;

(b) prevents and/or minimises the introduction and/or spread of pests;

(c) control and management of pest outbreaks as a result of mining activities including measures to ensure that all vehicle movements are controlled to prevent the spread of declared weeds; and

(d) strategies to prevent introduction of declared weeds to the mine site and surrounding areas.

**(F4-2)** A copy of the pest management program must be made available to the administering authority on request.

**Infrastructure**

**(F5-1)** All infrastructure, mining equipment and processing plant 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 to in writing by the post mining landholder and the Minister administering the *Mineral Resource Act 1989*.

**Contaminated Land**

**(F6-1)** Upon decommissioning the environmental authority holder must undertake a contaminated land assessment / investigation of the licensed place in accordance with the administering authority's *Guidelines for the Assessment & Management of Contaminated Land in Queensland*.

**(F6-2)** The Run of Mine (ROM) pad at ML3374 (Jubilee Plunger) must be decontaminated and not used for the storage of mined material after 1 December 2011.

**Residual Void Outcome**

**(F7-1)** Residual voids must not cause any serious 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 to any other condition within this environmental authority.

**(F7-2)** Mining voids must be managed during the operation and decommissioning phases to maximise the potential post mine beneficial uses, by consideration of the following:

(a) limiting sulphide exposures in void walls;

(b) capping of sulphide exposures in void base;

(c) limiting period of exposure of sulphides in void walls and base to oxidising conditions;

(d) managing catchment into the void; and

(e) geo-technical stability of final void.

**(F7-3)** Decommissioning strategies for the final voids must be provided in the plan of operations including the following information:

(a) final potential wall and base rock exposure quality in terms of acid producing potential and levels of environmentally relevant salts and metals;

(b) expected periods of exposure for wall and base rock with acid producing potential;

(c) management options for maximising final void water quality; and

(d) assessment of potential final void water quality.

**(F7-4)** Decommissioning strategies for the final voids must be updated with each update of the plan of operations.

**Post Closure Management Plan**

**(F8-1)** A Post Closure Management Plan for the site must be developed and implemented for a nominal period of:

(a) at least thirty (30) years following final ore processing on site; or

(b) a shorter period if the site is proven to be geo-technically and geo-chemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm and be prepared at least 6 months prior to final ore processing onsite.

**(F8-2)** The Post Closure Management Plan must include the following elements:

(a) operation and maintenance of:

(i) wastewater collection and reticulation systems;

(ii) wastewater treatment systems;

(iii) the groundwater monitoring network;

(iv) final cover systems; and

(v) vegetative cover.

(b) monitoring of:

(i) surface water quality;

(ii) groundwater quality;

(iii) seepage rates;

(iv) erosion rates;

(v) the integrity and effectiveness of final cover systems; and

(vi) the health and resilience of vegetative cover.

**END OF CONDITIONS FOR SCHEDULE F**

## Schedule G – Dams

### All Dams – Location and Limits

**(G0-1)** Any dam constructed or operated within the operational land must be located within the control points defined in Schedule G - Table G1, below.

***Table G1 (Location of All Dams)***

| Name of Dam | Easting (GDA 94 MGA Zone 54) | Northing (GDA 94 MGA Zone 54) |
|---|---|---|
| Tailings Storage Facility | 764294<br>764295<br>764555<br>764855<br>764976<br>764840 | 7971299<br>7971535<br>7971644<br>7971656<br>7971575<br>7971248 |
| Red Dam Pit | 785887<br>786549<br>786552<br>785866 | 8014989<br>8015020<br>8015102<br>8015080 |
| Electric Light Pit | 772290<br>772340<br>772215<br>772154 | 7989214<br>7989197<br>7988831<br>7988860 |
| Black Blow Midapa Pit | 764911<br>764974<br>765028<br>765027<br>764971<br>764917 | 7971283<br>7971273<br>7971300<br>7971323<br>7971325<br>7971313 |
| Jubilee Plunger Pit | 783997.9<br>783892.3<br>784009.5<br>784115.1 | 7914500<br>7914429<br>7914255<br>7914326 |

*Note (4): A minimum of 3 control points is required to constrain the location of all activities associated with the dam. Additional infrastructure which forms part of any dam may include appurtenant works consisting of tailings discharge pipelines, seepage collection systems, runoff diversion bunds, containment systems, pressure relief wells, decant and recycle water systems.*

**(G0-2)** The construction or operation of any dam within the operational land must comply with Schedule G - Table G2, below.

***Table G2 (Basic Details of All Dams)***

| Name of Dam | Maximum Surface Area (Ha) | Maximum Volume ($m^3$) | Maximum Depth (m) | Purpose of dam (3) |
|---|---|---|---|---|
| Tailings Storage Facility | 14 | 398,000 | 11 | Tailings Storage |
| TSF Western Cutback[5] | 2.3 | 81,000 | 7 | Tailings Storage |
| Red Dam Pit | 2.6 | 1,200,000 | 20 | Excavated mining void |
| Electric Light Pit | 1.4 | 576,000 | 18 | Excavated mining void |
| Black Blow Midapa Pit | 1 | 7,000 | 10 | Excavated mining void |
| Jubilee Plunger Pit | 2 | 119,000 | 12 | Excavated mining void |

*Note (1): The name of the dam should refer to the name used in the design plan e.g. process residue facility or decant dam, etc.*

*Note (2): Where a dam does not incorporate a void, the height of the dam is the difference between the lowest point of the external toe of the dam and the highest point of the dam.*

*Note (3): Where a dam does incorporate a void, the height of the dam is the difference between the deepest point in the void and the highest point of the dam e.g. where dams are formed partially or fully formed by either excavating below the land surface or backfilling an existing void.*

*Note (4): Purpose of the dam should outline the designed function, e.g. "the permanent containment of tailings resulting from the extraction of nickel, cobalt and other metals at the XYZ Refinery".*

*Note (5): The TSF Western Cutback is an integrated cell of the TSF and must only be constructed within the area indicated by Schedule I – Map 10 – TSF Western Cutback and Soil Stockpile authorised bounds.*

**Assessment of consequence category**

**(G1-1)** The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* at the following times:

(a) prior to the design and construction of the structure, if it is not an existing structure; or

(b) prior to any change in its purpose or the nature of its stored contents.

**(G1-2)** A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

**(G1-3)** Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).*

**Design and construction of a regulated structure**

**(G2-1)** Conditions G2-2 to G2-10 inclusive do not apply to existing structures.

**(G2-2)** All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).*

**(G2-3)** Construction of a regulated structure is prohibited unless:

(a) the holder has submitted a consequence category assessment report and certification to the administering authority; and

(b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this authority.

**(G2-4)** Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933),* and must be recorded in the Register of Regulated Structures.

**(G2-5)** Regulated structures must:

(a) be designed and constructed in compliance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933);*

(b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:

(i) floodwaters from entering the regulated dam from any watercourse or drainage line; and

(ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line; and

(iii) have the floor and sides of the dam designed and constructed to prevent or minimise the

passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

**(G2-6)** Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

(a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure

(b) construction of the regulated structure is in accordance with the design plan.

**Notification of affected persons**

**(G3-1)** All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure:

(a) for existing structures that are regulated structures, within 10 business days of this condition taking effect;

(b) prior to the operation of the new regulated structure; and

(c) if the emergency action plan is amended, within 5 business days of it being amended.

**Operation of regulated structure**

**(G4-1)** Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following:

(a) one electronic copy of the design plan and certification of the 'design plan' in accordance with Condition G2-3;

(b) a set of 'as constructed' drawings and specifications;

(c) certification of the 'as constructed drawings and specifications' in accordance with Condition G2-6;

(d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified design plan;

(e) the requirements of this environmental authority relating to the construction of the regulated structure have been met;

(f) the holder has entered the details required under this authority, into a Register of Regulated Structures; and

(g) there is a current operational plan for the regulated structure.

**(G4-2)** For existing structures that are regulated structures:

(a) where the existing structure that is a regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within 12 months of the commencement of this condition a copy of the certified system design plan; and

(b) there must be a current operational plan for the existing structures.

**(G4-3)** Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

**Mandatory Reporting Level**

**(G5-1)** Conditions G5-2 to G5-5 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

**(G5-2)** The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

**(G5-3)** The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

**(G5-4)** The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

**(G5-5)** The holder must record any changes to the MRL in the Register of Regulated Structures.

**Design Storage Allowance**

**(G6-1)** The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July each year.

**(G6-2)** By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of lined containment systems).

**(G6-3)** The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

**(G6-4)** The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

**Annual Inspection Report**

**(G7-1)** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

**(G7-2)** At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

**(G7-3)** The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).*

**(G7-4)** The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:

(a) the recommendations section of the annual inspection report; and

(b) if applicable, any actions being taken in response to those recommendations; and

(c) if, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days of receipt of the request.

**Transfer arrangements**

**(G8-1)** The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

**Register of Regulated Structures**

**(G9-1)** Each regulated dam listed in Schedule G – Table G3 (Regulated Dams) must meet the hydraulic performance criteria listed in Schedule G – Table G3 (Regulated Dams) for that structure.

**(G9-2)** By 1 April 2027, the holder of this environmental authority must submit an amendment application lodged pursuant to the *Environmental Protection Act 1994* to this environmental authority, nominating the TBC values for the Tailings Storage Facility as identified in Footnote 1 of Schedule G – Table 3 (Regulated Dams).

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***Table G3 (Regulated Dams)***

| Name of Regulated Dam | Location (GDA94 MGA z54) | | Consequence Category | Max Operating Level (mAHD) | Spillway Capacity Design Criteria | Design Storage Allowance (DSA) | | | Mandatory Reporting Level (MRL) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Easting | Northing | | | | Design Criteria | Volume (ML) | Level (mAHD) | Design Criteria | Volume (ML) | Level (mAHD) |
| Tailings Storage Facility | 764294<br>764295<br>764555<br>764855<br>764976<br>764840 | 7971299<br>7971535<br>7971644<br>7971656<br>7971575<br>7971248 | Significant | TBC[1] | TBC[1] | TBC[1] | TBC[1] | TBC[1] | TBC[1] | TBC[1] | TBC[1] |

1. TBC Value – Refer to Condition (G9-2).

**Commencement of Mining Activities**

**(G10-1)** Prior to the commencement of any metallurgical extraction on ML3409, ML3540 and ML3591, the tailings storage facility identified in Schedule G Table G1 must be fully lined or alternatively, enough information be supplied to the administering authority in order for it to make a decision regarding the migration of TSF liquor along known fault zones located underneath the base of the structure.

*Note: Metallurgical extraction is defined as: any treatment of gold bearing ores by chemical or physical processes that destroys the crystallographic bond in order to recover the sought after element or compound.*

**(G10-2)** In accordance with condition (G10-1) the administering authority will review information supplied by the environmental authority holder and give approval for any metallurgical extraction to commence only once it is satisfied TSF liquor will not migrate along fault zones to the west of the operation.

**END OF CONDITIONS FOR SCHEDULE G**

## Schedule H – Definitions

**"acceptance criteria"** means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly been disturbed by the mining activities. Acceptance criteria may include information regarding:

(a) vegetation establishment, survival and succession;

(b) vegetation productivity, sustained growth and structure development;

(c) fauna colonisation and habitat development;

(d) ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;

(e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;

(f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;

(g) resilience of vegetation to disease, insect attack, drought and fire;

(h) vegetation water use and effects on ground water levels and catchment yields.

**"acid rock drainage"** means any low pH waters, contaminated as a result of the mining activities.

**"ambient (or total) noise"** at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

**"Annual Exceedance Probability"** or **"AEP"** means the probability that at least one event in excess of a particular magnitude will occur in any given year.

**"ANZECC 2000"** means Australian and New Zealand Environment Conservation Council Marine and Freshwater Quality Guidelines.

**"authority"** means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

**"background"** means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

**"chemical"** means:

(a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or

(b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or

(c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*;

(d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or

(e) any substance used as, or intended for use as:

  (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or

  (ii) a surface active agent, including, for example, soap or related detergent; or

  (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or

  (iv) a fertiliser for agricultural, horticultural or garden use; or

  (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or

(vi) manufacture of plastic or synthetic rubber.

**"commercial place"** means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees' accommodation or public roads.

**"competent person"** means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

**"contaminant"** can be a gas, liquid or solid; or an odour; or an organism (whether alive or dead), including a virus; or energy, including noise, heat, radioactivity and electromagnetic radiation; or a combination of contaminants

**"contaminated"** means the substance has come into contact with a contaminant.

**"control measure"** means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

**"dam"** means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

**"design plan"** in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms procedures, works and outcomes at the end of dam life. The documents can include design and investigation reports, drawings, specifications and certifications.

**"EC"** means electrical conductivity.

**"environmental authority holder"** means the holder of this environmental authority.

**"flowable substance"** means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

**"geochemical assessment"** means establishing all elements present in the ore material and their likelihood to produce acid, saline or neutral mine drainage.

**"hazardous waste"** means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

**"infrastructure"** means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include facilities required for the long term management of mining impacts or the protection of potential resources. Such facilities include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.

**"land"** in the "land schedule" of this document means land excluding waters and the atmosphere.

**"land capability"** has the meaning as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**"land suitability"** has the meaning as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

**"land use"** means the term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

**"mandatory reporting level"** means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedance probability).

**"measures"** includes any measures to prevent or minimise environmental impacts of the activity such as bunds, silt fences, diversion drains, capping, and containment systems.

**"metalliferous mine drainage**" means any waters, contaminated with metals / metalloids or other contaminants as a result of the mining activities.

**"mg/L"** means milligrams per litre.

**"mineral"** means a substance which normally occurs naturally as part of the earth's crust or is dissolved or suspended in water within or upon the earth's crust and includes a substance which may be extracted from such a substance, and includes—

(a) clay if mined for use for its ceramic properties, kaolin and bentonite;

(b) foundry sand;

(c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;

(d) limestone if mined for use for its chemical properties;

(e) marble;

(f) mineral oil or gas extracted or produced from shale or coal by in situ processes;

(g) peat;

(h) salt including brine;

(i) shale from which mineral oil may be extracted or produced;

(j) silica, including silica sand, if mined for use for its chemical properties;

(k) rock mined in block or slab form for building or monumental purposes;

(l) but does not include—

(m) living matter;

(n) petroleum within the meaning of the Petroleum Act 1923;

(o) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form; or

(p) water.

**"ML"** means megalitres.

**"mL"** means millilitres.

**"natural flow"** means the flow of water through waters caused by nature.

**"no-release works"** means sewage treatment works from which neither solid nor liquid contaminants are released to the environment, whether from inside or outside the works.

**"offensive"** means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

**"oxide ore"** means fully oxidised rock which has no acid forming potential.

**"ore or waste rock characterised as having acid forming potential"** means any rock with either a Net Acid Producing Potential of greater than 5 kg of $H_2SO_4$/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

**"peak particle velocity (ppv)"** means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second ($mms^{-1}$).

**"protected area"** means a protected area under the *Nature Conservation Act 1992*; or

(a) a marine park under the *Marine Parks Act 1992*; or

(b) a World Heritage Area.

**"progressive rehabilitation"** means rehabilitation (defined below) undertaken progressively or a staged approach to

rehabilitation as mining operations are ongoing.

**"reference site"** (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

**"rehabilitation"** means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

**"receiving environment"** means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

**"receiving waters"** means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

**"representative"** means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the mining activities.

**"residual void"** means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

**"self-sustaining"** means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

**"sensitive place"** means

(a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises;

(b) a motel, hotel or hostel;

(c) an educational institution;

(d) a medical centre or hospital;

(e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or

(f) a public park or gardens.

**"significant disturbance"** - includes land;

(a) if it is contaminated land; or

(b) it has been disturbed and human intervention is needed to rehabilitate it;

  (i) to a state required under the relevant environmental authority; or

  (ii) if the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

  Some examples of disturbed land include:

  (a) areas where soil has been compacted, removed, covered, exposed or stockpiled;

  (b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)

  (c) areas where land use suitability or capability has been diminished;

  (d) areas within a watercourse, waterway, wetland or lake where mining activities occur;

  (e) areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;

  (f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or

(g) areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

(a) areas off lease (e.g. roads or tracks which provide access to the mining lease);

(b) areas previously significantly disturbed which have achieved the rehabilitation outcomes;

(c) by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);

(d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;

(e) disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

**"spillway"** means a passage or outlet from the dam through which surplus water flows.

**"stable"** means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (traffic ability), erosion resistance and geochemical stability with respect to seepage and contaminant generation.

**"suitably qualified and experienced person"** means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988* or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:

(a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and

(b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:

(i) investigation, design or construction of dams;

(ii) operation and maintenance of dams;

(iii) geomechanics with particular emphasis stability, geology and geochemistry;

(iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;

(v) hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;

(vi) hydrogeology with particular reference to seepage, groundwater,

(vii) solute transport processes and monitoring thereof; or

(viii) dam safety.

**"tolerable limits"** means that a range of values could be accepted to achieve an overall environmental management objective (eg a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).

**"trivial harm"** means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than $5,000.

**"saline mine drainage"** means the movement of waters contaminated with salt(s) as a result of the mining activity.

**"watercourse"** means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

(a) continuous bed and banks;

(b) an extended period of flow for some months after rain ceases, and

(c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

**"waters"** includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, and groundwater and any part thereof.

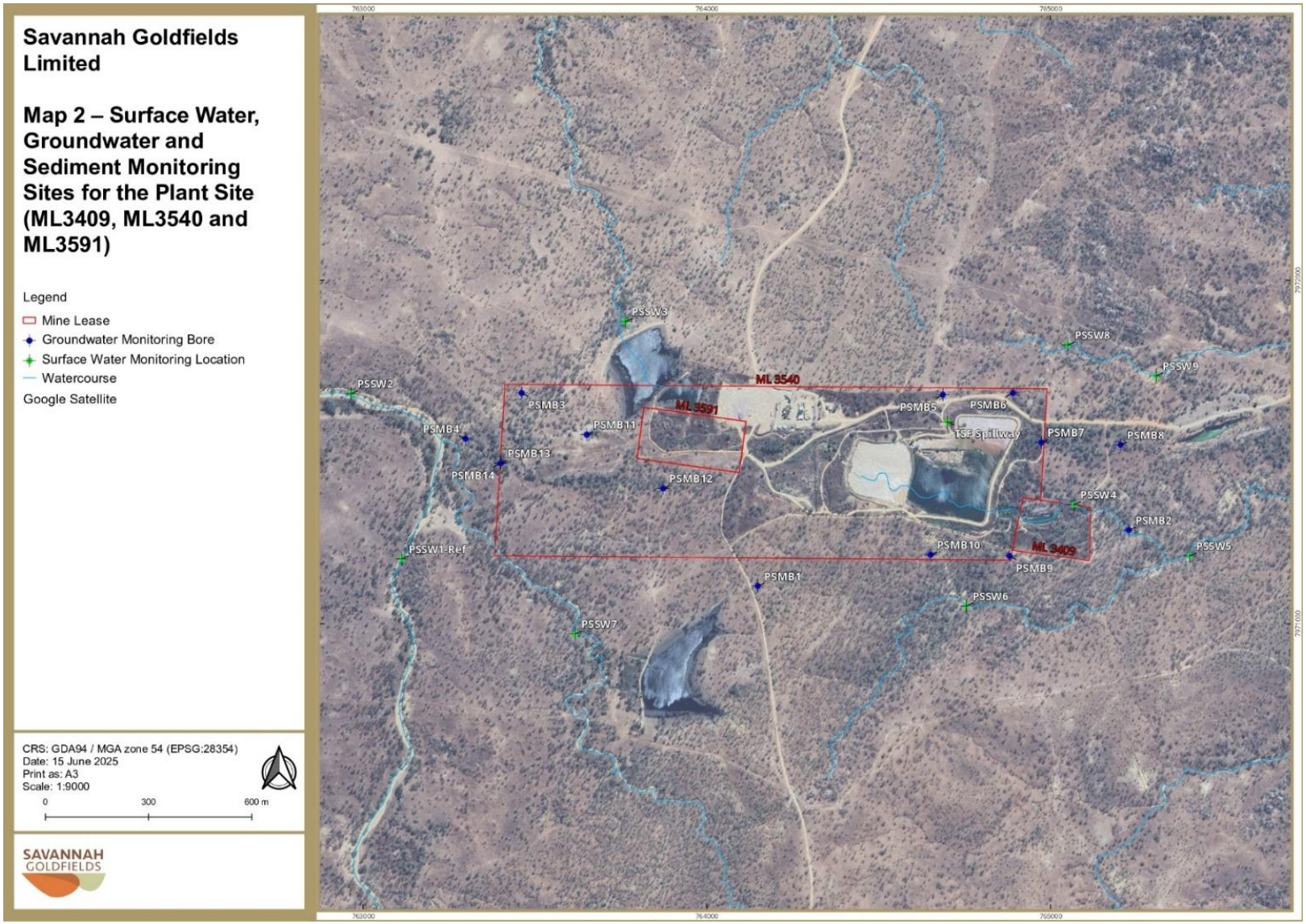
**"water release event**" means release of any waters that are or may be contaminated by the mining activity.

**END OF SCHEDULE H**

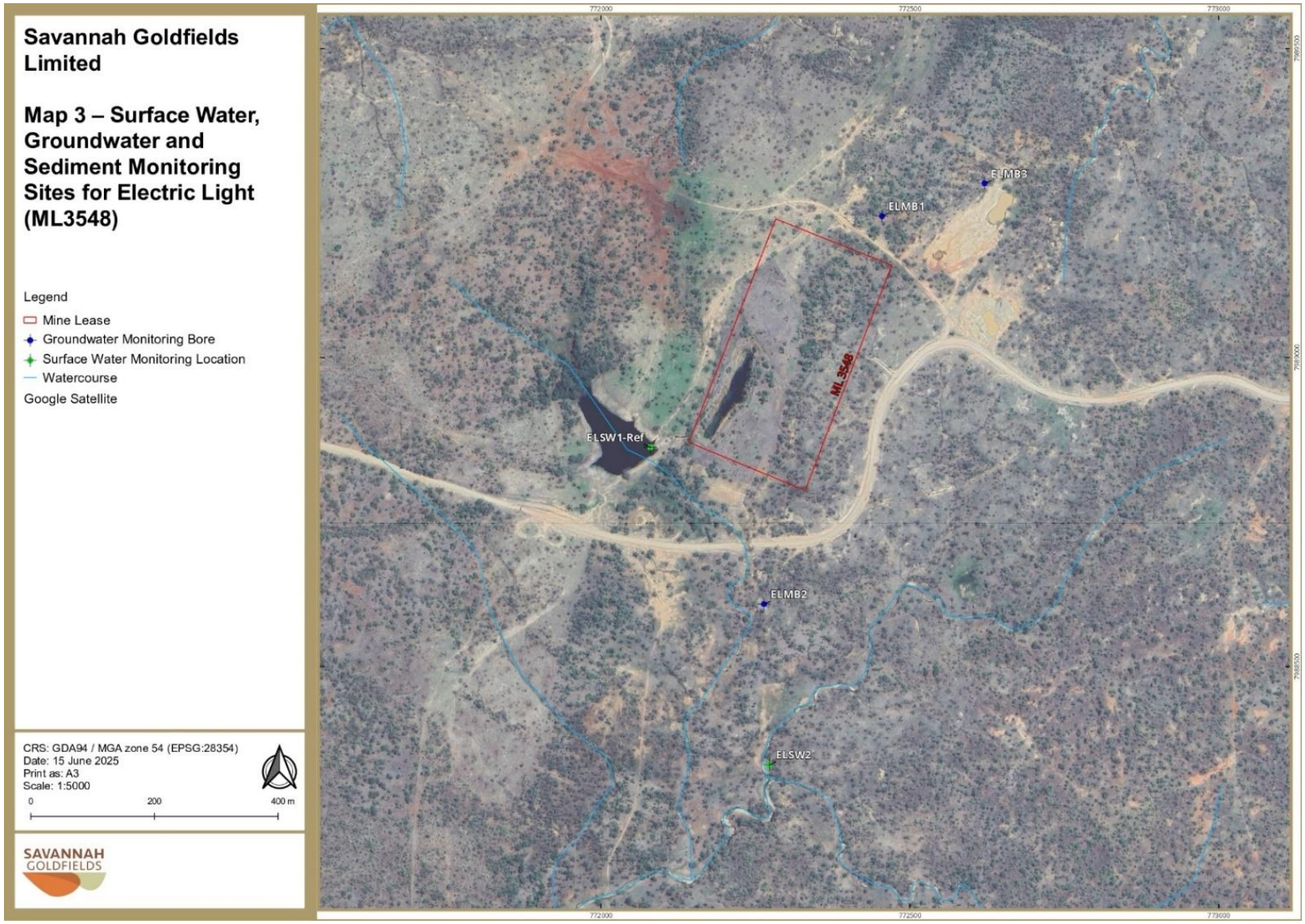
## Schedule I – Maps

### *Map 1 – Location Map*

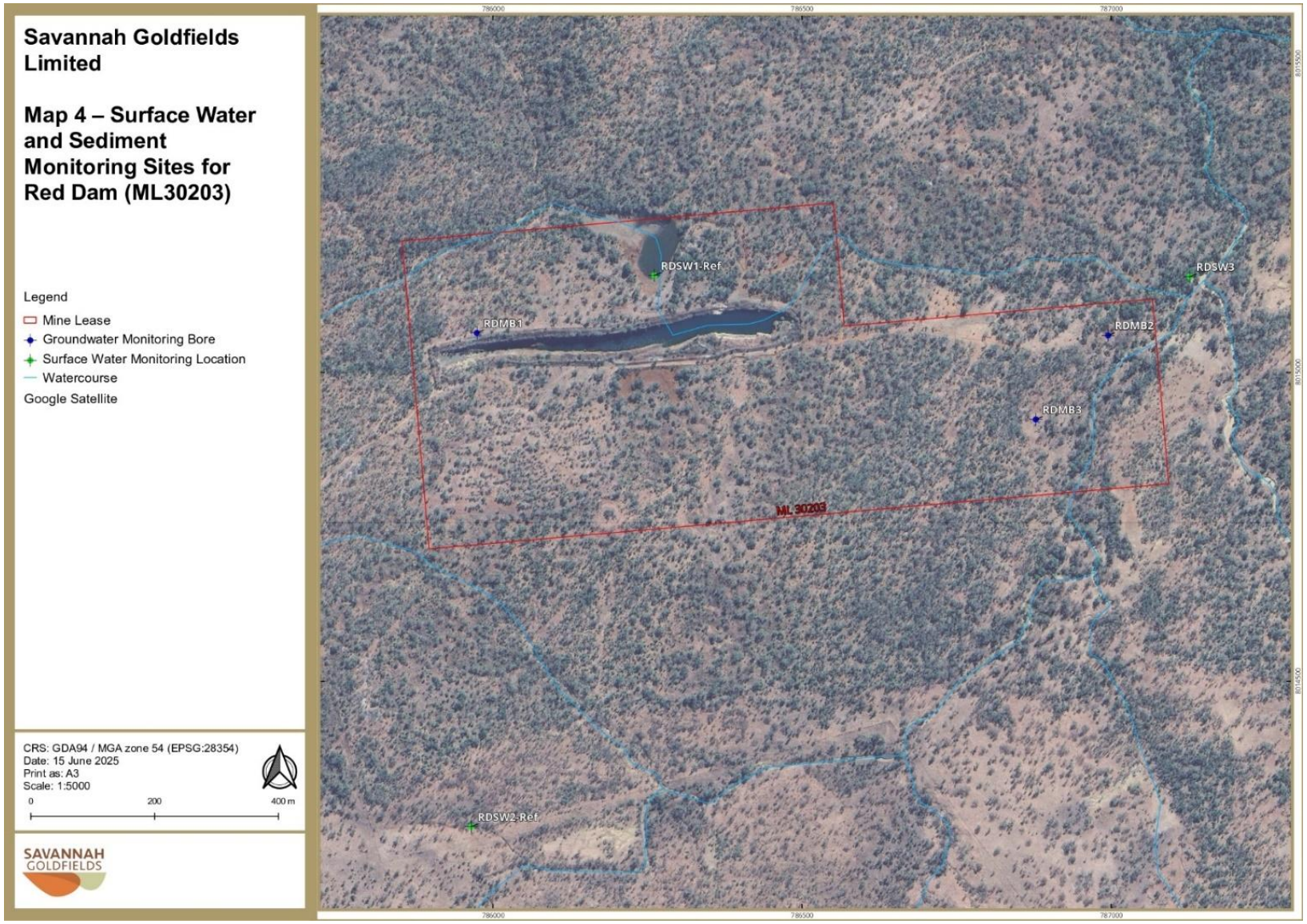
***Map 2 – Surface Water, Groundwater and Sediment Monitoring Sites for the Plant Site (ML3409, ML3540 and ML3591)***



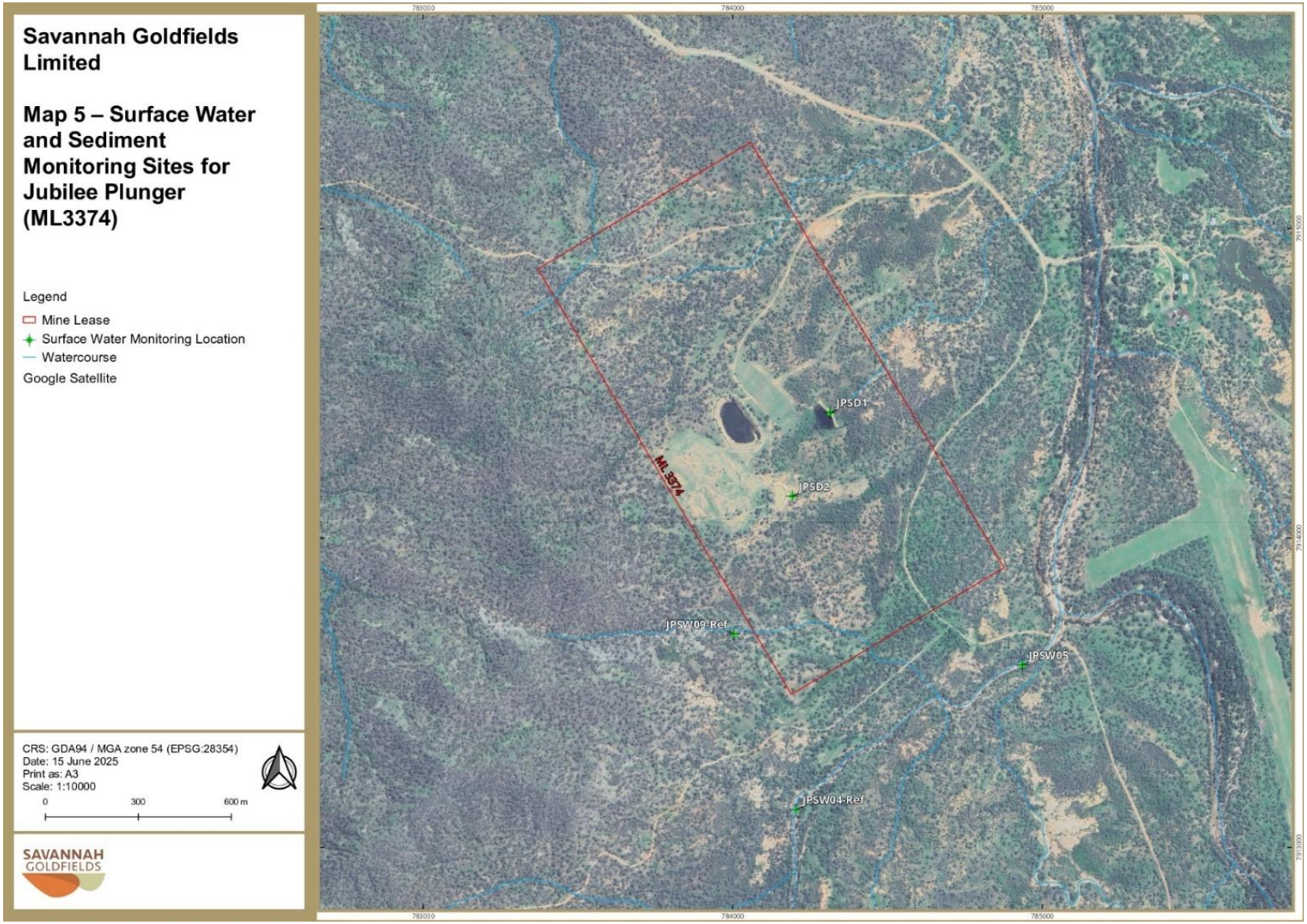
***Map 3 – Surface Water, Groundwater and Sediment Monitoring Sites for Electric Light (ML3548)***



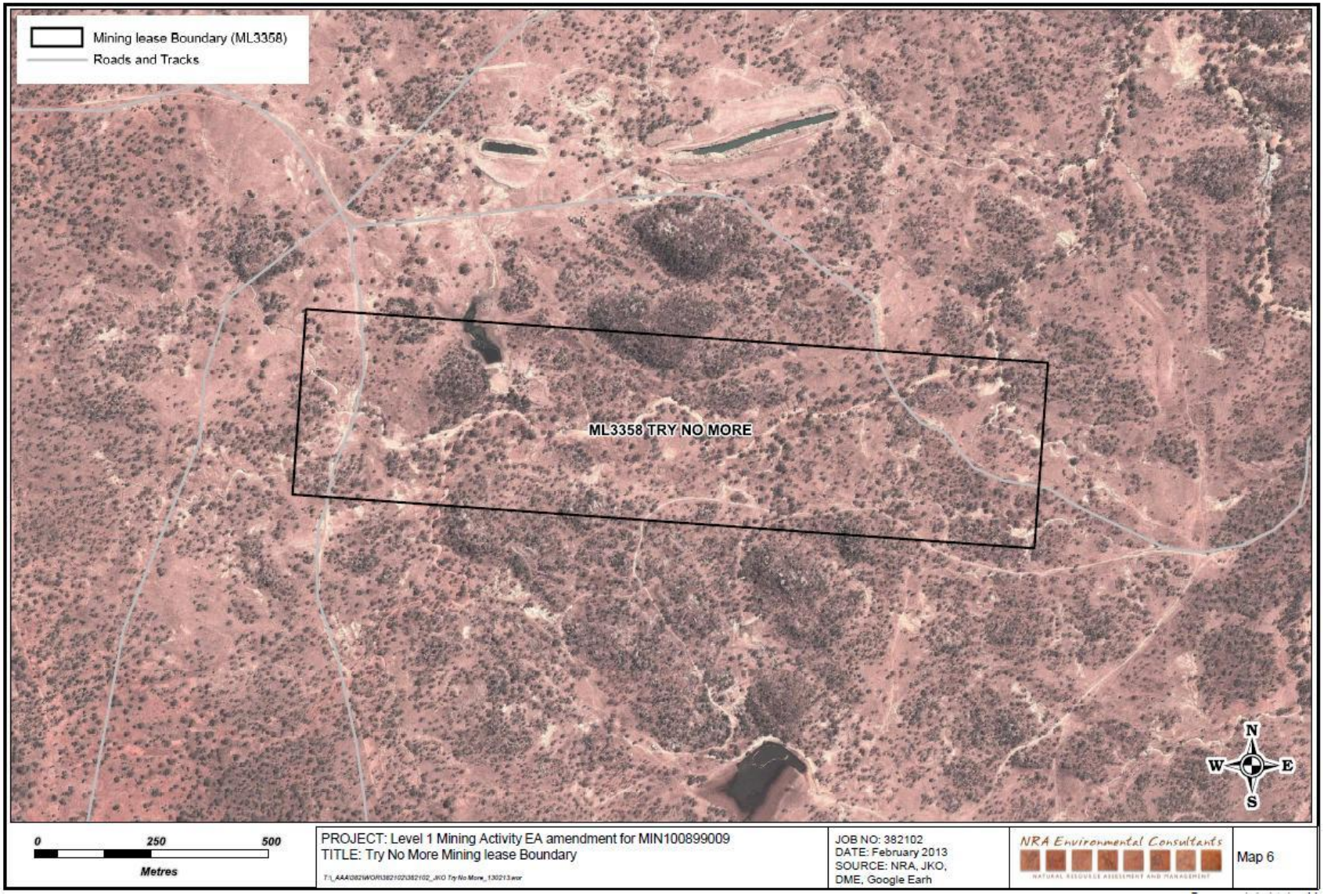
***Map 4 – Surface Water and Sediment Monitoring Sites for Red Dam (ML30203)***



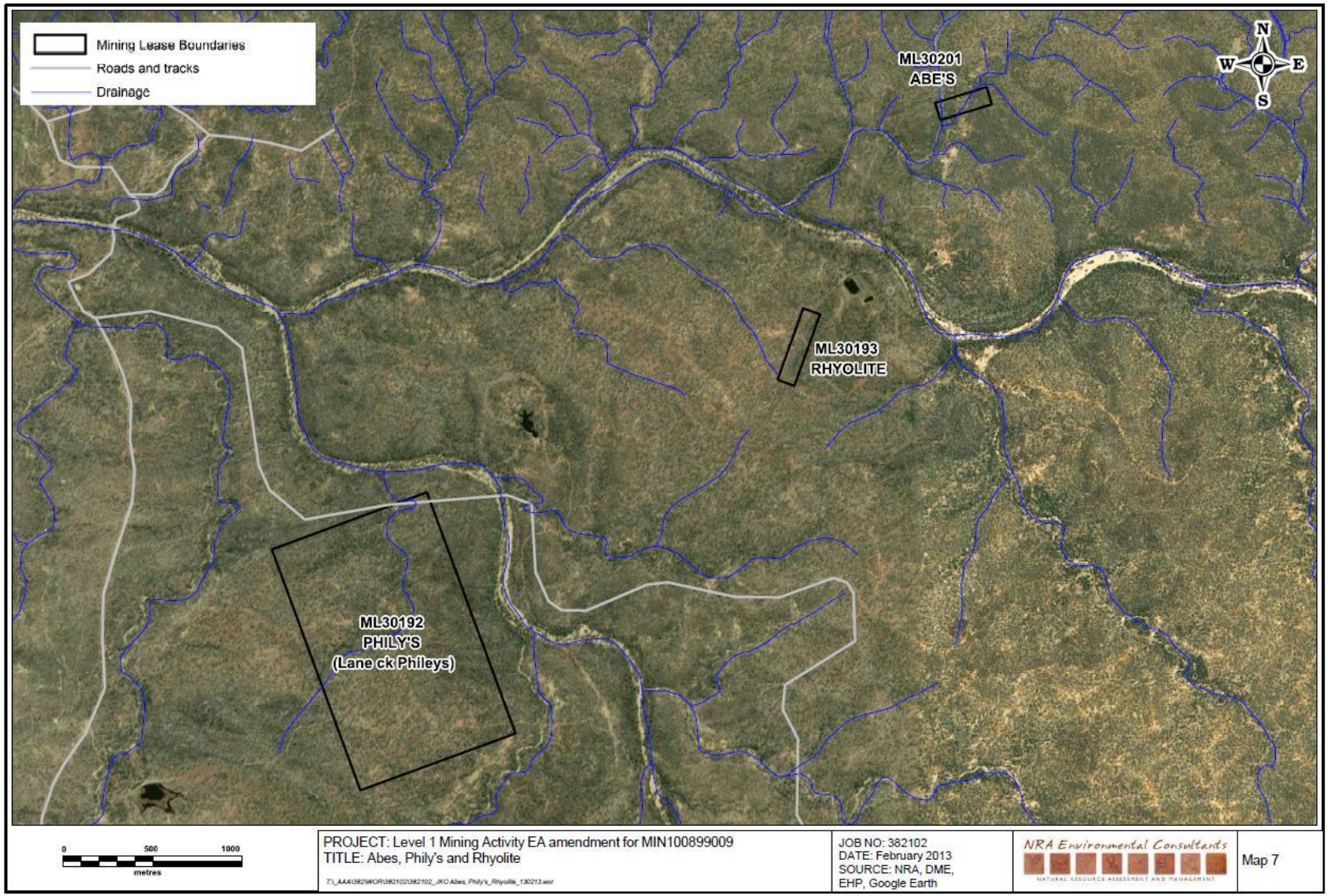
***Map 5 – Surface Water and Sediment Monitoring Sites for Jubilee Plunger (ML3374)***



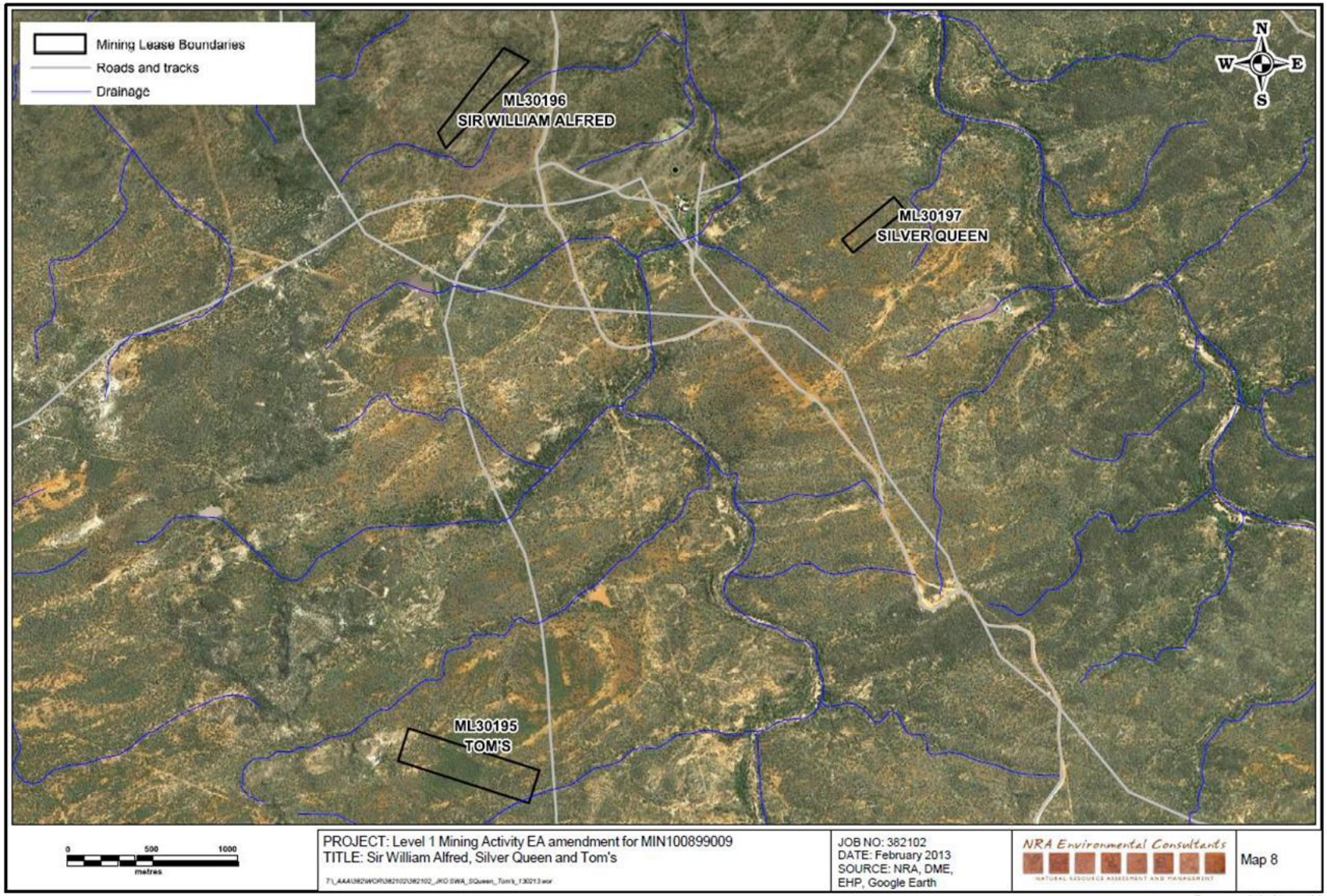
***Map 6 – Try No More (ML3358)***



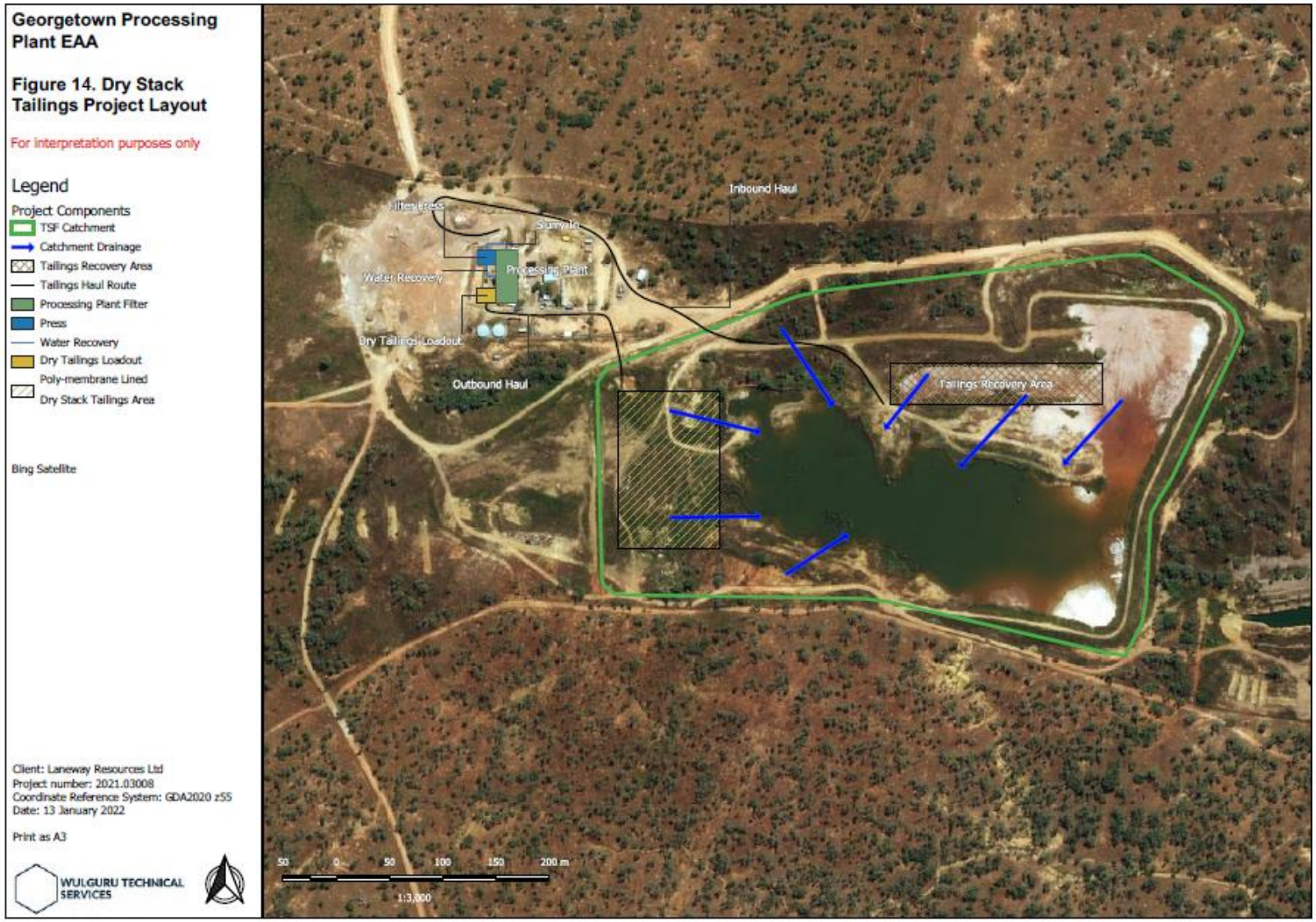
***Map 7 – Phily's (ML30192) and Rhyolite (ML30193) and Abe's (ML30201)***



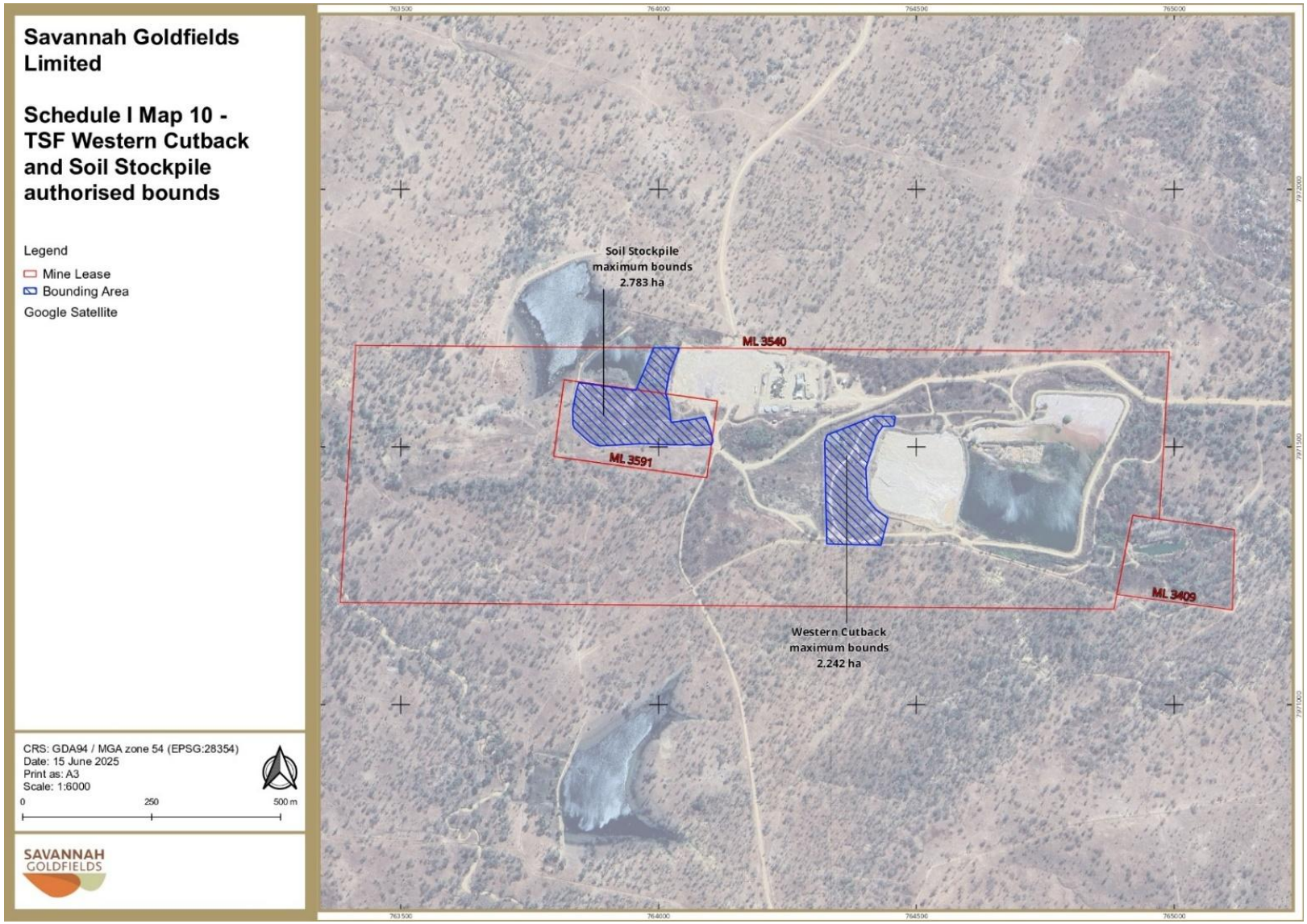
***Map 8 – Tom's (ML30195), Sir William Alfred (ML30196) and Silver Queen (ML30197)***



***Map 9 – Dry Stack Tailings Project Layout***



***Map 10 – TSF Western Cutback and Soil Stockpile Authorised Bounds***



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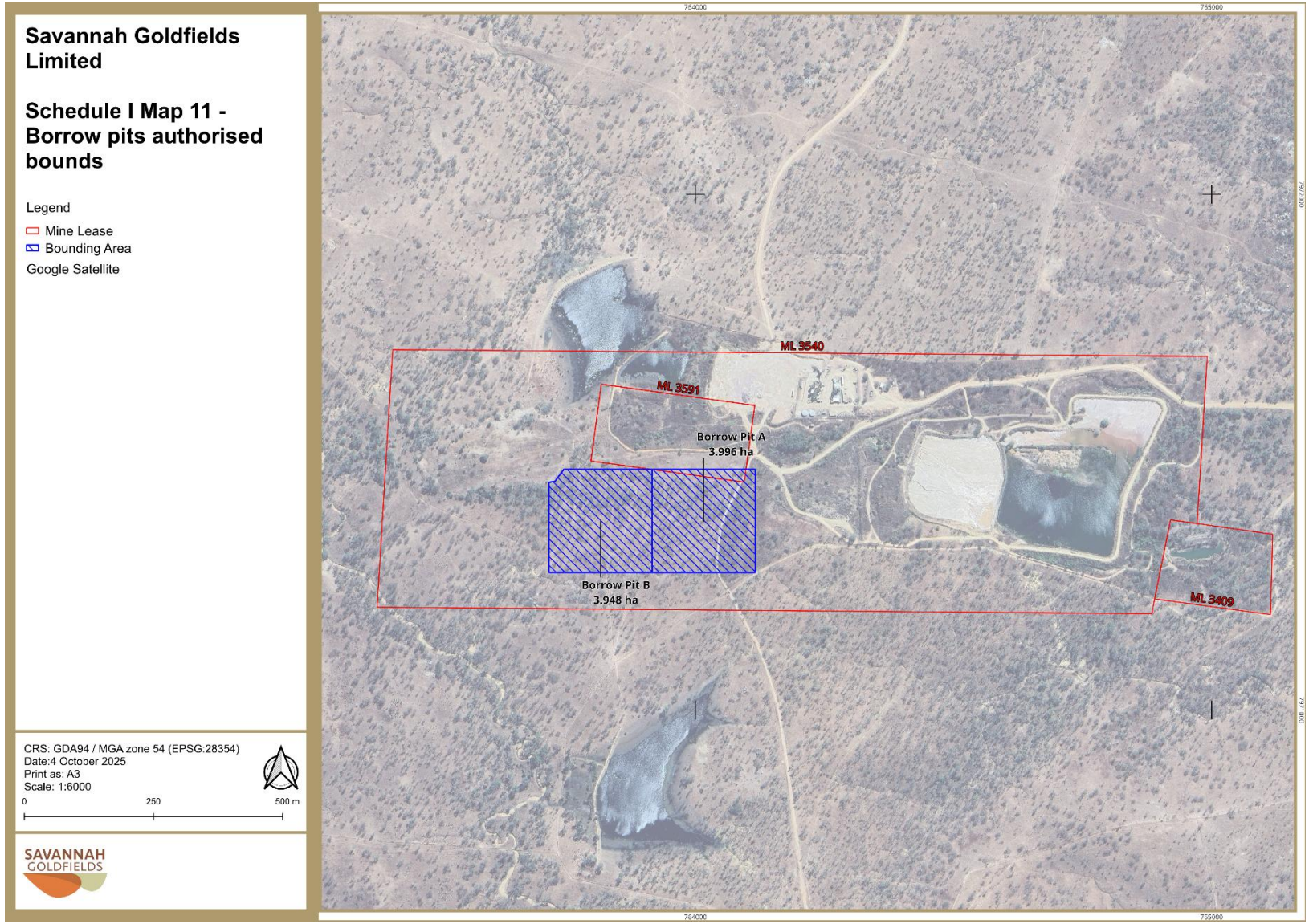
***Map 11 – Borrow Pits Authorised Bounds***



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**END OF SCHEDULE I**

**END OF ENVIRONMENTAL AUTHORITY**