

# Permit

## Environmental Protection Act 1994

## Environmental authority EPML00885513

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

**Environmental authority number: EPML00885513**

**Environmental authority takes effect on 4 December 2025.**

### Environmental authority holder(s)

| Name(s)                           | Registered address                                        |
|-----------------------------------|-----------------------------------------------------------|
| SOUTHERN CROSS OPERATIONS LIMITED | Level 8, 28 Freshwater PI SOUTHBANK VIC 3006<br>Australia |

### Environmentally relevant activity and location details

| Environmentally relevant activity/activities                                                                                                                                                                 | Location(s)                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Resource Activity, Schedule 3, 21: A mining activity that is an ineligible ERA, other than a mining activity mentioned in items 9 to 20                                                                      | ML5556<br>ML5543<br>ML5551<br>ML90068 |
| Resource Activity, Ancillary 07 – Chemical Manufacturing, 4: Manufacturing, in a year, the following quantities of fertiliser, (b) more than 5,000t                                                          | ML5556<br>ML5543<br>ML5551            |
| Resource Activity, Ancillary 16 – Extractive and Screening, 3: Screening, in a year, the following quantity of material, (a) 5,000t to 100,000t                                                              | ML5556<br>ML5543<br>ML5551            |
| Resource Activity, Ancillary 60 – Waste disposal, 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b), (a) less than 2,000t                  | ML5556<br>ML5543<br>ML5551            |
| Resource Activity, Ancillary 54 – Mechanical Waste Reprocessing, 2(a): Operating a facility for receiving and mechanically reprocessing, in a year, the following quantity of general waste – 5,000t or less | ML5556<br>ML5543<br>ML5551            |
| Resource Activity, Ancillary 62 - Resource recovery and transfer facility operation 1(c): Operating a facility for                                                                                           | ML5556<br>ML5543<br>ML5551            |

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| Environmentally relevant activity/activities                                                                                                                                                                                                                                                                                 | Location(s)                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| receiving and sorting, dismantling, baling or temporarily storing category 2 regulated waste                                                                                                                                                                                                                                 |                            |
| Resource Activity, Ancillary 63 – Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (a) 21 to 100EP, (i) if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme                            | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 63 – Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b) more than 100 but not more than 1500EP, (i) if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 14 – Electricity Generation, 1: Generating electricity by using gas at a rated capacity of 10MW electrical or more                                                                                                                                                                              | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 60 – Waste disposal, 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a), (d) more than 200,000t                                                                                                                                | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 31 – Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (b) more than 100,000t                                                                                                                                                        | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 33 – Crushing, milling, grinding or screening: Crushing, grinding milling or screening more than 5,000t of material in a year                                                                                                                                                                   | ML5556<br>ML5543<br>ML5551 |
| Resource Activity, Ancillary 08 – Chemical Storage – 3 – Storing more than 500 cubic metres of chemicals of Class C1 or Class C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)                                                                                                        | ML90068                    |
| Resource Activity, Ancillary 50 – Mineral and bulk material handling – 1(b) – loading or unloading 100t or                                                                                                                                                                                                                   | ML90068                    |

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|-------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| more of minerals in a day, other than loading or unloading mentioned in item 3, or storing 50,000t or more of minerals – at another place |             |

### 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](http://www.qld.gov.au), using the search term 'duty to notify'.

#### Take effect

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

- 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
- 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
- otherwise – on the day the authority is issued.

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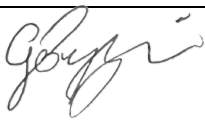
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However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken 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.

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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 environmental authority.



Signature

Giles Bezzina

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

4 December 2025

Date

#### Enquiries:

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

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#### **Obligations under the *Environmental Protection Act 1994***

In addition to the requirements found in the conditions of this environmental authority, 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 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 *Environmental Protection Act 1994*. 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 / 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).

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**Legislative Requirements and Conditions of Environmental Authority****Schedule A - General**

- A1 This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
- A2 The environmental authority holder must ensure that the activity is carried out in accordance with Table A1 – Authorised Mining Activities and Schedule K, Map K1(A) – Mine Infrastructure Layout, Map K1(B) – Rimmer Hill Exploration Area, Map K1(C) – Western Shale Deposit Area and Map K1(D) – Central Exploration Area.

**Table A1 – Authorised Mining Activities**

| Mine Domain | Mine Feature Name                              | Tenure Type and Number | Map Reference (GDA94, MGA, Zone 54) |          | Maximum area of disturbance (ha) for mine feature | Maximum area of disturbance (ha) allowing for nested and/or collocated features and/or combined disturbance areas |
|-------------|------------------------------------------------|------------------------|-------------------------------------|----------|---------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
|             |                                                |                        | Easting                             | Northing |                                                   |                                                                                                                   |
| Plant Area  | Process Plant                                  | ML5543                 | 394190                              | 7580060  | 45.05                                             | 45.05                                                                                                             |
|             | Temporary Ore Sorting Pilot Plant <sup>2</sup> | ML5443                 | 393836                              | 7580184  | 4                                                 | 4                                                                                                                 |
|             | Communications Tower                           | ML5443                 | 393875                              | 7579824  | 0.02                                              | 0.02                                                                                                              |
|             | Weighbridge                                    | ML5443                 | 393960                              | 7580439  | 1                                                 | 1                                                                                                                 |
|             | ERT Training Ground                            | ML5443                 | 393822                              | 7580035  | 0.5                                               | 0.5                                                                                                               |
|             | Main Entry Laydown                             | ML5443                 | 393898                              | 7580261  | 7.55                                              | 7.55                                                                                                              |
|             | Process Water Pond                             | ML5543                 | 383850                              | 7579900  | 0.83                                              | 0.83                                                                                                              |

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|                          |                                                   |         |        |         |       |       |
|--------------------------|---------------------------------------------------|---------|--------|---------|-------|-------|
|                          | Stormwater Retention                              | ML5543  | 394216 | 7580099 | 2.5   | 2.5   |
|                          | Slimes Dam                                        | ML5543  | 394350 | 7578850 | 43.56 | 43.56 |
|                          | Slimes Interim Storage – North                    | ML5543  | 393780 | 7580330 | 6.17  | 6.17  |
|                          | Slimes Interim Storage – South                    | ML5543  | 394750 | 7578000 | 28.89 | 28.89 |
|                          | Topsoil - Slimes                                  | ML5543  | 394397 | 7578325 | 2.7   | 2.7   |
|                          | Rail Loop                                         | ML5543  | 394740 | 7578980 | 1.86  | 1.86  |
|                          | Old Landfill                                      | ML5543  | 394914 | 7579064 | 3.14  | 3.14  |
|                          | Osborne Shed                                      | ML90068 | 394505 | 7580614 | 0.33  | 0.33  |
|                          | Osborne Shed Access Road                          | ML90068 | 394773 | 7580670 | 1.3   | 1.3   |
|                          | Osborne Shed Dam                                  | ML90068 | 394779 | 7580403 | 0.81  | 0.81  |
|                          | Osborne Shed borrow pit                           | ML90068 | 394803 | 7580404 | 1     | 1     |
| Gypsum Disposal Facility | Cells 1 & 2                                       | ML5543  | 394280 | 7581130 | 42.61 | 42.61 |
|                          | Cell 3A                                           | ML5543  | 394180 | 7581740 | 17.49 | 17.49 |
|                          | Cell 3B                                           | ML5543  | 394480 | 7581740 | 12.14 | 12.14 |
|                          | Cell 3C                                           | ML5543  | 394830 | 7581580 | 22    | 27    |
|                          | Cell 3C spoils                                    | ML5543  | TBD    | TBD     | 2     |       |
|                          | Temporary site office and laydown area (Cell 3C)  | ML5543  | TBD    | TBD     | 3     |       |
|                          | Cell 3D                                           | ML5543  | 393620 | 7582190 | 33.8  | 42.5  |
|                          | Construction access and temp facilities (Cell 3D) | ML5543  | 393832 | 7582000 | 7.2   |       |

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|-----------|----------------------------------------------------------------------|--------|--------|---------|--------|--------|
|           | Laydown areas<br>(Cell 3D)                                           | ML5543 | 393792 | 7582206 | 1.5    |        |
|           | Cell 4A                                                              | ML5543 | 394190 | 7582270 | 72.47  | 72.47  |
|           | Cell 4B                                                              | ML5543 | 394030 | 7582850 |        |        |
|           | Cell 5A                                                              | ML5543 | 393172 | 7582622 | 65.5   | 65.5   |
|           | Cell 5B                                                              | ML5543 | 393175 | 7583420 | 51     | 67     |
|           | Construction access,<br>laydown, and temp<br>facilities<br>(Cell 5B) | ML5543 | 393315 | 7583899 | 8      |        |
|           | Topsoil Stockpile<br>(Cell 5B)                                       | ML5543 | 392873 | 7583817 | 8      |        |
|           | Topsoil – East<br>Gypsum, North Pile                                 | ML5543 | 394500 | 7582930 | 5.27   | 5.27   |
|           | Topsoil – East<br>Gypsum, South Pile                                 | ML5543 | 394800 | 7582050 | 5.33   | 5.33   |
|           | Eastern Stormwater<br>Drain                                          | ML5543 | 394519 | 7581082 | 13.98  | 13.98  |
|           | Emergency Dump                                                       | ML5543 | 394130 | 7580600 | 4.21   | 4.21   |
|           | Evaporation Pond                                                     | ML5543 | 394410 | 7580550 | 3.58   | 3.58   |
|           | Disturbed Area<br>Adjacent to<br>Evaporation Pond                    | ML5543 | 394360 | 7580400 | 1.8    | 1.8    |
| Mine Area | Jabiru Pit and Bund<br>Wall                                          | ML5543 | 394070 | 7576170 | 62.6   | 62.6   |
|           | Corella Pit and Bund<br>Wall                                         | ML5543 | 394070 | 7576900 | 61.98  | 61.98  |
|           | Brolga / Magpie Pit<br>and Bund Wall                                 | ML5543 | 392958 | 7578210 | 206.86 | 206.86 |
|           | Eagle Pit                                                            | ML5543 | 391990 | 7577960 | 48.8   | 48.8   |

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|--|------------------------------------------|--------|--------|---------|--------|--------|
|  | Galah Pit and Bund Wall                  | ML5543 | 393565 | 7579705 | 90.54  | 93.8   |
|  | Landfill Stage 2                         | ML5543 | 393460 | 7580480 | 3.26   |        |
|  | Jabiru Waste Rock Dump                   | ML5543 | 393890 | 7575850 | 2.64   | 2.64   |
|  | Corella Waste Rock Dump                  | ML5543 | 393610 | 7576280 | 54     | 54     |
|  | Brolga Waste Rock Dump                   | ML5543 | 392610 | 7578570 | 50.71  | 50.71  |
|  | Magpie Waste Rock Dump                   | ML5543 | 393030 | 7576960 | 23.1   | 82.7   |
|  | Eagle Waste Rock Dump                    | ML5543 | 391964 | 7577488 | 59.6   |        |
|  | Galah NAC (Not Across Creek) Dump        | ML5543 | 393095 | 7579742 | 34.62  | 34.62  |
|  | Bioremediation Area                      | ML5543 | 393340 | 7580544 | 0.27   |        |
|  | Landfill Stage 1                         | ML5543 | 393510 | 7580690 | 1.37   |        |
|  | DAC (Dump Across Creek) Dump             | ML5543 | 392790 | 7579610 | 12.85  | 12.85  |
|  | Low Grade Ore Stockpile                  | ML5543 | 393730 | 7581020 | 2.39   | 2.39   |
|  | ROM Pad                                  | ML5543 | 394040 | 7579550 | 10.77  | 10.77  |
|  | Topsoil – Corella East                   | ML5543 | 394290 | 7576614 | 1.32   | 1.32   |
|  | Haul Roads                               | ML5543 | -      | -       | 36.22  | 36.22  |
|  | Minor Tracks and drill pads <sup>1</sup> | ML5543 | -      | -       | 108.35 | 108.35 |
|  | Mehaffey Creek Diversion                 | ML5543 | 393460 | 7576797 | 6.01   | 6.01   |

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|             |                                          |        |        |         |                                                                                                                                                                                                                                                                                    |       |
|-------------|------------------------------------------|--------|--------|---------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
|             | Monument to Phosphate Hill Road          | ML5543 | -      | -       | 15.16                                                                                                                                                                                                                                                                              | 20.47 |
|             | Monument to Phosphate Hill Road          | ML5551 | -      | -       | 1.31                                                                                                                                                                                                                                                                               |       |
|             | Monument to Phosphate Hill Road          | ML5556 | -      | -       | 4                                                                                                                                                                                                                                                                                  |       |
|             | Osborne Road                             | ML5543 | -      | -       | 1.68                                                                                                                                                                                                                                                                               | 1.68  |
|             | Duchess Monument Road (unsealed)         | ML5543 | -      | -       | 4.95                                                                                                                                                                                                                                                                               | 4.95  |
|             | Temporary Construction Camp <sup>3</sup> | ML5543 | 392224 | 7585750 | 6                                                                                                                                                                                                                                                                                  | 6     |
| Exploration | Exploration/Sampling                     | ML5543 | -      | -       | Authorised exploration drilling area extents depicted on EA Map K1(A) – Mine Infrastructure Layout, Map K1(B) – Rimmer Hill Exploration Area, Map K1(C) – Western Shale Deposit Area and Map K1(D) – Central Exploration Area. Cumulative drilling disturbance must not exceed 145 |       |
| Other       | Fence Line                               | ML5543 | -      | -       | 1.7                                                                                                                                                                                                                                                                                | 1.7   |
|             | Monument Village                         | ML5551 | 387770 | 7592970 | 30.49                                                                                                                                                                                                                                                                              | 35.3  |
|             | Town Yard                                | ML5551 | 387504 | 7592404 | 0.54                                                                                                                                                                                                                                                                               |       |
|             | Camp Power Station                       | ML5551 | 387949 | 7592395 | 1.51                                                                                                                                                                                                                                                                               |       |
|             | Sewage Treatment Plant                   | ML5551 | 387649 | 7592411 | 1.3                                                                                                                                                                                                                                                                                |       |
|             | Sporting Oval Irrigation Area            | ML5551 | 387840 | 7592690 | 1.46                                                                                                                                                                                                                                                                               |       |
|             | Golf Course Irrigation Area              | ML5551 | 387590 | 7592600 | 1.36                                                                                                                                                                                                                                                                               | 1.36  |

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|--|---------------------|--------|--------|---------|------|------|
|  | New Irrigation Area | ML5551 | 388540 | 7592160 | 11.5 | 11.5 |
|  | Airport             | ML5543 | 388890 | 7587620 | 70   | 70   |

*1 Authorised disturbance located wholly within the Minor Tracks mine feature includes 62 Test Pits, 62 Core Sample Bore Holes and 47 Drill holes for the Duchess Embayment Aquifer Water Reserves Drilling Campaign.*

*2 Temporary Ore Sorting Pilot Plant to be decommissioned and the administering authority notified of this action upon completion of trial, but not later than 2030.*

*3 Temporary Construction Camp to be decommissioned and the administering authority notified of this action upon completion of construction of Sulfuric Acid Plant, but not later than 2030.*

A3 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 and efficient condition;
- c) Operate such measures, plant and equipment in a proper and efficient manner;
- d) Must not change, replace or alter any plant or equipment if the change, replacement or alteration increases, or is likely to increase, the risk of environmental harm; and,
- e) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A4 Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this Authority must be reviewed by a suitably qualified person for effectiveness in minimising the likelihood of environmental harm on an annual basis and amended promptly if required. Written certification of this review including identified issues and any subsequent actions undertaken in response must be recorded and provided to the administering authority upon request.

#### A5 Monitoring

The Environmental Authority holder must record, compile and keep for a minimum of five (5) years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.

A6 Where monitoring is a requirement of this Authority, the Authority holder must ensure that a competent person(s) conducts all monitoring.

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#### **A7 Financial Assurance**

The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.

- A8 The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced, or the authority is amended.

#### **A9 Risk Management**

The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, by 30 June 2014.

#### **A10 Notification of Emergencies, Incidents and Exceptions**

The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.

- A11 Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following:

- a) results and interpretation of any samples taken and analysed
- b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm
- c) proposed actions to prevent a recurrence of the emergency or incident.

- A12 The holder of this environmental authority must notify any potentially impacted stakeholder / landowners by telephone, email or facsimile as soon as practicable but within twenty four (24) hours after becoming aware of any emergency or incident that has the potential to impact on environmental values or breaches any condition of this Authority concerning the release of contaminants to the environment.

#### **A13 Complaints**

The holder of this environmental authority must record all environmental complaints received about the mining activities including:

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- a) name, address and contact number for of the complainant
- b) time and date of complaint
- c) reasons for the complaint
- d) investigations undertaken
- e) conclusions formed
- f) actions taken to resolve the complaint
- g) any abatement measures implemented
- h) person responsible for resolving the complaint

**A14** The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.

**A15 Third Party Auditing**

The holder of this environmental authority must:

- a) obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority
- b) obtain further such reports at regular intervals, not exceeding 3 yearly intervals, from the completion of the report referred to above; and
- c) provide each report to the administering authority within 90 days of its completion.

**A16 Transition to New Standards**

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

- a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or

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where the amendment or change relates specifically to regulated structures referred to in Schedule I — Regulated Dams, the time specified in that condition.

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

#### **A17 Exploration**

All exploration activities carried out on the mining leases must comply with each of the Standard Environmental Conditions contained in the department's published *Eligibility criteria and standard conditions for exploration and mineral development projects—Version 2* (ESR/2016/1985, version 2.00). Where there is a discrepancy between the standard conditions and this environmental authority, the conditions of the environmental authority apply.

#### **A18 Definitions**

Words and phrases used throughout the environmental authority are defined in Schedule J —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.

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**Schedule B - Air****B1 General**

The release of noxious or offensive odour or any other airborne contaminant resulting from the mining activities must not cause environmental harm at any sensitive place or commercial place.

- B2** The holder of this environmental authority must ensure that vehicles (including trains) used for transporting bulk materials to and from the mining tenement, enter and leave the site with appropriate load preparation to prevent the spillage and/or loss of particulate matter and/or windblown dust to the receiving environment during transport.

**B3 Point Source Release of Contaminants to the Atmosphere**

Discharges of contaminants to air from the activity, other than dust and particulate matter addressed by condition B5, must be in accordance with Table B1— Release Points and Contaminant Limits.

- B4** Conduct a monitoring program of contaminant releases to the atmosphere at the release points, frequency and for the contaminants specified in Table B1— Release Points and Contaminant Limits and which complies with the most recent edition of AS4323.1 Stationary source emissions method 1: Selection of sampling positions, and the most recent edition of the administering authority's air quality sampling manual.

**Table B1 – Release Points and Contaminant Limits**

| Release Point                             | Minimum release height (metres) | Minimum velocity (m/sec) | Contaminant release                | Contaminant Trigger Level <sup>1</sup> | Maximum release limit <sup>1</sup> | Sampling frequency |
|-------------------------------------------|---------------------------------|--------------------------|------------------------------------|----------------------------------------|------------------------------------|--------------------|
| Power Station - Taurus 60 Gas Turbine x 4 | 15                              | 20                       | NO <sub>x</sub> as NO <sub>2</sub> | NA                                     | 17,200 g/hr                        | Annually           |
| Power Station - Taurus 60 Gas Turbine x 4 | 15                              | 20                       | CO                                 | NA                                     | 3,500 g/hr                         | Annually           |
| Phosphoric Acid Plant - Exhaust stack     | 35                              | 13.1                     | F (gaseous)                        | NA                                     | 0.05 g/Nm <sup>3</sup>             | Annually           |

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|                                                       |      |      |                |                         |                                      |                                       |
|-------------------------------------------------------|------|------|----------------|-------------------------|--------------------------------------|---------------------------------------|
| Granulation Plant<br>- Flue Stack                     | 46.7 | 16.5 | F (gaseous)    | NA                      | 0.05 g/Nm <sup>3</sup>               | Annually                              |
| Granulation Plant<br>- Flue Stack                     | 46.7 | 16.5 | Ammonia        | NA                      | 0.098 g/Nm <sup>3</sup>              | Annually                              |
| Granulation Plant<br>- Flue Stack                     | 46.7 | 16.5 | Particulates   | NA                      | 0.25 g/Nm <sup>3</sup>               | Annually                              |
| Granulation Plant<br>- Flue Stack                     | 46.7 | 16.5 | Sulfur Dioxide | NA                      | 0.025 <sup>4</sup> g/Nm <sup>3</sup> | Annually                              |
|                                                       |      |      |                |                         | 0.600 <sup>5</sup> g/Nm <sup>3</sup> | Annually                              |
| Sulfur Melter<br>Stack <sup>2</sup>                   | 8    | 16.6 | Sulfur Dioxide | NA                      | NA                                   | Event based <sup>2</sup>              |
| Sulfuric Acid<br>Plant (SAP)<br>Stack <sup>2, 3</sup> | 60   | 15   | Sulfur Dioxide | 1.756 g/Nm <sup>3</sup> | 3.804g/Nm <sup>3</sup>               | Continuous, hourly<br>sample averages |

1 Measured in the stack;

2 In the event that ambient monitoring shows exceedance of a limit defined in Schedule B – Table 3 (Ambient Sulfur Dioxide Limits), the holder of this environmental authority must undertake monitoring on the Sulfur Melter Stack and investigate the cause of the exceedance;

3 Sulfur Dioxide triggers and limits apply except during operational start up, shut down or emergency shutdown periods. All reasonable and practicable measures must be taken to minimise the frequency of start-up and shut downs, and to limit Sulfur dioxide emissions during these periods. Operational start up, shut down or emergency shutdown periods is defined as:

- (a) Start-up - refers to the process of taking the SAP from cold and non-operational (e.g., air blower offline, no Sulfur feed to furnace) through to introducing Sulfur feed and stabilising for 4 hours. After 4 hours of continuous Sulfur feed to the furnace the start-up has concluded;
- (b) Shutdown - refers to the process of taking the SAP from hot and operational (e.g., air blower online and Sulfur feed on to furnace) through to cold and non-operational. The shutdown has concluded once the plant is cold and air blower offline;
- (c) Emergency shutdown - refers to the process of the SAP being taken to a non-operational mode (e.g., air blower offline, no Sulfur feed to furnace) in a rapid manner as a result of an abnormal operating scenario (e.g., power failure, equipment failure, etc.).

4 Maximum release limit during normal fertiliser product manufacturing;

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5 Maximum release limit during Sulfur-fortified fertiliser product manufacturing.

NA – Not Applicable

*NOTE: Florida Standard applies only to granulation plant flue stack as sampling ports have been installed to this standard, not Australian Standard.*

#### B5 Dust and Particulate Matter Monitoring

The holder of this environmental authority must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:

(a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter — Gravimetric method.

(b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM<sub>10</sub>) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than 5 exceedances recorded each year, when monitored in accordance with the most recent version of either:

1 Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM<sub>10</sub> high volume sampler with size-selective inlet — Gravimetric method; or

2 Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM<sub>10</sub> low volume sampler—Gravimetric method.

(c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM<sub>2.5</sub>) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)2.5/(sub) low volume sampler—Gravimetric method.

(d) A concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method

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**B6 Ambient Air Quality - Sulfur Dioxide Monitoring**

The holder of this environmental authority must carry out an ambient air quality monitoring program for Sulfur dioxide at the monitoring locations and at the frequency specified in Table B2 (Sulfur Dioxide Monitoring Locations) and Schedule K, Map K7 - Sulfur Dioxide Monitoring Locations<sup>1</sup>.

**Table B2 - Sulfur Dioxide Monitoring Locations**

| Monitoring Location | Map Reference<br>(GDA94, MGA, Zone 54) |                  | Monitoring Frequency    |
|---------------------|----------------------------------------|------------------|-------------------------|
|                     | Easting                                | Northing         |                         |
| TBA <sup>1</sup>    | TBA <sup>1</sup>                       | TBA <sup>1</sup> | Continuous <sup>2</sup> |
| TBA <sup>1</sup>    | TBA <sup>1</sup>                       | TBA <sup>1</sup> |                         |
| TBA <sup>1</sup>    | TBA <sup>1</sup>                       | TBA <sup>1</sup> |                         |
| TBA <sup>1</sup>    | TBA <sup>1</sup>                       | TBA <sup>1</sup> |                         |

*1 To be advised at least one (1) month prior to commissioning of Sulfuric acid plant. Monitoring locations must be:*

- (a) Developed by an appropriate qualified person and meet the requirements of the Environmental Protection (Air) Policy 2008;*
- (b) Sufficient in numbers to monitor impacts on the receiving environment and any sensitive receptors in order to make statistically valid conclusions;*
- (c) Installed in accordance with the relevant Australian Standards.*

*2 Monitoring which provides data equal to at least 75 percent of the total possible data required in any period of:*

- (a) twelve (12) calendar months; and*
- (b) three (3) calendar months, satisfies this requirement.*

- B7** Emissions from the site must not cause an exceedance of the maximum Sulfur Dioxide concentrations specified in Table B3 - Ambient Sulfur Dioxide Limits when measured at the monitoring locations defined in Table B2 - Sulfur Dioxide Monitoring Locations.

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Table B3 - Ambient Sulfur Dioxide Limits

| Averaging Time | Maximum Sulfur Dioxide Concentration (µg/m³) |
|----------------|----------------------------------------------|
| Annual         | 22                                           |
| 1 day          | 230                                          |
| 1 hour         | 570                                          |

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#### **Schedule C – Waste Management**

- C1 General waste must only be disposed of into the waste disposal trench facility of ML5543 and identified in Schedule K, Map K6 - Waste Disposal Trench Location.
- C2 Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
- C3 The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
- C4 The holder of this environmental authority may burn limited quantities of waste timber pallets for emergency response and fire management training purposes provided the activity does not cause environmental harm at any sensitive place or commercial place.
- C5 **Waste Disposal**
- Regulated waste, other than that authorised to be disposed of on site under this authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.
- C6 The only waste that can be disposed of on site is waste generated on site and is limited to:
- a) Waste rock
  - b) Gypsum
  - c) Rejects (waste contaminated fertiliser and fertiliser additives, acid contaminated sludge and scales)
  - d) Slimes (dried slimes may be either stockpiled or disposed of in-pit)
  - e) General waste including construction and demolition waste, green waste and putrescible and domestic wastes
  - f) Tyres/Conveyor belt/rubber moulded products
  - g) Contaminated Plant Consumables (acid-contaminated fiberglass pipes, filter cloths, bricks, cooling tower mist eliminators, Personal protective equipment (PPE), spill neutralisation and clean-up material, anti-scaling agent, mixed bed resins)

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h) HDPE pipes contaminated with gypsum to the Gypsum Storage Facility, provided the disposal does not impact on the stability of the facility.

C7 The environmental authority holder must seek written approval from the administering authority beforehand to dispose of any regulated waste not currently approved for disposal on site under this authority. The environmental authority holder must provide details to the administering authority of the waste to be disposed including:

- a) Name of waste
- b) Type of waste
- c) Chemical composition of waste
- d) Proposed waste destination
- e) Volume/Amount of waste
- f) Risk assessment of disposing waste onsite
- g) Assessment of alternative waste management options.

C8 **Slimes (Tailings) Disposal**

Slimes must be managed in accordance with procedures contained within the current Environmental Management Plan. These procedures must include provisions for:

- a) Containment of slimes in accordance with design plan;
- b) Stockpiling and in-pit disposal of slimes;
- c) The management of seepage and leachates both during operation and post closure;
- d) The control of fugitive emissions to air;
- e) Rehabilitation strategy which meets the rehabilitation objectives specified in Schedule H – Land and Rehabilitation; and
- f) Monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of slimes, including the prevention and management of acid drainage, erosion minimisation and establishment of vegetation cover.

C9 **Waste Rock Disposal**

A waste rock and spoil disposal plan should be developed and include, where relevant, at least:

- 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

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significant effects including salinity, acidity, 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) rehabilitation strategy

C10 The holder must develop, document and implement procedures and guidelines for the acceptance, handling, storage and processing of regulated waste at the designated Bioremediation Area identified in Schedule K, Map K6 – Waste Disposal Trench.

C11 The bioremediation activity must be undertaken in accordance with written procedures that:

a) ensure that only waste suitable for bioremediation is accepted for storage and processing within the designated Bioremediation Area

b) identify potential risks to the environment from the activity during routine operations, closure and an emergency

c) establish and maintain control measures that minimise the potential for environmental harm

d) ensure that staff are trained in and aware of their obligations under the *Environmental Protection Act 1994*

e) ensure that reviews of environmental performance are undertaken at least annually

C12 An area which provides an impervious barrier to subsoil and groundwater must be used for:

a) receiving, storing, mixing and processing materials associated with the bioremediation activity

b) collecting and storing leachate.

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- C13 Stormwater runoff from disturbed areas associated with the bioremediation area, generated by (up to and including) a 24 hour storm event with an average recurrence interval of one-in-ten years must be retained on site and can only be released after the event where:
- a) beneficial reuse on site is not viable
  - b) a release is required to maintain the required stormwater retention capacity
  - c) there are no contaminants present or at concentrations which may cause environmental harm
- C14 All reasonable and practicable measures must be taken to exclude vectors and pest species from the bioremediation area to the extent necessary to prevent:
- a) environmental nuisance to occupiers of neighbouring premises
  - b) any danger or risk to the health of any persons.
- C15 The holder of this environmental authority must ensure detailed records are maintained of all waste accepted for storage, treatment and processing at the Bioremediation Area, including the date accepted, and the origin, quantity and chemical composition of the waste.

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**Schedule D – Noise and Vibration****D1 Noise limits**

The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise limits to be exceeded at a sensitive place or commercial place.

**Table D1 – Noise Limits, Sensitive Place**

| Noise Level<br>(d(b)A measured<br>as: | Monday to Saturday |                    |                   | Sundays and Public Holidays |                    |                   |
|---------------------------------------|--------------------|--------------------|-------------------|-----------------------------|--------------------|-------------------|
|                                       | 7am–6pm            | 6pm–10pm           | 10pm–7am          | 9am–6pm                     | 6pm–10pm           | 10pm–9am          |
| L <sub>Aeq</sub> , adj, 15 mins       | CV = 50<br>AV = 5  | CV = 45<br>AV = 5  | CV = 40<br>AV = 0 | CV = 45<br>AV = 5           | CV = 40<br>AV = 5  | CV = 35<br>AV = 0 |
| L <sub>A1</sub> , adj, 15 mins        | CV = 55<br>AV = 10 | CV = 50<br>AV = 10 | CV = 45<br>AV = 5 | CV = 50<br>AV = 10          | CV = 45<br>AV = 10 | CV = 40<br>AV = 5 |

Notes:

a) CV: Critical Value, AV: Adjustment Value

b) To calculate noise limits;

If  $bg \leq (CV - AV)$ : Noise limit =  $bg + AV$

If  $(CV - AV) < bg \leq CV$ : Noise limit = CV

If  $bg > CV$ : Noise limit =  $bg + 0$

c) In the event that measured bg (L<sub>A90</sub>,adj, 15 mins) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level.

d) Bg = background noise level (L<sub>A90</sub>, adj, 15 mins) measured over 3 – 5 days at the nearest sensitive receptor.

e) If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the process outlined in the 'Planning for Noise Control' guideline.

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**D2 Air Blast Overpressure Nuisance**

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

**Table D2 - Blasting Noise Limits**

| Blasting noise limits                   | Sensitive or commercial place limits                                                                                                          |             |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|                                         | 7am to 6pm                                                                                                                                    | 6pm to 7am  |
| Air blast overpressure                  | 115 dB (Linear) Peak for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 bB (Linear) Peak                      | No Blasting |
| 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 | No Blasting |

**D3 Monitoring and Reporting**

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

- LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)
- background noise LA90
- the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels
- atmospheric conditions including temperature, relative humidity and wind speed and directions
- effects due to any extraneous factors such as traffic noise
- location, date and time of monitoring
- if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 — 200 Hz range.

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- D4 The method of measurement and reporting of noise levels must comply with the most recent edition of the administering authority's Noise Measurement Manual or the most recent version of AS1055 *Acoustics – Description and measurement of environmental noise*.

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**Schedule E – Groundwater****E1 Groundwater**

The holder of this environmental authority must not release contaminants to groundwater.

- E2 Groundwater quality and levels must be monitored at the locations and frequencies defined in Table – E1 – Groundwater Monitoring Locations and Frequency and Schedule K, Map K2(A) – Groundwater Monitoring Sites – Gypsum Stacks, Map K2(B) – Groundwater Monitoring Sites – Slimes Dams and Map K2(C) – Groundwater Monitoring Sites – SAP for quality characteristics identified in Table E2 - Groundwater Quality Contaminant Triggers and Limits.

**Table E1 - Groundwater Monitoring Locations and Frequency**

| Monitoring<br><br>point | Map Reference (GDA94, MGA, Zone 54) |                  | Surface RL (m)<br><br>(Top of Steel) | Monitoring<br><br>frequency |
|-------------------------|-------------------------------------|------------------|--------------------------------------|-----------------------------|
|                         | Easting                             | Northing         |                                      |                             |
| Compliance Bores        |                                     |                  |                                      |                             |
| EPMB1                   | 394618                              | 7581185          | 272.78                               | Quarterly                   |
| EPMB2                   | 394555                              | 7580742          | 269.93                               |                             |
| EPMB4                   | 394478                              | 7580014          | 265.52                               |                             |
| GSMB1A                  | 394055                              | 7580565          | 269.58                               |                             |
| GSMB2A                  | 394077                              | 7581033          | 270.58                               |                             |
| GSMB4B                  | 393970                              | 7581658          | 270.89                               |                             |
| GSMB9                   | 394207                              | 7580521          | 266.63                               |                             |
| GSMB15A                 | 394677                              | 7581509          | 273.39                               |                             |
| SAPMB01                 | TBD <sup>1</sup>                    | TBD <sup>1</sup> | TBD <sup>1</sup>                     |                             |
| SAPMB02                 | TBD <sup>1</sup>                    | TBD <sup>1</sup> | TBD <sup>1</sup>                     |                             |
| SAPMB03                 | TBD <sup>1</sup>                    | TBD <sup>1</sup> | TBD <sup>1</sup>                     |                             |
| SAPMB04                 | TBD <sup>1</sup>                    | TBD <sup>1</sup> | TBD <sup>1</sup>                     |                             |
| H                       | 394441                              | 7574871          | 265.13                               |                             |

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|                                |                  |                  |                  |           |
|--------------------------------|------------------|------------------|------------------|-----------|
| I                              | 394939           | 7575743          | 262.72           |           |
| Reference Bore                 |                  |                  |                  |           |
| GW05A                          | 394277           | 7580069          | 267.68           | Quarterly |
| Observation Bores <sup>3</sup> |                  |                  |                  |           |
| GSMB7A                         | 394645           | 7582037          | 273.13           | 6 monthly |
| GSMB11                         | 393879           | 7582145          | 272.98           |           |
| GSMB12                         | 393713           | 7582968          | 274.77           |           |
| GSMB13                         | 393963           | 7583175          | 276.26           |           |
| GSMB14                         | 394468           | 7582732          | 274.68           |           |
| GSMB17                         | 392851           | 7582790          | 274.08           |           |
| GSMB28                         | 393268           | 7582031          | 272.2            |           |
| GSMB29                         | 393609           | 7581873          | 273.3            |           |
| GSMB30                         | 393260           | 7583867          | 279.6            |           |
| GSMB31                         | 393596           | 7583575          | 278.3            |           |
| WAS-RB                         | 392619           | 7583475          | 282.08           |           |
| DPMB1                          | TBD <sup>2</sup> | TBD <sup>2</sup> | TBD <sup>2</sup> |           |
| DPMB2                          | TBD <sup>2</sup> | TBD <sup>2</sup> | TBD <sup>2</sup> |           |
| DPMB3                          | TBD <sup>2</sup> | TBD <sup>2</sup> | TBD <sup>2</sup> |           |
| SDMB01                         | 394289           | 7578528          | 262.18           |           |
| SDMB02                         | 394955           | 7577686          | 260.63           |           |
| SDMB03                         | 394834           | 7578865          | 261.56           |           |
| SDMB04                         | 394826           | 7578360          | 261.43           |           |

<sup>1</sup> – To be determined prior to commissioning of Sulfuric Acid Plant.

<sup>2</sup> – To be advised prior to construction of Decant Pond Cell 3C.

<sup>3</sup> – Contaminant trigger level and contaminant limits are not applicable to 'Observation Bores'.

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**Table E2 - Groundwater Quality Contaminant Triggers and Limits**

| Parameter                      | Unit                        | Contaminant Trigger Level <sup>1</sup>                                                  | Contaminant Limit <sup>1</sup>                                                                     |
|--------------------------------|-----------------------------|-----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| pH                             | pH                          | 6.0 <sup>2</sup> (minimum)<br>7.5 <sup>2</sup> (maximum)                                | 5.0 (minimum)<br>9.0 (maximum)                                                                     |
| Electrical Conductivity        | µS/cm                       | 1500 or 80 <sup>th</sup> percentile of reference,<br>whichever is higher                | 5970 or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower              |
| Chloride                       | For Interpretation Purposes |                                                                                         |                                                                                                    |
| Fluoride                       | mg/L                        | 80 <sup>th</sup> percentile of reference                                                | 2.0 <sup>3</sup> or 95 <sup>th</sup> percentile of reference,<br>whichever is lower                |
| Sulphate                       | mg/L                        | 80 <sup>th</sup> Percentile of reference                                                | 1000 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower |
| Total Nitrogen                 | mg/L                        | 0.15 <sup>2</sup> or 80 <sup>th</sup> percentile of reference,<br>whichever is higher   | 95 <sup>th</sup> percentile of reference                                                           |
| Filterable Reactive Phosphorus | mg/L                        | 0.04 <sup>5</sup> or 80 <sup>th</sup> percentile of reference,<br>whichever is higher   | 95 <sup>th</sup> percentile of reference                                                           |
| Total Phosphorus               | mg/L                        | 3.12 <sup>5</sup> or 80 <sup>th</sup> percentile of reference,<br>whichever is higher   | 95 <sup>th</sup> percentile of reference                                                           |
| Aluminium                      | mg/L                        | 0.055 <sup>2</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher  | 5 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower    |
| Arsenic                        | mg/L                        | 0.013 <sup>2</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher  | 0.5 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower  |
| Cadmium                        | mg/L                        | 0.0015 <sup>5</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher | 0.01 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower |
| Chromium                       | mg/L                        | 0.008 <sup>4</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher  | 0.5 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower  |
| Cobalt                         | mg/L                        | 0.0028 <sup>2</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher | 1 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower    |
| Copper                         | mg/L                        | 0.0126 <sup>4</sup> or 80 <sup>th</sup> percentile of<br>reference, whichever is higher | 1 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower    |
| Lead                           | mg/L                        | 0.06 <sup>5</sup> or 80 <sup>th</sup> percentile of reference,<br>whichever is higher   | 0.1 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> ,<br>whichever is lower  |

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|            |                                |                                                                                      |                                                                                                  |
|------------|--------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Mercury    | mg/L                           | 0.0006 <sup>2</sup> or 80 <sup>th</sup> percentile of reference, whichever is higher | 0.002 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> , whichever is lower |
| Nickel     | mg/L                           | 0.025 <sup>5</sup> or 80 <sup>th</sup> percentile of reference, whichever is higher  | 1 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> , whichever is lower     |
| Selenium   | mg/L                           | 0.011 <sup>2</sup> or 80 <sup>th</sup> percentile of reference, whichever is higher  | 0.02 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> , whichever is lower  |
| Uranium    | mg/L                           | 0.008 or 80 <sup>th</sup> percentile of reference, whichever is higher               | 0.2 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> , whichever is lower   |
| Zinc       | mg/L                           | 0.072 <sup>4</sup> or 80 <sup>th</sup> percentile of reference, whichever is higher  | 20 <sup>3</sup> or 95 <sup>th</sup> percentile of reference <sup>1</sup> , whichever is lower    |
| Hardness   | Interpretational purposes only |                                                                                      |                                                                                                  |
| Alkalinity | Interpretational purposes only |                                                                                      |                                                                                                  |

<sup>1</sup> All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.

<sup>2</sup> ANZECC/ARMCANZ (2000) trigger values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

<sup>3</sup> Contaminant limits based on ANZECC/ARMCANZ (2000) livestock drinking water guidelines.

<sup>4</sup> Hardness modified trigger value; extremely hard water (400 mg/L as CaCO<sub>3</sub>); refer to ANZECC/ARMCANZ (2000) Table 3.4.4 for the approximate factors to apply to soft water trigger value in fresh water.

<sup>5</sup> Site specific trigger value (April 2014).

Notes:

\* In any given sampling event, where the contaminant limit is exceeded and the reference site also exceeds the contaminant limit, the value of the reference data applies.

\*\* The quality characteristics required to be monitored as per Table E2 - Groundwater Quality Contaminant Triggers and Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

E3 If quality characteristics of groundwater from compliance bores identified in Table E1 - Groundwater Monitoring Locations and Frequency exceed any of the trigger levels stated in Table E2 - Groundwater

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Quality Contaminant Triggers and Limits, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and

- (a) If the level of contaminants at the compliance monitoring bores does not exceed the reference bore results, then no action is to be taken; and,
- (b) If the level of contaminants at the compliance monitoring bore is greater than the reference bore results, complete an investigation in accordance with the ANZECC and ARMCANZ 2000, into the potential for environmental harm and provide a written report to the administering authority within three (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 E3(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the three month investigation period.*

- E4 Results of monitoring of groundwater from compliance bores identified in Table E1 - Groundwater Monitoring Locations and Frequency, must not exceed any of the contaminant limits stated in Table E2 - Groundwater Quality Contaminant Triggers and Limits.
- E5 By 1 June 2026, a Groundwater Monitoring and Management Program must be developed, documented and implemented by an appropriately qualified person. The Groundwater Monitoring and Management Program must be reviewed and updated thereafter every twelve months and submitted to the administering authority.
- E6 The Groundwater Monitoring and Management Program required by Condition E5 must include at a minimum:
  - (a) An assessment of compliance against the conditions of this environmental authority; and
  - (b) An assessment of the suitability of the monitoring network for groundwater specified in Schedule E – Table 1 (Groundwater Monitoring Locations and Frequency) to effectively detect impacts from the mining activities; and
  - (c) Proposed mitigation measures and implementation timeframes for any detected contamination of groundwater not in accordance with this environmental authority.

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#### Schedule F – Water

- F1 The Authority holder must develop, implement and maintain all reasonable measures/contingency plans to ensure all weather access to any sampling location listed in the Schedule F – Table F1 (Contaminant Release Points) of this Authority.
- F2 The release of contaminants to waters must:
- (a) only occur during flow events in the receiving waters;
  - (b) only occur from a release point specified in Table F1 – Contaminant Release Points and identified in Schedule K, Map K3 – Contaminant Release Points; and,
  - (c) be monitored at the release point and frequency specified in Table F1 – Release Points for each parameter specified in Table F2 – Release Quality Objectives.

**Table F1 – Contaminant Release Points**

| Release Point        | Map Reference<br>(GDA94, MGA, Zone 54) |          | Contaminant Source,<br>Location, and<br>Description of Release Point                                            | Receiving Waters<br>Description | Monitoring Frequency                                                                                             |
|----------------------|----------------------------------------|----------|-----------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------|
|                      | Easting                                | Northing |                                                                                                                 |                                 |                                                                                                                  |
| Main Stormwater Pond | 394216                                 | 7580102  | Stormwater runoff from the granulation plant and phosphoric acid plant – from the main stormwater pond spillway | Railway Creek                   | Daily during release (the first sample must be taken within 2 hours of commencement of release if safe to do so) |
| Beneficiation Pond   | 394271                                 | 7579678  | Beneficiation plant, runoff from heavy equipment workshop                                                       | Railway Creek                   |                                                                                                                  |
| Ammonia Pond         | 394219                                 | 7580289  | Stormwater runoff from the gypsum conveyor (south) and ammonia plant –Ammonia Pond spillway.                    | Railway Creek                   |                                                                                                                  |

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|                      |        |         |                                                                                    |               |  |
|----------------------|--------|---------|------------------------------------------------------------------------------------|---------------|--|
| Gypsum Conveyor Sump | 394256 | 7580494 | Stormwater runoff from the gypsum conveyor (north) –Gypsum Conveyor Sump spillway. | Railway Creek |  |
| Osborne Shed Dam     | 394503 | 7580500 | Stormwater runoff from Rail Loadout facility                                       | Railway Creek |  |

**Table F2 – Release Quality Objectives**

| Quality Characteristics        | Release Quality Objectives <sup>1</sup><br>(mg/L unless otherwise specified)                                                                                                                                                              |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH (pH units)                  | 6.0 <sup>2</sup> or 20 <sup>th</sup> percentile of reference site concentration <sup>3</sup> , whichever is lower.<br>7.5 <sup>2</sup> or 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> , whichever is higher. |
| EC (µS/cm)                     | Dilution Factor <sup>4</sup> x 435 or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher                                                                      |
| Suspended Solids               | For interpretational purposes only                                                                                                                                                                                                        |
| Dissolved oxygen               | For interpretational purposes only                                                                                                                                                                                                        |
| Sulphate                       | Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup>                                                                                                                                   |
| Fluoride                       | Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup>                                                                                                                                   |
| Total Nitrogen                 | Dilution Factor <sup>4</sup> x 0.15 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher                                                        |
| Filterable Reactive Phosphorus | Dilution Factor <sup>4</sup> x 0.04 <sup>5</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher                                                        |
| Total Phosphorus               | Dilution Factor <sup>4</sup> x 3.12 <sup>5</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher                                                        |
| Major cations                  | For interpretative purposes only                                                                                                                                                                                                          |
| Major anions                   |                                                                                                                                                                                                                                           |

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|                |                                                                                                                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aluminium      | Dilution Factor <sup>4</sup> x 0.055 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Arsenic        | Dilution Factor <sup>4</sup> x 0.013 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Cadmium        | Dilution Factor <sup>4</sup> x 0.0002 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Chromium       | Dilution Factor <sup>4</sup> x 0.001 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Cobalt         | Dilution Factor <sup>4</sup> x 0.0028 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Copper         | Dilution Factor <sup>4</sup> x 0.0014 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Lead           | Dilution Factor <sup>4</sup> x 0.0034 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Mercury        | Dilution Factor <sup>4</sup> x 0.0006 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Nickel         | Dilution Factor <sup>4</sup> x 0.011 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Selenium       | Dilution Factor <sup>4</sup> x 0.005 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Uranium        | Dilution Factor <sup>4</sup> x 0.0005 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher |
| Zinc           | Dilution Factor <sup>4</sup> x 0.008 <sup>2</sup> or<br>Dilution Factor <sup>4</sup> x 80 <sup>th</sup> percentile of reference site concentration <sup>3</sup> whichever is higher  |
| Alkalinity     | For interpretative purposes only                                                                                                                                                     |
| Total Hardness | For interpretative purposes only                                                                                                                                                     |

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|                              |                             |
|------------------------------|-----------------------------|
| Total petroleum hydrocarbons | No detectable film or odour |
|------------------------------|-----------------------------|

<sup>1</sup> For release quality objectives (RQO) parameters, all metals and metalloids must be measured and reported as both total (unfiltered) and dissolved (field filtered) levels.

<sup>2</sup> ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

<sup>3</sup> Reference site concentration determined from reference points specified in Table F3 – Receiving Water Monitoring Locations and Frequency.

<sup>4</sup> Dilution Factor is the volume ratio of receiving water flow to contaminated water release. The volume of flow in the receiving water (Railway Creek) must be at least 20 times the volume of contaminated waters released as specified in EA condition F2.

<sup>5</sup> Site specific water quality objective (April 2014).

Note: (1) The quality characteristics required to be monitored as per Table F2 – Release Quality Objectives can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

- F3 At the time of release from the authorised release point specified in Table F1 — Contaminant Release Points the modelled water flow volume in the respective receiving water must be at least twenty (20) times the volume at which respective contaminated waters are released.
- F4 The release of contaminants to waters must not exceed the release quality objectives stated in Table F2 – Release Quality Objectives for each quality characteristic.
- F5 The release of waters must not cause erosion of the bed or banks of the receiving waters or result in deposition of sediment.
- F6 The holder of this environmental authority must notify the administering authority as soon as practicable of a release event (no later than twenty four (24) of having commenced releasing mine affected water to the receiving environment). Notification must include the submission of written verification to the administering authority of the following information:
- a) release commencement date/time;
  - b) expected release cessation date/time;
  - c) release point/s;

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- d) release volume (estimated);
- e) receiving water/s including the natural flow rate; and
- f) any details (including available data) regarding likely impacts on the receiving water(s).

F7 The holder of this environmental authority must notify the administering authority as soon as practicable, (nominally within twenty four (24) hours after cessation of a release) of the cessation of a release notified under Condition F5 and within twenty-eight (28) days provide the following information in writing:

- a) release cessation date/time;
- b) natural flow volume in receiving water;
- c) volume of water released;
- d) 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);
- e) all in-situ water quality monitoring results; and
- f) any other matters pertinent to the water release event.

**F8 Receiving Environment Monitoring and Contaminant Trigger Levels**

The quality of the receiving waters must be monitored at the locations and frequency specified in Table F3 - Receiving Water Monitoring Locations and Frequency and depicted in Schedule K, Map K4 – Surface Water and Sediments Monitoring Locations for each quality characteristic stated in Table F4 - Receiving Water Trigger Levels and Contaminant Limits.

**Table F3 – Receiving Water Monitoring Locations and Frequency**

| Monitoring<br><br>point | Map Reference<br><br>(GDA94, MGA, Zone 54) |          | Monitoring<br><br>frequency |
|-------------------------|--------------------------------------------|----------|-----------------------------|
|                         | Easting                                    | Northing |                             |
| Compliance Sites        |                                            |          |                             |
| KC (Kolar Creek)        | 394963                                     | 7577235  | Each stream flow event      |
| KC1 (Kolar Creek 1)     | 403095                                     | 7572067  | Each stream flow event      |
| RC (Railway Creek)      | 394935                                     | 7578326  | Each stream flow event      |

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| Reference Sites <sup>1</sup>   |        |         |                        |
|--------------------------------|--------|---------|------------------------|
| DHC (Dead Horse Creek)         | 391718 | 7579274 | Each stream flow event |
| PHO-9                          | 393988 | 7583968 | Each stream flow event |
| GC1 (Galah Creek 1)            | 390778 | 7586252 | Each stream flow event |
| RCT (Railway Creek Tributary)  | 395133 | 7579732 | Each stream flow event |
| Observation Sites <sup>2</sup> |        |         |                        |
| RC1 (Railway Creek 1)          | 394076 | 7580806 | Each stream flow event |
| RC2 (Railway Creek 2)          | 394467 | 7580710 | Each stream flow event |
| KC3 (Kolar Creek 3)            | 398072 | 7575607 | Each stream flow event |

NOTES:

<sup>1</sup> Reference sites must:

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

<sup>2</sup> Observation sites are to assist in characterisation of Railway Creek and Kolar Creek. Receiving water trigger levels and contaminant limits are not applicable.

**Table F4 – Receiving Water Trigger Levels and Contaminant Limits**

| Quality Characteristic | Unit | Contaminant Trigger Level <sup>1,3</sup> | Contaminant Limit <sup>1,2,3</sup>                                                                                                                                                 |
|------------------------|------|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| pH (pH Unit)           | pH   | 6.0 (minimum)<br>7.5 (maximum)           | 5.0 (minimum) or 5th percentile of reference site concentration, whichever is higher.<br><br>9.0 (maximum) or 95th percentile of reference site concentration, whichever is lower. |

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|                                           |       |                                                                                                         |                                                                                                      |
|-------------------------------------------|-------|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Electrical conductivity                   | µs/cm | 435 or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher                 | 1000 or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower              |
| Sulphate (SO <sub>4</sub> <sup>2-</sup> ) | mg/L  | 80 <sup>th</sup> percentile of reference site concentration                                             | 1000 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower |
| Fluoride                                  | mg/L  | 80 <sup>th</sup> percentile of reference site concentration                                             | 2 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |
| Total Nitrogen                            | mg/L  | 0.15 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher   | 95 <sup>th</sup> percentile of reference site concentration                                          |
| Filterable Reactive Phosphorus (FRP)      | mg/L  | 0.04 <sup>6</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher   | 95 <sup>th</sup> percentile of reference site concentration                                          |
| Total Phosphorus                          | mg/L  | 3.12 <sup>6</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher   | 95 <sup>th</sup> percentile of reference site concentration                                          |
| Aluminium<br>(At KC1 and KC2)             | mg/L  | 0.055 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher  | 19.62 <sup>7</sup>                                                                                   |
| Aluminium<br>(At RC)                      | mg/L  | 0.055 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher  | 5 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |
| Arsenic                                   | mg/L  | 0.013 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher  | 0.5 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower  |
| Cadmium                                   | mg/L  | 0.0002 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 0.01 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower |
| Chromium                                  | mg/L  | 0.001 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher  | 1 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |
| Cobalt                                    | mg/L  | 0.0028 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 1 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |
| Copper                                    | mg/L  | 0.0014 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 1 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |
| Lead                                      | mg/L  | 0.0034 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 0.1 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower  |
| Mercury                                   | mg/L  | 0.0006 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 0.002 <sup>5</sup> or 95% of reference site concentration, whichever is lower                        |
| Nickel                                    | mg/L  | 0.011 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher  | 1 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower    |

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|                  |                                |                                                                                                        |                                                                                                      |
|------------------|--------------------------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| Selenium         | mg/L                           | 0.011 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 0.02 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower |
| Uranium          | mg/L                           | 0.008 or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher              | 0.2 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower  |
| Zinc             | mg/L                           | 0.008 <sup>4</sup> or 80 <sup>th</sup> percentile of reference site concentration, whichever is higher | 20 <sup>5</sup> or 95 <sup>th</sup> percentile of reference site concentration, whichever is lower   |
| Total Hardness   | Interpretational purposes only |                                                                                                        |                                                                                                      |
| Suspended Solids | Interpretational purposes only |                                                                                                        |                                                                                                      |
| Alkalinity       | Interpretational purposes only |                                                                                                        |                                                                                                      |

<sup>1</sup> All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger. Contaminant limits apply for metal/metalloids if total results exceed limits.

<sup>2</sup> The alternative contaminant limit '95<sup>th</sup> percentile of reference' is not applicable where the 95<sup>th</sup> percentile of reference (Totals) for a Quality Characteristic is determined to be lower than the specified trigger level (Dissolved) for the respective Quality Characteristic.

<sup>3</sup> Reference site concentration determined from reference points specified in Table F3 – Receiving Water Monitoring Locations.

<sup>4</sup> ANZECC/ARMCANZ (2000) values for aquatic ecosystems indicative of slightly-to-moderately disturbed tropical Australian upland river ecosystems Tables 3.3.4 and Table 3.4.1 (high reliability trigger values) and moderate or low reliability trigger values (Section 8.3) if no value available in Table 3.4.1.

<sup>5</sup> Contaminant limits based on ANZECC/ARMCANZ (2000) livestock drinking water guidelines.

<sup>6</sup> Site specific trigger value (April 2014).

<sup>7</sup> Interim site specific limit - based on a C&R Consulting Pty Ltd (2017) report "Phosphate Hill Mine: Methods for determining site specific trigger levels and contaminant limits" (Version: Final).

Notes:

\* In any given sampling event, where the contaminant limit is exceeded and the reference site also exceeds the contaminant limit, the value of the reference data applies.

\*\* The quality characteristics required to be monitored as per Table F4 – Receiving Water Trigger Levels and Contaminant Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

F9 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table F4 - Receiving Water Trigger Levels and Contaminant Limits the holder of

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this environmental authority must compare the downstream results to the reference site results in the receiving waters and:

- (a) where the downstream result is the same or a lower value than the reference site value for the quality characteristic during the same sampling event then no action is to be taken; or
- (b) where the downstream results exceed the reference site, 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 in the next annual return, 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 F7(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*

- F10 The release of contaminants to surface waters must not result in exceedance of contaminant limits stated in Table F4 – Receiving Water Trigger Levels and Contaminant Limits.
- F11 Sediment quality of monitoring locations defined in Table F3 – Receiving Water Monitoring Locations and identified on Schedule K, Map K4 –Surface Water and Sediments Monitoring Locations must be monitored twice a year (once at the end of the wet season and once at the end of the dry season) for the parameters defined in Table F5 - Stream Sediment Trigger Levels and Contaminant Limits.

**Table F5 - Stream Sediment Trigger Levels and Contaminant Limits**

| Parameter  | Unit  | Trigger Level                                                          | Contaminant Limit                                                                  |
|------------|-------|------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Cobalt     | mg/kg | Reference value <sup>1</sup>                                           | 3 times the reference value <sup>1</sup>                                           |
| Copper     | mg/kg | 65 <sup>2</sup> or reference value <sup>1</sup> , whichever is higher. | 270 <sup>3</sup> or 3 times the reference value <sup>1</sup> , whichever is higher |
| Fluoride   | mg/kg | Reference value <sup>1</sup>                                           | 3 times the reference value <sup>1</sup>                                           |
| Lead       | mg/kg | 50 <sup>2</sup> or reference value <sup>1</sup> , whichever is higher. | 220 <sup>3</sup> or 3 times the reference value <sup>1</sup> , whichever is higher |
| Manganese  | mg/kg | Reference value <sup>1</sup>                                           | 3 times the reference value <sup>1</sup>                                           |
| Nickel     | mg/kg | 21 <sup>2</sup> or reference value <sup>1</sup> , whichever is higher. | 52 <sup>3</sup> or 3 times the reference value <sup>1</sup> , whichever is higher. |
| Phosphorus | mg/kg | Reference value <sup>1</sup>                                           | 3 times the reference value <sup>1</sup>                                           |
| Uranium    | mg/kg | Reference value <sup>1</sup>                                           | 3 times the reference value <sup>1</sup>                                           |
| Zinc       | mg/kg | 200 <sup>2</sup> or reference value <sup>1</sup> , whichever is higher | 410 <sup>3</sup> or 3 times the reference value <sup>1</sup> , whichever is higher |
| Phosphate  | mg/kg | Interpretational purposes only                                         |                                                                                    |

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|                            |       |                                |
|----------------------------|-------|--------------------------------|
| Nitrogen                   | mg/kg | Interpretational purposes only |
| Particle size distribution |       | Interpretational purposes only |

<sup>1</sup> Reference sites are defined in Table F3 – Receiving Water Monitoring Locations and Frequency.

<sup>2</sup> ANZECC (2000) Interim Sediment Quality Guidelines – low values based on total sediments

<sup>3</sup> ANZECC (2000) Interim Sediment Quality Guidelines – high values based on total sediments

**Notes:**

\* All analytes excluding Phosphate and Nitrogen must be measured as total (digested) on a <63µm wet sieved sediment fraction. Anions and nutrients must be measured on a deionised water ASLP leachate as dissolved (0.45µm filtered).

\*\* The reference value is the 80th percentile of reference site concentration for both Railway Creek system and combined Dead Horse and Galah Creek for Kolar Creek system monitoring.

\*\*\* The quality characteristics required to be monitored as per Table F5 – Stream Sediments Trigger Levels and Contaminant Limits can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk.

F12 If quality characteristics of the stream sediments exceed any of the trigger levels specified in Table F5 - Stream Sediment Trigger Levels and Contaminant Limits, the holder of this environmental authority 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; or
- (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 with the next annual return, 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 F11(b)*

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*of this condition, no further reporting is required for subsequent trigger events for that quality characteristic within the investigation period.*

F13 All stream sediment sampling must be undertaken in accordance with AS 5667.12 *Guidance on Sampling of Bottom Sediments of 1998*.

F14 Releases of contaminants must not result in an exceedance of sediment contaminant limits stated in Table F5 - Stream Sediment Trigger Levels and Contaminant Levels.

**F15 Duchess Embayment Aquifer Water Reserves Drilling Campaign**

The disposal of water from the water extraction test bores for the Duchess Embayment Aquifer Water Reserves Drilling Campaign must:

- a) not cause environmental harm;
- b) not be released to waters;
- c) prevent surface ponding and run off beyond the disposal area;
- d) not cause erosion;
- e) not change or damage vegetation health;
- f) not change or damage the soils and sub soils including structure, pH, salinity and sodicity and cation exchange capacity.

F16 A monitoring program must be developed, documented and implemented that includes:

an assessment of compliance against the requirements of condition F14, and

an assessment of the impact of the disposal.

F17 The results of the monitoring program required by condition F15 must be provided to the administering authority on request.

**F18 Receiving Environment Monitoring Program (REMP)**

A REMP must be developed and implemented within 6 months from the date this Environmental Authority takes effect 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.

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For the purposes of the REMP, the receiving environment is the waters of the downstream environment and connected waterways within 10km downstream of the release.

- F19 A REMP design document that addresses the requirement of the REMP must be prepared and made available to the administering authority upon request.
- F20 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available to the administering authority upon request. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives and the suitability of current discharge limits to protect downstream environmental values.

#### **F21 Annual Water Monitoring Reporting**

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 quantity of mine affected water 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 of the conditions of this environmental authority;
- g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

#### **F22 Water Management Plan**

A Water Management Plan must be developed by an appropriately qualified person and implemented.

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#### **F23 Stormwater, Sediment and Erosion Controls**

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.

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**Schedule G – Sewage Treatment**

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

**Table G1 – Contaminant Release Limits to Land**

| Contaminant                                   | Unit            | Release limit | Limit type | Frequency |
|-----------------------------------------------|-----------------|---------------|------------|-----------|
| pH                                            | pH units        | 6.0 - 9.0     | Range      | Monthly   |
| 5 day Biochemical oxygen demand (uninhibited) | mg/L            | 20            | Maximum    | Monthly   |
| Total Suspended Solids                        | mg/L            | 30            | Maximum    | Monthly   |
| Nitrogen                                      | mg/L            | 30            | Maximum    | Monthly   |
| Phosphorus                                    | mg/L            | 15            | Maximum    | Monthly   |
| E coli                                        | Organisms/100ml | 1000          | Maximum    | Monthly   |

- G2 Treated sewage effluent may only be released to land in accordance with the conditions of this approval at the following locations:

- (a) within the nominated area(s) identified in Schedule K, Map K5 –Approved Irrigation Areas.
- (b) other land for the purpose of dust suppression and/or firefighting.

- G3 The application of treated effluent to land must be carried out in a manner such that:

- a) vegetation is not damaged
- b) there is no surface ponding of effluent
- c) there is no run-off of effluent

- G4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present, and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

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- G5 All sewage effluent released to land must be monitored at the frequency and for the parameters specified in Table G1 - Contaminant Release Limits to Land.
- G6 The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.
- G7 When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.
- G8 A minimum area of 0.5 ha of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.
- G9 Sewage tank sludge, pond sludge and residues resulting from periodic maintenance of onsite sewage treatment plants may be accepted to the designated Bioremediation Area in compliance with environmental authority conditions C10 to C15.

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**Schedule H – Land and Rehabilitation**

- H1 After each truck movement, the road shall be inspected and any spilled products shall be swept up immediately and returned to a location able to accept such waste.
- H2 Land disturbed by mining must be rehabilitated in accordance with Table H1 - Rehabilitation Requirements.

**Table H1 – Rehabilitation Requirements**

| Mine Domain | Mine Feature Names                                                          | Rehabilitation Goal | Rehabilitation Objective                                                                          | Indicators                                                                                            | Completion Criteria                                                                                             |
|-------------|-----------------------------------------------------------------------------|---------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| Open Pit    | Brolga Pit,<br>Corella Pit,<br>Galah Pit, Jabiru Pit, Magpie Pit, Eagle Pit | Safe                | Site safe for human and animals                                                                   | Engineered structures and signage to preclude humans and animals (e.g., safety bund wall and fencing) | Rehabilitation report: that all safety precautions have been taken in accordance with the relevant legislation. |
|             |                                                                             | Non-polluting       | Hazardous and contaminated material adequately managed.                                           | Hazard assessment of material by suitably qualified person.                                           | Rehabilitation report: appropriate hazard assessment and measures undertaken.                                   |
|             |                                                                             | Stable              | Minimal probability of wall failure or rock falls that will cause significant environmental harm. | Geotechnical studies of final voids                                                                   | Rehabilitation report: geotechnical studies to determine whether final landform is stable.                      |
|             |                                                                             |                     |                                                                                                   | Risk assessment of final landform                                                                     | Rehabilitation report: appropriate risk assessment                                                              |

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|                 |                                                                       |               |                                                                             |                                                                                    |                                                                                                                                                                                       |
|-----------------|-----------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |                                                                       |               |                                                                             |                                                                                    | and control measures undertaken.                                                                                                                                                      |
| Waste Rock Dump | Brolga WRD, Corella WRD, Galah WRD, Jabiru WRD, Magpie WRD, Eagle WRD | Safe          | Site safe for humans and animals                                            | Safety assessment of final landform by suitably qualified person.                  | Rehabilitation report: certification structurally sound and safe                                                                                                                      |
|                 |                                                                       | Non-polluting | Hazardous and contaminated material adequately managed.                     | Engineers assessment of cover or final landform design                             | Engineer's certification in rehabilitation report that the waste disposal site has been securely covered to minimise release of seepage or contaminants to the receiving environment. |
|                 |                                                                       |               |                                                                             | Rehabilitation monitoring plan in place to monitor downstream surface/ground water | Rehabilitation report: monitoring data demonstrates the cover is functioning in minimising release of seepage or contaminants to the receiving environment.                           |
|                 |                                                                       | Stable        | Minimal probability of subsidence or rock falls that will cause significant | Geotechnical studies of final landforms                                            | Rehabilitation report: geotechnical studies to determine whether final landform is                                                                                                    |

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|  |  |                 |                                                            |                                                                                                   |                                                                                                                                                                                                                                       |
|--|--|-----------------|------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  |                 | environmental harm                                         |                                                                                                   | stable.                                                                                                                                                                                                                               |
|  |  |                 | Vegetation cover to minimise erosion                       | Vegetation assessment                                                                             | Rehabilitation report: revegetation meets the limits with reference to analogue site or an acceptable standard.                                                                                                                       |
|  |  | Self-sustaining | Soil properties that support desired land use              | Soil monitoring program in place to ensure remaining soil is able to support post-mining land use | Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.                                                                   |
|  |  |                 | Self-sustaining natural vegetation and habitat established | Vegetation assessment                                                                             | Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate.<br><br>Rehabilitation report: certification that the weed management plan has been successful. |

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|              |                                     |               |                                                                                             |                                                                                     |                                                                                                                                                              |
|--------------|-------------------------------------|---------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gypsum Stack | Cell 1/2,<br>Cell 4A/4B, Cell 5A/5B | Safe          | Site safe for human and animals                                                             | Safety assessment of final landform by Suitably qualified person.                   | Rehabilitation report: certification structurally sound and safe                                                                                             |
|              |                                     | Non-polluting | Hazardous and contaminated material adequately managed                                      | Hazard assessment of material by suitably qualified person.                         | Rehabilitation report: appropriate hazard assessment and measures undertaken.                                                                                |
|              |                                     |               |                                                                                             | Engineers assessment of cover or final landform design                              | Engineer's certification in rehabilitation report that the stack has been securely covered to minimise release of contaminants to the receiving environment. |
|              |                                     |               | Runoff and seepage of water quality that is not likely to affect known environmental values | Rehabilitation monitoring plan in place to monitor downstream surface / groundwater | Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.            |
|              |                                     | Stable        | Minimal probability of subsidence that will cause                                           | Geotechnical studies of final landforms                                             | Rehabilitation report: Geotechnical studies to                                                                                                               |

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|  |  |                 |                                                            |                                                             |                                                                                                                                                                                                    |
|--|--|-----------------|------------------------------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  |                 | significant environmental harm                             |                                                             | determine whether final landform is stable                                                                                                                                                         |
|  |  |                 |                                                            | Risk assessment of final landform                           | Rehabilitation report: appropriate risk assessment and control measures have been undertaken.                                                                                                      |
|  |  |                 | Landform achieves appropriate erosion rates                | Design and construction of structures to control water flow | Structures are adequately designed and constructed to control water flow and runoff.                                                                                                               |
|  |  |                 | Vegetation cover to minimise erosion                       | Vegetation assessment                                       | Rehabilitation report: revegetation meets the limits with reference to analogue site or an acceptable standard.                                                                                    |
|  |  | Self-sustaining | Self-sustaining natural vegetation and habitat established | Vegetation assessment                                       | Rehabilitation report: certification that key species are present, suitable diversity has been achieved and cover/density is adequate.<br><br>Certification that the weed management plan has been |

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|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |                                                                                                                       |                                                                                                    |                                                                                                                                                                                                          |
|----------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |                                                                                                                       |                                                                                                    | successful.                                                                                                                                                                                              |
| Infrastructure,<br>Roads &<br>Exploration<br>Areas | ROM Pad,<br>stockpiles and<br>loading areas,<br>workshops,<br>accommodation<br>camp and<br>facilities, STP,<br>fuel storage area,<br>beneficiation,<br>crushing area,<br>acid storage,<br>process plant<br>and associated<br>buildings, power<br>facility,<br>explosives<br>storage, internal<br>access haul<br>roads, tracks,<br>office carpark,<br>Osborne shed,<br>Osborne shed<br>access road,<br>Osborne shed<br>borrow pit | Safe          | Site safe for<br>humans and<br>animals                                                                                | Safety assessment<br>of final landform by<br>suitably qualified<br>person                          | Rehabilitation<br>report: Certification<br>structurally sound<br>and safe.                                                                                                                               |
|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  | Non-polluting | Hazardous<br>and<br>contaminated<br>material<br>adequately<br>managed                                                 | Contaminated land<br>assessment                                                                    | Evidence of<br>remediated<br>landform in a<br>contaminated land<br>assessment report.                                                                                                                    |
|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |               | Runoff and<br>seepage of<br>good quality<br>water that is<br>not likely to<br>affect known<br>environmental<br>values | Rehabilitation<br>monitoring plan in<br>place to monitor<br>downstream<br>surface/groundwater      | Rehabilitation<br>report: monitoring<br>data meets<br>specified<br>contaminant and<br>trigger levels that<br>ensure<br>environmental<br>values are not<br>being<br>compromised.                          |
|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  | Stable        | Landform<br>achieves<br>appropriate<br>erosion rates                                                                  | Engineers<br>assessment of<br>design and<br>construction of<br>structures to control<br>water flow | Rehabilitation<br>report: Engineer<br>certification that<br>infrastructure sites<br>(both remaining<br>and<br>decommissioned)<br>have the required<br>structures to<br>control water flow<br>and runoff. |
|                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                  |               | Vegetation                                                                                                            | Vegetation                                                                                         | Rehabilitation                                                                                                                                                                                           |

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|      |                                              |                 |                                                            |                                                                                                    |                                                                                                                                                                                                                                       |
|------|----------------------------------------------|-----------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |                                              |                 | cover to minimise erosion                                  | assessment                                                                                         | report: revegetation meets the limits with reference to analogue site or an acceptable standard.                                                                                                                                      |
|      |                                              | Self-sustaining | Soil properties that support desired land use              | Soil monitoring program in place to ensure remaining soil is able to support post-mining land use. | Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use.                                                                   |
|      |                                              |                 | Self-sustaining natural vegetation and habitat established | Vegetation assessment                                                                              | Rehabilitation report: Certification that key species are present, suitable diversity has been achieved and cover/density is adequate.<br><br>Rehabilitation report: certification that the weed management plan has been successful. |
| Dams | Stormwater ponds, Slimes Dams, Gypsum Cells, | Safe            | Site safe for humans and animals                           | Safety assessment of final landform by suitably qualified person.                                  | Rehabilitation report: Certification structurally sound and safe, all                                                                                                                                                                 |

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|  |                                                         |                                      |                                                                                  |                                                                                                        |                                                                                                                |
|--|---------------------------------------------------------|--------------------------------------|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
|  | Emergency Dump Pond, Evaporation Pond, Osborne shed dam |                                      |                                                                                  | Safety barriers and signage                                                                            | precautions implemented.                                                                                       |
|  |                                                         | Non-polluting                        | Dams to remain on closure will not contribute contaminants to the environment.   | Rehabilitation monitoring plan in place to monitor water in the dam and downstream surface/groundwater | Rehabilitation report: closure monitoring (water quality) is compliant with established and applicable limits. |
|  |                                                         | Stable                               | Minimal probability or subsidence that will cause significant environmental harm | Geotechnical studies of final landforms                                                                | Rehabilitation report: geotechnical studies to determine whether final landform is stable.                     |
|  |                                                         |                                      |                                                                                  | Risk assessment of final landform                                                                      | Rehabilitation report: appropriate risk assessment and control measures have been undertaken.                  |
|  | Sump and STP irrigation area                            | Non-polluting                        | Rehabilitated sump will not contribute contaminants to the environment           | Rehabilitation monitoring plan in place to monitor downstream surface/groundwater                      | Rehabilitation report: monitoring data meets specified contaminant and trigger levels.                         |
|  | Stable                                                  | Vegetation cover to minimise erosion | Vegetation assessment                                                            | Rehabilitation report: revegetation meets the limits with reference to analogue site or an             |                                                                                                                |

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|  |                               |                 |                                                                                                 |                                                                                                   |                                                                                                                                                                     |
|--|-------------------------------|-----------------|-------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                               |                 |                                                                                                 |                                                                                                   | acceptable standard.                                                                                                                                                |
|  |                               | Self-sustaining | For sump to be rehabilitated, soil properties that support desired land use                     | Soil monitoring program in place to ensure remaining soil is able to support post-mining land use | Rehabilitation report: all soil chemical, physical and biological properties are within acceptable limits that ensure soil is able to support post-mining land use. |
|  | Stormwater drains/diversions, | Non-polluting   | Discharge will be of good quality water that is not likely to affect known environmental values | Rehabilitation monitoring plan in place to monitor downstream surface water                       | Rehabilitation report: monitoring data meets specified contaminant and trigger levels that ensure environmental values are not being compromised.                   |
|  |                               | Stable          | Minimal probability or subsidence that will cause significant environmental harm                | Geotechnical studies of final landforms                                                           | Rehabilitation report: geotechnical studies to determine whether final landform is stable.                                                                          |
|  |                               | Self-sustaining | Establish safe and stable drains with a low risk of environmental                               | Water quality established by monitoring or modelling validated by monitoring                      | Rehabilitation report: that the structures meet water quality guidelines,                                                                                           |

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|  |  |  |                                                            |                                              |                                                                                                                                                                                                                |
|--|--|--|------------------------------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |  |  | harm                                                       | structural report on integrity of structure. | Engineers certificate of structure.                                                                                                                                                                            |
|  |  |  | Self-sustaining natural vegetation and habitat established | Vegetation assessment                        | Rehabilitation report: certification that key species are present, suitable diversity has been achieved and cover/density is adequate.<br><br>Certification that the weed management plan has been successful. |

H3 Rehabilitation must commence progressively in accordance with the plan of operations.

H4 Topsoil 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.

### H5 Contaminated Land

Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.

H6 Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H3.

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#### **H7 Fluoride Management**

The holder of this environmental authority must undertake bi-annual monitoring of fluoride in vegetation in accordance with documented site procedures and the Plan of Operations. An associated monitoring report must be prepared and submitted to the administering authority with the next annual return.

- H8 The holder of this environmental authority must conduct a Flora Survey every three years focusing on the impacts of fluoride to the vegetation. A copy of the Flora Survey Report must be submitted to the administering authority with the next annual return.

#### **H9 Sulfur Management**

Sulfur stored on site must be stored under cover.

- H10 Storage, handling and transfer of Sulfur on site must be carried out in a manner which minimises the release of dust and particulate matter, and prevents or minimises the contamination of land and stormwater.

#### **H11 Chemicals and Flammable or Combustible Liquids**

All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, flammable or combustible liquids and dangerous goods must be stored and handled in accordance with the current, relevant Australian Standard where such is applicable.

- H12 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.

- H13 Where no relevant Australian Standard is available, the following must be applied:

- a) Storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110% of a single storage tank or 100% of the largest storage tank plus 10% of the second largest storage tank in multiple storage areas; and
- b) Drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25% of the maximum design storage volume within the bund.

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H14 All containment systems must be designed to minimise rainfall collection within the system.

#### **H15 Biodiversity Offsets**

The holder of this environmental authority must provide an offset for impacts on applicable state significant biodiversity values, in accordance with Queensland Biodiversity Offset Policy. The biodiversity offset must be consistent with the requirements for an offset as identified in the Biodiversity Offset Strategy (as per condition H17) and must be provided:

- (a) prior to impacting on state significant biodiversity values; or
- (b) where a land based offset is to be provided, within 12 months of the later of either of the following
  - i the date of issue of this environmental authority; or
  - ii the relevant stage identified in the Biodiversity Offset Strategy submitted under condition H17; or
- (c) where an offset payment is to be provided, within 4 months of the later of either of the following
  - i the date of issue of this environmental authority; or
  - ii the relevant stage identified in the Biodiversity Offset Strategy submitted under condition H17.

H16 A Biodiversity Offset Strategy must be developed and submitted to the administering authority within either 30 days, or a lesser period agreed to by the administering authority, prior to impacting on the applicable state significant biodiversity values.

#### **H17 Impacts to Prescribed Environmental Matters**

Significant residual impacts to prescribed environmental matters other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*, are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.

H18 Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:

- a) completed by an appropriately qualified person; and
- b) kept for the life of the environmental authority.

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#### **H19 Osborne Shed Management**

The capacity of the Authority holder's Osborne Shed must not be exceeded.

- H20 All fertiliser, additives (zinc sulphate and copper sulphate), and phosphate ore must be transported, stored, handled and loaded in a manner that prevents the release of contaminants to the receiving environment.
- H21 All additives (zinc sulphate and copper sulphate) shall be maintained within bulk bags and no removal or blending is to be carried out at the Osborne Shed.

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## Schedule I – Regulated Dams

### 11 Assessment of Consequence Category

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; formerly EM635) 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.

12 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.

13 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; formerly EM635).

### 14 Design and Construction of a Regulated Structure

Conditions 15 to 19 inclusive do not apply to existing structures.

15 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; formerly EM635).

16 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) 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 environmental authority.

17 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; formerly EM635) and must be recorded in the Register of Regulated Structures.

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**I8 Regulated structures must:**

- a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933; formerly EM635).
- 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.
- c) 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.

**I9 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; and
- b) construction of the regulated structure is in accordance with the design plan.

**I10 Operation of a Regulated Structure**

Operation of a regulated structure, except for an existing structure, is prohibited unless:

- a) the holder has submitted to the administering authority:
  - i. one electronic copy of the design plan and certification of the 'design plan' in accordance with condition I6;
  - ii. a set of 'as constructed' drawings and specifications;
  - iii. certification of those 'as constructed drawings and specifications' in accordance with condition I9; and
  - iv. 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 system design plan; and

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- b) the requirements of this authority relating to the construction of the regulated structure have been met;
- c) the holder has entered the details required under this authority, into a Register of Regulated Dams; and,
- d) there is a current operational plan for the regulated structures.

**I11 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 including that structure; and
- b) there must be a current operational plan for the existing structures.

**I12 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings**

**I13 Mandatory Reporting Level**

Conditions I14 to I17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.

**I14 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.**

**I15 The holder of this environmental authority must, as soon as practical and 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.**

**I16 The holder of this environmental authority must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.**

**I17 The holder of this environmental must record any changes to the MRL in the Register of Regulated Structures.**

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#### I18 Design Storage Allowance

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 of each year.

I19 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 linked containment systems).

I20 The holder of this environmental authority must, as soon as possible and 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.

I21 The holder of this environmental authority 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.

#### I22 Annual Inspection Report

Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

I23 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.

I24 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; formerly EM635).

I25 The holder of this environmental authority must:

- (a) within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

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i the recommendation section of the annual inspection report; and,

ii if applicable, any actions being taken in response to those recommendations; and

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

#### **I26 Transfer Arrangements**

The holder of this environmental authority must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, hazard/consequence assessment, design plan and other supporting documentation, to a new holder and the administering authority on transfer of this authority.

#### **I27 Decommissioning and Rehabilitation**

Dams must not be abandoned but be either:

a) decommissioned and rehabilitated to achieve compliance with condition H3; or

b) be left in-situ for a beneficial use(s) provided that:

i it no longer contains contaminants that will migrate into the environment; and

ii it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and

iii the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

#### **I28 Register of Regulated Structures**

A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.

I29 The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.

I30 The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with condition I10 and I11 has been achieved.

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- I31 The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
- I32 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
- I33 The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.
- I34 **Transitional arrangements**
- All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.
- I35 All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table I1 (Transitional requirements for existing structures), depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.
- I36 Table I1 ceases to apply for a structure once any of the following events has occurred:
- (a) It has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or
  - (b) It has been decommissioned; or
  - (c) It has been certified as no longer being assessed as a regulated structure.
- I37 Certification of the transitional assessment required by I34 and I35 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

**Table I1 – Transitional Hydraulic Performance Requirements for Existing Structures**

| Transition period required for existing structures to achieve the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Dams</i> |      |             |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------|-----|
| Compliance with criteria                                                                                                                                                   | High | Significant | Low |
|                                                                                                                                                                            |      |             |     |

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|                                                                                      |                                                                                                                         |                                                                                                                          |                                                                                |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| >90% and a history of good compliance performance in last 5 years                    | No transition required                                                                                                  | No transition required                                                                                                   | No transitional conditions apply. Review consequence assessment every 7 years. |
| >70%-≤90%                                                                            | Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases. | Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases. | No transitional conditions apply. Review consequence assessment every 7 years. |
| >50-≤70%                                                                             | Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.  | Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.   | Review consequence assessment every 7 years.                                   |
| ≤50%                                                                                 | Within 5 years or as per compliance requirements (e.g. TEP timing)                                                      | Within 5 years or as per compliance requirements (e.g. TEP timing)                                                       | Review consequence assessment every 5 years.                                   |
| Regulated levee designed to prevent the ingress of clean flood water <100% compliant | Within 5 years unless otherwise agreed with the administering authority.                                                |                                                                                                                          |                                                                                |

#### 138 Regulated Structures Location and Performance

Each regulated dam must be wholly located within the control points defined in Table I2 – Location of Regulated Dams Containing Hazardous Waste.

**Table I2 – Location of Regulated Dams Containing Hazardous Waste**

| Name of Regulated Dam<br>Containing Hazardous Waste | Map Reference (GDA94, MGA, Zone 54) |          |
|-----------------------------------------------------|-------------------------------------|----------|
|                                                     | Easting                             | Northing |
| Slimes Dam 1                                        | 393948                              | 7579362  |

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|                    |        |         |
|--------------------|--------|---------|
|                    | 394253 | 7579367 |
|                    | 394331 | 7579003 |
|                    | 394089 | 7578993 |
| Slimes Dam 3A      | 394260 | 7578787 |
|                    | 394526 | 7578913 |
|                    | 394785 | 7578774 |
|                    | 394361 | 7578557 |
| Slimes Dam 3B      | 394360 | 7578557 |
|                    | 394785 | 7578774 |
|                    | 394791 | 7578352 |
|                    | 394537 | 7578246 |
| Gypsum Cells 1 & 2 | 394031 | 7581493 |
|                    | 394384 | 7581564 |
|                    | 394561 | 7581517 |
|                    | 394498 | 7581077 |
|                    | 394451 | 7580680 |
|                    | 394097 | 7580739 |
|                    | 394110 | 7581116 |
| Gypsum Cell 3A     | 393957 | 7581879 |
|                    | 394382 | 7582027 |
|                    | 394385 | 7581564 |
|                    | 394031 | 7581493 |
| Gypsum Cell 3B     | 394382 | 7582027 |
|                    | 394385 | 7581564 |
|                    | 394561 | 7581517 |
|                    | 394609 | 7582110 |
| Gypsum Cell 3D     | 393640 | 7581894 |

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|                     |        |         |
|---------------------|--------|---------|
|                     | 393383 | 7581841 |
|                     | 393229 | 7582103 |
|                     | 393081 | 7582072 |
|                     | 393036 | 7582333 |
|                     | 393714 | 7582461 |
|                     | 393848 | 7581851 |
|                     | 393793 | 7581810 |
| Gypsum Cell 4A & 4B | 394589 | 7582141 |
|                     | 394007 | 7581899 |
|                     | 393741 | 7583107 |
|                     | 394212 | 7583200 |
| Gypsum Cell 5A      | 393618 | 7583259 |
|                     | 393758 | 7582486 |
|                     | 392970 | 7582338 |
|                     | 392830 | 7583109 |
| Gypsum Cell 5B      | 392724 | 7583687 |
|                     | 393510 | 7583831 |
|                     | 393618 | 7583259 |
|                     | 392830 | 7583109 |
| Emergency Dump Pond | 394092 | 7580690 |
|                     | 394243 | 7580672 |
|                     | 394232 | 7580580 |
|                     | 394082 | 7580600 |
| Evaporation Pond    | 394347 | 7580687 |
|                     | 394435 | 7580675 |
|                     | 394409 | 7580468 |
|                     | 394318 | 7580479 |

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|                     |                  |                  |
|---------------------|------------------|------------------|
| Decant Pond Cell 3C | TBD <sup>1</sup> | TBD <sup>1</sup> |
|                     | TBD <sup>1</sup> | TBD <sup>1</sup> |
|                     | TBD <sup>1</sup> | TBD <sup>1</sup> |
|                     | TBD <sup>1</sup> | TBD <sup>1</sup> |
| Gypsum Cell 3D      | 393640           | 7581894          |
|                     | 393383           | 7581841          |
|                     | 393229           | 7582103          |
|                     | 393081           | 7582072          |
|                     | 393036           | 7582333          |
|                     | 393714           | 7582461          |
|                     | 393848           | 7581851          |
|                     | 393793           | 7581810          |

NOTE: In circumstances where slimes dams meet the criteria for high hazard dams containing hazardous waste, the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste must be complied with.

TBD<sup>1</sup> – To be determined prior to construction of Decant Pond Cell 3C.

- 139 Each regulated dam must be consistent with the basic details in Table I3 – Size and Purpose of Dams Containing Hazardous Waste below.

**Table I3 – Size and Purpose of Regulated Dams Containing Hazardous Waste**

| Name of Regulated Dam Containing Hazardous Waste | Maximum Surface Area of Contents in Dam (ha) | Maximum Volume of Dam (m <sup>3</sup> ) | Maximum Depth of Dam (m) | Purpose of Dam                              |
|--------------------------------------------------|----------------------------------------------|-----------------------------------------|--------------------------|---------------------------------------------|
| Slimes Dam 1                                     | 7.1                                          | 406,304 m <sup>3</sup>                  | 9                        | Site water management and storage of slimes |
| Slimes Dam 3A                                    | 7.4                                          | 269,840 m <sup>3</sup>                  | 5                        | Site water management and storage of slimes |
| Slimes Dam 3B                                    | 11.5                                         | 528,040 m <sup>3</sup>                  | 6.4                      | Site water management and storage of slimes |

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|                     |      |                                                                                                                |     |                                                                                       |
|---------------------|------|----------------------------------------------------------------------------------------------------------------|-----|---------------------------------------------------------------------------------------|
| Gypsum Cells 1 & 2  | 25   | 5 x 10 <sup>6</sup> m <sup>3</sup> gypsum with an additional 325,000 m <sup>3</sup> process water catchment    | 38  | Acidic water management and permanent storage of gypsum and acid residue              |
| Gypsum Cell 3A      | 13.4 | 628,859 m <sup>3</sup>                                                                                         | 7   | Acidic water management                                                               |
| Gypsum Cell 3B      | 11.1 | 391,500 m <sup>3</sup>                                                                                         | 4.4 | Acidic water management                                                               |
| Gypsum Cell 4A      | 38   | 12 x 10 <sup>6</sup> m <sup>3</sup> gypsum with an additional 460,000 m <sup>3</sup> process water catchment   | 70  | Acidic water management and permanent storage of gypsum and acid residue              |
| Gypsum Cell 4B      | 31   | 9.85 x 10 <sup>6</sup> m <sup>3</sup> gypsum with an additional 320,000 m <sup>3</sup> process water catchment | 70  | Acidic water management and permanent storage of gypsum and acid residue              |
| Gypsum Cell 5A      | 47.1 | 16 x 10 <sup>6</sup> m <sup>3</sup> gypsum with an additional 513,000 m <sup>3</sup> process water catchment   | 70  | Acidic water management and permanent storage of gypsum and acid residue              |
| Gypsum Cell 5B      | 45   | 30,463,800 m <sup>3</sup>                                                                                      | 70  | Acidic water management and permanent storage of gypsum and acid residue              |
| Emergency Dump Pond | 4.7  | 11,145 m <sup>3</sup>                                                                                          | 3.9 | Emergency storage of gypsum and acid residue <sup>2</sup>                             |
| Evaporation Pond    | 1.87 | 42,051 m <sup>3</sup>                                                                                          | 3.1 | Site water management and emergency storage of gypsum and acid residue <sup>1,2</sup> |
| Decant Pond Cell 3C | 14.5 | 356,000 m <sup>3</sup>                                                                                         | 3.9 | Acidic water management                                                               |
| Gypsum Cell 3D      | 28   | 1,208,665 m <sup>3</sup>                                                                                       | 5.8 | Acidic water management                                                               |

<sup>1</sup> Gypsum may be stored in the Evaporation Pond in an emergency event only when the Emergency Dump Pond has reached its Mandatory Reporting Level.

<sup>2</sup> Gypsum stored in the Emergency Dump Pond and Evaporation Pond must be removed as close to the liner as safely possible, as soon as practicable and no later than 3 months following the emergency event.

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- 140 Each regulated dam must meet the hydraulic performance criteria specified in Table I4 – Hydraulic Performance of Regulated Dams.

**Table I4 – Hydraulic Performance of Regulated Dams**

| Dam Name                             |                      | Design Storage Allowance                                                | Spillway<br>Design Storm | Mandatory<br>Reporting Level                                                                  |
|--------------------------------------|----------------------|-------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------|
| Slimes Dam 1                         |                      | 450 mm below spillway                                                   | 1 in 100 year ARI        | 1:100 year ARI                                                                                |
| Slimes Dam 3A                        |                      | 450 mm below spillway                                                   | 1 in 100 Year ARI        | 1:100 year ARI                                                                                |
| Slimes Dam 3B                        |                      | 450 mm below spillway                                                   | 1 in 100 Year ARI        | 1:100 year ARI                                                                                |
| Gypsum Storage Facility <sup>1</sup> | Cells 1 & 2          | 1:100 AEP                                                               | 0.002 AEP critical storm | RL275.14<br>in respect to Cell 3D<br><br>and<br><br>RL270.85<br>in respect to the Surge Ditch |
|                                      | Cells 3A & 3B        |                                                                         | 0.005 AEP critical storm |                                                                                               |
|                                      | Cell 3D              |                                                                         | 0.001 AEP critical storm |                                                                                               |
|                                      | Cells 4A & 4B        |                                                                         | 0.001 AEP critical storm |                                                                                               |
|                                      | Cell 5A              |                                                                         | 0.001 AEP critical storm |                                                                                               |
|                                      | Cell 5B <sup>3</sup> |                                                                         | 0.001 AEP critical storm |                                                                                               |
|                                      | Surge Ditch          |                                                                         | 0.005 AEP critical storm |                                                                                               |
| Evaporation Pond                     |                      | 1 in 10 year, 3 month wet or<br>1 in 200 year, 3 month wet <sup>2</sup> | 1 in 100 Year ARI        | 1:10 year ARI                                                                                 |
| Decant Pond Cell 3C                  |                      | 1 in 100, 3 month wet                                                   | 1 in 10 000 Year ARI     | 1:100 year ARI                                                                                |

1. Cells 1 & 2, 3A & 3B, 3D, 4A & 4B, 5A and surge ditch (comprising the Gypsum Storage Facility) are to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system in accordance with the linked system plan "IPL – Phosphate Hill Operations Gypsum Storage Facility Linked System Plan" that is certified (25/06/2018) by Dr. Susan Jane Henderson (RPEQ 4952).

2 The latter criteria applies if the evaporation pond is being used for current storage of gypsum in emergencies as described in Table I3.

3. The requirements of condition I11 must be met prior to operation of Cell 5B.

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- 141 The holder of this environmental authority must ensure proper management of Decant Pond Cell 3C, including but not limited to the Leak Detection and Recovery System, to prevent any release of contaminants into the receiving environment.

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**Schedule J – Definitions**

Key terms and/or phrases used in this document are defined in this section and bolded throughout this document. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

**“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:

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- 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;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- 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.

**“AEP”** means Annual Exceedance Probability

**“airblast overpressure”** means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in the wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dB).

**“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”** is the probability that at least one event in excess of a particular magnitude will occur in any given year.

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**“annual inspection report”** means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

- (a) against recommendations contained in previous annual inspections reports;
- (b) against recognised dam safety deficiency indicators;
- (c) for changes in circumstances potentially leading to a change in consequence category;
- (d) for conformance with the conditions of this authority;
- (e) for conformance with the ‘as constructed’ drawings;
- (f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the dam (or network of linked containment systems);
- (g) for evidence of conformance with the current operational plan.

**“ANZECC”** means Australian and New Zealand Environment and Conservation Council.

**“appropriate qualified person”** means any person who conforms to the DERM operational policy for an “appropriately qualified person (analyst)” in accordance with Section 490 (7) of the *Environmental Protection Act 1994*.

**“ARI”** means Average Recurrence Interval.

**“ARMCANZ”** means Agriculture and Resource Management Council of Australia and New Zealand

**“assessed”** or **“assessment”** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

- (a) exactly what has been assessed and the precise nature of that determination;
- (b) the relevant legislative, regulatory and technical criteria on which the assessment has been based;
- (c) the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and

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(d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.

**“associated works”** in relation to a dam, means:

- (a) operations of any kind and all things constructed, erected or installed for that dam; and
- (b) any land used for those operations.

**“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. Background is also used in relation to noise – could this be confusing.

**“blasting”** means the use of explosive materials to fracture (a) rock, coal and other minerals for later recovery, or (b) structural components or other items to facilitate removal from a site or for reuse.

**“certification”** means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, ‘as constructed’ drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

**“certifying”, “certify” or “certified”** have a corresponding meaning as ‘certification’.

**“cfu”** means colony forming unit.

**“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.

**“construction or constructed”** in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.

**“consequence”** in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.

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**“consequence category”** means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).

**“dam”** means a land-based structure or a void that contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

**“dam crest volume”** means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

**“design plan”** is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

**“DSA”** means Design Storage Allowance.

**“design storage allowance”** or **“DSA”** means an available volume, estimated in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedance probability (AEP) specified in that Manual.

**“EC”** means Electrical Conductivity.

**“emergency event”** in the context of this environmental authority, is an unexpected situation which will disrupt production and where environmental harm has the potential to occur if alternate actions are not taken (e.g., mechanical failure of a component of the monohydrate gypsum conveyance system).

**“environmental authority holder”** means the holder of this environmental authority.

**“existing authority”** has the meaning in section 94 of the *Environmental Offsets Act 2014*.

**“flare pit”** means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted. The flare pit is only used during the drilling and work over process on a petroleum well.

**“flow event”** means a flow event producing sufficient water to permit a monitoring creek bed flow of 30cm or more at the sampling station.

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**“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.

**“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.

**“hydraulic performance”** means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).

**“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, gypsum stacks 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”** as defined in the DME 1995 *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland*.

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

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

**“leachate”** means a liquid that has passed through or emerged from, or is likely to have passed through or emerged from, a material stored, processed or disposed of at the operational land which contains soluble, suspended or miscible contaminants likely to have been derived from the said material.

**“levee”** means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.

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**“low consequence dam”** means any dam that is not a high or significant consequence category as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933).

**“mandatory reporting level”** or **“MRL”** means a warning and reporting level determined in accordance with the criteria in the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority.

**“manual”** means the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority, as amended from time to time.

**“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.

**“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;
- but does not include—

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- (l) living matter;
- (m) petroleum within the meaning of the *Petroleum Act 1923*;
- (n) 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;
- (o) water.

**“modification”** or **“modifying”** (see definition of ‘construction’)

**“NATA”** means National Association of Testing Authorities (Australia).

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

**“noxious”** means harmful or injurious to health or physical well being, other than trivial harm.

**“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<sub>2</sub>SO<sub>4</sub>/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).

**“operational plan”** includes:

- (a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA);
- (b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

**“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<sup>-1</sup>).

**“prescribed environmental matters”** has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significant listed in schedule 2 of the *Environmental Offsets Regulation 2014*.

**“protected area”** means

- a protected area under the *Nature Conservation Act 1992*; or
- a marine park under the *Marine Parks Act 1992*; or

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- 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.

**“Register of Regulated Structures”** includes:

- (a) Date of entry in the register;
- (b) Name of the structure, its purpose and intended/actual contents;
- (c) The consequence category of the dam as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933);
- (d) Dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the dam;
- (e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- (f) For the regulated dam, other than in relation to any levees –
  - i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
  - ii. Coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
  - iii. Dam crest volume (megalitres);
  - iv. Spillway crest level (metres AHD).
  - v. Maximum operating level (metres AHD);
  - vi. Storage rating table of stored volume versus level (metres AHD);
  - vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
  - viii. Mandatory reporting level (metres AHD);
- (g) The design plan title and reference relevant to the dam;

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- (h) The date construction was certified as compliant with the design plan;
- (i) The name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- (j) Details of the composition and construction of any liner;
- (k) The system for the detection of any leakage through the floor and sides of the dam;
- (l) Dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- (m) Dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- (n) Dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

**“regulated structure”** means any structure in the significant or high consequence category as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* (ESR/2016/1933) published by the administering authority. A regulated structure does not include:

a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;  
a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;  
a flare pit.

**“rehabilitation”** 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 drilling material”** means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

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**“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.

**“saline mine drainage”** The movement of waters, contaminated with salt(s), as a result of the mining activity.

**“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 dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- a motel, hotel or hostel; or
- an educational institution; or
- a medical centre or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- 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:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- 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
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

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- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- 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);
- 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;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.

**“significant residual impacts”** has the meaning in section 8 *Environmental Offsets Act 2014*.

**“spillway”** means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the dam, normally under flood conditions or in anticipation of flood conditions.

**“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.

**“structure”** means dam or levee.

**“suitably qualified and experienced person”** in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 2002, and has demonstrated competency and relevant experience:

- for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design
- for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

**“system design plan”** means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

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**“tolerable limits”** means that a range of values could be accepted to achieve an overall environmental management objective (e.g., 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.

**“watercourse”** has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means:

- (1) a river, creek or stream in which water flows permanently or intermittently—
  - (a) in a natural channel, whether artificially improved or not; or
  - (b) in an artificial channel that has changed the course of the watercourse.
- (2) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

**“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 maybe contaminated by the mining activity

**“wet season”** means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

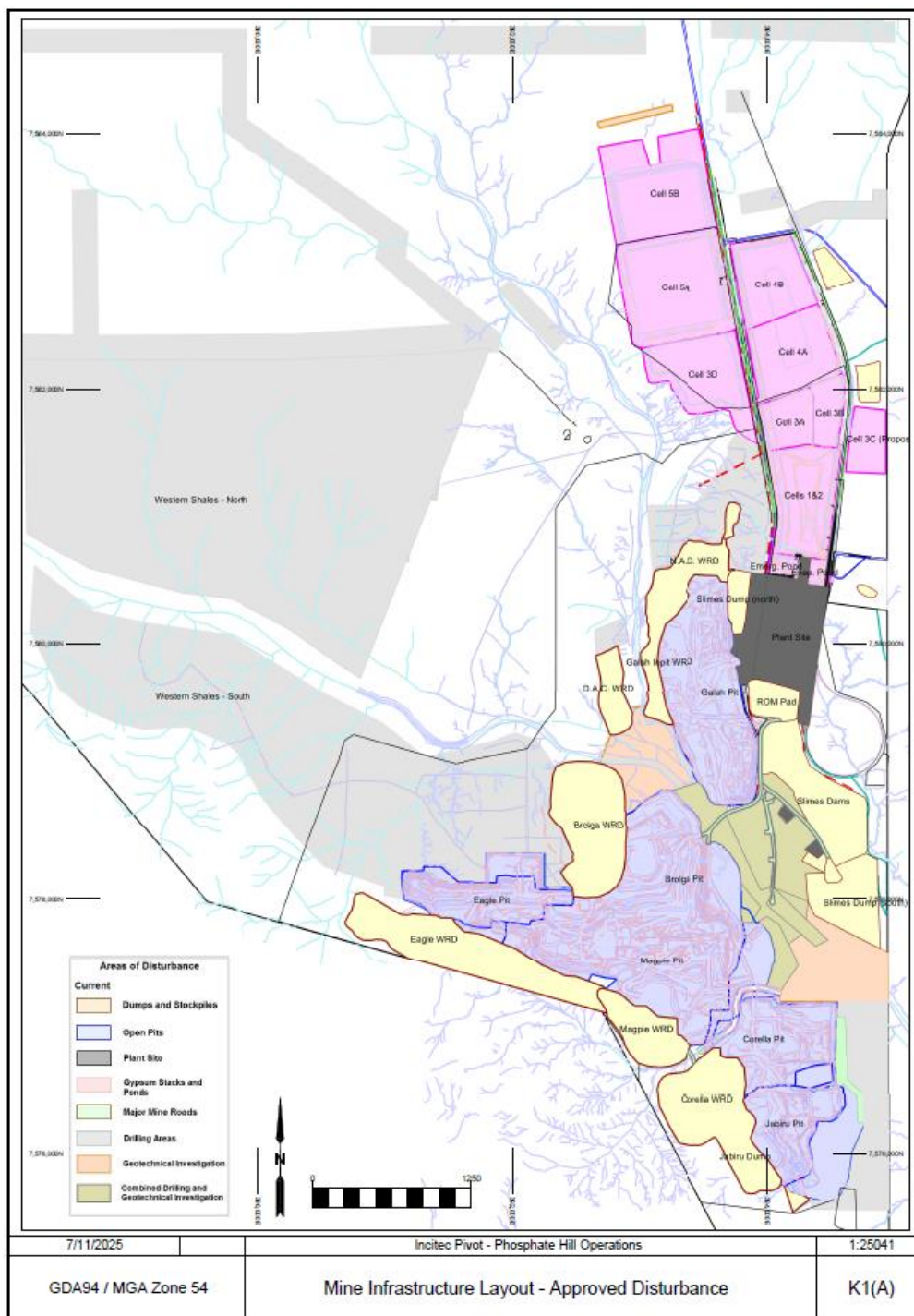
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### Schedule K - Maps

Map K1(A) – Mine Infrastructure Layout

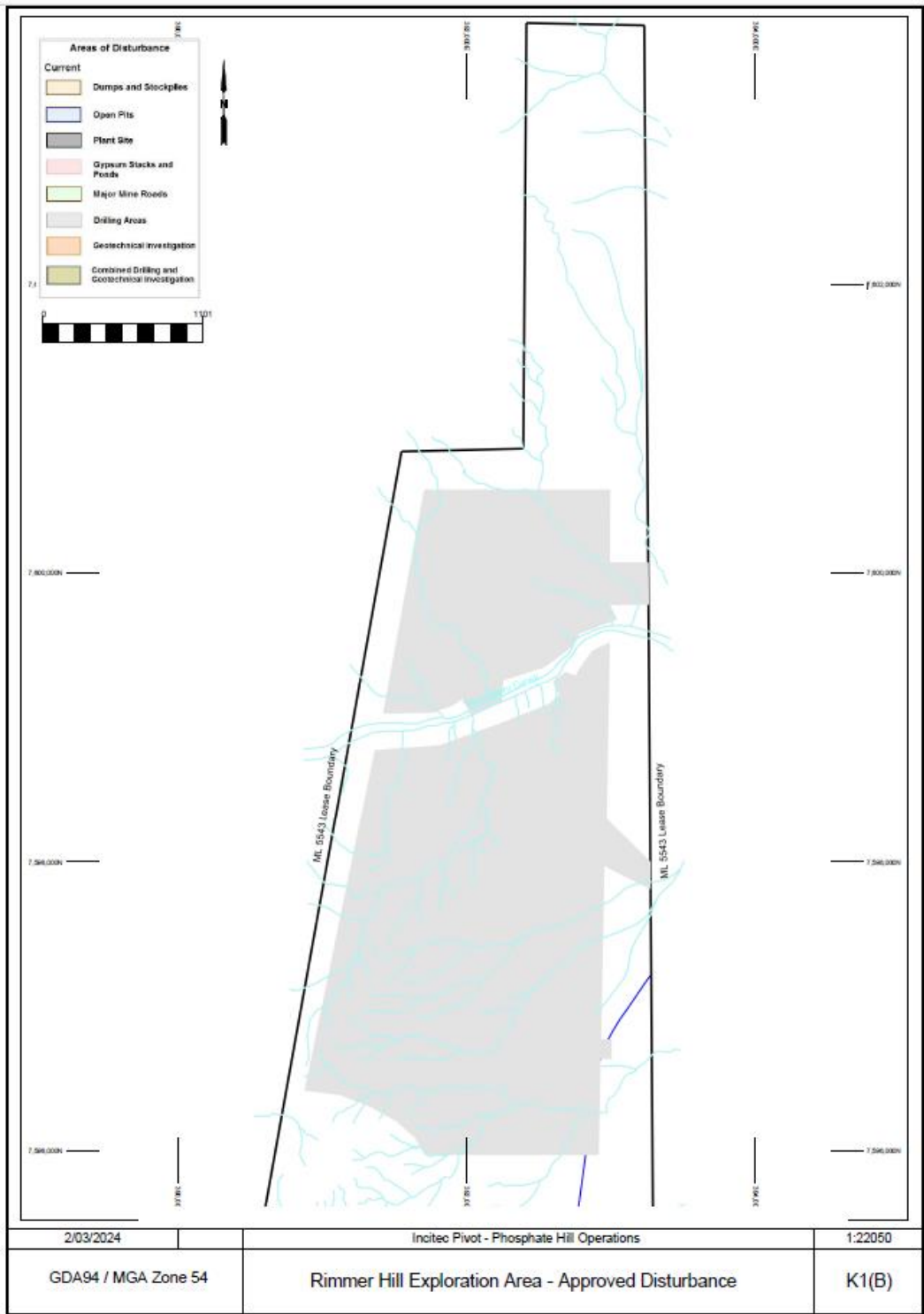


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Map K1(B) – Rimmer Hill Exploration Area

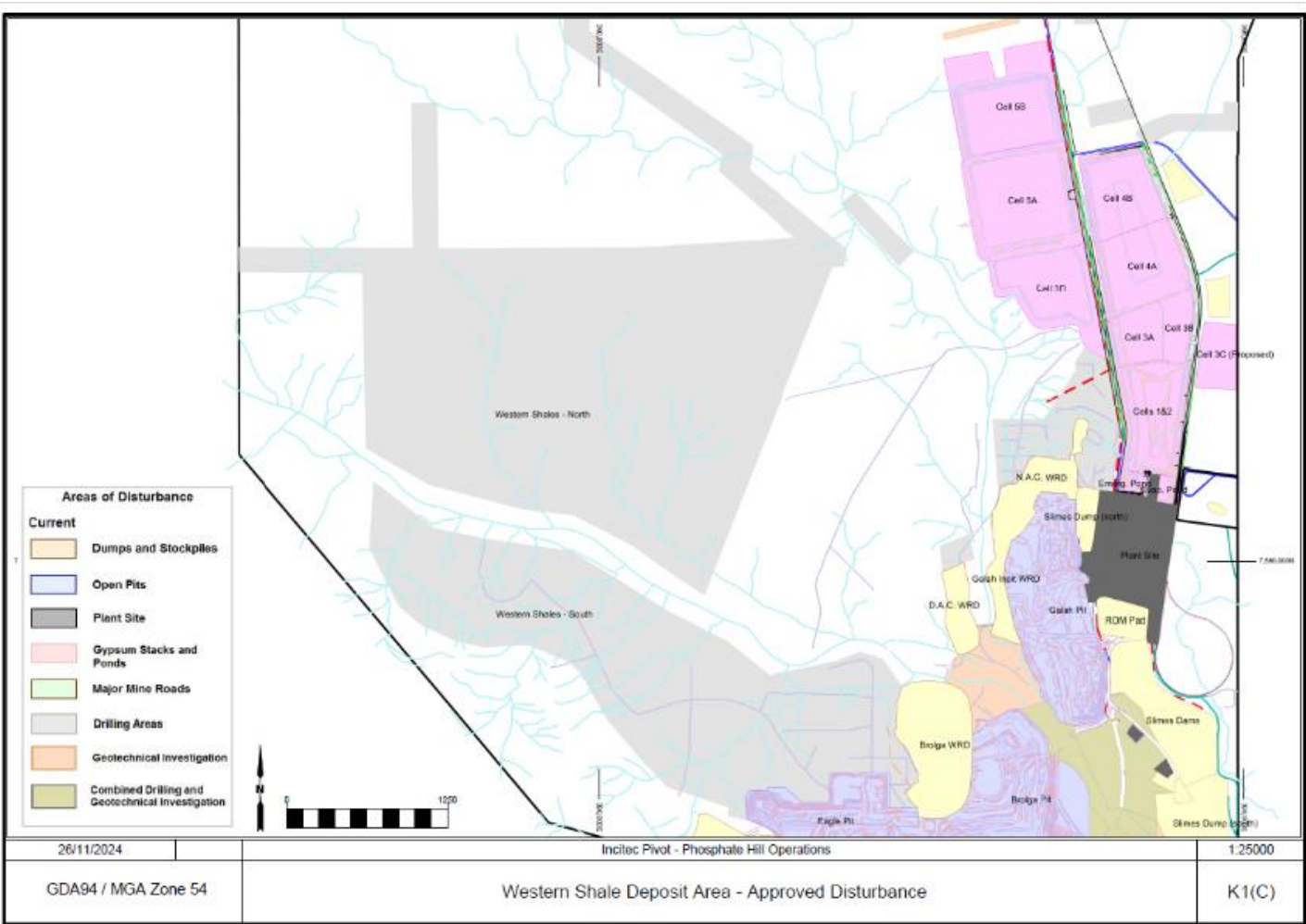


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Map K1(C) – Western Shale Deposit Area

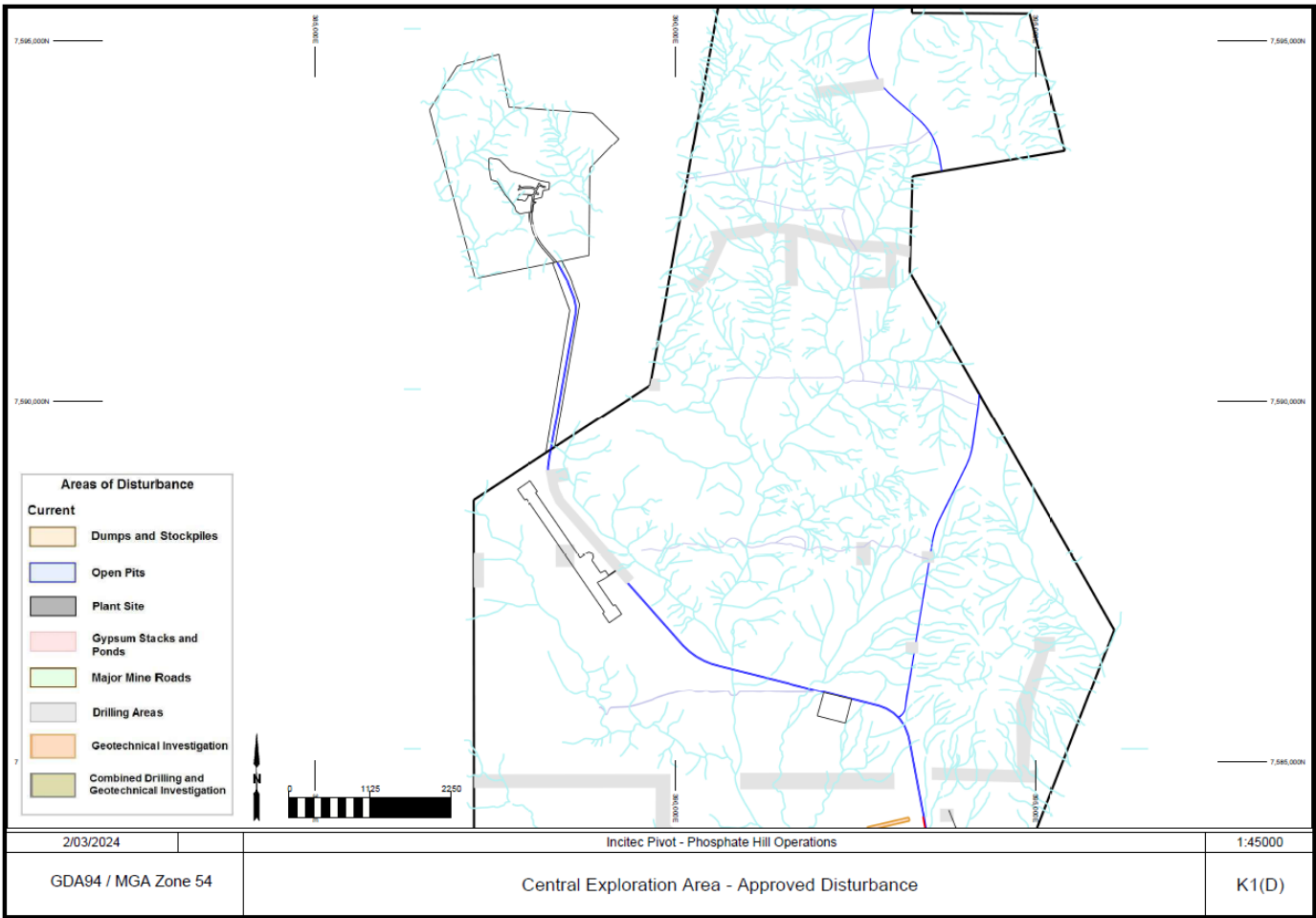


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Map K1(D) – Central Exploration Area

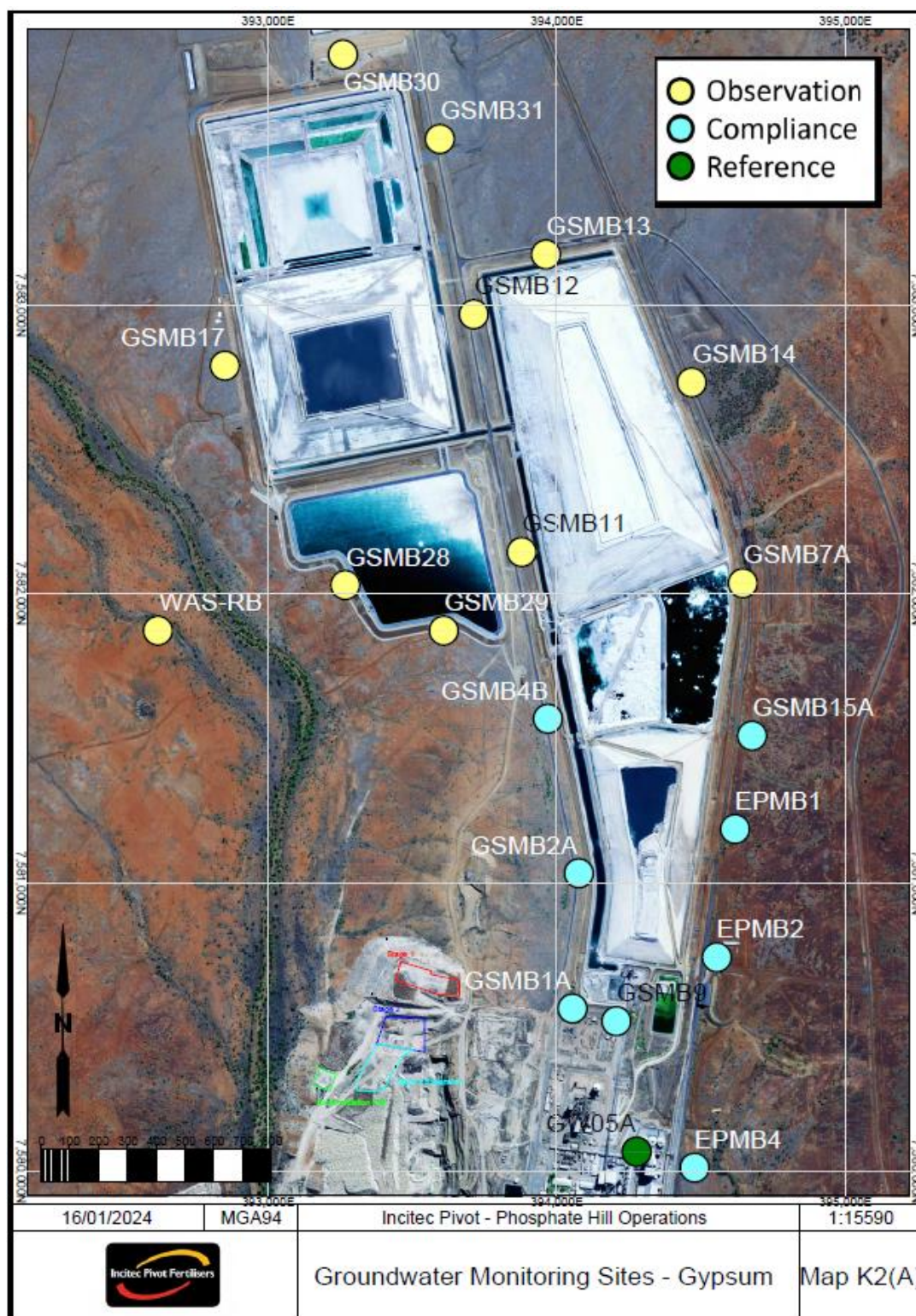


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Map K2(A) – Groundwater Monitoring Sites – Gypsum Stacks

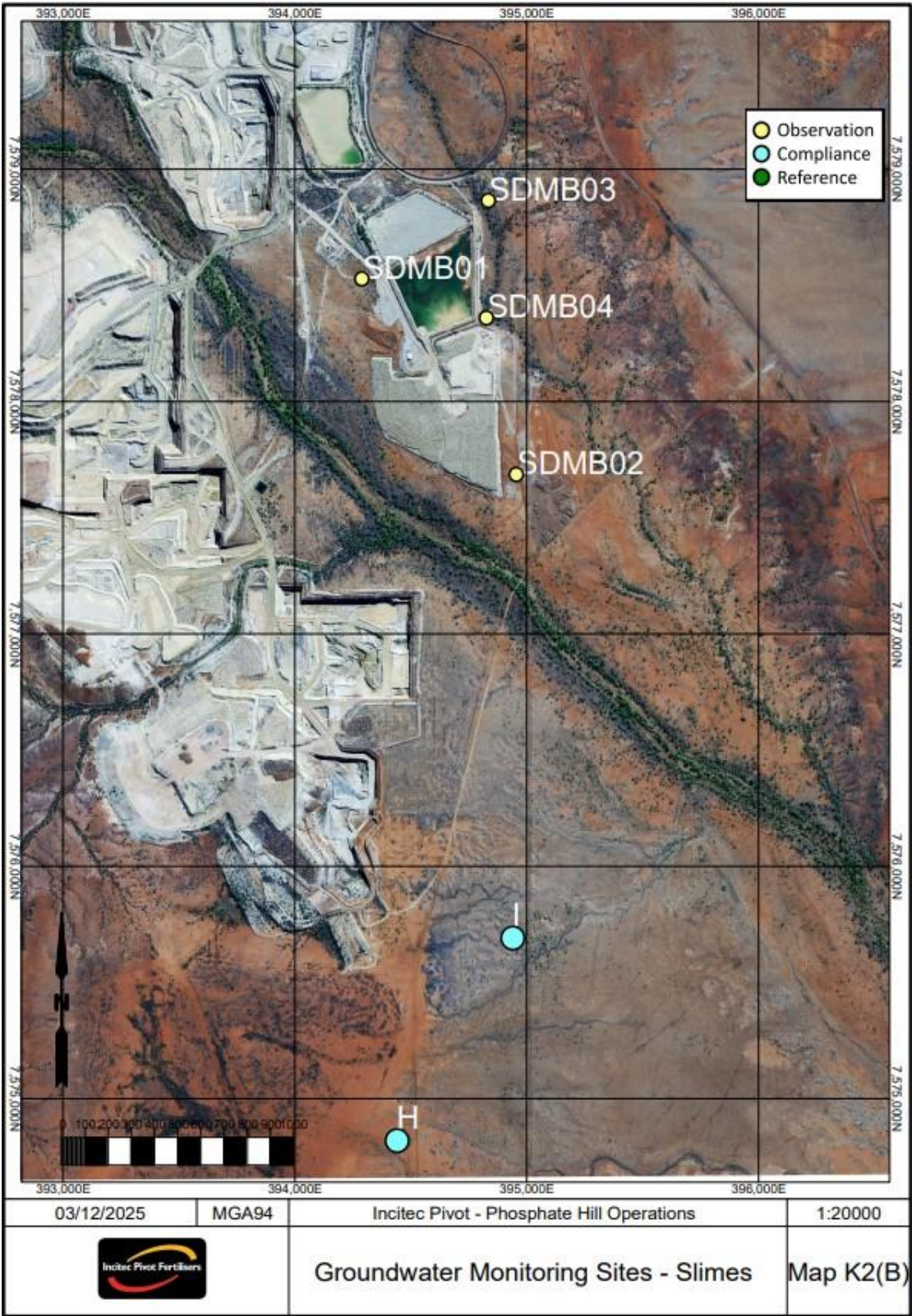


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Map K2(B) – Groundwater Monitoring Sites – Slimes Dams

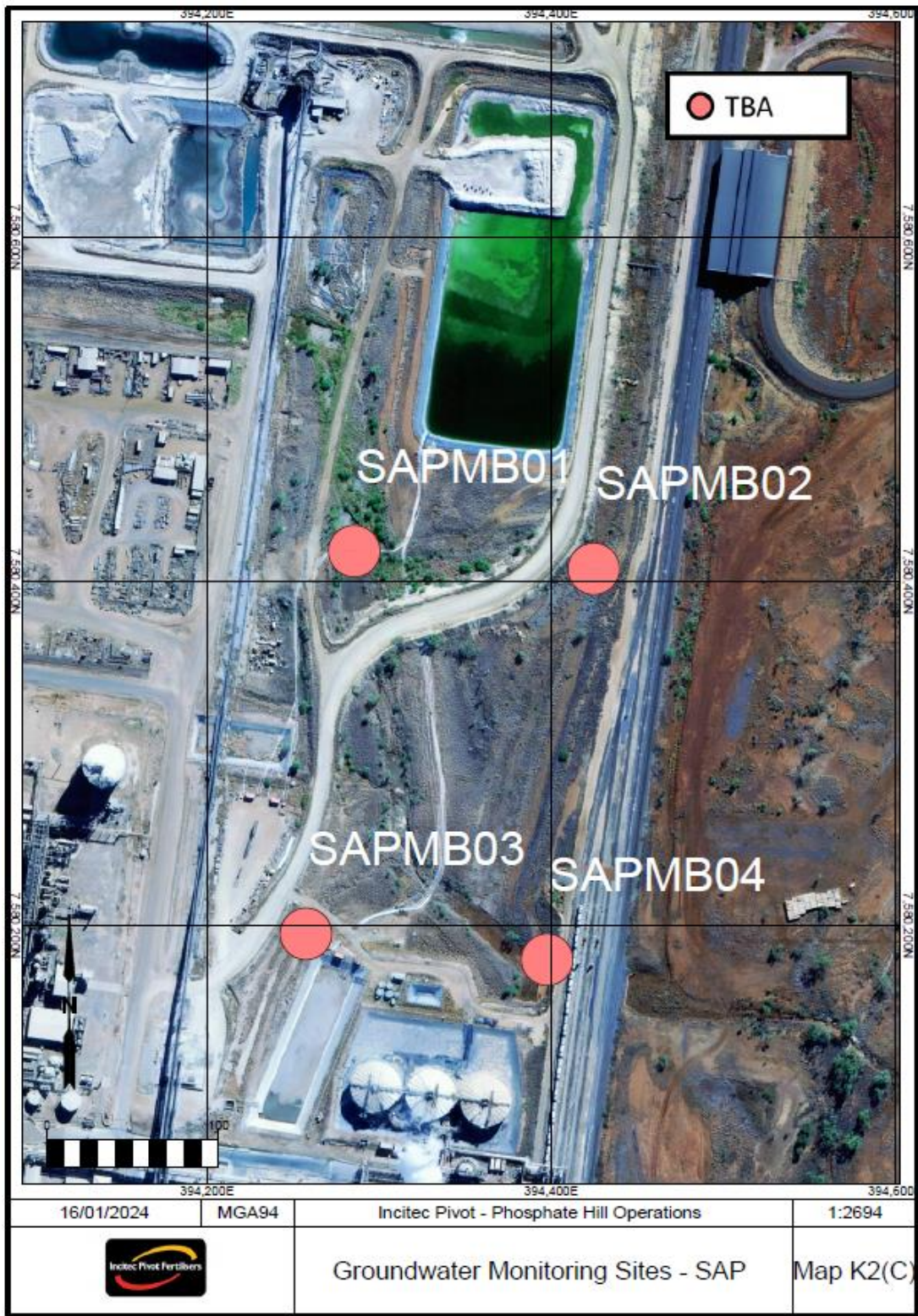


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Map K2(C) – Groundwater Monitoring Sites – SAP



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Map K3 –Contaminants Release Points

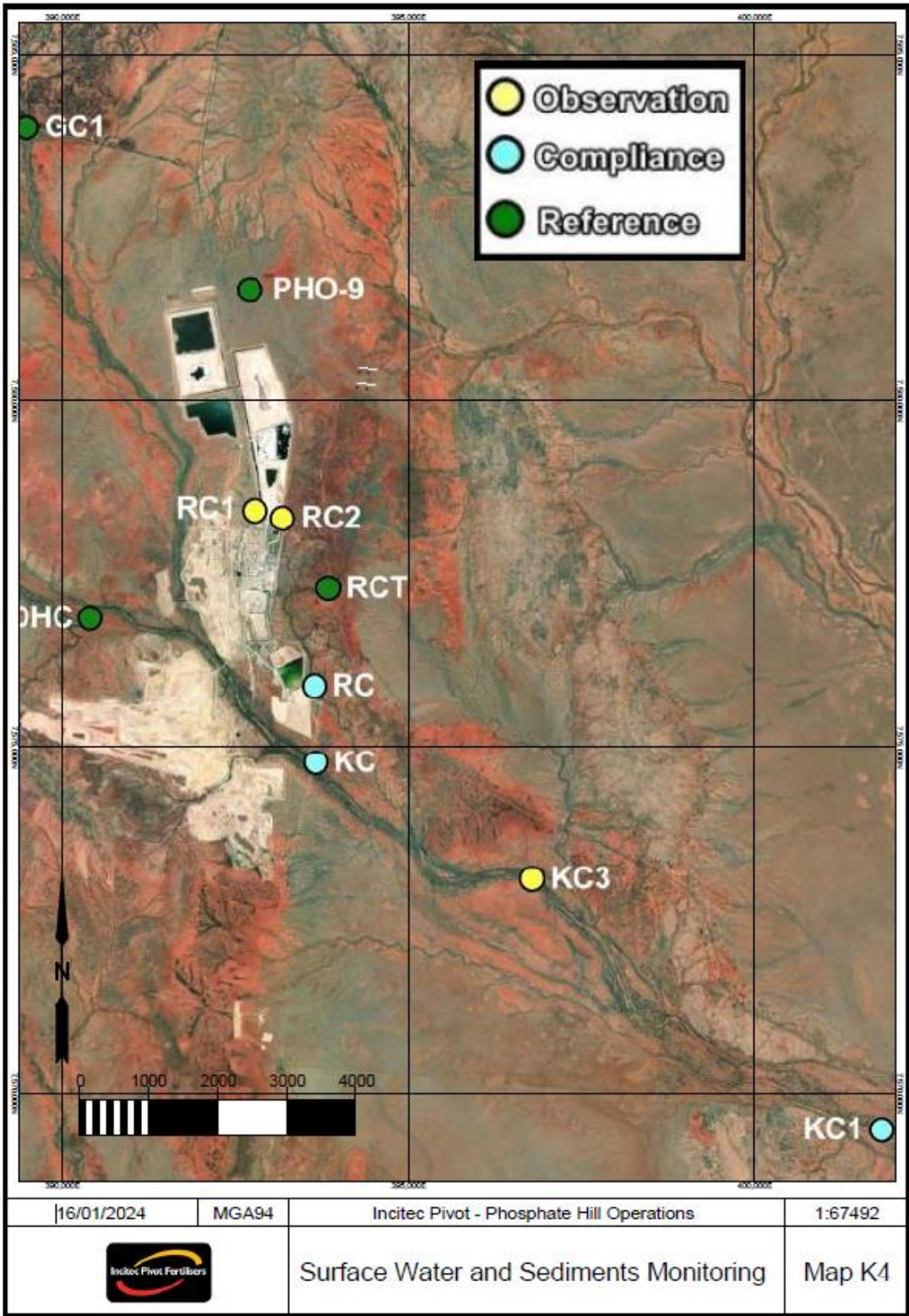


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Map K4 –Surface Water and Sediments Monitoring Locations

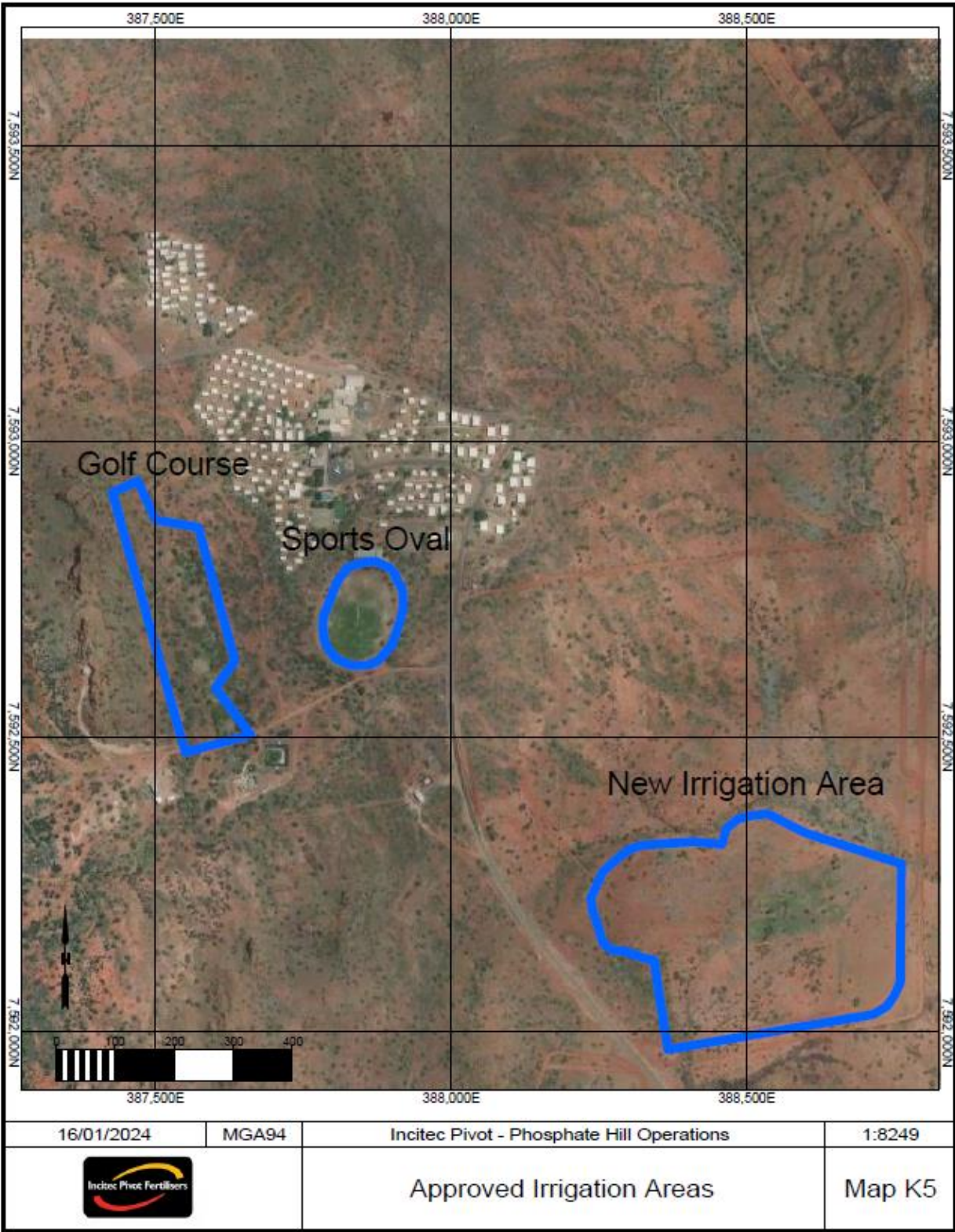


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Map K5 – Approved Irrigation Areas

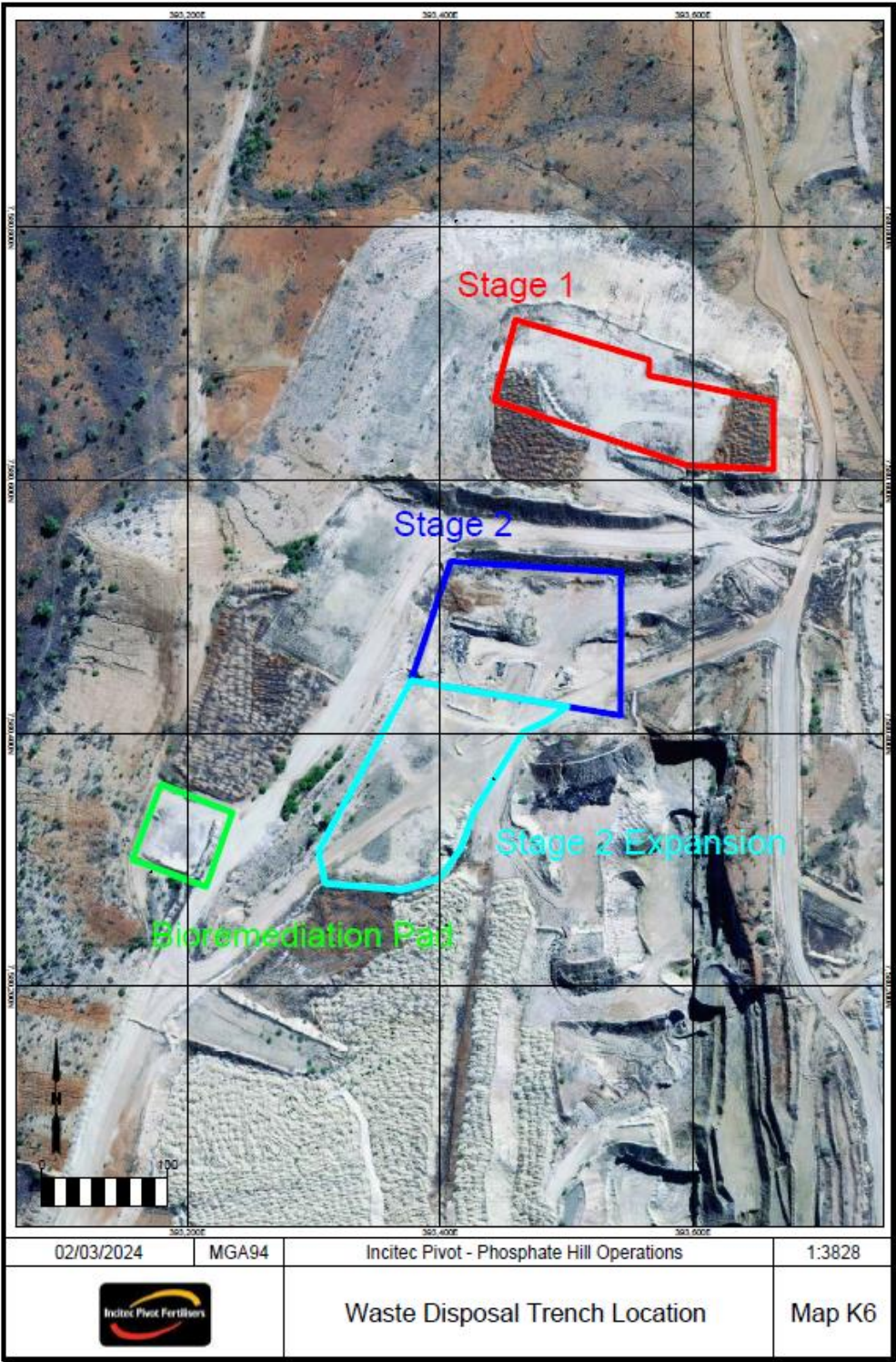


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Map K6 – Waste Disposal Trench Location



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