Permit

Environmental Protection Act 1994

Environmental authority EPML00770913

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

Environmental authority number: EPML00770913

Environmental authority takes effect on 8 May 2025

The anniversary date of this environmental authority is 22 July each year.

Environmental authority holder(s)

Name(s)	Registered address
Lion Mining Pty Ltd	520 Wickham Street FORTITUDE VALLEY QLD 4006

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 16: Mining gold ore	ML3219, ML3221, ML3223, ML3224, ML3227, ML3228, ML3229, ML3230, ML3231, ML3232, ML3234, ML3243, ML80024, ML80088, ML80089, ML80114, ML80120, ML80144
Schedule 3 10: Investigating the potential development of a mineral resource by large bulk sampling or constructing an exploratory shaft, adit or open pit	ML3221, ML3227
Ancillary 31 – Mineral processing 2: Processing, in a year, the following quantities of mineral products, other than coke (a) 1000t to 100,000t	ML3223, ML3224, ML3227, ML3230, ML80024, ML80088, ML80089, ML80114, ML80144
Ancillary 08 - Chemical Storage 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a)	ML3230, ML80088, ML80144
Ancillary 63 - Sewage Treatment 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of (a-ii) 21 to 100EP otherwise	ML3221, ML80088, ML80114

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).

Mobile and temporary activities

If you operate a mobile and temporary environmentally relevant activity (ERA), other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

Contaminated land

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

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

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

Take effect

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

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

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

c) otherwise – on the day the authority is issued.

However, 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.

T.Gibbs	8 May 2025
Signature	Date

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

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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 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).

Conditions of environmental authority

Schedule A - General

Schedule B - Air

Schedule C - Waste Management

Schedule D - Noise

Schedule E - Water

Schedule F - Biodiversity

Schedule G - Land and Rehabilitation

Schedule H - Regulated Structures

Schedule I - Definitions

Schedule J - Maps and Plans

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 Contaminants with the potential to cause environmental harm must not be released directly or indirectly to the receiving environment, except as permitted under the conditions of this environmental authority.

A3 The environmental authority holder must ensure that the activity is carried out in accordance with *Table A1* and *Schedule J – Figure 1 Location of authorised disturbance* and *Schedule J – Figure 2 Location of authorised disturbance including proposed footprint of TSF2 Stage 2*.

Table A1 - Authorised disturbance ('Table A1')

Mine Domain	Mine Feature Name	Location[1] (MGA94, Zone 56) Central Peg Coordinates	Maximum Disturbance Area (Hectares)
Dams and Diversions	Mine Water Ponds, Roses Pride Mine Ponds, TSF2 Diversion Drain (including northern and southern diversion drains), TSF2 Southern Drain Extension, Stage 3A ESCP Diversions and Dams	225510, 7200245 224200, 7202780 223300, 7202250 223617, 7201914 223050, 7202506	6.23
Waste Rock Dump (WRD) and Ore Stockpiles	Golden Plateau Central Extended Golden Mile Roses Pride WRD Main Portal WRD	227760, 7201070 226490, 7201040 228172, 7200419 224310, 7202740 225790, 7200160	53.6
Tailings Storage Facility (TSF)	TSF1 TSF2 TD1 TD2 TD3 TD4	226240, 7200150 223300, 7202250 227250, 7199670 227230, 7199820 226500, 7200470 226580, 7202040	105.8
Run of Mine (ROM)	ROM PAD	227040, 7199870	3
Processing Area	Ore Treatment Plant	227020, 7199720	2.1
Voids	Central Extended Pit Golden Mile Pit Golden Plateau Bradshaw's Pit	226520, 7201330 228600, 7199890 227590, 7200600 226900, 7200610	19
Surface shrink stoping area	Roses Pride surface shrink stoping area	224453, 7203027	5.4
Topsoil Stockpiles	Topsoil Stockpiles	225629, 7200013 225629, 7200013 225620, 7200240 226135,7199862 226409, 7199870 226565, 7200370 224510, 7202560 225120, 7200510 225640, 7200935	14.3

Mine Domain	Mine Feature Name	Location[1] (MGA94, Zone 56) Central Peg Coordinates	Maximum Disturbance Area (Hectares)
		225605, 7200760 225710, 7199935 223250, 7202700 223665, 7201756 223775, 7201826 (excess soil) 223793, 7201744 (topsoil)	
Ancillary Infrastructure	Administration Areas	227030, 7199540 225550, 7199930	1.05
Roads and Tracks	Haul roads and LV tracks	226510, 7199840 224840, 7200970 225670, 7200060 226420, 7200870 227870, 7201080 224130, 7201570 224309, 7200847	28.3
Hardstand Areas	Laydowns at workshop, fuel storage, substation, Rose's Pride, VR1 Generator, Empire and Townes Laydown.	225550, 7200110 224460, 7202790 224360, 7201890 225180, 7200440 227130, 7200080	2.6
Rock Utilisation	Quarry	223421, 7201338	8
Decline Portals	(Rose's Pride and Main Decline – includes box cuts, surrounding laydowns etc.)	224580, 7202790 225860, 7200080	2
Exploration	All areas	NA	10
Ancillary Infrastructure	Waste Disposal Trench	225214, 7200536	2
Clay Borrow	ML80089, ML80088, ML80144	225490, 7200810 225240, 7200540 224040, 7200770	22
Ancillary Infrastructure	STP Irrigation Area	227240, 7199650	0.08 (included on TD1)
Ancillary Infrastructure	TSF2 Tailings and Return Water Pipeline	226550, 7199870	1.2
Material Transfer Area	Material Transfer Area	225739, 7200137	6
Exploration drive	Golden Plateau exploration drive area	227307, 7200372	1.08

[1] The locations of the mining activities referenced in Table A1 – Authorised Disturbance are described for interpretive purposes in figures contained in Schedule I.

A4 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; and

d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

Monitoring

A5 All monitoring data, records and reports required by this environmental authority or related to environmental management of the activities must be:

a) Carried out by an *appropriately qualified person*, periodically reviewed and updated as required to reflect operational or environmental changes;

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

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

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

A6 The following information must be recorded in relation to all monitoring required under a condition of this environmental authority:

a) The date and time when the sample was taken;

b) The location where the sample was taken; and

c) Any other pertinent details of relevance to interpreting the sampling results (*i.e.* stream flow, wind conditions or any unusual observations such as odour or colouration).

A7 The environmental authority holder must implement all reasonable measures necessary to conduct monitoring required under a condition of this environmental authority.

Note: *'Reasonable measures' could include establishing and maintaining safe all-weather access to a monitoring location by upgrading roads/tracks, use of suitable automated sampling devices, developing alternative routes or utilising alternative transport.*

Financial assurance

A8 Financial assurance must be lodged with the administering authority in the amount, the form and within the time required by the administering authority.

Risk management

A9 The environmental authority holder 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 **20 December 2021**.

Notification of emergencies, incidents and exceptions

A10 The environmental authority holder must notify the administering authority within 24 hours of becoming aware of any emergency, incident, sample result or event which does or may contravene a condition of this environmental authority.

A11 Within 10 business days following the initial notification of an emergency, event 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; and
c) Proposed actions to prevent a recurrence of the emergency or incident.

Complaints

A12 The environmental authority holder must record all environmental complaints received about the mining activities including:

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; and
h) Person responsible for resolving the complaint.

A13 When requested by the administering authority, the environmental authority holder must undertake specified monitoring within the timeframe nominated by the administering authority, to investigate any complaint related to the activity.

Third-party reporting

A14 The environmental authority holder must:

a) By **30 June 2023**, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;

b) Obtain further such reports at regular intervals, not exceeding three (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.

A15 Disturbance due to exploration activities in areas not scheduled to be mined must be rehabilitated in accordance with provisions detailed in the administering authority's *Code of Environmental Compliance for Exploration and Mineral Development Projects* (the Code). Where there is a discrepancy between the Code and this environmental authority, the conditions of the environmental authority apply.

END OF CONDITIONS FOR SCHEDULE A

Schedule B – Air

B1 The release of noxious or offensive odour, or any airborne contaminant, other than dust and particulate matter addressed by condition B2, resulting from the activities must not cause environmental nuisance or harm.

B2 The environmental authority holder shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place:

a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method*.
b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:

1. *Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM_{10} 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_{10} low volume sampler—Gravimetric method*.

c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres ($PM_{2.5}$) suspended in the atmosphere of 20 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*.

END OF CONDITIONS FOR SCHEDULE B

Schedule C - Waste Management

C1 All waste generated as part of the mining activities must be disposed of in a lawful manner at an off-site facility, with the exception of:

a) Waste rock and tailings, which must be characterised, handled and disposed of or used in accordance with condition **C4** of this environmental authority;

b) Timber pallets;

c) Used rubber mill liners, milled plastic trash, rock chips in plastic bags (from exploration drilling), and explosives packaging and consumables comprising cardboard, plastic bags, plastic hoses and associated consumables that are free of explosives, may be disposed of in the tailings dam subject to **C5**; and

d) Tyres, subject to condition **C3**.

Note: *The only waste authorised to be burnt on site is explosive boxes, so long as the burning does not cause environmental harm.*

C2 General waste must only be disposed of into the waste disposal trench facility of ML80089 and identified in *Schedule J Figure 3 – Waste Disposal Trench ML80089*.

C3 Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practicably implemented, waste tyres generated from mining activities may be disposed of on site in non-acid forming waste rock dumps or underground stopes.

C4 All waste rock and tailings must be:

a) *Geochemically characterised* and disposed of, or used, in a manner that minimises the potential generation and/or release of contaminants to the receiving environment; and

b) Where the geochemical characteristics of waste rock is uncertain, this material must be treated as *potentially acid and metalliferous drainage* forming until demonstrated otherwise; and

c) Where the geochemical characterisation demonstrates that waste rock is benign waste rock it may be used on site for rehabilitation activities in accordance with the conditions of this environmental authority; and

d) Details pertaining to meeting the requirements of this condition must be recorded and retained until this environmental authority is surrendered.

C5 The location of the waste mentioned in condition **C1(c) and (d)** in the tailings dam must be recorded and made available to the administering authority on request.

C6 The holder of the environmental authority must develop and implement a waste rock management plan, certified by an appropriately qualified person that the plan is compliant with the conditions in this environmental authority and in accordance with best practice environmental management.

C7 The waste rock management plan must demonstrate that the use and disposal of waste rock will ensure an outcome that is safe, non-polluting, self-sustaining, geotechnically and geochemically stable. The waste rock management plan must include:

a) Geochemical characterisation that includes:

i. an assessment of the likelihood to produce *acid and metalliferous drainage*; and

ii. an assessment of the metal / metalloids listed in Table E7* (excluding cyanide) and

their mobility;

b) selective handling techniques to ensure placement, disposal and use of waste rock is according to characterisation results, use and disposal strategies;

c) a program of progressive characterisation of waste rock to validate selective handling techniques, use and disposal strategies;

d) records of all waste rock characterisation and its final use;

e) contingency planning for the management of contaminated drainage (including acid and metalliferous drainage);

f) a materials balance, use and disposal plan demonstrating how waste rock will be selectively placed and/or encapsulated to minimise the generation of contaminated drainage (including acid and metalliferous drainage);

g) a regular review process to ascertain the performance of the plan; and

h) monitoring to confirm that the use and disposal of the material will ensure an outcome that is safe, non-polluting, self-sustaining, geotechnically and geochemically stable.

**Note: Reference to Table E7 is a reference to the quality characteristics and not the contaminant limits.*

C8 The waste rock management plan must be provided to the administering authority upon request.

Sewage Treatment

C9 All effluent released from the sewage treatment facilities must be monitored at the frequency and for the parameters specified in *Table C1 - Sewage effluent quality targets* for dust suppression, irrigation or recycling.

Table C1 – Sewage effluent quality targets

Quality characteristics	Release limit	Units	Limit type	Monitoring frequency
pH	6.5 to 8.5	pH Units	Range	Monthly
Nitrogen	30	mg/L	Maximum	Monthly
Phosphorus	15	mg/L	Maximum	Monthly
E. coli	1000	Organisms/100mL	Maximum	Monthly

C10 Sewage effluent used directly from the sewage treatment facilities for dust suppression, irrigation or recycling must not exceed sewage effluent release limits defined in *Table C1 - Sewage effluent quality targets*.

C11 Sewage effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place.

C12 Sewage effluent from sewage treatment facilities not used for dust suppression or irrigation must be reused or evaporated.

C13 Solids that accumulate in the sewage treatment facilities (including the evaporation pond) are to be removed by an appropriately licensed regulated waste transporter and disposed of under the terms and conditions of the licence.

C14 Sewage effluent irrigation areas must have a separation distance of at least thirty (30) metres from any groundwater bores and surface waters.

C15 The irrigation of treated effluent must be carried out in a manner such that:

a) Vegetation is not damaged;

b) Soil erosion and soil structure damage is avoided;

c) There is no surface ponding of treated effluent;

d) Percolation of treated effluent beyond the plant root zone is minimised;

e) The capacity of the land to assimilate nitrogen, phosphorus, salts, water and organic matter (as measured by oxygen demand) is not exceeded; and

f) The quality of groundwater is not adversely affected.

C17 Notices must be prominently displayed on any treated effluent irrigation area warning staff and the public that the area is irrigated with treated effluent and not to use or drink the treated effluent. These notices must be maintained in a visible and legible condition.

C17 The daily volume of contaminants released to land must be determined by an appropriate method, for example a flow meter and records kept of such determinations.

END OF CONDITIONS FOR SCHEDULE C

Schedule D – Noise

Noise limits

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

Table D1 - Noise Limits ('Table D1') (includes construction activities)

Noise level dB(A) measured as:	**All days**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**
Noise measured at a 'Noise sensitive place'			
$L_{Aeq, adj, 1 hr}$	42	42	35
$L_{A1, adj, 1 hr}$	52	52	47
Noise measured at a 'Commercial place'			
Noise level dB(A) measured as:	**All days**		
	7am to 6pm	**6pm to 10pm**	**10pm to 7am**
$L_{Aeq, adj, 1 hr}$	47	47	42

Airblast overpressure nuisance

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

Table D2 – Blasting noise and vibration limits ('Table D2')

Blasting noise and vibration limits	**Sensitive place and commercial place criteria**		
	Monday to Friday 7am to 6pm Saturday, Sunday and Public Holidays 9am – 6pm Open Cut Pits and Underground Workings	**Monday to Friday 6pm to 7am, Sunday and Public Holidays – Underground Workings**	**Monday to Friday 6pm to 7am, Sunday and Public Holidays – Open Cut Pits**
Airblast overpressure	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

Monitoring and reporting

D3 All monitoring of noise emissions from the activity must be undertaken in accordance with the most recent version of Queensland Government's 'Noise Measurement Manual' (ESR/2016/2195), the relevant Australian Standard and the Environmental Protection Regulation 2019 (Chapter 5, Part 4).

D4 Noise monitoring and recording must include the following descriptor characteristics and matters:

a) $L_{AN,T}$ (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins)

b) background noise LA90

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

d) atmospheric conditions including temperature, relative humidity and wind speed and directions

e) effects due to any extraneous factors such as traffic noise

f) location, date and time of monitoring

g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

Note: *Noise and blast monitoring as required by the administering authority in accordance with Schedule A - condition* ***A13***

END OF CONDITIONS FOR SCHEDULE D

Schedule E – Water

E1 Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters except as permitted under the conditions of this environmental authority.

E2 The release of contaminants to waters must only occur from the release points specified in *Table E1 - Contaminant Release Points, Sources and Receiving Waters.*

Table E1 - Contaminant Release Points, Sources and Receiving Waters

Release Point (RP)	Location (GDA94, Zone 56)		Contaminant Source and Location	Monitoring Point	Receiving waters description
	Easting	Northing			
SW11	228 381 E	7 201 255 N	Historical waste dump ML3228	Mid point of dam	Boughyard Creek
SW12	227 099 E	7 199 596 N	Ore treatment plant collection dam	Mid point of dam	Boughyard Creek
SW13	226 520 E	7 199 870 N	TSF	Spillway	Orange Creek
SW14	225 435 E	7 200 148 N	Decline/ workshop/admin area collection dams	Mid point of dam	Orange Creek
SW15	225 484 E	7 200 007 N	Sewage treatment plant	Treated effluent tank	Orange Creek
SW16	226 050 E	7 200 222 N	TSF seepage collection dam	Mid point of dam	Orange Creek
SW20	227 151 E	7 199 782 N	Tailings Dam 2 sediment dam	Mid point of dam	Boughyard Creek
SW31	226 340 E	7 202 100 N	Tailings Dam 4 seepage collection dam	Mid point of dam	Orange Creek
SW32	224 180 E	7 202 790 N	Rose's Pride surface area collection dam	Mid point of dam	Orange Creek
SW33[1]	226 470 E	7 201 780 N	Tailings Dam 4	Spillway	Orange Creek
SW35	228 360 E	7 199 210 N	Historical tailings spill ML3219	SE end of ML3234	Boughyard Creek
SW36	228 670 E	7 199 670 N	Historical workings on ML3219	South end of ML3219	Boughyard Creek
SW37	228 050 E	7 201 662 N	Historical waste dump	Waterfall upstream of Klan's Dam SW19	Boughyard Creek

[1] The release of contaminants from release point SW33 must not occur after the spillway is relocated to (GDA94 Zone 56): 226 859 E, 7 202 034 N).

E3 The release of contaminants to waters must not exceed the release limits stated in *Table E2 - Contaminant Release Limits,* when measured at the monitoring points specified in *Table E1 - Contaminant Release Points, Sources and Receiving Waters for each quality characteristic*.

Table E2 - Contaminant Release Limits

Quality Characteristic	Interim Release Limits	Release Limits – SW13 and SW33 Orange Creek Catchment	**Future Release Limits from 31 December 2012. Note: These future limits will apply from a yet to be negotiated date using alternative numbers that will be derived from the information gathered by any combination of the following:** (1) the results of near field monitoring, (2) any studies or investigations carried out in accordance with recommendations 2 & 3 of the Cumulative Impact Study on water quality in the Fitzroy River Basin. (3) any review of the QLD Water Quality Guidelines. (4) other relevant information *Note: This information should be available by the end of 2012 if not before and when it becomes available limits will be determined for each mine site based on the environmental values to be protected and in accordance with criteria below.*	Monitoring Frequency
Electrical conductivity (uS/cm)	1500	210[#]	Aquatic ecosystem protection (no drinking water value): An end-of-pipe limit to achieve in the range 0 to 1000 EC in the receiving waters.	Daily during release (first sample must be taken within 2 hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	6.5 -8.5 [2]	6.5 (minimum) 9.0 (maximum)	
Turbidity (NTU)	NA*	50 [2]	Limit to be determined based on receiving water reference data	
Suspended Solids (mg/L)	200	10 [2]	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment	
Sulphate (SO_4^{2-}) (mg/L)	400	25 [2]		
Cyanide (as un-ionised HCN; measured as [CN]) for = 0.007mg/L (or 7µg/L)	0.007[1]	0.004 [9]	0.007	
Aluminium (mg/L)	0.055[1]	0.055[1]	Limit to be determined based on receiving water reference data.	Daily during release (first sample must be taken within 2 hours of commencement of release).
Arsenic (mg/L)	0.013[1]			
Cadmium (mg/L)	0.0002[1]			
Chromium(mg/L)	0.001[1]			
Copper (mg/L)	0.002[1]			
Iron (mg/L)	0.3[1]			
Lead (mg/L)	0.01[3]	0.0034[1]		
Mercury (mg/L)	0.0002 [5]	0.0006[1]		
Nickel (mg/L)	0.011[1]			
Zinc (mg/L)	0.008[1]			
Boron (mg/L)	0.37[1]			
Cobalt (mg/L)	0.09[4]	0.0014[1]		
Manganese(mg/L)	1.9[1]			
Molybdenum (mg/L)	0.034[1]			
Selenium (mg/L)	0.01[3]	0.011[1]	Limit to be determined based on receiving water reference data.	Daily during release (first sample must be taken within 2 hours of commencement of release).
Silver (mg/L)	0.001[3]	0.00005[10]		
Uranium (mg/L)	0.001[3]	0.0005[2]		
Vanadium (mg/L)	0.01[3]	0.006[2]		
Ammonia (mg/L)	0.9[1]	0.02[2]		

Quality Characteristic	Interim Release Limits	Release Limits – SW13 and SW33 Orange Creek Catchment	Future Release Limits from 31 December 2012. Note: These future limits will apply from a yet to be negotiated date using alternative numbers that will be derived from the information gathered by any combination of the following: (1) the results of near field monitoring, (2) any studies or investigations carried out in accordance with recommendations 2 & 3 of the Cumulative Impact Study on water quality in the Fitzroy River Basin. (3) any review of the QLD Water Quality Guidelines. (4) other relevant information *Note: This information should be available by the end of 2012 if not before and when it becomes available limits will be determined for each mine site based on the environmental values to be protected and in accordance with criteria below.*	Monitoring Frequency
Nitrate (mg/L)	1.1 [6]	NA		
Petroleum hydrocarbons (mg/L)	0.02	No sheen or residue		
Petroleum hydrocarbons (C10-C36) (mg/L)	0.1			
Fluoride (total) (mg/L)	2 [7]	1.5 [8]		

NA – not available, * local trigger values need to be developed
Note 1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Limits for metal/metalloids apply if dissolved results exceed trigger.
Note 2: LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.
Note 3: Cyanide contaminant release limits apply at release points SW12, SW13, SW16, SW20, SW31, SW38 and SW33 only
[1] Limit based on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 95% level protection (% species)
[2] Limit based on the Environmental Protection (Water) Policy 2009 Dawson River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Dawson River Sub-basin except the Callide Creek Catchment, September 2011, State of Queensland
[3] Limit based on the LOR for ICPMS.
[4] Limit based on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality *2000 moderate reliability for 95% level of protection (% species).*
[5] For aquatic ecosystem protection, based on LOR for CV FIMS
[6] For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN
[7] Limit based on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality *2000 livestock drinking water short term trigger value in irrigation water.*
[8] Limit based on Queensland Drinking Water Guidelines
[9] Limit based on the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 99% level protection (% species)
[10] Note that the LOR for ICPMS for Silver is 0.0001mg/L.

for high flow conditions as per the Environmental Protection (Water) Policy 2009 Dawson River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Dawson River Sub-basin except the Callide Creek Catchment, September 2011, State of Queensland

E4 The release of contaminants to waters from the release points must be monitored at the locations specified in *Table E1 - Contaminant Release Points, Sources and Receiving Waters* for each quality characteristic and at the frequency specified in *Table E2 - Contaminant Release Limits*.

E5 The environmental authority holder must install, operate and maintain a stream flow gauging station to determine and record stream flows at the locations upstream of each Release Point as specified in *Table E3 -Contaminant Release during Flow Events* for any receiving water into which a release occurs.

E6 Notwithstanding any other condition of this environmental authority, the release of contaminants to waters must only take place during periods of natural flow events specified as minimum flow in *Table E3 - Contaminant Release during Flow Events* for the contaminant release point(s) specified in *Table E1 - Contaminant Release Points, Sources and Receiving Waters*.

Table E3 - Contaminant Release during Flow Events

Receiving water description	Release Point	Gauging station description	Location (GDA94, Zone 56)		Minimum Flow in Receiving Water Required for a Release Event	Flow recording Frequency
			Easting	Northing		
Boughyard Creek	SW12 SW20 SW38	Gauging Station SW25 (Auto)	229690 E	7200162 N	0.18 m^3/sec*	Continuous (minimum daily)
Orange Creek	SW13 SW14 SW16 SW31 SW32	Gauging Station SW6 (Auto)	224842 E	7199786 N	0.63 m^3/sec*	Continuous (minimum daily)

**Based on flow volume data for Orange and Boughyard Creeks provided by Newcrest Operations Limited.*

E7 Contaminant release flow rate must not exceed twenty percent (20%) of receiving water flow rate.

E8 The daily quantity of contaminants released from each release point must be measured and recorded at the monitoring points in *Table E1 - Contaminant Release Points, Sources and Receiving Waters*.

E9 Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

E10 The environmental authority holder must notify the administering authority as soon as practicable but no later than six (6) hours of having commenced a release of contaminants to waters. 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;
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).

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local administering authority via email or facsimile.

E11 The environmental authority holder 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 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 Department 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

E12 If the release limits defined in *Table E2 - Contaminant Release Limits* are exceeded, the environmental authority holder must notify the administering authority within twenty-four (24) hours of receiving the results.

E13 The environmental authority holder must, within twenty-eight (28) days of a release that exceeds the conditions of this environmental authority, provide a report to the administering authority detailing:

a) The reason for the release;
b) The location of the release;
c) All water quality monitoring results;
d) Any general observations;
e) All calculations; and
f) Any other matters pertinent to the water release event.

E14 The quality of the receiving waters must be monitored at the locations specified in *Table E5 - Receiving Water Upstream Background Sites and Down Stream Monitoring Points* for each quality characteristic and at the monitoring frequency stated in *Table E4 - Receiving Waters Contaminant Trigger Levels*.

Table E4 - Receiving Waters Contaminant Trigger Levels

Quality Characteristic	Trigger Level	Trigger Level (Orange Creek Catchment	Monitoring Frequency
pH	6.5 – 8.0	6.5 – 8.5[5]	SW-OC1: No release – Monthly. During a release - Daily. All other locations: daily during the release
Electrical Conductivity (µS/cm)	1000	340#	
Suspended solids (mg/L)	To be determined*	10[3]	
Sulphate (SO_4^{2-}) (mg/L)	250	25[5]	
Aluminium (mg/L)	0.055		
Arsenic (mg/L)	0.013		
Cadmium (mg/L)	0.0002		
Chromium (mg/L)	0.001		
Copper (mg/L)	0.002		
Cyanide (as un-ionised HCN; measured as [CN]) for = 0.007mg/L (or 7µg/L)	0.007	0.004[2]	
Iron (mg/L)	0.3		
Lead (mg/L)	0.01	0.0034[5]	
Mercury (mg/L)	0.0002	0.0006[5]	
Nickel (mg/L)	0.011		
Zinc (mg/L)	0.008		
Boron (mg/L)	0.37		
Cobalt (mg/L)	0.09	0.0014[5]	
Manganese (mg/L)	1.9		
Molybdenum (mg/L)	0.034		
Selenium (mg/L)	0.01	0.011[5]	
Silver (mg/L)	0.001	0.00005[6]	
Uranium (mg/L)	0.001	0.0005[5]	
Vanadium (mg/L)	0.01	0.006[5]	
Ammonia (mg/L)	0.9	0.068[4]	
Nitrate (mg/L)	1.1	NA	
Total Nitrogen (mg/L)	NA	0.5[5]	

Quality Characteristic	Trigger Level	Trigger Level (Orange Creek Catchment	Monitoring Frequency
Fluoride (mg/L)	2	1.5	

*Note: To be revised based on receiving water reference data.
[2] 99% protection of species
[3] Trigger applies to Baseflow conditions
[4] Interim trigger based on 80th percentile of SW3 data (2010-2017).
[5] Limit based on the Environmental Protection (Water) Policy 2009 Dawson River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Dawson River Sub-basin except the Callide Creek Catchment, September 2011, State of Queensland
[6] Note that the LOR for ICPMS for Silver is 0.0001mg/L.
for baseflow conditions as per the Environmental Protection (Water) Policy 2009 Dawson River Sub-basin Environmental Values and Water Quality Objectives Basin No. 130 (part), including all waters of the Dawson River Sub-basin except the Callide Creek Catchment, September 2011, State of Queensland

Table E5 - Receiving Water Upstream Background Sites and Down Stream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Location (GDA95, Zone 56)	
		Easting	Northing
Upstream Background Monitoring Points			
SW3 (Group 1)	Orange Creek – upstream of SW31	226000 E	7203500 N
SW17 (Group 4)	Boughyard Creek – upstream SW19. SW11	229430 E	7202470 N
SW B2 (Group 5)	Boughyard Creek - tributary from Golden Mile Pit	230000 E	7201000 N
SW C1 (Group 6)	Boughyard Creek – upstream of tailings contamination within ML3224	227350 E	7199250 N
TBA	Boughyard Creek – upstream of tailings storage (TD4) within ML3230	TBA	TBA
SW41	Roses Pride - upstream monitoring location	224258 E	7203593 N
Downstream Monitoring Points			
SW9 (Group 1)	Orange Creek – downstream of SW3, SW31 (TD4), SW13 (CEX), ML3230, ML80024	225500 E	7200950 N
SW6 (Group 2)	Orange Creek – downstream of overflow contamination from SW21, SW14, SW15 (mine workshop and dams), ML80088, ML80089	224842 E	7199786 N
SW6 (Group 3)	Orange Creek – downstream of overflow contamination from SW1, SW13, SW14, SW15, SW16	224542 E	7199786 N
SW25 (Group 4)	Boughyard Creek – SW11, SW19, SW17, downstream of Golden Plateau rock dumps, ML3230, ML3243, ML3228, ML3232, ML3227	229690 E	7200162 N
SW7 (Group 5)	Boughyard Creek – downstream of B1, Golden Mile pit, ML3219, ML3232	229490 E	7198890 N
SW18 (Group 6)	Boughyard Creek – downstream of historic tailings on ML3234	228790 E	7197800 N
SW9 (Group 2)	Orange Creek - upstream of SW14, SW15, SW21	225500 E	7200950 N
SW1 (Group 3)	Orange Creek - upstream of SW13, downstream of SW14, SW15 SW16	226250 E	7200480 N
SW-OC1	Orange Creek – TSF1 Seepage monitoring	225353 E	7200313 N

Monitoring Points	Receiving Waters Location Description	Location (GDA95, Zone 56)	
		Easting	Northing
SW39	Orange Creek - TSF2 Surface water monitoring	222190 E	7203256 N
SW40	Roses Pride - downstream monitoring location	222973 E	7203461 N
Note: The data from background monitoring points must not be used where they are affected by releases from other mines. TBA – To be advised following consultation with the administering authority to update Table E2 - Contaminant Release Limits			

E15 If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in *Table E4 - Receiving Waters Contaminant Trigger Levels* during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and:

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

b) Where the downstream results exceed the upstream results complete an investigation 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 **E15(b)** of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.

E16 The environmental authority holder must develop and implement a REMP for all stages of the activity to monitor, identify and describe any adverse impacts to receiving water environmental values, quality and flows due to the authorised activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while contaminants are being discharged from the site. For the purposes of the REMP, the receiving environment is all underlying groundwaters and the waters of the Dawson River and connected waterways within 15km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised activity that will potentially be directly affected by an authorised release of contaminants.

E17 The REMP must address (but not necessarily be limited to) the following:

a) Description of potentially affected receiving waters including key communities and background water quality characteristics based on accurate and reliable monitoring data that takes into consideration any temporal variation (e.g. seasonality);
b) Description of applicable environmental values and water quality objectives to be achieved (i.e. as scheduled pursuant to the *Environmental Protection (Water) Policy* 2009);
c) Any relevant reports prepared by other governmental or professional research organisations that relate to the receiving environment within which the REMP is proposed;
d) Water quality targets within the receiving environment to be achieved, and clarification of contaminant concentrations or levels indicating adverse environmental impacts during the REMP;
e) Monitoring for any potential adverse environmental impacts caused by the release;

f) Monitoring of stream flow and hydrology;
g) Monitoring of toxicants should consider the indicators specified in *Table E2 - Contaminant Release Limits* to assess the extent of the compliance of concentrations with water quality objectives and/or the ANZECC & ARMCANZ 2000 guidelines for slightly to moderately disturbed ecosystems;
h) Monitoring of physical chemical parameters as a minimum those specified in *Table E2 - Contaminant Release Limits* (in addition to dissolved oxygen saturation and temperature);
i) Monitoring biological indicators (for macroinvertebrates in accordance with the AusRivas methodology) and metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.1 Guidance on Sampling of Bottom Sediments) for permanent, semi-permanent water holes and water storages;
j) The locations of monitoring points (including the locations specified in *Table E5 Receiving Water Upstream Background Sites and Down Stream Monitoring Points* which are background and downstream impacted sites for each release point);
k) The frequency or scheduling of sampling and analysis sufficient to determine water quality objectives and to derive site specific reference values within two (2) years (depending on wet season flows) in accordance with the Queensland Water Quality Guidelines 2009. For ephemeral streams, this should include periods of flow irrespective of mine or other discharges;
l) The tailored inclusion of dry season monitoring along Boughyard Creek to ensure water quality and potential impacts of shallow groundwater expressions during the dry season;
m) Specify sampling and analysis methods and quality assurance and control;
n) Any historical datasets to be relied upon;
o) Description of the statistical basis on which conclusions are drawn; and
p) Any spatial and temporal controls to exclude potential confounding factors.

E18 A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with condition **E17** must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the conditions of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environment values.

E19 All determinations of water quality must be:
a) Performed by a person or body possessing appropriate experience and qualifications to perform the required measurements;
b) Made in accordance with methods prescribed in the latest edition of the administering authority's Water Quality Sampling Manual;
c) Collected from the monitoring locations identified within this environmental authority, within ten (10) hours of each other where possible;
d) Carried out on representative samples; and
e) Laboratory testing must be undertaken using a laboratory accredited (e.g. NATA) for the method of analysis being used.

Note: Condition **E19** requires the Water Quality Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.

E20 The release of contaminants directly or indirectly to waters:
a) Must not produce any visible discolouration of receiving waters; and
b) Must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

E21 The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format with each annual return:

a) The date on which the sample was taken;
b) The time at which the sample was taken;
c) The monitoring point at which the sample was taken;
d) The measured or estimated daily quantity of the contaminants released from all release points;
e) The release flow rate at the time of sampling for each release point;
f) The results of all monitoring and details of any exceedances with the conditions of this environmental authority; and
g) Water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.

E22 A Water Management Plan must be implemented and maintained that provides for the proper and effective management of the actual and potential environmental impacts resulting from the mining activity and to ensure compliance with the conditions of this environmental authority.

E23 The water management plan must include at least the following components:

a) Contaminant source study;
b) Site water balance and model;
c) Water management system;
d) Saline drainage prevention and management measures;
e) Acid and metalliferous drainage prevention and management measures (if applicable);
f) Emergency and contingency planning; and
g) Monitoring and review.

E24 Each year the environmental authority holder must undertake a review of the water management plan prior to the wet season (i.e. by 1 November) and a further review following the wet season (i.e. by 1 May the following year) to ensure that proper and effective measures, practices or procedures are in place so that the mine is operated in accordance with the conditions of this environmental authority and that environmental harm is prevented or minimised.

E25 A copy of the water management plan and/or a review of the water management plan must be provided to the administering authority on request.

E26 The environmental authority holder must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.

E27 The environmental authority holder must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid and metalliferous drainage.

E28 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 minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

E29 The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.

E30 Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.

E31 The administering authority and the environmental authority holder both acknowledge that the conditions for release of contaminants to Orange Creek, Boughyard Creek and the Dawson River in this environmental authority have been calculated without the benefit of the findings of projects proposed to be undertaken as per recommendations 2 and 3 of the Study of cumulative impacts on water quality of mining activities in the Fitzroy River Basin (April 2009). The administering authority may, based on the information provided in the study report when it becomes available, all relevant information available at the time and the regulatory framework applicable at that time, consult with the environmental authority holder about the conditions in the environmental authority concerning the treatment and disposal of waste water. The aim of the consultation shall be the meaningful review of the contaminant release limits imposed in this authority having regard to:

a) The study results;
b) Near field monitoring results;
c) QLD Water Quality Guidelines; and
d) Best practice environmental management.

If this review leads to a change in the requirements on this environmental authority holder, this shall be advanced by way of an authority amendment or a Transitional Environmental Program and as is necessary or desirable.

Groundwater

E32 Contaminants must not be released directly or indirectly to any groundwater.

E33 The taking of or interference with groundwater must not cause environmental harm to any **groundwater dependant ecosystems**.

E34 By **30 January 2022,** the Groundwater Management Program must be developed by an appropriately qualified person and implemented and maintained by the environmental authority holder.

E35 The Groundwater Management Program required by condition **E34** must:

a) identify potential sources of contamination and impacts to groundwater from the activity; and
b) ensure that all potential groundwater impacts due to the activity are identified, mitigated and monitored; and
c) document sampling and monitoring methodology; and
d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
    i. detect any impacts to groundwater levels due to the activity; and
    ii. detect any impacts to groundwater quality due to the activity; and
    iii. determine compliance with condition **E45**; and
    iv. determine trends in groundwater quality showing decreasing and increasing trends; and
e) include an appropriate quality assurance and quality control program; and
f) include a groundwater model which includes an assessment of current seepage rates and predicted post-mining seepage rates; and
g) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

E36 The Groundwater Management Program must be reviewed annually by an appropriately qualified person. The review must include at a minimum:

a) an assessment that the Groundwater Monitoring and Management Program continues to meet the requirements stated in condition **E35**; and
b) a review of all the historical groundwater data against the limits specified in **Table E7 - Groundwater quality limits**; and
c) determine the representativeness of current groundwater conditions and suitability of Limit A and Limit B in **Table E7 - Groundwater quality limits**; and
d) an assessment of the suitability of the monitoring network for groundwater specified in **Table E6 - Groundwater monitoring locations and frequency** to detect impacts from the mining activities;

and

e) where relevant information gaps or uncertainty are identified as pertinent to the accuracy of the investigations finding/conclusions, include recommendations and associated timeframes to address those information gaps and resolve uncertainty.

E37 The Groundwater Management Program and annual review required under condition **E36** must be provided to the administering authority annually from **30 January 2022.**

E38 The holder of the environmental authority must report the results and analysis of groundwater monitoring to the administering authority on request.

E39 Groundwater levels must be monitored, and groundwater draw down fluctuations in excess of two (2) metres per year, not resulting from the pumping of licensed bores, must be notified as per conditions **A10 – A11.**

E40 Groundwater quality and standing water level must be monitored:

a) at the locations specified in Table E6 - Groundwater monitoring locations and frequency; and
b) at the frequencies specified in Table E6 - Groundwater monitoring locations and frequency; and
c) for the quality characteristics identified in Table E7 - Groundwater quality limits for the hydrogeological feature in which the bore is located.

E41 Groundwater measured from any compliance bore specified in **Table E6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table E7 - Groundwater quality limits** on any five consecutive sampling occasions.

E42 Groundwater measured from any compliance bore specified in **Table E6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table E7 - Groundwater quality limits** on any three consecutive sampling occasions.

E43 If groundwater measured from any compliance bore specified in **Table E6 - Groundwater monitoring locations and frequency** exceeds the corresponding Limit B specified in **Table E7 - Groundwater quality limits** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding quality characteristics within ten business days of receipt of results.

E44 If groundwater measured from any compliance bore specified in **Table E6 - Groundwater monitoring locations and frequency** exceeds the corresponding Limit B specified in **Table E7 – Groundwater quality limits** on any one sampling occasion the environmental authority holder must review and implement actions identified in the Groundwater Management Program and Seepage Management Plan as required by condition **E34** and **E50** for effectiveness within ten business days of receipt of resampled results and document the review.

*Note: The resampling event is not considered a sampling occasion and therefore not a consecutive exceedance of the Limit B for the quality characteristic/s for the purposes of condition **E42**.*

E45 From 30 July 2021, the environmental authority holder must ensure that the groundwater quality measured in operational bores specified in **Table E6 - Groundwater monitoring locations and frequency** does not have increasing trends.

E46 The following information must be recorded in relation to all groundwater sampling:

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; and
d) The results of all monitoring.

E47 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

a) for waters and aquatic environments, Monitoring and Sampling Manual: Environmental Protection (Water) Policy, (Department of Environment and Science 2018)*;*
b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Part 11: Guidance on sampling of groundwaters;
c) for subterranean aquatic fauna, the Guideline for the Environmental Assessment of Subterranean Aquatic Fauna (Queensland Herbarium, DSITI December 2015).

E48 The construction, maintenance and decommissioning of groundwater monitoring bores must be undertaken in a manner that:

a) prevents contaminants entering the groundwater; and
b) ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and
c) maintains the hydrogeological environment within the aquifer.

E49 A bore log[#] must be completed for each groundwater monitoring bore which includes:

a) bore identification reference and geographic coordinate location; and
b) specific construction information including but not limited to depth of bore, depth and length of casing, depth and length of screening and bore sealing details; and
c) standing groundwater level and water quality characteristics including physical characteristics and results of laboratory analysis for the possible trigger characteristics; and
d) lithological data, stratigraphic interpretation by an appropriately qualified person to identify important features associated with groundwater monitoring; and
e) target hydrogeological formation of the bore.

[#]Note: No bore log records available prior to 1 January 2000 for MB02 andTD4/DS.

E50 The environmental authority holder must install, operate and maintain seepage management systems to prevent seepage from all site infrastructure moving beyond the operational bores specified in **Table E6 - Groundwater monitoring locations and frequency.**

Table E6 - Groundwater monitoring locations and frequency ('Table E6')

Monitoring Point[1]	Location (GDA94 – Zone 56)		Aquifer	Surface RL (m)[2]	Screened interval RL (m) [2]	Monitoring Frequency	
	Latitude	Longitude				Standing Water Level RL (m) [2]	Groundwater Quality
Compliance bores							
Tailings Storage Facility 1 (TSF1)						Monthly	Quarterly
KMB3	225658	7200274	Camboon Volcanics	310	7.5-10.5		
KMB5A	225977	7199892	Camboon Volcanics	325.3	30.9-36.0		
KMB5B	225981	7199891	Camboon Volcanics	325.5	12.8-18.8		
KMB7	226476	7200319	Camboon Volcanics	352.5	36.3-41.3		
KMB12	225363	7200277	Camboon Volcanics	292.4	24-30.5		
Tailings Dam 4 (TD4)							
TD4/DS	226295	7202014	Camboon Volcanics	350.8	21.5-29.87		
TD4/DS2	226367	7201916	Camboon Volcanics	358.80	24-30		
TD4/OC	225873	7202066	Blue Basalt	318.9	15.5-24.5		
TD4/US2A	226908	7201999	Camboon Volcanics	389.2	26.5-32.5 & 68.5-74.5		
TD4/US3A	227078	7202054	Camboon Volcanics	372.2	51-63		
Tailings Dam 1 and 2 (TD1/TD2)							
GW4B	227435	7199565	Camboon Volcanics	347.87	27-30		
TD1/DSA	227488	7199466	Camboon Volcanics	343.90	20.8-29.8		
KMB8	227037	7199626	Camboon Volcanics	363.2	16.1-19.1		
Waste Rock Dumps and Open Cut Pits							
CEX/DS	225951	7201384	Camboon Volcanics	320.10	15-18, 27-30		
KMB9	228361	7201588	Camboon Volcanics	355.76	52.4-64.4		
KMB9B	228362	7201588	Camboon Volcanics/ Colluvium	355.8	9-15		
Tailings Storage Facility 2 (TSF2)							
TSF2AS	223134	7202218	Barfield Formation	235.59	13.5-19.5		
TSF2AN	223089	7202366	Barfield Formation	234.38	19.8-25.8		

Operational Bores[3]							
Tailings Storage Facility 1 (TSF1)						Monthly	Quarterly
KMB1	225013	7200058	Camboon Volcanics	285.66	23-29		
KMB6A	226104	7200382	Camboon Volcanics	318.5	26.4-32.4		
KMB6B	226108	7200384	Camboon Volcanics	318.6	4.7-9.7		
KMB10	225930	7200416	Camboon Volcanics	320.5	5-20		
KMB11	226218	7200577	Camboon Volcanics	328.6	6-12		
MB06[5]	226033	7200340	Camboon Volcanics	314.86	19-25		
MB08	226044	7199887	Camboon Volcanics	328.37	18-24		
MB10	225547	7200313	Camboon Volcanics	300.57	12-18 & 24-30		
Tailings Dam 4 (TD4)							
MB2	226262	7202116	Camboon Volcanics	335.5	9.22 - 17.84		
TD4/US2B	226908	7202002	Colluvium	389.3	5-6		
TD4/US3B	227080	7202055	Colluvium	372.2	5-6		
Tailings Dam 1 and 2 (TD1/TD2)							
TD1/DSB	227228	7199458	Camboon Volcanics	354.40	3.6-6.0		
Observation Bores[4]							
KMB2	223924	7200595	Barfield Formation/ Camboon Volcanics	258	12-18	Monthly	Quarterly
RB01	227239	7202652	Colluvium	358.55	17-23		
RB02	225977	7202915	Camboon Volcanics	348.76	9.74-15.74		
RB03	222823	7203261	Barfield Formation	348.76	7.5-10.5		
RB05	226024	7203185	Camboon Volcanics	353.90	15-21		
RB06	226264	7203900	Camboon Volcanics	370.70	28-34		
TD4/DS2B	226495	7202403	Siltstone	397.02	25-31		
MB11	225462	7200521	Camboon Volcanics	296.80	8-11		
TD3	226464	7200518	Tailings	357.58	8-17		
TD3B	226463	7200606	Tailings	358.13	18.2-21.2		
TSF2-BS	223134	7202218	Alluvium	235.59	2.5-3.5		
TSF2-BN	223089	7202366	Alluvium	234.38	3-5		

[1] Monitoring point depicted in Schedule J – Figure 4.
[2] RL must be measured at the top of the bore casing to the nearest 5cm.
[3] Groundwater quality when measured in operational bores must comply with condition E45.
[4] Observation bores are for interpretation purposes only.
[5] Condition E39 does not apply to MB06.

Table E7 – Groundwater contaminant trigger values and limits ('Table E7')

Quality Characteristic	Bores	Limit A	Limit B
pH	All bores		6 – 8.5
Electrical Conductivity (µs/cm)	KMB7, CEX/DS	1700	1900
	KMB8, GW4B, TD4/OC, TD4/US2A, TD4/US3A	4200	4400
	KMB12, KMB3	5500	6000
	KMB5A, KMB5B, TD4/DS, TD4/DS2	9200	10000
	TD1/DSA	4540	4560
Sulfate (mg/L)	CEX/DS, TD4/US3A	84	86
	KMB7	302	311
	KMB8, TD4/DS2, GW4B, TD4/OC	765	1150
	TD4/DS, TD1/DSA, TD4/US2A	1430	1720
	KMB12, KMB5A, KMB3	2600	2880
	KMB5B	3600	3840
Fluoride (mg/L)	TD4/OC	-	2.5
	TD4/US2A	-	3.1
	All bores	-	2
Ammonia (mg/L)	All bores	-	0.9
Cyanide Free (mg/L)	All bores	-	0.007
Cyanide Total (mg/L)	All bores	-	0.08
Aluminium (mg/L) Dissolved	All bores	-	0.055
Arsenic (mg/L) Dissolved	All bores	-	0.013
	TD4/DS2[1]	N/A[1]	N/A[1]
Cadmium (mg/L) Dissolved	All bores	0.0002	0.0003
Chromium (mg/L) Dissolved	All bores	0.001	0.005
Cobalt (mg/L) Dissolved	GW4B, KMB5B, KMB12, KMB3, TD4/US2A, TD1/DSA	0.0334	0.054
	All other bores	0.009	0.0122
Copper (mg/L) Dissolved	All bores	0.005	0.0073
Iron (mg/L) Dissolved	All bores	0.3	0.495[2]
	KMB9[1]	N/A[1]	N/A[1]
	CEX/DS[1]	N/A[1]	N/A[1]
Lead (mg/L) Dissolved	All bores	-	0.0034
Manganese (mg/L) Dissolved	All bores	-	1.9
	KMB9[1]	N/A[1]	N/A[1]
	CEX/DS[1]	N/A[1]	N/A[1]
Mercury (mg/L) Dissolved	TD1/DSA	0.0043	0.0049
	All other bores	N/A	0.0006
Molybdenum (mg/L) Dissolved	All bores	-	0.034
Nickel (mg/L) Dissolved	KMB5A	0.011	0.03
	All other bores		0.018
Selenium (mg/L) Dissolved	All bores	-	0.01
Silver (mg/L) Dissolved	All bores	-	0.001
Vanadium (mg/L) Dissolved	All bores	-	0.01
Zinc (mg/L) Dissolved	All bores	-	0.15[1]
Total Hardness	All bores	For interpretation purposes	
Major ions	All bores		
Total Dissolved Solids (mg/L)	All bores		

[1] Condition E45 applies for the nominated bore and quality characteristic.
[2] Zone 21 of the Lower Dawson Groundwaters (DEHP 2011) - Deep 80th percentile

E51 The Seepage Management Systems required by condition **E50** must, at a minimum:
a) include effective control measures to minimise seepage from all site infrastructure; and
b) include effective control measures to capture and pump-back seepage sufficient to prevent migration into surface waters; and
c) include effective control measures to ensure seepage does not report to groundwater in the receiving environment; and
d) include effective control measures to ensure compliance with condition **E45**; and
e) include adequate detection measures to analyse and confirm the effectiveness of all control measures required by this condition

E52 From **30 January 2022,** the environmental authority holder must implement and maintain a Seepage Management Plan developed and documented by an **appropriately qualified person(s)**. The SMP must, at a minimum:
a) describe the Seepage Management Systems required by condition **E50**; and
b) include adequate control measures to ensure groundwater quality in compliance bores listed in **Table E6– Groundwater monitoring locations and frequency** comply with all limits specified in **Table E7 – Groundwater quality limits**; and
c) include all measures necessary to ensure that the management intent for groundwater is achieved in accordance with condition **E45**; and
d) include all measures necessary to ensure compliance with condition **E1 and E32**; and
e) include adequate measures to intercept seepage sufficient to prevent migration beyond the operational as specified in **Table E6 – Groundwater monitoring locations and frequency**; and
f) include adequate measures and review processes to determine if any additional control measures e.g. interception bores or interception trenches are required; and
g) include an action plan to implement and/or install any additional control measures that are required; and
h) include a map or figure that depicts the location and type of seepage control measures installed; and
i) be reviewed annually for the effectiveness of the components and include details of improvements undertaken in the previous year; and
j) record the volumes of seepage collected and/or handled as part of the seepage management system.
k) address any comments made by the administering authority

E53 The Seepage Management Plan must be made available to the administering authority annually from **30 January 2022.**

END OF CONDITIONS FOR SCHEDULE E

Schedule F – Biodiversity

Biodiversity offsets

F1 Significant residual impacts to prescribed environmental matters, are not authorised under this environmental authority or the *Environmental Offsets Act 2014.*

F2 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.

END OF CONDITIONS FOR SCHEDULE F

Schedule G – Land and Rehabilitation

G1 The environmental authority holder must rehabilitate all land disturbed by the mining activities in a manner that ensures rehabilitated areas achieve the following rehabilitation objectives:

a) Safe for humans and wildlife;
b) Non-polluting;
c) Stable;
d) Able to sustain an agreed post-mining land-use;
e) Revegetated with species endemic to the area with no declared pest species; and
f) Compliant with all conditions of this environmental authority.

G2 A Final Land Use Rehabilitation Plan ('FLURP') that describes how the rehabilitation objectives in condition **G1** will be achieved must be developed, documented and implemented for all stages of the mining activity by **30 June 2017**. The FLURP must at minimum include:

a) Schematic representation of the proposed final land form inclusive of site drainage features;
b) Details of proposed slope design and erosion and sediment controls;
c) Proposed cover designs for encapsulation of waste material, including performance criteria;
d) Proposed re-vegetation methods inclusive of plant species selection, propagation methods and establishment of suitable plant growth medium (*i.e.* top soil);
e) Materials balance for all rehabilitation requirements including available top soil and material suitable for encapsulating waste in accordance with the proposed encapsulation methodology;
f) Geotechnical, geochemical and hydrological studies necessary to demonstrate likely success of proposed rehabilitation methodology to achieve the required rehabilitation outcomes;
g) An investigation of proposed residual voids including potential for generation/mobilisation of contaminants, potential pathways for release of contaminants to waters (including groundwater) and a long-term void water balance model; and
h) A rehabilitation monitoring program sufficient to identify if required rehabilitation outcomes have been achieved.

G3 Rehabilitation in accordance with condition **G2** must commence progressively in accordance with the plan of operations.

G4 Residual voids must not cause any serious or material environmental harm, other than the environmental harm constituted by the existence of the residual void itself, subject to any other condition within this environmental authority.

G5 All explosives, flammable or corrosive substances, hazardous chemicals, toxic substances, gases and

dangerous goods must be stored and handled in accordance with:

a) The current Australian Standard where applicable; or
b) Where no relevant Australian Standard exists, store such materials within an on-site containment system sufficient to prevent release to the receiving environment.

G6 Minimise the potential for contamination of land by hazardous contaminants.

G7 The environmental authority holder may conduct one (1) heap leach trial comprising of 2000 tonnes of ore with dimensions 20m x 20m x 4m high on the surface of TD2 within a three (3) month period. The holder of the environmental authority must design and operate the heap leach process within a bunded area with a capacity to contain the maximum volume of solution used in the leaching process in addition to rainfall runoff for a 1:100 ARI, 72 hour duration.

G8 The legacy disturbance identified in *Table G1- Legacy Disturbance* must be managed in accordance with the conditions of this environmental authority.

Table G1 - Legacy disturbance

Mining Lease	Mine Feature Name/ Description	Location (MGA 94, Zone 56)[1]	Maximum Disturbance Area (Hectares)
ML3221	TD1/TD2	227,333E; 7,200,141N	<1.0 maximum disturbance (at various locations)
			8.1
	Easement disturbance	227189E; 7200274N	0.1
ML8009	TD3 unnamed tributary	225771E; 7200338N	1.79
ML3229	Roses Pride	224,274E; 7,202,856N	1.2
ML80089	Klondyke	225,235E; 7,200,546N	1.3 (clay borrow pits)
		225,133E; 7,200,293N	0.85 (Klondyke)

Notes: 1: The location coordinates represent the approximate centroid of each respective polygon shown in Schedule J – Figure 6.

G9 The disturbance areas identified in *Table G2 – Legacy Disturbance areas not authorised to be disturbed* are not the responsibility of the environmental authority holder and are not authorised to be disturbed by the environmental authority holder.

Table G2 - Legacy disturbance areas not authorised to be disturbed

Mining Lease	Mine Feature Name/ Description	Location (MGA 94, Zone 56)[1]	Maximum Disturbance Area (Hectares)
ML3234	Historical tailings deposition	227,850E; 7,199,370N	14.8
ML3228	Historical diggings	Various occurrences within the ML	40.0[2]
ML3219	Historical diggings		18.6[2]
ML3232	Historical diggings		28.9[2]
ML3229	Roses Pride historical shaft and process plant	224,370E; 7,202,840N	0.6
ML3221	Historical process plant	227,257E; 7,200,263N	1.3
ML3221	UQ House	227,138E; 7,200,275N	0.6 (excludes easement)
ML80089	Historical infrastructure	225,117E; 7,200,525N,	1.0

Notes: 1: The location coordinates represent the approximate centroid of each respective polygon shown in Schedule J – Figure 6.
2: The maximum disturbance area represents the whole polygon, within which only minor legacy disturbance exists. Disturbance areas have not been specifically identified within these polygons

END OF CONDITIONS FOR SCHEDULE G

Schedule H – Regulated Structures

H1 The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)* at the following times:

a) Prior to the construction of the structure, if it is not an existing structure; or

b) If it is an existing structure, by **20 December 2016**; or

c) Prior to any change in its purpose or the nature of its stored contents.

H2 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.

H3 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*.

Design and construction of a regulated structure

H4 All regulated structures constructed after **20 December 2016,** 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)*.

H5 Construction of a regulated structure after **20 December 2016** is prohibited unless the environmental authority holder has submitted to the administering authority and 28 days have elapsed, the following:

a) a consequence category assessment report, as required by condition **H2**, and

b) the suitably qualified and experienced person certified design and design plan; and

c) the associated suitably qualified and experienced person certified operating procedures.

H6 Certification for regulated structures constructed after **20 December 2016,** must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933)*, and must be recorded in the Regulated Structures register.

H7 Regulated structures constructed after **20 December 2016,** 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);*

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 structure from any watercourse or drainage line; and

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

H8 Certification by the suitably qualified and experienced person who supervises the construction of regulated structures after **20 December 2016,** must be submitted to the administering authority within 90 days of the completion of construction of the regulated structure, and state that:

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

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

Operation of a regulated structure

H9 Operation of a regulated structure must not commence unless the environmental authority holder has submitted to the administering authority:

a) One paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition **H6**, and

b) A set of 'as constructed' drawings and specifications, and

c) Certification of those 'as constructed drawings and specifications' in accordance with condition H8, and

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

e) A statement that confirms:

i. The requirements of this authority relating to the construction of the regulated structure have been met;

ii. The details required under this authority, have been entered into a Register of Regulated Structures; and

iii. There is a current operational plan for the regulated structures.

H10 For existing structures that are regulated structures:

a) where the existing structure that is a regulated structure is managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, the environmental authority holder must submit to the administering authority within three (3) 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.

H11 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.

Mandatory reporting level

H12 Other than for regulated Structures that have been certified as low consequence category for 'failure to contain – overtopping' and with the exception of the Golden Plateau Pit, the Mandatory Reporting Level (the MRL) specified in *Table H1* must be marked on a regulated structure in such a way that during routine inspections of that structure, it is clearly observable.

H13 Other than for regulated Structures that have been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder 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 structure reaches the MRL.

H14 Other than for regulated Structures that have been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated structure.

H15 Other than for regulated Structures that have been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must record any changes to the MRL in *Table H1* and in the Register of Regulated Structures.

Design storage allowance

H16 The environmental authority holder must assess the performance of each regulated structure or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated structure or linked containment system taken prior to 1 July of each year.

H17 By 1 November of each year, storage capacity must be available in each regulated structure (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the structure (or network of linked containment systems), as specified in *Table H1*.

H18 The environmental authority holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated structure (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.

H19 The environmental authority holder must, immediately on becoming aware that a regulated structure (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 structure or linked containment systems.

Annual inspection report

H20 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

H21 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 recommended actions, if applicable, to ensure the integrity of the regulated structure.

H22 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)*.

H23 The environmental authority holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:

a) The recommendations section of the annual inspection report; and
b) If applicable, any details of any actions being taken in response to those recommendations.

Transfer arrangements

H24 The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning and rehabilitation

H25 Regulated structures and structures must not be abandoned but must be decommissioned and rehabilitated to achieve compliance with conditions **G1** and **G2** of this environmental authority.

Hydraulic performance of regulated structures

H26 Each regulated structure authorised by this environmental authority as specified in *Schedule A – Table A1 Authorised Disturbance*, must meet the hydraulic performance criteria listed in *Table H1* for that structure.

H27 The water level must be measured and recorded electronically at Bore NS8, in order to enable monitoring of the Mandatory Reporting Level in the Golden Plateau Pit.

Table H1 – Hydraulic performance criteria ('Table H1')

Name of Regulated Structure	Consequence Category	Spillway Capacity		Design Storage Allowance (DSA)		Mandatory Reporting Level (MRL)		Purpose of structure
		Design Criteria	mAHD	Design Criteria	ML	Design Criteria	mAHD	
TSF1 (stage 5)	High	1:1000 AEP	356.65	1:100 AEP 4 month	15[1]	1 in 100AEP 72hr duration	356.1	Tailings deposition
TSF2 (Stage 1)			246.65		325.8		245.7	
TSF2 (Stage 2)			250.45		401		249.5	
TSF2 (Stage 3A)			251.8		299		250.7	
TD4 (Stage 6)	High	1:1000 AEP	394	1:100 AEP 4 month as at 1 Nov each year	60.8[1]	1 in 100 AEP 72hr duration	393.1	Tailings deposition
Golden Plateau Pit	Significant	1:100 AEP	365	1:20 AEP 4-month	305.4	1:10 AEP 72hr duration	341.9	Water storage
Central Extended Pit	Significant	1:100 AEP	361.17	1:20 AEP 4-month	40	1:10 AEP 72hr duration	359.7	Water storage
Golden Mile Pit	Significant	1:100 AEP	341.33	1:20 AEP 4-month	97.7	1:10 AEP 72 hr duration	339.1	Water storage

[1.] Calculated using the method of operational simulation.

H28 The hydraulic performance criteria specified in *Table H1* are the minimum mandatory performance requirements; regulated structures must be managed in a manner that ensures compliance with all conditions of this environmental authority.

END OF CONDITIONS FOR SCHEDULE H

Schedule I - Definitions

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.

Word / Phrase	Definition
Acid drainage	Means any contaminated discharge emanating from a mining activity formed through a series of chemical and/or biological reactions. Refer to Acid and metalliferous drainage**.**
Acid and metalliferous drainage	Means any contaminated discharge emanating from a mining activity formed through a series of chemical and/or biological reactions. The term acid and metalliferous drainage is used to describe any drainage type and includes: • Acid drainage • Neutral and metalliferous drainage • Saline drainage
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 environmental 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); For evidence of conformance with the current operational plan.
Annual exceedance probability or AEP	The probability that at least one event in excess of a particular magnitude will occur in any given year.
Appropriately qualified person	Means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relative to the subject matter using the relevant protocols, standards, methods or literature.
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

Word / Phrase	Definition
	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 (d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.
Benign waste rock	Is waste rock that has been shown through appropriate and relevant geochemistry testing, to not produce acid and metalliferous drainage.
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	By an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, 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 at any time: a) exactly what is being certified and the precise nature of that certification b) the relevant legislative, regulatory and technical criteria on which the certification has been based c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.
Commercial place	Means a workplace 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.
Construction or constructed	In relation to a regulated structure includes building a new regulated structure and lifting or otherwise modifying an existing regulated structure, but does not include investigations and testing necessary for the purpose of preparing a design plan.

Word / Phrase	Definition
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.
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. Associated works means: a) Operations of any kind and all things constructed, erected or installed for that dam; and b) Any land used for those operations.
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.
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.
Effluent	Means treated waste water discharged from sewage treatment plants.
Emergency action plan	Means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact.
Existing structure	Means a structure that was in existence prior to the adoption of this schedule of conditions under the environmental authority.
Flowable substance	Means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids

Word / Phrase	Definition
	either in solution or suspension.
Geochemical characterisation	Means establishing all elements present in the ore or waste material and the likelihood to produce acid and metalliferous drainage.
Groundwater dependent ecosystem	Means ecosystems that require access to groundwater to meet all or some of their water requirements on a permanent or intermittent basis, so as to maintain their communities of plants and animals, ecosystem processes and ecosystem services.
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)*.
$L_{A\ 10,\ adj,\ 10\ mins}$	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.
$L_{A\ 1,\ adj,\ 10\ mins}$	Means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response.
$L_{A,\ max\ adj,\ T}$	Means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10-minute period, using Fast response.
Land use	Term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.
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.
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.
Natural Flow	Natural flow is defined as a flow event caused as a result of a local rainfall event, within a defined catchment area and measured within the same receiving waters.
Neutral mine drainage	Means any contaminated discharge emanating from a mining activity formed through a series of chemical and/or biological reactions. Refer to Acid and metalliferous drainage**.**
Non-acid forming, or non-acid producing (NAP)	Rock that when exposed to an oxidising environment will not produce acid solutions. Compare with “ore or waste rock characterised as having acid forming potential.
Operational plan	Includes: a) Normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance);

Word / Phrase	Definition
	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.
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 H2SO4/tonne or a Net Acid Generation oxidation pH of less than 4.5 (pH unit).
Potentially acid forming (PAF)	Means ore or waste rock characterised as having acid forming potential.
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*.
Receiving environment	In relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to): a) a watercourse or surface waters b) groundwater
Receiving waters	Has the same meaning as receiving environment.
Register of Regulated Structures	Includes: a) Date of entry in the register; b) Name of the dam, 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);

Word / Phrase	Definition
	g) The design plan title and reference relevant to the dam; 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 environmental authority as at 1 November of each year.
Regulated dam	Means any dam 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.
Rehabilitation	Means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
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 is not required to sustain a post mining land use.
Saline Drainage	Means any contaminated discharge emanating from a mining activity formed through a series of chemical and/or biological reactions. Refer to Acid and metalliferous drainage**.**
Sensitive place	Means: a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises, or b) a motel, hotel or hostel, or c) an educational institution, or d) a medical centre or hospital, or e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area, or f) a public park or gardens.
Significant residual impact	Has the meaning in section 8 of the *Environmental Offsets Act 2014.*
Spillway	Means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.

Word / Phrase	Definition
Stable	In relation to land, means landform 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 (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.
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: a) For regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design. b) 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.
Void	Means any constructed, open excavation in the ground.
Waters	Includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater or any part-thereof.
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.

END OF SCHEDULE I

Schedule J – Maps and Figures

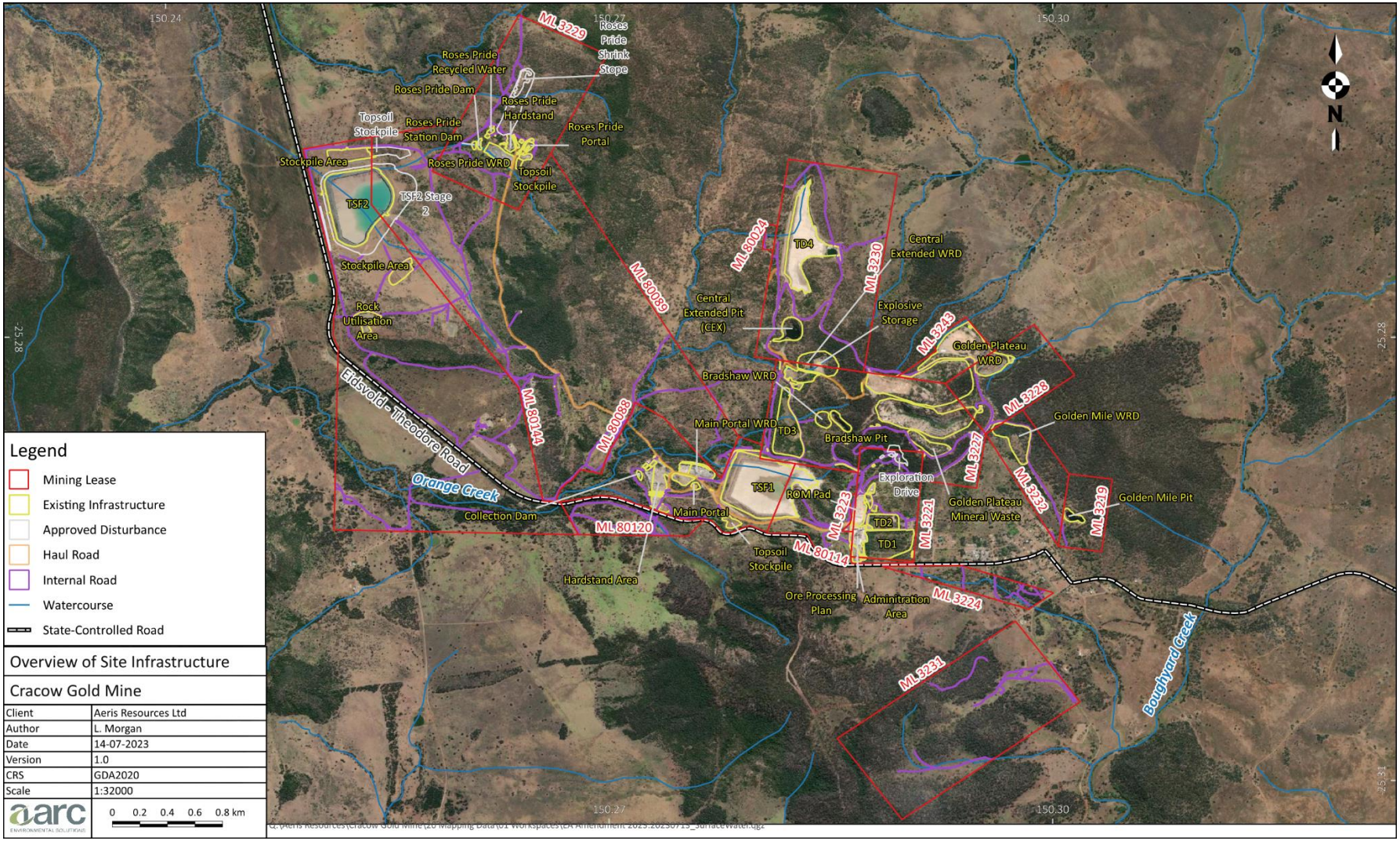

Figure 1 – Location of authorised disturbance.

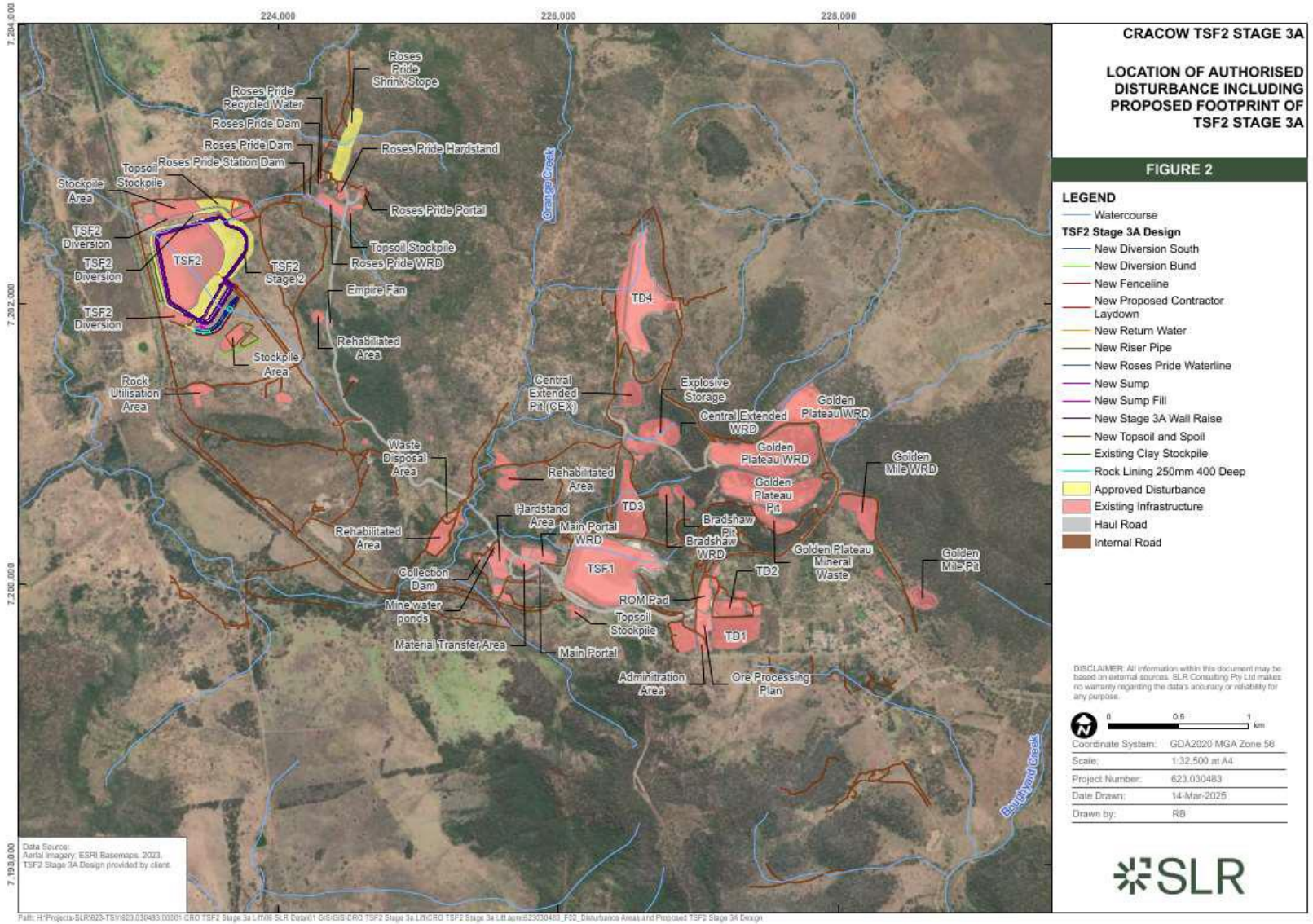

Figure 2 – Location of authorised disturbance including authorised footprint of TSF2 Stage 3A.

Figure 3 – Waste Disposal Trench ML80089

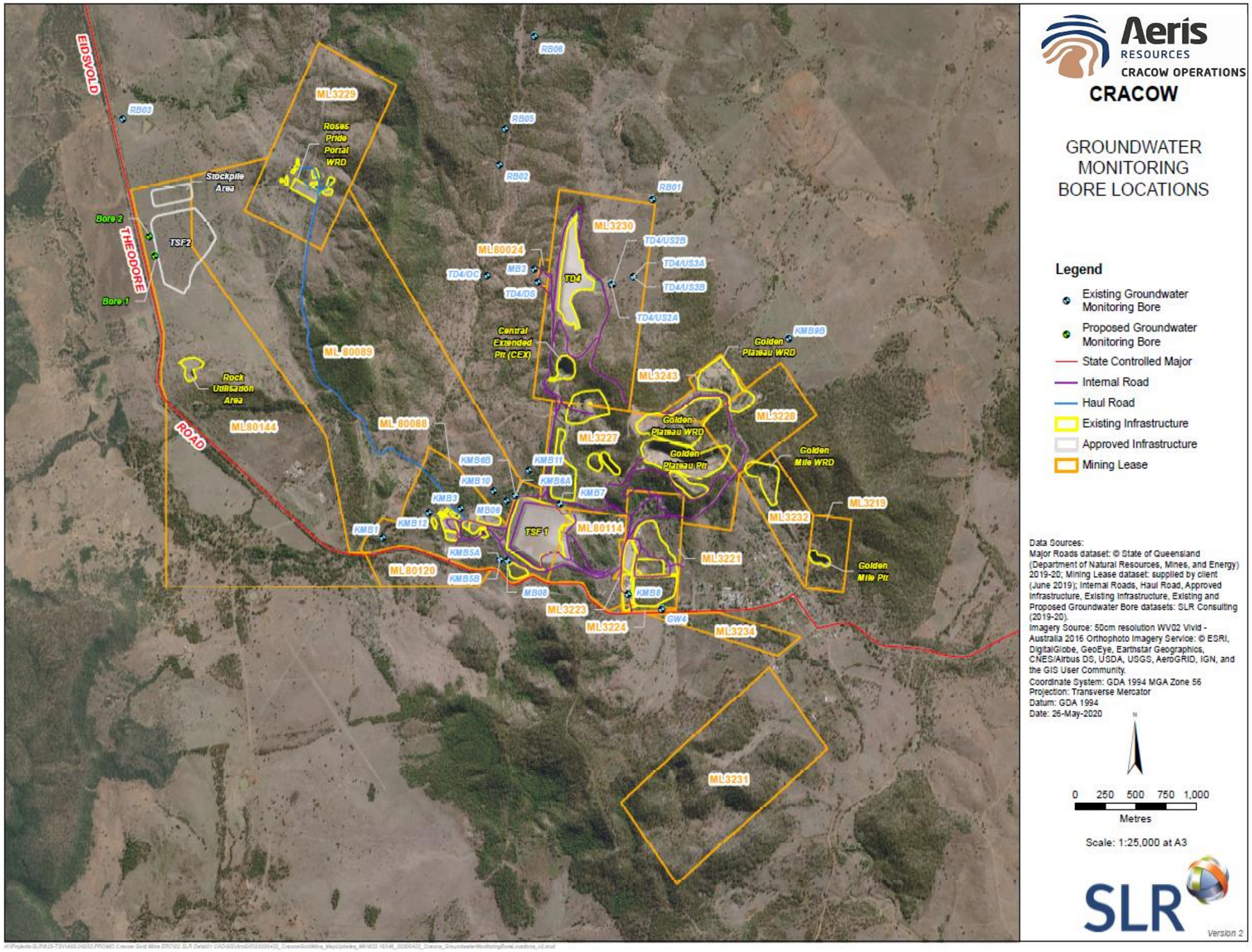

Figure 4 – Groundwater monitoring point locations

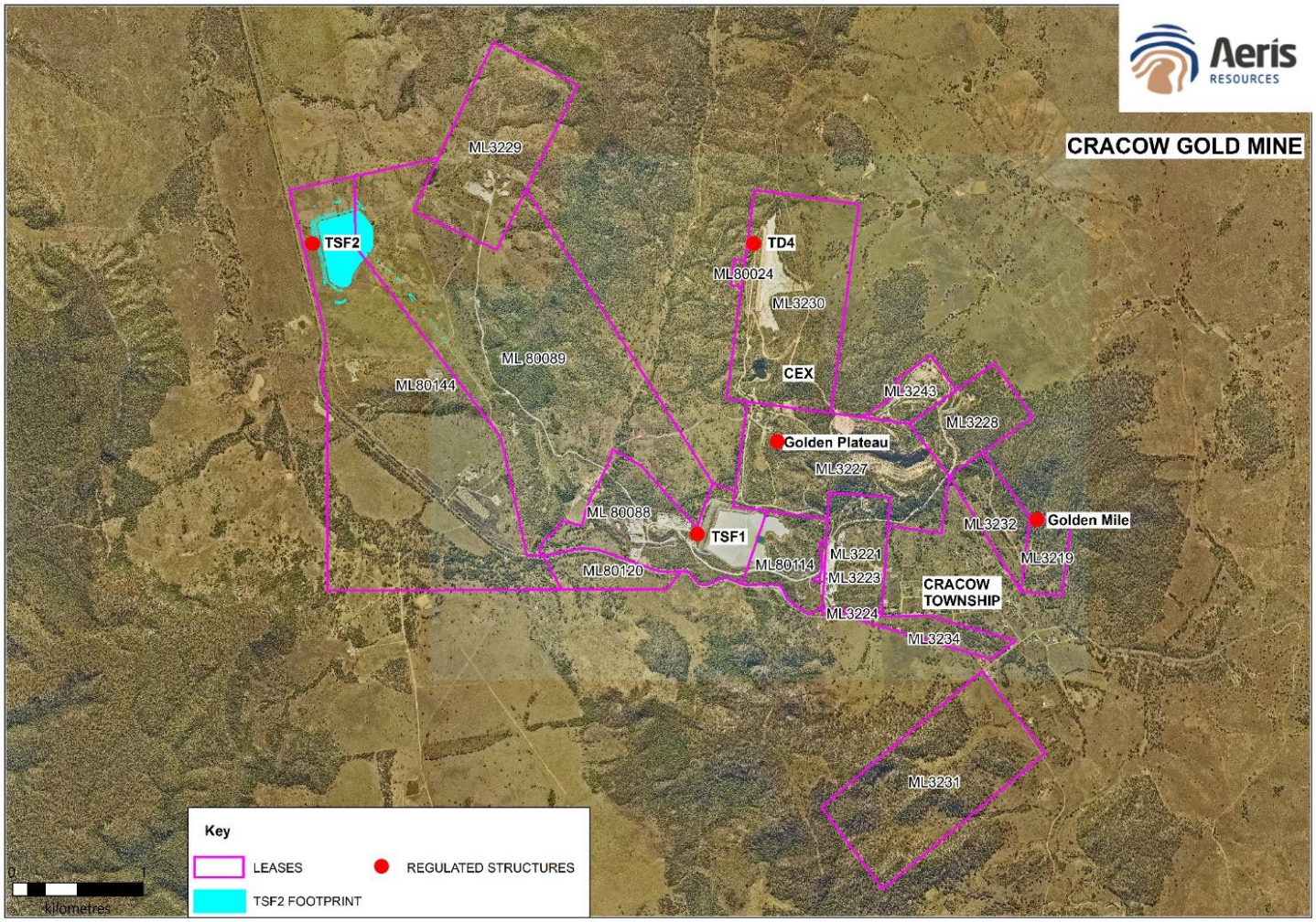

Figure 5 – Regulated Structures

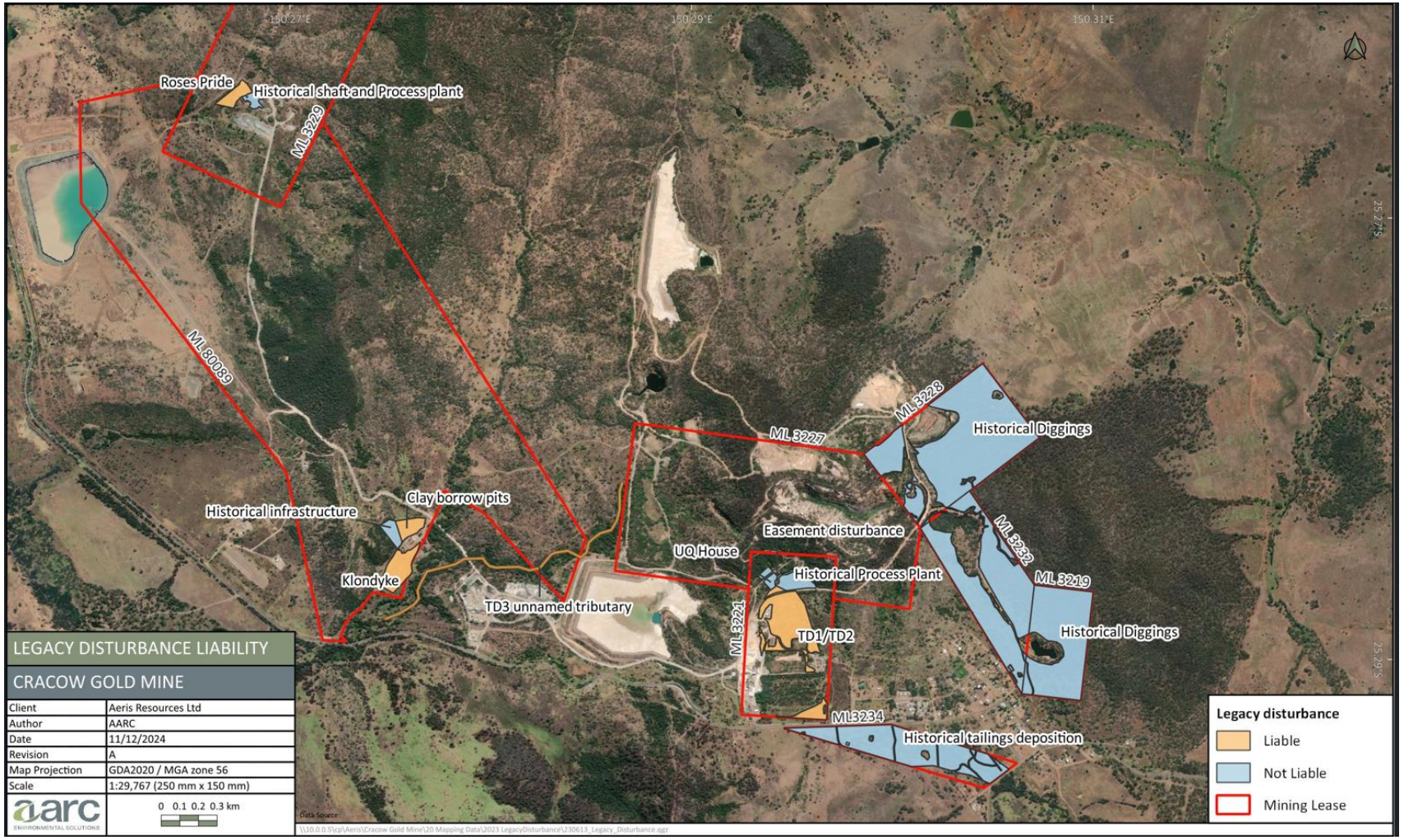

Figure 6 – Legacy Disturbance

END OF PERMIT