

Permit¹

Environmental Protection Act 1994

Environmental authority EPML00651713

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

Permit¹ number: EPML00651713

Environmental authority takes effect: 2 May 2014

Anniversary date: 14 March

Environmental authority holder(s)

Name	Registered address
QMCH Pty Ltd	246 Boundary Road PARKHURST QLD 4702
QMC (Kunwarara) Pty Ltd	246 Boundary Road PARKHURST QLD 4702
QMC Refmag Pty Ltd	246 Boundary Road PARKHURST QLD 4702

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
Mining - ML other - 20, Site Specific	ML5868 ML5869 ML5870 ML80067 ML80125 ML80152

Additional information for applicants

Environmentally relevant activities

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

¹ Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

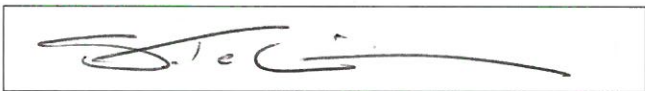


An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

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

Contaminated land

It is a requirement of the EP Act that if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.



Signature

Sam Tarlinton
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

2 May 2014

Date

Enquiries:
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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)

Conditions of environmental authority

Schedule A - General	
Condition number	Condition
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	The holder of this environmental authority must: a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority b) maintain such measures, plant and equipment in a proper and efficient condition c) operate such measures, plant and equipment in a proper and efficient manner 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.
A3	Monitoring Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than 5 years.
A4	Financial assurance The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
A5	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.
A6	Risk Management The holder of this environmental authority must develop and implement a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the latest edition of an Australian standard for risk management, to the extent relevant to environmental management, within three months of issue of this environmental authority.
A7	Notification of emergencies, incidents and exceptions The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency or incident which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with, the conditions of this environmental authority.
A8	Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, further written advice must be provided to the administering authority, including the following: a) results and interpretation of any samples taken and analysed b) outcomes of actions taken at the time to prevent or minimise unlawful environmental harm c) proposed actions to prevent a recurrence of the emergency or incident.

A9	Complaints The holder of this environmental authority 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 h) person responsible for resolving the complaint.
A10	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
A11	Third-party reporting The holder of this environmental authority must: a) within 1 year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority b) obtain further such reports at regular intervals, not exceeding 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.
A12	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a) comply with the amended or changed standard, policy or guideline within 2 years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Schedule B - Air	
Condition number	Condition
B1	Subject to conditions B2 and B3, the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
B2	When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
B3	If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of condition B1: a) Insoluble solids of 4 grams per square metre per month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method. b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than 5 exceedances recorded each year, when monitored in accordance with the most recent version of either: 1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 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—PM10 low volume sampler—Gravimetric method.
B4	If monitoring indicates exceedance of the relevant limits in condition B3, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

Schedule C - Waste management	
Condition number	Condition
C1	Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
C2	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
C3	Tailings disposal Tailings must be managed in accordance with procedures contained within the current plan of operations. These procedures must include provisions for: a) containment of tailings b) the control of fugitive emissions to air c) maintaining records of the relative locations of any other waste stored within the tailings d) rehabilitation strategy e) monitoring of rehabilitation, research and/or trials to verify the requirements and methods for decommissioning and final rehabilitation of tailings, including the prevention and management of erosion minimisation and establishment of vegetation cover.

Schedule D - Noise	
Condition number	Condition
D1	Noise nuisance Noise from the mining activity to which this approval relates must not cause an environmental nuisance at any nuisance sensitive place.

Table D1 – Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am – 6pm	6pm – 10pm	10pm – 7am	9am – 6pm	6pm – 10pm	10pm – 9am
Noise measured at a 'Noise sensitive place'						
L _{A10} , adj, 10 mins	b/g+5					
L _{A1} , adj, 10 mins	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5	b/g+5
Noise measured at a 'Commercial place'						
L _{A10} , adj, 10 mins	b/g+10					
L _{A1} , adj, 10 mins	b/g+15	b/g+10	b/g+15	b/g+15	b/g+10	b/g+10

D2	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results within 14 days to the administering authority. Monitoring must include: a) LA 10, adj, 10 mins b) LA 1, adj, 10 mins c) the level and frequency of occurrence of impulsive or tonal noise d) atmospheric conditions including wind speed and direction e) effects due to extraneous factors such as traffic noise and f) location, date and time of recording.
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Schedule E - Groundwater	
Condition number	Condition
E1	The holder of this environmental authority is authorised to release contaminants and must comply with the release limits specified in <i>Table E1 – Groundwater release quality</i> .

Table E1 - Groundwater release quality

Parameter		Release limit
Electrical conductivity		6000 µS/cm
pH		6.0 – 9.5 pH units

E2	Monitoring and reporting All determinations of groundwater quality and biological monitoring must be performed by an appropriately qualified person.
E3	Groundwater quality and levels must be monitored at the locations and frequencies defined in <i>Table – E2 Groundwater monitoring locations and frequency</i> and <i>Figures 1 and 2 Groundwater Bore Monitoring Locations</i> for quality characteristics identified in <i>Table E3 - Groundwater quality triggers and limits</i> .

Table E2 – Groundwater monitoring locations and frequency

Monitoring Point	Location		Surface RL (m) ¹	Monitoring Frequency
	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)		
Reference Bores ²				
M4	-22.90644502	150.18446	24.2	6-monthly
M9	-22.91299598	150.18356	26.35	
W5	-22.87451802	150.20649	20.0	
W10	-22.87078497	150.16737	22.0	
M13	-22.91629602	150.22028	24.2	
WB1	-22.937936	150.27676	26.61	
WB5	-22.95774696	150.26703	32.10	
YM1	-23.10353198	150.32155	16.81	
YM3	-23.08510697	150.29319	21.6	
YM12	-23.06915201	150.3337	17.63	
YM13	-23.05786796	150.318492	18.4	
YM17	-23.04620697	150.33206	17.52	
Compliance Bores				
M1	-22.87086401	150.1772	20.21	6-monthly
M2	-22.88438302	150.17766	24.4	
M3	-22.89749701	150.17794	24.45	
M5	-22.90443404	150.19012	22.89	
M6	-22.89229402	150.19174	22.38	
M7	-22.88045199	150.19332	20.43	
M8	-22.87374596	150.19137	20.37	
M11	-22.86460198	150.19351	20.4	
M12	-22.86584199	150.20441	20.2	
M14	-22.91333101	150.23384	24.3	
WB2	-22.938137	150.27425	25.89	
WB8	-22.94506297	150.25561	28.83	
WB9	-22.93686898	150.25382	28.31	
YM4	-23.08616803	150.30115	19.39	
YM8	-23.07958103	150.30565	18.81	
YM9	-23.07928598	150.32318	18.52	

Table E3 – Groundwater quality triggers and limits

Parameter	Contaminant triggers	Contaminant limit
Electrical conductivity (µS/cm)	5,000	6,000
pH (pH units)	6.0 – 9.0	6.0 – 9.5

E4	Exceedance Investigation If quality characteristics of groundwater from compliance bores identified in <i>Table E2 - Groundwater monitoring locations and frequency</i> exceed any of the contaminant trigger levels stated in <i>Table E3 - Groundwater quality triggers and limits</i>, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.
E5	Results of monitoring of groundwater from compliance bores identified in <i>Table E2 - Groundwater monitoring locations and frequency</i>, must not exceed any of the contaminant limits defined in <i>Table E3 - Groundwater quality triggers and limits</i>.
E6	Bore construction and maintenance and decommissioning The construction, maintenance and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.

Schedule F – Water	
Condition number	Condition
F1	Contaminant release Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
F2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in <i>Table F1 - Mine affected water release points, sources and receiving waters</i> and depicted in <i>Figures 3 and 4</i> attached to this environmental authority.
F3	The release of mine affected waters to internal water management infrastructure installed and operated in accordance with a water management plan that complies with condition F21 is permitted.

Table F1 – Mine affected water release points, sources and receiving waters

Release Point (RP)	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location	Monitoring Point	Receiving waters description
RP1 ML5868 KG1 Central Pits	-22.885284	150.188904	Mine pit water and stormwater	End of pipe adjacent to clear water pond discharging into drain	Tilpal Creek
RP2 ML5868 KG1 Eastern Pits	-22.891259	150.189629	Mine pit water and stormwater	End of pipe discharging from eastern KG1 pits	Tilpal Creek
RP3 ML80067 KG3	-22.866839	150.194414	Mine pit water and stormwater	End of pipe discharging from KG3 mining area	Tilpal Creek
RP4 ML5870 KG2	-22.91648	150.235752	Mine pit water and stormwater	End of pipe discharging from KG2 mining area canal system	Tilpal Creek
RP5 ML5870 KG2	-22.920472	150.235054	Mine pit water and stormwater	Discharge pipe or channel from within rehabilitation area	Tilpal Creek
RP6 ML80125 Oldman South (NW sector)	-22.92988	150.249914	Mine pit water and stormwater	Overflow spillway or pipe	Tilpal Creek
RP7 ML80125 Oldman South (NE sector)	-22.937819	150.2723	Mine pit water and stormwater	Overflow spillway or pipe	Tilpal Creek
RP8 ML80152 Yaamba	-23.079988	150.311111	Mine pit water and stormwater	Overflow spillway or pipe	Alligator Creek

F4	The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in <i>Table F2 - Mine affected water release limits</i> when measured at the monitoring points specified in <i>Table F1 - Mine affected water release points, sources and receiving waters</i> for each quality characteristic.
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Table F2 – Mine affected water release limits

Quality Characteristic	Release Limits	Monitoring frequency
Electrical conductivity ($\mu\text{S}/\text{cm}$)	2,500 – RP8 2,600 – RP1, RP2, RP3 3,500 – RP4, RP5, RP6, RP7	Daily during release (the first sample must be taken within 2 hours of commencement of release)
pH (pH Unit)	6.5 (minimum) 9.5 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)

F5	The release of mine affected water to waters from the release points must be monitored at the locations specified in <i>Table F1 - Mine affected water release points, sources and receiving waters</i> for each quality characteristic and at the frequency specified in <i>Table F2 - Mine affected water release limits</i>. Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition F5 is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.
F6	The daily volume of mine affected water released from each release point must be measured and recorded.
F7	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.
F8	Notification of release event The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time b) details regarding the compliance of the release with the conditions of Schedule F: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume) c) release point/s d) release rate e) release salinity.

F9	The environmental authority holder must notify the administering authority as soon as practicable and nominally no later than 24 hours after cessation of a release event of the cessation of a release notified under Condition F8 and within 28 days provide the following information in writing: a) release cessation date/time b) volume of water released c) details regarding the compliance of the release with the conditions of Schedule F: Water of this environmental authority (i.e. contaminant limits, discharge volume) d) all in-situ water quality monitoring results e) any other matters pertinent to the water release event. Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions F8 and F9, provided the relevant details of the release are included within the notification provided in accordance with conditions F8 and F9.
F10	Notification of release event exceedance If the release limits defined in <i>Table F2 - Mine affected water release limits</i> are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.
F11	The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing: a) the reason for the release b) the location of the release c) the total volume of the release and which (if any) part of this volume was non-compliant d) the total duration of the release and which (if any) part of this period was non-compliant e) all water quality monitoring results (including all laboratory analyses) f) identification of any environmental harm as a result of the non-compliance g) all calculations h) any other matters pertinent to the water release event.
F12	Receiving environment monitoring and contaminant trigger levels The quality of the receiving waters must be monitored at the locations specified in <i>Table F4 - Receiving water downstream monitoring points</i> for each quality characteristic and at the monitoring frequency stated in <i>Table F3 - Receiving waters contaminant trigger levels</i>.

Table F3 – Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 9.0	Daily during the release
Electrical Conductivity (µS/cm)	1,000	

Table F4 – Receiving water downstream monitoring points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Downstream Monitoring Points			
T1	Tilpal Creek 12,600 to 26,000 metres downstream of RP1 – RP7	-22.7858	150.1451
Y1	Alligator Creek catchment downstream of RP8	-23.0700	150.3100

F13	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in <i>Table F3 - Receiving waters contaminant trigger levels</i> during a release event the environmental authority holder must: a) provide a written report to the administering authority in the next annual return, outlining 1. details of the investigations carried out 2. actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
F14	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
F15	Receiving environment monitoring program (REMP) The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Tilpal Creek and connected or surrounding waterways within 15 kilometres downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
F16	A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administering authority upon request.
F17	A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.
F18	Water reuse Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the consent of the third party).

F19	Annual water monitoring reporting The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format: 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 mine affected water released from all release points e) the release flow rate at the time of sampling for each release point f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
F20	Temporary Interference with waterways Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) <i>Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities</i>.
F21	Water management plan A Water Management Plan must be developed by an appropriately qualified person and implemented.
F22	Stormwater and water sediment controls An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
F23	Stormwater, other than mine affected water, is permitted to be released to waters from: a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F22 b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F21, for the purpose of ensuring water does not become mine affected water.
Schedule G – Sewage Treatment	
Condition number	Condition
G1	The only contaminant permitted to be released to land is treated sewage effluent in compliance with the release limits stated in Table G1 - Contaminant release limits to land.

Table G1 – Contaminant release limits to land

Contaminant	Unit	Release limit	Limit type	Frequency
5 day Biochemical oxygen demand (BOD) ¹	mg/L	20	Maximum	Six Monthly
Total suspended solids	mg/L	30	Maximum	
Nitrogen	mg/L	100	Maximum	
Phosphorus	mg/L	50	Maximum	
E-coli	Organisms/100ml	1000	Maximum	
pH	pH units	6.0 – 9.0	Range	

G2	Treated sewage effluent may only be released to land or water in accordance with the conditions of this approval at the following locations: (a) within the nominated area(s) identified in <i>Figure 5 Sewage treatment plant and effluent disposal</i> (b) other land for the purpose of dust suppression and/or fire fighting (c) to waters at the Clear Water Pond adjacent to the processing plant on ML5868 (KG1).
G3	The application of treated effluent to land must be carried out in a manner such that: (a) vegetation is not damaged (b) there is no surface ponding of effluent (c) there is no run-off of effluent.
G4	If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.
G5	All sewage effluent released to land must be monitored at the frequency and for the parameters specified in <i>Table G1 - Contaminant release limits to land</i> .
G6	The daily volume of effluent release to land must be measured and records kept of the volumes of effluent released.
G7	When circumstances prevent the irrigation or beneficial reuse of treated sewage effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.
G8	A minimum area of 2,500m ² of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.
G9	Treated sewage effluent must only be supplied to another person or organisation that has a written plan detailing how the user of the treated sewage effluent will comply with their general environmental duty under section 319 of the Act whilst using the treated sewage effluent.

Schedule H – Land and rehabilitation

Condition number	Condition
H1	Land disturbed by mining must be rehabilitated in accordance with <i>Table H1 - Rehabilitation Requirements</i> .
H2	Rehabilitation must commence progressively in accordance with the plan of operations.

H3	Contaminated land Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.
H4	Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the Act, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under condition H1.
H5	Minimise the potential for contamination of land by hazardous contaminants.
Schedule J: Dams	
Condition number	Condition
J1	Assessment of consequence category The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> at the following times: a) prior to the design and construction of the structure, if it not an existing structure; or b) if it is an existing structure, prior to the adoption of this schedule; or c) prior to any change in its purpose or the nature of its stored contents.
J2	A consequence assessment report and certification must be prepared for any structure assessed and the report may include a consequence assessment for more than one structure.
J3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)</i> .
J4	The holder must take reasonable and practical measures so that each structure associated with the mining activity is designed, constructed, operated and maintained in accordance with accepted engineering standards and is fit for the purpose for which it is intended.

END OF CONDITIONS

Definitions

Key terms and/or phrases used in this document are defined in this section. 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.

Words and phrases used throughout this environmental authority are defined below. Where a definition for a term used in this environmental authority is not provided within this environmental authority, but is provided in the EP Act 1994 or subordinate legislation, the definition in the EP Act or subordinate legislation must be used.

‘acid rock drainage’ means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions, when geological strata is disturbed and exposed to oxygen and moisture.

‘airblast overpressure’ means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

‘affected person’ is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

‘annual exceedance probability or AEP’ the probability that at least one event in excess of a particular magnitude will occur in any given year.

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

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

‘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 relating to the subject matter using the relevant protocols, standards, methods or literature.

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

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

‘associated works’ in relation to a dam, means:

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

‘authority’ means an environmental authority.

'background', with reference to the water schedule means the average of samples taken prior to the commencement of mining from the same waterway that the current sample has been taken.

'blasting' means the use of explosive materials to fracture:

- a) rock, coal and other minerals for later recovery; or
- b) structural components or other items to facilitate removal from a site or for reuse.

'certification' means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed', drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs.

'certifying, certify or certified' have a corresponding meaning as 'certification'.

'chemical' means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*;
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers' Advisory Council and published by the Commonwealth; or
- e) any substance used as, or intended for use as:
 - (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - (ii) a surface active agent, including, for example, soap or related detergent; or
 - (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - (iv) a fertiliser for agricultural, horticultural or garden use; or
 - (v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - (vi) manufacture of plastic or synthetic rubber.

'commercial place' means a 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.

'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 (EM635)*.

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

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

'dam crest volume' means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (eg 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 (EM635)* 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.

'designer' for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

'disturbance' of land includes:

- a) compacting, removing, covering, exposing or stockpiling of earth;
- b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
- c) carrying out mining within a watercourse, waterway, wetland or lake;
- d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
- e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after the mining activity has ceased; or
- f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of 'disturbance':

- a) areas off lease (e.g. roads or tracks which provide access to the mining lease);
- b) areas previously disturbed which have achieved the rehabilitation outcomes;
- c) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- d) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner.
- e) disturbance that pre-existed the grant of the tenure.

'EC' means electrical conductivity.

'effluent' treated waste water released 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 details.

‘existing structure’ means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

‘extreme storm storage’ means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering 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 either in solution or suspension.

‘hazard’ in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

‘hazard 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 Hazard Categories and Hydraulic Performance of Dams (EM635)*.

‘holder’ means any person who is the holder of, or is acting under, that environmental authority.

‘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 (EM635)*.

‘infrastructure’ means water storage dams, levees, roads and tracks, buildings and other structures built for the purpose of the mining activity.

‘land’ in the ‘land schedule’ of this document means land excluding waters and the atmosphere, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term ‘land’ in this environmental authority relates to physical land and not to interests in land.

‘land use’ –means the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

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

‘low consequence dam’ means any dam that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

‘low hazard dam’ means any dam that is not a high or significant hazard category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

‘m’ means metres.

‘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 (EM635)* published by the administering authority.

'manual' means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority.

'mine affected water':

a) means the following types of water:

- i) pit water, tailings dam water, processing plant water;
- ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2008* if it had not formed part of the mining activity;
- iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
- iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
- v) groundwater from the mine's dewatering activities;
- vi) a mix of mine affected water (under any of paragraphs i)-v) and other water.

b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:

- i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
- ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
 - a. areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
 - b. evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
 - iii) both.

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

'modification or modifying' see definition of 'construction'.

'NATA' means National Association of Testing Authorities, Australia.

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

'non-polluting' means having no adverse impacts upon the receiving environment.

'operational plan' includes:

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

'peak particle velocity (ppv)' means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mm/s).

'protected area' means – a protected area under the *Nature Conservation Act 1992*; or
a) a marine park under the *Marine Parks Act 1992*; or

b) a World Heritage Area.

'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;

b) groundwater; and

c) an area of land that is not specified in this environmental authority.

The term does not include land that is specified in this environmental authority.

'receiving waters' means the waters into which this environmental authority authorises releases of mine affected water.

'register of regulated dams' 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 Hazard Categories and Hydraulic Performance of Dams (EM635)*;
- 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 5 metres at any point from the outside of the dam including its storage area;
 - iii) dam crest volume (megalitres);
 - iv) spillway crest level (metres AHD);
 - v) maximum operating level (metres AHD);
 - vi) storage rating table of stored volume versus level (metres AHD);
 - vii) design storage allowance (megalitres) and associated level of the dam (metres AHD);
 - viii) mandatory reporting level (metres AHD);
- g) the design plan title and reference relevant to the dam;
- h) the date construction was certified as compliant with the design plan;
- i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- j) details of the composition and construction of any liner;
- k) the system for the detection of any leakage through the floor and sides of the dam;
- l) dates when the regulated dam underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

'regulated 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 (EM635)* published by the administering authority.

'regulated structure' includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

'rehabilitation' the process of reshaping and revegetating land to restore it to a stable landform

'release event' means a surface water discharge from mine affected water storages or contaminated areas on the licensed place.

'RL' means reduced level, relative to mean sea level as distinct from depths to water.

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

'saline drainage' The movement of waters, contaminated with salts, as a result of the mining activity.

'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.

Note: The definition of 'sensitive place' and 'commercial place' is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library & educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under *Nature Conservation Act 1992* as a critical habitat or an area of major interest, marine park under *Marine Parks Act 2004*, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

For example, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

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

'structure' means dam or levee.

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

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

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

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

'the Act' means the *Environmental Protection Act 1994*.

'µS/cm' means micro siemens per centimetre.

'void' means any constructed, open excavation in the ground.

'watercourse' has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently –

- a) in a natural channel, whether artificially improved or not; or
- b) in an artificial channel that has changed the course of the watercourse.

Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

'water quality' means the chemical, physical and biological condition of water.

'waters' includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of any watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off and groundwater.

'water year' means the 12-month period from 1 July to 30 June.

'wet season' means the time of year, covering one or 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 DEFINITIONS

Table H1 – Rehabilitation requirements

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Mine pits, roads, stockpiles, infrastructure areas Voids	Areas disturbed by mining which are not residual voids	Safe to humans and wildlife	Former minesite available for continuation of similar activities post-mining as were in place pre-mining	Hazards affecting post-mining land uses	Land on sold to future owner as viable agricultural property similar to surrounding properties. Some land is covered by first right to purchase by former landholders in ML agreements. Other land sold on open market.
		Non-polluting	Former mine site will not cause environmental harm	Water quality of runoff from rehabilitated landscape Soil geochemistry	Monitoring of runoff demonstrates similar water conductivity and pH to natural flood flows. Heavy metals distribution and content similar to pre-mining and analogue soils as determined by soil surveys.
	Stable landforms established similar to pre-existing landscape		Minimise erosion	Erosion features. Percentage groundcover (live vegetation and litter)	Minimum of 60% groundcover recorded over a period of 3 years after completion of rehabilitation areas. No significant erosion features present on final landform.
			Landscape designed to accommodate increased volume of replaced material post the mining process.	Elevated post-mining landform designed with slopes of a gradient which will not erode	Final landform gradient that has no erosion features 3 years after establishment. Slopes typically 2% but steeper where necessary.
	Able to sustain agree post-mining land use		Minimise changes to surface water flow patterns	Flood flow distribution relationship to final landform. Post mining flood paths.	Minimisation but not elimination of changes to post mining flood flow patterns caused by the presence of elevated landform itself. Landform designed to account for flood flow distribution. Floodwater flow distribution at ML5870 (KG2) and ML80125 (OMS) similar to pre-mining pattern where flow splits downstream.
			Cattle grazing on cleared land and disturbed woodland ecosystems	Soil salinity profile Nutritional aspects of soil profiles Pasture nutrition key indicators – protein, N, P, K, trace elements and locally abundant heavy metals	Leaching profile monitoring at selected sites 3 years post-rehabilitation demonstrates salinity within rooting zone is suitable for plant growth and salinity decreases towards surface. Rehabilitated soil profiles have similar nutritional characteristics to pre-mining soils. Nutrient status and heavy metal content of pasture species similar to analogue and pre-mining nutrient status as assessed in annual monitoring of rehabilitation and analogue pasture monitoring sites.

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				3m bench between top of ore zone and clay overburden. Clay overburden maximum slope 30 degrees into pit. Levee around void 1:100ARI + 50%. Maximum outslope of levee 3 degrees. Vegetated topsoil surface on outslope from void Biological indicators	Aquatic research trials demonstrate aquatic biota including phytoplankton, aquatic invertebrates, algae, aquatic and semi-aquatic macrophytes, fish and water fowl are forming part of a self-sustaining aquatic ecosystem.
			Able to sustain agreed post-mining land use	Creation of self-sustaining aquatic ecosystem	

Figure 1 – Groundwater bore monitoring locations (compliance and reference bores)

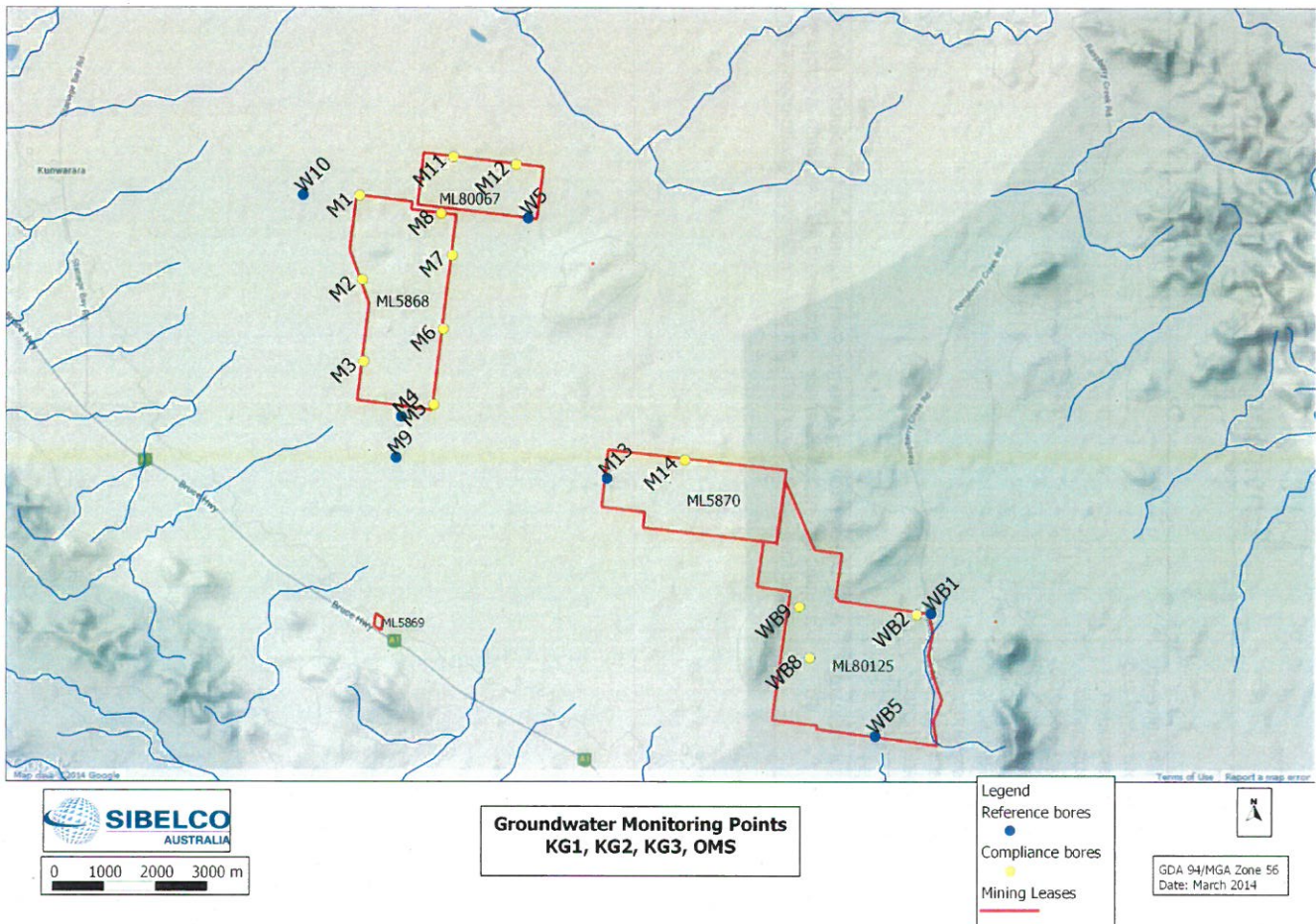


Figure 2 - Groundwater bore monitoring locations (compliance and reference bores Yaamba)

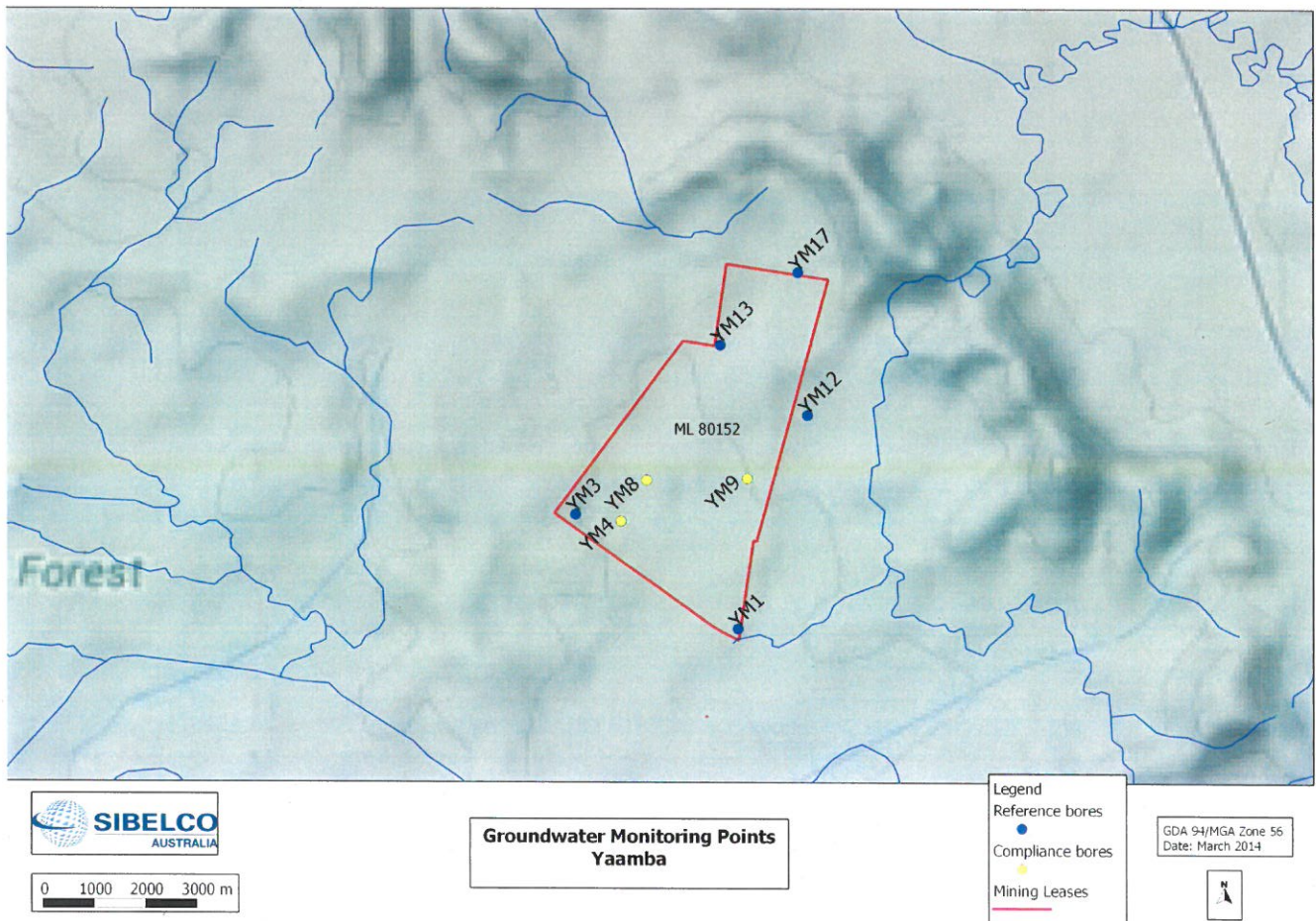


Figure 3 – Release points Kunwarara

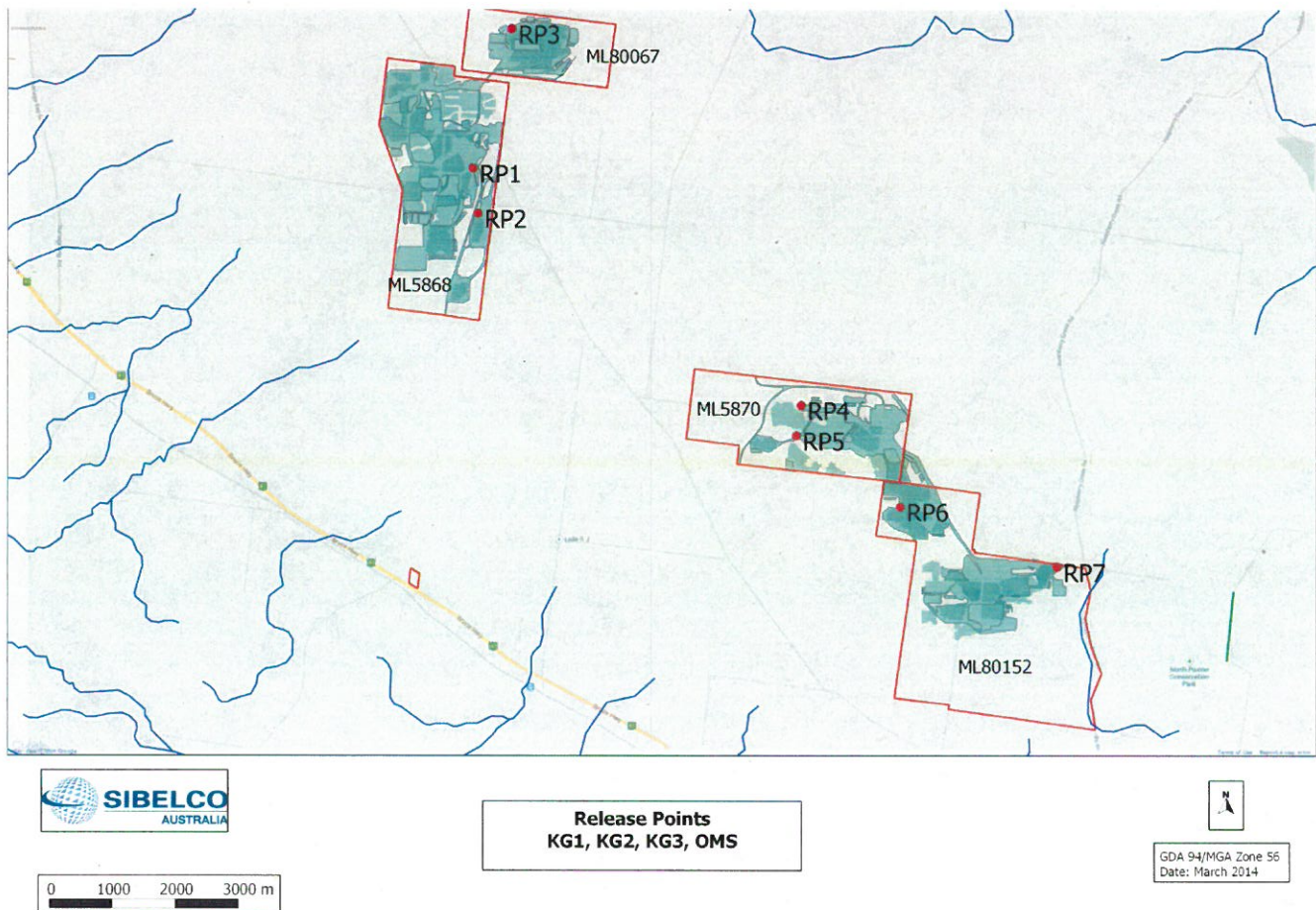


Figure 4 – Release points Yaamba

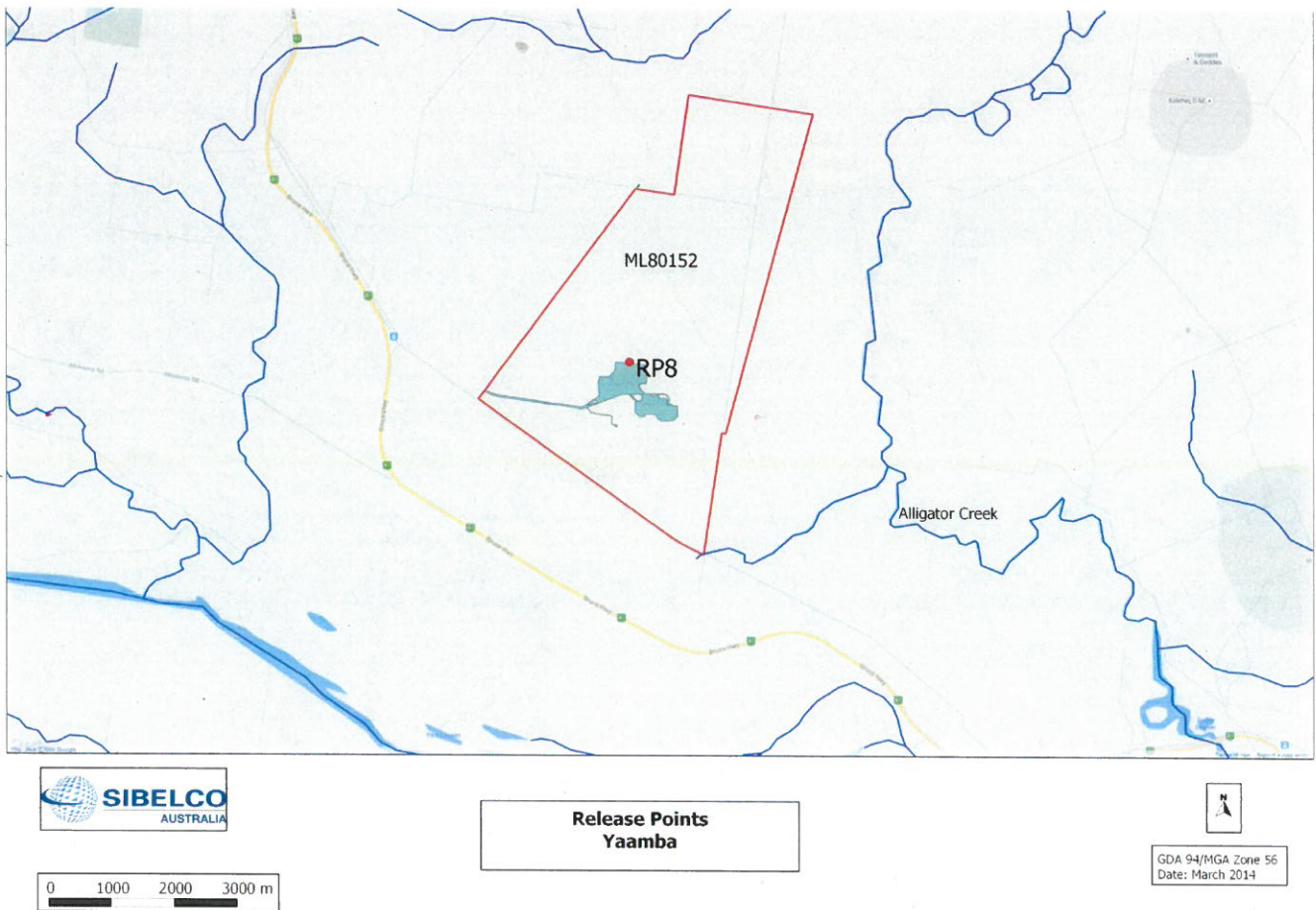
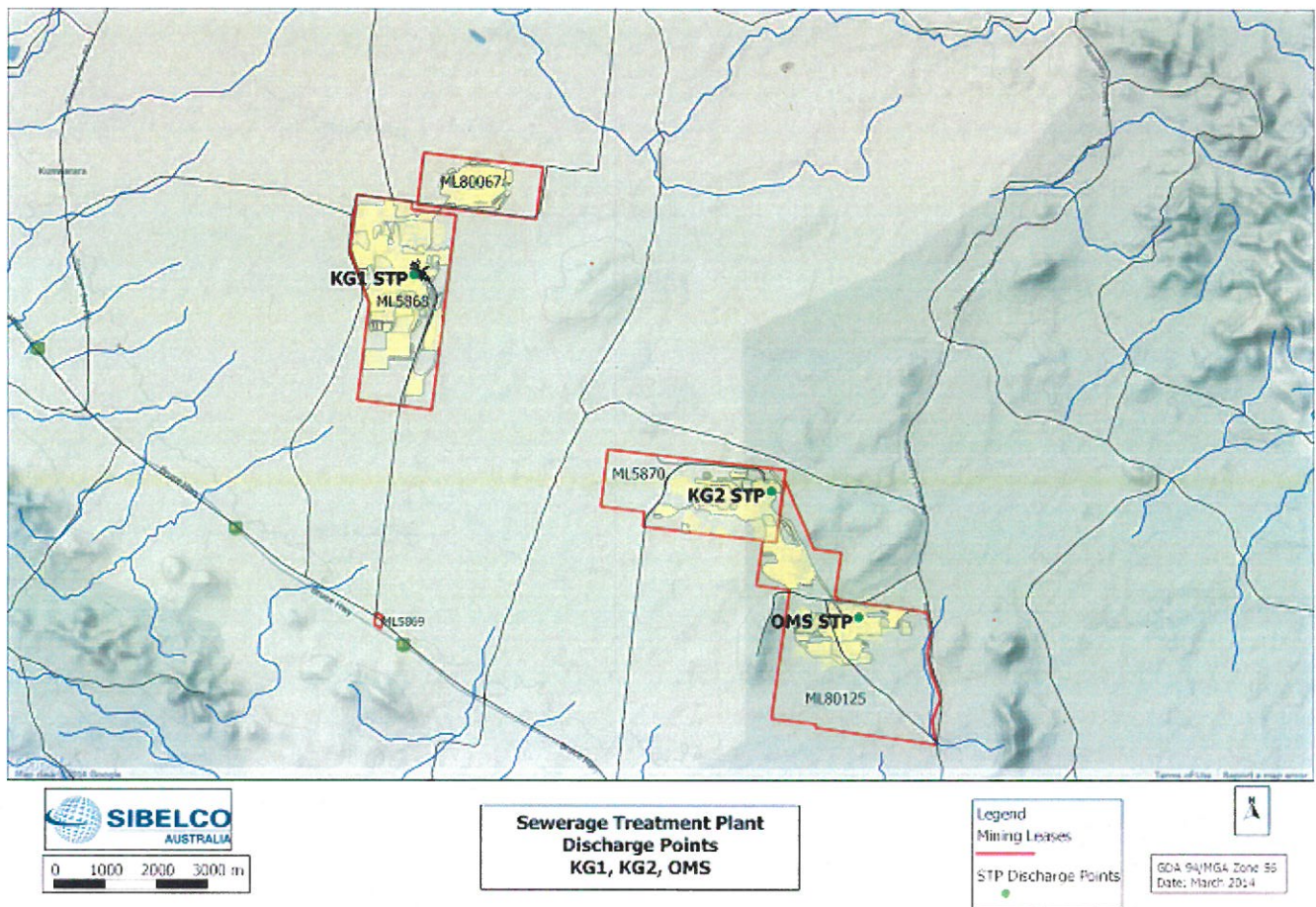


Figure 5 – Sewage treatment plant and effluent disposal



END OF ENVIRONMENTAL AUTHORITY