Permit

Environmental Protection Act 1994

Environmental authority EPML00848413

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

Environmental authority number: EPML00848413

Environmental authority takes effect on 24 October 2018

Environmental authority holder(s)

Name(s)	Registered address
Queensland Industrial Minerals Pty Ltd	7 Nelson Road YENNORA NSW 2161

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 12: Mining mineral sand	ML80116
Resource Activity, Ancillary 31 - Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (b) more than 100,000t	ML80116

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).

ABN 46 640 294 485

Contaminated land

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

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (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 contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

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 Sustainable Planning Act 2009 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.

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.

Filiz Tansley
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: 24 October 2018

Enquiries:
Minerals Business Centre
Department of Environment and Science
Phone: 07 4222 5352
Email: ESCairns@des.qld.gov.au

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)

Agency interest: 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	In carrying out the mining activity authorised by this environmental authority, disturbance of land: a) may occur in the areas marked 'A' on the map that is Figure 1 attached to this environmental authority, but only in accordance with condition A3; b) must not occur in the areas marked 'B'.
A3	Any disturbance within the areas marked 'A' on the map that is Figure 1 attached to this environmental authority is not to impact adversely on areas marked 'B'.
A4	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.
Monitoring	
A5	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.
Financial assurance	
A6	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.
A7	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.
Risk management	
A8	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 (3) months of this environmental authority taking effect.
Notification of emergencies, incidents and exceptions	
A9	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.

A10	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.
Complaints	
A11	In the event of a complaint about light from any mining activity that, after investigation, is in the opinion of an authorised person causing a nuisance at a sensitive place, the holder of this environmental authority must take appropriate action to mitigate the nuisance. The holder of this environmental authority must take the action within the reasonable time set by the administering authority.
A12	The holder of this environmental authority must record all environmental complaints received about the mining activities including: a) name, address and contact number 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.
A13	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.
Third-party reporting	
A14	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.
A15	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.

Agency interest: Air	
Condition number	**Condition**
Dust and particulate matter monitoring	
B1	The release of airborne contaminants resulting from the mining activity must not cause an environmental nuisance at any sensitive place.
B2	The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the dust and particulate matter emissions generated by the mining activities do not cause exceedances of the following levels when measured at any sensitive or commercial place: a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method. b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, for no more than 5 exceedances recorded each year, when monitored in accordance with the most recent version of either 1. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air Determination of suspended particulate matter – PM_{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 25 micrograms per cubic metre over a 24 hour averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.10 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – $PM_{2.5}$ 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.

Agency interest: Waste Management	
Condition number	**Condition**
C1	General waste and regulated waste (excluding tyres) generated by mining activities must be removed to a facility that is lawfully able to accept the waste under the *Environmental Protection Act 1994*.
C2	Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
C3	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
C4	Disposing of scrap tyres, resulting from the mining activities, in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable and must not compromise the stability of the consolidated landform.
Tailings disposal	
C5	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 management of seepage and leachates both during operation and the foreseeable future c) the control of fugitive emissions to air d) a program of progressive sampling and characterisation to identify acid producing potential and metal concentrations of tailings e) maintaining records of the relative locations of any other waste stored within the tailings f) rehabilitation strategy g) 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 acid mine drainage, erosion minimisation and establishment of vegetation cover.

<table>
<tr><th colspan="2">Agency interest: Noise</th></tr>
<tr><th>Condition number</th><th>Condition</th></tr>
<tr><td colspan="2">Noise limits</td></tr>
<tr><td>D1</td><td>The holder of this environmental authority must ensure that noise generated by the mining activities does not cause the criteria in Table D1 – Noise limits to be exceeded at a sensitive place.

Table D1 – Noise limits
<table>
<tr><th colspan="7">Sensitive Place</th></tr>
<tr><th rowspan="2">Noise level dB(A) measured as:</th><th colspan="3">Monday to Saturday</th><th colspan="3">Sunday and Public Holidays</th></tr>
<tr><th>7am – 6pm</th><th>6pm – 10pm</th><th>10pm – 7am</th><th>9am – 6pm</th><th>6pm – 10pm</th><th>10pm – 9am</th></tr>
<tr><td>$L_{Aeq\ adj,\ 15\ mins}$</td><td>35</td><td>31</td><td>28</td><td>35</td><td>31</td><td>28</td></tr>
<tr><td>max $L_{pA,\ 15\ mins}$</td><td>N/A</td><td>N/A</td><td>52</td><td>N/A</td><td>N/A</td><td>52</td></tr>
</table></td></tr>
<tr><td colspan="2">Monitoring and reporting</td></tr>
<tr><td>D2</td><td>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) $L_{Aeq,\ adj,\ T}$
c) background noise $L_{A90,\ adj,\ T}$
d) Max$L_{pA,\ T}$
e) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels
f) atmospheric conditions including temperature, relative humidity and wind speed and directions
g) effects due to any extraneous factors such as traffic noise
h) location, date and time of monitoring
i) if the complaint concerns low frequency noise, Max $L_{pLIN,T}$ and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.</td></tr>
<tr><td>D3</td><td>No blasting is permitted under this approval.</td></tr>
<tr><td>D4</td><td>The method of measurement and reporting of noise monitoring must comply with the current version of the administering authority’s Noise Measurement Manual.</td></tr>
</table>

Agency interest: Groundwater	
Condition number	**Condition**
Contaminant release	
E1	The holder of this environmental authority must not release contaminants to groundwater.
Monitoring and reporting	
E2	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 **Table - E3 Groundwater monitoring locations and frequency** and Figure 2 (Location of groundwater monitoring bores) attached to this environmental authority for quality characteristics identified in **Table E4 - Groundwater quality triggers and limits**.

Table E3 - Groundwater monitoring locations and frequency

Monitoring Point[1]	Location		Surface RL (mAHD)[2]	Bore Depth (m)	Monitoring Frequency	Formation Monitoring
	Latitude (GDA94, decimal degrees)	Longitude (GDA94, decimal degrees)				
Reference Bores[3]						
MB1	-25.30937	151.825577	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB4	-25.307065	151.833768	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB6	-25.307857	151.838113	99	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB9	-25.309832	151.853183	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB11	-25.315457	151.842568	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB12	-25.325103	151.843716	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB15	-25.317439	151.831947	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
Compliance Bores						
MB2	-25.306109	151.823657	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB3	-25.300285	151.830941	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB5	-25.304095	151.835109	96.3	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB7	-25.303517	151.842028	92.9	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB8	-25.29962	151.841893	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB10	-25.317825	151.851401	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB13	-25.330062	151.847442	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB14	-25.331867	151.844042	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro
MB16	-25.318271	151.827529	To be confirmed[4]	15 (approx.)[4]	Monthly	Eluvium above Wateranga Gabbro

1. Monitoring is not required where a bore has been removed as a direct result of the mining activity.

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

3. Reference sites must:
(a) have a similar flow regime;

(b) be from the same bio-geographic and climatic region;

(c) have similar geology, soil types and topography; and

(d) not be so close to the test sites that any disturbance at the test site also results in a change at the reference site.

4. To be provided when bores are installed. Monitoring bores to be installed must allow sampling of groundwater that reflects the background groundwater quality for aquifers impacted by mining activities.

Table E4 - Groundwater quality triggers and limits

Quality Characteristic	Units	Contaminant Trigger Levels
pH	pH unit	6.5 – 8.0
Electrical Conductivity	µS/cm	445
Total Dissolved Solids	mg/L	1000
Chloride	mg/L	350
Fluoride (total)	µg/L	2000
Sulphate	mg/L	400
Calcium	mg/L	1000
Magnesium	mg/L	2000
Sodium	mg/L	230
Aluminium	µg/L	55
Arsenic	µg/L	13
Boron	µg/L	370
Cadmium	µg/L	0.2
Chromium	µg/L	1
Cobalt	µg/L	1.4
Copper	µg/L	1.4
Iron	µg/L	300
Lead	µg/L	4
Manganese	µg/L	1900
Mercury	µg/L	0.2
Molybdenum	µg/L	10
Nickel	µg/L	11
Selenium	µg/L	10
Silver	µg/L	0.05
Uranium	µg/L	1
Vanadium	µg/L	10
Zinc	µg/L	8
Petroleum hydrocarbons (C6-C9)	µg/L	20
Petroleum hydrocarbons (C10-C36)	µg/L	100

E4 Groundwater levels when measured at the monitoring locations specified in **Table E3 - Groundwater monitoring locations and frequency** must not exceed the groundwater level trigger change thresholds specified in **Table E5 - Groundwater level monitoring** below.

Table E5 - Groundwater level monitoring

Monitoring Location	Groundwater level change trigger thresholds (m)
MB2	2
MB3	2
MB5	2
MB7	2
MB8	2
MB10	2
MB13	2
MB14	2
MB16	2

Exceedance Investigation

E5 If quality characteristics of groundwater from compliance bores identified in **Table E3 - Groundwater monitoring locations and frequency** exceed any of the trigger levels stated in **Table E4 - Groundwater quality triggers and limits** or exceed any of the groundwater level change trigger thresholds stated in **Table E5 - Groundwater level monitoring**, the holder of this environmental authority must compare the compliance monitoring bore results to the reference bore results and complete an investigation in accordance with the ANZECC and ARMCANZ 2000.

Bore construction and maintenance and decommissioning	
E6	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.

<table>
<tr><th colspan="2">Agency interest: Water</th></tr>
<tr><th>Condition number</th><th>Condition</th></tr>
<tr><td colspan="2">Contaminant release</td></tr>
<tr><td>F1</td><td>Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.</td></tr>
<tr><td>F2</td><td>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 Table F1 - Mine affected water release points, sources and receiving waters and depicted in Figure 3 attached to this environmental authority.

Table F1 - Mine affected water release points, sources and receiving waters
<table>
<tr><th>Release Point</th><th>Latitude (decimal degree, GDA94)</th><th>Longitude (decimal degree, GDA94)</th><th>Mine Affected Water Source and Location</th><th>Monitoring Point</th><th>Receiving waters description</th></tr>
<tr><td>Pipeline outfall QIM-DP1</td><td>-25.32152</td><td>151.81788</td><td>Mine Water Dam 1 Spillway Overflow</td><td>Sampling Tap on pipe at road crossing</td><td>Paradise Dam at Mingham Creek</td></tr>
</table></td></tr>
<tr><td>F3</td><td>The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with condition F26 is permitted.</td></tr>
<tr><td>F4</td><td>The release of mine affected water to waters in accordance with condition F2 must not exceed the release limits stated in Table F2 - Mine affected water release limits when measured at the monitoring points specified in Table F1 - Mine affected water release points, sources and receiving waters for each quality characteristic.

Table F2 - Mine affected water release limits
<table>
<tr><th>Quality Characteristic</th><th>Release Limits</th><th>Monitoring frequency</th></tr>
<tr><td>Electrical conductivity (uS/cm)</td><td>1500</td><td>Daily during release (the first sample must be taken within 2 hours of commencement of release)</td></tr>
<tr><td>pH (pH Unit)</td><td>6.5 (minimum)
9.0 (maximum)</td><td>Daily during release (the first sample must be taken within 2 hours of commencement of release)</td></tr>
<tr><td>Turbidity (NTU)</td><td>50</td><td>Daily during release (the first sample must be taken within 2 hours of commencement of release)</td></tr>
</table></td></tr>
</table>

F5

The release of mine affected water to waters from the release points must be monitored at the locations specified in **Table F1 - Mine affected water release points, sources and receiving waters** for each quality characteristic and at the frequency specified in **Table F2 - Mine affected water release limits** and **Table F3 - Release contaminant trigger investigation levels, potential contaminants**.

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.

Table F3 - Release contaminant trigger investigation levels, potential contaminants

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level	Monitoring Frequency
Aluminium	55	*For aquatic ecosystem protection, based on SMD guideline*	Commencement of release and thereafter weekly during release
Arsenic	13	*For aquatic ecosystem protection, based on SMD guideline*	
Boron	370	*For aquatic ecosystem protection, based on SMD guideline*	
Cadmium	0.2	*For aquatic ecosystem protection, based on SMD guideline*	
Chromium	1	*For aquatic ecosystem protection, based on SMD guideline*	
Cobalt	1.4	*For aquatic ecosystem protection, based on low reliability guideline*	
Copper	1.4	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Iron	300	*For aquatic ecosystem protection, based on low reliability guideline*	
Lead	4	*For aquatic ecosystem protection, based on SMD guideline*	
Manganese	1900	*For aquatic ecosystem protection, based on SMD guideline*	
Mercury	0.2	*For aquatic ecosystem protection, based on LOR for CV FIMS*	
Molybdenum	10	*For aquatic ecosystem protection, based on low reliability guideline*	
Nickel	11	*For aquatic ecosystem protection, based on SMD guideline*	
Selenium	10	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Silver	0.05	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Uranium	1	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Vanadium	10	*For aquatic ecosystem protection, based on LOR for ICPMS*	
Zinc	8	*For aquatic ecosystem protection, based on SMD guideline*	
Ammonia	10	*For aquatic ecosystem protection, based on Burnett-Baffle Water Quality Improvement Plan (lowland streams)*	
Nitrate	10	*For aquatic ecosystem protection, based on SMD guideline*	
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000	*Protection of livestock and short term irrigation guideline*	
Sodium	230 000	*Based on ANZECC lower threshold limit for prevention of foliar injury to moderately tolerant crops*.	
Suspended Solids (mg/L)	6.4	*Based on monitoring data from SunWater*	
Sulphate (SO42-) (mg/L)	400	*For primary recreation protection, based on NHMRC guidelines*	

	Table F3 - Release contaminant trigger investigation levels, potential contaminants *notes:* *1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.* *2. The quality characteristics required to be monitored as per* ***Table F3 - Release contaminant trigger investigation levels, potential contaminants*** *can be reviewed once the results of 2 years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from* ***Table F3 - Release contaminant trigger investigation levels, potential contaminants*** *by amendment.* *3. SMD – slightly moderately disturbed level of protection, guideline refers to ANZECC & ARMCANZ (2000).* *4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.*
F6	If quality characteristics of the release exceed any of the trigger levels specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** during a release event, the environmental authority holder must compare the down stream results in the receiving waters to the trigger values specified in **Table F3 - Release contaminant trigger investigation levels, potential contaminants** and: a) where the trigger values are not exceeded then no action is to be taken; or b) where the down stream results exceed the trigger values specified **Table F3 - Release contaminant trigger investigation levels, potential contaminants** for any quality characteristic, compare the results of the down stream site to the data from background monitoring sites and (1) if the result is less than the background monitoring site data, then no action is to be taken; or (2) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within 90 days of receiving the result , outlining (i) details of the investigations carried out (ii) actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F6 b (2) of this condition, no further reporting is required during the same event for subsequent trigger level exceedences for that quality characteristic.
F7	If an exceedance in accordance with condition F6 b (2) is identified, the holder of the environmental authority must notify the administering authority in writing within 24 hours of receiving the result.
Mine Affected Water Release Events	
F8	Notwithstanding condition F2, the holder of this environmental authority must implement and maintain systems to prevent or minimise the release of mine-affected water to waters.

<table>
<tr><td>F9</td><td>Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition F2 must only take place when the onsite mine water inventory exceeds 150ML of storage in accordance with Table F4 - Mine affected water release rules for the release point(s) specified in Table F1 - Mine affected water release points, sources and receiving waters.

Table F4 - Mine affected water release rules
<table>
<tr><th>Receiving waters/ stream</th><th>Release Point</th><th>Onsite mine water inventory criteria</th><th>Maximum release rate</th></tr>
<tr><td>Paradise Dam at Mingham Creek</td><td>QIM-DP1</td><td><150ML</td><td>No release allowed</td></tr>
<tr><td>Paradise Dam at Mingham Creek</td><td>QIM-DP1</td><td>>150ML</td><td>200 L/s</td></tr>
</table></td></tr>
<tr><td>F10</td><td>The release of mine affected water to waters in accordance with condition F2 must not exceed the Maximum Release Rate for each onsite mine water inventory criterion for discharge specified in Table F4 - Mine affected water release rules when measured at the monitoring points specified in Table F1 - Mine affected water release points, sources and receiving waters.</td></tr>
<tr><td>F11</td><td>The daily quantity of mine affected water released from the release point must be measured and recorded.</td></tr>
<tr><td>F12</td><td>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.</td></tr>
<tr><td colspan="2">Notification of Release Event</td></tr>
<tr><td>F13</td><td>The environmental authority holder must notify the administering authority as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:

a) release commencement date/time

b) details regarding the compliance of the release with the conditions of Department Interest: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume)

c) release point/s

d) release rate

e) release salinity

f) receiving water/s including the natural flow rate.

Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.</td></tr>
</table>

F14	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 F13 and within 28 days provide the following information in writing: a) release cessation date/time b) natural flow rate in receiving water c) volume of water released d) details regarding the compliance of the release with the conditions of Department Interest; Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume) e) all in-situ water quality monitoring results f) any other matters pertinent to the water release event. Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions F13 and F14, provided the relevant details of the release are included within the notification provided in accordance with conditions F13 and F14.
Notification of Release Event Exceedance	
F15	If the release limits defined in **Table F2 - Mine affected water release limits** are exceeded, the holder of the environmental authority must notify the administering authority within 24 hours of receiving the results.
F16	The environmental authority holder must, within 28 days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing: a) the reason for the release b) the location of the release c) the total volume of the release and which (if any) part of this volume was non-compliant d) the total duration of the release and which (if any) part of this period was non-compliant e) all water quality monitoring results (including all laboratory analyses) f) identification of any environmental harm as a result of the non compliance g) all calculations h) any other matters pertinent to the water release event.

Receiving Environment Monitoring and Contaminant Trigger Levels

F17

The quality of the receiving waters must be monitored at the locations specified in **Table F6 - Receiving water upstream background sites and down stream monitoring points** for each quality characteristic and at the monitoring frequency stated in **Table F5 - Receiving waters contaminant trigger levels**.

Table F5 - Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.4 – 7.4	Daily during the release
Electrical Conductivity (µS/cm)	445	
Suspended solids (mg/L)	6.4	
Turbidity (NTU)	20	
Sulphate (SO_4^{2-}) (mg/L)	400 (Protection of primary recreation Environmental Value)	

Table F6 - Receiving water upstream background sites and down stream monitoring points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream Background Monitoring Points			
QIM-R1	Located on Kalliwa Creek upstream of the project area, prior to impoundment of Kalliwa Creek by the Paradise Dam	-25.291911	151.842754
QIM-R5	Located on Mingham Creek upstream of the project area, prior to impoundment of Mingham Creek by the Paradise Dam	-25.315378	151.809699
QIM-R6	Located on Burnett River upstream of the project area, prior to impoundment of Burnett River by the Paradise Dam	-25.343122	151.803977
Downstream Monitoring Points			
QIM-RE2	Located in the transition area between Kalliwa Creek and the Paradise Dam	-25.321423	151.862098
QIM-RE3	Located on the Paradise Dam where the storage is relatively deep	-25.341563	151.865722
QIM-RE4	Located downstream of release point QIM-DP1 in the Paradise Dam and outside of the mixing zone.	-25.32468	151.82024

F18

If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in **Table F5 - 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 down stream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining

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

Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with F18 b) of this condition, no further reporting is required during the same event for subsequent trigger level exceedences for that quality characteristic.

F19	All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.
Receiving Environment Monitoring Program (REMP)	
F20	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 the Burnett River / Paradise Dam and connected or surrounding waterways within 10km 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.
F21	A REMP Design Document that addresses the requirements of the REMP must be prepared and made available to the administrating authority upon request.
F22	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 administrating 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.
Water reuse	
F23	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).
Annual Water Monitoring Reporting	
F24	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.
Temporary Interference with waterways	
F25	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) *Guideline – Activities in a Watercourse, Lake or Spring associated with Mining Activities*.
Water Management Plan	
F26	A Water Management Plan must be developed by an appropriately qualified person and implemented within three (3) months of this environmental authority taking effect.

Stormwater and Water sediment controls

F27 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.

F28 Stormwater, other than mine affected water, is permitted to be released to waters from:
a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition F27
b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with condition F26, for the purpose of ensuring water does not become mine affected water.

Onsite Water Storage Monitoring

F29 Water storages stated in **Table F7 - Water storage monitoring** must be monitored for the water quality characteristics specified in **Table F8 - Water storage quality characteristics** at the monitoring locations and at the monitoring frequency specified in **Table F7 – Water storage monitoring** and Figure 3 attached to this environmental authority.

Table F7 - Water storage monitoring

Monitoring Point	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location	Monitoring Frequency
QIM-TD	-25.307248	151.840712	Tailings Dam	Quarterly and prior to any release in accordance with condition F2.
QIM-MWD	-25.309215	151.838722	Mine Water Dam	
QIM-MA1	-25.307772	151.84781	Mining Area 1	
QIM-MA2	-25.330887	151.849478	Mining Area 2	
QIM-MA3	-25.331164	151.835005	Mining Area 3	
QIM-MA4	-25.318611	151.823297	Mining Area 4	

Table F8 – Water storage quality characteristics

Quality characteristic	Units
pH	pH unit
Electrical Conductivity	µS/cm
Turbidity	NTU
Sulphate	mg/L
Nitrate	mg/L
Total Dissolved Solids	mg/L
Fluoride	mg/L
Aluminium	mg/L
Arsenic	mg/L
Boron	mg/L
Cadmium	mg/L
Calcium	mg/L
Chromium	mg/L
Cobalt	mg/L
Copper	mg/L
Iron	mg/L
Lead	mg/L
Manganese	mg/L
Mercury	mg/L
Molybdenum	mg/L
Nickel	mg/L
Selenium	mg/L
Silver	mg/L
Uranium	mg/L
Vanadium	mg/L
Zinc	mg/L
Petroleum hydrocarbons (C6-C9)	mg/L
Petroleum hydrocarbons (C10-C36)	mg/L

Aquatic Ecology	
F30	Within twelve months of this environmental authority taking effect and not less than once every three years thereafter, the holder of this environmental authority must ensure an appropriately qualified person conducts an ecological survey of the aquatic environment to determine the impact of mining activities on: a) the presence and abundance of the aquatic fauna and flora, including the extent of any macrophyte beds capable of supporting lungfish spawning, and lodge a report on the studies with the administering authority.
F31	The holder of this environmental authority must, wherever reasonable and practical, action recommendations resulting from the ecological surveys.

Agency interest: Land

Condition number	Condition
H1	Land disturbed by mining must be rehabilitated in accordance with **Table H1 - Rehabilitation Requirements** and Figure 4.

Table H1 - Rehabilitation Requirements

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
All mine domains	All mine features	Safe, Stable, Non-polluting, Sustainable land use	The community and future generations are left with no residual liability for site rehabilitation or maintenance.	Final Rehabilitation Report	Administering authority acceptance of Final Rehabilitation Report and application for surrender of EA.
				Mine Closure Plan	Mine Closure Plan including Decommissioning Plan developed and implemented at least 18 months prior to final mineral processing onsite.
			Full awareness in community regarding mine closure concept and timing.	Stakeholder consultation	Stakeholder consultation records show ongoing engagement and consultation with local community in closure planning process.
					Provision of a signed statement from affected landowners in the progressive and final rehabilitation reports, commenting on overall satisfaction with rehabilitation.
		Non-polluting	Site is safe for humans and animals now and in the foreseeable future.	Contamination assessment	Certification in the Final Rehabilitation Report/ Progressive Rehabilitation Report that land listed on the Environmental Management Register (EMR) has been satisfactorily rehabilitated and removed from the EMR or a Site Management Plan has been approved for the land.
			There is no impact from the site on surface water quality.	Water quality confirmed by monitoring	Concentrations of contaminants at receiving water monitoring locations are consistent with concentrations recorded at background monitoring locations. Compliance with discharge criteria for mine affected water release limits and release contaminant trigger levels.
			There is no impact from the site on groundwater quality.	Water quality confirmed by monitoring	Concentrations of contaminants at compliance groundwater bores are consistent with concentrations recorded at background groundwater monitoring locations.

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
All mine domains	All mine features	Stable	Landform design achieves appropriate erosion rates.	Engineered structures to control water flow	Evidence in Final Rehabilitation Report/ Progressive Rehabilitation Report that required contour banks, channel linings, surface armour, engineered drop structures, etc are in place and functioning.
				Rate of soil loss	Evidence in Final Rehabilitation Report/ Progressive Rehabilitation Report that erosion rates in mining lease area catchments are comparable with reference sites.
		Sustainable land use	Landscape function and vegetation, for areas rehabilitated to a grazing land use, is resilient, self-sustaining, and comparable to the surrounding area.	• Organic ground cover percentage • Pasture species and diversity • Perennial plant species and density.	Evidence in Final Rehabilitation Report/ Progressive Rehabilitation Report that within two years of establishment the organic ground cover percentage, pasture species, perennial plant species and density indicate development along the desired trajectory. The desired trajectory, to ensure similarity with grazing reference sites, will be defined during rehabilitation trials and will include desirable plant species succession and assessment of biomass volume indicating development of comparable ecosystem structure and function to the grazing reference sites.
				Overall grazing land condition is 'good': • Good coverage of preferred species[1] • 3P (perennial, productive and palatable) grassess make up 60 – 80% of yield • Organic ground cover of more than 50% at end of the dry season • No erosion and good soil surface condition • Few weeds and no significant infestations.	Evidence in Final Rehabilitation Report/ Progressive Rehabilitation Report that overall grazing land condition is 'good' (Grazing Land Management Land Condition Framework, Quirk & McIvor 2007).
				Dry matter production	Evidence in Final Rehabilitation Report/ Progressive Rehabilitation Report that dry matter production is similar to reference sites.

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
All mine domains	All mine features	Sustainable land use	Landscape function and vegetation, for areas rehabilitated to a native ecosystem sustainable land use, is resilient, self-sustaining, and comparable to surrounding area.	• Germination/ survival • Recruitment • Species • Abundance • Structure • Height • Root collar diameter • Cover • Stem count • Community.	Rehabilitation areas comparable with high value regrowth vegetation status for the intended replicated Regional Ecosystem description in the Regional Ecosystem Description Database[2] and the technical description for the intended Regional Ecosystem described in http://www.ehp.qld.gov.au/ecosystems/biodiversity/regionalecosystems/pdf/seq_all_landzones.pdf[3]. Rehabilitation areas comparable with similar surrounding native ecosystem for species, abundance, structure, cover and community of rehabilitated sites.
			Soil properties that support and will continue to support desired sustainable land use.	Physical (e.g. depth of topsoil, water infiltration, crusting, slope) and chemical (e.g. pH, salinity, nutrients, trace elements) properties of topsoil	Soil properties comparable with reference sites and rehabilitation trials.
			For areas rehabilitated to native ecosystem sustainable land use, re-colonisation of terrestrial fauna species and numbers representative of pre-clearing population.	Terrestrial fauna species	Fauna surveys demonstrate fauna species recorded include those species observed during pre-mining surveys as per Appendix 5A - Terrestrial Ecology Report of the Wateranga Project Environmental Management Plan 2014.
				Fauna habitat structures	Evidence that fauna habitat structures have been maintained or provided on site including logs, rocks, ground hollows and tree species which will provide hollows in the future.
			Rehabilitated areas do not constitute an increased bushfire risk.	Bushfire hazard controls	Appropriate bushfire hazard controls have been implemented with advice from the Queensland Rural Fire Service.

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria[4]
Site Infrastructure	Mining Infrastructure Areas (MIA) east and west, Processing Plant, Solar Panel, Water Pipeline, Buildings, Chemical and fuel storages	Safe	All infrastructure removed, except where agreed to in writing by the post mining landowner(s).	Presence of MIA Components, Presence of Processing Plant, Presence of Solar Panel, Presence of Water Pipeline	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm all infrastructure removed, unless agreed to in writing by the post mining landowner(s).
	Product stockpile and ROM stockpile	Sustainable land use	All product and ROM material removed or re-spread to facilitate the post-mining sustainable land use.	Presence of product and ROM material	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm that product and ROM material removed or re-spread to facilitate the grazing land or native ecosystem post-mining sustainable land use.
	Water diversions / levees		Physical restoration of drainage lines.	Presence of drainage lines	Audit of restored drainage lines to confirm drainage lines are stablilised and constructed to accommodate base flows and flood/ fresh flow events.
Roads	Product and Haul Roads	Sustainable land use	Only the section of the Product Road which overlaps the existing Kalliwa Road and other sections of the product and haul roads required to service the post mining land use and agreed to in writing by the post mining landowner(s) will be retained.	Presence of Product and Haul Roads	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm that product and haul roads do not remain on site, unless they overlap the existing Kalliwa Road or are considered necessary to service the post mining land use and have been agreed to in writing by the post mining landowner(s).
Regulated Structures	Regulated Dams	Safe, Stable	Site is safe for all humans and animals on decommissioning and for the foreseeable future.	Dams are decommissioned in full accordance with the decommissioning requirements in the operational plan for the structure.	Certification from a suitably qualified person that the structure has been decommissioned and rehabilitated in full accordance with the decommissioning requirements specified in the operational plan for the structure.
	Levees	Sustainable land use	Levees that no longer provide a function for the mining activities are to be removed and natural drainage re-instated.	Levees decommissioned.	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm levees removed.

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria[4]
Tailings dams and mining disturbance areas 1 – 4	Initial Tailings Dam 1 and Initial Tailings Dam 2	Safe, Stable and non-polluting	Rehabilitated tailings dams and mining disturbance areas backfilled with tailings are stable, safe and non-polluting and are rehabilitated such that they are no longer dams but become landforms on the rehabilitated land.	Presence of Tailings dams	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm that tailings dams no longer remain and backfilled areas have become landforms on the rehabilitated land.
				De-watering of dam	Geotechnical and hydrological assessment of rehabilitated dams demonstrates dams are de-watered.
				Geotechnical assessment of system stability	Geotechnical assessment of rehabilitated tailings dams demonstrates that stability is acceptable and safe for the agreed post mining land use.
	Mining disturbance areas	Stable	Mining disturbance areas/ cells backfilled with tailings and rehabilitated so that they are stable and safe and become landforms on the rehabilitated land.	De-watering of mining disturbance areas/ cells backfilled with tailings	Geotechnical and hydrological assessment of mining disturbance areas/ cells backfilled with tailings demonstrates cells are de-watered.
				System stability	Geotechnical assessment of mining disturbance areas/ cells backfilled with tailings demonstrates that stability is acceptable and safe for the agreed post mining land use.
Water Storages	Mine Water Dams 1 – 4	Safe	Rehabilitated mine water dams are stable, safe and non-polluting and are rehabilitated such that they are no longer dams but become landforms on the rehabilitated land.	Presence of mine water dams	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm that mine water dams no longer remain and have become landforms on the rehabilitated land.
	Fresh Water Dam	Safe	Water dams are backfilled and/ or regraded/ recontoured, appropriately stabilised and rehabilitated to the final sustainable land use.	Presence of water storage dam	Audit of domain against Final Rehabilitation Report/ Progressive Rehabilitation Report to confirm that dams no longer remain and backfilled and/ or regraded/ recontoured areas have become landforms on the rehabilitated land.
	Processed Water Dam	Sustainable land use		System stability	Assessment of rehabilitated water dams demonstrates that stability is acceptable for the agreed post mining land use.
	Sediment Dams	Sustainable land use			

	<table><tr><th>Mine Domain</th><th>Mine Feature Name</th><th>Rehabilitation Goal</th><th>Rehabilitation Objectives</th><th>Indicators</th><th>Completion Criteria[4]</th></tr><tr><td rowspan="2">Water Storages</td><td rowspan="2">All water storage structures remaining on site post-mining</td><td>Stable</td><td>All water storage structures remaining in place, where agreed by the post-mining landowner(s) are physically stable and safe to fauna and humans.</td><td>Structure stability</td><td>Audit and sign off by a Registered Professional Engineer of Queensland of structures confirms stability and safety are acceptable for the agreed post mining land use.</td></tr><tr><td>Safe</td><td>All water storage structures remaining in place for agricultural purposes, where agreed by the post-mining landowner(s), contain water suitable for agricultural use.</td><td>Water quality confirmed by monitoring</td><td>Compliance with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC 1992), specifically, the water quality objectives for livestock drinking water quality.</td></tr></table> 1. The preferred species are as listed in Appendix 3 Preferred pasture and suitable sown pasture species list for Grazing Land Management Land Types occurring in the project area, of Appendix 11 Final Land Use and Rehabilitation Plan of the Wateranga Project Environmental Management Plan 2014. 2. Queensland Herbarium (2014) Regional Ecosystem Description Database (REDD). Version 8.1 (April 2014) (Queensland Department of Science, Information Technology, Innovation and the Arts: Brisbane). 3. Ryan, T.S. (ed.) (year*) Technical Descriptions of Regional Ecosystems of Southeast Queensland, (month, year*) (Queensland Herbarium, Department of Science, Information Technology, Innovation and the Arts: Brisbane). * Date shown in footnote of individual descriptions. 4. The completion criteria for the specified mine domain is required in addition to the completion criteria required for 'all mine domains'.
H2	Rehabilitation must commence progressively in accordance with the plan of operations.
Contaminated Land	
H3	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.
Biodiversity offsets	
H6	The holder of this environmental authority must not impact State Significant Biodiversity Values.

Agency interest: Regulated Structures	
Condition number	**Condition**
Assessment of consequence category	
X1	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 (EM635)* at the following times: a) prior to the design and **construction** of the **structure,** if it is 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.
X2	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.
X3	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 (EM635)*.
Design and construction of a regulated structure	
X4	All **regulated structures** must be designed by, and **constructed** under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.
X5	Construction of a regulated structure is prohibited unless the **holder** has submitted a **consequence category assessment** report and certification to the administering authority has been **certified** by a suitably qualified and experienced person for the **design** and **design plan** and the associated operating procedures in compliance with the relevant condition of this **authority**.
X6	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*, and must be recorded in the Regulated Dams/Levees register.
X7	**Regulated structures** must: a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635);* b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwaters from entering the **regulated dam** from any **watercourse** or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. c) have the floor and sides of the **dam** designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

X8	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; b) construction of the regulated structure is in accordance with the design plan.
Operation of a regulated structure	
X9	Operation of a regulated structure**,** except for an existing structure, is prohibited unless: a) the holder has submitted to the administering authority: i) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition X6, and ii) a set of 'as constructed' drawings and specifications, and iii) certification of those 'as constructed drawings and specifications' in accordance with condition X8, and iv) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan. v) the requirements of this authority relating to the **construction** of the regulated structure have been met; vi) the holder has entered the details required under this **authority**, into a Register of Regulated Dams; and vii) there is a current operational plan for the regulated structures.
X10	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	
X11	Conditions X12 to X15 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
X12	The **Mandatory Reporting Level** (the **MRL**) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
X13	The 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 dam reaches the MRL.
X14	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
X15	The holder must record any changes to the MRL in the Register of Regulated Structures.
Design storage allowance	
X16	The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
X17	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the **Design Storage Allowance** (**DSA**) volume for the **dam** (or network of linked containment systems).
X18	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

X19	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
Annual inspection report	
X20	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
X21	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 to ensure the integrity of the regulated structure**.**
X22	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 (EM635)*.
X23	The holder must: a) Within 20 business days of receipt of the annual inspection report, provide to the administering authority: i) The recommendations section of the annual inspection report; and ii) If applicable, any actions being taken in response to those recommendations; and b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within 10 business days[6] of receipt of the request.
Transfer arrangements	
X24	The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
Decommissioning and rehabilitation	
X25	Dams must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with condition H1; or b) be left in-situ for a **beneficial use(s)** provided that: i) it no longer contains contaminants that will migrate into the environment; and ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).
Register of Regulated Dams	
X26	A **Register of Regulated Dams** must be established and maintained by the **holder** for each **regulated dam**.
X27	The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.
X28	The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition X9 and has been achieved.
X29	The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.

X30	All entries in the Register of Regulated Dams must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
X31	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority.

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.

'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.

'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.

'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).

'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.

'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 relating 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 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 or a development approval.

'background', with reference to the noise schedule means noise, measured in the absence of the noise under investigation, as $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90 percent of the time period of not less than 15 minutes, using Fast response.

'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 (ID: 1.4 (2A)).
'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 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.

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

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

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

'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.

'development approval' means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

'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.

'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 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 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams'.

'high value regrowth vegetation' means high value regrowth vegetation as defined by the *Vegetation Management Act 1999*.
'holder' means any person who is the holder of, or is acting under, this 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.

'$L_{Aeq\ adj,T}$' means the adjusted A weighted equivalent continuous sound pressure level measures on fast response, adjusted for tonality and impulsiveness, during the time period T, where T is measured for a period no less than 15 minutes when the activity is causing a steady state noise, and no shorter than one hour when the approved activity is causing an intermittent noise.

'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.

'licensed place' means the mining activities carried out at the mining tenements detailed in Table # (page #) of this environmental authority.

'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).

'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.

'max$L_{pA,T}$' means the maximum A-weighted sound pressure level measured over a time period T of not less than 15 minutes, using Fast response.

'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 marked 'B' on the map that is Figure 1 attached to this environmental authority.

The term does not include land that is marked 'A' on the map that is Figure 1 attached to 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 Consequence Categories and Hydraulic Performance of Structures (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 five metres at any point from the outside of the dam including its storage area
iii. Dam crest volume (megalitres);

iv. Spillway crest level (metres AHD).
v. Maximum operating level (metres AHD);
vi. Storage rating table of stored volume versus level (metres AHD);
vii. Design storage allowance (megalitres) and associated level of the dam (metres AHD);
viii. Mandatory reporting level (metres AHD);

(g) The design plan title and reference relevant to the dam;

(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 form 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 same meaning given in the *Water Act 2000*.

'watercourse', in relation to regulated structures, 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 river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), storm water channel, storm water drain, and groundwater and any part thereof.

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

'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.

Figure 1—Proposed disturbance areas

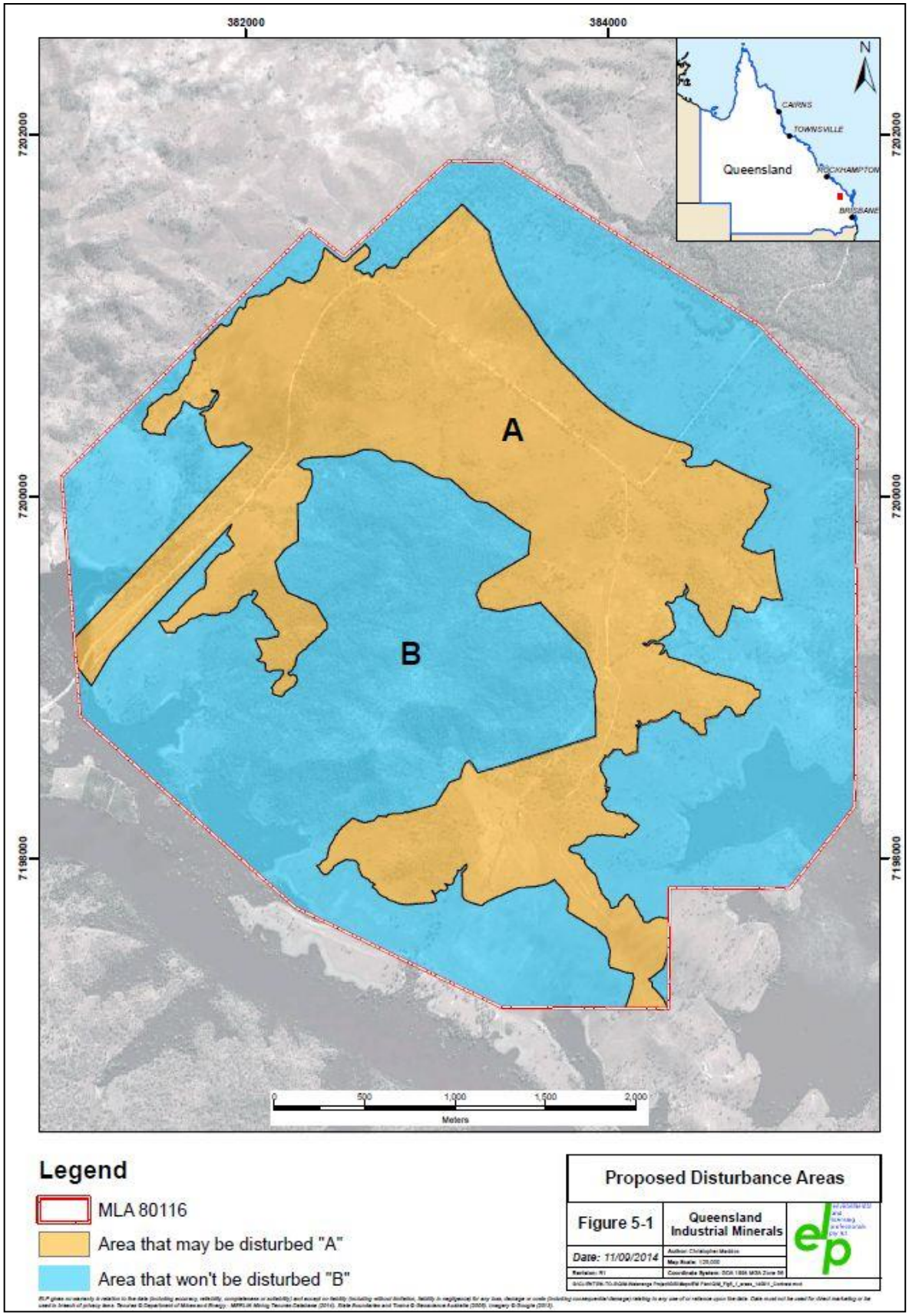


Figure 2— Location of groundwater monitoring bores

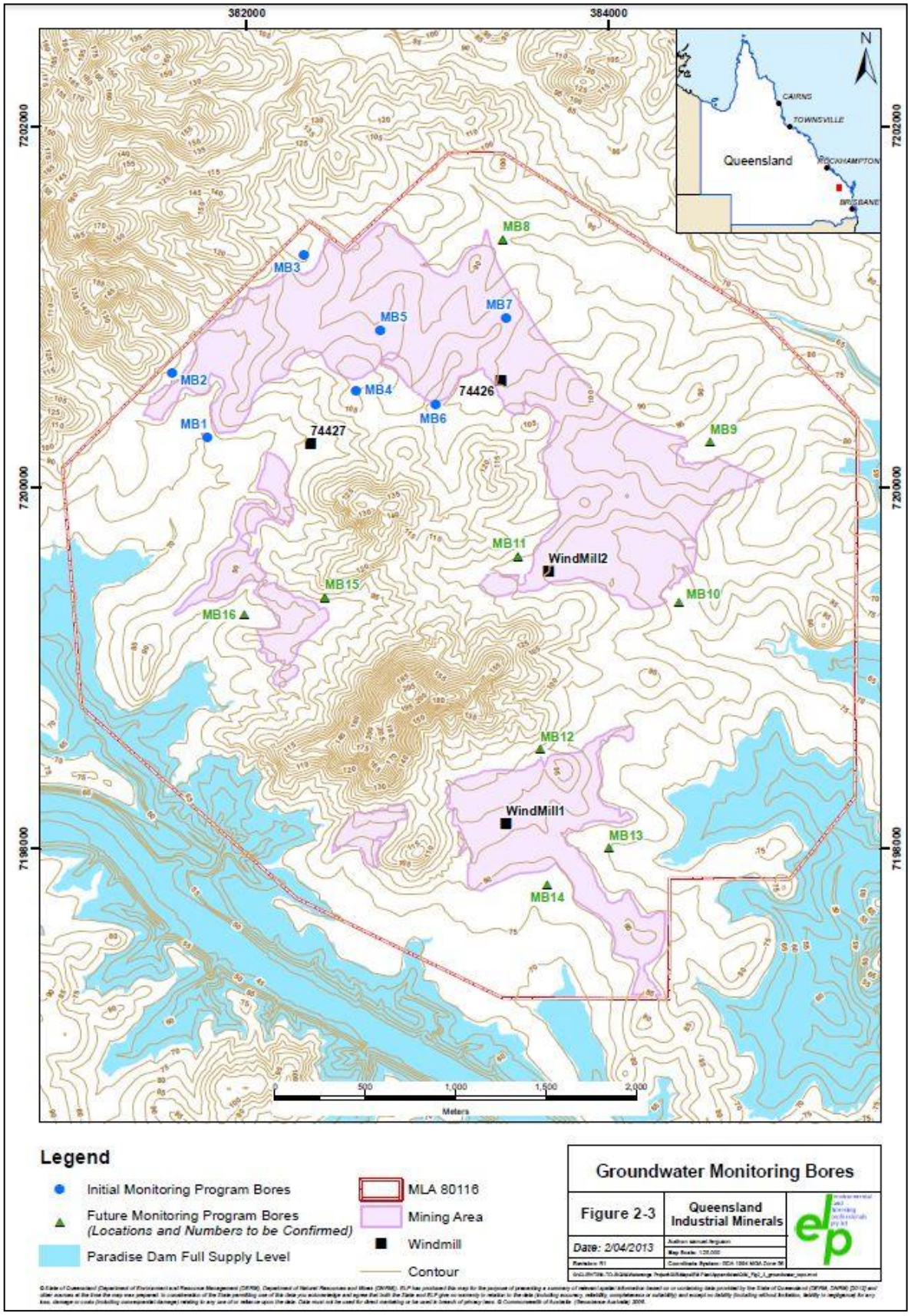


Figure 3— Location of mine affected water release points and receiving waters

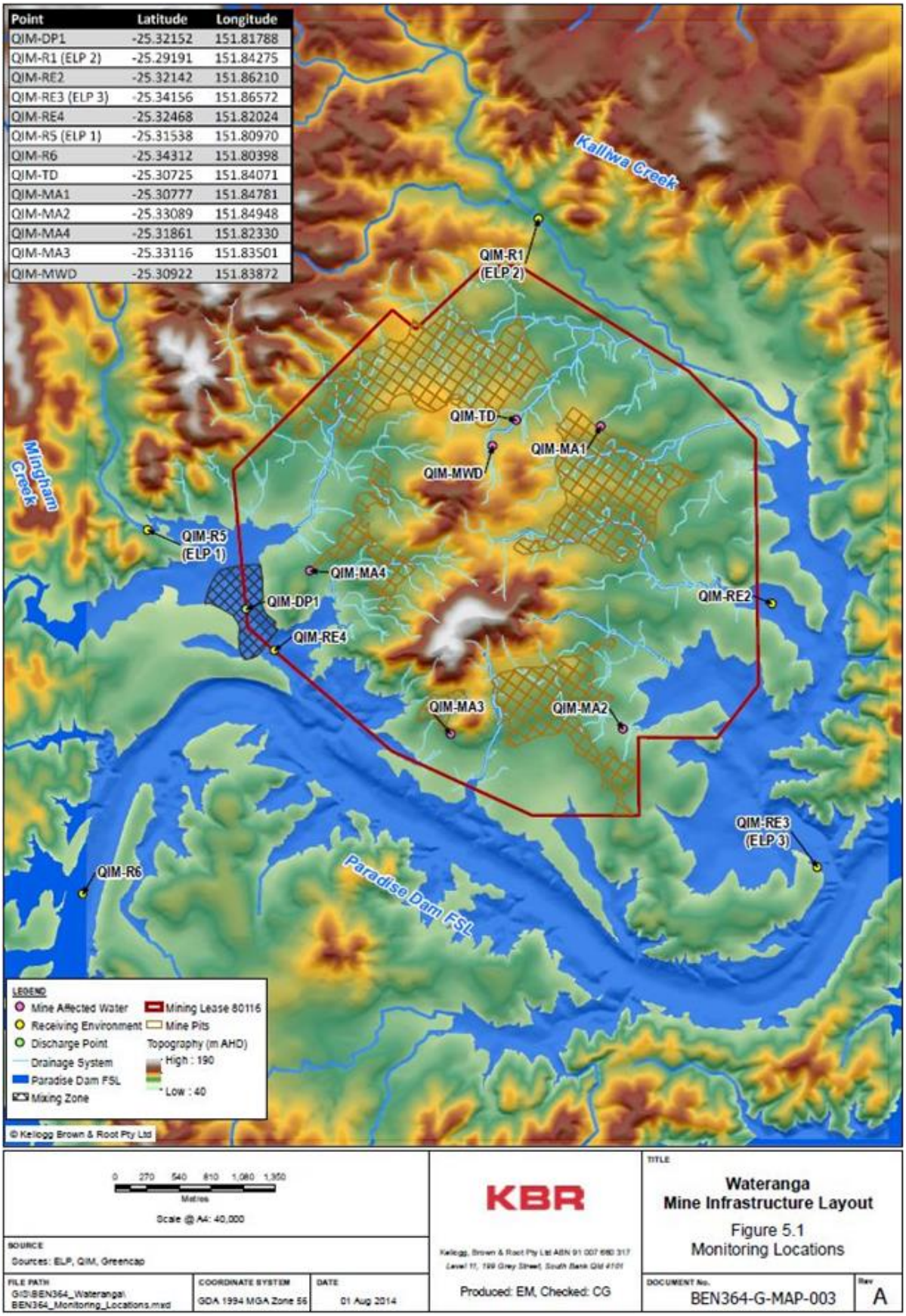
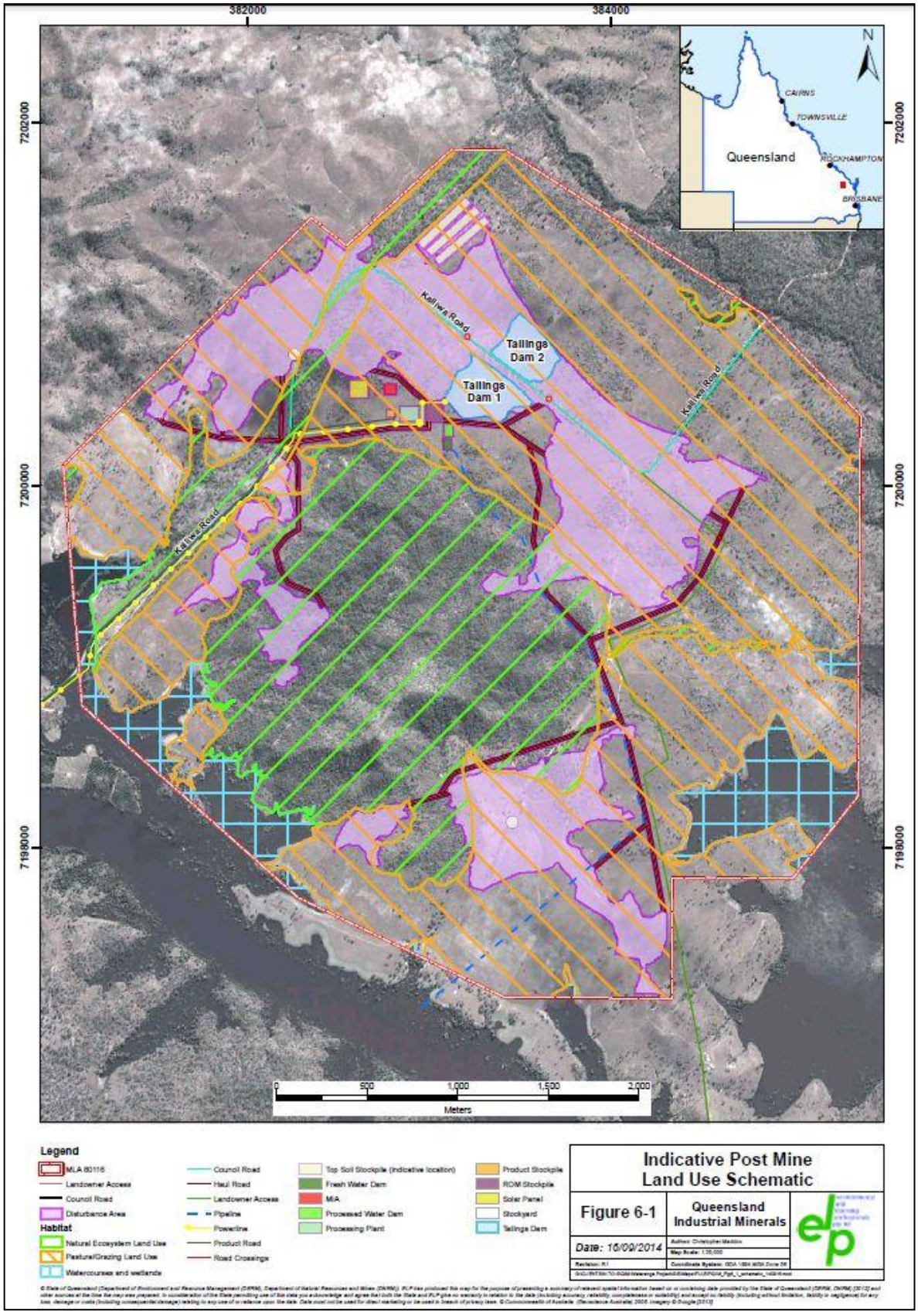


Figure 4— Indicative post mining land uses



END OF PERMIT