

# Permit

Environmental Protection Act 1994

## Environmental authority EPML03398515

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

**Environmental authority number: EPML03398515**

**Environmental authority takes effect on: 27 June 2023**

### Environmental authority holder(s)

Name(s)	Registered address
ALDOGA MINERALS PTY LTD	Level 1, 1 Pott Street EAST BRISBANE QLD 4169 Australia
CAPE ALUMINA PTY LTD	Level 2 247 Adelaide St BRISBANE CITY QLD 4000 Australia

### Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 11: Mining bauxite	ML20676, ML20688, ML20689, ML100130
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	ML20676, ML20688, ML20689, ML100130

### Additional information for applicants

#### Environmentally relevant activities

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

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

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

#### Contaminated land

It is a requirement of the EP Act that an owner or occupier of 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](http://www.qld.gov.au), using the search term 'duty to notify'.

**Take effect**

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

- 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.

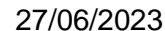
However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the Sustainable Planning Act 2009 or an SDA Approval under the State Development and Public Works Organisation Act 1971), this EA will not take 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.



Signature



Date

Rebecca McAuley  
Department of Environment and Science  
Delegate of the administering authority  
*Environmental Protection Act 1994*

**Enquiries:**  
Minerals Business Centre  
Department of Environment and Science  
Phone: 07 4222 5352  
Email: [ESCairns@des.qld.gov.au](mailto: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)

### **Conditions of environmental authority**

- Schedule A – General
- Schedule B – Air
- Schedule C – Waste management
- Schedule D – Noise
- Schedule E – Water
- Schedule F – Groundwater
- Schedule G – Land and rehabilitation
- Schedule H – Maps and plans
- Schedule I – Definitions

### **Location**

- ML20676, ML20688, ML20689 and ML100130
- Skardon River, Cape York

### **Environmentally relevant activities**

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site specific conditions of approval.

## Schedule A—General.

- A1** This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
- A2** In carrying out the mining activity authorised by this environmental authority, the environmental authority holder must comply with **Table A1—Authorised mining activities and locations** and the following plans provided in **Schedule H—Figure 2 (Project layout—mine area and infrastructure)**;

**Table A1—Authorised mining activities and locations**

Mine domain	Mine feature name	Mining lease	Location <sup>a</sup> (MGA94, Zone		Maximum disturbance area (ha) <sup>b</sup>
			Easting	Northing	
Mine Pits	BH1	ML20676	620590.91	8695552.87	664.4
	BH6 East	ML20688	615013.93	8692050.12	292.2
	BH6 West	ML20689	614237.58	8694432.4	394.65
Haul Roads	BH6 to BH1 Haul Road	ML100130	Refer to Schedule H		90.2

Table A1—Authorised mining activities and locations notes:

- a) Locations presented in Schedule H - Maps and Plans.  
b) Areas as per the EIS Assessment Report.

- A3** The environmental authority holder must:
- install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
  - maintain such measures, plant and equipment in a proper and efficient condition;
  - operate such measures, plant and equipment in a proper and efficient manner;
  - 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

- A4** When requested by the administering authority, the environmental authority holder must undertake monitoring within the specified timeframe to investigate any potential incident of environmental harm or a complaint reported in accordance with **condition A14** and the results must be provided to the administering authority within 10 business days of the completion of monitoring the subject of the request.
- A5** All sampling and monitoring required by this environmental authority must be undertaken by an appropriately qualified person.
- A6** 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 five (5) years and be provided to the administering authority upon request.
- A7** The following information must be recorded in relation to all monitoring required under the conditions of this environmental authority:

- a) the date and time at which the sample was taken;
- b) the location or monitoring point at which the sample was taken;
- c) the results of all monitoring and details of any exceedances of the conditions of this environmental authority;
- d) any other pertinent details of relevance to interpreting the sampling results (i.e. stream flow, wind conditions or any unusual observations such as odour or colouration).

### Risk management

- A8** By 1 September 2017, the environmental authority holder must develop and implement a risk management system for mining activities which complies with 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.

### Notification of emergencies, incidents and events

- A9** The environmental authority holder must notify the administering authority within:
- a) 24 hours of becoming aware of any incident or event which does or may contravene a condition of this environmental authority; or
  - b) 5 days where the contravention relates to a groundwater contaminant limit specified in Table E2 – Groundwater contaminant limits and monitoring frequency.
- A10** Notification to the administering authority, in accordance with **condition A9** must be provided to the administering authority's Pollutions Hotline on 1300 130 372 and [PollutionHotline@des.qld.gov.au](mailto:PollutionHotline@des.qld.gov.au).
- A11** Within 10 business days following the initial notification of an emergency, incident, event 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, incident or event.

### Investigations

- A12** Except where specified otherwise in another condition of this environmental authority, in the event of any monitoring showing exceedance of trigger values or limits specified in the conditions of this environmental authority, the environmental authority holder must:
- a) complete an investigation to identify the potential cause of the exceedance and the potential for environmental harm being caused or likely to be caused by the exceedance;
  - b) provide a written report to the administering authority within three (3) months of the date of the original exceedance, outlining:
    - (i) details of the investigation carried out;
    - (ii) actions taken to prevent environmental harm.

### Complaints

- A13** The environmental authority holder must record all environmental complaints received about the mining activities including:

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

### Third-party reporting

**A14** By 21 December 2017, the environmental authority holder must:

- a) obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority;
- b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above;
- c) provide each report to the administering authority within 90 days of its completion;
- d) implement any findings from each report required by **condition A14(c)** necessary to ensure compliance with conditions of the environmental authority.

**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 environmental authority holder must:

- a) comply with the amended or changed standard, policy or guideline within two (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.

### Meteorological monitoring

**A16** By 1 September 2017, the environmental authority holder must establish and maintain an automatic weather station, appropriate for the licensed place, to measure and record daily data on wind speed, wind direction, temperature and rainfall.

### Exploration

**A17** All exploration activities carried out under this environmental authority must comply with each of the standard environmental conditions contained in the most recent version of the *Eligibility criteria and standard conditions for exploration and mineral development projects*.

## END OF CONDITIONS FOR SCHEDULE A

## Schedule B—Air

### General

**B1** Air emissions resulting from mining activities must not cause environmental harm to any sensitive place or commercial place.

### Dust and particulate matter monitoring

**B2** By 1 September 2017, the environmental authority holder must design and implement an air quality monitoring program that can ensure compliance with **conditions B1** and **B3**.

**B3** Air emissions generated by mining activities must not cause exceedances of the following air quality objectives when measured at any sensitive or commercial place:

- a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method;
- b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, for no more than five exceedances recorded each year, when monitored in accordance with the most recent version of either:
  - a. Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet – Gravimetric method, or
  - b. Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 low volume sampler—Gravimetric method.
  - c. Standards Australia AS3580.9.8 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser, or
  - d. Standards Australia AS3580.9.11 Methods for sampling and analysis of ambient air—Determination of suspended matter PM10 beta attenuation monitors, or
  - e. Other relevant equipment authorised by the administering authority.
- c) a concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM2.5) 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 (sub)2.5/(sub) low volume sampler—Gravimetric method;
- d) a concentration of particulate matter suspended in the atmosphere of 90 micrograms per cubic metre over a 1 year averaging time, when monitored in accordance with the most recent version of AS/NZS3580.9.3:2003 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—Total suspended particulate matter (TSP)—High volume sampler gravimetric method.

**END OF CONDITIONS FOR SCHEDULE B**

## **Schedule C—Waste management**

### **General**

- C1** All general and regulated waste generated in carrying out mining activities must be removed to a facility that can lawfully recycle or dispose the waste.

### **Waste Management Plan**

- C2** By 1 September 2017, the environmental authority holder must develop and implement a Waste Management Plan (WMP).

**END OF CONDITIONS FOR SCHEDULE C**



## Schedule D—Noise

### General

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

**Table D1 – Noise limits**

Sensitive place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{Aeq, adj, 15 mins}$	CV = 50	CV = 45	CV = 40	CV = 45	CV = 40	CV = 35
	AV = 5	AV = 5	AV = 0	AV = 5	AV = 5	AV = 0
$L_{A1, adj, 15 mins}$	CV = 55	CV = 50	CV = 45	CV = 50	CV = 45	CV = 40
	AV = 10	AV = 10	AV = 5	AV = 10	AV = 10	AV = 5
Commercial place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	7am to 6pm	6pm to 10pm	10pm to 7am
$L_{Aeq, adj, 15 mins}$	CV = 55	CV = 50	CV = 45	CV = 50	CV = 45	CV = 40
	AV = 10	AV = 10	AV = 5	AV = 10	AV = 10	AV = 5

Table D1 – Noise limits notes:

1. CV = Critical Value
2. AV = Adjustment Value
3. To calculate noise limits in Table D1:  
If  $bg \leq (CV - AV)$ : Noise limit =  $bg + AV$   
If  $(CV - AV) < bg \leq CV$ : Noise limit = CV  
If  $bg > CV$ : Noise limit =  $bg + 0$
4. In the event that measured bg ( $L_{A90, adj, 15 mins}$ ) is less than 30 dB(A), then 30 dB(A) can be substituted for the measured background level
5. bg = background noise level ( $L_{A90, adj, 15 mins}$ ) measured over 3-5 days at the nearest sensitive receptor
6. If the project is unable to meet the noise limits as calculated above alternative limits may be calculated using the processes outlined in the "Planning for Noise Control" guideline.

**END OF CONDITIONS FOR SCHEDULE D**

## Schedule E – Water

### Release of contaminants to waters

- E1** Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters.

### Receiving environment monitoring

- E2** The environmental authority holder must not at any time cause a change to the existing condition of the receiving waters that are of high ecological value (HEV) waters, including:
- Skardon River;
  - Irish Creek;
  - Wetlands – Bigfoot Print Swamp; and
  - Regional Ecosystem 3.3.14 (refer to **Schedule H—Figure 7 Location of the relevant Regional Ecosystem 3.3.14**).
- E3** Quality characteristics listed in **Table E2 – Receiving Water Quality Objectives** must be measured at the monitoring points in **Table E1 - Receiving waters monitoring points** and at the frequency specified in **Table E2 – Receiving Water Quality Objectives**.
- E4** Quality characteristics listed in **Table E2 – Receiving Water Quality Objectives** must not be exceeded in three consecutive samples measured at the monitoring points specified in **Table E1 - Receiving waters monitoring points**.
- E5** If the water quality objective specified in **Table E2 – Receiving Water Quality Objective** is exceeded in accordance with **condition E4**, the environmental authority holder must:
- a) Undertake an investigation to determine;
    - (i) The extent of change from the water quality objective specified in **Table E2 – Receiving Water Quality Objective**; and
    - (ii) The potential adverse ecological impacts due to the change; and
    - (iii) The potential relationship for the variation with natural or mining activities; and
    - (iv) If a relationship with mining activities is determined, the management measures proposed to comply with the water quality objectives specified in **Table E2 – Receiving Water Quality Objective**
  - b) Provide a report to the administering authority, detailing the outcomes of **condition E5(a)(i)** to **condition E5(a)(iii)**, including a plan to implement the management measures proposed in accordance with **condition E5(a)(iii)**; and
  - c) Provide monthly reports to the administering authority until the receiving water quality objectives that were exceeded are complied with.

*Note: Where an exceedance of a water quality objective has occurred and is being investigated, no further reporting is required for subsequent trigger events for that quality characteristic.*

*Note: Investigations must be undertaken by an appropriately qualified person in accordance with ANZECC & ARM CANZ 2000 methodology.*

**Table E1 - Receiving waters monitoring points**

Monitoring points <sup>1</sup>	Easting (MGA94, Z54)	Northing (MGA94, Z54)	Receiving Water location description
<b>Lower Estuary - Skardon River</b>			
W5	610246	8700107	8 km downstream of the SRBP MIA, 18.8 km to BH6-BH1 haul road watercourse crossover (following the watercourse)
W4	614292	8701663	1.2 km downstream of the SRBP MIA, 11.8 km BH6-BH1 haul road watercourse crossover (following the watercourse)
<b>Mid Estuary - Skardon River</b>			
W3	617295	8699517	700 m upstream of the SRBP MIA, 10 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
W6	617697	8698323	2.1 km upstream of the SRBP MIA, 8.6 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
W11	618248	8698956	2 km upstream of the SRBP MIA on the northern branch of the Skardon River upper estuary
W12	616599	8696123	6 km upstream of the SRBP MIA on the southern branch of the Skardon River
W13	616984	8699816	250m upstream of the MOF
W14	616754	8700347	350m downstream of the MOF
MOF	616824	8699960	At the Port Facility
<b>Upper Estuary - Skardon River</b>			
W1	621578	8694834	14.2 km upstream of the SRBP MIA, 12.3 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
W2	620194	8694108	10.4 km upstream of the SRBP MIA, 9 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
W8	616414	8692916	8.1 km upstream of the SRBP MIA, 2.7 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
<b>Skardon River - Freshwater</b>			
W9	621578	8694834	14.2 km upstream of the SRBP MIA, 12.3 km downstream BH6-BH1 haul road watercourse crossover (following the watercourse)
W10	617844	8690762	151 m upstream of BH6 East to BH1 haul road
<b>Freshwater - Irish Creek and Bigfoot Print Swamp</b>			
S11	613192	8695468	Big Foot Print Swamp

Table F1 - Receiving water monitoring points notes:

1. Locations presented in **Schedule H – Figure 9 – Location of Monitoring Locations.**

**Table E2 – Receiving Water Quality Objectives**

Quality Characteristic	Unit	Limit <sup>a</sup>	Limit Type	Monitoring Frequency
<b>Skardon River - Lower Estuary – Wet Season</b>				
pH	range	6.4 – 8.7	Three consecutive samples	Monthly
Turbidity	NTU	13		
TSS <sup>b</sup>	mg/L	62		
Aluminium <sup>c</sup>	µg/L	120		
Oil or Grease	No visible film			
<b>Skardon River - Lower Estuary – Dry Season</b>				
pH	range	6.8 – 9.3	Three consecutive samples	Monthly
Turbidity	NTU	2.9		
TSS <sup>b</sup>	mg/L	16		
Aluminium <sup>c</sup>	µg/L	130		
Oil or Grease	No visible film			
<b>Skardon River - Mid Estuary – Wet Season</b>				
pH	range	5.9 – 8.1	Three consecutive samples	Monthly
Turbidity	NTU	9.9		
TSS <sup>b</sup>	mg/L	29		
Aluminium <sup>c</sup>	µg/L	95		
Oil or Grease	No visible film			
<b>Skardon River - Mid Estuary – Dry Season</b>				
pH	range	5.6 – 8.7	Three consecutive samples	Monthly
Turbidity	NTU	4.5		
TSS <sup>b</sup>	mg/L	22		
Aluminium <sup>c</sup>	µg/L	120		
Oil or Grease	No visible film			
<b>Skardon River - Upper Estuary – Wet Season</b>				
pH	range	5.1 – 7.8	Three consecutive samples	Monthly
Turbidity	NTU	4.4		
TSS <sup>b</sup>	mg/L	5		
Aluminium <sup>c</sup>	µg/L	97		
Oil or Grease	No visible film			
<b>Skardon River - Upper Estuary – Dry Season</b>				
pH	range	4.0 – 8.3	Three consecutive samples	Monthly
Turbidity	NTU	5.4		
TSS <sup>b</sup>	mg/L	16		
Aluminium <sup>c</sup>	µg/L	158		
Oil or Grease	No visible film			
<b>Skardon River – Freshwater – Wet Season</b>				
pH	range	4.5 - 6.2	Three consecutive samples	Monthly
Turbidity	NTU	1.6		
TSS <sup>b</sup>	mg/L	5		
EC <sup>d</sup>	µS/cm	25		
TDS <sup>e</sup>	mg/L	16		
Aluminium <sup>c</sup>	µg/L	53		
Oil or Grease	No visible film			
<b>Skardon River - Freshwater – Dry Season</b>				
pH	range	4.8 – 7.2	Three consecutive samples	Monthly
Turbidity	NTU	1.7		
TSS <sup>b</sup>	mg/L	5		
EC <sup>d</sup>	µS/cm	29		
TDS <sup>e</sup>	mg/L	23		
Aluminium <sup>c</sup>	µg/L	31		
Oil or Grease	No visible film			

Freshwater – Irish Creek Wetlands (Big Foot Print Swamp) Wet Season and Dry Season			
pH	range	4.5 - 8.6	Three consecutive samples
Turbidity	NTU	35	
TSS <sup>b</sup>	mg/L	224	
EC <sup>d</sup>	µS/cm	238	
TDS <sup>e</sup>	mg/L	153	
Aluminium <sup>c</sup>	µg/L	1,100	
<b>All waters</b>			
Major ions	mg/L	For interpretation purposes only	
Redox Potential	mV		
		Monthly	

Table F2 – Receiving Water Quality Objectives notes

- a) The limit is the 80<sup>th</sup> percentile of true population data.
- b) Total Suspended Solids
- c) Dissolved Aluminium
- d) Electrical Conductivity
- e) Total Dissolved Solids

### Receiving environment monitoring program (REMP)

**E6** By 1 September 2017 and prior to mining activities commencing, 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 and groundwater environmental values (including stygofauna), quality and flows due to the mining activity. This must include monitoring the effects of the mine on the receiving environment periodically and while contaminants are being discharged from the site.

For the purposes of the REMP, the receiving environment is the waters of

- Skardon River;
- Irish Creek;
- Connected or surrounding waterways of the Skardon River;
- Wetlands (including Bigfoot Print and Lunette Swamp); and
- Groundwater.

The REMP must encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be affected (directly or indirectly) by release of contaminants to waters.

The REMP must be designed and implemented in order to demonstrate that the environmental values of Lunette Swamp, Bigfoot Print Swamp and the Regional Ecosystem 3.3.14 (refer to **Schedule H—Figure 7 Location of the relevant Regional Ecosystem 3.3.14**) are comparable to pre mining conditions.

The REMP must measure any adverse impacts on flora and fauna species richness and species abundance.

*Note: The environmental values of wetlands are defined under section 81A of the Environmental Protection Regulations 2008.*

**E7** Long term monitoring and assessment of the ambient water quality at the locations specified in **Table E1 – Receiving water monitoring point** must be provided as part of the annual REMP report required under condition F8 and based on the water quality objectives specified in **Table E2 – Receiving Water Quality Objectives**.

**E8** A report outlining the findings of the REMP, including all monitoring results and interpretations, must be prepared annually and submitted to the administrating authority on request. This must include an assessment of background and reference water quality, and downstream water quality compared against water quality objectives and the suitability of current discharge limits to protect downstream environmental values.

### Water management plan

- E9** By 1 September 2017 and prior to mining activities commencing, a Water Management Plan, which includes a surface water and groundwater management and monitoring plan, must be developed by an appropriately qualified person and implemented by the environmental authority holder.

### Integrated Marine Monitoring Program

- E10** By 1 September 2017 and prior to mining activities commencing, an Integrated Marine Monitoring Program (IMMP) must be developed by an appropriately qualified person, and implemented by the environmental authority holder. The IMMP must include the monitoring and management of the following;

- Marine water quality;
- Sediment quality;
- Vessel wake waves;
- Seagrass and mangrove abundance, distribution and species composition;
- Propeller wash; and
- Marine introduced pests.

- E11** The IMMP required by condition F10 must include a seagrass monitoring program, undertaken by an appropriately qualified person(s), for the Skardon River that includes a baseline survey of seagrass abundance, distribution and species composition prior to mining activities commencing and then a survey assessing any change in seagrass abundance, distribution and species composition on an annual basis for the duration of the mining activities.

### Stormwater and water sediment controls

- E12** By 1 September 2017 and prior to mining activities commencing, a certified Erosion and Sediment Control Plan (ESCP) must be developed by a Certified Professional in Erosion and Sediment Control and implemented by the environmental authority holder.
- E13** By 1 November each year, the ESCP must be updated and implemented to include all disturbed areas.
- E14** The minimum design standard of the erosion and sediment control ponds must be designed to capture rainfall and catchment runoff during a 1:10 ARI 24 hour storm event.
- E15** Haul road waterway crossings are required to be designed and constructed in accordance with DAF's self-assessable codes for waterway barrier works (or SDAP Module 5.2 where relevant).

**END OF CONDITIONS FOR SCHEDULE E**

**Schedule F – Groundwater**

**F1** The environmental authority holder must not release contaminants to groundwater.

**Monitoring program and reporting**

**F2** Groundwater levels within each monitoring bore specified in **Table F1 - Groundwater monitoring locations** must be monitored at a minimum frequency of once per month.

**Table F1 - Groundwater monitoring locations**

Monitoring bore		Location <sup>a</sup> (GDA)		Surface RL (m) <sup>b</sup>	Screened interval RL (m)
		Latitude	Longitude		
<b>Zone A</b>					
Namaleta Creek Cluster	G1	11.870103041	142.026568065	10.5	3 - 12
	G2	11.875215865	142.015441903	9.38	11 - 14
	G3	11.876730319	142.006624841	4.45	4 - 12
	G4	11.881143472	142.003923506	2.3	1 - 6
	G6	11.861899390	141.999464916	6.56	6 - 8
	G7	11.861118618	141.982285828	5.75	6 - 10
	G14	11.873554127	142.002206478	2.18	6 - 12
Camp Cluster	C1	11.843356546	142.033986149	10.9	15 - 21
	G8	11.842470949	142.006205502	6.57	6 - 10
	G20	11.849141126	142.037110657	12.55	4.32-10.32
	G21	11.848525800	142.037236851	11.45	8.36-13.44
	G39	11.839694	142.044088	12.48	5.41-11.16
<b>Zone B</b>					
BH1 Area	G31	11.799724700	142.132237583	7.4	11.5 – 17.5
BH1 Mining Area Cluster	G35	11.793650359	142.124943995	17.89	15.7 – 21.7
	G37	11.803235743	142.087518444	14.17	16 - 22
	G38	11.790138650	142.083780558	5.16	6.7 – 12.7
Camp Cluster	C3	11.824371995	142.057458639	11.2	15 - 21
	G9	11.821397542	142.047598411	12.24	11.75 – 14.75
<b>Zone C</b>					
BH6 Mining Area Cluster	G10	11.801539856	142.054158054	10.51	8.9 – 11.9
	G17	11.774447521	142.058286053	7.44	26.5 - 31.5
	G29	11.785970175	142.040296198	5.52	11.5 – 11.75
	G33	11.809882934	142.033878819	8.36	13.5 - 19.5
	G34	11.803361992	142.031816815	7.57	12.9 – 18.9
Port Area	G27	11.756877599	142.070699039	3.42	6.18 - 11.35
Port Area Main Cluster	G5	11.761854980	142.070231904	2.98	4 - 10
	G22	11.760892528	142.065805022	5.77	7.4 -11.82
	G23	11.760822283	142.065244972	6.11	6.26 - 9.71
	G32	11.762549744	142.065132319	6.35	15.5 - 21.5

Table F1 - Groundwater monitoring locations notes:

- a) All Locations presented in Schedule F - Figure 1, 2, 3, 4 and 5
- b) RL must be measured at the top of the bore casing to the nearest 5cm.

**F3** Groundwater quality must be monitored:

- a) At each monitoring bore specified in **Table F1 - Groundwater monitoring locations**; and
- b) For all quality characteristics specified in **Table F2 - Groundwater contaminant limits and monitoring frequency**; and
- c) At the frequency specified in **Table F2 - Groundwater contaminant limits and monitoring frequency**.

**Table F2 – Groundwater contaminant limits and monitoring frequency**

Quality characteristics	Unit	Limit A (80 <sup>th</sup> percentile)	Limit B (95 <sup>th</sup> percentile)	Monitoring frequency
Aluminium	µg/L	83 for all monitoring bores except the following	150 for all monitoring bores except the following	Monthly
		140 for monitoring bore C1	200 for monitoring bore C1	
		120 for monitoring bore G21	240 for monitoring bore G21	
Arsenic	µg/L	Not applicable	13	Quarterly
Cadmium	µg/L	Not applicable	0.3 for monitoring bore G33	
			0.2 for all other monitoring bores	
Chromium	µg/L	Not applicable	1	
Copper	µg/L	Not applicable	1.4 for monitoring bores G17, G20, G23, G32 & G38	Quarterly
		26 for monitoring bores C1, G5 & G6	42 for monitoring bores C1, G5 & G6	
		6 for monitoring bores C3, G1, G2, G3, G7, G8, G9, G21, G22, G29, G31, G33, G34, G35, G37 & G39	10 for monitoring bores C3, G1, G2, G3, G7, G8, G9, G21, G22, G29, G31, G33, G34, G35, G37 & G39	
		13 for monitoring bore G4	17 for monitoring bore G4	
		10 for monitoring bore G10	19 for monitoring bore G10	
		30 for monitoring bore G14	50 for monitoring bore G14	
		2.5 for monitoring bore G27	4.3 for monitoring bore G27	
Iron	µg/L	4,420 for monitoring bores G7, G8, G17, G27, G29, G32, & G34	5,050 for monitoring bores G7, G8, G17, G27, G29, G32, & G34	Quarterly
		700 for monitoring bores G2, G5, G21, G22 & G31	1,300 for monitoring bores G2, G5, G21, G22 & G31	
		55 for monitoring bores G1, G3, G6, G10, G14, G20, G38 & G39	200 for monitoring bores G1, G3, G6, G10, G14, G20, G35, G37, G38 & G39	
		122 for monitoring bore G35		
		88 for monitoring bore G37		
190 for monitoring bore C1	340 for monitoring bore C1			



Quality characteristics	Unit	Limit A (80 <sup>th</sup> percentile)	Limit B (95 <sup>th</sup> percentile)	Monitoring frequency
		<b>67</b> for monitoring bore C3	<b>217</b> for monitoring bore C3	
		<b>1,100</b> for monitoring bore G4	<b>1,360</b> for monitoring bore G4	
		<b>240</b> for monitoring bore G9	<b>453</b> for monitoring bore G9	
		<b>92</b> for monitoring bore G23	<b>223</b> for monitoring bore G23	
		<b>5,420</b> for monitoring bore G33	<b>6,285</b> for monitoring bore G33	
Lead	µg/L	Not applicable	<b>3.4</b> for all monitoring bores	Quarterly
Manganese	µg/L	Not applicable	<b>1,900</b> for all monitoring bores	Quarterly
Nickel	µg/L	Not applicable	<b>11</b> for all monitoring bores	Quarterly
Vanadium	µg/L	Not applicable	<b>6</b> for all monitoring bores	Quarterly
Zinc	µg/L	<b>44</b> for all monitoring bores except the following	<b>73</b> for all monitoring bores except the following	Quarterly
		<b>90</b> for monitoring bore C1	<b>135</b> for monitoring bore C1	
		<b>68</b> for monitoring bore G37	<b>100</b> for monitoring bore G37	
Sulfate	mg/l	<b>61</b> for monitoring bore C1	<b>70</b> for monitoring bore C1	Monthly
		<b>13</b> for monitoring bores C3, G1, G2, G3, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	<b>27</b> for monitoring bores C3, G1, G2, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	
		<b>140</b> for monitoring bores G29	<b>37</b> for monitoring bore G3	
		Not applicable for monitoring bore G17	<b>150</b> for monitoring bores G17 & G29	
		<b>670</b> for monitoring bore G27	<b>1,200</b> for monitoring bore G27	
		<b>59</b> for monitoring bore G31	<b>109</b> for monitoring bore G31	
		<b>29</b> for monitoring bore G32	<b>35</b> for monitoring bore G32	
		<b>80</b> for monitoring bore G33	<b>84</b> for monitoring bore G33	
		<b>93</b> for monitoring bore G34	<b>100</b> for monitoring bore G34	
Electrical Conductivity	µS/cm	<b>113</b> for monitoring bores C1, C3, G1, G2, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	<b>233</b> for monitoring bores C1, C3, G1, G2, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	Monthly
		<b>790</b> for monitoring bore G3, G33	<b>1,100</b> for monitoring bore G3	
		Not applicable for monitoring bore G17	<b>910</b> for monitoring bore G17	

Quality characteristics	Unit	Limit A (80 <sup>th</sup> percentile)	Limit B (95 <sup>th</sup> percentile)	Monitoring frequency
		16,800 for monitoring bore G27	21,450 for monitoring bore G27	
		734 for monitoring bore G29	779 for monitoring bore G29	
		314 for monitoring bore G32	403 for monitoring bore G32	
			1,600 for monitoring bore G34	
		Not applicable for monitoring bore G31 & G34	1,200 for monitoring bore G31 & G33	
pH	pH units	minimum of 4.4 and maximum of 6 for monitoring bore C1	minimum of 4.2 and maximum of 6.5 for monitoring bore C1	Monthly
		minimum of 4.3 and maximum of 6 for monitoring bore G6	minimum of 4.1 and maximum of 6.5 for monitoring bore G6	
		minimum of 4.4 and maximum of 6 for monitoring bores G22 & G23	minimum of 4.2 and maximum of 6.5 for monitoring bores G22 & G23	
		minimum of 4.6 and maximum of 7.0 for monitoring bores G17 & G31	minimum of 4.3 and maximum of 7.2 for monitoring bores G17 & G31	
		minimum of 4.3 and maximum of 6 for monitoring bores G10, G29, G33 & G34	minimum of 4.3 and maximum of 6.5 for monitoring bores G10, G29, G33 & G34	
		For all other bores minimum of 4.6 and maximum of 6	For all other bores minimum of 4.3 and maximum of 6.5	
Suspended solids	mg/l	No limit. For interpretation only.	No limit. For interpretation only.	Quarterly
		No limit. For interpretation only.	No limit. For interpretation only.	
Total dissolved solids	mg/l	91 for monitoring bores G1, G2, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	180 for monitoring bores C3, G1, G2, G4, G5, G6, G7, G8, G9, G10, G14, G20, G21, G22, G23, G35, G37, G38 & G39	Quarterly
		100 for monitoring bore C3		
		280 for monitoring bore C1	491 for monitoring bore C1	
		This limit does not apply to monitoring bores G3, G17, G27, G29, G31, G32, G33 & G34	This limit does not apply to monitoring bores G3, G17, G27, G29, G31, G32, G33 & G34	
Turbidity	NTU	No limit. For interpretation only.	No limit. For interpretation only.	Monthly
Total Nitrogen	µg/L	2,700 for monitoring bore G2	3150 for monitoring bore G2	Monthly
		1,040 for monitoring bore G23	1,320 for monitoring bore G23	

Quality characteristics	Unit	Limit A (80 <sup>th</sup> percentile)	Limit B (95 <sup>th</sup> percentile)	Monitoring frequency
		<b>1,000</b> for monitoring bore G35	<b>1,730</b> for monitoring bore G35	
		<b>700</b> for monitoring bores C1, C3, G1, G3, G4, G5, G6, G7, G8, G9, G10, G14, G17, G20, G21, G22, G27, G29, G31, G32, G33, G34, G37, G38 & G39	<b>1,000</b> for monitoring bores C1, C3, G1, G3, G4, G5, G6, G7, G8, G9, G10, G14, G17, G20, G21, G22, G27, G31, G32, G33, G34, G37, G38 & G39	
			<b>1,400</b> for monitoring bore G29	
Total Phosphorus	µg/L	<b>3,340</b> for monitoring bore G2	<b>3,385</b> for monitoring bore G2	Monthly
		<b>58</b> for monitoring bores G1, G4, G5, G6, G7, G22, G23, G27, G31, G32, G37, G38 & G39	<b>184</b> for monitoring bores C1, G1, G4, G5, G6, G7, G22, G23, G27, G31, G32, G37, G38 & G39	
		<b>76</b> for monitoring bore C1		
		<b>220</b> for monitoring bore C3	<b>398</b> for monitoring bore C3	
		<b>150</b> for monitoring bore G3	<b>240</b> for monitoring bore G3	
		<b>67</b> for monitoring bore G8	<b>269</b> for monitoring bore G8	
		<b>110</b> for monitoring bore G9	<b>195</b> for monitoring bore G9	
		<b>90</b> for monitoring bore G10	<b>340</b> for monitoring bore G10	
		<b>116</b> for monitoring bore G14	<b>372</b> for monitoring bore G14	
		<b>150</b> for monitoring bore G17	<b>214</b> for monitoring bore G17	
		<b>93</b> for monitoring bore G20	<b>162</b> for monitoring bore G20	
		<b>118</b> for monitoring bore G21	<b>619</b> for monitoring bore G21	
		<b>240</b> for monitoring bore G29	<b>453</b> for monitoring bore G29	
		<b>190</b> for monitoring bore G33	<b>487</b> for monitoring bore G33	
		<b>260</b> for monitoring bore G34	<b>443</b> for monitoring bore G34	
	<b>688</b> for monitoring bore G35	<b>1,000</b> for monitoring bore G35		
Nitrate	µg/L	<b>920</b> for monitoring bore G23	<b>1,190</b> for monitoring bore G23	Monthly
		<b>150</b> for monitoring bores C1, C3, G1, G3, G4, G5, G6, G7, G8, G9, G10, G14, G17, G21, G27, G29, G31, G32, G33, G34, G35, G37, G38 & G39	<b>320</b> for monitoring bores C1, C3, G1, G3, G4, G5, G6, G7, G8, G9, G10, G14, G17, G20, G21, G27, G29, G31, G32, G33, G34, G35, G37, G38 & G39	
		<b>266</b> for monitoring bore G20		
		<b>318</b> for monitoring bore G2	<b>392</b> for monitoring bore G2	
		<b>360</b> for monitoring bore G22	<b>429</b> for monitoring bore G22	
Escherichia coli	cfu/100 ml	<b>10</b> for monitoring bores C1, C3, G8, G9, G20, G21 & G39	<b>36</b> for monitoring bores C1, C3, G8, G9, G20, G21 & G39	Quarterly
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	

Quality characteristics	Unit	Limit A (80 <sup>th</sup> percentile)	Limit B (95 <sup>th</sup> percentile)	Monitoring frequency
Total petroleum hydrocarbons C6-C9 <sup>a</sup>	µg/L	Not applicable	20 for monitoring bores G27, G5, G22, G23, G32, G1 and G8	Monthly
			Not applicable to other monitoring bores	
Total petroleum hydrocarbons C10-C36 <sup>a</sup>	µg/L	Not applicable	100 for monitoring bores G27, G5, G22, G23, G32, G1 & G8	Monthly
			Not applicable to other monitoring bores	
Benzene <sup>b</sup>	µg/L	0.5* for monitoring bores G27, G5, G22, G23 & G32	10 for monitoring bores G27, G5, G22, G23 & G32	Quarterly
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	
Ethylbenzene <sup>b</sup>	µg/L	0.5 for monitoring bores G27, G5, G22, G23 & G32	3 for monitoring bores G27, G5, G22, G23 & G32	
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	
Toluene <sup>b</sup>	µg/L	0.5 for monitoring bores G27, G5, G22, G23 & G32	25 for monitoring bores G27, G5, G22, G23 & G32	
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	
Xylenes <sup>b</sup>	µg/L	1.5 for monitoring bores G27, G5, G22, G23 & G32	20 for monitoring bores G27, G5, G22, G23 & G32	
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	
Naphthalene <sup>b</sup>	µg/L	0.5 for monitoring bores G27, G5, G22, G23 & G32	14 for monitoring bores G27, G5, G22, G23 & G32	
		Not applicable to other monitoring bores	Not applicable to other monitoring bores	
Major Ions <sup>c</sup>	mg/L	Not applicable – For interpretative purposes only		Quarterly

Table F2 – Groundwater contaminant limits and monitoring frequency notes:

- Any exceedances above the reporting limit (LOR) will trigger an investigation and analysis of samples to determine hydrocarbon speciation, including for concentrations of benzene, ethylbenzene, toluene, xylenes and naphthalene.
- Only applies when a total petroleum hydrocarbon limit has been exceeded.
- Major Ions must include Calcium, Magnesium, Sodium, Potassium, Chloride, Sulfate as SO<sub>4</sub>, Bicarbonate alkalinity as CaCO<sub>3</sub>, Total alkalinity as CaCO<sub>3</sub>, Hydroxide alkalinity as CaCO<sub>3</sub>, Carbonate alkalinity as CaCO<sub>3</sub>.
- Monitoring requirements at bore G39 to be applied by 6 August 2021.
- All metals to be measured as dissolved concentrations.

**F4** Groundwater quality measured from a monitoring bore specified in **Table F1 - Groundwater monitoring locations** must not exceed the corresponding Limit A specified in **Table F2 – Groundwater quality limits and monitoring frequency** on any five consecutive sampling occasions.

**F5** Groundwater quality measured from a monitoring bore specified in **Table F1 - Groundwater monitoring locations** must not exceed the corresponding Limit B specified in **Table F2 – Groundwater quality limits and monitoring frequency** on any three consecutive sampling occasions.

occasions.

### High ecological value (HEV) groundwaters

- F6** The environmental authority holder must not cause a change to the existing condition of the mining activities receiving high ecological value (HEV) groundwaters.
- F7** From 1 March 2021, the environmental authority holder must implement a groundwater quality monitoring program developed and documented by a suitably qualified person that is sufficient to determine if the mining activities have caused a measurable change to groundwater quality.
- F8** The groundwater monitoring program required under **condition F7** must be developed in accordance with the **ANZECC and QWQ Guidelines** and must include:
- a) Establishment of baseline groundwater quality that:
    - i. Includes calculation of the 20<sup>th</sup>, 50<sup>th</sup> and 80<sup>th</sup> percentiles; and
    - ii. Is representative of pre-mining disturbance conditions (i.e. samples taken prior to any activities commencing with the potential to impact groundwater quality)
  - b) Establishment of groundwater quality trigger levels for each quality characteristic listed in **Table F2 - Groundwater contaminant limits and monitoring frequency** for comparison against baseline groundwater quality that:
    - i. Includes calculation of the 20<sup>th</sup>, 50<sup>th</sup> and 80<sup>th</sup> percentiles based on the most recent two years of monitoring data collected; and
    - ii. Is representative of current groundwater conditions and revised on a rolling and annual basis as further monitoring data becomes available.
  - c) Regular review of groundwater monitoring results and comparison against groundwater quality trigger levels sufficient to establish any potential impact due to the mining activity;
  - d) A documented annual review of the groundwater monitoring program to be completed by 1 December of each year, with a discussion on the results of the monitoring program and consideration of any required changes or improvements to ensure it remains fit for purpose (i.e. complies with condition F7).

### Bore construction and maintenance and decommissioning

- F9** 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 data.

### Groundwater levels

- F10** Any change in groundwater levels due to mining activities must not cause environmental harm.

### Groundwater investigation

- F11** By 30 June 2022, the environmental authority holder must complete a groundwater quality investigation which:
- a) Has been designed and implemented by an appropriately qualified person;
  - b) Includes consideration and analysis of all groundwater quality data from the monitoring bores specified in **Table F1 - Groundwater monitoring locations**;

- c) Identifies and considers all factors with the potential to influence groundwater quality, including the mining activities;
- d) Reviews the adequacy of the groundwater monitoring regime, including Limit A and Limit B specified in **Table F2 – Groundwater contaminant limits and monitoring frequency**;
- e) Determines if the mining activities have contributed to or are causing the higher concentrations of total dissolved solids, sulfate and electrical conductivity as measured in monitoring bores G17, G29, G31, G32, G33 and G34 and total dissolved solids and electrical conductivity as measured in monitoring bore G3 compared to the concentrations measured in other monitoring bores;
- f) Determines if the mining activities have contributed to or are causing the elevated concentrations of aluminum detected in monitoring bores C1, C3, G2, G5, G6, G8, G9, G14, G27, G29, G32, G35 and G37 and Iron detected in monitoring bore G9, since mining activities commenced;
- g) Includes all information and monitoring data relied upon to conduct the investigation;
- h) Includes a detailed explanation and justification for all findings of the investigation and the conclusions drawn, along with any assumptions relied upon;
- i) Where relevant information gaps or uncertainty are identified as pertinent to the accuracy of the investigations' findings/conclusions, include recommendations and associated timeframes to address those information gaps and resolve uncertainty;
- j) Includes a report documenting all requirements of the investigation detailed above, which has been certified by the appropriately qualified person who designed and implemented the investigation.

**F12** The environmental authority holder must make a copy of the report required under **condition F11** available to the administering authority on request.

**END OF CONDITIONS FOR SCHEDULE F**

## Schedule G – Land and rehabilitation

### Rehabilitation requirements

- G1** Land disturbed by mining must be rehabilitated in accordance with the rehabilitation management plan required in G6 and in accordance with **Table G1 – Rehabilitation requirements – Bauxite Hills Mine**.
- G2** By 1 December 2019, the rehabilitation requirements specified in **Table G1 – Rehabilitation requirements – Bauxite Hills Mine** must be provided to the administering authority.

**Table G1 - Rehabilitation requirements – Bauxite Hills Mine**

Mine domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria	
Mine Pits (BH1, BH6 East and BH6 West)	Safe	The site is safe for humans and animals, now and in the foreseeable future.	TBA <sup>1</sup>	TBA <sup>1</sup>	
	Non-polluting	Surface and groundwater quality remain suitable for long term land use.	TBA <sup>1</sup>	TBA <sup>1</sup>	
	Stable Landform	Landform design and construction result in no active or significant erosion	TBA <sup>1</sup>	TBA <sup>1</sup>	
	Sustainable Land Use:  Native vegetation to maintain the same, or similar pre-disturbance environmental values	Suitable growth medium established		TBA <sup>1</sup>	TBA <sup>1</sup>
		Self-sustaining vegetation and habitat established		TBA <sup>1</sup>	TBA <sup>1</sup>
		Rehabilitated ecosystem is sustainable, with comparable management requirements to similarly used unmined land.		TBA <sup>1</sup>	TBA <sup>1</sup>
		Fauna habitat has developed and fauna species are recolonizing the site		TBA <sup>1</sup>	TBA <sup>1</sup>
BH1 to BH6 Haul Road	As for Mine Pits (BH1, BH6 East and BH6 West), unless a landholder agreement is in place for the infrastructure to remain.	As for Mine Pits (BH1, BH6 East and BH6 West), unless a landholder agreement is in place for the infrastructure to remain.	TBA <sup>1</sup>	TBA <sup>1</sup>	

Table G1 - Rehabilitation requirements – Bauxite Mine notes:

- To be provided to the administering authority in accordance with **Condition G2**.

- G3** The environmental authority holder must utilise vegetation for beneficial uses in the course of carrying out mining activities. Where beneficial uses are exhausted, the holder may burn vegetation cleared provided the activity does not cause environmental harm to the receiving environment or at any commercial place.

#### Contaminated Land

- G4** The environmental authority holder must not release contaminants to land.

#### Buffer zones

- G5** The environmental authority holder must not conduct mining activities within the buffer zones presented in **Schedule H - Maps and Plans - Figure 6 - Buffer zones** and as described below:
- a) within 100 m of Big Footprint Swamp;
  - b) within 100m of Regional Ecosystem 3.3.14 presented in **Schedule H - Maps and Plans – Figure 7 – Location of the relevant Regional Ecosystem 3.3.14;**
  - c) 50 m for stream order 1 or 2 watercourses;
  - d) 100 m for stream order 3 or 4 watercourses; and
  - e) 200 m for stream order 5 or greater watercourses.

#### Rehabilitation Management Plan and Progressive Rehabilitation

- G6** By 1 September 2017, the environmental authority holder must develop, implement and submit to the administering authority a Rehabilitation Management Plan (RMP), that includes:
- a) schematic representations of the proposed final landform including, landform type, slope, regional ecosystems, drainage designs and any post mining land or infrastructure use agreed with the landowner/holder and the administering authority;
  - b) rehabilitation methods including landform establishment, plant species selection, soil management, growing media development and methods of revegetation;
  - c) Proposed reference sites, including justification for their selection;
  - d) materials balance including available topsoil and subsoil;
  - e) geotechnical, geochemical and hydrological studies;
  - f) a rehabilitation schedule integrated with the mine plan schedule;
  - g) the rehabilitation goals, objectives, indicators and completion criteria for each agreed post mining land use within each domain and the final vegetation community type;
  - h) a rehabilitation monitoring program, based on best practice industry methods and standards, that must be capable of:
    - i. assessing the condition of rehabilitation sites compared to reference sites;
    - ii. assessing the function of rehabilitation sites compared to reference sites;
    - iii. comparing the progression of rehabilitation site indicators to the targeted completion criteria; and
    - iv. identifying rehabilitation objectives that are not progressing towards the completion criteria.
  - i) management actions for rehabilitation objectives not progressing towards the completion criteria and programs for maintenance of rehabilitation as required to achieve the nominated rehabilitation objective; and



j) on-site revegetation trials which test the success of the rehabilitation methods proposed for **condition G6b**.

- G7** Rehabilitation of mined panels must commence progressively and within 12 months of each panel being completed in accordance with the RMP.
- G8** The environmental authority holder must review and update the RMP in the following circumstances:
- a) the rehabilitation schedule changes with the mine plan schedule;
  - b) based on the outcomes of on-site revegetation trials; and
  - c) based on the outcomes of rehabilitation monitoring programs.
- G9** Topsoil and subsoils must be managed in accordance with the RMP required by **condition G6** to prevent erosion and degradation of soil quality.

#### Land Use Management Plan (LUMP)

- G10** By 1 September 2017, the environmental authority holder must develop, implement and submit to the administering authority a Land Use Management Plan (LUMP). The LUMP must include:
- a) buffer zones for sensitive ecological areas;
  - b) landscape connectivity corridors;
  - c) fire management;
  - d) flora and fauna species management;
  - e) fauna habitat management; and
  - f) weed and pest management.

#### Acid Sulphate Soils

- G11** Potential Acid Sulphate Soil areas must have field surveys conducted by an appropriately qualified person prior to any disturbance occurring in order to identify if the soils are Acid Sulphate Soils (ASS) and if so must be managed in accordance with **condition G12**.
- G12** An Acid Sulphate Soil Management Plan must be developed prior to mining activities commencing in accordance with the latest edition of the Queensland Acid Sulphate Soil Technical Manual and implemented by the environmental authority holder to treat and manage ASS, to prevent the release of contaminants to water and land.

#### Environmental Offsets

- G13** Significant residual impacts to prescribed environmental matters, other than if the impacts were authorised by an existing authority issued before the commencement of the *Environmental Offsets Act 2014*, are not authorised under this environmental authority or the *Environmental Offsets Act 2014* unless the impact(s) is specified in **Table G3 - Significant residual impacts to prescribed environmental matters**.

*Note: Protected wildlife habitat has been assessed by the Commonwealth in accordance with Section 15 of the Environmental Offsets Act 2014.*

**Table G3 - Significant residual impacts to prescribed environmental matters.**

Prescribed environmental matter <sup>2</sup>	Location of prescribed environmental matter <sup>1</sup> (MGA94 – Zone 54)	Maximum extent of impact / Maximum extent of impact – stage <sup>1</sup>
<b>Regulated vegetation</b>		
Regulated vegetation (of concern) RE3.7.3/3.3.49b	E 622073.71, N 8694828.95	1.9 ha – cleared for linear infrastructure.
<b>Regulated vegetation (intersecting a watercourse or wetland)</b>		
VMA Act watercourses/wetlands RE3.3.49b/3.3.9 RE3.3.49b/3.3.22a/3.3.64	E 622080.03, N 8694637.02	1.92 ha of watercourse vegetation associated with creek crossings of the haul road between BH6 east and BH1 haul road.
Wetland (HES Wetland) - a HES wetland shown on the map of referable wetlands RE3.3.49b/3.3.9 RE3.3.49b/3.3.22a/3.3.64	E 622080.03, N 8694637.02	1.92 ha of watercourse vegetation associated with creek crossings of the haul road between BH6 east and BH1 haul road.

Table G3 - Significant residual impacts to prescribed environmental matters notes:

1. To be provided to the administering authority prior to commencement of mining activities.
2. Refer to **Schedule H – Maps and Plans** for maps of prescribed environmental matters.

- G14** Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be:
- a) completed by an appropriately qualified person; and
  - b) kept for the life of the environmental authority.
- G15** An environmental offset made in accordance with the *Environmental Offsets Act 2014* and *Queensland Environmental Offsets Policy*, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in **Table G3 - Significant residual impacts to prescribed environmental matters**.

#### Non-staged impacts

- G16** The notice of election for the environmental offset required by **condition G15** must be provided to the administering authority no less than three (3) months before the proposed commencement of the significant residual impacts for which the environmental offset is required.

#### Contaminated material

- G17** The environmental authority holder must ensure contaminated soil or material are stored and handled in accordance with the current Australian standard where such is applicable.

#### Vegetation clearing

- G18** The clearing of vegetation must not occur during the wet season, except for the initial construction period, when clearing may continue up until 1 December 2017.
- G19** Prior to any vegetation clearing a pre-clearance survey must be undertaken by an appropriately qualified person to minimise impacts to flora and fauna species and fauna habitat in accordance with the LUMP required by **condition G10**.
- G20** During any vegetation clearing an appropriately qualified person must be present to identify and relocate significant flora and fauna species and minimise impacts to fauna habitat in accordance with the LUMP required by **condition G10**.

**END OF CONDITIONS FOR SCHEDULE G**

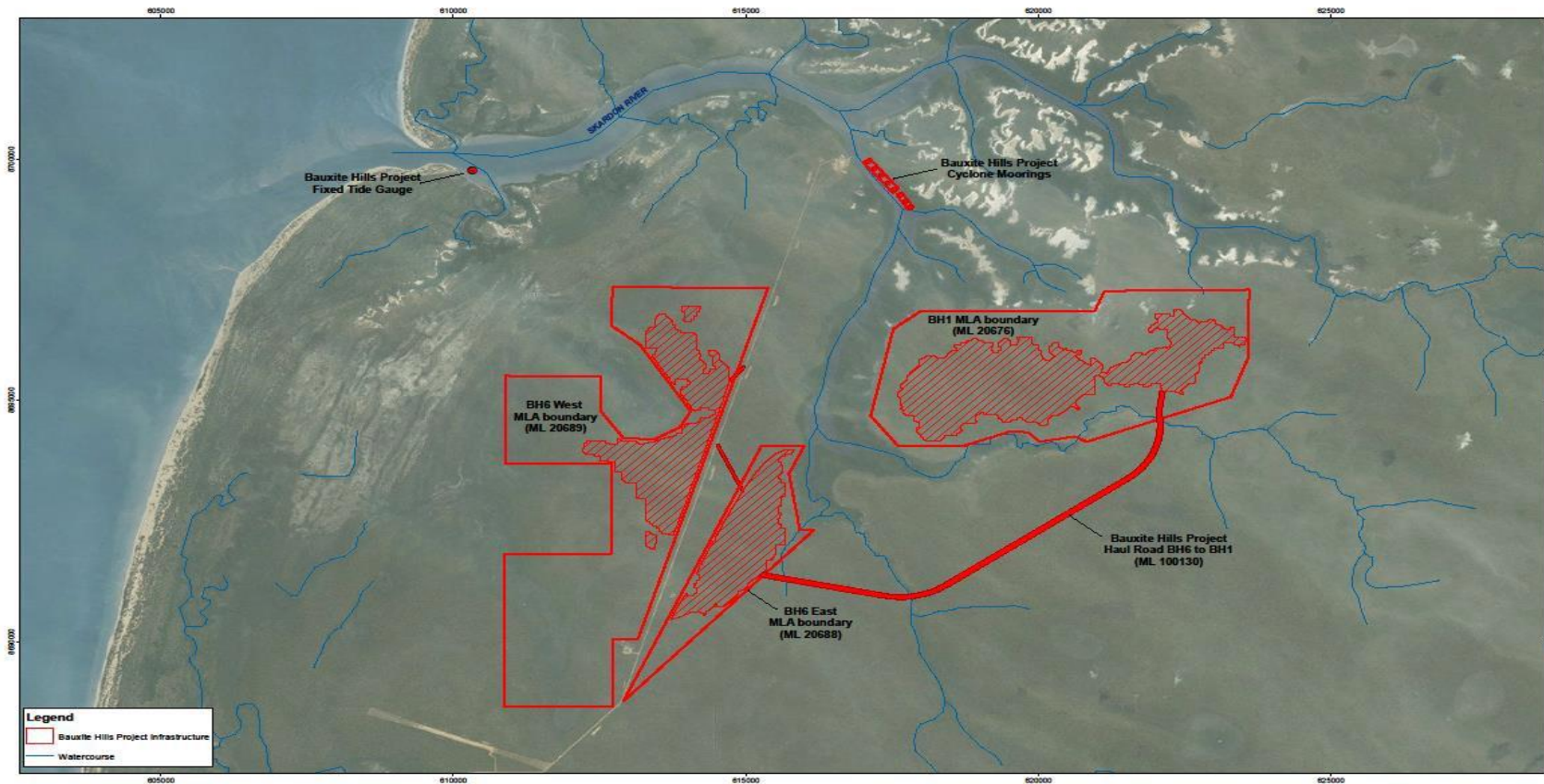
Schedule H—Maps and Plans

Schedule H—Figure 1 (Project location)

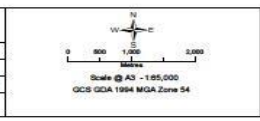


<table border="1"> <thead> <tr> <th>#</th> <th>Details</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Details</td> <td>22/01/18</td> </tr> <tr> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>-</td> <td>DESIGNED</td> <td>CHECKED</td> </tr> <tr> <td>-</td> <td>DRAWN</td> <td>CHECKED</td> </tr> <tr> <td>-</td> <td>APPROVED</td> <td>DATE</td> </tr> <tr> <td>-</td> <td>-</td> <td>28/05/17</td> </tr> <tr> <td>-</td> <td>Notes:</td> <td>-</td> </tr> </tbody> </table>		#	Details	Date	1	Details	22/01/18	-	-	-	-	DESIGNED	CHECKED	-	DRAWN	CHECKED	-	APPROVED	DATE	-	-	28/05/17	-	Notes:	-	<p>©COPYRIGHT CDM SMITH This drawing is confidential and shall only be used for the purpose of this project.</p>	<p>Scale @ A3 = 1:400,000 GCS GDA 1994 MGA Zone 54</p>	<p><b>DISCLAIMER</b> CDM Smith has endeavored to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.</p> <p><b>DATA SOURCE</b> MEG Mining 2016; Sat Base Maps 2017</p>	<p><b>CONSULTANT</b></p>	<p><b>CLIENT</b></p>	<p>Schedule H – Figure 1 Project Location</p> <p>DRG Ref: BES170330_16-001_R2_project location</p>
#	Details	Date																													
1	Details	22/01/18																													
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-	APPROVED	DATE																													
-	-	28/05/17																													
-	Notes:	-																													

Schedule H—Figure 2 (Project layout—mine area)



R	Details	Date	©COPYRIGHT CDM SMITH			
1	For Approval	15/07/15	This drawing is confidential and shall only be used for the purposes of this project.			
2	Updated Pt Extents	21/10/15	DESIGNED	MD	CHECKED	MI
3	Final	27/07/16	DRAWN	MD	CHECKED	MI
4	Updated Haul Roads and Port Area	14/10/16	DRAWN	MD	CHECKED	MI
5	Updated Haul Roads and Infrastructure	7/12/16	APPROVED	27/07/16	DATE	06/05/17
6	Updated BH6 East ML boundary	14/03/17	Notes			
-	-	-	-			

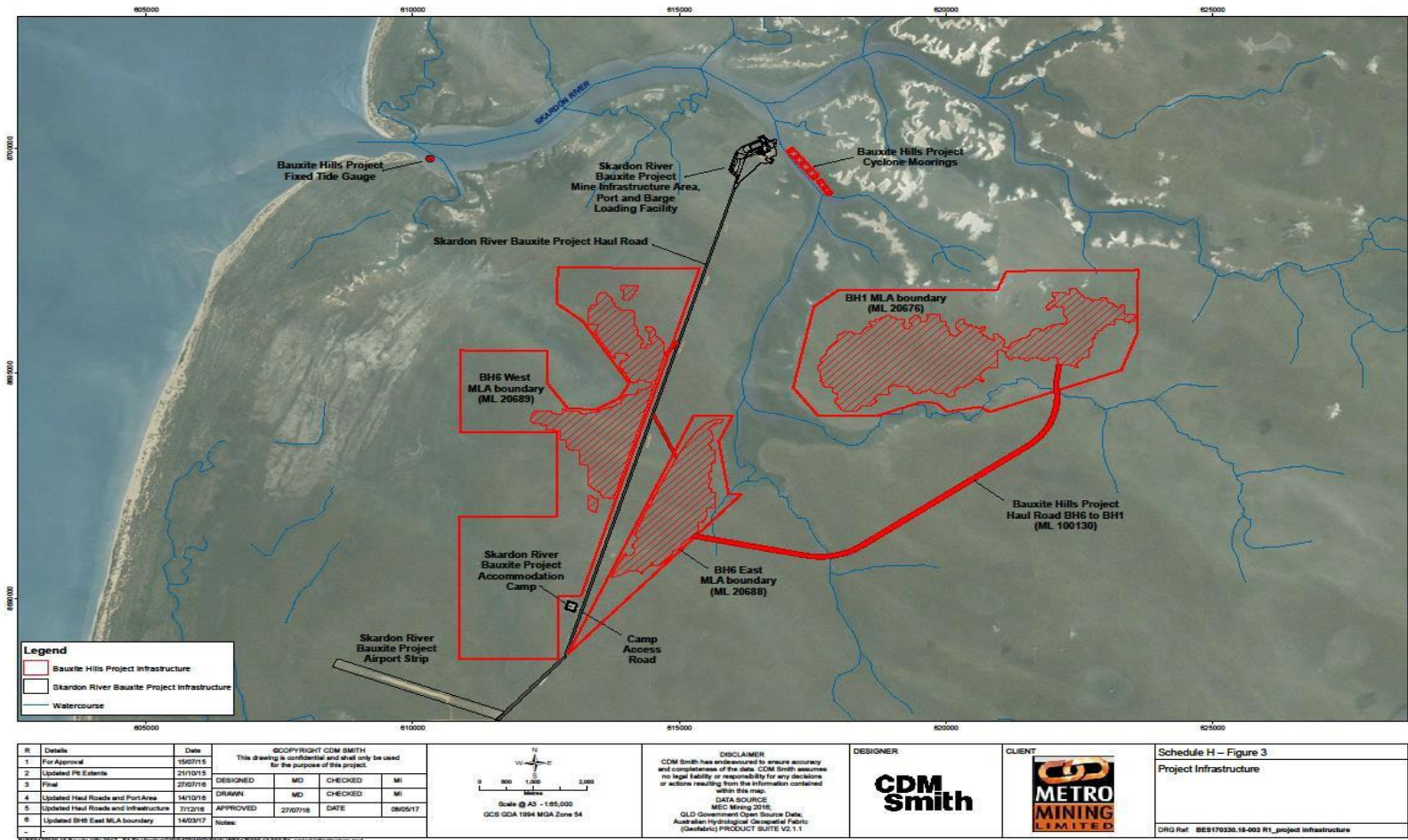


**DISCLAIMER:**  
CDM Smith has endeavored to ensure accuracy and completeness of the data. CDM Smith assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.  
**DATA SOURCE:**  
MEC Mining 2016;  
GLD Government Open Source Data,  
Australian Hydrological Geospatial Fabric  
(Geospatial) PRODUCT SUITE V2.1.1



Schedule H – Figure 2  
Project Layout – Mine Area  
  
DRG Ref: BE8170330-18-002 R1\_project layout mine area

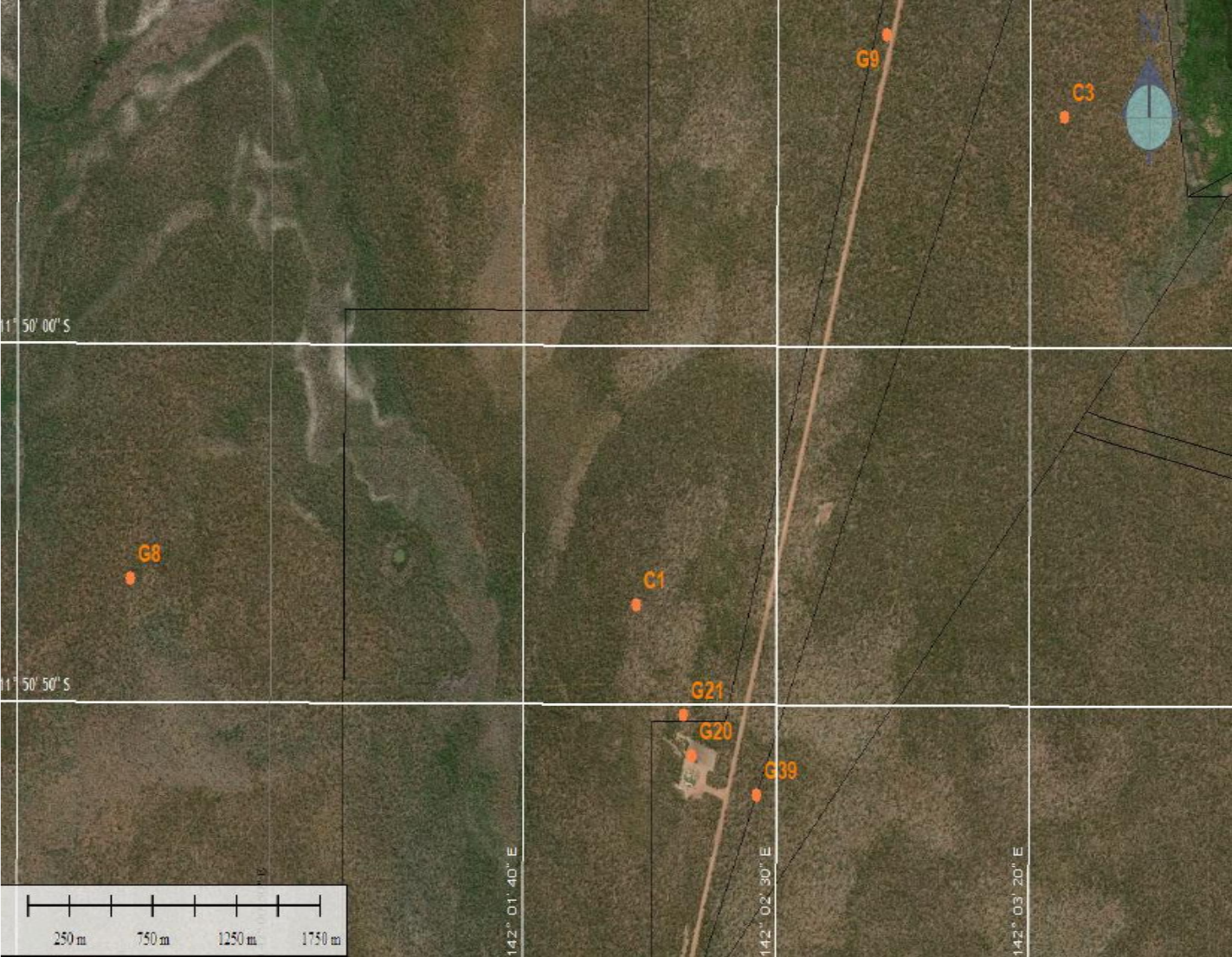
Schedule H—Figure 3 (Project Infrastructure)



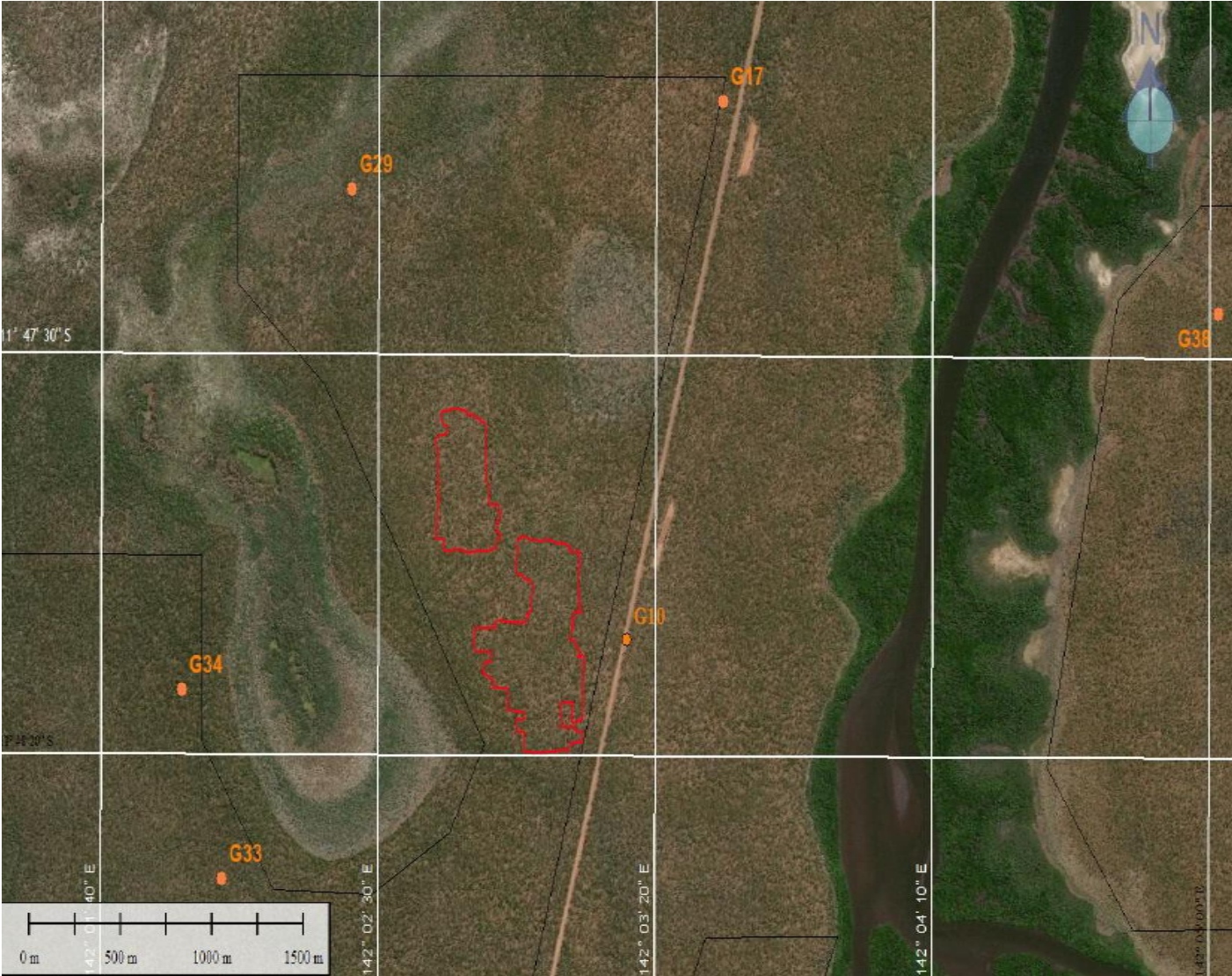
Schedule E – Figure 1 – Namaleta Creek Cluster



Schedule E – Figure 2 – Camp Cluster



Schedule E – Figure 3 – BH6 Mining Area Cluster

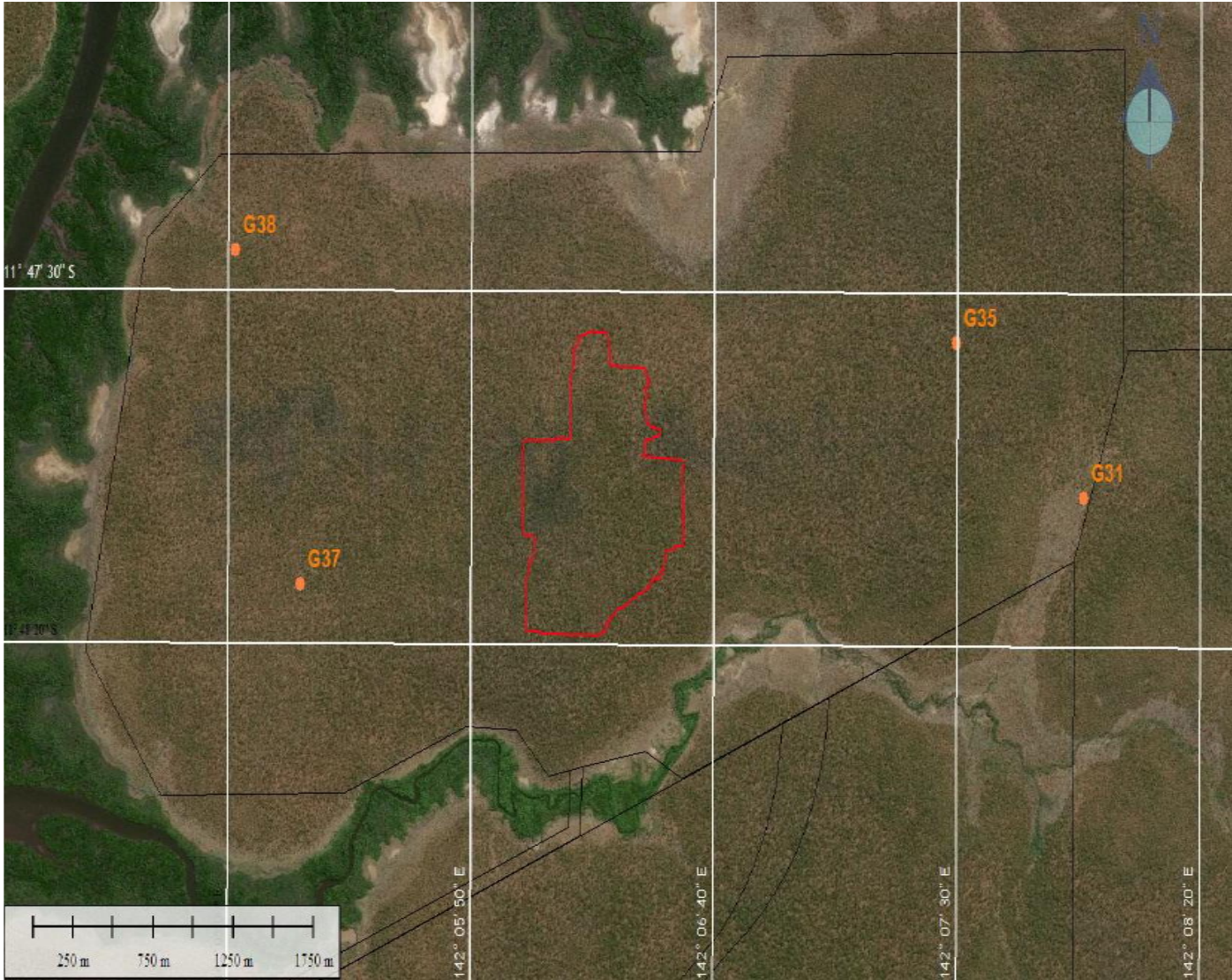




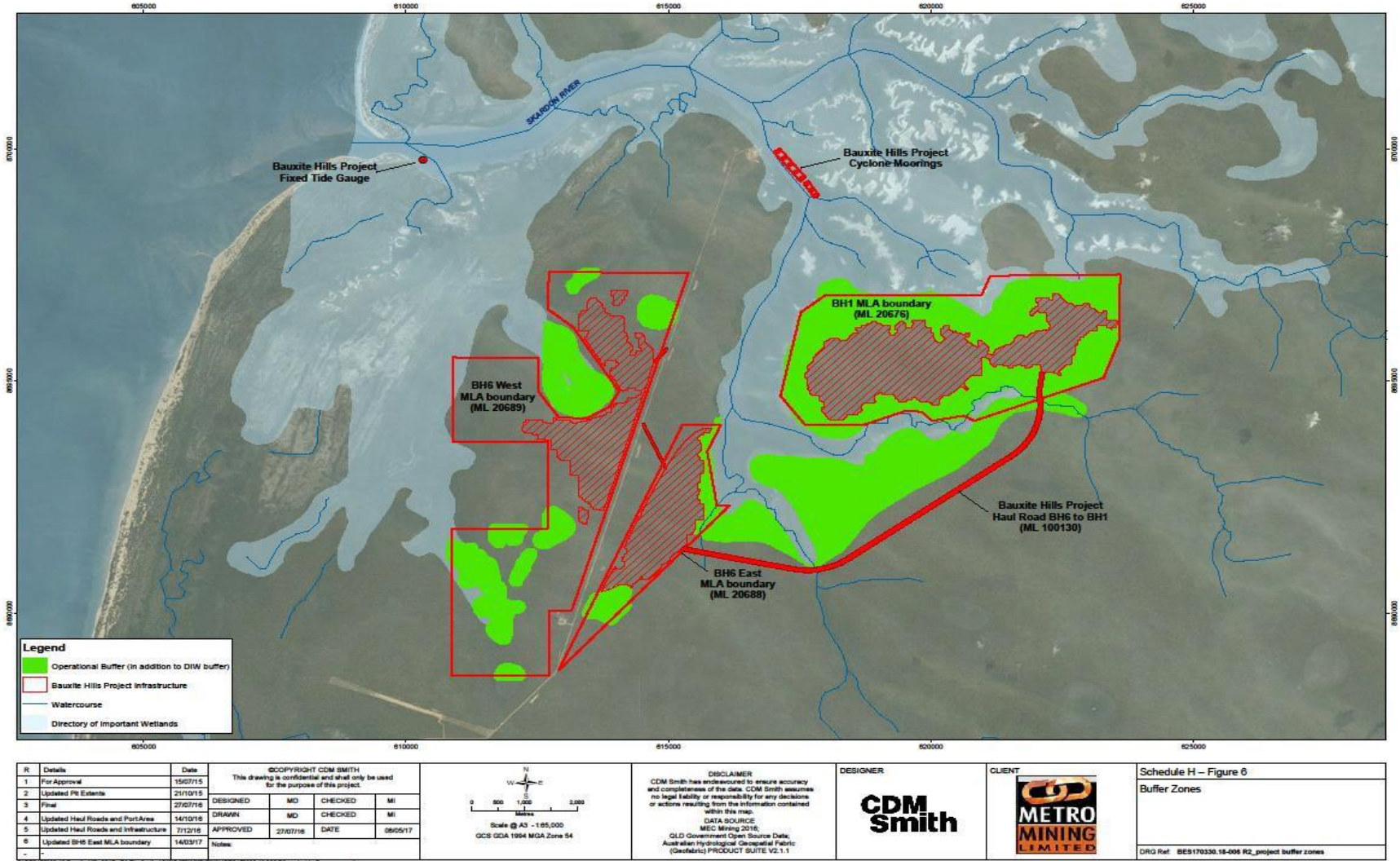
Schedule E – Figure 4 – Port Area Cluster and G27



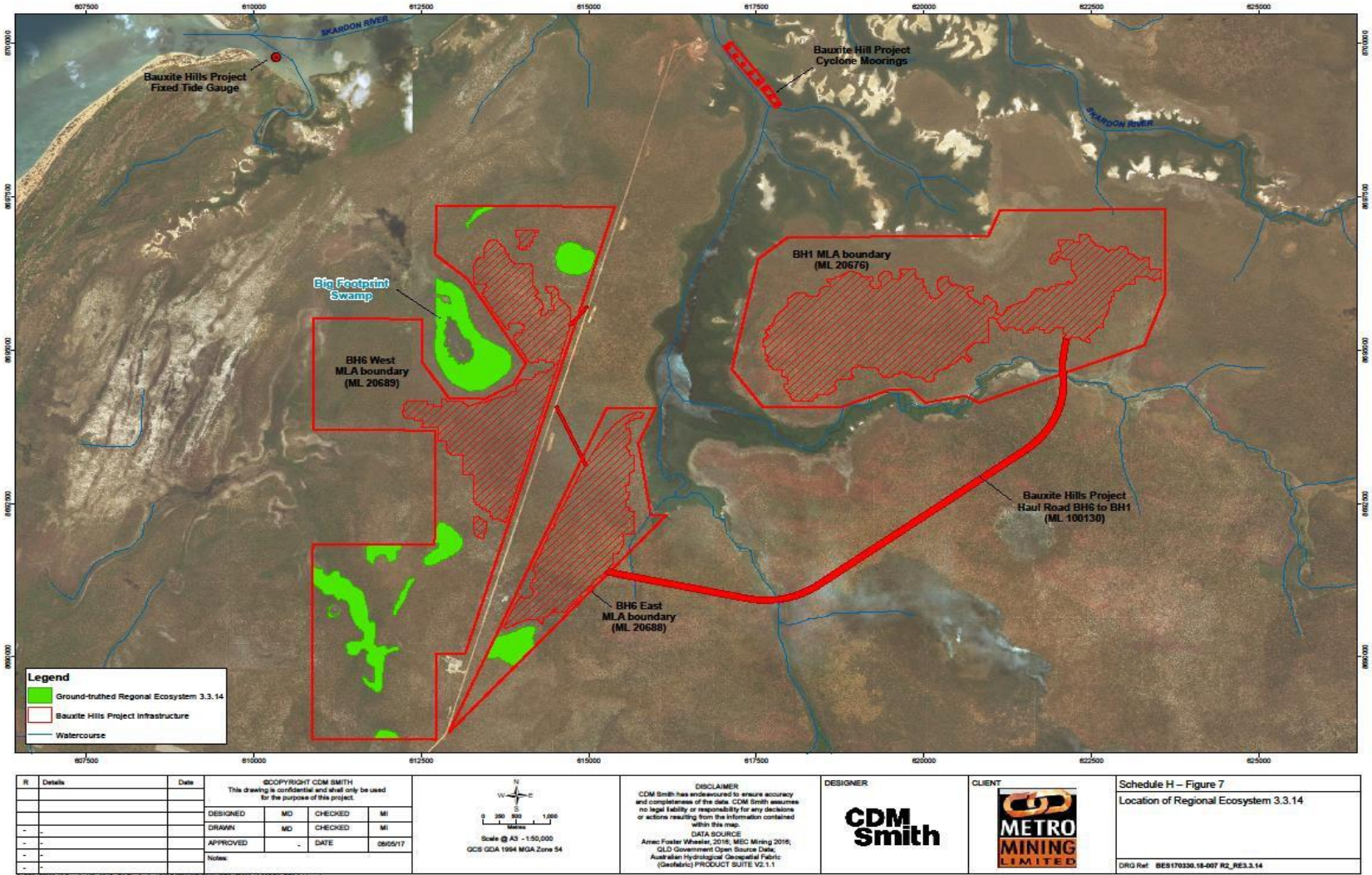
Schedule E – Figure 5 – BH1 Mining Area Cluster and G31



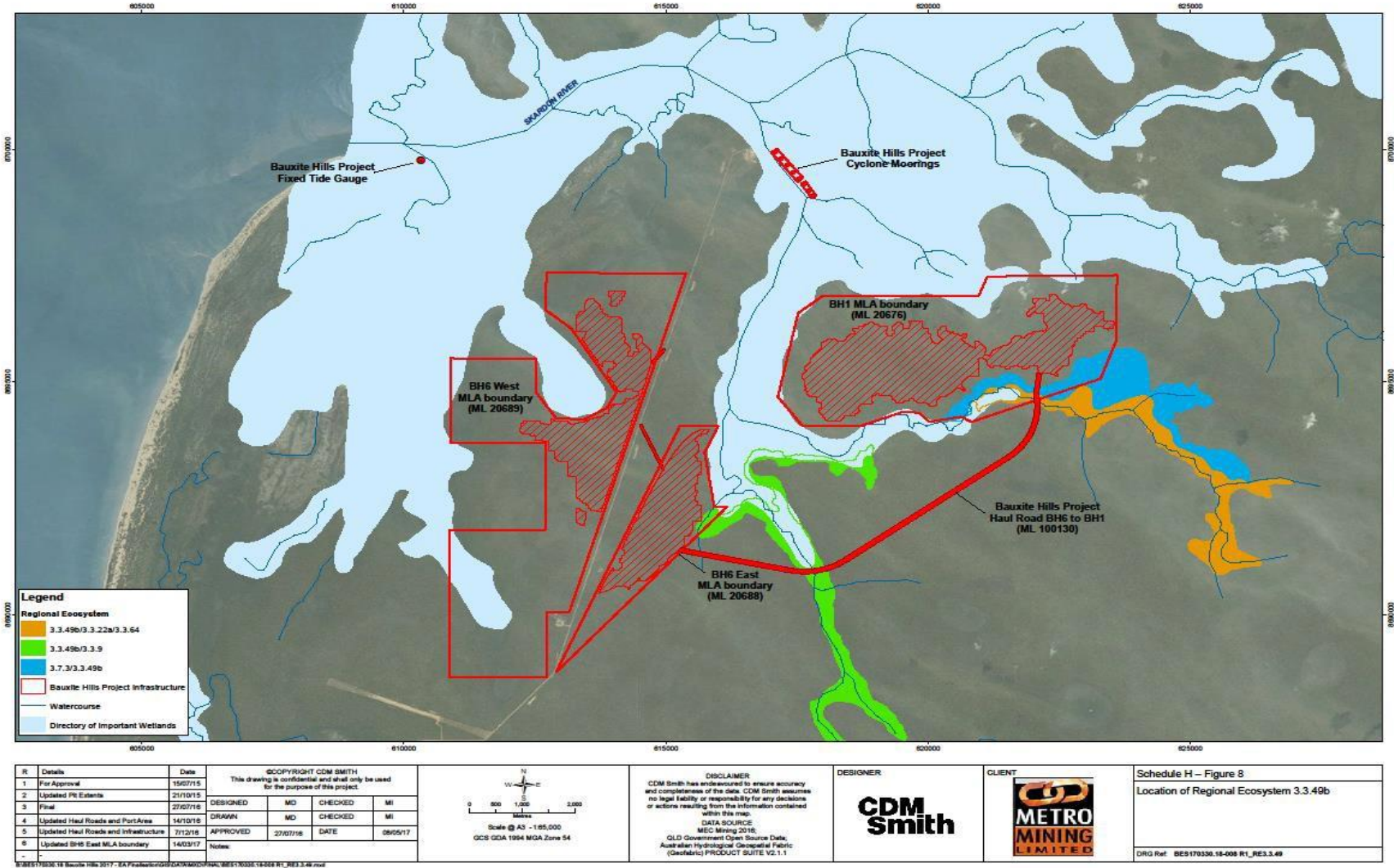
Schedule H—Figure 6 (Buffer zones)



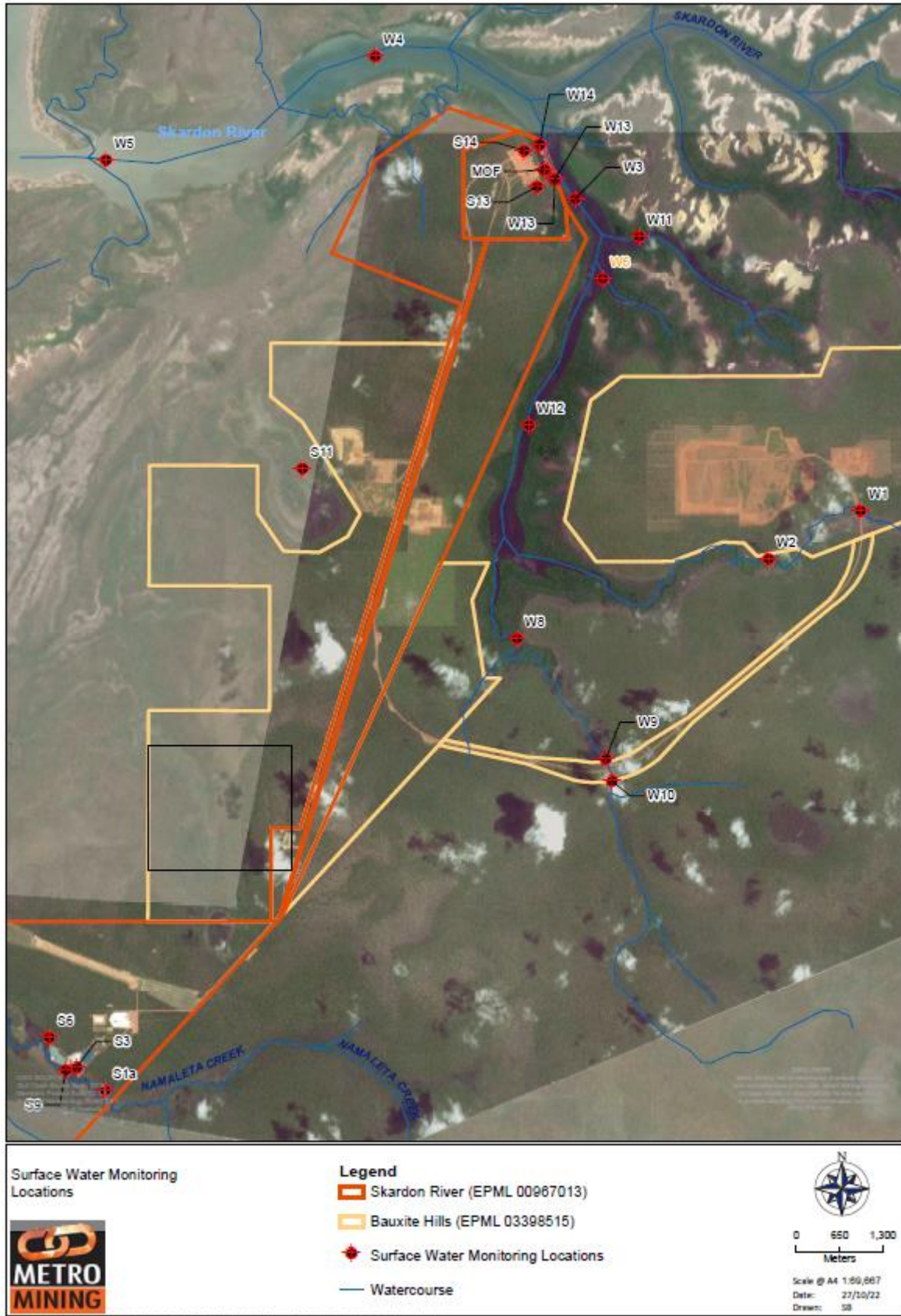
Schedule H—Figure 7 (Location of the relevant Regional Ecosystem 3.3.14.)



Schedule H—Figure 8 (Location of the Regulated vegetation (intersecting a watercourse or wetland))



Schedule H—Figure 9 – Surface water monitoring locations



## Schedule I—Definitions

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

**‘Acceptance criteria’** mean the measures by which the actions implemented to rehabilitate the land are deemed to be complete (same as completion criteria).

**‘Administering Authority’** is the agency that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

**‘Adverse impacts’** on marine animals includes:

- masking social communications used to find mates or identify predators;
- temporary and permanent hearing loss or impairment;
- displacement from preferred habitat;
- disruption of feeding, breeding, nursing and communication;
- strandings;
- death and serious injury from haemorrhaging and tissue trauma.

**‘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.

**‘ANZECC Guideline’**: refers to *ANZECC fresh and marine water quality guidelines and ARM CANZ (2000) section 3.2.4.2 volume 1*.

**‘Authority’** means environmental authority (mining activities) under the Environmental Protection Act 1994.

**‘Background’**, with Reference to the water schedule means the average of samples taken prior to the commencement of bauxite mining activities from the same waterway that the current sample has been taken.

**‘Chemical’** means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth), or
- b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council, or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*, or
- 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.

**‘Certified Professional in Erosion and Sediment Control (CPESC)’** means a person who has been certified by

the Australasian CPESC committee.

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

**'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.

**'Contaminants'** means any prescribed water contaminants listed under Schedule 9 of *the Environmental Protection Regulations 2008*.

**'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
- f) releasing of contaminants into the soil, or underlying geological strata.

**'Effluent'** treated waste water released from sewage treatment plants.

**'Environmental authority holder'** means the holder of an environmental authority issued under section 195 that approves an environmentally relevant activity applied for in an application or any others works conducted by a another entity on the approved leases.

**'Equilibrium'** means a state where 'balance' is achieved despite changing variables.

**'Existing condition'** means the condition of the ecosystem prior to the bauxite mining activities commencing.

**'General waste'** means:

- a) Construction wastes and demolition waste;
- b) Solid inert waste;
- c) Putrescible wastes and domestic garbage;
- d) Green wastes; and
- e) General recyclable wastes, consisting of paper, cardboard, recyclable plastics, glass, aluminium, and steel cans.

*Note:*

- *Paper covered plasterboard must only be received at the approved place if it is generated by construction and demolition activities and delivered to the approved place as part of a mixed load of materials;*
- *Drums containing any residual regulated wastes are themselves a regulated waste and must not be accepted for disposal at the approved place unless they have been triple rinsed or thoroughly cleaned.*



**'Hazardous waste'** means a contaminant that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm because of—

- (a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or
- (b) its physical, chemical or infectious characteristics.

**'Hazard categories'** 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 Ecological Waters (HEV)'**, as defined by the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* guideline (2000, Volume 1, Page 3.1-10), is an effectively unmodified or other highly-valued ecosystem, typically (but not always) occurring in national parks, conservation reserves or in remote and/or inaccessible locations. While there are no aquatic ecosystems in Australia and New Zealand that are entirely without some human influence, the ecological integrity of high conservation/ecological value systems is regarded as intact.

**'Infrastructure'** means water storage dams, levees, roads and tracks, buildings and other structures built for the purpose of the mining activity.

**' $L_{A1,adj,15min}$ '** means the A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 1% of a 15 minute period when measured using time-weighting 'F'.

**' $L_{Aeq, adj, 15 mins}$ '** is the equivalent or energy-averaged, A-weighted sound pressure level, averaged over a time interval of 15 minutes, adjusted for tonal character or impulsiveness.

**'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.

**'Licensed place'** means the mining activities carried out at the mining tenements detailed in this environmental authority.

**'m'** means metres.

**'m/s'** means meters per second

**'Maximum'** means that the measured value of the quality characteristic or contaminant must not be greater than the release limit stated.

**'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.

**'Median'** means that the measured values of the quality characteristic must not be greater than the rerelease limit for any more than five out of ten consecutive samples where the time interval between the taking of each consecutive sample is not less than one (1) day.

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

**'Mining activities'** means an activity that is an authorised activity for a mining tenement under the Mineral Resources Act 1989; or another activity that is authorised under an approval under the Mineral Resources Act that grants rights over land.

**'Minimise'** is to reduce to the smallest possible amount or degree.

**'Minimum'** means that the measured value of the quality characteristic or contaminant must not be less than the release limit stated.

**'Minimum data requirements'** means the reference data requirements outlined in Table 4.4.2 of the *Queensland Water Quality Guidelines 2009*.

**'Progressive Rehabilitation'** means Rehabilitation (defined below) undertaken progressively or a staged approach to Rehabilitation as mining operations are ongoing.

**'QWQ Guideline'**: refers to *Queensland Water Quality Guidelines 2009*.

**'Range'** means that the measured value of the quality characteristic or contaminant must not be greater than the higher release limit stated nor lower than the lower release limit stated.

**'Receiving environment'** in relation to an activity that causes or may cause environmental harm, means the part of the environment to which the harm is, or may be, caused. The receiving environment includes (but is not limited to):

- a) a watercourse or surface waters
- b) groundwater
- c) an area of land that is not specified in **Schedule A – Table A1 (Authorised Mining Activities and Locations)** of this environmental authority.

**'Receiving Waters'** means the waters of the receiving environment.

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

**'Revegetation'** is the re-establishment of vegetation<sup>1</sup> of a species and density of cover similar to surrounding undisturbed areas or the landform that existed before mining activities on soil surfaces associated with the construction or Rehabilitation of a Watercourse diversion.

**'RL'** means reduced level, relative to Australian Height Datum.

**'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 and 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.*

<sup>1</sup> Not including a species declared under the Land Protection (Pest and Stock Route Management) Regulation 2003 as a category class 1 pest, category class 2 pest or category class 3 pest.

*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.

**'Stable'** means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation/settlement of the wastes deposited, and sliding/slumping instability has ceased.

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

**'µS/cm'** means micro siemens per centimetre.

**'Water'** is defined under Schedule 4 of the *Water Act 2000*.

**'Watercourse'** has the same meaning given in the *Water Act 2000*.

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

**'Waters'** includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined 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, groundwater and any part thereof.

**'Wet season'** means the period commencing on 1 November each year and ending on 30 April of the following year.

**'80th percentile'** means that not more than two (2) of the measured values of the quality characteristic are to exceed the stated release limits for any ten (10) consecutive samples.

### **Environmental Offset definitions**

**'Environmental offset'** has the meaning in section 7 of the *Environmental Offsets Act 2014*.

**'maximum extent of impact'** means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

**'Prescribed environmental matters'** has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significance listed in schedule 2 of the *Environmental Offsets Regulation 2014*.

**'Significant residual impact/s'** has the meaning in section 8 *Environmental Offsets Act 2014*.

## **END OF ENVIRONMENTAL AUTHORITY**