

Permit

Environmental Protection Act 1994

Environmental authority EPML00906513

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

Environmental authority number: EPML00906513

Environmental authority takes effect on 8 September 2023.

The anniversary date of this environmental authority is 23 December each year.

Environmental authority holder(s)

Name(s)	Registered address
White Range Mines Pty Ltd	Level 2, 189 Kent Street SYDNEY NSW 2000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 17 - Mining copper ore	ML2519, ML90081, ML90082, ML90134, ML90161
Ancillary 08 - Chemical Storage 3 - Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)(c)	
Ancillary 15 - Fuel burning Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	
Ancillary 60 - Waste disposal 1(d) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) - more than 200,000t	
Ancillary 60 - Waste disposal 2(a) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - less than 2000t	

Environmentally relevant activity/activities	Location(s)
Ancillary 62 - Resource recovery and transfer facility operation 1(d) - Operating a facility for receiving and sorting, dismantling, baling or temporarily storing category 1 regulated waste	
Ancillary 63 - Sewage Treatment 1(a-ii) - Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of 21 to 100EP - otherwise	
Ancillary 30 - Metal smelting and refining 1(d) - Processing, in a year, more than 10,000t of metals or metalloids	ML90134
Ancillary 31 - Mineral processing 2(b) - Processing, in a year, the following quantities of mineral products, other than coke - more than 100,000t	

Additional information for applicants

Environmentally relevant activities

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

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

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

Mobile and temporary activities

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

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

Contaminated land

It is a requirement of the EP Act that an owner or occupier of 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 *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

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

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

T. Gibbs

Signature

8 September 2023

Date

Teale Gibbs
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
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Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this environmental authority, the holder must also meet their obligations under the EP Act, and the regulations made under the EP Act. For example, the holder must comply with the following provisions of the Act:

- general environmental duty (section 319)
- duty to notify environmental harm (section 320-320G)
- offence of causing serious or material environmental harm (sections 437-439)
- offence of causing environmental nuisance (section 440)
- offence of depositing prescribed water contaminants in waters and related matters (section 440ZG)
- offence to place contaminant where environmental harm or nuisance may be caused (section 443)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Conditions of environmental authority

This **environmental authority** incorporates the following schedules:

- Schedule A - General
- Schedule B - Air
- Schedule C - Water
- Schedule D - Noise and Vibration
- Schedule E - Waste
- Schedule F - Land
- Schedule G - Community
- Schedule H - Definitions
- Schedule I - Maps / Plans

Schedule A – General

- (A1-1) The holder of this environmental authority must ensure that the mining activities are carried out in accordance with Schedule A Table A1 – Authorised Mining activities and locations shown in Schedule I – Maps 1 -5 (General Layout Plans).

Schedule A – Table 1 – Authorised Mining Activities and Locations

Mining Lease	Mine Domain	Mine Feature Name	Location (Centre Point) ¹		Maximum Disturbance Area (hectares)
			Easting (GDA2020-MGA Zone 54)	Northing (GDA2020-MGA Zone 54)	
ML90082 Mt McCabe	Open pit	Open pit	447007.759628	7670370.61546	10
	Waste Rock Dump	Waste rock dump	447325.510815	7670212.54667	20
	Infrastructure	ROM pad	447118.115307	7670684.70047	0.2
		Fuel & oil storage	447118.115307	7670684.70047	0.01
		Workshop/admin office	447118.115307	7670684.70047	0.25
		Mt McCabe & Vulcan existing site roads	Various	Various	3
	Exploration activities	General drilling	Various	Various	1.3
		Access tracks	Various	Various	0.35
ML2519 Vulcan	Open pit	Open pit	452947.694101	7672255.21306	1
	Waste Rock Dump	Waste rock dump	453018.842357	7672196.77376	2
	Exploration activities	General drilling	Various	Various	1
		Access tracks	Various	Various	0.21
ML90081	Open Pit	Open pit	448768.998107	7647004.36116	6.5

Mining Lease	Mine Domain	Mine Feature Name	Location (Centre Point) ¹		Maximum Disturbance Area (hectares)
			Easting (GDA2020-MGA Zone 54)	Northing (GDA2020-MGA Zone 54)	
Kuridala /Hampden	Waste Rock Dump	Waste rock dump	449446.409481	7647319.36204	4.8
	Infrastructure	ROM pad	449081.020221	7647540.23273	0.25
		Existing site roads	Various	Various	14.3
	Exploration activities	General drilling	Various	Various	4
		Campsite	448858	7644999	0.2
		Access tracks	Various	Various	0.6
ML90134 Greenmount	Open Pit	Open pit	451291.879617	7674824.61934	20
	Waste Rock Dump	Waste rock dump	450561.137391	7674611.50334	50
	Processing Area	Heap leach area	450654.617952	7672618.01584	56
		PLS pond	450939.632438	7672271.22987	0.6
		ILS pond	450939.632438	7672271.22987	0.6
		Raffinate pond	450939.632438	7672271.22987	0.7
		Stormwater pond	450989.72888	7672046.15222	4
		Process plant	451102.085331	7672272.02948	4
	Infrastructure	Workshop/admin office	451240.860611	7672036.26236	1
		Residential complex	451663.621059	7672826.95399	1
		Fuel & oil storage	451240.860611	7672036.26236	0.1
		Overland conveyor/haul road	Various	Various	3
		Additional haulage & access tracks (excludes gazetted unsealed roads)	Various	Various	2
		Existing site roads (excludes gazetted unsealed roads)	Various	Various	2
		Runoff diversions	Various	Various	0.5
		Sulphuric acid & reagents area	451240.860611	7672036.26236	0.1

Mining Lease	Mine Domain	Mine Feature Name	Location (Centre Point) ¹		Maximum Disturbance Area (hectares)
			Easting (GDA2020-MGA Zone 54)	Northing (GDA2020-MGA Zone 54)	
	Borrow Pits & Stockpiles	Borrow pits	Various	Various	2
	Exploration	General drilling	Various	Various	8.8
		Access tracks	Various	Various	1.17
ML90161 Phil's Find	Infrastructure	Workshop/admin office	451005.484409	7675921.52427	1
		Fuel & oil storage	451005.484409	7675921.52427	0.01
		Runoff diversions	Various	Various	0.5
		Laydown area	451005.484409	7675921.52427	1.2
		Access road	Various	Various	1
	Exploration activities	General drilling	Various	Various	0.2
		Access tracks	Various	Various	0.17

¹ The locations of the mining activities referenced in Schedule A – Table 1 – Authorised Mining Activities and Locations are described for interpretive purposes on Schedule I - Maps 1, 2, 3, 4 and 5.

Plant and equipment

- (A2-1) An appropriately qualified person must install, operate, calibrate, and maintain the plant and equipment required to carry out the activity (including monitoring devices) in a proper and effective manner.

Monitoring

- (A3-1) Record, compile and keep for a minimum of five years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
- (A3-2) Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.

Storage and handling of flammable, combustible and corrosive liquids

- (A4-1) Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the most recent edition of AS 1940 - Storage and Handling of Flammable and Combustible Liquids.
- (A4-2) The on-site storage of corrosive liquids must be in accordance with the most recent addition of AS 3780 - Storage and Handling of Corrosive Substances 1994.

Exploration

- (A5-1) All exploration activities carried out on the mining leases 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 - Version 2. To the extent that any Standard Environmental Condition is inconsistent with a provision of this authority, the provision of this authority will prevail.
- (A5-2) The environmental authority holder must ensure that no more than 20m³ of any substance is, or will be, extracted from each kilometre of a riverine area affected by the mining activity in a year.
- (A5-3) Notwithstanding standard condition A13 of the Eligibility criteria and standard conditions for exploration and mineral development projects - Version 2, the holder of the environmental authority is authorised to carry out activities up to 25 metres from, but not within the Category B environmentally sensitive area (ESA), identified as an endangered regional ecosystem on ML90081 Hampden/Kuridala, provided that no environmental harm occurs within the ESA.
- (A5-4) Vegetation must not be cleared within 50 metres of the Category B ESA identified in Condition A5-3.
- (A5-5) Notwithstanding standard condition A14 of the Eligibility criteria and standard conditions for exploration and mineral development projects - Version 2, the holder of the environmental authority is authorised to carry out exploration activities within 100 metres of a Historical, Archaeological or Ethnographic site established under the *Queensland Heritage Act 1992* on ML90081 Hampden/Kuridala provided that no environmental harm occurs to the Historical, Archaeological or Ethnographic site.
- (A5-6) Notwithstanding standard condition A14 of the Eligibility criteria and standard conditions for exploration and mineral development projects - Version 2, the holder of the environmental authority is authorised to carry out exploration activities within 100 metres of a Historical, Archaeological or Ethnographic site established under the *Aboriginal Cultural Heritage Act 2003* on ML90081 Hampden/Kuridala and Greenmount ML90134 provided that no environmental harm occurs to the Historical, Archaeological or Ethnographic site.

END CONDITIONS FOR SCHEDULE A

Schedule B - Air

Dust nuisance

- (B1-1) Subject to Conditions (B1-2) and (B1-3) the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
- (B1-2) When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- (B1-3) If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of (B1-1):
- a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991.
- (B1-4) If monitoring indicates exceedance of the relevant limits in Condition (B1-3), then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; or
 - b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.

Odour nuisance

- (B2-1) Subject to condition (B2-2), the release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
- (B2-2) When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- (B2-3) If monitoring indicates Condition (B2-1) is not being met then the environmental authority holder must:
- a) address the complaint including the use of appropriate dispute resolution if required; or
 - b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

END CONDITIONS FOR SCHEDULE B

Schedule C - Water

Release to waters

- (C1-1) Receiving waters affected by the release of process water or storm water contaminated by the mining activities or both must be monitored at the locations and frequencies defined in Schedule C - Table 1 and Schedule I - Maps 1, 2, 3, 4 and 5 and comply with the contaminant limits defined in Schedule C - Table 3.

Schedule C - Table 1 (Receiving water monitoring locations and frequency)

Monitoring point	Easting (GDA2020 MGA Zone 54) ⁶	Northing (GDA2020 MGA Zone 54) ⁶	Monitoring frequency
Upstream Greenmount - UG1 ¹	452223.87	7670210.74	Each Flow event
Downstream Greenmount - DG1	452567.89	7675273.73	Each Flow event
Downstream Greenmount - DG2	451159.90	7675707.73	Each Flow event
Downstream Greenmount - DG 3	452623.87	7670827.73	Each Flow event
Upstream Mt McCabe - UMM1 ²	446523.90	7670577.73	Each Flow event
Downstream Mt McCabe - DMM1	446823.90	7672077.72	Each Flow event
Downstream Mt McCabe - DMM2	446723.89	7669677.73	Each Flow event
Downstream Mt McCabe - DMM3	447723.89	7670177.73	Each Flow event
Upstream Vulcan - UV1 ³	452883.88	7672197.73	Each Flow event
Downstream Vulcan - DV1	453043.88	7672217.73	Each Flow event
Downstream Vulcan - DV 2	453023.88	7672287.73	Each Flow event
Downstream Vulcan - DV3	452853.88	7672407.73	Each Flow event
Upstream Hampden - UH1 ⁴	450033.82	7645677.80	Each Flow event
Downstream Hampden - DH1	447483.81	7644787.79	Each Flow event
Downstream Phil's Find – DPF1 ⁵	451385.90	7676112.73	Each Flow event
Downstream Phil's Find – DPF2	452455.90	7676127.73	Each Flow event
Upstream Phil's Find – UPF1	453029.89	7675342.73	Each Flow event
Upstream Phil's Find – UPF2	453030.89	7675032.73	Each Flow event
Upstream Phil's Find – UPF3	452500.89	7675164.73	Each Flow event
Upstream Phil's Find – UPF4	451210.90	7675658.73	Each Flow event

NOTE: This does not apply to dams containing hazardous waste

¹ Upstream reference Site for Greenmount ML90134

² Upstream reference Site for Mt McCabe ML90082

³ Upstream reference Site for Vulcan ML2519

⁴ Upstream reference Site for Hampden ML 90081

⁵ Reference Site for Phil's Find ML90161

⁶ The monitoring locations referenced in Schedule C - Table 1 (Receiving water monitoring locations and frequency) are described for interpretive purposes on Schedule I - Maps 1, 2, 3, 4 and 5.

- (C1-2) Subject to Condition (C1-1), if the receiving water contaminant trigger levels defined in Schedule C - Table 2 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within **3 months** of receiving the analysis results.

Schedule C - Table 2 (Receiving water contaminant trigger limits)

Parameter	Units	Trigger Level	Trigger Type
pH	pH	6-8	Range
TDS	mg/L	2000	Maximum
Boron	mg/L	2.5	Maximum
Sulphate	mg/L	500	Maximum
Aluminum	mg/L	2.5	Maximum
Arsenic	mg/L	0.25	Maximum
Cobalt	mg/L	0.5	Maximum
Copper	mg/L	0.5	Maximum
Lead	mg/L	0.05	Maximum
Manganese ¹	mg/L	1.9	Maximum
Nickel	mg/L	0.5	Maximum
Zinc	mg/L	10	Maximum
Cadmium	mg/L	0.005	Maximum

Contaminant trigger limits based on 50% of the contaminant limits defined in the ANZECC (2000) Livestock drinking water quality and are analysed as Total metals (unfiltered).

¹ Contaminant trigger limits based on 95 % of aquatic species protection defined in the ANZECC (2000) Aquatic Ecosystems.

Schedule C - Table 3 (Receiving water contaminant limits)

Parameter	Units	Limit	Trigger Type
pH	pH	6-9	Range
TDS	mg/L	4000	Maximum
Boron	mg/L	5	Maximum
Sulphate	mg/L	1000	Maximum
Aluminum	mg/L	5	Maximum
Arsenic	mg/L	0.5	Maximum
Cobalt	mg/L	1	Maximum
Copper	mg/L	1	Maximum
Lead	mg/L	0.1	Maximum
Manganese ¹	mg/L	3.6	Maximum
Nickel	mg/L	1	Maximum
Zinc	mg/L	20	Maximum
Cadmium	mg/L	0.01	Maximum

Contaminant limits based on ANZECC (2000) Livestock drinking water quality and analysed for total metals (unfiltered).

¹ Contaminant limits based on 80 % of aquatic species protection defined in the ANZECC (2000) Aquatic Ecosystems.

- (C1-3) Water storages containing process water and storm water contaminated by mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 4 and Schedule I - Map 1 and samples analysed for the parameters defined in Schedule C - Table 5.

Schedule C - Table 4 (Water Storage Monitoring Locations of Hazardous Dams)

Monitoring point	Easting (GDA2020 MGA Zone 54) ¹	Northing (GDA2020 MGA Zone 54) ¹	Monitoring frequency
PLS Pond	450953.88	7672327.72	Annually, March
ILS Pond	450953.88	7672397.72	Annually, March
Raffinate Pond	450953.88	7672147.73	Annually, March
Stormwater Pond	451193.88	7672167.73	Annually, March

¹ The monitoring locations referenced in Schedule C - Table 4 (Water Storage Monitoring Locations of Hazardous Dams) are described for interpretive purposes on Schedule I - Map 1.

- (C1-4) In the event that the water quality within any dam containing hazardous waste does not comply with the contaminant limits defined in Schedule C - Table 5, implement measures to prevent access by all livestock and minimise access by fauna to the dam.

Schedule C - Table 5 (Water Quality Limits for Dams Containing Hazardous Waste)

Parameter	Units	Contaminant Limit	Limit Type
pH	pH	4-9	Range
TDS	mg/L	5,000	Maximum
Boron	mg/L	5	Maximum
Sulphate	mg/L	1000	Maximum
Aluminum	mg/L	5	Maximum
Arsenic	mg/L	0.5	Maximum
Cobalt	mg/L	1	Maximum
Copper	mg/L	1	Maximum
Lead	mg/L	0.1	Maximum
Nickel	mg/L	1	Maximum
Zinc	mg/L	20	Maximum

Contaminant limits based on ANZECC (2000 Livestock drinking water quality and are analysed as total metals (unfiltered).)

- (C1-5) The design storage allowance on **1 November** of each year for any dam containing hazardous waste constructed or operated within the operational land must comply with Schedule C - Table 6.

Schedule C - Table 6 (Storage design for dams containing hazardous waste)

Storage Type	Design Storage Allowance ⁽¹⁾	Spillway Critical Design Storm ⁽²⁾	Mandatory Reporting Level ⁽³⁾
Combined Process Water Ponds (PLS pond, ILS pond, Raffinate and Storm Water Dams)	1: 10 Year ARI 2 month wet season plus process inputs for the 2 month wet season	1: 100 Year ARI	1: 100 year ARI

NOTE: ARI means average recurrence interval.

Note ⁽¹⁾: The design storage allowance on **1 November** of each year for any dam containing hazardous waste constructed within the operational land must be equivalent to the run-off from a 1 in 10 ARI 2 month wet season plus process inputs for the equivalent wet season. Process inputs refers to hazardous mineral process waste and water, which is being disposed of in the storage facility.

Note ⁽²⁾: The critical design storm has a duration that produces the peak discharge for the catchments.

Note ⁽³⁾: The mandatory reporting level refers to the volume below the spillway crest, either the 1:100 ARI 72 hour storm or the 1:100 ARI wave allowance, whichever is lower.

- (C1-6) The spillway for any dam containing hazardous waste, constructed or operated within the operational land must be designed and maintained to withstand the peak flow from the spillway critical design storm defined in Schedule C - Table 6.
- (C1-7) The holder of the environmental authority must mark the mandatory reporting level defined in Schedule C - Table 6 on the spillway of all dams containing hazardous waste within the operational land.
- (C1-8) The holder of the environmental authority must notify the administering authority when the pondage level of the dam containing hazardous waste, reaches the mandatory reporting level defined in Schedule C - Table 6.

Stream sediment contaminant levels

- (C2-1) All reasonable and practicable erosion protection measures and sediment control measures must be implemented and maintained to minimise erosion and the release of sediment.
- (C2-2) The bed of the receiving waters, affected by the release of process water and storm water contaminated by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 7 and Schedule I - Maps 1,2, 3, 4 and 5.

Schedule C - Table 7 (Receiving stream sediment monitoring locations and frequency)

Monitoring point	Easting (GDA2020 MGA Zone 54) ⁶	Northing (GDA2020 MGA Zone 54) ⁶	Monitoring frequency
Upstream Greenmount - UG1 ¹	452223.87	7670210.74	October and April each year
Downstream Greenmount - DG1	452567.89	7675273.73	October and April each year
Downstream Greenmount - DG2	451159.90	7675707.73	October and April each year
Downstream Greenmount - DG 3	452623.87	7670827.73	October and April each year
Upstream Mt McCabe - UMM1 ²	446523.90	7670577.73	October and April each year
Downstream Mt McCabe - DMM1	446823.90	7672077.72	October and April each year
Downstream Mt McCabe - DMM2	446723.89	7669677.73	October and April each year
Downstream Mt McCabe - DMM3	447723.89	7670177.73	October and April each year
Upstream Vulcan - UV1 ³	452883.88	7672197.73	October and April each year
Downstream Vulcan - DV1	453043.88	7672217.73	October and April each year
Downstream Vulcan - DV 2	453023.88	7672287.73	October and April each year
Downstream Vulcan - DV3	452853.88	7672407.73	October and April each year
Upstream Hampden - UH1 ⁴	450033.82	7645677.80	October and April each year
Downstream Hampden - DH1	447483.81	7644787.79	October and April each year
Downstream Phil's Find – DPF1 ⁵	451385.90	7676112.73	Each Flow Event
Downstream Phil's Find – DPF2	452455.90	7676127.73	Each Flow Event
Upstream Phil's Find – UPF1	453029.89	7675342.73	Each Flow Event
Upstream Phil's Find – UPF2	453030.89	7675032.73	Each Flow Event
Upstream Phil's Find – UPF3	452500.89	7675164.73	Each Flow Event
Upstream Phil's Find – UPF4	451210.90	7675658.73	Each Flow Event

¹ Reference Site for Greenmount ML90134

² Reference Site for Mt McCabe ML90082

³ Reference Site for Vulcan ML2519

⁴ Reference Site for Hampden ML 90081

⁵ Reference Site for Phil's Find ML90161

⁶ The monitoring locations referenced in Schedule C - Table 7 (Receiving stream sediment monitoring locations and frequency) are described for interpretive purposes on Schedule I - Maps 1,2, 3, 4 and 5.

(C2-3) Subject to Condition (C2-2), if the stream sediment contaminant trigger levels defined in Schedule C - Table 8 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within 3 months of receiving the analysis results.

Schedule C - Table 8 (Receiving stream sediment contaminant trigger levels)

Parameter	Units	Contaminant trigger levels	Limit Type
Arsenic	mg/kg dry wt	20 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Cadmium	mg/kg dry wt	1.5 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Chromium	mg/kg dry wt	80 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Copper	mg/kg dry wt	65 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Nickel	mg/kg dry wt	21 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Lead	mg/kg dry wt	50 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Mercury	mg/kg dry wt	0.15 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum
Zinc	mg/kg dry wt	200 ¹ or 2 x reference site ² x 80% ³ whichever is higher	Maximum

¹ ANZECC (2000): ISQG Low trigger values, Sediment Quality Guidelines, Aquatic Ecosystems, Table 3.5.1.

² Reference sites locations (as defined in Schedule C - Table 7 Receiving Stream Sediment Monitoring Locations and Frequency).

³ Reference Site Trigger based on the 2 x background x 80% from 10 samples from each reference site are derived using ANZECC (2000) methodology and are based on the reference sites defined in Schedule C - Table 7.

(C2-4) Subject to Condition (C2-2), stream sediment contaminant limits must not exceed the contaminant limits defined in Schedule C - Table 9.

Schedule C - Table 9 (Receiving stream sediment contaminant limits)

Parameter	Units	Contaminant limits	Limit Type
Arsenic	mg/kg dry wt	70 ¹ or 2 x reference site ² whichever is higher	Maximum
Cadmium	mg/kg dry wt	10 ¹ or 2 x reference site ² whichever is higher	Maximum
Chromium	mg/kg dry wt	370 ¹ or 2 x reference site ² whichever is higher	Maximum
Copper	mg/kg dry wt	270 ¹ or 2 x reference site ² whichever is higher	Maximum
Nickel	mg/kg dry wt	52 ¹ or 2 x reference site ² whichever is higher	Maximum
Lead	mg/kg dry wt	220 ¹ or 2 x reference site ² whichever is higher	Maximum

Parameter	Units	Contaminant limits	Limit Type
Mercury	mg/kg dry wt	1 ¹ or 2 x reference site ² whichever is higher	Maximum
Zinc	mg/kg dry wt	410 ¹ or 2 x reference site ² whichever is higher	Maximum

¹ ANZECC (2000): ISQG High trigger values, *Sediment Quality Guidelines, Aquatic Ecosystems*, Table 3.5.1.

² Reference Sites locations are determined from reference site locations (as defined in Schedule C - Table 7 Receiving Stream Sediment Monitoring Locations and Frequency). Reference Site Trigger is based on the 2 x background from 10 samples from each reference site are derived using ANZECC (2000) methodology and are based on the reference sites defined in Schedule C - Table 7.

(C2-5) All stream sediment sampling must be undertaken in accordance with AS 5667.12 Guidance on Sampling of Bottom Sediments of 1998.

Sewage effluent

(C3-1) All effluent released from the treatment plant must be monitored at the frequency and for the parameters specified in Schedule C - Table 10.

Schedule C - Table 10 (Sewage effluent quality targets for dust suppression and irrigation)

Quality characteristics	Release limit	Units	Limit type	Monitoring frequency
pH	6.5-8	pH	range	Quarterly
Faecal Coliforms, based on the average of a minimum of five samples collected	1000	Colonies per 100 millilitres	max	Quarterly

(C3-2) Sewage effluent used for dust suppression or irrigation must not exceed sewage effluent release limits defined in Schedule C - Table 10.

(C3-3) Sewage effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place, and must not be applied at a rate that causes pooling, ponding and/or runoff of any effluent irrigated.

(C3-4) Sewage effluent from sewage treatment facilities must be reused or evaporated and must not be directly released from the sewage treatment plant to any water way or drainage line.

Groundwater

(C4-1) Groundwater affected by the mining activities must be monitored at the locations and frequencies defined in Schedule C - Table 11 and Schedule I – Map 1.

Schedule C - Table 11 (Groundwater monitoring locations and frequency)

Monitoring point	Easting (GDA2020 MGA Zone 54) ¹	Northing (GDA2020 MGA Zone 54) ¹	Monitoring frequency
MB1*	450130.81	7672770.50	3 months
MB2	450664.81	7672095.50	3 months
MB3	451034.81	7671687.50	3 months
MB4	451193.81	7671856.50	3 months
MB5*	451884.81	7673806.50	3 months

Monitoring point	Easting (GDA2020 MGA Zone 54) ¹	Northing (GDA2020 MGA Zone 54) ¹	Monitoring frequency
MB6	450924.81	7674867.50	3 months
MB7	451404.81	7675029.50	3 months
MB8	450740.81	7675085.50	3 months
MB9	451064.81	7675461.50	3 months

*Reference Sites for Greenmount ML 90134

¹ The monitoring locations referenced in Schedule C - Table 11 (Groundwater monitoring locations and frequency) are described for interpretive purposes on Schedule I – Map 1.

Note: The reference bores must establish the quality of groundwater that has not been affected by any seepage of contaminants to groundwater from the licensed place.

(C4-2) Subject to Condition (C4-1), if the groundwater contaminant trigger levels defined in Schedule C - Table 12 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within 3 months of receiving the analysis results.

Schedule C - Table 12 (Groundwater contaminant trigger levels)

Parameter	Units	Contaminant trigger levels		Trigger Type
		Minimum	Maximum	
pH	pH	20 th Percentile ¹ of reference sites ² or 6 ³ , whichever is lower	8	Range
Sulphate	mg/l	80 th percentile ¹ of reference sites ²		Maximum
Manganese	mg/L	80 th percentile ¹ of reference sites ² or 1900 ³ whichever is higher		Maximum
Chromium	µg/L	80 th percentile ¹ of reference sites ² or (CrVI) 1.0 ³ , whichever is higher		Maximum
Molybdenum	µg/L	80 th percentile ¹ of reference sites ²		Maximum
Selenium	µg/L	80 th percentile ¹ of reference sites ² or 5 ⁶ , whichever is higher		Maximum
Aluminum	µg/L	80 th percentile ¹ of reference sites ² or 55 ³ , whichever is higher		Maximum
Lead	µg/L	80 th percentile ¹ of reference sites ² or 3.4 ³ , whichever is higher		Maximum
Arsenic	µg/L	80 th percentile ¹ of reference sites ²		Maximum
Cadmium	µg/L	80 th percentile ¹ of reference sites ² or 0.2 ³ , whichever is higher		Maximum
Cobalt	µg/L	80 th percentile ¹ of reference sites ²		Maximum
Copper	µg/L	80 th percentile ¹ of reference sites ² or 1.4 ³ , whichever is higher		Maximum
Zinc	µg/L	80 th percentile ¹ of reference sites ² or 8.0 ³ , whichever is higher		Maximum
Boron	µg/L	80 th percentile ¹ of reference sites ² or 370 ³ , whichever is higher		Maximum
Nickel	µg/L	80 th percentile ¹ of reference sites ² or 11 ³ , whichever is higher		Maximum

¹Reference Site Triggers based on the 80th or 20th percentile are derived using ANZECC (2000) methodology and are based on the reference site defined in Schedule C - Table 11. At least 10 samples from each reference site are required to define the 80th and 20th

percentile.

² Reference Sites locations as defined in Schedule C - Table 11.

³ ANZECC (2000) trigger levels for aquatic ecosystems of slightly - moderately disturbed systems - table 3.4.1 level of protection 95% / Table 3.3.4 / 3.3.5 - tropical Australian upland rivers.

Note: For each bore the median value from all sampling events during the year may be used as the value to compare against the trigger limit in Schedule C - Table 12.

(C4-3) Subject to Condition (C4-1), groundwater contaminant limits must not exceed the contaminant limits defined in Schedule C - Table 13.

Schedule C - Table 13 (Groundwater contaminant limits)

Parameter	Units	Minimum	Maximum
pH	pH	6-9	Range
TDS	mg/L	4000	Maximum
Sulphate	mg/L	1000	Maximum
Chromium	mg/L	1	Maximum
Molybdenum	mg/L	0.15	Maximum
Selenium	mg/L	0.02	Maximum
Aluminum	mg/L	5	Maximum
Lead	mg/L	0.1	Maximum
Arsenic	mg/L	0.5	Maximum
Cadmium	mg/L	0.01	Maximum
Cobalt	mg/L	1	Maximum
Copper	mg/L	1	Maximum
Zinc	mg/L	20	Maximum
Boron	mg/L	5	Maximum
Nickel	mg/L	1	Maximum
Manganese ¹	mg/L	3.6	Maximum

Contaminant limits based on ANZECC (2000) Livestock drinking water quality and are analysed as Total metals (unfiltered)

¹ Contaminant limits based on 80 % of aquatic species protection defined in the ANZECC (2000) Aquatic Ecosystems.

(C4-4) The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the Administering Authority's Water Quality Sampling Manual.

Voids

(C5-1) Water quality in mining voids and final voids must be monitored at the locations and frequencies defined in Schedule C - Table 14 and for the parameters detailed in Schedule C - Table 15.

(C5-2) In the event that water quality within the mining voids or final voids does not comply with the contaminant limits defined in Schedule C - Table 15, implement measures to prevent access by all livestock and minimise access by fauna to the void.

Schedule C - Table 14 (Voids Monitoring Locations and Frequency)

Monitoring point	Monitoring frequency
Greenmount Pit	Annually
Mt McCabe Pit	Annually
Vulcan pit	Annually
Hampden Pit	Annually

Schedule C - Table 15 (Void Water Quality Limits)

Parameter	Units	Limit	Limit Type
pH	pH	6-9	Range
TDS	mg/L	4000	Maximum
Boron	mg/L	5	Maximum
Sulphate	mg/L	1000	Maximum
Aluminum	mg/L	5	Maximum
Arsenic	mg/L	0.5	Maximum
Cobalt	mg/L	1	Maximum
Copper	mg/L	1	Maximum
Lead	mg/L	0.1	Maximum
Manganese ¹	mg/L	3.6	Maximum
Nickel	mg/L	1	Maximum
Zinc	mg/L	20	Maximum

Contaminant limits based on ANZECC (2000) Livestock drinking water quality and are analysed as Total metals (unfiltered) and ANZECC (2000) for Aquatic Ecosystems)

¹ Contaminant limits based on 95 % of aquatic species protection defined in the ANZECC (2000) Aquatic Ecosystems.

Acid Rock Drainage and Leachate Management

- (C6-1) Contaminants must not be released directly or indirectly to any waters other than in accordance with the contaminant release requirements, conditions and limits stated in this environmental authority.

END CONDITIONS FOR SCHEDULE C

Schedule D - Noise and vibration

Noise nuisance

- (D1-1) Subject to Conditions (D1-2) and (D1-3) noise from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
- (D1-2) When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.
- (D1-3) The method of measurement and reporting of noise levels must comply with the latest edition of the Administering Authority's Noise Measurement Manual.

Vibration nuisance

- (D2-1) Subject to Conditions (D2-2) and vibration from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
- (D2-2) When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within 14 days to the administering authority following completion of monitoring.

END CONDITIONS FOR SCHEDULE D

Schedule E - Waste

Storage of tyres

- (E1-1) Tyres stored awaiting disposal or transport for take-back, recycling, or waste-to-energy options should be stockpiled in volumes less than 3m in height and 200m² in area and at least 10m from any other tyre storage area.
- (E1-2) All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10m radius of the scrap tyre storage area.

Disposal of tyres

- (E2-1) 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.
- (E2-2) Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

Waste Management

- (E3-1) A Waste Management Plan, in accordance with the *Environmental Protection (Waste Management) Policy 2000*, must be included in the Plan of Operations. The Waste Management Plan must include re-using and recycling where possible, and a program for safe recycling or disposal of all wastes, and a disposal procedure for hazardous wastes.
- (E3-2) Waste must not be burnt or allowed to be burnt on the licensed site unless permitted by an environmental authority.

Regulated Waste

- (E4-1) All regulated waste received and removed from the site that is over 250kg in weight, must be transported by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994*.
- (E4-2) Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the *Environmental Protection Act 1994*.

END CONDITIONS FOR SCHEDULE E

Schedule F – Land

General

- (F1-1) Unless authorised by this environmental authority, contaminants that will or may cause environmental harm must not directly or indirectly be released to land except as permitted under this environmental authority.
- (F1-2) Subject to condition (F1 -1), any spillage of wastes, contaminants or other materials must be cleaned up as soon as practicable. Such spillages must be cleaned up using dry methods that minimise the release of wastes, contaminants or materials to any stormwater drainage system, roadside gutter or receiving waters.

Rehabilitation landform criteria

- (F2-1) The holder of this environmental authority is to provide information on the Reference site identification for each land disturbances in Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule) to the administering authority by **30 June 2004**. All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with Schedule F - Table 1 and 2.
- (F2-2) Progressive rehabilitation must commence when areas become available within the operational land.

Schedule F - Table 1 (Final Land Use and Rehabilitation Approval Schedule)

Disturbance Type	Maximum Surface Area (ha)	Pre-mine land use or Description	Post-mine land description	Post mine land classification	Reference site identification (optional)	
					3 transects. Coordinates interconnects with each transect	
					Easting (GDA2020 MGA Zone 54)	Northing (GDA2020 MGA Zone 54)
ML90082 Mt McCabe						
Open Cut Pit	10	LIG	Residual Void – Water Storage	Water Storage	N/A	
Waste Rock Dump	20	LIG	LIG	VIII	447365.89	7671012.72
ROM Pad	0.2	LIG	LIG	VIII	447365.89	7671012.72
Mt McCabe and Vulcan Existing Site Roads	3	LIG	LIG	VIII	447365.89	7671012.72
Fuel & oil Storage Areas	0.01	LIG	LIG	VIII	447365.89	7671012.72
Workshop/Admin	0.25	LIG	LIG	VIII	447365.89	7671012.72
ML2519 Vulcan						
Open Cut Pit	1	LIG	LIG	VIII	N/A	
Waste Rock Dump	2	LIG	LIG	VIII	452677.88	7672322.73
ML90081 Hampden/ Kuridala						
Open Cut Pit	6.5	LIG	Residual Void – Water Storage	Water Storage	N/A	
Waste Rock Dump	4.8	LIG	LIG	VIII	449437.82	7647741.79
ROM Pad	0.25	LIG	LIG	VIII	449437.82	7647741.79
Existing Site Roads	14.3	LIG	LIG	VIII	N/A	
ML 90134 Greenmount						
Workshop/Admin	1.0	LIG	LIG	VIII	450064.90	7676074.72
Residential complex	1.0	LIG	LIG	VIII	450064.90	7676074.72
Open Cut Pit	20	LIG	LIG	VIII	N/A	
Waste Rock Dump	50	LIG	LIG	VIII	450064.90	7676074.72
Process Plant	4	LIG	LIG	VIII	450064.90	7676074.72
Heap Leach Area	56	LIG	LIG	VIII	450064.90	7676074.72
PLS Pond	0.6	LIG	LIG	VIII*	450064.90	7676074.72
ILS Pond	0.6	LIG	LIG	VIII*	450064.90	7676074.72
Raffinate Pond	0.7	LIG	LIG	VIII*	450064.90	7676074.72
Stormwater Pond	4.0	LIG	LIG	VIII*	450064.90	7676074.72
Fuel and Oil Storage	0.1	LIG	LIG	VIII	450064.90	7676074.72

Disturbance Type	Maximum Surface Area (ha)	Pre-mine land use or Description	Post-mine land description	Post mine land classification	Reference site identification (optional)	
Overland conveyor/Haul road	3.0	LIG	LIG	VIII	450064.90	7676074.72
Additional Haulage and Access Tracks**	2.0	LIG	LIG	VIII*	450064.90	7676074.72
Existing Site Roads**	2.0	LIG	LIG	VIII*	450064.90	7676074.72
Runoff Diversions	0.5	LIG	Retained as permanent diversions	Diversions	N/A	N/A
Sulphuric Acid and Reagents Area	0.1	LIG	LIG	VIII	450064.90	7676074.72
Borrow Pits	2.0	LIG	LIG	VIII	450064.90	7676074.72
ML90161 Phil's Find						
Workshop/Admin	1.0	LIG	LIG	VII	447365.89	7671012.72
Fuel and Oil Storage	0.01	LIG	LIG	VIII	447365.89	7671012.72
Runoff Diversions	0.5	LIG	Retained as permanent diversion	VIII	N/A	N/A
Laydown Area	1.2	LIG	LIG	VII	447365.89	7671012.72
Access Road	1.0	LIG	Road	Retained as road	N/A	N/A
TOTAL	213.62 ha					

- ^x LIG - Low Intensity Grazing
^{**} - Excludes gazetted unsealed roads
^{*} - Unless landholder requests their retention
⁺ - Permanent diversions for final voids

- (F2-3) Complete an investigation into the rehabilitation of disturbed areas and submit a report to the administering authority proposing acceptance criteria to meet the outcomes in Schedule F - Table 1 and landform design criteria in Schedule F - Table 2 by **30 June 2005**.

Schedule F - Table 2 (Landform Design)

Disturbance type	Slope range (%)	Maximum surface area (ha)
Waste Rock Dumps	33%-76%	76.8
Heap Leach Pads	33%	56
ROM Areas	33%-76%	0.45

Residual void outcome

- (F3-1) Residual voids must comply with the following outcome:
a) residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority.

Dams containing hazardous waste

(F4-1) The construction or operation of any dam containing hazardous waste within the operational land must comply with Schedule F - Table 3.

Schedule F - Table 3 (Size and purpose of dams containing hazardous waste)

Name of dam containing hazardous waste ⁽¹⁾	Maximum surface area of dam (ha)	Maximum volume of dam (m ³)	Maximum depth of dam (m) ⁽²⁾	Purpose of dam ⁽³⁾
PLS Pond	0.6	18,000	6	Storage of Pregnant Leach Solution
ILS Pond	0.6	18,000	6	Storage of Intermediate Leach Solution
Raffinate Pond	0.6	18,000	6	Storage of Raffinate Solution
Storm water Dam	4	160,000	6	Storage of storm water runoff from processing area

Note ⁽¹⁾: The name of the dam containing hazardous waste should refer to the name of the dam e.g. process residue facility and decant dam.

Note ⁽²⁾: For dams, which do not require a dam wall, input the maximum void depth e.g. where dams are formed by excavating below the land surface or backfilling a residual void.

Note ⁽³⁾: Purpose of the dam should outline the designed function, e.g. "the permanent containment of tailings resulting from the extraction of nickel, cobalt and other metals at the XYZ Refinery".

Location of Dams

(F5-1) Any dam containing hazardous waste constructed or operated within the operational land must be located within the control points defined in Schedule F - Table 4, Schedule I - Map 1.

Schedule F - Table 4 (Location of dams containing hazardous waste)

Name of dam containing hazardous waste ⁽¹⁾	Easting (GDA2020 MGA Zone 54) ⁽²⁾	Northing (GDA2020 MGA Zone 54) ⁽²⁾
PLS Pond	450892.88	7672387.72
	450983.88	7672378.72
	450983.88	7672301.72
ILS Pond	450892.88	7672296.72
	450983.88	7672296.72
	450983.88	7672213.73
Raffinate Pond and Raffinate Pre-setting	450892.88	7672215.72
	450983.88	7672215.73
	450983.88	7673110.72
Stormwater Dam	450892.88	7672155.73
	450983.88	7672155.73
	450983.88	7671941.73

Note ⁽¹⁾: A minimum of 3 control points is required to constrain the location of all activities associated with the dam containing hazardous waste. Additional infrastructure which forms part of any dam containing hazardous waste may include appurtenant works consisting of tailings discharge pipelines, seepage collection systems, runoff diversion bunds, containment systems, pressure relief wells, decant and recycle water systems.

⁽²⁾ The locations referenced in Schedule F - Table 4 (Location of dams containing hazardous waste) are described for interpretive purposes on Schedule I - Map 1.

Standard and Criteria

- (F6-1) The holder of the environmental authority must design, construct and operate all high-hazard dams containing hazardous wastes in accordance with the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste.
- (F6-2) The holder of the environmental authority must design, construct and operate all low-hazard dams containing hazardous waste and non-hazardous dams in accordance with the criteria outlined in Appendix B of the Code of Environmental for Mining Activities

Infrastructure

- (F7-1) All infrastructure, constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining landowner / holder.

NOTE: This is not applicable where the landowner / holder is also the environmental authority holder.

Inspection of Dams

- (F8-1) High hazard dams containing hazardous waste shall be inspected by a Registered Professional Engineer Queensland (RPEQ) prior to **1 November** each year or at any time if alarming, unusual or otherwise unsatisfactory conditions are observed.
- (F8-2) For each inspection, the engineer shall assess the condition of the dam and its foundations determine the hydraulic adequacy of the dam and assess the adequacy of the works with respect to dam safety.
- (F8-3) For each inspection, two copies of the engineer's report and any recommendations as to measures to be taken to ensure the integrity of the dam shall be furnished to the administering authority within 28 days of the inspection.

Decommissioning of Dam – Objective

- (F9-1) Dams containing hazardous waste must not be abandoned and must be decommissioned to a situation where water can no longer be stored in the dams. The dams and their contained waste(s) must be stable, where after the dams are no longer dams and they become landforms on the operational land and must comply with the rehabilitation requirements of this environmental authority.

Decommissioning of Dam - Documentation and Compliance

- (F10-1) Decommissioning activities for dams must be documented in detail in the plan of operations under which the activities are to occur. Where the detailed documentation is not already contained in the Design Plan for the dam, the detailed documentation is considered to be an amendment to the design plan and must be submitted as an amendment to the design plan required by the "Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste".

Contaminated lands

- (F11-1) A register and map of all potentially contaminated sites and any remediation details, must be kept on site, updated regularly, and included in each Plan of Operations.
- (F11-2) A Spillage Management Plan and an Emergency Plan for all hazardous materials stored on-site, together with a description of suitable equipment and training must be updated and included with each Plan of Operations.

(F11-3) Materials Safety Data Sheets must be maintained for all chemicals on the site.

Waste Rock Characterisation

(F12 -1) All areas to be mined must undergo a waste rock characterisation survey (where waste rock is to be disposed of on the surface) and a report submitted to the administering authority prior to mining where this survey has not previously been carried out.

Heap Leach Pads

(F13 -1) The environmental authority holder must install and maintain a leak detection system for all heap leach pads.

(F13 -2) Contaminants must not be released outside or under the lined area of the heap leach pads.

Heap Leach Operational Plan

(F14 -1) The environmental authority holder must develop and implement a Heap Leach Operational Plan.

Impacts to Prescribed Environmental Matters

(F15 -1) Significant residual impacts to prescribed environmental matters, are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.

(F15 -2) Records demonstrating that each impact to a prescribed environmental matter did not, is not likely to, result in a significant residual impact to that matter must be:
a) completed by an appropriately qualified person; and
b) kept for the life of the environmental authority.

END CONDITIONS FOR SCHEDULE F

Schedule G - Community**Complaint response**

- (G1-1) All complaints received must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed and actions taken. This information must be made available for inspection by the administering authority on request.

END CONDITIONS FOR SCHEDULE G

Schedule H – Definitions

Words and phrases used throughout this environmental authority are defined in Schedule H - Definitions. Where a definition for a term used in this environmental authority is sought and the term is not defined within this environmental authority, the definitions in the *Environmental Protection Act 1994*, its Regulations and Environmental Protection Policies must be used.

“acceptance criteria” means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have been significantly been disturbed by the mining activities. Acceptance criteria may include information regarding:

- vegetation establishment, survival and succession;
- vegetation productivity, sustained growth and structure development;
- fauna colonisation and habitat development;
- ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes;
- microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- resilience of vegetation to disease, insect attack, drought and fire;
- vegetation water use and effects on ground water levels and catchment yields.

“ambient (or total) noise” at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

‘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.

“ARD” means acid rock drainage and refers to the low pH, high heavy metal pollutant typical of sulphidic mine wastes, and most commonly associated with the production of ferrous iron and sulphuric acid through the oxidation of sulphide minerals.

“authority” means environmental authority (mining activities) under the *Environmental Protection Act 1994*.

“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.
- (c)

“commercial place” means a work place used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

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

“dam” means a containment or proposed containment whether permanent or temporary, which is designed to contain, divert or control flowable substances. However this does not include a fabricated or manufactured tank or container designed to a recognised standard.

“design plan” in the context of a dam design is the documentation required under the Code of Environmental Compliance for High Hazard Dams Containing Hazardous Waste to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, the procedures and criteria to be used for operating the dam and the decommissioning and rehabilitation objectives in terms procedures, works and outcomes at the end of dam life. The documents can include design and investigation reports, drawings, specifications and certifications.

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

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

“flowable substance” means matter or mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

“hazardous waste” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

“infrastructure” means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining activities but does not include facilities required for the long term management of mining impacts or the protection of potential resources. Such facilities include dams containing hazardous waste, waste rock dumps, voids, or ore stockpiles and buildings or other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background land owner.
“land” in the “land schedule” of this document means land excluding waters and the atmosphere.

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

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

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

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

“mandatory reporting level” means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the annual exceedance probability).

“mineral” means a substance which normally occurs naturally as part of the earth’s crust or is dissolved or suspended in water within or upon the earth’s crust and includes a substance which may be extracted from such a substance, and includes—

- (a) clay if mined for use for its ceramic properties, kaolin and bentonite;
 - (b) foundry sand;
 - (c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil therefrom;
 - (d) limestone if mined for use for its chemical properties;
 - (e) marble;
 - (f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
 - (g) peat;
 - (h) salt including brine;
 - (i) shale from which mineral oil may be extracted or produced;
 - (j) silica, including silica sand, if mined for use for its chemical properties;
 - (k) rock mined in block or slab form for building or monumental purposes;
- but does not include—
- (l) living matter;
 - (m) petroleum within the meaning of the *Petroleum Act 1923*;
 - (n) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
 - (o) water.

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

“non-standard” means a mining operation that if in the opinion of the administering authority does not have a low risk of serious environmental harm and the activities can not comply with the criteria for standard mining activities prescribed in schedule 1A of the *Environmental Protection Regulation 1998*. The standard mining activity trigger criteria are as follows;

- the mining activities do not or will not cause more than 10 ha of land to be significantly disturbed at any one time;
- the mining activities do not or will not cause more than 5 ha of land to be significantly disturbed at any one time;
 - (a) in a riverine area;
 - (b) because of mine workings;
- the mining activities are not or will not be carried out in, or within 2 km of a category A Environmentally Sensitive Area;
- the mining activities are not or will not be carried out in, or within 1 km of a category B environmentally sensitive area;
- the mining activities do not include a level 1 environmentally relevant activity
- no more than 20 persons are carrying out or will, at any one time, carry out the mining activities;

“offensive” means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

“peak particle velocity (ppv)” means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms⁻¹).

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

“protected area” means - a protected area under the *Nature Conservation Act 1992*; or

- a marine park under the *Marine Parks Act 1992*; or
- a World Heritage Area.

“progressive rehabilitation” means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

“reference site” (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

“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.

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

“residual void” means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

“self sustaining” means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

“sensitive place” means;

- a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or

- a motel, hotel or hostel; or
- an educational institution; or
- a medical center or hospital; or
- a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- a public park or gardens.

“significant disturbance” - includes land

- (a) if it is contaminated land; or
- (b) it has been disturbed and human intervention is needed to rehabilitate it.
 - i. to a state required under the relevant environmental authority; or
 - ii. if the environmental authority does not require the land to be rehabilitated to a particular state - to its state immediately before the disturbance.

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;
- by agreement with the EPA, areas previously significantly disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be left by agreement with the landowner. The agreement to leave permanent infrastructure must be recorded in the Landowner Agreement and lodged with the EPA;
- disturbances that pre-existed the grant of the tenure unless those areas are disturbed during the term of the tenure.
-

‘significant residual impact’ has the meaning in section 8 *Environmental Offsets Act 2014*.

“spillway” means passage or outlet from the dam through which surplus water flows.

“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.

“suitably qualified and experienced person” means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 1988* or a Corporate Member of the Institution of Engineers Australia or holds equivalent professional qualifications and has the following:

- (a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- (b) at least a total of five years of suitable experience and demonstrated expertise in at least four of the following areas:
 - investigation, design or construction of dams;

- operation and maintenance of dams;
- geomechanics with particular emphasis stability, geology and geochemistry;
- hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
- hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
- hydrogeology with particular reference to seepage, groundwater,
- solute transport processes and monitoring thereof; or
- dam safety.

“tolerable limits” means that a range of values could be accepted to achieve an overall environmental management objective (e.g. a range of settlement of a tailing capping could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation).

“watercourse” - Means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

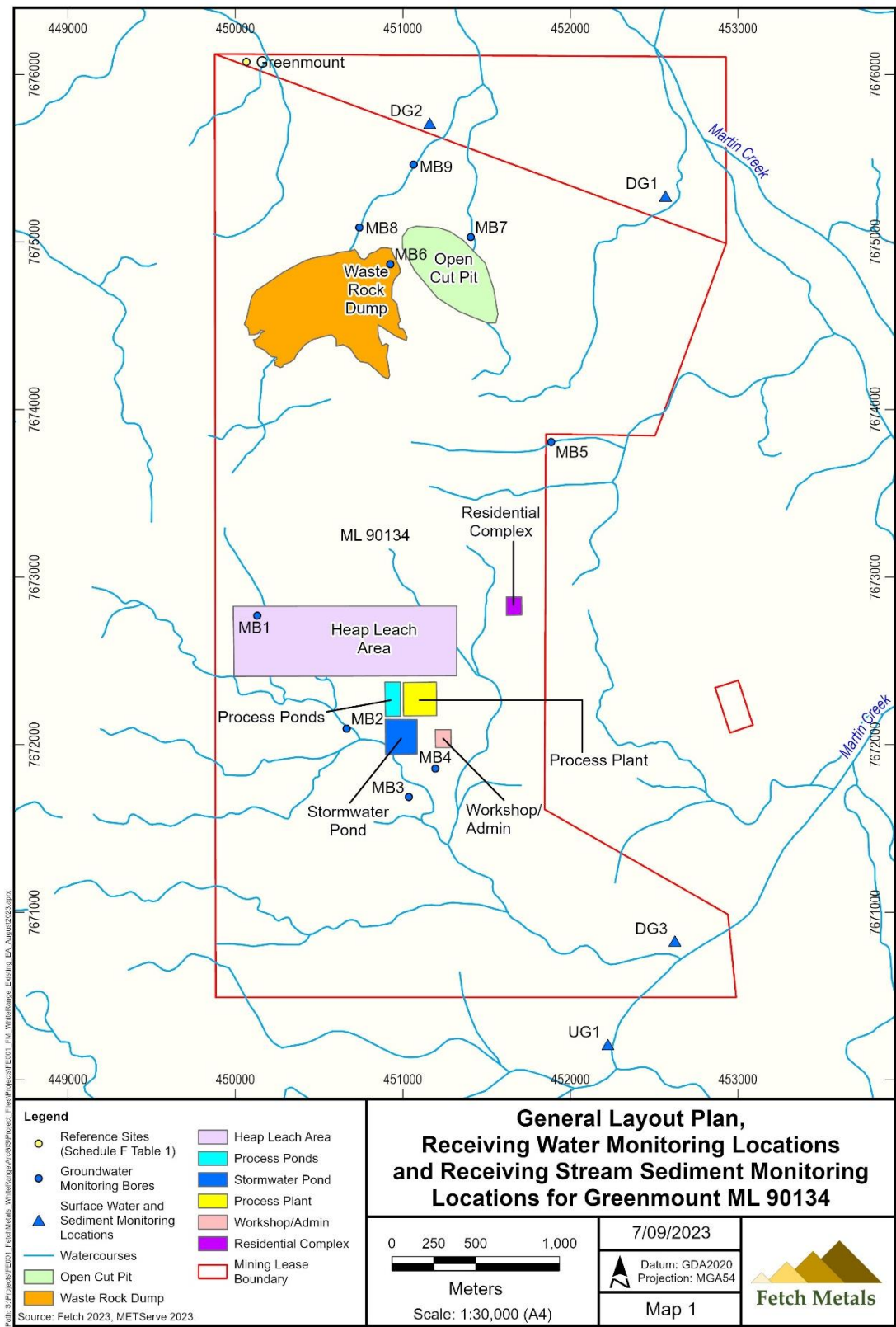
- (a) continuous bed and banks;
- (b) an extended period of flow for some months after rain ceases, and
- (c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

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

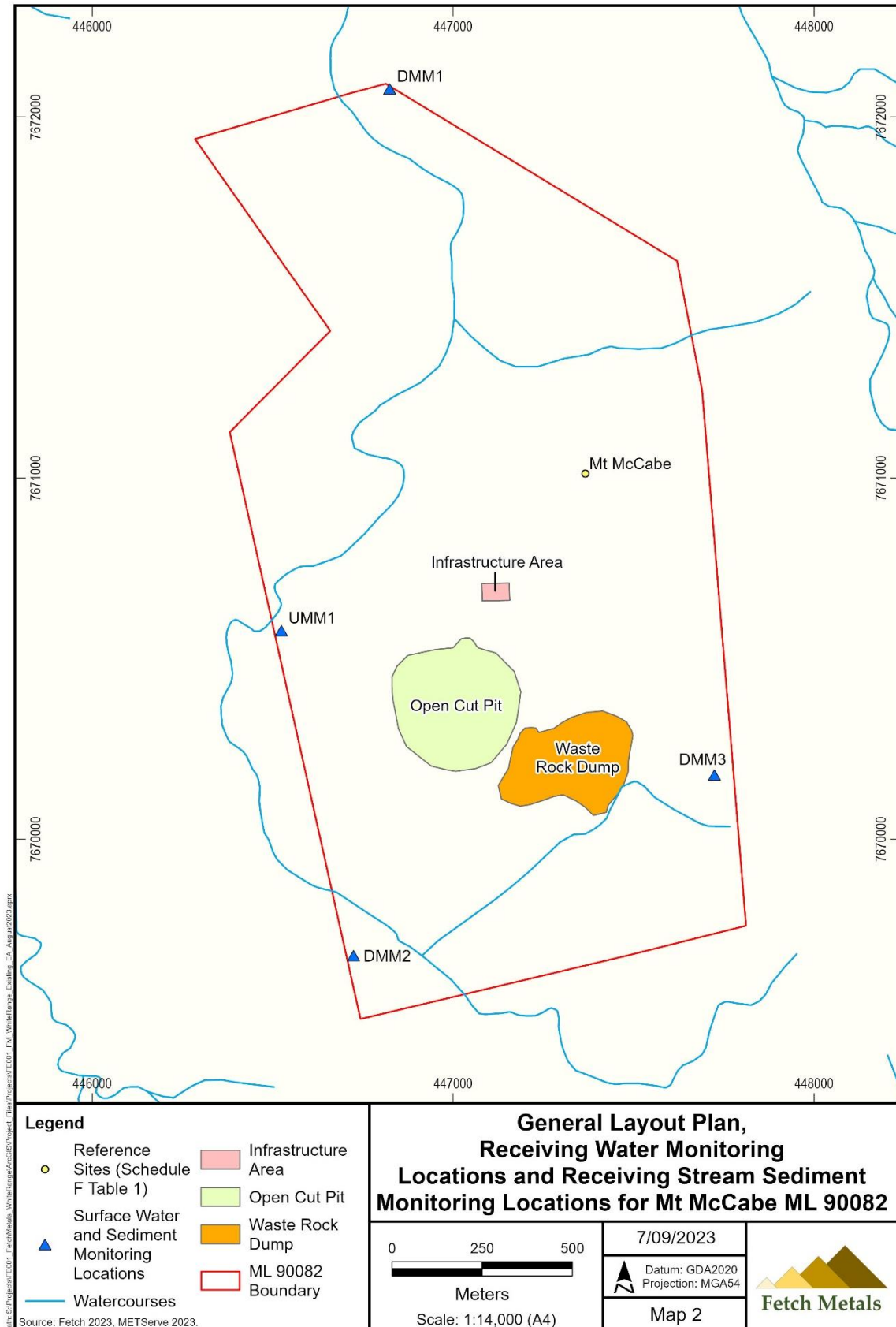
END CONDITIONS FOR SCHEDULE H

Schedule I - Maps / Plans

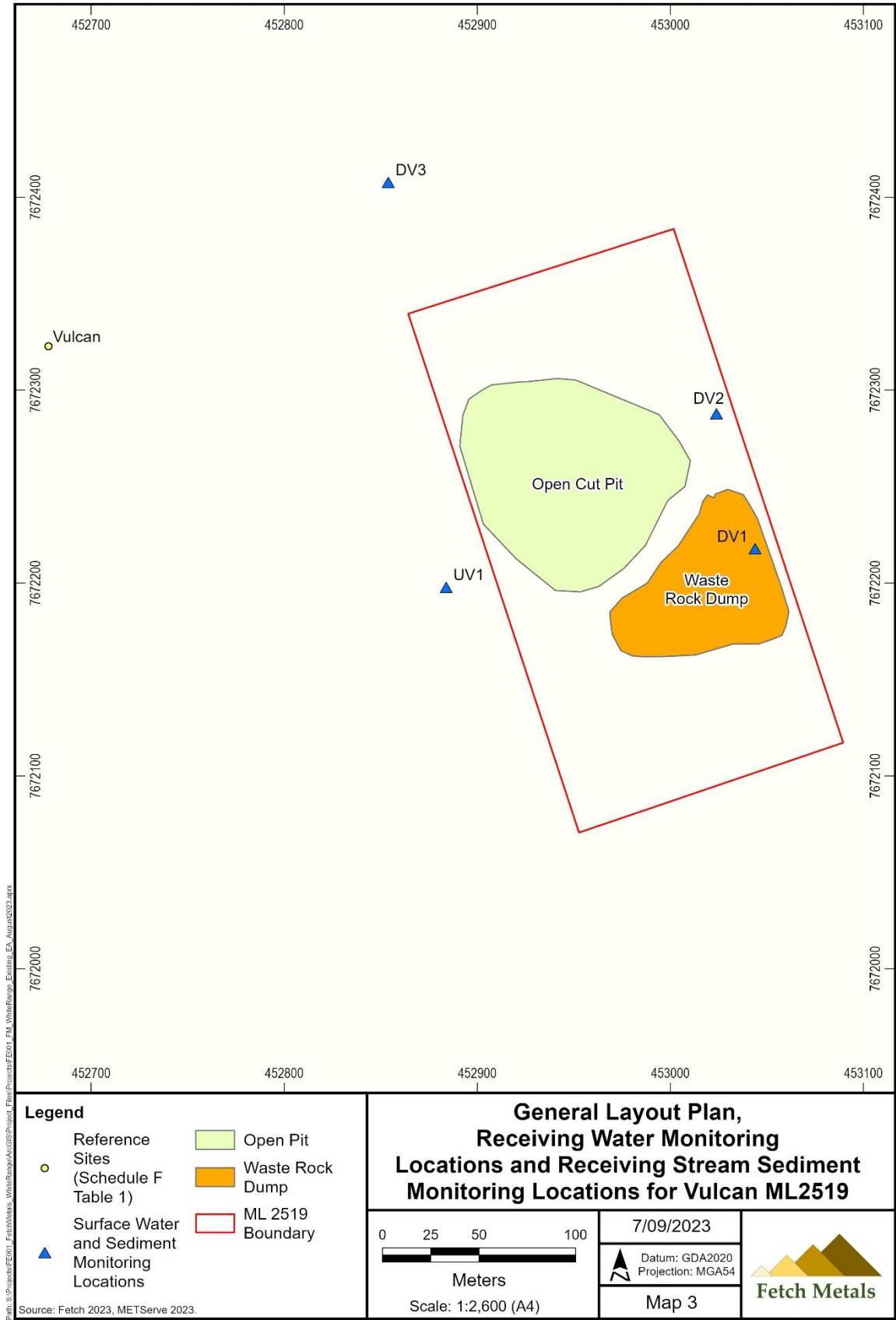
Schedule I - Map 1 Authorised Mining Activities and Locations, Receiving water monitoring locations & Receiving Stream Sediment monitoring locations, Water Storage Monitoring Locations of Hazardous Dams, Groundwater monitoring locations for Greenmount ML 90134



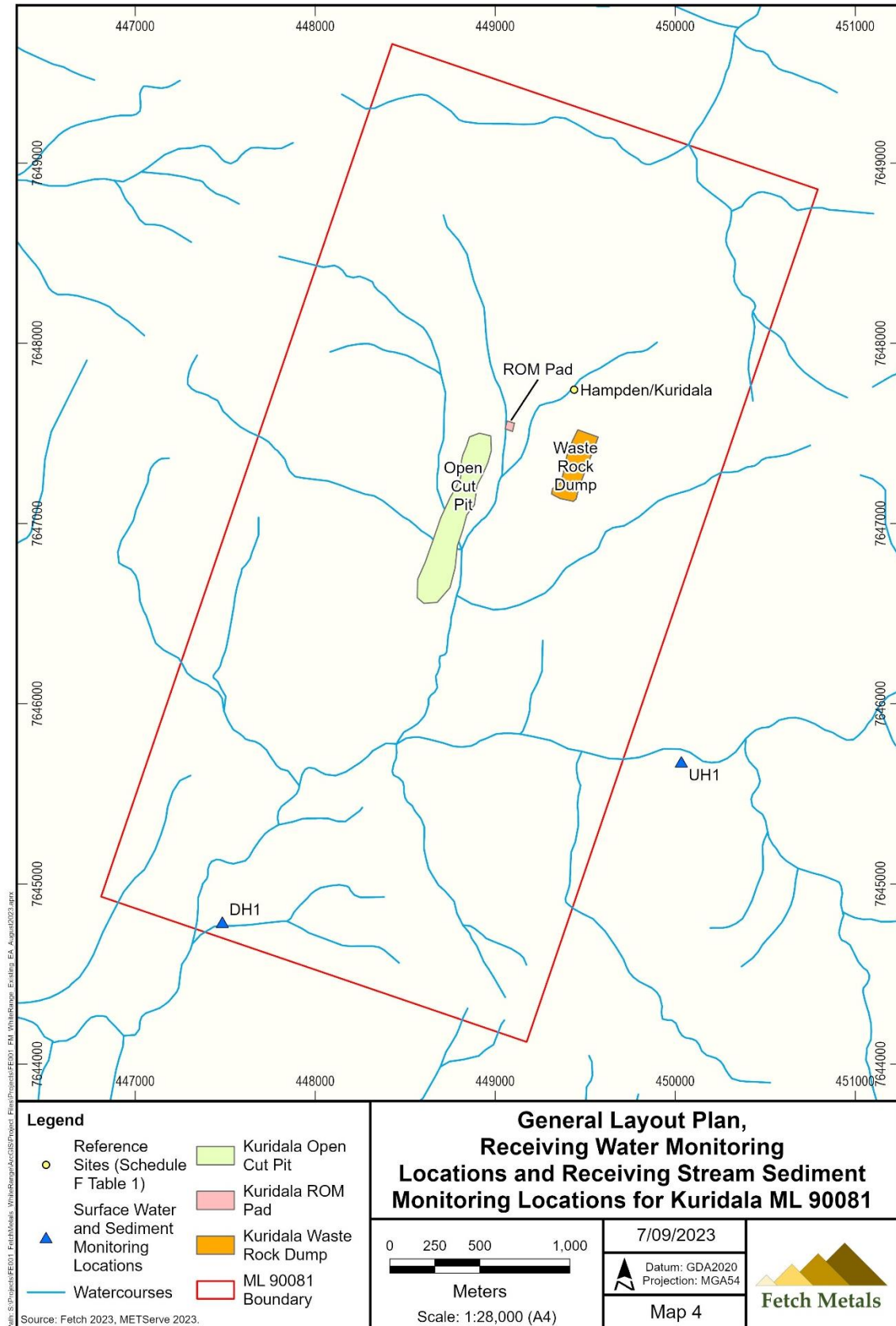
Schedule I - Map 2 Authorised Mining Activities and Locations and Receiving water monitoring locations & Receiving Stream Sediment monitoring locations for Mt McCabe ML 90082



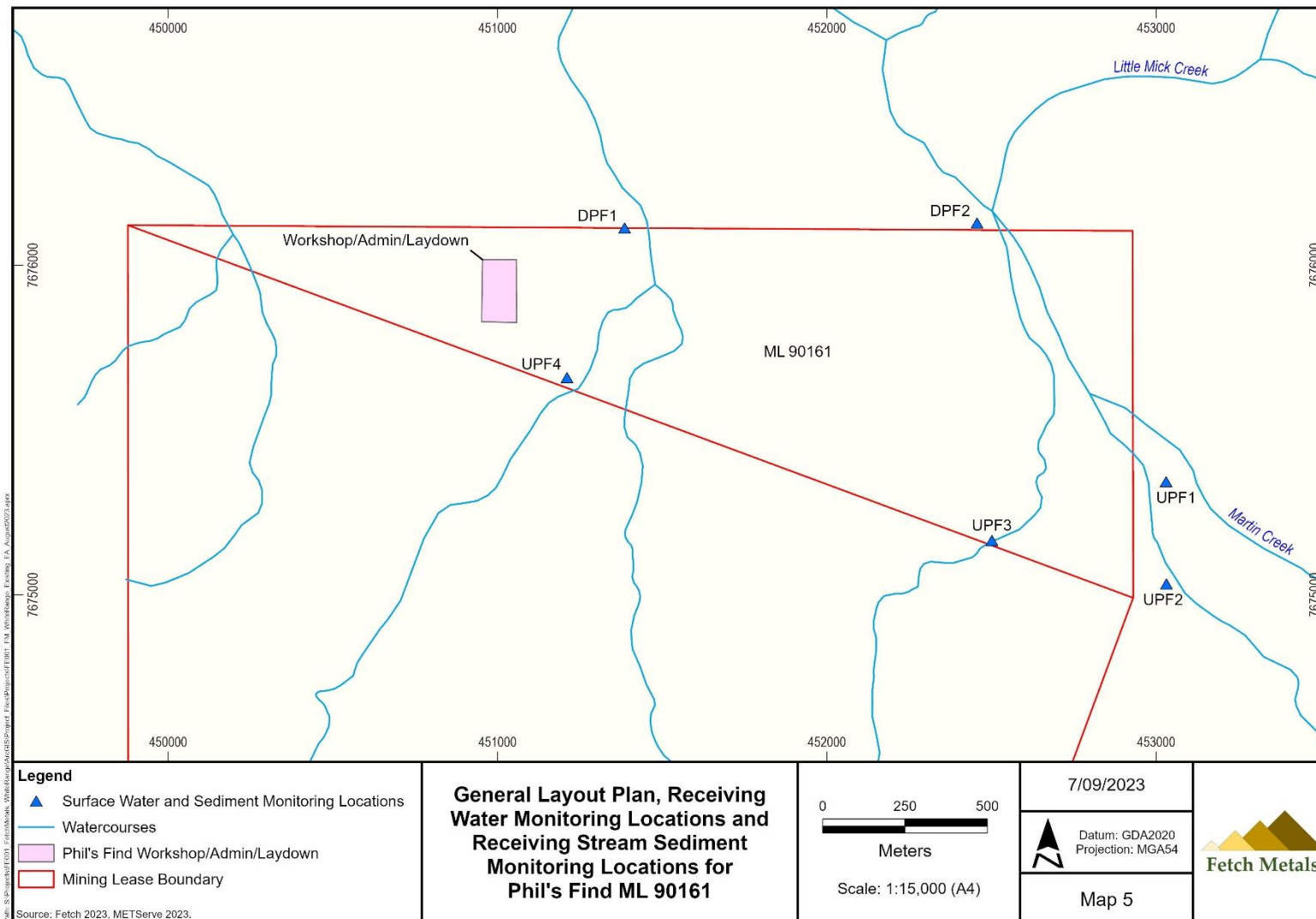
Schedule I - Map 3 Authorised Mining Activities and Locations and Receiving water monitoring locations & Receiving Stream Sediment monitoring locations for Vulcan ML 2519



Schedule I - Map 4 Authorised Mining Activities and Locations, and Receiving water monitoring locations & Receiving Stream Sediment monitoring locations for Hampden / Kuridala ML 90081



Schedule I - Map 5 Authorised Mining Activities and Locations and Receiving water monitoring locations & Receiving Stream Sediment monitoring locations for Phil's Find ML 90161



END CONDITIONS FOR SCHEDULE I

END OF ENVIRONMENTAL AUTHORITY