Date : 22/06/2018 1:15:37 PM
From : "HARDIE Tania"
To : "Mineral Hub"
Cc : "TELA Dannielle" , "ESCairns" , "TOE Jacob" , "TANSLEY Filiz"
Subject : Cement Australia (Exploration) Pty Ltd (EPML00658113, ML80156) - Land Court Referral Form 8
Attachment : Land Court Form 8 and attachments index.pdf;image001.png;image002.png;image004.jpg;

Good afternoon Mineral Hub

Please see the attached completed Land Court of Queensland form 8 for the Land Court referral of the environmental authority EPML00658113 amendment application that is being coordinated by the Department of Natural Resources, Mines and Energy. I have sent a CD containing the form 8 attachments to your office as some of the files are too large to email, you should receive the CD on Monday morning.

Please note that in accordance with the transitional provisions in section 683 of the Environmental Protection Act 1994 (EP Act), the application was assessed and advertised under the version of the EP Act 1994 and the Environmental Protection Regulations 2008 (EP Regs) that were in effect immediately prior to the introduction of the Environmental Protection (Greentape Reduction) and Other Legislation Amendment Act 2012 (Greentape Reduction). The relevant versions are:

- The EP Act 1994 current as at 14 March 2013; and
- The EP Regs 2008 reprinted as in force on 9 November 2012.

Please contact me should you have queries or require further information.

Regards
Tania

Queensland Government

Tania Hardie
Senior Environmental Officer
Minerals & North Queensland Compliance| Environmental Services & Regulation
Department of Environment and Science

P 07 4222 5382
Level 3, 5B Sheridan Street, Cairns QLD 4870
PO Box 7230 Cairns QLD 4870



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Form 8
Section 77B of the
Land Court Act 2000

LAND COURT OF QUEENSLAND

Please insert:
Land Court File Number/s:
MRA Ref:
EP Act Ref:

DEHP REPORT FOR THE LAND COURT

NOTE:
For transitional referrals made under s.683 of the EP Act in respect of objection/s relating to an application for an environmental authority (mining activities) or an amendment application made under the former Chapter 5 before 31 March 2013, this form is still to be used with necessary changes.

Tenure Identifier: ML3629, ML3630, ML3631, ML3632, ML3659, ML7629, ML80002, ML80127, ML80156

EA Identifier: EPML00658113

Date of Application: 1 December 2008

Name of Applicant/s: Cement Australia (Exploration) Pty Ltd and Cement Australia (Queensland) Pty Ltd

1. Chronology of Events: Please complete the table below by identifying relevant dates and attaching certified copies of relevant documents (where not already provided as part of the referral).

Attachment No.	Event	Date	✓
1a and 1b	Map showing the application area and location of proposed resource activities Departmental cadastral maps (a) the application area, identifying any relevant activity areas; (b) the locality, showing the nearest town (including application area)		✓
2 and 3	Application for an environmental authority / Amendment application (s.125, s.226 EP Act)	1 December 2018	✓
N/A	Any notices given by the applicant to change the application for an environmental authority or amendment application (s.132, s.236 EP Act)	N/A	N/A
N/A	Any information request (s.140, s.238(3) EP Act)	N/A	N/A
N/A	The applicant's response to any information request (s.146 EP Act)	N/A	N/A
N/A	When did the information stage end? (s.148 EP Act)	N/A	N/A
N/A	If the public notification stage applied to the application, please identify the date that the application notice was published (s.152 EP Act)	N/A	N/A
N/A	When did the submission period end? (s.154, s.155 EP Act)	N/A	N/A
N/A	Declaration of compliance (s.158 EP Act)	N/A	N/A

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Release

Attachment No.	Event	Date	✓
N/A	Submissions (s.161 EP Act)	N/A	N/A
N/A	What date did the decision stage start? (ss.165-167 EP Act)	N/A	N/A
N/A	The decision notice and any draft environmental authority, or draft amended environmental authority (s.181 EP Act)	N/A	N/A
N/A	Any objection notices given under s.182(2) EP Act	N/A	N/A
N/A	Any applicant request for referral under s.183(1) EP Act	N/A	N/A
N/A	Any standard conditions for the relevant activity or authority	N/A	N/A
Attachments 2 to 11	For transitional referrals made under s 683 of the EP Act, a copy of the application documents, including any draft environmental authority for the application, and each current objection (see s 219(2) of the unamended EP Act)	Refer to below list of attachments.	✓
Attachments 12 -	Any other relevant assessment documents? *If yes, please attach copies and list below:*	Refer to below list of attachments.	✓

List any other attachments:

4 - MLA 80156 East End Number 5 Environmental Impact Statement, prepared by Groundwork Plus - October 2013

5 - MLA 80156 East End Number 5 Supplementary Environmental Impact Statement, prepared by Groundwork Plus - 1 August 2014

6 - Environmental Impact Statement Assessment Report – 27 October 2014

7 - East End Mine Comprehensive Stygofauna Assessment, prepare for Groundworks Plus – 27 July 2016

8 - Draft Report Groundwater Modelling Report: Conceptualisation and Modelling Approach, prepared by Pacific Environment – 11 January 2018

9 - Draft Report Groundwater Monitoring Programme Report: East End Mine, prepared by Pacific Environment – 9 January 2018

10 - MLA80156 East End Number 5, Project Area Environmental Management Plan, prepared by Groundwork Plus – November 2017

11 - Draft permit environmental authority EPML00658113

12 - Assessment Report - Decision to refuse or to allow to proceed – 2 February 2018

13 - Draft EA stage extension RSA – 8 February 2018

14 - Draft EA stage extension RSA – 6 April 2018

15 (a and b) - Draft EA issue RSA and NoD – 20 April 2018

16 - Correction to draft EA RSA – 26 April 2018

17 - Objection – sch4p4(6) Personal information

18 - Objection – sch4p4(6) Personal information

19 - Objection – East End Mine Action Group

20 (a,b and c) - Objection – sch4p4(6) Personal information

21 - Objection – sch4p4(6) Personal information

22 - Objection – Gladstone Regional Council

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23 - Objection – sch4p4(6) Personal information

24 - Objection –

25 - Objection –

26 - Objection –

27 (a and b) - Objection – sch4p4(6) Personal information

28 - Statutory Declaration of Public Notice requirements

29 - The original environmental authority EPML00658113

30 - Relevant Tenure Authority

3. Please briefly describe the resource project for which the environmental authority is sought:

Environmental authority EPML00658113 (the EA) is held by Cement Australia (Exploration) Pty Ltd and Cement Australia (Queensland) Pty Ltd and authorises mining activities on Mining Leases (ML) 3629, 3630, 3631, 3632, 3659, 7629, 80002 and 80127, known as the East End Mine (the Mine).

The Mine is located approximately 7km southwest of Larcon (28km south west of Gladstone), has been operating since 1980 and produces approximately 2.5 million tonnes per year of limestone and clay from an open cut pit on ML3631. The material is supplied by rail to the cement kiln at Fishermans Landing, north of Gladstone, to be used for manufacturing cement clinker.

The Department of Environment and Science (the Department) received an application to amend environmental authority EPML00658113 (the EA) on 1 December 2008. The application proposed the extension of the existing open cut mine onto new ML 80156 (in application) utilising existing infrastructure on existing MLs.

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4. If the referral relates to environmental authority objections under the EP Act only, please provide a copy of the relevant mining tenure application ***(to be obtained from DNRM)***.

n/a – referral relates to environmental authority objection and to mining lease objections.

Attached ☐

5. If the referral to the Land Court relates to an application to amend an environmental authority, please provide copies of:

   a. the original environmental authority; and

   Attached ☒

   b. the relevant tenure authority ***(to be obtained from DNRM)***

   Attached ☒

6. Does the application relate to a coordinated project under the *State Development and Public Works Organisation Act 1971*?

   Yes ☐ No ☒

If yes, please provide a copy of the Coordinator-General's report. – n/a

Attached ☐

7. Was an EIS required for the project?

   Yes ☒ No ☐

8. Please attach copy of current Departmental cadastral maps of:

   Attached ☒

(a) the application area, identifying any relevant activity areas; and

(b) the locality, showing the nearest town (including application area).

sch4p4(6) Personal information

Signature

Filiz Tansley - Delegate of the administering authority

Name and Position

22/6/18

Date

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Form 8 Attachments Index

Attachment	Description
1a and 1b	Map showing the application area and location of proposed resource activities Departmental cadastral maps a) The application area, identifying any relevant activity areas; and b) The locality, showing the nearest town (including application area)
2	Application for an Environmental Authority – 1 December 2008
3	Application for an Environmental Authority Attachment – Environmental Management Overview Strategy, prepared by Groundwork Plus - September 2008
4	MLA 80156 East End Number 5 Environmental Impact Statement, prepared by Groundwork Plus - October 2013
5	MLA 80156 East End Number 5 Supplementary Environmental Impact Statement, prepared by Groundwork Plus - 1 August 2014
6	Environmental Impact Statement Assessment Report – 27 October 2014
7	East End Mine Comprehensive Stygofauna Assessment, prepare for Groundworks Plus – 27 July 2016
8	Draft Report Groundwater Modelling Report: Conceptualisation and Modelling Approach, prepared by Pacific Environment – 11 January 2018
9	Draft Report Groundwater Monitoring Programme Report: East End Mine, prepared by Pacific Environment – 9 January 2018
10	MLA80156 East End Number 5, Project Area Environmental Management Plan, prepared by Groundwork Plus – November 2017
11	Draft permit environmental authority (EA) EPML00658113
12	Assessment Report - Decision to refuse or to allow to proceed – 2 February 2018
13	Draft EA stage extension RSA – 8 February 2018
14	Draft EA stage extension RSA – 6 April 2018
15 (a and b)	Draft EA issue RSA and NoD – 20 April 2018
16	Correction to draft EA RSA – 26 April 2018
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18	Objection – sch4p4(6) Personal information
19	Objection – East End Mine Action Group
20 (a, b and c)	Objection – sch4p4(6) Personal information
21	Objection –
22	Objection – Gladstone Regional Council
23	Objection –
24	Objection –
25	Objection – sch4p4(6) Personal information
26	Objection –
27 (a and b)	Objection –
28	Statutory Declaration of Public Notice requirements
29	The original environmental authority EPML00658113
30	Relevant Tenure Authority

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Date : 26/04/2018 10:37:21 AM
From : "JOHNSTON Luke"
To : "Victoria Jefferies"
Cc : "ESCairns" , "Mineral Hub" , "HARDIE Tania" , "Greg Watkins"
Subject : Draft EA Correction ML3601, ML3629, ML3630, ML3631, ML3632, ML3659, ML7629, ML80002, ML80127, MLA80156
Attachment : EDOCS-#6490376-v1-EA_Amendment_Major_20180426_NoD_Correction_EPML0065811....pdf;EDOCS-#6490502-v1-EA_Amendment_Major_20180426_Draft_Permit_EPML00658113_....pdf;image001.png;image003.png;image002.png;image004.png;image005.png;

Good morning Vicky, please see attached a notice of decision and the amended draft environmental authority to correct a clerical error in the draft issued to Cement Australia on 20 April 2018.
Please don't hesitate in contacting me should you wish to discuss this notice further?
Regards,

Queensland Government

Luke Johnston
Senior Environmental Officer (Assessment)
Minerals & North Queensland Compliance| Environmental Services and Regulation
Department of Environment and Science

P 07 4222 5354 **F**: 07 4222 5070
5b Sheridan Street, 'William McCormack Place' Cairns QLD 4870
PO Box 7230 Cairns QLD 4870

connect ...make the move
We encourage you to do business with us online and register to become a Connect customer. Please visit our website at www.ehp.qld.gov.au/connect.
If you are an existing EHP customer, your details are already in Connect and you can get your Connect EHP Customer Reference by emailing connecthelp@ehp.qld.gov.au.
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Notice

Environmental Protection Act 1994

Correction of a clerical or formal error in an environmental authority

This statutory notice is issued by the administering authority[1] to advise you that your draft environmental authority has been amended under section 290 of the Environmental Protection Act 1994*(version current as at 14 March 2013) to correct a clerical or formal error*

To Cement Australia (Exploration) Pty Ltd
Cement Australia (Queensland) Pty Limited
18 Station Avenue
DARRA QLD 4076

PO Box 285
GLADSTONE QLD 4680

ATTN: Victoria Jefferies

Cc: Mineral Assessment Hub
Department of Natural Resource and Mines
Email: MineralHub@dnrm.qld.gov.au

Our reference: EPML00658113

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Decision about an amendment application for an environmental authority for mining activities relating to a mining lease

1. Environmental authority details

Draft Environmental authority number EPML00658113 issued on 20 April 2018.

Land description: Mining Lease (ML) 3601, ML3629, ML3630, ML3631, ML3632, ML3659, ML7629, ML80002, ML80127, and Mining Lease Application 80156.

2. Amendment

The administering authority has become aware that there is a clerical error on the draft environmental authority that requires correction. This correction is minor in nature and will not adversely impact your or anyone else's interests. As a result, the following amendment has been made to your draft environmental authority:

Definitions:

Deterioration of groundwater quality means a material increase (or decrease for pH) to the concentration of a contaminant identified in groundwater monitoring data.

The amended draft environmental authority is enclosed with this notice.

[1] The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

ABN 46 640 294 485

Should you have any questions in relation to this notice, please contact the department using the contact details provided below.

sch4p4(6) Personal information

Signature

26/4/18

Date

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

Enquiries:
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5334
Email: ESCairns@des.qld.gov.au

Attachments

Draft environmental authority EPML00658110.

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DRAFT Permit

Environmental Protection Act 1994

DRAFT Environmental authority EPML00658113

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

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Environmental authority number: EPML00658113

Environmental authority takes effect on TBA
The anniversary date of this environmental authority is 30 April. An annual return and the payment of the annual fee will be due each year on this day.

Environmental authority holder(s)

Name(s)	Registered address
Cement Australia (Exploration) Pty Ltd	18 Station Avenue DARRA QLD 4076
Cement Australia (Queensland) Pty Limited	

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
21 – Mining ML other; Site Specific. 63 – (1a)(ii) Sewage Treatment: Operating sewage treatment works at a site, other than no-release works, with a total daily peak design capacity of 21 to 100 equivalent persons.	ML3629; ML3630; ML3631; ML3632; ML3659; ML7629; ML80002; ML80127; ML80156.
33 – Crushing, grinding, milling or screening more than 5,000 tonnes of material in a year.	ML3631; ML3659

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, 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- one 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.

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

<INSERT delegate name>
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230
CAIRNS QLD 4870
Phone: (07) 4222 5334
ESCairns@des.qld.gov.au

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Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

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Conditions of environmental authority

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 the authorised disturbance areas listed in Table A1 – Authorised disturbance and as depicted in **Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure**.

Table A1 - Authorised disturbance

Mine Feature Name	Location (GDA94)[1]		Maximum Disturbance Area (ha)	Description / Purpose
	Latitude	Longitude		
Water Storage / Settling Ponds			11	Includes: water storages, sediment settling ponds.
Void / Mine Workings / Haul Roads			209	Includes: Voids, haul roads, mine workings, access roads
Spoil Dumps			53	Includes: overburden and spoil dumps
Stockpiling/Crushing/Loading and Infrastructure			37	Includes: Stockpiles, Crushing Plant, Offices, Workshops, Rail Loop

[1] Coordinates indicate location of mine feature not boundaries.

A3 The environmental authority holder must:

a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and
b) Maintain such measures, plant and equipment in a proper and efficient manner; and
c) Operate such measures, plant and equipment in a proper and efficient manner; and,
d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A4 All flammable, corrosive and combustible liquids, including petroleum products, must be stored and handled in accordance with:

a) The latest edition of *AS1940—The storage and handling of flammable and combustible liquids* where applicable;
b) The current Australian Standard where applicable; or
c) Where no relevant Australian Standard exists, store such materials within an on-site containment system sufficient to prevent release to the receiving environment.

A5 Financial assurance must be lodged in the amount, the form, and within the time required by the administering authority.

A6 Any **records** kept or created in relation to this environmental authority must be:

a) kept for a period of at least five years; and
b) provided to the **administering authority** on request; and
c) provided to the **administering authority** in the format requested.

A7 An **appropriately qualified person(s)** must monitor and record all indicator(s) required by and in accordance with this environmental authority.

A8 When required by the **administering authority**, monitoring must be undertaken in the manner prescribed by the **administering authority** to investigate a complaint arising from the **activity**. The monitoring results must be recorded.

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A9 The following must be recorded in relation to all monitoring required under a condition of this environmental authority:

a) The date and time when the sample was taken;
b) The location where the sample was taken;
c) The results of all monitoring and details of exceedances of the conditions of this environmental authority; and
d) Any other pertinent details of relevance to interpreting the sample results (i.e. stream or release flow rate, wind, conditions, atmospheric conditions, any relevant observations such as odour or colouration).

A10 The environmental authority holder must implement and maintain a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the Standard for Environmental Management Systems (ISO14001), or the latest edition of an Australia standard for risk management, to the extent relevant to environmental management.

A11 The environmental authority holder must notify the administering authority within twenty four (24) hours of becoming aware of any incident or event which does or may contravene a condition of this environmental authority.
Notification to the administering authority must be provided to the administering authority Pollution Hotline on 1300 130 372 and PollutionHotline@ehp.qld.gov.au.

A12 Within ten (10) business days following the initial notification of an incident or 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; and
b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and
c) Proposed actions to prevent recurrence of the emergency or incident.

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

a) Name, address and contact number of the complainant;
b) Time and date of complaint;
c) Reasons for the complaint;
d) Investigations undertaken;
e) Conclusions formed;
f) Actions taken to resolve the complaint;
g) Any abatement measures implemented; and
h) Person responsible for resolving the complaint.

A14 Compliance with the conditions of this environmental authority must be audited at regular intervals not exceeding once every three (3) years. The audit must be conducted by a suitably qualified third party auditor. The environmental authority holder must submit a final version of the auditor's report to the administering authority within ninety (90) days of completing the audit.

A15 All waste generated as part of the mining activities must be lawfully reused, recycled, or removed to an off-site facility that can lawfully accept the waste.

A16 Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste to energy options must be stored in stable stacks and at least 10 metres away from any other scrap tyre storage area, or combustible or flammable material, including vegetation.

A17 All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 metre radius of the scrap tyre storage area.

A18 Where no feasible recycling or waste-to-energy options are available, 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.

A19 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.

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A20 The consequence category of any **structure** must be assessed by a **suitably qualified and experienced person** in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (EM635)* at the following times:

a) Prior to the design and construction of the structure, if it is not an existing structure; or
b) Prior to any change in its purpose or the nature of its stored contents.

A21 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

A22 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)***.**

A23 Except for an **existing structure**, all regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

A24 Except for an **existing structure**, construction of a regulated structure is prohibited unless

a) The environmental authority holder has submitted a consequence category assessment report and certification to the administering authority;
b) Certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.

A25 Except for an **existing structure**, certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*, and must be recorded in the Register of Regulated Structures.

A26 Except for an **existing structure**, regulated structures must:

a) Be designed and constructed in compliance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
b) Be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
    i. floodwaters from entering the regulated dam from any watercourse or drainage line;
    ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
c) Have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

A27 Except for an **existing structure**, certification by the **suitably qualified and experienced person** who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;
b) Construction of the regulated structure is in accordance with the design plan.

A28 All **affected persons** must be provided with a copy of the emergency action plan in place for each regulated structure:

a) For existing structures that are regulated structures, within ten (10) business days of this condition taking effect;
b) Prior to the operation of the new regulated structure; and
c) If the emergency action plan is amended, within five (5) business days of it being amended.

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A29 Operation of a regulated structure, except for an existing structure, is prohibited unless the environmental authority holder has submitted to the administering authority

a) One (1) paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with **condition A24**;
b) A set of 'as constructed' drawings and specifications;
c) Certification of those 'as constructed drawings and specifications' in accordance with **condition A27**;
d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan;
e) The requirements of this authority relating to the construction of the regulated structure have been met;
f) The holder has entered the details required under this authority, into a Register of Regulated Structures; and
g) There is a current operational plan for the regulated structure.

A30 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

A31 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the mandatory reporting level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

A32 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, as soon as practical but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

A33 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

A34 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must record any changes to the MRL in the Register of Regulated Structures.

A35 The environmental authority holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

A36 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the DSA volume for the dam (or network of linked containment systems).

A37 The environmental authority holder must, as soon as possible but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

A38 The environmental authority holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

A39 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

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A40 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

A41 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic *Performance of Structures (ESR/*2016/1933*)*.

A42 The environmental authority holder must within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

a) The recommendations section of the annual inspection report;
b) If applicable, any actions being taken in response to those recommendations; and
c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the environmental authority holder, provide this to the administering authority within ten (10) business days of receipt of the request.

A43 The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new environmental authority holder on transfer of this activity.

A44 Regulated structures must not be abandoned but be either:

a) Decommissioned and rehabilitated to achieve compliance with **Schedule E** of this environmental authority; or
b) Be left in-situ for a use by the landholder provided that:
    i. it no longer contains contaminants that will migrate into the environment;
    ii. it contains water of a quality that is demonstrated to be suitable for its intended use(s); and
    iii. the environmental authority holder and the landholder agree in writing that the:
        1. dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and
        2. landholder is responsible for the dam, on and from an agreed date.

A45 A Register of Regulated Structures must be established and maintained by the environmental authority holder for each regulated structure.

A46 The environmental authority holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.

A47 The environmental authority holder must make a final entry of the required information in the Register of Regulated Structures once compliance with **condition A29** has been achieved.

A48 The environmental authority holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

A49 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.

A50 The environmental authority holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

END OF CONDITIONS FOR SCHEDULE A

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Schedule B – Air

B1 The release of dust or particulate matter, or both, resulting from the mining activity must not cause environmental harm to an environmental value for air.

B2 When measured at any area or place outside of the mining lease boundary, airborne contaminants generated by the mining activities must not cause the following levels to be exceeded:

a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.*

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (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:

i. *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

ii. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of particulate matter – PM10 low volume sampler – Gravimetric method.*

END OF CONDITIONS FOR SCHEDULE B

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Schedule C – Acoustic

C1 Noise generated by the mining activities must not exceed the specified levels in **Table C1 – Noise limits** when measured at any sensitive receptor.

Table C1 – Noise limits

Location	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
Dwelling	LAeq, adj, 1 hour	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA
	Max LpA, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
Commercial	**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**
	LAeq, adj, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
	Max LpA, 1 hour	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA

A – A weighted
Bkg = Background
dB – Decibel
LAeq - the A-weighted equivalent continuous Lp of the sample time T
Lp – Sound pressure level
Associated requirements:
1. Noise Measurement Manual, Department of Environment and Heritage Protection, 2013 or subsequent revisions

C2 The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table C2 – Blasting noise limits** to be exceeded when measured at any sensitive receptor.

Table C2 – Blasting noise limits

Blasting noise limits	Sensitive receptor blasting noise limits	
	8am to 5pm Monday to Saturday	Other times and Public holidays
Airblast overpressure	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

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C3 When requested by the administering authority, noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);
b) Background noise LA90;
c) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
d) Atmospheric conditions including temperature, relative humidity and wind speed and directions;
e) Effects due to any extraneous factors such as traffic noise;
f) Location, date and time of monitoring;
g) If the complaint concerns low frequency noise, Max $Lp(lin)_T$ and one third octave band measurements in dB(lin) for centre frequencies in the 10–200 Hertz range.

END OF CONDITIONS FOR SCHEDULE C

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Schedule D – Water

D1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

D2 The release of contaminants to waters must only occur from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters**.

Table D1– Contaminated water release points, sources and receiving waters

Release point[1] (RP)	Location (GDA94)		Water source[1]	Receiving waters description
	Latitude	Longitude		
A	-23.879876	150.9624459	East End mining operations discharging at Weir 1.	East End Creek
1	-23.878007	150.963352	East End mining operations discharging at Weir 6.	East End Creek

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

D3 The release of contaminants to waters in accordance with **condition D2** must be monitored:

a) at the release points specified in **Table D1 - Contaminated water release points, sources and receiving waters** as depicted in **Figure 2 – Release points and surface water monitoring locations**; and
b) at the monitoring frequencies specified in **Table D2 – Contaminant release limits**; and
c) for the quality characteristics identified in **Table D2 – Contaminant release limits**.

D4 The release of contaminants to waters in accordance with **condition D2** must not exceed the release limits stated in **Table D2 – Contaminant release limits** when measured at the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** for each quality characteristic.

Table D2 – Contaminant release limits

Quality characteristic	Release limit [2]	Monitoring frequency
Electrical Conductivity (micro siemens per centimetre, µs/cm)	5,000	Daily during a release greater than 6 mega litres per day. Monthly for all other releases.
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	
Turbidity (NTU)	20[1]	

[1] If turbidity at [the upstream monitoring point (Monitoring Point C)] is greater than Release Point A then no exceedance is to be recorded.

[2] Release limits apply at Release Point 1 from [INSERT DATE 12 MONTHS FROM DATE OF ISSUE].

D5 The release of contaminants to waters in accordance with **condition D2** must only take place during periods of **natural flow** in the Larcom Creek.

D6 Releases to waters must be undertaken so as to not cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

D7 The rate and daily quantity of water released from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** must be measured and recorded.

D8 The environmental authority holder must determine and record stream flows in the receiving environment at the upstream reference monitoring point specified in **Table D3 – Receiving waters monitoring sites.**

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D9 If the release limits specified in **Table D2 – Contaminant Release limits** are exceeded, the holder of the environmental authority must notify the administering authority within twenty four (24) hours of receiving the results.

D10 The environmental authority holder must, within twenty eight (28) days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

a) the reason for the release; and
b) the location of the release; and
c) the total volume of the release and which (if any) part of this volume was non-compliant; and
d) the total duration of the release and which (if any) part of this period was non-compliant; and
e) all water quality monitoring results (including all laboratory analyses); and
f) identification of any environmental harm as a result of the non-compliance; and
g) all calculations; and
h) any other matters pertinent to the water release event.

D11 The quality of the receiving waters must be monitored at the locations and frequency specified in **Table D3 - Receiving waters monitoring sites** as depicted in **Figure 2 – Release points and surface water monitoring locations** for each quality characteristic stated in **Table D4 – Water quality objectives for receiving waters.**

Table D3 – Receiving waters monitoring sites

Monitoring point[1]	Receiving waters location description	Location (GDA94)		Monitoring frequency
		Latitude	Longitude	
Upstream reference monitoring point[1]				
Monitoring Point G	Larcom Creek upstream of East End Creek and Larcom Creek junction [2]	TBD	TBD	Weekly
Monitoring Point C	Larcom Creek upstream of East End Creek and Larcom Creek junction (Location 5)	-23.887106	150.977379	Weekly
Downstream monitoring points				
Monitoring Point D	Larcom Creek downstream of East End Creek and Larcom Creek Junction (at Weir 7)	-23.899256	150.976483	Weekly

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.
[2] Upstream location must be outside of any influence from the releases from RP A
TBD To be determined and provided to the administering authority by [insert date within 3 months from date of issue]

D12 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit A specified in **Table D4 – Water quality objectives for receiving waters** on any five consecutive sampling occasions**.**

D13 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit B specified in **Table D4 – Water quality objectives for receiving waters** on any three consecutive sampling occasions**.**

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Table D4 – Water quality objectives for receiving waters

Quality characteristic	Water quality limit A	Water quality limit B
pH (pH units)	NA	6.5 (minimum) [1]
	NA	8.0 (maximum)[1]
Electrical conductivity (micro siemens per centimetre, µS/cm)	2,900[2]	3,300 [3]
Turbidity (NTU) [4]	4.2[1]	28.6 [5]

[1] Local water guideline values for protection of aquatic ecosystems for lowland fresh waters as per Table 2F of Environmental Protection (Water) Policy 2009 Curtis Island, Calliope River and Boyne River Basins Environmental Values and Water Quality Objectives), published in November 2014..
[2] Limit based on 75th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[3] Limit based on 95th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[4] If turbidity at Monitoring Point C is greater than Monitoring Point D then no exceedance is to be recorded.
[5] Limit based on 95th percentile of Monitoring Point C specific data from January 2011 to April 2017.

D14 By <+ 3MONTHS FROM DATE OF ISSUE>, the environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) in accordance with the *Receiving Environment Monitoring program guideline for use with environmentally relevant activities under the Environmental Protection Act 1994 (ESR/2016/2399),* to monitor, identify and describe any adverse impacts to: surface water environmental values, quality and flows; and groundwater 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 includes the waters of:

- Larcom Creek;
- East End Creek;
- Machine Creek;
- Jacobs Creek;
- Scrub Creek;
- Shultz Lagoon; and
- Groundwater.

D15 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared biennially and submitted to the administering authority on request. This must include as a minimum an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, the suitability of current discharge limits to protect downstream environmental values; and changes in groundwater quality.

D16 A *Water Management Plan* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D17 An *Erosion and Sediment Control Plan (ESCP)* must be developed by an appropriately qualified person and implemented by the environmental authority holder to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

D18 The extraction of groundwater must not cause environmental harm to the terrestrial groundwater dependant ecosystems specified in **Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems** or any groundwater dependant ecosystems outside of the zone of influence as depicted in **Figure 4: Groundwater Zone of Influence**.

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Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems

GDE	Latitude	Longitude
Terrestrial GDE[1]	-23.85373	150.96963

[1] http://www.bom.gov.au/water/groundwater/gde/map.shtml

D19 By +3 months from issue of EA, a *Groundwater Monitoring and Management Program* must be developed, documented and implemented by an appropriately qualified person.

D20 The *Groundwater Monitoring and Management Program* required by **condition D19** must:

a) identify potential sources of contamination to groundwater from the activity; and
b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and
c) document sampling and monitoring methodology; and
d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
    i. detect any impacts to groundwater levels due to the activity; and
    ii. detect any impacts to groundwater quality due to the activity; and
    iii. determine compliance with condition D18; and
    iv. determine trends in groundwater quality; and
e) include an appropriate quality assurance and quality control program; and
f) include validation of the calibrated transient groundwater model; and
g) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

D21 The *Groundwater Monitoring and Management Program* required by **condition D19** must be reviewed by 30 June each year by an appropriately qualified person to determine if it continues to meet the requirements stated in **condition D20**.

D22 Groundwater quality and standing water level must be monitored:

a) at the monitoring points specified in **Table D6 - Groundwater monitoring locations and frequency**; and
b) at the monitoring frequencies specified in **Table D6 - Groundwater monitoring locations and frequency**; and
c) for the quality characteristics identified in **Table D7 - Groundwater quality limits** for the aquifer in which the bore is located

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Table D6 – Groundwater monitoring locations and frequency

Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Limestone monitoring bores – Groundwater Quality within zone of influence						
DHH96-29	-23.872779	150.974047	36	20-36	Quarterly	
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH96-20	-23.868636	150.953004	45	33-45		
DHH96-25	-23.871112	150.969518	41.3	28-41.3		
Volcaniclastic monitoring bores – Groundwater Quality within zone of influence						
DHH96-39	-23.888283	150.959185	tba	tba	Quarterly	
DHH96-14	-23.879067	150.941706	50	20-50		
Subterranean Fauna Monitoring Bores						
DHH96-41	-23.891462	150.972234	36.67	TBA	Quarterly	
DHH96-33	TBA	TBA	TBA	TBA		
EE Mine Forest Bore SE	-23.874363	150.967503	tba	tba		
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-29	-23.872779	150.974047	36	20-36		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH97-6	-23.884431	150.969634	tba	tba		
B100	-23.847465	150.951668	54.8	TBA		

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Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Drawdown/GDE Monitoring Bores						
Limestone Compliance bores – Groundwater Levels and Quality						
DHH96-5	-23.852414	150.981157	44.77	10-50	Quarterly	
RC11-09	-23.798363	150.906876	30.487	24-36		
Shultz lagoon 1	TBA	TBA	TBA	TBA	Quarterly.	
Shultz lagoon 2	TBA	TBA	TBA	TBA		
Shultz lagoon 3	TBA	TBA	TBA	TBA		
Volcaniclastic Compliance bores – Groundwater Levels and Quality						
DHH96-1 [3]	-23.858826	150.974402	51.65	30-50	Quarterly	
DHH96-2 [3]	-23.855962	150.969479	51.85	0-20		
DHH96-10	-23.87511	150.992037	41.51	27-50		
DHH97-1A	-23.858226	150.924669	67.662	10.3-19		
RC11-07	-23.832943	150.895126	71.183	30-100		
RC11-13	-23.918103	150.996597	33.417	12-31		
RC11-15	-23.896588	151.010276	44.975	18-76		
RC11-17	-23.819972	150.96685	70.27	50-60		
RC11-19	-23.88478	150.931748	63.13	70-100		
RC11-20	-23.901544	150.936513	62.887	16-32		
RC11-21	-23.925181	150.924282	62.596	14-32		
Southern New Bore 1	TBA	TBA	TBA	TBA	Quarterly.	
Southern New Bore 2	TBA	TBA	TBA	TBA		

[1] Locations depicted in **Figure 3 –Groundwater monitoring locations**.
[2] RL must be measured to the nearest 5cm from the top of the bore casing.
[3] Terrestrial GDE specific monitoring bore
TBA To be advised to the administering authority by [INSERT DATE 6 MONTHS FROM EFFECTIVE DATE]

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D23 The activity must not cause a **deterioration of groundwater quality**.

D24 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table D7 – Groundwater quality limits** on any five consecutive sampling occasions**.**

D25 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any three consecutive sampling occasions**.**

D26 If groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** exceeds the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding parameters within ten business days of receipt of results.

Table D7 - Groundwater quality limits

Monitoring Point	Quality Characteristic			
	pH (pH units)	Electrical Conductivity (micro siemens per centimetre (µs/cm))		Major ions[1] (milligrams per litre (mg/L))
	Range	Maximum Limit A[2]	Maximum Limit B[3]	NA
DHH96-5	6.5 (minimum) 8.0 (maximum)	21,912	24,151	For interpretation purposes only.
RC11-09		5,830	5,920	
Shultz lagoon 1		TBA	TBA	
Shultz lagoon 2		TBA	TBA	
Shultz lagoon 3		TBA	TBA	
DHH96-1 [3]		26,800	33,683	
DHH96-2 [3]		9,880	13,413	
DHH96-10		4,784	4,817	
DHH97-1A		284	311	
RC11-07		5,840	6,740	
RC11-13		11,394	11,406	
RC11-15		9,090	9,997	
RC11-17		10,000	11,117	
RC11-19		3,970	4,120	
RC11-20		3,630	4,372	
RC11-21		1,660	1,787	
Southern New Bore 1		TBA	TBA	
Southern New Bore 2		TBA	TBA	

[1] Major ions include calcium, magnesium, sodium, potassium, bicarbonate, chloride, and sulphate.

[2] Limit A has been determined from the 80th percentile of the specific bore historical groundwater quality data up to March 2017.

[3] Limit B has been determined from the 95th percentile of the specific bore historical groundwater quality data up to March 2017.

TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

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D27 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D8 – Groundwater monitoring trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) conduct an investigation into the cause within ten business days; and
c) if the mining activities are identified as a potential cause or contributor, take immediate action to ensure compliance with condition D18 of this environmental authority.

Table D8 – Drawdown/GDE Groundwater monitoring trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
Limestone Compliance bores – Groundwater Levels			
DHH96-5	SWL m RL	38.2	Minimum
RC11-09		24.6	
Shultz lagoon 1		TBA	
Shultz lagoon 2		TBA	
Shultz lagoon 3		TBA	
Volcaniclastic Compliance bores – Groundwater Levels			
DHH96-1 [2]	SWL m RL	44.1	Minimum
DHH96-2 [2]		44.8	
DHH96-10		34.5	
DHH97-1A		60.4	
RC11-07		55.3	
RC11-13		24.2	
RC11-15		43.6	
RC11-17		49.8	
RC11-19		56.0	
RC11-20		48.7	
RC11-21		52.7	
Southern New Bore 1		TBA	
Southern New Bore 2		TBA	

[1] 5th percentile minus 0.5 metre
[2] Terrestrial GDE specific monitoring bores
TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

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D28 Groundwater monitoring bores must be :

a) constructed and maintained in a manner that ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and
b) constructed, maintained and decommissioned in a manner that:
    i. prevents contaminants entering the groundwater; and
    ii. that maintains the hydogeological environment within the aquifer.

D29 A bore drill log must be kept for each groundwater monitoring bore which includes:

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

D30 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009
b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Guidance on sampling of groundwaters;
c) for subterranean aquatic fauna, the Guideline for the Environmental Assessment of Subterranean Aquatic Fauna.

D31 Prior to the commencement of pit development on ML80156, a *Subterranean Fauna Monitoring and Management Program* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D32 The *Subterranean Fauna Monitoring and Management Program* required by **condition D31** must include adequate monitoring of subterranean species of stygofauna and troglofauna in all groundwaters potentially impacted by the mining activities and must achieve the following objectives:

a) Identify and describe subterranean fauna species present;
b) In addition to **condition D32(a)**, accurately describe and determine the distribution of the unique taxa found at bore locations EEUN2 and DHH96-41;
c) Assess and describe predicted impacts to subterranean fauna identified;
d) Recommend impact mitigation and minimisation measures for the fauna identified;
e) Monitor and record the effects of the mining activity on the subterranean fauna species;
f) Recommend actions, including timeframes for implementation, to ensure that any impacts to subterranean fauna not authorised under this environmental authority**,** are prevented.

D33 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D9 – Subterranean fauna trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) review the *Subterranean Fauna Monitoring and Management Program* required by **condition D31** within ten business days, particularly the requirements of **condition D32** c), d), e), and f).

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Table D9 – Subterranean fauna trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
DHH96-30	SWL m RL	24.1	Minimum
DHH97-6		25.1	
EE Mine Forest Bore SE		20.4	
DHH96-29		31.2	
DHH96-41		29.9	
DHH96-7		32.7	
DHH96-33		TBA	
DHH96-39		42.7	
B100		28.7	

[1] 5th percentile minus 0.5 metre

END OF CONDITIONS FOR SCHEDULE D

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Schedule E – Land

E1 Treated sewage effluent may only be released to land in accordance with the conditions of this environmental authority at the following locations:

a) Within the nominated area(s) identified in **Figure 5: Location of sewage effluent disposal area**; and
b) Other land for the purpose of dust suppression and/or firefighting.

E2 The release of treated sewage effluent to land must not exceed the release limits stated in **Table E1 – Contaminant release limits to land**.

Table E1 – Contaminant release limits to land

Quality Characteristic	Unit	Release limit	Limit type	Monitoring frequency
Five-day biochemical oxygen demand (BOD)	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	
Nitrogen	mg/L	30	Maximum	
Phosphorus	mg/L	15	Maximum	
E-coli	organisms/100mL	1000	Maximum	
pH	pH units	6.5 – 9.0	Range	

E3 The application of treated effluent to land must be carried out in a manner that:

a) Vegetation is not damaged; and
b) There is no surface ponding of effluent; and
c) There is no run-off of effluent.

E4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

E5 All sewage effluent released to land must be monitored at the monitoring frequency and for the quality characteristics specified in **Table E1 – Contaminant release limits to land**.

E6 The monthly volume of effluent released to land must be measured and recorded.

E7 When circumstances prevent the irrigation or beneficial reuse of treated effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

E8 A minimum area of 10m^2 of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

E9 The release of contaminated water to land, other than treated sewage effluent in accordance with the conditions of this environmental authority, must only occur from the release points specified in **Table E2 – Contaminant release to land locations.**

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Table E2 – Contaminant release to land locations

Release point[1] (RP)	Location (GDA94)		Contaminated water source[1]
	Latitude	Longitude	
E	-23.880282	150.949141	East End mining operations, including clay dumps and haul roads, discharging at the spillway from the western sediment pond E.
F	-23.886780	150.966126	East End mining operations, including clay dumps and haul roads, discharging at the spillway from southern sediment pond F.

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

E10 The release of contaminants to lands in accordance with **condition E9** must not exceed the release limits for each quality characteristic stated in **Table E3 – Contaminant release to land limits** when measured at the release points specified in **Table E2 – Contaminant release to land locations**.

Table E3 – Contaminant release to land limits

Quality characteristic	Release limit	Monitoring frequency
Electrical Conductivity (EC) (micro Siemens per centimetre, µs/cm)	5,000	During a release (sample must be taken within 24 hours of commencement of release but before cessation of the release).
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	

E11 The release of contaminants to land in accordance with **condition E9** must be monitored at the release points specified in **Table E2 – Contaminant release to land locations** and depicted in **Figure 2 – Release points and surface water monitoring locations,** for each quality characteristic and at the monitoring frequency specified in **Table E3 – Contaminant release to land limits**.

E12 The release of contaminants to land in accordance with condition E9 must be carried out in a manner that:

a) Drainage to groundwater and subsurface flows of contaminants to surface waters are prevented; and
b) Surface pondage and run-off of contaminants is prevented; and
c) Degradation of soil structure is minimised; and
d) Soil sodicity and the build-up of heavy metals and metalloids in the soil and subsoil is minimised.

E13 Land disturbed by mining activities must be rehabilitated in accordance with **Table E4 – Rehabilitation requirements.**

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Table E4 – Rehabilitation requirements

Mine domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Mine pit slopes that are greater than 30˚ and greater than 5m in height	Safe to humans and wildlife	Site is safe for humans and animals now and in the foreseeable future	Safety assessment of slopes that are greater than 30˚ and greater than 5m in height	Validation in rehabilitation report that slopes are safe and predictions about future safety
Mine water storages	Non-polluting	Surface and groundwater that leave the lease will aim to meet or improve the water quality objectives of the receiving waters. Current and future water quality parameters will be maintained at levels that are acceptable for uses downstream of the site.	End of pipe and receiving waters meet environmental authority conditions.	Validation in water quality report that surface and groundwater objectives are met.
Mine workings, void, water storages	Stable	Low probability of rock falls with serious consequences	Geotechnical studies of workings, high walls and voids	Evidence in Final Rehabilitation Report that appropriate risk assessment has been undertaken and control measures are in place.
Mine workings above RL40	Able to sustain an agreed post-mining land use	Mining and rehabilitation will aim to create a landform with land use capability and/or suitably similar to that prior to disturbance, unless other beneficial land uses are pre-determined and agreed.	• Tree density (trees/ha) • Shrub density (shrubs/ha) • Sedge/forb/grass density (grasses/ha) • Species composition • Species diversity • Unvegetated area (%) • Leaf litter depth and coverage • Erosion indicators (e.g. depth and spacing of erosion rills) • Photographic records of the site	Final Rehabilitation Report will be prepared as per administering authority rehabilitation guidelines including: • The results of a site investigation • The results of a residual risk assessment (including estimation of monitoring and maintenance costs) • The results of contamination assessment, as required. • Written statements from landowners/landholders documenting any agreement for transfer of management and maintenance commitments or transfer of infrastructure ownership. • A site management plan as required. • An accompanying audit statement detailing the extent of rehabilitation, the extent of ongoing management, maintenance or monitoring issues and the adequacy of the calculated financial assurance.
Active spoil dumps		Mine wastes and disturbed land will be rehabilitated to a condition that is self-sustaining or where the maintenance requirements are consistent with an agreed post-mining land use.		

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E14 Rehabilitation must commence progressively in accordance with the plan of operations.

E15 The environmental authority holder must minimise the potential for contamination of land by hazardous contaminants.

END OF CONDITIONS FOR SCHEDULE

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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.

Administering authority means the Department of Environment and Science or its successor.

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

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

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

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

Appropriately qualified person a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

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

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

Associated works in relation to a dam means:

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

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

Blasting 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.

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Certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by a condition of this environmental authority, and specifically in relation to structures, means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)*, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

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

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

Consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

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

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

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

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

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedence probability (AEP) specified in that Manual.

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

Deterioration of groundwater quality means a material increase (or decrease for pH) to the concentration of a contaminant identified in groundwater monitoring data.

Disturbance of land includes:

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

Effluent treated waste water released from sewage treatment plants.

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Emergency action plan means documentation forming part of the operational plan held by the environmental authority holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact details.

Existing structure means a structure that prior to <INSERT EA ISSUE DATE> meets any or both of the following, a structure:

a) With a design that is in accordance with Version 5.00 (dated 29 March 2016) of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* and that is considerably in progress;
b) That is under considerable construction or that is constructed.

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

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

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

Land use the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

Low consequence structure means any structure that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, as amended from time to time.

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

Modification or modifying see definition of 'construction'.

Natural flow the flow of water through waters caused by nature.

Non-polluting having no adverse impacts upon the receiving environment.

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Operational plan includes:

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

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

Pit development means the act or process of making an excavation or cut of the ground for the purpose of extracting ore.

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

a) a watercourse;
b) groundwater; and
c) an area of land that is not specified in this environmental authority.

Receiving waters means waters of the receiving environment as defined in the *Environmental Protection Act 1994*, including but not limited to the waters of East End Creek, Shultz Lagoon, Larcom Creek, Machine Creek, Scrub Creek and Jacobs Creek.

Records include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this authority.

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Register of regulated structures includes:

a) date of entry in the register;
b) name of the structure, its purpose and intended/actual contents;
c) the consequence category of the structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
d) dates, names and reference for the design plan plus dates, names and reference numbers of all document/s lodged as part of a design plan for the structure;
e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) for the regulated dam, other than in relation to any levees:
    i. the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii. coordinates (latitude and longitude in GDA94) within five (5) metres at any point from the outside of the dam including its storage area;
    iii. dam crest volume (megalitres);
    iv. spillway crest level (metres AHD);
    v. maximum operating level (metres AHD);
    vi. storage rating table of stored volume versus level (metres AHD);
    vii. design storage allowance (megalitres) and associated level of the dam (metres AHD);
    viii. mandatory reporting level (metres AHD);
g) For a regulated levee:
    i. The crest length of the levee (metres) measured along the centreline of the levee;
    ii. Location Coordinates (latitude and longitude in GDA94), and chainage distances (metres), of each end of the levee, and of each point along the crest of the levee which marks a change in direction;
    iii. Levee crest level (metres AHD), also at each end of the levee, and at each point along the crest of the levee which marks a change in direction;
    iv. Maximum height of the levee (metres), from the crest level to the adjacent toe (inside or outside) of the embankment, and the location and chainage of this maximum height;
    v. The crest width of the levee (metres);
    vi. The Annual Exceedence Probability of the design flood for operation of the levee;
    vii. The freeboard (metres) between design flood level and the crest level of the levee;
h) the design plan title and reference relevant to the dam;
i) the date construction was certified as compliant with the design plan;
j) the name and details of the suitably qualified and experienced person who certified that the constructed structure was compliant with the design plan;
k) details of the composition and construction of any liner;
l) the system for the detection of any leakage through the floor and sides of the dam;
m) dates when the regulated structure underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November for any year;
n) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
o) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated structure means any structure in the significant or high consequence category as assessed by using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority. A regulated structure does not include a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

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Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform.

Release event means surface water discharge from water storages or contaminated areas on the mining tenements detailed in this environmental authority.

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

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

Sensitive receptor means a sensitive receptor under the Environmental Protection (Noise) Policy 2008.

Structure means dam or levee.

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

Subterranean Fauna means fauna which live their entire lives (obligate) below the surface of the earth consisting of air-breathing troglofauna or aquatic groundwater fauna.

Subterranean wetland for the purpose of this environmental authority, means aquifer and cave groundwater dependent ecosystems that are dependent on the subterranean presence of groundwater.

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

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

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

System design plan means a plan that manages an integrated containment system that shares the required DSA volume and/or Extreme Storm Surge volume across the integrated containment system.

Calibrated transient groundwater model means a calibrated groundwater model as described in the *Australian Groundwater Modelling Guidelines* published in 2012 by the Australian Government National Water Commission. The model must include time-varying inputs, calculate and save output at various times throughout the duration of the model run, and must be capable of predicting time-varying groundwater responses.

Valid complaint means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.

Void means any constructed, open excavation in the ground.

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

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

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Wetland for the purpose of this environmental authority, means:

a) Areas shown on the Map of referable wetlands which is a document approved by the chief executive on 4 November 2011 and published by the administering authority, as amended from time to time by the chief executive under section 144D of the *Environmental Protection Regulation 2008*; and
b) Areas defined under the Queensland Wetlands Program as permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres, and possess one or more of the following attributes:
    i. At least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle; or
    ii. The substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or;
    iii. The substratum is not soil and is saturated with water, or covered by water at some time.

The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.

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Appendices

Maps and Figures

Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure. (eDOCS#6433223)

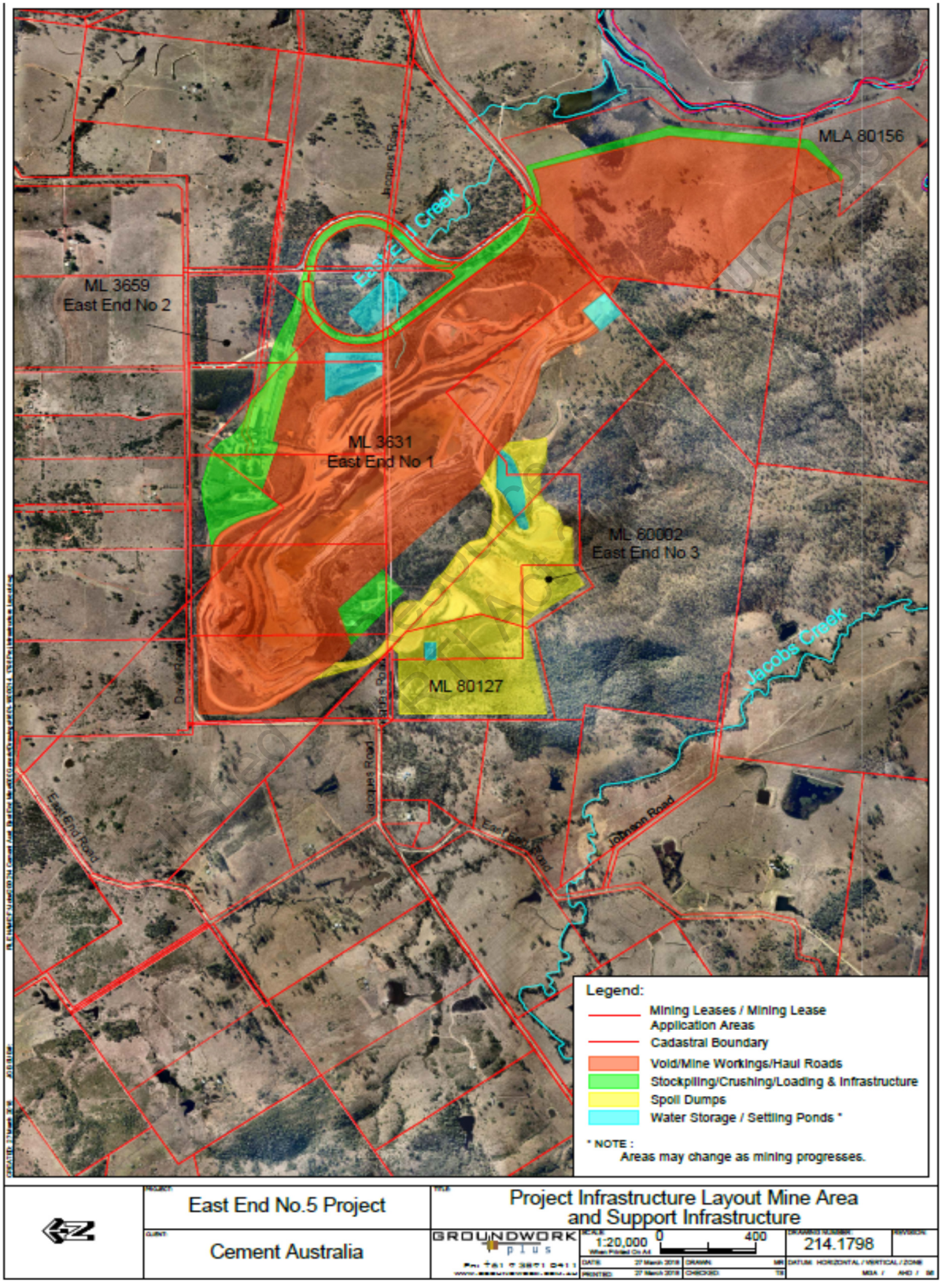


Figure 2 - Release Points and Surface water monitoring locations (to be provided by environmental authority holder to the administering authority by [INSERT DATE 1 MONTH FROM EFFECTIVE DATE])

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Figure 3 – Groundwater monitoring locations (source: Groundwater modelling report: Conceptualisation and Modelling approach, dated 11 January 2018 – eDOCS#6428179)

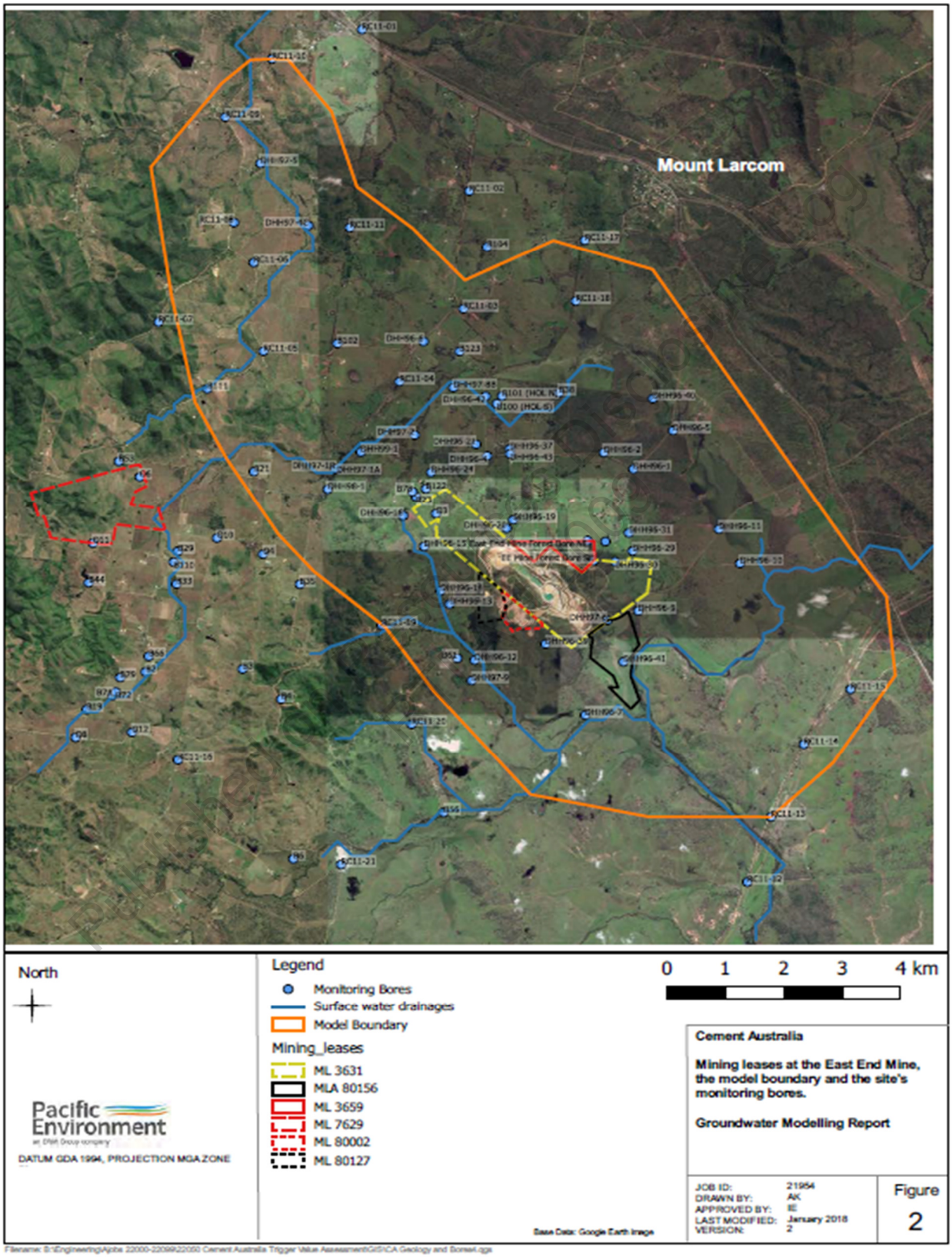


Figure 4 – Groundwater Zone of Influence. (Modelled 'zone of influence' (5m Drawdown Curve 2045) - - Pit Extension – Scenario 3 – MLA80156). Source: Groundwater modelling report: Conceptualisation and Modelling approach. 11 January 2018 (eDOCS#6428179)**.**

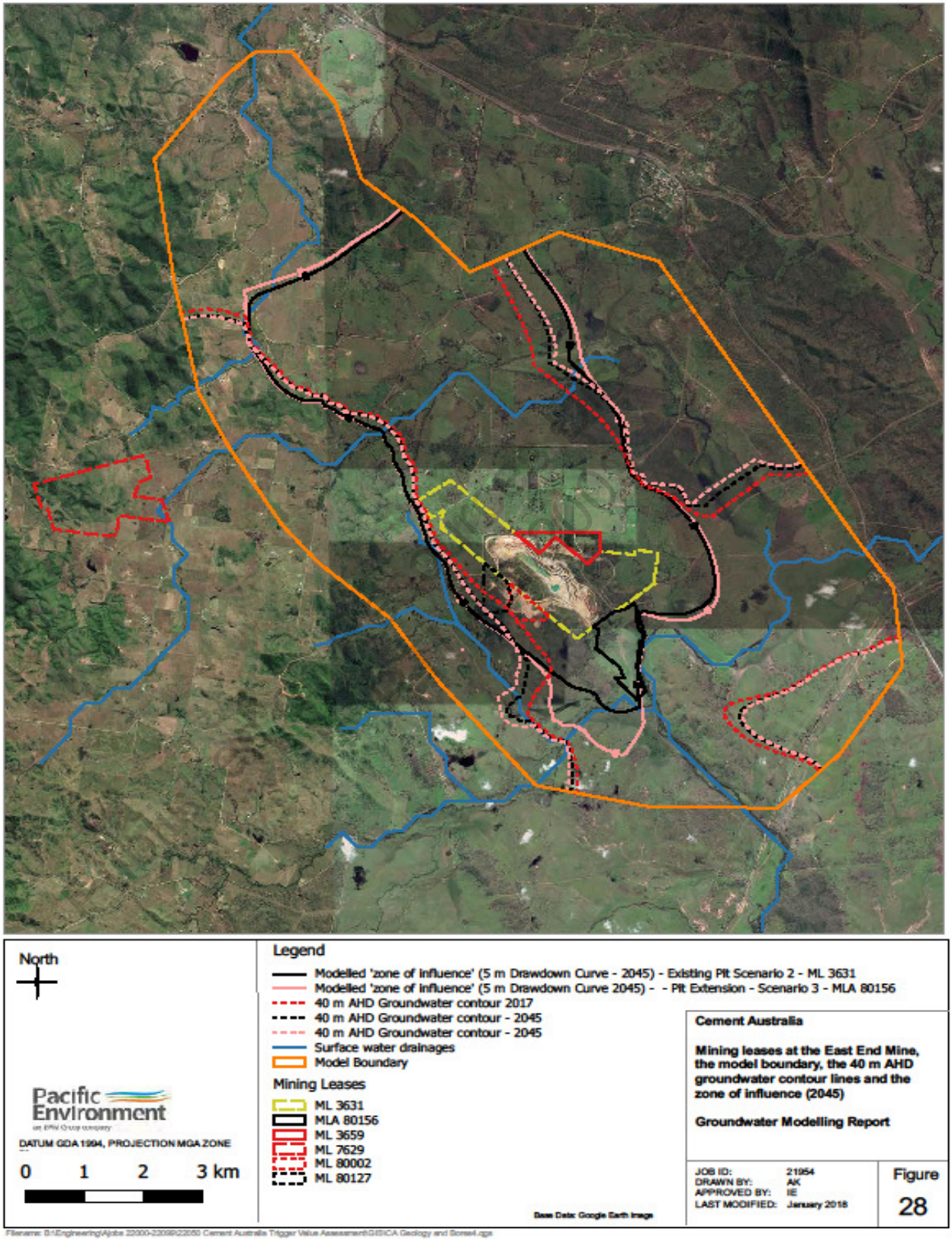
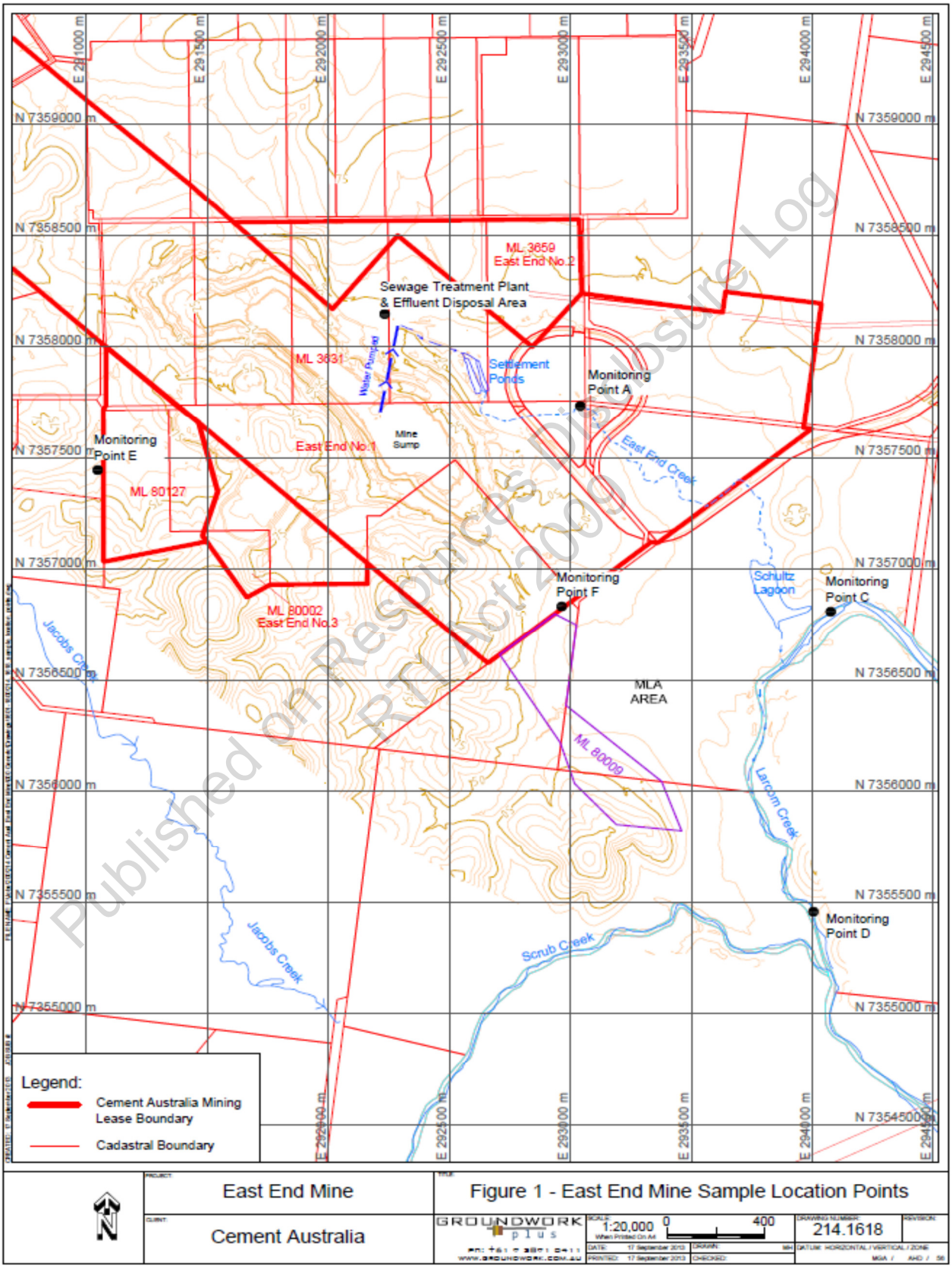


Figure 5: Location of sewage effluent disposal area



END OF ENVIRONMENTAL AUTHORITY

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Date : 20/04/2018 4:44:16 PM
From : "JOHNSTON Luke"
To : "Victoria Jefferies"
Cc : "ESCairns" , "Mineral Hub" , "HARDIE Tania" , "TANSLEY Filiz"
Subject : Draft EA issued to Cement Australia
Attachment : EDOCS-#6433386-v1-EA_Amendment_Major_20180420_NoD_EPML00658113_Cement_Au....pdf;EDOCS-#6433411-v1-EA_Amendment_Major_20180420_Draft_Permit_EPML00658113_....pdf;image001.png;image003.png;image002.png;image004.png;image005.png;

Good afternoon Vicky,
Please see attached the notice of decision and draft environmental authority for the amendment application to add MLA80156 to EPML00658113 for the East End Mine operations.
Please don't hesitate in contacting me should you have any queries in relation to this correspondence.
Regards

Queensland Government

Luke Johnston
Senior Environmental Officer (Assessment)
Minerals & North Queensland Compliance| Environmental Services and Regulation
Department of Environment and Science

P 07 4222 5354 **F**: 07 4222 5070
5b Sheridan Street, 'William McCormack Place' Cairns QLD 4870
PO Box 7230 Cairns QLD 4870

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If you are an existing EHP customer, your details are already in Connect and you can get your Connect EHP Customer Reference by emailing connecthelp@ehp.qld.gov.au.

connect

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Notice

Environmental Protection Act 1994

Decision about an amendment application for an environmental authority (mining activities relating to a mining lease)

This non-statutory notice is issued by the administering authority to advise you that your draft environmental authority has been issued under sections 208 and 210 of the Environmental Protection Act 1994 *(version current as at 14 March 2013).*

To Cement Australia (Exploration) Pty Ltd
Cement Australia (Queensland) Pty Limited
18 Station Avenue
DARRA QLD 4076

PO Box 285
GLADSTONE QLD 4680

Cc: Mineral Assessment Hub
Department of Natural Resource and Mines
Email: MineralHub@dnrm.qld.gov.au

ATTN: Victoria Jefferies

Our reference: EPML00658113

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Decision about an amendment application for an environmental authority for mining activities relating to a mining lease

1. Application details

The application to amend environmental authority EPML00658113 was received by the administering authority on **1 December 2008**.

The application reference number is: EPML00658113.

Land description: Mining Lease (ML) 3601, ML3629, ML3630, ML3631, ML3632, ML3659, ML7629, ML80002, ML80127, and Mining Lease Application 80156.

2. Decision

The administering authority has decided to issue the draft amended environmental authority relating to the application to amend environmental authority EPML00658113 under sections 208 and 210 of the *Environmental Protection Act 1994* effective as at 14 March 2013 (the *Environmental Protection Act 1994*).

A copy of the draft amended environmental authority is attached.

The environmental authority holder(s) cannot commence operations under the attached draft amended environmental authority until a final environmental authority is issued for the approved environmentally relevant activity/activities. However, the environmental authority holder(s) may continue to operate to the extent authorised by the current environmental authority.

ABN 46 640 294 485

Releas

3. Reasons for the decision

On 2 February 2018, in accordance with section 207 of the *Environmental Protection Act 1994*, the administering authority decided that the environmental authority amendment application be allowed to proceed.

In accordance with section 208 of the *Environmental Protection Act 1994*, a longer period for the preparation of the draft environmental authority was agreed to between the applicant and the administering authority. The agreed period ended on 20 April 2018.

In accordance with sections 208 and 210 of the *Environmental Protection Act 1994*, the draft environmental authority includes proposed conditions that the administering authority considers necessary and desirable, and that the applicant has agreed to.

4. Public notice of application

In accordance with section 211 of the *Environmental Protection Act 1994*, the applicant must give and publish a notice about the application that complies with section 212 of the *Environmental Protection Act 1994*.

In accordance with section 213 of the *Environmental Protection Act 1994*, the administering authority will, within the objection period, keep the application documents for the application open for public inspection during office hours on business days at 400 George Street, Brisbane, Queensland.

Should you have any questions in relation to this notice, please contact the department using the contact details provided below.

sch4p4(6) Personal information

Signature

20/4/18

Date

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

Enquiries:
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5334
Email: ESCairns@des.qld.gov.au

Attachments

Draft environmental authority EPML00658110.

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DRAFT Permit

Environmental Protection Act 1994

DRAFT Environmental authority EPML00658113

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

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Environmental authority number: EPML00658113

Environmental authority takes effect on TBA
The anniversary date of this environmental authority is 30 April. An annual return and the payment of the annual fee will be due each year on this day.

Environmental authority holder(s)

Name(s)	Registered address
Cement Australia (Exploration) Pty Ltd	18 Station Avenue DARRA QLD 4076
Cement Australia (Queensland) Pty Limited	

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
21 – Mining ML other; Site Specific. 63 – (1a)(ii) Sewage Treatment: Operating sewage treatment works at a site, other than no-release works, with a total daily peak design capacity of 21 to 100 equivalent persons.	ML3629; ML3630; ML3631; ML3632; ML3659; ML7629; ML80002; ML80127; ML80156.
33 – Crushing, grinding, milling or screening more than 5,000 tonnes of material in a year.	ML3631; ML3659

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).

Release

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- one 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.

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

<INSERT delegate name>
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230
CAIRNS QLD 4870
Phone: (07) 4222 5334
ESCairns@des.qld.gov.au

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Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

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Conditions of environmental authority

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 the authorised disturbance areas listed in Table A1 – Authorised disturbance and as depicted in **Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure**.

Table A1 - Authorised disturbance

Mine Feature Name	Location (GDA94)[1]		Maximum Disturbance Area (ha)	Description / Purpose
	Latitude	Longitude		
Water Storage / Settling Ponds			11	Includes: water storages, sediment settling ponds.
Void / Mine Workings / Haul Roads			209	Includes: Voids, haul roads, mine workings, access roads
Spoil Dumps			53	Includes: overburden and spoil dumps
Stockpiling/Crushing/Loading and Infrastructure			37	Includes: Stockpiles, Crushing Plant, Offices, Workshops, Rail Loop

[1] Coordinates indicate location of mine feature not boundaries.

A3 The environmental authority holder must:

a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and
b) Maintain such measures, plant and equipment in a proper and efficient manner; and
c) Operate such measures, plant and equipment in a proper and efficient manner; and,
d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A4 All flammable, corrosive and combustible liquids, including petroleum products, must be stored and handled in accordance with:

a) The latest edition of *AS1940—The storage and handling of flammable and combustible liquids* where applicable;
b) The current Australian Standard where applicable; or
c) Where no relevant Australian Standard exists, store such materials within an on-site containment system sufficient to prevent release to the receiving environment.

A5 Financial assurance must be lodged in the amount, the form, and within the time required by the administering authority.

A6 Any **records** kept or created in relation to this environmental authority must be:

a) kept for a period of at least five years; and
b) provided to the **administering authority** on request; and
c) provided to the **administering authority** in the format requested.

A7 An **appropriately qualified person(s)** must monitor and record all indicator(s) required by and in accordance with this environmental authority.

A8 When required by the **administering authority**, monitoring must be undertaken in the manner prescribed by the **administering authority** to investigate a complaint arising from the **activity**. The monitoring results must be recorded.

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A9 The following must be recorded in relation to all monitoring required under a condition of this environmental authority:

a) The date and time when the sample was taken;
b) The location where the sample was taken;
c) The results of all monitoring and details of exceedances of the conditions of this environmental authority; and
d) Any other pertinent details of relevance to interpreting the sample results (i.e. stream or release flow rate, wind, conditions, atmospheric conditions, any relevant observations such as odour or colouration).

A10 The environmental authority holder must implement and maintain a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the Standard for Environmental Management Systems (ISO14001), or the latest edition of an Australia standard for risk management, to the extent relevant to environmental management.

A11 The environmental authority holder must notify the administering authority within twenty four (24) hours of becoming aware of any incident or event which does or may contravene a condition of this environmental authority.
Notification to the administering authority must be provided to the administering authority Pollution Hotline on 1300 130 372 and PollutionHotline@ehp.qld.gov.au.

A12 Within ten (10) business days following the initial notification of an incident or 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; and
b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and
c) Proposed actions to prevent recurrence of the emergency or incident.

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

a) Name, address and contact number of the complainant;
b) Time and date of complaint;
c) Reasons for the complaint;
d) Investigations undertaken;
e) Conclusions formed;
f) Actions taken to resolve the complaint;
g) Any abatement measures implemented; and
h) Person responsible for resolving the complaint.

A14 Compliance with the conditions of this environmental authority must be audited at regular intervals not exceeding once every three (3) years. The audit must be conducted by a suitably qualified third party auditor. The environmental authority holder must submit a final version of the auditor's report to the administering authority within ninety (90) days of completing the audit.

A15 All waste generated as part of the mining activities must be lawfully reused, recycled, or removed to an off-site facility that can lawfully accept the waste.

A16 Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste to energy options must be stored in stable stacks and at least 10 metres away from any other scrap tyre storage area, or combustible or flammable material, including vegetation.

A17 All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 metre radius of the scrap tyre storage area.

A18 Where no feasible recycling or waste-to-energy options are available, 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.

A19 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.

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Release

A20 The consequence category of any **structure** must be assessed by a **suitably qualified and experienced person** in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (EM635)* at the following times:

a) Prior to the design and construction of the structure, if it is not an existing structure; or
b) Prior to any change in its purpose or the nature of its stored contents.

A21 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

A22 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)*.

A23 Except for an **existing structure**, all regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

A24 Except for an **existing structure**, construction of a regulated structure is prohibited unless

a) The environmental authority holder has submitted a consequence category assessment report and certification to the administering authority;
b) Certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.

A25 Except for an **existing structure**, certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*, and must be recorded in the Register of Regulated Structures.

A26 Except for an **existing structure**, regulated structures must:

a) Be designed and constructed in compliance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
b) Be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
    i. floodwaters from entering the regulated dam from any watercourse or drainage line;
    ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
c) Have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

A27 Except for an **existing structure**, certification by the **suitably qualified and experienced person** who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;
b) Construction of the regulated structure is in accordance with the design plan.

A28 All **affected persons** must be provided with a copy of the emergency action plan in place for each regulated structure:

a) For existing structures that are regulated structures, within ten (10) business days of this condition taking effect;
b) Prior to the operation of the new regulated structure; and
c) If the emergency action plan is amended, within five (5) business days of it being amended.

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Release

A29 Operation of a regulated structure, except for an existing structure, is prohibited unless the environmental authority holder has submitted to the administering authority

a) One (1) paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with **condition A24**;
b) A set of 'as constructed' drawings and specifications;
c) Certification of those 'as constructed drawings and specifications' in accordance with **condition A27**;
d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan;
e) The requirements of this authority relating to the construction of the regulated structure have been met;
f) The holder has entered the details required under this authority, into a Register of Regulated Structures; and
g) There is a current operational plan for the regulated structure.

A30 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

A31 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the mandatory reporting level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

A32 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, as soon as practical but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

A33 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

A34 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must record any changes to the MRL in the Register of Regulated Structures.

A35 The environmental authority holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

A36 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the DSA volume for the dam (or network of linked containment systems).

A37 The environmental authority holder must, as soon as possible but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

A38 The environmental authority holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

A39 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

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A40 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

A41 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic *Performance of Structures (ESR/2016/1933).*

A42 The environmental authority holder must within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

a) The recommendations section of the annual inspection report;
b) If applicable, any actions being taken in response to those recommendations; and
c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the environmental authority holder, provide this to the administering authority within ten (10) business days of receipt of the request.

A43 The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new environmental authority holder on transfer of this activity.

A44 Regulated structures must not be abandoned but be either:

a) Decommissioned and rehabilitated to achieve compliance with **Schedule E** of this environmental authority; or
b) Be left in-situ for a use by the landholder provided that:
    i. it no longer contains contaminants that will migrate into the environment;
    ii. it contains water of a quality that is demonstrated to be suitable for its intended use(s); and
    iii. the environmental authority holder and the landholder agree in writing that the:
        1. dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and
        2. landholder is responsible for the dam, on and from an agreed date.

A45 A Register of Regulated Structures must be established and maintained by the environmental authority holder for each regulated structure.

A46 The environmental authority holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.

A47 The environmental authority holder must make a final entry of the required information in the Register of Regulated Structures once compliance with **condition A29** has been achieved.

A48 The environmental authority holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

A49 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.

A50 The environmental authority holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

END OF CONDITIONS FOR SCHEDULE A

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Release

Schedule B – Air

B1 The release of dust or particulate matter, or both, resulting from the mining activity must not cause environmental harm to an environmental value for air.

B2 When measured at any area or place outside of the mining lease boundary, airborne contaminants generated by the mining activities must not cause the following levels to be exceeded:

a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.*

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (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:

i. *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

ii. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of particulate matter – PM10 low volume sampler – Gravimetric method.*

END OF CONDITIONS FOR SCHEDULE B

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Release

Schedule C – Acoustic

C1 Noise generated by the mining activities must not exceed the specified levels in **Table C1 – Noise limits** when measured at any sensitive receptor.

Table C1 – Noise limits

Location	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
Dwelling	LAeq, adj, 1 hour	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA
	Max LpA, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
Commercial	**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**
	LAeq, adj, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
	Max LpA, 1 hour	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA

A – A weighted
Bkg = Background
dB – Decibel
LAeq - the A-weighted equivalent continuous Lp of the sample time T
Lp – Sound pressure level
Associated requirements:
1. Noise Measurement Manual, Department of Environment and Heritage Protection, 2013 or subsequent revisions

C2 The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table C2 – Blasting noise limits** to be exceeded when measured at any sensitive receptor.

Table C2 – Blasting noise limits

Blasting noise limits	Sensitive receptor blasting noise limits	
	8am to 5pm Monday to Saturday	Other times and Public holidays
Airblast overpressure	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

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C3 When requested by the administering authority, noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);
b) Background noise LA90;
c) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
d) Atmospheric conditions including temperature, relative humidity and wind speed and directions;
e) Effects due to any extraneous factors such as traffic noise;
f) Location, date and time of monitoring;
g) If the complaint concerns low frequency noise, Max $Lp(lin)_T$ and one third octave band measurements in dB(lin) for centre frequencies in the 10–200 Hertz range.

END OF CONDITIONS FOR SCHEDULE C

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Schedule D – Water

D1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

D2 The release of contaminants to waters must only occur from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters**.

Table D1– Contaminated water release points, sources and receiving waters

Release point[1] (RP)	Location (GDA94)		Water source[1]	Receiving waters description
	Latitude	Longitude		
A	-23.879876	150.9624459	East End mining operations discharging at Weir 1.	East End Creek
1	-23.878007	150.963352	East End mining operations discharging at Weir 6.	East End Creek

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

D3 The release of contaminants to waters in accordance with **condition D2** must be monitored:

a) at the release points specified in **Table D1 - Contaminated water release points, sources and receiving waters** as depicted in **Figure 2 – Release points and surface water monitoring locations**; and

b) at the monitoring frequencies specified in **Table D2 – Contaminant release limits**; and

c) for the quality characteristics identified in **Table D2 – Contaminant release limits**.

D4 The release of contaminants to waters in accordance with **condition D2** must not exceed the release limits stated in **Table D2 – Contaminant release limits** when measured at the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** for each quality characteristic.

Table D2 – Contaminant release limits

Quality characteristic	Release limit [2]	Monitoring frequency
Electrical Conductivity (micro siemens per centimetre, µs/cm)	5,000	Daily during a release greater than 6 mega litres per day. Monthly for all other releases.
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	
Turbidity (NTU)	20[1]	

[1] If turbidity at [the upstream monitoring point (Monitoring Point C)] is greater than Release Point A then no exceedance is to be recorded.

[2] Release limits apply at Release Point 1 from [INSERT DATE 12 MONTHS FROM DATE OF ISSUE].

D5 The release of contaminants to waters in accordance with **condition D2** must only take place during periods of **natural flow** in the Larcom Creek.

D6 Releases to waters must be undertaken so as to not cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

D7 The rate and daily quantity of water released from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** must be measured and recorded.

D8 The environmental authority holder must determine and record stream flows in the receiving environment at the upstream reference monitoring point specified in **Table D3 – Receiving waters monitoring sites.**

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D9 If the release limits specified in **Table D2 – Contaminant Release limits** are exceeded, the holder of the environmental authority must notify the administering authority within twenty four (24) hours of receiving the results.

D10 The environmental authority holder must, within twenty eight (28) days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

a) the reason for the release; and
b) the location of the release; and
c) the total volume of the release and which (if any) part of this volume was non-compliant; and
d) the total duration of the release and which (if any) part of this period was non-compliant; and
e) all water quality monitoring results (including all laboratory analyses); and
f) identification of any environmental harm as a result of the non-compliance; and
g) all calculations; and
h) any other matters pertinent to the water release event.

D11 The quality of the receiving waters must be monitored at the locations and frequency specified in **Table D3 - Receiving waters monitoring sites** as depicted in **Figure 2 – Release points and surface water monitoring locations** for each quality characteristic stated in **Table D4 – Water quality objectives for receiving waters.**

Table D3 – Receiving waters monitoring sites

Monitoring point[1]	Receiving waters location description	Location (GDA94)		Monitoring frequency
		Latitude	Longitude	
Upstream reference monitoring point[1]				
Monitoring Point G	Larcom Creek upstream of East End Creek and Larcom Creek junction [2]	TBD	TBD	Weekly
Monitoring Point C	Larcom Creek upstream of East End Creek and Larcom Creek junction (Location 5)	-23.887106	150.977379	Weekly
Downstream monitoring points				
Monitoring Point D	Larcom Creek downstream of East End Creek and Larcom Creek Junction (at Weir 7)	-23.899256	150.976483	Weekly

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.
[2] Upstream location must be outside of any influence from the releases from RP A
TBD To be determined and provided to the administering authority by [insert date within 3 months from date of issue]

D12 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit A specified in **Table D4 – Water quality objectives for receiving waters** on any five consecutive sampling occasions.

D13 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit B specified in **Table D4 – Water quality objectives for receiving waters** on any three consecutive sampling occasions.

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Table D4 – Water quality objectives for receiving waters

Quality characteristic	Water quality limit A	Water quality limit B
pH (pH units)	NA	6.5 (minimum) [1]
	NA	8.0 (maximum)[1]
Electrical conductivity (micro siemens per centimetre, µS/cm)	2,900[2]	3,300 [3]
Turbidity (NTU) [4]	4.2[1]	28.6 [5]

[1] Local water guideline values for protection of aquatic ecosystems for lowland fresh waters as per Table 2F of Environmental Protection (Water) Policy 2009 Curtis Island, Calliope River and Boyne River Basins Environmental Values and Water Quality Objectives), published in November 2014,.
[2] Limit based on 75th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[3] Limit based on 95th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[4] If turbidity at Monitoring Point C is greater than Monitoring Point D then no exceedance is to be recorded.
[5] Limit based on 95th percentile of Monitoring Point C specific data from January 2011 to April 2017.

D14 By <+ 3MONTHS FROM DATE OF ISSUE>, the environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) in accordance with the *Receiving Environment Monitoring program guideline for use with environmentally relevant activities under the Environmental Protection Act 1994 (ESR/2016/2399)*, to monitor, identify and describe any adverse impacts to: surface water environmental values, quality and flows; and groundwater 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 includes the waters of:

- Larcom Creek;
- East End Creek;
- Machine Creek;
- Jacobs Creek;
- Scrub Creek;
- Shultz Lagoon; and
- Groundwater.

D15 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared biennially and submitted to the administering authority on request. This must include as a minimum an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, the suitability of current discharge limits to protect downstream environmental values; and changes in groundwater quality.

D16 A *Water Management Plan* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D17 An *Erosion and Sediment Control Plan (ESCP)* must be developed by an appropriately qualified person and implemented by the environmental authority holder to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

D18 The extraction of groundwater must not cause environmental harm to the terrestrial groundwater dependant ecosystems specified in **Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems** or any groundwater dependant ecosystems outside of the zone of influence as depicted in **Figure 4: Groundwater Zone of Influence**.

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Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems

GDE	Latitude	Longitude
Terrestrial GDE[1]	-23.85373	150.96963

[1] http://www.bom.gov.au/water/groundwater/gde/map.shtml

D19 By +3 months from issue of EA, a *Groundwater Monitoring and Management Program* must be developed, documented and implemented by an appropriately qualified person.

D20 The *Groundwater Monitoring and Management Program* required by **condition D19** must:

a) identify potential sources of contamination to groundwater from the activity; and
b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and
c) document sampling and monitoring methodology; and
d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
    i. detect any impacts to groundwater levels due to the activity; and
    ii. detect any impacts to groundwater quality due to the activity; and
    iii. determine compliance with condition D18; and
    iv. determine trends in groundwater quality; and
e) include an appropriate quality assurance and quality control program; and
f) include validation of the calibrated transient groundwater model; and
g) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

D21 The *Groundwater Monitoring and Management Program* required by **condition D19** must be reviewed by 30 June each year by an appropriately qualified person to determine if it continues to meet the requirements stated in **condition D20**.

D22 Groundwater quality and standing water level must be monitored:

a) at the monitoring points specified in **Table D6 - Groundwater monitoring locations and frequency**; and
b) at the monitoring frequencies specified in **Table D6 - Groundwater monitoring locations and frequency**; and
c) for the quality characteristics identified in **Table D7 - Groundwater quality limits** for the aquifer in which the bore is located

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Table D6 – Groundwater monitoring locations and frequency

Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Limestone monitoring bores – Groundwater Quality within zone of influence						
DHH96-29	-23.872779	150.974047	36	20-36	Quarterly	
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH96-20	-23.868636	150.953004	45	33-45		
DHH96-25	-23.871112	150.969518	41.3	28-41.3		
Volcaniclastic monitoring bores – Groundwater Quality within zone of influence						
DHH96-39	-23.888283	150.959185	tba	tba	Quarterly	
DHH96-14	-23.879067	150.941706	50	20-50		
Subterranean Fauna Monitoring Bores						
DHH96-41	-23.891462	150.972234	36.67	TBA	Quarterly	
DHH96-33	TBA	TBA	TBA	TBA		
EE Mine Forest Bore SE	-23.874363	150.967503	tba	tba		
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-29	-23.872779	150.974047	36	20-36		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH97-6	-23.884431	150.969634	tba	tba		
B100	-23.847465	150.951668	54.8	TBA		

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Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Drawdown/GDE Monitoring Bores						
Limestone Compliance bores – Groundwater Levels and Quality						
DHH96-5	-23.852414	150.981157	44.77	10-50	Quarterly	
RC11-09	-23.798363	150.906876	30.487	24-36		
Shultz lagoon 1	TBA	TBA	TBA	TBA	Quarterly.	
Shultz lagoon 2	TBA	TBA	TBA	TBA		
Shultz lagoon 3	TBA	TBA	TBA	TBA		
Volcaniclastic Compliance bores – Groundwater Levels and Quality						
DHH96-1 [3]	-23.858826	150.974402	51.65	30-50	Quarterly	
DHH96-2 [3]	-23.855962	150.969479	51.85	0-20		
DHH96-10	-23.87511	150.992037	41.51	27-50		
DHH97-1A	-23.858226	150.924669	67.662	10.3-19		
RC11-07	-23.832943	150.895126	71.183	30-100		
RC11-13	-23.918103	150.996597	33.417	12-31		
RC11-15	-23.896588	151.010276	44.975	18-76		
RC11-17	-23.819972	150.96685	70.27	50-60		
RC11-19	-23.88478	150.931748	63.13	70-100		
RC11-20	-23.901544	150.936513	62.887	16-32		
RC11-21	-23.925181	150.924282	62.596	14-32		
Southern New Bore 1	TBA	TBA	TBA	TBA	Quarterly.	
Southern New Bore 2	TBA	TBA	TBA	TBA		

[1] Locations depicted in **Figure 3 –Groundwater monitoring locations.**
[2] RL must be measured to the nearest 5cm from the top of the bore casing.
[3] Terrestrial GDE specific monitoring bore
TBA To be advised to the administering authority by [INSERT DATE 6 MONTHS FROM EFFECTIVE DATE]

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D23 The activity must not cause a **deterioration of groundwater quality**.

D24 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table D7 – Groundwater quality limits** on any five consecutive sampling occasions.

D25 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any three consecutive sampling occasions.

D26 If groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** exceeds the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding parameters within ten business days of receipt of results.

Table D7 - Groundwater quality limits

Monitoring Point	Quality Characteristic			
	pH (pH units)	Electrical Conductivity (micro siemens per centimetre (µs/cm))		Major ions[1] (milligrams per litre (mg/L))
	Range	Maximum Limit A[2]	Maximum Limit B[3]	NA
DHH96-5	6.5 (minimum) 8.0 (maximum)	21,912	24,151	For interpretation purposes only.
RC11-09		5,830	5,920	
Shultz lagoon 1		TBA	TBA	
Shultz lagoon 2		TBA	TBA	
Shultz lagoon 3		TBA	TBA	
DHH96-1 [3]		26,800	33,683	
DHH96-2 [3]		9,880	13,413	
DHH96-10		4,784	4,817	
DHH97-1A		284	311	
RC11-07		5,840	6,740	
RC11-13		11,394	11,406	
RC11-15		9,090	9,997	
RC11-17		10,000	11,117	
RC11-19		3,970	4,120	
RC11-20		3,630	4,372	
RC11-21		1,660	1,787	
Southern New Bore 1		TBA	TBA	
Southern New Bore 2		TBA	TBA	

[1] Major ions include calcium, magnesium, sodium, potassium, bicarbonate, chloride, and sulphate.
[2] Limit A has been determined from the 80th percentile of the specific bore historical groundwater quality data up to March 2017.
[3] Limit B has been determined from the 95th percentile of the specific bore historical groundwater quality data up to March 2017.
TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

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D27 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D8 – Groundwater monitoring trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) conduct an investigation into the cause within ten business days; and
c) if the mining activities are identified as a potential cause or contributor, take immediate action to ensure compliance with condition D18 of this environmental authority.

Table D8 – Drawdown/GDE Groundwater monitoring trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
Limestone Compliance bores – Groundwater Levels			
DHH96-5	SWL m RL	38.2	Minimum
RC11-09		24.6	
Shultz lagoon 1		TBA	
Shultz lagoon 2		TBA	
Shultz lagoon 3		TBA	
Volcaniclastic Compliance bores – Groundwater Levels			
DHH96-1 [2]	SWL m RL	44.1	Minimum
DHH96-2 [2]		44.8	
DHH96-10		34.5	
DHH97-1A		60.4	
RC11-07		55.3	
RC11-13		24.2	
RC11-15		43.6	
RC11-17		49.8	
RC11-19		56.0	
RC11-20		48.7	
RC11-21		52.7	
Southern New Bore 1		TBA	
Southern New Bore 2		TBA	

[1] 5th percentile minus 0.5 metre
[2] Terrestrial GDE specific monitoring bores
TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

D28 Groundwater monitoring bores must be :

a) constructed and maintained in a manner that ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and
b) constructed, maintained and decommissioned in a manner that:
   i. prevents contaminants entering the groundwater; and
   ii. that maintains the hydogeological environment within the aquifer.

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D29 A bore drill log must be kept for each groundwater monitoring bore which includes:

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

D30 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009
b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Guidance on sampling of groundwaters;
c) for subterranean aquatic fauna, the Guideline for the Environmental Assessment of Subterranean Aquatic Fauna.

D31 Prior to the commencement of pit development on ML80156, a *Subterranean Fauna Monitoring and Management Program* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D32 The *Subterranean Fauna Monitoring and Management Program* required by **condition D31** must include adequate monitoring of subterranean species of stygofauna and troglofauna in all groundwaters potentially impacted by the mining activities and must achieve the following objectives:

a) Identify and describe subterranean fauna species present;
b) In addition to **condition D32(a)**, accurately describe and determine the distribution of the unique taxa found at bore locations EEUN2 and DHH96-41;
c) Assess and describe predicted impacts to subterranean fauna identified;
d) Recommend impact mitigation and minimisation measures for the fauna identified;
e) Monitor and record the effects of the mining activity on the subterranean fauna species;
f) Recommend actions, including timeframes for implementation, to ensure that any impacts to subterranean fauna not authorised under this environmental authority, are prevented.

D33 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D9 – Subterranean fauna trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) review the *Subterranean Fauna Monitoring and Management Program* required by **condition D31** within ten business days, particularly the requirements of **condition D32** c), d), e), and f).

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Table D9 – Subterranean fauna trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
DHH96-30	SWL m RL	24.1	Minimum
DHH97-6		25.1	
EE Mine Forest Bore SE		20.4	
DHH96-29		31.2	
DHH96-41		29.9	
DHH96-7		32.7	
DHH96-33		TBA	
DHH96-39		42.7	
B100		28.7	

[1] 5th percentile minus 0.5 metre

END OF CONDITIONS FOR SCHEDULE D

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Release

Schedule E – Land

E1 Treated sewage effluent may only be released to land in accordance with the conditions of this environmental authority at the following locations:

a) Within the nominated area(s) identified in **Figure 5: Location of sewage effluent disposal area**; and

b) Other land for the purpose of dust suppression and/or firefighting.

E2 The release of treated sewage effluent to land must not exceed the release limits stated in **Table E1 – Contaminant release limits to land**.

Table E1 – Contaminant release limits to land

Quality Characteristic	Unit	Release limit	Limit type	Monitoring frequency
Five-day biochemical oxygen demand (BOD)	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	
Nitrogen	mg/L	30	Maximum	
Phosphorus	mg/L	15	Maximum	
E-coli	organisms/100mL	1000	Maximum	
pH	pH units	6.5 – 9.0	Range	

E3 The application of treated effluent to land must be carried out in a manner that:

a) Vegetation is not damaged; and

b) There is no surface ponding of effluent; and

c) There is no run-off of effluent.

E4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

E5 All sewage effluent released to land must be monitored at the monitoring frequency and for the quality characteristics specified in **Table E1 – Contaminant release limits to land**.

E6 The monthly volume of effluent released to land must be measured and recorded.

E7 When circumstances prevent the irrigation or beneficial reuse of treated effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

E8 A minimum area of 10m^2 of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

E9 The release of contaminated water to land, other than treated sewage effluent in accordance with the conditions of this environmental authority, must only occur from the release points specified in **Table E2 – Contaminant release to land locations.**

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Table E2 – Contaminant release to land locations

Release point[1] (RP)	Location (GDA94)		Contaminated water source[1]
	Latitude	Longitude	
E	-23.880282	150.949141	East End mining operations, including clay dumps and haul roads, discharging at the spillway from the western sediment pond E.
F	-23.886780	150.966126	East End mining operations, including clay dumps and haul roads, discharging at the spillway from southern sediment pond F.

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

E10 The release of contaminants to lands in accordance with **condition E9** must not exceed the release limits for each quality characteristic stated in **Table E3 – Contaminant release to land limits** when measured at the release points specified in **Table E2 – Contaminant release to land locations**.

Table E3 – Contaminant release to land limits

Quality characteristic	Release limit	Monitoring frequency
Electrical Conductivity (EC) (micro Siemens per centimetre, µs/cm)	5,000	During a release (sample must be taken within 24 hours of commencement of release but before cessation of the release).
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	

E11 The release of contaminants to land in accordance with **condition E9** must be monitored at the release points specified in **Table E2 – Contaminant release to land locations** and depicted in **Figure 2 – Release points and surface water monitoring locations,** for each quality characteristic and at the monitoring frequency specified in **Table E3 – Contaminant release to land limits**.

E12 The release of contaminants to land in accordance with condition E9 must be carried out in a manner that:

a) Drainage to groundwater and subsurface flows of contaminants to surface waters are prevented; and
b) Surface pondage and run-off of contaminants is prevented; and
c) Degradation of soil structure is minimised; and
d) Soil sodicity and the build-up of heavy metals and metalloids in the soil and subsoil is minimised.

E13 Land disturbed by mining activities must be rehabilitated in accordance with **Table E4 – Rehabilitation requirements.**

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Table E4 – Rehabilitation requirements

Mine domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Mine pit slopes that are greater than 30° and greater than 5m in height	Safe to humans and wildlife	Site is safe for humans and animals now and in the foreseeable future	Safety assessment of slopes that are greater than 30° and greater than 5m in height	Validation in rehabilitation report that slopes are safe and predictions about future safety
Mine water storages	Non-polluting	Surface and groundwater that leave the lease will aim to meet or improve the water quality objectives of the receiving waters. Current and future water quality parameters will be maintained at levels that are acceptable for uses downstream of the site.	End of pipe and receiving waters meet environmental authority conditions.	Validation in water quality report that surface and groundwater objectives are met.
Mine workings, void, water storages	Stable	Low probability of rock falls with serious consequences	Geotechnical studies of workings, high walls and voids	Evidence in Final Rehabilitation Report that appropriate risk assessment has been undertaken and control measures are in place.
Mine workings above RL40	Able to sustain an agreed post-mining land use	Mining and rehabilitation will aim to create a landform with land use capability and/or suitably similar to that prior to disturbance, unless other beneficial land uses are pre-determined and agreed.	• Tree density (trees/ha) • Shrub density (shrubs/ha) • Sedge/forb/grass density (grasses/ha) • Species composition • Species diversity • Unvegetated area (%) • Leaf litter depth and coverage • Erosion indicators (e.g. depth and spacing of erosion rills) • Photographic records of the site	Final Rehabilitation Report will be prepared as per administering authority rehabilitation guidelines including: • The results of a site investigation • The results of a residual risk assessment (including estimation of monitoring and maintenance costs) • The results of contamination assessment, as required. • Written statements from landowners/landholders documenting any agreement for transfer of management and maintenance commitments or transfer of infrastructure ownership. • A site management plan as required. • An accompanying audit statement detailing the extent of rehabilitation, the extent of ongoing management, maintenance or monitoring issues and the adequacy of the calculated financial assurance.
Active spoil dumps		Mine wastes and disturbed land will be rehabilitated to a condition that is self-sustaining or where the maintenance requirements are consistent with an agreed post-mining land use.		

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E14 Rehabilitation must commence progressively in accordance with the plan of operations.

E15 The environmental authority holder must minimise the potential for contamination of land by hazardous contaminants.

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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.

Administering authority means the Department of Environment and Science or its successor.

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

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

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

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

Appropriately qualified person a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

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

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

Associated works in relation to a dam means:

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

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

Blasting 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.

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Certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by a condition of this environmental authority, and specifically in relation to structures, means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)*, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

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

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

Consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

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

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

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

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

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedence probability (AEP) specified in that Manual.

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

Deterioration of groundwater quality means a measurable increase (or decrease for pH) to the concentration of a contaminant identified in groundwater monitoring data.

Disturbance of land includes:

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

Effluent treated waste water released from sewage treatment plants.

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Emergency action plan means documentation forming part of the operational plan held by the environmental authority holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact details.

Existing structure means a structure that prior to <INSERT EA ISSUE DATE> meets any or both of the following, a structure:

a) With a design that is in accordance with Version 5.00 (dated 29 March 2016) of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* and that is considerably in progress;
b) That is under considerable construction or that is constructed.

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

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

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

Land use the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

Low consequence structure means any structure that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, as amended from time to time.

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

Modification or modifying see definition of 'construction'.

Natural flow the flow of water through waters caused by nature.

Non-polluting having no adverse impacts upon the receiving environment.

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Operational plan includes:

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

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

Pit development means the act or process of making an excavation or cut of the ground for the purpose of extracting ore.

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

a) a watercourse;
b) groundwater; and
c) an area of land that is not specified in this environmental authority.

Receiving waters means waters of the receiving environment as defined in the *Environmental Protection Act 1994*, including but not limited to the waters of East End Creek, Shultz Lagoon, Larcom Creek, Machine Creek, Scrub Creek and Jacobs Creek.

Records include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this authority.

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Register of regulated structures includes:

a) date of entry in the register;
b) name of the structure, its purpose and intended/actual contents;
c) the consequence category of the structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
d) dates, names and reference for the design plan plus dates, names and reference numbers of all document/s lodged as part of a design plan for the structure;
e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) for the regulated dam, other than in relation to any levees:
    i. the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii. coordinates (latitude and longitude in GDA94) within five (5) metres at any point from the outside of the dam including its storage area;
    iii. dam crest volume (megalitres);
    iv. spillway crest level (metres AHD);
    v. maximum operating level (metres AHD);
    vi. storage rating table of stored volume versus level (metres AHD);
    vii. design storage allowance (megalitres) and associated level of the dam (metres AHD);
    viii. mandatory reporting level (metres AHD);
g) For a regulated levee:
    i. The crest length of the levee (metres) measured along the centreline of the levee;
    ii. Location Coordinates (latitude and longitude in GDA94), and chainage distances (metres), of each end of the levee, and of each point along the crest of the levee which marks a change in direction;
    iii. Levee crest level (metres AHD), also at each end of the levee, and at each point along the crest of the levee which marks a change in direction;
    iv. Maximum height of the levee (metres), from the crest level to the adjacent toe (inside or outside) of the embankment, and the location and chainage of this maximum height;
    v. The crest width of the levee (metres);
    vi. The Annual Exceedence Probability of the design flood for operation of the levee;
    vii. The freeboard (metres) between design flood level and the crest level of the levee;
h) the design plan title and reference relevant to the dam;
i) the date construction was certified as compliant with the design plan;
j) the name and details of the suitably qualified and experienced person who certified that the constructed structure was compliant with the design plan;
k) details of the composition and construction of any liner;
l) the system for the detection of any leakage through the floor and sides of the dam;
m) dates when the regulated structure underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November for any year;
n) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
o) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated structure means any structure in the significant or high consequence category as assessed by using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority. A regulated structure does not include a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

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Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform.

Release event means surface water discharge from water storages or contaminated areas on the mining tenements detailed in this environmental authority.

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

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

Sensitive receptor means a sensitive receptor under the Environmental Protection (Noise) Policy 2008.

Structure means dam or levee.

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

Subterranean Fauna means fauna which live their entire lives (obligate) below the surface of the earth consisting of air-breathing troglofauna or aquatic groundwater fauna.

Subterranean wetland for the purpose of this environmental authority, means aquifer and cave groundwater dependent ecosystems that are dependent on the subterranean presence of groundwater.

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

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

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

System design plan means a plan that manages an integrated containment system that shares the required DSA volume and/or Extreme Storm Surge volume across the integrated containment system.

Calibrated transient groundwater model means a calibrated groundwater model as described in the *Australian Groundwater Modelling Guidelines* published in 2012 by the Australian Government National Water Commission. The model must include time-varying inputs, calculate and save output at various times throughout the duration of the model run, and must be capable of predicting time-varying groundwater responses.

Valid complaint means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.

Void means any constructed, open excavation in the ground.

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

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

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Wetland for the purpose of this environmental authority, means:

a) Areas shown on the Map of referable wetlands which is a document approved by the chief executive on 4 November 2011 and published by the administering authority, as amended from time to time by the chief executive under section 144D of the *Environmental Protection Regulation 2008*; and

b) Areas defined under the Queensland Wetlands Program as permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres, and possess one or more of the following attributes:

   i. At least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle; or

   ii. The substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or;

   iii. The substratum is not soil and is saturated with water, or covered by water at some time.

The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.

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Appendices

Maps and Figures

Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure. (eDOCS#6433223)

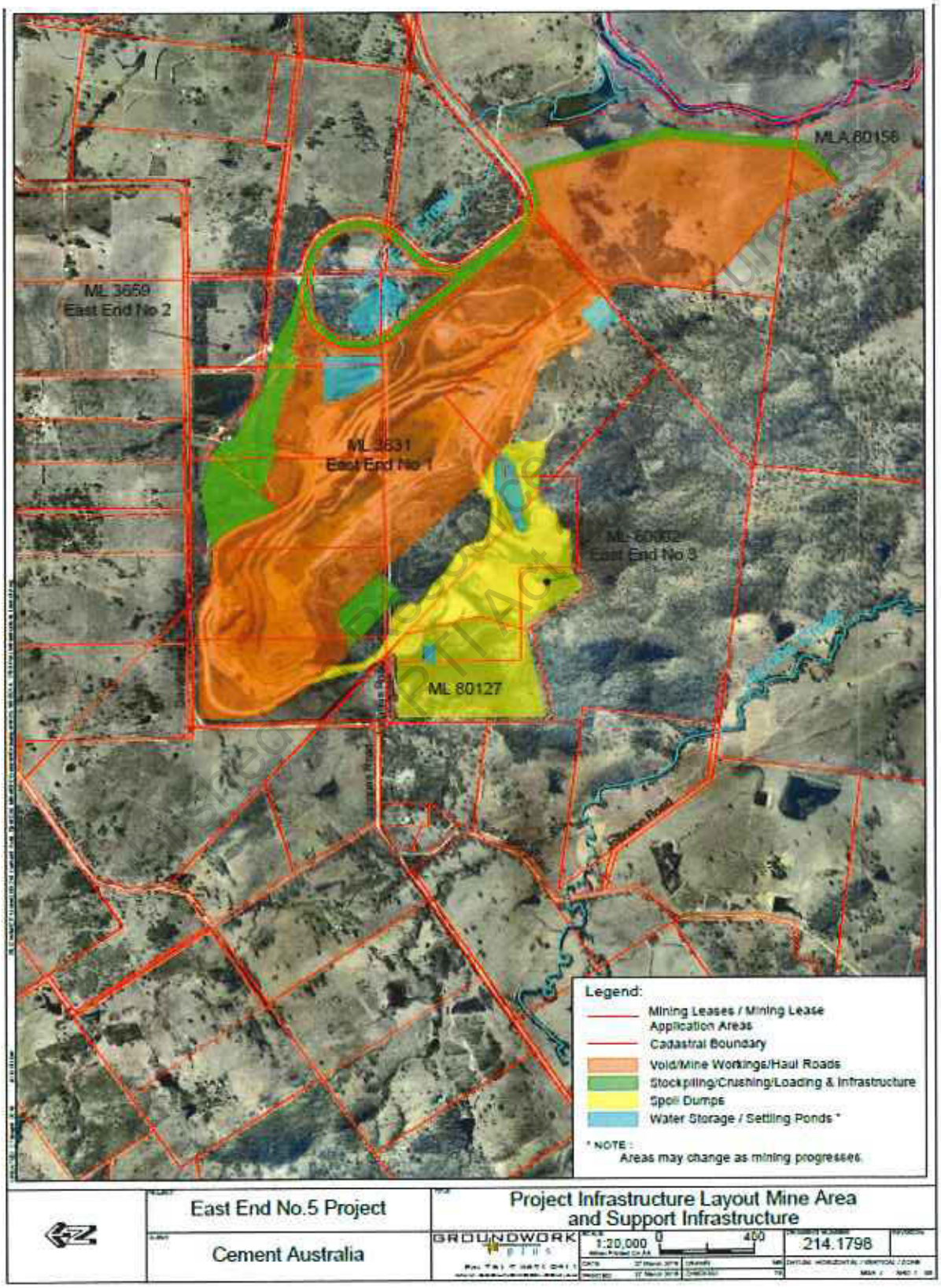
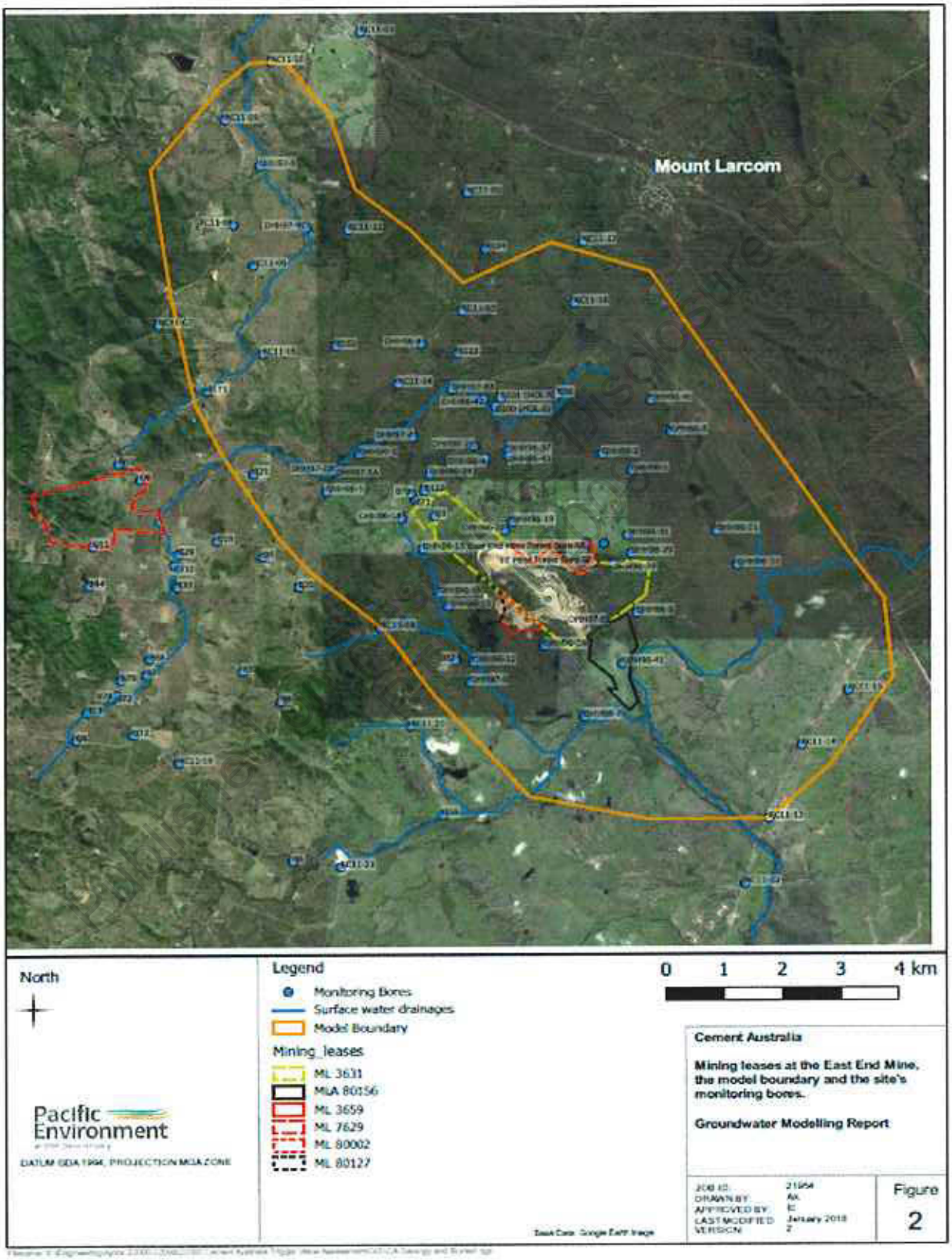


Figure 2 - Release Points and Surface water monitoring locations (to be provided by environmental authority holder to the administering authority by [INSERT DATE 1 MONTH FROM EFFECTIVE DATE])

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Release

Figure 3 – Groundwater monitoring locations (source: Groundwater modelling report: Conceptualisation and Modelling approach, dated 11 January 2018 – eDOCS#6428179)



Release

Figure 4 – Groundwater Zone of Influence. (Modelled 'zone of influence' (5m Drawdown Curve 2045) - - Pit Extension – Scenario 3 – MLA80156). Source: Groundwater modelling report: Conceptualisation and Modelling approach. 11 January 2018 (eDOCS#6428179).

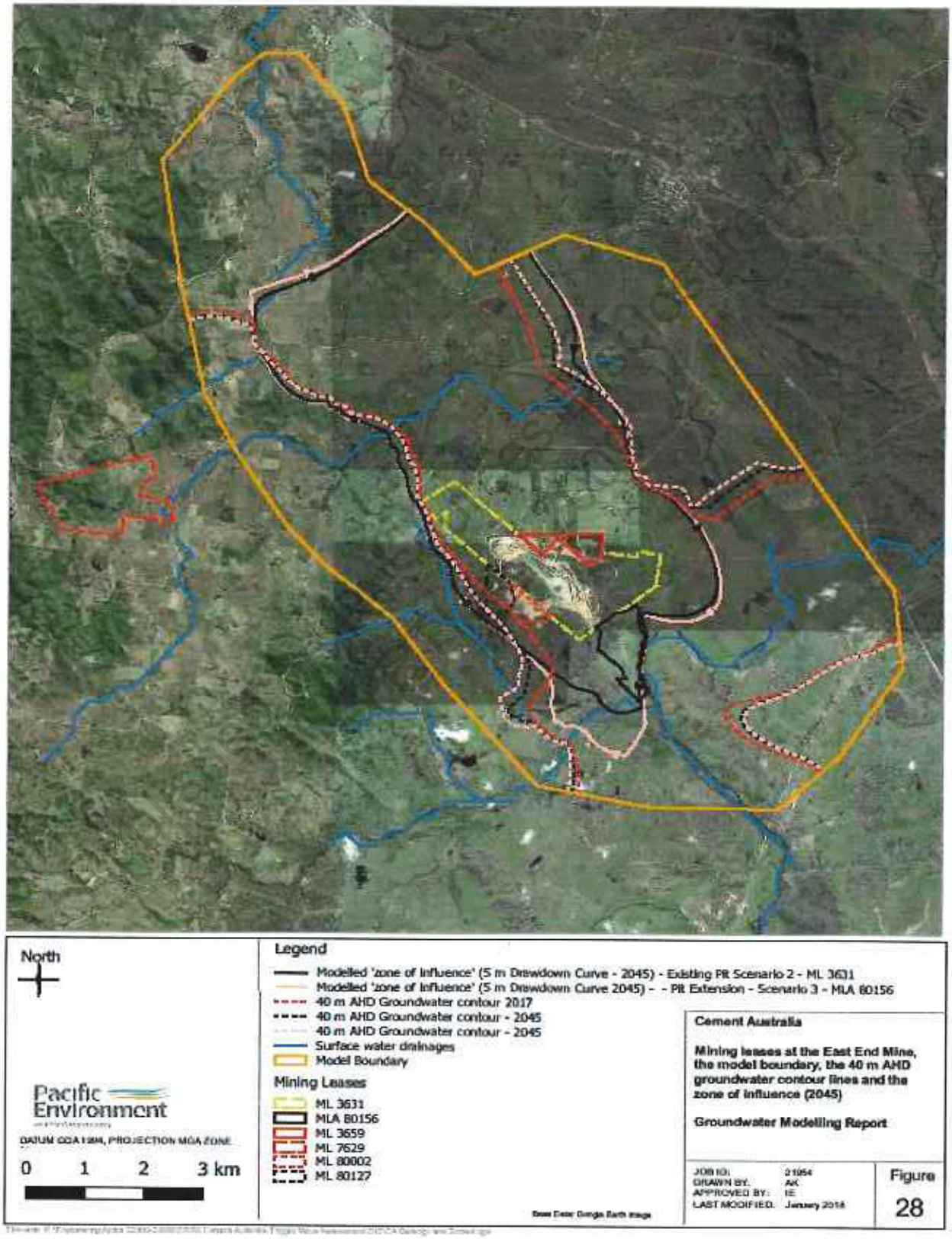
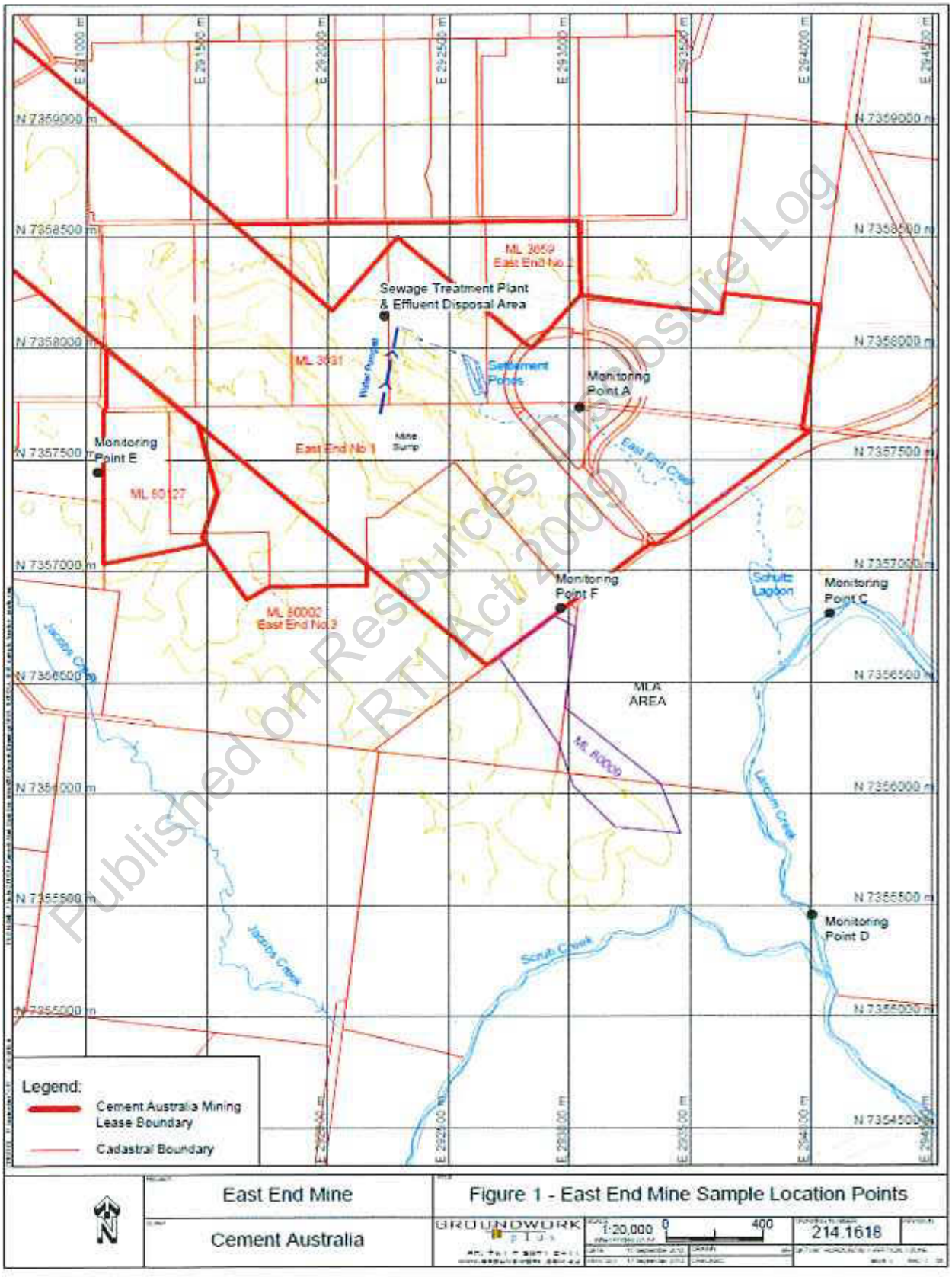


Figure 5: Location of sewage effluent disposal area



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END OF ENVIRONMENTAL AUTHORITY

Date : 20/04/2018 4:44:16 PM
From : "JOHNSTON Luke"
To : "Victoria Jefferies"
Cc : "ESCairns" , "Mineral Hub" , "HARDIE Tania" , "TANSLEY Filiz"
Subject : Draft EA issued to Cement Australia
Attachment : EDOCS-#6433386-v1-EA_Amendment_Major_20180420_NoD_EPML00658113_Cement_Au....pdf;EDOCS-#6433411-v1-EA_Amendment_Major_20180420_Draft_Permit_EPML00658113_....pdf;image001.png;image003.png;image002.png;image004.png;image005.png;

Good afternoon Vicky,

Please see attached the notice of decision and draft environmental authority for the amendment application to add MLA80156 to EPML00658113 for the East End Mine operations.

Please don't hesitate in contacting me should you have any queries in relation to this correspondence.

Regards

Queensland Government

Luke Johnston
Senior Environmental Officer (Assessment)
Minerals & North Queensland Compliance| Environmental Services and Regulation
Department of Environment and Science

P 07 4222 5354 **F**: 07 4222 5070
5b Sheridan Street, 'William McCormack Place' Cairns QLD 4870
PO Box 7230 Cairns QLD 4870

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If you are an existing EHP customer, your details are already in Connect and you can get your Connect EHP Customer Reference by emailing connecthelp@ehp.qld.gov.au.

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Notice

Environmental Protection Act 1994

Decision about an amendment application for an environmental authority (mining activities relating to a mining lease)

This non-statutory notice is issued by the administering authority to advise you that your draft environmental authority has been issued under sections 208 and 210 of the Environmental Protection Act 1994 *(version current as at 14 March 2013).*

To Cement Australia (Exploration) Pty Ltd
Cement Australia (Queensland) Pty Limited
18 Station Avenue
DARRA QLD 4076

PO Box 285
GLADSTONE QLD 4680

Cc: Mineral Assessment Hub
Department of Natural Resource and Mines
Email: MineralHub@dnrm.qld.gov.au

ATTN: Victoria Jefferies

Our reference: EPML00658113

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Decision about an amendment application for an environmental authority for mining activities relating to a mining lease

1. Application details

The application to amend environmental authority EPML00658113 was received by the administering authority on **1 December 2008**.

The application reference number is: EPML00658113.

Land description: Mining Lease (ML) 3601, ML3629, ML3630, ML3631, ML3632, ML3659, ML7629, ML80002, ML80127, and Mining Lease Application 80156.

2. Decision

The administering authority has decided to issue the draft amended environmental authority relating to the application to amend environmental authority EPML00658113 under sections 208 and 210 of the *Environmental Protection Act 1994* effective as at 14 March 2013 (the *Environmental Protection Act 1994*).

A copy of the draft amended environmental authority is attached.

The environmental authority holder(s) cannot commence operations under the attached draft amended environmental authority until a final environmental authority is issued for the approved environmentally relevant activity/activities. However, the environmental authority holder(s) may continue to operate to the extent authorised by the current environmental authority.

ABN 46 640 294 485

Releas

3. Reasons for the decision

On 2 February 2018, in accordance with section 207 of the *Environmental Protection Act 1994*, the administering authority decided that the environmental authority amendment application be allowed to proceed.

In accordance with section 208 of the *Environmental Protection Act 1994*, a longer period for the preparation of the draft environmental authority was agreed to between the applicant and the administering authority. The agreed period ended on 20 April 2018.

In accordance with sections 208 and 210 of the *Environmental Protection Act 1994*, the draft environmental authority includes proposed conditions that the administering authority considers necessary and desirable, and that the applicant has agreed to.

4. Public notice of application

In accordance with section 211 of the *Environmental Protection Act 1994*, the applicant must give and publish a notice about the application that complies with section 212 of the *Environmental Protection Act 1994*.

In accordance with section 213 of the *Environmental Protection Act 1994*, the administering authority will, within the objection period, keep the application documents for the application open for public inspection during office hours on business days at 400 George Street, Brisbane, Queensland.

Should you have any questions in relation to this notice, please contact the department using the contact details provided below.

sch4p4(6) Personal information

Signature

20/4/18

Date

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

Enquiries:
Minerals Business Centre
PO Box 7230, Cairns QLD 4870
Phone: (07) 4222 5334
Email: ESCairns@des.qld.gov.au

Attachments

Draft environmental authority EPML00658110.

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DRAFT Permit

Environmental Protection Act 1994

DRAFT Environmental authority EPML00658113

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

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Environmental authority number: EPML00658113

Environmental authority takes effect on TBA
The anniversary date of this environmental authority is 30 April. An annual return and the payment of the annual fee will be due each year on this day.

Environmental authority holder(s)

Name(s)	Registered address
Cement Australia (Exploration) Pty Ltd	18 Station Avenue DARRA QLD 4076
Cement Australia (Queensland) Pty Limited	

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
21 – Mining ML other; Site Specific. 63 – (1a)(ii) Sewage Treatment: Operating sewage treatment works at a site, other than no-release works, with a total daily peak design capacity of 21 to 100 equivalent persons.	ML3629; ML3630; ML3631; ML3632; ML3659; ML7629; ML80002; ML80127; ML80156.
33 – Crushing, grinding, milling or screening more than 5,000 tonnes of material in a year.	ML3631; ML3659

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).

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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- one 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.

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

<INSERT delegate name>
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
Minerals Business Centre
PO Box 7230
CAIRNS QLD 4870
Phone: (07) 4222 5334
ESCairns@des.qld.gov.au

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Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

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Conditions of environmental authority

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 the authorised disturbance areas listed in Table A1 – Authorised disturbance and as depicted in **Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure**.

Table A1 - Authorised disturbance

Mine Feature Name	Location (GDA94)[1]		Maximum Disturbance Area (ha)	Description / Purpose
	Latitude	Longitude		
Water Storage / Settling Ponds			11	Includes: water storages, sediment settling ponds.
Void / Mine Workings / Haul Roads			209	Includes: Voids, haul roads, mine workings, access roads
Spoil Dumps			53	Includes: overburden and spoil dumps
Stockpiling/Crushing/Loading and Infrastructure			37	Includes: Stockpiles, Crushing Plant, Offices, Workshops, Rail Loop

[1] Coordinates indicate location of mine feature not boundaries.

A3 The environmental authority holder must:

a) Install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; and
b) Maintain such measures, plant and equipment in a proper and efficient manner; and
c) Operate such measures, plant and equipment in a proper and efficient manner; and,
d) Ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.

A4 All flammable, corrosive and combustible liquids, including petroleum products, must be stored and handled in accordance with:

a) The latest edition of *AS1940—The storage and handling of flammable and combustible liquids* where applicable;
b) The current Australian Standard where applicable; or
c) Where no relevant Australian Standard exists, store such materials within an on-site containment system sufficient to prevent release to the receiving environment.

A5 Financial assurance must be lodged in the amount, the form, and within the time required by the administering authority.

A6 Any **records** kept or created in relation to this environmental authority must be:

a) kept for a period of at least five years; and
b) provided to the **administering authority** on request; and
c) provided to the **administering authority** in the format requested.

A7 An **appropriately qualified person(s)** must monitor and record all indicator(s) required by and in accordance with this environmental authority.

A8 When required by the **administering authority**, monitoring must be undertaken in the manner prescribed by the **administering authority** to investigate a complaint arising from the **activity**. The monitoring results must be recorded.

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A9 The following must be recorded in relation to all monitoring required under a condition of this environmental authority:

a) The date and time when the sample was taken;
b) The location where the sample was taken;
c) The results of all monitoring and details of exceedances of the conditions of this environmental authority; and
d) Any other pertinent details of relevance to interpreting the sample results (i.e. stream or release flow rate, wind, conditions, atmospheric conditions, any relevant observations such as odour or colouration).

A10 The environmental authority holder must implement and maintain a risk management system for mining activities which mirrors the content requirement of the Standard for Risk Management (ISO31000:2009), or the Standard for Environmental Management Systems (ISO14001), or the latest edition of an Australia standard for risk management, to the extent relevant to environmental management.

A11 The environmental authority holder must notify the administering authority within twenty four (24) hours of becoming aware of any incident or event which does or may contravene a condition of this environmental authority.
Notification to the administering authority must be provided to the administering authority Pollution Hotline on 1300 130 372 and PollutionHotline@ehp.qld.gov.au.

A12 Within ten (10) business days following the initial notification of an incident or 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; and
b) Outcomes of actions taken at the time to prevent or minimise unlawful environmental harm; and
c) Proposed actions to prevent recurrence of the emergency or incident.

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

a) Name, address and contact number of the complainant;
b) Time and date of complaint;
c) Reasons for the complaint;
d) Investigations undertaken;
e) Conclusions formed;
f) Actions taken to resolve the complaint;
g) Any abatement measures implemented; and
h) Person responsible for resolving the complaint.

A14 Compliance with the conditions of this environmental authority must be audited at regular intervals not exceeding once every three (3) years. The audit must be conducted by a suitably qualified third party auditor. The environmental authority holder must submit a final version of the auditor's report to the administering authority within ninety (90) days of completing the audit.

A15 All waste generated as part of the mining activities must be lawfully reused, recycled, or removed to an off-site facility that can lawfully accept the waste.

A16 Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste to energy options must be stored in stable stacks and at least 10 metres away from any other scrap tyre storage area, or combustible or flammable material, including vegetation.

A17 All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a 10 metre radius of the scrap tyre storage area.

A18 Where no feasible recycling or waste-to-energy options are available, 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.

A19 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.

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A20 The consequence category of any **structure** must be assessed by a **suitably qualified and experienced person** in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (EM635)* at the following times:

a) Prior to the design and construction of the structure, if it is not an existing structure; or
b) Prior to any change in its purpose or the nature of its stored contents.

A21 A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.

A22 Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)*.

A23 Except for an **existing structure**, all regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

A24 Except for an **existing structure**, construction of a regulated structure is prohibited unless

a) The environmental authority holder has submitted a consequence category assessment report and certification to the administering authority;
b) Certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.

A25 Except for an **existing structure**, certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*, and must be recorded in the Register of Regulated Structures.

A26 Except for an **existing structure**, regulated structures must:

a) Be designed and constructed in compliance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
b) Be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of:
    i. floodwaters from entering the regulated dam from any watercourse or drainage line;
    ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line.
c) Have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.

A27 Except for an **existing structure**, certification by the **suitably qualified and experienced person** who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that:

a) The 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure;
b) Construction of the regulated structure is in accordance with the design plan.

A28 All **affected persons** must be provided with a copy of the emergency action plan in place for each regulated structure:

a) For existing structures that are regulated structures, within ten (10) business days of this condition taking effect;
b) Prior to the operation of the new regulated structure; and
c) If the emergency action plan is amended, within five (5) business days of it being amended.

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A29 Operation of a regulated structure, except for an existing structure, is prohibited unless the environmental authority holder has submitted to the administering authority

a) One (1) paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with **condition A24**;
b) A set of 'as constructed' drawings and specifications;
c) Certification of those 'as constructed drawings and specifications' in accordance with **condition A27**;
d) Where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the design storage allowance (DSA) volume across the system, a copy of the certified system design plan;
e) The requirements of this authority relating to the construction of the regulated structure have been met;
f) The holder has entered the details required under this authority, into a Register of Regulated Structures; and
g) There is a current operational plan for the regulated structure.

A30 Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.

A31 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the mandatory reporting level (MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.

A32 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, as soon as practical but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.

A33 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.

A34 For regulated structures that have not been certified as low consequence category for 'failure to contain – overtopping', the environmental authority holder must record any changes to the MRL in the Register of Regulated Structures.

A35 The environmental authority holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.

A36 By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the DSA volume for the dam (or network of linked containment systems).

A37 The environmental authority holder must, as soon as possible but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.

A38 The environmental authority holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.

A39 Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.

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A40 At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.

A41 The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the Manual for Assessing Consequence Categories and Hydraulic *Performance of Structures (ESR/2016/1933).*

A42 The environmental authority holder must within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority:

a) The recommendations section of the annual inspection report;
b) If applicable, any actions being taken in response to those recommendations; and
c) If, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a copy of the annual inspection report from the environmental authority holder, provide this to the administering authority within ten (10) business days of receipt of the request.

A43 The environmental authority holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new environmental authority holder on transfer of this activity.

A44 Regulated structures must not be abandoned but be either:

a) Decommissioned and rehabilitated to achieve compliance with **Schedule E** of this environmental authority; or
b) Be left in-situ for a use by the landholder provided that:
    i. it no longer contains contaminants that will migrate into the environment;
    ii. it contains water of a quality that is demonstrated to be suitable for its intended use(s); and
    iii. the environmental authority holder and the landholder agree in writing that the:
        1. dam will be used by the landholder following the cessation of the environmentally relevant activity(ies); and
        2. landholder is responsible for the dam, on and from an agreed date.

A45 A Register of Regulated Structures must be established and maintained by the environmental authority holder for each regulated structure.

A46 The environmental authority holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.

A47 The environmental authority holder must make a final entry of the required information in the Register of Regulated Structures once compliance with **condition A29** has been achieved.

A48 The environmental authority holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.

A49 All entries in the Register of Regulated Structures must be approved by the chief executive officer for the environmental authority holder, or their delegate, as being accurate and correct.

A50 The environmental authority holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Structures, in the electronic format required by the administering authority.

END OF CONDITIONS FOR SCHEDULE A

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Schedule B – Air

B1 The release of dust or particulate matter, or both, resulting from the mining activity must not cause environmental harm to an environmental value for air.

B2 When measured at any area or place outside of the mining lease boundary, airborne contaminants generated by the mining activities must not cause the following levels to be exceeded:

a) Dust deposition of 120 milligrams per square metre per day, averaged over 1 month, when monitored in accordance with the most recent version of *Australian Standard AS3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.*

b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (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:

i. *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

ii. *Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of particulate matter – PM10 low volume sampler – Gravimetric method.*

END OF CONDITIONS FOR SCHEDULE B

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Schedule C – Acoustic

C1 Noise generated by the mining activities must not exceed the specified levels in **Table C1 – Noise limits** when measured at any sensitive receptor.

Table C1 – Noise limits

Location	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
Dwelling	LAeq, adj, 1 hour	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA	Bkg + 5dBA	Bkg + 3dBA	Bkg + 3dBA
	Max LpA, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
Commercial	**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**
	LAeq, adj, 1 hour	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA	Bkg + 10dBA	Bkg + 5dBA	Bkg + 5dBA
	Max LpA, 1 hour	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA	Bkg + 15dBA	Bkg + 10dBA	Bkg + 10dBA

A – A weighted
Bkg = Background
dB – Decibel
LAeq - the A-weighted equivalent continuous Lp of the sample time T
Lp – Sound pressure level
Associated requirements:
1. Noise Measurement Manual, Department of Environment and Heritage Protection, 2013 or subsequent revisions

C2 The environmental authority holder must ensure that blasting does not cause the limits for peak particle velocity and air blast overpressure in **Table C2 – Blasting noise limits** to be exceeded when measured at any sensitive receptor.

Table C2 – Blasting noise limits

Blasting noise limits	Sensitive receptor blasting noise limits	
	8am to 5pm Monday to Saturday	Other times and Public holidays
Airblast overpressure	115dB (Linear) Peak for 9 out of 10 consecutive blasts initiated and not greater than 120dB (Linear) Peak at any time	No blasting
Ground vibration peak particle velocity	5mm/second peak particle velocity for 9 out of 10 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting

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C3 When requested by the administering authority, noise monitoring and recording must include the following descriptor characteristics and matters:

a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 15 mins);
b) Background noise LA90;
c) The level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels;
d) Atmospheric conditions including temperature, relative humidity and wind speed and directions;
e) Effects due to any extraneous factors such as traffic noise;
f) Location, date and time of monitoring;
g) If the complaint concerns low frequency noise, Max $Lp(lin)_T$ and one third octave band measurements in dB(lin) for centre frequencies in the 10–200 Hertz range.

END OF CONDITIONS FOR SCHEDULE C

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Schedule D – Water

D1 Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

D2 The release of contaminants to waters must only occur from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters**.

Table D1– Contaminated water release points, sources and receiving waters

Release point[1] (RP)	Location (GDA94)		Water source[1]	Receiving waters description
	Latitude	Longitude		
A	-23.879876	150.9624459	East End mining operations discharging at Weir 1.	East End Creek
1	-23.878007	150.963352	East End mining operations discharging at Weir 6.	East End Creek

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

D3 The release of contaminants to waters in accordance with **condition D2** must be monitored:

a) at the release points specified in **Table D1 - Contaminated water release points, sources and receiving waters** as depicted in **Figure 2 – Release points and surface water monitoring locations**; and

b) at the monitoring frequencies specified in **Table D2 – Contaminant release limits**; and

c) for the quality characteristics identified in **Table D2 – Contaminant release limits**.

D4 The release of contaminants to waters in accordance with **condition D2** must not exceed the release limits stated in **Table D2 – Contaminant release limits** when measured at the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** for each quality characteristic.

Table D2 – Contaminant release limits

Quality characteristic	Release limit [2]	Monitoring frequency
Electrical Conductivity (micro siemens per centimetre, µs/cm)	5,000	Daily during a release greater than 6 mega litres per day. Monthly for all other releases.
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	
Turbidity (NTU)	20[1]	

[1] If turbidity at [the upstream monitoring point (Monitoring Point C)] is greater than Release Point A then no exceedance is to be recorded.

[2] Release limits apply at Release Point 1 from [INSERT DATE 12 MONTHS FROM DATE OF ISSUE].

D5 The release of contaminants to waters in accordance with **condition D2** must only take place during periods of **natural flow** in the Larcom Creek.

D6 Releases to waters must be undertaken so as to not cause erosion of the bed and banks of the receiving waters, or cause a material build-up of sediment in such waters.

D7 The rate and daily quantity of water released from the release points specified in **Table D1 – Contaminated water release points, sources and receiving waters** must be measured and recorded.

D8 The environmental authority holder must determine and record stream flows in the receiving environment at the upstream reference monitoring point specified in **Table D3 – Receiving waters monitoring sites.**

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D9 If the release limits specified in **Table D2 – Contaminant Release limits** are exceeded, the holder of the environmental authority must notify the administering authority within twenty four (24) hours of receiving the results.

D10 The environmental authority holder must, within twenty eight (28) days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority detailing:

a) the reason for the release; and
b) the location of the release; and
c) the total volume of the release and which (if any) part of this volume was non-compliant; and
d) the total duration of the release and which (if any) part of this period was non-compliant; and
e) all water quality monitoring results (including all laboratory analyses); and
f) identification of any environmental harm as a result of the non-compliance; and
g) all calculations; and
h) any other matters pertinent to the water release event.

D11 The quality of the receiving waters must be monitored at the locations and frequency specified in **Table D3 - Receiving waters monitoring sites** as depicted in **Figure 2 – Release points and surface water monitoring locations** for each quality characteristic stated in **Table D4 – Water quality objectives for receiving waters.**

Table D3 – Receiving waters monitoring sites

Monitoring point[1]	Receiving waters location description	Location (GDA94)		Monitoring frequency
		Latitude	Longitude	
Upstream reference monitoring point[1]				
Monitoring Point G	Larcom Creek upstream of East End Creek and Larcom Creek junction [2]	TBD	TBD	Weekly
Monitoring Point C	Larcom Creek upstream of East End Creek and Larcom Creek junction (Location 5)	-23.887106	150.977379	Weekly
Downstream monitoring points				
Monitoring Point D	Larcom Creek downstream of East End Creek and Larcom Creek Junction (at Weir 7)	-23.899256	150.976483	Weekly

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.
[2] Upstream location must be outside of any influence from the releases from RP A
TBD To be determined and provided to the administering authority by [insert date within 3 months from date of issue]

D12 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit A specified in **Table D4 – Water quality objectives for receiving waters** on any five consecutive sampling occasions.

D13 Receiving waters measured from Monitoring Point D specified in **Table D3 – Receiving waters monitoring sites** must not exceed the corresponding Limit B specified in **Table D4 – Water quality objectives for receiving waters** on any three consecutive sampling occasions.

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Table D4 – Water quality objectives for receiving waters

Quality characteristic	Water quality limit A	Water quality limit B
pH (pH units)	NA	6.5 (minimum) [1]
	NA	8.0 (maximum)[1]
Electrical conductivity (micro siemens per centimetre, µS/cm)	2,900[2]	3,300 [3]
Turbidity (NTU) [4]	4.2[1]	28.6 [5]

[1] Local water guideline values for protection of aquatic ecosystems for lowland fresh waters as per Table 2F of Environmental Protection (Water) Policy 2009 Curtis Island, Calliope River and Boyne River Basins Environmental Values and Water Quality Objectives), published in November 2014,.
[2] Limit based on 75th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[3] Limit based on 95th percentile of Monitoring Point D specific data from January 2011 to March 2018.
[4] If turbidity at Monitoring Point C is greater than Monitoring Point D then no exceedance is to be recorded.
[5] Limit based on 95th percentile of Monitoring Point C specific data from January 2011 to April 2017.

D14 By <+ 3MONTHS FROM DATE OF ISSUE>, the environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) in accordance with the *Receiving Environment Monitoring program guideline for use with environmentally relevant activities under the Environmental Protection Act 1994 (ESR/2016/2399)*, to monitor, identify and describe any adverse impacts to: surface water environmental values, quality and flows; and groundwater 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 includes the waters of:

- Larcom Creek;
- East End Creek;
- Machine Creek;
- Jacobs Creek;
- Scrub Creek;
- Shultz Lagoon; and
- Groundwater.

D15 A report outlining the findings of the REMP, including all monitoring results and interpretations must be prepared biennially and submitted to the administering authority on request. This must include as a minimum an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, the suitability of current discharge limits to protect downstream environmental values; and changes in groundwater quality.

D16 A *Water Management Plan* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D17 An *Erosion and Sediment Control Plan (ESCP)* must be developed by an appropriately qualified person and implemented by the environmental authority holder to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

D18 The extraction of groundwater must not cause environmental harm to the terrestrial groundwater dependant ecosystems specified in **Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems** or any groundwater dependant ecosystems outside of the zone of influence as depicted in **Figure 4: Groundwater Zone of Influence**.

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Table D5 – Identified Terrestrial Groundwater Dependant Ecosystems

GDE	Latitude	Longitude
Terrestrial GDE[1]	-23.85373	150.96963

[1] http://www.bom.gov.au/water/groundwater/gde/map.shtml

D19 By +3 months from issue of EA, a *Groundwater Monitoring and Management Program* must be developed, documented and implemented by an appropriately qualified person.

D20 The *Groundwater Monitoring and Management Program* required by **condition D19** must:

a) identify potential sources of contamination to groundwater from the activity; and
b) ensure that all potential groundwater impacts due to the activity are identified, monitored and mitigated; and
c) document sampling and monitoring methodology; and
d) ensure that adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives:
    i. detect any impacts to groundwater levels due to the activity; and
    ii. detect any impacts to groundwater quality due to the activity; and
    iii. determine compliance with condition D18; and
    iv. determine trends in groundwater quality; and
e) include an appropriate quality assurance and quality control program; and
f) include validation of the calibrated transient groundwater model; and
g) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.

D21 The *Groundwater Monitoring and Management Program* required by **condition D19** must be reviewed by 30 June each year by an appropriately qualified person to determine if it continues to meet the requirements stated in **condition D20**.

D22 Groundwater quality and standing water level must be monitored:

a) at the monitoring points specified in **Table D6 - Groundwater monitoring locations and frequency**; and
b) at the monitoring frequencies specified in **Table D6 - Groundwater monitoring locations and frequency**; and
c) for the quality characteristics identified in **Table D7 - Groundwater quality limits** for the aquifer in which the bore is located

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Table D6 – Groundwater monitoring locations and frequency

Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Limestone monitoring bores – Groundwater Quality within zone of influence						
DHH96-29	-23.872779	150.974047	36	20-36	Quarterly	
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH96-20	-23.868636	150.953004	45	33-45		
DHH96-25	-23.871112	150.969518	41.3	28-41.3		
Volcaniclastic monitoring bores – Groundwater Quality within zone of influence						
DHH96-39	-23.888283	150.959185	tba	tba	Quarterly	
DHH96-14	-23.879067	150.941706	50	20-50		
Subterranean Fauna Monitoring Bores						
DHH96-41	-23.891462	150.972234	36.67	TBA	Quarterly	
DHH96-33	TBA	TBA	TBA	TBA		
EE Mine Forest Bore SE	-23.874363	150.967503	tba	tba		
DHH96-30	-23.874528	150.971084	20	15-27		
DHH96-29	-23.872779	150.974047	36	20-36		
DHH96-7	-23.900377	150.965663	50	8-50		
DHH97-6	-23.884431	150.969634	tba	tba		
B100	-23.847465	150.951668	54.8	TBA		

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Monitoring Point[1]	Location (GDA)		Surface RL (m)[2]	Screened interval RL (m)	Monitoring Frequency	
	Latitude	Longitude			Standing Water Level	Groundwater Quality
Drawdown/GDE Monitoring Bores						
Limestone Compliance bores – Groundwater Levels and Quality						
DHH96-5	-23.852414	150.981157	44.77	10-50	Quarterly	
RC11-09	-23.798363	150.906876	30.487	24-36		
Shultz lagoon 1	TBA	TBA	TBA	TBA	Quarterly.	
Shultz lagoon 2	TBA	TBA	TBA	TBA		
Shultz lagoon 3	TBA	TBA	TBA	TBA		
Volcaniclastic Compliance bores – Groundwater Levels and Quality						
DHH96-1 [3]	-23.858826	150.974402	51.65	30-50	Quarterly	
DHH96-2 [3]	-23.855962	150.969479	51.85	0-20		
DHH96-10	-23.87511	150.992037	41.51	27-50		
DHH97-1A	-23.858226	150.924669	67.662	10.3-19		
RC11-07	-23.832943	150.895126	71.183	30-100		
RC11-13	-23.918103	150.996597	33.417	12-31		
RC11-15	-23.896588	151.010276	44.975	18-76		
RC11-17	-23.819972	150.96685	70.27	50-60		
RC11-19	-23.88478	150.931748	63.13	70-100		
RC11-20	-23.901544	150.936513	62.887	16-32		
RC11-21	-23.925181	150.924282	62.596	14-32		
Southern New Bore 1	TBA	TBA	TBA	TBA	Quarterly.	
Southern New Bore 2	TBA	TBA	TBA	TBA		

[1] Locations depicted in **Figure 3 –Groundwater monitoring locations.**
[2] RL must be measured to the nearest 5cm from the top of the bore casing.
[3] Terrestrial GDE specific monitoring bore
TBA To be advised to the administering authority by [INSERT DATE 6 MONTHS FROM EFFECTIVE DATE]

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D23 The activity must not cause a **deterioration of groundwater quality**.

D24 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit A specified in **Table D7 – Groundwater quality limits** on any five consecutive sampling occasions.

D25 Groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** must not exceed the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any three consecutive sampling occasions.

D26 If groundwater measured from any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** exceeds the corresponding Limit B specified in **Table D7 – Groundwater quality limits** on any one sampling occasion the environmental authority holder must resample the groundwater within the compliance bore for all exceeding parameters within ten business days of receipt of results.

Table D7 - Groundwater quality limits

Monitoring Point	Quality Characteristic			
	pH (pH units)	Electrical Conductivity (micro siemens per centimetre (µs/cm))		Major ions[1] (milligrams per litre (mg/L))
	Range	Maximum Limit A[2]	Maximum Limit B[3]	NA
DHH96-5	6.5 (minimum) 8.0 (maximum)	21,912	24,151	For interpretation purposes only.
RC11-09		5,830	5,920	
Shultz lagoon 1		TBA	TBA	
Shultz lagoon 2		TBA	TBA	
Shultz lagoon 3		TBA	TBA	
DHH96-1 [3]		26,800	33,683	
DHH96-2 [3]		9,880	13,413	
DHH96-10		4,784	4,817	
DHH97-1A		284	311	
RC11-07		5,840	6,740	
RC11-13		11,394	11,406	
RC11-15		9,090	9,997	
RC11-17		10,000	11,117	
RC11-19		3,970	4,120	
RC11-20		3,630	4,372	
RC11-21		1,660	1,787	
Southern New Bore 1		TBA	TBA	
Southern New Bore 2		TBA	TBA	

[1] Major ions include calcium, magnesium, sodium, potassium, bicarbonate, chloride, and sulphate.
[2] Limit A has been determined from the 80th percentile of the specific bore historical groundwater quality data up to March 2017.
[3] Limit B has been determined from the 95th percentile of the specific bore historical groundwater quality data up to March 2017.
TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

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D27 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D8 – Groundwater monitoring trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) conduct an investigation into the cause within ten business days; and
c) if the mining activities are identified as a potential cause or contributor, take immediate action to ensure compliance with condition D18 of this environmental authority.

Table D8 – Drawdown/GDE Groundwater monitoring trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
Limestone Compliance bores – Groundwater Levels			
DHH96-5	SWL m RL	38.2	Minimum
RC11-09		24.6	
Shultz lagoon 1		TBA	
Shultz lagoon 2		TBA	
Shultz lagoon 3		TBA	
Volcaniclastic Compliance bores – Groundwater Levels			
DHH96-1 [2]	SWL m RL	44.1	Minimum
DHH96-2 [2]		44.8	
DHH96-10		34.5	
DHH97-1A		60.4	
RC11-07		55.3	
RC11-13		24.2	
RC11-15		43.6	
RC11-17		49.8	
RC11-19		56.0	
RC11-20		48.7	
RC11-21		52.7	
Southern New Bore 1		TBA	
Southern New Bore 2		TBA	

[1] 5th percentile minus 0.5 metre
[2] Terrestrial GDE specific monitoring bores
TBA To be advised to the administering authority by [INSERT DATE 26 MONTHS FROM EFFECTIVE DATE]

D28 Groundwater monitoring bores must be :

a) constructed and maintained in a manner that ensures the integrity of the bores to obtain representative groundwater samples from the target aquifer; and
b) constructed, maintained and decommissioned in a manner that:
    i. prevents contaminants entering the groundwater; and
    ii. that maintains the hydogeological environment within the aquifer.

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D29 A bore drill log must be kept for each groundwater monitoring bore which includes:

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

D30 Monitoring and sampling must be carried out in accordance with written procedures and must address the requirements of the latest version of the following documents unless otherwise approved by the administering authority:

a) for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009
b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat#6890.1) and Australian Standard AS/NZS 5667.11:1998 Water Quality – Sampling – Guidance on sampling of groundwaters;
c) for subterranean aquatic fauna, the Guideline for the Environmental Assessment of Subterranean Aquatic Fauna.

D31 Prior to the commencement of pit development on ML80156, a *Subterranean Fauna Monitoring and Management Program* must be developed by an appropriately qualified person and implemented by the environmental authority holder.

D32 The *Subterranean Fauna Monitoring and Management Program* required by **condition D31** must include adequate monitoring of subterranean species of stygofauna and troglofauna in all groundwaters potentially impacted by the mining activities and must achieve the following objectives:

a) Identify and describe subterranean fauna species present;
b) In addition to **condition D32(a)**, accurately describe and determine the distribution of the unique taxa found at bore locations EEUN2 and DHH96-41;
c) Assess and describe predicted impacts to subterranean fauna identified;
d) Recommend impact mitigation and minimisation measures for the fauna identified;
e) Monitor and record the effects of the mining activity on the subterranean fauna species;
f) Recommend actions, including timeframes for implementation, to ensure that any impacts to subterranean fauna not authorised under this environmental authority, are prevented.

D33 If the standing water level of groundwater measured at any compliance bore specified in **Table D6 - Groundwater monitoring locations and frequency** is less than any of the corresponding trigger levels specified in **Table D9 – Subterranean fauna trigger levels**, the environmental authority holder must:

a) notify the administering authority within 24 hours; and
b) review the *Subterranean Fauna Monitoring and Management Program* required by **condition D31** within ten business days, particularly the requirements of **condition D32** c), d), e), and f).

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Table D9 – Subterranean fauna trigger levels

Monitoring Point	Unit	Trigger Levels [1]	Limit Type
DHH96-30	SWL m RL	24.1	Minimum
DHH97-6		25.1	
EE Mine Forest Bore SE		20.4	
DHH96-29		31.2	
DHH96-41		29.9	
DHH96-7		32.7	
DHH96-33		TBA	
DHH96-39		42.7	
B100		28.7	

[1] 5th percentile minus 0.5 metre

END OF CONDITIONS FOR SCHEDULE D

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Release

Schedule E – Land

E1 Treated sewage effluent may only be released to land in accordance with the conditions of this environmental authority at the following locations:

a) Within the nominated area(s) identified in **Figure 5: Location of sewage effluent disposal area**; and

b) Other land for the purpose of dust suppression and/or firefighting.

E2 The release of treated sewage effluent to land must not exceed the release limits stated in **Table E1 – Contaminant release limits to land**.

Table E1 – Contaminant release limits to land

Quality Characteristic	Unit	Release limit	Limit type	Monitoring frequency
Five-day biochemical oxygen demand (BOD)	mg/L	20	Maximum	Monthly
Total suspended solids	mg/L	30	Maximum	
Nitrogen	mg/L	30	Maximum	
Phosphorus	mg/L	15	Maximum	
E-coli	organisms/100mL	1000	Maximum	
pH	pH units	6.5 – 9.0	Range	

E3 The application of treated effluent to land must be carried out in a manner that:

a) Vegetation is not damaged; and

b) There is no surface ponding of effluent; and

c) There is no run-off of effluent.

E4 If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.

E5 All sewage effluent released to land must be monitored at the monitoring frequency and for the quality characteristics specified in **Table E1 – Contaminant release limits to land**.

E6 The monthly volume of effluent released to land must be measured and recorded.

E7 When circumstances prevent the irrigation or beneficial reuse of treated effluent such as during or following rain events, waters must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent.

E8 A minimum area of 10m^2 of land, excluding any necessary buffer zones, must be utilised for the irrigation and/or beneficial reuse of treated sewage effluent.

E9 The release of contaminated water to land, other than treated sewage effluent in accordance with the conditions of this environmental authority, must only occur from the release points specified in **Table E2 – Contaminant release to land locations.**

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Table E2 – Contaminant release to land locations

Release point[1] (RP)	Location (GDA94)		Contaminated water source[1]
	Latitude	Longitude	
E	-23.880282	150.949141	East End mining operations, including clay dumps and haul roads, discharging at the spillway from the western sediment pond E.
F	-23.886780	150.966126	East End mining operations, including clay dumps and haul roads, discharging at the spillway from southern sediment pond F.

[1] Locations depicted in **Figure 2 – Release point and surface water monitoring locations**.

E10 The release of contaminants to lands in accordance with **condition E9** must not exceed the release limits for each quality characteristic stated in **Table E3 – Contaminant release to land limits** when measured at the release points specified in **Table E2 – Contaminant release to land locations**.

Table E3 – Contaminant release to land limits

Quality characteristic	Release limit	Monitoring frequency
Electrical Conductivity (EC) (micro Siemens per centimetre, µs/cm)	5,000	During a release (sample must be taken within 24 hours of commencement of release but before cessation of the release).
pH (pH units)	6.5 (minimum)	
	8.5 (maximum)	

E11 The release of contaminants to land in accordance with **condition E9** must be monitored at the release points specified in **Table E2 – Contaminant release to land locations** and depicted in **Figure 2 – Release points and surface water monitoring locations,** for each quality characteristic and at the monitoring frequency specified in **Table E3 – Contaminant release to land limits**.

E12 The release of contaminants to land in accordance with condition E9 must be carried out in a manner that:

a) Drainage to groundwater and subsurface flows of contaminants to surface waters are prevented; and
b) Surface pondage and run-off of contaminants is prevented; and
c) Degradation of soil structure is minimised; and
d) Soil sodicity and the build-up of heavy metals and metalloids in the soil and subsoil is minimised.

E13 Land disturbed by mining activities must be rehabilitated in accordance with **Table E4 – Rehabilitation requirements.**

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Table E4 – Rehabilitation requirements

Mine domain	Rehabilitation goal	Rehabilitation objectives	Indicators	Completion criteria
Mine pit slopes that are greater than 30° and greater than 5m in height	Safe to humans and wildlife	Site is safe for humans and animals now and in the foreseeable future	Safety assessment of slopes that are greater than 30° and greater than 5m in height	Validation in rehabilitation report that slopes are safe and predictions about future safety
Mine water storages	Non-polluting	Surface and groundwater that leave the lease will aim to meet or improve the water quality objectives of the receiving waters. Current and future water quality parameters will be maintained at levels that are acceptable for uses downstream of the site.	End of pipe and receiving waters meet environmental authority conditions.	Validation in water quality report that surface and groundwater objectives are met.
Mine workings, void, water storages	Stable	Low probability of rock falls with serious consequences	Geotechnical studies of workings, high walls and voids	Evidence in Final Rehabilitation Report that appropriate risk assessment has been undertaken and control measures are in place.
Mine workings above RL40	Able to sustain an agreed post-mining land use	Mining and rehabilitation will aim to create a landform with land use capability and/or suitably similar to that prior to disturbance, unless other beneficial land uses are pre-determined and agreed.	• Tree density (trees/ha) • Shrub density (shrubs/ha) • Sedge/forb/grass density (grasses/ha) • Species composition • Species diversity • Unvegetated area (%) • Leaf litter depth and coverage • Erosion indicators (e.g. depth and spacing of erosion rills) • Photographic records of the site	Final Rehabilitation Report will be prepared as per administering authority rehabilitation guidelines including: • The results of a site investigation • The results of a residual risk assessment (including estimation of monitoring and maintenance costs) • The results of contamination assessment, as required. • Written statements from landowners/landholders documenting any agreement for transfer of management and maintenance commitments or transfer of infrastructure ownership. • A site management plan as required. • An accompanying audit statement detailing the extent of rehabilitation, the extent of ongoing management, maintenance or monitoring issues and the adequacy of the calculated financial assurance.
Active spoil dumps		Mine wastes and disturbed land will be rehabilitated to a condition that is self-sustaining or where the maintenance requirements are consistent with an agreed post-mining land use.		

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E14 Rehabilitation must commence progressively in accordance with the plan of operations.

E15 The environmental authority holder must minimise the potential for contamination of land by hazardous contaminants.

END OF CONDITIONS FOR SCHEDULE

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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.

Administering authority means the Department of Environment and Science or its successor.

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

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

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

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

Appropriately qualified person a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis on performance relating to the subject matter using the relevant protocols, standards, methods or literature.

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

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

Associated works in relation to a dam means:

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

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

Blasting 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.

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Certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by a condition of this environmental authority, and specifically in relation to structures, means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)*, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

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

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

Consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)*.

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

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

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

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

Design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an annual exceedence probability (AEP) specified in that Manual.

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

Deterioration of groundwater quality means a measurable increase (or decrease for pH) to the concentration of a contaminant identified in groundwater monitoring data.

Disturbance of land includes:

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

Effluent treated waste water released from sewage treatment plants.

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Emergency action plan means documentation forming part of the operational plan held by the environmental authority holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the dam owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require dam owners to annually update contact details.

Existing structure means a structure that prior to <INSERT EA ISSUE DATE> meets any or both of the following, a structure:

a) With a design that is in accordance with Version 5.00 (dated 29 March 2016) of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* and that is considerably in progress;
b) That is under considerable construction or that is constructed.

Flowable substance means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

Hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

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

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

Land use the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

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

Low consequence structure means any structure that is not a high or significant consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933).*

Mandatory reporting level or MRL means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* published by the administering authority, as amended from time to time.

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

Modification or modifying see definition of 'construction'.

Natural flow the flow of water through waters caused by nature.

Non-polluting having no adverse impacts upon the receiving environment.

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Operational plan includes:

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

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

Pit development means the act or process of making an excavation or cut of the ground for the purpose of extracting ore.

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

a) a watercourse;
b) groundwater; and
c) an area of land that is not specified in this environmental authority.

Receiving waters means waters of the receiving environment as defined in the *Environmental Protection Act 1994*, including but not limited to the waters of East End Creek, Shultz Lagoon, Larcom Creek, Machine Creek, Scrub Creek and Jacobs Creek.

Records include breach notifications, written procedures, analysis results, monitoring reports and monitoring programs required under a condition of this authority.

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Register of regulated structures includes:

a) date of entry in the register;
b) name of the structure, its purpose and intended/actual contents;
c) the consequence category of the structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933);*
d) dates, names and reference for the design plan plus dates, names and reference numbers of all document/s lodged as part of a design plan for the structure;
e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) for the regulated dam, other than in relation to any levees:
    i. the dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    ii. coordinates (latitude and longitude in GDA94) within five (5) metres at any point from the outside of the dam including its storage area;
    iii. dam crest volume (megalitres);
    iv. spillway crest level (metres AHD);
    v. maximum operating level (metres AHD);
    vi. storage rating table of stored volume versus level (metres AHD);
    vii. design storage allowance (megalitres) and associated level of the dam (metres AHD);
    viii. mandatory reporting level (metres AHD);
g) For a regulated levee:
    i. The crest length of the levee (metres) measured along the centreline of the levee;
    ii. Location Coordinates (latitude and longitude in GDA94), and chainage distances (metres), of each end of the levee, and of each point along the crest of the levee which marks a change in direction;
    iii. Levee crest level (metres AHD), also at each end of the levee, and at each point along the crest of the levee which marks a change in direction;
    iv. Maximum height of the levee (metres), from the crest level to the adjacent toe (inside or outside) of the embankment, and the location and chainage of this maximum height;
    v. The crest width of the levee (metres);
    vi. The Annual Exceedence Probability of the design flood for operation of the levee;
    vii. The freeboard (metres) between design flood level and the crest level of the levee;
h) the design plan title and reference relevant to the dam;
i) the date construction was certified as compliant with the design plan;
j) the name and details of the suitably qualified and experienced person who certified that the constructed structure was compliant with the design plan;
k) details of the composition and construction of any liner;
l) the system for the detection of any leakage through the floor and sides of the dam;
m) dates when the regulated structure underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November for any year;
n) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
o) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

Regulated structure means any structure in the significant or high consequence category as assessed by using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams (ESR/2016/1933)* published by the administering authority. A regulated structure does not include a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.

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Rehabilitation means the process of reshaping and revegetating land to restore it to a stable landform.

Release event means surface water discharge from water storages or contaminated areas on the mining tenements detailed in this environmental authority.

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

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

Sensitive receptor means a sensitive receptor under the Environmental Protection (Noise) Policy 2008.

Structure means dam or levee.

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

Subterranean Fauna means fauna which live their entire lives (obligate) below the surface of the earth consisting of air-breathing troglofauna or aquatic groundwater fauna.

Subterranean wetland for the purpose of this environmental authority, means aquifer and cave groundwater dependent ecosystems that are dependent on the subterranean presence of groundwater.

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

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

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

System design plan means a plan that manages an integrated containment system that shares the required DSA volume and/or Extreme Storm Surge volume across the integrated containment system.

Calibrated transient groundwater model means a calibrated groundwater model as described in the *Australian Groundwater Modelling Guidelines* published in 2012 by the Australian Government National Water Commission. The model must include time-varying inputs, calculate and save output at various times throughout the duration of the model run, and must be capable of predicting time-varying groundwater responses.

Valid complaint means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.

Void means any constructed, open excavation in the ground.

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

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

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Wetland for the purpose of this environmental authority, means:

a) Areas shown on the Map of referable wetlands which is a document approved by the chief executive on 4 November 2011 and published by the administering authority, as amended from time to time by the chief executive under section 144D of the *Environmental Protection Regulation 2008*; and

b) Areas defined under the Queensland Wetlands Program as permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres, and possess one or more of the following attributes:

   i. At least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle; or

   ii. The substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or;

   iii. The substratum is not soil and is saturated with water, or covered by water at some time.

The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.

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Appendices

Maps and Figures

Figure 1 - Project Infrastructure Layout Mine Area and Support Infrastructure. (eDOCS#6433223)

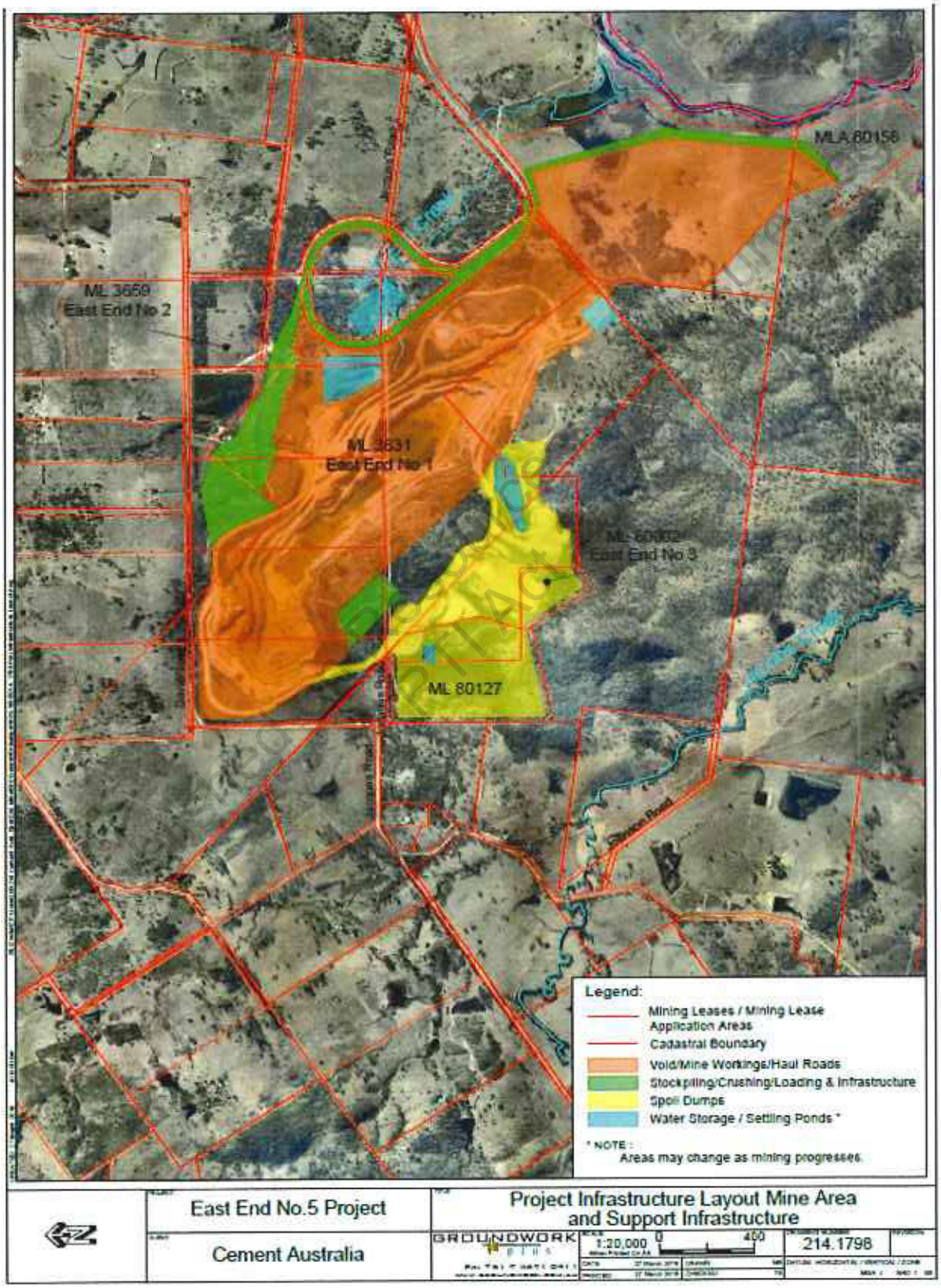
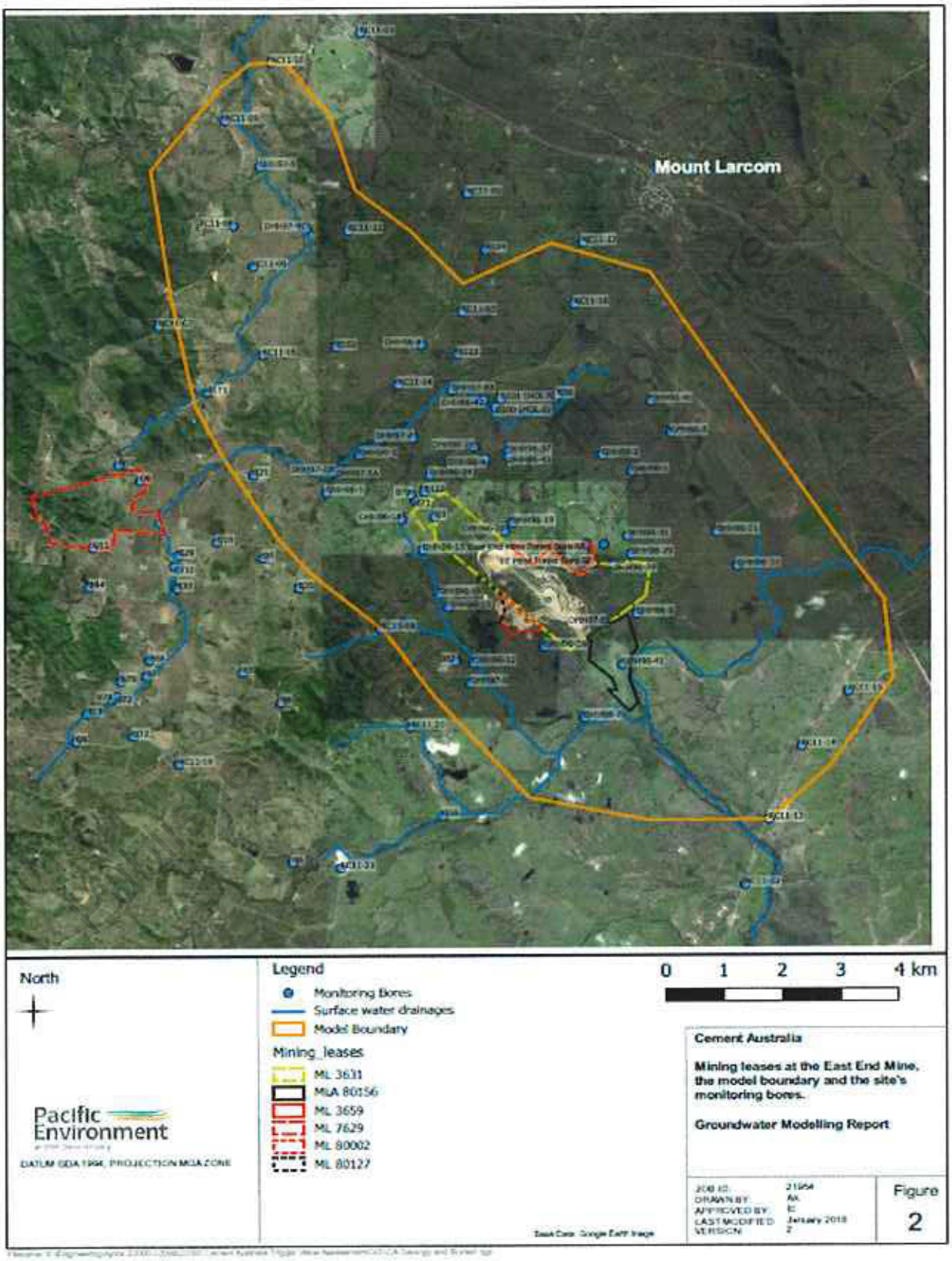


Figure 2 - Release Points and Surface water monitoring locations (to be provided by environmental authority holder to the administering authority by [INSERT DATE 1 MONTH FROM EFFECTIVE DATE])

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Release

Figure 3 – Groundwater monitoring locations (source: Groundwater modelling report: Conceptualisation and Modelling approach, dated 11 January 2018 – eDOCS#6428179)



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Released

Figure 4 – Groundwater Zone of Influence. (Modelled 'zone of influence' (5m Drawdown Curve 2045) - - Pit Extension – Scenario 3 – MLA80156). Source: Groundwater modelling report: Conceptualisation and Modelling approach. 11 January 2018 (eDOCS#6428179).

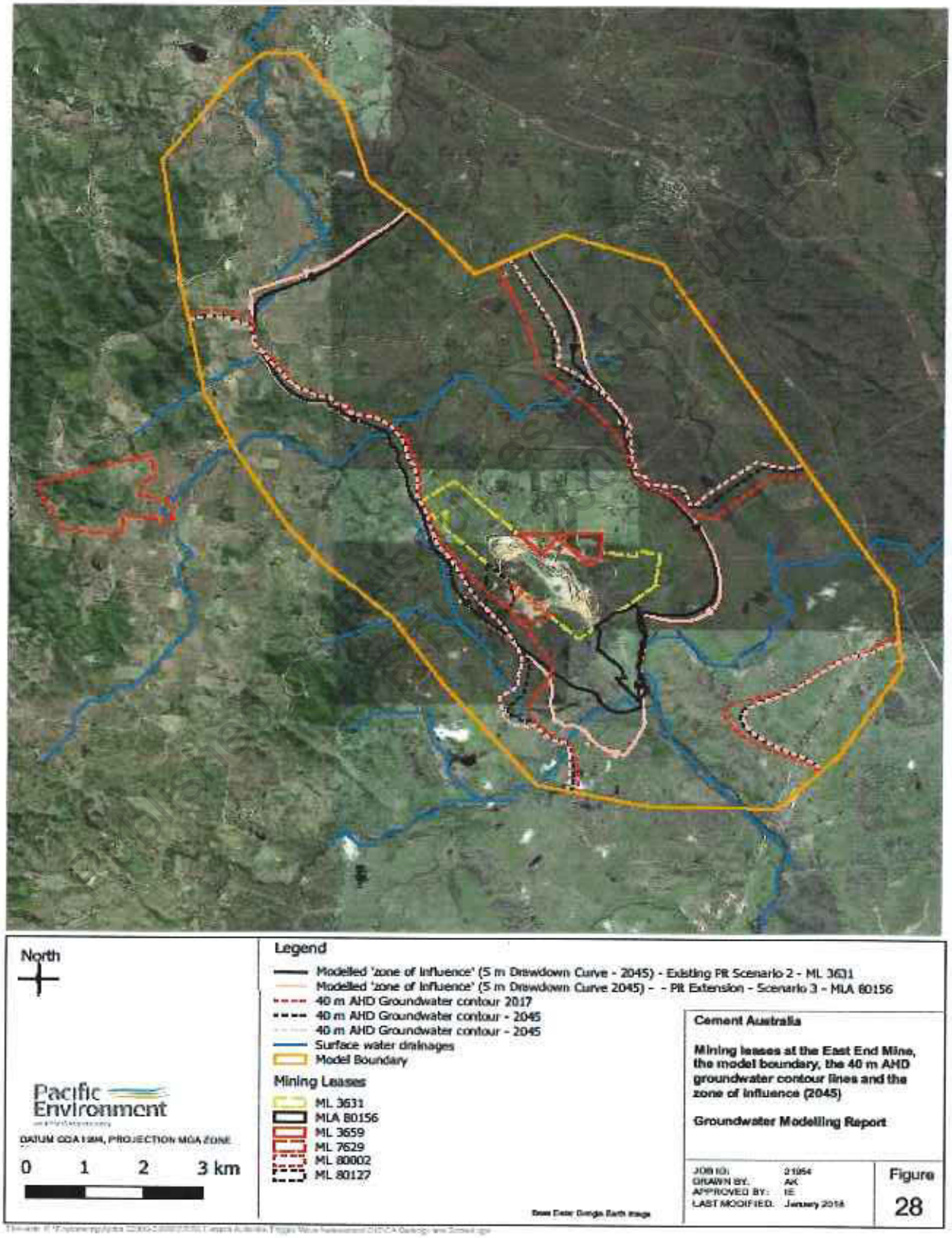
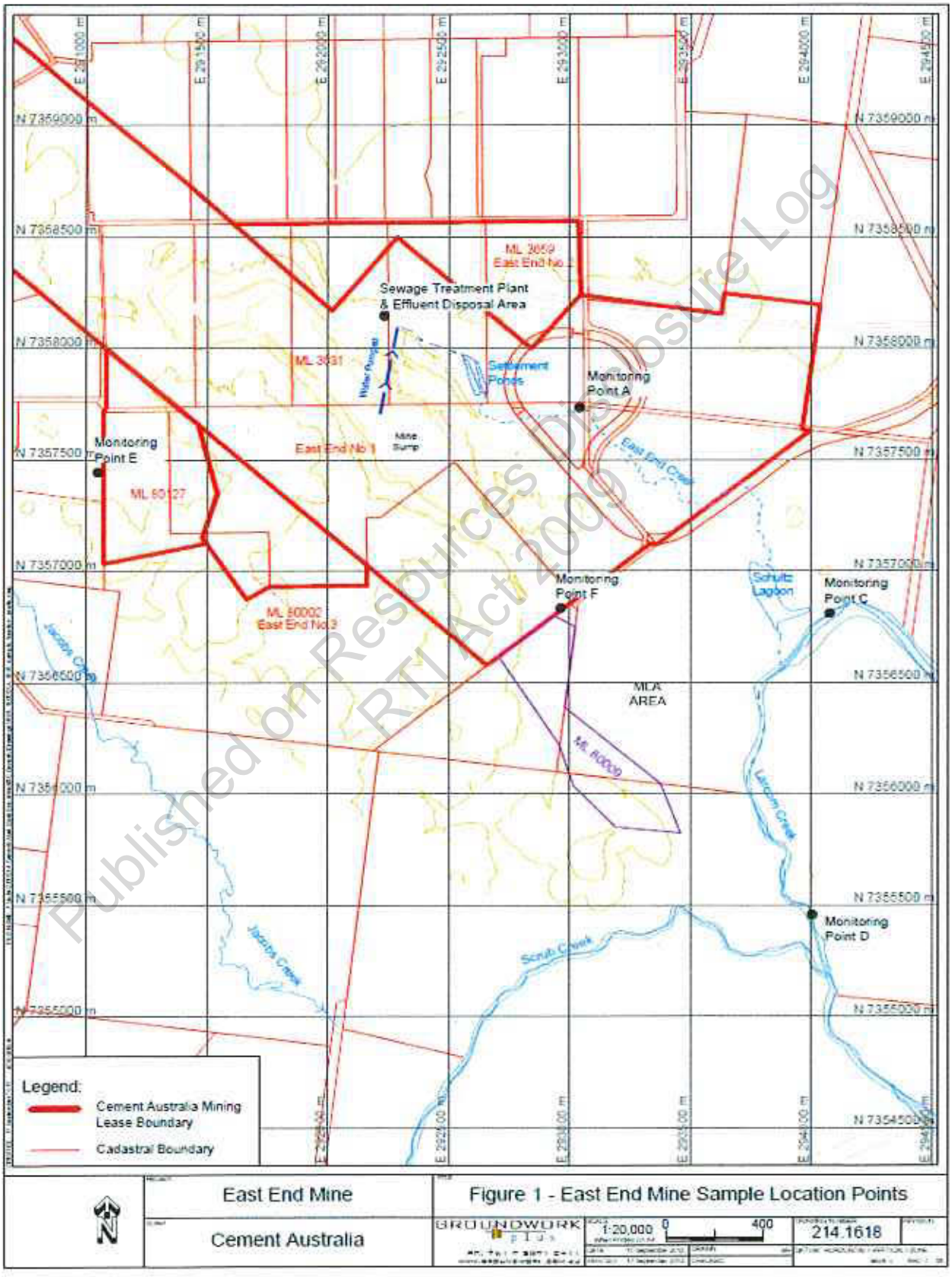


Figure 5: Location of sewage effluent disposal area



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END OF ENVIRONMENTAL AUTHORITY

Date : 23/02/2017 1:36:53 PM
From : "HARDIE Tania"
To : "Victoria Jefferies"
Cc : "Tegan Smith" , "Bronwyn Clarkson" , "OLIVER Jacinta" , "ESCairns" , "Mineral Hub" , "FARLOW Greg" , "JOHNS Benjamin"
Subject : East End Mine - EA Amendment EPML00658113 (App 51913)
Attachment : NOTICE_Extension_CAE (23 Feb 2017).pdf;Information Sheet.pdf;image001.png;image003.png;image002.png;image004.png;

Good afternoon Vicky,

In relation to the application to amend environmental authority (EA) EPML00658113 (App ID 5913), please see the attached notice and information sheet extending the Environmental Management Plan assessment period to end 22 June 2017.

Please contact me should you have any queries.

Regards

Tania

Tania Hardie
Acting Team Leader
Minerals & North Queensland Compliance| Environmental Services & Regulation
Department of Environment and Heritage Protection

P 07 4222 5382
Level 3, 5B Sheridan Street, Cairns QLD 4870
PO Box 7230 Cairns QLD 4870

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We encourage you to do business with us online and register to become a Connect customer. Please visit our website at www.ehp.qld.gov.au/connect.

If you are an existing EHP customer, your details are already in Connect and you can get your Connect EHP Customer Reference by emailing connecthelp@ehp.qld.gov.au.

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Notice

Environmental Protection Act 1994

Extension to the Environmental Management Plan Assessment Period

This notice is issued by the administering authority[1] pursuant to section 555 of the Environmental Protection Act 1994 *as in force 11 December 2012.*

Cement Australia (Exploration) Pty Ltd
18 Station Ave
DARRA QLD 4076

Cc: Mineral Assessment Hub
Department of Natural Resources and Mines
Email: MineralHub@dnrm.qld.gov.au

Cement Australia (Queensland) Pty Limited
18 Station Ave
DARRA QLD 4076

Email: victoria.jefferies@cemaust.com.au
Attention: Victoria Jeffries

Your reference: EPML00658113
Our reference: 173754; 101/0000002

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Re: Extension to the Environmental Management Plan assessment period

1. Application details

The application made by Cement Australia (Exploration) Pty Ltd and Cement Australia (Queensland) Pty Limited, for an amendment to environmental authority EPML00658113, was received by the administering authority on 1 December 2008.

The amended Environmental Management Plan for the application was received by the administering authority on 18 August 2016.

2. Environmental authority details

Environmental authority number EPML00658113.

Property/location description: ML3629; ML3630; ML3631; ML3632; ML3659; ML7629; ML80002; ML80127; MLA80156.

3. Decision

The administering authority has decided to extend the Environmental Management Plan assessment period to 22 June 2017.

4. Grounds

The administering authority has decided to extend the Environmental Management Plan assessment period specified in section 205 of the *Environmental Protection Act 1994* (EP Act). Facts and circumstances relevant to the decision include:

[1] The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

Release

- In accordance with section 205 of the EP Act, the content of an Environmental Management Plan may be assessed within 30 business days of its submission against the content requirements of section 203 of the EP Act.
- In accordance with section 555 of the EP Act, the administering authority may extend a decision period for an application in relation to an environmental authority.
- On 29 September 2016, the Environmental Management Plan assessment period was extended by 35 business days until 18 November 2016 to allow sufficient time to provide the applicant an opportunity to comment on draft conditions.
- On 16 November 2016, the Environmental Management Plan assessment period was extended by 12 business days until 6 December 2016 to allow sufficient time for the applicant to comment on draft conditions considering the implications of the recent changes to relevant legislation.
- On 6 December 2016, the Environmental Management Plan assessment period was extended by 45 business days until 24 February 2017 to move any potential public notification period away from the Christmas period and to provide the opportunity for the applicant to engage further on draft conditions.
- A further extension to the Environmental Management Plan assessment period of 80 business days was requested by the applicant and is considered necessary to allow the applicant sufficient time to investigate the suitability of, and potentially develop, groundwater control charting methods for monitoring of potential impacts to the environmental values of groundwater.

5. Review and appeal rights

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Land Court. Information about your review and appeal rights is attached to this notice. This information is guidance only and you may have other legal rights and obligations.

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sch4p4(6) Personal information

Signature

23/2/2017

Date

Jacob Toe
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
PO Box 7230
CAIRNS QLD 4870
Phone: (07) 4222 5334
Fax: (07) 4222 5070

Attachments

Information sheet: Internal review and appeal to Land Court

Department of Environment and Resource Management

Information sheet

Environmental Protection Act

Internal review (DERM), and appeal to Land Court

This information sheet forms part of an information notice under the Environmental Protection Act 1994 *(EP Act). It gives a summary of the process for review and appeal under the EP Act and subordinate legislation. Refer to sections 519 to 530 and part 1 of schedule 2 of the EP Act for complete information about the process for internal review and appeal to the Land Court.*

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Introduction

The *Environmental Protection Act 1994* (EP Act) provides for a right of internal review of certain decisions made under the EP Act. Decisions that can be reviewed are listed in schedule 2 of the EP Act. The EP Act also provides that a dissatisfied person for a review decision listed in part 1 of schedule 2 of the EP Act may appeal the decision to the Land Court.

Summary of the process for internal review and appeal to the Land Court

Chapter 11, Part 3 of the EP Act

Division 1 — Interpretation

Section 519 Original decisions

1) A decision mentioned in schedule 2 is an "original decision".
2) A decision under an environmental protection policy or regulation that the policy or regulation declares to be a decision to which this part applies is also an "original decision".

Section 520 Dissatisfied person

This section nominates the dissatisfied person for an original or review decision.

Division 2 — Internal review of decisions

Section 521 Procedure for review

1) A dissatisfied person may apply for a review of an original decision.
2) The application must—
   a) be made in the approved form to the administering authority within—
      i) 10 business days[1] after the day on which the person receives notice of the original decision or the administering authority is taken to have made the decision (the "review date"); or
      ii) the longer period the authority in special circumstances allows not later than the review date; and
   b) be supported by enough information to enable the authority to decide the application.

Queensland Government

Department of Environment and Resource Management
www.derm.qld.gov.au ABN 46 640 294 485

Release

3) On or before making the application, the applicant must send the following documents to the other persons who were given notice of the original decision—

   a) notice of the application (the "review notice");

   b) a copy of the application and supporting documents.

4) The review notice must inform the recipient that submission on the application may be made to the administering authority within 5 business days after the application is made to the authority.

5) If the administering authority is satisfied the applicant has complied with subsection (2) and (3), the authority must, within 10 business days after receiving the application—

   a) review the original decision;

   b) consider any submissions properly made by a recipient of the review notice; and

   c) make a decision (the "review decision") to—

      i) confirm or revoke the original decision; or

      ii) vary the original decision in a way the administering authority considers appropriate.

6) The application does not stay the original decision.

7) The application must not be dealt with by—

   a) the person who made the original decision; or

   b) a person in a less senior office than the person who made the original decision.

8) Within 10 business days after making the decision, the administering authority must give written notice of the decision to the applicant and persons who were given notice of the original decision.

9) The notice must—

   a) include the reasons for the review decision; and

   b) inform the person of their right of appeal against the decision.

10) If the administering authority does not comply with subsections (5) or (8), the authority is taken to have made a decision confirming the original decision.

11) Subsection (7) applies despite section *Acts Interpretation Act 1954*, section 27A.

12) This section does not apply to an original decision made by—

   a) for a matter, the administration and enforcement of which has been devolved to a local government, the local government itself or the chief executive officer of the local government personally; or

   b) for another matter — the chief executive personally.

13) Also, this section does not apply to an original decision to issue a clean-up notice.

Division 3 — Appeals to Land Court

Section 523 Review decisions subject to Land Court appeal

Sections 523 to 526 applies to original decisions mentioned in schedule 2, part 1 of the EP Act.

Section 524 Right of appeal

A dissatisfied person who is dissatisfied with the decision may appeal against the decision to the Land Court.

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Section 525 Appeal period

1) The appeal must be started within 22 business days after the appellant receives notice of the decision.

2) However, the Land Court may at any time extend the time for starting the appeal.

Section 526 Land Court mediation

1) Any party to the appeal may, at any time before the appeal is decided, ask the Land Court to conduct or provide mediation for the appeal.

2) The mediation must be conducted by the Land Court or a mediator chosen by the Land Court[2].

Section 527 Nature of appeal

The appeal is by way of rehearing, unaffected by the review decision.

Section 528 Land Court's powers for appeal

In deciding the appeal, the Land Court has the same powers as the administering authority.

Section 529 Decision for appeals against refusals under s 207

This section requires the Land Court, when considering an appeal against a decision under section 207 to refuse to allow a non-standard mining lease application to proceed, to either confirm or reverse the decision.

Section 530 Decision for other appeals

1) This section applies if the decision appealed against is not a decision mentioned in section 529(1).

2) In deciding the appeal, the Land Court may—

   a) confirm the decision; or

   b) set aside the decision and substitute another decision; or

   c) set aside the decision and return the matter to the administering authority who made the decision, with directions the Land Court considers appropriate.

3) In setting aside or substituting the decision, the Land Court has the same powers as the authority.

4) However, this part does not apply to a power exercised under subsection (3).

5) If the Land Court substitutes another decision, the substituted decision is taken for this Act, other than section 569 and this subdivision, to be the authority's decision.

[1] Under the *Environmental Protection Act 1994* business days "generally, does not include a day between 26 December and 1 January in the following year".
[2] For information on how to start the appeal, see the *Land and Court Rules 2000*. For information on the conduct of the mediation, see the *Land Court Act 2000*. Information is also available on the Land Court website at www.landcourt.qld.gov.au

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Release

Date : 5/01/2018 8:52:32 AM
From : "Mineral Hub"
To : "PALM" , "ESCairns"
Subject : ML80156 - Cement Australia (Exploration) Pty Ltd
Attachment : image001.png;image002.png;

Good Morning,

Could someone please give me an update on the EIS application for the above mining lease.

Regards Natasha

Natasha Brotherton
Mineral Assessment Hub
Department of Natural Resources, Mines and Energy
P 07 4447 9230
E mineralhub@dnrme.qld.gov.au
Level 9, Verde Tower
445 Flinders Street, Townsville
PO Box 1752, Townsville QLD 4810

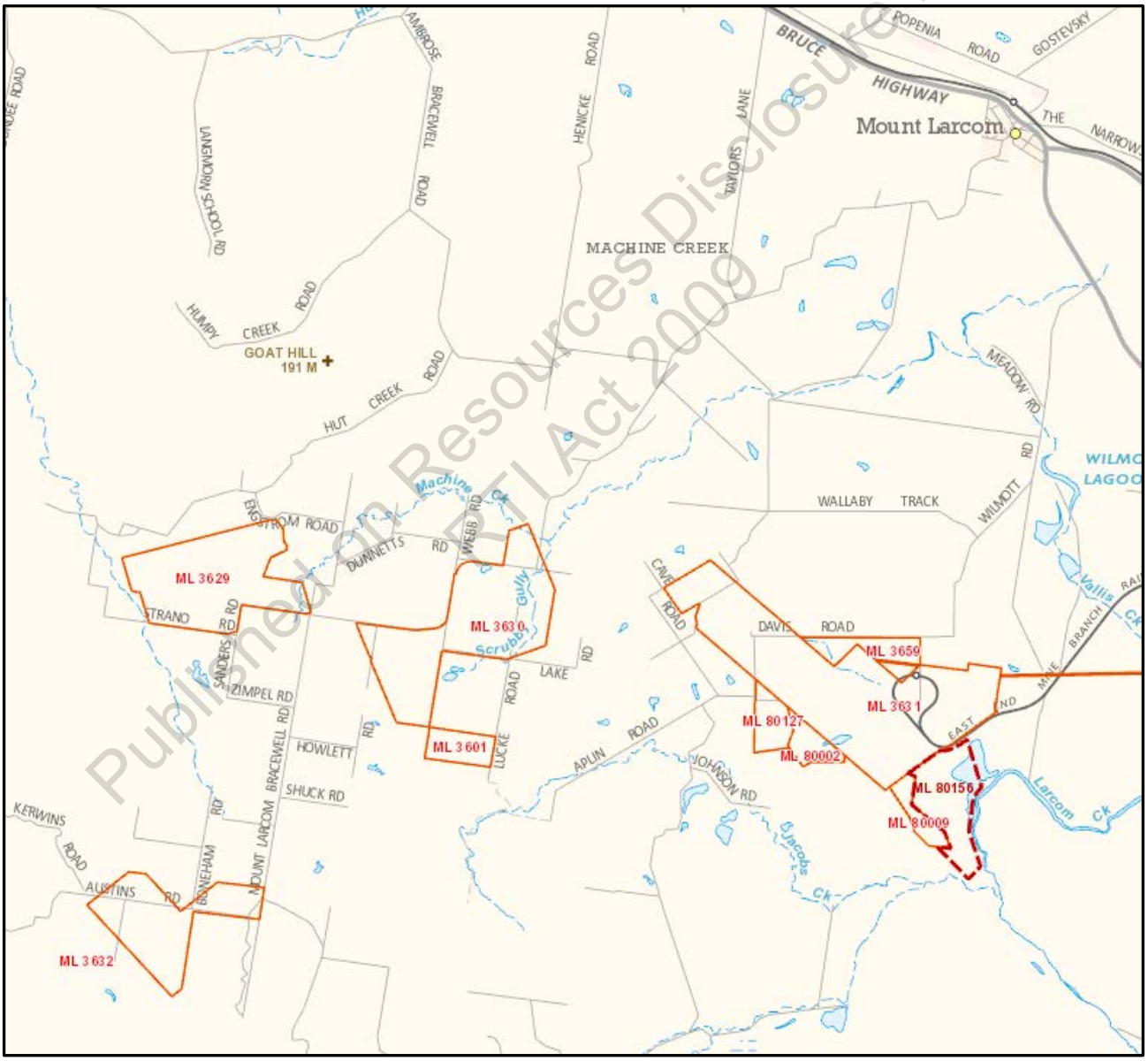
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Mining Lease - Mineral - Technical Assessment

Complete the technical assessment using the form below.

Enter permit number ML	**ML80156**	*Cement Australia P/L - Approx. 30 km W of Gladstone*
Targeted minerals	**Clay, Lime / Limestone (Stockpiles, Overburden)**	
Project name	**East End No.5 – Part of the East End Mine project**	
Is this application part of a group?	**Yes – see map**	*Do a company search in MyMinesOnline to determine if other permits are being applied for by the applicant.*

Map of CA MLs, this app in dark red dashed:



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Select a response from the radio buttons. Provide comments where necessary.

Milestone Rationale		Record in working notes when complete along with date of completion	
			Comments
1	Does the proposed mining program outline its method of operation, and has an indication of when operations are expected to start been lodged	YES	*Within 5 years upon grant of the lease. The proposed mining program will simply be an extension to current mining activities on adjacent ML3631.*
Mining will be by standard open cut methods and utilising drill and blast to loosen and collect the ore being limestone. After primary crushing, the ore is transported by road to the processing facility located at Fishermans Landing near Gladstone. Waste products are removed to designated waste dumps.			
	Will the proposed program of works effectively develop the resource?	YES	*The global resource for the Project estimates that there is in 'excess of 50 years' worth at the current rate of 2.5Mt per year.*
Published in Company Report 40329 for EPM13575 and which should be taken as a minimum because the estimate was exclusive of the area to the SW of the road crossing the ML:			

Based on the above assumptions and parameters, the approximate volume (and tonnage) of resources available for a conceptual mine pit development (refer **FIGURE 2**) to elevations of minus 14 metres and minus 28 metres AHD are estimated at:

Material Type	Volume (m^3 insitu x 10^6)		Tonnes insitu x 10^6	
	Minus 14 metres AHD	Minus 28 metres AHD	Minus 14 metres AHD	Minus 28 metres AHD
Clay dominant (overburden)	1.8	1.8	4.0	4.0
Clayey limestone dominant	2.4	2.8	6.0	7.0
Basic intrusive rock dominant	1.2	1.5	3.2	4.0
High grade limestone dominant	13.0	16.2	35.1	43.7
TOTALS	**18.4**	**22.3**	**48.3**	**58.7**

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2	If a mining program is not proposed, has a statement for the use proposed for the land and an indication of when the proposed use is to start been lodged	N/A	
3	For proposals for infrastructure has a statement regarding the requirements necessary to enable the mining program to proceed or additional activities to be carried out to work out the infrastructure requirements been lodged	N/A	*Infrastructure is already in place.*
4	Has the applicant provided an adequate sketch, map or other graphic representation of the ML boundaries	YES	*A map is provided showing the proposed development with the ML*
5	Have reasons provided acceptable as to why the mining lease should be granted in respect of the area and shape of the land described in the application?	YES	*If No complete technical assessors comments*
Technical assessors comments			

	If not acceptable, state why the area of the proposed ML is not appropriate
Further details:	

Milestone – Financial, Technical (Human & Resource) Capability		**Record in working notes when complete along with date of completion**	
			Comments
7	Has the applicant supplied a financial capability statement	YES	*Cement Australia is a well-funded, successful company with mining operations in QLD, TAS, and NSW.*
8	Has the applicant lodged a financial commitments document Any additional supporting evidence regarding financial capability	YES	*Copies of proof of ownership are provided*
9	Has the applicant supplied a technical capability statement	YES	*The statement, referring to their history and a technical services group is appropriate*
10	Has the applicant lodged a resource commitment statement	YES	
11	Statement from a third party who are providing technical aspects	YES	*Groundwork Plus provide tenure support*
12	An additional supporting evidence regarding technical capability	N/A	

Final comments:
TAS recommend grant over 19 years and 86.8702ha as requested.

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Based on the above assumptions and parameters, the approximate volume (and tonnage) of resources available for a conceptual mine pit development (refer **FIGURE 2**) to elevations of minus 14 metres and minus 28 metres AHD are estimated at:

Material Type	**Volume (m^3 insitu x 10^6)**		**Tonnes insitu x 10^6**	
	Minus 14 metres AHD	Minus 28 metres AHD	Minus 14 metres AHD	Minus 28 metres AHD
Clay dominant (overburden)	1.8	1.8	4.0	4.0
Clayey limestone dominant	2.4	2.8	6.0	7.0
Basic intrusive rock dominant	1.2	1.5	3.2	4.0
High grade limestone dominant	13.0	16.2	35.1	43.7
TOTALS	**18.4**	**22.3**	**48.3**	**58.7**

TAS for Briefing Note

Yellow highlighted sections to be completed by technical assessor

MINING LEASE APPLICATION NUMBER [insert number]
TENURE ASSESSMENT

Section 269(4) of the *Mineral Resources Act 1989* requires the Minister to take into account the following provisions when making a recommendation.

1. **Section 269(4) (a): The provisions of the *Mineral Resources Act 1989* have been complied with.** [If a COA was issued state when the COA was issued. State the date of the CPN/Notice was issued

2. **Section 269(4) (b): The area of land applied for is mineralised or the other purpose for which the mining lease is sought is appropriate.** The lease area contains a minimum of 35.1 million tonnes of high grade limestone and 10 million tonnes of clay/clayey limestone. The resource is part of the East End Mining Operation operated by the applicant. The proposed mining program will simply be an extension to current mining activities on adjacent ML3631. Mining will be by standard open cut methods

3. **Section 269(4) (c): There will be an acceptable level of development and utilisation of the mineral resources within the area applied for.**
   Located approximately 30 km west of Gladstone, mining is estimated to commence within 5 years of grant in conjunction with current mining activities on adjacent mining lease 3631. Mining will utilise standard drill and blast techniques to loosen and collect the ore, being limestone. After primary crushing, the ore is transported by rail to the processing facility located at Fishermans Landing near Gladstone where cement products are produced. Waste material is removed to designated waste dumps. The infrastructure required is already in place.

4. **Section 269(4) (d): The land and surface area of land in respect of which the mining lease is sought is of an appropriate size and shape.**
   The size and shape of the application area was determined by the resource areas and the project requirements for limestone mining operations, and the required infrastructure and access. The area of the project is 86.8702 hectares.

5. **Section 269(4) (e): The term sought is appropriate.**
   The global resource for the Project is in 'excess of 50 years' worth at the current rate of 2.5Mt per year. The term of 19 years is appropriate because it allows the DNRME to assess performance and compliance with the conditions of the lease, upon renewal.

6. **Section 269(4) (f): The applicant has the necessary financial and technical capabilities to carry on mining operations under the proposed mining lease.** The applicant is a well-funded, successful company with mining operations in QLD, TAS, and NSW.

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Notes

- Before commencing your assessment, have a thorough understanding of the applicant's requirements for meeting relevant legislation, industry guidelines and operational policies.
- The technical assessor's recommendation will be based on their experience and technical understanding of the applicant's proposal, industry best practice, the commodity and the relevant considerations under the legislation.

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Notice

Environmental Protection Act 1994

Extension to the Environmental Management Plan Assessment Period

This notice is issued by the administering authority[1] pursuant to section 555 of the Environmental Protection Act 1994 *as in force 11 December 2012.*

Cement Australia (Exploration) Pty Ltd
18 Station Ave
DARRA QLD 4076

Cc: Mineral Assessment Hub
Department of Natural Resources and Mines
Email: MineralHub@dnrm.qld.gov.au

Cement Australia (Queensland) Pty Limited
18 Station Ave
DARRA QLD 4076

Email: victoria.jefferies@cemaust.com.au
Attention: Victoria Jeffries

Your reference: EPML00658113
Our reference: 173754; 101/0000002

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Re: Extension to the Environmental Management Plan assessment period

1. Application details

The application made by Cement Australia (Exploration) Pty Ltd and Cement Australia (Queensland) Pty Limited, for an amendment to environmental authority EPML00658113, was received by the administering authority on 1 December 2008.

The amended Environmental Management Plan for the application was received by the administering authority on 18 August 2016.

2. Environmental authority details

Environmental authority number EPML00658113.

Property/location description: ML3629; ML3630; ML3631; ML3632; ML3659; ML7629; ML80002; ML80127; MLA80156.

3. Decision

The administering authority has decided to extend the Environmental Management Plan assessment period to 1 December 2017.

4. Grounds

The administering authority has decided to extend the Environmental Management Plan assessment period specified in section 205 of the *Environmental Protection Act 1994* (EP Act). Facts and circumstances relevant to the decision include:

[1] The Department of Environment and Heritage Protection is the administering authority under the *Environmental Protection Act 1994*.

- In accordance with section 205 of the EP Act, the content of an Environmental Management Plan may be assessed within 30 business days of its submission against the content requirements of section 203 of the EP Act.
- In accordance with section 555 of the EP Act, the administering authority may extend a decision period for an application in relation to an environmental authority.
- On 29 September 2016, the Environmental Management Plan assessment period was extended by 35 business days until 18 November 2016 to allow sufficient time to provide the applicant an opportunity to comment on draft conditions.
- On 16 November 2016, the Environmental Management Plan assessment period was extended by 12 business days until 6 December 2016 to allow sufficient time for the applicant to comment on draft conditions considering the implications of the recent changes to relevant legislation.
- On 6 December 2016, the Environmental Management Plan assessment period was extended by 45 business days until 24 February 2017 to move any potential public notification period away from the Christmas period and to provide the opportunity for the applicant to engage further on draft conditions.
- On 23 February 2017, the Environmental Management Plan assessment period was extended by 80 business days until 22 June 2017 to allow the applicant sufficient time to investigate the suitability of, and potentially develop, groundwater control charting methods for monitoring of potential impacts to the environmental values of groundwater.
- A further extension to the Environmental Management Plan assessment period was requested by the applicant and is considered necessary to allow the applicant sufficient time for technical experts, engaged by the applicant, to complete groundwater modelling and investigate site specific contaminant limits and control charting methods.

5. Review and appeal rights

You may apply to the administering authority for a review of this decision within 10 business days after receiving this notice. You may also appeal against this decision to the Land Court. Information about your review and appeal rights is attached to this notice. This information is guidance only and you may have other legal rights and obligations.

sch4p4(6) Personal information

Signature

21/6/2017

Date

Jacob Toe
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:
PO Box 7230
CAIRNS QLD 4870
Phone: (07) 4222 5334
Fax: (07) 4222 5070

Attachments

Information sheet: Internal review and appeal to Land Court

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Date : 18/08/2020 7:21:19 AM
From : "JOHNS Benjamin"
To : "LARSEN Daniel"
Cc : "GUARIN Alyx" , "BLEAKLEY Ashley"
Subject : Re: 2018 Pacific Environment Model assessment
Attachment : image001.png;image002.jpg;

Hi Daniel

Yes i agree it for DES. I just wasn't sure if this was anything DNRME had even contributed to.

Regards

Ben Johns
Manager
Mineral Assessment Hub
Department of Natural Resources, Mines and Energy
Phone 4447 9239 or s4p4(6) Personal informat

> On 17 Aug 2020, at 5:09 pm, LARSEN Daniel <Daniel.Larsen@dnrme.qld.gov.au> wrote:
>
> Hi Ben
>
> I note that this is a request to DES. So up to DES to provide any information we have supplied them?
>
> Regards
> Daniel
>
> ---
>
> **From:** JOHNS Benjamin <Ben.Johns@dnrme.qld.gov.au>
> **Sent:** Monday, 17 August 2020 4:26 PM
> **To:** GUARIN Alyx; BLEAKLEY Ashley; LARSEN Daniel
> **Subject:** FW: 2018 Pacific Environment Model assessment
>
> Hi all
>
> Please see the email below from s78B(2) of EEMAG. s78B(2) is requesting any results of DNRME and DES officers conclusions regarding their examination and review of the 2018 Pacific Environment Model.
>
> This information is in connection to the East End mining operations owned by Cement Australia.
>
> Could you please confirm whether you have any results or information of this nature.
>
> Happy to discuss.
>
> Regards
>
> <image001.png>
> **Ben Johns**
> Manager, Assessment
> **Mineral Assessment Hub | Minerals and Coal**
> Department of Natural Resources, Mines and Energy
>
> **P:** 4447 9239 **M:** s4(6) Personal inform
> **E:** ben.johns@dnrme.qld.gov.au
> **A:** Level 9, Verde Tower, 445 Flinders Street, Townsville 4810 | PO Box 1752, TOWNSVILLE QLD 4810
> **W:** www.dnrme.qld.gov.au
>
> <image002.jpg>
>
> **From:** s78B(2)
> **Sent:** Friday, 14 August 2020 10:12 AM
> **To:** Andrew Shute; ELLIOTT Annabel; Sarah Ewing; JOHNS Benjamin
> **Subject:** 2018 Pacific Environment Model assessmen
>
> Dear Parties,

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This email constitutes a formal request to DES for the timely provision of the results of DNRME and DES officers conclusions regarding their examination and review of the 2018 Pacific Environment Model. EEMAG considers such transparency is necessary if reliance is going to be placed upon the risk assessment findings and forward projections of the model. There is no credible basis on which to deny stakeholders such information.

Yours sincerely,

s78B(2) for EEMAG Inc

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Date : 7/11/2018 9:55:57 AM
From : "Yoland Dowling"
To : "TASTownsville"
Cc : "Mineral Hub" , "BYRON Kayte" , "MORRISON Doug"
Subject : RE: ML80009 term requested.
Attachment : 214_1817_Conceptual Development Plan-A3-P.pdf;image004.png;image005.png;image001.png;image861072.png;

Hi Doug,

Please find attached a contingency mine plan for ML 80009, prepared to address a scenario wherein ML 80156 is not granted.

The site would be developed over a series of three stages, each of which would be less than 5 hectares in surface area in order to comply with the requirements of the site's current Environmental Authority. The proposed volumes that would be extracted for each stage are shown on the attached plan.

We trust this addresses the Department's request. Please let me know if you require anything else in order to progress the renewal.

Kind regards,

Yoland Dowling
Environmental Consultant

GROUNDWORK plus

GROUNDWORK Plus
Resources, Environment, Planning, Laboratories

6 Mayneview St, Milton Qld 4064 Australia
(PO Box 1779, Milton Qld 4064)

Ph: +61 7 3871 0411
Fax: +61 7 3367 3317

www.groundwork.com.au

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Regards,

Yoland Dowling
Environmental Consultant

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From: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Sent: Wednesday, 24 October 2018 10:13 AM
To: Yoland Dowling <ydowling@groundwork.com.au>
Cc: Mineral Hub <MineralHub@dnrme.qld.gov.au>; BYRON Kayte <Kayte.Byron@dnrme.qld.gov.au>; TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Good morning Yoland,

It is clear from the additional application documents G.P. submitted in support of C.A.'s mining program, that the mine plan relies on, and, is contingent upon ML80156 being granted.

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In the event the grant of ML80156 is not given or, is substantially delayed, does Cement Australia have an alternative mining program to access the clay, limestone and marble contained within ML80009? We believe it may assist the progression of the renewal if a contingency plan is in place.

Please respond within 10 business days by COB, 7th November with information to support.

Kind regards.

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Tuesday, 23 October 2018 1:17 PM
To: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Not a problem, thanks Doug

Yoland Dowling
Environmental Consultant

GROUNDWORK Plus
Resources, Environment, Planning, Laboratories

6 Mayneview Street, MILTON QLD 4064 AUSTRALIA
(PO Box 1779, MILTON QLD 4064)

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From: MORRISON Doug [mailto:Doug.Morrison@dnrme.qld.gov.au]
Sent: Tuesday, 23 October 2018 1:43 PM
To: Yoland Dowling <ydowling@groundwork.com.au>
Subject: RE: ML80009 term requested.

Noted and thanks Yoland,

There's a fair bit of correspondence, I must have missed it.

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Tuesday, 23 October 2018 1:11 PM
To: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Cc: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>; Mineral Hub <MineralHub@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Hi Doug,

We recognised that DNRME would be backdating the renewal to 2012, so the term end of 31 October 2037 that was requested was to allow 20 years of future operation based on an approval date of 2017 (when the application was lodged).

So yes, we confirm that the term sought would be 25 years from 01/11/2012.

Kind regards,

Yoland Dowling
Environmental Consultant

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From: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Sent: Tuesday, October 23, 2018 11:43 AM
To: info <info@groundwork.com.au>
Cc: Mineral Hub <MineralHub@dnrme.qld.gov.au>; TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Subject: ML80009 term requested.

Good morning,

I refer to the renewal application for ML80009 which was recently transferred to Cement Australia (CA).

During an assessment of the technical aspects of the application and subsequent supplied by you on behalf of CA, I note the holder is requesting 20 years based on a term-end year 0f 2037. The renewal term will commence 2012 therefore the term would be 25 years not 20 years.

Please confirm.

Thank you.

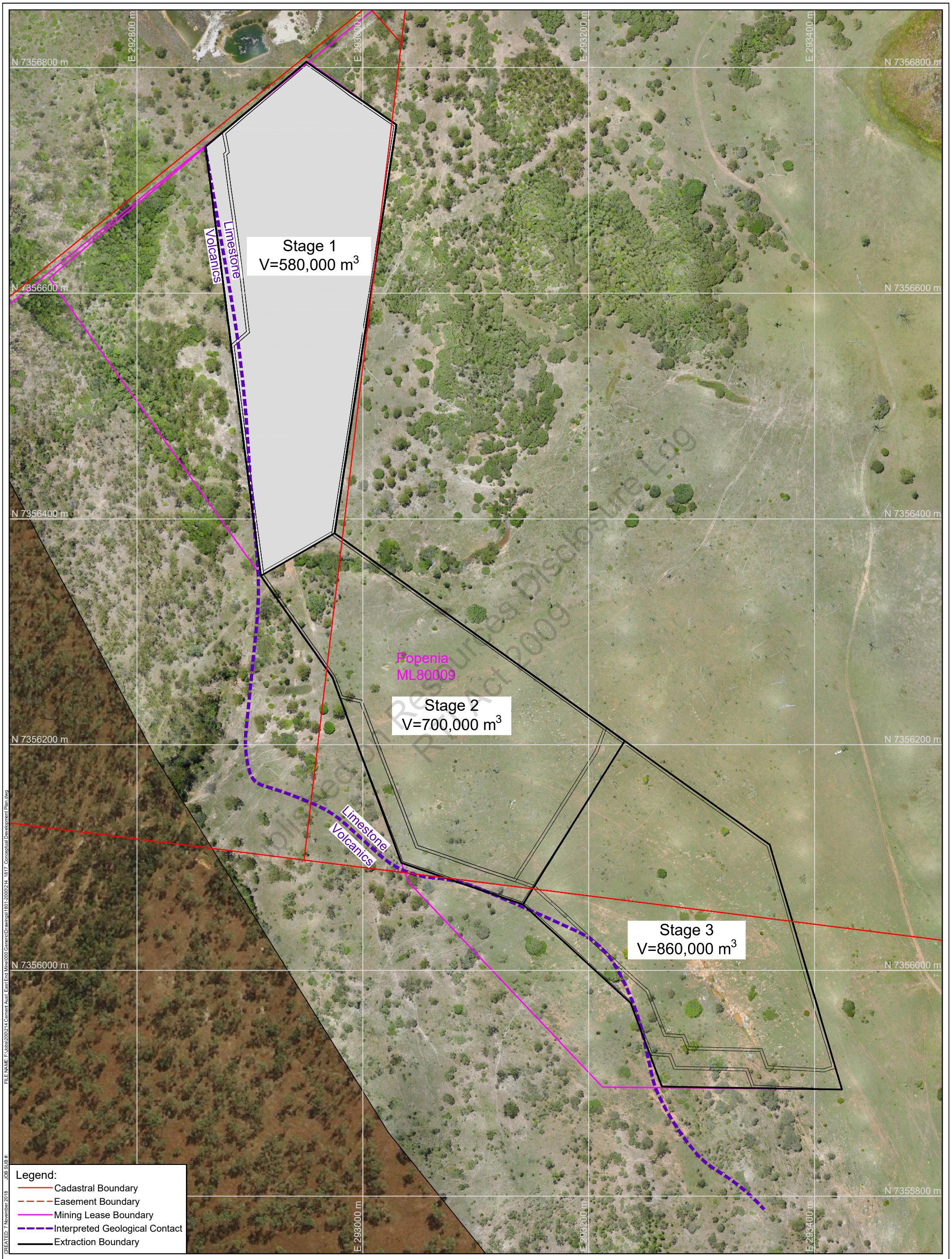
Queensland Government

Doug Morrison
Senior Geologist
Mineral Assessment Hub | Minerals and Coal
Department of Natural Resources, Mines and Energy

P: 44479226
E: doug.morrison@dnrme.qld.gov.au
A: Level 9, Verde Tower, 445 Flinders Street, Townsville QLD 4810 | PO Box 1752, Townsville QLD 4810
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FILE NAME: P:\Jobs\200214 Cement Aust - East End Mine\000 General\Drawings\1801-2000\214_1817_Conceptual Development Plan.dwg
JOB SUB #:
CREATED: 7 November 2018

REV	DESCRIPTION	DATE	BY

Data Sources:
Photography: UAV Survey, 2018-02-14
Topography: UAV Survey, 2018-02-14
Cadastre:
Ecosystem:
Other:

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Legend:

PROJECT: East End Mine (Popenia)

CLIENT: Cement Australia (Exploration) Pty Ltd

TITLE: Conceptual Development Plan

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SCALE: 1:3,000 When Printed On A3 — 0 — 60m
DRAWING NUMBER: 214.DRG.1817
REVISION:
DATE: 7 November 2018
DRAWN: MR
PRINTED: 7 November 2018
CHECKED: YD
DATUM: HORIZONTAL / VERTICAL / ZONE
MGA / AHD / 56

Date : 23/01/2019 12:40:04 PM
From : "Mineral Hub"
To : "Yoland Dowling"
Cc : "MORRISON Doug"
Subject : RE: ML80009 term requested.
Attachment : image003.png;image004.png;image005.png;

Good afternoon Yoland

Apologies for the delay in responding to your email. I can confirm that no further information is required from you with regards to the renewal application.

The renewal application is progressing towards the decision stage and you will receive notification once a decision has been made.

If you have any further questions, please give me a call on 4447 9230.

Kind Regards

Queensland Government

Kayte Byron
Assessment Officer
Mineral Assessment Hub | Minerals and Coal
Department of Natural Resources, Mines and Energy

P: 07 4447 9230
E: kayte.byron@dnrme.qld.gov.au
A: Level 9, Verde Tower, 445 Flinders Street, Townsville QLD 4810 | PO Box 1752, TOWNSVILLE, QLD 4810
W: www.dnrme.qld.gov.au

From: MORRISON Doug
Sent: Wednesday, 23 January 2019 12:13 PM
To: Yoland Dowling
Cc: BYRON Kayte
Subject: RE: ML80009 term requested.

Hi Yoland,

I understand you have emailed the Mineral Hub about this as well.

My part in the assessment is closed however there may be further admin steps required before being sent up for approval. Kayte Byron is going to respond to you in due course.

Happy new year ☺.

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Tuesday, 15 January 2019 10:44 AM
To: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Hi Doug,

Are you able to provide an update on the status of the ML 80009 renewal application at all?

Kind regards,

Yoland Dowling
Environmental Consultant

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From: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>
Sent: Wednesday, 7 November 2018 11:58 AM
To: Yoland Dowling <ydowling@groundwork.com.au>
Subject: RE: ML80009 term requested.

Great, thanks Yoland

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Wednesday, 7 November 2018 9:56 AM
To: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Cc: Mineral Hub <MineralHub@dnrme.qld.gov.au>; BYRON Kayte <Kayte.Byron@dnrme.qld.gov.au>; MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Hi Doug,

Please find attached a contingency mine plan for ML 80009, prepared to address a scenario wherein ML 80156 is not granted.

The site would be developed over a series of three stages, each of which would be less than 5 hectares in surface area in order to comply with the requirements of the site's current Environmental Authority. The proposed volumes that would be extracted for each stage are shown on the attached plan.

We trust this addresses the Department's request. Please let me know if you require anything else in order to progress the renewal.

Kind regards,

Yoland Dowling
Environmental Consultant

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Regards,

Yoland Dowling
Environmental Consultant

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From: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Sent: Wednesday, 24 October 2018 10:13 AM
To: Yoland Dowling <ydowling@groundwork.com.au>
Cc: Mineral Hub <MineralHub@dnrme.qld.gov.au>; BYRON Kayte <Kayte.Byron@dnrme.qld.gov.au>; TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Good morning Yoland,

It is clear from the additional application documents G.P. submitted in support of C.A.'s mining program, that the mine plan relies on, and, is contingent upon ML80156 being granted.

In the event the grant of ML80156 is not given or, is substantially delayed, does Cement Australia have an alternative mining program to access the clay, limestone and marble contained within ML80009? We believe it may assist the progression of the renewal if a contingency plan is in place.

Please respond within 10 business days by COB, 7th November with information to support.

Kind regards.

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Tuesday, 23 October 2018 1:17 PM
To: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Not a problem, thanks Doug

Yoland Dowling
Environmental Consultant

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From: MORRISON Doug [mailto:Doug.Morrison@dnrme.qld.gov.au]
Sent: Tuesday, 23 October 2018 1:43 PM
To: Yoland Dowling <ydowling@groundwork.com.au>
Subject: RE: ML80009 term requested.

Noted and thanks Yoland,

There's a fair bit of correspondence, I must have missed it.

Doug Morrison
Senior Geologist

From: Yoland Dowling [mailto:ydowling@groundwork.com.au]
Sent: Tuesday, 23 October 2018 1:11 PM
To: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>

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Cc: MORRISON Doug <Doug.Morrison@dnrme.qld.gov.au>; Mineral Hub <MineralHub@dnrme.qld.gov.au>
Subject: RE: ML80009 term requested.

Hi Doug,

We recognised that DNRME would be backdating the renewal to 2012, so the term end of 31 October 2037 that was requested was to allow 20 years of future operation based on an approval date of 2017 (when the application was lodged).

So yes, we confirm that the term sought would be 25 years from 01/11/2012.

Kind regards,

Yoland Dowling
Environmental Consultant

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From: TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Sent: Tuesday, October 23, 2018 11:43 AM
To: info <info@groundwork.com.au>
Cc: Mineral Hub <MineralHub@dnrme.qld.gov.au>; TASTownsville <Mines.TASTownsville@dnrme.qld.gov.au>
Subject: ML80009 term requested.

Good morning,

I refer to the renewal application for ML80009 which was recently transferred to Cement Australia (CA).

During an assessment of the technical aspects of the application and subsequent supplied by you on behalf of CA, I note the holder is requesting 20 years based on a term-end year 0f 2037. The renewal term will commence 2012 therefore the term would be 25 years not 20 years.

Please confirm.

Thank you.

Queensland Government

Doug Morrison
Senior Geologist
Mineral Assessment Hub | Minerals and Coal
Department of Natural Resources, Mines and Energy

P: 44479226
E: doug.morrison@dnrme.qld.gov.au
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31/1/2018

Review of groundwater modelling report

East End 11 January 2018

Pacific Environment

Introduction

The following is a result of a brief review of the document referred to above. It is not intended as a complete review but a compilation of the main issues noted in the limited time frame available to assess the report.

One thing that is noted is that DNRME had previously recommended a peer review of any updated transient model. This appears not to have occurred.

Issues

Areal extent of model

Whilst the model boundaries are wider than in previous modelling work presented and appear reasonable in most areas it is noted in Figure 28 that the predicted 5 m drawdown contours in scenarios 2 and 3 in 2045 intercept the model boundaries in the northern part of the model.

There is no discussion of whether this is a limitation to this model, how this may impact drawdown predictions elsewhere in the model or if alterations should be made to future versions of the model.

Model Layers

The commitment in section 8.3 of the August 2014 SEIS Groundwater report is as follows:

'Following the acquisition of additional water level data from the monitoring network recommended above and additional pumping test data, refinement of a numerical model of groundwater flow would be feasible and should be completed. Features of such a model would include: (a) additional vertical discretisation of the aquifer(s), (b) development of a transient flow model including delayed recharge, and (c) more accurate representation of groundwater-surface water interaction near creeks and other surface water bodies.'

Firstly whilst additional water level data is now available, based on section 4.4 and table 9, it appears that only one additional pump test (DHH96-43) has been carried out since 1999.

In regard to the additional vertical discretisation of aquifer(s) referred to above, this would need to occur by either incorporating a number of model layers or utilising some sort of ramp function to alter hydraulic conductivity (K) values with depth in a single layer. The Pacific Environment 2018 model uses one layer to a depth of 100 metres with a single uniform K value. The reasoning for the one layer can be found in section 4.4.1 which utilises existing pumping test data. It is noted that any test with a K value of less than 1 m/day have been discarded in the Pacific Environment assessment. The majority of these discarded tests appear to have been carried out on the deeper bores.

This reasoning for the single layer of uniform K also includes the construction method of most of the monitoring bores which have long screen lengths which make it difficult to calibrate a multi-layer model. The inference here is that water levels monitored are not representative of a specific depth.

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There is however no recommendation as to future construction requirements for monitoring bores or additional pumping tests that might address this issue.

Model boundaries

Section 5.2.3.1 discusses model boundaries. In this section it states that *the model boundary generally follows the high points in the topography. As such, all boundaries along those high points are no-flow boundaries.*

It then goes on to state exceptions where constant head boundaries have been implemented. This section requires a map to clearly demonstrate where no flow and constant head boundaries are located in the model.

Storage Coefficient / porosity

It is noted that there is no characterisation of the aquifers in the report. It is noted in the 2014 report that the limestone aquifer is assumed to be unconfined.

It appears that the same assumption is made here. The storage parameter is referred to as a storage coefficient (generally used to describe confined aquifers) but the 1% figure adopted is in line with a specific yield used to describe an unconfined aquifer.

In section 5.4.5.1 it is stated that as the value used in the model (to represent storage) was already at the lower range of the values documented in literature, the value was only increased (not decreased) for the sensitivity analysis. In other words a lower storage coefficient was not trialled in the sensitivity analysis.

There is however little discussion about the literature values in the report.

Recharge

The 2014 report suggested the need for applying delayed recharge in the model. This issue appears not to have been discussed in the Pacific Environment 2018 report.

Section 5.2.5.1 provides details of the different recharge rates applied to limestone and volcaniclastic rocks. However there appears to be no map showing these 2 zones where the varying recharge rates were applied. It is assumed that it was applied on the basis of Figure 24 which sets up zones for limestone and volcaniclastic rocks.

4.3.2 Machine Creek

There is a short description of a theory which concludes that alluvial groundwater and surface water in Machine creek will not be impacted by further dewatering of the bedrock. This statement cannot be confidently supported by the limited information provided.

It is noted that in the 2014 EIS report commitments were given to carry out additional drilling adjacent Machine Creek.

Model Calibration and Validation 5.3

It appears from section 5.3 that a steady state calibration was carried out to determine K in the 15 zones and the 11 creek leakage factors. Figure 24 shows the locations of the 15 K zones and table 15 discusses the creek sections. A map showing the creek sections would assist. The draft report currently does not label any streams on any of the maps which makes it difficult to follow the discussion.

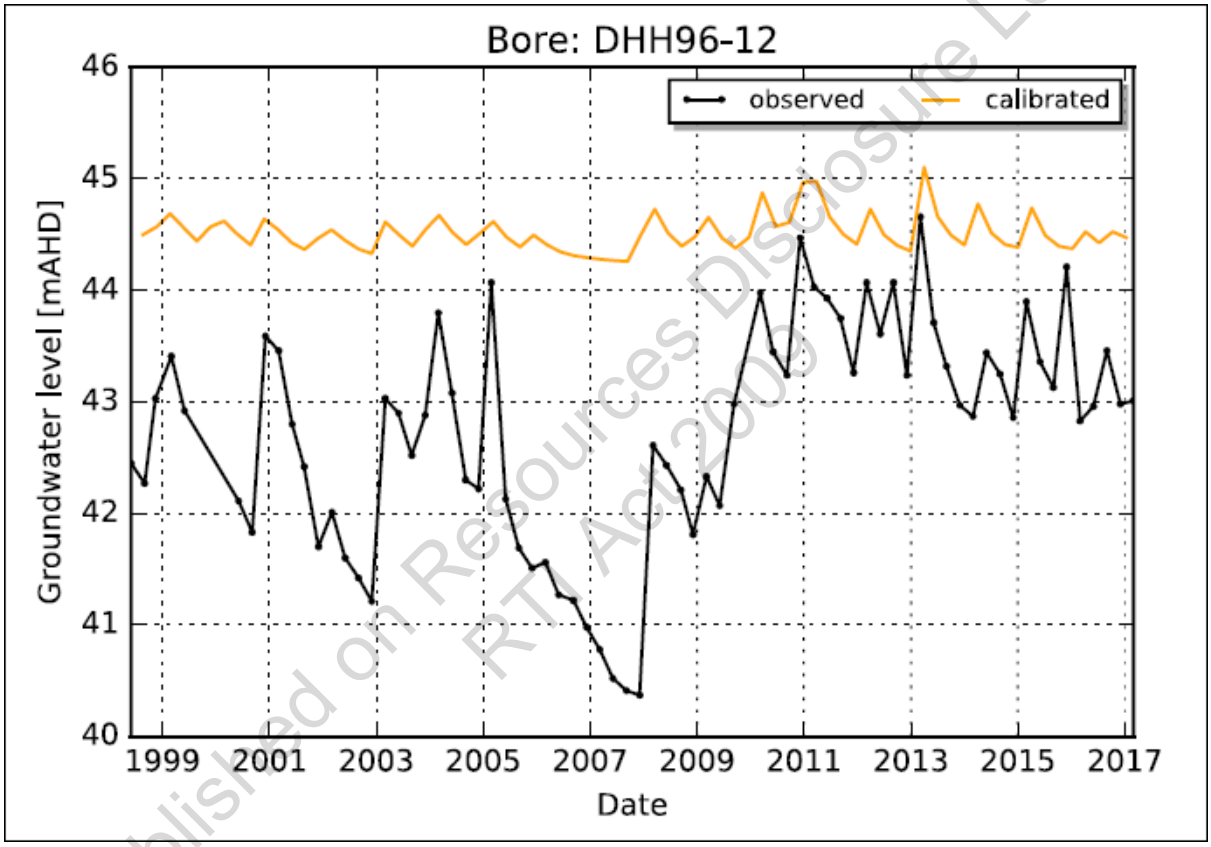
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It is then assumed that these parameters were accepted and used to run the transient model from 1980 to 2017 as a validation. Hence K appears not to have been calibrated in transient mode. It appears that during this process a storage coefficient of 1% was adopted by way of some manual best fit process.

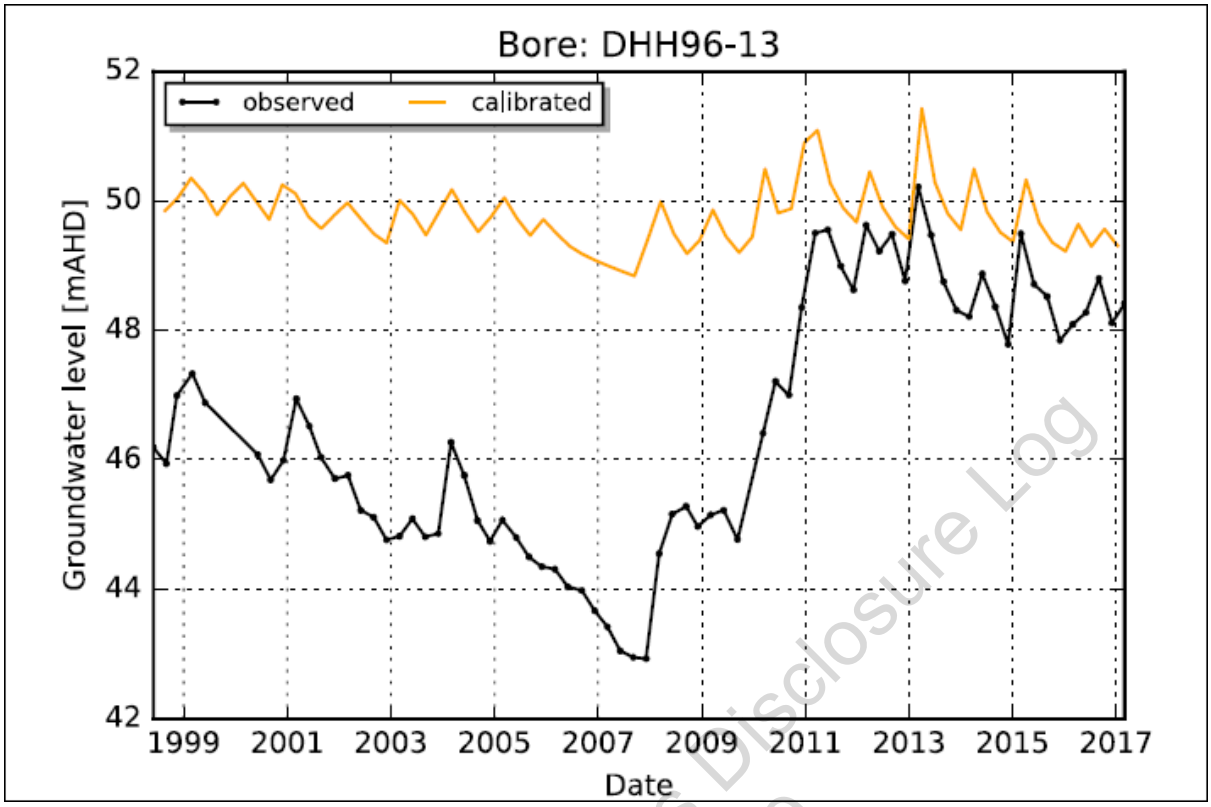
The description of this transient process is very limited.

In most calibration bores the elevation of the calibrated water level in the validation period looks reasonably good in comparison to the observed water levels.

West of the pit the elevation of the calibrated water levels look ok but reproduction of drawdown and recharge response is poor. Typically the model is not predicting enough drawdown in the calibration (validation) period in this area. DHH96-12 and DHH96-13 are examples.

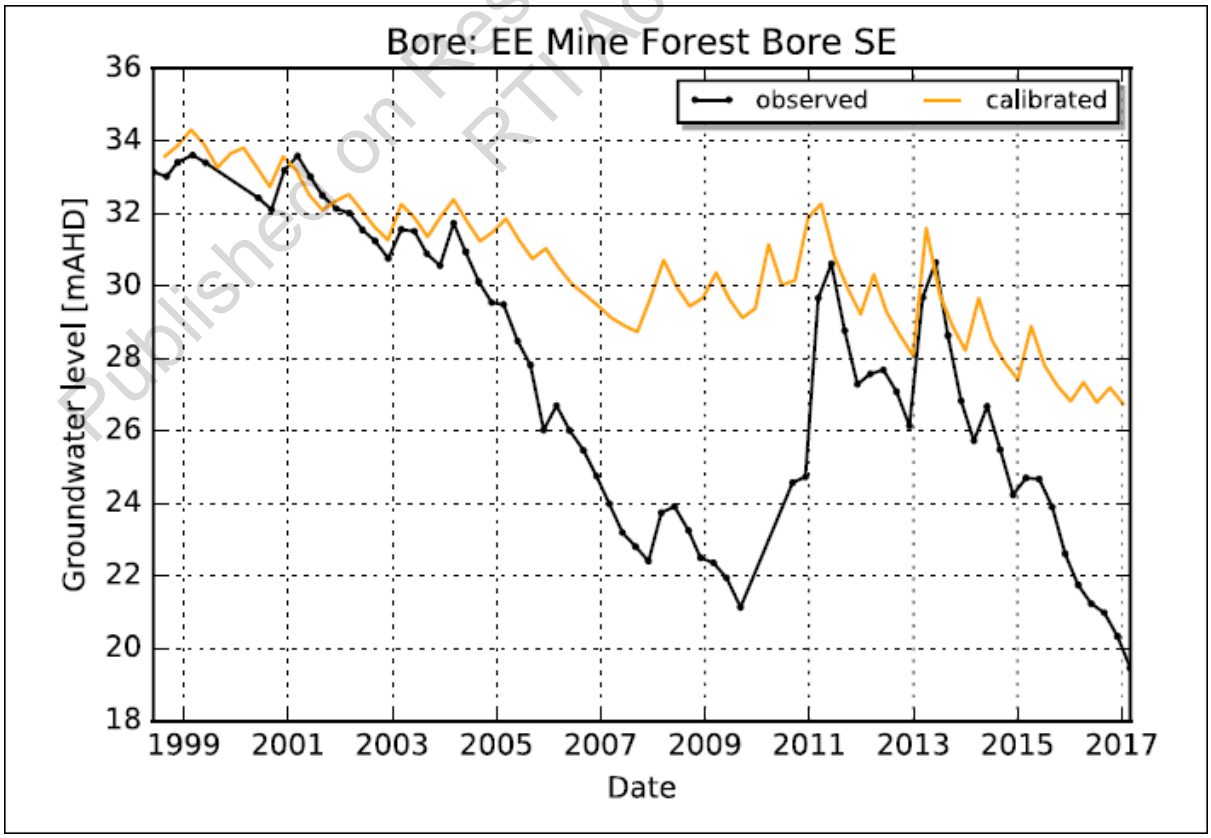


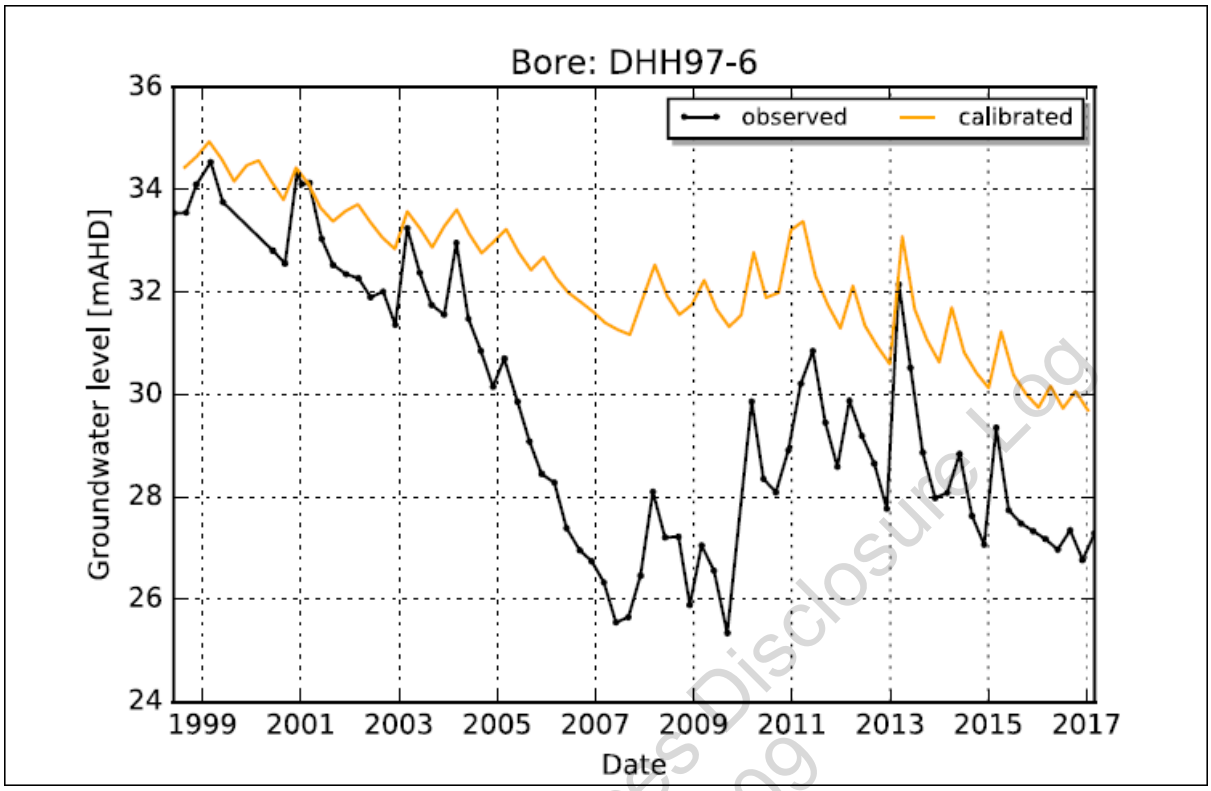
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Then to the east, EE Mine Forest Bore SE and to the south east, bore DHH97-6, similar issues are noted.





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Hence this can be an issue in some areas where the model is consistently under predicting drawdown given that prediction of drawdown is a key aim of the model.

Hydraulic Conductivities

Whilst it is accepted that the volcaniclastics are likely to have generally lower K values than the limestone there should be some discussion as to the difference in values in the pump test results in table 10 for volcaniclastic bores where 4 bores returned K values of between 1.5 and 11.6 and the calibrated values of 0.02 to 0.14.

Additionally given the colour coding of Figure 24 the boundaries of zones 1 and 2 are difficult to determine but given the similar K values the issue is not critical.

It would however be helpful to have a map where the locations of both the calibration / validation bores and the K zone boundaries are provided. This would assist in understanding the likely impact of K zone values on calibrated water levels at specific bores.

Predictive Model Runs Section 5.4

Table 14 describes Scenarios 1, 2 and 3.

Based on the descriptions in the report it appears that scenario 1 is a no mining scenario, scenario 2 includes the current mining operations out to 2045 and scenario 3 includes current and proposed extension mining operations out to 2045.

Table 14 references Figure 29 as providing the results of scenarios 1, 2 and 3. This appears incorrect.

Figure 29 appears to show the difference between scenario 3 and 2 which equates to the predicted drawdown at 2045 for the mining extension.

Figure 28 appears to show the predicted drawdown at 2045 of scenarios 2 and 3.

Apart from this obvious confusion it would have been helpful to have predicted drawdown at various time periods from current day through to 2045. This has not been provided.

Additionally we are provided with 5 metre contours. It would have been helpful to see a 1 metre contour to determine if predicted drawdown approaches any other model boundaries in addition to those in the north.

Predicted Pit Inflows

Based on discussion in section 1.2.1 and 5.4.4 the predicted inflows to the pit in 2017 is similar to that observed. The report does not provide a graph showing predicted inflow over the life of the mine (Figure 30 only shows inflow up to 2017. The report does not provide information or graphs showing post mining recovery of water levels in the final void. (post recovery of bores are in App G). The report briefly notes that evaporation exceeds rainfall, however does not provide a full water balance including runoff etc.

Larcom Creek

Figure 28 indicates at least 5 metres of drawdown adjacent Larcom Creek and in places in excess of 5 metres. More detailed predicted drawdown contours should be provided in such areas.

The following recommendations in relation to Larcom, Scrub and Machine creeks are noted in the 2014 EIS groundwater report

Other recommendations additional to those contained in the monitoring review are:

- *Additional and replacement monitoring bores to be installed in the vicinity of Larcom Creek and Scrub Creek to confirm the extent of groundwater-surface water interaction. Such installation must occur well in advance of mining commencing in the Project Area. Similarly, installation of monitoring bores within the Machine Creek alluvium has been recommended.*
- *Any additional bores drilled adjacent to Larcom and Scrub Creeks should be hydraulically tested in order to develop understanding of the connectivity between the river and the adjacent aquifer/s including the potentially low permeability volcanic layer identified within the limestone.*

The current report makes reference to at least some of this work in section 6.2 but it appears no closer to happening.

Surface water interaction

Section 5.4.4, Table 15 notes that some streams will change from gaining streams to losing streams during mine life. The streams, however, are predicted to revert back upon recovery post mining (Table 17). DES may wish to consider whether there are any environmental values that may be affected by these changes during mine life.

Sensitivity Analysis

The sensitivity analysis is considered useful. The predicted drawdown appears most sensitive to changes in K. This combined with some under prediction of drawdown in the validation period may be an indication that a further calibration of K under transient conditions (assuming that has not already occurred) should be performed.

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It is also noted that recharge has not been included in the sensitivity analysis and no discussion as to why it has been omitted.

Summary

Subject to addressing the comments above, and noting the caveat in the introduction in regards to a peer review, the model overall appears to be reasonable, however it is noted that the calibrated (validated) drawdowns in ~10 bores are underestimated by more than 5m. This would possibly present a problem in that some bores may not be identified as being potentially impacted in the immediate and long term impact areas. DNRME has not assessed the locations of landholders bores to see if this poses a potential risk, or whether an absence of landholder bores in those areas would lessen the impact of the discrepancy between actual and modelled impacts.

A. Bleakley

D. Larsen

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