Permit[1]

Environmental Protection Act 1994

Environmental authority

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

Permit[1] number: EPSL03529415

Environmental authority takes effect when the relevant tenure is granted.

The first annual fee is payable within 20 business days of the effective date.

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

Environmental authority holder(s)

Name	Registered address
Sconi Mining Operations Pty Ltd	Level 1, 83 Havelock Street, WEST PERTH WA 6005

Environmentally relevant activity and location details

Environmentally relevant activity(ies)	Location(s)
Mining - ML	ML10368

Additional information for applicants

Environmentally relevant activities

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

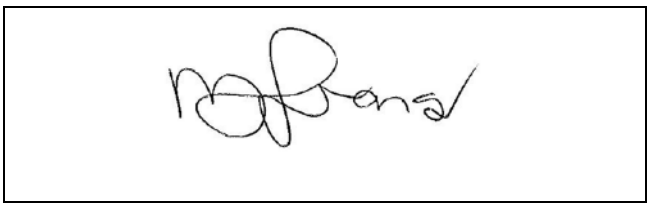
An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority specifically authorises environmental harm.

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

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

Contaminated land

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



Signature

25 July 2018

Date

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

Enquiries:
Permit and Licence Management
Department of Environment and Science
GPO Box 2454
Brisbane Queensland 4001
Phone: 1300 130 372
Fax: 07 3330 5875
E-mail: palm@des.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

The conditions of approval for this environmental authority are standard conditions contained within the attached document(s) entitled:

- Code of environmental compliance for Mining Lease Projects – Version 1.1

END OF PERMIT

Code of environmental compliance

Mining lease projects

This code of environmental compliance (code) has been made under of the Environmental Protection Regulation 2008. It contains the standard environmental conditions approved by the Minister, under section 549 of the Environmental Protection Act 1994, for carrying out an environmental authority for a mining exploration or mineral development project which meets the prescribed eligibility criteria in schedule 3A of the Environmental Protection Regulation 2008.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Code of environmental compliance for Mining Lease Projects

Version 1.1

ABN 46 640 294 485

Environmental Protection Act 1994 - changes as at 31 March 2013

The criteria outlined in section 2 of the code are not current and should not be used. The criteria, referred to as eligibility criteria from 31 March 20013, for determining whether a mining lease project can be considered a standard environmental authority have been set out below. The following eligibility criteria are found in schedule 3A of the Environmental Protection Regulation 2008:

a) the mining activity does not, or will not, at any one time, cause more than 10ha of land to be significantly disturbed;

b) the mining activity is not, or will not be, carried out in a category A environmentally sensitive area or a category B environmentally sensitive area;

c) the mining activity is not, or will not be, carried out under an environmental authority under which either of the following is, or is to be, authorised—

   i. an environmentally relevant activity to which a section of schedule 2 applies and for which there is an aggregate environmental score;

   ii. a resource activity, other than a mining activity, that is an ineligible ERA;

d) the mining activity is not, or will not be, carried out in a wild river area, unless—

   i. the mining activity is authorised under an environmental authority for a mining activity relating to a mining claim, an environmental authority for a mining activity relating to an exploration permit or an environmental authority for a mining activity relating to a mineral development licence; or

   ii. the mining activity involves alluvial mining and is, or will be, carried out at a place that is not in a wild river high preservation area, wild river nominated waterway or wild river special floodplain management area; or

   iii. the mining activity involves clay pit mining, dimension stone mining, hard rock mining, opal mining or shallow pit mining and is, or will be, carried out at a place that is not in a wild river high preservation area or wild river special floodplain management area.

A nominated waterway means a nominated waterway under the *Wild Rivers Act 2005*.

e) the mining activity does not, or will not, at any one time, cause more than 5ha of either of the following to be significantly disturbed—

   i. a riverine area;

   ii. mine workings;

f) the mining activity is not, or will not, be carried out by more than 20 persons at any one time;

g) only the following types of mining are, or will be, authorised under the relevant mining lease—

   i. alluvial mining;

   ii. clay pit mining;

   iii. dimension stone mining;

   iv. hard rock mining;

   v. opal mining;

   vi. shallow pit mining.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Mine workings means an area from which ore or overburden has been extracted, or on which waste rock is stored, that is not:

i. substantially rehabilitated to the satisfaction of the administering authority; or

ii. used for constructing a camp site, road, plant, tailings dam, water storage dam or other infrastructure.

Any new mining activity commencing from 31 March 2013 that meets the eligibility criteria outlined above and that can meet all of the standard conditions can apply for a standard approval to carry out this activity. The conditions that apply to the standard approval will be the standard conditions.

From 31 March 2013, the standard environmental conditions of this code are taken to be the standard conditions for the mining activity until new standard conditions are developed.

Where the mining activity cannot meet all the standard conditions of this code, a variation application for an environmental authority can be made. The environmental authority will include the standard conditions and any variation that is approved by the administering authority.

Information on applying for an approval is at www.business.qld.gov.au.

In the near future, the department will be developing a contemporary set of eligibility criteria and standard conditions that reflects changes to standards of environmental management required for mining activities and more recent legislation implementation.

Uranium mining

The Queensland Government has determined that mining activities associated with uranium do not meet the eligibility criteria for this code of environmental compliance. This determination is based on an environmental impact statement (EIS) being triggered for uranium mining activities as they are defined as the "introduction of novel or unproven resource extraction process, technology or activities". A standard application for mining activities associated with uranium therefore cannot be made. As such a site specific application is required for all mining activities associated with uranium.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

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1.0 INTRODUCTION

Note: The key terms and/or phrases used in this Code are *highlighted in italics* followed by an (*). They are defined in Section 4.

Low Impact Mining

Mining is authorised through mining leases granted by the Governor-in-Council under the *Mineral Resources Act 1989.* A mining lease allows the holder or any person working the lease as the holder's agent or employee to:

- mine the mineral or minerals specified in the Instrument of Lease;
- carry out activities associated with mining or promoting the activity of mining;
- enter and be within the land, and upon the surface area, comprised in the mining lease;
- do all things permitted or required under the lease by the *Mineral Resources Act 1989*; and
- utilise sand, gravel and rock occurring in or on the land comprised in the mining lease, subject to the conditions of the lease, payment of royalties and any other conditions governing the use or disposal of this material.

The regulation of environmental management of a mining lease is via an Environmental Authority* issued under the *Environmental Protection Act 1994*. A mining project that is considered to present a low risk of causing S*erious Environmental Harm** under the *Environmental Protection Act 1994* will be assessed as a *Standard Mining Activity**. A standard mining activity is an Environmentally Relevant Activity* under the Environmental Protection Regulation 1998 and will therefore require an environmental authority.

This Code of Environmental Compliance has been developed for standard mining activities that include an *Opal** , *Alluvial** , *Hard Rock** , *Clay Pit** , *Shallow Pit** or *Dimension Stone** mining activity, to the satisfaction of the *Administrating Authority*,* complies with all relevant criteria listed in schedule 1A of the *Environmental Protection Regulation 1998*.

About this Code

The Code of Environmental Compliance:

- provides the criteria used to determine the level of environmental management required for mining projects (see section 2);
- sets the environmental performance requirements as S*tandard Environmental Conditions**, which will be the compliance requirements of an environmental authority issued for standard mining projects (see section 3);
- provides advisory notes on how to achieve compliance with the standard environmental conditions. These are not compliance requirements and are contained in the boxes associated with the relevant standard environmental condition; and
- provides definitions of terms used in this code (see section 4);
- provides references to Technical Guidelines for information on best practice environmental management (see section 5).

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Additional Conditions

The holder of the environmental authority may apply for additional conditions at any time. The request must be made on the *Approved Form** and the applicant must supply enough information to allow the administering authority to decide whether or not to impose the additional condition/s.

The administering authority may set additional conditions on the environmental authority. The administering authority may only set additional conditions as long as the mining project remains a standard mining activity. In deciding whether to set an additional condition, the administering authority must comply with any relevant *Environmental Protection Policy** and consider the *Standard Criteria**.

If an application for an additional condition is granted, the additional condition will override the relevant criteria (see section 2) or standard environmental condition (see section 3) and the activity will remain a standard mining activity in accordance with section 151 of the *Environmental Protection Act 1994*.

Compliance Requirement

The compliance requirements of a standard environmental authority issued under the *Environmental Protection Act 1994* for a standard mining activity are the standard environmental conditions in this code, plus any additional conditions. Failure to comply with the standard environmental conditions, or any additional conditions, is a breach of the environmental authority and the holder is liable to various compliance enforcement actions under the *Environmental Protection Act 1994*. Refer to section 430 of the *Environmental Protection Act 1994* - 'offence to contravene condition of environmental authority'.

Note: Additional permits and/or licences for activities carried out on the mining lease may be required under other legislation (e.g. sale of gravel or sand). Seek advice from the administrating authority before carrying out any additional activities.

Public Notification

Draft environmental authorities for standard mining activities will be publicly advertised as part of the application process. Any person may object to the conditions of the draft environmental authority and the objections will be heard through the Land and Resources Tribunal. The findings of the Land and Resources Tribunal will be considered by the Minister for Environment and Heritage, who may consult with the Minister for Mines and Energy in setting the final environmental conditions.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

For More Information

Contact the District Manager at the Environmental Protection Agency or the Mining Registrar at the Department of Mines and Energy at the following locations.

Department of Environment and Heritage Protection

EPA Advisory Service - 1800 501087

Brisbane and Toowoomba - (07) 3224 6161

Maryborough and

Rockhampton - (07) 4936 0511

Mackay and Emerald - (07) 4982 4555

Townsville- (07) 4722 5350

Mt Isa- (07) 4744 7888

Cairns - (07) 4046 6730

Department of Natural Resources and Mines

Brisbane (Spring Hill) - (07) 3227 1972

Quilpie – (07) 4656 1266

Emerald - (07) 4982 4011

Winton – (07) 4657 1727

Mt Isa – (07) 4747 2103

Mareeba – (07) 4092 4211

Charters Towers - (07) 4787 1266

Townsville – (07) 4760 7406

Georgetown – (07) 4062 1204

Rockhampton – (07) 4938 4440

Superseded - Valid for approvals from 24 May 2014 to 30 March 2016

2.0 CRITERIA FOR DETERMINING THE LEVEL OF ASSESSMENT

The following criteria found in schedule 1A of the *Environmental Protection Regulation 1998,* are used to determine the level of assessment required for an application for an environmental authority for a standard mining activity.

1. The mining activities do not or will not cause more than 10 ha of land to be *Significantly Disturbed** at any one time;
2. The mining activities do not or will not cause more than 5 ha of land to be significantly disturbed at any one time
    i. in a riverine area;
    ii. because of mine workings;
3. The mining activities are not or will not be carried out in, or within 2 km of a category A *Environmentally Sensitive Area**;
4. The mining activities are not or will not be carried out in, or within 1 km of a category B environmentally sensitive area;
5. The mining activities do not include a level 1 environmentally relevant activity
6. No more than 20 persons are carrying out or will, at any one time, carry out the mining activities;
7. Only mining of a type as follows is permitted under a relevant mining lease –
    i. Alluvial
    ii. Clay Pit Mining
    iii. Dimension stone mining
    iv. Hard rock mining
    v. Opal mining
    vi. Shallow pit mining

If an application for an environmental authority does not meet above the assessment level criteria, it could be approved as a standard mining activity provided the environmental impact is no greater than the environmental impact of activities allowed under an environmental authority of the same type that does meet the criteria. For example, an application for a standard mining activity proposing a significant disturbance of greater than 10ha, could be granted a standard environmental authority as long as the applicant can demonstrate that the significant disturbance will have no greater environmental impact than a project that can operate within the 10ha limit.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

3.0 STANDARD ENVIRONMENTAL CONDITIONS

3.1 GENERAL CONDITIONS

Plan of Operations

Condition 1

The holder of the *Environmental Authority must submit to the administering authority a *Plan of Operations** for the mining lease, at least 28 days prior to carrying out any activities on site, unless a shorter period is approved by the administering authority.**

Note 1 -For more detailed information refer to the following sections of the Environmental Protection Act 1994:

(i) 233 Plan of operations required before acting under relevant mining lease;

(ii) 234 Content requirements of a plan of operations.

Financial Assurance

Condition 2

The holder of a new environmental authority must submit the required amount of *Financial Assurance (ie. a security deposit) to the administering authority prior to carrying out any activities on the mining lease. If the holder of the environmental authority submits an application to amend the plan of operations or submits a new plan of operations, they must also submit an application to amend their financial assurance to the administering authority. If an application is lodged to transfer the environmental authority to another person or company, the proposed transferee must submit the required financial assurance prior to the transfer taking effect.**

Note 2 -A financial assurance must be calculated in accordance with Form 5 (Schedule of Rehabilitation Costs) and will be subject to a financial discount in accordance with the performance criteria in Appendix C (Schedule of Environmental Management Performance).

Note 3 -Section 364 of the Environmental Protection Act 1994, requires that the holder of the environmental authority gives the administering authority a financial assurance in a acceptable form (ie. either cash or a bank guarantee) and for the amount calculated in a manner decided by the administering authority. When necessary, the holder of the environmental authority must amend the financial assurance under section 366 of the Environmental Protection Act 1994 (e.g. increasing the area of disturbance on the mining lease).

The holder of the environmental authority must lodge a single financial assurance with the Department of Mines and Energy. The financial assurance will consist of two components:

(i) An amount to cover the potential costs of rehabilitation of areas disturbed by mining activities (ie. Environmental Protection Agency component); and

(ii) An amount to cover the potential costs of restoring property improvements disturbed by mining activities and the failure of the tenure holder to pay rents and royalties (ie. Department of Mines and Energy component).

Superseded - valid for approvals from 21 May 2014 to 30 March 2016

Land Disturbance

Condition 3

The holder of the environmental authority must ensure that the area and duration of disturbance to land and vegetation are minimised.

Note 4 - To minimise the area and duration of disturbance to land and vegetation the following measures or similar measures can be used:

- avoid disturbing large and/or mature trees;
- select specific trees to be cleared and avoid causing damage to the surrounding vegetation; and
- where practical, leave the rootstock of existing vegetation intact to promote regrowth.

Air Quality

Condition 4

The holder of the environmental authority must not cause an *Unreasonable Release of dust.**

Note 5 - To prevent the unreasonable release of dust, the following measures or similar measures can be used:

- installing pollution control equipment (e.g. fitting bag filters or a cyclone to dust generating equipment);
- altering work practices to avoid or minimise the generation of dust;
- scheduling activities for times when they will have least impact;
- spraying water on roads and tracks;
- revegetating disturbed areas as soon as practical; and
- leaving or creating wind breaks or screens.

Noise Emissions

Condition 5

The holder of the environmental authority must not cause *Unreasonable Noise at a *Noise Sensitive Place**.**

Note 6 - To prevent causing unreasonable noise at a noise sensitive place, the following measures or similar measures can be used:

- construct and maintain noise barriers and enclosures around noisy equipment or along the noise transmission path;
- implement noise reduction measures at noise sensitive places;
- provide and maintain low noise equipment;
- carry out routine maintenance on fans to minimise bearing noise;
- repair or replace defective mufflers of vehicles and plant equipment; and
- limit the hours of operation to between 7am to 6pm from Monday to Saturday.

Note 7 -If aircraft are used for mining related activities, operate them so as to minimise disturbance to livestock (e.g. helicopters).

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Erosion and Sediment Control

Condition 6

The holder of the environmental authority must design, install and maintain adequate banks and/or diversion drains to minimise the potential for storm water runoff to enter areas disturbed by mining activities.

Condition 7

The holder of the environmental authority must design, install and maintain adequate erosion and sediment control structures wherever necessary to prevent or minimise erosion of disturbed areas and the sedimentation of any *Watercourse, *Waterway**, *Wetland** or *Lake**.**

Note 8 - For information on the design and construction of sediment ponds refer to the "Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland", Part C, "Site Water Management".

Note 9 – Regularly clean out sediment traps, ponds and drains and maintain them in effective working order, until erosion stability has been achieved in disturbed areas.

Note 10 – The capacity of sediment traps, ponds, drains and banks should not be reduced below 70% of their design capacity.

Topsoil and Overburden Management

Condition 8

The holder of the environmental authority must ensure that *Topsoil is removed and stockpiled prior to carrying out any mining activity. Prevent or minimise the mixing and erosion of topsoil and *Overburden** stockpiles.**

Note 11 – To separate topsoil and overburden and to prevent or minimise the erosion of these stockpiles the following measures or similar measures can be used:

- identify topsoil and overburden layers prior to mining;
- store topsoil and overburden in separate stockpiles, install silt fences or bunding around the stockpiles
- establish and maintain a temporary cover crop on the topsoil stockpiles;
- limit the height of topsoil stockpiles to 2 m; and
- where practical reuse stockpiled topsoil within 12 months of storage.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Hazardous Contaminants

Condition 9

The holder of the environmental authority must plan and conduct activities on site to prevent any potential or actual release of a *Hazardous Contaminant.**

Note 12 - Section 442 of the Environmental Protection Act 1994 makes it an offence to cause or allow a contaminant to be placed in a position where it could reasonably be expected to cause serious or material environmental harm or environmental nuisance.
Note 13 - Section 443 of the Environmental Protection Act 1994 makes it an offence to release a prescribed contaminant. A prescribed contaminant is a contaminant prescribed by an Environmental Protection Policy.

Note 14 -To prevent or minimise any potential or actual release of a hazardous contaminant the following measures or similar measures can be used:

- maintain an inventory of hazardous contaminants stored on the mining lease;
- ensure that all hazardous contaminants are appropriately stored;
- confine the use of mercury to amalgamating ore concentrates in a spill-proof circuit within an impermeable bund;
- store mercury in sealed containers;
- carry out any retorting of amalgam in a vapour proof retort.

Condition 10

The holder of the environmental authority must ensure that spills of hazardous contaminants are cleaned up as quickly as practical. Do not clean up such spillage by hosing, sweeping or otherwise releasing such contaminants to any watercourse, waterway, groundwater, wetland or lake.

Note 16 - If a mining lease becomes Significantly Disturbed* because it is contaminated, it ceases to be significantly disturbed if a Suitability Statement* is issued for the land. Refer to section 384 of the *Environmental Protection Act 1994*.

Note 17 – A Site Management Plan* approved under part 413 of the Environmental Protection Act 1994, may be required by the administrating authority for sites recorded on the Environmental Management Register* or the Contaminated Land Register*. Such sites may include acid producing waste rock stockpiles or tailings dams containing acid producing wastes.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 11

The holder of the environmental authority must, where practical, separate acid producing waste rock from the benign waste. Acid producing waste rock may be temporarily stockpiled in the catchment of the tailings dam, in a mine excavation or in an impermeable bunded area with a restricted catchment.

Condition 12

Where practical, the holder of the environmental authority must dispose of the acid producing waste rock in the tailings dam or mine excavation and backfill as soon as practical. Where not practical, bury acid producing waste rock in an excavation or pit and backfill as soon as practical. Backfill all mine excavations, other excavations and pits containing acid producing waste rock with benign, low permeability material and seal the mine excavation, other excavation or pit with a compacted capping layer at least 1m thick.

Note 18 – For detailed information on the management of acid mine waste material refer to the "Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland", Part B, 'Assessment and Management of Acid Drainage' and the 'Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland'.

Note 19 – The owner or occupier of a mining lease must notify the administering authority if they become aware that a Notifiable Activity* listed in schedule 3 of the *Environmental Protection Act 1994*, is being carried out on the land within 30 days, by giving notice to the administering authority in the approved form. For example, a mining operation that generates waste materials that contain hazardous contaminants must notify the administrating authority that this activity is being carried out. Refer to section 371 of the *Environmental Protection Act 1994*.

Nature Conservation

Condition 13

The holder of the environmental authority must prevent the spread of *Declared Plants by ensuring that all vehicles and machinery are adequately cleaned before taking the vehicles and machinery out of a *Declared Plant Area*.**

Note 20 - Section 35(a) of the Mineral Resources Regulation 1990, requires that every precaution must be taken to ensure there is no dispersal of Parthenium weed or the seed of any other declared plant within the meaning of the *Rural Lands Protection Act 1985*, as a result of mining or as a result of access to the area of the mining lease.

Note 21 – The Department of Natural Resources provide Pest Fact sheets for declared plants in Queensland as well as clean down procedures for motor vehicles and machinery. For advice on declared plant areas contact the Department of Mines and Energy, Department of Natural Resources or your Local Shire Council.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 14

The holder of the environmental authority must not carry out activities:

1. **in, or within 2 km of, a category A environmentally sensitive area; or**
2. **in, or within 1 km of, a category B environmentally sensitive area.**

Prior to carrying out activities in a category C environmentally sensitive area, the holder of the environmental authority must consult with the relevant administering authority. If it is determined through consultation that additional conditions are necessary, the holder must comply with those conditions.

Note 22 – For information on environmentally sensitive areas refer to Appendix A ¬Environmentally Sensitive Areas.

Condition 15

The holder of the environmental authority must not carry out activities within 100m of an identified *Historical, *Archaeological** or *Ethnographic** site.**

Note 23 – With regard to cultural heritage issues, refer to the *Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987* and the *Queensland Heritage Act 1992*. Prior to carrying out any activities on the mining lease, the holder of the environmental authority should consult with the administrating authority if a site has the potential to be designated as a historical, archaeological or ethnographic site.

Other Level 2 Environmentally Relevant Activities

Condition 16

The holder of the environmental authority must not carry out the following Level 2 Environmentally Relevant Activities* (ERA) on the mining lease:

ERA (7) Chemical Storage – storage of chemicals (other than crude oil, natural gas and petroleum products) including ozone depleting substances, gases or dangerous goods under the dangerous goods code in containers with a design storage volume of more than 10m^3 but less than 1000m^3 ;

ERA (76) Incinerating Waste – operation of a waste incineration facility for incinerating:

- **(a) vegetation;**
- **(b) clean paper or cardboard;**

ERA (77) Battery Recycling – operation of a facility for receiving and recycling or reprocessing any kind of battery;

ERA (80) Tyre Recycling – operating a facility for receiving and commercially recycling or reprocessing tyres (other than retreading tyres).

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

3.2 ACTIVITY BASED CONDITIONS

Roads & Tracks

Condition 17

The holder of the environmental authority must consult with the *Landowner prior to establishing any new roads and tracks.**

Note 24 -When planning and constructing new roads and tracks refer to the Technical Guidelines.

Note 25 - Repair all damage to existing private roads and tracks resulting from mining activities, so that they are as trafficable as they were prior to any damage.

Condition 18

When constructing new roads and tracks, the holder of the environmental authority must ensure that the area and duration of disturbance to land, vegetation and watercourses is minimised.

Note 26 - When planning and constructing new roads and tracks the following measures or similar measures can be used to minimise the area and duration of disturbance to land, vegetation and watercourses:

- wherever possible use or upgrade existing roads and tracks;
- construct roads and tracks along natural grades;
- minimise the width of roads and tracks;
- minimise the number of crossings in riverine areas;
- construct crossings in riverine areas in a stable section of the bed;
- avoid constructing roads or tracks that run straight down the bank to the crossing;
- do not disadvantage other users of existing public roads & tracks;
- construct a bed level causeway, a culvert or a bridge where natural bed conditions within a watercourse will not carry the intended traffic load or where crossing of the bed will generate a significant increase in turbidity;
- minimise the number of cuts and fills in riverine areas;
- position cuts and fills in riverine areas to minimise risk of erosion from subsequent flood events;
- position crossings to prevent flow being directed towards the banks and provide erosion resistance to the bed and banks downstream of a crossing for a distance equal to the width of the normal flow channel;
- do not create any downstream or upstream drops at the lip of culverts or causeways;
- regularly clean out culverts, bridges and causeways to prevent flow being impeded or redirected; and
- construct in-stream crossings outside of main fish migration periods.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Campsites

Condition 19

The holder of the environmental authority must consult with the landowner prior to establishing any *Campsites*.

Condition 20

When establishing and maintaining a campsite, the holder of the environmental authority must ensure that the area and duration of disturbance to land, vegetation and watercourses is minimised.

Note 27- When establishing and maintaining a campsite the following measures or similar measures can be used to minimise the area and duration of disturbance to land, vegetation and watercourses:

- locate campsites at least 100 m from any riverine areas;
- only disturb an area necessary for the safe functioning of the campsite;
- install an appropriate human waste disposal facility (e.g. portable self contained toilets, pit toilets, septic tanks);
- use absorption trenches, transpiration beds or spray irrigation to dispose of grey water; and
- locate all disposal areas at least 100 m distance from any watercourse, waterway, groundwater recharge area, wetland or lake.

Note 28 – With regard to on site waste water management refer to the Environmental Protection (Water) Policy 1997.

Waste Management

Condition 21

The holder of the environmental authority must not directly or indirectly release waste from the project area to any watercourse, waterway, groundwater, wetland or lake.

Note 29 – When managing waste materials the following strategy should be adopted:

- avoid creating excess waste;
- reuse waste materials;
- recycle waste;
- create and utilise energy from waste;
- treat waste; and
- dispose of waste (e.g. provide rubbish containers on site).

Note 30 - Where practical take all General Waste* to a Licensed Waste Disposal Facility*.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 22

The holder of an environmental authority must not dispose of more than 50 tonnes of *General Waste per year on the mining lease.**

Note 31 - Up to 50 tonnes of general waste may be buried on the mining lease per year. When burying general waste the following measures or similar measures should be used:

- locate the waste pit so as to ensure that the waste will not contaminate any watercourse, waterway, groundwater, wetland or lake;
- divert stormwater runoff from entering the pit;
- make the pit safe and protect it from scavengers;
- crush drums and other containers to reduce the volume of waste;
- backfill the pit when the level of rubbish in the pit is not less than 1m below the surface; and
- sufficiently overfill the pit to allow for settlement.

Note 32 -Limited Regulated Waste* may be disposed of to a licensed general waste disposal facility provided the annual volume of limited regulated waste does not exceed 10% of the annual volume of general waste (e.g. tyres).

Dams

Condition 23

The holder of the environmental authority must operate, maintain and decommission all dams in accordance with the criteria outlined in Appendix B. The holder of the environmental authority must build all dams, other than dams commenced before 1 January 2001, in accordance with the design and construction criteria outlined in Appendix B.

Note 33 - Refer to Appendix B - Criteria for Dams.

Note 34 -Referable Dams* require licensing by the Department of Natural Resources. Dams or weirs built on a watercourse require licensing by the Department of Natural Resources. Dams to be built in tidal waters require licensing by the Department of Primary Industries and the Environmental Protection Agency.

Note 35 - Provide safe access to water for livestock and native animals by:

- providing hard surfaces around water storage areas; and
- fencing off any soft areas around the edge of water storage areas.

Note 36 - Provide, install and maintain adequate warning devices to exclude people, livestocks and native animals from dams containing hazardous contaminants (e.g. gas guns, signs, fences and bunds).

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Mine and Process Plant

Note 37 - Provide, install and maintain adequate warning devices to exclude people, livestock and native animals from the processing plant, open mine excavations or underground workings (e.g. signs, fences or bunds).

Condition 24

The holder of the environmental authority must not directly or indirectly release waste water from the mine or process plant to any watercourse, waterway, groundwater, wetland or lake. This condition does not apply for alluvial miners operating mobile processing plants in flowing water. Alluvial miners operating mobile processing plants in flowing waters must discharge waste water into an in-stream settlement pond (refer to condition 39 for design requirements of in-stream settlement ponds).

Note 38 - To prevent the direct or indirect release of waste water from the mine or process plant to any watercourse, waterway, groundwater, wetland or lake the following measures or similar measures can be used:

- where practical recycle all waste water (e.g. use water from the mine or processing plant for drilling purposes, dust suppression along roads and tracks or in the process plant);
- discharge mine water onto benign overburden or waste rock heaps or to an evaporation pond for absorption and evaporation.

Note 39 - For more detailed information regarding site water management refer to the Environmental Protection (Water) Policy 1997.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Service, Maintenance and Storage Areas

Condition 25

The holder of the environmental authority must prevent the release fuels, oils, lubricants or other *Contaminants to any watercourse, waterway, groundwater, wetland or lake.**

Note 40 - To prevent the release of fuels, lubricants or other contaminants to any watercourse, waterway, groundwater, wetland or lake the following measures or similar measures can be used:

- maintain all refuelling equipment in good working order;
- use groundsheets or drip trays to capture spillage during maintenance of machinery and vehicles;
- locate all fuel storages within an impermeable bund;
- ensure all liquid containment, including fuel tank bunds and process water ponds, have a volume at least equal to the design volume plus an additional 10% of that volume;
- where practical, undertake all refuelling and routine maintenance of vehicles within designated service areas.

Condition 26

The holder of the environmental authority must ensure that all chemical, fuel and oil storage facilities less than 10 000L on a mining lease, must be designed and operated in accordance with Australian Standard 1940 – 'The storage and handling of flammable and combustible liquids', Section 2, Minor

Storage.

Condition 27

The holder of the environmental authority must ensure that:

1) **all chemical, fuel and oil storage facilities of more than 10 000 L on a mining lease, must be bunded to contain at least one hundred percent of the volume of the largest container, plus twenty-five percent of the storage capacity of the largest container up to a maximum of 10, 000 L, together with ten percent of the storage capacity beyond 10, 000 L; and**
2) **the facility must be operated and maintained in accordance with the Australian Standard 1940 – "The Storage and Handling of flammable and combustible liquids".**

Monitoring, Reporting and Emergency Response Procedures

Condition 28

The holder of the environmental authority must record and notify the administering authority of any emergency or incident that demonstrates non-compliance to the standard environmental conditions.

Note 41 - A notification of any emergency or incident, which demonstrates non-compliance to the standard environmental conditions can not be used in evidence in any further action taken by the administering authority as a result of the notification.

Note 42 - To demonstrate ongoing compliance with the standard environmental conditions, complete Form 6, 'Monitoring and Record Keeping Summary'. Establish programs to monitor project activities and maintain records for review by the administrating authority.

Note 43 -To demonstrate compliance with the standard environmental conditions complete the 'Emergency Response Table' in Appendix E. Provide and maintain appropriate emergency response equipment and inform all operational personnel, contractors and visitors of emergency response procedures.

Note 44 - Observe the provisions and regulations under the *Fire and Rescue Authority Act 1990* and the *Mine Regulation Act 1985.*

Rehabilitation

Condition 29

In *Riverine Areas, the holder of the environmental authority must complete the rehabilitation processes on areas disturbed by mining activities, apart from those areas currently being utilised for mining activities, as soon as practical and prior to the onset of the following wet season.**

Note 45 - Condition 29 is to ensure that there is adequate erosion protection in riverine areas prior to the onset of the wet season. In Queensland the wet season is generally considered to be from November to April each year.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 30

For all other areas, the holder of the environmental authority must complete the rehabilitation processes on areas disturbed by mining activities, apart from those areas currently being utilised for mining activities, as soon as practical and within six months of the completion of works in those areas.

Note 46 – Where practical undertake progressive rehabilitation of disturbed areas.

Condition 31

The holder of the environmental authority must backfill excavations less than 3m deep, with overburden and waste rock as soon as practical following the completion of mining activities.

Condition 32

Where it is impractical to return overburden and waste rock to excavations deeper than 3m, the holder of the environmental authority must construct overburden and waste rock stockpiles in accordance with Condition 34.

Condition 33

For excavations that are to remain at the completion of mining activities, by agreement with the land holder, and will be used as livestock water drinking supplies, the holder of the environmental authority must:

1) **ensure that water quality in any remaining excavation complies with the acceptable water quality *Guidelines for Livestock Drinking Water** as detailed in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality; and**
2) **provide safe access for livestock and native animals to the excavation.**

Note 47 – Prior to the surrender of a mining lease, all excavations that are to remain open after mining activities have ceased, need to be made safe (e.g. an open pit). Refer to the *Mines Regulation Act 1985* and the 'Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland', Part D, 'Open Pit Rehabilitation'.

Condition 34

The holder of the environmental authority must rehabilitate areas disturbed by mining activities to a stable landform, similar to that of the surrounding undisturbed areas.

Note 48 - When rehabilitating disturbed areas refer to the 'Technical Guidelines for the Environmental Management of Mining and Exploration in Queensland', Part D, 'Geo-Technical Slope Stability'.

Condition 35

The holder of the environmental authority must spread seeds or plant species that will promote vegetation of a similar species and *Density of Cover to that of the surrounding undisturbed areas or vegetation that is appropriate for providing erosion control and stabilisation of the disturbed areas.**

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Note 49 - To revegetate disturbed areas the following measures or similar measures can be used:

- for areas which have become compacted during the project, break up the soil surface to a depth that is suitable for establishing vegetation;
- spread stockpiled topsoil over disturbed areas to a depth that is suitable as a rooting medium for the revegetation process;
- provide suitable nutrient conditions for planting by using fertiliser if necessary; and
- collect and store native seeds to be used in rehabilitation.

Note 50 - When revegetating disturbed areas, the holder of the environmental authority should plant native species endemic to the area and location in the landscape (e.g. if clearing has occurred in a riverine area, revegetate the disturbed area using local riverine species).

Note 51 - Vegetation used to stabilise disturbed areas in the short term should be comprised of sterile, short-lived species (e.g. a cover crop). However, the long term aim of revegetating any disturbed area is to establish a stable vegetation community that is similar to that of the surrounding undisturbed landscape.

Note 52 - The holder of the environmental authority is not liable for rehabilitation of disturbed areas that existed prior to the grant of the tenure unless the holder undertakes activities within the previously disturbed areas during the term of the mining lease.

Note 53 -Where continuity of tenure makes the holder of the environmental authority liable for disturbances from previous operations, no further work will be necessary if the rehabilitation of the disturbed areas is to the satisfaction of the administrating authority.

Note 54 – The rehabilitation of some disturbed areas may not be required if the workings have a recognised historic value. Consult with the administrating authority regarding rehabilitation requirements for such sites.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 36

For any *Mine Infrastructure to remain after all mining activities have ceased, the holder of the environmental authority must obtain the written agreement of the land owner stating they will take over responsibility for that infrastructure.**

Condition 37

For underground mine workings, the holder of the environmental authority must determine the need and design of bat gates by consulting the administering authority. If bat gates are required, install the appropriate structures. Where a bat gate is not required by the administrating authority prevent access to underground workings.

Note 55 - Prior to the surrender of a mining lease, all underground mine workings are to be made safe. Refer to the *Mines Regulation Act 1985* and the 'Technical Guidelines for Environmental Management of Exploration and Mining in Queensland', Part D, 'Rehabilitation of Areas Containing Shafts, Boreholes or Adits".

Condition 38

The holder of the environmental authority must complete the rehabilitation of areas disturbed by mining activities to the satisfaction of the administrating authority.

Note 56 - Condition 38 is a requirement of the *Environmental Protection Act 1994*. The holder of the environmental authority must submit a Final Rehabilitation Report* (FRR) and an Environmental Audit Statement* (EAS), prior to the cancellation or expiry of the mining lease. The surrender of the environmental authority will not be granted until the administrating authority has approved the FRR and the EAS.

3.3 CONDITIONS FOR SPECIFIC MINING TYPES

Hard Rock Mining

Note 57 - If explosives are used during the mining operation, the holder of the environmental authority must comply with the relevant Regulations, Policies and Procedures (e.g. Environmental Protection (Noise) Policy 1997, Environmental Protection (Air) Policy 1997 and any Material Safety Data Sheet (MSDS) for storing and handling explosives).

Alluvial Mining

Condition 39

When mining in a Watercourse*, the holder of the environmental authority must construct and use in-stream settlement ponds where necessary and ensure that:

- **disturbances and/or erosion caused when constructing in-stream settlement ponds is minimised; and**
- **the in-stream settlement pond does not prevent water flow in the normal flow channel.**

Note 58 - Prior to working in riverine areas refer to the 'Technical Guidelines for Environmental Management of Exploration and Mining in Queensland', Part B, 'Exploration and Mining in Watercourses'.

Note 59 - To minimise disturbance when constructing in-stream settlement ponds, the following measures or similar measures can be used:

- do not divert the normal channel flow so as to cause erosion of the stream banks;
- do not compact the bund walls of the settlement ponds; and
- ensure the top of the bund wall is at least 300mm below the lower bank of the normal flow channel.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 40

When mining in a watercourse, the holder of the environmental authority must ensure that the disturbance to the bed*, Banks* and natural levees of the *Normal Flow Channel*** and the *Flood Flow Channel*** is minimised.**

Note 60 - To minimise the disturbance to the bed, banks and natural levees of the normal flow and flood flow channel of a watercourse the following measures or similar measures can be used:

- avoid clearing mature and/or woody vegetation;
- where practical avoid excavating directly underneath the canopy of the trees;
- avoid damaging the trunks of any remaining trees;
- do not stockpile material at the base of remaining trees; and
- provide erosion protection on exposed excavation faces to prevent flood damage to the root
- system (e.g. rock armouring the disturbed excavation face).

Condition 41

The holder of the environmental authority must not excavate or divert ponded water where there is evidence of biological activity.

Note 61 - Condition 41 is to provide protection for remnant aquatic life forms, particularly at end of the dry season.

Condition 42

When excavating the bed of a flowing watercourse, the holder of the environmental authority must construct a diversion channel within the bed of the watercourse to allow the stream flow to bypass the area being excavated.

Note 62- Waterholes and in-stream storages used by the landowner should not be disturbed, unless with the agreement of the landowner. The miner will need a water licence from Department of Natural Resources to interfere with the normal flow of water.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Condition 43

When mining in a watercourse within the natural levees of the normal flow channel or in areas of established woody vegetation, the holder of the environmental authority must leave an unmined section or buffer zone (e.g. a natural rock bar or an intact vegetation strip) between the mined sections and:

- **ensure that the length of each mined section is no more than 40 times the width of the flood flow channel or 500m, whichever is the shorter;**
- **ensure that the length of each unmined section is at least 10 times the width of the flood flow channel, or 150m, whichever is the shorter;**
- **unmined sections which separate mined sections must not be mined until two years after rehabilitation processes have been completed on the previously mined section or when regrowth and erosion stability is established, whichever is the shorter;**
- **when commencing mining on a new section downstream of an unmined area, protect the cut face of the unmined area from erosion, by armouring or providing a smooth transition.**

Condition 44

The holder of the environmental authority must not mine the *Banks on the *Outer Bends** of the flood flow channel of a watercourse, including the areas within:**

- **5 m from the toe of the bank or twice the height of the bank whichever is the shorter;**
- **3 m from the top of the bank; and**
- **the top, toe and banks of a length of the straight immediately downstream of the outer bend, three times the width of the flood flow channel, or 100m, whichever is the shorter.**

Note 63 – For representative diagrams that define the different land form elements that make up a water course refer to Figure 1 – 'Cross Section Through a Watercourse' and Figure 2 – 'Plan View of a Watercourse'.

Condition 45

When mining in a watercourse and transporting excavated material to a fixed processing plant; the holder of the environmental authority must:

- **where practical, leave rocks larger than 400mm in diameter in the watercourse; and**
- **return all excavated material to the watercourse from which it was mined, apart from material:**
  - **(i) less than 100 mm in diameter;**
  - **(ii) used in the construction of mine infrastructure (e.g. roads or dams); and**
  - **(iii) used for erosion protection.**

Superseded / Valid for approvals from 21 May 2014 to 30 March 2016

Note 64- In addition to the rehabilitation conditions outlined in this Code, the administering authority will consider the following issues when determining the rehabilitation requirements for the Scrub Lead* of the Gem Miners' Common*:

- levelling, sloping or gradient treatment of the mined surface and backfilling of excavations shall not be required unless specifically directed by the administrating authority;
- mine spoil heaps and waste rock stockpiles shall be eased to at least the minimum gradient required for safety;
- access roads and tracks used for mining activities may be left provided they are likely to remain safe for use by both fossickers and livestock.

Condition 46

After the completion of mining activities in the normal flow channel of a watercourse, the holder of the environmental authority must reinstate the normal flow channel in a similar location and with similar channel characteristics to that of the previous undisturbed section. Adequate erosion protection must be provided to the reinstated bed and banks, in particular to the banks on the outer bends of the normal flow channel.

Dimension Stone Mining

Condition 47

The holder of the environmental authority must prevent or minimise the release of fines from the processing plant.

Note 65 - If explosives are used during the mining operation the holder of the environmental authority must comply with the relevant Regulations, Policies and Procedures (e.g. Environmental Protection (Noise) Policy 1997, Environmental Protection (Air) Policy 1997 and any Material Safety Data Sheet (MSDS) for handling and storing explosives).

Opal Mining

Condition 48

The holder of the environmental authority should leave reshaped areas disturbed by opal mining activities in an *Uneven State* , to facilitate natural revegetation through catching windblown seed and rainfall.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Exploration Activities

Mineral exploration on mining leases is authorised by the administrating authority under provisions of the *Environmental Protection Act 1994*. Exploration activities allows the holder of the environmental authority to take action to determine the existence, quality and quantity of minerals by:

- prospecting;
- using instruments, vehicles, vessels, machinery and equipment and techniques appropriate to determine the existence of any mineral;
- sampling and testing of material to determine its mineral bearing capacity or properties of mineralisation; and
- carrying out other operations the Minister approves.
- geological, geophysical and geochemical programs and other work reasonably necessary to evaluate the potential for development of any mineral occurrence that has possible economic potential;
- mining feasibility studies;
- metallurgical testing;
- environmental studies;
- marketing studies;
- engineering and design studies; and
- other activities the Minister considers appropriate.

Examples of exploration activities include drilling, excavating, sampling, establishing gridlines and conducting geophysical surveys.

The holder of the environmental authority wishing to carry out exploration activities on the mining lease must apply to the administrating authority for additional conditions. The holder of the environmental authority will be required to comply with the relevant Standard Environmental Conditions as detailed in the Code of Compliance for Exploration and Mineral Development Projects. The request must be made on the *Approved Form** and the applicant must supply enough information to allow the *Administering Authority** to decide whether or not to impose the additional condition/s. The administering authority may set additional conditions on the environmental authority. The administering authority may only set additional conditions as long as the mining lease project remains a standard mining activity. In deciding whether to set an additional condition, the administering authority must comply with any relevant *Environmental Protection Policy** and consider the *Standard Criteria**.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

4.0 DEFINITIONS

Administrating authority -Means

(a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 of the *Environmental Protection Act 1994*; or
(b) for all other matters – the Chief Executive of the Environmental Protection Agency; or
(c) another State Government Department, Authority, Storage Operator, Board or Trust, who's role is to administer provisions under other enacted legislation (e.g. Department of Natural Resources who licence referable dams under the *Water Act 2000*).

Alluvial mining - means excavating, in any way, unconsolidated or waterborne or weathered materials (whether or not it is in a watercourse) and processing it by chemical methods or gravity separation to extract minerals from the material.

Annual exceedence probability (AEP) - For a given rainfall event the AEP is the probability that the event will be exceeded within a one year period. The AEP is usually expressed as a one in 'n' (years) or a percentage.

Approved form - Means a form approved by the administrating authority.

Archaeological site - A site that has physical evidence of the past, which has the potential to increase our knowledge of earlier human occupation, activities and events.

Banks -The feature which confines major flows within a watercourse. They are steeper than a terrace and are generally of a slope greater than 1:1 on outer bends. Refer to Figure 1 – Cross Section through a Watercourse.

Bend of a watercourse - For the purposes of this Code, a bend is considered to be any change in the direction of the flood flow (ie. within the flood flow channel) in a watercourse that is greater than 30 degrees.

Bund -(a) An earth mound or similar structure (e.g. a concrete block wall), whether impervious or not, constructed to contain spilled material (e.g. petrol, diesel, oil etc) or (b) a structure to prevent or reduce soil erosion.

Campsite - The area encompassing any dwelling, amenities (e.g. toilet block, power generator), sewage or general waste disposal facility and includes the office area and vehicle parking areas associated with a temporary or permanent mining camp.

Clay pit mining -Means excavating waterborne or weathered material (whether or not it is in a watercourse) and processing it by a non-crushing method.

Contaminant -The *Environmental Protection Act 1994* defines, under Section 11, a contaminant as:

(a) a gas, liquid or solid; or
(b) an odour; or
(c) an organism (whether alive or dead), including a virus; or
(d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
(e) a combination of contaminants.

Contamination - Section 10 of the *Environmental Protection Act 1994* defines contamination of the environment as the release (whether by act or omission) of a contaminant into the environment.

Contaminated land - Schedule 3 of the *Environmental Protection Act 1994* defines contaminated land as land contaminated by a hazardous contaminant. (See below for a definition of hazardous contaminant.)

Contaminated land register - Means the register kept by the administrating authority under section 541 of the *Environmental Protection Act 1994*.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Contour banks -Are mounds of earth constructed along the contours of the land to reduce the amount and velocity of run-off down the slope.

Culvert - A covered channel, or a pipe of large diameter conveying water below ground level. Also applies to a tunnel through which water is pumped or permitted to flow.

Declared plant area - Areas designated by the Department of Natural Resources or Local Government as areas infested with plants declared under section 69 of the *Rural Lands Protection Act* 1985 (section 70 (3) lists the categories of declared plants).

Declared plant - A plant that has been declared under the *Rural Lands Protection Act 1985*.

Density of cover - In reference to trees and/or shrubs, it means the number of trees or shrubs in a specified area (e.g. 50 trees per square kilometre). With reference to understorey plant species

(e.g. grasses and forbs), it means the percentage of surface area covered by a particular species.

Designated service area - Is a nominated site, selected and managed to minimise contamination of land or water, where the majority of services or maintenance of machinery or plant is to be conducted.

Dimension stone mining -Is the extraction of rock and the processing of this material by further cutting and shaping, mostly for use in building applications such as walls, floor tile, cladding and roofing (e.g. granite, marble, slate, sandstone and limestone).

Environment - Section 8 of the *Environmental Protection Act 1994* defines the environment as:

(a) ecosystems and their constituent parts, including people and communities; and
(b) all natural and physical resources; and
(c) the qualities and characteristics of locations, places and areas, however large or small, that contribute to their biological diversity and integrity, intrinsic or attributed scientific value or interest, amenity, harmony and sense of community; and
(d) the social, economic, aesthetic and cultural conditions that affect, or are affected by, things mentioned in paragraphs (a) to (c).

Environmental audit statement - Verifies the accuracy of the final rehabilitation report and identifies any residual financial assurance requirements.

Environmental authority - Means a licence or approval issued by the administrating authority under the *Environmental Protection Act 1994*.

Environmental management register - Means the register kept by the administrating authority under section 541 of the *Environmental Protection Act 1994*.

Environmental nuisance -Section 15 of the *Environmental Protection Act 1994* defines environmental nuisance as “unreasonable interference or likely interference with an environmental value” caused by:

(a) noise, dust, odour, light; or
(b) an unhealthy, offensive or unsightly condition because of contamination; or
(c) another way prescribed by regulation. (e.g. unreasonable noise or dust emissions)”

Environmental protection policy - Means an environmental protection policy approved under chapter 2 of the *Environmental Protection Act 1994*.

Environmental relevant activity - Means an activity prescribed by regulation as an environmental relevant activity.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Environmentally sensitive areas - Refers to locations, however large or small, that have environmental values that contribute to maintaining biological diversity and integrity, have intrinsic or attributed scientific, historical or cultural heritage value, or are important in providing amenity, harmony or sense of community. Refer to Appendix A.

Environmental value -Section 9 of the *Environmental Protection Act 1994* defines an environmental value as:

(a) a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety; or
(b) another quality of the environment identified and declared to be an environmental value under an Environmental Protection Policy or Regulation (e.g. water suitable for swimming in or drinking)

Ethnographic site - An archaeological site of particular importance to the study of a cultural group.

Exploration Activities - Are mining activities permitted under an environmental authority, that allows the holder to:

(a) determine the existence, quality and quantity of minerals;
(b) evaluate the potential for development of the mineral resource;
(c) mining and engineering feasibility studies; and
(d) other activities approved by the Minister

Final rehabilitation report - Means a final rehabilitation report prepared under chapter 5, part 10, division 2, subdivision 2 of the *Environmental Protection Act 1994*. The report assesses the extent to which the standard environmental conditions and any additional conditions of the environmental authority have been met.

Financial assurance - Means a security deposit, either cash or a bank guarantee, that is held by the administrating authority to cover the potential:

(a) costs to rehabilitate areas disturbed by mining activities; and
(b) costs to restore property improvements disturbed by mining activities; and
(c) failure of the tenure holder to pay rents and royalties.

Flood flow channel - For a representative drawing of a flood flow channel refer to Figure 1

'Cross Section Through a Watercourse' and Figure 2 – 'Plan View of a Watercourse'.

General waste - Schedule 9 of the Environmental Protection Regulation 1998 defines general waste as "means waste other than regulated waste". Waste rock, overburden and the contents of tailings dams are not included in the definition of general waste for the purposes of these conditions.

Hard rock mining - The extraction of ore from underground or open cut pits and the processing of this ore by crushing and or milling, and the use of gravity separation or chemical methods to extract minerals.

Hazardous contaminant - Schedule 3 of the *Environmental Protection Act 1994* defines a hazardous contaminant as "a contaminant that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm because of:

(a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity, flammability; or
(b) its physical, chemical or infectious characteristics. (eg: spills of mercury, cyanide, petrol, diesel or oil)".

Historical site -A site containing objects from the past that allows the study of the way people lived and worked at that place in the past.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Infrastructure - Project infrastructure includes roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, pipelines, powerlines, airstrips, helipads etc, which are constructed or installed specifically for the project.

Lake -A natural or artificial body of water, either permanent or intermittent.

Landowner -Schedule 3 of the *Environmental Protection Act 1994* defines the owner of the land as –

1. The **"owner"** of land is—
   (a) for freehold land—the person recorded in the freehold land register as the person entitled to the fee simple interest in the land; or
   (b) for land held under a lease, licence or permit under an Act—the person who holds the lease, licence or permit; or
   (c) for trust land under the *Land Act 1994*—the trustees of the land; or
   (d) for Aboriginal land under the *Aboriginal Land Act 1991*—the persons to whom the land has been transferred or granted; or
   (e) for Torres Strait Islander land under the *Torres Strait Islander Land Act 1991*—the persons to whom the land has been transferred or granted; or
   (f) for land for which there is a native title holder under the Commonwealth Native Title Act— each registered native title party in relation to the land.
2. Also, a mortgagee of land is the owner of the land if—
   (a) the mortgagee is acting as a mortgagee in possession of the land and has the exclusive management and control of the land; or
   (b) the mortgagee, or a person appointed by the mortgagee, is in possession of the land and has the exclusive management and control of the land.

Licensed general waste disposal facility - A site authorised by the administrating authority to receive general waste or limited regulated waste (e.g. a rubbish dump).

Limited regulated waste - Schedule 9 of the Environmental Protection Regulation 1998, defines limited regulated waste. The only limited regulated wastes relevant to mining projects are asbestos and tyres.

Material environmental harm - Section 16 of the *Environmental Protection Act 1994* defines material environmental harm as:

1. material environmental harm is environmental harm (other than environmental nuisance)
   (a) that is not trivial or negligible in nature, extent or context; or
   (b) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount but less than the maximum amount; or
   (c) that results in costs of more than the threshold amount but less than the maximum amount being incurred in taking appropriate action to
      i. prevent or minimise the harm; and
      ii. rehabilitate or restore the environment to its condition before the harm.

   In this section

   "maximum amount" means the threshold amount for serious environmental harm.

   "threshold amount" means $5 000 or, if a greater amount is prescribed by regulation, the greater amount.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Mine - Section 6A of the *Mineral Resources Act 1989*, defines mining as –

1) **"Mine"** means to carry on an operation with a view to, or for the purpose of
   (a) winning mineral from a place where it occurs; or
   (b) extracting mineral from its natural state; or
   (c) disposing of mineral in connection with, or waste substances resulting from, the winning or extraction.
2) For subsection (2), extracting includes the physical, chemical, electrical, magnetic or other way of separation of a mineral.
3) Extracting includes, for example, crushing, grinding, concentrating, screening, washing, jigging, tabling, electro winning, solvent extraction electro winning (SX-EW), heap leaching, flotation, fluidised bedding, carbon-in-leach (CIL) and carbon-in-pulp (CIP) processing.
4) However, extracting does not include
   (a) a process in a smelter, refinery or anywhere else by which mineral is changed to another substance; or
   (b) testing or assaying small quantities of mineral in teaching institutions or laboratories, other than laboratories situated on a mining lease; or
   (c) an activity, prescribed under a regulation, that is not directly associated with winning mineral from a place where it occurs.
5) For subsection (1)(c), includes the disposal of tailings and waste rock.
6) A regulation under subsection (4)(c) may prescribe an activity by reference to the quantities of minerals extracted or to any other specified circumstances.

Mine excavation -The void resulting from the removal of earth for the purpose of obtaining ore or materials (e.g. gravel for road construction) used for mining related activities.

Miner's common - A sapphire mining area (3920 hectares) in the Emerald District, mined since the late 19th Century and set aside by the Queensland Government in September 1941 as the Miners' Common.

Mining project -All activities permitted to be performed under mining leases (including excavation, transportation and processing of ore). A mining project may include more than one mining lease.

Native vegetation - Vegetation that occurs naturally in a certain area.

Noise sensitive place -Means any of the following places –

   (a) a dwelling;
   (b) a library, childcare centre, kindergarten, school, college, university or other educational institution;
   (c) a hospital, surgery or other medical institution;
   (d) a protected area or an area identified under a conservation plan as a critical habitat or an area of major interest, under the *Nature Conservation Act 1992*;
   (e) a marine park under the *Marine Parks Act 1982*; and
   (f) a park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment).

Normal flow channel - For a representative drawing of a normal flood flow channel of a water course refer to Figure 1– 'Cross Section Through a Watercourse' and Figure 2 - 'Plan View of a Watercourse'.

Notifiable activity - Means an activity in schedule 2 of the *Environmental Protection Act 1994*.

Opal mining -Is the extraction of opal from underground or open cut pits and the processing of this ore by manual separation of opal rock or by using gravity separation methods to extract the opal.

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Outer bends -For a representative drawing of an outer bend of a watercourse refer to Figure 1– "Cross Section Through a Watercourse" and Figure 2 – "Plan View of a Watercourse".

Overburden -Material overlying a mineral ore deposit, up to but not including the topsoil.

Plan of operations -Is a planning document required under the *Environmental Protection Act 1994* for a standard mining project. The plan must be submitted to the administering authority prior to carrying out activities on the mining lease. The plan must contain an Action Program that will demonstrate how the holder of the environmental authority will meet the conditions of this Code.

Project area - The total area of the mining lease/s.

Referable dam -The *Water Resources Act 1989* defines referable dams as

(a) works or proposed works that include or would include a barrier whether permanent or temporary that does or could or would impound, divert or control water, which barrier
   (i) is more than 8 m in height and has a storage capacity of more than 500 ML; or
   (ii) is more than 8 m in height and has a storage capacity of more than 250 ML and a catchment area that is more than 3 times its maximum surface area or full supply level;

(b) works
   (i) that consist of or include or would consist of or include a barrier whether permanent or temporary that does or could or would impound, divert or control water or hazardous waste, other than a barrier defined in paragraph (a);
   (ii) other than a barrier whether permanent or temporary that does or could or would impound, contain, divert or control hazardous waste;

declared by the chief executive by notification published in the gazette to be a referable dam by reason of the danger to life or property that could or would eventuate upon the collapse or failure of or the escape of hazardous waste from those works; and includes the storage areas created by the works but does not include a tank constructed of steel or concrete or a combination of those materials.

The term does not include a weir, other than a weir that has a variable flow control structure on the crest of the weir.

Regulated waste -Schedule 9 of the *Environmental Protection Regulation 1998* defines regulated waste as non-domestic waste mentioned in schedule 7 (whether or not it has been treated or immobilised), and includes –

(a) for an element - any chemical compound containing the element; and
(b) anything that has contained the waste.

(e.g. Regulated waste commonly generated from mining projects include tyres, oils, cyanide, mercury and batteries)

Rehabilitation processes - The measures and actions taken to achieve rehabilitation outcomes, including any or all of the following:

- removing all unwanted infrastructure;
- backfilling mine excavations (e.g. pits) and capping drill holes;
- reshaping the land surface to a stable landform similar to that of surrounding undisturbed areas;
- spreading of topsoil;
- spreading seed or planting seedlings to promote revegetation;
- benching ridge cuts and removing any overhanging material.

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Riverine area - Refers to the land adjoining and associated with watercourses, including the bed, banks, adjoining terraced land and riparian vegetation. Refer to Figure 1 – "Cross Section Through a Watercourse".

Scrub lead -A Designated Fossicking Land (DFL) within the Miners' Common. Machine mining on mining leases up to 20ha in area is permitted within Scrub Lead DFL.

Sediment pond -A bunded or excavated structure used to contain and settle waterborne sediment running off disturbed areas.

Sediment trap - A device used to filter waterborne sediment running off disturbed areas. May include silt fences, hay bales or grassed strips.

Serious environmental harm - Section 17 of the *Environmental Protection Act 1994* defines serious environmental harm as

1) environmental harm (other than environmental nuisance)
   (a) that causes actual or potential harm to environmental values that is irreversible, of a high impact or widespread; or
   (b) that causes actual or potential harm to environmental values of an area of high conservation value or special significance; or
   (c) that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount; or
   (d) that results in costs of more than the threshold amount being incurred in taking appropriate action to—
      (i) prevent or minimise the harm; and
      (ii) rehabilitate or restore the environment to its condition before the harm.

   In this section - **"Threshold amount"** means $50 000 or, if a greater amount is prescribed by regulation, the greater amount.

Shallow pit mining -Means extracting and processing material from open cut pits no more than 5 m deep.

Significantly disturbed land -Land is significantly disturbed if –

(a) it is contaminated land; or
(b) it has been disturbed and human intervention is needed to rehabilitate it.

Significantly disturbed land includes:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining project activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases; -areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining has ceased; or
- areas where land has been contaminated.

However, the following areas are not included:

- areas off lease (e.g. roads or tracks which provide access to the mining lease);
- areas previously significantly disturbed which have achieved the rehabilitation outcomes;

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

- **Site management plan** - Means a site management plan approved under chapter 7, part 8 of the *Environmental Protection Act 19994*.

Standard criteria - Are defined in schedule 3 of the *Environmental Protection Act 1994*. They are:

(a) the principles of ecological sustainable development; and
(b) any applicable environmental protection policy; and
(c) any applicable Commonwealth, State or local government plans, standards, agreements or requirements; and
(d) any applicable environmental impact study, assessment or report; and
(e) the character, resilience and values of the receiving environment; and
(f) all submissions made by the applicant and interested parties; and
(g) best practice environmental management; and
(h) financial implications; and
(i) the public interest; and
(j) any applicable site management plan; and
(k) any other matter prescribed under a regulation.

Standard environmental conditions - For an environmental authority, means the standard environmental conditions approved for the authority under section 549 of the *Environmental Protection Act 1994*.

Guidelines for livestock drinking water - Recommended water quality guidelines for livestock drinking water. Refer to the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 1992.

Standard mining activity - Means a mining activity decided to be a standard activity under section 151 of the *Environmental Protection Act 1994*.

Suitability statement - The *Environmental Protection Act 1994* defines a suitability statement as:

for land, means a statement about the uses and activities for which the land is suitable.

Tailings dams - A dam used to collect the solid residues resulting from mineral ore processing.

Technical guidelines - Guidelines that indicate best practice environmental management.

Topsoil - The surface layer of a soil profile, which is usually more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from natural surface.

Turkey's nest dam - A dam constructed outside a watercourse, wetland or waterway by excavating a pit and constructing a wall around the pit with the excavated material. Natural surface flow is excluded from the dam.

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Uneven state - In reference to ground, means ground that has not been compressed, made smooth or returned to a flat profile. The ground is left with small mounds and shallow pits of a small diameter to facilitate the catching of wind blown seed and the pooling of water after rain, to promote natural revegetation.

Unreasonable noise - Section 18 of the Environmental Protection (Noise) Policy 1997 defines unreasonable noise as - noise that

(a) causes unlawful environmental harm; and
(b) is unreasonable, having regard to the following matters:
    (i) its characteristics;
    (ii) its intrusiveness;
    (iii) the time at which it is made;
    (iv) where it can be heard;
    (v) other noises ordinarily present at the place where it can be heard; and
(c) is not declared to be reasonable in Schedule 2 of the Environmental Protection (Noise) Policy 1997 'Reasonable Noise Levels'.

Unreasonable release - of a contaminant to the air environment, means a release of odours, dust, smoke or other atmospheric contaminants, that:

(a) cause unlawful environmental harm; and
(b) is unreasonable having regard to the following matters:
    (i) its characteristic;
    (ii) its intrusiveness;
    (iii) other releases of contaminants at the place affected by the release;
    (iv) where the effect of the release of the contaminants can be noticed; or
    (v) the order in which the person releasing the contaminant started to carry out the activity from which the release is made and persons affected by the release started to carry out other activities that may be affected by the release of the contaminant.

Watercourse - Means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with clear bed and banks and evidence of biological dependence.

Waterway - A naturally occurring feature where surface water runoff normally collects, such as a clearly defined swale or gully, but only flows in response to a local rainfall event.

Wetland - Are areas of permanent or periodic/intermittent inundation, whether natural or artificial, 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 6m. Wetlands typically include areas such as lakes, swamps, marshes, estuaries or mudflats.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

5.0 TECHNICAL GUIDELINES

Australian Standard 1940 - The storage and handling of flammable and combustible liquids. Standards Australia (1993).

Australian Water Quality Guidelines for Fresh and Marine Water Quality, Australian and New Zealand Environment and Conservation Council (1992).

Commonwealth Best Practice Environmental Management in Mining Guidelines, Environment Australia.

Dredging, Extraction and Spoil Disposal, Fish Habitat Management Operational Policy: FHMOP 004, Department of Primary Industries (1998).

Farm Water Supplies Design Manual, Department of Primary Industries, (1992).

Guidelines for Sampling and Analysis of Lowland Acid Sulfate Soils (ASS) in Queensland, Department of Natural Resources (1998).

Soil Erosion and Sediment Control - Engineering Guidelines for Queensland Construction Sites, The Institution of Engineers, Australia, Queensland Division (1996).

Technical Guidelines for Environmental Management of Exploration and Mining, Department of Mines and Energy, Queensland, 1995.

The Conservation Status of Queensland's Bioregional Ecosystems, Environmental Protection Agency (1999).

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

6.0 RELEVANT LEGISLATION

State Legislation (published by Go Print, Queensland):

Aboriginal Lands Act 1991

Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987

Environmental Protection Act 1994

Environmental Protection Regulation 1998

Fire and Rescue Authority Act 1990

Fisheries Act 1994

Land and Resources Tribunal Act 1999

Land Act 1994 Mineral Resources Act 1989

Mineral Resources Regulation 1990

Mines Regulation Act 1985

Nature Conservation Act 1992

Queensland Heritage Act 1992

Torres Strait Islander Land Act 1991

Water Act 2000

Water Resources Act 1989

Commonwealth Legislation:

Native Title Act 1993

Environment Protection and Biodiversity Conservation Act 1999

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

APPENDIX A - ENVIRONMENTALLY SENSITIVE AREAS

Category A - Environmentally Sensitive Areas

LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	AMINISTRATING AUTHORITY
National Parks (Scientific); National Parks; National Parks (Aboriginal Land); National Parks (Torres Strait Islander Land); National Parks (Recovery);and Conservation Parks	*Nature Conservation Act 1992*	Environmental Protection Agency
Wet Tropics	*Wet Tropics World Heritage Protection and Management Act 1993*	Wet Tropics Management Authority
Restricted Areas (includes Constructed Water Reservoirs)	*Mineral Resources Act 1989*	Department of Mines and Energy
Great Barrier Reef Marine Park Region	*Great Barrier Reef Marine Park Act 1975 (Cwlth)*	Great Barrier Reef Marine Park Authority
Marine Parks (other than general use zones)	*Marine Parks Act 1982 (Qld)*	Environmental Protection Agency

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Category B - Environmentally Sensitive Areas

LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	ADMINISTRATING AUTHORITY
Coordinated Conservation Areas; Wilderness Areas; World Heritage Management Areas; International Agreement Areas; An area of Critical Habitat or Major Interest identified under a Conservation Plan; Areas subject to an Interim Conservation Order; and Forest Reserves.	*Nature Conservation Act 1992*	Environmental Protection Agency
An area subject to following conventions: (a) Convention on the Conservation of Migratory Species of Wild Animals (Bonn, 23 June 1979); (b) Convention on Wetlands of International Importance, especially as Waterfowl Habitat (Ramsar, 2 February 1971); and (c) Convention Concerning the Protection of the World Cultural and Natural Heritage (Paris, 16 November 1972).	International Conventions	Environmental Protection Agency
General Use Zones of a Marine Park	*Marine Parks Act 1982*	Environmental Protection Agency
An Area to the Seaward Side of the Highest Astronomical Tide	Nil	Environmental Protection Agency
Place of Cultural Heritage Significance; Protected Area; Registered Places; and Restricted Zone.	*Queensland Heritage Act 1992*	Environmental Protection Agency
Designated Landscape Area (other than the area known as the 'Stanbroke Pastoral Holding'	*Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*	Environmental Protection Agency

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Category B - Environmentally Sensitive Areas (continued)

LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	ADMINISTRATING AUTHORITY
Feature Protection Area, State Forest Park or a Scientific Area	*Forestry Act 1959*	Department of Natural Resources
Fish Habitat Area; and A place in which a Marine Plant is situated	*Fisheries Act 1994*	Department of Primary Industries
Endangered Regional Ecosystems; and An area of High Nature conservation Value	Nil	Environmental Protection Agency

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Category C - Environmentally Sensitive Areas

LAND AREA CLASSIFICATION	ADMINISTERING LEGISLATION	ADMINISTRATING AUTHORITY
Nature Refuges; and Resource Reserves	*Nature Conservation Act 1992*	Environmental Protection Agency
Declared Catchment Areas; Declared Irrigation and Irrigation Project Areas; and Water Reservoirs and Drainage Areas.	*Water Act 2000, various Water Board Acts*	Department of Natural Resources and/or Relevant Storage Operator or Board
River Improvement Areas	*River Improvement Trust Act 1940*	Department of Natural Resources and the Relevant River Trust
Designated Landscape Area (e.g. Stanbroke Pastoral Holding)	*Cultural Record (Landscapes Queensland and Queensland Estate) Act 1987*	Environmental Protection Agency
Historic Mining Sites	Nil (Inter Departmental Notifications)	Environmental Protection Agency and the Department of Mines and Energy
State Forest or Timber Reserves	*Forestry Act 1959*	Department of Agriculture, Fisheries, and Forestry
DPI Research Sites	Nil (Inter Departmental Agreement)	Department of Primary Industries
Critical Areas and Public Purpose Reserves	*Land Act 1994*	Department of Natural Resources
Areas under Coastal Management Plans and Control Districts	*Coastal Protection and Management Act 1995*	Environmental Protection Agency
An area subject to a State Planning Policy that the policy declares is in need of environmental protection.	*Sustainable Planning Act 2009*	Environmental Protection Agency
Erosion Prone Areas and Coastal Management Control Districts	*Beach Protection Act 1968*	Environmental Protection Agency
Areas of land occupied by the Bureau of Sugar Experiment Stations to conduct research	*Sugar Industry Act 1999*	Department of Primary Industries

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

APPENDIX B - CRITERIA FOR DAMS

Dams built on mining leases are primarily used for raw water storage, recycling treatment liquors and for tailings disposal. The Department of Natural Resources has classified dams into three categories. They are:

(1) Referable dams;

(2) Hazardous waste dams; and

(3) Non-referable, non-hazardous waste dams.

The following criteria are used for the assessment, design, construction, operation, maintenance and decommissioning of dams on mining leases.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

ASSESSMENT CRITERIA

Referable Dams

The *Water Resources Act 1989* defines referable dams as

(a) works or proposed works that include or would include a barrier whether permanent or temporary that does or could or would impound, divert or control water, which barrier

(i) is more than 8 m in height and has a storage capacity of more than 500 ML; or

(ii) is more than 8 m in height and has a storage capacity of more than 250 ML and a catchment area that is more than 3 times its maximum surface area or full supply level;

(b) works

(i) that consist of or include or would consist of or include a barrier whether permanent or temporary that does or could or would impound, divert or control water or hazardous waste, other than a barrier defined in paragraph (a);

(ii) other than a barrier whether permanent or temporary that does or could or would impound, contain, divert or control hazardous waste;

declared by the chief executive by notification published in the gazette to be a referable dam by reason of the danger to life or property that could or would eventuate upon the collapse or failure of or the escape of hazardous waste from those works; and includes the storage areas created by the works but does not include a tank constructed of steel or concrete or a combination of those materials.

The term does not include a weir, other than a weir that has a variable flow control structure on the crest of the weir.

Hazardous Waste Dams

A dam is likely to be a hazardous waste dam if:

(1) water quality impacts due to loss of the stored liquid (ie. in the event of an overflow or a failure of the structure to contain the stored liquid) may result in –

(a) contamination of a water supply for human consumption; or

(b) contamination of a stock water supply; or

(c) environmental damage.

The parameters used to measure water quality are:

i. pH (less than 4 or greater than 8);

ii. salinity (greater than 1500mg/L);

iii. cyanide (greater than 0.1mg/L);

iv. total arsenic (greater than 0.5mg/L); and

v. total lead (greater than 0.1 mg/L).

Non-Referable and Non-Hazardous Materials Dams (3-8m high)

A dam is likely to be a non-referable, non-hazardous waste dam if:

(1) water quality impacts due to loss of the stored liquid (ie. in the event of an overflow or a failure of the structure to contain the stored liquid) is unlikely to result in –

(a) contamination of a water supply for human consumption; or

(b) contamination of a stock water supply; or

(c) environmental damage.

The parameters used to measure water quality are:

i. pH (between 4 and 8);

ii. salinity (less than 1500mg/L);

iii. cyanide (less than 0.1mg/L);

iv. total arsenic (less than 0.5mg/L); and

v. total lead (less than 0.1 mg/L).

(2) loss due to dam break (ie. damage caused by the ensuing flooding and force of water) is such that:

(a) no loss of human life (ie. there is a very low chance that any person will be living, working or visiting the area immediately downstream of the structure at the time of possible failure);

(b) no economic loss to property and infrastructure that is owned by persons other than the miner; and

(c) no person other than the miner is wholly dependent on the supply of water stored in the structure.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE CRITERIA

Referrable Dams

The Water Resources Act 1989 requires the Department of Natural Resources to licence referrable dams. All referable dams must be designed by a professional engineers. The plans and design specifications must be submitted to the Department of Natural Resources for approval.

Note: Non-referable dams greater than 8m in height must be designed by a professional engineer in accordance with the standard guidelines outlined by the Australian National Committee on Large Dams (ANCOLD). There are no minimum requirements for non-referable dams less than 3m high.

Hazardous Waste Dams

A professional engineer should design all hazardous waste dams. The dams should be designed and located to have the smallest practical catchment area. The following conditions apply to hazardous waste dams:

(1) dams with a capacity up to 3000m3 are to be constructed as Turkeys Nest* dams;

(2) as far as practical minimise seepage;

(3) the dam should be operated to maintain a minimum freeboard of 1m;

(4) the spillway should be capable of passing the design flood, defined as the peak discharge from a critical duration storm with an annual exceedance probability of 1% (ie 1 in 100 yr event);

(5) batters on earth embankments, shall be no steeper than those shown in the table, unless otherwise shown to be stable:

Embankment Soil Classification (Universial soil classification)	**Upstream Batter**	**Downstream Batter**
GC, SC	2.5:1	2 : 1
CL, ML	35:1	2.5:1
CH, MH	3.5:1	2.5:1
GW, GP, GM, SW, SP, SM	Not suitable	Not suitable

Note: The codes for the Universal Soil Classification (e.g. GC) are detailed in the Department of Primary Industries, "Farm Water Supplies Design Manual", 1992.

(6) where foundation material differs from the embankment fill material, the batters shall be chosen conservatively to be consistent with the weaker material classification;

(7) provide adequate measures to control seepage through the dam wall and the transmission of contaminants through underlying soil layers or rock stratum;

(8) maintain the erosion resistance of the downstream face of the dam to avoid surface scour, which may lead to failure of the wall; and

(9) maintain the erosion resistance of the spillway to avoid scouring during the design flood.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Non-Referable, Non- Hazardous Materials Dams (3-8m high)

Non-referable, non-hazardous waste dams should be designed to a similar criteria as hazardous waste dams, but they may have permeable walls or under drains for material consolidation, recovery and recycling of process water. The following conditions apply to non-referable, non¬material dams:

(1) the spillway should be capable of passing the design flood, defined as the peak discharge from a critical duration storm with an annual exceedance probability of 1% (ie 1 in 100 yr event);

(2) surfaces of the dam, including the spillway and areas disturbed by construction shall be stable with respect to erosion;

(3) earth embankments to be compacted to a density of at least 95% of the standard dry density at a soil moisture content within a range of –1% to +3% of the optimum

(4) batters on earth embankments, shall be no steeper then those shown in the table, unless otherwise shown to be stable:

Embankment Soil Classification (Universial soil classification)	**Upstream Batter**	**Downstream Batter**
GC, SC	2.5:1	2 : 1
CL, ML	35:1	2.5:1
CH, MH	3.5:1	2.5:1
GW, GP, GM, SW, SP, SM	Not suitable	Not suitable

Note: The codes for the Universal Soil Classification (e.g. GC) are detailed in the Department of Primary Industries, “Farm Water Supplies Design Manual”, 1992.

(5) where foundation material differs from the embankment fill material, the batters shall be chosen conservatively to be consistent with the weaker material classification;

(6) where necessary provide adequate measures to control seepage through the dam wall;

(7) maintain the erosion resistance of the downstream face of the dam to avoid surface scour, which may lead to failure of the wall; and

(8) maintain the erosion resistance of the spillway to avoid scouring during the design flood.

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Decommissioning Criteria

Hazardous Waste Dams

A professional engineer should be consulted prior to developing a decommissioning plan for a hazardous waste dam. Hazardous waste dams should be decommissioned by:

(1) removing (where possible) all remaining liquids in the dam (e.g. it is generally acceptable to evaporate the liquid);

(2) cap the dam with an appropriate capillary break and with one metre of clay or similar impermeable material;

(3) design, install and maintain adequate diversion drains or similar structures to protect or minimise the erosion of dam surface by stormwater runoff;

(4) design, install and maintain adequate surface drainage to prevent water ponding and infiltration into the underlying layers;

(5) rehabilitate the disturbed areas in accordance with the conditions outlined in the rehabilitation section of this code;

(6) address contaminated site issues by referring to Notes 16 and 17 from this code;

(7) establish a monitoring program to determine the success of the decommissioning plan.

Non-Referable, Non- Hazardous Material Dams (3-8m high)

If required, remove the wall and rehabilitate the disturbed area in accordance with the relevant conditions in the rehabilitation section of this code.

Access and Protection for Livestock

(1) Provide safe access to water for livestock and native animals by:

(a) providing hard surfaces around water storage areas; and

(b) fencing off any soft areas around the edge of water storage areas.

Safety controls for Dams

(1) Provide, install and maintain adequate warning devices, signs and fences to exclude people, stock, birds and wild animals from dams containing hazardous contaminants.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

APPENDIX C - SCHEDULE OF ENVIRONMENTAL MANAGEMENT PERFORMANCE

This schedule sets out the performance categories for financial discounts for good environmental management on mining leases. To qualify for a particular performance category, the holder of the environmental authority must be able to demonstrate that they have satisfactorily met the required performance criteria. An environmental audit statement must verify the performance category of the environmental authority holder. A record of satisfactory performance can be transferred from one project to the next new project.

Note: While an Environmental Management System (EMS) based on ISO 14001 is a requirement for performance categories 1, a discount of 15% for implementing an EMS can apply at any time.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Performance Category	Security Required	Performance Criteria	Validated by
Basic Operational Requirements in Place			
5	100%	• Environmental authority issued under the Environmental Protection Act 1994. • Other relevant licences and/or permits have been applied for.	Not applicable.
Demonstrated ability to comply			
4	90%	• Hold all additional licences and/or permits. • Annual rehabilitation targets have been set. • Proof of financial capability, machinery and labour. • Erosion management and monitoring system in place.	Environmental Audit Statement
Demonstrated Compliance for Two Years			
3	70%	• Full compliance with this code for the previous two years; and • All rehabilitation targets have been met.	Environmental Audit Statement
Demonstrated Compliance for Five Years			
2	40%	• Full compliance with this code for the previous five years;	Environmental Audit Statement
Environmental management System (EMS)			
1	25%	• EMS based on ISO 14000 approved. • Implementation of EMS demonstrated by audit.	Independent Environmental Audit by EPA.

Note: If the holder of the environmental authority has demonstrated non compliance with the standard environmental conditions or an acceptable EMS for the mining project, the administrating authority can reassess the performance criteria and reset the performance category at any time.

APPENDIX D - PLAN OF OPERATIONS

The holder of an environmental authority must submit a Plan of Operations to the District Mining Registrar, at least 28 days before carrying out an activity on the relevant mining lease(s), unless otherwise approved by the administrating authority. The plan may relate to one or more mining leases in a project and may apply for a period of up to 5 years. Activities carried out on the mining lease must be consistent with the plan and performed in the period to which the plan applies. The plan must be accompanied by an environmental audit statement, made by or for the environmental authority holder, that states the extent to which the plan complies with the conditions of the environmental authority; and the fee (if any) prescribed under a regulation. The Plan of Operations can be amended at any time. The environmental authority holder must carry out work in accordance with submitted plan of operations.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Contents of the Plan of Operations

The plan of operations for a standard mining activity consists of the following:

(1) Project Summary (Form 1);

(2) Site Plan (Form 2);

(3) Action Program (Form 3);

(4) Schedule of Disturbance and Rehabilitation (Form 4);

(5) Schedule of Rehabilitation Costs (Form 5);

(6) Calculation of Financial Assurance (Form 6); and

(7) Monitoring and Record Keeping Summary (Form 7)

Site Plan

The required site plan should be drafted or sketched on a page no larger than A3. The plan must contain the following information:

(1) mining lease boundaries;

(2) current and future mining areas;

(3) current and future layout of all mine infrastructure including the locations of tracks and roads, processing plant, camp, workshop, mine excavations, adits, shafts and headworks, freshwater dam, tailings dam, silt traps, overburden stockpiles, waste rock stockpiles, product stockpile(s);

(4) general slope of the land with the location of watercourses and wetlands;

(5) dominant vegetation types (e.g. species and density);

(6) distance and direction to the nearest residences;

(7) location of any known or identified cultural heritage site on the mining lease; and

(8) for each year of the period of the plan outline the:

  (a) proposed areas of progressive mining disturbance

  (b) previous rehabilitation (ie. now on a Care and Maintenance program) and;

  (c) proposed future rehabilitation

Action Program

The action program will indicate, by reference to the condition number, which standard environmental conditions will be implemented for the period to which the plan of operations applies. Where necessary it should also describe how the activities on site are going to be carried out in accordance with the standard environmental conditions that are to be implemented.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

PLAN OF OPERATIONS

FORM 1 PROJECT SUMMARY

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

Project Name: **Location Description:** **GPS location** (Lat/Long of approx centre of project):	**Project Controller Name and Contact Details:**

Relevant Mining Lease(s)	**Expiry Dates**	**Tenure Holder / Applicant Name & Contact Details:**	**Operational Land** (i.e Lot on Plan.)	**Nature and extent of all activities** to becarried out on the operational land

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS

FORM 2 SITE PLAN

Provide detail of : (1) mining lease boundaries; (2) current and future mining areas; (3) current and future layout of all mine infrastructure; (4) general slope of the land with the location of watercourses and wetlands; (5) dominant vegetation types; (6) distance and direction to the nearest residences; (7) location of any known or identified cultural heritage site on the mining lease; and (8) for each year of the plan outline, the: (a) proposed areas of progressive mining disturbance; (b) previous rehabilitation (i.e. now on a care and maintenance program); and (c) proposed future rehabilitation

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS

FORM 3 ACTION PROGRAM

Indicate, by reference to the condition number, which standard environmental conditions you will be implementing during the term of the plan of operations.

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS
FORM 4 SCHEDULE OF DISTURBANCE AND REHABILITATION

Note: Complete the table by: (a) providing actual areas (ha) of disturbance and rehabilitation at commencement of the plan of operations; and (b) nominating areas of disturbance and rehabilitation planned for each financial year of the plan of operations, commencing with the current financial year.

DESCRIPTION	Prior to commencement of this plan (Actual)	Year 1 _____ / _____	Year 2 _____ / _____	Year 3 _____ / _____	Year 4 _____ / _____	Year 5 _____ / _____
Mine excavation						
Borrow pit						
Overburden stockpiles						
Soil stockpiles						
Rejects stockpiles						
Tailings dams						
Water supply dams						
Roads/tracks						
Plant area						
Workshop area						
Fuel, oil & chemical storage areas						
Camp						
Contaminated land						
Other						
Rehabilitation processes complete						
First year care & maintenance completed						
2nd year care & maintenance completed						
TOTAL DISTURBANCE						
Successfully Rehabilitated						

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS
FORM 5 SCHEDULE OF REHABILITATION COSTS

Note: Complete Table 1 using actual third party costs to calculate the total cost to achieve the rehabilitation objectives for the project. The actual costs can be determined by completing Table 2, 3 and 4. A complete record of quotes and calculations used to determine rehabilitation costs for each disturbance type is to be maintained on site.

TABLE 1 Schedule of Rehabilitation Costs

DESCRIPTION OF DISTURBANCE	**A. WORK REQUIRED to achieve the rehabilitation objectives** (ie. method/ machinery/supplies/ services/no. persons/time)	**B. COST ($/ha)** (third party cost to achieve rehabilitation objectives)	**C. Maximum Area Disturbed and not Rehabilitated in any year of the PoO**	**D. Cost to Rehabilitate the Maximum Area of Disturbance** (ie. BxC) ($)
Mine excavation				
Borrow pit				
Overburden stockpiles				
Soil stockpiles				
Rejects stockpiles				
Tailings dams				
Water supply dams				
Roads/tracks				
Plant area				
Designated Service Area				
Fuel, oil & chemical storage areas				
Camp				
Contaminated land				
Rehabilitation processes complete				
Care & maintenance completed				
Other				
			TOTAL COST	**$**

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

TABLE 2 Machinery Hire

Machine Description	**Quote Obtained From** (Contact Details)	**Total Cost of Hire** ($/hr)	**Operator Accommodation** ($/day)	**Mobilisation Costs** (delivery and return)
Backhoe *or* tractor with blade				
Grader				
Excavator (capacity)				
Dozer (size)				
Front end loader (capacity)				
Tip truck (capacity)				
Other				

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

TABLE 3 Revegetation Techniques

Disturbance Type	**Description of Technique Used**	**Labour costs** (No. of hours and rate $/hr)	**Seeding/Plant Rate**		**Fertiliser Application**		**Total Costs to Revegetate the Disturbed Areas**
			Rate (Type & Rate per ha)	**Total Cost** ($/ha)	**Rate** (Type & Rate per ha)	**Total Cost** ($/ha)	
Mine excavation							
Borrow pit							
Overburden stockpiles							
Soil stockpiles							
Rejects stockpiles							
Tailings dams							
Water supply dams							
Roads/tracks							
Plant area							
Designated Service Area							
Fuel, oil & chemical storage areas							
Camp							
Contaminated land							
Rehabilitation processes complete							
Care & maintenance completed							
Other							

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

TABLE 4 Rehabilitation Schedule for Contaminated Land

Description of Contaminated Land	Area (ha)	Technique to be Used	Costs ($/ha)	Total Costs to Rehabilitate the Contaminated Land

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS

FORM 6 CALCULATION OF FINANCIAL ASSURANCE

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

GROSS FINANCIAL ASSURANCE

Total cost to rehabilitate the maximum area of disturbance at any time during the term of the plan of operations: **$**

NET FINANCIAL ASSURANCE

Environmental Performance Category attained (Refer to Appendix C): _____

Percentage applicable to this Performance Category (Refer to Appendix C): %

FINANCIAL ASSURANCE REQUIRED (Includes GST)

(multiply the Gross Financial Assurance by the applicable percentage payment) x 1.1 **$**

CERTIFICATION

We certify that the determination of this Financial Assurance is correct and that information contained in Forms 1 to 6 is accurate.

Environmental Authority signature: _____ Date: _____

Auditor's name: Auditor's signature: _____ Date: _____

LODGEMENT

The Financial Assurance must be lodged with a District Mining Registrar before any work can commence on the project.

Environmental Authority No:
Project No:
Term of Plan (yrs):
Commencement date:

PLAN OF OPERATIONS

FORM 7 MONITORING AND RECORD KEEPING SUMMARY

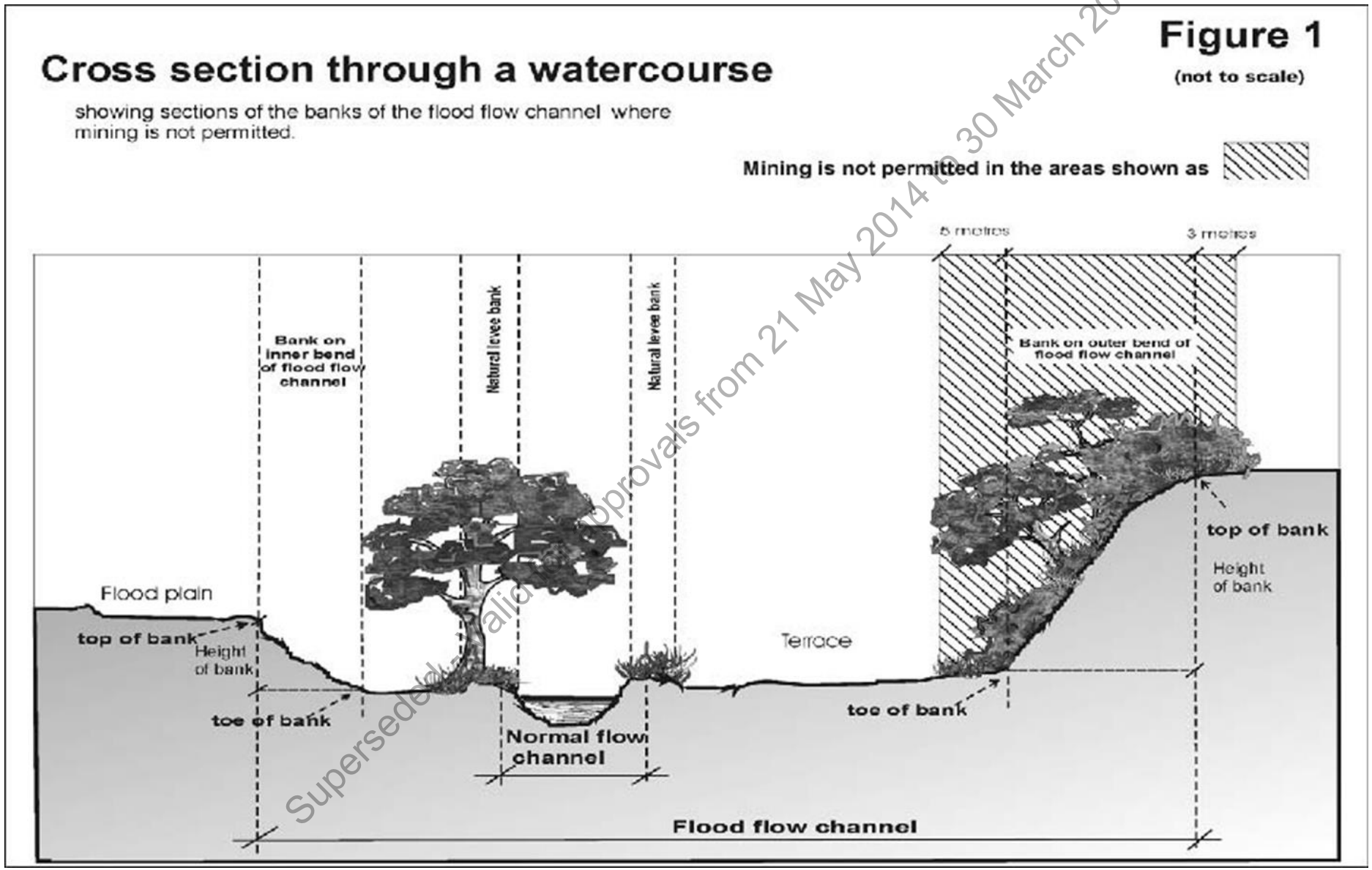
Superseded - Valid for approvals from 21 May 2014 to 30 March 2016

Data and Information	Method Of Record Keeping To Be Used				Frequency
	Site plans	Journal	Photographs	Other	
Topsoil stripping and stockpiling (e.g. record topsoil stockpiles, location and age)					
Area disturbed and rehabilitation (e.g. map of the area of disturbance and photos of rehabilitation)					
Pre and post-mine landform (e.g. record photographs of the area prior to and following mining)					
Water discharge quality (e.g. note colour of discharge water from sediment dams)					
Dam maintenance (e.g. record of dam maintenance such as sediment removal)					
Record of complaints (e.g. air, noise, tracks etc) (e.g. record in journal any complaints received by adjoining land owner, actions taken and the outcomes of the action)					
Site specific conditions (e.g. record of monitoring to demonstrate compliance with any site specific conditions)					
Remediation of contaminated land (e.g. record of current and remediated contaminated land)					
Waste Management (e.g. record of waste taken to a regulated waste collection depot)					
Rehabilitation quotes, estimates and actual costs					
Others – relevant to performance category					

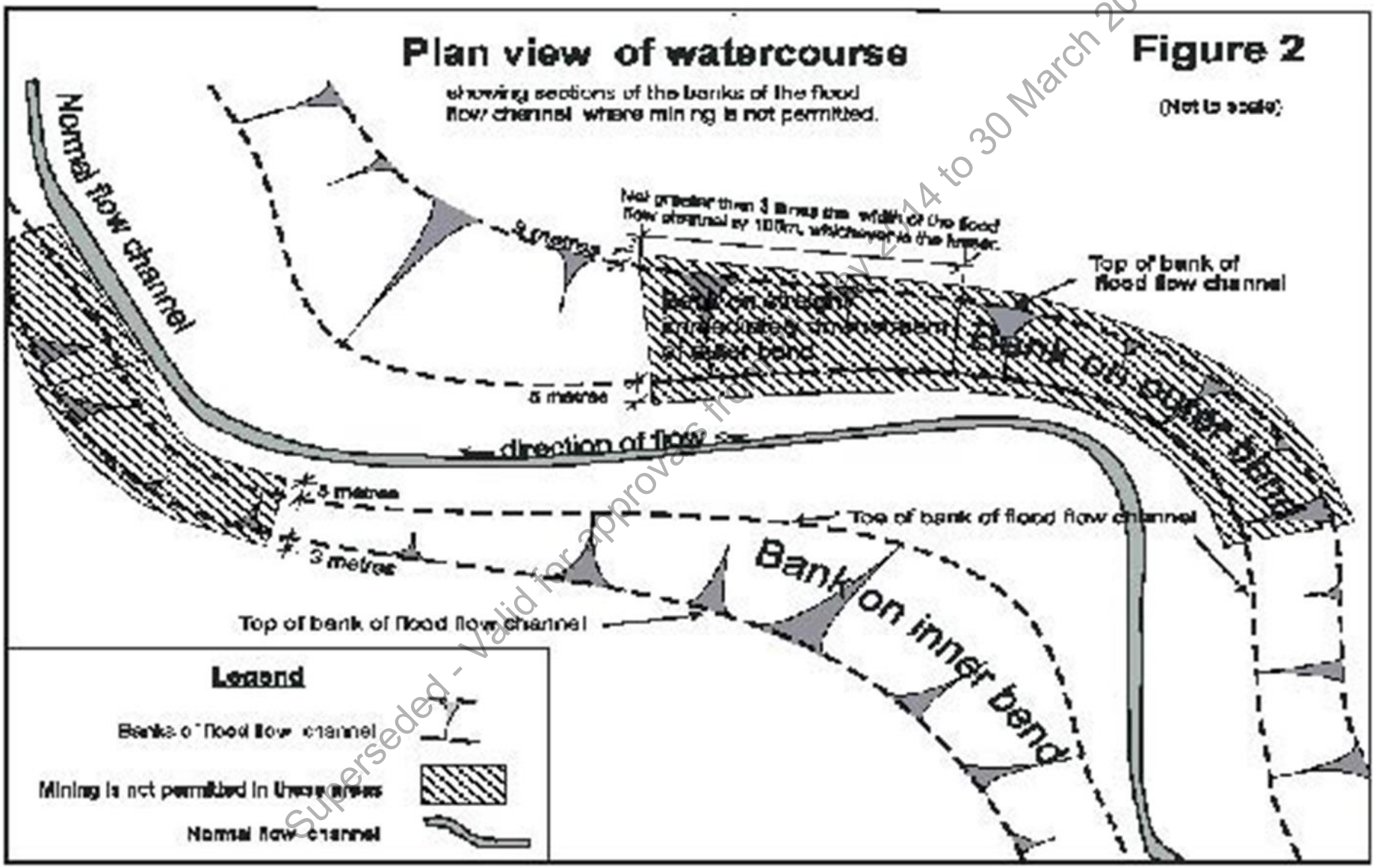
APPENDIX E Emergency Response Table

Emergency situation	Who to contact in case of emergency situation occurring	Equipment required to be kept and maintained on site	Procedure to be followed in case of emergency situation occurring
Hydrocarbon spill causing serious or material environmental harm			
Chemical spill causing serious or material environmental harm			
Other			

Superseded - Valid for approvals from 21 May 2014 to 30 March 2016



Superseded - Validated approvals from 21 May 2014 to 30 March 2016



Superseded - Valid for approvals from 1 May 2014 to 30 March 2016