Environmental Impact Statement Guidelines

Heidelberg Materials Australia Pty Ltd

Flagstaff Gully Quarry Production Increase, 243 & 395 Flagstaff Gully Road, Lindisfarne

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epa TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

Table of Contents

Glossary and abbreviations

Term	Definition
Board	Board of the Environment Protection Authority
Case for assessment	Information required for environmental impact assessment, prepared according to the Board's requirements.
Director	Means the Director, Environment Protection Authority holding office under Section 18 of *Environmental Management and Pollution Control Act 1994*.
EIS	Environmental Impact Statement
EMPCA	*Environmental Management and Pollution Control Act 1994*
EMPCS	Environmental Management and Pollution Control System. Objectives found in Schedule 1 of EMPCA.
Environmentally hazardous material	Any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment.
EPA	Environment Protection Authority. Tasmania's independent principal environmental regulator which administers EMPCA and consists of a Board and a Director.
EPBCA	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
Extractive activities	As defined under Schedule 2 of EMPCA: (a) Quarries: the extraction of 5,000 cubic metres or more of rock or gravel per year if the extraction – (i) is the subject of, or requires, a mining lease under the Mineral Resources Development Act 1995; or (ii) is carried out at a quarry in a State forest, within the meaning of the Mineral Resources Development Act 1995. (b) Extractive pits: the extraction of 5,000 cubic metres or more of sand or clay per year if the extraction is the subject of, or requires, a mining lease under the Mineral Resources Development Act 1995. (c) Mines: the extraction of any minerals producing 1 000 tonnes or more of minerals per year.
LUPAA	*Land Use Planning and Approvals Act 1993*
Materials handling	As defined under Schedule 2 of EMPCA: (a) Crushing, Grinding or Milling: processing (by crushing, grinding, milling or separating into different sizes by sieving, air elutriation or in any other manner) of – (i) chemicals or rubber at a rate of 200 tonnes or more per year; or (ii) rock, ores or minerals at a rate in excess of 1 000 cubic metres per year. (b) Coal Handling and Washing: the handling or washing of coal or carbonaceous material by any means of facilities with a total handling or washing capacity of 100 tonnes or more per day.
MNES	Matters of National Environmental Significance under the EPBCA
NCA	*Nature Conservation Act 2002*

Term	Definition
Noise sensitive premises (NSPs)	Residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.
Planning Authority	Council for relevant local government area
Sensitive receptors	Off-site human or environmental elements that have the potential to be negatively affected by an emission from the proposal (other than noise emissions, see Noise-sensitive premises).
Suitably qualified person	Means suitably qualified person in the opinion of the Director
TSPA	*Threatened Species Protection Act 1995*
Weed	A plant species that has, or is likely to have, an adverse impact on the environment because of the introduction, spread or increase in population size of the species in an area; and includes a declared weed as defined in the *Biosecurity Act 2019* and subordinate regulations.

Introduction

Purpose of the Guidelines

These Guidelines provide instructions for proponents on how to prepare an Environmental Impact Statement (EIS) for an activity being assessed in Tasmania by the Board of the Environment Protection Authority (the Board).

The Board uses an EIS as a 'case for assessment', to assess the environmental impact of an activity, as required under the *Environmental Management and Pollution Control Act 1994* (EMPCA).

An EIS provides information about the environmental impacts of a proposed activity and associated mitigation measures. As a publicly available document, an EIS should facilitate public consultation and informed comment and should contain sufficient information to establish the conditions of approval by authorities, if approved.

The EIS should demonstrate that the proposal is consistent with the objectives of relevant laws and policies, including the Tasmanian Resource Management and Planning System (RMPS) and the Environmental Management and Pollution Control System (EMPCS). These systems are designed to facilitate sustainable development.

Further information on the EPA Assessment Process is available on the EPA website.

Refer also to Appendix A *General principles for assessing environmental impacts*, for further information on EIS principles.

How the Board uses the EIS

The Board uses the EIS to inform decision making as part of the environmental impact assessment process. The EIS must be prepared in accordance with guidance provided by the Board under section 74(4) of EMPCA. The staff of the EPA support the Board during the assessment process.

The EIS will be advertised publicly to allow for public consultation. The proponent may then be required to supply additional information in response to public and government agency submissions. This information is generally supplied in the form of a supplement to the EIS.

The Board considers the EIS as well as other relevant information in the context of the objectives of the RMPS and EMPCS. These objectives aim to sustain the environment and avoid or mitigate adverse effects, while considering the economic and social needs of people now and in the future. The Board will endeavour to make the decision which best furthers the objectives of the RMPS and EMPCS. It may approve the proposal with conditions, or in some cases may decide to reject the proposal if the objectives cannot be upheld.

The Environmental Impact Statement Guidelines are adapted for each specific proposal. In general, more detailed studies and information will be required where issues are considered by the Board to involve a higher level of environmental risk.

Other significant matters may emerge while preparing the EIS, from environmental studies, public comments, or other sources. These must also be considered in the EIS. Information collected or generated during the assessment process may also change the understanding of the level of risk associated with some issues. This must also be reflected in the EIS.

Environmental policies and guidelines

The Board is required to undertake its assessment against relevant policies and guidelines. If relevant, the EER should address how the proposal will meet the following:

Tasmanian Environment Protection Policy (Air Quality) 2004

Air Pollutant Design Criteria - EPA Board Statement

State Policy on Water Quality Management 1997

Environment Protection Policy (Noise) 2009

Tasmanian State Coastal Policy 1996

State Policy on the Protection of Agricultural Land 2009

Planning information

Where the proposal requires a permit under the *Land Use Planning and Approvals Act 1993* (LUPAA), information required solely for assessment under the relevant Planning Scheme should be supplied to Council either:

- as a separate response to an additional information request from Council under section 54 of LUPAA, where the planning application has commenced the environmental assessment process; or
- where it forms part of a combined planning and EIS, in a form that clearly distinguishes it from information supplied for the purpose of the Board's assessment.

Commonwealth legislation

Approval from the Australian Government under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA) is required for actions on Commonwealth land or actions that are likely to have a significant impact on one or more matters of national environmental significance.

Information on the EPBC Act can be obtained from the Australian Government, Department of Climate Change, Energy, the Environment and Water (DCCEEW) website, or by calling 1800 803 772.

It is the proponent's responsibility to determine whether the EPBC Act applies to the proposal. **The EIS must include a statement on whether Commonwealth approval is likely to be required.**

The Australian and Tasmanian Governments have signed a bilateral agreement for environmental impact assessment under section 45 of the EPBC Act, which accredits the Board's assessment process. This allows a proposal that has been determined to be a controlled action under the EPBC Act to be assessed by the Board on behalf of the Australian Government.

If a proponent elects to have their proposal assessed under the bilateral agreement, the EIS should specifically describe the implications of the proposal for the relevant EPBC Act controlling provisions. It must also contain a summary table showing that it addresses the matters specified in Schedule 4 of the *Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000*.

Environment Protection Authority contact

For information about the assessment process, contact the Assessments Branch:

GPO Box 1550
Hobart, Tasmania 7001
Telephone: 03 6165 4599
Email: assessments@epa.tas.gov.au
Website: www.epa.tas.gov.au

Other agency contacts

If assessments or approvals outside the Board's remit are required, the proponent should engage with the relevant agency. Go to Guidance Documents | EPA Tasmania for other agency contacts.

Instructions

The EIS must present information in a way that can be easily understood. It should provide summaries in non-technical language to give readers a general understanding of the proposal. It must also provide technical detail to allow analysis and understanding of impacts and mitigation measures by technical specialists, regulatory bodies, and people with an interest in specific matters arising from the proposal.

These Guidelines set out the structure and minimum content requirements of the EIS.

Proponents are advised to consult the EPA during preparation of the EIS, including in the case of any uncertainty in relation to the requirements set out in these Guidelines.

General requirements

- Avoid technical terminology where possible in the main body of the EIS. It should be able to be read as an independent document which provides a general understanding of the proposal.
- Include any detailed technical data or supplementary reports as appendices.
- Consider document accessibility. The Australian Government Style Manual provides information about inclusion and accessibility.
- Use cross-referencing to prevent unnecessary duplication between sections.
- Reference all sources of information using a consistent style.
- Define all key terms and words used.
- Information in the EIS must be relevant.
    - Show reasoning for arguments. Support conclusions with referenced evidence.
    - Indicate how current information is, how reliability has been tested, and the degree of confidence attached to any predictions.
    - Sufficient technical detail must be provided to allow for environmental impact assessment, even when details are not final at the time of preparation.
    - If information is currently unavailable, estimates and alternative options should be provided, however the limitations of available information must be evaluated.
- Provide any sensitive commercial or corporate information in a confidential appendix. Provide a comment in the EIS if this has been done.

The EIS must not include information that is known to be false or misleading, and nothing should be omitted if it is known that without it the EIS would be false or misleading (section 43A of EMPCA).

Spatial and visual information requirements

- Present information in maps, plans, diagrams, and photographs where necessary, to enhance understanding.
- Images must be high quality and reproducible in monochrome, with all text and relevant features clearly visible.
- Maps and plans should include a north arrow and scale.
- Use a consistent base plan throughout the EIS where appropriate, to allow elements to be overlaid and compared. Ensure that detailed information is clear and visible, particularly when using satellite images as background layers. This is best achieved using a geographical information system (GIS).

- Specify the coordinate reference system when providing or referring to spatial information, including maps, plans, grid coordinates and heights. Further information on coordinate reference systems used in Tasmania can be found on the Land Tasmania website.

Submission

It is strongly recommended that proponents submit the EIS to the EPA for review prior to formal lodgement of the EIS with the Board. The EIS submitted for review must meet the requirements of these Guidelines and be in accordance with Appendix A; incomplete documents will not be accepted for review.

The EIS may be submitted via email to assessments@epa.tas.gov.au and your nominated contact officer. Proponents should contact the EPA if alternative submission methods are deemed necessary.

EIS structure and content

The EIS must follow the structure set out below and must address all requirements unless otherwise agreed following consultation with the EPA. For clarity, organise content with further headings and subheadings as appropriate.

Title page

The title page must include:

- Name of proponent (legal entity)
- Name of proposal (include "expansion" or "upgrade" where appropriate)
- Proposal address or location
- EIS version number
- Month and year of submission

Executive summary

The executive summary must provide a clear and concise overview of the proposal, its environmental implications, and the function of the EIS in the context of the assessment process. For a larger EIS, the executive summary must be written as a stand-alone document for people who may not wish to read or acquire the full EIS.

Table of contents

The EIS must include a table of contents and a list of figures and tables to allow the reader to easily locate information. The table of contents should include hyperlinks to allow documents to be navigated easily.

Glossary and abbreviations

Provide a list of abbreviations and acronyms and a glossary which clearly defines any technical terms used in the EIS.

Proponent information

Proponent entity name	*(Consistent with any intended or current permit application for the activity under LUPAA)*
Proponent trading name	
Registered address of proponent	
Postal address of proponent	
ABN/ACN of proponent	
Contact person's details	*Name* *Telephone number* *Email address*
Consultant's details	*Name* *Telephone number* *Email address*

Activity operator details must also be provided if the operator will be a different entity to the proponent.

1. Introduction

The introduction should include:

- General background information on the proponent, including relevant development and operational experience.
- General background information on the proposal, including:
  - current status of the proposal;
  - an overview of the principal components of the proposal;
  - the proposal location;
  - likely markets for the product; and
  - possibilities for future expansion.
- As the proposal is associated with an existing activity, provide details of current regulatory approvals (e.g. permit, environment protection notice, mining lease). Include approval type, issuer, purpose and expiry dates, if applicable.
- A discussion about how the proposal relates to any other proposals that have been or are being developed in the same region as the proposal.
- Environmental legislation, standards and guidelines that will be applicable, such as policies, regulations, and industry codes of practice.
- Other relevant Commonwealth, State and Local Government policies, strategies, and management plans with which the proposal would be expected to comply.

2. Proposal description

The scope of the proposal must be clearly described, and must include:

- A summary table,
- A detailed description of proposal,
- Definition of the activity area,
- Maps, plans and visual information,
- A summary of planning aspects,
- Socio-economic context, and
- Off-site infrastructure.

Where a proposal will require a permit application under LUPAA, the proposal description and specification of the site must be consistent with the intended or current permit application.

2.1 Summary table

The summary table provides an overview of the proposal and identifies the key characteristics, including:

- Location and planning context;
- Existing site information, including topography, local climate, geology, geomorphology, soils (e.g. erodibility and acid sulphate soils), vegetation, fauna, groundwater, and surface drainage (e.g. waterways, lakes, wetlands, coastal areas);
- Proposed infrastructure;
- Proposed timeline; and
- Inputs (e.g. water, materials, energy) and outputs (e.g. products, wastes and emissions).

Refer to *Appendix B* for an example of a project description summary table.

2.2 Detailed description of proposal

This section should include information that has not been included in the summary table, or that requires further explanation. Provide detailed information on the proposed operation of the activity including any ancillary works that are for the purpose of the proposal (e.g. access works).

For a change to an existing activity, the description must include a general description of that activity and clarification as to what is changing, including detail about all components of the existing activity relevant to the proposal. The EIS must provide enough information on these existing components to demonstrate that they have capacity to meet the requirements of the changed operation.

2.2.1 Proposal components

- Describe all materials to be handled and/or processed on the site. Detail sources, quantities, and characteristics including frequency of waste concrete deliveries.
- Describe the major items of equipment and machinery (including pollution control equipment) and on site facilities. Include detailed technical information on major items of equipment as appendices where relevant.
- Detail the total footprint of the proposal.

2.2.2 Operation

- Describe the process(es) of operation in a step-by-step manner. This must include the handling of quarried material from extraction through to processing, storage and removal from the site, as well as the handling of waste concrete from its receipt through to storage, processing and removal from the site. Use explanatory diagrams and flow charts where appropriate.
- Outline all raw materials (including water) required for operation. Detail sources, quantities, and characteristics.
- Identify and quantify all products, emissions and/or wastes produced. Specify how materials unsuitable for processing, whether waste concrete or waste quarried material, are managed.
- Outline all energy requirements for operation. Describe how energy demands will be met.
- Define the production capacity and rate for relevant processes. Include peak rates, daily average rates and annual production rates where applicable.
- Define the proposed hours of operation (hours per day and specific days per week). Specify whether hours of operation will differ between the various activities proposed (e.g. extraction and materials handling, waste concrete re-processing, cartage of materials) and provide details of any seasonal variations.
- Describe the volume, composition, origin, destination, and route for vehicle movements (road, rail, shipping, and air) likely to occur during operation, including timing of traffic flows. Specify what proportion of road usage and vehicle movements will involve over-dimension and heavy road vehicles. Compare the proposed vehicle movements with existing usage of relevant routes.

2.2.3 Existing activity

As the proposed activity is associated with an existing activity, provide the following:

- A summary of environmental monitoring results,
- A comparison of environmental monitoring results with relevant regulatory limits, if applicable;
- A summary of any public complaints regarding the existing activity received by the activity operator or by regulatory authorities over the last five years, including the nature of the complaints, their likely causes, investigation findings, and any corrective or preventative actions implemented;
- Details of any breaches of conditions of current regulatory approvals; and
- Details of any contraventions of environmental law.

2.3 Maps, plans and figures

High quality spatial information should be presented with all text and relevant features clearly visible. Maps and plans should include a north arrow, scale and legend. When spatial data (including maps, plans, coordinates and heights) are provided or referred to, the horizontal and vertical datum must be specified. At a minimum, provide the following:

2.3.1 General location maps

Provide general location maps of the existing environment and surrounding area (of a suitable scale), showing:

- The location of the proposal site;
- The mining lease;
- Relevant cadastral boundaries of the property on which the proposal is located with title details;
- Road access to and from the site;
- The distance(s) to any to any sensitive uses and residences[1] with potential to be impacted by dust, noise or other emissions from the proposed activity;
- The applicable attenuation distance;
- Topographical features, aspect, and direction of drainage;
- Location of waterways and drains (including ephemeral waterbodies and water courses);
- Electricity transmission lines;
- Surrounding land tenure;
- Surrounding land use (including areas of conservation or recreational significance); and
- Surrounding land zoning in the local government planning scheme.

2.3.2 Maps of the site and proposed activity area

Provide maps of the activity site and proposed activity area clearly showing the physical extent and location of key components of the proposal, including (as relevant):

- The location and extent of extractive areas;
- Topography, surface water flow, drainage;
- Vegetation types, clearly marking areas to be cleared or disturbed, and records of any threatened species and native vegetation communities;
- Existing and proposed buildings, structures, plant, machinery, equipment, storage areas;
- Product, waste, overburden, soil or other kinds of stockpiles;
- The location of site access, loading/unloading areas, laydown areas and parking;
- Site water management (drains, settling ponds, bunding, interceptors etc.);
- Proposed locations for monitoring environmental impacts; and
- Where works are proposed in key stages over time, include definitions or boundaries of each stage.

The map should include sufficient coordinates at corner points to accurately define the maximum activity area boundary. The activity area boundary must also be provided in a geospatial vector format (shapefile or DXF).

2.3.3 Figures and flowcharts

Present figures such as process flowcharts and images where they are likely to improve readers' understanding of the site and proposal. Any images and photos used must be high-quality, with an accurate description and date.

2.4 Offsite infrastructure

Describe any new infrastructure or offsite ancillary facilities required to enable the proposal to proceed, such as water supply, electricity supply, roads or other infrastructure.

[1] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'

3. Planning and socio-economic context

The planning aspects description should include any additional planning information and data not included in the summary table.

- If a permit is required under LUPAA provide Use Class and Permissibility of the proposed activity under the applicable Planning Scheme.
- Detail land tenure and property boundaries of the proposed site, with certificate of title details.
- Detail land zonings for the proposed site and surrounding areas.
- Describe any rights of way, easements and covenants affecting the site.
- Discuss land use and planning history of the site, including the potential for site contamination (see https://epa.tas.gov.au/Pages/Land.aspx), present use and any existing buildings and significant structures.
- Describe land use and ownership in the vicinity of the site and those areas which may be affected by the proposal.
- Provide the location and nature of industrial facilities.
- Detail sensitive receptors and residential zones within applicable attenuation distances including the location of individual residences, schools, hospitals, caravan parks and similar sensitive uses, and the location of any tourist or recreation facilities or routes (such as camping areas, picnic areas, walking tracks, historic routes).
- Consider any proposed or potentially sensitive uses within applicable attenuation distances from the proposal site, which have been or are likely to be granted approval under the local planning scheme.

Briefly describe the existing social and economic environment that may be affected by the proposal. This may include:

- A summary of the social or demographic characteristics of the population living in the vicinity of the proposal site, identifying any special characteristics which may make people more sensitive to impacts from the proposal than might otherwise be expected.
- A summary of the characteristics of the local and regional economy.

4. Project alternatives

Proponents should provide the rationale for the proposal. Alternatives should consider best practice environmental management, including measures listed under section 4(2) of EMPCA. The rationale should:

- Describe the site selection process and criteria.
- Evaluate any alternative sites considered. Justify the choice of the proposed site in terms of clearly defined environmental, social, economic, and technical considerations, including avoidance of environmental impacts.
- Describe the effect of any community consultation on the selection process.
- Identify and provide an assessment of other available technologies, materials, design options or management practices, where relevant, including how environmental impacts will be avoided. Evaluate the environmental performance of identified alternatives and provide justification for the preferred option.

5. Public consultation

Describe any public consultation that has taken place during project planning and preparation of the EIS and summarise the results of this consultation. Describe any proposed future public consultation that will take place during project implementation and operation. The Board encourages early community engagement, as it often leads to better outcomes for all parties. Guidance on effective community engagement is available on the EPA website.

6. Potential impacts and management

Identify all potential environmental impacts and describe the proposed measures to avoid, mitigate or offset adverse consequences. The detail provided on each issue should reflect its significance. While key issues are identified for the proposal, other issues that emerge as significant while preparing the EIS, through environmental studies, public comments or otherwise, must be considered and addressed.

Use the structure of these Guidelines to structure the EIS.

Use scientific data to support predictions and evaluate impacts and provide references to the data used. Where specialist reports have been required for key issues, summarise them within the body of the EIS where relevant, and attach the reports as appendices. Detail the qualifications of the authors of any specialist reports. Make sure that the information in the body of the EIS is consistent with the information in the appendices.

Information from documentation relating to the existing activity (such as an Environmental Management Plan or survey reports) may be used or referenced in this EIS, provided the information is current. The EIS must be self-explanatory and must not rely solely on reference to other documents.

Refer to ***Appendix A: Principles for assessing environmental impacts*** for more detail regarding environmental impact assessment.

Key issues

The key issues identified for this proposal, which should be the focus of the EIS, are:

1. Potential noise and vibration impacts on sensitive receptors.
2. Potential impacts on water quality.
3. Potential impacts on air quality.

6.1 Noise emissions

The noise assessment should detail potential noise and vibration impacts of the proposal on noise sensitive premises (NSPs), specify proposed attenuation and management measures, and provide evidence that the activity would not cause environmental nuisance or harm. The noise assessment should meet the requirements of sections 7.2, 7.3 and 7.4 of the *Quarry Code of Practice* and Part 5 of the *Environment Protection Policy (Noise) 2009*.

Noise and vibration modelling results must be discussed in the EIS with supporting technical reports to be included as appendices.

6.1.1 Existing environment

- Provide a site plan showing the location of all major existing sources of noise, vibration, and overpressure.
- Provide a map and a list of NSPs that have the potential to be impacted by the activity.
- Provide any completed noise and vibration monitoring results to evaluate the existing noise emission levels at the NSPs and discuss any existing related complaints.
- Provide details of noise and vibration management and attenuation measures that have been implemented to avoid or mitigate impacts of noise and vibration emitted by the existing activity.

6.1.2 Potential impacts

- Describe all major sources of noise, including:
    - associated sizes and sound power levels;
    - 1/3 octave source noise data (linear/C-weighted and A-weighted) to assess for low frequency and tonal noise;
    - noise attenuation features; and

  - hours of operation.

- Show the location of all proposed operational noise sources (fixed and mobile sources), including any upgrades to existing noise sources, on a site plan.
- Analyse the potential for noise emissions to impact nearby land users, particularly at NSPs. When assessing the potential for environmental nuisance to be caused at NSPs, discuss the relevant noise criteria and the existing acoustic environment.
- Provide the results of a noise model for the proposal undertaken by a suitably qualified person. Modelling must include the generation of noise contour maps. Prediction methodology will need to consider:
  - worst case weather conditions (i.e., temperature inversions and downwind);
  - topography of the site and the site surroundings (including any sensitive receptors);
  - assessing L_{Amax} noise emissions to assess for sleep disturbance during the night-time period; and
  - any potential cumulative noise emissions in relation to the adjacent concrete batch plant.
- Discuss noise-related environmental impacts associated with current and altered traffic flows on NSPs.
- Discuss the existing and proposed blasting regime, including charge and frequency.
- Predict air blast over pressure and peak particle velocity at nearby NSPs at key stages of the proposed quarry development, and the potential for blast effects to impact the NSPs.
- Provide results of ground vibration modelling of proposed activities to predict peak particle velocity contours out to 1 mm/s.
- Provide results of air blast overpressure modelling of proposed activities to predict dB(lin) level contours out to 100 dB(lin).
- All modelling assumptions must be discussed.

6.1.3 Avoidance and mitigation measures

- Provide details of any proposed changes to existing noise and vibration attenuation measures that will be implemented to avoid or mitigate impacts of noise and vibration emitted by the proposal.
- Provide a Noise and Vibration Management Plan for the proposed activity that includes appropriate target limits and mitigation measures to manage potential noise and vibration impacts at NSPs. The Noise and Vibration Management must be discussed in the EIS and included as an appendix.
- In order to protect the existing acoustic amenity of NSPs, consider appropriate noise attenuation measures to ensure that cumulative noise emissions (L_{Aeq}) from the proposed activity do not cause environmental nuisance nor result in creep in the existing background noise levels at NSPs.
- Demonstrate that the proposal is consistent with environmental performance requirements, including any identified in the *Environment Protection Policy (Noise) 2009*.

6.2 Water quality

The water quality assessment should detail the potential impacts of the proposal on surface water and groundwater, including consideration of sediment, waterway disturbance, environmental values and downstream water uses, specify proposed management measures, and provide evidence that the activity would not cause environmental nuisance or harm. The water quality assessment should demonstrate that the proposal meets the requirements of section 7.9 of the *Quarry Code of Practice*.

6.2.1 Existing environment

- Describe, and identify on a map of the activity site, the receiving aquatic environment(s) that have the potential to be impacted by the proposal, using data where available, including:
  - relevant Protected Environmental Values (PEVs);

  - groundwater dependent ecosystems (GDE). GDEs can be identified via the GDE Atlas – Bureau of Meteorology (BoM); and
  - any specific sensitive uses and associated water (surface water and groundwater) quality considerations.

- Provide a characterisation of the receiving environment based on monitoring data. At least 12 months of data should be used for the characterisation. Where the receiving waters are ephemeral, event-based water quality data and discussion of receiving environmental flow characteristics should be provided.
- Provide reference to site-specific water quality guidelines values based on historical monitoring. Reference can be made to default guidelines values where receiving water quality data is limited.
- Provide a summary of any historical water quality data for the receiving environment and for wastewater and/or stormwater discharged from the activity area. A table showing monitoring results and a brief discussion should be provided as part of the summary.
- Describe any existing wastewater and/or stormwater treatment on the site. Describe the quality of the effluent/stormwater collected in existing sediment basins for the following parameters, at a minimum: pH, TSS, electrical conductivity, and metals.

6.2.2 Potential impacts

- Describe any potential liquid emissions, other than stormwater, that could arise from the proposal.
- Describe the potential impacts of the proposal on the receiving environment (surface water, groundwater, drinking water, stock water, and irrigation, etc.). Consider the potential for any cumulative impacts in relation to discharges from the adjacent concrete batch plant.
- If potential impacts to groundwater could arise as a result of the proposed activity (maximum depth of the quarry, dewatering activities, blasting etc.) provide a conceptual site model considering any interaction between groundwater and surface water and show source, pathway and receptors for any potential contaminants. Consider the potential for nitrate emissions from blasting to impact on the receiving environment.
- Provide details of discharge frequencies and volume.
- Detail any proposed upgrades to existing stormwater infrastructure. Describe the dimensions, capacity, and other relevant design features of key stormwater infrastructure, such as drains and sediment basins. Provide design details, including the following:
  - rainfall frequency (annual exceedance probability (AEP)) and intensity used to design the infrastructure, with reference to relevant design criteria;
  - any additional baseline process water flow;
  - design criteria;
  - the sediment particle size(s) used in calculations;
  - calculations used to determine basin volumes and area;
  - flocculant use and management, including sufficient justification if the use of flocculants are not considered necessary; and
  - any other relevant detail to assist in assessing the suitability of the infrastructure for the proposal, e.g., basin type, jar test results, inlet and outlet features etc.

6.2.3 Avoidance and mitigation measures

- Specify proposed water quality criteria for management of stormwater discharges from the activity area to ensure PEVs and sensitive downstream uses will not be impacted.
- Detail any proposed water management and infrastructure maintenance regimes that are necessary to maintain the effectiveness of erosion and sediment control infrastructure.
- Describe any other management measures proposed to minimise impact on waterways and aquatic values.

- Provide map(s) of the activity area showing the location of stormwater management infrastructure, including:
    - water flow paths (sediment-laden water flow and clean water flow);
    - any proposed clean water diversion(s) around operational and disturbed areas, including storage and stockpile areas; and
    - all discharge point locations.
- Provide a Water Management Plan for the proposed activity that details the measures to be implemented to control surface water flow across the site and contain potential pollutants, including a water quality and discharge monitoring program. Best practice environmental management and accepted modern technologies as stated in the *State Policy on Water Quality Management 1997* should be considered. The Water Management Plan must be discussed in the EIS and included as an appendix.

For information about water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.

6.3 Air quality

The air quality assessment should detail the potential impacts of the proposal on local air quality, specify proposed management measures and provide evidence that the activity would not cause environmental nuisance or harm. The air quality assessment should address the aspects of air pollution and dust control described in section 7.5 of the *Quarry Code of Practice*.

6.3.1 Existing environment

- Provide a map and a list of sensitive receptors that have the potential to be impacted by the activity.
- Describe the existing environment including climatic/meteorological conditions, terrain, land use and air quality in the vicinity of the proposed activity.

6.3.2 Potential impacts

- Provide a site plan showing the locations and names of all potential sources of atmospheric emissions from the proposed activity. These include but are not limited to, dust generated from the disturbed topsoil, stockpiles, conveyor belts, as well as activities conducted on the site such as excavating, drilling, blasting, crushing, screening, loading and unloading material, and traffic movements on and off site.
- Provide a detailed description of all potential sources of atmospheric emissions from the proposed activity and an assessment of their potential to generate atmospheric emissions. This should include sources related to both quarried material and waste concrete.
- Discuss and assess the potential impacts of the atmospheric emissions from the proposed activity on the environment and the likelihood for the activity to cause environmental nuisance or harm at or beyond the activity area boundary. Consider the existing environment (local terrain and meteorological conditions including annual rainfall, the direction and strength of prevailing winds), land use in the vicinity of the quarry (particularly the proximity of sensitive receptors), and potential cumulative atmospheric emissions in relation to the adjacent concrete batch plant.
- Provide information about existing and proposed monitoring of dust and particulate matter at the site.

6.3.3 Avoidance and mitigation measures

- Describe the measures to be employed to reduce dust movement from the site, especially during unfavourable meteorological conditions. These include but are not limited to, watering or sealing roads, covering truck loads, reducing vehicle speed, road surfacing and maintenance, enclosures, water sprays, windbreaks, and revegetation/stabilisation of disturbed areas. Include detailed information on dust mitigation and suppression systems/equipment installed on site as well as contingency measures to address dust emissions that may result from malfunctioning equipment.

- Consider the installation of a meteorological monitoring station capable of measuring and recording wind speed and direction, rainfall and temperature to inform the application of mitigation measures during unfavourable weather conditions.
- Provide detailed information on the water balance for the site to demonstrate the availability of an adequate water supply to mitigate dust generated from disturbed areas. Consider climatic factors such as rainfall and evaporation rates. Discuss the ongoing requirement to provide a consistent water supply, considering water availability in response to potential impacts of future climate change, including the possibility of increasing unseasonal dry periods.
- Provide a Dust Management Plan that details the mitigation measures to be implemented to manage dust emissions generated from the proposed activity. The Dust Management Plan must be discussed in the EIS and included as an appendix.
- Demonstrate that the assessment is consistent with the requirements of the *Tasmanian Environment Protection Policy (Air)* and any supplementary documents (including the *Board Statement Jan 2022*).

6.4 Biodiversity and natural values

Discuss impacts of the proposal on biodiversity and nature conservation values (terrestrial and aquatic). Include details on how information has been collected or generated where applicable.

6.4.1 Existing environment

- Specify and provide records from the Natural Values Atlas of fauna, flora, vegetation communities and habitat on or near the site, including aquatic as relevant, including reference to threatened species, communities and habitats, including those listed under the relevant Schedules of the Australian Government EPBC Act and the Tasmanian *Threatened Species Protection Act 1995* (TSPA) and Tasmanian *Nature Conservation Act 2002* (NCA).
- Specify and map known records of weeds, pests and diseases occurring on or near the site.
- If the proposal has the potential to impact any threatened species, potential habitat or threatened native vegetation communities, a natural values survey is required. Surveys must comply with the requirements of the Guidelines for Terrestrial Natural Values Surveys related to Development Proposals and any relevant species-specific guidelines. The survey report must be appended to the EIS.
- Identify areas or habitats of conservation significance, including designated conservation areas, areas relating to the requirements of international treaties (e.g. Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar (wetlands) Convention), or wetlands listed in Directory of Important Wetlands in Australia.
- Identify any freshwater ecosystems of high conservation management priority using the Conservation of Freshwater Ecosystem Values (CFEV) database, including values in the vicinity of the proposal. The specific CFEV information should be Conservation Management Priority Potential.
- Specify and map known sites of geoconservation significance or natural processes (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.
- Describe natural processes of particular importance for the maintenance of the existing environment (e.g. fire, flooding, etc).

6.4.2 Potential impacts

Describe potential impacts of the proposal on:

- Flora, vegetation communities and habitat, with particular reference to threatened species, communities and habitats listed under the relevant Schedules of the EPBC Act, TSPA and NCA, including consideration of:
    - Direct impacts, such as disturbance, clearing, excavation or burning;

  - Indirect impacts, such as changes in hydrogeological flows, fragmentation of populations or introduction of weeds, pests or diseases from and within the site;
  - Cumulative impacts with other human activity.

- Fauna, with particular reference to threatened species, communities and habitats listed under the relevant Schedules of the EPBC Act, TSPA and NCA, including consideration of:
  - Direct impacts, such as collision risks from both vehicles[2] and infrastructure, clearing or other physical changes to breeding and hunting or foraging habitat;
  - Indirect impacts, such as changes in disturbances to nesting, impacts of noise and light, changes in prey or food availability or introduction of pests or diseases;
  - Cumulative impacts with other human activity.
- Existing conservation reserves that may be affected by the proposal, with reference to the management objectives of the reserve(s) and the reserve management plan(s) (if any).
- Other species, sites or areas of special conservation significance, including areas of wilderness or scientific value.
- The reserve system identified as part of the Tasmanian Regional Forest Agreement, including high-quality wilderness areas; maintenance of forest communities under the Permanent Native Forest Estate Policy, wildlife habitat strips under the *Tasmanian Forest Practices Code 2015 (*https://fpa.tas.gov.au/*)*, and non-forest communities.
- Sites of geoconservation significance or natural processes (such as fluvial or coastal features), including sites of geoconservation significance listed on the Tasmanian Geoconservation Database.

6.4.3 Avoidance and mitigation measures

- Describe management measures that will be implemented to avoid adverse impacts to threatened fauna, flora and vegetation communities and other natural values, including management of weeds, pests and diseases.
- Provide a Weed and Disease Management Plan for the proposed activity, including hygiene measures to be implemented to prevent the introduction and/or spread of weeds, pests and pathogens (e.g. vehicle washdown procedures (see the Weed and Disease Planning and Hygiene Guidelines for further information)). The Weed and Disease Management Plan must be appended to the EIS.
- Include any roadkill management measures as required in the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*.
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on biodiversity and nature conservation values.
- Identify potential residual impacts.
- Discuss any offset proposed for residual impacts, including likely benefits from such an offset.
- Discuss rehabilitation of disturbed areas following the completion of construction activities and cessation of the activity, including any proposed seed collection and progressive rehabilitation program.

[2] An increase in night-time (between one hour before sunset and one hour after sunrise as defined by the Bureau of Meteorology) traffic on internal and nearby roads of more than 10% combined with a high abundance of Tasmanian Devils and/or Tasmanian Devil roadkill records in the Natural Values Atlas is considered significant regarding likely impacts on the Tasmanian Devil. See the *Survey Guidelines and Management Advice for Development Proposals that may impact on the Tasmanian Devil (Sarcophilus harrisii)*.

6.5 Waste management and environmentally hazardous substances

Discuss the impacts of waste, dangerous goods and environmentally hazardous substances used in or generated by the proposal, including the following:

- Describe the solid and liquid waste that will be produced by the activity (e.g. overburden, Potentially Acid Forming material, cleared vegetation, metal and machinery service wastes, used oils, amenities, waste and general refuse).
- Describe how each type of waste will be managed. In order of preference, waste should be avoided, reused or recycled where possible, and treated (stabilised) if necessary.
- Detail the nature and quantity of any environmentally hazardous substances that will be stored (permanently or temporarily) and/or handled on site. This includes fuels, oils, waste and chemicals.
- Describe how and where these substances will be stored. Discuss what measures will be in place to prevent release and respond to accidental spills (e.g. bunding, availability of spill kits).
- Identify any dangerous goods (as per the Australian Code for the Transport of Dangerous Goods by Road and Rail) and controlled wastes (see the EPA website for more information) that will be present on the site, with reference to standard classification. Detail how they will be managed and describe collection or other maintenance requirements where relevant.
- Provide contingency plans for when control measures fail, equipment breaks down or accidental releases to the environment otherwise occur. Include detail on proposed emergency and clean-up measures and notification procedures. Identify any safety management requirements for the protection of human health and safety where incidents may affect the community.

For information on the landfill levy and reporting requirements for landfills or resource recovery facilities under the *Waste and Resource Recovery Act 2022* and Regulations, refer to Waste and Resource Recovery, Department of Natural Resources and Environment Tasmania website.

6.6 Fire risk

Discuss the potential fire risk associated with the proposal, including:

- Consideration of fire within the site, fire escaping from the site and the impact of wildfire originating outside the development and the environmental impacts that could result from such an event.
- The objectives and management principles to be adopted to prevent and respond to potential fire events.
- Where a fire response plan is appropriate, it should be fully integrated with other relevant documents, such as a Tasmania Fire Service Local Area Fire Management Plan, a Sustainable Timber Tasmania Fire Management Plan and a Parks and Wildlife Service Fire Action Plan for relevant districts.

6.7 Decommissioning and rehabilitation

- Describe any rehabilitation measures with reference to the existing activity and the proposed staged development of the quarry/extractive pit (refer to the site plan(s) as relevant).
- Describe the proposed decommissioning and rehabilitation measures in the event of cessation of the activity.
- Provide a Rehabilitation Plan for ongoing extractive operations that details the measures to be implemented to progressively rehabilitate worked out or disused sections of the activity area, including any historically disturbed areas beyond the activity area boundary. The Rehabilitation Plan must be discussed in the EIS and included as an appendix.

6.8 Greenhouse gas emissions, ozone depleting substances and climate change

Discuss potential impacts of the proposal in relation to greenhouse gases, ozone-depleting substances and climate change. The discussion should be proportionate to the significance of the potential impacts.

- Describe the direct and indirect effects of the proposal on greenhouse gas production and ozone-depleting substances, as well as any associated benefits of the proposal.
- Provide an inventory of projected scope 1, scope 2 and total greenhouse gas emissions (see https://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy), energy production, and energy consumption for a year of operation. Describe the methods used to develop the inventory (see calculators at http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators#Emissions-and-Energy-Threshold-Calculator-202021-and-user-guide). Discuss potential annual variation that may occur.
- Demonstrate that the development will use cost-effective, best practice measures to minimise future greenhouse gas emissions.
- Detail measures proposed to minimise emissions and describe the anticipated effectiveness of these measures. Where less emissions-intensive options are not adopted, provide sufficient justification and/or mechanisms to offset greenhouse gas emissions.
- Estimate 'whole of life' greenhouse gas emissions for the proposed development. Include details of the methodology used.
- Describe the potential impacts of climate change upon the proposal. For example, it may be appropriate to plan for more intense storm events, more severe fire weather, and/or long-term sea level rise.
- Discuss impacts of the proposal in terms of the evolving national response to climate change and greenhouse gas emissions and the targets set in the *Climate Change (State Action) Act 2008* (Tas), *Tasmania's Climate Change Action Plan 2023-25* and the *Climate Change Act 2022* (Commonwealth).

Note: Proponents must determine whether they are required to report to the Commonwealth under the *National Greenhouse and Energy Reporting Act 2007*.

6.9 Infrastructure and off-site ancillary facilities

Discuss potential environmental impacts of the proposal on any significant off-site infrastructure or facilities (including increased use of existing infrastructure, such as roads, ports and quarries). Identify measures proposed to avoid and mitigate any possible adverse impacts. Assess the likely overall impacts after implementation of the proposed avoidance and mitigation measures.

Identify roads and other infrastructure to be used by vehicles for the proposal (during both construction and operation). Potential environmental impacts associated with construction and use of such infrastructure should be assessed. Cross-reference to other sections where relevant.

7. Monitoring and review

Outline any proposed monitoring, review and reporting programs for the proposal. Include a table of proposed monitoring locations, parameters and frequencies, and a map showing the location of all monitoring sites.

Monitoring, review and reporting programs should be designed to:

- Assess compliance with the proposed management measures;
- Assess compliance with emission standards and other identified performance requirements;

- Assess the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives; and
- Assess the extent to which the potential impacts described in the EIS have eventuated.

8. Management measures table

Provide a summary table listing all management measures detailed throughout the EIS. Each measure must include a reference number, must be an unambiguous statement of intent, must specify when it is to be implemented (including whether it is to be implemented during construction, operation, maintenance or other phases) and must include a cross-reference to where the measure is described in the EIS.

9. Conclusion

Summarise the proposal and present a balanced overview of its net impacts. Draw together the critical environmental, social and economic impacts. Evaluate the extent to which negative impacts can be avoided, mitigated, remediated or compensated and positive impacts promoted and sustained.

Describe how the proposal meets and furthers the objectives of relevant legislation, policies, plans and strategies. Itemise the RMPS and EMPCS objectives and comment on how the proposal addresses each of the objectives.

10. References

Provide details of authorities consulted, reference documents and other information sources, using a consistent referencing style.

11. Appendices

Detailed technical information which supports the EIS should be included as appendices. The salient features of the appendices should be included in the main body of the EIS. Technical content of appendices must be consistent with information presented in the EIS itself, unless inconsistencies are carefully explained. The EIS may not be accepted where unexplained inconsistencies exist.

Appendix A: General principles for assessing environmental impacts

This Appendix summarises general principles for assessing environmental impacts in EIS documents prepared in accordance with EMPCA and these Guidelines.

General Approach

When assessing environmental impacts in an EIS, the proponent should:

- Present information in a clear, well-structured manner appropriate to the audience of the EIS.
- Avoid duplication.
- Base assessments and evaluations on scientifically supportable, referenced data.
- Describe methodologies used and provide supporting research and information wherever relevant.
- State any scientific assumptions, simplifications, or judgements, and define uncertainties.
- Describe impacts and their mitigation to a level of detail that is proportionate to potential consequences and to what extent they can be controlled.

These Guidelines have been structured to generally require the following for each issue:

- Existing/receiving environment information as relevant
- Potential environmental impacts of the proposal
- Proposed avoidance, management and mitigation measures
- Evaluation of effectiveness of the proposed measures and potential for residual impact

Existing environment

This requires documentation through maps, survey results etc. of the environmental values and human receptors in the vicinity of the proposal, as relevant to each issue.

Consideration of potential impacts

To identify and characterise the potential impacts of a proposal, the proponent should:

- Explain methodologies used to identify and characterise impacts.
- Identify any relevant guidelines and standards used.
- Clearly articulate potential impacts, using tables and figures to aid communication where possible.
- Characterise those impacts in terms of:
    - The magnitude of impacts, quantified where possible, including spatial extent and timeframe;
    - The vulnerability of the affected environmental receptors to harm or nuisance;
    - Sources of the impacts and pathways by which the impact may occur;
    - Probability of occurrence (if not 100%);
    - The range of scenarios in which the impact may occur, including plausible worst-case consequences;
    - Reversibility of impacts;
    - Any predicted indirect effects; and
    - The cumulative and interactive nature of the identified impacts of the proposal, including consideration of impacts of other existing and approved development in the region.
- Consider potential significance of impacts. Proponents should support conclusions about the significance of impacts using a structured argument that clearly describes the magnitude of the impact, the sensitivity of the affected receptors, and how they relate.
- Support assertions and assumptions with adequate argument and/or evidence.

- Identify plausible worst-case scenarios and the reversibility of the impact.

Avoidance and mitigation

After avoiding impacts wherever possible, mitigation (planning and design considerations, pollution control technology and management practices) and monitoring are measures taken to reduce the impact of the proposal. In presenting avoidance and mitigation the proponent should:

- Describe the measures proposed, including ongoing monitoring;
- Describe how mitigation measures function to avoid or reduce the impacts;
- Detail any specialist recommendations which have been/will be implemented. Where specialist recommendations are not to be implemented, justify why. All recommendations made in specialist reports should be addressed.
- Explain how measures accord with existing guidance, accepted practice or best practice environmental management as defined in EMPCA;
- Discuss contingencies for the breakdown/malfunction of equipment or processes;
- Describe any anticipated impacts resulting from the mitigation actions and how these will be addressed;
- Identify where control measures are to be carried out, operated and/or maintained by a third party, and how this will be achieved; and
- Describe proposed adaptive management responses where these may be needed.

Evaluation

The evaluation is to provide the proponent's consideration of the likely effectiveness of avoidance, mitigation and management measures in reducing impact. Residual impacts are those that remain after all proposed avoidance and mitigation measures have been taken into account. Evaluation requires the proponent to:

- Consider the likely impact remaining after measures are implemented, including the significance of any residual impacts, taking into account the effects of the measures to reduce the magnitude of the impacts and present a revised statement of significance; and
- Consider the outcome in the context of relevant legislation, guidance and standards.
- Where required, identify appropriate actions that will offset impacts, based on the relevant guidelines. Offset actions must present a measurable, relevant and ongoing net benefit which would not otherwise have been realised, and which is not accounted for by any other project or proposal.
- Where offsets are required, detail how the offsets were determined.
- Detail how the offsets will be secured, managed and monitored, including management actions, responsibility, timing, performance measures and the specific environmental outcomes to be achieved.

Appendix B: Example of project description summary table

If the proposal is subject to a permit application under LUPAA, the proposal description must be consistent with the permit application. Any works or activities for the purpose of the proposal (e.g. access works) must be included.

Proposed activity

Activity	Provide a general description of the proposed activity, including the classification of the activity under Schedule 2 of EMPCA.
New or existing	State whether this is an intensification, expansion or modification of an existing activity, or a new activity. If it is an existing activity, provide details of any regulatory approvals (e.g. permit, licence, environment protection notice, mining lease) relating to the existing activity. Include approval type, issuer, purpose and expiry dates, if applicable.
Product / purpose	Describe the product/purpose and forecast life of the activity.
Maximum extraction quantity	Provide the maximum extraction quantity in cubic metres and tonnes per year. State the conversion factor. Briefly describe any anticipated seasonal variation. If it is an intensification, provide the current extraction limit in cubic metres and tonnes per year. State the difference between the two.
Maximum processing quantity	Provide the maximum processing quantity in cubic metres and tonnes per year (i.e. crushing, grinding, screening). If it is an intensification, provide the current processing (crushing, grinding, screening) limits in cubic metres and tonnes per year. State the difference between the two.
Method/s	State how material will be extracted and processed and list the main items of equipment involved.
Industry standards	Detail any industry standards or guidelines applicable to the activity.
Transport	Describe the proposed transport route (refer to relevant maps), vehicle types, number of vehicle movements (per day), and time of day of vehicle movements.
Stockpiling	State the materials that will be stockpiled on site. State the maximum estimated size of the stockpiles.
Area of disturbance	State: • Maximum area of the site proposed to be disturbed (unrehabilitated) at any time, in hectares. • Total area of land to be cleared over the life of the proposal, in hectares. If it is an existing activity, state the current cleared area, in hectares.
Major equipment	List all existing and proposed plant/machinery and other temporary or permanent equipment (distinguish between existing and proposed).
Other infrastructure	List the existing and proposed buildings, structures, access roads, internal haul roads, etc. (distinguish between existing and proposed).
Proposal timeline	State the key proposal timeline(s) and forecast life of the activity.
Operating hours	State the proposed operating hours and days. Specify whether there will be any seasonal variations.

Location and planning context

Location	State the address of the site, and CTs and PIDs (as applicable) for all titles on which the activity will take place. If a permit is required, this information must match the information in the permit application.
Planning Permit	Confirm whether a planning permit is required under LUPAA. If a planning application has not already been lodged, provide written advice from Council confirming this requirement, as an appendix.
Land zoning and tenure	Describe the land zoning and tenure of the site and surrounds. If rezoning of the site is required, provide details.
Use Class and Permissibility	If a permit is required under LUPAA, state the Use Class and Permissibility of the activity under the relevant Planning Scheme.
Mining lease	Provide the ML reference number(s) and status (granted/applied for).
Lease area	State the size of the lease area(s).
Bond	State the amount of any bond required by MRT (for extractive industries).

Description of site and surrounds

Land Use	Describe the land use of the site and surrounds, distance to the nearest sensitive receptors, and any nearby conservation reserves or recreation areas.
Topography	Describe the topography of the site and surrounds.
Climate	State the annual rainfall, average temperatures and predominant wind direction (provide wind roses if possible).
Geology	Describe the geology of the site. State whether it is likely that potentially acid forming (PAF) material will be found on site. Describe any geoconservation values on or near the site (e.g. karst).
Soils	Describe the soils on the site. State the erodibility of the soils. State whether there is potential to encounter acid sulphate soils and/or contaminated soil.
Hydrology	Describe groundwater and surface drainage (including waterways, lakes, wetlands and coastal areas). Describe the waterbodies and aquatic values on site and in the surrounding area. State the distance from the activity to the nearest waterbody.
Natural values	Describe the vegetation types on and near the site. List the threatened fauna, flora and vegetation communities, including habitat for any such species, that are known to occur on or near the site (use the Natural Values Atlas or results of a relevant survey). Provide information on sites or areas of landscape, aesthetic, wilderness, scientific or otherwise special conservation significance which may be affected by the proposal. Relevant information resources include the LIST

	(www.thelist.tas.gov.au) and the Natural Values Atlas (https://www.naturalvaluesatlas.tas.gov.au).
Potential hazards	Provide a brief assessment of the vulnerability of the site to natural hazards (e.g. flooding, seismic activity, fire, landslips or strong winds) or climate change.

Inputs

Water	Include quantities and characteristics.
Energy	Include quantities and characteristics.
Other raw materials	Include quantities and characteristics.

Wastes and emissions

Liquid	Include quantities and characteristics.
Atmospheric	Include quantities and characteristics.
Solid	Include quantities and characteristics.
Controlled wastes	Include quantities and characteristics.
Noise	Include major sources of noise emissions.
Greenhouse gases	Provide a brief description of changes to greenhouse gas emissions that will be caused by the proposal.

Other key characteristics

Other	Describe any additional characteristics relevant to the proposal/environment that are likely to provide important context as part of this summary.

ENVIRONMENT PROTECTION AUTHORITY