

PLAN 1

PLANNING APPLICATION PLN-19-0071

81 EVANDALE ROAD, WESTERN JUNCTION

ATTACHMENTS

- Development application, Development Proposal and Environmental Management Plan and Appendices
- Referral responses
- Representations
- Development Proposal and Environmental Management Plan – Supplement
- EPA's Environmental Assessment Report and Permit Conditions Part B

PLANNING APPLICATION Proposal

Description of proposal:

.....WESTERN JUNCTION QUARRY EXTENSION.....

.....See attached DPEMP

.....

.....

.....

(attach additional sheets if necessary)

If applying for a subdivision which creates a new road, please supply three proposed names for the road, in order of preference:

1..... 2..... 3.....

Site address:81 Evandale Road Western Junction.....
Mining Lease 2045 P/M

.....

CT no: ...129905/1.....

Estimated cost of project \$.....NA..... *(include cost of landscaping, car parks etc for commercial/industrial uses)*

Are there any existing buildings on this property? No
If yes – main building is used as

If variation to Planning Scheme provisions requested, justification to be provided:

.....

.....

.....

.....

.....

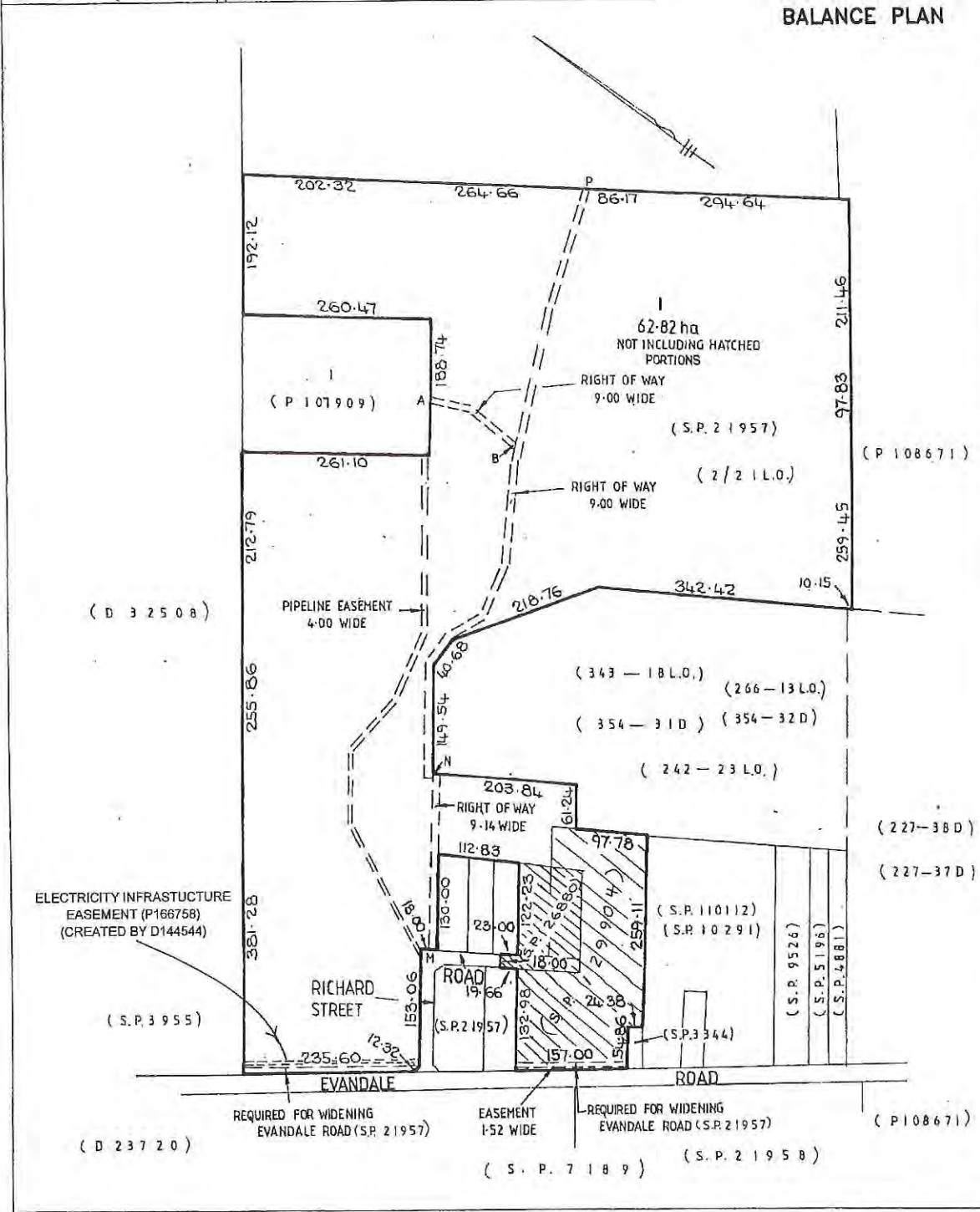
.....

(attach additional sheets if necessary)

Is any signage required?NO.....
(if yes, provide details)

OWNER DAVID NICHOLAS HUGHES	PLAN OF TITLE	REGISTERED NUMBER P 129905
FOLIO REFERENCE C.T.VOL126881 FOLL.	LOCATION LAND DISTRICT OF CORNWALL PARISH OF BREADALBANE	APPROVED 15 JUN 1998
GRANTEE PART OF 32.4 ACRES, GRANTED TO THOMAS GEE	FIRST SURVEY PLAN No. S.P.21957 COMPILED BY COHEN & ASSOCIATES PTY.LTD LAUNCESTON SCALE 1: 5000 LENGTHS IN METRES	<i>M. J. ...</i> Recorder of Titles

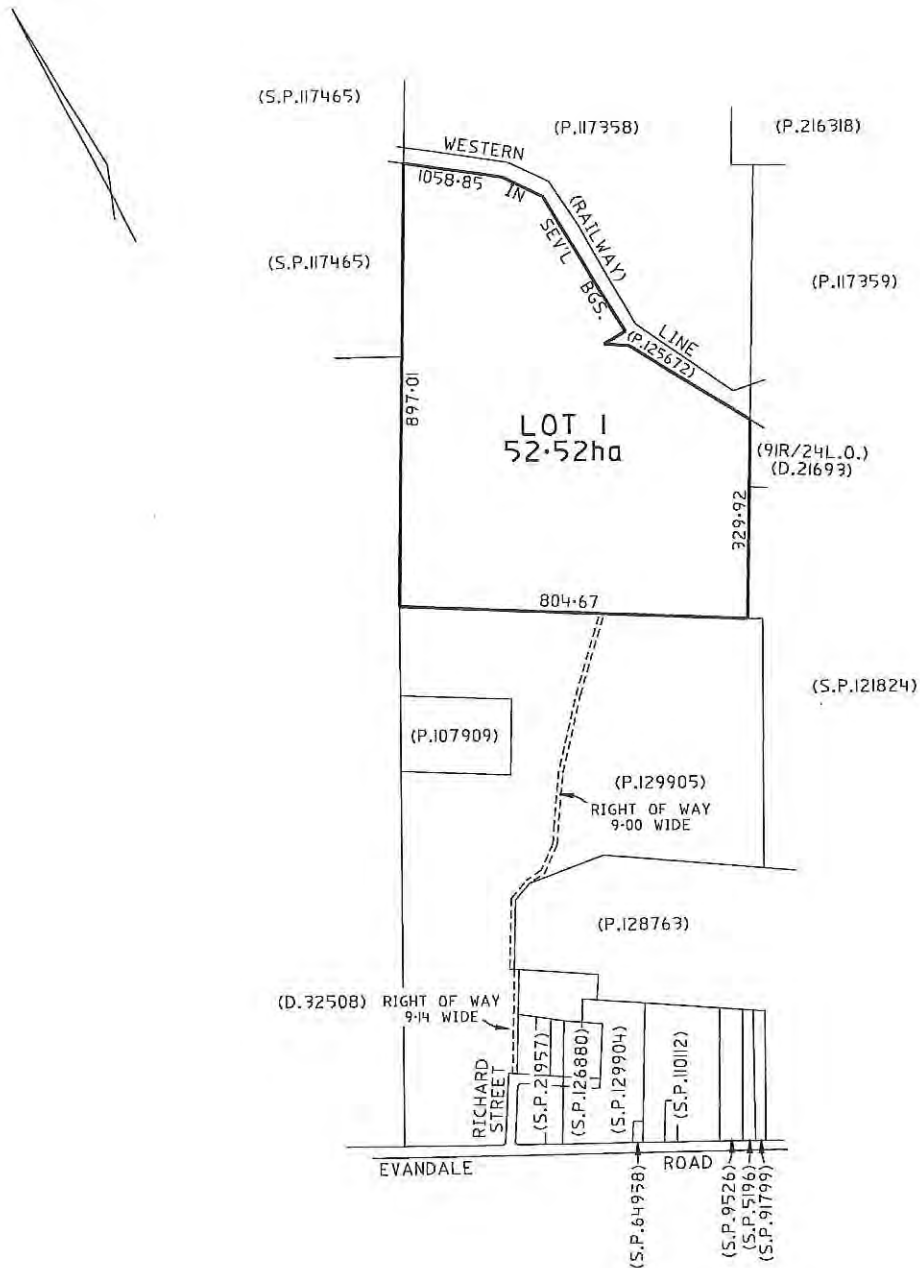
MAPSHEET MUNICIPAL CODE No. 123(5040-45&55)	LAST UPI No FJM92	LAST PLAN No. P126881	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN
---------------------------------------------	-------------------	-----------------------	-----------------------------------------------------------------



A-143

FILE NUMBER A.20912 GRANTEE PART OF 280ac GTD. TO JOHN ATKINSON & HENRY JENNINGS		CONVERSION PLAN LOCATION CORNWALL - BREADALBANE CONVERTED FROM 60/3504 NOT TO SCALE LENGTHS IN METRES		Registered Number P.146280 APPROVED 24 FEB 2006 <i>Alice Kawa</i> Recorder of Titles
MAPSHEET MUNICIPAL CODE No. 123(5040)	LAST UPI No. 4700039	ALL EXISTING SURVEY NUMBERS TO BE CROSS REFERENCED ON THIS PLAN		DRAWN L.H.

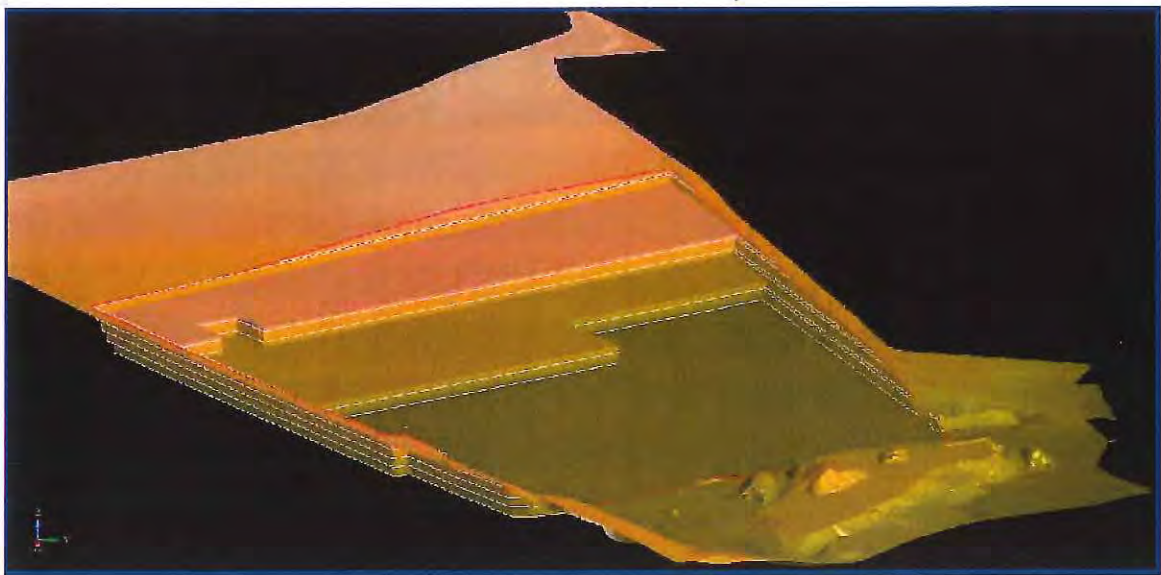
SKETCH BY WAY OF ILLUSTRATION ONLY
 "EXCEPTED LANDS"



D.N.Hughes

**WESTERN JUNCTION QUARRY
EXTENSION**

**DEVELOPMENT PROPOSAL AND
ENVIRONMENTAL MANAGEMENT
PLAN**



1-123

D.N.Hughes

Western Junction Quarry Extension

Development Proposal and Environmental Management Plan

March 2019

John Miedecke and Partners Pty Ltd

Version 3

FOREWORD

This Development Proposal and Environmental Management Plan (DPEMP) describes the proposed operation of a quarry extension owned by Mr Hughes and operated by Bis Industries and environmental management practices for the quarry and its proposed change in operation. The quarry has been in operation since 1982.

It contributes significantly to the basis by which the Board of the Environmental Protection Authority (EPA) ('the Board') can conduct an environmental impact assessment under the Environmental Management and Pollution Control Act (EMPCA) (1994), and assess the applications for a Permit by Mr Hughes.

Preparation of the DPEMP has been undertaken in accordance with guidelines prepared by the Environment Protection Authority (EPA). A Land Use Permit will be required from Northern Midlands Council for the quarry and this DPEMP provides supporting information for the application.

The DPEMP also fulfils the role of providing information on the proposed activities to other decision-making authorities and the public, who have the opportunity to make submissions on the proposal under Section 57 of the Land Use Planning and Approvals Act (LUPAA) (1993). Submissions may be lodged, as specified, under Section 57 of the LUPAA (1993) within 28 days of advertisements being placed in local newspapers.

In accordance with Section 25 of the EMPCA (1994), the Council will refer the application to the Board for assessment under that Act and will provide to the Board copies of representations they receive pursuant to the advertisements. The Board will undertake its assessment in accordance with Section 74 of the EMPCA (1994), and will notify Northern Midlands Council of any condition or restriction, which must be included in any permit granted by Council, or direct Council to refuse to grant the permit.

Once the Board has issued direction to the Planning Authority, i.e. Council, and decisions concerning the issue of Land Use Permits have been made, advertised in local newspapers and notices given as required, under the LUPAA (1993), parties who had previously lodged a submission have 14 days in which to lodge an appeal against the decision.

SUMMARY

Introduction

Bis Quarries Pty Ltd operate the Western Junction Quarry on private land owned by Mr Hughes at Breadalbane in Northern Tasmania. The quarry has been in operation for over thirty years and provides a wide selection of construction and building materials essential for regional development without any significant adverse environmental effects. It is also well located to provide construction materials being situated in close proximity to a major road network close to Launceston and in an isolated area of private land well screened from residences and local views. It is an important supplier to the civil construction industry in Northern Tasmania.

Due to declining reserves of basalt rock in the existing quarry Mr Hughes is applying for a level 2 permit at a production level of 312,500 cubic metres of product per annum for a quarry extension located in close proximity. Concurrently, Mr Hughes has applied for a Mining Lease ((MLA 2045P/M) over the future production area to allow for planned operations of over 20 years.

Environment

The Western Junction Quarry Extension (ML 2045 P/M) is located on private property off Evandale Road, approximately 2 km south-east of Breadalbane and the Midland Highway. The existing quarry and extension are located immediately north-east of the Launceston Airport and due south of quarries at Mt Oriel and Raeburn (Figure 1). The Josef Chromy Vineyard is immediately to the north -east. Adjoining the airport are industrial and light industrial land uses. The nearest residence to the north-west, is approximately 1 km away.



FIGURE 1: LOCATION – Western Junction Tasmania

The existing quarry has been developed in a north- easterly direction and as a “pit” (ie

sunken into the ground surface). As a result, it has only limited visibility to the east and is not visible from other directions. Photograph 1 shows the extension area, which is comprised of grazing land.



Photograph 1 – Proposed quarry extension area

Quarrying Description

The proposed quarry extension will extend the quarry in a south - westerly direction from the current (Main) Pit floor (**Figure 2**).

Quarrying will be in approximately 12 metre deep benches, and developed in stages with topsoils/subsoils stripped and stockpiled ahead of the rock blasting and removal. **Figure 3** shows an approximate 3D perspective of the quarry pit at year 10. Rainfall falling on disturbed areas will be directed to a series of retention ponds prior to discharge to the water supply pond in Briarly Creek.

The quarry activities will be similar to what has happened to date and will involve site preparation, rock drilling and blasting, cartage, crushing and screening at the existing plant. Operating hours will be the same.

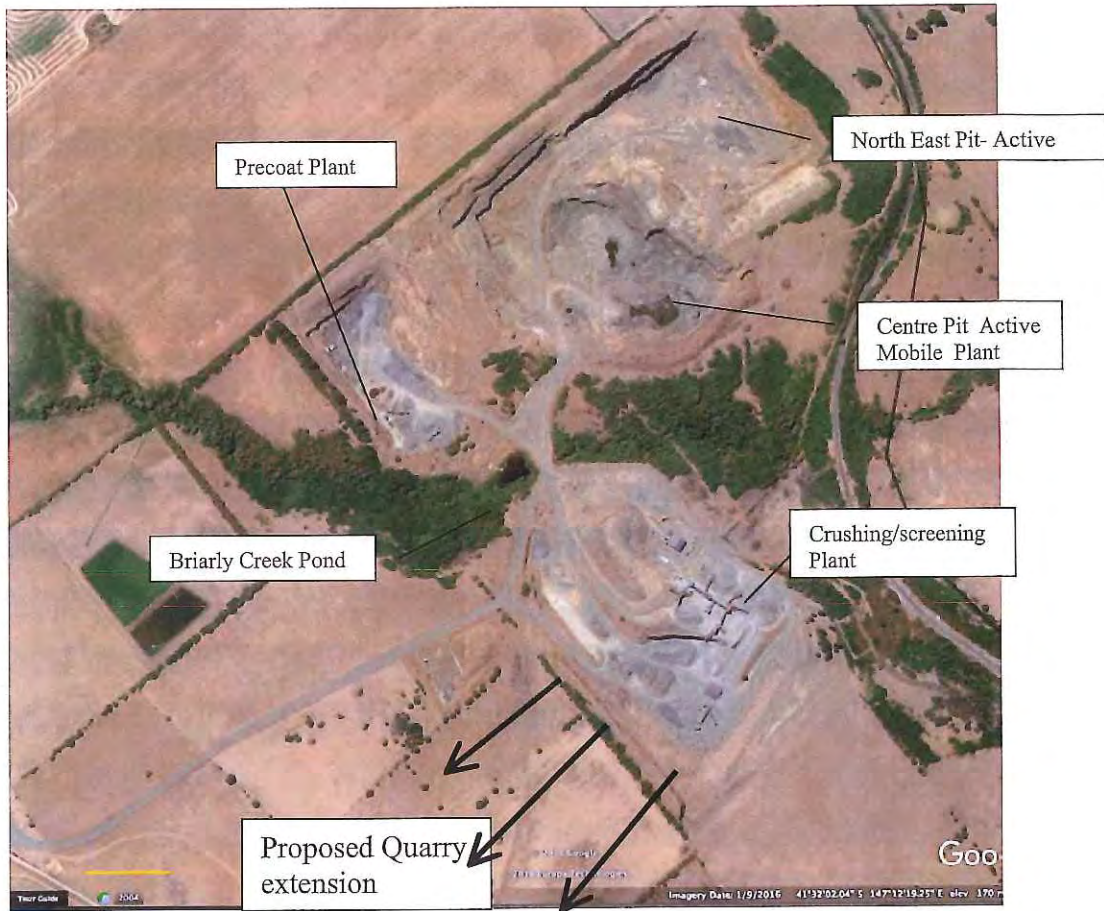


FIGURE 2.: QUARRY OPERATIONS AND EXTENSION. Source ; Google Earth

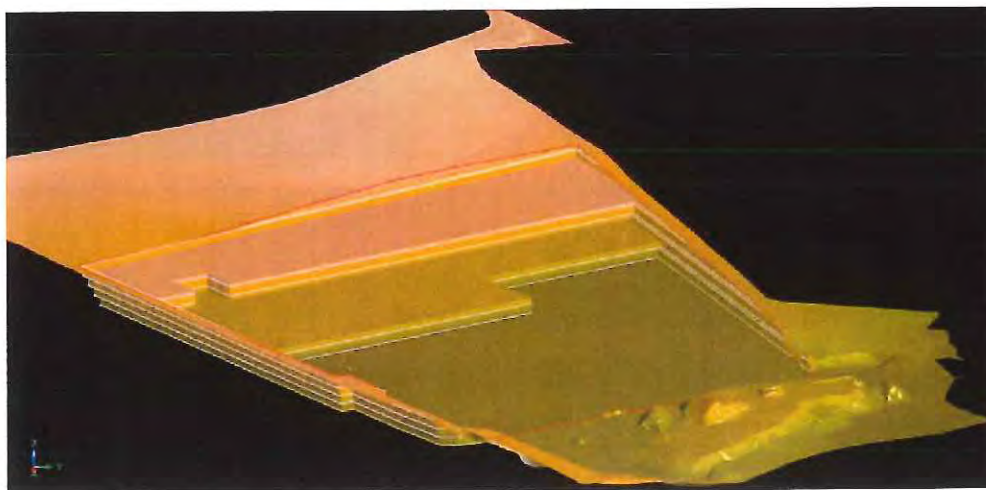


FIGURE 3: QUARRY 3 D VIEW END YEAR 10 – SURPAC Modelling – looking south-west)

Environmental Issues and Management

The quarry has been in operation continuously since 1982 and has been one of the largest operating in Tasmania, with few significant impacts on the surrounding environment and community.

It is well located for an operating quarry having few nearby residences and a transport route that provides close access to the major road networks and avoids residential areas. It has also been an important and reliable supplier to the market for construction materials needed by the community and this has been recognised as strategically important by the Tasmanian Planning Commission (TPC then RPDC) in hearings into local planning scheme amendments and permit application for a residential development in the area.

The reduction in reserves caused by the clay intrusion in the existing quarry area now means that the quarry is heading towards closure of quarry operations within the existing lease area in the next five year plan. Planning for closure has also been considered and plans have been agreed with the land owner. Long-term land use will be level areas suitable for industrial uses and grazing.

Following approval, quarrying will be progressively transferred to the proposed extension site and will be further away from residences in the east. Some of these residences have complained of blasting effects in the past.

The potential impacts from ongoing operations are well understood and are expected to be similar in nature to those experienced in the past 36 years. They will result in direct physical impacts on the proposed new quarry location and limited off site effects. The 18 year plan presented will disturb a total of approximately 16.7 ha over this period.

The potential impacts from the ongoing operations are well understood and relatively straightforward and will be similar in nature to those in the past. The principal environmental issues are seen as:

- Noise, dust and vibration from quarry operations on residences;
- Water management; and
- Final Use and rehabilitation.

Noise monitoring of the quarry operations has determined that the quarry operations do not exceed guidelines and standards at the nearest residences and will not in the future, as the quarry operations will be confined to a “pit” below ground level.

Blast monitoring and modeling has given guidance for future blasting practices and potential airblast and ground vibration contours have been generated. These have shown that blasting will meet appropriate standards at the nearest residences, with control on blast design and practices.

The actual quarry operations are isolated and sufficient distances from residences so that dust generation from quarrying activities should not be a problem.

The quarry will be required to operate in accordance with the Quarry Code of Practice, the Permit conditions and prevailing regulations and standards. A possible

attenuation zone has been identified and prepared from the noise and blast effects modeling of foreseeable operations.

Conclusions

The DPEMP has identified and assessed the potential impacts associated with the operations, in accordance with the DPEMP guidelines provided by the Board of the EPA. It also demonstrates that appropriate operational and management measures have been identified and proposed to mitigate the potential impacts and to ensure minimal risk to the environment and human health.

The DPEMP demonstrates that the proposed activity will be compliant with LUPA, Tasmanian Policies, Legislation and Regulations, and provides a monitoring program which will ensure compliance with standards and regulations.

TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Introduction.....	1
1.2	Proponent – D. N Hughes	2
1.3	Purpose of DPEMP	3
1.4	Environmental Legislation and Approvals	4
1.4.1	Introduction.....	4
1.4.2	Approvals Required	4
1.4.3	State Approvals Required	4
1.4.4	Other Tasmanian Legislation	6
1.5	Consultation	6
2.0	PROJECT DESCRIPTION.....	7
2.1	Project Outline	7
2.1.1	Location	7
2.1.2	Other Quarries.....	8
2.1.3	History and General Description	8
2.1.4	Current Operations.....	11
2.1.5	Proposed Quarry Extension	12
2.2	Markets	12
2.3	Geology and Resource	12
2.3.1	General Description	12
2.3.2	Basalt Resource.....	13
2.4	Quarry Plans.....	14
2.4.1	Quarry Design and Schedule	14
2.4.2	Quarry Plans.....	14
2.4.3	Quarry and Rock Crushing Operations.....	16
2.5	Infrastructure.....	21
2.5.1	Support Facilities	21
2.5.2	Water and Electrical Supplies.....	21
2.5.3	Dangerous Goods.....	21
2.6	Transport.....	22
2.7	Workforce	22
2.8	Operating Hours.....	22
2.9	Occupational Health and Safety.....	23
3.0	THE EXISTING ENVIRONMENT	24
3.1	Location and general site description	24
3.2	Planning Aspects.....	24
3.2.1	Land Tenure and Use.....	24
3.2.2	Zoning (Northern Midlands Interim Planning Scheme 2013)	25
3.3	Environmental Aspects	28
3.3.1	Climate.....	28
3.3.2	Geology, Soils and Land Capability	28
3.3.3	Land Capability.....	30
3.3.4	Surface and Groundwaters.....	31
3.4	Biological Environment Overview – Flora and Fauna	33
3.5	Social Environment Overview.....	34
3.5.1	Socio-economic setting.....	34
3.5.2	Heritage.....	35

TABLE OF CONTENTS

3.3.3	Aboriginal Heritage	35
4.0	ENVIRONMENTAL IMPACTS AND MANAGEMENT	36
4.1	Introduction.....	36
4.2	Potential Environmental Impacts.....	36
4.3	Noise from quarry operations	37
4.3.1	Noise studies	37
4.3.2	Existing Ambient Sound Levels	37
4.3.3	Quarry Site Sound Power Levels.....	38
4.3.4	Predicted Community Sound Levels	38
4.3.5	Noise Assessment Criteria	41
4.3.6	Noise Assessment	42
4.3.7	Conclusions.....	43
4.3.8	Management.....	43
4.3.9	Assessment of impact	44
4.4	Noise and Vibration from Quarry Blasting.....	44
4.4.1	Introduction.....	44
4.4.2	Blast Vibration Limits.....	44
4.4.3	Determination of Ground Vibration Levels.....	46
4.4.4	Fly Rock.....	50
4.4.5	Management.....	51
4.4.6	Assessment of impact	52
4.5	Dust (particulates).....	53
4.5.1	Issues.....	53
4.5.2	Quarry Emissions.....	53
4.5.3	Quarry Dust Management.....	54
4.5.4	Assessment of impact	54
4.6	Water Management.....	54
4.6.1.	Issues.....	54
4.6.2	Management.....	55
4.6.3	Assessment of Impact	56
4.7	Visual Effects.....	57
4.7.1	Landscape Setting	57
4.7.2	Visibility	57
4.7.3	Management.....	57
4.7.4	Assessment of impact	57
4.8	Roads and Traffic.....	59
4.8.1	Existing Conditions.....	59
4.8.2	Proposal Impact	60
4.8.3	Assessment.....	60
4.8.4	Management.....	60
4.8.5	Assessment of Impact	60
4.9	Wastes	60
4.9.1	Liquid.....	60
4.9.2	Solid Wastes.....	60
4.10	Greenhouse Gases.....	60
4.11	Dangerous Goods.....	61
4.12	Land Use	61
5.1	Environmental Management.....	62
5.2	Environmental Monitoring and Review.....	62

TABLE OF CONTENTS

6.0	DECOMMISSIONING AND REHABILITATION	63
6.1	Existing quarry operations	63
6.2	Quarry extension.....	64
6.2.1	Land form.....	64
6.2.2	Pasture revegetation.....	64
6.2.3	Tree and Grass Species suitable for planting.....	65
6.2.4	Fertiliser	65
6.2.5	Maintenance.....	65
6.2.6	Weed control.....	66
7.0	COMMITMENTS	66
8.0	CONCLUSIONS	66
	REFERENCES	67

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES

Figure No		On or Following Page No
1.1	MINING LEASE 2045 P/M LOCATION	1
1.2	QUARRY EXTENSION MINING LEASE 2045 P/M	2
1.3	PLANNING APPROVAL PROCESS	5
2.1	LOCATION	7
2.2	QUARRY EXTENSION AREA	8
2.3	QUARRY OPERATIONS, 1995	9
2.4	QUARRY OPERATIONS, 2005	10
2.5	QUARRY OPERATIONS, 2016	11
2.6:	QUARRY LAYOUT CURRENT	11
2.7	QUARRY TOPOGRAPHY	11
2.8	EXISTING QUARRY CLOSURE PLAN	12
2.9	LOCAL GEOLOGY	13
2.10	PIT PLANS STAGE 1 (YEARS 1- 3)	15
2.11	PIT PLANS STAGE 2 (YEARS 3-5)	15
2.12	PIT PLANS STAGE 3 (YEARS 5-10 +)	15
2.13	PIT PLANS - CROSS SECTIONS A – A	15
2.14	PIT PLANS - CROSS SECTIONS B – B	15
2.15	REHABILITATION PROFILE	15
2.16	THREE D PERSPECTIVE YEAR 10	16
2.17	PROCESSING FLOW CHART – AGGREGATE	18
2.18	PROCESSING FLOW CHART – ROAD BASE	18
2.19	PRECOAT PLANT AREA	20
3.1	LAND TENURE QUARRY EXTENSION AREA.	24
3.2	LAND ZONING QUARRY EXTENSION AREA.	25
3.3	ZONING – SPECIAL AREAS	26
3.4	RAINFALL/ EVAPORATION	28
3.5	WIND DIRECTIONS	28
3.6	SOIL ASSOCIATIONS	30
3.7:	LAND CAPABILITY	30
3.8:	SURFACE WATER CATCHMENTS	31
3.9	SURFACE WATER CATCHMENTS LIDAR	32
3.10:	GROUNDWATER BORES	33
3.11:	VEGETATION	34
4.1	QUARRY SITE AND MONITORING POSITIONS	37
4.2	CURRENT OPERATIONS – ACOUSTIC MODEL INPUTS – GROUND CONTOURS	38
4.3	CURRENT OPERATIONS – PREDICTED NOISE CONTOURS	38
4.4	YEAR 2 ACOUSTIC MODEL INPUT	40
4.5	GROUND VIBRATION CONTOURS	47

TABLE OF CONTENTS

4.6	WORST-CASE AIRBLAST CONTOURS FROM A STANDARD BLAST	49
4.7	FLYROCK EXCLUSIONS ZONE	51
4.8	WATER MANAGEMENT PLAN	56
6.1	QUARRY CONCEPTUAL CLOSURE PLAN	64
Table No		Page No
2.1	Areas Disturbed, Topsoil And Overburden Volumes	17
2.2	List Of Equipment	21
3.1	Compliance with standards	26
3.2	Water Quality	31
4.1	Summary of Community Noise Levels	38
4.2	Quarry Sound Power Levels	38
4.3	Predicted Community Noise Levels	41
4.4	Daytime Noise Limit, dBA, for Other Quarries	42
4.5	Predicted Sound Pressure Levels at Nearby Residences and Assessment	43
4.6	Australian Standard 2187.2-2006 - Table J4.5(B) Recommended Ground Vibration Limits for Control of Damage to Structures	45
4.7	Blast specifications used in analysis	46
4.8	Estimated ground vibration levels	48
4.9	Distances to milestone airblast levels for standard specification blasts	49
4.10	Distances of Flyrock and Clearance Zone	51
4.11	Retention/Sediment Pond Sizes	56
5.1	Monitoring Program	63
6.1	Table of Commitments	66

TABLE OF CONTENTS

List of Appendices

- Appendix A: EMP Guidelines
- Appendix B: Terry Eaton Traffic Assessment
- Appendix C: BIS Policies
- Appendix D: NVC Noise Assessment
- Appendix E: Terrock Blasting Assessment
- Appendix F: Weed and Hygiene Guidelines

1.0 INTRODUCTION

1.1 Introduction

The quarrying industry in Tasmania provides a reliable supply of construction materials for concrete manufacture, road making, building construction, and the maintenance of the existing road network on which the public and other industries depend.

Mr D Hughes is a local landowner who has owned a quarry on his land since approximately 1980. The existing Mining Lease (ML 975 P/M), mining lease application (2045 P/M) and the permit (Licence to Operate Scheduled Premises 3374) are all in his name.

The Western Junction Quarry at near Breadalbane in Northern Tasmania produces a wide range of construction materials. (Figure 1.1).

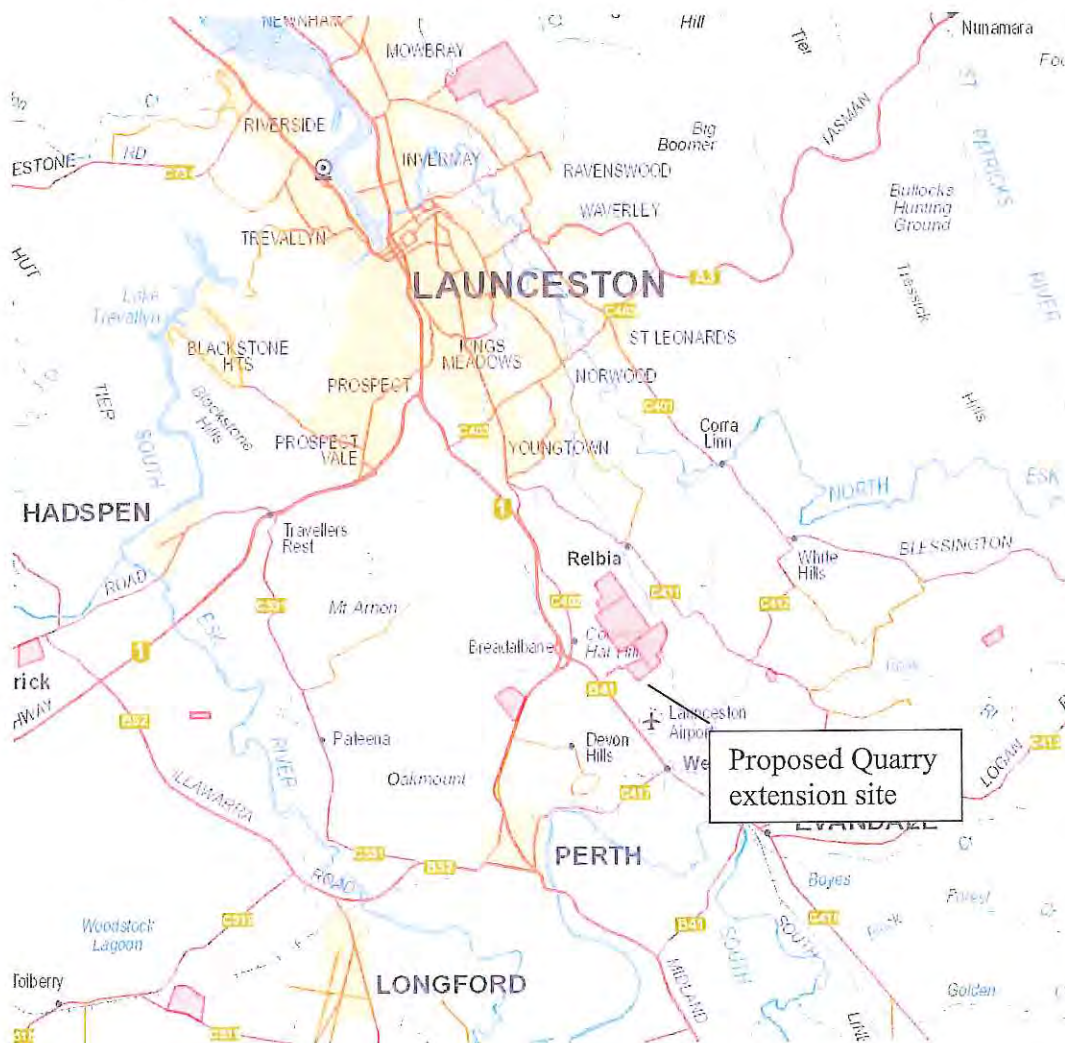


FIGURE 1.1: MINING LEASE 2045 P/M LOCATION – Western Junction Tasmania

Since 1982 the quarry has been operated by Brambles (now Bis Quarries Pty Ltd) under an agreement between Brambles (now Bis) and Mr Hughes.

Bis operates under the Mining Lease No. 975 P/M granted by the Tasmanian Department of Mines (now Mineral Resources Tasmania) and Environmental Licence (Scheduled Premises Licence No. 3374) approved by the Tasmanian Department of Primary Industries, Water and Environment (DPIWE) for its operation. Licence 3374 permits the extraction, crushing and screening of 355,000 tonnes per annum (196,875 m³ at an SG of 1.6t/m³) of basalt and the operation of the quarry is consistent with local government zoning. The quarry is operated in accordance with an Environmental Management Plan (EMP) Operations completed in 2010 (Miedecke, 2012).

As basalt rock reserves are being depleted in the existing mining lease. Mr Hughes has applied for an additional mining lease (MLA 2045P/M (20.15ha) (**Figure 1.2**) to allow the continuation of the quarry activities. Mr Hughes currently owns and farms the land where the mining lease is proposed.

The quarry has been in operation for over 30 years and provides a wide selection of construction and building materials essential for regional development without any significant adverse environmental effects. It is also well located to provide construction materials being situated in close proximity to a major road network, close to Launceston, in an isolated area of private land well screened from residences and local views. It is an important supplier to the civil construction industry in Northern Tasmania and has supplied to both the north-west and East Coasts. The area currently has three operating quarries.

The proximity of the quarry to the Launceston Metropolitan Area and markets also enables product costs to remain low as a supplier of road materials and concrete aggregate.

Mr Hughes is applying for a level 2 permit at a production level of 312,500 cubic metres of product per annum or 500,000 tones per annum (at a SG of 1.6t/m³). This will provide future long term production within the new area proposed and allow the operation to be extended for in excess of 18 years' from its current lifespan.

1.2 Proponent – D. N Hughes

The proponent for the Quarry is the existing land owner, Mr David Hughes. Under an agreement, Bis is the operator.

The contact for the project are:

David Hughes "The Springs"

RSD 619 Breadalbane TAS 7258

T 043891813 Email: daviejane@hotmail.com

and

Bis Industries Tim Shegog - Operations Manager - Northern

Western Junction Quarry, 1A Richard Street, Western Junction, TAS 7212

T +61 3 6398 9005 M 0407 871 568

www.bisindustries.com

Email: Tim.Shegog@bisindustries.com

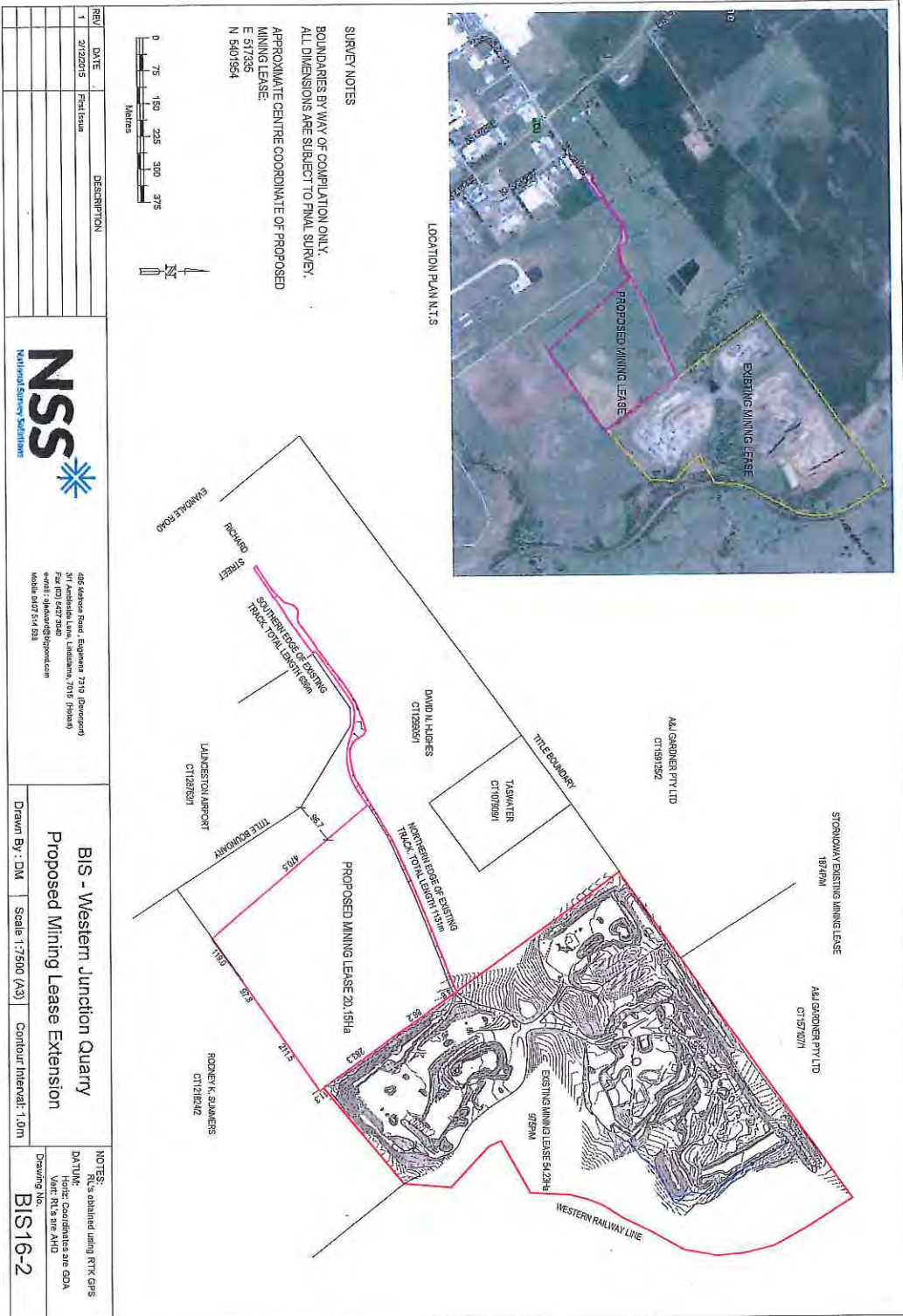


FIGURE 1.2 QUARRY EXTENSION MINING LEASE 2045 P/M

Bis Industries is a leading provider of specialised logistics and materials handling solutions to the world's biggest mining and resources companies. With over a century of experience, they combine in house equipment design with expert maintenance, management and an established parts supply chain to support the processing, handling and hauling of millions of tonnes of materials across Australia and Indonesia. Major services offered include off-road load and haul, underground equipment services, specialised on-road logistics management, large scale infrastructure, crushing, mineral extraction and on-site services.

In Tasmania, operating under the wholly owned Bis Quarries Pty Ltd, they operate a number of major quarries and sand pits supplying the construction industry, State and Local Government.

1.3 Purpose of DPEMP

Mr Hughes is applying for a permit and mining lease for an extension to the existing quarrying operations. This DPEMP has been prepared to supply the Northern Midlands Council, Mineral Resources Tasmania (MRT), the Environment Protection Authority (EPA), the Department of Primary Industry, Parks, Water and Environment (DPIPWE), other Government Departments, residents in the area and the general community with the following information;

- description of the proposal;
- description of the area's environment;
- the possible environmental impacts; and
- the proposed environmental management controls for the project.

The guidelines issued by DPIPWE), (EPA) for the DPEMP are in **Appendix A**.

The continued operations of the quarry and crushing activity is expected to supply the building and construction industry market at a rate of up to 312,500 cubic metres of crushed rock per year. This classifies the proposal as a level 2 activity under Schedule 2 Subsections 5(a) and 6(a) (ii) of the *Environmental Management and Pollution Control Act 1994* (EMPCA) being:

5. Extractive Industries

(a) Quarries: the extraction of any rock or gravel and producing 5000 cubic metres or more of rock or gravel per year.

6. Materials Handling

(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 –

(ii) rock, ores or minerals at a rate in excess of 1000 cubic metres per year.

The development and operation of the quarry, crushing and screening plant will be in accordance with this Development Proposal and Environmental Management Plan (DPEMP) and will be controlled by the provisions of the *Environmental Management and Pollution Control Act 1994*, the *Mineral Resources Development Act, 1995*, the *Workplace Health and Safety Act 1995*, associated Acts and Regulations, the terms and conditions of the Mining Lease and the Permit conditions. The quarry code of practice is the code which will be followed in quarry operations (EPA, 2017).

1.4 Environmental Legislation and Approvals

1.4.1 Introduction

Quarrying requires environmental and planning approvals from the Tasmanian government in order to proceed with the operations. These are outlined below.

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBCA), in force since 16 July 2000, enables the Commonwealth to join with the states and territories to provide a national scheme of environment protection and biodiversity conservation. This Act identifies seven matters of national environmental significance:

- World Heritage properties
- National heritage places (from 1 January 2004)
- Ramsar wetlands of international significance
- Threatened species and ecological communities
- Migratory species
- Commonwealth marine area
- Nuclear actions (including uranium mining)

There were no matters that relate to the act identified to the extension or proposed quarry.

1.4.2 Approvals Required

1.4.3 State Approvals Required

The Tasmanian environmental and planning assessment and approval process for a development application is shown in **Figure 1.3**.

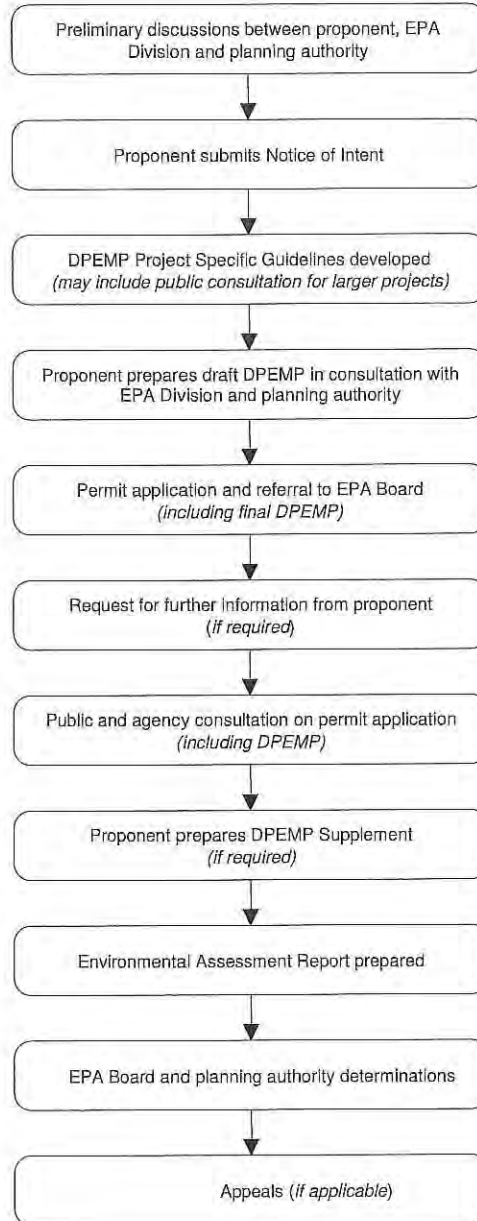
- *Environmental Management and Pollution Control Act 1994* (EMPCA).

The application for environmental approval is part of an application made to the local planning authority under the Land Use Planning and Approvals Act (LUPAA). The environmental approval process centres on the Environmental Impact Assessment (EIA) to be prepared by the Board of the Environmental Protection Authority (EPA) under sections 73 and 74 of the EMPCA.

The Director of the EPA has advised Mr Hughes that the proposed Project development is considered a Level 2 activity in accordance with EMPCA Schedule 2, and guidelines for preparation of the DPMP were provided (see **Appendix A**).

After submission of the planning permit application (which includes this DPMP and supporting documentation) and its referral by the Planning Authority, i.e. the Northern Midlands Council, to the EPA, the DPMP is placed on public display. The EPA assesses the resulting public comments and in conjunction with its own assessment of the document, prepares a report that is considered by the Board. The Board then notifies the Planning Authority of conditions that need to be incorporated in the planning permit or directs the Planning Authority to refuse to grant a permit.

EIA Process for Class 2B/2C Assessments (where DPEMP is required)



Page 6

FIGURE 1.3: PLANNING APPROVAL PROCESS

Mr Hughes has also made a Mining Lease Application (MLA) to Mineral Resources Tasmania (see Section 3). This covers the area of the proposed quarry.

The key legislation is:

- *Land Use Planning and Approvals Act 1993 (LUPAA)*.

1.4.4 Other Tasmanian Legislation

In addition to the legislation governing the environmental and planning process, the following list of Tasmanian legislation has been assessed in the preparation of the DPEMP, and their relevant statutory or regulatory requirements as identified in this DPEMP have been or will be observed:

- *Aboriginal Relics Act 1975.*
- *Crown Lands Act 1976.*
- *Dangerous Goods Act 1998 and Regulations.*
- *Fire Services Act 1979.*
- *Forest Practices Act 1985.*
- *Historic Cultural Heritage Act 1995.*
- *Inland Fisheries Act 1995.*
- *Local Government (Building and Miscellaneous Provisions) Act 1993.*
- *National Environment Protection Council (Tasmania) Act 1995.*
- *National Parks and Reserves Management Act 2002.*
- *Nature Conservation Act 2002.*
- *Regional Forest Agreement 1997.*
- *Threatened Species Protection Act 1995.*
- *Mineral Resources Development Act 1995.*
- *Water Management Act 1999.*
- *Weed Management Act 1999.*
- *Workplace Health and Safety Act 1995.*

There are other state policies and strategies. These include the Policy on Water Quality Management (2009).

The most relevant, although it has no statutory basis, is the Quarry Code of Practice (EPA 2017). This document is designed to give guidance to the operators of quarries, sand pits and extractive pits.

1.5 Consultation

Bis and its consultants, during site studies and project planning, have consulted widely with state and local government authorities, including Mineral Resources Tasmania (MRT), EPA (Department of Primary Industries Parks, Water and Environment (DPIPWE)), Launceston Airport management, Northern Midlands Council and local residents in proximity to the quarry.

2.0 PROJECT DESCRIPTION

2.1 Project Outline

2.1.1 Location

The existing quarry is near Western Junction, NE of the Launceston Airport (**Figure 1.1**).

The Western Junction Quarry is sited on the eastern side of a moderately high escarpment formed from Tertiary basalt, rising above the north-south flowing valley formed by Rose Rivulet, a tributary of the North Esk River, between the townships of Relbia and Breadalbane in the Northern Midlands municipal area.

The ridgeline, on which the quarry is situated, rises to a prominence of RL 222 at Cocked Hat Hill, about 1.75km to the north west of the quarry.

A more detailed location map (Google earth image) is shown in **Figure 2.1**.



FIGURE 2.1: LOCATION – Western Junction Tasmania

The quarry and extension are located north -east of the Airport and due south of quarries at Mt Oriell and Raeburn. The Josef Chromy Vineyard is immediately to the

NE. The existing quarry has been developed in an eastern direction and as a “pit” (ie sunken into the ground surface). As a result, it has only limited visibility to the east and is not visible from other directions.

The proposed quarry extension will extend the quarry to the west and towards the airport (Figure 1.2 and 2.2).



FIGURE 2.2: QUARRY EXTENSION AREA. SOURCE ; Google Earth.

2.1.2 Other Quarries

The Western Junction Quarry was the first in the area, having commenced in 1982. There are three other more recent quarries in the area, immediately to the North. These are the Stornoway “Raeburn Quarry”, McGraths Quarry and the Mount Oriel Breadalbane Pty Ltd “Cocked Hat Hill Quarry”.

Both have permitted production levels of 312,500 m³ per year. Their locations are shown in Figure 2.1. These two quarries are located 1 to 1.5km to the north (and mostly upwind) of the Bis quarry, with agricultural land between. While these quarries share access off West Hobart Road, there is no common access with the Bis quarry.

Therefore there is no need for any requirement to coordinate any operational activities with the Western Junction Quarry.

2.1.3 History and General Description

For many years the Western Junction Quarry has been one of the largest operating in Northern Tasmania. Brambles had operated the quarry at the site since 1982, until Bis took ownership in 2007, essentially under the same management team.

Operations commenced in 1982 approximately, with the initial quarrying on a pit to the south of Briarly Creek, where the processing plant is now located. Operations were eventually transferred to the north of the Creek. An aerial photograph taken in 1995 (see **Figure 2.3** below), show operations with the active quarry at that time to the north of the Creek (“Far Pit”).



FIGURE 2.3: QUARRY OPERATIONS, 1995. SOURCE ; Miedecke 2012.

By 2005 quarry operations had been completed within the Far Pit area and operations transferred to a new pit to the east (New Pit in **Figure 2.3** – the current pit). **Figure 2.4** shows the 2005 pit. All pits are fringed by large stockpiles of topsoil and overburden materials.

The existing workings occupied an area of approximately 25.7 Ha in 2005. There were three pit areas, the Main Pit to the south of Briarly Creek and the Far Pit and Current Pit on the northern side of the creek. Main Pit has a floor level of 132 RL, and is now the site of the crushing and screening plant.



FIGURE 2.4: QUARRY OPERATIONS, 2005. Source ; Google Earth

The Far Pit has a floor level of 138 RL and “New” (current) Pit at 135RL. The original high point of the property is at 160RL. The settling pond on Briarly creek immediately to the north of the bridge connecting the pits has a surface at 125RL.

After 2005, quarry operations continued with the pit progressing in an easterly direction. **Figure 2.5** shows the 2016 pit (the latest Google image). Topsoil and overburden had been salvaged and stockpiled in the northern side of the lease. A large stockpile of clay has also been placed on the southern side of the active pit. Since 2005, the pit has advanced approximately 250m to the north-east. In the last few years the discovery of a clay intrusion in the pit has resulted in the significant reduction in reserves.

Areas disturbed comprise the three pits, the site where the crushing and screening plant is erected (Main Pit), product stockpiles (Main Pit and Far Pit), an equipment and storage compound (eastern side of Main Pit) and various overburden and topsoil dumps around the perimeter. The Main Pit is bisected by a small residual plug of rock which has been left and houses the screens and crushing plant (RL144) which separates the workshop from the stockpile areas.

Disturbed areas are:

Main Pit	10.5 ha
Far Pit	4.5ha
Active Pit	15 ha

All active areas (except the crushing plant area) drain to the supply pond on Briarly Creek.



FIGURE 2.5: QUARRY OPERATIONS, 2016. Source ; Google Earth

2.1.4 Current Operations

Current operations are in the NE Pit and also Centre Pit, where products are produced using a mobile crusher.

Figure 2.6 shows the quarry layout, activity sites and traffic management. The quarry is operated in according to an Environmental Management Plan – Operations 2010 (Miedecke, 2012). Figure 2.7 shows the topography.

The quarry is currently producing at a rate of approximately 315,000 tonnes per year (197,000 cubic metres/year). All material is crushed, screened and sized on site. The crushing and screening plant is located on a ridge in the Main Pit (Figure 2.5). Other activities include a pug mill to condition material and a precoat plant. The office and weighbridge are located on the access road off Richard Street.

Drilling and blasting is typically carried out monthly by contractors (blasting by Maxam Australia) and every blast is monitored. No explosives are stored on site.

The operation currently employs ten permanent staff and casual staff (as required). Local contractors are used to supply trucks, machinery, blasting and other quarrying services to a value of approximately \$2.8 million per annum.

Gross revenue of approximately \$4 million, is generated annually by the Western

Figure 2.6 Western Junction Quarry Layout

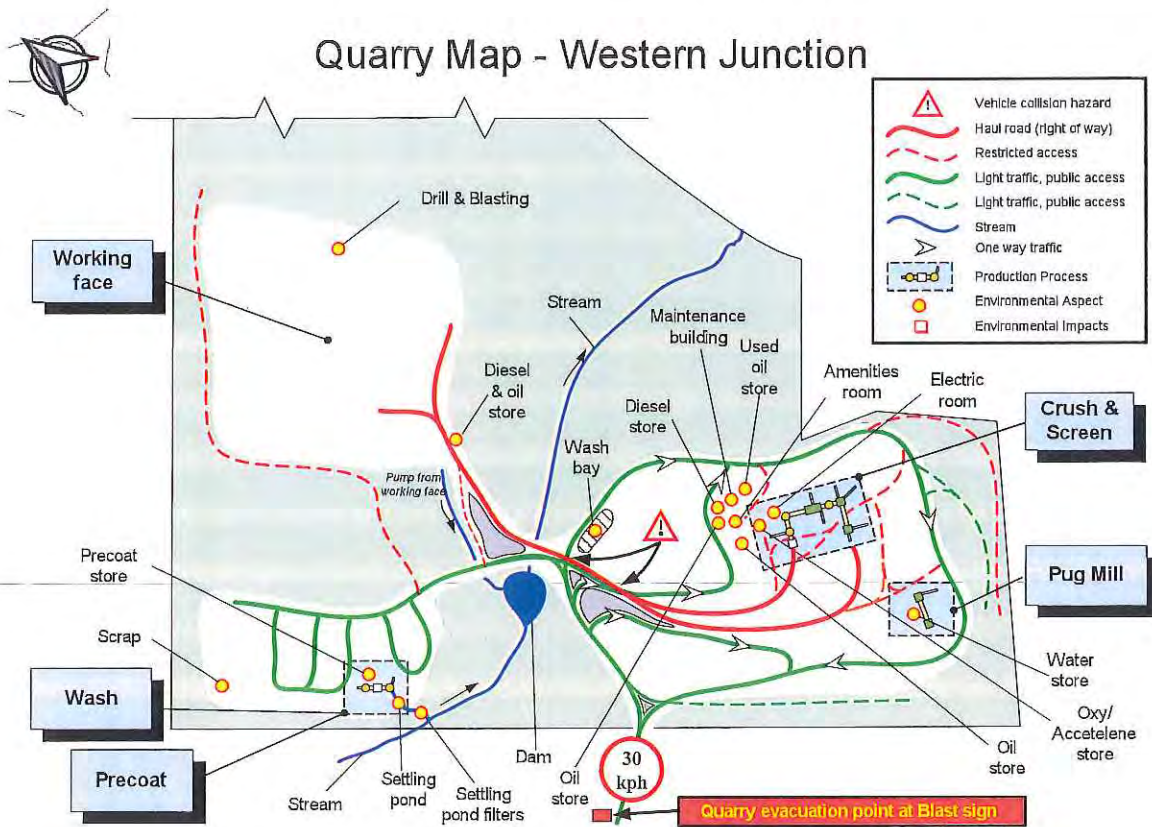




FIGURE 2.7: QUARRY TOPOGRAPHY - LIDAR Source: The list

Junction Quarry.

As discussed in the previous section, in recent years the current operations have concentrated on the NE section of the lease and reserves are rapidly depleting, to the extent that Bis estimate that there are approximately 2-3 years production remaining on the existing mining lease 975 P/M.

All of the areas to the north of Briary Creek will be progressively rehabilitated in accordance with the EMP – Operations. The planned final land use, as required by the landowner, Mr Hughes, is for areas to be level within the pits, where possible. These areas may be used for light industries in future applications. The benches will be revegetated with native trees. **Figure 2.8** shows the closure and rehabilitation plan

Bis have conducted exploration drilling on the private grazing land to the west of the existing original pit (and processing plant location) and this has confirmed a viable basalt resource for future quarrying (see Section 2.1.5 .

A new mining lease application has been made over this area and this is the area proposed for the quarry extension (**Figure 2.2**).

2.1.5 Proposed Quarry Extension

Bis propose to complete the existing quarry operations north of Briarly Creek, with rock production transferred gradually to the new site (ML 2045 P/M), as shown in **Figures 2.2**, with a potential increase in production to 500,000 tonnes per year (312,500 m³ at an SG of 1.7t/m³).

The pit will be developed in a south - westerly direction from the current (Main) Pit floor in approximately 12 metre deep benches, and developed in stages with topsoils/subsoils stripped and stockpiled ahead of the rock blasting and removal. This will provide a bund approximately 250 metres from the aerodrome at the closest point of the Mining Lease.

Rainfall falling on disturbed areas will be directed to a series of retention ponds prior to discharge to the water supply pond in Briarly Creek.

The existing crushing plant will continue to be used and there are no plans for additional equipment. The proposal merely represents a new location for the rock source for ongoing quarry operations to the new ML.

2.2 Markets

The quarry provides a combination of screened and crushed basalt rock for markets in Northern Tasmania. In addition, the quarry has the capability of supplying bulk fill for road, building and civil construction.

2.3 Geology and Resource

Mineral Resources Tasmania have reported on the basalt resources of the area (MRT, 2008) and this is used as a basis of this section.

2.3.1 General Description

Basalt is distributed over an area of about nine square kilometers near Breadalbane and Western Junction. Land uses in the area include quarry operations and their associated buffer and future resource areas, various residential, light industrial and



November 2015

BIS Industrial Logistics/ D.N. Hughes

Western Junction Quarry
Concept Closure Plan

JOHN MIEDECKE AND PARTNERS PTY LTD

FIG. **2.8**

rural developments. Launceston airport is also situated on the basalt.

The basalt is of late Eocene age and for the main part the basalt overlies a succession of older Eocene to Palaeocene age mudstone, siltstone and sandstone with minor lignite and conglomerate that was deposited in a graben or half-graben structure. To the west the basalt laps onto Jurassic dolerite that forms a horst structure. The same dolerite probably underlies the Palaeogene deposits within the graben.

It is possible that the basalt was once buried by sedimentary strata that were subsequently removed by erosion, however small pockets of sedimentary deposits may still exist above the basalt. These strata may include mudstone, sandstone and possibly gravel deposits.

In a generalised way the base of the basalt falls topographically from the exposed dolerite in the west towards the east where the valley of Rose Rivulet and its tributaries have eroded into the sedimentary strata and the overlying basalt by backwards retreat.

Estimates of basalt thickness can be made based on the structural contours drawn on the base of the basalt. Additional control points come from a handful of water bores and quarry excavations where the quarries have passed through the base of the basalt and more recently from quarry resource and planning drill holes. Two exploration bores drilled south of the Stornoway (Raeburn) Quarry in September 2008 can also be used to gauge the basalt thickness as well. **Figure 2.9** shows the geology in the general area of the Stornoway and Bis quarries.

The basalt is not a uniform rock and this has enabled the quarry operations to produce a range of products, some derived from relatively hard un-weathered basalt, to products derived from weathered or altered rock. Contraction cooling joints occur through much of the basalt and these define columns of various diameters and inclinations. Some basalt is massive and some is vesicular or amygdaloidal containing zeolite. In recent years the basalt has been recognised to be a composite body composed of at least two separate lava flows with intervening sedimentary rocks including clayey siltstone, sandstone and conglomerate.

A review of the data has been used to infer structural contours on the base of the basalt although most of the data has deficiencies and more drilling is probably required to provide further data that might help define the basal geometry of the basalt.

The quarry exposures provide information about the structural form of the basalt and associated rocks and the variable nature of the rock weathering state. Some basalt is hard, grey and relatively less weathered or altered compared to other brown-coloured basalt. Some of the latter basalt is considered to have undergone alteration during the period of vulcanicity and some of the weathered/altered rocks that resemble a basalt flow instead may be tuffaceous or fragmental.

2.3.2 Basalt Resource

Of the large area of basalt that occurs in the Breadalbane-Western Junction area, probably less than 20% by area of the surface exposed basalt is contained within mining leases. Taken as a whole the basalt may exceed 70-80m thickness at places such as Cocked Hat Hill, but more applicable is a general thickness range of 20 – 40

m that can be estimated from previous mapping of the basalt lower surface at the periphery of the basalt and by using some water bore information.

Within the Stornoway and Bis leases the basalt thickness is similarly variable in thickness and may range approximately 10 – 40 m thickness. The basalt is variable in character and this variability enables a number of different commodities to be obtained from the quarries. This variability also means the extent of any one basalt type similarly cannot be determined without knowledge of the controlling geological factors in combination with some subsurface information to place limits on the rock distribution.

The September 2008 exploratory drilling south of the Stornoway quarry has also detected thick sedimentary clay where previously basalt had been shown on geological maps.

In view of the presence of these sedimentary units, the estimation of resources is further complicated as they may both reduce in volume the expected basalt resource or hinder the quarrying of existing resource. Quarry management in the short term and over the life of the leases will need to take the variability of the rock and clay distribution into account.

Bis has drilled a number of rotary air blast holes within the extension area and this has confirmed the basalt resource. This has variable depths of overburden cover. A base of 130m RL is the base of the resource in the plant area (the original pit) and a resource of approximately 9 million tonnes of basalt has been identified. This will provide over 18 Years production at a rate of 500,000 tonnes per year.

2.4 Quarry Plans

2.4.1 Quarry Design and Schedule

Quarrying will be undertaken in accordance with the Permit and Mining Lease conditions, the Quarry Code of Practice, which has been developed by the Department of Primary Industries Water and Environment, Mineral Resources Tasmania and the quarry industry in 1999. The latest edition (3rd) was revised in 2017 (EPA, 2017).

The quarry activities will be similar to what has happened to date and will involve the following:

- Site preparation (vegetation clearing, topsoil and overburden stockpiling);
- Gravel and unconsolidated basalt removal by dozer and/or excavator and trucks;
- Rock drilling and blasting;
- Rock removal using rubber tyred loaders and/or excavators;
- Transport of rock to the existing crushing and screening plant;
- Rock crushing and screening;
- Stockpiling of crushed rock; and
- Transporting of materials to markets.

2.4.2 Quarry Plans

Figure 2.7 shows a topographic plan of the existing quarry area.

Quarry plans have been designed using SURPAC resource modelling and mining planning software to allow for an expected 18 years of operation (based on reserves and annual production at the Permit limits of 320,000 m³/year). Therefore, it is expected that the quarry will continue for well over 20 years. These plans are shown in **Figures 2.10 -2.12**. Cross sections are shown in **Figures 2.13 and 2.14**. These are simplified plans based on the modelling.

The plans have been designed for the maximum extraction of the basalt resource in accordance with the Mining Lease conditions, the Quarry Code of Practice and best practice environmental management.

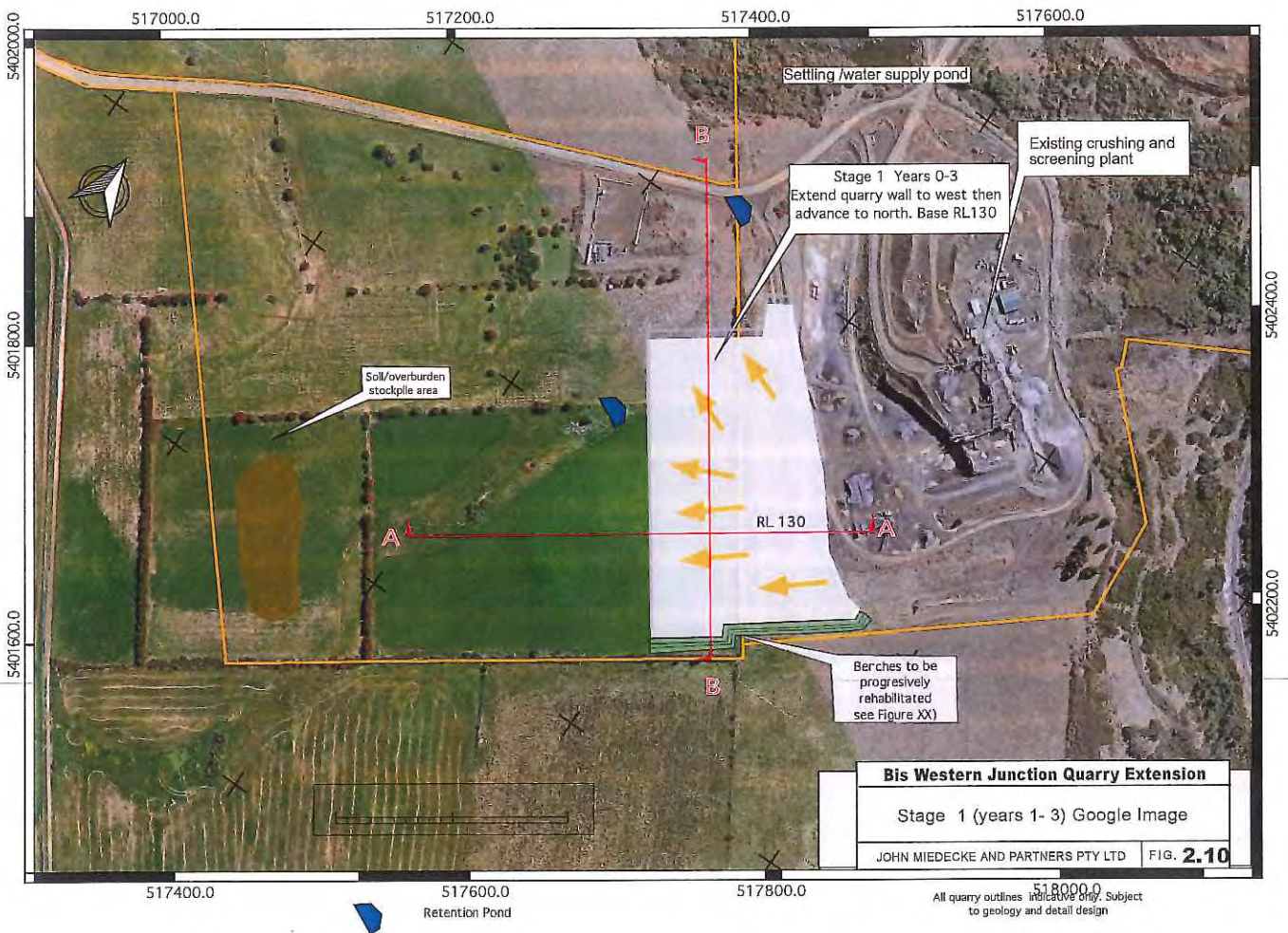
Quarrying will commence on the western face of the existing pit (south pit) with the relocation of existing topsoil and overburden stockpiles. These will be relocated to the western side and the proposed buffer /stockpile area between the quarry and the aerodrome (**Figure 2.10**). The pit will be developed in nominal 12 m benches and progress to the west in stages. **Figure 2.10** shows the approximate Year 3 pit outline. Later years are shown in **Figure 2.11 and 2.12**. As the depth to the expected basement at RL 130 will be greater than 12m in height, the quarry face will advance in multiple benches as shown the Sections (**Figures 2.13 and 2.14**). **Photograph 1** shows an example of existing quarry benches.

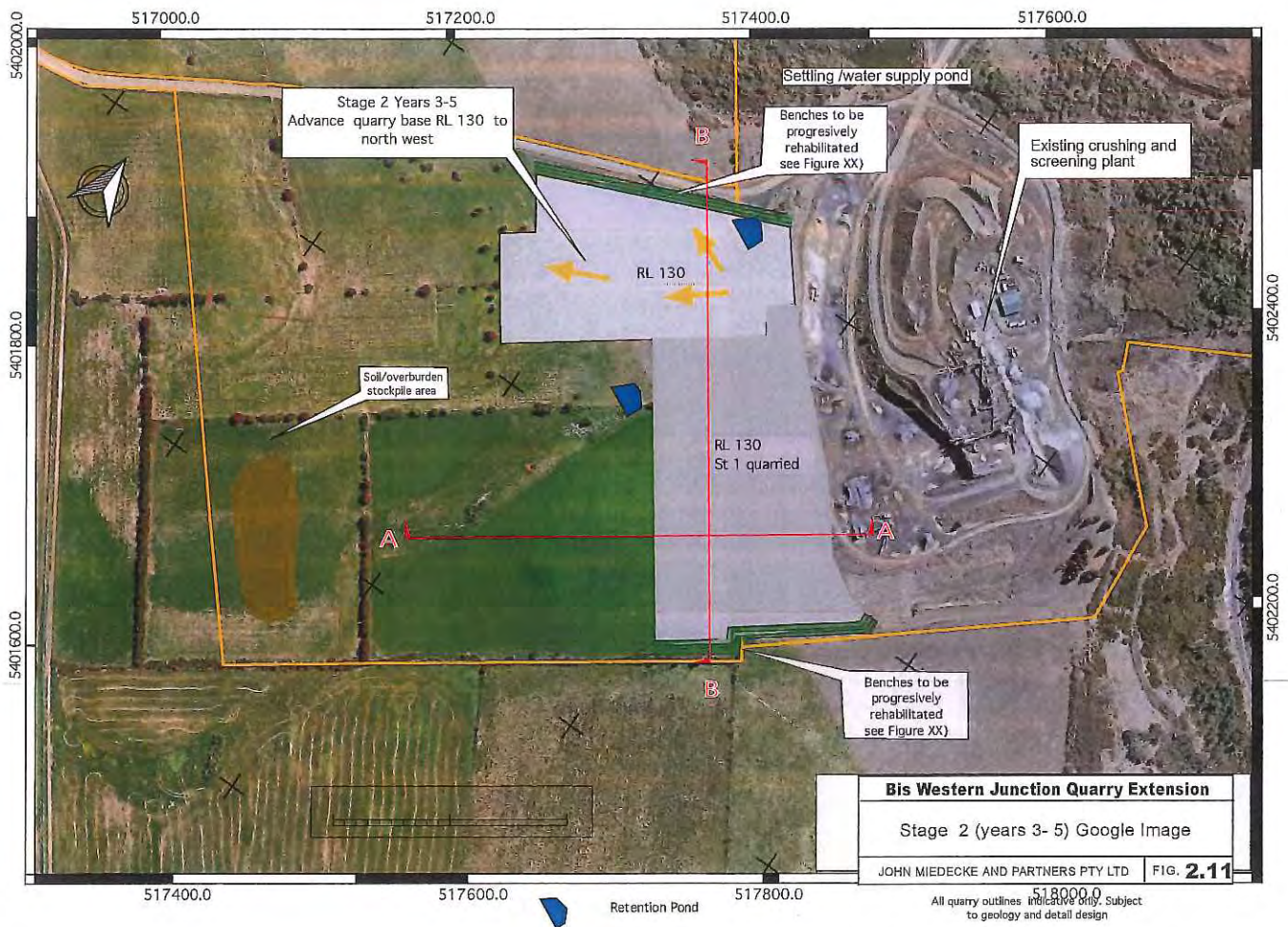


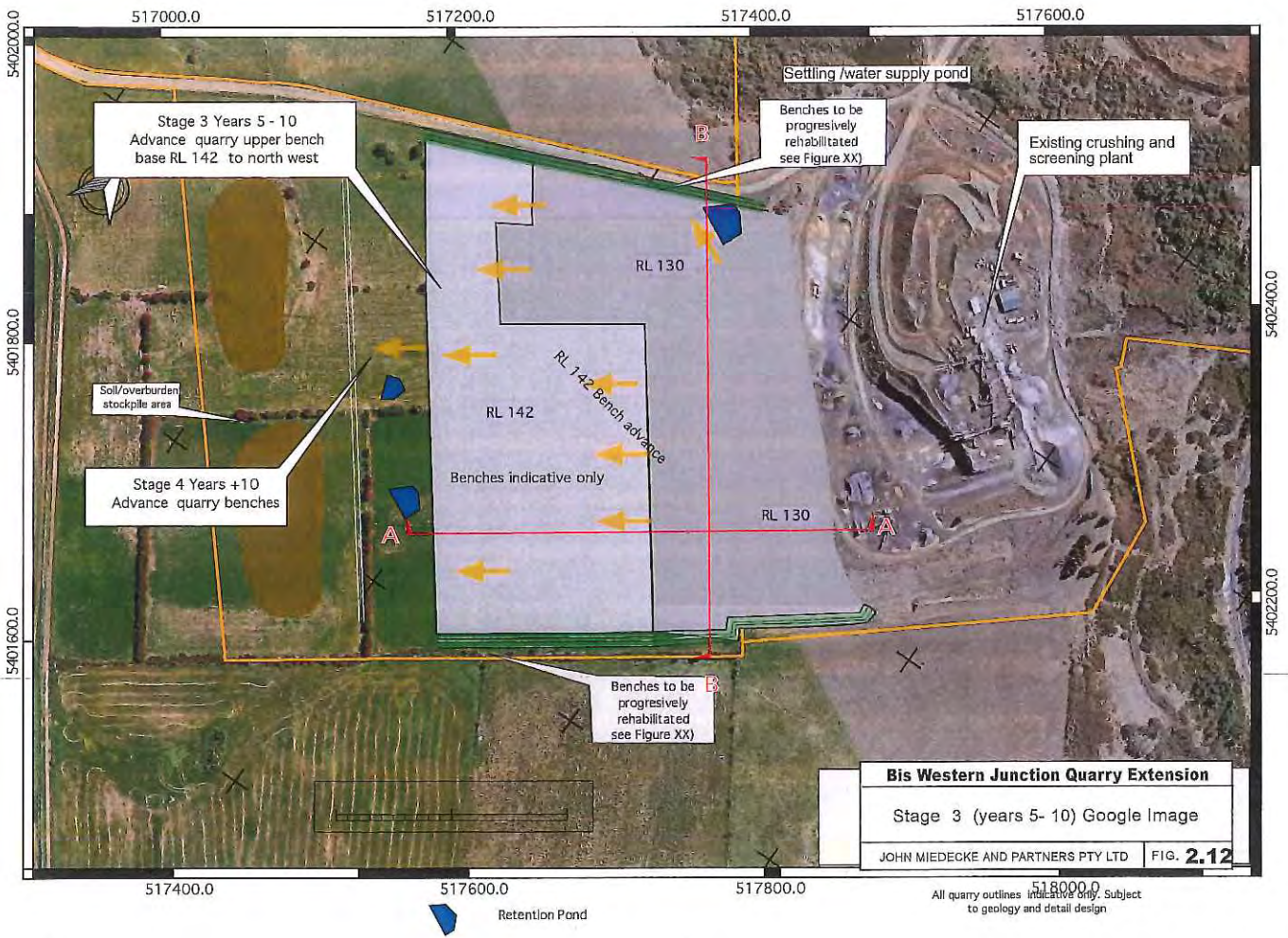
Photograph 1: Typical quarry bench operation. Quarry advances to the left

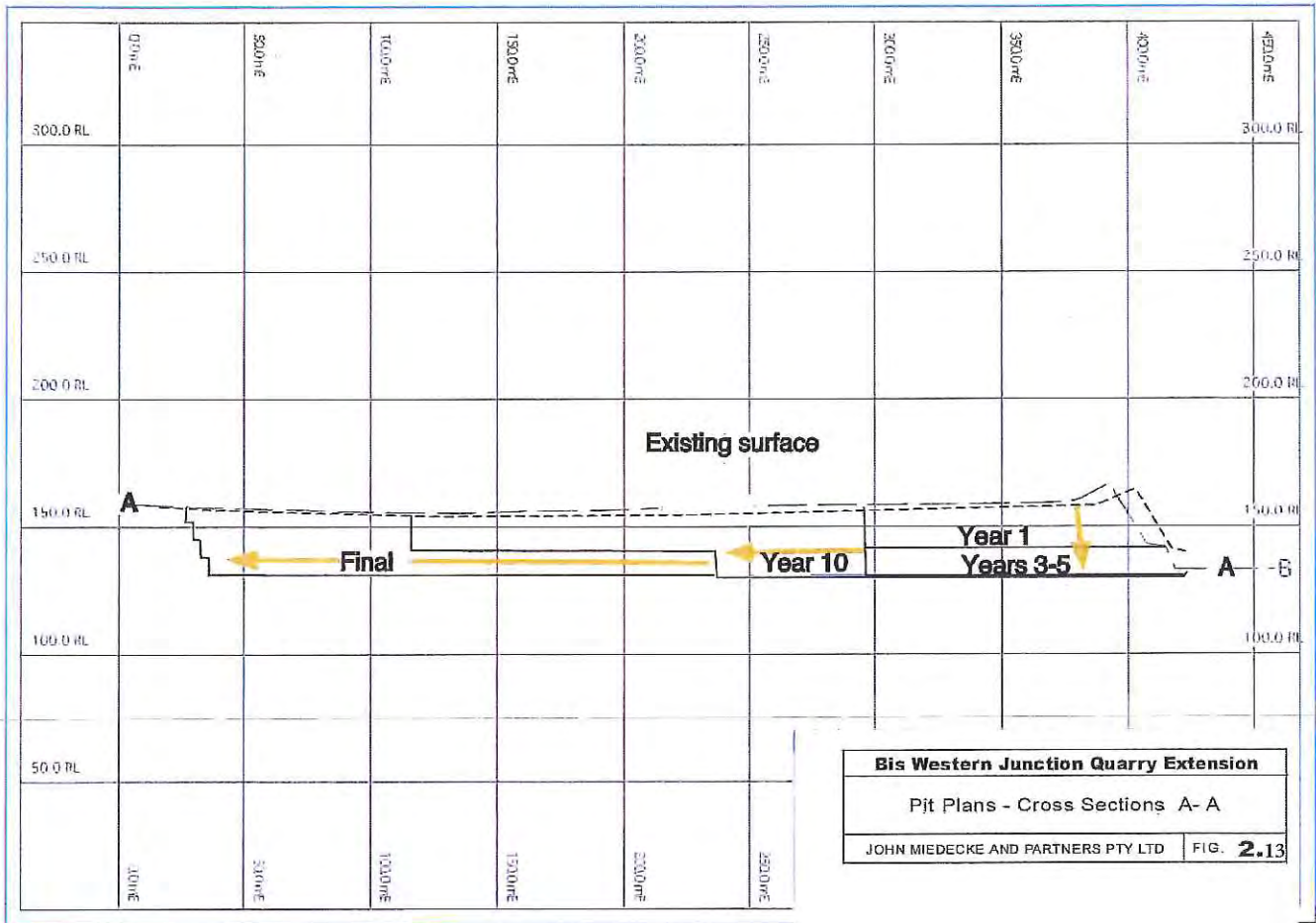
To the south and lease boundary the pit will leave a 10m buffer, with the benches at 6-7m high by 4-5 m wide. These will be progressively revegetated (**Figure 2.15**).

The quarry will progress as a “pit” and as such has been designed to minimise visibility of the quarry from viewpoints to the east and south-east. The quarry extension can only be viewed distantly from the north-east to south-east. **Figure 2.16** shows a three dimensional view looking into the pit at the end of Year 10.



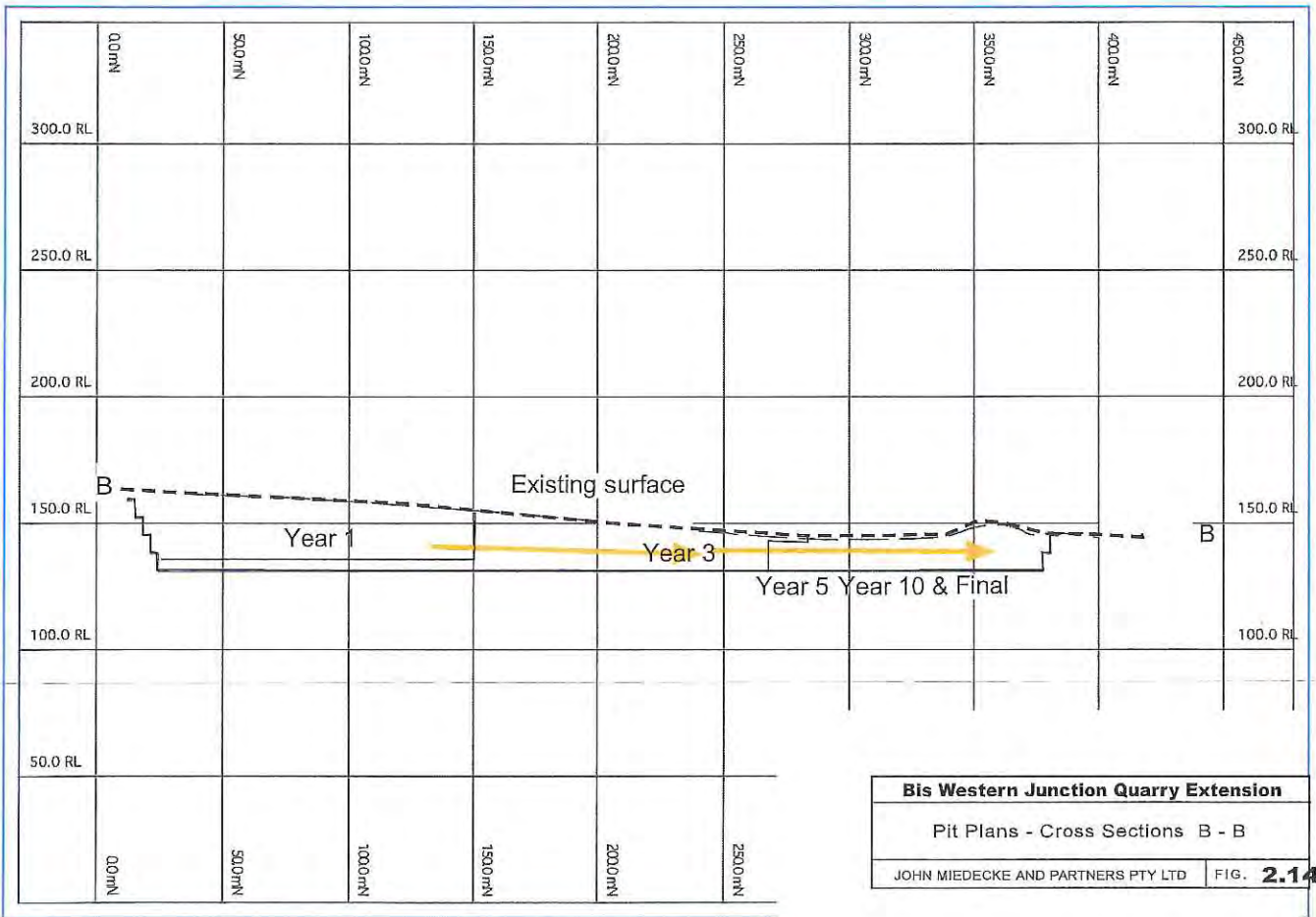




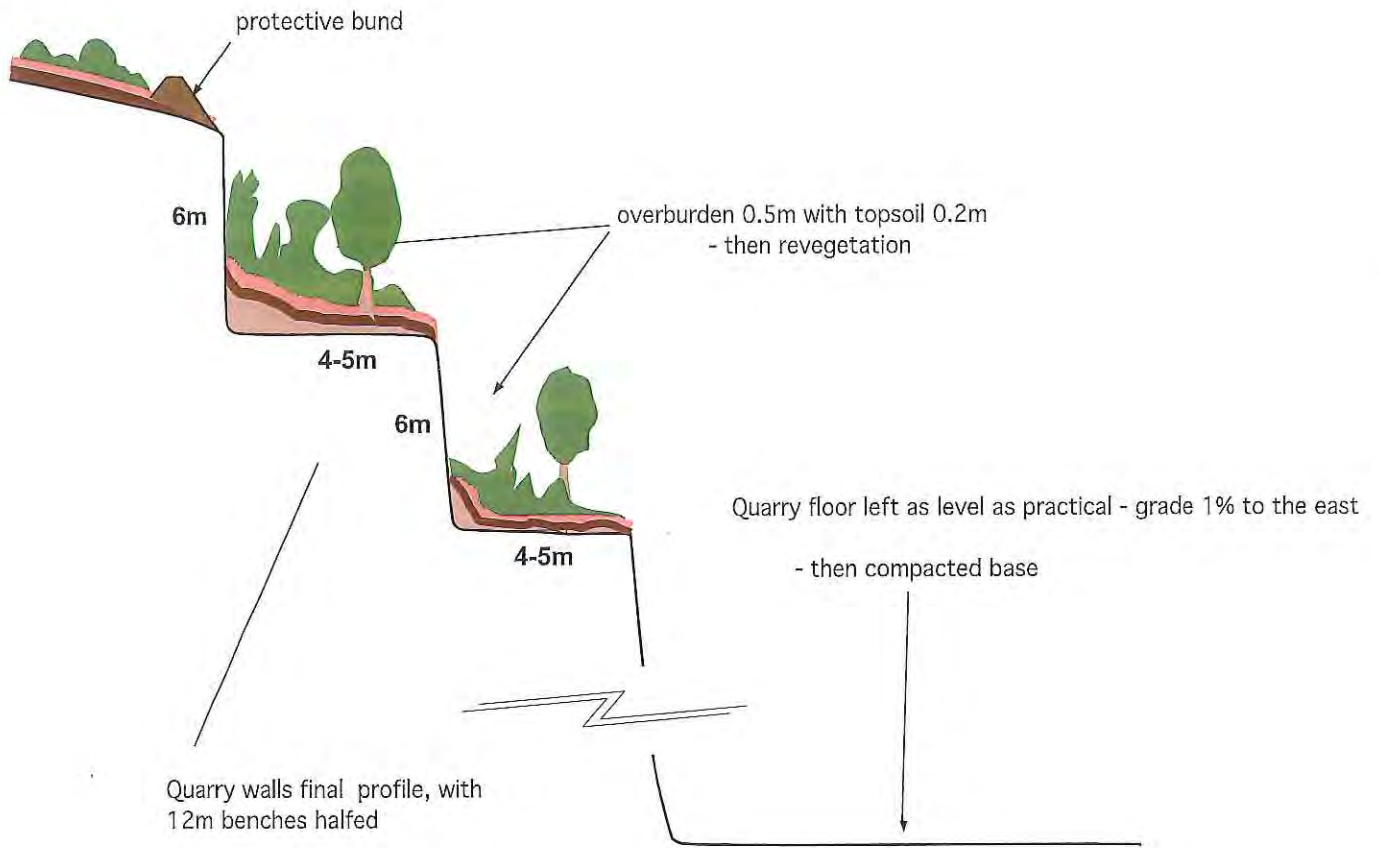


Bis Western Junction Quarry Extension
 Pit Plans - Cross Sections A- A
 JOHN MEDECKE AND PARTNERS PTY LTD FIG. 2.13

A



Bis Western Junction Quarry Extension
 Pit Plans - Cross Sections B - B
 JOHN MIEDECKE AND PARTNERS PTY LTD FIG. 2.14



Diagrammatic Only

Bis Western Junction Quarry Extension	
Typical Rehabilitation Profile - Quarry Walls	
JOHN MIEDECKE AND PARTNERS PTY LTD	FIG.2.15

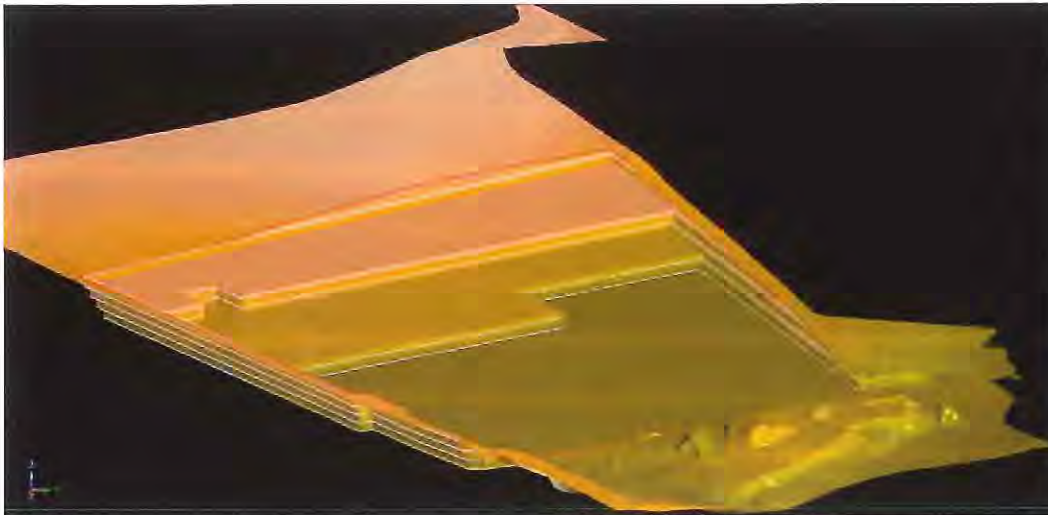


FIGURE 2.16: QUARRY 3 D VIEW END YEAR 10 – SURPAC Modelling – looking south-west)

Rainfall and any flows from the catchment above will be retained on the quarry floor in detention basin (s) and then directed to the Supply Pond in Briary Creek.

Figure 2.12 shows the pit extended to the west after 3 years production. In this stage the drainage depression is intersected and a catchment dam will be installed before the quarry face to store and release runoff from heavy rainfall events.

Visibility of quarry operations will be minimised by the quarry almost always operating behind a ‘bund’ of either the natural surface or of stockpiled overburden and/or topsoil, or within the pit. This is illustrated in the cross sections. All rock production will be carried out within the pit boundaries and not be visible outside the immediate pit. This will include rock transport.

Visual management is discussed in **Section 4.7**, water management in **Section 4.6** and rehabilitation is discussed in **Section 6.**

2.4.3 Quarry and Rock Crushing Operations

2.4.3.1 Site Preparation, topsoil and overburden recovery

Quarrying is a ‘top-down’ process which requires clearing immediately in front of working faces. As there is virtually no vegetation other than grasses in the quarry footprint, site preparation will only involve soil and overburden removal to expose the basalt.

The areas to be disturbed are shown in **Table 2.1**, with anticipated volumes of topsoil and overburden. The depth of topsoil and overburden varies with location. Topsoil typically from 150- 300 mm in depth (see Section 3.1) while overburden is typically from 0.5-3m (see photograph 2 for existing stockpiles).

All topsoil and overburden materials (clays etc) will be removed in advance of the quarry face. Soil and overburden will be removed by dozer and/or excavator and transported to the stockpile sites which are located near the aerodrome and act as a screening bund (see photograph 2) Some may be sold, as the volumes will be well in excess of rehabilitation needs.

Table 2.1: Areas Disturbed, Topsoil And Overburden Volumes

Stage	Years production	Total area (ha)	Incremental area per stage (ha)	Incremental area per year (ha)	Soil vols per Year (m3)@150mm	Overburden vols per Year (m3) @1m	Overburden vols per Year (m3) @2m
1	0 to 1	1.99	1.99	1.99	1990	19900	39800
2	1 to 3	4.07	2.08	1.04	1040	10400	20800
3	3 to 5	7.25	5.17	1.03	1034	10340	20680
4	5 to 10	13.05	7.88	1.58	1576	15760	31520
5	10 - 18	16.77	8.89	1.11	1111	11113	22225
Total		16.77			16770	67513	135025

*Photograph 2: Existing Overburden and Topsoil Stockpiles*

Topsoil and subsoil will be stripped and stored separately, or the topsoil replaced on the overburden surface. All bunds will be revegetated with grass species.

All topsoil and unconsolidated materials will be subject to regular Phytophthora and weed surveys.

2.4.3.2 Drilling and blasting

Quarrying will involve the drilling and blasting of hard rock to establish the quarry benches and enable extraction of basalt rock at depth. Drill rigs will work the benches of the pit, typically drilling 12 m faces. Drill holes will typically be 89 mm holes which are packed with explosives (Rioflex - ANFO based) and fired with millisecond delays. Blasting will be strictly controlled to minimize ground vibration and airblast at the nearest sensitive location.

This drilling and blasting approach develops the typical 'stepped' quarry profile. This profile enables the digging from one bench whilst accessible alternate locations at other levels can be drilled.

Drilling is typically carried out by a qualified drilling contractor using a hydraulic down hole blasting rig for a period of approximately 2 days per month.

Blasting will typically occur every four weeks, but may be more frequent at times (depending on stage of pit development). The aim is to increase the size of shots in order to decrease the number required.

Drill and blast procedures, and designs have been prepared in consultation with blasting specialists (Terrock) to ensure:

- noise and vibration standards are met;
- safety of the workforce; and
- adequate fragmentation of the rock.

Blasting is expected every month and the Airport and all residents within 1km will to be informed at least 24 hours before blasting takes place. Blast effects – ground vibration and air blast noise will be monitored (see **Section 4.3**). The blast design has been modeled and the results are discussed in **Section 4.3**.

2.4.3.3 **Rock Removal**

Rock quarrying, removal and transport will usually be undertaken on a six day week single shift basis in accordance with the permit conditions and Quarry Code of Practice.

Blasted rock will be retrieved from the face and loaded directly onto haul trucks for cartage to the crushing site, which is only a short distance.

Oversize material will be stored in the pit until the volume of material is sufficient to require the use of a rock-breaker, minimizing the requirement for secondary blasting. Water carts will continue to be used on haul roads to suppress dust lift-off.

2.4.3.4 **Rock Crushing and screening**

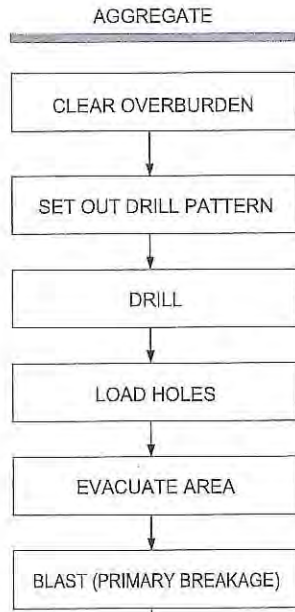
Operations at the quarry have involved large scale crushing via a jaw crusher, secondary cone crushing, tertiary crushing and screening and the stockpiling of processed materials. Two flow charts are shown in **Figures 2.17** and **2.18** for concrete aggregate and road base materials.

These facilities are all located in the southern end of the existing lease within the original quarry area (see **Figure 2.5**). The crushers and screens are fed by an excavator and/or front end loader. These operations will be basically unchanged.

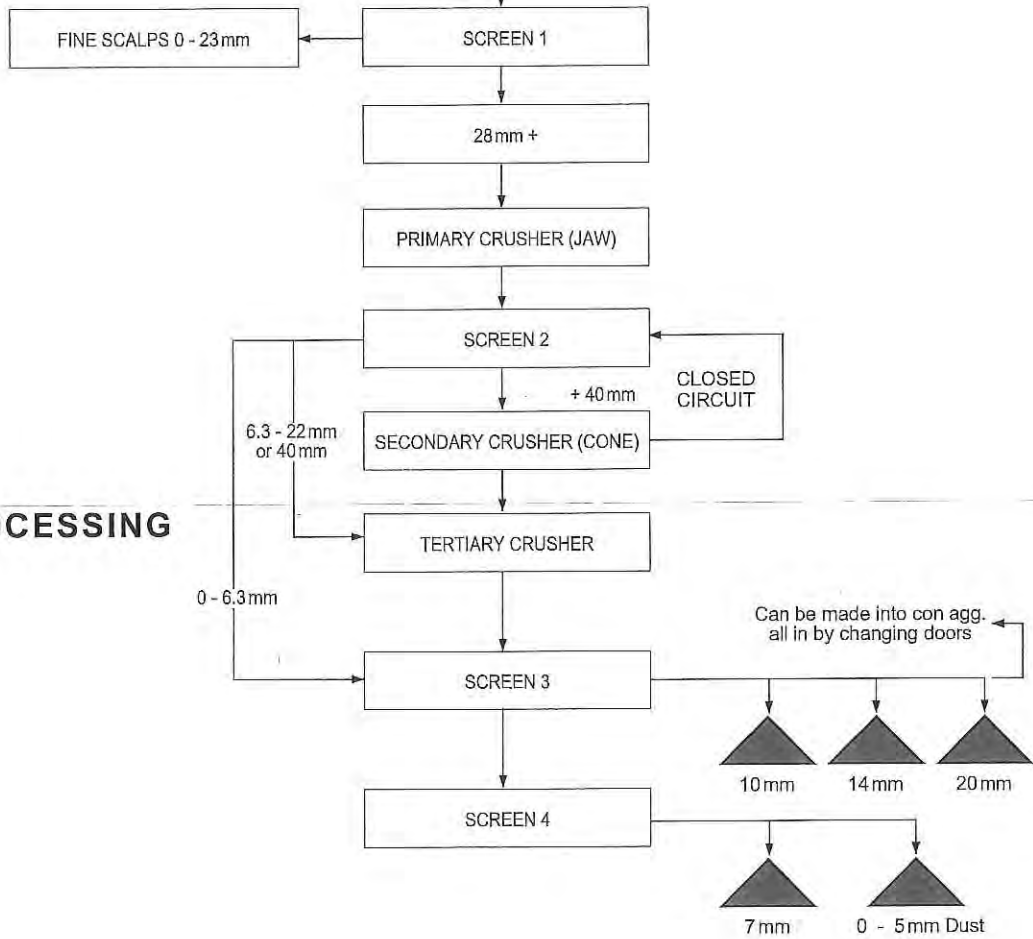
All material stockpiles will remain on the existing quarry floor and protected from wind, drainage will flow to the settling ponds and water recycling system.

Photographs of typical processing equipment are shown below.

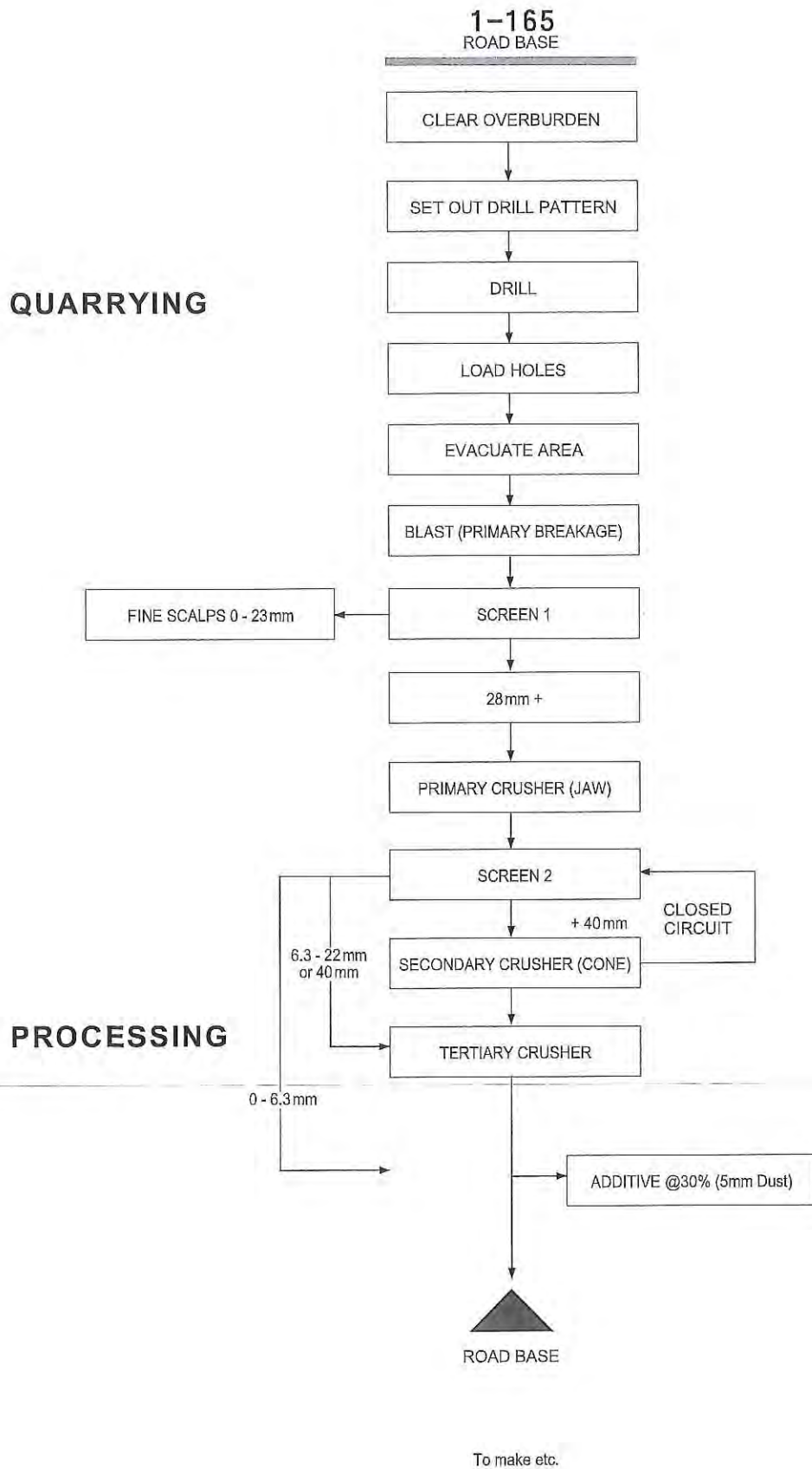
QUARRYING



PROCESSING



	<p>Bis WESTERN JUNCTION QUARRY EXTENSION</p> <p>PROCESSING FLOW CHART - AGGREGATE</p>	<p>Figure 2.17</p>
--	----------------------------------------------------------------------------------------------	-------------------------------



	Bis WESTERN JUNCTION QUARRY EXTENSION PROCESSING FLOW CHART - ROAD BASE	Figure 2.18
--	---------------------------------------------------------------------------------------	--------------------



Photograph 3: View of crushing and screening plant in operation



Photograph 4: Primary crushing and screening plant in operation

There may be a requirement to relocate or upgrade existing crushers, or add crushers as throughput or demand for smaller sized fractions of stone increases. Such changes to the processing facilities may require installation of additional support infrastructure (e.g. additional conveyors and screens and extension of processing buildings as required). Fines and other undesirable material removed from the product will be stockpiled for re-use, on-sale (road base material) or disposal. The product stockpile area will continue to be at the base of the pit as it is now (for visual and noise control purposes). The aggregate product is loaded and dispatched from this area.

The existing crushing plant is fitted with water sprays to wet the crusher feed and conveyor transfer points to minimise dust emissions. The secondary screens are also

fitted with water sprays to reduce dust emissions and water cannons will be used to minimise dust lift-off from the product stockpiles if required.

In addition to the crushing plant and equipment, there is a pug mill for material preparation which is in an area which is screened with drainage containment, settlement and silt collection.

2.4.3.5 Precoat Plant

A Precoat Plant for treating road sealing aggregate has also been operating on the site since about 2002. A site plan is shown in **Figure 2.19**. Photograph 5 shows the plant.




Photograph 5: Precoat plant


The precoat plant is a typical industry plant which consists of a trommel and precoat liquid sprays which coat the aggregate as it is passed through the trommel. The precoat is a bitumen based product widely used in the industry. The aggregate is stockpiled near the output conveyor and then transported to markets at road construction sites as required.


All are located within a bunded former quarry area. The foundations are compacted basalt clays and/or basalt rock. All runoff is directed to a settling pond with an overflow to the water supply pond.

There has been no history of contamination and there are none indicate in the water monitoring results.



Diversion bund/channel 

Drainage direction 

Drainage route 

© 2018 Europa Technologies
 NB These plans are indicative only and may vary depending on site conditions and detail design

Bis Western Junction Quarry Extension	
Precoat Plant Area	
JOHN MIEDECKE AND PARTNERS PTY LTD	FIG 2.19

2.4.3.6 Equipment

Table 2.2 shows the equipment list.

Table 2.2: LIST OF EQUIPMENT

MOBILE PLANT	Number
Excavator 75t	1
Excavator 30t	1
Cat Rigid Dump Truck 45t x 1	1
Rubber Tired Front End Loader	2
Mobile Screening Plant	1
Drill Rig	Various as required
Trucks	Various as required
FIXED CRUSHING PLANT	
Jaw crusher size 42x 30	1
Screen 20 x 8	1
Cone crusher J50	1
Screen 20 x 8	1
Tertiary crusher Auspactor	1
VS200	1
Screen 20 x8	1
Screen 16 x 6	1
PUG MILL	1
QME Twin Shaft 350t/hr.	
PRECOAT PLANT	1
Screen 10 x 5	
Additive Precoat Fluid	
Bins Feed	

2.5 Infrastructure

2.5.1 Support Facilities

Current support facilities (e.g offices, weighbridge, workshops, stores etc) will remain essentially the same. The Office and Weighbridge etc are located at the end of the lease near Richards Street.

2.5.2 Water and Electrical Supplies

Water is provided to the crushing and screening plant from the settling pond on Briary Creek (**Figure 2.6**). Potable supplies for the office etc are provided by Taswater reticulated water supplies.

Power is provided by overhead powerlines.

Workshops and storage rooms are located at the plant site.

2.5.3 Dangerous Goods

The quarry is licensed for a 20,000L above ground bunded diesel tank. There is no storage of explosives on site.

Other materials are:

- Lubricants - stored in a separate storage shed near the crib room in the Main Pit on banded pallets.
- Oil -stored in four 200litre drums on top of banded pallets.
- Grease is stored in one 200litre drum on top of a banded pallet. Grease is pumped through a direct line to site vehicles for maintenance.
- Waste oil is stored in disused 200litre drums and is pumped out by Collex who then remove the waste oil from site.
- Oxy-acetylene is separately stored. Truck wash is stored in a 44 gallon drum (banded).

2.6 *Transport*

The various materials are stockpiled on site after crushing and loaded onto highway trucks by a rubber tyred loader. Cartage is usually by truck and trailer. The trucks are approximately 20m³ capacity (39.5 tonnes) in good condition and complying with appropriate legislation.

All transport is via the existing road network and will be unchanged, using the internal haul road and the access to the Midland Highway via Richard Street, and Evandale Road (see **Figure 1.1**). The Midlands Highway is a heavy haulage route in excellent condition.

There are no other quarries sharing this route.

Typical average truck movements averaged over the year, are approximately 44 per day, or 4 per hour at current production and will increase to 182 truck loads per day (2 way)

A transport study has been completed by a traffic engineer (Terry Eaton) and this is enclosed in **Appendix B** and is discussed in detail in **Section 4.7**.

2.7 *Workforce*

The permanent workforce totals approximately 10 persons, with a number of casual employees in specialist field (mechanics, fitters, electricians etc).

This is expected to expand to 12 at full production.

2.8 *Operating Hours*

There are no residences in close proximity to the quarry or transport route and operating hours are typically:

- 6.00 am to 5.30 pm Monday to Friday, and
- 7.00 am to 3.00 pm on Saturday.

No works are conducted on Sundays or public holidays. Any works outside (ie to fulfill special contracts) will be subject to approval by the EPA/ Council.

No operations or transportation of products are conducted on Sundays or gazetted public holidays (except maintenance).

2.9 *Occupational Health and Safety*

The quarry operations are required to have a Health and Safety System in accordance with the *Workplace Health and Safety Act 1995* and *Workplace Health and Safety Regulations 1998*. The Bis policies are attached in **Appendix C**. Bis are third party certified to AS 4810.

Australian Standard 4801 sets out all requirements for implementing a occupational health and safety management system. These requirements may be used for auditing and certification purposes.

The system includes documented relevant safe working procedures.

To achieve appropriate commercial and environmental outcomes and to maintain a safe and healthy work environment, persons engaged in the extractive industry need to possess appropriate competencies to perform the allotted work safely and effectively, or work under the supervision and direction of another person possessing relevant and appropriate competencies. For the extractive industry, the basis for these competencies is the *Extractive Industries National Competency Standards*.

3.0 THE EXISTING ENVIRONMENT

3.1 Location and general site description

The Western Junction Quarry Extension (ML 2045 P/M) is located on private property off Evandale Road approximately 1km east of Breadalbane and the Midland Highway. The site is approximately 14 kilometres from Launceston (**Figure 1.1**). **Figure 2.1** shows the site Google Image (date 2016).

The quarry is located on a basalt escarpment located to the west of the North Esk River and tributaries. The eastern side of the ridge is occupied by operational quarries, farmland, wineries and the Launceston Airport, which adjoins the property to the south- east (**Figure 2.1**). Adjoining the airport are industrial and light industrial developments.

3.2 Planning Aspects

3.2.1 Land Tenure and Use

The land tenure and property boundaries are shown in **Figure 3.1**, with the mining leases. The existing quarry is on private land owned by Mr Hughes. The extension area is bounded to the South/South- East by grazing land in other ownership, South /South – West by Commonwealth (Launceston Airport) and light industries, North West to North, Mr Hughes property and the balance, the existing quarry operation. Taswater sewerage treatment ponds are also immediately to the north. These drain to Briary Creek.



FIGURE 3.1: LAND TENURE QUARRY EXTENSION AREA. SOURCE ; *The List*

Also shown **Figure 3.1**, is a 1km radius from the centre of the lease. There is only one residences within approximately 1000m. These distances are relevant to the planning scheme and attenuation zones (see **Section 3.2.2**).

3.2.2 Zoning (Northern Midlands Interim Planning Scheme 2013)

3.2.2.1 Planning Scheme Zones

The property is all zoned Rural Resource under the scheme (see **Figure 3.6**). Extractive Industry is a Discretionary Use.

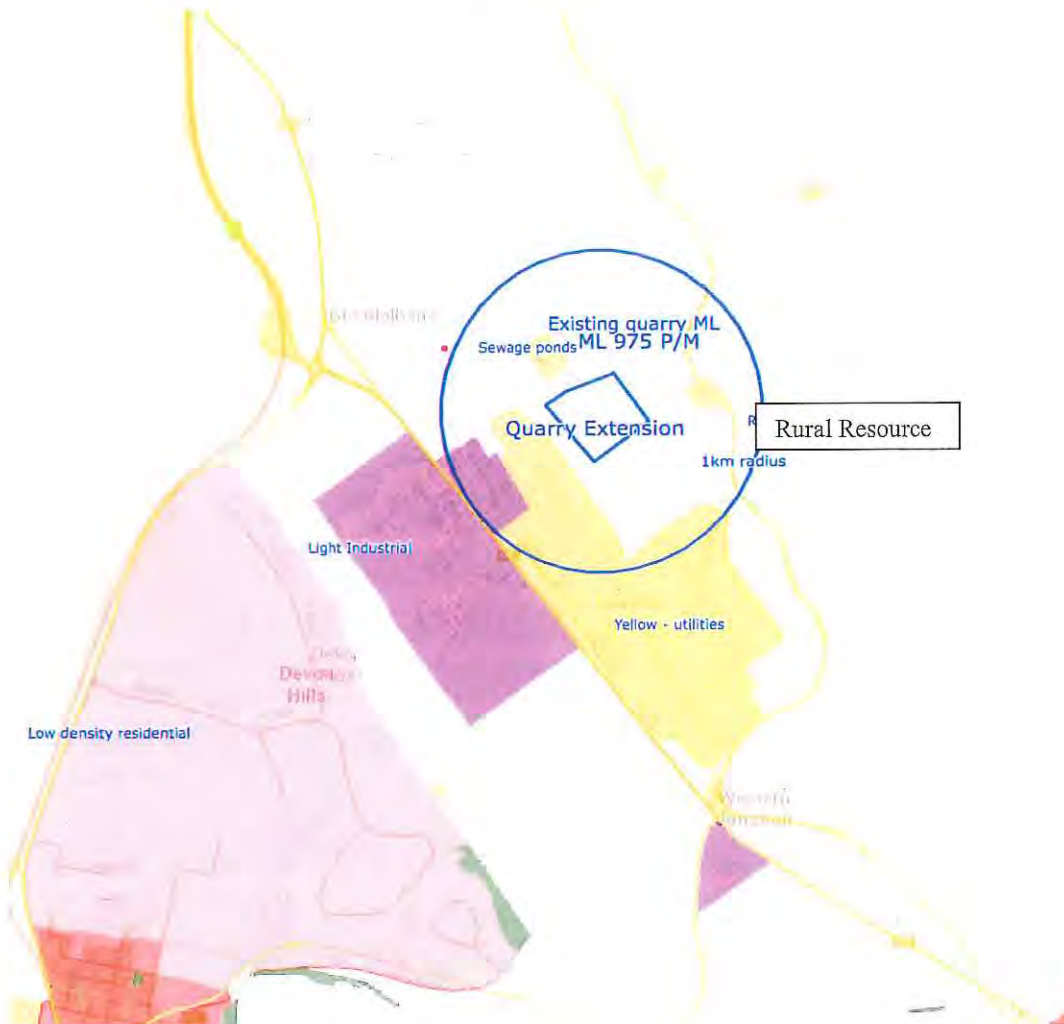


FIGURE 3.2: LAND ZONING QUARRY EXTENSION AREA. Source - *The List*

It is adjoined by land zoned Rural Resource on all sides.

In addition there is a special area overlay which cover part or all of the quarry area. This is the Launceston Airport ANEF (plane noise). There is no longer an Attenuation area from the Bis Quarry operations. The ANEF contours are shown in **Figure 3.3**. This overlay is related to noise sources from the Airport.

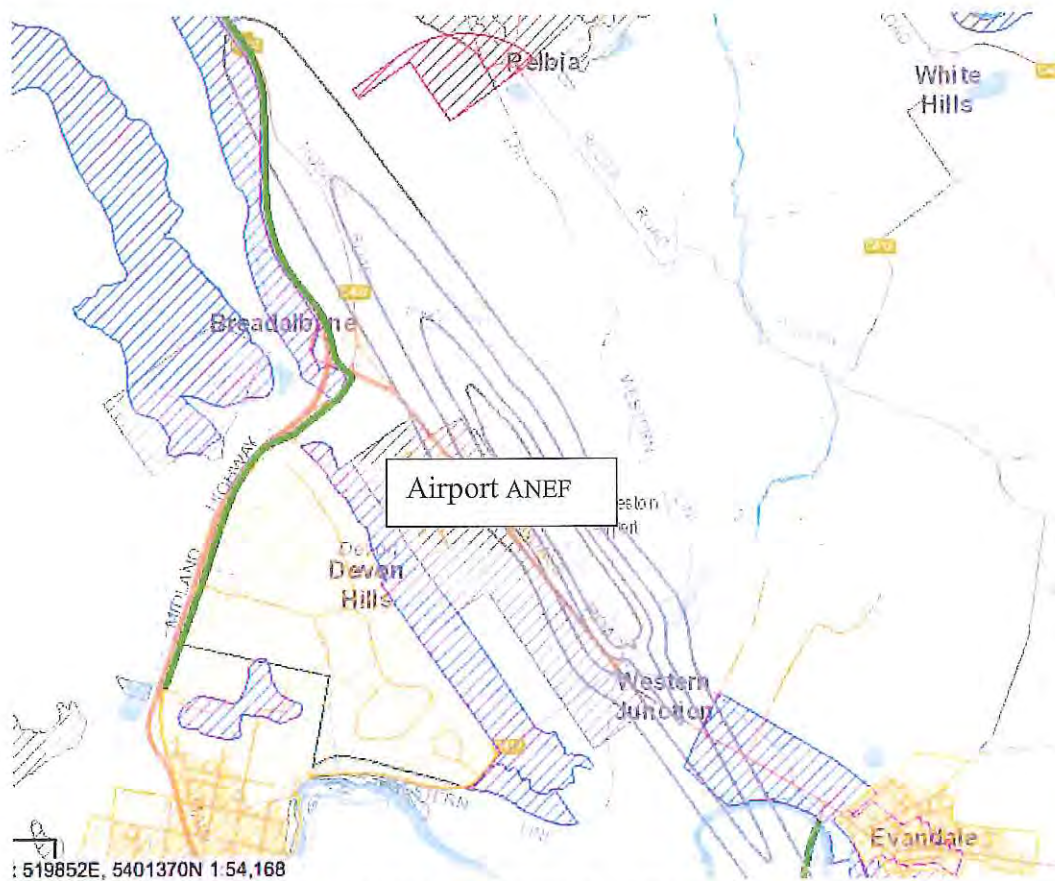


FIGURE 3.3: ZONING – SPECIAL AREAS Source - The List

3.2.2.2 Planning Scheme Goals and Objectives

The purpose of this planning scheme is:

- (a) to further the Objectives of the Resource Management and Planning System and of the Planning Process as set out in Parts 1 and 2 of Schedule 1 of the Act; and
- (b) to achieve the planning scheme objectives set out in clause 3.0 by regulating or prohibiting the use or development of land in the planning scheme area.

3.2.2.3 Rural Resource Zone

The zone purposes are set out in **Table 3.1**.

Extractive Industry is a Discretionary (with Permit) use in the zone.

3.2.2.4 Development Standards in the Rural Resource Zone

Development standards in the zone are summarised in **Table 3.1**, with comments on compliance.

3.2.2.5 State Policies

State Policies are part of the Resource Management Planning System. Section 13 of the *State Policies and Projects Act 1993* prescribes that a State Policy overrides any planning scheme where there is any inconsistency between the Policy and a scheme.

Table 3.1: PLANNING SCHEME COMPLIANCE

RURAL RESOURCE ZONE	
ZONE PURPOSE	
26.1.1.1	<i>To provide for the sustainable use or development of resources for agriculture, aquaculture, forestry, mining and other primary industries, including opportunities for resource processing.</i>
26.1.1.2	<i>To provide for other use or development that does not constrain or conflict with resource development uses.</i>
26.1.1.3	<i>To provide for economic development that is compatible with primary industry, environmental and landscape values.</i>
26.1.1.4	<i>To provide for tourism-related use and development where the sustainable development of rural resources will not be compromised.</i>
Comments: The proposal meets the zone purpose, which notes the importance of providing for the sustainable use or development of resources for quarrying.	
LOCAL AREA OBJECTIVES	
<p>a) Primary Industries: Resources for primary industries make a significant contribution to the rural economy and primary industry uses are to be protected for long-term sustainability. The prime and non-prime agricultural land resource provides for variable and diverse agricultural and primary industry production which will be protected through individual consideration of the local context. Processing and services can augment the productivity of primary industries in a locality and are supported where they are related to primary industry uses and the long-term sustainability of the resource is not unduly compromised.</p> <p>b) Tourism Tourism is an important contributor to the rural economy and can make a significant contribution to the value adding of primary industries through visitor facilities and the downstream processing of produce. The continued enhancement of tourism facilities with a relationship to primary production is supported where the long-term sustainability of the resource is not unduly compromised. The rural zone provides for important regional and local tourist routes and destinations such as through the promotion of environmental features and values, cultural heritage and landscape. The continued enhancement of tourism facilities that capitalise on these attributes is supported where the long-term sustainability of primary industry resources is not unduly compromised.</p> <p>c) Rural Communities Services to the rural locality through provision for home-based business can enhance the sustainability of rural communities. Professional and other business services that meet the needs of rural populations are supported where they accompany a residential or other established use and are located appropriately in relation to settlement activity centres and surrounding primary industries such that the integrity of the activity centre is not undermined and primary industries are not unreasonably confined or restrained.</p> <p>Comment: The proposal does not conflict with the local area objectives, with extractive industries (such as the quarry proposed), allowing for the creation of infrastructure to service these sectors.</p>	
DESIRED FUTURE CHARACTER STATEMENTS	
The visual impacts of use and development within the rural landscape are to be minimised such that the effect is not obtrusive.	
Assessment: The proposal meets the Desired Future Character Statements, as the impact of the quarry is not considered to be obtrusive due to the existing topography, design and removal of overburden to create bunding around the quarry.	

Table 3.1: PLANNING SCHEME COMPLIANCE

DEVELOPMENT STANDARDS	
26.3 Use Standards	
26.3.1 Discretionary Uses if not a single dwelling	
Objective	
a) To provide for an appropriate mix of uses that support the Local Area Objectives and the location of discretionary uses in the rural resources zone does not unnecessarily compromise the consolidation of commercial and industrial uses to identified nodes of settlement or purpose built precincts.	
b) To protect the long term productive capacity of prime agricultural land by minimising conversion of The land to non-agricultural uses or uses not dependent on the soil as a growth medium, unless an overriding benefit to the region can be demonstrated	
c) To minimise the conversion of non-prime land to a non-primary industry use except where that land cannot be practically utilised for primary industry purposes.	
d) Uses are located such that they do not unreasonably confine or restrain the operation of primary industry uses.	
e) Uses are suitable within the context of the locality and do not create an unreasonable adverse impact on existing sensitive uses or local infrastructure	
f) The visual impacts of use are appropriately managed to integrate with the surrounding rural landscape	
Acceptable Solutions	Performance Criteria
A1 If for permitted or no permit required uses.	P1.1 It must be demonstrated that the use is consistent with local area objectives for the provision of non-primary industry uses in the zone, if applicable; and P1.2 Business and professional services and general retail and hire must not exceed a combined gross floor area of 250m ² over the site.
Comment : Not Applicable . Relies on performance criteria.	P1.1 – The proposed use does not conflict with the local area objectives, Extractive industries are important for creating infrastructure which services these sectors and is unlikely to compromise any primary industry uses. P1.2 – N/a.
A2 If for permitted or no permit required uses.	P2.1 Utilities, extractive industries and controlled environment agriculture located on prime agricultural land must demonstrate that the: ii) amount of land alienated/converted is minimised; and ii) location is reasonably required for operational efficiency; and P2.2 Uses other than utilities, extractive industries or controlled environment agriculture located on prime agricultural land, must demonstrate that the conversion of prime agricultural land to that use will result in a significant benefit to the region having regard to the economic, social and environmental costs and benefits.
N/a – Relies on performance criteria	N/a No prime agricultural land.

Table 3.1: PLANNING SCHEME COMPLIANCE

<p>A3 If for permitted or no permit required uses.</p>	<p>P3 The conversion of non-prime agricultural to non-agricultural use must demonstrate that:</p> <p>a) the amount of land converted is minimised having regard to:</p> <p>i) existing use and development on the land; and</p> <p>ii) surrounding use and development; and</p> <p>iii) topographical constraints; or</p> <p>b) the site is practically incapable of supporting an agricultural use or being included with other land for agricultural or other primary industry use, due to factors such as:</p> <p>i) limitations created by any existing use and/or development surrounding the site; and</p> <p>ii) topographical features; and</p> <p>iii) poor capability of the land for primary industry; or</p> <p>c) the location of the use on the site is reasonably required for operational efficiency.</p>
<p>COMMENT : N/a – Relies on performance criteria</p>	<p>P3 (a) – The amount of land to be converted is restricted to the extent of the quarry. Land capability is low.</p> <p>(b) N/a</p> <p>(c) The very nature of extractive industries limits the location of these developments to where specific resources are available (in this case, predominately basalt rock).</p>
<p>A4 If for permitted or no permit required uses</p>	<p>P4 It must be demonstrated that:</p> <p>a) emissions are not likely to cause an environmental nuisance; and</p> <p>b) primary industry uses will not be unreasonably confined or restrained from conducting normal operations; and</p> <p>c) the capacity of the local road network can accommodate the traffic generated by the use.</p>
<p>COMMENT : N/a – Relies on performance Criteria</p>	<p>P4 a) The proposal requires assessment by the Environmental Protection Authority (EPA) as a Level 2 Activity under the Environmental Management and Pollution Control Act 1994; legislation that specifically deals with environmental nuisance.</p> <p>b) The proposed quarry will have limited impact on primary industry uses as the land capability is low and restricted to grazing.</p> <p>c) The quarry is accessed via Richards Street and the Traffic Impact Assessment says it is adequate for the expected traffic volumes.</p>

Table 3.1: PLANNING SCHEME COMPLIANCE

<p>A5 The use must: a) be permitted or no permit required; or b) be located in an existing building</p>	<p>P5 It must be demonstrated that the visual appearance of the use is consistent with the local area having regard to: a) the impacts on skylines and ridgelines; and b) visibility from public roads; and c) the visual impacts of storage of materials or equipment; and d) the visual impacts of vegetation clearance or retention; and e) the desired future character statements.</p>
<p>COMMENT : N/a – Relies on performance criteria</p>	<p>The visual appearance of the use is consistent with the local area. The proposed quarry is located in an area where there are 3 existing quarries and the only visibility will be revegetated topsoil and overburden bunds.</p>
<p>26.3.2 Dwellings – N/A</p>	
<p>26.3. Irrigation Districts</p>	
<p>Objective: To ensure that land within irrigation districts proclaimed under Part 9 of the Water Management Act 1999 is not converted to uses that will compromise the utilisation of water resources.</p>	
<p>Acceptable Solutions</p>	<p>Performance Criteria</p>
<p>A1 Non-agricultural uses are not located within an irrigation district proclaimed under Part 9 of the Water Management Act 1999</p>	<p>P1 Non-agricultural uses within an irrigation district proclaimed under Part 9 of the Water Management Act 1999 must demonstrate that the current and future irrigation potential of the land is not unreasonably reduced having regard to: a) the location and amount of land to be used; and b) the operational practicalities of irrigation systems as they relate to the land; and c) any management or conservation plans for the land.</p>
<p>Relies on Performance Criteria P1.</p>	<p>The site is within the North Esk Irrigation District. The site has no irrigation potential because of soil type and slope.</p>
<p>26.4 .Development Standards</p>	
<p>26.4.1 Building Location and Appearance – N/a (no buildings are proposed)</p>	
<p>26.4.2 Subdivision – N/a (no subdivision is proposed).</p>	

Table 3.1: PLANNING SCHEME COMPLIANCE

CODES	
E1.0 BUSHFIRE PRONE AREAS CODE	N/A
E2.0 POTENTIALLY CONTAMINATED LAND	N/A No history of possible uses
E3.0 LANDSLIP CODE	N/A- No areas of landslip,
E4.0 ROAD AND RAILWAY ASSETS CODE	Complies . No railines, TIA assessment.
E.5.0 FLOOD PRONE AREAS CODE	N/A
E6.0 CAR PARKING AND SUSTAINABLE TRANSPORT CODE	Complies – car parking provided.
E7.0 SCENIC MANAGEMENT CODE	N/A
E8.0 BIODIVERSITY CODE	N/A- no native vegetation is proposed to be removed
E9.0 WATER QUALITY CODE	N/A- Level 2 activities are exempt under clause E9.4.1 (f).
E10.0 RECREATION AND OPEN SPACE CODE	N/A
E11.0 ENVIRONMENTAL IMPACTS & ATTENUATION CODE	N/A- Level 2 activities are exempt under clause E11.4.1 (a).
E12.0 AIRPORTS IMPACT MANAGEMENT CODE	Complies. No sensitive uses and Airport consulted.
E13.0 LOCAL HISTORIC HERITAGE CODE	N/A
E14.0 COASTAL CODE	N/A
E15.0 SIGNS CODE	N/A

It also prescribes that planning schemes must be amended to incorporate all those parts of the State Policy which are relevant to a planning scheme.

The State Policy on Water Quality Management (Adopted 26 September 1997) is the only relevant policy to the proposed quarry extension. The policy objectives are;

- Focus water quality management on the achievement of water quality objectives which will maintain or enhance water quality and further the objectives of Tasmania's Resource Management and Planning System;
- Ensure that diffuse source and point source pollution does not prejudice the achievement of water quality objectives and that pollutants discharged to waterways are reduced as far as is reasonable and practical by the use of best practice environmental management;
- Ensure that efficient and effective water quality monitoring programs are carried out and that the responsibility for monitoring is shared by those who use and benefit from the resource, including polluters, who should bear an appropriate share of the costs arising from their activities, water resource managers and the community;
- Facilitate and promote integrated catchment management through the achievement of objectives (1) to (3) above; and
- Apply the precautionary principle to Part 4 of this Policy.

3.2.2.6 Attenuation Areas.

The scheme has a new code relating to the possible location of sensitive uses (such as residences) near existing or approved uses, as well as the reverse (location of new developments near sensitive uses).

The purpose of this code is stated as:

- a) ensure appropriate consideration of the potential for environmental harm or environmental nuisance in the location of new sensitive land uses; or*
- b) ensure the environmental impacts of new development are considered to eliminate, reduce or mitigate potential for environmental harm or environmental nuisance.*

The code applies to:

- a) sensitive use located within the attenuation distance of existing or approved uses with the potential to create environmental harm and environmental nuisance or within a buffer area shown on the planning scheme map; and*
- b) uses listed in E11.6.2 with the potential to create environmental harm or environmental nuisance.*

Level 2 activities as defined by the Environmental Management and Pollution Control Act 1994 (ie this proposal) are exempt from the Code as they are approved and controlled by the Act (and the EPA)

The development should therefore be protected by a 1000 metre zone.

3.3 Environmental Aspects

3.3.1 Climate

Climatic data is available from the Launceston airport. Launceston has a temperate climate with an annual rainfall of 675 mm. Mean monthly maximum temperatures vary from 23°C in February to 11°C in July. Minimums vary from 10°C to 2.3°C.

Rainfall is reasonably evenly spread throughout the year, but with more during the winter months. **Figure 3.4** shows the rainfall evaporation balance. This shows that evaporation exceeds rainfall from September to April. In these periods runoff is therefore unlikely (except for storms) and dust generation is most common.

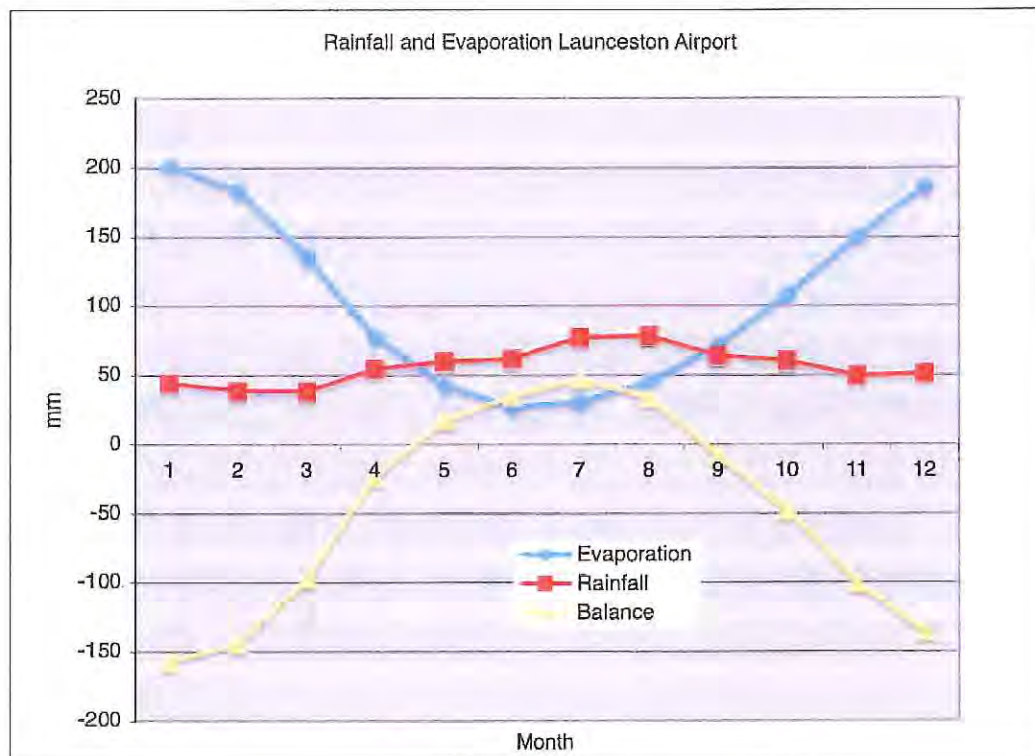


FIGURE 3.4: RAINFALL/ EVAPORATION

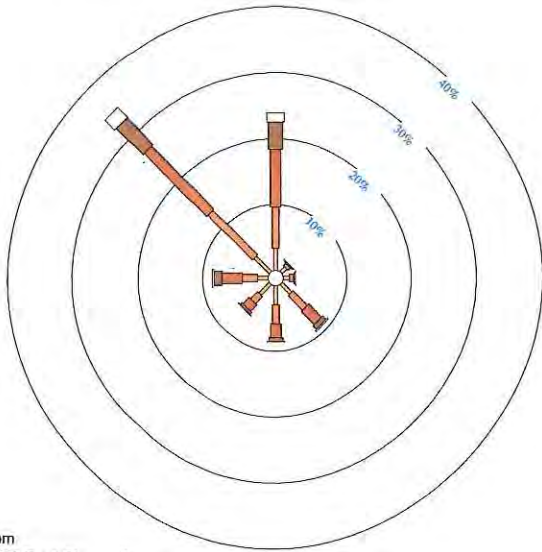
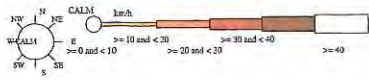
Wind directions for summer and yearly averages for 9am and 3pm are shown in **Figure 3.5**. These indicate that at 9am winds are mostly from the north/north-west quadrant (40%) with also a south/south-east component at lower wind speeds. This applies also to summer. Wind velocities also tend to be low at 9am.

At 3pm, the winds are mostly from the north/north-west directions (almost 60%), with the strongest winds from the north-west and north. In summer winds are mainly from the same directions. Therefore, when winds are strongest in dry periods that is when dust generation is most likely, wind directions are away from the closest residences.

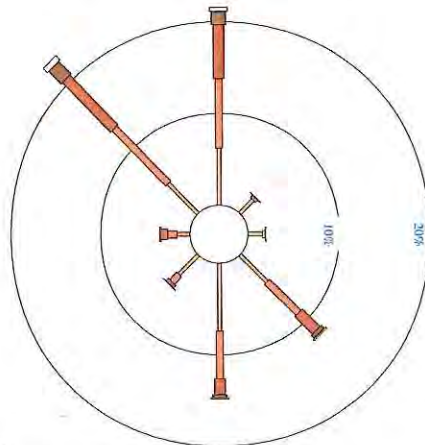
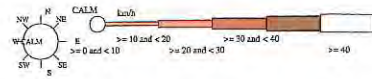
3.3.2 Geology, Soils and Land Capability

3.3.2.1 Geology

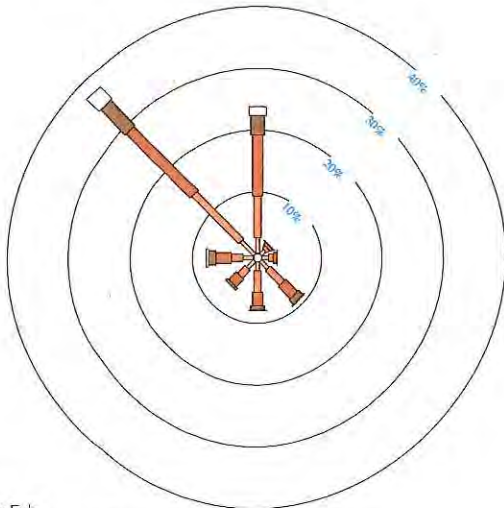
The geology of the area is discussed in Section 2.1.4 and shown in **Figure 2.4**.



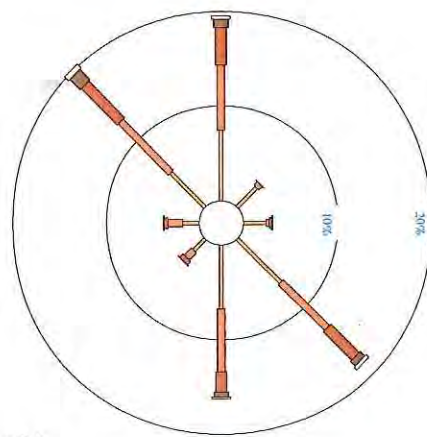
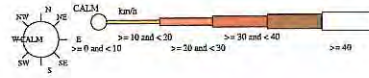
3 pm
23690 Total Observations
Calm 6%



9 am
23709 Total Observations
Calm 16%



3 pm Feb
1697 Total Observations
Calm 3%



9 am Feb
1697 Total Observations
Calm 12%

Rose of Wind direction versus Wind speed in km/h (01 Apr 1939 to 31 Dec 2006)
LAUNCESTON AIRPORT COMPARISON

Site No: 091104 • Opened Jan 1951 • Still Open • Latitude: -41.5397° • Longitude: 147.2033° • Elevation 170m

An asterisk (*) indicates that calm is less than 0.5%.

Other Important Info about this analysis is available in the accompanying notes.

Bis Western Junction Quarry Extension

Wind Directions

JOHN MIEDECKE AND PARTNERS PTY LTD

FIG. 3.5

The quarry area is mapped as basalt. Basalt is a hard igneous rock (that is, rock initially molten and injected as a fluid into older sedimentary rocks). This probably occurred over an interval of 20 million years or so.

Basalt is common in Tasmania and forms the base of much of the states most productive soils and is an excellent construction materials when crushed and screened

3.3.2.2 Soils

The main factors in soil development include, the nature of the parent rock (weathering and transport of weathered materials), topography (slope gradient and position of soils on slopes), landscape stability (history of erosion and deposition), climate and vegetation.

The soils in the proposed quarry area are mapped as Breadalbane Soil Association (Brown clayey soils on Tertiary Basalt – **Figure 3.6** (source: The List)).

Soil Unit Name

Breadalbane Soil Association

Soil Unit Concept

Brown clayey soils developed on Tertiary basaltic remnants within the Launceston Basin on gently undulating to rolling (3-32%) land.

Great Soil Group

Non-calcic brown soil, brown earth and euchrozem

Soil Profile Class

Breadalbane SPC

The soils are derived from Tertiary basalt and are described as stony gradational clays reddish/brown ranging from 5YR4/2 at the surface to 5YR 4/6 at lower levels (refer photograph 6). Weathered profile depth varies from 1metre to 1.5 metre, with topsoils between 150-300mm deep. There are no acid sulphate soils identified in the area.



Photograph 5 : Typical soil profile - depth of topsoil at between 150-300 mm

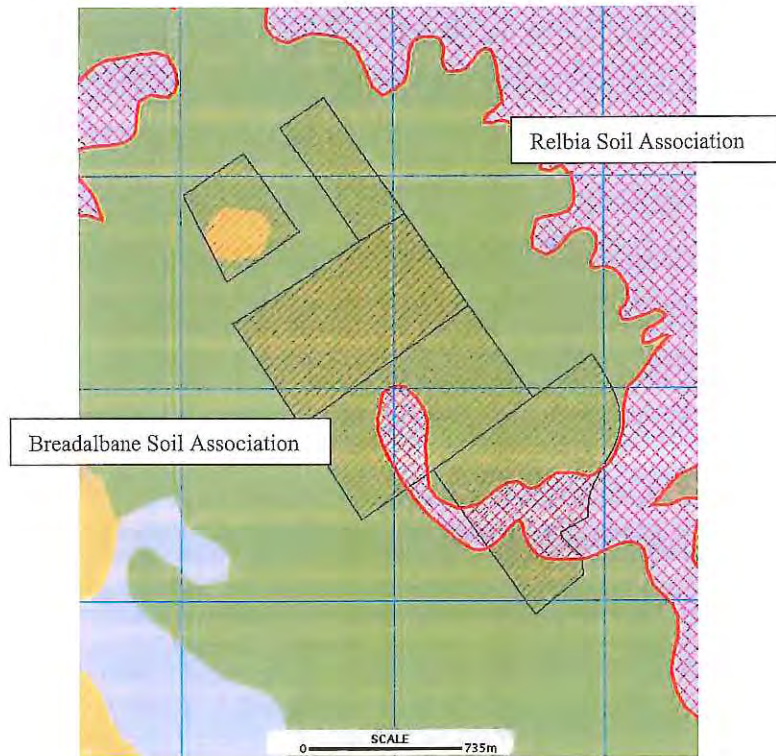


FIGURE 3.6: SOIL ASSOCIATIONS (Source- The List)

3.3.3 Land Capability

Figure 3.7 shows the land capability of the area.



FIGURE 3.7: LAND CAPABILITY (Source- The List)

The proposed quarry area is classified as Class 4. This is land well suited to grazing and limited occasional cropping using a very restricted range of crops.

To the east the land is classified as Class 5. Land with slight to moderate limitations

to pastoral use. This land is unsuitable for cropping, although some areas on easier slopes may be cultivated for pasture establishment or renewal. Some of this land is used for viticulture.

3.3.4 Surface and Groundwaters

3.3.4.1 Surface Waters

Briary Creek is the major water course that drains an extensive area that includes the general quarry area to the west and north of the airport. **Figure 3.8** shows the catchment. The Creek flows to the east and joins Kelley's Creek, Roses Rivulet and eventually the North Esk River.

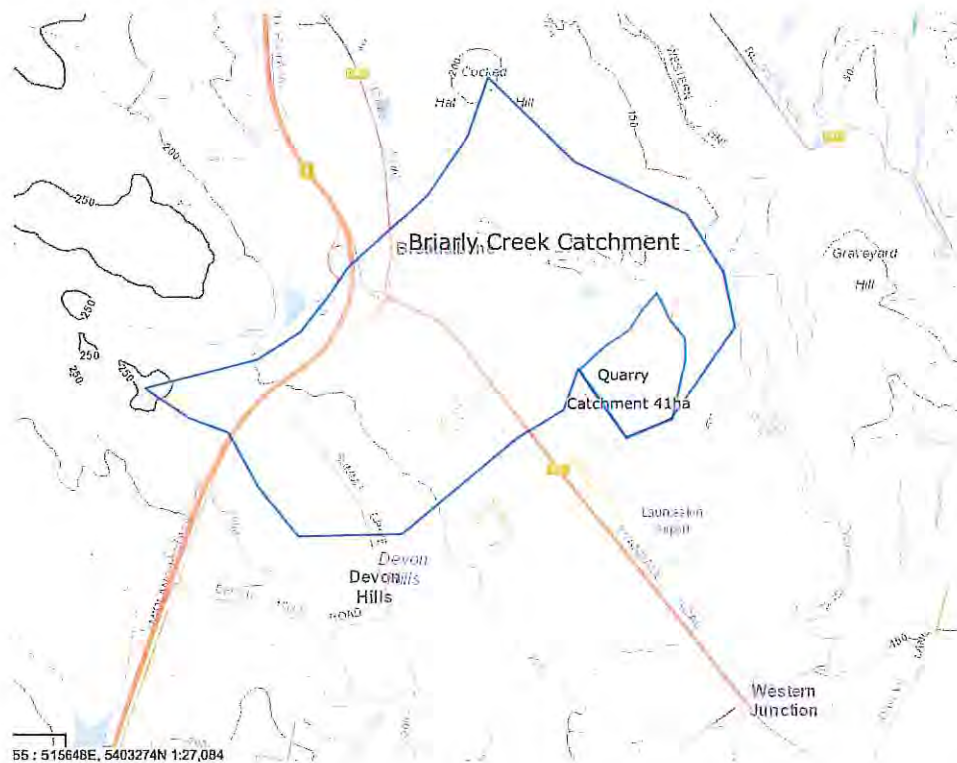


FIGURE 3.8: SURFACE WATER CATCHMENTS (SOURCE; THE LIST)

The catchment area includes residences, industrial areas, areas of cropping, ploughed paddocks and grazing. The creek also received drainage from the Taswater sewerage ponds.

The creek is bounded by hawthorns, willows, brambles and blackberries in the quarry area. A large water supply pond has been constructed on the Creek between the existing quarry pits and drainage from workings areas is directed into the pond. Water quality is good with little or no evidence of significant sediment movement downstream (Table 3.2). The table shows that there is elevated E Coli bacteria in the stream, which indicate contamination from the Taswater sewerage ponds and/or other sources. The water quality makes it unsafe for human consumption and contact.

The proposed quarry extension is located on gentle slopes that drain to a central grassed depression. There are no well defined drainage lines or watercourses with the "drainage line" having a fully grass cover. Flows are ephemeral (seasonal flow) only

TABLE 3.2 WATER MONITORING RESULTS



Parameter	Unit	Suspended Solids						Recreational Guidelines	Aquatic Ecosystems (95% species protection)
		Upper Creek Jul 2014	Upper Creek Feb 2016	Lower Creek Jul 2014	Lower Creek Feb 2106	Dam Jul 2014	Dam Feb 2016		
pH		7.92	8.78	7.72	9.15	7.83	7.92	5.0-9.0	6.5-8.0
Dissolved Oxygen	%	73	90	93	99.4	94	95.1		
Dissolved Oxygen	ppm	8.81	8.98	10.45	10.07	11.23	8.85		
Temperature	°C	7.9	15.25	7.8	14.18	9.6	17.7	15-35	125-2200
Conductivity	µS/cm	895	1036	960	934	865	491		
Turbidity	NTU	13		18		5			6-50
ORP	mV		168		157		198		
E.coli	Per 100mL	126	3100	150	1500	10	120		6-50
Suspended Solids	mg/L	<5	<2	<5	<2	<5	59		
Oil & Grease		<5	<2	<5	<2	<5	<2		
Dissolved Metals									
Arsenic	mg/L	<0.001	<0.01	<0.001	<0.01	<0.001	<0.01	0.05	0.024
Cadmium	mg/L	<0.0001	<0.001	<0.0001	<0.001	<0.0001	<0.001	0.005	0.0002
Chromium	mg/L	<0.001	<0.01	<0.001	<0.01	<0.001	<0.01	0.05	
Copper	mg/L	0.002	<0.01	0.002	<0.01	0.002	<0.01	1	0.0014
Nickel	mg/L	0.002	<0.01	0.002	<0.01	0.002	<0.01	0.1	0.011
Lead	mg/L	<0.001	<0.01	<0.001	<0.01	<0.001	<0.01	5	0.0034
Zinc	mg/L	0.011	<0.01	0.012	<0.01	<0.005	<0.01	5	0.008
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.0006
Total Metals									
Arsenic	mg/L	<0.001	<0.01	<0.001	<0.01	<0.001	<0.01	0.05	0.024
Cadmium	mg/L	<0.0001	<0.001	<0.0001	<0.001	<0.0001	<0.001	0.005	0.0002
Chromium	mg/L	<0.001	<0.01	<0.001	<0.01	<0.001	<0.01	0.05	
Copper	mg/L	0.004	<0.01	0.002	<0.01	0.003	<0.01	1	0.0014
Nickel	mg/L	0.003	<0.01	0.003	<0.01	0.003	<0.01	0.1	0.011
Lead	mg/L	<0.001	<0.01	0.001	<0.01	<0.001	<0.01	5	0.0034
Zinc	mg/L	<0.005	<0.01	<0.005	<0.01	<0.005	<0.01	5	0.008
Mercury	mg/L	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001		0.0006

Shaded: Physical parameters field analysed
Shade and bold: Exceedance of guidelines

after heavy rainfall events and these eventually drain to the creek and the quarry water storage dam in Briary Creek via a culvert under the access road. **Figure 3.9** shows the catchment on a LIDAR (airborne radar image).



FIGURE 3.9: SURFACE WATER CATCHMENTS LIDAR (Source-The List)

3.3.4.2 Groundwaters

The quarry area is mapped as basalt. These rocks are generally jointed and fractured and therefore have a high permeability.

The experience with quarries in the area is that the groundwater level is below the quarry floors and while water ponds on the pit floors in rainfall events, it drains away in a short time.

Figure 3.10 shows the groundwater bores in the area. The closest is presumably a monitoring well on the Airport property to the South West and the standing water level was 10-20 metres below surface.

EPA have raised the issue of potential contamination of fire fighting foams (PFAS chemicals). This has been discussed with Airservices Australia and the EPA.

The main source of contamination is understood to be over 1.25km from the proposed new quarry, with groundwater flow directions away from the quarry area. There has

never been any groundwater flows in the existing pit. Therefore, the risk of contamination is regarded as low.

It is proposed that PFAS will be monitored in the nearest borehole (in conjunction with Airservices) and any groundwater inflows into the pit will be monitored for PFAS on a 3 yearly basis

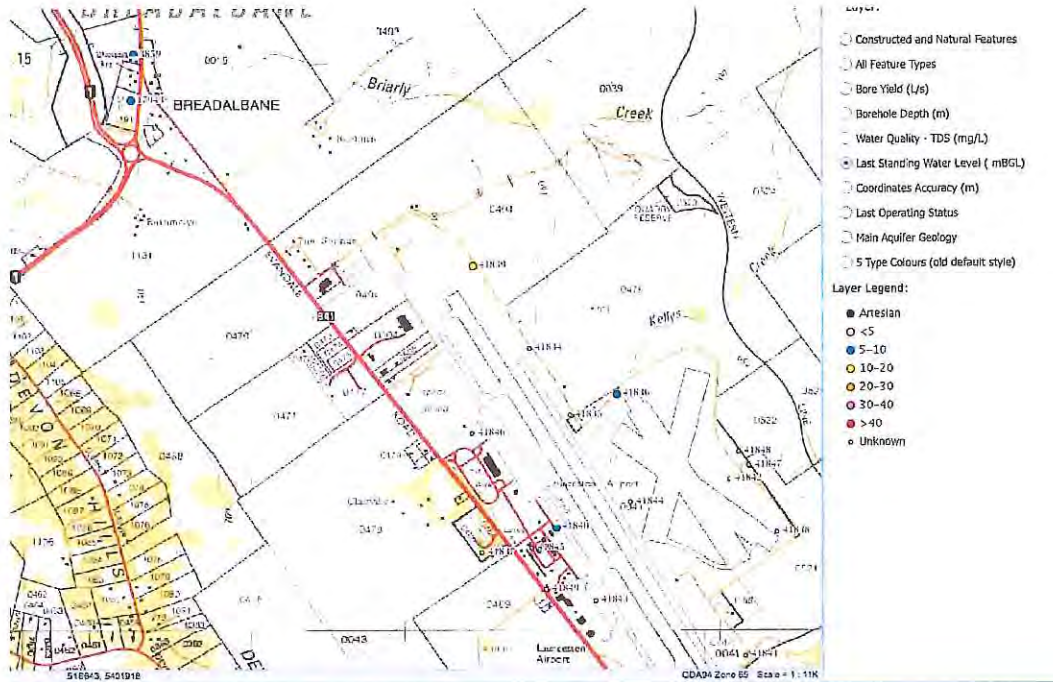


FIGURE 3.10: GROUNDWATER BORES (SOURCE; WIST)

3.4 Biological Environment Overview – Flora and Fauna

The mining lease area is mapped as Agricultural Land by LIST (see Figure 3.11) and no endangered species were identified in the area. Therefore, no specific flora and fauna surveys were commissioned. Bis undertake regular weed surveys and these are regularly treated.



FIGURE 3.11: VEGETATION (Source; The List)

3.5 Social Environment Overview

3.5.1 Socio-economic setting

The quarry is located in the Northern Midlands Council municipality.

Northern Midlands is one of the largest and most diverse municipalities in Tasmania. It covers an area of 5,130 km, extending from Liffey Bluff in the west to Mount St John in the east (150kms) and from Relbia in the north to Tooms Lake in the south (95kms). The landscape changes from mountainous country on its eastern and western boundaries to extensive grazing lands renowned for fine wool production; the rich agricultural river flats of the Esk, Lake and Macquarie Rivers historic towns and villages; and from small businesses to multi-million dollar enterprises.

Many of the towns and villages have distinctive heritage qualities, which make them attractive places to live.

The population of approximately 12,500 is expected to increase by 1,000 over the next five years as development continues to occur in and around the Launceston commuter towns of Longford, Perth and Evandale.

Situated on the Midlands Highway, 13 kms from Launceston, Breadalbane was named by Governor Macquarie after the Earl of Breadalbane, his wife's cousin. Earlier the district was known as 'Cocked Hat', 'The Springs' and 'Brumby's Plain'. The Breadalbane area was notorious in the early 19th century for sheep stealing. In the colonial days there were three inns at Breadalbane, The Albion, The Temperance Hotel, and The Woolpack Inn (today, only the Woolpack Inn still stands). Increased traffic on the roads into Launceston in the 1860's saw the introduction of a toll gate at Breadalbane. Road tolls were unpopular, and were eventually abolished in 1880.

Today, there is an important roundabout at Breadalbane at the entrance to the city of Launceston and Launceston Airport. The airport itself is now an important commercial and industrial centre with major expansion in the industrial area in recent years.

3.5.2 Heritage

There are no European heritage sites in the area of the quarry and the Tasmanian Heritage Council, National Estate and Parks and Wildlife data bases were searched for any sites of European heritage in the actual quarry area. None were identified.

The planning scheme lists the following buildings in Breadalbane.

- 20 RNE C 'Rathmolyne', Midlands Hwy
21 R 'Woolpack Inn', Hobart Road.

3.3.3 Aboriginal Heritage

No specific surveys were required by the EPA guidelines. The Aboriginal Relics Act 1975, provides legislative protection to Aboriginal heritage sites in Tasmania regardless of site type, condition, size or land tenure. Section 14(1) of the Act states that;

"Except as otherwise provided in this Act, no person shall, otherwise than in accordance with the terms of a permit granted by the Minister on the recommendation of the Director of National Parks and Wildlife:

- *destroy, damage, deface, conceal or otherwise interfere with a relic;*
- *make a copy or replica of a carving or engraving that is a relic by rubbing, tracing, casting or other means that involves direct contact with the carving or engraving;*
- *remove a relic from the place where it is found or abandoned;*
- *sell or offer or expose for sale, exchange, or otherwise dispose of a relic or any other object that so nearly resembles a relic as to be likely to deceive or be capable of being mistaken for a relic;*
- *take a relic, or permit a relic to be taken, out of this State; or*
- *cause an excavation to be made or any other work to be carried out on Crown land for the purpose of searching for a relic.*

If a relic is suspected and/or identified during works then works must cease immediately and the Tasmanian Aboriginal Land and Sea Council and the Aboriginal Heritage Tasmania be contacted for advice before work can continue. If damage to an Aboriginal heritage site is unavoidable a permit under Section 14 of the Aboriginal Relics Act 1975 will be applied for by the quarry operator".

The Unanticipated Discovery Plan will be followed during earthworks to meet the requirements under the Act if Aboriginal heritage were to be uncovered.

4.0 ENVIRONMENTAL IMPACTS AND MANAGEMENT

4.1 Introduction

The quarry has been in operation continuously since 1982 and has been one of the largest operating in Tasmania, with few significant impacts on the surrounding environment and community.

It is well located for an operating quarry having few nearby residences and a transport route that provides close access to the major road networks and avoids residential areas. It has also been an important and reliable supplier to the market for construction materials needed by the community and this has been recognised as strategically important by the Tasmanian Planning Commission (TPC then RPDC) in hearings into local planning scheme amendments and permit application for a residential development in the area.

The reduction in reserves caused by the clay intrusion in the existing quarry area now means that the quarry is heading towards closure of quarry operations within the existing lease area in the next five year plan. Planning for closure has also been considered and plans have been agreed with the land owner. Long-term land use will be level areas suitable for industrial use and grazing.

Following approval, quarrying will be progressively transferred to the proposed extension site and will be further away from residences in the east. Some of these residences have complained of blasting effects in the past.

The following sections detail the likely environmental effects and their management. The most significant impacts will be those, which are perceived to affect residential amenity in proximity of the quarry, in particular residences to the north-east of the quarry on Relbia Road.

4.2 *Potential Environmental Impacts*

The potential impacts from ongoing operations are well understood and are expected to be similar in nature to those experienced in the past 36 years. They will result in direct physical impacts on the proposed new quarry location and limited off site effects. The 18 year plan presented in Section 2 will disturb a total of approximately 16.8 ha over this period.

Over the life of the existing quarry, the EPA (formerly Environment Division DPIPWE), and the Company, have limited records of complaints from local residents regarding blasting effects, majority over 10 years ago. These have decreased significantly with improved blasting techniques and the last complaint was in 2014. This was from the resident closest to the quarry on the eastern side. With the relocation of the quarry, any effects will cease.

The EPA has issued site specific guidelines for the preparation of the DPEMP, following a site visit by EPA officers and Northern Midlands Council (Appendix A).

The EPA have identified the following key issues:

- *Noise generated by activities on the land, including drilling, crushing,*

screening and transportation to and from the land.

- *Blasting impacts;*
- *Dust impacts; and*
- *Stormwater management.*

These are addressed in the following Sections, with other more minor environmental factors.

4.3 Noise from quarry operations

4.3.1 Noise studies

Noise Vibration Consultants (NVC) were engaged in 2017 to monitor noise from quarry operations under normal operating conditions and to provide advice on possible quarry options. Their final report is enclosed in **Appendix D**.

A number of noise surveys were conducted around the quarry and modeling was undertaken to determine the effects of extending quarry operations.

4.3.2 Existing Ambient Sound Levels

Ambient noise levels at three residences were measured on the 18th October 2017 . The measurement locations (A - 578 Relbia Road, B - 55 Raeburn Rd and C - 81 Evandale Road). are shown in **Figure 4.1**, and the results summarised in **Table 4.1**.



FIGURE 4.1: QUARRY SITE AND MONITORING POSITIONS

Table 4.1: Summary of Community Noise Levels

Location	Sound Pressure Level, dBA			
	All Noise			BIS
	L10	L90	Leq	Leq
A	47	34	45	37
B	43	36	41	39
C	54	47	52	-

4.3.3 Quarry Site Sound Power Levels

From measurements conducted around the various pieces of plant, their sound power has been calculated, as listed in **Table 4.2**. The calculations assumed hemispherical spreading over a reflective ground surface. Data for the drill rig and dozer are taken from previous measurements performed by NVC on comparable equipment operating at other sites.

Table 4.2: Quarry Sound Power Levels

Source	Sound Power Level, dBA
Crushing Plant	120
Drill Rig	119
Tracked Excavator	112
Wheeled Loader	106
Delivery Truck	103
Haul Truck	105

4.3.4 Predicted Community Sound Levels

Predictions of the quarry noise in the community were made using the iNoise software to implement the ISO9613 algorithms. The model included attenuation due to distance, atmospheric absorption, ground absorption, and screening due to barriers / bunds and topography.

The current operations were initially modelled as indicated in **Figure 4.2**, with the results shown in **Figure 4.3**, compared to the measured data to validate the model.

This validation showed:

- The predicted noise levels were approximately 2 dB higher than measured levels.
- Receiver B is the most effected, mainly due to it being located up a shallow gully that almost has line-of-site view of the crusher. The noise contours clearly show this feature.

The predictions showed the crusher to be the dominant and only audible noise source at B, while at A the crusher and excavator were at similar levels, albeit quieter overall. This is in general agreement with perception during measurements

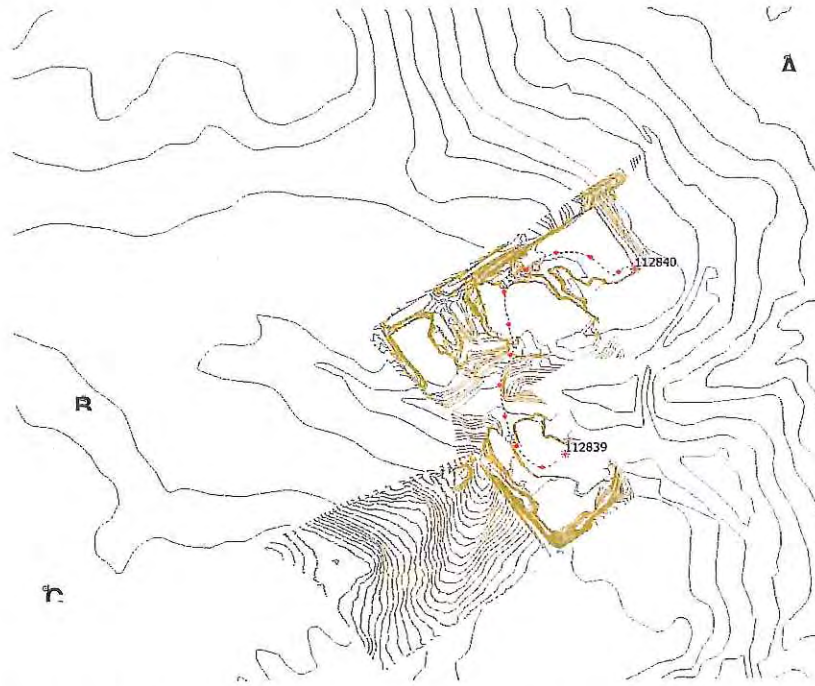


FIGURE 4.2: CURRENT OPERATIONS – ACOUSTIC MODEL INPUTS – GROUND CONTOURS

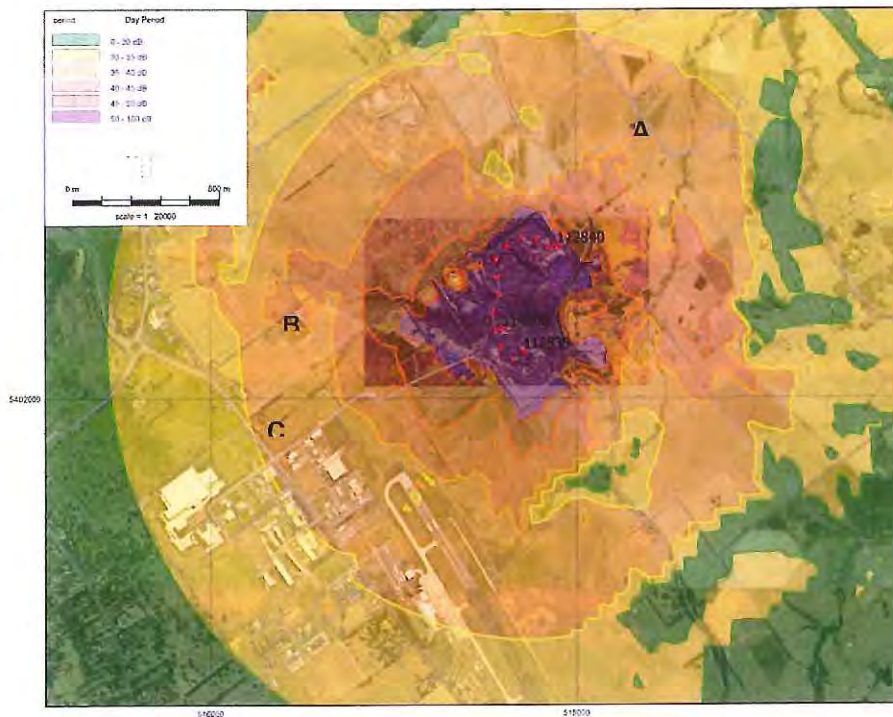


FIGURE 4.3: CURRENT OPERATIONS – PREDICTED NOISE CONTOURS.

The model is therefore considered valid. However, it is slightly overestimating the noise levels, and is thus considered to be conservative.

Four stages in the quarry expansion were modelled as they represent the least favourable outcome in noise stages for the life of the extension..

These stages were:

- Overburden and top soil removal:
- Year 1 bench operations
- Year 2 quarry operations
- Year 5 quarry operations
- Year 7 drill rig operations

Model input is shown in **Figure 4.4**.



FIGURE 4.4: YEAR 2 ACOUSTIC MODEL INPUT

In between each of these stages and beyond year 5, the equipment is either at a lower RL, or at greater distance from the residential receivers. Attenuation is therefore increased compared to the modeled cases (i.e. lower residential noise level). The model cases are the least favourable over the life of the quarry.

In each stage the following aspects of operations are separately modelled:

- Typical production: The haul truck, excavator, wheeled loaders and crusher all operate continuously.
- Drilling: The drill rig operates continuously in the most exposed location for that stage.
- Delivery trucks: Delivery trucks operate from the crusher to the weighbridge (nominal edge of BIS land).

The predicted community noise levels are then as listed in **Table 4.3** with noise contour maps for the various stages shown in **Figure 11** to **Figure 15** in the report (**Appendix D**)

Table 4.3: Predicted Community Noise Levels.

		Sound Pressure Level, dBA ¹		
		Location A ²	Location B ²	Location C ²
Normal Operations	Currently ³	39 ⁴	42 ⁴	36 ⁴
	Topsoil Overburden Removal ³	39 ⁴	42 ⁴	36 ⁴
	Year 1 ³	37 ⁴	42 ⁴	37 ⁴
	Year 2 ³	37 ⁴	42 ⁴	37 ⁴
	Year 5 ³	37 ⁴	42 ⁴	37 ⁴
Drilling	Year 1 ³	32 ⁴	43 ⁴	38 ⁴
	Year 2 ³	36 ⁴	47 ⁴	40 ⁴
	Year 5 ³	35 ⁴	49 ⁴	43 ⁴
	Year 7 ³	35 ⁴	41 ⁴	40 ⁴
Delivery Trucks	All years ³	18 ⁴	33 ⁴	35 ⁴

From the model results, the following is noted:

- The crusher and drill rig are the clearly dominant noise sources at the quarry. The drill rig, when establishing the first bench in areas A2 and A3, is the dominant quarrying noise source. Once it is operating on lower benches its received noise level drops by some 8 dB at location B, leaving the crusher as the dominant noise source.
- The haul truck, excavator and wheeled loader are insignificant noise sources and may be ignored in assessing quarry noise emissions.
- Delivery trucks are likely to be just perceivable at locations B and C.
- Locations B is the most effected location due to the almost line-of-site view to the crusher.
- To the east, the land falls away quite sharply to Relbia Road, then levels out and/or rises a little. Receivers between Relbia Road and the quarry are therefore shielded by natural terrain from the quarry operations.
- At location A the quarry is likely to be inaudible.
- There is minor screening of the drill rig from locations B and C during year 5, due to the top soil bund just west of the drill rig.
- From year 2 onwards, the excavator is screened by the quarry benches from the receivers.
- The Launceston Airport building experiences noise levels in the range 35 to 40 dBA.

4.3.5 Noise Assessment Criteria

The quarry operates under license 3374 which has no specific noise criteria. The Quarry Code of Practice (QCP), is therefore referenced to determine appropriate criteria.

The QCP was revised and re issued in May 2017 and states at 7.2.2:

- “ Noise from quarrying and associated activities, including equipment maintenance, when measured at any neighbouring sensitive use must not exceed the greater of:
- the A-weighted 10 minute L90, excluding noise from the quarry, plus 5 dB(A), or
 - the following levels:
 - “ 45 dB(A) from 0700 to 1900 hours (daytime)

" 40 dB(A) from 1900 to 2200 hours (evening), and
 " 35 dB(A) from 2200 to 0700 hours the following
 day (night time) when measured as a 10 minute Leq. "

A permit from the EPA would typically qualify these levels by saying;

" Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A). "

Observing the noise limit for other quarries, **Table 4.4**, the daytime criteria of 45 dBA is tighter than the adjacent Stornoway quarry, but otherwise appears in line with other recent quarry developments.

The QCP criteria are therefore adopted for this assessment.

Table 4.4: Daytime Noise Limit, dBA, for Other Quarries

Cocked Hat Hill, Relbia	45
Stornoway Relbia	50
HBMI Leslie Vale	48
Hanson Flagstaff Gully	50
Hanson Underwood	45
Williams Quarry Tea Tree	47
Stornoway Mangalore	45

The attenuation code is often applied to separate uses with the potential to cause environmental harm from surrounding sensitive receivers, with the purpose of minimising the adverse effects of the quarry on the receiver. The attenuation distances from the code relevant to quarries is that for crushing operations, the attenuation distance is 750 m. Therefore, if it is observed, the nearest residences are outside this attenuation distance.

4.3.6 Noise Assessment

Quarry production is only in the daytime hours of the Quarry Code of Practice and hence only daytime noise levels were assessed. The current and predicted noise levels at the residences and their resulting assessment are summarised in **Table 4.5**.

The assessment shows that:

- For normal operations (crushing hauling and carting) the quarry noise emissions meet the quarry code of practice during all stages of the expansion.
- When the drill rig is operating as well, noise levels at location B are above the criteria for the first 5 years. Beyond year 5 the noise emissions are acceptable.

It is noted that the drill rig is only for 1 or 2 days per month when the blast holes are drilled.

Table 4.5: Predicted Sound Pressure Levels at Nearby Residences and Assessment

		Sound Pressure Level, dBA		
		A	B	C
Normal Operation	Currently	39	42	36
	Years 1 to 5	37	42	37
	> Year 5	< 37	< 42	< 37
Normal Operations + Drill Rig	Year 1	40	46	41
	Year 2	40	48	42
	Year 5	39	50	44
	> Year 5	< 39	< 45	< 42
	Criteria	45	45	45

4.3.7 Conclusions

The determined criteria are included in **Table 4.5** and comparing the predicted least favourable noise case against the criteria shows the quarry development as a whole will achieve acceptable noise emissions. The exception is the blast-hole drilling rig,

4.3.8 Management

The major noise sources in the quarry are the mobile earthmoving equipment and the screening and crushing plants. These will all be located on the pit floor and below the natural surface. This will provide adequate screening to the nearest residences. All equipment will be maintained according to the equipment specifications.

The only noise source which NVC identified as requiring management, was the blasthole drill rig, where noise levels at location B are above the criteria for the first 5 years. Beyond year 5 they should comply.

When operations commence on the extension, a noise survey will be conducted within the first three months to confirm the noise predictions and assess any impacts. Any noise complaints will be recorded and acted on if received.

If required, the drilling rig will be fitted with a noise attenuation shroud or similar, to reduce emissions.

It is noted that the drill rig is only for 1 or 2 days per month when the blast holes are drilled and that the residence most likely to be affected is also located in the aircraft noise zones around the airport, and therefore subject to elevated noise levels.

The planning scheme gives protection to existing uses (such as the quarry) with its provisions for "attenuation areas" under the planning scheme provisions. Bis will cooperate with Council in determining appropriate buffer zones.

A complaints register will be maintained by Bis, which will record any noise complaints and the action taken in response. This will be monitored by the EPA.

4.3.9 Assessment of impact

Noise will be generated at the quarry throughout all stages of the proposed development by the drilling, blasting (see previous section), crushing, processing, loading and transport of rock products. Noise emissions from the current operation were monitored and future estimates of emissions were determined to be in compliance with the quarry noise criteria except for the blasthole rig when drilling.

Management measures to reduce emissions in the initial years will be implemented if required.

Adoption of improved technologies over the life of the proposal have the potential to further reduce noise emissions.

4.4 Noise and Vibration from Quarry Blasting

4.4.1 Introduction

Blasting is required to fracture the rock to allow its removal, after recoverable materials are removed by an excavator. This will continue to be required approximately once every month. Blasting will result in noise (called "airblast" or "air vibration" which typically may result in rattling windows) and ground vibration effects. There are established limits for both of these parameters which are internationally and nationally accepted.

Blasting at the quarry has been extensively monitored both by Bis (and contractors) to ensure that quarry operations meet the appropriate airblast (noise) and ground vibration standards.

Terrock Consulting Engineers, were engaged to advise on blast design and to ensure that quarry operations meet the appropriate airblast (noise) and ground vibration standards. They have completed a number of studies in the area, including for the Stornoway Raeburn quarry.

Their report is enclosed in **Appendix E**.

4.4.2 Blast Vibration Limits

4.4.2.1 Ground vibration

Ground vibration from blasting is barely noticed below 0.5 mm/s. The environmental ground vibration limits applied at the quarry are based on the Australian and New Zealand Environment Consultative Council (ANZECC) guidelines to minimise annoyance due to ground vibration from blasting and are set as a planning permit condition.

The environmental ground vibration limit is a peak vector particle velocity (PPV) of 5 mm/s at residences not owned or occupied by quarry personnel or at other sites with sensitive use. This limit may be exceeded on 5% of blasts in a 12 month period up to an absolute limit of 10 mm/s.

For the industrial area and airport runway to the south-west of the proposed extension, the limits can be higher as commercial structures are capable of withstanding higher forces. It is recommended that blast vibrations be kept under 10 mm/s for occupied commercial structures for all blasting by the quarry.

The prevention of damage to structures by blast vibration is a separate issue. 'Safe' levels for ground vibration limits to control damage to structures are recommended in Table J4.5(B) of Australian Standard 2187.2-2006, reproduced as **Table 4.6**.

Table 4.6 : Australian Standard 2187.2-2006 - Table J4.5(B) – Recommended Ground Vibration Limits for Control of Damage to Structures (see Note)

1.1.1.1.1 Category	Type of blasting operations	Peak component particle velocity (mm/s)
Other structures or architectural elements that include masonry, plaster and plasterboard in their construction	All blasting	Frequency-dependent damage limit criteria Tables J4.4.2.1 and J4.4.4.1
Unoccupied structures of reinforced concrete or steel construction	All blasting	100 mm/s maximum unless agreement is reached with the owner that a higher limit may apply
Service structures, such as pipelines, powerlines and cables	All blasting	Limit to be determined by structural design methodology

NOTE: Tables J4.5(A) and J4.5(B) do not cover high-rise buildings, buildings with long-span floors, specialist structures such as reservoirs, dams and hospitals, or buildings housing scientific equipment sensitive to vibration. These require special considerations, which may necessitate taking additional measurements on the structure itself, to detect any magnification of ground vibrations that might occur within the structure. Particular attention should be given to the response of suspended floors.

The proposed blasting practice will ensure that ground vibration levels do not exceed 5mm/s at any residential property, occupied industrial and airport buildings.

4.4.2.2 Air Vibration (air blast)

Air vibration from blasting is barely noticed below 100 dBL. Air vibration limits applied at the quarry are based on guideline levels of the ANZECC guidelines to minimise annoyance due to blasting overpressure and are set as a planning permit condition. The air vibration limit at a residence or sensitive use site is a maximum of 115 dBL (peak), which may be exceeded on up to 5% of the total number of blasts over a twelve-month period, but should not exceed 120 dBL at any time.

This airblast limit is a human response limit intended to minimise the effect of airblast on people at sensitive sites, such as residences or schools and is not a limit to prevent possible damage.

Australian Standard 2187.2-2006 states:

'From Australian and overseas research, damage (even of a cosmetic nature) has not been found to occur at airblast levels below 133 dBL..... A limit of 133 dBL is recommended as a safe level that will prevent structural/architectural damage from airblast.'

The proposed blasting practice will ensure that airblast overpressure levels do not exceed 115dBL at any residential property, occupied industrial and airport buildings.

4.4.3 Determination of Ground Vibration Levels

4.4.4.1 Basis for blast vibration level evaluations

The vibration from a blast in the quarry is continuously monitored by Maxam (the blasting contractor) with the results being used in this assessment. Recently blasting that will conform with the typical blasting of the extension have been used for these predictions.

The blasting specifications used in the blast vibration analysis are shown in **Table 4.7**. Currently and for future blasting, the explosives used will be the Maxam watergel RIOFLEX explosives, as its characteristics are better suited to the rock encountered.

As the quarry progresses through the proposed expansion and working its way towards the airport in the later years of development, a reduced scale of blasting may be needed in order to keep levels under control but these changes will need to be reviewed and monitored as the quarry approaches the south western edge of the pit extension.

Table 4.7: Blast specifications used in analysis

Typical Blast Specifications	
Bench height (m):	14
Hole depth (m):	15
Hole angle (°):	10
Blasthole diameter (mm):	89
Blasthole spacing (m)	2.8
Blasthole burden (m):	2.5
Front Row Burden (m)	3.6
Stemming height (m):	3
Explosive	RIOFLEX
Charge mass per m (kg)	8.1
Charge mass per delay (kg):	97
Powder factor (mg/m ³):	1.012

4.4.4.2 Evaluation of maximum ground vibration levels

Ground vibration varies with distance from the blast, charge mass per delay, type of explosive, geological conditions, and blasting specifications. For similar geological conditions and blasting specifications, ground vibration varies with distance and charge mass per delay, according to the Site Law formula:

$$V = k_g \left(\frac{D}{\sqrt{W}} \right)^b \quad [1]$$

where:

- V = ground vibration as peak particle velocity (PPV) (mm/s)
- D = distance from blast (m)
- W = charge mass per delay (kg)
- ^b = site exponent or drop off (attenuation) rate
- k_g = site constant

The regression analysis of the previous ground vibration measurements taken in the Breadalbane area showed that conservative (least favourable) site parameters are as follows:

Site exponent: -1.6

Site constant: 2400

Hence, the formula used for ground vibration prediction at the site is:

$$V = 2400 \left(\frac{D}{\sqrt{W}} \right)^{-1.6} \quad [2]$$

Ground vibration contours for a blast based on the above Site Law and a maximum charge mass per delay of 97 kg are shown in **Figure 4.5**.

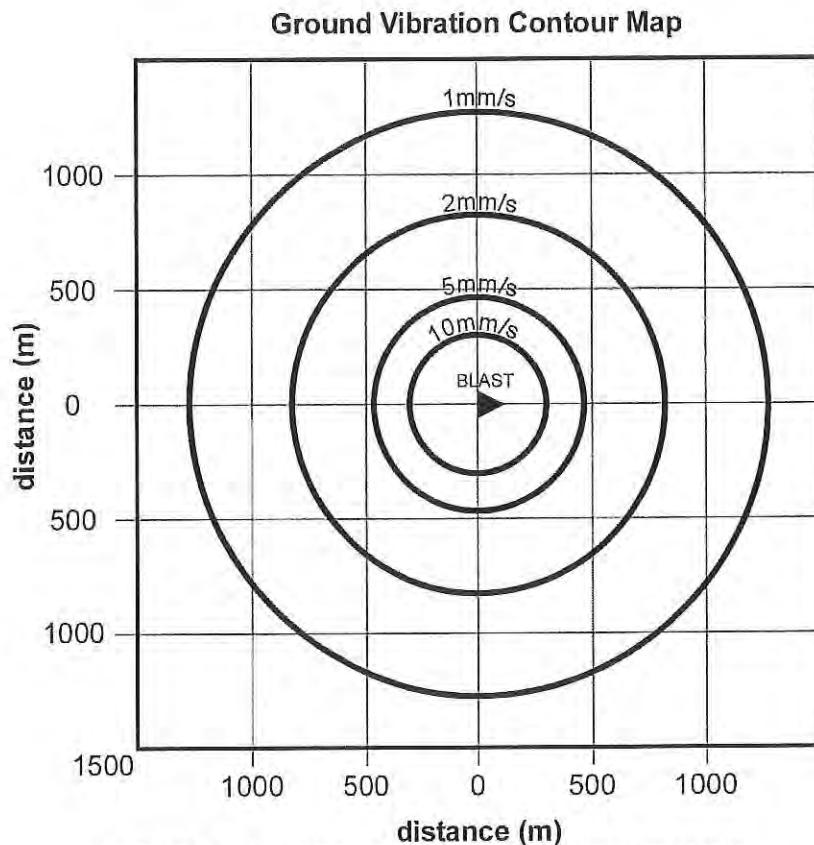


FIGURE 4.5: GROUND VIBRATION CONTOURS

When the ground vibrations contours are superimposed on the site photo as an overlay and moved around the proposed extraction area for each stage, the effect of a blast anywhere in the planned extraction area can be readily seen. **Appendix 3**, in Terrocks report (**Appendix E**) shows the predicted ground vibrations that would occur along the south-western edge, closest to the identified sensitive sites.

Assuming least favourable (worst case) vibration transmission, the milestone vibration levels occur at the predicted distances from a blast, as shown in **Table 4.8**.

Table 4.8 :Estimated ground vibration levels

PPV (mm/s)	Distance(m)
10	303
5	467
2	828
1	1277

The maximum extent of the 10, 5, and 2 mm/s contours for blasting using 97 kg of explosives is shown in **Appendix 3**. These represent the highest ground vibration levels in the area surrounding the quarry for any blast over the life of the quarry.

The closest residential property to the quarry is located 800m to the north-west of the extension and at this distance the predicted ground vibrations level that would be generated by standard blasting practise would be 2.1 mm/s. This is below the limit of 5 mm/s and as this is the closest residential property, all residential properties beyond can be reasonably expected to be below this level.

Therefore, the peak ground vibration at any residence will be less than 5mm/s.

4.4.4.3 Prediction of maximum air blast levels

The magnitude of airblast levels arriving at a point remote from the blast is a function of many parameters, including charge mass, confinement, burden, attenuation rate, shielding direction relative to the blast and meteorological conditions at the time of the blast. The attenuation rate for low frequency blast vibration has been found from experience to be a 9 dBL reduction with doubling of distance.

Analysis of blasting data from this and other quarries has permitted the relationship between maximum 120 dBL distance (the distance in front of the blast that the 120 dBL contours occurs), charge mass per delay and burden to be established.

The predictive model is:

$$D_{120} = \left(\frac{k_a \times d}{B} \right)^{2.5} \cdot \sqrt[3]{m} \quad [3]$$

D_{120} = Distance to the 120 dBL air blast level (m)

where: d = hole diameter (mm)

B = burden (mm)

m = charge mass (kg)

k_a = site constant

For the empirical constant in quarries the following site constants are used:

In front of the face - $k_a = 250$

Behind the face - $k_a = 160$

For blasting in the proposed extension, from the analytical method, the 120 dBL distance for a 97 kg charge mass and a burden of 3 metres is a maximum of 688 metres in front of the blast. This equates to 115 dBL at 1070m in front of the blast face. For the airblast levels behind the face, the 115dBL distance is 540m.

Typical airblast levels radiate from a blast in an egg shape. This is due to the fact that the levels in front of a blast are 8-10 dBL higher than those behind a blast. The worst case airblast contours from standard blasting practise are shown in **Figure 4.6**.

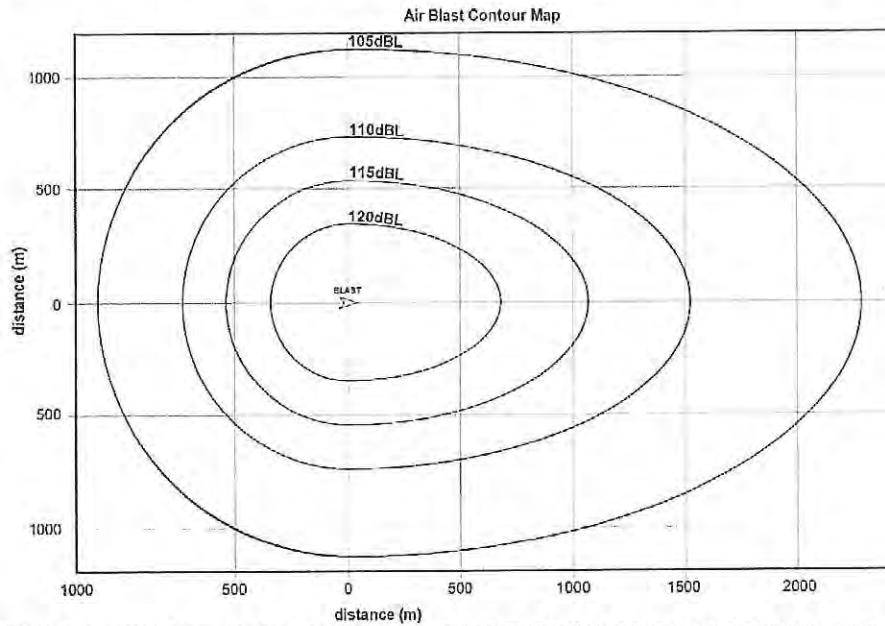


FIGURE 4.6: WORST-CASE AIRBLAST CONTOURS FROM A STANDARD BLAST

4.4.4.4 Assessment of maximum air blast levels

An assessment was made based on blast specifications for 89 mm diameter blastholes, a face height of 14 metres, and a charge mass of 97 kg for blasting in the pit extension with the face direction looking to be north-east, as shown in **Appendix 4**.

The distances to milestone airblast levels for future blasting practice and different orientations are shown in **Table 4.9**.

Table 4.9: Distances to milestone airblast levels for standard specification blasts

Air Vibration Level (dBL)	Pit Extension Blasting	
	Distance in front (m)	Distance at side/behind (m)
120	688	347
115	1070	540
110	1529	732
105	2294	1118

The planned extraction sequence and resulting blast directions will enable air blast levels to be kept below the 115 dBL at any sensitive site for the remainder of the quarry's operation.

4.4.4 Fly Rock

Efficient blasting practice results in broken rock being left in a pile next to the blasting face, but the possibility of flyrock and its effective control must always be considered.

Flyrock is controlled by having the explosive charge confined by sufficient stemming and burden. Care and attention to detail during all stages of face survey, blast design and loading will ensure that any rock throw will be contained within the Work Authority boundaries, and will present no danger to the public.

Flyrock distances for the proposed blast design have been calculated using the Terrock Flyrock Model, that is widely used for flyrock control in Australian quarries.

The maximum predicted rock throw in front of the face for the proposed specifications is 65 metres. To this distance Terrock recommend the application of two factors of safety for plant and equipment and personnel. For plant and equipment, a factor of safety of '2' should be applied to the potential maximum throw of flyrock. A factor of '4' should be applied for personnel and public. This clearance is applied in a 90° arc at 45° to the face of the blast.

In directions parallel to the face and behind the face, the possible flyrock mechanisms are cratering and rifling of the stemming (or gun barrelling). Providing the stemming height is greater than 20 hole diameters (1.8 metres), cratering will not occur. Rifling produces high trajectory flyrock with little horizontal projection.

For any direction behind the face or to the maximum flyrock throw will be 42 metres. The same recommended minimum clearance zones for plant, equipment, personnel and public are applied to each blast as shown in **Figure 4.7**.

Table 4.10 shows the breakdown of the maximum throw and the applicable clearance zones for that throw. As mentioned above, the factors of safety are '2' and '4' both in front and behind the face for all blasting. The maximum vertical throw is also shown.

Table 4.10: Distances of Flyrock and Clearance Zones

Horizontal	Distance in front (m)	Distance at behind (m)	Vertical
Maximum Throw	65	42	65
Plant & Equipment	130	84	
Personnel & Public	260	168	

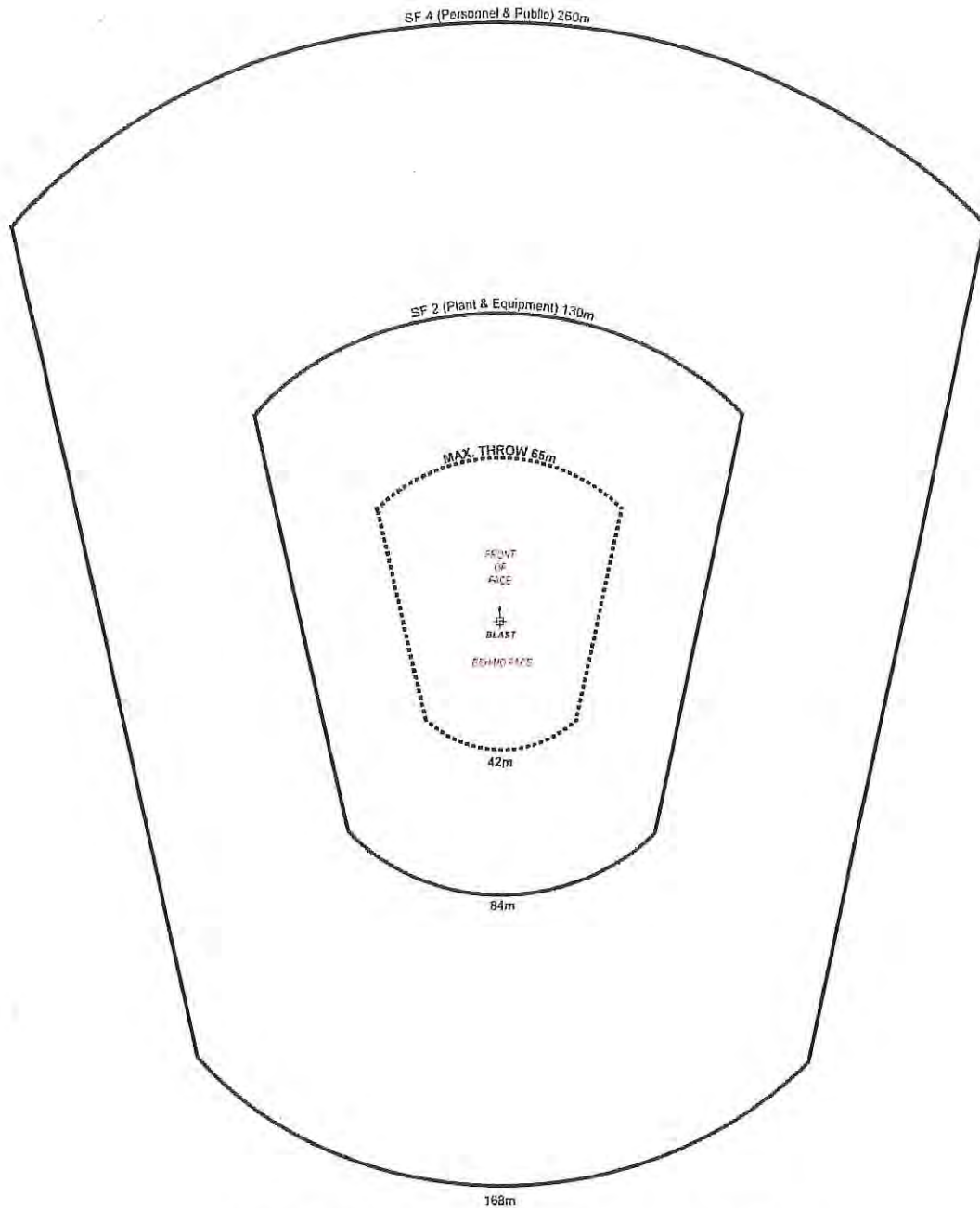


FIGURE 4.7: FLYROCK EXCLUSIONS ZONES

The adoption of the minimum exclusion zones in **Figure 4.7** will prove conservative for most blasting. However, the determination of the exclusion zone is the responsibility of the quarry manager and shotfirer for each blast.

4.4.5 Management

Blasting in Tasmanian quarries is regulated by EPA Tasmania and Mineral Resources Tasmania through the Quarry Inspectorate. All quarries in Tasmania are required by law to record details of every blast in an official report book and these reports are available for official inspection. The report book includes a stocktaking section,

which can be checked against official records which explosives suppliers are required to keep. Quarry Managers and shotfirers are also required to hold statutory certificates and permits and are liable to have these suspended or cancelled if they do not obey the regulations.

Blasting must be carried out in accordance with the proposed blasting specifications and the applicable Explosives Use Regulations.

Compliance with vibration limits will be checked by the continuation of the monitoring regime conducted around the current working pit, modified as required to adequately monitor levels in the industrial area and airport terminal.

Compliance with vibration limits can be readily demonstrated by the adoption of a monitoring program to record the vibration levels from each blast.

All blasts will be monitored to ensure compliance with the blast vibration limits

Blasting will be only conducted between the hours of 10.30am and 3.30pm and effected residents in the area are notified by phone preceding each blast.

In addition to the residence at location B, the Launceston Airport control tower is notified and CASA were consulted in the Notice of Intent period and a copy of the fly rock template has been forwarded to CASA, as requested.

A complaints register will be maintained which will record any blasting complaints and the action taken in response. This will be monitored by the EPA.

In accordance with the planning scheme zoning, any proposals for residential (or sensitive uses) will be required to undertake site specific studies to demonstrate that these residential uses will not be affected by the quarry operations (see Section 3.2.2.6). These will be monitored by Bis and presumably Council.

4.4.6 Assessment of impact

Terrock have concluded that blasting can be carried out in the proposed quarry extension safely and in conformance with the Explosives Regulations 2012 of Tasmania and planning permit vibration limits, subject to compliance with the specifications and recommendations given in their report.

People within the range of perceptible ground vibration will experience both air and ground vibration from blasting for less than four seconds on about 12 occasions per year, depending on the blast size. Beyond the range of perceptible ground vibration, the air vibration may be perceptible for less than two seconds for each blast.

The peak ground vibration level will be less than 5 mm/s at residences in the surrounding area, as well as at the industrial areas and the airport terminal.

Blast vibration levels resulting at the Launceston Airport runway will be less than 10 mm/s and at the exclusion distance of 400m, the levels are predicted to be 6.40 mm/s when blasting is at its closest to the runway.

Airblast overpressure levels at the surrounding sensitive sites will be less than 115 dB_L, as shown in **Appendix 4** (Terrock Report **Appendix E**).

4.5 Dust (particulates)

4.5.1 Issues

Dust is more conventionally referred to as 'particulates' or 'airborne particulates'. Airborne particulates are generated during quarrying mainly by mechanical disturbances (such as drilling, blasting, earthmoving and movement of road traffic on unsealed surfaces). In dry and windy conditions, particles can be lifted from open or disturbed areas, resulting in visible dust emissions. Most airborne particles that originate from these sources are larger than 10 µm (PM₁₀) and are associated more with nuisance than with public health problems. The larger particles tend to settle back to the ground within a short distance (<300 m) from the source.

The size of a particle also determines its potential impact on human health. Larger particles are usually trapped in the nose and throat and swallowed. Smaller particles (less than PM₁₀) may reach the lungs and cause irritation there. Fine particles can be carried deep into the lungs and irritate the airways.

The Quarry Code recommends that generally, the emission of visible dust should be confined within the boundary of the premises, except in remote areas. Dust produced by the operation of the quarry or by transport, crushing and screening plant must be effectively controlled to the satisfaction of the EPA.

The degree of dust generation is a factor of the rock type when crushed (fines generated), abrasion resistance and the degree of fines generated in handling, in stockpiles and when transported. Some materials (silica) are well known for their ability to generate dust.

4.5.2 Quarry Emissions

The quarry operations will be similar to what has been happening in the past. They consist of drilling and blasting of rock, loading and haulage to processing facilities, crushing and screening, stockpiling, and loading for offsite transport.

All these phases of the operation will produce dust.

The generation of dust from quarrying and processing operations will depend on:

- the frequency at which dust generating activities take place,
- meteorological conditions, such as wind speed,
- composition of dust, including particle size distribution (particle density and moisture content), and
- the condition of the source.

Wind directions for summer and Yearly averages for 9am and 3pm are shown in **Figure 3.5**. These indicate that at 9am winds are mostly from the north / north-west quadrant (40%) with also a south –south-east component at lower wind speeds. This applies also to summer. Wind velocities also tend to be low at 9am.

At 3pm, the winds are mostly from the N-NW directions (almost 60%, with the strongest winds from the north-west and north). In summer, winds are mainly from the same directions.

Therefore, when winds are strongest and in dry periods when dust generation is most

likely, wind directions are to the south -east and away from the closest residences and over agricultural land.

Dust deposition from the current or future operations at nearby residences is regarded as unlikely given the distance between the operation and nearby residences and the rapid fall-off in dust levels with distance. The access road is sealed from the boundary of the Lease and there are no residences adjoining the access road.

The main land uses surrounding the quarry area are agriculture, and ground preparation and crop harvesting. These will have the potential to contribute to airborne dust and affect ambient air quality.

Dust emissions from the above mentioned sources would exhibit a marked seasonal trend as ground cover and soil moisture content change (i.e. low soil moisture and reduced vegetation cover [i.e grass cover] in the summer months would contribute to higher levels of dust being generated).

4.5.3 Quarry Dust Management

The Permit conditions have various requirements. These include covering or dampening dust producing loads, controlling fugitive emissions (roads, stockpiles etc), and controls on dust emissions from plant. The crushing and screening plant is fitted with water sprays and dust extraction equipment. All truck loads which may generate dust will be covered or wetted down prior to transport. Roads and working areas will be watered with a water truck if required.

The effectiveness of current dust suppression will continue to be monitored by a complaint mechanism and specific dust monitoring will be conducted if complaints are received and can be verified and review of the causes will be examined and changes made to reduce further events of this nature.

A complaints register will be maintained by Bis which will record any dust complaints and the action taken in response. This will be monitored by the EPA.

4.5.4 Assessment of impact

Dust generated from the quarry in the past has not been a problem due to the separation distance and the prevailing wind directions. No residents have ever raised dust emissions as an issue of concern in over 35 years of operations.

Future operations are not expected to generate significant nuisance dust Other dust sources from agricultural activities are likely to be the major source.

4.6 Water Management

4.6.1. Issues

The risk to water quality from activities at the site is predominantly associated with surface water runoff, entrained particulate matter and possibly spilt fuels and oils. The existing quarry operations have been operating for over 30 years with no known water quality issues.

The existing water management in the current quarry operations is to direct surface drainage from active work areas, after passage through settling ponds, to the Briary

Creek supply pond (except the plant area). This pond overflows via a culvert under the haul road and flows continue down Briarly Creek. This pond also acts as a water supply for quarry and the crushing plant operations. Photograph 5 shows the pond.



Photograph 5: Water Supply pond in Briarly Creek

In the active quarry areas, surface drainage is contained in the pit floors where it gradually infiltrates the basalt fractures and joints and reports to the groundwater table. On occasions water is pumped from the Centre Pit to the pond, as required.

Settling ponds are in place for drainage from the Precoat Plant area, and a new settling pond is being constructed for the crushing /screening plant floor. This is to be located near the existing wash bay and has been sized to retain a 1 in 20 year, 12 hr duration rain event falling on the catchment. Appropriate runoff coefficients have been applied.

There are no known beneficial usage in receiving waters, which are ephemeral..

The new quarry operations will be on existing grazing pasture where the quarry will be progressively developed in areal extent and at depth.

There is no onsite storage of chemicals, other than a diesel storage tank, lubricants etc and these are stored undercover. There is vehicle and machinery maintenance and refueling on site in contained areas

4.6.2 Management

4.6.2.1 Quarry area

The measures to be adopted to prevent any sediment or pollution leaving the quarry and flowing offsite can be summarised as follows. These are essentially those that have been effective for the past quarry operations.

- The quarry perimeter will be graded such that all surface drainage is directed into the pit itself and not off site, uncontrolled.
- Upslope water flows will be directed to a settling basin (1 or more to provide storm surge capacity and reduce flow rates).
- The pit floor will be graded to direct surface drainage to the settling basins prior to discharge under the haul road to the Briarly Creek pond (this will also provide storm surge capacity and reduce flow rates).
- All maintenance and refueling areas in the quarry will be bunded and any spillage will be cleaned up. An oil spill kit will be maintained on site.

Sediment Pond sizing

For sediment retention facilities a 1 in 20 year reoccurrence interval storm (12hr), will be used to determine pond sizes. **Figure 4.8** shows the site water management plan. **Table 4.11** shows indicative sediment pond sizing.

Table 4.11 Retention/Sediment Pond Sizes (Figure 4.8).

Pond No	Catchment area (ha) (this will vary)	Required pond size m ³
W1	5	750
W2	10	1500
W3	7.5	2200

preliminary only. To be verified by site experience.

The ponds designed to act also as detention basins, will be provided with outlet pipes of 150mm diameter. Under normal conditions these will drain, and in storms fill to retain stormwater inflows before spilling.

4.6.2.2 Water Supplies

Water for plant use will be sourced from the existing pond in Briarly Creek for quarry and plant use. Any external water sources can continue to be supplied from the Taswater supply.

No further surface water management measures are regarded as necessary.

4.6.2.3 Groundwater

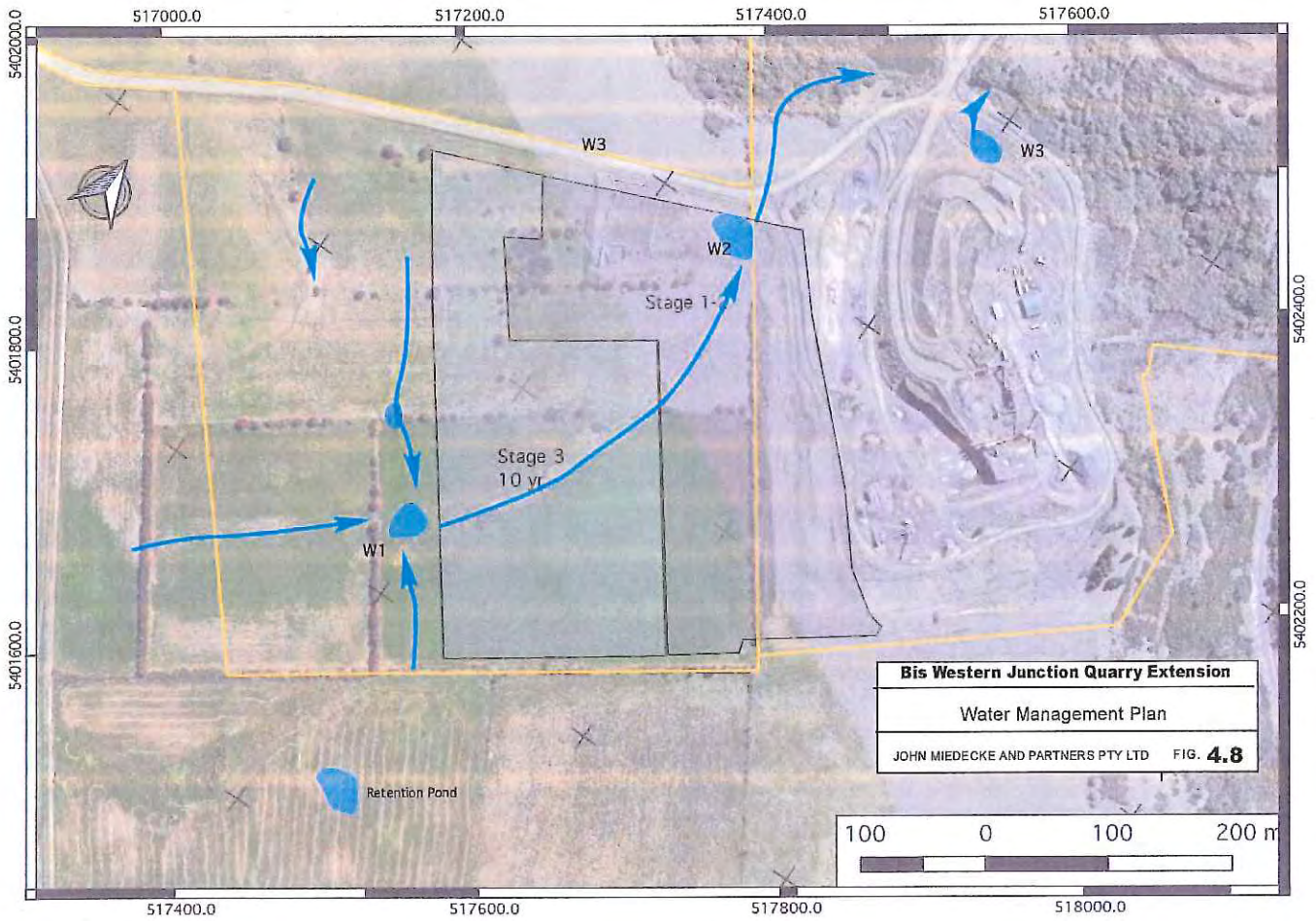
The quarry operating history is that the water table is below the existing quarry floor and therefore no groundwater is expected to be intersected in the quarry. The floor RL of the quarry extension is expected to be at RL 130, the existing quarry floor.

4.6.3 Assessment of Impact

4.6.3.1 Surface water

The ongoing quarry development has limited potential to affect water quality in receiving waters through hydrocarbon spills or discharge of turbid runoff to the watercourses. Consistent with existing drainage management measures, all runoff from disturbed areas will be diverted to onsite sedimentation dams and then the Briarly Creek pond.

Other measures to minimise any potential impact to the water quality include the storing and handling of hydrocarbons in accordance with relevant legislation and standards.



4.6.3.2 Groundwater

There will be no deleterious impacts on groundwater, as the water table is well below the quarry floor. There may be some groundwater recharge from drainage from the pit floor.

4.7 Visual Effects

The visibility of existing and planned future quarry activities has been a major part of the environmental management planning for the ongoing quarry operations and have been a major factor in the design of the quarry extension. To date the quarry has been developed on the edge of the ridgeline and behind a “bund” of topsoil and overburden.

The quarry extension will consist of the expansion of an original pit in a westerly direction. It will be an advancing face with the soils and overburden stripped and located to a stockpile area near the aerodrome ahead of the advancing face. This face will consist of 12m high vertical benches.

4.7.1 Landscape Setting

The existing quarry is located on the edge of the Tamar Valley Graben, on a flat topped low hill on Tertiary Basalt. All native vegetation has been removed in the area and the main land use is grazing and cropping, with the Launceston Airport to the south and west.

4.7.2 Visibility

The existing quarry operations are virtually not noticeable from the south, west and north, because of the sunken nature of the pits. The active pit is evident from the east and will be until closure in the next few years (see Photograph 6).

The visibility of the proposed quarry extension will be very limited, as it will progress in a north- westerly direction as a “pit”. The only open views will be from the east, where the topography shields the workings, which in addition are located behind the crusher and screening plant. Photograph 6 shows a view from Relbia Road, due East of the quarry. To the right is the Cromy Vineyard and the overburden bunds of the Stornoway Quarry.

Photograph 7 shows a view from Relbia Road, to the north of the quarry. To the right is the Cromy Vineyard and the overburden bunds of the Stornoway Quarry.

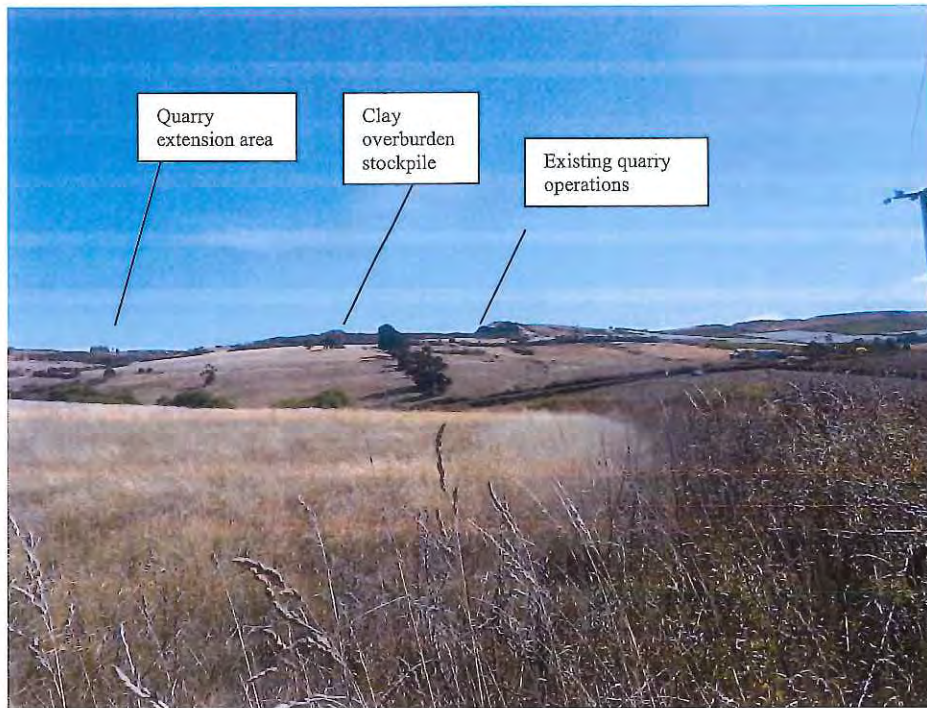
4.7.3 Management

The location for the quarry extension and the quarry designs, were selected to avoid environmental impacts, including minimising discernible visual change. The topography has presented opportunities for effectively screening the quarry operations, except for short durations when stockpiles near the airport are undergoing revegetation.

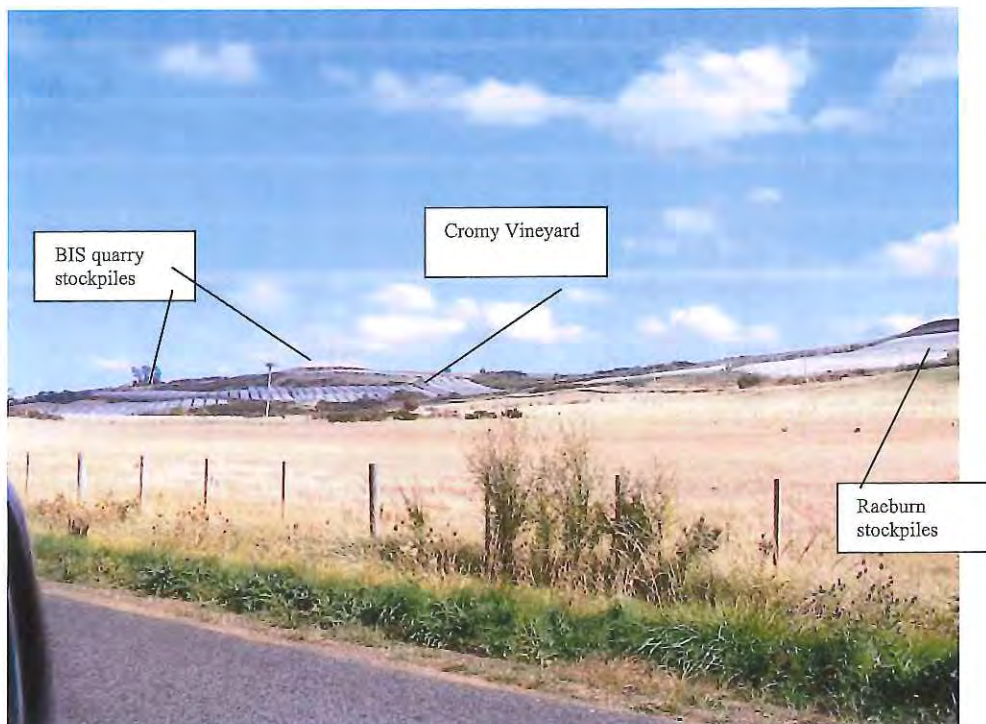
4.7.4 Assessment of impact

The quarry location and design will screen views to active working areas and prompt rehabilitation of bunds and stockpiles before they become visible and will maintain a natural-like appearance in the viewed landscape.

Other than a short duration when stockpiles are “fresh”, the quarry operations will be virtually not noticeable.



Photograph 6: Quarry Extension views from Relbia Road



Photograph 7: Quarry Extension views from Relbia Road to the North

4.8 Roads and Traffic

4.8.1 Existing Conditions

4.8.1.1 Access

Access to the site is via Richard Street, Western Junction, Photograph 8 shows the entrance. Richard Street is an existing access street servicing Industrial / Commercial frontage business with major heavy vehicle freight service depots in proximity to the quarry access. Traffic from the quarry travels 175m to a round-about on Evandale Road and most turn right toward Launceston and the Midland Highway.



Photograph 8 :Intersection of Access Road & Richards Street

The access road is maintained by Bis.

Traffic Engineer Terry Eaton carried out a traffic impact assessment and this report is included in **Appendix B**. He also considered a possible short term contract for bulk fill. This is no longer being considered.

4.8.1.2 Traffic Data

A sample survey at the time of the site visit indicated an Average Daily Traffic (ADT) value of some 1,250 to 1,300 vehicles per day on Richard Street, with some 50% of traffic as heavy vehicles, i.e. trucks, semi-trailers and heavy combination vehicles. The high heavy vehicle percentage is seen as relative to the Transport Distribution land use activity fronting Richard Street.

Bis traffic is estimated at 12,000 vehicle loads annually will average some 45 truck loads per day. ADT value 66 truck trips (two-way movements). Site operations suggests an ADT at some 40 two-way light vehicle movements.

4.8.2 Proposal Impact

The cartage of the additional 140,000 tonnes of quarry material with similar average loading as present will require an additional 4,700 vehicle loads annually increasing the average daily loaded truck movements from the site to some 70, ADT value 100 truck trips (two-way movements)

4.8.3 Assessment

Eaton states;

“A traffic assessment for an increase in the annual quarry licence provisions for the BIS Industries quarry with access via the existing driveway to Richard Street, Western Junction, indicates compliance with Section E4.0 of the Northern Midlands Interim Planning Scheme”.

4.8.4 Management

No particular management measures have been identified.

4.8.5 Assessment of Impact

The overall assessment by Eaton is that the expected increase in the long term quarry operation will not significantly increase truck movements on Richard Street.

4.9 Wastes

4.9.1 Liquid

There will be no additional liquid wastes associated with ongoing quarry activities.

The existing septic tank is adequate and all used oils etc are stored and taken offsite for appropriate disposal. Oil spill kits are maintained on site.

4.9.2 Solid Wastes

The wastes generated at the site are those typically associated with machinery and processing plants. Wastes are managed in accordance with the following hierarchy of waste management:

- waste avoidance;
- waste recycling;
- waste re-use;
- waste treatment; and
- waste disposal.

All wastes will be disposed of in animal proof containers (in the quarry area) and the contents disposed of to a licensed waste disposal facility on a weekly basis.

4.10 Greenhouse Gases

Greenhouse gases are generated by the following quarry activities;

- combustion of fuels by mobile plant, equipment and onsite vehicles
- electrical power usage by processing plants
- use of explosives for rock blasting;

- transport to markets

The proposed quarry development is expected to possibly increase production by some 25%% in the next few years. In any case, if the quarry does not supply these materials, another supplier will. This will result in no net increase.

4.11 Dangerous Goods

Materials on site, storage etc are discussed in Section 2.3.5.

The workshop, equipment etc are all provided with oil spill kits.

All these materials will be stored and transported in accordance with the *Australian Code for the Transport of Dangerous Goods by Road and Rail*, the *Dangerous Goods Act 1998* and associated regulations.

4.12 Land Use

The ongoing quarry operations will gradually replace the existing cropping and grazing in the property. Ultimately approximately 18.8 Ha will be disturbed over the 18 year quarry plan.

Because of the quarry design as a pit, with all quarry activities including material transport confined within the pit perimeters, there is little potential for alternative land use activities to be practiced until the quarry pit completes after year 18.

The pit walls will be progressively rehabilitated and after pit completion, the floor will be available for light industrial use.

5.0 ENVIRONMENTAL MANAGEMENT, MONITORING AND REVIEW

5.1 *Environmental Management*

Bis have developed an environmental policy and this is attached in **Appendix C**. They are committed to achieving a situation in which they operate their support and logistics services whilst conserving resources, without causing pollution to the environment or harm to human health. In doing so, all their people are responsible for meeting or exceeding the environmental performance expectations of the business and its stakeholders.

Bis have entered a cooperative agreement with the Australian Government's Department of Environment, Water, Heritage and the Arts. As a member of Greenhouse Challenge Plus they are meeting their commitments on the challenges presented by climate change.

They also have environmental management systems in place to measure and improve their CO2 emissions. These systems are aligned to ISO14001 and their customers' licenses under the Environmental Protection Act. BIS consistently develop and implement site environmental management plans (SEMP) for all sites under their control.

As a large consumer of diesel fuel, BIS are taking a number of energy efficiency actions that will reduce emissions and improve their Greenhouse Performance Indicators.

Bis are also supporting and working closely with their largest on-site clients where they have Operational Control status under the Australian Government's legislative programs. They provide key data to these clients to enable their reporting under two programs:

- Energy Efficiency Opportunities, a legislative initiative of the Department of Resources, Energy and Tourism.
- National Greenhouse and Energy Reporting System administered by the Department of Climate Change. This will lead to the pending Australian Emissions Trading Scheme.

5.2 *Environmental Monitoring and Review*

The program has been designed to meet the following objectives;

- Monitoring compliance with emission standards and other performance requirements.
- Assessing the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives.
- Assessing the extent to which the predictions of environmental effects in the EMP have eventuated.
- The EMP is usually reviewed every five years.

The monitoring plan is shown in **Table 5.1**.

Table 5.1: Monitoring Program

Item	Objective	Program	Timetable
General	Complaints monitoring	Maintain complaints records	Continuous
Blasting	Comply with ANZEEC limits	Ground and airblast monitoring at site and other residences (see Figure 2.1) Advise residents and airport prior to blasting	Each blast event
Noise	Comply with Permit Conditions	Monitor complaints. Conduct noise survey within 3 months of commencement.	Continuous
Dust	Comply with Permit Conditions	Visual monitoring and complaint response. OH&S monitoring	Continuous
Water	Comply with Permit Conditions	Monitor settling ponds, outlets, any sediment movement. PFAS in GW bore (3yearly)	Continuous
Greenhouse gases.	Minimise emissions	Implement BIS's commitments as part of the Greenhouse Challenge Program.	Continuous
Visual amenity	Minimise visual impacts on the landscape	Conduct quarry operations in accordance with EMP. Prompt revegetation of evident areas.	Continuous
Rehabilitation and closure	Return land to light industrial land use.	Implement EMP.	Review 6 monthly
Weed Control	Eliminate noxious weeds	Regular inspection and treatment.	Quarterly

6.0 DECOMMISSIONING AND REHABILITATION

6.1 Existing quarry operations

There has been little rehabilitation to date, as the past quarry activities were not designed for progressive rehabilitation and the existing pits are still active.

Large volumes of topsoils and overburden materials from quarry operations have been stockpiled in areas surrounding the pits and these are available for rehabilitation and revegetation. These are in excess to requirements.

The quarry plan is intended to progressively complete basalt extraction and rehabilitate the currently operating and operated quarries in the period. These are the

western pit and the current operating (Eastern Pit). The pit which is the site of the crushing plant and stockpile area is currently not planned for closure as it will remain in operation. The existing operations are conducted in accordance with the Environmental Management Plan – Operations 2010 (Miedecke, 2012).

The approved closure and rehabilitation plan for the existing quarry is shown in **Figure 2.8**.

The recommended rehabilitation plan is as follows (in accordance with the Quarry Code Of Practice):

- Salvage and recycling of redundant plant and equipment;
- Profile and contour ripping;
- Coverage with previously stockpiled materials from the stockpiles, and
- Planting of tree seedling, seed and fertilizer application.

6.2 *Quarry extension*

6.2.1 *Land form*

The quarry extension area is in the form of a pit, with a relatively level base. The Quarry Plans discussed in Section 2.4 show an advancing face with final benches formed on both the north and south edges being established. These are approx 6m high by 4-5m wide to allow effective rehabilitation and these can be progressively revegetated (**Figure 2.15**). These can be a mix of pasture and/or native vegetation. Guidelines are set out below.

Rehabilitation will not be possible on the pit floor until closure. It is planned that the quarry floor would be left as a level compacted surface suitable for industrial and/or commercial use.

Figure 6.1 shows a conceptual closure plan for the Pit

6.2.2 *Pasture revegetation*

Once the topsoil has been re-spread it will need to be cultivated preferably with agricultural tines. Cultivation will occur in autumn, (two weeks following knock-down herbicide application) and immediately prior to sowing. Rocks will be present and seed application will be best completed using an agricultural spinner (also used for fertilizer application).

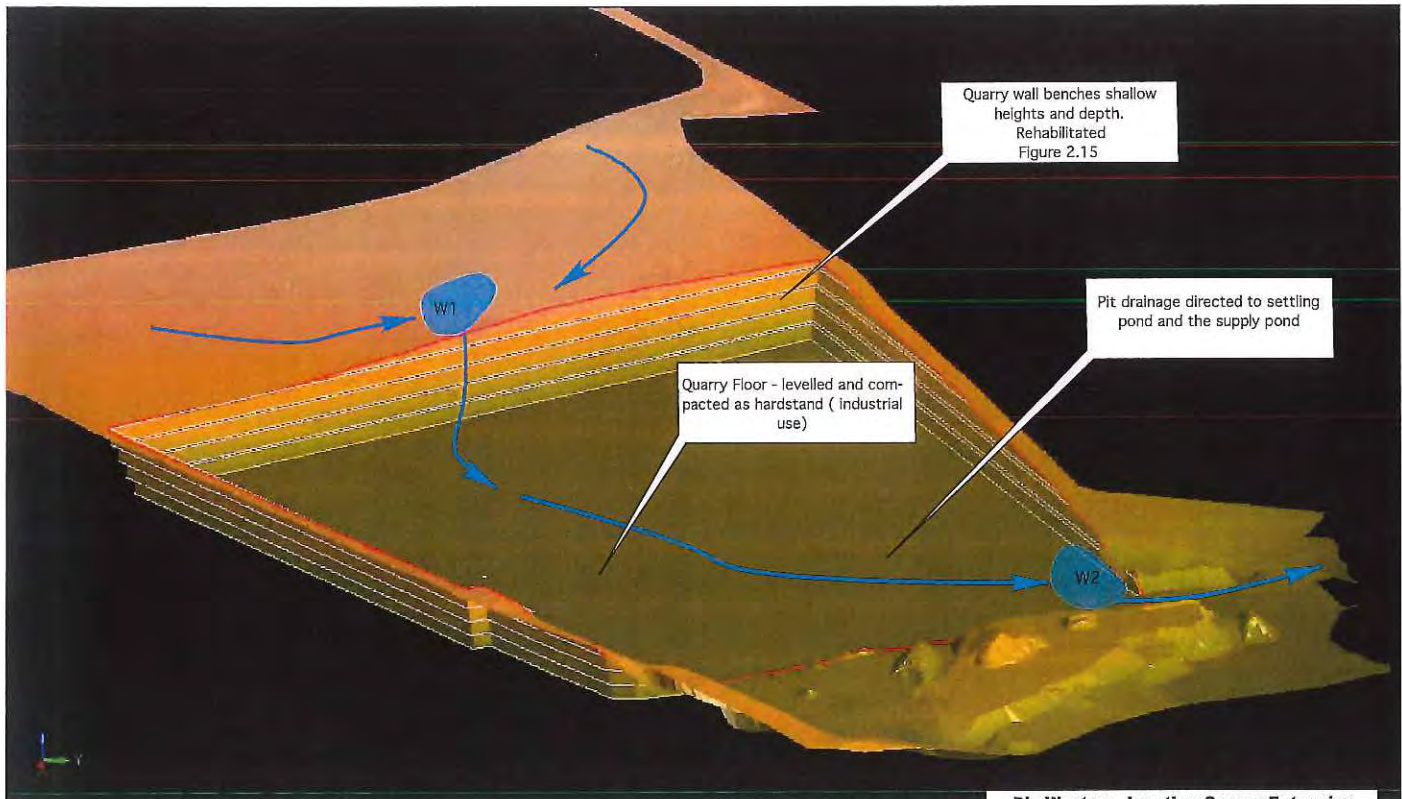
Basalt soils, particularly sub-soils are acidic and Ag-Lime application will be required at the rate of 10 tonne /ha. Ag-Lime is best applied by spreader trucks (e.g. Altrac Spreading).

Once the lime, seed and fertilizer have been applied, the surface will be harrowed.

Follow up weed control in the pasture will be required.

The proposed pasture species to cope with freer draining basalt topsoil and subsoils mix is as follows:

- Cover Crop of Cereal Rye (ryecorn) 40 kg/ha



Quarry wall benches shallow heights and depth. Rehabilitated Figure 2.15

Pit drainage directed to settling pond and the supply pond

Quarry Floor - levelled and compacted as hardstand (industrial use)

Bis Western Junction Quarry Extension

Quarry Conceptual Closure Plan

JOHN MIEDECKE AND PARTNERS PTY LTD **FIG 6.1**

- Ryegrass var Victorian 12 kg/ha
- Ryegrass var Tama 08 kg/ha
- Cocksfoot var Porto 05 kg/ha
- White Clover var Huia 03 kg/ha
- Sub-Clover var Trikkala 02 kg/ha

The recommended fertilizer is 14:16:11 at 500 kg/ha initially. The fertilizer should be applied by tractor and spinner.

Follow-up maintenance lime and fertilizer requirements should be based on future soil analysis.

6.2.3 Tree and Grass Species suitable for planting

The following species are able to cope with the conditions created following quarry development and final landform creation and will establish a self-sustaining stable community that will encourage a succession towards pre-disturbance vegetation.

The method of establishment will be by direct planting of native seedlings.

The recommended seedling species is from the list below:

- *Acacia dealbata* Seedling
- *Acacia mearnsii* Seedling
- *Allocasuarina verticillata* Seedling
- *Bursaria spinosa* Seedling
- *Dodonea viscosa* Seedling
- *Eucalyptus amygdalina* Seedling
- *Eucalyptus globulus* Seedling
- *Eucalyptus viminalis* Seedling
- *Lomanadra longifolia* Plugs
- *Poa labillardierei* Plugs

All seedlings will be guarded, staked and fertilised when planted.

If browsing by animals is a problem, tree guards should be utilised with all seedlings while animal exclusion fencing can be utilised where it can be practically constructed.

6.2.4 Fertiliser

Fertiliser to be applied are a N:P:K fertiliser mix of 8:4:10 at 300 kg/ha. Based on annual monitoring inspections, maintenance fertilizer application may be required.

All grass plugs will be accompanied with 5 grams of Osmocote and seedlings should be planted with a 20 g Agriform fertiliser tablet or equivalent.

6.2.5 Maintenance

Periodic inspection and maintenance will be required. It is recommended that this be yearly.

6.2.6 *Weed control*

Bis has contracted Woodlands Corporation (Aust) Pty Ltd to control weeds on the Lease. Quarterly site inspections are made (including pathogens). Gorse, blackberries, thistles, flatweeds and rice grass occur on the lease and are being treated.

Vehicles and machinery are washed according to the weed and hygiene guidelines when transferring to and from susceptible or risky sites (**Appendix E**).

7.0 COMMITMENTS

The quarry will be operated in compliance with this DPEMP, the Quarry Code of Practice, Tasmanian State Policies and legislative and regulatory requirements.

It will also be operated in accordance with the planning and environmental conditions of the land use permit which will be issued by the Northern Midlands Council and the EPA. The Mining Lease will also have conditions determined by MRT.

The specific commitments associated with the potential impacts and their management measures are summarised in **Table 6.1**.

8.0 CONCLUSIONS

This development proposal and environmental management plan has been prepared to support a development application for the operation of the quarry (already permitted) at production rates of up to 320,000 m³ per year..

The pit will provide construction materials essential for the local community and the short term supply of bulk fill for the nearby highway upgrade.

It will continue to operate to the States social and economic benefit without any significant adverse environmental effects.

The potential impacts from the ongoing operations are well understood and will be similar in nature to those experienced previously over the past 36 years. They will result in direct physical impacts on the proposed location and limited off site effects.

The DPEMP has identified and assessed the potential impacts associated with the operations, in accordance with the DPEMP guidelines provided by EPA. It also demonstrates that appropriate operational and management measures have been identified and proposed to mitigate the potential impacts and to ensure minimal risk to the environment and human health.

The DPEMP demonstrates that the proposed activity will be compliant with Tasmanian Policies, Legislation and Regulations, and provides a monitoring program which will ensure compliance with standards and regulations.

Table 6.1: SUMMARY OF COMMITMENTS

	Potential Impacts	Management measure commitments	Timeframe
1	Residential amenity	Maintain a complaints register to record all complaints from the public.	As received.
2	Blasting Noise and Vibration	Advise Airport and residents within a 1km radius, (or as agreed) 24 hours in advance Monitor blasting to ensure compliance with standards.	Every blast (1mths approx).
3	Noise Emissions – onsite	Maintain attenuation distances to neighbours. Monitor noise emissions after operations commence. Noise attenuation on drill rig if needed.	Ongoing. Ongoing. Ongoing.
4	Noise Emissions – offsite	Hours of operations to permit conditions No transportation on Sundays or gazetted public holidays. Transport road trucks maintained in good condition.	Continuous.
5	Water Management	Monitor and maintain settling basins and improve as necessary. Direct all runoff to Briarly Creek storage pond. Monitor groundwater inflows and well for PFAS	Continuous. 3yearly
6	Air Emissions onsite	Operate water sprays on crushing equipment Minimise surface disturbance. Progressive rehabilitation of disturbed areas Watering of internal roads. Maintain Quarry roads routinely.	As needed Ongoing. Ongoing. As needed.
7	Air Emissions offsite	Transport trucks will be tarpaulin covered if required.	As needed. Ongoing.
8	Attenuation zone	Cooperate with Council to monitor a suitable attenuation zone.	As required.
9	Visual Management	Revegetate overburden and topsoil stockpiles.	Ongoing.
10	Weeds	Yearly weed surveys and appropriate control. Washdown of equipment if from weed infected areas.	Ongoing.
11	Revegetation	Strip and stockpile topsoil and overburden as per the guidelines. Revegetate quarry walls progressively.	Ongoing.

REFERENCES

Anon. 2008. Basalt at Breadalbane. MRT, 2008

EPA ,2017. Quarry Code of Practice, 3rd Edition,. EPA Tasmania, May 2017
http://epa.tas.gov.au/Documents/Quarry_Code_of_Practice.pdf

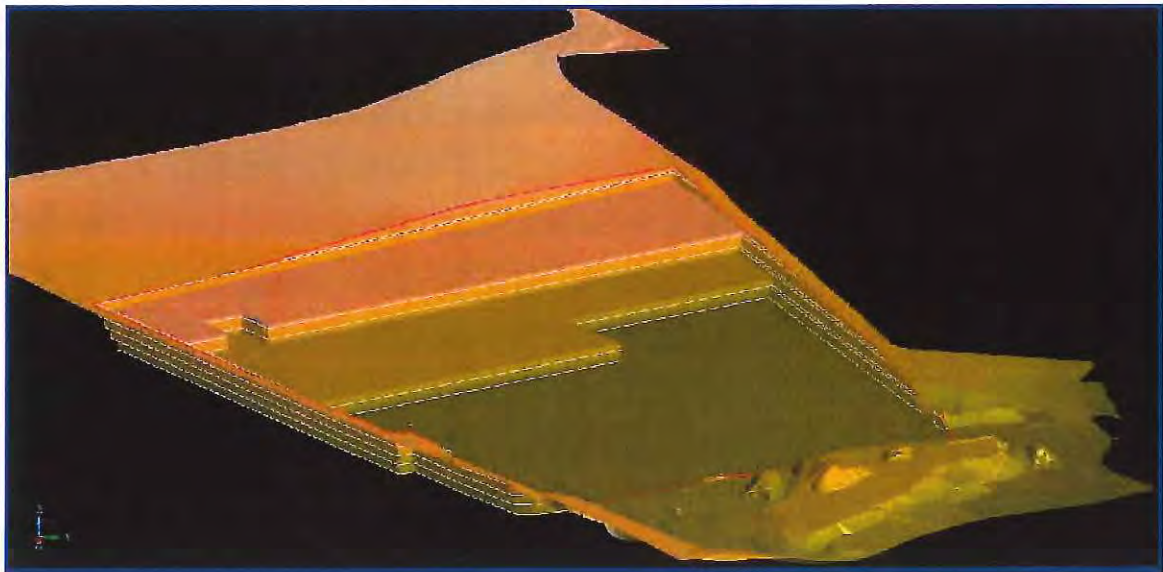
Miedecke, 2012. Environmental Management Plan – Operations 2010 (John Miedecke and Partners Pty Ltd, 2012)

D.N.Hughes

**WESTERN JUNCTION QUARRY
EXTENSION**

**DEVELOPMENT PROPOSAL AND
ENVIRONMENTAL MANAGEMENT
PLAN**

APPENDICES



List of Appendices

- Appendix A: EMP Guidelines
- Appendix B: Terry Eaton Traffic Assessment
- Appendix C: BIS Policies
- Appendix D: NVC Noise Assessment
- Appendix E: Terrock Blasting Assessment
- Appendix F: Weed and Hygiene Guidelines

Appendix A: EMP Guidelines

Development Proposal and
Environmental Management Plan
Project Specific Guidelines

for

D.N. Hughes

Western Junction Quarry Extension

Off Richard St, Western Junction

Board of the Environment
Protection Authority
April 2017



1. General

This document identifies the key issues that need to be addressed in the Development Proposal and Environmental Management Plan (DPEMP) for D.N. Hughes, Western Junction Quarry Extension.

This document should be read in conjunction with the *General Guidelines for the preparation of a Development Proposal and Environmental Management Plan* (<http://epa.tas.gov.au/regulation/guidance-documents>), which provides general information on preparing a DPEMP.

While the DPEMP should evaluate all potential effects of the proposal, the DPEMP should be principally focused on the key issues identified below. The level of detail provided on other issues should be appropriate to the level of significance of that issue for the proposal.

This document identifies the minimum survey requirements and studies required as part of the DPEMP in relation to the key issues.

This document should not be interpreted as excluding from consideration other matters deemed to be significant or matters that emerge as significant from environmental studies, public comments or otherwise during the course of the preparation of the DPEMP.

This document has been prepared on the basis of a Notice of Intent.

2. Key Issues

The key issues that have been identified for consideration in relation to the proposal, and which should be the principal focus of the DPEMP, are as follows:

Key issue	
1	Noise generated by activities occurring on the land, including drilling, crushing, screening, and transportation to and from the land.
2	Blasting impacts
3	Dust impacts
4	Stormwater management

3. Survey and Study Requirements

The following surveys and studies will be required as part of the DPEMP in relation to the key issues. The relevant sections of the DPEMP General Guidelines are also identified.

Key Issue	Survey and study requirements for DPEMP	Relevant section of DPEMP General Guidelines
1. Noise generated by on-site activities	<ul style="list-style-type: none"> Noise modelling for each phase of the development identifying the 30, 35, 40 and 45 dB(A) noise contours and predicted noise levels at each sensitive premise potentially affected. Noise survey of existing noise levels in the area relevant to the potential zone of noise impact. 	6.4
2. Ground vibration and air-blast overpressure	<ul style="list-style-type: none"> Prediction of blast peak particle velocity at residences within 1 km. Contours for peak particle velocity of 2.5, 5, 7.5 and 10mm/s. Prediction of air-blast overpressure at residences within 1 km. Contours for air-blast overpressure of 110, 115 and 120dB (Lin Peak). 	6.4
3. Dust	<ul style="list-style-type: none"> Identification of sensitive receptors including Launceston Airport and adjacent agricultural activities, all major dust sources in the area relevant to the potential zone of dust impact, and an estimation of the relative impact of the proposed activity. 	6.1
4. Stormwater	<ul style="list-style-type: none"> Identification of proposed onsite and any offsite stormwater treatment facilities, and stormwater flow paths including any combined flow from adjacent pits to surface water discharge point(s). 	6.2

4. Detailed Requirements for the DPEMP

The following DPEMP requirements are in addition to the requirements of the DPEMP General Guidelines. These additional requirements are grouped under the relevant section number corresponding to the DPEMP General Guidelines.

2.1 General

In addition to the matters stipulated in Section 2.1 of the DPEMP General Guidelines the DPEMP must contain the following:

- A statement about the expected life of the quarry.
- A brief description about the geology being quarried.
- A brief description about any adjacent quarrying operations (including the Stormaway and McGrath pits) and where relevant, any arrangements regarding shared access, blast scheduling, emission control etc.

- Planned operating hours for the site, annual rates of extraction and production, annual number of blasts and estimated number of product haulage truck movements per day.
- A description of chosen method(s) for quarrying and processing of target material, including a list/ table of all major items of equipment to be used (e.g. crushers, screens, rock breakers, dozers, haulage trucks, drill etc.).
- The locations and dimensions of any dams or sediment ponds and stormwater management infrastructure. Any off site infrastructure that may be used must be detailed.

2.5 Site Plan

In addition to the matters stipulated in Section 2.5 of the DPEMP General Guidelines the DPEMP must contain the following:

- A map showing the locations of existing and new mining leases.
- A quarry plan which includes, but is not necessarily limited to; the direction(s) of quarrying, bench heights, working face(s), locations of all major items of equipment (e.g. crushing machinery, rock breakers etc.), location(s) of rock dumps, product storage areas, sediment ponds and internal haul roads. The plan should detail separation distance between pits, retained wall heights and any connections, such as culverts or shared access roads between the proposed and existing pit.
- A site plan or map(s) depicting the access routes to both the proposed and existing adjacent pits as well as the pit operated by Stornoway to the south.
- Identification of areas to be progressively rehabilitated during the quarries operating life.
- Plan of the site drainage, including principle discharge points from the activity to the receiving environment, either directly or via the adjacent existing pit, natural drainage features, drains and sediment ponds.
- Location of any historical workings that may affect quarry planning.

6.1 Air Emissions

In addition to the matters stipulated in Section 6.1 of the DPEMP General Guidelines the DPEMP must contain the following:

- Identify and describe all major sources of dust emission contained within the area of the proposed quarry extension. This should include emissions of dust generated from operation of the proposed quarry development and should examine activities like blasting, rock processing (extraction, crushing, screening), storage of material in stockpiles, emissions from disturbed areas and from traffic movements on and off site.
- A survey of all major sources of dust in the area relevant to the potential zone of dust impact.
- Measures to minimise the potential impact of dust generated by the proposal, such as watering or sealing of roads, covering of truck loads, reduced vehicle speeds, and road maintenance, water sprays or windbreaks, revegetation/stabilisation.
- Provide details regarding how the potential impact of dust generation from the activity on receptors, including neighbouring Launceston Airport and agricultural activities, will be minimised. Effects of the background levels of dust and contribution of adjacent sources should be considered.
- Consideration of the potential cumulative impact of increased quarry activity and shared road usage on dust production and management with respect to identified sensitive receptors, including neighbouring Launceston Airport and agricultural activities.

6.2 Surface Water Quality

In addition to the matters stipulated in Section 6.2 of the DPEMP General Guidelines the DPEMP must contain the following:

- A description of the receiving environment for site runoff and the potential cumulative impact upon that receiving environment.
- Details of any shared drainage and sediment control infrastructure with the adjacent pit. Include a suitable figure(s) to show the locations of all cut-off drains which will; serve to separate clean from contaminated water.
- Management measures to prevent sediment movement into water courses. This should include contingencies in case control measures fail, e.g. a breach of a sediment pond during heavy rainfall or flooding.
- Estimation of volume of runoff from the site, the treatment capacity of the sediment pond(s) and expected detention time(s). If off-site infrastructure is a component of the proposed sediment mitigation then combined catchments and management aspects must be detailed.
- Clarify the purpose of the main pond in Briarly Creek.

6.4 Noise Emissions

In addition to the matters stipulated in Section 6.4 of the DPEMP General Guidelines the DPEMP must contain the following:

Operational noise

- A noise survey of existing noise in the area including measurements of sound level at noise sensitive receptors. Major existing sources of noise in the area should be identified.
- A description of all proposed major noise sources (fixed and mobile), e.g. any equipment such as a rock drill, rock breaker, crusher, screener, and activities such as handling of material (i.e. loading and transportation of the material within the land). For all major equipment, provide details of make, model, engine power ratings, sound power output levels, throughput capacity and associated noise attenuation.
- Topographical maps and area plans showing the existing and future proposed locations of all major noise sources associated with the proposal; potentially affected residences (showing precise distances between quarry and any noise sensitive areas for each stage of the proposal).
- Noise modelling for each phase of the development identifying the 30, 35, 40 and 45 dB(A) noise contours and predicted noise levels at each sensitive premise potentially affected.
- Operating hours, and details regarding expected duration (in days over the course of 12 months) of use of all major noise generating equipment on site.
- Any proposed measures to mitigate noise impacts.
- For all potential noise sensitive receptors, including Launceston Airport, an assessment of the potential for the activity to cause a noise nuisance during any period during the life of the quarry, taking into account the noise survey data, all the required modelling results, and potential cumulative noise emissions associated with all noise generating activities identified in the area. The relative impact of the proposed activity at each noise sensitive receptor compared with other identified noise generating activities should be discussed.

Blasting

- A proposed blasting scheme, including blast size and intended blast frequency.

- A prediction of blast peak particle velocity at sensitive receptors within 1 km.
- A map showing contours for peak particle velocity of 2.5, 5, 7.5 and 10mm/s.
- A prediction of air-blast overpressure at residences within 1 km.
- A map showing contours for air-blast overpressure of 110, 115 and 120dB (Lin Peak).
- A discussion of the potential cumulative frequency of blasting from all quarries within the local neighbourhood.
- An assessment of blasting impacts on identified residences and other noise and vibration sensitive activities, taking into account cumulative aspects of blasting in the region.

6.11 Land Use and Development

In addition to the matters stipulated in Section 6.11 of the DPEMP General Guidelines, the DPEMP must contain the following:

- A discussion of impacts to adjacent residential, commercial, agricultural and tourist activities, potential future uses and impacts to those existing and potential future uses.

6.19 Cumulative and interactive impacts

In addition to the matters stipulated in Section 6.19 of the DPEMP General Guidelines, the DPEMP must contain the following:

- An overview of all identified potential cumulative impacts and summary of the relative impact of the proposed quarry with respect to impacts associated with other activities.

6.0 Traffic Impacts

In addition to the matters stipulated in Section 6.20 of the DPEMP General Guidelines, the DPEMP must contain the following:

- Information on traffic associated with the proposal; vehicle type, expected tonnages and any alternative access roads (routes).
- Maximum number of vehicle movements per day.
- Discussion of the potential impacts to Launceston Airport and nearby residences (noise and dust) due to vehicle movements to and from the site.
- Where relevant, cumulative impacts associated with shared use of the access to the proposed pit by other nearby pits
- Details of management measures proposed to mitigate any adverse effects due to traffic.

Appendix B: Terry Eaton Traffic Assessment

Traffic Assessment

Proposed Quarry Material Increased Cartage

**BIS Industries – Richard Street,
Western Junction**

SUBMITTED BY:

TERRY EATON
TRAFFIC ENGINEER
29 CAREY'S ROAD
BRIDGENORTH TAS 7277
TEL / FAX: (03) 6330 1510

MARCH 2018

CONTENTS

	<i>Page</i>
1. INTRODUCTION.....	2
2. THE SITE.....	2
3. THE PROPOSAL	4
4. RICHARD STREET.....	4
5. TRAFFIC DATA	5
6. ASSESSMENT.....	6
7. CONCLUSION	7

ATTACHMENTS

1. Location Plan

1. Introduction

BIS Industries are proposing to apply for a variation to their existing quarry licence to provide for the supply of quarry materials to meet an anticipated increase in demand for materials.

Over and above the expectant annual increase additional quarry production to 500,000 tonnes per year for up to 2 years for Highway construction works is being applied for.

As part of the planning approval process a traffic assessment to the satisfaction of the Northern Midlands Council's Infrastructure Department is required. This report, prepared by Terry Eaton, an experienced traffic engineer, is provided for that purpose.

Preparation of the report has included a site visit and vehicle count.

2. The Site

The site is the existing BIS Industries Quarry north east of Launceston Airport with access via Richard Street, Western Junction.



The driveway is provided as an extension of the northern east / west link of Richard Street at the curve in the street with the gateway set back some 18 metres from the kerb line for the north / south leg of the street. The driveway at the street connection is some 6.7 metres wide gravel surfaced with the gravel surface commencing some 8 metres east of the Richard Street's sealed surface. The driveway is relatively straight and a downgrade of some 4% away from the street.

Sight distance from a point 7 metres back from the outer edge of the turn path for vehicles turning right on Richard Street is some 150 metres toward Evandale Main Road and some 67 metres to the left across the Toll entrance driveway. Sight distance to the left can be restricted by vehicles parking at the kerb outside the Toll site.



View ahead



View to left

The existing quarry produces up to 360,000 tonnes of rock products annually.

The site is used as a base for 14 employees.

Cartage of the rock materials to be by cartage contractors using a range of truck and truck / trailer combinations. However, for large supply contracts, cartage is expected to be by use of truck / trailer combination vehicles.

3. The Proposal

The proposal is to increase annual production of quarry materials from 360,000 tonne to 500,000 tonnes plus for a period up to 2 years an additional 500,00 tonnes for the indicative rock fill requirement for highway works associated with the planned Perth bypass.

The increased cartage for the proposed annual quarry production to 500,000 tonne to be on a general demand basis. However, indications are that a fleet of five truck / trailer vehicles will be in use for cartage to the Perth bypass site, average load at 30 tonnes.

4. Richard Street

Richard Street is an existing access street servicing Industrial / Commercial frontage business with major heavy vehicle freight service depots in proximity to the quarry access.

The street is under the management of the Northern Midlands Council and in function is considered similar to a Category 3 road in the State Road Hierarchy.

The street extends east of Evandale Main Road as a loop from the northernmost round-a-bout, then south returning west to junction with Evandale Main Road, total road length some 600 metres.

In the vicinity of the quarry access the street is constructed with a pavement width of some 10.1 metres with kerb and channel on both sides with grass verges.

The road alignment is straight on both approaches to the curve at the quarry driveway with the curve centre line radius of some 18 metres.

The road profile is a downgrade of some 4% to 5% from both directions to the road curve at the quarry access.

Richard Street is within a "built up" area where a 50 km/h speed limit is applicable.

5. Traffic Data

- ***Richard Street***

A sample survey at the time of the site visit indicated an Average Daily Traffic (ADT) value of some 1,250 to 1,300 vehicles per day with some 50% of traffic as heavy vehicles, i.e. trucks, semi-trailers and heavy combination vehicles.

The high heavy vehicle percentage is seen as relative to the Transport Distribution land uses fronting Richard Street.

- ***BIS Industries Quarry***

- i. Existing

Allowing for the variation in truck configurations suggests existing cartage from the quarry at an average cartage load of some 30 tonnes as representative. On this basis cartage of 360,000 tonnes requires some 12,000 vehicle loads annually with average some 45 truck loads per day. ADT value 66 truck trips (two-way movements).

Site operations suggests an ADT at some 40 two-way light vehicle movements.

- ii. Additional Material Supply

No change is anticipated for the light vehicle traffic movements.

The cartage of the additional 140,000 tonnes of quarry material with similar average loading as present will require an additional 4,700 vehicle loads annually increasing the average daily loaded truck movements from the site to some 70, ADT value 100 truck trips (two-way movements)

The cartage for the additional 500,000 tonnes of quarry material to the Perth bypass site based on cartage by 5 truck / trailer combination vehicles with 33 tonne loads at some 12 cartage loads daily, i.e. daily cartage 1,980 tonnes with 60 cartage trips daily, with cartage over some 250 days, ADT value at 82 trucks (two-way movements).

6. Assessment

Assessment in accord with Section E4.0 of the Northern Midlands Interim Planning Scheme indicates:

E4.6.1 P2 The proposal is to use an existing access at a low speed location, a tight turn (radius 16 metres) with 30 km/h negotiating speed.

The access is on the outside of the curve with ideal sight distance straight ahead some 150 metres and some 67 metres to the left, both sight distances are well in excess of SISD requirements for a 30 km/h approach speed. A “give-way” sign is located to face vehicles exiting from BIS Industries reinforcing the give way status for these vehicles.

No significant safety concerns are envisaged due to the low speed location, the available road width and minor road use by pedestrians and cyclists in proximity to the access.

The increase in average vehicle use with the long term increase in quarry cartage from an ADT of some 1,300 vehicles to some 1,335 vehicles per day with heavy vehicle ADT number from some 650 vehicles per day to 685 vehicles per day a 5.4% increase.

The additional cartage for an up to 2 year anticipated material supply period for highway works will increase the ADT to some 1420 vehicles with heavy vehicle ADT to some 770 vehicles.

Capacity analysis taking into account the road design characteristics and traffic factors suggests a practical capacity of some 3500 vehicles per day for Richard Street with the predicted maximum volume some 1420 vehicles less than 50% of this volume, ie. a high level of service will be maintained

DSG crash records indicate no reported crashes on Richard Avenue in the vicinity of the BIS driveway over the last 5 years.

Taking in to consideration the above factors suggests an acceptable level of safety should be maintained in the vicinity of the BIS Industries quarry access.

- deemed to comply

- E4.7.1 Not applicable due to the location away from a railway or a Category 1 or 2 road.
- E4.7.2 A1 The proposal is to increase use of an existing driveway with no change to the driveway layout proposed.
- complies
- E4.7.3 Not applicable
- E4.7.4 A1 Assessment indicates compliance with SISD provisions due to the low negotiation speed for the curve in Richard Street at the site access (refer section E4.6.1 P2 of this report).
- complies

7. Conclusion

A traffic assessment for an increase in the annual quarry licence provisions for the BIS Industries quarry with access via the existing driveway to Richard Street, Western Junction, indicates compliance with Section E4.0 of the Northern Midlands Interim Planning Scheme.

It can be noted that the expected increase in the long term quarry operation will not significantly increase truck movements on Richard Street. The short term up to 2 year increase is substantial, however this increase to meet highway improvements is seen as of economic benefit to the state and is not seen as detrimental to the safety and efficiency of traffic movements at the quarry access to Richard Street.

Terry Eaton

LOCATION PLAN



RICHARD STREET, WESTERN JUNCTION

BIS
Quarry
Access

B41

Airport Rd

Evandale Rd

Richard St

Google Earth

60 m

Appendix C: BIS Policies



Contact us • Sitemap • Login
HOME



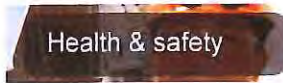
Home > Sustainable development

Sustainable development

We progress towards sustainability in a structured way. Our sustainability program integrates with other key programs including Zero Harm and Community Reach, assisting us to meet our corporate social responsibility responsibilities.

We have developed a sustainability roadmap, and will regularly report through a sustainability report. The report with cover:

- climate protection
- responsible use of fuels
- employee health and safety
- emissions monitoring and reporting
- local impacts on land and communities
- reporting and communications





Contact us • Sitemap • Login
HOME



Home > Sustainable development > Environment

Environment



We consider our environment to include the local communities in which we operate, customer sites, our office locations and those destinations our employees travel through to provide services to our customers.

We are committed to achieving a situation in which we operate our support and logistics services whilst conserving resources, and without causing pollution to the environment or harm to human health.

In doing so, all our people are responsible for meeting or exceeding the environmental performance expectations of the business and its stakeholders.

We have entered a cooperative agreement with the Australian Government's Department of Environment, Water, Heritage and the Arts. As a member of Greenhouse Challenge Plus we are meeting our commitments on the challenges presented by climate change.



MEMBER

Energy Efficiency
Opportunities

We have environmental management systems in place to measure and improve our CO2 emissions. These systems are aligned to ISO14001 and our customers' licenses under the Environmental Protection Act. We consistently develop and implement site environmental management plans (SEMP) for all sites under our control.

As a large consumer of diesel fuel, we are taking a number of energy efficiency actions that will reduce emissions and improve our Greenhouse Performance Indicators.

We are also supporting and working closely with our largest on-site clients where they have Operational Control status under the Australian Government's legislative programs. We provide key data to these clients to enable their reporting under two programs:

- Energy Efficiency Opportunities, a legislative initiative of the Department of Resources, Energy and Tourism
- National Greenhouse and Energy Reporting System administered by the Department of Climate Change. This will lead to the pending Australian Emissions Trading Scheme.



[Contact us](#) • [Sitemap](#) • [Login](#)
[HOME](#)



[Home](#) > [Sustainable development](#) > [Health and safety](#)

Health and safety

We believe that all accidents, injuries and harm can be prevented.

We reinforce health and safety as a core value. We place great emphasis on encouraging a safety culture by setting clear goals, ensuring employees are skilled and trained and encouraging people at all levels to be leaders in safety. All managers, supervisors, employees and contractors are responsible and accountable for the safety in their daily activities.

Our Zero Harm program involves employees in actions to further improve safety and systematically reports and measures on leading and lagging indicators.

We examine activities, practices and incidents, and review management systems and performance standards to continuously improve procedures and practices.





Contact us • Sitemap • Login
HOME



Home > Sustainable development > Zero Harm Charter

Zero Harm Charter

ZEROHARM

We are committed to achieving Zero Harm.

Zero Harm means zero injuries and zero environmental damage.

Every manager is accountable for achieving Zero Harm and is expected to demonstrate leadership in creating a culture which actively promotes Zero Harm.

Everyone is responsible for committing and contributing to Zero Harm.

Our Zero Harm values and behaviours are

- We commit and contribute
- We value everyone equally
- We respect ourselves
- We think first of Zero Harm
- We continuously improve
- We share
- We respect the environment

We continue to develop a culture that delivers the best occupational health, safety and environmental practice for employees, contractors, customers and communities.

[Click here](#) to download our Zero Harm Charter.





Appendix D: NVC Noise Assessment

Bis Industries – Western Junction

Quarry Expansion Noise Impact Assessment



Report No. 5624

April 2018

NVC
« NOISE VIBRATION CONSULTING »

EXECUTIVE SUMMARY

BIS Industries currently operates within mining lease 975 P/M and is proposing to expand their operations into mining lease 2045 P/M. As part of the DPMP process, the impact this expansion may have on noise levels in the surrounding community requires determination and assessment. This report presents such an assessment based on measurements of the current operations and predictions for the future expansion, conducted by NVC between October 2017 and April 2018.

Current operational noise levels have been measured at three nearby residences considered typical of the surrounding area as well as on site to quantify the sound power of the equipment used.

Based on staged development plans provided by BIS, the noise emissions from the proposed operations have been predicted using the iNoise software. Assessment criteria have been taken from the Quarry Code of Practice 2017.

Noise emissions from normal operations (haulage, crushing / screening and off site delivery) are predicted to be below the criteria and only just audible at Raeburn House over the entire life of the quarry. When drilling occurs to establish new benches, the quarry noise emissions (normal operation plus drilling), exceed the criteria at Raeburn house during years 1 to 5 of the expansion. After Year 5 the drill rig is working off lower benches not natural ground, and drill noise then below the criteria.

In order to ensure compliance with the site EPN, it is recommended that:

- A noise survey should be conducted once operation in lease 2045 P/M has commenced to confirm the predictions presented in this assessment, in particular the drill rig noise levels at location B.
- If drill rig noise emissions exceed the criteria a noise mitigated rig be used in the first 5 years of the expansion.

Subject to these recommendations, noise emissions from the activity are deemed acceptable.

BIS Western Junction Quarry Extension

NOISE IMPACT ASSESSMENT

Prepared For:

John Miedecke & Partners Pty Ltd

North Hobart, Tasmania 7000

John Miedecke

Prepared By:

NVC

PO Box 476

Rosny Park, Tasmania 7018

DOCUMENT CONTROL

Doc No.	Date	Author	Reviewed	
5624	2-5-2018	B.Butler	J.Pitt	1 st Draft
5624_01	14-5-2018	B.Butler		Original

TABLE OF CONTENTS

EXECUTIVE SUMMARY	II
DOCUMENT CONTROL	III
TABLE OF CONTENTS	IV
1. INTRODUCTION	1
2. SITE DESCRIPTION	1
2.1 COMMUNITY	1
2.2 QUARRY OPERATIONS	2
2.3 QUARRY EXPANSION	4
3. MEASUREMENTS	4
3.1 COMMUNITY NOISE LEVELS	4
3.2 SITE NOISE LEVELS	6
4. PREDICTIONS	6
5. CRITERIA	11
6. ASSESSMENT	12
7. RECOMMENDATIONS	12
ACOUSTIC GLOSSARY	18

INDEX OF FIGURES

FIGURE 1: SITE AND SURROUNDS	1
FIGURE 2: CRUSHING PLANT – LOOKING EAST FROM CRUSHER INLET	2
FIGURE 3: QUARRY SITE	3
FIGURE 4: LOCATION A – NOISE SPECTRA	5
FIGURE 5: LOCATION B – NOISE SPECTRA	6
FIGURE 6: CURRENT OPERATIONS – ACOUSTIC MODEL INPUTS – GROUND CONTOURS	7
FIGURE 7: CURRENT OPERATIONS – PREDICTED NOISE CONTOURS	8
FIGURE 8: YEAR 1 ACOUSTIC MODEL INPUT	8
FIGURE 9: YEAR 2 ACOUSTIC MODEL INPUT	9
FIGURE 10: YEAR 5 ACOUSTIC MODEL INPUT	9

INDEX OF TABLES

TABLE 1: NEAREST RESIDENTIAL DWELLINGS	2
TABLE 2: EQUIPMENT USED	3
TABLE 3: SUMMARY OF COMMUNITY NOISE LEVELS	5
TABLE 4: QUARRY SOUND POWER LEVELS	6
TABLE 5: PREDICTED COMMUNITY NOISE LEVELS	10
TABLE 6: DAYTIME NOISE LIMIT, dBA, FOR OTHER QUARRIES	11
TABLE 7: ATTENUATION CODE DISTANCES FOR QUARRIES	12
TABLE 8: PREDICTED SOUND PRESSURE LEVELS AT NEARBY RESIDENCES AND ASSESSMENT	12

1. INTRODUCTION

Due to limited remaining ore resources in their current mining lease 975 P/M, BIS Industries is proposing to expand their operations into mining lease 2045 P/M. As part of the DPEMP process the impact this expansion may have on noise levels in the surrounding community requires determination and assessment. This report presents such an assessment based on measurements of the current operations and predictions for the future expansion, conducted by NVC between October 2017 and April 2018.

2. SITE DESCRIPTION

2.1 COMMUNITY



(Source: LISTMap)

Figure 1: Site and Surrounds

The quarry and surrounds are shown in Figure 1. The quarry sits across Briarly Creek in otherwise generally flat land with a gentle slope rising to the west. The Western Rail line passes the eastern quarry boundary, and beyond this the land falls away steeply through open pasture land to Relbia Road, where there are some dwellings in a Rural Resource zone. To the west is the Launceston Airport and its associated general industrial zone, to the north west are several residential dwellings within a Rural Resource zone, and to the north the Raeburn quarry. The surrounding land is generally open pastureland used for farming.

The nearest residence is 1280 m from the crusher and shown in Figure 1 as location B. Further residences typical of the surrounding area (locations A and C), are located 1310 and 1420 m from the

crusher respectively. Location A looks up the hill to its ridgeline and has no clear view of the operating plant, while location B has distant view of the crushing plant. Location C is the owner of the quarry land and has no clear view of the operating plant. Particular details of the locations are given in Table 1.

The main ambient noise is due to traffic associated with the A1 highway and Evandale Road. Intermittent loud noise from the airport occurs during commercial aircraft take-off and landing (the flight path is in line with the runway, passing directly overhead at location B), with further light plane noise from pilot training. Location A experiences the lowest ambient noise levels of the three locations, as traffic noise is only audible from Relbia Road, which serves local traffic only.

Table 1: Nearest Residential Dwellings

Residence	Distance to Crusher (m)	Distance to Working Face (m)		
		Current	Expansion (Year 2)	Expansion (Year 5)
A 578 Relbia Road	1310	740	1500	1790
B 55 Raeburn Road	1280	1500	1100	960
C 81 Evandale Road	1420	1810	1180	980

2.2 QUARRY OPERATIONS

The existing site occupies mining lease 975 P/M at Relbia, adjacent to the Raeburn quarry and Launceston Airport. It operates under License No. 3374, allowing mining of 350,000 tonnes of rock per annum. At the time of writing the working area is in the north-east corner of the lease, and is currently being worked at its most easterly extent. Previously worked areas are the northern pit and the main pit (adjacent crusher). The site is shown in Figure 3.

Drilling and blasting techniques are used to initially break the rock out, after which a tracked excavator loads the broken rock into a haul truck for transfer to the fixed crushing plant. Large rocks are put aside for later rock breaking. The haul truck dumps the rock into a grizzly screen feeding the primary jaw crusher, with crushed rock then passing via conveyor through two further crushing stages (rotary units) and associated screens before being output as finished product. A wheeled loader moves the sized product to various stockpiles or directly loads trucks for off-site delivery. The crushing plant is shown in Figure 2.



Figure 2: Crushing Plant – Looking East from Crusher Inlet

Operating hours for the quarry are listed below and will not be changing.

Crushing	0700 to 1700 hours Monday to Friday, 0700 to 1530 hours Saturday
Sales	0600 to 1700 hours Monday to Friday

The equipment identified to perform the aforementioned work is listed in Table 2, below.

Table 2: Equipment Used

Mobile	Tracked excavator at working face	CAT 375
	Wheeled loader at crushing plant	CAT 980H
	Wheeled loader for sales/pre-coat	CAT 966 (2 off)
	Haul truck	CAT 769D
	Drill rig	BP 1100
	Rock breaker	on 30t excavator
Crushing (fixed plant)	Primary jaw crusher	Terex Jaques - 42x30
	Secondary cone crusher	Jaques J 50
	Tertiary cone crusher	CME Auspactor 300



Figure 3: Quarry Site

2.3 QUARRY EXPANSION

Reserves in the north-east section of the lease are nearing depletion, to the extent that BIS estimate the existing mining lease 975 P/M contains the resources to sustain approximately 3 more years of production. BIS propose to continue operations with ore extraction transferred gradually from the existing area to the new site, on lease 2045 P/M. There is a potential increase in production from 330,000 to 500,000 tonnes per year by this expansion.

It is proposed the pit will be developed in a south-westerly direction from the main pit floor, in approximately 7 metre benches. Development will progress in stages, with topsoil / overburden stripped and stockpiled ahead of the rock blasting and removal. The staging of the expansion is anticipated as:

Year 1	A1 to 152m
Year2	A2 to 145m
Year3	A1 and A2 to 145m
Year5	A3 to 152m
Year10	A3 to 145m, A1 and A2 to 138m
Year18	A1, A2, A3 to 131m

where the areas A1, A2 and A3 are shown in Figure 3. The distances between the mobile equipment and the nearest residences are shown in Table 1.

It is proposed topsoil and overburden removal will be via tracked dozer, with the topsoil formed into a bund at the south-western extent of the quarry and the overburden on the south-eastern boundary as indicated in Figure 3. A rock drill then establishes blast holes prior to blasting. The existing excavator and haul truck are then used to move the ore from the quarry face to the existing fixed crushing plant.

3. MEASUREMENTS

Noise measurements during current operations were conducted using Svan Type 1 sound level meters, calibrated before and after measurements. Measurements included logging of overall noise levels, statistical data, and 1/3 octave spectra over 10 minute intervals. Measurements were conducted on the 18th October 2017 in clear, calm conditions with the quarry operating as normal. The crushing plant was off only during the lunch period (1300 – 1330 hours), and for a brief period of maintenance (1400 – 1430 hours). Measurements were made off site over 10 to 30 minute periods at the locations A to C. Near-field measurements around the crushing and mobile plant were made on site to allow calculation of their sound power levels.

3.1 COMMUNITY NOISE LEVELS

During the measurements the following observations were made:

Location A: 578 Relbia Road

- The arm of the excavator was just visible above the ridgeline when the bucket was at its highest during loading of a haul truck.
- A large plane landing was clearly audible on one occasion.
- Birds and insects were quite a strong and consistent noise.
- When the excavator was loading the haul truck it was just audible, but not clearly so. At all other times the quarry was inaudible.
- The crushing plant was inaudible.
- A bobcat operating at a nearby residence (550m away), was intermittently audible.

Location B: 55 Raeburn Road

- Measurements were made at the back of the house (eastern side with view of the quarry).
- Birds and insects were a clear and consistent noise.
- Stornoway quarry was perceived as inaudible.
- The BIS crusher was just audible on occasion.

- Trucks arriving / departing BIS were audible once they were west of the chicane on the access road.
- Dogs barking from the dog home to the north were occasionally just audible.
- A large plane taking off was loud on one occasion (flight path directly overhead) – excluded from measurement.
- Measurements stopped for a 30 minute period due to an acrobatic plane practising above the airport and dominating noise levels.
- At the front of the house the noise is dominated by Evandale Road traffic.

Location C: 81 Evandale Road

- Farm animals (sheep) were occasionally clear.
- Trucks arriving / departing BIS audible once they are west of the chicane in the access road.
- Road traffic noise completely dominates noise levels, mainly from Evandale Road.
- Quarry noise was inaudible. This measurement was made in the early afternoon and a light northerly wind had developed.

The measurements are summarised in Table 3 and Figure 4 to Figure 5.

Table 3: Summary of Community Noise Levels

Location	Sound Pressure Level, dBA			
	All Noise			BIS
	L10	L90	Leq	Leq
A	47	34	45	37
B	43	36	41	39
C	54	47	52	-

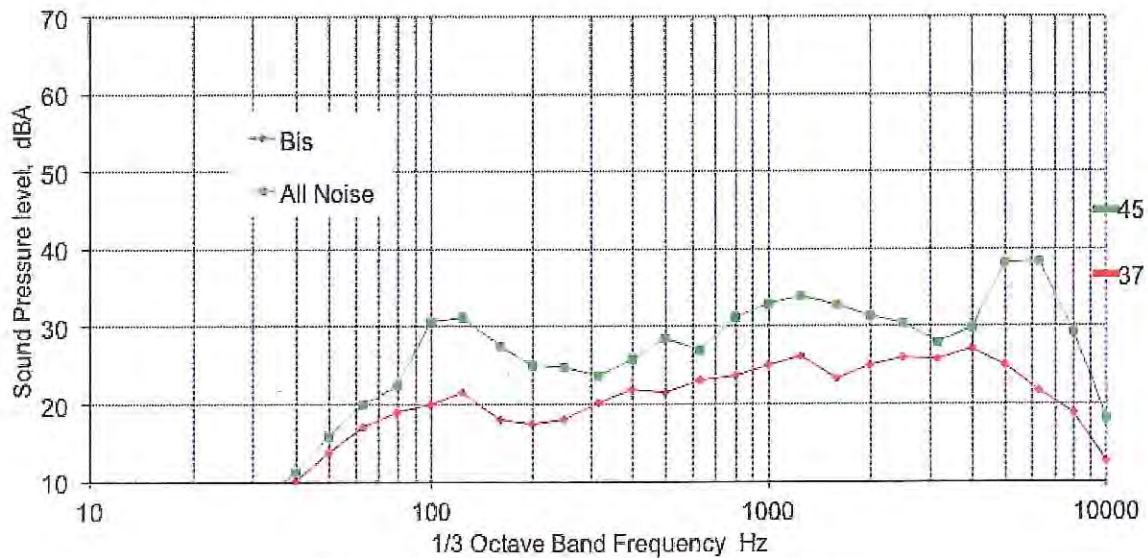


Figure 4: Location A – Noise Spectra

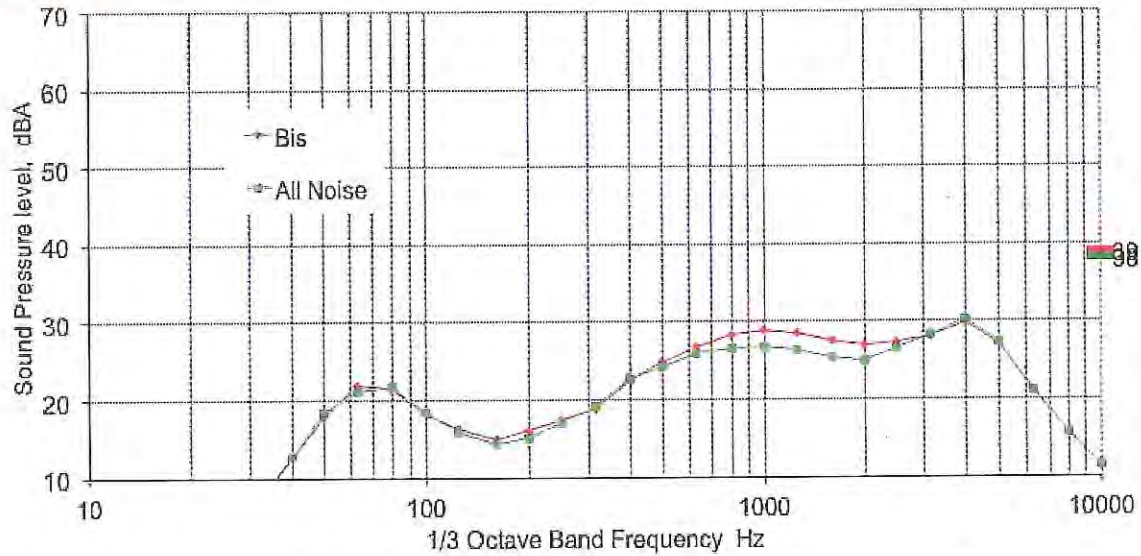


Figure 5: Location B – Noise Spectra

3.2 SITE NOISE LEVELS

From measurements conducted around the various pieces of plant, their sound power has been calculated, as listed in Table 4. The calculations assumed hemispherical spreading over a reflective ground surface. Data for the drill rig and dozer are taken from previous measurements performed by NVC on comparable equipment operating at other sites.

Table 4: Quarry Sound Power Levels

Source	Sound Power Level, dBA
Crushing Plant	120
Drill Rig	119
Tracked Excavator	112
Wheeled Loader	106
Delivery Truck	103
Haul Truck	105

4. PREDICTIONS

Predictions of the quarry noise in the community were made using the iNoise software to implement the ISO9613 algorithms. The model included attenuation due to distance, atmospheric absorption, ground absorption, and screening due to barriers / bunds and topography. The following notes regarding the modelling are relevant:

- Topographic data was taken from the LIST 10m open source data and combined with detailed 0.2m contours obtained from BIS for the new lease area.
- All sources are assumed operating simultaneously and continuously, for the entire period, (excluding the drill rig).
- The haul truck is modelled as moving continuously over the path indicated in the figures, with its speed assumed to be 15 km/hr.
- The dozer operates at existing ground level when stripping topsoil / overburden, and the drill rig also operates at existing ground level in establishing the first bench.
- The crushing plant is modelled as a single source. Located between the jaw crusher and second stage crusher.
- The overburden bund is 4m high and the topsoil bund 1m high. Both essentially follow existing ground level.
- The ground at the quarry is taken as hard (reflective) and at the receiver and intervening land medium (typical of pasture land with limited shrubs or bush).

- Delivery trucks are B doubles and have been modelled as continuously operating at 15 km/hr between the crusher and the weighbridge.
- The ISO algorithms are based on the receiver being downwind of the source in a light wind or with a mild temperature inversion in place – this is a worst-case scenario.
- Blasting is not included in the model.

The current operations were initially modelled as indicated in Figure 6, with the results, Figure 7, compared to the measured data to validate the model. This validation showed:

- The predicted noise levels were approximately 2 dB higher than measured levels.
- Receiver B is the most effected, mainly due to it being located up a shallow gully that almost has line-of-site view of the crusher. The noise contours clearly show this feature.
- The predictions showed the crusher to be the dominant and only audible noise source at B, while at A the crusher and excavator were at similar levels, albeit quieter overall. This is in general agreement with perception during measurements.

The model is therefore considered valid. It is slightly overestimating the noise levels, and is thus considered to be conservative.

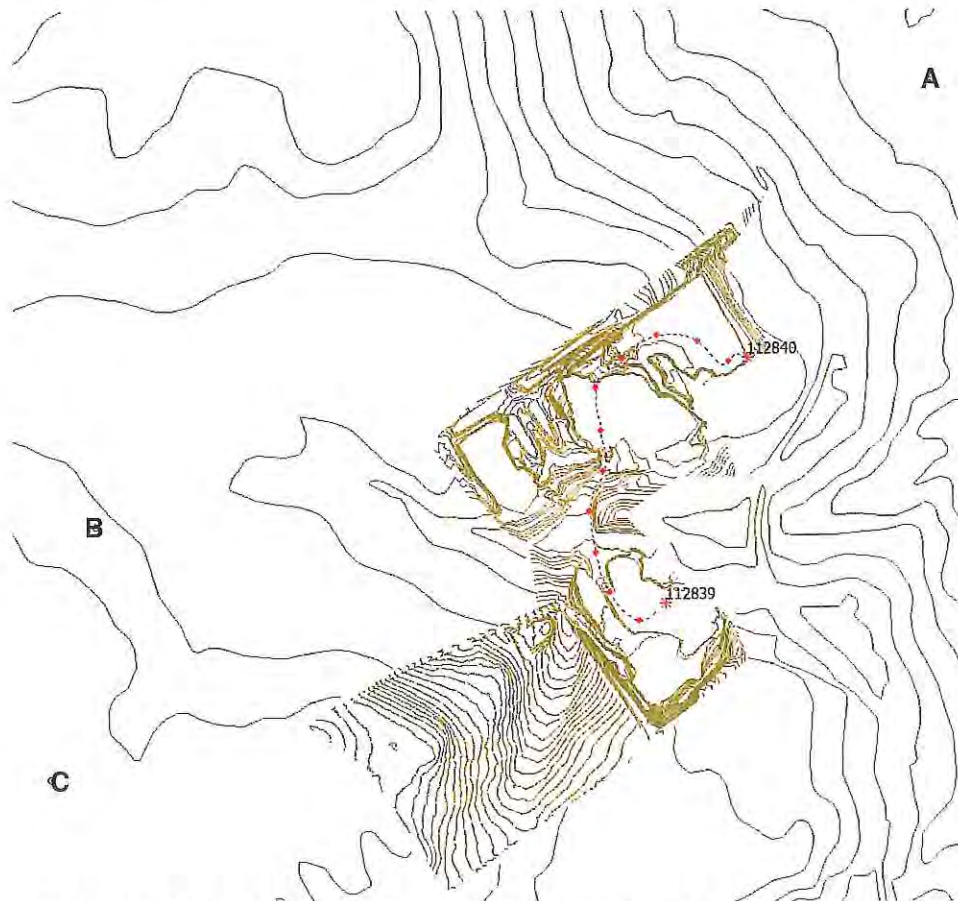


Figure 6: Current Operations – Acoustic Model Inputs – Ground Contours

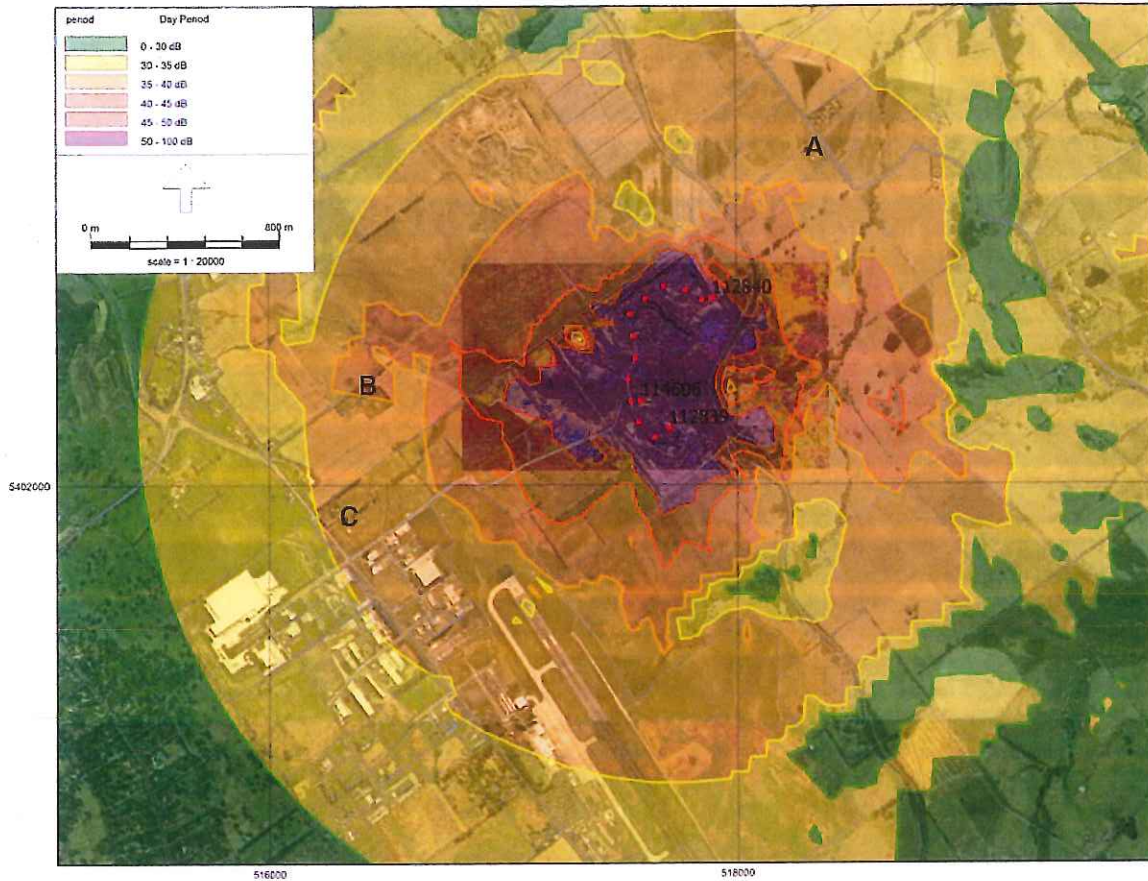


Figure 7: Current Operations – Predicted Noise Contours

Four stages in the quarry expansion are modeled as they represent worst case noise stages for the life of the expansion. These stages are:

- Overburden and top soil removal:
A dozer is operating on the existing ground level over area A1 to push material to the relevant edge of the quarry. Production is as per current operations.

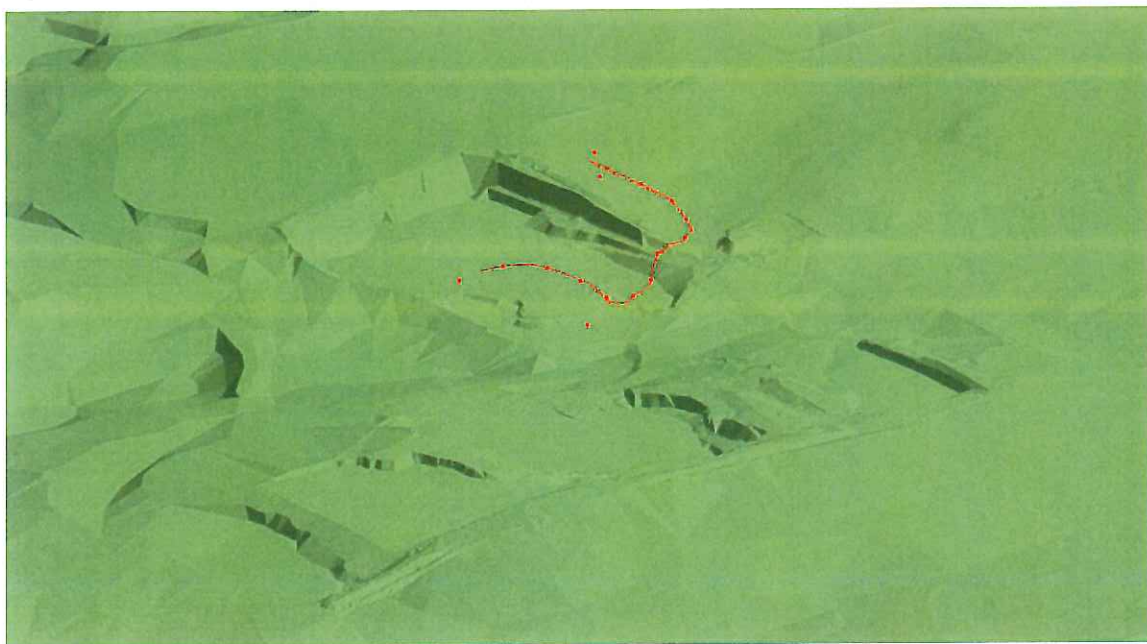


Figure 8: Year 1 Acoustic Model Input

- Year 1:
Establish the first bench for area A1. The excavator and haul truck operate at the northern end of the area A1 at RL152m. Figure 8. Wheeled loaders operate from the stockpiles as currently.
- Year 2:
Establish the first bench for area A2. The drill rig operates at current ground level in the NW corner (RL152m). A dozer clears topsoil and overburden in area A3. The excavator and haul truck operate centrally within area A2 at RL145m. Figure 9. Wheeled loaders operate from the stockpiles as currently.

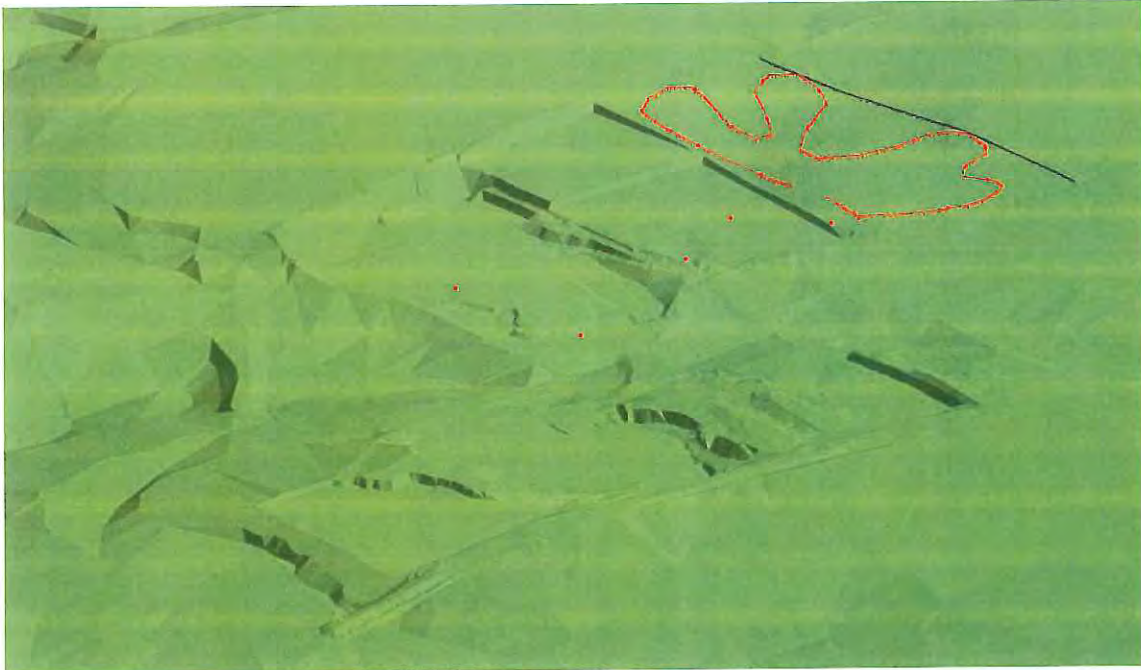


Figure 9: Year 2 Acoustic Model Input

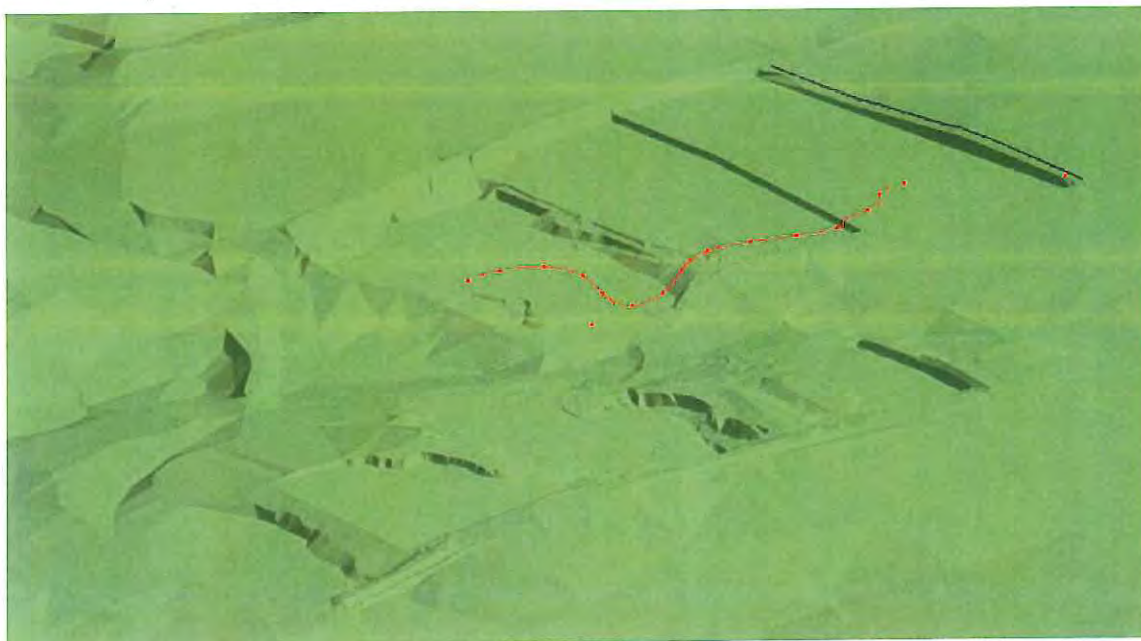


Figure 10: Year 5 Acoustic Model Input

- Year 5:
Establish the first bench in area A3. The drill rig operates at current ground level in the NW corner (RL162m). The excavator and haul truck operate centrally in area A3 at RL152m. Figure 10. Wheeled loaders operate from the stockpiles as currently.

A further case has been modeled viz:

- The drill rig establishing a second bench.
Modeled to show the impact having the drill rig below the first bench has on residential noise levels. Year 7 used as a worst case example, the drill rig centrally in A3 at RL 152.

In between each of these stages and beyond year 5, the equipment is either at a lower RL, or at greater distance from the residential receivers. Attenuation is therefore increased compared to the modeled cases (i.e. lower residential noise level). The modeled cases are then the worst cases over the life of the quarry.

In each stage the following aspects of operations are separately modelled:

- Typical production:
The haul truck, excavator, wheeled loaders and crusher all operate continuously.
- Drilling:
The drill rig operates continuously in the most exposed location for that stage.
- Delivery trucks:
Delivery trucks operate from the crusher to the weighbridge (nominal edge of BIS land).

The predicted community noise levels are then as listed in Table 4 with noise contour maps for the various stages shown in Figure 11 to Figure 15.

Table 5: Predicted Community Noise Levels

		Sound Pressure Level, dBA		
		Location A	Location B	Location C
Normal Operations	Currently	39	42	36
	Topsoil Overburden Removal	39	42	36
	Year 1	37	42	37
	Year 2	37	42	37
	Year 5	37	42	37
Drilling	Year 1	32	43	38
	Year 2	36	47	40
	Year 5	35	49	43
	Year 7	35	41	40
Delivery Trucks	All years	18	33	35

From the model results, the following is noted:

- The crusher and drill rig are the clearly dominant noise sources at the quarry. The drill rig, when establishing the first bench in areas A2 and A3, is the dominant quarrying noise source. Once it is operating on lower benches its received noise level drops by some 8 dB at location B, leaving the crusher as the dominant noise source.
- The haul truck, excavator and wheeled loader are insignificant noise sources and may be ignored in assessing quarry noise emissions.
- Delivery trucks are likely to be just perceivable at locations B and C.
- Locations B is the most effected location due to the almost line-of-site view to the crusher.

- To the east, the land falls away quite sharply to Relbia Road, then levels out or rises a little. Receivers between Relbia Road and the quarry are therefore shielded by natural terrain from the quarry operations.
- At location A the quarry is likely to be inaudible.
- There is minor screening of the drill rig from locations B and C during year 5, due to the top soil bund just west of the drill rig.
- From year 2 onwards, the excavator is screened by the quarry benches from the receivers.
- The Launceston Airport building experiences noise levels in the range 35 to 40 dBA.

5. CRITERIA

The quarry operates under license 3374 which has no specific noise criteria. The Quarry Code of Practice (QCP), is therefore referenced to determine appropriate criteria.

The QCP was revised and re issued in May 2017 and states at 7.2.2:

“ Noise from quarrying and associated activities, including equipment maintenance, when measured at any neighboring sensitive use must not exceed the greater of:

- *the A-weighted 10 minute L90, excluding noise from the quarry, plus 5 dB(A), or*
- *the following levels:*
 - *45 dB(A) from 0700 to 1900 hours (daytime)*
 - *40 dB(A) from 1900 to 2200 hours (evening), and*
 - *35 dB(A) from 2200 to 0700 hours the following day (night time)*

when measured as a 10 minute Leq. “

A permit from the EPA would typically qualify these levels by saying;

“ Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A). “

Observing the noise limit for other quarries, Table 6, the daytime criteria of 45 dBA is tighter than the adjacent Stornoway quarry, but otherwise appears in line with other recent quarry developments.

The QCP criteria are therefore adopted for this assessment.

Table 6: Daytime Noise Limit, dBA, for Other Quarries

Cocked Hat Hill, Relbia	45
Stornoway Relbia	50
HBMI Leslie Vale	48
Hanson Flagstaff Gully	50
Hanson Underwood	45
Williams Quarry Tea Tree	47
Stornoway Mangalore	45

Whilst not strictly applying in this case (not called up by the Planning Scheme), an attenuation code is often applied to separate uses with the potential to cause environmental harm from surrounding sensitive receivers, with the purpose of minimising the adverse effects of the quarry on the receiver. The attenuation distances from the code relevant to quarries are listed in Table 7 and show that for crushing operations the attenuation distance is 750 m. From Table 1 it is observed the nearest residences are outside this attenuation distance.

Table 7: Attenuation Code Distances for Quarries

QUARRY OPERATION	LIKELY IMPACT	DISTANCE, M
No blasting, crushing or vibratory screening	noise, dust	300
Blasting hard rock	noise, vibration, dust	1000
Blasting other than hard rock	noise, vibration, dust	300
Crushing or cutting	noise, dust	750
Vibratory screening	noise, dust	500

6. ASSESSMENT

Quarry production is only in the daytime hours of the Quarry Code of Practice and hence only daytime noise levels are assessed. The current and predicted noise levels at the residences and their resulting assessment are summarised in Table 8. The assessment shows that:

- For normal operations (crushing hauling carting) the quarry noise emissions meet the quarry code of practice during all stages of the expansion.
- When the drill rig is operating as well, noise levels at location B are above the criteria for the first 5 years. Beyond year 5 the noise emissions are acceptable.

Table 8: Predicted Sound Pressure Levels at Nearby Residences and Assessment

		Sound Pressure Level, dBA		
		A	B	C
Normal Operation	Currently	39	42	36
	Years 1 to 5	37	42	37
	> Year 5	< 37	< 42	< 37
Normal Operations + Drill Rig	Year 1	40	46	41
	Year 2	40	48	42
	Year 5	39	50	44
	> Year 5	< 39	< 45	< 42
	Criteria	45	45	45

7. RECOMMENDATIONS

To ensure noise emissions do not adversely affect nearby residences, the following is recommended:

- A noise survey should be conducted once operation in lease 2045 has commenced to confirm the predictions presented in this assessment, in particular the drill rig noise levels at location B.
- If drill rig noise emissions exceed the criteria a noise mitigated rig be used in the first 5 years of the expansion. Such a rig has a shroud around the mast of the drill rig and reduces noise emissions from the drill rig by 5 to 8 dBA.

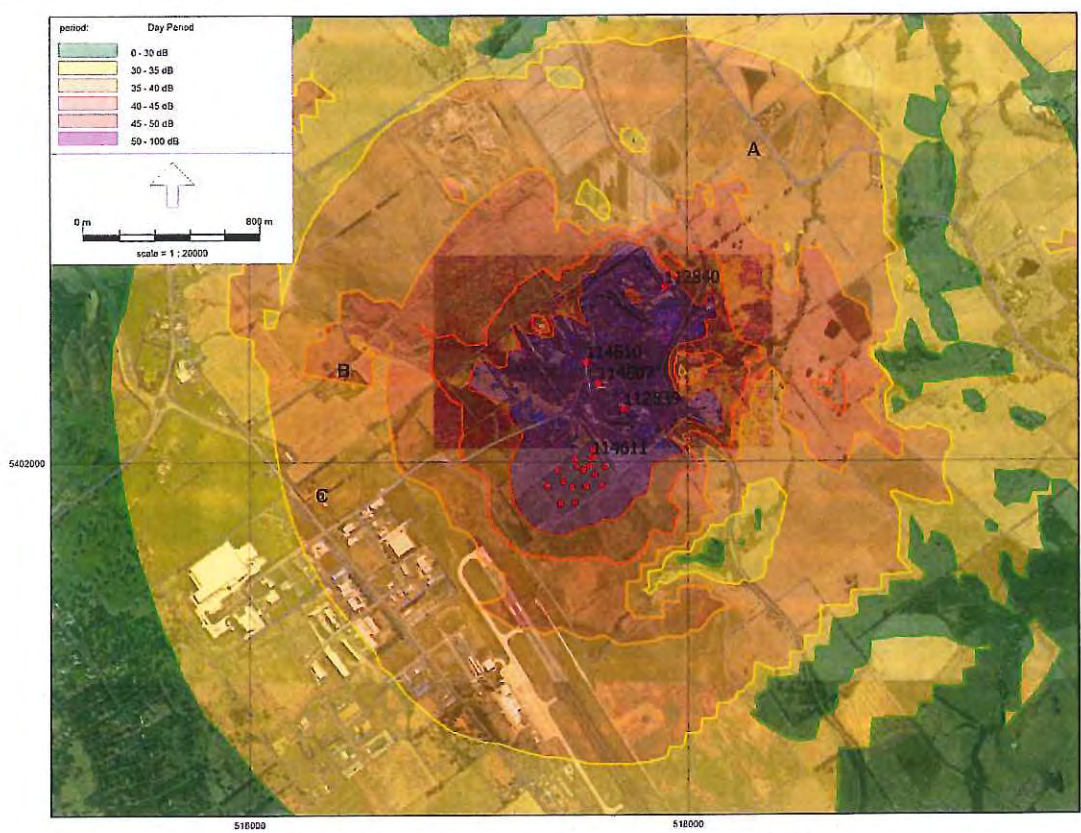


Figure 11: Top Soil and Overburden Removal - Noise Contours

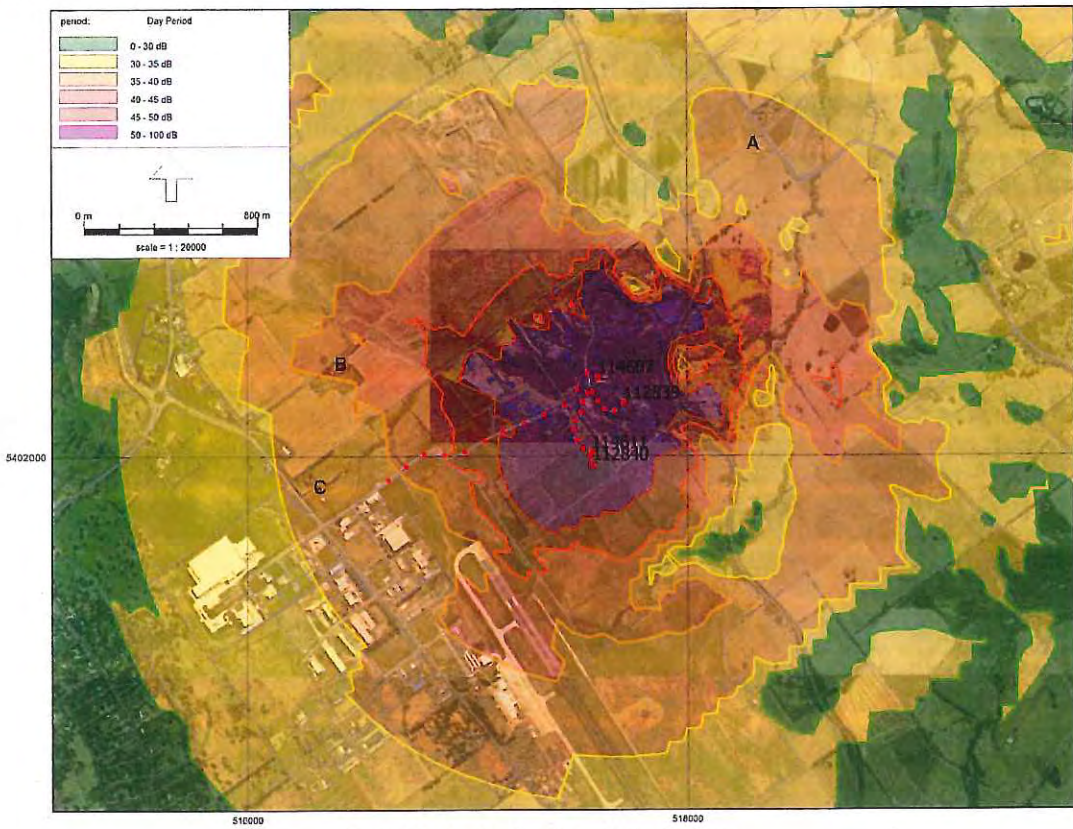


Figure 12: Year 1 - Crushing - Noise Contours

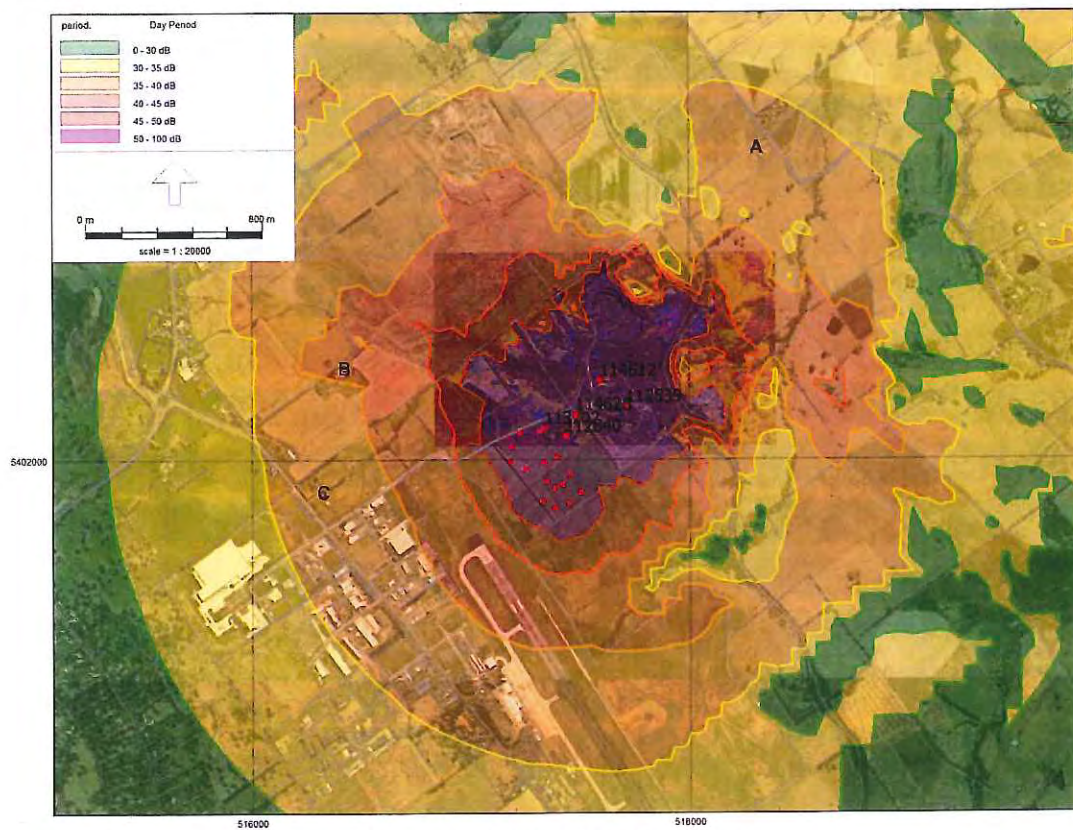


Figure 13: Year 2 - Crushing - Noise Contours

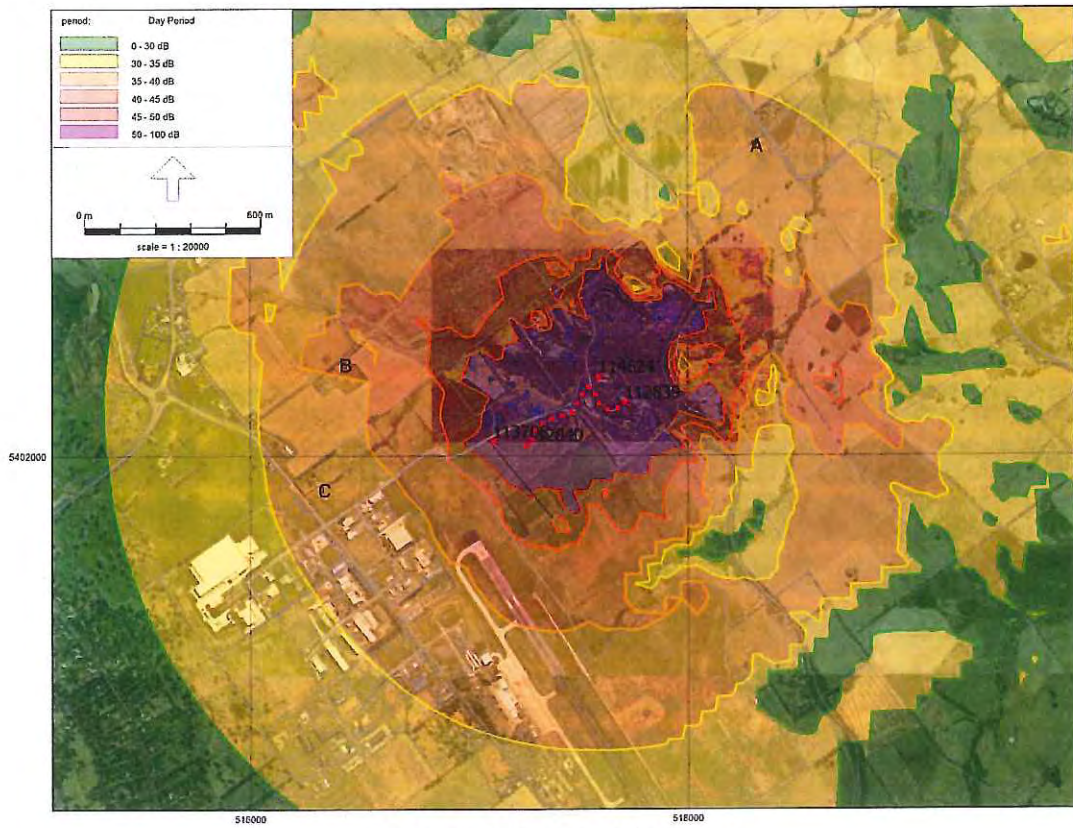


Figure 14: Year 5 - Crushing - Noise Contours

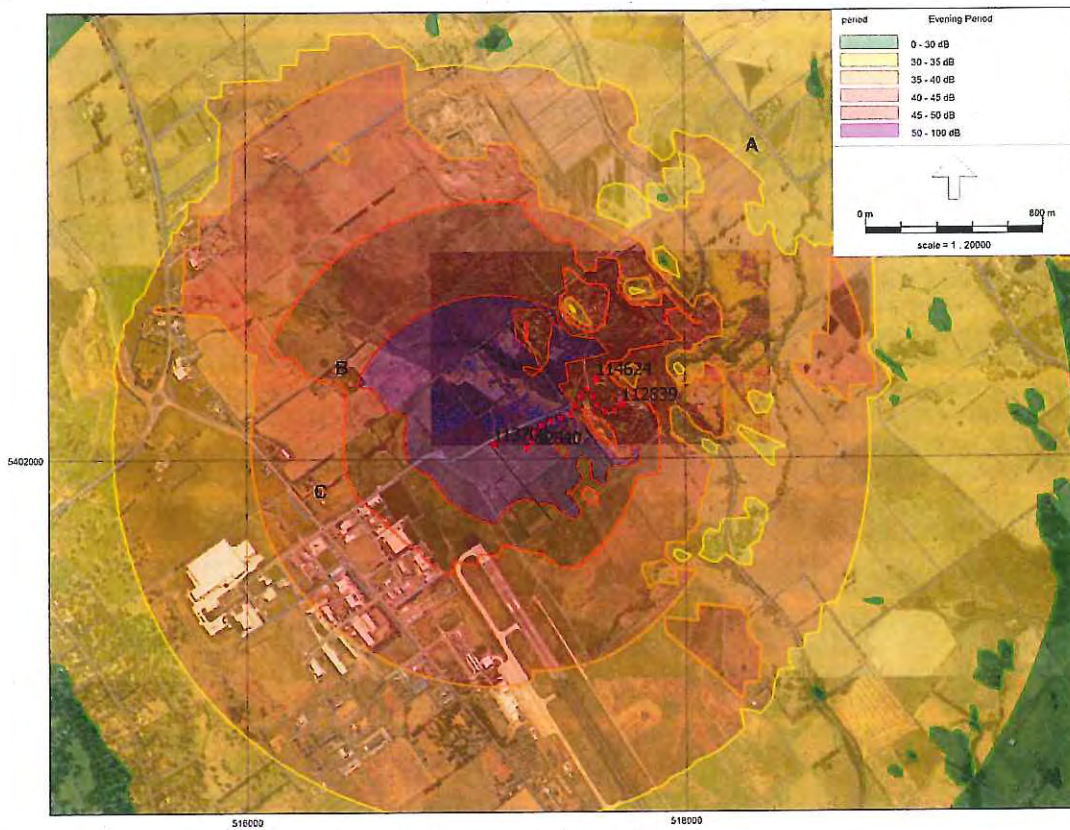


Figure 15: Year 5 - Drill Rig Only - Noise Contours

ACOUSTIC GLOSSARY

<i>Ambient Noise</i>	All noise associated with a measurement, and typically ignoring the particular noise under investigation. Typically measured as Leq and will usually comprise noise from many sources.
<i>Background Noise</i>	Background noise describes the underlying level of noise present in the ambient noise. It may be described as the average of the minimum noise levels measured, and is typically measured by the statistical L90 level.
<i>Decibel [dB]</i>	The scale used for describing sound. It is a logarithmic scale that uses a reference sound pressure of 20 µPa, or reference sound power of 10 ⁻¹² Watts.
<i>dBA</i>	A-weighted decibel. The human ear does not perform linearly and is better at hearing high frequency rather than low frequency sounds, ie. low frequency sound at the same dB level as a high frequency sound will be perceived as quieter. To replicate the human ear response a frequency weighting, denoted as an A weighting, is applied to the sound. A sound measured in this way is then an A weighted sound pressure level with units dBA. Practically all noise is measured using the A weighting.
<i>Leq</i>	Energy averaged sound pressure level over a period of time, usually 10 to 15 minutes. Units of decibels, typically A weighted, hence dBA.
<i>Frequency</i>	Frequency is synonymous with pitch and has the units of Hertz (Hz) or cycles per second. A bass drum produces a low frequency sound, and a small bell a high frequency sound. The frequency range for human hearing is approximately 30Hz to 16kHz.
<i>L10, L90...</i>	Ln is the sound pressure level that is exceeded for n% of the time. Hence the L10 describes the noisier events during the interval, and L90 the quieter events. The L90 is often used to describe the background level. A significant variation between the L10 and L90 would indicate an environment where there is a strong variation in noise levels, and the background is not the dominant source. As the variation between the L10 and L90 decreases, the background becomes a more dominant.
<i>Inversion</i>	A condition typically occurring on clear, still nights which is characterised by the air near the ground being colder than air at higher altitudes. The increasing speed of sound with altitude bends the sound back towards the ground causing a focussing of the sound in a small area. The inversion effect can cause increases in noise levels of 5 to 10 dB with greater increases in exceptional circumstances.

Appendix E: Terrock Blasting Assessment



P O Box 829
 Eltham Vic 3095
 Phone: (03) 9431 0033
 Fax: (03) 9431 1810
 URL: <http://terrock.com.au>
 Email: terrock@terrock.com.au
 ABN: 99 005 784 841

Alan B. Richards
 Ph.D, F.I.E.Aust., F.Aust.I.M.M., F.I.Q.

Adrian J. Moore
 Dip.C.E., B.E.(Min.), M.Eng.Sc., M.I.E.Aust.

WESTERN JUNCTION QUARRY

QUARRY EXTENSION – EFFECTS OF BLASTING

1 INTRODUCTION

This report gives an assessment of the effects of blasting in the Western Junction Quarry Extension located near Launceston Airport, South of Launceston. The relative locations of the existing quarry and surrounds and the proposed extraction area are shown in **Figure 1**. It is proposed the extraction within the quarry will be carried out in six stages over the next 18 years. The stages are labelled **A-F** in **Appendix 2**.



Figure 1 – Western Junction Quarry site plan

The quarry is operated by Bis Industries and is a medium-scale operation producing approximately 315,000 tonnes of crushed rock products per year. With an outlook to increase production to a potential 500,000 tonnes per annum with the new extension.

The Western Junction Quarry has been utilising blasting in order to remove overburden and break up the basalt for processing. The broken rock is loaded into trucks and carted to a stockpile area or dumped directly into a fixed crusher. Secondary breaking of oversize will be conducted by hydraulic impactor. The depth of the rock to be broken by blasting will be a maximum of 14 metres on each bench.

This report gives details of estimated blast vibration levels in the surrounding area from the main extraction stages. It also recommends applicable control procedures to limit vibration to the regulatory limits, during the life of the quarry at the nearby houses, as the extraction area moves within the quarry.

2 BLAST VIBRATION LIMITS

2.1 Ground Vibration

Ground vibration from blasting is barely noticed below 0.5 mm/s. The environmental ground vibration limits applied at the quarry are based on the Australian and New Zealand Environment Consultative Council (ANZECC) guidelines to minimise annoyance due to ground vibration from blasting and are set as a planning permit condition.

The environmental ground vibration limit is a peak vector particle velocity (PPV) of 5 mm/s at residences not owned or occupied by quarry personnel or at other sites with sensitive use. This limit may be exceeded on 5% of blasts in a 12 month period up to an absolute limit of 10 mm/s. For the industrial area and airport runway to the south west of the proposed extension, the limits can be higher as commercial structures are capable of withstanding higher forces. It is recommended that blast vibrations be kept under 10 mm/s for occupied commercial structures for all blasting by the quarry.

The prevention of damage to structures by blast vibration is a separate issue. 'Safe' levels for ground vibration limits to control damage to structures are recommended in Table J4.5(B) of Australian Standard 2187.2-2006, reproduced as **Table 1**.

Table 1 - Australian Standard 2187.2-2006 - Table J4.5(B) – Recommended Ground Vibration Limits for Control of Damage to Structures (see Note)

2.1.1.1.1 Category	Type of blasting operations	Peak component particle velocity (mm/s)
Other structures or architectural elements that include masonry, plaster and plasterboard in their construction	All blasting	Frequency-dependent damage limit criteria Tables J4.4.2.1 and J4.4.4.1
Unoccupied structures of reinforced concrete or steel construction	All blasting	100 mm/s maximum unless agreement is reached with the owner that a higher limit may apply
Service structures, such as pipelines, powerlines and cables	All blasting	Limit to be determined by structural design methodology

NOTE: Tables J4.5(A) and J4.5(B) do not cover high-rise buildings, buildings with long-span floors, specialist structures such as reservoirs, dams and hospitals, or buildings housing scientific equipment sensitive to vibration. These require special considerations, which may necessitate taking additional measurements on the structure itself, to detect any magnification of ground vibrations that might occur within the structure. Particular attention should be given to the response of suspended floors.

The proposed blasting practice will ensure that ground vibration levels do not exceed 5mm/s at any residential property and occupied industrial and airport buildings.

2.2 Air Vibration

Air vibration from blasting is barely noticed below 100 dBL. Air vibration limits applied at the quarry are based on guideline levels of the ANZECC guidelines to minimise annoyance due to blasting overpressure and are set as a planning permit condition. The air vibration limit at a residence or sensitive use site is a maximum of 115 dBL (peak), which may be exceeded on up to 5% of the total number of blasts over a twelve-month period, but should not exceed 120 dBL at any time.

This airblast limit is a human response limit intended to minimise the effect of airblast on people at sensitive sites, such as residences or schools and is not a limit to prevent possible damage. Australian Standard 2187.2-2006 states:

'From Australian and overseas research, damage (even of a cosmetic nature) has not been found to occur at airblast levels below 133 dBL..... A limit of 133 dBL is recommended as a safe level that will prevent structural/architectural damage from airblast.'

The proposed blasting practice will ensure that airblast overpressure levels do not exceed 115dBL at any residential property and occupied industrial and airport buildings.

3 DETERMINATION OF GROUND VIBRATION LEVELS

3.1 Basis for blast vibration level evaluations

The vibration from a blast in the quarry is continuously monitored by Maxam, with the results being used in this assessment. Recently blasting that will conform with the typical blasting of the extension have been used for these predictions.

The blasting specifications used in the blast vibration analysis are shown in **Table 2**. Currently and for future blasting, the explosives used will be the Maxam watergel RIOFLEX explosives, as its characteristics are better suited to the rock encountered.

As the quarry progresses through the proposed expansion and working its way towards the airport in the later years of development, a reduced scale of blasting may be needed into order to keep levels under control but these changes will need to be reviewed and monitored as the quarry approaches the south western edge of the pit extension.

Table 2 – Blast specifications used in analysis

	Typical Blast Specifications
Bench height (m):	14
Hole depth (m):	15
Hole angle (°):	10
Blasthole diameter (mm):	89
Blasthole spacing (m)	2.8
Blasthole burden (m):	2.5
Front Row Burden (m)	3.6
Stemming height (m):	3
Explosive	RIOFLEX
Charge mass per m (kg)	8.1
Charge mass per delay (kg):	97
Powder factor (mg/m ³):	1.012

3.2 Evaluation of maximum ground vibration levels

Ground vibration varies with distance from the blast, charge mass per delay, type of explosive, geological conditions, and blasting specifications. For similar geological conditions and blasting specifications, ground vibration varies with distance and charge mass per delay, according to the Site Law formula:

$$V = k_g \left(\frac{D}{\sqrt{W}} \right)^b \quad [1]$$

where:

- V = ground vibration as peak particle velocity (PPV) (mm/s)
- D = distance from blast (m)
- W = charge mass per delay (kg)
- b = site exponent or drop off (attenuation) rate
- k_g = site constant

The regression analysis of the previous ground vibration measurements taken in the Breadalbane area showed that conservative (worst case) site parameters are as follows:

Site exponent: -1.6

Site constant: 2400

Hence, the formula used for ground vibration prediction at the site is:

$$V = 2400 \left(\frac{D}{\sqrt{W}} \right)^{-1.6} \quad [2]$$

Ground vibration contours for a blast based on the above Site Law and a maximum charge mass per delay of 97 kg are shown in **Figure 2**. When the ground vibrations contours are superimposed on the site photo as an overlay and moved around the proposed extraction area for each stage, the effect of a blast anywhere in the planned extraction area can be readily seen. **Appendix 3** shows the predicted ground vibrations that would occur along the south western edge, closest to the identified sensitive sites.

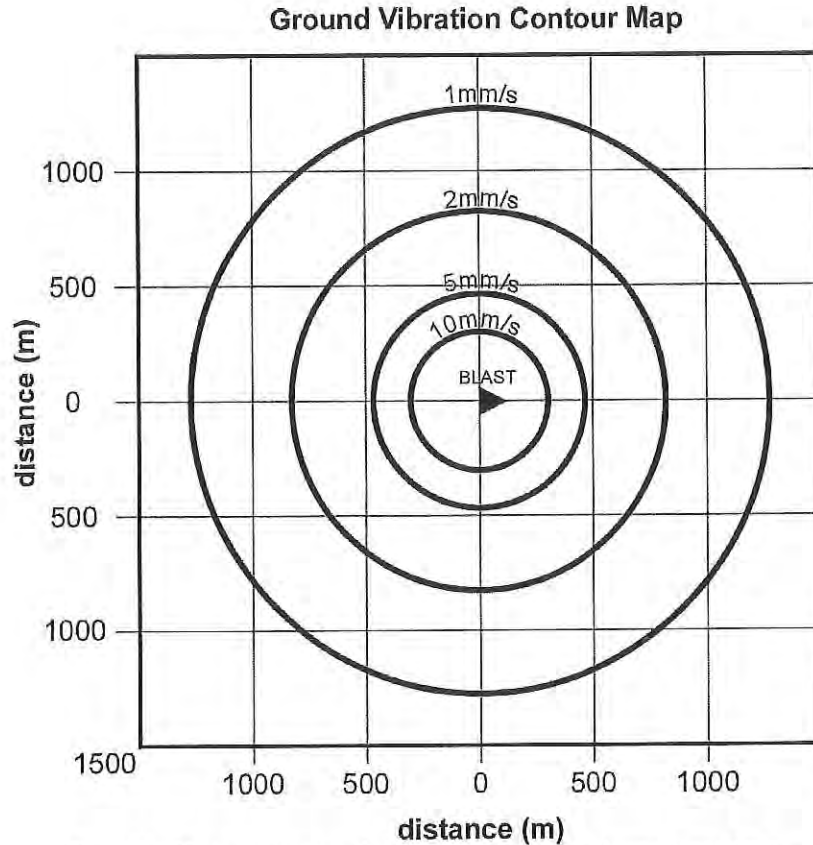


Figure 2 - Worst-case ground vibration contours – charge mass 97kg

Assuming worse-case vibration transmission, the milestone vibration levels occur at the predicted distances from a blast, as shown in **Table 3**.

Table 3 – Estimated ground vibration levels

PPV (mm/s)	Distance(m)
10	303
5	467
2	828
1	1277

The maximum extent of the 10, 5, and 2 mm/s contours for blasting using 97 kg of explosives is shown in **Appendix 3**. These represent the highest ground vibration levels in the area surrounding the quarry for any blast over the life of the quarry.

The closest residential property to the quarry is located 800m to the north west of the extension and at this distance the predicted ground vibrations level that would be generated by standard blasting practise would be 2.1 mm/s. This is below the limit of 5 mm/s and as this is the closest residential property, all residential properties beyond can be reasonably expected to be below this level.

Therefore, the peak ground vibration at any residence will be less that 5mm/s.

4. DETERMINATION OF AIRBLAST OVERPRESSURE LEVELS

4.1 Prediction of maximum air blast levels

The magnitude of airblast levels arriving at a point remote from the blast is a function of many parameters, including charge mass, confinement, burden, attenuation rate, shielding direction relative to the blast and meteorological conditions at the time of the blast. The attenuation rate for low frequency blast vibration has been found from experience to be a 9 dBL reduction with doubling of distance.

Analysis of blasting data from this and other quarries has permitted the relationship between maximum 120 dBL distance (the distance in front of the blast that the 120 dBL contours occurs), charge mass per delay and burden to be established.

The predictive model is:

$$D_{120} = \left(\frac{k_a \times d}{B} \right)^{2.5} \cdot \sqrt[3]{m} \quad [3]$$

where:

D_{120}	=	Distance to the 120 dBL air blast level (m)
d	=	hole diameter (mm)
B	=	burden (mm)
m	=	charge mass (kg)
k_a	=	site constant

For the empirical constant in quarries the following site constants are used:

In front of the face: $k_a = 250$

Behind the face: $k_a = 160$

For blasting in the proposed extension, from the analytical method, the 120 dBL distance for a 97 kg charge mass and a burden of 3 metres is a maximum of 688 metres in front of the blast. This equates to 115 dBL at 1070m in front of the blast face. For the airblast levels behind the face, the 115dBL distance is 540m.

Typical airblast levels radiate from a blast in an egg shape. This is due to the fact that the levels in front of a blast are 8-10 dBL higher than those behind a blast. The worst-case airblast contours from standard blasting practise are shown in **Figure 2**.

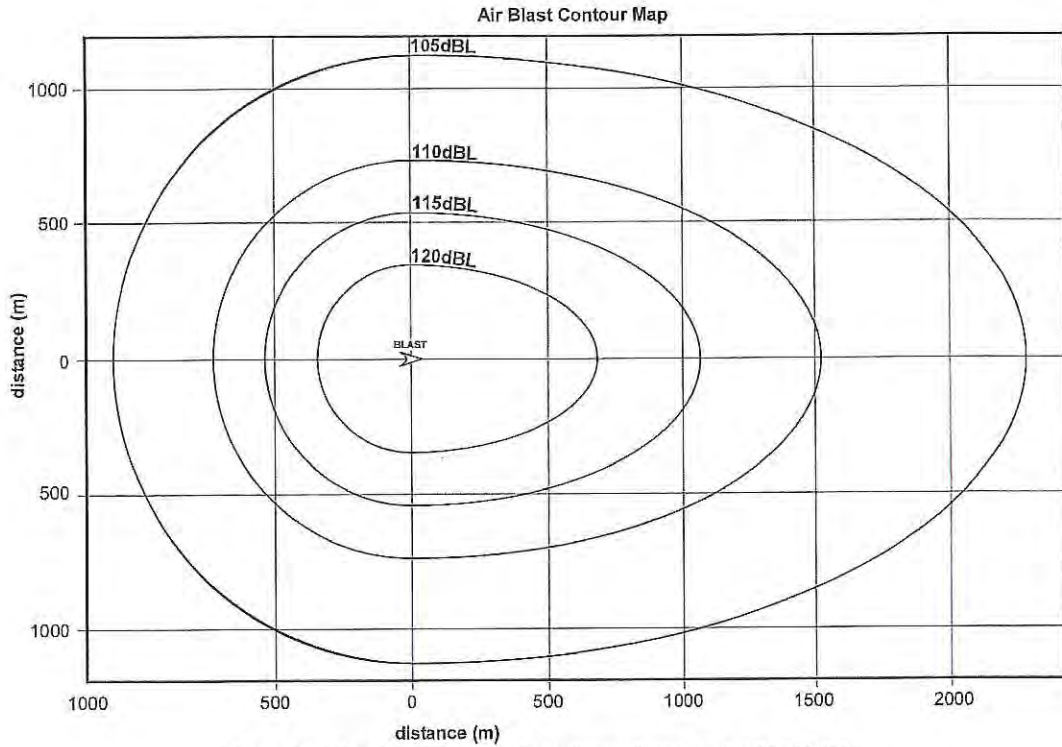


Figure 3- Worst-case airblast contours from a standard blast

4.1 Extent of airblast overpressure levels

An assessment was made based on blast specifications for 89 mm diameter blastholes, a face height of 14 metres, and a charge mass of 97 kg for blasting in the pit extension with the face direction looking to be north east, as shown in **Appendix 4**.

The distances to milestone airblast levels for future blasting practice and different orientations are shown in **Table 5**.

Table 5 - Distances to milestone airblast levels for standard specification blasts

Air Vibration Level (dBL)	Pit Extension Blasting	
	Distance in front (m)	Distance at side/behind (m)
120	688	347
115	1070	540
110	1529	732
105	2294	1118

The planned extraction sequence and resulting blast directions will enable air blast levels to be kept below the 115 dBL at any sensitive site for the remainder of the quarry's operation.

5 EFFECTIVE CONTROL OF BLASTS

5.1 GENERAL

Blasting in Tasmanian quarries is regulated by the EPA Division of the Department of Primary Industries, Water and Environment and Mineral Resources Tasmania through the Quarry Inspectorate. All quarries in Tasmania are required by law to record details of every blast in an official report book and these reports are available for official inspection. The report book includes a stocktaking section, which can be checked against official records which explosives suppliers are required to keep. Quarry Managers and shotfirers are also required to hold statutory certificates and permits and are liable to have these suspended or cancelled if they do not obey the regulations.

5.2 FLYROCK

Efficient blasting practice results in broken rock being left in a pile next to the blasting face, but the possibility of flyrock and its effective control must always be considered.

Flyrock is controlled by having the explosive charge confined by sufficient stemming and burden. Care and attention to detail during all stages of face survey, blast design and loading will ensure that any rock throw will be contained within the Work Authority boundaries, and will present no danger to the public.

Flyrock distances for the proposed blast design have been calculated using the Terrock Flyrock Model, that is widely used for flyrock control in Australian quarries.

The basic model for quarrying operations is:

$$L_{\max} = \frac{k^2}{9.8} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad [4]$$

where: L_{\max} = maximum flyrock throw (m)
 m = charge mass per metre (kg) = 8.1
 B = burden or stemming height (m)
 K = site constant

For the proposed blast design,

$$L_{\max} = \frac{27^2}{9.8} \cdot \left(\frac{\sqrt{m}}{B} \right)^{2.6} \quad [5]$$

where: L_{\max} = maximum flyrock throw (m)
 m = charge mass per metre (kg) = 8.1
 B = burden or stemming height (m) = 3

The maximum predicted rock throw in front of face for the proposed specifications is 65 metres. To this distance we recommend the application of two factors of safety for plant and equipment and personnel. For plant and equipment, a factor of safety of '2' should be applied to the potential maximum throw of flyrock. A factor of '4' should be applied for personnel and public. This clearance is applied in a 90° arc at 45° to the face of the blast.

In directions parallel to the face and behind the face, the possible flyrock mechanisms are cratering and rifling of the stemming (or gun barrelling). Providing the stemming height is greater than 20 hole diameters (1.8 metres), cratering will not occur. Rifling produces high trajectory flyrock with little horizontal projection.

For any direction behind the face or to the maximum flyrock throw will be 42 metres. The same recommended minimum clearance zones for plant & equipment and personnel & public are applied to each blast is shown in **Figures 3**.

Table 6 shows the breakdown of the maximum throw and the applicable clearance zones for that throw. As mentioned above, the factors of safety are '2' and '4' both in front and behind the face for all blasting.

Table 6 - Distances of Flyrock and Clearance Zones

	Distance in front (m)	Distance at behind (m)
Maximum Throw	65	42
Plant & Equipment	130	84
Personnel & Public	260	168

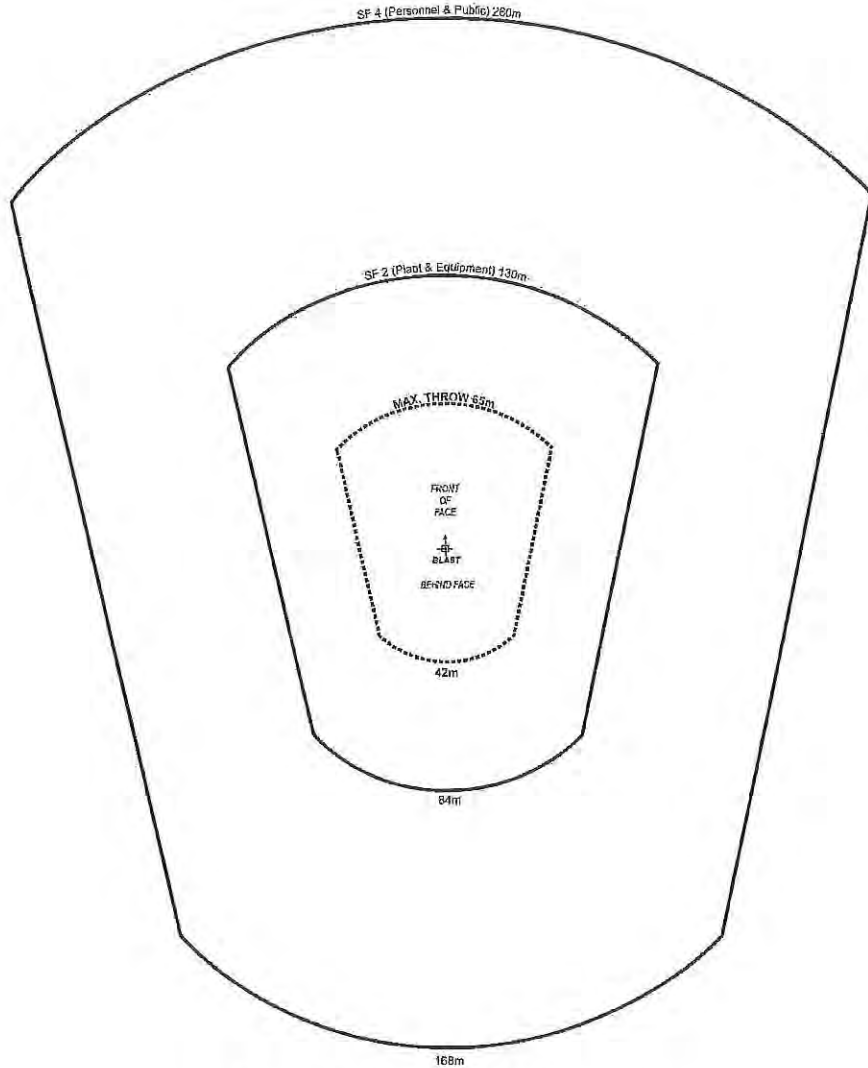


Figure 3 – Flyrock exclusions zones

The adoption of the minimum exclusion zones in **Figure 3** will prove conservative for most blasting. However, the determination of the exclusion zone is the responsibility of the quarry manager and shotfirer for each blast.

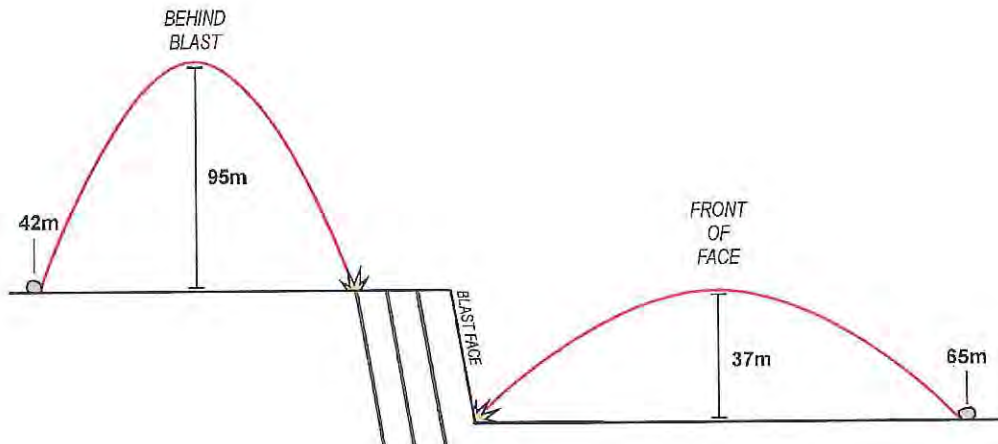
The maximum height that flyrock may reach with the standard blast design specifications proposed for the quarry’s extension area are as follows:

Table 7 – Throw Distances of Flyrock

	Front of face	Behind/Side of blast
Max Horizontal Throw Distance	65m	42m
Max Vertical Throw Distance	37m	95m

Maximum throw occurs from rock fragments launched at 45° degrees (front of face) and 20° behind the blast site (blast hole angle of 10° + a dispersal allowance of 10°). It should be noted that the flyrock model predictions are conservative and provide an allowance for potential weaknesses in the rock mass and minor errors that may occur during hole loading.

A diagram of the predicted flyrock trajectory showing maximum horizontal and vertical throw distances is shown below.



5.3 BLAST VIBRATION MANAGEMENT PROGRAM

Blasting must be carried out in accordance with the proposed blasting specifications and the applicable Explosives Use Regulations.

Compliance with vibration limits will be checked by the continuation of the monitoring regime conducted around the current working pit, modified as required to adequately monitor levels in the industrial area and airport terminal.

6 CONCLUSIONS

- Blasting can be carried out in the proposed quarry extension safely and in conformance with the Explosives Regulations 2012 of Tasmania and planning permit vibration limits, subject to compliance with the specifications and recommendations given in this report.
- People within the range of perceptible ground vibration will experience both air and ground vibration from blasting for less than four seconds on about 12 occasions per year, depending on the blast size. Beyond the range of perceptible ground vibration, the air vibration may be perceptible for less than two seconds for each blast.
- The peak ground vibration level will be less than 5 mm/s at residences in the surrounding area, as well as at industrial area and the airport terminal.
- Blast vibration levels resulting at the Launceston Airport runway will be less than 10 mm/s and at the exclusion distance of 400m, the levels are predicted to be 6.40 mm/s when blasting is at its closest to the runway.
- Airblast overpressure levels at the surrounding sensitive sites will be less than 115 dBL, as shown in **Appendix 4**.
- All blasts will be monitored to ensure compliance with the blast vibration limits.

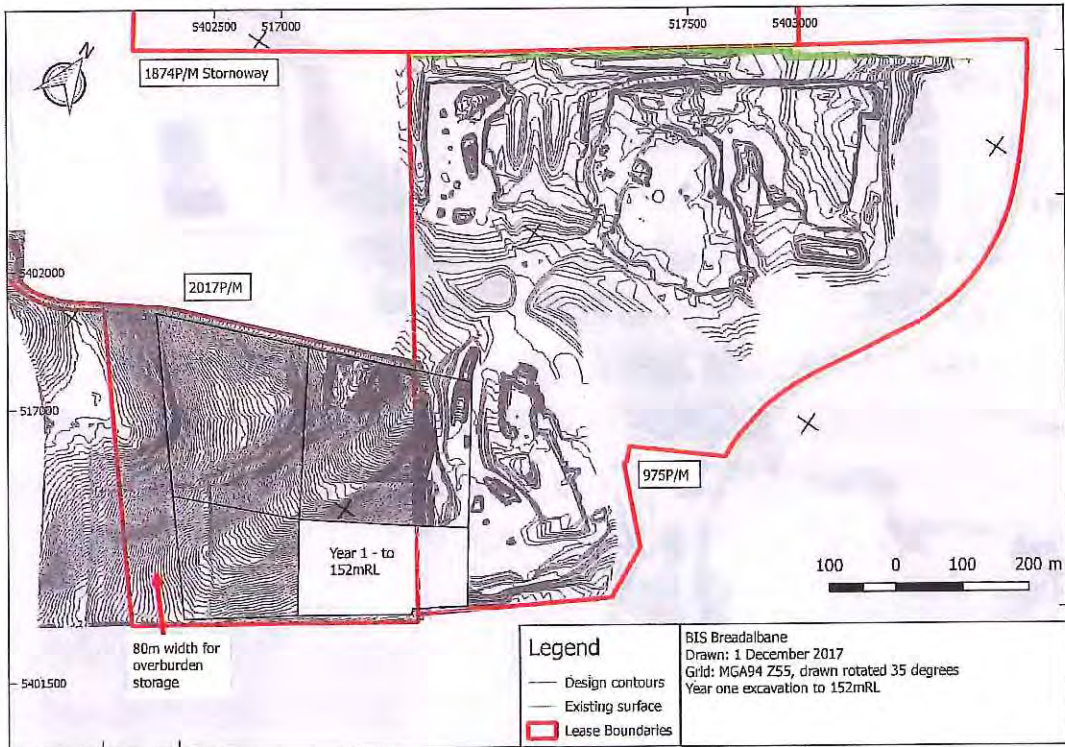
A.B. Richards
14th May 2018

7 APPENDIX 1 SITE PLAN

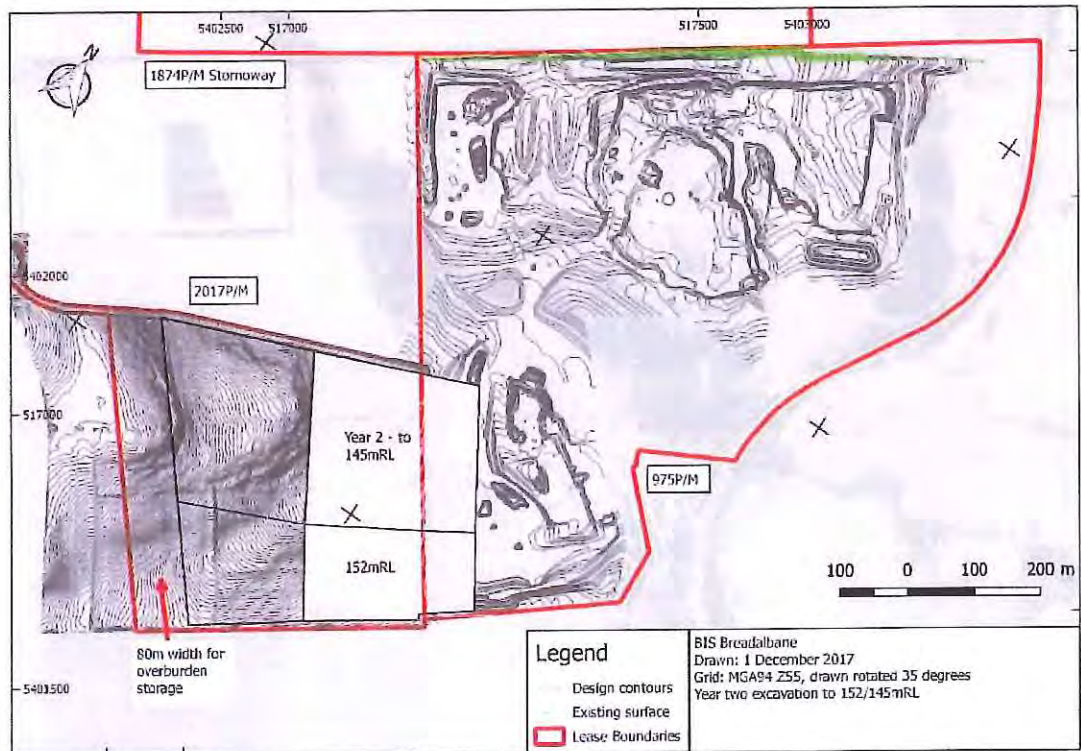


8 APPENDIX 2 – PROPOSED PIT EXTENSION STAGES

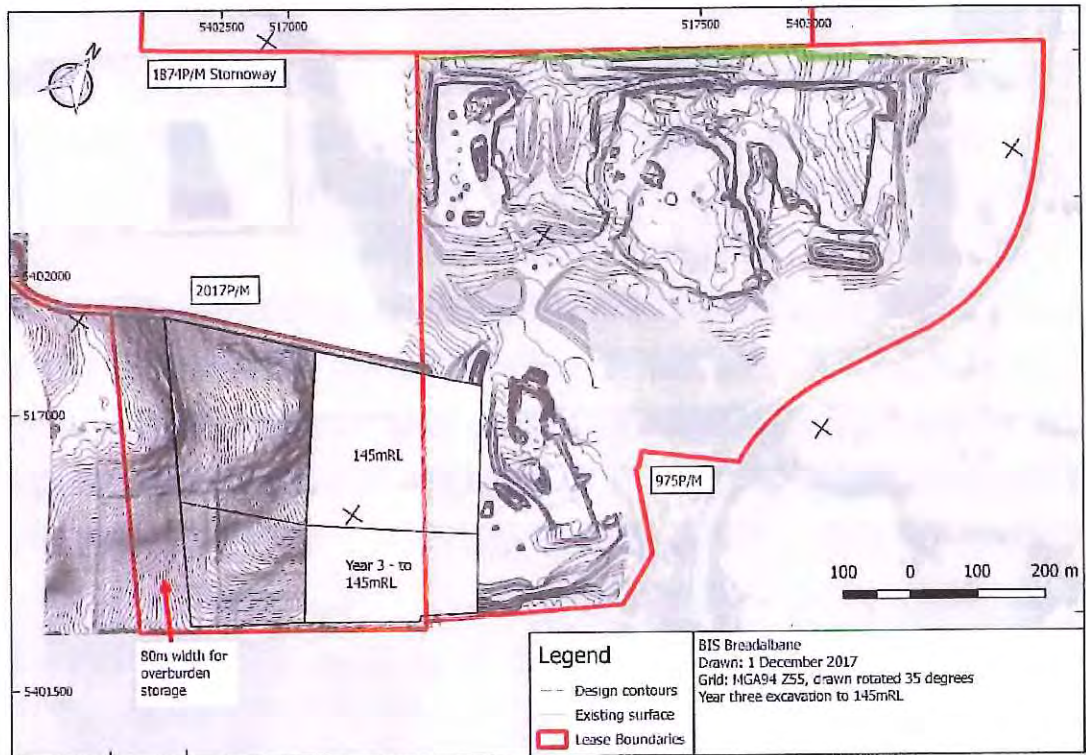
Appendix 2A - Year 1 Blasting Stage



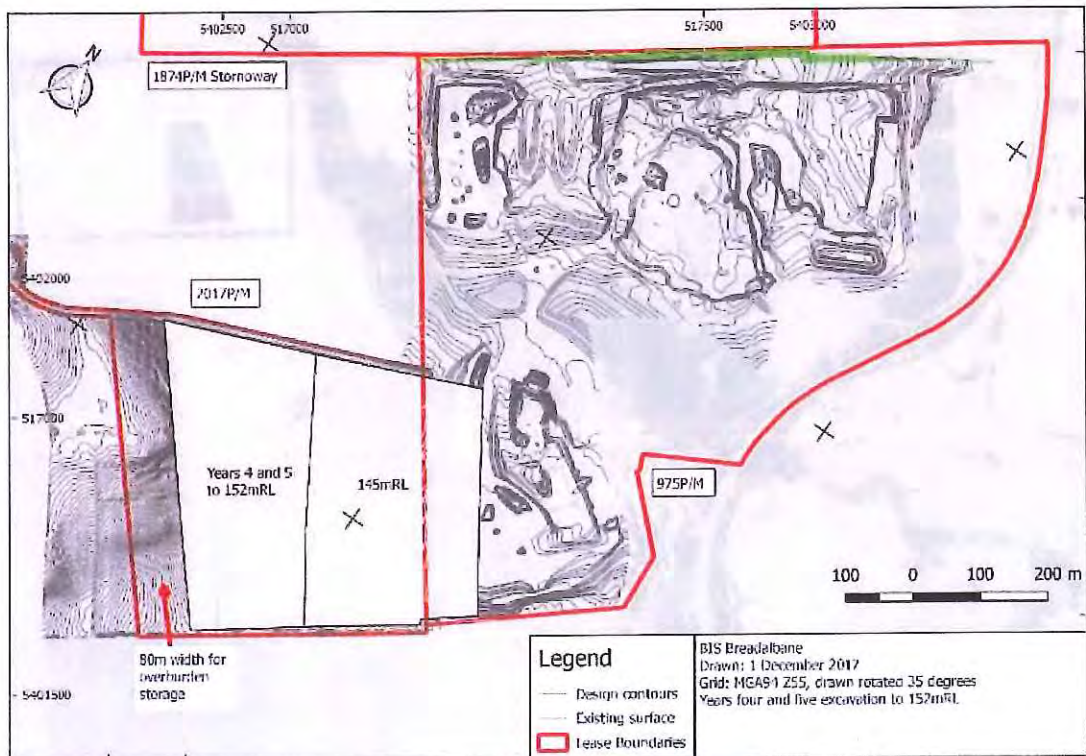
Appendix 2B - Year 2 Blasting Stage



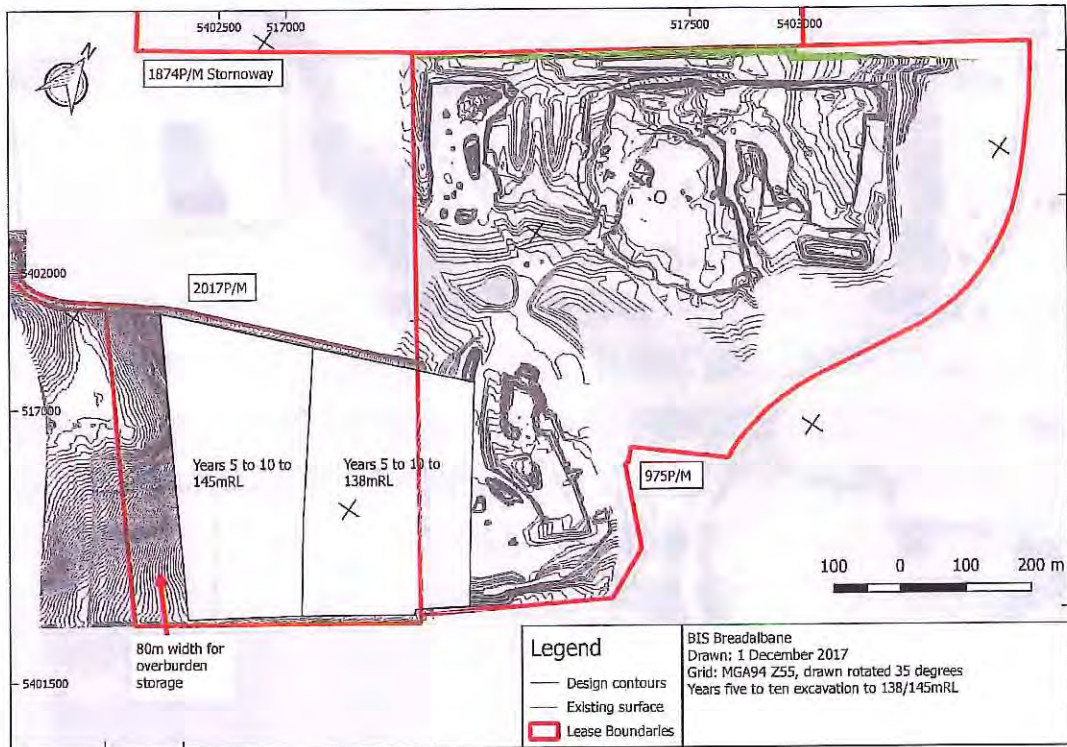
Appendix 2C - Year 3 Blasting Stage



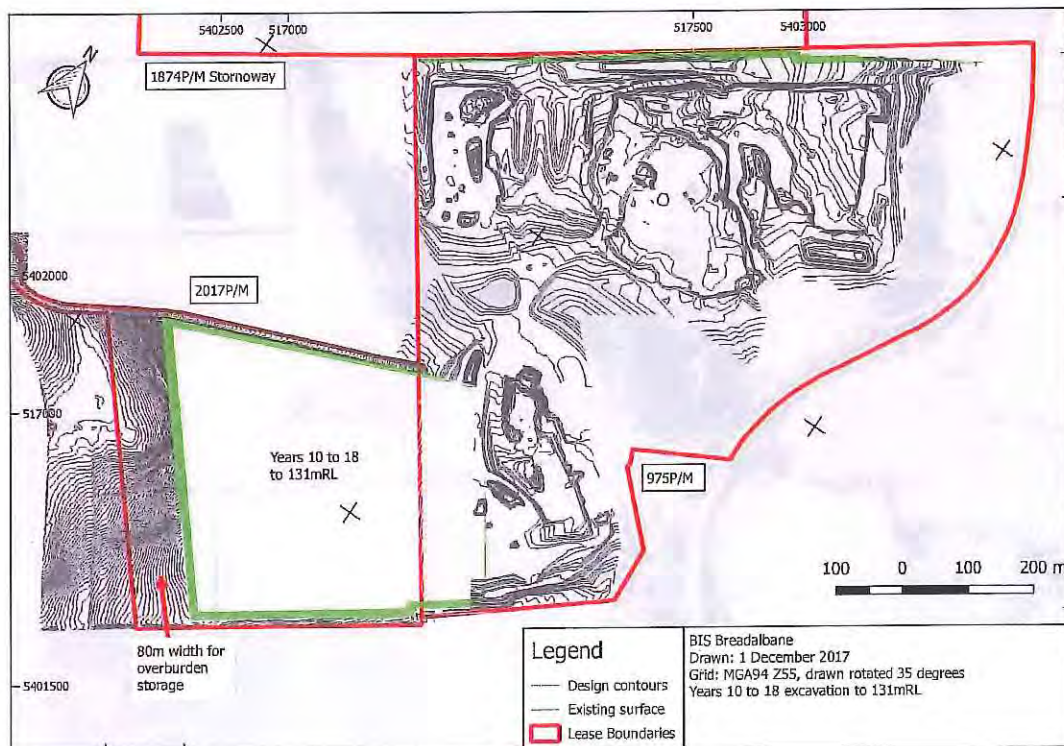
Appendix 2D - Years 4 & 5 Blasting Stage



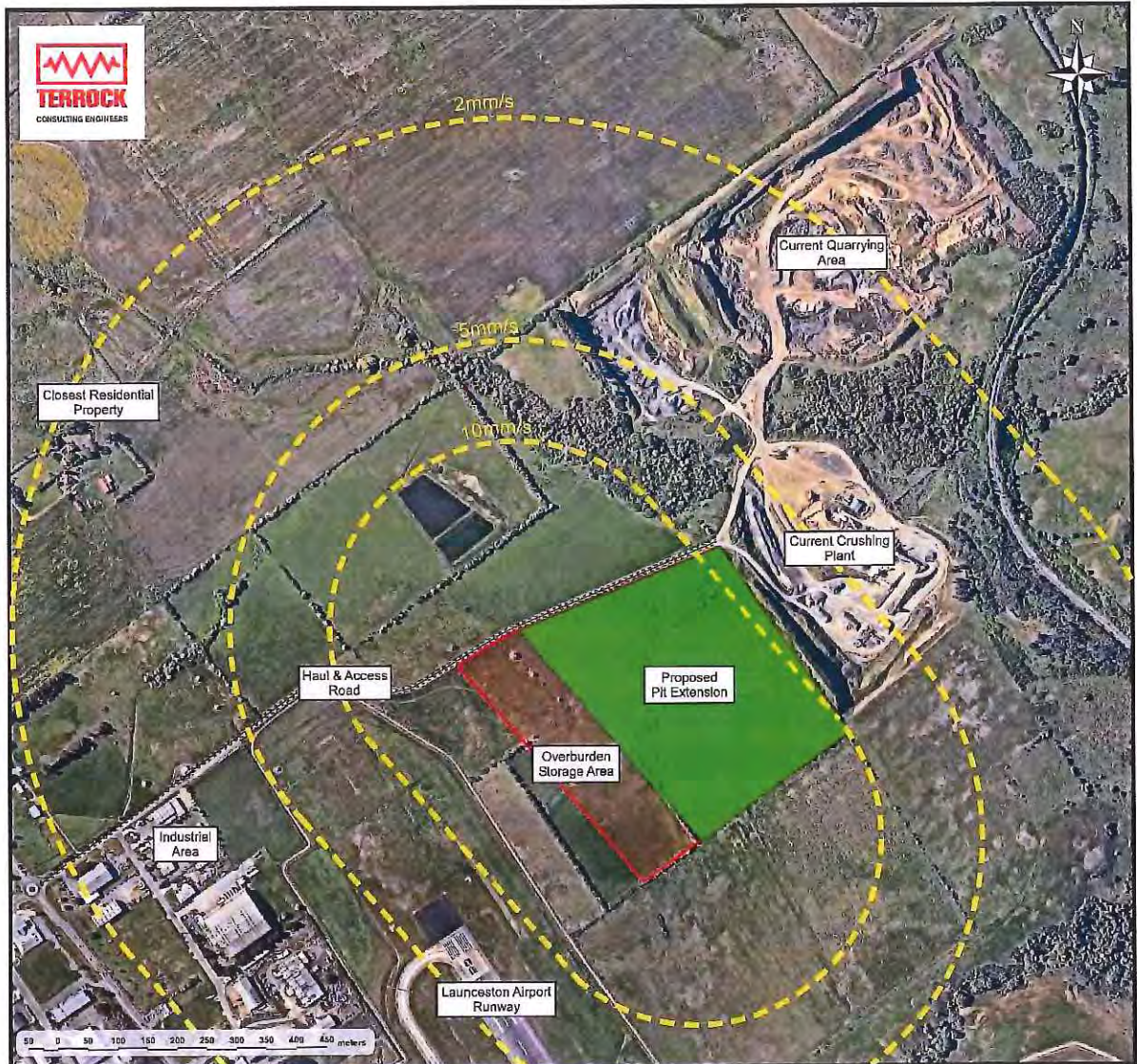
Appendix 2E - Years 5 - 10 Blasting Stage



Appendix 2F - Year 10 - 18 Blasting Stage

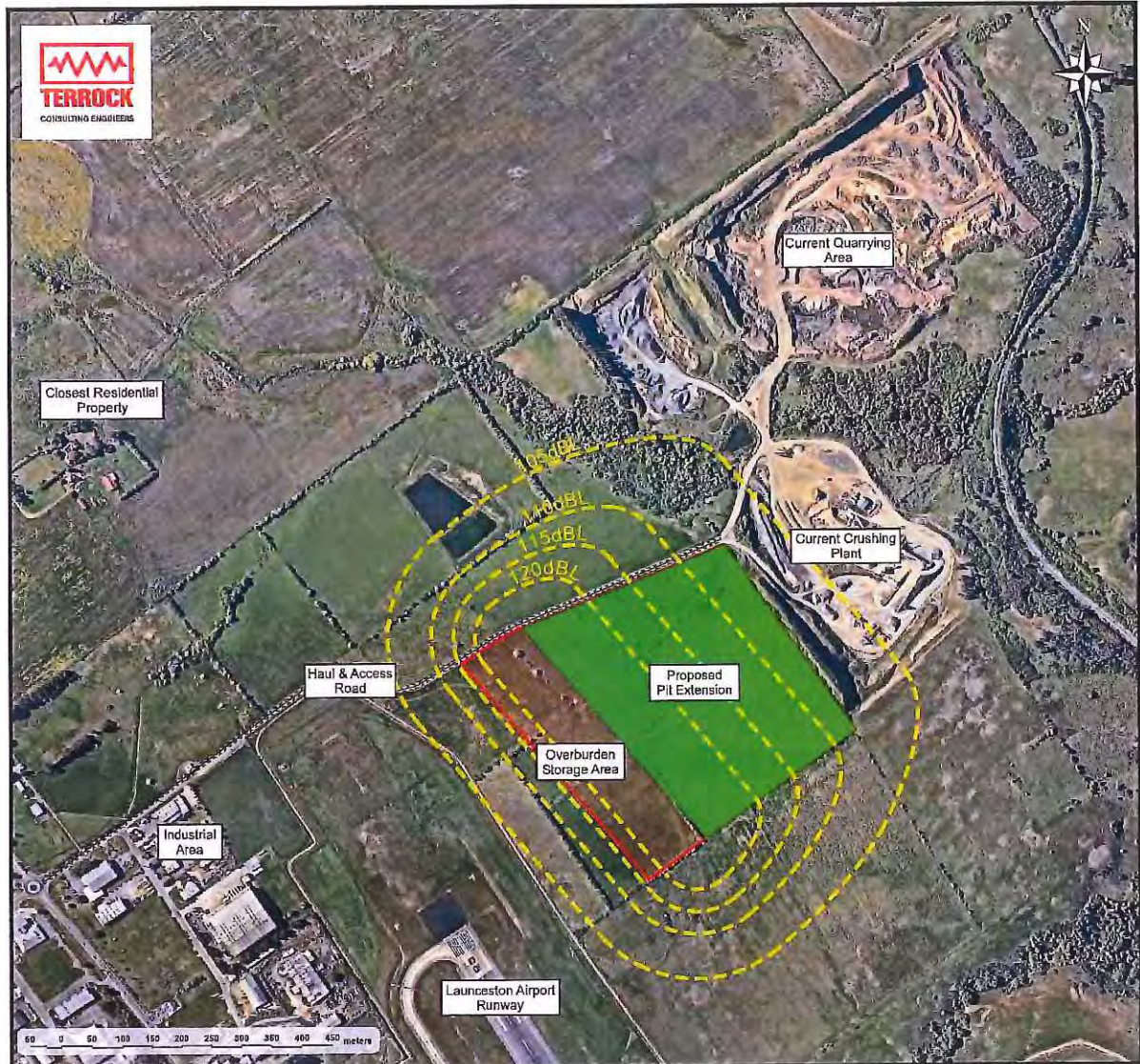


9 APPENDIX 3 – GROUND VIBRATION CONTOUR OVERLAY



**NB: This overlay is for blasts along the most south western edge of the pit*

10 APPENDIX 4 – AIRBLAST OVERPRESSURE CONTOUR OVERLAY*



*NB: This overlay is for blasts along the most south western edge of the pit with faces in the north east direction

Appendix F: Weed and Hygiene Guidelines

<https://dpiwwe.tas.gov.au/Documents/Weed%20%20Management%20and%20Hygiene%20Guidelines.pdf>

Submission to Planning Authority Notice

Council Planning Permit No.		Council notice date	10/05/2019
TasWater details			
TasWater Reference No.	TWDA 2019/00642-NMC	Date of response	11 June 2019
TasWater Contact	Greg Clausen	Phone No.	(03) 6237 8242
Response issued to			
Council name	NORTHERN MIDLANDS COUNCIL		
Contact details	Planning@nmc.tas.gov.au		
Development details			
Address	81 EVANDALE RD, WESTERN JUNCTION	Property ID (PID)	2551287
Description of development	Expansion of quarry		
Schedule of drawings/documents			
Prepared by	Drawing/document No.	Revision No.	Date of Issue
John Miedecke & Partners P/L	Development Proposal and Environmental Management Plan		March 2019
Conditions			
<p>Pursuant to the <i>Water and Sewerage Industry Act 2008 (TAS)</i> Section 56P(1) TasWater imposes the following conditions on the permit for this application:</p> <p>PROTECTION OF TASWATER INFRASTRUCTURE</p> <p>1. Prior to submitting the Development Proposal and Environmental Management Plan (DP&EMP) to the regulating authority for approval, the developer must develop a site management/operational plan for inclusion in the DP&EMP to TasWater satisfaction to protect TasWater assets and staff from damage, dilapidation, injury and harm as the case may be for the life of the quarry.</p> <p>DEVELOPMENT ASSESSMENT FEES</p> <p>2. The applicant or landowner as the case may be, must pay a development assessment fee of, \$1,139.79 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date it is paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater.</p>			
Advice			
<p><i>Requirements to protect TasWater assets and staff from damage, dilapidation, injury and harm include but not limited to:</i></p> <ul style="list-style-type: none"> <i>a. Establishment on-going liaison protocols with TasWater;</i> <i>b. Management of impacts of dust, noise and vibration emissions on TasWater staff;</i> <i>c. Undertaking dilapidation survey(s) and agreed condition assessments;</i> <i>d. Movement of heavy vehicles over shared accesses;</i> <i>e. Monitoring and management of high ground velocities, ground movement and vibrations arising from blasting;</i> <i>f. Management of fly rock hazards; and</i> <i>g. Rectification of assets deemed to have been damaged by quarrying work as and when</i> 			



required.

Declaration

The drawings/documents and conditions stated above constitute TasWater's Submission to Planning Authority Notice.

Authorised by

A handwritten signature in black ink, appearing to read "J Taylor".

Jason Taylor
Development Assessment Manager

TasWater Contact Details

Phone	13 6992	Email	development@taswater.com.au
Mail	GPO Box 1393 Hobart TAS 7001	Web	www.taswater.com.au

**REFERRAL OF DEVELOPMENT APPLICATION PLN-19-0071 TO WORKS & INFRASTRUCTURE
DEPARTMENT**

Property/Subdivision No: 201800.16
Date: 09.04.2019
Applicant: D Hughes
Proposal: 146280/1 & 129905/1
Location: 81 Evandale Road, Western Junction

W&I referral PLN-19-0071, 81 Evandale Road, Western Junction

No W&I comment.

Jonathan Galbraith (Engineering Officer)

Gravel access discussed with Leigh McCullagh (Works Manager)

Date: 6/11/20

Paul Godier

From: Jonathan Galbraith
Sent: Friday, 6 November 2020 8:28 AM
To: Paul Godier
Subject: RE: W&I referral PLN-19-0071, 81 Evandale Road, Western Junction.doc
Attachments: WI referral PLN-19-0071 81 Evandale Road Western Junction.doc

Paul,

That gravel section actually isn't our road, its part of their driveway, on land that they own. From a W&I point of view I don't think there is a reason why it needs to be sealed.



Our Longford office is open from 8:45am until 4:30pm weekdays, however meetings with Council Officers are by appointment only, and we ask that transactions be conducted via telephone or online wherever possible. Our Customer Service team can be contacted by phone, post, via our website or email at council@nmc.tas.gov.au
Our priority is to keep our community, including staff, ratepayers and residents safe and to minimise the spread of COVID-19.

Regards,

Jonathan Galbraith



Engineering Officer | Northern Midlands Council
Council Office, 13 Smith Street (PO Box 156), Longford Tasmania 7301
T: (03) 6397 7303 | M: 0400 935 642 | F: (03) 6397 7331
E: jonathan.galbraith@nmc.tas.gov.au | W: www.northernmidlands.tas.gov.au

**employer
of choice**

Northern Midlands Council
Att: General Manager
PO Box 156
Longford Tas 7301

10th June 2019

planning@nmc.tas.gov.au

Dear Sir,

RE: 81 Evandale Road Western Junction
Reference No: PLN-19-0071
Expansion of existing quarry (Level 2 activity under EMPCA)

As the landowner of the adjoining land on the southern side of the existing quarry I request that the following complaint be considered before granting the expansion.

The dust pollution from the crusher on site does not currently comply with conditions in Section 4 of the planning application. Dust emissions from the plant falling on our pasture render this unpalatable for our stud sheep until a reasonable rainfall occurs. This area becomes useless and obviously contravenes the 'right to farm' act. This also prohibits the successful growing of cereal and specialised seed crops.

Previous complaints have 'fallen on deaf ears' about the dust and an expansion of the quarry will only prolong the problem.

A suitable solution to the dust emissions needs to be thoroughly addressed before the expansion application is granted.

Yours sincerely,

Rod Summers

'Marananga'
Evandale



P.O. BOX 1220
LAUNCESTON, TASMANIA 7250
PHONE: (03) 6391 6222
FAX: (03) 6391 8580

07 June 2019

Paul Godier
Planning Officer
Northern Midlands Council
13 Smith Street
LONGFORD TAS 7301

Dear Paul

RE: Planning Application PLN-19-0071 - Expansion of Existing Quarry

We refer to the above planning application [the application] which has been referred to Launceston Airport.

Launceston Airport is operated by Australia Pacific Airports (Launceston) Pty Ltd (APAL), the airport-lessee company of the Commonwealth-owned Launceston Airport land.

APAL **objects** to the development for expansion of the existing quarry site at 81 Evandale Road, Western Junction due to potential impacts on aircraft safety and operations at the airport.

We note that, whilst the site is located within the airport's ANEF contours, and this was the trigger for referral of the application to Launceston Airport, the primary issue is actually the use and development of land within the airport's prescribed airspace. The site's location within the ANEF contours is not the issue given the fact that the use is not one that is sensitive to aircraft noise.

We refer to the Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996 (the Regulations) with regards to intrusions into the prescribed airspace around the airport, and the National Airports Safeguarding Framework (NASF) which sets out guidelines to ensure the safety of aviation operations.

Airports Act 1996 – Protection of Prescribed Airspace

APAL have identified a number of issues associated with the application including, dust generation, flyrock and air pressure waves which may have an effect on the prescribed airspace surrounding Launceston Airport.

The Launceston Airport Obstacle Limitation Surface (OLS), essentially the aircraft safety surface in the airspace, is located above the quarry expansion site, at its lowest point, approximately 30m above ground level.

The development application refers to dust generation and management with respect to having sufficient distance between the quarry site and surrounding residences, however does not refer to proximity to the airport site, its runways or prescribed airspace. Dust plume generation which may have an effect on the prescribed airspace is specifically noted in the Airports Act 1996 as a "controlled activity" where "a person must not: (a) carry out a controlled activity in relation to prescribed airspace". To undertake this activity, approval must be sought under the Airports Act 1996 and the Regulations.

The application provides little detail on how dust plumes will be managed on site, therefore APAL regard this as a high risk to the safety of aircraft operations into and out of Launceston Airport.

The application also provides information with regard to blast flyrock which according to the "Blast Report" could reach a height of 95m. Due to its location, the flyrock has the potential to vertically penetrate the airport's OLS by up to 60m. This potential flyrock intrusion into the OLS is also a "controlled activity" and presents a high risk to aircraft arriving and departing from the northern runway to the airport. To undertake this activity, approval must be sought under the Airports Act 1996 and the Regulations.

Finally, the application refers to air blast over pressure and also to a soil/overburden stockpile both of which could result in air turbulence. Under the Airports Act 1996 this is regarded as a controlled activity; "activity resulting in air turbulence". The impact on aircraft is unknown however, could present a risk due to the site's proximity to the runway threshold. Further information is required to assess this impact, but it may require approval under the Airports Act 1996 and the Regulations.

Details of the application and approvals process for controlled activities are contained with the Regulations.

National Airports Safeguarding Framework (NASF) Guidelines

There are three NASF guidelines that are directly relevant to the application which must be taken into account pursuant to the Standing Council on Transport and Infrastructure agreement of 18 May 2012. They are:

Guideline B: Managing the Risk of Building Generated Windshear and Turbulence at Airports

The application refers to a soil/overburden stockpile to be located at the western boundary of the development site. At its closest point, the western site boundary is approximately 90m from the airport boundary. According to the NASF Guidelines, windshear/turbulence issue becomes safety critical when a significant obstacle is located in the path of a crosswind to an operational runway.

Without sufficient detail about the proposed soil/overburden stockpile, Launceston Airport cannot be certain there is no risk to aircraft take-offs or landings.

Guideline C: Managing the Risk of Wildlife Strikes in the Vicinity of Airports

The application proposes additional retention ponds to be constructed. Birds can be attracted to retention ponds and bodies of water and this presents a risk of increased aircraft wildlife strikes. The application provides little information regarding management of wildlife on site.

NASF Guideline C provides the following information with regard to wildlife strikes.

- Wildlife strikes and/or avoidance can cause major damage to aircraft and / or reduction of safety.
- Australia's international aviation safety obligations as a contracting state to the Convention on Civil Aviation include responsibilities to take action to manage the risk from wildlife.
- Where local authorities seek to establish land uses which may increase the risk of wildlife strike near existing airports, steps should be taken to mitigate risk in consultation with the airport operator and qualified bird and wildlife management experts. Risk mitigation measures that should be considered in such cases include:
 - a requirement for a Wildlife Management Program;
 - the establishment of wildlife management performance standards;
 - allowance for changes to design and/or operating procedures at places/plants where land use has been identified as increasing the risk of wildlife strike to aircraft;
 - establishment of appropriate habitat management at incompatible land uses;
 - creation of performance bonds to ensure clean-up and compensation should obligations not be met;
 - authority for airport operators to inspect and monitor properties close to airports where wildlife hazards have been identified; and,
 - consistent and effective reporting of wildlife events in line with Australian Transport Safety Bureau (ATSB) guidelines.

APAL require the proponent to produce evidence of the above to satisfy any heightened risk of wildlife strikes.

Guideline F: Managing the Risk of Intrusions into the Protected Airspace of Airports

Covered under the heading "Airports Act 1996 – Protection of Prescribed Airspace" above.

Departmental Feedback

Airservices Australia have provided the following comments:



P.O. BOX 1220
 LAUNCESTON, TASMANIA 7250
 PHONE: (03) 6391 6222
 FAX: (03) 6391 8580

On initial review of the information presented in support of the Planning Application, Airservices has concerns that the quarry extension to the full extent proposed will have a negative impact on aviation activities at Launceston Airport.

Flyrock, dust plumes, extraneous lighting adjacent to the runway, increased bird activity, wind shear created by changes to the existing topography of the land will all contribute to a reduction in the current level of safety afforded to aviation activities at Launceston Airport.

Airservices - Airport Developments Department has commenced a more detailed review of this Planning Application.

APAL has also sought advice from Civil Aviation Safety Authority (CASA) and the Commonwealth Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) and is awaiting departmental feedback.

Given the above information, APAL requires the proponent to:

1. Seek and obtain approval in accordance with the Airports Act 1996 and the Regulations for controlled activities.
2. Provide an aviation safety impact assessment and wildlife hazard management assessment in relation to the proposal's potential impact on Launceston Airport's prescribed airspace and aircraft safety. These assessments must be prepared by a suitably qualified and experienced aviation consultant and must demonstrate that there will be no impact on Launceston Airport's prescribed airspace or safety of operations.
3. Engage with Airservices Australia, CASA and DITCRD.

Until such time as the above requirements are met, APAL **objects** to the subject planning application.

If you or the applicant has any questions relating to the above comments, please don't hesitate in contacting me.

Yours sincerely,

Ilya Brucksch

Manager Planning and Development

Australia Pacific Airports (Launceston) Pty Ltd



Australian Government

Department of Infrastructure, Transport,
Cities and Regional Development

General Manager
Northern Midlands Council
PO Box 156
LONGFORD TAS 7301

via email to planning@nmc.tas.gov.au

Dear Sir/Madam

Planning Application PLN-19-0071 - expansion of existing quarry (Level 2 activity under EMPCA) - 81 Evandale Road, Western Junction TAS 7212

I refer to the above planning application provided to the Department of Infrastructure, Transport, Cities and Regional Development (the Department) by Australia Pacific Airports (Launceston) Pty Ltd (APAL), the airport-lessee company of the Commonwealth-owned Launceston Airport land.

I understand that APAL has expressed significant concerns regarding the proposal to expand the existing quarry at the above location. The Department shares these concerns.

The Department chairs the National Airports Safeguarding Advisory Group (NASAG) that advises governments on the protection of airports from inconsistent or inappropriate development. Airports are critical pieces of national infrastructure and suitable locations for airports are scarce. The current and future viability of aviation operations at Australian airports can be threatened by inappropriate development.

I am concerned that the expansion of the quarry closer to the airport boundary may have significant long-term operational impacts for Launceston Airport and may be contrary to the National Airports Safeguarding Framework (NASF) developed by NASAG and agreed to by State and Territory Ministers (including Tasmania) in May 2012.

The NASF is a national land use planning framework that aims to improve community amenity by minimising aircraft noise-sensitive developments near airports and improve safety outcomes by ensuring aviation safety requirements are recognised in land use planning decisions. It consists of a set of guiding principles with nine guidelines relating to aircraft noise, windshear and turbulence, wildlife strikes, wind turbines, lighting distractions, protected airspace, communication equipment, helicopter landing sites and public safety areas at the end of runways. More information about the Framework can be found at www.infrastructure.gov.au/aviation/environmental/airport_safeguarding/nasf/index.aspx.

I understand that the site proposed for the quarry expansion is only approximately 90 metres from the airport boundary, directly adjacent to the Runway 14R threshold. Given the close

proximity to the airport, it is important that risks to airport operations that could arise from the quarry are properly assessed and considered before any approval is given. These risks include:

- the potential for blast flyrock and other activities to penetrate protected airspace (see below);
- dust plumes;
- increased bird and wildlife activity associated with any ponding and retention basins;
- windshear/turbulence risk associated with any mounds and changes to terrain; and
- lighting distraction.

It is important to acknowledge the requirements of the Commonwealth Airports (Protection of Airspace) Regulations 1996, which provide for the protection of airspace at and around airports in the interests of the safety, efficiency and regularity of transport operations into or out of leased Commonwealth airports, including Launceston Airport. Any controlled activities under Part 12 of the *Airports Act 1996* that have the potential to penetrate prescribed airspace for Launceston Airport would need to be assessed under the Protection of Airspace Regulations.

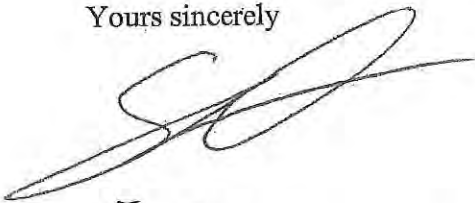
It is my understanding that Airservices Australia have also expressed concerns that the proposed quarry expansion could have an adverse impact on aviation activities at Launceston Airport and will be providing advice on the proposal.

Thank you for the opportunity to comment on the proposal. In considering this planning application, I urge the Council to carefully consider the safety concerns the Department has raised and ensure these matters have been adequately addressed.

I have also copied this letter to Mr Arun Kendall, Department of State Growth and Tasmanian representative on the National Airports Safeguarding Advisory Group.

If you wish to discuss any of the issues raised I am available on

Yours sincerely



Sharyn Owen
Director, Airport Safeguarding
Aviation & Airports Division

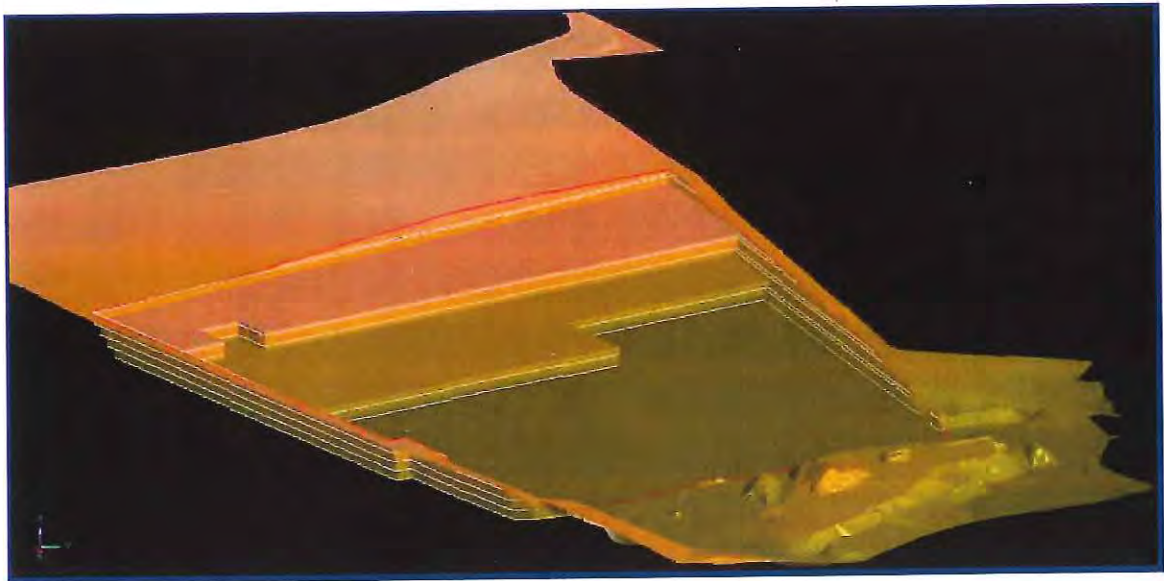
6 June 2019

1-305

D.N.Hughes

**WESTERN JUNCTION QUARRY
EXTENSION**

**DEVELOPMENT PROPOSAL AND
ENVIRONMENTAL MANAGEMENT
PLAN**



**SUPPLEMENT
*FINAL***

CONTENTS

1	Introduction	1
2	Public Submissions.....	1
3	Referral Agency Comments	2
3.1	Launceston Airport and Department of Transport	2
3.2	Mineral Resources Tasmania	3
3.2.1	Basalt Resource	3
3.2.2	SRADS	3
3.2.2	Distance from Western boundary	4
3.3	Taswater	4
3.3	DPIPWE	4
Appendix A	EPA Comments Table	5
Appendix B	Miscellaneous (MRT Comments).....	6
Appendix C	Taswater	7

1 Introduction

This supplement has been prepared in response to a request for additional information from the EPA, via email on 25^v May 2020. This follows the advertising for public comment and preparation of a draft and final *Western Junction Quarry Extension – Development Proposal and Environmental Management Plan*, prepared by John Miedecke & Partners Pty Ltd and dated March 2019.

The summary table (prepared by the EPA) is attached as **Appendix A**.

A conference organised by the Northern Midlands Council was held in October 2020 and resolved most, if not all of the issue raised by the representors.

2 Public Submissions

One representation was received from the public, which was from neighbouring landowner – Mr Rodney Summers. Table 1 contains the nature of the representation (based on the EPA Comment Table- Appendix A) . As noted in Table 1, Bis have carried out a dust audit and identified some remedial actions (Commitment 12 – completed).

These were:

- o Audit of dust suppression system
- o Repair/replace dust covers over screens
- o Repair/replace transfer point skirting
- o All spray nozzles checked for functionality
- o Sprinklers installed to suppress dust on the ground around the crushing plant from becoming airborne.

12	Plant dust control	Audit plant dust control equipment and take remedial action where required.	Complete Ongoing (12mthly)
-----------	---------------------------	-----------------------------------------------------------------------------	----------------------------------

Mr Summers attended the meeting held by the NMC in September 2019 and suggested that a suitable solution could be that his land be purchased and the quarry developing to the south.

This has progressed with a sale agreement signed subject to condition precedents, with Mr Hughes purchasing the land

It is now the intent that Mr Hughes will progress another Quarry proposal with the original plan being revised with quarry being developed to the south long term. This will require another DA as it is on another title.

However, this will not be pursued until the current proposal is approved.

If this does not occur, Bis (together with the mitigations already carried out) will install a live dust monitor close to the boundary that reports back to the operational crew. This is Commitment 13.

13	Dust Monitor	Install at property boundary , with live feed to plant crew	If adjoining property not purchased
-----------	---------------------	-------------------------------------------------------------	-------------------------------------

Table 1

Response to EPA Comments

Representation No./ Agency	EPA Comments and issues	Additional information required	Response
Mr Summers (adjoining land owner)	<p>Dust emissions from the crusher do not comply with the current permit conditions.</p> <p>Dust emissions from the crusher are covering pasture areas, making it unpalatable to their stud sheep until reasonable rainfalls occur.</p> <p>Contravenes the 'right to farm' Act (<i>Primary Industry Activities Protection Act 1995</i> and Protection of Agricultural Lands Policy).</p> <p>The dust also prohibits the successful growing of cereal and specialised seed crops.</p> <p>A suitable solution to dust emissions needs to be addressed before expansion is approved.</p>	<p>Section 4.5 of the DPEMP does not adequately consider the potential impact of dust emissions on agricultural land.</p> <p>The DPEMP must consider the potential impacts of dust emissions from the activity on nearby agricultural land, and detail any additional mitigation measures proposed to minimise any nuisance dust emissions from the activity.</p>	<p>See Section 2.0</p> <p>Remedial action identified and carried out</p> <p>Additional Commitments</p> <p>Sales agreement signed with Proponent</p> <p>As requested by Mr Summers</p>
Launceston Airport	<p>The proposed use and development of land within the Launceston Airport's (the Airport) prescribed airspace is a significant safety issue to aviation operations. Object to the proposal until the below is appropriately addressed and approved.</p> <ul style="list-style-type: none"> • Refer to the <i>Airports Act 1996</i> (the Act) and <i>Airports (Protection of Airspace) Regulations 1996</i> (the Regulations) in relation to intrusions into prescribed airspace around the Airport. • Refer to the National Airports Safeguarding Framework (NASF) which provides guidelines to ensure the safety of aviation operations. <p>The following have been identified as potentially having an impact on the prescribed airspace:</p> <ul style="list-style-type: none"> ○ Dust emissions; ○ Fly-rock emissions; ○ Air blast overpressure causing air turbulence; 	<p>Reference to the Act and Regulations must be made along with a brief discussion on how the requirements will be met.</p> <p>Including a commitment regarding seeking appropriate approvals under the Act and Regulations would be beneficial.</p> <p>Further consideration of the potential impacts from dust emissions and blasting on the Airport must be included in the DPEMP. The DPEMP should provide details on the proposed procedural processes for engaging with</p>	<p>Meetings and external reports supplied to all parties involved- Launceston Airport, Airservices Australia, the Civil Aviation Safety Authority (CASA) and the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD).</p> <p>Letter received by NMC accepting the report (s) and requesting notification of blasting.</p> <p>Refer Section 3.1 for detailed discussion,</p>

Table 1 Response to EPA Comments

	<ul style="list-style-type: none"> o Soil / overburden stockpiles causing air turbulence; o Light emissions; and o Creation of additional sediment ponds attracting wildlife. <ul style="list-style-type: none"> • Dust management is not adequately addressed in relation to the risk to aviation activities. Dust generation is a 'controlled activity' under the Act and requires approval under the Act and Regulations. • Blast fly-rock may penetrate the prescribed airspace by a significant margin and is a 'controlled activity' under the Act. Approval must be sought under the Act and Regulations. • Air blast overpressure and soil / overburden stockpiles may result in air turbulence, which is a 'controlled activity' under the Act. Further information is required to assess the potential impact and may require approval under the Act and Regulations. • NASF Guidelines must be taken into account pursuant to the Standing Council on Transport and Infrastructure agreement of 18 May 2012, in particular Guidelines B, C and F are relevant to the proposal. • An Aviation Safety Impact Assessment and a Wildlife Hazard Management Assessment is required to be developed by a suitably qualified and experienced aviation consultant in relation to the proposal's potential impact on the Launceston Airport's prescribed airspace and aircraft safety. • The above assessments must demonstrate that there will be no impact on Launceston Airport's prescribed airspace or the safety of aviation operations. • Recommended to engage with Airservices Australia, the Civil Aviation Safety Authority (CASA) and the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) regarding the proposal. 	<p>the Airport in regards to aviation safety matters and any monitoring that will be undertaken.</p>	
--	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------	--

Table 1

Response to EPA Comments

<p>MRT</p>	<p>MRT made the following comments on the DPEMP:</p> <ul style="list-style-type: none"> • There is limited discussion around the impacts of the operation with respect to the Launceston Airport and potential impacts to air and ground operations at the airport. How will the two operations interact? MRT is of the view that greater discussion around this is required. • It would be useful to see a discussion around CASA's feedback regarding the DPEMP. The DPEMP states CASA were consulted during the Notice of Intent period. However, there is no meaningful discussion of their position or concerns beyond this. • Section 2.3.2 Basalt Resource – the comments raise questions over the confidence associated with the amount of resource claimed to be available for extraction. The statement that there is approximately 9 million tonnes of basalt available for extraction appears to be speculative. Further modelling, drilling and knowledge of factors such as basement geometry, architecture, geological structures, and alteration facies within the deposit would also need to be further investigated to improve the resource confidence level. The applicant has previously encountered issues with resource dilution due to contamination by weathering. • The SRADs appear to have been measured from the centre of the mining lease. SRADs must be measured from the boundary of the mining lease to ensure future sensitive receptors do not fetter access to resources. This significantly changes the potential for interaction with current sensitive receptors and requires further assessment. • Page 22 part 2.8 Operating hours it states “<i>There are no residences in close proximity to the quarry or transport route</i>”. The suggested recommended attenuation distances prescribed for such an activity is 1000m where regular blasting takes place. An SRAD distance of 750 metres is recommended 	<p>Provide additional discussion on the basalt resource around the confidence in the resource. The distance to the nearest sensitive receptor must be measured from the Boundary of the Land. The DPEMP must be revised. Discussions on the potential impacts and proposed mitigation measures need to be revised, including relevant maps, to reflect the additional sensitive premises that may potentially be impacted within 1,000m from the boundary of the Land. Similarly, justification for the operating hours must be revised to take into account the additional sensitive premises within 1,000m of the boundary of the Land. Please confirm the distance from the south western boundary that extraction will cease.</p>	<p>See discussion on the Launceston Airport in Section 3.1.</p> <p>Section 2.3.2 Basalt Resource Refer Section 3.2</p> <p>SRADS or Standard Recommended Attenuation Distances Refer Section 3.2</p>
------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Table 1

Response to EPA Comments

	<p>where crushing occurs, 500m SRAD where vibrating and trommel screens alone are used, and where no blasting, crushing or screening occurs an SRAD distance of 300 metres applies. There are a number of sensitive receptors within the suggested recommended attenuation distances that have not been addressed in the DPEMP.</p> <ul style="list-style-type: none"> The DPEMP appears to be silent on stating to what distance final extraction will cease to progress beyond with respect to the western boundary of the mining lease. The DPEMP currently suggests the far western area will be used for soil/overburden stockpile storage purposes. It would be useful to have a distance written into the document to ensure clarity around this issue. 		<p>Distance from Western boundary Refer Section 3.2</p>
<p>Taswater</p>	<p>TasWater have stated that pursuant to the <i>Water and Sewerage Industry Act 2008</i> (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:</p> <p>Protection of TasWater infrastructure</p> <ol style="list-style-type: none"> Prior to submitting the Development Proposal and Environmental Management Plan (DPEMP) to the regulating authority for approval, the developer must develop a site management / operation plan for inclusion in the DPEMP to TasWater satisfaction to protect TasWater assets and staff from damage, dilapidation, injury and harm as the case may be for the life of the quarry. <p>Development assessment fees</p> <ol style="list-style-type: none"> The applicant of landowner as the case may be, must pay a development assessment fee of \$1,139.79 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date it is paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater. 	<p>TasWater have advised their requirements to protect TasWater assets and staff from damage, dilapidation, injury and harm include but are not limited to:</p> <ol style="list-style-type: none"> Establishment of on-going liaison protocols with TasWater; Management of impacts of dust, noise and vibration emissions on TasWater staff; Undertaking dilapidation survey(s) and agreed condition assessments; Movement of heavy vehicles over shared accesses; Monitoring and 	<p>Refer Section 2.3</p>

Table 1

Response to EPA Comments

		<p>management of high ground velocities, ground movement and vibrations arising from blasting;</p> <p>f. Management of fly rock hazards; and</p> <p>g. Rectification of assets deemed to have been damaged by quarrying works as and when required.</p> <p>Provide additional information in the DPEMP to satisfy TasWaters' requirements in relation to the proposal.</p>	
--	--	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

3 Referral Agency Comments

3.1 Launceston Airport and Department of Transport

Following receipt of the comments from both Launceston Airport and Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) (Appendix A and Table 1), a site meeting was organised with representatives of both organisations in August 2019. At this meeting, it was requested by both that additional information be provided (blast details, topographic levels etc) and an independent consultant be engaged to complete an Aviation Safety Impact Assessment. A further meeting was organised by NMC in October 2019, which included all representors (including Mr Summers).

A suitable consultant (Mott Macdonald) was selected from a list provided by Launceston Airport and DITCRD and appointed in January 2020. After the site visit, a draft report was completed by Mott McDonald and the draft forwarded to Launceston Airport in March 2020. After a review by all parties, a final Report was provided to Launceston Airport in late March (Mott Macdonald March 2020, Safety Review Report for Proposed Quarry Extension Launceston Airport 2 March 2020 - Confidential)

A letter was provided to NMC by DITCRD on 11 May 2020. This letter (Appendix B) states the following;

“The Department notes that the Report assesses and considers all of the risks to aircraft safety and operations in accordance with the National Airports Safeguarding Framework guidelines and the Airports (Protection of Airspace) Regulations. I further note the conclusions of the Report are that none of the issues raised require a controlled activity application as they have been modified to remain below prescribed airspace. The Report recommendations (such as having the quarry management consult the airport about blast timing, avoiding water ponding etc) appear sensible to mitigate any residual risk and should be encouraged.

I note that the original proposal forecast that the fly-rock could radiate to a height up to 95 metres which would have penetrated the current prescribed airspace (obstacle limitation surface - OLS) at that location. The Report provides technical information from blast specialists (Terrock) which revises the vertical blast throw to not exceeding a 28 metre height radius. I advise that this height is below the current prescribed OLS height at that location and therefore would not require a controlled activity application for the purposes of the Airports (Protection of Airspace) Regulations 1996. Advice from Launceston airport should be sought to confirm this “.

And:

“Page 14 of the Report states that "generation of dust plume and vibrations due to blasting seems to be the most critical aspect of the quarry operations”. The Department advises that these environmental effects of quarrying activities are a matter for EPA Tasmania and should therefore be referred for its consideration accordingly”

Both dust and vibration from blasting are addressed in the DPEMP and past history show that these have not been an issue and are manageable in the future. .

The report also notes:

“Any approvals provided on this proposal should be conditional on the proponent contacting the Launceston Air Traffic Control (ATC) Line Manager Chris Wallace on

0419 289 041 prior to any blasting operation commencing. A detailed annual schedule of blasting operations should be provided to Launceston Airport and the proponent is to ensure full disclosure to the Air Navigation, Airspace and Aerodromes Branch of the Civil Aviation Safety Authority (CASA)".

This is Commitment 14 and it is expected that this would be a Permit condition.

14	Launceston Airport	Bis contact the Launceston Air Traffic Control (ATC) Line Manager Chris Wallace on 0419 289 041 prior to any blasting operation commencing.	Prior to every blast
		Provide a detailed annual schedule of blasting operations to Launceston Airport, and to CASA.	Annual report

In discussions with Launceston Airport, concern was raised regarding surface water ponds and bird strikes on aircraft. There is therefore a commitment regarding surface water ponds in the airport proximity.

15	Launceston Airport	Minimise surface water ponding in quarry development	Ongoing
----	--------------------	------------------------------------------------------	---------

3.2 Mineral Resources Tasmania

MRT made a submission after the public advertisement. It not known why MRT did not comment on the Draft or contact the proponent for discussion, prior to their representation.

3.2.1 Basalt Resource

This is largely based on the MRT report referenced in the DPEMP. Inadvertently, Figure 2.9 which is the MRT Geology Map was missing in the DPEMP (and also not noticed by MRT !) and as stated, was used in the resource assessment. This Figure is attached in **Appendix B**.

It is not usual for quarries to be extensively drilled and "resource" to be upgraded to "reserve" status. The resource (which would be classified as inferred of approximately 9 million tonnes (or over 18 years of production) was more than sufficient to justify the proposal and the Quarry plans would be revised in regular EMP updates (every 5 years). As stated on page 14 of the DPEMP, Bis had undertaken some drilling and this had confirmed the resource available for the quarry extension. This information is enclosed in **Appendix B**.

3.2.2 SRADS

SRADS or Standard Recommended Attenuation Distances are included in the planning scheme as Table E11.1. These are used by the Council to replace the previous schemes "buffer zone" mapping. They are used by Councils as a guide to review approvals for "sensitive uses", e.g houses, in proximity to an existing activity, or proposed new activity as stated. It is correct to say that the SRAD of 1000m

should be drawn around the ML boundary. However, Figure 3.2 showed Zoning and did not represent SRADs around the ML area.

Page 28 (Section 3.2.2.6 Attenuation Areas) discusses this Code. As noted

“Level 2 activities as defined by the Environmental Management and Pollution Control Act 1994 (ie this proposal) are exempt from the Code as they are approved and controlled by the Act (and the EPA)”

And:

“The development should therefore be protected by a 1000 metre zone”.

A revised plan showing the 1000m area is included in **Appendix B (Figure A)**. Only one additional house (“Raeburn”) would have been included. However, this house is much closer to the Stornaway quarry and was included in the assessment of impacts in Sections 4.3 and 4.4. There are no other sensitive uses within 1km of the ML boundaries.

3.2.2 Distance from Western boundary

It is likely that final extraction would be greater than 18 years away and therefore it is not possible to sensibly show much more than the indicated positions. As the Quarry will go through multiple EMP reviews this will be monitored at these reviews. An indicative section is shown (Fig 3) in Appendix B .

3.3 Taswater

This submission by Taswater should have been received during the NOI process and was only received after the drafts and final DPMP were submitted and the latter advertised.

After discussion with Taswater, an email has been received indicating that TasWater does not expect nor want to review anything prior to the issue of the Planning Permit (Appendix C..

Terrock have investigated possible blast vibration effects and flyrock from the proposal and conclude that these will not cause damage or issues (Terrock Report in Appendix C.

Access to the lagoons is via the main access road which is now on the mining lease. So in future Taswater personnel visiting the site will have to comply with access and Bis OH&S requirements (including sign in and out). As these did not previously apply, this will improve OH&S

Bis (as operator) will liaise with Taswater regarding their requirements and establish a management plan. Commitment 16.

16	Taswater Assets	Bis (as operator) will liaise with Taswater regarding their requirements and establish a management plan.	3months of permit granting
----	-----------------	-----------------------------------------------------------------------------------------------------------	----------------------------

3.3 DIPWE

Any settling ponds exceeding 1 ML will be approved by DIPWE. Given the commitment to minimise surface water ponding, these are unlikely

Appendix A EPA Comments Table

Revised Table of Commitments

DN Hughes – Western Junction Quarry extension, Western Junction

In the following tables, DPEMP means the document entitled *Western Junction Quarry Extension – Development Proposal and Environmental Management Plan*, prepared by John Miedecke & Partners Pty Ltd and dated March 2019.

TABLE 1: ADDITIONAL INFORMATION REQUIRED BY THE EPA BOARD

Representation No./ Agency	DPEMP section no.	DPEMP Page no.	Comments and issues	Additional information required
1	4.5	53 & 54	<p>Dust emissions from the crusher do not comply with the current permit conditions.</p> <p>Dust emissions from the crusher are covering pasture areas, making it unpalatable to their stud sheep until reasonable rainfalls occur.</p> <p>Contravenes the 'right to farm' Act (<i>Primary Industry Activities Protection Act 1995</i> and <i>Protection of Agricultural Lands Policy</i>).</p> <p>The dust also prohibits the successful growing of cereal and specialised seed crops.</p> <p>A suitable solution to dust emissions needs to be addressed before expansion is approved.</p>	<p>Section 4.5 of the DPEMP does not adequately consider the potential impact of dust emissions on agricultural land.</p> <p>The DPEMP must consider the potential impacts of dust emissions from the activity on nearby agricultural land, and detail any additional mitigation measures proposed to minimise any nuisance dust emissions from the activity.</p>
2	4.4, 4.5, 4.6	NA	<p>The proposed use and development of land within the Launceston Airport's (the Airport) prescribed airspace is a significant safety issue to aviation operations. Object to the proposal until the below is appropriately addressed and approved.</p> <ul style="list-style-type: none"> • Refer to the <i>Airports Act 1996</i> (the Act) and <i>Airports (Protection of Airspace) Regulations 1996</i> (the Regulations) in relation to intrusions into prescribed airspace around the Airport. • Refer to the National Airports Safeguarding Framework (NASF) which provides guidelines to ensure the safety of aviation 	<p>Reference to the Act and Regulations must be made along with a brief discussion on how the requirements will be met.</p> <p>Including a commitment regarding seeking appropriate approvals under the Act and Regulations would be beneficial.</p> <p>Further consideration of the potential impacts from dust emissions and blasting on the Airport must be included in the DPEMP. The DPEMP should provide details on the proposed procedural processes for engaging with the Airport in regards to aviation safety matters and any monitoring that will be undertaken.</p>

1-317

		<p>operations.</p> <p>The following have been identified as potentially having an impact on the prescribed airspace:</p> <ul style="list-style-type: none"> o Dust emissions; o Fly-rock emissions; o Air blast overpressure causing air turbulence; o Soil / overburden stockpiles causing air turbulence; o Light emissions; and o Creation of additional sediment ponds attracting wildlife. <ul style="list-style-type: none"> • Dust management is not adequately addressed in relation to the risk to aviation activities. Dust generation is a 'controlled activity' under the Act and requires approval under the Act and Regulations. • Blast fly-rock may penetrate the prescribed airspace by a significant margin and is a 'controlled activity' under the Act. Approval must be sought under the Act and Regulations. • Air blast overpressure and soil / overburden stockpiles may result in air turbulence, which is a 'controlled activity' under the Act. Further information is required to assess the potential impact and may require approval under the Act and Regulations. • NASF Guidelines must be taken into account pursuant to the Standing Council on Transport and Infrastructure agreement of 18 May 2012, in particular Guidelines B, C and F are relevant to the proposal. • An Aviation Safety Impact Assessment and a Wildlife Hazard Management Assessment is required to be developed by a suitably qualified and experienced aviation consultant in relation to the proposal's potential impact 	
--	--	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

<p>Department of Infrastructure, Transport, Cities and Regional Development (DITCRD)</p>	<p>4.4, 4.5, 4.6</p>	<p>NA</p>	<p>on the Launceston Airport's prescribed airspace and aircraft safety.</p> <ul style="list-style-type: none"> The above assessments must demonstrate that there will be no impact on Launceston Airport's prescribed airspace or the safety of aviation operations. Recommended to engage with Airservices Australia, the Civil Aviation Safety Authority (CASA) and the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) regarding the proposal. <p>In addition to sharing and reiterating the concerns raised by Representative 2, the Department also raised light distraction to aircraft as a potential risk from the proposal that should be considered in the DPEMP.</p> <p>The Department chairs the National Safeguarding Advisory Group (NASAG) which advises Governments on the protection of airports from inconsistent or inappropriate development.</p> <p>The Department is concerned about the expansion of the quarry closer to the airport boundary which may have significant long-term operational impacts for the Launceston Airport.</p> <p>The Department also states that the proposal may be contrary to the National Airports Safeguarding Framework (NASF) developed by the NASAG and agreed to by the State and Territory Ministers (including Tasmania) in May 2012.</p>	<p>See comments above.</p>
<p>MRT</p>	<p>NA</p>	<p>NA</p>	<p>MRT made the following comments on the DPEMP:</p> <ul style="list-style-type: none"> There is limited discussion around the impacts of the operation with respect to the Launceston Airport and potential impacts to air and ground operations at the airport. How will the two operations interact? MRT is of 	<p>Provide additional discussion on the basalt resource around the confidence in the resource.</p> <p>The distance to the nearest sensitive receptor must be measured from the Boundary of the Land. The DPEMP must be revised. Discussions on the potential impacts and proposed mitigation measures need to be revised, including relevant maps, to reflect the additional sensitive premises that may</p>

		<p>the view that greater discussion around this is required.</p> <ul style="list-style-type: none"> It would be useful to see a discussion around CASA's feedback regarding the DPEMP. The DPEMP states CASA were consulted during the Notice of Intent period. However, there is no meaningful discussion of their position or concerns beyond this. Section 2.3.2 Basalt Resource – the comments raise questions over the confidence associated with the amount of resource claimed to be available for extraction. The statement that there is approximately 9 million tonnes of basalt available for extraction appears to be speculative. Further modelling, drilling and knowledge of factors such as basement geometry, architecture, geological structures, and alteration facies within the deposit would also need to be further investigated to improve the resource confidence level. The applicant has previously encountered issues with resource dilution due to contamination by weathering. The SRADs appear to have been measured from the centre of the mining lease. SRADs must be measured from the boundary of the mining lease to ensure future sensitive receptors do not fetter access to resources. This significantly changes the potential for interaction with current sensitive receptors and requires further assessment. Page 22 part 2.8 Operating hours it states <i>“There are no residences in close proximity to the quarry or transport route”</i>. The suggested recommended attenuation distances prescribed for such an activity is 1000m where regular blasting takes place. An SRAD distance of 750 metres is recommended where crushing occurs, 500m SRAD where vibrating and trommel screens 	<p>potentially be impacted within 1,000m from the boundary of the Land.</p> <p>Similarly, justification for the operating hours must be revised to take into account the additional sensitive premises within 1,000m of the boundary of the Land.</p> <p>Please confirm the distance from the south western boundary that extraction will cease.</p>
--	--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

		<p>alone are used, and where no blasting, crushing or screening occurs an SRAD distance of 300 metres applies. There are a number of sensitive receptors within the suggested recommended attenuation distances that have not been addressed in the DPEMP.</p> <ul style="list-style-type: none"> The DPEMP appears to be silent on stating to what distance final extraction will cease to progress beyond with respect to the western boundary of the mining lease. The DPEMP currently suggests the far western area will be used for soil/overburden stockpile storage purposes. It would be useful to have a distance written into the document to ensure clarity around this issue. 	
TasWater		<p>TasWater have stated that pursuant to the <i>Water and Sewerage Industry Act 2008</i> (TAS) Section 56P(1) TasWater imposes the following conditions on the permit for this application:</p> <p>Protection of TasWater infrastructure</p> <ol style="list-style-type: none"> Prior to submitting the Development Proposal and Environmental Management Plan (DPEMP) to the regulating authority for approval, the developer must develop a site management / operation plan for inclusion in the DPEMP to TasWater satisfaction to protect TasWater assets and staff from damage, dilapidation, injury and harm as the case may be for the life of the quarry. <p>Development assessment fees</p> <ol style="list-style-type: none"> The applicant of landowner as the case may be, must pay a development assessment fee of \$1,139.79 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date it is paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater. 	<p>TasWater have advised their requirements to protect TasWater assets and staff from damage, dilapidation, injury and harm include but are not limited to:</p> <ol style="list-style-type: none"> Establishment of on-going liaison protocols with TasWater; Management of impacts of dust, noise and vibration emissions on TasWater staff; Undertaking dilapidation survey(s) and agreed condition assessments; Movement of heavy vehicles over shared accesses; Monitoring and management of high ground velocities, ground movement and vibrations arising from blasting; Management of fly rock hazards; and Rectification of assets deemed to have been damaged by quarrying works as and when required. <p>Provide additional information in the DPEMP to satisfy TasWater's requirements in relation to the proposal.</p>

TasWater have stated that pursuant to the *Water and Sewerage Industry Act 2008* (TAS) Section 56P(1), TasWater imposes the following conditions on the permit for this application:

Protection of TasWater infrastructure

1. Prior to submitting the Development Proposal and Environmental Management Plan (DPEMP) to the regulating authority for approval, the developer must develop a site management / operation plan for inclusion in the DPEMP to TasWater satisfaction to protect TasWater assets and staff from damage, dilapidation, injury and harm as the case may be for the life of the quarry.

Development assessment fees

2. The applicant of landowner as the case may be, must pay a development assessment fee of \$1,139.79 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date it is paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater.

TasWater have advised their requirements including but are not limited to:

- a. Establishment of on-going liaison protocols with TasWater;
- b. Management of impacts of dust, noise and vibration emissions on TasWater staff;
- c. Undertaking dilapidation survey(s) and agreed condition assessments;
- d. Movement of heavy vehicles over shared accesses;
- e. Monitoring and management of high ground velocities, ground movement and vibrations arising from blasting;
- f. Management of fly rock hazards; and
- g. Rectification of assets deemed to have been damaged by quarrying works as and when required.

TABLE 2: OTHER MATTERS RAISED DURING THE PUBLIC CONSULTATION PERIOD

Representation No./ Agency	DPEMP section no.	DPEMP Page no.	Comments and issues	Further Info requested [yes/no]	EPA Comments
EPA			The DPEMP indicates that two of the proposed additional sediment settlement ponds are larger than 1 ML and may require approval under the <i>Water Management Act 1999</i> .	No	Advice should be sought from DPIPWE's Water Management and Assessment Branch in regards to any approvals required under the <i>Water Management Act 1999</i> .

Table 6.1: SUMMARY OF COMMITMENTS REVISED

	Potential Impacts	Management measure commitments	Timeframe
1	Residential amenity	Maintain a complaints register to record all complaints from the public.	As received.
2	Blasting Noise and Vibration	Advise Airport and residents within a 1km radius, (or as agreed) 24 hours in advance Monitor blasting to ensure compliance with standards.	Every blast (1mths approx).
3	Noise Emissions – onsite	Maintain attenuation distances to neighbours. Monitor noise emissions after operations commence. Noise attenuation on drill rig if needed.	Ongoing. Ongoing. Ongoing..
4	Noise Emissions – offsite	Hours of operations to permit conditions No transportation on Sundays or gazetted public holidays. Transport road trucks maintained in good condition.	Continuous.
5	Water Management	Monitor and maintain settling basins and improve as necessary. Direct all runoff to Briarly Creek storage pond. Monitor groundwater inflows and well for PFAS	Continuous. 3yearly
6	Air Emissions onsite	Operate water sprays on crushing equipment Minimise surface disturbance. Progressive rehabilitation of disturbed areas Watering of internal roads. Maintain Quarry roads routinely.	As needed Ongoing. Ongoing. As needed.
7	Air Emissions offsite	Transport trucks will be tarpaulin covered if required.	As needed. Ongoing.
8	Attenuation zone	Cooperate with Council to monitor a suitable attenuation zone.	As required.
9	Visual Management	Revegetate overburden and topsoil stockpiles.	Ongoing.
10	Weeds	Yearly weed surveys and appropriate control. Washdown of equipment if from weed infected areas.	Ongoing.
11	Revegetation	Strip and stockpile topsoil and overburden as per the guidelines. Revegetate quarry walls progressively.	Ongoing.
12	Plant dust control	Audit plant dust control equipment and take remedial action where required.	Complete Ongoing (12mthly)

13	Dust Monitor	Install at property boundary , with live feed to plant crew	If adjoining property not purchased
14	Launceston Airport	Bis contact the Launceston Air Traffic Control (ATC) Line Manager Chris Wallace on 0419 289 041 prior to any blasting operation commencing. Provide a detailed annual schedule of blasting operations to Launceston Airport. and to CASA.	Prior to every blast Annual report
15	Launceston Airport	Minimise surface water ponding in quarry development	Ongoing
16	Taswater Assets	Bis (as operator) will liaise with Taswater regarding their requirements and establish a management plan.	3months of permit granting



Australian Government

**Department of Infrastructure, Transport,
Regional Development and Communications**

File Reference: F

General Manager
Northern Midlands Council
PO Box 156
LONGFORD TAS 7301

via email to planning@nmc.tas.gov.au

Dear Sir/Madam

Planning Application PLN-19-0071 - expansion of existing quarry (Level 2 activity under EMPCA) - 81 Evandale Road, Western Junction TAS 7212

Further to my letter of 6 June 2019, and the subsequent mediation teleconference of 8 October 2019 between Council, Launceston Airport, the Proponent and the Department, I am writing to provide comments on the Safety Review Report (the Report) prepared by aviation consultants Mott MacDonald.

Launceston Airport has previously expressed concerns regarding the proposal to expand the existing quarry at the above location. The Department notes that the current and future operational safety of an airport can potentially be compromised by inappropriate development activity in surrounding areas including tall permanent/temporary structures, construction cranes, or activities that attract birds and wildlife.

The associated risks previously identified with this proposal were:

- blast flyrock and other activities penetrating prescribed airspace;
- dust plumes; increased bird and wildlife activity associated with any ponding and retention basins; windshear/turbulence risk associated with any mounds and changes to terrain; and
- lighting distracting pilots.

The Department notes that the Report assesses and considers all of the risks to aircraft safety and operations in accordance with the National Airports Safeguarding Framework guidelines and the Airports (Protection of Airspace) Regulations. I further note the conclusions of the Report are that none of the issues raised require a controlled activity application as they have been modified to remain below prescribed airspace. The Report recommendations (such as having the quarry management consult the airport about blast timing, avoiding water ponding etc) appear sensible to mitigate any residual risk and should be encouraged.

I note that the original proposal forecast that the fly-rock could radiate to a height up to 95 metres which would have penetrated the current prescribed airspace (obstacle limitation surface - OLS) at that location. The Report provides technical information from blast specialists (Terrock) which revises the vertical blast throw to not exceeding a 28 metre height radius. I advise that this height is below the current prescribed OLS height at that location and therefore would not require a controlled activity application for the purposes of the Airports (Protection of Airspace) Regulations 1996. Advice from Launceston airport should be sought to confirm this.

Whilst the Report confirms that OLS will not be penetrated, there is no mention of the Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS) surfaces. The Department recommends the Report be amended to make it clear that the OLS is the lowest aviation safety surface at this location.

Page 14 of the Report states that "generation of dust plume and vibrations due to blasting seems to be the most critical aspect of the quarry operations". The Department advises that these environmental effects of quarrying activities are a matter for EPA Tasmania and should therefore be referred for its consideration accordingly.

The Department notes the 26 July 2019 advice received from Airservices Australia regarding the potential impacts of blasting on management of air traffic in the vicinity of Launceston Airport. Any approvals provided on this proposal should be conditional on the proponent contacting the Launceston Air Traffic Control (ATC) Line Manager Chris Wallace on 0419 289 041 prior to any blasting operation commencing. A detailed annual schedule of blasting operations should be provided to Launceston Airport and the proponent is to ensure full disclosure to the Air Navigation, Airspace and Aerodromes Branch of the Civil Aviation Safety Authority (CASA).

Thank you for the opportunity to provide airport safeguarding advice on the proposal. I encourage Council to continue to consider the aviation-related issues raised in the National Airports Safeguarding Framework (NASF) in its consideration of planning and development proposals in the vicinity of local airports.

I have again copied this letter to Mr Arun Kendall, Department of State Growth and Tasmanian representative on the National Airports Safeguarding Advisory Group (NASAG).

If you have queries or wish to discuss the matter further, please contact myself on via email <safeguarding@infrastructure.gov.au>.

Yours sincerely



Sharyn Owen
Director
Airspace Protection & Safeguarding

11 May 2020

cc. Launceston Airport
Arun Kendall

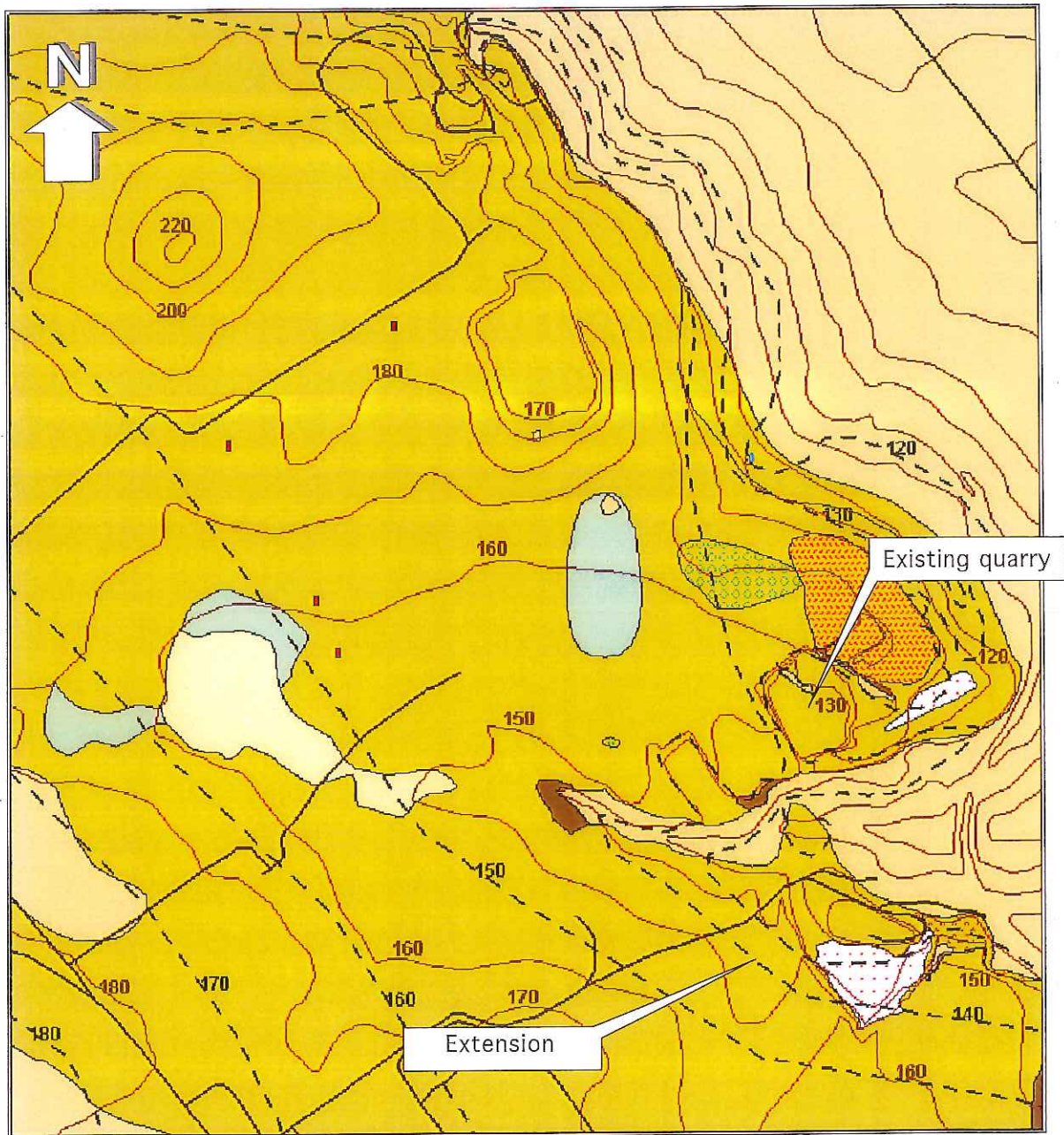
Appendix B Miscellaneous (MRT Comments).

Figure 2.9 –Geology Missing from DPEMP

Resource Drilling

Figure A 1km radius from ML

1-329
Basalt distribution
 with inferred structural contours on basalt base

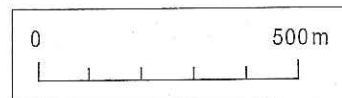


structural contours and basalt base
 Topo contours
 roads

Geology
 quarternary deposits
 undifferentiated Cainozoic

Excavations and bores
 water bore
 bulldozer slot

Stornoway 2008 geology legend
 Ts,
 Tsg
 basalt,
 dolerite,
 dolerite photo interpreted,
 spoil
 Tb upper,
 Tb
 lag pebbles



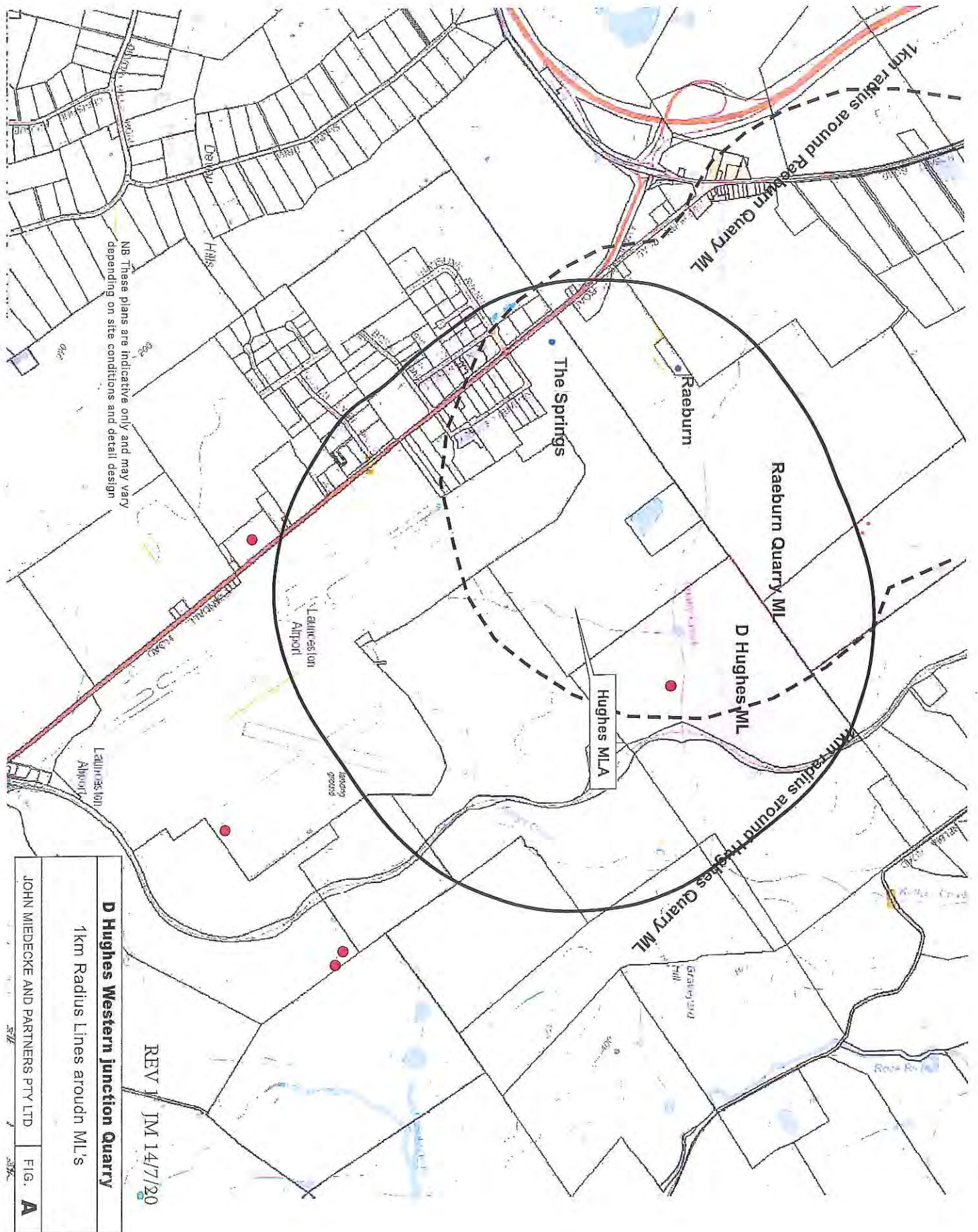
Bis Western Junction Quarry Extension
GEOLOGY
 JOHN MIEDECKE AND PARTNERS PTY LTD FIG. 2.9

Source Rock Verification Proposed ML 2045P/M

Drill Log 2045P/M	Driller – Maxfield Drilling
Western Side of Crusher/Stock pile area	Date 20 th & 21 st May 2016

Hole #	Depth Metres	Log Comments
1	27.5	0 -1.3 Overburden, 1.3-4.8 Medium hard, 4.8- 27.5 Hard
2	27.5	0-2.4 Overburden, 2.4-5.2 Medium Hard, 5.2-27.5 Hard
3	27.5	0-3 Overburden, 3-5.8 Soft Rock, 5.8-10.5 Medium Hard 10.5 27.5 Hard
4	27.5	0-4.6 Overburden/Rubble 4.6 – 27.5 Soft Rock
5	27.5	0-3 Overburden, 3-6 Soft Rock 6- 27.5 Medium Hard
6	27.5	0- 2.2 Overburden, 2.2-5.4 Medium Hard, 5.4 -27.5 Hard
7	27.5	0-2.4 Overburden, 2.4-5.2 Medium Hard, 5.2-27.5 Hard
8	27.5	0 -1.3 Overburden, 1.3-4.8 Medium hard, 4.8- 27.5 Hard
9	27.5	0 -2.2 Overburden, 2.2 – 8.9 Medium hard, 8.9- 27.5 Hard
10	27.5	0-3.6 Overburden, 3.6-5.6 Medium Hard, 5.6-27.5 Hard
11	27.5	0-2.8 Overburden, 2.8-6 Medium Hard, 6-27.5 Hard
12	27.5	0-3.5 Overburden, 3.5-7 Soft rock, 7-27.5 Medium Hard
13	13	0-13 Clay
14	19.5	0-7.6 Overburden/Rubble, 7.6- 9.8 Soft Rock 9.8-19.5 Medium Hard
15	15.5	0-3 Overburden, 3-5 Medium Rock, 5-7 Clay, 7-10.5 Rock, 10.5-15.5 Clay
16	15.5	0-4 Overburden, 4-8 Medium Rock, 8-15.5 Clay
17	15.5	0-7.5 Overburden, 7.5-15.5 Medium Rock
18	15.5	0-1.5 Overburden, 1.5-5 Soft Rock, 5-8.5 M Rock, 8.5-15.5 Hard Rock
19	15.5	0-2 Overburden. 2-5 Soft Rock, 5-15.5 Hard Rock





D Hughes Western junction Quarry
 1km Radius Lines around ML's

JOHN MIEDECKE AND PARTNERS PTY LTD

FIG. **A**

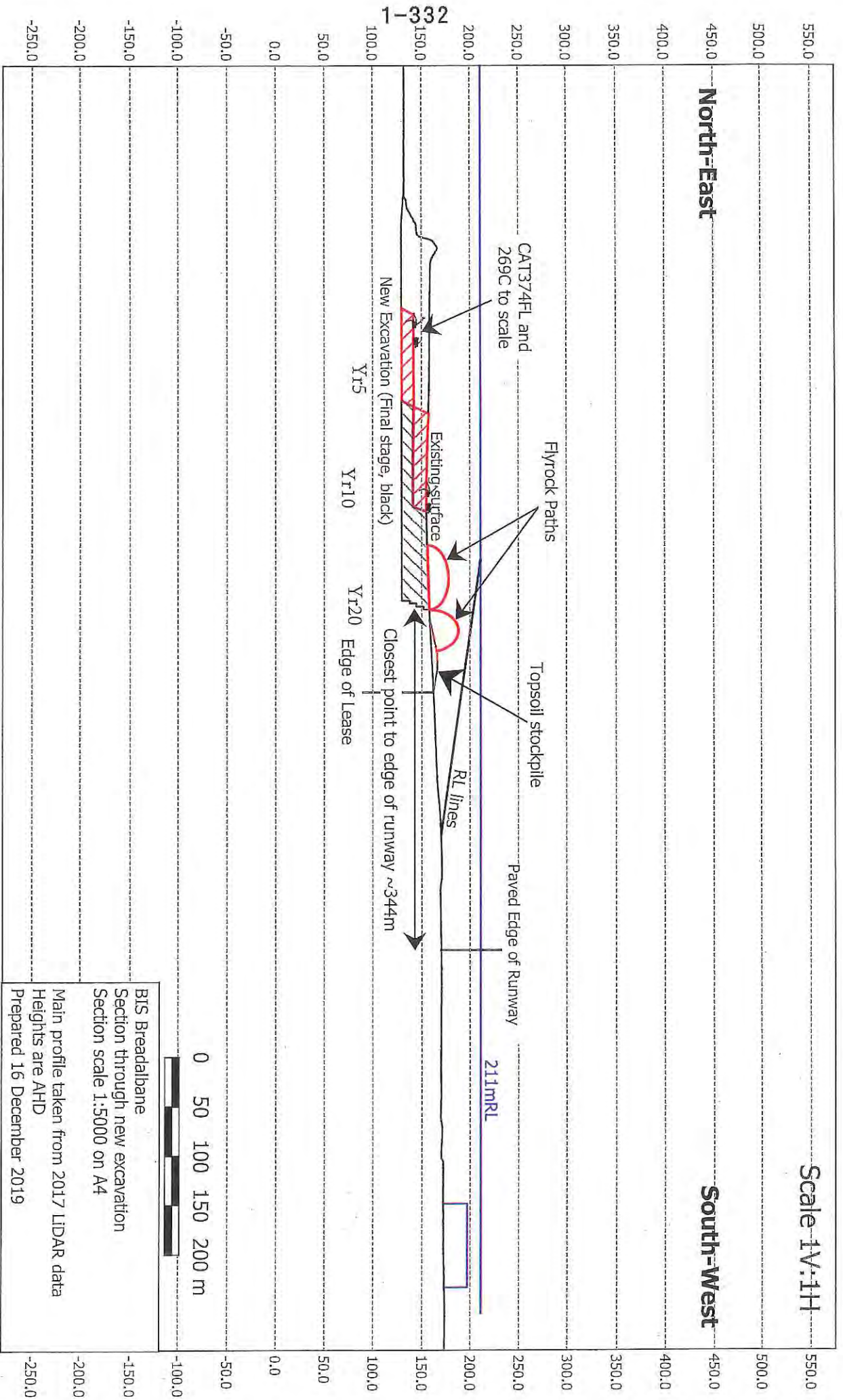


Figure 3: Cross Section

Appendix C Taswater .

Email from Taswater
Terrock Letter

From: Clausen, Greg Greg.Clausen@taswater.com.au
Subject: TasWater does not expect nor want to review anything prior to the issue of the Planning Permit; TWDA 2019/00642-NMC; 81 EVANDALE RD, WESTERN JUNCTION ; Expansion of quarry
Date: 1 June 2020 at 9:44 am
To: john miedecke john@johnmiedecke.com



Hi John

As discussed, the advice in the TasWater conditions is advice only. TasWater condition 1 is pretty straight forward and TasWater does not expect nor want to review anything prior to the issue of the Planning Permit.

Regards

Greg Clausen

My current office hours are 8am to 12noon Monday to Friday.

Assessment Engineer, Development Services

Due to Coronavirus, TasWater has enacted a work from home policy. However, I am working from home and I am available by phone 6237 8242

greg.clausen@taswater.com.au



From: john miedecke <john@johnmiedecke.com>
Sent: Monday, 1 June 2020 9:03 AM
To: Clausen, Greg <Greg.Clausen@taswater.com.au>
Subject: Fwd: 81 Evandale Road Western Junction - quarry

Greg attached is a message sent late week

Can you call me please

Regards

john miedecke 72
john@johnmiedecke.com

Begin forwarded message:

From: john miedecke <john@johnmiedecke.com>
Subject: 81 Evandale Road Western Junction - quarry
Date: 28 May 2020 at 9:28:02 am AEST
To: greg.clausen@taswater.com.au
Cc: "Shegog, Tim"

Greg I m acting for Bis and Mr David Hughes

I would like to discuss the Taswater submission to the DA application and organise a site meeting to discuss please.



P O Box 829
 Eltham Vic 3095
 Phone: (03) 9431 0033
 URL: <http://terrock.com.au>
 Email: terrock@terrock.com.au
 ABN: 99 005 784 841

Alan B. Richards
 Ph.D, F.I.E. Aust., F. Aus I.M.M., F.I.Q.

Adrian J. Moore
 Dip.C.E., B.E.(Min.), M.Eng.Sc., M.I.E. Aust.

Andrew Brodbeck
 B.E(Min.), MBA, M. Aus I.M.M., F. IQA.

WESTERN JUNCTION QUARRY

TASWATER LETTER OF INFORMATION FOR GROUND VIBRATION & FLYROCK

TasWater have expressed concerns to the Western Junction Quarry about the effects of blasting in the outer extents of the proposed extension once it reaches its closest points to their catchment and infrastructure.

TasWater's main concerns are about the potential ground vibration levels and any potential flyrock issues that may arise. Airblast overpressure will not be an issue regarding any of TasWater's infrastructure.

From the Terrock report "*Quarry Extension – Effects of Blasting*" that was written for the planned extension in 2018, the following **Tables 1 & 2** show the distance and level values for the predicted ground vibration and flyrock results.

Table 1 – Estimated ground vibration levels

PPV (mm/s)	Distance(m)
15	235
10	303
5	467
2	828
1	1277

Table 2 - Distances of Flyrock and Clearance Zones

	Distance in front (m)	Distance at behind (m)
Maximum Throw	65	42
Plant & Equipment	130	84
Personnel & Public	260	168

As shown in **Figure 1**, the predicted level of ground vibrations that will be generated by the blasting at the catchment ponds will be approximately 15mm/s. This is the "worst-case" predicted level and it is likely that the real levels once blasting begins will be lower.

Due to the nature of the clay catchment ponds and the surrounding soil mound walls for the ponds a level of 15-20mm/s is not going to cause any damage or issues. The same applies for any of the pipes that are in and around the catchment ponds.

Clay lined catchment ponds and soil embankments are capable of withstanding levels well in excess of 50mm/s. As the German, DIN4150, Standards recommends 80mm/s for concrete pipelines, this would be a more applicable level of limits. The potential levels of 15mm/s generated by the nearby blasting is well off these limits and thus will not be any concern of damage.

5.3 Effects on buried pipework

Table 2 gives guideline values for evaluating the effects of vibration on buried pipework. It is assumed that the pipes have been manufactured and laid using current technology; if this is not the case, special considerations will have to be made. Additional considerations need also be made where mechanical processes in the ground could have deleterious effects on pipes, or where there are different stress conditions at junctions (e.g. junctions with the structure).

The values given in table 1 for foundations also apply to the first two metres (nearest the building) of gas and water service pipes. For information regarding gas supply pipelines, see DIN EN 1594.

Drain pipes shall be evaluated using the values given in line 3 of table 2.

Table 2: Guideline values for vibration velocity to be used when evaluating the effects of short-term vibration on buried pipework

Line	Pipe material	Guideline values for velocity measured on the pipe, v_p , in mm/s
1	Steel (including welded pipes)	100
2	Clay, concrete, reinforced concrete, pre-stressed concrete, metal (with or without flange)	80
3	Masonry, plastic	50

TABLE J4.5(B)

RECOMMENDED GROUND VIBRATION LIMITS FOR CONTROL OF DAMAGE TO STRUCTURES (see Note)

Category	Type of blasting operations	Peak component particle velocity (mm/s)
Other structures or architectural elements that include masonry, plaster and plasterboard in their construction	All blasting	Frequency-dependent damage limit criteria Tables J4.4.2.1 and J4.4.4.1
Unoccupied structures of reinforced concrete or steel construction	All blasting	100 mm/s maximum unless agreement is reached with the owner that a higher limit may apply
Service structures, such as pipelines, powerlines and cables	All blasting	Limit to be determined by structural design methodology

NOTE: Tables J4.5(A) and J4.5(B) do not cover high-rise buildings, buildings with long-span floors, specialist structures such as reservoirs, dams and hospitals, or buildings housing scientific equipment sensitive to vibration. These require special considerations, which may necessitate taking additional measurements on the structure itself, to detect any magnification of ground vibrations that might occur within the structure. Particular attention should be given to the response of suspended floors.



Figure 1 – Ground vibration overlay based on blasting work authority limit

Figures 2 & 3 shown below are the flyrock overlays for blast in the north west corner of the pit extension. The Figure 2 overlay is based on a blast that is facing back towards the quarry on the final edge of the pit. Figure 3 is a more conservative overlay using a front of face maximum throw, whilst this will not occur as no blasts will be facing the catchment, it can be used as a conservative measure for the exclusion zones for personnel & public and plant & equipment.



Figure 2 – Flyrock model for closet potential blasting to the TasWater catchment



Figure 3 – Conservative flyrock model based on “worst-case” predictions

It is emphasized that during any blasting that occurs in the pit extension, no TasWater personnel should be present or working around the catchment. This is for the health and safety of the TasWater staff and all the quarry blasting procedures should be adhered as well.

Dominic Hooton
Civil Engineer
16th June, 2020

Environment Protection Authority

GPO Box 1550 HOBART TAS 7001 Australia

Enquiries: Michael Gay
 Phone: +61 3 6165 4526
 Email: Michael.Gay@epa.tas.gov.au
 Web: www.epa.tas.gov.au
 Our Ref: M707588



6 October 2020

Mr Des Jennings
 General Manager
 Northern Midlands Council
 PO Box 156
 LONGFORD TAS 7301

Email: Council@northernmidlands.tas.gov.au

Dear Mr Jennings

ENVIRONMENTAL ASSESSMENT DECISION – PERMIT APPLICATION (PLN-19-0071) D. N HUGHES – WESTERN JUNCTION QUARRY INTENSIFICATION AND EXPANSION

I am writing to you about the above permit application, which was referred to the Board of the Environment Protection Authority (the Board) for assessment under the *Environmental Management and Pollution Control Act 1994* (EMPC Act) and received on 9 April 2019.

The Board's environmental impact assessment of the application is now complete. All supporting information and any relevant comments received from the public and government agencies were taken into account.

In accordance with section 25(5)(a) of the EMPC Act, I am notifying Northern Midlands Council that the conditions and restrictions in the enclosed Permit Part B, together with the definitions in Schedule I and the associated attachments, must be contained in any permit granted by Council for the application under the *Land Use Planning and Approvals Act 1993* (LUPA Act).

A copy of the Environmental Assessment Report (EAR) detailing the Board's for requiring the conditions or restrictions in Permit Part B is enclosed for information and provision to the applicant on completion of the Council's decision. The EAR does not form part of the permit. The EAR is also available on the EPA website at <http://epa.tas.gov.au/assessment/completed-assessments>.

In accordance with section 25(2)(e) of the EMPCA Act, section 57(6) of the LUPA Act now applies. Council must decide to grant or refuse the permit within 42 days after receiving this notification, subject to any further period agreed under section 578(6A) or 58(2A) of the LUPA Act and the receipt of additional information sufficient to satisfy a requirement under section 54 of the LUPA Act.

To satisfy the requirements of section 25(8) of the EMPC Act, the Council must:

- not include any other condition or restriction which is inconsistent with, or which extends the operation of, any conditions or restrictions which the Board requires to be contained in the permit; and
- notify the Board of its decision to grant or refuse to grant a permit; and
- at the same time as it notifies the applicant of its decision on the application, provide the EAR to the applicant, via a link to the EAR in the Council's letter to the applicant and to anyone who made representations.

It is suggested that Council:

- call the Council's portion of the permit 'Part A';
- include a condition in 'Part A' along the lines of 'The person responsible for the activity must comply with the conditions contained in Schedule 2 of Permit Part B, which the Board of the Environment Protection Authority (EPA) requires the planning authority to include in the permit, pursuant to section 25(5) of the *Environmental Management and Pollution Control Act 1994*', and
- attach the enclosed Permit Part B to the permit, including Schedules 1, 2 and 3 and any attachments.

I understand Council will advise the applicant and any representors of their appeal rights in relation to its decision.

If a permit is granted, please provide EPA Tasmania with a full copy of the final permit (including all attachments).

If you have any queries regarding the above, please contact Michael Gay on (03) 6165 4526.

Yours sincerely



Warren Jones

CHAIRPERSON

BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

Encl. Environmental Assessment Report (including Permit Part B No. 9667).

Environmental Assessment Report

Western Junction Quarry Intensification & Expansion

81 Evandale Road, Western Junction
D.N. Hughes

October 2020



ENVIRONMENT PROTECTION AUTHORITY

Environmental Assessment Report	
Proponent	D.N. Hughes
Operator	Bis Quarries Pty Ltd
Proposal	Western Junction Quarry Expansion
Location	81 Evandale Road, Western Junction
NELMS no.	PCE No. 9667
Permit Application No.	PLN 19-0071 (Northern Midland Council)
Electronic Folder No.	EN-EM-EV-DE-252179
Document No.	M707588
Class of Assessment	2B

Assessment Process Milestones	
7 March 2017	Notice of Intent lodged
24 April 2017	Guidelines Issued
2 April 2019	Permit Application submitted to Council
9 April 2019	Referral received by the Board
11 May 2019	Start of public consultation period
11 June 2019	End of public consultation period
27 July 2020	Additional information (Supplement) submitted to the Board
25 September 2020	Date draft conditions issued to proponent
9 October 2020	Statutory period for assessment ends

Acronyms	
Board	Board of the Environment Protection Authority
DITCRD	Department of Infrastructure, Transport, Cities and Regional Development
DPEMP	Development Proposal and Environmental Management Plan
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EIA	Environmental Impact Assessment
EL	Environmental Licence
EMPC Act	<i>Environmental Management and Pollution Control Act 1994</i>
EMPCS	Environmental Management and Pollution Control System
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
NASF	National Airport Safety Framework
PARS	Policy, Advice and Regulatory Services Branch of Natural and Cultural Heritage
PFAS	Per- and poly-fluoroalkyl substances
RMPS	Resource Management and Planning System
RPDC	Resource Planning and Development Commission
SD	Sustainable Development
TPC	Tasmanian Planning Commission

Report Summary

This report provides an environmental assessment of D. N. Hughes' proposed quarry expansion. The Landowner and holder of Mining Leases 975P/M and 2045P/M is Mr Hughes, however, the quarry is operated by Bis Quarries Pty Ltd.

The proposal involves the intensification of an existing level 2 hard rock quarry located at Western Junction. The activity is currently permitted to extract 315,000 tonnes and process 350,000 tonnes per annum within mining lease 975P/M. It is proposed to increase extraction and processing to 500,000 tonnes (312,500 cubic meters) per annum. The proposal also includes extraction of a new area (mining lease application 2045P/M) not previously assessed. Material will be won by drilling and blasting and then transported to the existing crushing and screening plant for processing and stockpiling.

This report has been prepared based on information provided in the permit application, Development Proposal and Environmental Management Plan (DPEMP) and Supplement to the DPEMP. Relevant government agencies and the public were consulted, and their relevant submissions, representations and comments considered as part of the assessment.

On 16 August 2019, the Board requested that the proponent submit additional information to address issues raised during the public inspection period and to meet other information requirements. The proponent submitted satisfactory additional information on 27 July 2020, in the form of a Supplement to the DPEMP.

Further details of the assessment process are presented in section 1 of this report. Section 2 describes the statutory objectives and principles underpinning the assessment. Details of the proposal are provided in section 3. Section 4 reviews the need for the proposal and considers the proposal, site and design alternatives. Section 5 summarises the public and agency consultation process. The detailed evaluation of key issues is in section 6, and other issues are evaluated in sections 7 and 8 and Appendix 1. The report conclusions are contained in section 9.

Appendix 2 contains details of matters raised by the public and referral agencies during the consultation process. Appendix 3 contains the environmental permit conditions for the proposal.

The environmental conditions in Appendix 3 are a new set of operating conditions for the entire, intensified activity that will supersede the existing permit conditions.

Contents

1	Approval Process.....	6
2	SD Objectives and EIA Principles	7
3	The Proposal	8
4	Need for the Proposal and Alternatives.....	16
5	Public and Agency Consultation.....	17
6	Evaluation of Key Issues.....	18
6.1	Noise emissions.....	19
6.2	Blasting impacts.....	22
6.3	Air emissions	25
7	Other Issues assessed by the Board	29
8	Other Issues	29
9	Report Conclusions.....	30
10	Report Approval	31
11	References.....	32
12	Appendices	33

I Approval Process

The Board of the Environment Protection Authority (the Board) received a Notice of Intent in relation to the proposal on 6 March 2017.

An application for a permit under the *Land Use Planning and Approvals Act 1993* (LUPA Act) was submitted to Northern Midlands Council on 2 April 2019.

The proposal is defined as a 'level 2 activity' under clauses 5(a)(i) and 6(a)(ii), Schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPC Act), being a quarry with materials handling.

Section 25(1) of the EMPC Act required Council to refer the application to the Board of the Environment Protection Authority (the Board) for assessment under the Act. The application was received by the Board on 9 April 2019.

The Board required that information to support the proposal be provided in the form of a Development Proposal and Environmental Management Plan (DPEMP) prepared in accordance with guidelines issued by the Board on 24 April 2017. Several drafts of the DPEMP were submitted to EPA Tasmania for review against the guidelines prior to finalisation and acceptance on behalf of the Board on 25 March 2019.

The final DPEMP was submitted to Council with the permit application. The DPEMP was released for public inspection for a 28-day period commencing on 11 May 2019. Advertisements were placed in *The Examiner* and on the EPA website. The DPEMP was also referred to relevant government agencies for comment. Three representations were received.

On 25 May 2020, the Board requested that the proponent submit additional information to address matters raised during the public consultation period. Satisfactory additional information was submitted by the proponent on 27 July 2020.

2 SD Objectives and EIA Principles

The proposal must be considered by the Board in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) (both sets of objectives are specified in Schedule 1 the EMPC Act). The functions of the Board are to administer and enforce the provisions of the Act, and to use its best endeavours to further the RMPS and EMPCS objectives.

The Board must assess the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.

3 The Proposal

The main characteristics of the proposal are summarised in Table 1. A detailed description of the proposal is provided in Section 2 of the DPEMP.

Table 1: Summary of the proposal's main characteristics

Activity	
Extraction, crushing and screening of a maximum of 312,500 cubic metres of basalt rock per year.	
Location and planning context	
Location	'The Springs' 81 Evandale road, Western Junction
Land zoning	Rural resource
Land tenure	Private freehold
Mining lease	2045P/M and 975P/M
Lease area	21 hectares and 53 hectares respectively
Bond	MRT hold the following bond: Mining Lease: 975P/M - \$200,000 (Pending renewal) Mining Lease 2045P/M – This Mining Lease is still an application and MRT will calculate the bond when they approve it.
Existing site	
Land Use	Agricultural grazing land.
Topography	The proposed quarry is located on the eastern side of a moderately high escarpment, rising above the valley formed by the Rose Rivulet.
Geology	Late Eocene Basalt overlies older Eocene and Palaeocene mudstone, siltstone and sandstone with minor lignite and conglomerate deposited in a graben or half-graben structure.
Soils	Breadalbane Soil Association – Brown clayey soils on Tertiary Basalt.
Hydrology	The site drains towards Briarly Creek, which flows east to drain into Kelley's Creek, Rose Rivulet and eventually the North Esk River.
Natural Values	None identified.
Local region	
Climate	Rainfall approximately 675mm per annum. Wind direction predominantly from the north and northwest with sub dominant winds from the south and southeast.

Surrounding land zoning, tenure and uses	Three other quarries operate adjacent to and north of the site. Launceston Airport (Commonwealth land) is located adjacent to the east and south. Agricultural land exists to the south, east and north east. A vineyard is adjacent to the northern part of the existing quarry. A railway line runs adjacent to the existing quarry's eastern boundary. There are two sewage treatment ponds (TasWater) located adjacent to mining lease 2045P/M. The ponds and airport are both zoned utilities, with the rest of the surrounding land being predominantly rural resource and an area of general industrial zoning to the west of the airport.
Species of conservation significance	None identified.
Proposed infrastructure	
Major equipment	<ul style="list-style-type: none"> • Crushing plant with jaw crusher, secondary cone crusher and tertiary crushing and screens • Pre-coat plant with liquid tank, collection pond and conveyor • PUG Mill QME Twin Shaft (350t/hr) • Mobile screening plant • Conveyors • Drill rig • Trucks - various • Rubber tired front-end loader • Excavators (75t and 30t) • Cat rigid dump truck (45t)
Other infrastructure	<ul style="list-style-type: none"> • Stockpiles • Settling ponds, also used for water supply • Offices • Weighbridge • Workshops • Stores
Inputs	
Water	Reticulated water supplied by TasWater connection. Water for crushing and screening plant supplied from Briarly Creek settlement pond.
Energy	Mains power, plus diesel fuel to power vehicles.
Other raw materials	Lubricants, oil, grease and oxyacetylene are stored onsite.
Wastes and emissions	
Liquid	Stormwater runoff from extraction and stockpile areas. Sewage from the staff amenities will be collected by a septic tank.

Atmospheric	Dust from internal and external traffic, blow-off from stockpiles, dust generated from the crushing plant.
Solid	General refuse including food scraps, paper and packaging. Solid wastes associated with machinery and processing plant maintenance.
Controlled wastes	Waste oil
Noise	<ul style="list-style-type: none"> • Primary jaw crusher – Teres Jaques 42x30 • Secondary cone crusher – Jaques J 50 • Tertiary cone crusher – CME Auspactor 300 • Tracked excavator – CAT 375 • Wheeled loader at crushing plant – CAT 980H • 2 Wheeled loaders for sales / per-coat – CAT 966 • Haul truck – CAT 769D • Drill rig – BP 1100 • Rock breaker – on 30t excavator • Screening • Blasting • Pre-coat plant • PUG Mill
Greenhouse gases	Greenhouse gases will be generated by combustion of fuels by mobile plant, equipment and onsite vehicles. The processing plant requires electrical power to operate. Explosives will be used for blasting.
Construction, commissioning and operations	
Proposal timetable	Gradually transition to the new quarrying area once resources are exhausted in the current quarry pit.
Operating hours (ongoing)	0600 to 1730 hours Monday to Friday 0700 to 1500 hours Saturday No works conducted on Sundays or public holidays



Figure 1: Proposed location (Figure 1.1 of the DPEMP)

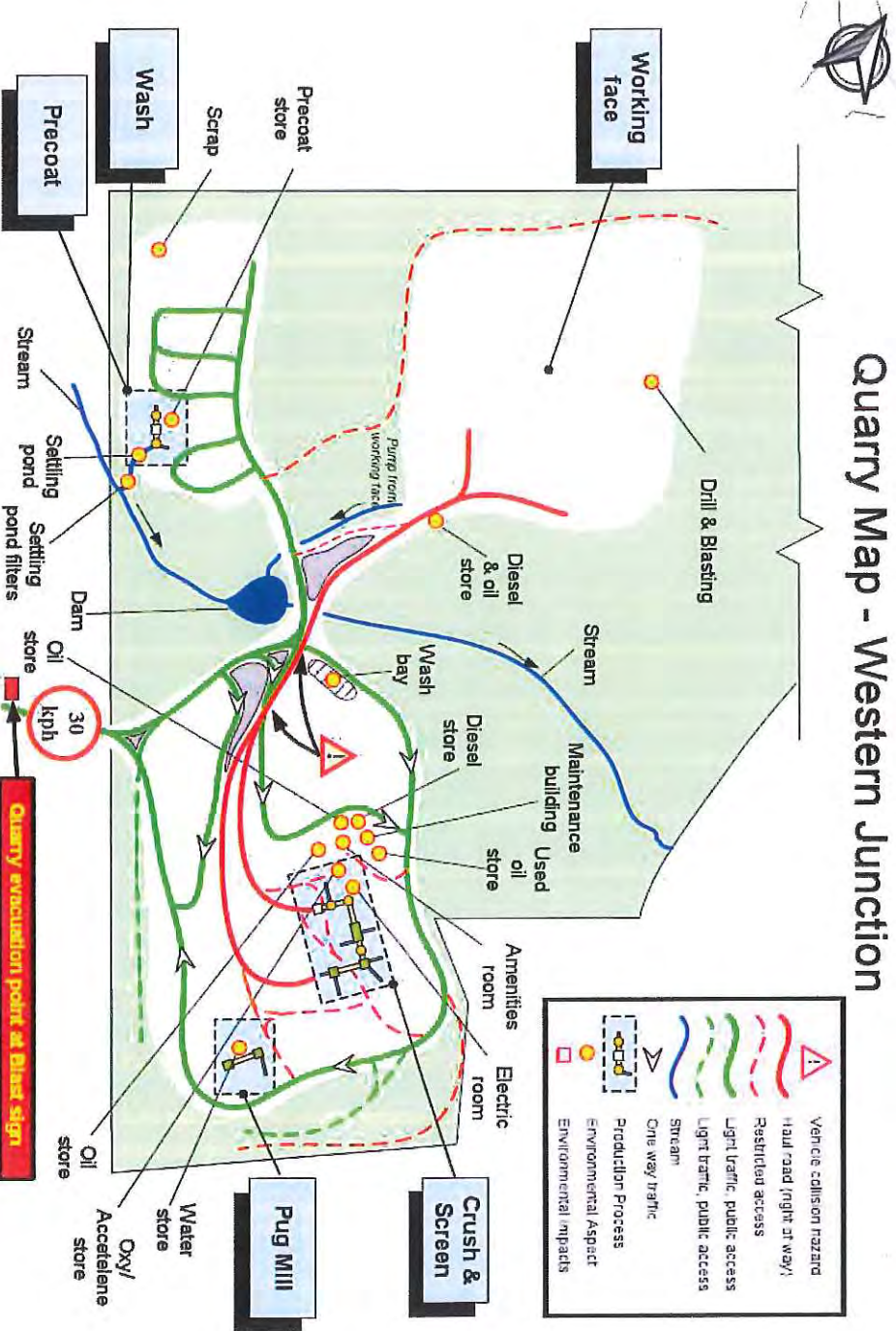


Figure 2: Current quarry layout (Figure 2.6 of the DPMP)

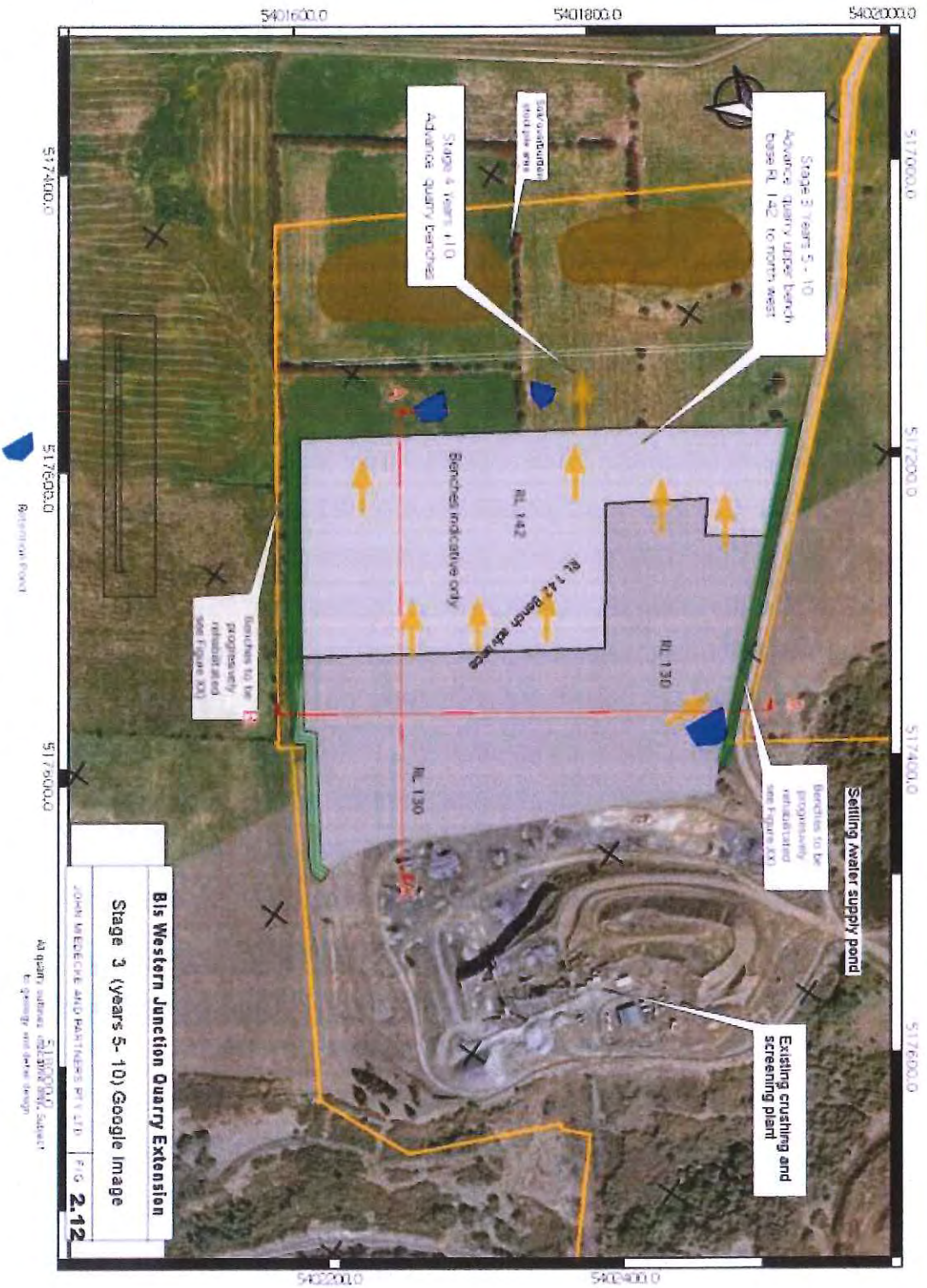


Figure 3: Proposed quarry extension (Figure 2.12 of the DPEMP)

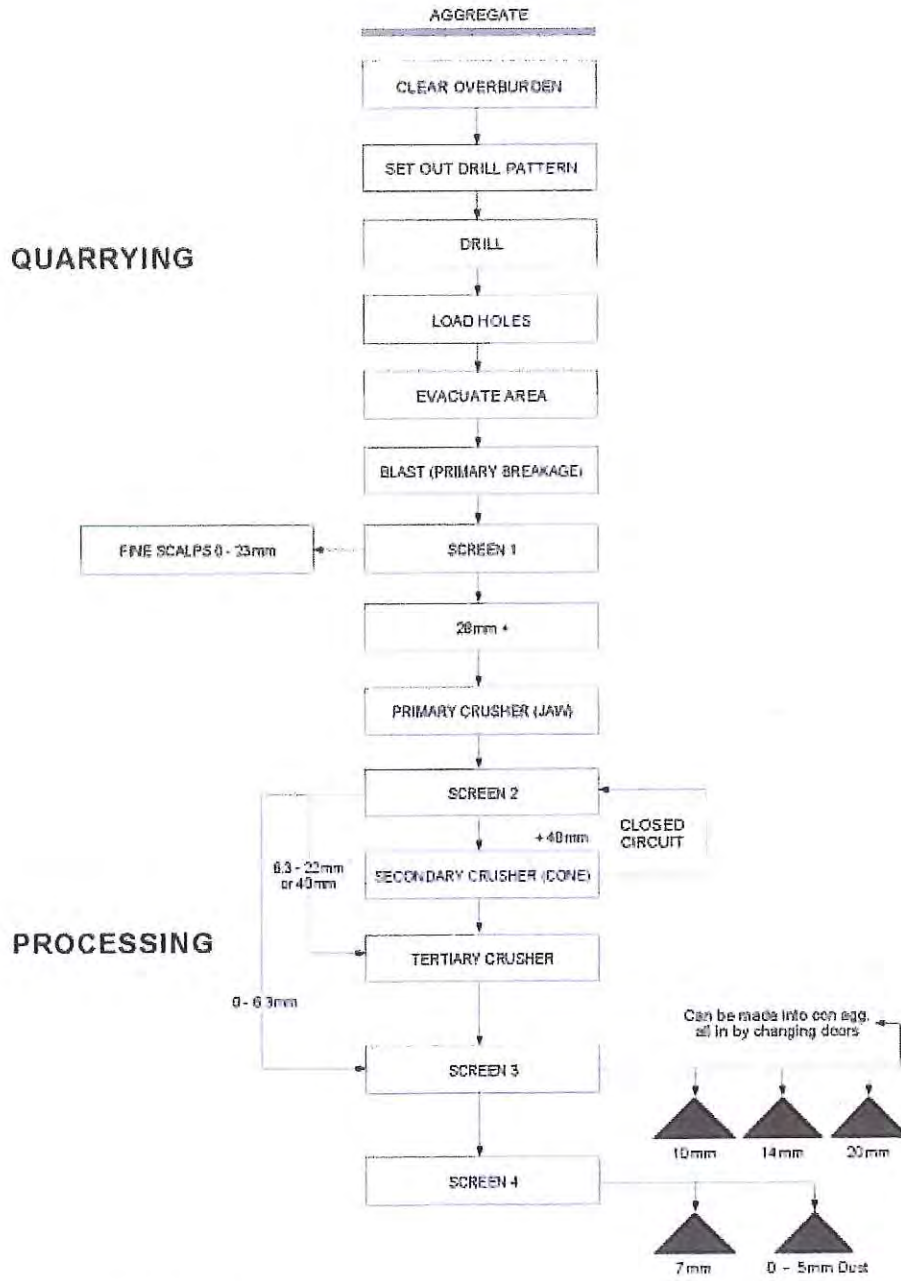


Figure 4: Process overview for aggregate (Figure 2.17 of the DPMP)

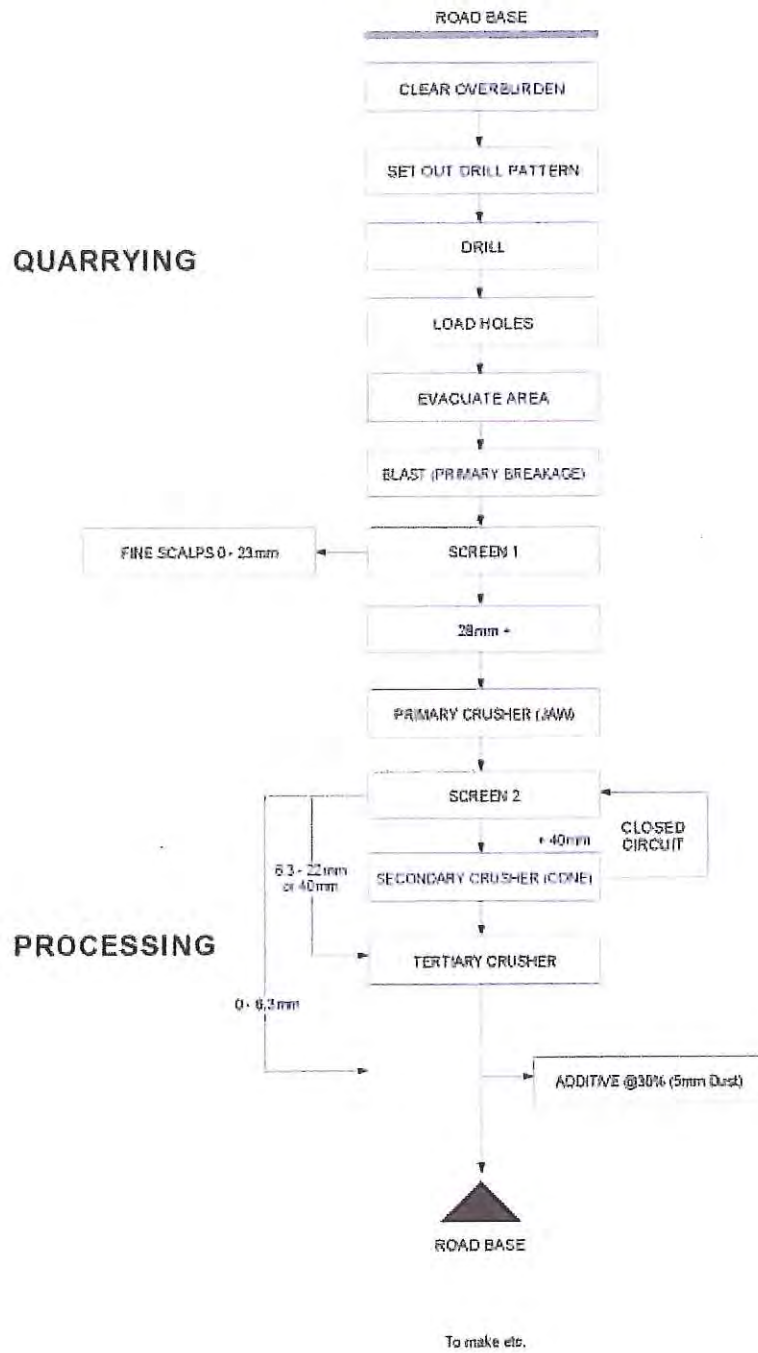


Figure 5: Process overview for road base (Figure 2.18 of the DPEMP)

4 Need for the Proposal and Alternatives

The DPEMP states that the quarry has been in operation continuously since 1982 and is well located for an operating quarry, having few nearby residences and a transport route that provides close access to the major road networks and avoids residential areas.

The Proponent also states in the DPEMP that the quarry has been an important and reliable supplier to the market for construction materials needed by the community which has been recognised as strategically important by the then Resource Planning and Development Commission (TPC then RPDC) in hearings into local planning scheme amendments and permit application for a residential development in the area.

The DPEMP notes that a reduction in resource reserves caused by the clay intrusion in the existing quarry area now means that the quarry is heading towards closure within the existing lease area in the next five-year plan. Planning for closure has also been considered and plans have been agreed with the landowner. Long-term land use will be level areas suitable for industrial and commercial use or grazing.

5 Public and Agency Consultation

A summary of the public representations and government agency/body submissions is contained in Appendix I of this report.

Three public representations were received. The main issues raised in the representations included:

- Dust emissions on adjacent agricultural land, impacting on grazing capacity for animals and crop production.
- No reference to, or consideration of, the *Airports Act 1996*, *Airports (Protection of Airspace) Regulations 1996* or to the National Airports Safeguarding Framework guidelines around aviation safety.
- Potential impacts on prescribed airspace, including:
 - Dust emissions;
 - Fly-rock emissions;
 - Air blast over pressure causing air turbulence and amenity issues;
 - Light emissions interfering with airport safety lighting;
 - Soil / overburden stockpiles causing air turbulence; and
 - Creation of additional sediment ponds and the potential for wildlife strikes.
- Dust emissions, fly-rock emissions and wildlife strikes are controlled actions under the Airports Act and Regulations and require assessment and approval under that Act.
- Aviation Safety Impact Assessment and Wildlife Hazard Management Assessment are required.

The DPMP was referred to several government agencies/bodies with an interest in the proposal, including:

- Department of State Growth
- Mineral Resources Tasmania

The following Divisions/areas of the Department of Primary Industries, Parks, Water and Environment were also consulted and/or provided advice on the DPMP:

- Aboriginal Heritage Tasmania
- Policy, Advice and Regulatory Services Branch (previously the Policy and Conservation Advice Branch)
- Regulatory Officer, EPA Tasmania
- Air Specialist, EPA Tasmania
- Noise Specialist, EPA Tasmania
- Water Specialist, EPA Tasmania

The Supplement to the DPMP prepared by the proponent provides a response to relevant environmental issues raised during public consultation.

6 Evaluation of Key Issues

The key environmental issues relevant to the proposal that were identified for detailed evaluation in this report were:

- Noise emissions
- Blasting impacts
- Air emissions

Each of these issues are discussed in the following subsections.

General conditions

The following general conditions will be imposed on the activity:

- **G1** – Access to and awareness of conditions and associated documents
- **G2** – Incident response
- **G3** – No changes without approval
- **G4** – Change of responsibility
- **G5** – Change of ownership
- **G6** – Complaints register
- **G7** – Annual Environmental Review
- **G8** – Environmental Management Plan and review thereof
- **G9** – Quarry Code of Practice

6.1 Noise emissions

6.1.1 Description

Western Junction Quarry is comprised of four separate pits, two of which are currently active, see Figure 2.5 of the DPMP. The DPMP estimates that the resource in the two currently operating pits will be depleted in 2-3 years. The crushing and screening plant are located in the main pit, which has ceased extraction. Section 2.1.4 of the DPMP outlines the current operation of the activity.

This proposal includes increasing the maximum allowable extraction and processing limit from 197,000 cubic meters per annum to 312,500 cubic meters per annum and expanding into a new pit to the west and south west of the main pit.

Noise emissions will be generated from mobile earthmoving equipment (excavators, front wheel loaders, dump trucks, drill rig, haul trucks), blasting and the crushing and screening plant. If not managed appropriately the activity has the potential to cause environmental nuisance to nearby sensitive receptors.

The DPMP notes that noise emissions from the current operation were monitored and future estimates of noise levels were determined to be in compliance with the noise criteria adopted from the *Quarry Code of Practice 2017*, with the exception of the drill rig in the early stages of the new pit development (i.e. 0-5 years). The DPMP also notes that, if required, additional management measures will be implemented in the initial years of the extension.

This section does not consider the impacts from blasting, except for noise generated by the drill rig, blasting impacts are further discussed and evaluated in Section 6.2.

6.1.2 Management measures

Commitment 1

- Maintain a complaint register to record any complaints from the public and the actions taken to address the complaint.

Commitment 2

- Advise the Launceston Airport and residents within a 1km radius (or as agreed) 24 hours in advance of any blasting activity; and
- Monitor blasting to ensure compliance with the appropriate standards.

Commitment 3

- Maintain attenuation distances to neighbours;
- Monitor noise emissions after operations commence (for the extension); and
- Fit noise attenuation on the drill rig if required.

Commitment 4

- Hours of operation will comply with Permit requirements;
- No transportation will occur on Sundays or gazetted public holidays; and
- Transport trucks will be maintained in condition.

Commitment 16

- The Proponent will liaise with TasWater regarding their requirements and establish a management plan.

The DPMP states that when operations commence in the new pit, a noise survey will be conducted within 3 months to confirm the noise predictions and further assess the potential impacts on sensitive receptors.

The DPMP also states that drilling only occurs for 1-2 days per month and that the residence most impacted by noise, Location B as shown in Figure 4.1 of the DPMP (page 37), is also subjected to elevated noise levels from aircraft.

6.1.3 Public and agency comment and responses

The representations from the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) and Launceston Airport did not raise noise as an issue.

TasWater provided comments on the DPMP and indicated that management of potential impacts on its staff should be considered in relation to blasting noise emissions (amongst other things). The Supplement provides an email from TasWater stating that TasWater do not expect the Proponent to submit anything, nor do they want to review any proposed management measures until planning approval is provided.

The Supplement states that Terrock have investigated the potential impact from blasting on TasWater's staff and determined that there is no risk to the staff. The Supplement also notes that as TasWater will need to use the access road within the Mining Lease, its staff will be required to adhere to the quarry OH&S requirements, including signing in and out, which will help ensure staff safety.

No other concerns were raised in relation to noise emissions from the public or other government agencies.

6.1.4 Evaluation

A Noise Assessment (Appendix D of the DPMP) was undertaken for the site based on measurements from the current operation to predict future noise impacts with the intensification and extension of the quarry.

The Noise Assessment indicates that for normal operations, including haulage, crushing, screening and offsite transport of product, noise levels at the nearest sensitive receptors (as detailed in Figure 1 of the Noise Assessment) are below the criteria for the entire life of the quarry. The Noise Assessment goes on to state that when drilling occurs, noise limits are predicted to be exceeded at Location B (Raeburn House) over the first 5 years of operation in Mining Lease 2045P/M.

The Noise Assessment recommends that a noise survey be conducted once operation in Mining Lease 2045P/M has commenced to confirm the predictions of the assessment, in particular the actual drill rig noise levels at Location B. This recommendation is supported and Condition **N2** requires a noise survey to be undertaken within 6 months of operations commencing in Mining Lease 2045P/M. This is supported by Condition **N3** which specifies the requirements for the noise survey method and reporting.

The Noise Assessment also recommends that if drill rig noise exceeds the criteria, a noise mitigated drill rig should be used in the first 5 years of operation within Mining Lease 2045P/M. This recommendation is supported and will be guided by the results of the Noise Survey required by Condition **N2**.

Furthermore, Condition **N1** sets the noise limits that must be met by the activity. The EPA Noise Specialist considers a daytime noise limit of 50dB(A) to be appropriate given the industrial, commercial and aviation related activities also undertaken in the area surrounding the quarry.

Condition **N5** requires that in the event a noise complaint is received, the Director must be notified within 24 hours. The Complaints register required under Condition **G6** must also record all complaints received.

Condition **N4** stipulates operating hours to reduce the risk of noise emissions causing an environmental nuisance to sensitive receptors. The activity's current Licence to Operate Scheduled Premises No. 3374 does not specify operating hours for the activity. The DPEMP states that the activity currently operates from 0600 hours to 1730 hours Monday to Friday and 0700 hours to 1500 hours on Saturday. While outside the operating hours recommended by the Quarry Code of Practice, the hours are considered appropriate given the setting of the activity, the imposition of Condition **N1** also requires that any activity undertaken on The Land prior to 0700 hours must be able to meet a noise limit of 35dB(A).

The conclusions and recommendations of the Noise Assessment are supported. The Commitments made and the conditions imposed are considered appropriate to mitigate the potential for causing environmental nuisance at sensitive receptors. In the event that the noise limits are exceeded, the Director could require further mitigation measures to ensure compliance e.g. drill rig shielding.

6.1.5 Conclusions

The proponent will be required to comply with the following conditions:

- N1** Noise emission limits
- N2** Noise survey requirements
- N3** Noise survey method and reporting
- N4** Operating hours
- N5** Noise complaints
- N6** Control of noise emissions

6.2 Blasting impacts

6.2.1 Description

Blasting is required to fracture the rock so it can be removed for processing at the crushing and screening plant. The DPMP states that blasting will occur approximately once a month but may on occasion be required more frequently.

Blasting will result in noise emissions (air blast), ground vibration and fly-rock. These emissions have the potential to cause environmental nuisance, property damage and aviation safety impacts if not managed appropriately. The potential impacts of dust during blasting are further discussed and evaluated in Section 6.3 and the noise impacts from drilling are further discussed and evaluated in Section 6.1.

Another issue of concern is in relation to fly-rock potentially penetrating prescribed airspace.

Terrock Pty Ltd were engaged to provide specialist advice in relation to blast design to ensure the quarry operation meets the relevant air blast and ground vibration limits. The DPMP notes that Terrock have completed several studies in the area and are familiar with the resource.

The Supplement indicates that the revised vertical blast throw of rock would not exceed 28 meters in height, which is below the prescribed obstacle limitation surface (OLS) and therefore does not require a controlled activity application for the purposes of the *Airports (Protection of Airspace) Regulations 1996*.

6.2.2 Management measures

Commitment 1

- Maintain a complaint register to record any complaints from the public and the actions taken to address the complaint.

Commitment 2

- Advise the Launceston Airport and residents within a 1 km radius (or as agreed) 24 hours in advance of any blasting activity; and
- Monitor blasting to ensure compliance with the appropriate standards.

Commitment 16

- The Proponent will liaise with TasWater regarding their requirements and establish a management plan.

The Supplement also states that as TasWater use the access road in the Mining Lease, its staff will be required to adhere to site OH&S requirements, including signing in and out, which will improve worker safety.

In addition, the DPMP states that Terrock Consulting Engineers were engaged to advise on blast design to ensure that quarry operations meet the relevant ground vibration limits. The DPMP notes that Terrock have completed several studies at the quarries located nearby and have a good understanding of the area.

The DPMP commits to continue monitoring each blast undertaken on The Land.

6.2.3 Public and agency comment and responses

TasWater provided comments on the DPMP and indicated that management of potential impacts on its staff and infrastructure should be considered in relation to blasting and fly-rock (amongst other things). The Supplement provides an email from TasWater stating that they do not expect

the Proponent to submit anything nor do they want to review any proposed management measures until planning approval is provided.

The Supplement states that Terrock have investigated the potential impact from blasting on the TasWater infrastructure and safety issues related to fly-rock and determined that there is no risk.

Two of the representations were in relation to the potential for impact on aviation safety at the Launceston Airport from the proposal, including from blasting.

The Proponent engaged a specialist to undertake an aviation safety review for the proposal, as requested by the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) and Launceston Airport.

The document entitled *Safety Review Report for Proposed Quarry Extension – Launceston Airport*, dated 2 March 2020 and prepared by Mott MacDonald (the Safety Review Report) assesses the potential impacts on aviation safety from the quarry operation, the Safety Review Report includes consideration of the potential impacts that may be caused by blasting.

6.2.4 Evaluation

The DPMP adopts an air blast limit of 115dB(A) for 95% of blasts with an absolute limit of 120dB(A). Similarly, the adopted ground vibration limit is 5mm/s for 95% of blasts with an absolute limit of 10mm/s. This is consistent with the standard noise and vibration limits imposed by EPA. Condition **B2** imposes these limits on the activity. To ensure that these limits are met, Condition **B4** requires that each blast on The Land be monitored at locations agreed to by the Director. The Condition also requires that any exceedance of the limits be reported to the Director within 24 hours.

The Safety Review Report recommends that blasts be undertaken in the Launceston Airport's off-peak hours. The average busy hours were identified as being between 0900 hours and 1100 hours and between 1600 hours and 1800 hours. The standard blasting condition allows for blasting between 1000 hours and 1600 hours. In line with the Safety Review Report's recommendations, condition **B1** is imposed to restrict blasting times to between 1100 hours and 1600 hours Monday to Friday. The condition does allow for the Director to consider allowing one off blasting approvals outside of these hours should the Proponent provide sufficient justification.

The Safety Review Report also considers the potential for fly rock to impact on aviation safety and states that the estimated height available at the location of the quarry extension is 56 meters. The original draft DPMP stated that fly rock could reach a height of 95 meters, which would have penetrated the OLS and may have presented a risk to flight safety. The Safety Review Report also notes that Terrock have reviewed the blast plans and confirmed that the vertical blast throw will not exceed 28 meters. The Safety Review Report states that the original estimate was a conservative worst-case scenario, which can be avoided with industry standard measures and design of blasts. To ensure that blasts are managed appropriately, Condition **B5** is imposed to require a Blast Management Plan to be submitted to the Director for approval, this ensures that the Director has oversight of the blasting design which can be amended if issues arise from blasting activities. Condition **B4** requires the first 5 blasts within Mining Lease 2045P/M to include monitoring of the vertical and horizontal distance fly-rock travels. Furthermore, Condition **B6** requires notification to the Director, EPA, Launceston Airport and the DITCRD in the unlikely event that fly-rock penetrates prescribed airspace. The condition also requires a report to be provided to the Director containing an assessment as to why fly-rock exceeded the predicted maximum extent and outlining any proposed management measures to ensure fly-rock does not penetrate the prescribed airspace again.

The DITCRD provided a letter to the Northern Midlands Council on 11 May 2020 in relation to the issues it had raised and the provision of the Safety Review Report. The Letter states that the

Safety Review Report assesses and considers all the risks to aircraft safety and operations in accordance with the National Airports Safeguarding Framework guidelines and the *Airports (Protection of Airspace) Regulations 1996*. Furthermore, the letter notes the conclusion of the Safety Review Report that none of the issues raised require a controlled activity application as they have been modified to remain below prescribed airspace and that the recommendations made in the Safety Review Report appear sensible to mitigate any residual risk and should be encouraged.

The letter also states that approval should be conditional on the Proponent contacting the Launceston Air Traffic Control (ATC) Line Manager prior to any blasting operations commencing. Condition **B3** stipulates that the ATC Line Manager must be contacted at least 24 hours prior to any blasting operations being undertaken, including drilling activities.

The DPMP also considers the potential for damage to structures from blasting. The DPMP refers to Australian Standard 2187.2 (2006) which suggests a ground vibration limit of 100mm/s for the protection of reinforced concrete and steel structures.

The report entitled *Western Junction Quarry – Quarry Extension – Effects of Blasting*, dated 14 May 2018 and prepared by Terrock Pty Ltd (The Blast Report) estimates, based on data from previous blast monitoring on The Land, that at its closest point to the airport runway, ground vibration levels are predicted to be 6.4 mm/s. The Blast Report considers that ground vibration is unlikely to have a negative impact on property or infrastructure at the Launceston Airport, TasWater's sewerage lagoons or the industrial area.

The activity must meet the 5mm/s ground vibration limit, as specified in condition **B2**, to prevent nuisance at sensitive receptors. The ground vibration limits imposed are considered to be protective of any infrastructure associated with the Launceston Airport, TasWater's sewerage lagoons or the industrial area.

Based on the information provided this conclusion is supported and no specific conditions in relation to property or infrastructure damage are required. The blasting limits imposed are considered to be protective of property and infrastructure.

The Proponent's commitments and the conditions imposed are considered to provide a conservative approach to management of the potential impacts from blasting and provides the Director with the flexibility to manage any issues that may arise due to blasting.

6.2.5 Conclusions

The proponent will be required to comply with the following conditions:

- B1** Blasting times
- B2** Blasting – noise and vibration limits
- B3** Notification of blasting
- B4** Blast monitoring
- B5** Blast Management Plan
- B6** Fly-rock

6.3 Air emissions

6.3.1 Description

The Western Junction Quarry is comprised of four separate pits, two of which are currently active, see Figure 2.5 of the DPEMP. The DPEMP estimates that the resource in the two currently operating pits will be depleted in 2-3 years. The crushing and screening plant are located in the main pit which has ceased extraction. Section 2.1.4 of the DPEMP outlines the current operation of the activity.

This proposal includes increasing the maximum allowable extraction and processing limit from 197,000 cubic meters per annum to 312,500 cubic meters per annum and expanding into a new pit to the west and south west of the main pit.

The DPEMP states that dust emissions are generated during quarrying from drilling and blasting, loading and haulage of materials on unsealed roads, crushing and screening, stockpiling and loading for offsite transport.

The increase in production will result in an increase to the traffic moving on and off site, to transport product to external customers. The DPEMP indicates that heavy vehicle movements will increase (averaged over a year) from the current 44 movements per day, up to 182 movements per day (2 way).

The DPEMP states that drilling typically occurs for 2 days of each month but may be more frequent at times depending on the stage of pit development.

The new pit will be located closer to the airport and general industrial zone than previous pits, but a similar distance from residences to the north, and further away from residences to the east.

The DPEMP noted that there may be a requirement to relocate or upgrade the crushing and screening plant in the future.

According to the DPEMP the generation of dust from the quarrying activities will depend on the frequency of dust generating activities, meteorological conditions, composition of dust (particle size and moisture content) and the condition of the source.

The DPEMP states that based on the climate data available, the prevailing winds for summer tend to be predominantly from the north and northwest, with subdominant light winds from the south and southeast, meaning that when conditions are more likely to be dry and windy, the prevailing wind direction would move any dust emissions towards agricultural land and not towards any residences.

The DPEMP also states that given the distance to residences and that the road is sealed from the edge of the mining lease boundary, there are unlikely to be any nuisance dust emissions to sensitive receptors. The DPEMP notes that no dust complaints have been received from residents over the life of the quarry.

The DPEMP claims that future operations are not expected to generate significant nuisance dust and that agricultural activities are likely to be a major dust source in the area.

6.3.2 Management measures

Commitment 1 (from Table 6.1 of the Supplement)

- Maintain a complaint register to record all complaints from the public.

Commitment 6

- Operate water sprays on crushing and screening equipment;
- Minimise surface disturbance;

- Progressively rehabilitate disturbed areas that are no longer required;
- Water internal haul roads; and
- Maintain quarry roads routinely.

Commitment 7

- Transport trucks will be covered with a tarpaulin if required.

Commitment 12

- Audit plant dust control equipment and take remedial action when required.

Commitment 13

- Install a dust monitor at the property boundary with a live feedback to plant crew.

The DPMP states that topsoil and subsoil will be stripped and stored separately or placed on top of the overburden piles and will then be revegetated with grass species. See Photograph 2 of the DPMP for an example of existing vegetated overburden and topsoil stockpiles.

The crushers, screens and material stockpiles will remain within the original pit floor, which provides some shelter from the wind.

As noted in Commitment 6, the crushing plant is fitted with water sprays to wet the crusher feed and conveyor transfer points to minimise dust emissions and the secondary screens are also fitted with water sprays. In addition, water cannons will be used to minimise dust from product stockpiles if required.

The DPMP states that over the life of the existing quarry there have been limited complaints from residents mostly regarding blasting impacts, with the majority being over 10 years ago. The DPMP claims that complaints have decreased significantly in recent years due to improved blasting techniques, with the last complaint received in 2014. The DPMP also states that the proposed extension is further away from this complainant and therefore the potential for nuisance from blasting should be reduced for this resident.

The Proponent has entered a contract with a neighbouring landowner (who made a representation) adjacent to the southeast to purchase part of his property, thus addressing his concerns regarding dust emissions. However, the Supplement states that should this sale not be completed, a dust monitor will be installed close to the boundary with a live feed back to the plant operator to alert them if there is potentially dust leaving The Land.

6.3.3 Public and agency comment and responses

Three representations raised concerns regarding dust emissions.

One representor owns the land to the southeast of the quarry and raised concerns that the current activity deposits dust on his property, preventing successful growing of cereal and specialised crops and grazing of stud sheep. As noted above, the Supplement states that the Proponent has entered into a contract with that landowner to purchase part of the land to mitigate his concerns.

The other two representations were in relation to dust plumes and the potential for impact on aviation safety at Launceston Airport.

The Proponent engaged a specialist to undertake an aviation safety review for the proposal, as requested by the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) and Launceston Airport.

The document entitled *Safety Review Report for Proposed Quarry Extension – Launceston Airport*, dated 2 March 2020 and prepared by Mott MacDonald (the Safety Review Report) assesses the potential impacts on aviation safety from the quarry operation, the Safety Review Report includes consideration of dust impacts from crushing, screening and drilling / blasting.

6.3.4 Evaluation

The Safety Review Report considered dust emissions from the crushing and screening plant as the primary source with drilling and blasting being a secondary source of dust emissions. The Safety Review Report indicates that the crushing and screening plant are located 1km from the runway and that the Proponent has confirmed the crushing and screening plant will remain in its current location. The Safety Review Report concludes that there is unlikely to be an increase in dust emissions that may impact aviation safety from the crushing and screening plant.

The Safety Review Report notes that blasting will start approximately 600m from the runway and advance towards the runway over time. The Safety Review Report indicates that dust modelling would be quite complex to consider, but states that should dust become an issue over time, mitigation measures can be implemented at that time to address the issues.

The Safety Review Report recommends that blasts be undertaken during the Launceston Airport's off-peak hours. The average busy hours were identified as between 0900 hours and 1100 hours and between 1600 hours and 1800 hours. The standard blasting condition allows for blasting between 1000 hours and 1600 hours. In line with the Safety Review Report's recommendations, condition **B1** is imposed to restrict blasting times to between 1100 hours and 1600 hours Monday to Friday. The condition provides discretion for the Director to consider allowing one off blasting outside of these hours should the Proponent provide a sufficient justification.

The Safety Review Report also recommends that dust generation from blasts should be observed on a regular basis for the next few years to understand the impact on visibility in the approach path after each blast and that if any adverse observations are recorded a review of the mitigation measures should be considered as the pit progresses towards the airport. The Safety Review Report notes that verbal reports indicate there is unlikely to be an issue with dust from blasting or access roads as significant dust emissions would be needed to create visibility issues, but that observations will provide certainty that no impacts are created. Condition **B4** is imposed to require blast monitoring and includes a requirement to contact Launceston Airport after each blast to determine if any issues were experienced, including from dust plumes. The Director must be notified if Launceston Airport raises any concerns.

The DITCRD provided a letter to the Northern Midlands Council on 11 May 2020 in relation to the issues it had raised and the provision of the Safety Review Report. The Letter states that the Safety Review Report assesses and considers all the risks to aircraft safety and operations in accordance with the National Airports Safeguarding Framework guidelines and the Airports (Protection of Airspace) Regulations. Furthermore the letter notes the conclusion of the Safety Review Report that none of the issues raised require a controlled activity application as they have been modified to remain below prescribed airspace and that the recommendations made in the Safety Review Report appear sensible to mitigate any residual risk and should be encouraged.

The measures proposed in the DPEMP to mitigate the potential impacts from air emissions are supported.

Condition **A1** requires that vehicles carrying loads of material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land or travel on public roads, this is in line with the Proponent's Commitment 7.

Condition **A2** is imposed to require dust emissions from The Land by vehicles to be limited or controlled by dampening or other effective measures. This is consistent with the Proponent's Commitment 6 to routinely maintain and dampen internal haul roads.

Condition **A3** requires that dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land. As noted above, the Proponent has entered into a contract to purchase part of the land adjacent to the southeast of the new pit, which will assist in providing an additional buffer for dust emissions in the direction of prevailing winds. Commitments 6, 12 and 13 are supported to help reduce the potential for dust emissions to leave The Land and cause nuisance or aviation safety impacts.

Furthermore, Condition **A4** is also imposed to require certain measures to control dust emissions produced by the operation of the crushing and screening plant.

The commitments made by the proponent and proposed management of the operation appear reasonable to mitigate potential impacts from dust emissions. The conditions imposed require implementation of the key mitigation measures.

6.3.5 Conclusions

The proponent will be required to comply with the following conditions:

- A1** Covering of vehicles
- A2** Dust emissions from traffic areas
- A3** Control of dust emissions
- A4** Control of dust emission from plant
- B1** Blasting times
- B4** Blast monitoring

7 Other Issues assessed by the Board

In addition to the key issues, the following environmental issues are considered relevant to the proposal and have been evaluated in Appendix I, Section A.

1. Surface water quality
2. Waste management, dangerous goods and environmentally hazardous substances
3. Natural values
4. Site contamination
5. Decommissioning and rehabilitation

8 Other Issues

The following issues that have been raised during the assessment process are discussed in Appendix I, Section B. These are issues which are more appropriately addressed by another regulatory agency.

1. Aviation safety
2. Traffic impacts

9 Report Conclusions

This assessment has been based on the information provided by the proponent, D. N. Hughes, in the permit application, the case for assessment (the DPEMP) and additional Information provided in the form of a Supplement to the DPEMP.

This report incorporates specialist advice provided by EPA Tasmania scientific specialists and regulatory staff, other Divisions of DPIPWE and other government agencies, and has considered issues raised in public submissions.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal;
2. the assessment of the proposal has been undertaken in accordance with the Environmental Impact Assessment Principles; and
3. the proposal is capable of being managed in an environmentally acceptable manner such that it is unlikely that the RMPS and EMPCS objectives would be compromised, provided that the Permit Conditions - Environmental No. 9667 appended to this report are imposed and duly complied with.

The environmental conditions appended to this report are a new set of operating conditions for the entire, intensified activity that will supersede the existing permit conditions (former Licence to Operate Scheduled Premises No. 3374).

10 Report Approval

Environmental Assessment Report and conclusions, including environmental conditions, adopted:



Warren Jones

**CHAIRPERSON
BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY**

Meeting date: 6th October 2020

II References

- John Miedecke & Partners PL (2019); *Western Junction Quarry Extension, Development Proposal and Environmental Management Plan* (dated March 2019). (The DPMP)
- John Miedecke & Partners PL (2020); *Western Junction Quarry Extension, Development Proposal and Environmental Management Plan – Supplement* (dated June 2020). (The Supplement)
- Mott MacDonald (2020); *Safety Review Report for Proposed Quarry Extension – Launceston Airport* (dated 2 March 2020). (The Safety Review Report)
- Noise Vibration Consulting (2018); *Bis Industries – Western Junction – Quarry Expansion – Noise Impact Assessment* (dated April 2018). (The Noise Assessment)
- Terrock Pty Ltd (2018); *Western Junction Quarry – Quarry Extension – Effects of Blasting* (dated 14 May 2018)
- Terry Eaton (2018); *Traffic Assessment – Proposed Quarry Material Increase Cartage – Bis Industries – Richard Street, Western Junction* (dated March 2018). (The Blast Report)

12 Appendices

- Appendix 1 Assessment of Other Issues
- Appendix 2 Summary of public and agency submissions
- Appendix 3 Permit Conditions – Environment No. 9667

Appendix I – Section A – Assessment of other issues assessed by the Board

Issue 1: Surface water quality
Description of potential impacts
Inappropriate management of stormwater has potential to cause the movement of sediment and other contaminants, thereby impacting waterways and potentially causing environmental harm or nuisance.
Management measures proposed in DPEMP
<p>The DPEMP states that the current surface water management strategy is to direct surface drainage to the various settling ponds and then to the Briarly Creek supply pond which overflows into Briarly Creek.</p> <p>The DPEMP also states that any surface water from rainfall in the quarry pit floors gradually infiltrates the basalt fractures and joints and reports to the groundwater. Occasional pumping of water from the pit floor to the supply pond is required.</p> <p>The DPEMP states that the following management measures have historically been adequate for managing surface water and preventing sediment and/or pollution leaving The Land:</p> <ul style="list-style-type: none"> • The quarry perimeter will be graded such that all surface drainage is directed into the pit itself and not offsite, uncontrolled. • Upslope water flows will be directed to a settling basin (1 or more to provide storm surge capacity and reduce flow rates). • The pit floor will be graded to direct surface drainage to the settling basins prior to discharge under the haul road to the Briarly Creek pond (this will also provide storm surge capacity and reduce flow rates). • All maintenance and refuelling areas in the quarry will be bunded and any spillage will be cleaned up. An oil spill kit will be maintained onsite.
Public and agency comment
The DITCRD and Launceston Airport raised concerns about the potential for attracting wildlife with the construction of additional waterbodies (i.e. sediment retention ponds) within Mining Lease 2045P/M.
Evaluation
<p>The management measures proposed are supported. There has been no history of poor performance regarding surface water management at the activity. The additional area of extraction does not appear to present any new issues from a surface water management point of view that would significantly change the potential impacts, apart from potential groundwater contamination, as discussed in Issue 4.</p> <p>Nevertheless, given the size of the operation and the activities undertaken it is considered appropriate to impose a suite of conditions to ensure that surface water is managed appropriately and can be enforced by the Director.</p> <p>Standard conditions E1, E2 and E3 are imposed to require perimeter cut off drains / bunds to be constructed on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity (E1), settling ponds to be designed and maintained such that sediment will not be transported off The Land by surface run-off (E2), and that polluted stormwater must be collected and treated prior to discharge from The Land to the extent necessary to prevent environmental harm or nuisance (E3).</p> <p>Condition WQ1 is imposed to further the above conditions by requiring that any water discharged from The Land must not exceed 30 mg/L of total suspended solids and that during a storm event any plume leaving The Land must not be visibly more turbid than the receiving waters. In addition, the condition</p>

also requires that waters leaving The Land must be visibly free of any hydrocarbon sheen that could arise from a spill or the pre-coat plant. Condition **MI** is imposed to set requirements around who and how measurements may be made, if required.

Condition **DC4** supports maintaining surface water quality by requiring progressive rehabilitation of worked out areas to minimise the area of disturbed land that may be subject to erosion during storm events.

Subsequent to the Safety Review Report being provided, there appears to be a conflict in the management of surface water within Mining Lease 2045P/M. The Safety Review Report suggests that creation of waterbodies within Mining Lease 2045P/M should be avoided to reduce the risk of attracting wildlife that may present a risk to aviation safety, however, the Board must also ensure that surface water is managed appropriately to reduce the risk of environmental harm occurring.

It is understood that the quarry operator has verbally indicated that surface water within Mining Lease 2045P/M can be appropriately managed without the need for additional sediment ponds.

The Supplement has not adequately addressed this matter, therefore, it is considered appropriate that Condition **E4** be imposed to require the Proponent to provide a Surface Water Management Plan for Mining Lease 2045P/M for the Director's approval to ensure the Launceston Airport's needs and the environment are appropriately protected. This issue is discussed further in Issue 1 of Appendix I – Part B – Other issues.

The conditions imposed and the Proponent's commitments are considered appropriate to manage the potential impacts from the activity on surface water quality. The conditions imposed provide the Director with measurable conditions to confirm compliance, without needing to impose unnecessary monitoring requirements on the activity.

As noted in the DPMP, it is known that there is soil and groundwater contamination from polyfluorinated firefighting foam surfactants located on the adjacent airport land associated with historic airport fire response training area. This issue is considered further under Issue 4 – Site Contamination.

Conclusion

The proponent will be required to comply with the following conditions:

- E1 Perimeter drains or bunds**
- E2 Design and maintenance of settling ponds**
- E3 Stormwater**
- E4 Stormwater Management Plan for Mining Lease 2045P/M**
- MI Samples and measurements for monitoring purposes**
- WQ1 Water quality**

Issue 2: Waste management, dangerous goods and environmentally hazardous substances
Description of potential impacts
<p>Inappropriate use and storage of hazardous substances has the potential to cause environmental nuisance or harm if discharged to the Land or nearby waterways.</p> <p>Wastes produced from the activity also have potential to cause environmental harm or nuisance through pollution of the environment.</p>
Management measures proposed in DPEMP
<p>The DPEMP states that diesel, lubricant, oil, grease, waste oil, oxyacetylene, precoat liquids and truck wash are stored on the Land. The DPEMP also states that all the above-mentioned materials will be stored and transported in accordance with the <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i>, the <i>Dangerous Goods Act 1998</i> (now <i>Dangerous Goods (Road and Rail Transport) Act 2010</i>) and associated regulations.</p> <p>The DPEMP states that the workshop and equipment are all provided with spill kits.</p> <p>The DPEMP states that the existing septic tank is adequate to manage sewage produced onsite. It also notes that typical solid wastes are generated in relation to machinery and processing plant and that they have adopted a waste management hierarchy to avoid, recycle, reuse, treat and dispose of wastes.</p>
Public and agency comment
<p>No public or agency comments were received in relation to waste management, dangerous goods and environmentally hazardous substances.</p>
Evaluation
<p>The mitigation measures outlined above are supported. To ensure that hazardous materials are appropriately managed the Proponent will be required to comply with conditions H1, H2 and H3 and spill kits will be required under condition H4. These conditions reflect the commitments made in the DPEMP.</p> <p>In the event of an incident, the Proponent will be required to respond appropriately under condition G2.</p> <p>The proposed management measures and standard conditions are considered sufficient for the appropriate management of wastes, dangerous goods and environmentally hazardous materials on The Land to prevent environmental harm or nuisance occurring.</p>
Conclusion
<p>The proponent will be required to comply with the following conditions:</p> <p>H1 Storage and handling of hazardous materials</p> <p>H2 Hazardous materials (<250 litres)</p> <p>H3 Spill kits</p> <p>H4 Handling of hazardous materials – mobile</p> <p>The following legal and other information is included in the conditions for the Proponent's information:</p> <p>LO2 Storage and handling of dangerous goods, explosives and dangerous substances</p> <p>OII Waste management hierarchy</p>

Issue 3: Natural values and weed and disease management

Description of potential impacts

Inappropriate clearing or disturbance of vegetation has potential to impact on threatened flora, fauna or vegetation communities and result in the introduction and spread of weeds and diseases.

Clearing vegetation also has potential to impact on surface water quality through increased erosion.

Management measures proposed in DPEMP

The DPEMP states that quarterly inspection and treatment of weeds and pathogens is undertaken for the activity. Commitment 10 is contradictory and states a yearly inspection program will be implemented.

The DPEMP also states that gorse, blackberries, thistles, flat weeds and rice grass exists on The Land and is being treated.

In addition, the DPEMP notes that vehicles and machinery are washed in accordance with the Weed and Hygiene Guidelines when transferring to and from susceptible or risky sites.

No other management measures were proposed in the DPEMP regarding natural values.

Public and agency comment

The Policy, Advice and Regulatory Services Branch (PARS) stated during consultation for development of the Board's Guidelines that there are no records of flora or fauna on the property listed under the *Threatened Species Protection Act 1995*. PARS further stated, given the additional area to be cleared is highly disturbed agricultural land next to the existing quarry site, it is anticipated that the activity is unlikely to impact on listed flora and fauna and as such no further action is required.

Evaluation

Based on the information provided and PARS' advice, it is not anticipated that the proposed intensification and extension of the quarry will impact on any listed flora or fauna. Therefore, no conditions regarding flora and fauna will be imposed.

Given the weed infestations identified on The Land, it is considered appropriate to impose conditions **FFI** and **OPI** to ensure that weeds and diseases are managed appropriately and are not transported on or off the site.

Condition **FFI** requires that before entering The Land, machinery must be washed in accordance with the Weed and Disease Guidelines. Furthermore, condition **OPI** requires the development of a Weed and Disease Management Plan to be submitted to the Director for approval. This will formalise the inspection and treatment regime that the Proponent must implement to manage weeds and diseases.

Conclusion

The proponent will be required to comply with the following conditions:

FFI Machinery washdown

OPI Weed & Disease Management Plan

Issue 4: Site contamination

Description of potential impacts

It is known that there is soil and groundwater contamination from polyfluorinated firefighting foam surfactants (per- and poly-fluoroalkyl substances (PFAS)) located on the adjacent airport land associated with historic airport fire response training. Should contaminated groundwater enter the quarry pit there is potential for environmental harm and health impacts to workers.

Management measures proposed in DPEMP

Information provided by the Proponent indicates that the main source of contamination is understood to be east and southeast of Launceston Airport runway, more than 1km from the proposed quarry expansion area.

The Proponent met with Airservices Australia in January 2019 to discuss the current findings of the ongoing investigation to determine the extent and magnitude of contamination.

The Proponent indicates that PFAS will be monitored in GW17 on a three yearly basis and that any groundwater ingress into the pit will also be monitored for PFAS.

Public and agency comment

No public or agency comments were received in relation to site contamination.

Evaluation

Due to the contamination source being located on Commonwealth Land, it is managed by the Commonwealth and investigations by Airservices Australia are ongoing to delineate the extent and magnitude of impact from the historic firefighting practices.

The information provided by the Proponent indicates that the closest airport monitoring bore (GW17 – approx. 115m southwest of mining lease 2045P/M's boundary) has a standing water level of RLI60.7.

The quarry pits final reduced level is proposed to be RLI30, meaning that the pit base will be approximately 30m below the standing water level identified in GW17, however, the Proponent has indicated that the interpreted groundwater flow (based on standing water levels recorded by Airservices Australia during groundwater monitoring) is to the southeast, away from The Land and towards Kellys Creek, which flows between the mining lease and the areas known to have the greatest levels of contamination.

While existing quarry operations have not encountered groundwater ingress to the pits, there is potential for ingress to occur in the new extension of the quarry. The Proponent's commitment to monitor groundwater bore GW17 and have any groundwater analysed is supported to ensure the quarry does not provide a conduit for contaminated groundwater to enter Briarly Creek or impact on worker health and safety.

It is understood that Airservices Australia's investigation of PFAS contamination at the Launceston Airport is ongoing and monitoring will continue to be undertaken by Airservices Australia. It is recommended that the Proponent maintains regular contact with Airservices Australia to ensure that any groundwater contamination identified does not affect the quarry operations.

Condition **GW1** is imposed to require any groundwater ingress into the pit to be sampled and analysed for an appropriate suite of PFAS. The condition also requires that any groundwater encountered must be detained within Mining Lease 2045P/M until proven that it is not contaminated and that in the event contamination is detected the groundwater must be treated or disposed of to the satisfaction of the Director. A report must also be provided to the Director detailing any groundwater sampling results within 14 days of results being received. In addition, Condition **MI** sets out requirements on the collection and analysis of any samples taken.

While it appears unlikely that groundwater will infiltrate into the new pit, the above conditions are in place as a precautionary measure given the uncertainty of what effects the new pit will have on groundwater flows. It is considered that the conditions are adequate to manage the potential risks.

Conclusion

The proponent will be required to comply with the following condition:

GW1 Sampling of groundwater in Mining Lease 2045P/M

MI Samples and measurements for monitoring purposes

Issue 5: Decommissioning and rehabilitation
<p>Description of potential impacts</p>
<p>Temporary or permanent cessation of the activity has the potential to cause on-going impacts to the environment if rehabilitation is not managed appropriately.</p> <p>Potential impacts include, increased erosion and transport of sediment offsite to waterways, impacts to biodiversity and uncontrolled dust emissions.</p>
<p>Management measures proposed in DPMP</p>
<p>The DPMP states that the recommended rehabilitation plan is as follows (in accordance with the QCoP):</p> <ul style="list-style-type: none"> • Salvage and recycling of redundant plant and equipment; • Profile and contour ripping; • Covering with previously stockpiled materials from the stockpiles; and • Planting tree seedlings, seed and fertiliser application. <p>The DPMP states that follow up weed control will be required.</p> <p>Commitment 11 of the DPMP states '<i>Strip and stockpile topsoil and overburden as per the [QCoP] guidelines. Revegetate quarry walls progressively</i>'.</p> <p>The proposed end use of the pits is a level compacted surface suitable for industrial and commercial use or grazing.</p>
<p>Public and agency comment</p>
<p>Mineral Resources Tasmania raised concerns about what distance from the western boundary of the Mining Lease extraction will cease and that the DPMP suggests soil/overburden will be stored between the extracted area and Mining Lease boundary.</p>
<p>Evaluation</p>
<p>The commitments made in section 6 of the DPMP regarding decommissioning and rehabilitation post closure of the activity are supported. Nevertheless, to ensure that appropriate rehabilitation works are undertaken permit conditions will be imposed.</p> <p>Rehabilitation on cessation will be supported by condition DC3 which requires surface soil to be retained for future rehabilitation and is consistent with details in the DPMP.</p> <p>Progressive rehabilitation is encouraged to reduce the risk of large areas of the site being left unrehabilitated should the activity cease, therefore condition DC4 is imposed to ensure that the Director can enforce progressive rehabilitation in accordance with the Quarry Code of Practice.</p> <p>Management of temporary cessation will be stipulated under condition DC2. The Proponent will be required to notify of permanent cessation under condition DC1 and undertake decommissioning and rehabilitation in accordance with conditions DC5 and DC6 which includes the preparation and implementation of a Decommissioning and Rehabilitation Plan (DRP). Condition DC5 requires that a draft DRP be submitted to the Director for approval within 12 months of these conditions taking effect.</p> <p>The concern raised by MRT is relevant to final decommissioning and rehabilitation and the proximity of the activity to Launceston Airport runway. The Supplement states that final extraction will not occur for approximately 18 years and that the Environmental Management Plan for the activity will undergo numerous revisions during this time and that final extraction will be confirmed later. Nevertheless, Figure 3 of Appendix B in the Supplement provides an indicative distance of 344m as being the closest point at which extraction will occur to the runway. Condition OP2 is imposed to require that extraction does not occur any closer than 344m from the western boundary of the Mining Lease, unless</p>

otherwise approved by the Director. This provides certainty on the final extraction point from the runway, but also allows this to be amended later in the activity's life with written approval from the Director.

The standard decommissioning and rehabilitation conditions are considered appropriate to ensure the potential for environmental impacts are minimised through appropriate decommissioning and rehabilitation of the site during temporary closure or permanent cessation.

Conclusion

The proponent will be required to comply with the following conditions:

- DC1 Notification of cessation**
- DC2 Temporary suspension of activity**
- DC3 Stockpiling of surface soil**
- DC4 Progressive rehabilitation**
- DC5 Decommissioning and Rehabilitation Plan**
- DC6 Implementation of the DRP**
- OP2 Proximity to Launceston Airport runway**

Appendix I – Section B – Other Issues

Issue I: Aviation safety
<p>Description of potential impacts</p> <p>The proposal has the potential to impact on aviation safety at the adjacent Launceston Airport, through dust emissions, blasting activities, attraction of wildlife, light pollution and causing air turbulence.</p>
<p>Management measures proposed in DPEMP</p> <p>Commitment 14</p> <ul style="list-style-type: none"> • The Proponent will contact the Launceston Air Traffic Control (ATC) Line Manager, Chris Wallace on 0419 289 041 before any blasting operation commencing. • The Proponent will provide a detailed annual schedule of blasting operations to Launceston Airport and the Civil Aviation Safety Authority (CASA). <p>Commitment 15</p> <ul style="list-style-type: none"> • Minimise surface water ponding in the quarry.
<p>Public and agency comment</p> <p>The Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) and Launceston Airport made representations stating that the proposed use and development of land in Launceston Airport's prescribed airspace is a significant safety issue for aviation operations and objected to the proposal until the issues below were appropriately addressed and approved:</p> <ul style="list-style-type: none"> • Refer to the <i>Airports Act 1996</i> (the Act) and <i>Airports (Protection of Airspace) Regulations 1996</i> (the Regulations) in relation to intrusions into prescribed airspace around the Airport. • Refer to the National Airports Safeguarding Framework (NASF) which provides guidelines to ensure the safety of aviation operations. • The following have been identified as potentially having an impact on the prescribed airspace: <ul style="list-style-type: none"> o Dust emissions; o Fly-rock emissions; o Air blast overpressure causing air turbulence; o Soil / overburden stockpiles causing air turbulence; o Light emissions; and o Creation of additional sediment ponds attracting wildlife. • Dust management is not adequately addressed in relation to the risk to aviation activities. Dust generation is a 'controlled activity' under the Act and requires approval under the Act and Regulations. • Blast fly-rock may penetrate the prescribed airspace by a significant margin and is a 'controlled activity' under the Act. Approval must be sought under the Act and Regulations. • Air blast overpressure and soil / overburden stockpiles may result in air turbulence, which is a 'controlled activity' under the Act. Further information is required to assess the potential impact and may require approval under the Act and Regulations. • NASF Guidelines must be taken into account pursuant to the Standing Council on Transport and Infrastructure agreement of 18 May 2012, in particular Guidelines B, C and F are relevant to the proposal.

- An Aviation Safety Impact Assessment and a Wildlife Hazard Management Assessment is required to be developed by a suitably qualified and experienced aviation consultant in relation to the proposal's potential impact on Launceston Airport's prescribed airspace and aircraft safety.
- The above assessments must demonstrate that there will be no impact on Launceston Airport's prescribed airspace or the safety of aviation operations.
- Recommended to engage with Airservices Australia, the CASA and the DITCRD regarding the proposal.

Evaluation

The Supplement indicates that a meeting was held with Launceston Airport and DITCRD representatives in August 2019. It was requested that additional information be provided and that an independent consultant be engaged to complete an Aviation Safety Impact Assessment.

Furthermore, the Supplement states that the Northern Midlands Council organised a meeting with Launceston Airport, DITCRD and the adjacent landowner in October 2019.

The Supplement notes that a suitable consultant was engaged in January 2020 to prepare an Aviation Safety Impact Assessment, which was completed in March 2020 (the confidential report is entitled *Safety Review Report for Proposed Quarry Extension – Launceston Airport*, dated 2 March 2020 and prepared by Mott McDonald).

The DITCRD provided a letter to Northern Midlands Council on 11 May 2020 in relation to the issues it had raised and the provision of the Safety Review Report. The Letter states that the Safety Review Report assesses and considers all the risks to aircraft safety and operations in accordance with the National Airports Safeguarding Framework guidelines and the *Airports (Protection of Airspace) Regulations 1996*. Furthermore, the letter notes the conclusion of the Safety Review Report that none of the issues raised require a controlled activity application as they have been modified to remain below prescribed airspace and that the recommendations made in the Safety Review Report appear sensible to mitigate any residual risk and should be encouraged.

While aviation safety is not within the Board's scope to assess, it is considered reasonable that certain conditions be imposed regarding environmental issues that may impact on aviation safety. Sections 6.1, 6.2 and 6.3 consider and evaluate the potential impacts from noise, blasting and air emissions and conditions are imposed to require appropriate management of the operation to reduce the risk of causing environmental harm or nuisance or safety risks to aviation operations.

There remain three issues not addressed within this report that were raised, being potential turbulence created from stockpiles, light pollution and attraction of wildlife, specifically birds.

The Safety Review Report notes that at its closest point the Mining Lease is 90 metres from the boundary of the airport. The Safety Review Report refers to Guideline B of the NASF which provides a detailed methodology to determine if any development within the critical area will generate wind shear that may impact on aircraft safety. The Safety Review Report concluded that the soil / overburden stockpiles do not penetrate the prescribes 1:35 surface defined in Guideline B and that no further assessment was required.

The Safety Review Report notes the objection relating to wildlife strike was due to the potential for increased size of waterbodies on The Land. Figure 2.12 of the DPMP indicates that there were three sediment retention ponds proposed for the new extraction area. The Supplement makes a commitment to minimise surface water ponding in the quarry development.

The Safety Review Report notes that additional water ponding near the airport site is a hazard to a certain extent, and the airport has observed increased bird strike incidents after rainfall, suggesting that there need to be some measures in place to not aggravate the situation further.

The Safety Review Report notes that the quarry operator has verbally indicated that the quarry can operate without additional sediment retention ponds in the new extraction area. However, the Supplement does not discuss this.

The Safety Review Report goes on to state that there is a significant waterbody adjacent to the airport relating to wastewater treatment that appears larger than any waterbody that could exist in the quarry and is also far more 'friendly' to wildlife. The Report concludes that the quarry should continue the current practice of designing the quarry to avoid standing water.

As the Supplement has not satisfactorily addressed the issues raised in relation to surface water management from an aviation safety or environmental management point of view, it is considered appropriate to impose Condition E4 to require that before extraction occurs within Mining Lease 2045P/M, a Surface Water Management Plan be submitted to the Director for approval. This allows the Proponent to provide additional information on how surface water will be managed in Mining Lease 2045P/M to eliminate or reduce the potential for ponding of surface water within the quarry pit while still meeting its responsibilities to not cause environmental harm.

The Supplement has not addressed the potential for light pollution and the letter from DITCRD has not raised further concerns around this issue. It is not anticipated that the operation will produce significant light pollution, which is likely to be limited to some vehicle movements and light from plant or buildings during winter.

With the commitments made by the Proponent and the conditions imposed, it is anticipated that the issues raised can be mitigated to ensure that the risk to aviation safety is acceptable, as indicated by the DITCRD.

Conclusion

No additional conditions are proposed in relation to aviation matters.

Issue 2: Traffic impacts
Description of potential impacts
<p>Vehicle movements offsite have the potential to cause nuisance through noise and dust emissions if not managed appropriately. Impacts from onsite vehicle movement are considered under Sections 6.1 (noise emissions) and 6.3 (air emissions).</p>
Management measures proposed in DPEMP
<p>The DPEMP does not include any management measures, other than those made in relation to noise and air emissions onsite.</p>
Public and agency comment
<p>During the guideline consultation phase of the assessment the State Roads Division of the Department of State Growth indicated that they had no concerns in relation to the proposal as access to Evandale Road is via an existing roundabout which adequately caters for heavy vehicle use.</p>
Evaluation
<p>Condition AI requires vehicles carrying loads containing material which may blow or spill to be equipped with effective control measures to prevent the escape of materials from the vehicles when they leave The Land.</p> <p>A Traffic Assessment (Appendix B of the DPEMP) was conducted for the proposed increase in production and expansion of the quarry.</p> <p>The Traffic Assessment indicates that the average daily traffic along Richard Street is up to 1,300 vehicles per day with approximately 50% comprising heavy vehicles.</p> <p>The Traffic Assessment indicates that light vehicle movements associated with the quarry are not likely to change at around 80 movements per day. However, it also notes that heavy vehicle movements are likely to increase from 45 truckloads per day up to 70 truckloads per day (from 90 to 140 movements to and from the Land per day). The Traffic Assessment indicates that the increase in heavy vehicles from the quarry represents a 5.4% increase of traffic on Richard Street and that a capacity analysis suggests the practical capacity of Richard Street is 3,500 vehicles per day.</p> <p>The Traffic Assessment concludes that an acceptable level of safety can be maintained in the vicinity of the quarry access.</p> <p>The Traffic Assessment highlights the significant volume of heavy vehicles travelling along Richard Street and Evandale Road. This means that any nearby sensitive receptors are already exposed to significant heavy vehicle movements and a 5.4% increase in traffic movements from the quarry is unlikely to significantly impact sensitive receptors.</p>
Conclusion
<p>No specific conditions are proposed in relation to offsite traffic impacts.</p>

Appendix 2 – Summary of public representations and agency submissions

Representation No./ Agency	DPEMP section no.	DPEMP Page no.	Comments and issues	Additional information required
1	4.5	53 & 54	<p>Dust emissions from the crusher do not comply with the current permit conditions.</p> <p>Dust emissions from the crusher are covering pasture areas, making it unpalatable to their stud sheep until reasonable rainfalls occur.</p> <p>Contravenes the 'right to farm' Act (<i>Primary Industry Activities Protection Act 1995</i> and <i>Protection of Agricultural Lands Policy</i>).</p> <p>The dust also prohibits the successful growing of cereal and specialised seed crops.</p> <p>A suitable solution to dust emissions needs to be addressed before expansion is approved.</p>	<p>Section 4.5 of the DPEMP does not adequately consider the potential impact of dust emissions on agricultural land.</p> <p>The DPEMP must consider the potential impacts of dust emissions from the activity on nearby agricultural land and detail any additional mitigation measures proposed to minimise any nuisance dust emissions from the activity.</p>
2	4.4, 4.5, 4.6	NA	<p>The proposed use and development of land within the Launceston Airport's (the Airport) prescribed airspace is a significant safety issue to aviation operations. Object to the proposal until the below is appropriately addressed and approved.</p> <ul style="list-style-type: none"> • Refer to the <i>Airports Act 1996</i> (the Act) and <i>Airports (Protection of Airspace) Regulations 1996</i> (the Regulations) in relation to intrusions into prescribed airspace around the Airport. • Refer to the National Airports Safeguarding Framework (NASF) which provides guidelines to ensure the safety of aviation operations. <p>The following have been identified as potentially having an impact on the prescribed airspace:</p> <ul style="list-style-type: none"> ○ Dust emissions; ○ Fly-rock emissions; ○ Air blast overpressure causing air turbulence; ○ Soil / overburden stockpiles causing air turbulence; ○ Light emissions; and ○ Creation of additional sediment ponds attracting wildlife. 	<p>Reference to the Act and Regulations must be made along with a brief discussion on how the requirements will be met.</p> <p>Including a commitment regarding seeking appropriate approvals under the Act and Regulations would be beneficial.</p> <p>Further consideration of the potential impacts from dust emissions and blasting on the Airport must be included in the DPEMP. The DPEMP should provide details on the proposed procedural processes for engaging with the Airport regarding aviation safety matters and any monitoring that will be undertaken.</p>

<p>Department of Infrastructure, Transport, Cities and Regional Development (DITCRD)</p>	<p>4.4, 4.5, 4.6</p>	<p>NA</p>	<ul style="list-style-type: none"> • Dust management is not adequately addressed in relation to the risk to aviation activities. Dust generation is a 'controlled activity' under the Act and requires approval under the Act and Regulations. • Blast fly-rock may penetrate the prescribed airspace by a significant margin and is a 'controlled activity' under the Act. Approval must be sought under the Act and Regulations. • Air blast overpressure and soil / overburden stockpiles may result in air turbulence, which is a 'controlled activity' under the Act. Further information is required to assess the potential impact and may require approval under the Act and Regulations. • NASF Guidelines must be taken into account pursuant to the Standing Council on Transport and Infrastructure agreement of 18 May 2012, in particular Guidelines B, C and F are relevant to the proposal. • An Aviation Safety Impact Assessment and a Wildlife Hazard Management Assessment is required to be developed by a suitably qualified and experienced aviation consultant in relation to the proposal's potential impact on the Launceston Airport's prescribed airspace and aircraft safety. • The above assessments must demonstrate that there will be no impact on Launceston Airport's prescribed airspace or the safety of aviation operations. • Recommended to engage with Airservices Australia, the Civil Aviation Safety Authority (CASA) and the Department of Infrastructure, Transport, Cities and Regional Development (DITCRD) regarding the proposal. <p>In addition to sharing and reiterating the concerns raised by Representative 2, the Department also raised light distraction to aircraft as a potential risk from the proposal that should be considered in the DPEMP.</p> <p>The Department chairs the National Safeguarding Advisory Group (NASAG) which advises Governments on the protection of airports from inconsistent or inappropriate development.</p> <p>The Department is concerned about the expansion of the quarry closer to the airport boundary which may have significant long-term operational impacts for the Launceston Airport.</p> <p>The Department also states that the proposal may be contrary to the National Airports Safeguarding Framework (NASF) developed by the NASAG and agreed to by the State and Territory Ministers (including Tasmania) in May 2012.</p>	<p>See comments above.</p>
------------------------------------------------------------------------------------------	----------------------	-----------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------

MRT	NA	NA		
			<p>MRT made the following comments on the DPEMP:</p> <ul style="list-style-type: none"> • There is limited discussion around the impacts of the operation with respect to the Launceston Airport and potential impacts to air and ground operations at the airport. How will the two operations interact? MRT is of the view that greater discussion around this is required. • It would be useful to see a discussion around CASA's feedback regarding the DPEMP. The DPEMP states CASA were consulted during the Notice of Intent period. However, there is no meaningful discussion of their position or concerns beyond this. • Section 2.3.2 Basalt Resource – the comments raise questions over the confidence associated with the amount of resource claimed to be available for extraction. The statement that there is approximately 9 million tonnes of basalt available for extraction appears to be speculative. Further modelling, drilling and knowledge of factors such as basement geometry, architecture, geological structures, and alteration facies within the deposit would also need to be further investigated to improve the resource confidence level. The applicant has previously encountered issues with resource dilution due to contamination by weathering. • The SRADs appear to have been measured from the centre of the mining lease. SRADs must be measured from the boundary of the mining lease to ensure future sensitive receptors do not fetter access to resources. This significantly changes the potential for interaction with current sensitive receptors and requires further assessment. • Page 22 part 2.8 Operating hours it states "There are no residences in close proximity to the quarry or transport route". The suggested recommended attenuation distances prescribed for such an activity is 1000m where regular blasting takes place. An SRAD distance of 750 metres is recommended where crushing occurs, 500m SRAD where vibrating and trommel screens alone are used, and where no blasting, crushing or screening occurs an SRAD distance of 300 metres applies. There are several sensitive receptors within the suggested recommended attenuation distances that have not been addressed in the DPEMP. • The DPEMP appears to be silent on stating to what distance final extraction will cease to progress beyond with respect to the western boundary of the mining lease. The DPEMP currently suggests the far western area will be used for soil/overburden stockpile storage purposes. It would be useful to 	<p>Provide additional discussion on the basalt resource around the confidence in the resource. The distance to the nearest sensitive receptor must be measured from the Boundary of the Land. The DPEMP must be revised. Discussions on the potential impacts and proposed mitigation measures need to be revised, including relevant maps, to reflect the additional sensitive premises that may potentially be impacted within 1,000m from the boundary of the Land.</p> <p>Similarly, justification for the operating hours must be revised to consider the additional sensitive premises within 1,000m of the boundary of the Land.</p> <p>Please confirm the distance from the south western boundary that extraction will cease.</p>

		<p>have a distance written into the document to ensure clarity around this issue.</p> <p>TasWater have stated that pursuant to the <i>Water and Sewerage Industry Act 2008</i> (TAS) Section 56F(1) TasWater imposes the following conditions on the permit for this application:</p> <p>Protection of TasWater infrastructure</p> <p>1. Prior to submitting the Development Proposal and Environmental Management Plan (DPEMP) to the regulating authority for approval, the developer must develop a site management / operation plan for inclusion in the DPEMP to TasWater satisfaction to protect TasWater assets and staff from damage, dilapidation, injury and harm as the case may be for the life of the quarry.</p> <p>Development assessment fees</p> <p>2. The applicant or landowner as the case may be, must pay a development assessment fee of \$1,139.79 to TasWater, as approved by the Economic Regulator and the fee will be indexed, until the date it is paid to TasWater. The payment is required within 30 days of the issue of an invoice by TasWater.</p>	<p>TasWater have advised their requirements to protect TasWater assets and staff from damage, dilapidation, injury and harm include but are not limited to:</p> <ol style="list-style-type: none"> Establishment of on-going liaison protocols with TasWater; Management of impacts of dust, noise and vibration emissions on TasWater staff; Undertaking dilapidation survey(s) and agreed condition assessments; Movement of heavy vehicles over shared accesses; Monitoring and management of high ground velocities, ground movement and vibrations arising from blasting; Management of fly rock hazards; and Rectification of assets deemed to have been damaged by quarrying works as and when required. <p>Provide additional information in the DPEMP to satisfy TasWater's requirements in relation to the proposal.</p> <p>NB. An email dated 1 June 2020 from TasWater (included in the Supplement) indicates that the 'conditions' were for advice and that they do not expect nor want to review anything prior to the planning permit being issued.</p>
EPA	Table 4.11	56	<p>The DPEMP indicates that two of the proposed additional sediment settlement ponds are larger than 1 ML and may require approval under the <i>Water Management Act 1999</i>.</p> <p>Advice should be sought from DPPEW's Water Management and Assessment Branch regarding any approvals required under the <i>Water Management Act 1999</i>.</p>



Appendix 3 – Permit Conditions – Environmental No. 9667

PERMIT PART B
PERMIT CONDITIONS - ENVIRONMENTAL No. 9667

Issued under the *Environmental Management and Pollution Control Act 1994*

Activity: **The operation of a quarry and crusher (ACTIVITY TYPE: Crushing, grinding, milling or separating into different sizes (rocks, ores or minerals))
WESTERN JUNCTION QUARRY, 81 EVANDALE ROAD
WESTERN JUNCTION TAS 7212**

The above activity has been assessed as a level 2 activity under the *Environmental Management and Pollution Control Act 1994*.

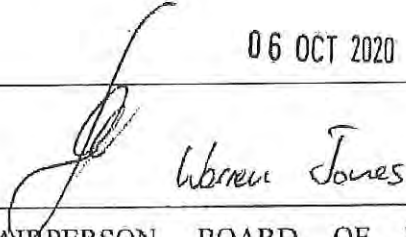
Acting under Section 25(5)(a)(i) of the EMPCA, the Board of the Environment Protection Authority has required that this Permit Part B be included in any Permit granted under the *Land Use Planning and Approvals Act 1993* with respect to the above activity.

Municipality: **NORTHERN MIDLANDS**
Permit Application Reference: **PLN19-0071**
EPA file reference: **252179**

Date conditions approved:

06 OCT 2020

Signed:



CHAIRPERSON, BOARD OF THE ENVIRONMENT
PROTECTION AUTHORITY

DEFINITIONS

Unless the contrary appears, words and expressions used in this Permit Part B have the meaning given to them in **Schedule 1** of this Permit and in the EMPCA. If there is any inconsistency between a definition in the EMPCA and a definition in this Permit Part B, the EMPCA prevails to the extent of the inconsistency.

ENVIRONMENTAL CONDITIONS

The person responsible for the activity must comply with the conditions contained in **Schedule 2** of this Permit Part B.

INFORMATION

Attention is drawn to **Schedule 3**, which contains important additional information.



CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

06 OCT 2020

Table Of Contents

Schedule 1: Definitions..... 5

Schedule 2: Conditions..... 7

 Maximum Quantities..... 7

 Q1 Regulatory limits 7

 General..... 7

 G1 Access to and awareness of conditions and associated documents..... 7

 G2 Incident response..... 7

 G3 No changes without approval..... 7

 G4 Change of responsibility..... 7

 G5 Change of ownership..... 7

 G6 Complaints register..... 8

 G7 Annual Environmental Review..... 8

 G8 Environmental Management Plan and review thereof..... 9

 G9 Quarry Code of Practice..... 9

 Atmospheric..... 9

 A1 Covering of vehicles..... 9

 A2 Dust emissions from traffic areas..... 9

 A3 Control of dust emissions..... 10

 A4 Control of dust emissions from plant..... 10

 Blasting..... 10

 B1 Blasting times 10

 B2 Blasting - noise and vibration limits..... 10

 B3 Notification of blasting..... 10

 B4 Blast monitoring..... 11

 B5 Blast Management Plan..... 11

 B6 Fly-rock..... 11

 Decommissioning And Rehabilitation..... 12

 DC1 Notification of cessation..... 12

 DC2 Temporary suspension of activity..... 12

 DC3 Stockpiling of surface soil..... 12

 DC4 Progressive rehabilitation..... 12

 DC5 Decommissioning and Rehabilitation Plan..... 12

 DC6 Implementation of the DRP..... 13

 Effluent Disposal..... 13

 E1 Perimeter drains or bunds..... 13

 E2 Design and maintenance of settling ponds..... 13

 E3 Stormwater..... 14

 E4 Surface Water Management Plan for Mining Lease 2045P/M..... 14

 Flora And Fauna..... 14

 FF1 Machinery washdown..... 14

 Groundwater..... 15

 GW1 Sampling of groundwater in Mining Lease 2045P/M 15

 Hazardous Substances..... 15

 H1 Storage and handling of hazardous materials..... 15

 H2 Hazardous materials (< 250 litres)..... 16

 H3 Spill kits..... 16

 H4 Handling of hazardous materials - mobile..... 16

 Monitoring..... 16

 M1 Samples and measurements for monitoring purposes..... 16



Noise Control.....	16
N1 Noise emission limits.....	16
N2 Noise survey requirements.....	17
N3 Noise Survey Method and Reporting.....	17
N4 Operating hours.....	18
N5 Noise complaints.....	18
Operations.....	18
OP1 Weed & Disease Management Plan	18
OP2 Proximity to Launceston Airport runway.....	18
Water Quality.....	18
WQ1 Water quality.....	18
Schedule 3: Information.....	19
Legal Obligations.....	19
LO1 EMPCA.....	19
LO2 Storage and handling of dangerous goods, explosives and dangerous substances.....	19
LO3 Aboriginal relics requirements.....	19
Other Information.....	19
OI1 Waste management hierarchy.....	19
OI2 Notification of incidents under section 32 of EMPCA	19

Attachments

Attachment 1: The Land (modified: 24/09/2020 14:28).....	1 page
----------------------------------------------------------	--------



Schedule 1: Definitions

In this Permit Part B:-

312,500 cubic metres per year is considered to be equivalent to 500,000 tonnes per year.

Aboriginal Relic has the meaning described in section 2(3) of the *Aboriginal Heritage Act 1975*.

Activity means any environmentally relevant activity (as defined in Section 3 of EMPCA) to which this document relates, and includes more than one such activity.

Best Practice Environmental Management or '**BPEM**' has the meaning described in Section 4 of EMPCA.

Control Location (Noise) means a location chosen to represent the general ambient sound without contribution from noise sources at the activity.

Director means the Director, Environment Protection Authority holding office under Section 18 of EMPCA and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.

DRP means Decommissioning and Rehabilitation Plan.

EMPCA means the *Environmental Management and Pollution Control Act 1994*.

Environmental Harm and **Material Environmental Harm** and **Serious Environmental Harm** each have the meanings ascribed to them in Section 5 of EMPCA.

Environmental Nuisance and **Pollutant** each have the meanings ascribed to them in Section 3 of EMPCA.

Environmentally Hazardous Material means 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 and includes fuels, oils, waste and chemicals but excludes sewage.

Noise Sensitive Premises means 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.

Person Responsible is any person who is or was responsible for the environmentally relevant activity to which this document relates and includes the officers, employees, contractors, joint venture partners and agents of that person, and includes a body corporate.

PFAS means per- and poly-fluoroalkyl substances.

Pollutant has the meaning ascribed to it in Section 3 of EMPCA.

Quarry Code of Practice means the document of this title published by the Environment Protection Authority in May 2017, and includes any subsequent versions of this document.

Reporting Period means the 12 months ending on 30 December of each year.

Stormwater means water traversing the surface of The Land as a result of rainfall.

Tasmanian Noise Measurement Procedures Manual means the document titled *Noise Measurement Procedures Manual*, by the Department of Environment, Parks, Heritage and the Arts, dated July 2008, and any amendment to or substitution of this document.

The Land means the land on which the activity to which this document relates may be carried out, and includes: buildings and other structures permanently fixed to the land, any part of the land covered with water, and any water covering the land. The Land falls within the area defined by:

- 1 Mining Leases 975P/M and 2045P/M; and
- 2 as further delineated at Attachment I.

Wastewater means spent or used water (whether from industrial or domestic sources) containing a pollutant and includes stormwater which becomes mixed with wastewater.

Weed means a declared weed as defined in the *Weed Management Act 1999*.

Weed And Disease Guidelines means the document titled *Weed and Disease Planning and Hygiene Guidelines - Preventing the spread of weeds and diseases in Tasmania*, by the Department of Primary Industries, Parks, Water and Environment, dated March 2015, and any amendment to or substitution of this document.



Schedule 2: Conditions

Maximum Quantities

Q1 Regulatory limits

- 1 The activity must not exceed the following limits :
 - 1.1 312,500 cubic metres per year of rocks, ores or minerals processed.
 - 1.2 312,500 cubic metres per year of rocks, ores or minerals extracted

General

G1 Access to and awareness of conditions and associated documents

A copy of these conditions and any associated documents referred to in these conditions must be held in a location that is known to and accessible to the person responsible for the activity. The person responsible for the activity must ensure that all persons who are responsible for undertaking work on The Land, including contractors and sub-contractors, are familiar with these conditions to the extent relevant to their work.

G2 Incident response

If an incident causing or threatening environmental nuisance, serious environmental harm or material environmental harm from pollution occurs in the course of the activity, then the person responsible for the activity must immediately take all reasonable and practicable action to minimise any adverse environmental effects from the incident.

G3 No changes without approval

- 1 The following changes, if they may cause or increase the emission of a pollutant which may cause material or serious environmental harm or environmental nuisance, must only take place in relation to the activity if such changes have been approved in writing by the EPA Board following its assessment of an application for a permit under the *Land Use Planning and Approvals Act 1993*, or approved in writing by the Director:
 - 1.1 a change to a process used in the course of carrying out the activity; or
 - 1.2 the construction, installation, alteration or removal of any structure or equipment used in the course of carrying out the activity; or
 - 1.3 a change in the quantity or characteristics of materials used in the course of carrying out the activity.

G4 Change of responsibility

If the person responsible for the activity intends to cease to be responsible for the activity, that person must notify the Director in writing of the full particulars of any person succeeding him or her as the person responsible for the activity, before such cessation.

G5 Change of ownership

If the owner of The Land upon which the activity is carried out changes or is to change, then, as soon as reasonably practicable but no later than 30 days after becoming aware of the change or intended change in the ownership of The Land, the person responsible must notify the Director in writing of the change or intended change of ownership.



G6 Complaints register

- 1 A public complaints register must be maintained. The public complaints register must, as a minimum, record the following detail in relation to each complaint received in which it is alleged that environmental harm (including an environmental nuisance) has been caused by the activity:
 - 1.1 the date and time at which the complaint was received;
 - 1.2 contact details for the complainant (where provided);
 - 1.3 the subject matter of the complaint;
 - 1.4 any investigations undertaken with regard to the complaint; and
 - 1.5 the manner in which the complaint was resolved, including any mitigation measures implemented.
- 2 Complaint records must be maintained for a period of at least 3 years.

G7 Annual Environmental Review

- 1 Unless otherwise specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within three months of the end of the reporting period. Without limitation, each Annual Environmental Review must include the following information:
 - 1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;
 - 1.2 subject to the *Personal Information Protection Act 2004*, a list of all complaints received from the public during the reporting period concerning actual or potential environmental harm or environmental nuisance caused by the activity and a description of any actions taken as a result of those complaints;
 - 1.3 details of environment-related procedural or process changes that have been implemented during the reporting period;
 - 1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reporting period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reporting period should be detailed;
 - 1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with these conditions that occurred during the reporting period, and any mitigative or preventative actions that have resulted from such incidents;
 - 1.6 a summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reporting period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reports must be provided;
 - 1.7 identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions;
 - 1.8 a list of any issues, not discussed elsewhere in the report, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues;

- 1.9 a summary of fulfilment of environmental commitments made for the reporting period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments; and
- 1.10 a summary of any community consultation and communication undertaken during the reporting period.

G8 Environmental Management Plan and review thereof

- 1 Unless otherwise specified in writing by the Director, an Environmental Management Plan - Operations ('EMP Operations') for the activity must be submitted to the Director for approval by whichever of the following dates occurs first and at five yearly intervals thereafter:
 - 1.1 In the case of the Director having approved a previous Environmental Management Plan, the fifth anniversary of the date of that approval;
 - 1.2 The fifth anniversary of the date on which these conditions take effect; or
 - 1.3 A date specified in writing by the Director.
- 2 The EMP Operations must include a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the EMP Operations.
- 3 The EMP Operations must detail the potential environmental impacts arising from the ongoing operation of the activity over the next 5 years, including a strategic consideration of potential changes to the activity during that period and consideration of opportunities to implement continuous improvement.
- 4 The EMP Operations must separately identify specific commitments, with actions and timeframes, to mitigate or prevent the identified potential environmental impacts. In preparing the EMP Operations the person responsible must take into account the contents of any previous annual environmental reviews including complaints, incidents and monitoring data.
- 5 If the Director issues guidelines for preparation of the EMP Operations, the EMP Operations must address the matters listed in those guidelines.
- 6 Unless otherwise specified in writing by the Director, the activity must be carried out in accordance with the approved EMP Operations, as may be amended or replaced from time to time with written approval of the Director.

G9 Quarry Code of Practice

Unless otherwise required by these conditions or required in writing by the Director, the activity (or activities) undertaken on The Land must comply with the Acceptable Standards provisions of the *Quarry Code of Practice*.

Atmospheric

A1 Covering of vehicles

Vehicles carrying loads containing material which may blow or spill must be equipped with effective control measures to prevent the escape of the materials from the vehicles when they leave The Land or travel on public roads. Effective control measures may include tarpaulins or load dampening.

A2 Dust emissions from traffic areas

Dust emissions from areas of The Land used by vehicles must be limited or controlled by dampening or by other effective measures.



A3 Control of dust emissions

Dust emissions from The Land must be controlled to the extent necessary to prevent environmental nuisance beyond the boundary of The Land.

A4 Control of dust emissions from plant

- 1 Dust produced by the operation of all crushing and screening plant must be controlled by the use of one or more of the following methods to the extent necessary to prevent environmental nuisance:
 - 1.1 the installation of fixed water sprays at all crushers and at all points where crushed material changes direction due to belt transfer;
 - 1.2 the installation of dust extraction equipment at all crushers and at all points where crushed material changes direction due to belt transfer, and the incorporation of such equipment with all vibrating screens;
 - 1.3 the enclosure of the crushing and screening plant and the treatment of atmospheric emissions by dust extraction equipment; and
 - 1.4 any other method that has been approved in writing by the Director.

Blasting**B1 Blasting times**

Blasting on The Land must take place only between the hours of 1100 hours and 1600 hours Monday to Friday. Blasting must not take place outside of these hours or on Saturdays, Sundays or public holidays unless prior written approval of the Director has been obtained.

B2 Blasting - noise and vibration limits

- 1 Blasting on The Land must be carried out in accordance with blasting best practice environmental management (BPPEM) principles, and must be carried out such that, when measured at the curtilage of any residence (or other noise sensitive premises) in other occupation or ownership, airblast overpressure and ground vibration comply with the following:
 - 1.1 for 95% of blasts, airblast overpressure must not exceed 115dB (Lin Peak);
 - 1.2 airblast overpressure must not exceed 120dB (Lin Peak);
 - 1.3 for 95% of blasts ground vibration must not exceed 5mm/sec peak particle velocity; and
 - 1.4 ground vibration must not exceed 10mm/sec peak particle velocity.
- 2 All measurements of airblast overpressure and peak particle velocity must be carried out in accordance with the methods set down in *Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration*, Australian and New Zealand Environment Council, September 1990.

B3 Notification of blasting

- 1 All residents within a 1 km radius of the activity must be notified on each occasion prior to blasting on The Land. This notification must be given at least 24 hours before such blasting is due to occur. In the event that the blast(s) cannot take place at the time specified, the responsible person must advise all those residents within 1 km of the activity of the revised time at which blasting will take place.
- 2 The Launceston Airport Air Traffic Control Line Manager must be contacted at least 24 hours prior to any blasting operations, including drilling activities, being undertaken on The Land.



B4 Blast monitoring

- 1 Unless otherwise approved in writing by the Director, blast monitoring must be undertaken for each blast that occurs on The Land.
- 2 Blast monitoring must be carried out at location(s) agreed in writing by the Director.
- 3 In the event that ground vibration and/or air blast overpressure caused by a blast exceeds a limit imposed by these conditions, the Director must be notified within 24 hours of the blast.
- 4 The first five (5) blasts undertaken within Mining Lease 2045P/M must include monitoring the vertical and horizontal distance fly-rock travels.
- 5 Unless otherwise approved in writing by the Director, after each blast the Launceston Airport must be contacted to determine whether any impacts, such as dust plumes, were noted by the airport.
- 6 In the event that the Launceston Airport raises any concerns, the Director must be notified within 24 hours.
- 7 Blast monitoring records must be maintained for a period of at least two years.

B5 Blast Management Plan

- 1 Unless otherwise approved in writing by the Director and before blasting on The Land a Blast Management Plan to the satisfaction of the Director must be submitted to the Director for approval. The Blast Management Plan must include, without limitation, the following:
 - 1.1 Development of a blast design method for ensuring compliance with air blast overpressure and ground vibration limits at noise sensitive premises. This includes the implementation of recommendations in the report prepared by Terrock Pty Ltd in Appendix E of the DPMP entitled '*Western Junction Quarry - Quarry Extension - Effects of Blasting*', dated 14 May 2018;
 - 1.2 A monitoring program, including the monitoring parameters to be measured;
 - 1.3 A blast monitoring location map, which includes, but is not limited to, locations designed to enable monitoring of potential impacts including to the Launceston Airport; and
 - 1.4 A list of all properties including Launceston Airport to be notified of blasting times.
- 2 The person responsible must ensure that the approved plan, as amended from time to time with the approval of the Director, is implemented.

B6 Fly-rock

- 1 In the event that fly-rock penetrates the prescribed airspace, as described in the document entitled '*Safety Review Report for Proposed Quarry Extension - Launceston Airport*' dated 2 March 2020 and prepared by Mott MacDonald, the Director EPA, Launceston Airport and the Civil Aviation Safety Authority must be notified within 24 hours.
- 2 A report must be provided to the Director within 7 days of the blast and must include, without limitation, the following:
 - 2.1 The details of the blast, including meteorological conditions at the time of the blast;
 - 2.2 An assessment of why the fly-rock travel distance was greater than expected; and
 - 2.3 Recommendations to ensure that future blasts do not cause fly-rock to penetrate prescribed airspace, including an updated Blast Management Plan for approval of the Director.

Decommissioning And Rehabilitation

DC1 Notification of cessation

Within 30 days of becoming aware of any event or decision which is likely to give rise to the permanent cessation of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to cease or has ceased.

DC2 Temporary suspension of activity

- 1 Within 30 days of becoming aware of any event or decision which is likely to give rise to the temporary suspension of the activity, the person responsible for the activity must notify the Director in writing of that event or decision. The notice must specify the date upon which the activity is expected to suspend or has suspended.
- 2 During temporary suspension of the activity:
 - 2.1 The Land must be managed and monitored by the person responsible for the activity to ensure that emissions from The Land do not cause serious environmental harm, material environmental harm or environmental nuisance; and
 - 2.2 If required by the Director a Care and Maintenance Plan for the activity must be submitted, by a date specified in writing by the Director, for approval. The person responsible must implement the approved Care and Maintenance Plan, as may be amended from time to time with written approval of the Director.
- 3 Unless otherwise approved in writing by the Director, if the activity on The Land has substantially ceased for 2 years or more, rehabilitation of The Land must be carried out in accordance with the requirements of these conditions as if the activity has permanently ceased.

DC3 Stockpiling of surface soil

Prior to commencement of extractive activities on any portion of The Land, surface soils must be removed in that portion of The Land to be disturbed by the conduct of the activity and stockpiled for later use in rehabilitation of The Land. Topsoil must be kept separate from other overburden and protected from erosion or other disturbance.

DC4 Progressive rehabilitation

Worked out or disused sections of The Land must be rehabilitated concurrently with extractive activities on other sections of The Land. Progressive rehabilitation must be carried out in accordance with the relevant provisions of the *Quarry Code of Practice*, unless otherwise approved in writing by the Director.

DC5 Decommissioning and Rehabilitation Plan

- 1 A draft Decommissioning and Rehabilitation Plan (DRP) must be submitted for approval to the Director within 12 months of the date on which these conditions take effect.
- 2 Unless otherwise approved in writing by the Director, a revised DRP must be submitted to the Director for approval:
 - 2.1 when changes to the conduct of the activity are to occur that will result in significant changes to decommissioning and rehabilitation obligations; and
 - 2.2 within 30 days of the Director being notified of the likely cessation of operations; and
 - 2.3 where required by notice in writing, by a date specified in writing by the Director.



- 3 The DRP must be prepared in accordance with guidelines issued by the Director. If no guidelines have been issued by the Director the measures described in this plan must include, but should not necessarily be limited to, the following:
- 3.1 completion of a site history, site contamination assessment and contamination remediation plan (including consideration of groundwater);
 - 3.2 removal of all equipment, structures and waste materials unless they are considered by the Director to be beneficial to a future use of The Land;
 - 3.3 grading and levelling/recontouring and revegetating (or other approved method of soil stabilisation) of the surface of the disturbed area;
 - 3.4 management of drainage on The Land so as to reduce erosion and prevent release of a pollutant from The Land;
 - 3.5 maintenance of the rehabilitated area for a period of not less than three years from the date of cessation of operations;
 - 3.6 an itemised estimate of the costs of carrying out the works listed in the DRP and a statement of how these costs will be provided for; and
 - 3.7 any other detail requested in writing by the Director.

DC6 Implementation of the DRP

Following permanent cessation of the activity, the decommissioning of the activity and the rehabilitation of The Land must be carried out in accordance with the most recent Decommissioning and Rehabilitation Plan (DRP) approved by the Director, as may be amended from time to time with written approval of the Director.

Effluent Disposal

E1 Perimeter drains or bunds

- 1 Perimeter cut-off drains, or bunds, must be constructed at strategic locations on The Land to prevent surface run-off from entering the area used or disturbed in carrying out the activity. All reasonable measures must be implemented to ensure that sediment transported along these drains, or bunds, remains on The Land. Such measures may include provision of strategically located sediment fences, appropriately sized and maintained sediment settling ponds, vegetated swales, detention basins and other measures designed and operated in accordance with the principles of Water Sensitive Urban Design.
- 2 Drains, or bunds, must have sufficient capacity to contain run-off that could reasonably be expected to arise during a 1 in 20 year rainfall event. Maintenance activities must be undertaken regularly to ensure that this capacity does not diminish.

E2 Design and maintenance of settling ponds

- 1 Sediment settling ponds must be designed and maintained in accordance with the following requirements:
 - 1.1 ponds must be designed to successfully mitigate reasonably foreseeable sediment loss which would result from a 1 in 20 year storm event;
 - 1.2 discharge from ponds must occur via a stable spillway that is not subject to erosion;
 - 1.3 all pond walls must be stable and treated with topsoil and vegetated or otherwise treated in such a manner as to prevent erosion; and
 - 1.4 sediment settling ponds must be periodically cleaned out to ensure that the pond design capacity is maintained. Sediment removed during this cleaning must be securely deposited such that sediment will not be transported off The Land by surface run-off.

E3 Stormwater

- 1 Polluted stormwater that will be discharged from The Land must be collected and treated prior to discharge to the extent necessary to prevent serious or material environmental harm, or environmental nuisance.
- 2 Notwithstanding the above, all stormwater that is discharged from The Land must not carry pollutants such as sediment, oil and grease in quantities or concentrations that are likely to degrade the visual quality of any receiving waters outside The Land.
- 3 All reasonable measures must be implemented to ensure that solids entrained in stormwater are retained on The Land. Such measures may include appropriately sized and maintained sediment settling ponds or detention basins.

E4 Surface Water Management Plan for Mining Lease 2045P/M

- 1 At least 3 months prior to the commencement of extractive activities commencing within Mining Lease 2045P/M, or by a date otherwise specified in writing by the Director, a Surface Water Management Plan must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to his or her satisfaction.
- 2 The plan must be prepared in accordance with any reasonable guidelines provided by the Director.
- 3 Without limitation, the plan must include details of the following:
 - 3.1 how surface water will be managed within Mining Lease 2045P/M, including the need for sediment retention ponds;
 - 3.2 the measures proposed to reduce the likelihood of surface water ponding within Mining Lease 2045P/M;
 - 3.3 the measures proposed to ensure that surface water is managed appropriately and does not cause environmental harm or nuisance;
 - 3.4 any other measures to be put in place to reduce the risk of wildlife being attracted to Mining Lease 2045P/M;
 - 3.5 a table containing all of the major commitments made in the plan;
 - 3.6 an implementation timetable for key aspects of the plan; and
 - 3.7 a reporting program to regularly advise the Director of the results of the plan.
- 4 Written comment from the Launceston Airport must be provided to ensure that they are comfortable with the proposed Surface Water Management Plan for Mining Lease 2045P/M;
- 5 The person responsible must implement and act in accordance with the approved plan.
- 6 In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved plan or approves a new plan in substitution for the plan originally approved, the person responsible must implement and act in accordance with the varied plan or the new plan, as the case may be.

Flora And Fauna**FF1 Machinery washdown**

Prior to entering The Land, machinery must be washed in accordance with the Weed and Disease Guidelines, or any subsequent revisions of that document.



Groundwater

GW1 Sampling of groundwater in Mining Lease 2045P/M

- 1 Unless otherwise approved in writing by the Director, any groundwater ingress into the quarry pit must be sampled and analysed for per- and poly-fluoroalkyl substances (PFAS).
- 2 Results of sampling must be reported to the Director within 14 days of being received.
- 3 Unless otherwise approved in writing by the Director, any groundwater encountered within the quarry pit must not be discharged off the Mining Lease until proven not to be contaminated with PFAS.
- 4 In the event that PFAS is encountered in groundwater within the quarry pit, the groundwater must be detained within the quarry pit and either treated or disposed of to the written satisfaction of the Director.

Hazardous Substances

H1 Storage and handling of hazardous materials

- 1 Unless otherwise approved in writing by the Director, all environmentally hazardous materials, including chemicals, fuels, and oils, stored on The Land in volumes exceeding 250 litres must be stored and handled in accordance with the following:
 - 1.1 Any storage facility must be contained within a spill collection bund with a net capacity of whichever is the greater of the following:
 - 1.1.1 at least 110% of the combined volume of any interconnected vessels within that bund; or
 - 1.1.2 at least 110% of the volume of the largest storage vessel; or
 - 1.1.3 at least 25% of the total volume of all vessels stored in that spill collection bund; or
 - 1.1.4 the capacity of the largest tank plus the output of any firewater system over a twenty minute period.
 - 1.2 All activities that involve a significant risk of spillages, including the loading and unloading of bulk materials, must take place in a bunded containment area or on a transport vehicle loading apron.
 - 1.3 Bunded containment areas and transport vehicle loading aprons must:
 - 1.3.1 be made of materials that are impervious to any environmentally hazardous material stored within the bund;
 - 1.3.2 be graded or drained to a sump to allow recovery of liquids;
 - 1.3.3 be chemically resistant to the chemicals stored or transferred;
 - 1.3.4 be designed and managed such that any leakage or spillage is contained within the bunded area (including where such leakage emanates vertically higher than the bund wall);
 - 1.3.5 be designed and managed such that the transfer of materials is adequately controlled by valves, pumps and meters and other equipment wherever practical. The equipment must be adequately protected (for example, with bollards) and contained in an area designed to permit recovery of any released chemicals;
 - 1.3.6 be designed such that chemicals which may react dangerously if they come into contact have measures in place to prevent mixing; and
 - 1.3.7 be managed such that the capacity of the bund is maintained at all times (for example, by regular inspections and removal of obstructions).

H2 Hazardous materials (< 250 litres)

- 1 Unless otherwise approved in writing by the Director, each environmentally hazardous material, including chemicals, fuels and oils, stored on The Land in discrete volumes not exceeding 250 litres, but not including discrete volumes of 25 litres or less, must be stored within bunded containment areas or spill trays which are designed and maintained to contain at least 110% of the volume of the largest container.
- 2 Bunded containment areas and spill trays must be made of materials that are impervious to any environmentally hazardous materials stored within the bund or spill tray.

H3 Spill kits

Spill kits appropriate for the types and volumes of materials handled on The Land must be kept in appropriate locations and maintained in a functional condition to assist with the containment of spilt environmentally hazardous materials.

H4 Handling of hazardous materials - mobile

- 1 Where mobile containment of environmentally hazardous materials is utilised for the fuelling or servicing of mobile or fixed plant on The Land, all reasonable measures must be implemented to prevent unauthorised discharge, emission or deposition of pollutants:
 - 1.1 to soils within the boundary of The Land in a manner that is likely to cause serious or material environmental harm;
 - 1.2 to groundwater;
 - 1.3 to waterways; or
 - 1.4 beyond the boundary of The Land.
- 2 Reasonable measures may include spill kits, spill trays/bunds or absorbent pads, and automatic cut-offs on any pumping equipment.

Monitoring**M1 Samples and measurements for monitoring purposes**

- 1 Any sample or measurement required under these conditions must be taken and processed in accordance with the following:
 - 1.1 sampling and measuring must be undertaken by a person with training, experience, and knowledge of the appropriate procedure;
 - 1.2 the integrity of samples must be maintained prior to delivery to a testing facility;
 - 1.3 sample analysis must be conducted by a testing facility accredited by the National Association of Testing Authorities (NATA), or a testing facility approved in writing by the Director, for the specified test;
 - 1.4 details of methods employed in taking samples and measurements and results of sample analysis, and measurements must be retained for at least three (3) years after the date of collection; and
 - 1.5 sampling and measurement equipment must be maintained and operated in accordance with manufacturer's specifications and records of maintenance must be retained for at least three (3) years.

Noise Control**N1 Noise emission limits**

- 1 Noise emissions from the activity when measured at any noise sensitive premises in other ownership and expressed as the equivalent continuous A-weighted sound pressure level must not exceed:



- 1.1 50 dB(A) between 0700 hours and 1800 hours (Day time); and
- 1.2 40 dB(A) between 1800 hours and 2200 hours (Evening time); and
- 1.3 35 dB(A) between 2200 hours and 0700 hours (Night time).
- 2 Where the combined level of noise from the activity and the normal ambient noise exceeds the noise levels stated above, this condition will not be considered to be breached unless the noise emissions from the activity are audible and exceed the ambient noise levels by at least 5 dB(A).
- 3 The time interval over which noise levels are averaged must be 10 minutes or an alternative time interval specified in writing by the Director.
- 4 Measured noise levels must be adjusted for tonality, impulsiveness, modulation and low frequency in accordance with the Tasmanian Noise Measurement Procedures Manual.
- 5 All methods of measurement must be in accordance with the Tasmanian Noise Measurement Procedures Manual.

N2 Noise survey requirements

- 1 Unless otherwise approved by the Director, a noise survey must be carried out:
 - 1.1 within six (6) months from the commencement of operations within Mining Lease 2045P/M; and
 - 1.2 within six (6) months of any change to the activity which is likely to substantially alter the character or increase the volume of noise emitted from The Land; and
 - 1.3 at such other times as may reasonably be required by the Director by notice in writing.

N3 Noise Survey Method and Reporting

- 1 Prior to undertaking a noise survey as required by these conditions, a proposed noise survey method must be submitted to the Director for approval.
- 2 Without limitation, the survey method must address the following:
 - 2.1 *measurements must be carried out at day, evening and night times (where applicable) at each location; and*
 - 2.2 measurement locations, and the number thereof, must be specified, with one location established as a control location (noise).
- 3 Measurements and data recorded during the survey must include:
 - 3.1 operational status of noise producing equipment and throughput of the activity;
 - 3.2 subjective descriptions of the sound at each location;
 - 3.3 details of meteorological conditions relevant to the propagation of noise; and
 - 3.4 the equivalent continuous (L_{eq}) and L_1 , L_{10} , L_{50} , L_{90} and L_{99} A-weighted sound pressure levels measured over a period of 10 minutes or an alternative time interval specified by the Director.
- 4 A noise survey report must be forwarded to the Director within 30 days from the date on which the noise survey is completed
- 5 The noise survey report must include the following:
 - 5.1 the results and interpretation of the measurements required by these conditions;
 - 5.2 a map of the area surrounding the activity with the boundary of The Land, measurement locations, and noise sensitive premises clearly marked on the map;
 - 5.3 any other information that will assist with interpreting the results and whether the activity is in compliance with these conditions and EMPCA; and
 - 5.4 recommendations of appropriate mitigation measures to manage any noise problems identified by the noise survey.

N4 Operating hours

- 1 Unless otherwise approved by the Director, activities associated with the extraction of rock, gravel, sand, clay or minerals, and loading of product, and screening/crushing must not be undertaken outside the hours of 0600 hours to 1730 hours on weekdays and 0700 hours to 1500 hours on Saturdays.
- 2 Notwithstanding the above paragraph, activities must not be carried out on public holidays that are observed Statewide (Easter Tuesday excepted).

N5 Noise complaints

In the event that a noise complaint is received in relation to the activity, the complaint must be reported to the Director within 24 hours.

Operations**OP1 Weed & Disease Management Plan**

- 1 Within 6 months of the date on which these conditions take effect, or by a date otherwise specified in writing by the Director, a Weed & Disease Management Plan must be submitted to the Director for approval. This requirement will be deemed to be satisfied only when the Director indicates in writing that the submitted document adequately addresses the requirements of this condition to his or her satisfaction.
- 2 The plan must be consistent with the Weed and Disease Guidelines, or any subsequent revisions of that document.
- 3 The person responsible must implement and act in accordance with the approved plan.
- 4 In the event that the Director, by notice in writing to the person responsible, either approves a minor variation to the approved plan or approves a new plan in substitution for the plan originally approved, the person responsible must implement and act in accordance with the varied plan or the new plan, as the case may be.

OP2 Proximity to Launceston Airport runway

Unless otherwise approved in writing by the Director, extraction must not occur closer than 344m from the Launceston Airport runway.

Water Quality**WQ1 Water quality**

- 1 Total suspended solids in any run-off discharged from The Land must not exceed a concentration of 30 mg/L.
- 2 During a storm event, any plume leaving The Land must not be visibly more turbid than the receiving waters.
- 3 Waters leaving The Land must be visibly free of any hydrocarbon sheen.



Schedule 3: Information

Legal Obligations

LO1 EMPCA

The activity must be conducted in accordance with the requirements of the *Environmental Management and Pollution Control Act 1994* and Regulations thereunder. The conditions of this document must not be construed as an exemption from any of those requirements.

LO2 Storage and handling of dangerous goods, explosives and dangerous substances

- 1 The storage, handling and transport of dangerous goods, explosives and dangerous substances must comply with the requirements of relevant State Acts and any regulations thereunder, including:
 - 1.1 *Work Health and Safety Act 2012* and subordinate regulations;
 - 1.2 *Explosives Act 2012* and subordinate regulations; and
 - 1.3 *Dangerous Goods (Road and Rail Transport) Act 2010* and subordinate regulations.

LO3 Aboriginal relics requirements

- 1 Aboriginal relics, objects, sites, places and human remains regardless of whether they are located on public or private land, are protected under the *Aboriginal Heritage Act 1975*.
- 2 Unanticipated discoveries of Aboriginal heritage must be reported to Aboriginal Heritage Tasmania on **1300 487 045** as soon as possible.

Other Information

OI1 Waste management hierarchy

- 1 Wastes should be managed in accordance with the following hierarchy of waste management:
 - 1.1 waste should be minimised, that is, the generation of waste must be reduced to the maximum extent that is reasonable and practicable, having regard to best practice environmental management;
 - 1.2 waste should be re-used or recycled to the maximum extent that is practicable; and
 - 1.3 waste that cannot be re-used or recycled must be disposed of at a waste depot site or treatment facility that has been approved in writing by the relevant planning authority or the Director to receive such waste, or otherwise in a manner approved in writing by the Director.

OI2 Notification of incidents under section 32 of EMPCA

Where a person is required by section 32 of EMPCA to notify the Director of the release of a pollutant, the Director can be notified by telephoning **1800 005 171** (a 24-hour emergency telephone number).



CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

06 OCT 2020

Attachment 1: The Land



www.thelist.tas.gov.au

CHAIRPERSON, BOARD OF THE ENVIRONMENT PROTECTION AUTHORITY

06 OCT 2020

