SALLY PEAK SANDSTONE QUARRY, BUCKLAND

DEVELOPMENT PROPOSAL AND ENVIRONMENTAL MANAGEMENT PLAN
**FOREWORD**

**FUNCTION OF THE DEVELOPMENT PROPOSAL AND ENVIRONMENTAL MANAGEMENT PLAN**

The Development Proposal and Environmental Management Plan (DPEMP) has been prepared to support a Development Application by Mr Nicholas Ferrar (as sole proprietor of Sally Peak Sandstone Pty Ltd) for a Planning Permit to develop a sandstone quarry (with two active faces) on the property ‘Sally Peak’ with a combined annual production limit of 50,000 cubic metres.

The main quarrying activities will entail the following:
- surface site preparation by soil removal and stockpiling;
- marking out and cutting of sandstone blocks (each block is about 1 cubic metre);
- stockpiling of extracted blocks in quarry area;
- loading trucks with the sandstone blocks; and the
- transport of materials by trucks ranging from 12 to 30 tonne capacity.

This DPEMP provides information on -
1. the present environment of the quarry, including such matters as zoning, land use (current and future), flora, fauna, soils/geology and climate. It also describes the proposed quarry operation in detail including the potential emission sources and operational timetable; and
2. each of the potential environmental issues associated with operating the quarry and associated mitigation measures to address each issue.

**ROLES IN THE APPROVAL PROCESS**

The proposal is a Level 2 Activity defined in Schedule 2 of the Environmental Management and Pollution Control Act 1994 (Tas) (EMPCA). Level 2 Activities must be referred by the Planning Authority (in this case, Glamorgan Spring Bay Council) and to the Environment Protection Authority (the EPA), for assessment under EMPCA. The EPA will use the DPEMP to assess the activity in accordance with the Environmental Impact Assessment Principles provided in S74 of EMPCA. The DPEMP will be referred to other relevant State agencies as part of this process to seek comments in relation to the proposed development. The EPA assessment may generate conditions that are to be included in the Planning Permit that may be issued by Council. The Glamorgan Spring Bay Council (GSBC) will use the DPEMP as the basis for assessing the Development Application and for drafting conditions under which a Planning Permit may be granted.

**STATUTORY RIGHTS TO MAKE REPRESENTATION**

When the EPA is satisfied that sufficient information regarding the development has been received, the Director will provide written notice to the Council to advertise the application. The Council will advertise the application for a 28 day period within which anyone can make a representation.

Representations should be directed to the Glamorgan Spring Bay Council.

General Manager

Glamorgan Spring Bay Council

9 Melbourne Street, Triabunna TAS 7190

(PO Box 6, Triabunna, TAS 7190)

When the representation period has closed, Council will forward any representations received to the EPA which will complete an assessment of the environmental aspects of the project. The EPA takes into consideration the representations and the comments received from other State agencies to which the
DPEMP was referred. An addendum or ‘supplement’ to the DPEMP may be required of the project proponent to respond to representations and comments from referral agencies.

When the EPA has made its decision about environmental aspects of the development it advises Council of its decision, which may include specific conditions that relate to environmental management and mitigation measures. Council then determines whether a Planning Permit will be issued. Following the decision of Council, the proponent and those members of the public whom made a representation have 14 days to appeal the decision of issuing a Planning Permit to the Resource Management and Planning Appeals Tribunal.
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ABBREVIATIONS / GLOSSARY

BOM  Bureau of Meteorology
DA  Development Application
DIER  Department of Infrastructure, Energy and Resources (now DSG)
DPEMP  Development Proposal and Environmental Management Plan
DPIPWE  Department of Primary Industries, Parks, Water and Environment
DRP  Decommissioning and Rehabilitation Plan
DSG  Department of State Growth (ex DIER)
EMPCA  *Environmental Management and Pollution Control Act 1994* (Tas)
EPA  Environment Protection Authority
GSBC  Glamorgan Spring Bay Council
LUPAA  *Land Use Planning and Approvals Act 1993* (Tas)
TIA  Traffic Impact Assessment
WMP  Weed Management Plan

DEFINITIONS

Level 1 activity  the activities approved under DA11123 (*Extractive Industry Processing Stone*) issued by Glamorgan Spring Bay Council (ie sandstone extraction occurring within ML1813P/M and sandstone processing on 76 Sally Peak Road).

Level 2 activity  the activity of sandstone extraction, loading, carting and ancilliary activities (eg rehabilitation works) conducted within The Land for the extraction of 50,000 cubic metres of sandstone per annum.

Quarry  includes the two active faces of Sally Peak North and Sally Peak South as shown in Figure 2-2-2.
EXECUTIVE SUMMARY

PROPOSED ACTIVITY

The Development Proposal and Environmental Management Plan (DPEMP) has been prepared to support a Development Application by Mr Nicholas Ferrar (trading as Sally Peak Sandstone Pty Ltd) for a Planning Permit to develop a sandstone quarry (with two active faces) on the property ‘Sally Peak’ with a combined annual production limit of 50,000 cubic metres.

The quarry should have a lifespan of at least 25 years at full extraction rates for this period, or longer if there are lower extraction levels for some years.

The operation at full production capacity should employ three people on the site.

EXISTING USES AND LOCATION

The Level 2 activity proposed by Sally Peak Sandstone Pty Ltd is located on ‘Sally Peak’ west of Buckland, eastern Tasmania. Sally Peak is operated as a mixed use business enterprise of sheep grazing (meat and wool), conservation (several formal reserves on the property have been established under the Nature Conservation Act 2002), hardwood and pine plantations and quarries.

The property has direct access to the Tasman Highway.

PROPOLENENT

Sally Peak is owned and managed by Mr Nicholas [Nick] Ferrar who is the sole proprietor of Sally Peak Sandstone Pty Ltd.

ENVIRONMENTAL MANAGEMENT MEASURES

Environmental management measures are in place or will be put in place to address the following potential effects to the local environment –

- dust mitigation measures including the wetting of the internal road network when required and the use of an automatic spraying system for load dampening;
- water management systems including the construction of the establishment of two sediment ponds to collect and treat water prior to discharge to the environment; and
- activity monitoring regimes to regularly check performance of the mitigation measures established and to provide opportunities to improve those systems as required.

DECOMMISSIONING AND REHABILITATION

Rehabilitation works will be conducted for those areas that have been quarried and are no longer needed or used for the ongoing operations – an approach of ‘progressive rehabilitation’. The post-quarrying land use may include livestock grazing (by establishment of pasture) or plantation (hardwood and/or pine).

In the event of permanent closure of the proposed development a Decommissioning and Rehabilitation plan will be developed and submitted to the EPA for approval and subsequent implementation by the quarry proponent.
PART 1 – PROJECT BACKGROUND

DESCRIPTION

This project is to develop a sandstone quarry on the property ‘Sally Peak’ with a combined annual production limit of 50,000 cubic metres. The annual production limit will cover expected and future market conditions and potential future specific projects (e.g., large orders for hotel facades). The extraction of sandstone blocks will be from two ‘quarry faces’ (Figures 1-1 and 1-2).

For ease of discussion, assessment and management the two ‘faces’ have been referred to as the below names which are spatially shown in Figure 2-2-2:

1. Sally Peak South; and
2. Sally Peak North.

The Quarry should have a lifespan of at least 25 years at full extraction rates for this period, or longer if there are lower extraction levels for some years.

The operation at full production capacity should employ three people on the site.

PROPOSED INFORMATION

Sally Peak is owned and managed by Mr Nicholas [Nick] Ferrar who is the sole proprietor of Sally Peak Sandstone Pty Ltd. Sally Peak is a mixed use business enterprise of sheep grazing (meat and wool), conservation (several formal reserves on the property established under the Nature Conservation Act 2002), hardwood and pine plantations and quarries (one for sandstone block extraction and two others for dolerite gravel extraction).

The dolerite gravel quarries are of no relevance to this application for a Level 2 activity and have accordingly not been shown on the attached maps or within the text of the Development Application. The property has direct access to the Tasman Highway which is different to the access to be used by the sandstone extraction activity.

The company and owners details are:

Mr Nick Ferrar
Director, Sally Peak Sandstone Pty Ltd
ACN: 122 742 590
168 Sally Peak Rd Buckland TAS 7190
Mobile: 0419 545 046
Email: nick.ferrar@elders.com.au

RATIONAL AND ALTERNATIVES

Quarry related activities are not uncommon in the area around Buckland owing to the diversity and quality of parent materials within the landscape (see Figure 2-2-1). Quarry products appear to be mainly construction materials comprising dolerite derived gravels and rock, sands and sandstone.

The main market for the sandstone to be extracted is the international construction market which is growing, especially within south-east Asian countries where sandstone has become difficult to source locally. Traditional suppliers to the international market, such as those in Queensland, have reduced resources due to substantial local depletion.

While there are other sources of sandstone in the region and Tasmania generally, the quality, colouration and strength of the sandstone on Sally Peak meets the very high standards demanded by the international – the product is also associated with the growing ‘Tasmania’ brand. Sally Peak South contains a white to pale yellow coloured sandstone product while Sally Peak North quarry contains a richly streaked yellow to white sandstone that highlights the layered sedimentation profile. There are markets for both products – with the
benefit of two faces on the one property meaning that ‘one activity’ can supply two different types of product based on the prevailing demand for hardness and colouration.

**CUMULATIVE IMPACTS AND ACTIVITY DELINEATION**

The EPA requested a discussion on the cumulative impacts and ‘regulatory delineation’ of the Level 2 activity from the adjacent Level 1 activity, including the sandstone processing facility.

**Level 1 Activity**

The sandstone processing facility to the west of the dwelling on 76 Sally Peak Road (Figure 4-4-5) is ancilliary to the Level 1 quarry on ‘Sally Peak’ – it only sources sandstone from the Level 1 sandstone quarry within ML1813P/M (Figures 1-2 and 2-2-2). The processing facility at 76 Sally Peak Road is of no relevance to this Level 2 activity as it is not sourcing material from the Level 2 activity nor is it ancilliary to it.

The Level 1 activity on ML 1813P/M is an existing source of noise, dust, traffic and surface water flows. Noise, dust and water management measures generated at the pit of the activity and processing facility are required of this activity in the existing permit issued by the Glamorgan Spring Bay Council. The manner in which Council regulates its permit is a matter for Council.

Traffic generated by the Level 1 activity utilises the same road network within the Mining Lease (1991P/M) and Access onto the Tasman Highway as the Level 2 activity.

**Level 2 Activity**

The Level 2 activity is focused on the extraction, carting and exporting (eg international and possibly to mainland Australian markets) of sandstone blocks of 0.5 to one cubic metres in size. Off-cuts of sandstone will only be sold locally if and when it becomes available and there is a demand for the product. It is likely that off-cuts will be produced at a minimal rate as the blocks are cut to the desired size prior to extraction – the sandstone is not brittle and breakages of the blocks once cut are very rare.

The assessment of traffic generation and noise for this Level 2 activity has considered the interaction of the two activities through the Traffic Impact Assessment process (Attachment 3).

Surface water management has been addressed specifically for the Level 2 activity by the installation of two sediment ponds, one for each face, which are separate to the Level 1 activity.

**Delineation of activities**

The Mining Lease boundary between ML1813P/M and its surrounding ML1991P/M will be accurately surveyed in the field and prominent markers installed to delineate the areas within which extractive activities can occur for each permit.

Vehicles accessing the sandstone quarry in ML1813P/M will do so through ML1991P/M – this is inevitable because the former is encapsulated by the latter. Vehicles accessing ML1813P/M will comply with the requirements of the permit issued for the Level 2 activity as it should prevail over the requirements for the Level 1 activity.

The reporting of volumes extracted for both Level 1 and 2 activities is separate and will therefore be completed by each of the quarry operators within the timeframes and format stipulated by MRT.

**MINING LEASE**

Both faces are covered by a Mining Lease (see Figure 1-1, 1991P/M) which extends to the Tasman Highway access. The location of each face within the ML is shown in Figure 2-2-2.
‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

Figure 1-1: Mining Lease Location and Access
‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

Figure 1-2: Proposed Sally Peak (North and South) quarry faces within the Mining Lease
QUARRY [FACE] DETAILS

Sally Peak South

Physical address – RA 168 Sally Peak Road, Buckland TAS 7190 (property ‘Sally Peak’)
PID – 5983405 and 3213407
Land Title – 100065/1 and 164792/2
Mineral Category – 3. Construction Materials
Planning Zones – Rural in the Glamorgan Spring Bay Planning Scheme 1994 (Figure 3-1-1)

Sally Peak North

Physical address – Tasman Highway, Buckland TAS 7190 (property ‘Sally Peak’)
PID – 5983405
Land Title – 100065/1
Mineral Category – 3. Construction Materials
Planning Zones – Rural in the Glamorgan Spring Bay Planning Scheme 1994 (Figure 3-1-1)

HOURS OF OPERATION

Operating hours for the Quarry (both faces) will be –

- 0700 to 1900 hrs Monday to Friday;
- 0800 to 1600 hrs on Saturday; and
- closed on Sunday and public holidays1.

QUARRYING PROCESS

The main quarrying activities entail the following:

- surface site preparation by soil removal and stockpiling;
- marking out and cutting of sandstone blocks (each block is about 1 cubic metre);
- stockpiling of extracted blocks in quarry area;
- loading trucks with the sandstone blocks; and the
- transport of materials by trucks ranging from 12 to 30 tonne capacity.

There is no crushing or blasting at the Quarry.

The sandstone bedrock is relatively close to the soil surface. The ‘shallow’ pits associated with the sandstone 'block extraction' method is highlighted by the Level 1 activity occurring in ML 1813P/M (Plate 1A). The pit is typically square due to the extraction of blocks. There is negligible dust generation from the process owing to the damp nature of the parent bedrock, addition of water to the cutting blade to keep the material damp and the coarseness of the sandstone being cut (particles are very small so are not wind-blown).

1 Commitment 1: Operating hours will be – 0700 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays.
Figure 2-2-1: Surrounding Land Use and Other Quarry Operations
Figure 2-2-2: Proposed Sally Peak Quarry Face Operating Areas

'SALLY PEAK' SANDSTONE QUARRIES - DP&EMP

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: BUCKLAND 5428
CLIENT: NICHOLAS FERRAR

Operation Area (Year 5)
Proposed New Mining Lease

Existing Mining Lease - 1813P/M (Excluded)
Plate 1. Block extraction methods and cutting process

A. Level 1 activity pit showing layers of block extraction and block cutting pattern

B. Moderate-sized sandstone blocks from the Level 1 activity

C. Excavator fitted with cutting saw showing block cutting method

D. Close-up of cutting blade showing damp sand produced by the process (yellow arrow) and minimal dust generation (red arrow)

PRODUCT

The following products generated from the quarry will include:

- large (one cubic metre) sandstone blocks;
- moderate (0.5 to one cubic metre) sized sandstone blocks; and
- sandstone off-cuts.

Large and moderate sized sandstone blocks are largely destined for the international market where the blocks will be transported to Bell Bay for shipping. Some moderate sized blocks may be used within the local market or sold into the mainland Australian market (eg. Melbourne) when sale prices are high – to offset the cost of shipping.

Sandstone off-cuts will be sold into the local Tasmanian market for decorative features (eg statues, bird baths, planter stands), paving and other uses. As these are likely to be in small volumes they will be stockpiled within or adjacent to each pit until such time that there is sufficient volume to justify the transport costs for
a truck to remove them from the quarry. The production and sale of off-cuts will be included within the reporting of the volumes extracted for the activity.

**MACHINERY**

The machinery to be used in the quarry operation includes –

- Excavator PC200-5 Komatsu 6 cylinder turbo-charged diesel engine (complies with TIER3 exhaust standards super-low noise certificate by Japan’s MLIT compliance with EU stage two noise regulation) fitted with one of two rock saws depending upon the sandstone strength -
  - Rock Saw 1 – Hydraulic driven tungsten rock saw with Tungster C10’s and driven by a Komatsu final drive, -5 (cutting depth of 800 mm and width of 90 mm)
  - Rock Saw 2 – Hydraulic driven tungsten rock saw with Tungster C10’s and driven by a Komatsu final drive, -5 (cutting depth of 1,000 mm and width of 80 mm)
- Loader – Caterpillar 920 wheel loader, 4 cylinder non-turbo diesel, 3304; and
- Truck – Isuzu 650 flat tray, 6 cylinder non-turbo diesel.

There is no fixed machinery or equipment proposed for the activity at either face.

**MAP AND SITE LAYOUT**

The two ‘faces’ which comprise the Quarry are spatially shown in Figure 2-2-2:

1. Sally Peak South; and
2. Sally Peak North.

**Sally Peak North**

The approximate layout of this quarry face is shown in Figures 2-2-4a and 2-2-4b. This face is located to the immediate west of the access road (Figure 2-2-4a) and currently has no drainage infrastructure. The strategy for block extraction at this face is to work completely across a pit (see Figure 2-2-4a) and then to establish a second bench within the pit. Subsequent benches will be added as the quarrying progresses. The quarrying is likely to reach a final depth of approximately 10 m and have 4-5 benches.

Each bench will be about 2-3 m deep with a 5m buffer applied to the previous bench to ensure that bench height overall for any one bench is kept to less than 3m high (depicted as ‘bench width of 5m’ in Figure 2-2-4a). A new sediment pond will be constructed (see Figure 2-2-4a for location and drainage to be directed to the pond) based on the parameters and water assessment/flow calculations in Attachment 1.

**Sally Peak South**

The approximate layout of this quarry face is shown in Figures 2-2-5a and 2-2-5b. The strategy for block extraction at this face is to work completely across a pit (see Figure 2-2-5a) and then to establish a second bench within the pit. Subsequent benches will be added as the quarrying progresses. The quarrying is likely to reach a final depth of approximately 10 m and have 4-5 benches.

Each bench will be about 2-3 m deep with a 5m buffer applied to the previous bench to ensure that bench height overall for any one bench is kept to less than 3m high (depicted as ‘bench width of 5m’ in Figure 2-2-5a). A new sediment pond will be constructed (see Figure 2-2-5a for location and drainage to be directed to the pond) based on the parameters and water assessment/flow calculations in Attachment 1.

**EXISTING SITE INFRASTRUCTURE AND SERVICES**

All of the existing services and infrastructure elements will be retained or modified under the new activity to increase annual production levels and include the following –
Quarry Access
The Access Road through to the Tasman Highway provides the best possible route into the quarry (Figures 1-1 and 4-13-1). The quarry faces are connected to each other by a gravel road which will be maintained in a good state of repair for the life of the Level 2 activity. The road will be improved in sections to establish culverts and a harder all-weather access track suitable for use by heavy vehicles.

Car Parking
A compacted gravel area outside the extraction zone of Sally Peak South will be installed to allow parking for 3 vehicles.

Access Road
The quarry has an all-weather access road from the Tasman Highway, however the junction will need to be upgraded (see Traffic Impact Assessment and Management in Part 4).

Water Supply
Water for road/surface dampening can be accessed from the existing (and/or new) sediment settling dam or from a water cart filled at Buckland.

Electrical Power Supply
The quarry location does not have nor need mains power.

Telecommunications
The site does not have nor need a telephone connection. The site has 3G mobile coverage.

PROPOSED NEW INFRASTRUCTURE
New infrastructure required to service the quarry is listed below –

- Two sediment ponds; and
- Perimeter drains and bunding around each of the quarry faces.

REGIONAL CONTEXT
The Mining Lease (1991P/M) occurs to west of the rural Buckland township (Figure 2-3).
Most of the land adjoining the Mining Lease (which is restricted to the Sally Peak property) is private freehold with only small parcels allocated to public land.
Figure 2-2-4a: Proposed Quarry Plan – Sally Peak North (at year 5)

MINING PLAN WILL INVOLVE REMOVING LAYERS OF APPROX 1 TO 2 METERS DEPTH ACROSS QUARRY FLOOR SURFACE

QUARRY PIT APPROX 7m BELOW NATURAL SURFACE AT YEAR 5

APPROXIMATE QUARRY AND CLEARING EXTENT AT YEAR 5: 1.6ha

INITIAL QUARRYING AREA (QUARRYING TO BEGIN TO SOUTH AND EAST)

SITE VEHICLE STORAGE AND BLOCK STORAGE AND LOADING

DRAINAGE FROM QUARRY PIT INTO VEGETATION

SITE ACCESS TO SALLY PEAK SOUTH

APPROXIMATE LOCATION OF SEDIMENTATION DAM

APPROXIMATE LOCATION OF SEDIMENTATION DAM

DRAIN

SURFACE DRAINAGE

BUNDING AROUND QUARRY FORMED FROM OVERTBUREN AND TOP SOIL

SURFACE DRAINAGE

SURFACE DRAINAGE

SURFACE DRAINAGE

SURFACE DRAINAGE

BENCH SURFACE 5m WIDE

LOWER QUARRY FACE

UPPER QUARRY FACE

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<td>Figure 2-2-4a: Proposed Quarry Plan – Sally Peak North (at year 5)</td>
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FIGURE 2-2-4b: CROSS SECTION OF SALLY PEAK NORTH – (SEE FIGURE 2-2-4a)
Figure 2-2-5a: Proposed Quarry Plan – Sally Peak South
(at year 5)

MINING PLAN WILL INVOLVE REMOVING LAYERS OF APPROX 2 TO 3 METERS DEPTH ACROSS QUARRY AREA

APPROXIMATE QUARRY EXTENT AT YEAR 5 - 2.4ha

MINING LEASE 1813P/M EXCLUDED FROM OPERATION

SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: BUCKLAND 5428
CLIENT: NICHOLAS FERRAR
DATE: 12TH MARCH 2015

Base data by TASMAP. © State of Tasmania
Base image by Google Earth. © Google Earth

Figure 2-2-5a: Proposed Quarry Plan – Sally Peak South
(at year 5)
FIGURE 2-2-5b: CROSS SECTION OF SALLY PEAK SOUTH – (SEE FIGURE 2-2-5a)
Figure 2-3: General Site Map (Regional)
PART 2 - PROJECT AREA AND EXISTING ENVIRONMENT

CLIMATE

The two Bureau of Meteorology (BOM) stations with the most ‘site’ relevant climate data are -

1. Site name: ORFORD (AUBIN COURT), Latitude: 42.55 °S Longitude: 147.88 °E
2. Site name: CAMPANIA (KINCORA), Latitude: 42.69 °S Longitude: 147.43 °E

Buckland and nearby Orford (Graph 1) typically have cool to cold winters and mild to warm summers. Buckland experiences hotter maximum temperatures in summer owing to the lack or minimal sea breezes.

Rainfall at Orford is generally consistent throughout the year on average (Graph 2), however rainfall in the summer months may be intense over a short period of time – brought by thunderstorms or an ‘east coast’ low pressure system. These can affect Buckland but their intensity tends to be less than for Orford due to hilly topography (‘The Thumbs’) between Buckland and the coast.

Wind patterns at Buckland are more like those at Campania, being an inland town away from the direct effects of the coastal sea breezes and on-shore (easterly) rain patterns. The wind rose for 3pm at Orford shows typical north-east and south-east coastal on-shore winds while Campania shows a more typical wind pattern for inland Buckland – predominantly morning northerly to north-westerly winds and variable winds in the afternoon (either south-westerly [winter pattern], northerly [summer pattern] or westerly [winter and spring] subject to the prevailing weather pattern).

Graph 1. Mean maximum and minimum temperatures for Orford, eastern Tasmania

![Graph 1](image-url)
Graph 2. Mean monthly rainfall for Orford, eastern Tasmania

GEOLOGY AND SOILS
The bedrock geology of both quarry faces is Triassic sandstone overlain by a thin to moderately thick (<0.5m) sandy-loam soil derived from in situ weathering of the bedrock. A minor clay component (and occasional iron pan) occurs between the soil and bedrock in some locations. Dolerite typical of the region occurs to the west of the quarry faces, in the western extent of the Mining Lease (Figure 3-1-5).

LAND CAPABILITY
The Land Capability recorded by DPIPWE in the Mining Lease and surrounds is 5 with small areas of 6 (Figure 3-1-4). The activity will not impact on land with a high agricultural potential (ie prime or significant agricultural land within the meaning of the State Policy on the Protection of Agricultural Land 2009).

EXISTING LAND USES
Sally Peak is operated as a mixed use business enterprise of sheep grazing (meat and wool), conservation (several formal reserves on the property have been established under the Nature Conservation Act 2002), hardwood and pine plantations and quarries.

SURFACE WATER
There are no streams or natural watercourses within or immediately adjacent to either quarry face (Figure 2-3).
Figure 3-1-1: Glamorgan Spring Bay Planning Scheme 1994 - Zones and Special Areas

'VerSALLY PEAK' SANDSTONE QUARRIES - NOI

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: BUCKLAND 5428
CLIENT: NICHOLAS FERRAR
DATE: 21st SEPTEMBER 2014
‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

Figure 3-1-3: Site and Surrounding Title References

PROPOSED NEW MINING LEASE

NORTHERN TITLE
PID 5983405
TITLE 100065/1

SOUTHERN TITLE
PID 3213407
TITLE 164792/2

PRIVATE PARCEL
PURCHASE CONTRACT

AUTHORITY LAND
(CROWN LAND)

TASMAN HIGHWAY

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: BUCKLAND 5428
CLIENT: NICHOLAS FERRAR

DATE: 3rd FEBRUARY 2015

Base data by TASMAP. © State of Tasmania
Base image by Google Earth. © Google Earth
LAND CAPABILITY
CLASS 4

LAND CAPABILITY
CLASS 6

PROPOSED NEW
MINING LEASE
GENERALLY ON
CLASS 5 LAND

LAND CAPABILITY
CLASS 5

LAND CAPABILITY
CLASS 6

LAND CAPABILITY
CLASS 4

'SALLY PEAK' SANDSTONE QUARRIES - DP&EMP

Figure 3-1-4: Site and Surrounding Land Capability
‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

Figure 3-1-5: Site and Surrounding Geology (1:250000 - MRT)

Jd - JURASSIC
DOLERITE (THOLEIITIC) WITH LOCALLY DEVELOPED GRANOPHYRE

Rq - TRIASSIC
DOMINANTLY QUARTZ SANDSTONE
Rose of Wind direction versus Wind speed in km/h (01 Aug 1968 to 30 Sep 2010)

ORFORD (AUBIN COURT)

Site Ref: 396373 / Datum: AHD / Elevation: 34m

An asterisk (*) indicates that count is less than 0.5%
Other important info about this analysis is available in the accompanying notes.

9 am
14719 Total Observations
Calm 23%

Rose of Wind direction versus Wind speed in km/h (01 Aug 1968 to 30 Sep 2010)

ORFORD (AUBIN COURT)

Site Ref: 396373 / Datum: AHD / Elevation: 34m

An asterisk (*) indicates that count is less than 0.5%
Other important info about this analysis is available in the accompanying notes.

3 pm
14534 Total Observations
Calm 31%
BIODIVERSITY
An ecological assessment of the site located no threatened flora, fauna or ecological communities present at either quarry face location. The assessment was conducted in December 2014 and January 2015 by Van Diemen Consulting Pty Ltd.

The ecological assessments for this activity, which were conducted during the peak flowering periods of species of focus (those listed in Figure 4-7-2) – December 2014 and February 2015 – focused principally on the ‘native’ vegetation areas in the Mining Lease. A ‘meander’ search method was applied by two people with more intense searching in areas of higher understorey diversity within native vegetation.

Vegetation
The only native vegetation communities near either quarry face are (Figure 4-7-1) –

- *Eucalyptus amygdalina* dry forest and woodland on sandstone (TASVEG 3 mapping – DAS); and
- *Eucalyptus amygdalina* dry forest and woodland on dolerite (TASVEG 3 mapping – DAD).

The former vegetation type is a threatened community listed on the *Nature Conservation Act 2002* however neither community will be impacted upon by the Level 2 activity – no native vegetation is to be cleared for quarrying, road construction/upgrade, block carting and/or loading or other infrastructure installation (eg sediment pond and drain construction).

No ecological communities listed under section 181 of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* occur in Mining Lease 1991P/M.

Threatened flora species
Several flora species of conservation significance are recorded in the Natural Values Atlas for the Buckland region (Figure 4-7-2).

It was noted that the ‘native vegetation’ areas (see Figure 4-7-1) predominantly occur on a sandstone derived sandy soil +/- over a dolerite bedrock but do not occur on a dolerite derived soil. The Buckland area is not renowned for threatened flora species growing on a sandstone substrate, with most species in the region occurring in riparian (eg Prosser River ‘riparian scrub’), dolerite loams/gravels (eg. *Leucochrysum albicans* var. *tricolor*, *Vittadinia* species), dry north-facing or steep dolerite slopes (eg *Teucrium corymbosum*) or basalt derived (eg. *Dianella amoena*) substrates. It is therefore not unusual that no threatened flora species were observed during the site surveys.

Notwithstanding this, species occasionally found within hardwood plantation due to germination following favourable ground disturbance events (eg *Pimelea curviflora* var. *gracilis* and *P. flava* ssp. *flava*) were specifically searched for within those areas of hardwood plantation that will and may be affected by the activity (eg. by clearance or disturbance from surface water discharging from sediment ponds). None were observed.

In summary, no flora species listed on the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* or on the Tasmanian *Threatened Species Protection Act 1995* were recorded within or adjacent to the areas to be quarried.

Threatened fauna species
Several mammal species of conservation significance have been recorded in the Natural Values Atlas as occurring in the Buckland region (Figure 4-7-3) – mainly roadkill records of spotted-tailed quoll and Tasmanian devil. None are recorded in the NVA as occurring within the Mining Lease 1991P/M. No dens or potential dens (eg wombat burrows) of either species were observed within the areas to be quarried or Mining Lease generally.
VEGETATION COMMUNITIES (TASVEG 3.0)

Dry Eucalypt Forest and Woodland
- **DAD** Eucalyptus amygdalina forest and woodland on dolerite
- **DAS** Eucalyptus amygdalina forest and woodland on sandstone

Agricultural, Urban and Exotic Vegetation
- **FAG** Agricultural land
- **FPF** Pteridium esculentum fernland
- **FRG** Regenerating cleared land
- **FPL** Plantations for silviculture

**VEG CODE AREA (ha)**
- DAD 1.2
- DAS 0.5
- FAG 9.6
- FPF 0.4
- FPL 69.9
- FPU 0.1
- FRG 0.1

'SALLY PEAK' SANDSTONE QUARRIES - DP&EMP

Figure 4-7-1: Vegetation Communities in Mining Lease

**DATUM:** GDA94  
**GRID:** MGA Zone 55  
**TASMAP:** BUCKLAND 5428  
**CLIENT:** NICHOLAS FERRAR  
**DATE:** 3rd FEBRUARY 2015
Figure 4-7-2: Threatened Flora near the Mining Lease (NVA data)
Figure 4-7-3: Threatened Mammals near the Mining Lease (NVA data)
‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

Figure 4-7-4: Other Threatened Fauna near the Mining Lease (NVA data)
Few other fauna species of conservation significance have been previously recorded in the Natural Values Atlas in the Buckland region (Figure 4-7-4). There is no habitat for other fauna species that occur in the region such as swift parrot (no nest potential trees, no foraging species) and chaostola skipper (no Gahnia species).

**WEEDS**

No Declared Weeds (defined by the *Weed Management Act 1999*) were recorded in the area to be quarried over the next 10 years, the immediate vicinity of either quarry face or along the access road. Small patches of gorse (*Ulex europaeus*), horehound (*Marrubium vulgare*) and Californian thistle (*Cirsium arvense*) occur within the Mining Lease, mainly in the hardwood plantation. These have not been mapped as there is no immediate risk to their spread by this activity.

Common pasture and disturbed area weeds occur in the areas to be quarried including scarlet pimpernel (*Anagellis arvensis*), variegated thistle (*Silybum marianum*), milk thistles (*Sonchus* spp.) and spear thistle (*Cirsium vulgare*).

**PHYTOPHTHORA CINNAMOMI**

Root-rot fungus (*Phytophthora cinnamomi, PC*) is a soil borne pathogen that causes death in a wide range of native plant species often leading to floristic and structural changes in susceptible plant communities.

PC evolved in tropical areas and requires warm, as well as moist, soils for at least some time of the year to produce sporangia and release zoospores. Only those areas of the State that are below an altitude of about 700m above sea level have soils sufficiently warm for this to occur. Vegetation types below 700m elevation may not be wholly or partly susceptible if closed canopies keep soil temperatures cool during the summer months, such as tall wet eucalypt forests over rainforest species, or rainforest communities.

PC can be spread through the movement of infected soil or plant material by people or animals, and can even be transported by water percolating through soil or via surface water, such as in creeks and other drainage lines. Transport of PC to new areas is usually through soil/dirt adhering to vehicles and machinery. Transport into non-roaded areas of high human usage is mainly via bushwalking items such as tents or footwear, but can also occur by bird activity. The fungus is not always evident in the landscape as it attacks root systems of susceptible species, usually causing death in new growth or the yellowing of leaves followed by loss of vigour and, in most cases, death. The fungus can inhabit the root systems of resistant species without any visible signs of infection within the host plant.

Samples to directly survey for PC were not collected because no susceptible species (eg *Epacris impressa, Astroloma humifusum, Pulteneae daphnoides* and *Acrotriche serratula*) exhibited any signs of infection.
PART 3 - PLANNING ASPECTS

PLANNING SCHEME

‘Sally Peak’ is located within the Glamorgan Spring Bay Municipality which operates under the Glamorgan Spring Bay Planning Scheme 1994. The land is zoned Rural (Figure 3-1-1) and the land titles which will support the activity and associated works are 164792/2 and 100065/1 (Figure 3-1-3).

The development does not involve the construction or demolition of any buildings.

Scheme Zoning

The land upon which the development will occur is zoned Rural (Figure 3-1-1).

Access

Pursuant to the Scheme an existing access shall be deemed to be a new access where it is required to service:

- a change in use or development; or
- an intensification of an existing use resulting in a material change in the use of the access.

A traffic impact assessment is a study to ascertain for a proposed use or development:

a) the impact on the road network including whether the road network can accommodate the additional vehicles without decreasing safety standards; and

b) the land use, amenity and environmental implications including whether the traffic would create additional noise and intrusion.

A TIA (Attachment 3) recommended the following –

- the Access Road – Tasman Highway junction be upgraded to satisfy the requirements of the IPWEA Rural to Sealed Roads design;
- loaded trucks should turn westwards (left) on exit from the Access Road and not eastwards (Right); and
- permanent signs (requiring the approval of the road authority) should be established at locations to the east and west of the Access Road to advise drivers of trucks entering and of concealed entrances.

Signage

A business sign is to be erected near the access onto the Tasman Highway. The signage to be erected is within the Scenic Corridor.

The wording of the sign is shown in Plate 2A. The sign will be erected on a ‘sign board’ constructed from sandstone blocks (see Plate 2B) obtained from the Level 1 quarry activity on Sally Peak. The sign board is to be a maximum of 10m long x 2m high and 1m wide.

The sign will be illuminated by two solar powered lights affixed to the sandstone sign board above the sign, directing light downwards onto the sign itself and the ground. The sign will be bolted to the sign board.
Plate 2. Images of the sign and sign board construction material

A. Sign wording and colours

B. Sandstone colouration and style of block work for the sign board for the sign
PART 4 - POTENTIAL ENVIRONMENTAL EFFECTS

FLORA AND FAUNA

Surveys of ecological attributes of the areas to be quarried within 5 years, and the Mining Lease generally, located no threatened flora, fauna or ecological communities at either quarry face location. The surveys were conducted in December 2014 and January 2015 by Van Diemen Consulting Pty Ltd. There are likely to be negligible impacts to flora and fauna as the activity is located in plantation (pine) or is already cleared land (improved or degraded pasture) adjacent to plantation (pine and hardwood). Weeds will be managed at the quarry via a weed spraying program which will be formalised via a Weed Management Plan which will be prepared during the commissioning stage of both quarry faces.

SURFACE MANAGEMENT

Surface water will be managed using drains and bunding to direct surface flows to specific sediment ponds to enable sediment to be captured prior to discharge to the environment.

At year 5 approximate drain and bunding locations are shown in Figures 4-2-1a and 4-2-1b. These may be altered slightly as the quarry faces may not be that large after 5 years. For Sally Peak South a maximum 1.6 hectares disturbed has been assumed after 5 years while for Sally Peak North this is a slightly larger maximum disturbed area of 2.4 hectares (4 hectares total for both quarry faces).

Two sediment ponds will be constructed in accordance with the parameters (volumes based on a 4 month cleanout frequency for both ponds) outlined in Attachment 1, and as shown in Figures 4-2-1a and 4-2-1b.

After year 5 there should be areas at one or both quarry faces that can be rehabilitated meaning that the maximum disturbed areas can be maintained at or below the maximum disturbed extent from which the ‘disturbed area’ surface water flows have been calculated.

Sediment pond location

For Sally Peak North water discharged will be into plantation (hardwood) where there are no streams or other watercourses. For Sally Peak South water discharged from the sediment pond will drain into bracken-fernland and plantation (hardwood) – the discharge location from the pond is more than 80m upslope from a Class 4 stream (based on the Forest Practices Code) which provides considerable slope and associated vegetation for water to be further slowed prior to its entry into the stream, if this was to occur.

Sediment pond sizing, design and cleanouts

In order to detain and treat stormwater runoff from the 1.6 ha disturbed catchment a sediment basin totalling 778 kL is required for Sally Peak North – the settling zone volume is 377 kL and the sediment zone volume is 401 kL is based on an annual cleanout program. A sediment pond totalling 867 kL is required for Sally Peak South based on a maximum disturbed 2.4 ha catchment – the settling zone volume is 565 kL and the 302 kL sediment storage zone volume is based the removal of captured sediment every 4 months.

For ease of management, each sediment pond will cleaned out on a four monthly basis. The collected sediment will be mixed with stockpiled top soil for progressive rehabilitation of disused quarry areas.

The general design of the sediment ponds is provided in Attachment 1.

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2 Commitment 2: A Weed Management Plan will be prepared during the commissioning stage of both quarry faces for approval by the EPA.

3 Commitment 3: For ease of management each sediment pond will cleaned out on a four monthly basis. The collected sediment will be mixed with stockpiled top soil for progressive rehabilitation of disused quarry areas.
Figure 4-2-1a: Proposed Surface Drainage from Sally Peak North (at year 5)
'SALLY PEAK' SANDSTONE QUARRIES - DP&EMP

Figure 4-2-1b: Proposed Surface Drainage from Sally Peak South (at year 5)
GROUNDWATER MANAGEMENT

There has not been any groundwater encountered from the existing Level 1 activity and there is not likely to be any encountered for the level 2 activity as the locations are elevated.

NOISE EMISSIONS

Potential noise sources

Potential sources of noise from this activity are (see also Figure 4-4-1) –

- Initial establishment of the quarry face (vegetation and topsoil stripping);
- Rock cutting, moving and loading;
- The movement of machinery within and between the quarry faces; and
- Road (gravel) use in and next to the quarry.

The sandstone blocks are to be cut in situ using an excavator fitted with a cutting blade (water is applied to minimise dust and noise) and are then stockpiled for loading onto trucks. The wetted blade and slow rotation of the blade means that noise emissions are very low.

No blasting or crushing will occur at either quarry face.

Nearest sensitive uses

The 300m, 750m and 1000m SRAD ‘buffers’ suggested by the Tasmanian Quarry Code of Practice are shown in Figures 4-4-4 and 4-4-5 for the existing Level 1 activity and locations for the Level 2 activity respectively. The 750 to 1000m SRAD is not relevant to the activity as no blasting is to be conducted.

No ‘sensitive uses’ fall within the 300m SRAD which is generally applied to quarrying activities where there is no crushing or blasting.

Two houses occur within the 300-750m SRAD - one of which is owned by a neighbour whom uses sandstone from the Level 1 activity (and owns and operates the sandstone processing facility) and the other is owned by the quarry proponent.

Noise survey and assessment

Noise measurements were conducted by Mr Pearu Terts in March 2015 at Sally Peak North, Sally Peak South and at 5 other locations, with the quarry operating not operating, to obtain ambient, background and operating noise levels. Of importance is that Mr Terts considered several locations around the activity as part of the assessment (see Figure 4-4-2) which included locations (Figure 4-4-3) near or adjacent to existing sensitive uses in other ownership.

Noise assessment and management

The noise assessment (Attachment 2) found that -

1. The quarry operations were not heard at a location near the nearest resident. The Quarry Code of Practice requirements are likely to be met by the activity.
2. There have been no noise complaints when operated by the previous owner [reference to the existing Level 1 activity].
3. The quarry truck traffic (48 movements maximum) may increase the noise level from about Leq = 40 dB(A) to 56 dB(A) at the house on the second corner of the eastern access route (5826 Tasman Highway, Buckland, - Location 7 in Figure 4-4-2)
Figure 4-4-1: New potential noise source locations
Figure 4-4-2: Present Noise Monitoring Locations and Sensitive Receptor Locations

- Location 1 & 8
- Location 2
- Location 3
- Location 4
- Location 5 & 6

NOISE MONITORING RESULTS PROVIDED IN SALLY PEAK SANDSTONE PTY. LTD. QUARRY NOISE ISSUES REPORT (2015) (SEE ATTACHMENTS)

‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

DATUM: GDA94
GRID: MGA Zone 55
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Figure 4-4-3: New Quarry Extent and Sensitive Receptor Locations within 1km
Figure 4-4-4: Quarry Code of Practice Buffer Distances – Existing Layout

'‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: RUCKLAND 5425
CLIENT: NICHOLAS FERRAR
DATE: 3rd FEBRUARY 2015

Base data by TASMAP. © State of Tasmania
Base image by Google Earth. © Google Earth
"SALLY PEAK" SANDSTONE QUARRIES - DP&EMP

Figure 4-4-5: Quarry Code of Practice Buffer Distances – Proposed Layout
4. Complaints are unlikely from the noise of one truck every 14 minutes (maximum) in a working rural setting.

It is the opinion of Mr Terts that

‘...one truck every 14 minutes is unlikely to generate complaints from the occupants of the house at location 2 [ie. 5826 Tasman Highway, Buckland, - Location 7 in Figure 4-4-2] because of the rural noise climate (tractors in the fields, chain saws etc.). It is not as if there is an increase of continuous noise. The truck noise event passes and then there is quiet. A suitable noise barrier fence along the boundary can be erected if required, the height to be determined on the basis of noise measurements.’

No immediate mitigation measures are deemed to be necessary by the quarry operator at this stage based on the noise assessment. If noise matters become an issue then mitigation measures, subject to the type and extent of the noise nuisance, will be considered and implemented by the quarry proponent. These may include, for example, additional muffling of the excavator/loader engine and the erection of appropriate fencing/structures near the residence at 5826 Tasman Highway where it is adjacent to the Access Road.

AIR EMISSIONS

Potential air emission sources

Potential sources of dust from the Level 2 activity are –

- The removal of covering vegetation and the stripping of topsoil to access the sandstone bedrock;
- The movement of machinery within and between the quarry faces; and
- Access road (gravel) use in and next to the quarry faces and at its junction with the Tasman Highway.

The cutting of the sandstone doesn't create ‘dust’ as the blades are wetted during the cutting process (see Plate 2D), the parent material is damp when in situ and the sand liberated by the cutting process is very coarse. Furthermore, the property internal roads are within hardwood plantation and the trees contained therein act to trap any dust from road usage.

The sandstone blocks will be hauled on a truck without a tarpaulin as the blocks themselves do not have any ‘dust’ generating potential – the sandstone is hard, non-flaky and not brittle. There is the potential for dust to be generated from the usage of the Access Road, which is gravel and dirt.

Measures that will be used to suppress dust if it does occur (eg during periods of strong northerly winds in summer) include the following industry environmental practices for quarries:

- Watering of internal roads as required during dry and windy conditions;
- Use of water to wet the cutting blade during sandstone cutting; and
- Minimising the geographic extent of areas of exposed soil.

---

4 Commitment 4: If noise matters become an issue then mitigation measures, subject to the type and extent of the noise nuisance, will be considered and implemented by the quarry proponent.

5 Commitment 5: Measures that will be used to suppress dust include the following industry environmental practices for quarries: Watering of internal roads as required during dry and windy conditions; Use of water to wet the cutting blade during sandstone cutting; and Minimising the geographic extent of areas of exposed soil.
DANGEROUS SUBSTANCES AND CHEMICALS
Fuel and oil are used in the activity to operate and maintain functional machinery. No chemicals, fuels or oils are stored on site (either quarry face) overnight and refuelling is carried out using a mobile bund\(^6\).

One hydrocarbon spill kit is to be stored at each quarry face and staff trained in how to use it in the event of a spillage\(^7\). Spill kits will be maintained and replaced as necessary by the quarry operator.

LIQUID EFFLUENT
There is no toilet or any other amenities provided at the quarry.

SUSTAINABILITY AND CLIMATE CHANGE
Any use of machinery and vehicles will cause greenhouse gas emissions. Machinery owned and operated by the quarry proponent is well maintained which ensures maximum fuel/oil efficiency\(^8\).

LANDSCAPE AMENITY
A GIS-based analysis utilising contours, topography and slope was conducted to determine the level of ‘visibility’ impact the quarry activity may have on the skyline/ridgeline and when viewed from public roads.

The degree of ‘visibility’ of the quarry face locations was determined using a bare earth model (land terrain form without tree or vegetation cover) and the Mining Lease boundary (provides a conservative approach to landscape assessment).

Areas visible at 16 and 6 kms from the quarry based on the bare earth modelling are shown in Figures 4-11-1 and 4-11-2 respectively. Although modelling shows it can be seen from the Tasman Highway to the north of Buckland, the vegetation (plantation and some native vegetation) shield the quarry from these road locations. Evidence of this can be found for the existing Level 1 activity which cannot be seen along any section of the Tasman Highway despite the bare earth modelling suggests that it can/should be.

In summary, the activity will not materially impact on the viewfield from any public road nor will it cause any obtrusive impact to the skyline because it is located in an area which will be shielded from view by retained plantation – especially for southbound traffic on the Tasman Highway heading into Buckland. If and when the plantation is harvested and/or replanted the pits will be sufficiently deep to hide/shield machinery that may be actively working at either quarry face.

TRANSPORT IMPACTS
The existing use of the road and road access onto the Tasman Highway needs to be considered in the assessment of additional trucks using the same access from the Level 2 activity – two activities (an existing Level 1 activity and a new Level 2 activity) will be using the same access onto the Tasman Highway.

Traffic movements for the Level 1 activity are capped at 7 trucks per week (14 movements total per week) pursuant to DA11123 issued by the Glamorgan Spring Bay Council.

Truck movements for the Level 2 activity are likely to be a maximum of 48 movements per day - It is estimated that to remove 110,000 tonnes of sandstone requires a maximum of 48 truck movements in an 11 hour day (0700 h to 1800 h). The sandstone blocks will be loaded onto trucks from the stockpile area by the loader

\(^6\) Commitment 6: No chemicals, fuels or oils are stored on site overnight and refuelling is carried out using a mobile bund.

\(^7\) Commitment 7: One hydrocarbon spill kit is to be stored at each quarry face and staff trained in how to use it in the event of a spillage.

\(^8\) Commitment 8: Machinery owned and operated by the quarry operator is and will continue to be well maintained which ensures maximum fuel/oil efficiency.
FIGURE 4-11-1: Potential Visual Impact (visibility from the site to 16 km)

VISIBILITY ASSESSMENT IS BASED ON BARE EARTH GROUND MODEL (I.E. NO COVER FROM VEGETATION) AND REPRESENTS MAXIMUM VISIBILITY

INITIAL QUARRYING POINTS
VISIBLE AREAS FROM INITIAL QUARRYING POINTS
LEASE

16km BUFFER OF LEASE
Figure 4-11-2: Potential Visual Impact (visibility from the site to 6 km)

VISIBILITY ASSESSMENT IS BASED ON BARE EARTH GROUND MODEL (I.E. NO COVER FROM VEGETATION) AND REPRESENTS MAXIMUM VISIBILITY
Figure 4-13-1: Site Access/Egress and Intersections

‘SALLY PEAK’ SANDSTONE QUARRIES - DP&EMP

MAXIMUM SITE DISTANCE TO WEST - 220m
SITE DISTANCE TO EAST - OVER 350m

TRUCKS ENTERING AND CONCEALED ENTRANCE SIGNS
SITE ACCESS

ON SITE ACCESS TRACKS

SITE ACCESS FROM EAST AND WEST
SITE EGRESS TO WEST ONLY

TRUCK MOVEMENTS AT HIGHWAY INTERSECTION

SALLY PEAK NORTH QUARRY FACE
SALLY PEAK SOUTH QUARRY FACE

SITE DISTANCE TO EAST - OVER 350m

DATE: 3rd FEBRUARY 2015
DATUM: GDA94
GRID: MGA Zone 55
TASMAP: RUCKLAND 5428
CLIENT: NICHOLAS FERRAR

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which is to be stationed in the quarry face where the cutting is occurring. The trucks average in size to 30 tonnes capacity and comply with vehicle safety and regulation standards.

A Traffic Impact Assessment (Attachment 3) recommended the following –

- the Access Road – Tasman Highway junction be upgraded to satisfy the requirements of the *IPWEA Rural to Sealed Roads* design;
- loaded trucks should turn westwards (left) on exit from the Access Road and not eastwards (Right) as shown in Figure 4-13-1; and
- permanent signs (requiring the approval of the road authority) be established at locations shown in Figure 4-13-1 to the east and west of the Access Road to advise drivers of trucks entering and of concealed entrances.

**ABORIGINAL HERITAGE**

All Aboriginal heritage is protected under the *Aboriginal Relics Act 1975* which provides legislative protection regardless of site type, size, condition, or land tenure. Except as otherwise provided in the *Aboriginal Relics Act 1975*, 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.

Aboriginal Heritage Tasmania (AHT) completed a search of the Aboriginal Heritage Register (AHR) for the proposed sandstone quarries at Sally Peak Rd, Buckland. They advised the EPA that there are several Aboriginal heritage sites recorded on the property. AHT provided a table of recorded locations in the vicinity noting that the sites are outside of the development footprint and therefore should not be impacted by the proposal. However, AHT noted that it would be prudent to include them in the DPEMP so that the developer is aware of them and his obligations under the *Aboriginal Relics Act 1975*. The recorded location shave been provided to the proponent but are excluded from the DPEMP given it is an otherwise public document for the purposes of a statutory planning process.

AHT also advised the proponent that sandstone caves and shelters often contain Aboriginal heritage, and therefore no disturbance will take place in the immediate vicinity of a cave or shelter without first having it assessed by suitably qualified and AHT recognised heritage practitioner.

If at any time during excavation or other works associated with the quarry the proponent will apply, whichever is applicable, the following procedures.

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*Commitment 9: No disturbance will take place in the immediate vicinity of a cave or shelter without first having it assessed by a suitably qualified and AHT recognised heritage practitioner.*
Discovery of Cultural Heritage Items

The following ‘Discovery of Cultural Heritage Items Procedure’ will be implemented if a suspected relic is encountered10.

Step 1

If any person believes that they have discovered or uncovered Aboriginal cultural heritage materials, the individual should notify any machinery operators that are working in the general vicinity of the area that earth disturbance works should stop immediately.

Step 2

A buffer protection zone of 10m x 10m should be established around the suspected cultural heritage site or items. No unauthorised entry or earth disturbance will be allowed within this ‘archaeological zone’ until such time as the suspected cultural heritage items have been assessed, and appropriate mitigation measures have been carried out.

Step 3

Aboriginal Heritage Tasmania (AHT) in Hobart (ph 6233 6613) should be contacted immediately and informed of the discovery. AHT will make necessary arrangements for the further assessment of the discovery. Based on the findings of the assessment, appropriate management recommendations should be developed for the cultural heritage find.

Discovery of Skeletal Material

The following ‘Discovery of Skeletal Material Procedure’ will be implemented if skeletal material is encountered11.

Step 1

Under no circumstances should the suspected skeletal remains be touched or disturbed. If these are human remains, then this area potentially is a crime scene. Tampering with a crime scene is a criminal offence.

Step 2

Any person discovering suspected skeletal remains should notify machinery operators that are working in the general vicinity of the area that earth disturbing works should stop immediately. Remember health and safety requirements when approaching machinery operators.

Step 3

A buffer protection zone of 50m x 50m should be established around the suspected skeletal remains. No unauthorised entry or earth disturbance will be allowed with this buffer zone until such time as the suspected skeletal remains have been assessed.

Step 4

The relevant authorities (police) must be contacted and informed of the discovery.

Step 5

10 Commitment 10: The ‘Discovery of Cultural Heritage Items Procedure’ will be implemented if a suspected cultural heritage relic is encountered during excavation works.

11 Commitment 11: The ‘Discovery of Skeletal Material Procedure’ will be implemented if skeletal material is encountered during excavation works.
Should the skeletal remains be suspected to be of Aboriginal origin, then Section 23 of the Coroners Act 1995 will apply. This is as follows:

1) The Attorney General may approve an Aboriginal organisation for the purposes of this section.

2) If, at any stage after a death is reported under section 19(1), a coroner suspects that any human remains relating to that death may be Aboriginal remains, the coroner must refer the matter to an Aboriginal organisation approved by the Attorney General (In this instance TALSC).

3) If a coroner refers a matter to an Aboriginal organisation approved by the Attorney-General—
   (a) The coroner must not carry out any investigations or perform any duties or functions under this Act in respect of the remains; and
   (b) The Aboriginal organisation must, as soon as practicable after the matter is referred to it, investigate the remains and prepare a report for the coroner.

4) If the Aboriginal organisation in its report to the coroner advises that the remains are Aboriginal remains, the jurisdiction of the coroner under this Act in respect of the remains ceases and this Act does not apply to the remains. In this instance the Aboriginal Relics Act 1975 will apply, and relevant Permits will need to be obtained before any further actions can be taken.

5) If the Aboriginal organisation in its report to the coroner advises that the remains are not Aboriginal remains, the coroner may resume the investigation in respect of the remains.

MARINE AND COASTAL

The quarry faces are not located within an area covered by the State Coastal Policy.
PART 5 – DECOMMISSIONING AND REHABILITATION

The aim is to minimise the area of land ‘open’ at either quarry to minimise the overall impact the activity has on the local environment. Rehabilitation works will be conducted for those areas that have been quarried and are no longer needed or used for the ongoing operations – an approach of ‘progressive rehabilitation’.

MAXIMUM DISTRUBED AREAS

For Sally Peak South a maximum 1.6 hectares disturbed has been assumed after 5 years while for Sally Peak North this is a slightly larger maximum disturbed area of 2.4 hectares (4 hectares total for both quarry faces).

REHABILITATION PRINCIPLES

The rehabilitation of quarry areas that are no longer being quarried or used for another purpose (such as a stockpile holding area, truck turning bay etc.) will be based on the following principles:

1. Benches prepared for rehabilitation.
2. Benches ripped or cracked prior to substrate addition.
3. Stockpiled topsoil (from quarry site) and sediment from sediment interceptors applied to prepared benches.
4. Application of seed (native grasses, shrubs and trees) and suitable native plant fertiliser OR establishment to plantation (hardwood or pine).
5. Monitoring of the following factors:
   a. weed infestation;
   b. plant establishment and growth success; and
   c. landform stability.

PERMANENT CLOSURE

In the event of permanent closure of the quarry a detailed Decommissioning and Rehabilitation plan will be developed and submitted to the EPA and MRT for approval12.

12 Commitment 12: In the event of permanent closure of the quarry a detailed Decommissioning and Rehabilitation plan will be developed and submitted to the EPA and MRT for approval.
PART 6 – MANAGEMENT COMMITMENTS
Best practice management is important to the quarry operator to minimise the risk of environmental nuisance/harm to the local community whilst providing a reliable source of high quality product.

Table 1. Summary of management commitments

<table>
<thead>
<tr>
<th>Number</th>
<th>Commitment</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Operating hours will be – 0700 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays.</td>
<td>Ongoing once activity is approved</td>
</tr>
<tr>
<td>2</td>
<td>A Weed Management Plan will be prepared during the commissioning stage of both quarry faces for approval by the EPA.</td>
<td>Within 2 months of project approval</td>
</tr>
<tr>
<td>3</td>
<td>For ease of management each sediment pond will cleaned out on a four monthly basis. The collected sediment will be mixed with stockpiled top soil for progressive rehabilitation of disused quarry areas.</td>
<td>Dams constructed with 3 months of activity approval, and then ongoing maintenance</td>
</tr>
<tr>
<td>4</td>
<td>If noise matters become an issue then mitigation measures, subject to the type and extent of the noise nuisance, will be considered and implemented by the quarry proponent.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>5</td>
<td>Measures that will be used to suppress dust include the following industry environmental practices for quarries:</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td></td>
<td>- Watering of internal roads as required during dry and windy conditions;</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Use of water to wet the cutting blade during sandstone cutting; and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Minimising the geographic extent of areas of exposed soil.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>No chemicals, fuels or oils are stored on site overnight and refuelling is carried out using a mobile bund.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>7</td>
<td>One hydrocarbon spill kit is to be stored at each quarry face and staff trained in how to use it in the event of a spillage.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>8</td>
<td>Machinery owned and operated by the quarry operator is and will continue to be well maintained which ensures maximum fuel/oil efficiency.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>9</td>
<td>No disturbance will take place in the immediate vicinity of a cave or shelter without first having it assessed by a suitably qualified and AHT recognised heritage practitioner.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>10</td>
<td>The ‘Discovery of Cultural Heritage Items Procedure’ will be implemented if a suspected cultural heritage relic is encountered during excavation works.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td>11</td>
<td>The ‘Discovery of Skeletal Material Procedure’ will be implemented if skeletal material is encountered during excavation works.</td>
<td>Ongoing upon approval of the activity</td>
</tr>
<tr>
<td></td>
<td>In the event of permanent closure of the quarry a detailed Decommissioning and Rehabilitation plan will be developed and submitted to the EPA and MRT for approval.</td>
<td>DRP prepared and provided to the EPA Director within 30 days of formal written notice to the EPA of permanent quarry closure.</td>
</tr>
</tbody>
</table>
Attachment 1: Sediment Pond Sizing Report (Hydrodynamica)
SALLY PEAK SANDSTONE QUARRIES, BUCKLAND
SEDIMENT BASIN FOR QUARRY OPERATIONS ASSESSMENT
FOR VAN DIEMEN CONSULTING
1 June 2015 – Revision 1
**Project:** Sally Peak Quarries Sediment Basin Assessment  

**Authors:** Cameron Oakley  
Consulting Engineer  
B.Eng (Hons), B.Tech (Env.), MBA

<table>
<thead>
<tr>
<th>DATE</th>
<th>NATURE OF REVISION</th>
<th>REVISION NUMBER</th>
<th>PREPARED BY</th>
<th>AUTHORISED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/06/2015</td>
<td>FINAL</td>
<td>1</td>
<td>Cameron Oakley</td>
<td>Cameron Oakley</td>
</tr>
</tbody>
</table>

This document has been prepared in accordance with the scope of services agreed upon between Hydrodyamica (H-DNA) and the Client. To the best of H-DNA’s understanding, this document represents the Client’s intentions at the time of printing of the document. In preparing this document H-DNA has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, H-DNA has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

No responsibility is accepted for use of any part of this document in any other context or for any other purpose by third parties.
1. EXISTING SITE

The proposed Sally Peak sandstone quarries are located approximately 1.5km south-west of Buckland. Two quarries are proposed – Sally Peak North and Sally Peak South. It is anticipated that disturbance of the Sally Peak North catchment will extend to a total of 1.6 hectares at the end of the 5th year of operations. The extent of Sally Peak South is projected to be 2.4 hectares at the end of year 5.

Sediment basins will be used to intercept sediment-laden runoff and retain most sediment and other materials in order to protect downstream waterways from pollution. For each quarry stormwater runoff from disturbed catchment areas, including quarry operations, lay-down areas, and roads, will be diverted to sediment basins for appropriate treatment before stormwater is discharged to the receiving environment.

This assessment was conducted to determine the required capacity sediment basins for the two quarries using methodology contained in Landom’s Blue Book: *Volume 1 Managing Urban Stormwater- Soils and Construction - 4th ed* (2004).

2. DATA & ASSUMPTIONS

The methodology contained in the Blue Book is based on the Revised Universal Soil Loss Equation (RUSLE) to predict the long term, average, annual soil loss from sheet and rill flow under specified management conditions (Landcom, 2004). This enables sedimentation basins to be designed to effectively mitigate sediment pollution to downstream lands and waterways. Table 2 of this report shows the full calculation.

The methodology takes into account the ability of rainfall to cause erosion which has been found to be a function of the 2 year ARI, 6 hour event. Site specific rainfall intensity was obtained from the Bureau of Meteorology’s (BOM) rainfall Intensity-Frequency-Duration (IFD) for the site (refer to Table 1).

For developments which are ongoing for greater than 3 years which discharge to sensitive receiving environments the Blue Book *Volume 2E - Managing Urban Stormwater- Mines and Quarries* (Landcom, 2008) also recommends designing sediment basins to provide adequate volume to retain the 5-day, 95th-percentile rainfall event. The BOM has recorded over 100 years of rainfall data at their Buckland (Brockley) weather station no. 92006. From this data the 5-day, 95th-percentile rainfall depth was calculated to be 40.6mm.

In addition to rainfall data the RUSLE considers the combined effect of slope length and gradient on soil loss. To inform these calculations it was determined that the maximum distance from the top of the Sally Peak North catchment to the proposed sediment basin is approximately 300m, and the average slope to be at worst 4° (7%). The Sally Peak South catchment variables were 350m and 5° (8.75%).
Table 1. BOM IFD Data for Sally Peak

Finally, Table F3 in Volume 1 of the Blue Book recommends volumetric runoff coefficient ($C_v$) values based on design rainfall depth and runoff potential based on soil hydrologic groups. From discussions with Dr Richard Barnes it was decided to assume there is moderate to high runoff potential as per soil hydrologic group C defined by Landcom (2004) as:

> Water moves into and through these soil materials at slow to moderate rates when thoroughly wetted. Usually they consist of soils that have moderately fine (clay loam) to fine (clay) texture, weak to moderate structure, and/or a layer near the surface that impedes free downward movement of water. They regularly shed runoff from moderate rainfall events.

This gives a recommended $C_v$ proportion of 0.58 (58%).

3. CALCULATIONS

The following table shows the calculations used to determine the required sediment basin size. It determines the sediment zone volume of the basin, which is the volume needed to hold captured sediment, and the settling zone volume, which is the volume required to facilitate efficient settling.
**Basin Volume = Sediment Zone Volume + Settling Zone Volume**

1. **Sediment Zone Volume**

<table>
<thead>
<tr>
<th>Site area</th>
<th>North</th>
<th>South</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total catchment area (ha)</td>
<td>1.6</td>
<td>2.4</td>
<td>Data provided by Dr R Barnes</td>
</tr>
<tr>
<td>Disturbed catchment area (ha)</td>
<td>1.6</td>
<td>2.4</td>
<td></td>
</tr>
</tbody>
</table>

**Rainfall data**

| Design rainfall depth (days)     | 5     | 5     | Ref Vol 2E Table 5.1         |
| Design rainfall depth (percentile) | 95    | 95    | Assumed ‘sensitive’ receiving environment and operations ongoing for > 3 |
| 5-day, 95th-percentile rainfall event (mm) | 40.6  | 40.6  | Calculated from Buckland (Brockley) rainfall record, BCM station 92006 |
| Rainfall intensity: 2-year, 6-hour storm (mm/hr) | 6.3   | 6.9   | See IDF data for the site Table 1 Report |

**RUSLE Factors**

| Rainfall erosivity (R-factor)    | 1240  | 1240  | Automatic calculation from above data |
| Soil erodibility (K-factor)      | 0.05  | 0.05  | RUSLE data can be obtained from Vol 1, Appendices A, B and C |
| Slope length (m)                | 300   | 350   | Data provided by Dr R Barnes |
| Slope gradient (%)              | 6.99  | 8.75  |                                |
| Length/gradient (LS-factor)     | 4.04  | 6.08  | From Vol 1 Table A 1          |
| Erosion control practice (P-factor) | 1.3   | 1.3   | Default                       |
| Ground cover (C-factor)         | 1     | 1     | Default                       |

**Calculations**

| Soil loss (ton/yr)              | 325   | 450   | Calculated                   |
| Soil Loss Class                 | 3     | 4     | See Section 4.4.2(b)         |
| Soil loss (m²/ha/yr)            | 250   | 377   | Calculated                   |
| Soil Loss Volume (Sediment Zone Volume) (m³) | 401   | 302   | Based on 4 annual cleanouts for North & every 4 months for South |
4. CONCLUSION

In order to detain and treat stormwater runoff from the 1.6 ha disturbed catchment a sediment basin totalling 778 kL is required for Sally Peak North. The settling zone volume of 377 kL cannot be reduced. The required sediment zone volume of 401 kL is based on an annual cleanout period; as such it can be reduced if a commitment is made to remove sediment collected in the basin more regularly.

A sediment basin totalling 867 kL is required for Sally Peak South based on the 2.4 ha catchment. The calculated settling zone volume is 565 kL and the 302 kL sediment storage zone volume is based the removal of captured sediment every 4 months.

A concept basin design detailed in the Blue Book is shown in Appendix A.
APPENDIX A

SEDIMENT BASIN CONCEPT DESIGN
Construction Notes

1. Remove all vegetation and topsoil from under the dam wall and from within the storage area.

2. Construct a cut-off trench 500 mm deep and 1,200 mm wide along the centreline of the embankment extending to a point on the gully wall level with the riser crest.

3. Maintain the trench free of water and recompact the materials with equipment as specified in the SWMP to 95 per cent Standard Proctor Density.

4. Select fill following the SWMP that is free of roots, wood, rock, large stone or foreign material.

5. Prepare the site under the embankment by ripping to at least 100 mm to help bond compacted fill to the existing substrate.

6. Spread the fill in 100 mm to 150 mm layers and compact it at optimum moisture content following the SWMP.

7. Construct the emergency spillway.
Attachment 2: Noise Survey and Report (Mr Pearu Terts)
SUMMARY.

1. The quarry operations were not heard at a location near the nearest resident. The Quarry Code of Practice requirements are likely to be met after the upgrade.
2. There have been no noise complaints when operated by the previous owner.
3. The quarry truck traffic (48 movements maximum) may increase the noise level from about Leq = 40 dB(A) to 56 dB(A) at the house on the second corner of the eastern access route.(5826 Tasman Highway, Buckland, Loc. 2)
4. Complaints are unlikely from the noise of one truck every 14 minutes (maximum) in a working rural setting.

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Van Dieman Consulting Pty. Ltd.
P.O.. Box 1
New Town, Tasmania 7008

Tel 0438 588 695
e-mail: rwbarnes73@gmail.com

INTRODUCTION:

Noise annoyance depends on the following factors:

1. the level of the existing ambient noise
2. the level of the new noise with the quarry in operation
3. whether the new noise has tonal components
4. whether the new noise has impulsive components
5. the time of the day the new noise occurs
6. whether the new noise carries unwanted intelligence such as waning announcements
7. noise annoyance is also dependent on the listener’s perception of whether the noise is regretfully caused, imposed in ignorance or inflicted as an act of aggression.

The Tasmania Quarry Code of Practice (June 1999), page 10 states: “With the exception of blasting where permitted, noise from activities in a quarry affecting residential premises, must not exceed 10 dB(A) above the normal ambient noise levels during daytime operations”.

No blasting takes place at the site.
Noise measurements were conducted on 16/3/2015 at the North and South quarries and at 5 other locations, with the quarry operating not operating, to obtain ambient, background and operating noise levels.

In addition we measured and calculated the likely noise impact of quarry trucks using the quarry road, especially the residence on the second corner of the eastern route (5826, Tasman Highway, Buckland, Tas. 7190 designated as Loc. 2 on the aerial photograph on pages A 2 and A 3).

The results are given in appendix A

RESULTS:

Pages A 1 to A23 give the results of field measurements conducted on 16/3/2015.

The Komatsu PC200, powered by a 110 kW 6 cylinder turbo engine had a 2.1 m diameter saw with 76 teeth. It cuts 800 mm deep.

The Kobelco SK330 excavator of 245 hp was fitted with a 3 m^3 bucket.

The main results are shown on page A 11. Consider the table on page A 11.

Explanation of terms:

Ln is the noise level exceeded for n % of the time. Hence, L90 is a good descriptor of the base or background noise level. For example, if L90 = 31.9 dB(A) then that means that for 90 % of the 10 minute sample, that is, 9 minutes, the noise level was 31.9 dB(A) or more. Similarly, L10 is a good descriptor of the average of the higher noise events encountered. If, for example, L10 = 44.6 dB(A) then that means that for 10 % or 1 minute, the noise level was 44.6 dB(A) or more.

Leq is the equivalent ‘A’ weighted noise level. A fluctuating noise having an Leq = 42.8 dB(A) has the same acoustic energy as a steady noise of 42.8 dB(A).

The results showed that the sandstone quarry operations, using the stone cutters and the excavator, could not be heard at Locations 2 or 3.

QUARRY TRUCK TRAFFIC NOISE

Further tests using truck (see page A 6) indicated that at Location 2, the 10 minute Leq increased from an ambient of 39.3 dB(A) to 55 dB(A) when recording 6 truck passes in 10 minutes.

It is estimated that to remove 110,000 tonnes of sandstone requires a maximum of 48 truck movements in an 11 hour day (0700 h to 1800 h) There are 66 ten minute periods in this time, with 8 ten minute periods having 8 x 6 = 48 truck movements at Leq = 55 dB(A) and 66– 8 = 58 ten minute periods having a noise level of Leq = 39.3 dB(A). The combined Leq = 46.6 dB(A) at 7.5 m. The house is at 32.5 m from the road, therefore there is an attenuation due to geometric spreading of the sound, of 20 log(32.5/7.5) = 12.7 dB(A). We subtract this from 46.6 dB(A) to
give $44.9 - 12.7 = 33.9$ dB(A) due to the trucks alone. The truck was estimated to carry about 5 tonnes.

As we did not have at our disposal for the tests a large truck, we use the results of truck tests done at another location. Our firm has recently (20/3/2015 at Rekuna, Tea Tree) measured empty and loaded quarry trucks at a distance of 84 m from the unsealed quarry access road. The empty truck was a 1998 Volvo NH with a 420 hp diesel engine. The loaded truck was a 1998 Mack CH with a 400 hp diesel engine. Both trucks were rated at 21.5 tonnes. The trucks were travelling at about 30 kmh. The following noise levels were obtained:

<table>
<thead>
<tr>
<th></th>
<th>Leq(10 min) dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loaded, from quarry</td>
<td>44.8</td>
</tr>
<tr>
<td></td>
<td>48.6</td>
</tr>
<tr>
<td></td>
<td>46.6</td>
</tr>
<tr>
<td>Mean</td>
<td>46.66</td>
</tr>
<tr>
<td>Empty, to quarry</td>
<td>47.0</td>
</tr>
<tr>
<td></td>
<td>47.4</td>
</tr>
<tr>
<td></td>
<td>45.3</td>
</tr>
<tr>
<td>Mean</td>
<td>46.56</td>
</tr>
</tbody>
</table>

Mean (to and from) = 46.6 dB(A) at 84 metres

The house to road distance is again 32.5 m. Hence we add $20 \log(84/32.5) = 8.24$ dB(A) to 46.6 dB(A), making a total of 54.8 dB(A).

So now we have 66 lots of 10 minutes, in the 11 hour working day, of which 48 lots of 10 minute samples contain the truck noise of $\text{Leq} = 54.8$ dB(A) and $66 - 48 = 18$ lots of 10 minutes contain the ambient noise of 39.3 dB(A). This combination results in $\text{Leq (11 h)} = 53.5$ dB(A).

$$\text{Leq(11 h)} = 10 \log \frac{1}{66}(18 \times 10^{3.93} + 48 \times 10^{5.48}) = 53.5 \text{ dB(A)}$$

This is due to geometric spreading. To this we add $+2.5$ dB to account for the façade effect, making a total of $\text{Leq} = 56$ dB(A) for the truck pass by noise. There will be at the most, on the average one truck per 14 minutes. The trucks will only travel in daylight hours and are unlikely to generate community noise complaints.

**NOISE BARRIER at Loc. 2**

With a noise barrier on the boundary and adjacent to the house and having a length of about 4 houses, the following noise reduction is likely:

<table>
<thead>
<tr>
<th>Height (m)</th>
<th>Noise reduction dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>1.5</td>
<td>2.7</td>
</tr>
<tr>
<td>2.0</td>
<td>4.3</td>
</tr>
<tr>
<td>2.4</td>
<td>5.4</td>
</tr>
<tr>
<td>2.7</td>
<td>6.1</td>
</tr>
</tbody>
</table>

Approximately, 4 truck movements will increase the $\text{Leq(11 h)}$ to 5 dB(A) above the ambient noise level of 39.3 dB(A).
CONCLUSION:

The measured ambient noise levels in terms of Leq indicate that the 10 dB(A) differential requirement of the Quarry Code of Practice, between the noise level with the sandstone quarry operating and when shut down, is likely to be met at the nearest residents.

The timbered rural sound scape has an assemblage of noises such as irrigation systems, harvesting machines, tractors, trail bikes, pumps. The diesel based noise of this proposal is similar in characteristics to the existing rural sounds. It is not a different sound that might be associated with a large sub station or chipper or a jet engine testing facility.

It only takes 4.13 or say 4 large truck movements to increase the ambient noise level from Leq = 39.3 dB(A) to Leq = 39.3 + 5 = 44.3 dB(A). The metric Leq does not describe the noise impact very well in this situation.

My opinion is that one truck every 14 minutes is unlikely to generate complaints from the occupants of the house at location 2 because of the rural noise climate (tractors in the fields, chain saws etc.). It is not as if there is an increase of continuous noise. The truck noise event passes and then there is quiet. A suitable noise barrier fence along the boundary can be erected if required, the height to be determined on the basis of noise measurements.

Pearu Terts
Buckland Sandstone Quarry
Field report for site visit 16/3/2015
Appendix A to be read in conjunction with main report

General

The sandstone quarry (2 sites in close proximity) south of Buckland intends to increase operating intensity, cutting bedrock blocks and transporting off site to domestic and export customers. The operation does not involve blasting or crushing. There are a number of residential neighbours alongside access routes to the Tasman Highway. This report describes the findings of noise monitoring and observations from the site visit 12:30-18:30, 16/3/2015.

Instruments used

- Brüel & Kjær Sound Level Calibrator Type 4230 s/n 1169836, Laboratory Certified February 2014;
- Norsonic Precision Sound Level Meter Nor131, s/n 1312829, Laboratory Certified December 2014;
- Rion Precision Integrating Sound Level Meter Model NL-11, s/n 150321, with Rion Octave Band Filter Model NX-01A, s/n 10851228,
- Brüel & Kjær Precision Sound Level Meter Type 2232 s/n 1129761;
- Standard Sound Level Meter/Datalogger ST8852, s/n 12104155
- Weather Instruments (Aneroid barometer, Zeal Wet/Dry bulb Psychrometer, Suunto KB-14/360R compass, Kaindl Windmaster 2 wind speed meter);
- 100 m fiberglass tape

Location definitions

The locations for measurements were defined as follows:

<table>
<thead>
<tr>
<th>#</th>
<th>Location</th>
<th>Definition/comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Church corner 1</td>
<td>Neighbour access road off road bend by church graveyard. 118 m from edge of Tasman Highway. 11 m from nearest edge of sealed road corner, 11 m from neighbour’s gate. Microphone at 1.5 m height.</td>
</tr>
<tr>
<td>2</td>
<td>House corner</td>
<td>Neighbour house at 2nd corner of eastern access route. At boundary fence 25 m from gate at corner, approx level with house. 7.5 m from edge of sealed road. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>3</td>
<td>Castle house</td>
<td>On access road by shed near house facing the stone processing area. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>4</td>
<td>North quarry</td>
<td>Side on view at 28 m from operating Komatsu PC200 with stone cutter. At north quarry. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>5</td>
<td>South quarry 1</td>
<td>Side on view at 28 m from operating Kobelco SK330 with bucket. At south quarry. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>6</td>
<td>South quarry 2</td>
<td>Side on view approx 60 m from operating Kobelco SK330 with bucket. At south quarry. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>7</td>
<td>Western access</td>
<td>At western access route, 75 m from junction of Tasman Hwy. Microphone at 1.2 m height.</td>
</tr>
<tr>
<td>8</td>
<td>Church corner 2</td>
<td>By neighbour gate, off road bend by church graveyard. 18.5 m from nearest edge of sealed road corner, 1 m from neighbour’s gate. Microphone at 1.5 m height.</td>
</tr>
</tbody>
</table>

Aerial photos, map, plan and photographs are on the following pages.

[Last revised 18/3/2015]
Airphoto overview showing monitoring locations

Location 4 is the site of the north quarry, Location 5 & 6 is at the southern quarry.

Image sourced from TheList 17/3/2015; note 500 m scale bar, 5 m contours and boundary lines.
Airphoto showing eastern monitoring locations

Location 1 & 8 are by the entry to the neighbour residence approximately 100 m to the south. Location 2 is roadside by the house 25 m to the west.

Image sourced from Google 18/3/2015; note 50 m scale bar.
Location 7 is on the western access track, the relating house is 160 m to the WSW.

Image sourced from Google 18/3/2015; note 50 m scale bar.

Panorama photograph – South Quarry

View of quarry showing machinery before tests, looking to western-southern arc, 16/3/2015
Note the 4-photo composite has minor join error and distortion
Site photographs

Location 1, 118 m from Tasman Hwy, noting test truck passing, 16/3/2015

Location 2, level with house, 16/3/2015

Location 2 during test truck pass, 16/3/2015
Site photographs

Location 3, by shed behind house, 16/3/2015

Location 4, measuring stone cutting noise 28 m away at North quarry, 16/3/2015
Site photographs

Location 5, measuring stone cutting noise 28 m away at South quarry, 16/3/2015

Location 7, measuring ambient noise 75 m away from highway junction, 16/3/2015

Location 8, alternative position to Location 1, 16/3/2015
Weather observations

Conditions were suitable for noise measurements. Breeze increased and then decreased. Details are shown alongside.

<table>
<thead>
<tr>
<th>Location</th>
<th>Date 16/3/2015</th>
<th>Temperature °C</th>
<th>Relative Humidity %</th>
<th>Pressure hPa</th>
<th>Wind speed average m/s</th>
<th>Wind speed maximum m/s</th>
<th>Wind direction</th>
<th>Cloud cover x/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loc 2</td>
<td>16/3/2015</td>
<td>19</td>
<td>58</td>
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</table>

Noise descriptions

For each location, ambient noise by source noted during the site visit is listed (in descending order of significance by loudness, noticeability, duration and incidence):

Location 1 & 8
- Test truck passes
- Highway traffic (80 km/h zone) including occasional trucks and motorbikes
- Local vehicle passes
- Dog, voices
- Birds including crows
- Breeze in trees

Location 2
- Test truck passes
- Highway traffic
- Local vehicle passes
- Birds
- Crickets
- Breeze in trees

Location 3
- Highway traffic (100 km/h zone)
- Birds
- Crickets
- Breeze in trees
- Seaplane

Location 4, 5 & 6
- Test operations (excavator/s using cutter or bucket) dominate during tests
- Highway traffic (100 km/h zone)
- Birds
- Crickets
- Breeze in trees

Location 7
- Highway traffic
- Crickets
- Birds
- Breeze in trees
Comments

- Daytime noise measurements were conducted under suitable conditions 16/3/2015.
- Quarry operations during test periods were not audible at Location 2 or 3. Locations 1 and 7 were not attended during quarry tests but these are farther distant from the quarry than Locations 2 and 7.
- Neighbours adjacent may expect noise events from trucks entering and leaving the quarry, when passing the eastern or western access road. Trucks arrive empty and leave loaded.
- Machinery noted at or associated with the Quarry:
  Komatsu PC200 20 t excavator with cutter attached
  Kobelco SK330 excavator with loader bucket attached
  8 t rigid truck
each used for separate tests
- The remoteness, topography, and depressions of both quarries assists in local noise abatement.
- No reversing alarms were evident during the tests from any vehicle.
### Statistical analysis and measurements of noise over 5-10 minute periods

<table>
<thead>
<tr>
<th>Location</th>
<th>Loc 1</th>
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<td>Ops</td>
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<td>Ambient</td>
<td>Cutting 28 m</td>
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<td>6x trucks 11 m</td>
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</table>

Test quarry operations were not audible at Location 2 or 3.
Statistical analysis of ambient and truck test noise at Location 1 and 8

![Graph of noise level vs. percentage of time exceeded]  
Location 1 and 8, Buckland Sandstone Quarry project, 16/3/2015

Statistical analysis of ambient and truck test noise over 10 minute periods at Location 2

![Graph of noise level vs. percentage of time exceeded]  
Location 2, Buckland Sandstone Quarry project, 16/3/2015
Statistical analysis of ambient and north quarry test noise at Location 3

Quarrying was not audible in the first test period. The 15:15 measurement included a seaplane pass.

Statistical analysis of ambient noise over 10 minute period at Location 7
Statistical analysis of ambient and quarry test noise at Location 4 and 5

Statistical analysis, 5-10 minute measurement periods
Location 4 and 5, Buckland Sandstone Quarry project, 16/3/2015

Location 4: cutter test at 28 m in north quarry
Location 5: excavator test at 28 m in south quarry
### Spectral (octave) analysis of ambient and test noise

<table>
<thead>
<tr>
<th>Location</th>
<th>Loc 1</th>
<th>Loc 2</th>
<th>Loc 2</th>
<th>Loc 3</th>
<th>Loc 3</th>
<th>Loc 4</th>
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<td>Ambient</td>
<td>6x trucks 11 m,</td>
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<td>42.0</td>
<td>32.7</td>
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</tr>
</tbody>
</table>
Spectral (octave) analysis of ambient and truck test noise at Location 1

Octave band spectra of measured noise
Loc 1 & 8, Buckland Sandstone Quarry project, 16/3/2015

Test at Location 8 was corrupted by close proximity of vehicle, dogs and voices
Spectral (octave) analysis of ambient and truck test noise at Location 2

Octave band spectra of measured noise
Location 2, Buckland Sandstone Quarry project, 16/3/2015

- **Loc 2 16/03/2015 13:58**
  - Ambient 10 min

- **Loc 2 16/03/2015 14:34**
  - 6x trucks 7.5 m, 10 min
Spectral (octave) analysis of ambient and quarry test noise at Location 3

The quarry test was not audible.
The 15:15 measurement included a seaplane pass.
Spectral (octave) analysis of ambient noise at Location 7

Octave band spectra of measured noise
Location 7, Buckland Sandstone Quarry project, 16/3/2015

Traffic passing at 100 km/h generates noticeable tyre noise 1-2 kHz
Spectral (octave) analysis of quarry test noise at Location 4 and 5

Octave band spectra of measured noise
Locs 4 & 5, Buckland Sandstone Quarry project, 16/3/2015

Location 4: cutter test at 28 m in north quarry
Location 5: excavator test at 28 m in south quarry
Datalogger monitoring of truck test noise at Location 2

Noise at Location 2, Buckland Sandstone Quarry project, data logged 14:34-14:44, 16/3/2015
sound pressure level, sampled once per second

Three round trips of test truck: each a sequence of a northbound pass followed by southbound pass.
Closest truck pass distance: 7.5 m.
Datalogger monitoring of truck test noise at Location 1

Three round trips of test truck: each a sequence of a downhill pass followed by uphill pass.
Closest truck pass distance: 11 m.
Datalogger monitoring of truck test noise at Location 8

Noise at Location 8, Buckland Sandstone Quarry project, data logged 18:02-18:12, 16/3/2015
sound pressure level, sampled once per second

Single uphill trip of test truck at start of measurement. Following this was ambient traffic noise and a local car pass.
The final period featured dog barks and voices in close proximity to the microphone.
Closest truck pass distance: 18.5 m.
Attachment 3: Traffic Impact Assessment (Van Diemen Consulting Pty Ltd)
DEVELOPMENT APPLICATION

‘SALLY PEAK SANDSTONE PTY LTD’ QUARRIES, BUCKLAND

TRAFFIC IMPACT ASSESSMENT
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OBJECTIVES OF THIS ASSESSMENT ...................................................... 4
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ACCESS ROAD AND JUNCTION WITH TASMAN HIGHWAY .................. 5
ROUTE ..................................................................................................... 5
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MITIGATION MEASURES ...................................................................... 7

FIGURES

Figure 1: Mining Lease Location and Access
Figure 2: Proposed Sally Peak (North and South) quarry faces within the Mining Lease
Figure 3: Surrounding Land Use and Other Quarry Operations
Figure 4: Site Access/Egress and Intersections

ATTACHMENTS

Attachment 1: Vehicle Class Data 2012
Attachment 2: Crash History Data 01/01/2010 to 16/03/2015
Attachment 3: Rural Roads to Sealed IPWEA Document
Attachment 4: Land Titles
SUMMARY OF RECOMMENDATIONS

The following measures should be considered during the planning process for the development to mitigate potential impacts from the project –

- Ensure compliance with the operating hours and days for the quarry;
- Establish a Complaints Register to record and address complaints received in relation to Access Road usage by quarry related vehicles;
- The Access Road – Tasman Highway junction be upgraded to satisfy the requirements of the *IPWEA Rural to Sealed Roads* design;
- Loaded trucks should turn westwards (left) on exit from the Access Road and not eastwards (Right) as shown in Figure 4; and
- permanent signs (requiring the approval of the road authority) should be established at locations shown in Figure 4 to the east and west of the Access Road to advise drivers of trucks entering and of concealed entrances; and
- Ensure trucks limit their speed to 40km/hr when using the Access Road.
OBJECTIVES OF THIS ASSESSMENT

This Traffic Impact Assessment (TIA) examines the traffic impacts associated with the Sally Peak Sandstone Pty Ltd project:

- Review of the relevant existing road environment in the vicinity of the site and the traffic conditions on the road network;
- Provision of information on the activity with regards to traffic movements and activity; and
- Traffic implications of the activity with respect to the external road network in terms of traffic efficiency and road safety.

ACTIVITY DESCRIPTION

The activity is located on the property ‘Sally Peak’ to the south-west of Buckland (Figures 1 and 2) in eastern Tasmania. This project is to develop two sandstone block quarry faces on the property ‘Sally Peak’ with a combined annual production limit of 50,000 cubic metres. The annual production limit will cover expected and future market conditions and specific projects.

The main quarrying activities will entail the following:

- surface site preparation by soil removal and stockpiling;
- marking and cutting of sandstone blocks (each block is about 1 cubic metre);
- stockpiling of extracted blocks in quarry area;
- loading trucks with the sandstone blocks; and the
- transport of materials by trucks ranging from 12 to 30 tonne capacity.

Operating hours will be 0700 to 1900 hrs Monday to Friday, 0800 to 1600 hrs on Saturday; closed on Sunday and public holidays – during these periods it is expected that traffic could be generated by the activity.

Quarry activities are not uncommon in the area around Buckland, and include several for construction materials owing to the diversity and quality of products within the landscape (Figure 3).

Sally Peak South (ML) yields a white to pale yellow coloured sandstone product while Sally Peak North quarry yields a richly streaked yellow to white sandstone that highlights the layered sedimentation profile. There are markets for both products.

The quarry faces and Mining Lease occur to the west of the rural Buckland township. Most of the land adjoining the Mining Lease (which is restricted to the Sally Peak property) is private freehold with only small parcels allocated to public land.
Figure 1: Mining Lease Location and Access

'NELLY PEAK' SANDSTONE QUARRIES - TIA
‘SALLY PEAK’ SANDSTONE QUARRIES - TIA

Figure 2: Proposed Sally Peak (North and South) quarry faces within the Mining Lease
‘SALLY PEAK’ SANDSTONE QUARRIES - TIA

Figure 3: Surrounding Land Use and Other Quarry Operations
ROAD HIERARCHY
The road hierarchy reflects the importance of State Roads as transport corridors and comprises the following categories in descending order of importance:

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<thead>
<tr>
<th>Road Category</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category 1 Roads</strong> (Trunk Roads)</td>
<td>The primary freight and passenger roads connecting Tasmania.</td>
</tr>
<tr>
<td><strong>Category 2 Roads</strong> (Regional Freight Roads)</td>
<td>Tasmania’s major regional roads for carrying heavy freight</td>
</tr>
<tr>
<td><strong>Category 3 Roads</strong> (Regional Access Roads)</td>
<td>The main access roads to Tasmania’s Regions, carrying less heavy freight traffic than Regional Freight Roads</td>
</tr>
<tr>
<td><strong>Category 4 Roads</strong> (Feeder Roads)</td>
<td>Allowing safe travel between towns, major tourist destinations and industrial areas</td>
</tr>
<tr>
<td><strong>Category 5 Roads</strong> (Other Roads)</td>
<td>All remaining State Roads.</td>
</tr>
</tbody>
</table>

ACTIVITY TRAFFIC GENERATION
ACCESS ROAD AND JUNCTION WITH TASMAN HIGHWAY
The quarry is accessed from an Access Road which joins the Tasman Highway to the west of Buckland (Figure 1). The trucks leaving the quarry have quick and efficient (short distance to travel) access to the Tasman Highway which is owned and maintained by the Department of State Growth (ex-DIER). The quarry faces are connected within the Mining Lease by a gravel access road maintained by the landowner.

The Access Road at its junction with the Tasman Highway is gravel/dirt based and will be upgraded as part of this project. Attachment 3 illustrates the manner to which the upgrade to the junction is to satisfy.

There is no access to pedestrians at the Access Road junction nor will any be established under this project.

There are 2 car parks at the Level 1 activity and a further 2 will be constructed at the Sally Peak South quarry face within the area of land covered by the Level 2 activity.

The sight distances of the Access Road junction onto the Tasman Highway (Plate 1C) satisfies the Safe Intersection Site Distances (SISD) provided in Schedule 4 of the Scheme [for a 100km/hr designed road] to the east (>350m sight distance) but not to the west (220m sight distance cf. the required 250m in Schedule 4, Plate 1D).

There are no trees or other vegetation that is prominent at the Access junction with the Tasman Highway however regular checks should be made that wattle (*Acacia* regrowth) does not occur along the roadside verge to the west as this may further impede sight distance in that direction.

ROUTE
Due to sight distance deficiencies to the west of the Access Road – Tasman Highway junction all quarry related truck and trailers combinations will only exit to the west (see inset Figure 4). Light vehicles will exit to the east or west.

Quarry related truck and trailers combinations may return to the Access from either the east or west, as trucks from the east can indicate early to traffic of their intent to turn right into an access way. Signage indicating concealed entrances and trucks entering also further increase awareness to traffic users of the entry of vehicles onto the Tasman Highway.
Plate 1. Access Road formation and sight distances from access junction with Tasman Highway

A. Access road formation near Tasman Highway

B. Access road junction with Tasman Highway

C. Sight distance to the east is >350m

D. Sight distance to the west is 220m

TRAFFIC TYPE, NUMBERS AND FREQUENCY

Existing road conditions

The Tasman Highway is a Category 2 Road – The main function of this category is to carry traffic, particularly freight, between major centres in a region.

Data obtained from the Department of State Growth shows the following trends in 2012 -

Class Bins
Class 1 - 8944 (89.31%)
Class 2 - 302 (3.02%)
Class 3 - 585 (5.84%)
Class 4 - 37 (0.37%)
Class 5 - 5 (0.05%)
Class 6 - 31 (0.31%)
Class 7 - 24 (0.24%)
Class 8 - 22 (0.22%)
Class 9 - 58 (0.58%)
Class 10 - 6 (0.06%)
Class 11 - 0 (0.00%)
Class 12 - 0 (0.00%)

The proportion of four, five, six axle articulated vehicles and B double trucks (Class 7-10 highlighted in list above) represents 1.1% of the traffic movements – the figure suggests the road network is well below its carrying capacity as a Regional Freight Route.

Existing access usage
The existing Access is already used to cart sandstone blocks associated with an existing Level 1 quarry on the property - with a maximum of 7 vehicle movements per week for this activity. Light vehicles also utilise the Access to enter the Sally Peak property and log trucks and trucks floating logging equipment to the property have utilised the Access in the past.

Proposed access usage
Trucks will be a truck and trailer configuration with a capacity of 24t. Total weight of truck, trailer and load would be in the order of 36t.
There will be up to 48 traffic movements (24 trucks per day) per day from trucks carting sandstone from the quarry faces. There may be also an additional 8 light vehicle traffic movements per day. Service vehicles to repair machinery may also utilise the access, but these would be in the order of one visit per week or several weeks and as such do not substantially contribute to the overall traffic generation at the Access Road junction with the Tasman Highway.
This totals approximately 64 traffic movements per day for the project. Over a 10 hour period (600 minutes) this would equate to a vehicle every 10 minutes or so, and of this trucks every 12-13 minutes on average (about 4 per hour).

MITIGATION MEASURES
The following measures should be considered during the planning process for the development to mitigate potential impacts from the project –

- Ensure compliance with the operating hours and days for the quarry;
- Establish a Complaints Register to record and address complaints received in relation to Access Road usage by quarry related vehicles;
- The Access Road – Tasman Highway junction be upgraded to satisfy the requirements of the IPWEA Rural to Sealed Roads design;
- Loaded trucks should turn westwards (left) on exit from the Access Road and not eastwards (Right) as shown in Figure 4; and
- permanent signs (requiring the approval of the road authority) should be established at locations shown in Figure 4 to the east and west of the Access Road to advise drivers of trucks entering and of concealed entrances; and
- Ensure trucks limit their speed to 40km/hr when using the Access Road.
Figure 4: Site Access/Egress and Intersections

MAXIMUM SITE DISTANCE TO WEST - 220m
SITE DISTANCE TO EAST - OVER 350m

SITE ACCESS
TRUCKS ENTERING AND CONCEALED ENTRANCE SIGNS
ON SITE ACCESS TRACKS
SALLY PEAK NORTH QUARRY FACE
SALLY PEAK SOUTH QUARRY FACE

SITE ACCESS FROM EAST AND WEST
SITE EGRESS TO WEST ONLY

TRUCK MOVEMENTS AT HIGHWAY INTERSECTION

‘SALLY PEAK’ SANDSTONE QUARRIES - TIA

Figure 4: Site Access/Egress and Intersections

0 0.25 0.5 Kilometers

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: RUCKLAND 5428
CLIENT: NICHOLAS FERRAR
DATE: 3rd FEBRUARY 2015

MAXIMUM SITE DISTANCE TO WEST - 220m
SITE DISTANCE TO EAST - OVER 350m

SITE ACCESS
TRUCKS ENTERING AND CONCEALED ENTRANCE SIGNS
ON SITE ACCESS TRACKS
SALLY PEAK NORTH QUARRY FACE
SALLY PEAK SOUTH QUARRY FACE

SITE ACCESS FROM EAST AND WEST
SITE EGRESS TO WEST ONLY

TRUCK MOVEMENTS AT HIGHWAY INTERSECTION

‘SALLY PEAK’ SANDSTONE QUARRIES - TIA

Figure 4: Site Access/Egress and Intersections

0 0.25 0.5 Kilometers

DATUM: GDA94
GRID: MGA Zone 55
TASMAP: RUCKLAND 5428
CLIENT: NICHOLAS FERRAR
DATE: 3rd FEBRUARY 2015
Attachment 1. Vehicle Class Data 2012
## AUSTROADS Vehicle Classification System

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
<th>AUSTROADS Classification</th>
<th>Typical Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length (indicate)</strong></td>
<td><strong>Axles and Axle Groups</strong></td>
<td><strong>Vehicle Type</strong></td>
<td><strong>Class</strong></td>
<td><strong>Parameters</strong></td>
</tr>
<tr>
<td><strong>Type</strong></td>
<td><strong>Axles</strong></td>
<td><strong>Groups</strong></td>
<td><strong>Typical Description</strong></td>
<td><strong>Class</strong></td>
</tr>
<tr>
<td>Short up to 5.5m</td>
<td>1 or 2</td>
<td>1</td>
<td>Short Sedan, Wagon, 4WD, Utility, Light Van, Bicycle, Motorcycle, etc</td>
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<tr>
<td></td>
<td>3, 4 or 5</td>
<td>3</td>
<td>Short - Towing Trailer, Caravan, Boat, etc</td>
<td>2</td>
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<tr>
<td>Medium 5.5m to 14.5m</td>
<td>2</td>
<td>2</td>
<td>Two Axle Truck or Bus</td>
<td>3</td>
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<tr>
<td></td>
<td>3</td>
<td>2</td>
<td>Three Axle Truck or Bus</td>
<td>4</td>
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<tr>
<td></td>
<td>&gt; 3</td>
<td>2</td>
<td>Four Axle Truck</td>
<td>5</td>
</tr>
<tr>
<td>Long 11.5m to 19.0m</td>
<td>3</td>
<td>3</td>
<td>Three Axle Articulated Three axle articulated vehicle, or Rigid vehicle and trailer</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>&gt; 2</td>
<td>Four Axle Articulated Four axle articulated vehicle, or Rigid vehicle and trailer</td>
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<tr>
<td></td>
<td>5</td>
<td>&gt; 2</td>
<td>Five Axle Articulated Five axle articulated vehicle, or Rigid vehicle and trailer</td>
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<tr>
<td></td>
<td>≥ 6</td>
<td>&gt; 2</td>
<td>Six Axle Articulated Six axle articulated vehicle, or Rigid vehicle and trailer</td>
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<tr>
<td>Medium Combination 17.5m to 36.5m</td>
<td>&gt; 6</td>
<td>4</td>
<td>B Double B Double, or Heavy truck and trailer</td>
<td>10</td>
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<tr>
<td></td>
<td>&gt; 6</td>
<td>5 or 6</td>
<td>Double Road Train Double road train, or Medium articulated vehicle and one dog trailer (M.A.D.)</td>
<td>11</td>
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<tr>
<td>Large Combination Over 33.0m</td>
<td>&gt; 6</td>
<td>&gt; 6</td>
<td>Triple Road Train Triple road train, or Heavy truck and three trailers</td>
<td>12</td>
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</table>

**Definitions:**

- **Group:** Axle group, where adjacent axles are less than 2.1m apart
- **Groups:** Number of axle groups
- **Axles:** Number of axles (maximum axle spacing of 10.0m)
- **AUSTROADS Classification**
- **Typical Configuration**
- **d(1): Distance between first and second axle**
- **d(2): Distance between second and third axle**
**MetroCount Traffic Executive - Stephen Newham**

**Class Bin Chart**

### Datasets:
- **Site:** [A0113380 18 6.17] TASMAN HWY, BUCKLAND 90m East of Nugent Rd - East & West Bound<80>
- **Direction:** 8 - East bound A>B, West bound B>A. **Lane:** 0
- **Survey Duration:** 10:00 Thursday, 10 May 2012 => 14:35 Friday, 18 May 2012
- **File:** A0113380 18 6.17 20120510_20120518.EC0 (PlusB)
- **Identifier:** L213WMRJ MC56-6 [MC55] (c)Microcom 02/03/01
- **Algorithm:** Factory default (v3.21 - 15275)
- **Data type:** Axle sensors - Paired (Class/Speed/Count)

### Profile:
- **Filter time:** 10:00 Thursday, 10 May 2012 => 10:00 Thursday, 17 May 2012
- **Included classes:** 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12
- **Speed range:** 10 - 160 km/h.
- **Direction:** North, East, South, West (bound)
- **Separation:** All - (Headway)
- **Name:** Default Profile
- **Scheme:** Vehicle classification (AustRoads94)
- **Units:** Metric (meter, kilometer, m/s, km/h, kg, tonne)
- **In profile:** Vehicles = 10014 / 11826 (84.68%)
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<th>Class Bin</th>
<th>Count</th>
<th>Percentage</th>
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<td>Class 1</td>
<td>8944</td>
<td>89.31%</td>
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<tr>
<td>Class 2</td>
<td>302</td>
<td>3.02%</td>
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<td>Class 3</td>
<td>585</td>
<td>5.84%</td>
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<td>0.05%</td>
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<tr>
<td>Class 6</td>
<td>31</td>
<td>0.31%</td>
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<tr>
<td>Class 7</td>
<td>24</td>
<td>0.24%</td>
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<tr>
<td>Class 8</td>
<td>22</td>
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<td>Class 9</td>
<td>58</td>
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<td>Class 10</td>
<td>6</td>
<td>0.06%</td>
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<tr>
<td>Class 11</td>
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<td>0.00%</td>
</tr>
<tr>
<td>Class 12</td>
<td>0</td>
<td>0.00%</td>
</tr>
</tbody>
</table>
Attachment 2. Crash History Data 01/01/2010 to 16/03/2015
Crash History from 01/01/2010 to 16/03/2015

Total Crashes: 36

Report Details:

- Request Id: 46362057
- Requested by: R BEZZANT
- Date: 16/03/2015 10:21:31

Parameters Used:

- DIER Road Carriageway: DIER Road Link: 16
- DIER Road End Chainage: Dier Road No: A0113 Tasman Highway
- DIER Road Start Chainage: End Date: 16/03/2015
- Dier Road Link: 16
- Dier Road No: A0113 Tasman Highway
- End Date: 16/03/2015
- End Time: 23:59
- Intersection Name: <spatial value>
- LGA: <spatial value>
- Light Condition: Visibility:
- List Road: Weekend:
- Locality: Crash Factor:
- No Units: DCA Ids:
- Non Road: DCA Sub Ids:
- Police Attended: DCA Sub Sup Ids:
- Police District: Days Of Week:
- Quality Assured: Driver Town:
- Radius (m):
- Recipient Name: R Barnes

Recipient Type: CDM
Release Delay: 0
Retired Road: Y
Road Type:
Show BAC: N
Show Graph: N
Show Map: Y
Start Date: 01/01/2010
Start Time: 00:00
Surface Condition:
Surface Type:
Visibility:
Weekend:
Crash Factor:
DCA Ids:
DCA Sub Ids:
DCA Sub Sup Ids:
Days Of Week:
Driver Town:
Entire State: N

Total Crashes: 36
Parameters Used:

Severity:
Speed Zone:
Toxicology:
Traffic Control:
Unit Type:
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<th>Crash No</th>
<th>Crash Date Time</th>
<th>Severity</th>
<th>Description</th>
<th>Location</th>
<th>Visibility</th>
<th>Surface Type</th>
<th>Surface Condition</th>
<th>Light Condition</th>
<th>Speed Limit</th>
<th>Unit No</th>
<th>BAC*</th>
<th>Unit Type(s)</th>
<th>Traffic Control</th>
</tr>
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<tbody>
<tr>
<td>30052908</td>
<td>13/02/2010 13:30</td>
<td>Minor</td>
<td>182 - Off carriageway left bend</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (553013.96,5282130.89) (A0113,Tasman,16,A.9.35)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
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<tr>
<td>30052951</td>
<td>08/09/2010 12:55</td>
<td>Property Damage Only</td>
<td>180 - Off carriageway right bend</td>
<td>Tasman Highway, Runnymede, Glamorgan-Spring Bay (549963.74,5279772.37) (A0113,Tasman,16,A.4.26)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry, Gravel or other loose material</td>
<td>Daylight</td>
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<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
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<tr>
<td>30052921</td>
<td>26/10/2010 14:15</td>
<td>Property Damage Only</td>
<td>181 - Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551045.65,5279550.1) (A0113,Tasman,16,A.5.49)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Heavy Vehicle</td>
<td>Not controlled</td>
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<tr>
<td>30060929</td>
<td>04/12/2010 17:00</td>
<td>Property Damage Only</td>
<td>180 - Off carriageway right bend</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551502.72,5279982.88) (A0113,Tasman,16,A.6.87)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
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</tr>
<tr>
<td>30052700</td>
<td>27/01/2011 19:00</td>
<td>Minor</td>
<td>181 - Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551871.53,5280535.64) (A0113,Tasman,16,A.6.87)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Wet</td>
<td>Dawn / Dusk</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
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</tr>
<tr>
<td>30052728</td>
<td>23/03/2011 14:20</td>
<td>Property Damage Only</td>
<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551467.51,5279870.96) (A0113,Tasman,16,A.6.87)</td>
<td>Heavy rain, hail</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
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<td>Light Vehicle</td>
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<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Glamorgan-Spring Bay (550714.92,5279849.5) (A0113,Tasman,16,A.5.02)</td>
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<td>Wet</td>
<td>Daylight</td>
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<td>Light Vehicle</td>
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<td>30052731</td>
<td>12/04/2011 11:30</td>
<td>Property Damage Only</td>
<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (552963.2,5281537.74) (A0113,Tasman,16,A.8.71)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
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<td>Light Vehicle</td>
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<tr>
<td>30060980</td>
<td>02/05/2011 16:40</td>
<td>Property Damage Only</td>
<td>170 - Off carriageway to left</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (552999.78,5281571.34) (A0113,Tasman,16,A.8.76)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
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<td>Light Vehicle</td>
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</tr>
<tr>
<td>Crash No</td>
<td>Crash Date Time</td>
<td>Severity</td>
<td>Description</td>
<td>Location</td>
<td>Visibility</td>
<td>Surface Type</td>
<td>Surface Condition</td>
<td>Light Condition</td>
<td>Speed Limit</td>
<td>Unit No</td>
<td>BAC*</td>
<td>Unit Type(s)</td>
<td>Traffic Control</td>
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<tr>
<td>30147460</td>
<td>17/02/2012 09:10 FRI</td>
<td>Minor</td>
<td>173 - Right off carriageway into object or parked vehicle</td>
<td>Tasman Highway, Runnymede, Southern Midlands (546786.44,5278511.26) (A0113,Tasman,16.A.75)</td>
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<td>Minor</td>
<td>182 - Off carriageway left bend</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551006.87,5279563.38) (A0113,Tasman,16.A.5.44)</td>
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<td>Oil/Fuel; Wet</td>
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<td>30060996</td>
<td>18/02/2012 14:45 SAT</td>
<td>Property Damage Only</td>
<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551829.84,5281010.86) (A0113,Tasman,16.A.7.36)</td>
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<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
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<td>Light Vehicle</td>
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<tr>
<td>30155263</td>
<td>01/03/2012 13:00 THU</td>
<td>Property Damage Only</td>
<td>189 - Other curve</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551353.37,5279667.56) (A0113,Tasman,16.A.5.83)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
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<td>Light Vehicle</td>
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<td>30061000</td>
<td>04/03/2012 09:50 SUN</td>
<td>Property Damage Only</td>
<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551011.01,5279561.78) (A0113,Tasman,16.A.5.45)</td>
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<td>Oil/Fuel; Wet</td>
<td>Daylight</td>
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<td>04/03/2012 15:50 SUN</td>
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<td>183 - Off left bend into object/parked vehicle</td>
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<td>Sealed</td>
<td>Oil/Fuel; Wet</td>
<td>Daylight</td>
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<td>30155282</td>
<td>03/05/2012 10:52 THU</td>
<td>Minor</td>
<td>181 - Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (552968.02,5281540.28) (A0113,Tasman,16.A.8.72)</td>
<td>Light rain, drizzle</td>
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<td>Wet</td>
<td>Daylight</td>
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<td>04/05/2012 11:33 FRI</td>
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<td>183 - Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (552898.85,5281529.86) (A0113,Tasman,16.A.8.64)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>Crash No</td>
<td>Crash Date Time</td>
<td>Severity</td>
<td>Description</td>
<td>Location</td>
<td>Visibility</td>
<td>Surface Type</td>
<td>Surface Condition</td>
<td>Light Condition</td>
<td>Speed Limit</td>
<td>Unit No</td>
<td>BAC*</td>
<td>Unit Type(s)</td>
<td>Traffic Control</td>
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<td>30155207</td>
<td>23/05/2012 13:30</td>
<td>Property Damage Only</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551036.79,5279551.88) (A0113,Tasman,16,A.5.48)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
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<td></td>
</tr>
<tr>
<td>30052739</td>
<td>15/06/2012 13:30</td>
<td>Property Damage Only</td>
<td>Off carriageway left bend</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (553073.85,5281777.23) (A0113,Tasman,16,A.8.98)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
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<tr>
<td>30035574</td>
<td>22/06/2012 10:42</td>
<td>Property Damage Only</td>
<td>Pulling out</td>
<td>Tasman Highway, Runnymede, Southern Midlands (546521.37,5278432.7) (A0113,Tasman,16,A.47)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>2</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>30052741</td>
<td>21/07/2012 16:30</td>
<td>Property Damage Only</td>
<td>Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (553494.28,5282709.92) (A0113,Tasman,16,A.10.49)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
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<tr>
<td>30054074</td>
<td>01/09/2012 16:49</td>
<td>Serious</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Glamorgan-Spring Bay (550657.74,5279834.98) (A0113,Tasman,16,A.4.96)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Motorcycle</td>
<td>Not controlled</td>
<td></td>
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<tr>
<td>30089659</td>
<td>22/09/2012 09:00</td>
<td>Property Damage Only</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (551382.16,5279691.52) (A0113,Tasman,16,A.5.86)</td>
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<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
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<td>1</td>
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<td>Not controlled</td>
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<td>30154981</td>
<td>25/10/2012 13:20</td>
<td>Property Damage Only</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Southern Midlands (548170.35,5279093.91) (A0113,Tasman,16,A.2.29)</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
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<td>Light Vehicle</td>
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<td>20076</td>
<td>25/10/2012 14:22</td>
<td>Minor</td>
<td>Other curve</td>
<td>Tasman Highway, Runnymede, Southern Midlands (548233.88,5279172.7) (A0113,Tasman,16,A.2.39)</td>
<td>Clear; Light rain, drizzle</td>
<td>Sealed</td>
<td>OillFuel; Wet</td>
<td>Daylight</td>
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<td>30125355</td>
<td>19/02/2013 14:30</td>
<td>First Aid</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (552885.57,5281530.95) (A0113,Tasman,16,A.8.64)</td>
<td>Clear; Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
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<td>100</td>
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<td>Light Vehicle</td>
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### Crash History from 01/01/2010 to 16/03/2015

<table>
<thead>
<tr>
<th>Crash No</th>
<th>Crash Date Time</th>
<th>Severity</th>
<th>Description</th>
<th>Location</th>
<th>Visibility</th>
<th>Surface Type</th>
<th>Surface Condition</th>
<th>Light Condition</th>
<th>Speed Limit</th>
<th>Unit No</th>
<th>BAC*</th>
<th>Unit Type(s)</th>
<th>Traffic Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>30155134</td>
<td>08/03/2013 09:42</td>
<td>First Aid</td>
<td>Out of control</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Fog; Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
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<td>1</td>
<td>Light Vehicle</td>
<td>Roadworks</td>
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<tr>
<td>30062851</td>
<td>10/03/2013 10:20</td>
<td>Minor</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>7810</td>
<td>10/04/2013 20:47</td>
<td>Minor</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
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<tr>
<td>12115</td>
<td>20/04/2013 05:15</td>
<td>Property Damage Only</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Dawn / Dusk</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>19261</td>
<td>10/05/2013 13:50</td>
<td>Minor</td>
<td>Wrong side/other head on (not overtaking)</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Motorcycle</td>
<td>Not controlled</td>
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</tr>
<tr>
<td>76160</td>
<td>23/06/2013 16:55</td>
<td>Property Damage Only</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Dawn / Dusk</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
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<tr>
<td>149053</td>
<td>07/11/2013 17:30</td>
<td>First Aid</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Southern Midlands</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Heavy Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>152175</td>
<td>13/11/2013 16:35</td>
<td>Minor</td>
<td>Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Southern Midlands</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
<tr>
<td>424910</td>
<td>28/10/2014 10:40</td>
<td>First Aid</td>
<td>Off left bend into object/parked vehicle</td>
<td>Tasman Highway, Runnymede, Southern Midlands</td>
<td>Light rain, drizzle</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
<td></td>
</tr>
</tbody>
</table>
Crash History from 01/01/2010 to 16/03/2015

Information contained in this document has been released in accordance with the Commonwealth Privacy Act 1988, Section 14.
Crash History from 01/01/2010 to 16/03/2015

*****End of Report*****
Crash History from 01/01/2010 to 16/03/2015

Total Crashes: 3

Report Details:

Request Id: 46362092
Requested by: R BEZZANT
Date: 16/03/2015 10:22:49

Parameters Used:

DIER Road Carriageway:
DIER Road End Chainage:
DIER Road Start Chainage:
Dier Road Link: 18
Dier Road No: A0113 Tasman Highway
End Date: 16/03/2015
End Time: 23:59
Intersection Name:
Intersection Point: <spatial value>
LGA:
Light Condition:
List Road:
Locality:
No Units:
Non Road:
Police Attended:
Police District:
Quality Assured:
Radius (m):
Recipient Name: R Barnes
Recipient Type: CDM
Release Delay: 0
Retired Road: Y
Road Type:
Show BAC: N
Show Graph: N
Show Map: Y
Start Date: 01/01/2010
Start Time: 00:00
Surface Condition:
Surface Type:
Visibility:
Weekend:
Crash Factor:
DCA Ids:
DCA Sub Ids:
DCA Sub Sup Ids:
Days Of Week:
Driver Town:
Entire State: N
Parameters Used:

Severity:
Speed Zone:
Toxicology:
Traffic Control:
Unit Type:
## Crash History from 01/01/2010 to 16/03/2015

<table>
<thead>
<tr>
<th>Crash No</th>
<th>Crash Date Time</th>
<th>Severity</th>
<th>Description</th>
<th>Location</th>
<th>Visibility</th>
<th>Surface Type</th>
<th>Surface Condition</th>
<th>Light Condition</th>
<th>Speed Limit</th>
<th>Unit No</th>
<th>BAC*</th>
<th>Unit Type(s)</th>
<th>Traffic Control</th>
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<tbody>
<tr>
<td>30155211</td>
<td>09/12/2012 13:30</td>
<td>Property Damage</td>
<td>130 - Vehicles in same lane/rear end</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (556594.37,5282428.57)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>2</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
</tr>
<tr>
<td>8847</td>
<td>13/04/2013 06:50</td>
<td>First Aid</td>
<td>181 - Off right bend into object/parked vehicle</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (554525.21,5282210.45)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Wet</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>1</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
</tr>
<tr>
<td>134654</td>
<td>07/10/2013 14:10</td>
<td>Property Damage</td>
<td>Only</td>
<td>Tasman Highway, Buckland, Glamorgan-Spring Bay (554909.86,5282232.03)</td>
<td>Clear</td>
<td>Sealed</td>
<td>Dry</td>
<td>Daylight</td>
<td>100</td>
<td>1</td>
<td>2</td>
<td>Light Vehicle</td>
<td>Not controlled</td>
</tr>
</tbody>
</table>
Crash History from 01/01/2010 to 16/03/2015
Crash History from 01/01/2010 to 16/03/2015

*****End of Report*****
Attachment 3: Rural Roads to Sealed IPWEA Document
TYPICAL CROSS SECTION
SCALE 1 : 50

NOTES
1. Alignment to satisfy min. Design speed.
2. Roadside table drains, cut off drains and culverts to be installed to suit topography.
3. Provision for widening or passing bays may be required where sight distance requirements cannot be met or there are limited options for vehicles to pull off the road.
5. Refer to Austroads AGRD-10: Part 6 Roadside Design, Safety and Barriers.
6. Design of pavements to consider project traffic loading, sub-grade strength and comply with the procedures in either:
   - Austroads - Pavement Design (2011)

   * A Guide To The Structural Design Of Road Pavements*
7. 0.4 metres required if edge line is to be installed.
8. Two coat 'Hot Bitumen' spray seal. Aggregate 10/7 or 14/7 optional.
9. Surface type to be determined with consideration to, Vehicle types/turning movement, location and grade.

TABLE 1
SOIL / ROCK TYPE | EMBANKMENT CUTTING
--- | ---
Solid Rock | Vertical 1.00 Horizontal 2.00 Vertical 1.00 Horizontal 0.25
Loose Rock | Vertical 1.00 Horizontal 2.00 Vertical 1.00 Horizontal 1.33
Sand | Vertical 1.00 Horizontal 3.00 Vertical 1.00 Horizontal 3.00
Stiff Clay | Vertical 1.00 Horizontal 1.00 Vertical 1.00 Horizontal 1.00
Soft Clay | Vertical 1.00 Horizontal 3.00 Vertical 1.00 Horizontal 1.50

TABLE 2
<table>
<thead>
<tr>
<th>CODE</th>
<th>A.A.D.T.</th>
<th>(m) SEALEO TRAFFIC WIDTH</th>
<th>(m) SEALEO SHOULDER</th>
<th>GRAVEL SHOULDER</th>
<th>VERGE</th>
<th>PAVEMENT WIDTH</th>
<th>LOGGING ROUTE</th>
<th>HEAVY VEHICLES</th>
<th>BUS ROUTE</th>
<th>BENDS WITH &lt; 50m SIGHT LINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1</td>
<td>&lt; 30</td>
<td>4000 (%)</td>
<td>500</td>
<td>NO</td>
<td>5000</td>
<td>NO</td>
<td>&lt; 5%</td>
<td>NO</td>
<td>w + 1000</td>
<td>w + 1000</td>
</tr>
<tr>
<td>S2</td>
<td>30 - 100</td>
<td>4000 (%)</td>
<td>500</td>
<td>NO</td>
<td>1000</td>
<td>NO</td>
<td>&lt; 5%</td>
<td>YES</td>
<td>w + 500</td>
<td>w + 1000</td>
</tr>
<tr>
<td>S3</td>
<td>100 - 300</td>
<td>5000 (D)</td>
<td>500</td>
<td>NO</td>
<td>6000</td>
<td>YES</td>
<td>&lt; 5%</td>
<td>YES</td>
<td>w + 500</td>
<td>w + 1000</td>
</tr>
<tr>
<td>S4</td>
<td>300 - 2000</td>
<td>6000 (D)</td>
<td>600</td>
<td>NO</td>
<td>7000</td>
<td>YES</td>
<td>&lt; 10%</td>
<td>YES</td>
<td>w + 500</td>
<td>w + 500</td>
</tr>
<tr>
<td>S5</td>
<td>&gt; 2000</td>
<td>7000 (D)</td>
<td>700</td>
<td>NO</td>
<td>9000</td>
<td>YES</td>
<td>&lt; 10%</td>
<td>YES</td>
<td>w + 500</td>
<td>w + 500</td>
</tr>
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</table>

*To satisfy a Road Class (eg. S3) the capability to comply with all A.A.D.T, LOGGING ROUTE, HEAVY VEHICLE and BUS ROUTE is necessary.

(5) = SINGLE LANE
(5) = DUAL LANE

STANDARD DRAWING
RURAL ROADS
SEALED

TAS Division
IPWEA
Local Government Association Australia
TABLE 1

<table>
<thead>
<tr>
<th>Vehicle Standing (V.S)</th>
<th>Scale</th>
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<tbody>
<tr>
<td>Car</td>
<td>6.0</td>
</tr>
<tr>
<td>Truck / Car + Trailer</td>
<td>V.S. Length + 1.0</td>
</tr>
</tbody>
</table>

* Increase "L" as required to suit outward swinging gates.

NOTES

1. Property Access Seal Types:
   - Adopt the seal type on the adjacent road (Asphalt / hot sprayed bituminous surfacing).
   - Seal is not required for property access off unsealed roads.

2. Offset property entrance gate to provide adequate vehicle standing area clear of road edge, as required.

3. Install guardposts at:
   - culvert end walls
   - the start of the access ('norside' lane approach only).

4. Pipe Culvert:
   - Pipe size, type, class, cover and grade shall be determined by consideration of the drainage catchment, rainfall I.F.D. data and road grade for an A.R.I. of 5 years (m/min).
   - Minimum pipe size = 300 dia.
   - Minimum grade = 1 in 100 (1%).

5. Shallow dish crossing may be used as an alternative.

6. Applicable for design speed zones in excess of 60km/hr.
Deepen table drain as required to suit culvert.

1. All dimensions in millimetres (mm) unless noted.
2. Precast endwall to be winged type or other approved type.
3. Shallow endwall may be used as an alternative.
4. Min clear cover over driveway culverts shall be:
   - Pipe Class:   Min Cover:
     - Class 4 (Concrete) 300
     - Class 4 (Concrete) 600
     - Class 4 (Pipe) 300
   (All other pipes refer to manufacturers recommendations.)
5. Install guardposts at culvert ends.
6. Minimum driveway dimension for Class 4b to have minimum pavement width of 4 metres.

CROSS SECTION

DRIVEWAY PROFILE
Culvert removed for clarity
**STANDARD OBJECTIVES**

1. Maximize road safety.
2. Reduce the extent of debris being tracked onto the roadway.
3. Provide vehicle standing area clear of the road edge.
4. Contain stormwater runoff within the road side drain.

**NOTES**

1. Property Access Seal Types:
   - Adopt the seal type on the adjacent road (Asphalt / Hot Sprayed bituminous surfacing).
   - Seal is not required for property access on unsealed roads.

2. Offset property entrance gate to provide adequate vehicle standing area clear of road edge, as required.

3. Install guideposts at:
   - culvert and walls:
     - the start of the access ('nearside' lane approach only).

4. Pipe Culvert:
   - Pipe size, type, class, cover and grade shall be determined by consideration of the drainage catchment, rainfall I.F.D. data and road grade for an A.R.I. of 5 years (min).
   - Minimum pipe size – 200 dia.
   - Minimum grade – 1 in 100 (1%).

5. References:

6. Applicable for design speed zones in excess of 60km/hr.
PROPERTY INFORMATION REPORT
VALUER GENERAL, TASMANIA
Issued pursuant to the Valuation of Land Act 2001

PROPERTY ID: 5983405
MUNICIPALITY: GLAMORGAN-SPRING BAY

PROPERTY ADDRESS: TASMAN HWY
BUCKLAND TAS 7190

TITLE OWNER: 100065/1 : NICHOLAS MOORE FERRAR
100065/2 : NICHOLAS MOORE FERRAR

RATE PAYERS: FERRAR, NICHOLAS MOORE

POSTAL ADDRESS: SALLY PEAK RD
BUCKLAND TAS 7190

MAIN IMPROVEMENTS SUMMARY

<table>
<thead>
<tr>
<th>Improvements:</th>
<th>FARM IMPTS</th>
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<tbody>
<tr>
<td>Improvement Sizes (Top 3 by Size):</td>
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<tr>
<td>Area:</td>
<td>Improvement:</td>
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<tr>
<td>181.0 square metres</td>
<td>SHEARING SHED</td>
</tr>
<tr>
<td>1.0 square metres</td>
<td>YARDS</td>
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</table>

Number of Bedrooms:

Construction Year of Main Building:

Roof Material:

Wall Material:

Land Area: 445.0 hectares

LAST VALUATIONS

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<thead>
<tr>
<th>Date Inspected</th>
<th>Levels At</th>
<th>Land</th>
<th>Capital</th>
<th>A.A.V.</th>
<th>Reason</th>
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<td>02/12/2010</td>
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<td>$270,000</td>
<td>$360,000</td>
<td>$14,400</td>
<td>Revaluation</td>
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<td>01/10/2004</td>
<td>$218,000</td>
<td>$310,000</td>
<td>$12,400</td>
<td>Revaluation</td>
</tr>
</tbody>
</table>

No information obtained from the LIST may be used for direct marketing purposes.

This data is derived from the Valuation List prepared by the Valuer General under the provisions of the Valuation of Land Act 2001. These values relate to the level of values prevailing at the dates of valuation shown.

While all reasonable care has been taken in collecting and recording the information shown above, this Department assumes no liability resulting from any errors or omissions in this information or from its use in any way.

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**Explanation of Terms**

**Property ID** - A unique number used for Valuation purposes.

**Date Inspected** - The date the property was inspected for the valuation.

**Levels At** - The date at which values of properties are set to determine revaluations and any supplementary valuations in the revaluation cycle.

**Land Value** - The value of the property excluding all visible improvements such as buildings, structures, fixtures, roads, standings, dams, channels, artificially established trees, artificially established pastures and other like improvements but does include draining, excavation, filling, reclamation, clearing and any other such like invisible improvements make to the land.

**Capital Value** - The total value of the property, excluding plant and machinery, and includes the land value.

**A.A.V.** - The gross annual rental value of the property, excluding GST, municipal rates and land tax, but is not to be less than 4% (percent) of the capital value.

**Multiple Tenancies** - Properties that have multiple tenants are assessed for separate A.A.V's. e.g. a house and flat.
DESCRIPTION OF LAND

Parish of BUCKLAND, Land District of PEMBROKE
Lot 1 on Diagram 100065
Being part of the land described in Conveyance No. 52/7596
Excepting thereout part of Lot 1 on D17187, Lot 1 on SP12961,
Lots 6 and 7 on P51540
Derivation : Part of 388 Acres and 1500 Acres Gtd. to J and W Robertson
Derived from Statement No. W182

SCHEDULE 1

C391886 TRANSFER to NICHOLAS MOORE FERRAR Registered 22-Oct-2002 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
C25337 CAVEAT by Tasmanian Pulp & Forest Holdings Ltd. over part of the land described therein. Registered 03-Feb-1998 at noon (MF:2514o/1139)
C75653 CAVEAT by Tasmanian Pulp & Forest Holdings Limited over part of the said land within described as shown hatched on the plan annexed thereto Registered 01-Jul-1999 at noon (MF:2560o/452)
C544568 PRIVATE TIMBER RESERVE pursuant to Section 15(1) of the Forest Practices Act 1985 (affecting part of the said land within described as shown hatched on the plan annexed thereto) Registered 23-Dec-2004 at noon
C679224 Instrument creating Forestry Right for Gunns Plantations Limited for the term of 15 years from 1-Mar-2006 and ending on the 28-Feb-2021 or the date of completion of harvest whichever is the later over the lands shown hatched on Forestry Right Diagrams filed in "Plan-Related Documents" against the titleplan to the within land. (Together with ancillary rights) Registered 21-Jul-2006 at noon
C789506 Instrument creating Forestry Right for Gunns Plantations Limited for the term of fifteen years
from 1st March 2006 and ending on the 28th February 2021 or the date of completion of harvest whichever is the later over the lands shown hatched on the Forestry Right Diagrams filed in "Plan-Related Documents" against the titleplan to the within land (together with ancillary rights) Registered 27-Aug-2008 at noon

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations
**PROPERTY INFORMATION REPORT**

**VALUER GENERAL, TASMANIA**

*Issued pursuant to the Valuation of Land Act 2001*

---

**PROPERTY ID:** 3213407

**MUNICIPALITY:** GLAMORGAN-SPRING BAY

**PROPERTY ADDRESS:** 168 SALLY PEAK RD
BUCKLAND TAS 7190

**TITLE OWNER:** 164792/2 : NICHOLAS MOORE FERRAR
249291/1 : NICHOLAS MOORE FERRAR

**RATE PAYERS:** FERRAR, NICHOLAS MOORE

**POSTAL ADDRESS:** SALLY PEAK
BUCKLAND TAS 7190

---

**MAIN IMPROVEMENTS SUMMARY**

<table>
<thead>
<tr>
<th>Improvements</th>
<th>Area</th>
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<tbody>
<tr>
<td>HOUSE FARM IMPS</td>
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<tr>
<td>Area (Top 3 by Size):</td>
<td>Improvement:</td>
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<tr>
<td>167.0 square metres HOUSE</td>
<td>HOUSE</td>
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<tr>
<td>133.0 square metres IMPLEMENT SHED</td>
<td>SHEARING SHED</td>
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<tr>
<td>2.0 square metres SHEARING SHED</td>
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**Number of Bedrooms:** 4

**Construction Year of Main Building:** 1967

**Roof Material:** Tile

**Wall Material:** Brick Veneer

**Land Area:** 550.254 hectares

---

**LAST VALUATIONS**

<table>
<thead>
<tr>
<th>Date Inspected</th>
<th>Levels At</th>
<th>Land</th>
<th>Capital</th>
<th>A.A.V.</th>
<th>Reason</th>
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<td>$500,000</td>
<td>$725,000</td>
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No information obtained from the LIST may be used for direct marketing purposes.

This data is derived from the Valuation List prepared by the Valuer General under the provisions of the Valuation of Land Act 2001. These values relate to the level of values prevailing at the dates of valuation shown.

While all reasonable care has been taken in collecting and recording the information shown above, this Department assumes no liability resulting from any errors or omissions in this information or from its use in any way.

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**Personal Information Protection statement**

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Search Date: 14/09/2014  
Search Time: 12:09 PM

Department of Primary Industries, Parks, Water and Environment  

**Explanation of Terms**

**Property ID** - A unique number used for Valuation purposes.

**Date Inspected** - The date the property was inspected for the valuation.

**Levels At** - The date at which values of properties are set to determine revaluations and any supplementary valuations in the revaluation cycle.

**Land Value** - The value of the property excluding all visible improvements such as buildings, structures, fixtures, roads, standings, dams, channels, artificially established trees, artificially established pastures and other like improvements but does include draining, excavation, filling, reclamation, clearing and any other such like invisible improvements make to the land.

**Capital Value** - The total value of the property, excluding plant and machinery, and includes the land value.

**A.A.V.** - The gross annual rental value of the property, excluding GST, municipal rates and land tax, but is not to be less than 4% (percent) of the capital value.

**Multiple Tenancies** - Properties that have multiple tenants are assessed for separate A.A.V's. e.g. a house and flat.
DESCRIPTION OF LAND

Parish of BUCKLAND Land District of PEMBROKE
Lot 2 on Plan 164792
Derivation: Part of 320 Acres Gtd to The Closer Settlement
Board, Whole of 320A and Parts of Lot 67 (320A), Lot 68 (621A),
1500A Gtd. to John and William Robertson.
Prior CT 249291/2

SCHEDULE 1

C871200 NICHOLAS MOORE FERRAR Registered 16-Jan-2009 at noon

SCHEDULE 2

Reservations and conditions in the Crown Grant if any
BURDENING EASEMENT: the right for Thomas Moore Ferrar his
executors administrators and assigns licencees
invitees servants and agents and the owners of the
land adjoining the said land within described on the
South West side thereof and as appurtenant thereto at
all times with or without vehicles and animals of all
descriptions to go pass and repass over along and
upon the strip of land marked "Right of Way" on Plan
No. 95709

SP164791 BURDENING EASEMENT: Right of Drainage (appurtenant to
Lot 1 on Sealed Plan 164791) over the Drainage
Easement (Absorption Drain) (SP30492) on P164792

C75283 CAVEAT by Tasmanian Pulp & Forest Holdings Ltd
(affecting such portion of the said land within
described as shown hatched on the plan attached
thereto) Registered 21-Jun-1999 at noon
(MF:25590/142)

C544652 PRIVATE TIMBER RESERVE pursuant to Section 15(1) of
the Forest Practices Act 1985 over part of the land
as shown hatched on the plan annexed Registered
16-May-2005 at noon

C679224 Instrument creating Forestry Right for Gunns
Plantations Limited for the term of 15 years from
1-Mar-2006 and ending on the 28-Feb-2021 or the date
of completion of harvest whichever is the later over
the lands shown hatched on Forestry Right Diagrams
filed in "Plan-Related Documents" against the
titleplan to the within land. (Together with
ancillary rights)  Registered 21-Jul-2006 at noon

C789506  Instrument creating Forestry Right for Gunns
Plantations Limited for the term of fifteen years
from 1st March 2006 and ending on the 28th February
2021 or the date of completion of harvest whichever
is the later over the lands shown hatched on the
Forestry Right Diagrams filed in "Plan-Related
Documents" against the titleplan to the within land
(together with ancillary rights)  Registered
27-Aug-2008 at noon

C934271  INSTRUMENT creating Restrictive Covenants pursuant to
section 34 Nature Conservation Act 2002 (affecting
part of the said land within described)  Registered
23-Oct-2009 at noon

D129842  MORTGAGE to Rural Bank Limited  Registered
13-Aug-2014 at noon

UNREGISTERED DEALINGS AND NOTATIONS

No unregistered dealings or other notations
This document has been prepared in accordance with the scope of services agreed upon between Van Diemen Consulting (VDC) and the Client.

To the best of VDC’s knowledge, the report presented herein represents the Client’s intentions at the time of completing the document. However, the passage of time, manifestation of latent conditions or impacts of future events may result in changes to matters that are otherwise described in this document. In preparing this document VDC has relied upon data, surveys, analysis, designs, plans and other information provided by the client, and other individuals and organisations referenced herein. Except as otherwise stated in this document, VDC has not verified the accuracy or completeness of such data, surveys, analysis, designs, plans and other information.

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Van Diemen Consulting Pty Ltd

PO Box 1
New Town, Tasmania

T: 0438 588 695    E: rwbarnes73@gmail.com

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