Critique of the Approved Work Plan for the Abel Reef mine

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Executive Summary

The Abel's Reef Mine (MIN 5349) is located in the Wombat State Forest. This mining proposal has raised concerns in the local community. This report has been prepared by a group of local residents and independent community members with relevant qualifications and/or decades of experience in natural resource issues, community engagement and sat on government appointed Steering Committees. In matters such as this our approach is look at the issues in light of legislative and regulatory context.

The mine has a Working Plan approved to extract a 5000 tonne bulk sample. This approval was made on 30th May 2012. The Approved Work Plan and the accompanying Biosis report into flora and fauna on the site have been critiqued against the legal requirements the Minister needs to meet in order to approve the plan. The Biosis report has formed the basis of the calculation of off-sets for the vegetation removal on site. If the bulk sample assay proves the resource meets their expectation, the proposal is to extract a further 120 000 tonnes from the site.

In July 2012 the Mining Licence for this site expired. Under the regulations the renewal of that licence requires a recalibration to current guidelines. Within this timeframe, these guidelines have been updated and come into effect from 1st February 2012. Any licence renewal must be accordingly reviewed.

The Wombat Independent Activists review of the Approved Works Plan shows that numerous failures of the Approved Plan to meet legal requirements. The Minister has publicly backed his Approval of the mine in correspondence, radio and in the print media. The authors of this report believe that the Department of Primary Industry has not done an adequate job in assessing this application, that they have not applied the new regulations sufficiently and have totally missed legal requirements that have jurisdiction over the site. To add to this, the location of the site has been mis-mapped. In simple terms, this oversight means that a number of the assessments have been carried out on the wrong site. The Minister is now politically exposed as a result of his public backing of the mine.

The Minister has open to him three legal avenues on which to act in order to withdraw the Approved Working Plan and request that it be redone to meet current legislative requirements before re-submitting it the Minister's approval.

1. The Minister could withdraw the current Approved Work Plan under the Mineral Resources (Sustainable Development) Act 1990 and declare it as a 'specified mine' based on Section 7 (c) of the act-

Section 7 (C) Ministerial Order declaring specified mines and quarries.

(2) The Minister must not make a declaration under subsection (1) in respect of a mine or quarry unless the Minister is satisfied that there is geotechnical or hydrological factors within the mine or quarry that pose a significant risk to-

(a) public safety; or
(b) the environment; or
(c) infrastructure.

* This report illustrates that there is significant risk from the mine in the areas above due primarily to shallow or missing detail in the current Approved Work Plan. These omissions mean that the Minister cannot be confident that there is no risk and so should make mine 5349 a ‘specified mine’ under the act.

2. Under Section 15 1 (c) of the Mineral Resources (Sustainable Development) Act 1990, the Minister can cite all of the shortfalls in the current Approved Work Plan for the Abel’s Reef mine and claim that it lacks sufficient detail as required by the regulations and ask for it to be bought up to standard and re-submitted.

3. The current Mining Licence expired on July 2012. This means that the renewal of this Licence will require it to meet the current post 1 Feb 2012 guidelines. The Minister can ask that the proposed bulk sample not proceed until the Licence renewal is completed and granted and that this meets the current standards.

We, the authors of the report, believe that if this mine proceeds under the current non-compliant Approved Works Plan, there is strong likelihood of legal action. If the above options are not exercised, we will proceed to pursue this and other options.

Background:

In July 2007, a Mining License (MIN 5349) covering a 5 hectare site located in the headwaters of the Lerderderg River, Wombat State Forest was granted to Mr Neil F Stuart (geologist) and Mr Barry G Friend (mine developer). This mining license was granted for a five year period which expired in July 2012.

The mine site is situated on the southern slopes of the Great Dividing Range between Camp Road, Lerderderg Road, and Maxwell Track approximately 5 kilometres south of Bullarto and 8 kilometres North West of the Blackwood township. The mineral resource at this site is known as Abels Reef. The site was mined from the late 1800s to the early 1900s, and several of the old shafts are located within the current license area (www.fortitudemining.com.au).

The current owners commenced exploration works on the site under an exploration license (EL3483) that was granted to Mr Friend in August 1993. Earlier in 1993, a Shelterwood 1 logging operation was conducted on a 45ha area that included the Abels Reef site. The logged area then received an intensive post-harvest fuel reduction burn (slash burn) on the 22nd March 1994. The logging and burning operations removed a significant portion of vegetation and exposed the Abels Reef area making it possible for the exploration works to be undertaken with considerably more ease and less cost than if the vegetation had remained intact.



A variety of soil and rock samples were taken and assayed prior to an intensive exploratory drilling program which commenced in October 1994. Results from this early work indicated that a small to medium open cut resource existed at the Abel reef site (Friend 1995).

On 30th May 2012, nineteen years after the exploration licence was first granted DPI approved a work plan for the Abels Reef mine. Six weeks later (18th July 2012) the mining licence (MIN 5349) expired. A week after the licence expired Avanti Mining and Contracting Pty Ltd (Fortitude Mining) registered an interest in the Abels Reef mine. Mining Licence (5349) is currently in the throes of being renewed (www.dpi.vic.gov.au).

Photo1: Channel sampling at Abels Reef site in the mid 1990's
© 2012; Fortitude Mining

Introduction:

A Work Plan for the proposed Abel Reef mining operation was prepared for the owners of Mining Licence 5349 in August 2010 (Ulrik 2010). A report outlining the results of a flora survey conducted in 2010 was attached to the Abel Reef Work Plan as an appendix. This flora survey does not meet requirements of Victoria's *Native Vegetation Management: A Framework for action* (DNRE 2002), most notably the vegetation offset requirements.

The mine owners commissioned a more comprehensive flora and fauna assessment which was undertaken by consultants, Biosis Research. There are a number of concerns with the adequacy of the Biosis report (Gibson & Shell 2012) which are discussed in more detail throughout this report and appendix.

The 2010 Abel Reef Work Plan (Ulrik 2010) was submitted to the Department of Primary Industries (DPI) together with the Biosis flora and fauna assessment report (Gibson & Shell 2012). The Work Plan received approval on the 30th May 2012.

The Ministerial guidelines "*Work plan guidelines for a mining licence*" (DPI undated) (the Work Plan Guidelines) were developed by DPI's Earth Resources Regulation Branch to assist mine licensees to prepare a work plan. Whilst not legally binding, the Work Plan Guidelines are intended to compliment relevant information in the Mineral Resources (Sustainable Development) Act 1990 (MRSD Act) and Mineral Resources Development Regulations 2002 (MRD Regs).

This report utilises the Work Plan Guidelines as a framework against which to assess the adequacy of the information provided in the Abel Reef Approved Work Plan.

The Abels Reef mine is located in an area with many social, environmental and heritage values which have not been adequately addressed in the Abel Reef Approved Work Plan. By approving the Abel Mine Work Plan in its current form, both the DPI and the Department of Sustainability and Environment (DSE) have been derelict in their responsibility to comply with requirements of MRSD Act and other relevant Acts and legal instruments that govern mining and land use planning in Victoria's State forests.

1. Mining Legislation and Regulations

Mineral exploration and mining activities in Victoria are regulated under the Mineral Resources (Sustainable Development) Act 1990 (MRSD Act). The purpose of the MRSD Act is to *encourage an economically viable mining industry which makes best use of mineral resources in a way that is compatible with economic, social and environmental objectives of the State*. The MRSD Act is administered by the Minerals and Petroleum Division of the DPI.

The DSE are Crown land managers, as such they are responsible for the management of State Forests which are governed under the Forest Act 1958, forest regulations and Code of practices for forests. In regard to mining and exploration on crown land DPI and DSE have a Memorandum of Understanding (MOU) relating to work plan consultation between the two departments. The MOU was agreed between the departments in an attempt to reduce red tape whilst also ensuring sustainable and socially and environmentally responsible development of mineral resources.

As part of the mining approvals process, under section 40 of the MRSD Act, all mines are required to submit a work plan to DPI for approval. *The work plan is the primary document describing activities to be undertaken on a mine site. It is intended to provide guidance to*

operational staff at the mine as well as informing other readers such as Council or Government officers to facilitate decisions and approvals. (www.dpi.vic.gov.au). The holder of a mining licence lodging a work plan must ensure it contains the information set out in Schedule 13 of the Mineral Resources Development Regulations 2002 (MRD Regs).

The Mineral Resources Development Amendment Regulations 2011(r.35) amended Schedule 13 to the MRD Regs by revoking all references to mine size (ie mines that exceed or do not exceed 5 hectares). Prior to these amendments mines of 5 hectares or less were not required to provide the same level of detail as larger mines had to provide for approval of work plans. These amendments came into effect on 1st February 2012 and mean that from this time all mining applications in Victoria must provide the same level of detail in their work plans.

The '*Code of practice for mineral exploration Standards, procedures and practical guidance under the Mineral Resources (Sustainable Development) Act 1990* (the Mining Code) was released in March 2008. The purpose of the Mining Code is to provide practical guidance to how exploration work should be undertaken to meet regulatory requirements and environmental standards.

Building on the Mining Code a number of Ministerial guidelines including *Work plan guidelines for a mining licence*, *Management of Water in Mines and Quarries* and *Ministerial Guidelines for Description of a Mineral Resource* have been developed by DPI's Earth Resources Regulation Branch to guide important aspects of mineral explorations and mining operations. All the relevant Acts, regulations, codes of practices and ministerial guidelines are available on the DPI website together with a number of references and information sources that are recommended by DPI.

2. Work Plan Format

The format of the Abels Reef Approved Work Plan does not comply with the Work Plan Guidelines, below. The Approved Plan is not *clear, concise and* does not *contain sufficient detail to enable a reader to understand the activities proposed.* The Approved Plan is fragmented and is in fact a dated rudimentary document that bears little resemblance to the expected standards as described in DPI Work Plan Guidelines below

The Work Plan Guidelines state a Work Plan *must be clear, concise and contain sufficient detail to enable a reader to understand the activities proposed to be undertaken at the site, their potential impacts and the control or management actions required*.

a. Include a document control panel showing the date of creation or review and a version number
b. Include a footer on all pages showing the document name, version and date
c. Include a contents page and list of figures, drawings and illustrations,
d. Be page and section numbered so that pages can be added, deleted or replaced without loss of coherence.
e. Be bound in a way that allows for removal, addition or replacement of pages

The Abels Reef Work Plan is dated 13th August 2010, at this time there were more stringent work plan requirements for mines larger than 5 hectares. Amendments to Schedule 13 of the MRD Regs came into effect on 1st February 2012 this revoked all reference to mines 5 hectares and less and required that all mines now provide the same level of detail. The Abels

Reef Work Plan was approved by DPI on 30th May 2012 in its original 2010 format, with the single addition of the flawed Biosis flora and fauna assessment report (Gibson & Shell 2012). The mining licence owners have failed to update maps, drawings, and detailed written descriptions of the mining proposal in line with current standards.

Under the section Document Control the Work Plan Guidelines specify that a Work Plan must- *Include a document control panel showing the date of creation or review and a version number* and *Include a footer on all pages showing the document name, version and date*. This is to enable the tracking of changes and additions of documents in the event of variations to a Work Plan. The Abels Reef Work Plan does not show any of the variations it has incurred over time (ie: Biosis report, development of a Community Consultation process) nor does it comply in terms of providing a footer with date and version number. On these grounds the Work Plan does not meet the Document Control requirements of the Guidelines.

3. Geological information

In the introduction of the Abels Reef Approved Work Plan an insufficient description of some geological factors is provided. There is no report that clearly describes the test results from sampling and exploration bores which were undertaken in the mid-1990s by the current owners under an exploration licence. Nor is there a depiction of interpreted geological boundaries, nor are estimates of overburden and topsoil quantities provided

Schedule 13/1. A general description of geological information including, if available, estimates of ore resources and reserves

The Guidelines state *that the geological reporting in a Work Plan may include the following*;

- *Details of the methods of investigation, sampling and sample testing, eg diamond drilling, percussion drilling, conductivity tests, grab samples.*
- *Map(s) showing sample and bore locations together with test results, geological and interpreted boundaries as appropriate.*
- *Geological cross sections showing bore logs together with test results, geological boundaries and interpreted boundaries as appropriate.*
- *Advice on resource assessment as per the Joint Ore Reserves Committee (JORC) Code (The JORC Code provides minimum standards for public reporting to ensure that investors and their advisers have all the information they would reasonably require for forming a reliable opinion on the results and estimates being reported).*
- *If applicable, provide estimates of overburden and topsoil quantities.*

Resource assessments in the Abels Reef Work Plan do not meet the requirements of *The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* 2008 (the 'JORC Code'). The JORC Code governs the estimation of mineral resources and defines who is a competent person to undertaken these tasks. Section 6 of the JORC Code states *A company issuing a Public Report shall disclose the name(s) of the Competent Person or Persons, state whether the Competent Person is a full-time employee of the company, and, if not, name the Competent Person's employer.*

In early 1998 consultants Pinnacle Geoservices were engaged to review all the surface and drilling data for the Abels Reef site and provide independent resource estimations based on data from the early exploration works. This resulted in a resource estimate of 142,000 tonnes @ 2.37 g/t. (Stuart & Friend 1998). The following year the Abels Reef site underwent a

resource estimation reassessment that used different parameters to the earlier estimates (Stuart & Friend 2000). The later resource assessment resulted in higher mineral estimates of *121,tonnes @ 3.4 g/t Au within which there is a higher grade resource of 52,000 tonnes @ 4.5g/t Au* (Stuart & Friend 2000). The 2000 annual report, which was produced as a requirement of the Abels Reef exploration licence, does not disclose the name of the person responsible for the newer resource estimates. This newer resource estimate is quoted in the Approved Work Plan.

Estimates of the overburden and topsoil quantities were not provided in the Approved Work Plan. These estimates are vital to the identification and mitigation of geotechnical and OH&S risk factors on the Abels Reef mine site.

Of particular importance to the Abels Reef mine is that the Approved Work Plan has failed to supply a map showing the bore locations. As shown in the Geovic map below, according to DPI records the registered site boundary for mine 4539 (Abel Reef) does not encompass most of the actual exploration bores and sample sites. The Victorian Resources Online Geovic maps are a recommended information source in the Work Plan Guidelines and they are freely available on the governments interactive map website.

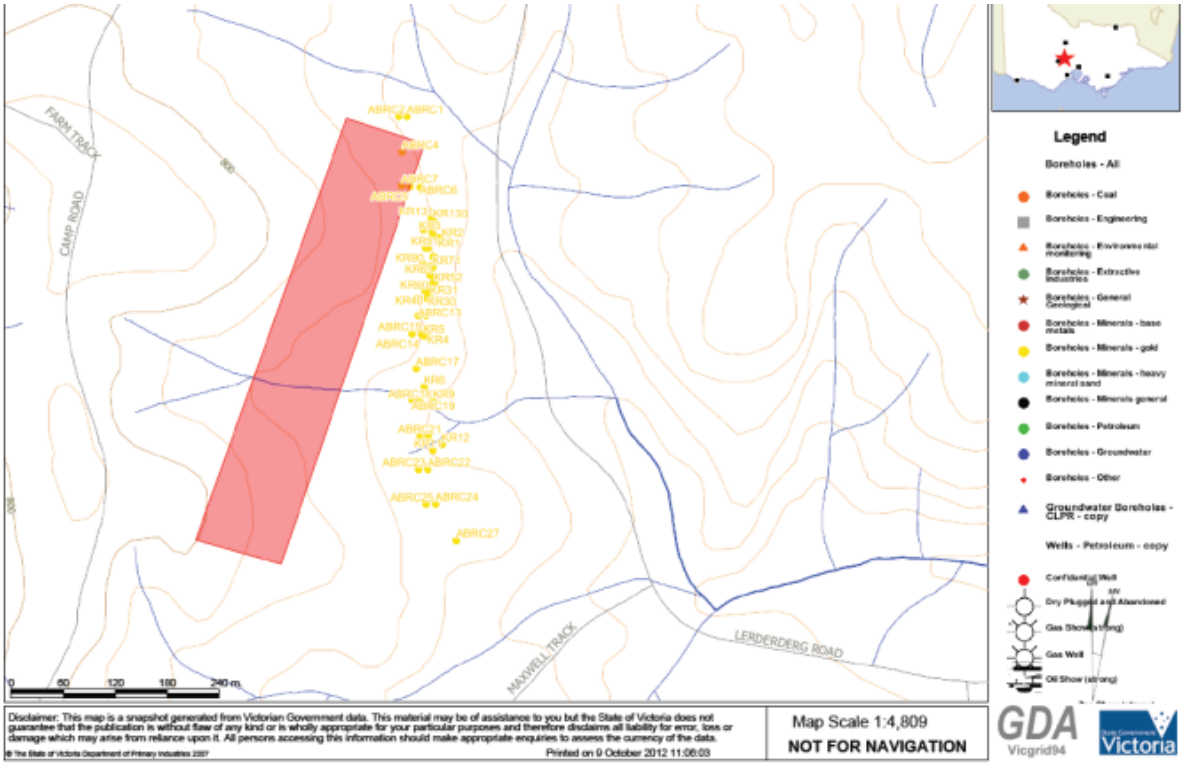


Figure 1: Geovic map showing location of the boreholes at the Abels Reef mine site and the DPI registered boundary of the Mining Licence

4. Location and regional plans

The Abel Reef Approved Work Plan fulfils the requirements of Schedule 13/2 a very basic map of the general location at the appropriate scale is provided in Figure 1 of the Approved Plan

Schedule 13/2 A general location plan with a scale of 1:100 000 or 1:50 000.

The Approved Work Plan only partially fulfils the requirements under Schedule 13/3. The map of the required scale (1:25 000) was provided in Figure 2 of the Approved Work Plan, however the map does not include the required map formatting or show land tenure details or proposed access roads as outlined in the Work Plan Guidelines below

Schedule 13/3 A regional plan at scale of 1:25 000 showing the extent of Crown lands, private lands, private land allotments for the proposed work plan area, and, where possible, parks and reserves, within 2 km of the site.

The Guidelines state that a regional plan should show:

- *North direction, legend, scale, date of and revision date of drawing.*
- *Private land. (show allotments where these are relevant to the work plan)*
- *Occupied houses within a two kilometre radius – residential areas need only be indicated in built up areas.*
- *Crown land, parks and waterways within two kilometres of the site.*
- *Proposed access roads*

Clearly the MRD Regs requires that Work Plans identify the Land Tenures surrounding proposed mine sites. At a regional scale the nearby communities, surrounding land holders and the relevant land management authorities should be identified.

The Approved Work Plan and the Biosis Report do not contain a map or a clear written description of the Wombat State Forest reserves and forest management zones within and around the mine site. This is particularly remiss as the Biosis report states that mitigation measures should adhere to the forest management zone requirements outlined in the Midlands Forest Management Plan (1996). Biosis should have clearly described the location and particular requirements of the different forest management zones on and near the mine site. These details are readily available on the DSE Forest Explorer website.

In general the maps provided in the Approved Work Plan are grossly inadequate. The maps do not contain the detail of the publicly available Victorian Resources Online (VRO) Geovic and other Interactive Maps that are freely available on the internet. The Abels Reef mine owners don't appear to have accessed the online documents and maps recommended in the DPI Work Plan Guidelines. The Approved Work Plan contains much simplified older versions of the state maps that are lacking in important details.

5. Site plan (or development plan).

A site plan should show quite specific details of all proposed works to be undertaken on the site.

The Approved Work Plan briefly discusses the anticipated extent of open cut trench, but it does not provide appropriate details relating to soil stability such as bench height, berm details and working batters. Furthermore without the estimates for stockpiled topsoil and overburden volumes it is impossible to design the safe placement of these stockpiles.

Schedule 13/4 A site plan at 1:1000, 1:2500 or other appropriate scale, including cross-sections, showing and describing existing surface contours, etc., and also including

- ***a. the proposed buildings and surface facilities; and***
- **b. the anticipated extent of open cut extraction, with proposed bench height, berm details and working batters; and**
- **c. the sequencing of open cut extraction; and**
- **d. the location of topsoil dumps, and waste dumps or stockpiles; and**
- **e. proposals for landscaping of the site, including buffer zones; and**
- **f. access roads;**

The Work Plan Guidelines state that a written description of plant, layout, equipment and method of working should be supported by site plans. Section 3 of the Approved Work Plan, provides a brief description of the mining processes, layout and sequencing proposed for the Abel Reef site. This description lacks the necessary detail for a well-planned safe mine site.

Schedule 13/4. Also requires that a work Plan includes a *site plan at 1:1,000, 1:2,500 or other appropriate scale, including cross-sections, showing and describing existing surface contours, etc.* A plan at this scale was provided for the Able Reef site, but again it did not contain all the required information. The site plans and drawings in the Approved Work Plan are very simplistic, they do not include contours, drainage lines and other drainage related information necessary for proper decision making at a mine site.

An assessment of geotechnical risks is required by DPI as part of the submission of a Work Plan for a new open pit mine/quarry. *Work Plans are required for all open pit mines and quarries where the areal extent of the excavation exceeds five hectares or five metres depth*. (www.dpi.vic.gov.au).

The Approved Plan does not consider any geotechnical risks that could arise at the Abels Reef open cut mine in line with DPI *Guidance material for the Assessment of Geotechnical Risks in Open Pit Mines and Quarries*. (www.dpi.vic.gov.au). Rather than taking a proactive approach to safety issues and risk management the Approved Plan has adopted a 'suck it and see' attitude to important mine safety considerations. In relation to mine stability the Approved Plan states; *Slope stability will dictate the interim batter, hopefully the sandstone to the east will hold up. And the slope angle to the East will be as steep as can be safely worked*.

6. **Mineral recovery methods**

The Approved Work Plan does not describe proposed mineral processing as the ore from the Abels Reef mine will be transported to an offsite processing facility at Maldon. This strategy reduces environmental footprint on the actual mine site and transfers these issues to another site.

Schedule 13/5 a description of the metallurgical and mineral recovery methods to be used.

7. Rehabilitation plan

The rehabilitation section of the Approved Plan is grossly inadequate. When formatting is removed less than half a page has been dedicated to multiple subjects included in this most important topic. No details have been given about ongoing monitoring rehabilitation requirements and stabilisation of the extraction area, road cuttings and other disturbed areas within the Abels Reef mine site

Schedule 13/6. A rehabilitation plan that -
a. addresses concepts for the end utilisation of the site; and
b. includes a proposal for the progressive rehabilitation and stabilisation of extraction areas, road cuttings and waste dumps, including re-vegetation species; and
c. includes proposals for the end rehabilitation of the site, including the final security of the site and the removal of plant and equipment.

The Work Plan Guidelines state that a rehabilitation plan should Include a rehabilitation drawing, and cross sections at a *1: 2,500 OR 1:1,000 scale* which show:

- *North direction, legend, scale, date of and revision date of drawing.*
- *Cross sections, mining licence boundaries and final pit*
- *Progressive rehabilitation/staging*
- *The final rehabilitated land form (in keeping with the preferred or minimum end use)*
- *Where applicable incorporate those features identified in the rehabilitation proposal*.

Figure 3 and 4 in the Abels reef Approved Work Plan show a very small and somewhat unclear contour plan and contour cross section, these do not show scale, index, direction, the actual location of cross section or the dimensions of works to be carried out. The cross-section contour drawings in Figure 4 indicate that the 20m deep trench will be back filled with the stockpiled over burden. These drawings indicate that the trench will not be completely refilled to its original surface level and an indentation of considerable depth will be left behind following the rehabilitation phase.

Section 19.1 of the Mining Code (2008) states that '*Costeans or voids created from bulk samples should be backfilled to approximately 150 mm above the natural ground level to allow for settlement. The backfilled material should be compacted by driving over it*.' Clearly the Approved Work Plan does not meet this requirement.

The Code of forest Practices for timber production (DSE 2007) Section 2.3.1 describes how forests should be regenerated. These measures should be utilised to ensure adequate rehabilitation at the Abels Reef mine site that properly addresses concepts for the end utilisation of the site. The Code of forest Practices states; *Harvested native forest is managed to ensure that the forest is regenerated and the biodiversity of the native forest is perpetuated. The natural floristic composition and representative gene pools are maintained when regenerating native forests by using appropriate seed sources and mixes of dominant species. State forest must be regenerated with species native to the area, wherever possible using the same provenances, or if not available, from an ecologically similar locality. Regeneration operations must aim to approximate the composition and spatial distribution of canopy species common to the coupe prior to harvesting, where they can be determined*.(DSE 2007).

7. Environmental management plan

The Environmental Management in the Approved Work Plan appears to rely on the Biosis report which is mostly focussed on the calculation of vegetation offsets and minimal consideration of other important environmental factors.

Schedule 13/7. An environmental management plan which –
a) identifies the key environmental issues for the proposal and includes details of background data, baseline studies or existing conditions in relation to environmental issues;
b) includes proposals for the management of environmental impacts including nomination of targets and proposals for the mitigation, control or reduction of impacts;
c) includes proposals for the management of wastes including consideration of the principals of waste minimisation;
d) includes a proposed monitoring program addressing the key environmental issues;
e)includes a proposal for reporting outcomes of the plan to the local community.

Watercourses and drainage.

The Approved Work Plan has failed to properly acknowledge and address water issues. This is negligent as the mine is located in the Lake Merrimu (Lerderderg River) Water Supply Catchment, a Declared Special Area (Water Supply Catchment) under the Catchment and Land Protection Act1994. The 1975 report that first led to the declaration of this catchment says*, the operation of mining ventures is generally not in the best interests of water quality, and it is hoped that the Lerderderg catchment will in future be exepted from occupation under Miner's Rights, as have the other catchments in the Merrimu scheme, and the Rosslynne and Djerriwarrh catchments*. (Soil Conservation Authority 1975)

The mines location in a Declared Special Area should automatically trigger a referral to the relevant water and catchment management authority. There is no indication that DPI or DSE has referred the Abel Reef Work Plan to the relevant water or catchment authority. Neither the Approved Work Plan nor the Biosis Report make mention of the fact that the Abel Reef mine is located in a Declared Special Area (Water Supply Catchment).

The Work Plan Guidelines state the following water and drainage information should be provided in the Environmental Plan.

- *Location of proposed water dams, tailings storage facilities and any measures for the diversion of water from the site.*
- *Water supply boreholes.*
- *Environmental Monitoring Locations*
- *Show monitoring locations on the site plan.*
- *North direction, legend, scale, date of and revision date of drawing.*
- *Existing surface contours, topographical features, drainage patterns, water courses and vegetation.*

Figure 5 in the Approved Work Plan is a very basic drawing showing the location of the mine excavation, holding dams and overburden stockpiles. However these drawings are of little use as they do not show basic details such as scale, date or legend nor do they show contours, topographical features, drainage patterns, water courses and vegetation stockpiles.

The Biosis report provides conflicting information and dubious interpretations of water related implications for the Abels Reef mine project. The most glaring error is Section 4.2.6 of the Biosis report erroneously states that *No significant waterways are located within the project area* (p.21). The Biosis report then counters this statement in section 4.2.9, by discussing how the tributary to Crowley Creek runs through the middle of the Abels Reef mine site and that drainage lines or temporary streams receives protection under a Code of forest practices (DSE 2007) exclusion zone.

The Water Act 1989 defines a waterway as

(a) a river, creek, stream or watercourse; or
(b) a natural channel in which water regularly flows, whether or not the flow is continuous; or
(c) a channel formed wholly or partly by the alteration or relocation of a waterway as described in paragraph (a) or (b); or
(d) a lake, lagoon, swamp or marsh, being-

Under the section on *Water Quality, River Health and Soil Protection*, the Code of forest practices (DSE 2007) defines three classes of waterways for crown land

1. Permanent rivers and streams, pools and wetlands;
2. Temporary streams; and
3. Drainage lines.

The Forest Code defines drainage lines as *depressions that have visible evidence of periodically flowing water (including obvious sedimentation or other clear evidence of overland flow) that feed into temporary or permanent streams. A defined channel may or may not be present. Visible water flow would be expected after storm events or briefly in the wettest times of the year. Distinctive riparian vegetation is not likely to be present* (DSE 2007).

It appears that Biosis researchers are confused about the application of the Forestry Code across different land tenures and they have based their interpretations on the wrong chapters of the forestry code. Chapter 4 covers the application of the Code on private land and chapter 2 & 3 cover the application of the Code on public land. The Biosis report incorrectly states that a 5m filter strip is required for temporary streams and drainage lines on the Abels Reef mine site. On public land temporary streams and drainage lines are afforded a 10m filter strip which excludes machinery movements. Mitigation measures in the Biosis report (p.30) state that the mine should *adhere to requirements of GMZ, SMZ and CPZ areas outlined in the Midlands Forest Management Plan*. The CFZ excludes machinery and soil disturbance, it is impossible for the mining operation to meet this requirement.

The information supplied in the Approved Work Plan to show how sediment and water will be managed on the Abels Reef site is insufficient for proper risk management, it is sometimes incorrect and mostly very confusing. The top of the Great Divide and particularly the south face are prone to severe sudden micro-bursts of rain that commonly occur over the spring/summer period. Below is a photo of the run off from such an event in 2005, the picture was taken at the intersection of Lerderderg Rd and Lynch's Track only 1-2 kilometres from the mine site. Within 10 minutes of one of these very heavy sudden downpours flash flooding occurs in the headwaters streams. What were dry sedgy gullies can suddenly become fast moving water courses with high sediment transport potential.



Photo 2:: Flash flooding following a sudden severe summer storm in January 2005. The photo was taken on the corner of Lerderderg Road and Lynches track 2kms east of the Abels Reef mine. Source: Loris Duclos

The Ordovician sediments on the Ables Reef site are considered to be moderate to highly erodible , The Soil Conservation Authority state *Where the annual rainfall is greater than 800 mm, the soils on sedimentary parent material are generally yellow gradational soils with a moderate to high erosion hazard*.(Soil Conservation Authority 1975).

Once disturbed and mobilised the very fine soil particles in the Ordovician metasediments are transported long distance. *Offsite impacts such as water pollution and stream siltation require effective management of sediment yield. High sediment yields are not necessarily derived from the most highly erodible soils. Managers carrying out erosion-hazard assessments need to take into account both the potential for detachment of soil particles, and the potential for this sediment to reach receiving waters*.(Croke et.al 1999*).*

Given the important catchment status of the waterways in the headwaters of the Lerderderg River, it is an imperative that sediment be kept from breeching the mine's dams and being transported into the Lerderderg system. The information supplied on how water and sediment will be contained on-site does not meet the Work Plan Guideline's requirements.

The proposed mine site excavations will cross a mapped water course that is afforded Code of Forest Practise exclusion under the Forest Act. The Abels Reef mine will cut a trench up to 20 meters deep perpendicular to this water course and potentially a second to the north. This waterway exists because there is a catchment above it that channels water into what is a second order stream.

The rehabilitation plan does not explain how the backfilling of the trench will be treated to prevent the water coursing down the riparian zone seeping and eroding the replaced fill. There is the potential for the integrity of the backfill to be compromised by high erosion energy from water naturally flowing down this drainage line.

The Approved Works Plan gives a series of illustrations demonstrating how the trench will be backfilled. Given that the intended trench is along the slope or contour, the trench that will be left will become a waterway. Water flowing down the slope will meet the trench and move sideways.

The Work Plan needs to be withdrawn and a hydrologist engaged to examine geotechnical risks and design the rehabilitation plan for the waterway and drainage issues at the Abels Reef mine site. This plan should then be submitted for approval by Melbourne Water, Southern Water and The Port Phillip and Westernport CMA. After these referral Authorities have signed properly considered geotechnical factors should the Working Plan be re-submitted for approval by the Minister.

Reserves, Heritage and Tourism.

The Abel's Reef mine is located at the headwaters of the Lerderderg River, which is listed as a Heritage River under the Victorian Heritage Rivers Act. The site contains a number of historical mine workings including shafts and an addit. The historical mine workings on the Abels Reef mine site should be assessed and documented by Heritage Victoria. Proposed open cut mining will open up and then fill in the historical workings.

Forest Values and the Mine.

The Midlands Forest Management Area Forest Management Plan (Midlands FMP) is the overriding management plan covering the Wombat State Forest.

The completion of the Regional Forest Agreement (RFA) process in Victoria saw the Commonwealth and State government ratify a Comprehensive Adequate and Representative (CAR) reserve system for Victoria. The CAR reserve system was based on protecting 15% pre European forest cover. This process led to the development of the Ecological Vegetation Communities (EVC) vegetation classification system which now forms the basis for all vegetation assessments in Victoria. In the West RFA, under the section Car Reserve System it is stated that- *Parties agree that changes to that component of the CAR Reserve System in State Forest will only occur in accordance with this Agreement, will not lead to a net deterioration in the protection of identified CAR Values, and will be publicly available.*

The Regional Forest Planning Section states- *link conservation reserves with special protection and special management zones where environmental values are given highest priority.*

Changes to the CAR reserve system need to balance values lost with values gained in any offset. Under the Midlands FMP and the West Victorian RFA, changes to the reserve system on public land needs to be offset with areas that have a similar site ecologically that replaces the values lost..

The southern half of the Abels Reef mine is located in a Special Management Zone (SMZ) and other sections of the mine are within Code of Forest Practice exclusion zones.

A number of values covered by SMZ 6119 have not been adequately assessed in the Approved Work Plan or the accompanying Biosis report. The following section looks at the values, data and information available, the failure of Biosis to use it and most importantly show that Biosis have assessed the wrong footprint.

If the DSE Interactive Map website had been consulted thoroughly, Biosis would have seen that the SMZ has listed site values as well the landscape level values. This free public online resource should have been fully utilised by consultants to better gain the history of disturbance on the site, and to identify all the values that are supposed to be protected in the SMZ. All of this information is easily accessed on the DSE interactive website especially for those with the ability to use the 'identify' button to access the relevant metadata. Clearly Biosis has adopted a less than diligent research approach and this has led to a number of values that are protected under the SMZ, not being properly considered.

Below is the metadata for the SMZ on the Abels Reef mine site, which is accessible on the DSE Interactive Maps website.

Forest Management Zones
FMZ description Special Management Zone
FMZ Code: SMZ
Site Number: 6119
SMZ/SPZ Value : Heathy Dry Fst, Shrubby Dry Fst, Herb-rich Foothill Fst, Damp Fst, Shrubby Foothill Fst, Sedgy Riparian Woodland, Powerful Owl, Greater Glider, Threatened Flora, Designated Water Supply Catchment

Unfortunately the Biosis report has not used the metadata to identify the above values covered by SMZ 6119. The SMZ covers half the proposed mine site. A systematic assessment of the above values and the relevance to the site should have been undertaken.

In fact the Biosis Report has been carried out on 5 hectares adjacent and to the west of the actual mine site. As mentioned earlier there appears to have been a mapping error in the past which looks like a GIS projection error. This mistake can be seen to carry over a number of years and a number of reports. Figure 2 of this report provides a Geovic map which shows the location of the boreholes at the Abel's Reef mine site and the boundary of the registered mine site. This error on its own effectively renders the Working Plan invalid.

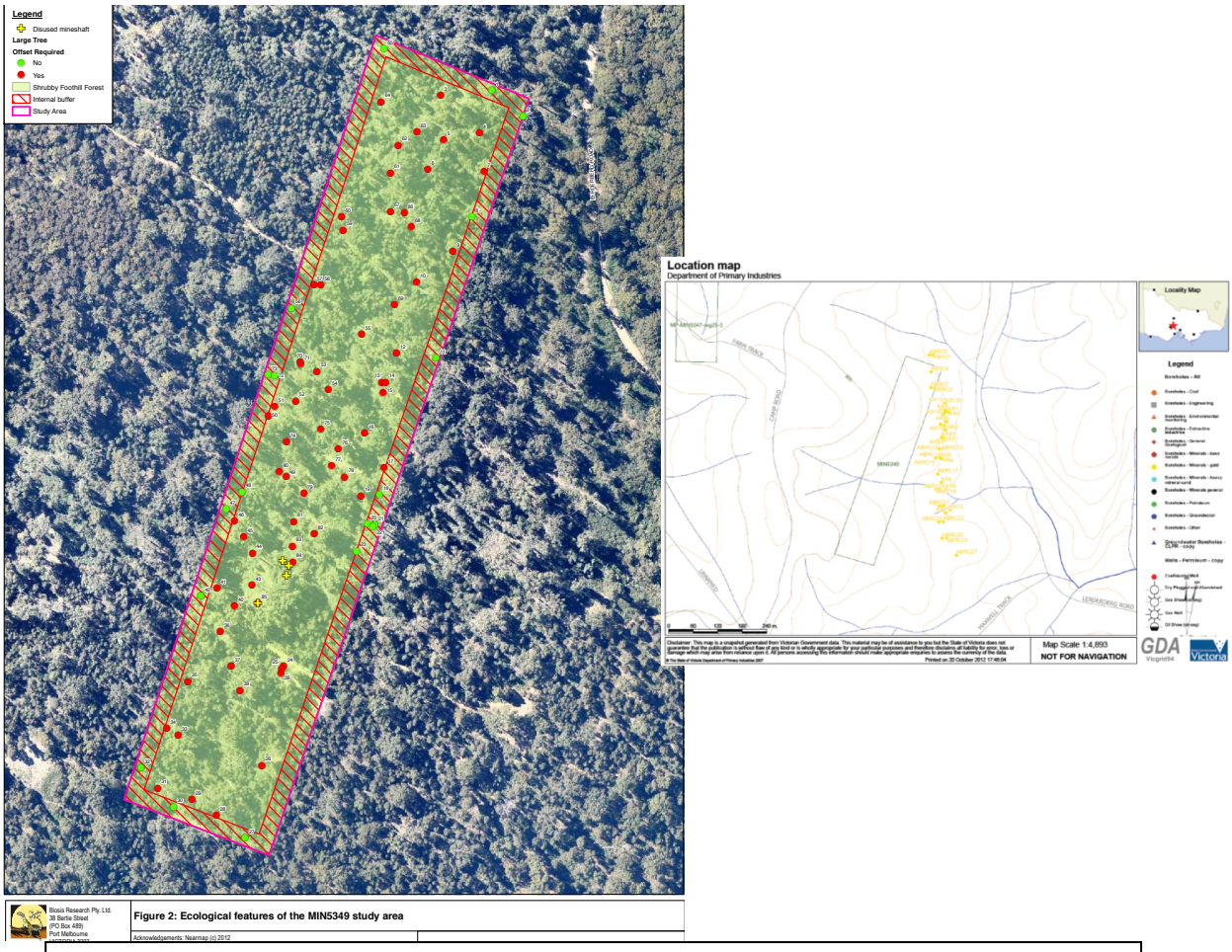


Figure 2; Image of Abels Reef Mine site provided in Biosis report showing Large Old Trees (LOT) and Geovic map showing mine boundary and bore locations

The map on the left above is from the Biosis report it shows the area they surveyed and mapped the location of Large Old Trees (LOT). The map on the right shows the registered site boundary that Biosis actually assessed (black rectangle) and the location of the exploration bore holes that drilled in the mid 1990's. It has been confirmed by the prospective buyer and mine manager on site that the intended area to be mined is over the bore holes.

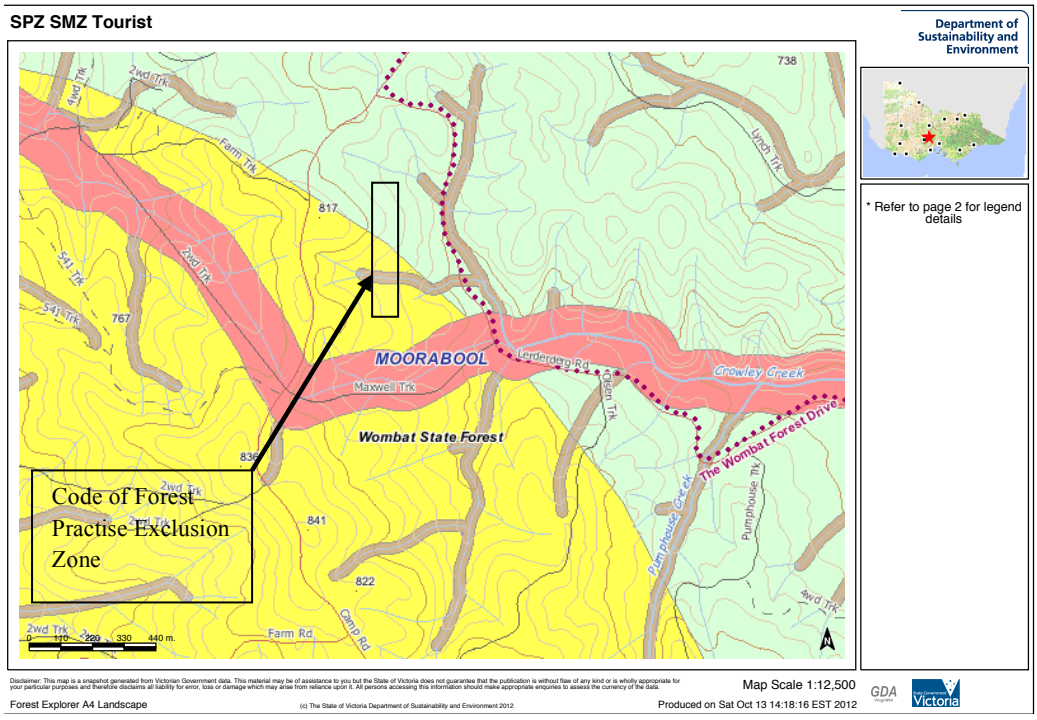
This confirms that Biosis have not carried out an adequate desktop review of the site using the recommended online interactive maps. A thorough search would have raised this issue. The proof is in the numbering Biosis have applied to trees in the map above.

At no time in the report does Biosis present a map showing the SMZ reserve. This is a huge omission from this report. It is one of the most fundamental overlays to the site.

The Biosis report and the 'off-sets' that have been determined for the Abel Reek mine are not relevant at all to the actual intended mine site This one error, of carrying out the assessment on the wrong area, means the calculated off-sets in the Minister's approval are irrelevant to this mining application. The Minister should immediately withdraw the approval pending an assessment on the correct site and off-sets calculated from this. Whoever carries out this assessment must ensure they look at all values and approach all relevant referral authorities.

Code of Forest Practice

The map below is marked with brown bands that show the designated Code of Forest Practice exclusion zones. (Black rectangle is approx. for mine site.)



The Code of Forest Practice is a relevant code that must to be adhered to in relation to the Abel's Reef mine as it is within the Wombat State Forest. The Code of Practice for Mineral Exploration (DPI 2008) recognises and gives weight to the statutory requirements of the Code of Forest Practices.

Any operation on this site will not be able to have machinery entering the Code of Forest Practice exclusion zone. This exclusion is in the interests of water quality. In Section 7 of this critique is a description of the Code of Forest Practises definition of a waterway. The above map from the DSE Forest Explorer confirms that the waterway that crosses the Approved Works is protected by the Code of Forest Practices. This means that mining or excavation along with machinery entering exclusion zone cannot be allowed.

The Approved Works make no mention at of this restriction nor does the Biosis report make reference to it. The Approved excavation shows that the mine will in fact cut a trench of up to 20 meters across the Code Exclusion Zone.

Weed and Plant Management

Neither the Working Plan or the Biosis Report looks at weed management. The site is to be stripped, excavated and then backfilled this will be an open seedbed for plants that colonise through taking advantage of new opportunity. There is gorse, blackberry and broom already present. This is a potential seeds source in the stockpiled topsoil.

There must also be a mandatory vehicle hygiene program attached to these works. This will ensure that the plants are not vectors for weeds. The Plan needs to have a Weed Monitoring and Control Strategy. This will need to extend to up to 7-10 years into the future.

9. Community engagement plan

The Abels Reef Approved Work Plan devotes a lot of space to the Community engagement requirements. It is by far the most thoroughly covered topic in the Approved Plan. Much space has been devoted to generic information about how a consultation process should be undertaken but contains very little specific information about the community that could be affected by the Abels Reef mine.

Schedule 13/9 A description of any significant community facilities that may be affected by the proposed works.

Wombat Forest Drive

The northern edge of the mine site is bordered by Lerderderg River Road. Lerderderg River Road is a part of the Wombat Forest drive tourist route. No consideration has been given to visual impacts of the mine from Lerderderg River Road. The Wombat Forest Drive is the main tourism drive in the Wombat State Forest. DSE have a tourist brochure for those who want to do the self-drive, which is available in outlets across the region.

Local Government.

While the mine site is just within the northern boundary of Moorabool Shire the truck traffic will be through Hepburn Shire. The major impacts on roads will be on roads managed by Hepburn Shire and VicRoads. Neither have been consulted.

Impacts on the local roads from heavy multi axle trucks delivering plant and machinery to the site and trucks transporting the ore off site. All of which will have to do return trips and so it is twice the number of truck movements specified in the Approved Works Plan.

The economic cost for road repairs will fall on the ratepayers of Hepburn Shire. Has Hepburn Shire roads department been consulted as to whether the road can take this load in a short time and to make assessment as to what repairs will be likely needed after the mining has finished its carting? The mine operators should adopt a good neighbour approach and make these enquiries with Hepburn Shire. A contribution to road repairs to this road should be considered.

Schools

The Approved Work Plan gives notice to the Bullarto State School and mine traffic passing the school. There is no mention that this is a regional area where most school children travel to and from on school buses. There are also passenger vehicles 'doing the school run'.

Trucks carrying the ore from the site to Maldon and return movements should not be allowed to travel on the Daylesford to Bullarto Road and the South Bullarto Road between 8:30-9:15 am and 3:30 to 4:15pm. This is when the school movements occur. The Daylesford/Bullarto Road is a narrow and windy road through the section the trucks will be travelling.

Schedule 13/10 A community engagement plan that -
a. identifies any community likely to be affected by mining activities authorised by the licence; and
b. includes proposals for -
- **identifying community attitudes and expectations; and**
- **providing information to the community; and**
- **receiving feedback from the community; and**
- **analysing community feedback and considering community concerns or expectations - in relation to mining activities authorised by the licence; and**

c. includes a proposal for registering, documenting and responding to complaints and other communications from members of the community in relation to mining activities authorised by the licence.

In response to community concerns about the Abel Reef mine Victoria's mining Minister, Michael O'Brien, has publicly stated that he *approves of the mine as it has met strict regulatory requirements* (ABC Ballarat 30 July 2012). On this matter the Minister has been politically exposed by the procedural flaws of his department and the DSE. The Minister trusted the government departments to do a good job and clearly they have not.

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Appendix

Critique of Gibson. M, Shell. T, (2012) *MIN5349 Exploration Lease, Wombat Forest: Flora and Fauna Assessment,* Biosis Research

Luke Bennett, *Dip CLM (University of Melbourne)*

Introduction

As an adjunct to the Work Plan for Mining Licence 5349 (MIN5349) *Biosis Research* was commissioned to undertake a Flora and Fauna assessment for the proposed mine[1] site. A previous flora survey was deemed insufficient to identify the key environmental issues for the site.

As per Schedule 13/7 of the *Mineral Resources Development Regulations 2002* (MRDR 2002), the work plan needs to incorporate an environmental management plan which:

> *a) identifies the key environmental issues for the proposal and includes details of background data, baseline studies or existing conditions in relation to environmental issues;*
>
> *b) includes proposals for the management of environmental impacts including nomination of targets and proposals for the mitigation, control or reduction of impacts;*
>
> *c) includes proposals for the management of wastes including consideration of the principals of waste minimisation;*
>
> *d) includes a proposed monitoring program addressing the key environmental issues;*
>
> *e) includes a proposal for reporting outcomes of the plan to the local community.*

Gibson. M, Shell. T, (2012) *MIN5349 Exploration Lease, Wombat Forest: Flora and Fauna Assessment,* Biosis Research, (the report), as well the final paragraph of Section 5 of the work plan for the mine constitute the sum of documentation that responds to these conditions.

The adequacy of the report will be discussed below.

[1] As the proposed activities aim to remove material in order to process ore for financial gain, these activities are technically mining, and should therefore not be termed 'exploratory'. The term 'exploratory' is defined on pg 9 of the *Mineral Resources (Sustainable Development) Act 1990,* as being "*...extracting minerals from land, other than for the purposes of producing them commercially*."

Flora and Fauna reports are generally undertaken as a response to trigger mechanisms within the Victorian Planning Scheme. These are detailed within planning scheme zoning, planning overlays, and schedules associated with each overlay (generally geographically specific within a local government area).

Given that this project does not trigger the requirements for a planning permit, the report does not adequately tie in the implications of other mechanisms which are appropriate, such as the Code of Forest Practice, or reference to management actions within the Powerful Owl Action Statement to the applicable criteria within Anon (1996) *Midlands Forestry Management Plan*, NRE, (MFMP).

In my opinion, the *Biosis Research* report does not meet key ecological and reference criteria required for mining site operational assessments, as per Sch13/7 of the MRDR 2002.

Key Environmental Issues & Background Data

The report does not include relevant information which is readily available, and pertinent to the requirements for a Works Plan, as laid out in Schedule 13/7 part a) of the *Mineral Resources Development Regulations* 2002[2]. Surveying was not undertaken at the time of assessment to determine the actual occurrence of a number of key protected fauna species[3], despite their discussion in the text. It ignores previous assessment of the site, does not discuss it's history and the implications for faunal values, and does not highlight the divergence between the study area boundaries, the mining lease, and the location of the boreholes used to justify the granting of the lease.

The report details in its summary the implications of relevant government legislation and policy. Given the subsequent citing of sections of Anon (1996) *Midlands Forestry Management Plan*, NRE, (MFMP), and within, the *Minerals Resources Development Act 1990*, specifically in relation to forestry management and mining operations, discussion of the pertinent sections of the later would have been appropriate for the purposes of this document .

[2] "*An environmental management plan which : a) identifies the key environmental issues for the proposal and includes details of background data, baseline studies or existing conditions in relation to environmental issues*;"

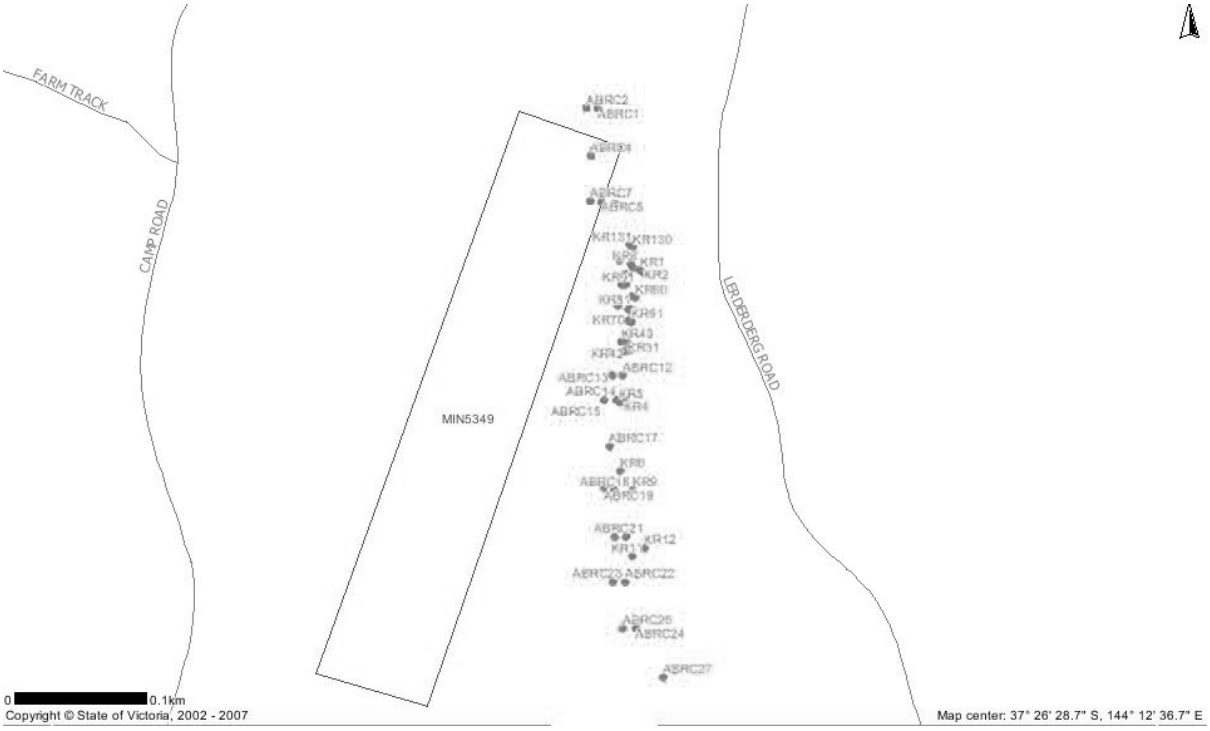
[3] Or the relevant species for which the Powerful Owl forages, such as Common Ringtail Possum *Pseudocheirus peregrinus*, Common Brush-tail Possum *Trichosurus vulpecula* and Sugar Glider *Petaurus breviceps*

On pg 1, in Section 1.2 *Scope of Assessment*, the report states that the objectives of the investigation is to "...*Review the implications of relevant biodiversity legislation and policy, including Net Gain policy*", and to *"...Identify potential mitigation measures*". However, according to Schedule 13/7 an environmental management plan needs to "...*identif(y) the key environmental issues for the proposal and includes details of background data, baseline studies or existing conditions in relation to environmental issues".* This is broader in scope than a biodiversity assessment, which looks specifically at flora and fauna species, as well as vegetation communities. Also, on pg1 in section 1.3 of the report, there is reference to the site previously being subjected to logging, however there is no discussion as to the timeline, nor nature of the logging system applied. Given the high density of Large Old Trees[4] (LOTs) on the site, the site was not clear felled. It had previously been logged in 1993, using the Shelterwood 1silvacultural system, which entails a requirement for the removal of a large proportion of vegetation from the site, but required the retention of the largest, oldest, and best-formed[5] trees.

On pg 3 of the report, in section 2.1 Literature and Database Review, under "Other sources of biodiversity information:", there is mention of DSE Biodiversity Interactive Map 3.0, but not of the Forest Explorer 5 (relevant to the identification of the location of the Powerful Owl Management Area (POMA) Special Protection Zone (SPZ) or the Code of Forest Practice Forest Protection Zone (CPZ)) , or GeoVic 3. As well, it does not adequately illustrate the way that these three data sets geographically impact each other.

In section 2.5 Mapping, it is stated that "...(t)he client supplied coordinates of the MIN5349 lease area boundary. However, the contractor has stated (Urlich and Palmer, as per comms 4/10/12) that their intent is to mine along the alignment of the bore holes. Given the lack of congruence between the lease, the survey site, and the site of intended operations, it would imply that the wrong area has both been assessed for the purposes of the report, and undertaken as a mining lease.

[4] As per the definition of a LOT within *Victoria's Native Vegetation Management Framework*, and the relevant Ecological Vegetation Class benchmark.
[5] In terms of the requirements for timber production.



Location of MIN5349 lease, and associated boreholes

According to pg 5 of the report, Section 2.2, the site was visually assessed. The date for this assessment is given as the 12/12/2011, but a time of day is not identified. In section 2.2 Fauna Assessment, it is stated that the site was investigated to determine the values of the site for fauna, but "...*Fauna species were recorded with view to characterising the values of the site, and were not intended to provide a comprehensive survey of all fauna that had potential to utilise the site over time*." Given the nature of the observed fauna species list (high in daytime active birds, low in nocturnal birds or mammals), it is implied that this survey was undertaken during the day.

On pg 11 of the report, in section 3.4.1, it states that "...*Large areas of forest provide suitable habitat for large forest owls. The Powerful Owl Ninox strenua has been recorded with 1km of the study area and is known to occur throughout (the) Wombat State Forest) Although this species is likely to forage within the study boundary, the lack of large hollows makes the site unsuitable for nesting and breeding of this species*."

In section 3.4.2 it discusses the likelihood of occurrence of Common Bent-wing Bat *Minopterus schreibersii*, and then states that *"...Further survey, including examinations of the shafts and the use of bat detectors, could be undertaken to clarify the situation*". That is, it does not adequately determine the actual occurrence or otherwise of this species on the site.

The report goes on to discuss Powerful Owl habitat and foraging requirements, where it implies that they are unlikely to roost on the site, so mining operations will have little

impact. However, in the same section it makes reference to impact of the site by a Special Management Zone (SMZ), namely SMZ 6119, which lists both Powerful Owls and Greater Gliders *Petauroides volans*. This SMZ is specifically a Powerful Owl Management Area (POMA), and is of relevance to the later discussion in the report of the Flora and Fauna Guarantee Act 1998 (FFG) requirements. The POMA specifically covers the foraging range required to support a mapped and identified nesting site for a pair of breeding Powerful Owls. The report ignores this requirement.

On pg 15, in Section 3.6 of the report it then states that Greater Gliders are not likely to be present on the site, despite a portion of the site being covered by the previously mentioned SMZ 6119, which makes specific mention of the species. Given that the site could constitute a foraging range for Greater Gliders, a night-time survey would have assisted in determining their occurrence on site.

Management of Environmental Impacts

The report or the Work Plan fail to adequately explain the implications requirements for management of the site, such as those that relate to the *Code of Forest Practice*, or the *Powerful Owl Action Plan*, which in turn relate to the cited portions of the Midlands *Forest Management Plan*. As well, neither describe the current flora species mix in terms of how it can assist in revegetation of the site to a condition similar to that which it was prior to mining operations. There is no data or discussion of the proportion or coverage of specific species or types of vegetative life forms, which would help inform a revegetation schedule for the site. There is no inclusion in either document for technical requirements for reinstatement of the soil and overburden material on the site, such as topsoil depth or soil compaction. Finally, there is no discussion in either document regarding which plants, and in what numbers, should be selected to revegetate the site.

Within Webster, Humphries, & Lowe (2004), on pg 7, under the section "Protection in State Forests" it is stated that:

> *"Where clear-fell harvesting (NRE 1996a) is used, delineate and protect a core area of suitable habitat of at least 500ha (dependent on habitat type) as SPZ within a 3.5km radius (approx. area of 3 800ha) for each POMA. Suitable habitat is areas dominated by old trees and areas likely to support high densities of prey species. Where forest stand characteristics may limit the adequacy of the core SPZ, additional habitat of up*

to 500ha of SPZ and/or SMZ should be maintained within the same 3.5km radius. The size of the core SPZ and any additional habitat requirements will be determined by assessment of the suitability of both existing forest habitat and regrowth forest in relation to prey densities."

On pg 16 in section 3.7 of the report it states that there is potential impact on the foraging ranges of both Powerful Owl and Greater Glider. However, on pg 18 in Section 4.2.1 it only discusses the impact upon habitat. Given that the requirement of Sch13/7 Section b) state *"...includes proposals for the management of environmental impacts including nomination of targets and proposals for the mitigation, control or reduction of impacts.."* this assessment and discussion is woefully insufficient. On pg23 section 4.2.9 it makes reference to *"...exploratory mine activities ..."*. No definition or reference for this term is cited. It goes on to state that:

"...*exploratory mining activities are permitted, providing the Work Plan is approved and the operational and rehabilitation requirements outlined in the Plan effectively protect forest values",* and that *"...proposed works are likely to be permitted....providing that the proposed works adhere to mitigation measures".*

Given that these mitigation measures consist of a proposal to only revegetation of the site, and do not address the previously alluded foraging for both Powerful Owls and Greater Gliders, it does appear to address the stipulation within Webster, Humphries, & Lowe (2004) that the quality and coverage of vegetation within the POMA (SMZ6119) be assessed. As per the requirements for the POMA, as stated in the MFMP, there needs to be adequate vegetation of sufficient quality and area to support the foraging requirements for a pair of Powerful Owls. The report does not discuss the quality or coverage of vegetation within the POMA as a whole, and not in comparison to the vegetation which occurs with the portion of the mine lease covered by the POMA. Therefore, as it stands, neither the report nor the Work Plan can demonstrate that any potential impacts by the proposed mining operation will not detrimentally impact the foraging requirements of Powerful Owls protected by this POMA.

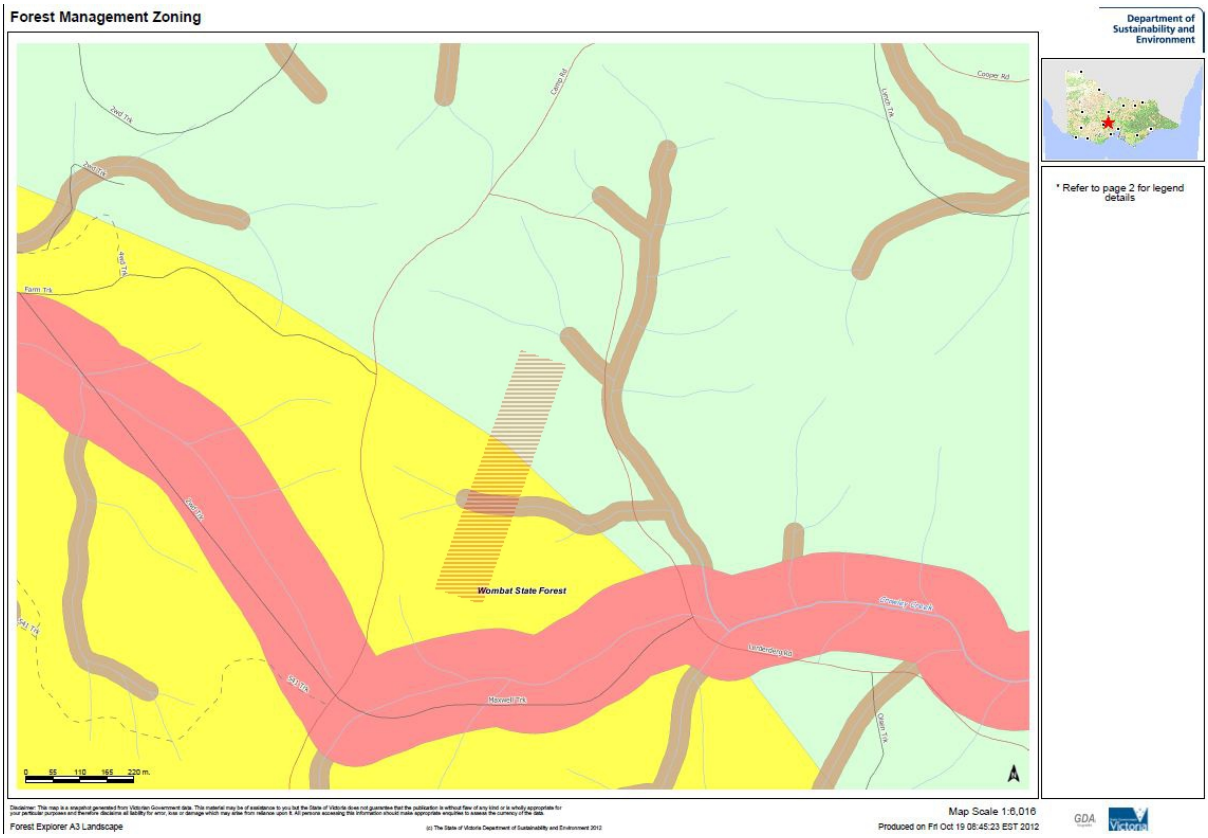
On pg 23, in section 4.2.9, the report makes reference to a *Forestry Code of Practice Protection Zone (*CPZ), specifically that which occurs along a tributary of Crowley Creek. However, it does not discuss the stipulated requirements for operations within a CPZ. These can be found on pg 19, in section 2.2.1 Water Quality, River Health and Soil Protection **of Anon (2007)** *Code of Practice for Timber Production,* DSE. These requirements are not discussed within the report, nor are they mentioned in the Work Plan.

Neither POMA SMZ 6119 or the CPZ appear on any maps in either document**.** The CPZ is not mapped in either the Works Plan or in the report, and neither describe how it will be excised from operational impacts. There is reference on pg 30 Section 6.2 Mitigation Measures, Design and pre-mining, regarding adhering to the requirements of the SMZ and CPZ,

however how this is to be done, and the technical specifications mapping or methodology to achieve this are missing from both documents.

As well, although a flora list is attached in the appendixes of the report, it does not include coverage percentages or class of density criteria, merely species occurrence. The former would be of utility for determining species mixes for revegetation of the site as part of the site rehabilitation requirements. In Anon (2007), on pg 23 Section 2.3.1 Regeneration, it states that:

> *"...Following timber harvesting, State forest must be regenerated with species native to the area, wherever possible using the same provenances, or if not available, from an ecologically similar locality. Regeneration operations must aim to approximate the composition and spatial distribution of canopy species common to the coupe prior to harvesting, where they can be determined."*



Map of South Bullarto section of the Wombat Forest, MIN5349 lease site is the red hatched area, POMA SMZ6119 is yellow, CPZ is brown, and SPZ 6139 is pink.

On pg 31, in section 6.2 Mitigation Measures, there is reference to both the MFMP and to Anon (2006) *Native Vegetation Revegetation Planting Standards-Guidelines for establishing native vegetation for net gain accounting,* DSE, as well as the highlighting the need for inclusion of the Wombat Bush-pea *Pulteneaea reflexifolia* in the revegetation list. No where in the Works Plan are there pertinent species lists, plant numbers, proportions of different life forms[6], or technical specifications for installation requirements (such as soil quality,

[6] Trees, shrubs, herbs, grasses/sedges etc.

compaction or soil reinstatement). As well, given the prior highlighting of the site's current potential values as habitat and foraging for a suite of nocturnal birds and arboreal mammals, there is no discussion regarding tailoring revegetation for the potential requirements for these species.

A final point is that the referenced documents in the report pertain to revegetation of existing grade, and not reinstated fill. As such, they are insufficient to detail the site's requirements, as they do not discuss nor adequately respond the potential site conditions once the site is reinstated.

Monitoring

Neither the report nor the Works Plan adequately discuss how the requirement for Sch 13/7 d) namely: "*includes a proposed monitoring program addressing the key environmental issues*" will be met. There is no benchmark data provided for the current state of vegetation, so there is no way to establish the effectiveness of revegetation works after rehabilitation of the site. There is no benchmark data provided for the current fauna species mix of the site, so there is no way to determine the effectiveness of rehabilitation of the site on threatened species. There is no discussion in either document of the methods used to monitor the site, without both benchmark data for flora and fauna, and detailed monitoring regimes,

In Sch13/7 Section d) there is reference to the need of a monitoring program which addresses the key environmental issues. Given that there has been only cursory flora surveying, there is no benchmark data with which to determine the impacts of the proposed mine. Until surveys are undertaken detailing the occurrence and population density of Greater Glider, Bent-wing Bat, Common Ringtail Possum *Pseudocheirus peregrinus*, Common Brushtail Possum *Trichosurus vulpecula* or Sugar Glider *Petaurus breviceps*, it is not possible to determine the potential impacts on the fauna species discussed within the report. Without benchmark surveys, it is not possible to in the future determine the actual impacts of the mine if it goes ahead.

There is no discussion in either the report or the Works Plan regarding monitoring methodologies, timing, or auditing of gathered data. Vegetation Quality Assessments are widely used across the state to satisfy the requirements for Anon (2002) *Victoria's Native*

Vegetation Management: A Framework for Action, NRE, but there are other more applicable methodologies for assessing vegetation coverage or presence.

There is no discussion of frequency of monitoring, or of triggers for monitoring.

Summary

The report does not clearly respond to the requirements as detailed in Table 1 Work Plan Requirements – Schedule 13 of the MRDR 2002, where they pertain to Flora and Fauna. It does not adequately articulate previous site management criteria, such as those detailed in the MFMP, nor does it highlight the requirements of the Code of Forestry Practice. Where it does discuss the *Flora and Fauna Guarantee Act* requirements for the protection and management of Powerful Owls, it confuses the issues of habitat and foraging, and it does not clearly tie in links between the requirements in the relevant action plan and the POMA SMZ, as detailed within the MFMP. The report makes no reference to monitoring regimes, nor guidance as to how or when these should take place.

References:

Anon (2007) *Code of Practice for Timber Production,* DSE.

Anon (1996) *Midlands Forest Management Plan*, Department of Natural Resources& Environment

Clewell A, Rieger J, Munro J (2000) *Guidelines for Developing and Managing Ecological Resoration Projects*, SER

DPI (2012) *Mineral Resources (Sustainable Development) Act 1990,* State Government of Victoria

DSE (2012a) *Biodiversity Interactive Maps*. Department of Sustainability and Environment. Accessed via: http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=bim

DSE (2012b) *Forest Explorer 5*. Department of Sustainability and Environment. Accessed via: http://nremap-sc.nre.vic.gov.au/MapShare.v2/imf.jsp?site=forestexplorer

DSE (2012c) *GeoVic*. Department of Sustainability and Environment. Accessed via: http://mapshare2.dse.vic.gov.au/MapShare2EXT/imf.jsp?site=geovic

MacHunter J, Brown G, Loyn R, Lumsden L (2011) *Approved Survey Standards: Greater Glider Petauroides volans,* DSE

Webster A, Humphries R, Lowe K (2004) *Powerful Owl (Ninox strenua) Action Statement: Flora and Fauna Guarantee Act No.92*, Department of Sustainability and Environment.

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