Mineral Resources (Sustainable Development) Act 1990

Tenement Number: WA1478

Plan Number: PLN001732

Work Plan Statutorily Endorsed

Signed: _____

Delegate of the Department Head

Date: 01/05/2024

Mount Shadwell Scoria Quarry.

WA1478-PLN OO1732

Risk Management Plans.

Mount Shadwell Scoria Quarry

Version 2
Nov. 2023

Prepared
by
NAM P/L

INDEX Page No

Risk Management Plan Summary.

This Risk Management Plan (RMP) is submitted with Work Plan (PLN001732) and relates to WA1478, commonly known as the Mount Shadwell Scoria Quarry. The Work Plan accompanies the Work Authority Application for this site. The Work Authority is on undulating cropping and grazing ground on a surface exposure of volcanic scoria on the lower northern slopes of Mount Shadwell. The Work Plan describes the extraction, processing, rehabilitation, methodology and ancillary processes.

The proposed quarry is located at 19 Steeles Lane Mortlake approximately 3km north of Mortlake. See Figure 1. Location and Receptor Plan.

The quarry will supply a full range of construction materials for rural and regional road construction and maintenance.

A full description of the works proposed at the site can be found in PLN-001732, WA1478, Risk Based Work Plan.

Description of Risk Assessment Process.

The Risk Management Plan, including the risk register for this site has been developed by NAM P/L in conjunction with key Mount Shadwell Scoria Quarry personnel, including Colin Goldsworthy, Work Authority Holder, manager and landowner.

Summary.

As a starting point, a table of standard quarrying risks was presented to Mount Shadwell Scoria Quarry owner, then reviewed and discussed, both on site and at head office. These discussions focused on:

- Identifying all site-based activities that might result in hazard events related to public safety, the environment and public infrastructure.
- Identifying sensitive receptors within the vicinity of the site, (2km radius) including a review of any complaints or feedback received from community or stakeholders.
- Identifying individual risks associated with these hazards.
- Reviewing the applicability of standard industry controls.
- Reviewing the proposed controls, including any site-specific controls that might be required.
- The implementation procedure for controls moving forward, and the resultant residual risk of individual events.

Pages 5 shows Figure 1. a Receptor Plan showing all sensitive receptors within a 2km radius and Figure 2. a site plan showing 2 locations identified by DELWP, now DEECA that may provide habitats for the critically endangered Southern Bent-wing Bat and possible nest sites for Peregrine Falcons, a listed species within the existing old quarry face. Page 6 shows Figure 3, a plan of Aboriginal areas of cultural heritage sensitivity.

17 risks associated with Mount Shadwell Scoria Quarry have been identified, assessed and procedures implemented to minimise or eliminate impacts. (Please refer to Index, Risk Treatment Plans, page 2).

Process to determine if any risks could be reduced or eliminated.

- Each identified risk has been assessed and control measures identified to minimise or eliminate the risk. (Please refer to pages 8-54, Risk Treatment Plans, 1-17).
- Some risks have been reduced or eliminated by quarry design, operating procedures or require ongoing monitoring, these are:

Reduced Risks.

The following risks have been assessed and measures implemented to reduce their impact

- Aboriginal heritage. Noise. Raised dust. Site access. Erosion and sedimentation. Fire. Storm water. Ground disturbance, water. Ground disturbance, ground stability. Altered visual amenity. Rubbish. Fuel and lubricants.

Monitored Risks.

Monitoring requirement have been identified in the following Risk Treatment Plans.

- Pest animals and weeds. Soil biological activity. Avian fauna nest sites.

Eliminated Risks.

- Ground disturbance Mt Shadwell Rises. Ground disturbance Southern Bent-wing Bat.

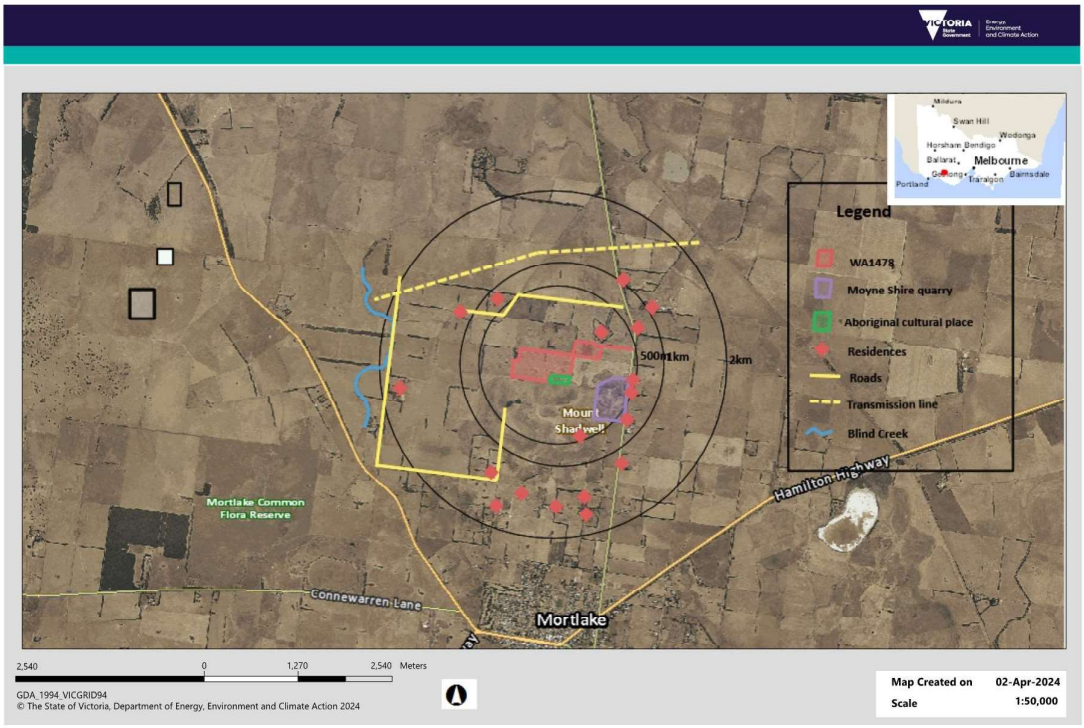


Figure 1. Location and Receptor Plan

Figure 2. WA1478 - .DELWP Identified possible fauna habitats

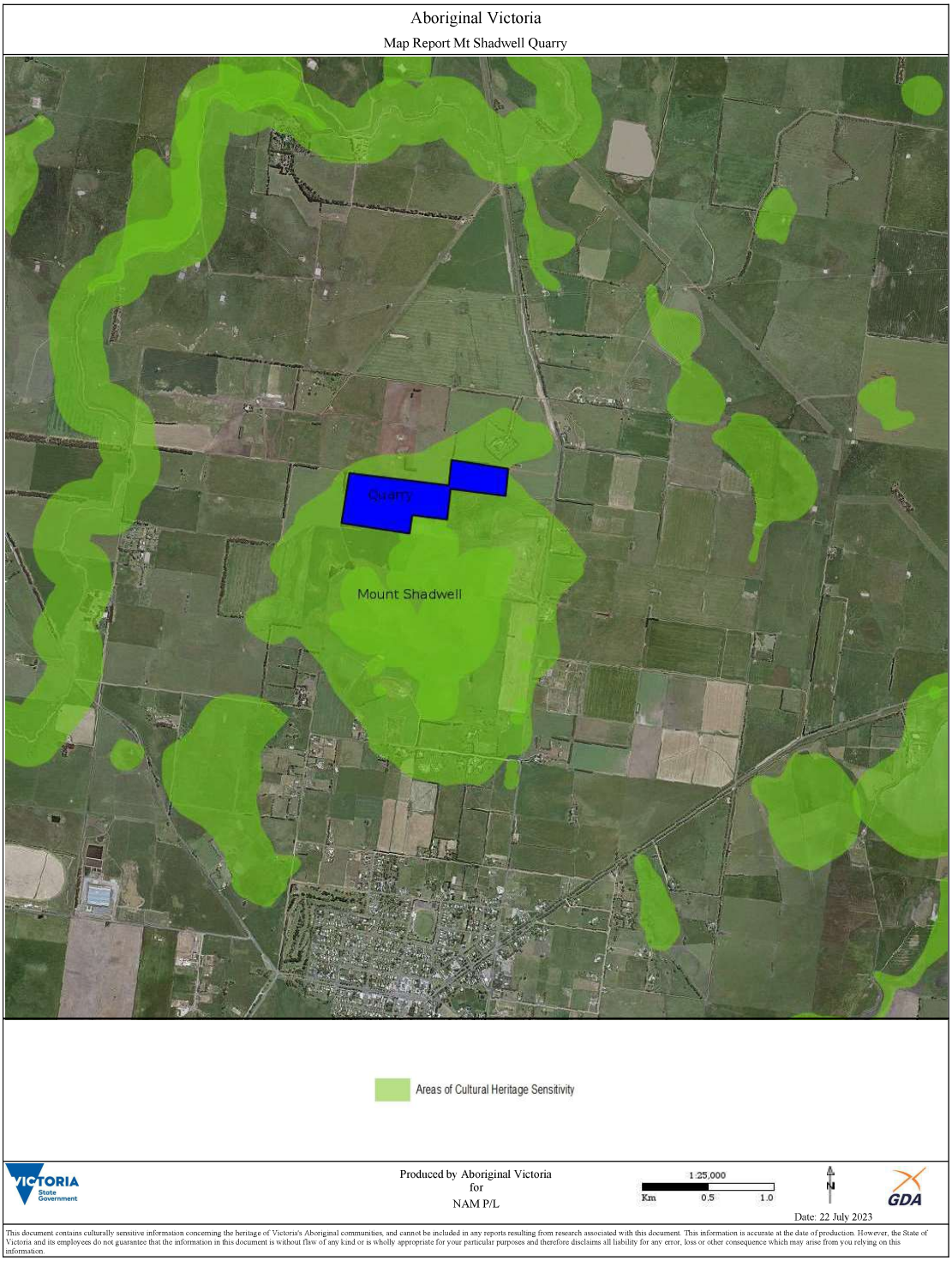


Figure 3. Area of Aboriginal Cultural Heritage Sensitivity.

Risk Register.

Likelihood Ranking	Consequence Ranking
Almost Certain	Critical
Likely	Major
Possible	Moderate
Unlikely	Minor
Rare	Insignificant

Likelihood						
	Almost Certain	Medium	High	Very High	Very High	Very High
	Likely	Medium	Medium	High	Very High	Very High
	Possible	Low	Medium	Medium	High	Very High
	Unlikely	Low	Low	Medium	High	High
	Rare	Low	Low	Medium	Medium	High
		Insignificant	Minor	Moderate	Major	Critical
		Consequence				

The Department of Jobs Precincts and Regions Guidelines for the Preparation of Work Plans and Work Plans Variations, (Section 2.4. 3-8, Risks from proposed works), provided the guideline for the preparation of the following Risk Treatment Plans.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Dust/air emissions

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Residences	500-1km north and east of work site.	Dust generated from quarrying emitted into the environment causing loss of air quality (limit exceedance)	Dry windy conditions and no/inappropriate controls to manage dust (nuisance) emissions on haul road and operations within work area.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Dust generated from the operation emitted into the environment causing loss of air quality (limit exceedance)	Construction Operation Rehabilitation	Moderate	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Eliminate offsite discharge of dust.

Compliance standards

The compliance standards for this risk treatment plan are:

- EPA guidance Environmental Reference Standard 2021

The acceptance criteria for this risk treatment plan are:

- No nuisance dust issues experienced by pre-existing, nearby sensitive receptors
- Dust emissions do not exceed applicable EPA Environmental Reference Standard, (ERS).

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented – if not implicit in the control)*
1	Establish, signposts and enforce speed limits to minimise dust generation from vehicles within the work site.	1	Set a 15km/h speed limit within the work site.
2	Water spray haul road.	1	Haul road sprayed as required using water cart during dry windy conditions.
3	Soil stockpiles stabilised and sown to pasture grass (if not used for 90 days)	1	Implicit.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Excessive generation of dust from work authority area impacting sensitive receptors.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Visible dust being generated on site and haul road.	Regular visual observation especially during windy conditions.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Visible dust being generated on site and haul road.	Site management at time of event.	Use data to confirm the presence of dust issues and identify and manage key dust generation activities.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
	EPA. Guidance for assessing nuisance dust June 2022 EPA. ERS	Section 3. Assessment of nuisance dust

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No. 1 Dust

Work Authority Number

1478

Scope

This risk treatment plan is for the control of:

Ground Disturbance Aboriginal Heritage

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Aboriginal heritage	Implicit	Site preparation will disturb Aboriginal heritage	Aboriginal heritage identified on site during CHMP field survey

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Mechanical stripping and stockpiling topsoil and overburden and extracting product damaging or relocating in-situ Aboriginal heritage.	Construction Operation Rehabilitation	Major	Almost certain	Very high

Objectives

The key objectives of this risk treatment plan are to:

- Salvage artefacts identified during the CHMP ground survey prior to quarrying activities.
- Prevent random relocation of heritage items.
- Stockpile topsoil and overburden separately and adjacent to the location that it was removed from.
- Replace overburden then topsoil from the location that it was removed from during rehabilitation of the site.
- All work must stop within 10m of suspected Aboriginal cultural heritage.
- Stop work area must be fenced with hi viz material and no go signage attached.
- EMAC, the relevant RAP, is advised and given the opportunity to inspect.

Compliance standards

The compliance standards for this risk treatment plan are:

- Condition 1.2.4 Mt Shadwell Scoria Quarry Mortlake Cultural Heritage Management Plan

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Artefacts salvaged and managed in accord with Condition 1.2.4
- Work stopped within 10m.
- Stop work area fenced and sign posted as a no go area.
- EMAC notified.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Prior to the commencement of the activity a HA/QA and 2 RAP representatives must undertake an archaeological surface salvage program	1	The salvaged surface cultural material must be bagged at a maximum of a single artefact per bag for each location. Following completion of the surface salvage, of all identified surface stone artefacts are to be treated as per Condition 7 and reburied within the VAHR 7422-0581 No Go Zone. The reburial location is to be recorded using a GPS and the location reported to Aboriginal Victoria (AV) by the HA via the submission of the appropriate Victorian Heritage Registry Forms. EMAC notified
2	During quarrying work stopped within 10m.of suspected exposure	1	Area fenced
3	RAP notified	1	Implicit

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Mechanical stripping and stockpiling topsoil and overburden and extracting product damaging or relocating in-situ Aboriginal heritage.	Construction Operation Rehabilitation	Minor	Possible	Medium

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Pre quarrying archaeological surface salvage program to be completed in accord with CHMP Condition 1.2.4	Program to be completed prior to quarrying activities
2	Destruction or damage to Aboriginal heritage during Construction Operation Closure	Continuous visual inspections of activities during Construction Operation Closure

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Salvage project progress	Site manager	Confirm salvage project is completed prior to quarrying
2	Destruction or damage to Aboriginal heritage	Site manager	Area fenced, sign posted, and RAP notified

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	Aboriginal Heritage Act 2006	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix-A RMP 2 Ground Disturbance Aboriginal Heritage
2	Work Plan	Mount Shadwell Scoria Quarry Mortlake Cultural Heritage Management Plan

Work Authority Number

1478

Scope

This risk treatment plan is for the control of:

Ground disturbance-Ground Instability

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Ground Stability.	Implicit.	Quarrying may intercept clay seams, water seepage or localised instability.	Quarry activity causes or intercepts ground instability.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Quarry extraction intercepts or causes ground instability	Construction Operation Rehabilitation	Moderate	Unlikely	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Assess and monitor ground stability during quarry operations to identify signs of ground instability

Compliance standards

The compliance standards for this risk treatment plan are:

- In the event of observing evidence of ground instability, in particular, clay seams, water seepage or localised instability then a reassessment is required.

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Quarry activity is suspended until reassessment by geotechnical engineers if ground stability is observed

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Visual observation of working faces.	1	Quarry activity suspended until a geotechnical reassessment is undertaken.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Quarry extraction intercepts or causes ground instability.	Construction Operation Rehabilitation	Insignificant	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Visual observation of ground stability.	Daily site inspections.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Ground stability.	Site Manager.	Advise of ground stability issues.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1		
2		
3		

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 3. Ground Disturbance-Ground Stability.
2	Geotechnical Report.	Appendix B. Douglas Partners Geotechnical Investigation. Quarry Extension M19 Steeles Lane Mortlake. 11/11/21.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Ground Disturbance – Biodiversity – Mt Shadwell Rises

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Biodiversity	Mount Shadwell rises south of the quarry	Work site activities impacting on biodiversity	Activities associated with quarrying damage or destroy biodiversity

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Loss or damage to biodiversity	Construction Operation Rehabilitation	Minor	Unlikely	Low

Objectives

The key objectives of this risk treatment plan are to:

- Prevent disturbance to Mount Shadwell rises south of the quarry

Compliance standards

The compliance standards for this risk treatment plan are:

- Environment Protection and Biodiversity Conservation Act (1999)

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- No habitat disturbance/destruction on Mount Shadwell south of the quarry

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Quarry area clearly identified.	1	Buffers surrounding work site to protect Mount Shadwell rises.
2	Buffers established and clearly identified.	1	Work site does not intrude into Mount Shadwell rises.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Loss or damage to remnant biodiversity.	Construction Operation Rehabilitation	Insignificant	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
	Extraction area footprint is contained within buffers	Monthly site inspections

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Extraction area footprint	Site manager	Maintain extraction within worksite area

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A-RMP No 4 Ground Disturbance -Biodiversity Mt Shadwell Rises.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of:	Ground disturbance Southern bent-wing Bat. (SBWB) Habitats

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Southern bent-wing bat habitats.	Rocky outcrop within 100m of quarry on the southern side of Lot 4	Bats disturbed by quarrying activity.	Quarry located within SBWB range. Ref. SP 3474756 DELWP correspondence 4/5/2021
2	Southern bent-wing bat habitats.	Within Lots 1, 2, & 4	Bats habitat destroyed by quarrying activity.	Quarry located within SBWB range. Ref. SP 3474756 DELWP correspondence 4/5/2021

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	SBWB habitats disturbed/destroyed by quarrying activities	Construction Operation Closure	Critical	Unlikely	Very high

Objectives

The key objectives of this risk treatment plan are to:

- Quarry operates within buffers.
- Determine by site inspection that there are no accessible habitats, (rocky outcrops caves, vents etc) within Lots 1, 2 & 4.

Compliance standards

The compliance standards for this risk treatment plan are:

- Environment Protection and Biodiversity Conservation Act (1999).
- Site inspection determined that no suitable habitats as described by DELWP are present within Lots 1, 2 & 4.

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Quarry operates within buffers.
- If caves are exposed during quarrying, work stops at that location. DEECA is advised in a timely manner.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Quarry area clearly identified.	1	Buffers surrounding work site to protect rocky outcrop on Mount Shadwell 100m south of the quarry.
2	Buffers established and clearly identified.	1	Work site activity does not intrude into rocky outcrop on Mount Shadwell 100m south of the quarry.
3	DEECA notification	1	DEECA notified if caves/vents are exposed during extraction.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	SBWB habitats disturbed by quarrying activities.	Construction Operation Rehabilitation	Critical	Unlikely	Very high

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Extraction area footprint is contained within buffers.	Monthly site inspections.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Extraction area footprint.	Site manager.	Maintain extraction within worksite area.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1		
2		
3		

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No. 5. Ground Disturbance SBWB habitat.
2	DELWP Correspondence re SBWB.	Appendix C. DELWP correspondence Ref SP 474756, 4/5/2021.

Work Authority Number 1478

Scope

This risk treatment plan is for the control of:	Ground Disturbance Biodiversity Avian Fauna Nest Sites

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Avian fauna nest sites	Exposed face of old quarry	Destruction of nest sites during quarrying activities	Nest sites destroyed

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Destruction of nest sites in old quarry face	Operation Rehabilitation	Moderate	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Prevent loss of avian fauna during nesting

Compliance standards

The compliance standards for this risk treatment plan are:

- Environment Protection and Biodiversity Conservation Act 1999

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- No extraction of old quarry face if nest sites are observed

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Visual inspection of old quarry face prior to extraction.	1	No extraction of old quarry face if breeding avian fauna is observed.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Destruction of nest sites	Operation	Minor	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Avian fauna nesting in old quarry face	Monthly inspection

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Avian fauna nest sites	Site manager	No extraction of quarry face until nestlings leaves the site

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1		
2		
3		

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 6 Ground Disturbance Biodiversity Avian Fauna

Work Authority Number 1478

Scope

This risk treatment plan is for the control of: Ground Disturbance Water

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Environment, waterways and related ecosystems	Work site and environs	Work site activities contaminate the environment, waterways and related ecosystems	Activities associated with quarrying contaminate the environment, waterways, and related ecosystems

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Contamination of the environment, waterways and related ecosystems.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Objectives

The key objectives of this risk treatment plan are to:

- Prevent site activities from adversely affecting the environment, waterways and related ecosystems

Compliance standards

The compliance standards for this risk treatment plan are:

- Water Act (1989)
- Catchment and Land Protection Act (1994).
- General Environmental Duty, (GED).
- Environmental Reference Standard - Water

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- The diversion and return of diverted water to the environment does not detract from beneficial uses of surface water and ground water.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Install diversion drainage structured upgradient of working areas to prevent clean surface water from entering the site and becoming contaminated.	1	Surface water diversion structures installed and effectively intercepting surface water before it reaches operating areas.
2	Construct and maintain diversion structures to limit impacts on downstream/offsite water flows. Including installing scour protection on the outlet of surface water diversion drains.	1	Downstream environmental flow is maintained.
3	Design on site diversion drains to accommodate the surface water flows for a 1 in 10 year storm event based on the area of the upgradient catchment area.	1	Diversion drains designed for a 1 in 10 year storm event.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Contamination of the environment, waterways and related ecosystems.	Construction Operation Rehabilitation	Minor	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Condition of waterway at outlet of diversion drain.	Inspect outlet area to assess the potential for erosion and the effectiveness of scour prevention procedures.
2	Effectiveness of upstream diversion drainage systems.	Inspected and maintained as required.

#	Aspect to be monitored	Details of monitoring	
#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Condition of waterway at outlet of diversion drain.	Site manager as required	Inspect outlet area to assess the potential for erosion and the effectiveness of scour prevention features.
2	Effectiveness of upstream diversion drainage systems.	Site manager as required	Inspected and maintained as required.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	CMPA Guidance on Waterway Management Strategies for the Quarrying Industry.	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 7. Ground Disturbance Water.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Soil Biological Activity

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Soil biology	Soil stockpiles	Loss of biological activity within top soil and overburden stock piles	Failure to maintain and/or stabilise soil stock piles
2	Soil seed/nutrients	Soil stockpiles	Loss of soil seed and nutrients for rehabilitation by not maintaining separate top soil and soil overburden stockpiles	Failure to maintain separate soil stock piles

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Loss of soil biology in stockpiles	Construction Operation Rehabilitation	Minor	Possible	Medium
2	Loss of soil seed and nutrients in stockpiles	Construction Operation Rehabilitation	Minor	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Protect existing soil structure, nutrient levels and biological activity in onsite soils
- Facilitate the rehabilitation of the quarry site by maintaining biological activity in stockpiled soils.

Compliance standards

The compliance standards for this risk treatment plan are:

- Catchment and Land Protection Act (1994)

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- The health of biologically active soils is maintained while it is stockpiled and reused in rehabilitation.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Segregate each soil layer into individual stockpiles for future reuse, including surface organic matter and larger woody debris	1,2	Individual soil strata are retained in separate stockpiles
2	Maintain soil stockpiles at no more than 2m height	1,2	Stockpiles at up to 2m height
3	Replace stockpiled soil strata during rehabilitation in original order to maintain the natural soil profile.	2	The soils original profile is restored during rehabilitation
4	Stabilise soil and overburden stockpiles by seeding with pasture grasses if not used for more than 90 days	1,2	Soil and overburden stockpiles are stabilised if not used for 90 days

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Loss of soil biology in stockpiles	Construction, Operation, Rehabilitation	Minor	Rare	Low
2	Loss of soil seed and nutrients in stockpiles	Construction Operation Rehabilitation	Minor	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Maintenance of soil and overburden stockpiles	Monthly records of visual inspection of stockpiles

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Maintenance of soil and overburden stockpiles	Monthly internal reporting for site management	Quality and stability of stockpiles maintained for future reuse on site

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A-RMP No 8 Soil Biological Activity

Work Authority Number 1478

Scope

This risk treatment plan is for the control of: Pest Animals and Weeds -

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Private land	Within and surrounding work authority area	Private land colonised by pests, weeds and/or impacted by disease	Inadequate weed and pest control practises. Open areas not progressively rehabilitated. Introduction and spread of weeds onsite through disturbance and movement of soil, overburden and quarried materials resulting in infestation of noxious weeds inhibiting revegetation and impacting biodiversity. Pest animals impacting on native species populations causing nuisance and inhibiting revegetation.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Unsanitised plant/equipment introducing weeds and /or diseases	Construction Operation Rehabilitation	Moderate	Possible	Medium
2	Inadequate pest control	Construction Operation Rehabilitation	Moderate	Possible	Medium
3	Inadequate weed control	Construction Operation Rehabilitation	Moderate	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Prevent the introduction/spread of diseases and pest animals and weeds into and from the work site.

Compliance standards

The compliance standards for this risk treatment plan are:

- S70A of the CaLP Act
- CMPA Noxious Weeds and Pest Animals Control Plan November 2022

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- CMPA Plan implemented.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Disinfect equipment prior to entering work authority area.	1	Hygiene procedures are in place and followed.
2	Eradicate or manage any declared noxious weeds or established pest animals present in the Work Authority area	3	Infestations of declared noxious weeds and established pests are eradicated or controlled.
3	Identify pest species habitats within the work authority boundary and remove refuge areas where practicable	2	Pest animal habitats are removed or destroyed.
4	Limit vegetation clearing and surface disturbance activities to the minimum required operationally.	1, 2, 3.	Limit clearing to 1000sm in advance of operational area.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Unsanitised plant/equipment introducing weeds and /or diseases	Construction Operation Rehabilitation	Minor	Unlikely	Low
2	Inadequate pest control	Construction Operation Rehabilitation	Minor	Unlikely	Low
3	Inadequate weed control	Construction Operation Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Cleanliness of plant and equipment	Visual inspection
2	Site flora and fauna for noxious weeds and pests	Visual inspection

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Cleanliness of plant and equipment	Site manager weekly	Ensure plant and equipment is clean
2	Invasion of pest weeds and animals	Site manager monthly	Inspect all areas to check for pest animal and weed infestation and damage.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	Catchment and Land Protection Act 1994	Gazette G29 20th July 2017
2	CMPA Noxious Weeds and Pest Animals Control Plan	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A. RMP N0 9. Pest Animals and Weeds.
2	Work Plan	Appendix B. Pest Management Plan.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Noise

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	18 residences	500m -2km north and east of work site.	Industrial noise associated with quarrying impacting amenity and/or health.	Noise generated from operating plant and machinery during the day may impact on neighbour amenity.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Residents impacted by the noise generated from machinery and plant operating between 0700-1800 Monday to Friday and 7am 12 noon Sat.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Objectives

The key objectives of this risk treatment plan are to:

- Take all reasonable measures to ensure that noise emissions are minimised as far as practical and comply with any limits set out in the approved work plan.

Compliance standards

The compliance standards for this risk treatment plan are:

- Operate within licensed hours.
- EPA Guideline 1826.4-Noise limit and assessment protocol for the control of noise from industry.
- State Environmental Protection General Environmental Duty 2021. (GEV).

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Quarry operates within licensed hours.
- Noise levels are within EPA publication 1826.4 protocols

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Restricted operational hours	1	Implicit
2	Noise generated is within EPA -1826.4 guidelines.	1	Implicit
3	Noise suppression devices fitted to all operational machinery and plant	1	Implicit

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Residents impacted by the noise generated from machinery and plant operating between 0700-1800 Monday to Friday and 7am 12 noon Sat..	Construction, Operation, Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Quarry operates within licensed hours.	Operating Hours are in accord with conditions.
2	Noise generated is within EPA -1826.4 protocols.	Noise generated is within EPA 1826.4 protocols.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Operating hours	Site manager monthly.	Ensure quarry operates in accord with licensed operating times.
2	Noise generated	Site manager if a complaint of excessive noise is reported.	Quarry operational noise complies with EPA 1826. 4 protocols.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	EPA Publication 1826.4	Regulations 118, 125, & 130.
2	State Environmental Protection General Environmental Duty 2021	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A- RMP No. 10 Noise

Work Authority Number 1478

Scope

This risk treatment plan is for the control of: Storm Water

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Work site.	Work site.	Storm water can erode work site.	Work site eroded by storm water.
2	Site roads.	Work site.	Storm water can erode work site roads.	Work site roads eroded by storm water.
3	Biodiversity and farmland.	Downstream of work site.	Storm water can erode and/or deposit sediments from work site onto downstream land.	Biodiversity and farmland eroded or have sediments deposited on them.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Storm water flooding generated within work site and flowing from work site onto surrounding downstream land and waterways.	Construction Operation Rehabilitation	Moderate	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Protect the beneficial uses of the local water environment as defined in the (SEPP Waters).
- Minimise the impact to the work site and onsite roads due to stormwater runoff.

Compliance standards

The compliance standards for this risk treatment plan are:

- Water Act (1989).
- Catchment and Land Protection Act (1994).
- Planning and Environment Act (1987).
- State Environment Protection Policy (Waters), (SEPP Waters).

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Stormwater is managed to meet the General Environmental Duty (GED)
- Stormwater is managed to meet the Environmental Reference Standard. (ERS).
- No nuisance stormwater flooding/inundation of roads and worksite.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Construct sumps at the downstream end of each extraction stage1-5 to capture storm water.	1	Sumps designed to cater for a 1 in 10 year flood event.
2	Installation of side berms on each extraction stage.	1	Berms constructed and operating effectively.
3	Construct roads with sufficient diversion drains and culverts to ensure that clean stormwater is diverted away from roads.	1	Survey set out of roads and designs where necessary, employ surface treatment to reduce erosion.
4	Ensure that drainage is directed to sumps.	1	Implicit.

Residual Risk Assessment

Considering the controls being put in place the assessment of the residual risk associated with the risk events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
	Storm water flooding into work site and onto surrounding land and waterways.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Stormwater drains and discharge points	Inspect outlet area to assess the potential for contaminated water to exit the site.
2	Erosion control structures.	Inspect and maintain erosion control structures.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Work site sumps and side berms.	Site manager	Sumps and side berms maintained to ensure operation to design standard.
2	Internal roads.	Site manager	Culverts and diversion drains maintained to ensure operation to design standard.
3	Biodiversity and farmland within and downstream of work site.	Site manager	Sumps maintained to ensure operation to design standard.
4	Downstream waterways and related echo systems.	Site manager	Sumps maintained to ensure operation to design standard.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	Water Act (1989).	
2	Catchment and Land Protection Act (1994).	
3	Planning and Environment Act (1987).	
4	State Environmental Duty and Environmental Reference Standard – (Water).	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 11. Stormwater

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Erosion and Sedimentation

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Terminal batters	Work site	Erosion may impact batters	Batters impacted by erosion
2	Stockpiles	Work site	Erosion may affect stockpiles	Stockpiles may be damaged by erosion
3	Rehabilitation batters	Work site	Erosion may damage batter	Batters damaged by erosion
4	Surrounding property	Land surrounding work site	Erosion may deposit sediments from work site	Sediments deposited on surrounding land

To determine the key sensitive receptors, consider:

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Erosion of batters and stockpiles	Construction Operation Rehabilitation	Moderate	Possible	Medium
2	Sediments deposited on surrounding land.	Construction Operation Rehabilitation	Moderate	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Prevent erosion and sediment runoff from onsite activities.
- Stop offsite impacts of erosion and sediment runoff on the surrounding environment.
- Protect the beneficial use of water and environments as defined in the Environmental Reference Standards, (ERS).
- Stop the risk of failure of on-site infrastructure, (e.g. sediment sumps, drainage) due to erosion.

Compliance standards

The compliance standards for this risk treatment plan are:

- EPA General Environmental Duty, (GED).
- EPA Environmental Reference Standard, (ERS).
- Catchment and Land Protection Act (1994).

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Sediment loss controlled on site at all times.
- No delivery of sediment to land or waterways outside of the work authority area.
- No unmanaged areas of active soil erosion within the work authority area or adjacent areas from site discharge.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Plan and stage surface stripping of vegetation to minimise bare areas.	1 2	2 ha of land exposed at any one time. Topsoil/overburden stockpiles alongside of extraction site.
2	Install inception drains upstream and downstream of work areas to minimise waterflow into work areas.	1 2	Interception drains constructed and operating effectively.
3	Design, size and maintain sediment control ponds to retain water until sediments have fallen out of suspension.	1 2	Temporary structures designed to accommodate a 1 in 10 year storm even located at the downstream end of each extraction strip
4	Progressive rehabilitation and suitable revegetation as soon as possible after terminal batters are established.	1 2	Revegetate terminal batters as soon as possible following final extraction.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Erosion of work site infrastructure.	Construction Operation Rehabilitation	Minor	Unlikely	Low
2	Sediments deposited on surrounding land.	Construction Operation Rehabilitation	Minor	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Effectiveness of sediment control structures.	Condition and operating effectiveness pre-winter and following each major rainfall event.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Effectiveness of sediment control structures.	Site manager pre winter and after significant rainfall events.	Maintain operating condition and effectiveness of system.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	CMPA Control Guidance on Water Management Strategies for the Quarrying Industry.	
2	EPA 2020	Publications 1893, 1894, 1895

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 12. Erosion and Sedimentation

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Fuels and Lubricants and Hazardous Materials

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Groundwater and Land	Within and surrounding work site.	Contamination of groundwater and land .	Groundwater and land contaminated by split hydro carbons.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Contamination of the environment caused by spilt hydrocarbons.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Objectives

The key objectives of this risk treatment plan are to:

- Minimise the risk of fuels, lubricant and hazardous materials released into the environment through leaks, spills and through storm water runoff.

Compliance standards

The compliance standards for this risk treatment plan are:

- State Environmental Reference Standard (ERS)
- AS 1940 Storage and Handling of Flammable and Combustible Liquids.

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- No onsite storage of fuels and lubricants.
- Compliance with relevant ERS.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	No fuels or lubricants held onsite.	1	Implicit
2	Refuelling of equipment occurs from a dedicated safe facility.	1	Implicit
3	Servicing occurs off-site.	1	Implicit
4	Oil spill kit on site.	1	Implicit

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Contamination of the environment caused by spilt hydrocarbons.	1,2,3	Insignificant	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	No fuels or lubricants held onsite.	Implicit
2	Refuelling of equipment occurs from a dedicated safe facility.	Implicit
3	Servicing occurs off-site.	Implicit
4	Oil spill kit on site.	Implicit

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	No fuels or lubricants held onsite.	Quarry Manager quarterly	Maintain controls
2	Refuelling of equipment occurs from a dedicated safe facility.	Quarry Manager quarterly	Maintain controls
3	Servicing occurs off-site.	Quarry Manager quarterly	Maintain controls
4	Oil spill kit on site.	Quarry Manager quarterly	Maintain controls

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	EPA Act 1993	
2	EPA Guideline 623/06	

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No. 13 Fuels and Lubricants

Work Authority Number 1478

Scope

This risk treatment plan is for the control of: Rubbish

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Surface water.	Within and surrounding work site.	Work site rubbish impacting surface wate.	Waste/rubbish not removed from site and disposed of appropriately leading to polluting surface water.
2	Groundwater.	Within and surrounding work site.	Work site rubbish impacting ground water.	Waste/rubbish not removed from site and disposed of appropriately leading to polluting groundwater.
3	Ecosystems.	Within and surrounding worksite.	Work site rubbish impacting ecosystems on adjacent private land.	Waste/rubbish not removed from site and disposed of appropriately leading to polluting ecosystems.
4	Private land.	Surrounding work site.	Work site rubbish impacting private land.	Waste/rubbish not removed from site and disposed of appropriately leading to polluting private land.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Rubbish and waste impacting the environment	Construction Operation Rehabilitation	Minor	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Prevent rubbish generated by site activities from adversely affecting soil, water and other aspects of the environment.

- Protect the beneficial use of water and soil environment as defined in relevant State Environment Protection Policies.

Compliance standards

The compliance standards for this risk treatment plan are:

- SEPP (Waters).
- Environment Protection Regulation 2021 S. R. No. 47/2021 Item 10, (Actual or likely contamination of groundwater or surface water). Page 38.

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Beneficial uses of soil, water and air within and near the work authority are not detrimentally affected by storage and/or management of rubbish or industrial waste.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	No onsite disposal(or burning) of waste or rubbish.	1	No domestic or prescribed industrial wastes disposed on-site.
2	Use appropriately licensed off site services to recycle or dispose of site generated wastes.	1	Licensed contractors are used for the disposal of all rubbish and waste material.
3	Provide covered bins for temporary on-site storage of rubbish and domestic waste.	1	Sealed bins provided.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Work site rubbish and industrial waste impacting the environment	Construction Operation Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Covered bins available for waste storage on site	Quantity types and locations of wastes stored on site.
2	Approved disposal of waste	Register of licensed contractors.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Waste stored on site.	Site manager monthly.	Maintain waste management protocols.
2	Approved disposal of waste.	Site manager monthly.	Maintain waste management protocols.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	SEPP (Waters)	
2	Environment Protection Regulation 2021	S. R. No. 47/2021 Item 10, (Actual or likely contamination of groundwater or surface water). Page 38.

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 14 Rubbish

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Site Access

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Members of the public	Work site	Uncontrolled public access to work site may present a safety or injury risk.	Implicit

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Injury to public	Construction Operation Rehabilitation	Major	Possible	High

Objectives

The key objectives of this risk treatment plan are to:

- Provide for the safety for members of the public when accessing work authority area.
- Prevent unauthorised access to the work authority area by members of the public.

Compliance standards

The compliance standards for this risk treatment plan are:

- Earth Resources Regulations Standard Conditions
- Mineral Resources (Sustainable Development) (Extractive Industries) Regulations 2019.

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Boundary of work authority area is appropriately marked and secured.
- Operating area for quarry is secured to minimise chance of unauthorised entry.
- Secure boundary fencing and gates locked when site is vacated.
- Safety signage is clearly visible around the boundary fence and at all access points.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Identify, mark and fence the WA boundary in compliance with MRSD (Extractive Industries) Regulation 2010	1	The site boundary is identified with compliance markers and fully fenced with lockable access gates
2	Install site access safety signage around boundary fence and at all access points	1	Hazard warnings against unauthorised access.
3	Design and construct on site roads to safely accommodate the size and types of vehicles accessing and travelling within the site.	1	For one-way traffic, the track will be twice the width of the widest vehicle. For two-way traffic, the track will be three times the width of the widest vehicle. Provide safe access and parking area for staff and visitors that is isolated from working areas.
4	Lock all gates when site is unattended. Control access to site when site is attended.	1	Site gates locked or otherwise secured.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Injury to public.	Construction, Operation, Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Site entry by members of the public.	Register all visitors to site.
2	Site security breaches (unauthorised access).	Records kept of site security breaches.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Site entry by members of the public.	Site manager monthly.	Maintain log of public visits to work site.
2	Site security breaches.	Site manager when recorded.	Records kept of site security breaches.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	CMPA Traffic Management Guidelines	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No. 15 Site Access.

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: FIRE

Key sensitive receptors

The key sensitive receptors associated with this hazard include:

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	Public safety.	Within work site and neighbouring properties.	Uncontrolled fire threatening work site personnel and neighbours.	Uncontrolled fire can adversely affect work site personnel and neighbours health and safety.
2	Air quality.	Within work site and neighbouring properties.	Health related issues due to smoke inhalation.	Smoke inhalation is a health risk.
3	Private land.	Within and surrounding work site.	Uncontrolled fire exiting the work authority onto private land.	Private land assets can be damaged or destroyed by uncontrolled fire.
5	Ecosystems.	Within and surrounding work site.	Uncontrolled fire damaging or destroying ecosystems within and surrounding the work authority.	Ecosystems within and nearby to the work authority can be damaged or destroyed by uncontrolled fir.

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Uncontrolled fire igniting on site and exiting the work authority.	Construction Operation Rehabilitation	Major	Possible	High

Objectives

The key objectives of this risk treatment plan are to:

- Control potential source of fire ignition and activities that could lead to fire ignition and escape on days of elevated fire danger.
- Minimise environmental and human safety risks associated with fires burning onto the work authority area.

Compliance standards

The compliance standards for this risk treatment plan are:

- Country Fire Authority Act (1958).
- Country Fire Authority Regulations (2015).
- Planning and Environment Act (1987).

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Any fire ignitions originating within the work authority area are contained within it.
- Grass or bushfires burning onto the work authority area do not cause health or safety incidents and result in minimal environmental harm.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Develop and implement hot work procedures for the conduct of activities in the open that are a potential source of fire ignition.	1	Written hot work procedures have been developed.
2	No hot work to be undertaken in the open air on days of total fire ban without a permit from the CFA.	1	No ignition sources used on total fire ban days.
3	Firefighting equipment provided on all on-site vehicles and mobile plant and maintain the equipment in good working order.	1	Fire-fighting equipment in all vehicles and maintained as per the maintenance schedule.
4	Relevant personnel working on site are provided with information and training regarding the fire hazards of the area, “hot work procedures”, relevant emergency response procedures and use of applicable equipment.	1	Relevant personnel trained prior to working within work authority area.
5	All equipment fitted with mufflers, spark arrestors in accord with manufacturers specifications and maintained in good working order.	1	Implicit.

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
6	Flammable and combustible wastes are removed from the site as soon as practicable.	1	Implicit.
7	During the prescribed fire danger period check the National Fire Danger Rating for the area.	1	Fire danger rating checked daily and communicated to site personnel.
8	Establish and maintain fire breaks around the site boundaries.	1	Fire breaks prepared and maintained.

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Uncontrolled fire igniting on site and exiting a the work authority.	Construction Operation Rehabilitation	Minor	Unlikely	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Hot work procedures manual.	Manual developed and site personnel inducted.
2	No hot work undertaken on total fire ban days without a CFA permit.	Operations on total fire ban days comply with CFA regulation.
3	Personnel trained.	All on site personnel are trained.
4	Fire-fighting equipment maintained on all vehicles and equipment.	Fire-fighting equipment maintained.
5	Flammable and combustible waste management.	Wastes stored in sealed containers and removed from site as soon as practical.
6	Fire danger rating.	Rating monitored during fire danger period.
7	Fire breaks.	Fire breaks established and maintained.

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Hot work procedures manual.	Site manager when manual is implemented.	Personnel trained in hot work procedures.
2	No hot work undertaken on total fire ban days without a CFA permit.	Site manager when TFB days are forecast.	Monitor TFB days and program hot work accordingly.

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
3	Personnel trained.	Site manager when staff are trained.	Site personnel trained in fire protection and fire-fighting responses.
4	Fire-fighting equipment maintained on all vehicles and equipment.	Site manager monthly.	Equipment maintained in accord with manufacturers schedules.
5	Flammable and combustible waste management.	Site manager monthly.	Waste contained and disposed in accord with waste management procedures.
6	Fire danger rating.	Site manager daily during declared fire season.	Monitor TFB days and program site operations accordingly.
7	Fire breaks,	Site manager when constructed and annually prior to fire season being declared.	Annual inspection of fire breaks prior to the declared fire season.

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	CFA Bushfire Management Template .	Pathway 2
2	CHMPA Hot Work Permit.	

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A RMP No 16 Fire
2	Work Plan	Appendix B Mount Shadwell Quarry. Fire Management Plan

Work Authority Number

1478

Scope

This risk treatment plan is for the control of: Altered Visual Amenity

Key sensitive receptors

#	Details of the Sensitive Receptor	Location and proximity to site	How hazard may harm or damage Sensitive Receptor	Evidence to support assessment
1	6 residences	500m-1km northwest and southeast of work site	Change to view-scape	Work site visible from residence.
2	Commuters on Mortlake Ararat Road.	Work site partially visible for from a distance of approximately 3km for approximately 1km to commuters travelling south.	Change to view-scape	Work site partially visible from Mortlake Ararat Road

Risk Events

#	Details of the Risk Event	Phase	Consequence	Likelihood	Inherent Risk Rating
1	Altered visual amenity to residents and commuters.	Construction Operation Rehabilitation	Minor	Possible	Medium

Objectives

The key objectives of this risk treatment plan are to:

- Minimal change to visual amenity.

Compliance standards

The compliance standards for this risk treatment plan are:

- Catchment and Land Protection Act (1994).

Acceptance criteria

The acceptance criteria for this risk treatment plan are:

- Minimal change to view-scape.

Controls to address hazard

The controls for this risk treatment plan are:

#	Details of controls being used	Risk Events being managed (number from above)	Performance standards/measures *(specifying how the control is being implemented –if not implicit in the control)*
1	Native vegetation planted in northern buffer zone	1	Maintain buffer zone vegetation

Residual Risk Assessment

#	Details of the Risk Event	Phase	Consequence	Likelihood	Residual Risk Rating
1	Altered visual amenity to residence and commuters.	Construction, Operation, Rehabilitation	Minor	Rare	Low

Monitoring

#	Aspect to be monitored	Details of monitoring
1	Vegetation screen	Monitor quarterly to assess integrity of buffer vegetation

Reporting

#	Aspect being reported	Who will the information be reported to and at what frequency?	How will it be used?
1	Buffer vegetation	Quarterly internal reporting for management	Monitor quarterly to maintain buffer vegetation

Relevant industry publications

#	Document	Source (e.g. URL, appendix number)
1	Catchment and Land Protection Act 1994	Gazette G29 20th July 2017

Operator's reference documents

#	Document	Location (e.g. work plan appendix number)
1	Work Plan	Appendix A –RMP 17. Altered Visual Amenity

Mineral Resources (Sustainable Development) Act 1990

Tenement Number: WA1478

Plan Number: PLN001732

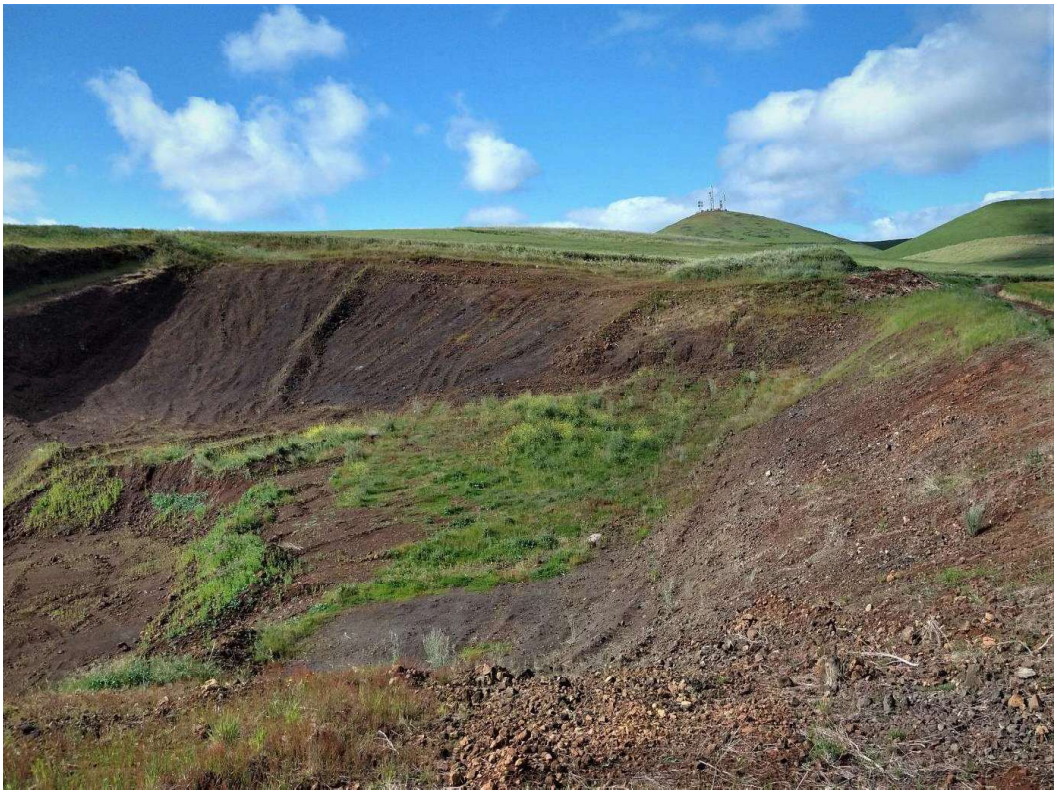
Work Plan Statutorily Endorsed

Signed: _____

Delegate of the Department Head

Date: 01/05/2024

Mount Shadwell Scoria Quarry.
WA1478-PLN001732
Rehabilitation Plan



Old quarry Lot 1.

Owner Operator	Colin Goldsworthy
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Version 2 November 2023.

Site Information and Setting.

Project Summary.
Summary of operation.
This application is for the licensing of an existing scoria quarry on Lots 1 & 2, an area of approximately 7ha and an extension into an adjoining green field site, Lot 4, approximately 26ha. in area. Lot 4 is within the same property ownership. The quarry site is located on the lower northern slopes of Mt Shadwell, approximately 2.4kms north of Mortlake. (Please refer to Plate 3, Mount Shadwell Scoria Quarry Site Plan). The property is owned by the sponsor Mr Collin Goldsworthy. The material to be quarried is a fine red/ black scoria deposited across the area. The intended use of these materials is for general road and farm track base. The post extraction proposal is for the land to be returned to the existing high value agricultural productivity of crops and fat lambs. Extraction will be progressive in approximately 11 stages, starting in the old quarry and progressively moving west into Lot 4. Scoria will be bladed to the quarry floor by bulldozer and stockpiled for processing. A portable crushing and screening plant will be bought on site as needed to crush and screen the scoria into various sizes for sale. Customer trucks will be loaded by front end loader. Approximately 6-10 trucks per day will be loading, some days or weeks there may be no trucks on site. Operating hours are from 7am-6pm Monday to Friday, 7am-12 noon Saturday, no operation on Sundays or public holidays. As each stage is extracted terminal faces are battered to a 1V:3H-1V:6H depending on the pre-existing land form. Stockpiled overburden and topsoil is then respread over the surface that it was removed from and the area will then be sown to pasture or crop. Agricultural productivity will recommence on the rehabilitated stages as the quarry progresses into the next stage. Commuters travelling south on the Mortlake Ararat Road will have limited views of the extraction stages in Lot 4. An indigenous tree plantation to screen Lot 4 will be established on the northern boundary. The Haul road will be retained at the current location off the Mortlake Ararat road for farm use. The design and rehabilitation of the quarry will cause minimal disruption to farming operations. For details please see attached plans at end of document.

Current Quarry.
Lots 1 & 2.
The historically worked area of the old quarry on Lots 1 is approximately 2ha consisting of an exposed scoria floor and face heights to approximately 10m. The eastern and western sections are sown to crops. Topsoil ratios are fairly consistent, being on average 0-20 cm in depth. Overburden depth is variable 0-1m depending on the underlying scoria. Available topsoil is 14,443m3 and overburden is 72,214m3. Topsoil and overburden will be stockpiled separately for rehabilitation as required. 86,657m3 of rehabilitation materials are available on site. (Please refer to sheet 9 of the Work Plan drawings).
Lot 4.
Lot 4, of approximately 27ha adjoins the existing extraction on the western face. This site will have varying terminal faces from 1m on the lower northern eastern face increasing to 25m faces as extraction extends to the south on the rising slopes of Mt Shadwell. Lot 4 will be worked in parcels of approximately 2ha each and rehabilitated progressively. Available topsoil is 45,848m3 and overburden is 229,242m3. Topsoil and overburden will be stockpiled separately for rehabilitation as required. 275,090m3 of rehabilitation materials are available on site. {Please refer to sheet 25 of the Work Plan drawings).

Site description.
The site is located on the lower northern slopes of Mount Shadwell, a volcanic cone, there are two active quarries on the mount, the larger operated by Moyne Shire Council is located on adjoining land to the south east. Lots 1, 2 and 4 have been historically cleared of all native vegetation for agriculture. The area is rotated annually for cropping and grazing. There are no wetlands or waterways within 1.5km of the site. Blind Creek is approximately 1.5-2km west of the site. There are no Crown Land reserves within 2km of the site. The site will be accessed at the current entry point off the Mortlake Ararat Road. For details please see attached Work and Rehabilitation Plans at rear of this document.

Environmental and Social Setting.

The existing quarry has not operated for a number of years. The site is located approximately 3km north of Mortlake on the northern slopes of Mount Shadwell. Approximately 1.5ha of Lot 1 has been partially extracted. Lot 4, adjoins the existing quarry on the west side. The site is located on private farmland on the lower northern slopes of Mount Shadwell.

Plate 1. WA1478. Lot 4 extension area. Mount Shadwell in the background.

The area is sparsely populated grazing and cropping land with 18 residences within 2km of the work site, the closest being the land owners. The general area has been cleared of native vegetation and wetlands have been drained for agriculture. There are no wetlands, or public land within 2km of the site, a small section of Blind Creek is approximately 1.5-2km west of the site. This historic land clearing and drainage has greatly reduced the biodiversity of the area. The site is within an area of “Declared Aboriginal Sensitivity, (Volcanic Plains)” as

described by the Aboriginal Heritage Act 2006, and as such a Cultural Heritage Management Plan, (CHMP) is mandatory. The CHMP has been endorsed by Eastern Maar Aboriginal Corporation, (EMAC), the Registered Aboriginal Party, (RAP) for this area. The quarry will be accessed at the current location off the Mortlake Ararat Road. Moyne Shire council operates a scoria quarry immediately south east of this location.

Plate 2. Lot 4. Field survey for CHMP

Rehabilitation Obligations and Commitments.

The following agencies were notified of the application and invited to attend an onsite meeting to discuss the application or to provide written advice relating to their area of responsibility. The site meeting was held on 13/7/20.

Invitees and attendees were:

Earth Resources Regulation, (ERR). Attended.

Moyne Shire Council, (MSC). Attended.

Glenelg Hopkins Catchment Management Authority. (GHCMA) Did not attend, provided written advice.

First Peoples State Relations (FP SR) Did not attend, provided written advice.

Department of Environment Land Water and Planning, (DELWP). Attended

Heritage Victoria. (HV). Did not attend, provided written advice.

Mr Colin Goldsworthy, Land Owner. Attended.

NAM P/L. Attended.

The following matters were raised and discussed.

Mr Goldsworthy, land owner.

Mr Goldsworthy provided knowledge of the existing quarry, agricultural management of the site, the proposed quarry purpose and the long term objectives for his land.

Obligations.

ERR.

- A geotechnical assessment of slope stability be undertaken.
- Guidelines for the Preparation of Work Plans, and Work Plan Variations be referenced for the application..
- Nearby landowners located within 2km of the site be visited by NAM P/L to notify them of the proposal and given the opportunity to discuss the proposal and provided with written details.

FP-SR.

- The site is located within an area of declared Aboriginal heritage sensitivity, (Volcanic Plains). A Cultural Heritage Management Plan, (CHMP) be undertaken.
- Eastern Maar Aboriginal Corporation,(EMAC) has heritage responsibility for this area and must be notified.

EMAC.

- Assisted with determining the requirements for the field work required for the CHMP.
- Meet with heritage advisors to discuss the CHMP field work detail and legislative requirements.
- Assist with the field survey for the CHMP.
- The CHMP be provided to EMAC for their assessment.

MSC.

- The quarry site is located on land that is zoned rural agricultural.
- Vic Roads be advised to determine the safety of the intersection with the Mortlake Ararat Road.
- The application will be assessed when received and will follow the normal planning permit application procedure.
- Suggested that a tree screen be established on the northern face of the extension to limit views to commuters on the Mortlake Ararat Road.

DELWP.

- Generally DELWP had no major concerns as the areas proposed for licensing have been cleared of native vegetation.
- The exposed quarry face may be a roosting/nesting site for raptors and that this should be assessed prior to any extraction of this face during the breeding season.
- The rocky outcrop on Mount Shadwell approximately 100m south of Lot 4 may provide suitable habitats for Southern Bent-wing Bats, (SBwB), an endangered species, and that a visual inspection of this area be undertaken to determine the likelihood of suitable habitats.
- The may also be suitable SBwB habitats within the extraction areas.

Heritage Victoria.

- Advised in writing that the area did not contain any known archaeological sites.

Commitments.

ERR.

- A geotechnical slope stability assessment has been completed. (Douglas Partners, Geotechnical Inspection. Quarry Extension Geotechnical Investigation Red Hill, 19 Steeles Ln, Mortlake. November 2021, reviewed to comply with the guidelines Oct.23.). No instability issues were identified.
- The Guidelines for the Preparation of Work Plans, and Work Plan Variations were implemented in the preparation of the Work and Rehabilitation Plans.
- Neighbours were advised by door knock and letter drop on the 3/2/22. No issues or objections were raised at this time or have been received since.

EMAC

- Assisted with determining the requirements for the field work required for the CHMP.
- Met with heritage advisors to discuss the CHMP field work detail and legislative requirements.
- Assisted with the field survey for the CHMP. The field survey and associated research has been completed.
- Endorsed the Mt Shadwell Quarry CHMP in December 2021.

MSC.

- A Planning Permit application be submitted following ERR endorsement of the Work Plan.
- Department of Transport guidelines for the quarry entry off the Mortlake Ararat road be implemented.
- A native tree plantation will be established on the northern side of the extension area.

DELWP

- The exposed quarry face will be assessed to determine the presence of breeding/roosting habitat for raptors. If raptors are breeding in the quarry face, then extraction of this area will be put on hold until the juveniles are fully fledged and have left the nest.
- The extraction areas and the rocky outcrop south of Lot 4 were inspected for SBWB habitats by DELWP, no suitable habitat was evident.

Local Community.

- A letter explaining the proposal has been prepared and delivered to neighbours within 2km. No concerns or objections were raised at the time of visit or since.
- To minimise visual impact to neighbouring residences and road users a tree plantation will be established on the northern face of Lot 4 using native trees.

Environmental and Social setting.

There are no bio-diversity impacts. The area is located within the confines of the cropping property that has been historically cleared of all native vegetation. There is no native vegetation within the site. The site, on the lower northern slopes of Mt Shadwell is located within an area of high intensity grazing and cropping properties. Apart from a small section of Blind Creek, approximately 1.5-7km west of the work site there are no waterways or wetlands within 2km. Sections Lot 4 are visible to commuters travelling south on the Mortlake Ararat Road. As the area is within an area of Aboriginal heritage sensitivity several discussions with EMAC regarding the proposal have taken place and relevant issues are included as conditions in the CHMP.

Sensitive Receptors.

- There is 1 residence within 500m, six within 1km and eleven within 2km. The eleven residences within 1-2km of the quarry site are located on the western and southern slopes of Mount Shadwell on the outskirts of Mortlake. The bulk of Mount Shadwell obscures views of the quarry site from these residences.
- There are no wetlands, public land or reserves within 2km.
- A small section of Blind Creek is approximately 1.5-2km west of Lot 4.
- Moyne Shire Council operates a scoria quarry approximately 500m southeast of the proposed quarry site.
- A declared Aboriginal Cultural Area, Mount Shadwell Stony Rises is located in the south east corner of Lot 4. This site is buffered out of the quarry.
- All of the proposed quarry area lies within an area of Declared Aboriginal Heritage Sensitivity. (Please refer to Aboriginal Heritage Sensitivity area plan, page 9).
- Mortlake Ararat Road is approximately 500m east of the quarry.

Plate 3. Site Plan. Mount Shadwell Scoria Quarry.

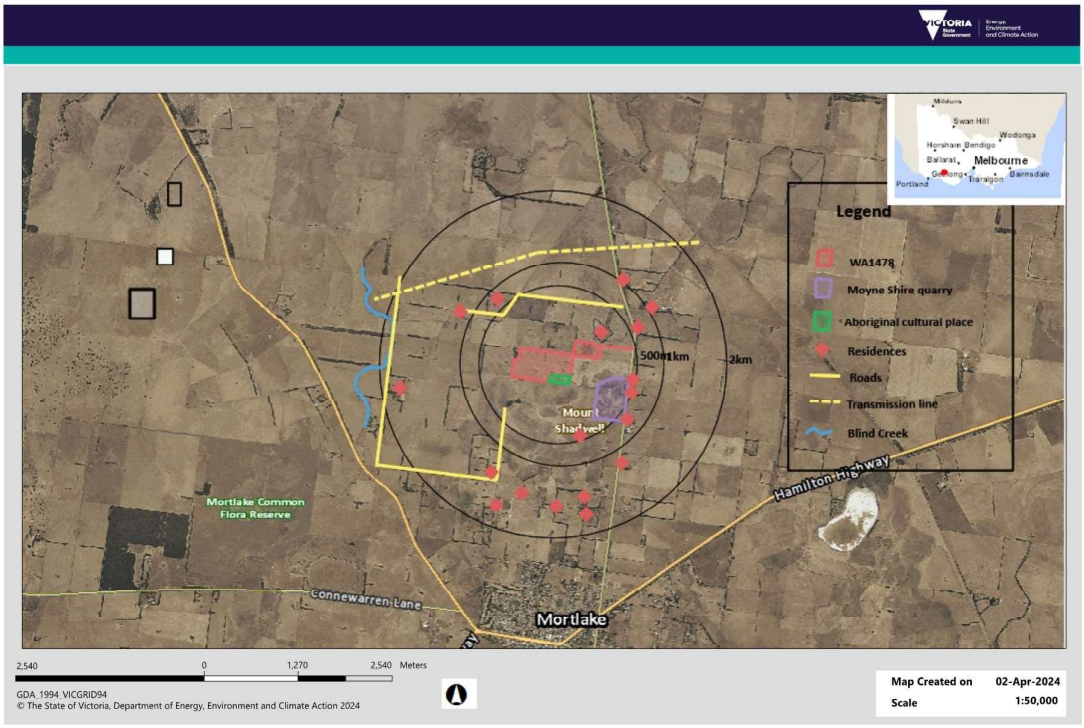


Plate 4. Mount Shadwell Scoria Quarry Receptor Plan

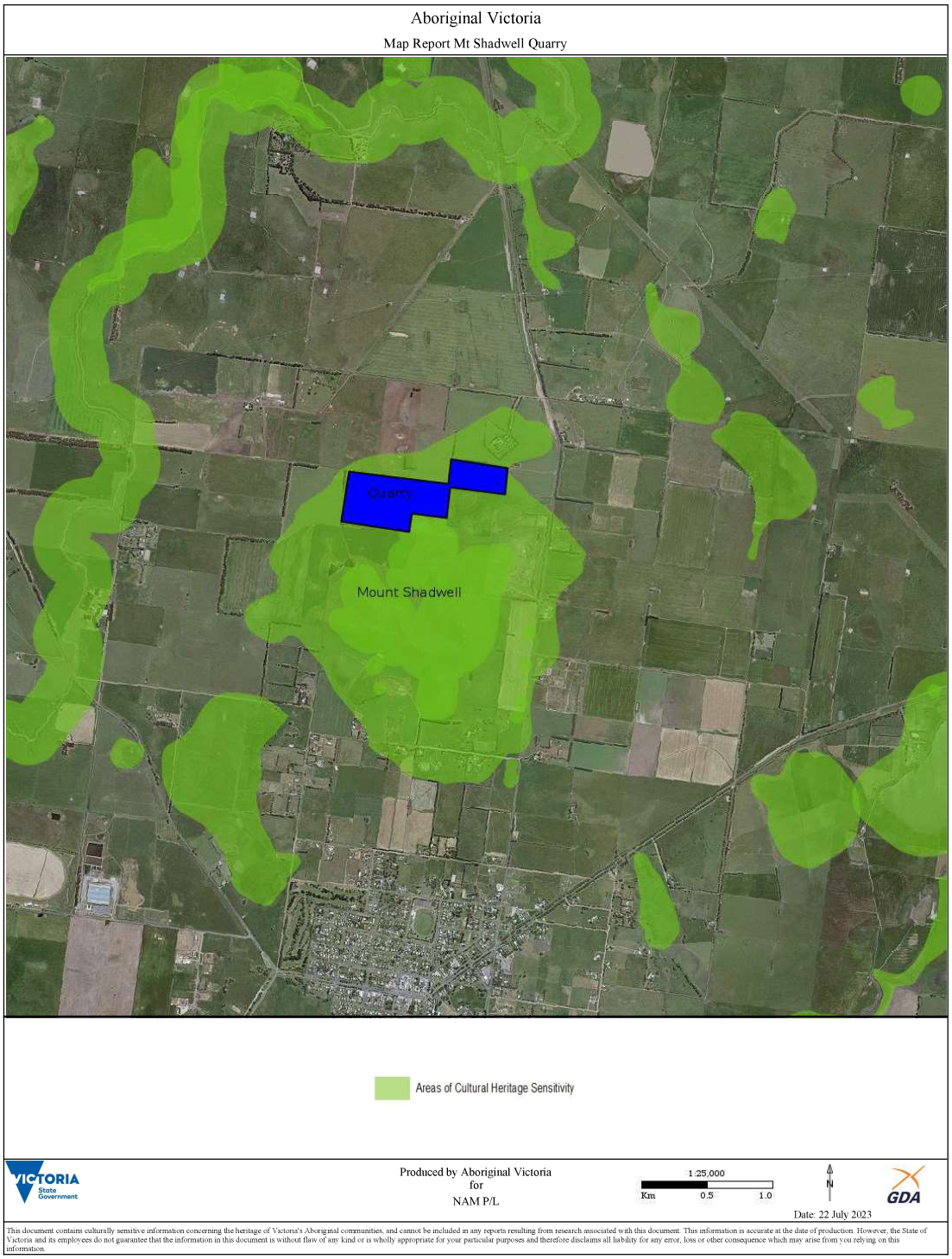


Plate 5. Mount Shadwell Scoria Quarry. Area of Aboriginal Cultural Sensitivity.

Community Engagement

Community member/group	Date / type of consultation	Summary of matters presented	Community views expressed	How community views were considered
18 residents extending to 2km from the quarry area.	February 2022 Door knock.	Provided a community notification letter. Discussed the staged rehabilitation proposal.	Generally accepted and supported. 2 neighbours unavailable. Community Notification Letter left at residence.	No objections or concerns raised during visit or follow up from absent neighbours.
EMAC	2020-2021 Several formal and informal discussions.	Potential impact to Aboriginal heritage by the proposed quarry extension on Mt Shadwell. Protection of the registered Aboriginal place and management of artefacts. Methodology of field assessment for CHMP.	General concern as to the impact on their heritage. Review and discuss the CHMP recommendations. Report prepared for EMAC detailing how the extension will be designed and managed to consider Aboriginal heritage values.	Following these meetings, the management conditions in the CHMP and the rehabilitation design of the extension have been modified to address these values. CHMP endorsed by EMAC in Dec. 2021.

Proposed post-quarrying land uses and land form.

Post quarrying land use.

The extension area will be progressively returned to high value agricultural production. This is consistent with the current use of surrounding agricultural land and is supported by the local farming community and MSC. The post quarrying land form will be rehabilitated to enable the continuation of the current cropping/grazing use of the land. That is, by re-spreading the overburden and topsoil over the area and establish batters of 1V:3H.–1V:6H: depending on the pre-existing land form. The extracted area will then be re-sown in preparation for grazing or cropping. Rehabilitation will be achieved using machinery and equipment owned by the quarry operator who is also the land owner and site manager. It is in the owners best interest to rehabilitate the extracted areas expediently so that normal farming activities can occur as soon as practical. Re-pasturing will be undertaken during optimal seasonal conditions. The Lot 4 tree corridor will be maintained as a farm windbreak and habitats for wildlife. The land form is subject to normal seasonal extremes including drought and potential wildfire. It is not subject to flooding due to the elevation of the area.

Rehabilitation domains

Rehabilitation domains, objectives, and criteria

Whole of site objective
• The rehabilitated land will be returned to agriculture. • Sediment ponds will be filled in • Topsoil respread over the extracted surfaces. • Haul road retained for farm access

Rehabilitation domain	**Objective**	**Criteria**	**Monitoring/ Standards**
Sediment ponds	Ponds filled	Ponds filled with overburden prior to spreading topsoil	Ponds filled to rehabilitated ground level and spread with topsoil
Haul road	Retained for farm use	Haul road retained	Haul road maintained
Overburden/Topsoil stockpiles	Retain overburden and topsoil for rehabilitation	Suitable quantities of overburden and topsoil for respreading over extracted surfaces	Rehabilitated surfaces monitored monthly for 3 monthsto ensure germination of pasture/crop

Rehabilitation milestones

Schedule of rehabilitation milestones	
Sediment sumps filled in. Land is returned to high intensity agricultural production.	
Milestone	**Timing/ Trigger**
Before quarrying commences	
Strip topsoil from site and stockpile Dig sediment pond	As soon as practicable following license issue.
During quarrying	
Stockpile stripped topsoil and overburden within extraction stage. Excavate sediment pond in stage.	As stage is prepared for extraction.
After quarrying	
Fill sediment pond. Spread overburden and topsoil to required batter angle. Re-establish pastures/crops. Retain haul road	As soon as stage has been exhausted. Following the filling of the sediment pond. Immediately following spread of topsoil and overburden if seasonal conditions are suitable, or when conditions become suitable. At end of quarrying

Rehabilitated land risk assessment & 25

Post-rehabilitation risks					
No.	**Risk**	**Likelihood**	**Consequence**	**Activities to manage risk**	**Projected costs to manage risk**
1	Sediment ponds	Unlikely	Moderate.	Suitable volumes of overburden available on site to fill sediment pond	Average volumes available per 2ha are topsoil 5,956m3, overburden 29728m3 = 35,674m3 available. D8 Dozer $320 per hour x 16hrs = $5120,00 + float, $300 from Mortlake. Total $5420.00 per 3ha. area.
2	Limited volumes of topsoil and overburden available for stage rehabilitation.	Unlikely	Low. Overburden and topsoil is generally mixed across the site due to extensive surface ploughing over many decades Low	Topsoil and overburden stockpiles kept within stage of extraction. Stockpiles respread over area of removal. Suitable volumes of topsoil/overburden available on site for rehabilitation in accord with design prescriptions. Total overburden volume of 301,456m3 provides a minimum 100mm coverage of the quarry area of 33ha. Topsoil stockpiles totalling 60,291m3 will be spread over the overburden. Please refer to sheets 9 & 25 of work plans for overburden and topsoil volumes available for rehabilitation	
3	Failure of pasture/crops to establish on rehabilitated stage if conditions are unsuitable	Unlikely	Moderate	Re-establish pasture/crops during optimum seasonal conditions	Site preparation $165.00 ha per 3ha stage $495.00 Pasture seed $15.00 per kg. Spread rate of 25kg per ha. 3ha. stage = $375.00 Re pasture cost per 3ha stage=$870.00
4	Haul road unusable	Unlikely	Moderate	Haul road maintained in a useable condition	

Rehabilitation table

	Objectives	Criteria	Milestone and timing of evidence gathering/reporting
The whole site will be safe, stable and sustainable			
a)	**is not likely to cause injury or illness –** by ensuring: • The site is safe, so that it cannot cause injury to humans or other animals, and • There are no contaminating or irritating sources left in an exposed or unstable state that could cause adverse human and other animal health impacts	• No dangerous features such as high precipices and steep slopes remain accessible as per agreed design • Site meets requirements of ongoing access and use compatible with land use.	**Pre quarry operation**: • Site geology is the same as existing quarry. • Quarrying methods will be consistent with Work Plan. • Extension area is designed as a continuation of the existing quarry. • Potential health risks identified using existing quarry history of operation. • Quarry and landform designs minimise safety risk. **During operations:** • Safety and health risks of quarried materials and landforms that will remain at the end of quarry life regularly updated by engaging appropriate expertise. • Evidence gathered to show that control measures are appropriate, implemented, and effective. • Progressively decommission and rehabilitate extracted stages. **In advance of closure** • Work authority signage will be removed. • Fencing and gate will remain. • The haul road is to be retained for farm use • Sediment ponds will be filled in and shaped to natural ground level. • Batter terminal faces to agreed slope angles • There is no waste to be capped or covered. • Overburden and topsoil spread over surface of quarry • re-establish pasture grasses/crops

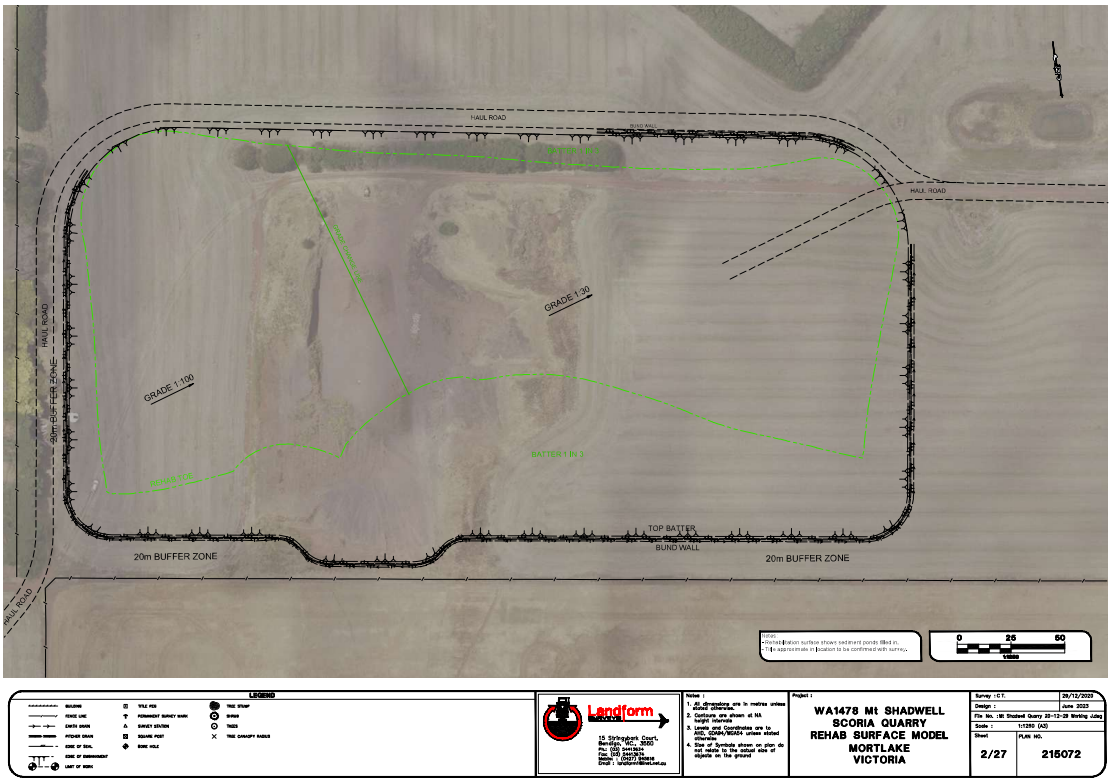
	Objectives	Criteria	Milestone and timing of evidence gathering/reporting
b)	**structurally, geotechnically and hydrogeologically sound -** by ensuring: • No unstable slopes, • Low susceptibility to erosion and predicted erosion factored into landform and drainage design.	• Methods of construction and reshaping as well as implementation of rehabilitation is verified by quarry manager to ensure construction and rehabilitation is aligned with approved design life and post-quarrying purpose/land use.	**Pre quarry operation** Landform features maintained by the design and location of the extension area. Rehabilitation and Closure (R&C) designed to address long term stability while integrating other objectives (a, c and d). Key elements and whole landform show how rehabilitation criteria will be met and are approved by regulator. **During operations** Geotechnical design of extension area is consistent with existing quarry to ensure, quality assurance are met. Progressive rehabilitation of completed areas are monitored and reported upon to quarry manager. **After decommissioning and rehabilitation** verify implementation and achievement of CC by evaluation of performance, monitoring until CC are achieved. Undertake maintenance during early stages to support stability.
c)	**non-polluting –** by ensuring: • No water or sediment pollution impacts the site or beyond • No airborne pollution is mobilised onsite or could leave the site	• Sediment pond located within each stage as extraction progresses. • Sediment pond infilled following extraction and prior to rehabilitation.	**During operations** • Rainwater only within quarry floor directed to sumps.
d)	**aligns with the principles of sustainable development** by ensuring: • The company understands and responds positively to stakeholder expectations, • Landforms blend with adjacent landscapes • Rehabilitation is self-sustaining	• Stakeholders are effectively engaged before quarrying commences and throughout the quarry's life to access R&C knowledge and share their local knowledge and concerns • Aesthetic impacts are addressed • Soil fertility and structure are comparable to local and pre-existing soil conditions	**Pre quarry operation** • Stakeholders visited and or advised of the proposal and views sought and discussed. • Regulator conditions met in consultation phases and design detail. • Pre located Aboriginal heritage salvaged prior to site preparation. • Quarry area and buffers established and clearly identified. • Plantation established on north face of Lot 4. **During operations** **In advance of closure**

	Objectives	Criteria	Milestone and timing of evidence gathering/reporting
		• Growth medium sustains land use for agriculture, that demonstrate sustainability and management inputs required. • Grazing lands support comparable stocking rates as adjacent areas	• Rehabilitate in accord with the directions of the Rehabilitation Plan. • Stockpiles are highly fertile with Olsen Phosphorus levels at 40ppm and Potassium levels of 300ppm • Grazing/cropping progressively introduced into rehabilitated stages. **After decommissioning and rehabilitation** • Rehabilitated area regularly monitored, (monthly) to ensure pasture/crop establishment and productivity. • Scoria does not need drainage for maximum performance of pasture and crops • Rehabilitated area supports comparable agricultural productivity as adjacent area. • Haul road remains useable
Domain 1 Quarried out quarry pit.			
a)	**is not likely to cause injury or illness** by ensuring: • Land surface profile is consistent with adjacent non extracted areas. Batters are reshaped to mimic surrounding landscape. 1V:3H-1V:6H • Redundant infrastructure removed • Extracted stages topography is compatible with proposed land use	• Terminal and rehabilitated walls are consistent with surrounding landscape • Topography is compatible with cropping/grazing farming.	**Pre quarry operation** • Work Plan shows how design criteria will be met for eventual rehabilitation and closure. (maximum height and slope, drainage and rehabilitation methods). • Rehabilitation will be progressive as each stage is exhausted. • Post closure use is cropping/grazing. **During operations** • Review stability data to ensure knowledge base for eventual rehabilitation of area. **In advance of closure** develop detailed design of slopes, drainage and rehabilitation plan for decommissioning, rehabilitation and long-term stability. **After decommissioning and rehabilitation**

	Objectives	Criteria	Milestone and timing of evidence gathering/reporting
			Rehabilitated stages monitored continuously as extractions move into the next stage.
b)	**structurally, geotechnically is sound** by ensuring: • Stage walls will not fail • Stage walls shaped and rehabilitated to design, and closed to design (related also a)	• Maximum terminal faces do not exceed 25m.	**Pre quarry operation** • Terminal and rehabilitated slopes are designed to be consistent with the existing quarry operations to ensure in perpetuity stability. The existing quarry has faces of 10m. There is no historic evidence of slumping or collapses at the quarry, or the adjoining Moyne Shire scoria quarry. Refer to Douglas and Partners Geotechnical Report 11/11/21. **During operations** • Stage walls constructed to work plan design. • Regular monitoring to ensure design is checked, verified or modified to address shortfalls for stability. **In advance of closure** • No deviations from design. **After decommissioning and rehabilitation.** • Extracted area is compatible with the approved land use.
c)	**non-polluting** by ensuring: • Final extracted areas do not impact ground or surface water quality • Surface water is not polluted by drainage	• Vegetation on extracted strips limits erosion and transport of sediments into water or air (as dust)	**Pre quarry operation** • Suitable soil materials are available for stripping during operations and stockpiled for use in rehabilitation. • Drainage and/or overflow water from quarried out stages meets water and sediment quality. **During operations** • Pollution risks, (spilt hydrocarbons) contained/managed in accord drainage design. • Spilt fuel kit available and accessible. • Sediment ponds will receive any contaminated surface water.

	Objectives	Criteria	Milestone and timing of evidence gathering/reporting
			After decommissioning and rehabilitation • R&C works meet design and construction requirements. Re-pasturing will be implemented.
d)	**aligns with the principles of sustainable development** by ensuring: • Rehabilitated and closed extraction area blends with adjacent landforms and is compatible with local land use.	• Terrestrial biodiversity is restored (Re-pasturing /cropping for agriculture). • Develop criteria to demonstrate success and sustainability – soil nutrients, biological, physico-chemical properties for use on the flatter pit slopes;	**Pre quarry operation** **During operations** • Stockpiles retained within stage of extraction and maintained to ensure soil viability. • Re-pasturing follows establishment of rehabilitation batters. **In advance of closure** • Quarry operator provide resources to manage the pit transition to post-closure to ensure objectives are met in the time frames agreed. **After decommissioning and rehabilitation** • Monitor for 3 months after sowing to ensure re- establishment of pasture.

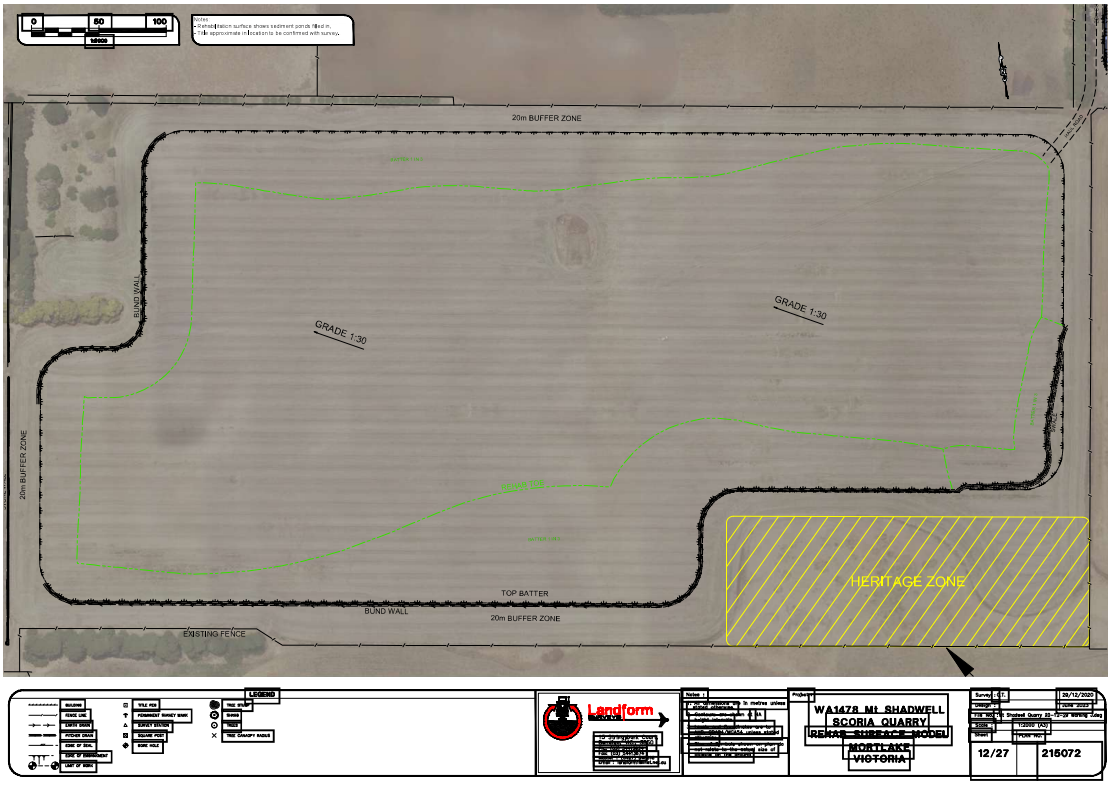
Lots 1&2 Rehabilitation designs



Lot 1&2 Rehabilitation Plan.

Name	2D Area (m2)	Cut (m3)	Fill (m3)	Net (m3)	Cut/Fill
Top Soil.1	15465	3093	0	3093	Cut
Top Soil.2	35832	7166	0	7166	Cut
Top Soil.3	20917	4183	0	4183	Cut
Overburden.1	15465	15465	0	15465	Cut
Overburden.2	20917	20917	0	20917	Cut
Overburden.3	35832	35832	0	35832	Cut
Scoria.1	15464	34901	11088	23813	Cut
Scoria.2	35832	225658	880	224779	Cut
Scoria.3	20917	63968	1884	62083	Cut
Total Top Soil	72214	14443	0	14443	n/a
Total Overburden	72214	72214	0	72214	n/a
Total Scoria	72213	324527	13852	310675	n/a

Lots 1&2 Volumes Table



Lot 4 Rehabilitation Plan.

Name	2D Area (m2)	Cut (m3)	Fill (m3)	Net (m3)	Cut/Fill
Top Soil.1	48553	9711	0	9711	Cut
Top Soil.2	22527	4505	0	4505	Cut
Top Soil.3	27635	5527	0	5527	Cut
Top Soil.4	29728	5946	0	5946	Cut
Top Soil.5	29825	5965	0	5965	Cut
Top Soil.6	27928	5586	0	5586	Cut
Top Soil.7	26909	5382	0	5382	Cut
Top Soil.8	16137	3227	0	3227	Cut
Overburden.1	48553	48553	0	48553	Cut
Overburden.2	22527	22527	0	22527	Cut
Overburden.3	27635	27635	0	27635	Cut
Overburden.4	29728	29728	0	29728	Cut
Overburden.5	29825	29825	0	29825	Cut
Overburden.6	27928	27928	0	27928	Cut
Overburden.7	26909	26909	0	26909	Cut
Overburden.8	16137	16137	0	16137	Cut
Scoria.1	48545	382032	639	381393	Cut
Scoria.2	22499	148239	1048	147190	Cut
Scoria.3	27635	410590	455	410135	Cut
Scoria.4	29727	441460	218	441242	Cut
Scoria.5	29823	368488	333	368155	Cut
Scoria.6	27928	405257	267	404990	Cut
Scoria.7	26909	229379	402	228977	Cut
Scoria.8	16114	151525	386	151139	Cut
Total Top Soil	229242	45848	0	45848	n/a
Total Overburden	229242	229242	0	229242	n/a
Total Scoria	229179	2536970	3749	2533221	n/a

Lot 4 Volumes Table.
For Rehabilitation profiles please refer to sheets 6-7 &14-23 of Work Plans

Mineral Resources (Sustainable Development) Act 1990

Tenement Number: WA1478

Plan Number: PLN001732

Work Plan Statutorily Endorsed

Signed: _____

Delegate of the Department Head

Date: 01/05/2024

MOUNT SHADWELL SCORIA QUARRY

COMMUNITY ENGAGEMENT PLAN

WA1478-PLN001732

23/5/2023

Version Control and Approval

Version No.	Prepared	Reviewed	Approved	Date	Description	Next Revision
2	[redacted] NAM P/L	[redacted] Owner/Manager	[redacted] Owner/Manager	10/11/23	Initial Plan	dd/mm/yyyy

Table of Contents

1. CEO or Company Representative Statement

Mount Shadwell Scoria Quarry acknowledges the environmental, cultural and landscape values in the area surrounding the quarry site. We respect the rights held by private landholders, first Australians and local community members and associations. Mount Shadwell Scoria Quarry is committed in engaging with the local community, listening to community concerns, and responding appropriately to community feedback. Mount Shadwell Scoria Quarry seeks to be recognised as a valuable contributor to the community.

Colin Goldsworthy

Owner/Manager

Mt Shadwell Scoria Quarry

2. Introduction

Purpose of the community engagement plan

The purpose of this Community Engagement Plan, (CEP) is to ensure that interested parties are informed of this proposal and given the opportunity to express how you may be affected. This engagement is considered fundamental in determining social, visual, amenity, and environmental outcomes.

Application.

This application is for the licensing of an existing old, partially worked quarry, an area of approximately 7ha and an extension into the adjoining paddock to the west, Lot 4, an area of approximately 27ha. The land is owned by Mr Colin Goldsworthy the sponsor. The material to be quarried is a fine red/ black scoria deposited across the area. The intended use of these materials is for general road and farm track base.

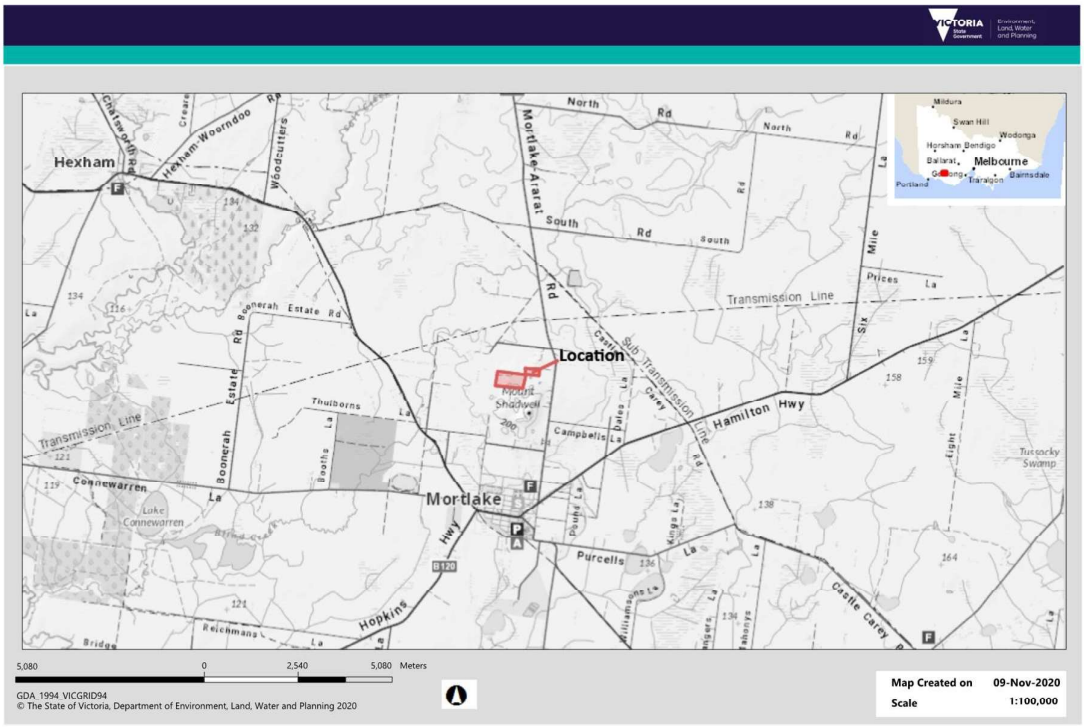
Summary of operation.

Prior to the scoria being extracted, topsoil and overburden will be stripped from each stage as work progresses and stockpiled separately for use in the rehabilitation of the site. Extraction will be progressive in multiple stages, of approximately 2ha in area. A bulldozer will push/pull the scoria to the quarry floor and stockpile for crushing and processing. There will be no fixed assets on site. A portable screening and crushing plant will be on site as required for crushing and screening the scoria. Operating hours are from 7.00-6pm Monday to Friday, 7am-12 noon Saturdays, no Sundays or public holiday operations. The haul road to the quarry will remain at the present location off the Mortlake Ararat Road This access will be retained as a farm track. As works progress each worked area will be rehabilitated by battering the faces to 1V:3H-6H, depending on the pre-existing face slope. Filling the sediment ponds, re spreading the stockpiled overburden and topsoil back over the area, and finally sowing to pasture/crop and returning the site to primary production. At the completion of rehabilitation all equipment and machinery associated with the quarry will be removed.

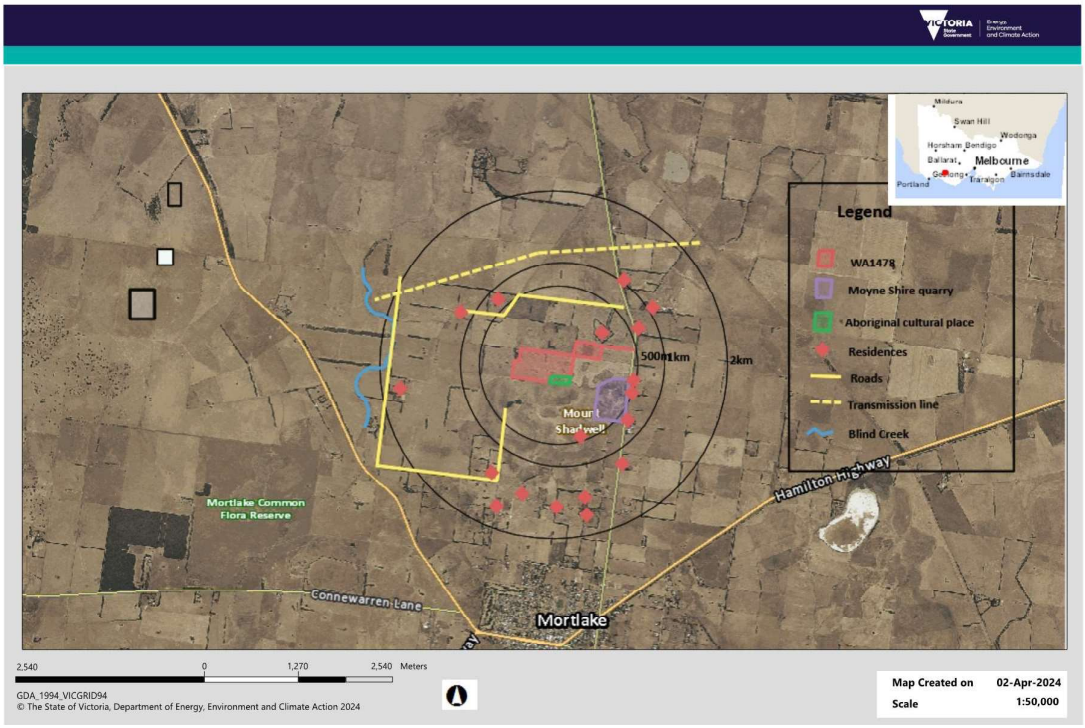
3. Site description.

The site is located on a highly productive cropping and grazing property on the lower northern slopes of Mount Shadwell. The general area is closely settled, highly productive grazing and cropping country historically cleared of native vegetation. Shelter belts of introduced cypress trees dominate the landscape to the north, west and east of the site. There is one residence within 500m of the quarry, (the landowner), 6 within 1km and 11 within 2km. Mortlake township is approximately 2-3km south of the site. Mount Shadwell dominates the view to the north from the town. The quarry site cannot be seen from the township. Mortlake-Ararat Road commuters travelling south have limited views of Lot 4, the western section proposed for extraction. Moyne Shire Council operate a scoria quarry immediately southeast of the site. The whole of Mount Shadwell is within an area of declared Aboriginal heritage sensitivity. The Aboriginal Heritage Act 2006 determines that a Cultural Heritage Management Plan, (CHMP) be undertaken and assessed by the Registered Aboriginal Party (RAP) for the area. A small Aboriginal cultural place adjoins Lot 4 in the south east corner.

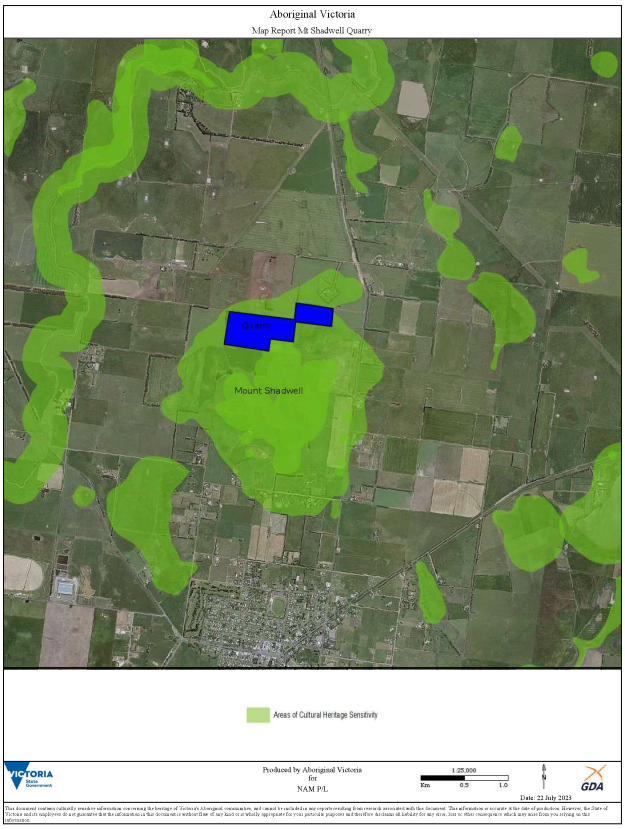
(Please refer to Location and Receptor Plans).



Mount Shadwell Scoria Quarry Location.



Mount Shadwell Scoria Quarry Receptor Plan.



Area of Aboriginal Heritage Sensitivity

Lot 1. Old quarry

Lot 4. Extension area. View south to Mount Shadwell. Site being cultivated for re pasturing

Lot 4. View west. Photo taken during CHMP Aboriginal heritage field work

4. Background

Earth Resources Regulation, (ERR) was advised of the proposal in November 2020. The following agencies attended the site meeting on 23/2/2021 or provided a written response.

- Earth Resources Regulation, (ERR).
- Aboriginal Victoria, (AV), now First Peoples State Relations, (FP-SR).
- Eastern Maar Aboriginal Corporation, (EMAC).
- Department of Environment Land, Water, and Planning, (DELWP), now Department of Energy, Environment, and Climate Action. (DEECA).
- Moyne Shire Council, (MSC).
- Heritage Victoria, (HV).

This meeting identifies issues and constraints that may determine quarry design, operation, and location.

Attendees to the meeting and matters raised were:

Mr Goldsworthy, the land owner.

Mr Goldsworthy provided historical knowledge of the existing quarry, agricultural management of the site, the proposed quarry purpose and the long term objectives for his land.

ERR.

Required.

- A geotechnical assessment of slope stability be undertaken. This has been completed. No instability issues were identified.
- ERR Guidelines for the Preparation of Work Plans, and Work Plan Variations be implemented for the application. These guidelines have been implemented.
- Landowners located within 2km of the site be visited by NAM P/L to notify them of the proposal, given the opportunity to discuss the proposal and provided with written details. Neighbours were advised by door knock and letter drop on the 3/2/22. No issues or objections were raised at this time or have been received since.

FP-SR.

Advised.

- The site is located within an area of declared Aboriginal cultural heritage sensitivity, (Volcanic Plains), and in accord with the Aboriginal Heritage Act 2006 requires a Cultural Heritage Management Plan, (CHMP) to be undertaken. This has been completed.

EMAC.

- Assisted with determining the requirements for the field work required for the CHMP.
- Assisted with the field survey for the CHMP.
- Endorsed the CHMP.

MSC.

Advised.

- As the site is on land that is zoned rural agricultural, MSC have no concerns re the proposal and location of the quarry.
- The Department of Transport, (DT) be advised to determine the safety of the access road Mortlake Road intersection. (DT determined that the alignment requires minor upgrading).
- Suggested that a tree screen of indigenous native vegetation be established on the northern face of the extension to limit views to commuters.
- The application will be assessed when received and will follow the normal planning permit application procedure.

DEECA.

Advised.

- Generally had no major concerns as the areas proposed for licensing have been cleared of native vegetation and appeared to contain no fauna habitats.
- The exposed quarry face may be a roosting/nesting site for raptors and this face should be assessed prior to any extraction of this face during the breeding season. If nest

sites are identified then this face should not be excavated until fledgelings leave the nest.

- The quarry is within the Southern Bent Wing Bat, (SBWB) range and that a rocky outcropping on Mount Shadwell approximately 100m south of the quarry area may provide suitable habitats. This area should be investigated to determine if suitable habitats are present. No evidence of suitable habitats were found during a walkover with the DEECA officer.
- Within the quarry site there may be suitable habitats for SBWB and that the area should be inspected prior to quarrying. Mr Goldsworthy advised that the quarry site area has been extensively cultivated annually for many years. A site inspection, (walk over) found no suitable in ground habitats,(solution pipes, caves etc.)
- Requested that the tree plantation consist of locally indigenous native species

HV.

- Did not attend however advised in writing that the area did not contain any known historic sites.

5. Legislative framework

This community engagement plan has been prepared in order to meet the legislative requirements set out in the Mineral Resources (Sustainable Development) Act 1990 and associated regulations.

Legislative framework - extractives

Mineral Resources (Sustainable Development) Act 1990

Section 77G(3)(e) – Community Engagement Plan for a new work plan

Section 77K – Extractives industry duty to consult

Mineral Resources (Sustainable Development) (Extractive Industries) Regulations 2019

Regulation 12 – for the purposes of regulation 7(e) the specified information is information that –

a) identifies the community likely to be affected by the quarry operations; and

b) sets out how the extractive industry authority holder will -

(i) identify community attitudes and expectations; and
(ii) share information to the community; and
(iii) receive feedback from the community; and
(iv) analyse community feedback and consider community concerns or expectations; and

c) register, document and respond to complaints and other communications from members of the community in relation to the quarry operations.

a) analyse community feedback, taking into account community concerns or expectations; and
b) register, document and respond to complaints and other communications from members of the community in relation to the mine operations

6. Aims and Objectives

Aims

The aim of this Community Engagement Plan is to:

- Provide stakeholders with detailed information as to the proposal.
- Ensure that all stakeholders are notified of the proposal.

Objectives

The objective of this Community Engagement Plan is to:

- Ensure that interested parties are informed of this proposal and given the opportunity to express how they may be affected.
- Analyse community feedback and respond to community concerns or expectations

7. Stakeholder and issues analysis

Table 1.

Stakeholder	Issues or concerns	Estimated level of impact on the stakeholder	Controls
18 residences within 2km	Road safety	Low	Truck warning signs.
MSC	Road safety (increased traffic resulting from material carting from site).	Low	Trucks entering signage.
	Visual impact to road commuters.	Low	Tree screen to be planted on north side of Lot 4.
EMAC	Random redistribution of artefacts during quarry operations	Medium	Cultural Heritage Management Plan attached to Work Plan.
DEECA	Possible destruction of avian fauna habit in quarry face on Lot 1.	Low	Monitor quarry face prior to extraction.
	Possible disturbance to possible SBWB habitat located within the extraction areas and a rocky outcrop 100m south of Lot 4.	Low	Visual inspection and walk over with DELWP officer. No evidence of caves or vents within the quarry area or the outcrop.

8. Communication

Schedule of Engagement

Activity	Time frame	Communities	Level of Engagement	Comments
Inform neighbours within 2kms of proposal. Seek responses to determine if any issues raised require debate and resolution.	When preliminary site plans are completed.	18 neighbours.	Notified directly by letter drop and personal meeting.	Met with neighbours to advise of proposal and to seek responses. One residence unoccupied. All spoken to supported the proposal. No objections were received. 2 residents were unavailable, an explanatory letter was dropped at these residence no responses received.
Seek out Aboriginal community representatives for the area and advise of proposal.	During initial site assessment.	EMAC and FP-SR.	Formal discussions with EMAC and FP-SR.	Extension area is within area of heritage sensitivit CHMP undertaken by heritage consultants and EMAC. EMAC endorsed CHMP Dec 2021.
General notification.	During the planning permit assessment phase MSC may advertise application.	Other parties, e.g. Landcare and neighbours.	The application may be advertised by MSC.	MSC may seek comments that may form condition on the permit or require resolution prior to a permi being issued.

Receiving and considering feedback from the community

The operator will provide a written format for community feedback and action/s taken. A Community Enquiry/Complaints Form, (CECF) has been developed. A copy is attached at the rear of the CEP.
The operator will erect a permanent sign at the entry to the site. This sign will be located so that it is visible to the public and will provide identification of the quarry, the operator and contact details.

Registering, documenting, and responding to community issues and/ or complaints

The operator will provide a register that documents community issues, enquiries and or complaints. CECF`s are to be kept in this register. This register is to be housed and maintained within the operators offices at Steeles Lane Mortlake.
The operator will initiate a protocol that allows scrutiny of this register by the community and agency representatives.
If the complaint is considered by all parties to be significant, then the operator will ensure that the complainant is kept informed of actions undertaken to resolve the matter and any outcomes. The operator will ensure that complaints/issues are addressed in a timely manner.

Managing community expectations

The initial Community Bulletin, (ICB) circulated in February 2022 provided neighbours with general advice and details to the proposed operation. At this time the agent door knocked neighbours to discuss the proposal and to seek comment. All spoken to supported the proposal. 2 residents were unavailable. The ICB was left at these residences, no responses have been received.

EMAC meet on site with the applicant, NAM P/L and heritage consultants, Ochre Imprints to discuss the proposal. A Cultural Heritage Management Plan, (CHMP) will be prepared and provided to EMAC for their consideration. The Moun Shadwell Quarry CHMP has been completed and endorsed December 2021by EMAC.

Moyne Shire Council, (MSC) senior planning staff have met with, and discussed the proposal with NAM P/L and the sponsor. This discussion was focused on the work and rehabilitation plans, proposed visual screening of Lot 4, access t the Mortlake Ararat Road, schematic imagery and any other associated planning details that will be required by to assist in assessing the proposal.

DEECA officers inspected the old quarry face and the rocky outcrop for evidence of raptor nest sites and SBWB habitats Advised that the old quarry face be monitored during the breeding season, and if nesting is occurring then to cease extraction until such time as the fledglings leave the nest site.
Visually inspected the rocky outcrop and the work site. No evidence of suitable SBWB habitats are present in the outcrop.

Other comments to your Community Engagement Plan

Mt Shadwell Scoria Quarries staff that are engaged in quarry operations will be inducted in the CEP process. Customers will be advised of the CEP and the enquiry/complaints form.

Review arrangements

If stakeholders consider that the CEP is inadequate, then the CEP may be reviewed and modified as determined and agreed.

9. Stakeholder engagement plan

Table 2

Stakeholder	Issue or concern	Level of engagement (IAP2)	Controls to be communicated to impacted stakeholders	Method of engagement	Timing (weekly, monthly, as required)
18 Neighbours within 2km	Traffic safety	Inform	Warning signage on Mortlake Ararat Road	Face to face meeting Phone calls	As required
Eastern Maar Aboriginal Corporation	Exposure of artefacts		CHMP conditions	Email	As required
Moyne Shire Council	Road traffic safety	Face to face meeting	Speed restriction/ trucks entering signs	Face to face meeting	As required
DEECA	Avian fauna habitat in old quarry face. SBWB habitat in rocky outcrop	Site meeting discussion	Visual inspection of quarry face prior to extraction. No extraction during breeding season Visual inspection and walk over of area with DELWP officer. No evidence of suitable habitats	Email	As required

10.Complaints management process

- Mt Shadwell Scoria Quarry will provide a written format for community feedback and action/s taken. A Community Enquiry/Complaints Form, (CECF) has been developed. A copy is attached at the rear of the CEP.

- The proprietor/operator will call for a special meeting if the issue/s raised are deemed significant by the proprietor, Moyne Shire Council or Earth Resources Regulation.

- Mt Shadwell Scoria Quarry will erect a permanent sign at the entry to the site. This sign will be located so that it is visible to the public and will provide identification of the quarry, the operator and contact details.

Managing community expectations

- The initial Community Bulletin provided neighbours with general advice and details to the proposed operation. No concerns or objections have been received
- When the application is endorsed and a Planning Permit applied for from MSC, council will advertise the application and seek comment. This notice of intent will advise the community that they have the opportunity to comment to MSC.

Other comments to your Community Engagement Plan

- Mt Shadwell Scoria Quarry staff engaged in quarry operations will be inducted in the CEP process.
- Customers will be advised of the CEP and the enquiry/complaints form.

WA1478 Community Enquiry/Complaints Form

Date:

Licensee details:
License name: **Mt Shadwell Scoria Quarry**
Operator:
Contact details:

[redacted]

Mining Number:

Complainant/enquiry contact details

Name:

Address:

Phone:

Issue details:

Received by:

Action taken:

Responsible person:

Date Action taken:

Follow up:

Date of issue

……/……/……

11.Evaluation

- If a stakeholder considers that the CEP to be inadequate, then the CEP may be reviewed and modified as determined and agreed

- If a new or other community interest group expresses a view that may be considered to be valid to the activity, then this group will be able submit their concern/ interest via the community enquiry/complaints form.

12. Contact us

Contact details for Mt Shadwell Scoria Quarry are:

- Owner/Manager
- Address:
  Email:
- Tel.

Douglas Partners
Geotechnics / Environment / Groundwater

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Phone (03) 5221 0711

MT. SHADWELL PTY. LTD.
Red Hill
19 Steeles Ln
Mortlake VIC 3272
Attention: [redacted]

Email: [redacted]

Project 207784.00
11 November 2021
R.001.Rev0
GG/CC

Geotechnical Inspection
Quarry Extension Geotechnical Investigation
Red Hill, 19 Steeles Ln, Mortlake

1. Introduction

This report presents the findings of a geotechnical inspection carried out by Douglas Partners Pty Ltd (DP) on 4 November 2021 as requested by Colin Goldsworthy of Mt. Shadwell Pty. Ltd. who owns the quarry.

The aim of the inspection was to assess the method of working the pit especially in relation to the batter angles of the worked faces as these will exceed 15 m as the quarry is extended.

2. Background

The existing quarry occupies an area of approximately 2 ha with working faces up to 10 m in height. (see site location plan attached). The proposed extension is to the west of the existing quarry and covers an area of 26 ha. A maximum 6 ha will be open for extraction at any one time, and rehabilitated as extraction progresses in a westerly direction in successive stages.

The pit consists of Miocene to Holocene age Newer Volcanics Group – Scoria deposits. These typically comprise Hawaiite, basanite, nephelinite, mugearite, trachybasalt, scoria, ash, lapilli. These occur as massive to moderately bedded and poorly consolidated.

The site material is overlain by up to 0.2 m topsoil with approximately 0.5 m to 1 m overburden of typically slightly silty gravelly clay.

3. Extraction Methodology

The quarry is to be worked by stripping the topsoil and overburden, stockpiling it separately for future rehabilitation. The quarry material is then pushed to the quarry floor by bulldozer or excavator for processing. Working batters are to be 1V:2H.

As the pit is extended to the west, working faces are expected to increase from approximately 10 m in height up to 30 m on the northern face of Mt Shadwell.

On completion of extraction, slopes are to be rehabilitated using the stockpiled material to create a batter of 1V:3H.

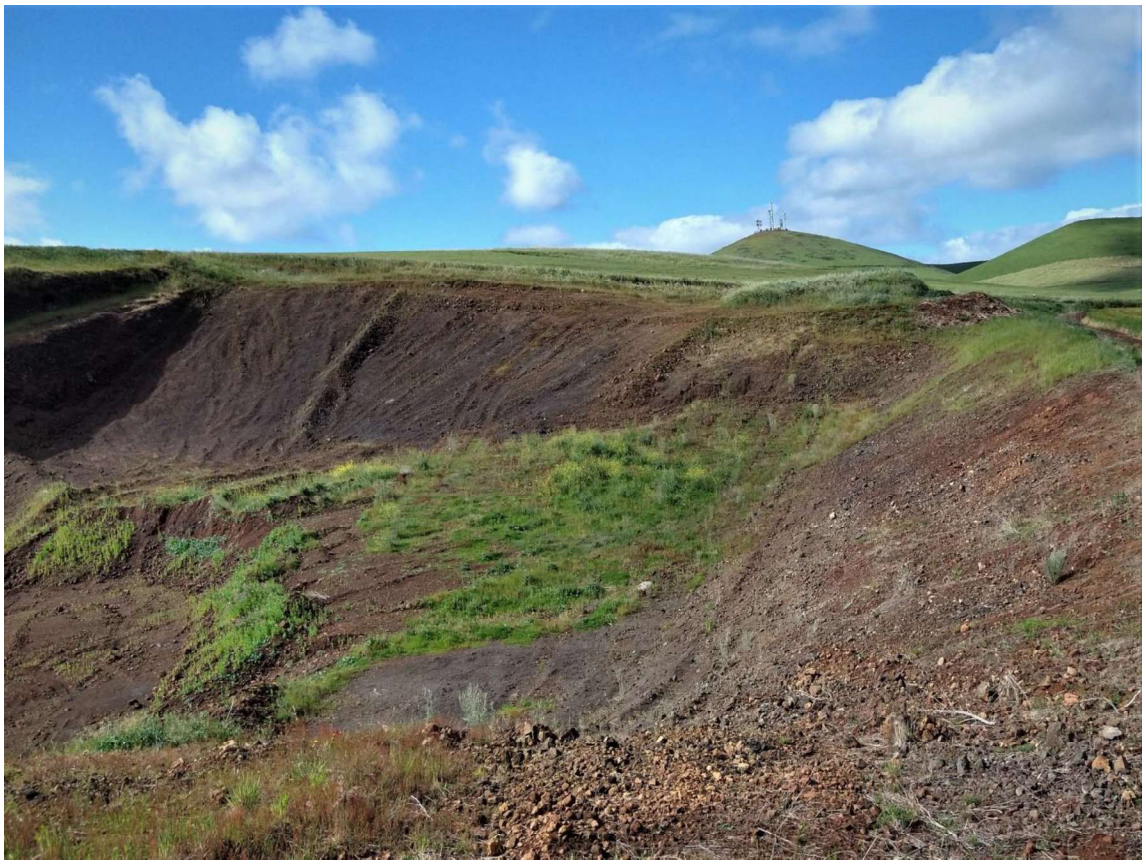

Figure 1: Existing Quarry Looking South

4. Observations

The historic working faces of the existing pit to the south and west are approximately 10 m in height. These working faces show some signs of minor erosion in the form of gullies likely formed from surface water run off.

The quarry material is typically a slightly sandy gravel comprising predominantly course grained scoria gravel.

No evidence of groundwater flow or seepage from within the working face was observed.

A neighbouring quarry to the south was observed to have existing 1V:3H rehabilitated slopes which had become vegetated with no visual evidence of recent failure, soil creep, slumping etc. Some areas of the slope displayed oversteepening likely associated with where basalt rock is present.

5. Comments

1. It appears that the scoria is uniform in relation to cementing and stiffness and the conditions encountered are likely to continue through the immediate pit development.
2. 1V:2H working batters developed during the pit excavation do not display large scale stability problems. Some localised erosion was observed on faces left unworked for extended periods of time.
3. 1V:3H Rehabilitated slopes do not display large scale stability problems.
4. Stockpiled material for rehabilitation should not exceed 2.0 m in height.
5. The Visualising Victoria Groundwater website (https://www.vvg.org.au/vvg_map.php) shows that the depth to groundwater at the site is approximately 20 m to 50 m below surface level and therefore below the base of the pit. No signs of seepage were noted during the inspection.
6. Should excavation conditions change as the quarry extension progresses and, in particular, if clay seams, water seepage or localised instability are observed, a reassessment may be required.

6. Limitations

Douglas Partners (DP) has prepared this report for this project at Red Hill, 19 Steeles Ln, Mortlake in accordance with DP's proposal dated 11 August 2021 and acceptance received from Neil Martin dated 27 October 2021. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Mt. Shadwell Pty. Ltd. for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in the report are indicative of the conditions on the site only at the specific observed locations at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's inspection has been completed.

DP's advice is based upon the conditions encountered during this inspection. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical components set out in this report and based on known project conditions and stated design advice and

assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

[redacted]
Associate

Reviewed by

[redacted]
Principal

Attachments: About this Report
Site Location Plan

About this Inspection Report

Douglas Partners

Introduction

These notes are provided to amplify DP's inspection report in regard to the limitations of carrying out inspection work. Not all notes are necessarily relevant to this report.

Standards

This inspection report has been prepared by qualified personnel to current engineering standards of interpretation and analysis.

Copyright and Limits of Use

This inspection report is the property of DP and is provided for the exclusive use of the client for the specific project and purpose as described in the report. It should not be used by a third party for any purpose other than to confirm that the construction works addressed in the report have been inspected as described. Use of the inspection report is limited in accordance with the Conditions of Engagement for the commission.

DP does not undertake to guarantee the works of the contractors or relieve them of their responsibility to produce a completed product conforming to the design.

Reports

This inspection report may include advice or opinion that is based on engineering and/or geological interpretation, information provided by the client or the client's agent, and information gained from:

- an investigation report for the project (if available to DP);
- inspection of the work, exposed ground conditions, excavation spoil and performance of excavating equipment while DP was on site;
- investigation and testing that was carried out during the site inspection;
- anecdotal information provided by authoritative site personnel; and
- DP's experience and knowledge of local geology.

Such information may be limited by the frequency of any inspection or testing that was able to be practically carried out, including possible site or cost constraints imposed by the client/ contractor(s). For these reasons, the reliability of this inspection report is limited by the scope of information on which it relies.

Every care is taken with the inspection report as it relates to interpretation of subsurface conditions and any recommendations or suggestions for construction or design. However, DP cannot anticipate or assume responsibility for:

- unexpected variations in subsurface conditions that are not evident from the inspection; and
- the actions of contractors responding to commercial pressures.

Should these issues occur, then additional advice should be sought from DP and, if required, amendments made.

This inspection report must be read in conjunction with any attached information. This inspection report should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions from review by others of this inspection report or test data, which are not otherwise supported by an expressed statement, interpretation, outcome or conclusion stated in this inspection report.

Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Mt Shadwell Pty Ltd	TITLE: Quarry Location Plan Geotechnical Inspection 19 Steeles Lane, Mortlake, Vic 3272	PROJ. #: 207784.00
	OFFICE: Geelong DRAWN BY: GSG		DRAWING No: 1
	SCALE: 1:5,000 DATE: November 2021		REVISION: 0

Douglas Partners
Geotechnics / Environment / Groundwater

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Email: [redacted]

Project 207784.01
27 October 2023
R.001.Rev0
AR/CGC

Geotechnical Assessment Report
Proposed Quarry Extension
Mount Shadwell Scoria Quarry, Mortlake

1. Introduction

This report presents the findings of a geotechnical assessment carried out by Douglas Partners Pty Ltd (DP) as requested by Colin Goldsworthy who owns the property and quarry.

The aim of the geotechnical assessment was to assess the method of working the pit especially in relation to the batter angles of the worked faces as these will exceed 15 m as the quarry is extended.

DP previously undertook a geotechnical inspection of the existing quarry and provided comment on the proposed extension, reference 207784.00.R.001.Rev0 dated 11 November 2021. Following review of that document by Earth Resources Regulation (ERR), ERR requested that a geotechnical assessment be undertaken in accordance with ERR "Geotechnical Guideline for Terminal and Rehabilitated Slopes, Extractive Industry Projects", September 2020, published by the State Government of Victoria.

This assessment has been undertaken generally in accordance with the above guidelines as the proposed worked faces will exceed 15 m.

DP were provided with the following documents to assist with the geotechnical assessment:

- Mount Shadwell Scoria Quarry, General Summary, Neil Martin, NAM P/L (draft document, unpublished), and
- Mt Shadwell Quarry Design I2_4 drawings, Landform Surveys, 215072 dated June 2023.

2. Background

The existing quarry occupies an area of approximately 2 ha with working faces up to 10 m in height. (see site location plan attached). The proposed extension is to the west of the existing quarry and covers an area of 26 ha. A maximum 6 ha will be open for extraction at any one time, and rehabilitated as extraction progresses in a westerly direction in successive stages.

The pit consists of Miocene to Holocene age Newer Volcanics Group – Scoria deposits. These typically comprise Hawaiite, basanite, nephelinite, mugearite, trachybasalt, scoria, ash, lapilli. These are massive to moderately bedded and poorly consolidated. Based on the definitions in the ERR guidelines, such materials would typically be classified as "soft rock", i.e. rock material with unconfined compressive strength of less than 25 MPa. However, it should be noted that no boreholes have been drilled through the proposed quarry extension materials or laboratory tests undertaken on recovered samples as part of this assessment to verify this assumption.

Based on observations in the existing quarry, the site material is typically overlain by up to 0.2 m topsoil with approximately 0.5 m to 1 m overburden of typically slightly silty gravelly clay.

3. Extraction Methodology

The quarry is to be worked by stripping the topsoil and overburden, stockpiling it separately for future rehabilitation. The quarry material is then pushed to the quarry floor by bulldozer or excavator for processing. Working batters are to be between 1V:2H and 1V:3H. Stockpiles will be a maximum of 2 m in height, with side batters of 1V:2H.

As the pit is extended to the west, working faces are expected to increase from approximately 10 m in height up to 25 m on the northern face of Mt Shadwell.

On completion of extraction, slopes are to be rehabilitated using the stockpiled material to create a batter of 1V:3H.

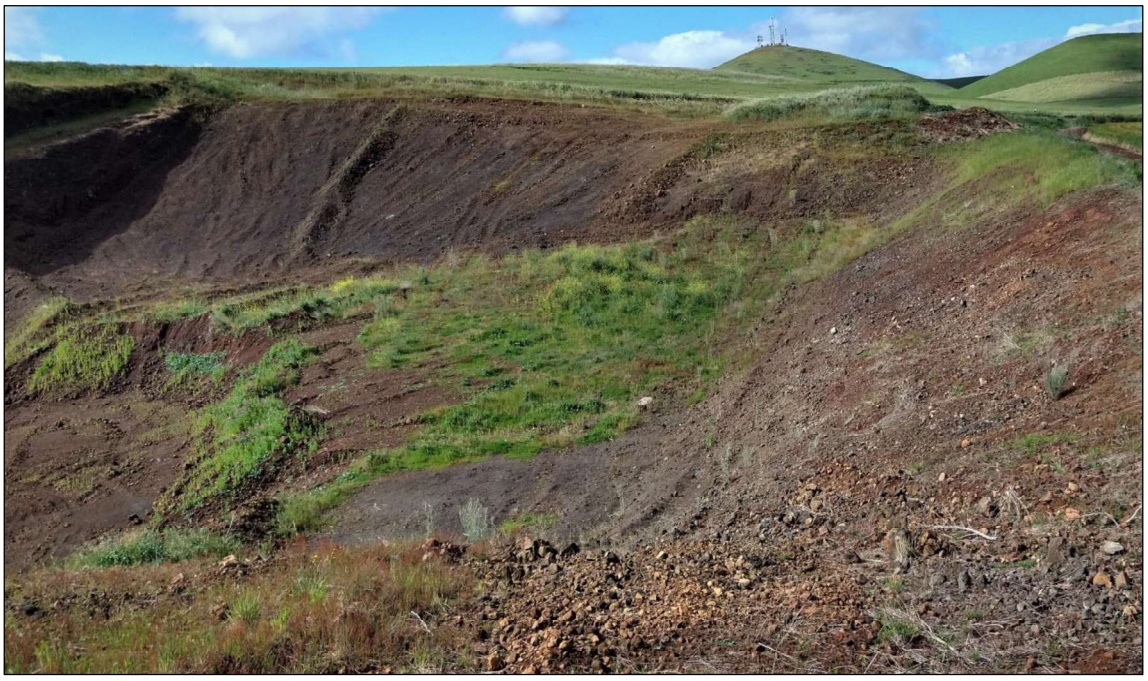


Figure 1: Existing Quarry Looking South

4. Observations

The historic working faces of the existing pit to the south and west are approximately 10 m in height. These working faces show some signs of minor erosion in the form of gullies likely formed from surface water runoff.

The quarry material is typically a slightly sandy gravel comprising predominantly coarse grained scoria gravel.

No evidence of groundwater flow or seepage from within the working face was observed.

A neighbouring quarry to the south was observed to have existing 1V:3H rehabilitated slopes which had become vegetated with no visual evidence of recent failure, soil creep, slumping etc. Some areas of the slope displayed oversteepening likely associated with where basalt rock is present.

5. Geotechnical Assessment addressing ERR Guidelines

The following comments address the key issues listed in Table 2 of the ERR Guidelines, September 2020. They are based on the observations of the existing quarry and review of the supplied quarry expansion documentation. Provided the ground and groundwater conditions encountered in the proposed quarry extension are similar to the existing conditions, the following are considered appropriate. It is recommended that this assessment is reviewed periodically over the life of the quarry and if changes to conditions are identified, a revised assessment may be necessary.

5.1 Slope Status

The proposed quarry extension will include working (terminal) faces during operation, and subsequent rehabilitated slopes upon closure.

5.2 Slope Geometry

The proposed quarry extension will include working (terminal) faces at between 1V:2H and 1V:3H during operation, and subsequent rehabilitated slopes at 1V:3H upon closure.

Maximum face heights will be 25 m.

The proposed stockpiles will be offset a minimum of 5 m from the crest of the batters, based on DPs slope stability assessment as discussed below.

5.3 Engineering Characteristics

The existing quarry material is typically a slightly sandy gravel comprising predominantly coarse grained scoria gravel.

5.4 Proximity of Existing Infrastructure

The proposed quarry will include a 20 m buffer zone and is generally surrounded by farmland. The receptors noted in the General Summary report include:

- Three residences with 500 m of the proposed quarry;
- A small section of Blind Creek approximately 1.5 km to the west;
- Another scoria quarry approximately 500 m to the southeast;
- A declared Aboriginal Cultural Area, Mount Shadwell Stony Rises is located outside the buffer area. Aboriginal cultural heritage has been addressed in the General Summary report;
- Mortlake-Ararat Road approximately 500 m to the east that includes a transmission line within the road reserve;
- A transmission line approximately 1 km to the north;

5.5 Surcharge Loading

Topsoil and overburden stockpiles will be a maximum of 2 m in height with 1V:2H batters.

In addition to the stockpile surcharge, DP has modelled a 20 kPa surcharge applied to the crest to simulate potential truck and equipment movements in the area.

5.6 Proximity of Dams, Dumps and Voids

None are indicated within 50 m of the proposed quarry expansion.

5.7 Proximity of General Public

As noted above, the general public are located as follows:

- Three residences with 500 m of the proposed quarry;
- Mortlake-Ararat Road approximately 500 m to the east that includes a transmission line within the road reserve;

5.8 History of Failure

None observed. The 1V:2H working (terminal) batters developed during the pit excavation do not display large scale stability problems. Some localised erosion was observed on faces left unworked for extended periods of time.

The 1V:3H rehabilitated slopes do not display large scale stability problems.

5.9 Slope Condition

None observed. The 1V:2H working (terminal) batters developed during the pit excavation do not display large scale stability problems. Some localised erosion was observed on faces left unworked for extended periods of time.

The 1V:3H rehabilitated slopes do not display large scale stability problems.

5.10 Failure Mechanism

None other than minor surface erosion that will be managed by 1 m high berms on the upslope faces.

5.11 Size of Failure

None other than minor surface erosion as noted above.

5.12 Speed of Failure

Not applicable.

5.13 Design Acceptance Criteria

The proposed working (terminal) and rehabilitated quarry faces were checked for global stability using limit equilibrium methods and the computer program Stares. The minimum factor of safety adopted for acceptance criteria was 1.3 and 1.5 for short and long term respectively. It is also noted that there are adequate buffers around the site boundary and the immediate surroundings are farmland, so the consequence of failure would be classed as “not serious”.

Preliminary slope stability modelling was undertaken for the proposed 25 m cut face using typical parameters for the anticipated ground conditions. The modelling assumed the material will behave as a continuum with no linear defects and that the cut face is dry.

The adopted parameters were conservative as they are based on visual observations of the existing scoria quarry batter conditions. Exploratory investigations and laboratory testing were not undertaken to determine actual site parameters. The adopted parameters are listed in Table 1.

Table 1: Adopted Soil Parameters

Material Type	Effective Cohesion, c’ (kPa’)	Effective Internal Angle of Friction, ϕ’ (degrees)	Bulk Unit Weight (kN/m^3)	Material
Stockpile	1	20	20	Topsoil, overburden
Scoria	5	30	18	Slightly sandy coarse grained scoria gravel

Groundwater was modelled at 20 m below the quarry floor.

Overburden and topsoil stockpiles were modelled at 5 m offset from the batter crests.
A surcharge of 20 kPa was applied to the 5 m crest zone to simulate potential vehicle movements.

Based on the preliminary slope stability results, the proposed working faces at 1V:2H batters are considered to be stable in the short term, with a factor of safety against global failure of 1.4. The batters need to be rehabilitated to no steeper than 1V:3H in the long term, at which gradient the factor of safety against global failure is anticipated to increase to 2.0. The results of the preliminary analyses are attached.

5.14 Surface Water

The working faces show some signs of minor erosion in the form of gullies, these were likely formed from surface water runoff. Such runoff will be managed during expansion of the quarry by constructing a 1 m high berm on the upslope faces.

5.15 Groundwater

The Visualising Victoria Groundwater website (https://www.vvg.org.au/vvg_map.php) shows that the depth to groundwater at the site is approximately 20 m to 50 m below surface level and therefore below the base of the pit.

No signs of seepage were noted during the inspection.

5.16 Frequency and Size of Rockfall

None observed.

5.17 Blast Impacts

Blasting will not be undertaken as part of the quarrying works.

5.18 Dispersive Soils and Clays

None observed.

5.19 Time

Time is not considered to alter the geotechnical characteristics of the scoria or the rehabilitated slopes as a whole. Localised zones of instability may occur as discussed below, however, these are not anticipated to alter the global factor of safety of the rehabilitated slopes.

5.20 Existing Remedial Measures

None observed.

5.21 Monitoring

It is possible that localised zones of instability and changes to the soil and groundwater conditions may occur during and following excavation. It is recommended that the condition of the face be viewed by site staff on a regular basis and geotechnical advice sought if ground conditions changes or signs of instability appear, such as cracking, bulging, water seepage or erosion.

5.22 Seismic History

Based on the information available on the Geoscience Australia website (https://earthquakes.ga.gov.au/), the site does not lie on any fault lines.

The National Seismic Hazard Assessment (NSHA) for Australia defines the level of earthquake ground shaking across Australia that has a likelihood of being exceeded in a given time period. The peak ground acceleration with a 10% chance of exceedance in 50 years is 0.02g to 0.03g for the site. The peak ground acceleration with a 2% chance of exceedance 50 years is 0.06g to 0.08g. Based on the above mapping, the level of seismic activity is considered to be low to moderate for the Mortlake area, compared with the rest of Australia.

5.23 Land End Uses

As noted in the General Summary report, the proposed use of the work site following extraction is that the area will be returned to agricultural productivity that is consistent with the current use. Sediment ponds will be filled in. Stockpiled topsoil and overburden will be respread over each stage as it is exhausted. The stage will then be resown to pasture/crop.

5.24 Geotechnical Risk Assessment

The proposed quarry extension works are described above. Provided the working faces are constructed no steeper than 1V:2H, the ground and groundwater encountered are similar to the existing ones i.e. dry scoria and the stockpiles are constructed as indicated, the probability of failure is considered to be rare. With the proposed buffers and the surrounding land use comprising farmland, the consequence of any potential failure would be “not serious”/insignificant. Therefore, the geotechnical risks are considered very low and no further measures are required for operation of the quarry.

Based on the observations of the existing quarry, it appears that the scoria is uniform in relation to cementing and stiffness and the conditions encountered are likely to continue through the immediate pit development.

Changes in soil and groundwater conditions are considered to be the greatest geotechnical risk for the quarry extension. Should conditions vary during extension of the quarry working faces in particular if clay seams, water seepage or localised instability are observed, the area will be isolated, works will cease and a revised geotechnical risk assessment will be undertaken.

No significant geotechnical risks have been identified at the existing quarry. The working faces show some signs of minor erosion in the form of gullies, these were likely formed from surface water runoff and are considered to be an insignificant geotechnical risk.

6. References

AS 1726. (2017). *Geotechnical Site Investigations.* Standards Australia.

State Government of Victoria. (2020). *Geotechnical guideline for terminal and rehabilitated slopes. Extractive industry projects. September 2020.* State Government of Victoria.

7. Limitations

Douglas Partners (DP) has prepared this report for this project at Mount Shadwell Scoria Quarry, Mortlake in accordance with DP's proposal dated 5 October 2023 and acceptance received from Colin Goldsworthy dated 9 October 2023. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Colin Goldsworthy for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice is based upon the conditions encountered during previous inspections of the existing quarry. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations.

The assessment of atypical safety hazards arising from this advice is restricted to the geotechnical and groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully
Douglas Partners Pty Ltd

[redacted]
Principal

Reviewed by

[redacted]
Principal

Attachments: About this Report
Site Drawing
Results of Slope Stability Analyses

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

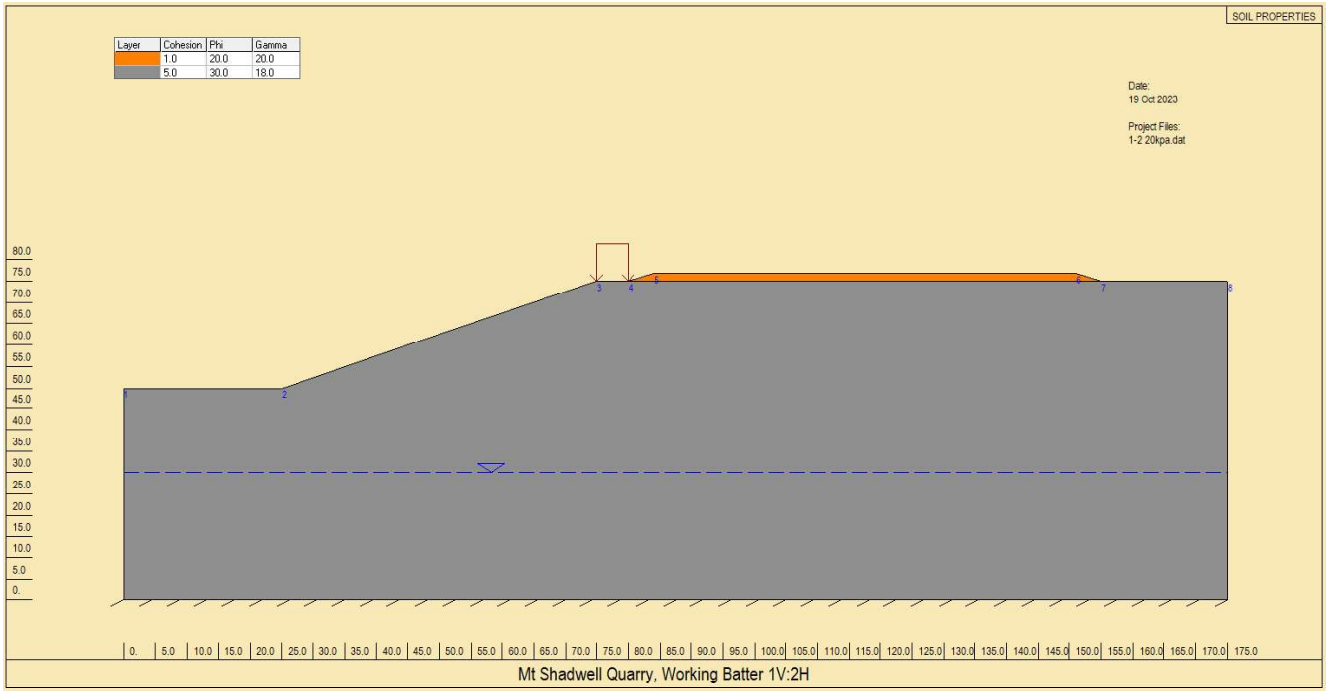
Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

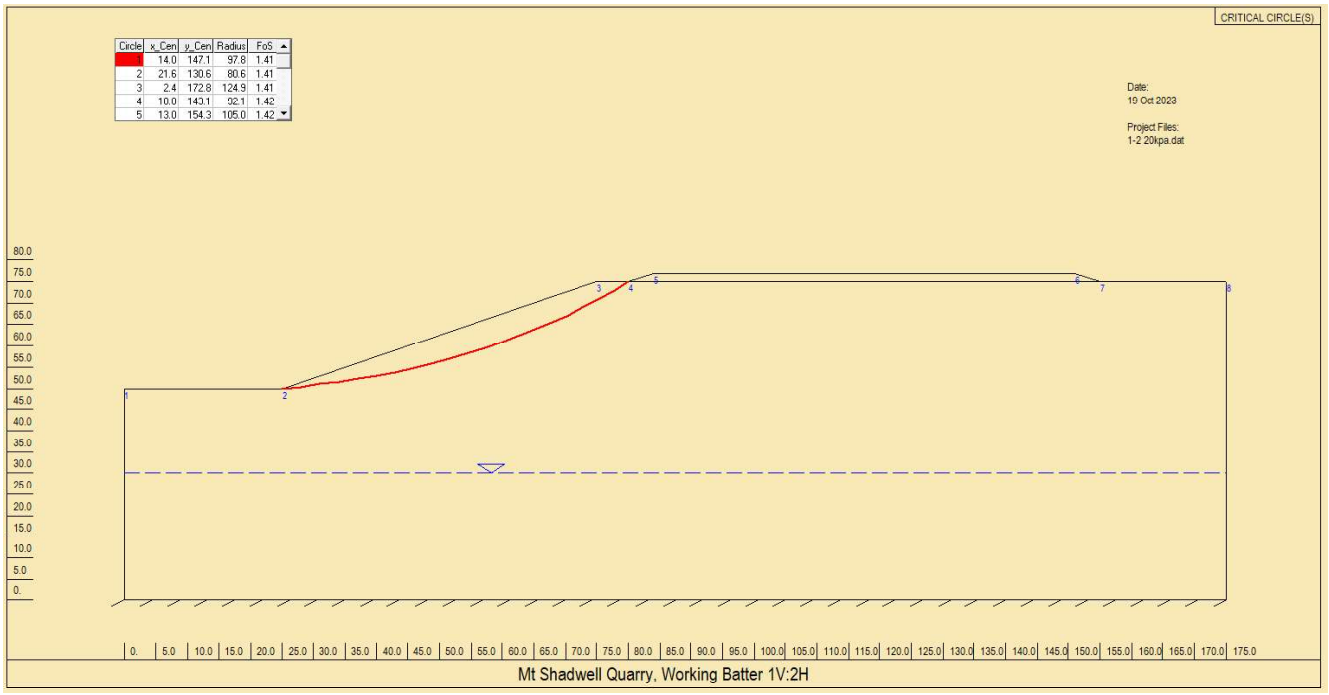
Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

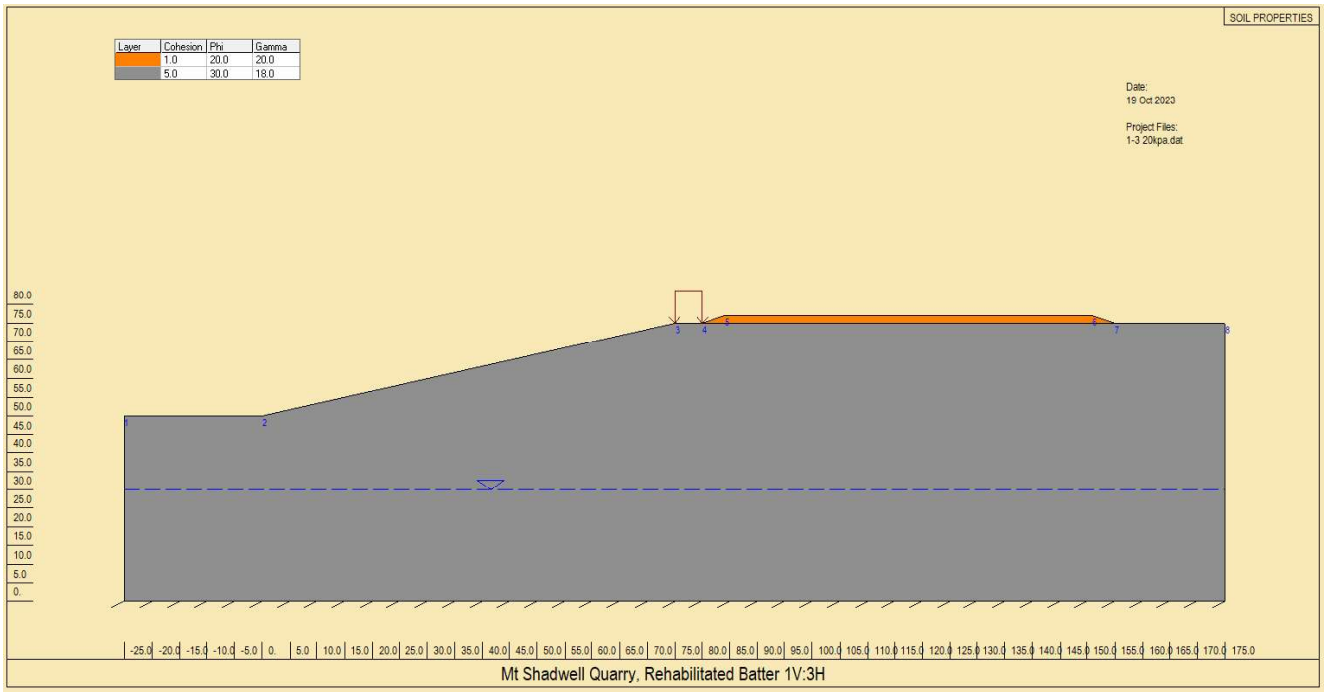
Douglas Partners Geotechnics / Environment / Groundwater	CLIENT: Mt Shadwell Pty Ltd	TITLE: Quarry Location Plan Geotechnical Inspection 19 Steeles Lane, Mortlake, Vic 3272	PROJ. #: 207784.00
	OFFICE: Geelong DRAWN BY: GSG		DRAWING No: 1
	SCALE: 1:5,000 DATE: November 2021		REVISION: 0



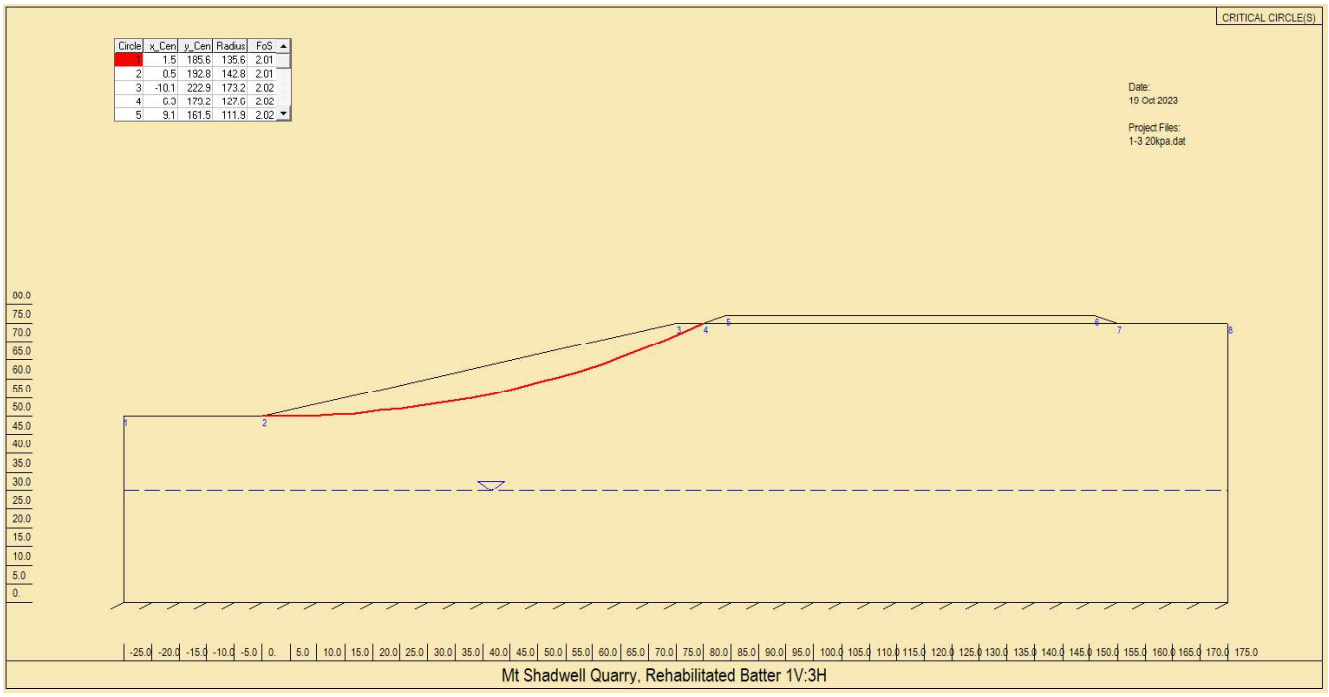
Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Colin Goldsworthy	**Working Batter (1V:2H) Model and Surcharge**	PROJECT No:	207784.01
	OFFICE:	Geelong	**Proposed Scoria Quarry**	DRAWING No:	1
	DATE:	October 2023	**Mount Shadwell, Mortlake**	REVISION:	0



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Colin Goldsworthy	**Working Batter (1V:2H) Factor of Safety**	PROJECT No:	207784.01
	OFFICE:	Geelong	**Proposed Scoria Quarry**	DRAWING No:	2
	DATE:	October 2023	**Mount Shadwell, Mortlake**	REVISION:	0



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Colin Goldsworthy	**Rehabilitated Batter (1V:3H) Model and Surcharge** **Proposed Scoria Quarry** **Mount Shadwell, Mortlake**	PROJECT No:	207784.01
	OFFICE:	Geelong		DRAWING No:	3
	DATE:	October 2023		REVISION:	0



Douglas Partners Geotechnics / Environment / Groundwater	CLIENT:	Colin Goldsworthy	**Rehabilitated Batter (1V:3H) Factor of Safety**	PROJECT No:	207784.01
	OFFICE:	Geelong	**Proposed Scoria Quarry**	DRAWING No:	4
	DATE:	October 2023	**Mount Shadwell, Mortlake**	REVISION:	0

Mount Shadwell Scoria Quarry

WA1478-PLN OO1732

Bushfire Management Plan

Version 2

November 2023

Prepared by

NAM P/L

Code of Practice for Small Quarries Requirements

The Code of Practice for Small Quarries (2010) section 5.8 Fire Management lists the following requirements (R) with the objective of ensuring that a quarrying activity does not contribute to, or exacerbate fire hazards:

- R28. The Work Authority holder must take all reasonable measures to prevent the ignition and spread of fire
- R29. The Work Authority holder must ensure that all buildings, fixed plant and mobile equipment are fitted with fire-fighting equipment, such as fire extinguishers, fire blankets, knapsack spray pumps and rake-hoes

The Code recommends that Work Authority holders establish the following practices:

- Develop a fire management plan
- Maintain appropriate fire - fighting equipment at a work site
- Check the undersides of vehicles periodically to ensure they are kept free of vegetation debris that could dry out and ignite
- Store flammable materials such as waste hydrocarbons away from ignition sources

Mount Shadwell Scoria Quarry is located 2km north of Mortlake on the Mortlake Ararat Road

See site Location Plan, page 3.

Quarry size. The quarry occupies an area of approximately 33ha.

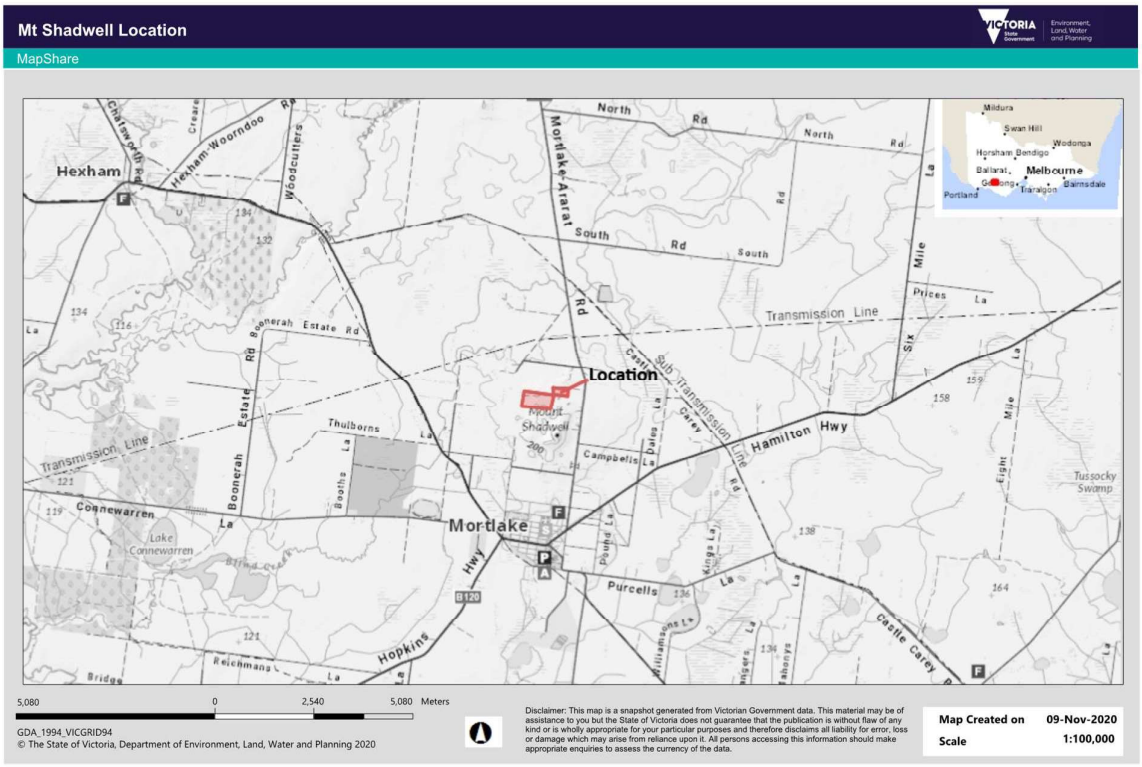
Vegetation type and coverage . The property is 100% cleared of native vegetation for grazing and cropping. There are 4 mature cypress plantations adjoining the quarry. Please see Water Point Plan, page 9.

Quarry Name Mount Shadwell Scoria Quarry.
Quarry Address Municipality Mortlake Ararat Road Mortlake.
CFA declared Fire District Authorised by Southwest CFA

Name [redacted]
Position. Owner Operator

Version2/Issue number 1. Date. November 2023

4. Site Location



5. Our approach to Prevention & Control

For a bushfire to occur there are three factors which must be present, an ignition source, oxygen and fuel.

Sources of ignition may be quarry related activities such as hot works or external ignition sources, such as electricity transmission lines, lightning or arson.

The progress and consequence of a bushfire will be affected by fuel availability, including type and amount, as well as terrain and weather, including winds, humidity and ambient air temperature.

The progress and consequence of a bushfire can potentially be influenced through preventative and preparedness initiatives.

Mount Shadwell Scoria Quarry can prevent quarry-related activities being a source of ignition.

Mount Shadwell Scoria Quarry will be prepared to and where applicable attempt to control the progression and consequence of externally ignited bushfires that may impact the quarry and its assets, the quarry's neighbours and the surrounding community.

6. Our Objective

The objectives of our Bushfire Response and Readiness Plan are to ensure that:

- Quarry operational activities are managed in a manner that reduces the risk of a bushfire igniting from within the quarry site
- Quarry management and workers are aware of any encroaching bushfire that may threaten the quarry personnel, site and assets
- Quarry management and workers are prepared to safely react to any internally ignited or encroaching or impacting bushfire
- Our community and our firefighting services are aware of our approach to preventing and controlling bushfires

7. General Responsibilities

The following responsibilities are to be established to implement and maintain this Bushfire Response and Readiness Plan.

Quarry Manager

- Ensure all quarry workers, contractors and visitors are aware of the requirements of this plan as applicable
- Ensure compliance with the requirements of this plan
- Ensure the Country Fire Authority (CFA) are aware of this plan
- Liaise with and comply with directives from the CFA as required
- Initiate an emergency response as required
- Initiate the investigation of any fire or bushfire incidents that occur within the quarry
- Initiate the review of this plan as an when required

Quarry Workers & Contractors

- Comply with the requirements of this this plan
- Comply with directives from CFA as required

8. Training & Awareness

The following training and awareness initiatives are to be established to ensure the successful application of the Bushfire Response and Readiness Plan:

- Quarry workers and contractors shall undertake site specific bushfire awareness training prior to the bushfire season (November to March)
- The training shall take into account and be based on the content of this plan
- Regular reminders of responsibilities and obligations regarding bushfire prevention and

control will be communicated at toolbox talks

Workers who may be potentially involved in firefighting shall undertake training that is inclusive of but not limited to:

- Fire Behaviour
- Use of firefighting equipment
- Managing heat stress
- Use of personal protective equipment

Understanding Fire Ratings

The Fire Danger Rating predicts how a fire would behave if one started, including how difficult it would be to put out.

The Quarry Manager and any relevant workers will familiarise themselves with the CFA's Fire Rating protocols listed on the CFA website.

https://www.cfa.vic.gov.au/warnings-restrictions/about-fire-danger-ratings/

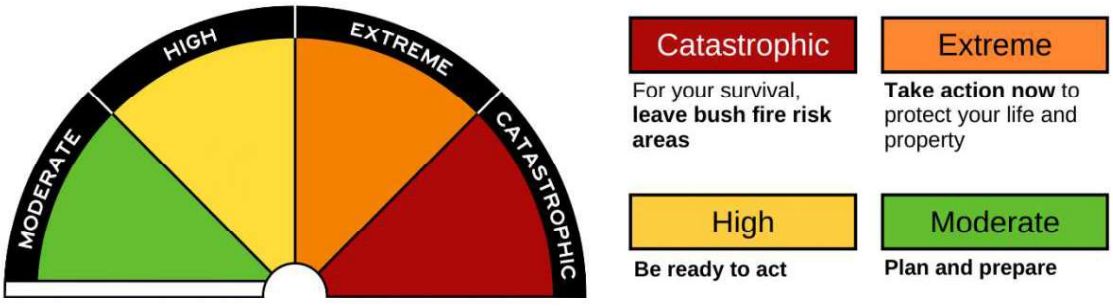
New 2023 CFA Fire Danger Ratings are:

On 1 September 2022 fire danger ratings changed in Australia to the Australian Fire Danger Rating System (AFDRS). The AFDRS is the same in **every state and territory.**

Fire Danger Ratings provide information so people in affected areas can take action to protect themselves and others. The higher the fire danger, the more dangerous the conditions and the greater the impact will be if a fire starts.

There are now four Fire Danger Ratings levels: **Moderate, High, Extreme** and **Catastrophic.** When no Fire Danger Rating is issued the arrow will point to a white 'no rating' level.

Daily fire danger ratings can be found on the CFA website.



9.

The management of fuel loads shall take into account the quarry obligations in regard to rehabilitation of the quarry site, general work authority requirements and recommendations made by the CFA

The management of fuel loads in these areas shall be inclusive of:

- The Cypress windbreak shall be maintained where practicable in such a manner that the vegetation is not a continuous conduit to internal or external assets
- Noxious weeds will be reduced as far as practicable or eradicated as per the noxious weeds control plan
- Height of grass will be reduced as far as practicable by grazing

General Operations

- Smoking is prohibited in mobile equipment or any onsite vehicles
- a 5 kg dry powder type fire extinguisher is provided
- All on site fire breaks shall be maintained throughout the bushfire season. 20m buffers around work site are effective fire breaks
- All internal access roads and tracks shall be maintained and kept clear of all obstructions and debris to ensure safe access and egress from the quarry site in the event evacuation is called or access is required by firefighting services
- All portable electrical equipment shall be tested and tagged as per the intervals outlined in AS/NZS 3760:2010, In-Service Safety Inspection and Testing of Electrical Equipment, Table 4 Testing and Inspection Intervals for Electrical Equipment

Mobile Equipment

- All mobile equipment will be maintained in good working order with appropriate fire suppression and extinguishing systems
- Mobile equipment working in vegetated areas shall be inspected to ensure that they do not pose a risk of starting a bush fire. This will include inspection of exhaust spark arrestors and electrical systems, including, in the case of vehicles using unleaded petrol, catalytic converters
- Mobile equipment working in vegetated areas will not be left unattended with the engine running
- Refuelling will be undertaken within designated fuel bays or within cleared areas of the quarry site
- Vehicles will be turned off during refuelling
- 5 kg dry powder type fire extinguishers shall be maintained within site vehicles and refuelling areas
- All mobile equipment will be equipped with appropriate communication equipment, including two-way radios and/or mobile telephones

Personal Protective Equipment (PPE) and Communication Devices

Appropriate PPE shall be made available and shall be easily accessible to workers patrolling for and extinguishing small fires inclusive of:

- Cotton drill overall
- Safety boots
- Hard hats
- Safety wrap around glasses, sealed goggles and or face shields
- Leather Gloves
- P2 respiratory protection masks
- Canvass or leather boot spats
  All workers patrolling for and extinguishing small fires will be equipped with appropriate communication equipment, including two-way radios and/or mobile telephones.

Hot Works

- Welding, cutting or grinding operations (Hot Works) shall, as far as practicable, be conducted in the designated Hot Works area.

Fuel Storage

- Fuels and lubricants will not be stored on site.
- A suitably certified fuel container located in the tray of a service vehicle will be used to refuel plant and equipment.

Power and Water

- There is no onsite power.
- Two sediment ponds are proposed to be located within the northeast corner of the existing quarry. 4 sediment ponds are proposed to be progressively constructed within the extension area as extraction extends across the area. These ponds may not hold water during the drier months. Please refer to the Work Plan design for the proposed locations of the sediment ponds, pages, 12&13.
- Water supply is limited, there is one stock water dam and associated bore on site. See Mount Shadwell Scoria Quarry Water Point plan below.

WA1478. Access, water point, cypress hedges.

Inspection and Maintenance of Controls

- All fire extinguishers have to be inspected and tested at six monthly intervals in accordance with AS1851 Section 10. Fire extinguishers shall be pressure tested and refilled every five years and recharged after discharge
- All on site fire breaks, internal access roads and tracks shall be inspected on a weekly basis throughout the bushfire season
- Vegetation fuel loads within the quarry shall be routinely monitored to ensure that they remain at safe levels
- PPE supplies shall be assessed and re stocked as required prior to the commencement of the bushfire season

Fire Danger Period

CFA declares the Fire Danger Period for each municipality (shire or council) at different times in the lead up to the fire season. It depends on the amount of rain, grassland curing rate and other local conditions.

The Quarry Manager will be aware of when the CFA has declared a Fire Danger Period and will have an understanding of what restrictions apply.

For further information on restrictions and districts refer to the following website.
https://www.cfa.vic.gov.au/warnings-restrictions/about-the-fire-danger-period

Fire Danger Ratings and Total Fire Ban Days

The CFA declares Total Fire Ban Days on a Fire District basis prior to the declared day.
The quarry manager shall check the Fire Danger Ratings daily, during a Fire Danger Period. **Should the rating for the day be extreme catastrophic, the Quarry Manager shall:**

- Consider reduced staffing, restricted activities and site closure in advance of these forecast days
- Notify site personnel of the increased risk and emphasise the need to be vigilant in managing potential ignition sources
- Monitor the Vic Emergency Web site to obtain information about fire locations, warnings and advice
- Ensure all firefighting equipment is in working order and easily accessible
- Incorporate this plan into the overarching emergency response plan for the quarry
- Be aware of what operational activities require a section 40 permit on Total Fire Ban days, such as welding, cutting, grinding and use of gas torches

12. Active Bushfires

Bushfire in Broader Area

If a bushfire is identified in the broader area the Quarry Manager shall monitor the Warning and Incident page on the following website https://www.cfa.vic.gov.au/warnings-restrictions/warnings-and-incidents, and or monitor the Warning and Incidents information on the local designated emergency services AM/FM radio station.

If the fire is not in close proximity and it is determined to be safe to do so by the Quarry Manager in consultation with quarry workers, work will continue with the following provisions:

- Firefighting equipment will be brought close to hand
- UHF radio and local FM/AM radio emergency station shall be monitored regularly for fire updates
- CFA Warnings and Incidents website shall be monitored regularly to determine if the fire front is moving closer

If the fire is within close proximity the Quarry Manager shall:

- Enact the emergency response procedure directing all persons on site to assemble at the designated emergency (shelter) assembly area
- Conduct a head count to confirm all persons on site are accounted for
- In consultation with quarry workers and based on the Incidents and Warnings information as applicable, direct the course of action to be undertaken, e.g., site protection, site shelter or site evacuation

Bushfire Impacting Quarry Site

The impact may be from smoke, embers, fire activity or road access restrictions.

Following the identification of an imminent bushfire threat, or impact as described above the following controls shall be implemented.

- Human life shall be protected above all else. If it is safe to do so, then property is the second asset to consider preserving

- The fire will be reported to Emergency Services using the “000” telephone number
- If a fire has started in close proximity to a work area and the facilities are on hand to put it out and it is safe to do so then it should be contained and extinguished as quickly as possible, possibly in conjunction with CFA operations
- If the fire cannot be safely controlled the Quarry Manager will determine the course of action required and enact the sites emergency response plan The Quarry Manager in consultation with quarry workers will determine if evacuation to an offsite shelter is required

13. Bushfire Investigation

In the event of a bushfire incident an investigation shall be conducted to determine:

- What occurred at the time of the incident?
- The root cause of the incident
- Any contributing factors which led to or increased the consequence of the incident
- Whether appropriate controls were implemented to prevent or reduce the consequence of the incident

Where applicable an external resource with bushfire expertise may be engaged to conduct the investigation.

Corrective and/or preventative actions will be assigned to relevant managers or workers as a result of the investigation.

If required, this plan will be amended, and all managers or workers responsibilities will be updated. Actions and amendments will be communicated through meetings and toolbox talks.
Outstanding actions will be reviewed and monitored for their effectiveness upon completion.
All reports associated with complaints or incidents will be retained on site for the life of the quarry.

14. Internal Communication

Internal communication on bushfire related issues shall occur mainly through toolbox meetings conducted prior to and during the bushfire season.

In addition, following methods of communication with workers and contractors shall be utilised:

- Pre-Start meetings
- Awareness training

15. Bushfire Response and Readiness Plan Review

The Bushfire Response and Readiness Plan will be reviewed and amended as required by the Quarry Manager in consultation with relevant workers and potentially the CFA:

- Prior to the commencement of the Declared Fire Danger Period each year
- After a nearby off-site bushfire or on-site bush fire
- After an internal/external investigation related to an on-site bushfire
- After a modification to the Work Authority or Work Plan where relevant

Mount Shadwell Scoria Quarry

WA1478-PLN PLN OO1732

Noxious Weeds and Pest Animals Control Plan

Version 2

November 2023

Prepared by NAM P/L

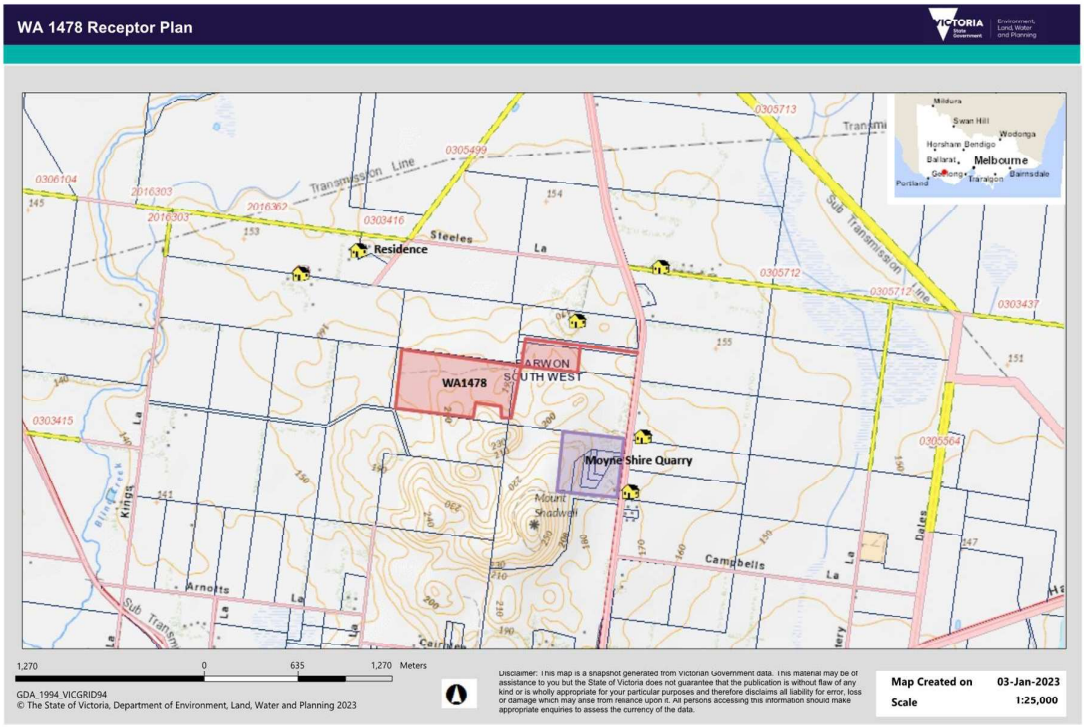
1. Introduction and Authorisation

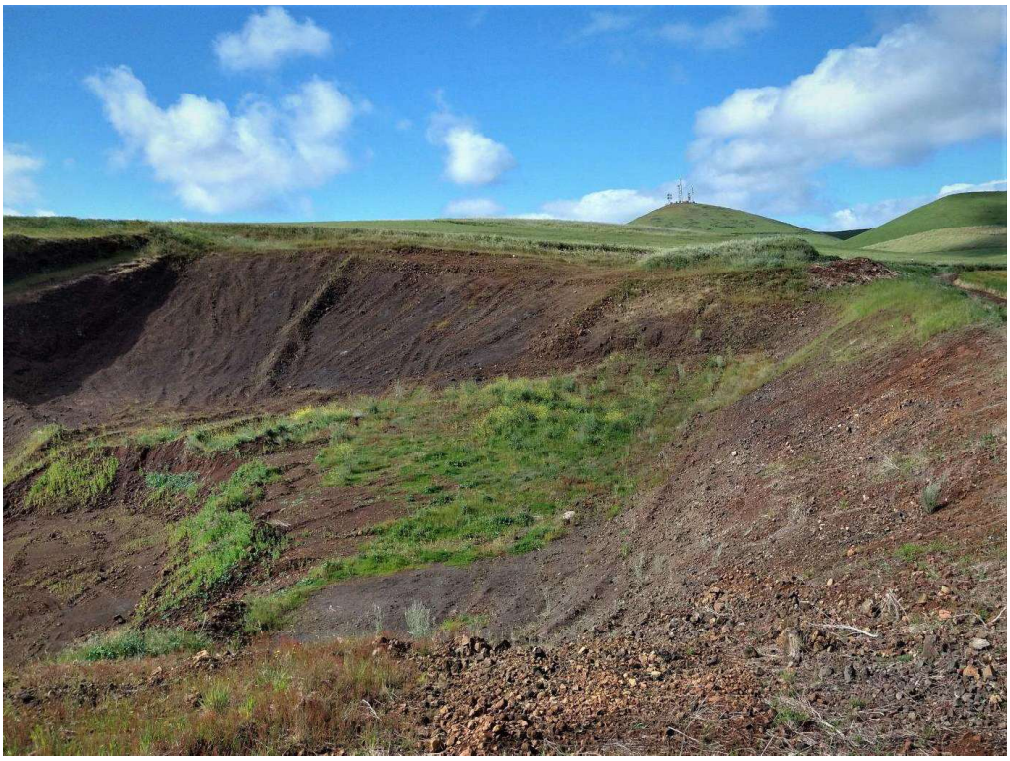
This Noxious Weeds and Pest Animals Control Plan is for Mount Shadwell Scoria Quarry.

The quarry is located at 19 Steeles Lane Mortlake.

Site Description.
The property located on the lower northern slopes of Mount Shadwell has been historically extensively cleared of native vegetation and sown to improved pasture and or crops. Topsoil ratios are fairly consistent being on average 0-10cm in depth across the area. There is no overburden separating the topsoils from the gravel. The work site area is surrounded by a buffer zone from 10m to 20m wide to restrict extractions to the licensed areas. There is no evidence of any invasion of the property by weeds or pest animals. It is possible that foxes live on, or a regular visitors to the property during the lambing season, There is no evidence of rabbits, no scats diggings or warrens. . Please refer to the location plan and photos below.

Mount Shadwell Scoria Quarry Location Plan





Lot 1 Old quarry

Lot 4 View south

Lot 4 View west.

2. Our commitment to Eradication and Control.

Mount Shadwell Scoria Quarry recognises that invasive species of flora and fauna threaten our native biodiversity and our agricultural productivity through their ability to change and destroy habitats and ecosystems.

NGSC are committed to:

- The identification of the presence of noxious weeds and pest animals.
- The eradication where practicable of noxious weeds, the control of their growth, their spread, and the germination of their seed; and
- The eradication of pest animals and the removal, of actual or potential habitats where practicable.

3. Our Objective.

The objectives of our Noxious Weeds and Pest Animals Control Plan are to ensure that:

- Quarry operational activities are managed in a manner that reduces the biodiversity risks associated with the presence of noxious weeds and pest animals.
- Quarry management, workers and contractors are aware of, committed to and able to enact the procedures and practices as listed in this Noxious Weeds and Pest Animals Control Plan; and
- Our community are aware of our approach to the control of noxious weeds and pest animals.

4. General Responsibilities.

The following responsibilities are to be established to implement and maintain the Noxious Weeds and Pest Animals Control Plan.

Quarry Manager.

- Ensure all quarry workers and contractors are aware of the requirements of this plan as applicable.
- Ensure all quarry workers and contractors work in a safe and environmentally friendly manner when implementing this plan.
- Ensure compliance with the requirements of this plan.
- Initiate the investigation of any noxious weed or pest animal incident that occurs within Mount Shadwell Scoria Quarry.
- Initiate the review of this plan as an when required.
- Ensure anyone undertaking noxious weed and pest animal control work using pesticides for fee or reward is a Licensed Pest Control Operator.

Quarry Workers and Contractors.

- Comply with the requirements of this plan.
- Work in a safe and environmentally friendly manner when implementing this plan.

5. Training and Awareness.

The following training and awareness initiatives are to be established to ensure the successful application of the Noxious Weeds and Pest Animals Control Plan.:

- Quarry workers and contractors shall undertake site specific awareness training in the identification, eradication and control of noxious weeds and pest animals.
- The training shall take into account and be based on the content of this plan.
- Regular reminders of responsibilities and obligations regarding identification, eradication and control of noxious weeds and pest animals will be communicated at toolbox talks.

Where required the Quarry Manager and other relevant workers/contactors may undertake the one day "WeedStop" training program delivered by Longerenong College to assist in ensuring vehicle hygiene.

6. Hazard identification – Noxious Weeds

No noxious weeds have been identified as being present on our quarry site or in neighbouring properties.

It is the responsibility of the Quarry Manager to ensure routine inspections are conducted on a scheduled basis.

The inspection shall be inclusive of disturbed areas such as non-vegetated soils, e.g., windrowed topsoil, gravel stockpiles where the potential of germination and weed spread is probable.

Noxious weed / plant name and identification date	
No noxious weeds identified	Located on site or neighbouring properties

7. Control of Noxious Weeds

Spraying and Removal Program

Mount Shadwell Scoria Quarry have engaged the services of the landowner to support the control of noxious weeds.

The landowner will prepare a weed spraying and removal program if noxious weeds or pest animals colonise the quarry site.

Control of Weed Carriage.

Weed seeds are small and can easily lodge behind or within the mechanical and structural components of mobile equipment or vehicles. They can be carried on or within:

- Buckets and blades.
- Radiator.
- Pulley shafts.
- Free grease and oil.
- Grills/filters.
- Tyres and between dual wheels.
- Axels and differentials.
- Mud Guards.
- Chassis and body, ledges and frames.
- Inside driver's cab.
- Weeds seeds can easily germinate within stockpiles, in particular overburden, dust, crushed rock.

Mount Shadwell Scoria Quarry has established general rules for the prevention of weed seed carriage as follows:

- All vehicles shall remain on defined tracks and roads where practicable.
- All incoming mobile equipment shall be inspected and cleaned in a designated area prior to operating on site.
- Vulnerable stockpiles will be routinely inspected and included in the spraying and removal program if noxious weed are identified.
- Materials with these stockpiles shall be inspected prior to being loaded onto trucks for dispatch from site.

These general rules will be communicated to all quarry workers through toolbox talks and contractors and visitors through induction as required.

Vehicles and Mobile Equipment Cleaning

Vehicles and mobile equipment shall be inspected to identify the presence of seed or soil or mud potentially containing seed before entering WA 1478.

The processes used for cleaning shall include as required:

- Overall wash down with high pressure water cleaner.
- Compressed air blast to decontaminate hard to reach areas.
- Vacuuming interior surfaces.

Where applicable these processes shall be included within operational or environmental work practice procedures.

8. Hazard identification – Pest Animals

No pest animals have been identified as being present on WA 1478 site or in neighbouring properties.

If pest animals are identified the following table will be completed.

Pest animals name	Location of activity/habitat	Any detail, i.e., numbers	ID date

9.*Control of Pest Animals*

The initial priority of Mount Shadwell Scoria Quarry is to eradicate the pest animal and manage any harbour (warrens and dens) with minimal impact on native flora and fauna.

Control methods shall be applied where practicable to reduce number of animals before attending to harbour.

Mount Shadwell Scoria Quarry have engaged the services of the landowner to prevent the establishment of pest animals on the property.

10. Monitoring and Review

Ongoing monitoring allows Mount Shadwell Scoria Quarry to identify how well control measures are working. Issues to consider when undertaking monitoring activity are inclusive of:

- The rate of eradication of noxious weeds.
- Any further spread of noxious weeds.
- The establishment of favoured vegetation.
- The presence of pest animal droppings, active warrens and dens.
- The status of activity within and surrounding pest animal habitats.
- The sighting of pest animals.

Once controls have been implemented it is the responsibility of the Quarry Manager to ensure routine monitoring inspections to assess and review the effectiveness of the controls are conducted on a scheduled basis.

Findings from the monitoring will be considered when reviewing and re-implementing the weeds and pest animals control program.