REFERRAL OF A PROJECT FOR A DECISION ON THE NEED FOR ASSESSMENT UNDER THE *ENVIRONMENT EFFECTS ACT 1978*

REFERRAL FORM

The *Environment Effects Act 1978* provides that where proposed works may have a significant effect on the environment, either a proponent or a decision-maker may refer these works (or project) to the Minister for Planning for advice as to whether an Environment Effects Statement (EES) is required.

This Referral Form is designed to assist in the provision of relevant information in accordance with the *Ministerial Guidelines for assessment of environmental effects under the Environment Effects Act 1978* (Seventh Edition, 2006). Where a decision-maker is referring a project, they should complete a Referral Form to the best of their ability, recognising that further information may need to be obtained from the proponent.

It will generally be useful for a proponent to discuss the preparation of a Referral with the Impact Assessment Unit (IAU) at the Department of Environment, Land, Water and Planning (DELWP) before submitting the Referral.

If a proponent believes that effective measures to address environmental risks are available, sufficient information could be provided in the Referral to substantiate this view. In contrast, if a proponent considers that further detailed environmental studies will be needed as part of project investigations, a more general description of potential effects and possible mitigation measures in the Referral may suffice.

In completing a Referral Form, the following should occur:

- Mark relevant boxes by changing the font colour of the 'cross' to black and provide additional information and explanation where requested.
- As a minimum, a brief response should be provided for each item in the Referral Form, with a more detailed response provided where the item is of particular relevance. Cross-references to sections or pages in supporting documents should also be provided. Information need only be provided once in the Referral Form, although relevant cross-referencing should be included.
- Responses should honestly reflect the potential for adverse environmental effects. A Referral will only be accepted for processing once IAU is satisfied that it has been completed appropriately.
- Potentially significant effects should be described in sufficient detail for a reasonable conclusion to be drawn on whether the project could pose a significant risk to environmental assets. Responses should include:
    - a brief description of potential changes or risks to environmental assets resulting from the project;
    - available information on the likelihood and significance of such changes;
    - the sources and accuracy of this information, and associated uncertainties.
- Any attachments, maps and supporting reports should be provided in a secure folder with the Referral Form.
- A USB copy of all documents will be needed, especially if the size of electronic documents may cause email difficulties. **Individual documents should not exceed 10MB as they will be published on the Department's website.**

- A completed form would normally be between 15 and 30 pages in length. Responses should not be constrained by the size of the text boxes provided. Text boxes should be extended to allow for an appropriate level of detail.
- The form should be completed in MS Word and not handwritten.

The party referring a project should submit a covering letter to the Minister for Planning together with a completed Referral Form, attaching supporting reports and other information that may be relevant. This should be sent to:

Postal address

Minister for Planning
PO Box 500
EAST MELBOURNE VIC 8002

Couriers

Minister for Planning
Level 16, 8 Nicholson Street
EAST MELBOURNE VIC 3002

In addition to the submission of the hardcopy to the Minister, separate submission of an electronic copy of the Referral via email to ees.referrals@delwp.vic.gov.au is required. This will assist the timely processing of a referral.

PART 1 PROPONENT DETAILS, PROJECT DESCRIPTION & LOCATION

1. Information on proponent and person making Referral

Name of Proponent:	E B Mawson & Sons Pty Ltd (t/a Mawsons)
Authorised person for proponent: **Position:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Richard Toll Manager, Resource Development & Permit Approvals 7/53 McMillan Road Echuca, VIC 3564 rtoll@mawsons.com.au 0447747696
Person who prepared Referral: **Position:** **Organisation:** **Postal address:** **Email address:** **Phone number:** **Facsimile number:**	Patrick Dunne Associate Environmental Scientist WSP Australia Pty Limited Level 11, 567 Collins Street Melbourne, 3000 Australia patrick.dunne1@wsp.com 0408933497
Available industry & environmental expertise: (areas of 'in-house' expertise & consultancy firms engaged for project)	Mawsons (Greenhouse gas) Aurecon (Aboriginal heritage) Eco Logical Australia (Ecology) WSP (Ecology, Offsets) Groundwork Plus (Geotechnical, Groundwater, Needs assessment, Surface water) Trafficworks (Traffic) Vipac (Noise and Air quality) Water Technology (Groundwater) Water Resource Solutions (Groundwater)

2. Project – brief outline

Project title: Blue Hills Quarry
Project location: (*describe location with AMG coordinates and attach A4/A3 map(s) showing project site or investigation area, as well as its regional and local context*) The proposed quarry of approximate area 34.5 ha, is located in central Victoria, within a land parcel (SPI: 9~11\PP2216) totalling approximately 345 hectares (ha) in area. Mawsons also own the adjacent 215 ha parcel (10~11\PP2216). The two allotments are locally known as Blue Hills and are located at 910 and 912 Lakeys Road, Bradford, Victoria 3463, within the Mount Alexander Shire Local Government Area (LGA). The Project location is illustrated in Figure 1.

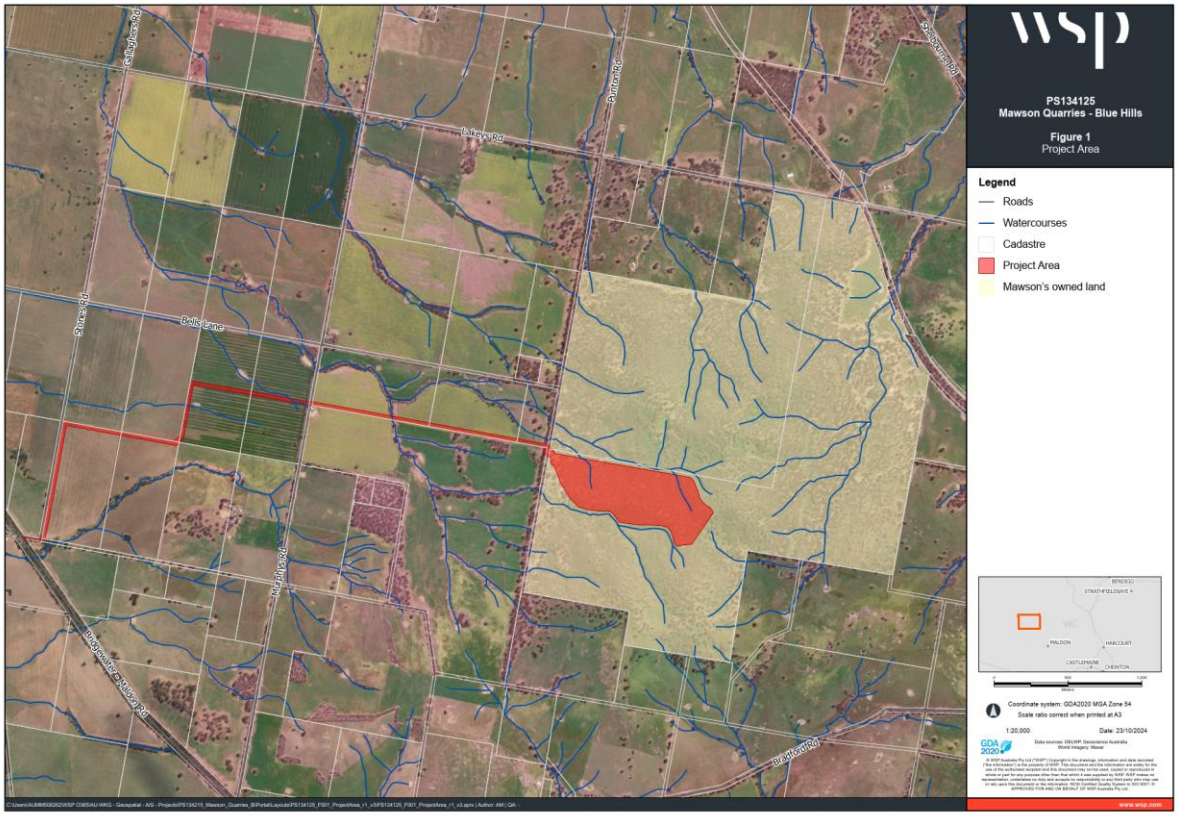


Figure 1 – Blue Hills Quarry project location

The proposed quarry would occupy less than 10% of the allotments, with most of the site to be used as buffer land to separate sensitive uses from quarrying activities and for vegetation offsetts.

Currently the land is zoned as farming, having historically been used as a timber plantation site, however, recent exploration has indicated the presence of hard rock hornfels resources.

The proposed quarry is nestled within the surrounding hills, nearby to the Calder Highway, which links to the Loddon Valley Highway to the north and the Midland Highway to the south. The Wimmera Highway also provides good access to the western region, which means that the site is well placed to service a large market area.

The GDA94 coordinates of the proposed quarry boundary are as follows:

Easting	Northing
5911061.8775	233636.9232
5910392.0005	234104.4073
5910293.8859	234967.0533
5909589.4559	234898.0059
5909748.0394	233482.7554

Figure 1 shows the quarry footprint within the wider Mawsons property.

Short project description (few sentences)**:**
Blue Hills Quarry is a proposed hornfels hard rock quarry, located in Bradford in the Mount Alexander Shire LGA. The proponent, Mawsons, seek to quarry high quality hornfels aggregate at Blue Hills to support the population growth and development of the Loddon Campaspe region.

The proposed quarry would involve the development of a:

- Staged development of a 34.5 ha quarry;
- 3 ha area for processing, stockpiling, vehicle workshop and office area;
- 4.5 km access road from the quarry site to the Bridgewater-Maldon Road via private land; and
- Power and water reticulation.

The Quarry development would occur in three stages. This allows for a staged native clearing approach combined with planting across the broader property to minimise the loss of habitat for impacted species as quarry development proceeds. Quarry development would occur as follows:

- Stage 1 – 0 to 15 years, clearing 10.5 ha of native vegetation prior to extraction and establishing over 30 ha of new vegetation.
- Stage 2 – 15 to 30 years, clearing 8 ha of land prior to extraction.
- Stage 3 – 30 to 75 years, clearing 16 ha of land prior to extraction.

Over the life of the project, Mawsons expect to extract approximately 500,000 tonnes per annum (tpa) of hornfels aggregate and employ 6 full time staff. The operational lifespan of the Project would be 70 to 100 years.

Progressive rehabilitation will be undertaken over the successive operational stages, allowing the site to be re-purposed for environmental conservation purposes.

3. Project description

Aim/objectives of the project (what is its purpose / intended to achieve?):

Mawsons propose to develop a hornfels hard rock quarry in Bradford within the Mount Alexander Shire LGA.

The quarry would have a peak operating production of 500,000 tpa of hornfels aggregate and an anticipated lifetime of 70 to 100 years.

The quarry would employ approximately 6 full-time staff and a number of contractors.

The proposed operating hours of the quarry would likely to be as follows:

- Quarry opening and access hours 7:00 am to 5:00 pm Monday to Saturday.
- Blasting operations 9:00 am to 3:00 pm Monday to Friday (on demand).

The proposed quarry will generate approximately 14,700 truck movements annually (or about 60 loads per day).

Background/rationale of project (describe the context / basis for the proposal, e.g., for siting):

The rationale detailed below summarises the findings of the Market Assessment – Needs Review developed for the Project (Attachment 1)

Regional growth

The proposed Blue Hills quarry is located in the northern part of the Mount Alexander Shire, and 30 km from the City of Greater Bendigo. Regionally, the proposed quarry sits within the Loddon Campaspe region, which encompasses the six LGAs of Campaspe, Central Goldfields, Greater Bendigo, Loddon, Macedon Ranges and Mount Alexander, which service a population base of 250,000 people and a Gross Regional Product of $13 billion. The population of the Loddon Campaspe region is forecast to grow to 280,000 by 2031 (Loddon Campaspe Economic Growth Strategy, 2019) with annual population growth rate at 1.25%.

As populations grow across regional Victoria, the need for development and maintenance of infrastructure is required to support these communities. Extractive resources underpin urban and infrastructure development as they are the primary source of materials used for building future roads, bridges, railways, factories, hospitals, schools and homes. They are vital in satisfying society's growing requirements in constructing our built environment. The projected population growth and resulting demand for housing and the need for major infrastructure and resource-related projects proposed for Loddon Campaspe are set to continue the high level of demand for extractive resources.

Resource availability

The availability of quarried products is essential for the welfare of modern communities. Quarried products are essential materials for providing infrastructure and shelter. Since quarried products are relatively low cost, yet bulky materials, transport costs are usually a major component of the end user's cost. Ultimately the interests of the community and the regional economy are served by the supply of quarried materials being maintained close to demand.

The cost of extraction and processing of quarried products depends on many factors such as material type, environmental setting, access, topography and other engineering and development constraints. However, the range of production costs between efficient and inefficient producers is highly variable for similar operations. Unit production costs are generally most affected by the rate of production with high volume production rates generally achieving lower unit production costs.

For a particular market area, a balance needs to be struck for the distribution of supply sources, capital investments, operating costs, transport costs, land disturbance and protection of environmental values to achieve an optimum for convenient and economical supplies of quarried product. The market for extractive materials is therefore known as a 'derived' demand. As the majority of aggregates and road base materials are used as inputs into construction materials for building and construction, their demand is driven largely by population growth, economic activity and specific purpose funding for major projects (e.g., highway works, residential, trade and

commercial precincts, airport developments etc.). Given that demand for extractive materials is driven by demand for construction materials as inputs into building and construction, which itself is strongly influenced by population growth (either actual or anticipated), it is a useful approach to estimate future demand for aggregates by reference to per capita consumption and population growth.

Quality of resource
There are no other Work Authorities for hornfels resources located in the Loddon Campaspe region. The hornfels deposits at Blue Hills provide a high quality market resource for regional infrastructure development, with engineering qualities that include:

- High Polished Stone Value, (PSV), and skid resistance when compared against the typical new basalt and sedimentary quarries of the region which cannot produce highly skid resistance rocks. This leads directly to safer roads and safer communities.
- High quality rail ballast pursuant to Ballast specification CT 147 and the new ARTC specifications, which differentiates the rocks from the new basalt deposits which commonly cannot, if at all, comply with these engineering requirements.
- High durability, strength, and a very good Mill Abrasion index in contrast to the new basalt engineering characteristics. These fundamental engineering parameters are a key issue regarding infrastructure longevity and maintenance costs and provide for a better outcome for the state the tax payer and all stakeholders, as proportionally the material is a more durable engineering material.

In addition to the quality of the deposits at Blue Hills is the relative scarcity of the geological formation. Hornfels is a metamorphic rock deposit, which occur in relatively isolated areas across Victoria in comparison to new volcanic quarry resources. Hornfels deposits are vertically extensive and when benchmarked against the same extractive footprint as the new volcanics, which are typically shallow flows, can often yield three to five times the resource for the same area of surface disturbance. This results in significantly smaller quarry footprint impact for hornfels deposits compared to new volcanic deposits for the same quantity of resource.

Transport corridors
Blue Hills' central Victorian location and proximity to major regional highways, means that it can efficiently supply projects to all points of the compass. Access to the large population centres of Bendigo (30km), Ballarat (90km) and Melbourne (120km) means that Blue Hills has significant transport advantages for supply to projects within that radius. Given Victoria's rail network capability, this delivery is likely to be made by road transport and therefore access to main highways is critical. Blue Hills is within 20km of the Calder Highway/Freeway to the east, which means excellent access to markets to the south and northwest of the quarry. The Calder Highway/Freeway links to the Loddon Valley Highway to the north and the Midland Highway to the south. The Wimmera Highway also provides good access to the western region.

Main components of the project (nature, siting & approx. dimensions; attach A4/A3 plan(s) of site layout if available):

The main component of the proposal is the quarry site, processing facility (located within the quarry footprint), product stockpiling area, vehicle workshop, and office. The ultimate footprint of the quarry and processing facility is approximately 34.5 ha, while the stockpiling area, vehicle workshop and office area is approximately an additional 3 ha.

The proposed quarry is sited on a ridge line that rises approximately 50m from the lowest to highest point above the surrounding plains. The proposed terminal pit depth is estimated between 100-125m below the elevation of the surrounding regional plains. With a proposed pit design encompassing 10 benches of 15m in height, this will result in a reduced level of approximately 175m from the existing ridge line landform.

Raw material would be quarried using drill and blasting techniques and transported via dump truck to the co-located processing facility.

Mobile processing plant will process the initial million tonne of material, adjacent to the pit. After the initial portion of material is processed, the processing facility would be located within the pit to minimise potential amenity impacts through the life of the quarry.

Refer to Figure 1 for the proposed site plan.

Ancillary components of the project (e.g., upgraded access roads, new high-pressure gas pipeline; off-site resource processing):

Ancillary components to the proposal include:

- A 4.5 km access road, which traverses freehold agricultural land and connects to the Stones and Bridgewater-Maldon Road intersection;
- Drainage and sediment control adjacent to access roads and surrounding the quarry site;
- Power and water reticulation utilities within access road easement;
- Dust suppression, including water trucks and sealing of external access roads; and
- Exclusion fencing to protect heritage and environmental values and secure the quarry site.

Key construction activities:

Key construction activities relate to the site establishment and construction of fixed infrastructure associated with the quarry area and its associated access roads.

Site establishment, access and access road construction would involve:

- Establishment of construction environmental controls (i.e., exclusion fencing, delineation of quarry site, fauna relocation, sediment controls)
- Staged vegetation grubbing/removal
- Construction of access / access roads and associated drainage
- Topsoil stripping and stockpiling.

Construction of fixed infrastructure will involve the establishment of:

- Interim processing area and associated mobile plant
- Final fixed processing area and plant
- Stockpile area
- Site office
- Car parking
- Weigh bridge
- Wheel washers
- Vehicle workshop
- Bunded fuel and oil storage
- Drainage infrastructure
- Power and water reticulation
- Operational environmental controls (noise, sediment and dust controls).

Site establishment and construction of fixed infrastructure is expected to run for 6-12 months.

Key operational activities:

Following the initial site establishment and construction phase, Mawsons propose the staged development of the quarry area, with the extraction methodology involving the removal of the top one to three metres of weathered overburden material by either dozer ripping, or drill and blast methodologies. Processing on site would occur initially by mobile plant, in an interim location, until a fixed processing plant can be established below grade within the quarry footprint.

Shot rock will be loaded from benches using front end loaders or excavators and subsequently hauled by dump truck to the fixed and mobile plant on site for processing. Material will be transported to a primary bin and feeder and transferred to the primary crusher located within the workings of the proposed quarry. Crushed rock will be transported by rubber conveyors to the downstream crushing and screening operations.

The crushing and screening plant that has been selected for the proposal will be configured to optimise crushing of the rock and environmental controls. It will have the latest technological developments for dust and noise suppression. Material will be processed into a wide range of quarried products and stockpiled adjacent to the processing plant.

Overburden material from the upper 3 metres will be suitable for use as fill for site pad construction, sold as lower quality road bases and engineered fills, or retained for use in site rehabilitation. The material between three and eight metres, if scalped, or otherwise beneficiated, may be suitable for the production of most higher quality products (e.g., concrete aggregates and higher quality road bases). Below eight metres the material will generally be suitable for the

production of most high-quality quarried products. Conventional drill and blast methodologies will be used to break the rock below three metres depth as the rock is very strong, hard and durable.

The extraction of hard rock would be undertaken using conventional drill and blasting techniques. Blasting is expected to occur as required and up to 12 times per year.

Fixed onsite equipment would consist of conventional hard rock processing equipment, including a double toggle primary crusher; primary scalping screen; and secondary and tertiary crushers. Product from this fixed plant will be directly discharged into trucks from overhead bins, proceeding to on-site stockpile storagess or directly despatched off site.

It is anticipated that at its peak, approximately 500,000 tpa of product will be produced with approximately 14,700 truck movements occurring on an annual basis with an average of 60 loads per day along the proposed access route. From leaving the quarry site, quarried products would be able to be transported to all points of the compass, depending on demand via the Bridgewater-Maldon Road.

Proposed operational hours will be from 7am to 6pm Monday to Friday, and 7am-1pm on Saturdays.

Key decommissioning activities (if applicable):

Rehabilitation of the site would be progressively undertaken and completed following the productive life of the quarry. Decommissioning would involve the demobilisation of plant and removal of fixed infrastructure. All plant and fixed infrastructure would be repurposed using waste hierarchy (re-use, recycle, recovery, disposal). Rehabilitation and decommissioning would be guided by a Rehabilitation Plan endorsed by Earth Resources Regulation.

Mawson's propose the future land use of the site would be for conservation/recreational purposes, through the development of a wetland in the exhausted quarry pit. Rehabilitation and revegetation of pit benches would also occur, to link the future wetland to the surrounding environment.

Is the project an element or stage in a larger project?

☒ No ☐ Yes If yes, please describe: the overall project strategy for delivery of all stages and components; the concept design for the overall project; and the intended scheduling of the design and development of project stages).

Is the project related to any other past, current or mooted proposals in the region?

☒ No ☐ Yes If yes, please identify related proposals.

What is the estimated capital expenditure for development of the project?

0 – 5 years ($ 2 million)
Loading plant/ Mobile equipment, Office/Weighbridge, Water Services tanks/water truck, clean fill material
5 – 15 years ($ 20 million)
Modular plant, equipment, clean fill material

4. Project alternatives

Brief description of key alternatives considered to date (*eg. locational, scale or design alternatives. If relevant, attach A4/A3 plans*):

As detailed in the background/rationale section, the Project location is largely driven by the discovery of a hornfels deposit that is in close proximity to transport corridors in a region where no other hornfels Work Authorities are located. A number of pit locations within the wider Mawson's property were initially considered, however most were quickly ruled out due to unfavourable settings, with respect to nearby sensitive receivers. The current Project location was considered most favourable as it is sited in a location that contains suitable buffers and natural shielding through adjacent ridgelines to sensitive residential receivers (1.3km to nearest

residential receiver).

While the general pit location is based on the above parameters, the Project has considered a range of micro siting and optioneering alternatives through an iterative design process, through the planning phase. These alternatives can be categorised as quarry pit refinement and access road optioneering, which are both detailed further below.

Quarry footprint
The current quarry footprint is in its fifth iteration of design. The footprint and development staging affording staged clearing and revegetation across the wider property has been refined to avoid environmental and heritage constraints identified throughout the planning phase.

The initial quarry footprint included 3.8 ha of endangered Plains Woodland (EVC 802) which also met the criteria for the endangered EPBC listed, Grey Box *Eucalyptus microcarpa* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia. The quarry footprint was subsequently redesigned, with the proposed footprint impacting 2.6 ha of the endangered EPBC community. Further information on the ecological impact of the quarry footprint is provided in the Flora and Fauna Impact Assessment (Attachment 2).

Design changes have been made to avoid Aboriginal cultural heritage (two Aboriginal places), following the standard phase assessment for the Cultural Heritage Management Plan and consultation with the assessment Registered Aboriginal Party (RAP) Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC). The design refinements deviate the quarry boundary to provide a buffer to the Aboriginal places (see Figure 2). Further information is available in the draft Cultural Heritage Management Plan (Attachment 3, *not for public exhibition*).

The determination of waterways has also shaped the design iterations of the quarry footprint throughout the planning phase. Waterway determinations conducted by Goulburn Murray Water (Attachment 4) have shaped the quarry footprint around determined waterways. The quarry footprint has incorporated buffers of approximately 120m from determined waterway centrelines (see Figure 2).

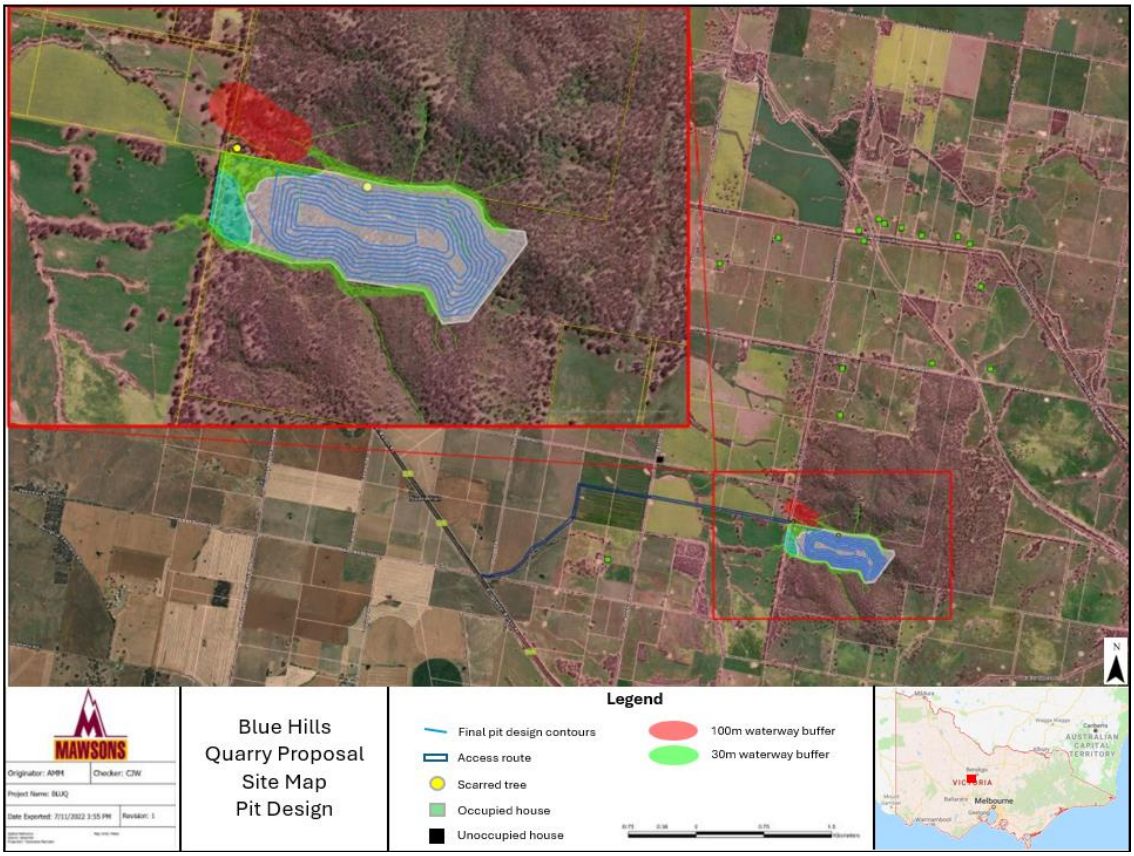


Figure 2 – Proposed quarry location including cultural heritage buffers and determined waterway buffer

Access roads
A total of nine different access route options, connecting the quarry to the principal road network, were investigated throughout the planning stage. The table below summarises the options analysis that was undertaken for the access routes.

Route option	Length	Patches of native vegetation	Large trees (total)	Closest dwelling (km)	Dwellings within 500m	Noise impacts	Air quality impacts	CO2 emissions (g) per trip	Tenure
1	5.06	5	54	0.81	0	No	No	3340	Public
2	5.06	6	54	1.00	0	No	No	3340	Public
3	4.75	4	62	0.33	1	Yes	No	3135	Public
4	2.95	6	51	0.13	1	Yes	Yes	1947	Private
5	4.30	5	52	0.45	1	Yes	No	2838	Private
6	4.81	7	26	0.40	2	Yes	No	3175	Private
7	4.16	2	24	0.10	4	Yes	Yes	2746	Private/ Public
8	**4.20**	**2**	**7**	**0.61**	**0**	**No**	**No**	**3036**	**Private**
9	3.58	4	50	0.52	0	No	No	2363	Private

Across the range of criteria, access route Option 8 was considered the best performing on balance, for the following reasons:

- Contained no dwellings within 500m
- Met air quality and noise objectives to sensitive dwellings
- Least impact to large trees
- Least impact on native vegetation.

Option 8 has been further varied in an effort to avoid impacting a natural creek line located near the Stones Road and Bridgewater-Maldon Road intersection. The proposed new access road alignment is 4.5km in length and is shown in Figure 1. Refer to the attached Flora and Fauna Impact Assessment (Attachment 2) for further details.

Brief description of key alternatives to be further investigated (if known)**:**
Further optioneering or consideration of alternatives, not currently proposed.

5. Proposed exclusions

Statement of reasons for the proposed exclusion of any ancillary activities or further project stages from the scope of the project for assessment:
All ancillary components of the project have been included. No exclusions apply.

6. Project implementation

Implementing organisation (ultimately responsible for project, ie. not contractor)**:**
Mawsons

Implementation timeframe:
The construction timeframe (site establishment, access road and fixed infrastructure construction) is expected to run for 6-12 months and would commence following receipt of regulatory approvals.

The operational timeframe for the quarry is expected to be 70-100 years.

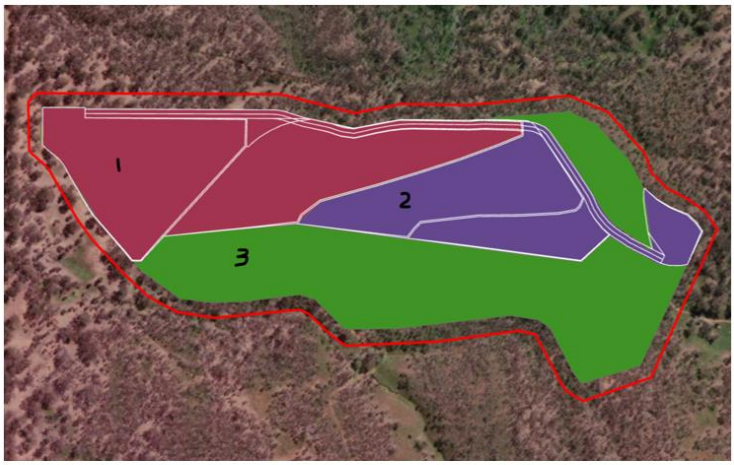
Progressive rehabilitation will be undertaken over the successive operational stages.

Proposed staging:
The Project would operate in three distinct phases. The phases relate to the sequential quarry pit design aiming to minimise the loss of habitat for impacted species through staged vegetation clearing and significant revegetation across the broader property.

The Stage 1 Design includes an initial footprint of approximately 10.5 ha and comprises extraction via four benches. Stage 1 would proceed from project commencement to 15 years of operation. Stage 2 would span from 15 – 30 years and would involve a further quarry footprint of 8 ha. Stage 3 would span from 30 -75 years, involving the further development of the final 16 ha of land to be cleared and quarried.

The three stage proposal is a new development informed by the Flora and Fauna Impact Assessment (WSP 2024). It is noted a number of the accompanying initial environmental studies reflect an earlier two stage quarry development proposal. Mawsons is of the view that project impacts are adequately characterised within the accompanying environmental studies for the purposes of this referral and for Ministerial determination of the need for an EES. This change will be further considered in the assessment of impacts for environmental aspects as part the approvals process.

Figure 3 illustrates the locations the three stages.



- Stage 1: Span from 0-15 years – 10.5 ha
- Stage 2: Span from 15-30 years – 8 ha
- Stage 3: Span from 30-75 years – 16 ha

Figure 3 – Blue Hills Quarry proposed stages

Rehabilitation would be undertaken progressively through the operating life of the site and be concluded following cessation of extraction operations.

7. Description of proposed site or area of investigation

Has a preferred site for the project been selected?

☐ No ☒ Yes If no, please describe area for investigation.

If yes, please describe the preferred site in the next items (if practicable).

General description of preferred site, (*including aspects such as topography/landform, soil types/degradation, drainage/ waterways, native/exotic vegetation cover, physical features, built structures, road frontages; attach ground-level photographs of site, as well as A4/A3 aerial/satellite image(s) and/or map(s) of site & surrounds, showing project footprint*):

Topography

The proposed quarry is located on a roughly east to west trending ridge that rises to approximately 320 m (metres relative to Australian Height Datum (mAHD)) on the eastern side of the pit, while the Bridgewater-Maldon Road to the west is at an approximate elevation of 220 mAHD. The western slopes are typically gently sloping and approximately planar before the terrain becomes generally flat, toward the main road.

Geology

The site sits on an outcropping of metasedimentary bedrock of the Castlemaine Group and consists of metasedimentary hornfels of Early Ordovician Age. These hornfels range from cordierite to biotite hornfels rocks, and also include rarer calc silicate units. Within the proposed project area, the variably weathered in-situ hornfels are a prominent feature of drainage lines, where surface water has eroded away the topsoil and rock profile over millennia.

Bedding and remnant sedimentary structures, such as fluting and lode casts, are still evident in much of the hornfels. The bedding, whilst variable, is commonly recognised as dipping very steeply to the south, with dip directions ranging between 170 and 250 degrees.

Vegetation

The proposed quarry area supported one patch of Hillcrest Herb-rich Woodland (EVC 70), which extends to the eastern boundary of the quarry, and a smaller patch of Plains Woodland (EVC 803) along the north-western boundary of the quarry.

Further information on site vegetation is available in the attached Flora and Fauna Impact Assessment (Attachment 2).

Infrastructure

Infrastructure within the project area is limited to fencing, a dam and informal tracks.

The property is currently accessed via Bells Lane, which connects to the Bridgewater-Maldon road, 5km to the west. Access can also be gained via Punton Road, which connects to the Bendigo-Maryborough Road, 7km to the north.

The broader Mawson's property has two accesses. One located at the eastern end of Bells Lane and one on Lakeys Road, near the retired Maldon to Shelbourne Railway intersection. The Bells Lane access is the closest existing access to the proposed quarry, and would be the primary site access for the quarry operation (see Figure 1).

Site area (if known): Quarry pit (34.5 ha) and ancillary infrastructure (3 ha).

Route length (for linear infrastructure) Access Road: 4.5 (km) **and width** 30 (m)

Current land use and development:

Catchment scale land use and management (CLUM) mapping classify the Mawson's property as *Production Native Forests,* which aligns to historic timber harvesting practices that have taken

place. Since Mawsons' acquisition of the property, no active timber harvesting land uses activities have occurred.

Existing development on the property is limited to fencing, a dam and informal tracks.

Description of local setting (*e.g. adjoining land uses, road access, infrastructure, proximity to residences & urban centres*):

Land use surrounding the Mawsons' property is categorised as *Dryland Cropping, Grazing Modified Pastures Nature Conservation* and *Rural Residential and Farm Infrastructure*, under CLUM mapping.

Twenty-two residential receivers are located within a 5 km radius of the project, with the closest located 1.3 km to the north of the proposed quarry site. The closest residential receiver to the preferred access road is located 610 m southeast of the access road at its closest point.

The closest township to the project is Maldon, located approximately 10 km to the southeast (see Figure 1).

Planning context (*e.g., strategic planning, zoning & overlays, management plans*):

The following details the strategic planning policy for the land and proposed activities as set out in the Mount Alexander Planning Scheme.

Planning Policy Framework
Clause 14.03 Earth and Energy Resources;
Cl 14.03-1S: Resource exploration and extraction
Objective

- To encourage exploration and extraction of natural resources in accordance with acceptable environmental standards.

Particular Provisions
Cl 52.08 Earth and Energy Resources Industry
Purpose

- To encourage land to be used and developed for exploration and extraction of earth and energy resources in accordance with acceptable environmental standards.
- To ensure that planning controls for the use and development of land for the exploration and extraction of earth and energy resources are consistent with other legislation governing these land uses.

Cl 52.09 Extractive Industry and Extractive Interest Areas
Purpose

- To ensure that use and development of land for extractive industry does not adversely affect the environment or amenity of the area during or after extraction.
- To ensure that excavated areas can be appropriately rehabilitated.
- To ensure that stone resources, which may be required by the community for future use, are protected from inappropriate use and development.

Zones and Overlays
Cl 35.07 Farming Zone:
Purpose

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To provide for the use of land for agriculture.
- To encourage the retention of productive agricultural land.
- To ensure that non-agricultural uses, including dwellings, do not adversely affect the use of land for agriculture.
- To encourage the retention of employment and population to support rural communities.

- To encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.
- To provide for the use and development of land for the specific purposes identified in a schedule to this zone.

Cl 44.06 Bushfire Management Overlay
Purpose

- To implement the Municipal Planning Strategy and the Planning Policy Framework.
- To ensure that the development of land prioritises the protection of human life and strengthens community resilience to bushfire.
- To identify areas where the bushfire hazard warrants bushfire protection measures to be implemented.
- To ensure development is only permitted where the risk to life and property from bushfire can be reduced to an acceptable level.

Local government area(s):
Mount Alexander Shire Council

8. Existing environment

Overview of key environmental assets/sensitivities in project area and vicinity
(*cf. general description of project site/study area under section 7*)**:**

Assessment of the project study area and access road route noted the following EVC's:

- Hillcrest Herb-rich Woodland (EVC 70) – 34.3 ha.
- Plains Woodland (EVC 803) – 2.6 ha

The Project contains habitat that supports a number of threatened and non-threatened species. Significant flora species either recorded or considered to have a moderate or high likelihood of occurring are:

- *Allocasuarina luehmannii* (Buloke)
- *Diuris behrii* (Golden Cowslips)
- *Dianella tarda* (Late-flower Flax-lily)
- *Dianella longifolia* var. *grandis* (Glaucous Flax-Lily)
- *Rytidosperma monticola* (Small-flower Wallaby-grass)
- *Swainsona behriana* (Southern Swainson-pea)

The following significant fauna species either recorded or considered to have a moderate or high likelihood of occurring:

- *Ninox connivens* (Barking Owl)
- *Pogona barbata* (Bearded Dragon)
- *Chalcites osculans* (Black-eared Cuckoo)
- *Falco subniger* (Black Falcon)
- *Climacteris picumnus (victoriaea)* Brown Treecreeper (south-eastern subspecies)
- *Phascogale tapoatafa* (Brush-tailed Phascogale)
- *Bubulcus ibis* (Cattle Egret)
- *Oreoica gutturalis* (Crested Bell-bird)
- *Stagonopleura guttata* (Diamond Firetail)
- *Apus pacificus* (Fork-tailed Swift)
- *Pomatostomus temporalis* (Grey-crowned Babbler)
- *Melanodryas cucullate* (Hooded Robin)
- *Varanus varius* (Lace Monitor)
- *Hieraaetus morphnoides* (Little Eagle)
- *Grantiella picta* (Painted Honeyeater)
- *Merops ornatus* (Rainbow Bee-eater)
- *Aphelocephala leucopsis* (Southern Whiteface)

- *Pyrrholaemus sagittatus* (Speckled Warbler)
- *Lophoictinia isura* (Square-tailed Kite)
- *Lathamus discolor* (Swift Parrot)
- *Neophema pulchella* (Turquoise Parrot)
- *Hirundapus caudacutus* (White-throated Needletail)

EPBC and FFG listed Threatened Ecological Communities (TEC) were also recorded within the Project area. Habitat Zone 2 within the quarry footprint, mapped as Plains Woodland EVC 803, met the criteria for the EPBC listed Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South eastern Australia ecological community. This area equated to 2.6 ha of the TEC.

Areas of mapped EVC (Hillcrest Herb-rich Woodland (EVC 70) and Plains Woodland EVC (803)) also met the definition of the FFG listed Victorian Temperate Woodland Bird Community. This area equates to approximately 36.9 ha of the TEC.

Within the quarry footprint and preferred access road, a total of 73 large trees and nine Species Habitat Units were recorded.

High threat or noxious weeds were recorded within the quarry footprint and preferred access road. These included:

- *Carthamus lanatus* (Saffron Thistle)
- *Cirsium vulgare* (Spear Thistle)
- *Marrubium vulgare* (Horehound)
- *Optunia robusta* (Wheel Cactus)
- *Opuntia stricta* (Common Prickly-pear)
- *Scolymus hispanicus* (Golden Thistle)
- *Opuntia stricta* (Common Prickly-pear)

Refer to the Flora and Fauna Impact Assessment (Attachment 2) for additional details.

9. Land availability and control

Is the proposal on, or partly on, Crown land?

☒ No ☐ Yes If yes, please provide details.

Current land tenure (provide plan, if practicable):

Land for the proposed quarry is freehold, owned by E.B. Mawson & Sons Pty Ltd.

Land for the proposed access road is freehold owned by two individual landholders. Early discussions with these landholders has indicated positive intent towards supporting lease of the land for the development of the access road, through the development of draft lease agreements with the two landholders.

Details of the land parcels on which the quarry and access road is proposed is detailed below:

- Quarry SPI: 9~11\PP2216.
- Access Road SPIs: 16~12\PP3291; 11~12\PP3291; 7~12\PP3291; 2B~12\PP3291; 2A~12\PP3291; 1B~12\PP3291; 3B~12\PP3291; 3A~12\PP3291.

Intended land tenure (tenure over or access to project land):

Future land tenure would not change from the current situation. Lease agreements with third parties for the development and use of the access road have been drafted and would be formalised, once project approvals are obtained.

Other interests in affected land (*e.g. easements, native title claims*):

The proposed quarry site is not located on unreserved Crown Land, as such Native Title does not apply. No easements or encumbrances to the land apply to titles for the land parcels on which the project is proposed.

10. Required approvals

State and Commonwealth approvals required for project components (if known):

State
Mineral Resources (Sustainable Development) Act 1990 (MRSD Act) – Work Authority
A Work Authority will be prepared under the MRSD Act, including Work Plan and associated Community Engagement Plan and Rehabilitation Plan.

Planning and Environment Act 1987 – Planning Permit
Extractive industry land uses are an exempt activity from a Planning Permit in the Mount Alexander Planning Scheme, subject to compliance with Section 77T of the MRSD Act. However, a Planning Permit would be required for the removal of native vegetation and the development of a building or office within the Bushfire Management Overlay.

A*boriginal Heritage Act 2006* (AH Act) – Cultural Heritage Management Plan (CHMP)
A CHMP is being prepared for the proposed quarry under the AH Act. The CHMP identified two Aboriginal places within the activity area. The development of the CHMP has been paused at the Standard Assessment phase until further confidence in project approvals is known.

Water Act 1989 – Works on Waterways Permit/Take and Use Licence
Under the Water Act, a works on waterway permit is required from the Catchment Management Authority (CMA), where works occur within the bed and bank of a waterway. The proposed quarry has sought waterway determinations from North Central CMA. The quarry site avoids designated waterways, however the access road crosses a designated waterway and will require approval from North Central CMA.

A Take and Use Licence under the Water Act is required for the proposed quarry to take and use water that would otherwise be diverted to a waterway or for any intersected groundwater during quarry operations. The Licence would be issued by Goulburn Murray Water.

Flora and Fauna Guarantee Act 1988 (FFG Act) – Permit to Take
The permit requirement under Section 47 of the FFG Act does not apply to most of FFG Act listed biodiversity values recorded within the project area, as they occur on private land or are listed as 'Restricted use protected flora' (which do not require a 'permit to take').

The exception is two Late-flower Flax-lily that occur within the access road alignment along Stones Road. A Permit under Section 47 of the FFG Act will be required for their removal. A Permit under Section 47 of the FFG Act will also apply to removal of Victorian Temperate Woodland Bird Community on Bridgwater-Maldon Road and Stones Road.

Wildlife Act 1975 – Accredited wildlife handler
Any works requiring the removal of wildlife must be undertaken by a qualified wildlife hander, accredited under the Wildlife Act.

Commonwealth
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
A concurrent EPBC Act referral has been prepared for referral of the proposed quarry to the Commonwealth for determination on whether the project is a 'controlled action', requiring approval under the EPBC Act.

Coordinated submission of EES and EPBC referrals. Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) have been advised of concurrent EES and EPBC referrals. If an assessment under the Victorian EES Act is required, and if the project is assessed to be a 'controlled action' under the Commonwealth EPBC Act, it is requested that assessment occurs under a single process under bilateral agreement between Commonwealth and Victorian governments.

Have any applications for approval been lodged?

☐ No ☒ Yes If yes, please provide details.

An Environment Protection and Biodiversity Conservation Act referral for the project has been submitted via the Department of Climate Change, Energy, the Environment and Water's online portal on 7 March 2025 (ref 02712).

Coordinated submission of EES and EPBC Act referrals. Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) have been advised of concurrent EES and EPBC referrals. If an assessment under the Victorian EES Act is required, and if the project is assessed to be a 'controlled action' under the Commonwealth EPBC Act, it is requested that assessment occurs under a single process under bilateral agreement between Commonwealth and Victorian governments.

Approval agency consultation (agencies with whom the proposal has been discussed):
On-site consultation has been undertaken with the following agencies:

- Earth Resources Regulation (ERR)
- Department of Transport and Planning (DTP)/Department of Environment, Energy and Climate Action (DEECA) (former DELWP)
- Mount Alexander Shire Council
- Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC)
- North Central CMA
- Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW)
- Goulburn Murray Water

Other agencies consulted:
Heritage Victoria

- **PART 2 POTENTIAL ENVIRONMENTAL EFFECTS**

11. Potentially significant environmental effects

Overview of potentially significant environmental effects (*identify key potential effects and comment on their significance and likelihood, as well as key uncertainties*):

Potentially significant environment effects may occur across two distinct phases of the proposed development. Through the staged site clearing and through quarry operations. Key potentially significant effects have been summarised into the following sections.

Removal of native vegetation
The proposed project is likely to result in the staged loss of approximately 36.9 ha of native vegetation. The impact of this loss on federal and state listed flora, fauna and ecological communities is described in the Flora and Fauna Impact Assessment (Attachment 2).

Of the species recorded or assumed present within the project footprint, the following were assessed to be at moderate or high risk of significant impact as a result of the project:

- *Climacteris picummus (victoriae)* (Brown Treecreeper)
- *Stagonopleura guttata* (Diamond Firetail)
- *Melanodryas cucullate* (Hooded Robin)
- *Acelophala leucopsis* (Southern Whiteface)
- *Lathamus discolor* (Swift Parrot)

One Threatened Ecological Community, Grey Box Grassy Woodland and Derived Native Grassland of South-eastern Australia, was recorded within the proposed quarry site. Grey Box Grassy Woodland is listed as Endangered under the EPBC Act.

The area of impact to this Threatened Ecological Community as a result of the proposed project is anticipated to be approximately 2.6 ha. A Significant Impact Assessment according to criteria for ecological communities was undertaken and determined there was a high risk of a significant impact to the community.

One FFG Act listed ecological community, Victorian Temperate Woodland Bird Community, was recorded within the project area. The community comprises up to 24 woodland bird species. This FFG Act listed ecological community is considered to occur across all native vegetation patches within the project area. Anticipated impacts to this community due to vegetation removal as a result of the proposed works cover an area of approximately 36.9 ha.

Potential impacts on significant Aboriginal cultural heritage places
Two previous Aboriginal places were identified in the geographic region during the development of the desktop Cultural Heritage Management Plan (CHMP) (Attachment 3, *not for public exhibition*). Quarry design has been refined to avoid impact to these places (Figure 2).

Nine areas were also identified during the development of the Standard CHMP as having subsurface Aboriginal cultural heritage potential. These areas would be investigated during the Complex CHMP stage.

Potential visual impact
The proposed quarry site is located between two ridge lines providing line of sight protection to residential receivers to the north, east and south of the proposed quarry.

The closest residential receiver to the west is approximately 2 km from the quarry site. The line of sight between the residential receiver and the quarry site is largely concealed by the Blue Hills Bushland Reserve, which sits between the two locations.

Potential noise impacts
Noise predictions have been conducted to assess the potential impact associated with the proposed operations at the nearest noise sensitive receivers during neutral and worst-case

scenarios. Noise levels of the proposed operations are predicted to comply with EPA Publication 1826.4 daytime criteria at all receptors during neutral and worst-case scenarios (Attachment 5 – Noise Impact Assessment).

Blasting vibration and airblast overpressure emissions are predicted to be manageable at the nearest sensitive receiver to ensure compliance with the ground vibration and airblast limits for mines and quarries (Resources Victoria) for the assumed blasting parameters, with appropriate stemming, providing charge mass quantities remain at or below 160 kg (Attachment 5 – Noise Impact Assessment).

Potential air quality impacts
Air quality dispersion modelling for Particulate Matter (PM) PM_{10}, $PM_{2.5}$, Total Suspended Particles and Respirable Crystalline Silica and dust deposition for the quarry and access roads has been undertaken to assess potential impacts to sensitive receivers (Attachment 6 – Air Quality Assessment). The modelling notes the project would meet compliance criteria for all pollutants, in accordance with the Guideline for Assessing and Minimising Air Pollution in Victoria and the National Environmental Protection Measure.

Potential impacts to surface water and groundwater
The quarry does not directly impact determined waterways, however, would impact minor drainage lines that feed into determined waterways.

The quarry would require approximately 36 ML of water per year for the Stage 1 operation phase increasing to 44 ML per year during the later pit operational stages. A Goulburn Murray Water license to take water would be obtained to supply this demand from the Loddon groundwater or surface water systems. 4 ML of surplus stormwater would need to be discharged offsite (Attachment 7 – Stormwater Management Plan).

Preliminary groundwater investigations (Attachment 8 – Groundwater Assessment; Attachment 13 - Groundwater Drilling and Well Construction Report) suggest groundwater is compartmentalised, with groundwater occurring in discrete fracture and faults. The variation in the groundwater intersection elevation suggests there is compartmentalisation of the aquifer and groundwater is likely to exist as perched fractured rock formations with little hydraulic storage or permeability. The deposit to be excavated is therefore unlikely to have a hydraulic connection to the Loddon Valley and basin systems.

The proposed quarry excavation has planned depths of up to 90m below surface (pit floor will be 176m AHD). Historical data from a nearby groundwater monitoring bore (Visualising Victoria's Groundwater database, reference 84796) shows consistent groundwater depth of approximately 164m AHD. This further suggests that it is unlikely that the excavation will be below the water table.

Mawsons have established four groundwater monitoring wells around the deposit. These will continue to be monitored during development and operation of the quarry to confirm groundwater levels. Mawsons intend to design the quarry operation so no extraction of material will occur below the water table.

12. Native vegetation, flora and fauna

Native vegetation

Is any native vegetation likely to be cleared or otherwise affected by the project?

☐ NYD ☐ No ☒ Yes If yes, answer the following questions and attach details.

What investigation of native vegetation in the project area has been done? (briefly describe)
A summary of WSP survey effort, dates and key references is provided in the table below.

Survey and assessment	Survey details	Date	Reference
Native Vegetation Assessment – Quarry site	Vegetation Quality Assessments	28 November 2023 29 November 2023	Native Vegetation: Sustaining a living landscape. Vegetation Quality Assessment Manual – guidelines for applying the habitat hectares scoring method version 1.3 (DSE, 2004)
Clover Glycine targeted surveys	Linear transects across potential habitat	15 September 2023 19 October 2023 28 November 2023 29 November 2023	SPRAT profile for *Glycine latrobeana* - Clover Glycine, Purple Clover [Online] (DCCEEW, 2024)
Threatened Ecological Community	Floristics – coverage and diversity quadrats 1m x 1m	29 November 2023	Grey Box Grassy Woodlands and Derived Native Grasslands of South Eastern Australia: A guide to the identification, assessment and management of a nationally threatened ecological community (DSEWPaC, 2012) Commonwealth Listing Advice on Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (TSSC, 2010)
Swift Parrot targeted surveys	Habitat assessment	19 October 2023 28-29 November 2023	National Recovery Plan for the Swift Parrot (Saunders and Tzaros, 2011)
Native Vegetation Assessment – Haul road alignment	Collect tree data along Stones Road	5-7 August 2024	Guidelines for the removal, destruction or lopping of native vegetation (DELWP, 2017)

Refer to the Flora and Fauna Impact Assessment (Attachment 2) for further details.

What is the maximum area of native vegetation that may need to be cleared?

☐ NYD Estimated area ……36.9 (hectares)

How much of this clearing would be authorised under a Forest Management Plan or Fire Protection Plan?

☒ N/A …… approx. percent (if applicable)

Which Ecological Vegetation Classes may be affected? (if not authorised as above)

☐ NYD ☒ Preliminary/detailed assessment completed. If assessed, please list.
Detailed ecological assessments determined the presence of the following EVC's within the Goldfields bioregion:

- Hillcrest Herb-rich Woodland (EVC 70) – 34.3 ha
- Plains Woodland EVC (803) – 2.6 ha.

Have potential vegetation offsets been identified as yet?

☐ NYD ☒ Yes If yes, please briefly describe.
A working draft Offset Strategy has been prepared to set out the anticipated offset requirements, and map out a likely pathway to achieve these offsets. A separate Offset Management Plan (OMP) will be prepared should there be requirements to do under the EPBC Act and any state approval process. [Attachment 9 – Offset Strategy working draft]

A number of efforts have been made to avoid losses of native vegetation and scattered trees, and where unavoidable, to minimise losses through early assessment and mapping of ecological values within the Project Area. Consideration of quarry design and access road alignment has been made to avoid these values, and the development of retention options and conservation measures are aimed at protecting these values.

If approved, unavoidable losses to native vegetation and habitat would be required to be offset prior to commencement of works and in accordance with policy and legislative obligations including offsets (if required) under the EPBC Act, and offsets under the Guidelines 2017 policy.

The figures reported in this OS are based on impacts and offset target calculations associated with the proposed action area. These figures and the associated offset targets may vary during the approvals process. As such, offset targets should be recalculated and figures revised if required in the event of approval of the action to ensure that there is no net loss of biodiversity values associated with these projects.

Preliminary calculations under the EPBC Act indicate that offsets can be met across land contiguous to the proposed action as first party offsets, with the caveat of using the current assumptions and inputs described in the Offset Strategy working draft. Similarly, preliminary testing using the Gain Calculator Results indicate approximately 200% of the likely required species offsets, to satisfy State offset requirements as per DEECA Guidelines, are available across the proposed first party offset area.

Other information/comments? (eg. accuracy of information)

Flora and fauna

What investigations of flora and fauna in the project area have been done?
(provide overview here and attach details of method and results of any surveys for the project & describe their accuracy)

Flora and fauna investigations completed to date are described in the attached Flora and Fauna Impact Assessment (Attachment 2).

Have any threatened or migratory species or listed communities been recorded from the local area?

☒ NYD ☒ No ☒ Yes If yes, please:

- List species/communities recorded in recent surveys and/or past observations.
- Indicate which of these have been recorded from the project site or nearby.

The site contains habitat that supports a number of threatened and non-threatened species. Significant flora species either recorded or considered to have a moderate or high likelihood of occurring are:

- *Allocasuarina luehmannii* (Buloke)
- *Diuris behrii* (Golden Cowslips)
- *Dianella tarda* (Late-flower Flax-lily)
- *Dianella longifolia* var. *grandis* (Glaucous Flax-Lily)
- *Rytidosperma monticola* (Small-flower Wallaby-grass)
- *Swainsona behriana* (Southern Swainson-pea)

The following significant fauna species either recorded or considered to have a moderate or high likelihood of occurring:

- *Ninox connivens* (Barking Owl)
- *Pogona barbata* (Bearded Dragon)
- *Chalcites osculans* (Black-eared Cuckoo)
- *Falco subniger* (Black Falcon)
- *Climacteris picumnus (victoriaea)* Brown Treecreeper (south-eastern subspecies)
- *Phascogale tapoatafa* (Brush-tailed Phascogale)
- *Bubulcus ibis* (Cattle Egret)

- *Oreoica gutturalis* (Crested Bell-bird)
- *Stagonopleura guttata* (Diamond Firetail)
- *Apus pacificus* (Fork-tailed Swift)
- *Pomatostomus temporalis* (Grey-crowned Babbler)
- *Melanodryas cucullate* (Hooded Robin)
- *Varanus varius* (Lace Monitor)
- *Hieraaetus morphnoides* (Little Eagle)
- *Grantiella picta* (Painted Honeyeater)
- *Merops ornatus* (Rainbow Bee-eater)
- *Aphelocephala leucopsis* (Southern Whiteface)
- *Pyrrholaemus sagittatus* (Speckled Warbler)
- *Lophoictinia isura* (Square-tailed Kite)
- *Lathamus discolor* (Swift Parrot)
- *Neophema pulchella* (Turquoise Parrot)
- *Hirundapus caudacutus* (White-throated Needletail)

EPBC and FFG listed Threatened Ecological Communities (TEC) were also recorded within the Project area. Habitat Zone 2 within the quarry footprint, mapped as Plains Woodland EVC 803, met the criteria for the EPBC listed Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South eastern Australia ecological community. This area equated to 2.6 ha of the TEC.

Targeted surveys for Clover Glycine, and incidentally for all threatened flora species potentially occurring, were completed on 15 September, 19 October and 28-29 November 2023. Targeted surveys for Swift Parrot were completed on 19 October and 28-29 November 2023.

Further details are available in the attached Flora and Fauna Impact Assessment (Attachment 2).

If known, what threatening processes affecting these species or communities may be exacerbated by the project? (*e.g., Loss or fragmentation of habitats) Please describe briefly.*

Of the 44 listed threatening processes under the FFG Act, the following are considered likely to occur as part of the project:

- The invasion of native vegetation by environmental weeds.
- Loss of hollow-bearing trees from Victorian native forests.

Are any threatened or migratory species, other species of conservation significance or listed communities potentially affected by the project?

☒ NYD ☒ No ☒ Yes If yes, please:

- List these species/communities:
- Indicate which species or communities could be subject to a major or extensive impact (including the loss of a genetically important population of a species listed or nominated for listing) Comment on likelihood of effects and associated uncertainties, if practicable.

The impact of the project on flora and fauna was assessed, with the findings presented in the Flora and Fauna Impact Assessment (Attachment 2). Of the species or communities recorded or assumed present within the project footprint, the following were assessed to be at moderate or high risk of significant impact as a result of the project.

<u>Threatened fauna</u>

Climacteris picummus (victoriae) Brown Treecreeper

All mapped native vegetation within the project area (approximately 36.9 ha) is considered suitable habitat for this species. A Significant Impact Assessment was undertaken to determine whether the project was likely to significantly impact an important population of Brown Treecreeper. The assessment determined that there is a high risk of a significant impact to Brown Treecreeper

Stagonopleura guttata (Diamond Firetail)

All mapped native vegetation within the project area (approximately 36.9 ha) is considered

suitable habitat for this species. A Significant Impact Assessment was undertaken to determine whether the project was likely to significantly impact an important population of Diamond Firetail. The assessment determined there is a high risk of a significant impact to Diamond Firetail

Melanodryas cucullate (Hooded Robin)
All mapped native vegetation within the project area (approximately 36.9 ha) is considered suitable habitat for this species. A Significant Impact Assessment was undertaken to determine whether the project was likely to significantly impact a population of Hooded Robin. The assessment determined there was a high risk of a significant impact to Hooded Robin as a result of the project

Acelophala leucopsis (Southern Whiteface)
All mapped native vegetation within the project area (approximately 36.9 ha) is considered suitable habitat for this species. A Significant Impact Assessment was undertaken and determined that there was a moderate risk of a significant impact to Southern Whiteface.

Lathamus discolor (Swift Parrot)
The proposed development will impact on approximately 24.7 ha of swift parrot habitat. A Significant Impact Assessment was undertaken to determine whether the project was likely to significantly impact a population of Swift Parrot. The assessment determined there was a high risk of a significant impact to Swift Parrot as a result of the project.

Threatened Ecological Communities
Grey Box Grassy Woodland and Derived Native Grassland of South-eastern Australia (EPBC)
One Threatened Ecological Community, Grey Box Grassy Woodland and Derived Native Grassland of South-eastern Australia, was also recorded within the proposed quarry site. Grey Box Grassy Woodland is listed as Endangered under the EPBC Act.

The area of impact to this Threatened Ecological Community as a result of the proposed project is anticipated to be 2.6 ha. A Significant Impact Assessment according to criteria for ecological communities was undertaken and determined there was a high risk of a significant impact to the community.

Victorian Temperate Woodland Bird Community (FFG)
One FFG Act listed ecological community, Victorian Temperate Woodland Bird Community, was recorded within the project area. The community comprises up to 24 woodland bird species.

This FFG Act listed ecological community is considered to occur across all native vegetation patches within the project area, equating to a total area of approximately 36.9 ha.

Is mitigation of potential effects on indigenous flora and fauna proposed?

☒ NYD ☒ No ☒ Yes If yes, please briefly describe.

Proposed management measures recommended to ensure indirect impacts are avoided and/or minimised include:

- Prior to construction complete an arboricultural assessment of trees with root zones within and immediately adjacent to the construction areas and potentially subject to indirect encroachment of Tree Protection Zones (TPZs) to determine if additional construction mitigation measures are possible to minimise vegetation loss.
- Develop a vegetation management plan for inclusion in the Construction Environmental Management Plan (CEMP), covering as a minimum:
  - Identification of areas of important flora and fauna habitat to be protected during construction.
  - Fencing protected areas and no-go zones to a standard suitable to prevent all access during construction.
  - Pre-construction site assessment to confirm that vegetation and trees to be retained have been adequately protected from impact.
  - Vegetation clearing controls and protection measures.
  - Implementation of appropriate measures to manage the risk of the spread and introduction of pest animals, weeds and pathogens during construction.
  - Procedures if unexpected threatened species are identified.

- Develop a fauna management plan for inclusion in the CEMP, covering as a minimum:
  - Undertaking pre-clearing inspections by a suitably qualified zoologist or wildlife handler to confirm the on-site location of fauna immediately prior to habitat removal.
  - Salvage and translocation of fauna by a suitably qualified zoologist or wildlife handler if required prior to construction.
  - Daily inspections of open trenches or pits for trapped animals, such as reptiles and small-ground dwelling mammals.
  - Managing native fauna that may be displaced due to habitat removal, in compliance with the Wildlife Act.
  - Night lighting shall be restricted to the minimum amount required to safely operate the site to minimise light pollution and adverse effects to nocturnal species such as bats. This will include using:
    - light shields to direct light and reduce light spill.
    - low beam vehicle lights except where safety is compromised.
  - Work restrictions during sensitive life-stages (e.g. breeding, nesting, etc.) to avoid disturbance to native fauna. This may include restrictions on work activities during a season (e.g., spring), species life stage (e.g., breeding or nesting) or time of day (e.g., night-time).
- Where direct impacts to waterways are likely, prepare a Site Environmental Management Plan covering:
  - Sediment and pollution controls.
  - Appropriate clean down protocol between aquatic sites to minimise potential for spread of pathogens and pests such as chytrid fungus.
  - Creek stabilisation and revegetation using native species post-construction.
- Offset
  - A working draft Offset Strategy has been prepared to set out the anticipated offset requirements, and map out a likely pathway to achieve these offsets. A separate Offset Management Plan (OMP) will be prepared should there be requirements to do under the EPBC Act and any state approval process.
  - If approved, unavoidable losses to native vegetation and habitat would be offset prior to commencement of works and in accordance with policy and legislative obligations including offsets (if required) under the EPBC Act, and offsets under the Guidelines 2017 policy.
  - The figures reported in this OS are based on impacts and offset target calculations associated with the proposed action area. These figures and the associated offset targets may vary during the approvals process. As such, offset targets should be recalculated and figures revised if required in the event of approval of the action to ensure that there is no net loss of biodiversity values associated with these projects.
  - Preliminary calculations under the EPBC Act indicate that offsets can be met across land contiguous to the proposed action as first party offsets, with the caveat of using the current assumptions and inputs detailed in the Offset Strategy working draft. Similarly, preliminary testing using the Gain Calculator Results indicate approximately 200% of the likely required species offsets, to satisfy State offset requirements as per DEECA Guidelines, available across the proposed first party offset area.

Other information/comments? (*e.g., accuracy of information*)

13. Water environments

Will the project require significant volumes of fresh water (eg. > 1 Gl/yr)?

☐ NYD ☒ No ☐ Yes If yes, indicate approximate volume and likely source.

The proposal would require approximately 36 ML per year for the Stage 1 operational phase, increasing to approximately 44 ML per year during the Final pit operational phases. Surface water would be harvested in an on-site quarry sump to meet these water needs.

For Stage 1 operations, water harvested would need to be supplemented through water carting (in the order of 5.6 ML per year), and in subsequent stages, water harvested would meet the operational needs. (to be revised according to 3 stages)

Will the project discharge waste water or runoff to water environments?

☐ NYD ☐ No ☒ Yes If yes, specify types of discharges and which environments.

During the Stage 1 and Final stage operations, a stormwater surplus to storage capacity would be produced which would require discharge offsite (see Attachment 7 - Stormwater Management Plan). Prior to discharge, sediment in this stormwater would be removed in accordance with International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control (BPESC) guidelines (2008).

A range of maintenance procedures would be employed to maintain the adequate treatment of water captured for reuse and release to receiving environments, including:

- Prevention of stormwater runoff
- Diversion of upstream runoff
- Minimisation and cleaning of disturbed areas
- Oils separators and fuel/chemical bunding adopted
- Erosion and sediment control
- Appropriate placement of stockpiled materials.

Water discharged to receiving environments will be managed so that surface waters meet the *Applicable Water Quality Indicators for the Central Foothills and Coastal Plains Segment* as defined in the *Environment Reference Standard* (ERS), established under the *Environment Protection Act 2017*.

No wastewater to be discharged off site.

Are any waterways, wetlands, estuaries or marine environments likely to be affected?

☐ NYD ☐ No ☒ Yes If yes, specify which water environments, answer the following questions and attach any relevant details.

Waterway determinations have been undertaken by Goulburn Murray Water across the proposed quarry site and access roads (Attachment 4 – Waterway Determination). The quarry footprint has been designed to avoid determined waterways and include buffers of 120 m to determined waterway centrelines.

The preferred access road crosses three determined waterways, within agricultural land. Ecological assessments did not identify any flora or fauna values within these waterway crossings.

Works on waterway permissions will still be required to complete the proposed cross over road construction works over the three determined waterways.

Water discharged to receiving environments will be managed so that surface waters meet the *Applicable Water Quality Indicators for the Central Foothills and Coastal Plains Segment* as defined in the *Environment Reference Standard* (ERS), established under the *Environment Protection Act 2017*.

No wastewater to be discharged off site.

Are any of these water environments likely to support threatened or migratory species?

☐ NYD ☒ No ☐ Yes If yes, specify which water environments.

Are any potentially affected wetlands listed under the Ramsar Convention or in 'A Directory of Important Wetlands in Australia'?

☐ NYD ☒ No ☐ Yes If yes, please specify.

Could the project affect streamflows?

☐ NYD ☐ No ☒ Yes If yes, briefly describe implications for streamflows.

While the project does not impact on any determined waterways, minor drainage lines that feed into determined waterways would only occur within the confines of the site boundary as a result of the Project, with runoff from the resulting quarry catchment area diverted into the quarry.

Throughout the operation of the quarry, stormwater surplus to storage capacity would be produced which would require discharge offsite (see Attachment 7 – Stormwater Management Plan). All stormwater discharged off-site is expected to be free from contamination, and no wastewater will be discharged off site.

Prior to discharge, this stormwater would be clarified of potential sediment in accordance with International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control (BPESC) guidelines (2008).

Could regional groundwater resources be affected by the project?

☒ NYD ☐ No ☐ Yes If yes, describe in what way.

A Groundwater Assessment (Attachment 8) noted the presence of groundwater during geotechnical testing. The assessment suggests the aquifer is compartmentalised, with groundwater occurring in discrete fractures and faults and is effectively determined to be perched aquifers of a limited nature not connected to the regional groundwater system.

The groundwater assessment report provided in Attachment 8 is an initial assessment only. The recommended quarrying depths of 22m to 47m below ground level were based on resource drilling tests only, specifically the encountered depth of the aquifer within the Castlemaine Group geological unit. The groundwater assessment report recommends additional investigation drillholes should be established within the footprint of the quarry to assess the groundwater elevation and permeability of the rock.

Additional groundwater assessment was completed in line with the recommendations of the groundwater assessment report. The outcome of this additional assessment is described in the attached Groundwater Drilling and Well Construction Report (Attachment 13), and is summarised as follows:

- Four groundwater monitoring wells were drilled in November 2023 to depths of 85m to 117m below ground level.
- Groundwater level was observed to range from 10.5m to 38.2m below ground level, in the 'fractured rock' aquifer comprised of hornfels of the Castlemaine Group geological unit.
- Groundwater level monitoring following drilling indicates that groundwater levels took several days to recover to an equilibrium level, indicating a low permeability aquifer unit.
- At each well, the standing water level rose above the point at which water was intersected, suggesting some confinement from lower permeability rocks above the observed water cut. The primary porosity of the rock mass is expected to be very low.

In addition to this, a review of the Visualising Victoria's Groundwater database shows consistent groundwater depth to the Loddon Valley aquifer of approximately 165m AHD at the nearest observation bore with a data logger (84796), located approximately 4km to the west of the project. Extrapolated to the proposed quarry site, this corresponds to approximately 100m below ground level. Based on the above, it is expected that the proposed quarry excavation (depth approximately 90 m below ground level) will intersect the fractured rock aquifer only and is unlikely to have a hydraulic connection to the Loddon Valley and basin groundwater systems.

Mawsons intend to design and operate the quarry operation so extraction of material will not intercept the Loddon Valley groundwater system. The pit location is intended to be on higher elevation landform that is not expected to have a hydraulic connection to the Loddon Valley

groundwater system.

Dewatering of the quarry associated with encountering the fractured rock aquifer will likely be necessary, and will likely be managed with in-pit sumps. An assessment of the likely inflow rates and associated impacts will be undertaken to support detailed quarry planning and approvals. Quarrying activities in the fractured rock aquifer zone are not considered likely to require removal of significant quantities of groundwater, as the excavated area is expected to have the following properties:

- Low permeability
- Limited connectivity.
- Secondary porosity that is of limited storability.

Mawsons therefore does not expect that interception of groundwater is likely to have a significant impact on quarry development and operation.

Mawsons have established four groundwater monitoring wells around the deposit. These will continue to be monitored during development and operation of the quarry to confirm groundwater levels, and monitor the groundwater resource and recharge effects.

Could environmental values (beneficial uses) of water environments be affected?

☒ NYD ☐ No ☐ Yes If yes, identify waterways/water bodies and beneficial uses (as recognised by State Environment Protection Policies)

Water discharged to receiving environments will be managed so that surface waters meet the *Applicable Water Quality Indicators for the Central Foothills and Coastal Plains Segment* as defined in the *Environment Reference Standard* (ERS), established under the *Environment Protection Act 2017*.

No wastewater to be discharged off site.

Could aquatic, estuarine or marine ecosystems be affected by the project?

☐ NYD ☒ No ☐ Yes If yes, describe in what way.

The project is not anticipated to adversely impact on aquatic ecosystems. No impact on estuarine or marine ecosystems will occur.

The closest High Potential Aquatic Groundwater Dependant Ecosystems (GDE) are located at Six Mile Creek (4 km south west of the proposed quarry) and Bradford Creek (3km north east of the proposed quarry). One unclassified potential GDE (Bells Swamp) was also identified 5km west of the proposed quarry. The Site does not intersect any high potential Groundwater Dependent Ecosystems (GDE's) as defined by Bureau of Meteorology's groundwater atlas. The moderate potential GDE within the Site boundaries is classified as Box Ironbark Forest with moderately high plateaus and stirk ridges.

From a surface water perspective, these aquatic ecosystems are unrelated as they are located in different sub catchments.

All stormwater discharged off-site is expected to be free from contamination, and no wastewater will be discharged off site. Water discharged to receiving environments will be managed so that surface waters meet the *Applicable Water Quality Indicators for the Central Foothills and Coastal Plains Segment* as defined in the *Environment Reference Standard* (ERS), established under the *Environment Protection Act 2017*.

No wastewater to be discharged off site.

Is there a potential for extensive or major effects on the health or biodiversity of aquatic, estuarine or marine ecosystems over the long-term?

☐ NYD ☒ No ☐ Yes If yes, please describe. Comment on likelihood of effects and associated uncertainties, if practicable.

Given the limited presence of Aquatic GDE, effects are unlikely to be extensive or major. Potential indirect impacts to Aquatic Groundwater Dependant Ecosystems (GDE) will be further assessed.

The project is not anticipated to adversely impact on aquatic ecosystems. No impact on estuarine

or marine ecosystems will occur.

The Site does not intersect any high potential terrestrial GDEs as defined by the Bureau of Meteorology's groundwater atlas. The nearest high potential terrestrial GDEs are located around 3 km to the northeast of the Site- in an area which coincides with a high potential aquatic GDE at Bradford Creek. The moderate potential GDE within the site boundaries is classified as Box Ironbark Forest.

Whilst there is some uncertainty about the actual depth of groundwater Mawsons intend to design the quarry operation so no extraction of material will occur below the water table, and hence no adverse groundwater impacts are anticipated on GDEs.

Is mitigation of potential effects on water environments proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Where direct impacts to waterways occur (access road construction), a Site Environmental Management Plan would be prepared that includes:

- Sediment and pollution controls
- Appropriate clean down protocol between aquatic sites to minimise potential for spread of pathogens and pests such as chytrid fungus
- Creek stabilisation and revegetation using native species post-construction.

For the operation of the quarry the following strategies and mitigations measures are proposed to manage surface water (further detail of strategies and mitigations are contained with the Stormwater Management Plan (Attachment 7)).

- Quarries, sumps and sediment basins – Development of infrastructure required to manage stormwater for the future operations for the quarry are defined by the International Erosion Control Association (IECA) Best Practice Erosion and Sediment Control (BPESC) guidelines (2008).
- Prevention of incidental stormwater runoff – Prevent stormwater contacting any wastes or contaminants by ensuring drainage lines are cleared, and drain away from stockpiles and disturbed areas at all times including the downstream waterways.
- Diversion of upstream runoff – Clean water diversion bunds and drains are to divert clean water away from disturbed areas wherever practical. Drains and bunds should have vegetation coverage where applicable or stabilised using an alternative material (rock lined, geofabric, erosion matting etc.).
- Minimisation and cleaning of disturbed areas – Progressive rehabilitation of disturbed areas and cleaning of hard stand and disturbed areas without using water as appropriate.
- Oil separators and bunding of fuels and chemicals – Clearly designate storage areas and do not deviate from assigned bunded areas for storage of chemicals and fuels unless a suitable secondary bund is provided. Oil separators to be provided where necessary.
- Erosion and sediment control – Erosion and sediment control structure to be constructed, monitored and maintained throughout the operational life of the quarry
- Stockpiling of materials – Staging of works to minimise disturbed areas for stockpiling as far a practical and installation of diversion drains, appropriate hard stand grades or equivalent to ensure surface waters from operational or trafficable areas are diverted to the sediment control system and reused within the operation.

Surplus water discharged from the quarry during the operational phase will be tested and treated prior to release to the receiving environment.

Other information/comments? (eg. accuracy of information)

N/A

14. Landscape and soils

Landscape

Has a preliminary landscape assessment been prepared?

☐ No ☒ Yes If yes, please attach.

Is the project to be located either within or near an area that is:

- **Subject to a Landscape Significance Overlay or Environmental Significance Overlay?**
  ☐ NYD ☒ No ☐ Yes If yes, provide plan showing footprint relative to overlay.

- **Identified as of regional or State significance in a reputable study of landscape values?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

- **Within or adjoining land reserved under the *National Parks Act 1975* ?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

- **Within or adjoining other public land used for conservation or recreational purposes ?**
  ☐ NYD ☒ No ☐ Yes If yes, please specify.

Is any clearing vegetation or alteration of landforms likely to affect landscape values?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Is there a potential for effects on landscape values of regional or State importance?

☐ NYD ☒ No ☐ Yes Please briefly explain response.

Is mitigation of potential landscape effects proposed?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

Other information/comments? (eg. accuracy of information)

The proposed quarry site is located between two ridge lines providing line of sight protection to residential receivers to the north, east and south of the proposed quarry. The closest residential receiver to the west is approximately 2 km from the quarry site. The line of sight between the residential receiver and the quarry site is largely concealed by the Blue Hills Bushland Reserve, which sits between the two locations.

Note: A preliminary landscape assessment is a specific requirement for a referral of a wind energy facility. This should provide a description of:

- The landscape character of the site and surrounding areas including landform, vegetation types and coverage, water features, any other notable features and current land use;
- The location of nearby dwellings, townships, recreation areas, major roads, above-ground utilities, tourist routes and walking tracks;
- Views to the site and to the proposed location of wind turbines from key vantage points (including views showing existing nearby dwellings and views from major roads, walking tracks and tourist routes) sufficient to give a sense of the overall site in its setting.

Soils

Is there a potential for effects on land stability, acid sulphate soils or highly erodible soils?

☐ NYD ☒ No ☐ Yes If yes, please briefly describe.

There is an extremely low probability of acid sulphate soils at the proposed site as per the Atlas of Australian Acid Sulphate Soil (CSIRO) map.

Soils on the site are relatively shallow (200-400mm) and sit on top of the weathered *in situ* hornfels. The slope design risk assessment considered slope instability and rockfall risk as very low risk, as there are no sensitive receptors adjacent to or near the quarry that could be impacted, and adequate buffer zones have been retained (see Attachment 10 – Geotechnical Summary). During the approval phase Mawson will undertake further batter design and slope stability

assessment to enable a design that results in a low risk of slope instability.
Are there geotechnical hazards that may either affect the project or be affected by it? ☐ NYD ☒ No ☐ Yes If yes, please briefly describe.
Other information/comments? (eg. accuracy of information)

15. Social environments

Is the project likely to generate significant volumes of road traffic, during construction or operation?

☐ NYD ☒ No ☐ Yes If yes, provide estimate of traffic volume(s) if practicable.

Is there a potential for significant effects on the amenity of residents, due to emissions of dust or odours or changes in visual, noise or traffic conditions?

☐ NYD ☐ No ☒ Yes If yes, briefly describe the nature of the changes in amenity conditions and the possible areas affected.

Dust

Air quality dispersion modelling for PM_{10}, $PM_{2.5}$, Total Suspended Particles and Respirable Crystalline Silica and dust deposition for the quarry and access roads has been undertaken to assess potential impacts to sensitive receivers (Attachment 6 – Air Quality Assessment). The project meets compliance criteria for all pollutants, in accordance with the Guideline for Assessing and Minimising Air Pollution in Victoria and the National Environmental Protection Measure.

A summary of results of the Air Quality Assessment is shown in the table below. Note that nearest sensitive receptor considered in this assessment as located on Lakeys Road approximately 1.3km north of the closest point of the proposed quarry footprint.

Pollutant	Averaging period	Criteria	Max predicted concentration at any receptor	Compliance status
RCS	1-year	3 µg/m^3	0.07 µg/m^3	Compliant
PM10	24-hour	50 µg/m^3	12.36 µg/m^3	Compliant
	Annual	20 µg/m^3	0.56 µg/m^3	Compliant
PM2.5	24-hour	25 µg/m^3	5.19 µg/m^3	Compliant
	Annual	8 µg/m^3	0.22 µg/m^3	Compliant
Dust	1-month	2 g/m^2/month	0.12 g/m^2/month	Compliant
		4 g/m^2/month	0.12 g/m^2/month	Compliant

Visual

No landscape and visual assessment has been commissioned. The proposed quarry site is located between two ridge lines providing line of sight protection to residential receivers to the north, east and south of the proposed quarry. The closest residential receiver to the west is approximately 2 km from the quarry site. The line of sight between the residential receiver and the quarry site is largely concealed by the Blue Hills Bushland Reserve, which sits between the two locations.

Noise

There are eight noise sensitive receptors located within an approximately 2km radius of the project, the nearest of which (NSR 1) is on Lakeys Road approximately 1.3km north of the closest point of the proposed quarry footprint.

Noise predictions have been conducted as part of a Noise Impact Assessment (Attachment 5) to assess the potential impact associated with the proposed operations at the nearest noise sensitive receivers during neutral and worst-case scenarios. Noise levels of the proposed operations are predicted to comply with EPA Publication 1826.4 daytime criteria at all receptors during neutral and worst-case scenarios, as summarised in the table below.

Receptor	Neutral Weather conditions LAeq dB(A)	Worst case weather conditions LAeq dB(A)
NSR 1	23	28
NSR 2	32	37
NSR 3	11	16
NSR 4	9	14
NSR 5	32	37
NSR 6	17	22

NSR 7	16	21
NSR 8	32	37
Criteria	46	46

Blasting vibration and airblast overpressure emissions are predicted to be manageable the nearest sensitive receiver to ensure compliance with the ground vibration and airblast limits for mines and quarries (Earth Resources Victoria) publication for the assumed blasting parameters, with appropriate stemming, providing charge mass quantities remain at or below 160kg (Attachment 5 – Noise Impact Assessment). Predicted ground vibration and air blast overpressure levels at the nearest sensitive receptor are summarised in the table below

Receiver	Max instantaneous charge (kg)	PPV (mm/s)	Compliance with PPV criteria (5mm/s)	Over-pressure (dB)	Compliance with over-pressure criteria (115dB)
NSR 1	40	0.6	Compliant	110	Compliant
	50	0.7	Compliant	111	Compliant
	60	0.8	Compliant	111	Compliant
	105 (7kg per 15m hole)	1.3	Compliant	113	Compliant
	160	1.8	Compliant	115	Compliant

Traffic
A traffic impact assessment (Attachment 11) has identified the Project will introduce an additional 132 traffic movements per day (120 heavy vehicle and 12 light vehicle movements). The magnitude of the generated traffic is considered minimal from a road traffic network perspective, with no material impacts to the Bridgewater Maldon – Stones Road intersection. The closest residential receiver to the preferred access road is located 610 m southeast of the access road at its closest point. This residential receiver is the owner of the private land on which the access road traverses and has indicated positive intent towards supporting lease of the land for the development of the access road, through the development of draft lease agreement.

Is there a potential for exposure of a human community to health or safety hazards, due to emissions to air or water or noise or chemical hazards or associated transport?
☐ NYD ☒ No ☐ Yes If yes, briefly describe the hazards and possible implications.

Is there a potential for displacement of residences or severance of residential access to community resources due to the proposed development?
☐ NYD ☒ No ☐ Yes If yes, briefly describe potential effects.

Are non-residential land use activities likely to be displaced as a result of the project?
☐ NYD ☒ No ☐ Yes If yes, briefly describe the likely effects.

Do any expected changes in non-residential land use activities have a potential to cause adverse effects on local residents/communities, social groups or industries?
☐ NYD ☒ No ☐ Yes If yes, briefly describe the potential effects.

Is mitigation of potential social effects proposed?
☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

While effects to social environments are not considered significant, the following measures would be implemented as best practice measures:

- Locating of primary, secondary and tertiary crushing plant within the quarry pit
- Noise and vibration monitoring to validate modelling
- Vehicle speed restrictions along access roads
- Engagement with sensitive receivers.

Other information/comments? (eg. accuracy of information)

Cultural heritage

Have relevant Indigenous organisations been consulted on the occurrence of Aboriginal cultural heritage within the project area?

☐ No If no, list any organisations that it is proposed to consult.
☒ Yes If yes, list the organisations so far consulted.

What investigations of cultural heritage in the project area have been done?
(attach details of method and results of any surveys for the project & describe their accuracy)

A Cultural Heritage Management Plan (CHMP) has been commenced for the proposed quarry, with desktop and standard assessment phases having been completed. Two Aboriginal places have been identified within the Activity Area and nine areas of Aboriginal heritage potential. Disturbance was also noted as a result of historic timber felling and associated root ripping, vegetation clearance, ploughing, cropping, construction of a dam, installation of wire fencing, presence of informal vehicle tracks, animal burrows, animal tracks, animal grazing, slope wash and recent drill testing. The CHMP process has been paused until greater certainty on approvals is known.

Further information on the method and findings is available in the draft Blue Hills Quarry Standard Assessment CHMP (Attachment 3) (*not for public exhibition*).

Is any Aboriginal cultural heritage known from the project area?

☐ NYD ☐ No ☒ Yes If yes, briefly describe:

- Any sites listed on the AAV Site Register
- Sites or areas of sensitivity recorded in recent surveys from the project site or nearby
- Sites or areas of sensitivity identified by representatives of Indigenous organisations

Two Aboriginal places were identified during the standard CHMP assessment. Further information is available in the draft Blue Hills Quarry Standard Assessment CHMP (Attachment 3) *(not for public exhibition)*.

Are there any cultural heritage places listed on the Heritage Register or the Archaeological Inventory under the *Heritage Act 1995* within the project area?

☐ NYD ☒ No ☐ Yes If yes, please list.

Is mitigation of potential cultural heritage effects proposed?

☐ NYD ☐ No ☒ Yes If yes, please briefly describe.

Design changes have been made to avoid Aboriginal cultural heritage (two Aboriginal places), following the standard phase assessment for the CHMP and consultation with the assessment Registered Aboriginal Party (RAP) Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC). The design refinements deviate the quarry boundary to provide a buffer to the Aboriginal places (see Figure 2).

Draft conditions have been prepared to mitigate impacts to Aboriginal cultural heritage (note that specific details of heritage values have been removed for public exhibition).

- Meeting with (DDWCAC) to define complex assessment survey program.
- No harm to identified Aboriginal places.
- Hard copy CHMP to be kept on site.
- Confinement of works to Activity Area.
- Cultural awareness inductions.
- Unexpected finds procedures.
- Discovery of human remains procedures.
- Custodianship procedures.
- Dispute resolution procedures.

Other information/comments? (eg. accuracy of information)

16. Energy, wastes & greenhouse gas emissions

What are the main sources of energy that the project facility would consume/generate?

- ☒ Electricity network. If possible, estimate power requirement/output …….
- ☐ Natural gas network. If possible, estimate gas requirement/output ……...
- ☒ Generated on-site. If possible, estimate power capacity/output …….
- ☐ Other. Please describe.

Please add any relevant additional information.

The main source of energy consumed onsite would be through the operation of fixed diesel plant. Based on other quarries operated by Mawson's of similar annual output, diesel fuel consumption would be between 340 and 1,000 kilolitres per year.

Electricity supply from the local distribution network is also proposed as a part of the project to power site offices and workshops.

What are the main forms of waste that would be generated by the project facility?

- ☐ Wastewater. Describe briefly.
- ☐ Solid chemical wastes. Describe briefly.
- ☐ Excavated material. Describe briefly.
- ☐ Other. Describe briefly.

Please provide relevant further information, including proposed management of wastes.

During construction and operation of the project, no wastewater will be discharged off site, no solid chemical wastes will be generated and waste excavated material (soil and overburden) is proposed to be retained on site for rehabilitation purposes.

Only general waste (e.g. household items) and standard construction and demolition waste will be generated.

Decommissioning would involve the demobilisation of plant and removal of fixed infrastructure. Plant and fixed infrastructure would be repurposed as far as possible through application of the waste management hierarchy (re-use, recycle, recovery, disposal).

What level of greenhouse gas emissions is expected to result directly from operation of the project facility?

- ☒ Less than 50,000 tonnes of CO_2 equivalent per annum
- ☐ Between 50,000 and 100,000 tonnes of CO_2 equivalent per annum
- ☐ Between 100,000 and 200,000 tonnes of CO_2 equivalent per annum
- ☐ More than 200,000 tonnes of CO_2 equivalent per annum

Please add any relevant additional information, including any identified mitigation options.

The Project is expected to extract 500,000 tpa of hornfels per year. National Greenhouse and Energy Reporting for two of Mawson's quarries (Yabba and Lake Cooper) were reviewed to estimate the Scope 1 greenhouse gas emissions likely to be produced by the Project.

Yabba Quarry extracts 300,000 tpa and reported approximately 1,100 tonnes of Scope 1 CO_2 equivalent emissions for the 2021/2022 financial year. Lake Cooper Quarry extracts 600,000 tpa and reported 2,200 tonnes of Scope 1 CO_2 equivalent emissions in the 2021/2022 financial year.

Given the Blue Hills Quarry is expected to extract 500,000 tpa, the Scope 1 CO_2 equivalent emissions will likely be between 1,100 and 2,200 tonnes per year.

17. Other environmental issues

Are there any other environmental issues arising from the proposed project?

☒ No ☐ Yes If yes, briefly describe.

18. Environmental management

What measures are currently proposed to avoid, minimise or manage the main potential adverse environmental effects? (if not already described above)

☒ Siting: Please describe briefly

Sensitive receivers have also played a key consideration in the siting of the Project. The quarry footprint is located between two ridgelines that provide line of sight protection from sensitive receivers to the north, east and south. Furthermore, the closest residential receiver to the west is approximately 2 km from the quarry site. The line of sight between this residential receiver and the quarry site is largely concealed by the Blue Hills Bushland Reserve, which sits between the two locations.

☒ Design: Please describe briefly

Modifications of the quarry pit design and access roads have been implemented to avoid and minimise potential impacts to Aboriginal cultural heritage, determined waterways, impacts to native vegetation/scattered trees and amenity impacts to sensitive receivers.

The current quarry footprint is in its fifth iteration of design. The footprint has been refined to avoid environment and heritage constraints identified throughout the planning phase.

The initial quarry footprint included 3.8 ha of endangered Plains Woodland (EVC 802) which also met the criteria for the endangered EPBC listed, Grey Box *Eucalyptus microcarpa* Grassy Woodlands and Derived Native Grasslands of South-eastern Australia. The quarry footprint was subsequently redesigned, with the proposed footprint impacting 2.7 ha of the endangered EPBC community.

The determination of waterways has also shaped the design iterations of the quarry footprint throughout the planning phase. Waterway determinations conducted by Goulburn Murray have reduced the quarry footprint around determined waterways and has incorporated buffers of approximately 120m from determined waterway centrelines, reducing the overall footprint of the Project.

The identification of Aboriginal heritage places has also refined the design of the quarry footprint, by shaping the extent of the quarry to avoid the identified places and provide buffers from the quarry to the identified places.

☒ Environmental management: Please describe briefly.

A suite of construction and operational environmental management is proposed for the Project. Management measure currently sit within the following attached technical assessments:

- Air Quality Assessment
- Bushfire Management Plan
- Cultural Heritage Management Plan draft (*not for public exhibition*)
- Flora and Fauna Impact Assessment
- Offset Strategy Working Draft (*not for public exhibition*)
- Groundwater Assessment
- Noise Impact Assessment
- Stormwater Management Plan
- Geotechnical Summary
- Traffic Impact Assessment
- Groundwater Drilling and Well Construction Report

In addition, Mawsons operate under a suite of environmental policies and would develop quarry specific operational management plans to comply with operational licencing requirements, authorised by Earth Resources Regulation.

☐ Other: Please describe briefly

Add any relevant additional information.

As a part of Mawsons corporate social responsibility the business has undertaken extensive ecological improvements to the residual land on which the proposed quarry is sited. These ecological improvements include:

- Planting of 2,000 indigenous tree species
- Installation of artificial hollows
- Installation of nesting boxes
- Targeted weed control
- Fencing upgrades to protect habitat.

The ecological improvement activities demonstrate Mawsons commitment to ecological improvements across their business.

19. Other activities

Are there any other activities in the vicinity of the proposed project that have a potential for cumulative effects?

☐ NYD ☒ No ☐ Yes If yes, briefly describe.

A review of current EES and EPBC referrals has been undertaken. The closest activity to the proposed quarry is the Fosterville Gold Mine expansion and Western Renewables Link which are both approximately 50km from the project.

20. Investigation program

Study program

Have any environmental studies not referred to above been conducted for the project?

☐ No ☒ Yes If yes, please list here and attach if relevant.

Additional investigations undertaken but not directly referenced in this referral include:

- Supply and Demand Study.
- Environmental surveys and assessments referenced in the Flora and Fauna Impact Assessment.

Has a program for future environmental studies been developed?

☐ No ☒ Yes If yes, briefly describe.

Groundwater monitoring is proposed to understand regional groundwater flows and whether the project has the potential to intercept or impact regional groundwater.

Consultation program

Has a consultation program conducted to date for the project?

☐ No ☒ Yes If yes, outline the consultation activities and the stakeholder groups or organisations consulted.

Four information days have been held by Mawsons on site and in regional centres to engage with the local community and provide information related to the proposed quarry development. Information days have been advertised in local newspapers, with active interest from Government and local stakeholders.

Ongoing consultation has been undertaken with community and stakeholder groups. A list of the stakeholder groups and organisations consulted is detailed below:

- Earth Resources Regulation (ERR)
- Department of Transport and Planning (DTP)/Department of Environment, Energy and Climate Action (DEECA) (former DELWP)
- Mount Alexander Shire Council
- Dja Dja Wurrung Clans Aboriginal Corporation (DDWCAC)
- North Central CMA
- Goulburn Murray Water
- Environment Protection Authority (EPA)
- Heritage Victoria
- Baringhup Landcare Group
- Neighbouring Landowner representatives.

Has a program for future consultation been developed?

☒ NYD ☒ No ☒ Yes If yes, briefly describe.

Mawsons are committed to engaging with the local community, listening to community concerns and responding appropriately to community feedback
Complaints and enquiries can be directed either to the Quarry Manager directly, with contact details at the Quarry entrance,
The Mawsons Complaints Management Process maintains a written record of complaints and enquiries, the details of the complaint and the actions taken to address the complaint.

Authorised person for proponent:

I, ……Richard Toll……(full name),

…Resource Development & Regulatory Compliance Manager……(position), confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature __ _____

Date 16th June 2025

Person who prepared this referral:

I, Patrick Dunne,

Associate Environmental Consultant – WSP Australia Pty Ltd, confirm that the information contained in this form is, to my knowledge, true and not misleading.

Signature _____ _____

Date 16th June 2025