



Section 6

Summary of Environmental Management and Monitoring Measures

PREAMBLE

This section has been compiled to record the full range of environmental management and monitoring measures that would be adopted when developing and operating the Quarry. These measures are designed to effectively manage, mitigate, guide and monitor the operation of the Quarry throughout its entire operational life.

*The measures are presented in tabular form (**Table 6.1**) and record the respective objectives, actions and timing..*

*The actions in **Table 6.1** will be reviewed prior to the determination of the development application for the Proposal to remove any actions that duplicate draft conditions within the draft development consent.*



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Table 6.1
Summary of Environmental Measures and Monitoring Measures

Desired Outcome	Action	Timing ¹
1. Traffic and Transport		
Transport operations are undertaken with minimal impact on other road users and residents	1.1 Upgrade Strontian Road from 50m south of its intersection with the Quarry Access Road to its intersection with the Sturt Highway.	Within 12 months of receipt of development consent (weather permitting)
	1.2 Upgrade the intersection of Strontian Road and the Quarry Access Road to provide for basic left turn (BAL) and right turn (BAR) treatments.	Within 12 months of receipt of development consent (weather permitting)
	1.3 Ensure that all loads are covered prior to leaving the Quarry Site.	Ongoing
	1.4 Maintain a complaints management system to appropriately respond to any complaints received.	Ongoing
Ensure drivers are aware of their responsibilities within the Quarry Site and during transportation of raw materials	1.5 Ensure that the Driver's Code of Conduct is: <ul style="list-style-type: none"> • signed by all drivers employed or contracted by the Applicant; • is included in induction, re-induction and training processes; and • retained with drivers at all times during Quarry-related activities. 	Ongoing
2. Air Quality		
Site activities are undertaken without exceeding the nominated air quality criteria	2.1 Ensure the dust collection system on the drill rig is regularly serviced.	Ongoing
	2.2 Install and use misting sprays on the mobile processing plant.	Ongoing
	2.3 Water unsealed roads and unformed tracks and/or surfaces utilised by vehicles, as required.	As required
	2.4 Ensure unsealed internal roads are appropriately constructed and surfaced to limit dust lift-off from transportation activities.	As required
	2.5 Limit traffic speeds on internal unsealed roads and unformed tracks within the Quarry Site to no greater than 20km/h to reduce dust lift-off.	Ongoing
	2.6 Limit traffic speeds on the Quarry Access Road to no greater than 40km/h to reduce dust lift-off.	Ongoing
	2.7 Ensure blasts are undertaken during favourable meteorological conditions.	Ongoing
	2.8 Restrict load size to ensure materials do not extend above truck sidewalls and ensure all loads leaving the Quarry Site are fully covered.	Ongoing
	2.9 Maintain the complaints management system to appropriately respond to any complaints.	Ongoing

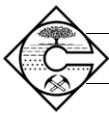


Table 6.1 (Cont'd)
Summary of Environmental Measures and Monitoring Measures

Desired Outcome	Action	Timing ¹
3. Noise and Vibration		
All activities are undertaken in a manner such that noise emissions do not exceed intrusiveness criteria nor significantly impact on neighbouring landowners and/or residents	3.1 All hours of operation would be strictly adhered to.	Ongoing
	3.2 Regularly service all equipment on the Quarry Site to ensure the sound power level of each item remains at or below that nominated for noise modelling purposes.	Ongoing
All blasting activities are undertaken in a manner such that impacts do not exceed the nominated criteria nor significantly impact on neighbouring landowners and/or residents	3.3 Restrict blasting to between the hours of 10:00am and 3:00pm, Monday to Friday.	Ongoing
	3.4 Limit blasting to no more than once per day as specified in the ANZECC guidelines.	Ongoing
	3.5 Monitor the blast impacts during each blast.	Ongoing
	3.6 Implement a blast notification protocol and pre-emptively discuss planned blasting with surrounding residents.	Ongoing
4. Water Resources		
Separate clean water and sediment-laden water catchments	4.1 Ensure that the sediment basin is constructed to have the capacity requirements identified in Section 5.4.3.	Within 12 months of receipt of development consent
	4.2 Ensure that dirty water collection drains and the culvert beneath the Quarry Access Road are constructed as identified in Section 5.4.3.	Within 12 months of receipt of development consent
	4.3 Construct a clean water diversion to direct runoff from undisturbed areas upslope of the extraction area away from disturbed areas.	Within 12 months of receipt of development consent
Capture of sediment-laden water flows from Proposal-related disturbance and prevention of uncontrolled discharge of sediment-laden water from the Site	4.4 Maintain the structural integrity and capacity of the sediment basin to allow adequate volume for settlement and storage of sediments throughout the life of the Proposal.	Ongoing
	4.5 When required, excavate retained sediment from control structures and the sediment basin, placing removed sediment within the extraction area for incorporation in road base products or for use in rehabilitation.	As required
5. Biodiversity		
Avoid impacts on native flora and fauna	5.1 Survey and clearly mark the proposed limit of disturbance in order to ensure that all remnant vegetation beyond this area is retained.	Within six months of receipts of development consent and prior to any vegetation clearing



Table 6.1 (Cont'd)
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Desired Outcome	Action	Timing ¹
5. Biodiversity (Cont'd)		
Minimise or mitigate unavoidable impacts on native flora and fauna	5.2 Undertake regular weed control programs.	Ongoing
	5.3 Adopt a procedure to ensure all trees to be cleared are inspected prior to clearing and encourage any fauna to vacate the area.	Ongoing
	5.4 Salvage tree trunks, major limbs and, if practicable, minor branches for use in rehabilitation of the Quarry Site.	Ongoing
	5.5 Directly transfer stripped soil materials onto rehabilitation areas or stockpile for use in progressive rehabilitation activities.	Ongoing
	5.6 Confine, where practicable, vehicular access to formed and marked roads and tracks and limit vehicle speeds within the Quarry Site and on the Quarry Access Road to limit the potential for vehicle trauma to wildlife.	Ongoing
Undertake rehabilitation of the Quarry Site to provide for long-term conservation of native flora and fauna	5.7 Revegetate the Quarry Site as described in Section 2.12.	As areas become available
	5.8 Ensure species used during rehabilitation operations are consistent with vegetation community types located within and surrounding the Quarry Site or other suitable pasture species.	During rehabilitation activities
6. Cultural Heritage		
Minimise the potential for adverse Proposal-related impacts on Aboriginal and non-Aboriginal heritage values	6.1 Survey and clearly mark the proposed limit of disturbance in order to avoid potential impacts to identified historical features and unidentified artefacts.	Within six months of receipts of development consent and prior to any vegetation clearing
	6.2 Include cultural heritage awareness in the site induction and staff training.	Ongoing
	6.3 Cease all works in the immediate area and establish an appropriate buffer in the event that items of cultural heritage significance are discovered within the Quarry Site. Council, Heritage NSW and other relevant parties would be contacted as soon as practical. If human remains are suspected the police will be contacted.	Ongoing
7. Soil and Land Resources		
Prevent excessive soil deterioration during stripping and transportation	7.1 Avoid stripping or replacing soils during extremely wet conditions.	Ongoing
Maximise the viability of soil resources for site rehabilitation	7.2 Construct soil stockpiles no more than 2m high with side slopes of 1:3 (V:H) or less and seed and fertilise if natural regeneration is unsuccessful.	Ongoing
	7.3 Signpost soil stockpiles to limit the operation of machinery on stockpiles to minimise compaction.	Ongoing

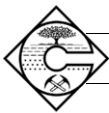


Table 6.1 (Cont'd)
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Desired Outcome	Action	Timing ¹
8. Visibility		
Reduce the impact of the Proposal on the visual amenity from public vantage points	8.1 Develop the Quarry in a manner that utilises the existing topography and vegetation to shield activities as much as possible.	Ongoing
	8.2 Restrict processing operations to within the extraction area.	Ongoing
	8.3 Progressively revegetate the perimeter safety bund and terminal benches.	Ongoing
9. Public Safety Hazards		
Minimise the risk of fire ignition on the Quarry Site and transport route	9.1 Refuel mobile equipment within cleared areas of the Quarry Site.	Ongoing
	9.2 Ensure engines in all vehicles are turned off during refuelling.	Ongoing
	9.3 Enforce a no smoking policy in designated areas of the Quarry Site.	Ongoing
	9.4 Maintain fire extinguishers within all site vehicles and mobile equipment.	Ongoing
	9.5 Enforce that no cigarette butts are thrown from product trucks along the product transport routes.	Ongoing
	9.6 Water cart available.	Ongoing
Minimise the potential for hydrocarbon contamination	9.7 Purchase hydrocarbons and hazardous materials from licensed suppliers for the transport of dangerous goods.	Ongoing
	9.8 Ensure hydrocarbon waste is disposed of by a licenced waste contractor to a licenced waste facility.	Ongoing
	9.9 Ensure hydrocarbon spill kits are located in the demountable office to ensure spill response and clean up can be carried out immediately following the detection of any spills.	Ongoing
	9.10 Develop and implement a spill management procedure.	Ongoing
10. Social and Economic		
Consider local sources of service and supply contactors	10.1 Continue to source local suppliers and service contractors from within the Narrandera LGA where it is practicable to do so.	Ongoing
Consider employment and training opportunities for locals	10.2 Advertise job opportunities at the Quarry within local newspapers to ensure suitably qualified candidates from within the Narrandera LGA are considered for available positions.	Ongoing
Minimise impacts on members of the local community	10.3 Implement a Driver's Code of Conduct to ensure the safety of all road users and communities through which product transport trucks would pass.	Ongoing
	10.4 Implement a complaint management procedure or protocol to ensure that any complaint received is dealt with decisively and appropriately.	Ongoing