NSW GOVERNMENT

Resources Regulator

FWP0001780

BORAL CEMENT - BERRIMA WORKS BLUE SHALE QUARRY FORWARD PROGRAM

Thursday 1 January 2026 to Sunday 31 December 2028

Summary

Detail	
Mine	Boral Cement - Berrima Works Blue Shale Quarry
Reference	FWP0001780
Forward program commencement date	Thursday 1 January 2026
Forward program end date	Sunday 31 December 2028
Forward program revision (if applicable)	
Contact	Gregory Johnson
Mining leases	MPL 592 (1906), MPL 559 (1906), MPL 654 (1906), MPL 628 (1906), ML 1723 (1992), MPL 622 (1906), MPL 623 (1906)
Project location	Boral Cement Limited
Date of submission	Wednesday 25 February 2026
Document URL *Security reminder: Please exercise caution before opening external links. If a link appears suspicious, avoid clicking it and report it to the Resources Regulator.*	https://www.boral.com.au/locations/boral-cement-works-berrima

Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the Resources Regulator Portal.

Three-year forecast - surface disturbance activities

Project description

The Berrima Cement Blue Shale Quarry commenced in 1977 within the Berrima Cement Works property to the south of Kiln 6. Clayshale represents approximately 20% of clinker production although not all clayshale feed to the kiln is derived from the on site quarry. Specific coloured cement runs are produced using a white clay shale from Marulan. At peak clinker production, approximately 320,000 tpa of clayshale is extracted from quarry. There is well over 30 years production available within ML1723. There are six additional mining titles which cover water supply access and power supply. These are MPL 559, MPL 592, MPL 622, MPL623, MPL 628 and MPL 654.

Description of surface disturbance activities

Exploration activities

The business is proposing to undertake a drilling campaign in 2026 within the existing footprint of the approved extraction pit.

Construction activities

There are currently no processing or permanent material handling infrastructure at the quarry site. No future construction activities are envisaged over the FWP.

Mining schedule

Mining development method and sequencing and general mine features.

The overlying soils have been derived from the underlying Ashfield Shale. There is a thin layer of material overlying the resource which represents topsoil and weathered clayshale. Topsoil and organic subsoils are separated prior to removal of any weathered clayshale. This area is referred to as pre-strip. Once the clayshale is exposed it is extracted by a series of benches of between 6 and 7 m in depth with an intervening 5 m wide berm with batter slopes at 1:1. The initial bench through the overlying overburden above the shale is generally less than 4.5 m deep with shallower batter slopes of 1:2.5 (V:H) which takes into account the softer overlying material. T he target Ashfield Shale extends to a depth of at least RL 632m which will give an extraction depth of approximately 30m. Material extraction is undertaken by contractor on a campaign basis. Typical mobile plant include: One D9 Dozer for ripping and pushing the material; One D8 Dozer used primarily for pushing as well as managing the material stockpiles; One 980 front end loader for loading trucks; Two to three road registered semi trailers to transport the material to the shale storage shed which is part of the mill feed section of the cement works.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

Only a small quantity of overburden is produced. This material has previously been used on the eastern side of the quarry which formed the initial bund which is now at an advanced stage of rehabilitation. Future overburden will be used on the southern side of the quarry to form a water diversion bund (RMP Domain 4) and be stored within the eastern footprint of the shale pit until required . Topsoil and overburden removal occur on a campaign basis as and when needed in order to develop new quarry benches. The first occurred in the later 1970’s when the quarry began. There will be no disturbance in the first year of the plan with the removal of the topsoil and overburden to occur in Year 2 to enable pit expansion.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement.

There are no processing facilities associated with the Shale Quarry. The material extracted is stored in a separate shed and is fed into a raw material crusher with other materials used to manufacture clinker.

Waste disposal and materials handling operations.

All waste onsite is managed as per the Berrima Cement Works Waste Management Plan. The main waste contractor on site is Cleanaway and Veolia who collects and disposes/recycles waste. There are no know contaminated soils.

Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m^3)	0	0	0
Rock/overburden	(m^3)	0	0	0
Ore	(Mt)	300,000	300,000	300,000
Reject material[1]	(Mt)	0	0	0
Product	(Mt)	300,000	300,000	300,000

[1]This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

Three-year rehabilitation forecast

Rehabilitation planning schedule

Rehabilitation planning schedule

The next area identified for rehabilitation will be the southern drainage bund which will receive overburden from the pre-stripping area to the east of the active quarry extraction. This rehabilitation will occur progressively over the forward program. Rehabilitation planning activities to be undertaken over the forward program include: Year 1 (by 31/12/2025). Scheduling prestrip activities to align with the quarry 10 year extraction plan . Complete initial Ecological Function Assessment including control sites to establish baseline completion criteria. Undertake weed spraying in Spring . Inspect quarry benches and batters for erosion and correct as required. Year 2 (by 31/12/2026) . Sample soils for physical and chemical properties and ensure suitability for target final land use . Continue weed control works annually . Continue correction of any erosion that occurred during previous year Year 3 (by 31/12/2027) . Continue EFA assessment on an annual basis . Continue weed control works annually . Continue correction of any erosion that occurred during previous year.

Stakeholder consultation

The Shale quarry falls within the Berrima Cement Works operations. The Community Liaison Group meets every 6 months and includes community representatives, Boral representatives and Council representatives.

Rehabilitation studies, risk assessments and/or design work

The risk assessment contained in the 2021 RMP identified water management, soil quality, erosion and sedimentation as potential risks to rehabilitation success. Rehabilitation to date has been completed by an external contractor using locally endemic tubestock typical

of the Southern Highlands Shale Woodland Community. This work has proved successful however to strengthen the knowledge base for ongoing rehabilitation work, the following studies are planned over the next 3 years: . Quarry Planning study. This will better define the scheduling of prestrip activities and timing of completed final benches available for rehabilitation . Soil benchmarking. This will include sampling natural soil chemical and physical properties in undisturbed areas surrounding the quarry in order to establish a baseline for soils within rehabilitation areas. . Investigate the extent of natural void filling in order to establish the boundary between the proposed woodland community and final water body.

Rehabilitation research and trials

RRT NUMBER	PROJECT/TRIAL NAME	OBJECTIVE OF TRIAL/PROJECT	METHODOLOGY	EXPECTED DATE OF COMPLETION	STATUS

Rehabilitation maintenance and corrective actions

Soils on and surrounding the quarry fall under the Moss Vale Soil Landscape which is dominated by Wianamatta Shales. The quarry itself is located on a sub unit referred to as Ashfield Shale. Soils developed from the Ashfield Shales tend to range from moderately deep to deep, they are fairly permeable, well structured, slightly acidic (pH 5.5 to 6) and of moderate fertility. These soils respond well to fertiliser applications and given the high rainfall in the district, tend to be productive when managed correctly. These soils are moderately erodible and erosion issues can occur on steep slopes that have been cleared. Revegetation activities to date have been successful however correction of erosion is an ongoing issue that is actively managed. Rehabilitation of the quarry will consist largely of completed benches with a final land use of Southern Highlands Shale Woodland. The lower void is currently used to store water as part of the overall cement plant water supply. The final land use of the remaining void will be a permanent lake. The surrounding undisturbed land is currently low intensity grazing which will continue post closure of the quarry. Completion of the initial Ecological Function Assessment by early 2026, will allow a maintenance and replating program to be established with the aim to meet an established completion criteria.

Rehabilitation schedule

As this operation is a quarry with little overburden and extracts a resource that extends to a depth of over 30 m, completed areas available for rehabilitation consist only of final benches and associated batters. Over the past 40 years of operation, there has only been approximately 8.12 ha of quarry area available for rehabilitation which represents the initial overburden bund and the eastern portion of the first two quarry batters. The area of active disturbance is governed by the need to maintain sufficient pit area for equipment and removal of resource, including the haul road from the quarry. This will naturally increase at a greater rate than area available for rehabilitation. A key activity over the next three years will be to up date mine planning and scheduling studies in order to better program rehabilitation activities to ensure that it occurs as soon as reasonably practicable

Completion of rehabilitation

NA

Subsidence remediation for underground operations

NA

Progressive mining and rehabilitation statistics

Three-yearly forecast cumulative disturbance and rehabilitation progression

	Forecast	UNIT	YEAR 1	YEAR 2	YEAR 3
A1	**Total disturbance footprint - surface disturbance**	(ha)	27.87	32.9	33.03
O	**Total active disturbance**	(ha)	16.59	21.63	21.75
P	**Total new area of land proposed for active rehabilitation**	(ha)	0	0	0

Rehabilitation key performance indicators (KPIs)

	Forecast	UNIT	YEAR 1	YEAR 2	YEAR 3
O	**Total new disturbance area during reporting period**	(ha)	0.28	5.04	0.13
P	**Total new area of land proposed for rehabilitation during the reporting period**	(ha)			
Q	**Annual rehabilitation to disturbance ratio**				

Attachment 1 - Reporting Definitions

REPORTING CATEGORY		DEFINITION
A	**Total disturbance footprint - surface disturbance**	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities. The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below). Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.
B	**Total active disturbance**	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).
C	**Rehabilitation - land preparation**	Includes the sum of all disturbed land within a mining lease that have commenced

REPORTING CATEGORY		DEFINITION
		any, or all, of the following phases of rehabilitation - decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.
D	**Ecosystem and land use establishment**	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites. Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.
O		The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
P		The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases "Rehabilitation - Land Preparation" or the "Ecosystem & Land Use Establishment" (definitions C & D in Table 5).

REPORTING CATEGORY	DEFINITION
Q	The rehabilitation to disturbance ratio (S / R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1/1 indicates that the area of new rehabilitation and disturbance in that period are the same.

Attachment 2 - Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.

WORD	DEFINITION
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose ' built infrastructure to be retained for future use(s) following lease relinquishment.
Department	Department of Primary Industries and Regional Development.
Disturbance	See Surface Disturbance.
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).

WORD	DEFINITION
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining,

WORD	DEFINITION
	Petroleum Production and Extractive Industries) 2007.
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species. This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the Biodiversity Conservation Act 2016 and the Fisheries Management Act 1994 (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion

WORD	DEFINITION
	criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the Mining Act 1992.
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the Resources Regulator's online portal that lease holders must use (via a registered account) to:

WORD	DEFINITION
	• upload rehabilitation geographical information system (GIS) spatial data • develop rehabilitation GIS spatial data (using online tracing functions) • generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities. Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the Resources Regulator to regulate rehabilitation performance of lease holders.
Mining area	As defined in the Mining Act 1992.
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining land	As defined in the Mining Act 1992.
Native vegetation	Has the same meaning as that term under section 60B of the Local Land Services Act 2013.
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to

WORD	DEFINITION
	demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: • active mining • decommissioning • landform Establishment • growth medium development • landform Establishment • ecosystem and land use establishment • ecosystem and land use development
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the Resources Regulator has determined in writing that the relevant

WORD	DEFINITION
	rehabilitation obligations have been fulfilled following submission of *Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate application* by the lease holder.
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.
Relevant stakeholders	Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: • the relevant development consent authority • the local council • the relevant landholder(s) • community consultative committee (if required under the development consent) or equivalent

WORD	DEFINITION
	consultative group • affected land holder(s) • government agencies relevant to the final land use • affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities) • local Aboriginal communities, and • any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).
Secretary	The Secretary of the department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.

WORD	DEFINITION
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water[2].
Waste	Has the same meaning as that term under the *Protection of the Environment Operations Act 1997*.

[2]Commonwealth of Australia (DITR), 2007. Tailings Management.

Attachment 3 - Plans

Berrima clay Shale Plan 2a Year 1.pdf

Berrima clay shale Plan 2b Year 2.pdf

Berrima Clay shale Plan 2c Year 3.pdf