NSW Resources
Resources Regulator

Guideline

Achieving rehabilitation completion (sign-off)

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Amendment schedule

Date	Version	Amendment
July 2021	1	First published
August 2024	2	Included an Executive Summary. Additional information under the 'Rehabilitation completion' section relating to the monitoring data required, monitoring timeframes and the requirement to rehabilitate 'as soon as reasonably practicable'. Clarification provided in ' Step 2: Establish and finalise rehabilitation outcome documents' regarding the timing of the submission of a rehabilitation completion criteria statement. Additional information provided in 'Step 5: Implement rehabilitation, monitor progress and actively manage' regarding where to obtain guidance about monitoring programs. New section added – 'Step 7 - Submitting a rehabilitation completion application'. Includes a flowchart of the rehabilitation completion process. New 'Adequacy review' section added outlining the department's process for checking the adequacy of an application.

Amendment schedule

	New ‘Examples’ section added providing examples of rehabilitation completion and sign-off by the department (also includes a new Appendix 2).
	New ‘Post determination actions by lease holder’ section outlining actions required by lease holder after completed rehabilitation has been signed off.
	Additional information included in ‘Alternative post mining land uses’ section summarising key criteria that need to be met prior to the department signing off on rehabilitation associated with an alternative post mining land use.
	New ‘Appendix 1: Checklist for a rehabilitation completion application’.
	New ‘Appendix 3: Example rehabilitation objectives and rehabilitation completion criteria submission - large mines’.
	New ‘Appendix 4: Example rehabilitation objectives and rehabilitation completion criteria submission - small mines’.
	Updated branding

Executive summary

The purpose of this guideline is to assist holders of mining leases under the *Mining Act 1992* achieve rehabilitation completion progressively and submit applications for rehabilitation sign-off.

Regulatory requirements for rehabilitation

The key regulatory requirement is to ensure that rehabilitation of the mining area achieves the 'final land use'. The final land use is approved prior to the commencement of a mine as part of a development consent granted pursuant to the *Environmental Planning and Assessment Act 1979*.

Once a mining operation has obtained development consent, a mining lease can be granted under the *Mining Act 1992*. A holder of a mining lease is then required to, amongst other things:

- develop and seek approval of:
  - a rehabilitation objectives statement – which describes the rehabilitation outcomes required to attain the final land use for the mining area
  - a rehabilitation completion criteria statement – which expands on rehabilitation objectives to define the key criteria and 'benchmark values' for each criterion to be achieved, the attainment of which will demonstrate rehabilitation has been achieved
  - a final landform and rehabilitation plan (for large mines only) – which spatially depicts the final land use, the final landform topography and the location of rehabilitation features.
- develop and implement a forward program that provides a schedule of mining activities and the spatial progression of rehabilitation activities for the next three years (which demonstrates rehabilitation is occurring as soon as reasonably practicable following disturbance)
- undertake progressive rehabilitation over the life of the mine and submit an annual rehabilitation report and forward program to demonstrating how rehabilitation is progressing against the approved performance measures and timeframes
- achieve the approved rehabilitation objectives
- achieve the approved rehabilitation completion criteria
- achieve the final landform and final land use(s).

For some mining operations, the development of final rehabilitation completion criteria will take many years as time is required for research, monitoring and stakeholder consultation to set the appropriate benchmarks to be achieved for the various aspects of rehabilitation (e.g. landform stability, establishment of vegetation community types etc). To cater for this, final rehabilitation completion criteria are only required to be submitted no later than the due date of the forward program that covers a period which includes completion of rehabilitation. However, it is the expectation that lease holders will submit final rehabilitation completion criteria for approval well in advance before rehabilitation of the whole (or identified part) of the mining area is proposed to be completed.

Submitting a rehabilitation completion application

Lease holders can lodge an application with the department for rehabilitation sign-off when it can be demonstrated that rehabilitation areas have achieved the approved final land use. Appendix 1 provides a checklist for a rehabilitation completion application. This may include completion of rehabilitation within a particular area of land within the mining lease or completion of rehabilitation across the entire mining lease area.

The application needs to:

- demonstrate that rehabilitation has met the approved rehabilitation objectives
- demonstrate that rehabilitation has achieved the approved rehabilitation completion criteria
- demonstrate that rehabilitation has achieved the approved final landform and final land use(s)
- provide sufficient evidence, in some case years of monitoring data, to demonstrate that the standard of rehabilitation has achieved the final land use as set out in above approved rehabilitation outcome documents.

Lease holders are encouraged to apply for rehabilitation completion progressively when portions of the mining area have achieved the final land use. This will facilitate the lease holder's demonstration of successful progressive rehabilitation 'as soon as reasonably practicable' as required by clause 5 in Schedule 8A of the Mining Regulation 2016.

Our assessment process

Once an application for rehabilitation sign-off is received, the department will review the information provided in the application by the lease holder to determine whether it contains all the relevant information. This adequacy review will be undertaken within 30 business days. If the application is deemed to be inadequate, the lease holder will be advised in writing that the application has been rejected. The lease holder will need to address the outstanding matters prior to submitting a new application.

Once an application contains all relevant information it will be assessed to determine whether the final land use has been achieved. Complex rehabilitation matters may also be referred to other relevant agencies for advice as to whether rehabilitation obligations have been fulfilled.

Where it is determined that rehabilitation has not achieved the final land use, a written response will be provided to the lease holder providing the reasons for this. The department may retain and/or vary the security deposit should the rehabilitation obligations not yet be fulfilled.

Where it is determined that the rehabilitation has achieved the final land use, the department will provide written notification (sign-off) to the lease holder.

Appendix 2 provides some examples of rehabilitation sign-off.

Post determination actions by lease holder

Once written confirmation of rehabilitation completion (sign-off) has been provided by the department, lease holders will be required to submit spatial data to the Mine Rehabilitation Portal identifying the part of the mining area for which rehabilitation has been accepted as complete.

Lease holders may also wish to apply for a review of the security deposit held by the department.

Lease holders can also proceed to request formal relinquishment of the mining lease over the subject area.

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Purpose of this guideline

The purpose of this guideline is to assist lease holders to identify, track and verify achievement of regulatory obligations under the *Mining Act 1992* to achieve rehabilitation completion progressively and before mining lease relinquishment.

Regulatory requirements for rehabilitation

Requirements under the *Mining Act 1992*

In accordance with the provisions of the *Mining Act 1992* and the conditions of a mining lease, the lease holder is required, amongst other things, to:

- undertake progressive rehabilitation as soon as reasonably practicable after disturbance occurs and over the life of the mine
- ensure that rehabilitation of the mining area achieves the final land use. The final land use for the mining area comprises the final landform and land use(s) to be achieved for the mining area as set out in the following 'rehabilitation outcome documents'[1]
  - rehabilitation objectives statement – which describes the rehabilitation outcomes required to attain the final land use for the mining area
  - rehabilitation completion criteria statement – which expands on rehabilitation objectives to define the key criteria and 'benchmark values' for each criterion to be achieved, the attainment of which will demonstrate rehabilitation has been achieved
  - final landform and rehabilitation plan (for large mines only) – which spatially depicts the final land use, the final landform topography and the location of rehabilitation features.
- prepare and submit a forward program which includes how rehabilitation will occur as soon as reasonably practicable after disturbance over the next three-year period
- prepare and submit an annual rehabilitation report demonstrating progress made towards achieving:
  - the objectives set out in the rehabilitation objectives statement
  - the criteria set out in the rehabilitation completion criteria statement
  - the final land use as spatially depicted in the final landform and rehabilitation plan (large mines only).

The rehabilitation objectives, rehabilitation completion criteria and, for large mines, the final landform and rehabilitation plan are required to be developed in the form and way[2] stipulated by the Secretary.

[1] Refer to clauses 6 and 12 in Schedule 8A of the Mining Regulation 2016.

[2] Lease holders should refer to (as relevant): Guideline: Form and way: Rehabilitation objectives, rehabilitation completion criteria and final landform and rehabilitation plan for large mines, or, Guideline: Form and way: Rehabilitation objectives and rehabilitation completion criteria for small mines

Rehabilitation completion

Rehabilitation areas may be classified as complete when we have determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder. This application will need to provide sufficient evidence, in some case years of monitoring data, to demonstrate that the standard of rehabilitation has achieved the final land use as set out in the approved rehabilitation outcome documents (refer to Step 2 below).

Depending on the type of final land use to be achieved (e.g. native ecosystem, agricultural grazing, etc) as well as the nature and scale of mining, the timeframe it takes for rehabilitation to mature to a standard where it is assessed as 'complete' can take in the order of 3 to 20 years (or longer) following the cessation of mining operations at a mine (or part thereof).

Following disturbance of land by mining operations, it is a requirement of clause 5 in Schedule 8A of the Mining Regulation 2016 that a lease holder must rehabilitate 'as soon as reasonably practicable'. Depending on the nature, scale and type of mining, the scope of active rehabilitation works (e.g. building demolition, removal of infrastructure and mining equipment, landform shaping, topsoiling and revegetation activities) may take in the order of 12 months to 10 years. This period is followed by a period of monitoring and active management works (e.g. weed and feral animal control, further revegetation works as required, erosion control etc.) to ensure that the performance of rehabilitation is on a trajectory of achieving the final land use as soon as reasonably practicable.

We encourage lease holders to apply for rehabilitation completion progressively when portions of the mining area have achieved the final land use. This will facilitate the lease holder's demonstration of successful progressive rehabilitation 'as soon as reasonably practicable' as required by clause 5 in Schedule 8A of the Mining Regulation 2016. It may also result in partial return of the security deposit.

Once rehabilitation has achieved the final land use, lease holders should:

- lodge a rehabilitation completion application with us to seek written confirmation that all rehabilitation obligations under the *Mining Act 1992* and the conditions of the mining lease have been fulfilled (i.e. rehabilitation completion and 'sign-off'). This may include completion of rehabilitation within a particular area of land within the mining lease or completion of rehabilitation across the entire mining lease area.
- apply to us for a review of the security deposit held by the department. This may include partial return of the security deposit following completion of rehabilitation within a particular area of land within the mining lease area. Alternatively, it may include full return of security following completion of rehabilitation across the entire mining lease area.
- apply to the department for relinquishment of the mining lease and return of the security deposit (which may include partial or full relinquishment).

The 'Achieving rehabilitation acceptance' section below provides further advice on these requirements at each step of the process.

Regulatory requirements – other legislation

Lease holders are responsible for complying with the conditions of any other approval related to rehabilitation. These may include:

- the conditions of a development consent granted under the *Environmental Planning and Assessment Act 1979*
- an environment protection licence under the *Protection of the Environment Operations Act 1997* regulating noise, air, water and waste
- an Aboriginal heritage impact permit under the *National Parks and Wildlife Act 1974*
- licences or approvals under the *Water Management Act 2000* or the *Water Act 1912*, for activities or works that take, divert or use water
- approvals under the *Heritage Act 1977* for the management of heritage items associated with an operation
- approvals for actions likely to have a significant impact on a matter of national environmental significance under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

Lease holders are required to consult directly with government agencies responsible for compliance with the other legislation described above. Lease holders should consider incorporating regulatory requirements under other legislation that are directly or indirectly associated with rehabilitation outcomes.

It is the lease holder's responsibility to ensure that any rehabilitation objectives, rehabilitation completion criteria, and the final landform and rehabilitation plan (large mines only) are consistent with the conditions of the development consent and other approvals or licences. Acceptance of achievement of these rehabilitation outcomes by the Secretary does not mean that rehabilitation obligations under other legislation can be considered to be satisfied.

Relationship between development consent and mining lease requirements for a rehabilitation management plan

The rehabilitation objectives and the final land use, which includes the final landforms and rehabilitation requirements, are often approved as part of the development consent. Furthermore, state significant development consents[3], and some local development consents, typically require the preparation and implementation of a rehabilitation management plan. Lease holders should be aware that the relevant consent authority (not the Resources Regulator) regulates the implementation of these rehabilitation management plans in accordance with the conditions of the development consent and relevant requirements of the *Environmental Planning and Assessment Act*

[3] The government has identified certain types of development as state significant development (SSD). Schedules 1 and 2 of State Environmental Planning Policy (State and Regional Development) 2011 provides a full list of SSD types and identified sites. Large mining and extraction operations (including all coal mines) are identified as SSD.

1979. Lease holders will need to ensure that rehabilitation of the mining lease area is consistent with these requirements of the development consent[4].

The rehabilitation management plan (for large mines only) that is required to be prepared and implemented under the condition of a mining lease[5], must be prepared in the form and way[6] required by the Secretary. It must address and include any specific requirements outlined in the relevant condition(s) of the development consent, including specific requirements for the final land use, rehabilitation objectives and rehabilitation completion criteria.

Role of the lease holder

Lease holders should consider the information in this guideline to understand the process to achieve rehabilitation acceptance, mining lease relinquishment and the return of the security deposit.

This process should be considered throughout all phases of mining and not restricted to the final mine closure phase. This should be done progressively when portions of the rehabilitated mining area have met the approved rehabilitation outcomes.

In summary, lease holders are required to:

- develop and seek approval of rehabilitation objectives, rehabilitation completion criteria and, for large mines, a final landform and rehabilitation plan
- develop and implement a rehabilitation management plan (for large mines only) that manages risks to rehabilitation and sets out the approach for how rehabilitation obligations are fulfilled
- provide and maintain a security deposit to secure funding for the fulfillment of rehabilitation obligations
- develop and implement a forward program that provides a schedule of mining activities and the spatial progression of rehabilitation activities for the next three years (which demonstrates rehabilitation is occurring as soon as reasonably practicable following disturbance)
- undertake progressive rehabilitation over the life of the mine and submit an annual rehabilitation report and forward program to us demonstrating how rehabilitation is progressing against the approved performance measures and timeframes
- achieve the approved rehabilitation objectives
- achieve the approved rehabilitation completion criteria
- implement the final landform and final land use(s)
- lodge a rehabilitation completion application and seek written confirmation from us that all rehabilitation obligations under the *Mining Act 1992* and the conditions of the mining lease have been fulfilled (e.g. rehabilitation acceptance)

[4] The Resources Regulator expects that any rehabilitation requirements approved in the development consent would be included in the rehabilitation outcomes and annual report and forward program required under the *Mining Act 1992*.

[5] Lease holders of large mines are required to prepare and implement a rehabilitation management plan, however, this plan is not required to be submitted to the Resources Regulator for approval.

[6] Lease holders should refer to Form and way: Rehabilitation management plan for large mines.

- apply to us for a review of the security deposit held by the department and the return of the security deposit (including partial return following progressive rehabilitation)
- apply to the department for relinquishment of the mining lease and full return of the security deposit.

The sections below set out the requirements for rehabilitation under legislation and how lease holders achieve rehabilitation acceptance as part of this process.

Our role

We are responsible for regulating rehabilitation under the *Mining Act 1992* and the conditions of the relevant mining lease. This includes:

- reviewing and approving rehabilitation objectives, rehabilitation completion criteria and (for large mines only) a final landform and rehabilitation plan
- ensuring lease holders develop and implement a rehabilitation management plan (for large mines only) that manages risks to rehabilitation and progressively rehabilitates the impacts of mining operations through the life of the mine
- determining the amount of the security deposit required to be held by government to secure funding for the fulfillment of rehabilitation obligations. This includes regular reviews of the security required as mining operations and rehabilitation progress over the life of mine cycle
- ensuring lease holders provide and maintain a security deposit
- ensuring rehabilitation is carried out progressively, that is, as soon as reasonably practicable following disturbance
- assessing annual rehabilitation reports and forward programs to ensure rehabilitation is progressing against the approved performance measures and in accordance with approved timeframes
- ensuring rehabilitation meets the approved rehabilitation objectives and achieves the approved rehabilitation completion criteria
- ensuring rehabilitation activities implement the approved final landform and final land use(s)
- monitoring and enforcing rehabilitation activities to ensure that the mining area is left in a safe and stable condition
- determining whether all rehabilitation obligations under the *Mining Act 1992* and the conditions of the mining lease have been fulfilled
- determining whether the associated security deposit is adequate, including whether the security deposit (or part thereof) can be returned (where relevant) following the completion of progressive rehabilitation or at the completion of rehabilitation activities as part of mining lease relinquishment.

We will regularly assess the adequacy of a lease holder's records to demonstrate all mining lease conditions are met, including records to verify that rehabilitation obligations are understood by the lease holder, and appropriate rehabilitation planning, implementation and monitoring activities are being undertaken throughout the life of mine to achieve the approved rehabilitation outcomes.

Achieving rehabilitation completion

Rehabilitation areas may be classified as complete when we have determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder. Refer to the 'Rehabilitation completion' section on page 5 for further details.

We encourage lease holders to apply for rehabilitation completion progressively when portions of the mining area have achieved the final land use. This will facilitate the lease holder's demonstration of successful progressive rehabilitation 'as soon as reasonably practicable' as required by clause 5 in Schedule 8A of the Mining Regulation 2016. It may also result in partial return of the security deposit.

Land for which rehabilitation has been accepted does not necessitate the need to have the corresponding land relinquished from the mining lease. However, acceptance of rehabilitation completion is a prerequisite for mining lease relinquishment.

Lease holders should follow the following steps to achieve rehabilitation completion:

1. undertake a rehabilitation risk assessment
2. establish and finalise the rehabilitation outcome documents
3. prepare and implement the rehabilitation management plan (large mines only)
4. develop a forward program for rehabilitation activities
5. implement rehabilitation, monitor progress and actively manage
6. build evidence from monitoring / modelling to demonstrate achievement of final land use
7. submit a rehabilitation completion application.

Step 1: Undertake a rehabilitation risk assessment

Lease holders are required to conduct a rehabilitation risk assessment before preparing rehabilitation outcome documents and the rehabilitation management plan (large mines only). Further information is provided in Guideline: Rehabilitation risk assessment.

The rehabilitation risk assessment must be kept as a record on site and is not required to be submitted to us. It must identify, assess and evaluate the risks that need to be addressed to achieve:

- the rehabilitation objectives and rehabilitation completion criteria
- the final land use as spatially depicted in the final landform and rehabilitation plan (large mines only).

The lease holder is required to implement the control measures identified in the risk assessment to eliminate, minimise or mitigate the risks.

The risk and risk control measures identified in the rehabilitation risk assessment must also be:

- factored into the rehabilitation planning and management for the mining area
- incorporated into the rehabilitation management plan (large mines only)
- factored into the development of rehabilitation outcome documents outlined in Step 2.

Lease holders should refer to Guideline: Rehabilitation controls to assist in identifying and evaluating the site-specific rehabilitation processes, controls and techniques to be considered for inclusion in a rehabilitation risk assessment.

Step 2: Establish and finalise rehabilitation outcome documents

Lease holders must develop, and submit to us for approval, rehabilitation objectives and a final landform and rehabilitation plan (large mines only). These are required to be prepared in the form and way[7] stipulated by the Secretary and submitted for approval in accordance with triggers and timeframes stipulated in Schedule 8A of the Mining Regulation 2016.

Lease holders must also take into account the spatial data formatting requirements required for the submission of the final landform and rehabilitation plan (large mines only). The final landform and rehabilitation plan is to be submitted to us via the mine rehabilitation portal (refer to Guideline: Mine rehabilitation portal).

Lease holders must also develop rehabilitation completion criteria in the form and way[8] stipulated by the Secretary. Rehabilitation completion criteria set the 'benchmark values' for key attributes (indicators) proposed to demonstrate that the rehabilitation objectives have been met (refer to Guideline: Rehabilitation objectives and rehabilitation completion criteria).

Final versions of the rehabilitation completion criteria are to be submitted to the Secretary for approval no later than the due date of the forward program[9] that covers a period which includes completion of rehabilitation for the mining area or part thereof[10]. The intent of the required timing for submission of the rehabilitation completion criteria is to allow sufficient time for research, monitoring and further stakeholder consultation to set the appropriate benchmarks to be achieved for the various aspects of rehabilitation (e.g. landform stability, establishment of vegetation community types etc). This is consistent with a key aim of Schedule 8A of the Mining Regulation 2016, which was to improve the clarity of the benchmark to be achieved for rehabilitation to be deemed sustainable for the long term. This will also lead to more specificity and consistency in monitoring programs to track the trajectory and compliance of rehabilitation in meeting the final land use.

It is the expectation that lease holders will submit final rehabilitation completion criteria to the Secretary for approval well in advance before rehabilitation of the whole (or identified part) of the mining area is proposed to be completed. In instances where a mine announces its closure and ceases operations in the years immediately following the commencement of Schedule 8A of the

[7] The Secretary has approved the Rehabilitation Objectives Statement form accessed via the Resources Regulator Portal to be the form and way for purposes of preparing and submitting the Rehabilitation Objectives Statement. The Secretary has approved the Mine Rehabilitation Portal to be the form and way for the preparation and submission of the final landform and rehabilitation plan (large mines only) – refer to clauses 12, 14 and 15 in Schedule 8A of Mining Regulation 2016.

[8] The Secretary has approved the Rehabilitation Completion Criteria (Mining) form accessed via the Resources Regulator Portal to be the form and way for purposes of preparing and submitting the Rehabilitation Completion Criteria Statement (refer to clauses 12, 14 and 15 in Schedule 8A of Mining Regulation 2016).

[9] A forward program covers a 3-year forecast period.

[10] Clause 15(3) of Schedule 8A of the Mining Regulation 2016.

Mining Regulation 2016 (commenced 1 July 2021), the requirement to submit the final rehabilitation completion criteria for approval will only be triggered if it is expected that the lease holder will apply for rehabilitation acceptance on a date covered by the next Forward Program. As noted earlier in this guideline, the timeframe it takes for active rehabilitation works to be undertaken following the cessation of mining, as well as for rehabilitation to mature to a standard where it is assessed as complete, can take in the order of 3 to 20 years (or longer) following the cessation of mining operations at a mine.

Rehabilitation completion criteria that have not been approved by us are considered to be preliminary only and are to be included as part of the published rehabilitation management plan. Where this is the case, the process and timeframe of ongoing refinement of rehabilitation completion criteria, before being submitted for final approval, will need to be documented in the forward program. The progress towards finalisation will also need to be reported in the annual rehabilitation report.

At present there are some mines where aspects of rehabilitation require further research and consultation before suitable rehabilitation completion criteria can be approved. To confirm expectations, the Resources Regulator will be working closely with some mines on key aspects of rehabilitation such as ecological and agricultural revegetation, landform stability, surface and groundwater quality to better define rehabilitation completion criteria. The key objective being to ensure that when rehabilitation is signed-off against the completion criteria, it will mean that rehabilitation will be sustainable for the long term.

Step 3: Prepare and implement the rehabilitation management plan (large mines only)

Lease holders of large mines are required to prepare, implement and keep up to date a rehabilitation management plan. The rehabilitation management plan is to be prepared in accordance with the form and way stipulated by the Secretary[11]. The rehabilitation outcomes are required to be incorporated into the rehabilitation management plan and published (e.g. on a mining company's webpage).

As part of this process, lease holders will also be required to review the rehabilitation risk assessment to identify and manage risks associated with achieving the rehabilitation outcomes. The rehabilitation management plan must also incorporate any changes to risk controls to be implemented to achieve the rehabilitation outcomes.

The rehabilitation outcomes and the rehabilitation management plan can be refined and amended in accordance the processes outlined in the Mining Regulation 2016.

[11] Refer to Form and way: Rehabilitation management plan for large mines.

Step 4: Develop a forward program for rehabilitation activities

Lease holders are required to prepare and submit an annual rehabilitation report and forward program in the form and way[12] required by the Secretary.

This report includes information on rehabilitation activities undertaken during the nominated annual report period, as well as a forward program for surface disturbance activities and rehabilitation activities to be undertaken over a three-year forecast period. This includes undertaking ongoing monitoring, maintenance and corrective actions to existing rehabilitation areas to ensure that they remain on a trajectory of achieving the rehabilitation outcomes as soon as reasonably practicable.

Lease holders are required to rehabilitate the mining area that is disturbed by activities under the mining lease in accordance with the three-year forecast set out in the forward program.

As part of this process, lease holders are required to consider rehabilitation research, trials and other relevant studies that will be carried out in the three-year forecast period (where applicable) to address knowledge gaps identified in the rehabilitation risk assessment. Furthermore, where rehabilitation completion criteria are yet to be approved, the forward program will need to document the process for ongoing refinement before they are submitted for approval.

Step 5: Implement rehabilitation, monitor progress and actively manage

In accordance with the conditions of a mining lease, lease holders must rehabilitate land in the mining area as soon as reasonably practicable after disturbance occurs. This requires rehabilitation activities to be undertaken progressively and in accordance with:

- the rehabilitation management plan (large mines only)
- the three-year forecast set out in the forward program.

A rehabilitation monitoring program is required to be developed and implemented to evaluate the progress of rehabilitation towards fulfilling rehabilitation objectives and rehabilitation completion criteria (including any baseline monitoring at analogue sites). Guideline: Rehabilitation controls provides further guidance on what should be included in a rehabilitation monitoring program. Guideline: Rehabilitation objectives and rehabilitation completion criteria provides further guidance on how lease holders set up a rehabilitation monitoring program based on the performance indices associated with each rehabilitation completion criteria. The rehabilitation monitoring program must be detailed in the rehabilitation management plan (large mines only). Part 8 of the Form and Way: Rehabilitation management plan for large mines proves further guidance on what should be considered in the development of a rehabilitation monitoring program.

Rehabilitation monitoring should be implemented early to establish records that will facilitate assessment of the effectiveness of rehabilitation methodologies. Monitoring parameters in the

[12] The Secretary has approved the Forward Program form accessed via the Resources Regulator Portal to be the form and way for purposes of preparing and submitting the Forward Program (refer to clauses 13 to 16 in Schedule 8A of Mining Regulation 2016).

rehabilitation monitoring program must be aligned to the rehabilitation completion criteria, specifically the performance indices.

Rehabilitation monitoring must be reported in the annual rehabilitation report[13] and forward program in the form and way stipulated by the Secretary.

Rehabilitation monitoring will determine the effectiveness of rehabilitation risk controls and if there are any emerging risks, including a risk of rehabilitation failure requiring early intervention. The outcomes of the rehabilitation monitoring program should be used to develop any necessary management actions for rehabilitation areas (e.g. weed control, feral animal control, erosion control, re-seeding and or plant etc.) to ensure that the rehabilitation outcomes are achieved as soon as reasonably practicable.

Step 6: Demonstrate achievement of final land use (rehabilitation completion)

The lease holder must demonstrate (with records) that they have attained the approved rehabilitation outcomes for the lease land prior to applying for rehabilitation completion. In summary, the lease holder must demonstrate that:

- they have met the approved rehabilitation objectives
- they have achieved the approved rehabilitation completion criteria
- they have achieved the final landform and rehabilitation plan.

As part of this process, the lease holder must consider the following (as relevant):

- the mining area, subject to the application, is clearly defined in accordance with the department's requirement for spatial data submission (refer to Guideline: Mine rehabilitation portal).
- rehabilitation records have been maintained of all rehabilitation actions taken in accordance with the Mining Regulation 2016[14] (refer Guideline: Rehabilitation records).
- all monitoring required under the *Mining Act 1992* has been collated to demonstrate that the rehabilitation completion criteria has been achieved.
- consultation has been undertaken with relevant government agencies and any regulatory requirements under other legislation have been satisfied (refer to section above "Regulator requirements – other legislation"). This may include but not necessarily be limited to the following:

[13] The Secretary has approved the Annual Rehabilitation Report form accessed via the Resources Regulator Portal to be the form and way for purposes of preparing and submitting the Annual Rehabilitation Report (refer to clauses 13 to 16 in Schedule 8A of Mining Regulation 2016).

[14] Clause 17 of Schedule 8A of the Mining Regulation 2016 requires records to be created and maintained of all rehabilitation actions. Sections 163D and 163E of the *Mining Act 1992* provide for the form in which records must be kept and the period for which they must be retained.

  - consultation with and written confirmation from the relevant development consent authority confirming there are no outstanding rehabilitation obligations / commitments under the development consent
  - consultation with and written confirmation from the NSW Environment Protection Authority (for large mines) that all relevant obligations under an environment protection licence (EPL) can/have been met or the EPL has/will be surrendered
  - consultation with Dam Safety NSW where the land includes a declared dam under the *Dam Safety Act 2015* - which may involve an application to remove a dam or tailings dam from the list of declared dams following rehabilitation
  - consultation with and written confirmation from the relevant water regulator (e.g. Water NSW, Natural Resources Access Regulator) that any obligations under water licences / approvals have been met
  - consultation with and written confirmation from the relevant government department(s) regarding matters relevant to the mining lease area relating to Aboriginal heritage impact permits, biobanking agreements, biodiversity offsets, heritage permits, plant / species licences, etc
  - consultation with and documented acceptance from relevant utility companies regarding the decommissioning and removal or retention of utilities or infrastructure within the mining lease including electricity, water, gas, telecommunication and rail services
  - consultation with and written confirmation from the Commonwealth Department of Agriculture, Water and the Environment that obligations relevant to the mining lease area have been met under any relevant approvals granted pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*.
- notification of closure of the mine site has occurred in accordance with the Work Health and Safety (Mines and Petroleum Sites) Regulation 2022.
- consultation has occurred with the landholder and the landholder is satisfied with the completed rehabilitation. While not mandatory, landholder satisfaction with completed rehabilitation may assist our assessment.
- consultation has been undertaken with other relevant stakeholders, such as the local Aboriginal land council and any community consultative committee established under the requirements of the development consent.

Step 7 - Submitting a rehabilitation completion application

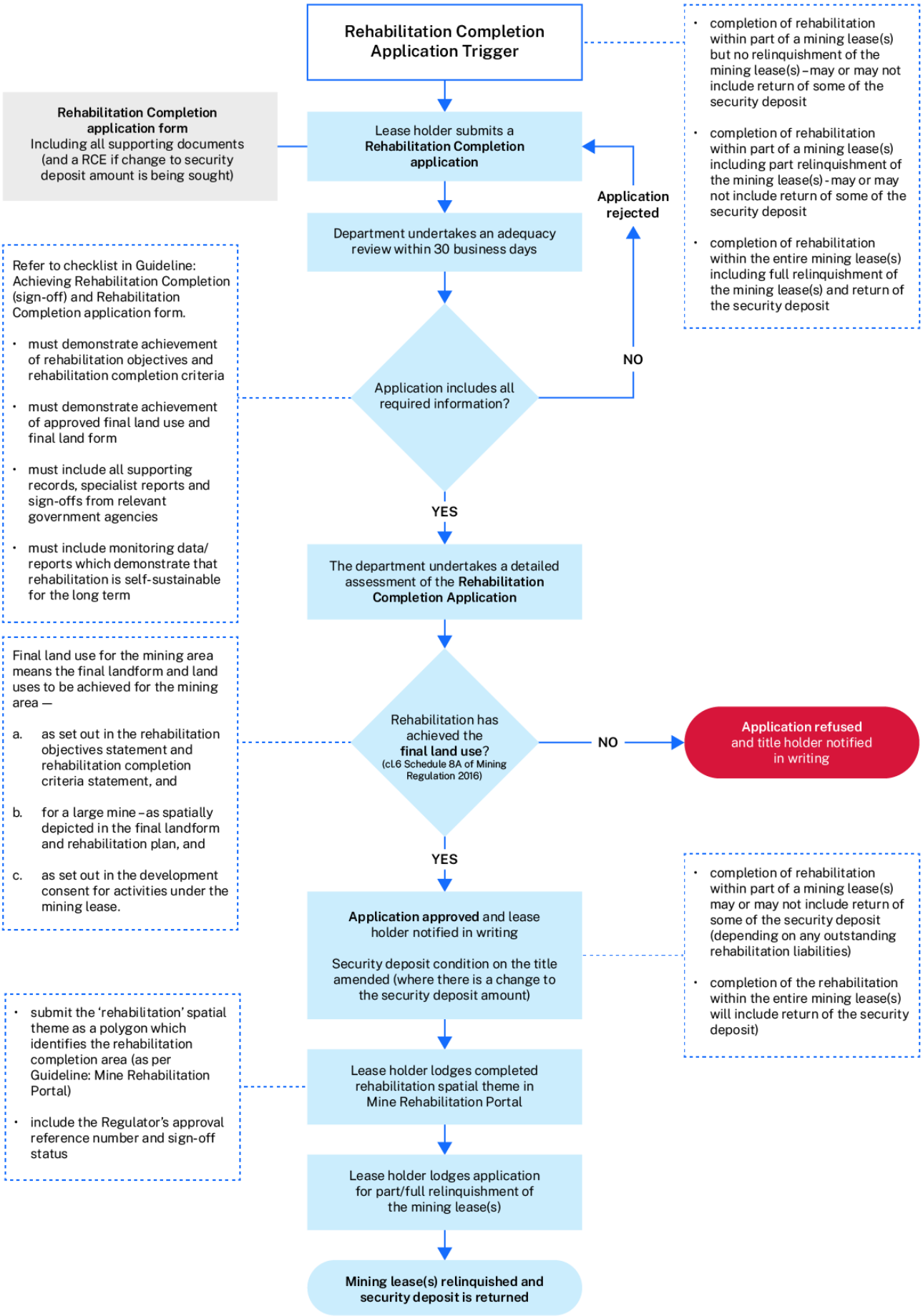
The application and determination process is outlined in the flowchart overleaf.

Lease holders are required to apply to us for rehabilitation completion using the relevant application form available on our website. The application form provides further guidance as to the type and format of information that is required to support an application to us. **Appendix 1** provides a checklist of what is required to be submitted with an application.

The application needs to include a submission confirming the achievement of the approved rehabilitation objectives and completion criteria, including the relevant validation methods / records. **Appendix 3** provides an example of a rehabilitation objectives and rehabilitation completion criteria submission for a large mine. **Appendix 4** provides an example of a rehabilitation objectives and rehabilitation completion criteria submission for a small mine.

The extent of the mining area for which the application applies is required to be in a spatial data format in accordance with our spatial data formatting requirements and submitted to the mine rehabilitation portal (refer to Guideline: Mine rehabilitation portal).

As part of this process, the lease holder will also have an opportunity to revise the rehabilitation cost estimate for the mining lease, taking into account the completed rehabilitation. The estimate will then be considered by the department when determining the security deposit amount. This may include partial return of the security deposit following completion of rehabilitation within a particular area of land within the mining lease area. Alternatively, it may include full return of security following completion of rehabilitation across the entire mining lease area.


Rehabilitation Completion Application Trigger
completion of rehabilitation within part of a mining lease(s) but no relinquishment of the mining lease(s) – may or may not include return of some of the security deposit
completion of rehabilitation within part of a mining lease(s) including part relinquishment of the mining lease(s) - may or may not include return of some of the security deposit
completion of rehabilitation within the entire mining lease(s) including full relinquishment of the mining lease(s) and return of the security deposit
Rehabilitation Completion application form
Including all supporting documents (and a RCE if change to security deposit amount is being sought)
Lease holder submits a Rehabilitation Completion application
Application rejected
Department undertakes an adequacy review within 30 business days
Refer to checklist in Guideline: Achieving Rehabilitation Completion (sign-off) and Rehabilitation Completion application form.
must demonstrate achievement of rehabilitation objectives and rehabilitation completion criteria
must demonstrate achievement of approved final land use and final land form
must include all supporting records, specialist reports and sign-offs from relevant government agencies
must include monitoring data/ reports which demonstrate that rehabilitation is self-sustainable for the long term
Application includes all required information?
NO
YES
The department undertakes a detailed assessment of the Rehabilitation Completion Application
Final land use for the mining area means the final landform and land uses to be achieved for the mining area —
a. as set out in the rehabilitation objectives statement and rehabilitation completion criteria statement, and
b. for a large mine – as spatially depicted in the final landform and rehabilitation plan, and
c. as set out in the development consent for activities under the mining lease.
Rehabilitation has achieved the final land use? (cl.6 Schedule 8A of Mining Regulation 2016)
NO
Application refused and title holder notified in writing
YES
Application approved and lease holder notified in writing
Security deposit condition on the title amended (where there is a change to the security deposit amount)
completion of rehabilitation within part of a mining lease(s) may or may not include return of some of the security deposit (depending on any outstanding rehabilitation liabilities)
completion of the rehabilitation within the entire mining lease(s) will include return of the security deposit)
submit the 'rehabilitation' spatial theme as a polygon which identifies the rehabilitation completion area (as per Guideline: Mine Rehabilitation Portal)
include the Regulator's approval reference number and sign-off status
Lease holder lodges completed rehabilitation spatial theme in Mine Rehabilitation Portal
Lease holder lodges application for part/full relinquishment of the mining lease(s)
Mining lease(s) relinquished and security deposit is returned

Our assessment process

Adequacy review

We will review the information provided in the application by the lease holder to determine whether it contains all the relevant information required to be able to make a determination whether the final land use has been achieved.

This adequacy review will be undertaken within 30 business days and will include a review of the relevant matters listed in the checklist in **Appendix 1**. If the application is deemed to be inadequate, the lease holder will be advised in writing that the application has been rejected. This will include reasons for this rejection.

The lease holder will need to address these outstanding matters prior to submitting a new application.

Determination

We will review all the information provided in the application by the lease holder to determine whether the final land use has been achieved. This will include a review of relevant records and monitoring data and on the ground rehabilitation verification inspections.

We have established an internal review panel known as the Rehabilitation and Securities Panel (RASP) to review and determine applications from lease holders for rehabilitation acceptance. RASP is made up of senior staff within the Resources Regulator.

Complex rehabilitation matters may also be referred to other relevant agencies for advice as to whether rehabilitation obligations have been fulfilled. We will consider this advice as part of its determination of the application.

Where we determine that the rehabilitation outcomes have not been satisfied, a written response will be provided to the lease holder providing the reasons for this decision and the specific issues that are required to be addressed. This may include the issuing of directions under section 240 of the *Mining Act 1992*. We may retain and/or vary the security deposit should the rehabilitation obligations not yet be fulfilled. The amount of security deposit may continue to be held beyond the time when the mining lease expires or is cancelled.

Where it is determined that the rehabilitation outcomes have been satisfied and all rehabilitation obligations under the *Mining Act 1992* have been met, we will:

- provide written notification to the lease holder
- undertake an assessment of the security deposit to determine whether the security deposit is adequate, including whether the security deposit (or part thereof) can be returned[15]

[15] The Resources Regulator will notify Mining, Exploration and Geoscience within the Department of any changes to the security deposit required. This may trigger a change to the security deposit condition on the mining lease.

This process is progressive throughout the mine life (e.g. progressive completion of rehabilitation is captured as part of the reporting requirements in the annual rehabilitation report and forward program until the entire mining lease area has been rehabilitated).

Examples

A range of examples of rehabilitation completion and sign-off by the department are available on our website. Provided in **Appendix 2** are two recent examples which provide an indication of the timeframes associated with determining rehabilitation completion applications for both a small and a large mine.

Post determination actions by lease holder

Once written confirmation of rehabilitation completion (sign-off) has been provided by the department, lease holders will still be required to submit spatial data identifying the part of the mining area for which rehabilitation has been accepted as complete. Lease holders are required to:

- submit the 'Rehabilitation' spatial theme as a polygon which identifies the rehabilitation completion area that has been signed off through the Mine Rehabilitation Portal (as per Guideline: Mine rehabilitation portal)
- include the Regulator's approval reference number in the 'Sign-off Reference' field (SignRef)
- include the sign off status (i.e. 'rehabilitation completion') in the 'Rehabilitation Phase' field (RehabPha)
- include the sign-off status (i.e. 'Sign-off complete') in the 'Sign-off Status' field (Signstat)
- include any other relevant information in the 'Additional info' field (AddInfo).

Lease holders may also wish to apply to us for a review of the security deposit held by the department. Applications are submitted online via the Regulator Portal. This may include partial return of the security deposit following completion of rehabilitation within a particular area of land within the mining lease area. Alternatively, it may include full return of security following completion of rehabilitation across the entire mining lease area.

The lease holder can also proceed to request formal relinquishment of the mining lease over the subject area. This request can apply to part of the mining lease area (e.g. limited to part of the mining area for which rehabilitation is accepted as completed by us). The mining lease relinquishment process is administered by the department through a separate application, which involves consultation with the Resources Regulator. Alternatively, lease holders can retain the mining lease and decide to process the mining lease relinquishment later.

Lease holders should note that even if rehabilitation acceptance (sign-off) has been obtained from us, they are still required to comply with all relevant requirements of the *Mining Act 1992* and the conditions of the mining lease until the mining lease has been relinquished.

Alternative post mining land uses

The final land use comprises the final landform and the final land use(s) to be achieved for the mining area. The final land use(s) are generally approved[16] as part of the development consent for the mining operations and typically involve returning to the land use(s) that existing pre-mining (e.g. agricultural grazing, native ecosystem, etc).

In some circumstances, lease holders / landholders may decide that a change to the approved final land use would be appropriate. Changes should be considered in the context of beneficial use of the land rather than unachievable rehabilitation and final land use outcomes. Examples of potential beneficial alternative land uses include residential development, renewable energy infrastructure (e.g. pumped hydro and solar farms) or other non-rural land uses. In some circumstances, the retention of infrastructure (e.g. workshop buildings) for ongoing use post-closure may require a change to the final land use.

Any changes to the approved final land use will require either a new development consent or a modification to an existing consent from the relevant consent authority under the *Environmental Planning and Assessment Act 1979*.

The process of obtaining development consent must be completed prior to the rehabilitation acceptance application process and will require a re-establishment of rehabilitation outcomes. Lease holders will be required to reassess the risks associated with the proposed land use change. For example, a change in land use to accommodate residential development will require a consideration of risks that may not have previously required consideration, such as geotechnical stability of the rehabilitated land to support residential foundations.

We will sign off on rehabilitation completion associated with an alternative final land use once there is certainty that the proposed land use is achievable and will be implemented. Generally, this would include:

- a development consent for the alternative final land use has been granted and there is certainty that this development consent will be implemented
- sign-off from the consent authority that relevant obligations under the mining consent have been fulfilled (which may include surrender of the mining development consent)
- mechanisms are in place to manage any ongoing and/or future residual risks on the land resulting from the mining operations (e.g. land contamination, spontaneous combustion, landform stability, groundwater contamination, etc). This could include legal instruments which apply to the land and/or funding mechanisms
- sign-off from the NSW Environment Protection Authority that all relevant obligations under an environment protection licence (EPL) can/have been met and/or the EPL has/will be surrendered

[16] In circumstances where the final land use is not defined in the development consent (e.g. in older consents or where the mine operates under existing use rights), lease holders are required to undertake a final land use options assessment. The options assessment process is outlined in the Form and way: Rehabilitation management plan for large mines.

- confirmation from the relevant government department(s) confirming matters relevant to the mining lease area relating to Aboriginal heritage impact permits, biobanking agreements, biodiversity offsets, heritage permits, etc have been satisfactorily addressed
- confirmation from the Commonwealth Department of Agriculture, Water and the Environment that obligations relevant to the mining lease area have been met under any relevant approvals granted pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*.

The department has prepared the Practical Guide: Post Mining Land Use to support industry in relation to post mining land use planning, mine closure, and transitioning to future land uses. This guide is available on our website and offers general guidance, and lease holders are encouraged to seek specialist advice on a site-specific basis. Lease holders considering changes to final land use are encouraged to consult early with both us and the relevant consent authority.

Other considerations

Ongoing rehabilitation obligations under the *Mining Act 1992*

Under the provisions of the *Mining Act 1992*, we can direct lease holders to rehabilitate land that has been affected by activities under the mining lease. These provisions also apply to mining leases that have expired, been cancelled or relinquished.

In the event of failed rehabilitation of land previously accepted as complete, we will undertake an investigation to determine the cause and factors contributing to the failure. We will then determine the appropriate response and if necessary, regulatory action is required against the former lease holder based on the circumstances and nature of the issue.

The security deposit may also be held beyond the time when the mining lease expires or is cancelled, should the obligations not yet be fulfilled.

Glossary

Term	Definition
Annual rehabilitation report	As defined in the Mining Regulation 2016.
Department	Department of Primary Industries and Regional Development.
Disturbance	See Surface Disturbance.
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.
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Final land use domain	A land management unit with a final land use. A mining lease may have one final land use (e.g. returning the entire mining lease to native vegetation) or several final land use units (e.g. a mix of pasture areas and native ecosystems). Each final land use unit represents a separate final land use domain.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the department's website.
Forward program	As defined in the Mining Regulation 2016.
Indicator	An attribute of the biophysical environment (for example, 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 criterion (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*.
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 leaseholders must use (via a registered account) to:

Term	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 leaseholders.
Mining area	As defined in the *Mining Act 1992*.
Mining domain	A land management unit with a discrete operational function (for example, overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining lease	As defined in the *Mining Act 1992*.
Mining operations	As defined in the *Mining Act 1992*.
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 • ecosystem and land use establishment • ecosystem and land use development • rehabilitation completion (sign-off).
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved or, if not yet approved, the proposed: • rehabilitation objectives, and • rehabilitation completion criteria, and • for large mines – final landform and rehabilitation plan. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.
Rehabilitation	As defined in the *Mining Act 1992*.

Term	Definition
Rehabilitation acceptance	Written confirmation from the Resources Regulator that rehabilitation obligations under the *Mining Act 1992* have been fulfilled following submission of the relevant application by the lease holder.
Rehabilitation completion	The final phase of rehabilitation when a rehabilitation area has achieved the final land use for the mining area: • as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria, and • for large mines – as spatially depicted in the approved final landform and rehabilitation plan. Rehabilitation areas may be classified as complete when the Resources Regulator has determined in writing that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.
Rehabilitation completion criteria	Rehabilitation completion criteria set out the criteria the achievement of which will demonstrate the achievement of the rehabilitation objectives.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	Means the rehabilitation objectives required to achieve the final land use for the mining area.
Rehabilitation outcomes	Means the final land use for the mining area as stated in the approved rehabilitation objectives, the approved rehabilitation completion criteria and (for large mines) the approved final landform and rehabilitation plan.
Rehabilitation outcome documents	As defined in the Mining Regulation 2016.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
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	As defined in the *Mining Act 1992*.
Small mine	As defined in the Mining Regulation 2016.

Term	Definition
State significant development (SSD)	Has the same meaning as that term under the *Environmental Planning and Assessment Act 1979*. Note: Schedules 1 and 2 of *State Environmental Planning Policy (State and Regional Development) 2011* provide a full list of SSD types and identified sites. Large mining and extraction operations (including all coal mines) are identified as SSD.
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.

Department guidance

- Guideline: Rehabilitation risk assessment
- Guideline: Rehabilitation records
- Guideline: Rehabilitation controls
- Guideline: Mine rehabilitation portal
- Guideline: Rehabilitation objectives and rehabilitation completion criteria
- Guideline: Achieving rehabilitation completion (sign-off)
- Guideline: Form and way for rehabilitation objectives, rehabilitation completion criteria and final landform and rehabilitation plan for large mines
- Guideline: Form and way for rehabilitation objectives and rehabilitation completion criteria for small mines
- Form and way: Rehabilitation management plan for large mines
- Guideline: Form and way for annual rehabilitation report and forward program for small mines
- Guideline: Form and way for annual rehabilitation report and forward program for large mines

The above resources are located on our website.

Appendix 1: Checklist for a rehabilitation completion application

The following provides a checklist of what is required to be submitted (as relevant) with an application seeking rehabilitation sign off from the Resources Regulator. The relevant application form can be accessed via our website.

Evidence of rehabilitation completion as per list below (as relevant)	Check
Written evaluation and evidence as to how the rehabilitation has met each of the approved rehabilitation objectives and rehabilitation completion criteria. This should be in a table format as per **Appendix 3** (for large mines) or **Appendix 4** (for small mines). The approved validation methods for each rehabilitation completion criteria must be specified and/or attached (e.g. specialist reports/advice/records confirming that specific aspects of the completion criteria have been met). Examples may include ecological monitoring, geotechnical, groundwater and site remediation reports).	☐
Large Mines Only – Submit the 'Rehabilitation' theme spatial data to the Mine Rehabilitation Portal showing the extent of the completed rehabilitation area to which this application applies (submitted in accordance with the spatial data formatting and submission requirements outlined in Guideline: Mine rehabilitation portal).	☐
Plans/maps showing location of areas of completed rehabilitation relevant to the application. For large mines these plans/maps can be generated from the approved Final Land Use and Rehabilitation Plan in the Mine Rehabilitation Portal. Plans/maps to include: mining lease boundaries / mine operations area final land use and mining domains location of completed rehabilitation relevant to the application area(s)	☐
Representative photographs of all completed rehabilitation sites to evidence: condition of the receiving environment prior to disturbance rehabilitation activities performed completion of rehabilitation	☐
Written statement(s) from landholder(s) confirming they are satisfied with the standard of rehabilitation.	☐

Evidence of rehabilitation completion as per list below (as relevant)	Check
Evidence of consultation with relevant government agencies and any regulatory requirements under other legislation have been satisfied (refer to section above "Regulator requirements – other legislation"). This may include but not necessarily be limited to the following:	
Confirmation from the relevant development consent authority confirming there are no outstanding rehabilitation obligations / commitments under the development consent.	☐
Confirmation from the NSW Environment Protection Authority (for large mines) that all relevant obligations under an environment protection licence (EPL) can/have been met or the EPL has/will be surrendered.	☐
Consultation with Dam Safety NSW where the land includes a declared dam under the *Dam Safety Act 2015* - which may involve an application to remove a dam or tailings dam from the list of declared dams following rehabilitation.	☐
Confirmation from the relevant water regulator (e.g. Water NSW, Natural Resources Access Regulator) that any obligations under water licences / approvals have been met.	☐
Confirmation from the relevant government department(s) regarding matters relevant to the mining lease area relating to Aboriginal heritage impact permits, biobanking agreements, biodiversity offsets, heritage permits, plant / species licences, etc.	☐
Acceptance from relevant utility companies regarding the decommissioning / removal / retention of utilities or infrastructure within the mining lease including electricity, water, gas, telecommunication and rail services.	☐
Confirmation from the Commonwealth Department of Climate Change, Energy, the Environment and Water that obligations relevant to the mining lease area have been met under any relevant approvals granted pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*.	☐

Appendix 2: Examples of rehabilitation completion (sign-off)

A range of examples of rehabilitation completion and sign-off by the department are available on our website. Provided below are two recent examples which provide an indication of the timeframes for both a small and a large mine.

Fieldsend Clay Mine, Metford	
Type of mining	Open cut mine extracting clay, shale and sandstone materials
Approved final land use	Native vegetation and water body
Total area of mining operations	14 hectares (approximately)
Date mining commenced	1882
Date mining operations ceased	2008
Date rehabilitation commenced	Around 2014
Key rehabilitation activities and outcomes	• removing contaminants from the site and associated remediation of the soils to a standard suitable for recreational open space use • stabilising and retaining access roads within the site • establishing a natural landform consisting of grassland, shrubs and native trees similar to the pre-mining environment • establishing a water body associated with the final mine void that is suitable for recreational use (visual with no contact) and supporting aquatic flora and fauna • establishing a safe, stable, self-sustaining and non-polluting landform.
Rehabilitation monitoring and maintenance	Rehabilitation monitoring and maintenance took place over around 6 years (2014 to 2020) to demonstrate to the Resources Regulator that the rehabilitation was self-sustainable.
Rehabilitation sign-off by the Resources Regulator	Rehabilitation completion application submitted to the Resources Regulator in November 2019 and signed off in around January 2020.

Westside Coal Mine, Wakefield	
Type of mining	Open cut coal mine
Approved final land use	Native vegetation and some small dams
Total area of mining operations	38 hectares (approximately)
Date mining commenced	1992 (northern and southern parts of mining lease)
Date mining operations ceased	2012
Date rehabilitation commenced	Progressively from around 1994 onwards
Key rehabilitation activities and outcomes	• removing contaminants from the site and associated remediation of the soils to a standard suitable to support a native bushland ecosystem • establishing a natural landform consistent with the surrounding environment comprising native shrubs and trees - similar to the pre-mining environment • establishing a safe, stable, self-sustaining and non-polluting landform.
Rehabilitation monitoring and maintenance	Rehabilitation monitoring and maintenance took place over around 10-26 years (1994 to 2020) to demonstrate to the Resources Regulator that the rehabilitation was self-sustainable.
Rehabilitation sign-off by the Resources Regulator	Rehabilitation completion application submitted to the Resources Regulator in November 2019 and signed off in early 2020.

Appendix 3: Example rehabilitation objectives and rehabilitation completion criteria submission – large mines

APPROVED ROB NO.	REHABILITATION OBJECTIVE CATEGORY	APPROVED REHABILITATION OBJECTIVES	SPATIAL REFERENCE FIELD	APPROVED ROCC NO.	APPROVED REHABILITATION COMPLETION CRITERIA	INDICATOR (S) (specific attribute associated with the objective)	VALIDATION METHODS (evidence that the benchmark has been achieved)
(This is the approved Rehabilitation Objective No. – e.g. ROB0001234)	Removal of Infrastructure	All infrastructure that is not to be used as part of the final land use is removed to ensure the site is safe and free of hazardous materials.	(e.g. 'A2' - which would be the spatial reference for a final land use of 'native ecosystem' that has a mining domain of 'tailings storage facility')	(This is the approved Rehabilitation Completion Criteria No. – e.g. ROCC004567)	All utility infrastructure removed.	Removal of all services (power, water, communications) that have been connected on the site as part of the operation.	Statement provided by X dated X. Utility service disconnection record / notification from X dated X.
					Permits and approval documents issued. All archival reports required are complete and submitted.	Heritage obligations (e.g. development consent under the *Environmental Planning and Assessment Act 1979*, approvals under the *Heritage Act 1977*, etc.) have been met (e.g. archival recording, building retention or building demolition with footings preserved).	(could include copies of any relevant approval documentation and archival reports/records).
					Infrastructure removed.	Removal of all plant, equipment and associated infrastructure including processing facilities,	As-constructed final landform plan, photos, decommissioning reports etc.

						stockpile areas, rail infrastructure and loading facilities, underground hydrocarbon storage tanks, office complex, portable offices, exploration core samples, camp facilities, storage racks, samples.	
					Footings removed and or removed to specified depths to avoid exposure pathways to subsequent final land use.	Removal of all footings or removal to a certain depth (e.g. X metres).	Surveyed and marked on the as-constructed final landform plan.
					Infrastructure removed.	Removal of all water management infrastructure (including pumps, pipes and power).	Statement provided and before/after photos.
					Cores removed and relocated.	All drill cores have been removed and taken either to an authorised storage or a disposal location.	Statement provided, receipt records from storage or disposal location.
					Sealing completed and verified.	Surveying and sealing of all drill holes, boreholes and gas wells in accordance with departmental	Engineering report/statement, plug and abandonment log, photos, as-constructed drawings, records of fill

						guidelines and relevant standards.	materials and concrete plugs, filling methods etc.
					Sealing completed and verified by suitably qualified engineer.	Surveying and sealing of all underground mine entries in accordance with departmental guidelines and relevant standards.	Engineering report/statement, plug and abandonment log, photos, as-constructed drawings, records of fill materials and concrete plugs, filling methods etc.
(e.g. 'B4' - which would be the spatial reference for a final land use of 'agricultural -grazing' that has a mining domain of 'overburden emplacement area')	ROC000XXXX	Hazards isolated and secured. All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. development consent and / or licence/lease/binding agreement, etc)	(e.g. 'B4' - which would be the spatial reference for a final land use of 'agricultural - grazing' that has a mining domain of 'overburden emplacement area')	ROC000XXXX	Hazards isolated and secured.	Potential hazards (e.g. electrical, mechanical) have been effectively isolated and secured.	Statement provided by suitably qualified engineer.
					Repairs complete.	Damage to access tracks has been repaired and stabilised.	As-constructed final landform plan, photos etc.
					Permits and approval documents issued.	Where applicable, necessary approvals are in place (e.g. development consent under the *Environmental Planning and Assessment Act 1979*) where buildings and infrastructure are to be	Copy of any relevant approvals.

						retained as part of final land use.	
					Permits and approval documents issued; archival reports (where required) complete and submitted.	Heritage obligations as required under the *Environmental Planning and Assessment Act 1979*, *Heritage Act 1977*, etc. have been met (e.g. archival recording, building retention and restoration).	Copy of any relevant approvals.
					The structural integrity of the infrastructure has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use.	The structural integrity of the infrastructure is suitable and safe for use as part of the intended final land use.	Engineering report/statement, photos, risk assessment verifying modes of failure are adequately addressed to minimise risks to public safety or the environment.
					Formal acceptance from the subsequent landowner that infrastructure is in a condition that is suitable for the intended final land use in accordance with formal agreement.	Infrastructure is in a condition (e.g. structural, electrical, other hazards) that is suitable for the intended final land use.	Formal acceptance from landowner.

					The location of the infrastructure has been marked on a plan and registered with the relevant local authority (e.g. local Council) and Dial Before You Dig. Formal acceptance from the subsequent landowner that underground infrastructure has been left in a condition that is suitable for the intended final land use in accordance with formal agreement.	If any underground pipelines or other infrastructure are to remain in situ, they do not pose a hazard for the intended final land use. Note: If any underground pipelines or other infrastructure are to remain in situ in areas to be returned for Agriculture – cropping they are at a depth Xm nominated depth (e.g. >1m).	Surveyed and marked on the as-constructed final landform plan. Copy of notification to local Council and Dial Before You Dig Formal acceptance from landowner. Identified on an appropriate legal instrument associated with the land title.
					Permits and approval documents issued; archival reports (where required) complete and submitted.	Heritage obligations as required under the *Environmental Planning and Assessment Act 1979*, *Heritage Act 1977*, etc. have been met (e.g. archival recording, building retention and restoration).	Copy of any relevant approvals and associated reports.
					The structural integrity of the infrastructure has been inspected by a suitably qualified	The structural integrity of the infrastructure is suitable and safe for use as part of the intended final land use.	Engineering report/statement, photos, risk assessment report validating modes of failure have been addressed to

					engineer and determined to be suitable and safe as part of the intended final land use.		minimise risks to public safety and the environment etc.
ROB000XXXX	Land Contamination	There is no residual soil contamination on site that is incompatible with the final land use or that poses a threat of environmental harm.	(e.g. 'B4' - which would be the spatial reference for a final land use of 'agricultural - grazing' that has a mining domain of 'overburden emplacement area')	ROCC000XXXX	There are no visible signs of contamination following the removal of plant, equipment and materials. All rubbish/ waste materials removed from site.	Waste material and/or visible contamination areas on site surface.	Statement provided and before/after photos.
					Contamination will be appropriately remediated so that appropriate guidelines for land use are met, e.g. Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999). Excess sludge/material has been removed from surface water dams.	Soil testing for contaminants of concern as listed by Health Investigation Level of the National Environment Protection (Assessment of Site Contamination) Measure (1999) applicable to land use type.	Contamination Remediation Report prepared by Land Contamination Consultant Site Contamination Audit Report and Site Audit Statement prepared by EPA Accredited Auditor (where required).

ROB000XXXX	Management of waste and process materials	Residual waste materials stored on site (e.g. tailings, coarse rejects and other wastes) will be appropriately contained / encapsulated so it does not pose any hazards or constraints for intended final land use.	(e.g. 'B2' - which would be the spatial reference for a final land use of 'agricultural - grazing' that has a mining domain of 'tailings storage facility')	ROCC000XXXX	Visual – verification that capping, type and placement consistent with design Visual – no signs of compromised capping performance indicated by vegetation health – such as tree death (deeper root systems) Visual – no areas of unexpected seepage Survey verifies that capping placement consistent with design and settlement and/or material loss is within predicted limits and will not compromise final landform drainage via differential settlement. Quality assurance records verify capping constructed and in accordance with design specifications relevant to site risks	Visual –capping material placement, type across emplacement Visual – indication of capping performance on final landform – vegetation health Visual – emplacement seepage and other indicators of groundwater issues – wet spots etc. Measured - survey of emplacement capping to verify construction and to monitor settlement. Quality assurance records for the construction of the emplacement material including (where relevant) capping material, liner system, seepage control etc Measured- surface and groundwater levels to verify water balance modeling and capping function Measured – contamination levels in surface and	Photos, rehabilitation monitoring reports, as-constructed surveys, quality assurance records for construction, erosion surveys, independent geotechnical reports (where required), groundwater/surface water monitoring reports. The structural integrity of the infrastructure and capping has been inspected by a suitably qualified engineer and determined to be suitable and safe as part of the intended final land use and water material adequately contained.

					and target final land use. For example: Capping depth – X metres Capping material type Capillary breaks Seepage control. Groundwater and surface monitoring verify capping function e.g. 'store and release' and design performance permeability/seepage. Groundwater and surface water monitoring verify adequate containment of waste materials and seepage/leachate is not contributing to land/groundwater contamination.	groundwater surrounding emplacement for contaminants of concern associated with waste material emplaced.	
ROB000XXXX	Landform Stability	The final landform is stable for the long-term and does not present a risk of environmental harm downstream / downslope of the site or a safety risk	(e.g. 'B4' - which would be the spatial reference for a final land use of 'agricultural - grazing' that has a mining domain of	ROCC000XXXX	Visual- minimal erosion that would not require moderate to significant ongoing management and maintenance works.	Visual - indicators of erosion and land instability. Visual - indicators that surface water management structure	Before and after photos, rehabilitation monitoring reports, as-constructed surveys, erosion surveys, independent geotechnical reports (where required) and or erosion modelling reports (where required) that indicate

		to the public/stock/native fauna. Landform that is commensurate with surrounding natural landform and where appropriate, incorporates geomorphic design principles.	'overburden emplacement area')		Visual – no signs of land instability such as mass movement. Visual - no areas of active gully erosion. Visual - no evidence of tunnel erosion. Visual – no evidence of active scour likely to compromise surface water management structure. Survey verifies final landform complies with final landform construction in accordance with Final Landform and Rehabilitation Plan.[6] Survey verifies that settlement and/or material loss is within predicted limits and will not compromise final landform drainage via differential settlement. Erosion rate monitoring verifies that erosion levels are within the range of target analogue sites	are functioning as designed. Measured – erosion rates from field trials and or surveys on both target analogue sites (representative of final land use) and rehabilitated profiles (tonnes / ha). Measured - Survey of rehabilitated landform to verify final landform construction in accordance with Final Landform and Rehabilitation Plan[6]. Measured - survey of rehabilitated landform to specifically monitor settlement and/or material loss via erosion. Modelled – long term erosional stability (e.g. Landform Evolution Modelling) to verify the long-term stability of rehabilitated landform. Modelled – long term geotechnical stability (e.g. stability analysis) to verify the long-term	long-term stability of rehabilitated landform. Depending on the nature, scale and risks associated with a specific site, stability will need to be evaluated over a number of years (e.g. 5 years). An engineering assessment undertaken by a suitably qualified person concludes that significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design. An engineering assessment undertaken by a suitably qualified person concludes that high risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.

					representative of final land use. Significant surface water management structures (e.g. spillways, drop structures, major drains and creek diversions) have been constructed in accordance with hydrological design. High risk landforms (such as steep slopes, high walls) have been constructed in accordance with geotechnical design.	stability of rehabilitated landform.	
ROB000XXXX	Bushfire	The risk of bushfire and impacts to the community, environment and infrastructure has been addressed as part of rehabilitation.	(e.g. 'C1' - which would be the spatial reference for a final land use of 'agricultural - cropping' that has a mining domain of 'infrastructure area')	ROCC000XXXX	Bushfire controls implemented.	Appropriate bushfire hazard controls (where required) have been implemented on the advice from the NSW Rural Fire Service.	Statement provided and before/after photos.
ROB000XXXX	Surface Water	Runoff water quality from mine site meets the requirements of the relevant development consent(s) / Environment Protection Licence	(e.g. 'B1' - which would be the spatial reference for a final land use of 'agricultural - grazing' that has a mining domain of 'infrastructure area')	ROCC000XXXX	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and or ANZECC	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection	Water quality monitoring reports. Environment Protection Licence relinquished by Environment Protection Authority.

		and does not present a risk of environmental harm. Or (where there are limited or no requirements in a development consent) Runoff water quality from mine site is similar to, or better than the pre-disturbance runoff water quality.			guidelines for specific environment.	Licence (further guidance available on NSW Environment Protection Authority website).	Independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
ROB000XXXX	Water Approvals	Structures that take or divert water such as final voids, dams, levees etc. are appropriately licensed (e.g. under the *Water Management Act 2000*) and where required ensure sufficient licence shares are held in the water source(s) to account for water take.	(e.g. 'G3' - which would be the spatial reference for a final land use of 'water storage' that has a mining domain of 'water management area')	ROCC000XXXX	Water approvals / licences are granted by relevant NSW Government Agency.	Final landform considers advice from relevant Government Agency whether sufficient licence shares are available in the water source to account for water stored in voids and dams in the proposed final landform.	Confirmation from relevant Government Agency that relevant water approvals / licences are able to be granted.
					Assessment of biological health in accordance with Australian River	Indicators as specified by Australian River Assessment System (AUSRIVAS).	Independent biological health assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may

					Assessment System (AUSRIVAS).		need to be evaluated over a number of years (e.g. 5 years to 15+ years).
ROB000XXXX	Groundwater Quality	Groundwater quality meets the requirements of the relevant development consent(s) / Environment Protection Licence and does not present a risk of environmental harm. Or (where there are limited or no requirements in a development consent) Groundwater quality is similar to, or better than the pre-disturbance water quality.	(e.g. 'A2' - which would be the spatial reference for a final land use of 'native ecosystem' that has a mining domain of 'tailings storage facility')	ROCC000XXX	Water quality discharged from rehabilitated mining operation meet specifications in Environment Protection Licence and or ANZECC guidelines for specific environment.	Water quality parameters selected from Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000 and or Environment Protection Licence (further guidance available on the NSW Environment Protection Authority website).	Independent hydrological assessment report. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
ROB000XXXX	Groundwater Regime	Impacts to groundwater regime are within range as per the development consent(s) / pre-mining environmental assessment. Or (where there are limited or no	(e.g. 'A5' - which would be the spatial reference for a final land use of 'native ecosystem' that has a mining domain of 'active mining area')	ROCC000XXXX	Groundwater levels, groundwater flow.	Groundwater quality both on and off a mining lease represent an acceptable level of change from a defined reference condition.	Water quality monitoring reports. Environment Protection Licence relinquished by Environment Protection Authority. Independent hydrological assessment report.

		requirements in a development consent) Impacts to groundwater are similar to the pre-mining environment.					Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
ROB000XXXX	Ecological rehabilitation	The vegetation composition of the rehabilitation is recognisable as the target vegetation community (e.g. Plant Community Type (PCT) contained within the BioNet Vegetation Classification). Or The vegetation composition of the rehabilitation contains species that are commensurate with native vegetation communities of X / Y / Z found in the local area.	(e.g. 'A4' - which would be the spatial reference for a final land use of 'native ecosystem' that has a mining domain of 'overburden emplacement area')	ROCC000XXXX	Native plant species are characteristic of the target vegetation community(s) when compared to analogue sites. Or for more specific target PCTs: Using the PCT Assignment Tool (or an analogous method agreed by the consent authority in consultation with DCCEEW[17]), the distance to centroid value(s) when comparing the ecological rehabilitation site and target PCT is within the specified threshold range set by the development	Native plant species recorded from 0.04 hectare fixed monitoring plots are characteristic of the target vegetation community (e.g. target PCT)	Before and after photos, rehabilitation monitoring reports, independent ecological reports (where required) that validate rehabilitation completion criteria have been met. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).

[17] DCCEEW: means the Biodiversity Conservation Division within the Department of Climate Change, Energy, the Environment & Water

					consent as described in the online PCT assignment tool (and supporting technical report and guidance).		
ROB000XXXX	Ecological rehabilitation	The vegetation structure of the rehabilitation is recognisable as, or is trending towards (based on ongoing monitoring data) the target vegetation community (e.g. plant community type contained within the BioNet Vegetation Classification). Or The vegetation structure of the rehabilitation is similar to that of native vegetation communities of X / Y / Z found in the local area.	(e.g. A4)	ROCC000XXXX	Cover, abundance and height range of native plant growth forms are characteristic of, or trending towards, the target vegetation community type(s). Or for more specific target PCTs: Foliage cover of species allocated to the 3 dominant growth form groups for the target PCT as identified by BAM[18] is within the 10th-90th percentile variation range of the specified reference sites/data approved by the consent authority; and For wooded target PCT(s) only: Stem abundance and diameter at breast height for trees in size	Cover and abundance of plant growth forms recorded from 0.04 hectare fixed monitoring plots are characteristic of the target vegetation community (e.g. PCT), or an ongoing trend toward becoming characteristic is evident from the monitoring data	Before and after photos, rehabilitation monitoring reports, independent ecological reports (where required) that validate rehabilitation completion criteria have been met. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).

[18] Biodiversity Assessment Methodology: further information is included in the NSW Government's website

					classes <5cm, 5-10, 10-20 and 20-30cm is within the 10th-90th percentile variation range of the specified reference sites/data approved by the consent authority		
ROB000XXXX	Ecological rehabilitation	Levels of ecosystem function have been established that demonstrate the rehabilitation is self-sustainable. (Note: Separate and more specific objectives will be required for areas such as wildlife / habitat corridors and/or specific habitat creation areas). In addition, separate rehabilitation objectives will be required where a quantum (e.g. X hectares) of a certain native vegetation community has to be established as part of the final land use.	(e.g. A4)	ROCC000XXXX	Litter cover is within 10th-90th percentile variation range of reference sites/data	Indicators of nutrient cycling are suitable for sustaining the target vegetation community (e.g. PCT(s))	Rehabilitation monitoring reports, independent soil reports (where required) that demonstrate long-term function of rehabilitated landform. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
					Second generation individuals of trees	Evidence of plant regeneration from 0.04	Before and after photos, rehabilitation monitoring

					are within the 10th-90th percentile variation range of reference sites/data approved by the consent authority	hectare fixed monitoring plots or a walk over of the ecological rehabilitation area	reports, independent ecological reports (where required) that validate rehabilitation completion criteria have been met. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
					Foliage cover of 'high threat exotic' (HTE) weeds is within 10th-90th percentile variation range of reference sites/data or at a level that does not cause significant risk to rehabilitation.	Cover of exotic species within 0.04 hectare fixed monitoring plots is low	Before and after photos, rehabilitation monitoring reports, independent ecological reports (where required) that demonstrate long-term stability of rehabilitated landform. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).
					Total organic carbon is within 10th-90th percentile variation range of reference sites/data; and Total microbial biomass is within 10th-90th percentile variation range of	Soil health is suitable to sustain the target vegetation community(s) (e.g. PCT)	Rehabilitation monitoring reports, independent soil reports (where required) that demonstrate long-term function of rehabilitated landform. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may

					reference sites/data approved by the consent authority; and The ratio of fungus to bacteria (fungal:bacterial) biomass is within 10th-90th percentile variation range of reference sites/data		need to be evaluated over a number of years (e.g. 5 years to 15+ years).
					Resilience to drought and fire.	Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes.	Rehabilitation monitoring reports, environmental monitoring records.
					Vertebrate pest species – presence and damage is recorded at a level that does not cause significant risk to rehabilitation. Domesticated stock - presence and damage is recorded at a level that does not cause significant risk to rehabilitation.	Threats to rehabilitation.	Rehabilitation monitoring reports.
ROB000XXXX	Agricultural Revegetation	Revegetation is sustainable for the long-term and only	(e.g. 'B4' - which would be the spatial reference for a final	ROCC000XXXX	Land and Soil Capability classification or	Routine Soil Test (bulked soil cores 0-10 cm) –Includes: Total	Rehabilitation monitoring reports, independent soil reports, environmental

		requires maintenance that is consistent with the intended final land use. Land use capability is capable of supporting the target agricultural land use. In addition, separate rehabilitation objectives will be required where a quantum (e.g. X hectares) of a certain agricultural outcome has to be established as part of the final land use.	land use of 'agricultural - grazing' that has a mining domain of 'overburden emplacement area')		Agricultural Land Classification criteria met. The re-established topsoil / subsoil substrate is capable of supporting the targeted pasture / cropping regime on a sustained basis. Cropping / Pasture establishment is consistent with the range of species utilised within the region. Cropping / Pasture establishment is in good health and provides adequate cover. Cropping yields from rehabilitated areas are similar to adjacent cropping land. Appropriate and reliable access to water for livestock. Appropriate animal refuge areas for livestock (e.g. wooded/treed areas) during extreme weather conditions.	Carbon (TC), Total Nitrogen (TN), Organic Matter, TC/TN Ratio; Bray I and II Phosphorus; Colwell Phosphorus; Available cations (Calcium, Magnesium, Potassium, Ammonium, Nitrate, Phosphate, Sulfur); Available Micronutrients (Zinc, Manganese, Iron, Copper, Boron, Silicon); Exchangeable (Sodium, Potassium, Calcium, Magnesium, Hydrogen, Aluminium, Cation Exchange Capacity); pH and EC (1:5 water); Basic Colour, Basic Texture. Commodity data (e.g. stocking rates, livestock weights, crop yields, pasture composition). Resilience demonstrated by the effects of drought and fire on composition, structure and other function attributes of pasture and cropping lands.	monitoring records, independent agronomist reports. Depending on the nature, scale and risks associated with a specific site, achievement of criteria may need to be evaluated over a number of years (e.g. 5 years to 15+ years).

					Resilience to drought and fire. Further detail on reinstatement of Biophysical Strategic Agricultural Land (BSAL) like soils to be provided by proponent.		

Appendix 4: Example rehabilitation objectives and rehabilitation completion criteria submission – small mines

APPROVED ROB NO.	REHABILITATION OBJECTIVE CATEGORY	APPROVED REHABILITATION OBJECTIVES	APPROVED ROB NO.	REHABILITATION OBJECTIVE CATEGORY	APPROVED REHABILITATION OBJECTIVES
(This is the approved Rehabilitation Objective No. – e.g. ROB0001234)	Removal of infrastructure	All infrastructure that is not required for the final land use is to be removed and the land left safe and free of hazardous materials.	(This is the approved Rehabilitation Completion Criteria No. – e.g. ROCC004567)	Removal of all services (power, water, communications) that have been connected on the land as part of the exploration program. Removal of all mining plant, equipment and associated infrastructure (including portable offices, ablution facilities, footings and slabs). Removal of all water management infrastructure (including pumps, pipes and power).	Written statements. Photographs.
ROB000XXXX	Retention of infrastructure	All infrastructure that is to remain as part of the final land use is safe, does not pose any hazard to the community. All infrastructure that is to remain as part of the final land use benefits from the relevant approvals (e.g. development consent and/or licence/lease/binding agreement, etc).	ROCC000XXXX	Potential hazards (e.g. electrical, mechanical) have been effectively isolated. If any underground pipelines are to remain in situ, the location of the infrastructure has been marked on a plan and registered with the relevant local authority (e.g. local Council) and Dial Before You Dig. All retained structures are accepted by the landowner as fit for the approved final land use	Surveyed and marked on the as-constructed final landform plan. Copy of notification to local council and Dial Before You Dig. Landholder acceptance letter.

ROB000XXXX	Land and water contamination	There is no residual soil contamination on site that is incompatible with intended final land use or that poses a threat of environmental harm.	ROCC000XXXX	There are no visible signs of contamination following the removal of plant, equipment and materials. Any contamination has been appropriately remediated in accordance with legislative requirements for the intended final land use. Retained dams are decontaminated in accordance with regulatory requirements Surface layer is free of any hazardous materials.	Contamination reports. Written statement. Photographic records Waste facility receipts.
ROB000XXXX	Landform stability	The final landform is stable and does not present a risk of environmental harm downstream of the site or a safety risk to the public/stock/native fauna.	ROCC000XXXX	Any erosion is minimal with no ongoing management and maintenance works. No evidence of active gully erosion. No evidence of excessive sediment build-up at the toe of slopes. No evidence of tunnel erosion. No active rilling. No evidence of active scouring where the runoff from rehabilitation areas discharges into natural channels. Any boreholes on the mining lease have been sealed in accordance with the Department's guidelines and verified by a suitably qualified person.	Visual inspection records. Photograph series from photo points. Erosion surveys. Specialist consultant assessment reports. Borehole sealing records.

ROB000XXXX	Water quality	Runoff water quality meets the requirements of the relevant development consent(s) and does not present a risk of environmental harm. Or (where there are limited or no requirements in a development consent) Runoff water quality is similar to, or better than, the pre-disturbance runoff quality.	ROCC000XXXX	Runoff water quality from rehabilitation areas represents an acceptable level of change from a defined reference condition (refer to *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000*). Water quality in retained dams and/or voids is suitable for the final land use.	Upstream and downstream water quality monitoring records. Water quality monitoring records.
ROB000XXXX	Native revegetation	Revegetation is sustainable for the long-term, and only requires maintenance that is consistent with the intended final land use.	ROCC000XXXX	Topsoil or (a suitable soil substitute) has been applied to rehabilitation areas in a manner that is suitable for the final land use. Native vegetation areas contain flora species assemblages characteristic of species found within the region and will provide fauna habitat value in the future. Monitoring demonstrates that trees are healthy and growing. Monitoring demonstrates that vegetation and/or leaf litter cover is adequate to minimise soil erosion. Weeds do not comprise a significant proportion of species in any stratum.	Written statements. Before/after photographs. Rehabilitation monitoring reports.

ROB000XXX	Agricultural revegetation	Revegetation is sustainable for the long-term and only requires maintenance that is consistent with the intended final land use. Land use capability is capable of supporting the target agricultural land use.	ROCC000XXXX	Land and Soil Capability classification or Agricultural Land Classification criteria met. The re-established topsoil / subsoil substrate is capable of supporting the targeted pasture / cropping regime on a sustained basis. Cropping / Pasture establishment is consistent with the range of species utilised within the region. Cropping / Pasture establishment is in good health and provides adequate cover. Cropping yields from rehabilitated areas are similar to adjacent cropping land. Appropriate and reliable access to water for livestock. Appropriate animal refuge areas for livestock (e.g. wooded/treed areas) during extreme weather conditions. Resilience to drought and fire	Before and after photos. Independent soil reports. Independent agronomist reports.