



Rehabilitation

EIS information guideline



Queensland
Government

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Introduction

This guideline informs proponents about the information requirements in relation to rehabilitation matters when preparing an environmental impact statement (EIS). The guideline is divided into two sections that address mining projects and other resource projects respectively.

The Department of Environment and Science (the department) has published separate but related, [EIS information guidelines](#) (DES 2022) for terrestrial ecology, aquatic ecology, groundwater dependent ecosystems, matters of national environmental significance, coastal, and biosecurity (e.g. weeds and pests).

Mining projects

The EIS must demonstrate that the rehabilitation of the environment disturbed by construction, operation, and decommissioning of the project can meet the environmental objectives and performance outcomes in Schedule 8A of the Environmental Protection Regulation 2019.

Large mining projects in Queensland are required to progressively rehabilitate disturbed land. All new mining projects assessed by EIS under *Environmental Protection Act 1994* must prepare a progressive rehabilitation and closure (PRC) plan. This is regardless of whether an application for a site-specific environmental authority (EA) has been submitted or not. Similarly, projects that already have a progressive rehabilitation and closure plan schedule (PRC plan schedule), and are being assessed by EIS for expansion or extension of existing mining operations, are required to provide an updated PRC plan in the EIS and include proposed amendments to the PRC plan schedule.

Transitional provisions may apply to some existing resource projects that have not transitioned into a PRC plan or projects that applied for an EA after 1 November 2019. Contact the department's environmental impact assessment (EIA) team by email at eis@des.qld.gov.au for further information about any transitional arrangements that may apply to your circumstances.

The PRC plan must address how and where activities would be carried out in a way that maximises the progressive rehabilitation of the land to a stable condition. It must describe the condition to which the holder is required to rehabilitate the land before the EA may be surrendered. The PRC plan must provide the information set out in ss. 126B–126D of the Environmental Protection Act. Use the checklist in the department's application form *Submission of a progressive rehabilitation and closure plan* (ESR/2019/4957) to ensure that all information requirements are met. The PRC plan must use best practice approaches about the strategies and methods for progressive and final rehabilitation.

The PRC plan must consist of two components:

- rehabilitation planning part
- PRC plan schedule.

The rehabilitation planning part of the PRC plan must include the information required under s 126C of the Environmental Protection Act. The purpose of the rehabilitation planning part is to provide evidence and justification to support the development of the PRC plan schedule.

The PRCP schedule must include the information required under s. 126D of the Environmental Protection Act. It must contain milestones with completion dates for achieving progressive rehabilitation of the mine site. The administering authority may impose conditions on the PRCP schedule that it considers necessary or desirable.

The PRC plan may be included in the main text of the EIS or as an appendix.

Further guidance for developing a PRC plan is available on the Queensland Government's [PRC plan for mine land](#) website. This includes the department's template [Progressive rehabilitation and closure plan schedule template](#) (ESR/2019/5103) and various information sheets, such as [Community consultation for progressive rehabilitation and closure plan](#) (ESR/2019/5101), [Non-use management areas](#) (ESR/2019/4966), and [Voids in flood plains](#) (ESR/2019/49654).

Any non-use management area (NUMA) included in a PRC plan provided with the EIS, will be subject to a public interest evaluation (PIE). A NUMA is defined under s. 112 of the Environmental Protection Act. The chief executive must request a PIE be carried out by a person or persons with the necessary experience and qualifications (known as a *qualified entity*) as soon as practicable after deciding to allow the EIS to proceed (ss. 49(5A) and 49(5B) of the Environmental Protection Act). If a PIE process has been completed as part of an EIS under the Environmental Protection Act and the proposed NUMA has not changed, a PIE is not required to be carried out in the assessment of the site-specific EA application. Further information on the PIE process is available in the department's guideline [The environmental impact statement process for resource projects under the Environmental Protection Act 1994](#) (ESR/2016/2171).

After the EIS process

Once the EIS process is completed, the PRC plan provided in the EIS must be formally submitted to the department in the approved form. When applying for a new site-specific EA, submit the PRC plan with the application form: *Submission of a progressive rehabilitation and closure plan* (ESR/2019/4957). When applying to amend an EA, submit the PRC plan with the application form: *Application to amend a progressive rehabilitation and closure plan schedule (PRCP schedule) or joint PRCP schedule and environmental authority* (ESR/2019/4956). Provided the proposed project and PRC plan have not changed since the EIS was completed, the information and notification stages of the PRC plan do not apply. If the PRC plan has changed, then these stages will still apply and the administering authority may issue an information request. Refer to the departments [Progressive rehabilitation and close plans guideline](#) (ESR/2019/4964) for further explanation.

Other resource projects (non-mining)

Resource projects other than those requiring a site-specific application for a mining activity (e.g. a coal seam gas project) are not required to prepare a PRC plan. Nevertheless, an EIS for any such a project must address progressive rehabilitation of the site(s). The following section of this guideline provides advice on how to develop a rehabilitation strategy for inclusion in an EIS. Subsequent sections provide advice on developing other aspects of the EIS with regard to rehabilitation.

Rehabilitation strategy

The rehabilitation strategy must be prepared by professionals with qualifications and experience appropriate for the project's site-specific conditions, ecology, and proposed final use(s). The rehabilitation strategy must demonstrate how the site would be progressively rehabilitated during all stages of the proposed project, including closure. Land disturbed by the resource activities must be rehabilitated progressively as it becomes available to reduce cumulative areas of disturbed land and minimise the risks of environmental impacts. The rehabilitation strategy must:

- address progressive rehabilitation with regard to the impacts in the short, medium and long-term
- describe the methods to be used for managing disturbed land, including backfilling, covering, re-contouring, topsoil handling, and revegetation
- demonstrate that there are feasible means of decommissioning and closing the site's operations.

The rehabilitation strategy must include:

- a description of the receiving environment and its characteristics and qualities prior to disturbance
- a rationale for the proposed strategies employed to reduce the amount of land disturbed at any one time and minimise the residual loss of land with ecological or productive value
- an assessment of the environmental values impacted by disturbances of land throughout the stages of the project
- proposed final landform and land use(s) for disturbed areas
- rehabilitation indicators, goals, objectives, and closure criteria for each proposed final land use
- management strategies that incorporate proposed methods and techniques to ensure rehabilitation objectives are achieved. This must include a description of various staged treatments for progressive and final rehabilitation and an outline of the associated locations and timing of these works.
- suitably scaled figures and maps, tables, and spatial data
- a description of investigations, baseline information, reports, and trials used to develop the strategy
- a description of any additional plans and programs that will be necessary to ensure rehabilitation is undertaken and completed in accordance with the strategy.

The rehabilitation strategy will be used to develop conditions for the project's environmental authority, and potentially a Plan of Operations (for petroleum activities). All proposed actions in the rehabilitation strategy must be measurable and auditable.

The rehabilitation strategy must follow the following hierarchy in decreasing order of desirability:

- avoid disturbance that will require rehabilitation to prevent or minimise future environmental harm
- reinstate the original natural ecosystem
- develop an alternative outcome with a higher economic value than the previous land use
- reinstate the previous land use (e.g. grazing or crops)
- develop a lower value land use (if this is acceptable to relevant stakeholders).

The strategy must address each level of the hierarchy and explain why actions would be adopted lower in the hierarchy in preference to those listed above. A proposal to leave the site in an unusable condition, or with a potential to generate pollution, or with ongoing impacts on environmental values, would rarely be considered acceptable.

Rehabilitation Goals

The rehabilitation strategy must include rehabilitation goals for disturbed areas that would result in sites that are:

- safe to humans and wildlife
- non-polluting (does not cause environmental harm)
- stable
- able to sustain an agreed post-disturbance land use.

Section 111A of the Environmental Protection Act states that land is in a stable condition if all of the following circumstances are met:

- the land is safe and structurally stable
- there is no environmental harm being caused by anything on or in the land
- the land can sustain a post-mining land use.

The rehabilitation strategy must:

- include measurable indicators and success criteria for each rehabilitation goal. These should be particular to the proposed types of disturbance and proposed final land use.
- identify the likely sources of risk, not only during operations, but also after closure—that is, also identify likely residual risks
- minimise potential residual risks
- identify who is likely to carry the residual risk (e.g. landholder)
- estimate the ongoing costs of managing residual risks. The purpose is to drive ways of planning the strategy to minimise the magnitude and ongoing costs of residual risks.

Key aspects of the rehabilitation strategy include (but are not necessarily limited to):

- potential impacts on sensitive environmental values identified during baseline environmental investigations
- community expectations and stakeholder requirements
- the control and management of mine waste
- establishment of stable landforms
- proposed rehabilitation methods
- management of topsoil resources and provision of suitable growth media
- description and timing of planned progressive rehabilitation and revegetation of the disturbed areas
- integration with on-going rehabilitation activities following surrender of the environmental authority
- rehabilitation monitoring and maintenance requirements.

The rehabilitation strategy should have the following objectives:

- Rehabilitation should aim to create a landform with the same or similar land use capabilities and/or suitability it had prior to the disturbance, unless other beneficial land uses are pre-determined and agreed.
- Wastes and disturbed land should be rehabilitated so that it is self-sustaining or to a condition where the maintenance requirements are consistent with an agreed post-mining land use.
- Surface and ground waters that leave the lease should not be degraded compared to their condition prior to the commencement of mining operations. Current and future water quality should be maintained at levels that are acceptable for users downstream of the site.

Requirements of the EIS

Assess the need for buffer zones and the retention, rehabilitation or planting of movement corridors. Propose measures that would avoid the need for waterway barriers, or propose measures to mitigate the impacts of their construction and operation. Incorporate, where appropriate, provision of nest hollows and ground litter to encourage habitation by fauna.

Trials and technical studies

Describe the growth trials and technical studies undertaken for the project's rehabilitation in relation to ecology, soil, water (surface water and groundwater), landform and geochemistry. Assess the trials' and technical studies' site-specific factors that may influence the rehabilitation objectives and goals, particularly in relation to risks of failure. Describe how the trials and technical studies were used to develop indicators and completion criteria relevant to the site.

Monitoring and maintenance program

Propose a monitoring and maintenance program to assess the success of the rehabilitation strategy (including progressive rehabilitation). The program must be capable of showing when timely intervention is needed to repair and/or remediate failing areas and improve the strategy.

The monitoring program must include the following:

- measurable and achievable actions
- a schedule of monitoring, reporting and review for each milestone
- a description of methodologies and standards, including field-based assessments and the application of new remote sensing, GIS and other relevant emerging technologies
- repeatable collection of relevant, statistically valid data
- appropriate quality assurance and data management processes and systems
- regular analysis of monitoring data including multi-year comparison trends
- contingency strategies if monitoring data indicates rehabilitation and closure criteria are not being met
- post-closure monitoring to ensure milestone criteria have been demonstrated
- a description of the intent of monitoring reports, such as provision of results and key findings.

Climate change

Assess the vulnerability of the rehabilitation strategy to climate change (e.g. changing patterns of rainfall, hydrology, temperature and extreme weather events) and resulting potential impacts upon the success of the rehabilitation strategy. Describe how the ongoing monitoring and maintenance program would provide early recognition of impacts from climate change on rehabilitation and facilitate corrective actions.

Residual risk and ongoing environmental management

Assess the potential residual risks of the rehabilitation strategy, particularly with regard to issues such as final landform, rehabilitation of impacted vegetation communities, climatic influences, and the long-term quality of water in any final voids. Assess implications for the long-term use and fate of the site, particularly with regard to the on-site disposal of waste and the site's potential inclusion on the environmental management register (EMR) or the contaminated land register (CLR). Further information is available on the Queensland Government's [managing contaminated land](#) website.

Describe the proposed mitigation measures for land disturbance to be used when decommissioning the site in sufficient detail to provide confidence that after surrender of the lease the site will:

- have long-term stability
- be safe to humans and wildlife
- be non-polluting
- able to sustain the proposed post-mining land use.

Identify any limitations on the final land use that would be needed to ensure it is sustainable; for example, restrictions on the intensity of grazing.

Describe the means by which the project will be decommissioned, including the removal or re-use of plant, infrastructure and equipment, such as structures, buildings, concrete footings and foundations, hardstand areas, storage tanks and wharfage. Provide a detailed description of the proposed methods for stabilising any affected areas. Propose options and methods for the disposal of wastes generated from the demolition of plant and buildings. Assess the feasibility and suitability of the proposed disposal methods in the context of the waste hierarchy.

Further information

Additional information on rehabilitation requirements for non-mining projects is available in the department's guidelines:

- [Application requirements for petroleum activities](#) (ESR/2016/2357)
- [Spatial information submission](#) (ESR/2018/4337)
- [Streamlined model conditions for petroleum activities](#) (ESR/2016/1989)
- [Planning a plan of operations for an environmental authority relating to a petroleum lease](#) (ESR/2016/1821)
- [Final rehabilitation report for resource activities other than mining](#) (ESR/2016/1874).

References

Note: These references were correct at the time of publishing this guideline. Where more recent versions are available, these must be used. For all Department of Environment and Science publications, the latest version of a publication can be found by using the publication number as a search term at the [Queensland Government website](http://www.qld.gov.au) <www.qld.gov.au>.

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