

APPENDIX E REVEGETATION PROTOCOL

1 Scope and purpose

Hazelwood Rehabilitation Project revegetation requires an overarching framework for restoring landforms to a state suitable to sustain pre-determined post mining land uses (PMLU). There are two predefined revegetation types applicable to the site:

- Agricultural land use (pastures); and
- Native vegetation

This section encompasses the planning, design, execution and reporting of the proposed revegetation work to restore land within MIN5004 disturbed by mining activities to a stable landform, for long term beneficial use as soon as practical, in compliance with the MRSDA and reflecting changing community expectations.

2 Site layout

Domains are defined as a discrete operational area within a mine site, usually with a unique function and purpose and therefore similar characteristics. For revegetation purposes these domains have been broken down into final landform uses that would need to be achieved with each 'use' having specific revegetation requirement's (*Figure 2-1*). Table 2-1, identifies the final landforms within the site and links the landform to the final land use and revegetation requirements.

Area	Sub domain/s	Land use	Revegetation requirements
Areas / farmland	Remaining land incl. conservation areas	Agriculture	Agricultural pastures
Water Bodies	Pit lake Watercourse diversion structures	Pit lake Watercourse diversion structures	NA Native vegetation
Industrial Area	Remaining land incl. conservation areas	Industrial	Recreation grasses
Restricted Areas- Ash / Asbestos	Ash and asbestos landfills External overburden dumps Infrastructure	Industrial/ Agriculture	Agricultural pastures Recreation grasses
Rehabilitated Landfills	Ash and asbestos landfills	Industrial / Agriculture	Agricultural pastures Recreation grasses
Public Viewing Area	Remaining land incl. conservation areas	Tourism Passive recreation	Native vegetation Recreation grasses Infrastructure (Roads, car parks)
Passive Recreation / Public Access	Remaining land incl. conservation areas Pit batters and mine floor Pit Lake	Tourism Passive recreation	Native vegetation Recreation grasses Infrastructure (Roads, car parks)
Conservation Areas	Remaining land incl. conservation areas Waterways	Native vegetation	Native vegetation

Table 2-1 Final land use and revegetation requirements

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Grassed Batters	Pit batters and mine floor	Agriculture	Agricultural pastures
			Recreation grasses
Proposed Crown Land	Remaining land incl. conservation	Conservation	Native vegetation
	areas	Areas	
	Waterways		
Access Roads	Infrastructure	Infrastructure	Roads
			Carparks







3 Background

The type of revegetation for individual landforms is selected to meet a range of objectives, including to:

- Stabilise soils within rehabilitated landforms together to prevent erosion and minimise turbid run off that may impact on the environment.
- Allow the rehabilitated area to either visually blend into or complement surrounding land areas.
- Develop or enhance a self-sustaining patch or corridor of native vegetation to promote flora, fauna and enhance water quality.
- Develop a self-sustaining agronomic pasture cover to sustain light grazing throughout seasonal changes in climate and allow slashing or mowing where required.
- Maintain the structure and integrity of coal capping, thus mitigating the risk of fire.
- Manage the risk of fire by selectively locating deep and shallow rooted vegetation types.
- Promote use of public open space for recreational pursuits.

Revegetation can be established with the intention of being either temporary, such as cover crops part way through an ongoing project, or permanent pasture in preparation for relinquishment. Permanent revegetation must be designed to comply with the Declared Mine Rehabilitation Plan (DMRP) and can take any or all of the following forms in a given area:

- Pasture species for areas nominated for grazing (including cover crops where required).
- Recreation turf areas.
- Native Grasses for conservation value.
- Native Tree/Shrub plots for screening, conservation, and biodiversity or landscape value.
- Scatter Tree/Shrub areas within broader agricultural areas for habitat linking, biodiversity or landscape value.
- Drainage lines, either natural or manmade. Wetlands development for conservation, biodiversity or replacement of those drained to allow mining to progress.
- Enhancement of remanent vegetation areas within the site

The decision, on which form(s) the revegetation takes, depends on the location of the rehabilitation project, domain and subdomain, the existing landforms and vegetation. Steep internal batters (1V:3H) will be rehabilitated to pasture species and are proposed to be strategically grazed to ensure groundcover is present at all times during the season. Where grazing is not viable it is intended that batters will be mown to manage the risk of fire. Cover crops are implemented strategically across the site for temporary rehabilitation activities although their suitability as a management tool in passive rehabilitation and post relinquishment are currently being reviewed.

4 Rehabilitation principles

The determination of final land use is influenced by various factors, including regulatory requirements, stakeholder input, and the ecological characteristics of the site. For instance, the intended use—whether for agriculture, conservation, or recreational purposes—guides the selection of appropriate rehabilitation techniques and plant species. Table 4-1 provides an indication of the revegetation areas required within the site.

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Revegetation area	Description	
Native grasses	Ensure drought tolerant native grasses such as Kangaroo Grass, Wallaby Grass and Tussock Grass are hand-planted as 'Viro Cells' directly into clays.	
Tree plots	Tree plots will generally be designed as "Open Woodland" concept with limited tree planting of native species to break up the visual monotony of broadacre areas, or to provide shelter belts.	
	Tree plots must take into account the bush fire risk, proximity to mine void and likely path of fire external to mine. Some species are not permitted within close proximity of the Mine. Areas between rows of trees will have to be mown in summer to minimise the bush fire risk, so ample space should be planned.	
	Aside from planting purely for visual effect (site aesthetics/screening) and for Habitat Corridors, within broad acre areas, flat poorly drained areas, drainage lines and eroded areas are all suitable for tree planting clumps.	
	 The selection of suitable indigenous species will align with: Swampy Riparian Woodland (poorly drained or wetlands) (EVC83); Swamp Scrub (EVC53); LV Grassland (EVC132); Plains Grassy Woodland (middle/rising ground) (EVC55); Plains Grassy Forest (high ground) (EVC151). 	
	Native vegetation establishment is not intended to replicate existing ecological vegetation community (EVC) benchmarks as defined by DEECA, but rather to ensure that the right species are planted at appropriate densities for successful rehabilitation.	
	Tree plots must be fenced-off to prevent grazing pressure if adjacent areas contain livestock.	
	 Engie shall ensure: Drawings are prepared in September/October for autumn plantings showing locations of tree plots, including rip lines if appropriate; Species numbers and planting densities where applicable; An order is placed with an approved nursery in sufficient time to grow the seedlings (approx 9 months lead time); Local seed is collected by DEECA approved seed collectors; Site preparation and planting of tube stock is undertaken by specialist contractors working to Hazelwood specification. 	
Wetlands	Morwell River Wetlands (describe intention)	
Drainage Lines	Man-made and natural drainage lines should be constructed on very flat grades to minimise erosion and should be a feature of any rehabilitation project. These are also subject to civil engineering design to ensure passing flow requirements for drainage can be met.	
	Advice on trees, shrubs and grasses suited to wet/dry environments will be sought from DEECA and the CMA.	
Agriculture (pasture)	Establishing pasture on rehabilitated mine sites is a critical step in restoring ecological balance and promoting sustainable land use. This process involves selecting an appropriate combination of annual and perennial grass and legume species that are well-suited to the local climate and soil conditions, ensuring they can thrive in the	

Table 4-1: Descriptions of revegetation areas at Hazelwood



	altered landscape. Specific pasture mixes that are suitable to the local environment and for the rehabilitation of the site are detailed in Section 6.7
	Key factors to consider include soil quality, moisture retention, and the potential for erosion, as restored soils often lack vegetative cover and are vulnerable to degradation. Additionally, effective management practices, such as proper fertilization and weed control, are essential to support vigorous pasture growth. By successfully establishing pasture, not only can the land be stabilized to prevent erosion, but it also provides habitat for wildlife and can serve as a resource for livestock grazing, contributing to the local economy.
Agriculture (Recreational turf species)	Certain areas of the site are proposed to be returned to passive recitation areas where pasture selection is not designed to maximise growth and economic output. Steeper areas of the site may also be difficult to graze or access.
	These areas of the site the predominate aim of pasture establishment is in improving the structural integrity of the land from, providing sufficient groundcover and minimising ongoing land management obligations.
Coal capped batters (pasture)	Pasture species that blend annual and perennial seed mix to ensure growth medium and soil stability throughout all growing seasons.
	Deep rooted vegetation will be discouraged to prevent deterioration of integrity of the coal cap.
	These areas of the site are likely to be lightly grazed or mown to reduce the fire load.

5 Revegetation Protocol

ENGIE Hazelwood has a specific revegetation protocol that serves as a framework for restoring site landforms to a state suitable to sustain pre-determined post mining land uses (PMLU). The protocol outlines the objectives, methods, and long-term management strategies essential for achieving successful revegetation and ensuring the health and resilience of the restored landscape. It is supported by existing ENGIE Hazelwood site procedures, which encompasses the planning, design, execution and reporting of the proposed revegetation work to restore land within MIN5004 disturbed by mining activities to a stable landform, for long term beneficial use as soon as practical, in compliance with the MRSD Act and reflecting changing community expectations. This protocol will be used to continue with the work already completed in existing rehabilitation and those areas identified in this DRMP for final landform development.



6 Key performance indicators – revegetation

The requirements in Table 6-1 are to be used to ensure that areas have been rehabilitated to determined site standard.

Element	Key Performance Indicator	
Landscaping/Earthworks	Constructed per design plan and to line and level established by survey control. This is a long-term stability safeguard	
Drainage Works	Constructed per design plan and to line and level established by survey control.	
Site Preparation	Aligns with the Rehabilitation Protocol dependent upon specified end land use	
Pasture Establishment	90% grass strike/12 month's warranty. Anything outside this requires rework	
Native Grass Establishment	90% grass strike/12 month's warranty. Anything outside this requires rework	
Tree Plots	85% survival after 12 months/12 months warranty and maintenance.	
	To be inspected jointly every February. Anything outside this requires replanting and/or investigation. Meets the Hazelwood Specification for Tree Planting	
Habitat Creation	 Dependent on the sustainable agreed end-use, the criteria include Pasture Establishment – number of stock able to be sustainably grazed. Conservation/Native Habitat – numbers and variety of native fauna that take up permanent/casual occupation. Natural regeneration is a desirable outcome 	

Table 6-1 Success Factors

7 Health, safety and environmental

Ensuring the health and safety of employees and contractors during revegetation activities within the site is crucial for successful rehabilitation. While this is not a comprehensive assessment of Occupational Health and Safety (OHS) protocols and requirements, the following general principles should be considered when initiating revegetation works:

- Contractor shall have in place all appropriate Job Safety Analysis documentation.
- All mobile equipment shall be fitted with rollover protection and a flashing orange light.
- All mobile equipment shall be fitted with an approved fire extinguisher.
- Operators shall successfully undergo an Hazelwood Level-2 Health & Safety Induction.
- Operators shall undertake a site inspection prior to commencing work to familiarise themselves with the particular hazards of the work site.
- All equipment shall be thoroughly washed clean prior to entering the site to remove an soil or vegetative matter.
- All refuelling shall be undertaken at approved re-fuelling depots. Fuel tanks/containers shall not be stored on site.

During the active rehabilitation phase (current), the site has in place an Occupational Health and Safety Management (OHS) Plan, this plan covers all of the risk associated with physical earth works and the proposed revegetation activities discussed in this document. As the site transitions into passive and post relinquishment phases the OHS Management Pan will be revised and updated to reflect ongoing monitoring and maintenance tasks required to be completed.

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