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Rehabilitation

What is mine rehabilitation?

In Victoria, all mines are required to undertake site rehabilitation leaving mined land safe, stable, non-polluting and sustainable, and available for ongoing land uses. Rehabilitation is a critical part of the overall mining process.

The whole-of-site rehabilitation objective is 'to restore land disturbed by mining to an equivalent (or better) agricultural land capability to enable a variety of productive agricultural uses' – as detailed in Victoria's Earth Resources Regulation (ERR) guideline, Preparation of Rehabilitation Plans.

Australia's mineral sands industry is a world leader in sustainability and mine site rehabilitation. Throughout the life of a mineral sands mine, approximately 97 percent of the mined material is progressively returned to the mine void restoring the land to its original state .

Rehabilitation at the Goschen mine site

Progressive mine rehabilitation is a key component of the Goschen Project. Progressive rehabilitation is a moving hole approach – meaning as the mining operation progresses forwards, the mined area behind is rehabilitated progressively to minimize the area of disturbance, and reform the landscape more quickly.

At the Goschen site, rehabilitation will commence as soon as the first mining cells have been mined, tailings deposited, and overburden and topsoil replaced. Working in conjunction with landowners and leading agronomists, the first crop grown on rehabilitated land is anticipated to be within three years of mining operations commencing.

Soil management process

Recognizing the soils of the Goschen site are a fragile commodity, rehabilitation will involve stripping topsoil and subsoils in thin layers (as determined by pre-stripping analysis) down to one metre to avoid mixing subsoils with topsoil or the C-Horizon material below the subsoil (the layer beneath subsoil which does not contain any organic matter, i.e. outside the root zone of crops).

Once carefully stripped, the topsoil and subsoil layers will be stored in separate stockpiles based on the pre-strip analysis and will be managed until required for rehabilitation. While in storage, topsoil mounds will be no more than two meters high to avoid soil compaction and will be managed to protect the soil's biomass. When the rehabilitation process commences, the soils will be returned to the same levels and depths as originally found.

The rehabilitated area must be stable, sustainable and in line with the agreed end land use. There will be no stockpiles or voids left upon completion of mining. Rehabilitation will be considered complete when all rehabilitation objectives are met.

The following aspects of the Goschen Project mine site closure and rehabilitation strategy will be applied to achieve the whole-of-site rehabilitation objective:

- Mine pits backfilled and stockpiles removed to levels and gradients similar to pre-mining conditions in accordance with the approved Work Plan.
- Soil profile re-established to a minimum depth of one metre, including topsoil and subsoil.
- Topsoil rehabilitated to pre-mining fertility or better.
- Crop yields returned to pre-mining levels of production or better.
- Crops and soils do not contain any pollution or increase in elements associated with mining above pre-mining levels.
- Where desirable, infrastructure utilised during mining to remain for use by landholders (upgraded roads, upgraded electricity connections, water pipeline, etc.) – this will be determined in conjunction with local government authority and landholders. If infrastructure is not required, it will be decommissioned and rehabilitated.
- Roadside native vegetation restored consistent with the Ecological Vegetation Class present, and boundary fencing replaced.

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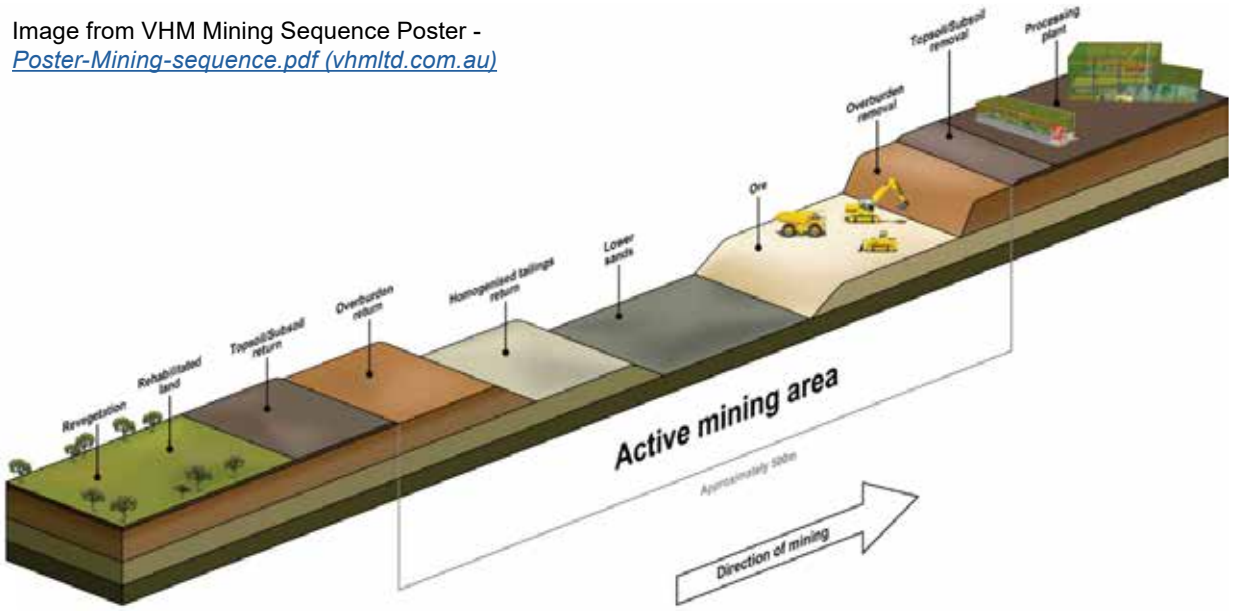
Image from VHM Mining Sequence Poster - *Poster-Mining-sequence.pdf (vhmltd.com.au)*



How is mine rehabilitation regulated in Victoria?

The two key pieces of legislation governing rehabilitation requirements for mining operations in Victoria are the Mineral Resources (Sustainable Development) Act 1990 (MRSDA) and associated Mineral Resources (Sustainable Development) (Mineral Industries) Regulations 2019.

The MRSDA establishes the legal framework to ensure mined land is rehabilitated and requires a:

- Rehabilitation Management Plan – prepared in consultation with the owner of the land, and includes proposals for progressive rehabilitation, stabilisation and revegetation of mined areas, waste disposal areas, dams, and other land affected by the operation; and landscaping to minimise visual impacts and details of final rehabilitation and closure
- Rehabilitation Bond – a financial security which must be provided by VHM prior to work commencing, to cover rehabilitation costs should VHM default on its obligations to complete rehabilitation. The rehabilitation bond is lodged with ERR and is returned when ERR is satisfied that all works are complete, and the disturbed land has been fully rehabilitated.

The Regulations further specify what information must be included in the Rehabilitation Management Plan, including identifying and assessing relevant risks that may require monitoring, maintenance, treatment or other ongoing land management activities after rehabilitation is complete.

The Environment Protection Act 2017 (EP Act) is also relevant as it establishes the framework for environmental protection, underpinned by the general environmental duty (GED) and duties for waste, contaminated land and incident notification and management.

Useful references:

- Earth Resource Regulation – Mineral industries regulation - Mineral industries regulations - Resources Victoria
- Department of Industry, Science and Resources - Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry - Mine Rehabilitation (industry.gov.au)

Further information, contact:

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