

THE PROCESSING PLANT, WASTE & MATERIAL STORAGE

Key Facts about the Project's Processing Plant, waste management & material storage

The Processing plant and the storage of waste products from the plant and the mining areas were designed to ensure that their impact on the environment and local communities were minimised.

The Project design also incorporates the safe storage of fuels to ensure that health and safety risks associated with these products, which are essential to the Project, are also minimised for our staff and stakeholders.

1. What are the key features of the Processing Plant design?

- ▶ The Project's processing plant will produce concentrates of the mineral spodumene (which contains lithium), quartz and feldspar.
- ▶ The ore will be delivered from the mining areas to the processing plant where it is first crushed and ground using mechanical equipment.
- ▶ The ground up material will then be treated with water containing products ('reagents') to recover and concentrate the spodumene, quartz and feldspars.
- ▶ The reagents will be largely organic-based solutions which pose a low risk of environmental contamination. For example the key reagent for the recovery of lithium is Oleic Acid which is found in olive oil.
- ▶ Once produced, the concentrates will be passed through a large press to dry them (the recovered water will be treated and reused) and will then be ready for shipment to customers.
- ▶ The processing plant will also include a water treatment system to ensure water quality is maintained and a water recycling system which is expected to allow 85% of the water used in the plant to be recycled. No water from the process plant will be discharged to the environment. More information on the Project's water management system can be found on Fact Sheet #3 (Water).
- ▶ The process plant will be placed in a low-lying area to minimise sound, light and visual impact with no direct line of sight to nearby villages, Romainho and Covas do Barroso.
- ▶ The key parts of the processing plant will also be housed in buildings to help further reduce noise (see Fact Sheet #2 for more information on noise management).

2. What waste will the Project produce?

- ▶ From its mining and processing operations, the Project will produce 2 types of waste, waste rock and, from the plant, tailings.
- ▶ Waste rock consists of rock and target minerals in concentrations too low for economic recovery. This material is removed to be able to access the ore which contains the valuable minerals and will be between 10cm to 100cm in size.
- ▶ Tailings are the materials left over after the process of separating the valuable fraction from the uneconomic fraction of an ore in the processing plant and will be like a fine sand.
- ▶ The project has been designed to minimise the transportation distance of the waste between the pits and the rock waste facilities and of the tailings between the processing plant and the Tailings Storage Facility.



3. What are the main features of the Tailings Storage Facility (TSF)?

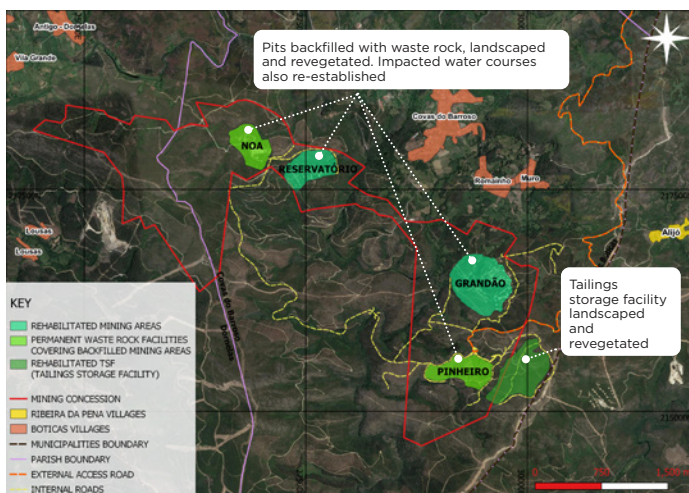
- ▶ The Barroso Lithium Project will have a dedicated TSF, which will accommodate the 1.3Mt of tailings produced at the plant each year during the Project's operating phase.
- ▶ The Tailing Storage Facility is a dry stack tailings which has been specifically designed to shed water, not to retain it, and will not function as an upstream tailings dam.
- ▶ The tailings will be stored as dry, compressed stacks. This is considered to be a more stable structure than a typical "wet" tailings dam and also reduces the amount of water required for the Project.
- ▶ Tests have shown that the tailings material is inert, which means that the risk of rainwater flowing through the tailings storage facility becoming acidic (commonly known as acid mine drainage) or reacting with other materials is minimised.
- ▶ Taking into consideration the environmental sensitivity of the area, and despite the fact that the tailings are considered to be inert, the tailings facility will be waterproofed. This will help preventing the infiltration (percolation) of leachate into the subsoil.
- ▶ Analysis carried out demonstrates that the stability of the TSF complies with the requirements used in the industry for mining dams (Canadian Dam Association, 2019).
- ▶ While the risk of failure of the TSF is considered to be low, the facility has been designed with robust safety measures and contingency plans in place to minimise the risk of such an event occurring. The measures taken mean the risk of impacts on the Covas river are minimised.
- ▶ The TSF will be revegetated progressively during the Project's life.

4. What are the main features of the Waste Rock Facilities (WRF)?

- ▶ The project will on average produce around 6.85Mt of waste rock per year which will be stored in a series of permanent and temporary WRFs.
- ▶ Material from the temporary WRF will be used for rehabilitation to backfill the open pits to ensure no lake formation at the bottom of the pits. The permanent WRFs will be landscaped and re-vegetated with native species, and any watercourses interrupted by the pits will be re-established.
- ▶ As with the tailings, testing has shown that the waste rock is inert. Hence, the risk of contamination of water or soils from this material is low.
- ▶ The potential risk of sediment runoff from the WRFs reporting to the Covas River has been identified, and detailed designs have been developed to mitigate this risk.
- ▶ While the risk of failure in the WRFs is considered to be low, a contingency plan has been developed to address the potential impacts of any such failure. This plan includes measures to contain any material within the valley immediately surrounding the structure, thereby preventing it from reaching the Covas River.
- ▶ The sediment run-off from the WRF's will be sent to the sediment control reservoir (the sediment run off from the WRF that is close to the TSF, will go to the environmental control reservoir). These reservoirs will prevent the sediment reaching the water lines.

5. How will fuel be stored on the Project?

- ▶ There will be two fuel storage tanks, of 55kL each, located in a concrete bunded area, equipped with dispensing points and a hydrocarbon separator, to avoid soil and water contamination.



THE REHABILITATION PLAN INCLUDES LANDSCAPING AND RE-VEGETATING THE MINING AREAS, PERMANENT WASTE ROCK FACILITIES AND TAILINGS STORAGE FACILITY

If you would like more information or have any questions or comments, please visit or contact the Barroso Lithium Project Information Centres

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