

# Water Quality



No adverse impact to the supply of water by the mining operations to existing users and water dependant ecosystems

## Storm Water

The proposed storm water management system:

- Protects the site infrastructure from flooding during a 1 in 100-year average recurrence interval (ARI) event,
- Maximises the use of the natural site topography,
- Mimics the existing natural flow regime, and
- Incorporates water sensitive urban design initiatives within the development to provide improved water quality.

The design ensures separation of catchments based on their potential for pollutant generation such that clean water does not intermix with areas that have possibly higher pollutant levels.

- Water quality treatment measures are appropriately matched to the pollution production potential for each area of the site.
- Detention basins have been incorporated to limit peak flows to pre-development levels.
- Infiltration systems and on-site retention have been incorporated into the design to mimic the pre-development flow regime such that the site is water neutral from a storm water runoff perspective.
- On-site water reuse is incorporated to reduce demand for mains water and to reduce off-site discharges.

Three distinct catchments onsite:

- Integrated Mullock Landform
- Mine operational area and offices
- Access roads and non-operational areas

Runoff from the Integrated Mullock Landform and mine operations catchments will be directed to the water storage dam, which will also receive water from mine void inflows.

Water from the offices and access roads will be directed into an on-site silt retention dam and swales before meeting water quality targets and flowing into the existing drainage line which enters Inverbrackie Creek.

## Water Treatment

The mine design avoids major water bearing fractures and incorporates the use of mine depressurisation and grout. However, there will still be a small amount of water entering the mine. Some water seeps in through the walls, ceiling and floor, allowing it to come into contact with machinery and blasting residue resulting in introduced sediments.

Water is also required as part of the mining process to control dust (drilling, blasting, material handling) and heat (drilling).

Terramin are exploring different water management options. All have the same objectives adapted from the Western Mount Lofty Ranges Water Allocation Plan:

The water treatment process will:

- Remove introduced nitrogen
- Remove any introduced hydrocarbons
- Remove the suspended solids

Additionally, Terramin are exploring options to:

- Regulate the pH
- Remove metals
- Remove background sulphate



On-site Rock Lined Swale



Vegetated Swale Example

The treatment system relies on a variety of sensors and alarms via telemetry, allowing engineers to predict and solve any issues before they result in impacts on the treated water.

All by products from the water treatment process are converted into environmentally safe products, separated from the treated water, and are used within the backfill process, removed from the site and/or recycled

