

Groundwater



Environment Effects Statement

An [Environment Effects Statement \(EES\)](#) is Victoria's most rigorous and transparent environmental impact assessment. It describes the project, its rationale, and potential environmental and social effects.

Scoping requirements

In February 2025, the Victorian Minister for Planning issued the final scoping requirements for the VNI West EES, setting out the proposed specific matters to be investigated and documented in the EES. While the scoping requirements are intended to cover all relevant matters, the EES can also address other significant matters that emerge during the EES investigations or through consultation.

Groundwater (catchment values and hydrology) scoping requirements

Groundwater is listed as part of the catchment values and hydrology scoping requirements. The scoping requirements state that groundwater has been assigned a low priority based on the limited potential for interaction.

The foundations for the transmission structures are expected to be relatively shallow and, while they may intersect with groundwater at certain locations, the localised nature of each tower would result in minimal impact to regional groundwater. As a result, the risk of groundwater contamination or depletion from construction activities is considered low.

Matters for investigation

Potential for project activities to have adverse effects on the functions, values, and environmental values of groundwater including water extraction/dewatering, intersection, and impeding flows.

Assessment overview and study methodology

Groundwater assessments focus on the project's potential effects on groundwater environmental values or groundwater users during construction, operation, and decommissioning.

It includes a desktop assessment of the entire project area, which adopts the following methodology:

- Identification of project components relevant to groundwater (e.g. infrastructure foundations).
- Assessment of existing conditions in the study area relevant to groundwater, supplemented by limited site-specific geotechnical field investigations.
- Identification and risk-screening of potential groundwater impacts in each phase of the project.
- Identification of mitigation measures (where required) and assessment of the residual impact of each risk once mitigation measures have been applied.
- Assessment of cumulative impacts with other proposed developments in the region.

Survey works have not been undertaken as part of the groundwater assessment.

Scan this QR code to view the complete list of [scoping requirements](#) for the VNI West project





Existing conditions

The study area is located within the geological basin termed the Murray Basin. The key aquifers of interest are the Quaternary Aquifer (mostly alluvium), the Upper Tertiary/Quaternary Aquifer (Shepparton Formation), and the Upper Tertiary Aquifer (Loxton-Parilla Sands). Other aquifers are limited to minor outcrops in the southern portion of the study area.

Groundwater levels in most of the study area are shallow (<5 metres below ground level) and project construction will likely intersect groundwater. Regional groundwater flow is from the Central Highlands region towards the state's north and northwest, in the direction of the Murray River. Local groundwater flow in the study area is highly variable and defined by local conditions and features such as incised valleys, channels, and drainage features such as wetlands and lakes.

Based on water table salinity mapping, the groundwater environmental values that must be achieved and maintained in 'Segment C' include:

- Water-dependent ecosystems and species
- Potable mineral water supply
- Agriculture and irrigation (including stock watering)
- Industrial and commercial uses
- Water-based recreation (such as primary contact recreation)
- Traditional Owner cultural values
- Buildings and structures, and geothermal properties

The study area includes several potential aquatic and terrestrial ground dependent ecosystems (GDEs). These include waterways, freshwater swamps, marshes, meadows, and terrestrial GDEs associated with various ecological vegetation classes (EVCs). Groundwater and surface water are connected in the area, with some watercourses mapped as gaining and others as losing or neutral. No springs listed in the Victorian Water Asset Database were identified within the study area.

The study area does not fall within any Groundwater Management Areas or Water Supply Protection Areas and is considered an 'unincorporated area.' These areas typically have limited groundwater development due to either low water yields or poor water quality.

There are 17 registered groundwater wells in the study area, 14 are licensed for investigation and observation, and three have unknown licensed purposes.

Next steps

The assessment is ongoing and will focus on how the project's construction and operation will interact with the flow and quality of groundwater. Potential effects on groundwater users will also be considered. Field surveys are not expected. Where impacts may be encountered, mitigation measures will be proposed to offset the impact.

Glossary

Aquifer

An aquifer is a layer of rock, sand, or gravel underground that is saturated with water and allows water to flow through it. It acts as a natural reservoir for groundwater, holding, and transmitting water. Aquifers can be confined (meaning they are overlain by a layer of impermeable material), or unconfined (where water can directly infiltrate from the surface).