

HumeLink Environmental Impact Statement

Hydrology and Flooding Impact Assessment

JULY 2023

What is an Environmental Impact Statement (EIS)

The HumeLink project has been classified by the NSW Government as Critical State Significant Infrastructure (CSSI). All CSSI development applications must be accompanied by an Environmental Impact Statement (EIS). The purpose of the EIS is to identify and assess the potential environmental, economic and social impacts of the project to help government agencies, relevant authorities, community and stakeholders make an informed decision or provide an informed submission on the merits of the project.

EIS project footprint

The [HumeLink project](#) extends from the existing Wagga Wagga 330 kV substation to the existing Bannaby 500 kV substation and the future Maragle 500 kV substation.

The EIS footprint is based on an indicative 200 metre corridor and is defined as the area directly affected by the construction and operation of the project. It includes the indicative location of project infrastructure, the area that would be directly disturbed during construction and any easements required during operation.

The final location of all proposed infrastructure will be confirmed during detailed design.

HumeLink planning approvals and EIS

As part of the planning approval process for HumeLink, Transgrid is preparing an EIS in accordance with the [Secretary's Environmental Assessment Requirements \(SEARs\)](#). The SEARs identify matters which must be addressed in the EIS and essentially form its terms of reference. It includes the requirements from both the NSW and Commonwealth Governments.

A series of detailed technical studies and reports are completed as part of the EIS. This includes the hydrology and flooding topic covered in this fact sheet.

Can I provide feedback?

Once the EIS is finalised, the NSW Department of Planning and Environment (DPE) will place it on exhibition and call for public submissions. Feedback on the EIS can be provided directly to the DPE during this public display period. More information on how to make a submission will be provided closer to the EIS exhibition period.

To learn more about the HumeLink EIS, please visit the [EIS Frequently Asked Questions](#) on our website.



**Hydrology
and flooding**

HumeLink Environmental Impact Statement Specialist Studies



Aboriginal heritage



Electric and magnetic fields



Social



Agricultural land



Greenhouse gas and climate change risk



Soils, geology and contamination



Air quality



Historic heritage



Surface water and groundwater



Aviation safety



Hydrology and flooding



Sustainability



Biodiversity



Landscape character and visual amenity



Traffic and transport



Bushfire risk



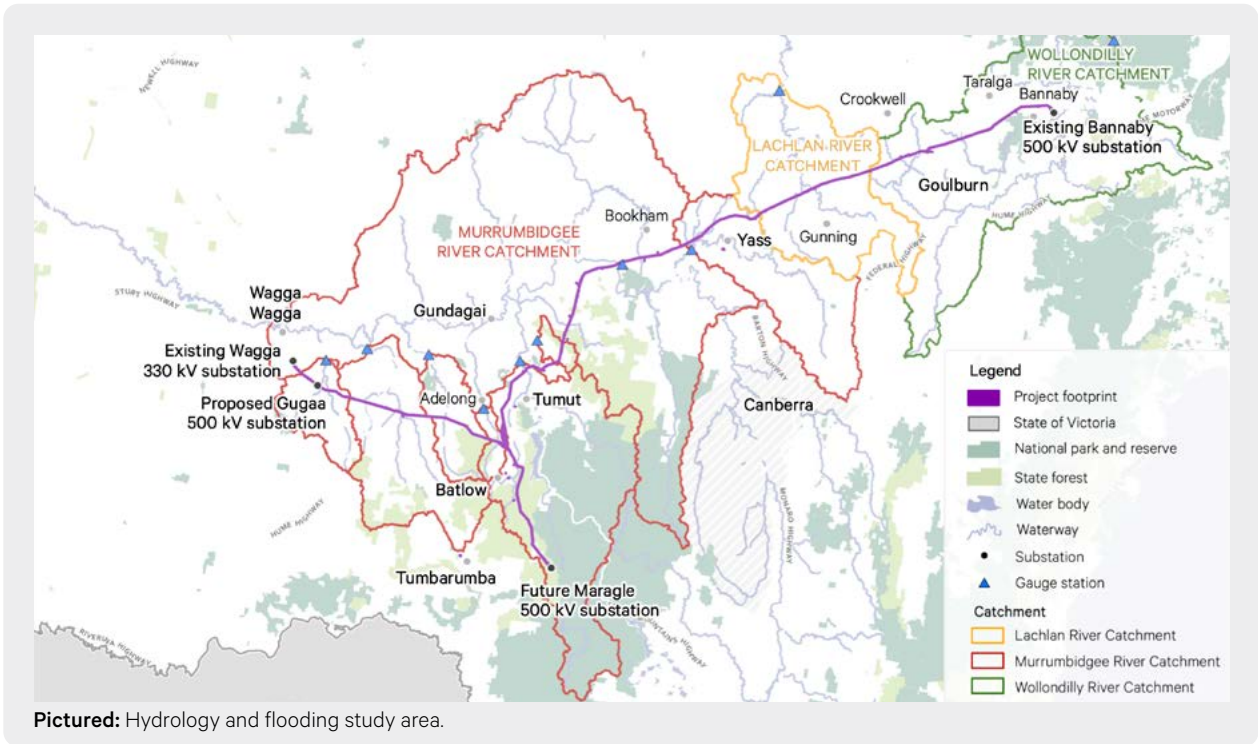
Land use and property



Economic



Noise and vibration



Pictured: Hydrology and flooding study area.



Hydrology and Flooding Impact Assessment

What does this assess?

As part of the EIS, Transgrid undertook a hydrology and flooding impact assessment. The assessment considered relevant state legislation, policies and guidelines, assessed potential impacts on hydrology and flooding and proposed mitigation and management measures that may reduce potential impacts.

This factsheet outlines the topics that were assessed including:

- how the project may impact flood behaviour
- how floods may impact the project.

Hydrology is the study of water movement, distribution and management on and below the earth's surface.

What does this study tell us?

The hydrology and flooding study area includes the project footprint and three catchments intersected by the project footprint: the Murrumbidgee River, the Lachlan River and the Wollondilly River catchments.

The assessment included:

- reviewing relevant legislation, policies and guidelines to understand the governing processes
- collecting topography and weather data
- desktop review of existing flood studies
- hydrology and flood modelling to assess potential local and regional impacts during construction and operation

- identifying mitigation measures to manage or minimise the identified impacts.

Regional refers to broader catchment area and may cover many kilometres up and downstream of the project area.

Local refers to the area in the immediate vicinity of the project area and may cover only a few hundred metres.

What did we model?

The regional hydrological and hydraulic modelling focused on assessing the flood risk on the proposed transmission line and access tracks in a one in 100-year flood event.

The local model assessed the flood risk around construction compounds, worker accommodation, substations and the telecommunication hut. The flood risks were assessed in accordance with design requirements and are as follows:

| Project element | Designed to withstand |
|---------------------------------|--|
| Construction compounds | One in 20-year event |
| Worker accommodation facilities | One in 50-year event |
| Substation | One in 100-year event and probable maximum flood |
| Telecommunication hut | One in 100-year event |



Potential construction impacts

Impacts from construction activities on flood behaviour

The hydrology assessment conducted at the construction compound sites indicated that construction activities will have no impact on regional flooding.

The assessment found that some construction activities may have the potential to affect local flood behaviour.

These include:



excavation for substation and transmission tower foundations



building and upgrading access tracks and roads



stockpiling materials



changing existing ground levels for construction compounds, proposed worker accommodation facilities and tower foundations.

As a result, construction compound sites will be designed and managed to mitigate these risks.

- Excavation for foundations is expected to have only minor and localised impacts on flood behaviour due to the relatively minimal scale of this work
- Stockpiles will be placed outside flood prone areas and water flow paths to avoid potential obstruction and subsequent impacts on flood behaviour
- Access tracks and roads will be designed to minimise impact on flow paths.



Pictured: Water storage pond located near construction worker accommodation at Project Energy Connect west of Wagga Wagga.

Impacts of flooding on construction activities

Flooding has potential to impact construction activities. The risk increases where these activities must be undertaken in a flood prone area.

Potential impacts include:

- loss of dirt and material due to erosion
- damage to equipment and machinery
- delays due to blocked access
- damage to temporary and permanent work.

These site-based risks would be managed through the implementation of controls that will be outlined in a Construction Environmental Management Plan (CEMP) and appropriate design which minimises flood risk.

Flow path refers to the route which water draining from an area will take.



Pictured: Swale drain, similar to what may be built to manage water flow on HumeLink, being constructed on Project Energy Connect.



Potential operational impacts

Impacts from operation of the project on flood behaviour

During operation, the footings of transmission tower structures may have a minor influence on flood levels and flow paths close to the structure. No impact on flood behaviour beyond the project footprint is anticipated.

Permanent access tracks located away from rivers and creeks are not expected to impact flood behaviour. Where required, culverts and bridges will be built to minimise flood risks.

Potential impacts on flood behaviour from operation of the proposed and modified substations include:

- increase in flood levels along the south-western boundary of the proposed Gugaa 500 kV substation
- increase in risk of flooding within the Bannaby 500 kV substation due to the proposed expansion of the substation crossing existing drainage lines.

Appropriate drainage channels will be designed and constructed to manage these impacts.

Impacts of flooding on operation of the project

Some transmission line structures will be located within flood-prone areas. However, flooding is unlikely to impact the operation of the transmission line given the height of the towers.

Access tracks and roads that cross or are near waterways are likely to be impacted if there is flooding in the area. Regular maintenance will be undertaken to ensure drainage infrastructure is in good condition. Access tracks and roads will not be used during heavy rain or flood events.



Pictured: Example of a 500 kV transmission tower.



Proposed management measures

During construction, a Soil and Water Management Plan (SWMP) will be prepared as part of the CEMP to outline how the project team will minimise and manage potential impacts on waterways.

This plan will cover measures such as:

- spreading excess dirt and rocks evenly around the site
- removing excess dirt and rocks from the site
- locating stockpile and chemical storage areas outside flood prone areas.

Drainage mitigation measures will be refined during detailed design, which will alleviate flooding impacts during operation.

As the project progresses through the development of the EIS and detailed design, more information about the identified hydrology and flooding impacts, as well as proposed mitigation measures, will become available.

Connect with us

Transgrid is committed to working with landowners and communities through the development of HumeLink. Please connect with us for more information.



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