Water

The Project area falls within the Hawkesbury-Napean catchment and drains into Lake Burragorang, Warragamba Dam, which is part of the Sydney Water Catchment.
The Project falls within the Gundary Creek catchment and there are a number of creeks/streams running through the facility.

Any change to the flow of water would have significant impacts on Sydney Water supply and hobby farms (agricultural) on Gundary Plains.

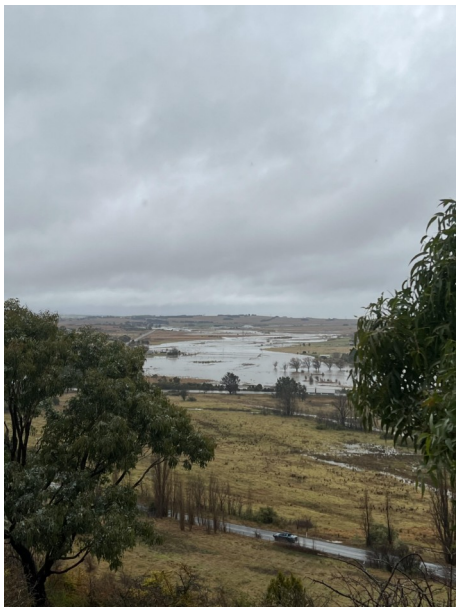
- During a drought every drop counts.

“Existing flood mapping for Goulburn Mulwaree LGA does not extend to the project area.” Light source bp Scoping Report 6.2.4 Water Resources

- All water flow and flooding information comes from modelling.

Flooding on Gundary Plans is influenced by many factors not just the flow of water from the Quialigo and Bullamalita Creeks (Gundary Creek). Mckellars Creek meets the Gundary Creek north of the projects and has a large catchment coming from the hills to the East. Shaws Creek also meets Gundary Creek at the intersection of Windellama Rd and Mountain Ash Rd. Across Gundary Plans there are a number of lower order streams feeding into the major creeks.
The Gundary Creek meets up with the Mulwaree River just south of Goulburn and its catchment starts in Quialigo.

Local falls (Gundary Plans) over a period of time may result in moderate flooding with the Gundary Creek rising to significant levels.

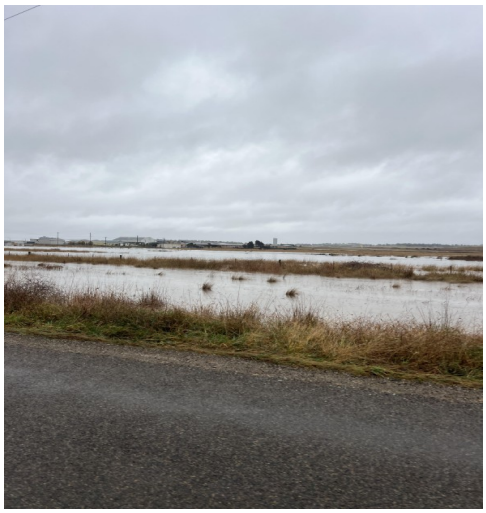


Gundary Creek looking south towards the project area.
Reasonable flood, a major event would cover Windellama Road (left of water).

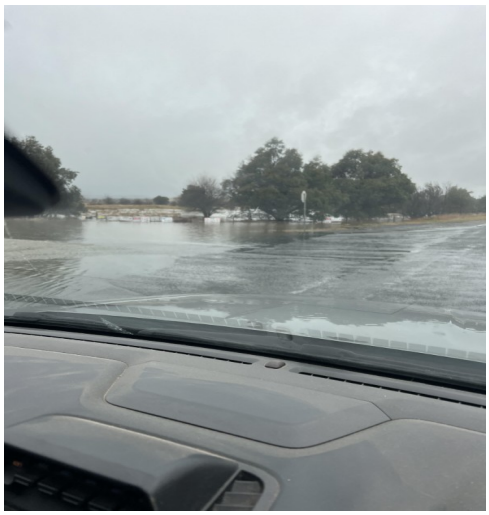
Local rainfall restricted to the Gundary Catchment (this year).
June 2024 Thursday 6th rainfall 38.6mm Friday 7th rainfall 29.4 mm
BOM

Significant falls of rain over an extended period of time covering the entire catchment has a major influence on water flowing through this area. Dams are full and excess water flows down stream. When the Gundary Creek and Mulwaree River catchment areas are subject to consistent and heavy rainfall, water is unable to drain down stream quickly causing major flooding up stream.
Impacted areas of South of Goulburn which are covered by water:

- Gundary Plans.
- Goulburn Show Ground and surrounding homes.
- Eastgrove Sporting Fields and low lying homes.
- Goulburn Golf Club.
- Goulburn Airport (no access).
- Goulburn Mulwaree council roads.
- Gundary Creek flooding.
- Windellama Road, Mountain Ash Road, Kooringaroo Road, Painters Lane.

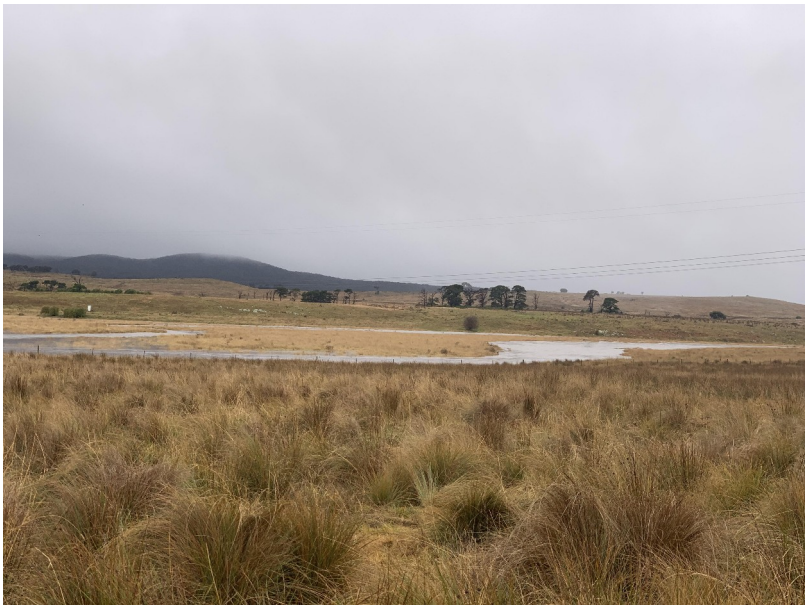


Flooding at the entry to Goulburn Airport. During a big flood Windellama Road is closed.



Flooding at the intersection of Mountain Ash Road and Windellama Road, closed during a big flood.

This is Gundary Creek (700 m north of the Project, down stream) during a recent rain event.
During a major event the entire paddock will be covered with fast flowing water.



Gundary Creek north of the development during a minor flood event.
Local rainfall restricted to the Gundary Catchment.
June 2024,
Thursday 6th rainfall 38.6mm Friday 7th rainfall 29.4 mm
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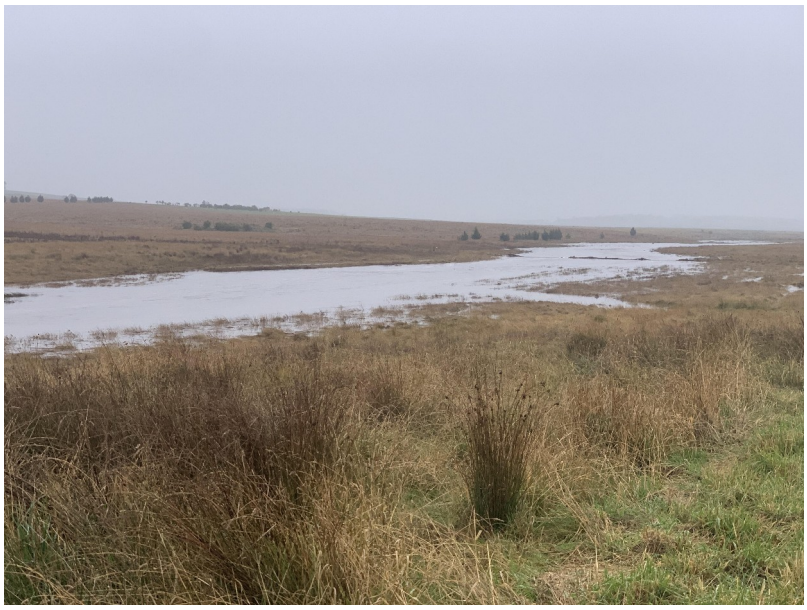
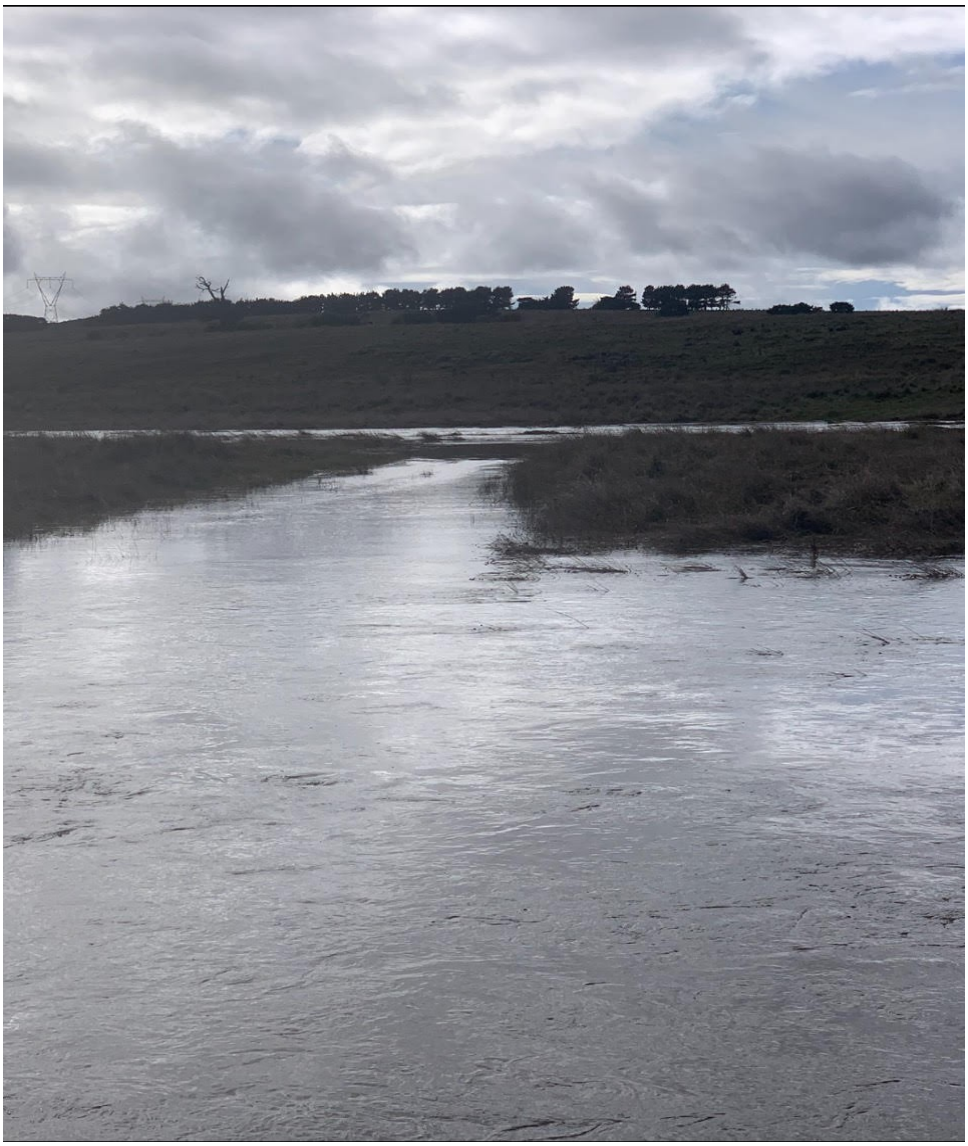


Gundary Creek looking south (600 m) to the Solar Farm.
During a major flood event the entire grassed area would be covered with fast flowing water.

During major flooding events the facility will not be accessible by road for days.



This creek runs through the Gundary Solar and divides the property into two. In a major flood there is no ground visible. It may have a depth of over 2 meters.

- The current is very strong and dangerous.
- Vehicles cannot cross.
- Kooringaroo Road flooded (3 Creek crossings).
- Bess system is isolated.
- Decentralised BESS structure is isolated.
- Majority of the solar panels are isolated.

How do you get to an incident on the eastern side of the solar farm during flood conditions.

During flood events access to Emergence Gates through neighbouring properties will not be possible. The paddocks may be flooded or impassable due to soft ground conditions. On my own property it is very difficult to check on stock during times of high rainfall, the only vehicle able to get across the paddocks is a four wheel bike. These are good on soft ground but are very dangerous crossing flowing creeks.

Appendix 15
Water Resources Impact Assessment, including Flooding

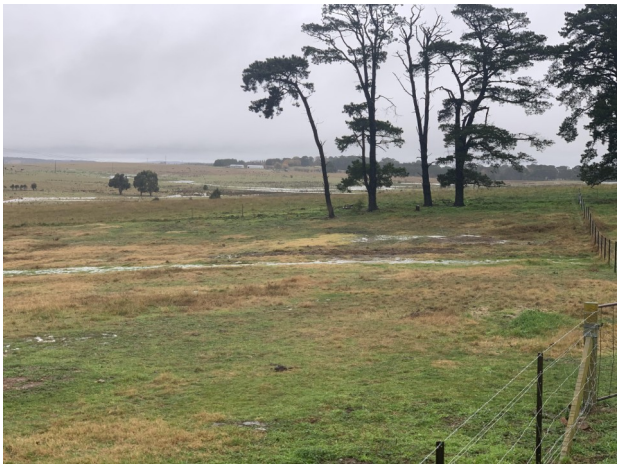
3.1 Hydrology and Topography pg 9

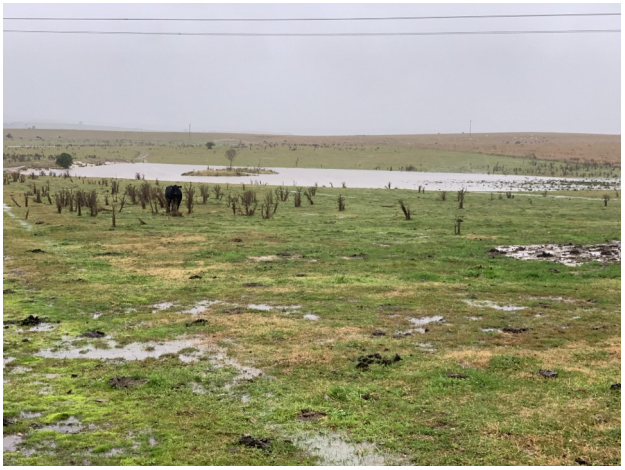
Two unnamed 3rd order streams are also present in the project area, one draining from the south to north across the northwestern extent of the project Area.

‘The layout of the project has been designed to provide appropriate setbacks to 2nd order and higher streams to assist with the minimising the potential for impacts on water flow, quality and aquatic ecology.” Light source bp, Scoping Report.

The designated area for the switching station covers an area of 160 metres by 100 metres, while the substation occupies an area of 203 metres by 100 metres, including at least a 20m buffer zones. Also the area is designated for offices, parking facilities and access tracks. This has a total area of 6.93 ha, also in this area is the power line grantee.

- **Substation and transformer and associated infrastructure is located on a 3rd order streams.**





Location of the Substation, Transformer, Switching station, office and parking areas (behind the trees). On the left, surface water running through the property into my paddocks.

Department of Planning and Environment
Fact Sheet

The design and construction of works or activities within a watercourse or adjoining water front land should protect and enhance water flow, water quality, stream ecology and existing riparian vegetation, impacts on the horological, hydraulic and geomorphic or enhancement functions of a watercourse should be minimised.

Levelling the ground surface to facilitate these structures (substation, parking, lay down site and access tracks) will create impervious areas within the catchment of the Solar Farm altering the localised flow paths. These paddocks will under go a massive amount of earth works.

- Excavation work
- Levelling (blade and grade)
- Compacting of gravel
- Retaining walls
- Drainage piping
- Control measures (embankments for soil erosion and sedimentary runoff)
- Roads and buffer areas (road network)
- Compacting of soils based on the volume of construction activities
- Removing of topsoil

Properties down stream rely on a regular flow of water from this area to provide water for their stock, plants and gardens.

Droughts

All parts of Australia suffer from periods of drought. The land becomes moon like in character and there is not a single blade of grass. The land is very susceptible to erosion from both wind and rain during this time. People reduce the number of stock they may have, buy water, watch their trees and gardens die and suffer the emotional toll. It is suggested in the proposal that ground cover should be retained within the development. It is impossible to grow anything during time of drought.

- The breaking of the drought may cause massive flows of water across the country.
- What mitigation procedures are in place to stop the erosion of soil.
- Who will be responsible for the quality of water down stream?

The solar farm covers an area of fourteen hundred acres (700,000 solar panels) changing the water courses over the property. The solar panels are impervious as will be the ground underneath. The panels force the run off into certain areas creating new paths for water flow. There is the potential for increasing peak runoff, increased volume and flow rates. Areas down stream may be affected due to:

- Changing water flow across the country.
- Soil erosion and sedimentary runoff.
- Water quality.
- Impact on wetland areas.

- Unable to access paddocks due to flood events.

Selection of sites must place great significance on topography, existing site conditions and constants such as nearby watercourses and soil types. All these factors readily influence the volume and flow rate of runoff which can result in negative impacts downstream and on neighbouring properties.

- There will be changes to the flow of water into the Sydney Catchment and neighbouring properties.
- Not enough initial research was done in the preliminary stage of this proposal to understand the limiting factor associate with water.
- They had no idea that Gundary Creek flooded.

Solar panels contain pollutants such as lead, cadmium, selenium, tellurium and other toxic Chemicals. Under certain situations these chemicals can leach out of the cells and get into the surrounding groundwater as well as affecting plants. Panels damaged during natural events such as hailstorms, destroying rows and rows of photovoltaic cells may pollute the area. When damaged the panels may be vulnerable to strong winds resulting in surface lifting and being blow away causing more wide spread contamination. Lightning can damage modules, cables and electrical equipment adding to the environmental impact.

- How will this be addressed?

Those living in the area involve in agricultural actives, running few steers, producing a few fat lambs or bailing some pasture hay have concerns about chemical contamination.

- Biodiversity concerns.
- Chemical contamination (flooding, fires, gases).
- Change in the environment (temperature caused by a heat bank).
- Weed introduction.
- Transformer and substation spills (oil).
- Lithium batteries BESS (fires, gases).

All produce from agricultural enterprises big or small is tested for chemical contamination. If chemicals are traced back to my property I may be quarantined.

- Who covers the loss?