



Assessment and management of flooding and hydrology in Queensland

We acknowledge hydrology and flooding are key concerns for communities along ARTC Inland Rail's Queensland alignment. We've undertaken extensive consultation on potential flood impacts at each stage of the project's design.

Our approach to flood impact modelling

In developing the Inland Rail project, we are following all relevant State and Federal approval requirements.

One of our guiding principles for the delivery of Inland Rail is to minimise, wherever possible, the impact the construction and operations have on flood behaviour for stakeholders, landowners, and the wider community.

Since 2016, we have listened to feedback from landowners, councils, and government agencies to inform a design that delivers a safe and reliable Inland Rail program.

We have applied the highest industry standards to our flood modelling assessment methods and design standard. This work is supported by modelling data and evidence from landowners, including photographs, of historic and recent flood events.

Our flood models have been reviewed by several industry experts including the Australian and Queensland government established Independent International Panel of Experts for Flood Studies in Queensland (the Panel). The Panel released its final report in October 2022.

Furthermore, ARTC Inland Rail flood models consider increased rainfall associated with climate change in accordance with Australian Rainfall and Runoff Climate Change Guidelines.

What are the Flood Impact Objectives?

The project's Flood Impact Objectives (FIO) have been developed by the Panel in consultation with ARTC Inland Rail to set considered and quantifiable flood impact design criteria for a range of flood conditions.

The FIOs are in place to protect the environment and minimise impacts on properties and other existing infrastructure such as roads. They are design criteria which set flood impact limits during reference and detailed design to inform flood mitigation measures.

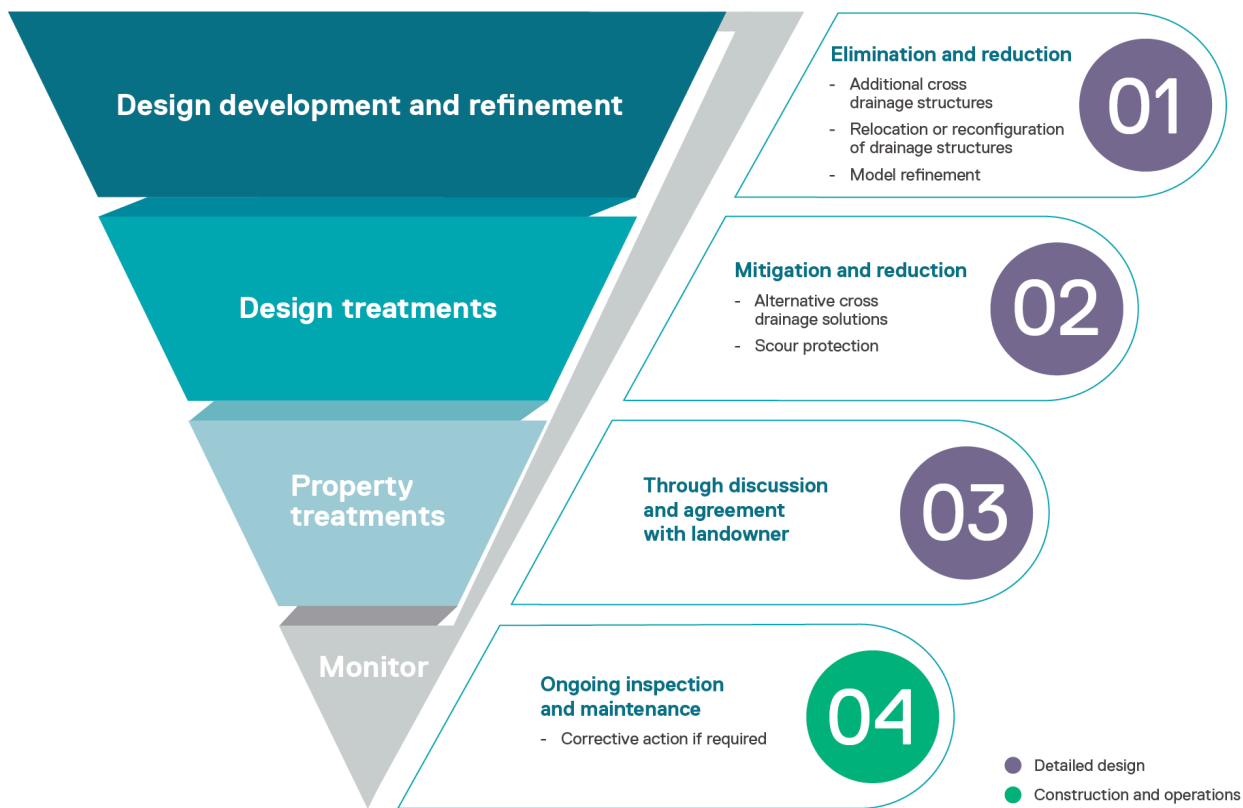
Flood metrics addressed by FIOs

- **Changes in peak water level** – varying targets have been set for a range of land uses and at flood sensitive receptors.
- **Changes in flow velocity** – maintaining existing velocities where practical and understanding any changes in the speed of water exiting culverts, and providing appropriate mitigation measures, considering existing soil conditions.
- **Changes in duration of inundation** – understanding the impact of any changes to inundation timeframe on land and infrastructure.
- **Changes in flood hazard** – limiting any changes in flood hazard, a metric which shows where dangerous flood affected areas are, considering flooding depth and the speed of water flow.

We will develop effective mitigation measures to address identified potential flooding impacts in collaboration with affected landowners during detailed design.



How we plan to mitigate potential flood impacts through detailed design



How will design initiatives mitigate and minimise flood impacts?

During reference design, we carry out various environmental and technical studies, and community and stakeholder engagement. Drainage structures incorporated into the reference design, such as bridges and culverts, have been located and sized with consideration of the FIOs.

To address concerns around the dispersive nature of soils in floodplains, the reference design incorporates scour and erosion protection measures around culvert headwalls, drainage discharge pathways and bridge abutments.

The project's final design will be developed to comply with the FIOs where practicable or feasible. We will work closely with impacted landowners to agree acceptable impacts and/or appropriate mitigation measures.

What's next?

The Inland Rail projects in Queensland are currently progressing through the EIS phase.

We are preparing to support all four projects' revised draft Environmental Impact Statements (EIS). This includes ongoing consultation with landowners and stakeholders.

The revised draft EISs will be subject to a period of public consultation following submission and acceptance by the CG.

ARTC Inland Rail will implement the Panel's recommendations into the revised draft Environmental Impact Statements for the Queensland projects and future stages of design.

We will continue working with landowners and councils to gather local flood event data and refine our modelling and detailed designs to ensure we deliver a world-class, safe freight line that maximises the community and economic benefits Inland Rail will bring.

Want to know more?

ARTC is committed to working with property owners, communities, state and local governments as a vital part of our planning and consultation work, and we value your input. If you have any questions or comments, please let us know.

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