

# Exploration tunnel fact sheet: Surface water management

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Southern Cross Gold Consolidated (SXGC) is planning an exploration tunnel at Sunday Creek. As part of this project, technical consultants were commissioned to assess surface water to understand how the project might affect local water flows and quality — especially in and around Sunday Creek and its tributaries.

The site is intended to operate with all water from underground operations and surface infrastructure captured and managed on-site, prioritising beneficial reuse for activities such as drilling, dust suppression, and exploration. Any excess water not required for operational purposes will be irrigated on SXGC-owned farmland in accordance with relevant regulatory approvals

## What was assessed?

The technical consultants examined how the proposed exploration tunnel at Sunday Creek could influence local hydrology, particularly changes to surface water flow volumes and quality.

The studies focused on both the immediate exploration site and the broader Sunday Creek catchment, which drains into the Goulburn River system. The assessments were designed to ensure that any hydrological changes from the exploration program are minimal and appropriately managed.

The assessments aimed to:

- Map existing surface water catchments and drainage lines.
- Quantify changes in runoff volumes due to exploration infrastructure (e.g. stockpiles, access tracks).
- Assess potential impacts on downstream waterways, including Sunday Creek.
- Develop a surface water management strategy to mitigate any identified risks.

## How was the assessment undertaken?

Hydrological modelling was used to simulate both current and exploration tunnel conditions.

Two industry-standard tools were applied:

- RORB modelling was used to model peak flows during storm events, helping to estimate flood risk and runoff volumes.
- MUSIC modelling was used to assess average annual runoff and water quality impacts, including sediment transport.

The modelling incorporated high-resolution topographic data, rainfall records, and site-specific infrastructure layouts. This allowed for a detailed comparison of flow volumes and catchment responses under different scenarios.



*Sunday Creek is typically a series of pools with and without linking areas of flowing water.*

## How have impacts been minimised?

A combination of design, engineering, and operational controls will be used to reduce surface water impacts:

- Avoidance: Site layout has been designed to avoid direct disturbance to natural drainage lines where possible. All infrastructure is sited at least 200m from Sunday Creek.

**Questions or comments? Get in touch**

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- Engineering controls: Clean water diversions will be constructed to separate uncontaminated runoff from disturbed areas. Sediment basins will be installed to capture and treat runoff from stockpiles. Silt fencing will be used to reduce sediment transport.
- Administrative controls: A monitoring program will track water levels and quality. Trigger Action Response Plans (TARPs) are in place to guide responses if thresholds are exceeded.

These measures are designed to ensure that any changes to surface water are localised and controlled.

## Results of the assessment

The modelling showed that the exploration program may temporarily reduce surface water runoff in the immediate catchment by less than 5% as a conservative calculation, primarily due to the containment of runoff from stockpile areas. However, the impact on Sunday Creek itself is negligible, with no measurable change in annual flow volumes at the downstream outlet.

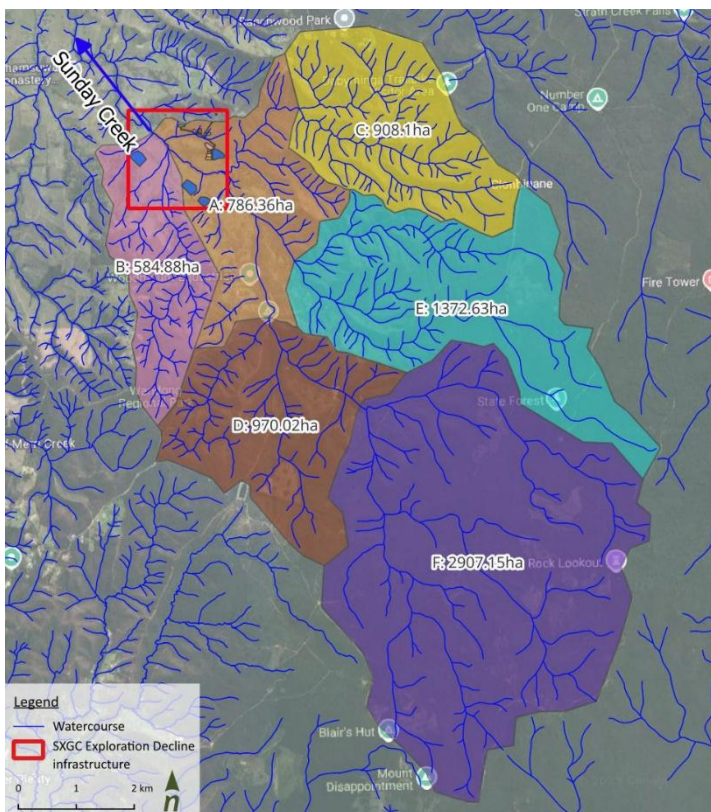
The risk of reduction in surface water quality is considered low, with sediment and potential contaminants managed through engineered sediment basins and diversion structures.

## Monitoring activities

SXGC will implement a comprehensive monitoring program throughout the exploration program. This includes:

- Surface water monitoring at upstream and downstream locations on Sunday Creek.
- Groundwater and runoff monitoring to track changes in water levels and quality.
- Daily recording of water volumes pumped from the tunnel.

These commitments are designed to ensure early detection of any issues and allow for timely response.



*Sunday Creek catchments upstream of project area*



*Surface water sampling*

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