



## Hydraulic Modelling for Integrated Catchment Planning at Urban Utilities

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### **ABSTRACT**

To complete the Extended S1 Integrated Catchment Plan (ICP) Strategic Business Case (SBC), Urban Utilities, Aurecon and Stantec joined alliance and worked together to find the solutions and strategies to resolve wet weather overflows and spills in the catchment. The Integrated Catchment Planning (ICP) approach was applied. It is an evidence-based approach to planning and servicing solution development supported by calibrated modelling and historic wet weather clean-up records.

Public health and protecting the receiving environment are the main drivers of the ICP. One is to provide improved customer outcomes by reducing uncontrolled overflow risk. The other one is to reduce the frequency and volume of overflows to sensitive environments. To achieve these two objectives, a series of analyses and studies were done, such as hydraulic model build and calibration, Long Time Series (LTS) Rainfall Study, Inflow and Infiltration (I/I) assessment, and the proposed network augmentation works. The proposed model-based solutions were developed to resolve uncontrolled overflow through the following means:

- Modification to existing assets so that they either work efficiently to protect the upstream catchment or limit the flows to protect the downstream catchment
- Flow transfer to nearby catchments with spare capacity,
- Discharge to the environment with the initial treatments on low-sensitive locations, or
- Providing additional network or storage capacity where necessary,

In the addition of these augmentation solutions, the baseline, aggressive and moderate I/I reduction scenarios were also used to assess the future performance of the catchment.

The proposed solutions decrease the predicted spills in the retic by about one-third and truck spills by approximately two-thirds. Modelling results show that about 90% of the overflows that occur in the S1 Main Sewer Catchment during the required event are potentially resolved if the aggressive I/I strategy is successfully applied in combination with the capacity solution. The success of the I/I program is monitoring by installing long-term flow monitoring devices.

Integrated Catchment Planning has been widely applied at Urban Utilities for all sewer network planning work.

### **Keywords**

Wastewater, integrated planning, hydraulic modelling



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## Declaration

Topic	Modelling to support outcomes
<input checked="" type="checkbox"/>	Can attend in person
<input checked="" type="checkbox"/>	Have permission / authority to speak on the topic
<input type="checkbox"/>	Have a backup speaker if they fall ill or cannot present



## Abstract Guidelines

### 1. Abstract Guidelines

- Abstracts submitted must be between 300 – 500 words, excluding title and authors.
- Abstracts must use the template above
- Font used should be Times New Roman or Arial size 11.

### 2. Call for Abstracts closes 4pm, Tuesday 31<sup>st</sup> January 2023 and submitted to [Katrina Guy](#)

### 3. Abstract Selection

- Wider applicability
- Demonstrated results and conclusions
- Relevance to the current state of the industry
- Content, including innovation
- Clarity and quality

### 4. Abstract Acceptance

- If accepted into the programme, you will only have to submit a presentation. No paper is required.
- Final presentation will be due by **28<sup>th</sup> February 2023**

### 5. Presentation

- Powerpoint 16:9
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- Slide Pack will be attached shortly