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# Conceptual Engineering Review of Waterfront Toronto's Port Lands Flood Protection Project

June 2022

# What?

This is a conceptual floodplain engineering analysis comprising modelling results in the existing scenario, and modelling of the engineering solutions utilized in the future scenario, for Waterfront Toronto's Port Lands Flood Protection Project.

# Why?

This was conducted as a study in engineering analysis and production methodologies.

# How?

An existing scenario-model was prepared utilizing HEC-RAS based on existing topography. A future scenario-model was prepared based on civilGo's approximation of the future flood protection grading and topography, showing the benefit realized by the Port Lands flood protection project.

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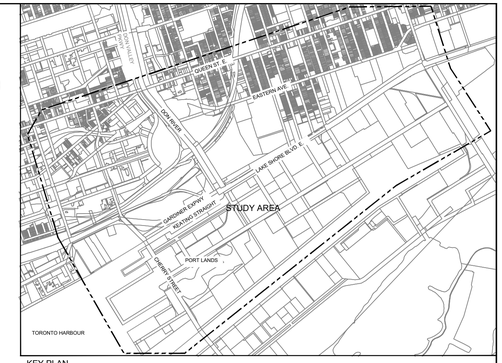


LEGEND

- DENOTES HEC–RAS STATION LINE
- DENOTES MAX FLOOD ELEVATION
- DENOTES HEC–RAS STATION
- DENOTES FLOOD LINE
- DENOTES FLOOD INUNDATED AREA
- DENOTES FLOOD "SPILL" OUT OF ANALYSIS AREA
- DENOTES ELEVATION IN METERS
- DENOTES ELEVATION CONTOUR LINE
- DENOTES RIVER CENTRELINE

NOT – DISCLAIMER:

THESE ANALYSES ARE INTENDED AS A CONCEPTUAL STUDY IN METHODOLOGIES FOR ENGINEERING ANALYSIS AND PRODUCTION. THE FLOODPLAIN MODELLING RESULTS DEPICTED HERE ARE NOT INTENDED TO BE AS ACCURATE AS A TYPICAL RIVER SYSTEM FLOODPLAIN ANALYSIS THAT MAY BE UNDERTAKEN BY CONSERVATION AUTHORITIES. THESE FLOODPLAIN HYDRAULIC ANALYSIS RESULTS MAY NOT BE RELIED–UPON FOR ANY PURPOSE. MANY ASSUMPTIONS WERE MADE IN THE HYDRAULIC MODELLING AND ANALYSIS, GIVEN THE AVAILABLE DATA, TOPOGRAPHY, ETC. PLEASE REFER TO TRCA AND WATERFRONT TORONTO'S WEBSITES FOR THE DE–FACTO ANALYSIS OF THIS WATERSHED AND THE PORT LANDS FLOOD PROTECTION PROJECT. THE COMPUTER SOFTWARE, HEC–RAS, DEMONSTRATED HERE, IS COMMONLY USED IN RIVER CHANNEL ANALYSIS, HOWEVER THERE ARE MORE ACCURATE PROGRAMS AVAILABLE FOR URBAN FLOODING SITUATIONS SUCH AS THIS.

SCALE BAR

0 100 200 Meters

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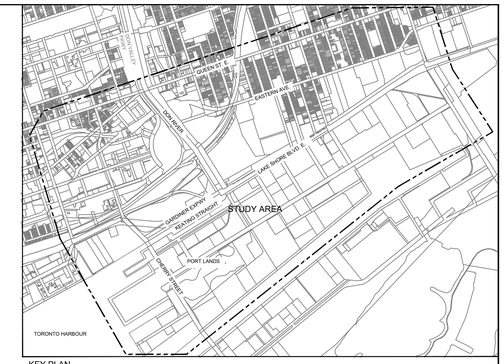
# CONCEPTUAL ENGINEERING REVIEW
# PORT LANDS FLOOD PROTECTION PROJECT
# CITY OF TORONTO

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| DESIGN | D.B. | DRAWN | DRAFT | CHECKED | D.B. | PROJECT No. | N/A |
| SCALE: | HORIZONTAL 1:4000 | | | DRAWING TITLE | EXISTING SCENARIO FLOOD LINE MAPPING | | SHEET FLD EX |
| DATE: | JUNE 2022 | | | | | | |


KEY PLAN

LEGEND

- DENOTES HEC–RAS STATION LINE
- DENOTES MAX FLOOD ELEVATION
- DENOTES HEC–RAS STATION
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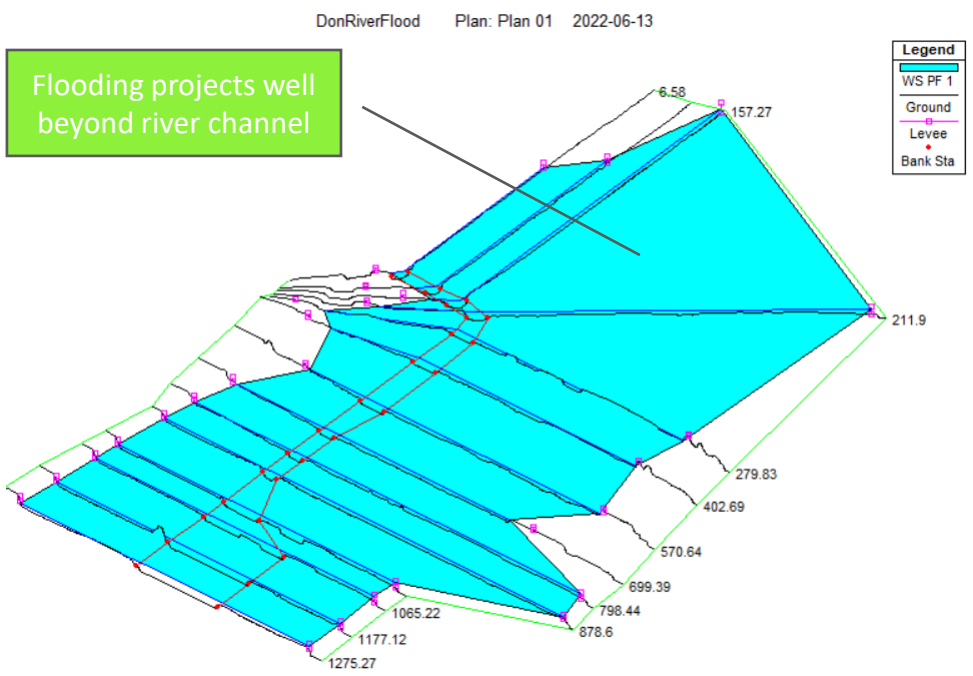
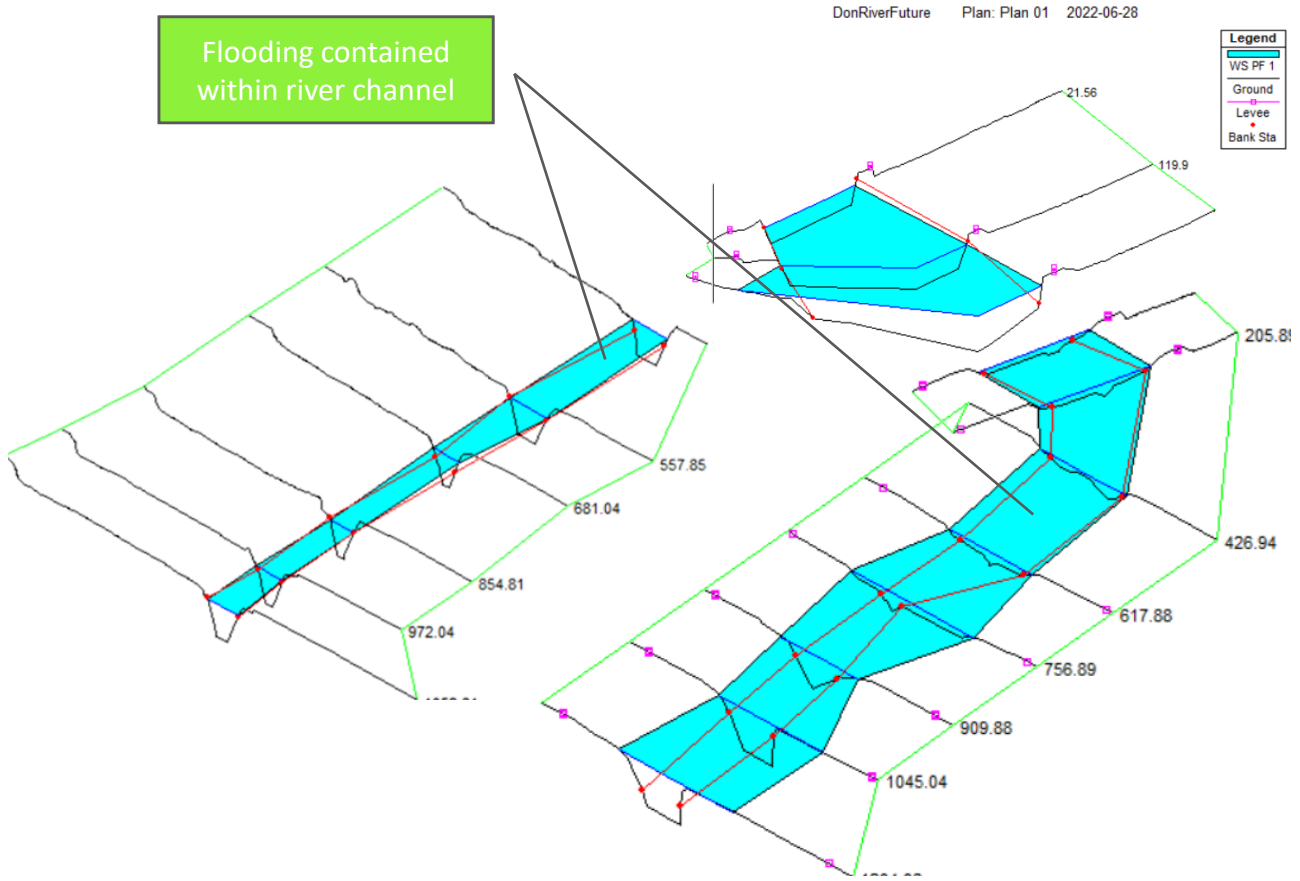
# HEC-RAS Model

## Existing Scenario – ‘3D’ HEC-RAS Results Plot




## Future Scenario – ‘3D’ HEC-RAS Results Plot

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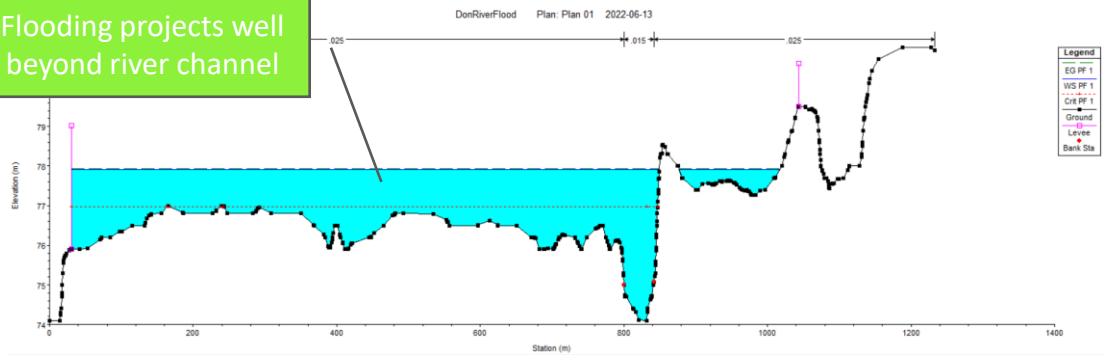
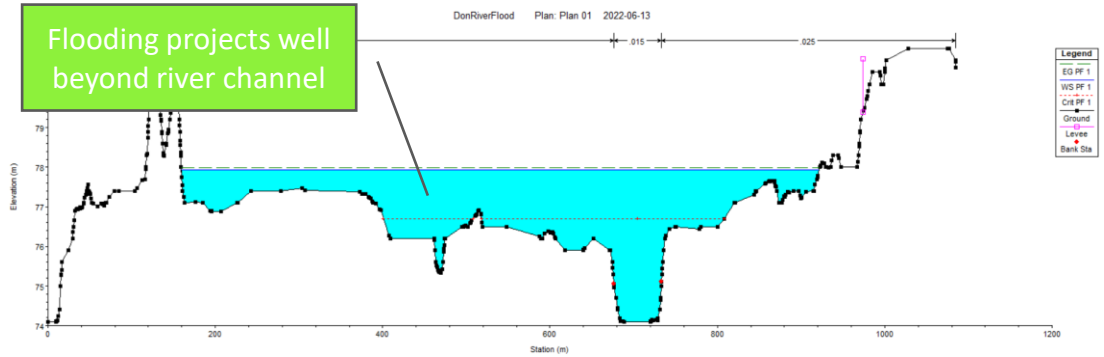
# HEC-RAS Model

## Existing Scenario – Typ. Cross-Section & Results

Flooding projects well beyond river channel

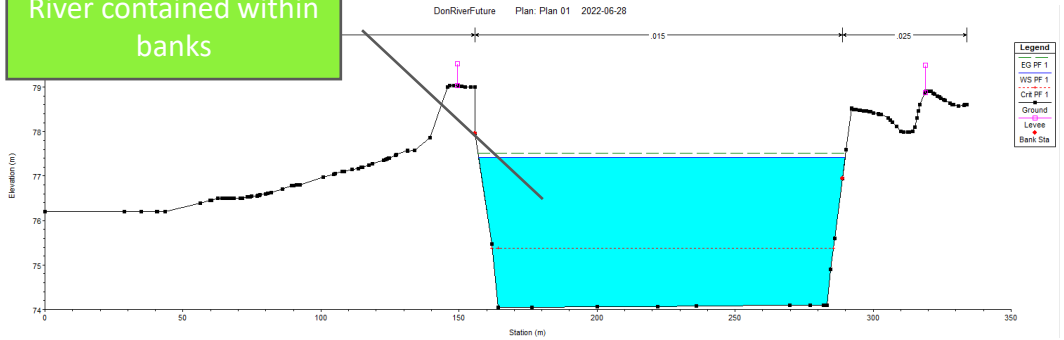



Flooding projects well beyond river channel

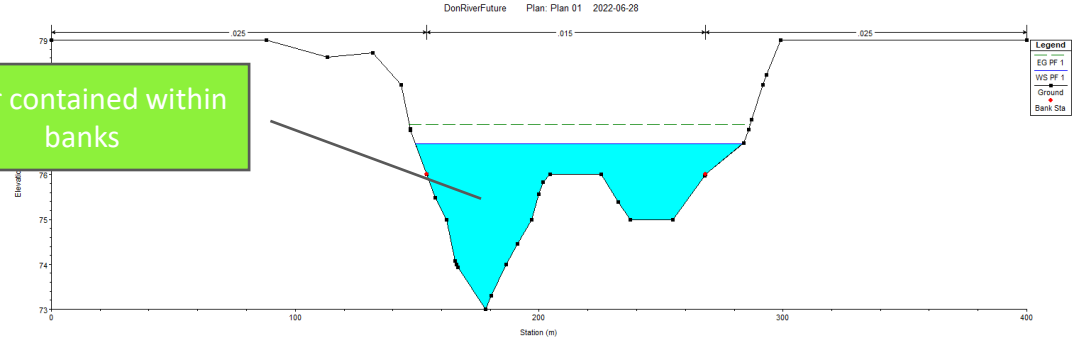



## Future Scenario – Typ. Cross-Section & Results

River contained within banks




River contained within banks

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