



Buller River Modelling

2022 Study

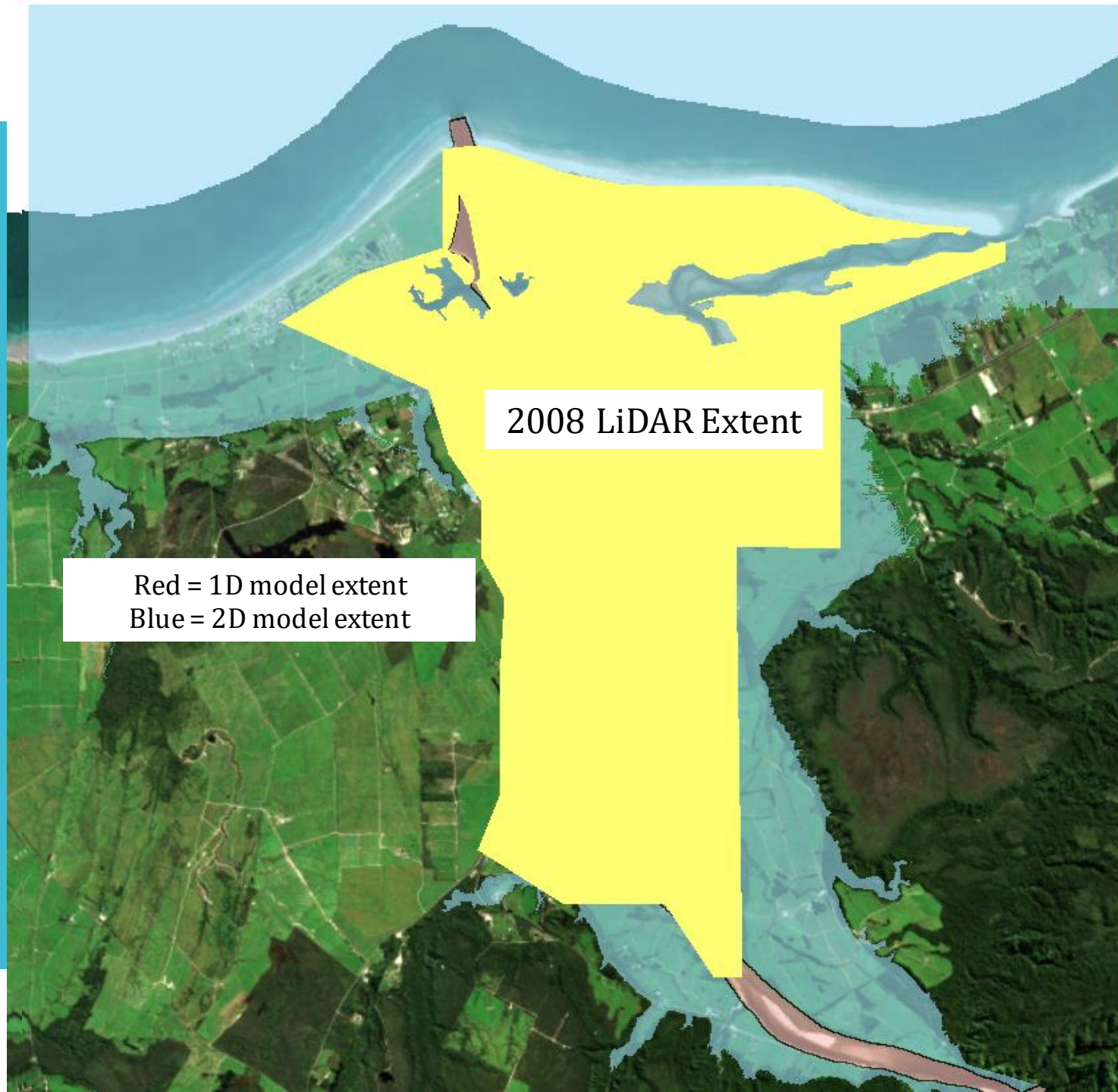
LANDRIVERSEA



CONSULTING

Model Upgraded

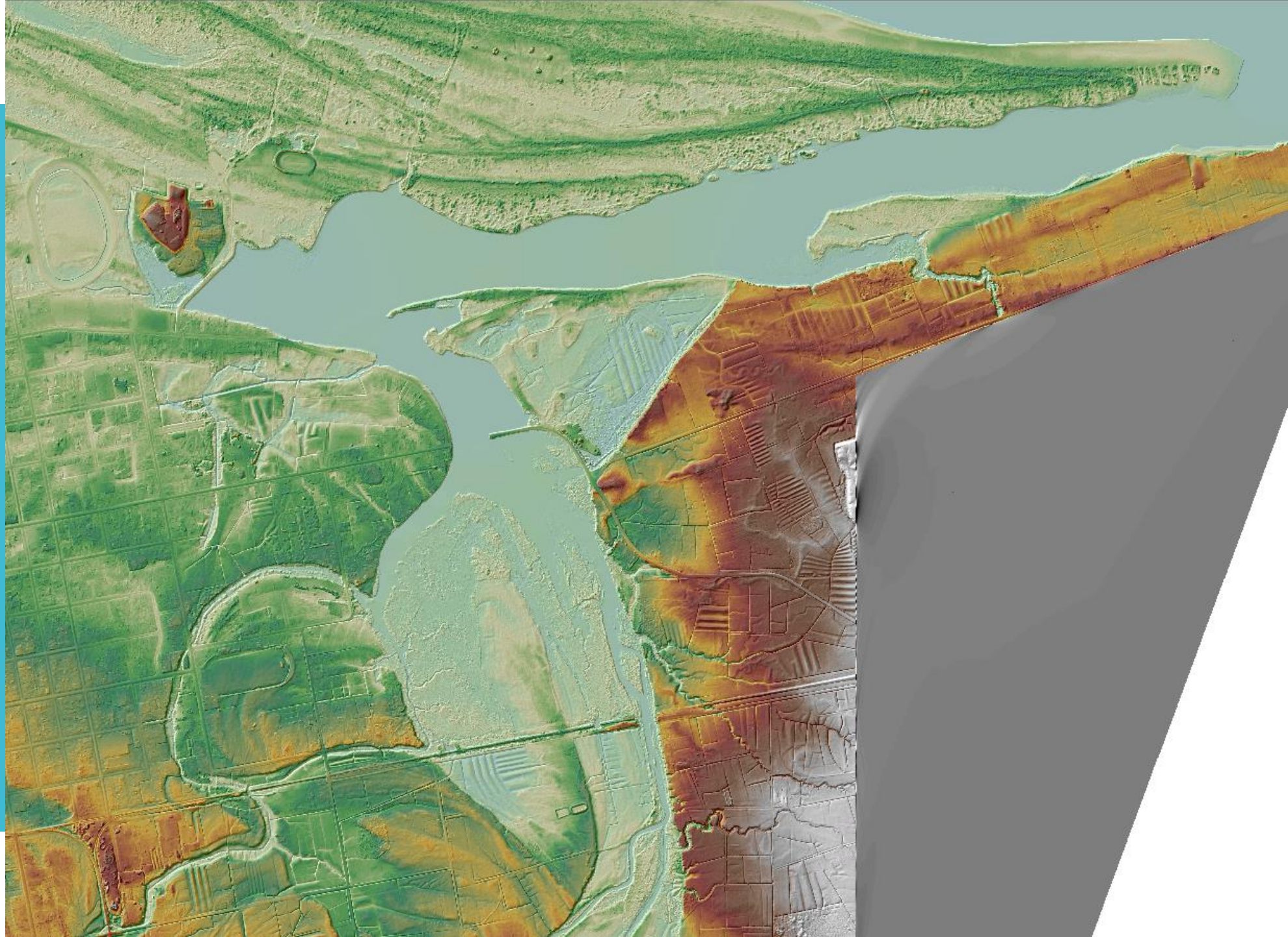
- Include latest LiDAR which covers full floodplain
- Upgraded with 2021 XS Survey
- Orowaiti Flown at low tide – allows for inclusion of more detailed bathymetry



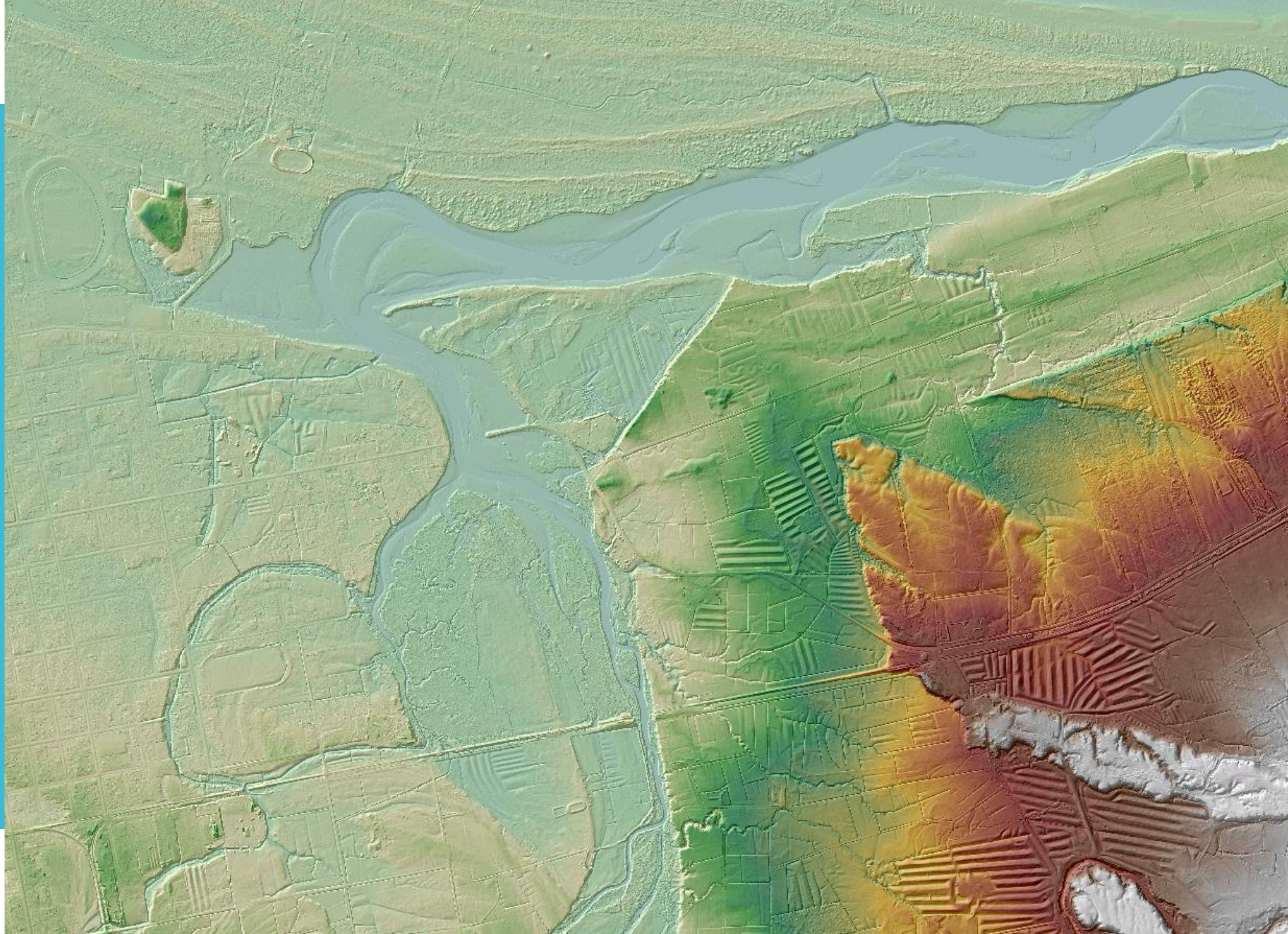
2008 LiDAR Extent

Red = 1D model extent
Blue = 2D model extent

2008 LiDAR



2020 LiDAR



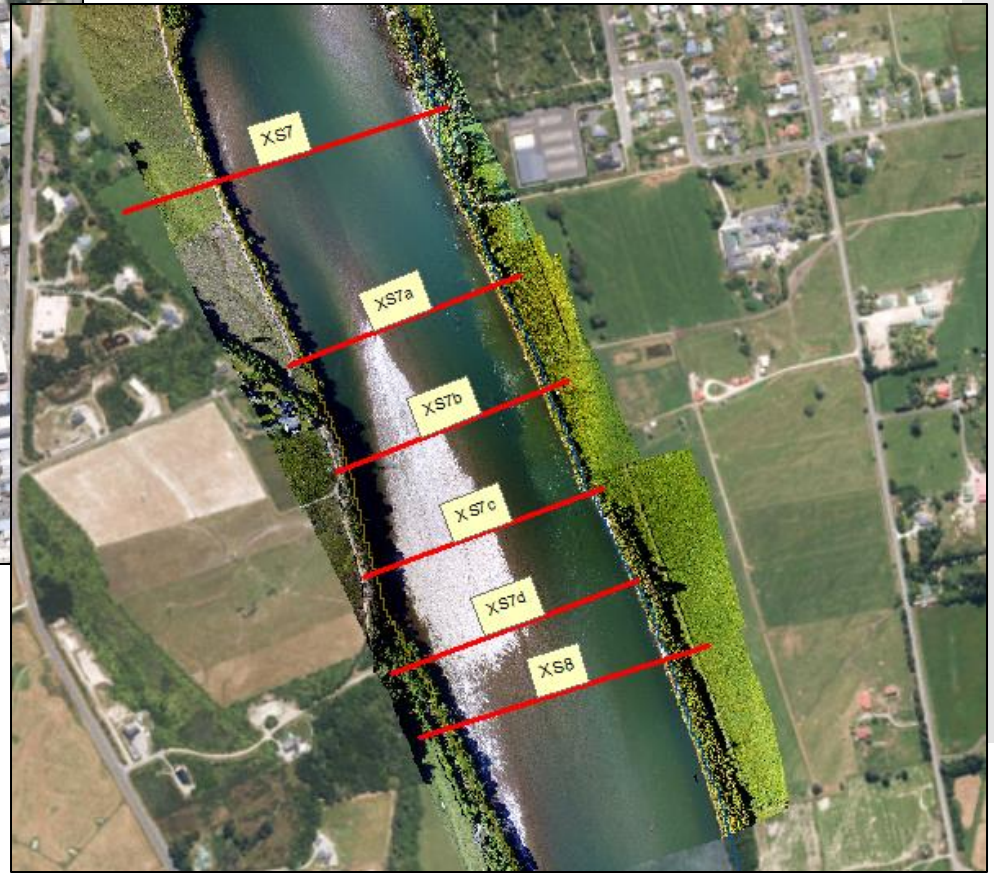
Bathymetry
included in
model in detail



Cross Section Survey

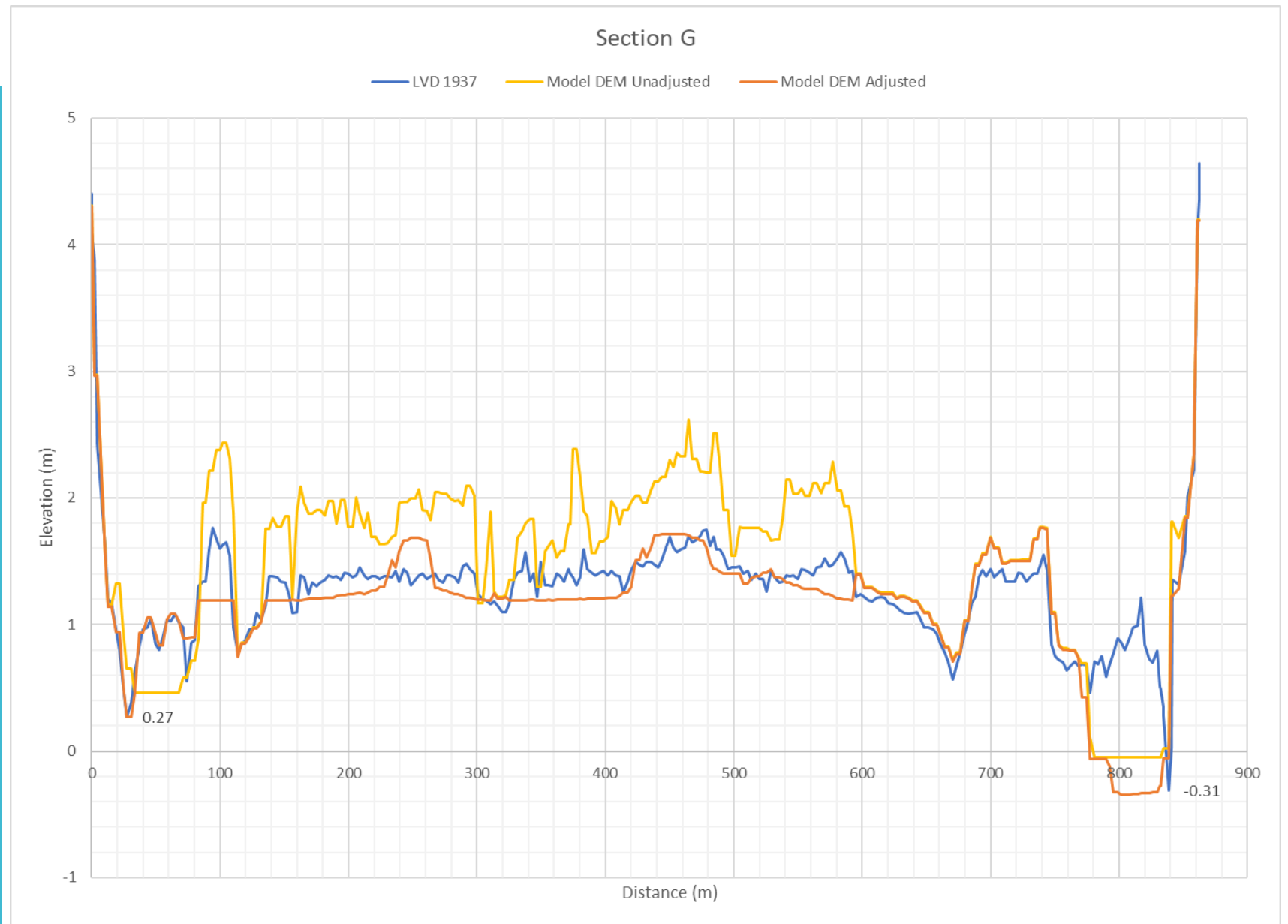


Additional Survey from Chris Coll

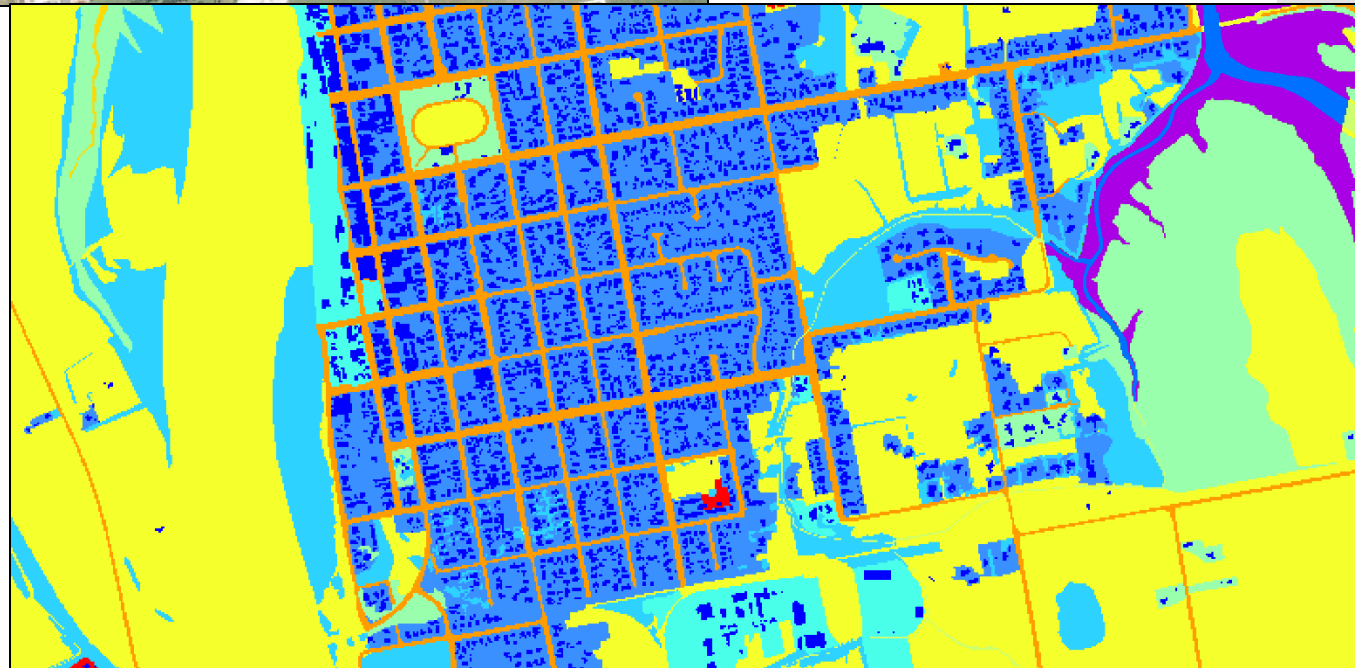




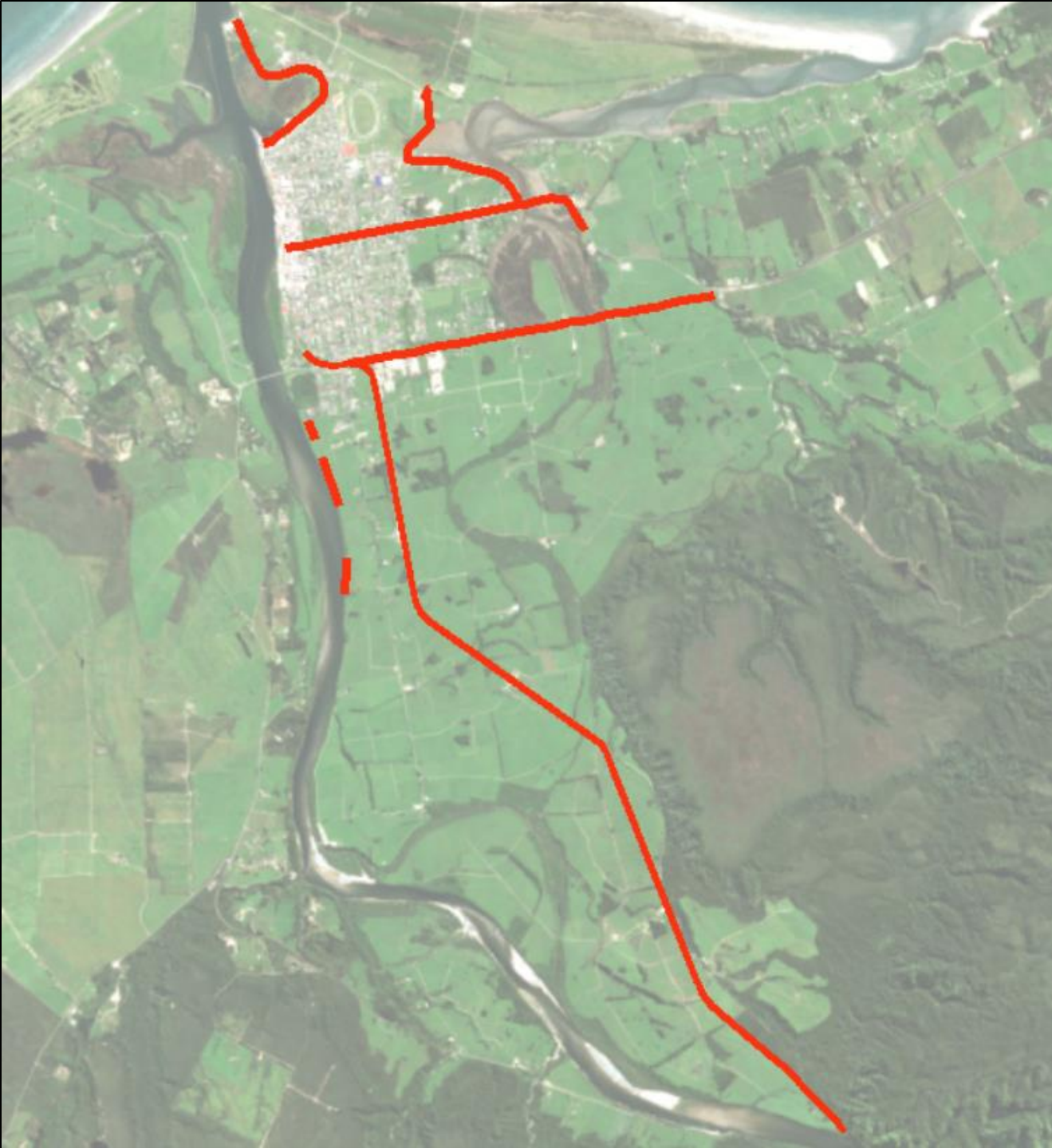
Comparison of section with adjusted DEM



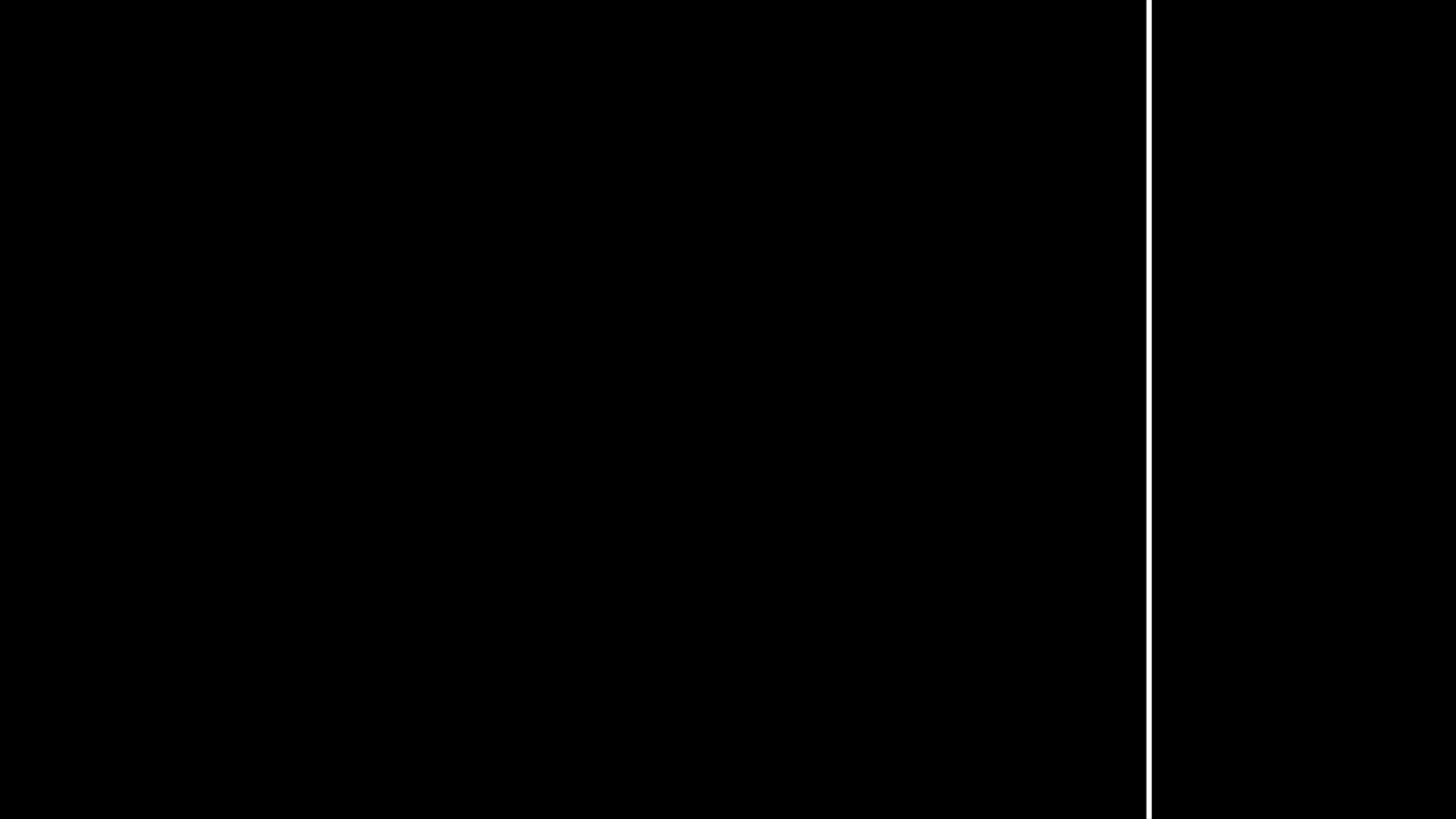
Roughness

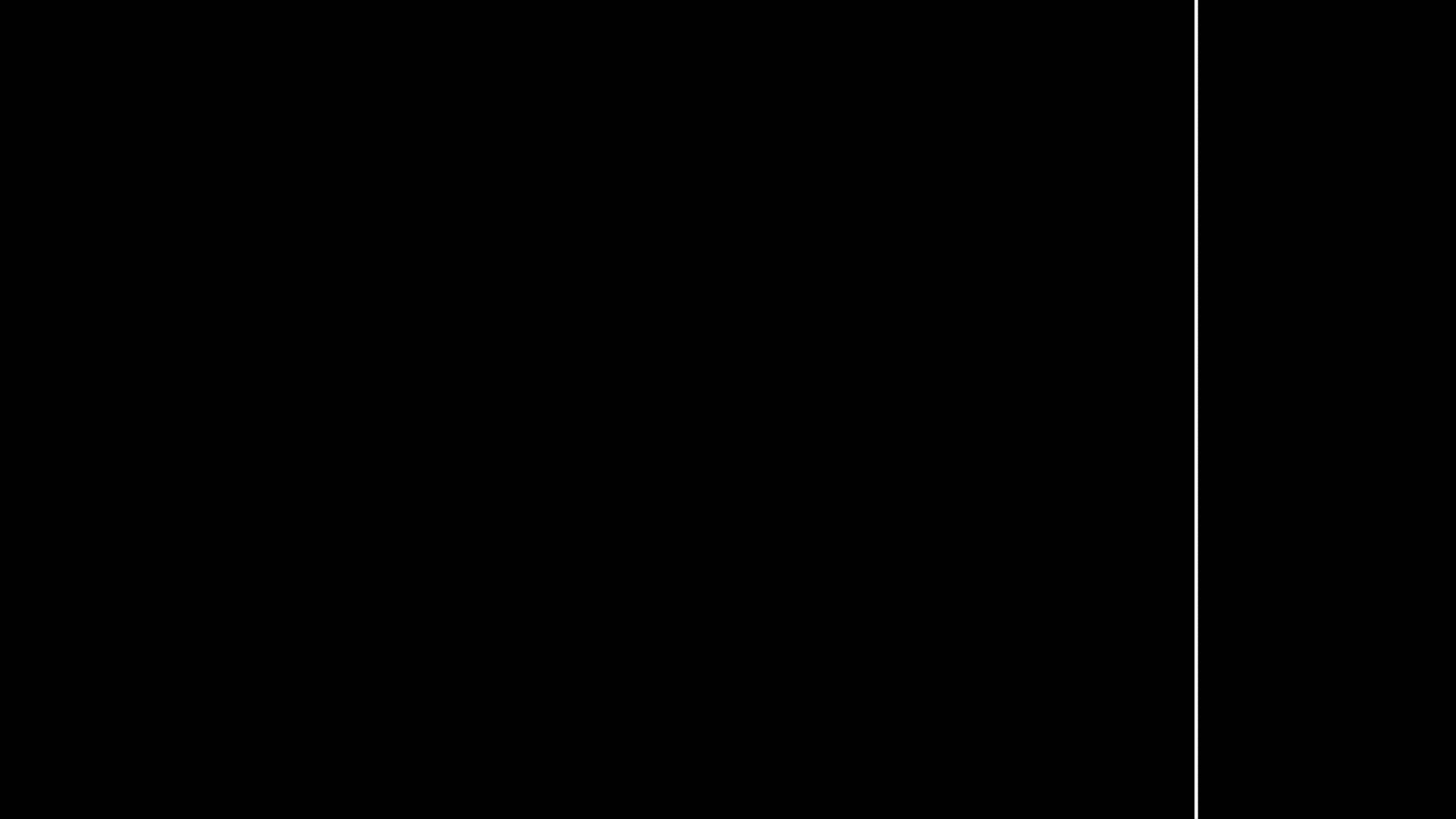


Crest Levels









Calibration
Feb 2018
Cyclone Fehi





Orowaiti Lagoon

Peer Review

Model has been peer reviewed with no major issues identified.

The model certified as fit for the purpose of;

- Setting building floor levels
- Designing flood protection infrastructure (ie flood walls)
- Assessing potential flood mitigation options
- Assessing the impacts of increased future flows and sea levels

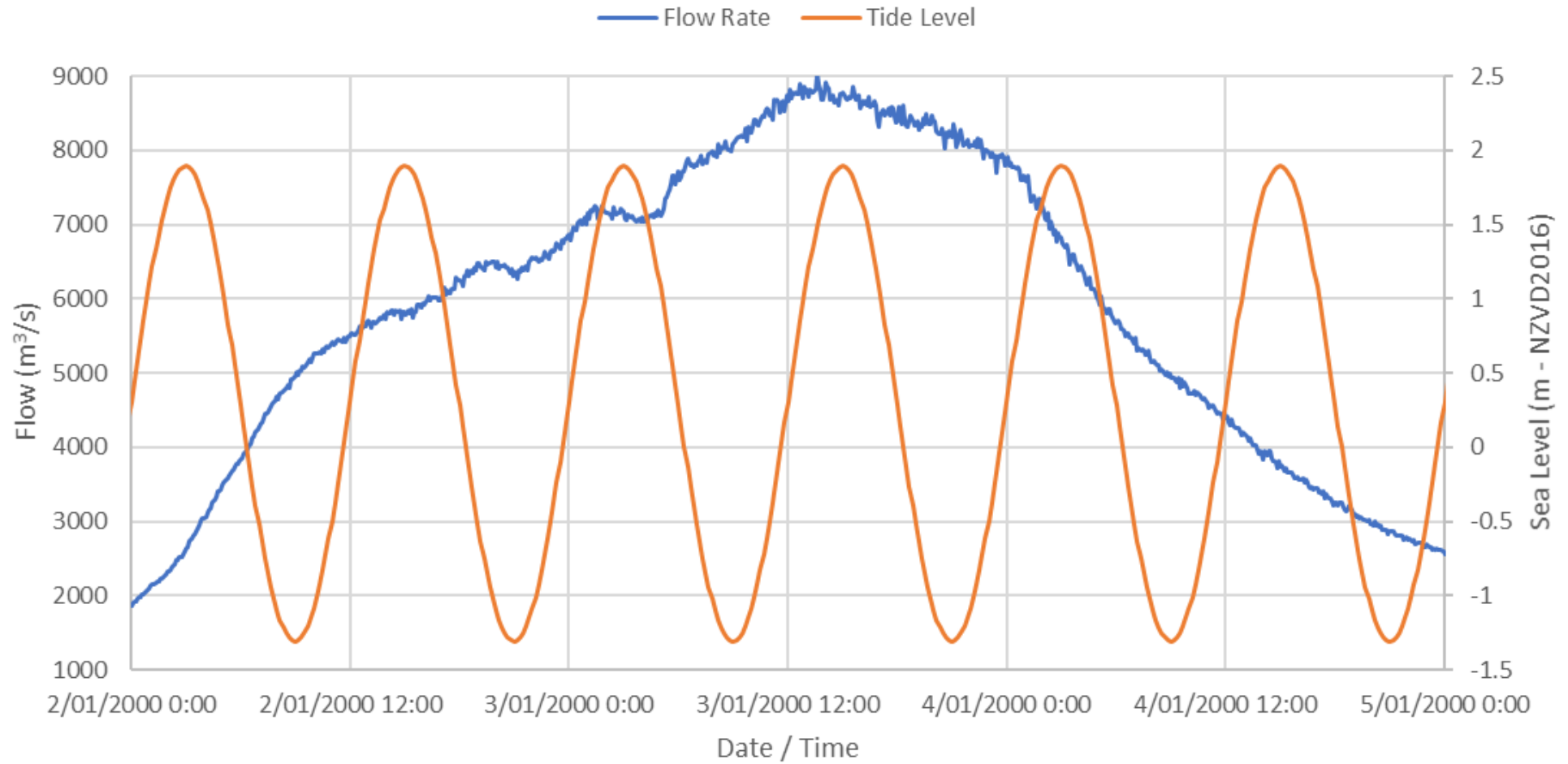


Design Runs

Boundary Conditions

- Peak flows based on latest NIWA Flood Frequency estimate (lower flows)
- Flood peak assumed to coincide with high tide
- High tide level taken as Mean High Water Spring
- Storm Surge Component of 0.4m added to levels (based on a joint probability analysis)

100 year ARI Design Flow / Tide Combination





2017 100yr ARI
Extent (no blockage)



2022 100yr ARI
Extent (no blockage)

Runs to complete

- Blockage scenarios
- Future Climate allowing for various future emissions scenarios
- Increase in peak flow and sea level rise based on IPCC guidelines and localised modelling carried out by NIWA (received today)
- Peak flow (increase between 11.5 and 24.5% to 2100)
- Sea Level rise between 0.76 and 1.1m (to 2120)

Questions?



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Extensive Banks



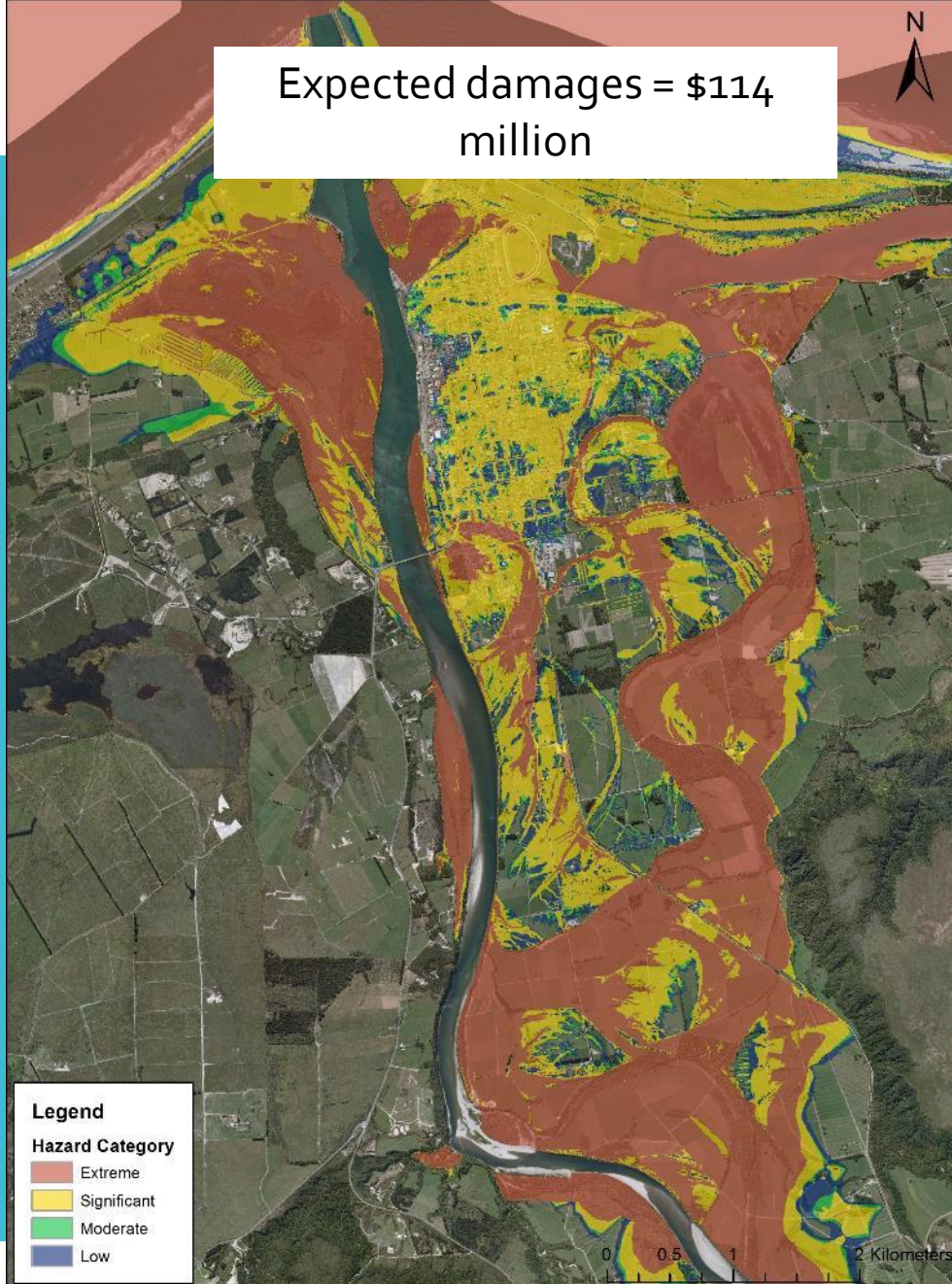


Existing Scenario



Extensive Stopbanks

Full Banks 9750 cumecs

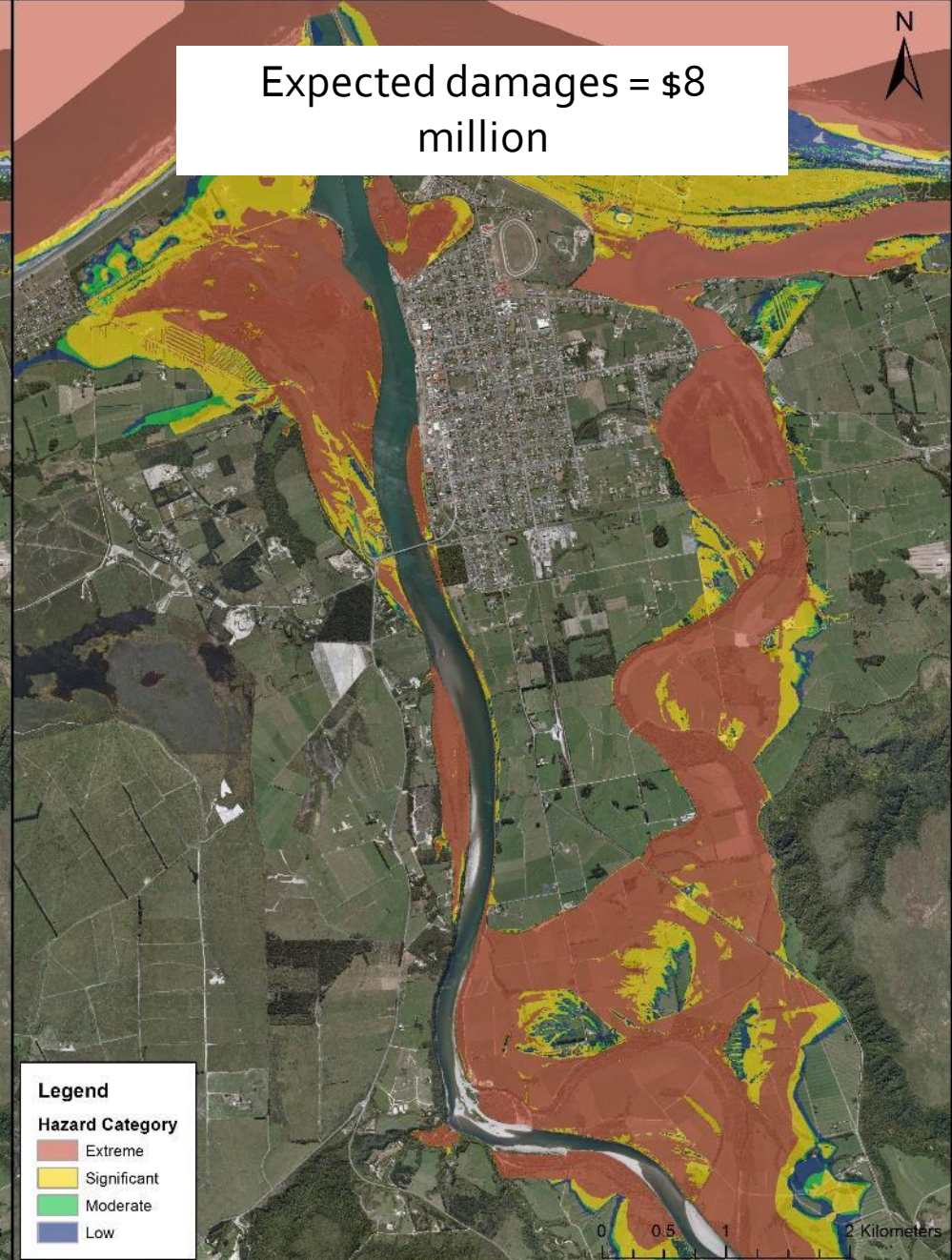


Legend

Hazard Category

- Extreme
- Significant
- Moderate
- Low

PROJECT Buller River Options Assessment				
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AUTHOR Matthew Gardner	DATE 12 August 2015	JOB CODE WCRC005	SCALE 1:40,000	REV 01



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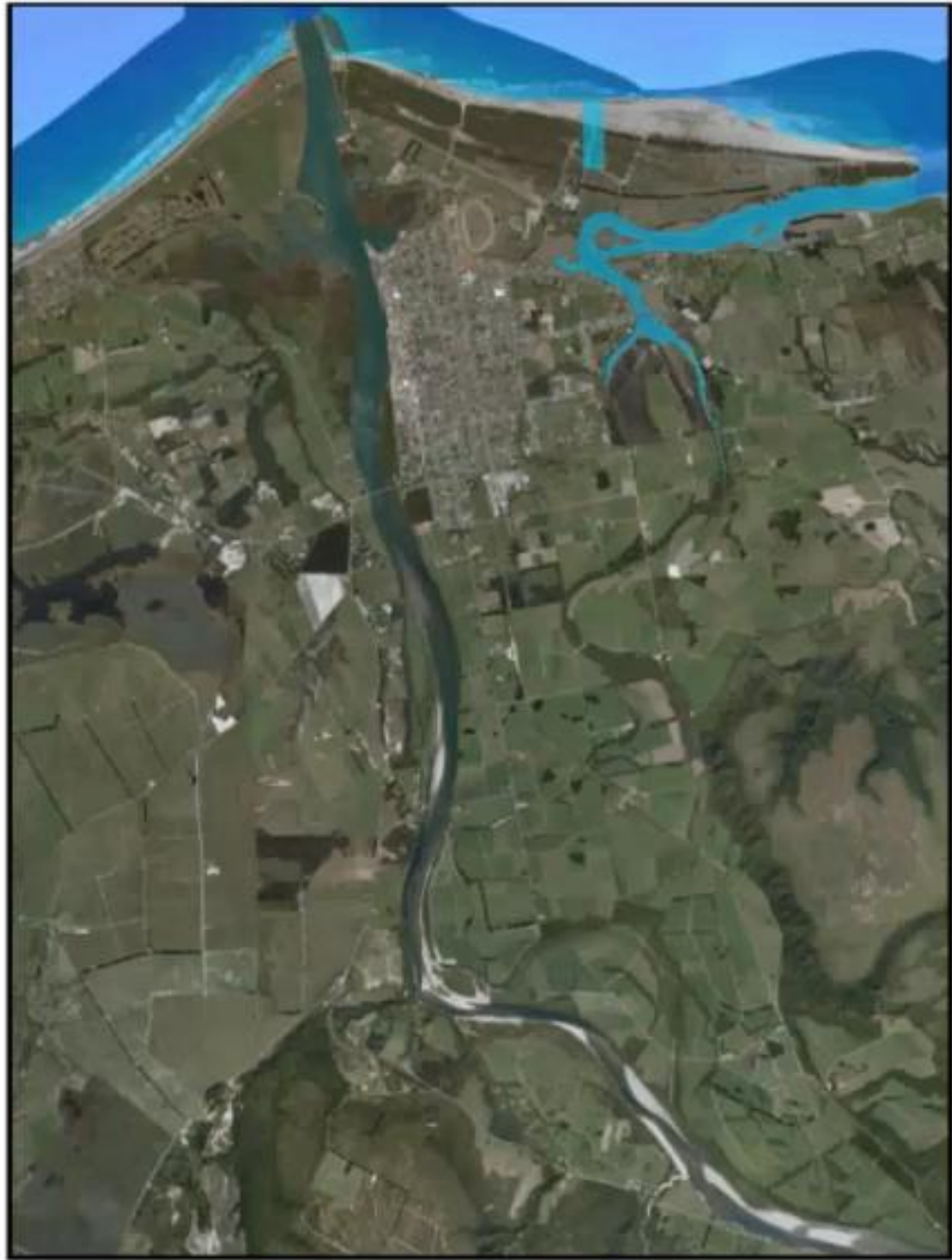


Flood Relief Cut





Existing Scenario



Flood Relief Cut

July 2021
Simulation
with cut

