

# Waimea Community Dam Update

8 November 2019

Waimea Water



# Waimea Dam is underway and progressing well

Ground Breaking Ceremony 9 August 2019



# Agenda

- Design update
- Construction update
- Environmental update
- Project Status
- Q&A



# Design: Highest category (NZSOLD / ANCOLD / ICOLD)

- Concrete Faced Rockfill Dam; most robust to seismic loads and uses indigenous material
- 13 Mm<sup>3</sup> (13 billion litre) reservoir; 53m high; 220m crest length; 430,000 m<sup>3</sup> rock
- Earthquake: Operating basis 1:150 AEP (years); Seismic evaluation basis 1:10,000 AEP (years)
- Flood: Probable max: 1094 m<sup>3</sup>/s (100 yr 375 m<sup>3</sup>/s). 12 May 2019 1:50 year 250 m<sup>3</sup>/s (47 mm/hr)



3-D model overlaying existing site topography

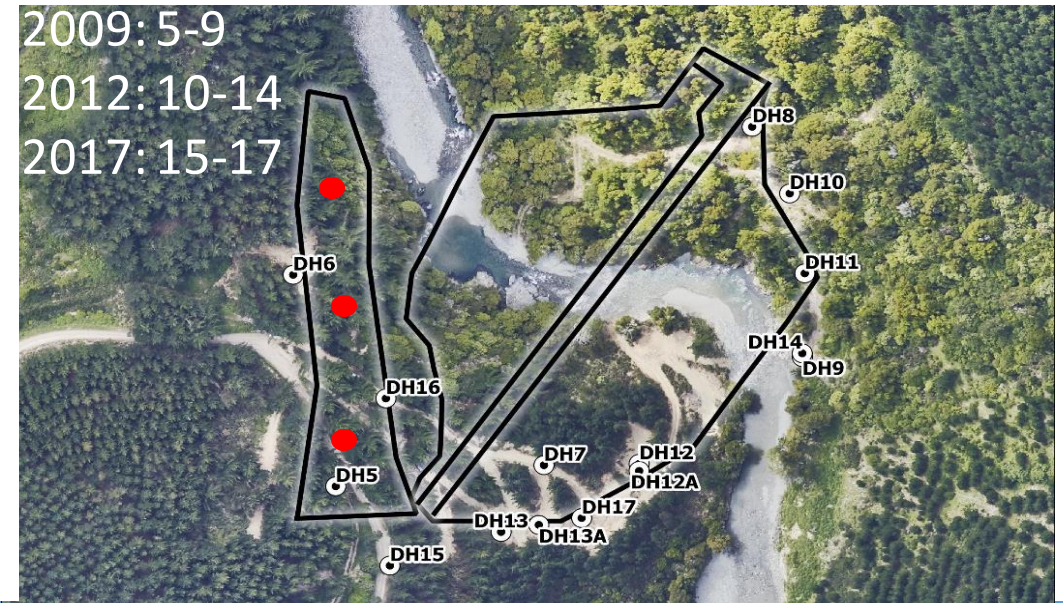
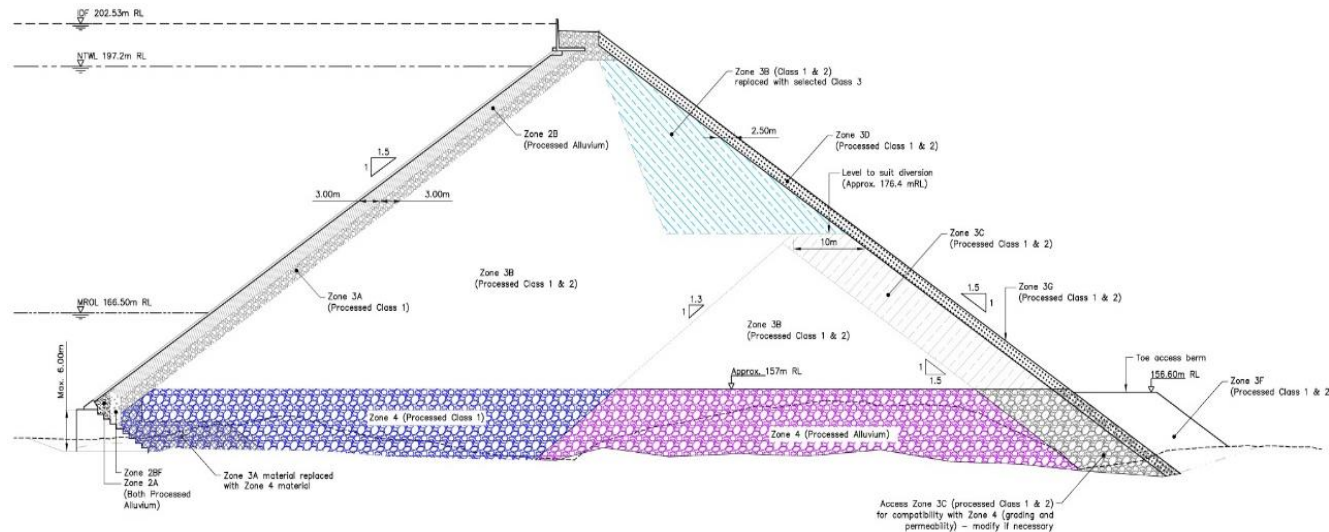


Turitea Concrete Faced Rockfill dam. Palmerston North  
Constructed 1907, 1912, 1996



# Enhancing design to mitigate cost and schedule risks

- **Designer:** Damwatch supporting design enhancements and construction verification (PS-4)
- **Rezoning:** Optimising zoning of rock fill to provide flexibility and robustness to geology
- **Spillway:** Modifying spillway design to de-risk construction, topography and operations
- **Plinth:** Optimised plinth design and updated grout curtain specification
- **Membrane:** Reviewing options to enhance resilience and mitigate schedule risks. Savings
- **MechElect:** Progressing optimised design. (hydropower compatible)





# Construction

- Access Road: 5.5 km of 6.5 km complete.
- Pig Flat bridges underway
- Haul roads established
- Concrete batching plant operational
- Clearing Right Hand Abutment  
Inspected and mapped top exposed section
- Cutting down for Left Hand Abutment
- Excavating for Left Hand plinth  
Completed and cleaned for first 20m
- Excavating culvert cut. Building diversion bund
- Vegetation clearance, salvage and mulch underway





# Construction: Clearing LHS Abutment. As expected





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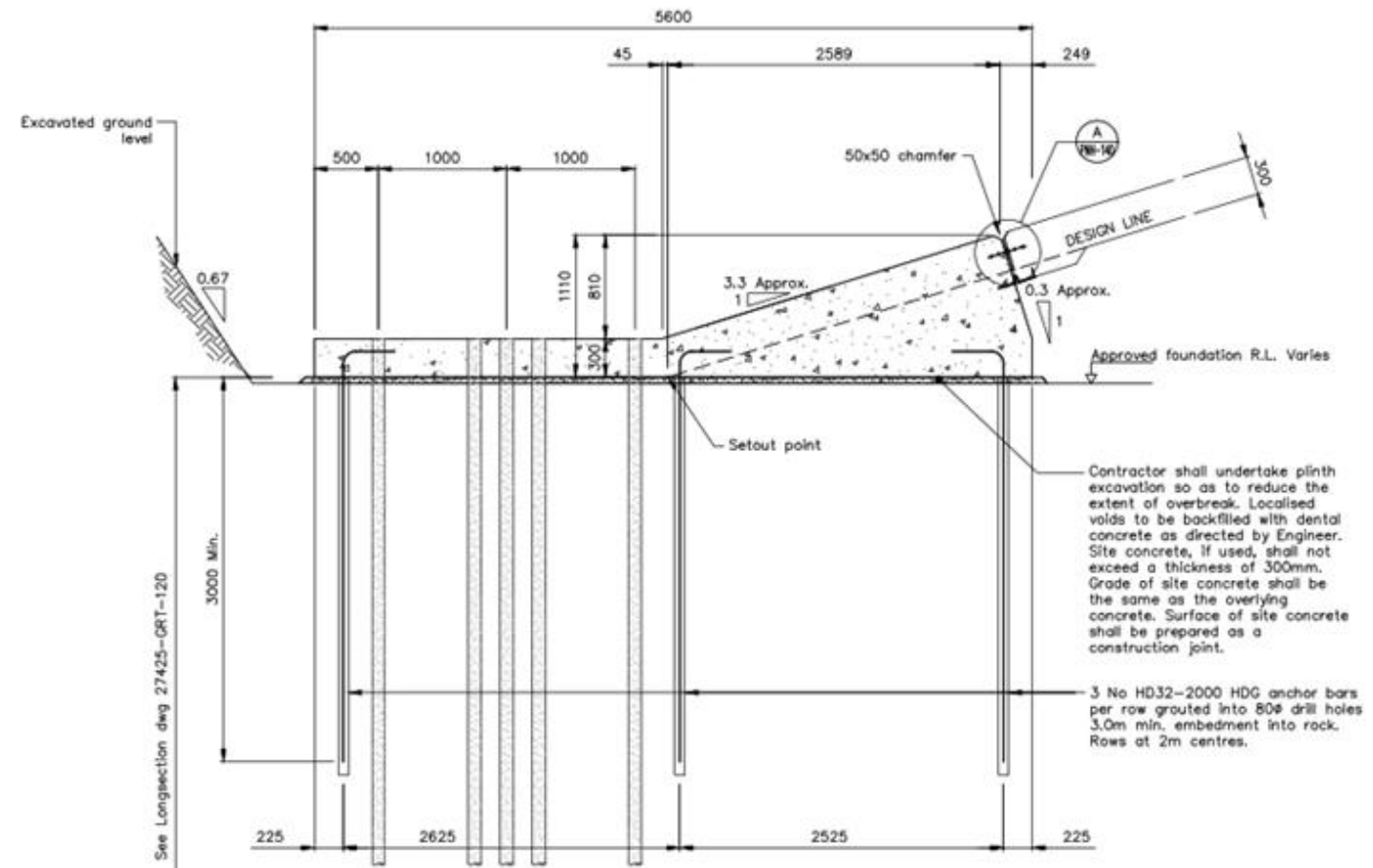


# Construction: Preparing for LHS Plinth. As expected





# Construction: Preparing for LHS Plinth. As expected





# Construction: Clearing RHS Abutment. As expected





# Construction: Clearing RHS Abutment. As expected





# Construction: Permanent Slope Protection progressing





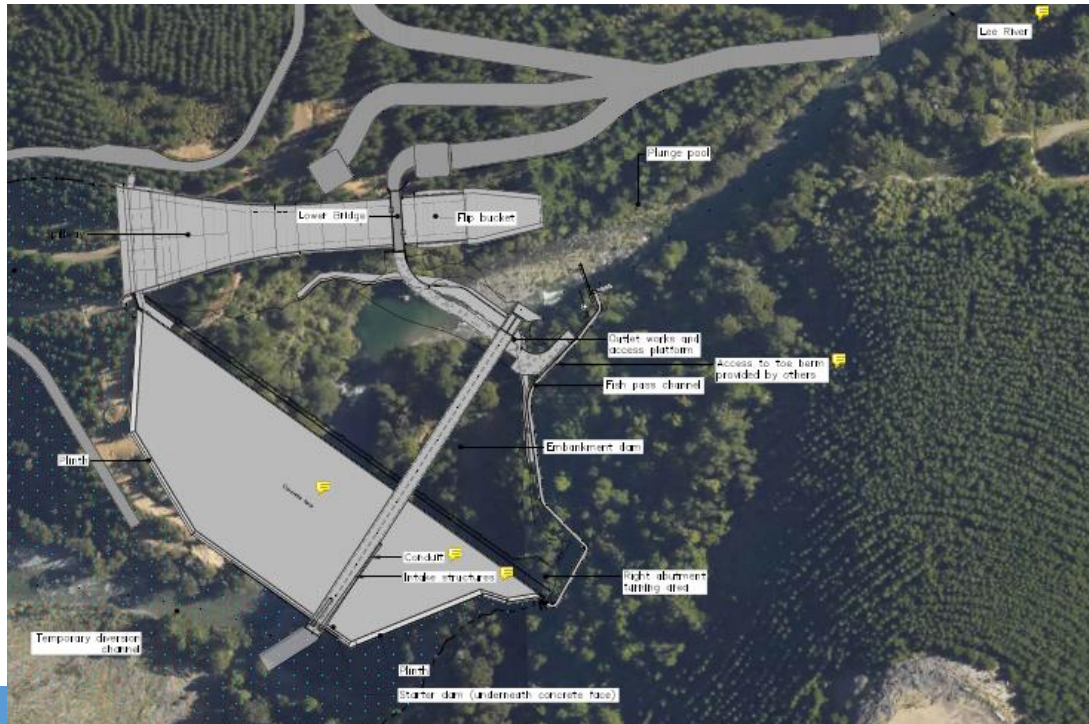
# Construction: Culvert cut progressing





# Construction: October to December 2019

- Clear the RHS and LHS abutments and plinth cut. Rock anchors and slope stabilisation
- Commence forming plinth LHS and RHS
- Construct diversion bunds to move river away from RHS for culvert construction
- Excavate for and commence forming culvert in RHS of riverbed
- Continue vegetation clearance in reservoir footprint



08/11/2019



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# Environment and Sustainability

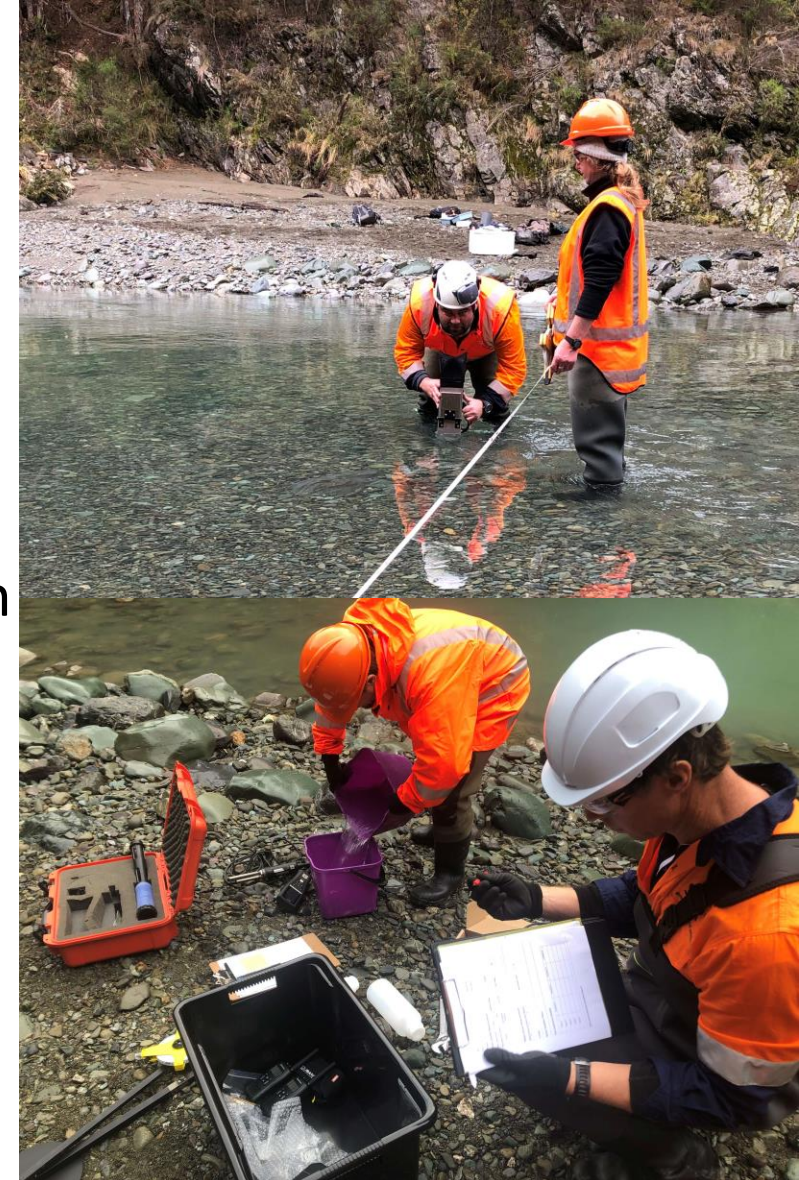
- 164 Resource Consent conditions; Working 98 action items
- Biodiversity Management Plan approved with 8 plans. BTAG

## Onsite

- 7/9 SCEMPS approved, implemented and being monitored
- 6 Sediment Retention Ponds & 8 Decanting Bunds operating
- Hydroseeding & mulching mitigates erosion and sedimentation
- Fortnightly independent water quality monitoring complies
- Continuous turbidity monitors guides river works
- 2/4 rare plant species being moved (BMP #2)

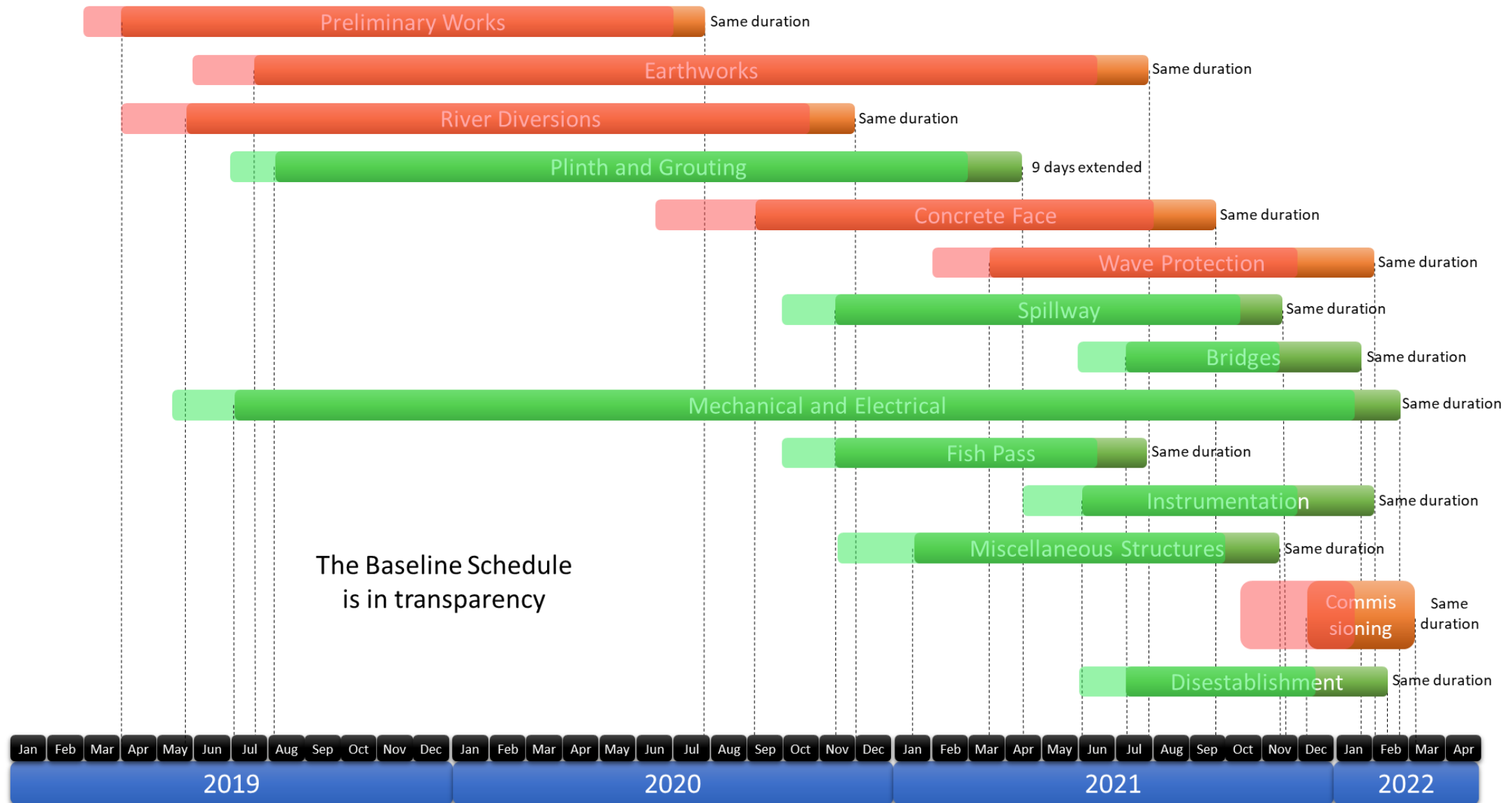
## Offsite

- Ordered 10,000 plants and weed control for Rough Island





# Program

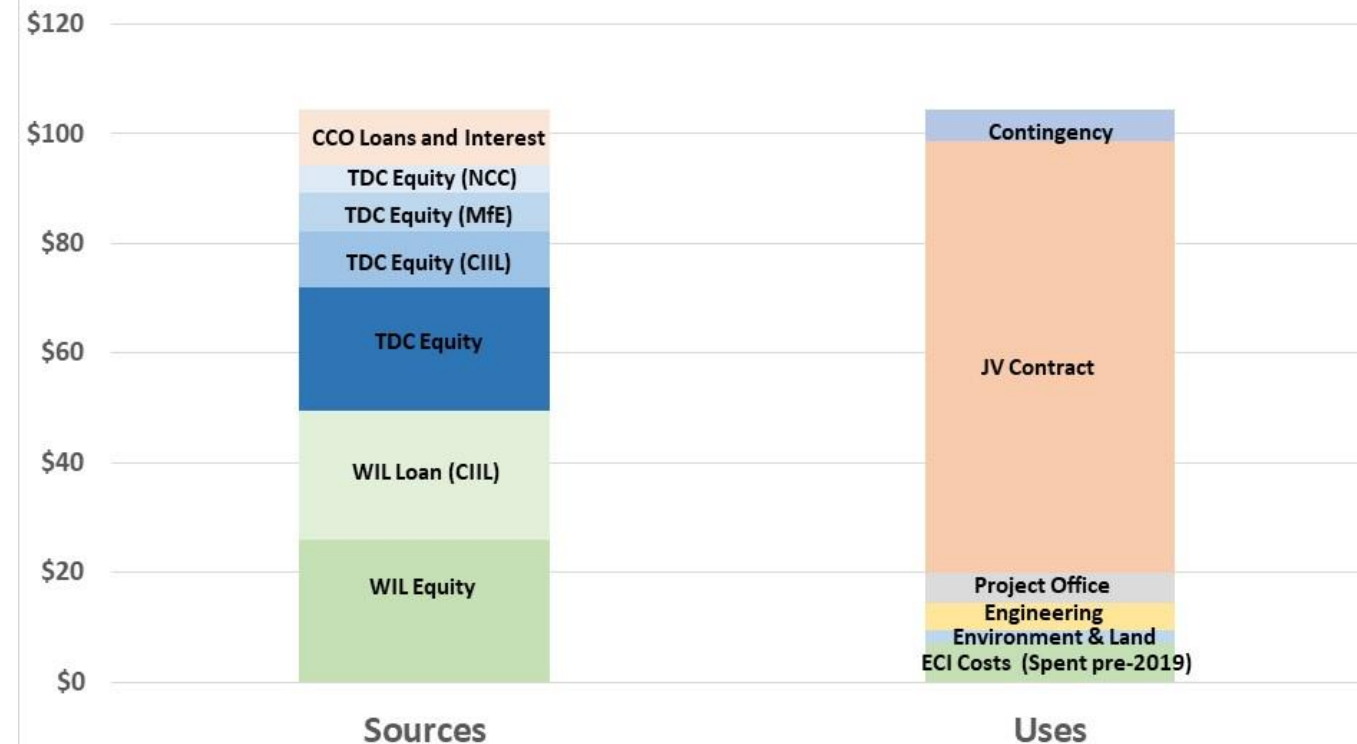




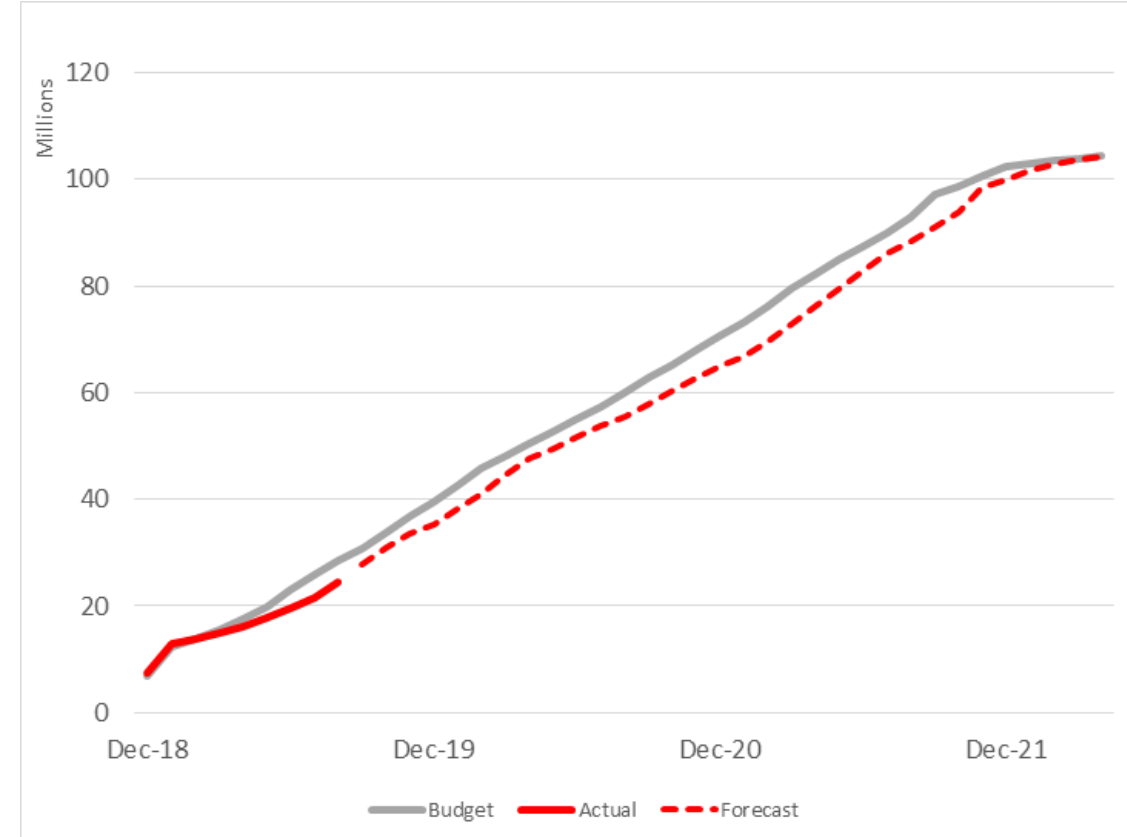
# SOI: We are doing what was said we would do

## Funding and Spend

WWL Sources and Uses of Funding (\$M)



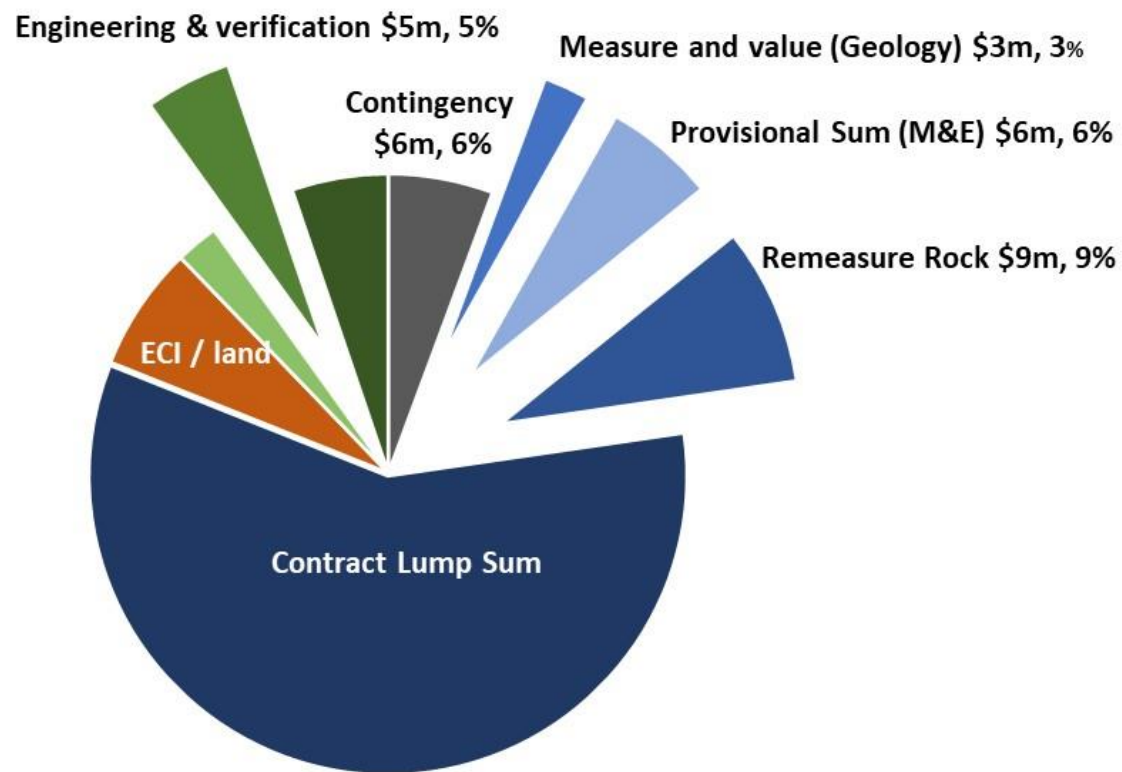
## Forecast cost & schedule to complete





# SOI: We are doing what we said we would do

## Risk Management: 22% of Project Budget at Risk



## Risk Heat Map

		Threat				
		Very Low	Low	Medium	High	Very High
Likelihood	Very High	-	1	-	-	-
	High	1	3	3	6	-
	Medium	1	4	6	3	1
	Low	-	1	3	-	-
	Very Low	-	-	-	1	-
		Very Low	Low	Medium	High	Very High

### High Risks:

- Rock fill into embankment
- Grout subsurface
- Topography on Spillway
- Slope stability
- M & E Design

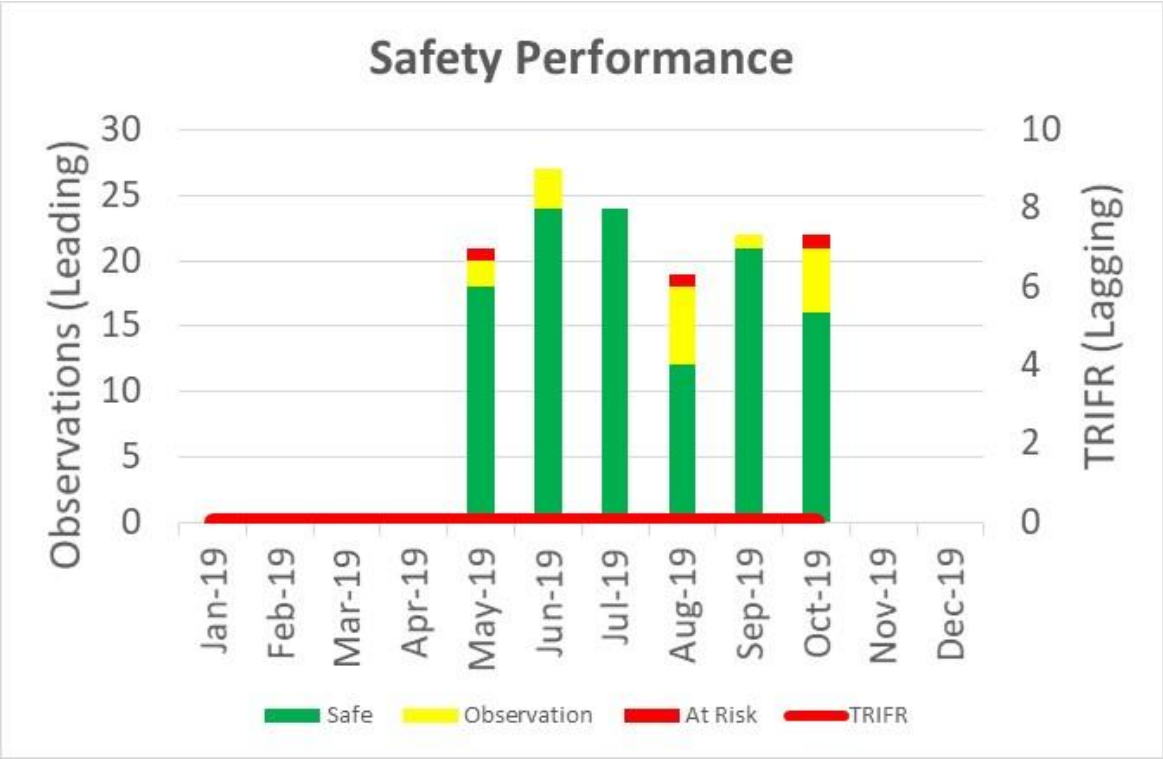
### Mitigating Actions:

- Rezoning, trials, bores
- New grout & plinth design
- Spillway design
- Assessing
- Optimising (1 pipe)

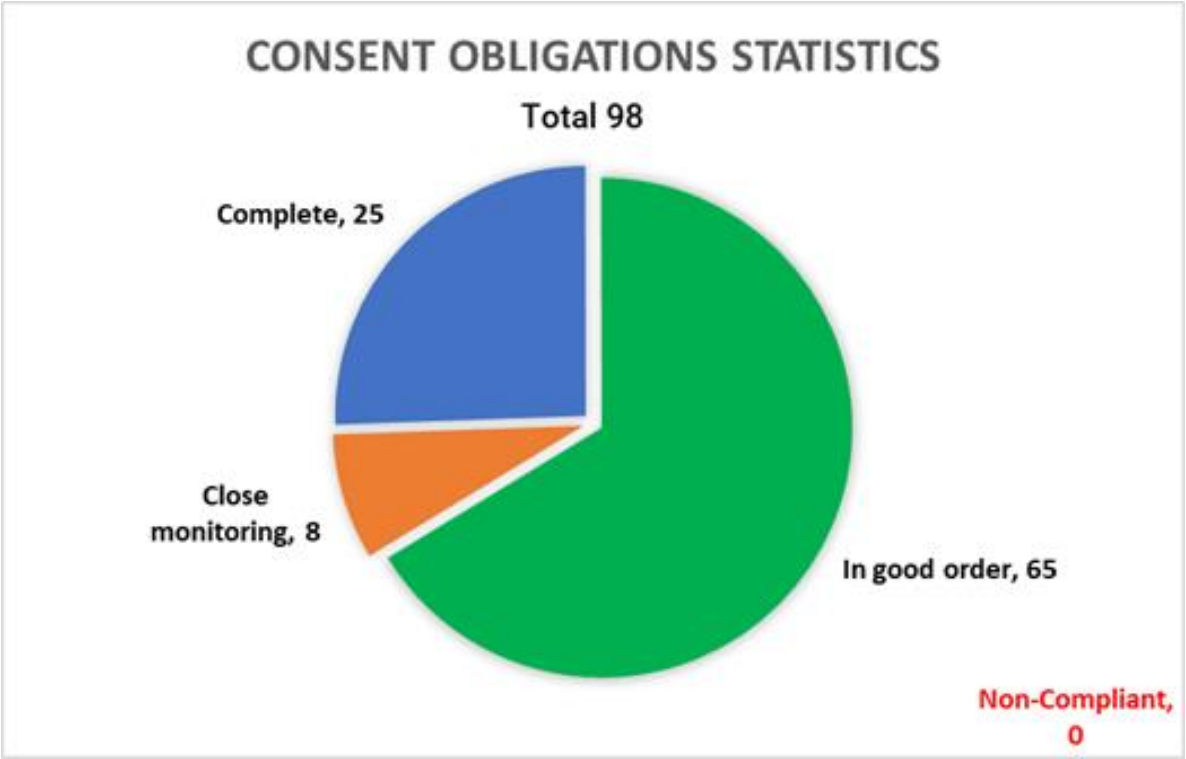


# SOI: We are doing what we said we would do

## Health and Safety



## Compliance and Audit



Late or urgent compliance issues: 0



# More Information

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 **Waimea Water**

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Recent events



Check out the key facts about the dam



Read more news about the dam



Construction update



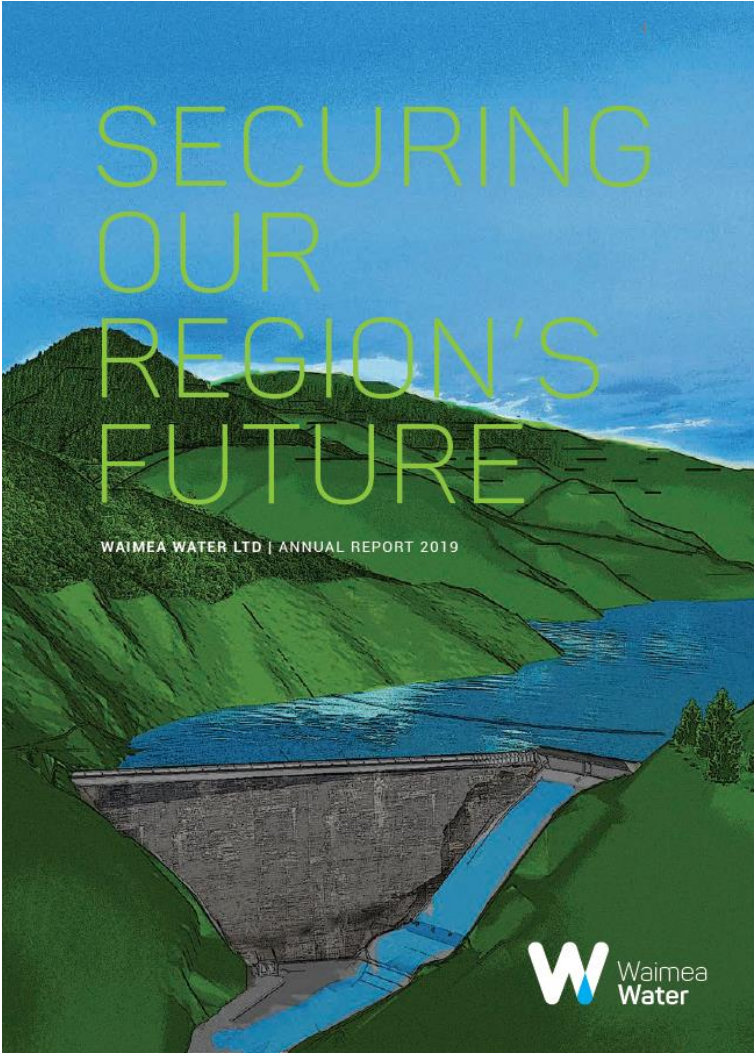
Latest reports and presentations

Waimea Community Dam  
INFORMATION EVENT

Richmond Town Hall  
9 Cambridge Street  
Wednesday 25 September  
7:00 to 8.30pm

DETAILS →

Upcoming events





**Questions?**

**Waimea Water; Damwatch Engineering; Fulton Hogan Taylors**