

Waimea Community Dam TDC Committee / WIL Board

8 July 2021

Waimea Water

Agenda

1. Progress update
2. Key issues
3. Cost and schedule forecast
4. Reservoir size
5. Operating cost forecast



Overview

WWL efficiently delivering a safe, reliable, resilient and fit for purpose Waimea Community Dam

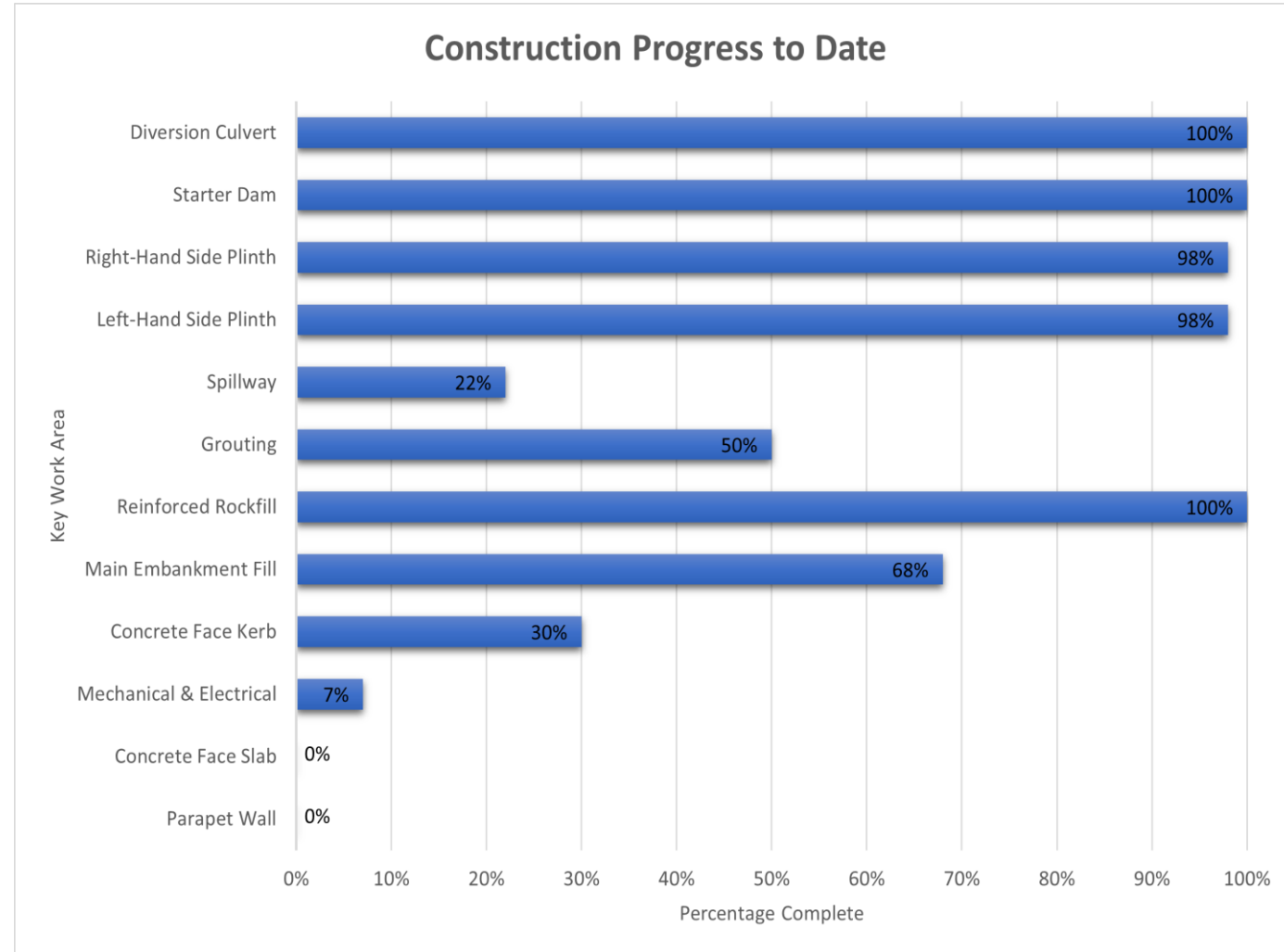
- ✓ Construction: ~60% complete and foundations largely exposed
- ✓ Design: Adapted to geological conditions. Completed M&E. Independently peer reviewed
- ✓ No serious harm injuries. No high potential incidents in 2020/21 year
- ✓ Full compliance with resource consent requirements. Water quality remains very good



Progress Update

Progress close to revised programme (mid-2022)

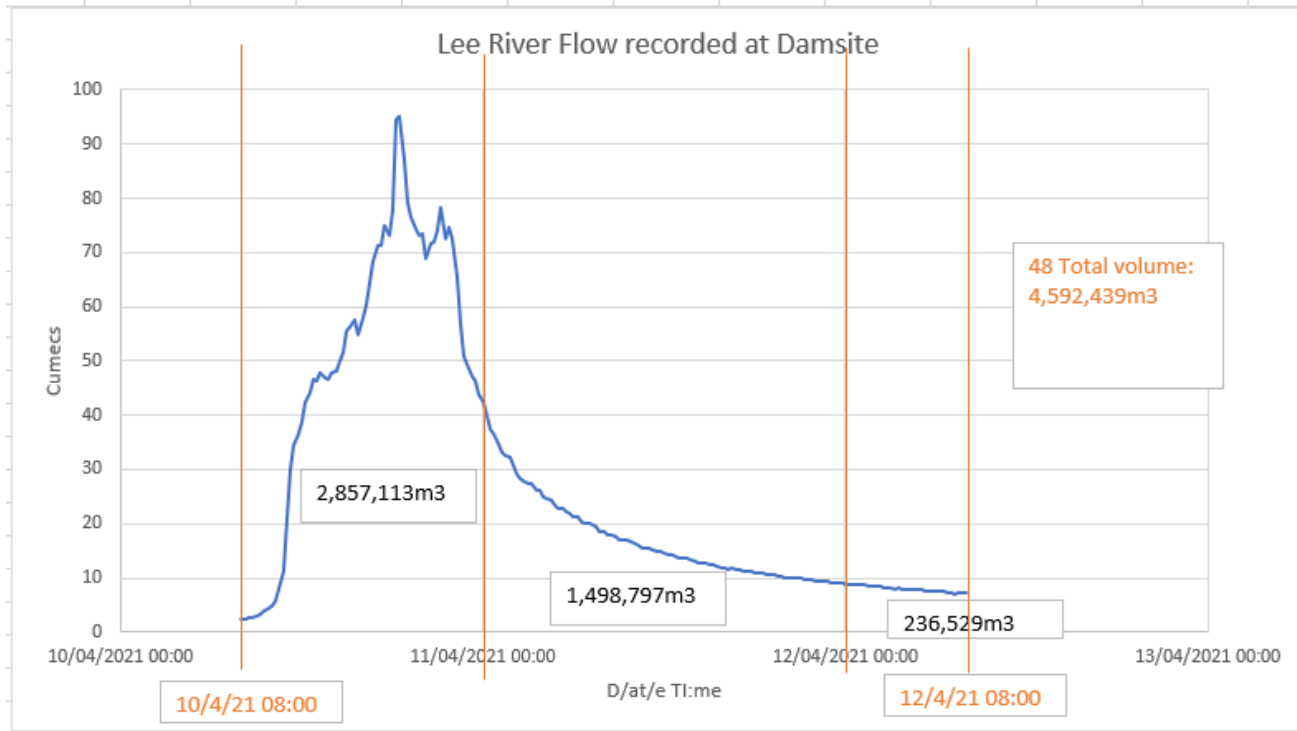
- Culvert, Starter Dam completed 2021
- Plinths near complete
- Reinforced Rockfill completed
- Embankment well progressed
- Spillway progressing
- Delay with 10 April 2021 flood



Progress Update

10 April 2021 Flood

- 11m above riverbed
- 1 in 2 year 12 hour and 24 hour volumes
- 4.6M m3 over 48 hours (1/3rd reservoir)



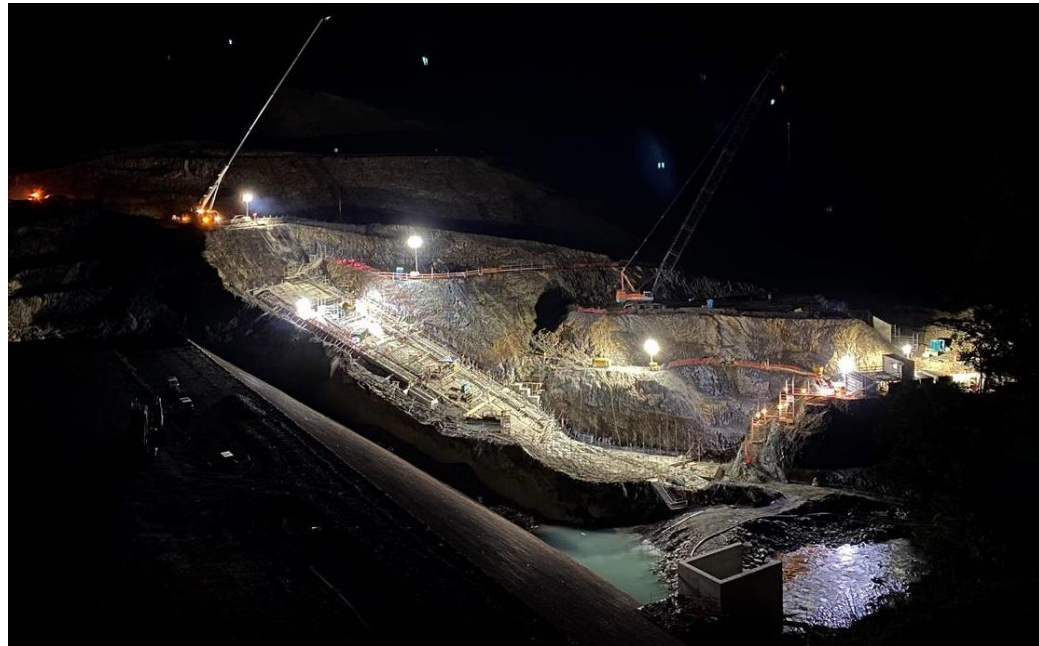
Progress Update: Embankment well progressed

- Downstream reinforced rock-filled face completed (28m)
- Blanket drainage layer complete and covered with bulk fill
- Bulk filled 2/3rd of embankment with indigenous rockfill to 28m height above river. (Crest at 54m)
- Upstream kerbs, flow-preventing zone (+sand) and chimney drain completed to 20.4m above river (critical path)
- Edges to concrete face commencing. Slip-forming concrete face due to commence January 2022



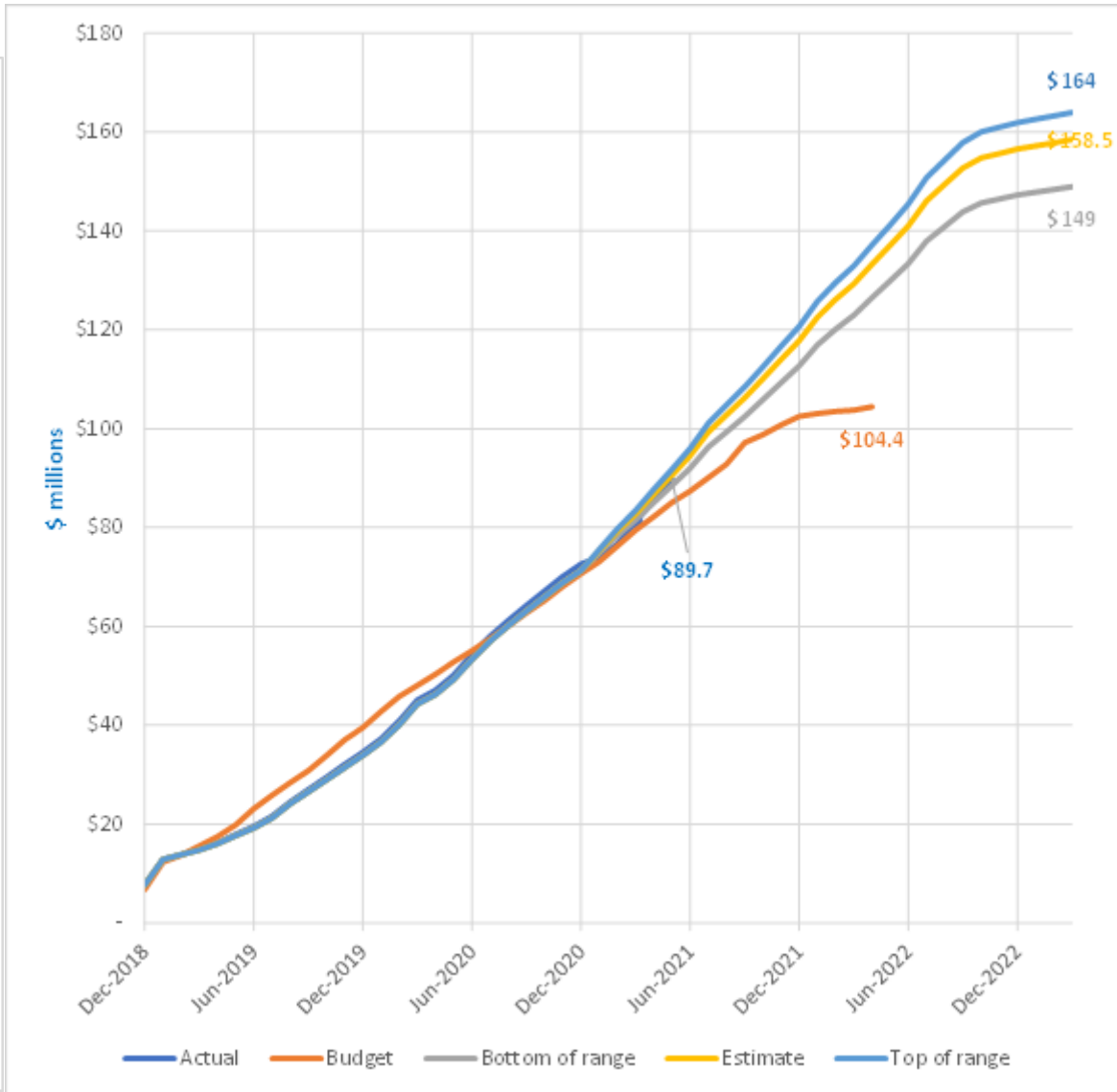
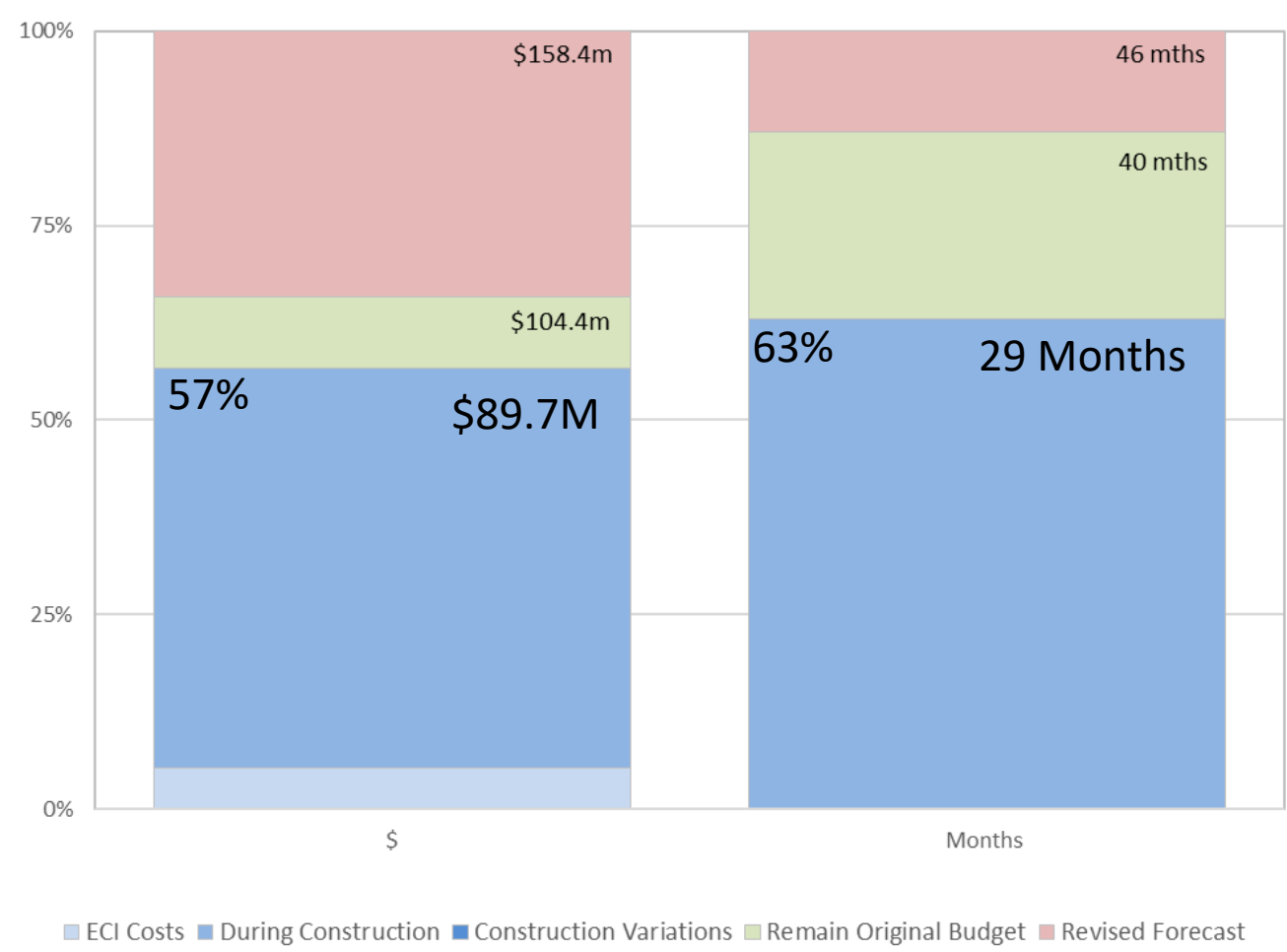
Progress Update: Spillway progressing

- Poured ~1,500m³ concrete in flip-bucket (replace unsuitable rock)
- Slip-formed wall bases to lower-spillway
- Preparing foundations to upper-spillway
- Commence walls to lower-spillway Aug-21



Progress: ~60% complete

Progress - May 2021



Schedule Forecast

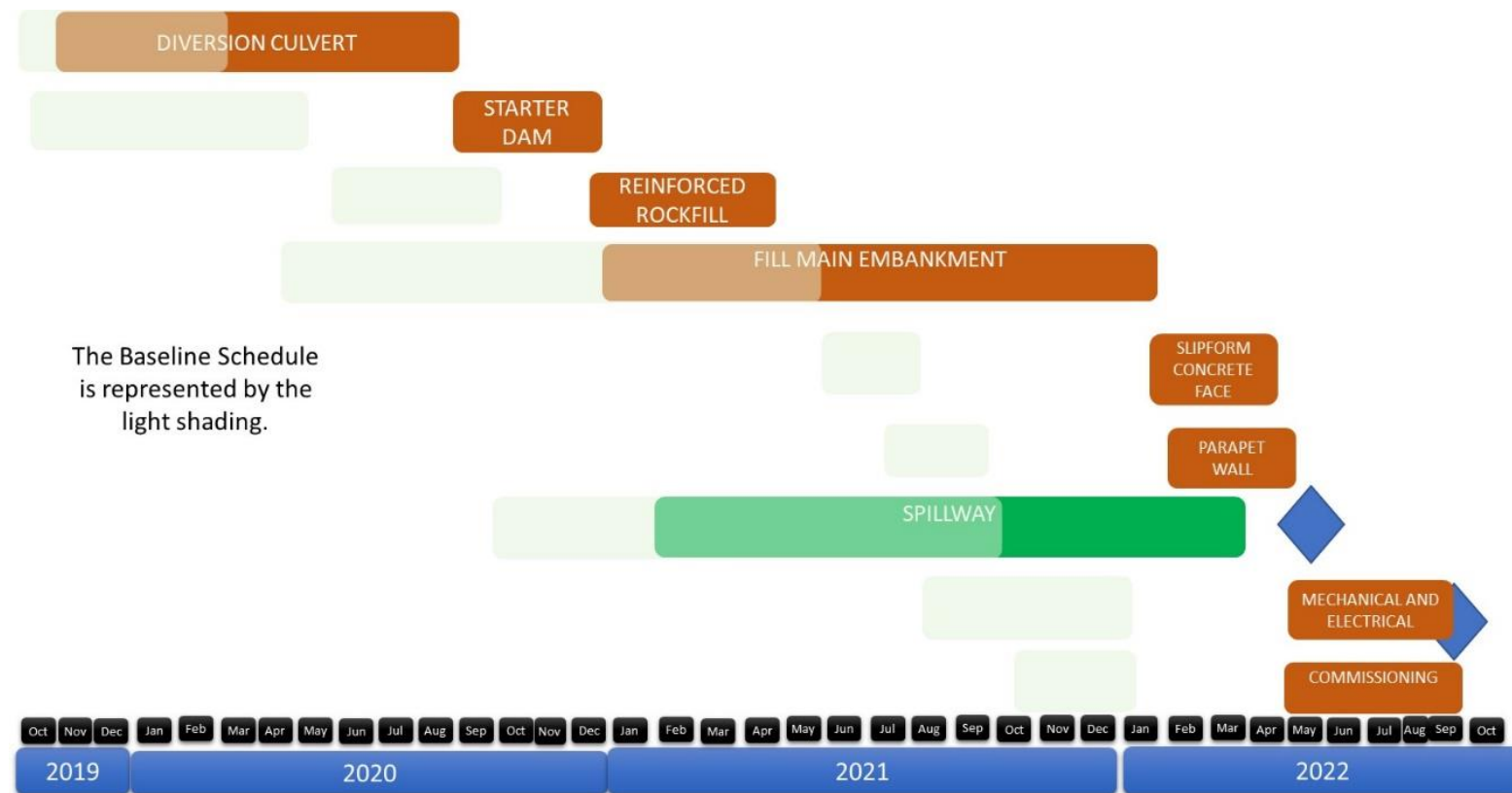
	Plan at Funding	Current Expectation
Complete Dam	28 October 2021	May June/July 2022
Reservoir filled	23 January 2022	September December 2022
Dam commissioned		

8 Month delay to construction

- Predominantly COVID-19 and loss of recovery time
- Encountered conditions (geology / embankment)
- Flood events
- Not close during summer / season

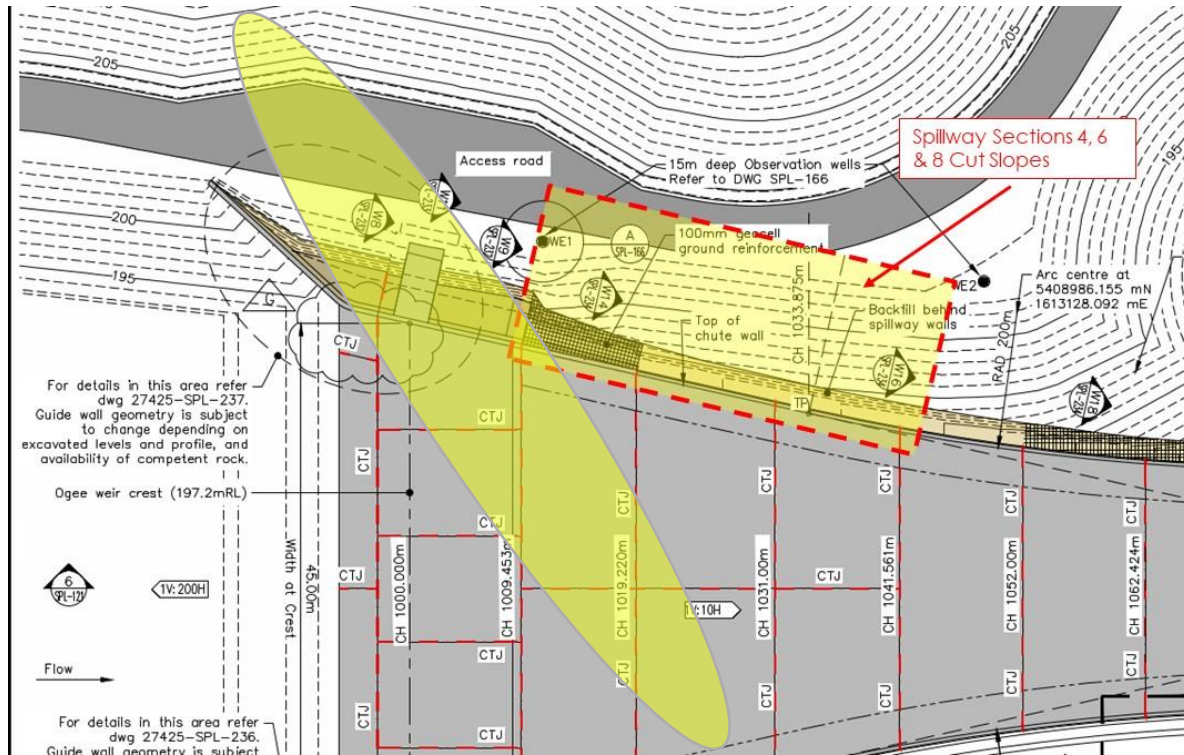
2 Month further delay to commissioning

- Hold points (design work)
- Mechanical works



Challenge 1: Left Hand Side Foundation: Shear-zones

- ❖ Encountered shear-zone during June-2021.
4-5 m wide of ground rock and clay matter
- ❖ Bisects top of spillway / ogee-weir
- ❖ Need to remove / treat to anchor spillway & seal sub-strata
- ❖ Need to stabilise above and below spillway



Challenge 1: Left Hand Side Foundation: Highly fractured

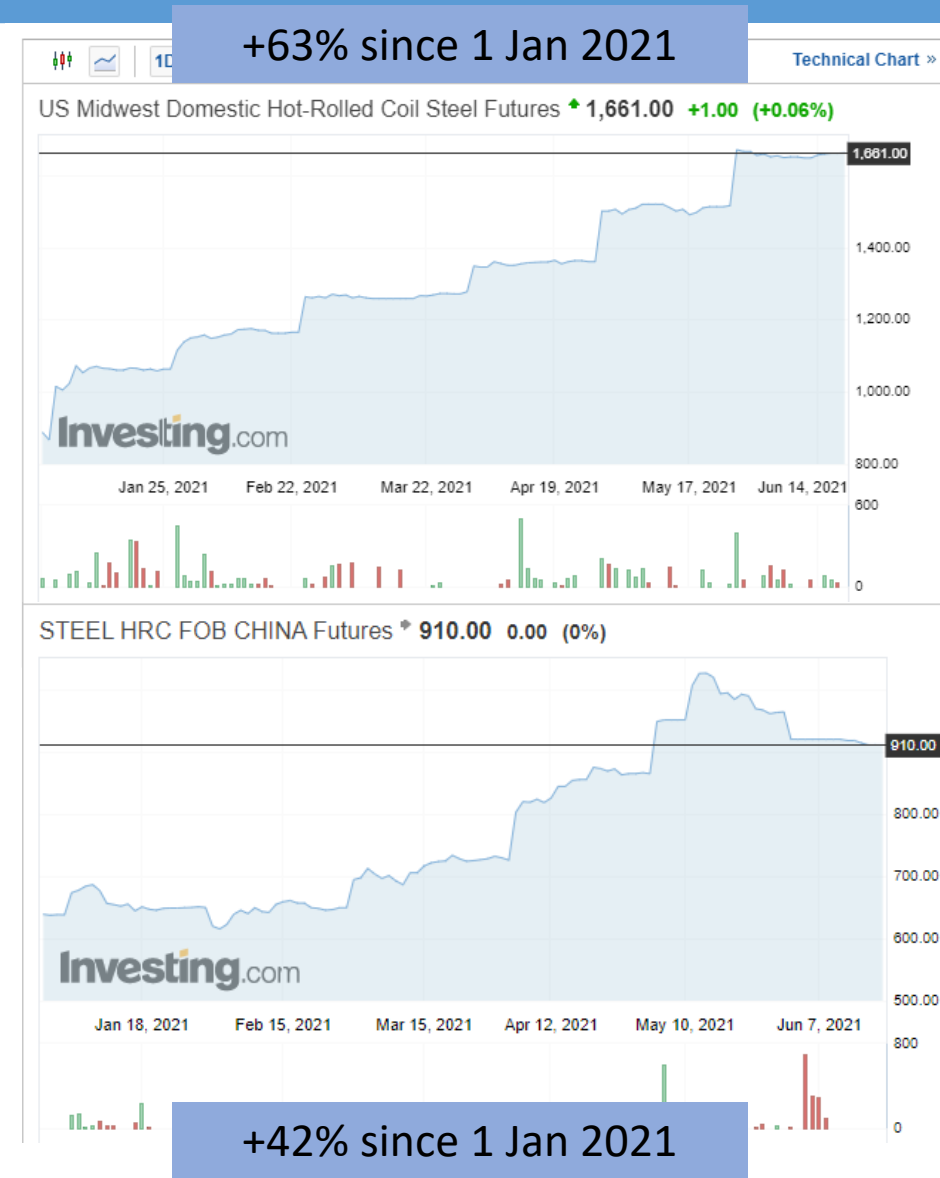
- Recent (2Q21) removal of overburden / cleaning
- Highly fractured LHS embankment / foundation
 - × Worse, more treatment than expected in Feb-2021
- Increase flow-preventing (2B) material +30%
- Importing sand & gravels stressing supplies
- Increase stabilisation protection above spillway
- Treat shear-zone
- ❖ Adding ~\$5M to Feb-2021 cost forecast
- ⇒ Within, but consuming budget & contingency.
High Risk remains



Challenge 2: M&E cost escalation

Mechanical and Electrical Costs Challenged

- ✓ Single pipe *reduced* steel & welding by 30%, pipe supports, valves
 - ✗ Feb-21 cost forecast budgeted \$12M (provisional sum \$6.3M)
 - ❖ Under-designed at funding
 - ❖ Underestimated at funding (included unspecified savings)
 - ✗ Unprecedented construction inflation adds further ~\$2.5M cost
 - ❖ ~20%-30% construction inflation since 2020
 - ❖ Iron Ore +80%; finished steel +40% to +60% since 2020
 - ❖ Stainless steel +20%, China duty +13% since March-21
 - ❖ Freight costs +200% – 300%; 40 month delivery lead time
 - ❖ Labour strained with competing demand
 - ❖ Opportunistic pricing
- ⇒ Within, but consuming budget & contingency. **High Risk remains**



Prognosis

On known conditions, anticipate cost towards upper end of Feb-21 risk range: \$158.4M to \$164M. Fill >mid-2022

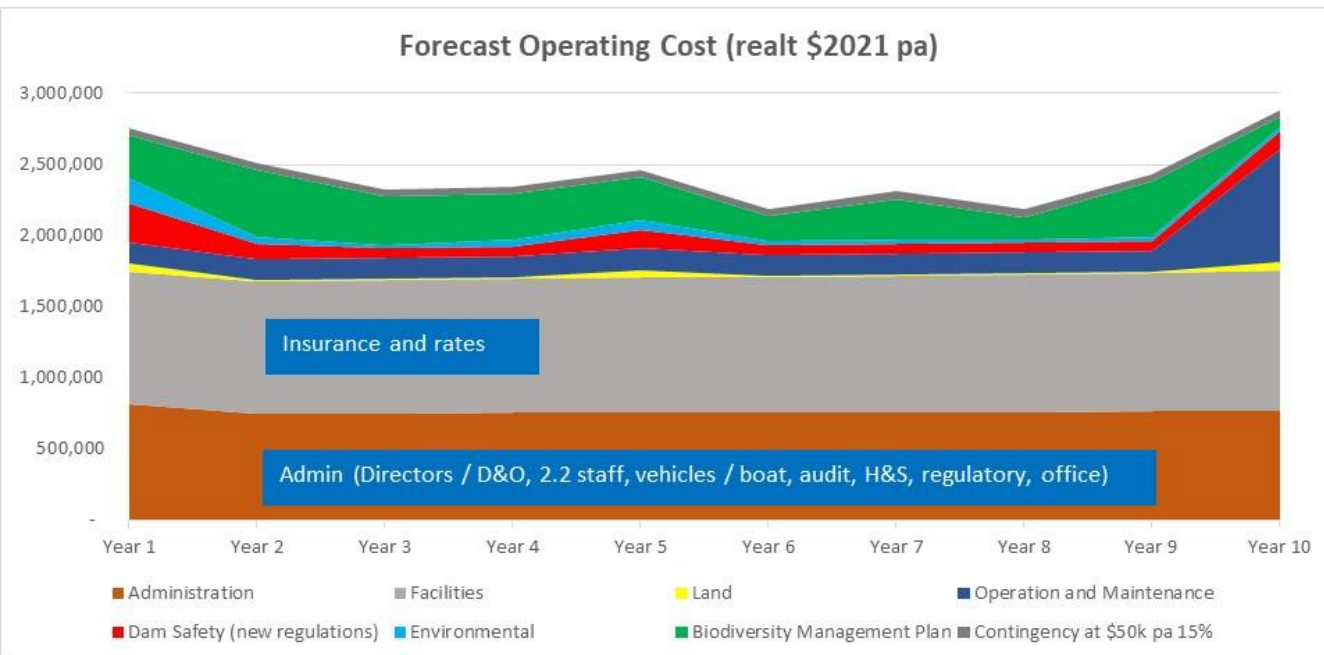


Reservoir Size

- Recent Lidar survey indicates reservoir volume close to design size (within 2% error range)
- WWL exploring lifting Ogee-Weir 300 mm / 0.2M m³ with better spillway efficiency.

Operating cost forecast: Revised and submitted

- Operating costs (slightly reduced) expected to be:
 - \$2.6M pa years 1-2 (bedding in dam safety)
 - \$2.3M pa years 2-9
 - \$2.9M pa year 10 (major services)
- Insurance (~\$650k pa) remains key uncertainty and risk
- Pre-close estimate of \$1.5m pa underestimated operating requirements



Cost Increase Component	+\$k pa (average)
Insurance, rates and land costs	+\$340k
Dam safety surveillance and surveying	+\$ 63k
Dam maintenance, (+boom and screen cleaning)	+\$107k
Increased staffing costs of +1.4 FTE	+\$263k
Increased governance, support (H&S etc), facilities	+\$170k

Thank You. Q&A



Statement of Intent 1 July 2021- 30 June 2022



STATEMENT OF INTENT

1 July 2021 – 30 June 2022

VERSION: Final 26 May 2021

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Waimea Water Limited

Quarterly Report

Period ending

31 March 2021



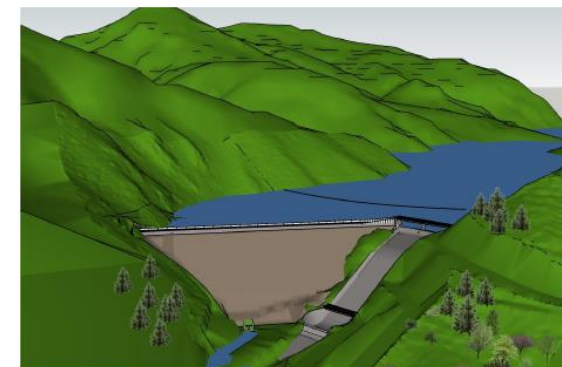
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Waimea Community Dam Operational Management Plan
Document Number: WWL-OPP-RPT-001



Waimea Community Dam

Operational Management Plan



30 June 2021

Document Number: WWL-OPP-RPT-001

Revision	Date	Produced By	Checked By	Revision History
Rev 0	16 March 2021	WWL	MAS	First draft for comment
Rev 1	30 June 2021	WWL	MAS	Final after consultation

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