

The Hurunui Water Project – as Consented

HWP Command Area – Main body of farmland centred around Hawarden township with laterals to the Upper Waipara, Scargill Valley and Omihi areas:

- Incorporates two main catchments (Hurunui, Waipara)
- Consented area 58,000+ Ha

Scheme Relies on Water Storage – Along the length of the upper Waitohi River: 3 dams, plus a weir at the gorge to plains interface (at lake Sumner Road bridge):

- Consents – via Zone Committee, a Consultative approach

Consented Hurunui River 4 Intakes – one below Surveyors Stream, one at Mandamus River, one a little downstream and AIC existing

- ❖ Provide water only when river is flowing at higher levels: “B” and “C” block water. **This is a storage based scheme.**

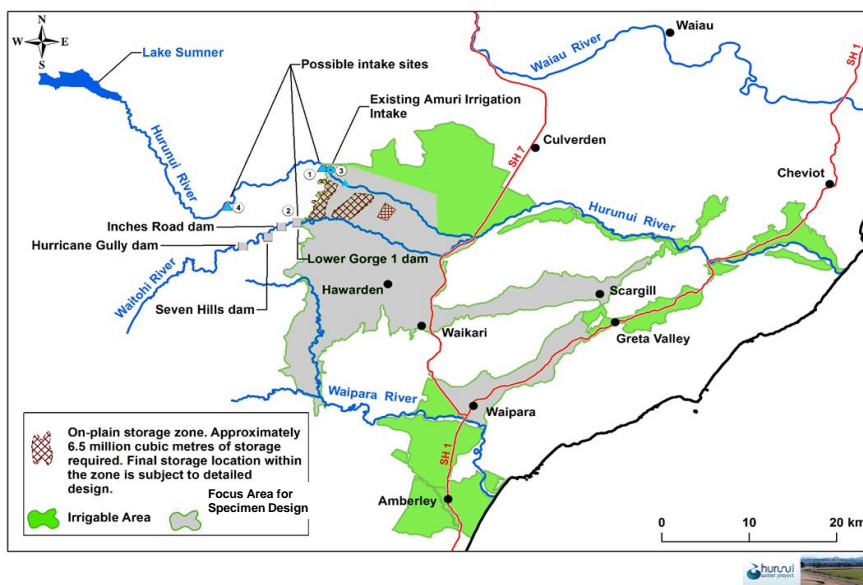
Economic Benefit to Hurunui District of consented scheme:

\$170million, 1000FTE's

- ❖ Ref: Harris, Fully consented scheme size



Consented: water take, store, discharge, use



Changes 2013 to 2017

Target Irrigated area now 21,000 Ha (within the 50,000Ha Gross)

Key reasons for reduced area under irrigation:

- Farmer surveys - demand circa 17,500Ha,
 - HWP currently allowing for 20% overbuild.
- Hurunui Catchment - Consented nutrient discharge– **Not possible to intensify the whole area**
- Waipara Catchment is in CLWRP red zone – **Strict limitations on intensification**

Environmental controls – very well managed scheme and farms

Hurunui Catchment – Land Use consent obtained, Nitrogen limits set at Root Zone. More practical for apportioning than in-river load.

Changes 2013 to 2017

Ngāi Tahu Forest Estates / Ngāi Tahu Farming

Shareholding in HWP reduced – Balmoral land now excluded

- 4777Ha of Balmoral A area (Western part)
- N load transferred to new NTF consent
- 1m³/s of HWP's consented water take (B block water) will go to a NTF held consent.
- NTF Shareholding in HWP reduced from 30% down to 3%

Remains a storage scheme – Hurunui River water,

- Remains possible that Amuri Irrigation, NTF and HWP jointly develop storage on the north side.



Farmer Survey – 77 shareholders (April – May 2016)

Key Outcomes:

- Shareholders still strongly support the HWP scheme
- 91% of those surveyed (by area) continue to want irrigation.
- Majority of shareholders focused on increasing the long-term profitability of farming operations by improving productivity from existing land use (predominantly sheep and beef based, plus some additional crops, finishing etc).
- Shareholders also interested in de-risking farming operations -
 - Drought resistance
 - Flexibility
 - Consistency (drought periods very damaging even over long time frames)
 - Additional production arising from lower risks enabling higher routine production
- Shareholders had some good thoughts on agriculture innovation and long-term strategic possibilities and options



Farmer Survey – 77 shareholders (April – May 2016)

Land Use	Extrapolated Survey Area (Ha)	Forecast Mix
Sheep and beef	10,399	50%
Arable	5,390	26%
Dairy/Dairy support	2,267	11%
Mixed use	1,650	8%
Deer	1,236	6%
Other	58	0.3%
Total	21,000	100%



Current Scheme Proposal

The now reduced scale of the scheme resulted in a review of previous scheme configuration:

Moving from 3 x Waitohi storage dams (Hurricane Gully at 252Mm³), Dam (Weir) at Gorge Road and OPS at 6.5Mm³

To either:

- One dam (approx. 10% of consented size for Hurricane Gully) +
- Weir at Lake Sumner Road bridge replaced by a conventional river intake (2km downstream) +
- On Plains Storage at 6.5Mm³

Or:

- On Plains Storage only - 23Mm³ (single Hurunui Intake at Mandamus)

Consented Waitohi storage will not be foregone, however it is practical to preferentially progress one option. Future reliability improvements will likely require Waitohi storage (subject to Catchment-wide storage options and timing)

HWP Board, on 29 March 2017, approved the development of an On Plains Storage based scheme to service the initial irrigated area.

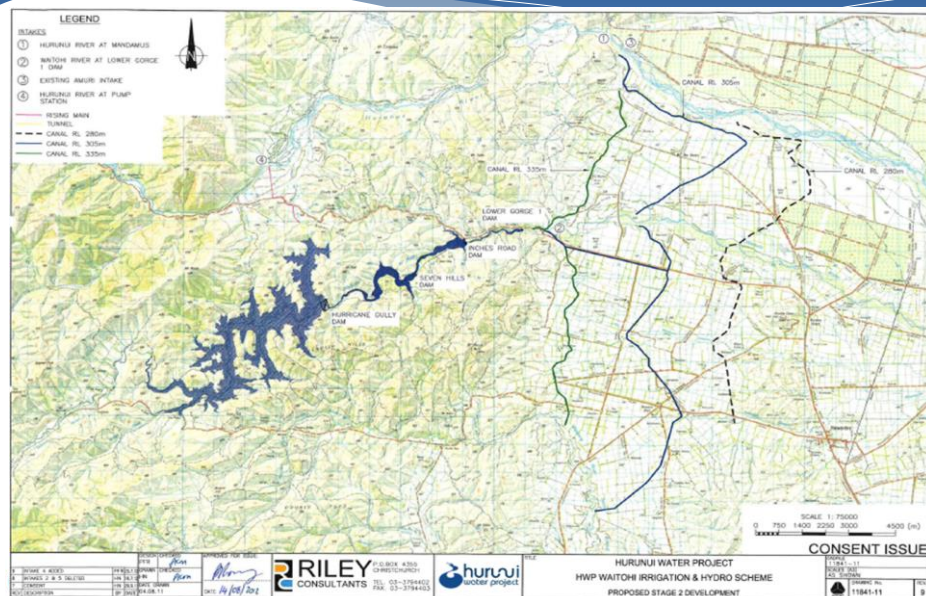


Reasons for Selecting the large OPS option

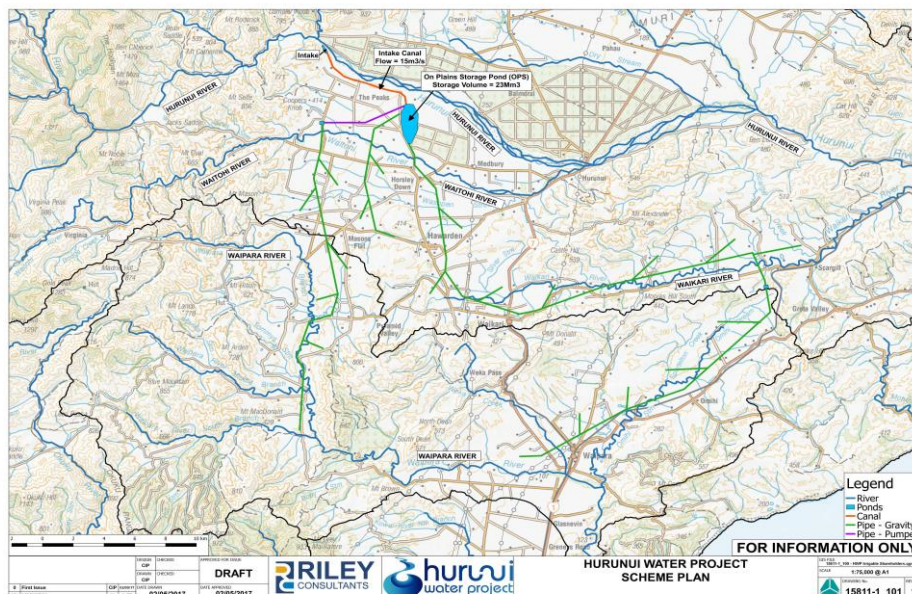
- Environmental Impact significantly reduced – no loss of in-channel and riparian values in Waitohi river, proposed OPS located on land already developed for agriculture / forestry
- Construction complexity and risk reduced (in-channel dams are inherently complex),
- Capital Cost:
 - Present Estimates: ~\$25million lower cost than Waitohi storage based scheme. Scheme capital cost in the order of \$200million.
- Speed of build:
 - Large dams in river situations have a number of unknowns until:
 - * A good deal of expensive investigation work is carried out
 - * Building Consents are secured
 - * Construction methodology is confirmed and peer reviewed



HWP – Consented Scheme



Proposed Scheme – initial 21,000Ha development



Waipara Catchment - Nutrients

Some 15,000Ha of HWP Command Area is in the Waipara River catchment.

- Located west of Masons Flat (Upper Waipara) and along the Omihi Valley.
- HWP consents permit using water for irrigation in both Hurunui and Waipara catchments
- Farms are typically large – extending well outside HWP's Command Area typically into hill country – ie. much larger gross farm area
- Shareholders seeking modest areas of irrigation combined with lower discharge land uses – pressing need for certainty.

HWP recently completed shareholder survey to calculate nutrient discharge figures for intended irrigation / intensification. Then discussing a way forward with ECan

Hurunui Catchment - Nutrients

- The original (2013) HWP consents contained conditions that limited the amount of Nitrogen (in-river load) at SH1 Hurunui River bridge – tons per year.
- Our later consent (to use land for farming), defines the amount of Nitrogen in terms of Root Zone – tons per year.
- The consented leaching losses are such that the currently indicated demand for irrigated area, together with proposed new land uses, can be accommodated within the consented limits.
- The consents require controls on Phosphorus to ensure that there is no overall increase.
- In practical terms HWP will have to limit the maximum amount of Nitrogen that can be leached from each hectare under irrigation and require strong mitigation measures for Phosphorous.



Long Term Options retained

Smaller Low-impact Waitohi Storage

- Recharge from Waitohi river only – small component
- Pumping unlikely (capital cost, operating cost).
 - ❖ River intake and conveyance costs affect potential viability

Improved mix of existing consented (individual) Groundwater takes and (HWP scheme) storage

- “Science” is compelling, Commercial Arrangements may be just too complex

North Side Storage

- In cooperation with Amuri Irrigation Company and Ngai Tahu Farming
- Compelling; Economics, Environmental, Flexibility
 - ❖ Depends on Zone Committee 2018 review / plan changes outcome



Project Key Success

- Maintain Momentum
 - HWP's protracted history demands the project advance to execution:
 - * Financial Arrangements
 - * Shareholder support interfacing with external parties
 - * Community confidence
- Maintain Community and collaborative approach
- Grow Stakeholder and Public understanding of the Environmental standards HWP will meet:
 - Regulatory – consent conditions
 - Company intent – Cooperative ethos
- Consenting is carried out efficiently

Increased Farmer Liaison Committee engagement essential



Thank You

