

Environment Canterbury

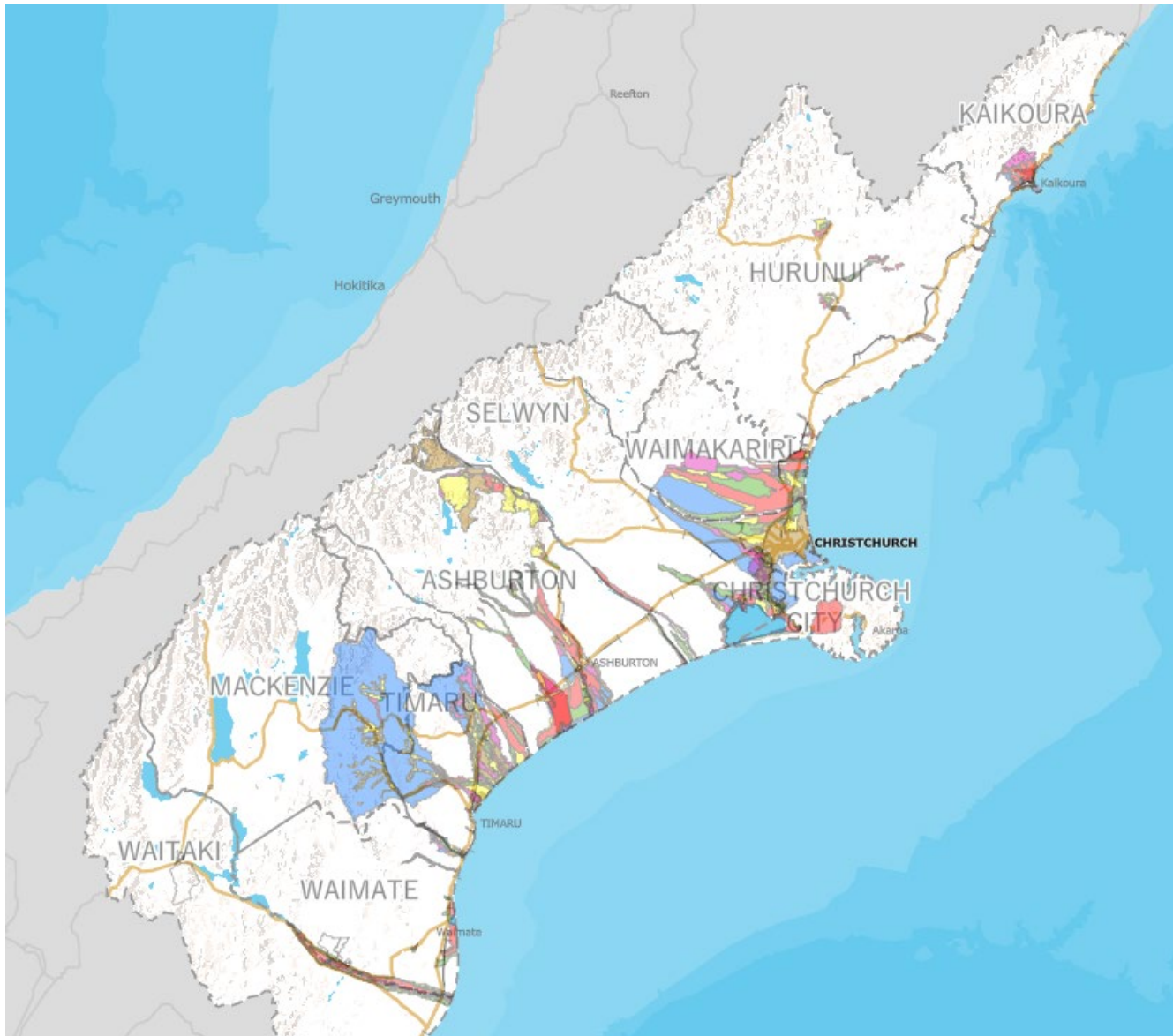
River Management of Waikirikiri Selwyn River Selwyn Huts

Staff

Shaun McCracken – Regional Lead River Engineering

Dan Meehan – Area Engineer Central

River and Drainage Schemes



Canterbury has ~78,000km of rivers
2,000km are within 59 River & Drainage
rating districts – large areas of the
region are not covered

Asset Value of ECan owned
infrastructure: \$851m (2022)

Current combined annual maintenance
budget for all schemes: ~\$15m

Te Waihora / Lake Ellesmere

0750 - Upper Selwyn Huts. Looking east along Selwyn Lake Road - 23-06-2013



Lake level 1.7m 23/6/2013

Lake opened on
29/6/2013 at 1.8m

Peak flow in Selwyn River
150m³/s 21/6/2013



cc by Environment Canterbury

Waikirikiri / Selwyn River

N2_20170722_164959 - Selwyn River at Upper Huts (south-west)



Peak flow in Selwyn River
at Coes Ford 420m³/s
22/7/2017 (Lake 0.9m)

450m³/s 31/5/2021

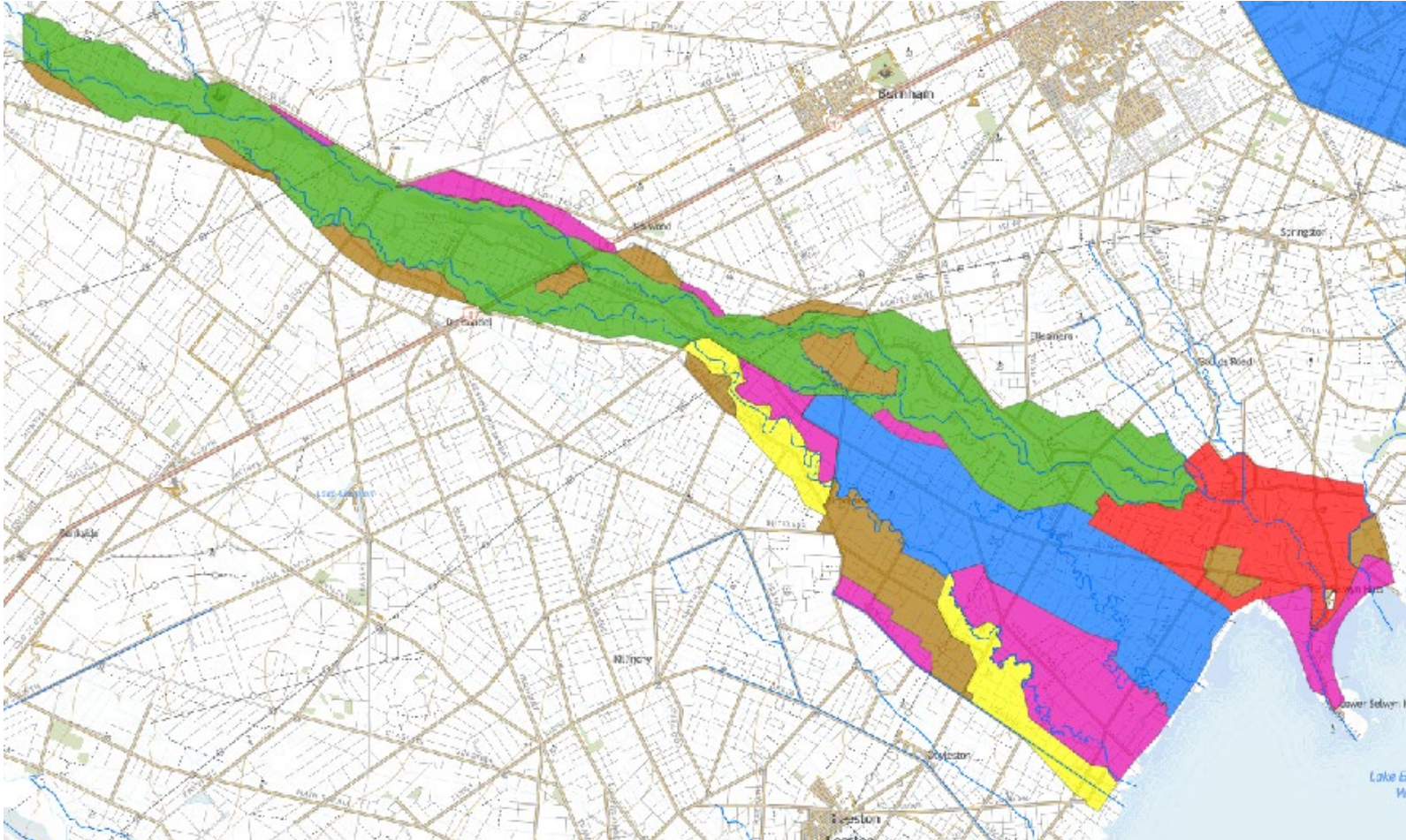
How ECan rating districts are currently funded

	Targeted Rate	Works and Services Rate	General Rate	Other funding and comments
Comprehensive and Large schemes	70%	15%	15%	Some larger schemes (esp WEC, Rakaia) have income from endowment land. Wider benefits include protection of road and rail networks and other lifelines, bird nesting habitat kept clear of woody weeds etc.
Localised river schemes	75%	20%	5%	Benefits rarely extend to lifelines but usually include local roads. Some TA's contribute extra to some local schemes.
Drainage schemes	80%	15%	5%	Drainage tends to be focussed on improved production, less benefit to public values and infrastructure
Te Waihora/Lake Ellesmere	50%	25%	25%	Agreed when additional openings for fish passage and environmental reasons were added
Waihao-Wainono	60%	30%	10%	Agreed when environmental objectives were added

Main funding policy (ratios) agreed in 1995 after economic analysis

Other regional councils use general rate proportions varying from 0-100% - ECan is about average

Waikirikiri / Selwyn Scheme Overview



Scheme Objectives

- (a) To prevent flood overflows from the Selwyn River / Waikirikiri in floods up to a discharge of 560 cumecs.
- (b) To maintain the river bed downstream from the Hororātā River confluence clear of vegetation and obstructions (trees and brushweeds), which would otherwise have the effect of impeding or diverting flows.
- (c) To maintain fairway edge erosion control works and berm planting to protect the stopbank system or to control or reduce flood overflows onto the floodplain.

Scheme Assets

Stopbanks 22.5km

Erosion control 73.2km

Asset Value of ECan owned infrastructure: \$33M (May 2022)

Assets Protected: \$474M (July 2020) – *within rating area only*

5 yr average \$217,000 maintenance expenditure

Waikirikiri Selwyn River – Coes Ford 50Yr ARI = 630 Cumecs

Types of work we do: River Works – Lower Selwyn Scheme

Fairway management - Tree Removal Aerial Spraying:



Protection Works Heyman Fence and Realining:



Stopbank Maintenance:



Types of work we do: River Works – Lower Selwyn Scheme

Stopbank Maintenance:



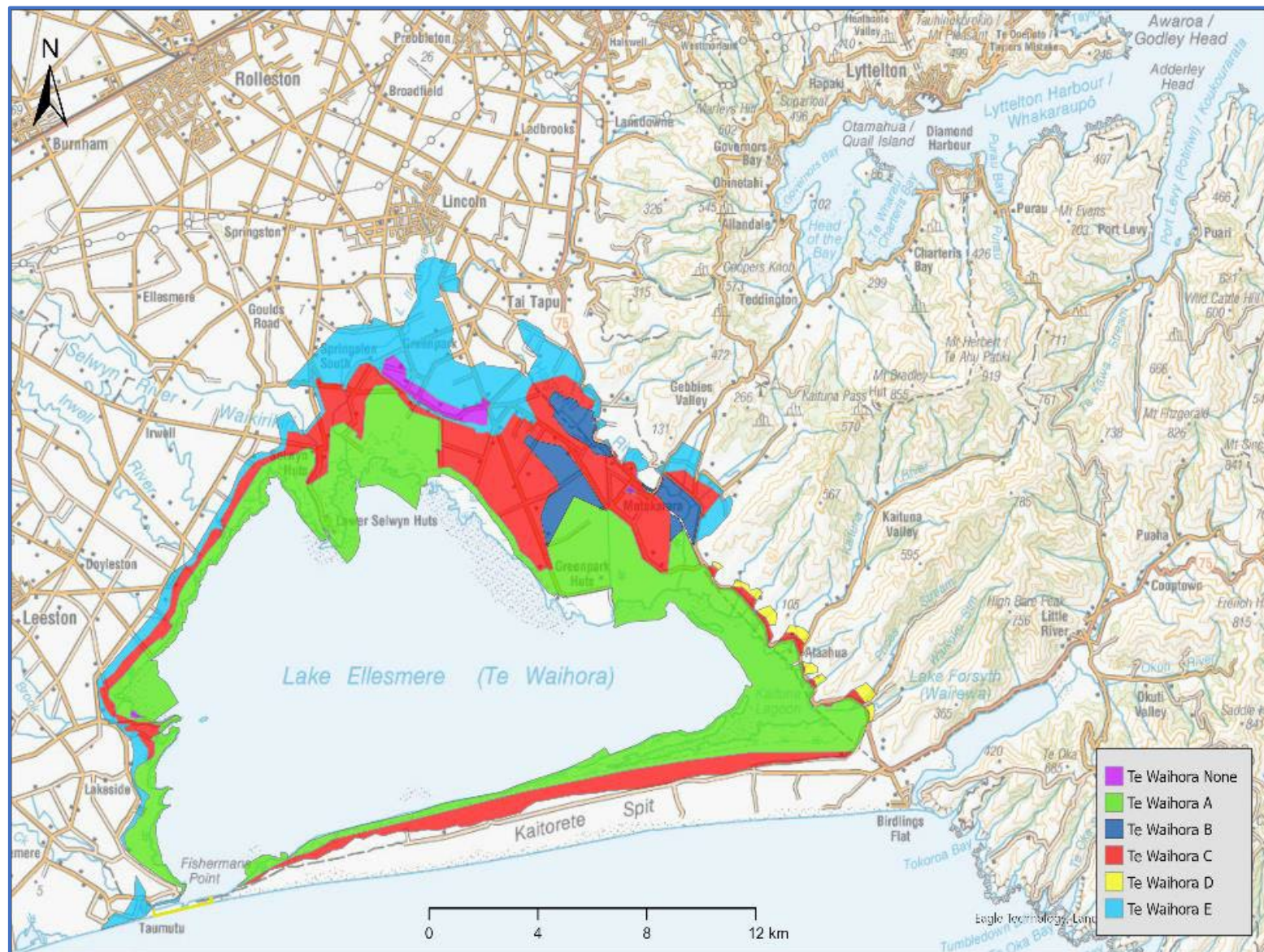
Types of work we do: River Works – Lower Selwyn Scheme

Tree Maintenance:





Te Waihora / Lake Ellesmere – Lake Opening



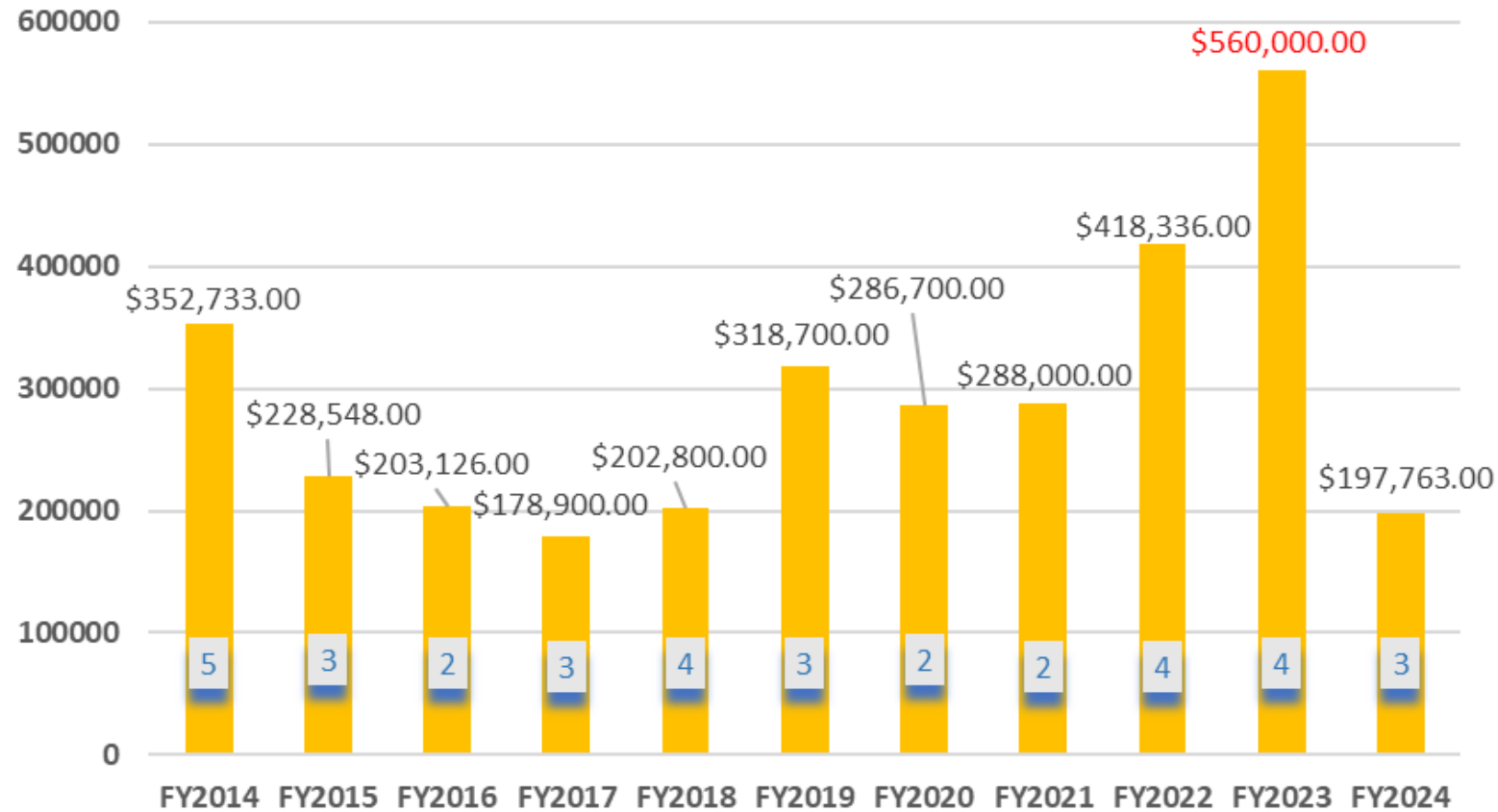
Established	1959
Catchment	276,000 ha
Benefiting Area	14,041 ha
Highest Level upon Opening	2.16m MSL (Sept 1941)
Lowest Level upon Closing	0.15m MSL (Feb 1952)

INCOME 2024-2025	
Targetted Rates (50%)	165,000
General Rates (25%)	82,500
W&S Rates (25%)	82,500
Reserves Income	980
Contributions	36,891
Transfers (into)	
Other Revenue (est)	2,537
TOTAL INCOME	370,408

Rating District

Past expenditure and actual YTD

Lake openings per financial year



5 year average = \$350,159.00
10 year average = \$294,146.00

Average cost of opening =
Approx \$120,000.00

Te Waihora / Lake Ellesmere

- Decision to Open Process

When can Te Waihora/Lake Ellesmere be opened?

The National Water Conservation (Te Waihora/Lake Ellesmere) Order 1990 (NWCO) sets the minimum potential opening levels above which opening to the sea can be considered.

The lake may be opened to the sea whenever the lake level:

- exceeds 1.05 metres above mean sea level, from 1 August to 31 March; or
- exceeds 1.13 m above mean sea level, from 1 April to 31 July; or
- at any level, from 15 September to 15 October; or
- at any level, from 1 April to 15 June.

“Any level” opening periods are for the purpose of facilitating fish passage and enhancing outstanding wildlife values.

Record number	CRC140366	Client name	Te Runanga o Ngai Tahu and Canterbury Regional Council
Consent location	Te Waihora/Lake Ellesmere	Status	Issued - Active
To	To disturb the foreshore/seabed at the opening/closing site of Te Waihora/Lake Ellesmere		

Decision Making Process

- Lake Reaches or is close to reading minimum opening level.
- Consultation with Protocol Group

- Te Taumutu Rūnanga
- The Department of Conservation
- Lake Ellesmere/Te Waihora Rating District Liaison Committee
- North Canterbury Fish and Game Council
- Lake Ellesmere Commercial Fishermen
- Selwyn District Council
- Christchurch City Council
- Waihora Ellesmere Trust (Key Advisor)

- Consideration of feedback.
- Joint decision made by Ngai Tahu and Environment Canterbury
- Works commence for opening



Typical Lake Opening Site

Lake Opening Operation



Factors controlling opening;

- Sea and swell height and breaking over beach crest.
- Lake Level (higher lake more pressure helping open)
- How far shingle has pushed into lake.
- Connection bell mouth to deep water.
- Length of pilot channel.
- Depth of gravel on beach.
- Sea conditions on opening day (near impossible on swell more than 1m).
- Strong wind from southerly quarter has a dewatering effect at opening site.

Storms, Swells and Tidal over-wash events



- Gravel Bund pushed
- Aim to prevent Sea and swell breaking into worksite.
- Usually works until sea overtops



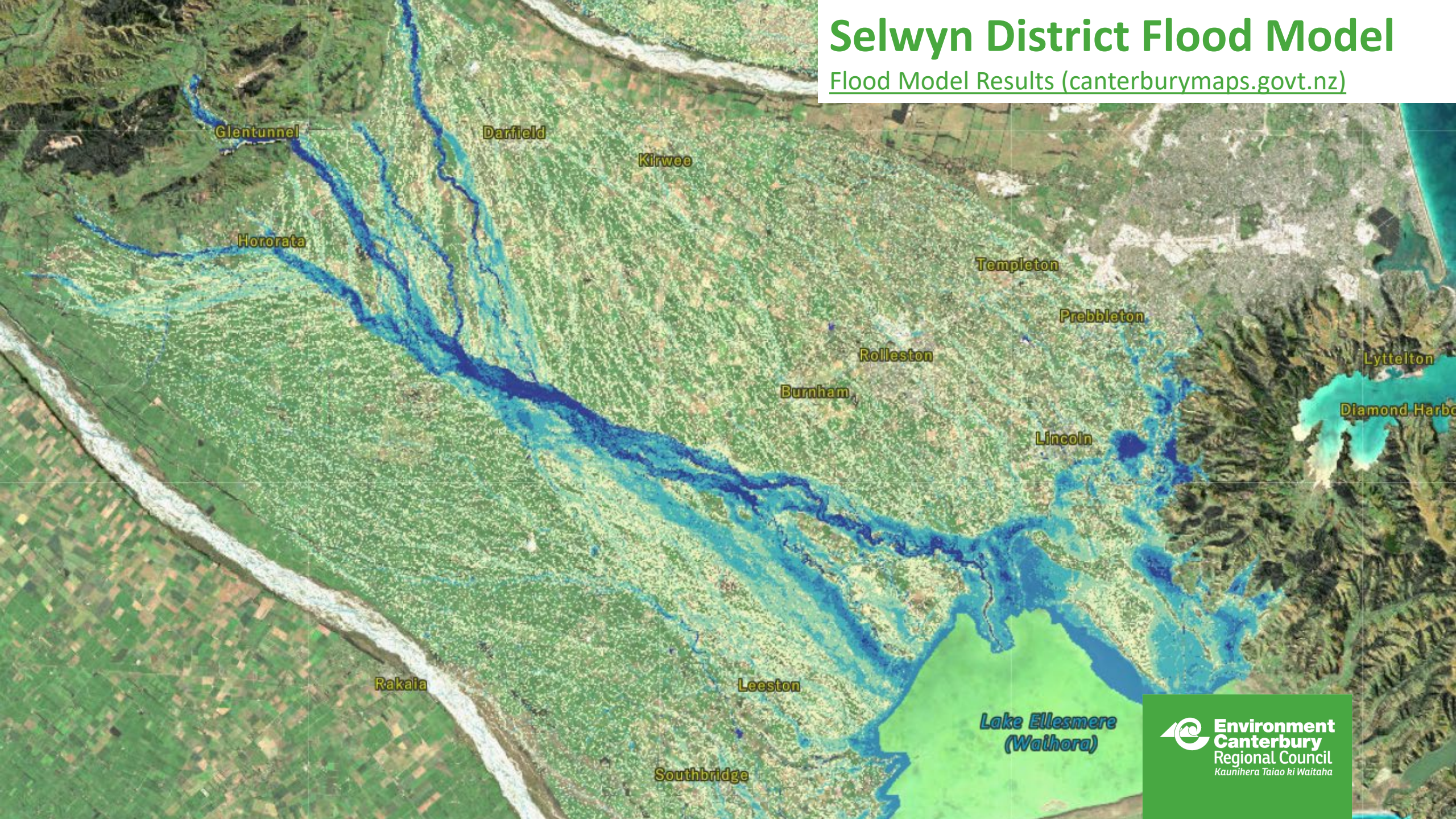
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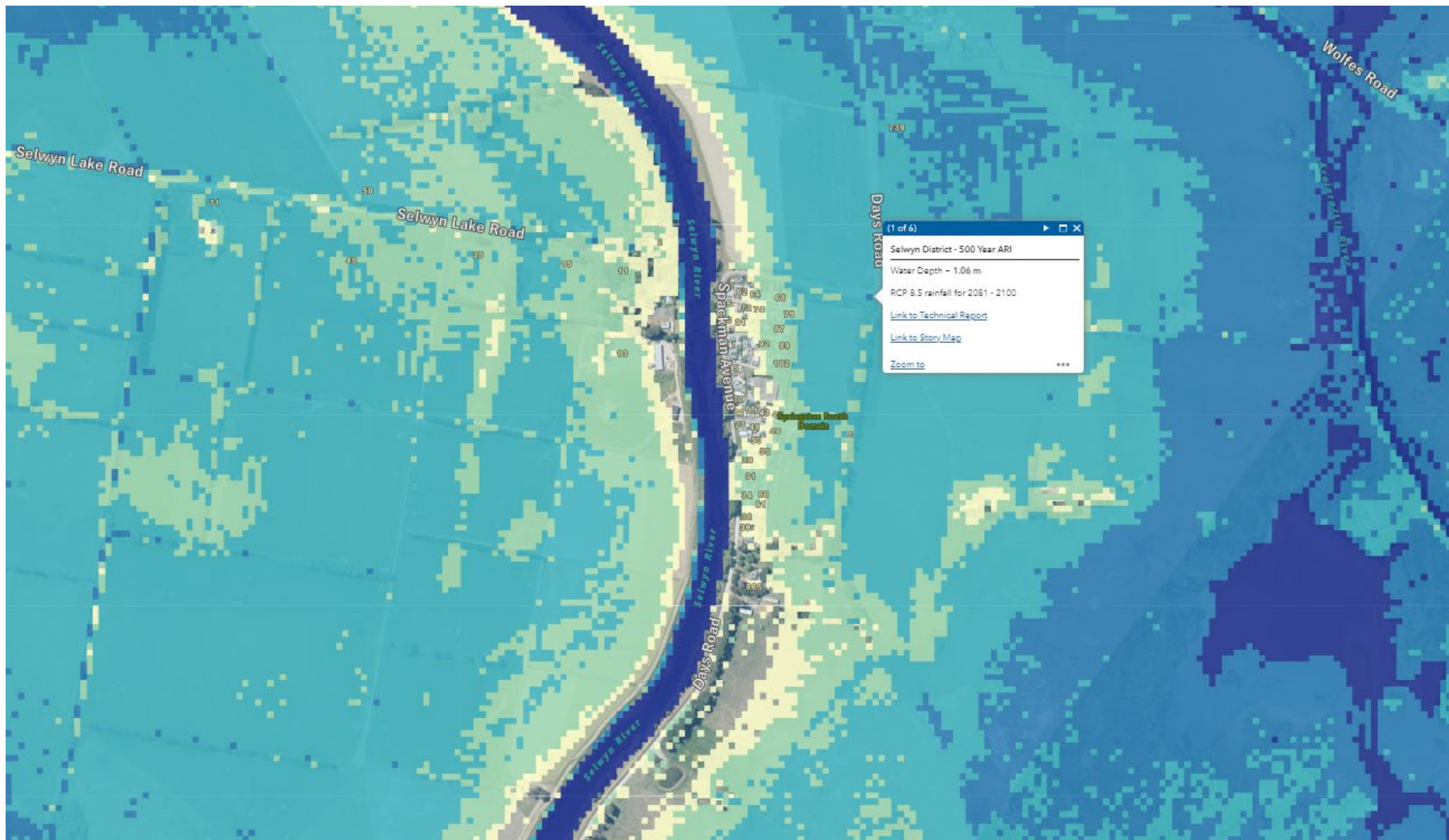


Te Waihora / Lake Ellesmere – Lake Opening

Selwyn District Flood Model

Flood Model Results (canterburymaps.govt.nz)





Selwyn District Flood Model



Selwyn Huts Flood Risk



Selwyn Huts Flood Risk



Environment Canterbury Regional Council

Kaunihera Taiao ki Waitaha

*Taking action together to shape a thriving and
resilient Canterbury, now and for future generations.*

Toitū te marae o Tāne, toitū te marae o Tangaroa, toitū te iwi.

www.ecan.govt.nz

SELWYN RIVER

XS ID	Distance	Type	Survey Date	Local Name
04020	4.02	XS	08-Jan-1987	
04020	4.02	XS	21-Jun-1999	Datum Offsets
04020	4.02	XS	21-Jun-2012	
04020	4.02	XS	21-Nov-2023	

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