



Cooks Beach Stormwater

COMMUNITY STAKEHOLDERS ENGAGEMENT WITH TCDC

FRANK GEOGHEGAN

MBSRRPA AGM 2 JAN 24

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- ▶ Community Stakeholder Engagement Group purpose and representatives
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- ▶ Proposed action plan

Community Stakeholders Engagement Group formed by TCDC to address flooding issues

OVERALL OBJECTIVES

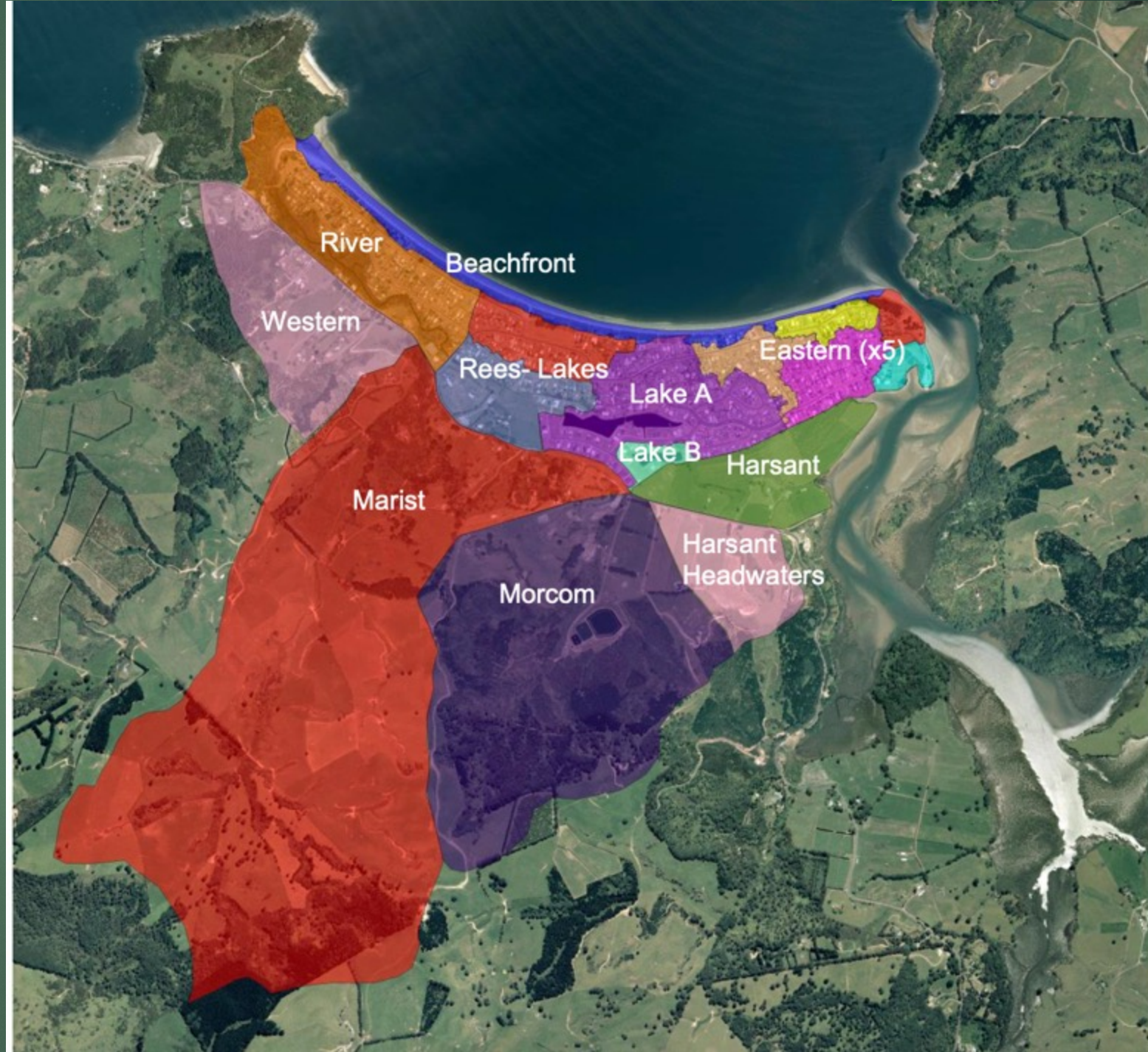
- ▶ Quantify flooding issues experienced by residents at Cooks Beach
- ▶ TCDC to engage with the community to devise solutions to reduce the impact of flooding
- ▶ Undertake short, medium and long-term actions to reduce the impact of flooding
- ▶ Develop project scopes for inclusion in Long Term and Annual Plans

TEAM COMPRISES:

- ▶ Brett Houston – TCDC Water Services Manager (Thames)
- ▶ Greg Roche – TCDC Mercury Bay Field Representative (Whitianga)
- ▶ Paul Hopkins – Chairman Rate Payers Association
- ▶ Frank Geoghegan – Cooks Beach Resident
- ▶ Justin Fisher – Cooks Beach Resident
- ▶ Rehka Giri-Percival – TCDC Mercury Bay Ward
- ▶ Kate Selby Smith – Environmental Engineer (Technical Support for TCDC)
- ▶ Caroline Hobman – Community Board Member
- ▶ MBSRRPA 26th Aug community meeting on flooding
- ▶ Initial meeting Sep 23, followed by the second meeting on Nov 23, next scheduled end of January 24

Background & Overview of recent flood events

Cooks Beach Urban
area is fed mostly by
a 570ha rural
catchment



Central Reserve and adjoining properties experienced various degrees of flooding resulting from cyclone Gabrielle 14th Feb 23





6

Banks
Street
14th Feb
23



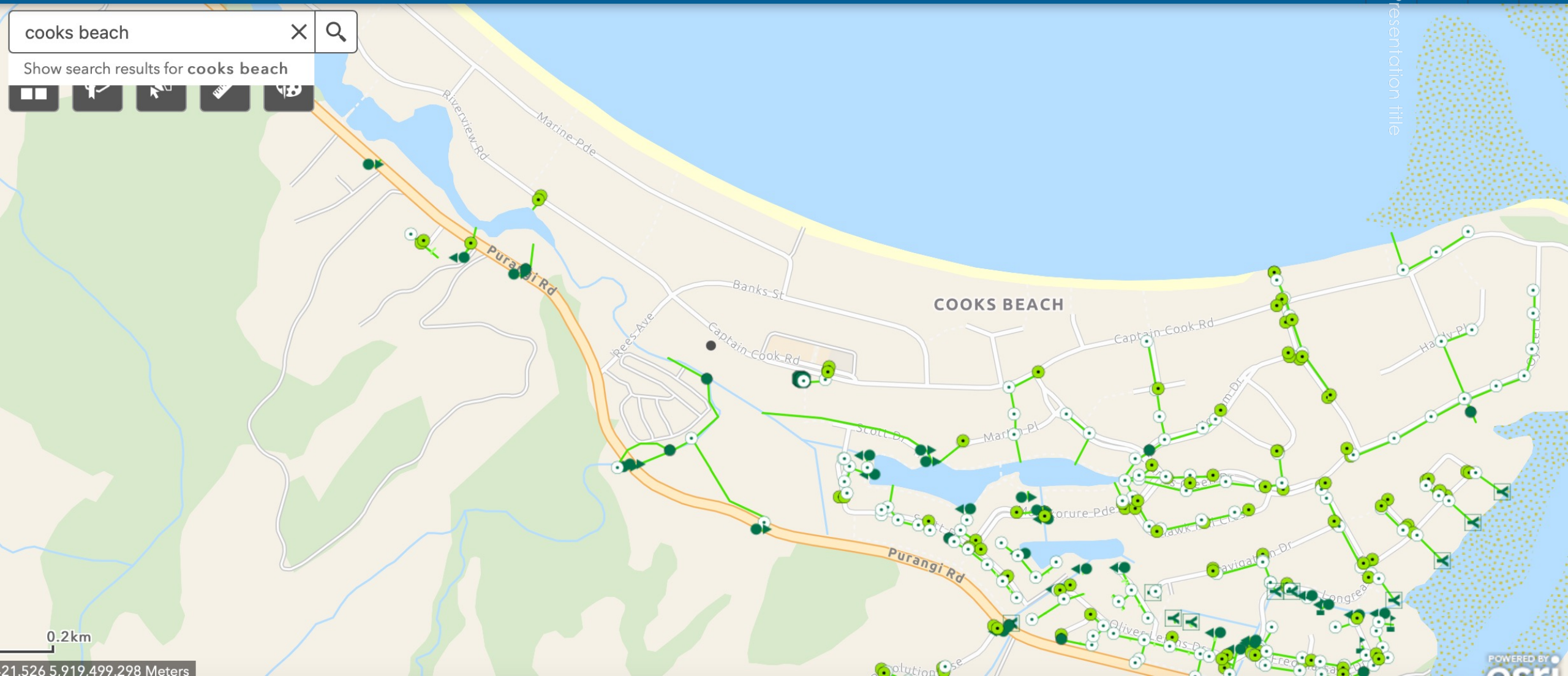
Banks to
Endeavour
walkway

Storm water system has limited coverage in older areas

cooks beach [X] [Q]

Show search results for cooks beach

[Map Controls]



Storm water
overloaded
the sewer
system



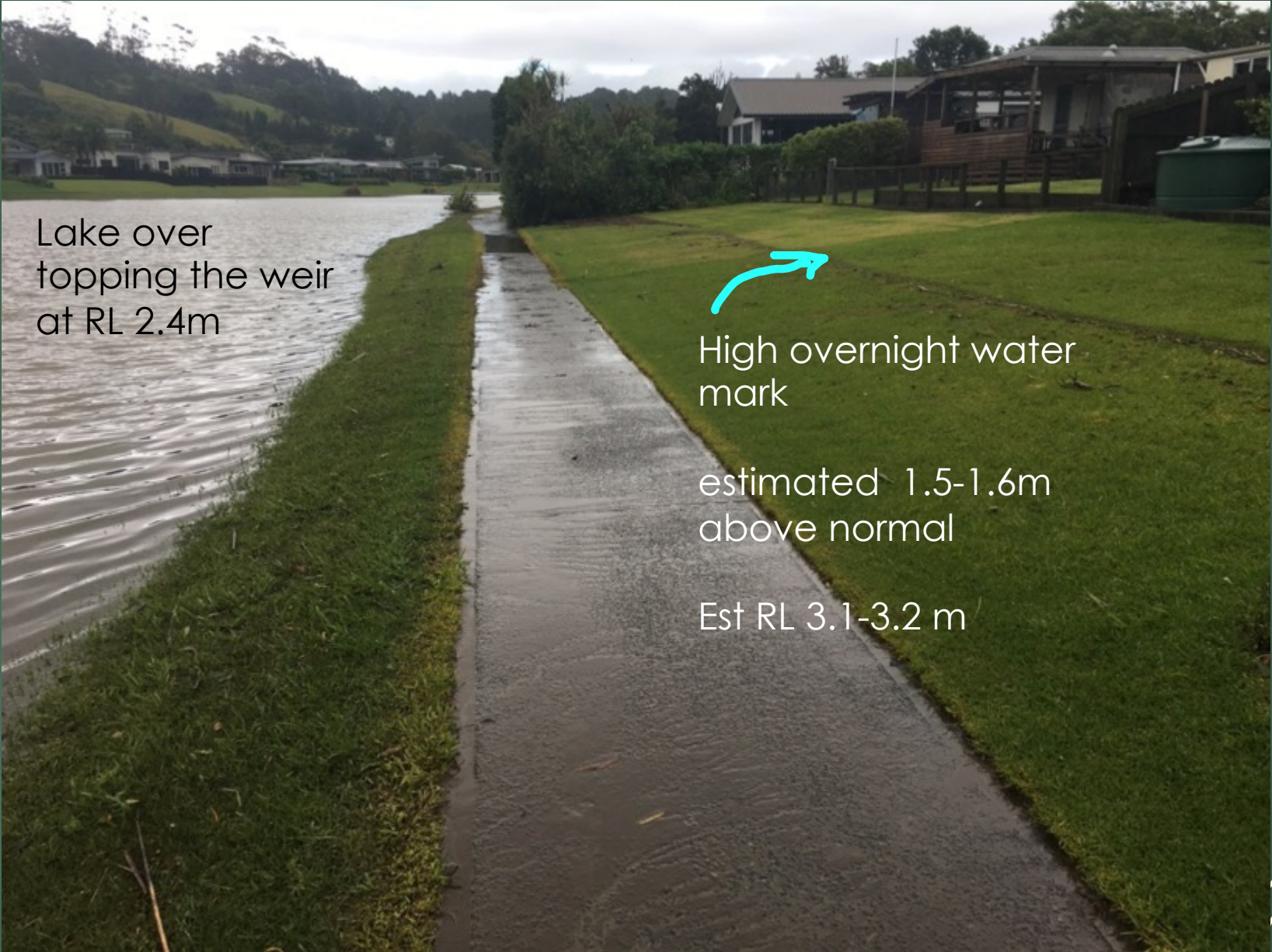
10

9:14 AM

14TH FEB 23

HICKS PLACE
& CAPTAIN
COOK ROAD





Lake over
topping the weir
at RL 2.4m

High overnight water
mark

estimated 1.5-1.6m
above normal

Est RL 3.1-3.2 m

Post Gabrielle 9:44 am 14th Feb 23

Lake A weir in flood

12

14th Feb 23

~ 800-900 mm
above normal
level

>RL 2.4 m weir
height

Est RL 2.4 – 2.5



Normal Lake Level with overflow high and dry

13



150mm above
outlet invert
RL 1.75m

3/1/24

Outfall Invert
Min RL 1.6m

Wall is
840mm
high

Overflow weir structure

14



Normal lake level

~150mm
above min
(outlet invert at RL
1.6m)

Lake at ~RL
1.75m

Cooks Beach has a long history of rain events

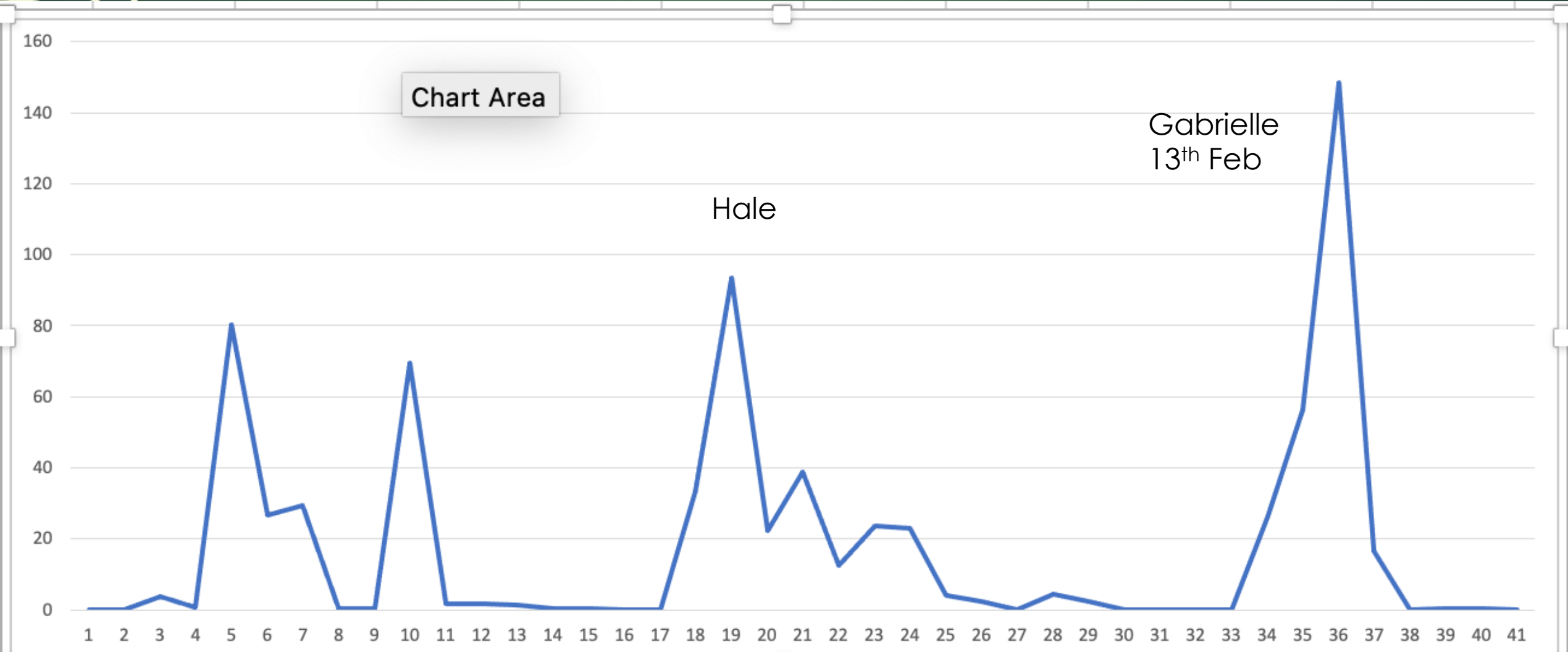
- degree of flooding influenced by tides

Table 3: Ranked Maximum 24 hour records at Whitianga compared to HIRDS.

Date	Daily Rainfall Depth (mm)	Maximum 24 Hour Rainfall Depth (mm)	HIRDS (%AEP)
1996 December 31	241.8	300.4	1
1997 September 25	193.2	261.4	2
2007 March 30	154.4	169.8	13
1998 December 4	158.2	158.2	17
1995 March 4	150.6	154.4	19

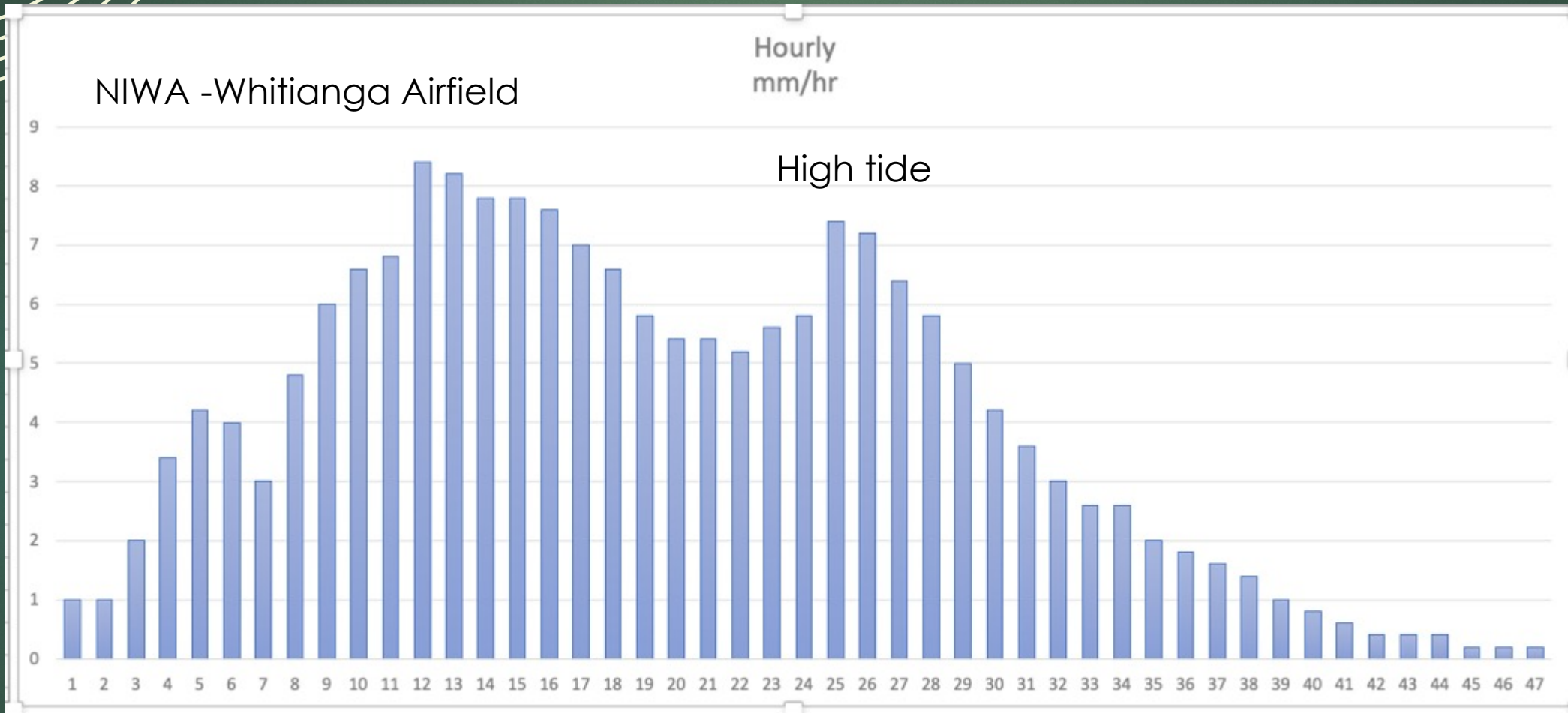
1997 (no Lake B)

Above normal rainfall in Jan/Feb 23 elevated the ground water level reducing ground soakage capacity



Cyclone Gabrielle rainfall 13-14th Feb

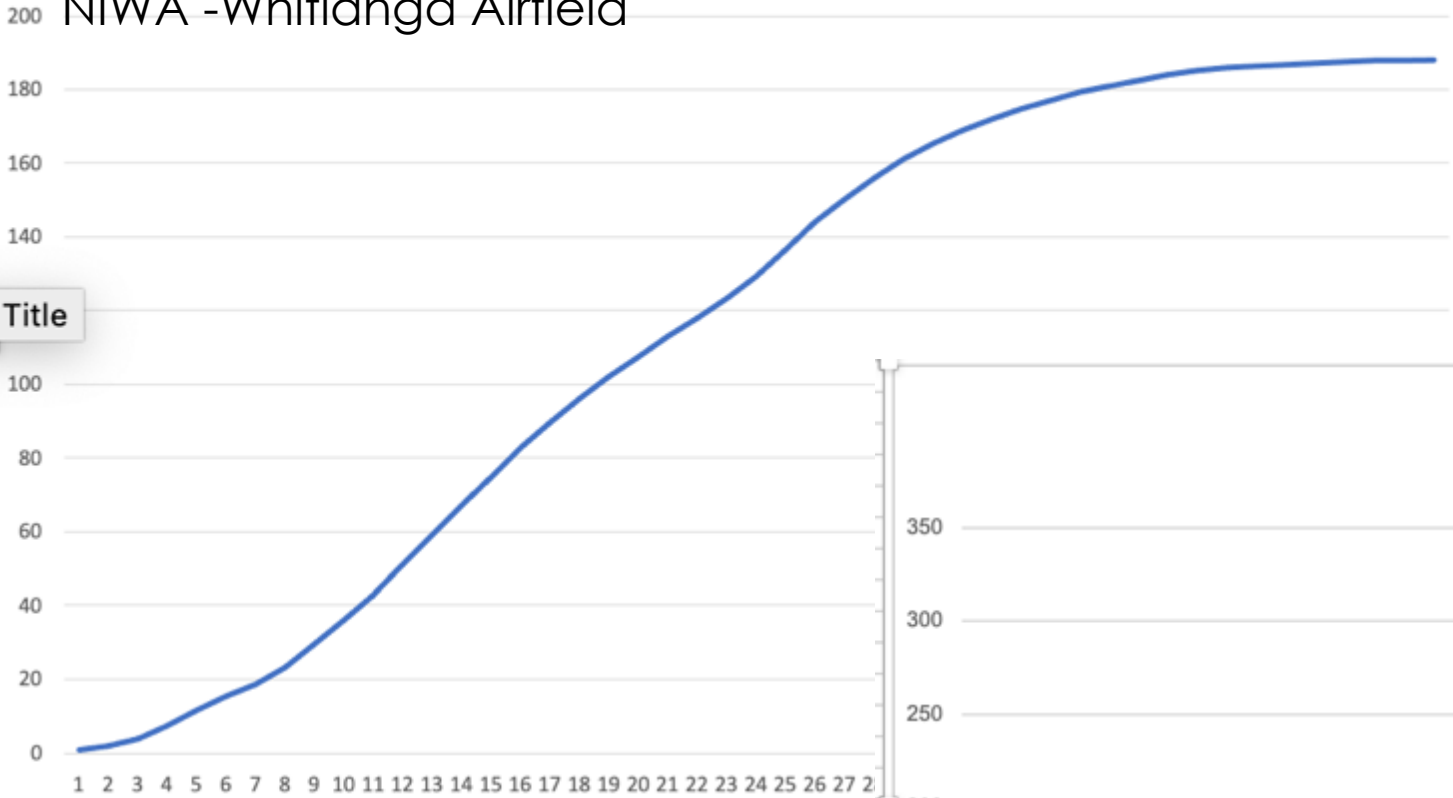
17



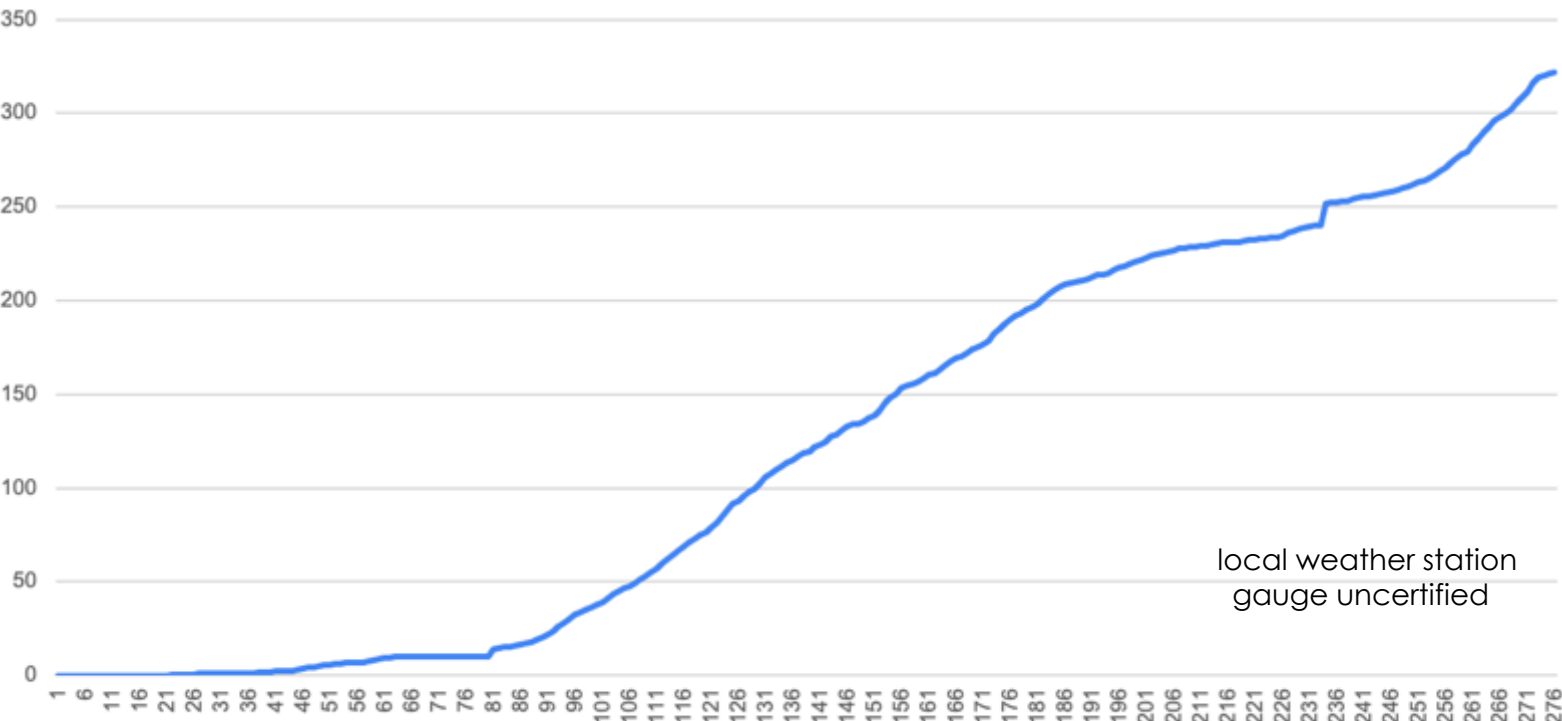
High Tide
1:00 am on 14th at ~1.9m
plus a storm surge
elevating sea levels

Feb 13/14th
Gabrielle

NIWA -Whitianga Airfield



3 Endeavour
weather station
13th Feb



local weather station
gauge uncertified

Note: 5km spatial separation
between Cooks and Whitianga
airfield may account for some of the
difference

Over 11 studies on hydraulic and flood control dating back to 1996 have been commissioned as part of the Cooks Beach developments. The most recent in 2008 by EW now WRC with Climate Change scenarios

Right:
Shows 1 in
100 year
flood
predicted
water depths
including the
effect of
climate
change

Figure A18: Modelled 1%AEP Climate Change (CC-100year) Maximum Water Depth.








INITIAL INVESTIGATIONS SUMMARY

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- ▶ Dune hump and hollow topography prevents conveyance (overland flow paths) and depressions within the residential sites (e.g. backyards) creating ponding during rain events.
- ▶ Lack of formed overland flow paths (high road carriageway).
- ▶ Change of building use: filled in bottom storeys and repurposed garages were flooded.
- ▶ Roadside swales in poor condition/removed/blocked by high driveways.
- ▶ High groundwater table prevented the drainage of on-lot soakage devices and led to extended ponding.
- ▶ Maintenance of Cooks Stream and conveyance through Cooks Estuary are key



TCDC has allocated funds in the Long Term Plan to address the flooding issues

- ▶ Draft LTP project submitted to Council approximately \$1.6 million allocated to Council for work identified.
 - ▶ The actual scope will be dependent on what this Team reviews and recommends to be undertaken. Note: only after LTP is approved can major work start for the \$ approved.
 - ▶ LTP is for 10 years and is updated every three years. The key part is the first 3 years when TCDC want to start the major Stormwater Improvements.
 - ▶ Short term work will be done out of Water Services Opex Annual Budget.
- 

Technical Investigations are underway

- ▶ Completed Actions:
- ▶ Drone Survey completed in September 23
 - ▶ GPS Survey included
 - ▶ Targeted floor levels – taken from MBSRRPA maps
- ▶ Results not going to be released until peer reviewed
 - ▶ Will pursue this at the next meeting
- ▶ Currently setting flood model parameters
- ▶ New Flood Model to be issued March 2024



Technical Investigations

- ▶ Short Term Work in Progress:
- ▶ Maintenance
 - ▶ Cooks Stream from the weir to Rees Ave
 - ▶ Cooks Stream Estuary
 - ▶ Longreach Wetland
- ▶ Road drainage
 - ▶ Maintenance and refurbishment of roadside swales
 - ▶ Cleaning catchpits and investigation into changing lids / installing catchpit filters



Technical Investigations

Long Term Work in Progress:

Updated flood model for the following options:

- ▶ Piped high-level overflow from Lake B to downstream of Longreach Drive (next 3 slides)
- ▶ Lake A flood control system to reduce Lake level prior to storm events

Options investigations

- ▶ Potential solutions for older residential areas in the hump/hollow sand dunes
- ▶ Collection and dispersal system from Banks Street and Marine Parade to the Boat Ramp
- ▶ Regrading of Cooks Reserve to allow overland lots to discharge towards the Boat Ramp

Storm Water Detention Ponds

25



Interaction between Lakes A and B and downstream of the weir to Cooks Stream has an influence on flood levels in some parts of Cooks

Key Lake System Flowpaths

26



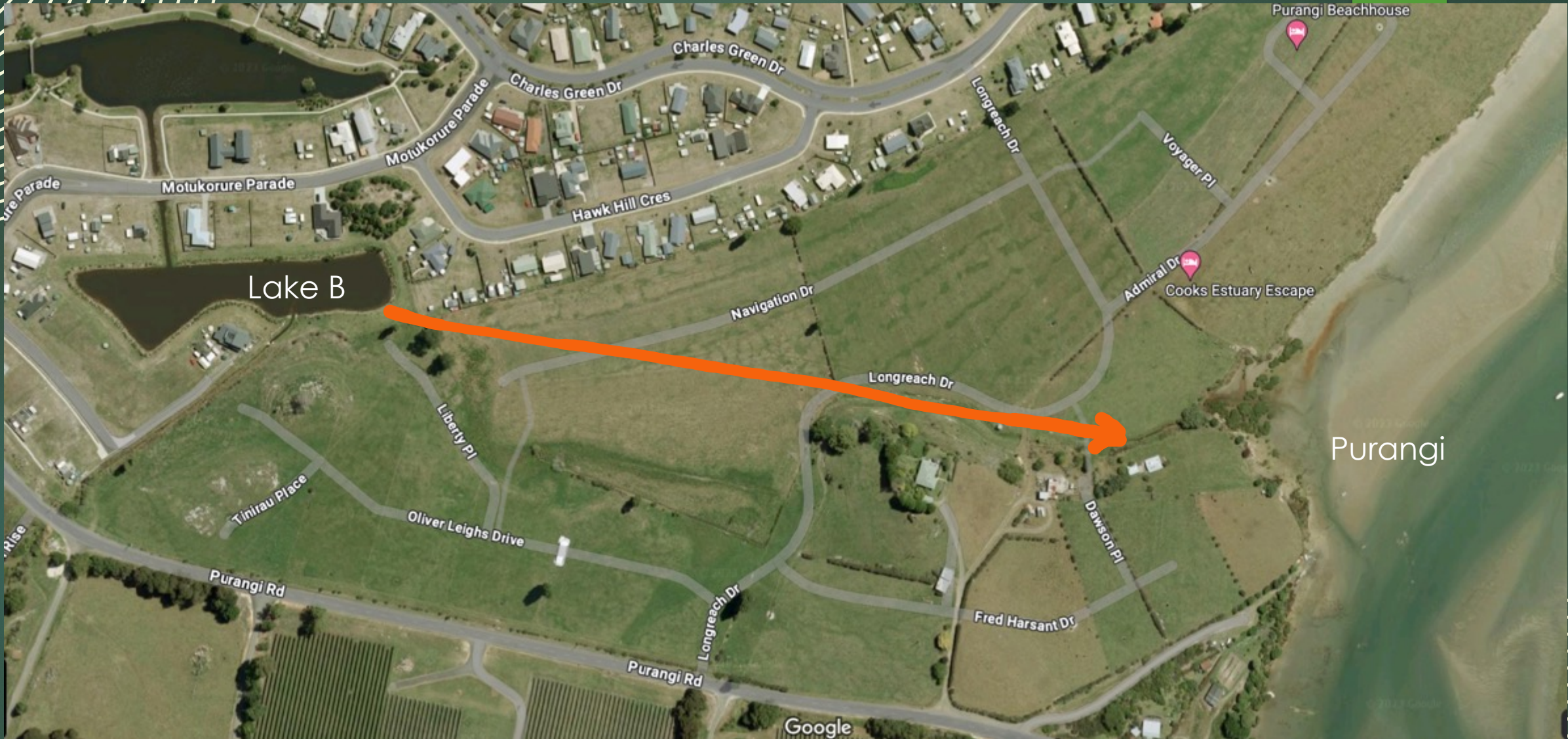
3 normal outlet to
Cooks Stream

12 overflow weir

1 flood flowpath to
Cooks Stream

13 interconnection of
lakes

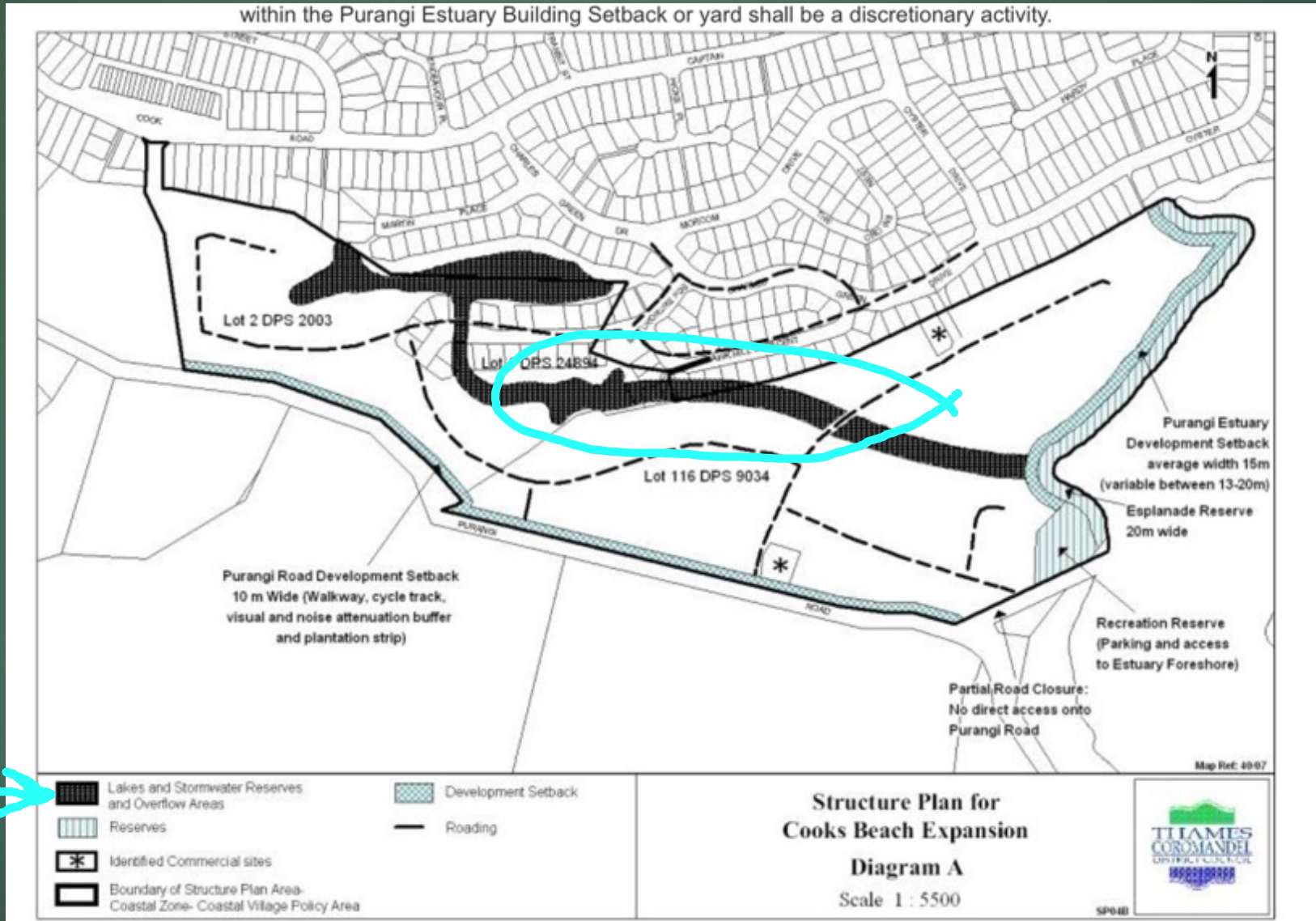
15 in-feed stream from
Morcom Block



One proposal under consideration, is to add a flowpath or pipe to drain Lake B flood levels to the Purangi River thus relieving flood pressure on Cooks Stream

- ▶ We note the TCDC Operative District Plan indicates an intention to discharge the Lakes to the Purangi however this was never implemented

344.2 - Cooks Beach, Purangi Road Structure Plan



Cooks Stream
Rees Ave culvert was lowered
~2004 to create a flood
overflow path

The culvert is the boundary
between TCDC & WRC

TCDC is responsible for
maintenance upstream of the
culvert


WRC are responsible for
maintenance downstream of
the culvert to the sea



Rees Ave culvert - 2.1 m High tide - post a dry period, tidal flow upstream



Is there a Council plan to manage Cooks Beach catchment?

- ▶ A comprehensive plan was drafted by WRC in 2013 but has never been finalised and enacted.
 - ▶ There appears to be a disconnect between WRC & TCDC to take the lead and finalise the plan. Responsibility is shared between the two Councils but neither has pressed on to finalise the plan.
 - ▶ We think a WRC representative should be included in this working group.
 - ▶ TCDC has noted that a lot of work needs to be done on Catchment Management Plans (district-wide) but does not have an action plan to complete these at this time.
 - ▶ TCDC will look at WRC involvement if required when there is an action plan and solutions in place. This is dependent on resources and budget.
 - ▶ The Stakeholders will continue to push for this plan to be revised and implemented.
- 

Proposed action plan

Issued by: Brett
Houston TCDC Water
Service Manager

Last Updated: 15
December 2023

Note: Dates are for the
end of the month and
are indicative and
subject to change.

Cooks Beach		
Actions Completed	Details/ Task	Comments/ Responsibility/Due Date
	Drone Survey Completed	Civil Plan 21/09/23
	GPS survey and floor levels – delayed due to unavailability of resource	Civil Plan 20/11/23
Short term works progress	Details/ Task	Comments/ Responsibility/Due Date
	Contour and Flood Model Model to confirm: <ul style="list-style-type: none"> • Interaction of Lake A and B • Lake B overflow level to Purangi Estuary • Lake A flood control system • Potential OLFPs 	Civil Plan Currently setting model parameters. Model to be issued March 2024
	Maintenance of Cooks Stream <ul style="list-style-type: none"> • Check for obstructions and blockages to flow from Cooks Stream Weir to Rees Road. 	TCDC February 2024
	Maintenance of Cooks Stream outlet to Cooks Beach <ul style="list-style-type: none"> • Ensure the outlet is open to beach 	TCDC/WRC? February 2024
	Discussions with WRC for Maintenance in Cooks Stream Estuary <ul style="list-style-type: none"> • Check for obstructions and blockage to flow from Rees Stream to outlet 	TCDC/WRC February 2024
	Maintenance of Longreach Wetland <ul style="list-style-type: none"> • Check for obstructions and blockages to flow 	TCDC April 2024
	Maintenance of catchpits <ul style="list-style-type: none"> • Cleaning of sumps 	TCDC February 2024
	Maintenance/refurbishment of roadside swales <ul style="list-style-type: none"> • Bank Street, Captain Cook Drive 	TCDC April 2024
	Catchpits <ul style="list-style-type: none"> • Lid design- are the lids cause excessive ingress of silt and debris. • Do the lids need changing or installation of catchpit filter systems 	TCDC April 2024
	Updating of SW Maintenance Plan	TCDC April 2024

Longer term plan

Long Term	Details/ Task for Investigations post modelling results for work to be included in LTP:	Comments/ Responsibility/Due Date
	Piped high-level overflow from Lake B to Longreach Drive (downstream of culvert/bridge).	Dependent on Long Term Plan approval and technical investigation
	Lake A flood control system to reduce Lake level prior to storm events.	
	Potential solutions for older residential areas (with no SW systems or defined OLFPs).	
	SW collection and dispersal system from Bank Street and Marine Parade to Boat Ramp.	
	Regrading of Cooks Reserve to allow overland flows to discharge towards the Boat Ramp.	

Next Steps

- ▶ Objectives to achieve prior to next meeting:
 - ▶ Feedback on Drone survey
 - ▶ Firm up the action plan dates
- ▶ next meeting date 25th January



COOKS BEACH

1962

Back up slides



Table 2: Ranked daily rainfall records at Whitianga compared to HIRDS.

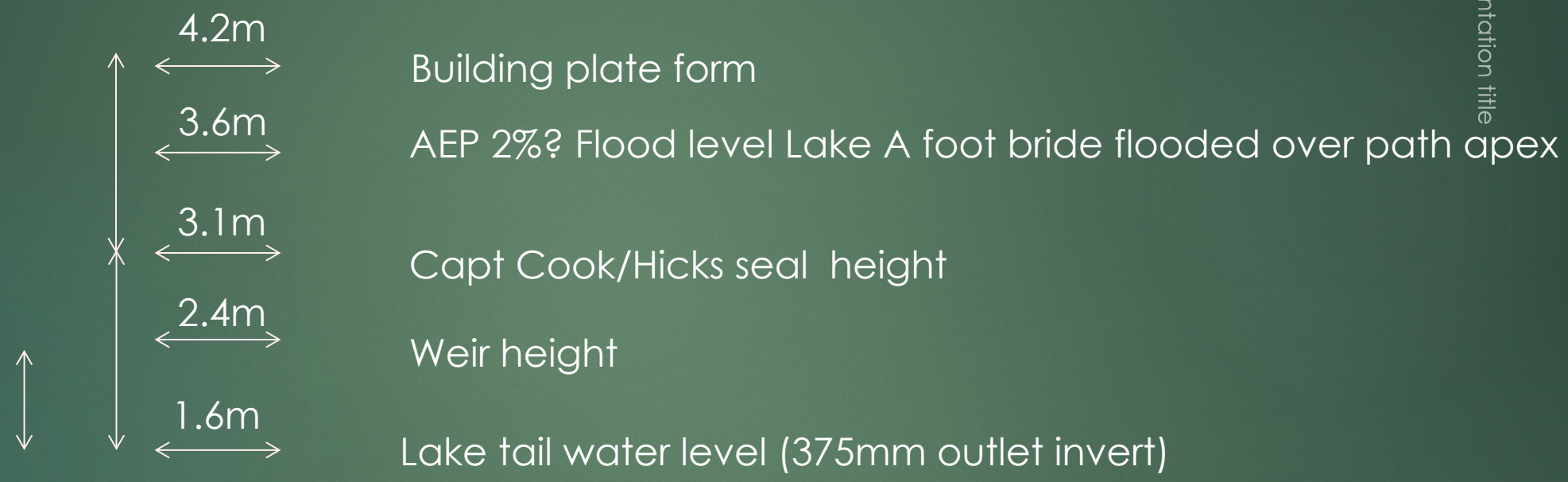
Rank	Date	Daily Rainfall Total (mm)	HIRDS (%AEP)
1	1996 December 31	241.8	3
2	1997 September 25	193.2	7
3	1964 June 26	167.6	13
4	1972 March 9	166.8	14
5	1971 March 12	158.5	17
6	1998 December 4	158.2	17
7	1952 February 29	156.7	18
8	2007 March 30	154.4	19
9	1995 March 4	150.6	21
10	1977 February 29	147.8	23

3% AEP = 1 in 33 return period, 13-23% = ~ 1 in 4 -7 year return period

So what are the key Levels?

taken from May 2002 Murry G W Smith CBDL Evidence to stage 3 RMA application sect 4.3

Lake operating normal range 800mm



To be verified from latest drone survey

1.6m