

The event

Plimmerton residents and businesses have faced three significant flooding events in the past four years.

Following the most recent event in November 2020, Porirua City Council and Wellington Water moved to investigate a range of solutions to reduce flooding.

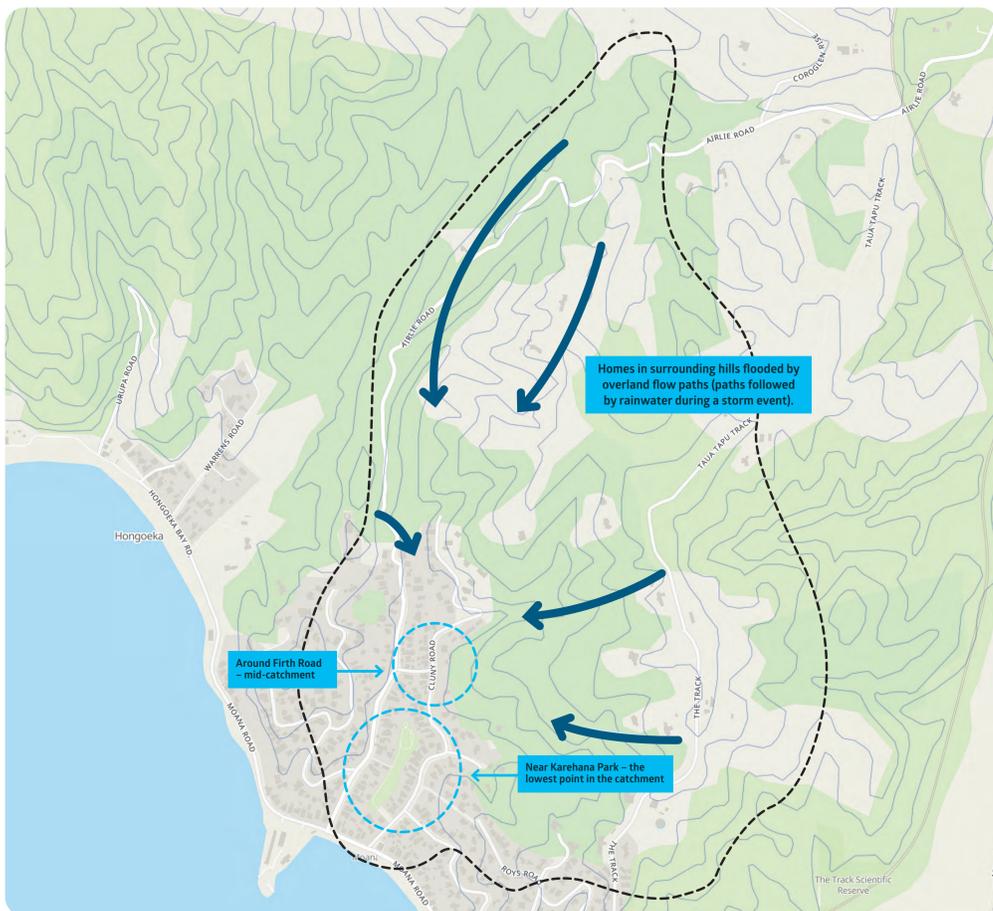
What happened on 29 November 2020?

Torrential rain caused flash flooding, overwhelming the stormwater system and heavily impacting Plimmerton West (Hongoeka and Karehana Park) and the Taupō Swamp catchment around James Street/State Highway 1. During this '1-in-30-year' rainfall event:

- 33mm of rain fell in 30 minutes
- Over 50 homes and properties were flooded
- There are still homes that are under repair and can't be occupied.

Where were homes most affected?

Homes were most affected in the Karehana catchment in three topographic areas.



For more information go to porirua.govt.nz/your-council/city-projects or wellingtonwater.co.nz/plimmerton-stormwater

Catchment challenges

There are many factors that are contributing to flooding in the Karehana Park Catchment that we are considering as we assess the long-term options to reduce flooding and help keep people safe and healthy.



Historical development of the catchment

Burying of streams and blocking of overland flow paths. These are paths that rainwater follows during large storm events

Homes built on overland flow paths

No kerbs and channels meaning stormwater flows overland

Development within the low-lying bowl topography surrounding the park



Climate change

Sea levels are expected to rise by 1 metre over 100 years, putting more houses at risk

Increased frequency of flooding from rain with higher intensity

Catchment challenges



Geology

Highly erodible and loose soils

Mobile debris and sand, gravel and rock

Revegetated upper catchment but no undergrowth

Unstable slopes and landslips

Sand and gravel movement affecting stormwater outlets at coastline



Stormwater Network

Limited capacity of the stormwater piped system

Restricted outlets prone to blockage from beach sand

Constraints and barriers on the natural floodplain

Intakes vulnerable to blockage with debris and rocks

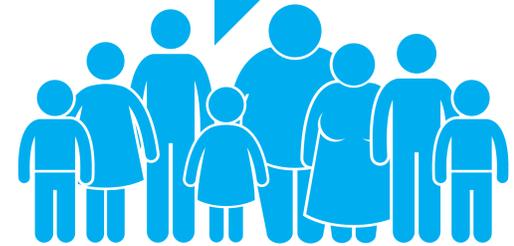
Limited capacity of the stream channels

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What we're doing: Immediate measures

The community asked for:

- Immediate interim measures to protect the area from flooding
- Support for all affected Plimmerton residents



Operational readiness

When heavy rain is forecast a pump is located in Plimmerton and crews are put on standby for callouts.

If a stormwater inlet becomes blocked, please ring Porirua City Council on **04 237 5089**, at any time of day or night.

For other non-urgent maintenance requests, email enquiries@porirua.govt.nz or download the “Antenno” app to log a job.

Winch and grill

A new grill that is less prone to blockage is being designed and fabricated by Porirua City Council and will replace the grill at the Karehana Park Airlie Road inlet. Also a winch is being installed so that the grill can be lifted up in a flood. The winch will be installed by the end of July with the new grill installed shortly after this.

WaStop

The WaStop at the end of Airlie Road has been replaced, as the rubber in the previous valve was damaged. Whether to remove the WaStop or redesign the outlet permanently is being considered as part of developing a long-term solution.

Support for residents

Porirua City Council brought in skip bins and teams to assist with the clean-up. At a drop in clinic on 21 April, council staff answered questions from flood-affected residents about building or resource consents as part of their repair process. About seven homeowners or families attended and we talked through their individual situations. The consenting team have also been talking direct to a number of residents.

For more information go to porirua.govt.nz/your-council/city-projects or wellingtonwater.co.nz/plimmerton-stormwater

What we're doing: Maintenance

The community asked for:

- A publicly available maintenance plan and calendar



Maintenance

Wellington Water, Porirua City Council, NZTA and Downer are working together on maintenance of existing stormwater assets in Plimmerton.



Firth Street drain (upper Karehana Stream). Pre-clean left, post clean right



Maintenance plan

A map is available online that shows stormwater assets and maintenance details. This map is a work in progress and feedback is welcome on any missing assets or suggested improvements.

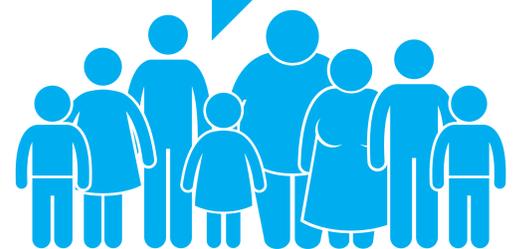


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What we're doing: Karehana catchment study

The community asked for:

- A review of the Plimmerton and Karehana Bay catchment areas, including learnings from the Waikanae Floodplain Management Plan and 10-year review report.



The **Plimmerton Stormwater Catchment Management and Improvements Project – Phase 1; Karehana Park Catchment** commenced in February 2021. The project team is made up of Porirua City Council and Wellington Water staff and consultant engineers with access to specialists as required.

The Plimmerton Flood Management and Resilience Working Group was established in March 2021 to provide a community perspective on the flooding hazards and options for the project team to consider.

A long list of 22 options to improve stormwater and reduce flooding was developed, covering all parts of the catchment.

A short list of options has been selected for further investigations focusing on three topographic areas as outlined in the table below.

Multi-criteria analysis is underway to assess the impact, effectiveness, risks and costs of the options. The preferred option/package of options will be recommended to Porirua City Council for their deliberation and a decision.

Short list options

Primary

Options to increase the flow from the lower end of Karehana Park to the sea

OPTION 6: Gravity secondary flow from Karehana Park direct to seafront

- Box culvert or open channel

OPTION 7: Gravity secondary flow via deep pipes via Cluny Road

OPTION 8: Pump station in Karehana Park

- Discharge via Cluny Road or via (pressurised) Airlie Road culverts

OPTION 9: Secondary flow syphon via Cluny Road

- Prime each use with high suction capacity or permanent prime with low-capacity suction (requiring valving)

OPTION 10: Upsize Airlie Road Culverts

- Improve Airlie Road inlet
- improve Airlie Road transition chambers
- Reconfigure / improve Airlie Road outlet

Secondary

Addressing network incapacity in the upper and mid catchment and improving the effectiveness of the primary options

OPTION 4: Cluny Road cut-off / diversion

- Intercept several discharges from the east, upsize and extend existing pipe in Cluny Road to divert flows from reaching the park including increasing capacity to reduce anecdotal overland flow along Reserve Road etc

OPTION 14: Karehana Stream capacity improvements

- Upper park
- Above Firth Road

OPTION 16: Enlarge / replace Firth Road culverts

- Discharge via Cluny Road or via (pressurised) Airlie Road culverts

OPTION 15: Improve / construct overload flow path in upper pipe network

- 66-88 Airlie Road inclusive
- 60-63 Cluny Road inclusive

OPTION 21: Inlet protection

- Hold sediment/gravel away from stormwater system inlets in four locations; upper Airlie Rd, Cluny Rd, Reserve Rd and inlet PCC SW025690

Tertiary

Supporting options to enhance the primary and secondary options where suitable

OPTION 3: Storage in properties (rain tanks)

- Tanks in every property, or select few

OPTION 5: Kerb and channel capture of surface flows

- e.g. Cluny and Airlie Road
- Diverts runoff from entering Karehana Park, properties in Airlie Road

OPTION 18: Property flood walls

OPTION 19: Raise flood prone properties

OPTION 20: Purchase and remove flood prone properties

For more information go to porirua.govt.nz/your-council/city-projects or wellingtonwater.co.nz/plimmerton-stormwater

Karehana catchment study

This map indicates the potential location of options for new infrastructure. Note that decisions have not yet been made on any of these options.



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What we're doing: James St and Hongoeka

The Taupō Swamp and Hongoeka catchments have also been affected by flooding.

James Street and State Highway 1

The 29 November flood event closed State Highway 1 and flooded three buildings on James Street, two of which were attached garages.

Immediate response

Porirua City Council and NZ Transport Waka Kotahi have worked together to organise drain clearing. Blackberry and vegetation has been cleared from the drains down the side of State Highway 1 and around James Street.

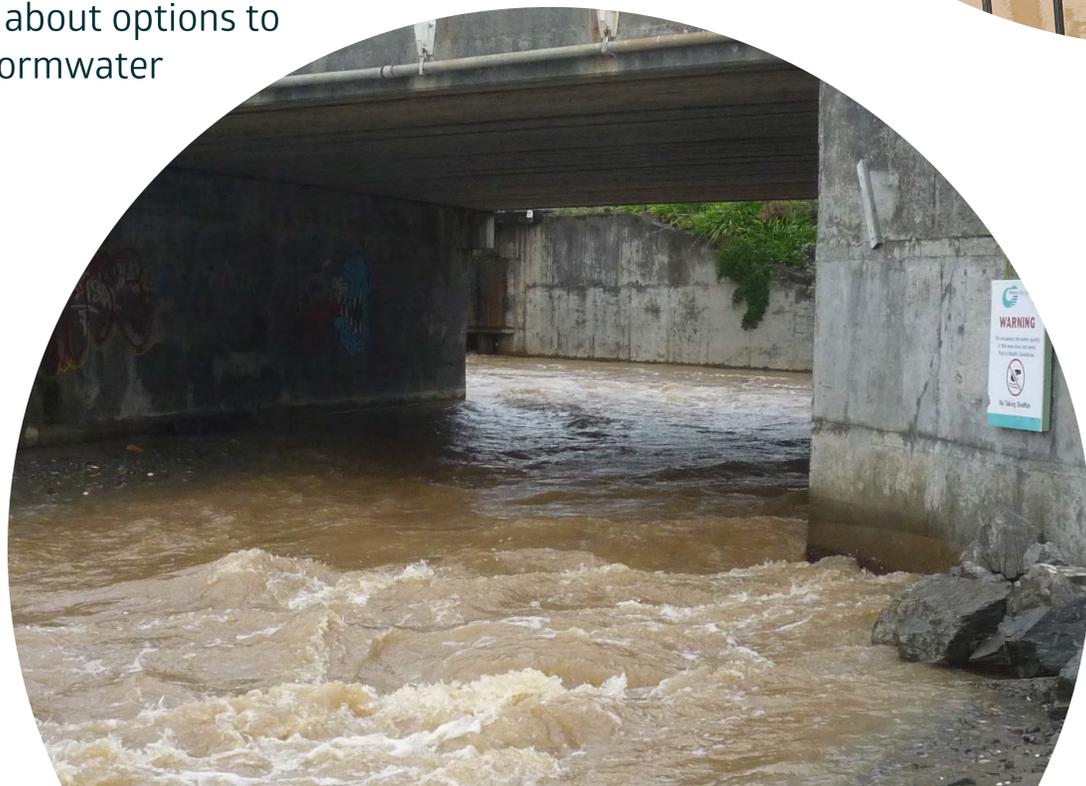
Long term response

Wellington Water and Porirua City Council have met with representatives of St Theresa's Church and School, Jennian Homes, and residents to consider long term plans to reduce flooding. A project relating to the Taupō Swamp/James Street catchment is getting underway from July 2021.

Hongoeka

Porirua City Council are having ongoing conversations with Hongoeka Marae representatives and flood prone property owners about options to address flooding and stormwater issues there.

A detailed project plan is currently under development.



For more information go to porirua.govt.nz/your-council/city-projects or wellingtonwater.co.nz/plimmerton-stormwater

Next steps for Karehana Bay Catchment

Project timeline

29 November 2020 – Flooding event

December 2020 – Flood Action Group formed and meets with Porirua City Council

27 January 2021 – Public meeting with Porirua City Council and Wellington Water

February 2021 – Plimmerton Stormwater Catchment Management and Improvements Project Phase 1: Karehana Park Catchment gets underway

March 2021 – Plimmerton Flood Management and Resilience Working Group established, representing community views in discussion with project team.

March-April 2021 – Working Group is briefed on and discusses long list of options and how these could be combined into packages or 'grab bags'.

May 2021 – Working Group briefed on and discusses the short list of options; the stormwater hydraulic model that will be used to assess the effectiveness of options; and the proposed criteria for assessing the options.

6 July 2021 – Community update.

Mid July – Multi Criteria Assessment completed by specialists. Note the Working Group's comments are being taken into account in this process but the Working Group is not directly involved.

Late July – Preferred option/package of options recommendation to Porirua City Council.

August – Council considers and makes decision. Working Group and community advised of decision.

Detailed design and construction will be planned following the council decision.

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