Report on Storm
16 February 2026
in
Pinehaven and Silverstream
Upper Hutt

info@floodingus.co.nz

www.floodingus.nz

Executive Summary

On Monday 16 February 2026, a significant rainfall event caused flooding in Pinehaven and Silverstream, Upper Hutt. Members of the community, including the authors of this report, undertook systematic observations throughout the day, recording stream levels at the historic gauge site, documenting flood extents and drainage performance, and photographing impacts across the catchment. Over 500 site photographs were taken, and repeated manual readings of stream level were used to construct an indicative hydrograph of the rise, peak, and recession of flows at the stream gauge site during the event.

The flooding observed on 16 February 2026 provides further real-world evidence that the Greater Wellington Regional Council (GWRC) Pinehaven flood model and associated flood maps materially overstate flood extents. Despite a notable storm event, observed flood behaviour was inconsistent with the extent and severity predicted by the current maps. This reinforces long-standing concerns documented in *Flooding Us (Rev 3)* that the baseline flood model is fundamentally flawed and insufficiently calibrated to observed events.

The absence of an operational stream gauge at the Pinehaven gauge site prevented automatic stream level recordings at 15 minute intervals, however the author observed and recorded stream levels at the gauge site and produced a hydrograph for comparison with historical records. The reinstallation of an automated stream gauge (of the same type and at the same location as the former gauge operating between 2008 and 2013) is still essential. This is the best practical way to generate a continuous, comparable record of water levels and flows needed to properly calibrate and validate the flood model. Equally important is the protection of the gauge site from channel modification. The existing channel form at this location has sufficient capacity for large flood flows and provides a stable reference condition for ongoing monitoring.

The storm also highlighted the close relationship between hydrology and slope stability. A landslide occurred above houses in Silverstream during the event, demonstrating how steep terrain and heavy rainfall can combine to produce sudden and potentially dangerous slope failures. This reinforces the concern that land-use change and stormwater management on steep hillsides are directly linked to landslide risk. Increased unmanaged runoff due to a flawed baseline flood model increases the likelihood of slope instability during intense rainfall.

Observed flood behaviour at recently modified sites shows mixed outcomes from recent public investment in flood works. The new Pinehaven Road culvert primarily transfers floodwater more efficiently downstream, without materially reducing flooding at known problem locations. The upgraded Sunbrae Drive culvert performed adequately during the 16 February 2026 event, although previous flooding at this location appears to have been strongly influenced by blocked road sumps and inadequate drainage performance when stream levels are high. By contrast, the recent modifications at Willow Park demonstrably increased flood storage and provided effective protection to nearby properties at 10 – 12 Blue Mountains Road during this event.

Despite the availability of detailed community observations, there has been no systematic attempt by GWRC, UHCC, or their consultants to engage with the public to ground-truth, calibrate, or validate the Pinehaven flood model against the 16 February 2026 event. This represents another missed opportunity to improve the accuracy and credibility of the flood mapping. The authors have undertaken this monitoring voluntarily, highlighting both the value of community-generated data and the current absence of an institutional framework to integrate such data into formal flood-risk modelling and decision-making.

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1. Rainfall

Pinehaven experienced strong winds and steady heavy rainfall overnight on the evening of Sunday 15th February 2026 which resulted in some early morning flooding in Pinehaven and Silverstream on Monday 16th February.

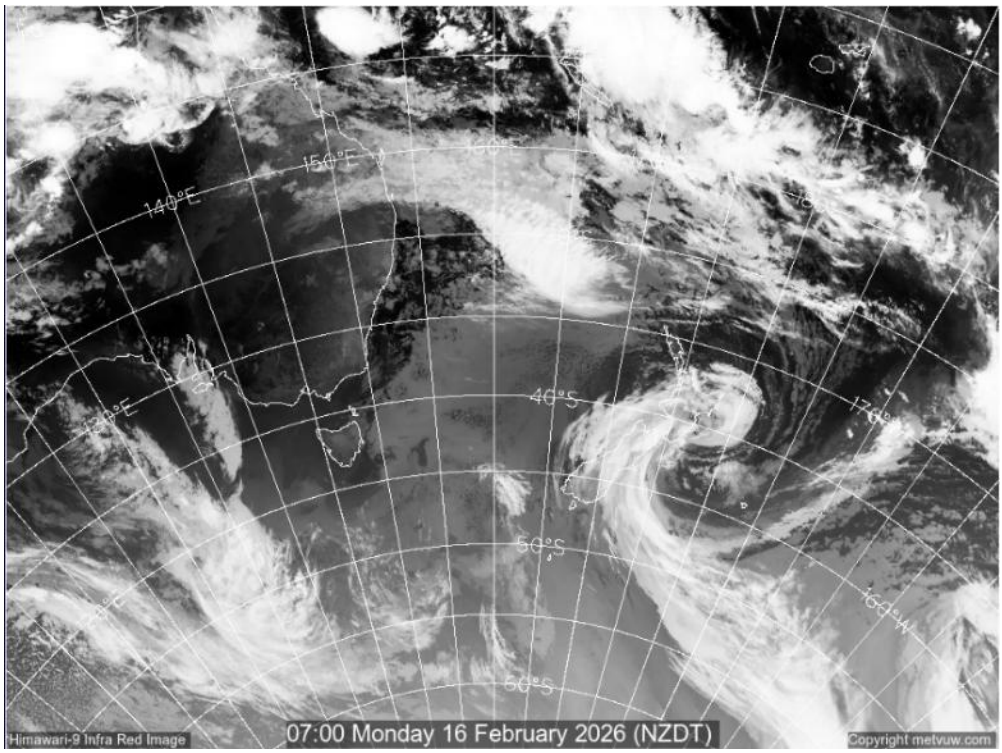

Figure 1 METVUW Satellite View 7:00am Monday 16th February 2026

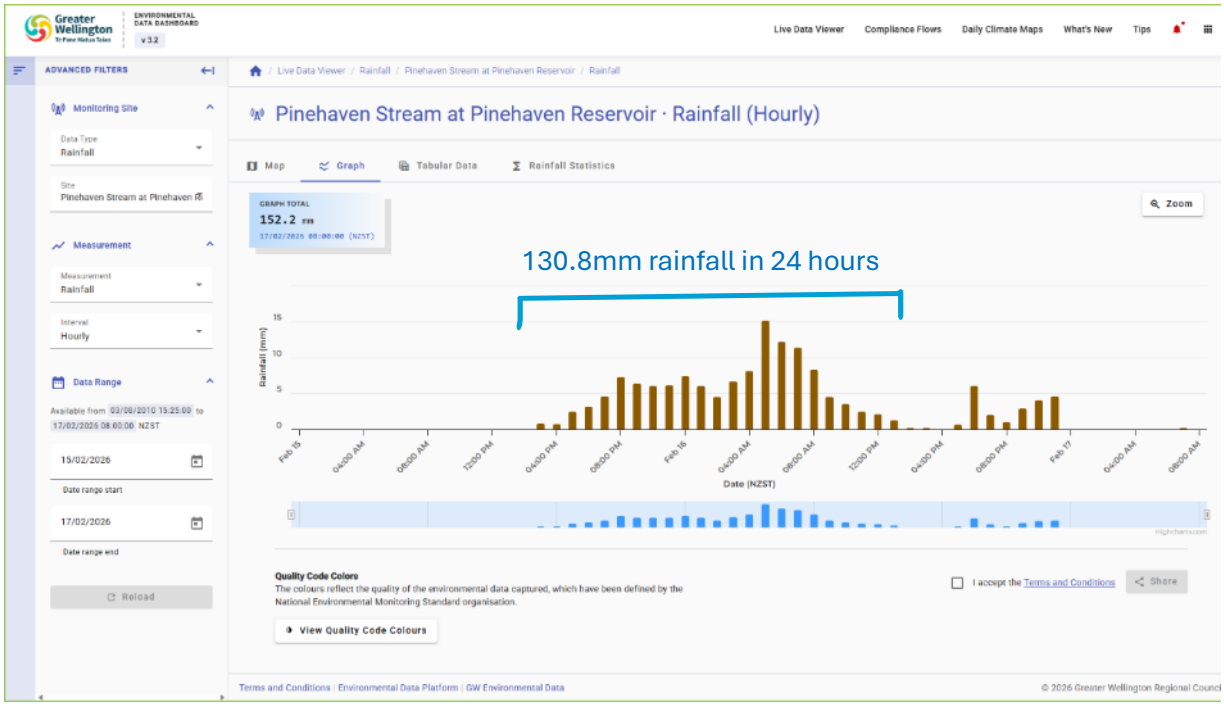

Figure 2 GWRC Pinehaven Reservoir Rain Gauge – Graph

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GWRC - Pinehaven Reservoir Raingauge						
Date (NZST)	Rainfall (mm)	Data Quality*				
15/02/2026 0:00	0	200				
15/02/2026 1:00	0	200				
15/02/2026 2:00	0	200				
15/02/2026 3:00	0	200				
15/02/2026 4:00	0	200				
15/02/2026 5:00	0	200				
15/02/2026 6:00	0	200				
15/02/2026 7:00	0	200				
15/02/2026 8:00	0	200				
15/02/2026 9:00	0	200				
15/02/2026 10:00	0	200				
15/02/2026 11:00	0	200				
15/02/2026 12:00	0	200				
15/02/2026 13:00	0	200				
15/02/2026 14:00	0	200				
15/02/2026 15:00	0.8	200				
15/02/2026 16:00	0.8	200				
15/02/2026 17:00	2.4	200				
15/02/2026 18:00	3.2	200				
15/02/2026 19:00	4.6	200				
15/02/2026 20:00	7.3	200				
15/02/2026 21:00	6.4	200				
15/02/2026 22:00	6.1	200				
15/02/2026 23:00	6.1	200				
16/02/2026 0:00	7.3	200				
16/02/2026 1:00	6	200				
16/02/2026 2:00	4.5	200				
16/02/2026 3:00	6.6	200				
16/02/2026 4:00	8.1	200				
16/02/2026 5:00	15	200				
16/02/2026 6:00	12.1	200				
16/02/2026 7:00	11.3	200				
16/02/2026 8:00	8.2	200	61.3	in 6 hours	97.7	in 12 hours
16/02/2026 9:00	4.5	200				
16/02/2026 10:00	3.5	200				
16/02/2026 11:00	2.4	200				
16/02/2026 12:00	2.1	200				
16/02/2026 13:00	1.3	200				
16/02/2026 14:00	0.2	200	130.8	in 24 hours		
16/02/2026 15:00	0.2	200				
16/02/2026 16:00	0	200				
16/02/2026 17:00	0.7	200				
16/02/2026 18:00	6	200				
16/02/2026 19:00	2	200				
16/02/2026 20:00	1	200				
16/02/2026 21:00	2.8	200				
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16/02/2026 23:00	4.5	200				
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17/02/2026 2:00	0	200				
17/02/2026 3:00	0	200				
17/02/2026 4:00	0	200				
17/02/2026 5:00	0	200				
17/02/2026 6:00	0	200				
17/02/2026 7:00	0.2	200				

Figure 3 GWRC Pinehaven Reservoir Rain Gauge - Tabular Data

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Figure 4 NIWA - HIRDSv4 - Pinehaven Reservoir Rain Gauge - Historical Rainfall Data

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According to NIWA High Intensity Rainfall System v4 (HIRDSv4), 131mm of rainfall in 24 hours recorded at the Pinehaven Reservoir Rain Guage in the Pinehaven Stream catchment is a 1-in-20-year rainfall event, and 97.7mm of rainfall in 12 hours is about a 1-in-17 year rainfall event. This suggests that this storm was between a 1-in-15 and 1-in-20 year rainfall event.

It had been almost two weeks since the previous heavy rainfall on 3rd/4th February, plus some showers on 13th February, so the antecedent condition of the catchment was dry-to-normal, suggesting that the storm on 15th/16th February was possibly a 1-in-15 year flood event (TBC).

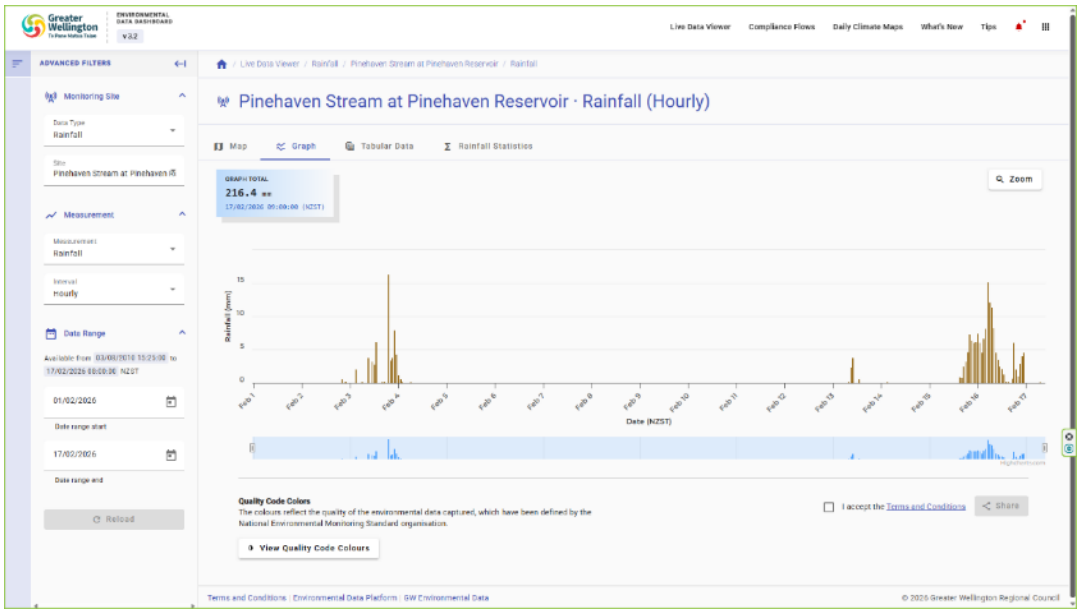

Figure 5 GWRC Pinehaven Reservoir Rain Gauge, 1st to 17th February 2026

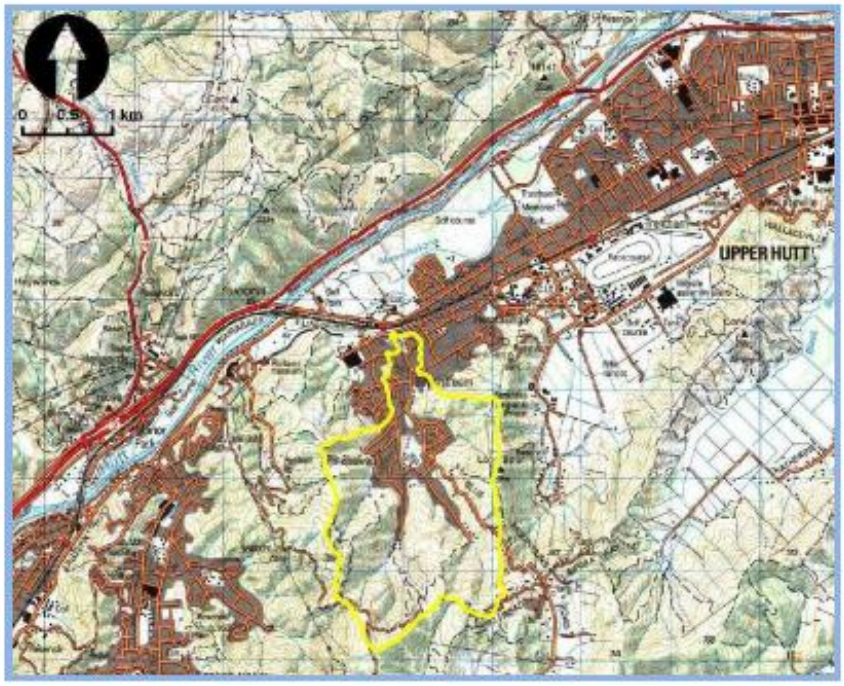

Figure 1 Location of Pinehaven Catchment

Figure 6 SKM - Pinehaven Flood Hazard Investigation Report, 2010, Fig. 1 - Location of Pinehaven Catchment outlined in yellow

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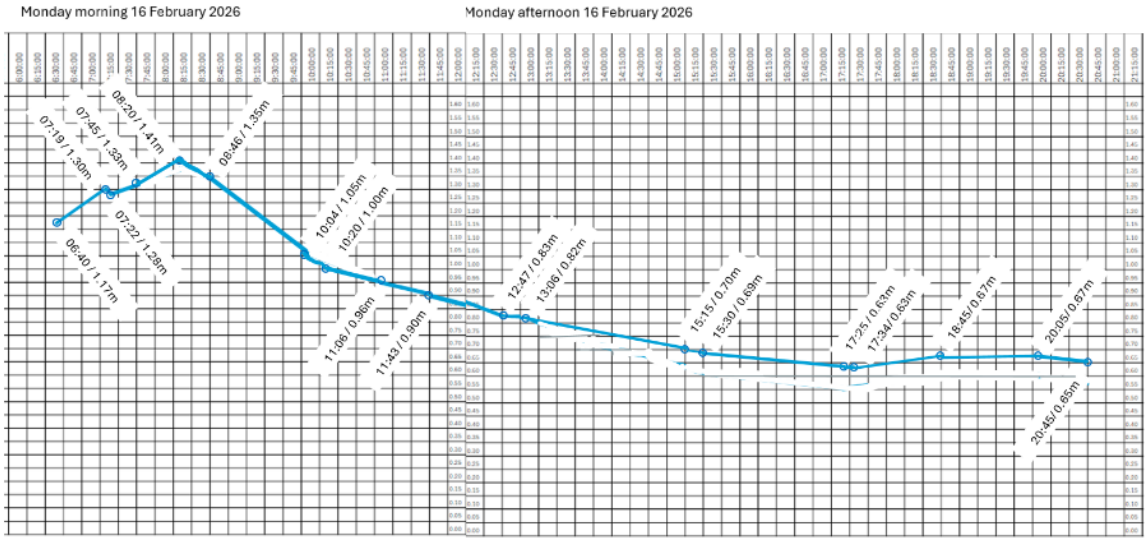
2. Observed Stream Level at Staff Gauge

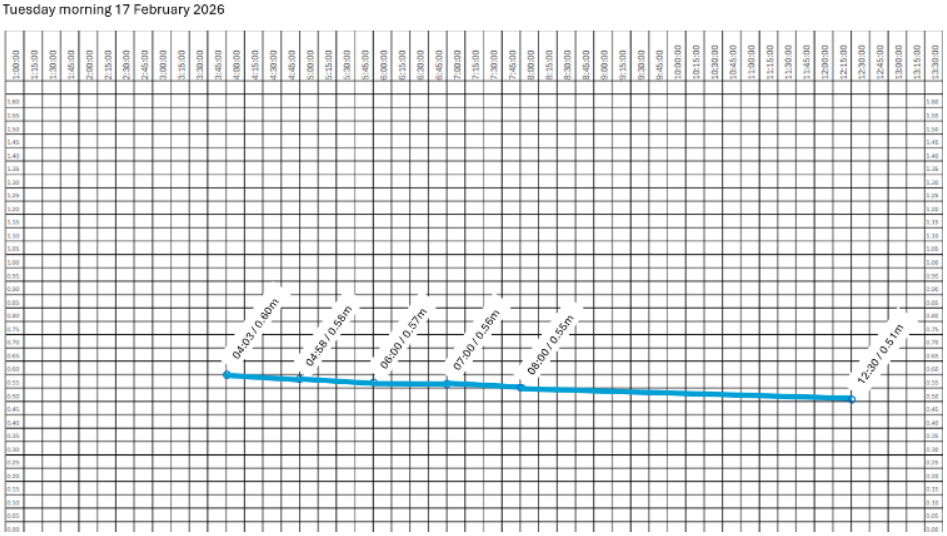
Pinehaven Stream Staff Gauge Site			
Reformed Church, 4 - 8 Blue Mountains Road, Silverstream			
Time	Stage (m)		
Mon 16-2-2026			
06:40:00	1.17		6:40am
07:19:00	1.30		7:19am
07:22:00	1.28		7:22am
07:45:00	1.33		7:45am
08:20:00	1.41		8:20am
08:46:00	1.35		8:46am
10:04:00	1.05		10:04am
10:20:00	1.00		10:20am
11:06:00	0.96		11:06am
11:43:00	0.90		11:43am
12:47:00	0.83		12:47pm
13:06:00	0.82		1:06pm
15:15:00	0.70		3:15pm
15:30:00	0.69		3:30pm
17:25:00	0.63		5:25pm
17:34:00	0.63		5:34pm
18:45:00	0.67		6:45pm
20:05:00	0.67		8:05pm
20:45:00	0.65		8:45pm
Tues 17-2-2026			
04:03:00	0.60		4:03am
04:58:00	0.58		4:58am
06:00:00	0.57		6:00am
07:00:00	0.56		7:00am
08:00:00	0.55		8:00am
12:30:00	0.51		12:30pm

Note: Peak water level = 1.41m approximately

Figure 7 (Left) Observed Stages (Water Levels) at Staff Gauge

Figure 8 (Below) Hydrograph of Time/Water Level at Staff Gauge





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3. Size and Return Period of Flood Event 16 Feb 2026

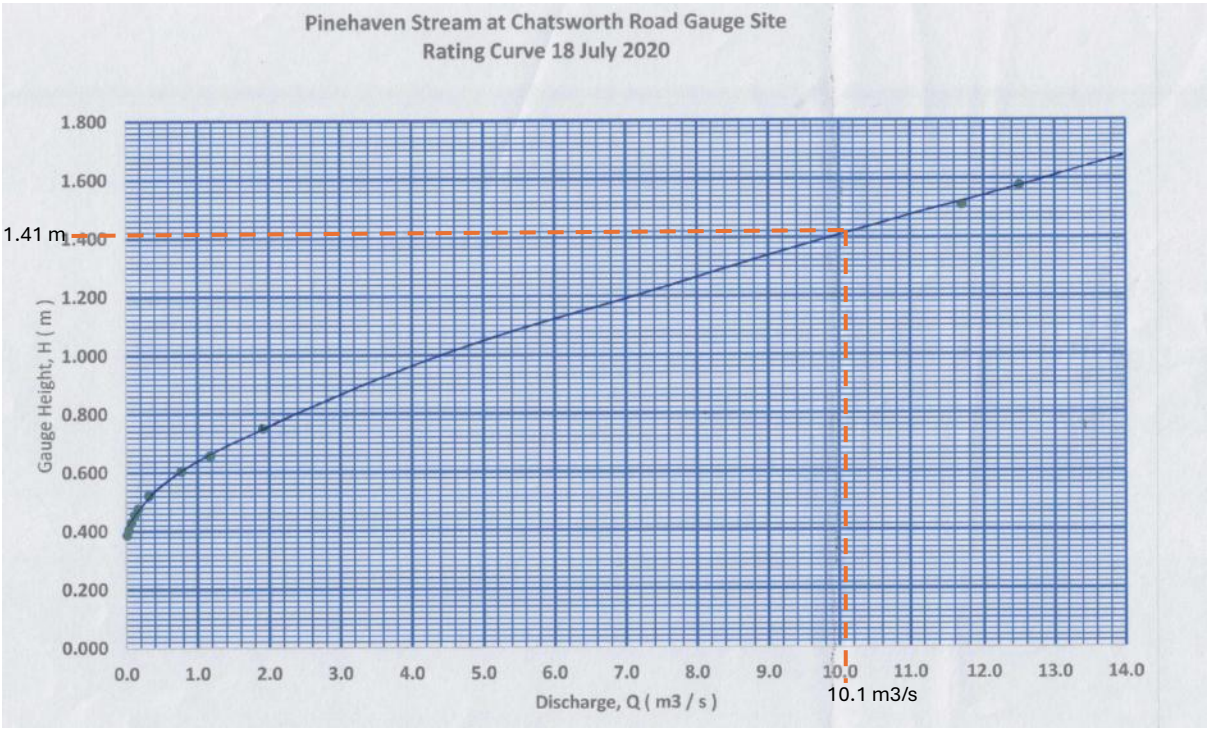

Figure 9 Rating Curve at Pinehaven Stream Staff Gauge Site (R J Hall & Associates Ltd)

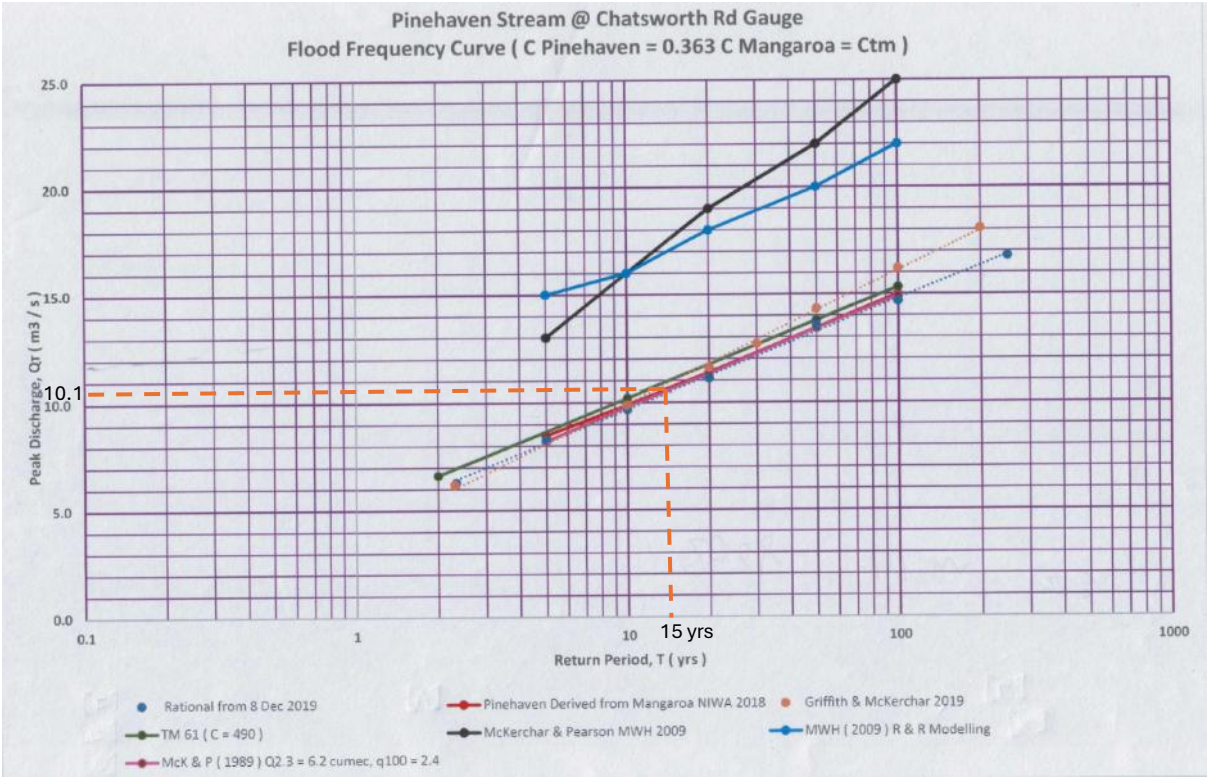

Figure 10 Pinehaven Stream catchment - Flood Frequency Curve (R J Hall & Associates Ltd)

The peak water level at the staff gauge on 16 February 2026 was about 1.41m at around 8:20am. Using the rating curve by R J Hall & Associates Ltd, at 1.41m depth the flow is about 10.1m^3/s. On RJ Hall & Associates' Flood Frequency Curve, a flow of 10.1m^3/s is about a 1-in-15 year flood.

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Figure 11 Staff gauge (above and below right), peak flow 1.41m, 8:20am Monday 16 Feb 2026

Figure 12 (Above left) Staff Gauge in Pinehaven Stream (12:30pm, 17-2-2026)

The top of the timber retaining wall at the staff gauge is 1.31m. The peak water level on 16-2-2026 (above right) is about 25mm above the timber retaining wall on the upstream side of the railway iron, which is 75mm higher than the retaining wall on the downstream side. We estimate that the peak water level is about 1.31 plus 75mm plus 25mm = 1.41m peak water level.

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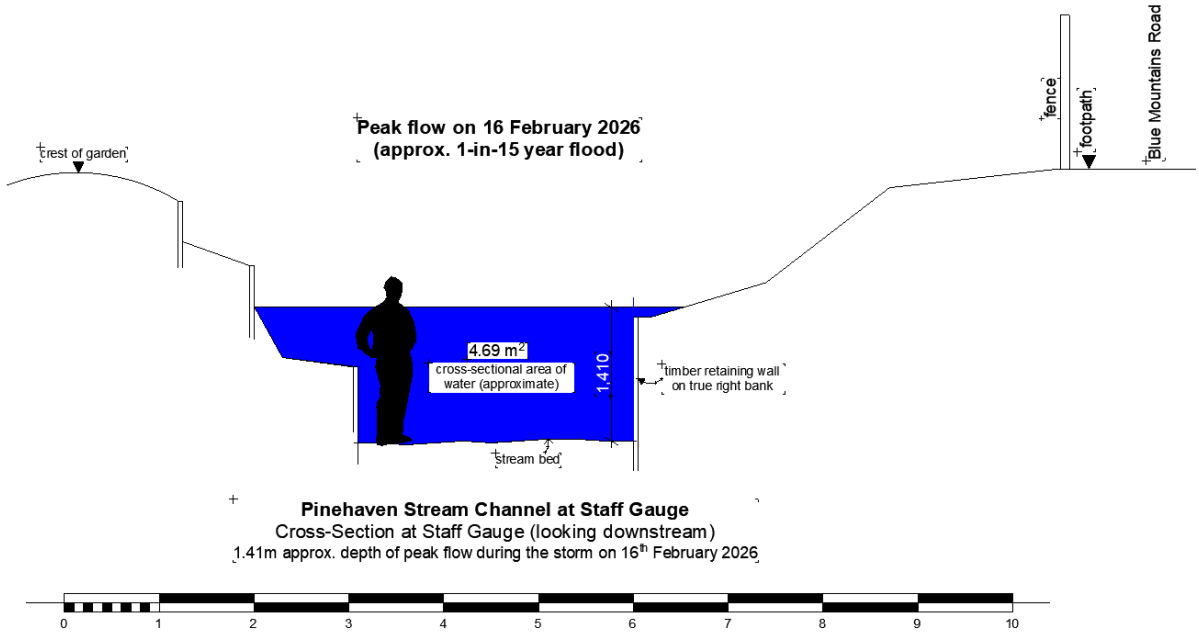

Figure 13 Surveyed cross-section of Pinehaven Stream channel at staff gauge

The cross-sectional area of water at 1.41m depth is about 4.69m^2 (Figure 13 above).

Based on R J Hall & Associates rating curve (Figure 9 above), 1.41m peak water depth at the staff gauge is about 10.1m^3/s flow.

Dividing the flow by the cross-sectional area of water suggests that the velocity of the flow is 10.1 / 4.69 = 2.15 m/s, which seems reasonable compared with independent velocity estimates by R J Hall & Associates and G. Horrell for the Dec 2019 flood event.

In the video of peak flow (left), the staff gauge is at the second railway iron from the front. There is a weir under the footbridge the author is standing on.

There is another weir about 15m upstream of the footbridge, and water spilling over this weir is visible at the top of the image (left). See below (Figure 15) for a plan view of the staff gauge site.

Figure 14 Peak flow 8:20am, staff gauge site 16-2-2026

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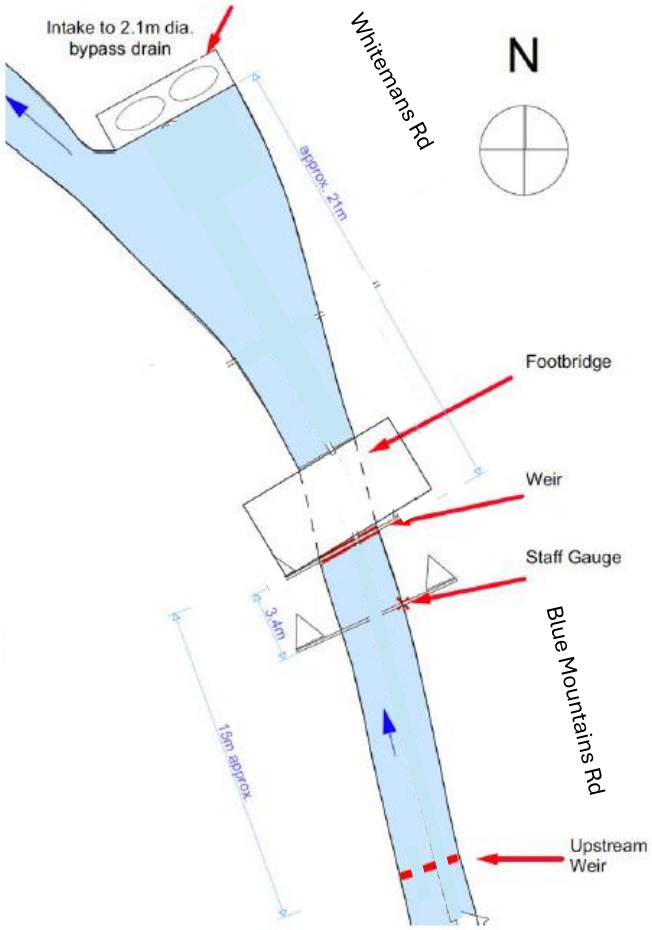

Figure 15 Plan View of Staff Gauge Site, Pinehaven Stream

Figure 16 Bypass Intake at peak flow 16-2-2026 (left), and at 12:30pm 17-2-2026 (right)

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4. Observed Flooding

4.1 Driveway culvert 122 Pinehaven Road, 7:55am

Road sumps contribute to overtopping of culvert at 122 Pinehaven Road

122 Pinehaven Road - overtopped driveway culvert (not being fixed in $60M streamworks)

Flood water from 122 runs all the way down Pinehaven Road to the school and also into Jocelyn Crescent

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Looking south up to 122 Pinehaven Road where water overtops the driveway culvert

Looking north down Pinehaven Road from near 122 Pinehaven Road at 7:55am.

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Looking north down Pinehaven Road near 108 Pinehaven Road

Most of the flow from 122 Pinehaven Road turned into Jocelyn Crescent

Some of the flow continues north down Pinehaven Road towards Pinehaven School.

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8:00am - water flowing into Jocelyn Crescent ran into 39 Jocelyn Crescent (right) - find out from local residents how this water finds its way back into the stream further down Pinehaven Road.

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A pipe from under the road discharged stormwater into 37 Jocelyn Crescent …

… which spilt over into neighbouring properties, in this photo above into 39 Jocelyn Crescent.

Resident cleaning debris off road at 39 Jocelyn Cres illustrates why it is important to observe flooding as it happens, not the next day like GWRC and SKM, July 2009.

Figure 17 Series of 14 photos of flooding from undersized culvert at 122 Pinehaven Road

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4.2 Overtopped driveway at 125 Pinehaven Road

Figure 18 Flooding of driveway at 125 Pinehaven Road, 11:37am

Ask local residents about this flooding. NB: it isn't being fixed in the $60M streamworks

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4.3 Birch Grove Cul-de-sac

Figure 19 Minor flooding in Birch Grove cul-de-sac, 9:09am just after peak flow

The ponding in Birch Grove was minor compared to flooding that occurred here in December 2019 when the whole cul-de-sac was flooded. On Monday 16 February 2026, there was evidence of water starting to break out of the stream channel behind the house at 12 Birch Grove and running down the driveway into the cul-de-sac. There it mixes with surface water flowing down the Birch Grove road channels and ponding in the cul-de-sac. The ponding seems to be due to the drainpipes from the road sumps (under water in the top photo above) being unable to discharge properly into the stream channel because they are below the surface of the swollen water level. The pipes may also be receiving backflow from the flooded stream channel.

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4.4 Flooding at Nos. 28 – 36 Blue Mountains Road

36 Blue Mountains Road, 6:54am (above) and 9:01am just after peak flow (below)

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34 Blue Mountains Road, 9:01am just after peak flow

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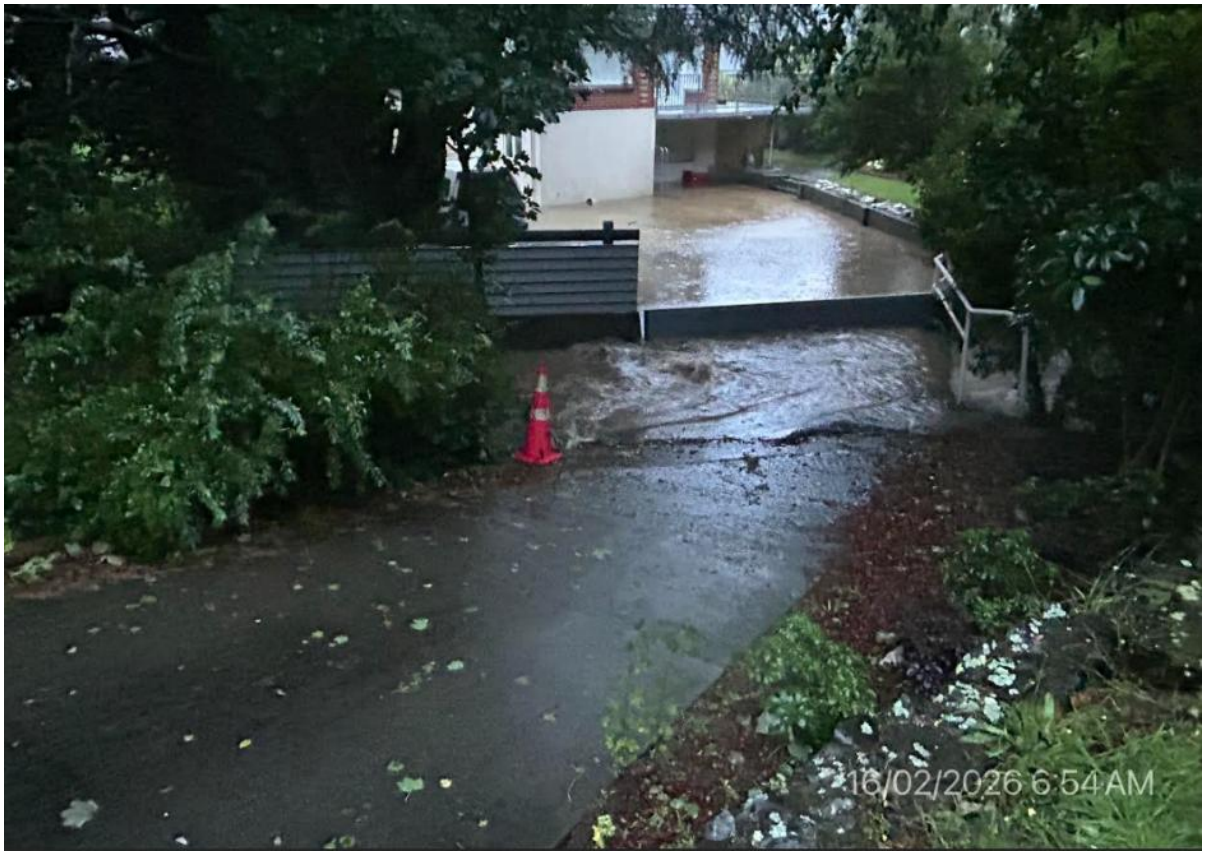

32 Blue Mountains Road, 6:54am (above) and 9:02am just after peak flow (below)

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30 Blue Mountains Road, 6:56am (above) and 9:03am just after peak flow (below)

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28 Blue Mountains Road – the house was removed when the property was bought by GWRC

6:56am (above) and 9:04am (below)

Figure 20 Series of photos above of flooding at Nos. 28 - 36 Blue Mountains Road

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4.5 Gard Street – ponding due to blocked road sumps

After clearing leaves and twigs at around 8:30am from the blocked road sumps, the ponding drained away within about 20 minutes.

Figure 21 Ponding in Gard Street due to blocked road sumps

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4.6 Field Street road culvert reached full capacity

Field Street road culvert (upstream side) at 7:27am

10:15am

The debris lines in these two photos (left) indicate that the road culvert overtopped a little at the peak of the flood almost two hours earlier.

Figure 22 The Field Street road culvert reached full capacity

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4.7 Confluence of Pinehaven Stream and Hulls Creek in Silverstream

6:44am (above) and 7:32am (below)

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This photo (left) at 8:26am shows Hulls Creek at the time (approximately) of the peak flow of the Pinehaven Stream and Whitemans Road Bypass pipes

Figure 23 Photos of Pinehaven Stream discharging into Hulls Creek at 3:19pm and 5:30pm on 16 February 2026

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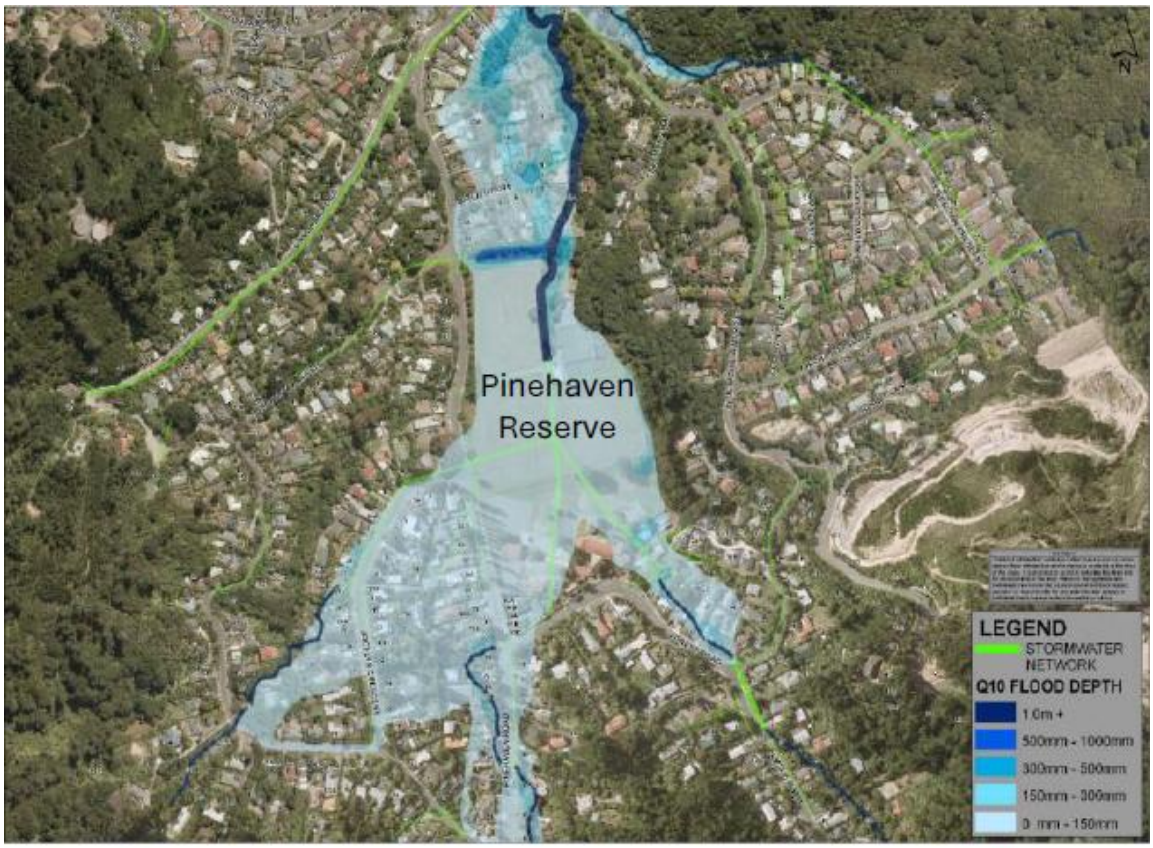
4.8 Pinehaven Reserve was not inundated



Council's 10-year flood map (above) shows Pinehaven Reserve under water.

Figure 24 Pinehaven Reserve was not inundated in 15-year flood on 16 February 2026

We estimate that the storm on 16 February 2026 was about a 1-in-20 year rainfall event and about a 1-in-15 year flood event in Pinehaven. GWRC's 1-in-10 year flood map (above) shows Pinehaven Reserve inundated, but that did not happen on 16 February 2026. GWRC's flood map grossly overstates flooding, not only of Pinehaven Reserve but also many homes in Pinehaven are falsely shown inundated in GWRC's inflated and unreliable flood maps.

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At around 9:12am, almost an hour after peak flow, debris lines indicate that the stream flow is receding.

Figure 25 Debris lines in Pinehaven Reserve

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4.9 Willow Park

Figure 26 Willow Park, 8:55am, about half an hour after peak flow, the flood water is receding

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4.10 Sunbrae Drive new culvert

Figure 27 Sunbrae Drive new culvert, 8:51am

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4.11 Pinehaven Road new culvert

Looking upstream from the footpath above the intake

Pinehaven Road culvert: View of the Wyndham Road discharge pipe and the new culvert intake

Looking downstream from the footpath above the new culvert outlet

Figure 28 Pinehaven Road new culvert, 9:06am

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4.12 Intersections

Figure 29 No flooding at Sunbrae Drive and Deller Grove intersection

Figure 30 Popped manhole cover at intersection of Pinehaven Rd and Jocelyn Cres (by Library)

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4.13 Fallen trees and branches

Pinehaven Road

Wyndham Road

Pinehaven Road

Blue Mountains Road

Blue Mountains Road

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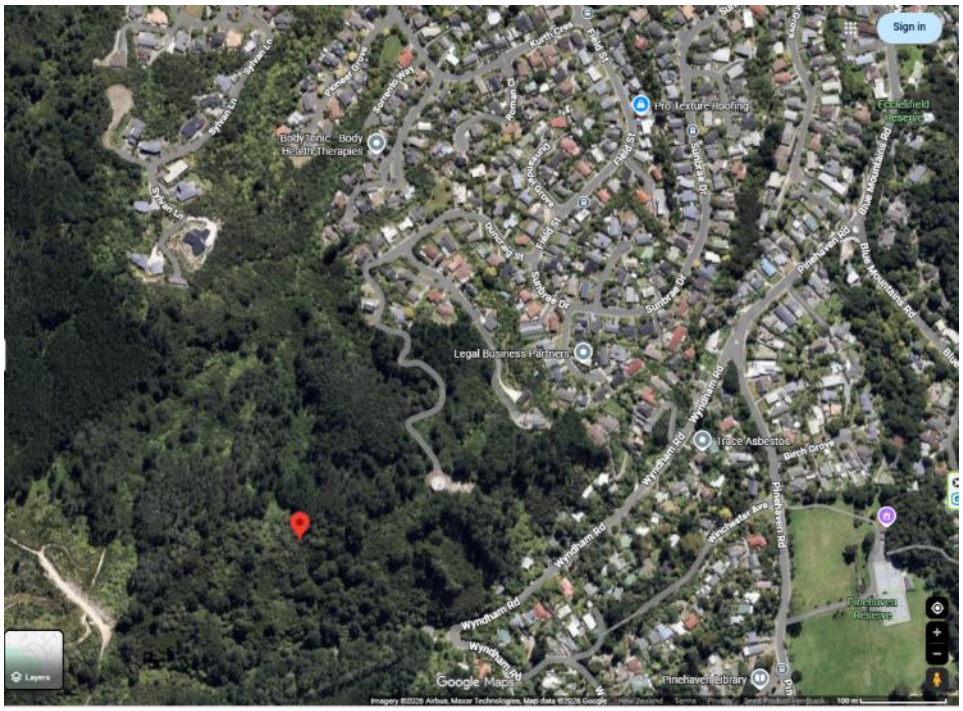
5. Landslide on hillside above housing in Silverstream

The slip occurred during the storm on Monday 16 February 2026 on steep land on which pine forest was recently harvested (see photo above).



The gully in which this slip occurred drains down to the stormwater intake pipe in the small reserve between Pioneer Grove and Sorrento Way.

R J Hall & Assoc. note that intense rainfall can wash eroded soils and rocks into storm-water networks and reduce the capacity of pipes.

Figure 31 Location of the landslide pinned on Google map by Dennis Clark

The Google map above shows pine forest that was at the landslide location before it was harvested. The slip occurred on the edge of a forestry road cutting, as seen in the photos below.

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Figure 32 Landslide on steep hills above housing in Silverstream (Photos: Dennis Clark)

Figure 33 View of landslide from Reserve at the top of Tapestry Grove

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6. Development, Storms, and Landslides – A Lethal Combination

> *"... steep hillsides, heavy rainfall, and unmanaged surface water can combine to produce sudden and deadly slope failures.*
>
> *... hydrological processes are closely connected to landslide risk. Increased stormwater runoff from large-scale development on steep, forested hillsides can alter soil moisture, groundwater levels, and surface flow paths. Where runoff is not properly managed, these changes can increase the likelihood of slope instability, erosion, and landslides, particularly during extreme rainfall events." [Flooding Us, Rev 3, p12]*

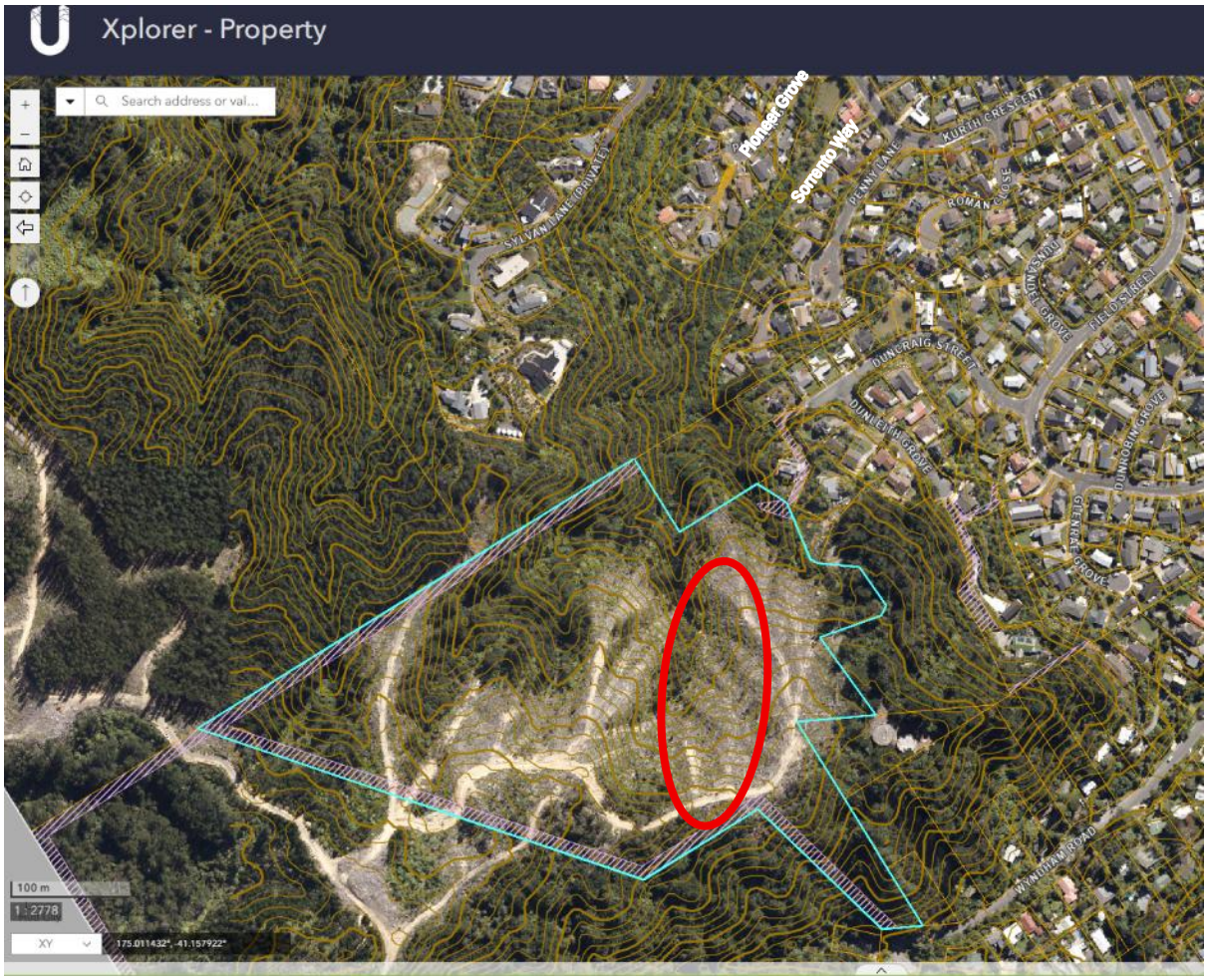

Figure 34 Approximate location (red ellipse) of landslide on Monday 16-2-2026

As mentioned earlier, and shown on Figure 34 above, the landslide on Monday 16 February occurred on the edge of a logging road in a gully that drains down to the stormwater intake in the small public reserve between Pioneer Grove and Sorrento Way in Silverstream. The pine forest in this area was recently harvested by The Guildford Timber Company (GTC), who own the site on which the landslide occurred (Figure 35 below).

Based on information released publicly by GTC in 2007, 2016 and 2023, it is GTC's intention to develop in the vicinity of Monday's landslide with medium density housing (Figure 36 below).

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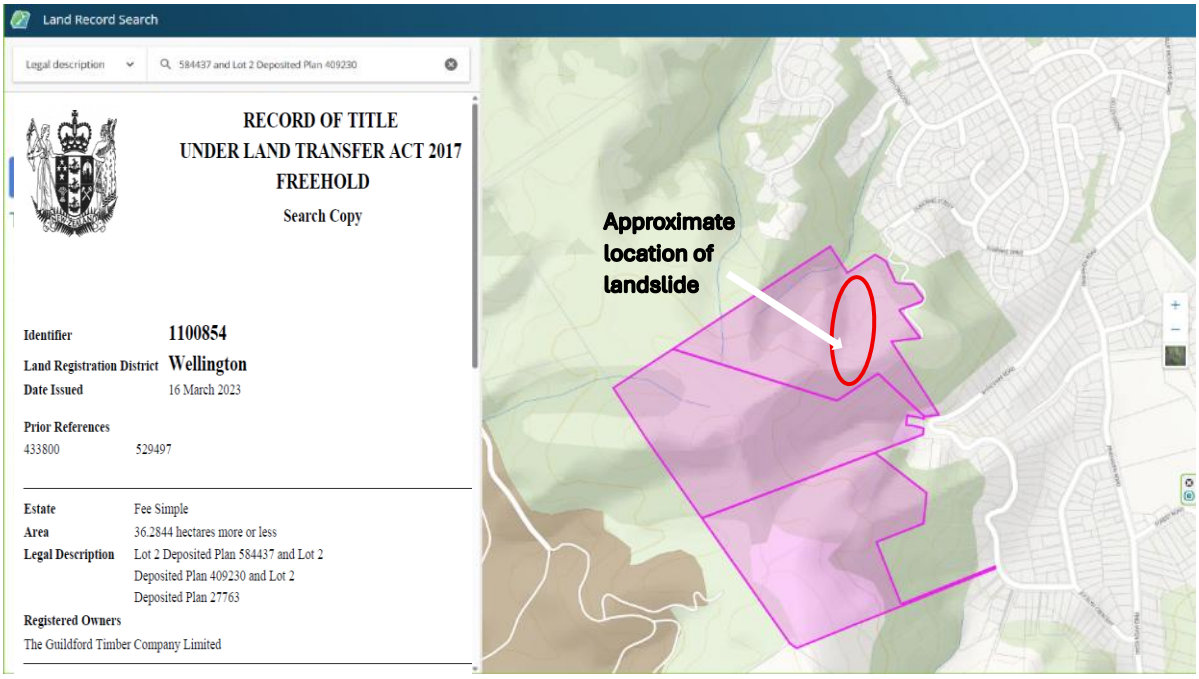

Figure 35 LINZ Record of Title - Registered Owners - The Guildford Timber Company (GTC)

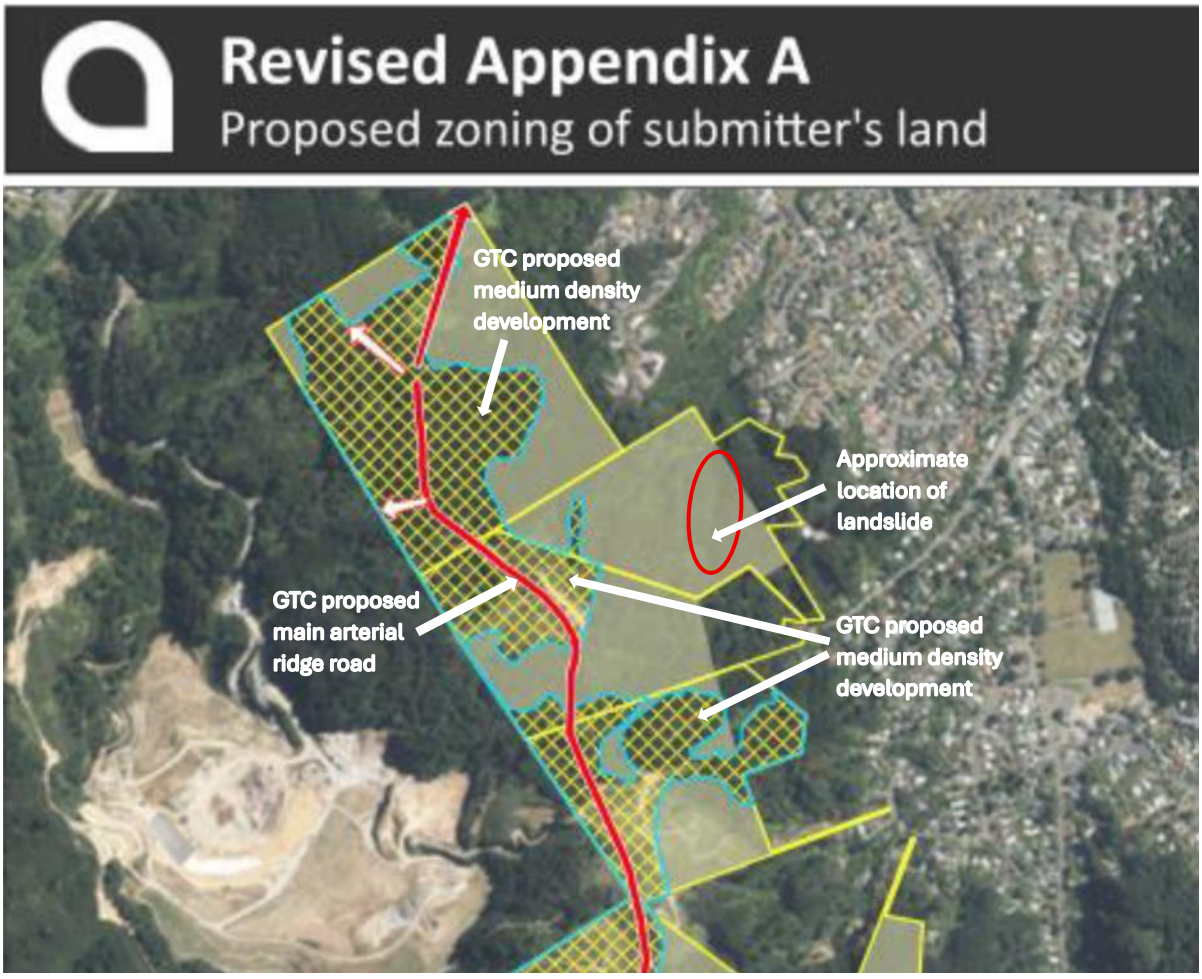

Figure 36 Our notes on Guildford Timber Company PC50 Submission to UHCC, Nov 2023

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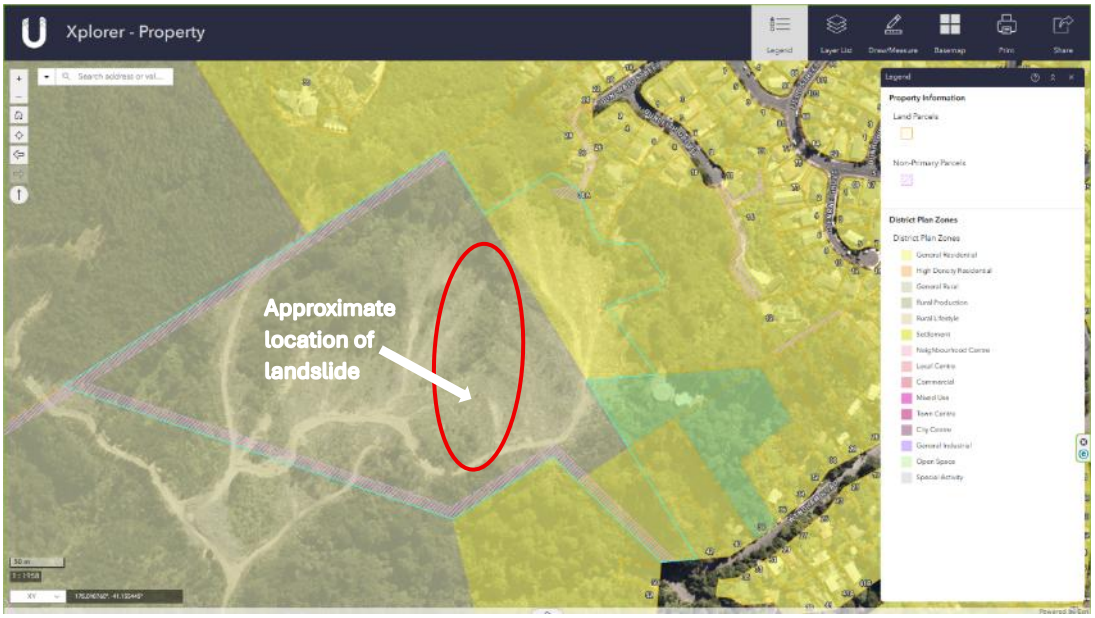

Figure 37 UHCC District Plan Zones - General Residential zone below landslide

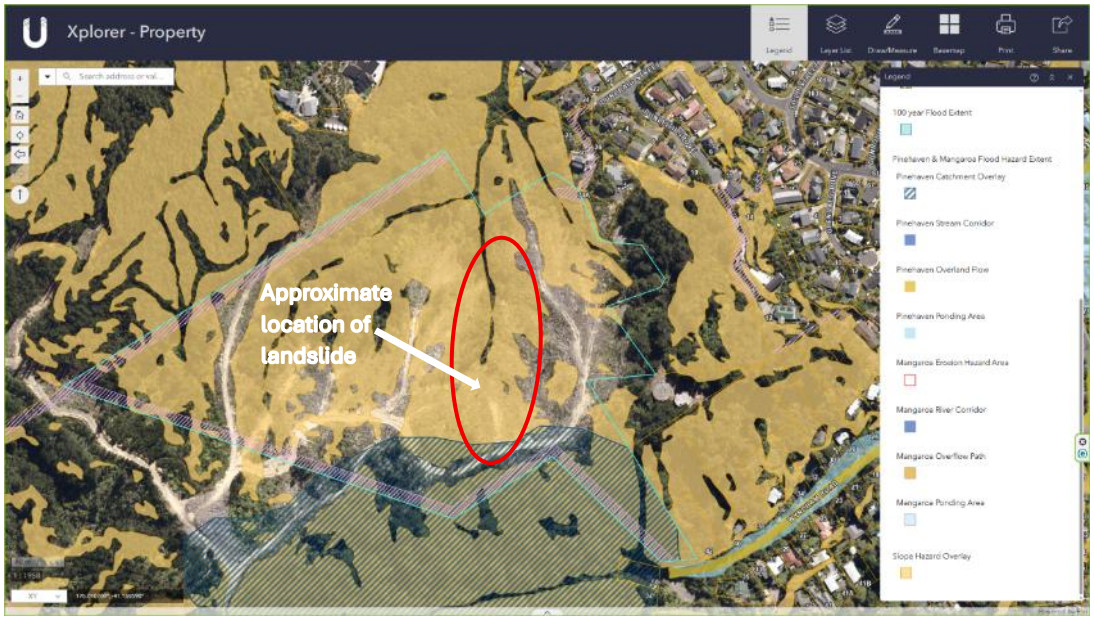

Figure 38 UHCC Slope Hazard Overlay (brown shading)

Part of GTC's site below the landslide is already zoned 'General Residential' (Figure 37), with apparent access for residential development on GTC's site from the top end of Duncraig Street.

Most of GTC's site on which the landslide occurred is known 'slope hazard' (Figure 38) because of the steepness of the land. The combination of land-use change (whether forestry harvesting or development) plus steep unstable land plus heavy rainfall can be lethal, as the recent tragic events in the Bay of Plenty have shown.

Our concern is the foreseeable increased flooding and landslide risk in Pinehaven catchment. This results from the combination of GTC's proposed development and the flawed baseline Pinehaven flood modelling that will potentially allow large volumes of unmanaged stormwater runoff from the development down steep unstable hillsides above existing houses in Pinehaven. The risks are similar for housing in Silverstream below GTC's proposed ridgeline development.

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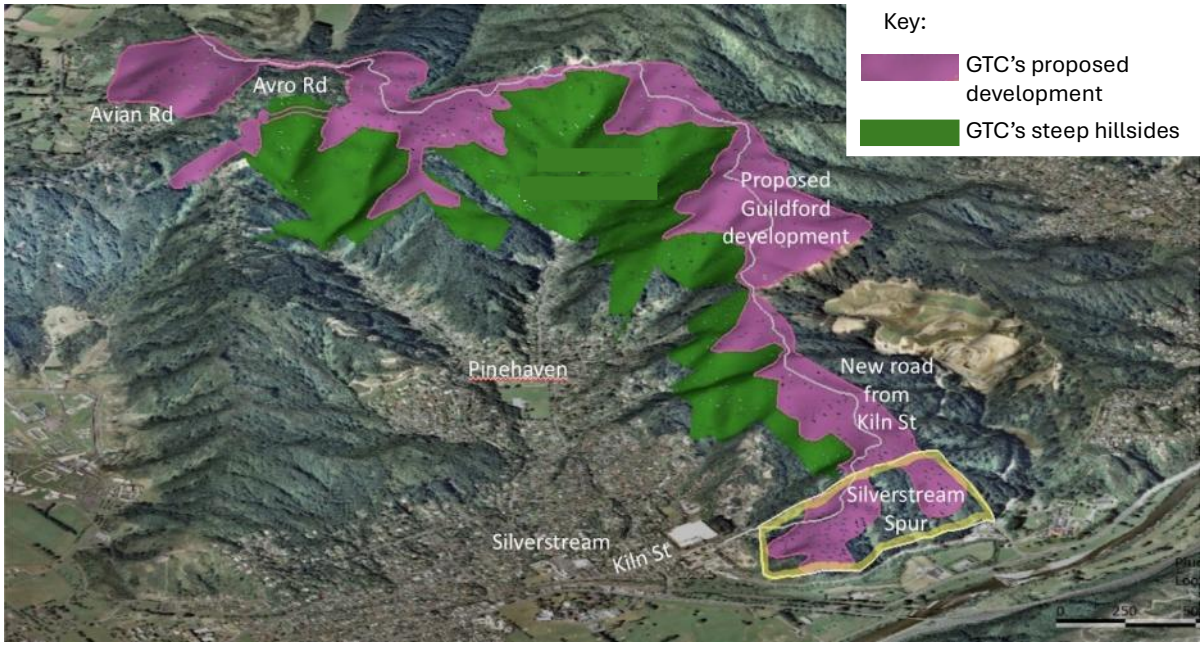

Figure 39 Indication of the scale of GTC's proposed development

Figure 40 UHCC Archives Phillip Thompson Photos 1976 flood following GTC forest harvesting

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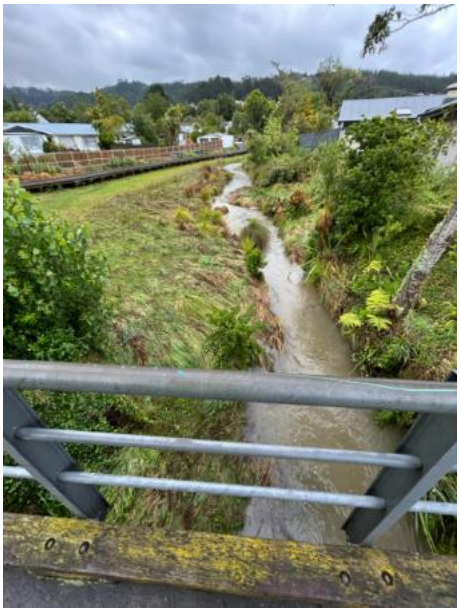
7. Location for Reinstalling the Stream Gauge

The original stream gauge was located at the second railway iron from the footbridge that supports the timber retaining wall on the true right bank of the stream channel. The gauge was located here from 2008 to 2013. Because this reach of the channel has not been modified by recent streamworks, it is sensible and responsible to reinstall the stream gauge here at its original location. This would allow new stream depth data to be related to historical records for this location.

It is only because this reach has not been modified that we were able to use the rating curve and flood frequency curve developed by R J Hall & Associates to assess the flood flow and frequency for the storm on 16 February 2026 and compare it with previous events such as the flood on 8 December 2019.

Figure 41 Location of the reinstalled stream gauge is a matter for engagement and collaboration of Council with the local community.

It seems that Greater Wellington Regional Council is considering reinstalling the stream gauge in Willow Park (below and right), but it has been heavily modified by the streamworks after the last significant storm event on 8 December 2019. In this location, estimation of discharge would be complicated and not be directly relatable to historical data from the previous gauge site (above).



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8. Conclusion

The flooding and associated impacts observed in Pinehaven and Silverstream on 16 February 2026 reinforce a clear and consistent message: the current Pinehaven flood model and flood maps do not reflect observed reality and materially overstate flood extents. Without proper calibration and validation against real events, these maps risk misleading decision-makers, property owners, insurers, and planners about both the scale and distribution of flood risk.

The continued absence of a functioning stream gauge at the Pinehaven gauge site is a critical failure in flood-risk governance. Reliable, continuous water-level data is foundational to any credible flood model. The immediate reinstallation of an automated gauge of the same type and at the same location as the historic 2008–2013 gauge, together with formal protection of the gauge site from channel modification, is essential if future flood modelling is to be evidence-based and defensible.

The landslide observed above houses in Silverstream during the storm underscores that flood risk cannot be treated in isolation from slope stability and stormwater management on steep hillsides. Heavy rainfall, unmanaged surface runoff, and development on forested slopes interact in ways that increase both flooding and landslide risk. These processes are foreseeable and well-documented, yet Council's current planning and modelling frameworks do not adequately integrate them.

Of particular concern is the foreseeable increase in both flood magnitude and flood frequency if large-scale hillside development proceeds on the Pinehaven and Silverstream hills on the basis of a flawed baseline flood model. An inflated baseline masks the true incremental effects of development, potentially allowing large volumes of unmanaged stormwater runoff to be discharged down steep, unstable slopes above existing homes. In practical terms, this creates the risk that flood events currently regarded as 15–25 year events could occur much more frequently, and that larger, more damaging floods will become more common as development proceeds, as has been warned by flood engineer R J Hall & Associates.

Recent streamworks demonstrate that capital investment alone does not guarantee risk reduction. Some works primarily redistribute floodwaters rather than reducing downstream risk, while others (such as the Willow Park modifications) have delivered tangible local benefits. Without an accurate, calibrated catchment-wide flood model, however, it remains impossible to assess whether such investments are achieving optimal outcomes at the catchment scale or merely shifting risk from one location to another.

Finally, the 16 February 2026 event represents another missed opportunity for agencies to engage meaningfully with the community in ground-truthing flood behaviour and improving model accuracy. Community members are present during storms, observe flood behaviour in real time, and can provide invaluable data and insight.

Effective flood-risk governance requires not only technical expertise, but also structured, transparent engagement with affected communities. As documented in *Flooding Us (Rev 3)*, rebuilding trust and credibility in flood mapping will require a reset in process: reinstating monitoring, committing to proper calibration and validation, and working with the community to co-create a flood-risk evidence base that is both technically robust and socially legitimate.

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Flooding Us is a volunteer, evidence-based community initiative.

If you value independent analysis and public-interest advocacy, please consider contributing to help us continue this work.

Your donation enables us to produce independent research, technical reviews and accessible public information. Every contribution helps us advocate for safer, evidence-based decisions.

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We are also grateful to Craig Thorn for providing information about stormwater running off the Blue Mountains ridge and across Blue Mountains Road onto properties in Elmslie Road.

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