Nicola Robinson, Plan Change 42 Flood Maps Hearing
Wed. 27/09/17, 3.30pm

Thank you Commissioner for this opportunity to speak today.

My request is that I, along with my fellow submitters, will not merely have the platform to speak, but that this time we will truly be heeded and granted what we've asked for in our submissions, which is an independent review of these flood hazard maps before they get admitted into the district plan.

As I have stated many times before today, both in person and in writing, I have very grave concerns and zero confidence in the various flood maps produced since 2010 up until these latest ones just released this month.

There is a very common theme of inconsistencies and discrepancies in the flood map information made available by engineers as selected by both GWRC & UHCC, and as pointed out by many residents of both Mangaroa and Pinehaven. A common theme.

I am a resident at 70A Pinehaven Road and have lived there for 26 years.

**1st USB map pls** (**2010** Marg Simpson) - show my location.

As evidenced by the 2010 maps (example) I was shocked to discover that my home has suddenly appeared within a flooding hazard zone…..where previously it did not….as evidenced by this 2005 map.

**2nd US map pls** (**2005**)

- My property: No H2O to be interested in. No concern.No problem. No hazard

I understand from information that I've received from SOH that those two different maps were created using the same software. How can the same software used in 2005 and in 2010 produce two radically different maps?

Greater Wellington's flood maps and Upper Hutt City Council's flood maps are both referred to as "Hazard" maps, ((as distinguished by GWRC in Appendix 4 "Flood Hazard Extent" maps, and UHCC in Appendix 5 "Hazard Maps")) yet I would like to point out, shouldn't the Greater

Wellington's flood maps show "inundation" meaning actual water extent (not water and freeboard). I want to see actual water inundation, otherwise the purpose and interpretation of these maps is very unclear and misleading.

We know that Michael Law has reviewed the latest Pinehaven flood plan maps but we don't know what they're based on, nor how they've been created. It's not at all clear where and how the 100mm has been removed. Has it just been removed from the freeboard, or from the actual water extent? This has certainly not been presented to us as Pinehaven property owners, nor as submitters.

These latest flood maps were produced in July, after Council received all our submissions. How can I possibly consider new material, produced at the last minute, that I've not even been privy to seeing – new maps presented well after the consultation period has closed ((8 May)).

Could I please have some clarification as to who created these most recent flood maps? There doesn't seem to be the name of any author on them.

It makes me wonder why an independent consultant, in all fairness, would agree to this process where new information is sprung on submitters after the consultation has closed?

As has been pointed out by numerous submitters over many months, even years, the maps themselves are vague and unclear because they provide insufficient information. Not only that, but GWRC's decision to add the 300mls of freeboard (or safety margin) to their maps, and to colour them blue so that they most certainly appear as water, is grossly misleading. They make the "hazard" extent look far worse than it actually is.

**3rd USB map - Hamilton C C.**

Looking here, is an excellent example of a clear and informative flood map from Hamilton City Council's website, using what I understand to be the New South Wales method. This map makes a distinct and clear definition. It uses two shades of green to clearly define the Waikato River. It uses 3 different shades of blue, to define water depth and velocity so it is very clear what is a low hazard, medium hazard and high hazard area for residential properties. This does not include the freeboard. Other areas are

white, which means there's no water to be bothered about. This is the kind of map I want to be used to show the true situation around my property, an area of flat land. I do not trust that our Wellington regional maps show the true situation.

Also, why is Upper Hutt accepting GWRC flood maps when they still do not take into any consideration the expert experience and knowledge of local residents that has been freely shared with our Council and with their engineers – The word "expert", according to the Oxford dictionary, is "a person who is very knowledgeable about, or skilful in, a particular area." A number of residents with in-depth knowledge based on extensive years' experience living in both Mangaroa and Pinehaven regions have repeatedly addressed the Council and engineers (or others have done so on their behalf) on glaring flood map discrepancies, based on their extensive experience and knowledge of the land and the effects of rainfall upon it….including their experience of a 100-year flood which we had in 1976. These people have been completely disregarded when it comes to the collation of information and then presentation of these flood maps. Completely disregarded!

If engineers do not start with the correct basic information in their exercise, one that takes into account the facts as they stand regarding how rainfall has already been known to affect these regions in the past 45 years, which has included the 1976 100-yr flood, then how can they possibly be trusted to have an accurate prospective 100-year flood map?!

I'm not satisfied that these maps accurately represent the true situation. They appear to me to be grossly inflated. If they are, does this mean the developer that builds on Pinehaven's hills could get away with not having to do proper flood protection work?I I haven't been shown anything to convince me that these maps are accurate and that residents of Pinehaven would be protected from new flooding as a direct result of property development on our hills. In actual fact Mr Law initially identified in the 2015 audit, that the flood maps were **not fit for purpose** with regard to showing run-off from future development on the hills. He pointed out there had to be flooding in the valley as a result of building on the hills and the maps were therefore badly flawed. Since then they've rerun the model with a lower level of development (no-one knows what the assumptions are, how many houses it's based on, and so on) and we're just expected to accept this new result of insignificant water runoff, or impact. There is no transparency on

the matter. Basically these maps are inflated. They do not accurately represent hill development water run-off. This has extremely serious ramifications for me, not only because of the destructive effects of flooding, resulting from hill development, upon my property, but also the significant resulting **devaluation** of my property that will be inevitable.

In closing, my appeal is as follows:

- I request accurate and clear maps.
- I request to know how the same software used could produce those two different maps of 2005 and 2010?
- I request to know who created, or is the author of, these most recent maps.
- I request to see what Mr Law has reviewed before you adopt these maps into the district plan – to be able to see the assumptions and calculations he has reviewed.
- And finally, the way these maps are at the moment endanger my safety and I thought the Act was supposed to protect me. Therefore I request this Plan Change be withdrawn and a truly independent and unbiased expert, not selected by, nor influenced by any Council but one the community is involved in selecting, provide a new and thorough mapping of my area, one that clearly and accurately displays the appropriate information detail using the New S. Wales (or Hamilton District Council) flood map method, that does not include the freeboard, so there is no ambiguity over what the true **hazard** extents are. This request is only fair and reasonable.

Thank you.

## What you can do if you intend to develop, build or renovate?

Consider the following actions if you are building or renovating in a flood or erosion-prone area.

- Always speak to Upper Hutt City Council (Telephone 04 527 2169 - ask for environmental consents) before you start building.
- Development should avoid the area affected by flood or erosion as a first choice. However if this is not possible, such as for an existing dwelling, Upper Hutt City Council or Greater Wellington can provide you with site-specific advice.
- Raise your building platform or floor level. We recommend the underside of the floor joists or concrete slab should be at least clear of the 1 in 100 year return period flood level. Remember that the design flood event could be exceeded.
- Consider access issues and provide flood free evacuation routes. No one wants to be caught in a flood event with no escape routes. Elevating access routes is not recommended as they can act as barriers to flood waters.

## What you need to do if you live in this area

***Know your risk:*** Find your property on the flood hazard map. The Hutt Valley Emergency Management Office can give you information about how to reduce the effects of flooding. This information could cover evacuation plans, how to protect items in your home by raising them above floor level, and how you can reduce the risk of future flooding to your home.

***Be prepared:*** You will need to have:

- **A Household Emergency Plan** that will help you and your household plan for when disaster strikes.
- **Emergency Survival Items** such as food, water, clothing and medical supplies for you and your family. You will need enough for at least 3 days.
- **A Getaway Kit** of essential emergency and medical items if you need to be evacuated.

For more information on preparing for an emergency please contact the Hutt Valley Emergency Management Office.

T (04) 570 6666
W www.huttcity.govt.nz/Council-Services/Emergency-Management

## Where to from here

This project is jointly funded by Upper Hutt City Council and Greater Wellington. Phase 2 is expected to be completed in approximately 2 years. Phase 2 will involve working with the community on what are the best options for flood mitigation for the Pinehaven Stream Catchment.

For more information, contact
Flood Protection
Greater Wellington Regional Council
PO Box 11646
Wellington
T 04 384 5708 www.gw.govt.nz
F 04 385 6960 info@gw.govt.nz

June 2010
GW/FP-G-10/87



UPPER HUTT CITY
UPPER HUTT CITY COUNCIL

greater WELLINGTON REGIONAL COUNCIL | Flood Protection

# Flood Hazard Information Sheet 6
## Pinehaven Stream

JUNE 2010

**This information sheet covers the current flood hazard extent for the Pinehaven Stream Catchment that was identified in Phase 1 of the joint Upper Hutt City Council and Greater Wellington study. These maps may potentially change in the future, depending on the results of phase 2 of this investigation which is looking at potential flood mitigation and management options. This study is expected to be completed in approximately two years.**

One of the council's key roles is to help communities protect themselves from the effects of river and stream flooding. To do this, our communities need to understand the risk from flooding and have affordable and acceptable management measures in place. We also want to ensure that inappropriate developments don't create new problems.

The study, currently being undertaken on the Pinehaven Stream is looking to better understand the flood risk and to look at the best means to manage this flood risk in the future. This project is being undertaken in two phases. The first phase which has just been completed involved identifying the flood risks which exist in the catchment over a range of different sized flood events. The second phase of this project will involve using this information to help plan future development and flood risk management measures in the catchment.

Identifying hazards, such as those caused by river and stream flooding, is the responsibility of local and territorial authorities under the Resource Management Act.

## The Pinehaven Catchment

The Pinehaven Stream Catchment has an area of about 4.5 square kilometres and is outlined in yellow in Figure 1.

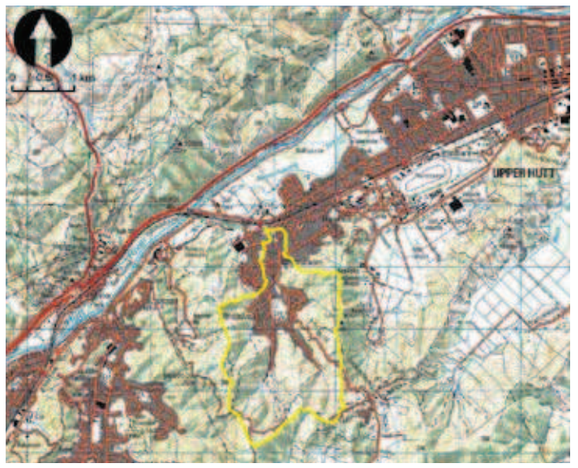



Figure 1 – Pinehaven Stream Catchment

## How do Greater Wellington and Upper Hutt manage the Pinehaven Stream?

The Pinehaven Stream is jointly administered by Greater Wellington and Upper Hutt City. Greater Wellington manages the reach from the Whitemans Valley Road Culvert to the Pinehaven Reserve and Upper Hutt manages the reaches upstream from the reserve. Maintenance activities include removing obstacles from the channel (such as trees). Erosion repair is the responsibility of the landowner, although we are happy to provide advice on request.

## How we measure floods

The amount of water flowing in a river is measured by a unit called a cumec (cubic metre per second), which is a measure of how much water flows past a given point every second.

The frequency of the flood is measured by how often a flood of a particular size is likely to happen such as a 1 in 5, 1 in 50 or 1 in 100 year return period event. A 100 year return period flood event has a 1% chance of being equalled or exceeded in any year. On average, one of these events will occur every 100 years based on past records.

But don't be misled into thinking that a 100 year return period flood can only happen once in a hundred years – two large floods could happen only days apart at any time.

## Flood Hazard Information Sheet 6
Pinehaven Stream

### Floods in the Pinehaven Stream

The Pinehaven Stream has a history of flooding, especially in the lower reaches, where the capacity of the stream channel has been greatly restricted. Even in more frequent events (i.e. less than 1 in 10 year return period floods) the stream is known to overtop its banks in certain areas.

### Why this information is useful

The hazards associated with flooding and the natural evolution of the floodplain should be considered when new development is being considered on the floodplain. This approach is useful as it helps to:

- Minimise the future damage from flood events to property;
- Identify any potential threat to life;
- Allow evaluation of any impact on the river environment; and
- Alert people to any potential flood and erosion risk.

### What it means

The hazard assessment shows areas along the Pinehaven Stream and floodplain that are affected by the 100 year return period flood event. The maps covering the main channels of the Pinehaven Stream are shown in figure 2.

The maps include an allowance for climate change which is based on the latest recommendations by the Ministry for the Environment.

### Will this information affect my property value or insurance?

We have been advised by Quotable Value that valuations follow the market rather than set the market. They would not expect to discount a valuation without there being market data to support that approach, and this was not the case from their observations of the market at the time of their valuations. This advice was based on work they have recently undertaken in the Mangaroa Valley which is in a similar situation.

Many areas in the Wellington Region are subject to flood risk. We advise that any known facts relating to the physical risk to a property should be disclosed to an insurer. This includes whether the property is exposed to any particular hazard by virtue of its location (e.g. flood). An insurer requires these facts when evaluating whether or not to underwrite the risk and, if so, on what terms.

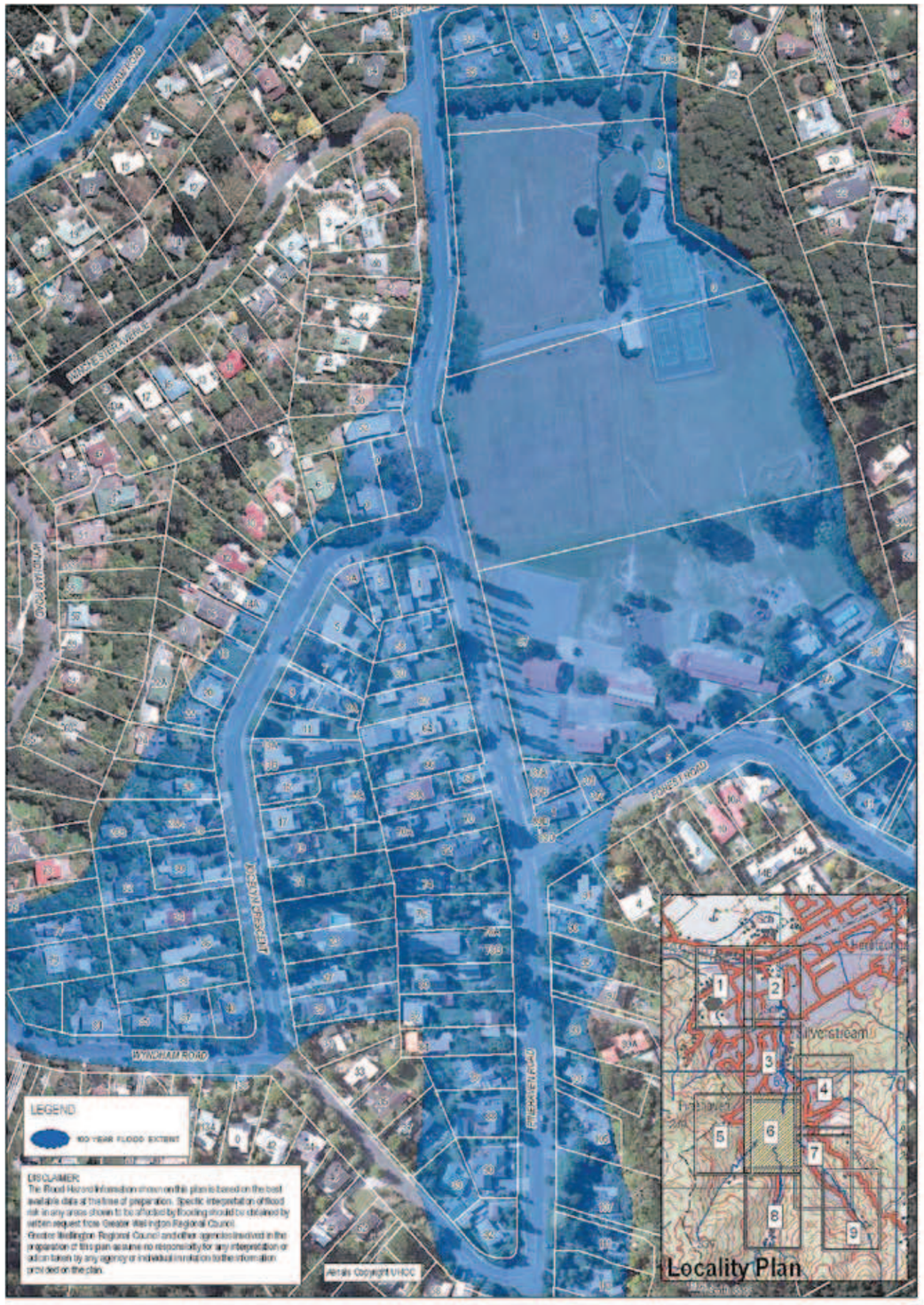
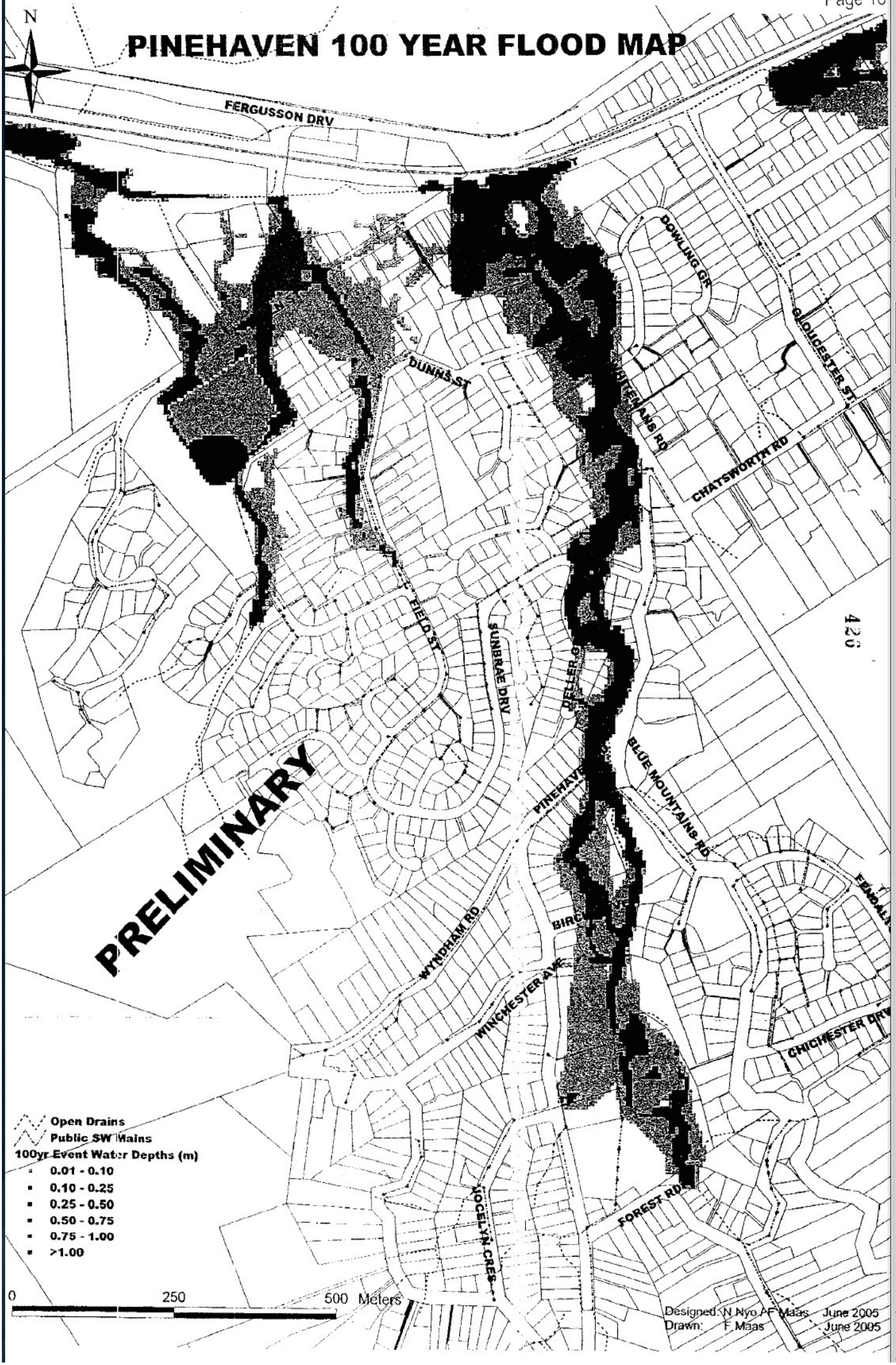



Figure 2
PINEHAVEN STREAM - Flood Hazard



## Legend

**Culvert Block Flood Areas**

- Culvert Block Flood Hazards Area
- Temple View Flood Hazard Area

**Waikato River Flooding**

- Medium Flood Hazard Area
- High Flood Hazard Area

**Surface ponding and overland flowpaths**

- Low Flood Hazard Area
- Medium Flood Hazard Area
- High Flood Hazard Area
- Detail Flood Hazard Boundary
- City Boundary

Meters

0 20 40 80 120 160

N

# FLOOD HAZARD AREA

## CULVERT BLOCK FLOOD HAZARD AREA

## PROPOSED DISTRICT PLAN

Hamilton City Council

Te kaunihera o Kirikiriroa

| | |
|---|---|
| Scale: | 1:3,500 |
| Date: | Nov 05, 2012 |
| Version: | 1.0 |

Map No: C16

# What do the different ‘flood hazard areas’ mean?

The available flood information has been split into five flood hazard areas. The differences between them reflect the nature of the information Council holds.

1. **Temple View Flood Hazard Area** (already known information)

These areas are susceptible to flooding associated with small-scale farm dams and secondary flow paths that are part of the Waipa Flood Prevention Scheme. The extent of this hazard area is based on a one in 100 year flood event. This information is already shown in the current Operative District Plan, being included as part of the Environmental Protection Overlay (EPO).

2. **Culvert Block Flood Hazard Area** (already known information)

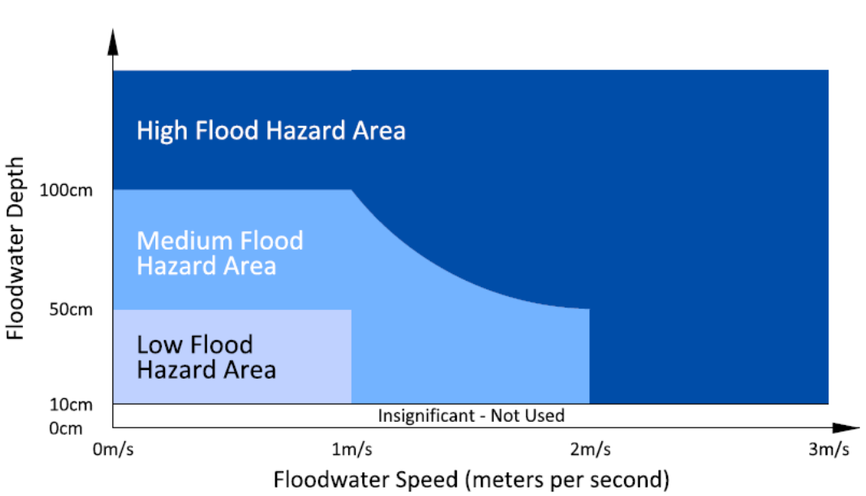
The Culvert Block Flood Hazard Area applies upstream of significant culverts along the gully system. These represent the maximum effect of a culvert becoming blocked whereby water backs up the gully until it eventually flows over the accessway or road above the culvert. This hazard area is already shown in the current Operative District Plan, being included as part of the EPO.

**3-5. High, Medium and Low Flood Hazard Areas** (new information)

These areas have been identified from computer modelling as part of Council’s ongoing Catchment Management Plan programme. The areas have been identified on maps which have been produced by modelling and flood hazard experts.

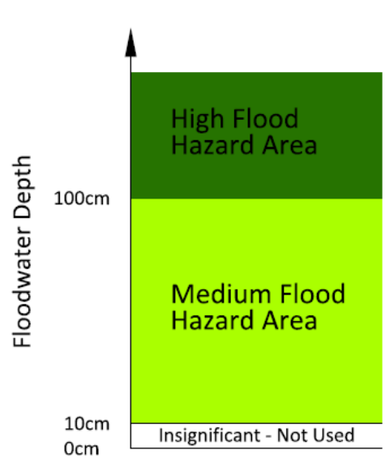
This modelling creates a picture of what flooding may look like from an extreme rainfall event (i.e. a 1 in 100 year event). Two sets of modelling are used, one for the Waikato River corridor dealing with river flooding and another for sub-catchments in the city dealing with overland flowpaths and ponding flooding. The land affected has been divided and mapped into high, medium and low categories, according to the different flood water depths and velocities that the models show could occur in an extreme rainfall event.

The flood hazard areas for **overland flowpath and ponding** flooding elsewhere in the City are defined by the following depths and velocities.





Flood hazard areas in the **Waikato River corridor** are defined using the following depths.





Depth and velocity (speed) are the key factors in determining the effect of flood water on people and property. This is summarised in the table below:

| Floodwater Depth | Floodwater Velocity (metres per second) | Depth x Velocity | Effect on people and property |
|---|---|---|---|
| 0 to 10cm | Any velocity | - | At this depth, surface water is unlikely to be a hazard to people and unlikely to cause damage to property. |
| 10 to 50cm | <1.0m/s | - | At this depth and velocity flood hazards are normally traversable by emergency vehicles and damage to property is minor to moderate. People can usually stand but more vulnerable people can be more significantly affected (e.g. children, elderly, injured, physically disabled). Scour/erosion of building foundations are unlikely to occur. |
| 50 to 100cm | <2.0m/s | - | At this depth and velocity the stability of people in water is at risk.. Damage to property can be financially significant. |
| >100cm | >2.0m/s | >1 | At velocities greater than 2 metres per second the stability of buildings and their foundations can be significantly affected, as the force of the water can scour building supports. At depths greater than 1m significant damage to building and risk to life is very likely. |

**Note**
The effect on property depends in part on the floor height of a building. Where the water is **not flowing** (i.e. ponding) a building with floor heights above the height of the flood water and an adequate freeboard is unlikely to suffer significant damage, whereas a building with floor heights below the height of the water is likely to suffer inundation damage (e.g. water and silt damage).