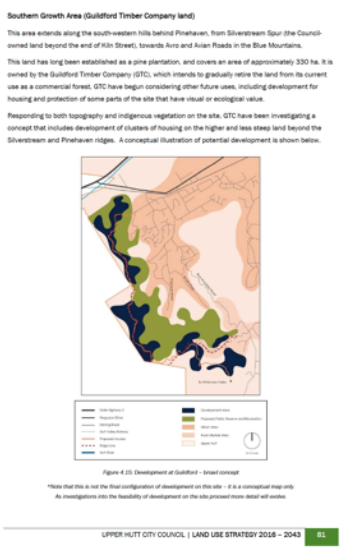
Proposed Plan Change 42: Mangaroa and Pinehaven Flood Extents

Hearing: Wednesday 27th, Thursday 28th, Friday 29th September 2017
To: Hearing Commissioner
From: Save Our Hills (Upper Hutt) Incorporated (SOH), C/- Stephen Pattinson, President

EXECUTIVE SUMMARY

1.


Southern Growth Area (Guildford Timber Company land)

This area extends along the south-western hills behind Pinehaven, from Silverstream Spur (the Council-owned land beyond the end of Kiln Street), towards Avro and Avian Roads in the Blue Mountains.

This land has long been established as a pine plantation, and covers an area of approximately 330 ha. It is owned by the Guildford Timber Company (GTC), which intends to gradually retire the land from its current use as a commercial forest. GTC have begun considering other future uses, including development for housing and protection of some parts of the site that have visual or ecological value.

Responding to both topography and indigenous vegetation on the site, GTC have been investigating a concept that includes development of clusters of housing on the higher and less steep land beyond the Silverstream and Pinehaven ridges. A conceptual illustration of potential development is shown below.

Figure 4.15: Development at Guildford – broad concept

*Note that this is not the final configuration of development on this site – it is a conceptual map only. As investigations into the feasibility of development on the site proceed more detail will evolve.

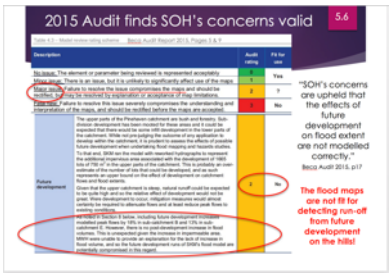
UPPER HUTT CITY COUNCIL | LAND USE STRATEGY 2016 – 2043 81

See UHCC Land Use Strategy 2016-2043, p81-82

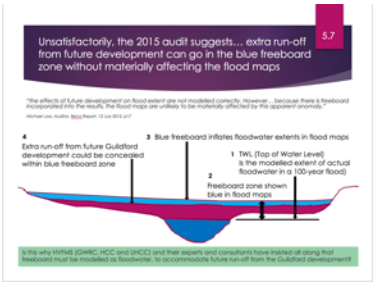
Upper Hutt City Council Plan Change 42, although about Mangaroa and Pinehaven flood hazards, is actually enabling large-scale development on the hills around Blue Mountains, Pinehaven and Silverstream (development on the Guildford land, Council's so-called 'Southern Growth Area':
"The exact nature of the development and location of housing is yet to be determined, but it is anticipated that the likely yield from the development would be around 1000 dwellings." UHCC Land Use Strategy 2016-2043, pp 81,82

An analysis by SOH of Guildford's 2007 concept concludes the yield from the development is more likely to be 1,500 to 3,500 dwellings, plus 'big-box' retail, shops, offices, apartments and schools. **The high cost of proper stormwater attenuation for such large-scale development is an impediment to the development. The Plan Change 42 flood maps are an instrument for reducing that impediment.**

2.



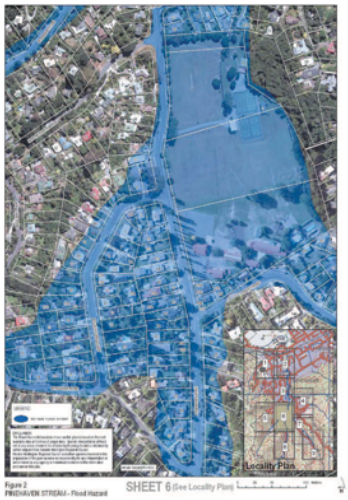
See SOH Slide 5.6



See SOH Slide 5.7

Major Flaw in Flood Maps reduces impediment to future development on the Guildford land:
The 2015 audit identified a "Major issue" in the Pinehaven flood maps; it has never been properly investigated or fixed. When used as a base map, the flood maps fail to show up significant extra run-off from future large-scale development on the Guildford land. The extra run-off is caused by new roofs, driveways and roads replacing trees, bush and permeable ground. It is supposed to be dealt with on site to not increase flood hazard to life and property downstream. However, these flood maps conceal extra run-off in the freeboard zone. Freeboard is a buffer zone, a safety margin setting house floor levels at a safe height above flood water. These maps add flood depth as blue freeboard indistinguishable from blue floodwater over large areas of insignificant shallow puddles, artificially inflating flood extents on these maps. **Blue freeboard exaggerates current flood extents, conceals significant extra flooding caused by future development, and removes existing residents' recourse for relief from such increases in flooding.**

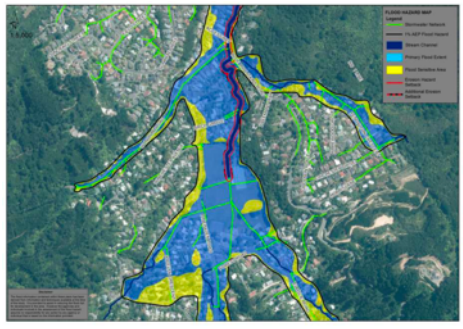
3.



a) 2010 i) Flood Hazard (Sheet 6)

b) 2010 ii) Q100 Design Scenario B,F,CC

c) 2014 FMP Rev 2 - Flood Hazard Map



d) 2015 FMP Rev 4 - Flood Hazard Map

Although seriously flawed, the flood hazard maps were approved by GWRC last year by 'bamboozle' and 'bulldozer' methods. GWRC issued multiple conflicting versions of flood maps for Pinehaven Stream, and overrode all community objections.

a) 2010 i) The first flood map is all one colour simply described as "100 Year Flood Extent" and provides no description or delineation of flood hazard.

b) 2010 ii) shows three shades of blue for flood depth (but still no description of hazard) for a scenario that includes climate change (CC), blockages (B) and blue freeboard (F) that is indistinguishable from actual floodwater:

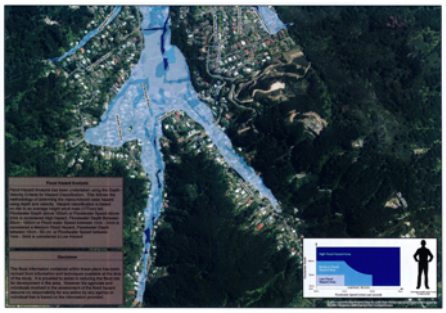
- 1.0m +
- 500mm – 1,000mm
- 0mm – 500mm

c) 2014 Rev 2 – Flood Hazard Map:

- Stream Channel
- Flood Hazard Zone
- Erosion Hazard Setback

d) 2015 Rev 4 – Flood Hazard Map: 'Yellow Means What?' maps

- Stream Channel
- Primary Flood Extent
- Flood Sensitive Area
- Erosion Hazard Setback

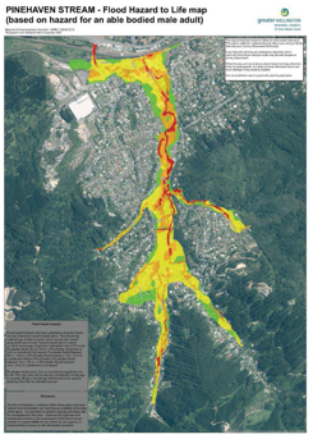


e) 2016 FMP Rev 5 Flood Hazard Map

e) 2016 (Feb.) Rev 5 - Flood Hazard Map:

- High Flood Hazard [Floodwater Depth x Velocity > 1]
- Medium Flood Hazard [0.5 < (Depth x Velocity) < 1]
- Low Flood Hazard [Floodwater Depth x Velocity < 0.5]

NB: Freeboard should not be mapped (but is here, light blue)
NB: Depth < 10cm should not be mapped (but is here, light blue)



f) 2016 FMP Rev 6 Flood Hazard Map

f) 2016 (Sept.) Rev 6 - Flood Hazard Map:

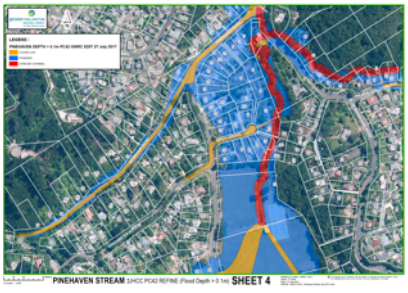
High Hazard	Floodwater Depth above 100cm, or Floodwater Speed above 2m/s
Medium Hazard	Floodwater Depth between 50cm - 100cm, or Floodwater Speed between 1m/s - 2m/s
Low Hazard	Floodwater Depth between 10cm - 50cm, or Floodwater Speed between 1m/s - 2m/s
Insignificant Risk	Floodwater Depth below 10cm

g) 2017 Map 0 - Flood Map
(the 'Marge Simpson' map)

g) 2017 Building a Flood Map: Map 0– Flood Map

PC42 Submitter #11 Nicola Robinson referred to this map in her oral presentation at the Hearing as the "Marge Simpson" map because it reminds her of Marge Simpson with her big blue hairdo.

Brett Osborne, Urban Edge Planning (consultant managing the Plan Change) confirmed this is the map that informs the PC42 Flood Hazard Maps:
GWRC Pinehaven Map 0 – Flood Map
"…a simple map … [that] contains no information about depth or hazard category …" (quoted from indented description on the map)



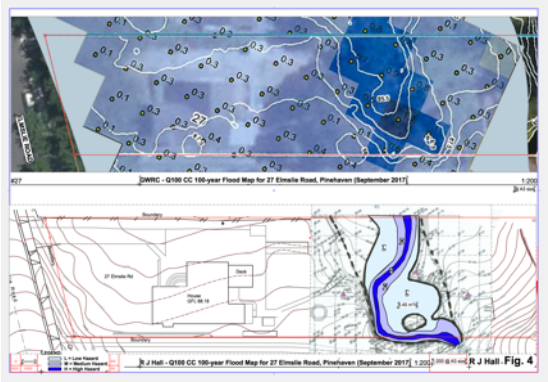
h) 2017 GWRC Flood Depth >0.1m

h) 2017.7.27 GWRC Flood Maps for PC42:
Created by GWRC after PC42 consultation closed, to inform and create new UHCC Flood Hazards Maps, replacing the notified maps, and Issued to submitters three weeks before the PC42 hearing.

- Overflow
- Ponding
- Stream Channel

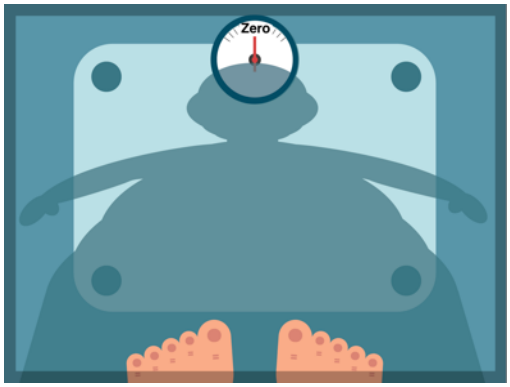
The Problem with all the above GWRC Flood Maps:
The above maps all misuse freeboard by showing it as floodwater. This inflates flood extents, and conceals in the freeboard zone possible increases in actual floodwater from future development on the Guildford land.

4. Must have accurate flood maps



See SOH Slide 3.23 – comparison between GWRC and R J Hall's 100 year flood maps for 27 Elsmlie Road, Pinehaven, Upper Hutt

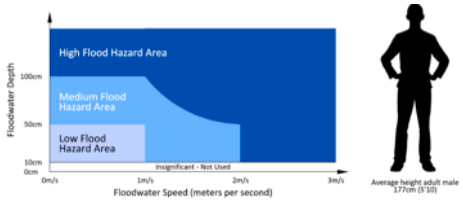
5. Must have accurate instruments



Must have accurate baseline data and flood maps to ensure flooding won't be increased by future development

6. WITHDRAW PLAN CHANGE 42 and carry out an independent audit of hydraulic modelling and mapping.

7. NSW Govt method, D x V = Hazard (High, Medium, Low, Insignificant)



See SOH Slides 3.24, 3.25

8. GROUNDTRUTHING
Check against observed flood extents

GWRC & UHCC FLOOD MAPS MISUSE FREEBOARD BY SHOWING IT AS WATER: GWRC's 100 year flood map for 27 Elmslie Rd shows freeboard as blue floodwater, creating a 50-60m wide flood hazard where no flood hazard exists. It is within this blue freeboard zone that future extra runoff from Guildford will be concealed.

AN ACCURATE FLOOD MAP BY FLOOD EXPERT RJ HALL: RJ Hall's flood map for 27 Elmslie Rd shows a 100-year flood flows in the stream channel. Freeboard is only applied in the stream (the dotted lines), not on shallow puddles on the lawns – they are not a flood hazard.

ACCURATE DETECTION OF EXTRA RUN-OFF FROM FUTURE DEVELOPMENT REQUIRES ACCURATE MAPS
Just as these faulty scales will always show "zero" weight gain, so GWRC's faulty flood maps will show zero extra flooding - even when extra floodwater from future development on the Guildford land is filling up the blue freeboard zone on UHCC's maps.

In contrast, any extra floodwater will show up in RJ Hall's flood map. It will be illegal for a development to make flooding worse; so Council must have flood maps that accurately show where 'current situation' flooding comes to, and ensure runoff from future development doesn't exceed current flood extents.

UHCC Flood Hazard Maps are misleading and must be replaced with clear, informative hazard maps. SOH requests external audit of hydraulic modelling and mapping by an independent expert(s), and the flood modelling and mapping rectified to provide clear baseline data and *"true flood hazard maps".*
Use NSW Govt method: Depth x Velocity = Hazard
2015 audit recommended *"GWRC … provide true flood hazard maps, based on… water depth and flow velocity… such a map would not show any hazard in the buffer zone… freeboard"* [*Beca Audit 2015 pp13,23].* insignificant depths less than 10cm would not be mapped as flood hazard areas. Full baseline 'current situation' data and flood maps must be published, for transparency in assessing hydraulic neutrality of future developments in the 'Southern Growth Area,' as land instability, forest clearance, earthworks, subdivision and development impact on flooding in nearby existing urban areas.

The flood hazard extents must be 'groundtruthed', including observations by local residents who have witnessed Mangaroa and Pinehaven flood extents.