

# Selecting a Site for Your Home

## Quick Assessment of Site Vulnerability Storms, floods, slips and heavy weather

Many New Zealand home owners look to build or buy their dream home as part of a long and happy retirement. For many it's an opportunity to buy a place with views, be near the beach, or be close to rivers.

These sought-after environments and other seemingly more ordinary sites can be vulnerable to natural events which can damage our biggest investment in our futures – our homes.

We are all aware of earthquakes in New Zealand. These are difficult to avoid in many parts of New Zealand whether you live on the flat or up on a hill, which is why our building regulations attempt to ensure our homes are built to help us keep safe during earthquakes.

But we face other natural events that can have huge impacts. Flooding in urban and rural areas, coastal storm surges, and landslips are an all too real experience.

Being resilient during these events and being able to recover from them involves making sure that you make the best decisions possible when you look for a home or buy land to build on.

Buying a site for your home or an existing house is one of the biggest investments you are ever likely to make.

Spending time now assessing sites will always be a good investment. Remember houses may be insured, but land is much more difficult to insure.

This Guide provides you with:

- A quick way to identify some typical natural hazards that may be present on or near a section you are interested in.
- Information about where you can find out more about vulnerability to natural hazards.



# Acknowledgement

This tool was produced as part of the research programme *Resilient Communities: Doing Better in Bad Times*. The research was funded primarily by the Public Good Science Fund with assistance from the BRANZ Levy.

CRESA would like to thank the individuals including the many older people and organisations who piloted the tool in its early forms.

We must acknowledge too the contributions of those who served on the programme's national reference group and our overseas Advisory Group: Catherine Bridge, Associate Professor, Faculty of Built Environment, University of New South Wales, Sue Roaf, Professor of Architectural Engineering, Heriot Watt University, Edinburgh, and Rob Wiener, Executive Director, California Coalition of Rural Housing.

In addition we would like to thank the research team who have contributed to our understanding of older people's resilience needs: Kay Saville-Smith and Ruth Fraser (CRESA), Bev James (Public Policy & Research), Roman Jaques (BRANZ), Rob Bell (NIWA), Ryan Paulik (NIWA), Mark Jones (BRANZ), Nick Marston (BRANZ), Sally Priest (Flood Hazard Research Centre), Middlesex University, London.

For more information about the project as well as previous publications please see the research website [www.goodhomes.co.nz](http://www.goodhomes.co.nz) and go to the resilience page.

© This publication is copyright. Details may only be stored or copied for personal or corporate use for its stated purposes. Copying for the inclusion in other publications for sale is strictly forbidden.

CRESA, or any of the Good Homes projects members including the *Resilient Communities Doing Better In Bad Times* programme, or its advisers do not accept any responsibility or liability for any damage or injury arising from use of this publication, or reliance on information contained in this publication.

# Resilient Homes and Resilient Sites: What's It About?

## A resilient home is one that:

- Helps to protect you during an event such as storms, floods, extreme cold, landslips and erosion, and wildfires – Sometimes that means a home you can stay in during the event and sometimes it's a home that lets you evacuate quickly to a safer place.
- Minimises damage in a natural adverse event.
- Minimises the costs and time involved in recovering and repairing damage.



## Why do sites matter?

- What your home stands on and what it is likely to be hit by are big factors in a resilient home. These are largely dependent on the site.
- Whether your site has lots of different ways of getting in and out or only one will be a factor in how easy it is to evacuate.
- A site that allows a house to be oriented for solar gain can make a big difference if you lose electricity and have no heating or alternative lighting.



You could be reliant on the sun when it returns to dry you out, keep you warm and light you in the evening and early mornings. A site that gets no sun is less resilient than one that does.

- It's not just the house that matters, for some people trees and gardens are an important part of what makes a place your home.
- Your site can cost big money – Think about the implications for your future if:
  - It is destroyed and you cannot rebuild on it.
  - It needs a lot of remedial work to repair or stabilise.



We all make trade offs when selecting a home – thinking about the site and its vulnerabilities is just one part of that.

This guide is here to help by highlighting things to look out for in relation to:

- Exposure to big winds.
- Vulnerability to flooding from:
  - Rivers and streams
  - Storm water
  - The sea
- Landslides, slips and debris flows.
- Changing land use.



## Stuff this guide doesn't cover

### This guide doesn't cover:

- Vulnerability to volcanic events.
- Vulnerability to earthquakes.
- Soil contamination.
- Vulnerability to liquefaction.

You should talk with the local council about these issues.

**Remember knowing risks and vulnerabilities doesn't make risks bigger or smaller, but it does give you opportunities to prepare, mitigate or avoid.**

## Professional help

Always get professional help if you are at all concerned about the vulnerabilities around a location or site. This is just a quick guide to highlight some issues you might want to explore before making a decision to buy. It can not replace professional assessment.

**MAKING THE RIGHT CHOICES IS ALL ABOUT GETTING THE RIGHT INFORMATION.**

- Ask
- Research
- Observe

**THIS GUIDE WILL HELP YOU**

# 1. Ask your council

You should always get a LIM report but not all your site's vulnerabilities will be listed.  
Ask your Council:

## 1.1 Is the site in a hazard zone for:

- |                    |     |                          |    |                          |           |                          |
|--------------------|-----|--------------------------|----|--------------------------|-----------|--------------------------|
| Tsunami            | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | Not Known | <input type="checkbox"/> |
| River flood        | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | Not Known | <input type="checkbox"/> |
| Coastal inundation | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | Not Known | <input type="checkbox"/> |
| Soil contamination | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | Not Known | <input type="checkbox"/> |
| Liquefaction       | YES | <input type="checkbox"/> | NO | <input type="checkbox"/> | Not Known | <input type="checkbox"/> |

## 1.2 Check out the development. Are there any of these warning bells?

- The development required a resource consent – This indicates that the development was not a permitted use in the district plan. YES  NO
- The development went to a Resource Management Act Hearing of some sort – This indicates local objections. Check out what they were. YES  NO
- The developer was required to report on risks, do soil testing, get an engineering report, or other actions to get a building consent or RMA consent. YES  NO
- The developer was required to mitigate risks or impacts. YES  NO

## 1.3 Are there any changes which might affect your site indicated by:

- RMA consent applications that might affect the site. YES  NO
- Decisions by Council or the Environment Court for applications near the site. YES  NO
- Surrounding forests recently cleared or about to be felled. YES  NO
- New land uses which might change the water table, eg. by new irrigation patterns. YES  NO
- Subdivision for residential, commercial or industrial use. YES  NO

Count up all the YES's

## 1. Ask your council continued

1.4 Has the site been flooded more than once?

YES  NO  Not Known

1.5 Have properties or roads nearby been flooded?

YES  NO

1.6 Has the site, roads or property nearby been affected by slips or debris flows?

YES  NO

1.7 Is the storm water network more than 25 years old or services only some sites in the local area?

YES  NO

1.8 Has the site or local area been cut off by heavy weather, storms, slips, or similar events?

YES  NO

1.9 Are there sea walls near your site or on roads leading to it?

YES  NO  Not Coastal

1.10 Has the site or properties nearby been affected by sea storm surges?

YES  NO  Not Coastal

Count up all the YES's

## 2. Ask the Seller, the Real Estate Agent, the Developer

**2.1 Have there been any engineering, geotechnic, soil, contamination, flood, liquefaction, or other hazard related reports required for the site or been undertaken (If yes, ask for copies so you can check the results)?**

YES  NO

**2.2 Have any mitigation works been required or undertaken on the site (If yes, ask for description of these works and compliance certificates)?**

YES  NO

**2.3 Has insurance on property or contents ever been refused or an extra premium been required?**

YES  NO

### 2.4 Did the development:

Require a resource consent? This indicates that the development was not a permitted use in the district plan.

YES  NO

Go to a Resource Management Act hearing of some sort? This indicates local objections. Check out what they were.

YES  NO

Have to report on risks, do soil testing, get an engineering report, or other actions to get a building consent or RMA consent?

YES  NO

Have to mitigate risks or impacts? (If yes, ask for description of those works and compliance certificates)

YES  NO

Count up all the YES's

**2.5 Are there any changes likely around the property?**

RMA consent applications that might affect the site. YES  NO

Decisions by Council or the Environment Court for applications near the site. YES  NO

Surrounding forests recently cleared or about to be felled. YES  NO

New land uses which might change the water table, eg. by new irrigation patterns. YES  NO

Subdivision for residential, commercial or industrial use. YES  NO

**2.6 Has the site or surrounding properties been flooded?**

YES  NO

**2.7 Has there been infill, soil dumping or waste disposal on or under the site?**

YES  NO

**2.8 Has the site or local area been cut off by heavy weather, storms, slips, or similar events?**

YES  NO

**2.9 Are there sea walls near your site or on roads leading to it?**

YES  NO  Not Coastal

**2.10 Has the site or properties nearby been affected by sea storm surges?**

YES  NO  Not Coastal

Count up all the YES's

### 3. Research

#### Go to the local museum or library

3.1 Are there any new developments expected or rumoured in the area?  
(If yes, list what)

YES  NO

---



---



---



---



---

3.2 Has the site or surrounding properties or roads been flooded?

YES  NO

3.3 Has the site or local area been cut off by heavy weather, storms, slips, or similar events?

YES  NO

3.4 Have there ever been slips or debris flows in the area?

YES  NO

3.5 If near the coast or a river, have erosion of land or storm surges affected the properties?

YES  NO  Not Coastal

3.6 Has the electricity supply, water or communications been cut off for more than half the day?

YES  NO

Count up all the YES's

## 4. Your observations

Look at the site and note down whether you see damage or risks to do with wind, flooding, slips or storm surges



### Big wind indicators

4.1 Stunted trees and shrubs bending in one direction

YES  NO

4.2 Storm damaged fences, garages or out-buildings damaged in previous storms

YES  NO

4.3 Large trees with snapped branches

YES  NO

4.4 Local stories of regular big storms, wind or tornadoes – talk with local long-term residents

YES  NO

### Trees falling on houses or cutting power lines

4.5 Trees overhanging the house

YES  NO

4.6 Trees within the same distance from the house site as the height of the tree

YES  NO

4.7 Trees near power lines

YES  NO

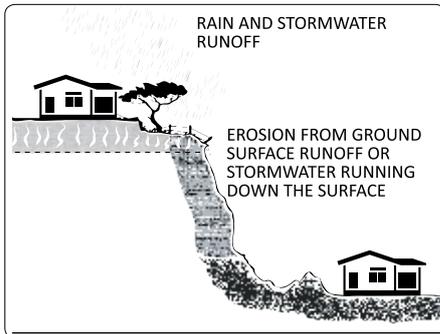
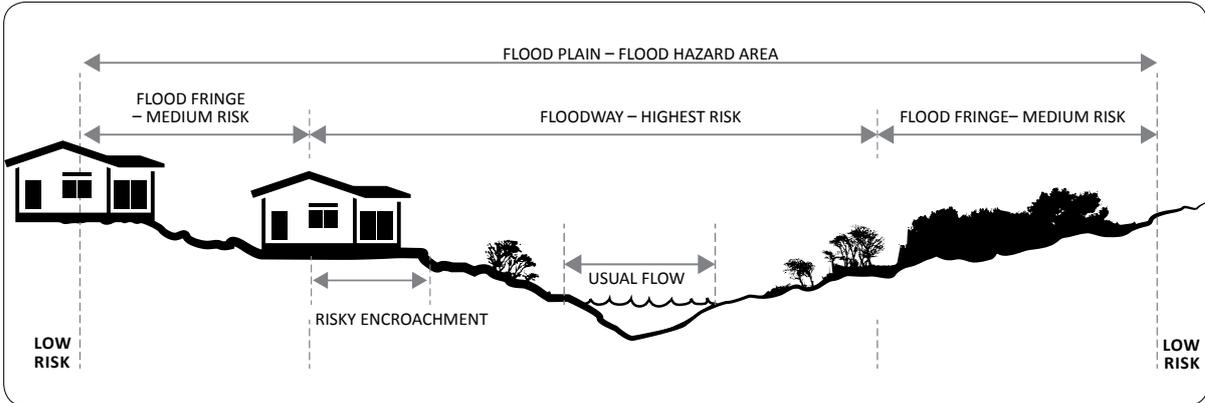


Count up all the YES's



**4.8 Rivers and streams**

Mark on this picture where you think your site is relative to a stream or river  
 – put a YES if it looks like it may be medium to high risk.



**4.9 Is the site at the top or bottom of a cliff?**

YES  NO

**4.10 Is there sea erosion at the bottom of a cliff?**

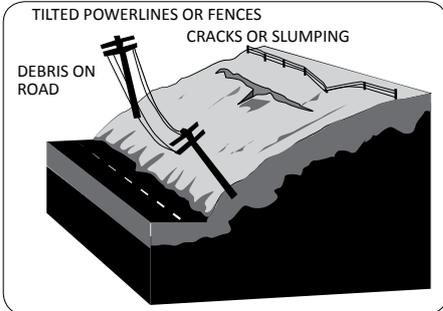
YES  NO  Not Coastal

Count up all the YES's



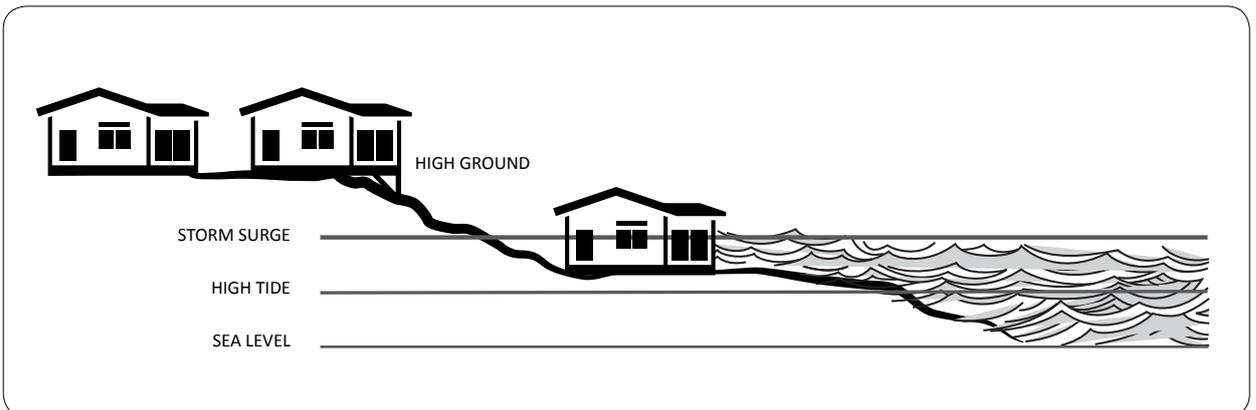
**4.11 Are there any signs of land movement?**

YES  NO



**4.12 Is the site less than three metres above high tide?**

YES  NO  Not Coastal

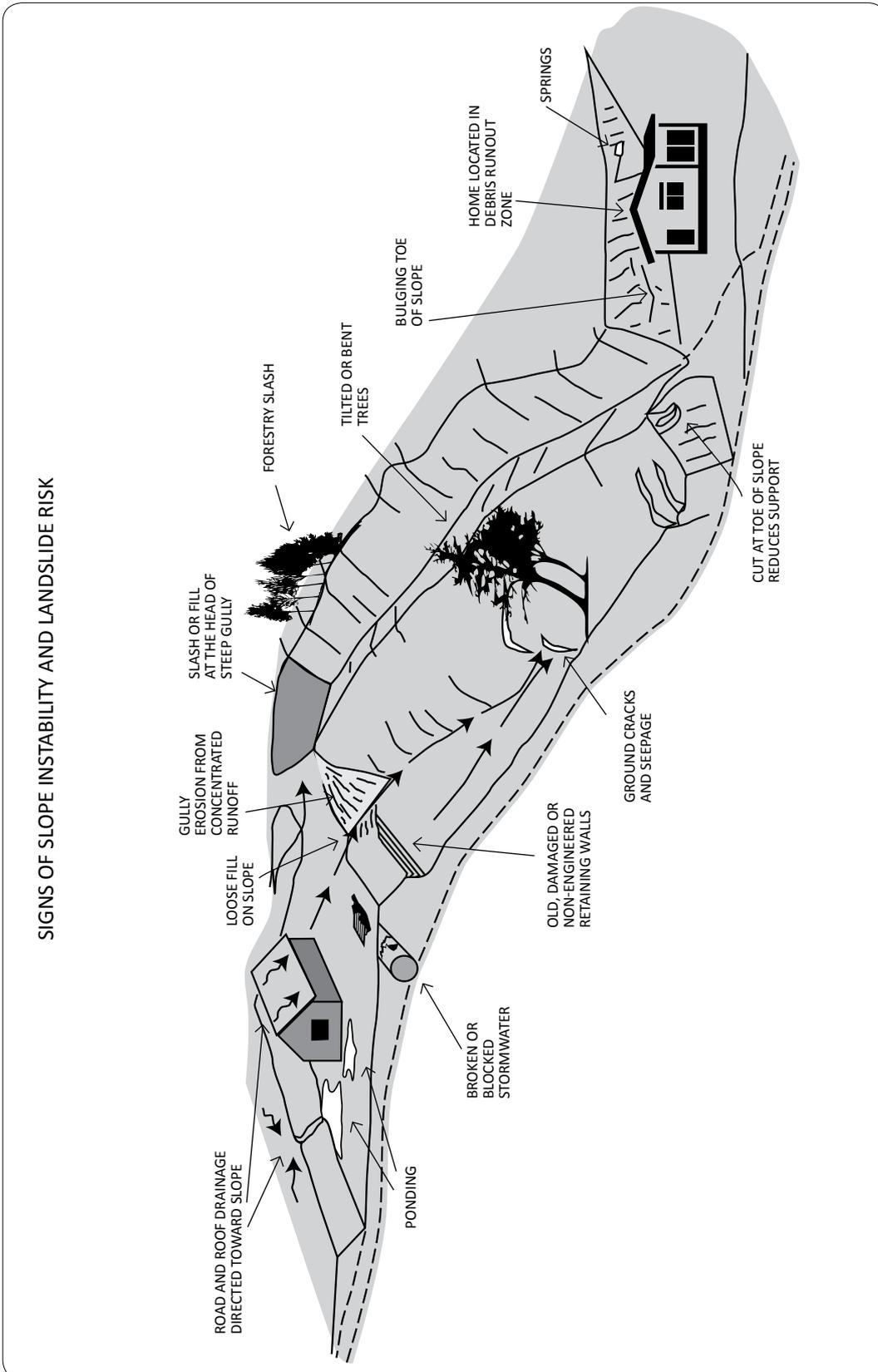


Count up all the YES's



### 4.13 Site instability

Have a look at this picture and put a YES for each thing that is similar on or around your site.



Count up all the YES's

**Write down the number of YES's you have for each section**

- |           |  |                          |
|-----------|--|--------------------------|
| <b>1.</b> | Ask Council section                          | Possible YES = <b>21</b> |
|           |  | <b>Actual YES =</b>      |
| <b>2.</b> | Ask the Seller, Real Estate Agent, Developer | Possible YES = <b>17</b> |
|           |  | <b>Actual YES =</b>      |
| <b>3.</b> | Research                                     | Possible YES = <b>6</b>  |
|           |  | <b>Actual YES =</b>      |
| <b>4.</b> | Your Observations                            | Possible YES = <b>26</b> |
|           |  | <b>Actual YES =</b>      |

Every YES is a vulnerability. You need to think carefully about each one. If you have lots of YES's on every page, dealing with all may be difficult and costly. But even if you have one or two YES'S think about the size of the risk. Some risks such as slips and repeated floods may be catastrophic or very costly over the long term.

## Some Information Sources

### From your local or regional council:

- Councils, both local and regional, often have hazard maps which model different exposures to hazards for:
  - coastal erosion (usually separate ones for coastal erosion, coastal storm inundation and tsunami)
  - river/stream flooding zones
  - landslide susceptibility
  - liquefaction potential.
- If these maps are not available for the site, ask to talk to the relevant council hazard analyst about the potential hazards that may affect the site.
- Always purchase a copy of the LIM report for your site and look for hazards tagged on the LIM.
- Online maps in planning documents (e.g. District Plan, Regional Plan, Coastal Plan, Regional Policy Statement).
- RMA consent applications that might affect the site.
- Past decisions by Council or the Environment Court, or applications near the site<sup>1</sup>.

### From a real estate agent, vendor, developer ask in writing or email:

- About any disclosures they might they might know of regarding hazards or nearby development.
- About flooding, storm events and slips in the locality as well as any that might have affected the specific site.
- Any engineering reports related to the building, development or site works. If there are get them to supply them to you.
- Whether there have been any insurance claims related to adverse natural events.

### Insurance sector:

- You can ask your insurer whether any specific issues are likely to arise around difficulties in insuring the buildings on the site or generally in your area.
- Check insurance cover. If you buy a vacant section you may not have insurance cover.

### Local library or museum:

- There is often newspaper and other local histories at local libraries that will report on the history of natural events in the area.
- If you have access to the internet search in Papers Past.

### NIWA <http://hwe.niwa.co.nz/>:

NIWA's New Zealand Historic Weather Events Catalog can be used to identify past weather hazard events that have affected the general area.

Irrespective of the vulnerabilities of a site, it is also worth thinking about the financial implications of your investment into land and house. Get independent financial advice. [www.sorted.org.nz](http://www.sorted.org.nz) is a good place to start and provides calculators and other resources to help you make good decisions for your retirement. [www.sorted.org.nz](http://www.sorted.org.nz) is run by the Commission for Financial Literacy and Retirement Income.

<sup>1</sup> <http://www.justice.govt.nz/courts/environment-court/search-environment-court-decisions-from-2006>

