

PART 5D - NATURAL HAZARDS

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PART 5D - NATURAL HAZARDS

5D.1 CONTENT AND STRUCTURE

The Plan recognises the responsibility imposed under Section 31 of the Act to control any actual or potential effects of the use, development or protection of land, including the implementation of rules for the avoidance or mitigation of natural hazards. A hazard is a condition or situation which has the potential to create or increase harm to people, property or the environment. Provisions governing the management of resources in this regard are included in this Part.

This Part is presented as follows -

- **Resource Management Issues**

This outlines the significant resource management issues concerning natural hazards in the district.

- **Resource Management Objectives and Policies**

This outlines how this Part of the Plan intends to deal with the identified natural hazard issues.

- **Resource Management Strategy**

This outlines the strategy for managing activities and development to take account of natural hazards.

- **Implementation**

This outlines and gives an explanation of the methods adopted to meet the objectives, policies and strategy for natural hazards.

- **Rules**

This specifies the controls adopted to ensure that the actual or potential effects of activities take account of natural hazards.

5D.2 RESOURCE MANAGEMENT ISSUES

Three primary natural hazard issues are identified in the Plan.

- Sea Level Rise and Climate Change.
- Flood Risk.
- Land Stability.

There are other natural hazards such as volcanic activity and earthquakes. However these lie outside the scope of the Plan.

5D.2.1 SEA LEVEL RISE AND CLIMATIC CHANGE

There is now a widely accepted consensus in the scientific community that sea levels will gradually rise over the next 50-100 years as a result of climate change.

The coastal landscape may be affected in some as yet undetermined manner by the impact of long-term sea level rise. In addition this long-term sea level rise may affect not only low lying areas, but also the ponding and discharge of stormwater from marine outlets. The Council will need to be guided by New Zealand Coastal Policy Statement, and the Regional Coastal Plan when determining the specific provisions for mitigation that should be included in the Plan.

5D.2.2 FLOOD RISK

On the Isthmus, flooding occurs as a result of the inability of the drainage system to handle the runoff from intense rainfall. The drainage system comprises primary watercourses and stormwater sewers, together with depressions and areas of land known as secondary flow paths. The primary system is designed to take the runoff from storms of specified frequency or return periods eg once in ten years. This runoff would be less than that from a storm with a return period of approximately once in 20 years, in which the stormwater flow additional to the once in 10 year storm would travel over the secondary flow path. For this reason the Council policy is to identify areas where secondary flow occurs and apply certain controls for the protection of the flow path itself, and any existing or proposed activities within. These controls usually involve the setting of minimum datum levels for activities, and restrictions on earthworks, solid foundations or fences, or any other type of development which may restrict or divert the passage of secondary flow. The "Auckland City Watercourse Guidelines" and related [bylaw](#) give more detailed information on development controls in watercourse and flood prone areas.

The amount of runoff from a storm is also related to the nature of the ground (eg rock or volcanic soil) and in particular to the proportion of impervious area (concrete driveways, house roofs etc). As a catchment is further developed, the amount of stormwater shed by it may be expected to increase, and can give rise to unacceptable flooding in the lower reaches.



5D.2.3 LAND STABILITY

The identification of land subject to slumping, subsidence or settlement is an ongoing matter addressed by the Council. Land movement may be caused by the injudicious placement of excavated material or other fill, unsupported excavations and the nature of steep slopes, especially if stripped of vegetative cover. In many cases stormwater can be a contributing factor to land slippage. Special attention to vegetative cover and stormwater disposal is necessary in areas of marginal stability. The Council has available for inspection at its offices maps showing the locality of land known to be of suspect stability. The map has been built up from test bores, analyses and observations over a period of time but does not guarantee that areas not identified are necessarily stable or free from soil movement.

In coastal areas, wave action and subsequent erosion can contribute to localised land movement. Remedial measures may require a resource consent from the Regional Council.

5D.3 RESOURCE MANAGEMENT OBJECTIVE AND POLICIES

Objective

To manage natural hazard prone areas so as to avoid adverse effects on activities and development.

Policy

- By developing and applying rules to activities and development to ensure that inappropriate or unsuitable development does not occur in areas of natural hazards.

5D.4 RESOURCE MANAGEMENT STRATEGY

The Council is empowered under the Act, to implement rules for the avoidance or mitigation of natural hazards. These include sea level rise and climate change, land stability and flooding. The identification of natural hazards is an ongoing activity carried out by the Council as part of the monitoring of the environment. Development and subdivision of land subject to a natural hazard will be subject to appropriate limitations. To this effect the Plan contains information and rules concerning known natural hazards, and hazardous areas.

Rules in this Plan limit building coverage and the amount of impervious area contained on a site by specifying proportions to be landscaped. The Council may also require developers to install detention tanks so as to limit the stormwater discharge from a property, or if the contour and

size of the property allows, to form a detention pond. Where flooding is likely to be hazardous, the Council will take steps to mitigate the occurrence by the construction of detention drains and ponding basins upstream in the catchment. Wherever possible, these works will be located on public land.

With regard to land stability the Council will require developers and subdividers to provide appropriate evidence that their sites are stable, and can be safely developed. Any constraints on development such as the nature of foundations, excavations and stormwater disposal will, where appropriate, be made subject to a consent notice issued under Section 221 of the Act.

Expected Outcomes

The Plan's strategy to address the question of natural hazards in the district will lead to the avoidance and mitigation of the problems arising from such circumstances.

5D.5 IMPLEMENTATION

A variety of techniques are applied within and outside the Plan to give effect to the strategy. The Plan addresses the problem of natural hazards in its general provisions, subdivision requirements, coastal provisions and activity zones. The Council's capital works programme will include measures to attend to the problem of risk through natural hazards. The Council's administration will provide information and advice on questions of hazard. The [Consolidated Bylaw](#) includes additional measures in this regard.

5D.6. RULES : NATURAL HAZARDS

5D.6.1 LAND SUBJECT TO FLOODING OR INSTABILITY

The following rule is complementary to other rules within the Plan to protect land from natural hazards.

- Any activity or development in a flood prone area shall comply with the following standard.

The annual exceedance probability flood protections and the minimum freeboard heights (in millimetres) above the specified AEP for the following activities shall be:



Activity	AEP - annual exceedence probability			
	1 in 10 year flood	1 in 50 year flood	1 in 100 year flood	Flood Prone Area
Non-habitable residential	200mm			
Business		300mm		200mm
Residential			500mm	300mm
Community including - schools, halls, utilities.			500mm	300mm

Note: These measurements are to be taken from the top of the average level of floodwaters expected in these occurrences. To demonstrate compliance the Council will require a certificate from a registered engineer indicating that the proposed activity or development meets the above standards. Flood prone areas are defined on the Council’s Detailed Catchment Management Plans, where these exist, and elsewhere on the Flood Prone Area maps. Both these documents are available at Council Offices.

- Any activity or development in a flood prone area which does not meet the above standards is a restricted discretionary activity, (in terms of Clause 4.3.2.6 RESTRICTED DISCRETIONARY ACTIVITIES) and will be assessed against the criteria of Clause 5D.6.2 CRITERIA FOR ASSESSING RESOURCE CONSENTS.
- Any use, development or subdivision of land known to be subject to instability is a restricted discretionary activity, (in terms of Clause 4.3.2.6 RESTRICTED DISCRETIONARY ACTIVITIES) and will be assessed against the criteria of Clause 5D.6.2 CRITERIA FOR ASSESSING RESOURCE CONSENTS.

Note: The Council holds maps showing known areas of instability. These maps are constantly updated as additional problem areas are identified.

5D.6.2 CRITERIA FOR ASSESSING RESOURCE CONSENTS

Any application will be considered having regard to the provisions of PART 4 - GENERAL PROVISIONS AND PROCEDURES, and the following -

- In exercising its discretion to grant a consent, the Council will consider the effects of the activity, development or subdivision, in the avoidance or mitigation of the natural hazards identified, together with any adverse effects generally on the environment.

- Any application will be required to be accompanied by an engineering assessment, and investigative evidence of the site which indicates that the site can be safely developed. The assessment shall also indicate any measures to be taken to mitigate any adverse effects of the natural hazards.
- All areas identified as secondary flow paths for stormwater shall be kept clear of obstructions, structures, and vegetation that are likely to divert or significantly impede the flow.
- Conditions of consent may be imposed limiting development to certain practices including foundation design, excavation and stormwater disposal.
- Conditions may also be imposed requiring that provision be made to the satisfaction of the Council for the protection of land and development from erosion, subsidence, slippage or inundation from any source.

Explanation

The Act requires the Council to implement rules for the avoidance and mitigation of natural hazards. By requiring a resource consent for activity on land known to be subject to flooding or instability the Council can ensure that either suitable measures are being undertaken to protect the activity, or that where measures cannot mitigate the effects of the natural hazard, no activity occurs. The Council is constantly upgrading its records to ensure that areas subject to flooding and instability are identified and areas resolved by capital works programmes deleted.

